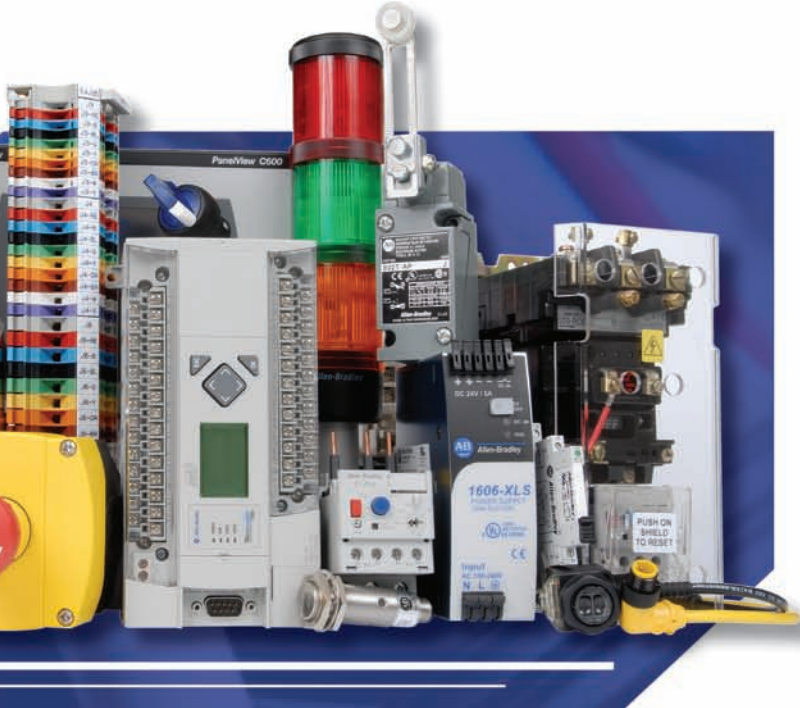


Essential Components



Get the right components, at the right price, right where you need them.



Power



Logic



Operator Interface



Sensors



Safety



Connectivity

LISTEN.
THINK.
SOLVE.

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Essential Components



Get the right components,
at the right price, right
where you need them.

Within these pages, you will find an extensive selection of your essential Allen-Bradley® component products.

Look through this catalogue, call your local Rockwell Automation representative, or visit us online.

There are many options to help you choose the products that are fundamental to your success and give you the greatest value.

With Allen-Bradley components, you will find the highest quality at a fair price, an intuitive product selection, quick turnaround time, and fast delivery. Furthermore, you will get components that perform to your specifications, with the services and support you demand. Rockwell Automation offers quality Allen-Bradley industrial components that have been used by customers like you for more than 100 years.

Catalogue numbers in **bold** are typically the highest available products.

This catalogue only highlights our most essential components; for a complete product selection, visit our online catalogue at www.ab.com/catalogs.

Broad Selection of Quality Products

- Optimise machine performance with the right product
- Compliant with international standards
- Extensive selection for single-source convenience and supply chain efficiencies
- Quality components designed for your critical applications

Flexible, Hassle-Free Ordering

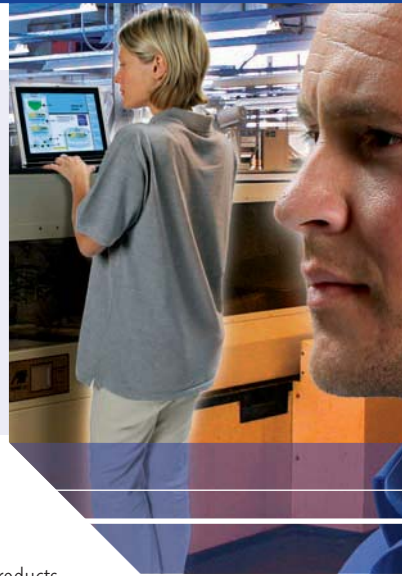
- Call your local Rockwell Automation representative
- Product Selection Toolbox allows you to select and configure the products you need with confidence
- Visit www.rockwellautomation.com/distributor to find your local Allen-Bradley® Distributor(s)

Advanced Services & Support

- Responsive, knowledgeable network of local distributors and product representatives, available globally in more than 80 countries
- Local technical specialists to make installation and integration easy
- Post-sale support to keep operation and maintenance optimal

Save Time & Reduce Costs

- Increase quality, productivity, and flexibility while reducing costs
- Competitive prices and local service and support keep your project within budget and on schedule



Essential Components

Services & Support

Essential Components, Essential Services

Optimise the performance and utilisation of your automation assets to meet your production and business goals.

Assessment Services

A service assessment will identify the personnel and equipment issues that hinder your production performance and help you develop a maintenance strategy that will maximise your overall equipment effectiveness and return on net assets.

Condition Monitoring

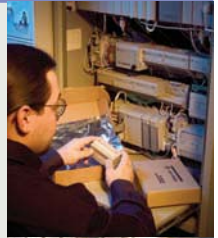
Condition Monitoring products and services will reduce your costs by monitoring and analyzing the condition of your mechanical assets to optimise scheduled downtime, labour, and materials.

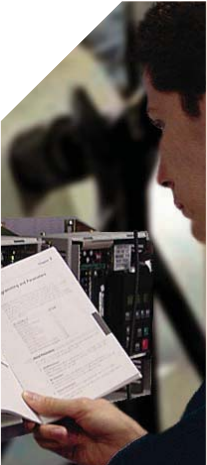
Asset Management Services

You can maximise the return on your automation assets with MRO process and spare parts management. Proactively managing your repair process and spare parts inventory can reduce unplanned downtime, minimise carrying costs, and extend your equipment life.

Training Services

You can significantly improve the productivity and efficiency of your plant floor staff through a performance-based training program utilizing our three core training offerings — instructor-led training, self-paced training, and competency testing. A performance-based training approach will improve retention of the knowledge and skills required to maintain both legacy automation systems and today's advanced automation technologies.





On-Site Support Services

With our OnSite Support Services, Rockwell Automation will send Field Service Professionals to assist your maintenance staff with preventive and reactive tasks. Field support engineers are available on a full-time, scheduled, or as-needed basis to meet your specific needs and maintenance strategy.



Repair Services

A reliable repair vendor is a critical component of your maintenance strategy. Rockwell Automation provides comprehensive repair services, including remanufacturing service, for a wide variety of Rockwell Automation products, repair services for non-Rockwell Automation products, exchange services for over 12,000 Allen-Bradley catalogue products, and renewal parts for many legacy Allen-Bradley products. Repairs by Rockwell Automation resulted in 80% fewer reworks compared with those performed by a third-party vendor.



Phone Support Services

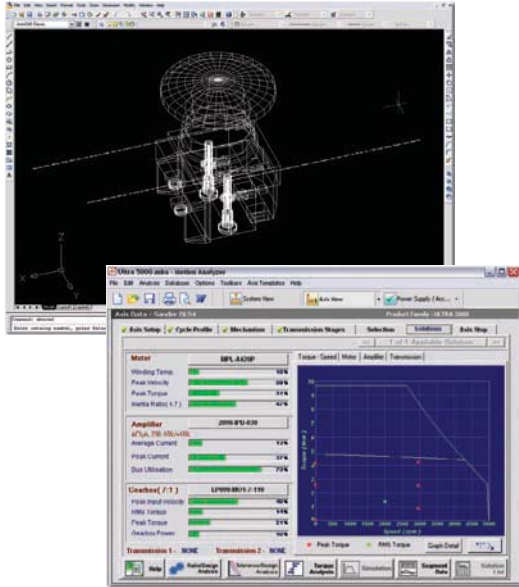
With Rockwell Automation Phone Support Services, you will have real-time, direct access to automation specialists. Multiple service levels provide the flexibility to choose the support features that best meet your needs based on your application, products used, hours of operation, and staffing.

Essential Components



Product Selection Toolbox

The Rockwell Automation Product Selection Toolbox (PST) offers a complete suite of user tools for product selection and configuration across product lines from project conception through to final design. From push buttons to drives to motor control centres and fully networked control systems, you'll find the product information and configuration assistance you need to help you and your customers succeed with Rockwell Automation.



Product Selection & System Design Tools Integrated Architecture Builder



- Lets you quickly develop Logix/NetLinx control system configurations with BOM and reports
- Integration with configurator allows configuration of PowerFlex drives and ArmorStart motor controllers
- Motion control drive/motor combinations and accessories can be added through links to Motion Analyzer and Motion Selector
- New Ethernet capabilities include Stratix switches and physical media with enhanced graphical views
- IAB output can be easily exported to ProposalWorks to take advantage of extended proposal generation features, and supplementary data

CenterONE



- Intuitive software application designed specifically for configuring Motor Control Centers
- User friendly interface helps reduce error and enables customers to get their MCCs quickly

MCS Star



MCS Star™
Design MCS Bus Systems

- Helps you configure Motor Control System starters for rated motor voltages from 230 . . . 690V
- Program provides the correct catalogue number, wiring diagram, and layout drawing for starters of your choice
- Provides assistance in selecting and dimensioning all of required busbar rack components

MotionAnalyzer



MotionAnalyzer
Design Motion Control Systems

- Assists the user in selecting correct motor for application, proper drive, and gearbox (if required)
- Effective optimization capabilities allow user to get the most out of the selected motor and drive combination

Rail Builder



RailBuilder™
Design DIN Mountable Systems

- Simplifies the design of custom terminal block rails
- Allows you to select and place terminal blocks on mounting rail along with specifying labeling of terminal blocks, locating jumper bars between blocks, and automatically selecting end barriers, and partition plates

ProposalWorks



ProposalWorks™
Create Proposals and Submittals

- Provides access to information on a broad range of Allen-Bradley products and services
- Easy product selection interface to make it a snap to determine the exact catalogue number for the item you need
- Access to current list pricing, and a comprehensive supplemental product information list
- Contains features such as product selection wizards, agreement pricing, a spare parts generator, and the ability to separate part numbers to see what Rockwell Automation components comprise? (comprise) them
- All of these features and more can help you select the correct product based on your requirements and give your customers the information they need fast

eCADWorks



eCADWorks™
CAD Drawings Source

- Allows you to select product 3D CAD drawings in AutoCAD
- Provides you with access to thousands of drawings for a wide range of Allen-Bradley products as well as assistance configuring catalogue numbers

Essential Components

CrossWorks



- Assists in crossing competitive part numbers to Rockwell Automation equivalents
- Gives users the ability to submit crosses directly to PST and they will provide a cross or users can go to ab.com/e-tools and look up existing cross references in the database

Current



- Allows users to have the most up to date applications, product, price, and supplementary information
- All programs are scheduled for update every three weeks

HOW TO ACCESS PRODUCT SELECTION TOOLBOX?

How to
get
access?



✓ Gain instant access online at www.ab.com/pst , or



✓ order your personal Product Selection Toolbox DVD, which contains the complete set of tools, from your local Rockwell Automation representative today.



Bulletin 140F, 140A, 140M, 140-CMN
Motor Protection Circuit Breakers
 Product Line Overview

Motor Protection Circuit Breakers



Bulletin	140F, MCS Fuse Holders	140A, Manual Motor Starter	140M-C2	140M-D8	140M-F8
Rated Current, max. I_e	32 A	16 A	25 A	25 A	45 A
Current Rating	1...16 A	0.1...16 A	0.1...25 A	1.6...25 A	6.3...45 A
Short Circuit Protection	Depends on fuse	✓	✓	✓	✓
Overload Protection	—	✓	✓	✓	✓
Trip Class	—	10	10	10	10
Standards Compliance:					
CSA 22.2, No. 14	✓	✓	✓	✓	✓
UL 508 Manual, Self Protected (Type E)	✓	✓	✓	✓	✓
UL 508 (Group Install.)	✓	✓	✓	✓	✓
UL 508 (Overload Protection)	✓	✓	✓	✓	✓
IEC 60947-2	✓	✓	✓	✓	✓
IEC 60947-4	✓	✓	✓	✓	✓
CE	✓	✓	✓	✓	✓
Accessories					
Ext. Rotary Operator	—	—	✓	✓	✓
Flex Cable Operator	—	—	—	—	—
Auxiliary Contacts	✓	✓	✓	✓	✓
Trip Indication Contacts	Trip indication light	✓	✓	✓	✓
Product Selection	See page 2-52	See page 1-5	See page 1-8		

Motor Protection Circuit Breakers

Bulletin	140-CMN	140M-I	140M-J	140M-L
Rated Current, max. I^p	90 A	205 A	250 A	630 A
Current Rating	16...90 A	40...205 A	20...250 A	40...630 A
Short Circuit Protection	✓	✓	✓	✓
Overload Protection	✓	✓	✓	✓
Trip Class	10	5...20	10...30	10...30
Standards Compliance:				
CSA 22.2, No. 14	✓	✓	✓	✓
UL 508 Manual, Self Protected (Type E)	—	—	—	—
UL 508 (Group Install.)	✓	—	—	—
UL 508 (Overload Protection)	✓	✓	✓	✓
UL 489	—	✓	✓	✓
IEC 60947-2	✓	✓	✓	✓
IEC 60947-4	✓	✓	✓	✓
CE	✓	✓	✓	✓
Accessories				
Ext. Rotary Operator	✓	✓	✓	✓
Flex Cable Operator	—	✓	✓	✓
Auxiliary Contacts	✓	✓	✓	✓
Trip Indication Contacts	✓	✓	✓	✓
Product Selection	See page 1-8	See page 1-9		

Motor Circuit Protectors

Product Line Overview

Motor Circuit Breakers

- Current range 0.16...1200 A
- UL Listed/Recognized for motor loads
 - Short-circuit protection (magnetic trip only)
 - Overload protection must be provided separately
- Visible trip indication
- High current limiting
- High switching capacity



	C-Frame	D-Frame	F-Frame	H-Frame	J-Frame	L-Frame	N-Frame
Max. Current I_e	2.5 A	25 A	45 A	100 A	250 A	600 A	1200 A
Current Rating	0.16...2.5 A	2.5...25 A	25...45 A	3...100 A	70...250 A	125...600 A	640...1200 A
Short Circuit Protection	✓	✓	✓	✓	✓	✓	✓

Standards Compliance:

CSA 22.2, No. 14	✓	✓	✓				
CSA 22.2, No. 5	—	—	—	✓	✓	✓	✓
UL 508 (Group Install.)	✓	✓	✓				
UL489 (Recognized)	—	—	—	✓	✓	✓	✓
IEC 60947-2	✓	✓	✓	✓	✓	✓	✓
CE	✓	✓	✓	✓	✓	✓	✓

Accessories

Ext. Rotary Operator	✓	✓	✓	✓	✓	✓	✓
Flex Cable Operator	—	—	—	✓	✓	✓	✓
Auxiliary Contacts	✓	✓	✓	✓	✓	✓	✓
Trip Indication Contacts	✓	✓	✓	✓	✓	✓	✓

Product Selection	See page 1-10			See page 1-11			
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Manual Motor Starters 140A

- Current Range 0.1...16 A
- Motor Protection
- For Economical Motor Starters
- Usable as Main Switch
- Temperature Compensated
- Standards and Approvals: IEC, cULus



3-Pole Manual Motor Starters

Rated Operational Current (I_n)	Motor Current Adjustment Range	Switching of 3-Phase AC Motors AC-2, AC-3 @ 400/415V (50 Hz) *		Cat. No.
		[A]	[kW]	
0.16	0.1...0.16	0.02	65	140A-C2A-A16
0.25	0.16...0.25	0.06	65	140A-C2A-A25
0.4	0.25...0.4	0.09	65	140A-C2A-A40
0.63	0.4...0.63	0.12/0.18	65	140A-C2A-A63
1	0.63...1.0	0.25	65	140A-C2A-B10
1.6	1.0...1.6	0.37/0.55	65	140A-C2A-B16
2.5	1.6...2.5	0.75	50	140A-C2A-B25
4	2.5...4.0	1.1/1.5	10	140A-C2A-B40
6.3	4.0...6.3	2.2	10	140A-C2A-B63
10	6.3...10	3.0/4.0	8	140A-C2A-C10
16	10...16	5.5/7.5	6	140A-C2A-C16

* Power ratings: Preferred values according to IEC 60072-1

Accessories 140A






	Description	Term. No.	Switching		For Use With	Cat. No.
			N.O.	N.C.		
	Auxiliary Contact for Flush Mounting 1-pole No additional space required	13-14	1	0	140A	140A-C-AEA10
		33-34	1	0		140A-C-AEA210
		11-12	0	1		140A-C-AEA01
		31-32	0	1		140A-C-AEA201
	Auxiliary Contact for Left-side Mounting 2-pole Adds 9 mm to the width of the Manual Motor Starter Use compact bus bars with 54 mm spacing	13-14 23-24	2	0	140A	140A-C-ASA20
		13-14 21-22	1	1		140A-C-ASA11
		11-12 21-22	0	2		140A-C-ASA02

See Publication 140-SG001... for complete product information.

Motor Protection Circuit Breakers









Accessories

Accessories 140A

	Description	For Use With	Cat. No.	
 <p>Undervoltage Trip Release For right-side mounting Adds 18 mm to the width of the Manual Motor Starter</p>	24V 50 Hz	140A	140A-C-UXXK	
	220...230V 50 Hz		140A-C-UXF	
	400V 50 Hz / 460V 60 Hz		140A-C-UXN	
	415V 50 Hz / 480V 60 Hz		140A-C-UXB	
	110V 50 Hz / 120V 60 Hz		140A-C-UXD	
	110V 50 / 60 Hz		140A-C-UXXKD	
 <p>Shunt Trip Release For right-side mounting Adds 18 mm to the width of the Manual Motor Starter</p>	24V 50 Hz	140A	140A-C-SXK	
	220...230V 50 Hz		140A-C-SXF	
	400V 50 Hz / 460V 60 Hz		140A-C-SXN	
	415V 50 Hz / 480V 60 Hz		140A-C-SXB	
	110V 50 Hz / 120V 60 Hz		140A-C-SXD	
	110V 50 / 60 Hz		140A-C-SXKD	
 <p>Compact Bus Bars 45 mm spacing for manual motor starters with flush-mounted auxiliary contact blocks</p> <p>Compact Bus Bars 54 mm spacing for manual motor starters with side-mounted auxiliary contact blocks</p>	2 x 3 Terminal links	140A	140A-C-W452	
	3 x 3 Terminal links		140A-C-W453	
	4 x 3 Terminal links		140A-C-W454	
	5 x 3 Terminal links		140A-C-W455	
	<p>Compact Bus Bars 54 mm spacing for manual motor starters with side-mounted auxiliary contact blocks</p>	2 x 3 Terminal links	140A	140A-C-W542
		3 x 3 Terminal links		140A-C-W543
		4 x 3 Terminal links		140A-C-W544
		5 x 3 Terminal links		140A-C-W545
 <p>Bus Bar Feeder Terminal Supply of compact busbars Increases wiring capacity</p>		140A-C-W	140A-C-WT	
 <p>Blank Space Cover For covering unused terminal links</p>		140A-C-W	140A-C-WS	

See Publication 140-SG001... for complete product information.

Accessories 140A

	Description		For Use With	Cat. No.	
	Enclosures for Surface Mounting With centre marks for two indicator lights Includes protective earth and neutral wire terminals	Protection Class: IP41	140A	140A-C-EA41	
		Protection Class: IP55 (with seal and protective membrane)	140A	140A-C-EA55	
	Enclosures for Flush Mounting Includes protective earth and neutral wire terminals	Protection Class: IP41	140A	140A-C-EE41	
		Protection Class: IP55 (with seal and protective membrane)	140A	140A-C-EE55	
	Emergency-Stop Push Button Set For use with enclosures Twist to release		140A-C-E...	140A-C-MT	
	Emergency-Stop Push Button Set For use with enclosures Key release		140A-C-E...	140A-C-MK	
	Button Membrane For IP55 enclosures Replacement part with four screws (mounting frame included)		140A-C-EA55 140A-C-EE55	140A-C-N55	
	Pilot Lights Length of connection leads 180 mm, includes lamp, protection class IP54.	Green	120V	198E-A..., 198E-C..., 140A-C-E...	140-LG120
			240V		140-LG240
			400V		140-LG400
		Red	120V	198E-A..., 198E-C..., 140A-C-E...	140-LR120
			240V		140-LR240
			400V		140-LR400
		White	120V	198E-A..., 198E-C..., 140A-C-E...	140-LW120
			240V		140-LW240
			400V		140-LW400
	Locking Arrangement Suitable for enclosures 140A-C-E... For 1...3 padlocks with ø 4...8 mm		140A-C-E...	140A-C-M3E	
	Locking Arrangement For locking ON-button of the Manual Motor Starter For 1...3 padlocks with ø 4...6 mm		140A	140A-C-M3	
	Screw Adapter Hut (DIN) rail 35 x 7.5 mm, length 44 mm		140A	140A-C-N12	

See Publication 140-SG001... for complete product information.

Motor Protection Circuit Breakers

Product Selection

Motor Protection Circuit Breakers 140M, 140-CMN

- Short Circuit Protection — Standard Magnetic Trip ($13 \times I_e$ max.)
- Overload Protection — Trip Class 10
- Ambient Temperature Compensation
- Phase-loss Protection
- ATEX for C- and D-Frame
- Standards and Approvals: IEC, cULus



Rated Operational Current (I_e)	Motor Current Adjustment Range	Switching of 3-Phase AC Motors AC-2, AC-3 @ 400/415V (50 Hz)			Cat. No.
		[kW]	I_{cu} [kA]	I_{cs} [kA]	
C-Frame					
0.16	0.10...0.16	0.02	100	100	* 140M-C2E-A16
0.25	0.16...0.25	0.06	100	100	* 140M-C2E-A25
0.4	0.25...0.40	0.09	100	100	* 140M-C2E-A40
0.63	0.40...0.63	0.18	100	100	* 140M-C2E-A63
1	0.63...1.0	0.25	100	100	* 140M-C2E-B10
1.6	1.0...1.6	0.55	100	100	* 140M-C2E-B16
2.5	1.6...2.5	0.75	100	100	* 140M-C2E-B25
4	2.5...4.0	1.5	100	100	* 140M-C2E-B40
6.3	4.0...6.3	2.2	100	100	* 140M-C2E-B63
10	6.3...10	4	100	100	* 140M-C2E-C10
16	10...16	7.5	50	50	* 140M-C2E-C16
20	14.5...20	10	15	15	* 140M-C2E-C20
25	18...25	11	15	15	* 140M-C2E-C25
D-Frame					
2.5	1.6...2.5	0.75	100	100	140M-D8E-B25
4	2.5...4.0	1.5	100	100	140M-D8E-B40
6.3	4.0...6.3	2.2	100	100	140M-D8E-B63
10	6.3...10	4	100	100	140M-D8E-C10
16	10...16	7.5	100	100	140M-D8E-C16
20	14.5...20	10	65	25	140M-D8E-C20
25	18...25	11	65	25	140M-D8E-C25
F-Frame					
10	6.3...10	4	65	50	140M-F8E-C10
16	10...16	7.5	65	50	140M-F8E-C16
20	14.5...20	10	65	50	140M-F8E-C20
25	18...25	11	65	50	140M-F8E-C25
32	23...32	15	65	50	140M-F8E-C32
45	32...45	22	65	50	140M-F8E-C45
CMN-Frame					
25	16...25	13	65	65	140-CMN-2500
40	25...40	22	65	50	140-CMN-4000
63	40...63	32	65	50	140-CMN-6300
90	63...90	45	50	25	140-CMN-9000

* May be ordered in package quantities of 20. Add letter **M** to the end of the cat. no. (Example: 140M-C2E-A16M).

Motor Protection Circuit Breakers 140M-I, -J, -L

- Short Circuit Protection — Standard Magnetic Trip (Fixed at $12...15 \times I^{\phi}$)
- Overload Protection — Trip Class: 140M-I, 5...20 (Adjustable); 140M-J, -L, 10...30 (Adjustable)
- UL/CSA, IEC, CE



Cat. No. 140M-I



Cat. No. 140M-J



Cat. No. 140M-L

Rated Operational Current (I_e) [A]	Motor Current Adjustment Range [A]	Ultimate Interrupting Current [kA] (I_{cm})			Cat. No.
		400V	600V		
I-Frame					
80	40...80	70	30	*	140M-I8E-C80E
100	80...100	70	30	*	140M-I8E-D10E
160	100...160	70	30	*	140M-I8E-D16E
205	160...205	70	30	*	140M-I8E-D20E
J-Frame					
50	20...50	25	18		140M-J2E-C50
100	40...100	25	18		140M-J2E-D10
160	64...160	25	18		140M-J2E-D16
250	100...250	25	18		140M-J2E-D25
L-Frame					
50	20...50	70	25		140M-J8E-C50
100	40...100	70	25		140M-J8E-D10
160	64...160	70	25		140M-J8E-D16
250	100...250	70	25		140M-J8E-D25
L-Frame					
250	100...250	40	18		140M-L2E-D25
400	160...400	40	18		140M-L2E-D40
630	250...630	40	18		140M-L2E-D63
L-Frame					
250	100...250	70	25		140M-L8E-D25
400	160...400	70	25		140M-L8E-D40
630	250...630	70	25		140M-L8E-D63

* IEC approvals and CE marking only
 Accessories for 140M-I, -J, -L see page 1-22

Motor Circuit Protectors

Product Selection

Circuit Breakers 140M, Short-Circuit Protection for Starters

- Short Circuit Protection — Standard Magnetic Trip ($I_i=13 \times I^e$ max.)
- Instantaneous Trip Circuit Breakers (ICB) ‡
- For Trip Class 10 Motor Applications ✱
- Standards and Approvals: IEC, cULus, UL 508



Rated Operational Current (I_e)	Switching of 3-Phase AC Motors AC-2, AC-3 @ 400/415V (50 Hz)				Cat. No.
	[A]	[kW]	I_{cu} [kA]		
C-Frame					
0.16	0.02	100	100	*	140M-C2N-A16
0.25	0.06	100	100	*	140M-C2N-A25
0.4	0.09	100	100	*	140M-C2N-A40
0.63	0.18	100	100	*	140M-C2N-A63
1	0.25	100	100	*	140M-C2N-B10
1.6	0.55	100	100	*	140M-C2N-B16
2.5	0.75	100	100	*	140M-C2N-B25
D-Frame					
2.5	0.75	100	100		140M-D8N-B25
4	1.5	100	100		140M-D8N-B40
6.3	2.2	100	100		140M-D8N-B63
10	4	100	100		140M-D8N-C10
16	7.5	100	50		140M-D8N-C16
25	11	65	25		140M-D8N-C25
F-Frame					
25	11	65	50		140M-F8N-C25
32	15	65	50		140M-F8N-C32
45	22	65	50		140M-F8N-C45

* May be ordered in package quantities of 20. Add letter **M** to the end of the cat. no. (Example: **140M-C2N-A16M**).

✱ For Heavy Duty (exceeding Trip Class 10) starting applications, please consult your local sales office.

‡ Instantaneous Trip Circuit Breakers (ICB) according to IEC-60947-2, Ed. 4, Annex O

Accessories see page 1-12

Motor Circuit Protectors (MCP)

- Short Circuit Protection — Magnetic Trip (Adjustable at $3...10 \times I^{\phi}$)
- Overload Protection — None (Magnetic Trip Only)
- Standards and Approvals: IEC, cULus, UL 489



Cat. No. 140M-H



Cat. No. 140M-J



Cat. No. 140M-L










Rated Operational Current (I_{ϕ})	Magnetic Trip Current	Switching of 3-Phase AC Motors AC-2, AC-3 @ 400/415V (50 Hz)		Cat. No.
[A]	[A]	[kW]	I_{cu} [kA] *	
H-Frame				
3	9...33	0.75	(65)	140M-H8P-B30
7	21...77	2.2	(65)	140M-H8P-B70
15	45...165	5.5	(65)	140M-H8P-C15
30	90...330	11	(65)	140M-H8P-C30
50	150...550	22	(65)	140M-H8P-C50
70	210...770	30	(65)	140M-H8P-C70
100	300...1100	45	(65)	140M-H8P-D10
100	500...1500	55	(65)	140M-H8R-D10
J-Frame				
100	500...1000	37	(65)	140M-J8P-D10
125	625...1250	45	(65)	140M-J8P-D12
150	750...1500	55	(65)	140M-J8P-D15
175	875...1750	55	(65)	140M-J8P-D17
200	1000...2000	75	(65)	140M-J8P-D20
225	1125...2250	90	(65)	140M-J8P-D22
250	1250...2500	90	(65)	140M-J8P-D25
L-Frame				
225	1125...2250	90	(65)	140M-L8P-D22
250	1250...2500	90	(65)	140M-L8P-D25
300	1500...3000	110	(65)	140M-L8P-D30
350	1750...3500	132	(65)	140M-L8P-D35
400	2000...4000	160	(65)	140M-L8P-D40
450	2250...4500	160	(65)	140M-L8P-D45
500	2500...5000	200	(65)	140M-L8P-D50
600	3000...6000	250	(65)	140M-L8P-D60
N-Frame				
800	1600...6400	250	(65)	140M-N8P-D80
1200	2400...9600	400	(65)	140M-N8P-E12

* Tested @ 480V 60 Hz according UL 489
 Accessories for 140M-H, -J, -L, N see page 1-22

Motor Protection Circuit Breakers







Accessories

Accessories 140M, 140-CMN

	Description	Term. No.			For Use With	*	Cat. No.
			N.O.	N.C.			
		13-14	1	0	140M-C, D, F	*	140M-C-AFA10
		11-12	0	1	140M-C, D, F		140M-C-AFA01
	Front-Mounted Auxiliary Contact 1-pole or 2-pole No additional space required -One only per MPCB	13-14	1	1	140M-C, D, F	*	140M-C-AFA11
		21-22					
		13-14	2	0	140M-C, D, F		140M-C-AFA20
		23-24					
		11-12	0	2	140M-C, D, F		140M-C-AFA02
		21-22					
	Right Side-Mounted Auxiliary Contact 2-pole Adds 9 mm to the width of the device -Two per MPCB	33-34	2	0	140M-C, D, F		140M-C-ASA20
		43-44					
		31-32	0	2	140M-C, D, F		140M-C-ASA02
		41-42					
		33-34	1	1	140M-C, D, F	*	140M-C-ASA11
41-42							
	Front-Mounted Trip Contact 2-pole Indicates tripping of device No additional space required	13-14	2	0	140M-C, D, F		140M-C-AFAR10A10
		27-28					
		11-12	1	1	140M-C, D, F		140M-C-AFAR10A01
		27-28					
	Right-Side Mounted Trip Contact 2-pole Indicates tripping of Motor Protection Circuit Breaker Adds 9 mm to the width of the circuit breaker -One only per MPCB -A right-side mounted auxiliary contact may be tandem mounted on top of this Trip Contact	57-58	2	0	140M-C, D, F		140M-C-ASAR10M10
		67-68					
		57-58	1	1	140M-C, D, F		140M-C-ASAR10M01
		65-66					
		55-56	1	1	140M-C, D, F		140M-C-ASAR01M10
		67-68					
		55-56	0	2	140M-C, D, F		140M-C-ASAR01M01
		65-66					
77-78	1	1	140M-C, D, F		140M-C-ASAM11		
65-66							
	Front-Mounted Auxiliary Contact Internal 2-pole -One per MPCB	13-14	2	0	140-CMN		140-CA20
		23-24					
		11-12	0	2	140-CMN		140-CA02
		21-22					
		13-14	1	1	140-CMN		140-CA11
21-22							
	Front-Mounted Trip-Indicating Auxiliary Contact Internal 2-pole -One per MPCB	37-38	2	0	140-CMN		140-CT10-10
		43-44					
		35-36	0	2	140-CMN		140-CT01-01
		41-42					
		35-36	1	1	140-CMN		140-CT01-10
		43-44					
		37-38	1	1	140-CMN		140-CT10-01
41-42							

* May be ordered in package quantities of 10. Add letter **M** to the end of the cat. no. (Example: **140M-C-AFA10M**).








Accessories 140M, 140-CM

	Description	Trip Rating	For Use With	Cat. No.
	Undervoltage Trip Left-side mounted Adds 18 mm to the width of the circuit breaker Automatically trips MPCB/MCP when voltage falls below 35...70%	24V, 50 Hz	140M-C, D, F	140M-C-UXXK
		110V, 50 Hz		140M-C-UXC
		220...230V, 50 Hz		140M-C-UXF
		380...400V, 50 Hz		140M-C-UXN
		480V, 60 Hz/415V, 50 Hz		140M-C-UXB
	Undervoltage Trip Left-side mounted Two early make contacts integrated Adds 18 mm to the width of the circuit breaker Automatically trips MPCB/MCP when voltage falls below 35...70%	24V, 50 Hz	140M-C, D, F	140M-C-UCK
		110V, 50 Hz		140M-C-UCC
		220...230V, 50 Hz		140M-C-UCF
		380...400V, 50 Hz		140M-C-UCN
		480V, 60 Hz/415V, 50 Hz		140M-C-UCB
	Shunt Trip Left-side mounted Adds 18 mm to the width of the circuit breaker Trips motor protector when voltage is removed	24V, 50 Hz	140M-C, D, F	140M-C-SNK
		110V, 50 Hz		140M-C-SNC
		220...230V, 50 Hz		140M-C-SNF
		380...400V, 50 Hz		140M-C-SNN
		480V, 60 Hz/415V, 50 Hz		140M-C-SNB
	Undervoltage Trip Unit Internal, front-mounted Integrated short-circuit trip indication Automatically trips MPCB when voltage falls below 35...70%	24V, 50/60 Hz	140-CMN	140-CUV-KJ
		110V, 50 Hz/120V, 60 Hz		140-CUV-D
		220V, 50 Hz/240V, 60 Hz		140-CUV-A
	Shunt Trip Unit Internal, front-mounted Integrated short-circuit trip indication Provides remote tripping of the MPCB	24V, 50/60 Hz	140-CMN	140-CRT-KJ
		110V, 50 Hz/120V, 60 Hz		140-CRT-D
		220V, 50 Hz/240V, 60 Hz		140-CRT-A
	Communication Module DeviceNet Starter Auxiliary DSA I/O for Distributed Starters, see page 1-35			

Motor Protection Circuit Breakers





Accessories

Accessories 140M, 140-CM

	Description	For Use With	Cat. No.
	Lockable Twist Knob For one padlock 4...6 mm (1/4 in.) dia. shackle Can be locked in OFF position	Black	140M-C, D, F 140M-C-KN
		Red/Yellow	140M-C/-D 140M-C-KRY
		Red/Yellow	140M-F 140M-F-KRY
	Padlockable Operating Knob Accepts 8 mm (5/16 in.) dia. padlock — up to three padlocks Permits padlocking in the off position	Black	140-KN
		Red/Yellow	140-CMN 140-KRY
	Door Coupling Handle For three padlocks 4...8 mm (5/16 in.) dia. IP66 Protection/Type 1, 4, 4X, 12 Interlock override capability Can be modified for locking in ON position Ships with coupling — order extension shaft and legend plate separately Mounting depth (front of DIN Rail to front of enclosure door): 140M-C: 105.5 mm ± 5 mm (4.15 in. ± 3/16 in.) 140M-D: 114.5 mm ± 5 mm (4.5 in. ± 3/16 in.) 140M-F: 137.1 mm ± 5 mm (5.4 in. ± 3/16 in.) 140-CMN: 169 mm +/- 5 mm (6.7 in. +/- 3/16 in.)	Black	140M-C, D, F 140M-C-DN66
		Red/Yellow	140-CMN 140M-C-DRY66
	Extension Shaft Cut to required length for mounting depth (front of DIN Rail to front of enclosure door): 140M-C: 117...338 mm (4.6...13.3 in.) 140M-D: 126...347 mm (5.0...13.7 in.) 140M-F: 149...369 mm (5.9...14.5 in.) 140-CMN: 180...403 mm (7.1...15.9 in.)	140M-C- DN66, 140M-C- DRY66, 140-CMN66, 140-CDRY66	140M-C-DS
		140M-C: 117...488 mm (4.6...19.2 in.) 140M-D: 126...497 mm (5.0...19.6 in.) 140M-F: 149...519 mm (5.4...20.4 in.) 140-CMN: 180...553 mm (7.1...21.8 in.)	140M-C-DSL
	Legend Plate Marking: "Hauptschalter" and "Main Switch" Marking: "Not-Aus" and "Emergency Off"	140-CMN66	140M-C-DFCN
		140-CDRY66	140M-C-DFCRY
	Locking Tag Padlock attachment to the lockable handles Up to three padlocks 4...8 mm (5/16 in.) dia. shackle	140M-C-KN 140M-C-KRY 140M-F-KRY	140M-C-M3
	Anti-Tamper Shield Provides protection against inadvertent adjustment of the current setting Package quantity = 10 *	140M-C, D, F	140M-C-CA

* Sold only in multiples of 10. Order (quantity of) 10 to receive one package of 10 pieces.

Accessories 140M







	Description	For Use With		Cat. No.
	ECO Connecting Module — 12 For DOL and reversing starters Eco-starters mount on single DIN Rail (140M on DIN Rail) Electrical and mechanical interconnection of 140M MPCB and 100-K contactors	140M-C to 100-K	*	140M-C-PEK12
	ECO Connecting Modules — 25 A Eco-starters mount on single DIN Rail (140M on DIN Rail) Electrical and mechanical interconnection of 140M MPCB and 100-C (with AC coils or 24V DC electronic coils) contactors	140M-C to 100-C09...C23	⊛	140M-C-PEC23
		140M-D to 100-C09...C23	⊛	140M-D-PEC23
	ECO Connecting Modules — 25 A Eco-starters mount on single DIN Rail (100-C on DIN Rail) Electrical and mechanical interconnection of 140M MPCB and 100-C (with AC or DC coils)	140M-C, 140M-D to 100-C09...C23 ‡	⊛	140M-C-PEC23A
	Connecting Modules — 25 and 45 A Contactor and MPCB MUST BE mounted separately on (2) DIN Rails Electrical interconnection between 140M MPCB and 100-C contactors (with AC coils)	140M-C to 100-C09...C23		140M-C-PNC23
		140M-D to 100-C09...C23		140M-D-PNC23
140M-D to 100-C30...C37			140M-D-PNC37	
140M-F to 100-C30...C37			140M-F-PNC37	
140M-F to 100-C43			140M-F-PNC43	
Flexible Connecting Module — 22 A (25 A) Flexible electrical interconnection. Allows variable spacing between 140M MPCB and 100-C contactor (with AC or DC coils: 105...145 mm DIN Rail spacing with AC coils, 105...125 mm with DC coils)	140M-C, 140M-D to 100-C09...C43		140M-D-PFC23DM	
	Spacing Adapter Required for Self-Protected combination motor controller (Type E) applications of Bul. 140M-C, -D, and -F MPCBs	140M-C, -D		140M-C-TE1
		140M-F		140M-F-TE
	Screw Adapter For screw arrangement of a Motor Protection Circuit Breaker Package quantity = 10 §	140M-C, D, F		140M-C-N45
	IP65 Non-Metallic Enclosure Knockouts for M20 and M25 fittings Suitable for flexible cable with internal ground wire or conduit when externally grounded around the outside of the enclosure (no UL approval)	Black Handle	140M-C	198E-AYTG2
		Red/Yellow Handle	140M-C	198E-AYTJ2

* May be ordered in package quantities of 10. Add letter **M** to the end of the cat. no. (Example: **140M-C-PEK12M**).
 ⊛ May be ordered in package quantities of 20. Add letter **M** to the end of the cat. no. (Example: **140M-C-PEC23M**).






Motor Protection Circuit Breakers

Accessories

Accessories 140M

	Description	No. of Connections	For Use With	Cat. No.
	Three-Phase Compact Busbar for 25 A Motor Protection Circuit Breakers — 63 A Max. Continuous Current 45 mm spacing For use with front-mounted auxiliary contact	2	140M-C, -D	140M-C-W452
		3		140M-C-W453
		4		140M-C-W454
		5		140M-C-W455
	Three-Phase Compact Busbar for 25 A Motor Protection Circuit Breakers — 63 A Max. Continuous Current 54 mm spacing For use with side-mounted auxiliary contact	2	140M-C, -D	140M-C-W542
		3		140M-C-W543
		4		140M-C-W544
		5		140M-C-W545
	Three-Phase Compact Busbar for 25 A Motor Protection Circuit Breakers — 63 A Max. Continuous Current 63 mm spacing For use with side-mounted undervoltage trip and shunt trip	2	140M-C, -D	140M-C-W632
		3		140M-C-W633
		4		140M-C-W634
		5		140M-C-W635
	Jumper for 140M-D to 140M-C Accommodates difference in depth from Bul. 140M-D to 140M-C 54 mm spacing Can be used with all other commoning links	2	140M-D to 140M-C	140M-C-WD542
	Three-Phase Compact Busbar for 45 A Motor Protection Circuit Breakers — 115 A Max. Continuous Current 54 mm spacing For use with front-mounted auxiliary contact	2	140M-F	140M-F-W542
		3		140M-F-W543
		4		140M-F-W544
	Three-Phase Compact Busbar for 45 A Motor Protection Circuit Breakers — 115 A Max. Continuous Current 63 mm spacing For use with side-mounted auxiliary contact	2	140M-F	140M-F-W632
		3		140M-F-W633
		4		140M-F-W634
	Compact Busbar Feeder Terminal For supply of commoning links Top feed — overlaps commoning link Meets UL Type E spacing requirements		140M-C, -D	140M-C-WTE
			140M-F	140M-F-WTE
	Compact Busbar Feeder Block Supply of compact busbars Increases terminal capacity IEC and UL terminal spacings		140M-C, -D	140M-C-WBE
				140M-F
	Terminal Cover For covering of unused commoning link terminals IP2X finger protection		140M-C, 140M-D	140M-C-WS
				140M-F

Molded Case Circuit Breakers 140UE

											
Frame Reference		H-Frame		J-Frame		L-Frame		M-Frame		N-Frame	
Current Range		20...160 A		70...250 A		100...630 A		300...800 A		600...1250 A	
No. of Poles		3, 4		3, 4		3, 4		3		3, 4	
Dimensions (mm)	Height	140		178		258		406		406	
	Width	76		105		140		210		210	
	Depth	76		103		104		140		140	
Interrupting Ratings: kA		I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}	I_{cu}	I_{cs}
50 Hz	220...240V	25, 35, 85, 100	50%	65, 85, 100	100%	65, 85, 100	100%	65, 100	100%	200, 200	100%
	380...415V	18, 25, 40, 70	50%	23, 40, 70	100%	35, 50, 70	100%	50, 70	100%	70, 100	100%
	690V	6, 6, 7, 8	50%	6, 6, 7, 8	50%	2, 20, 25	50%	20, 25	100%	35, 50	50%
60 Hz NEMA		On request									
Protection Type		FF, AF		AA		AA		AF		—	
Electronic		—		✓		✓		✓		✓	
Internal Accessories		✓		✓		✓		✓		✓	
Alarm (Trip) Contact		✓		✓		✓		✓		✓	
Auxiliary Shields		✓		✓		✓		✓		✓	
Aux/Alarm Combination		✓		✓		✓		✓		✓	
Shunt Trip		✓		✓		✓		✓		✓	
Undervoltage Release		✓		✓		✓		✓		✓	
Field Installable		✓		✓		✓		✓		✓	
External Accessories		✓		✓		✓		✓		✓	
Padlockable Hasp		✓		✓		✓		✓		✓	
Terminal Covers		✓		✓		✓		✓		✓	
Flex-Cable Operating Mech.		✓		✓		✓		✓		✓	
Variable Depth Rotary Operating Mechanism		✓		✓		✓		✓		✓	
Direct Coupler Rotary Operating Mechanism		✓		✓		✓		✓		—	
Plug-in Base		✓		AA		✓		—		—	
Slide Bar Interlock		✓		✓		✓		✓		✓	
Standards Compliance		✓		✓		✓		✓		✓	
IEC 60947-2		✓		✓		✓		✓		✓	
CE		✓		✓		✓		✓		✓	
KEMA-KEUR		✓		✓		✓		✓		✓	
Product Selection		See page 1-18		See page 1-19		See page 1-20		See page 1-21		See page 1-21	

POWER

Circuit Breakers 140UE — 160 A, H-Frame

- Thermal Magnetic Trip
- 18, 25, 40, 70 kA Breaking Capacity @ 415V (50 Hz)
- 3-pole, 4-pole

Approvals

- IEC 60947-2, CE, KEMA-KEUR



Note: Terminal box lugs and mounting hardware provided as standard

25 kA, Thermal-Magnetic, Adjustable Thermal-Fixed Magnetic

Rated Operational Current (I_n) [A]	Thermal Trip ($I_r = 0.8...1.0 \times I_n$) [A]	Magnetic Trip ($I_m = 10 \times I_n$) [A]	Breaking Capacity (50 Hz) I_{cu} / I_{cs} [kA]			3-Pole Cat. No.
			380...415V	500V	690V	
20	16...20	500	25	13		140UE-H2E3-C20
25	20...25	500	25	13		140UE-H2E3-C25
32	25...32	500	25	13		140UE-H2E3-C32
40	32...40	500	25	13		140UE-H2E3-C40
50	40...50	500	25	13		140UE-H2E3-C50
63	50...63	630	25	13		140UE-H2E3-C63
80	63...80	800	25	13		140UE-H2E3-C80
100	80...100	1000	25	13		140UE-H2E3-D10
125	100...125	1250	25	13		140UE-H2E3-D12
160	125...160	1600	25	13		140UE-H2E3-D16

Isolation Disconnecter — IEC 60947-3

Rated Operational Current (I_n) [A]	Thermal Trip ($I_r = I_n$), Fixed [A]	Magnetic Trip ($I_m = 10 \times I_n$) [A]	Breaking Capacity (50 Hz) I_{cu} / I_{cs} [kA]			3-Pole Cat. No.
			380...415V	500V	690V	
160	—	1600	25	25	3 3	140UE-H2S3-D16

See Publication 140UE-SG001... for 4-pole types and different breaking capacity.

Circuit Breakers 140UE — 250 A, J-Frame

- Thermal Magnetic Trip
- Electronic Trip LS, LSI, LSG and LSIg
- 25, 40, 70 kA Breaking Capacity @ 415V (50 Hz)
- 3-pole, 4-pole

Approvals

- IEC 60947-2, CE, KEMA-KEUR



40 kA, Assembled Circuit Breakers, Thermal-Magnetic Trip Units

Rated Operational Current (I_n)	Thermal Trip ($I_r = 0.8...1.0 \times I_n$)	Magnetic Trip ($I_m = 5...10 \times I_n$)	Breaking Capacity (50 Hz)						3-Pole
			I_{cu} / I_{cs} [kA]						
[A]	[A]	[A]	380...415V		500V		690V	Cat. No.	
80	64...80	400...800	40	40	35	20	12	6	140UE-J4F3-C80
100	80...100	500...1000	40	40	35	20	12	6	140UE-J4F3-D10
125	100...125	625...1250	40	40	35	20	12	6	140UE-J4F3-D12
160	128...160	800...1600	40	40	35	20	12	6	140UE-J4F3-D16
200	160...200	1000...2000	40	40	35	20	12	6	140UE-J4F3-D20
250	200...250	1250...2500	40	40	35	20	12	6	140UE-J4F3-D25

Isolation Disconnecter — IEC 60947-3

Rated Operational Current (I_n)	Thermal Trip ($I_r = 0.8...1.0 \times I_n$)	Magnetic Trip ($I_m = 10 \times I_n$)	Breaking Capacity (50 Hz)						3-Pole
			I_{cu} / I_{cs} [kA]						
[A]	[A]	[A]	380...415V		500V		690V	Cat. No.	
250	—	2500	70	70	25	10	14	7	140UE-J7S3-D25

See Publication 140UE-SG001... for 4-pole types, electronic trip units and different breaking capacity.

Molded Case Circuit Breakers

Product Selection

Circuit Breakers 140UE — 630 A, L-Frame

- Thermal Magnetic Trip
- Electronic Trip LS, LSI, LSG and LSIG
- 35, 50, 70 kA Breaking Capacity @ 415V (50 Hz)
- 3-pole, 4-pole

Approvals

- IEC 60947-2, CE, KEMA-KEUR



Circuit breakers can be assembled from a circuit breaker frame and a trip unit, or purchased as assembled units.

50 kA, Assembled Circuit Breakers, Thermal-Magnetic Trip Units

Rated Operational Current (I_n) [A]	Thermal Trip ($I_r = 0.8...1.0 \times I_n$) [A]	Magnetic Trip ($I_m = 5...10 \times I_n$) [A]	Breaking Capacity (50 Hz) $I_{cu} // I_{cs}$ [kA]						3-Pole Cat. No.
			380...415V		500V		690V		
250	200...250	1250...2500	50	50	25	25	20	10	140UE-L5F3-D25
320	256...320	1600...3200	50	50	25	25	20	10	140UE-L5F3-D32
400	320...400	2000...4000	50	50	25	25	20	10	140UE-L5F3-D40
500	400...500	2500...5000	50	50	25	25	20	10	140UE-L5F3-D50
630	504...630	3150...6300	50	50	25	25	20	10	140UE-L5F3-D63

50 kA, Assembled Circuit Breakers, Electronic Trip Units

Rated Operational Current (I_n)	Adjustment Range [A]		Protection Type	Breaking Capacity (50 Hz) $I_{cu} // I_{cs}$ [kA]						3-Pole Cat. No.
	Thermal Trip $I_r = 0.4...1.0 \times I_n$	Magnetic Trip $I_m = 2...10 \times I_n$		380...415V		500V		690V		
630	250...630	1260...6300	LS	50	50	25	25	20	10	140UE-L5L3-D63
630	250...630	1260...6300	LSI	50	50	25	25	20	10	140UE-L5H3-D63
630	250...630	1260...6300	LSG *	50	50	25	25	20	10	140UE-L5G3-D63
630	250...630	1260...6300	LSIG *	50	50	25	25	20	10	140UE-L5I3-D63

* Ground Fault Functions: $I_G = 0.2...1.0 I_n$

Isolation Disconnecter — IEC 60947-3

Rated Operational Current (I_n) [A]	Thermal Trip ($I_r = I_n$) [A]	Magnetic Trip ($I_m = 10 \times I_n$) [A]	Breaking Capacity (50 Hz) $I_{cu} // I_{cs}$ [kA]						3-Pole Cat. No.
			380...415V		500V		690V		
630	—	6300	70	70	32	32	25	13	140UE-L7S3-D63

See Publication 140UE-SG001... for 4-pole types and different breaking capacity.

Circuit Breakers 140UE — 800 A, M-Frame

- Thermal Magnetic Trip
- Electronic Trip LS, LSI, LSG and LSIG
- 50, 70 kA Breaking Capacity @ 415V (50 Hz)
- 3-pole

Approvals

- IEC 60947-2, CE, KEMA-KEUR



50 kA, Assembled Circuit Breakers, Electronic Trip Units

Rated Operational Current (I_n)	Adjustment Range [A]		Protection Type	Breaking Capacity (50 Hz)						3-Pole Cat. No.
	Thermal Trip $I_r = 0.4...1.0 \times I_n$	Magnetic Trip $I_m = 2...10 \times I_n$		$I_{cu} // I_{cs}$ [kA]						
				380...415V		500V		690V		
800 A	400...800	800...6400	LS	50	50	25	25	20	10	140UE-M5L3-D80
			LSI	50	50	25	25	20	10	140UE-M5H3-D80
			LSG *	50	50	25	25	20	10	140UE-M5G3-D80
			LSIG *	50	50	25	25	20	10	140UE-M5I3-D80

* Ground Fault Functions: $I_G = 0.2...1.0 I_n$

See Publication 140UE-SG001... for 4-pole types, thermal magnetic trip units and different breaking capacity.

Circuit Breakers 140UE — 1250 A, N-Frame

- Electronic Trip LS, LSI, LSG and LSIG
- 70 kA, 100 kA Breaking Capacity @ 415V (50 Hz)
- 3-pole, 4-pole

Approvals

- IEC 60947-2, CE, KEMA-KEUR

Note: Terminal box lugs and mounting hardware must be ordered separately.
 See page 1-23 or publication 140UE-SG001...



70 kA, Assembled Circuit Breakers, Electronic Trip Units




Rated Operational Current I_n [A]	Adjustment Range I_r [A]		Protection Type	Breaking Capacity (50 Hz)						3-Pole Cat. No.
	Thermal Trip $I_r = 0.5...1.0 \times I_n$	Magnetic Trip $I_m = 2...8 \times I_n$		$I_{cu} // I_{cs}$ [kA]						
				380...415V		500V		690V		
1250	600...1250	2400..10000	LS	70	50	35	18	25	13	140UE-N7L3-E12
			LSI	50	50	40	20	20	10	140UE-N5H3-E12
			LSG	50	50	40	20	20	10	140UE-N5G3-E12
			LSIG	50	50	40	20	20	10	140UE-N5I3-E12

Isolation Disconnecter — IEC 60974-3

Rated Operational Current I_n [A]	Magnetic Trip ($10 \times I_n$)	Breaking Capacity (50 Hz)						3-Pole Cat. No.
		$I_{cu} // I_{cs}$ [kA]						
		380...415V		500V		690V		
1250	12500	70	50	35	18	25	13	140UE-N7S3-E12







See Publication 140UE-SG001... for 4-pole types and different breaking capacity.

Internal Accessories — Field Installed

	Description	Frame Size	Cat. No.			
	Auxiliary Contact (AX) Electrically indicates "ON/OFF" status of breakers	1 C/O	H, J, L	140U-H-EA1		
			M	140U-M-EA1		
			N	140U-N-EA1		
		2 C/O	H, J, L	140U-H-EA2		
			M	140U-M-EA2		
			N	140U-N-EA2		
Alarm Contact (AL) Electrically indicates when the breaker is in the "TRIPPED" state	1 C/O (E.M./L.B.)	H	140U-H-ER1			
		J, L	140U-J-ER1			
		M	140U-M-ER1			
	Auxiliary/Alarm Contact (AX/AL) Combination Combination of auxiliary contact and alarm contact	1 C/O (E.M./L.B.)	N	140U-N-ER1		
			H	140U-H-EA1R1		
			J, L	140U-J-EA1R1		
			M	140U-M-EA1R1		
	Shunt Trip (SNT) Provides remote tripping of the circuit breaker Undervoltage trip not available when shunt trip is used	24...60 V, 50/60/DC	H, J, L	140U-H-SNJ		
				110...240V, 50/60/DC	140U-H-SND	
				380...440V AC, 220...250V DC	140U-H-SNN	
				380...600V, 50/60 Hz	140U-H-SNB	
		12...24V, 50/60/DC	M	140U-M-SNJ		
				110...240V AC, 110...125V DC	140U-M-SND	
				380...440V AC, 220...250V DC	140U-M-SNN	
				480...600V, 50/60 Hz	140U-M-SNB	
		12...24V, 50/60/DC	N	140U-N-SNJ		
				110...240V AC	140U-N-SND	
				380...440V AC, 220...250V DC	140U-N-SNN	
				480...600V, 50/60 Hz	140U-N-SNB	
		Undervoltage Release (UVT) Automatically trips breaker when voltage falls between preset value, 35...70% Shunt trip is not available when undervoltage release is used	24V, 50/60Hz AC; 24V DC	H, J, L	140U-H-UJ	
					110...127V, 50/60 Hz	140U-H-UD
					208...240V, 50/60 Hz	140U-H-UA
					380...500V, 50/60 Hz	140U-H-UB
24V, 50/60 Hz	M		140U-M-UJ			
			110...127V, 50/60 Hz	140U-M-UD		
			208...240V, 50/60 Hz	140U-M-UA		
			380...500V, 50/60 Hz	140U-M-UB		
24V, 50/60 Hz	N		140U-N-UJ			
			110...127V, 50/60 Hz	140U-N-UD		
			208...240V, 50/60 Hz	140U-N-UA		
			380...500V, 50/60 Hz	140U-N-UB		

See Publication 140UE-SG001... for 4-pole types and different breaking capacity.

External Accessories

	Description	Frame Size	PQ	Cat. No.	
	Terminal Shields IP20 Ingress Protection Rating	3-Pole MCCBs	H	1	140U-H-TS
			I		140U-I-TS1
			J		140U-J-TS
			L		140U-L-TS
	Phase Barriers Provides additional phase clearance when special connections that extend past the circuit breaker housing are required	3-Pole MCCBs	H	2	140U-H-PB
			I		140U-I-PB
			J		140U-J-PB
			L		140U-L-PB
			M		140U-M-PB
			N		140U-N-PB
	Rotary, Direct Couple Operating Mechanism Rotary handle - IP42 UL Type 1 Breaker mounted	Black Handle	H	1	140U-H-RCB
			I		140U-I-RCB
			J		140U-J-RCB
		Red/Yellow Handle	L	1	140U-L-RCB
			H		140U-H-RCR
			J		140U-J-RCR
L	140U-L-RCR				
	Rotary, Variable-Depth Operating Mechanism Rotary handle - IP66, UL Type 3/12/4/4X 12 in. (30.48 cm) operating rod Operating rod 30.5 cm	Black Handle	H	1	140U-H-RVM12B
			J		140U-J-RVM12B
			L		140U-L-RVM12B
			M		140U-M-RVM12B
		Red/Yellow Handle	N	1	140U-N-RM12B
	H		140U-H-RVM12R		
	J		140U-J-RVM12R		
	L	140U-L-RVM12R			
	M	140U-M-RVM12R			
	Rotary, Variable-Depth Operating Mechanism Rotary handle - IP66, UL Type 3/12/4/4X 21 in. (53.34 cm) operating rod Operating rod 53 cm	Black Handle	H	1	140U-H-RVM21B
J			140U-J-RVM21B		
L			140U-L-RVM21B		
M			140U-M-RVM21B		
Red/Yellow Handle		H	1	140U-H-RVM21R	
		J		140U-J-RVM21R	
		L		140U-L-RVM21R	
M	140U-M-RVM21R				
	End Cap Kit Provides three-phase connections for terminal or bolt-on connections Metric hardware provided	3-Pole MCCBs	H	1	140U-H-ECM
			I	1	140U-I-ECM
			J	1	140U-J-ECM
			L	1	140U-L-ECM
	Replacement Mounting Hardware (4) M4 - 0.7 x 75 mm	3- or 4-Pole MCCBs	H	1	140U-H-MHM
			I	1	140U-I-MHM
			J	1	140U-J-MHM
			L	1	140U-L-MHM
			M, N	1	140U-M-MHM

PQ = Package Quantity

See Publication 140UE-SG001... for 4-pole types and different breaking capacity.

Contactors

Product Line Overview

Mini-Contactors 100-K, Contactors 100-C

Bulletin	100-K	100-C
Type	MCS Mini Contactor	Contactor
Rated Current, max. I_e	12 A	85 A
Current Rating	5...12 A	9...85 A
Rated Voltage U_e IEC	690V 50/60 Hz, 440V DC	690V 50/60 Hz, 440V DC
Features	<ul style="list-style-type: none"> • MCS New Minicontactor Design • IP20 Finger Protection according to IEC 60947 • Rated and Designed for 690V • Top mount pluggable 36 mm wide auxiliary contact blocks 690V • Suppressor module top mount pluggable • Mechanical interlock top mount for AC and DC contactors 	<ul style="list-style-type: none"> • Panel mounting or mounting on 35 mm DIN rail • Reversible coil terminals (line or load side) • AC or DC coil control • Common Accessories • Made of environmentally friendly materials
Contacts	3 power poles with internal N.O. or N.C. auxiliary contact, or 4 power poles. Optional frontmounted 2 or 4 pole external auxiliary contact block.	3 power poles with internal N.O. or N.C. auxiliary contact or 4 power poles. Optional front or side mounted 1, 2 or 4 pole external auxiliary contact block.
Coil Voltages	AC = 12...600V AC, 50/60Hz DC = 12...250V DC	AC = 12...600V AC, 50/60Hz DC = 9...250V DC
Optional Overload Relays	Bimetallic	Electronic or bimetallic
Optional Accessories	All accessories	All accessories
Conformity to Standards	IEC/EN 60947; IEC/EN 60999; UL 508; UL 1059; CSA 22.2 No. 14; FN F 62-000	IEC/EN 60947; UL 508; CSA 22.2 No. 14
Approvals	CE marked, cULus listed, CCC	CE, UL, CSA, IEC, CCC
Product Selection	See page 1-27	See page 1-29

Contactors 100-D, 100-G





Bulletin	100-D	100-G
Type	Contactor	Contactor
Rated Current, max. I_e	860 A	1200 A
Current Rating	95...860 A	550...1200 A
Rated Voltage U_e IEC	1000V 50/60 Hz, 440V DC	690V 50/60 Hz, 440V DC
Features	<ul style="list-style-type: none"> • Panel mounting only • Made of environmentally friendly materials • AC or DC coil control (Conventional or Electronic) • Integrated PLC interface 	<ul style="list-style-type: none"> • Panel mounting only • Made of environmentally friendly materials • AC or DC coil control (Electronic)
Contacts	3 power poles with external N.O. and N.C. side mounted auxiliary contact. Optional side mounted 2 pole external auxiliary contacts blocks	3 power poles with up to 4 external N.O. and N.C. auxiliary contact blocks. Forth main contact pole
Coil Voltages	<p>Conventional Coils 100(S)-D95...D180 AC: 24...550V 50 Hz 24...600V 60Hz 100...277V 50/60Hz DC: 24...250V DC</p> <p>Electronic Coils 100(S)-D95...D300 AC: 24...500V 50/60 Hz DC: 24...255V DC</p> <p>100(S)-D420 AC: 42...500V 50/60 Hz DC: 48...255V DC</p>	AC = 110...480V AC, 50/60Hz DC = 100...440V DC
Optional Overload Relays	Electronic	—
Optional Accessories	All accessories	All accessories
Conformity to Standards	IEC/EN 60947; UL 508; CSA 22.2 No. 14	IEC/EN 60947, CEI 17-2, 17-3; UTE NF C 63-110; BS 5424; VDE 0660-1; NEMA; ICS
Approvals	CE, UL, CSA, IEC, CCC	CE, UL, CSA, IEC
Product Selection	See page 1-36	See page 1-41

Contactors

Product Line Overview

Safety Contactors 100S-C, 100S-D

Bulletin	100S-C	100S-D
		
Type	Safety Contactor	Safety Contactor
Rated Current, max. I_e	85 A	860 A
Current Rating	9...85 A	95...860 A
Rated Voltage U_e IEC	690V 50/60 Hz, 440V DC	1000V 50/60 Hz, 440V DC
Features	<ul style="list-style-type: none"> Positively Guided/Mechanically Linked Auxiliary Contacts Front-Mounted Auxiliary Contacts: <ul style="list-style-type: none"> Permanently Fixed Protective Cover to Prevent Manual Operation Red Contact Housing for Easy Identification Incorporates IEC 947-5-1 "Mechanically Linked" Symbol AC or DC coil control SUVA Third-Party Certification 	<ul style="list-style-type: none"> Positively Guided/Mechanically Linked Auxiliary Contacts which are required in feedback circuit for modern safety applications. The Positively Guided N.C. Auxiliary Contacts will not change the state when a power contact welds.
Contacts	3 Main Contacts	3 Main Contacts
Coil Voltages	AC = 12...600V AC, 50/60Hz DC = 12...250V DC	Conventional Coils 100(S)-D95...D180 AC: 24...550V 50 Hz 24...600V 60Hz 100...277V 50/60Hz DC: 24...250V DC Electronic Coils 100(S)-D95...D300 AC: 24...500V 50/60 Hz DC: 24...255V DC 100(S)-D420 AC: 42...500V 50/60 Hz DC: 48...255V DC
Optional Overload Relays	—	—
Optional Accessories	Side-mount auxiliary contacts, surge suppressors, mechanical interlocks	Side-mount auxiliary contacts, surge suppressors, IP20 terminal blocks, terminal shields, terminal covers, connecting components, terminal lugs
Conformity to Standards	EN 50205; UL 508; CSA C22.2 No. 14; IEC/EN 60947-4; IEC 60947-4-1 Annex H — Mirror Contacts; IEC 60947-5-1 Annex L — Mechanically Linked Contacts	IEC 60947-4-1 / A1: 2002-09, Annex F CSA C22.2 No. 14, UL 508
Approvals	CE Marked, CSA Certified (Certification No. LR13908), UL Listed (File No. E3125, Guide No. NLDX), SUVA Third-Party Certified	CE Marked, CSA Certified, UL Listed, SUVA Third-Party Certified
Product Selection	See page 1-30	See page 1-37

Mini-Contactors 100-K

- Compact size, same dimensions for AC and DC
- 5, 9, and 12A Contactors rated 690V
- IP2X Finger Protection
- Optional integrated surge suppressor
- Compatible with 193-K bimetallic overload relay



Mini Contactors with 3 Main Contacts

Rated Operational Current (I_e) [A]		Ratings for switching AC motors - AC-2, AC-3 3Ø kW (50 Hz)	Auxiliary Contacts		Cat. No.
AC-3	AC-1		N.O.	N.C.	
5	20	2.2	1	0	* 100-K05 \otimes 10
			0	1	* 100-K05 \otimes 01
9	20	4	1	0	* 100-K09 \otimes 10
			0	1	* 100-K09 \otimes 01
12	20	5.5	1	0	* 100-K12 \otimes 10
			0	1	* 100-K12 \otimes 01

* May be ordered in package quantities of 20. Add letter M to the end of the cat. no. Example: **100-K05KF10M**.
 \otimes The Cat. No. as listed is incomplete. Select a standard Coil Voltage Code from the table below to complete the Cat. No. Example: 230V, 50/60 Hz: Cat. No. **100-K05 \otimes 10** becomes Cat. No. **100-K05KF10**.

\otimes Coil Voltage Codes for AC and DC Control

AC Control	
Code	Description
KJ	24V 50/60 Hz
KY	48V 50/60 Hz
D	110V 50 Hz
KF	230V 50/60 Hz
KN	400V 50/60 Hz

DC Control	
Code	Description
ZJ	24V DC
DJ	24V DC with integrated diode
ZD	110V DC
ZA	220V DC

For other voltages visit our website or consult your local sales office.







Accessories for 100-K

	Description	N.O.	N.C.	For Use With	Cat. No.		
	Front-Mounted Auxiliary Contacts Auxiliary contact blocks 2- and 4-pole versions Choice of contact configurations Snap on, no tools required Electronically-compatible bifurcated contacts for signals down to 15V/2 mA Mirror Contact performance per IEC 60947-4-1	0	2	100-K05...K12 \otimes 10	* 100-KFC02		
		1	1		* 100-KFC11		
		2	0		* 100-KFC20		
				0	4	100-K05...K12 \otimes 10	* 100-KFC04
				1	3		* 100-KFC13
				3	1		* 100-KFC31
				2	2		* 100-KFC22
				4	0		* 100-KFC40

* May be ordered in package quantities of 10. Add letter M to the end of the cat. no. Example: **100-KFC02M**.

Bulletin 100-K
Contactors
 Accessories

Accessories for 100-K

	Description	For Use With	PQ	Cat. No.	
 <p>Surge Suppressor Plug-in Type Limits surge voltage on coil drop-off</p>	RC Suppressor				
		24...48V AC	100/104-K, 700-K	*	100-KFSC50
		110...280V AC	100/104-K, 700-K	*	100-KFSC280
		380...480V AC	100/104-K, 700-K	*	100-KFSC480
	MOV Suppressor				
		12...55V AC, 12...77V DC	100/104-K, 700-K	*	100-KFSV55
		56...136V AC, 78...180V DC	100/104-K, 700-K	*	100-KFSV136
		137...277V AC, 181...250V DC	100/104-K, 700-K	*	100-KFSV277
Diode Suppressor					
	12...250V DC	100/104-K, 700-K	*	100-KFSD250	
 <p>Mechanical Interlock For interlocking of two adjacent contactors No added width to contactor assembly Front mount Plug-In type Optional auxiliary contact blocks and suppressor modules mount onto the interlock</p>		100-K, 700-K (AC & DC Control)		100-KMCH	
 <p>ECO Connecting Module — 12 and 25 A For DOL and reversing starters Eco-starters mount on single DIN Rail (140M on DIN Rail) Electrical and mechanical interconnection of 140M MPCB and 100-K contactors</p>	Connects: 140M-C circuit breakers with 100-K contactors	140M-C to 100-K	1*	140M-C-PEK12	
 <p>Power Wiring Kit For Reversing and Star/Delta combinations. Star-point bridge not included.</p>	—	100-K	1	100-KPR	
 <p>Feeder Terminal for Compact Bus Bars Max. current 34 A</p>	Supply of compact bus bars	100-K	1	100-KWT	
 <p>Three-Phase Compact Bus Bars Max. current 34 A</p>	For 100-K, 5...12 A contactors 45 mm spacing (3 connections)	100-K	1	100-KW453	
	For 100-K, 5...12 A contactors 45 mm spacing (4 connections)		1	100-KW454	

* May be ordered in package quantities of 10. Add letter M to the end of the cat. no. Example: **100-KFSC50M**.
 PQ = Package Quantity

POWER

Contactors 100-C

- Compact Sizes from 4...45 kW (9...85 A)
- AC and DC Coil Control
- Common Accessories for All Contactor Sizes
- Front and Side Mounting of Auxiliary Contacts
- Electronic and Pneumatic Timing Modules
- Space-Saving Coil-Mounted Control Modules
- Reversible Coil Terminations (Line or Load Side)
- All Devices Can Be Attached to 35 mm DIN Mounting Rail
- Environmentally Friendly Materials



Contactors with 3 Main Contacts

Rated Operational Current I_e [A]		Ratings for Switching AC Motors — AC-2, AC-3, AC-4	Auxiliary Contacts		Cat. No.	
			3Ø kW (50 Hz)			
AC-3	AC-1	400V/415V	N.O.	N.C.		
9	32	4	1	0	*	100-C09Ø10
			0	1	*	100-C09Ø01
12	32	5.5	1	0	*	100-C12Ø10
			0	1	*	100-C12Ø01
16	32	7.5	1	0	*	100-C16Ø10
			0	1	*	100-C16Ø01
23	32	11	1	0	*	100-C23Ø10
			0	1	*	100-C23Ø01
30	65	15	0	0	*	100-C30Ø00
37	65	18.5/20	0	0	*	100-C37Ø00
43	85	22	0	0		100-C43Ø00
60	100	32	0	0		100-C60Ø00
72	100	40	0	0		100-C72Ø00
85	100	45	0	0		100-C85Ø00

* May be ordered in package quantities of 20. Add letter **M** to the end of the cat. no. Example: 100-C09KF10M).

⊗ The cat. no. as listed is incomplete. Select a coil voltage code from the table below.

⊗ Coil Voltage Codes for AC and DC Control

AC Control for 100-C	
Code	Description
KJ	24V 50/60 Hz
KY	48V 50/60 Hz
KD	110V 50/60 Hz
KF	230V 50/60 Hz
KN	400V 50/60 Hz

DC Control for 100-C09...-C43	
Code	Description
ZJ	24V DC
DJ	24V DC with integrated diode
EJ	NEW — 24V DC electronic coil
ZD	110V DC
ZA	220V DC

DC Control for 100-C60...-C85	
Code	Description
DJ	24V DC with integrated diode
DD	110V DC with integrated diode
DA	220V DC with integrated diode

For other voltages visit our website or consult your local sales office.









Contactors

Product Selection

Safety Contactors 100S-C

- AC / DC control
- 3 / 4 main contacts
- Positively guided contacts according to IEC 947-5-1
- Mechanically coupled Contactor and Auxiliary contact block
- Protection against unintended actuation
- Auxiliary contacts are electronically compatible according to DIN 19240



Rated Operational Current I_e	Ratings for Switching AC Motors — AC-2, AC-3, AC-4	Contact Configuration				Standard Auxiliary Contact	Bifurcated Auxiliary Contact
		Main Poles		Auxiliary Contacts			
							
[A]	3Ø kW (50 Hz) *					Cat. No. §	Cat. No. §
AC-3	AC-1	400V/415V	N.O.	N.C.	N.O.	N.C.	

Safety Contactors with 3 Main Contacts

9	32	4	3	0	1	4	100S-C09Ø14C	100S-C09Ø14BC
			3	0	2	3	100S-C09Ø23C	100S-C09Ø23BC
12	32	5.5	3	0	1	4	100S-C12Ø14C	100S-C12Ø14BC
			3	0	2	3	100S-C12Ø23C	100S-C12Ø23BC
16	32	7.5	3	0	1	4	100S-C16Ø14C	100S-C16Ø14BC
			3	0	2	3	100S-C16Ø23C	100S-C16Ø23BC
23	32	11	3	0	2	3	100S-C23Ø23C	100S-C23Ø23BC
30	65	15	3	0	2	2	100S-C30Ø22C	100S-C30Ø22BC
37	65	18.5/20	3	0	2	2	100S-C37Ø22C	100S-C37Ø22BC
43	85	22	3	0	2	2	100S-C43Ø22C	100S-C43Ø22BC
60	100	32	3	0	2	2	‡ 100S-C60Ø22C	100S-C60Ø22BC
72	100	40	3	0	2	2	‡ 100S-C72Ø22C	100S-C72Ø22BC
85	100	45	3	0	2	2	‡ 100S-C85Ø22C	100S-C85Ø22BC

Safety Contactors with 4 Main Contacts

23	32	11	4	0	0	4	100S-C23Ø404C	100S-C23Ø404BC
			3	1	0	4	100S-C23Ø304C	100S-C23Ø304BC
			4	0	2	2	100S-C23Ø422C	100S-C23Ø422BC

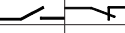



‡ Bifurcated front-mount auxiliary contacts on **100S-C60...C85** conform to mirror contact performance only.

§ For other contact configurations, please consult your local sales office.

* Three-phase ratings only apply to contactors with at least three N.O. power poles.

⊗ The cat. no. as listed is incomplete. Select a coil voltage code from the table on page 1-29.

Auxiliary Contacts (For 100-C09...C85 contactors) *

	Description			For Use With	Standard Auxiliary Contact	Bifurcated Auxiliary Contact
		N.O.	N.C.		Cat. No. *	Cat. No. *
 <p>Auxiliary Contact Blocks for Front Mounting 2- and 4-pole Quick and easy mounting without tools Electronically-compatible contacts down to 17V, 5 mA Mechanically linked performance between N.O. and N.C. poles and to the main contactor poles (except for L types) Models with equal function with several terminal numbering choices 1L = Late break N.C./early make N.O. Bifurcated versions for switching low energy circuits are also available ‡</p>	0	2	100-C all	100-FA02	100-FAB02	
			C30⊗00...C85⊗00	100-FB02	100-FBB02	
	1	1	100-C all	100-FA11	100-FAB11	
			C30⊗00...C85⊗00	100-FB11	100-FBB11	
			C09⊗10...C23⊗10	100-FC11	100-FCB11	
	2	0	100-C all	100-FA20	100-FAB20	
			C30⊗00...C85⊗00	100-FB20	100-FBB20	
	1L	1L	C30⊗00...C85⊗00	100-FAL11	—	
			C30⊗00...C85⊗00	100-FBL11	—	
	 <p>Auxiliary Contact Blocks for Side Mounting with Sequence Terminal Designations • 1- and 2-pole • Two-way numbering for right or left mounting on the contactor • Quick and easy mounting without tools • Electronic-compatible contacts down to 17V, 10 mA • Mirror contact performance to the main contactor poles • 1L = Late break N.C./early make N.O.</p>	0	4	100-C all	100-FA04	100-FAB04
1		3	100-C all	100-FA13	100-FAB13	
2		2	100-C all	100-FA22	100-FAB22	
			C30⊗00...C85⊗00	100-FB22	100-FBB22	
3		1	100-C all	100-FA31	100-FAB31	
			C09⊗10...C23⊗10	100-FC31	100-FCB31	
4		0	100-C all	100-FA40	100-FAB40	
1+1L		1+1L	100-C all	100-FAL22	—	
 <p>Auxiliary Contact Blocks for Side Mounting with Sequence Terminal Designations • 1- and 2-pole • Two-way numbering for right or left mounting on the contactor • Quick and easy mounting without tools • Electronic-compatible contacts down to 17V, 10 mA • Mirror contact performance to the main contactor poles • 1L = Late break N.C./early make N.O.</p>		0	1	100-C	* 100-SB01	—
		1	0	100-C ‡	* 100-SB10	—
	0	2	100-C ‡	* 100-SB02	—	
	1	1	100-C ‡	* 100-SB11	—	
	2	0	100-C ‡	* 100-SB20	—	
	1L	1L	100-C ‡	* 100-SBL11	—	

* Max. number of auxiliary contacts that may be mounted:

AC coil contactors — max. 4 N.O. contacts on the front of the contactor, 2 N.O. contacts on the side, 4 N.C. front or side, 6 total.






DC coil contactors — max. 4 N.O. contacts on the front of the contactor or max 2 N.O. contacts on the side, 4 N.C. front or side, 4 total.

* May be ordered in package quantities of 10. Add letter **M** to the end of the cat. no. Example: **100-SB01M**).





‡ Double numbering — Left-side mounting only is recommended for **cat. no. 100-C09...100-C23** due to double numbering.

POWER

Control Modules (For 100-C09...C85 contactors)

	Description	For Use With	Cat. No.	
	Pneumatic Timing Modules Pneumatic timing element contacts switch after the delay time. The contacts on the main control relay continue to operate without delay.	On-Delay 0.3...30 s Range 1.8...180 s Range	100-C with AC coils, 700-CF all	100-FPTA30 100-FPTA180
		Off-Delay 0.3...30 s Range 1.8...180 s Range	100-C all, 700-CF all	100-FPTB30 100-FPTB180
	Electronic Timing Modules — On-Delay Delay of the contactor or control relay solenoid. The contactor or control relay is energized at the end of the delay time.	On-Delay 0.1...3 s Range 1...30 s Range 10...180 s Range 110...240V, 50/60 Hz 110...250V DC	100-C (all), 700-CF with 110...240V, 50/60 Hz or 110...250V DC	100-ETA3 100-ETA30 100-ETA180
		On-Delay 0.1...3 s Range 1...30 s Range 10...180 s Range 24...48V DC	100-C with 24...48V DC coils, 700-CF with DC coils	100-ETAZJ3 100-ETAZJ30 100-ETAZJ180
	Electronic Timing Modules — Off-Delay Delay of the contactor or control relay solenoid. After interruption of the control signal, the contactor or control relay is de-energized at the end of the delay time.	Off-Delay 0.3...3 s Range 1...30 s Range 10...180 s Range 110...240V, 50/60 Hz	100-C, 700- CF with 110...240V 50/60 Hz coils	100-ETB3 100-ETB30 100-ETB180
		Off-Delay 0.3...3 s Range 1...30 s Range 10...180 s Range 24V, 50/60 Hz	100- C09...C37, 700-CF with 24V 50/60 Hz coils	100-ETBKJ3 100-ETBKJ30 100-ETBKJ180
	Electronic Timing Modules Delay of the contactor solenoid. Contactor K 3 (Y) is de-energized (off) and K 2 (D) is energized (on) after the end of the set Y end time. (Switching delay at 50 ms.) Continuous adjustment range High repeat accuracy	Transition Time Y Contactor 1...30 s Range 110...240V, 50/60 Hz	100-C with 110...240V AC, 50/60 Hz coils	100-ETY30
	Electronic Star-Delta Timing Relay Output Y picks up when the supply voltage is applied and resets again after time t. After a fixed changeover time t _u , output relay Δ picks up and remains energized until the supply voltage is interrupted.	• 22.5 mm width 24...48V DC, 24...240V AC, 50/60 Hz	100-K, 100- C, 100-D	700-FSY2DU23
		• 22.5 mm width 346...440V AC, 50/60 Hz		700-FSY2DA40
		• 17.5 mm width 24...48V DC 24...240V AC, 50/60 Hz	100-K, 100- C, 100-D	700-FEY2QU23

Control Modules (For 100-C09...C85 contactors), continued

	Description	Voltage Range	For Use With	Cat. No.	
	Mechanical Interlocks For interlocking of two contactors. Common interlock for all Bul. 100-C contactor sizes Interlocking of different sizes possible Mechanical and electrical interlocking possible in one module by means of integrated auxiliary contacts 9 mm dovetail connector included	Mechanical only without auxiliary contacts	100-C (except 100-C40, -C90)	100-MCA00	
		Mechanical/ electrical with 2 N.C. auxiliary contacts		100-MCA02	
	Mechanical Latch Following contactor latching, the contactor coil is immediately de-energized (off) by the N.C. auxiliary contact (65-66). Electrical or manual release 1 N.O. + 1 N.C. auxiliary contacts Suitable for all Bul. 100-C contactor sizes, 9...85 A	Maximum command duration 0.03...10 s	100-C with AC coils (except 100-C90)	100-FL11 ⊗	
	DC Interface (Electronic) Interface between the DC control signal (PLC) and the AC operating mechanism of the contactor. Requires no additional surge suppression on the relay coils	Input: 12V DC Output: 110...240V AC	100-C with AC coils 110...240V AC	100-JE12	
		Input: 18...30V DC Output: 110...240V AC		100-JE	
		Input: 48V DC Output: 110...240V AC		100-JE48	
	Surge Suppressors For limitation of coil switching transients. Plug-in, coil mounted. Suitable for all 100-C contactor sizes, 5 A. RC, varistor, and diode versions.	RC Module AC operating mechanism	100-C with AC coils	24...48V AC, 50/60 Hz	* 100-FSC48
				110...280V AC, 50/60 Hz	* 100-FSC280
				380...480V AC, 50/60 Hz	* 100-FSC480
		Varistor Module AC/DC operating mechanism	100-C	12...55V AC/ 12...77V DC	* 100-FSV55
				56...136V AC/ 78...180V DC	* 100-FSV136
				137...277V AC/ 181...350V DC	* 100-FSV277
				278...575V AC	* 100-FSV575
		Diode Module DC operating mechanism	100-C with DC coils	12...250V DC	* 100-FSD250

* May be ordered in package quantities of 10. Add letter **M** to the end of the cat. no. Example: **100-FSC48M**.

⊗ **Voltage Suffix Code for Mechanical Latch**

The cat. no. as listed is incomplete. Select a voltage suffix code from the table below to complete the cat. no. Example: 230V, 50/60 Hz: **Cat. no. 100-FL11**⊗ becomes **cat. no. 100-FL11KF**.

AC Control	
Code	Description
KJ	24V 50/60 Hz
KY	48V 50/60 Hz

AC Control	
Code	Description
KD	110V 50/60 Hz
KF	230V 50/60 Hz

AC Control	
Code	Description
KN	400V 50/60 Hz

For other AC voltages visit our website or consult your local sales office.

Star-Delta Starter Kits

Power wiring kits were designed to aid in the field assembly of open-transition star-delta and reversing starters that use Bulletin 100-C contactors. These kits include line, load (and start-point) connections.



170-PW23

3-Phase Rating (50 Hz)				Use with Cat. No. 100-...			Cat. No.
230V	380/415V	500V	690V	Delta		Star	
[kW]				1M	2M	1S	170-PW23
5.5	8	8	8	C09	C09	C09	
7.5	11	11	11	C12	C12	C09	
10	14	15	14	C16	C16	C12	
14	21	21	19	C23	C23	C12	
18	28	28	28	C30	C30	C16	
19	35	35	32	C37	C37	C23	
23	40	40	41	C43	C43	C30	
33	58	60	56	C60	C60	C37	
39	69	67	70	C72	C72	C43	
47	82	82	81	C85	C85	C60	

Reversing Starter Kits





	Description	For Use With	Cat. No.
	Reversing Power Wiring Kits For reversing connection with a solid-state or thermal overload relay	100-C09...C23	105-PW23
		100-C30...C37	105-PW37
		100-C43	105-PW43
		100-C60...85	105-PW85

Marking Systems

	Description	PQ	Cat. No.
	Label Sheet 105 self-adhesive paper labels each, 6 x 17 mm	10	100-FMS
	Marking Tag Sheet 160 perforated paper labels each, 6 x 17 mm, to be used with a transparent cover	10	100-FMP
	Transparent Cover To be used with marking tag sheets	100	100-FMC

PQ = Package Quantity

Enclosures

	Description	For Use With	Cat. No.
	Plastic Enclosures for DOL Starters For Bulletin 100-C09...C23 contactors with overload relays Bulletin 193-ED, -EE, or -CT Protection class IP66 Prestampings for two pilot lights		
	Material: ABS V-0 With blue RESET push button	100-C09...C23 + 193-ED, -EE, -CT	198E-A0S1
	With green START and raised red STOP/RESET push buttons, START contact kit included.		198E-A0S4
	Material: PC V-0 With blue RESET push button	100-C09...C23 + 193-ED, -EE, -CT	198E-C0S1
With green START and raised red STOP/RESET push buttons, START contact kit included.	198E-C0S4		
	Pushbutton Latch For maintained contact control, enclosures with START/STOP push buttons.	198E-A0S4, 198E-C0S4	198E-PLA
	Neutral Terminal	198E-A..., 198E-C...	198E-PNT
	START Contact Kit Included in the enclosure, as spare part only.	198E-A0S4, 198E-C0S4	198E-PCK
	Pilot Lights , see 140A page 3-7		

DeviceNet Starter Auxiliary DSA I/O for Distributed Starters

- Includes complete connector plug set
- Removable connectors
- Slender 22.5 mm wide profile
- Screw or DIN Rail mounting
- Rotary node address switches
- DeviceNet address settable via hardware or software — no need to adjust rotary node address switches
- DeviceLogix functionality



Inputs from:

- Contactor Aux
- Relay
- Pushbutton
- Proximity Switch
- Limit Switch

Outputs to:

- Contactor Coil
- Starter
- Relay
- Signal Lamp
- Valve

No. of Inputs	No. of Outputs	Cat. No.
4 (120V AC)	2 Relay (250V rated)	100-DNY41R
4 (24V DC)	2 Relay (250V rated)	100-DNY42R
4 (24V DC)	2 Solid-State (24V DC)	100-DNY42S

Contactors 100-D

- Conventional and Electronic Coils
- 3 Main Contacts





100-D95

100-D420

100-D860

Contactors with 3 Main Contacts

Rated Operational Current I_e [A]		Ratings for Switching AC Motors — AC-2, AC-3, AC-4	Auxiliary Contacts		Cat. No.
(60 °C)	(40 °C)				
AC-3	AC-1	3Ø kW (50 Hz)	N.O.	N.C.	
		400/415V			

3-Pole AC-Operated Contactors

95	160	50	1	1	100-D95\otimes11
110	160	55	1	1	100-D110\otimes11
140	250	75	1	1	100-D140\otimes11
180	250	90	1	1	100-D180\otimes11
210	350	110	1	1	100-D210\otimes11
250	350	132	1	1	100-D250\otimes11
300	450	160	1	1	100-D300\otimes11
420	540	220	1	1	100-D420\otimes11
630	800	355	1	1	100-D630\otimes11
860	1000	500	1	1	100-D860\otimes11

3-Pole DC-Operated Contactors

95	160	50	2	1/1L	*	100-D95 \otimes 22L
			1	1		100-D95\otimes11
110	160	55	2	1/1L	*	100-D110 \otimes 22L
			1	1		100-D110\otimes11
140	250	75	2	1/1L	*	100-D140 \otimes 22L
			1	1		100-D140\otimes11
180	250	90	2	1/1L	*	100-D180 \otimes 22L
			1	1		100-D180\otimes11
210	350	110	1	1		100-D210\otimes11
250	350	132	1	1		100-D250\otimes11
300	450	160	1	1		100-D300\otimes11
420	540	220	1	1		100-D420\otimes11
630	800	355	1	1		100-D630\otimes11
860	1000	500	1	1		100-D860\otimes11

* Conventional Coil: The pickup winding must be interconnected with the N.C. late-breaking auxiliary contact.


