Relays

easy Programmable Relay

XC152 PLCs

XV HMI-PLCs

Preset Counters

Hour Meters

Encoders

3.1 Relays

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For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E

Product Overview

Relays Selection Guide

Description	XR Series Terminal Block Relays			D1 Series	D2 Series		
	Page V9-T3-8			Page V9-T3-9	Page V9-T3-11		
Approvals	c UL us CE			RoHS COMPLIANT c UL us CE CSA	RoHS COMPLIANT c UL us CE CSA		
Features	Pluggable relay allows easy field replacement, LED indicator standard, functional plug-in bridges available Only 6.2 mm wide for SP and 14 mm wide for DP DIN rail mounting			Polycarbonate cover Indicator lamp and pushbutton available Panel and DIN mounting	Polycarbonate cover Indicator lamp and pushbutton available Panel, DIN and flange mounting Latching		
Contact Data							
Configuration	SPDT	DPDT	OctoCoupler	SPDT	DPDT	DPDT Latching	4PDT
Maximum allowable load	6A or 10A	6A	2A	20A	10A	10A	10A
Material	—			Silver alloy	Silver alloy		
Dielectric strength between poles	—			1500V	1500V		
Coil Data							
AC	24 Vac or 120 Vac			6–240 Vac	6–240 Vac		
DC	12, 24, 110 Vdc			6–110 Vdc	6–110 Vdc		
Power							
VA (Vac)	1.5			0.9 VA	1.2 VA		
Watts (Vdc)	0.12			0.7 Watts	0.9 Watts		
General Data							
Ambient temperature							
Storage	—			–40° to 185°F (–40° to 85°C)	–40° to 185°F (–40° to 85°C)		
Operational	–4° to 140°F (–20° to 60°C)			–40° to 131°F (–40° to 55°C)	–40° to 131°F (–40° to 55°C)		
Response time	Available upon request			20 milliseconds	20 milliseconds		
Life							
Mechanical operations	20 million			10 million	10 million		
Electrical operations	—			100,000	200,000		

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Relays Selection Guide, continued

Description	D3 Series			D4 Series		D5 Series	
	Page V9-T3-13			Page V9-T3-15		Page V9-T3-16	
Approvals	RoHS COMPLIANT c UL us CE CSA			RoHS COMPLIANT c UL us CE CSA		RoHS COMPLIANT c UL us CE CSA	
Features	Polycarbonate cover Indicator lamp and pushbutton available Panel and DIN mounting 8- or 11-pin octal plug-in Latching (D3PR version)			Polycarbonate cover Indicator lamp available Panel and DIN mounting Socket has built-in hold-down spring		Polycarbonate cover Indicator lamp and pushbutton available Panel, DIN and PC board mounting	
Contact Data							
Configuration		DPDT	3PDT	SPDT	DPDT	DPDT	3PDT
Maximum allowable load	16A	16A	16A	10A at 250 Vac	5A at 240 Vac	16A	16A
Material	Silver alloy			AgCdO		Silver alloy	
Dielectric strength between poles	1500V			5000V		1500V	
Coil Data							
AC	6–240 Vac			6–240 Vac		6–240 Vac	
DC	6–110 Vdc			6–110 Vdc		6–110 Vdc	
Power							
VA (Vac)	3 VA,1.4 Watts (D3PRand DPF)			0.9 VA		3 VA	
Watts (Vdc)	2 VA 1.64 Watts (D3PR5 latching)			0.5 Watts		1.4 Watts	
General Data							
Ambient temperature							
Storage	–40° to 185°F (–40° to 85°C)			–40° to 158°F (–40° to 70°C)		–40° to 185°F (–40° to 85°C)	
Operational	–40° to 131°F (–40° to 55°C)			–40° to 158°F (–40° to 70°C)		–40° to 131°F (–40° to 55°C)	
Response time	20 milliseconds			15 milliseconds		206 milliseconds	
Life							
Mechanical operations	5 million (D3PR and D3PF) 10 million (D3PR5 latching)			10 million		5 million	
Electrical operations	100,000			100,000		100,000	

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Relays Selection Guide, continued

Description	D7 Series				D8 Series		D9 Series	
	Page V9-T3-18				Page V9-T3-20		Page V9-T3-22	
Approvals	RoHS COMPLIANT, c UL us, CE, CSA				UL, CE, CSA		UL, CSA	
Features	Polycarbonate cover Indicator lamp and pushbutton available Panel, DIN and flange mounting				Dust cover Panel, DIN and flange mounting Quick-connect and screw terminals		Dust cover Pushbutton available Panel mounting Screw terminals	
Contact Data								
Configuration							4PST	
	SPDT	DPDP	3PDT	4PDT	SPST-NO	DPST-NO	NO	NC
Maximum allowable load	20A	15A	15A	15A	30A at 220 Vac	25A at 220 Vac	25A at 220 Vac	8A at 220 Vac
Material	Silver alloy				AgCdO		AgCdO	
Dielectric strength between poles	1500V	1500V	2500V	2500V	4000V		4000V	
Coil Data								
AC	6–240 Vac				6–240 Vac		24–240 Vac	
DC	6–110 Vdc				12–24 Vdc		12–110 Vdc	
Power								
VA (Vac)	1.2 VA	1.2 VA	1.5 VA	1.5 VA	2.5 VA		2.6 VA	
Watts (Vdc)	0.9 Watts	0.9 Watts	1.4 Watts	1.5 Watts	1.9 Watts		2.0 Watts	
General Data								
Ambient temperature								
Storage	–40° to 185°F (–40° to 85°C)				–4° to 185°F (–20° to 85°C)		–13° to 140°F (–25° to 60°C)	
Operational	–40° to 131°F (–40° to 55°C)				–4° to 131°F (–20° to 55°C)		–13° to 140°F (–25° to 60°C)	
Response time	20 milliseconds (30 milliseconds for latching)				30 milliseconds		50 milliseconds	
Life								
Mechanical operations	10 million				5 million		1 million	
Electrical operations	100,000	100,000	200,000	200,000	100,000		100,000	