\otimes The cat. no. as listed is incomplete. Select a coil voltage code from the table on page 1-38 to complete the cat. no. Example: 230V, 50/60 Hz: Cat. no. **100-D95 \otimes 11** becomes cat. no. **100-D95KF11**.

Safety Contactors 100S-D

- Conventional and Electronic Coils
- 3 Main Contacts



Contactors with 3 Main Contacts

Rated Operational Current I_e [A]		Ratings for Switching AC Motors — AC-2, AC-3, AC-4	Auxiliary Contacts		Standard Auxiliary Contact	Bifurcated Auxiliary Contact
60 °C	40 °C		3Ø kW (50 Hz)			
AC-3	AC-1	400/415V	N.O.	N.C. *	Cat. No.	Cat. No.

3-Pole AC-Operated Contactors

95	160	50	2	2	100S-D95 \otimes 22C	100S-D95\otimes22BC
110	160	55	2	2	100S-D110 \otimes 22C	100S-D110\otimes22BC
140	250	75	2	2	100S-D140 \otimes 22C	100S-D140\otimes22BC
180	250	90	2	2	100S-D180 \otimes 22C	100S-D180\otimes22BC
210	350	110	2	2	100S-D210 \otimes 22C	100S-D210\otimes22BC
250	350	132	2	2	100S-D250 \otimes 22C	100S-D250\otimes22BC
300	450	160	2	2	100S-D300 \otimes 22C	100S-D300\otimes22BC
420	540	220	2	2	100S-D420 \otimes 22C	100S-D420\otimes22BC
630	800	355	2	2	100S-D630 \otimes 22C	100S-D630\otimes22BC
860	1000	500	2	2	100S-D860 \otimes 22C	100S-D860\otimes22BC

3-Pole DC-Operated Contactors

95	160	50	3	2/1L	\otimes	100S-D95 \otimes 33LC	—
			2	2		100S-D95 \otimes 22C	100S-D95\otimes22BC
110	160	55	3	2/1L	\otimes	100S-D110 \otimes 33LC	—
			2	2		100S-D110 \otimes 22C	100S-D110\otimes22BC
140	250	75	3	2/1L	\otimes	100S-D140 \otimes 33LC	—
			2	2		100S-D140 \otimes 22C	100S-D140\otimes22BC
180	250	90	3	2/1L	\otimes	100S-D180 \otimes 33LC	—
			2	2		100S-D180 \otimes 22C	100S-D180\otimes22BC
210	350	110	2	2		100S-D210 \otimes 22C	100S-D210\otimes22BC
250	350	132	2	2		100S-D250 \otimes 22C	100S-D250\otimes22BC
300	450	160	2	2		100S-D300 \otimes 22C	100S-D300\otimes22BC
420	540	220	2	2		100S-D420 \otimes 22C	100S-D420\otimes22BC
630	800	355	2	2		100S-D630 \otimes 22C	100S-D630\otimes22BC
860	1000	500	2	2		100S-D860 \otimes 22C	100S-D860\otimes22BC

* The N.C. contacts meet IEC 60947-4 Annex F requirements to mirror contact performance. The N.C. mirror contacts are wired in series or parallel and must be used as monitoring contacts with feedback to the safety circuit.

\otimes Conventional Coil: The pickup winding must be interconnected with the N.C. late-breaking auxiliary contact.

\otimes The cat. no. as listed is incomplete. Select a coil voltage code from the table on page 1-38 to complete the cat. no. Example: 230V, 50/60 Hz: Cat. no. **100-D95 \otimes 11** becomes cat. no. **100-D95KF11**.

Contactors

Product Selection / Accessories

⊗ Coil Voltage Codes for AC Control

Conventional Coil	[M]	24	48	110	120	220-230	230	240	380-400	440	500
-D95...-D180	50 Hz	K	Y	D	—	A	—	—	N	—	M
	60 Hz	J	X	—	D	—	—	A	—	N	—
-D95...-D110	50/60 Hz	—	—	KN	—	—	KF	—	—	—	—

Electronic Coil w/ EI Interface *	[M]	24	42-64	110-130	208-277	380-415	440-480	380-500
-D95...-D300	50/60 Hz	EJ *	EY	ED	EA	—	—	EN
-D420	50/60 Hz	—	—	ED	EA	—	—	EN
-D630...-D860	50/60 Hz	—	—	ED	EA	EN	EB	—

⊗ Coil Voltage Codes for DC Control

Conventional Coil	[M]	24	48	110	220
-D95...-D180 ‡	DC	ZJ	ZY	ZD	ZA


Electronic Coil w/ EI Interface *	[M]	24	48-72	110-130	200-255
-D95...-D300	DC	EZJ	EZY	EZD	EZA
-D420	DC	—	—	EZD	EZA
-D630...-D860	DC	—	—	ED	EA

* Signal voltage of the electronic interface (100-D..., 100S-D...): nominal U_0 : 24V DC/ I_0 : 15 mA
 Pickup voltage: 13.0V DC...30.2V DC Dropout Voltage: -3.0V DC...+5.0V DC.


* Not available with 100(S)-D300

‡ For conventional DC coils, the pickup winding must be interconnected with the N.C. late-breaking auxiliary contact(s).






Accessories for 100-D, 100S-D

Description	Auxiliary Contact		For Use With	Auxiliary Contact	
	N.O.	N.C.		Standard Cat. No.	Bifurcated Cat. No.
 Auxiliary Contacts Side-mounted with IEC sequence terminal designations Standard contacts 17V/10 mA Bifurcated contacts for signals down to 5V/2 mA	1	1	100-D left or right inside mounting	100-DS1-11	100-DS1-B11H
	1	1	100-D left or right outside mounting	100-DS2-11	100-DS2-B11H
	1	1L	100-D left or right inside mounting	100-DS1-L11	100-DS1-BL11H
	2	0	100-D left or right inside mounting	100-DS1-20	100-DS1-B20H
	2	0	100-D left or right outside mounting	100-DS2-20	100-DS2-B20H
Auxiliary Contacts Electronically compatible auxiliary contacts Ideal for use when switching low-power control circuits With IEC sequence terminal designations Contact ratings: AC-12, 250V, 0.1 A AC-15, DC-13, 3...125V, 1...100 mA	1	1	100-D left or right inside mounting	100-DS1-B11	—








Accessories for 100-D, 100S-D, Continued

	Description	Suppressor Rating	For Use With	Cat. No.		
	Suppressor Module for Bul. 100-D Contactors <ul style="list-style-type: none"> For limiting surge voltage when coil circuits are interrupted Supplied as standard on all conventional DC coil contactors and all electronic coil contactors (as part of the supply module or delivered with separate suppressor module) 	RC Module (AC control) for contactors with conventional coil 21...48V, 50 Hz; 24...55V, 60 Hz	100-D95...100-D180	100-DFSC48		
		95...110V, 50 Hz; 110...127V, 60 Hz		100-DFSC110		
		180...277V, 50 Hz; 208...277V, 60 Hz		100-DFSC240		
		380...550V, 50 Hz; 440...600V, 60 Hz		100-DFSC550		
				Varistor Module for contactors with conventional coil 55V AC	100-D95...100-D180	100-DFSV55
				56...136V AC		100-DFSV136
				137...277V AC		100-DFSV277
				278...600V AC		100-DFSV575
				208...277V AC *	100-D95...100-D180	100-DFSV550

* For overvoltage category IV (IEC 947 for 100-D...-E) e.g., lightning protection requirements.

	Description	For Use With	Cat. No.
	Interlock — Mechanical Only No additional space required	100-D95...100-D420	100-DMA00
	Interlock — Dual Electrical/Mechanical No additional space required Two N.C. auxiliary contacts	100-D95...100-D860	100-DMD02
	Interlock — Dual Electrical/Mechanical Provides interlocking between Bul. 100-C and Bul. 100-D contactors Two N.C. auxiliary contacts	100-C60...100-C85 between 100-D95...100-D180	100-DMC02
	Terminal Lugs Set of two Protection class IP2X per IEC 60529 and DIN 40 050	100-D95, 100-D110	100-DTB110
		100-D140, 100-D180, 100-D95E...D180E, 193-EC_F, 193-EE_F	100-DTB180
		100-D210...100-D420, 193-EC_G, 193-EF2C, 193-EE_G	100-DTB420
	Control Circuit Terminal 2 x 2.5 mm ²	Connects to Cat. Nos. 100-D95...D180	100-DAT1
		Connects to Cat. Nos. 100-D210...D420	100-DAT2
	Phase Barriers Set of 4	100-D630...D860, 193-EC_H, 193-EE_H	100-DPB860

Accessories for 100-D, 100S-D, Continued

	Description	Output Connection	For Use With			Cat. No.
			100-D 95...180	100-D 210...420	100-D 630...860	
	Reversing: Input Connection Wye-Delta: Main-Delta connection	50 mm ²	X *			100-D180-VL
		120 mm ²		X *		100-D420-VL
		350 mm ²			X *	100-D860-VL
		50 mm ²	X ⚡			100-D180-VLTB
		120 mm ²		X ⚡		100-D420-VLTB
	Reversing: Output Connection Wye-Delta: Delta-Wye connection	50 mm ²	X *			100-D180-VT
		120 mm ²		X *		100-D420-VT
		350 mm ²			X *	100-D860-VT
		50 mm ²	X ⚡			100-D180-VTTB
	Delta-Wye connection if 100-D95...180 is used as a Wye contactor	120 mm ²		X ⚡		100-D420-VTTB
		80 mm ²	—	X ⚡		100-D420-VYTB
	Wye-Delta: Neutral bridge	—	X			100-D180-VYU
		—		X		100-D420-VYU
		—			X	100-D860-VYU
	Power Wiring Kits (for contactors using 100-DL lug kits)	For 100-D95...100-D180 Reversing			100-DPW180	
		Two-speed, or changeover Wye-Delta/Star-Delta			100-D180-VL	
		For 100-D210...100-D420 Reversing			100-DPY180	
		Two-speed, or changeover Wye-Delta/Star-Delta			100-DPW420	
		For 100-D630...100-D860 Reversing			100-D420-VL	
		Two-speed, or changeover			100-DPY420	
	Terminal Shields Set of two Protection class IP10 per IEC 60529 and DIN 40 050 For direct-on-line, reversing, two-speed, and wye-delta/star-delta assemblies	100-D95, 100-D110			100-DTS110	
		100-D140, 100-D180, 100-D95- E...100-D180-E			100-DTS180	
		100-D210...100-D420			100-DTS420	
	Terminal Covers Protection class IP20 per IEC 60529 and DIN 40 050 For direct-on-line, reversing, two-speed, and wye-delta/star-delta assemblies	100-D95...100-D180, 193-EC_F, 193-EE_F			100-DTC180	
		100-D210...100-D420, 193-EC_G, 193-EE_G			100-DTC420	
		100-D630...100-D860, 193- EC_H, 193-EE_H			100-DTC860	

* For use with terminal lugs 100-DL... (UL/CSA), see publication A115-CA001...



⚡ For use with terminal blocks 100-DTB...

Contactors 100-G

- 315...710 kW, 400V
- 350...900 Hp, 460/575V
- 3-Pole Contactors
- 4th Add-On Neutral Switching Pole
- AC and DC Control
- Horizontal and Vertical Interlocking
- Mechanical Latching
- Meets IEC, CE, UL, and cUL Standards and Approvals



Contactors with 3 Main Contacts

Rated Operational Current I_e [A]	Ratings for Switching AC Motors — AC-2, AC-3	Auxiliary Contacts		Cat. No.
				
AC-1	3Ø kW (50 Hz)			
40 °C	400V	N.O.	N.C.	
760	315	2	2	100-G550⊗22
1000	400	2	2	100-G700⊗22
1100	500	2	2	100-G860⊗22
1200	560	2 *	2	⊗ 100-G1000⊗12
1350	710	2 *	2	⊗ 100-G1200⊗12

* 1 N.O. contact used in control circuit

⊗ No UL/cUL







⊗ Coil Voltage Codes for AC and DC Control

		[V]	100-110	110-120	200-220	220-240	345-380	380-415	440-480
100-G550...100-G860	50/60 Hz	—	KD	—	KF	—	KN	KB	
	DC	KD	—	KF	—	KN	—	—	

		[V]	110	110-115	220	220-230	240	380-400	480
100-G1000...100-G1200	50/60 Hz	—	KD	—	KF	KA	KN	KU	
	DC	ZD	—	ZA	—	—	—	—	

For other voltages visit our website or consult your local sales office.

Accessories for 100-G

	Description	For Use With	Cat. No.
	Auxiliary Contact Block For mounting between T1 & T2 or between T2 & T3 Adjustable; provides normal, delayed, or overlapping contacts Max. two blocks/contactor Alternate terminal marking tags included 2 N.O. and 2 N.C. contacts	100-G550...100-G860	100-EF22
	Auxiliary Contact Block For side mounting on either side of the contactor Max. four blocks/contactor Alternate terminal marking tags included 1 N.O. and 1 N.C. contact	100-G1000...100-G1200	100-EB11
	1 N.C. and 1 N.O. late break	100-G1000, 100-G1200	100-EB11DC
	Fourth Add-On Neutral Switching Pole Left- or right-side mountable Note: no UL/cUL	100-G550	100-NP500-5
		100-G700, 100-G860	100-NP500-6
		100-G700, 100-G860	100-NP1000-6
		100-G1000, 100-G1200	100-NP1000-7
	Mechanical Latch Mechanical life: 0.5 million operations Direct and Impulse Control	100-G550	100-FLAM5⊗
		100-G700, 100-G860	100-FLAM6⊗
	Mechanical Interlock — Horizontal	100-G550 to 100-G550	100-MC00-5H
		100-G550 to 100-G700 or 100-G860	100-MC00-56H
		100-G700 or 100-G860 to 100-G700 or 100-G860	100-MC00-6H
		100-G700 or 100-G860 to 100-G1000 or 100-G1200	100-MC00-67H
		100-G1000 or 100-G1200 to 100-G1000 or 100-G1200	100-MC00-7H
	Mechanical Interlock — Vertical	100-G550 to 100-G550	100-MC00-5V
		100-G550 to 100-G700 or 100-G860	100-MC00-56V
		100-G700 or 100-G860 to 100-G700 or 100-G860	100-MC00-6V
		100-G700 or 100-G860 to 100-G1000 or 100-G1200	100-MC00-67V
		100-G1000 or 100-G1200 to 100-G1000 or 100-G1200	100-MC00-7V

⊗ Coil Voltage Codes for AC Control

	[V]	110...120	220...240	380...415	440...480
100-G550... 100-G860	50/60Hz	KD	KF	KN	KB

For other voltages visit our website or consult your local sales office.

Solid-State Contactors

The Bulletin 156 Solid-State Contactors are ideal replacements for electro-mechanical contactors where fast and demanding switching of loads such as heaters, solenoids, transformers, and motors, is required.

- Compact modular design complete with heatsink
- DIN Rail mountable
- Simple installation
- Available in single-phase, dual-phase, or three-phase version
- Operational current rating 20...90 A
- LED status indication
- AC, DC, and analog control options
- Zero-cross switching



Solid-State Power Contactors

Single-Phase

Current Rating		Control Voltage	Housing Size	Operational Voltage	
@ 25 °C	@ 40 °C			24...230V AC	24...600V AC
[A]	[A]			Cat. No.	Cat. No.
20	17	24...275V AC, 24...48V DC	22.5	156-B20AA1	156-B20CA1
		5...24V DC		156-B20AB1	156-B20CB1
30	25	24...275V AC, 24...48V DC	22.5	156-B30AA1	156-B30CA1
		5...24V DC		156-B30AB1	156-B30CB1
45	38	24...275V AC, 24...48V DC	45	156-B45AA1	156-B45CA1
		5...24V DC		156-B45AB1	156-B45CB1
50	43	24...275V AC, 24...48V DC		156-B50AA1	156-B50CA1
		5...24V DC		156-B50AB1	156-B50CB1
70	60	24...275V AC, 24...48V DC	90	156-B70AA1	156-B70CA1
		5...24V DC	90	156-B70AB1	156-B70CB1
75	64	24...275V AC, 24...48V DC	45 *	156-B75AA1	156-B75CA1
		5...24V DC		156-B75AB1	156-B75CB1
90	77	24...275V AC, 24...48V DC	90 *	156-B90AA1	156-B90CA1
		5...24V DC		156-B90AB1	156-B90CB1

* With fan. External fan supply 24V DC required.

Dual-Phase

Current Rating		Control Voltage	Housing Size	Operational Voltage	
@ 25 °C	@ 40 °C			24...230V AC	24...600V AC
[A]	[A]			Cat. No.	Cat. No.
25	20	24...275V AC, 24...48V DC	45	156-B25AA2	156-B25CA2
		5...24V DC		156-B25AB2	156-B25CB2
32	25	24...275V AC, 24...48V DC	90	156-B32AA2	156-B32CA2
		5...24V DC		156-B32AB2	156-B32CB2

Solid State Contactors

Product Selection

Three-Phase

Current Rating		Control Voltage	Housing Size	Operational Voltage	
@ 25 °C	@ 40 °C			24...230V AC	24...600V AC
[A]	[A]			Cat. No.	Cat. No.
20	16	24...275V AC, 24...190V DC	45	156-B20AA3	156-B20CA3
		5...24V DC		156-B20AB3	156-B20CB3
25	20	24...275V AC, 24...190V DC	90	156-B25AA3	156-B25CA3
		5...24V DC		156-B25AB3	156-B25CB3
32	26	24...275V AC, 24...190V DC	45 *	156-B32AA3	156-B32CA3
		5...24V DC		156-B32AB3	156-B32CB3

* With fan. External fan supply 24V DC required.

Solid-State Specialty Contactors

Single-Phase with Current Monitoring

Current Rating		Supply Voltage	Control Voltage	Housing Size	Alarm Type	Operational Voltage	
@ 25 °C	@ 40 °C					24...265V AC	42...660V AC
[A]	[A]					Cat. No.	Cat. No.
30	27	24V DC	4...32V DC	45	PNP, N.O.	156-B30ABP	156-B30CBP
					NPN, N.O.	156-B30ABN	156-B30CBN
50	36			45	PNP, N.O.	156-B50ABP	156-B50CBP
					NPN, N.O.	156-B50ABN	156-B50CBN

Single-Phase, Single-Pole, Multi-function Analog

Current Rating		Control Input	Housing Size	Operational Voltage		
@ 25 °C	@ 40 °C			90...265V AC	200...550V AC	410...660V AC
[A]	[A]			Cat. No.	Cat. No.	Cat. No.
30	23	0...10V DC‡	45	156-B30AV1	156-B30BV1	156-B30CV1
		4...20 mA		156-B30AC1	156-B30BC1	156-B30CC1
50	40	0...10V DC‡	45	156-B50AV1	156-B50BV1	156-B50CV1
		4...20 mA		156-B50AC1	156-B50BC1	156-B50CC1

‡ Requires a 24V AC/DC supply to power the control circuitry of the solid-state contactor.

Starter Selection

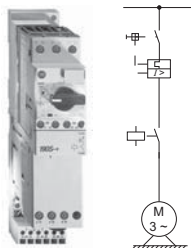
Bulletin	190S / 191S*	190E* / 191E*	103T* / 107T*
Type	Compact Starters	Eco Starters	Starters
Current Range	0.1...45 A	0.1...25 A	0.1...100 A
Motor Range (Max. Kilowatt)	22 kW at 400V	11 kW at 400V	45 kW at 400V
Short Circuit Motor Protection	✓	✓	✓
Overload Protection: Trip Class	10, 15, 20, 30	10	10, 15, 20, 30
Mounting Options			
Standard Busbar Mount	—	—	✓
Iso Busbar Mount	—	—	✓
Panel Mount	✓	✓	✓
Standards Compliance			
UL 508 and CSA 22.2, No. 14, Self-Protected Combination Motor Controller	✓	✓	✓
IEC 60947-4, CE	✓	✓	✓
Major Components			
140M Motor Protection Circuit Breaker	✓	✓	✓
100C Contactors	✓	✓	✓
193-E Overload Relays	—	—	✓
Accessories			
Lockable Knobs	✓	✓	✓
Aux/Trip Contacts for Circuit Breaker	✓	✓	✓
Aux Contacts for Contactor	✓	✓	✓
UV/Shunt Trip for Circuit Breaker	✓	✓	✓
Product Selection	See page 1-46	* For detailed information visit our website or consult your local sales office.	

Starters

Product Selection

Direct On-Line Starters, Bulletin 190S

- 190S Compact Starter with Bulletin 140M Circuit Breaker and Bulletin 100-C Contactor
- Short-Circuit Coordination Type "1" and "2" according to IEC 60947-4-1
- Complete unit, ready for connection with internal wiring
- Auxiliary Contacts Wired to Terminal Block at Bottom of Starter Assembly
- Accessories: Bulletin 140M Circuit Breakers and 100-C Contactors
- Removable cover
- IEC and UL/CSA compliant
- Mounting Versions:
 - Screw Fixing
 - Snap Fixing on (1) or (2) 35 mm DIN Rails
 - Snap Fixing on (1) 75 mm DIN Rail



Note: Line voltage and short-circuit coordination see MCS Star.
Verify that the circuit breaker can be set to the rated motor current!



Standard Configurations for AC-Control

Standard Motors AC-3, 3-Phase	Max. Fault Current I_q 400/415V	Motor Current Setting Range	Magnetic Trip Current	Direct On-Line Starters
[kW]	Type 2 [kA]	[A]	[A]	Cat. No.
C-Frame				
—	65	0.10...0.16	2.1	190S-AN⊗2-CA16C
0.06	65	0.16...0.25	3.3	190S-AN⊗2-CA25C
0.09	65	0.25...0.40	5.2	190S-AN⊗2-CA40C
0.18	65	0.40...0.63	8.2	190S-AN⊗2-CA63C
0.25	65	0.63...1.0	13	190S-AN⊗2-CB10C
0.55	65	1.0...1.6	21	190S-AN⊗2-CB16C
0.75	65	1.6...2.5	33	190S-AN⊗2-CB25C
1.5	50	2.5...4.0	52	190S-AN⊗2-CB40C
2.2	50	4.0...6.3	82	190S-AN⊗2-CB63C
4	50	6.3...10	130	190S-AN⊗2-CC10C
5.5	50	10...16	208	190S-BN⊗2-CC16C
7.5	50	10...16	208	190S-CN⊗2-CC16C
D-Frame				
1.5	65	2.5...4.0	52	190S-AN⊗2-DB40C
2.2	65	4.0...6.3	82	190S-AN⊗2-DB63C
4	65	6.3...10	130	190S-AN⊗2-DC10C
5.5	65	10...16	208	190S-BN⊗2-DC16C
7.5	65	10...16	208	190S-CN⊗2-DC16C
10	65	14.5...20	260	190S-DN⊗2-DC20C
11	65	18...25	325	190S-DN⊗2-DC25C
F-Frame				
15	65	23...32	416	190S-EN⊗3-FC32C
18.5	65	32...45	585	190S-FN⊗3-FC45C
22	65	32...45	585	190S-GN⊗3-FC45C

1 N.O. + 1 N.C. auxiliary contacts on 140M are standard. N.O. auxiliary contact on 100-C (1 N.O. + 1 N.C. for F-Frame types) are standard.

⊗ For AC coil voltage codes, see page 1-29. DC-control voltages and optional configurations on request.

Starter Components

Bulletin	140M-RC	100-CR
		
Spring Clamp Terminals	✓	✓
Max. Current I_e	16 A	16 A
Current Rating	0.1...16 A	9...16 A
Short Circuit Protection	✓	—
Standard Magnetic Trip	✓	—
Overload Protection	✓	—
Trip Class	10	—
Standards Compliance:		
CSA 22.2, No. 14	✓	✓
UL 508 Manual, Self Protected (Type E)	✓	✓
UL 508 (Group Install.)	✓	✓
UL 508 (Overload Protection)	✓	✓
IEC 60947-2	✓	✓
IEC 60947-4	✓	✓
CE	✓	✓
Accessories		
Ext. Rotary Operator	✓	—
Auxiliary Contacts	✓	✓
Trip Indication Contacts	✓	—
Product Selection	See page 1-48	See page 1-49

Starter Components with Spring Clamp Terminals

Product Selection / Accessories

Motor Protection Circuit Breakers 140M with Spring Clamp Terminals

- Short Circuit Protection — Standard Magnetic Trip (Fixed at $13 \times I_e$)
- Overload Protection — Trip Class 10 (Adjustable Current Range)
- Ambient temperature compensation
- Phase-loss protection
- ATEX for C-Frame
- Standards and Approvals: IEC, cULus



Rated Operational Current (I_e)	Motor Current Adjustment Range	Switching of 3-Phase AC Motors AC-2, AC-3 @ 400/415V (50 Hz)			Cat. No.
		[A]	[A]	[kW]	
C-Frame					
0.16	0.10...0.16	0.02	100	100	140M-RC2E-A16
0.25	0.16...0.25	0.06	100	100	140M-RC2E-A25
0.4	0.25...0.40	0.09	100	100	140M-RC2E-A40
0.63	0.40...0.63	0.12/0.18	100	100	140M-RC2E-A63
1	0.63...1.0	0.12	100	100	140M-RC2E-B10
1.6	1.0...1.6	0.18/0.25	100	100	140M-RC2E-B16
2.5	1.6...2.5	0.37	100	100	140M-RC2E-B25
4	2.5...4.0	0.55/0.75	100	100	140M-RC2E-B40
6.3	4.0...6.3	1.1/1.5	100	100	140M-RC2E-B63
10	6.3...10	2.2	100	100	140M-RC2E-C10
16	10...16	3.0/4.0	50	50	140M-RC2E-C16

Accessories

	Description	Term. No.			For Use With	Cat. No.
			N.O.	N.C.		
	Front-Mounted Auxiliary Contact 1-pole or 2-pole No additional space required - Only (1) per MPCB	13-14	1	0	140M-R	140M-RC-AFA10
		11-12	0	1	140M-R	140M-RC-AFA01
	Front-Mounted Auxiliary Contact 1-pole or 2-pole No additional space required	13-14	1	1	140M-R	140M-RC-AFA11
		21-22	1	1	140M-R	140M-RC-AFA11
	Front-Mounted Trip Contact 2-pole Indicates tripping of device No additional space required	13-14	2	0	140M-R	140M-RC-AFAR10A10
		27-28	2	0	140M-R	140M-RC-AFAR10A10
	Front-Mounted Trip Contact 2-pole Indicates tripping of device No additional space required	11-12	1	1	140M-R	140M-RC-AFAR10A01
		27-28	1	1	140M-R	140M-RC-AFAR10A01

Other accessories see page 1-12

Starter Components with Spring Clamp Terminals

Product Selection / Accessories

Contactors 100-C with Spring Clamp Terminals

- Compact Sizes from 4...7.5 kW (9...16 A)
- AC and DC Coil Control
- Common Accessories for All Contactor Sizes
- Space-Saving Coil-Mounted Control Modules
- Reversible Coil Terminations (Line or Load Side)

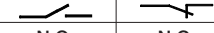




Contactors with 3 Main Contacts

Rated Operational Current (I_e) [A]		Ratings for Switching AC Motors — AC-2, AC-3, AC-4 3Ø kW (50 Hz) 400V/415V	Auxiliary Contacts		Cat. No.
			N.O.	N.C.	
AC-3	AC-1	4	1	0	100-CR09Ø10
			0	1	100-CR09Ø01
12	25	5.5	1	0	100-CR12Ø10
			0	1	100-CR12Ø01
16	25	7.5	1	0	100-CR16Ø10
			0	1	100-CR16Ø01

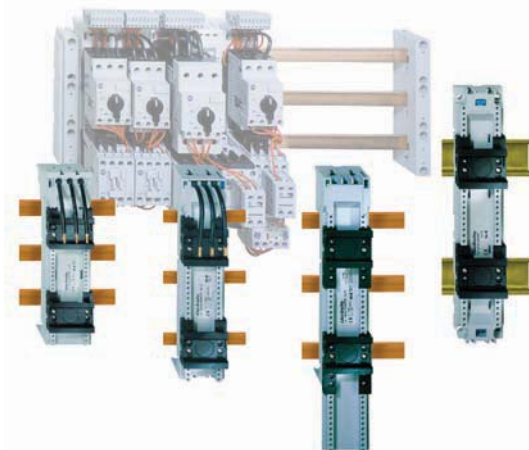
⊗ The cat. no. as listed is incomplete. Select a coil voltage code from the table on page 1-29.

Accessories

	Description			For Use With	Cat. No.	
		N.O.	N.C.			
	Auxiliary Contact Blocks for Front Mounting 2- and 4-pole Quick and easy mounting without tools Electronic-compatible contacts down to 17V, 5 mA Mechanically linked performance between N.O. and N.C. poles and to the main contactor poles (except for L types) Models with equal function with several terminal numbering choices 1L = Late break N.C./early make N.O. Bifurcated version for switching down to 5V, 3 mA	0	2	100-CR, 700-CRF	100-CRFA02	
		1	1		100-CRFA11	
		1	1		* 100-CRFB11	
		1	1		* 100-CRFC11	
		2	0		100-CRFA20	
		1L	1L		* 100-CRFB11	
		2	2		100-CRFA22	
		2	2		* 100-CRFC22	
		2	2		* 100-CRFB22	
		3	1		100-CRFA31	
4	0	100-CRFA40				
1+1L	1+1L	100-CRFAL22				
	Surge Suppressors For limitation of coil switching transients. Plug-in, coil mounted Suitable for all 100-C contactor sizes, 9...85 A RC, Varistor and Diode Versions	RC Module AC Operating Mechanism		100-CR, 700-CRF	100-CRFS48	
		24...48V AC, 50/60 Hz			100-CRFS280	
		110...280V AC, 50/60 Hz			100-CRFS480	
		380...480V AC, 50/60 Hz		Varistor Module AC/DC Operating Mechanism		100-CRFSV55
		12...55V AC/ 12...77V DC		100-CR, 700-CRF	100-CRFSV136	
		56...136V AC/ 78...180V DC			100-CRFSV277	
		137...277V AC/ 181...350V DC			100-CRFSV575	
		278...575V AC		Diode Module DC Operating Mechanism		100-CRFS250
		12...250V DC		100-CR, 700-CRF	100-CRFS250	

* Consider terminal numbering
Other accessories see page 1-31

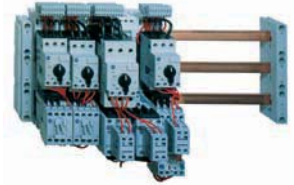
Mounting System








Bulletin	141A
Type	Mounting System
Features	<ul style="list-style-type: none"> • MCS Iso™ Busbar Modules – for maximal safety. Finger proof even when load feeders removed • MCS Standard Busbar Modules – the economic solution • Circuit Breaker Modules – for circuit breakers 140U / 140M > 100A • MCS Mounting Modules – for top hat rail or screw mounting <p>MCS Star Software – easy starter configuration according to IEC and UL/CSA standards</p>
Mounting Options:	
Iso™ Busbar Mount	✓
Standard Busbar Mount	✓
Panel Mount	✓
Standards/Approvals	CE, UL, CSA
Product Selection	Page 1-51

MCS Iso™ Busbar Modules

- System finger proof with load feeders removed
- Test position with load circuit isolated
- Consists of a device adapter plate carrying the load feeder components and a busbar module plugging on the busbars
- Preferably for use with control plug (please order separately)
- Modules with supply wires – lengths optimized for MCS 140M motor protection circuit breakers
- Modules without wire connections – attachable with connection clips to form bigger platforms
- For plugging on 12, 15, 20, 25, 30 mm x 5/10 mm thick busbars



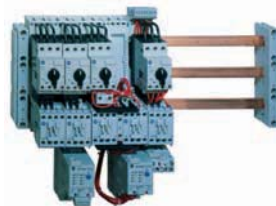
	Description	Rated Thermal Current I^{th} [A]	Width [mm]	Rail(s)	PQ	Cat. No.
	MCS Iso™ Busbar Module 200 mm high • Universal top hat rail(s)	25	45	2	*	141A-SS45RR25
			54		*	141A-SS54RR25
		45	54	1	*	141A-SS54RR45
			63		1	141A-SS63RR45
		Without electrical connections	45	1	*	141A-SS45R
			54		1	141A-SS54R
	MCS Iso™ Busbar Module 260 mm high • Universal top hat rail(s)	25	45	2	1	141A-SM45RS25
			54			141A-SM54RS25
		45	54	1	141A-SM54RS45	
			63		141A-SM63RS45	
		Without electrical connections	45	1	141A-SM45S	
			54		141A-SM54S	
		63	141A-SM63S			
			Spacer Modules for MCS Iso™ Busbar Modules For spacing of load feeders by 9 mm e.g. for improved cooling. Including connection clips.			
	Micro Switch with wire connections 1 N.C. Contact To wire in serie with the contactor coils drops out when unplugging the device adapter plate.				10	141A-AS


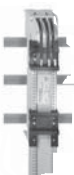


* May be ordered in package quantities of 10. Add letter **M** to the end of the cat. no. (Example: **141A-SS45RM**).
 PQ = Package Quantity

Mounting System

Product Selection

- Modules plug directly onto the busbar
- Suitable for use with control plug
- Modules with current ratings supply the load current by means of wire or terminal connections
- Modules can form bigger platforms using the connection clips
- For plugging on 12, 15, 20, 25, 30 mm x 5/10 mm thick busbars

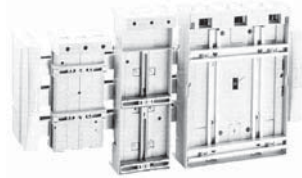





	Description	Rated Thermal Current I_{th} [A]	Width [mm]	Rail(s)	PQ	Cat. No.		
	MCS Standard Busbar Module 200 mm high • Universal top hat rail(s) 1M = Metall rail	25	45	2	*	141A-GS45RR25		
			54		*	141A-GS54RR25		
			45		54	*	141A-GS54RR45	
					63	1	141A-GS63RR45	
		125 (For 140-CMN)	90	1M	1	141A-GS90M125		
			180		1	141A-GS180M125		
			270		1	141A-GS270M125		
		125	125	180	1M	1	141A-GS180M125H	
		Without el. connections (i.e. for Rev. Starters)	45	1	*	141A-GS45R		
			54		1	141A-GS54R		
72	1		141A-GS72S					
81	1		141A-GS81S					
	MCS Standard Busbar Module 260 mm high • Universal top hat rail(s)	25	45	2		141A-GM45RS25		
			54			141A-GM54RS25		
			45		54		141A-GM54RS45	
					63	1	141A-GM63RS45	
		Without el. connections (i.e. for Rev. Starters)	45	1		141A-GM45S		
			54			141A-GM54S		
			63			141A-GM63S		
			MCS Standard Busbar Module with Terminals 200 mm high • Universal top hat rail(s) • For mounting various components	25	45	1		141A-FS45S25
					54			141A-FS54S63
					63		63	
72							141A-FS72S63	
81							141A-FS81S63	
MCS Standard Busbar Module with Terminals 260 mm high • Universal top hat rail(s) • For mounting various components	63		25	45	2		141A-FM45SS25	
			54			141A-FM54SS63		
			63			141A-FM63SS63		
			72			141A-FM72SS63		
			81			141A-FM81SS63		
	Spacer Module For spacing of load feeders by 9 mm e.g. for improved cooling. Including connection clips.				10	141A-AS9B		

* May be ordered in package quantities of 10. Add letter **M** to the end of the cat. no. (Example: **141A-GS45RM**).

MCS Standard Busbar Modules >100 A

- Busbar modules >100 A are screw mounted onto the busbars
- Sliding nuts for matching the fixing positions of components
- Versions with terminals on top or bottom
- For mounting components with current ratings 100 A (supply and load feeders)
- For plugging on 12, 15, 20, 25, 30 mm x 5/10 mm thick busbars



	Description	Rated Thermal Current I^{th} [A]	Width [mm]	Cat. No.
	Standard Busbar Module with Terminals on Top 222 mm tall With box terminals on top for electrical connection Wire size 70 mm ² (2/0 AWG) Universal mounting capability with sliding pocket nuts (M4)	200	108	141A-FS108V200T
	Standard Busbar Module with Terminals on Top 320 mm tall With box terminals on top for electrical connection Wire size 120 mm ² (250 MCM) Universal mounting capability with sliding pocket nuts (M4)	250	110	141A-FL110V250T
	Standard Busbar Module with Flexible Connecting Wires for electrical connection For use with Bulletin 140U circuit breaker (H-Frame)	125	90	141A-CUH125T
	For use with Bulletin 140M circuit breaker (H-Frame) Meets feeder circuit spacings per UL 508A	125	90	141A-CUH125B
	Standard Busbar Module with Rear Connecting Studs for electrical connection For use with Bulletin 140U circuit breakers (J-, K- or L-Frame)	250 (J frame)	105	141A-CUJ250
	For use with Bulletin 140M circuit breakers (J-, K- or L-Frame) Meets feeder circuit spacings per UL 508A	630 (K and L frames)	140	141A-CUL600

Mounting System

Product Selection

MCS Mounting Modules

- Modules (carrying the load feeder components) for screw mounting or snapping onto top hat (DIN) rails.
- Control plug optionally (please order separately)
- Three module lengths for 2- and 3-component starters.
- Modules can form bigger platforms using the connection clips (see accessories)
- Modules with PE - terminal for termination of the motor leads incl. PE (for mounting on top hat rails only).











Modules with 2 Rails

	Description	Width [mm]	Cat. No.
	MCS Mounting Module 228 mm high • Universal top hat rail(s) • Preferably for 2-component starters	45	141A-WS45RR
		54	141A-WS54RR
	MCS Mounting Module 228 mm high with PE-Terminal • Universal top hat rail(s) • Preferably for 2-component starters	45	141A-WS45RRP
		54	141A-WS54RRP
	MCS Mounting Module 283 mm high • Universal top hat rail(s) • Preferably for 3-component starters with overload relays 193-ED/EE	45	141A-WM45RR
		54	141A-WM54RR
	MCS Mounting Module 283 mm high with PE-Terminal • Universal top hat rail(s) • Preferably for 3-component starters with overload relays 193-ED/EE	45	141A-WM45RRP
		54	141A-WM54RRP
	MCS Mounting Module 333 mm high • Universal top hat rail(s) • Preferably for 3-component starters with overload relays 193-EC	45	141A-WL45RR
		54	141A-WL54RR
	MCS Mounting Module 333 mm high with PE-Terminal • Universal top hat rail(s) • Preferably for 3-component starters with overload relays 193-EC	45	141A-WL45RRP
		54	141A-WL54RRP

Busbar Components






	Description	PQ	Cat. No.
	NH Fuse Switch Disconnecter Connection bottom or top Size 00 for plugging on 5, 10 mm thick and double-T busbars. Sizes 1 and 2 conversion kit 141A-NFAFR5 is required for plugging on 5 mm thick busbars. Size 3 only for plugging on 10 mm and double-T busbars.	Size 00 200 x 106 mm 70 mm ² 160 A	1 141A-NFD160
		Size 1 243 x 184 mm M10 120 mm ² 250 A	1 141A-NFD250
		Size 2 288 x 210 mm M10 240 mm ² 400 A	1 141A-NFD400
		Size 3 300 x 256 mm M12 240 mm ² 630 A	1 141A-NFD630
	Pilot Switch For NH-fuse switch disconnectors Signaling ON/OFF position of lid 250V AC / 5 A 30V DC / 4 A	Size 00...3	1 141A-NFASNFD
	Wedge Clamp Terminal For NH-fuse switch disconnectors Connection accessories	Size 2 21 x 15 mm 120... 240 mm ²	1 141A-NFVF2240
		Size 3 25 x 20 mm 150... 300 mm ²	1 141A-NFVF3300
	Cover for Cable Lugs For NH fuse switch disconnecter Can be clipped on bottom or top	Size 1	2 141A-NFAC1A
		Size 2	2 141A-NFAC2A
		Size 3	2 141A-NFAC3A

Busbar Components, continued

	Description	PQ	Cat. No.
	Busbar Support 60 mm pole center spacing 3-pole with inside mounting holes (meets feeder circuit spacings per UL508A)	Busbar [mm] 12, 20, 30 x 5 or 12, 20, 30 x 10	10 141A-TU3
	Busbar Support 60 mm pole center spacing 3-pole with inside mounting holes (approved for branch circuit applications per UL508)	Busbar [mm] 12...30 x 5 or 12...30 x 10	10 141A-TR3
	Busbar Support 60 mm pole center spacing 4-pole with inside mounting holes		141A-TR4
	Busbar Support 1-pole		141A-TR1
	Busbar Support with terminals 60 mm pole center spacing Terminals for electrical connections 1.5...16 mm ² (#16...6 AWG) 3-pole	Busbar [mm] 12...30 x 5 or 12...30 x 10	10 141A-TR3F16
	Busbar End Cover Prevents contact with the busbar ends and prevents busbars from sliding. The end cover can easily be clipped on the busbar support. For use with 141A-TR3/-TR4/-TU3/-TR3E	3-pole	10 141A-TR3E
		4-pole	10 141A-TR4E
	Double-T Busbar Support For double-T busbars 60 mm spacing (meets feeder circuit spacings per UL 508A)	3-pole	3 141A-T13
		1-pole	10 141A-T11
	Busbar End Cover Prevents contact with the busbar ends and prevents busbars from sliding. The end cover can easily be clipped on the busbar support.		4 141A-T13E
	Compartment Section Fits to 141A-T13 double-T busbar supports Adjusts the installation depth	48 x 2400 mm	1 141A-BST48
		76 x 2400 mm	1 141A-BST76
	Busbar Cover For double-T busbars Length: 1 m; can be cut to length		5 141A-BCT1
	Double-T Busbar 2400 mm length Tin-plated copper busbar	Length: 2400 mm (1250 A)	1 141A-BT11NZ
		Length: 2400 mm (1600 A)	1 141A-BT12NZ
	Panel Busbar Shroud Provides isolation between busbar and panel (required for feeder-circuit applications per UL 508A) 230 x 810 mm	Busbar [mm] All	2 141A-BCR











PQ = Package Quantity

Busbar Components, continued

	Description	Busbar [mm]	PQ	Cat. No.	
	Supply Module 3-pole 6...50 mm ² (10...1/0 AWG) 54 mm wide (meets feeder circuit spacings per UL 508A)	12...30 x 5 or 12...30 x 10		141A-VN370	
	Supply Module 3-pole 35...120 mm ² (2 AWG...250 MCM) 81 mm wide (meets feeder circuit spacings per UL 508A)			141A-VN3120	
	Supply Module 3-pole 95...185 mm ² (3/0 AWG...350 MCM) 135 mm wide		1	141A-VN3185	
	Supply Module 3-pole for round conductors 150...300 mm ² (300...600 MCM) 135 mm wide			141A-VN3300R	
	Supply Module 3-pole for flat conductors up to 32 x 20 mm equivalent to 300 mm ² (300...600 MCM) round conductor ampacity 135 mm wide			141A-VN3300F	
	Supply Module 3-Pole (set of 3 terminals) for round conductors 120...300 mm ² (250...600 MCM) 153 mm wide (3 single poles of 51 mm each) (meets feeder circuit spacings per UL 508A) Requires Cat. No. 141A-BK180, 141A-BK228 or 141A-BK250 terminal cover		1	141A-VU3300R	
	Supply Module 3-Pole (set of 3 terminals) for flat conductors up to 32x20 mm equivalent to 300 mm ² (600 MCM) 153 mm wide (3 single poles of 51 mm each) (meets feeder circuit spacings per UL 508A) Requires Cat. No. 141A-BK180, 141A-BK228 or 141A-BK250 terminal cover			141A-VU3300F	
	Single Terminals Single terminals for supplying busbars 2.5...16 mm ² (#14...6 AWG)	12...30 x 5	25	141A-VS116	
		12...30 x 10	25	141A-VS216	
	Single Terminals Single terminals for supplying busbars 4...35 mm ² (#12...2 AWG)	12...30 x 5	25	141A-VS135	
		12...30 x 10	25	141A-VS235	
	Single Terminals Single terminals for supplying busbars 16...70 mm ² (#6...2/0 AWG)	12...30 x 5	25	141A-VS170	
		12...30 x 10	25	141A-VS270	
Single Terminals Single terminals for supplying busbars 16...120 mm ² (#6...250 MCM)	12...30 x 10	25	141A-VS2120		
	Profile Terminals For double-T busbars To connect with flat busbars and flexible copper busbars	400...800 mm ²	For use up to: 1600 A	3	141A-VS54136F
		500...750 mm ²		3	141A-VS55121F
		600...900 mm ²		3	141A-VS56421F
		600...1200 mm ²	1600 A / 2000 A *	3	141A-VS56436F
		800...1600 mm ²	1600 A / 2500 A *	3	141A-VS58136F
		1000...2000 mm ²	1600 A / 2800 A *	3	141A-VS510136F

* >1600 A only for centre feeding

Busbar Components, continued

	Description	Busbar [mm]	PQ	Cat. No.
	Terminal Cover Finger protection when busbars supplied with single terminals. Attaches directly to busbars. Height: 180 mm, Width: 54 mm	12...30 x 5 or 12...30 x 10	1	141A-BK1
	Terminal Cover Finger protection when bus bars are supplied by Cat. No. 141A-VU3300_ supply module Attaches directly to bus bars Height: 200 mm Depth: 90 mm	180 x 200 x 90	1	141A-BK180
		228 x 200 x 90		141A-BK228
		250 x 200 x 90		141A-BK250
	Components for Terminal / Busbar Covers of individual length			
	Set of Busbar Shroud Holders	1 left, 1 right side	1	141A-BKH
	Busbar Shroud Profile	1 x 1.1 m		141A-BKC
	Top / Bottom Busbar Shroud Profile	2 x 1.1 m		141A-BKS
	Busbar Connector System distance: 5...10 mm	12...20 x 5 or 12...20 x 10	12	141A-VC3A
	Busbar Shroud Cover 200 x 1100 mm Covers all three busbars	12...30 x 5 or 12...30 x 10	2	141A-BCF1
	Busbar Shroud Holder Two required per section of Busbar Shroud Cover	12...30 x 5 or 12...30 x 10	10	141A-BCF1H
	Double-T Busbar Connectors For connection of double-T busbar racks with same dimensions, Width: 95 mm	Double-T	3	141A-VC5F
	Double-T Busbar Connectors For connection of double-T busbar racks with same dimensions, Width: 150 mm			141A-VC5G
	Single Pole Busbar Covers Snap-on profile for single busbars for protection against electric shock. Length: 1 m, can be cut to length.	12...30 x 5	10	141A-BS5
		12...30 x 10		141A-BS10
	Hat (DIN) Rails — MCS Top Hat Rail (Plastic) Slides onto mounting modules and is then fixed with screws. Has notches for MCS components (prevents movement of components when used with vertical busbar).	45	10	141A-AHR45
		54		141A-AHR54
		63		141A-AHR63
	Control Plug Pull-apart terminal block allows fast and simple disconnection of control wiring. Snaps on the support of the mobile device rail. Composed of plug holder, male and female parts.	8 Pole	1	141A-APC8
		10 Pole		141A-APC10
		12 Pole		141A-APC12
	Control Plug Holder Suitable for use with 8-, 10-, or 12-pole control plugs.		1	141A-APH
	Connection Clip For joining base of mounting modules.		50	141A-AK

* May be ordered in package quantities of 10. Add letter **M** to the end of the Cat. No. (Example: **141A-APC8M**).
 PQ = Package Quantity

Motor Protection

Product Line Overview

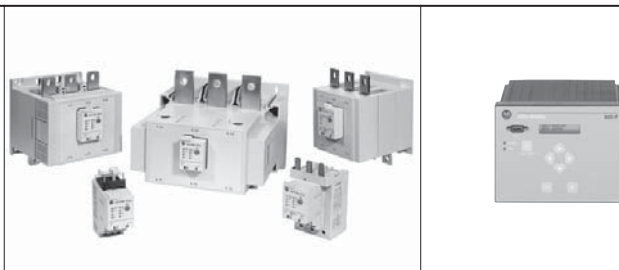
Overload Relays

Bulletin	193-K	193-T1	193-ED	193-EE
Type	Miniature Thermal Overload Relay	Bimetallic Overload Relays	Electronic Overload Relay, E1 Plus	
Rated Current (Range)	0.1...12.5 A	0.1...90 A	0.1...45 A	0.1... 800 A
Operating Voltage, Nominal	690V	690V	690V	690V AC (IEC)/ 600V AC (CSA/UL) * 1000V AC (IEC)/ 600V AC (CSA/UL) †
Overload Type	Bimetallic	Bimetallic	Solid State	Solid State
Trip Class (Fixed)	10A	10A	10	—
Trip Class (Adjustable)	—	—	—	10, 15, 20 or 30
Ambient Compensated	✓	✓	✓	✓
Reset Type	Automatic and Manual	Automatic and Manual	Manual	Manual / Auto-Manual
Adjustment Range	1.5:1	1.5:1	5:1	5:1
Phase Loss	Normal Sensing w/differential mechanism	Normal Sensing w/differential mechanism	Enhanced Sensing	Enhanced Sensing
Trip Contact N.C.	✓	✓	✓	✓
Alarm Contact N.O.	✓	✓	✓	✓
Mounts to Contactor	100-K	100-C	100-C	100-C, 100-D
Product Selection	See page 1-61	See page 1-62	See page 1-64	See page 1-64

* 193-EE_B, 193-EE_D, 193-EEGE

† 193-EE_F, 193-EE_G, 193-EE_H

Overload Relays



Bulletin	193-EC1/-EC2/-EC3/-EC4	825-P
Type	Electronic Overload Relay E3 and E3 Plus	Modular Protection System
Rated Current (Range)	0.4...5000 A	0.5...5000 A
Operating Voltage, Nominal	690V / 1000V *	690V/1000V
Overload Type ⚡	Microprocessor Based	Microprocessor Based
Trip Class (Adjustable) ⚡	5...30	1...600
Ambient Compensated	✓	✓
Reset Type ⚡	Automatic, Manual and Remote	Automatic, Manual and Remote
Adjustment Range ⚡	5:1	4:1
Phase Loss	Imbalance Sensing	Imbalance Sensing
Phase Reversal	—	✓
Ground (Earth) Fault	E3 Plus: Sensitive	Residual or Sensitive
Overcurrent (Jam) Detection	✓	✓
Stall Detection	✓	✓
Starts/Hour Monitoring	✓	✓
Underload Detection	✓	✓
Current Imbalance	✓	✓
Short Circuit Protection	—	✓
PTC Thermistor Monitoring	✓ (EC2/EC3)	✓
RTD Monitoring	—	12-Channel Optional Scanner
Warning Settings	✓	✓
Trip Contact N.C.	✓	✓
Alarm Contact N.O.	✓	✓
Number of Outputs	E3: 1/E3 Plus: 2	3 (Basic)/7 (with I/O Expansion)
Number of Inputs	E3: 2/E3 Plus: 4	2 (Basic)/5 (with I/O Expansion)
Number of Analog Outputs	—	1(with I/O Expansion)
ODVA (DeviceNet) Conformance	✓	✓
Atex Certification	In Preparation	—
Variable Frequency (VFD) Compatible	✓	—
Mounts to Contactor	100-C, 100-D	100-D (825-MCM)
Product Selection	See page 1-68	See page 1-71

* 193-EC_F, 193-EC_G, 193-EC_H

⚡ not for 193-EC4 (no overload protection)

Motor Protection

Product Line Overview

Monitoring Relays



Bulletin	809S		813S	817		819	
Type	E1	E2	E2	E1	E2	E1	E2
	Current Monitors		Phase Monitors	Thermistor Monitors		Motor Rotation Monitors	
Under- and overcurrent protection	✓	✓	—	—	—	—	—
Under- and overvoltage protection	✓	—	✓	—	—	—	—
Phase imbalance and phase loss protection	—	—	Voltage based	—	—	—	—
Overtemperature protection	—	—	—	✓	✓	—	—
Speed detection via frequency input	—	—	—	—	—	✓	—
Speed detection evaluation of motor feedback voltage	—	—	—	—	—	Suitable for small motors with low inertia	
Case size:							
H: (mm)	110	109.5	109.5	89	89	110	109.5
W: (mm)	22.5	45	45	22.5	22.5	22.5	45
D: (mm)	75	75	75	98.8	98.8	75	75
LCD / Keypad	✓	✓	✓	—	—	✓	✓
LED Status Indicator	—	—	—	✓	✓	—	—
Automatic reset	✓	✓	✓	✓	✓	✓	✓
Manual reset	—	—	—	—	✓	—	—
Remote reset	—	—	—	—	✓	—	—
Changeover contacts (SPDT)	1	1	1	—	—	—	1
N.O. contacts	—	1	1	2	2 (independent)	2 (independent)	1
Programmable trip level, reset level and time delay settings	✓	✓	✓	—	—	✓	✓
Trip cause identification	—	—	✓	✓	✓	—	—
Measuring Circuit Monitoring (open, short)	—	—	—	✓	✓	✓	✓
Product Selection	See page 1-73						

Miniature Bimetallic Overload Relays 193-K

- Standard Motor Protection for AC and DC Motors
- Overload Protection Trip class 10A
- Auxiliary Switch (1 N.O. and 1 N.C.)
- Phase Loss Sensitivity
- Manual/Auto Reset Button
- Test/Stop Button
- Trip Indicator



Mounts to Contactor	Setting Range [A] *✱	Max. Current Rating Backup gL Fuse [A] IEC Coordination Type		Cat. No.
		Type 1	Type 2	
100-K05...100-K12	0.10...0.16	35	1	193-KA16
	0.16...0.25	35	1	193-KA25
	0.25...0.40	35	2	193-KA40
	0.35...0.50	35	2	193-KA50
	0.45...0.63	35	2	193-KA63
	0.55...0.80	35	4	193-KA80
	0.75...1.0	35	4	193-KB10
	0.9...1.3	35	6	193-KB13
	1.1...1.6	35	6	193-KB16
	1.4...2.0	35	10	193-KB20
	1.8...2.5	35	20	193-KB25
	2.3...3.2	35	20	193-KB32
	2.9...4.0	35	20	193-KB40
3.5...4.8	35	20	193-KB48	
4.5...6.3	35	20	193-KB63	
100-K09...100-K12	5.5...7.5	35	20	193-KB75
	7.2...10.0	35	20	193-KC10
100-K12	9.0...12.5	35	20	193-KC12

* To select the setting range for use in Y-Δ Starters, multiply the rated operating current of the motor by a factor of 0.58.

✱ For motors with service factor of 1.15 or greater, use motor nameplate full load current. For motors with service factor of 1.0, use 90% of the motor nameplate full load current.

Bimetallic Overload Relays 193-T1

- Overload protection trip class 10 / 10A
- Phase loss protection
- Ambient temperature compensation
- Auxiliary contacts (1 N.O. and 1 N.C.)
- Manual/automatic reset mode selectable
- Test function for auxiliary contacts
- Stop button
- Trip Indicator
- Optional remote reset solenoid and external reset accessories









For Use With *	Setting Range [A] ※‡	Max. Back-up gL/gG fuse [A] 50 kA, 690V AC IEC/EN 60947-4-1 Coordination		Cat. No.
		Type 1	Type 2	
100-C09...100-C23	0.1...0.16	50	—	193-T1AA16
	0.16...0.25	50	—	193-T1AA25
	0.25...0.40	50	2	193-T1AA40
	0.35...0.50	50	2	193-T1AA50
	0.45...0.63	50	2	193-T1AA63
	0.55...0.80	50	4	193-T1AA80
	0.75...1.0	50	4	193-T1AB10
	0.90...1.3	50	6	193-T1AB13
	1.1...1.6	50	6	193-T1AB16
	1.4...2.0	50	10	193-T1AB20
	1.8...2.5	50	16	193-T1AB25
	2.3...3.2	50	16	193-T1AB32
	2.9...4.0	50	16	193-T1AB40
	3.5...4.8	50	16	193-T1AB48
	4.5...6.3	50	20	193-T1AB63
5.5...7.5	50	25	193-T1AB75	
7.2...10	50	25	193-T1AC10	
9.0...12.5	50	35	193-T1AC12	
100-C12...100-C23	11.3...16	50	35	193-T1AC16
100-C16...100-C23	15...20	80	40	193-T1AC20
	17.5...21.5	80	50	193-T1AC21
100-C23	21...25	80	50	193-T1AC25
100-C30...100-C37	15...20	80	40	193-T1BC20
	17.5...21.5	80	50	193-T1BC21
	21...25	80	50	193-T1BC25
	24.5...30	100	63	193-T1BC30
	29...36	125	63	193-T1BC36
100-C37	33...38	125	63	193-T1BC38
100-C43	17...25	100	50	193-T1CC25
	24.5...36	125	80	193-T1CC36
	35...47	160	100	193-T1CC47
100-C60...100-C85	35...47	160	100	193-T1DC47
	45...60	200	125	193-T1DC60
100-C72...100-C85	58...75	200	125	193-T1DC75
100-C85	72...90	250	160	193-T1DC90

Thermal Overload Relays, continued

For Use With *	Setting Range [A] ‡	Max. Back-up gL/gG fuse [A] 50 kA, 690V AC IEC/EN 60947-4-1 Coordination		Cat. No.
		Type 1	Type 2	
Separate mounting required (Panel-mounted device)	35...47	160	100	193-T1DC47P
	45...60	200	125	193-T1DC60P
	58...75	200	125	193-T1DC75P
	72...90	250	160	193-T1DC90P

- * Bulletin 193-T1 overload relays shall not be used with conventional DC controlled contactors. Use electronic controlled DC versions.
- ⊛ To select the setting range for use in Y-Δ Starters, multiply the rated operating current of the motor by a factor of 0.58.
- ‡ For motors with service factor of 1.15 or greater, use motor nameplate full load current. For motors with service factor of 1.0, use 90% of the motor nameplate full load current.

Add-On Modules

	Description	For Use With	PQ	Cat. No.
	DIN Rail/Panel Mounting Adapter For separate mounting of overload relays Snaps on to 35 mm top hat rail	193-T1AA, 193-T1AB, 193-T1AC, 193-T1BC	1	193-T1APM
	Screw Adapter For screw fixing of the 193-T1APM panel adapter (1 required per adapter)	193-T1APM	10 *	140M-C-N45
	Remote Reset Solenoid For remote reset of 193-K and 193-T1 overload relays	193-K, 193-T1 (not for 193-T1DC_P)	1	193-T1R⊗
	External Reset Button For enclosed, through-the-door reset applications. Metal construction, IP66, non-illuminated. Refer to the 800F selection information for additional types.	All	1	800FM-R611
	Reset Rod Length 142 mm, adjustable range 141...159 mm	All	1	800F-ATR08
	Reset Adapter Expands the reset target area when using an external reset	193-K, 193-T1 (not for 193-T1DC_P)	1	193-RA3

- * Must be ordered in multiples of package quantity.
PQ = Package Quantity

⊗ **Coil Voltage Codes for Remote Reset Solenoid**

[V]	24	48	110	120	125	220...240
50 Hz	—	—	D	—	—	—
60 Hz	—	—	—	D	—	—
50/60 Hz	KJ	KY	—	—	—	KF
DC	ZJ	ZY	ZD	—	ZS	—

Motor Protection**Product Selection****Electronic Overload Relays E1 Plus - 193-ED, 193-EE**

- Self-Powered
- Fast Phase Loss Protection
- Wide Adjustment Range (5:1)
- Insert-Molded Power Connections
- 1 N.O. and 1 N.C. Isolated Auxiliary Contacts (B600, AC-15 Rated)
- Low Energy Consumption (150 mW)
- Ambient Temperature Compensation
- Visible Trip Indication
- Optional accessories for expanded functionality

Standard
versionPass-through
version

Description	Mounts to Contactor	Adjustment Range [A]	Cat. No.
Three-Phase Devices 193-ED			
<ul style="list-style-type: none"> • 0.1...45 A Current Range • Fixed Trip Class 10 • Manual Reset 	100-C09...100-C23	0.1...0.5	193-ED1AB
		0.2...1.0	193-ED1BB
		1.0...5.0	193-ED1CB
		3.2...16	193-ED1DB
	100-C30...100-C43	5.4...27	193-ED1EB
		5.4...27	193-ED1ED
		9...45	193-ED1FD
		1.0...5.0	193-ED1CP
<ul style="list-style-type: none"> • 1...27 A Current Range • Selectable Trip Class (10, 15, 20 or 30) • Selectable Manual/Auto-Manual Reset 	Integrated panel/DIN Rail mount and pass-thru wiring	3.2...16	193-ED1DP
		5.4...27	193-ED1EP
Three-Phase Devices 193-EE			
<ul style="list-style-type: none"> • 0.1...800 A Current Range • Selectable Trip Class (10, 15, 20 or 30) • Selectable Manual/Auto-Manual Reset 	100-C09...100-C23	0.1...0.5	193-EEAB
		0.2...1.0	193-EEBB
		1.0...5.0	193-EECB
		3.2...16	193-EEDB
	100-C30...100-C43	5.4...27	193-EEEB
		5.4...27	193-EEED
	100-C60...100-C85	9...45	193-EEFD
		5.4...27	193-EEEE
		9...45	193-EEFE
	100-D95...100-D180	18...90	193-EEGE
		30...150 *	193-EEHF
	100-D210...100-D420	40...200 *	193-EEJF
		40...200 *	193-EEJG
	60...300 *	193-EEKG	
	100-D210...100-D420	100...500 *	193-EELG
	100-D630...100-D860	120...600 *	193-EEMH
100-D630...100-D860	160...800 *	193-EENH	
Three-Phase Devices 193-EE			
<ul style="list-style-type: none"> • 1...27 A Current Range • Selectable Trip Class (10, 15, 20 or 30) • Selectable Manual/Auto-Manual Reset 	Integrated panel/DIN Rail mount and pass-thru wiring	1.0...5.0	193-EECP
		3.2...16	193-EEDP
		5.4...27	193-EEEP





* Rated operating voltage IEC: 1000V AC

Electronic Overload Relays E1 Plus - 193-ED, 193-EE, continued

Description	CT Ratio	Adjustment Range [A]	Cat. No.
Three-Phase Devices 193-EE_Z for use with external CT's (193-CBCT_)			
<ul style="list-style-type: none"> 30...800 A Current Range Selectable Trip Class (10, 15, 20 or 30) Selectable Manual/Auto-Manual Reset Require one external CT per phase (not supplied) (Rating for protecting relaying, Secondary current 5 A Secondary load 0.1 VA (overload relay only) Accuracy >= 2 % over operating range) Require the use of the panel adapter 193-EPB 	150:5	30...150	193-EEHZ
	200:5	40...200	193-EEJZ
	300:5	60...300	193-EEKZ
	400:5	80...400	193-EEWZ
	500:5	100...500	193-EELZ
	600:5	120...600	193-EEMZ
	800:5	160...800	193-EENZ







Description	Mounts to Contactor	Adjustment Range [A]	Cat. No.
Single-Phase Devices 193-EE			
<ul style="list-style-type: none"> 1...90 A Current Range Selectable Trip Class (10, 15, 20 or 30) Selectable Manual/Auto-Manual Reset 	100-C09...100-C23	1.0...5.0	193S-EEPB
		3.2...16	193S-EERB
		5.4...27	193S-EESB
		100-C30...100-C43	9...45
	100-C60...100-C85	18...90	193S-EEUE
<ul style="list-style-type: none"> 1...27 A Current Range Selectable Trip Class (10, 15, 20 or 30) Selectable Manual/Auto-Manual Reset 	Integrated panel/DIN Rail mount and pass- thru wiring	1.0...5.0	193S-EEPP
		3.2...16	193S-EERP
		5.4...27	193S-EESP

Accessories for Overload Relays

	Description	For Use With	PQ	Cat. No.
	DIN Rail/Panel Adapter For separate mounting – can be mounted to top-hat rail EN 50 022-35.	193-ED1_B, 193-EE_B, 193S-EE_B, 193-EE_Z	1	193-EPB
		193-ED1_D, 193-EE_D, 193S-EE_D		193-EPD
		193-EE_E, 193S-EE_E		193-EPE
	Current Adjustment Shield Prevents inadvertent adjustment of the current setting. Must be ordered in multiples of package quantities.	193-ED (all), 193-EE (all)	10	193-BC8
	External Reset Adapter For enclosed, through-the-door reset applications. Use with external reset button.	193-ED (all) 193-EE_B, 193-EE_D, 193-EE_E 193-EE_Z	1	193-ERA
	External Reset Button For enclosed, through-the-door reset applications. Metal construction IP66, non-illuminated with rod (length: 142 mm, adjustable range 141...159 mm). Refer to the 800F catalog pages for additional types.	193-ED (all) 193-EE (all)	1	800FP-R611
			1	800F-ATR08

PQ = Package Quantity







Motor Protection**Accessories****Accessories for Overload Relays, Continued**

	Description	For Use With	Cat. No.
	E1 Plus DeviceNet and Protection Module Communicates motor diagnostic data via DeviceNet, includes additional I/O, and provides enhanced motor protection options.*	193-EE (all), 193S-EE (all)	193-EDN
	E1 Plus EtherNet/IP and Protection Module Communicates motor diagnostic data via EtherNet/IP, includes additional I/O, and provides enhanced motor protection options.*		193-ETN
	E1 Plus PROFIBUS & Protection Module Communicates motor diagnostic data via PROFIBUS, includes additional I/O, and provides enhanced motor protection options.*		193-EPRB
	E1 Plus Ground Fault/Jam Module Provides adjustable 20 mA...5 A ground fault and fixed jam protection. The module also provides an input to allow remote reset of a trip.*		193-EGJ
	E1 Plus Ground Fault Module Provides adjustable 20 mA...5 A ground fault protection. The module also provides an input to allow remote reset of a trip.*		193-EGF
	E1 Plus Jam Protection Module Provides Jam protection with adjustable trip level and trip delay setting. The module also provides an input to allow remote reset of a trip.*		193-EJM
	E1 Plus PTC Module Provides terminals for connection up to six PTC thermistor sensors. Sensors react to actual temperature and therefore provide enhanced motor protection. Module also provides an input to allow remote reset of a trip.*		193-EPT
	E1 Plus Remote Reset Module Provides an input to allow remote reset of a trip.*		193-ERR
	E1 Plus Remote Indicator Display Displays the status of an E1 Plus from the front of a panel and features a reset button. Mounts in a standard 22 mm push button cutout.*	193-EGF, 193-EJM, 193-EGJ, 193-PTC, 193-ERR (Ser. B or later)	193-ERID
	Replacement Connectors for Cat. No. 193-ERID	193-ERID	193-NCRID

* Requires external ground fault sensor, Cat. No. 193-CBCT_.

* Only one module may be added.

Accessories for Overload Relays, Continued

	Description	For Use With	Cat. No.	
	Core Balanced Ground Fault Sensor • Required when using either an E1 Plus Ground Fault Protection or Ground Fault/Jam Module • Required for ground fault protection with the Cat. No. 193-EC3_ _ overload relay	20 mm (0.79 in.)	100-C09...100-C37	193-CBCT1
		40 mm (1.57 in.)	100-C09...100-C85	193-CBCT2
		63 mm (2.5 in.)	100-C09...100-C85, 100-D95...100-D180	193-CBCT3
		82 mm (3.25 in.)	100-C09...100-C85, 100-D95...100-D420	193-CBCT4
	DeviceNet Configuration Terminal Used to interface with objects on a DeviceNet network. Includes 1 m communications cable (193-CB1).	DeviceNet	193-DNCT	
	1 meter communication cable, color-coded bare leads	193-DNCT	193-CB1	
	1 meter communication cable, microconnector (male)		193-CM1	
	Panel Mount Adapter/Door Mount Bezel Kit		193-DNCT-BZ1	
	Remote Reset Solenoid	24V AC, 50/60 Hz	E1 Plus (all)	193-EMRJ
		110/120V AC, 50/60 Hz		193-EMRD
		220/240V AC, 50/60 Hz		193-EMRA
		24V DC		193-EMRZ24
		48V DC		193-EMRZ48
		115V DC		193-EMRZ01
	Terminal Lugs Set of two Protection class IP2X per IEC 60529 and DIN 40050	100-D140, 100-D180, 100-D95E...D180E, 193-EC_F, 193-EE_F	100-DTB180	
		100-D210...100-D420, 193-EC_G, 193-EF2C, 193-EE_G	100-DTB420	
	Terminal Covers Protection class IP20 per IEC 60529 and DIN 40 050 For direct-on-line, reversing, two-speed, and wye-delta/star-delta assemblies	100-D95...100-D180, 193-EC_F, 193-EE_F	100-DTC180	
		100-D210...100-D420, 193-EC_G, 193-EE_G	100-DTC420	
		100-D630...100-D860, 193-EC_H, 193-EE_H	100-DTC860	
		100-D630...100-D860, 193-EC_H, 193-EE_H	100-DTCS860	
	Terminal Lugs (UL/CSA), Copper Frame Set of three	100-D140, 100-D180, 193-EC_F, 193-EE_F	100-DL180	
		100-D210...100-D420, 193-EC_G, 193-EE_G	100-DL420	
		100-D630, 100-D860, 193-EC_H, 193-EE_H	100-DL630	
		100-D630, 100-D860, 193-EC_H, 193-EE_H	100-DL860	

Note: For labeling materials, see page 1-34.

Bulletin 193-EC

Motor Protection

Product Selection

E3 and E3 Plus Electronic Overload & Current Monitor Relays

- DeviceNet™ communication integrated
- IEC/NEMA configurations
- True RMS current sensing
- Single-/three-phase
- LED indicators
- Test/reset button
- Adjustable trip class (5...30)
- Motor Diagnostics



Bulletin	No. Inputs	No. Outputs	PM Diagnostics	PTC Thermistor	DeviceLogix	Ground Fault
193-EC1	2	1	✓	—	—	—
193-EC2	4	2	✓	✓	✓	Internal (1...5 A)
193-EC3	4	2	✓	✓	✓	External * (20 mA...5 A)
193-EC4 *	4	2	✓	✓	✓	External * (20 mA...5 A)

* The Bul. 193-EC4 is a current monitor relay for three independent current signals. Thermal overload motor protection is not provided.

* External ground fault sensor, Cat. No. 193-CBCT_, required

Electronic Motor Protection Relays 193-EC1 – Direct Contactor Mount

Mounts to Contactor	Adjustment Range [A]		Cat. No.
100-C09...100-C23	0.4...2		193-EC1PB
	1...5		193-EC1AB
	3...15		193-EC1BB
	5...25		193-EC1CB
100-C30...100-C43	1...5		193-EC1AD
	3...15		193-EC1BD
	5...25		193-EC1CD
	9...45		193-EC1DD
100-C60...100-C85	9...45		193-EC1DE
	18...90		193-EC1EE
100-D95...100-D180	28...140	*	193-EC1FF
	42...210	*	193-EC1GF
100-D210...100-D420	42...210	*	193-EC1GG
	60...302	*	193-EC1HG
	84...420	*	193-EC1JG
	125...630	*	193-EC1KH
100-D630...100-D860	172...860	*	193-EC1LH

* Does not include terminal lugs.
Rated operating voltage IEC: 1000V AC.

Electronic Motor Protection Relay 193-EC2 – Direct Contactor Mount

Mounts to Contactor	Adjustment Range [A]	Cat. No.
100-C09...100-C23	0.4...2	193-EC2PB
	1...5	193-EC2AB
	3...15	193-EC2BB
	5...25	193-EC2CB
100-C30...100-C43	1...5	193-EC2AD
	3...15	193-EC2BD
	5...25	193-EC2CD
	9...45	193-EC2DD
100-C60...100-C85	9...45	193-EC2DE
	18...90	193-EC2EE

Electronic Overload Relays 193-EC3 – Direct Contactor Mount

Mounts to Contactor	Adjustment Range [A]		Cat. No.
100-C09...100-C23	0.4...2.0		193-EC3PB
	1...5		193-EC3AB
	3...15		193-EC3BB
	5...25		193-EC3CB
100-C30...100-C43	5...25		193-EC3CD
	9...45		193-EC3DD
100-C60...100-C85	9...45		193-EC3DE
	18...90		193-EC3EE
100-D95...100-D180	28...140	*	193-EC3FF
	42...210	*	193-EC3GF
100-D210...100-D420	42...210	*	193-EC3GG
	60...302	*	193-EC3HG
	84...420	*	193-EC3JG
100-D630...100-D860	125...630	*	193-EC3KH
	172...860	*	193-EC3LH

* Does not include terminal lugs.
 Rated operating voltage IEC: 1000V AC.

Current Monitor Relays 193-EC4 – Direct Contactor Mount

Mounts to Contactor	Adjustment Range [A]	Cat. No.
100-C09...100-C23	0.4...2.0	193-EC4PB
	1...5	193-EC4AB
	3...15	193-EC4BB
	5...25	193-EC4CB
100-C30...100-C43	9...45	193-EC4DD
100-C60...100-C85	18...90	193-EC4EE

Panel Mount Devices for use with External Current Transformers








Description	Adjustment Range [A] §	Cat. No.
<ul style="list-style-type: none"> • 2 Inputs • 1 Output 	9...5000	193-EC1ZZ
<ul style="list-style-type: none"> • 4 Inputs • 2 Outputs • Ground Fault Sensor Input • PTC Thermistor Input • DeviceLogix 	9...5000	193-EC3ZZ
		193-EC4ZZ

§ Current transformers supplied by customer. Refer to CT chart for proper current transformer selection.
 Order panel adapter 193-ECPM2 separately.

CT Ratio to FLA Setting Range Correlation

CT Ratio	FLA Setting Range [A]	CT Ratio	FLA Setting Range [A]	CT Ratio	FLA Setting Range [A]
50:5	9...45	300:5	60...302	1200:5	240...1215
100:5	18...90	500:5	84...420	2500:5	450...2250
150:5	28...140	600:5	125...630	5000:5	1000...5000
200:5	42...210	800:5	172...860	—	—

Add-on Accessories






	Description	For Use With	Cat. No.	
	DeviceNet Configuration Terminal Used to interface with objects on a DeviceNet network. Includes 1 m communications cable (193-CB1). 193-CB1 cable included.	DeviceNet	193-DNCT	
	1 meter communication cable, color-coded bare leads	193-DNCT	193-CB1	
	1 meter communication cable, microconnector (male) M12	193-DNCT	193-CM1	
	Panel Mount Adapter/Door Mount Bezel Kit for door mounting	193-DNCT	193-DNCT-BZ1	
	DIN Rail/Panel Adapter *	193-EC__B	193-ECPM1	
		193-EC_D, 193-EC_ZZ, 193-EC_ZZ	193-ECPM2	
		193-EC__E	193-ECPM3	
	AC Input Interface Module rated 110/120V AC, 50/60 Hz	193-EC — all 592-EC — all	193-EIMD	
	Core Balanced Ground Fault Sensor • Required when using either an E1 Plus Ground Fault Protection or Ground Fault/Jam Module • Required for ground fault protection with the Cat. No. 193-EC3__ overload relay	Max. current 45 A Hole diameter 20 mm	100-C09...100-C37	193-CBCT1
		Max. current 90 A Hole diameter 40 mm	100-C09...100-C85	193-CBCT2
		Max. current 180 A Hole diameter 63 mm	100-C09...100-C85, 100-D95...100-D180	193-CBCT3
		Max. current 420 A Hole diameter 82 mm	100-C09...100-C85, 100-D95...100-D420	193-CBCT4
	Terminal Lugs Set of two Protection class IP2X per IEC 60529 and DIN 40050	100-D140, 100-D180, 100-D95E...D180E, 193-EC_F, 193-EE_F	100-DTB180	
		100-D210...100-D420, 193-EC_G, 193-EF2C, 193-EE_G	100-DTB420	
	Terminal Covers Protection class IP20 per IEC 60529 and DIN 40050 For direct-on-line, reversing, two-speed, and wye-delta/star-delta assemblies	100-D95...100-D180, 193-EC_F, 193-EE_F	100-DTC180	
		100-D210...100-D420, 193-EC_G, 193-EE_G	100-DTC420	
		100-D630...100-D860, 193-EC_H, 193-EE_H	100-DTC860	
	Phase Barriers Set of 4	100-D630...D860, 193-EC_H, 193-EE_H	100-DPB860	

* The electronic motor protection relay can be mounted separately to top-hat rail EN 50 02-35.

Note: For labeling materials, see page 1-34.






Modular Protection System 825-P

- 0.5...5000 A current range
- Suitable for low- and medium-voltage applications
- Modular design with pluggable options
 - Voltage input card
 - Expansion I/O cards
 - Communications cards, including DeviceNet
 - RTD scanner module
- Comprehensive protection functions
- Built-in keypad and backlit 2-Line LCD
- Test / Reset button
- Status LEDs
- 3 output relays
- 2 configurable inputs

		Description		Cat. No.
	Basic Unit Note: The minimum requirements for a complete basic system are one basic unit and one converter module.		120...240V AC/DC	825-PD
	User Manual Ships separate from Basic Unit. Please consult your local sales office.		825-UM004...	
	Converter Module		0.5...2.5 A	825-MCM2
			2.5...20 A	825-MCM20
			9...100 A	825-MCM180
			160...630 A	825-MCM630N
	Core Balanced Ground Fault Sensor • Required when using either an E1 Plus Ground Fault Protection or Ground Fault/Jam Module • Required for ground fault protection with the Cat. No. 193-EC3_ _ overload relay	Max. current 45 A Hole diameter 20 mm	100-C09...100-C37 NEMA size 00...2	193-CBCT1
		Max. current 90 A Hole diameter 40 mm	100-C09...100-C85 NEMA size 00...3	193-CBCT2
		Max. current 180 A Hole diameter 63 mm	100-C09...100-C85, 100-D95...100-D180 NEMA size 00...4	193-CBCT3
		Max. current 420 A Hole diameter 82 mm	100-C09...100-C85, 100-D95...100-D420 NEMA size 00...5	193-CBCT4
	RTD Scanner Module 12 RTD input channels with individual programming for 10 Ω copper, 100 Ω nickel, 120 Ω nickel, or 100 Ω platinum. Fiber optic connection to Basic Unit. Class I, Division 2, Group T48.. Use an up to 500m long Simplex 62.5/125μm fiber optic cable ST/ST (customer supplied).		120 / 240V AC	825-PR12D
	Voltage Input Card Monitoring of V_A , V_B , V_C , and V_N		300V AC Line to Neutral Max.	* 825-PVS
	Expansion I/O Card (3) Inputs (4) Output relays (1) 4...20 mA analog output		120V AC Rated Inputs	* 825-PIOD
			24V DC Rated Inputs	825-PIOR
	DeviceNet Communication Card DeviceLogix™ technology, Node address selection switches, ODVA conformance tested.			* 825-PDN
	DeviceNet User Manual Please consult your local sales office.		825-UM005...	
Modbus RTU Communication Card		—	* 825-PMB	

* Please consult your local sales office for factory configured devices with option cards.

Accessories

	Description	Cat. No.	
	M8 connections Set of three 4 x 16 x 102 mm (1/8 x 5/8 x 4-1/64 in.) (125 A max.) Universally applicable Weight: 230 g	825-MVM	
	M8 connections Set of three 4 x 20 x 117 mm (1/8 x 25/32 x 4-39/64 in.) (180 A max.) Universally applicable	825-MVM2	
	M6 lower connections Set of three For mounting on Bul. 100-D95 and 100-D110 contactors with conventional coil	825-MVS	
	M8 lower connections Set of three For mounting on Bul. 100-D140, 100-D180 conventional and Bul. 100-D95E...100-D180E contactors with electronic coil	825-MVS2	
	Terminal Shields Set of two Protection class IP10 per IEC 60529 and DIN 40 050 For direct-on-line, reversing, two-speed, and wye-delta/star-delta assemblies	100-D95, 100-D110	100-DTS110
		100-D140, 100-D180, 100-D95-E...100-D180-E	100-DTS180
		100-D210...100-D420	100-DTS420
	Terminal Lugs Set of two Protection class IP2X per IEC 60529 and DIN 40 050	100-D95, 100-D110	100-DTB110
		100-D140, 100-D180, 100-D95E...D180E, 193-EC_F, 193-EE_F	100-DTB180
		100-D210...100-D420, 193-EC_G, 193-EF2C, 193-EE_G	100-DTB420
	Thermal Utilization Meter For display of percent thermal capacity utilized Requires the use of an Expansion I/O Card	825-MTUM	
Connection Cable (Replacement) Bul. 825-P to Bul. 825-MCM connection		825-MCA	

Monitoring Relays 809, 813, 817, 819

- Current Monitors
- Phase Monitors
- Thermistor Monitors
- Rotation Monitors



The Monitoring Relays family of dedicated function electronic motor protection relays offers state-of-the-art supplementary protective functions that are easily added and applied to motor control circuits. Monitoring Relays are an economical choice for protecting equipment investments and minimizing production downtime. To meet specific application requirements, a full range of products allows selective addition of protective enhancing functions for both motors and equipment.

Motor Protection Relay Type	Description	Cat. No.
Bulletin 809S Current Monitors • under-, overcurrent, under-, overvoltage • under-, overcurrent	0.5...5 A AC/DC (1-phase), 2.0...24.9V or 20...249V AC/DC 50/60 Hz	809S-E1⊗
	2.0...15 A AC/DC (1-phase)	809S-E2⊗50
Bulletin 813S Phase Monitors • phase loss, under-, overvoltage, phase imbalance, phase sequence	Monitoring Range 150...500V AC	813S-E2B⊗50
	Monitoring Range 250...690V AC	813S-E2C⊗50
Bulletin 817 Thermistor Monitors • overtemperature	Automatic Reset *	817-E1
	Automatic, manual or remote reset, status storage *	817-E2
Bulletin 819 Motor Rotation Monitors • zero speed detection	Max. Monitored Voltage 400V AC max. (IEC), 300V AC max. (CSA/UL), or Frequency Monitoring for signals of any curve form in the range 16...100V _{p-p}	819-E1⊗
	Max. Monitored Voltage 690V AC max. (IEC), 600V AC max. (CSA/UL)	819-E2⊗

* Rated supply voltage of 24...240 V AC/DC.

⊗ Supply Voltage Suffix Code




The Cat. No. as listed is incomplete. Select a Supply Voltage Suffix Code from the table below to complete the Cat. No. Example: **Cat. No. 809S-E1⊗** becomes **809S-E1D**.

AC Control	
Code	Description
D	115V AC
A	230V AC

DC Control	
Code	Description
ZJ	24V DC

ArmorStart™ Distributed Motor Controllers

Product Line Overview

						
Bulletin	280D/281D	280A/281A	283D	283A	284D	284A
Power Range	0.18...7.5 kW (0.5...10 HP)		0.37...5.5 kW (0.5...10 HP)		0.4...3.3 kW (0.5...5 HP)	
Starting Method	DOL - Full Voltage and Reversing		Softstarter - Current Limit, Soft Start, Soft Stop		VFD - Sensorless Vector Control	
Environmental Rating	IP67 / IP69 / NEMA Type 4 / 4x					
Control Voltage Ratings	24V DC, 120V AC, and 240V AC					
Operational Voltage Ratings	240 / 480 / 600V AC					
Network Communications with DeviceNet including DeviceLogix	✓	—	✓	—	✓	—
Network Communications via ArmorPoint Distributed I/O	—	✓	—	✓	—	✓
I/O Capability:						
4 Inputs and 2 Outputs	✓	—	✓	—	✓	—
2 Outputs	—	✓	—	✓	—	✓
I/O Expansion with ArmorPoint Distributed I/O Products	✓	✓	✓	✓	✓	✓
LED Status Indication	✓	✓	✓	✓	✓	✓
Gland Plate Entry	Three phase input through cord grip or quick disconnects (I/O, Communications, Motor Connection, Three Phase and Control Power)					
Factory Installed Options:						
HOA Keypad	✓	✓	✓	✓	✓	✓
Safety Monitor	✓	✓	✓	✓	✓	✓
Source Brake Contactor	—	—	✓	✓	✓	✓
Dynamic Brake Connector	—	—	—	—	✓	✓
Output Contactor	—	—	—	—	✓	✓
EMI Filter	—	—	—	—	✓	✓
Shielded Motor Cable	—	—	—	—	✓	✓
0...10V Analog Input	—	—	—	—	✓	✓

For complete product information, see catalog A116 or on-line selection tools at www.ab.com

Smart Motor Controllers



Bulletin	150-C	150-F
Type	SMC-3 Controller	SMC Flex Controller
Current Range	200...600V 1...480 A / 831 A	200...600V / 690V * 1...1250 A / 1600 A
Soft Start	✓	✓
Kickstart	✓	✓
Current Limit	✓	✓
Dual Ramp Start	—	✓*
Full Voltage	—	✓
Soft Stop	✓	✓
Pump Control	—	✓*
Preset Slow Speed	—	✓*
Linear Speed	—	✓*
SMB™ Smart Motor Braking	—	✓*
Accu-Stop™	—	✓*
Slow Speed with Braking	—	✓*
Integrated Bypass Contacts	✓	✓
Integrated Motor Protection	✓	✓
Communication	—	✓
Metering	—	✓
Keypad Programming/ LCD Display	—	✓
Standards Compliance:		
CE Marked per Low Voltage Directive 73/23/EEC, 93/68/EEC	✓	✓
CSA Certified (File No. LR 1234),	✓	✓
UL Listed (File No. E96956)	✓	✓
Product Selection	See page 1-76	See page 1-78

* Depending on selected option

* for 108...1250 A types

Smart Motor Controllers SMC-3

- 1...480/831 A Range
- Soft Start
- Current Limit Start
- Selectable Kick Start
- Selectable Soft Stop
- Built-In Overload Protection
- Built-In SCR Bypass
- For in-line or inside-the-delta configurations



Up to 480V AC






Line Connection		Delta Connection		100...240V 50/60 Hz Control	24V AC/DC Control
Current Rating *⊛	Motor Power @ 400V AC ‡	Current Rating *⊛	Motor Power @ 400V AC ‡		
[A]	[kW]	[A]	[kW]	Cat. No.	Cat. No.
1...3	1.1	1.7...5.1	0.55...2.2	150-C3NBD	150-C3NBR
3...9	4	5.1...16	2.2...7.5	150-C9NBD	150-C9NBR
5.3...16	7.5	9.1...27.6	4...11	150-C16NBD	150-C16NBR
6.3...19	7.5	10.9...32.8	4...15	150-C19NBD	150-C19NBR
9.2...27.7	11	14.3...43	5.5...22	150-C25NBD	150-C25NBR
10...30	15	17.3...52	7.5...22	150-C30NBD	150-C30NBR
12.3...37	18.5	21...64	7.5...30	150-C37NBD	150-C37NBR
14.3...43	22	25...74	11...37	150-C43NBD	150-C43NBR
20...60	30	34.6...104	15...55	150-C60NBD	150-C60NBR
28.3...85	45	50...147	22...75	150-C85NBD	150-C85NBR
27...108	55	47...187	90	150-C108NBD	150-C108NBR
34...135	75	59...234	132	150-C135NBD	150-C135NBR
67...201	95...110	116...348	160	150-C201NBD	150-C201NBR
84...251	95...132	145...435	250	150-C251NBD	150-C251NBR
106...317	95...160	183...549	315	150-C317NBD	150-C317NBR
120...361	110...200	208...625	355	150-C361NBD	150-C361NBR
160...480	160...250	277...831	450	150-C480NBD	150-C480NBR





* Motor FLA and Motor Running Current must fall within the running current range of the device to operate properly.

⊛ From series letter "B", these units can be used in the inside the delta wiring with a current range 1.73 x higher


‡ Calculated using 350 % over current during starting.

Accessories for SMC-3

Description	N.O.	N.C.	Connection Diagram				Cat. No.
 <p>Auxiliary Contact Blocks for side mounting with sequence terminal designations 1- and 2-pole Quick and easy mounting without tools One block per device only</p>	1	0					150-CA10
	2	0					150-CA20
	0	1					150-CA01
	1	1					150-CA11

Description	For Use With	Cat. No.
 <p>Fan Field installed</p>	150-C3...37 *	150-CF64
 <p>Connecting modules to 140-M Electrical interconnection between SMC-Delta/SMC-3 and 140-M. Motor protector and SMC must be mounted separately.</p>	Connects 140-M-C to 150-C3...25	150-CC25
	Connects 140-M-D to 150-C3...25	150-CD25
	Connects 140-M-F to 150-C3...37	150-CF45
 <p>Connecting modules to 100-C Electrical interconnection between SMC-Delta/SMC-3 and 100-C. Contactor and SMC must be mounted separately.</p>	Connects 100-C09...23 to 150-C3...19	150-CI23
	Connects 100-C30...37 to 150-C3...37	150-CI37
 <p>480V Protective Module</p> <p>600V Protective Module</p>	150-C3...37NB	150-C84
	150-C43...85NB (line and/or load)	150-C84P
	150-C3...37NC	150-C86
	150-C43...85NC (line and/or load)	150-C86P

IEC Terminal Covers ❄

	IEC line or load terminal covers for 108 and 135 A devices. Dead front protection	150-TC1
	IEC line or load terminal covers for 201...251 A devices. Dead front protection	150-TC2
	IEC line or load terminal covers for 317...480 A devices. Dead front protection	150-TC3

* For devices above this range, the fan is shipped with the device as standard.

❄ One terminal cover is shipped as standard with the SMC-3 controllers from 108...480 A.

Smart Motor Controllers SMC-Flex

- 1...1250/1600 A Range
- Soft Start
- Current Limit Start
- Dual Ramp
- Full Voltage
- Linear Speed Acceleration
- Preset Slow Speed
- Soft Stop



Options

- Pump Control
- Braking Control

Up to 480V AC

Line Connection **‡		Delta Connection **‡		100...240V AC 50/60 Hz Control §	
Motor Current [A]	400V [kW]	Motor Current [A]	400V [kW]	Without Option	With Pump Control Option
				Cat. No.	Cat. No.
1...5	2.2	1.7...8.7	4	150-F5NBD	150-F5NBDB
5...25	11	8.7...43	22	150-F25NBD	150-F25NBDB
8.6...43	22	14.9...74	37	150-F43NBD	150-F43NBDB
12...60	30	20.8...104	55	150-F60NBD	150-F60NBDB
17...85	45	29.4...147	75	150-F85NBD	150-F85NBDB
27...108	55	47...187	90	150-F108NBD	150-F108NBDB
34...135	75	59...234	132	150-F135NBD	150-F135NBDB
67...201	110	116...348	160	150-F201NBD	150-F201NBDB
84...251	132	145...435	250	150-F251NBD	150-F251NBDB
106...317	160	183...549	315	150-F317NBD	150-F317NBDB
120...361	200	208...625	355	150-F361NBD	150-F361NBDB
160...480	250	277...831	450	150-F480NBD	150-F480NBDB
208...625	355	283...850	500	150-F625NBA	150-F625NBAB
260...780	450	300...900	500	150-F780NBA	150-F780NBAB
323...970	560	400...1200	710	150-F970NBA	150-F970NBAB
416...1250	710	533...1600	900	150-F1250NBA	150-F1250NBAB

* Controllers rated 108 A and greater are not equipped with line and load terminal lugs.

** Motor FLA and motor running current must fall within the running current range of the device to operate properly.

‡ Utilization category: **5...480 A:** AC-53b: 3-50: 1750 / **625...1250 A:** AC-53b: 3.0-50: 3550

§ Reduced control voltage range for devices from 625...1250 A. See configuration table in section "b" on page this page.

Optional Configurations

150-F108N B D B
a b c

Options	Voltage Range
B	Up to 480V AC
C	Up to 600V AC
Z	Up to 690V AC (108...1250 A types only)






b

Options	Control Voltage
D	100...240V AC 50/60 Hz (5...480 A units)
R	24 V AC/DC (5...480 A units)
E	110/120 V AC (625...1250 A units)
A	230/240 V AC (625...1250 A units)

c

Options	Description
Blank	Standard
B	Pump Control Provides smooth motor acceleration and deceleration, reducing surges caused by the starting and stopping of centrifugal pumps. Starting time is adjustable from 0...30 seconds, and stopping time is adjustable from 0...120 seconds.
	Braking Control Provides Smart Motor Braking (SMB), Accu-Stop, and Slow Speed with Braking. Prices on request.

Accessories for SMC-Flex

Description		Cat. No.	
Protective Modules *			
	480V Protective Module	5...85 A	150-F84
		108...1250 A	150-F84L
	600V Protective Module	5...85 A	150-F86
		108...1250 A	150-F86L
IEC Terminal Covers *			
	IEC line or load terminal covers for 108 and 135 A devices. Dead front protection		150-TC1
	IEC line or load terminal covers for 201...251 A devices. Dead front protection		150-TC2
	IEC line or load terminal covers for 317...480 A devices. Dead front protection		150-TC3
Human Interface Modules			
	Hand Held Human Interface Modules	LCD Display, Full Numeric Keypad †	20-HIM-A3
		LCD Display, Programmer Only †	20-HIM-A5
	Door Mounted Human Interface Modules	Remote (Panel Mount) LCD Display, Full Numeric Keypad	20-HIM-C3S
	Human Interface Module Interface Cables	PowerFlex HIM Interface Cable, 1 m (39 in)	20-HIM-H10
Communication Modules			
	Communication Modules (IP30/Type 1)	Remote I/O Communication Adapter	20-COMM-R
		RS485 DF1 Communication Adapter	20-COMM-S
		PROFIBUS™ DP Communication Adapter	20-COMM-P
		HVAC Communication Adapter	20-COMM-H
		ControlNet™ Communication Adapter (Fiber)	20-COMM-Q
		ControlNet™ Communication Adapter (Coax)	20-COMM-C
		DeviceNet™ Communication Adapter	20-COMM-D
EtherNet/IP™ Communication Adapter	20-COMM-E		
Core Balance Transformer			
	Core Balance Ground Fault Sensor	100:1	825-CBCT

* The same protective module mounts on the line or load side of the SMC-Flex. For applications requiring both line and load side protection, two protective modules must be ordered.

* One terminal cover is shipped as standard with the SMC-Flex controllers from 108...480 A.

† Requires a 20-HIM-H10 cable to connect to the SMC-Flex.

Drives

Product Line Overview

PowerFlex 4, 4M, 40



Bulletin	22A...	22F...	22B...	22D...	22C...
Type	PowerFlex 4	PowerFlex 4M	PowerFlex 40	PowerFlex 40P	PowerFlex 400
Ratings 240V, 1-phase	0.25...2.2 kW	0.25...2.2 kW	0.37...2.2 kW	N/A	N/A
Ratings 200...240V	0.25...4.0 kW	0.25...7.5 kW	0.37...7.5 kW	0.37...7.5 kW	2.2...37 kW
Ratings 400...480V	0.37...4.0 kW	0.37...11 kW	0.37...11 kW	0.37...11 kW	2.2...250 kW
Ratings 500...600V	N/A	N/A	0.75...11 kW	0.75...11 kW	N/A
Ratings 690V	N/A	N/A	N/A	N/A	N/A
Ambient Temperature	IP 20 -10 °C to 50 °C	IP 20 -10 °C to 50 °C	IP 20 -10 °C to 50 °C	IP 20 -10 °C to 50 °C	IP 20 0 °C to 50 °C
EMC Filters	Internal (1-phase) External (3-phase)	Internal (1-phase and 3-phase)	Internal (1-phase) External (3-phase)	External (3-phase)	External (3-phase)
Standards	UL, CE, CSA, C-Tick	UL, CE, CSA, C-Tick	UL, CE, CSA, C-Tick	UL, CE, CSA, C-Tick	UL, CE, CSA, C-Tick
Carrier Frequency	2...16 kHz	2...10 kHz	2...16 kHz	2...16 kHz	2...10 kHz
Overload Capability	150% for 60 s 200% for 3 s	150% for 60 s 200% for 3 s	150% for 60 s 200% for 3 s	150% for 60 s 200% for 3 s	110% for 60 s
Control Performance	- Volts per Hertz - Slip Compensation	- Volts per Hertz - Slip Compensation	- Volts per Hertz - Slip Compensation - Sensorless Vector	- Volts per Hertz - Slip Compensation - Sensorless Vector - Speed control with or without Encoder Feedback	- Volts per Hertz - Slip Compensation
Communications Options	- Integral RS485 - RTU Slave	- Integral RS485 - RTU Slave	- Integral RS485 - RTU Slave - DeviceNet - ControlNet - EtherNet - Profibus - LonWorks - BACnet	- Integral RS485 - RTU Slave - DeviceNet - ControlNet - EtherNet - Profibus - LonWorks - BACnet	- Integral RS485 - RTU Slave - DeviceNet - ControlNet - EtherNet - Profibus - LonWorks - BACnet
Product Selection	Page 1-82, 1-96	Page 1-84, 1-96	Page 1-86, 1-96	Page 1-88, 1-96	Page 1-90, 1-96

PowerFlex 70, 700



Bulletin	20A...	20B...
Type	PowerFlex 70	PowerFlex 700
Ratings 240V, 1-phase	N/A	N/A
Ratings 200...240V	0.37...15 kW	0.37...55 kW
Ratings 400...480V	0.37...37 kW	0.37...132 kW
Ratings 500...600V	0.37...37 kW	0.37...110 kW
Ratings 690V	N/A	45...132 kW
Ambient Temperature	IP20 or IP66 0 °C to 50 °C	IP 20 0 °C to 50 °C
EMC Filters	Internal	Internal
Standards	UL, CE, CSA, C-Tick	UL, CE, CSA, C-Tick
Carrier Frequency	2...12 kHz	2...10 kHz
Overload Capability	Normal Duty Application 110% - 60 s 150% - 3 s Heavy Duty Application 150% - 60 s 200% - 3 s	Normal Duty Application 110% - 60 s 150% - 3 s Heavy Duty Application 150% - 60 s 200% - 3 s
Control Performance	- Volts per Hertz - Slip Compensation - Sensorless Vector - Field Oriented Control with or without Encoder for Speed Control and Torque Regulation	- Volts per Hertz - Slip Compensation - Sensorless Vector - Field Oriented Control with or without Encoder for Speed Control and Torque Regulation
Communications Options	- DeviceNet - ControlNet - EtherNet - Remote I/O - RS485 DF1 - Profibus - InterBus - CanOpen - LonWorks - HVAC Modbus RTU - ModBus - Metasys - BACnet	- DeviceNet - ControlNet - EtherNet - Remote I/O - RS485 DF1 - Profibus - InterBus - CanOpen - LonWorks - HVAC Modbus RTU - ModBus - Metasys - BACnet
Product Selection	Page 1-92, 1-96	Page 1-94, 1-96

PowerFlex 4 AC Drive

- 0.25...2.2 kW @ 240V 1-phase
0.25...4 kW @ 400V 3-phase
(240V and 480V 3-phase also available)
- V/Hz control
- Versions with and without integral dynamic brake chopper
- Integral RS 485 communication: allows multi-drop configurations
(up to 4 additional PowerFlex 4 Class drives on one network node)
- Integral programming keypad and local LED status indication
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero-stacking (no spacing required between drives)



Typical Motor Rating		Input Voltage	Drive Output [A]			Frame Size	Dimensions	Cat. No.
[kW]	[A]		Cont.	60 s	3 s		H x W x D	
0.2	1.3	200...240V 50/60Hz, 1-phase, EMC Filter, no Brake Chopper	1.4	2.1	2.8	A	152x80x136	22A-A1P4N113
0.4	1.9		2.1	3.2	4.2	A	152x80x136	22A-A2P1N113
0.75	3.3		3.6	5.4	7.2	A	152x80x136	22A-A3P6N113
1.5	6.1		6.8	10.2	13.6	B	180x100x136	22A-A6P8N113
2.2	8.9		9.6	14.4	19.2	B	180x100x136	22A-A9P6N113
0.2	1.3	200...240V 50/60Hz, 1-phase, no EMC Filter, no Brake Chopper	1.4	2.1	2.8	A	152x80x136	22A-A1P4N103
0.4	1.9		2.1	3.2	4.2	A	152x80x136	22A-A2P1N103
0.75	3.3		3.6	5.4	7.2	A	152x80x136	22A-A3P6N103
1.5	6.1		6.8	10.2	13.6	B	180x100x136	22A-A6P8N103
2.2	8.9		9.6	14.4	19.2	B	180x100x136	22A-A9P6N103
0.2	1.3	200...240V 50/60Hz, 1-phase, EMC Filter, Brake Chopper	1.5	2.3	3	A	152x80x136	22A-A1P5N114
0.4	1.9		2.3	3.5	4.6	A	152x80x136	22A-A2P3N114
0.75	3.3		4.5	6.8	9	A	152x80x136	22A-A4P5N114
1.5	6.1		8	12	16	B	180x100x136	22A-A8P0N114
0.2	1.3	200...240V 50/60Hz, 3-phase, no EMC Filter, Brake Chopper	1.5	2.3	3	A	152x80x136	22A-A1P5N104
0.4	1.9		2.3	3.5	4.6	A	152x80x136	22A-A2P3N104
0.75	3.3		4.5	6.8	9	A	152x80x136	22A-A4P5N104
1.5	6.1		8	12	16	B	180x100x136	22A-A8P0N104
0.2	1.3	200...240V 50/60Hz, 3-phase, no EMC Filter, Brake Chopper	1.5	2.3	3	A	152x80x136	22A-B1P5N104
0.4	1.9		2.3	3.5	4.6	A	152x80x136	22A-B2P3N104
0.75	3.3		4.5	6.8	9	A	152x80x136	22A-B4P5N104
1.5	6.1		8	12	16	A	152x80x136	22A-B8P0N104
2.2	8.9		12	18	24	B	180x100x136	22A-B012N104
3.7	15.3		17.5	25.5	34	B	180x100x136	22A-B017N104
0.4	1.1	400...480V 50/60Hz, 3-phase, no EMC Filter, Brake Chopper	1.4	2.1	2.8	A	152x80x136	22A-D1P4N104
0.75	1.9		2.3	3.5	4.6	A	152x80x136	22A-D2P3N104
1.5	3.5		4	6	8	A	152x80x136	22A-D4P0N104
2.2	5		6	9	12	B	180x100x136	22A-D6P0N104
3.7	8.4		8.7	13.1	17.4	B	180x100x136	22A-D8P7N104

See Publication 22-TD001... for complete product information.

PowerFlex 4 Options

	Cat. No.
External EMC Filter for up to 10 m of Motor Cable	
EMC Filter PowerFlex 4, 200...240V, 3-phase, 9.5 A, Frame A	22-RF9P5-AS
EMC Filter PowerFlex 4/40, 200...240V, 3-phase, 21 A, Frame B	22-RF021-BS
EMC Filter PowerFlex 4, 400...480V, 3-phase, 5.7 A, Frame A	22-RF5P7-AS
EMC Filter PowerFlex 4/40, 400...480V, 3-phase, 12 A, Frame B	22-RF012-BS
External EMC Filter for up to 10 m of Motor Cable, Low Leakage Current	
EMC Filter PowerFlex 4, 230V, 1-phase, 18 A, Frame B, Low Leakage	22-RFL018-BS
EMC Filter PowerFlex 4, 230V, 1-phase, 10 A, Frame A, Low Leakage	22-RFL010-AS
EMC Filter PowerFlex 4, 230V, 3-phase, 21 A, Frame B, Low Leakage	22-RFL021-BS
EMC Filter PowerFlex 4, 400V, 3-phase, 12 A, Frame B, Low Leakage	22-RFL012-BS
EMC Filter PowerFlex 4, 230/400V, 3-phase, 9.5 A, Frame A, Low Leakage	22-RFL9P5-AS
External EMC Filter for >10 m up to 100 m of Motor Cable	
EMC Filter PowerFlex 4, 200...240V, 1-phase, 10 A, Frame A	22-RF010-AL
EMC Filter PowerFlex 4/40, 200...240V, 1-phase, 18 A, Frame B	22-RF018-BL
EMC Filter PowerFlex 4, 200...240V, 3-phase, 9.5 A, Frame A	22-RF9P5-AL
EMC Filter PowerFlex 4/40, 200...240V, 3-phase, 21 A, Frame B	22-RF021-BL
EMC Filter PowerFlex 4, 400...480V, 3-phase, 5.7 A, Frame A	22-RF5P7-AL
EMC Filter PowerFlex 4/40, 400...480V, 3-phase, 12 A, Frame B	22-RF012-BL
External User Interface Modules	
Panel Mount, IP66, Full Numeric LCD, Cable 2 m	22-HIM-C2S
Hand Held, IP30, Full Numeric LCD, Cable 1 m	22-HIM-A3
Bezel Kit, IP20 for use with 22-HIM-A3	22-HIM-B1
DSI HIM Cable, 1 m	22-HIM-H10
DSI HIM Cable, 2.9 m	22-HIM-H30
Communication Options	
Built in RS485 (standard)	—
Compact Logix to DSI	AK-U0-RJ45-SC1
RJ45 One Port to Two Ports Splitter	1769-SM2
RJ45 120 Ohm Terminating Resistors (2 pcs)	AK-U0-RJ45-TR1
Communication Option, RJ45 Dual Position Terminal Block (5 pcs)	AK-U0-RJ45-TB2P
PC Programming Tool	
USB to DSI/DPI Converter with Software DriveExplorer Light Version	1203-USB
Serial Converter Module with Software DriveExplorer Light Version	22-SCM-232
Programming Software	
DriveExplorer, Full version	9306-4EXP02ENE
DriveTools SP Suite, DriveExecutive and DriveObserver	9303-4DTS01ENE

See Publication 22-TD001... for complete product information.

PowerFlex 4M AC Drive

- 0.25 kW...2.2 kW @ 240V 1-phase
0.25...11 kW @ 400V 3-phase
(240V and 480V 3-phase also available)
- V/Hz control
- Small physical size with feed-through wiring and in-built EMC filter
- Integral RS 485 communication: allows multi-drop configurations (up to 4 additional PowerFlex 4 Class drives on one network node)
- Integral programming keypad and local LED status indication
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero-Stacking (no spacing required between drives)



PowerFlex 4M 200-240V

Typical Motor Rating		Input Voltage	Drive Output (HD) [A]			Frame Size	Dimensions H x W x D	Cat. No.
[kW]	[A]		Cont.	60 s	3 s			
0.2	1.3	200...240V 50/60Hz, 1-phase, EMC Filter, no Brake Chopper	1.6	2.4	3.2	A	174x72x136	22F-A1P6N113
0.4	1.9		2.5	3.8	5	A	174x72x136	22F-A2P5N113
0.75	3.3		4.2	6.3	8.4	A	174x72x136	22F-A4P2N113
1.5	6.1		8	12	16	B	174x100x136	22F-A8P0N113
2.2	8.9		11	16.5	22	B	174x100x136	22F-A011N113
0.2	1.3	200...240V 50/60Hz, 1-phase, no EMC Filter, no Brake Chopper	1.6	2.4	3.2	A	174x72x136	22F-A1P6N103
0.4	1.9		2.5	3.8	5	A	174x72x136	22F-A2P5N103
0.75	3.3		4.2	6.3	8.4	A	174x72x136	22F-A4P2N103
1.5	6.1		8	12	16	B	174x100x136	22F-A8P0N103
2.2	8.9		11	16.5	22	B	174x100x136	22F-A011N103
0.2	1.3	200...240V 50/60Hz, 3-phase, no EMC Filter, no Brake Chopper (...104 with Brake Chopper)	1.6	2.4	3.2	A	174x72x136	22F-B1P6N103
0.4	1.9		2.5	3.8	5	A	174x72x136	22F-B2P5N103
0.75	3.3		4.2	6.3	8.4	A	174x72x136	22F-B4P2N103
1.5	6.1		8	12	16	A	174x72x136	22F-B8P0N103
2.2	8.9		12	18	24	B	174x100x136	22F-B012N103
3.7	15.3		17.5	25.5	34	B	174x100x136	22F-B017N103
5.5	21		25	37.5	50	C	260x130x180	22F-B025N104
7.5	28		33	49.5	66	C	260x130x180	22F-B033N104

PowerFlex 4M 400-480V

Typical Motor Rating		Input Voltage	Drive Output (HD) [A]			Frame Size	Dimensions H x W x D	Cat. No.
[kW]	[A]		Cont.	60 s	3 s			
0.4	1.1	400...480V 50/60Hz, 3-phase, EMC Filter, no Brake Chopper (...114 with Brake Chopper)	1.5	2.1	2.8	A	174x72x136	22F-D1P5N113
0.75	1.9		2.5	3.8	5	A	174x72x136	22F-D2P5N113
1.5	3.5		4.2	6.3	8.4	A	174x72x136	22F-D4P2N113
2.2	5		6	9	12	B	174x100x136	22F-D6P0N113
3.7	8.4		8.7	13.1	17.4	B	174x100x136	22F-D8P7N113
5.5	11.4		13	19.5	26	C	260x130x180	22F-D013N114
7.5	15		18	27	36	C	260x130x180	22F-D018N114
11	22		24	36	48	C	260x130x180	22F-D024N114

PowerFlex 4M 400-480V, continued

Typical Motor Rating		Input Voltage	Drive Output (HD) [A]			Frame Size	Dimensions H x W x D	Cat. No.
[kW]	[A]		Cont.	60 s	3 s			
0.4	1.1	400...480V 50/60Hz, 3-phase, no EMC Filter, no Brake Chopper (...104 with Brake Chopper)	1.5	2.1	2.8	A	174x72x136	22F-D1P5N103
0.75	1.9		2.5	3.8	5	A	174x72x136	22F-D2P5N103
1.5	3.5		4.2	6.3	8.4	A	174x72x136	22F-D4P2N103
2.2	5		6	9	12	B	174x100x136	22F-D6P0N103
3.7	8.4		8.7	13.1	17.4	B	174x100x136	22F-D8P7N103
5.5	11.4		13	19.5	26	C	260x130x180	22F-D013N104
7.5	15		18	27	36	C	260x130x180	22F-D018N104
11	22		24	36	48	C	260x130x180	22F-D024N104

PowerFlex 4M Options

	Cat. No.
External EMC Filter for up to 100 m motor cable length	
240V, 50/60 Hz, 1-phase, Frame A, 10 A	22F-RF010-AL
240V, 50/60 Hz, 1-phase, Frame B, 18 A	22F-RF025-BL
240V, 50/60 Hz, 3-phase, Frame A, 9.5 A	22F-RF9P5-AL
240V, 50/60 Hz, 3-phase, Frame B, 21 A	22F-RF021-BL
240V, 50/60 Hz, 3-phase, Frame C, 39 A	22F-RF039-CL
480V, 50/60 Hz, 3-phase, Frame A, 6 A	22F-RF6P0-AL
480V, 50/60 Hz, 3-phase, Frame B, 12 A	22F-RF012-BL
480V, 50/60 Hz, 3-phase, Frame C, 26 A	22F-RF026-CL
External User Interface Modules	
Panel Mount, IP66, Full Numeric LCD, Cable 2 m	22-HIM-C2S
Hand Held, IP30, Full Numeric LCD, Cable 1 m	22-HIM-A3
Bezel Kit, IP20 for use with 22-HIM-A3	22-HIM-B1
DSI HIM Cable, 1 m	22-HIM-H10
DSI HIM Cable, 2.9 m	22-HIM-H30
Communication Options	
Built in RS485 (standard)	—
Compact Logix to DSI	AK-U0-RJ45-SC1
RJ45 One Port to Two Ports Splitter	1769-SM2
RJ45 120 Ohm Terminating Resistors (2 pcs)	AK-U0-RJ45-TR1
Communication Option, RJ45 Dual Position Terminal Block (5 pcs)	AK-U0-RJ45-TB2P
PC Programming Tool	
USB to DSI/DPI Converter with Software DriveExplorer Light Version	1203-USB
Serial Converter Module with Software DriveExplorer Light Version	22-SCM-232
Programming Software	
DriveExplorer, Full version	9306-4EXP02ENE
DriveTools SP Suite, DriveExecutive and DriveObserver	9303-4DTS01ENE

See Publication 22F-TD001... for complete product information.

PowerFlex 40 AC Drive

- 0.37...2.2 kW @ 240V 1-phase
0.37...11 kW @ 400...600V 3-phase
(240V 3-phase also available)
- V/Hz and Sensorless Vector control
- Integral dynamic brake chopper
- Communication modules for industrial automation networks
- Integral RS 485 communication: allows multi-drop configurations
(up to 4 additional PowerFlex 4 Class drives on one network node)
- Integral programming keypad and local LED status indication
- StepLogic with AND/OR and timer/counter functions
- Programmable via DriveExplorer or DriveExecutive
(1203-USB required)
- Zero stacking (no spacing required between drives)



Typical Motor Rating		Input Voltage	Drive Output [A]			Frame Size	Dimensions		Cat. No.
[kW]	[A]		Cont.	60 s	3 s		H x W x D		
0.4	1.9	200...240V 50/60Hz, 1-phase, EMC Filter, Brake Chopper	2.3	3.5	4.6	B	180x100x136	22B-A2P3N114	
0.75	3.3		5	7.5	10	B	180x100x136	22B-A5P0N114	
1.5	6.1		8	12	16	B	180x100x136	22B-A8P0N114	
2.2	8.9		12	18	24	C	260x130x180	22B-A012N114	
0.4	1.9	200...240V 50/60Hz, 1-phase, no EMC Filter, Brake Chopper	2.3	3.5	4.6	B	180x100x136	22B-A2P3N104	
0.75	3.3		5	7.5	10	B	180x100x136	22B-A5P0N104	
1.5	6.1		8	12	16	B	180x100x136	22B-A8P0N104	
2.2	8.9		12	18	24	C	260x130x180	22B-A012N104	
0.4	1.9	200...240V 50/60Hz, 3-phase, no EMC Filter, Brake Chopper	2.3	3.5	4.6	B	180x100x136	22B-B012N104	
0.75	3.3		5	7.5	10	B	180x100x136	22B-B5P0N104	
1.5	6.1		8	12	16	B	180x100x136	22B-B8P0N104	
2.2	8.9		12	18	24	B	180x100x136	22B-B012N104	
3.7	15.3		17.5	25.5	34	B	180x100x136	22B-B017N104	
5.5	21		24	36	48	C	260x130x180	22B-B024N104	
7.5	28		33	49.5	66	C	260x130x180	22B-B033N104	
0.4	1.1		400...480V 50/60Hz, 3-phase, no EMC Filter, Brake Chopper	1.4	2.1	2.8	B	180x100x136	22B-D1P4N104
0.75	1.9	2.3		3.5	4.6	B	180x100x136	22B-D2P3N104	
1.5	3.5	4		6	8	B	180x100x136	22B-D4P0N104	
2.2	5	6		9	12	B	180x100x136	22B-D6P0N104	
4	8.4	10.5		15	20	B	180x100x136	22B-D010N104	
5.5	11.4	12		18	24	C	260x130x180	22B-D012N104	
7.5	15	17		25.5	34	C	260x130x180	22B-D017N104	
11	22	24		36	48	C	260x130x180	22B-D024N104	
0.75	—	600V 50/60Hz, 3-phase, no EMC Filter, Brake Chopper		1.7	2.5	3.4	B	180x100x136	22B-E1P7N104
1.5	—			3	4.5	6	B	180x100x136	22B-E3P0N104
2.2	—		4.2	6.3	8.4	B	180x100x136	22B-E4P2N104	
4	—		6.6	9.9	13.2	B	180x100x136	22B-E6P6N104	
5.5	—		9.9	14.8	19.8	C	260x130x180	22B-E9P9N104	
7.5	—		12	18	24	C	260x130x180	22B-E012N104	
11	—		19	28	38	C	260x130x180	22B-E019N104	

See Publication 22-TD001... for complete product information.

Options

	Cat. No.
External EMC Filter for up to 10 m of Motor Cable	
EMC Filter PowerFlex 4/40, 200...240V, 3-phase, 21 A, Frame B	22-RF021-BS
EMC Filter PowerFlex 40, 200...240V, 3-phase, 34 A, Frame C	22-RF034-CS
EMC Filter PowerFlex 4/40, 400...480V, 3-phase, 12 A, Frame B	22-RF012-BS
EMC Filter PowerFlex 40, 400...480V, 3-phase, 18 A, Frame C	22-RF018-CS
EMC Filter PowerFlex 40/400, 480V, 3-phase, 26 A, Frame C	22-RF026-CS
External EMC Filter for up to 100 m of Motor Cable	
EMC Filter PowerFlex 4/40, 200...240V, 1-phase, 18 A, Frame B	22-RF018-BL
EMC Filter PowerFlex 40, 200...240V, 1-phase, 25 A, Frame C	22-RF025-CL
EMC Filter PowerFlex 4/40, 200...240V, 3-phase, 21 A, Frame B	22-RF021-BL
EMC Filter PowerFlex 40, 200...240V, 3-phase, 34 A, Frame C	22-RF034-CL
EMC Filter PowerFlex 4/40, 400...480V, 3-phase, 12 A, Frame B	22-RF012-BL
EMC Filter PowerFlex 40, 400...480V, 3-phase, 18 A, Frame C	22-RF018-CL
EMC Filter PowerFlex 40, 480V, 3-phase, 26 A, Frame C	22-RF026-CL
External User Interface Modules	
Panel Mount, IP66, Full Numeric LCD, Cable 2 m	22-HIM-C2S
Hand Held, IP30, Full Numeric LCD, Cable 1 m	22-HIM-A3
Bezel Kit, IP20 for use with 22-HIM-A3	22-HIM-B1
DSI HIM Cable, 1 m	22-HIM-H10
DSI HIM Cable, 2.9 m	22-HIM-H30
Wireless Interface Module Bluetooth DSI, IP20	22-WIM-N1
Wireless Interface Module Bluetooth DSI, IP66	22-WIM-N4S
Communication Options	
Built in RS485 (standard)	—
RJ45 One Port to Two Ports Splitter	AK-U0-RJ45-SC1
RJ45 120 Ohm Terminating Resistors (2 pcs)	AK-U0-RJ45-TR1
Communication Option, RJ45 Dual Position Terminal Block (5 pcs)	AK-U0-RJ45-TB2P
Communication Module, DeviceNet (Frame B or C cover is needed)	22-COMM-D
Communication Module, ControlNet™ (Frame B or C cover is needed)	22-COMM-C
Communication Module, Profibus™ (Frame B or C cover is needed)	22-COMM-P
Communication Module, EtherNet/IP (Frame B or C cover is needed)	22-COMM-E
Communication Module, LonWorks (Frame B or C cover is needed)	22-COMM-L
Communication Module, BACnet (Frame B or C cover is needed)	22-COMM-B
Compact Logix to DSI Interface	1769-SM2
Cover for Frame B PowerFlex 40	22B-CCB
Cover for Frame C PowerFlex 40	22B-CCC
PC Programming Tool	
Serial Converter Module with Software DriveExplorer Light Version	22-SCM-232
USB to DSI/DPI Converter with Software DriveExplorer Light Version	1203-USB
Programming Software	
DriveExplorer for PC	9306-4EXP02ENE
DriveTools SP Suite, DriveExecutive and DriveObserver	9303-4DTS01ENE

See Publication 22-TD001... for complete product information.

PowerFlex 40P AC Drive

- 0.37...11 kW @ 400...600V 3-phase (240V 3-phase also available)
- V/Hz and Sensorless Vector control
- Integral dynamic brake chopper
- Communication modules for industrial automation networks
- Integral RS 485 communication: allows multi-drop configurations (up to 4 additional PowerFlex 4 Class drives on one network node)
- Speed control with and without encoder feedback
- StepLogic with AND/OR and timer/counter functions
- Safe-off option confirming to EN 954-1 Cat. 3
- Specific features for fibre applications
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero stacking (no spacing required between drives)



Typical Motor Rating		Input Voltage	Drive Output [A]			Frame Size	Dimensions H x W x D	Cat. No.
[kW]	[A]		Cont.	60 s	3 s			
0.4	1.9	200...240V 50/60Hz, 3-phase, no EMC Filter, Brake Chopper	2.3	3.5	4.6	B	180x100x136	22D-B2P3N104
0.75	3.3		5	7.5	10	B	180x100x136	22D-B5P0N104
1.5	6.1		8	12	16	B	180x100x136	22D-B8P0N104
2.2	8.9		12	18	24	B	180x100x136	22D-B012N104
3.7	15.3		17.5	25.5	34	B	180x100x136	22D-B017N104
5.5	21		24	36	48	C	260x130x180	22D-B024N104
7.5	28		33	49.5	66	C	260x130x180	22D-B033N104
0.4	1.1	400...480V 50/60Hz, 3-phase, no EMC Filter, Brake Chopper	1.4	2.1	2.8	B	180x100x136	22D-D1P4N104
0.75	1.9		2.3	3.5	4.6	B	180x100x136	22D-D2P3N104
1.5	3.5		4	6	8	B	180x100x136	22D-D4P0N104
2.2	5		6	9	12	B	180x100x136	22D-D6P0N104
4	8.4		10.5	15	20	B	180x100x136	22D-D010N104
5.5	11.4		12	18	24	C	260x130x180	22D-D012N104
7.5	15		17	25.5	34	C	260x130x180	22D-D017N104
11	22	24	36	48	C	180x100x136	22D-D024N104	
0.75	-	600V 50/60Hz, 3-Phase, no EMX Filter, Brake Chopper	1.7	2.5	3.4	B	180x100x136	22D-E1P7N104
1.5	-		3	4.5	6	B	180x100x136	22D-E3P0N104
2.2	-		4.2	6.3	8.4	B	180x100x136	22D-E4P2N104
4.0	-		6.6	9.9	13.2	B	260x130x180	22D-E6P6N104
5.5	-		9.9	14.8	19.8	C	260x130x180	22D-E9P9N104
7.5	-		12	18	24	C	260x130x180	22D-E012N104
11	-		19	28	38	C	260x130x180	22D-E019N104

See Publication 22D-TD001... for complete product information.

Options

	Cat. No.
External EMC Filter for up to 10 m of Motor Cable	
EMC Filter PowerFlex 4/40, 200...240V, 3-phase, 21 A, Frame B	22-RF021-BS
EMC Filter PowerFlex 40, 200...240V, 3-phase, 34 A, Frame C	22-RF034-CS
EMC Filter PowerFlex 4/40, 400...480V, 3-phase, 12 A, Frame B	22-RF012-BS
EMC Filter PowerFlex 40, 400...480V, 3-phase, 18 A, Frame C	22-RF018-CS
EMC Filter PowerFlex 40/400, 480V, 3-phase, 26 A, Frame C	22-RF026-CS
External EMC Filter for up to 100 m of Motor Cable	
EMC Filter PowerFlex 4/40, 200...240V, 1-phase, 18 A, Frame B	22-RF018-BL
EMC Filter PowerFlex 40, 200...240V, 1-phase, 25 A, Frame C	22-RF025-CL
EMC Filter PowerFlex 4/40, 200...240V, 3-phase, 21 A, Frame B	22-RF021-BL
EMC Filter PowerFlex 40, 200...240V, 3-phase, 34 A, Frame C	22-RF034-CL
EMC Filter PowerFlex 4/40, 400...480V, 3-phase, 12 A, Frame B	22-RF012-BL
EMC Filter PowerFlex 40, 400...480V, 3-phase, 18 A, Frame C	22-RF018-CL
EMC Filter PowerFlex 40, 480V, 3-phase, 26 A, Frame C	22-RF026-CL
External User Interface Modules	
Panel Mount, IP66, Full Numeric LCD, Cable 2 m	22-HIM-C2S
Hand Held, IP30, Full Numeric LCD, Cable 1 m	22-HIM-A3
Bezel Kit, IP20 for use with 22-HIM-A3	22-HIM-B1
DSI HIM Cable, 1 m	22-HIM-H10
DSI HIM Cable, 2.9 m	22-HIM-H30
Wireless Interface Module Bluetooth DSI, IP20	22-WIM-N1
Wireless Interface Module Bluetooth DSI, IP66	22-WIM-N4S
Communication Options	
Built in RS485 (standard)	—
RJ45 One Port to Two Ports Splitter	AK-U0-RJ45-SC1
RJ45 120 Ohm Terminating Resistors (2 pcs)	AK-U0-RJ45-TR1
Communication Option, RJ45 Dual Position Terminal Block (5 pcs)	AK-U0-RJ45-TB2P
Communication Module, DeviceNet (Frame B or C cover is needed)	22-COMM-D
Communication Module, ControlNet (Frame B or C cover is needed)	22-COMM-C
Communication Module, Profibus (Frame B or C cover is needed)	22-COMM-P
Communication Module, EtherNet/IP (Frame B or C cover is needed)	22-COMM-E
Communication Module, LonWorks (Frame B or C cover is needed)	22-COMM-L
Communication Module, BACnet (Frame B or C cover is needed)	22-COMM-B
Compact Logix to DSI Interface	1769-SM2
Cover for Frame B PowerFlex 40	22B-CCB
Cover for Frame C PowerFlex 40	22B-CCC
PC Programming Tool	
Serial Converter Module with Software DriveExplorer Light Version	22-SCM-232
USB to DSI/DPI Converter with Software DriveExplorer Light Version	1203-USB
Programming Software	
DriveExplorer for PC	9306-4EXP02ENE
DriveTools SP Suite -includes DriveExecutive, DriveObserver	9303-4DTS01ENE
Safe-Off Option	
DriveGuard® Safe-Off Board	20A-DG01

See Publication 22D-TD001... for complete product information.

PowerFlex 400 AC Drive

- 0.37...250 kW @ 400V 3-phase
(240V and 480V 3-phase also available)
- V/Hz control
- For industrial pump and fan applications
- Communication modules for industrial automation networks
- Integral RS 485 communication; allows multi-drop configurations
(up to 4 additional PowerFlex 4 Class drives on one network node)
- Integral programming keypad and local LED status indication
- Programmable via DriveExplorer or DriveExecutive
(1203-USB required)
- Zero stacking (no spacing required between drives)



Typical Motor Rating		Input Voltage	Drive Output [A]		Frame Size	Dimensions H x W x D	Cat. No.
[kW]	[A]		Cont.	60 s			
2.2	9	200...240V 50/60Hz 3-phase	12	13.2	C	260x130x180	22C-B012N103
3.7	16		17.5	19.25	C	260x130x180	22C-B017N103
5.5	21		24	26.4	C	260x130x180	22C-B024N103
7.5	28		33	36.3	C	260x130x180	22C-B033N103
11	40		49	54	D	384x250x205.4	22C-B049A103
15	52		65	71	D	384x250x205.4	22C-B065A103
18.5	61		75	82	D	384x250x205.4	22C-B075A103
22	72		90	99	D	384x250x205.4	22C-B090A103
30	95		120	132	E	589x370x260	22C-B120A103
37	117		145	159	E	589x370x260	22C-B145A103
2.2	5	400...480V 50/60Hz 3-phase	6	6.6	C	260x130x180	22C-D6P0N103
4	8.4		10.5	11.5	C	260x130x180	22C-D010N103
5.5	11.4		12	13.2	C	260x130x180	22C-D012N103
7.5	15		17	18.7	C	260x130x180	22C-D017N103
11	22		22	24	C	260x130x180	22C-D022N103
15	29		30	33	C	260x130x180	22C-D030N103
18.5	34		38	42	D	384x250x205.4	22C-D038A103
22	40		45.5	50	D	384x250x205.4	22C-D045A103
30	53		60	66	D	384x250x205.4	22C-D060A103
37	65		72	79	E	589x370x260	22C-D072A103
45	78		88	96	E	589x370x260	22C-D088A103
55	98		105	115	E	589x370x260	22C-D105A103
75	132		142	156	E	589x370x260	22C-D142A103
90	158		170	187	F	850x425x280	22C-D170A103
110	194		208	228	F	850x425x280	22C-D208A103
132	235		260	286	G	892x425x264	22C-D260A103
160	276		310	341	G	892x425x264	22C-D310A103
200	345		370	407	H	1364x529x359	22C-D370A103
250	440	460	506	H	1364x529x359	22C-D460A103	

See Publication 22C-TD001... for complete product information.

Options

	Cat. No.
Conversion Kit	
Converts IP20 drive to IP30, NEMA/UL Type 1 enclosure. Includes conduit box, mounting screws and plastic top panel.	22-JBAC
Converts IP20 drive to IP30, NEMA/UL Type 1 enclosure. Includes communication option conduit box, mounting screws and plastic top panel.	22-JBCC
RFI Filters	
EMC Filter	22-RF018-CS
EMC Filter	22-RF026-CS
EMC Filter	22-RFD036
EMC Filter	22-RFD050
EMC Filter	22-RFD070
EMC Filter	22-RFD100
EMC Filter	22-RFD150
EMC Filter	22-RFD180
EMC Filter	22-RFD208
EMC Filter	22-RFD323
EMC Filter	22-RFD480
External User Interface Modules	
Remote (Panel Mount) LCD Display, Digital Speed Control, CopyCat Capable.	22-HIM-C2S
Hand Held, IP30, Full Numeric LCD, Cable 1 m	22-HIM-A3
Bezel Kit, IP20 for use with 22-HIM-A3	22-HIM-B1
DSI HIM Cable, 1 m	22-HIM-H10
DSI HIM Cable, 2.9 m	22-HIM-H30
Wireless Interface Module Bluetooth DSI, IP20	22-WIM-N1
Wireless Interface Module Bluetooth DSI, IP20	22-WIM-N4S
Communication Options	
Built in RS458 (Standard)	—
RJ45 One Port to Two Ports Splitter	AK-U0-RJ45-SC1
RJ45 120 Ohm Terminating Resistors (2 pcs)	AK-U0-RJ45-TR1
Communication Option, RJ45 Dual Position Terminal Block (5 pcs)	AK-U0-RJ45-TB2P
Communication Module, DeviceNet (Frame B or C cover is needed)	22-COMM-D
Communication Module, ControlNet (Frame B or C cover is needed)	22-COMM-C
Communication Module, Profibus (Frame B or C cover is needed)	22-COMM-P
Communication Module, EtherNet/IP (Frame B or C cover is needed)	22-COMM-E
Communication Module, LonWorks (Frame B or C cover is needed)	22-COMM-L
Communication Module, BACnet (Frame B or C cover is needed)	22-COMM-B
Compact I/O Module (3 Channel)	1769-SM2
Frame C Drive	22C-CCC
PC Programming Tool	
USB to DSI/DPI Converter with Software DriveExplorer Light Version	1203-USB
Serial Converter Module with Software DriveExplorer Light Version	22-SCM-232
Programming Software	
DriveExplorer for PC	9306-4EXP02ENE
DriveTools SP Suite -includes DriveExecutive, DriveObserver	9303-4DTS01ENE
Other Options	
Auxiliary Relay Board - Expands drive output capabilities - Frames D-H only.	AK-U9-RLB1

* If NEMA 1/IP30 is required, must also order 22-JBCC (Frame C drives only).

See Publication 22C-TD001... for complete product information.

PowerFlex 70 AC Drive

- 0.37...37 kW @ 400V 3-phase
(240V, 480V and 600V 3-phase also available)
- V/Hz, Sensorless Vector and Flux Vector control
- Speed and torque control with and without encoder feedback
- Communication modules for a wide range of industrial automation networks
- Small physical size, with in-built EMC filter and dynamic brake chopper
- IP66 stand alone and flange mount versions also available
- Optional multi-lingual LCD HIM with start-up assistance
- Safe-off option conforming to EN954-1 Cat. 3
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero stacking (no spacing required between drives)



Typical Motor Rating		Input Voltage	Drive Output [A]			Frame Size	Dimensions H x W x D	Cat. No.
[kW]	[A]		Cont.	60 s	3 s			
0.37	1.06	400...480V 50/60Hz, 3-phase, EMC Filter, Brake Chopper	1.3	1.4	1.9	B	235x171x180	20AC1P3A0AYNANCO
0.75	1.88		2.1	2.4	3.2	B	235x171x180	20AC2P1A0AYNANCO
1.5	3.5		3.5	4.5	6	B	235x171x180	20AC3P5A0AYNANCO
2.2	5		5	5.5	7.5	B	235x171x180	20AC5P0A0AYNANCO
4	8.4		8.7	9.9	13.2	B	235x171x180	20AC8P7A0AYNANCO
5.5	11		11.5	13	17.4	C	300x186x180	20AC011A0AYNANCO
7.5	15		15.4	17.2	23.1	C	300x186x180	20AC015A0AYNANCO
11	21		22	24.2	33	D	350x220x180	20AC022A0AYNANCO
15	29		30	33	45	D	350x220x180	20AC030A0AYNANCO
18.5	34		37	45	60	D	350x220x180	20AC037A0AYNANCO
22	40		43	55	74	D	350x220x180	20AC043A0AYNANCO
30	53		60	66	90	E	556x280x207	20AC060A0AYNANCO
37	65		72	90	120	E	556x280x207	20AC072A0AYNANCO
0.37	1.06		400...480V 50/60Hz, 3-phase, EMC Filter, Brake Chopper, IP66 with Full Numeric User Interface	1.3	1.4	1.9	B	240x171x203
0.75	1.88	2.1		2.4	3.2	B	240x171x203	20AC2P1C3AYNANCO
1.5	3.5	3.5		4.5	6	B	240x171x203	20AC3P5C3AYNANCO
2.2	5	5		5.5	7.5	B	240x171x203	20AC5P0C3AYNANCO
4	8.4	8.7		9.9	13.2	B	240x171x203	20AC8P7C3AYNANCO
5.5	11	11.5		13	17.4	D	350x220x211	20AC011C3AYNANCO
7.5	15	15.4		17.2	23.1	D	350x220x211	20AC015C3AYNANCO
11	21	22		24.2	33	D	350x220x211	20AC022C3AYNANCO
15	29	30		33	45	D	350x220x211	20AC030C3AYNANCO
18.5	34	37		45	60	D	350x220x211	20AC037C3AYNANCO
22	40	43		55	74	D	350x220x211	20AC043C3AYNANCO
30	53	60		66	90	E	556x280x220	20AC060C3AYNANCO
37	65	72		90	120	E	556x280x220	20AC072C3AYNANCO

See Publication 22A-TD001... for complete product information.

Options

	Cat. No.
User Interface Modules	
Full Numeric LCD	20-HIM-A3
Programming Only LCD	20-HIM-A5
Wireless Interface Module Bluetooth DPI, IP20	20-WIM-N1
Wireless Interface Module Bluetooth DPI, IP66	20-WIM-N4S
DPI-Port Cable, 1 m	20-HIM-H10
Full Numeric LCD, IP66, includes 3 m cable	20-HIM-C3S
Programming Only LCD, IP66, includes 3 m cable	20-HIM-C5S
DPI-Port Cable Extension, 0.30 m	1202-H03
DPI-Port Cable Extension, 1 m	1202-H10
DPI-Port Cable Extension, 3 m	1202-H30
DPI-Port Cable Extension, 9 m	1202-H90
Internal Communication Option	
Communication Module, DeviceNet	20-COMM-D
Communication Module, ControlNet	20-COMM-C
Communication Module, ControlNet Fiber	20-COMM-Q
Communication Module, EtherNet/IP	20-COMM-E
Communication Module, RIO	20-COMM-R
Communication Module, RS485 DF1	20-COMM-S
Communication Module, Profibus	20-COMM-P
Communication Module, InterBus	20-COMM-I
Communication Module, CANopen	20-COMM-K
Communication Module, LonWorks	20-COMM-L
Selectable Communication Module, HVAC ModBus RTU, Metasys N2	20-COMM-H
BACnet Communication Module	20-COMM-B
Communication Module, Option Compact I/O to DPI/SCANport module	1769-SM1
Encoder Option	
Encoder Feedback, 12/5V DC, PowerFlex 70	20A-ENC-1
Safe-Off Option	
DriveGuard Safe-Off Board PowerFlex 70	20A-DG01
PC Programming Tool	
USB to DSI/DPI Converter with Software DriveExplorer Light Version	1203-USB
Serial Converter Module with Software DriveExplorer Light Version	1203-SSS
Programming Software	
DriveExplorer, Full version	9306-4EXP02ENE
DriveTools SP Suite, DriveExecutive and DriveObserver	9303-4DTS01ENE
Internal Brake Resistors, 5 % Duty Cycle	
Brake Resistor Kit, PowerFlex 70 Frame A, 400...600V, 115 Ohm	20AD-DB1-B
Brake Resistor Kit, PowerFlex 70 Frame B, 400...600V, 115 Ohm	20AD-DB1-B
Brake Resistor Kit, PowerFlex 70 Frame C, 400...600V, 115 Ohm	20AD-DB1-C
Brake Resistor Kit, PowerFlex 70 Frame D, 400...480V, 62 Ohm	20AD-DB1-D

See Publication 20A-TD001... for complete product information.

PowerFlex 700 AC Drive

- 0.75...160 kW, 400V 3-phase, (240V, 480V, 600V and 690V 3-phase also available)
- V/Hz, Sensorless Vector and Flux Vector control
- Speed and torque control with and without encoder feedback
- Communication modules for a wide range of industrial automation networks
- Optional multi-lingual LCD HIM with start-up assistance
- Book-shelf housing with in-built EMC filter and dynamic brake chopper
- TorqProve for automated torque and brake control, ideal for lifting applications
- Parameter linking functionality
- Position regulator and 16 step indexing table (with encoder feedback)
- Programmable via DriveExplorer or DriveExecutive (1203-USB required)
- Zero stacking (no spacing required between drives)



Typical Motor Rating		Input Voltage	Drive Output [A]			Frame Size	Dimensions H x W x D	Cat. No.
[kW]	[A]		Cont.	60 s	3 s			
0.75	1.88	400...480V 50/60Hz, 3-phase, EMC Filter, Brake Chopper	2.1	2.4	3.2	0	336x110x200	20BC2P1A0AYNANCO
1.5	3.5		3.5	4.5	6	0	336x110x200	20BC3P5A0AYNANCO
2.2	5		5	5.5	7.5	0	336x110x200	20BC5P0A0AYNANCO
4	8.4		8.7	9.9	13.2	0	336x110x200	20BC8P7A0AYNANCO
5.5	11		11.5	13	17.4	0	336x110x200	20BC011A0AYNANCO
7.5	15		15.4	17.2	23.1	1	336x135x200	20BC015A0AYNANCO
11	21		22	24.2	33	1	336x135x200	20BC022A0AYNANCO
15	29		30	33	45	2	343x220x200	20BC030A0AYNANCO
18.5	34		37	45	60	2	343x220x200	20BC037A0AYNANCO
22	40		43	56	74	3	518x220x200	20BC043A0AYNANCO
30	53		56	64	86	3	518x220x200	20BC056A0AYNANCO
37	65		72	84	112	3	518x220x200	20BC072A0AYNANCO
45	78		85	94	128	4	759x220x200	20BC085A0AYNANCO
55	98		105	116	158	5	645x309x276	20BC105A0AYNANCO
75	132		140	154	210	5	645x309x276	20BC140A0AYNANCO
90	158		170	187	255	6	850x404x276	20BC170A0AYNANCO
110	194	205	220	289	6	850x404x276	20BC205A0AYNANCO	
132	235	260	286	390	6	850x404x276	20BC260A0AYNANCO	
45	78	400...480V 50/60Hz, 3-Phase, EMC Filter, no Brake Chopper	85	94	128	4	759x220x200	20BC085A0ANNANCO
55	98		105	116	158	5	645x309x276	20BC105A0ANNANCO
75	132		140	154	210	5	645x309x276	20BC140A0ANNANCO
90	158		170	187	255	6	850x404x276	20BC170A0ANNANCO
110	194		205	220	289	6	850x404x276	20BC205A0ANNANCO
132	235		260	286	390	6	850x404x276	20BC260A0ANNANCO
160	276		292	322	438	7	1500x515x407	20BC292A0ANNANCO

See Publication 22B-TD001... for complete product information.

Options

	Cat. No.
User Interface Modules	
Full Numeric LCD	20-HIM-A3
Programming Only LCD	20-HIM-A5
DPI-Port Cable, 1 m	20-HIM-H10
Full Numeric LCD, IP66, includes 3 m cable	20-HIM-C3S
Programming Only LCD, IP66, includes 3 m cable	20-HIM-C5S
Wireless Interface Module Bluetooth DPI, IP20	20-WIM-N1
Wireless Interface Module Bluetooth DPI, IP66	20-WIM-N4S
DPI-Port Cable Extension, 0.30 m	1202-H03
DPI-Port Cable Extension, 1 m	1202-H10
DPI-Port Cable Extension, 3 m	1202-H30
DPI-Port Cable Extension, 9 m	1202-H90
Internal Communication Option	
Communication Module, DeviceNet	20-COMM-D
Communication Module, ControlNet	20-COMM-C
Communication Module, ControlNet Fiber	20-COMM-Q
Communication Module, EtherNet/IP	20-COMM-E
Communication Module, RIO	20-COMM-R
Communication Module, RS485 DF1	20-COMM-S
Communication Module, Profibus	20-COMM-P
Communication Module, InterBus	20-COMM-I
Communication Module, CANopen	20-COMM-K
Communication Module, LonWorks	20-COMM-L
Selectable Communication Module, HVAC ModBus RTU, Metasys N2	20-COMM-H
BACnet Communication Module	20-COMM-B
Communication Module, Option Compact I/O to DPI/SCANport module	1769-SM1
Encoder Option	
PowerFlex 700 Encoder Feedback, 12/5VDC	20B-ENC-2
PC Programming Tool	
USB to DSI/DPI Converter with Software DriveExplorer Light Version	1203-USB
Serial Converter Module with Software DriveExplorer Light Version	1203-SSS
Programming Software	
DriveExplorer, Full version	9306-4EXP02ENE
DriveTools SP Suite, DriveExecutive and DriveObserver	9303-4DTS01ENE
Internal Brake Resistors, 5 % Duty Cycle	
Brake Resistor Kit, PowerFlex 700 Frame 0, 400...480V, 115 Ohm	20BD-DB1-0
Brake Resistor Kit, PowerFlex 700 Frame 1, 400...480V, 115 Ohm	20BD-DB1-1
Brake Resistor Kit, PowerFlex 700 Frame 2, 400...480V, 68 Ohm	20BD-DB1-2

See Publication 22B-TD001... for complete product information.

Drives

Accessories

External Dynamic Brake Resistors for PowerFlex 4, 4M, 40, 40P, 70 and 700

kW	Braking Torque % of Motor Power	Duty Cycle %	Description	Cat. No.
200...240V Drives				
0.37	100 %	46 %	Dynamic Brake Resistor, 200...480V, 91 Ohm, 86 W	AK-R2-091P500
0.75	100 %	23 %		AK-R2-091P500
1.5	100 %	11 %		AK-R2-091P500
2.2	100 %	15 %	Dynamic Brake Resistor, 200...480V, 47 Ohm, 166 W	AK-R2-047P500
4	79 %	11 %		AK-R2-047P500
5.5	90 %	10 %	Dynamic Brake Resistor, 200...480V, 30 Ohm, 260 W	AK-R2-030P1K2
7.5	66 %	10 %		AK-R2-030P1K2
11	90 %	10 %		*
15	66 %	10 %		*
400...480V Drives				
0.37	100 %	47 %	Dynamic Brake Resistor, 200...480V, 360 Ohm, 86 W	AK-R2-360P500
0.75	100 %	23 %		AK-R2-360P500
1.5	100 %	12 %		AK-R2-360P500
2.2	100 %	24 %	Dynamic Brake Resistor, 200...480V, 120 Ohm, 260 W	AK-R2-120P1K2
4	100 %	13 %		AK-R2-120P1K2
5.5	90 %	10 %		AK-R2-120P1K2
7.5	66 %	10 %		AK-R2-120P1K2
11	90 %	10 %		*
15	66 %	10 %		*
500...600V Drives *				
0.37	100%	46%	Dynamic Brake Resistor, 200...480V, 360 Ohm, 86 W	AK-R2-360P500
0.75	100%	23%		AK-R2-360P500
1.5	100%	11%		AK-R2-360P500
2.2	100%	24%	Dynamic Brake Resistor, 200...480V, 120 Ohm, 260 W	AK-R2-120P1K2
4	100%	13%		AK-R2-120P1K2
5.5	100%	9%		AK-R2-120P1K2
7.5	100%	7%		AK-R2-120P1K2
11	100%	9%		*
15	100%	7%		*

* For 11 and 15 kW applications, use two 7.5 size resistors wired in parallel.

* For PowerFlex 40, 40P, 70 and 700

For installation instructions refer to publication RA-IN004...

For detailed information on dynamic braking refer to publication PFLEX-AT001...

Line Reactors, 3 % Input Impedance




kW	PowerFlex 4/4M	PowerFlex 40/40P	PowerFlex 400
	Cat. No.	Cat. No.	Cat. No.
200...240V 3-Phase Drives			
0.2	1321-3R2-A	1321-3R2-A	
0.75	1321-3R8-B	1321-3R8-B	
1.5	1321-3R8-A	1321-3R8-A	
2.2	1321-3R12-A	1321-3R12-A	1321-3R12-A
4	1321-3R18-A	1321-3R18-A	1321-3R18-A
5.5	1321-3R25-A	1321-3R25-A	1321-3R25-A
7.5	1321-3R35-A	1321-3R35-A	1321-3R35-A
11			1321-3R45-A
15			1321-3R55-A
18.5			1321-3R80-A
22			1321-3R80-A
30			1321-3R100-A
37			1321-3R100-A
			1321-3R130-A
400...480V 3-Phase Drives			
0.37	1321-3R2-B	1321-3R2-B	
0.75	1321-3R2-B	1321-3R2-B	
1.5	1321-3R4-B	1321-3R4-B	
2.2	1321-3R4-B	1321-3R4-B	1321-3R8-C
4	1321-3R8-B	1321-3R8-B	1321-3R12-B
5.5	1321-3R12-B	1321-3R12-B	1321-3R12-B
7.5	1321-3R18-B	1321-3R18-B	1321-3R18-B
11	1321-3R25-B	1321-3R25-B	1321-3R25-B
15			1321-3R35-B
18.5			1321-3R35-B
22			1321-3R45-B
30			1321-3R55-B
37			1321-3R80-B
45			1321-3R80-B
55			1321-3R100-B
75			1321-3R130-B
90			1321-3R160-B
110			1321-3R200-B
132			1321-3RB250-B
160			1321-3RB320-B
200			1321-3RB400-B
250			1321-3R500-B

For technical details refer to publication 1321-TD001...

Control and Load Switches

Product Line Overview

Switch Selection

			
Bulletin	194L	194E	194E
Type	Control and Load Switches 12...40 A	Load Switches 16...100 A	Load Switches 125...315 A
Features	<ul style="list-style-type: none"> 12, 16, 20, 25, 40 A Inductive Load-Rated control and load switch 1 to 6 pole switch control configurations for OFF-ON, Change-over, Star-Delta (Wye- Delta), Reversing, Ammeter, Voltmeter, and Step Switch applications 	<ul style="list-style-type: none"> 16, 25, 32, 40, 63, 80, 100 A Inductive Load-Rated load switch 3 or 6 pole switch configurations for OFF-ON or Change-over applications 	<ul style="list-style-type: none"> 125, 160, 250, 315 A Inductive Load-Rated load switch 3 or 4 pole switch configurations for OFF-ON applications
Actuators	<ul style="list-style-type: none"> Uniformly styled actuators available in selector knob, disk-style, rectangular-style and key-operated versions (Type 1/12/3R, IP66) Actuator colours in grey/black or red/yellow and padlockable versions Legend plates available in O-I international markings and text styles 	<ul style="list-style-type: none"> Uses 194L actuators for standardization among line, available in selector-knob, disk-style, rectangular-style and key-operated versions (Type 1/12/3R, IP66) Actuator colours in grey/black or red/yellow and padlockable versions Legend plates available in O-I international markings and text styles 	<ul style="list-style-type: none"> Uses larger 194E actuators available in selector knob, disk-style, (Type 1/12/3R, IP66) Actuator colours in grey/black or red/yellow and padlockable versions Legend plates available in O-I international markings and text styles
Open Switch or Enclosed	Available as open switch or in IP66 thermoplastic enclosure		Available as open switch
UL/CSA EI. Ratings			
Rated Voltage U_e [V AC]	600V		
Rated Current I_e [A]	12...40 A @ 600V	16...100 A @ 600V	125...315 A @ 600V
Short Circuit Ratings [A]	5 kA		
Switching Rate [ops/h]	120		
Mechanical Life [ops]	1 million	0.2 million	0.1 million (125...160 A) 0.075 million (250...315 A)
Protection Class Acc. to IEC 529	Switch bodies IP20 actuators IP66		
Protection Class Acc. to UL CSA	Actuators UL Type 1/12 (selector style) and UL 1/3/3R/12 (disc style)		
Optional Accessories	Multi-length shafts and shaft extension kits, terminal covers	Multi-length shafts and shaft extension kits, auxiliary contacts, power poles, grounding poles, terminal covers	
Standards/Approvals	UL 508, CSA C22.2 No. 14, IEC 947-3 Low voltage switch gear and control gear part 3, CE		
Product Selection	See page 1-99	See page 1-105	See page 1-105

Control and Load Switches 194L

- Rated current up to 40 A
- Large selection of functions and switching positions
- Screws and central fixture ø 22.5 mm
- Front- or base mounting
- Finger-proof switch bodies per IP20
- Water spray and dust-proof actuator per IP66
- Easily accessible terminals
- Clearly marked terminals



+



Switch Body

Actuator

Switch Bodies for Bulletin 194L, Front/Base Mounting

Function	I AC-21A [A]	Poles	Front/Door Mounting	Base/DIN Rail Mounting	Combinations		
			Cat. No.	Cat. No.	Size	Actuator / Legend Plate Type	No.
ON-OFF Switches							
	12	1	194L-E12-1751	194L-A12-1751	4, 6	194L-HE... A, E A, E, I, P, S A, E, G*, I, L, N*, S	001 175 175
		2	194L-E12-1752	194L-A12-1752			
		3	194L-E12-1753	194L-A12-1753			
		4	194L-E12-1754	194L-A12-1754			
		6	194L-E12-1756	194L-A12-1756			
	16	1	194L-E16-1751	194L-A16-1751			
		2	194L-E16-1752	194L-A16-1752			
		3	194L-E16-1753	194L-A16-1753			
		4	194L-E16-1754	194L-A16-1754			
		6	194L-E16-1756	194L-A16-1756			
	20	1	194L-E20-1751	194L-A20-1751			
		2	194L-E20-1752	194L-A20-1752			
		3	194L-E20-1753	194L-A20-1753			
		4	194L-E20-1754	194L-A20-1754			
		6	194L-E20-1756	194L-A20-1756			
	25	1	194L-E25-1751	194L-A25-1751			
		2	194L-E25-1752	194L-A25-1752			
		3	194L-E25-1753	194L-A25-1753			
		4	194L-E25-1754	194L-A25-1754			
		6	194L-E25-1756	194L-A25-1756			
32	3	194L-E32-1753	194L-A32-1753				
	4	194L-E32-1754	194L-A32-1754				
	6	194L-E32-1756	194L-A32-1756				
40	3	194L-E40-1753	194L-A40-1753				
	4	194L-E40-1754	194L-A40-1754				
	6	194L-E40-1756	194L-A40-1756				
						194L-HC... B, D* A, C*, E, I, L G*, N*	001 175 175

Ordering Example: Switch Body: **194L-E12-1751**; Actuator for Screw Fixture Type A: **194L-HE4A-175**






* Key out position see page 1-104.

* With both 0-1 and OFF/ON inscriptions.

Control and Load Switches

Product Selection

Switch Bodies for Bulletin 194L, Front/Base Mounting, continued





Function	I AC-21A [A]	Poles	Front/Door Mounting	Base/DIN Rail Mounting	Combinations		
			Cat. No.	Cat. No.	Actuator / Legend Plate		
					Size	Type	No.
ON-OFF Switches							
	12	2	194L-E12-1782	194L-A12-1782	4, 6 4 6	194L-HE... A, E A, E A, E, G*, N*	001 178 178
		3	194L-E12-1783	194L-A12-1783			
		4	194L-E12-1784	194L-A12-1784			
	16	2	194L-E16-1782	194L-A16-1782	4	194L-HC... B, D* A, C*	001 178
		3	194L-E16-1783	194L-A16-1783			
		4	194L-E16-1784	194L-A16-1784			
	12	1	194L-E12-9001	194L-A12-9001	4, 6 4 6	194L-HE... A, E A, E A, E	001 900 900
					4	194L-HC... B, D* A	001 900
	12	1	194L-E12-9751	194L-A12-9751	4, 6 4 6	194L-HE... A, E A, E G*, N*	001 975 975
					4	194L-HC... B, D* A	001 975
	12	1	194L-E12-9251	194L-A12-9251	4, 6 4 6	194L-HE... A, E A, E A, E	001 925 925
					4	194L-HC... B, D A	001 925
Changeover Switches							
	12	1	194L-E12-2501		4, 6 4 6	194L-HE... A A A	001 250 250
		2	194L-E12-2502				
		3	194L-E12-2503				
	16	1	194L-E16-2501		4	194L-HC... B A, C*	001 250
		2	194L-E16-2502				
		3	194L-E16-2503				
	20	1	194L-E20-2501		4	194L-HC... B A, C*	001 250
		2	194L-E20-2502				
		3	194L-E20-2503				
	25	1	194L-E25-2501		4	194L-HC... B A, C*	001 250
		2	194L-E25-2502				
		3	194L-E25-2503				

Ordering Example: Switch Body: 194L-E12-1782; Actuator for Central Fixture Type A: 194L-HC4A-178.

* Key out position see page 1-104.

* With both 0-1 and OFF/ON inscriptions.

Switch Bodies for Bulletin 194L, Front/Base Mounting, continued

Function	I AC-21A [A]	Poles	Front/Door Mounting	Base/DIN Rail Mounting	Combinations		
			Cat. No.	Cat. No.	Size	Actuator / Legend Plate Type	No.
Changeover Switches							
	12	1	194L-E12-3251	194L-A12-3251	4, 6 4 6 6 4	194L-HE... A A, P, S A, S 194L-HC... B, D* A, C*	001 325 325 001 325
		2	194L-E12-3252	194L-A12-3252			
		3	194L-E12-3253	194L-A12-3253			
		4	194L-E12-3254	194L-A12-3254			
	16	1	194L-E16-3251	194L-A16-3251			
		2	194L-E16-3252	194L-A16-3252			
		3	194L-E16-3253	194L-A16-3253			
		4	194L-E16-3254	194L-A16-3254			
	20	1	194L-E20-3251	194L-A20-3251			
		2	194L-E20-3252	194L-A20-3252			
		3	194L-E20-3253	194L-A20-3253			
		4	194L-E20-3254	194L-A20-3254			
	25	1	194L-E25-3251	194L-A25-3251			
		2	194L-E25-3252	194L-A25-3252			
		3	194L-E25-3253	194L-A25-3253			
		4	194L-E25-3254	194L-A25-3254			
	32	3	194L-E32-3253	194L-A32-3253			
		4	194L-E32-3254	194L-A32-3254			
	40	3	194L-E40-3253	194L-A40-3253			
		4	194L-E40-3254	194L-A40-3254			
	12	1	194L-E12-3751		4, 6	194L-HE... A	001
					4	A	375
					6	A	375
					4	194L-HC... B, D* A, C*	001 375
Reversing Switches							
	12	3	194L-E12-7303	194L-A12-7303	4, 6 4 6	194L-HE... A A, S A, S	001 325 325
	16	3	194L-E16-7303	194L-A16-7303			
	20	3	194L-E20-7303	194L-A20-7303			
	25	3	194L-E25-7303	194L-A25-7303	4	194L-HC... B, D* A, C*	001 325
	40	3	194L-E40-7303	194L-A40-7303			
Star-Delta Switches							
	16	3	194L-E16-7323	194L-A16-7323	4, 6 4 6	194L-HE... A A A	001 725 725
	25	3	194L-E25-7323	194L-A25-7323			
	40	3	194L-E40-7323		4	194L-HC... B, D* A, C*	001 725

Ordering Example: Switch Body: **194L-E12-3251**; Actuator for Central Fixture Type A: **194L-HC4A-325**.

* Key out position see page 1-104.






Switch Bodies for Bulletin 194L, Front/Base Mounting, continued

Function	I AC-21A [A]	Poles	Front/Door Mounting	Base/DIN Rail Mounting	Combinations		
			Cat. No.	Cat. No.	Actuator / Legend Plate		
					Size	Type	No.
Step Switches							
	12	1	194L-E12-4251	194L-A12-4251	4, 6	194L-HE... A	001 425 425
		2	194L-E12-4252				
		3	194L-E12-4253				
	16	1	194L-E16-4251	194L-A16-4251	6	A	425
		2	194L-E16-4252				
		3	194L-E16-4253				
	25	1	194L-E25-4251	194L-A25-4251	4	194L-HC... B, D* A, C*	001 425
		2	194L-E25-4252				
		3	194L-E25-4253				
	12	1	194L-E12-4511		4, 6	194L-HE... A	001 451 451
		2	194L-E12-4512				
		3	194L-E12-4513				
	16	1	194L-E16-4511		6	A	451
		2	194L-E16-4512				
		3	194L-E16-4513				
	25	1	194L-E25-4511		4	194L-HC... B, D* A	001 451
		2	194L-E25-4512				
		3	194L-E25-4513				
	12	1	194L-E12-4271		4, 6	194L-HE... A	001
					4	A	427
					6	A	427
					4	194L-HC... B, D* A, C*	001 427
	12	1	194L-E12-5251		4, 6	194L-HE... A	001 525 525
		2	194L-E12-5252				
		3	194L-E12-5253				
					4	194L-HC... B, D* A, C*	001 525
	12	1	194L-E12-5261		4, 6	194L-HE... A	001
					4	A	526
					6	A	526
					4	194L-HC... B, D* A, C*	001 526

Ordering Example: Switch Body: **194L-E12-4251**; Actuator for Central Fixture Type B: **194L-HCB-001**.

* Key out position see page 1-104.

Switch Bodies for Bulletin 194L, Front/Base Mounting, continued

Function	I AC-21A [A]	Poles	Front/Door Mounting	Base/DIN Rail Mounting	Combinations		
			Cat. No.	Cat. No.	Actuator / Legend Plate		
					Size	Type	No.
Voltmeter Selector Switches							
	12	1	194L-E12-8251	194L-A12-8251	4, 6	194L-HE... A A, P A	001
					4		194L-HC... B, D* A
	12	1	194L-E12-8271	194L-A12-8271	4, 6	194L-HE... A A A	001
					4		194L-HC... B, D* A
	12	1	194L-E12-8291	194L-A12-8291	4, 6	194L-HE... A A A	001
					4		194L-HC... B, D* A
Ammeter Selector Switches							
	12	1	194L-E12-8751	194L-A12-8751	4, 6	194L-HE... A A, P A	001
					4		194L-HC... B, D* A
	12	1	194L-E12-8761	194L-A12-8761	4, 6	194L-HE... A A A	001
					4		194L-HC... B, D* A

Ordering Example: Switch Body: **194L-E12-8751**; Actuator for Central Fixture Type A: **194L-HC4A-875**.

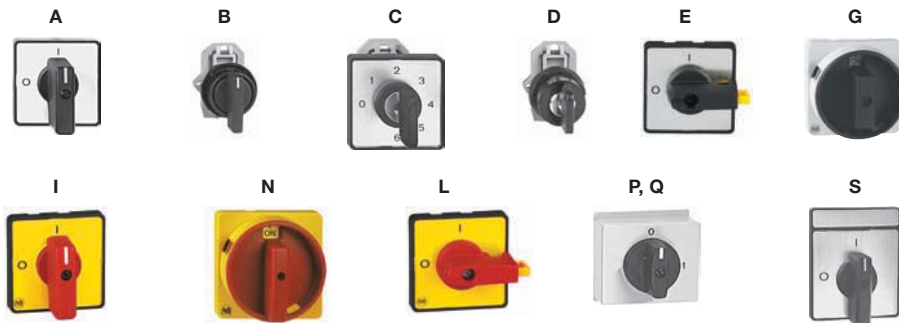
* Key out position see page 1-104.

POWER

Control and Load Switches

Product Selection

Actuators for 194L



Actuators with Central Fixture \varnothing 22,5 mm

Type	Key Out Position	With Legend Plate 48 x 48 mm	Without Legend Plate
		Cat. No.	Cat. No.
A Standard Switch		194L-HC4A-xxx	
B without Legend Plate			194L-HCB-001
C or D with Key Operator		194L-HC4CC-xxx	194L-HCDC-001
		194L-HC4CD-xxx	194L-HCDD-001
		194L-HC4CG-xxx	194L-HCDG-001
		194L-HC4CH-xxx	194L-HCDH-001
		194L-HC4CK-xxx	194L-HCDK-001
E Disconnect Switch		194L-HC4E-xxx	
I Emergency Stop		194L-HC4I-xxx	
L Main Switch/Emergency		194L-HC4L-xxx	

xxx Legend plates and actuator combinations see page 1-99.

Actuators for Front or Base Mounting

Type	With Legend Plate 48 x 48 mm	With Legend Plate 67 x 67 mm
	Cat. No.	Cat. No.
A Standard Switch	194L-HE4A-xxx	194L-HE6A-xxx
E Disconnect Switch (1 padlock)	194L-HE4E-xxx	194L-HE6E-xxx
I Emergency Stop	194L-HE4I-xxx	194L-HE6I-xxx
L Main Switch/Emergency (1 padlock)	194L-HE4L-xxx	194L-HE6L-xxx
S With legend plate	194L-HE4S-xxx	194L-HE6S-xxx
G Disconnect Switch (3 padlocks)	194E-HE4G-xxx	194L-HE6G-xxx
N Main Switch/Emergency (3 padlocks)	194E-HE4N-xxx	194L-HE6N-xxx
P With DIN 45 mm Panel Cut-out	194L-HE4P-xxx	

xxx Legend plates and actuator combinations see page 1-99.

Control and Load Switches 194E

- Front- and base mounting
- Finger-proof switch body per IP20
- Water spray and dust-proof per IP66
- Easily accessible terminals
- Clearly marked terminals
- Wide range of accessories



194E (16 A...100 A)



194E (125 A...315 A)

Switch Bodies for 194E (16...100 A), Front/Base Mounting

Function	I AC-21A [A]	Poles	Front/Door Mounting	Base/DIN Rail Mounting	Combinations		
			Cat. No.	Cat. No.	Actuator / Legend Plate		
					Size	Type	No.
ON-OFF Switches							
	16	3	194E-E16-1753	194E-A16-1753	4 6 8	194L-HE... A, E, I, L A, E, G*, I, L, N* A, G*, I, N*	175 175 175
	25		194E-E25-1753	194E-A25-1753			
	32		194E-E32-1753	194E-A32-1753			
	40		194E-E40-1753	194E-A40-1753			
	63		194E-E63-1753	194E-A63-1753	4 6	194L-HC... A, E, G*, I, L, N* A, E, G*, I, L, N*	175 175
	80		194E-E80-1753	194E-A80-1753			
	100		194E-E100-1753	194E-A100-1753			
Changeover Switches							
	16	3	194E-E16-3753	194E-A16-3753	4 6 8	194L-HE... A, E A, E A	375 375 375
	25	3	194E-E25-3753	194E-A25-3753			
	32	3	194E-E32-3753	194E-A32-3753			
	40	3	194E-E40-3753	194E-A40-3753			
	63	3	194E-E63-3753	194E-A63-3753	4 6	194L-HC... * A, E, I, L A, E, I, L	375 375
	80	3	194E-E80-3753	194E-A80-3753			
	100	3	194E-E100-3753	194E-A100-3753			

Ordering Example: Switch Body: 194E-E25-1753; Actuator for Screw Fixture Type A: 194L-HE4A-175.

* Not available for 80/100 A switches

Switch Bodies for 194E (125...315 A), Front/Base Mounting

Function	I AC-21A [A]	I AC-23A [kW]	Poles	Front/Door Mounting	Base/DIN Rail Mounting	Combinations					
				Cat. No.	Cat. No.	Actuator / Legend Plate					
						Size	Type	No.			
ON-OFF Switches											
	125	45	3	194E-E125-1753	194E-A125-1753	8 13	194L-HE... A, G*, I*, N* A, G*, I*, N*	175 175			
	160	55		194E-E160-1753	194E-A160-1753						
	250	90		194E-E250-1753	194E-A250-1753						
	315	110		194E-E315-1753	194E-A315-1753						
	125	45	4	194E-E125-1754	194E-A125-1754				8 13	194L-HE... A, G*, I*, N* A, G*, I*, N*	175 175
	160	55		194E-E160-1754	194E-A160-1754						
	250	90		194E-E250-1754	194E-A250-1754						
	315	110		194E-E315-1754	194E-A315-1754						

Ordering Example: Switch Body: 194E-A125-1753; Actuator for Screw Fixture Type A: 194E-HE8A-175.

* With both 0-1 and OFF/ON inscriptions.

Actuators for Bulletin 194E

Actuators with Central Fixture \varnothing 22,5 mm

Type	With Legend Plate 48 x 48 mm	With Legend Plate 67 x 67 mm	Without Legend Plate
	Cat. No.	Cat. No.	Cat. No.
A Standard Switch	194L-HC4A-175		194L-HC4A-001
E Disconnect Switch	194L-HC4E-175		194L-HC4E-001
G Disconnect Switch		194L-HC6G-175	
I Emergency Stop	194L-HC4I-175		
L Disconnect Switch/ Emergency Stop	194L-HC4L-175		
N Disconnect Switch/ Emergency Stop		194L-HC6N-175	

Actuators for Front or Base Mounting (16...100 A)

Type	With Legend Plate 0-I, 48 x 48 mm	With Legend Plate 0-I, 67 x 67 mm	With Legend Plate 0-I, 88 x 88 mm
	Cat. No.	Cat. No.	Cat. No.
A Standard Switch	194L-HE4A-175	194L-HE6A-175	194L-HE8A-175
E Disconnect Switch	194L-HE4E-175	194L-HE6E-175	
G Disconnect Switch	194E-HE4G-175	194L-HE6G-175	194L-HE8G-175
I Emergency Stop	194L-HE4I-175	194L-HE6I-175	
L Disconnect Switch/ Emergency Stop	194L-HE4L-175	194L-HE6L-175	
N Disconnect Switch/ Emergency Stop	194E-HE4N-175	194L-HE6N-175	194L-HE8N-175
S Standard Switch with Label S	194L-HE4S-175	194L-HE6S-175	

Actuators for Front or Base Mounting (125...315 A)

Type	With Legend Plate 0-I, 88 x 88 mm	With Legend Plate 0-I, 130 x 130 mm
	Cat. No.	Cat. No.
A Standard Switch	194E-HE8A-175	194E-HE13A-175
G Disconnect Switch	194E-HE8G-175	194E-HE13G-175
I Emergency Stop	194E-HE8I-175	194E-HE13I-175
N Disconnect Switch/Emergency Stop	194E-HE8N-175	194E-HE13N-175



For other Legend Plates and Actuator Combinations see Page 1-105.


194E Load Switches in Enclosure, Complete Switches



- IP66

Metric Conduit Openings

Poles	AC-21A/ 500V	AC-23A/ 400V	Main Switches/Emergency Red/Yellow 	Disconnect Switch Black/Grey 
	[A]	[kW]	Cat. No.	Cat. No.
3	16	7.5	194E-Y16M-1753-4N	194E-Y16M-1753-4G
	25	11	194E-Y25M-1753-6N	194E-Y25M-1753-6G
	32	15	194E-Y32M-1753-6N	194E-Y32M-1753-6G
	40	18.5	194E-Y40M-1753-6N	194E-Y40M-1753-6G
	63	22	194E-Y63M-1753-6N	194E-Y63M-1753-6G
	80	37	194E-Y80M-1753-6N	194E-Y80M-1753-6G
6	100	45	194E-Y100M-1753-6N	194E-Y100M-1753-6G
	16	7.5	194E-Y16M-1756-6N	194E-Y16M-1756-6G
	25	11	194E-Y25M-1756-6N	194E-Y25M-1756-6G
	32	15	194E-Y32M-1756-6N	194E-Y32M-1756-6G
	40	18.5	194E-Y40M-1756-6N	194E-Y40M-1756-6G
	63	22	194E-Y63M-1756-6N	194E-Y63M-1756-6G

Poles	AC-21A/ 500V	AC-23A/ 400V	Standard Switch O-I 
	[A]	[kW]	Cat. No.
3	16	7.5	194E-Y16M-1753-4A
	25	11	194E-Y25M-1753-6A
	32	15	194E-Y32M-1753-6A
	40	18.5	194E-Y40M-1753-6A
	63	22	194E-Y63M-1753-6A
	80	37	194E-Y80M-1753-6A
6	100	45	194E-Y100M-1753-6A
	16	7.5	194E-Y16M-1756-6A
	25	11	194E-Y25M-1756-6A
	32	15	194E-Y32M-1756-6A
	40	18.5	194E-Y40M-1756-6A
	63	22	194E-Y63M-1756-6A

Control and Load Switches

Accessories






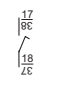








Accessories for Bulletin 194L and 194E

	Description	For Use With	PQ	Cat. No.
	Plastic Shafts: Length 44 mm Length 52 mm Length 57 mm	194L-A, 194E-A	5	194L-G2830 194L-G3194 194L-G3195
	Shaft Extensions Length 24 mm. Max. nos. of pieces per device is 4. 2 pieces per set.	194L-A, 194E-A	10	194L-G2853
	Metal Shaft Extensions Locking possibility with provision for locking in position «0» Length 110...235 mm Length 230...350 mm	194L-A, 194E-A	1	194L-G3393 194L-G3394
	Inserts For modifying Bulletin 194L-G3393 and 194L-G3394 metalshaft extensions with switch position: I-0 90°. Provision for padlock in position «0».	194L-A	10	194L-G3398
	Additional Nameplates For actuators: 48 x 48, 64 x 64 and 67 x 67 mm 88 x 88, 90 x 90, 130 x 130 and 135 x 135 mm	194L-H...	5	194L-G3667 194L-G3515
	Terminal Covers 3/4 poles	194L-E12/16	10	194L-E12-C34
		194L-E20/25		194L-E20-C34
		194L-A12/16		194L-A12-C34
		194L-A20/25		194L-A20-C34
	Terminal Covers 3 poles	194E-16	2	194E-16-C3
		194E-25/32		194E-25-C3
		194E-40/63		194E-40-C3
		194E-80/100		194E-80-C3
	Terminal Covers 4 poles	194E-16*	2	194E-16-C1
		194E-25/32		194E-25-C4
		194E-40/63		194E-40-C4
		194E-80/100		194E-80-C4

* 1-pole cover to add to 194E-16-C3

PQ = Package Quantity

Accessories for Bulletin 194E (up to 100 A)

		Description	For Use With	Cat. No.
		Auxiliary Contact Blocks 1 N.O.+ 1 N.C. for left- or right-side mounting	194E-E25...100	194E-E-P11
			194E-A25...100	194E-A-P11
		Auxiliary Contact Blocks 1 early-make and 1 late-break contact for left- or right-side mounting	194E-E25...100	194E-E-PL11
			194E-A25...100	194E-A-PL11
		Auxiliary Contact Blocks 1 early-break contact for left- or right-side mounting.	194E-E16	194E-E16-PD10
			194E-E25...100	194E-E-PD10
			194E-A16	194E-A16-PD10
		Auxiliary Contact Blocks 2 N.O.+ 2 N.C. for left- or right-side mounting	194E-E25...100	194E-E-P22
			194E-A25...100	194E-A-P22
		Neutral Terminal	194E-E16	194E-E16-TN
			194E-E25/32	194E-E32-TN
			194E-E40/63	194E-E63-TN
			194E-E80/100	194E-E100-TN
			194E-A16	194E-A16-TN
			194E-A25/32	194E-A32-TN
			194E-A40/63	194E-A63-TN
		Earth Terminal	194E-E16	194E-E16-PE
			194E-E25/32	194E-E32-PE
			194E-E40/63	194E-E63-PE
			194E-E80/100	194E-E100-PE
			194E-A16	194E-A16-PE
			194E-A25/32	194E-A32-PE
			194E-A40/63	194E-A63-PE
		Fourth Poles early-make contact	194E-E16	194E-E16-NP
			194E-E25	194E-E25-NP
			194E-E32	194E-E32-NP
			194E-E40	194E-E40-NP
			194E-E63	194E-E63-NP
			194E-E80	194E-E80-NP
			194E-E100	194E-E100-NP
			194E-A16	194E-A16-NP
			194E-A25	194E-A25-NP
			194E-A32	194E-A32-NP
			194E-A40	194E-A40-NP
			194E-A63	194E-A63-NP
			194E-A80	194E-A80-NP
194E-A100	194E-A100-NP			

POWER

Accessories for Bulletin 194E (125 A...315 A)







	Description	For Use With	Cat. No.
	Terminal Cover 1 pole Box lugs	194E-125...160	194E-AE125-C1
		194E-250...315	194E-AE250-C1
	Terminal Cover 1 pole Bolt-on wiring	194E-125...160	194E-BF125-C1
		194E-250	194E-BF250-C1
	Metal Shaft Extension Length 200...400 mm	194E-125...315	194E-AB40
	Auxiliary Contact Blocks 2 NA + 1 NC for left- or right-side mounting. Base Mounting	194E-125...160	194E-AB-P21-160
		194E-250...315	194E-AB-P21-315
	Front Mounting	194E-125...160	194E-EF-P21-160
		194E-250...315	194E-EF-P21-315
	Neutral Terminals Right-side mounting Base mounting and front mounting Box lugs	194E-125...160	194E-AE160-TN
		194E-250...315	194E-AE315-TN
	Earth Terminals Left-side mounting Base mounting and front mounting Bolt-on wiring	194E-125...160	194E-AE160-PE
		194E-250...315	194E-AE315-PE



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Relays 700-HA, HC, HK

Bulletin	700-HA	700-HC	700-HK
			
Type	General-Purpose Relay	Interposing/Isolation Relay	Interposing/Isolation Relay
Features	<ul style="list-style-type: none"> Pin-style terminals Standard ON/OFF flag indicator Electrical schematic on face Clear cover for visual inspection Optional Ppsh-to-test and manual override Optional LED 	<ul style="list-style-type: none"> Blade-style terminals Standard ON/OFF flag indicator Electrical schematic on face Clear cover for visual inspection Optional push-to-test and manual override Optional LED 	<ul style="list-style-type: none"> Optional pilot light Retainer clip (comes with socket) Low switching capacity Push-to-test & manual override
Contact Ratings			
Contact Form	DPDT, 3PDT	DPDT, 4PDT	SPDT, DPDT
Contact Type	Single, Bifurcated	Single	Single
Contact Material	AgNi, AgNi + Gold	AgNi, AgNi + Gold	AgNi, AgNi + Gold
Max. operating current under resistive load	10 A	10 A (DPDT) 7 A (4PDT)	8 A (DPDT), 16 A (SPDT)
Coil Ratings			
Coil Voltage	AC: 6, 12, 24, 48, 110, 120, 208, 230, 240, 277V DC: 6, 12, 24, 36, 48, 60, 80, 110, 125, 140, 220V	AC: 6, 12, 24, 120, 240V DC: 6, 12, 24, 48, 110V	AC: 6, 12, 24, 120, 240V DC: 6, 12, 24, 48, 110V
Electrical Ratings			
Dielectric Withstand Voltage	Pole-to-pole: 2000V Contact-to-coil: 2000V Contact-to-frame: 2000V	Pole-to-pole: 1000V Contact-to-coil: 2000V Contact-to-frame: 2000V	Pole-to-pole: 1500V AC Contact-to-coil: 1500V AC Contact-to-frame: 1500V AC
Electric Service Life (cycles)	100 000 minimum	100 000 minimum	100 000 minimum
Reference			
Certifications	CE, cULus, cURus, CSA, Lloyds	CE, cULus, cURus, CSA, Lloyds	CE, UL, UR, CSA
Socket Cat. No(s).	700-HN100, 700-HN101, 700-HN125, 700-HN126, 700-HN204, 700-HN205, 700-HN204, 700-HN205	700-HN103, 700-HN128, 700-HN104	700-HN121, -HN221 700-HN122, -HN222 700-HN223, -HN224
Product Selection	See page 2-6	See page 2-8	See page 2-9

Relays 700-HL, HP




			
Bulletin	700-HL	700-HL (2-Pole)	700-HP
Type	Terminal Block Relays 1-Pole	Terminal Block Relays 2-Pole	Interposing/Isolation Relay
Features	<ul style="list-style-type: none"> Ideal for PLC Interfaces Built-in Coil Surge Protection Fully Assembled Relay/Sockets Standard LED Relay or Solid-state Output Optional: Leakage Current Suppression Solution 	Ideal for interposing isolation applications, Fully Assembled Relay/Sockets, Standard LED, Screw or Spring Clamp Terminals, Snap-in 1492 Marker Option	<ul style="list-style-type: none"> PCB "Pin Style" mounting 5 mm pin spacing
Contact Ratings			
Contact Form	SPDT 1 N.O. (SSR)	DPDT	DPDT
Contact Type	Single	Single	Single
Contact Material	AgSnO	AgSnO	AgNi, AgNi + Gold
Max. operating current under resistive load	6 A (SPDT), 2 A (SSR DC output), 1 A (SSR AC output)	10 A	8 A
Coil Ratings			
Coil Voltage	AC: 12, 24, 48, 110, 120, 230, 240V DC: 12, 24, 48, 125, 230, 240V	AC: 24, 110, 120, 230, 240V DC: 12, 24, 48, 125, 230, 240V	AC: 6, 12, 24, 120, 240V DC: 6, 12, 24, 48, 110V
Electrical Ratings			
Dielectric Withstand Voltage	Pole-to-pole: 1000V AC Contact-to-coil: 4000V Contact-to-frame: 1500V	Pole-to-pole: 1000V AC Contact-to-coil: 5000V Contact-to-frame: 2500V	Pole-to-pole: 2000V Contact-to-coil: 5000V
Electric Service Life (cycles)	100 000 minimum	100 000 minimum	100 000 minimum
Reference			
Certifications	CE, cURus, cULus, ABS	CE, cURus, cULus	CE, cULus, cURus, CSA, Lloyds
Socket Cat. No(s).	—	—	700-HN123, -HN130
Product Selection	See page 2-10	See page 2-11	See page 2-12

Timing Relays 700-FE, FS



Bulletin	700-FE	700-FS
Type	DIN Rail Timer	DIN Rail Timer
Features	<ul style="list-style-type: none"> • Only 17.5 mm wide • 5 A contact rating • Multifunction or single function • No additional socket required 	<ul style="list-style-type: none"> • Only 22.5 mm wide • 8 A contact rating • Multifunction or single function • No additional socket required <ul style="list-style-type: none"> • Optional: <ul style="list-style-type: none"> • Star-delta timing function • True off-delay timing function • Hazardous location certification
Control Outputs: Time Limit Instantaneous	1 N.O. or SPDT timed	SPDT or DPDT or 2 N.O. + 1 common
Operation Modes:	On-delay Off-delay One shot Repeat cycle-pulse Fleeting off-delay Pulse converter	11 Different timing modes
Time Range	0.05 s...10 hr	0.05 s...60 hr
Supply Voltage	24V AC/DC 110...240V AC 24...48V AC/DC 24...240V AC	12V DC 24V...48V DC 24V...240V AC
Contact Rating at 120V AC	5 A	8 A
Certifications	CE, cULus	CE, cULus
Product Selection	See page 2-13	See page 2-14

Control Relays 700-M, 700-CF

Bulletin	700-K	700-CF	700-CRF
			
Type	Miniature Control Relay	Control Relay	
Spring Clamp Terminals	✓	—	✓
Screw Terminals	✓	✓	—
Features	<ul style="list-style-type: none"> • Smallest size • Long life • Low power consumption • Switch up to 690V AC and DC 	<ul style="list-style-type: none"> • Mechanically linked contacts • Timer and latch operations • Switch up to 690V AC and DC • Bulletin 700S-CF for safety circuits 	
Contact Form	4-8 Poles Double Break	4...12 Poles double break	
Contact Type	Bifurcated	Cross stamp or bifurcated	
Contact Material	Silver	Silver, gold	
Electrical			
Max. Current AC Resistive	10 A	20 A (relay) 10 A (adder deck)	
Min. load	15V, 2 mA (700-K)	17V, 10 mA (Silver) 5V, 3 mA (Gold)	
Coil Voltage	12...600V AC 9...250V DC	12...600V AC 9...250V DC	
Coil Voltage Pickup	85...110% AC Coils, 80...110% DC Coils	85...110% AC coils, 80...110% DC coils	
Dielectric Withstand	2640V	2640V	
Reference			
Electric Service Life (cycles)	800'000 at 10 A	1'200'000 at 10 A	
Certifications	CE, cULus, CCC	CE, cULus, CSA, CCC	
Sockets	DIN Rail or panel mount	DIN Rail or panel mount	
Product Selection	See page 2-17	See page 2-18	

Bulletin 700-HA

Relays and Timers

Product Selection

General Purpose Relays 700-HA

- 10 A Contact Rating
- DPDT, 3PDT
- Pin Style Terminals
- Standard ON/OFF Flag Indicator
- Options: LED, Push-to-Test and Manual Override, Socket Mounted Surge Suppressor Module, or Multifunction Timer
- Contact Choices: Standard Silver Nickel, Bifurcated Silver Nickel, or Bifurcated with Gold Plating



Bulletin 700-HA Tube Base Relay with PIN Terminals (Single Contact) — Mechanical ON/OFF Indicator included *

Description	Wiring Diagrams	Contact Rating	Coil Voltage	Cat. No. *‡§
DPDT 2-pole 2 Form C Single AgNi Contact		10 A B300	24V AC	700-HA32A24
			230V AC	700-HA32A03
			240V AC	700-HA32A2
			24V DC	700-HA32Z24
			110V DC	700-HA32Z1
			220V DC	700-HA32Z2
Sockets	700-HN100, -HN204			
3PDT 3-pole 3 Form C Single AgNi Contact		10 A B300	24V AC	700-HA33A24
			230V AC	700-HA33A03
			240V AC	700-HA33A2
			24V DC	700-HA33Z24
			110V DC	700-HA33Z1
			220V DC	700-HA33Z2
Sockets	700-HN101, -HN205			

* For time module and surge suppressor module, see page 2-7

‡ LED option: Add suffix (-4) to the selected Bulletin 700-HA relay cat. no., except for the 240V AC units, add (-4L).

‡ Push-to-test, manual override, and LED option: Add suffix (-3-4) to the selected Bulletin 700-HA relay cat. no., except for the 240V AC units, add (-3-4L).



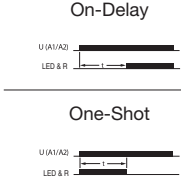

§ Push-to-test and manual override option: Add suffix (-3) to the selected Bulletin 700-HA relay.

Accessories for 700-HA

	Description	PQ	Cat. No.
	Screw Terminal Tube Base Socket — Panel or DIN Rail Mounting; Guarded Terminal Construction. 8-Pin for use with DPDT Bulletin 700-HA Relays, -HX Timing Relays, -HT (On-Delay) and -HRM, -HRC and -HV (Repeat Cycle) Timing Relays. Order ten or multiples of ten	10	700-HN100
	Screw Terminal Tube Base Sockets — Panel or DIN Rail Mounting; Guarded Terminal Construction. 11-pin for use with 3PDT 700-HA relays.	10	700-HN101
	8-Pin Socket — Can Be Used With or Without Timing Attachment or Surge Suppressor Screw Terminal Tube Base Sockets — panel or DIN Rail mounting. Guarded terminal construction. Used with DPDT Bulletin 700-HA Relays. Order must be for 10 sockets or multiples of 10.	10	700-HN204
	11-Pin Socket — Can Be Used With or Without Timing Module or Surge Suppressor. Screw Terminal Tube Base Sockets — panel or DIN Rail mounting. Guarded terminal construction. Used with 3PDT Bulletin 700-HA relays.	10	700-HN205

PQ = Package Quantity

Accessories for 700-HA, continued

	Description	PQ	Cat. No.
	Diode Surge Suppressor * Voltage Range: 6...220V DC used with 700-HN204/205 socket	10	700-ADR
	Diode with LED Surge Suppressor * Voltage Range: 6...24V DC used with 700-HN204/205 socket	10	700-ADL1R
	Varistor with LED Surge Suppressor * Voltage Range: 110...240V AC used with 700-HN204/205 socket	10	700-AV3R
	RC Surge Suppressor * Voltage Range: 6...24V AC/DC used with 700-HN204/205 socket	10	700-AR1
	RC Surge Suppressor * Voltage Range: 110...240V AC/DC used with 700-HN204/205 socket	10	700-AR2
	Timing Module On-Delay or One-Shot selectable voltage range: 12...24V AC/DC used with 700-HN204 and 700-HN205 sockets.	1	700-AT3
			
	Multi-Function Multi-Range Time Module * <ul style="list-style-type: none"> • Voltage range 12...240V AC 50/60 Hz and 12...240V DC, with a voltage variation of 85...110%. Repeat accuracy of $\pm 1\%$. Reset time <50 ms. • Choice of 8 functions • Choice of 8 time ranges 0.1...240 h • Use with sockets 700-HN204/205 	1	700-HT3

* Suppressors and timing modules easily plug into sockets (Cat. nos. 700-HN204 and 700-HN205). For use with Bulletin 700-HA relays.

PQ = Package Quantity

ATTENTION: Cat. No. 700-HT3 is wired with signal “S” connected to “A1”. See wiring diagram marked on the timer module.

Bulletin 700-HC

Relays and Timers

Product Selection

Interposing/Isolation Relays 700-HC

- 10 A Contact Ratings
- 2PDT or 4PDT
- Standard ON/OFF Flag Indicator
- Blade Style Terminals
- Choice of Standard Silver Nickel Contacts, or Silver Nickel with Gold Plated Contacts for Low Energy Applications
- Options: LED, Push-to-Test with Manual Override Option
- Tungsten UL Approvals
 - 4-Pole: 5A @ 24V DC
 - 2-Pole: 10A @ 24V DC



Bulletin 700-HC Miniature Square Base with Blade Terminals

Description	Wiring Diagrams	Contact Rating	Coil Voltage	PQ	Cat. No. *⊛
2PDT 2-Pole 2 Form C Contacts: 10 A = AgNi Contacts		10 A C300 R300 Low energy rating; (10V, 10 mA)	24V AC	1	700-HC22A24-3
			240V AC		700-HC22A2-3
			24V DC		700-HC22Z24-3
Sockets	700-HN103 700-HN104				
4PDT 4-Pole 4 Form C Contacts: 10A = AgNi Contacts		7 A Low energy rating; (10V, 1 mA)	24V AC	1	700-HC24A24-3
			240V AC		700-HC24A2-3
			24V DC		700-HC24Z24-3
Socket	700-HN104				
Socket Base				10	700-HN103
				10	700-HN104

* LED option: Add suffix **(-4)** to the selected 700-HC relay cat. no. except for the 240V AC units, add **(-4L)**.

⊛ Push-to-test and LED option: Add suffix **(-3-4)** to the selected 700-HC relay cat. no., except for the 240V AC units, add **(-3-4L)**.

PQ = Package Quantity

Interposing/Isolation Relays 700-HK

- 8 A/16 A Contact Ratings
- DPDT/SPDT
- Plug-in Blade Style Terminals
- Built-in Retainer Clip in Sockets
- Choice of Standard Silver Cadmium Contacts or Silver with Gold Plated Contacts
- Options: LED, Push-to-Test with Manual Override Option



700-HK SPDT



700-HK DPDT

Slim Line Relay with Plug-in Quick Connect Terminations

Description	Wiring Diagrams	Contact Rating	Coil Voltage	PQ	Cat. No. *⊚‡
SPDT 1-Pole 1 Form C AgNi Contacts		16 A	24V AC	1	700-HK36A24
			240V AC		700-HK36A2
			24V DC		700-HK36Z24
Socket	700-HN121				
DPDT 2-Pole 2 Form C AgNi Contacts		8 A	24V AC	1	700-HK32A24
			240V AC		700-HK32A2
			24V DC		700-HK32Z24
Socket	700-HN122				
Socket Base				10	700-HN221
				10	700-HN222

* LED option: Add suffix (-4) to the selected Bulletin 700-HK relay cat. no. except for the 240V AC units, add (-4L).

⊚ Push-to-test and LED option: Add suffix (-3-4) to the selected Bulletin 700-HC relay cat. no., except for the 240V AC units, add (-3-4L).

‡ For AgCdO contact with gold overlay: Replace "3" with "X" in cat. no. For example, if cat. no. 700-HK36A1 is required with gold overlay, the new catalog number is 700-HKX6A1.

PQ = Package Quantity

Bulletin 700-HL

Relays and Timers

Product Selection

Terminal Block Relays 700-HL, 1-Pole

- Up to 85% panel space savings vs. traditional relays
- DIN rail mounting
- Only 6.2 mm wide (SPDT)
- Standard LED, Reverse Polarity Protection and Surge Protection
- Screw Terminals and Spring Clamp Bases



700-HLT...



700-HLS...

SPDT Relays

Assembled Devices Input Voltage	Output Type	PQ		Cat. No. (Screw Terminals)	Cat. No. (Spring Clamp Terminals)
24V DC	SPDT (1 C/O); $I_{th} = 6A^*$	10	⊛	700-HLT1Z24	700-HLT2Z24
24V AC/DC		10		700-HLT1U24	700-HLT2U24
110/125V AC/DC		10	⊛	700-HLT1U1	700-HLT2U1
220...240V AC/DC		10		700-HLT1U2	700-HLT2U2
Built-in LCSC (leakage current suppression circuit) 120V AC and 125V DC§		10	⊛	700-HLT1L1	
Built-in LCSC (leakage current suppression circuit) 240V AC§		10	⊛	700-HLT1L2	

Solid State

Assembled Devices Input Voltage	Output Type	PQ		Cat. No. (Screw Terminals)	Cat. No. (Spring Clamp Terminals)
24V DC	1 N.O. solid-state; $I_{th} = 2 A$, 24V DC‡	10	⊛	700-HLS1Z24	700-HLS2Z24
220...240V AC/DC		10	⊛	700-HLS1U2	700-HLS2U2
Built-in LCSC (leakage current suppression circuit) 120V AC and 125V DC§		10	⊛	700-HLS1L1	
Built-in LCSC (leakage current suppression circuit) 240V AC§		10	⊛	700-HLS1L2	

* For gold-plated contacts: Add the letter "X" at the end of the catalog number. For example: if cat. no. 700-HLT1Z24 is required with gold plating, the new cat. no. is 700-HLT1Z24X.

⊛ Electromechanical relay to solid-state relay interchangeability is possible.

‡ Reverse polarity on the output terminals of the solid-state relay will result in the output being "On" regardless of the state of the input voltage.

§ Leakage current suppression up to 2.2 mA off state current.

⊛ Available as EX version (for US hazardous locations applications only). Add "-EX" at the end of the cat. no. (Example: 700-HLS1Z24-EX).

PQ = Package Quantity

Terminal Block Relays 700-HL, 2-Pole

- Slim build of only 14mm wide that meets the demand for panel space-savings
- Standard built-in reverse DC polarity protection ensures DC coil devices are not damaged if improper polarity is connected
- Separation of coil and contact terminals
- Snap in marker system
- One piece housing construction in terminal area to prevent screwdriver blade from catching on housing seam
- 10 Amp Contact Rating





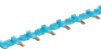


DPDT Relays

Assembled Devices Input Voltage	Output Type	PQ	Cat. No. (Screw Terminals)	Cat. No. (Spring Clamp Terminals)
24V DC	DPDT (2 C/O); $I_{th} = 10 \text{ A}^*$	10	700-HLT12Z24	700-HLT22Z24
24V AC/DC		10	700-HLT12U24	700-HLT22U24
110/125V AC/DC		10	700-HLT12U1	700-HLT22U1
220...240V AC/DC		10	700-HLT12U2	700-HLT22U2

* For Gold-plated contacts: Add the letter "X" at the end of the catalog number. Example: Cat. No. 700-HLT12Z24 with gold plated contacts is catalog number 700-HLT12Z24X. The following relays are available with the gold-plated contact option: 700-HLT_2Z24, 700-HLT_2U24, 700-HLT_2U1, and 700-HLT_2U2.

Accessories for Terminal Block Relays

	Description	For Use With	PQ	Cat. No.
	Replacement Relays Order multiples of 20.	24V AC/DC	700-HL (1-Pole)	* 700-TBR24
		110/125V AC/DC 220...240V AC/DC		20
	Replacement SSR 4-blade miniature relay for use with 1 N.O. SSR DC output. Order multiples of 20.	24V DC	700-HL (1-Pole)	700-TBS24
		48V DC, 110/125V AC/DC 220...240V AC/DC		20
	Replacement Relays Order must be for 20 relays or multiples of 20.	48V DC	700-HL (2-Pole)	700-TBR248
		110/125V AC/DC 220...240V AC/DC		20
	20-Way Jumper Can be cut to required length. $I_{th} = 36 \text{ A}$ max per 20-way jumper.	Red	700-HL (1-Pole)	700-TBJ20R
		Grey		700-TBJ20G
		Blue		700-TBJ20B
	8-Way Jumper Can be cut to required length. $I_{th} = 10 \text{ A}$ max per 8-way jumper.	Red	700-HL (2-Pole)	700-TBJ08R
		Grey		700-TBJ08G
		Blue		700-TBJ08B

* For gold-plated contacts: Add the letter "X" at the end of the catalog number. For example: if Cat. No. 700-TBR24 is required with gold plating, the new cat. no. is 700-TBR24X. Gold-plated contacts with surcharge.

✪ Go to <http://www.ab.com/software/termblock/index.html> and download software. Create custom text, save file, and e-mail to your local Rockwell Automation office.

Note: Terminal block relay bases are not sold separately.

PQ = Package Quantity

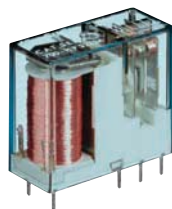
Bulletin 700-HP

Relays and Timers

Product Selection

"Pin Style" Relays 700-HP (PCB)

- 8 A Contact Ratings
 - DPDT/ (2 c/o) Contacts
 - Plug-in PIN Style (PCB) Terminals (5 mm Pinning)
 - Choice of Standard Silver Nickel Contacts, or Silver Nickel with Gold Plated Contacts
- Options: None



Slim Line Relay with "PIN Style" Terminations

Description	Wiring Diagram	Contact Rating	Coil Voltage	PQ	Cat. No.
DPDT 2-Pole 2 Form C AgNi + Au Gold Plated Contacts		8 A	24V AC	10	700-HPX2A24
			240V AC	10	700-HPX2A2
			24V DC	10	700-HPX2Z24
24V AC			10	700-HP32A24	
240V AC			10	700-HP32A2	
24V DC			10	700-HP32Z24	
DPDT 2-Pole 2 Form C AgNi Contacts					
Socket	700-HN123				

PQ = Package Quantity

Accessories

	Description	PQ	Cat. No.
	Diode Surge Suppressor * Voltage Range: 6...220V DC used with 700-HN204/205 socket	10	700-ADR
	Diode with LED Surge Suppressor * Voltage Range: 6...24V DC used with 700-HN204/205 socket	10	700-ADL1R
	Varistor with LED Surge Suppressor * Voltage Range: 110...240V AC used with 700-HN204/205 socket	10	700-AV3R
	RC Surge Suppressor * Voltage Range: 6...24V AC/DC used with 700-HN204/205 socket	10	700-AR1
	RC Surge Suppressor * Voltage Range: 110...240V AC/DC used with 700-HN204/205 socket	10	700-AR2
	Timing Module On-Delay or One-Shot selectable voltage range: 12...24V AC/DC used with 700-HN204 and 700-HN205 sockets.	1	700-AT3
	Screw Terminal Socket — Panel or DIN Rail Mounting 8-pin miniature socket for use with 2-pole, Bulletin 700-HP relays. Incorporates coil and contact separation.	10	700-HN123

PQ = Package Quantity

Economy Timing Relays 700-FE

- Adjustable Function and Timing Range Timing Relays
- DIN Rail Mounted Without Cost of Socket
- 17.5 mm wide, Multi-Function or Single Function
- Available as 1 N.O. or SPDT Contact Output, 5A
- Timing Ranges From 0.05s...10.0h



Single-Function

This device offers you one specific timing function.

Operating Mode	Contact Output	Timing Range	Input Voltage	Cat. No.
ON-delay	1 N.O.	0.05 s...10 hr (6 settings) §	24V AC/DC * 110...240V AC 50/60 Hz *	700-FEA1SU22
	SPDT (1 C/O)	0.05 s...10 hr (6 settings) ‡	24V...48V AC/DC 24...240V AC 50/60 Hz	700-FEA3TU23
OFF-delay	1 N.O.	0.05 s...10 hr (6 settings) §	24V AC/DC * 110...240V AC 50/60 Hz *	700-FEB1SU22
	SPDT (1 C/O)	0.05 s...10 hr (6 settings) ‡	24V...48V AC/DC 24...240V AC 50/60 Hz	700-FEB3TU23
One Shot	1 N.O.	0.75 s...1 hr (4 settings) §	24V AC/DC * 110...240V AC 50/60 Hz *	700-FED1SU22
	SPDT (1 C/O)	0.05 s...10 hr (6 settings) ‡	24V...48V AC/DC 24...240V AC 50/60 Hz	700-FED3TU23
Fleeting OFF-delay	SPDT (1 C/O)	0.05 s...10 hr (6 settings) ‡	24V...48V AC/DC 24...240V AC 50/60 Hz	700-FEE3TU23
Flasher (repeat cycle starting with pulse)	1 N.O.	0.75 s...1 hr (4 settings) §	24V AC/DC * 110...240V AC 50/60 Hz *	700-FEF1SU22
	SPDT (1 C/O)	0.05 s...10 hr (6 settings) ‡	24V...48V AC/DC 24...240V AC 50/60 Hz	700-FEF3TU23
Pulse Converter	SPDT (1 C/O)	0.05 s...10 hr (6 settings) ‡	24V...48V AC/DC 24...240V AC 50/60 Hz	700-FEL3TU23

* Voltage is either 24V AC 50/60 Hz or 24V DC.

‡ Time ranges: 0.05 s...1 s, 0.5...10 s, 0.05...1 min., 0.5...10 min, 0.05...1 h, 0.5...10 h.

§ Time ranges: 0.75...15 s, 3...60 s, 0.4...8 min., 3...60 min.

Multi-Function

This device offers you the flexibility of selecting one of 4 single timing functions.

Operating Mode	Contact Output	Timing Range	Input Voltage	Cat. No.
ON-delay, OFF-delay, One Shot, Flasher (repeat cycle starting with pulse)	1 N.O.	0.05 s...10 hr (6 settings) *§	24V AC/DC * 110...240V AC 50/60 Hz *	700-FEM1RU22
	SPDT (1 C/O)	0.05 s...10 hr (6 settings) *§	24V...48V AC/DC 24...240V AC 50/60 Hz	700-FEM3TU23

* Voltage is either 24V AC or 24V DC 50/60 Hz.

*§ Time ranges: 0.5 s...10 s, 3...60 s, 0.5 s...10 min., 3...60 min.

Special Functions

Operating Mode	Contact Output	Timing Range	Input Voltage	Cat. No.
Star-Delta	2 N.O. with 1 Common	0.15 s...10 min (4 settings) *§	24V...48V AC/DC 24...240V AC 50/60 Hz	700-FEY2QU23

*§ Time ranges: (3s) 0.15...3 s, (10s) 0.5...10 s, (1m) 0.05...1 min, (10m) 0.5...10 min

Bulletin 700-FS

Relays and Timers

Product Selection

Electronic High Performance Timing Relays 700-FS

- Adjustable Function and Timing Range Timing Relays
- DIN Rail Mounted without Cost of Socket
- 22.5 mm Wide Multifunction or Single Functions
- Available as SPDT or DPDT Contact Output, 8 A
- Timing Ranges From 0.05s...60h



Single Function (With SPDT 1 C/O contact)

Operating Mode	Timing Range	Input Voltage	Cat. No.
On-delay	0.05 s...60 h	24...48V DC 24...240V AC, 50/60 Hz	700-FSA3UU23
	0.05...1 s	24...48V DC 24...240V AC, 50/60 Hz	700-FSA3AU23
	0.5...10 s	24...48V DC 24...240V AC, 50/60 Hz	700-FSA3CU23
	0.5...10 min	24...48V DC 24...240V AC, 50/60 Hz	700-FSA3GU23
Off-delay	0.05 s...60 hr	24...48V DC 24...240V AC, 50/60 Hz	700-FSB3UU23
	0.05...1 s	24...48V DC 24...240V AC, 50/60 Hz	700-FSB3AU23
	0.5...10 s	24...48V DC 24...240V AC, 50/60 Hz	700-FSB3CU23
	0.5...10 min	24...48V DC 24...240V AC, 50/60 Hz	700-FSB3GU23
On- and off-delay	0.05...1 s	24...48V DC 24...240V AC, 50/60 Hz	700-FSC3AU23
	0.5...10 s	24...48V DC 24...240V AC, 50/60 Hz	700-FSC3CU23
One shot	0.05...1 s	24...48V DC 24...240V AC, 50/60 Hz	700-FSD3AU23
	0.5...10 s	24...48V DC 24...240V AC, 50/60 Hz	700-FSD3CU23
Fleeting Off-delay	0.5...10 s	24...48V DC 24...240V AC, 50/60 Hz	700-FSE3CU23
Flasher (repeat cycle starts with pulse)	0.5...10 s	24...48V DC 24...240V AC, 50/60 Hz	700-FSF3CU23
One shot/watch dog (pulse controlled)	0.5...10 s	24...48V DC 24...240V AC, 50/60 Hz	700-FSK3CU23

Single Function (With DPDT 2 C/O contacts)

Operating Mode	Timing Range	Input Voltage	Cat. No.
On-delay	0.05 s...60 hr *	24...48V DC 24...240V AC, 50/60 Hz	700-FSA4UU23
Off-delay	0.05 s...60 hr *	24...48V DC 24...240V AC, 50/60 Hz	700-FSB4UU23

* The timing range of "0.05 s...60 h" is selectable in 12 smaller ranges plus an ON and OFF function for maintenance needs.

Multi-Function Relays


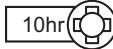

(This device offers you the flexibility of selecting one of 8 single timing functions.)



700-FSM

Operating Mode	Contact Output	Timing Range	Input Voltage	Cat. No.
Multi-function timing relays Eight Single-functions: A, B, C, D, E, F, I, and L ON and OFF function additional (for installation and maintenance) Note: See connection diagrams for further description.	(SPDT) 1 C/O	0.05 s...60 hr *	24...48V DC 24...240V AC 50/60 Hz	700-FSM3UU23
		0.05 s...60 h *	24...240V AC/DC	700-FSM3UU18
		0.05 s...60 h *	346...440V AC 50/60 Hz	700-FSM3UA40
	(DPDT) 2 C/O	0.05 s...60 hr *	24...48V DC 24...240V AC 50/60 Hz	700-FSM4UU23
		0.05 s...60 h *	24...240V AC/DC	700-FSM4UU18

Multi-Function Timing Relay Function and Time Range Settings

Description	SPDT	DPDT
Multi-function timing relays 700-FSM3U includes 10 setting functions: 	Multi-Time Setting Range 0.05 s...60 h 	
 (A) On-Delay (B) Off-Delay (C) On- and Off-Delay (D) One shot (E) Fleeting Off-Delay (F) Flasher (repeat cycle starts with pulse) (I) On-Delay pulse generator (L) Pulse converter (On) ON-Function ☼ (Off) OFF-Function ☼ Note: Switch ☉ is on DPDT relays only. When switch is down, one contact is instantaneous and one is timed. When switch is up, both contacts are timed.	(1 s) 0.05...1 s (3 s) 0.15...3 s (10 s) 0.5...10 s (1 min) 0.05...1 min (3 min) 0.15...3 min (10 min) 0.5...10 min (1 h) 0.05...1 h (3 h) 0.15...3 h (10 h) 0.5...10 h (60 h) 3...60 h	

* The time range of "0.05 s...60 h" is selectable in 12 smaller ranges plus an ON and OFF function for maintenance needs.

☼ For installation and maintenance.

Special Function Relays



700-FSH



700-FSY

Operating Mode	Contact Output	Timing Range	Input Voltage	Cat. No.
Flasher (Repeat Cycle Starting with Pulse or Pause)	(SPDT) 1 C/O	0.05 s...60 h *	24...48V DC 24...240V AC 50/60 Hz	700-FSH3UU23
		2 x 0.05 s...60 h (2 ranges)	24...48V DC 24...240V AC, 50/60 Hz	700-FSH3VU23
OFF-delay without supply voltages (True OFF-delay) ‡	(SPDT) 1 C/O	0.15 s...10 min * ‡	24...240V DC 24...240V AC 50/60 Hz	700-FSQ3QU18
OFF-delay without supply voltages (True OFF-delay) ‡	(DPDT) 2 C/O			700-FSQ4QU18
Star-Delta	2 N.O. + 1 Common	0.5 s...10 s	24...48V DC 24...240V AC 50/60 Hz	700-FSY2CU23
		1.5...30 s		700-FSY2DU23
		0.05 s...1 min		700-FSY2EU23
		0.15...3 min		700-FSY2FU23
		0.5...10 min	700-FSY2GU23	
		0.5 s...10 s	346...440V AC 50/60 Hz	700-FSY2CA40
		1.5...30 s		700-FSY2DA40
		0.05 s...1 min.		700-FSY2EA40
0.15...3 min.	700-FSY2FA40			

* The timing range of "0.05 s...60 h" is selectable in 12 smaller ranges plus an ON and OFF function for maintenance needs.

* This timing range is selectable in four smaller ranges: 0.15 s...2.5 s, 0.5 s...10 s, 4 s...80 s, 30 s...10 min.

‡ Due to shock during shipment, the state of the contacts should be verified before initial use.

Miniature Control Relays 700-K

- IEC Compact Industrial Relay
- IP2X Finger Protection
- Bifurcated Contacts for low level signals
- Optional integrated coil protection diode



AC / DC Coil Voltage Control Relays

AC-12		AC-15 (A600)					Contacts		PQ *	Cat. No.
I_e [A]		I_e [A]								
40 °C	60 °C	24/48V	230V	400V	500V	690V	N.O.	N.C.		
10	6	3	2	1.2	1	0.6	4	0	1	700-K40E-⊗
							3	1	1	700-K31Z-⊗
							2	2	1	700-K22Z-⊗
							1+1L* [⊗]	1+1L* [⊗]	1	700-KL22Z-⊗

* May be ordered in package quantities of 20. Add letter M to the end of the cat. no. Example: 700-K40E-KFM.

[⊗] 1L = Late break N.C./early make N.O.

[⊗] The Cat. No. as listed is incomplete. Select a standard Coil Voltage Code from the table below to complete the Cat. No. Example: 230V, 50/60 Hz: Cat. No. 700-K40E-⊗ becomes Cat. No. 700-K40E-KF.

⊗ Coil Voltage Codes for AC and DC Control

AC Control	
Code	Description
KJ	24V 50/60 Hz
KY	48V 50/60 Hz
D	110V 50 Hz
KF	230V 50/60 Hz
KN	400V 50/60 Hz

DC Control	
Code	Description
ZJ	24V DC
DJ	24V DC with integrated diode
ZD	110V DC
ZA	220V DC

For other voltages visit our website or consult your local sales office.

Accessories

	Description			Cat. No. *	
		N.O.	N.C.		
	Front-mounted auxiliary contacts Auxiliary Contact Blocks 2- and 4-pole versions Choice of contact configurations Snap on, no tools required Electronic-compatible bifurcated contacts for signals down to 15V/2 mA	0	2	100-KFA02E	
		1	1	100-KFA11E	
		2	0	100-KFA20E	
		0	4	100-KFA04E	
		1	3	100-KFA13E	
		2	2	100-KFA22Z	
		3	1	100-KFA31Z	
	Surge Suppressor Plug-in Type Limits surge voltage on coil drop-off	24...48V AC		100-KFSC50	
		110...280V AC		100-KFSC280	
		380...480V AC		100-KFSC480	
		MOV Suppressor	12...55V AC, 12...77V DC		100-KFSV55
			56...136V AC, 78...180V DC		100-KFSV136
			137...277V AC, 181...250V DC		100-KFSV277
Diode Suppressor	12...250V DC		100-KFSD250		

For Mechanical Interlock see accessories 100-K page 1-27

* May be ordered in package quantities of 10. Add letter M to the end of the cat. no. Example: 100-KFA02EM

Bulletin 700-CF/CRF

Relays and Timers

Product Selection

Control Relays 700-CF

- IEC Industrial Relays (Finger Safe Design)
- Positively-Guided/Mechanically-Linked Contacts per IEC 60947-5-1 Annex L on Main and Auxiliary Contacts
- Gold Plated, Bifurcated Version for Low Level Switching Applications
- Master Control Relay Version rated 15 A (AC-15)
- Solid-State and Pneumatic Timing Modules
- 4...10 Poles
- 12...600V Coils



700-CF



700-CRF

4-Pole AC / DC Coil Voltage (Screw Terminals)

AC-12		AC-15			Contacts			Standard Auxiliary Contact	Bifurcated Auxiliary Contact
I^{th} [A]		I^{th} [A]					Cat. No.		
40 °C	60 °C	240V	400V	525V	N.O.	N.C.			
20	20	10	6	2.5	2	2	* 700-CF220 ⊗	700-CFB220⊗	
					3	1	* 700-CF310 ⊗	700-CFB310⊗	
					4	0	* 700-CF400 ⊗	700-CFB400⊗	

* May be ordered in package quantities of 20. Add letter **M** to the end of the cat. no. Example: **700-CF220KFM**.

4-Pole AC / DC Coil Voltage (Spring Clamp Terminals)

AC-12		AC-15			Contacts		Cat. No.
I^{th} [A]		I^{th} [A]					
40 °C	60 °C	240V	400V	525V	N.O.	N.C.	
20	20	10	6	2.5	2	2	700-CRF220⊗
					3	1	700-CRF310⊗
					4	0	700-CRF400⊗

⊗ The cat. no. as listed is incomplete. Select a coil voltage code from the table below.





⊗ Coil Voltage Codes for AC and DC Control

AC Control	
Code	Description
KJ	24V 50/60 Hz
KY	48V 50/60 Hz
KD	110V 50/60 Hz
KF	230V 50/60 Hz
KN	400V 50/60 Hz

DC Control	
Code	Description
ZJ	24V DC
DJ	24V DC with integrated diode
EJ	NEW — 24V DC electronic coil
ZD	110V DC
ZA	220V DC

For other voltages visit our website or consult your local sales office.

Auxiliary Contacts for 700-CF, 700-CRF *

	Description	 		For Use With	Cat. No.
		N.O.	N.C.		
Auxiliary Contacts with Screw Terminals ✳					
	Auxiliary Contact Blocks for Front Mounting 2- and 4-pole Quick and easy mounting without tools Electronically-compatible contacts down to 17V, 5 mA Mechanically linked performance between N.O. and N.C. poles and to the main contactor poles (except for L types) Models with equal function with several terminal numbering choices 1L = Late break N.C./early make N.O. Bifurcated versions for switching low energy circuits are also available ‡	0	2	700-CF	100-FA02
		1	1		100-FA11
		2	0		100-FA20
		2	2		100-FA22
		3	1		100-FA31
		4	0		100-FA40
	1+1L	1+1L	100-FAL22		
Auxiliary Contacts with Spring Clamp Terminals					
	Auxiliary Contact Blocks for Front Mounting 2- and 4-pole Quick and easy mounting without tools Electronic-compatible contacts down to 17V, 5 mA Mechanically linked performance between N.O. and N.C. poles and to the main contactor poles (except for L types) Models with equal function with several terminal numbering choices 1L = Late break N.C./early make N.O. Bifurcated version for switching down to 5V, 3 mA ‡	0	2	700-CRF	100-CRFA02
		1	1		100-CRFA11
		2	0		100-CRFA20
		2	2		100-CRFA22
		3	1		100-CRFA31
		4	0		100-CRFA40
	1+1L	1+1L	100-CRFAL22		

* Max. number of auxiliary contacts that may be mounted:

AC coil contactors — max. 4 N.O. contacts on the front of the contactor, 2 N.O. contacts on the side, 4 N.C. front or side, 6 total.

DC coil contactors — max. 4 N.O. contacts on the front of the contactor or max 2 N.O. contacts on the side, 4 N.C. front or side, 4 total.

✳ May be ordered in package quantities of 10. Add letter **M** to the end of the cat. no. (Example: **100-FA02M**).

‡ Selection data, see catalog A11_ or consult your local sales office.

Additional Accessories for 700-CF, 700-CRF see page 1-31

Bulletin 700-S
Solid State Devices
 Product Line Overview

Solid State Devices 700-SH



Bulletin	700-SH
Type	Hockey Puck
Features	Panel/DIN Mount, High Current, Protective Cover, LED Status
Load Type	AC (47...63 Hz) 3...60V DC
Load Voltage Range	3...50V DC, 24...265V AC 42...530V AC, 42...265V AC, 42...660V AC
Load Current Max. (Continuous)	10 A/100 A *
Max Leakage Current to Load	<3 mA
Zero Cross Load Switching	Yes
Equivalent Electromechanical Relay Contact Arrangement	1 N.O. Form A
Rated Control (Input) Voltage	3...32V DC, 4...32V DC, 80...130V AC, 20...260V AC 20...280V AC/22...48V DC
LED Indicator	Yes
Mounting Method	Panel without heat sink, Panel or DIN with heat sink
Dielectric Strength	>4000V AC RMS
Certification	cURus, CE , CSA
Max. Ambient Operating Temperature	-20...70 °C (no condensation)
Product Selection	See page 2-21

Hockey Puck Relays for DIN Rail Mounting 700-SH


- 100 A max. continuous load (output) current with appropriate heat sink
- 264V AC, 530V AC, or 660V AC max. load voltage options
- 3...32V DC, 4...32V DC, 80...130V AC, 200...260V AC, 20...280V AC/22...48V DC Control (Input) Voltage Options
- LED indicator for input/logic ON/OFF status monitoring
- Protective cover for added safety



Input-to-Output Isolation Method	Zero Cross Function	Status Indicator	Output (Load) Max. Continuous Current and Rated Voltage Range *	Rated Input Control Voltage	Cat. No.
Optocoupler	Yes	Yes	10 A @ 42...265V AC	3...32V DC	700-SH10JZ24
				200...260V AC	700-SH10JA22
			10 A @ 42...530V AC	4...32V DC	700-SH10HZ25
			25 A @ 42...530V AC		700-SH25HZ25
			25 A @ 24...265V AC	3...32V DC	700-SH25GZ24
				20...280V AC/22...48V DC	700-SH25GA24
			50 A @ 24...265V AC	3...32V DC	700-SH50GZ24
				20...280V AC/22...48V DC	700-SH50GA24
			50 A @ 42...530V AC	4...32V DC	700-SH50HZ25
			25 A @ 42...660V AC		700-SH25VZ25
				20...280V AC/22...48V DC	700-SH25VA24
			50 A @ 42...660V AC	4...32V DC	700-SH50VZ25
				20...280V AC/22...48V DC	700-SH50VA24
			75 A @ 42...530V AC	4...32V DC	700-SH75HZ25
			75 A @ 42...660V AC		700-SH75VZ25
			75 A @ 42...530V AC	20...280V AC/22...48V DC	700-SH75HA24
			75 A @ 42...660V AC		700-SH75VA24
			100 A @ 42...530V AC	4...32V DC	700-SH100HZ25
				20...280V AC/22...48V DC	700-SH100HA24
	100 A @ 42...660V AC	4...32V DC	700-SH100VZ25		
20...280V AC/22...48V DC		700-SH100VA24			
DC	No	5A @ 3...60V DC	3...32V DC	700-SH5FZ24	
Analog*	Yes	25 A @ 90...280V AC	4...20 mA DC	700-SH25WA25	
		50 A @ 90...280V AC		700-SH50WA25	

* This type is also called Phase Angle 0 when used with heat sink.

Accessories

	Description	Cat. No.
	Heat Sink— Panel or DIN Rail Mount*	700-SN10
		700-SN25
		700-SN50HC

* For information regarding selection of the proper heat sink for your application, refer to "Heat Sink Size Vs. Load Current" graph or "Load Current Vs. Ambient Temperature Characteristics" and for additional heat sink information refer to pub. 700-AT001*, "Solid-State Relay Application Guide".

Bulletin 900-TC

Temperature Controllers

Product Line Overview

Temperature Controllers 900-TC

Bulletin	900-TC8	900-TC16	900-TC32
Dimensions:			
Height	96 mm	48 mm	24 mm
Width	48 mm	48 mm	48 mm
Depth	78 mm	78 mm	100 mm
Sample Rate	250 or 500 ms		500 ms
Indication Accuracy	±0.5% PV ±1 digit max.		
Heating/Cooling Control Mode	✓	✓	✓
Control Method	ON/OFF or 2-PID (auto-tune and self-tune) with time proportioning ON/OFF output		
Inputs	<ul style="list-style-type: none"> • Thermocouple Input • Platinum Resistance Temperature Sensor • Analog Input 0...20 mA, 4...20 mA / 1...5V DC, 0...5V DC, 0...10V DC, 0...50mV DC * * Non-Contact Temperature Sensor 		
Control Output 1	<ul style="list-style-type: none"> • Relay Output (electromechanical) • Voltage Output for Solid-State Relay • Triac Output (AC only) • Analog Output 4...20 mA and 0...20 mA 		<ul style="list-style-type: none"> • Relay Output (electromechanical) • Voltage Output for Solid-State Relay
Control Output 2	<ul style="list-style-type: none"> • Voltage Output for Solid-State Relay • Triac Output (AC only) 	<ul style="list-style-type: none"> • Voltage Output for Solid-State Relay (with option unit) 	—
Max. Number of Alarms	3	2 (with option unit)	1
RS-232C Communications Function	✓ (with option unit)	—	—
RS-485 Communications Function	✓ (with option unit)	✓ (with option unit)	✓
Event Input	✓ (with option unit)	✓ (with option unit)	—
Run/Stop via Keypad or Interrupts	✓	✓	Keypad
Multiple SP Selection via Keypad or Interrupts	✓	✓	Keypad
Heater Burnout and Heater Short Alarm	✓	✓	—
Product Selection	See Publication 900-SG001... or visit our website: www.ab.com/catalogs		




* 900-TC32 only available with 0...50 mV DC.



Bulletin	1760	1760
Type	Pico Controllers	Pico GFX-70 Controllers
Features	<ul style="list-style-type: none"> • Simplicity, performs basic PLC functions, such as logic, timing and counting • Any user can write simple programs or make data adjustments • Intelligent relay replacement, Changing system functions is a simple matter of reprogramming Pico. No rewiring necessary! • Real-time clock functionality • Analog inputs • Programs are stored in non-volatile EEPROM memory • Commissioning status display • View the real-time analysis of the logic circuit • Relay outputs, reduce panel space and system cost with high current relay outputs that eliminate interposing relays 	<p>The Pico GFX-70 multi-function system features an integrated control device and its graphical HMI displays allows users to create their own screens or to use elements out of an existing library. Beside all of the Pico controllers well known functions the following additional features are available:</p> <ul style="list-style-type: none"> • Expandable up to 272 I/O points with the use of the existing Pico expansion I/O modules and the interconnecting peer to peer controller network up to 8 controllers • Analog and digital expansion I/O modules • Panel or DIN rail mounted (only controller) • 70 mm graphic display • Control with P, PI and PID functionality • Simple, tool-free installation with 22.5 mm mounting holes (same diameter as for standard push buttons) • Backlit display and push buttons for easy readability
Memory	EEPROM	EEPROM
I/O	Up to 38 I/O with expansion module	Up to 36 I/O local with expansion module
Network	—	Up to 8 processors can be intraconnected with Pico-Link
Analog Inputs/Outputs	2 x 0...10V (Input) = L12 4 x 0...10V (Input) = L18 and L20	4 x 0...10V (Input) 1 x 0...10V (Output)
Real Time Clock	✓	✓
Programming Software	PicoSoft™ configuration software or via the LCD and Keypad	PicoSoft Pro Programming Software
Mounting	DIN-rail or panel mounted	DIN-rail or panel mounted
Operating Power	120V/240V AC/12V and 24V DC	120V/240V AC and 24V DC
Standards/Approvals	UL/cUL Listed, CE certified	UL/cUL Listed, CE certified
Product Selection	See page 2-27	See page 2-28

Programmable Controllers

Product Line Overview

			
Bulletin	1761	1763	1762
Type	MicroLogix 1000	MicroLogix 1100	MicroLogix 1200
Memory			
User Program/Data Space	1K	4K / 4K	4K / 2K (max) configurable
Data Logging/Recipe Storage	—	128k bytes / 64k bytes	—
Back-up Memory Module	Through hand-held programmer	✓	✓
EEPROM Back-up	✓	—	—
Battery Back-up	—	✓	—
Flash Back-up	—	—	✓
I/O			
Up to 32	Embedded	With embedded I/O modules	Embedded
Up to 128	—	Up to 80 I/O with embedded I/O modules	With embedded I/O modules
Additional Functionality			
Analog	Embedded	2 embedded Analog Inputs 0...10V	Expansion
Trim Potentiometers	—	2 digital	2
PID	—	✓	✓
High-Speed Counter (24V DC input)	1 @ 6.6 kHz	1 @ 40 kHz	1 @ 20 kHz
Real Time Clock	—	✓	✓
Simple Motion: Pulse Width Modulated/Pulse Train Outp.	—	2 @ 40 kHz	1 @ 20 kHz
Single Axis Servo Control	—	Through embedded PTO	Through embedded PTO
Data Access Tool	—	Embedded LCD	—
Floating Point Math	—	✓	✓
Programming Software			
Windows® - RSLogix 500 & RSLogix 500 Starter	✓	✓	✓
Communications			
Online Editing	—	✓	—
RS-232 Ports	(1) - 8-pin Mini DIN	(1) - 8-pin Mini DIN (combo with RS-485 port)	(1) - 8-pin Mini DIN (1) - 8-pin Mini DIN (R)
RS-485 Ports	—	(1) - 8-pin Mini DIN (combo with RS-232 port)	—
DeviceNet Peer to Peer/Slave	With 1761-NET-DNI	With 1761-NET-DNI	With 1761-NET-DNI
Ethernet	With 1761-NET-ENI	Built-in 10/100 Mbps EtherNet/IP Port	With 1761-NET-ENI
DH-485	With 1761-NET-AIC	With 1761-NET-AIC	With 1761-NET-AIC
DF1 Half-Duplex Master/Slave	Slave only	✓	✓
SCADA RTU - Modbus RTU	—	Master/Slave	Master/Slave
ASCII	—	✓	✓
Operating Power	120/240V AC / 24V DC	120/240V AC / 24V DC / 12...24V DC	120/240V AC / 24V DC
Standards/Approvals	UL, CSA or C-UL, CE, Class I Div. 2		
Product Selection	See page 2-29	See page 2-30	See page 2-31

Bulletin	1766	1764-LSP	1764-LRP
Type	MicroLogix™ 1400	MicroLogix™ 1500	
Memory			
User Program/Data Space	10K/10K configurable	3.6K/4K (max) configurable	10K/4K (max) configurable
Data Logging/Recipe Storage	128kB/* Recipe: up to 64kB	Recipe: User Program memory	48 kB
EEPROM Backup	—	—	—
Battery Backup	✓	✓	✓
Backup Memory Module	✓	✓	✓
I/O			
Up to 32	Embedded	Embedded w/Loc. Exp.	
Up to 128	Embedded w/Loc. Exp. up to 144	Embedded w/Loc. Exp.	
Up to 256	—	Embedded w/Loc. Exp.	
> 256	—	Local & Networked Expansion using 1769-SDN	
Additional Functionality			
Analog	Embedded	Expansion	
Trim Potentiometers	2 digital	2	2
PID	✓	✓	✓
High-Speed Counter (24V DC inputs)	Up to 6 @ 100kHz	2 @ 20 kHz	
Real Time Clock	✓	✓	✓
Simple Motion: Pulse Width Modulated/Pulse Train Outp.	3 PTO @ 100 kHz/ PWM @ 40 kHz	2 @ 20 kHz (DC FET version)	
Single Axis Servo Control	Through embedded PTO	Through embedded PTO (FET)	
Data Access Tool	Embedded LCD	✓	✓
Floating Point Math	✓	✓	✓
Programming Software			
Windows® - RSLogix™ 500, RSLogix™ 500 Starter & RSLogix™ Micro	✓	✓	✓
Communications			
RS-232 Ports	(1) 9-Pin D-Shell (1) 8-pin Mini DIN (isolated - combo with RS-485 port)	(1) 8-pin Mini DIN	(1) 8-pin Mini DIN & (1) isolated 9-pin D-shell
RS-485 Ports	(1) 8-pin Mini DIN (isolated - combo with RS-232 port)	—	—
DeviceNet Peer to Peer/Slave	w/1761-NET-DNI	w/ 1761-NET-DNI	
DeviceNet Scanner	—	w/ 1769-SDN	
Ethernet	Built-in 10/100 Mbps Ethernet I/P port	w/ 1761-NET-ENI	
DH-485	Directly from combo port or using 1761-NET-AIC	w/ 1761-NET-AIC	
DF1 Half-Duplex Master/Slave Radio Modem	✓	✓	✓
Modbus RTU	Master/Slave	Master/Slave	
ASCII	✓	✓	✓
Operating Power			
120/240V AC / 24V DC	✓	✓	✓
Certifications	cULus Listed, CE, Class I Div. 2	cULus Listed, CE, Class I Div. 2	
Product Selection	Page 2-33	Page 2-34	Page 2-34

* Recipe memory size is subtracted from the available data logging memory size

Programmable Controllers

Product Line Overview



Bulletin	1769
Type	Compact I/O Expansion I/O for MicroLogix 1500
Features	<ul style="list-style-type: none"> • Unique, compact, modular, rackless design allowing front insertion and removal of the modules on DIN rail with easy to operate latches • Easy change-out of modules due to unique patented bus connector • Removable terminal blocks with finger-safe covers • Individual point diagnostic LED's for ease of troubleshooting • Software keying to prevent incorrect placing of module within the system • DeviceNet network adapter supporting AutoBaud and Auto Device replacement • ODVA conformance ensures high level of interoperability with other DeviceNet products • DeviceNet scanner for cost effective OEM solutions
I/O	Wide selection of I/O's Up to 30 modules per node
Analog Inputs/Outputs	4/2/6/8 (Voltage & current, RTD, Thermocouple)
Software	RSNetworkx for DeviceNet
Mounting	Horizontal Panel or DIN rail mounted
Operating Power	120V AC / 240V AC / 24V DC
Standards/Approvals	UL/cUL Listed, CE certified
Product Selection	See Publication 1769-SG002...

Pico Controllers



Controllers

Line Power	Inputs	Outputs	Analog Inputs	Real-Time Clock	Display and Keypad	Cat. No.
120/240V AC	8 (120/240V AC)	4 (relay) ‡	No	Yes	Yes	1760-L12AWA
				No	Yes	1760-L12AWA-NC
	12 (120/240V AC)	6 (relay) ‡	No	Yes	Yes	1760-L18AWA-EX
				Yes	No	‡ 1760-L18AWA-EXND
24V AC	8 * (24V AC)	4 (relay)	No	Yes	Yes	1760-L12NWN
				Yes	No	1760-L12NWN-ND
	12 (24V AC/24 V DC)	6 (relay)	No	Yes	Yes	‡ 1760-L18NWN-EX
12V DC	8 * (12V DC)	4 (relay)	2 (0...10V DC) §	Yes	Yes	1760-L12DWD
				Yes	No	1760-L12DWD-ND
	12 * (12V DC)	4 (relay)	2	Yes	Yes	‡ 1760-L18DWD-EX
		4 (relay) ‡	(0...10V DC) §	Yes	No	‡ 1760-L18DWD-EXND
24V DC	8 * (24V DC)	4 (transistor)	2	Yes	Yes	1760-L12BBB
		4 (transistor)	(0...10V DC) §	Yes	No	1760-L12BBB-ND
	8 * (24V DC) * ‡	4 (relay) ‡	2 (0...10V DC) §	Yes	Yes	1760-L12BWB
				No	Yes	1760-L12BWB-NC
				Yes	No	1760-L12BWB-ND
	8 * (24V DC)	6 (relay) ‡		Yes	Yes	‡ 1760-L18BWB-EX
		6 (relay)		Yes	No	‡ 1760-L18BWB-EXND
12 * (24V DC)	8 (transistor)		Yes	Yes	1760-L20BBB-EX	
			Yes	No	‡ 1760-L20BBB-EXND	

* Two of the digital dc inputs can alternately be used as 0 to 10V dc analog inputs. These inputs can be used as either digital or analog, not both. For example, you could use 2 analog inputs plus 10 digital inputs on the 1760-L18DWD-EX.

* Current sinking.

§ Two digital inputs maybe used for analog.

‡ Isolated.

‡ EX = suitable for use with expansion modules.

Expansion Modules

Input Voltage Category	Inputs	Outputs	Cat. No.
120/240V AC	12 (120/240V AC)	6 (relay) *	§ 1760-IA12XOW6I
24V DC	12 (24V DC) *	8 (transistor) ‡	§ 1760-IB12XOB8
24V DC	12 (24V DC)	6 (relay) *	1760-IB12XOW6I
N/A	—	2 (relay)	1760-OW2

* Current sinking.

‡ Current sourcing.

* Isolated.

§ May be used with either: 1760-L18AWA-EX or 1760-L18BWB-EX.

See Publication 1760-SG001... for complete product information.

Pico GFX-70 Controllers



GFX I/O Modules

Input Voltage Category	Number of Inputs (Digital)	Number of Outputs	Analog Capability	Cat. No.
120/240V AC	12	4 (relay)	none	1760-IA12XOW4I
24V DC	12 *	4 (relay)	Input (4)	1760-IB12XOW4IF
24V DC	12 *	4 (relay)	Input (4) and output (1)	1760-IB12XOW4IOF
24V DC	12 *	4 (transistor)	Input (4)	1760-IB12XOB4IF
24V DC	12 *	4 (transistor)	Input (4) and output (1)	1760-IB12XOB4IOF

* Four of the digital dc inputs can alternately be used as 0 to 10V dc analog inputs.

Pico Expansion I/O Modules

Input Voltage Category	Number of Inputs (Digital)	Number of Outputs	Cat. No.
120/240V AC	12 (120/240V AC)	6 (relay) ‡	1760-IA12XOW6I
24V DC	12 (24V DC) ⊛	8 (transistor) §	1760-IB12XOB8
24V DC	12 (24V DC) ⊛	6 (isolated relay)	1760-IB12XOW6I
N/A	—	2 (relay)	1760-OW2

⊛ Current sinking.

‡ Isolated.

§ Current sourcing.

Processor Units

Description	Line Power	Cat. No.
GFX-70 DC processor unit	24V DC	1760-LDF
GFX-70 AC processor unit	120/240V AC	1760-LDFA
GFX-70 DC processor unit with pico-link terminal	24V DC	1760-LDFC
GFX-70 AC processor unit with pico-link terminal	120/240V AC	1760-LDFCA

See publication 1760-SG001... for complete product information.

MicroLogix 1000

- Memory Size and Type:
1 K EEPROM (approximately 737 instruction words, 437 data words)
- Data Elements:
512 internal bits, 40 timers, 32 counters, 16 control files, 105 integer files, 33 diagnostic status
- Throughput:
1.5 ms (for a typical 500-instruction program)



Controller Power and I/O Configuration

Line Power	Inputs	Outputs	High Speed I/O	Cat. No.
120/240V AC	(10) 120V AC	(6) Relay	N/A	1761-L16AWA
120/240V AC	(20) 120V AC	(12) Relay	N/A	1761-L32AWA
120/240V AC	(12) 120V AC, (4) Analog	(8) Relay, (1) Analog	N/A	1761-L20AWA-5A
120/240V AC	(6) 24V DC	(4) Relay	(1) 6.6 kHz input	1761-L10BWA
120/240V AC	(10) 24V DC	(6) Relay	(1) 6.6 kHz input	1761-L16BWA
120/240V AC	(12) 24V DC, (4) Analog	(8) Relay, (1) Analog	(1) 6.6 kHz input	1761-L20BWA-5A
120/240V AC	(20) 24V DC	(12) Relay	(1) 6.6 kHz input	1761-L32BWA
120/240V AC	(20) 120V AC	(10) Triac, (2) Relay*	N/A	1761-L32AAA
120/240V AC	(10) 24V AC/DC	(6) Relay	N/A	1761-L16NWA
24V DC	(6) 24V DC	(4) Relay	(1) 6.6 kHz input	1761-L10BWB
24V DC	(10) 24V DC	(6) Relay	(1) 6.6 kHz input	1761-L16BWB
24V DC	(12) 24V DC, (4) Analog	(8) Relay, (1) Analog	(1) 6.6 kHz input	1761-L20BWB-5A
24V DC	(20) 24V DC	(12) Relay	(1) 6.6 kHz input	1761-L32BWB
24V DC	(6) 24V DC	(2) MOSFET sourcing, (2) Relay*	(1) 6.6 kHz input	1761-L10BWB
24V DC	(10) 24V DC	(4) MOSFET sourcing, (2) Relay*	(1) 6.6 kHz input	1761-L16BWB
24V DC	(20) 24V DC	(10) MOSFET sourcing, (2) Relay*	(1) 6.6 kHz input	1761-L32BWB
24V DC	(10) 24V AC/DC	(6) Relay	N/A	1761-L16NWB

* Two isolated relays per unit.

Hand-Held Programmer and Connecting Cable

The HHP allows you to create, edit, monitor, and troubleshoot Instruction List (Boolean) programs for your MicroLogix 1000 controller. This device also allows you to store programs and to transfer programs through the use of an optional removable memory module.

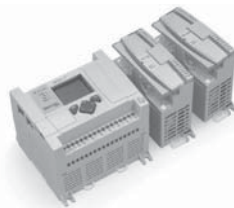
Description	Cat. No.
Hand-Held Programmer	1761-HHP-B30
Connecting Cable, 2 m	1761-CBL-HM02

Programming software, network interface devices and cables see page 2-36.

See Publication 1761-SG001... for complete product information.

MicroLogix 1100

- Memory Size and Type:
 - 8K flash memory: 4K user program, 4K user data
 - 64K recipe memory out of the 128K data logging
- Embedded LCD display with navigation keys and embedded RTC:
 - 4 x 12 Text display
- 2 Communication ports:
 - 1 RS232/485 port
 - 1 RJ45 EtherNet IP port for peer to peer messaging
- Throughput:
 - 2 ms (for a typical 1 K word user program)
- Online Editing / Programming
- Ten digital inputs, two analog inputs, six digital outputs on each controller
- One embedded 40kHz high-speed counter (on controllers with DC inputs)
- Two 40kHz high-speed PTO/PWM outputs (on controllers with DC outputs)
- Expandable up to 80 I/O's with 1762 I/O modules



Controller Power and I/O Configuration

Line Voltage	Number of Inputs	Number of Outputs	High Speed I/O	Comm. Ports	Cat. No.
120/240V AC	(10) 120V AC (2) Analog Voltage	(6) Individually Isolated Relay	N/A	2	1763-L16AWA
120/240V AC	(6) 24V DC (4) Fast 24V DC (2) Analog Voltage	(6) Individually Isolated Relay	(4) 40 kHz Inputs	2	1763-L16BWA
24V DC	(6) 24V DC (4) Fast 24V DC (2) Analog Voltage	(2) Individually Isolated Relay (2) 24V DC FET (2) Fast 24V DC FET	(4) 40 kHz Inputs (2) 40 kHz Outputs	2	1763-L16BBB
12...24V DC	(6) 12...24V DC (4) Fast 12/24V DC (2) Analog Voltage	(6) Individually Isolated Relay	(4) 40 kHz Inputs	2	1763-L16DWD

Memory Module

- User program and data back-up
- Program compare
- Data file protection
- Memory module write protection
- Removal/insertion under power



Description	Cat. No.
Memory Module	1763-MM1
30 cm cable 8-pin mini DIN for ML1100 CH 0 combo port to 6-pin terminal block for direct connection to DH-485 and Modbus RTU networks	1763-NC01
Replacement battery for the MicroLogix 1100	1763-BA

See Publication 1763-SG001... for complete product information.

MicroLogix 1200

- Memory Size and Type:
6K flash memory: 4K user program, 2K user data
- Data Elements:
Configurable, user-defined file structure, 2K max. data size
- Throughput:
2 ms (for a typical 1K word user program)



Controller Power and I/O Configuration

Line Power	Inputs	Outputs	High Speed I/O	Comm. Ports	Cat. No.
120/240V AC	(14) 120V AC	(10) Relay	N/A	1	1762-L24AWA
				2	1762-L24AWAR
120/240V AC	(24) 120V AC	(16) Relay	N/A	1	1762-L40AWA
				2	1762-L40AWAR
120/240V AC	(10) Standard 24V DC (4) Fast 24V DC	(10) Relay	(4) 20 kHz input	1	1762-L24BWA
				2	1762-L24BWAR
120/240V AC	(20) Standard 24V DC (4) Fast 24V DC	(16) Relay	(4) 20 kHz input	1	1762-L40BWA
				2	1762-L40BWAR
24V DC	(10) Standard 24V DC (4) Fast 24V DC	(5) Relay (4) Standard 24V DC FET (1) Fast 24V DC FET	(4) 20 kHz input (1) 20 kHz output	1	1762-L24BWB
		2		1762-L24BWBAR	
24V DC	(20) Standard 24V DC (4) Fast 24V DC	(8) Relay (7) Standard 24V DC FET (1) Fast 24V DC FET	(4) 20 kHz input (1) 20 kHz output	1	1762-L40BWB
		2		1762-L40BWBAR	

Memory and Real-Time Clock Modules

- User program and data back-up
- Program compare
- Data file protection
- Memory module write protection
- Removal/insertion under power
- Memory back-up and real-time clock combination module



Description	Cat. No.
Memory Module	1762-MM1
Memory and Real-Time Clock Module	1762-MM1RTC
Real-Time Clock Module	1762-RTC

Expansion I/O Modules

Description	Cat. No.
Digital:	
8-Point 120V AC Input Module	1762-IA8
8-Point Sink/Source 24V DC Input Module	1762-IQ8
16-Point Sink/Source 24V DC Input Module	1762-IQ16
8-Point 120/240V AC Triac Output Module	1762-OA8
8-Point Sourcing 24V DC Output Module	1762-OB8
16-Point Sourcing 24V DC Output Module	1762-OB16
8-Point AC/DC Relay Output Module	1762-OW8
16-Point AC/DC Relay Output Module	1762-OW16
6-Point Isolated AC/DC Relay Output Module	1762-OX6I
Combination 8-Point Sink/Source 24V DC Input and 6-Point AC/DC Relay Output Module	1762-IQ8OW6
Analog:	
4-Channel Voltage/Current Analog Input Module	1762-IF4
4-Channel Voltage/Current Analog Output Module	1762-OF4
Combination 2-Channel Input 2-Channel Output Voltage/Current Analog Module	1762-IF2OF2
Temperature:	
4-Channel RTD/Resistance Input Module	1762-IR4
4-Channel Thermocouple/mV Input Module	1762-IT4

Programming software, network interface devices and cables see page 2-36.

See publication 1762-TD001... for complete product information.

MicroLogix 1400

- Memory Size and Type:
 - 10K user program, 10K user data
 - 64K recipe memory out of the 128K data logging
- Embedded LCD display with navigation keys and embedded RTC:
 - 4 x 12 Text display
- Three communication ports:
 - One isolated RS232C/RS485 combination port
 - One non-isolated RS232C port
 - One RJ-45 port for 10/100 Mbps EtherNet/IP peer-to-peer messaging
- Online editing / programming
- Higher I/O count, faster High Speed Counter/PTO and enhanced network capabilities



Controller Power and I/O Configuration

Line Voltage	Number of Inputs	Number of Outputs	High Speed Inputs	Comm. Ports	Cat. No.
120/240V AC	(12) Fast 24V DC (8) Normal 24V DC	(12) Relay	6 @ 100 kHz	3	1766-L32BWA
	(20) 120V AC	(12) Relay	N/A	3	1766-L32AWA
24V DC	(12) Fast 24V DC (8) Normal 24V DC	(6) Relay (3) Fast DC (3) Normal DC	6 @ 100 kHz	3	1766-L32BXB
120/240V AC	(12) Fast 24V DC (8) Normal 24V DC (4) Analog Voltage Inputs	(12) Relay (2) Analog Voltage Outputs	6 @ 100 kHz	3	1766-L32BWAA
	(20) 120V AC (4) Analog Voltage Inputs	(12) Relay (2) Analog Voltage Outputs	N/A	3	1766-L32AWAA
24V DC	(12) Fast 24V DC (8) Normal 24V DC (4) Analog Voltage Inputs	(6) Relay (3) Fast DC (3) Normal DC (2) Analog Voltage Outputs	6 @ 100 kHz	3	1766-L32BXBA

Programmable Controllers

Product Selection

MicroLogix 1500

- Memory Size and Type:
If using 1764-LSP processor: 7K user memory (total user program plus data). If using 1764-LRP processor: 14K user memory (total user program plus data)
- Data Elements:
Configurable, user-defined file structure, 4K max. data size
- Throughput:
1 ms (for a typical 1K word user program)
- Base Unit with embedded I/O and Communication Port RS 232 (8-pin Mini DIN)



Base Units: Controller Power and I/O Configuration

Line Power	Inputs	Outputs *	High Speed I/O	Cat. No.
120/240V AC	(12) 120V AC	(12) Relay	N/A	1764-24AWA
120/240V AC	(4) Standard 24V DC (8) Fast 24V DC	(12) Relay	(4) 20 kHz input	1764-24BWA
24V DC	(8) Standard 24V DC (8) Fast 24V DC	(6) Relay (4) Standard 24V DC FET (2) Fast 24V DC FET	(8) 20 kHz input (2) 20 kHz output	1764-28BWB

* Two isolated relays per unit

Processors

Description	Cat. No.
Processor Unit with 14K User and 48K Data Logging Memory and 2nd Comms port (9-pin D-Shell)	1764-LRP
Processor Unit with 7K User Memory	1764-LSP

Memory and Real-Time Clock Modules


- User programs and data to be stored as backup
- Transport programs for use with other controllers
- Safety/security for press control and other critical applications
- Auto recovery, through a power cycle, after a controller fault
- Comparison of programs
- Data file and memory module write protection



Description	Memory size		Cat. No.
Real-Time Clock	not applicable		1764-RTC
Memory Module	8K		1764-MM1
Memory Module and Real-Time Clock	8K		1764-MM1RTC
Memory Module	16K	*	1764-MM2
Memory Module and Real-Time Clock	16K	*	1764-MM2RTC
Memory Module	32K	*	1764-MM3
Memory Module and Real-Time Clock	32K	*	1764-MM3RTC

* For the 1764-LRP processor to support larger program and data requirements.

Data Access Tool

	Description	Cat. No.
	<ul style="list-style-type: none"> • Direct access to 48 bit elements • Direct access to 48 integer elements • Two function keys • Display of controller faults • Removal/Insertion under Power 	1764-DAT

Programming software, network interface devices and cables see page 2-36

See publication 1761-SG001... for complete product information.

Accessories for MicroLogix 1000, 1100, 1200, 1400 and 1500

Programming Software

The RSLogix 500 ladder logic programming package helps you maximize performance, save project development time, and improve productivity. This product has been developed to operate on Windows 98 and above operating system. RSLogix 500 can be used for programming both the SLC 500 and MicroLogix controller families.

Description	Cat. No.
RSLogix 500 Starter Edition Progr. Software for MicroLogix controller families. (CD-ROM)	9324-RL0100ENE
RSLogix 500 Standard Edition Programming Software for SLC 500 and MicroLogix controller families. (CD-ROM)	9324-RL0300ENE
RSLogix 500 Professional Edition. CD-ROM also includes RSLogix Emulate 500, RSNetworx for DeviceNet and RSNetworx for ControlNet.	9324-RL0700NXENE
RSLogix Micro Starter	9324-RLM0100ENE
RSLogix Micro Developer	9324-RLM0800ENE

Programming Cable for MicroLogix 1000, 1100, 1200, 1400 and 1500 Channel 0 (8-pin Mini DIN)

Description	Length	Cable Type	Cat. No.
Cable to connect MicroLogix controller to an IBM compatible PC	2 m	8-pin Mini DIN to 9-pin D Shell	1761-CBL-PM02

Programming Cable for MicroLogix 1500 with 1764-LRP Processor, Channel 1 (9-pin RS-232)

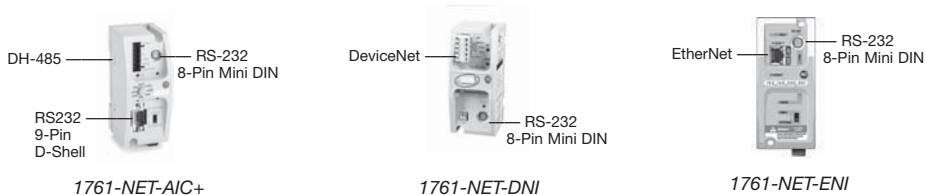
Description	Length	Cable Type	Cat. No.
Cable to connect port 1 to the 9-Pin DTE port of a personal computer	3 m	9-pin D Shell to 9-pin D Shell	1747-CP3
Cable to connect the MicroLogix 1500 base port to an IBM compatible PC	2 m	9-pin D Shell to 8-pin Mini DIN	1761-CBL-PM02

Note: Only cables of series C or later can be used with MicroLogix 1100

Wiring Systems for MicroLogix 1200 and 1500, see page 4-11 in chapter Connectivity.

Accessories for MicroLogix 1000, 1100, 1200, 1400 and 1500, continued

Network Interface Devices



Description	Cat. No.
AIC+ Advanced Interface Converter: The AIC+ provides an interface to DH-485 networks from an RS-232 port. It can be used with all MicroLogix controllers, SLC 5/03 and higher, and a number of PanelView terminals.	1761-NET-AIC
DNI DeviceNet Interface: Peer-to-peer messaging between MicroLogix controllers and other devices using the DF1 Full-Duplex protocol (real time communications – no polling required)	1761-NET-DNI
ENI Ethernet Interface: The ENI provides EtherNet/IP connectivity for all MicroLogix controllers and other DF1 Full-Duplex devices: The ENIW provides also a basic level of Web Server functionality including: <ul style="list-style-type: none"> • Ability to display dynamically updated data values • Ability to label data values • Ability to modify data values (password protected) 	1761-NET-ENI 1761-NET-ENIW

Note: External power is required for the network interface. The MicroLogix 1100 RS232/485 port does not provide any power for connected devices.

Network Cable

Use the communication cables listed below with MicroLogix 1000, 1100, 1200, 1400 and 1500 controllers. Cables come in several lengths and connector styles to provide connectivity between MicroLogix controllers and other devices.

Description	Connectors	Length	Cat. No.
Used to connect MicroLogix controller to Port 2 of 1761-NET-AIC+ or 1761-NET-DNI or 1761-HHP or PanelView	8-pin Mini DIN to 8-pin Mini DIN	0.5 m	1761-CBL-AM00
		2 m	1761-CBL-HM02
		5 m	2711-CBL-HM05
		10 m	2711-CBL-HM10
Used to connect MicroLogix 1500 Processor (LRP) or Port 1 of 1761-NET-AIC+ to 9-pin DTE of Personal Computer	9-pin D Shell to 9-pin D Shell	0.5 m	1761-CBL-AC00
		3 m	1747-CP3
Used to connect MicroLogix controller to Port 1 of 1761-NET-AIC+ or MicroLogix controller to PC or PanelView's to MicroLogix controller	8-pin Mini DIN to 9-pin D Shell	0.5 m	1761-CBL-AP00
		2 m	1761-CBL-PM02
		5 m	2711-CBL-PM05
		10 m	2711-CBL-PM10

Note: Do not connect a MicroLogix 1100 controller to another MicroLogix family controller such as MicroLogix 1000, 1200 or 1500 using a 1761-CBL-AM00 (8-pin Mini DIN to 8-pin Mini DIN) cable or equivalent. This type connection will cause damage to the RS-232/485 communication port (Channel 0) of the MicroLogix 1100 and/or the controller itself.

Circuit Protection



Product Line Overview

Device Selection



Bulletin	1492-RCD	1492-SP
Type	Residual Current Device	Miniature Circuit Breaker
Features	<ul style="list-style-type: none"> • True IP2X finger-safe design (front) • For applications in which AC and pulsating DC fault currents are likely to appear, nonselective and non-delayed • Designed to prevent unwanted tripping caused by switching electronic circuit devices • Auxiliary and Signal contacts may be added 	<ul style="list-style-type: none"> • True IP2X finger-safe design (front) • Energy Limiting Design protects downstream components better than conventional breakers during short circuits • Field mountable options for selective applications • AC and DC voltage ratings in one convenient device • Superior shock and vibration resistance capabilities • Mounts on hut (DIN) rail
Number of Poles	2 pole (1 + N) 4 pole (3 + N)	1, 2, 3 pole 1 pole + neutral, 3 pole + neutral
Rated voltage	230V AC (1+N), 400V AC (3+N)	230/400V AC, 240/415V AC
Tripping characteristic reference temperature	—	30 °C
Rated tripping current	30, 100, 300, 500 mA	—
Sensitivity	AC and pulsating DC	—
Rated short circuit capability	10 kA with 63 A gG/gL back-up fuse for up to 63 A 10 kA with 80 A gG/gL back-up fuse for 80 A	10 kA
Max. back-up fuse for short circuit protection	63 A gG/gL for up to 63 A 80 A gG/gL for 80 A	100 A gG/gL
Maximum back-up fuse for overload protection	25 A gG/gL (25 A and 40 A devices) 40 A gG/gL (63 A devices) 50 A gG/gL (80 A devices)	—
Degree of protection	IP20	IP20
Mechanical life	≥10000 changeovers	≥6000 changeovers
Mounting	35 mm hut (DIN) rail	35 mm hut (DIN) rail
Operating temperature	-5°C...+40°C	-5°C...+40°C (reduction factors are required for higher temperatures)
Wire size	1.5...35 mm ²	1...25 mm ²
Terminal torque	2.4 N.m ≤40 A, 3.0 N.m ≥63 A	2.4 N.m
Standards and Approvals	IEC/EN 61008 VDE, CE	IEC/EN 60889 CE, VDE, UL 1077, CSA 22.2 No. 235
Product Selection	See page 2-41	See page 2-43

Device Selection

							
Bulletin		1489		1492-FB			
Type	480Y/277V AC		240V AC	For Class CC Fuse	For Class J Fuse		For Midget Fuse
	0.5...25 A		0.5...40 A	30 A	30 A	60 A	30 A
Features	<ul style="list-style-type: none"> • True IP2X finger-safe design (front) • 10,000 A interrupt • A postively trip-free mechanism (breaker operation cannot be defeated by holding the handle in the ON position) • Superior shock and vibration resistance capabilities • Mounts on DIN Rail • IEC 60947-2 <ul style="list-style-type: none"> - 0.5...40 A @ 240, 415V AC - 15,000 A interrupting • Field-mountable options • Optional terminal for ring lugs 			<ul style="list-style-type: none"> • EN/IEC 60529 Front Finger Protection — Dead front construction • Handle isolates the fuse from line power when it is opened for fuse insertion or removal • Compact size requiring less panel space than open style fuse folders • Optional blown fuse indicators - allow for easy troubleshooting of electrical circuits • Type M holder - accepts 0...30 A midget fuses (1 1/2" x 13/32") • Type C holder - accepts 0...30 A Class CC fuses) • Type J 30 & 60 A holders - accepts Class J fuses • Silver-plated fuse clips • Mounts on DIN rail, marker-ready and increased heat dissipation 			
Certifications	UL 489 Listed (CSA C22.2 No. 5.1), UL File Number E197878 VDE (SEC 60 947-2)			CE, ULus, CSA		CE, URus, CSA	
Maximum Voltage Rating	480Y/277V AC			600V AC/DC			
Shock	25 G Half Sine Wave for 11 ms (Three Axes)			25 G Half Sine Wave for 11 ms (Three Axes)			
Tripping Characteristic Reference Temperature	40°C (UL/CSA) 30°C (IEC)			NA			
Tripping Characteristic	C Curve: 5...10 D Curve: 10...20			NA			
Vibration	100...500 Hz for 1 hour Amplitude — 10...57 Hz; 0.030 inches peak to peak; 57...500 Hz; 5 G peak			5 G peak or 0.030 "peak-to-peak" displacement for 2 hours in each perpendicular direction. Vibration sweep 10 to 2000 to 10 Hz (15 minutes long)			
Operating Temperature	-13...140°F (-25...+55°C), non-condensing			-4...130°F (-20...+55°C)			
Housing Material	Nylon			Nylon			
Working Voltage	—			110...600V AC/DC or 12...72V AC/DC	110...600V AC/DC		110...600V AC/DC or 12...72V AC/DC
With Indicator	Leakage Current	LED	—	2.0 mA			
Wire Size	0.8...13 mm ² /#18...6 AWG Cu			#16...4 AWG Cu	#14...1 AWG Cu	#10...1 AWG Cu	#16...4 AWG Cu
Interrupt Rating	10 kA @ 240V AC and 480Y/277V AC (UL/CSA)			200 kA		50 kA	
Product Selection	See page 2-49			See page 2-51			

Circuit Protection

Product Line Overview

Device Selection



Bulletin	140F
Type	MCS Fuse Holders
Features	<ul style="list-style-type: none"> • Available for UL Class CC or Midget Fuses, with or without blown fuse indication • Lockable in the open position • Compatible with 140M accessories • Compact busbar and connectors of contactors 100C and 100M • 1 NO/ 1 NC Auxiliary Contact, early break NC • Provides capability for dropping out contactor before breaking current on fuse • Late make NO provides positive indication that power circuit is open
Product Selection	See page 2-52

Residual Current Devices Bulletin 1492-RCD

Earth Leakage Detectors for IEC Applications

The Bulletin 1492-RCD line includes Residual Current Devices for earth leakage detection to IEC standards. These devices are used in association with miniature circuit breakers (1492-SP).



1492-RCD2



1492-RCD4

- True IP2X finger-safe design (front)
- Undelayed tripping time
- Line-voltage independent tripping (suitable for residual current & additional protection)
- Rated tripping current: 30, 100, 300, 500 mA
- For applications in which AC and pulsating DC fault currents are likely to appear, nonselective and non-delayed
- Designed to prevent unwanted tripping caused by switching electronic circuit devices
- Mounts on DIN Rail
- Busbar position on top or bottom
- Conditionally surge current proof 250 A
- Rated Short-Circuit strength: 10 kA with 63 A gG/gL back-up fuse, 10 kA with 80 A gG/gL back-up fuse for 80 A device

Standard Versions

Operating Voltage, Nominal [V]	Rated Tripping Current [mA]	Rated Operational Current [A]	2 poles (1 pole + neutral)	4 poles (3 poles + neutral)
			Cat. No.	Cat. No.
230/400V 50 Hz	30	16	1492-RCD2A16	—
		25	1492-RCD2A25	1492-RCD4A25
		40	1492-RCD2A40	1492-RCD4A40
		63	—	1492-RCD4A63
		80	—	1492-RCD4A80
	100	25	1492-RCD2B25	1492-RCD4B25
		40	1492-RCD2B40	1492-RCD4B40
		63	—	1492-RCD4B63
	300	16	—	1492-RCD4C16
		25	1492-RCD2C25	1492-RCD4C25
		40	1492-RCD2C40	1492-RCD4C40
		63	—	1492-RCD4C63
		80	—	1492-RCD4C80


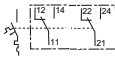


Residual Current Devices

Product Selection / Accessories

Versions for Use with Variable Frequency Drives

Operating Voltage, Nominal [V]	Rated Tripping Current [mA]	Rated Operational Current [A]	4 poles (3 poles + neutral) Cat. No.
230/400V 50 Hz	100	40	1492-RCD4B40D
		63	1492-RCD4B63D
	300	40	1492-RCD4C40D
		63	1492-RCD4C63D

Accessories 1492-RCD

	Description	Diagram	Cat. No.
	Dual auxiliary contact module Switches when protective device is operated manually or tripped electrically 2 N.O. – 2 N.C. 2 Form C Contact		1492-ASPHH3
	Auxiliary/Signal alarm contact module 1 Auxiliary Contact switches when protective device is operated manually or tripped electrically 1 N.O. – 1 N.C. Form C Contact 1 Signal Contact switches when protective device is tripped electrically 1 N.O. – 1 N.C. Form C Contact		1492-ASPHS3

Miniature Circuit Breakers Bulletin 1492-SP



1492-SP1



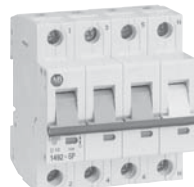
1492-SP2



1492-SP3




1492-SP1...-N



1492-SP3...-N

- Energy Limiting Design - Protects Downstream Components Better than Conventional Breakers During Short Circuits
- Field Mountable Options for Selective Applications
- IP2x Finger-Protection (Front)
- International Approvals - CE Marked, and Meets UL, CSA, and IEC (VDE, GL) Standards for Worldwide Acceptance
- Ratings to 480Y/277V AC @ 240/415V AC - 10 000 A Interrupt Rating
- AC and DC Voltage Ratings - in One Convenient Device
- A Positively Trip-Free Mechanism (Breaker Operation Cannot be Defeated by Holding the Handle in the ON Position)
- 3 Trip Curves: B, C, and D
- Time Delay (D Characteristic) for High Inrush Currents During Inductive Start-Ups Such as Transformers and Power Supplies
- Superior Shock and Vibration Resistance Capabilities — Helps to Prevent Nuisance Tripping
- Mounts on DIN Rail

Miniature Circuit Breakers, 1-Pole


Tripping Characteristics		Trip Curve C Inductive	Trip Curve D Highly Inductive
		5...10 /n	10...20 /n
Number of Poles	Continuous Current Rating (/n) [A]	Cat. No.	Cat. No.
	1	1492-SP1C010	1492-SP1D010
	2	1492-SP1C020	1492-SP1D020
	4	1492-SP1C040	1492-SP1D040
	6	1492-SP1C060	1492-SP1D060
	10	1492-SP1C100	1492-SP1D100
	13	1492-SP1C130	1492-SP1D130
	16	1492-SP1C160	1492-SP1D160
	20	1492-SP1C200	1492-SP1D200
	25	1492-SP1C250	1492-SP1D250
	32	1492-SP1C320	1492-SP1D320
	40	1492-SP1C400	1492-SP1D400
	50	1492-SP1C500	—
	63	1492-SP1C630	—

Package Quantity = 2

For Trip Curves B visit our website or consult your local sales office.

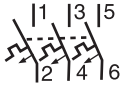
Bulletin 1492-SP
Miniature Circuit Breakers
 Product Selection

Miniature Circuit Breakers, 2-Poles

Tripping Characteristics		Trip Curve C Inductive	Trip Curve D Highly Inductive
		5...10 /n	10...20 /n
Number of Poles	Continuous Current Rating (/n) [A]	Cat. No.	Cat. No.
	1	1492-SP2C010	1492-SP2D010
	2	1492-SP2C020	1492-SP2D020
	4	1492-SP2C040	1492-SP2D040
	6	1492-SP2C060	1492-SP2D060
	10	1492-SP2C100	1492-SP2D100
	13	1492-SP2C130	1492-SP2D130
	16	1492-SP2C160	1492-SP2D160
	20	1492-SP2C200	1492-SP2D200
	25	1492-SP2C250	1492-SP2D250
	32	1492-SP2C320	1492-SP2D320
	40	1492-SP2C400	1492-SP2D400
	50	1492-SP2C500	—
63	1492-SP2C630	—	


For Trip Curves B visit our website or consult your local sales office.

Miniature Circuit Breakers, 3-Poles

Tripping Characteristics		Trip Curve C Inductive	Trip Curve D Highly Inductive
		5...10 /n	10...20 /n
Number of Poles	Continuous Current Rating (/n) [A]	Cat. No.	Cat. No.
	1	1492-SP3C010	1492-SP3D010
	2	1492-SP3C020	1492-SP3D020
	4	1492-SP3C040	1492-SP3D040
	6	1492-SP3C060	1492-SP3D060
	10	1492-SP3C100	1492-SP3D100
	13	1492-SP3C130	1492-SP3D130
	16	1492-SP3C160	1492-SP3D160
	20	1492-SP3C200	1492-SP3D200
	25	1492-SP3C250	1492-SP3D250
	32	1492-SP3C320	1492-SP3D320
	40	1492-SP3C400	1492-SP3D400
	50	1492-SP3C500	—
	63	1492-SP3C630	—

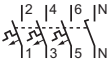
For Trip Curves B visit our website or consult your local sales office.

Miniature Circuit Breakers, 1-Pole + Neutral Module

Tripping Characteristics		Trip Curve C Inductive	Trip Curve D Highly Inductive
		5...10 /n	10...20 /n
Number of Poles	Continuous Current Rating (/n) [A]	Cat. No.	Cat. No.
	1	1492-SP1C010-N	1492-SP1D010-N
	2	1492-SP1C020-N	1492-SP1D020-N
	4	1492-SP1C040-N	1492-SP1D040-N
	6	1492-SP1C060-N	1492-SP1D060-N
	10	1492-SP1C100-N	1492-SP1D100-N
	13	1492-SP1C130-N	1492-SP1D130-N
	16	1492-SP1C160-N	1492-SP1D160-N
	20	1492-SP1C200-N	1492-SP1D200-N
	25	1492-SP1C250-N	1492-SP1D250-N
	32	1492-SP1C320-N	1492-SP1D320-N
	40	1492-SP1C400-N	1492-SP1D400-N
	50	1492-SP1C500-N	—
63	1492-SP1C630-N	—	

For Trip Curves B visit our website or consult your local sales office.

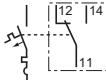

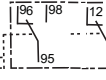

Miniature Circuit Breakers, 3-Poles + Neutral Module

Tripping Characteristics		Trip Curve C Inductive	Trip Curve D Highly Inductive
		5...10 /n	10...20 /n
Number of Poles	Continuous Current Rating (/n) [A]	Cat. No.	Cat. No.
	1	1492-SP3C010-N	1492-SP3D010-N
	2	1492-SP3C020-N	1492-SP3D020-N
	4	1492-SP3C040-N	1492-SP3D040-N
	6	1492-SP3C060-N	1492-SP3D060-N
	10	1492-SP3C100-N	1492-SP3D100-N
	13	1492-SP3C130-N	1492-SP3D130-N
	16	1492-SP3C160-N	1492-SP3D160-N
	20	1492-SP3C200-N	1492-SP3D200-N
	25	1492-SP3C250-N	1492-SP3D250-N
	32	1492-SP3C320-N	1492-SP3D320-N
	40	1492-SP3C400-N	1492-SP3D400-N
	50	1492-SP3C500-N	—
	63	1492-SP3C630-N	—

For Trip Curves B visit our website or consult your local sales office.

Miniature Circuit Breakers

Accessories

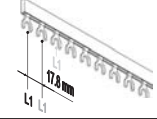
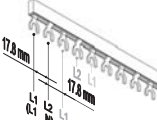
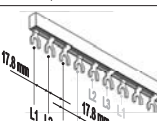
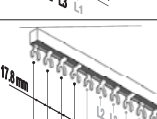
	Description	Diagram	PQ	Cat. No.	
	Auxiliary contact module Switches when protective device is operated manually or tripped electrically 1 N.O. – 1 N.C. Form C Contact		1	1492-ASPH3	
	Dual auxiliary contact module Switches when protective device is operated manually or tripped electrically 2 N.O. – 2 N.C. 2 Form C Contact		1	1492-ASPHH3	
	Auxiliary/Signal alarm contact module 1 Auxiliary Contact switches when protective device is operated manually or tripped electrically 1 N.O. – 1 N.C. Form C Contact 1 Signal Contact switches when protective device is tripped electrically 1 N.O. – 1 N.C. Form C Contact		1	1492-ASPHS3	
	Undervoltage release module Use the undervoltage release module to trip the adjacent breaker poles when the applied voltage is less than the nominal voltage. Undervoltage trip is often used when loss of power and eventual restoration of power creates an unsafe or unknown set of condition.		50...115V AC	1	1492-ASPU115
			110...240V AC	1	1492-ASPU230
	Shunt trip module Use the shunt trip module to trip the adjacent breaker poles from a remote location. The module is actuated by applying a voltage (pickup voltage) to the trip terminals. Shunt trip modules are often used in emergency shutdown circuits where multiple power circuits must be switched off from a single location.		110...415V AC (110...230V DC)	1	1492-ASPA1
			12...110V AC (12...60V DC)	1	1492-ASPA2
	Mounting Rails DIN (#3) Symmetrical Rail 35 x 7.5 x 1 m		10	199-DR1	
	DIN hi-rise symmetrical rail 1 m, 35 mm x 7.5 mm, 57.4 mm (2.26 in.) high Copper-free aluminum		2	1492-DR6	
	DIN angled hi-rise symmetrical rail 1 m, 35 mm x 7.5 mm, 71.0 mm (2.80 in.) high Zinc-plated, chromated steel		2	1492-DR7	
	End Anchor		10	1492-EAH35	
	Lockout Attachment		10	1492-ASPLOA	

PQ = Package Quantity

	Description	No. of 1492-SP	Rated Operational Current (I_e) [A]	PQ	Cat. No.
Incoming Terminals for fork style commoning links, IP20 protection (Not for use in North American installations)					
	For max 25 mm ² wire			1	1492-ASPCLT25
	For max 35 mm ² wire			1	1492-ASPCLT35

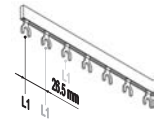

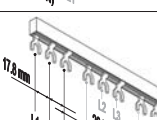
Fork Style Commoning Links

for 1492-SP without Auxiliary Contact Module (may not be cut)

	1 pole	2	63	20	1492-ASPCL102
	1 pole	6	63	20	1492-ASPCL106
	1 pole	12	63	20	1492-ASPCL112
	2 poles (1p + N)	2	63	10	1492-ASPCL204
	2 poles (1p + N)	3	63	10	1492-ASPCL206
	2 poles (1p + N)	6	63	10	1492-ASPCL212
	3 poles	2	63	10	1492-ASPCL306
	3 poles	4	63	10	1492-ASPCL312
	4 poles	2	63	1	1492-ASPCL408
	4 poles	3	63	1	1492-ASPCL412

Fork Style Commoning Links



for 1492-SP with an Auxiliary Contact Module or Auxiliary/Signal Alarm Contact Module

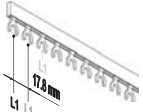

	1 pole	2	63	20	1492-ASPCL1A02
	1 pole	6	63	20	1492-ASPCL1A06
	1 pole	9	63	20	1492-ASPCL1A09
	2 poles (1p + N)	2	63	10	1492-ASPCL2A04
	2 poles (1p + N)	3	63	10	1492-ASPCL2A06
	2 poles (1p + N)	5	63	10	1492-ASPCL2A10
	3 poles	2	63	10	1492-ASPCL3A06
	3 poles	4	63	10	1492-ASPCL3A12

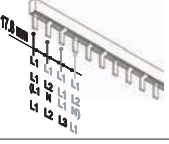

PQ = Package Quantity

Miniature Circuit Breakers

Accessories

	Description	No. of 1492-SP	Rated Operational Current (I_e) [A]	PQ	Cat. No.
Fork Style Commoning Links					
for multiple single pole 1492-SP, each with 1 Auxiliary Contact or 1 Auxiliary/Signal Alarm Contact Module					
		2x3 (1p)	63	10	1492-ASPCL3AP06
		2x3 (1p)+2 (1p)	63	10	1492-ASPCL3AP08
		3x3 (1p)	63	10	1492-ASPCL3AP09
	Protective cover for unused fork termination			5	1492-ASPCLPS

Fork Style Commoning Links					
(may be cut to length, not for use with accessories)					
	1 pole	1 m (56 devices/m)	63	1	1492-ASPCL1
	3 poles	1 m (19 devices/m)	63	1	1492-ASPCL3
	End Cap (for 2 and 3 poles)			10	1492-ASPEC1

Pin Style Commoning Links					
(may be cut to length, not for use with accessories)					
	1 pole	1 m (56 devices/m)	40	1	1492-ACBCL1
	2 poles (1p + N)	1 m (26 devices/m)	30	1	1492-ACBCL2
	3 poles	1 m (16 devices/m)	30	1	1492-ACBCL3
	End Cap (for 2 and 3 poles)			10	1492-ACBEC1

PQ = Package Quantity

Miniature Circuit Breakers Bulletin 1489

- IP2x Finger-Protection (Front)
- North America certifications: UL 489, CSA 22.2 No. 5.1
- International standards: CE Marked, and IEC (VDE) standards for worldwide acceptance
- Ratings: UL/CSA — max. 480Y/277V AC – 10,000 A interrupt rating;
 IEC — max. 240/415V AC – 15,000 A interrupt rating
- Trip curves: C and D
- Time delay (D Characteristic) for high inrush currents during inductive start-ups Such as motors, transformers and power supplies
- Mounts on Standard 35 mm DIN Rail (A-B p/n 199-DR1)



Miniature Circuit Breakers, Trip Curve "C"

No. of Poles	Rated Current [A]	UL/CSA Max. Volt.	Cat. No.
1-Pole	2	480Y/277V AC, 48V DC	1489-A1C020
	4		1489-A1C040
	6		1489-A1C060
	10		1489-A1C100
	16 *		1489-A1C160
2-Pole	2	480Y/277V AC, 96V DC	1489-A2C020
	4	480Y/277V AC, 96V DC	1489-A2C040
	6	480Y/277V AC, 96V DC	1489-A2C060
	10	480Y/277V AC, 96V DC	1489-A2C100
	16 *	480Y/277V AC, 96V DC	1489-A2C160
3-Pole	2	480Y/277V AC	1489-A3C020
	4	480Y/277V AC	1489-A3C040
	6	480Y/277V AC	1489-A3C060
	10	480Y/277V AC	1489-A3C100
	16 *	480Y/277V AC	1489-A3C160

* Common IEC current rating.

Miniature Circuit Breakers

Accessories

Miniature Circuit Breaker Accessories

Description	CSA/UL Certifications	IEC 60947-2 Compliance	CE	EN/IEC Max. Volt.	UL/CSA Max. Volt.	Connection		Cat. No.
Lockout Attachment	Yes	Yes	—	—	—	—		1489-AALOA
Auxiliary Contact, 2 sets, each are Form C, 1 N.O. & 1 N.C.	Yes	Yes	—	3 A, 250V AC (AC13) 0.5 A, 110V DC	2 A, 240V AC 0.5 A, 110V DC	Cable	*	1489-AAHH3
Auxiliary/Signal Contact, each are form C, 1 N.O. & 1 N.C.	Yes	Yes	—	3 A, 250V AC (AC13) 0.5 A, 110V DC	2 A, 240V AC 0.5 A, 110V DC	Cable	*	1489-AAHS3
Auxiliary Contact, Feed Through, 1 N.O. & 1 N.C.	Yes	Yes	—	3 A, 250V AC (AC13) 0.5 A, 110V DC	2 A, 230V AC 0.5 A, 110V DC	Cable	⊛	1489-ABH12
Shunt Trip Module	Yes	Yes	—	110...415V AC 110...230V DC	110...415V AC 110...230V DC	Cable		1489-AASTA1
Shunt Trip Module	Yes	Yes	—	12...110V AC 12...60V DC	12...110V AC 12...60V DC	Cable		1489-AASTA2

* Use of auxiliary or signal contact limits the circuit breaker to a maximum voltage of 240V AC for UL/CSA applications.

⊛ Use of this auxiliary contact allows application of the circuit breaker to full rating of 480Y/ 277V AC for UL/CSA applications.

Bulletin 1489 Bus Bar

Description	No. of Poles	No. of Phases	Number of Circuit Breakers	PQ	Cat. No.
Bus Bar ⊛	6	1	6	10	1489-AACL106
	12		12		1489-AACL112
	18		18		1489-AACL118
	6	2	3		1489-AACL206
	12		6		1489-AACL212
	18		9		1489-AACL218
	6	3	2		1489-AACL306
	12		4		1489-AACL312
	18		6		1489-AACL318

⊛ UL 489 recognized (E300325), CE

Bulletin 1489 Bus Bar Accessories

Description	No. of Poles	Wire Range	PQ	Cat. No.
Terminal Lug	1-pole for circuit breaker termination	#14 ... #2 AWG 2.5 ... 35 mm ²	10	1489-AACLT35
Protective Cover for unused termination	3-pole set (may be separated)	—	10	1489-AACLPS

PQ = Package Quantity

See Publication 1489-SG001... for complete product information.

DIN Rail Mounting Fuse Holders 1492-FB

- EN/IEC 60529 Finger Protection — Dead Front Construction
- The Patented Handle Design Isolates the Fuse from Power When Handle is Opened for Fuse Insertion or Removal
- Optional Blown Fuse LED Indicator — Allow for Easy Troubleshooting of Electrical Circuits
- Easy Insertion/Removal of Fuses, No Special Tools Required
- Mounts on Standard 35 mm DIN Rail (A-B p/n 199-DR1)



DIN Rail Mounting Fuse Holders for Class CC / Midget Fuse

Description	PQ	For Class CC Fuse	For Midget Fuse
		30 A *	30 A
		Cat. No.	Cat. No.
Fuse Block	6	1492-FB1C30	1492-FB1M30
1-Pole 1-Pole Fuse Block with Indication	6	1492-FB1C30-L	1492-FB1M30-L
1-Pole Fuse Block with Indication, 12...72V	6	1492-FB1C30-D1	1492-FB1M30-D1
2-Poles 2-Pole Fuse Block	3	1492-FB2C30	1492-FB2M30
2-Pole Fuse Block with Indication	3	1492-FB2C30-L	1492-FB2M30-L
3-Poles 3-Pole Fuse Block	2	1492-FB3C30	1492-FB3M30
3-Pole Fuse Block with Indication	2	1492-FB3C30-L	1492-FB3M30-L

* All major fuse brands and current ranges have been evaluated for this fuse holder. Due to the heat they generate, the following fuses must be derated:

Ferraz Shamut ATQR 1.25 I = 0.42 A max.

Ferraz Shamut ATQR 1.40 I = 0.47 A max.

PQ = Package Quantity

DIN Rail Mounting Fuse Holders for Class J Fuse

Description	PQ	For Class J Fuse	
		30 A	60 A
		Cat. No.	Cat. No.
1-Pole 1-Pole Fuse Block	6	1492-FB1J30	1492-FB1J60
1-Pole Fuse Block with Indication	6	1492-FB1J30-L	1492-FB1J60-L
2-Poles 2-Pole Fuse Block	3	1492-FB2J30	1492-FB2J60
2-Pole Fuse Block with Indication	3	1492-FB2J30-L	1492-FB2J60-L
3-Poles 3-Pole Fuse Block	2	1492-FB3J30	1492-FB3J60
3-Pole Fuse Block with Indication	2	1492-FB3J30-L	1492-FB3J60-L

PQ = Package Quantity

Bulletin 140F
MCS Fuse Holders
Product Selection

MCS Fuse Holders 140F





- Available for UL Class CC or Midget Fuses and IEC 10 x 38 mm fuses, with or without blown fuse indication
- Lockable in the open position
- Compatible with 140M accessories
- Compact busbar and connectors of contactors 100C and 100M
- 1 NO/ 1 NC Auxiliary Contact, early break NC
- Provides capability for dropping out contactor before breaking current on fuse
- Late make NO provides positive indication that power circuit is open



Description	Approvals				Cat. No.
	IEC	CE Mark	UL	CSA	
Fuse Holder, UL Class CC — 30 A max.	Yes	Yes	Yes	Yes	140F-D3C-C30
Fuse Holder with Blown Fuse Indication, UL Class CC — 30 A max.	Yes	Yes	Yes	Yes	140F-D3C-C30L
Fuse Holder, UL Midget — 30 A max.	Yes	Yes	Yes	Yes	140F-D3M-C30
Fuse Holder with Blown Fuse Indication, UL Midget — 30 A max.	Yes	Yes	Yes	Yes	140F-D3M-C30L
Fuse Holder, IEC 10 x 38 mm — 32 A max.	Yes	Yes	No	No	140F-D3F-C30
Fuse Holder with Blown Fuse Indication, IEC 10 x 38 mm — 32 A max.	Yes	Yes	No	No	140F-D3F-C30L
Auxiliary Contact for Fuse Holder (1 N.O. Late Make + 1 N.C. Early Break)	Yes	Yes	Yes	Yes	140F-C-AFA11

For additional accessories refer to contactors 100M/100-C and circuit breakers 140M.

Device Selection

				
Bulletin	4983-DH	4983-DS	4983-DD	4983-DC
Type	DIN Rail Heavy-Duty AC Surge Protective Device	DIN Rail Standard Duty AC Surge Protective Device	DIN Rail Dataline Surge Protective Device	DIN Rail Combination Filter and Surge Protective Device
Features	<ul style="list-style-type: none"> • High energy absorption capability • Visual fault indicator linked to internal thermal disconnect • Automatic trigger for SPD replacement • Remote signaling 	<ul style="list-style-type: none"> • Compact modular design • Visual fault indicator linked to internal thermal disconnect • Automatic trigger for SPD replacement • Remote signaling 	<ul style="list-style-type: none"> • Compact modular design • Protects industrial communication networks 	<ul style="list-style-type: none"> • Small combination (filter and SPD) package size • Features Islatrol® technology • LED power indication
AC Network	110...120V AC (1 wire) 220...230V AC (1 wire) 380...400V AC (1 wire) 120V AC 1-phase 120/208V AC 3-phase + N 480Y/277V AC 3-phase + N 230V AC 1-phase 230/240V AC 3-phase + N	110...120V AC (1 wire) 220...230V AC (1 wire) 380...400V AC (1 wire) 120V AC 1-phase 120/208V AC 3-phase + N 480Y/277V AC 3-phase + N 230V AC 1-phase 230/240V AC 3-phase + N	4...20 mA loop, RS232 type, High speed transmission (LAN), RS485 type, RS422 type	—
Operating Voltage	—			120 or 240V AC
Max. Continuous Operating Voltage	150V AC 330V AC	150...400V AC	8...28V DC	150 Vrms (125%) @ 120V AC 320 Vrms (115%) @ 240V AC
Ampacity	—			3...20 A
Line Frequency	—			47...63 Hz
Protection Level	1 or 1.5 kV	0.7...2 kV	25...40V	—
UL1449 Suppressed Voltage Rating (SVR)	0.4 or 0.6 kV	1.5, 1.9, or 1.5 kV	—	—
Standards Compliance/Certifications	UL 1449, CSA C22.2 No. 8, IEC 61643-1, CE, EN 61643-11	UL 1449, CSA C22.2 No. 8, IEC 61643-1, CE, EN 61643-1	UL 497B, IEC 61643-1, CE, EN61643-11	UL 1283, UL 1449, CE
Operating Temperature (non-condensing)	-40...+85 °C			-40...+60 °C derate linearly to 60% @ +70 °C
Product Selection	Page 2-54	Page 2-55	Page 2-56	Page 2-56

Filter and Surge Protective Device

Product Selection

DIN Rail Heavy-Duty AC Surge Protective Devices, 4983-DH

Bulletin 4983-DH is a heavy-duty surge protector. This SPD combines a high-energy varistor (MOV) network with a gas discharge tube to increase performance in protection level, life duration, and suppression of leakage current. The Bulletin 4983-DH product is connected in parallel and can be located in the feeder circuit.

- Highest energy absorption capability of all Bulletin 4983 products
- Robust design avoids unnecessary replacement
- Visual fault indicator linked to internal thermal disconnect
- Automatic trigger for SPD replacement
- Safety remote signaling standard



AC Network	No. of Poles and Devices Needed	Con-nection Mode	MCOV (U_c) [V AC]	Lightning Current 10/350 μ s (I_{imp}) [kA]	Max. Discharge Current 8/20 μ s (I_{max}) [kA]	Protection Level (U_p)	UL 1449 SVR [kV]	Cat. No.
230/400V (1-wire)	1	L/G or N/G	330	25	70	1.5 *	0.6	4983-DH300-25
230/400V (1-phase: TNS)	2							
230/400V (3-phase: TNC)	3							
220...230V (3-phase + N: TNS)	4							
230/400V (1-wire)	1	L/G or N/G	330	50	70	1.5 *	0.6	4983-DH300-50
230/400V (1-phase: TNS)	2							
230/400V (3-phase: TNC)	3							
230/400V (3-phase + N: TNS)	4							

* 250 A max. fuses required to protect the surge protector in case of short-circuit failure. They must be installed in series with each pole of the surge protector.

* 500 A max. fuses required to protect the surge protector in case of short-circuit failure. They must be installed in series with each pole of the surge protector.

Note: N = Neutral

L/N = Line/neutral

N/G = Neutral/ground

MCOV = Max. Continuous Operating Voltage

SVR = Suppressed Voltage Rating

DIN Rail AC Surge Protective Devices, 4983-DS

Bulletin 4983-DS offers a number of options to meet your basic surge protection needs. The Bulletin 4983-DS products are connected in parallel and use an MOV to clamp high-voltage surges. The Bulletin 4983-DS devices are primarily used in the main electrical panel for the protection of 1- and 3-phase systems.

- Compact modular design
- Robust design avoids unnecessary replacement
- Visual fault indicator linked to internal thermal disconnect
- Automatic trigger for SPD replacement
- Remote signaling standard



Voltage Range	Con- nection Mode	MCOV (U_c) [V AC]	Nominal Discharge Current 8/20 μ s (I_n) [kA]	Max. Discharge Current 8/20 μ s (I_{max}) [kA]	Pro- tection Level (U_p) [kV]	UL 1449 SVR [kV]	Wiring Con- figuration	Cat. No.*
230/400V AC	L/G or N/G	275	20	40	1.25	0.9	1	4983-DS230-401
							1 + N §	
	L/N and N/G				1.5		3 ¶	4983-DS230-401G
							1 + N	
230/400V AC 480Y/277V AC	L/G or N/G	400	20	40	2		3 + N	4983-DS277-401
							1 + N §	
	L/G and N/G				3 + N		3 ¶	4983-DS277-404
							1 + N	

* The "G" suffix in the catalog number indicates inclusion of additional gas discharge tube.

§ Order two devices for this application.

¶ Order three devices for this application.

Note: N = Neutral

L/N = Line/neutral

N/G = Neutral/ground

MCOV = Max. Continuous Operating Voltage

SVR = Suppressed Voltage Rating

Filter and Surge Protective Device

Product Selection

DIN Rail Dataline Surge Protective Devices, 4983-DD

Bulletin 4983-DD SPDs are designed to protect industrial communication networks. This device uses a combination of 3-electrode gas discharge tubes and fast-clamping diodes. Typical applications include industrial processing equipment, transmission systems, I/O cards, probes, actuators, and displays.



- Compact, modular design
- Cost-effective to protect individual loads

AC Network	MCOV [V DC]	Nominal Discharge Current 8/20 μ s (I_n) [kA]	Max. Discharge Current 8/20 μ s (I_{max}) [kA]	Protection Level (U_p)	Nom. Line Voltage [V]	Line Type	Cat. No.
4...20 mA Loop type	28	5	20	40 V	24V	1 pair with shield	4983-DD24
RS232 type	15			30 V	12V		4983-DD12
High-speed transmission (LAN) RS485 type, RS422 type	8			25 V	6V		4983-DD06

Note: MCOV = Max. Continuous Operating Voltage

Filter and Surge Protective Device 4983-DC

Bulletin 4983-DC is the combination of a filter and a surge protective device. The Bulletin 4983-DC product meets both UL 1449 and UL 1283. This product allows surge and noise protection in one small package.





- Small combination (filter and SPD) package size
- Features Isatrol® technology
- All-mode transient protection with exceptional Line to Neutral value of 25 kA
- LED power indication
- Form C contact for remote status indication
- DIN Rail mountable



Operating Voltage	MCOV	Line Frequency [Hz]	UL 1449 SVR	Ampacity [A]	Cat. No.
240V AC	320 Vrms (115%) @ 240V AC	47...63	Normal Mode — 600V Common Mode — 1000V	3.0	4983-DC240-03
240V AC				5.0	4983-DC240-05
240V AC				10	4983-DC240-10
240V AC				20	4983-DC240-20

Note: MCOV = Max. Continuous Operating Voltage
SVR = Suppressed Voltage Rating

Switched Mode Power Supplies

				
Bulletin	1606-XLP	1606-XL	1606-XLS	1606-XLE
Type	Switched Mode Power Supply Single/Dual-Phase	Switched Mode Power Supply Single/Three-Phase	Switched Mode Power Supply Single/Three-Phase	Switched Mode Power Supply Single-Phase
Output Power	15...100 W	60...960 W	80...960 W	80...240 W
Efficiency	80...90%	87...93%	91.6...95%	90...92%
Output Voltage/Secondary Voltage	5, 10...12, 12, 15, 24, 48V DC	24, 36, 48V DC	12...15, 24, 36...42, 48V DC	24, 48V DC
Rated Output Current (24V DC)	1.3...4.2 A	2.5...40 A	3.4...40 A	5...10 A
Operating Temperature Range	-10...+70°C >60°C with derating	-10...+70°C >60°C with derating	-25...+70°C >60°C with derating	-25...+70°C >60°C with derating
Non-Operating Temperature Range	-40...+85°C			
Certifications	cULs, CE	cULs, CE	cULs, CE	cULs, CE
Standards	EN 50081-1, EN 61000-6-2, EN 61000-3-2 (A14) UL 508 UL 60950, CAN/CSA C22.2 No. 60950	EN 55011 (Class B), EN 55022 (Class B), EN 61000-6-2, EN 61000-3-2 (A14), EN 50081-1 UL 508 UL 60950, CAN/CSA C22.2 No. 60950	EN 55011 (Class B), EN 55022 (Class B), EN 61000-6-2, EN 61000-3-2 (A14), EN 50081-1 UL 508 UL 1950	EN 55011 (Class B), EN 55022 (Class B), EN 61000-6-2, EN 61000-3-2 (A14), EN 50081-1 UL 508 UL 1950
Special Application Products	<ul style="list-style-type: none"> - Compact redundancy module for 10...60V DC - Buffer module for extended ride-through - Redundancy modules 		<ul style="list-style-type: none"> - Redundant power supplies - DC UPS - DC converter 	
Product Selection	See page 2-59	See page 2-59	See page 2-59	See page 2-59

Uninterruptible Power Supplies and Transformers

Bulletin	1609-U	1609-P	1609-S
Type	Uninterruptible Power Supply	Uninterruptible Power Supply	Uninterruptible Power Supply
Output Power	500 VA/325 W	3...10 kVA	350 VA/280 W
Input Voltage/ Primary Voltage	120, 208/230V AC		
Efficiency	96%	86%	96%
Output Voltage/ Secondary Voltage	120, 208/230V AC		
Rated Output Current	4.12 A	11...48 A	2.9 A
Operating Temperature Range	0...50°C	0...40°C	0...40°C
Non-Operating Temperature Range	-20...+60°C		
Insulation	—		
Certifications	UL, CSA, CE		
Standards	EN 50091-1-1, EN 50091-2 (Class 2) UL 1778 CSA C22.2 No. 107.3		
Product Selection	See page 2-62	See page 2-62	See page 2-62

Power Supplies 1606

- Low inrush current
- PFC choke
- Wide range input; auto select input
- Superior overload design (continuous current, no hiccup)
- NEC Class 2 'Limited Power' option
- Selectable operating mode (single/parallel)
- Superior efficiency and temperature rating



Single Phase Power Supplies

Output Power [W]	Output Voltage [V DC]	Output Current [A]	Input Voltage	Special Features	Parallel Operation (inclined Charact.)	Meets EN 61000-3-2 (PFC Harmonics)	Cat. No.
1606-XLP Compact Single Phase							
15	5...5.5	3	100...240V AC, 85...375V DC	NEC Class 2	Yes	—	1606-XLP15A
	12...15	1.3			Yes	—	1606-XLP15B
	24...28	0.6			Yes	—	1606-XLP15E
25	5...5.5	5			Yes	NA	1606-XLP25A
	10...12	3			Yes	NA	1606-XLP30B
30	24...28	1.3			Yes	NA	1606-XLP30E
	36	+/- 12/15V		2.8	Adjustable output voltage NEC Class 2	No	—
50		12...15		4.2	NEC Class 2	Yes	NA
	24...28	2.1		Yes		NA	1606-XLP50E
	24...28	2.1		Yes		NA	1606-XLP50EZ
	48...56	1	Yes	NA		1606-XLP50F	
72	24...28	3	100...120/200...240V AC, 220...375V DC	NEC Class 2	Yes	NA	1606-XLP72E
90	12...15	7.5	—	NEC Class 2	Yes	Yes	1606-XLP90B
95	24...28	3.9	100...200/200...240V AC, 220...375V DC	NEC Class 2	No	Yes	1606-XLP95E
	24...28	4.2		—	Yes *	Yes	1606-XLP100E
	48...56	2.1		—	Yes *	Yes	1606-XLP100F
1606-XL Standard Single Phase							
60	24	2.5	100...120/200...240V AC, 160...375V DC	NEC Class 2	Yes	—	1606-XL60D
180	12...15	15	100...200/200...240V AC, 240...375V DC	—	Yes	—	1606-XL180B
480	24...28	20	200...240V AC, 270...370V DC	Active inrush current limiting	Yes *	—	1606-XL480E
				—	Yes *	—	1606-XL480EP
	36...43	13.3	100...120/200...240V AC	Remote shut down	Yes *	—	1606-XL480EPT
				—	Yes *	—	1606-XL480GP
48...56	10	—	Yes *	—	1606-XL480F		
1606-XLE Essential Single Phase							
80	24...28	3.3	100...120/200...240V AC	—	No	Yes	1606-XLE80E
120	24...28	5	180...264V AC	Auto-select input	No	—	1606-XLE120E
			200...240V AC only	—	No	—	1606-XLE120EE
240	24...28	10	100...120/200...240V AC	Auto-select input	No	—	1606-XLE240E
			180...264V AC	200...240V AC only	No	—	1606-XLE240EE
			—	—	No	—	1606-XLE240EP
	48...52	5	240V AC	Auto-select input	No	—	1606-XLE240F

* Single/parallel operation (inclined characteristic) selectable (jumper)

Bulletin 1606

Power Supplies

Product Selection

Single Phase Power Supplies, continued

Output Power [W]	Output Voltage	Output Current [A]	Input Voltage	Special Features	Parallel Operation (inclined Charact.)	Cat. No.	
1606-XLS Performance Single Phase							
80	24...28	3.3	100...240V AC, 110...300V DC	—	Yes	1606-XLS80E	
120		5		—	Yes	1606-XLS120E	
180	12...15	15		—	Yes	1606-XLS180B	
240	24...28	10		—	Yes	1606-XLS240E	
	48...56	5		—	Yes	1606-XLS240F	
	28...32	8		—	Yes	1606-XLS240K	
480	24...28	20		—	Yes	1606-XLS480E	
	24...28	20		Conformal Coating	Yes	1606-XLS480EC	
	24...28	20		200...240V AC	—	Yes	1606-XLS480EE
	48...55	10		100...240V AC,	—	Yes	1606-XLS480F
	36...42	13.3	110...300V DC	—	Yes	1606-XLS480G	

Two Phase Power Supplies

Output Power [W]	Output Voltage	Output Current [A]	Input Voltage	Special Features	Parallel Operation (inclined Charact.)	Cat. No.
1606-XLP Compact Two Phase						
90	24...28	3.75	380...480V AC	NEC Class 2	No	1606-XLP90E-2
100	24...28	4.2	380...480V AC	—	Yes	1606-XLP100E-2

Three Phase Power Supplies

Output Power [W]	Output Voltage	Output Current [A]	Input Voltage	Special Features	Parallel Operation (inclined Charact.)	Cat. No.
1606-XL Standard Three Phase						
120	24...28	5	400...500V AC, 450...820V DC	—	Yes	1606-XL120E-3
240		10		Overload behavior selectable (FUSE mode/continuous current), 2-phase operation admissible	Yes	1606-XL240E-3
480		20	480V AC, 550...820V DC	—	Yes	1606-XL480E-3
		20	400...500V AC, 450...820V DC	Wide input range; overload behavior selectable (FUSE mode/continuous current)	Yes	1606-XL480E-3W
		48...56	10	400V AC, 450...700V DC	Input voltage 400V AC	Yes
720	24...28	30	400...500V AC, 450...820V DC	—	Yes	1606-XL720E-3
960	24...28	40	400...500V AC	Passive load sharing	Yes	1606-XL960E-3
				Active inrush current limiting; output signals	Active current sharing	1606-XL960E-3S
1606-XLS Performance Three Phase						
480	24...28	20	380...480V AC, 600V DC	—	Yes	1606-XLS480E-3
	48...56	10		—	Yes	1606-XLS480F-3
	36...42	13.3		—	Yes	1606-XLS480G-3

* Single/parallel operation (inclined characteristic) selectable (jumper)

Power Supplies 1606, continued

Output Power [W]	Output Voltage	Output Current [A]	Input Voltage	Special Features	Parallel Operation (inclined Charact.)	Meets EN 61000-3-2 (PFC Harmonics)	Cat. No.
1606-XL Special Modules							
—	23...27.8	20	24...28.8V DC	Brownout buffer module	—	NA	1606-XLBUFFER
480	22.5...27.8	20			Yes	NA	1606-XLSBUFFER24
960	45...54	20			48...56V DC	Yes	NA
40	5.1	8	18...36V DC	DC/DC converter	Yes	NA	1606-XLDC40A
91	24	3.8	100...240V AC, 110...300V DC	DeviceNet approved, electronically limited 3.8 A	No	Yes	1606-XLSDNET4
192	24	8		DeviceNet approved, electronically limited 8 A	Yes	No	1606-XLSDNET8
60	24	2.5	100...120/200...240V AC, 160...375V DC	N+1 Redundant capable, NEC Class 2 ‡	Yes *	NA	1606-XL60DR
120		5	100...120/200...240V AC, 210...375V DC		Yes *	Yes	1606-XL120DR
240		10	100...120/200...240V AC, 240...375V DC		Yes *	No	1606-XL240DR
384	V _{in} 1 - .9V typ	16	10...60V DC	Compact redundancy 10...60 V DC *	—	NA	1606-XLPRED
480		20		Compact redundancy 10-60 V DC	—	—	1606-XLSRED
		20	24...60V DC	—	—	1606-XLERED	
720	V _{in} -.5V typ	30	24V DC	Dual 1+1 redundancy *	—	NA	1606-XLRED20-30
960		40		Single N+1 redundancy §	—	NA	1606-XLRED40

* Single/parallel operation (inclined characteristic) selectable (jumper)

* To be used alongside 20 and 30 A power supplies (or smaller)

‡ Used with a pair of identical power supplies to offer N+1 redundancy

§ To be used alongside 40 A power supplies (or smaller)

DC - UPS's

Output Power [W]	Output Voltage	Output Current [A]	Description	Cat. No.
240	22.5...30	10	UPS / external battery	1606-XLS240-UPS
240	22.5...30	10	UPS / internal battery	1606-XLS240-UPSC

Accessories

Description	Cat. No.
Back-of-panel bracket for XL	1606-XLA
Back-of-panel bracket for XLS or XLE	1606-XLB
7 Ah/12V battery assembly with bracket, for use with DC UPS	1606-XLSBATASSY1
26 Ah/12V battery assembly with bracket, for use with DC UPS	1606-XLSBATASSY2
7 Ah/12V battery	1606-XLSBAT1
26 Ah/12V battery	1606-XLSBAT2

Bulletin 1609

Power Supplies

Product Selection

Uninterruptible Power Supplies

Bulletin 1609-U Series

- Rugged industrial design
- DIN Rail mountable or back-of-panel mountable
- Remote monitoring/configuration
- Line interactive
- Dry Contact I/O
- Elevated temperature performance (up to 50°C)
- Comprehensive network management
- Pure sine wave output



Output Power	Input Voltage	Temperature, operating	Without Network Management Card	With Network Management Card
			Cat. No.	Cat. No.
500VA (325 W)	120V AC	0...40 °C	1609-U500NS	1609-U500NSC
		0...50 °C	1609-U500NH	1609-U500NHC
	208/230V AC	0...40 °C	1609-U500ES	1609-U500ESC
		0...50 °C	1609-U500EH	1609-U500EHC

Bulletin 1609-P Series

- Rugged industrial design
- Tower/Rack compatible
- Extended runtime
- Battery management system
- Hot swappable batteries
- Comprehensive network management
- Remote monitoring/configuration
- Double conversion online
- Pure sine wave output
- Frequency and voltage regulation
- Automatic internal bypass



Output Power	Input Voltage	Cat. No.
3000VA (2100 W)	208V AC	1609-P3000H
3000VA (2100 W)	120V AC	1609-P3000N
3000VA (2100 W)	230V AC	1609-P3000A
5000VA (3500 W)	208/230V AC	1609-P5000E
8000VA (6400 W)	208/230V AC	1609-P8000E
10000VA (8000 W)	208/230V AC	1609-P10000E

Bulletin 1609-S Series

- DIN Rail mountable or back-of-panel mountable
- Line interactive
- Pure sine wave output
- Intelligent battery management system
- Serial communication



Output Power	Input Voltage	Cat. No.
350VA (280 W)	120V AC	1609-S350NS
350VA (280 W)	208/230V AC	1609-S350ES

1609 Accessories







Description	Output Power	For Use With Series	Cat. No.
40 °C replacement battery	500VA (325 W)	U, S	1609-500SBAT
50 °C replacement battery	500VA (325 W)	U	1609-500HBAT
Network management card		U, P	1609-NMC
Remote start cable		U, P, S	1609-RSC
Replacement battery		P	1609-PBAT
External battery pack		P	1609-PXBP
5000VA CCT (120V step down transformer)		P	1609-5000CCT
Rail kit		P	1609-PRK1
DIN Rail kit		S	1609-SDK1
Dry contact I/O communication cable		S	1609-SDC1
Hardwire kit (for 3 and 5 kVA units)		P	1609-HDK1
Service bypass switch (16 kVA)		P	1609-PSB1



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Control and Indicating Units 3-2

Graphic Terminals and Message Displays 3-42

						
Bulletin	800F	800F	800F	800F	800FC	800FD
Description	Push Buttons	Emergency Stop Operators	Selector Switches	Pilot Lights	Pendant Stations	Monolithic Push Buttons
Mounting Hole Size	22.5 mm					
Features	<ul style="list-style-type: none"> Flush, Extended, Guarded, Mushroom & Jumbo Mushroom, and Legended Versions Illuminated, Non-Illuminated 	<ul style="list-style-type: none"> Push-Pull & Twist-to-Release Illuminated, Non-Illuminated & Keyed Operators 	<ul style="list-style-type: none"> Illuminated, Non-Illuminated & Keyed Operators 	<ul style="list-style-type: none"> Standard Diffuser, Optically Enhanced, Integrated LED LED and Incandescent Lamps 	<ul style="list-style-type: none"> 3-, 5-, 7-, and 9-hole enclosures Uses standard 800F operators 1-, 2-, and 3-speed operators Mechanical and/or electrical interlock available 	<ul style="list-style-type: none"> E-Stop 2/3-Positions Selector Switch Momentary Push Buttons Pilot Light
Mounting Method	Back of Panel Mtg. Ring					
Material & Degree of Protection	800FM: Metal, Type 4/13, IP65/66 800FP: Plastic, Type 4/4X/13, IP65/66				Plastic IP66, NEMA Type 4/4X/13	800FD: Plastic, Type IP66
Maximum # of Circuits	Illum: 3-Across - 4 Circuits Non-Illum: 6 Circuits			—	—	—
Approvals	UL, UR, CSA, CCC, CE					UL, CSA, CCC, CE
Operating Temperature	-25...+70 °C					-25...+60 °C
Design Life	10 M Mechanical Cycles	100 K Mechanical Cycles	300 K Mechanical Cycles	Incandescent: 5K-20K Hrs. LED: 100K Hrs.	—	Incandescent: 5K-20K Hrs. LED: 100K Hrs.
Contact Block & Power Module Assembly	Field Assembly					No Assembly
Product Selection	See page 3-7, page 3-9	See page 3-8, page 3-18	See page 3-8, page 3-14	See page 3-7, page 3-11	See page 3-28	See page 3-11

					
Bulletin	855P	855PC	855PS	855PB	855PD
Description	Panel Mount Sounder	Panel Mount Sounder with LED	Panel Mount Strobe	Panel Mount Selectable Steady or Flashing LED	Panel Mount Dual Circuit Alarms
Mounting Hole Size	22.5 mm or 30.5 mm with Hole Adapter Kit				
Environmental Ratings	UL Type 4/4X/14, IP65				UL Type 4/4X/13, IP65
Voltages Available	12...24V AC/DC, 120V AC, 240V AC	12V AC/DC, 24V AC/DC, 120V AC, 240V AC			
Illumination Type	—	LED (Flashing or Continuous)	Strobe	LED (Flashing or Continuous)	LED (Flashing or Continuous)
Lens Colors	—	Green, Red, Amber, Blue, Yellow, Clear			
Operating Temperature	-25...+60 °C				
Sound Output	80dB, 100dB or 105dB	98dB or 103dB	—	—	80dB SE, 100 ME, 105 LE
Sound Type	Continuous, Pulsing, or Wobble (LE)		—	—	—
Minimum sound level	<85dB		—	—	< 85dB
Steady State Current	20 mA...57 mA	35 mA...73 mA	20 mA...75 mA	10 mA...150 mA	—
Diameter	30 mm, 45 mm, & 65 mm	45 mm, & 65 mm	30 mm, 45 mm, & 65 mm		
Material	Polycarbonate				
Certifications	cULus listed, CE Marked				
Product Selection	See page 3-30	See page 3-30	See page 3-31	See page 3-30	See page 3-31

Bulletin	855T	855E	855D
Description	Control Tower™ Stack Lights 70 mm	Control Tower™ Stack Lights 50 mm	Control Tower™ Stack Lights 30 mm
Environmental Ratings	<ul style="list-style-type: none"> UL Type 4/4X/13 on all bases, lights piezo style sound and caps (sound and light with sound combo modules are UL Type 12, IP54) Indoor and outdoor use IP65 	<ul style="list-style-type: none"> UL Type 4/4X/13 on all bases, lights and caps sound modules Indoor and outdoor use IP65 	<ul style="list-style-type: none"> UL Type 4/4X/13 Indoor and outdoor use IP65
Ease of Assembly, Base Wiring and Lamp Changes	No-tools assembly, "Twist-off" lenses for easy lamp changes, top-mounted terminal block for easy base wiring	No-tools assembly, "Twist-off" lenses for easy lamp changes, top-mounted terminal block for easy base wiring	No assembly required - all towers are assembled, wired, and tested at the factory
Illumination Types	Incandescent, socket-mount LED, or strobe		LED
Lens Colors	Green, Red, Amber, Blue, Yellow, Clear		
Pole-Mount Base Options	10, 25, 40, 60, and 80 cm – aluminium or stainless steel bases	10, 25, 40, 60, and 80 cm bases	Surface, 10 cm metric tube, and 25 cm metric tube
Other Base Mounting Options	Surface-mount bases (surface-mount bases also feature 1/2NPT, PG16 threading options) Vertical-mount bases	Surface-mount bases (surface-mount bases also feature 1/2NPT, PG16 and M20 threading options) Vertical-mount bases	Vertical bracket and conduit adapter
Base Colors	Black or grey base housing		
Sound Options	Transducer style or Piezo style sound modules available in single or dual tone (sound modules are UL Type 12, IP54), Piezo Styles and modules also available in 4/4X	Piezo style sound modules in single and dual tone	
Network Connectivity	Standard or DeviceNet connectivity	Standard connectivity	Standard connectivity
Voltages Available	All modules available in: 12V/24V AC/DC, 120V AC, 240V AC as standard offerings	All modules available in: 12V/24V AC/DC, 120V AC, 240V AC as standard offerings	Bases available in: 24V AC/DC, 240V AC as standard offerings
Junction Box	Surface, Vertical, and Magnetic Mount		
Certifications	cULus Listed and CE on all components		cULus Listed, CE marked
Operating Temperature	-25...+70°C		-25...+50°C
Material	Polycarbonate - Bases, Cap, Lens Cover, Sound Module Housing, Lens, & Lamp Socket	Polycarbonate (no sound module) - Bases, Cap, Lens Cover, Lens, & Lamp Socket	Polycarbonate - Bases, Cap, Lens Cover, Sound Module Housing, Lens, & Lamp Socket
Product Selection	See page 3-32	See Publication A116	See Publication 855D-PP001...



			
Bulletin	855F	855H	855B
Description	Pre-assembled and Pre-wired Tower Lights	General Purpose Horns and High Performance Horns (with or without Beacons)	Mini Square Beacons
Environmental Ratings	<ul style="list-style-type: none"> UL Type 4/4X/13 IP65 	<ul style="list-style-type: none"> IP56/Type 13 & 13R (Horn w/Beacon: IP56/Type 13) 	<ul style="list-style-type: none"> IP66/Type 13
Voltages Available	Bases available in: 24V AC/DC, 240V AC as standard offerings	10-30V DC, 24V AC 50/60 Hz, 110V AC 50/60 Hz, 230V AC 50/60 Hz	12V AC/DC, 24V AC/DC, 110V AC 50/60Hz, 230V AC 50/60 Hz
Voltages Available (Horn w/Beacon)	—	12V DC, 24V DC, 24V AC 50/60 Hz, 110V AC 50/60 Hz, 230V AC 50/60 Hz	—
Illumination Type	LED	Strobe 5 Joule	
Flash Rate	—	—	1 Hz
Lens Colors	Green, Red, Amber, Blue, Yellow, Clear		
Pole-Mount Base Options	Surface, 10 cm metric tube, and 25 cm metric tube Vertical-mount bases	—	—
Operating Temperature	-25 ... +60 °C	-25 ... +55 °C	
Steady State Current	—	—	12V AC/DC (400/500mA), 24V AC/DC (365/250 mA), 110V AC (100mA), 230V AC (50 mA)
Base Colors	Black or grey housing	—	—
Sound Options	Piezo style sound modules in single and dual tone	Output Level: 100 dB – 126 dB	—
Range	—	10 Tones Range, A Horn 32 Tones Range, B & C Horn 45 Tones Range, D & E	—
Network Connectivity	Standard connectivity	—	—
Volume Adjustable	—	16 dB from max. Range A, B, C 6 dB from max. Range D, E	—
Circuits Available	—	Range A – 2 on DC units, 1 on AC units Range B, C, D, E - 3 on all units	—
Material	Polycarbonate - Bases, Cap, Lens Cover, Sound Module Housing, Lens, & Lamp Socket	Polycarbonate - Horn Cover, Base, Beacon Housing and Lens	
Certifications	cULus Listed, CE marked	cULus, CE	
Product Selection	See page 3-36	See page 3-37	See page 3-38




Bulletin	855BS (LED)	855BS	855BM	855BL	855W
Description	Round Beacons				Wall Mount Signal Lights
	90 mm	90 mm	120 mm	160 mm	
Voltages Available	12V AC/DC, 24V AC/DC, 120V AC 50/60Hz, 240V AC 50/60Hz				Base plate available in: 24V AC/DC, 120V AC, 240V AC as standard offerings
Illumination Type	75 W or LED	75 W or 200 W Halogen	15 J or 35 W Halogen	31 J or 50 W Halogen	LED
Flash Rate	1Hz Strobe				—
Lens Colors Available	Red, Green, Amber, Blue, Yellow, Clear				
Environmental Rating	UL Type 4/4X/13, IP65				UL Type 4/4X/13, IP65 Indoor and outdoor use
Operating Temp Range	-25 to...+60 °C	-25 to...+60 °C except Rotating and steady Halogen is -25...+50 °C	-25 to...+60 °C except Rotating is -25...+50 °C	-25 to...+60 °C except Rotating and steady Halogen is -25...+50 °C	-25...+50 °C
Steady State Current	38...300 mA	0.1...1.7 A	0.15...3.2 A	0.21...4.2 A	—
Housing Colors	Black				Grey or chrome cover housing
Sound Options	—	—	—	—	Piezo-style sound module (continuous or pulsing)
Volume Adjustable	—	Strobe, Rotating, steady or Flashing Halogen			—
Connectivity	—	—	—	—	Standard connectivity
Material	Polycarbonate - Horn Cover, Base, Beacon Housing and Lens				Polycarbonate: base & lenses ABS: cover
Certifications	cULus, CE				cULus Listed, CE
Product Selection	See page 3-39		See page 3-39	See page 3-39	See page 3-40

Complete Units

Non-Illuminated Push Buttons, Momentary (Screw Terminal Connections)

	Description	Type of Contact		Color	Construction	Cat. No.
		N.O.	N.C.			
	Flush	1	—	Green	Plastic operator/plastic latch	800FP-F3PX10
				Black		800FP-F2PX10
				Green	Metal operator/metal latch	800FM-F3MX10
				Black		800FM-F2MX10
	Extended	—	1	Red	Plastic operator/plastic latch	800FP-E4PX01
					Metal operator/metal latch	800FM-E4MX01

Pilot Lights with Integrated LED Modules (Screw Terminal Connections)


	Voltage	Type	Construction	Cat. No.
	24V AC/DC	Green	Plastic Pilot Light / Plastic Latch	800FP-P3PN3G
		Red		800FP-P4PN3R
		Yellow		800FP-P5PN3Y
		Blue		800FP-P6PN3B
		White		800FP-P7PN3W
	240V AC	Green		800FP-P3PN7G
		Red		800FP-P4PN7R
		Yellow		800FP-P5PN7Y
		Blue		800FP-P6PN7B
		White		800FP-P7PN7W
	24V AC/DC	Green	Metal Pilot Light / Metal Latch	800FM-P3MN3G
		Red		800FM-P4MN3R
		Yellow		800FM-P5MN3Y
		Blue		800FM-P6MN3B
		White		800FM-P7MN3W
	240V AC	Green		800FM-P3MN7G
		Red		800FM-P4MN7R
		Yellow		800FM-P5MN7Y
		Blue		800FM-P6MN7B
		White		800FM-P7MN7W

Control and Indicating Units


Product Selection

Complete Units *, Continued


Non-Illuminated Selector Switches (Screw Terminal Connections)

	Description	Type of Contact		Type	Construction	Cat. No.
		N.O.	N.C.			
	Standard lever, black	1	—	2 position, maintained	Plastic operator/plastic latch	800FP-SM22PX10
		1	1	2 position, maintained		800FP-SM22PX11
		1	—	2 position, maintained	Metal operator/metal latch	800FM-SM22MX10
		1	1	2 position, maintained		800FM-SM22MX11
		2	—	3 position, maintained	Plastic operator/plastic latch	800FP-SM32PX20
		2	—	3 position, maintained	Metal operator/metal latch	800FM-SM32MX20

Non-Illuminated Momentary Multi-Function Operators (Screw Terminal Connections)

	Description	Type of Contact		Color	Construction	Cat. No.
		N.O.	N.C.			
	Multi-function (Flush/extended)	1	1	Green / Red	Plastic operator/plastic latch	800FP-U2E4F3PX11
				Green I / Red 0		800FP-U2EFFEPX11

Emergency Stop Operators Non-Illuminated, Ø40 mm, Red (Screw Terminal Connections)

	Description	Type of Contact		Construction	Cat. No.
		N.O.	N.C.		
	Twist-to-Release	—	1 ✱	Plastic operator/plastic latch	800FP-MT44PX01S
		—	1		800FP-MT44PX01
		1	1 ✱		800FP-MT44PX11S
		1	1		800FP-MT44PX11

* For complete units not listed and configuration assistance, see RAISE product selection software.

✱ With Self-Monitoring contact block.

Momentary Push Button Operators, Non-Illuminated — Flush, Extended



Flush Operator



Extended Operator

Color	Flush		Extended	
	Plastic	Metal	Plastic	Metal
	Cat. No.	Cat. No.	Cat. No.	Cat. No.
Black	800FP-F2	800FM-F2	800FP-E2	800FM-E2
Green	800FP-F3	800FM-F3	800FP-E3	800FM-E3
Red	800FP-F4	800FM-F4	800FP-E4	800FM-E4

Momentary Push Button Operators, Non-Illuminated — With Two-Color Molded Legend Caps *



Flush Operator

Button Color	Text Color	Legend	Flush	
			Plastic	Metal
			Cat. No.	Cat. No.
Green	White	START	800FP-F301	800FM-F301
		I	800FP-F306	800FM-F306
Black	White	→	800FP-F208	800FM-F208

Button Color	Text Color	Legend	Extended	
			Plastic	Metal
			Cat. No.	Cat. No.
Red	White	STOP	800FP-E402	800FM-E402
		O	800FP-E405	800FM-E405
Black	White	→	800FP-E208	800FM-E208

Reset Operators ✱



Reset Operator

Button Color	Legend Text	Flush — Round	
		Plastic	Metal
		Cat. No.	Cat. No.
Blue	R	800FP-R611	800FM-R611

* For custom laser-engraved legend cap, order "no cap" option plus custom laser-engraved cap, see publication 800F-SG001...

✱ For reset rods please refer to A116 catalogue

Control and Indicating Units

Product Selection

Momentary Push Button Operators, Illuminated — Flush, Extended *



Flush Operator



Extended Operator

Color	Flush		Extended	
	Plastic	Metal	Plastic	Metal
	Cat. No.	Cat. No.	Cat. No.	Cat. No.
Green	800FP-LF3	800FM-LF3	800FP-LE3	800FM-LE3
Red	800FP-LF4	800FM-LF4	800FP-LE4	800FM-LE4
Yellow	800FP-LF5	800FM-LF5	800FP-LE5	800FM-LE5
Blue	800FP-LF6	800FM-LF6	—	—
Clear	800FP-LF7	800FM-LF7	800FP-LE7	800FM-LE7

Alternate Action Operators, Non-Illuminated



Flush Operator

Color	Plastic	Metal
	Cat. No.	Cat. No.
Green	800FP-FA3	800FM-FA3
Red	800FP-FA4	800FM-FA4

Alternate Action Operators, Illuminated



Flush Operator

Color	Plastic	Metal
	Cat. No.	Cat. No.
Green	800FP-LFA3	800FM-LFA3
Red	800FP-LFA4	800FM-LFA4

* For custom laser-engraved operator, order operator with applicable lens cap color plus custom laser-engraved diffuser, see publication 800F-SG001...

Pilot Lights *



Plastic Pilot Light



Metal Pilot Light

Color	Plastic	Metal
	Cat. No.	Cat. No.
Green	800FP-P3	800FM-P3
Red	800FP-P4	800FM-P4
Yellow	800FP-P5	800FM-P5
Clear	800FP-P7	800FM-P7
Amber	800FP-P0	800FM-P0

* For custom laser-engraved pilot light, order pilot light with applicable lens cap color plus custom laser-engraved diffuser, see publication 800F-SG001...

800FD Monolithic Pilot Lights — LED



Lens & LED Color	Voltage	
	24V AC/DC	240V AC
	Cat. No.	Cat. No.
Green	800FD-P3N3	800FD-P3N7
Red	800FD-P4N3	800FD-P4N7
Yellow	800FD-P5N3	800FD-P5N7

800FD Monolithic Pilot Lights — Incandescent



Lens Color	Voltage	
	24V AC/DC	
	Cat. No.	
Green	800FD-P3D3	
Red	800FD-P4D3	
Yellow	800FD-P5D3	

Control and Indicating Units

Product Selection

800FD Monolithic 2-Position Push-Pull/Twist-to-Release Mushroom Operators, Non-Illuminated



Color	Contacts	Cat. No.
Red	1 N.C.	800FD-MT44X01
	2 N.C.	800FD-MT44X02
	1 N.C., 1 N.O.	800FD-MT44X11

800FD Momentary Push Button Operators, Non-Illuminated



Operator Type	Cap Color	Text	Contact Configuration		
			1 N.O.	1 N.C.	1 N.O. & 1 N.C.
			Cat. No.	Cat. No.	Cat. No.
Flush	Black	—	800FD-F2X10	800FD-F2X01	800FD-F2X11
	Green	—	800FD-F3X10	800FD-F3X01	800FD-F3X11
	Red	—	800FD-F4X10	800FD-F4X01	800FD-F4X11
	Green	I			800FD-F306X11
	Red	O			800FD-F405X11
	Green	START			800FD-F301X11
	Red	STOP			800FD-F402X11
	Blue	R			800FD-F611X11

800FD Selector Switch Operators, Non-Illuminated



Operator Type	Contact Configuration	2-Position	3-Position
		Cat. No.	Cat. No.
Maintained	1 N.O.	800FD-SM22X10	—
	1 N.C.	800FD-SM22X01	—
	2 N.O.	800FD-SM22X20	800FD-SM32X20
	2 N.C.	800FD-SM22X02	800FD-SM32X02
	1 N.O. & 1 N.C.	800FD-SM22X11	800FD-SM32X11
Spring Return From Both	2 N.O.	—	800FD-SB32X20
	2 N.C.	—	800FD-SB32X02
	1 N.O. & 1 N.C.	—	800FD-SB32X11

800FD Plastic Enclosures for use with Monolithic Components

- 1-hole enclosures designed for use with 800FD Monolithic Operators (or with 800F Latch Mount Contact Blocks / LED's)
- Only 71 x 71 mm width
- Available in gray or yellow colour
- IP66 / NEMA Type 4X, 13
- PG conduit only



800FD-1PY

Description	Enclosure Type	Color	Cat. No.
Plastic Enclosure	PG Knockouts	Gray	800FD-1P
		Yellow	800FD-1PY

Non-Illuminated Selector Switches, 2-Positions



Standard Knob

Target Table and Operator Position *			
Switching Angle	Contact Type		
	N.O.	O	X
	N.C.	X	O

Note: X = Closed/O = Open

Color	Operator Type		Standard Knob	
			Plastic	Metal
	▼		Cat. No.	Cat. No.
Black with White Insert	▼		800FP-SM22	800FM-SM22

Illuminated Selector Switch Operators, 2-Positions *



Standard Knob

Target Table and Operator Position *			
Switching Angle	Contact Type		
	N.O.	O	X
	N.C.	X	O

Note: X = Closed/O = Open

Color	Operator Type		Standard Knob	
			Plastic	Metal
	▼		Cat. No.	Cat. No.
Green	▼		800FP-LSM23	800FM-LSM23
Red	▼		800FP-LSM24	800FM-LSM24
Amber	▼		800FP-LSM20	800FM-LSM20

* Target table for spring return from left is reversed from what is shown in the table.

* LED module required for illumination.

Non-Illuminated Selector Switches, 3-Positions



Standard Knob



Knob Lever

Target Table and Operator Position
 (Switching angle 60°), see publication
 800F-SG001...

Color	Operator Type			Standard Knob	
				Plastic	Metal
				Cat. No.	Cat. No.
Black with White Insert				800FP-SM32	800FM-SM32
				800FP-SB32	800FM-SB32

Color	Operator Type			Knob Lever	
				Plastic	Metal
				Cat. No.	Cat. No.
Black with White Insert				800FP-HM32	800FM-HM32
				800FP-HB32	800FM-HB32

Non-Illuminated Selector Switches, 4 Positions



Standard Knob








Color	Standard Knob — Maintained	
	Plastic	Metal
	Cat. No.	Cat. No.
Black with White Insert	800FP-SM42	800FM-SM42








Illuminated Selector Switch Operators, 3-Positions *








Target Table and Operator Position
(Switching angle 60°), see publication 800F-SG001...



Standard Knob

Operator Type			Green	
			Plastic	Metal
			Cat. No.	Cat. No.
			800FP-LSM33	800FM-LSM33
			800FP-LSR33	800FM-LSR33
			800FP-LSL33	800FM-LSL33
			800FP-LSB33	800FM-LSB33

Operator Type			Red	
			Plastic	Metal
			Cat. No.	Cat. No.
			800FP-LSM34	800FM-LSM34
			800FP-LSR34	800FM-LSR34
			800FP-LSL34	800FM-LSL34
			800FP-LSB34	800FM-LSB34

Operator Type			Yellow	
			Plastic	Metal
			Cat. No.	Cat. No.
			800FP-LSM35	800FM-LSM35
			800FP-LSR35	800FM-LSR35
			800FP-LSL35	800FM-LSL35
			800FP-LSB35	800FM-LSB35

* LED module required for illumination.

Key Operated Selector Switches, 2-Positions, Non-Illuminated *❖



Key Selector Switch



Key Selector Switch

Target Table and Operator Position			
Switching Angle	Contact Type		
	N.O.	O	X
	N.C.	X	O

Note: X = Closed/O = Open

Key Removal Position	Operator Type		Key Selector Switch Operators	
			Plastic	Metal
			Cat. No.	Cat. No.
Left			800FP-KM21	800FM-KM21
Both			800FP-KM23	800FM-KM23

Note: For Ronis replacement keys, see publication 800F-SG001...

Key Operated Selector Switches, 3-Positions, Non-Illuminated *❖



Key Selector Switch



Key Selector Switch

Target Table and Operator Position
(Switching angle 60°), see publication
800F-SG001...

Key Removal Position	Operator Position			Key Selector Switch Operators	
				Plastic	Metal
				Cat. No.	Cat. No.
Left				800FP-KM31	800FM-KM31
All				800FP-KM33	800FM-KM33
Center				800FP-KM34	800FM-KM34
Center				800FP-KB34	800FM-KB34

Note: For Ronis replacement keys, see publication 800F-SG001...

* Keyed operators are IP66, Type 4/13.

❖ Not intended for high security applications. Interoperability is possible with certain key/cylinder lock combinations. Please consult your local sales office for interoperability information.

Emergency Stop Operators *

Non-Illuminated

Twist-to-Release, Push-Pull



Emergency Stop 60 mm,
Non-Illuminated, Twist-to-Release



Emergency Stop 40 mm,
Non-Illuminated, Twist-to-Release

Color	Size [mm]	Twist-to-Release (Trigger Action)	
		Plastic	Metal
		Cat. No.	Cat. No.
Red	30	800FP-MT34	800FM-MT34
	40	800FP-MT44	800FM-MT44
	60	800FP-MT64	800FM-MT64

Color	Size [mm]	Push-Pull (Trigger Action)	
		Plastic	Metal
		Cat. No.	Cat. No.
Red	40	800FP-MP44	800FM-MP44

Key Release



Emergency Stop 40 mm,
Non-Illuminated, Key Release

Color	Size [mm]	Ronis Key Lock (Trigger Action)	
		Plastic	Metal
		Cat. No.	Cat. No.
Red	40	800FP-MK44	800FM-MK44

* All emergency stop operators are EN 418 compliant.

Emergency Stop Operators, continued *

Illuminated

Twist-to-Release, Push-Pull ✳



Emergency Stop 40 mm,
Illuminated, Twist-to-Release

Color	Size [mm]	Twist-to-Release (Trigger Action)	
		Plastic	Metal
		Cat. No.	Cat. No.
Red	40	800FP-LMT44	800FM-LMT44
Red	60	800FP-LMT64	800FM-LMT64

Color	Size [mm]	Push-Pull (Trigger Action)	
		Plastic	Metal
		Cat. No.	Cat. No.
Red	30	800FP-LMP34	800FM-LMP34
	40	800FP-LMP44	800FM-LMP44
	60	800FP-LMP64	800FM-LMP64

* All emergency stop operators are EN 418 compliant.

✳ LED module required for illumination.

90 mm Half Dome Mushroom Operators, Push-Pull, Non-Illuminated



90 mm Operators
Push-Pull (Trigger Action)

Color	Size [mm]	Push-Pull (Trigger Action)	
		Plastic	
		Cat. No.	
Black	90		800FP-MP92
Red		800FP-MP94	

90 mm Half Dome Mushroom Operators, Push-Pull, Illuminated

Color	Size [mm]	Push-Pull (Trigger Action)	
		Plastic	
		Cat. No.	
Red	90	800FP-LMP94	

Momentary Push Button Operators, Non-Illuminated — Mushroom *



60 mm Jumbo Mushroom



40 mm Mushroom

Color	Size [mm]	Plastic	Metal
		Cat. No.	Cat. No.
Black	40	800FP-MM42	800FM-MM42
Green		800FP-MM43	800FM-MM43
Red		800FP-MM44	800FM-MM44
Yellow		800FP-MM45	800FM-MM45
Red	60	800FP-MM64	800FM-MM64
Yellow		800FP-MM65	800FM-MM65
Red	90	800FP-MM94	—
Yellow		800FP-MM95	—

Momentary Push Button Operators, Illuminated — Mushroom *



40 mm Mushroom

Color	40 mm Mushroom	
	Plastic	Metal
	Cat. No.	Cat. No.
Green	800FP-LMM43	800FM-LMM43
Red	800FP-LMM44	800FM-LMM44
Yellow	800FP-LMM45	800FM-LMM45

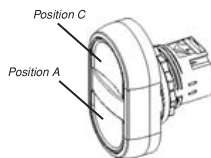
* Momentary mushroom operators are IP65 rated.

2-Function Momentary Multi-Operator, Non-Illuminated *



2-Function Momentary
Multi-Operator, Non-Illuminated

Position 1 of the latch (left position when viewed from the back) corresponds to position C of the operator. Position 2 of the latch (right position when viewed from the back) corresponds to position A of the operator.



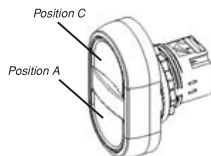
Position A			Position C			2-Function Multi-Operator
Color	Type	Text	Color	Type	Text	Cat. No.
Red	Extended	Blank	Green	Flush	Blank	800FP-U2E4F3
		O			I	800FP-U2EFFE
		STOP			START	800FP-U2EBFA

2-Function Momentary Multi-Operator, Illuminated **



2-Function Momentary
Multi-Operator, Illuminated

Position 1 of the latch (left position when viewed from the back) corresponds to position C of the operator. Position 2 of the latch (right position when viewed from the back) corresponds to position A of the operator. Position 3 of the latch (center position) is reserved for the power module.



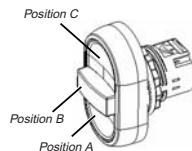
Position A			Position B	Position C			2-Function Multi-Operator
Color	Type	Text	Type	Color	Type	Text	Cat. No.
Red	Extended	Blank	White Pilot Lights	Green	Flush	Blank	800FP-LU2E4F3
		O				I	800FP-LU2EFFE
		STOP				START	800FP-LU2EBFA

3-Function Momentary Multi-Operator, Non-Illuminated *



3-Function Momentary
Multi-Operator, Non-Illuminated

Position 1 of the latch (left position when viewed from the back) corresponds to position C of the operator. Position 2 of the latch (right position when viewed from the back) corresponds to position A of the operator. Position 3 of the latch (center position) corresponds to position B of the operator.



Position A			Position B			Position C			3-Function Multi-Operator
Color	Type	Text	Color	Type	Text	Color	Type	Text	Cat. No.
Green	Flush	Blank	Red	Extended	Blank	Green	Flush	Blank	800FP-U3F3F34

* No Type 13 rating.

Single Turn Potentiometer Assembly §* >



Potentiometer Assembly





Single Turn Potentiometer Assembly	
Resistive Element	Cat. No.
None (Operator Only)§	800FP-POT
150	800FP-POT1
500	800FP-POT2
1000	800FP-POT3
2500	800FP-POT4
5000	800FP-POT5
10 000	800FP-POT6

§ The 800FP-POT is a complete operator assembly supplied without the resistive element, used with potentiometers having a shaft diameter of 6.0 mm (0.23 in.) and a shaft length of 50.0 mm (1.97 in.), or a shaft diameter of 6.4 mm (0.25 in.) and a shaft length of 22.5 mm (0.88 in.). This operator is used with Type "J" potentiometers only.


* Rated 300V AC/DC, 2 W max.

> A latch is not needed.

Back-of-Panel Components

	Description	PQ	Cat. No.		
	Metal Mounting Latch These are zinc-plated, metal die cast mounting latches. Note: Sold only in multiples of 10. Order (quantity of) 10 to receive one package of 10 pieces.	10	800F-ALM		
	Note: Sold only in multiples of 100. Order (quantity of) 100 to receive one package of 100 pieces.	100	800F-ALM-BP		
	Plastic Mounting Latch Note: Sold only in multiples of 10. Order (quantity of) 10 to receive one package of 10 pieces.	10	800F-ALP		
	Note: Sold only in multiples of 100. Order (quantity of) 100 to receive one package of 100 pieces.	100	800F-ALP-BP		
	Contact Block Note: Sold only in multiples of 10. Order (quantity of) 10 to receive one package of 10 pieces. Latch not included.	N.O.	800F-X10		
		N.C.	800F-X01		
		N.O.E.M.	800F-X10E		
		N.C.L.B.	800F-X01L		
		Self-Monitoring	800F-X01S		
		N.O. low voltage — <i>QuadCONNECT™</i>	800F-X10V		
		N.C. low voltage — <i>QuadCONNECT™</i>	800F-X01V		
		Dual circuit of 2 N.O.	800F-X20D		
		Dual circuit of 2 N.C.	800F-X02D		
		Dual circuit of 1 N.O.-1 N.C.	800F-X11D		
		N.O. spring-clamp	800F-Q10		
		N.C. spring-clamp	800F-Q01		
		Note: Sold only in multiples of 100. Order (quantity of) 100 to receive one package of 100 pieces. Latch not included.	N.O.	100	800F-X10-BP
			N.C.	100	800F-X01-BP
	Clear silicone Protective Boot used on illuminated and non-illuminated, flush and extended operators.	Flush push button	10	800F-AB7	
		Extended push button	10	800F-ABE7	
		3-position multi-function	10	800F-AUB1	
		2-position multi-function	10	800F-AUB2	



PQ = Package Quantity

	Description		Cat. No.
	Incandescent Module For use with pilot lights, push buttons, and momentary mushroom operators. Note: Sold in multiples of 10. Order (quantity of) 10 to receive one package of 10 pieces. Latch not included.	No bulb	800F-D0C
		24V AC/DC	800F-D3C
		120V AC/DC	800F-D5C
	Integrated LED Module For use with all illuminated devices. For best results, LED should match lens color. For amber operators, use yellow LED. Note: Sold in multiples of 10. Order (quantity of) 10 to receive one package of 10 pieces. Latch not included.	24V AC/DC	* 800F-N3x
		120V AC	* 800F-N5x
		240V AC	* 800F-N7x
		24V AC/DC spring-clamp	* 800F-Q3x
		120V AC spring-clamp	* 800F-Q5x
		240V AC spring-clamp	* 800F-Q7x
	Base Mounted Contact Block Base mounted contact blocks can be used in plastic or metal enclosures. Note: Sold only in multiples of 10. Order (quantity of) 10 to receive one package of 10 pieces. Latch not included.	N.O.	800F-BX10
		N.C.	800F-BX01
		N.O.E.M.	800F-BX10E
		N.C.L.B.	800F-BX01L
		N.O. low voltage — QuadCONNECT™	800F-BX10V
		N.C. low voltage — QuadCONNECT™	800F-BX01V
		N.O. spring-clamp	800F-BQ10
		N.C. spring-clamp	800F-BQ01
	Base Mounted Integrated LED Module Base mounted modules can be used in plastic or metal enclosures. For best illumination results, LED should match lens color. Note: Sold in multiples of 10. Order (quantity of) 10 to receive one package of 10 pieces. Latch not included.	24V AC/DC	* 800F-BN3x
		120V AC	* 800F-BN5x
		240V AC	* 800F-BN7x
		24V AC/DC spring-clamp	* 800F-BQ3x
		120V AC spring-clamp	* 800F-BQ5x
		240V AC spring-clamp	* 800F-BQ7x
	Diode Module For lamp checking circuits. Latch not included.	up to 250V AC	800F-XD7
		Null Block For wire terminations only.	up to 600V AC

* To complete the cat. no., replace the **x** with one of the following letters for the desired color:

Y = Yellow, **R** = Red, **G** = Green, **B** = Blue, **W** = White.

Replacement Lamps

Lamp	Type	Typical Current [mA]	Voltage	ANSI No.	PQ	Cat. No.
	Full Voltage Incandescent	150 mA	6V AC/DC	755	10	800F-N65
		80 mA	12V AC/DC	756	10	800F-N141
		70 mA	24V AC/DC	757	10	800F-N157
		50 mA	48V AC/DC	1835	10	800F-N48
		22 mA	130V AC/DC	949	10	800F-N130
	Neon	2 mA	240V AC	—	10	800F-N240

PQ = Package Quantity

Plastic and Metal Enclosures



Plastic Enclosure



Metal Enclosure



Pendant Station

Plastic Enclosures (Latch or Base Mounting)

- Feed-through design
- Accepts two-piece snap-in legends
- One-hole enclosure accepts 60 mm emergency stop legends
- UL Listed, CSA Certified

Metal Enclosures (Latch or Base Mounting)

- Feed-through design
- Accepts two-piece snap-in legends

Pendant Stations

- Blank legend cap marking
- Connector not included. For ordering information, see accessories in publication 800F-SG001...

Type	Enclosures			
	Plastic (IP66, 4/4X/13)		Metal — Die Cast (IP66, 4/13)	
	PG Knockouts	Metric Knockouts	PG Knockouts	Metric Knockouts
	Cat. No.	Cat. No.	Cat. No.	Cat. No.
1-hole	800F-1PP	800F-1PM	800F-1MP	800F-1MM
2-hole	800F-2PP	800F-2PM	800F-2MP	800F-2MM
3-hole	800F-3PP	800F-3PM	800F-3MP	800F-3MM
4-hole	800F-4PP	800F-4PM	—	—
5-hole	—	—	800F-5MP	800F-5MM
6-hole	800F-6PP	800F-6PM	—	—
1-hole (Yellow)	800F-1YP	800F-1YM	—	—

Type	Pendants
	Yellow Plastic (IP66, 4/4X/13)
	Cat. No.
1 hole in face	800F-P15
2 holes in face	800F-P25
1 hole in bottom	800F-P35
1 hole in face / 1 hole in bottom	800F-P45

Assembled Stations



1-Hole Plastic Enclosure
with E-Stop Operator

1-Hole Plastic Yellow Enclosure, Metric Knockouts		
Contact Configuration	Twist-To Release Operator	Key Release Operator
	Cat. No.	Cat. No.
1 N.C.	800F-1YM1	800F-1YM4
1 N.O. / 1 N.C.	800F-1YM2	800F-1YM5
2 N.C.	800F-1YM3	800F-1YM6

1-Hole Metal Enclosure		
Contact Configuration	Twist-To Release Operator	Key Release Operator
	Cat. No.	Cat. No.
1 N.C.	800F-1MM1	800F-1MM4
1 N.O. / 1 N.C.	800F-1MM2	800F-1MM5
2 N.C.	800F-1MM3	800F-1MM6

NEW

1-Hole Plastic Yellow Enclosure, Metric Knockouts		
Contact Configuration	Operator Type	Cat. No.
1 N.C.	Push Pull Operator 90 mm	800F-1YM1HD
1 N.O. / 1 N.C.		800F-1YM2HD
2 N.C.		800F-1YM3HD

1-Hole Plastic Grey Enclosure with Options and 1 NO Contact	
Options	Cat. No.
Black Push Button - No Text	800F-1PP1
"0-1" 2-Position Selector Switch	800F-1PP2

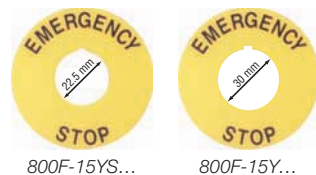
2-Hole Plastic Grey Enclosure with Options and 1 N.O./1 N.C. Contact	
Options	Cat. No.
START and STOP Push Buttons	800F-2PP1

Legend Plates *

Emergency Stop Legend Plates

800F – **15** **YS** **E112**

a *b* *c*



a

Size	
Code	Description
15	60 mm round
16	90 mm round

b

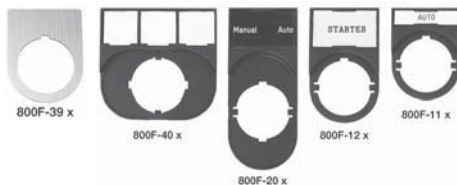
Color	
Code	Description
Y	Yellow (30 mm) ✱
YS	Yellow (22.5 mm) ‡

- ✱ Sold only multiples of 10. Order (quantity of) 10 to receive one package of 10 pieces.
- ✱ Must be used with base mount contact blocks and trim washer.
- ‡ Must be used with latch mounted contact blocks only.

c

Text	
Code	Description
E112	EMERGENCY STOP
F112	ARRÊT D'URGENCE
G112	NOT AUS
T112	ARRESTO EMERGENZA
S112	PARADA DE EMERGENCIA
B112	EMERGENCY STOP, ARRÊT D'URGENCE, PARADA DE EMERGENCIA
M112	NOT AUS, ARRESTO EMERGENZA, ARRÊT D'URGENCE
D112	NOODSTOPP
N112	NÖDSTOPP, EMERGENCY STOP
W112	NÖDSTOPP, EMERGENCY STOP
A112	NØSTOPP
L112	NEYÐARSTOPP, NEYÐARSTOPP
H112	NÖD-STOPP, HÄTÄ-SEIS, NÖD-STOP

Legend Plates and Frames



Type	Description	Cat. No. (Blank)
30 x 40 mm 2-piece snap-in plate and frame	Black with white text	800F-11BE100
30 x 50 mm 2-piece snap-in plate and frame	Black with white text	800F-12BE100
30 x 40 mm snap-in plate only	Black with white text	800F-17BE100
30 x 50 mm snap-in plate only	Black with white text	800F-18BE100

Legend Plate Frame — 2-Piece Snap-In §

Type	Cat. No.	Type	Cat. No.
30 x 40 mm	800F-110	30 x 60 mm	800F-200
30 x 50 mm	800F-120	Special multifunction	800F-400

§ Blank legends and frames sold only in multiples of 10. Order (quantity of) 10 to receive one package of 10 pieces. Legends with standard text/symbols or custom text are packaged in quantities of 1.

See Publication 800F-SG001... for complete product information.

Control and Indicating Units

Product Selection

Bulletin 800FC — Configured Pendant Stations



Cat. No. 800FC-3Z



Cat. No. 800FC-7Z

Enclosure Type	Description	Cat. No.
3-hole	Pendants — Yellow Plastic IP66 *	⊛ 800FC-3Z
5-hole		‡ 800FC-5Z
7-hole		‡ 800FC-7Z
9-hole		‡ 800FC-9Z

- * Housings supplied with cable sleeve, hanger ring, cable clamp, wire guides, and gasket.
- ⊛ Operator in position 1 is mounted horizontally. Operators in positions 2 and 3 are mounted vertically.
- ‡ All operators are mounted horizontally.

1-, 2-, and 3-Speed Operators

800FP - C **A** **1** **U243**

a

a

b

c

b

Operator Type			
Code	Description	Code	Description
A	1-speed single arrow	B	2-speed
D	1-speed double arrow	C	3-speed ⊛

Cap Color	
Code	Description
1	White
2	Black

⊛ Proper contact block assembly of these devices is required. Please see contact block information on page 3-29.

C

	Valid with Table a Selections:	Symbol					
		Code	Description*				
			Vertical Mounting		Code	Horizontal Mounting	
		Black	White		Black	White	
	A, B, C	U100	Blank	Blank	U100	Blank	Blank
		One-Speed Operators					
	A	U241	DOWN	UP	U243	RIGHT	LEFT
		U244	REVERSE	FORWARD	U246	FORWARD	REVERSE
		U700	LEFT	RIGHT	U700	UP	DOWN
	D	U261	DOWN FAST	UP FAST	U263	RIGHT FAST	LEFT FAST
		U264	REVERSE FAST	FORWARD FAST	U266	FORWARD FAST	REVERSE FAST
		U260	LEFT FAST	RIGHT FAST	U260	UP FAST	DOWN FAST
		Two-Speed Operators					
	B	U271	2-speed DOWN	2-speed UP	U273	2-speed RIGHT	2-speed LEFT
		U274	2-speed REVERSE	2-speed FORWARD	U276	2-speed FORWARD	2-speed REVERSE
		U270	2-speed LEFT	2-speed RIGHT	U270	2-speed UP	2-speed DOWN
		Three-Speed Operators					
	C	U291	3-speed DOWN	3-speed UP	U293	3-speed RIGHT	3-speed LEFT
		U294	3-speed REVERSE	3-speed FORWARD	U296	3-speed FORWARD	3-speed REVERSE
		U290	3-speed LEFT	3-speed RIGHT	U290	3-speed UP	3-speed DOWN

Note: Please see page 3-29 for proper contact block configurations.






* Text (DOWN, UP, LEFT, etc.) indicates arrow direction. Text is **not** printed on operators.

1-, 2-, and 3-Speed Contact Block Assemblies

Operator Type	Interlock Type		Composite Cat. No.
1-speed	None		800F-PX10E
	Electrical		800F-PX11C
	Mechanical >		800F-LX20C
	Electrical & Mechanical >		800F-LX22C
2-speed	None		800F-PX20C
	Electrical		800F-PX21C
	Mechanical >		800F-LX40C
	Electrical & Mechanical >		800F-LX42C
3-speed	None	§	800F-PX30C
	Mechanical >	§	800F-LX60C

> When ordering separate components, two pieces of each contact block must be ordered, one for each operator.
 § Contact blocks come preassembled onto latch.

Accessories

	Description	PQ	Cat. No.
	Mechanical interlock latch	1 *	800FC-ALP
	Replacement wire guide	2	800FC-AWG
	Insulated side jumper	50	1492-SJ5A-24
		50	1492-SJ5A-10
	1-, 2-, and 3-speed contact blocks	NOEM ⚡	10 800F-X10E
		NOLM †	10 800F-X10N
		NOEEM >	10 ♣
	Cable sleeve	3-hole (M20 x 1.5)	1 800FC-AS3
		5-...9-hole (M32 x 1.5)	1 800FC-AS5

* Only for use with 1-, 2-, and 3-speed operators.
 ⚡ First contact closure of 1- and 2-speed operators, second contact closure for 3-speed operators.
 † Second contact closure of 2-speed operators and third contact closure of 3-speed operators.
 > First contact closure of 3-speed operators.
 ♣ For proper operation, **Cat. No. 800F-X10M** must be mounted in position 3 of the mechanical or standard latch.
 PQ = Package Quantity

Control and Indicating Units

Product Selection

855P — Panel Mount Sounder



30 mm Panel Mount Sounder



45 mm Panel Mount Sounder



65 mm Panel Mount Sounder

Housing Color	Voltage	Size [mm]	Cat. No.
Black	12...24V AC/DC	30	855P-B30SE22
		45	855P-B30ME22
		65	855P-B30LE22
	240V AC	30	855P-B20SE22
		45	855P-B20ME22
		65	855P-B20LE22

855PC — Panel Mount Sounder with LED



45 mm Panel Mount Sounder with LED



65 mm Panel Mount Sounder with LED

Housing Color	Voltage	Size [mm]	Lens Color	Cat. No.
Black	24V AC/DC	45	Green	855PC-B24ME322
			Red	855PC-B24ME422
		65	Green	855PC-B24LE322
			Red	855PC-B24LE422
	240V AC	45	Green	855PC-B20ME322
			Red	855PC-B20ME422
		65	Green	855PC-B20LE322
			Red	855PC-B20LE422

855PB — Panel Mount Selectable Steady or Flashing LED



30 mm Panel Mount LED



45 mm Panel Mount LED



65 mm Panel Mount LED

Housing Color	Voltage	Size [mm]	Lens Color	Cat. No.
Black	24V AC/DC	30	Green	855PB-B24SE322
			Red	855PB-B24SE422
		45	Green	855PB-B24ME322
			Red	855PB-B24ME422
		65	Green	855PB-B24LE322
			Red	855PB-B24LE422

855PS — Panel Mount Strobe



30 mm Panel Mount Strobe



45 mm Panel Mount Strobe



65 mm Panel Mount Strobe

Housing Color	Voltage	Size [mm]	Lens Color	Cat. No.
Black	24V AC/DC	30	Green	855PS-B24SE322
			Red	855PS-B24SE422
			Amber	855PS-B24SE522
	12...24V AC/DC	45	Green	855PS-B30ME322
			Red	855PS-B30ME422
			Amber	855PS-B30ME522
		65	Green	855PS-B30LE322
			Red	855PS-B30LE422
			Amber	855PS-B30LE522
Black	240V AC	30	Green	855PS-B20SE322
			Red	855PS-B20SE422
			Amber	855PS-B20SE522
		45	Green	855PS-B20ME322
			Red	855PS-B20ME422
			Amber	855PS-B20ME522
		65	Green	855PS-B20LE322
			Red	855PS-B20LE422
			Amber	855PS-B20LE522

Bulletin 855PD — Panel Mount Dual Circuit Alarms



Half Lens Illumination



Full Lens Illumination



Combined Sounder with LED Beacon

Function	Voltage	Size [mm]	Lens Color	Cat. No.
Sounder with LED	24V AC/DC	45	Green	855PD-B24MEC1322
			Red	855PD-B24MEC1422
		65	Green	855PD-B24LEC1322
			Red	855PD-B24LEC1422
Half-lens, Steady LED Beacon	24V AC/DC	30	Red & Green	855PD-B24SEH4322
		45	Red & Green	855PD-B24MEH4322
		65	Red & Green	855PD-B24LEH4322
Full-lens, Steady LED Beacon	24V AC/DC	30	Red & Green	855PD-B24SEF3422
		45	Red & Green	855PD-B24MEF3422
		65	Red & Green	855PD-B24LEF3422

Control Tower™ Stack Lights

Light Modules



Red Flashing Incandescent (Black Housing)
240V AC Full Voltage

Voltage	Color	Illumination Type	Black Housing Color
			Cat. No. *
24V AC/DC	Green	Steady Incandescent	855T-B24DN3
		Flashing Incandescent	855T-B24FN3
		Steady LED	855T-B24TL3
	Red	Steady Incandescent	855T-B24DN4
		Flashing Incandescent	855T-B24FN4
		Strobe	855T-B24BR4
	Amber	Steady Incandescent	855T-B24DN5
		Flashing Incandescent	855T-B24FN5
		Steady LED	855T-B24TL5
240V AC	Green	Steady Incandescent	855T-B20DN3
		Flashing Incandescent	855T-B20FN3
		Steady LED	855T-B20TL3
	Red	Steady Incandescent	855T-B20DN4
		Flashing Incandescent	855T-B20FN4
		Strobe	855T-B20BR4
	Amber	Steady Incandescent	855T-B20DN5
		Flashing Incandescent	855T-B20FN5
		Steady LED	855T-B20TL5

* Refer to configurator options for additional selections.

Single-Circuit Light Modules/with Sound *



*Red Strobe/Sound Combination Module (Black Housing)
 240V AC Full Voltage*

Description

All modules contain a selected light option with a sound device that operates simultaneously. The sound module can be switched to pulsing or continuous with a dip switch located inside of the module. Volume is 92...107dB. UL Type 4/4X/13, IP65.

Voltage	Illumination Type	Lamp Color	Black Housing Color
			Cat. No. ✨
24V AC/DC	Steady Incandescent	Green	855T-B24DC3
	Flashing Incandescent		855T-B24FC3
	Steady LED		855T-B24TC3
	Steady Incandescent	Red	855T-B24DC4
	Flashing Incandescent		855T-B24FC4
	Strobe		855T-B24BC4
	Steady Incandescent	Amber	855T-B24DC5
	Flashing Incandescent		855T-B24FC5
	Steady LED		855T-B24TC5
240V AC	Steady Incandescent	Green	855T-B20DC3
	Flashing Incandescent		855T-B20FC3
	Steady LED		855T-B20TC3
	Steady Incandescent	Red	855T-B20DC4
	Flashing Incandescent		855T-B20FC4
	Strobe		855T-B20BC4
	Steady Incandescent	Amber	855T-B20DC5
	Flashing Incandescent		855T-B20FC5
	Steady LED		855T-B20TC5

- ✨ The light/with sound module uses one circuit in a stack. It can be used with a maximum of four light modules and must be placed in the top position of a stack.
- ✨ Refer to configurator options for additional selections.

‡ Refer to configurator options for additional selections.

Control and Indicating Units

Product Selection

Transducer Style Sound Modules

UL Type 12, IP54. Volume is 80...103dB.



*Transducer Style Single Tone/Single Circuit
Sound Module (Black Housing)
24V AC/DC Full Voltage*

Voltage	Module Type	Tone	Black Housing Color
			Cat. No. ‡
24V AC/DC	Single Tone Transducer Style	Preset as Triangle Tone	855T-B24SA1
	Dual Tone Transducer Style	Preset as Triangle Tone/Continuous Tone	855T-B24TA1
240V AC	Single Tone Transducer Style	Preset as Triangle Tone	855T-B20SA1
	Dual Tone Transducer Style	Preset as Triangle Tone/Continuous Tone	855T-B20TA1

‡ Refer to configurator options for additional selections.

Standard Stack Light Bases IP65



*Surface Mount —
PG16 Conduit Mount
with Cap (Black)*



*Vertical Mount Base
with Cap (Grey)*






*25 cm Aluminum
Pole Mount Base (Grey)*



*40 cm Pole Mount Base
(Black)*


Housing Color	Base Type	With Cap Option	Without Cap Option
		Cat. No.	Cat. No.
Black	Surface Mount — PG16 Conduit Mount	855T-BSBC	855T-BSB
	Vertical Mount	855T-BVMC	855T-BVM
	10 cm Aluminum Pole Mount	855T-BPM10C	855T-BPM10
	25 cm Aluminum Pole Mount	855T-BPM25C	855T-BPM25
	40 cm Aluminum Pole Mount	855T-BPM40C	855T-BPM40

Accessories for 855T

	Description	Cat. No.	
	Incandescent Lamps		
	12V AC/DC	855T-L12	
	24V AC/DC	855T-L24	
	120V AC	855T-L10	
	240V AC	855T-L20	
	LED Lamps for Socket-Mounted Modules	Color	
	24V AC/DC	Red	855E-LL24R
		Green	855E-LL24G
		Yellow	855E-LL24Y
		Amber	855E-LL24A
		Blue	855E-LL24B
		White *	855E-LL24W
	240V AC	Red	855E-LL20R
		Green	855E-LL20G
		Yellow	855E-LL20Y
		Amber	855E-LL20A
		Blue	855E-LL20B
		White *	855E-LL20W
	Caps The cap is installed to the top of the uppermost light module. No cap is needed if the top module is a sound module, or a light/with sound module.	855T-ABCAP	

* White LED lamps are not to be used with a lens option of Clear

Quick Release Base Accessories

	Base Type	Housing Color	Cat. No.
	10 cm Pole, Quick-Release Base / 70 mm Base	Black	855T-BMM10C
	25 cm Pole, Quick-Release Base / 70 mm Base		855T-BMM25C
	10 cm Pole, Quick-Release Base / 50 mm Base	Black	855E-BMM10C
	25 cm Pole, Quick-Release Base / 50 mm Base		855E-BMM25C

Pre-assembled and Pre-wired Tower Lights 70 mm, One to Five Modules



Base Type	Voltage	Level 1		Level 2		Level 3		Level 4	Cat. No.	
		Module	Color	Module	Color	Module	Color	Module		
10 cm Aluminum Pole Mount	24V AC/DC	Steady LED	Amber	Steady LED	Red	—	—	—	855F-P10SC20B24Y5Y4	
			Green		Amber	Steady LED	Red	—	855F-P10SC20B24Y3Y5Y4	
	Amber		Red		—	—	—	855F-P10SC20B20Y5Y4		
	Green		Amber		Steady LED	Red	—	855F-P10SC20B20Y3Y5Y4		
10 cm Threaded Tube Mount	24V AC/DC		Amber		Steady LED	Red	—	—	—	855F-T10SC20B24Y5Y4
			Green			Amber	Steady LED	Red	—	855F-T10SC20B24Y3Y5Y4
	Amber		Red			—	—	—	855F-T10SC20B20Y5Y4	
	Green		Amber			Steady LED	Red	—	855F-T10SC20B20Y3Y5Y4	
10 cm Aluminum Pole Mount	24V AC/DC	Green	Steady LED	Amber		Steady LED	Red	100 dB Dual Circuit Piezo Sound Alarm	855F-P10SC20B24Y3Y5Y4Q1	
		Red		100 dB Piezo Sound Alarm, Pulsing Tone		—	—	—	—	855F-P10SC20B24Y4P1

See Publication 855F-PP001... for complete product information.

Industrial Electronic Horns with Attached Strobe Beacons

Multi-circuit, selectable tone horns with strobe beacon light for use in general signaling applications.



Range "A" Horn with Beacon
 230V AC 50/60 Hz
 Red Strobe Beacon



Range "C" Horn with Beacon
 24V DC
 Amber Strobe Beacon



Range "E" Horn with Beacon
 230V AC 50/60 Hz
 Green Strobe Beacon

Base Color	Sound Output	Voltage	Beacon Lens Color	Cat. No.
Grey	100 dB max. at 1 m, 2 circuit DC, 1 circuit AC, 10 selectable tones	24V DC	Green	855H-BCD24ADR3
			Red	855H-BCD24ADR4
			Amber	855H-BCD24ADR5
		240V AC, 50/60 Hz	Green	855H-BCA20ADR3
			Red	855H-BCA20ADR4
			Amber	855H-BCA20ADR5
	104 dB max. at 1 m, 3 circuit AC or DC, 32 selectable tones	24V DC	Green	855H-BCD24BDR3
			Red	855H-BCD24BDR4
			Amber	855H-BCD24BDR5
		240V AC, 50/60 Hz	Green	855H-BCA20BDR3
			Red	855H-BCA20BDR4
			Amber	855H-BCA20BDR5
	112 dB max. at 1 m, 3 circuit AC or DC, 32 selectable tones	24V DC	Green	855H-BCD24CDR3
			Red	855H-BCD24CDR4
			Amber	855H-BCD24CDR5
		240V AC, 50/60 Hz	Green	855H-BCA20CDR3
			Red	855H-BCA20CDR4
			Amber	855H-BCA20CDR5
	119 dB max. at 1 m, 3 circuit AC or DC, 45 selectable tones	24V DC	Green	855H-BCD24DDR3
			Red	855H-BCD24DDR4
			Amber	855H-BCD24DDR5
		240V AC, 50/60 Hz	Green	855H-BCA20DDR3
			Red	855H-BCA20DDR4
			Amber	855H-BCA20DDR5
126 dB max. at 1 m, 3 circuit AC or DC, 45 selectable tones	24V DC	Green	855H-BCD24EDR3	
		Red	855H-BCD24EDR4	
		Amber	855H-BCD24EDR5	
	240V AC, 50/60 Hz	Green	855H-BCA20EDR3	
		Red	855H-BCA20EDR4	
		Amber	855H-BCA20EDR5	

Control and Indicating Units

Product Selection

General-Purpose Electronic Horns

Improved performance over electromechanical alternative

- 108 dB(A) maximum
- Three user-selectable tones to better contrast ambient noise
- Stepless volume control via potentiometer to adjust to changing ambient noise
- Lower current consumption at approximately half to one tenth of electromechanical alternative
- Longer life and maintenance-free due to non-moving parts and highly reliable discrete components

Suitable for humid, dirty, and corrosive environments

- Surface mount version rated UL Type 4/4X/13, IP66
- Semi-flush mount version rated UL Type 3R/13, IP54
- UV-stable plastics ideal for outdoors



Mounting Type	Supply Voltage	Cat. No.
Surface base with conduit entrance	24V AC/DC	855H-SG24GPA
	240V AC	855H-SG20GPA
Semi-flush wall plate	24V AC/DC	855H-FG24GPA
	240V AC	855H-FG20GPA

Mini Square Beacons

Mini square 5 Joule strobe beacons for general signaling applications. Bases accept conduit connections in side and back of enclosure.



Base Color	Supply Voltage	Lens Color	Cat. No.
Grey	24V AC/DC	Green	855B-GMS24R3
	240V AC, 50/60 Hz		855B-GMS20R3
	24V AC/DC	Red	855B-GMS24R4
	240V AC, 50/60 Hz		855B-GMS20R4
	24V AC/DC	Amber	855B-GMS24R5
	240V AC, 50/60 Hz		855B-GMS20R5
	24V AC/DC	Blue	855B-GMS24R6
	240V AC, 50/60 Hz		855B-GMS20R6
	24V AC/DC	Clear	855B-GMS24R7
	240V AC, 50/60 Hz		855B-GMS20R7
	24V AC/DC	Yellow	855B-GMS24R8
	240V AC, 50/60 Hz		855B-GMS20R8

Bulletin 855BS, 855BM, 855BL — Industrial Round Beacons



90 mm Beacons

Base Type	Voltage	Function	Color	Cat. No.
Surface Mount *	24V AC/DC	Steady Halogen	Red	855BS-S24DH4
			Green	855BS-S24DH3
			Amber	855BS-S24DH5
		Rotating Halogen	Red	855BS-S24RH4
			Green	855BS-S24RH3
			Amber	855BS-S24RH5
		Xenon Strobe	Red	855BS-S24BR4
			Green	855BS-S24BR3
			Amber	855BS-S24BR5

120 mm Beacons

Base Type	Voltage	Function	Lens Color	Cat. No.
Surface Mount *	24V AC/DC	Steady Halogen	Red	855BM-S24DH4
			Green	855BM-S24DH3
			Amber	855BM-S24DH5
		Rotating Halogen	Red	855BM-S24RH4
			Green	855BM-S24RH3
			Amber	855BM-S24RH5
		Strobe	Red	855BM-S24BR4
			Green	855BM-S24BR3
			Amber	855BM-S24BR5

160 mm Beacons

Base Type	Voltage	Function	Lens Color	Cat. No.
Surface Mount *	24V AC/DC	Steady Halogen	Red	855BL-S24DH4
			Green	855BL-S24DH3
			Amber	855BL-S24DH5
		Rotating Halogen	Red	855BL-S24RH4
			Green	855BL-S24RH3
			Amber	855BL-S24RH5
		Strobe	Red	855BL-S24BR4
			Green	855BL-S24BR3
			Amber	855BL-S24BR5

* Surface Mount Base must be installed with Rough Wall Plate for UL Type 4/4X/13 rating.

Control and Indicating Units

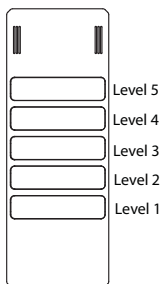
Product Selection

Wall Mount Signal Lights

- UL Type 4/4X/13, IP65
- Configurations from 2...5 light levels, available with or without sound
- Steady and flashing LED light modules, 24V AC/DC, 110/120V AC, and 230/240V AC
- User-selectable, continuous, or pulsing piezo sound modules
- Six light colors to choose from
- Two housing colors (grey, chrome), available to match application needs
- Can be mounted in any orientation



Pre-Assembled Wall Mount Signal Lights, Two to Five Light Levels



855W **a** - **G** **10** **Y** **7** **Y** **6** **Y** **3** **Y** **5** **L** **4** **P1**

a *b* *c* *d* *e* *d* *e* *d* *e* *d* *e* *d* *e* *f*

(Level 1, d+e) (Level 2, d+e) (Level 3, d+e) (Level 4, d+e) (Level 5, d+e)

a

Network Option	
Code	Description
Blank	No network option

b

Housing Color	
Code	Description
C	Chrome plated
G	Grey

c

Voltage	
Code	Description
24	24V AC/DC
10	120V AC
20	240V AC

d

Module Type	
Code	Description
Y	Steady LED
L	Flashing LED

e

Lens Color	
Code	Description
3	Green
4	Red
5	Amber
6	Blue
7	Clear
8	Yellow

f





Sound	
Code	Description
Blank	No sound
P1	Piezo Sounder (continuous/pulsing)

Housing Color	Voltage	Level 1		Level 2		Level 3		Level 4		Level 5		Cat. No.*	
		LED Module	Color	LED Module	Color	LED Module	Color	LED Module	Color	LED Module	Color		
Grey	24V AC/DC	Steady	G	Steady	A	Steady	R	—	—	—	—	855W-G24Y3Y5Y4P1	
			G		A	Flash	R	—	—	—	—	855W-G24Y3Y5L4P1	
			B		A	Steady	R	—	—	—	—	855W-G24Y6Y5Y4P1	
			C		A		R	—	—	—	—	855W-G24Y7Y5Y4P1	
			B		G	Steady	A	Flash	R	—	—	855W-G24Y6Y3Y5L4P1	
			B		G		A	Steady	R	—	—	855W-G24Y6Y3Y5Y4P1	
			C		G		A	Flash	R	—	—	855W-G24Y7Y3Y5L4P1	
			B		G		A	Steady	C	—	—	855W-G24Y6Y3Y5Y7P1	
			G		R	—	—	—	—	—	—	855W-G24Y3Y4P1	
			G		Flash	R	—	—	—	—	—	855W-G24Y3L4P1	
			G	Steady	R	—	—	—	—	—	—	855W-G24Y3Y4	
			G		A	Steady	R	—	—	—	—	855W-G24Y3Y5Y4	
			B		A		R	—	—	—	—	855W-G24Y6Y5Y4	
			B		G		A	Steady	R	—	—	855W-G24Y6Y3Y5Y4	
			B		G		A	Steady	R	—	—	855W-G24Y6Y3Y5Y4	
			B		G		A	Steady	R	—	—	855W-G24Y6Y3Y5Y4	
B	G	A	Steady	R	—		—	855W-G24Y6Y3Y5Y4					
Grey	240V AC	Steady	G	Steady	A	Flash	R	—	—	—	—	855W-G20Y3Y5L4P1	
			G		A	Steady	R	—	—	—	—	855W-G20Y3Y5Y4P1	
			B		G		A	Steady	R	—	—	855W-G20Y6Y3Y5Y4P1	
			B		G	Steady	A	Flash	R	—	—	855W-G20Y6Y3Y5L4P1	
			C		B		G	Steady	A	Steady	R	855W-G20Y7Y6Y3Y5Y4P1	
			C		B		G	Steady	A	Flash	R	855W-G20Y7Y6Y3Y5L4P1	
			G		R		—	—	—	—	—	—	855W-G20Y3Y4P1
			G		Flash	R	—	—	—	—	—	855W-G20Y3L4P1	
			G		Steady	R	—	—	—	—	—	—	855W-G20Y3Y4
			G			A	Steady	R	—	—	—	—	855W-G20Y3Y5Y4
			B	G		A		Steady	R	—	—	855W-G20Y6Y3Y5Y4	
			B	G		A			Steady	R	—	—	855W-G20Y6Y3Y5Y4
			B	G		A			Steady	R	—	—	855W-G20Y6Y3Y5Y4
			C	B		G			Steady	A	Steady	R	855W-G20Y7Y6Y3Y5Y4

* Piezo sound modules are included on cat. nos. that contain the suffix P1.

Color Code: G=green, R=red, B=blue, C=clear, A=amber, Y=yellow

PanelView™ Component Graphic Terminals*

				
Bulletin	2711C-F2M 2711C-K2M	2711C-T3M 2711C-K3M	2711C-T6M 2711C-T6C	2711C-T10C
Type	PanelView C200	PanelView C300	PanelView C600	PanelView C1000
Display				
Display Type	Monochrome: Transflective STN	Monochrome: Transflective FSTN	Monochrome: Transmissive FSTN Color: Transmissive CSTN	Color: Transmissive TFT
Display Area (WxH)	49 x 14 mm (1.93 x 0.55 in.)	67 x 33 mm (2.64 x 1.30 in.)	115 x 86 mm (4.53 x 3.39 in.)	211 x 158 mm (8.31 x 6.22 in.)
Display Size	2 in.	3 in.	5.7 in.	10.4 in.
Resolution	122 x 32 pixels	128 x 64 pixels	320 x 240 pixels	640 x 480 pixels
Operator Input	4 function key or combination function/numeric key	Analogue touch or combination function/numeric key	Analogue touch	Analogue touch
Electrical				
Communication Port	RS232 (9 pin D-Shell), RS422/RS485 (Connector)		RS232 (9 pin D-Shell), RS422/RS485 (Connector) Ethernet	
Memory Card	USB port	USB port	USB port or secure digital card	USB port or secure digital card
Programming Port	USB device port			
Real Time Clock	Software clock without battery backup	Software clock without battery backup	Battery-backed	Battery-backed
Power Consumption	5 W max. (0.21 A at 24V DC)	5 W max. (0.21 A at 24V DC)	10 W max. (0.42 A at 24V DC)	18 W (0.75 A at 24V DC)
Power Requirements	18...30V DC (24V DC nom.)			
Environmental				
Operating Temperature	0...50 °C (32...122 °F)			
Enclosure	IP54, IP65	IP54, IP65	IP54	IP54, IP65
Certifications	cULus, CE Marked, C-Tick			
Mechanical				
Weight Keypad or Keypad/Touch	0.2 kg 0.3 kg	0.2 kg 0.3 kg	0.7 kg	1.6 kg
Dimensions Overall (H x W x D)	80 x 116 x 54 mm (3.15 x 4.54 x 2.13 in.) 119 x 139 x 55 mm (4.69 x 5.47 x 2.15 in.)	80 x 116 x 57 mm (3.15 x 4.54 x 2.23 in.) 119 x 139 x 55 mm (4.69 x 5.47 x 2.15 in.)	154 x 209 x 57 mm (6.0 x 8.23 x 2.25 in.)	250 x 308 x 54 mm (9.84 x 12.13 x 2.13 in.)
Dimensions, Cutout (HxW)	65 x 100 mm (2.56 x 3.94 in.) 100 x 120 mm (3.94 x 4.72 in.)	65 x 100 mm (2.56 x 3.94 in.) 100 x 120 mm (3.94 x 4.72 in.)	136 x 190 mm (5.35 x 7.48 in.)	232 x 290 mm (9.13 x 11.42 in.)
Product Selection	Page 3-44			

* For large and/or color display options, visit: <http://www.ab.com/eoi/graphicterminals/panelviewcomponent.html>

InView Message Displays

Bulletin	2706-P22R	2706-P42R/C * 2706-P44R/C ☼	2706-P72CN1/2 * 2706-P74CN1/2 ☼	2706-P92C * 2706-P94C ☼
Display				
Display Type	LED matrix: Red (R)	LED matrix: Red (R) or Tri-Color (C)	LED matrix: Tri-Color (C)	LED matrix: Tri-Color (C)
Display Size (W x H)	30 x 5 cm	81.4 x 12.2 cm * 182 x 12.2 cm ☼	91.4 x 18.3 cm * 152.4 x 18.3 cm ☼	91.4 x 24.4 cm 182.9 x 24.4 cm
Display Array	120 x 7 pixels	120 x 16 or 240 x 16 pixels	120 x 24 or 200 x 24 pixels	120 x 32 or 240 x 32 pixels
Center to Center Pixel Spacing	0.25 cm	0.76 cm	0.76 cm	0.76 cm
Number of Lines	2	1 or 2	1 up to 4	1 up to 5
Lines of Text/Character Height/ Minimum Characters per Line	2 lines/1.8 cm/20 char	1 line/12.2 cm/12 * or 24 ☼ 2 lines/5.3 cm/20 * or 40 ☼	1 line/18.3 cm/12 * or 20 ☼ 2 lines/7.6 cm/20 * or 33 ☼ 3 lines/5.3 cm/20 * or 33 ☼ 4 lines/3.8 cm/24 * or 40 ☼	1 line/24.4 cm/13 * or 26 ☼ 2 lines/11.4 cm/13 * or 26 ☼ 3 lines/7.6 cm/13 * or 26 ☼ 4 lines/5.3 cm/20 * or 40 ☼ 5 lines/3.8 cm/24 * or 48 ☼
Character Set	Standard and Extended ASCII			
Approximate Viewing Distance	7.6 m	60 m	100 m	137 m
Electrical & Environmental				
Input Voltage	24V DC	120...240V AC; 50/60 Hz		
Operating Temperature	0...55 °C	0...50 °C	0...50 °C	0...50 °C
Humidity	5...95 % non condensing			
Ratings	NEMA Type 4, 4X	NEMA Type 12	NEMA Type 4, 4X	NEMA Type 12, 13
Certifications	UL, CE and C-Tick	ETL approved; CE marked		UL, CE and C-Tick
Mechanical				
Enclosure Approximate Weight	0.85 kg	12.7 kg or 22.7 kg	27.2 kg or 36.3 kg	32 kg or 64 kg
Enclosure Dimensions (W x D x H)	11 x 6 x 36 cm	102.57 x 13.97 x 20 cm 194 x 13.97 x 20 cm	107.32 x 15.24 x 34.93 cm 168.28 x 15.24 x 34.93 cm	40 x 13 x 105 cm 14 x 13 x 196 cm
Product Selection	See page 3-45			

* Display is available in short format (91.44 cm).

☼ Display is available in long format (182.88 cm).

PanelView Component C200...C1000 Terminals

- Optimized for communication with MicroLogix or SLC 500 controllers: DF1, DH-485, Ethernet to MicroLogix or SLC 500 controller, and multi-vendor communications
- Display information in several languages including Russian, Greek, Chinese, Japanese and Korean
- Alert operators with alarm messages that include variables
- Upload and download groups of data or parameter settings with recipe feature
- Secure information on screens with user name and password protection



Software

- Design software is on the PanelView Component operator interface so there's no need to install software on the PC
- PC-based software is also available

Communication

PanelView Component terminals offer standard communication options - RS232, RS485, as well as many vendor communication options including Modbus and Modbus/TCP. The PanelView Component 6-inch and 10-inch terminals have Ethernet as additional communication option.

PanelView Component Terminals

Terminals	Description	Cat. No.
C200	PanelView C200, 2-inch monochrome STN display with four function keys, serial communications, 24V DC power	2711C-F2M
	PanelView C200, 2-inch monochrome STN display with ten function keys and numeric keypad, serial communications, 24V DC power	2711C-K2M
C300	PanelView C300, 3-inch monochrome FSTN display with touch screen, serial communications, 24V DC power	2711C-T3M
	PanelView C300, 3-inch monochrome FSTN display with ten function keys and numeric keypad, serial communications, 24V DC power	2711C-K3M
C600	PanelView C600, 6-inch monochrome FSTN display with touch screen, serial and Ethernet communication, 24V DC power	2711C-T6M
	PanelView C600, 6-inch color CSTN display with touch screen, serial and Ethernet communication, 24V DC power	2711C-T6C
C1000	PanelView C1000, 10-inch color TFT display with touch screen, serial and Ethernet communication, 24V DC power	2711C-T10C

Accessories for PanelView Component C200 - C1000

Description	Cat. No.
USB host to USB device programming cable for PanelView Component terminals, 2 m (6.5 ft)	2711C-CBL-UU02
SLC 5/03, SLC 5/04, and SLC 5/05 RS-232 programmer cable	1747-CP3
RS-232 operating/programming cable, 8-Pin Mini DIN to 9-Pin D Shell (MicroLogix), 2 m (6.5 ft)	1761-CBL-PM02
Ethernet CAT5 crossover industrial cable, 4.3 m (14 ft)	2711P-CBL-EX04
USB secure digital 128 MB memory card for PanelView component devices	2711C-RCSD
Protective antiglare overlay for PanelView C200 function key and C300 touch-screen terminals (Quantity 3)	2711C-RG2F
Protective antiglare overlay for PanelView C200 and C300 keypad terminals (Quantity 3)	2711C-RG2K
Protective antiglare overlay for PanelView C600 touch-screen terminals (Quantity 3)	2711C-RG6T
Protective antiglare overlay for PanelView C1000 terminals (Quantity 3)	2711C-RG10T
RS422/485 connector with resistor (Quantity 10)	2711C-RJ422

InView Message Displays

- Array of communication options for easy integration into new and existing network architectures.
- Onboard memory makes message triggering easy.
- Dynamic messaging, with the use of embedded variables, for real-time information.
- Develop and test messages with the easy-to-use InView Messaging software package.
- Use ActiveX control, with any ActiveX container such as RSVIEW32 software, to enhance graphical HMI messaging.



Display Type	Number of Lines	Number of Characters Per Line	Available Communication Platforms	Cat. No.
LED Matrix Red	2	20	DeviceNet, ControlNet, EtherNet/IP, Remote I/O, DH+, DH-485	2706-P22R
LED Matrix Red	1 or 2	12 or 20		2706-P42R
LED Matrix Tri-color	1 or 2	12 or 20		2706-P42C
LED Matrix Red	1 or 2	24 or 40		2706-P44R
LED Matrix Tri-color	1 or 2	24 or 40		2706-P44C
LED Matrix Tri-color	1...4	12...24		2706-P72CN2
LED Matrix Tri-color	1...4	20...40		2706-P74CN2
LED Matrix Tri-color	1...4	12...24		2706-P72CN1
LED Matrix Tri-color	1...4	20...40		2706-P74CN1
LED Matrix Tri-color	1...5	13...24		2706-P92C
LED Matrix Tri-color	1...5	26...48		2706-P94C

Accessories for InView Message Displays

InView Software

Description	Cat. No.
InView Messaging Software	2706-PSW1

InView Communication Modules

Description	For Use With	Mounting	Cat. No.
InView DeviceNet	P22R, 24V DC	DIN Rail	2706-PDNETP
	P4x	Back of Display	2706-PDNETM
	P7x and P9x	Inside Display	2706-PDNETK
InView ControlNet	P22R, 24V DC	DIN Rail	2706-PCNETP
	P4x	Back of Display	2706-PCNETM
	P7x and P9x	Inside Display	2706-PCNETK
InView EtherNet/IP	P22R, 24V DC	DIN Rail	2706-PENETP
	P4x	Back of Display	2706-PENETM
	P7x and P9x	Inside Display	2706-PENETK
InView Remote I/O	P22R, 24V DC	DIN Rail	2706-PRIOP
	P4x	Back of Display	2706-PRIOM
	P7x and P9x	Inside Display	2706-PRIOK
InView DH+	P22R, 24V DC	DIN Rail	2706-PDHPP
	P4x	Back of Display	2706-PDHPM
	P7x and P9x	Inside Display	2706-PDHPK
InView DH-485	P22R, 24V DC	DIN Rail	2706-PDH485P
	P4x	Back of Display	2706-PDH485M
	P7x and P9x	Inside Display	2706-PDH485K
InView Ethernet TCP/IP			2706-PENET1
InView Program/Download Cable			2706-PCABLE1

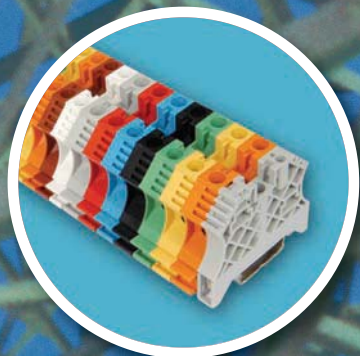


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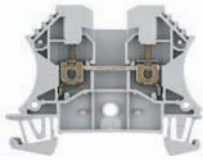
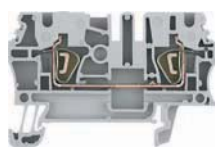
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Terminal Blocks

Product Line Overview

Terminal Blocks Selection

		
Bulletin	1492-J	1492-L
Type	Screw Type Terminal Blocks	Spring-Clamp Terminal Blocks
Features	<ul style="list-style-type: none"> • Mini terminal blocks for 15 mm DIN rail • Terminals for 35 mm DIN rail • Two level terminal blocks <ul style="list-style-type: none"> — with diode — in forward bias or in reverse bias — with selectable resistor — with MOV • Two pole thermocouple blocks 	<ul style="list-style-type: none"> • Terminals for 35 mm DIN rail • Single circuit terminal blocks available in 8 colours • Component blocks <ul style="list-style-type: none"> — with a diode — in forward bias or in reverse bias — Resistor selectable — with MOV
Approvals	UR, CSA, IEC	
Accessories	Test Plugs/Test Plug Adapters, End Anchors, End Barriers, Partition Plates, Side Jumpers, Centre Jumper Bars, Centre Jumper Covers, Neutral Connecting Blocks, Commoning Bus Bars, Warning Plates, Group Marking Carriers	End Retainers/Group Marking Carriers, Terminal Covers, Centre Jumpers, Centre Jumper Links, QuickClamp Insulation Stops, Marker Card Adapters
Product Selection	See page 4-3	See page 4-6

Power Distribution Block Selection

	
Bulletin	1492-PDE
Features	<ul style="list-style-type: none"> • Can be mechanically connected for multiple pole requirements • Panel-mounting • IP2X Finger-safe from front
Current Range	175...510 A
Number of Poles	1-pole
Distribution Block Wiring	1, 2, 4, and 8 wires per pole
Max. Voltage Ratings	600V AC/DC
Insulation Material Max. Temp.	125 °C (257 °F)
Power Block Material	Aluminum or Copper
Wire Size	400 kcmil... #16 AWG per phase Cu
Certifications	CE Compliant, CSA Certified and UL Recognized
Product Selection	Page 4-10

Screw Type Terminal Blocks



Feed-Through Terminal Blocks 2.5...4 mm²

Type		2.5 mm ²		4 mm ²	
		PQ	Cat. No.	PQ	Cat. No.
Terminal Block	Grey	100	1492-J3	100	1492-J4
	Colour	100	1492-J3-*	100	1492-J4-*
Accessories					
Marking Systems: Marker card		5	1492-M5X12 (144/card)	5	1492-M6X12 (120/card)
End barrier		50	1492-EBJ3	50	1492-EBJ3
Screw centre jumper (10 pole)		20	1492-CJJ5-10	20	1492-CJJ6-10
Screw centre jumper (2 pole)		50	1492-CJJ5-2	50	1492-CJJ6-2
Partition Plates		20	1492-EBJ16	20	1492-EBJ16

Feed-Through Terminal Blocks 6...10 mm²

Type		6 mm ²		10 mm ²	
		PQ	Cat. No.	PQ	Cat. No.
Terminal Block	Grey	100	1492-J6	50	1492-J10
	Colour	100	1492-J6-*	50	1492-J10-*
Accessories					
Marking Systems: Marker card		5	1492-M7X12 (108/card)	5	1492-M7X12 (108/card)
End barrier		50	1492-EBJ3	50	1492-EBJ3
Screw centre jumper (10 pole)		20	1492-CJJ8-10	20	1492-CJJ10-10
Screw centre jumper (2 pole)		50	1492-CJJ8-2	50	1492-CJJ10-2
Partition Plates		20	1492-EBJ16	20	1492-EBJ16

Feed-Through Terminal Blocks 16...35 mm²

Type		16 mm ²		35 mm ²	
		PQ	Cat. No.	PQ	Cat. No.
Terminal Block	Grey	50	1492-J16	40	1492-J35
	Colour	50	1492-J16-*	40	1492-J35-*
Accessories					
Marking Systems: Marker card		5	1492-M7X12 (108/card)	5	1492-M7X12 (108/card)
End barrier		20	1492-EBJ16	20	1492-EBJ16
Screw centre jumper (10 pole)		10	1492-CJJ12-10	10	1492-CJJ16-10
Screw centre jumper (2 pole)		20	1492-CJJ12-2	20	1492-CJJ16-2
Partition Plates		20	1492-PPJD3	20	1492-PPJD3

* For colored blocks, add suffix **RE** = Red, **B** = Blue, **BL** = Black, **G** = Green, **Y** = Yellow, **OR** = Orange, **BR** = Brown, **W** = White to the end of the catalog number.

PQ = Package Quantity

Screw Type Terminal Blocks



Feed-Through Terminal Blocks 50...70 mm²

Type		50 mm ²		70 mm ²	
		PQ	Cat. No.	PQ	Cat. No.
Terminal Block	Grey	10	1492-J50	10	1492-J70
	Blue	10	1492-J50-B	10	1492-J70-B
Accessories					
Marking Systems: Marker card		5	1492-M7X12 (108/card)	5	1492-M7X12 (108/card)
End barrier		—	Not Required	—	Not Required
End Anchor					
DIN Rail — Heavy Duty		50	1492-EAHJ35	50	1492-EAHJ35
Jumpers					
Screw centre jumper (4 pole)		10	1492-CJJ18-4	5	1492-CJJ20-4
Screw centre jumper (3 pole)		10	1492-CJJ18-3	5	1492-CJJ20-3
Screw centre jumper (2 pole)		10	1492-CJJ18-2	5	1492-CJJ20-2

PQ = Package Quantity

Feed-Through Terminal Blocks 120...240 mm²

Type		120 mm ²		240 mm ²	
		PQ	Cat. No.	PQ	Cat. No.
Terminal Block	Grey	5	1492-J120	—	—
	Beige	—	—	2	1492-J240
Accessories					
Marking Systems: Marker card		5	1492-M8X12 (84/card)	5	1492-M8X12 (84/card)
End barrier		—	Not Required	—	Not Required
End Anchor					
DIN Rail — Heavy Duty		50	1492-EAHJ35	50	1492-EAHJ35
Jumpers					
Screw centre jumper (4 pole)		5	1492-CJJ27-4	—	—
Screw centre jumper (3 pole)		5	1492-CJJ27-3	—	—
Screw centre jumper (2 pole)		5	1492-CJJ27-2	—	—
Side jumper (3 pole)		—	—	5	1492-SJ36-3
Side jumper (2 pole)		—	—	5	1492-SJ36-2

PQ = Package Quantity

See Publication A116 for complete product information.

Screw Type Terminal Blocks



1492-JG...



1492-JD...



1492-WFB4

Feed-Through Ground Blocks 4...10 mm²

Type		4 mm ²		6 mm ²		10 mm ²	
		PQ	Cat. No.	PQ	Cat. No.	PQ	Cat. No.
Terminal Blocks	Green/Yellow	100	1492-JG4	50	1492-JG6	50	1492-JG10
Accessories							
Marking Systems: Marker card		5	1492-M6X12 (120/card)	5	1492-M7X12 (108/card)	5	1492-M7X12 (108/card)
End Anchors							
DIN Rail - Normal Duty		100	1492-EAJ35	100	1492-EAJ35	100	1492-EAJ35
DIN Rail - Heavy Duty		50	1492-EAHJ35	50	1492-EAHJ35	50	1492-EAHJ35

Feed-Through Ground Blocks 16...35 mm²

Type		16 mm ²		35 mm ²	
		PQ	Cat. No.	PQ	Cat. No.
Terminal Blocks	Green/Yellow	50	1492-JG16	25	1492-JG35
Accessories					
Marking Systems: Marker card		5	1492-M7X12 (108/card)	5	1492-M7X12 (108/card)
End Anchors					
DIN Rail - Heavy Duty		50	1492-EAHJ35	50	1492-EAHJ35

Multi-Circuit Feed-Through Blocks

Type		2.5 mm ²		4 mm ²		
		PQ	Cat. No.	PQ	Cat. No.	
Terminal Blocks	Grey	100	1492-JD3	100	1492-JD4	
	Colour	100	1492-JD3-*	100	1492-JD4-*	
Accessories						
End Barrier		Grey	20	1492-EBJD3	20	1492-EBJD4
Screw center jumper (10-pole)			20	1492-CJJ5-10	20	1492-CJLJ6-10
Screw center jumper (2-pole)			50	1492-CJJ5-2	60	1492-CJLJ6-2
Partition Plate			20	1492-PPJD3	20	1492-PPJD3
Marking Systems: Snap-in Marker Cards			5	1492-MR5X8 (120/card)	5	1492-MR6X8 (120/card)

* For colored blocks, add suffix **RE** = Red, **B** = Blue, **BL** = Black, **G** = Green, **Y** = Yellow, **OR** = Orange, **BR** = Brown, **W** = White to the end of the catalog number.

Fuse Blocks

Type	4 mm ²	
Terminal Block	PQ	Cat. No.
Black-No Indication	50	1492-WFB4

PQ = Package Quantity

Spring-Clamp Terminal Blocks



Feed-Through Terminal Blocks 2.5...6 mm²

Type		2.5 mm ²		4 mm ²		6 mm ²	
		PQ	Cat. No.	PQ	Cat. No.	PQ	Cat. No.
Terminal Blocks	Grey	100	1492-L3	50	1492-L4	50	1492-L6
	Colour	100	1492-L3-*	50	1492-L4-*	50	1492-L6-*
Accessories							
End barrier	Grey	50	1492-EBL3	50	1492-EBL3	50	1492-EBL6
Centre jumper with Plug (10 pole)		20	1492-CJK5-10	20	1492-CJK6-10	60	1492-CJL8-2
Centre jumper with Plug (2 pole)		60	1492-CJK5-2	60	1492-CJK6-2	5	1492-M6X12 (120/card)
Reducing Sleeves 0.25...0.5 mm ² (#22...#20 AWG)	Grey	100	1492-PSL3-5	100	1492-PSL4-5	—	—
Marking Systems: Marker card		5	1492-M5X10 (144/card)	5	1492-M6X10 (120/card)	—	—

Feed-Through Terminal Blocks 10...16 mm²

Type		10 mm ²		16 mm ²	
		PQ	Cat. No.	PQ	Cat. No.
Terminal Blocks	Grey	25	1492-L10	25	1492-L16
	Colour	25	1492-L10-*	25	1492-L16-*
Accessories					
End barrier	Grey	20	1492-EBL10	20	1492-EBL16
Centre jumper with Plug (2 pole)		25	1492-CJL10-2	5	1492-M7X12 (108/card)
Marking Systems: Marker card		5	1492-M6X12 (120/card)	—	—

* For colored blocks, add suffix **RE** = Red, **B** = Blue, **BL** = Black, **G** = Green, **Y** = Yellow, **OR** = Orange, **BR** = Brown, **W** = White to the end of the catalog number.

Feed-Through Ground Blocks 2.5...6 mm²

Type		2.5 mm ²		4 mm ²		6 mm ²	
		PQ	Cat. No.	PQ	Cat. No.	PQ	Cat. No.
Terminal Blocks	Green/Yellow	100	1492-LG3	50	1492-LG4	50	1492-LG6
Accessories							
End barrier	Yellow	50	1492-EBL3-Y	50	1492-EBL4-Y	50	1492-EBL6-Y
Reducing Sleeves 0.25...0.5 mm ² (#22...#20 AWG)	Grey	100	1492-PSL3-5	100	1492-PSL4-5	5	1492-M6X12 (120/card)
Marking Systems: Marker card		5	1492-M5X10 (144/card)	5	1492-M5X10 (144/card)	—	—

PQ = Package Quantity

For Feed-Through Ground Blocks 10 mm² and 16 mm², see Publication A116.

Multiple Contact Point Feed-Through Blocks

Type		2.5 mm ²		2.5 mm ²		
		PQ	Cat. No.	PQ	Cat. No.	
Terminal Blocks	Grey	100	1492-L3T	100	1492-L3Q	
	Colour	100	1492-L3T-*	100	1492-L3Q-*	
Accessories						
Marking Systems: Snap-in Marker Cards		5	1492-M5X10 (144/card)	5	1492-M5X10 (144/card)	
End Barriers		Grey	50	1492-EBL3T	50	1492-EBL3Q
End Anchors						
DIN Rail — Normal Duty		100	1492-EAJ35	100	1492-EAJ35	
DIN Rail — Heavy Duty		50	1492-EAHJ35	50	1492-EAHJ35	
Jumpers						
Plug-in Center Jumper — 4-Pole		60	1492-CJK5-4	60	1492-CJK5-4	
Plug-in Center Jumper — 3-Pole		60	1492-CJK5-3	60	1492-CJK5-3	
Plug-in Center Jumper — 2-Pole		60	1492-CJK5-2	60	1492-CJK5-2	

Grounding Block with 2 points on one side

Type		2.5 mm ²		
		PQ	Cat. No.	
Terminal Blocks	Green/Yellow	50	1492-LG3T	
Accessories				
Marking Systems: Snap-In Marker Cards		5	1492-M5X10 (144/card)	
End Barrier		Yellow	50	1492-EBL3T-Y
End Anchors				
DIN Rail — Normal Duty		100	1492-EAJ35	
DIN Rail — Heavy Duty		50	1492-EAHJ35	

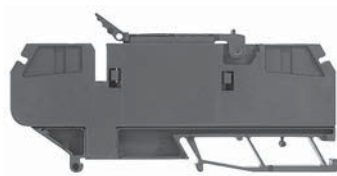
Multi-Circuit Feed-Through Blocks

Type		2.5 mm ²	
		PQ	Cat. No.
Terminal Blocks	Grey	25	1492-LD3
	Colour	25	1492-LD3-*
Accessories			
Marking Systems: Marker Card		5	1492-M5X10 (144/card)
End Barrier		20	1492-EBLD3
Plug-in Centre Jumper (10-Pole)		20	1492-CJK5-10
Plug-in Centre Jumper (2-Pole)		60	1492-CJK5-2

* For coloured blocks, add suffix **RE** = Red, **B** = Blue, **BL** = Black, **G** = Green, **Y** = Yellow, **OR** = Orange, **BR** = Brown, **W** = White to the end of the catalogue number.

PQ = Package Quantity

Spring-Clamp Terminal Blocks



Single Circuit Fuse Terminal Block 4 mm²


Type		4 mm ²	
		PQ	Cat. No.
Blown Fuse Indication	Black with 10...57V LED	25	1492-RFB424
	Black with 85...264V Glow Lamp	25	1492-RFB4250

Accessories

Spring clamp-End Anchor	20	1492-ERL35
Marking Systems: Marker card	5	1492-MS6X9 (80/card)

See Publication 1492-SG008... for complete product information.

Marker cards for 1492-J, 1492-L

	For Type	Labels per Card	Color	PQ	Cat. No.
	1492-J, -L	144	White	5	1492-M5X10
					1492-M5X12
	1492-J, -L	120	White		1492-M6X10
					1492-M6X12
	1492-J, -L	108	White		1492-M7X12

PQ = Package Quantity

1492 Pre-Printed Markers

1492 – M5X10

H

1-100

a

b

c

a

b

For Use With		Marker Selection	
		Code	Description
1492-L		M3X5	3x5 mm (100 markers/card)
		M3X12	3x12 mm (120 markers/card)
1492-J, L		M5X5	5x5 mm (200 markers/card)
		M5X8	5x8 mm (144 markers/card)
		M5X10	5x10 mm (144 markers/card)
		M5X12	5x12 mm (144 markers/card)
		M5X15	5x15 mm (96 markers/card)
		M6X5	6x5 mm (200 markers/card)
		M6X10	6x10 mm (120 markers/card)
		M6X12	6x12 mm (120 markers/card)
		M7X12	7x12 mm (108 markers/card)
		M8X5	8x5 mm (160 markers/card)
Inter-Linked Markers for	53	MR5X12	5x12 mm (120 markers/card)
	54	MR6X12	6x12 mm (120 markers/card)
56	MR8X12	8x12 mm (84 markers/card)	
	SM5X10	5x10 mm (144 markers/card)	
1492-K		SM6X10	6x10 mm (120 markers/card)
		MH5X10	5x10 mm (96 markers/card)
1492-L		MH5X15	5x15 mm (96 markers/card)
		MH6X12	6x12 mm (80 markers/card)
(NEMA)		MN81	6x10 mm (120 markers/card)
		MN83	10x10 mm (40 markers/card)
1492-W		MS5X5	5x5 mm (80 markers/card)
		MS5X9	5x9 mm (80 markers/card)
		MS5X12	5x12 mm (80 markers/card)
1492-W, R	MS6X9	6x9 mm (80 markers/card)	
1492-W	MS6X12	6x12 mm (80 markers/card)	
1492-W, R. H		MS8X9	8x9 mm (56 markers/card)
		MS8X12	8x12 mm (56 markers/card)
1492-W		MS9X20	9x20 mm (40 markers/card)
700-HN Sockets		MS8X17	8x17 mm (40 markers/card)
MS10X17		10x17 mm (40 markers/card)	
Competitive Terminal Blocks		MC5X8	5x8 mm (120 markers/card)
		MC5X10	5x10 mm (120 markers/card)
		MC5X12	5x12 mm (120 markers/card)
		MC6X10	6x10 mm (120 markers/card)
Wire Markers		MWC1-12	#20...#18 AWG/1.5...2.5 mm ² (40 markers/card)
		MWC3-12	#18...#14 AWG/2.0...3.5 mm ² (40 markers/card)
		MWC4-12	#12 AWG/2.5...5.0 mm ² (24 markers/card)

Text Direction	
Code	Description
H	Horizontal Print
V	Vertical Print
HU	Horizontal Up-side-down Print
VU	Vertical Up-side-down Print

c

Printing Selection	
Straight Fill Printing	
Option 1-End will start at 1 and continue printing sequential numbers until the end of the card is reached.	
Code	Description
1-End	Sequential printing to end of card
Repeat Sequence Printing	
All Options in this section will print the defined sequence in a repeating fashion until all tags are filled. (Example - Option 1-100 with a marker selection of M5x10 will print 1-100 and 1-44.)*	
Code	Description
1-10, or 11-20, or 21-30, ... or 491-500	Block of 20 sequential numbering. Blocks of 20 within a range from 1-500
1-20, or 21-40, or 41-60, ... or 481-500	Block of 50 sequential numbering. Blocks of 50 within a range from 1-500
1-50, or 51-100, or 101-150, ... or 451-500	Block of 100 sequential numbering. Blocks of 100 within a range from 1-500
1-100, 101-200, ... or 401-500	Block of 200 sequential numbering. Blocks of 200 within a range from 1-500
Single Sequence Printing	
All options in this section will print the defined sequence 1 time only and will leave the rest of the marker tags blank. (Example - Option 1-100S with a marker selection of M5x10 will print 1-100 and leave 44 blank markers).*	
Code	Description
1-10S, or 11-20S, or 21-30S, ... or 491-500S	Block of 10 sequential numbering. Blocks of 10 within a range from 1-500
1-20S, or 21-40S, ... or 481-500S	Block of 20 sequential numbering. Blocks of 20 within a range from 1-500
1-50S, or 51-100S, ... or 451-500S	Block of 50 sequential numbering. Blocks of 50 within a range from 1-500
1-100S, or 101-200S, ... or 401-500S	Block of 100 sequential numbering. Blocks of 100 within a range from 1-500

* You may not select a printing sequence quantity that exceeds the number of markers per card (e.g., you cannot choose option 1-100 on marker MH5x15 because that card only has 96 markers).


IEC Marking System

Advantages

- Plot partial marker card
- Load up to 5 cards at a time (mix and match)
- Easy to use AB-Plot software
- Character customization
- Supported by Allen-Bradley and its extensive network of distributors
- Can print markers for Terminal Blocks, contactors, relays, and more



1492-PLTKIT









	Description	Cat. No.
	Plotter Kit Includes Series E Plotter, 1492-PLOTPEN25 ink pen, 1492-PLOTPLT plate, communication cables, user manuals, ABPLOT software, and power adaptor.	1492-PLTKIT

Product Selection

Bulletin 1492-PDE — Enclosed Power Blocks

- IP2X from the front
- Single-pole blocks w/ aluminum or copper connectors
- May be mechanically connected for multiple pole requirements
- Panel-mounting




Amps (Cu Wire) 75 °C	No. of Poles	Line			Load			Cat. No.*
		Connector Configuration	Wire Range*	Openings per Pole	Connector Configuration	Wire Range*	Openings per Pole	
175	1		2/0...#14 AWG (70...2.5 mm ²)	1		2/0...#14 AWG (70...2.5 mm ²)	1	1492-PDE1111
						#2...#14 AWG (35...2.5 mm ²)		1492-PDE1C111
175	1		2/0...#14 AWG (70...2.5 mm ²)	1		#2...#14 AWG (35...2.5 mm ²)	4	1492-PDE1141
						250 kcmil...#6 AWG (120...16 mm ²)		1492-PDE1C141
510	1		250 kcmil...#6 AWG (120...16 mm ²)	2		250 kcmil...#6 AWG (120...16 mm ²)	2	1492-PDE1225
						#2...#16 AWG (35...1.5 mm ²)		1492-PDE1C225
335	1		400 kcmil...#6 AWG (185...16 mm ²) 2/0...#14 AWG (70...2.5 mm ²)	1		#2...#16 AWG (35...1.5 mm ²)	8	1492-PDE1183
								1492-PDE1C183

* Allen-Bradley power distribution blocks are rated for use with flexible wire. Please see www.ab.com for more information.






* The C in the catalog number designates copper terminals. Catalog numbers without the C, have aluminum connectors

Wiring System Selection Bulletin 1492

			
For Bulletin	1762 / MicroLogix 1200	1764 / MicroLogix 1500	1769 / Compact I/O
Features	<ul style="list-style-type: none"> • Reduced wiring time • Reduced wiring errors • Faster troubleshooting and easier maintenance • Reduced wire preparation and routing • Increased DIN Rail density • Fewer parts, less inventory and lower carrying cost • Design flexibility 		
Description	<p>Connecting to Allen-Bradley PLC I/O modules is convenient with Allen-Bradley 1492 Wiring System Interface Modules and Cables. Unlike terminal blocks, they connect through pre-wired cables to digital and analog I/O for Compact I/O for CompactLogix and MicroLogix. The interface modules are mounted onto a standard DIN #3 Rail. Pre-printed adhesive label cards containing field-wiring information are included for each interface module and I/O module combination. Wiring systems are available for many digital and analog I/O modules.</p>		






For complete product information, please see catalogue A116 or our on-line selection tools at www.ab.com

Three-Phase Power Media for ArmorStart

	 Three-Phase Power Trunk Cable	 Three-Phase Power Drop Cable	 Three-Phase Power Tees and Reducers	 Three-Phase Power Receptacles	 Three-Phase Power Accessories
Description	<ul style="list-style-type: none"> • Cordset - cable with integral female or male connector on one end • PatchCord - cable with integral female or male connector on each end 	<ul style="list-style-type: none"> • Cordset - cable with integral female or male connector on one end • PatchCord - cable with integral female or male connector on each end 	<ul style="list-style-type: none"> • Tee - connects to a single drop line to trunk with quick change connectors • Reducing Tee - connects to a single drop line (mini) to trunk (quick change) connector • Reducer - connects from quick change male connector to mini female connector 	<ul style="list-style-type: none"> • Female receptacles are a panel mount connector with flying leads • Male receptacles are a motor junction box mounted connector with flying leads 	<ul style="list-style-type: none"> • Sealing Caps offered in versions to interface with female or male connectors • Locking Clips clamshell design clips over three power phase connector to limit customer access
Features	<ul style="list-style-type: none"> • Rated for motor branch circuits • Straight or right angle connectors • 4-pin connector type • Cable rating: TC-ER/STOOW • Multiple standard lengths 	<ul style="list-style-type: none"> • Rated for motor branch circuits • Straight or right angle connectors • 4-pin connector type • Cable rating: TC-ER/STOOW • Multiple standard lengths 	<ul style="list-style-type: none"> • Rated for motor branch circuits • Trunk Tee, Reducing Tee and Reducer • 4-pin connector type 	<ul style="list-style-type: none"> • Rated for motor branch circuits • Male and female configurations • 4-pin connector type • 1/2 in. NPT • Available in 1 meter length 	<ul style="list-style-type: none"> • Sealing Caps - available in quick change and mini styles • Locking Clips are design for the quick change and mini style connectors
Rated Voltage	600V	600V	600V	600V	—
Connector Body Dimensions	Straight: 88.9 x 38.6 mm Right Angle: 75.5 x 74 mm	Straight: 56. x 25.4 mm Right Angle: 44.9 x 40.4 mm	Trunk Tee: 108 x 73.6 mm Reducing Tee: 108 x 65.5 mm Reducer: 112.5 x 38.1 mm	<i>M22 Female:</i> 33.45 x 25.45 mm <i>M22 Male:</i> 28.04 x 25.45 mm <i>M35 Female:</i> 71.12 x 38.10 mm <i>M35 Male:</i> 63.50 x 38.10 mm	—

For complete product information, please see catalogue A116 or our on-line selection tools at www.ab.com

Control Power Media

	 Control Power Cordsets & Patchcords	 Control Power T-ports	 Control Power Receptacles	 Control Power Shorting Plugs	 Control Power Accessories
Description	Cable with integral connector on either one or both ends	Cable with single male connector attached to two female connectors	Panel mount connector with flying leads	Integral connector with leads shorted for specific application requirements	Sealing caps, mounting nuts, and sealing washers
Features	<ul style="list-style-type: none"> • 6-pin/5-used configuration • Male and female • Straight or right angle versions • 16 AWG conductors, cable dual rated UL TC/Open Wiring and ST00W • Multiple standard lengths 	<ul style="list-style-type: none"> • 6-pin/5-used configuration • Compact design • Color-coded E-stop in and E-stop out configurations 	<ul style="list-style-type: none"> • 6-pin/5-used configuration • Male and female • 16 AWG conductors • 1/2 NPT mounting threads • Multiple standard lengths 	<ul style="list-style-type: none"> • 6-pin/5-used configuration • Male • Multiple versions color coded for simple identification 	<ul style="list-style-type: none"> • Rugged durable construction • Designed to mate with Control Power media
Rated Voltage	600V	600V	600V	600V	—
Connector Body Dimensions	Straight: 56 x 25 mm Right Angle: 40 x 45 mm	72 x 64 mm	30 x 25 mm	56 x 25 mm	—

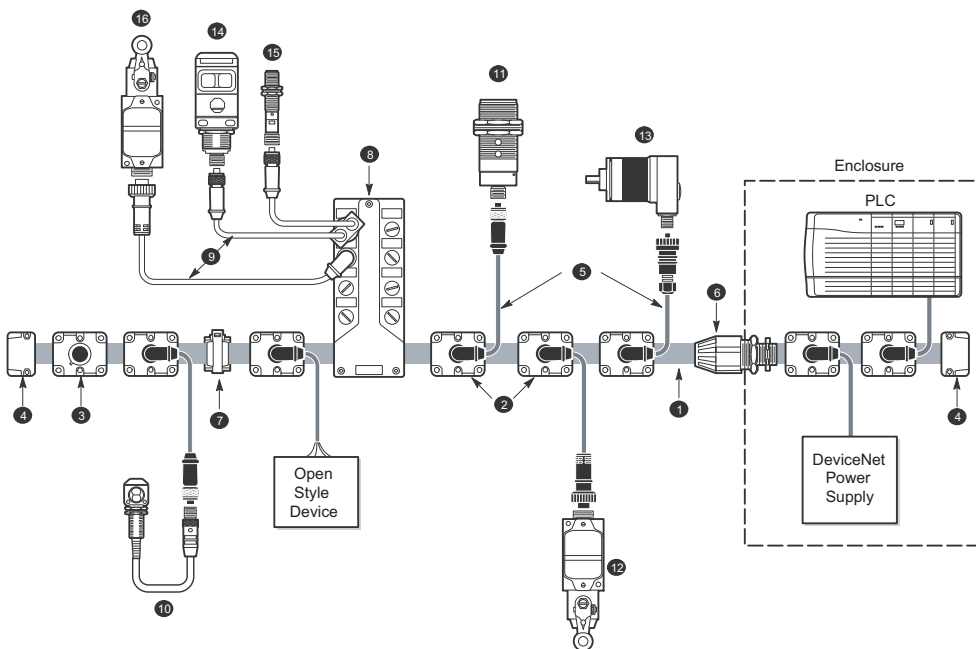
For complete product information, please see catalogue A116 or our on-line selection tools at www.ab.com

DeviceNet™ Media

Bulletin	1485			
Type	DeviceNet™ Flat Media System—KwikLink™ General Purpose	DeviceNet™ Flat Media System—KwikLink™ Heavy Duty	DeviceNet™ Round Media Thick Trunk System	DeviceNet™ Round Media Thin Trunk System
Product Selection	this page	Page 4-16	Page 4-19	Page 4-20

DeviceNet™ Flat Media System — KwikLink™ General Purpose

Typical Configuration



① KwikLink General Purpose Flat Trunk Cable

② KwikLink General Purpose Connector

③ Micro Terminator

④ Flat Cable End Cap

⑤ KwikLink Drop Cable

⑥ Conduit Adaptor

⑦ Mounting Clamp

⑧ ArmorBlock MaXum

⑨ Standard Cordsets

⑩ DeviceNet Photoelectric

⑪ DeviceNet Inductive

⑫ DeviceNet Limit Switch

⑬ DeviceNet Encoder

⑭ Standard Photoelectric


⑮ Standard Proximity

⑯ Standard Limit Switch

See Publication M115-CA001... for complete product information


DeviceNet™ Flat Media System — KwikLink™ General Purpose, continued

KwikLink General Purpose Connector

	Description		Cat. No.
	KwikLink General Purpose Connector	Micro Style	1485P-K1E4-R5

KwikLink General Purpose Flat Cable Trunk





(Only for use with KwikLink General Purpose connector 1485P-K1E4-R5)

	Description	Spool	Rating	Used	Color	Cat. No.
	DeviceNet KwikLinkCL2 Trunk Cable	75 m	24V	Device Net Trunk	Grey (PVC)	1485C-P1K75
		200 m	DC, 4 A (Class 2)			1485C-P1K200
		420 m				1485C-P1K420

Note: KwikLink General Purpose Flat Cables are not recommended for use with original Heavy Duty KwikLink connectors.

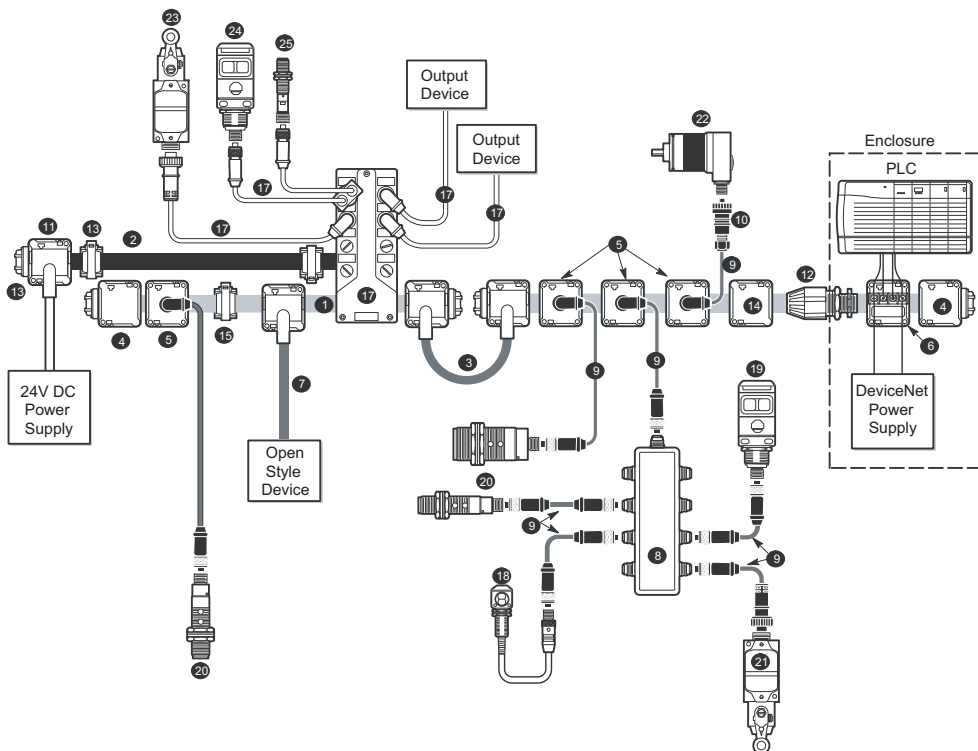
KwikLink™ Accessories

In order to support all of the options associated with the flexibility of KwikLink, Allen-Bradley offers an array of accessories including cable mounts, conduit adaptors, flat cable end caps and threaded plugs for sealing unused micro connectors.

	Description	Cat. No.
	Standalone Flat Cable End Cap	1485A-KCAP
	Micro Terminator, Male	1485A-T1D5
	Flat Cable Conduit Adapter	1485A-CAD
	Flat Cable Mounting Clamp	1485A-FCM

See Publication M115-CA001... for complete product information





DeviceNet™ Flat Media System — KwikLink™ Heavy Duty Typical Configuration



- | | | |
|------------------------------|------------------------|-----------------------------|
| ① Flat Trunk Cable | ⑩ Terminal Chamber | ⑱ DeviceNet RightSight |
| ② Flat Auxiliary Power Cable | ⑪ Auxiliary Power Drop | ⑲ DeviceNet SmartSight 9000 |
| ③ Splice Kit | ⑫ Conduit Adaptor | ⑳ DeviceNet Inductive |
| ④ Terminator | ⑬ Flat Cable End Cap | ㉑ DeviceNet Limit Switch |
| ⑤ Connector IDC | ⑭ Mounting Clamp | ㉒ DeviceNet Encoder |
| ⑥ Open Style IDC | ⑮ Dust Cap | ㉓ Standard Limit Switch |
| ⑦ Class I Drop | ⑯ ArmorBlock MaXum | ㉔ Standard Photoelectric |
| ⑧ DevicePort | ⑰ Standard Cordsets | ㉕ Standard Proximity |
| ⑨ KwikLink Drop Cable | | |

See Publication M115-CA001... for complete product information


DeviceNet™ Flat Media System — KwikLink™ Heavy Duty, continued

	Description		Cat. No.
	KwikLink Insulation Displacement Connectors Quick connection of distributed starters to DeviceNet network Micro M12 connector	*	1485P-P1E4-R5
	KwikLink Insulation Displacement Connectors Quick connection of distributed starters to DeviceNet network Open Style connector		1485P-P1H4-T4
	KwikLink Insulation Displacement Terminator, Unsealed		1485A-T1H4
	Standard KwikLink Heavy-Duty Splice Kit, Sealed		1485P-P1E4-S

* For connecting drop cables, see table below.

KwikLink Flat Cable Trunk

(Only for use with KwikLink connector 1485P-P1E4-R5)





	Description	Spool	Rating	Used	Color	Cat. No.
	DeviceNet KwikLinkCL1 Trunk Cable	75 m	24V DC, 8 A (Class 1)	DeviceNet Trunk	Grey (TPE)	1485C-P1E75
	DeviceNet KwikLinkCL2 Trunk Cable		24V DC, 4 A (Class 2)		Light grey (PVC)	1485C-P1G75
	KwikLink Auxiliary Power Cable		24V DC, 8 A (Class 1)	Aux Power Trunk	Black (PVC)	1485C-P1L75
	DeviceNet KwikLinkCL1 Trunk Cable	200 m	24V DC, 8 A (Class 1)	DeviceNet Trunk	Grey (TPE)	1485C-P1E200
	DeviceNet KwikLinkCL2 Trunk Cable		24V DC, 4 A (Class 2)		Light grey (PVC)	1485C-P1G200
	KwikLink Auxiliary Power Cable		24V DC, 8 A (Class 1)	Aux Power Trunk	Black (PVC)	1485C-P1L200
	DeviceNet KwikLinkCL1 Trunk Cable	420 m	24V DC, 8 A (Class 1)	DeviceNet Trunk	Grey (TPE)	1485C-P1E420
	DeviceNet KwikLinkCL2 Trunk Cable		24V DC, 4 A (Class 2)		Light grey (PVC)	1485C-P1G420
	KwikLink Auxiliary Power Cable		24V DC, 8 A (Class 1)	Aux Power Trunk	Black (PVC)	1485C-P1L420

See Publication M115-CA001... for complete product information


DeviceNet™ Flat Media System — KwikLink™ Heavy Duty, continued

KwikLink™ Accessories

In order to support all of the options associated with the flexibility of KwikLink, Allen-Bradley offers an array of accessories including cable mounts, conduit adaptors, covers for unused nodes, and threaded plugs for sealing unused micro connectors.

	Description	Cat. No.
	Kwiklink Module Dust Cap	1485A-C5E4
	Flat Cable Conduit Adapter	1485A-CAD
	Flat Cable Mounting Clamp	1485A-FCM
	Flat Cable End Cap for KwikLink	1485A-CAP

DeviceNet™ Drop Cable

	Description	Cat. No.
	KwikLink Right Angle Micro Male to Straight Micro Female 1 m (3.28 ft.)	1485K-P1F5-R5
	KwikLink Right Angle Micro Male to Straight Micro Female 2 m (6.56 ft.)	1485K-P2F5-R5
	KwikLink Right Angle Micro Male to Straight Micro Female 3 m (9.84 ft.)	1485K-P3F5-R5
	KwikLink Right Angle Micro Male to Straight Micro Female 4m (13.1ft)	1485K-P4F5-R5
	KwikLink Right Angle Micro Male to Straight Micro Female 5m (16.4ft)	1485K-P5F5-R5
	KwikLink Right Angle Micro Male to Straight Micro Female 6m (19.7ft)	1485K-P6F5-R5

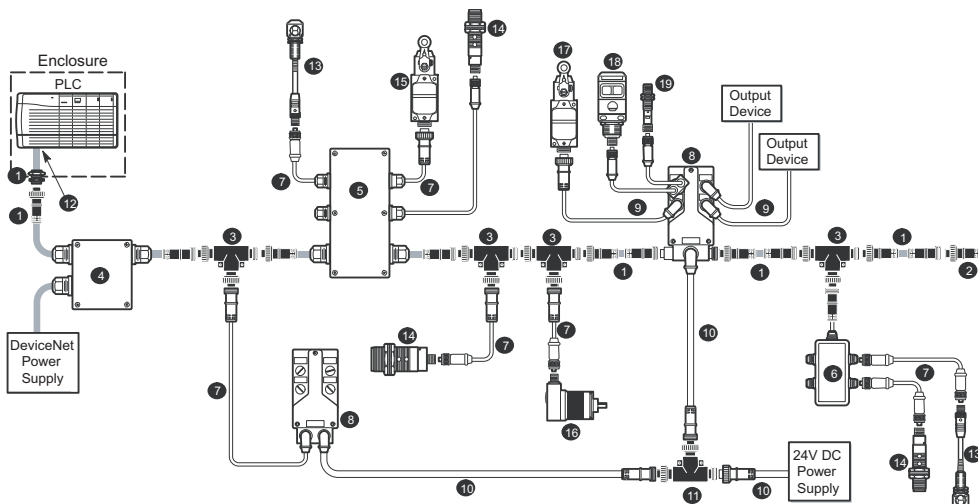
Note: These drop cables are only for use with the KwikLink flat cable system. They are not suitable for use with standard DeviceNet round cable systems.

See Publication M115-CA001... for complete product information

DeviceNet™ Round Media

Thick Trunk System

Typical Configuration



- ① Thick Trunk Cable
- ② Terminator
- ③ T-Port
- ④ Power Tap
- ⑤ DeviceBox
- ⑥ DevicePort
- ⑦ Thin Drop Cable
- ⑧ ArmorBlock MaXum
- ⑨ Standard Cordsets
- ⑩ Aux Power Cable
- ⑪ Aux Power Tee
- ⑫ Open Terminator
- ⑬ DeviceNet Photoelectric
- ⑭ DeviceNet Inductive
- ⑮ DeviceNet Limit Switch
- ⑯ DeviceNet Encoder
- ⑰ Standard Limit Switch
- ⑱ Standard Photoelectric
- ⑲ Standard Proximity

Thick Trunk Cable

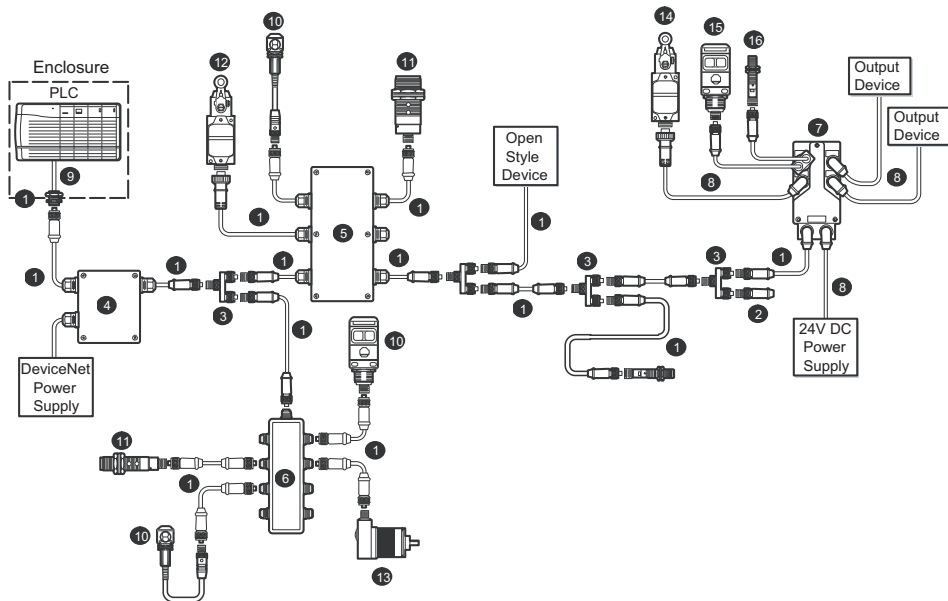
Description	Color	Spool	Cat. No.
DeviceNet Thick Trunk Cable	grey (PVC)	50 m	1485C-P1-A50
		150 m	1485C-P1-A150
		300 m	1485C-P1-A300
		500 m	1485C-P1A500

See Publication M115-CA001... for complete product information

DeviceNet™ Round Media, continued

Thin Trunk System

Typical Configuration







- | | | |
|-------------------|---------------------------|--------------------------|
| ① Thin Drop Cable | ⑥ DevicePort | ⑫ DeviceNet Limit Switch |
| ② Terminator | ⑦ ArmorBlock MaXum | ⑬ DeviceNet Encoder |
| ③ T-Port | ⑧ Standard Cordsets | ⑭ Standard Limit Switch |
| ④ Power Tap | ⑨ Open Terminator | ⑮ Standard Photoelectric |
| ⑤ DeviceBox | ⑩ DeviceNet Photoelectric | ⑯ Standard Proximity |
| | ⑪ DeviceNet Inductive | |

Thin Trunk Cable

Description	Color	Spool	Cat. No.
DeviceNet Thin Trunk Cable	grey (PVC)	50 m	1485C-P1CG50
		150 m	1485C-P1CG150
		300 m	1485C-P1CG300
		600 m	1485C-P1CG600

See Publication M115-CA001... for complete product information



DeviceNet™ Round Media, continued


	Description		Cat. No.
Thick Trunk System			
	Power Tap (Thick Trunk)	7.5 A Fuse (2 included)	1485T-P2T5-T5
	2-port DeviceBox Tap, Thick Trunk, Cable Gland Connections	2 Drops	1485P-P2T5-T5
	4-port DeviceBox Tap, Thick Trunk, Cable Gland Connections	4 Drops	1485P-P4T5-T5
	8-port DeviceBox Tap, Thick Trunk, Cable Gland Connections	8 Drops	1485P-P8T5-T5
Thin Trunk System			
	Power Tap (Thin Trunk)	3 A Fuse (2 included)	1485T-P2T5-T5C
	2-port DeviceBox Tap (Thin Trunk).	2 Drops	1485P-P2T5-T5C
	4-port DeviceBox Tap (Thin Trunk).	4 Drops	1485P-P4T5-T5C
	8-port DeviceBox Tap (Thin Trunk).	8 Drops	1485P-P8T5-T5C

	Description	Trunk	Drop	Cat. No.
	4-port DeviceNet Thru-Trunk DevicePort	Mini	Mini Female	1485P-P4N5-MN5
	6-port DeviceNet Thru-Trunk DevicePort	Mini	Mini Female	1485P-P6N5-MN5
	4-port DeviceNet Thru-Trunk DevicePort	Mini	Micro Female	1485P-P4R5-MN5
	6-port DeviceNet Thru-Trunk DevicePort	Mini	Micro Female	1485P-P6R5-MN5

See Publication M115-CA001... for complete product information


DeviceNet™ Round Media *, continued


	Description	Trunk	Drop	Cat. No.
	DeviceNet T-Port with Trunk and Drop connections Left Keyway	Micro	Micro	1485P-P1R5-DR5
	DeviceNet T-Port with Mini Trunk and Micro Drop connections Right Keyway	Mini	Micro	1485P-P1R5-MN5R1

	Description	Cable	Cat. No.
	Pre-terminated Thin Cable: Right Angle Micro Male to Straight Micro Female: 1 m (3.3ft)	yellow (CPE)	1485R-P1R5-F5
	Pre-terminated Thin Cable: Right Angle Micro Male to Straight Micro Female: 2 m (6.5ft)		1485R-P2R5-F5
	Pre-terminated Thin Cable: Right Angle Micro Male to Straight Micro Female: 3 m (9.8ft)		1485R-P3R5-F5
	Pre-terminated Thin Cable: Right Angle Micro Male to Straight Micro Female: 4 m (13.1ft)		1485R-P4R5-F5
	Pre-terminated Thin Cable: Right Angle Micro Male to Straight Micro Female: 5 m (16.4ft)		1485R-P5R5-F5
	Pre-terminated Thin Cable: Right Angle Micro Male to Straight Micro Female: 6 m (19.8ft)		1485R-P6R5-F5
	Pre-terminated Thin Cable: Straight Micro Male to Straight Micro Female: 1 m (3.3ft)	yellow (CPE)	1485R-P1R5-D5
	Pre-terminated Thin Cable: Straight Micro Male to Straight Micro Female: 2 m (6.5ft)		1485R-P2R5-D5
	Pre-terminated Thin Cable: Straight Micro Male to Straight Micro Female: 3 m (9.8ft)		1485R-P3R5-D5
	Pre-terminated Thin Cable: Straight Micro Male to Straight Micro Female: 4 m (13.1ft)		1485R-P4R5-D5
	Pre-terminated Thin Cable: Straight Micro Male to Straight Micro Female: 5 m (16.4ft)		1485R-P5R5-D5
	Pre-terminated Thin Cable: Straight Micro Male to Straight Micro Female: 6 m (13.1ft)		1485R-P6R5-D5

* For use with distributed starters. See publication M115-CA001... for complete cable selection information.

DeviceNet™ Round Media *, continued

	Description	Trunk	Drop	Cat. No.
	DeviceNet T-Port with Mini Trunk and Mini Drop connections Left Keyway	Mini	Mini	1485P-P1N5-MN5L1
	DeviceNet T-Port with Mini Trunk and Mini Drop connections Right Keyway	Mini	Mini	1485P-P1N5-MN5R1

	Description	Cable	Cat. No.
	DeviceNet Thick Trunk or Drop Cable	grey (PVC)	1485C-P1N5-M5
	DeviceNet Thick Trunk or Drop Cable		1485C-P3N5-M5
	DeviceNet Thick Trunk or Drop Cable		1485C-P5N5-M5
	DeviceNet Thick Trunk Cable		1485C-P10N5-M5
	DeviceNet Thick Trunk Cable		1485C-P30N5-M5
	DeviceNet Mini Male to Micro Female 1 m (3.28 ft.)	yellow (CPE)	1485R-P1M5-R5
	DeviceNet Mini Male to Micro Female 2 m (6.56 ft.)		1485R-P2M5-R5
	DeviceNet Mini Male to Micro Female 3 m (9.84 ft.)		1485R-P3M5-R5
Pre-terminated Thin Cable: Straight Mini Male to Straight Micro Female: 4m (13.1ft)	1485R-P4M5-R5		

* For use with distributed starters. See publication M115-CA001... for complete cable selection information.



See Publication M115-CA001... for complete product information

Other styles (connectors, cordsets and patchcords) and lengths are available, please consult your local Rockwell Automation distributor for details.



DeviceNet™ Round Media, continued

Terminal Chambers

Terminal chambers are passive field-installable connectors. Allen-Bradley 5-pin micro style and 5-pin mini style terminal chambers are designed for use with DeviceNet systems. These connectors contain screw terminals for quick and easy installation and are sized for use with either DeviceNet thick or thin cables.



	Description	Media Use	Connector	Cat. No.
	5-pin Straight Mini Male Terminal Chamber, Thick, screw type	Thick	Straight Mini Male	871A-TS5-NM3
	5-pin Straight Mini Female Terminal Chamber, Thick, screw type		Straight Mini Female	871A-TS5-N3
	5-pin Straight Terminal Chamber	Thin	Straight Mini Male	871A-TS5-NM1
	5-pin Straight Terminal Chamber		Straight Mini Female	871A-TS5-N1
	5-pin Straight Terminal Chamber	Thin	Straight DC Micro Male	871A-TS5-DM1
	5-pin Straight Terminal Chamber		Straight DC Micro Female	871A-TS5-D1
	5-pin Right Angle Terminal Chamber	Thin	Right Angle DC Micro Male	871A-TR5-DM1
	5-pin Right Angle Terminal Chamber		Right Angle DC Micro Female	871A-TR5-D1

Terminators

	Description	Media Use	Cat. No.
	Micro Terminator, Male	Thick or Thin	1485A-T1M5
	Micro Terminator, Female		1485A-T1N5
	Micro Terminator, Male	Thick	1485A-T1D5
	Micro Terminator, Female		1485A-T1R5

DeviceNet™ Round Media, continued

Open Style Connectors

	Description	Cat. No.
	DeviceNet Terminal Block Assembly With color coded double tier terminals	1492-DN3TW
	5-pin Linear Plug, Open-style	1799-DNETCON
	5-pin Linear Plug, Open-style, with Jack Screws	1799-DNETSCON
	Open-style, 10-position Linear Plug	1787-PLUG10R

Thin Trunk System

	Terminating Resistor	1485A-C2
	Accessory Kit for DeviceBox	1485A-ACCKIT

Bulkhead Pass-thru

	Description	Media Use	Cat. No.
	Mini 5-pin Bulkhead Pass-thru	Thick or Thin	1485A-CXN5-M5
	Micro 5-pin Bulkhead Pass-thru	Thin	1485A-CXR5-D5

See Publication M115-CA001... for complete product information

Connection Systems: Cordsets, Ethernet

M12 D Coded Connectivity

- Over molded housing suitable for IP67 applications and harsh industrial environments where extreme vibration, shock, chemicals and temperature are found.
- Flex rated cable (cable must be tied down and not flexed within 6 inches of the connector)
- Single-ended cordsets can be custom terminated with one of several field attachable connectors
- Designed to ODVA EtherNet/IP specifications and ISO IEC 24702, IEC 61918
- Twisted pairs maintain signal balance through cable to provide high noise immunity and return loss
- Suitable environments $M_3I_3C_3E_3$



First End Connector	Second End Connector	Cable	Cat. No.
Male M12 D Code	Male M12 D Code	4-Conductor, Teal TPE, Flex Rated	1585D-M4TBDM-*
Male M12 D Code	Flying Leads		1585D-M4TB-*

* Replace symbol with 0M3 (0.3 m), 0M6 (0.6 m), 1 (1 m), 2 (2 m), 5 (5 m) or 10 (10 m) for standard cable lengths.

Connection Systems: Cordsets, Ethernet

RJ45 Connectivity

- Flex rated TPE, PVC, and Plenum cables for various applications
- Teal or red cable jacket
- Rugged strain relief and hitch mechanism to maintain network integrity



Product Selection

Cable Type	Cable Rating	Cat. No.
4-Conductor, Teal Robotic TPE	UL CMG, CMX; cUL CMG; Standard TIA 568-B	1585J-M4TB-*
4-Conductor, Teal Robotic TPE	Weld splatter, sun light and oil resistant; UL CMG, CMX; cUL CMG; Standard TIA 568-B, flex rated	1585J-M4TBJM-*
8-Conductor, Teal Robotic TPE		1585J-M8TBJM-*
8-Conductor, Red Robotic TPE		1585J-M8VBJM-*
8-Conductor, Teal Riser PVC	UL CMR, CMX; cUL CMG; Standard TIA 568-B	1585J-M8PBJM-*
8-conductor, Red Plenum	UL CMP; cUL CMP; Standard TIA 568B	1585J-M8MBJM-*

* Replace symbol with 2 (2 m), 5 (5 m) or 10 (10 m) for standard cable lengths.

Connection Systems: Ethernet Media

Allen-Bradley Ethernet Media is available in raw spools as well as specified lengths with any of several connectors pre-attached. Cordsets and patchcords are prewired to assure reliable connection. Field Attachable connectors are also offered in a variety of selections for custom lengths and applications. These specially designed cables are unshielded and offered in two- and four-pair.

- Four- and eight-conductor styles
- Unshielded cable types, Cat 5e
- 24 AWG conductors
- Twisted pairs maintain signal balance through cable to provide high noise immunity and return loss
- Designed to ODVA EtherNet/IP™ specifications and ISO IEC 24702, IEC 61918
- Flex cables are tested for 10 million cycles



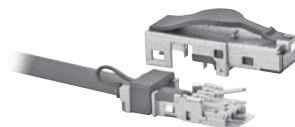
Jacket Material	No. of Conductors	Nominal Outer Diameter	Jacket Color	Color Code	Cable Rating	Cat. No.
Robotic TPE	4 (two pair)	5.6 mm (0.22 in.)	Teal	White/Orange, White/Green, Orange, Green	Weld splatter, sunlight and oil resistant; UL CM, CMX; cUL CM; Standard TIA 568-B, high flex rated	1585-C4TB-S⊗
Robotic TPE	8 (four pair)	5.84 mm (0.23 in.)	Teal	White/Orange, Orange, White/Green, Blue, White/Blue, Green, White/Brown, Brown		1585-C8TB-S⊗
Robotic TPE	8 (four pair)		Red			1585-C8VB-S⊗
Plenum	8 (four pair)		Red	UL CMP; cUL CMP; Standard TIA 568-B	1585-C8MB-S⊗	
Riser PVC	8 (four pair)		Teal	UL CMR; CMG; cUL CMG; Standard TIA 568-B	1585-C8PB-S⊗	

⊗Replace symbol with 100 (100 m), 300 (300 m), or 600 (600 m) for standard cable lengths.

Connection Systems: EtherNet™

IDC Connector

- 26-22 AWG Conductors
- 360° Shielding
- Re-use IDC Connector Up to Five Times
- No Tools or Conductor Stripping Required
- Cat. 6



RJ45 Insulation Displacement Connector (IDC)

Crimp Connector

- 26...24 AWG
- Standard Crimp Connector with Rugged Boot
- Cat. 5e



RJ45 Crimp

Description	Electrical Connection	Housing Material	Insulation Material	Contact Material	Channel Bandwidth	Cat. No.
RJ45 Insulation Displacement Connector (IDC)	—	Diecast Zinc	Plastic	Copper alloy	Cat. 6	1585J-M8CC-H
RJ45 Crimp Connector with Boot	150V, 1.5 A	Clear Polycarbonate			Cat. 5e	❄

❄ Qty. = 50 pieces

Ethernet M12 Media

Insulation Displacement Connector (IDC)

- Field installable with no hand tools needed
- Straight male or female shielded versions
- Allows easy modification of existing cable installations
- Insulation displacement technology for secure and reliable installation
- Metal body unit excellent in shielding applications



No. of Pins	Connector Material	Cable Diameter [mm (in.)]	Wire Size	Assembly Rating	Connector Style	Cat. No.
4	Polyamide small body unshielded	4.0...5.1 (0.16...0.20)	#26...22 AWG	32V, 4 A	Straight Male	1585D-M4DC-H

4-Pin, M12 Receptacle & M12 to RS45 Adaptor

- #24 AWG conductors
- 4-pin D-coded M12 configuration
- M12 to RS45 bulkhead
- IP67



Description	Mounting	Assembly Rating	Cat. No.
Female M12 receptacle to RJ45 female adaptor right angle	PG 9 Panel Mount Threads	#22 AWG 32V 4 A	1585A-DD4JD

Stratix 2000 Unmanaged

The Stratix 2000 unmanaged line scales from 4 to 8 ports and offers a variety of copper and fiber options. Stratix 2000 unmanaged switches are easy to apply, requiring no configuration. Complementary IP67, managed and Enterprise integrated switches will fill out the Ethernet switch portfolio.

- Optimized for small, isolated networks
- Requires no configuration
- Auto negotiation
- Auto crossing



Description	Power Requirements	Operating Temp.	Dimensions (H, W, D) [mm]	Cat. No.
4 copper ports, 1fiber with LC-connector	10...35V DC	0...60 °C	28x108x127	1783-US03T01F
5 copper ports	10...35V DC	0...60 °C	28x108x127	1783-US05T
7 copper ports, 1fiber with LC-connector	10...35V DC	0...60 °C	45x108x127	1783-US06T01F
8 copper ports	10...35V DC	0...60 °C	45x108x127	1783-US08T

Distributed I/O

Product Line Overview

Bulletin	1790D	1732
Type	CompactBlock LDX Distributed I/O	ArmorBlock I/O
Features	<ul style="list-style-type: none"> • Wide breadth of I/O types that can handle diverse applications • Expandable up to 3 digital expansion blocks (80 I/O's) • Universal sink/source inputs reduces the number of components to stock and allows flexibility of input types • Selectable termination types (D-shell or screw) • Easy to connect and configure using modular EDS files • ODVA conformance ensures high level of interoperability with other DeviceNet products • Analog DeviceNet bases for current, voltage, PT100 and thermocouple execution • CompactBlock LDX I/O are also available for other network • 24V DC, 120V AC and relay discrete blocks with built-in DeviceNet adapter • Cyclic and change-of-state messaging increases network throughput, increases productivity • Auto baud rate detection 	<ul style="list-style-type: none"> • Sealed housing rated for IP67K and NEMA 4X eliminate enclosure costs • I/O connectors are sealed M8 pico or M12 DC micro styles • 8-point and 16-point self-configuring I/O provides flexibility for any input/output combination • Removal and Insertion Under Power allows module replacement without impacting the network operation • Isolated auxiliary power maintains power to the outputs if main power fails • Outputs electronically protected from failing with option to auto-restart or latch off • Complies with Open DeviceNet Vendor Association, Inc. (ODVA) conformance test software
I/O	Up to 80 I/O with discrete bases and up to 36 I/O with analog bases	8 or 16 digital points
Analog Inputs/Outputs	4 & 2 (Voltage/Current/RTD/Thermocouple)	—
Software	RSNetwork for DeviceNet	
Mounting	Horizontal / Vertical Panel or DIN rail mounted	On-Machine Panel
Operating Power	120V AC / 24V DC	24V DC
Standards/Approvals	UL/cUL Listed, CE certified	IP65, IP66, IP67K, NEMA 4X, cULus, CE, C-Tick
Product Selection	See page 4-31	See page 4-33

CompactBlock LDX I/O Blocks

- Small, easy expandable block I/O products with universal sink/source inputs
- Digital bases support up to 3 discrete expansion blocks (80 I/O's) and analog bases support up to 2 discrete expansion blocks
- Cost-effective I/O product line for light industrial and commercial automation
- Selectable terminations (D-shell or screw terminations)
- Wide breadth of I/O's including discrete, analog, thermopcouple and RTD bases for different networks and discrete expansion blocks



Discrete I/O

DeviceNet Bases

Description	Cat. No.
DNet LDX, 16 sourcing output base, D-shell connector	1790D-0B16
DNet LDX, 24V DC, 16 sinking output base, D-shell connector	1790D-0V16
DNet LDX, 6 relay output base, D-shell connector	1790D-0W6
DNet LDX, 24V DC, 16 universal input base, D-shell	1790D-16BV0
DNet LDX, 24V DC, 32 universal input base, D-shell	1790D-T32BV0
DNet LDX, 24V DC, 8 univ In/8 source output base, D-shell	1790D-8BV8B
DNet LDX, 24V DC, 8 univ In/8 sink output base, D-shell	1790D-8BV8V
DNet LDX, 120V AC, 6 output base, terminal block	1790D-T0A6
DNet LDX, 24V DC, 16 source output base, terminal block	1790D-T0B16
DNet LDX, 24V DC, 32 source output base, terminal block	1790D-T0B32
DNet LDX, 24V DC, 16 sinking output base, terminal block	1790D-T0V16
DNet LDX, 24V DC, 32 sinking output base, terminal block	1790D-T0V32
DNet LDX, 6 relay output base, terminal block	1790D-T0W6
DNet LDX, 24V DC, 16 universal input base, terminal block	1790D-T16BV0
DNet LDX, 120V AC, 8 input base, terminal block	1790D-T8A0
DNet LDX, 24V DC, 8 univ in/8 source output base, terminal block	1790D-T8BV8B
DNet LDX, 24V DC, 16 univ in/16 source output base, terminal block	1790D-T16BV16B
DNet LDX, 24V DC, 8 univ in/8 sink output base, terminal block	1790D-T8BV8V
DNet LDX, 24V DC, 16 univ in/16 sink output base, terminal block	1790D-T16BV16V

CompactBlock LDX I/O Blocks, continued

Expansion Block I/O

Description	Cat. No.
LDX I/O, 24V DC, 16 source out expansion, D-shell	1790-0B16X
LDX I/O, 24V DC, 16 sink out expansion, D-shell	1790-0V16X
LDX I/O, 8 relay out, expansion, D-shell	1790-0W8X
LDX I/O, 24V DC, 16 universal in expansion, D-shell	1790-16BV0X
LDX I/O, 24V DC, 8 univ in/8 source out expansion, D-shell	1790-8BV8BX
LDX I/O, 24V DC, 8 univ in/8 sink out expansion, D-shell	1790-8BV8VX
LDX I/O, 120V AC, 8 output expansion module, terminal block	1790-T0A8X
LDX I/O, 24V DC, 16 source out expansion, terminal block	1790-T0B16X
LDX I/O, 24V DC, 16 sink out expansion, terminal block	1790-T0V16X
LDX I/O, 8 relay out, expansion, terminal block	1790-T0W8X
LDX I/O, 24V DC, 16 universal in expansion, terminal block	1790-T16BV0X
LDX I/O, 120V AC, 8 input expansion module, terminal block	1790-T8A0X
LDX I/O, 24V DC, 8 univ in/8 source out expansion, terminal block	1790-T8BV8BX
LDX I/O, 24V DC, 8 univ in/8 sink out expansion, terminal block	1790-T8BV8VX

Analog I/O

DeviceNet Bases

Description	Cat. No.
DeviceNet LDX, 4 input RTD base, D-shell connector	1790D-4R0
DeviceNet LDX, 4 input thermocouple base, D-shell connector	1790D-4T0
DeviceNet LDX, 2 output analog current base, D-shell connector	1790D-N0C2
DeviceNet LDX, 2 output voltage analog base, D-shell connector	1790D-N0V2
DeviceNet LDX, 4 input analog current base, D-shell connector	1790D-N4C0
DeviceNet LDX, 4 input voltage analog base, D-shell connector	1790D-N4V0
DeviceNet LDX, 4 input RTD base, terminal block	1790D-T4R0
DeviceNet LDX, 4 input thermocouple base, terminal block	1790D-T4T0
DeviceNet LDX, 2 output analog current base, terminal block	1790D-TN0C2
DeviceNet LDX, 2 output voltage analog base, terminal block	1790D-TN0V2
DeviceNet LDX, 4 input analog current base, terminal block	1790D-TN4C0
DeviceNet LDX, 4 input voltage analog base, terminal block	1790D-TN4V0

See publication 1790-PP002... or 1790D-TD001... for complete product information.

ArmorBlock Digital I/O Blocks

- Sealed housing rated for IP-69K and NEMA 4X eliminate enclosure costs.
- Low installation cost and easy to replace without rewiring because industry-standard M12 DC micro connectors are used for connection to the DeviceNet network and auxiliary power supply. I/O connectors are sealed M8 pico or M12 DC micro styles.
- 8-point and 16-point self-configuring I/O provides flexibility for any input/output combination.
- Removal and Insertion Under Power makes it possible to replace a module without impacting the network operation.
- Isolated auxiliary power maintains power to the outputs if main power fails so that you can have the option of holding outputs in their last state.
- Outputs electronically protected from failing with option to autorestart or latch off.
- Complies with Open DeviceNet Vendor Association, Inc. (ODVA) conformance test software.



ArmorBlock I/O — DeviceNet

Description	Cat. No.
DeviceNet, Input Module, 8 Sink Inputs, Pico (M8) connector	1732D-IB8M8
DeviceNet, Input Module, 8 Sink Inputs, DC Micro (M12) connector	1732D-IB8M12
DeviceNet, Input Module, 16 Sink Inputs, DC Micro (M12) connector	1732D-IB16M12M12
DeviceNet, Input Module, 16 Sink Inputs, DC Micro (Mini) connector	1732D-IB16M12MINI
DeviceNet, Output Module, 8 Source Outputs, Pico (M8) connector	1732D-OB8EM8
DeviceNet, Output Module, 8 Source Outputs, DC Micro (M12) connector	1732D-OB8EM12
DeviceNet, Output Module, 16 Source Outputs, DC Micro (M12) connector	1732D-OB16M12M12
DeviceNet, Output Module, 16 Source Outputs, DC Micro (Mini) connector	1732D-OB16M12MINI
DeviceNet, Self-configuring Module, 8 point I/O, Pico (M8) connector	1732D-8CFGM8
DeviceNet, Self-configuring Module, 8 point I/O, DC Micro (M12) connector	1732D-8CFGM12
DeviceNet, Self-configuring Module, 16 point I/O, DC Micro (M12) connector	1732D-16CFGM12M12
DeviceNet, Self-configuring Module, 16 point I/O, DC Micro (Mini) connector	1732D-16CFGM12MN

ArmorBlock I/O — EtherNet/IP

Description	Cat. No.
EtherNet, Input module, 16 points, DC Micro (M12) connector	1732E-IB16M12
EtherNet, Output module, 16 points, DC Micro (M12) connector	1732E-OB16M12
EtherNet, Self-configuring, 16 points, DC Micro (M12) connector	1732E-16CFGM12

ArmorBlock I/O — EtherNet/IP Dual Port

Description	Cat. No.
EtherNet/IP Dual Port, Input Module, 16 points, DC Micro(M12) connector	1732E-IB16M12R
EtherNet/IP Dual Port, Input Module, 16 points, Diagnostics, DC Micro(M12) connector	1732E-IB16M12DR
EtherNet/IP Dual Port, 8 Inputs, 8 Outputs, Diagnostics, DC Micro(M12) connector	1732E-8X8M12DR
EtherNet/IP Dual Port, Output Module, 16 points, DC Micro(M12) connecto	1732E-OB16M12R
EtherNet/IP Dual Port, Output Module, 16 points, Diagnostics, DC Micro(M12) connector	1732E-OB16M12DR
EtherNet/IP Dual Port, Self-configuring Module, 16 points, DC Micro(M12) connector	1732E-16CFGM12R

Cables and Cordsets

The Cable and Cordset tables list the most common cable, patchcords, and cordsets for the I/O module.

You can also find additional information on selecting cables and cordsets for ArmorBlock I/O in these publications:

- On-Machine Connectivity Catalog
http://literature.rockwellautomation.com/idc/groups/literature/documents/ca/m116-ca001_-en-p.pdf
- On-Machine Solutions Selection Guide
http://literature.rockwellautomation.com/idc/groups/literature/documents/sg/onmach-sg001_-en-p.pdf

ArmorBlock I/O Cables

For Using:	Recommended Patchcord (double-ended)	Recommended Male Cordset (single-ended)	Cat. No.
2 inputs per connector	879D-F4ACDM-x	879-C3AEDM4-5	1732D-IB8M12
1 input per connector	889D-F4ACDM-x	889D-M4AC-x	
3-pin pico connectors	889P-F3ABPM-x	889P-M3AB-y	1732D-IB8M8
4-pin pico connectors	889P-F4ABPM3-x		
2 inputs per connector	879D-F4ACDM-x	879-C3AEDM4-5	1732D-OB8EM12
1 input per connector	889D-F4ACDM-x		
3-pin pico connectors	889P-F3ABPM-x	889P-M3AB-y	1732D-OB8EM8
4-pin pico connectors	889P-F4ABPM3-x	889P-M3AB-y	
2 inputs per connector	879D-F4ACDM-x	879-C3AEDM4-5	1732D-8CFGM12
1 input per connector	889D-F4ACDM-x	889D-M4AC-x	
3-pin pico connectors	889P-F3ABPM-x	889P-M3AB-y	1732D-8CFGM8
4-pin pico connectors	889P-F4ABPM3-x		

x = length in meters (1, 2, 3, 5, and 10 standard).

y = length in meters (2, 5, and 10 standard).





ArmorBlock DeviceNet and Auxiliary Power Cables



Recommended DeviceNet Cable	Recommended Auxiliary Power Cables	Cat. No.
KwikLink Flat Media system standard drop cable: 1485K-PzF5-R5 Thick Round system standard drop cable: 1485R-PzM5-R5 Thin Round system standard drop or trunk: 1485R-PzR5-D5	Standard Cordset (single-ended): 889D-F4AC-y Standard Patchcord (double-ended): 889D-F4ACDM-x	1732D-IB8M12
		1732D-IB8M8
		1732D-OB8EM12
		1732D-OB8EM8
		1732D-8CFGM12
		1732D-8CFGM8

x = length in meters (1, 2, 3, 5, and 10 standard).

y = length in meters (2, 5, and 10 standard).

Cable Selection

				
Bulletin	889D	889R	889N	889P
Type	DC Micro QD / M12 Cordsets and Patchcords	AC Micro QD / M12 Cordsets	Mini QD Cordsets	Pico QD / M8 Cordsets and Patchcords
Features	<ul style="list-style-type: none"> • 4-, 5- and 8-pin connectors • Straight or right angle versions • 22 AWG or 24 AWG cable • Oil resistant yellow or black PVC jacket 	<ul style="list-style-type: none"> • 3-, 4-, 5- and 6-pin connectors • Straight or right angle female connector • Standard 18 AWG cable • Oil resistant yellow PVC jacket 	<ul style="list-style-type: none"> • 3-, 4-, and 5-pin connectors • Straight or right angle versions • Heavy duty STOOW 16 AWG cable • Oil resistant yellow PVC jacket 	<ul style="list-style-type: none"> • 3- or 4-pin connectors • Straight or right angle female • Standard 24 AWG cable • Oil resistant yellow PVC jacket
Product Selection	See page 4-36	See page 4-38	See page 4-39	See page 4-40

		
Bulletin	898D and 898P	871A and 889D
Type	DC Micro and Pico Distribution Boxes	DC Micro Field Attachable Connectors
Features	<ul style="list-style-type: none"> • 4-pin DC micro or 3-pin pico connectors • Top mount inputs • 4- or 8-port parallel wired • PNP wired LED versions • Single input per port • Prewired master cable • Rugged grey Pocan body 	<ul style="list-style-type: none"> • 4-pin connector • Male and female versions • Screw terminal or insulation displacement connection • Glass filled nylon connector body • Supports cable O.D.s from 4...8 mm
Product Selection	See page 4-41	See page 4-42

DC Micro QD / M12 Cordsets

- 4- and 5-pin DC micro style (M12)
- UL recognized and CSA certified
- Highly visible yellow PVC jacket offers good oil and chemical resistance
- Ratcheting coupling nut for vibration resistance



Connector Style	Cable			Cat. No.
	Wire Color	Wire Rating	Length [m (ft)]	
Straight	1 Brown 2 White 3 Blue 4 Black	22 AWG 300V 4 A	2 (6.5)	889D-F4AC-2
			5 (16.4)	889D-F4AC-5
			10 (32.8)	889D-F4AC-10
Right Angle			2 (6.5)	889D-R4AC-2
			5 (16.4)	889D-R4AC-5
			10 (32.8)	889D-R4AC-10
Straight, Unshielded	1 Brown 2 White 3 Blue 4 Black 5 Grey		2 (6.5)	889D-F5AC-2
			5 (16.4)	889D-F5AC-5
			10 (32.8)	889D-F5AC-10
				889D-F5AC-10

DC Micro QD / M12 Cordsets, Shielded

Connector Style	Cable			Cat. No.
	Wire Color	Wire Rating	Length [m (ft)]	
Straight Female	1 Brown 2 White 3 Blue 4 Black	300V 4 A	2 (6.5)	889D-F4EC-2

DC Micro QD / M12 Cordsets

- 8-pin/8-wire configurations for GuardShield safety light curtains and other applications
- Ratching coupling nuts for vibration resistance



Connector Style	Cable			Cat. No.
	Wire Color	Wire Rating	Length [m (ft)]	
Straight Female	1 White 2 Brown 3 Green 4 Yellow 5 Grey 6 Pink 7 Blue 8 Red	24 AWG 30V AC/36V DC 1.5 A	2 (6.5)	889D-F8AB-2
			5 (16.4)	889D-F8AB-5
			10 (32.8)	889D-F8AB-10

Above cordsets also with "Right Angle" connector available, for example: **889D-R8AB-**_

Patchcords, DC Micro QD / M12 Style

- 4- or 5-pin DC micro style (M12)
- UL recognized and CSA certified
- Highly visible yellow PVC jacket offers good oil and chemical resistance
- Ratcheting coupling nut for vibration resistance



Female (Sensor End) Connector Style	Cable		Male (I/O End) Connector Style	Cat. No.
	Wire Rating	Length [m (ft)]		
Straight	22 AWG 300V 4 A	1 (3.3)	Straight	889D-F4ACDM-1
		2 (6.5)		889D-F4ACDM-2
		5 (16.4)		889D-F4ACDM-5
		10 (32.8)		889D-F4ACDM-10
		1 (3.3)	Right Angle	889D-F4ACDE-1
		2 (6.5)		889D-F4ACDE-2
		5 (16.4)		889D-F4ACDE-5
		10 (32.8)		889D-F4ACDE-10
Right Angle		1 (3.3)	Straight	889D-R4ACDM-1
		2 (6.5)		889D-R4ACDM-2
		5 (16.4)		889D-R4ACDM-5
		10 (32.8)		889D-R4ACDM-10
		1 (3.3)	Right Angle	889D-R4ACDE-1
		2 (6.5)		889D-R4ACDE-2
		5 (16.4)		889D-R4ACDE-5
		10 (32.8)		889D-R4ACDE-10
Straight	1 (3.3)	Straight	889D-F5ACDM-1	
	2 (6.5)		889D-F5ACDM-2	
	5 (16.4)		889D-F5ACDM-5	
	10 (32.8)		889D-F5ACDM-10	

AC Micro QD / M12 Cordsets

- 3- and 4-pin AC micro style (dual key)
- Straight and right angle versions
- UL recognized and CSA certified
- Highly visible yellow PVC jacket offers good oil and chemical resistance
- Ratcheting coupling nut for vibration resistance



Connector Style	Cable			Cat. No.
	Wire Color	Wire Rating	Length [m (ft)]	
Straight	1 Green (GND) 2 Red/Black Tr. 3 Red/White Tr.	Braided 22 AWG Braided 22 AWG 250V 4 A	2 (6.5)	889R-F3ECA-2
Straight	1 Green (GND) 2 Red/Black Tr. 3 Red/White Tr.	18 AWG 250V 4 A	2 (6.5)	889R-F3AEA-2
			5 (16.4)	889R-F3AEA-5
			10 (32.8)	889R-F3AEA-10
	1 Red/Black Tr. 2 Red/White Tr. 3 Red 4 Green (GND)		2 (6.5)	889R-F4AEA-2
			5 (16.4)	889R-F4AEA-5
			10 (32.8)	889R-F4AEA-10
Right Angle	1 Green (GND) 2 Red/Black Tr. 3 Red/White Tr.	18 AWG 250V 4 A	2 (6.5)	889R-R3AEA-2
			5 (16.4)	889R-R3AEA-5
			10 (32.8)	889R-R3AEA-10
	1 Red/Black Tr. 2 Red/White Tr. 3 Red 4 Green (GND)		2 (6.5)	889R-R4AEA-2
			5 (16.4)	889R-R4AEA-5
			10 (32.8)	889R-R4AEA-10
Straight	1 Red/White Tr. 2 Red 3 Green 4 Red/Yellow Tr. 5 Red/Black Tr.	18 AWG 250V 4 A	2 (6.5)	889R-F5AEA-2
			5 (16.4)	889R-F5AEA-5
			10 (32.8)	889R-F5AEA-10
	1 Red/White Tr. 2 Red 3 Green 4 Red/Yellow Tr. 5 Red/Black Tr. 6 Red/Blue Tr.	Braided 22 AWG 250V 4 A	2 (6.5)	889R-F6ECA-2
			5 (16.4)	889R-F6ECA-5
			10 (32.8)	889R-F6ECA-10

Mini QD Cordsets

- 3-, 4- and 5-pin configurations
- Straight and right angle versions
- UL recognized and CSA certified
- Heavy duty STOOW-A 16 AWG cable
- Highly visible yellow PVC jacket offers good oil and chemical resistance
- One-piece molded body design



Connector Style	Cable			Cat. No.
	Wire Color	Wire Rating	Length [m (ft)]	
Straight	1 Green 2 Black 3 White	16 AWG 600V 13 A	1.8 (6)	889N-F3AFC-6F
			3.7 (12)	889N-F3AFC-12F
			6.1 (20)	889N-F3AFC-20F
	1 Black 2 White 3 Red 4 Green	16 AWG 600V 10 A	1.8 (6)	889N-F4AFC-6F
			3.7 (12)	889N-F4AFC-12F
			6.1 (20)	889N-F4AFC-20F
	1 White 2 Red 3 Green 4 Orange 5 Black	16 AWG 600V 8 A	1.8 (6)	889N-F5AFC-6F
			3.7 (12)	889N-F5AFC-12F
			6.1 (20)	889N-F5AFC-20F
Right Angle	1 Green 2 Black 3 White	16 AWG 600V 13 A	1.8 (6)	889N-R3AFC-6F
			3.7 (12)	889N-R3AFC-12F
			6.1 (20)	889N-R3AFC-20F
	1 Black 2 White 3 Red 4 Green	16 AWG 600V 10 A	1.8 (6)	889N-R4AFC-6F
			3.7 (12)	889N-R4AFC-12F
			6.1 (20)	889N-R4AFC-20F
	1 White 2 Red 3 Green 4 Orange 5 Black	16 AWG 600V 8 A	1.8 (6)	889N-R5AFC-6F
			3.7 (12)	889N-R5AFC-12F
			6.1 (20)	889N-R5AFC-20F

Pico QD / M8 Style Cordsets

- 3-, 4- and 5-pin configurations
- Straight and right angle versions
- Highly visible yellow PVC jacket offers good oil and chemical resistance
- Heavy duty STOOW-A 16 AWG cable
- Screw-on coupling nut for rugged reliable connection
- Ratcheting coupling nuts for vibration resistance



Female (Sensor End) Connector Style	Cable			Cat. No.
	Wire Color	Wire Rating	Length [m (ft)]	
Straight	1 Brown 3 Blue 4 Black	24 AWG 60V AC/75V DC 4 A	2 (6.5)	889P-F3AB-2
			5 (16.4)	889P-F3AB-5
			10 (32.8)	889P-F3AB-10
Right Angle			2 (6.5)	889P-R3AB-2
			5 (16.4)	889P-R3AB-5
			10 (32.8)	889P-R3AB-10
Right Angle	1 Brown 2 White 3 Blue 4 Black	24 AWG 60V AC/75V DC 4 A	2 (6.5)	889P-F4AB-2
			5 (16.4)	889P-F4AB-5
			10 (32.8)	889P-F4AB-10

Patchcords, Pico QD / M8 Style

- 4-pin pico style (M8)
- UL recognized and CSA certified
- Highly visible yellow PVC jacket offers good oil and chemical resistance
- Ratcheting coupling nut for vibration resistance



Female (Sensor End) Connector Style	Cable		Male Connector (I/O End) Connector Style	Cat. No.
	Wire Rating	Length [m (ft)]		
Straight	24 AWG 60V AC/75V DC 4 A	1 (3.3)	Straight	889P-F3ABPM-1
		2 (6.5)		889P-F3ABPM-2
		5 (16.4)		889P-F3ABPM-5
		10 (32.8)		889P-F3ABPM-10

Distribution Boxes, 4- and 8-Port DC Micro Style

- UL recognized and CSA certified
- Grey Pocom body offers good oil and chemical resistance
- 4 and 8 4-pin DC micro connectors
- Cable versions
- LED versions for use with PNP (sourcing) field devices



No. of Connections	Illuminated	Ratings	Cable Length—mm (in)	Cat. No.
4	LEDs (PNP)	10...30V DC 2 A max/port 10 A max total	5 (16.4)	898D-P54PT-B5
			10 (32.8)	898D-P54PT-B10
8			5 (16.4)	898D-P58PT-B5
			10 (32.8)	898D-P58PT-B10

Distribution Boxes, 4- and 8-Port Pico Style

- 3-pin pico connectors
- Top mounting holes for easier installation
- LED versions for use with PNP (sourcing) field devices or 24V DC actuators



No. of Connections	Illuminated	Ratings	Cable Length—mm (in)	Cat. No.
4	LEDs (PNP)	10...30V DC 2 A max/port 6 A max total	5 (16.4)	898P-P34PT-B5
8				898P-P38PT-B5

Terminal Chambers, DC Micro Style

- Field installable
- 4-pin DC micro style (M12)
- Straight or right angle versions
- Screw terminals provide simple and secure installation
- Allows easy modification of existing cable installations



Type	Connector Style	Jacket Cable Diameter [mm (in)]	Wire Rating	Cat. No.
Female	Straight	—	250V, 4 A	871A-TS4-D
		—		871A-TS4-D1
Male		—		871A-TS4-DM
		—		871A-TS4-DM1

Field Attachable, DC Micro Style

- Field installable with no hand tools needed
- 4-pin DC micro style
- Straight male or female versions
- Allows easy modification of existing cable installations
- Insulation displacement technology for secure and reliable installation



Type	Connector Style	Jacket Cable Diameter [mm (in)]	Wire Rating	Cat. No.
Female	Straight	—	32V, 4 A	889D-F4DC-H
Male				889D-M4DC-H

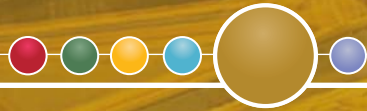


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Safety Interlock & Guard Locking Switches

Product Line Overview

Safety Interlock Switches (440N-S, 440N-Z, 440K, 440G)

Bulletin	440N-Z	440N-S	440K	440G
Type	SensaGuard RF-ID Coded Non Contact Switches	Sipha Magnetically Coded Non Contact Switches	Tongue Operated Switches	Guard Locking Switches
Features	<ul style="list-style-type: none"> • Cat 4/SIL3/PLC rated switch even with multiple units wired in series • No dedicated controller • Large sensing distances (up to 25 mm) • Plastic or stainless steel housing options • IP69K for all models • Pre-wired or quick disconnect options (QD) • Extended diagnostics 	<ul style="list-style-type: none"> • Coded magnetic operation - resistant to defeat • Plastic or stainless steel housing options • Pre-wired or quick disconnect options (QD) • Sensor, controller and contactor monitoring • Selection of control units available • Ideal for medium to high risk applications 	<ul style="list-style-type: none"> • Selection of actuators available • Versions available with quick disconnect (QD) • GD2 versions offer increased robustness 	<ul style="list-style-type: none"> • Selection of actuators available • Versions available with quick disconnect (QD) • Ideal for use in applications with machine run-down, ensuring the guard remains closed until hazardous motion has ceased
Approvals	CE marked for all applicable directives and approved by cULus and TUV where relevant	CE marked for all applicable directives and approved by cULus and TUV where relevant	CE marked for all applicable directives and approved by cULus and TUV where relevant	CE marked for all applicable directives and approved by cULus and TUV where relevant
Standards	Conform to standards EN 60947-5-3, IEC 61508, EN 954-1, EN ISO 13849-1	Conform to standards EN 60947-5-1, EN 1088 (ISO14119), EN ISO 12100, EN 60204-1	Conform to EN 1088 (ISO 14119), EN 954-1, EN ISO 13849-1, EN 60947-1 and EN 60204-1	Conform to EN 1088 (ISO 14119), EN 954-1, EN ISO 13849-1, EN 60947-1 and EN 60204-1
Product Selection	See page 5-3	See page 5-5	See page 5-6	See page 5-7

440N-Z SensaGuard™ RF-ID Coded Non Contact Switches

Features

- No dedicated controller needed
- Cat 4/SIL3/PLe maintained even with switches wired in series
- Multiple actuator sizes for large sensing distance typically (15...25 mm)
- IP69K environmental rating
- Short circuit and over voltage protection
- Led located on the switch for door status and troubleshooting
- 2 Safety PNP outputs and 1 auxiliary PNP output



Description	Safety Outputs	Auxiliary Output Switching	Sensing Distance	Connection	Cat. No.
18 mm plastic barrel	2 Solid State Outputs	1 Solid State Output	15 mm (0.59 in.)	8-Pin Micro (M12)	440N-Z21S16H
				3 m Cable	440N-Z21S16A
25 mm (0.98 in.)			8-Pin Micro (M12)	440N-Z21S26H	
			3 m Cable	440N-Z21S26A	
18 mm stainless steel barrel			10 mm (0.39 in.)	8-Pin Micro (M12)	440N-Z21S17H
3 m Cable				440N-Z21S17A	
Rectangular, standard model			15 mm (0.59 in.)	8-Pin Micro (M12)	440N-Z21SS2H
3 m Cable				440N-Z21SS2A	
Rectangular, margin indication			15 mm (0.59 in.)	8-Pin Micro (M12)	440N-Z21SS2HN
3 m Cable				440N-Z21SS2AN	
Rectangular, margin indication & magnetic hold	15 mm (0.59 in.)	8-Pin Micro (M12)	440N-Z21SS2HN9		
		3 m Cable	440N-Z21SS2AN9		

Connection Systems

Description	Cat. No.
Cordset	889D-F8AB-*
Patchcord	889D-F8ABDM-✱
Safety Wired T-Port	898D-438Y-D8
Safety Wired Shorting Plug	898D-418U-DM

* Replace symbol with 2 (2 m), 5 (5 m), or 10 (10 m) for standard cable lengths.









✱ Replace symbol with 1 (1 m), 2 (2 m), 3 (3 m), 5 (5 m), or 10 (10 m) for standard lengths.

See publication S116-CA001... for complete product information.

Safety Interlock & Guard Locking Switches

Accessories / Product Selection

Accessories 440N-Z

Description		Cat. No.
	18 mm Plastic Actuator	440N-Z18PT
	30 mm Plastic Actuator	440N-Z30PT
	18 mm Stainless Steel Actuator	440N-Z18SST
	Large Rectangular Plastic Actuator Standard Model	440N-ZPREC
	Standard Model Margin/Magnetic Hold	440N-ZPRECM
	Mounting Bracket for Tubular Sensors—Right Angle Style	871A-BRS18
	Mounting Bracket for Tubular Sensors—Clamp Style	871A-BP18
	Snap Clamp Mounting Bracket	871A-SCBP18
	Swivel/Tilt Bracket Allows $\pm 10^\circ$ Vertical and 360° Rotation Adjustment	60-2649

440N-Z Magnetically Coded Non-Contact Switches

- Non-contact actuation
- Magnetic coded sensing
- LED indication for door status and troubleshooting
- Up to Cat. 4 per EN 954-1, SIL 3 (IEC 62061) and PLe (EN ISO 13849) can be achieved with suitable controller
- High tolerance to misalignment
- Designed for use with Allen-Bradley safety relays and controllers



Type	Operating Voltage/Input Current	Safety Outputs	Auxiliary Outputs	Status Indicator	Connection	Cat. No.
MC2	24V DC, +10%/-15%/50 mA max.	2 N.C. Solid-State Relays	1 x PNP, 0.2 A max.; Status: OFF (0V DC)	Yes	8-Pin Micro (M12)	440N-Z21W1PC
					3 m Cable	440N-Z21W1PA
					10 m Cable	440N-Z21W1PB

440N-S Sipha Coded Non Contact Interlock Switches



Features

- Choice of heads — multiple sensors can be connected to one controller
- Mechanical switches with 1 N.O. + 1 N.C. contacts can be included in the circuit
- Magnetically coded system
- Conform to EN 60947-5-1, EN 1088 (ISO 14119)
- Ideal for hygiene applications
- Controller doubles up as the safety relay

Approvals

- CE, cULus, TUV



Head Style	Cable Length	Auxiliary Contacts	Material	Cat. No.
 Safety Contacts 1 N.C. & 1 N.O.	3 m (9.8 ft)	None	ABS plastic	440N-S32014
	10 m (32.8 ft)	None	ABS plastic	440N-S32016
	3 m (9.8 ft)	1 N.C.	ABS plastic	440N-S32022
	10 m (32.8 ft)	1 N.C.	ABS plastic	440N-S32032
	3 m (9.8 ft)	1 N.O.	ABS plastic	440N-S32037
	10 m (32.8 ft)	1 N.O.	ABS plastic	440N-S32036
 Safety Contacts 1 N.C. & 1 N.O.	3 m (9.8 ft)	None	ABS plastic	440N-S32015
	10 m (32.8 ft)	None	ABS plastic	440N-S32017
	3 m (9.8 ft)	1 N.C.	ABS plastic	440N-S32023
	10 m (32.8 ft)	1 N.C.	ABS plastic	440N-S32033
	3 m (9.8 ft)	1 N.O.	ABS plastic	440N-S32038
	10 m (32.8 ft)	1 N.O.	ABS plastic	440N-S32039

Controllers

Type	Supply Voltage	Safety Outputs	Auxiliary Outputs	Case Size	Cat. No.
Control Unit 1	24V AC/DC	1 N.O.	1 N.C. Solid State	22.5 mm	440N-S32013
Control Unit 2	24V AC/DC 110/230V AC	2 N.O.	1 N.C.	45 mm	440N-S32021
Sipha 6		2 N.O. + 1 N.O. delayed	1 N.C.	90 mm	440N-S32052

See publication S116-CA001... for complete product information.

440K Tongue Operated Switches

Features

- Metal and Plastic Bodies
- GD2 offer stainless steel heads for demanding applications
- All complete with actuator

Approvals

- CE, cULus, TUV

Standards

- Conform to EN 1088 (ISO 14119), EN 954-1, EN ISO 13849-1, EN 60947-1 and EN 60204-1



Model	Safety Contacts	Auxiliary Contacts	Housing Material	Conduit Entry	Comment	Cat. No.
Cadet 3	2 N.C.	1 N.O.	UL Approved glass-filled PBT	1 x M16	DIN 50047	440K-C21061
Cadet 3	3 N.C.	—	UL Approved glass-filled PBT	1 x M16	DIN 50047	440K-C21097
Trojan T15	1 N.C.	1 N.O.	UL Approved glass-filled PBT	3 x M20		440K-T11305
Trojan T15 Standard	2 N.C.	—	UL Approved glass-filled PBT	3 x M20		440K-T11303
Trojan 5 Standard	2 N.C.	1 N.O.	UL Approved glass-filled PBT	M20 conduit		440K-T11090
Trojan 5 GD2	2 N.C.	1 N.O.	UL Approved glass-filled PBT	3 x M20	GD2	440K-T11336
MT-GD2	2 N.C.	2 N.O.	UL Approved glass-filled PBT	1 x M20	DIN 50041	440K-MT55076
MT-GD2	3 N.C.	1 N.O.	UL Approved glass-filled PBT	1 x M20	DIN 50041	440K-MT55074

440G Guard Locking Safety Switches

Features

- Locks guard shut until open signal is given to interlock
- Conform to EN60947-5-1 and EN60204-1
- Metal and Plastic Bodies
- LED Status Indication

Approvals

- CE, cULus, TUV

Standards

- Conform to EN 1088 (ISO 14119), EN 954-1, EN ISO 13849-1, EN 60947-1 and EN 60204-1







Holding Force	Supply Voltage	Material	Safety Contacts	Auxiliary Contacts	Model	Cat. No.
1600 N	24V AC/DC	Painted Zinc Alloy	3 N.C.	1 N.O.	440G-MT	440G-MT47037
1600 N	24V AC/DC	Painted Zinc Alloy	2 N.C.	2 N.O.	440G-MT	440G-MT47044
2000 N	24V AC/DC	UL Approved glass filled polyester	2 N.C.	1 N.O.	TLS-1 GD2 Power to Release	440G-T27251
2000 N	230V AC	UL Approved glass filled polyester	2 N.C.	1 N.O.	TLS-1 GD2 Power to Release	440G-T27123
2000 N	24V AC/DC	UL Approved glass filled polyester	2 N.C.	1 N.O.	TLS-2 GD2 Power to Lock	440G-T27255
2000 N	230V AC	UL Approved glass filled polyester	2 N.C.	1 N.O.	TLS-2 GD2 Power to Lock	440G-T27129
2000 N	24V AC/DC	UL Approved glass filled polyester	2 N.C.	1 N.O.	TLS-3 GD2 Power to Release	440G-T27259
5500 N	24V AC/DC	Die cast alloy	2 N.C.	1 N.O.	Standard	440G-L07264

See publication S116-CA001... for complete product information.

E-stops and Trip Devices

Product Line Overview

E-stops and Trip Devices (440E, 440J, 440P, 800F)

				
Bulletin	440E	440J	440P	800F
Type	Cable (Rope) Pull Switches	Enabling Switches	Safety Limit Switches	Emergency Stop Operators
Features	<ul style="list-style-type: none"> • Switches up to 125m span • Switch lockout on cable pulled and cable slack • Cable-status indicator on switch lid • Unique cable grip system • Tensioner system 	<ul style="list-style-type: none"> • Three position enabling switch • Lightweight and easy to use • Optional jog and e-stop functions • M20 conduit 	<ul style="list-style-type: none"> • Large selection of actuator heads • Positive operation, forced disconnection of contacts • Snap-acting, slow make before break or slow break before make contacts • Selection of contact configurations 	<ul style="list-style-type: none"> • Various shapes • IP2X finger-safe protection • Self-Monitoring Contact Blocks™ for safer operation • Illuminated, Non-Illuminated & Keyed Operators
Approvals	CE marked for all applicable directives and approved by cULus, BG and TUV where relevant	CE marked for all applicable directives and approved by cULus, BG where relevant	CE marked for all applicable directives and approved by cULus and TUV where relevant	CE marked for all applicable directives and approved by cULus, CCC and TUV where relevant
Standards	Conform to standards ISO 13850, EN ISO 12100, EN 60947-5-1	Conform to standards EN 60947-5-1, GS ET 22	Conform to EN 1088 (ISO 14119), EN 60947-5-1, EN ISO 12100 and EN 60204-1	Conform to standards ISO 13850, EN ISO 12100, EN 60947-5-1
Product Selection	See page 5-9	See page 5-10	See page 5-11	See page 3-8 and page 3-18

440E Lifeline 3 and 4 Cable (Rope) Pull Switches

Features

- Unique cable grip system
- Can be installed and commissioned in approximately 3 min.
- Up to 300 mm of cable adjustment
- Cable tidy incorporated into grippers
- Conform to ISO 13850, EN 60947-5-5 and EN ISO 12100
- Up to 125M cable span



System Length	Safety Contacts	Auxiliary Contacts	Model	Cat. No.
≤ 30 m	2 N.C.	2 N.O.	LRS3	440E-D13118
≤ 30 m	3 N.C.	1 N.O.	LRS3	440E-D13112
≤ 75 m	3 N.C.	2 N.O.	LRS4	440E-L13137
≤ 75 m	3 N.C.	1 N.O.	LRS4	440E-L13042
75...125 m	2 N.C.	2 N.O.	LRS4	440E-L13153
75...125 m	3 N.C.	1 N.O.	LRS4	440E-L13150

LRTS Installation Kits

Description	Length	Cat. No.
LRTS 10 meter Installation Kit - Comprises: 1 x length of cable (rope), 2 x grippers, 1 x tensioner and quantity of eyebolts.	10 m (32.8 ft)	440E-A13080
	20 m (65.6 ft)	440E-A13082
	30 m (98.4 ft)	440E-A13083
	50 m (164 ft)	440E-A13084
	75 m (246 ft)	440E-A13085

See publication S116-CA001... for complete product information.

E-stops and Trip Devices

Product Selection

440E Lifeline 4 Stainless Steel Cable (Rope) Pull Switches

Features

- Rugged, corrosion-resistant 316 stainless steel construction
- IP66/IP67 enclosure rating allows use in harsh environments
- Switches up to 75m cable span
- Lid mounted emergency stop button, designed to conform with ISO 13850



System Length	Safety Contacts	Auxiliary Contacts	Model	Conduit Entry	Cat. No.
≤ 75 m	2 N.C. direct opening action	2 N.O.	Lifeline 4 Stainless steel	3 x M20	440E-L22BNSM
≤ 75 m	2 N.C. direct opening action	2 N.O.	Lifeline 4 Stainless steel	Quick-Disconnect	440E-L22BNSL

Installation Kits

Description	Material	Length	Cat. No.
Lifeline 4 Stainless Steel Installation Kit -Comprises: 1 x length of cable (rope), 2 x grippers, 1 x tensioner and quantity of eyebolts.	Rope = Steel core with polypropylene sheath Thimble = Stainless steel 304 Rope Grips = Stainless steel 304 Tensioner = Stainless steel 316 Eyebolts = Stainless steel 304 Nuts and washers = Stainless steel	5 m	440E-A13194
		10 m	440E-A13195
		15 m	440E-A13196
		20 m	440E-A13197
		30 m	440E-A13198
		50 m	440E-A13199
		75 m	440E-A13200

440J Enabling Switches

Features

- Three position enabling switch
- Lightweight and easy to use
- Optional jog and e-stop functions
- M20 conduit



Description	Main contacts: 3 position switches	Monitoring Contacts	Jog Contacts	Emergency Stop Contacts	Conduit Entry	Cat. No.
Standard Switch (No additional buttons)	2 N.C.	1 N.C.	—	—	M20	440J-N21TNPM
Switch with Jog Button	2 N.C.	1 N.C.	1 N.O.	—	M20	440J-N21TNPM-NP
Switch with Emergency Stop Button	2 N.C.	—	—	2 N.C.	M20	440J-N21TNPM-NE

Accessories

Description	Cat. No.
Silicone free rubber boot kit	440J-A10N
Mounting bracket suitable for single enabling switch *	440J-A00N

* The bracket has predrilled holes suitable for mounting either the MT-GD2, Trojan 5, or Trojan 6. Please note that the enabling switch, safety switch, and actuator are not supplied with the mounting bracket and are available separately.

See publication S116-CA001... for complete product information.

440P Safety Limit Switches

Features

- Large selection of actuator heads
- Positive operation, forced disconnection of contacts
- IP66 enclosure protection
- Snap-acting, slow make before break or slow break before make contact blocks
- Contacts 1 N.C. + 1 N.O.; 2 N.C. + 1 N.O.; 3 N.C.; 2 N.C. + 1 N.O.;
- Conforms to EN 50047, EN 1088 (ISO14119), EN 60947-5-1, EN ISO 12100 and EN 60204-1



440P Senator in Plastic Housing — EN50047

Description		Safety Contacts	Auxiliary Contacts	Contact Type *	Cat. No.
M20 Conduit Style	Roller Plunger	1 N.C.	1 N.O.	Snap Acting	440P-CRPS11B
	Roller Plunger	2 N.C.	1 N.O.	BBM	440P-CRPB12B
	Dome Plunger	1 N.C.	1 N.O.	Snap Acting	440P-CDPS11B
	Dome Plunger	2 N.C.	1 N.O.	BBM	440P-CDPB12B
	Short Lever	1 N.C.	1 N.O.	Snap Acting	440P-CSLS11B
	Short Lever	2 N.C.	1 N.O.	BBM	440P-CSLB12B
	Adjustable Lever	1 N.C.	1 N.O.	Snap Acting	440P-CALS11B
	Adjustable Lever	2 N.C.	1 N.O.	BBM	440P-CALB12B
QD Style	Short Lever	2 N.C.	1 N.O.	BBM	440P-CSLB12R6
Recommended Mating Cable for 1 N.C.+1 N.O. - 2 m					889D-F4AC-2
Recommended Mating Cable for 2 N.C.+1 N.O. - 2 m					889R-F6ACA-2

Other contact configurations and actuator types are available.

* SA = Snap Acting contact operation. BBM = Break Before Make contact operation. MBB = Make Before Break contact operation.

440P Senator in Metal Housing — EN50041

Description		Safety Contacts	Auxiliary Contacts	Contact Type *	Cat. No.
M20 Conduit Style	Roller Plunger	1 N.C.	1 N.O.	Snap Acting	440P-MRPS11B
	Roller Plunger	2 N.C.	2 N.O.	MBB	440P-MRPB22B
	Dome Plunger	1 N.C.	1 N.O.	Snap Acting	440P-MDPS11B
	Dome Plunger	2 N.C.	2 N.O.	MBB	440P-MDPB22B
	Short Lever	1 N.C.	1 N.O.	Snap Acting	440P-MSLS11B
	Short Lever	2 N.C.	2 N.O.	MBB	440P-MSLB22B
	Adjustable Lever	1 N.C.	1 N.O.	Snap Acting	440P-MALS11B
	Adjustable Lever	2 N.C.	2 N.O.	MBB	440P-MALB22B
Recommended Mating Cable for 1 N.C.+1 N.O. - 2 m					889N-F5AE-6F
Recommended Mating Cable for 2 N.C.+1 N.O. - 2 m					889M-F12X9AE-2

Other contact configurations and actuator types are available.





* SA = Snap Acting contact operation. BBM = Break Before Make contact operation. MBB = Make Before Break contact operation.

See publication S116-CA001... for complete product information.



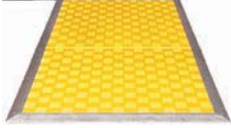
Presence Sensing

Product Line Overview

Presence Sensing Safety Devices (440L, 445L, 442L, 440F)

		
Bulletin	440L	440L
Type	GuardShield™ Safety Light Curtains POC (Point of Operation Control)	GuardShield™ Safe 4 Light Curtains PAC (Perimeter Access Control)
Features	<ul style="list-style-type: none"> • Type 4, 14 mm and 30 mm resolution • Type 2, 30 mm resolution • Scanning range 0.3...7 m / 14 mm resolution • Scanning range 0.3...16 m / 30 mm resolution • 20...1760 mm protected height in 160 mm increments • PNP outputs (2 N.O. Safety + 1 N.O. Non Safety) 	<ul style="list-style-type: none"> • Type 4 • 400 mm beam spacing • 3 beam = 820 mm, 2 beam = 520 mm protection height • Scanning range 16 m • PNP outputs (2 N.O. Safety + 1 N.O. Non Safety)
Approvals	cULus, TÜV and CE Marked for all applicable directives	
Standards	Conform to relevant standards IEC/EN61496 parts 1 and 2	
Product Selection	See page 5-14	See page 5-15
		
Bulletin	445L	445L
Type	GuardShield™ Safety Light Curtains POC (Point of Operation Control)	GuardShield™ Safe 4 Light Curtains PAC (Perimeter Access Control)
Features	<ul style="list-style-type: none"> • Safe 4, 14 mm and 30 mm resolution • Safe 2, 30 mm resolution • 120...1920 mm protected height in 120 mm increments • Scanning range 0...9 m / 14 mm resolution • Scanning range 0...6 m / 30 mm resolution • PNP outputs (2 N.O. Safety) 	<ul style="list-style-type: none"> • Safe 4 • 400 mm and 500 mm beam spacing • 3 beam = 840 mm, 2 beam = 600 mm protection height • Scanning range 30 m • PNP outputs (2 N.O. Safety)
Approvals	CE marked for all applicable directives and approved by cULus and TUV where relevant	
Standards	Conform to relevant standards IEC/EN61496 Parts 1 and 2	
Product Selection	See page 5-16	See page 5-17

Presence Sensing Safety Devices (440L, 445L, 442L, 440F)

			
Bulletin	445L	442L	440F
Type	GuardShield™ Micro 400 Safety Light Curtains POC (Point of Operation Control)	Safety Laser Scanner	Safety Mats
Features	<ul style="list-style-type: none"> • Type 4, 14 mm and 30 mm resolution • 150 mm...1200 mm protected height in 150 mm increments • Scanning range / resolution 0...5 m / 14 mm, 0...5 m / 30 mm • Data output to MSR42, MSR42 Outputs: Two 400 mA OSSD 	<ul style="list-style-type: none"> • Vertical or horizontal mounting in stationary or mobile applications • Auto configure safety field using ambient contour • Two programmable switchable zone sets 	<ul style="list-style-type: none"> • Category 3 device according to EN ISO 13849-1 • Hardened steel plate construction • Rugged construction withstands the pressure of 4500psi • No dead spots • IP67
Approvals	CE marked for all applicable directives and approved by cULus and TUV where relevant		
Standards	Conform to relevant standards IEC/EN61496 parts 1 and 2	Conform to relevant standards IEC/EN61496 part 3	EN1760-1, EN ISO 13849-1, IEC/EN60204-1
Product Selection	See page 5-18	See page 5-20	See page 5-20

440L GuardShield™ Safety Light Curtains, POC (Point of Operation Control)

Features

- Type 4 and Type 2 models
- PNP outputs (2 N.O safety + 1 N.O aux.)
- 14 mm or 30 mm object sensitivity
- Range: 0.3...7 m (14 mm resolution models),
Range: 0.3...18 m (30 mm resolution models)
- Fixed blanking - teachable
- Beam coding
- External device monitoring (EDM)
- Start/restart interlock



Note: Cascadeable safety light curtains are also available, see publication S116-CA001...

GuardShield Type 4

Protected Height (mm)	Response Time	14 mm Resolution	30 mm Resolution
		Cat. No.	Cat. No.
160	20 ms	440L-P4J0160YD	440L-P4K0160YD
320	20 ms	440L-P4J0320YD	440L-P4K0320YD
480	20 ms	440L-P4J0480YD	440L-P4K0480YD
640	20 ms	440L-P4J0640YD	440L-P4K0640YD
800	20 ms	440L-P4J0800YD	440L-P4K0800YD
960	20 ms	440L-P4J0960YD	440L-P4K0960YD
1120	20 ms	440L-P4J1120YD	440L-P4K1120YD
1280	20 ms	440L-P4J1280YD	440L-P4K1280YD
1440	20 ms	440L-P4J1440YD	440L-P4K1440YD
1600	25 ms	440L-P4J1600YD	440L-P4K1600YD
1760	25 ms	440L-P4J1760YD	440L-P4K1760YD
Transmitter Cable: 4 pin Straight, 5 m		889D-F4AC-5	
Receiver Cable: 8 pin Straight, 5 m		889D-F8AB-5	

GuardShield Type 2, 30 mm Resolution

Protected Height (mm)	Response Time	Restart	Cat. No.
160 mm	20 ms	Automatic	440L-P2KA0160YD
320 mm	20 ms		440L-P2KA0320YD
480 mm	20 ms		440L-P2KA0480YD
640 mm	20 ms		440L-P2KA0640YD
800 mm	20 ms		440L-P2KA0800YD
960 mm	20 ms		440L-P2KA0960YD
1120 mm	20 ms		440L-P2KA1120YD
1280 mm	20 ms		440L-P2KA1280YD
1440 mm	20 ms		440L-P2KA1440YD
1600 mm	25 ms		440L-P2KA1600YD
1760 mm	25 ms	440L-P2KA1760YD	
Transmitter Cable: 4 pin Straight, 5 m			889D-F4AC-5
Receiver Cable: 8 pin Straight, 5 m			889D-F8AB-5

Note: Type 2 light curtains with built in manual reset and EDM are also available, see S116-CA001...

440L GuardShield™ Safety Light Curtains, PAC (Perimeter Access Control)

Features

- Type 4 models correspond to EN61496
- PNP outputs (2 N.O safety + 1 N.O aux.)
- Range: 0.4...16 m
- Beam coding
- External device monitoring (EDM)
- Start/restart interlock



GuardShield 3-beam PAC - Type 4, 400 mm Resolution

Protected Height (mm)	Response Time	Number of Beams	Restart	Cat. No.
520 mm	20 ms, 30 ms with beam coding activated	2	Automatic	440L-P4A2500YD
820 mm	20 ms, 30 ms with beam coding activated	3	Automatic	440L-P4A3400YD

Cordsets - Two Required (one for transmitter and one for receiver)

Female Connector (Sensor End)		Cable	Wire Rating	Length [m (ft)]	Cat. No.
Face View of Female	Connector Style	Pin/Wire Color			
Transmitter					
	Straight	1 Brown 2 White 3 Blue 4 Black	22 AWG 300V 4 A	2 (6.5)	889D-F4AC-2
				5 (16.4)	889D-F4AC-5
				10 (32.8)	889D-F4AC-10
				15 (49.2)	889D-F4AC-15
				20 (65.6)	889D-F4AC-20
				30 (98.4)	889D-F4AC-30
Receiver					
	Straight Female	1 White 2 Brown 3 Green 4 Yellow 5 Grey 6 Pink 7 Blue 8 Red	24 AWG 30V AC/36V DC 1.5 A	2 (6.5)	889D-F8AB-2
				5 (16.4)	889D-F8AB-5
				10 (32.8)	889D-F8AB-10
				15 (49.2)	889D-F8AB-15
				20 (65.6)	889D-F8AB-20
				30 (98.4)	889D-F8AB-30

See publication S116-CA001... for complete product information.

445L GuardShield™ Safe 4 Light curtains, POC (Point of Operation Control)

- 5 Pin M12 connectors
- Optically synchronized
- Integrated laser alignment system
- IP65 enclosure rating
- Simple installation
- cULus and CE Marked for all applicable directives



Protected Height [mm (in.)]	14 mm Resolution		30 mm Resolution	
	Number of Beams	Cat. No.	Number of Beams	Cat. No.
120 (4.7)	16	445L-P4L0120YD	8	445L-P4S0120YD
240 (9.4)	32	445L-P4L0240YD	16	445L-P4S0240YD
360 (14.2)	48	445L-P4L0360YD	24	445L-P4S0360YD
480 (19.9)	64	445L-P4L0480YD	32	445L-P4S0480YD
600 (23.6)	80	445L-P4L0600YD	40	445L-P4S0600YD
720 (28.3)	96	445L-P4L0720YD	48	445L-P4S0720YD
840 (33.1)	112	445L-P4L0840YD	56	445L-P4S0840YD
960 (37.8)	128	445L-P4L0960YD	64	445L-P4S0960YD
1080 (42.5)	144	445L-P4L1080YD	72	445L-P4S1080YD
1200 (47.2)	160	445L-P4L1200YD	80	445L-P4S1200YD
1320 (52.0)	176	445L-P4L1320YD	88	445L-P4S1320YD
1440 (56.7)	172	445L-P4L1440YD	86	445L-P4S1440YD
1560 (61.4)	188	445L-P4L1560YD	94	445L-P4S1560YD
1680 (66.1)	204	445L-P4L1680YD	102	445L-P4S1680YD
1800(70.9)	220	445L-P4L1800YD	110	445L-P4S1800YD
1920 (75.6)	236	445L-P4L1920YD	118	445L-P4S1920YD

NOTE: All products above are ordered as pairs (transmitter and receiver) and are shipped with mounting brackets.

Cordsets - Transmitters and receivers both use 5-pin M12 cordsets

Female Connector (Sensor End)		Cable			Cat. No.
Face View of Female	Connector Style	Pin/Wire Color	Wire Rating	Length [m (ft)]	
	Straight, Unshielded	1 Brown 2 White 3 Blue 4 Black 5 Grey	22 AWG 250V 4 A	2 (6.5)	889D-F5AC-2
				5 (16.4)	889D-F5AC-5
				10 (32.8)	889D-F5AC-10
				15 (49.2)	889D-F5AC-15
				20 (65.6)	889D-F5AC-20
				30 (98.4)	889D-F5AC-30
	Straight, Shielded	1 Brown 2 White 3 Blue 4 Black 5 Grey	22 AWG 300V 4 A	2 (6.5)	889D-F5EC-2
				5 (16.4)	889D-F5EC-5
				10 (32.8)	889D-F5EC-10
				15 (49.2)	889D-F5EC-15
20 (65.6)				889D-F5EC-20	
30 (98.4)				889D-F5EC-30	

NOTE: Unshielded cordsets are most commonly used for safety light curtains, however, shielded cordsets are also offered to increase immunity to electrical interference.

445L GuardShield™ Safe 2 Light curtains, POC (Point of Operation Control)

- 5 Pin M12 connectors
- Optically synchronized
- Integrated laser alignment system
- IP65 enclosure rating
- Simple installation
- cULus and CE Marked for all applicable directives



Protected Height [mm (in.)]	Resolution [mm (in.)]	Number of Beams	Pair Weight [kg (lbs)]	Cat. No.
120 (4.7)	30 (1.18)	8	1.0 (2.2)	445L-P2S0120YD
240 (9.4)	30 (1.18)	16	1.4 (3.09)	445L-P2S0240YD
360 (14.2)	30 (1.18)	24	1.8 (3.97)	445L-P2S0360YD
480 (19.9)	30 (1.18)	32	2.2 (4.85)	445L-P2S0480YD
600 (23.6)	30 (1.18)	40	2.6 (5.73)	445L-P2S0600YD
720 (28.3)	30 (1.18)	48	3.0 (6.61)	445L-P2S0720YD
840 (33.1)	30 (1.18)	56	3.5 (7.72)	445L-P2S0840YD
960 (37.8)	30 (1.18)	64	4.0 (8.82)	445L-P2S0960YD
1080 (42.5)	30 (1.18)	72	4.0 (8.82)	445L-P2S1080YD
1200 (47.2)	30 (1.18)	80	4.5 (9.92)	445L-P2S1200YD
1320 (52.0)	30 (1.18)	88	5.0 (11.02)	445L-P2S1320YD
1440 (56.7)	30 (1.18)	86	5.5 (12.13)	445L-P2S1440YD
1560 (61.4)	30 (1.18)	94	6.0 (13.23)	445L-P2S1560YD
1680 (66.1)	30 (1.18)	102	6.5 (14.33)	445L-P2S1680YD
1800 (70.9)	30 (1.18)	110	7.0 (15.43)	445L-P2S1800YD
1920 (75.6)	30 (1.18)	118	7.5 (16.53)	445L-P2S1920YD

Note: All products above are ordered as pairs (transmitter and receiver) and are shipped with mounting brackets.

For selection of a cordset, see page page 5-16

445L GuardShield™ Safe 4 Light Curtains, PAC (Perimeter Access Control)

- Integrated laser alignment system
- 2 segment and 3 segment systems
- 30 meter operating range
- Optically synchronized
- 5 Pin M12 connectors
- IP65 for a variety of application environments



Protected Height (mm)	Beam Spacing [mm]	Number of Beams	Cat. No.
600	500	2	445L-P4S2500YD
840	400	3	445L-P4S3400YD

For selection of a cordset, see page page 5-16

MSR42 GuardShield™ Micro 400 Controller and Multi Function Safety Module


- Pigtail cable with M12 connector
- 3 box system with dedicated safety controller
- Offered in 14 mm and 30 mm resolutions
- Slim profile housing (15 mm x 20 mm)
- 150 mm to 1200 mm protective heights, in 150 mm increments
- DIN controller is also multi function safety module
- Configuration of controller functionality through wiring or software
- Expansion safety relay modules (MSR45E) easily connect to controller
- Configuration of controller functionality through wiring or software
- SIL 3 per IEC 62061, PLe per EN13849-1
- IP54



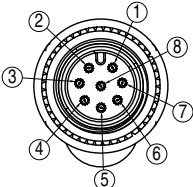
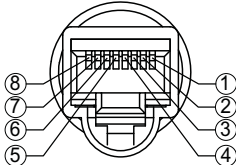
Note: Cascadeable safety light curtains are also available, see publication S116-CA001...

Protected Height [mm (in.)]	Resolution [mm (in.)]	Number of Beams	Cat. No.	Protected Height [mm (in.)]	Resolution [mm (in.)]	Number of Beams	Cat. No.
150 (5.9)	14 (0.55)	15	445L-P4C0150FP	150 (5.9)	30 (1.18)	6	445L-P4E0150FP
300 (11.8)	14 (0.55)	30	445L-P4C0300FP	300 (11.8)	30 (1.18)	12	445L-P4E0300FP
450 (17.7)	14 (0.55)	45	445L-P4C0450FP	450 (17.7)	30 (1.18)	18	445L-P4E0450FP
600 (23.6)	14 (0.55)	60	445L-P4C0600FP	600 (23.6)	30 (1.18)	24	445L-P4E0600FP
750 (29.5)	14 (0.55)	75	445L-P4C0750FP	750 (29.5)	30 (1.18)	30	445L-P4E0750FP
900 (35.4)	14 (0.55)	90	445L-P4C0900FP	900 (35.4)	30 (1.18)	36	445L-P4E0900FP
1050 (41.3)	14 (0.55)	105	445L-P4C1050FP	1050 (41.3)	30 (1.18)	42	445L-P4E1050FP
1200 (47.2)	14 (0.55)	120	445L-P4C1200FP	1200 (47.2)	30 (1.18)	48	445L-P4E1200FP


Micro 400 Controller - Required

	Type	Mounting	Size	Cat. No.
	MSR42	35 mm DIN Rail	22.5 mm	440R-P226AGS-NNR
	MSR41			440R-P221AGS





Patchcords - Required (Transmitters and receivers both use 8-pin M12 to RJ45 patchcords)

Face View M12 Connector	Face View RJ45 Connector	Description	Cat. No.
 <p>Tabla de pines: 1: Azul 2: Gris 3: Verde 4: Blanco 5: Negro 6: Rosa 7: Marrón 8: Amarillo Blindaje: cables trenzados</p>	<p>Pinning table:</p>  <p>1: blue 2: grey 3: green 4: white 5: black 6: pink 7: brown 8: yellow Shield: Braid wires</p>	3 m patchcord, PVC jacket	445L-AC8RJ3
		5 m patchcord, PVC jacket	445L-AC8RJ5
		8 m patchcord, PVC jacket	445L-AC8RJ8



Optional Safety Relay Interfaces

 MSR45E Safety Relay Expansion Model	Input Voltage	Reset	Floating Blanking	Fixed Blanking	PSDI	Muting	Outputs	Cat. No.
	24V DC	Determined by MSR41 or MSR42	No	No	No	No	2 N.O.	440R-P4NANS

The MSR42 (MSR41) can have up to three MSR45E safety relays inter-connected. Each module requires a ribbon cable connector to make the interconnection. The table shows the cat. no. for each ribbon cable connector as well as the optical interface for the programming of the MSR42. Programming of the MSR42 is only necessary for advanced operating modes or connection of additional devices. Please note the MSR41 can not be programmed for additional functionality.

Description	Cat. No.
 Ribbon cable—for one expander	440R-ACABL1
 Ribbon cable—for two expanders	440R-ACABL2
 Ribbon cable—for three expanders	440R-ACABL3
 USB optical interface software configuration tool	445L-AF6150

Optional Accessories

Description	Cat. No.
 Adjustable bracket kit (2 pcs./kit) Two kits required per pair.	445L-AF6143
 Flat bracket kit (4 pcs./kit) One kit per pair.	445L-AF6145

Presence Sensing

Product Selection

442L SafeZone Multizone Safety Laser Scanner

Features

- Vertical or horizontal mounting in stationary or mobile applications
- Safety category 3 per IEC 61496 and SIL2 per IEC61508
- Auto configure safety field using ambient contour
- 2 programmable switchable zone sets



Model	Application Specific Resolutions	Safety Outputs	Auxiliary Outputs	Angular Scanning Range	Safety Field Range	Cat. No.
SafeZone Multizone	30, 40, 50, 70 and 150 mm	2 PNP	1	190°	5 m	442L-SFZNMZ

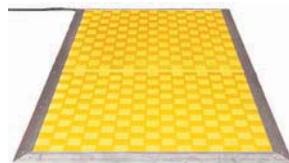
Accessories

Description	Cat. No.
Prewired I/O connector cable, 10M	442L-CSFZNMZ-10
Prewired I/O connector cable, 20M	442L-CSFZNMZ-20
RS232 Programming Cable	442L-ACRS232
Mounting Kit 1: Mounting bracket for direct mounting at the rear on wall or machine. No adjustment facility	442L-AMBSFZNMZ1
Mounting Kit 2: Bracket only in conjunction with mounting kit 1. Mounting at the rear on wall or machine. Longitudinal and cross-wise adjustment possible	442L-AMBSFZNMZ2
Mounting Kit 3: Bracket only in conjunction with mounting kit 1 and 2. Mounting at the rear or below on wall, floor or machine. Longitudinal and cross-wise adjustment possible	442L-AMBSFZNMZ3
24V DC, 3.0 Amp power supply	1606-XLP72E

440F MatGuard Safety Mats




Category 3 according to EN ISO 13849-1



- Third party certification to EN 1760-1
- Overall sensitivity including uniting strip
- Rugged construction withstands the pressure of 4500psi
- IP 67 vinyl construction resistant to most oils
- 5-year warranty
- Mat manager monitors the status of up to 8 mats individually



Mat Size [mm (in.)]	Cat. No.
500 x 500 (19.7 x 19.7)	440F-M1010BYNN
500 x 1500 (19.7 x 59.1)	440F-M1030BYNN
750 x 1500 (29.5 x 59.1)	440F-M1530BYNN
1000 x 1000 (39.4 x 39.4)	440F-M2020BYNN
1000 x 1250 (39.4 x 49.2)	440F-M2025BYNN
1000 x 1500 (39.4 x 59.1)	440F-M2030BYNN

Safety Relays and Controllers (440R, 1752)

			
Bulletin	440R	440R	440R-S
Type	MSR100 Dedicated Safety Relays	MSR30 Dedicated Safety Relays with Solid State Outputs	MSR57P Safe Speed and Standstill Monitoring Safety Relays
Features	<ul style="list-style-type: none"> Monitors multiple inputs in one base controller e.g. interlocks, light curtains, safety mats 	<ul style="list-style-type: none"> Microprocessor core and solid state outputs guarantee a long life Ideal for applications with high switching frequencies Allows to be connected to gate interlocks, e-stop devices and four-wire safety mats. 	<ul style="list-style-type: none"> Designed to solve motion applications which require interaction by personnel during operation. Connects to any drive and monitors the speed using currently installed encoders.
Approvals	CE marked for all applicable directives and approved by UL, C-Tick, and TÜV where relevant		
Standards	Conform to EN 954-1, EN ISO 13849-1 and EN 60204-1	Conform to EN 954-1, EN ISO 13849-1 and EN 60204-1	Conform to EN 954-1, EN ISO 13849-1, EN 60204-1 and EN IEC 62061
Product Selection	See page 5-22	See page 5-24	See page 5-25

		
Bulletin	440R	1752
Type	MSR 200/300 Modular types	SmartGuard Programmable Controller
Features	<ul style="list-style-type: none"> Modular concept allows to wire multiple devices on individual inputs thus achieving the highest safety ratings Interconnecting system offers input units, output units, controller and display module Zoning and basic logic functions supported 	<ul style="list-style-type: none"> Programmable safety controller allows for more advanced safety functionality 16 safety-rated inputs, 8 safety-rated outputs and 4 pulse test sources on board Expendable via DeviceNet Safety I/O's
Approvals	CE marked for all applicable directives and approved by UL, C-Tick, and TÜV where relevant	
Standards	Conform to EN 954-1, EN ISO 13849-1 and EN 60204-1	Conform to EN 954-1, EN ISO 13849-1 and IEC 61508
Product Selection	See page 5-26	See page 5-27

MSR100 Dedicated Safety Relays

- Conform to EN 954-1, EN ISO 13849-1 and EN 60204-1
- Stop category 0
- Cross fault monitoring
- Monitored or automatic reset
- Removable or fixed terminals



Stop Category 0 Relays

Inputs	Safety Outputs	Auxiliary Outputs	Terminals	Supply Voltage	Model	Cat. No.
1 N.C.	3 N.O.	1 N.C.	Fixed	24V AC/DC	MSR117T	440R-B23211
Light Curtain or Single Channel (MSR126T)	2 N.O.	None	Fixed	24V AC/DC	MSR126T	440R-N23117
				230V AC	MSR126T	440R-N23115
				24V AC/DC	MSR126R	440R-N23123
				230V AC	MSR126R	440R-N23121
Dual Channel 2 N.C. (MSR126.IT)	2 N.O.	None	Fixed	24V AC/DC	MSR126.IT	440R-N23114
				230V AC	MSR126.IT	440R-N23112
				24V AC/DC	MSR126.IR	440R-N23120
				230V AC	MSR126.IR	440R-N23118
1 N.C., 2 N.C., Light Curtain	3 N.O.	1 N.C.	Fixed	24V AC/DC	MSR127T	440R-N23126
				230V AC	MSR127T	440R-N23124
				24V AC/DC	MSR127R	440R-N23129
				230V AC	MSR127R	440R-N23127
			Removable (Screw)	24V AC/DC	MSR127TP	440R-N23132
				230V AC	MSR127TP	440R-N23130
				24V AC/DC	MSR127RP	440R-N23135
				230V AC	MSR127RP	440R-N23133
1 N.C., 2 N.C., Light Curtain, Safety Mat	7 N.O.	4 N.C., 2 PNP, Solid-state	Removable	24V AC/DC	MSR142RTP	440R-G23216
				230V AC	MSR142RTP	440R-G23214
1 N.C., 2 N.C., Light Curtain, Safety Mat	3 N.O.	2 N.C., 2 PNP Solid State	Removable (Screw)	24V AC/DC	MSR131RTP	440R-C23139
				230V AC	MSR131RTP	440R-C23136

See publication S116-CA001... for complete product information.

MSR100 Dedicated Safety Relays with Delayed Outputs

- Conform to EN 954-1, EN ISO 13849-1 and EN 60204-1
- Stop category 0 and 1
- Light curtain, E-stop, safety gate inputs
- Two immediate safety outputs
- Delayed outputs: 3 N.O. safety or 2 N.C. safety and 1 N.C. aux.
- Cross fault monitoring
- Monitored or automatic reset
- Removable terminals



Stop Category 1 Relays

Safety Inputs	Instant Safety Outputs	Delayed Safety Outputs	Time Range	Supply Voltage	Model	Cat. No.
1 N.C., 2 N.C. or Light Curtain	2 N.O.	3 N.O.	0.15...3 s	24V AC/DC	MSR138DP	440R-M23143
				230V AC	MSR138DP	440R-M23140
			0.5...10 s	24V AC/DC	MSR138DP	440R-M23147
			230V AC	MSR138DP	440R-M23144	
			1.5...30 seconds	24V AC/DC	MSR138DP	440R-M23151
			230V AC	MSR138DP	440R-M23148	
		2 N.O.	0.15...3 seconds	24V AC/DC	MSR138.1DP	440R-M23084
	230V AC			MSR138.1DP	440R-M23081	
	0.5...10 seconds		24V AC/DC	MSR138.1DP	440R-M23088	
			230V AC	MSR138.1DP	440R-M23085	
	1.5...30 seconds		24V AC/DC	MSR138.1DP	440R-M23092	
			230V AC	MSR138.1DP	440R-M23089	

22.5 mm wide Output expander unit for use with Safety Relays

Safety Inputs	Safety Outputs	Auxiliary Outputs	Time Delay	Terminals	Supply Voltage	Model	Cat. No.
1 N.C. or 2 N.C.	4 N.O.	2 N.C.	0 s	Fixed	24V AC/DC	MSR132E	440R-E23191
			0.5 s		24V DC	MSR132ED	440R-E23192
			1 s			MSR132ED	440R-E23193
			2 s			MSR132ED	440R-E23194
			3 s			MSR132ED	440R-E23195
			0 s	Removable	24V AC/DC	MSR132EP	440R-E23097
			0.5 s		24V DC	MSR132EDP	440R-E23159
			1 s			MSR132EDP	440R-E23160
			2 s			MSR132EDP	440R-E23098
			3 s			MSR132EDP	440R-E23161
			4 s			MSR132EDP	440R-E23162

See publication S116-CA001... for complete product information.

MSR125H/HP Logic unit for monitoring and interfacing two-hand control devices

- Conform to EN 954-1, EN ISO 13849-1 and EN 60204-1
- Safety category IIIC per EN 574
- Two-hand control unit
- Two N.O. safety outputs
- Removable or fixed terminals
- 22.5 mm wide housing



Input Buttons	Safety Outputs	Terminals	Model	Supply Voltage	Cat. No.
Mechanical	2 N.O.	Fixed	MSR125H	24V DC	440R-D23166
				230V AC	440R-D23163
		Removable	MSR125HP	24V DC	440R-D23171
				230V AC	440R-D23168

MSR30 Dedicated Safety Relays with Solid State Outputs

- Conform to EN 954-1, EN ISO 13849-1 and EN 60204-1
- Stop category 0
- Removable or fixed terminals
- Two solid-state safety outputs
- One solid-state auxiliary output
- One N.C., two N.C or safety mat input
- 24V DC Supply
- Monitored manual or automatic/manual reset



Inputs	Safety Outputs	Auxiliary Outputs	Terminals	Model	Cat. No.
1 N.C., 2 N.C., Safety Mat	2 N.O. Solid State	1 N.O. Solid State	Fixed	MSR30RT	440R-N23197
1 N.C., 2 N.C., Safety Mat	2 N.O. Solid State	1 N.O. Solid State	Removable	MSR30RTP	440R-N23198
1 N.C. & 1 N.O.	2 N.O. Solid State	1 N.O. Solid State	Fixed	MSR33RT	440R-F23199
1 N.C. & 1 N.O.	2 N.O. Solid State	1 N.O.	Removable	MSR33RTP	440R-F23200
2 x 1 N.C. + 1 N.O. (Two-Hand Control) or 2 x N.O.	2 N.O. Solid State Safety; 1 N.O. Solid State Auxiliary	1 N.O. Solid State	Fixed	MSR35H	440R-D23201
Two-Hand Control	2 N.O. Solid State	1 N.O. Solid State	Removable	MSR35HP	440R-D23202
1 N.C., 2 N.C., Safety Mat	2 N.O. Solid State *	1 N.O. Solid State	Fixed	MSR38D	440R-M23203
1 N.C. or 2 N.C. or SM	2 N.O. Solid State *	1 N.C. Solid State	Removable	MSR38DP	440R-M23204

* Time delay 0.5...300 seconds in 24 steps

MSR57P Safe Speed and Standstill Monitoring Safety Relays

- Conform to EN 954-1, EN ISO 13849-1, EN 60204-1 and EN IEC 62061
- Cat. 4 per EN 954-1, SIL CL3 per EN IEC 62061, PLe per ISO 13849-1
- Stop categories 0, 1, 2
- Wide variety of on-board safe speed control functions
- Supports up to 2 encoders (sin/cos and TTL)
- 6 N.O. solid-state safety outputs
- 4 solid-state auxiliary outputs
- 8 diagnostic LEDs
- DPI configuration port
- 67.5 mm DIN Rail housing
- Removable terminals



Inputs	Safety Outputs	Auxiliary Outputs	Terminals	Reset Type	Power Supply	Cat. No.
5 x 1 N.C., 2 N.C., LC, 1 N.O. + 1 N.C.	6 N.O. Solid State	4 N.O. Solid State	Removable	Auto./Manual or Manual Monitored	24V DC	440R-S845AER-NNL

Accessories

Description	Cat. No.
MSR57 Encoder cable with flying leads (2.5 meters)	1585J-M8RB-2M5
3 meter cable HIM	1202-C30
1 meter cable HIM	1202-C10
AnaCANda serial converter (RS232)	1203-SSS
AnaCANda USB converter	1203-USB
HIM full numeric LCD IP20 (NEMA 1)	20-HIM-A3
Kinetix 6000/7000 low profile connector kit	2090-K6CK-Dxxx
Kinetix 2000 low profile connector kit	2090-K2CK-D15M
HIM to MSR 57 cable (1 meter)	20-HIM-H10
Sin/Cos encoder (1024 PPR)	842HR-xJxxx15FWY2
TTL encoder (size 20)	845T-xxxxxxx
TTL encoder (size 25)	845H-SJxxx4xxYxx

See publication S116-CA001... for complete product information.

MSR200 Series: Modular Safety Relay System with Communications

- Conform to EN 954-1, EN ISO 13849-1 and EN 60204-1
- Stop category 0
- Pulsed input monitoring
- Two input circuits: safety gate, E-stop or safety mat
- Up to 22 diverse input devices
- Two safety outputs, three auxiliary outputs
- Ten diagnostic LEDs
- Removable terminals



Type	Application	Description	Inputs	Safety Outputs	Auxiliary Outputs	Supply Voltage	Cat. No.
MSR210P	GT, ES, SM	Base module	2	2	3	24V DC	440R-H23176
MSR211P	GT, ES, LC						440R-H23177
MSR220P	GT, ES, SM	Input extension module	2	—	—	24V DC	440R-H23178
MSR221P	GT, ES, LC						440R-H23179
MSR230P	—	Output extension module	—	4	—	24V DC	440R-H23180
MSR238P	—			2			1*
MSR240P	—	RS232 interface	—	—	—	24V DC	440R-H23181
MSR240P	—	RS485 interface					440R-H23182
MSR240P	—	RS232 + RS485 interface					440R-H23183
MSR241P	—	DeviceNet™ Interface	—	—	—	24V DC	440R-H23187
MSR241P	—	Profibus Interface	—	—	—	24V DC	440R-H23186
MSR245P	—	Display module	—	—	—	24V DC	440R-H23184

* Delayed output: 0 to 300 sec

Model Key: GT = Gate, ES = E-Stop, SM = Safety Mat, LC = Light Curtain

See publication S116-CA001... for complete product information.

See publication S116-CA001... for complete product information.

MSR300 Series: Modular Safety Relay System with Logic Control

- Conform to EN 954-1, EN ISO 13849-1 and IEC 61508
- SIL3 per IEC 61508
- EN 574 Type IIIC
- Stop category 0 and 1
- Pulsed input monitoring
- Three auxiliary group outputs
- Six diagnostic LEDs
- Manual, monitored or automatic reset
- Zone control—up to three
- RS232 Diagnostic Comms
- Unidirectional RS232, 4800 baud
- Bidirectional RS232, 2400, 4800, 9600, 19200 baud
- Removable terminals



Type	Appli- cation	Description	Inputs	Safety Outputs	Auxiliary Outputs	Supply Voltage	Group No.	Cat. No.
MSR310P	—	Safety Relay Base Unit	—	MSR300 Series Output Modules	3 PNP Solid State	24V DC	—	440R-W23219
MSR320P	GT, ES, SM, LC	Safety Relay input expansion module	3	—	2 PNP Solid State	24V DC from the base unit	—	440R-W23218
MSR329P	ML	Muting Lamp module	—	—	—	24V DC from the base unit	—	440R-W23217
MSR330P	—	Safety Relay output expansion module	—	3 N.O.	1 N.C.	24V DC	1	440R-W23221
MSR330P	—	Safety Relay output expansion module	—	3 N.O.	1 N.C.	24V DC	2	440R-W23222
MSR330P	—	Safety Relay output expansion module	—	3 N.O.	1 N.C.	24V DC	3	440R-W23223
MSR338DP	—	Off-Delay Output	—	3 N.O.	1 N.C.	24V DC from the base unit	1	440R-W23224
MSR338DP	—		—				2	440R-W23225
MSR338DP	—		—				3	440R-W23226

Model Key: GT = Gate, ES = E-Stop, SM = Safety Mat, LC = Light Curtain, ML = Muting Lamp

1752 SmartGuard™ Programmable Controller

- Small Safety Controller
- 16 In / 8 Out / 4 Pulse Test Sources
- Up to 32 connections (DIO blocks) on DeviceNet Safety
- Configured and programmed via RSNetWorx
- Certified SIL 3, Category 4 per EN ISO 13849-1, UL NRGF, UL Class I Div 2



Description	Number of Digital Inputs	Number of Digital Outputs	Cat. No.
SmartGuard 600 Safety Controller	16	8	1752-L24BBB

Bulletin 100S-C, 100S-D, 22D
Safety Enabled Actuators
 Product Line Overview

Safety Enabled Actuators (100S-C, 100S-D, 22D)

Bulletin	100S-C	100S-D	22D
Type	Safety Contactor	Safety Contactor	PowerFlex 40P and 70 with Safe-off Option
Features	<ul style="list-style-type: none"> Positively Guided/Mechanically Linked Auxiliary Contacts Front-Mounted Auxiliary Contacts: <ul style="list-style-type: none"> Permanently Fixed Protective Cover to Prevent Manual Operation Red Contact Housing for Easy Identification Incorporates IEC 947-5-1 "Mechanically Linked" Symbol AC or DC coil control SUVA Third-Party Certification 	<ul style="list-style-type: none"> Positively Guided/Mechanically Linked Auxiliary Contacts which are required in feedback circuit for modern safety applications. The Positively Guided N.C. Auxiliary Contacts will not change the state when a power contact welds. 	<ul style="list-style-type: none"> Safe-off function conforming to EN ISO 13849-1 Cat. 3 Available for all PowerFlex 40P drives from 0.37 to 11 kW
Approvals	CE Marked, CSA Certified (Cert No. LR13908), UL Listed (File No. E3125; Guide No. NLDX), SUVA Third-Party Certified	CE Marked, CSA Certified, UL Listed, SUVA Third-Party Certified	UL, CE, CSA, C-Tick
Standards	EN 50205, UL 508, CSA C22.2 No. 14, IEC/EN 60947-4; IEC 60947-4-1, Annex H — Mirror Contacts, IEC 60947-5-1, Annex L — Mechanically Linked Contacts	IEC 60947-4-1 / A1: 2002-09, Annex F, CSA C22.2 No. 14, UL 508	EN ISO 13849-1
Product Selection	See page 1-30	See page 1-37	See page 1-88, 1-92

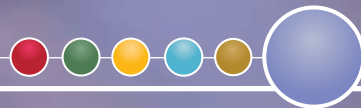


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Photoelectric Sensors

Product Line Overview

Photoelectric Sensors (42EF RightSight, 42EF LaserSight)

Bulletin	42EF RightSight	42CA	42CM
			
Type	Photoelectric Sensors	Cylindrical M18 Photoelectric Sensors	Metal Cylindrical M18 Photoelectric Sensors
Features	<ul style="list-style-type: none"> • Wide selection of sensing modes • Popular housing allows through hole mounting as well as M18 threaded mounting hubs • Heavy duty and food applications • Clear object detection model available • Long range laser class I version 	<ul style="list-style-type: none"> • Wide selection of sensing modes • Popular cylindrical Plastic M18 housing 	<ul style="list-style-type: none"> • Wide selection of sensing modes • Popular cylindrical Metal M18 housing • Heavy duty industrial applications
Sensitivity Adjustment	Manual / Teach	Manual	Manual
Response Time	1...4 ms	0.5 - 1 ms	0.5...2 ms
Sensing Range			
Diffuse Reflection	3...500 mm	100 mm, 400 mm, 1000 mm	0...100 / 400 mm
Retroreflective	25 mm...4.5 m	4.8 m, 7.2 m	3 mm...4 m
Polarized Retroreflective	25 mm...3 m / 15 m	3.8 m	3 mm...3 m
Transmitted Beam	4 m / 8 m / 20 m / 40 m	16 m	3 mm...14 m
Background Supp.	0...50 mm / 100 mm	50 mm, 100 mm	0...50 / 100 mm
Fixed Focus	43 mm	—	—
Sharp Cutoff	3...130 mm	—	—
Output Mode	Dual NPN and PNP PNP complementary LO/DO Light On or Dark On (by model number)	PNP Light On or Dark On (by model number) PNP / NPN Complementary LO & DO	PNP LO and DO selectable
Connection	Cable, Micro / M12 Connector	Micro / M12 Connector	Cable, Micro / M12 Connector
Supply Voltage	10...30V DC	10...30V DC	10...30V DC
Enclosure Rating			
IP	IP 54	IP 67	IP 67
NEMA	NEMA 4X, 6P	—	—
Special enclosure	1200 psi / 82.7 bar washdown rating	—	—
Approvals	UL, CSA, CE	c-UL, CE	c-UL, CE
Product Selection	See page 6-7	See page 6-10	See page 6-12
Accessories	See page 6-18	See page 6-18	See page 6-18



Bulletin	42JS
Type	20 mm Miniature Rectangular
Certifications	cULus and CE Marked for all applicable directives
Features	<ul style="list-style-type: none"> • Visible light source offered on all models for ease of alignment • Optional snap-on adaptor enables 18 mm mount and makes sensor replacement a snap • Patented ASIC design offers linear sensitivity adjustment, stability indication, and excellent noise immunity • Compact sealed housing and cavity free design to minimize collection of dust and debris while allowing for easy sensor cleanup • Threaded metal M12 or M8 connector on pigtail • 360° visible LED status indicators • Additional transmitted beam models available with infrared light source for superior cross talk immunity • Input to disable light source on transmitted beam emitter
Optical	
Sensing Modes	Polarized retroreflective, diffuse, transmitted beam
Light Source	Visible red LED (660 nm) or infrared LED (880 nm)
Adjustments	Sensitivity potentiometer or fixed by cat. no.
Electrical	
Voltage	10...30V DC
Current Consumption	25 mA max
Sensor Protection	Short circuit, overload, false pulse, transient noise, reverse polarity
Outputs	
Response Time	1 ms
Output Mode	PNP or NPN (by cat. no.)
Output Type	Complementary light or dark operate
Output Current	100 mA
Output Leakage Current	10 μA max
Mechanical	
Housing Material	ABS
Connection Types	2 m cable, 4-pin DC micro (M12) QD, 4-pin pico (M8) QD
Supplied Accessories	Mounting hardware (M3 x 25) stainless steel screws
Operating Temperature [C (F)]	-20...+60° (-4...+140°)
Operating Environment	IP67
Approvals	cULus and CE Marked for all applicable directives
Product Selection	Page 6-9

Photoelectric Sensors

Product Line Overview

Photoelectric Sensors (9000, 9000 LaserSight), Fiber Optics Digital Amplifier (45FVL)

Bulletin	44B	42BT	42G (9000 Series)
Type	Background and Foreground Suppression Sensors	Long Range Background Suppression Sensors	Photoelectric Sensors Standard and Timing
Features	<ul style="list-style-type: none"> Adjustable BGS/FGS Popular square housing allows through hole mounting High impact acrylic housing design for rugged food industry 	<ul style="list-style-type: none"> Adjustable BGS Popular square housing allows through hole mounting 	<ul style="list-style-type: none"> Long sensing range Heavy duty industrial applications Clear object detection model available On/Off Delay, One Shot Timer
Sensitivity Adjustment	Manual	Manual	Manual
Response Time	1 ms	2 ms	2 ms
Sensing Range			
Diffuse Reflection	—	—	50.8...4.6 m
Retroreflective	—	—	50.8...9.1 m
Polarized Retroreflective	—	—	50.8...4.8 m
Transmitted Beam	—	—	25.4...152 m
Background Suppression	20...300 mm	0.2...2 m	—
Foreground Suppression	20...200 mm	—	—
Output Mode	Dual NPN and PNP Light On or Dark On (by model number)	Dual NPN and PNP LO and DO selectable	Dual NPN and PNP LO and DO selectable
Connection	Micro / M12 Connector	Cable Pico / M8 Connector	Cable Micro / M12 Connector
Supply Voltage	10...30V DC	10...30V DC	10...40V DC
Enclosure Rating			
IP	IP 67	IP50	IP67
NEMA	NEMA 3,4X, 6P, 12, 13	NEMA 1	NEMA 3, 4X, 6P, 12, 13
Special enclosure	—	—	1200 psi / 82.7 bar washdown rating
Approvals	UL, c-UL, CE	UL, c-UL, CE	UL, CSA, CE
Product Selection	See page 6-13	See page 6-13	See page 6-14
Accessories	See page 6-18	See page 6-18	See page 6-18

Laser Distance Measurement Sensor (45BRD, 45BPD, 45CPD)

Bulletin	45BPD	45CPD	Photoelectric Accessories
Type	Precise Laser Distance Measurement Sensor	Long Range Laser Distance Measurement Sensor	Mounting Brackets
Features	<ul style="list-style-type: none"> Analog and discrete outputs CCD technology Laser Class II 	<ul style="list-style-type: none"> Analog and discrete outputs Time of flight Laser Class I and II 	<ul style="list-style-type: none"> Wide variety of metal and plastic mounting brackets Large selection of reflectors Vertical / horizontal alignment brackets
Sensitivity Adjustment	Teach	Teach	—
Response Time	0.4 ms	13...30 ms	—
Sensing Range			
Diffuse Reflection	30...100 mm 80...300 mm	200...6000 mm	—
Output Mode	PNP LO and DO selectable Analog 4...20 mA	PNP LO and DO selectable Analog 4...20 mA	—
Connection	Micro M12 Connector	Micro M12 Connector	—
Supply Voltage	10...30V DC	10...30V DC	—
Enclosure Rating	IP67	IP67	—
Approvals	UL, cULus, CE	UL, cULus, CE	—
Product Selection	See page 6-15	See page 6-16	
Accessories	See page 6-18	See page 6-18	See page 6-18

Photoelectric Sensors

Product Line Overview

True Color / Light Arrays / Vision Sensor (45CLR, 45PVA, 45AST, 48MS)

Bulletin	45CLR	45PVA	45AST
Type	ColorSight™ Color / Contrast Sensors	Slim Type Picking Sensors	Area Arrays
Features	<ul style="list-style-type: none"> • Three channel color matching (3 outputs) • Wide sensing range tolerance (± 6 mm (± 0.24 in.)) • Adjustable tolerance for high precision general color matching • External teach capability • Compact size enclosure • RS-485 communication models available 	<ul style="list-style-type: none"> • 35 mm object resolution • Robust aluminum enclosure • Four heights to choose from • Highly visible JOB and FAULT indicators • Crosstalk immunity • Low voltage DC operation 	<ul style="list-style-type: none"> • Two-dimensional array scanning technology • 11...17 mm resolution • 50, 100, 150 mm scanning height models • Durable aluminum housing • Bracket-free mounting • Low voltage DC operation
Applications	Precise color match sensing Part inspection and sortation	Error proofing Bin picking	Small parts assembly Parts ejection sensing
Sensing Modes and Max. Range	Diffuse 12...32 mm (0.47...1.26 in.)	Transmitted Beam 2 m (6.5 ft)	Transmitted beam up to 2.5 m (8 ft)
Output Type	3 PNP outputs (discrete models) RS485 models: 1 PNP or 1 NPN output by cat. no.	NPN or PNP 50 mA	NPN or PNP 100 mA
Response Time	1 ms	25...98 ms	4...8ms
Connections	Micro QD	300V PVC cable with micro QD	300V PVC cable 2 m
Operating Voltage	12...30V DC	12...24V DC	12...24V DC
Enclosure	ABS/PMMA, IP67	Aluminum housing, acrylic window, IP62	Aluminum housing, acrylic window, IP67
Approvals	cULus, CE	cULus, CE	cULus, CE
Product Selection	See page 6-16	See page 6-17	See page 6-17
Accessories	See page 6-18	See page 6-18	See page 6-18

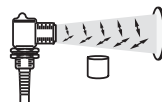
Photoelectric Sensors—RightSight™

- Flexible M18 mounting options
- 1200 psi washdown rating
- Non-adjustable, adjustable and teach versions
- 360° visible LED indicators
- Reverse polarity protection
- Short-circuit protected outputs
- Laser and Clear Object detecting models
- UL listed, CSA certified and CE marked for all applicable directives



Polarized Retroreflective

Field of View: 1.5°
 Emitter LED: Visible red 660 nm

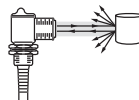


Operating Voltage/Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
10.8...30V DC, 35 mA	25 mm...3 m (1 in...9.8 ft)	D.O.	NPN/PNP 100 mA, 1 ms	0.1 mA	4-pin DC micro	* 42EF-P2KBB-F4
		L.O. & D.O.	PNP 100 mA, 1 ms			* 42EF-P2MPB-F4

Recommended reflector: 92-39
 For further information see page 6-21

Standard Diffuse

Field of View: 5°
 Emitter LED: Infrared 880 nm



Operating Voltage/Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
10.8...30V DC, 35 mA	3...500 mm (0.12...20 in.)	L.O.	NPN/PNP 100 mA, 1 ms	0.1 mA	4-pin DC micro	* 42EF-D1JBAK-F4
		L.O. & D.O.	PNP 100 mA, 1 ms			* 42EF-D1MPAK-F4

* DC Micro QD / M12 Cordset Cat. No. 889D-F4AC-2, see page 4-36

Background Suppression

Field of View: 50 mm (2 in): 20°
 100 mm (3.9 in): 8°
 Emitter LED: Infrared 880 nm



Operating Voltage/Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
10.8...30V DC, 35 mA	50 mm	L.O.	NPN/PNP 100 mA, 1 ms	0.1 mA	4-pin DC micro	* 42EF-B1JBBC-F4
	100 mm					* 42EF-B1JBBE-F4
	3...100 mm (0.12...3.9 in)	Complementary L.O. & D.O.	PNP 100 mA, 1 ms			* 42EF-B1MPBE-F4

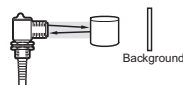
Bulletin 42EF

Photoelectric Sensors

Product Selection

Fixed Focus Diffuse

Spot Size: 4 mm
 Emitter LED: Visible red and green by Cat. No.

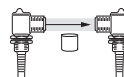


Operating Voltage/Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
10.8...30V DC, 30 mA	—	L.O.	NPN & PNP 100 mA 1 ms	0.1 mA	4-pin DC micro	* ⊗ 42EF-F2JBC-F4
	—					* ⊗ 42EF-F3JBC-F4

* DC Micro QD / M12 Cordset Cat. No. 889D-F4AC-2, see page 4-36
 ⊗ Teachable

Transmitted Beam

Field of View: 7°
 Emitter LED: Infrared 880 nm



Operating Voltage/Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
10.8...30V DC, 25 mA	20 m (65.6 ft)	D.O.	NPN/PNP 100 mA 4 ms	0.1 mA	4-pin DC micro	* ⊗ 42EF-R9KBB-F4
	4 m (13.1 ft)					* ⊗ 42EF-R9KBBV-F4
10.8...30V DC, 35 mA	Depends on Receiver	—	—	—	—	* ⊗ 42EF-E1EZB-F4

Photoelectric Laser Sensors—LaserSight™

- Class 1 visible red laser source
- Diffuse, polarized retroreflective and transmitted beam sensing modes
- Industry standard housing in popular RightSight package
- Flexible M18 mounting or through hole mounting option



Sensing Mode	Operating Voltage/ Supply Current	Sensing Distance (Adjustable)	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
Standard Diffuse	22...26V DC, 40 mA	300 mm (11.8 in.)	L.O.	NPN & PNP/ 100 mA/ 1 ms max.	0.1 mA	4-pin DC micro	* ⊗ 42EF-D8JBC-F4
		50 mm...15 m (1.96 in. ...49 ft)					* ⊗ 42EF-D8JBA-F4
Polarized Retroreflective	22...26V DC, 40 mA	15 mm...40 m (0.59 in. ...131 ft)	D.O.	NPN & PNP/ 100 mA/ 1 ms max.	0.1 mA	4-pin DC micro	* ⊗ 42EF-P8KBC-F4
Trans. Beam, Receiver							* ⊗ 42EF-R7KBB-F4
Trans. Beam, Emitter							* ⊗ 42EF-E8EZB-F4
⊕ Microcube reflector for polarized retroreflective laser sensors							92-118

* DC Micro QD / M12 Cordset Cat. No. 889D-F4AC-2, see page 4-36
 ⊗ Teachable

Recommended reflector: 92-118 / For further information see page 6-21

VisiSight™—20 mm Miniature Rectangular

- Visible light source offered on all models for ease of alignment
- Optional snap-on adaptor enables 18 mm mount and makes sensor replacement a snap
- Patented ASIC design offers linear sensitivity adjustment, stability indication, and excellent noise immunity
- Compact sealed housing and cavity free design to minimize collection of dust and debris while allowing for easy sensor cleanup
- Threaded metal M12 or M8 connector on pigtail
- 360° visible LED status indicators
- Additional transmitted beam models available with infrared light source for superior cross talk immunity
- Input to disable light source on transmitted beam emitter



Sensing Mode	Operating Voltage/ Supply Current	Sensing Distance [m (ft)]	Output Type/ Capacity	Sensitivity Adjustment	Cat. No.*❖
Polarized Retroflective					
	10...30V DC 25 mA max.	0.025...3.5 (0.08...11.5)	L.O. & D.O. NPN	No adjustment	42JS-P2MNB1-F4
			L.O. & D.O. PNP		42JS-P2MPB1-F4
			L.O. & D.O. NPN	Single-turn potentiometer	42JS-P2MNA2-F4
			L.O. & D.O. PNP		42JS-P2MPA2-F4
Standard Diffuse					
	10...30V DC 25 mA max.	0.003...0.8 (0.01...2.6)	L.O. & D.O. NPN	Single-turn potentiometer	42JS-D2MNA1-F4
			L.O. & D.O. PNP		42JS-D2MPA1-F4
Transmitted Beam					
	10...30V DC 25 mA max.	10 (32.8)	NA NA	No adjustment	42JS-E2EZB1-F4
			L.O. & D.O. NPN	Single-turn potentiometer	42JS-R9MNA1-F4
			L.O. & D.O. PNP		42JS-R9MPA1-F4
			NA NA	No adjustment	42JS-E1EZB1-F4
			L.O. & D.O. NPN	Single-turn potentiometer	42JS-R9MNA2-F4
			L.O. & D.O. PNP		42JS-R9MPA2-F4

* The suffix **-F4** denotes 4-pin DC micro connection type with 6 in. cable. For 4-pin DC pico QD with 6 in. cable replace the suffix **-F4** with **-Y4** (Example: Cat. No. 42JS-P2MPB1-Y4). For 2 m cable without QD replace the suffix **-F4** with **-A2** (Example: Cat. No. 42JS-P2MPB1-A2).

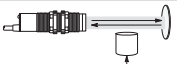
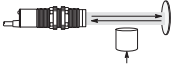


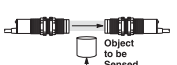
Connector Style		Cat. No.
2 m (6.5 ft) DC micro QD cordset	❖	889D-F4AC-2
2 m (6.5 ft) DC Pico QD cordset	❖	889P-F4AB-2

❖ Longer lengths available.

18 mm Plastic Cylindrical Style

- Complementary light and dark operate outputs (selectable light or dark operate on background suppression models).
- Two LED indicators provide status of power, output, unstable operation and short-circuit protection.
- Improved 1 ms response time on most models.
- Extended range high-speed models with a 0.5 ms response time.
- Patented ASIC design offers linear sensitivity adjustment, stability indication and excellent noise immunity.
- Flat lens reduces dust collection and improves ease of cleaning.
- Visible red LED light source on polarized retroreflective models.
- Input to disable light source on transmitted beam emitter for testing and scanning purposes.



Sensing Mode	Operating Voltage/ Supply Current	Sensing Distance [m (ft)]	Output Type/ Capacity/ Response Time	Sensitivity Adjustment	Cat. No. *
Polarized Retroreflective					
	10...30V DC, 25 mA max.	0.002...3.8 (0.006...12.5)	L.O. & D.O. PNP/100 mA/ 1 ms	No adjustment	42CA-P2MPB-D4
Retroreflective					
	10...30V DC, 25 mA max.	0.002...4.8 (0.006...15.7)	L.O. & D.O. PNP/100 mA/ 1 ms	No adjustment	42CA-U2MPB-D4
		0.002...7.2 (0.006...23.6)	L.O. & D.O. PNP/100 mA/ 0.5 ms	Single turn potentiometer	42CA-U2MPA-D4
Background Suppression					
	10...30V DC, 30 mA	0.05 (0.16)	Selectable L.O. or D.O. PNP/100 mA/ 0.5 ms	No adjustment	* 42CA-B2LPBC-D4
		0.1 (0.33)			* 42CA-B2LPBE-D4
Standard Diffuse					
	10...30V DC, 30 mA max.	0...0.1 (0...0.33)	L.O. & D.O. PNP/100 mA/1 ms	Single turn potentiometer	* 42CA-D1MPAE-D4
	10...30V DC, 25 mA max.	0...0.4 (0...1.3)			42CA-D1MPAJ-D4
	10...30V DC, 30 mA max.	0...1 (0...3.28)			42CA-D1MPAL-D4
Transmitted Beam					
	10...30V DC, 30 mA max.	0.003...16 (0.01...52.5)	NA	No adjustment	42CA-E1EZB1-D4
	10...30V DC, 25 mA max.		L.O. & D.O. PNP/100 mA/1 ms	Single turn potentiometer	42CA-R1MPA1-D4

* Suffix -D4 denotes 4-pin DC micro connection type. For 2 m cable without QD replace suffix -D4 with -A2 (e.g. 42CA-P2MPB-A2). All models shown in selection table above are PNP output versions. Replace the eighth digit (P) with N for NPN (example: 42CA-U2MNB-D4 is NPN).

* Refer to www.ab.com/sensors for updated information.

Cordsets and Accessories

Description	Cat. No.
Cordsets	
DC Micro QD Cordset, Straight, 4-pin, 2 m (6.5 ft)	889D-F4AC-2
Right Angle DC Micro QD Cordset, 4-pin, 2 m (6.5 ft)	889D-R4AC-2
Mounting Brackets	
Right Angle Mounting Bracket	60-2657
Straight Mounting Bracket	60-2656
Snap-Clamp Mounting Bracket	871A-SCBP18
Right Angle Mounting Bracket	60-2654
Reflectors	
Reflector	92-124
32 mm (1.25 in) Diameter Reflector	92-47

Bulletin 42CM

Photoelectric Sensors

Product Selection

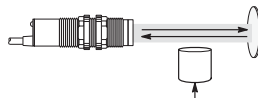
Metal Cylindrical M18 Photoelectric Sensors

- M18 industry standard package
- Wide selection of sensing modes
- Laser models available
- 30V DC operation
- NPN or PNP outputs
- Fast response time
- cULus and CE marked for all applicable directives



Polarized Retroreflective

Field of View: 1.8°
Emitter LED: Visible red 660 nm

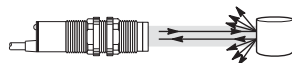


Operating Voltage/Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
10...30V DC, 30 mA	3 mm...3 m (0.12 in. ...9.9 ft)	L.O. & D.O.	PNP/ 100 mA/ 4 ms	<10μA	4-pin DC micro *	42CM-P2MPB-D4

Recommended reflector: 92-39; For further information see page 6-21

Standard Diffuse

Field of View: 6.6°
Emitter LED: Visible red 660 nm

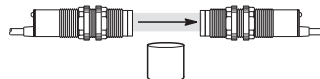


Operating Voltage/Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
10...30V DC, 30 mA	0...400 mm (0...13.6 in.) adjustable	L.O. & D.O.	PNP/ 100 mA/ 2 ms	<10μA	4-pin DC micro *	42CM-D1MPAL-D4

* DC Micro QD / M12 Cordset Cat. No. 889D-F4AC-2, see page 4-36

Transmitted Beam

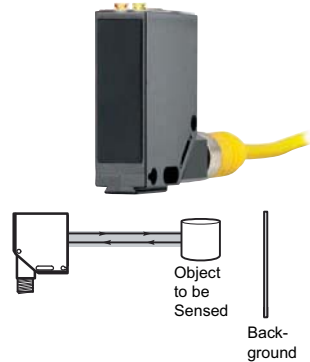
Field of View: 1.6°
Emitter LED: Infrared 880 nm



Operating Voltage/Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
10...30V DC, 25 mA	3 mm...20 m (0.12 in. ...65.6 ft)	NA light source		<10μA	4-pin DC micro *	* 42CM-E1EZB-D4
		Selectable L.O. or D.O.	PNP/ 100 mA/ 2 ms			* 42CM-R1MPB-D4

Background and Foreground Suppression Sensors

- Adjustable background and foreground suppression models
- Adjustable sensing range
- Power, output, and stability status indicators
- Micro QD connection with 90° swivel
- Protected from mis-wiring
- NPN and PNP outputs
- Fast 1 ms response time



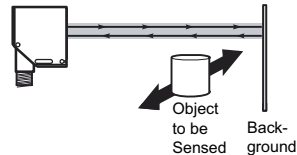
Background Suppression Sensors

Detection by presence of reflected light from the target.

Operating Voltage/ Supply Current	Sensing Distance (Adjustable)	LED Source	Output Energized		Output Type/ Capacity/ Response Time	Connection Type	Cat. No.
			Light operate	Dark Operate			
20...30V DC, 22 mA	20...300 mm (0.78...11.8 in.)	Infrared 880 nm	Light operate		NPN/PNP/ 100 mA/1 ms	4-pin DC micro	*
			Dark Operate				*

Foreground Suppression Sensors

Detection by absence of reflected light from the background.



Operating Voltage/ Supply Current	Sensing Distance (Adjustable)	LED Source	Output Energized		Output Type/ Capacity/ Response Time	Connection Type	Cat. No.
			Light Operate	Dark operate			
20...30V DC, 22 mA	20...200 mm (0.78...7.9 in.)	Infrared 880 nm	Light Operate		NPN/PNP/ 100 mA/1 ms	4-pin DC micro	*
			Dark operate				*

* DC Micro QD / M12 Cordset Cat. No. 889D-F4AC-2, see page 4-36

Long Range Background Suppression Sensors

- Adjustable range settings
- Slim flatpack housing design
- Highly visible LED indicators
- Both NPN and PNP outputs
- Short-circuit protected outputs
- Fast 2 ms response time



Operating Voltage/ Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
Field of View: 1.7°						
12...24V DC/30 mA	0.2...1 m (0.66...3.3 ft)	Selectable L.O. or D.O.	NPN & PNP/ 100 mA/2 ms max	0.1mA	4-pin DC micro	*
Field of View: 2.8°						
12...24V DC/30 mA	0.2...2 m (0.66...6.4 ft)	Selectable L.O. or D.O.	NPN & PNP/ 100 mA/2 ms max	0.1mA	4-pin DC micro	*

* DC Micro QD / M12 Cordset Cat. No. 889D-F4AC-2, see page 4-36

Bulletin 42G (Serie 9000)
Photoelectric Sensors
Product Selection

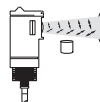
Photoelectric Sensors Standard and Timing

- Harsh duty 30 mm package
- Wide selection of sensing modes
- Wide selection of operating modes
- Both DC and AC/DC operation
- Models with teach function
- Standard ON/OFF and timing versions
- Fast response time
- Variety of connection types
- UL listed, CSA approved and CE marked for all applicable directives



Polarized Retroreflective

Field of View:1.5°
 Emitter LED:Visible red 660 nm



Operating Voltage/ Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
10...40V DC, 30 mA	50.8 mm...4.87 m (2 in...6 ft) with 76 mm (3 in.) Reflector	Selectable L.O. or D.O.	NPN & PNP/ 250 mA/ 2 ms	10 µA	4-pin DC micro	* 42GRU-9200-QD

Standard Diffuse

Field of View:3.5°
 Emitter LED:Infrared 880 nm

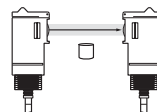


Operating Voltage/ Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
10...40V DC, 30 mA	50.8 mm...1.52 m (2 in...5 ft) to White Paper	Selectable L.O. or D.O.	NPN & PNP/ 100 mA/ 2 ms	10 µA	4-pin DC micro	* 42GLP-9000-QD
						* 42GSP-9000-QD

* Teachable

Transmitted Beam

Field of View:1.5°
 Emitter LED:Infrared 880 nm



Operating Voltage/ Supply Current	Sensing Distance	Output Energized	Output Type/ Capacity/ Response Time	Leakage Current, Max.	Connection Type	Cat. No.
10...40V DC, 25 mA	Depends on light source	Receiver Selectable L.O. or D.O.	NPN/PNP/ 250 mA/ 5 ms	10 µA	4-pin DC micro	* 42GRR-9000-QD
10...264V AC/DC, 15 mA	0.025...61 m (0.83...200 ft)	NA light source	—	—	4-pin DC micro	* 42GRL-9000-QD
	0.025...152 m (0.83...500 ft)	NA Light Source	—	—	4-pin DC micro	* 42GRL-9040-QD

* DC Micro QD / M12 Cordset Cat. No. 889D-F4AC-2, see page 4-36

Precise Laser Distance Measurement Sensor

- Noncontact measurement
- Visible red laser, Class 2
- Analog and discrete outputs
- Easy set-up using Teach-in buttons
- Scalable analog output (4...20 mA)
- Configurable discrete output (N.O./N.C.)
- IP 67 enclosure
- 270° rotatable connector
- Set point adjustment via pushbuttons
- Self-contained sensor
- Laser-disable control
- Teach-in lock out
- Averaging and speed mode



Sensing Range [mm (in.)]	Measuring Range—mm (in)	Spot Size [mm (in.)]		Cat. No.
30...100 (1.18...3.93)	70 (2.75)	1.5 x 3/1.5 x 3.25 (0.06 x 0.12/0.06 x 0.13)	*	45BPD-8LTB1-D5
80...300 (3.14...11.8)	220 (8.66)	1.5 x 3.5/2.0 x 4.5 (0.06 x 0.14/0.08 x 0.18)	*	45BPD-8LTB2-D5

* DC Micro QD / M12 Cordset Cat. No. 889D-F5AC-2, see page 4-36

Bulletin 45CPD, 45CLR
Photoelectric Sensors
Product Selection

Long Range Laser Distance Measurement Sensor

- Eye Safe Class 1 laser for operation
- Visible red Class 2 laser for set-up
- 6 m sensing range
- 2 discrete outputs (PNP) and analog output (4...20 mA)
- Easy set-up using teach-in buttons
- IP 67 enclosure
- Self-contained sensor



Sensing Range [mm (in.)]	Measuring Range—mm (in)	Spot Size [mm (in.)]		Cat. No.
200...6000 (7.87...236.22)	5800 (228.35)	4 x 7 @ 2 m (0.16 x 0.28 @ 6.56 ft)	*	45CPD-8LTB1-D5

* DC Micro QD / M12 Cordset Cat. No. 889D-F5AC-2, see page 4-36

45CLR ColorSight™ Color / Contrast Sensors

- Wide sensing range tolerance
- Three channel color matching (three outputs)
- Gating input (also known as inhibiting input)
- Adjustable tolerance for high precision to general color matching
- Pulse stretching capability (50 ms off delay)
- Teach colors via pushbuttons
- External teach capability (one output)
- Teach button lockout
- 270° rotatable connector
- Compact size IP67 enclosure



Sensing Range [mm (in.)]	Sensing Range Tolerance *	Spot Size [mm (in.)]	Output Type		Cat. No.
12...32 (0.47...1.26)	±6 mm (0.24 in.)	4 (0.16) @ 22 (0.87)	3 PNP	⊛	45CLR-5JPC1-D8
12...32 (0.47...1.26)	±6 mm (0.24 in.)	4 (0.16) @ 22 (0.87)	RS-485, 1 PNP	⊛	45CLR-5LPS1-D8

* For medium color tolerance settings within a specified range.

⊛ Items preferred stocked

Cordsets and Accessories

Description	Cat. No.
DC Micro Style QD Cordset, 8-Pin	889D-F8AB-2
Mounting bracket for 45BPD, 45BRD, 45CLR	45BPD-BKT1
Mounting bracket for 45BPD, 45BRD, 45CLR	45BPD-BKT2
Communications Cable (RS-485) for MicroLogix	1763-NC01
MicroLogix Advanced Interface Converter Module	1761-NET-AIC

45PVA Slim Type Picking Sensors

- Robust metal enclosure with super slim 13 mm profile
- Large highly-visible job indicator lights
- Optional red fault light indicator to notify operator of incorrect component selection
- Dip switch selectable lighting operation for job lights
- NPN or PNP dip switch selectable output reduces inventory
- Two frequency dip switch selectable cross talk protection
- Different sizes are available for different component racks. Transmitted beam models are available in four sizes (100 mm (4 in), 225 mm (9 in), 300 mm (12 in), and 375 mm (15 in)). Retroreflective/diffuse models are available in two sizes (100 mm (4 in) and 225 mm (9 in)).



Sensing Mode	Light Source	Number of Optical Axes	Detection Width	Current Consumption	Response Time	Cat. No.
Transmitted-Beam	Infrared LED, Wave-length 880 nm	5	100 mm (3.93 in)	130 mA	Standard: Light on: 35 ms/Dark on: 25 ms Interference Protection: Light on: 45 ms/Dark on: 28 ms	45PVA-1LEB1-F4
		10	225 mm (8.85 in)	140 mA	Standard: Light on: 68 ms/Dark on: 42 ms Interference Protection: Light on: 84 ms/Dark on: 52 ms	45PVA-1LEB2-F4
		13	300 mm (11.8 in)	150 mA	Standard: Light on: 70 ms/Dark on: 42 ms Interference Protection: Light on: 88 ms/Dark on: 54 ms	45PVA-1LEB3-F4
		16	375 mm (14.7 in)	155 mA	Standard: Light on: 94 ms/Dark on: 58 ms Interference Protection: Light on: 116 ms/Dark on: 72 ms	45PVA-1LEB4-F4

45AST Area Arrays

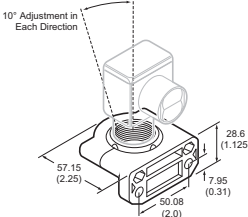
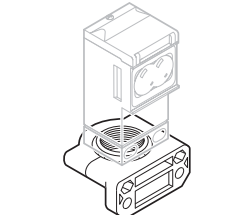
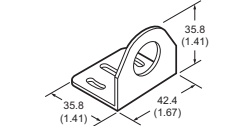
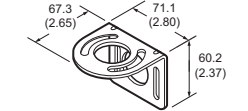
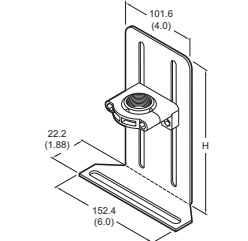
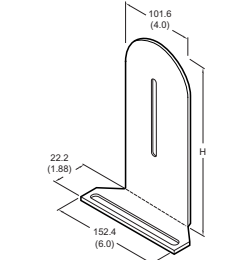
- Introduces two-dimensional array scanning technology
- PNP or NPN output
- Minimum object resolution from 11...17 mm (0.43...0.66 in)
- Sensing ranges up to 2.5 m (8.2 ft)
- IP 67 rated housing
- CE marked for all applicable directives
- Easy bracket-free mounting
- Highly visible alignment LEDs



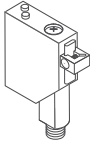
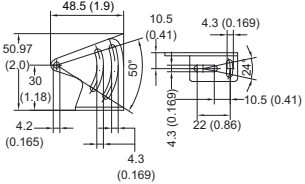
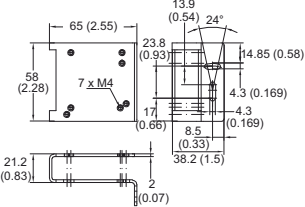
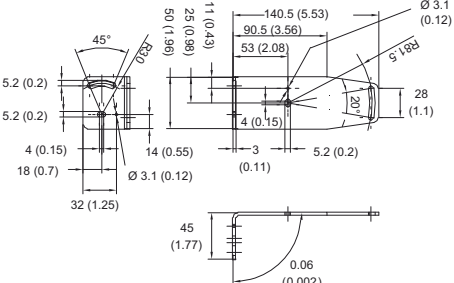
Current Consumption	Sensing Range [m (ft)]	Number of Optical Axes	Response Time	Resolution Diameter [mm (in.)]	Sensing Height [mm (in.)]	Output Type	Cat. No.
Trans. 70 mA max; Rec'r 65 mA max	0.5...2 (1.6...6.5)	5	4 ms max	15 (0.59)	50 (2)	PNP	45AST-1JPB1-A2
Trans. 80 mA max; Rec'r 110 mA max	0.15...0.80 (0.5...2.6)	10	8 ms max	11 (0.43)	100 (4)	PNP	45AST-1JPB2-A2
	0.5...2.5 (1.6...8.2)			13 (0.51)		PNP	45AST-1JPB3-A2
	0.15...0.80 (0.5...2.6)			17 (0.66)	150 (6)	PNP	45AST-1JPB4-A2

⊛ Items preferred stocked

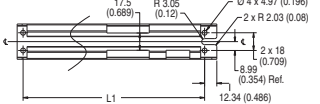
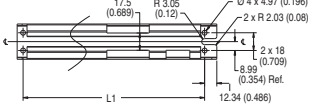
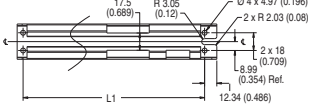
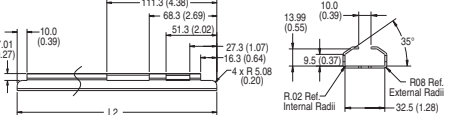
Mounting Brackets

Description	Dimensions—mm (in)	Height	Cat. No.
<p>Swivel/Tilt Bracket Allows $\pm 10^\circ$ Vertical and 360° Rotation Adjustment</p>			60-2649
		—	60-2439
<p>Right angle mounting bracket allows 30° horizontal adjustment. Used for RightSight, MiniSight, 42CA, 42CB, and 42CM style sensors.</p>			60-2657
<p>Right angle mounting bracket permits a 360° rotation adjustment. Used for Series 9000 style sensors.</p>			60-2421
<p>Photoelectric sensor mounting bracket with vertical height adjustment for any swivel/tilt bracket (not included).</p>		101.6 (4.0)	60-2721
		152.4 (6.0)	60-2722
		203.2 (8.0)	60-2723
		254 (10)	60-2724
<p>Reflector mounting bracket with vertical height adjustment for 3 in. diameter (or smaller) center-mounted reflector.</p>		203.2 (8.0)	60-2718
		254 (10)	60-2719
		304.8 (12.0)	60-2720

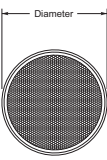
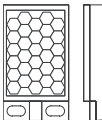
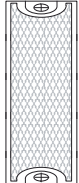

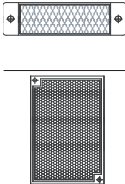
Mounting Brackets

Description	Dimensions—mm (in)	Cat. No.
Dovetail Bracket. Used for Background and Foreground Suppression Sensors 44B		44B-BKT
Mounting bracket for 45BPD, 45BRD, 45CLR		45BPD-BKT1
Mounting bracket for 45BPD, 45BRD, 45CLR		45BPD-BKT2
Mounting bracket for 45CPD		45CPD-BKT1

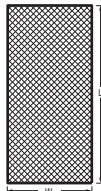
Protective Metal Brackets (Galvanized Steel)

L1 mm (in)	L2 mm (in)	Dimensions—mm (in)	Cat. No. (1 bracket)	Cat. No. (2 brackets)
130 (5.11)	148.36 (5.84)		60-2785-1	60-2775-1
254 (10.03)	273.35 (10.76)		60-2786-1	60-2776-1
330 (12.99)	348.36 (13.71)		NA	60-2777-1
405 (15.94)	423.34 (196.6)		NA	60-2778-1

Reflectors

	Description	Dimension— mm (in.)	Cube Style	Mounting	Temperature —C (F)	Cat. No.
	76 mm (3 in.) Diameter with Center Mount Hole	Diameter 76.2 (3)	Corner Cube	Thru-Hole	≤65 ° (150 °)	92-39
	32 mm (1.25 in) diameter	Diameter 31.75 (1.25)		Thru-Hole		92-89
				Adhesive		92-47
				M5 Screw		92-105
				Snap-Fit		92-106
Microcube reflector for polarized retroreflective laser sensors	Diameter 51 x 61 (2 x 2.5)	Micro Cube	Thru-hole	≤65 ° (150 °)	92-118	
	Reflector, rectangular with mounting tabs and bracket. Right angle bracket and adhesive tape.	23 x 42.5 (0.91 x 1.67)	Corner Cube	Thru-Hole	≤55° (130°)	92-93
	Reflector, rectangular with mounting tabs	18.5 x 120 (0.73 x 4.72)	Corner Cube	Thru-Hole	≤65° (150°)	92-107
	Reflector, square with mounting tabs	100 x 100 (4 x 4)	Corner Cube	Thru-hole	≤65 ° (150 °)	92-108
	Reflector, rectangular with mounting tabs	19 x 72.5 (0.75 x 2.85)	Corner Cube	Thru-Hole	≤55° (130°)	92-111
		23.5 x 55 (0.924 x 2.17)				92-112
		40.5 x 60 (1.6 x 2.36)				92-113
						92-117

Reflective Tapes (included with retroreflective/diffuse models)

	Dimensions		For Use With	Cat. No.
	Width [mm (in.)]	Length [mm (in.)]		
	50 (2)	120 (4.7)	45PVA-2LEA1-F4	92-122
50 (2)	245 (9.6)	45PVA-2LEA2-F4	92-123	

Inductive Proximity Sensors

Product Line Overview

Proximity Sensors (872C, 871TM, 871FM)

Bulletin	872C	871TM	871P	Inductive Proximity Accessories
Type	Proximity Sensors WorldProx Inductive	Proximity Sensors Stainless Steel Inductive	VersaCube Inductive Sensors	Mounting Brackets
Features	<ul style="list-style-type: none"> 360° visible LED Nickel-Plated Brass or Plastic Barrel Standard and extended sensing models 	<ul style="list-style-type: none"> Full mechanical seal with leak-proof front end Ideal for heavy duty, metalworking and food applications High enclosure, cleaning resist and washdown rating (82,7 bar / 1200psi) Standard and extended sensing models 	Long distance cube type Rugged burn and weld-slag resistant Weld field immune Equal sensing (factor1) models available	Wide variety of metal and plastic mounting brackets Right angle, clamp and spring loaded brackets
Barrel Size	Diameter 6.5 mm, M8, M12, M18, M30	M8, M12, M18, M30	Cube 40 x 40 mm	—
Sensing Range				
Standard Sensing Range	2 mm...15 mm	2 mm...15 mm	20 mm...40 mm	—
Extended Sensing Range	2 mm...20 mm	2 mm...40 mm	—	—
Output Mode	PNP Normally Open Shielded Nonshielded 3-wire DC 2-wire AC	PNP Normally Open Shielded Nonshielded 3-wire DC 2-wire AC	Normally Open Shielded Nonshielded 3-wire DC	—
Connection	Cable Micro / M12 Connector	Cable Micro / M12 Connector	Micro / M12 Connector	—
Supply Voltage	10...30V DC 20...250V AC	10...30V DC 20...250V AC	10...30V DC	—
Enclosure Rating				
IP	IP 67	IP 67	IP 67	—
NEMA	NEMA 1,2,3,4,6P,12,13	NEMA 1,2,3,3R,4,4X,6,6P,12,13	NEMA 1,2,3,4,6P,12,13	—
Special enclosure	—	1200 psi / 82.7 bar washdown rating	1200 psi / 82.7 bar washdown rating	—
Approvals	UL, c-UL, CE	UL, CSA, CE	UL, c-UL, CE	—
Product Selection	See page 6-23	See page 6-25	See page 6-26	
Accessories	See page 6-26	See page 6-26	See page 6-26	See page 6-26

Proximity Sensors WorldProx Inductive

3-Wire DC Standard and Short Barrel

- 3-wire operation
- 3-conductor, 3- or 4-wire connection
- 10...30V DC
- Normally-open or normally-closed output
- Short circuit, overload, false pulse, reverse polarity, and transient noise protection
- UL listed, cUL listed and CE marked for all applicable directives



Standard Barrel

Connection Type	Barrel Diameter [mm]	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration		Switching Frequency (Hz)	Cat. No.
Cable Style	M6.5	2 (0.08)	Yes	N.O.	PNP	2000	872C-MM1NP7-E2
	M8	2 (0.08)	Yes	N.O.	PNP	2500	872C-D2NP8-E2
	M12	3 (0.12)	Yes	N.O.	PNP	1300	872C-D3NP12-E2
		4 (0.16)	No	N.O.	PNP	1300	872C-D4NP12-E2
M18	5 (0.20)	Yes	N.O.	PNP	1500	872C-D5NP18-E2	
Pico QD Style	M6.5	2 (0.08)	Yes	N.O.	PNP	2000	872C-MM1NP7-P3
Micro QD Style	M8	2 (0.08)	Yes	N.O.	PNP	2500	* 872C-D2NP8-D4
		3 (0.12)	No	N.O.	PNP	2500	* 872C-D3NP8-D4
	M12	3 (0.12)	Yes	N.O.	PNP	1300	* 872C-D3NP12-D4
		4 (0.16)	No	N.O.	PNP	1300	* 872C-D4NP12-D4
	M18	5 (0.2)	Yes	N.O.	PNP	1500	* 872C-D5NP18-D4
		8 (0.31)	No	N.O.	PNP	1500	* 872C-D8NP18-D4

Short Barrel

Connection Type	Barrel Diameter [mm]	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration		Switching Frequency (Hz)	Cat. No.
Cable style	M12	3 (0.12)	Yes	N.O.	PNP	1300	* 872C-DH3NP12-E2
		4 (0.16)	No	N.O.	PNP	1300	* 872C-DH4NP12-E2
	M18	5 (0.2)	Yes	N.O.	PNP	1500	* 872C-DH5NP18-E2
		8 (0.32)	No	N.O.	PNP	1500	* 872C-DH8NP18-E2
	M30	10 (0.39)	Yes	N.O.	PNP	1000	* 872C-DH10NP30-E2
15 (0.59)		No	N.O.	PNP	1000	* 872C-DH15NP30-E2	
Micro QD style	M12	3 (0.12)	Yes	N.O.	PNP	1300	* 872C-DH3NP12-D4
		4 (0.16)	No	N.O.	PNP	1300	* 872C-DH4NP12-D4
	M18	5 (0.20)	Yes	N.O.	PNP	1500	* 872C-DH5NP18-D4
		8 (0.31)	No	N.O.	PNP	1500	* 872C-DH8NP18-D4
	M30	10 (0.39)	Yes	N.O.	PNP	1000	* 872C-DH10NP30-D4
		15 (0.59)	No	N.O.	PNP	1000	* 872C-DH15NP30-D4

* DC Micro QD / M12 Cordset Cat. No. 889D-F4AC-2, see page 4-36

Bulletin 872C

Inductive Proximity Sensors

Product Selection

3-Wire DC Extended Sensing

- 3-wire operation
- 3-conductor, 4-wire connection
- 10...30V DC
- Normally-open or normally-closed output
- Short circuit, overload, false pulse, reverse polarity, and transient noise protection
- UL and cUL recognized and CE marked for all applicable directives



Connection Type	Barrel Diameter [mm]	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration		Switching Frequency (Hz)	Cat. No.
				N.O.	PNP		
Cable Style	M12	4 (0.16)	Yes	N.O.	PNP	900	872C-M4NP12-A2
		8 (0.31)	No	N.O.	PNP	900	872C-N8NP12-A2
	M18	8 (0.31)	Yes	N.O.	PNP	300	872C-M8NP18-A2
		12 (0.47)	No	N.O.	PNP	300	872C-N12NP18-A2
Pico QD Style	M8	3 (0.12)	Yes	N.O.	NPN	700	* 872C-M3NP8-P3
		4 (0.16)	No	N.O.	NPN	700	* 872C-N4NP8-P3
Micro QD style	M8	3 (0.12)	Yes	N.O.	PNP	2500	* 872C-M3NP8-D4
		4 (0.16)	No	N.O.	PNP	2500	* 872C-N4NP8-D4
	M12	4 (0.16)	Yes	N.O.	PNP	1300	* 872C-M4NP12-D4
		8 (0.31)	No	N.O.	PNP	1300	* 872C-N8NP12-D4
	M18	8 (0.31)	Yes	N.O.	PNP	1500	* 872C-M8NP18-D4
		12 (0.47)	No	N.O.	PNP	1500	* 872C-N12NP18-D4
	M30	15 (0.59)	Yes	N.O.	PNP	1000	* 872C-M15NP30-D4
		20 (0.79)	No	N.O.	PNP	1000	* 872C-N20NP30-D4

* DC Micro QD / M12 Cordset Cat. No. 889D-F4AC-2, see page 4-36

2-Wire AC

- 2-wire operation
- 3-conductor or 3-wire connection
- 20...250V AC (20...240V AC for 8 mm)
- Normally-open or normally-closed output
- False pulse and transient noise protection
- Extended sensing distance on M18 unshielded models
- CE marked for all applicable directives



Connection Type	Barrel Diameter [mm]	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration	Switching Frequency (Hz)	Cat. No.
Cable Style	M8	1.5 (0.06)	Yes	N.O.	25	872C-A1N8-A2
		M12	2 (0.08)			Yes
	4 (0.16)		No			872C-A4N12-A2
	M18	5 (0.20)	Yes			872C-A5N18-A2
		10 (0.39)	No			872C-A10N18-A2
	M30	15 (0.59)	No			872C-A15N30-A2
Micro QD Style	M12	2 (0.08)	Yes	* 872C-A2N12-R3		
		4 (0.16)	No	* 872C-A4N12-R3		
	M18	5 (0.20)	Yes	* 872C-A5N18-R3		
		10 (0.39)	No	* 872C-A10N18-R3		

* AC Micro QD / M12 ordset Cat. No. 889R-F3ECA-2, see page 4-38

Proximity Sensors Stainless Steel Inductive

3-Wire DC

- 3-wire operation
- 3-conductor or 4-wire connection
- 10...30V DC
- Short circuit, overload, false pulse, reverse polarity, and transient noise protection
- Normally-open or normally-closed output
- UL listed, CSA certified and CE marked for all applicable directives



Connection Type	Barrel Diameter [mm]	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration		Switching Frequency (Hz)	Cat. No.
				N.O.	PNP		
ToughLink™ cable	M18	5 (0.20)	Yes	N.O.	PNP	60	871TM-DH5NP18-H2
		8 (0.31)	No	N.O.	PNP	40	871TM-DH8NP18-H2
Micro QD style	M12	2 (0.08)	Yes	N.O.	PNP	75	* 871TM-DH2NP12-D4
		4 (0.16)	No	N.O.	PNP	70	* 871TM-DH4NP12-D4
	M18	5 (0.20)	Yes	N.O.	PNP	60	* 871TM-DH5NP18-D4
		8 (0.31)	No	N.O.	PNP	40	* 871TM-DH8NP18-D4

3-Wire DC Extended Range

- 3-wire operation
- 3-conductor or 4-wire connection
- 10...30V DC
- Short circuit, overload, false pulse, reverse polarity, and transient noise protection
- Normally-open or normally-closed output
- Equal sensing for both steel and aluminum
- CE marked for all applicable directives



Connection Type	Barrel Diameter [mm]	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration		Switching Frequency (Hz)	Cat. No.
				N.O.	PNP		
Micro QD Style	M8	3 (0.12)	Yes	N.O.	PNP	700	* 871TM-M3NP8-D4
		6 (0.23)	Yes	N.O.	PNP	700	* 871TM-N6NP8-P3
Micro QD Style	M8	3 (0.12)	Yes	N.O.	PNP	700	* 871TM-M3NP8-D4
		6 (0.23)	Yes	N.O.	PNP	700	* 871TM-N6NP8-D4
	M12	6 (0.23)	Yes	N.O.	PNP	400	* 871TM-M6NP12-D4
		10 (0.39)	No	N.O.	PNP	400	* 871TM-N10NP12-D4
	M18	10 (0.39)	Yes	N.O.	PNP	200	* 871TM-M10NP18-D4
		20 (0.79)	No	N.O.	PNP	200	* 871TM-N20NP18-D4
M30	20 (0.79)	Yes	N.O.	PNP	80	* 871TM-M20NP30-D4	
	40 (1.57)	No	N.O.	PNP	80	* 871TM-N40NP30-D4	

* DC Micro QD / M12 Cordset Cat. No. 889D-F4AC-2, see page 4-36

Bulletin 871P

Inductive Proximity Sensors

Product Selection

VersaCube Inductive Sensors

3-Wire DC VersaCube™

- New rugged housing
- Weld-field immune models
- Burn and weld-slag resistant body on weld-field immune models
- Convenient mounting base
- 3-wire operation
- 4-pin connection
- 10...60V DC
- Normally-open or normally-closed output
- Short circuit, overload, false pulse, reverse polarity, and transient noise protection
- UL listed, cUL certified and CE marked for all applicable directives



Connection Type	Head Size	Weld Field Immune	Nominal Sensing Distance [mm (in.)]	Shielded	Output Configuration	Switching Frequency (Hz)	Cat. No.
Micro QD Style	40 mm	No	20 (0.79)	Yes	N.O. PNP	100	* 871P-D20NP40-D4
			40 (1.57)	No	N.O. PNP	100	* 871P-D40NP40-D4

* DC Micro QD / M12 Cordset Cat. No. 889D-F4AC-2, see page 4-36

Accessories

Mounting Brackets for Tubular Proximity Sensors—Swivel/Tilt Style

Description	Dimensions—mm (in)	Cat. No.
The swivel/tilt mounting bracket provides both axial and 10° tilt adjustment for our 18mm and 30mm tubular-style products.		60-2649
		60-2439

Mounting Brackets for Tubular Proximity Sensors—Right Angle Style

Proximity Tube Diameter [mm (in.)]	Dimensions—mm (in)	Material	Cat. No.
8 (0.31)		Zinc-Plated Steel	871A-BRN8
		Stainless Steel	871A-BRS8
12 (0.47)		Zinc-plated steel	871A-BRN12
		Stainless Steel	871A-BRS12
18 (0.71)		Zinc-plated steel	871A-BRN18
		Stainless Steel	871A-BRS18
For use with the 871A-BXN12 or 871A-BXS12 Spring Return Brackets.		Zinc-Plated Steel	871A-BRN22
		Stainless Steel	871A-BRS22
30 (01.18)		Zinc-Plated Steel	871A-BRN30
		Stainless Steel	871A-BRS30
For use with the 871A-BXN30 or 871A-BXS30 Spring Return Brackets.		Zinc-Plated Steel	871A-BRN47
		Stainless Steel	871A-BRS47

Inductive Proximity Sensors

Accessories

Stainless Steel Mounting Hardware and Chemical Resistant Material for Harsh Environment

	Sensor Diameter—mm	Dimensions—mm (inches)			Cat. No.
		C	D	G	
	4	—	—	4 (0.16)	871A-BP4
	5	—	—	5 (0.20)	871A-BP5
	6.5	—	—	6.5 (0.26)	871A-BP7
	8	8.0 (0.31)	18.3 (0.72)	—	871A-BP8
	12	12.0 (0.47)		—	871A-BP12
	18	18.0 (0.71)	29.4 (1.16)	—	871A-BP18
	30	30.0 (1.18)	48.4 (1.91)	—	871A-BP30
	34	34.0 (1.34)	48.3 (1.90)	—	871A-BP34

Snap-Clamp Brackets

Barrel Diameter [mm]	Material	Cat. No.
12	Glass-filled nylon	871A-SCBP12
18		871A-SCBP18

Mounting Bracket for VersaCube, Proximity Sensors

Kit includes:

- (1) Threaded mounting bracket
- (1) Through-hole mounting bracket
- (2) 10–32 x 1 mounting screw
- (2) 10–32 x 1 mounting screw
- (1) Ground terminal lug
- (1) Green color-coded binding screw

Description	Dimensions—mm (in)	Cat. No.
<p>The mounting kit for VersaCube sensors provides additional mounting flexibility to 871P VersaCube style sensors. This kit includes an accessory mounting bracket that allows the VersaCube to bolt in place of existing 871P rectangular and similar competitive sensors. Appropriately sized mounting screws are also supplied. Additionally a ground lug terminal and green color-coded binding screw are provided for grounding the VersaCube sensor in the event that the unit is not mounted to a grounded metal frame.</p>		871A-PKIT

Capacitive Proximity Sensors (875C, 875CP)



Bulletin	875C
Type	Capacitive Proximity Sensors General Purpose
Features	<ul style="list-style-type: none"> • Nickel-Plated Brass Barrel • Adjustable Sensing Distance • Plastic Barrel
Barrel Size	Diameter M18, M30
Standard Sensing Range	1 mm...10 mm, 2 mm...20 mm
Output Mode	PNP Normally Open Shielded 3-wire DC 2-wire AC
Connection	Cable Micro / M12 Connector
Supply Voltage	10...48V DC
Enclosure Rating	
IP	IP 67
NEMA	NEMA 1,2,3,4,6,13
Approvals	CE
Product Selection	See page 6-30
Accessories	See page 6-26

Capacitive Proximity Sensors

Product Selection

875C Capacitive Proximity Sensors General Purpose



3-Wire DC

- Metal, nonmetal solid and liquid sensing capability
- Adjustable sensing distance for 18 mm and 30 mm models
- 3-wire operation
- 3-conductor, 3-pin or 4-pin connection
- Normally open or normally closed output
- Short circuit, overload, reverse polarity, and transient noise protection
- CE marked for all applicable directives



Connection Type	Barrel Diameter [mm]	Sensing Range mm (in.)	Shielded	Output Configuration		Switching Frequency (Hz)	Cat. No.
				N.O.	PNP		
Micro QD style	M30 Treaded	2...10 (0.08...0.39)	Yes	N.O.	PNP	100	875C-M10NP30-D4
Pico QD style	M18 Treaded	1...5 (0.04...0.20)	Yes	N.O.	PNP	100	875C-M5NP18-P3
Micro QD Style	M30 Treaded	5...20 (0.20...0.79)	No	N.O.	PNP	100	875CP-N20NP30-D4
Pico QD Style	M18 Treaded	2...8 (0.08...0.31)	No	N.O.	PNP	100	875CP-N8NP18-P3
Recommended Standard QD Cordset (-2 = 2 m (6.5 ft)), Micro QD / M12 Style							889D-F4AC-2
Recommended Standard QD Cordset (-2 = 2 m (6.5 ft)), Pico QD / M8 Style							889P-F3AB-2

Ultrasonic Sensors (873E, 873P)

		
Bulletin	873P	
Type	Ultrasonic Sensors Analog or Discrete Output	Ultrasonic Sensors Programmable
Features	<ul style="list-style-type: none"> Adjustable sensing distance (discrete model) Analog and discrete output types 	<ul style="list-style-type: none"> Programmable for window setup Analog and discrete output types
Barrel Size	Cylindrical M18, M30	Cylindrical M30
Programmable	—	—
Sensitivity Adjustment	Manual	Manual
Response Time	25 ms	—
Sensing Range		
Reflection	100...2500 mm	150...1500 mm, 350...3500 mm
Opposed	—	—
Output Mode	PNP Analog 4...20 mA Analog 0...10V DC Normally Open	PNP Analog 4...20 mA Analog 0...10V DC Normally Open
Connection	Micro / M12 Connector Micro / M12 Pigtail	Micro / M12 Connector
Supply Voltage	10...30V DC	10...30V DC
Enclosure Rating		
IP	IP 67	IP 67
NEMA	—	—
Special enclosure	—	—
Approvals	UL, CE	CE
Product Selection	See page 6-32	See page 6-32
Accessories	See page 6-26	See page 6-26

Ultrasonic Sensors Analog or Discrete Output

- Sensing Ranges: 100...2500 mm
- Analog output models (4...20 mA, 0...10V DC)
- Discrete output models (normally open, PNP)
- Plastic barrel housing
- Adjustable sensing distance (discrete models)
- Hold/Synchronize function to reduce crosstalk
- Short circuit, overload, false pulse, reverse polarity, and transient noise protection
- cULus listed and CE marked for all applicable directives



Connection Type	Barrel Diameter [mm]	Sensing Range [mm (in.)]	Output Configuration	Output Type	Switching Frequency (Hz)		Cat. No.
Micro QD Pigtail	M18	100...600 (3.94...23.62)	N.O.	PNP	20	*	873P-DBNP1-F4
Micro QD Pigtail	M18	200...1500 (7.87...59.06)	N.O.	PNP	10	*	873P-DBNP2-F4
Micro QD / M12	M30	300...2500 (11.81...98.43)	N.O.	PNP	5	*	873P-DCNP1-D5
Micro QD / M12	M18	100...600 (3.94...23.62)	—	4...20 mA	—	*	873P-DBAC1-D4

Ultrasonic Sensors Programmable

- Sensing ranges: 150...3500mm
- Programmable models include 2 discrete and 1 analog output
- Discrete outputs can be programmed for normally-open or normally-closed operation
- Programmable set point adjustment via pushbutton
- Short circuit, overload, false pulse, reverse polarity, and transient noise protection
- cULus listed and CE marked for all applicable directives



Connection Type	Barrel Diameter [mm]	Sensing Range [mm (in.)]	Output Configuration	Switching Frequency (Hz)		Cat. No.
Micro QD / M12	M30	150...1500 (5.91...59.10)	2 PNP with 4...20 mA	1	*	873P-DCAC1S-D5
Micro QD / M12	M30	350...3500 (13.78...137.80)	2 PNP with 4...20 mA	1	*	873P-DCAC2S-D5

* DC Micro QD / M12 Cordset Cat. No. 889D-F5AC-2, see page 4-36

Condition Sensing Switches

Bulletin	836E	837E	839E
Type	Solid-State Pressure Switches	Solid-State Temperature Switches	Solid-State Flow Switches
Features	<ul style="list-style-type: none"> • Microprocessor based with no moving parts for longer life and reduced downtime • Rugged, corrosion-resistant 316L stainless steel housing features an IP66 enclosure rating to withstand harsh industrial conditions • Operating pressures from -15...6,000 psi (gauge) • Industry-leading four-digit 14-segment digital display • Independently programmable dual PNP N.O./N.C. outputs or 4...20 mA analog output • Stainless steel sensing element 	<ul style="list-style-type: none"> • Microprocessor based with no moving parts for longer life and reduced downtime • Rugged, corrosion-resistant 316L stainless steel housing features an IP66 enclosure rating to withstand harsh industrial conditions • Media temperature range from -50...150°C (-58...302°F) • Industry-leading four-digit 14-segment digital display • Independently programmable dual PNP N.O./N.C. outputs or 4...20 mA analog output • 316L Stainless steel probe 	<ul style="list-style-type: none"> • Microprocessor based with no moving parts for longer life and reduced downtime • Rugged, corrosion-resistant 316 stainless steel housing features an IP66 enclosure rating to withstand harsh industrial conditions • Flow range from 0.03...3 m/s (0.1...9.84 ft/s) • Industry-leading four-digit 14-segment digital display • Independently programmable dual PNP N.O./N.C. outputs or 4...20 mA analog output • 316L Stainless steel probe
Remote Control and Diagnostic	Yes, via USB-port		
Sensitivity Adjustment	Programmable		
Response Time	>20 ms for switch		
Operating Range	- 1 to 413 bar -15 to 6,000 psi	-50 °C to 150 °C -58 ° to 302 °F	0.03 to 3 m/s 0.1 to 9.84 ft/s
Output Mode	Dual PNP Analog 4...20mA NO/NC selectable		
Connection	Micro / M12 Connector		
Process Connection	1/4in NPT (female) SAE7/16-20UNF (female)		
Supply Voltage	10...30V DC		
Enclosure Rating IP	IP66		
Approvals	c-UL, CE		
Product Selection	See page 6-34	See page 6-36	See page 6-38

Solid-State Pressure Switches

Dual PNP Output or 4...20 mA Analog with Single PNP Output

- Media temperature range from -40...100°C (-40...212°F)
- Operating temperatures from -40...85°C (-40...185°F)
- Industry-leading four-digit 14-segment digital display
- Independently programmable dual PNP N.O./N.C. outputs or 4...20 mA analog outputs
- Accuracy is <0.5% of upper pressure range limit
- Repeatability is <0.2% of upper pressure range limit
- IP66 enclosure rating
- 316L stainless steel; fluorinated elastomer seals



Dual PNP Output

Process Connection	Pressure Range (psi)	Set Point Range	Reset Point Range	Maximum Working Pressure (psi)*	Cat. No.
1/4 inch NPT (female)	-15...15	-14.92...+15	-15.00...14.92	40.5	836E-DA1CC1D4
	0...60	0.30...60	0...59.70	160.5	836E-DA1EL1D4
	0...150	0.75...150	0...149.25	400.5	836E-DA1EN1D4
	0...600	3.00...600	0...597.00	1600.5	836E-DA1EQ1D4
	0...1,500	7.50...1,500	0...1,492.50	1600.5	836E-DA1ER1D4
	0...6,000	0.30...6000	0...5,970.00	6,000	836E-DA1EU1D4
SAE 7/16-20 UNF (female)	-15...15	-14.92...+15	-15.00...14.92	40.5	836E-DA1CC2D4
	0...60	0.30...60	0...59.70	160.5	836E-DA1EL2D4
	0...150	0.75...150	0...149.25	400.5	836E-DA1EN2D4
	0...600	3.00...600	0...597.00	1600.5	836E-DA1EQ2D4
	0...1,500	7.50...1,500	0...1,492.50	1600.5	836E-DA1ER2D4
	0...6,000	0.30...6000	0...5,970.00	6,000	836E-DA1EU2D4
G1/4 BSPP (female)	-1...1 (bar)	-1.0...+1.03 (bar)	-1.03...1 (bar)	2.7 (bar)	836E-DA1CC3D4
	0...4 (bar)	0.02...4.14 (bar)	0...4 (bar)	10.7 (bar)	836E-DA1EL3D4
	0...10 (bar)	0.05...10.30 (bar)	0...10 (bar)	26.7 (bar)	836E-DA1EN3D4
	0...40 (bar)	0.21...41.38 (bar)	0...40 (bar)	106.7 (bar)	836E-DA1EQ3D4
	0...100 (bar)	0.52...103.45 (bar)	0...100 (bar)	106.7 (bar)	836E-DA1ER3D4
	0...400 (bar)	2.07...413.79 (bar)	0...400 (bar)	400 (bar)	836E-DA1EU3D4
Recommended Cordset: 2 m (6.5 ft) 4-pin DC Micro QD / M12 (straight) ☼					889D-F4AC-2
Recommended Cordset: 2 m (6.5 ft) 4-pin DC Micro QD / M12 (right angle) ☼					889D-R4AC-2

* Maximum working pressure (MWP) is the maximum pressure a switch can tolerate for an indefinite period of time. Over pressure limit is the maximum pressure a switch can tolerate for a short period of time without sustaining permanent damage. Burst pressure limit is the maximum pressure a switch can tolerate without sustaining permanent damage or leakage.

☼ Other cable lengths are available. Shielded cables may be required for some analog output applications. Refer to the *On-Maschine Connectivity* catalog for additional information.

Solid-State Pressure Switches, Continued

4...20 mA Analog with Single PNP Output

Process Connection	Pressure Range (psi)	Set Point Range	Reset Point Range	Maximum Working Pressure (psi)*	Cat. No. *
1/4 inch NPT (female)	-15...15	-14.92...+15	-15.00...14.92	40.5	836E-DC1CC1D4
	0...60	0.30...60	0...59.70	160.5	836E-DC1EL1D4
	0...150	0.75...150	0...149.25	400.5	836E-DC1EN1D4
	0...600	3.00...600	0...597.00	1600.5	836E-DC1EQ1D4
	0...1,500	7.50...1,500	0...1,492.50	1600.5	836E-DC1ER1D4
SAE 7/16-20 UNF (female)	0...6,000	0.30...6000	0...5,970.00	6,000	836E-DC1EU1D4
	-15...15	-14.92...+15	-15.00...14.92	40.5	836E-DC1CC2D4
	0...60	0.30...60	0...59.70	160.5	836E-DC1EL2D4
	0...150	0.75...150	0...149.25	400.5	836E-DC1EN2D4
	0...600	3.00...600	0...597.00	1600.5	836E-DC1EQ2D4
G1/4 BSPP (female)	0...1,500	7.50...1,500	0...1,492.50	1600.5	836E-DC1ER2D4
	0...6,000	0.30...6000	0...5,970.00	6,000	836E-DC1EU2D4
	-1...1 (bar)	-1.0...1.03 (bar)	-1.03...1 (bar)	2.7 (bar)	836E-DC1CC3D4
	0...4 (bar)	0.02...4.14 (bar)	0...4 (bar)	10.7 (bar)	836E-DC1EL3D4
	0...10 (bar)	0.05...10.30 (bar)	0...10 (bar)	26.7 (bar)	836E-DC1EN3D4
G1/4 BSPP (female)	0...40 (bar)	0.21...41.38 (bar)	0...40 (bar)	106.7 (bar)	836E-DC1EQ3D4
	0...100 (bar)	0.52...103.45 (bar)	0...100 (bar)	106.7 (bar)	836E-DC1ER3D4
	0...400 (bar)	2.07...413.79 (bar)	0...400 (bar)	400 (bar)	836E-DC1EU3D4
Recommended Cordset: 2 m (6.5 ft) 4-pin DC Micro QD / M12 (straight) ‡					889D-F4AC-2
Recommended Cordset: 2 m (6.5 ft) 4-pin DC Micro QD / M12 (right angle) ‡					889D-R4AC-2

* Maximum working pressure (MWP) is the maximum pressure a switch can tolerate for an indefinite period of time. Over pressure limit is the maximum pressure a switch can tolerate for a short period of time without sustaining permanent damage. Burst pressure limit is the maximum pressure a switch can tolerate without sustaining permanent damage or leakage.

‡ Analog output version may be set up to output dual PNP N.O./N.C.

‡ Other cable lengths are available. Shielded cables may be required for some analog output applications. Refer to the *On-Maschine Connectivity* catalog for additional information.

Accessories

Description	Cat. No.
1/4 inch NPT (Female) Adaptor	836E-NP71
7/16-20 UNF (Female) Adaptor	836E-NP72
G1/4 BSPP (Female) Adaptor	836E-NP73
1/4 inch NPT (Male) Adaptor	836E-NP74
7/16-20 UNF (Male) Adaptor	836E-NP75
G1/4 BSPP (Male) Adaptor	836E-NP76
Configuration Kit (includes converter cable and ReadWin 2000 software)	836E-NSR

Solid-State Temperature Switches

Dual PNP Output or 4...20 mA Analog with Single PNP Output

- Media temperature range from -50...150°C (-58...302°F)
- Operating temperatures from -40...85°C (-40...185°F)
- Industry-leading four-digit 14-segment digital display
- Independently programmable dual PNP NO/NC outputs or 4...20 mA analog outputs
- Stainless steel probe
- 316L stainless steel construction
- IP66 enclosure rating



Dual PNP Output

Process Connection [*]	Set Point Range °C (°F)	Reset Point Range °C (°F)	Probe Length	Cat. No.
1/4 inch NPT (Male)	-49...150° (-57...302°)	-50...149.5° (-58...301°)	50 mm (1.96 in.)	837E-DA1BN1A1D4
	-49...150° (-57...302°)	-50...149.5° (-58...301°)	100 mm (3.93 in.)	837E-DA1BN1A2D4
	-49...150° (-57...302°)	-50...149.5° (-58...301°)	200 mm (7.87 in.)	837E-DA1BN1A4D4
1/2 inch NPT (Male)	-49...150° (-56.2...302°)	-50...149.5° (-58...301.1°)	50 mm (1.96 in.)	837E-DA1BN2A1D4
	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	100 mm (3.93 in.)	837E-DA1BN2A2D4
	-49...150° (-57...302°)	-50...149.5° (-58...301°)	200 mm (7.87 in.)	837E-DA1BN2A4D4
G1/4 BSPP	-49...150° (-57...302°)	-50...149.5° (-58...301°)	50 mm (1.96 in.)	837E-DA1BN3A1D4
	-49...150° (-57...302°)	-50...149.5° (-58...301°)	100 mm (3.93 in.)	837E-DA1BN3A2D4
	-49...150° (-57...302°)	-50...149.5° (-58...301°)	200 mm (7.87 in.)	837E-DA1BN3A4D4
G1/2 BSPP	-49...150° (-57...302°)	-50...149.5° (-58...301°)	50 mm (1.96 in.)	837E-DA1BN4A1D4
	-49...150° (-57...302°)	-50...149.5° (-58...301°)	100 mm (3.93 in.)	837E-DA1BN4A2D4
	-49...150° (-57...302°)	-50...149.5° (-58...301°)	200 mm (7.87 in.)	837E-DA1BN4A4D4
Recommended Cordset: 2 m (6.5 ft) 4-pin DC Micro QD / M12 (straight) *				889D-F4AC-2
Recommended Cordset: 2 m (6.5 ft) 4-pin DC Micro QD / M12 (right angle) *				889D-R4AC-2

* Other cable lengths are available. Shielded cables may be required for some analog output applications. Refer to the *On-Maschine Connectivity* catalog for additional information.

Solid-State Temperature Switches, Continued

4...20 mA Analog with Single PNP Output

Process Connection [⊛]	Set Point Range °C (°F)	Reset Point Range °C (°F)	Probe Length	Cat. No. [⊛]
1/4 inch NPT (Male)	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	50 mm (1.96 in.)	837E-DC1BN1A1D4
	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	100 mm (3.93 in.)	837E-DC1BN1A2D4
	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	200 mm (7.87 in.)	837E-DC1BN1A4D4
1/2 inch NPT (Male)	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	50 mm (1.96 in.)	837E-DC1BN2A1D4
	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	100 mm (3.93 in.)	837E-DC1BN2A2D4
	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	200 mm (7.87 in.)	837E-DC1BN2A4D4
G1/4 BSPP	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	50 mm (1.96 in.)	837E-DC1BN3A1D4
	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	100 mm (3.93 in.)	837E-DC1BN3A2D4
	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	200 mm (7.87 in.)	837E-DC1BN3A4D4
G1/2 BSPP	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	50 mm (1.96 in.)	837E-DC1BN4A1D4
	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	100 mm (3.93 in.)	837E-DC1BN4A2D4
	-49...150° (-57...302°)	-50...149.5° (-58...301.1°)	200 mm (7.87 in.)	837E-DC1BN4A4D4
Recommended Cordset: 2 m (6.5 ft) 4-pin DC Micro QD / M12 (straight) ‡				889D-F4AC-2
Recommended Cordset: 2 m (6.5 ft) 4-pin DC Micro QD / M12 (right angle) ‡				889D-R4AC-2

⊛ Analog output version may be set up to output dual PNP N.O./N.C.

‡ Other cable lengths are available. Shielded cables may be required for some analog output applications. Refer to the *On-Machine Connectivity* catalog for additional information.

Accessories

Description	Cat. No.
Configuration Kit (includes converter cable and ReadWin 2000 software)	836E-NSR

Solid-State Flow Switches

Dual PNP Output or 4...20 mA Analog with Single PNP Output

- Microprocessor based with no moving parts for longer life and reduced downtime
- Rugged, corrosion resistant 316 stainless steel housing features an IP66 enclosure rating to withstand harsh industrial conditions
- Flow rates of liquid media (calorimetric measuring principle) in the range from 0.03...3 m/s (0.1...9.84 ft/s)
- Industry leading four-digit 14-segment digital display
- Dual NO/NC programmable PNP outputs or 4...20 mA analog output with single PNP output
- Stainless steel probe



Process Connection	Measuring Range	Response Time	Probe Length	Cat. No.	
				Dual PNP Output	4...20 mA Analog Output with Single PNP Output*
1/4 inch NPT (Male)	Liquids from 0.03...3 m/s (0.1... 9.84 ft/s) Mass flow as a relative value between 0 and 100%	6...12 s	30 mm (1.18 in.)	839E-DA1BA1A3-D4	839E-DC1BA1A3D4
			100 mm (3.93 in.)	839E-DA1BA1A2-D4	839E-DC1BA1A2D4
30 mm (1.18 in.)			839E-DA1BA2A3D4	839E-DC1BA2A3D4	
100 mm (3.96 in.)			839E-DA1BA2A2D4	839E-DC1BA2A2D4	
30 mm (1.18 in.)			839E-DA1BA3A3D4	839E-DC1BA3A3D4	
100 mm (3.96 in.)			839E-DA1BA3A2D4	839E-DC1BA3A2D4	
30 mm (1.18 in.)			839E-DA1BA4A3D4	839E-DC1BA4A3D4	
100 mm (3.96 in.)			839E-DA1BA4A2D4	839E-DC1BA4A2D4	

Sanitary Connection

1...1.5 inch Clamp	Liquids from 0.03...3 m/s (0.1... 9.84 ft/s) Mass flow as a relative value between 0 and 100%	6...12 s	30 mm (1.18 in.)	839E-DA1BABA3D4	839E-DC1BABA3D4
			100 mm (3.96 in.)	839E-DA1BABA2D4	839E-DC1BABA2D4
2 inch Clamp			30 mm (1.18 in.)	839E-DA1BACA3D4	839E-DC1BACA3D4
			100 mm (3.96 in.)	839E-DA1BACA2D4	839E-DC1BACA2D4
Base Switch			30 mm (1.18 in.)	839E-DA1BA7A3D4	839E-DC1BA7A3D4
			100 mm (3.96 in.)	839E-DA1BA7A2D4	839E-DC1BA7A2D4

Recommended cordset: 2 m (6.5 ft) 4-pin DC micro (straight)

889D-F4AC-2

Recommended cordset: 2 m (6.5 ft) 4-pin DC micro (right angle)

889D-R4AC-2

* Analog output version may be set up to output dual PNP N.O./N.C.

Process Connection	Measuring Range	Response Time	Probe Length	Cat. No.	
				Dual PNP Output	4...20 mA Analog Output with Single PNP Output*
1/4 inch NPT (Male)	Liquids from 0.03...3 m/s (0.1... 9.84 ft/s) Mass flow as a relative value between 0 and 100%	6...12 s	30 mm (1.18 in.)	839E-DA1BA1A3-D4	839E-DC1BA1A3D4
			100 mm (3.93 in.)	839E-DA1BA1A2-D4	839E-DC1BA1A2D4
1/2 inch NPT (Male)			30 mm (1.18 in.)	839E-DA1BA2A3D4	839E-DC1BA2A3D4
			100 mm (3.96 in.)	839E-DA1BA2A2D4	839E-DC1BA2A2D4
G1/4 BSPP			30 mm (1.18 in.)	839E-DA1BA3A3D4	839E-DC1BA3A3D4
			100 mm (3.96 in.)	839E-DA1BA3A2D4	839E-DC1BA3A2D4
G1/2 BSPP			30 mm (1.18 in.)	839E-DA1BA4A3D4	839E-DC1BA4A3D4
			100 mm (3.96 in.)	839E-DA1BA4A2D4	839E-DC1BA4A2D4
Recommended cordset: 2 m (6.5 ft) 4-pin DC micro (straight)					889D-F4AC-2
Recommended cordset: 2 m (6.5 ft) 4-pin DC micro (right angle)					889D-R4AC-2

* Analog output version may be set up to output dual PNP N.O./N.C.

Accessories

Description	Cat. No.
Configuration Kit (includes converter cable and ReadWin 2000 software)	836E-NSR
1...1.5 inch Sanitary Clamp	836E-NH7B
2 inch Sanitary Clamp	836E-NH7C
Weld Boss Sealing Taper	837E-NWT
Weld Boss Collar Weld	837E-NWS
Weld Boss Coupling with Sealing Taper	837E-NWR

Bulletin 54RF

Industrial RFID Products

Product Selection

54RF General Purpose

- Interfaces available for EtherNet/IP™, ControlNet™ and DeviceNet™, as well as MicroLogix™ (DF1) and 1746 backplanes
- Three rugged transceiver styles designed for industrial locations
- 1.5 MHz low frequency technology for enhanced immunity to EMI, interference from metallic reflective surfaces, oil, water, and other potentially disruptive materials
- Seven character read-only or 2 Kbyte read/write tags
- Read/write speeds to 200 characters per second (cps) + 25 ms/instruction
- Four tag styles with sensing distances of 3.5 inches (100mm)
- Reusable Rislan® tags assure long life and reliable performance in harsh environments



Tags

Transceiver-Tag Maximum Sensing Distance			Tag Memory	Cat. No.
54RF-TR-ERC	54RF-TR-ERD	54RF-TR-ERE		
25 mm	55 mm	80 mm	7 byte	54RF-TG-FFA
25 mm	68 mm	100 mm	7 byte	54RF-TG-FFB
25 mm	68 mm	100 mm	7 byte	54RF-TG-FFB7FP
23 mm	55 mm	n/a	2K byte	54RF-TG-GGA2K
45 mm	80 mm	100 mm	2K byte	54RF-TG-GGB2K

Transceivers

Maximum Sensing Distance	Cat. No.
25 mm to 45 mm depending on tag style used	54RF-TR-ERC
55 mm to 80 mm depending on tag style used	54RF-TR-ERD
80 mm to 100 mm depending on tag style used	54RF-TR-ERE

Interfaces

Network or Backplane	Cat. No.
SLC Backplane Control Interface for FF style tags	54RF-IN-46F
SLC Backplane Control Interface for GG style tags	54RF-IN-46G
MicroLogix DF1 Control Interface for FF style tags	54RF-IN-DF1F
MicroLogix DF1 Control Interface for GG style tags	54RF-IN-DF1G
ControlNet Control Interface for FF style tags	54RF-IN-CNF
ControlNet Control Interface for GG style tags	54RF-IN-CNG
DeviceNet Control Interface for FF style tags	54RF-IN-DNF
DeviceNet Control Interface for GG style tags	54RF-IN-DNG
Ethernet/IP Control Interface for FF style tags	54RF-IN-IPF
Ethernet/IP Control Interface for GG style tags	54RF-IN-IPG

Handhelds, Cables and Spacers see page 6-44

55RF High-Speed

- Interfaces available for EtherNet/IP™, ControlNet™ and DeviceNet™, as well as MicroLogix™ (DF1) and 1746 backplanes
- Three rugged transceiver styles designed for industrial locations
- 1.5 MHz low frequency technology for enhanced immunity to EMI, interference from metallic reflective surfaces, oil, water, and other potentially disruptive materials
- 8 Kbyte and 32 Kbyte Read/Write tags allow complete build instructions and quality test data to be kept with the product
- Read speeds up to 2500 characters per second (cps) and write speeds up to 1666 cps
- Reusable Rislan® tags assure long life and reliable performance in harsh environments
- Sensing distances up to 70 mm (2.5 inches)



Tags

Transceiver-Tag Maximum Sensing Distance			Tag Memory	Cat. No.
55RF-TR-ECB	55RF-TR-ECC	55RF-TR-ECD		
22 mm	50 mm	70 mm	8K byte	55RF-TG-OXA8K
22 mm	50 mm	70 mm	32K byte	55RF-TG-OXA32K

Transceivers

Maximum Sensing Distance	Cat. No.
22 mm with 8K or 32K tag styles	55RF-TR-ECB
40 mm with 8K or 32K tag styles	55RF-TR-ECC
70 mm with 8K or 32K tag styles	55RF-TR-ECD

Interfaces

Network or Backplane	Cat. No.
SLC Backplane Control Interface	55RF-IN-46
MicroLogix DF1 Control Interface	55RF-IN-DF1
ControlNet Control Interface	55RF-IN-CN
DeviceNet Control Interface	55RF-IN-DN
Ethernet/IP Control Interface	55RF-IN-IP

Handhelds, Cables and Spacers see page 6-44

56RF Light Industrial

- Interfaces available for EtherNet/IP™, ControlNet™ and DeviceNet™, as well as MicroLogix™ (DF1) and 1746 backplanes
- Two transceiver styles
- 13.56 MHz high frequency technology ideal for light industrial applications
- 2 Kbyte Read/Write tags
- No special tag orientation required
- Read/write speeds up to 1600 characters per second (cps) in 8 byte blocks (5 ms / 8 byte block)
- Four styles of reusable tags
- Sensing distances up to 70 mm (2.5 inches)



Tags

Transceiver-Tag Maximum Sensing Distance		Tag Memory	Cat. No.
56RF-TR-EFE	56RF-TR-EFF		
35 mm	70 mm	2K byte	56RF-TG-OTA2K
45 mm	68 mm		56RF-TG-OTB2K
29 mm	50 mm		56RF-TG-OTC2K
45 mm	68 mm		56RF-TG-OTD2K

Transceivers

Maximum Sensing Distance	Cat. No.
28 mm to 45 mm depending on tag style used	56RF-TR-EFE
50 mm to 68 mm depending on tag style used	56RF-TR-EFF

Interfaces

Network or Backplane	Cat. No.
SLC Backplane Control Interface	56RF-IN-46
MicroLogix DF1 Control Interface	56RF-IN-DF1
ControlNet Control Interface	56RF-IN-CN
DeviceNet Control Interface	56RF-IN-DN
Ethernet/IP Control Interface	56RF-IN-IP

Handhelds, Cables and Spacers see page 6-44

57RF Handheld RFID Maintenance and Field Programming Units

- Versions available for 54RF, 55RF and 56RF families
- Rugged industrial construction, designed for programming, maintenance and troubleshooting of tags in any location
- For additional information, please contact your local sales office.



Programming Units

Description	Cat. No.
Handheld RFID Maintenance	
RFID Handheld Interface for 54RF-FF Tags	57RF-HH-54FF
RFID Handheld Interface for 54RF-GG & 55RF Tags	57RF-HH-54GG55
RFID Handheld Interface for 56RF Tags	57RF-HH-56
Field Programming Units	
Remote Read/Write Head for use with the PM-15/01	57RF-HH-RRH71
Charger Base for PM15/01 Handheld RFID Reader	57RF-HH-SPM15
Accessories	
Programming Cable for Field Programmable 54RF-TG-FFB7FP RFID Tags	57RF-HH-54FFPC
BHH Synchronizing Cable	57RF-HH-56SC
BHH Rechargeable Battery Pack & Wall Charger	57RF-HH-56RBP

Bulletin 57RF
Industrial RFID Products
Product Selection

57RF Cables

- Shielding designed specifically for transceiver to interface communications
- Single ended cordsets for use with chassis-based and MicroLogix interfaces
- Double ended patchcords in straight or right angle configurations for transceiver to network -interfaces
- PUR jacketing for improved oil and abrasion resistance
- Available in lengths up to 1000 feet for 54RF family use and 150 feet for 55RF and 56RF family systems



Cables

Description	Cat. No.
Single ended Transceiver Cable	
Single ended Female Cable, 2 m	57RF-DF2
Single ended Female Transceiver Cable, 5 m	57RF-DF5
Male Transceiver Cable	
Male to Female Transceiver Cable, 2 m	57RF-DFDMJ2
Male to Female Transceiver Cable, 5 m	57RF-DFDMJ5
Male to Female Transceiver Cable, 10 m	57RF-DFDMJ10
Single ended Transceiver Cable	
Single ended right angle Female Transceiver Cable, 2 m	57RF-DR2
Single ended right angle Female Transceiver Cable, 5 m	57RF-DR5
Male to Right Angle Transceiver Cable	
Male to Right Angle Female Transceiver Cable, 2 m	57RF-DRDMJ2
Male to Right Angle Female Transceiver Cable, 5 m	57RF-DRDMJ5
Male to Right Angle Female Transceiver Cable, 10 m	57RF-DRDMJ10
Flash Programming Cable	
Flash Programming Cable, 1 m	57RF-PCDN-1
Flash Programming Cable, 2 m	57RF-PCDN-2
Ethernet Cable	
Ethernet Cable RJ45 to Micro M12, 1 m	57RF-RJ45-1
Ethernet Cable RJ45 to Micro M12, 3 m	57RF-RJ45-3
Ethernet Cable RJ45 to Micro M12, 5 m	57RF-RJ45-5
Ethernet Cable RJ45 to Micro M12, 10 m	57RF-RJ45-10

Spacers

Description	Cat. No.
Spacers Ø 30 mm for 56RF	57RF-SP30Q100
Spacers Ø 50 mm for 56RF	57RF-SP50Q100

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