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Relays Selection Guide, continued

Description	Type AA Series	XTRE Series	D93 Series
	Page V9-T3-23	**Page V9-T3-24**	**Page V9-T3-26**
Approvals			
Features	Available blowout magnets for high DC switching Available auxiliary switches Combo head screws for simple hook-up Riveted construction for long service life	Four-pole configurations IP20 finger and back-of-hand proof Positively driven contacts between the relay and auxiliary contact modules as well as within the auxiliary contact modules	All solid-state circuitry with no moving parts to wear Compact, panel mounting for flexible installation Isolated input and output terminals to protect the system from electrical noise Internal snubber circuitry to protect the SSR from transients
Contact Data			
Configuration	DPDT	NO-NC variations in a four-pole relay plus four-pole auxiliary module	SPST-NO (Triac, Zero-cross or MOSFET)
Maximum allowable load	40A	16A	10–75A
Material	Silver cadmium oxide, gold flashed	—	—
Dielectric strength between pole	1500V	6000 Vac	4000 Vac
Coil Data			
AC	6–600 Vac	12–600 Vac	90–280 Vac
DC	6–220 Vdc	24–240 Vdc	3–32 Vdc
Power			
VA (Vac)	10 VA	3.3 VA	Available upon request
Watts (Vdc)	4 Watts	3 Watts	Available upon request
General Data			
Ambient temperature			
Storage	–40° to 185°F (–40° to 85°C)	–40° to 176° (–40° to 80°C)	–40° to 100°C
Operational	–40° to 131°F (–40° to 55°C)	–13° to 140°F (–25° to 60°C)	–40° to 80°C
Response time	35/50 milliseconds	12/31 milliseconds	Available upon request
Life			
Mechanical operations	—	20 million	—
Electrical operations	6000	100,000	—

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Relays Selection Guide, continued

Description	D96 Series	D99 Series	Universal TR Series
	Page V9-T3-27	Page V9-T3-28	Page V9-T3-29
Approvals	c UL us CE CSA RoHS COMPLIANT	c UL us CE CSA RoHS COMPLIANT	c UL us CE RoHS COMPLIANT
Features	All solid-state circuitry has no moving parts to wear Integral heat sink eliminates the need for added accessories and installation Flexible mounting allows DIN rail or panel mounting without additional hardware or tools Isolated input and output terminals protect the system from electrical noise Internal snubber circuitry protects the SSR from transients	All solid-state circuitry has no moving parts to wear Integral heat sink eliminates the need for added accessories and installation Flexible mounting allows DIN rail or panel mounting without additional hardware or tools Isolated input and output terminals protect the system from electrical noise Internal snubber circuitry protects the SSR from transients	Multiple user-selectable timing functions and timing ranges in a single unit reduce product variations and stock keeping units (SKUs) Universal input voltages from 12 or 24–240 Vac or Vdc eliminate the need to order and stock separate coil voltages Compact, DIN rail mountable case reduces panel size Advanced LED indication makes troubleshooting easy Staggered terminal locations allow access to lower-level terminals after wiring SPDT or DPDT contacts with 8A ratings
Contact Data			
Configuration	SPST-NO (DC switch, zero-cross or random)	SPST-NO (zero cross)	SPDT and DPDT
Maximum allowable load	8–15A	10–40A	8A
Material	—	—	—
Dielectric strength between pole	2500 (4000 on random) Vac	4000 Vac	—
Coil Data			
AC	90–280 Vac	90–280 Vac	24–240 Vac SPDT, 12–240 Vac DPDT
DC	3–32 Vdc (3.5–32 Vdc on DC switch)	3–32 Vdc	24–240 Vdc SPDT, 12–240 Vdc DPDT
Power			
VA (Vac)	Available upon request	Available upon request	4 VA SPDT, 6 VA DPDT
Watts (Vdc)	Available upon request	Available upon request	1.5 Watts SPDT, 2W DPDT
General Data			
Ambient temperature			
Storage	–40° to 100°C	–40° to 100°C	–25° to 70°C
Operational	–30° to 80°C	–30° to 80°C	–25° to 55°C
Response time	Available upon request	Available upon request	100 ms
Life			
Mechanical operations	—	—	20,000,000
Electrical operations	—	—	200,000

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Relays Selection Guide, continued

Description	TMR5 Series	TMR6 Series	TMRP Series
	Page V9-T3-30	**Page V9-T3-31**	**Page V9-T3-32**
Approvals	cULus UL RoHS COMPLIANT CE	cULus UL RoHS COMPLIANT CE	cULus UL RoHS COMPLIANT CE
Features	Various configurations available with fixed or adjustable time delays Single operating voltage for simple set-up Plugs in standard 8- or 11-pin octal sockets	Provides OFF delay function without requiring input voltage during OFF time delay Duplicates operation of pneumatic OFF delay timers Each unit has eight timing ranges built in, covering 0.05 seconds to 30 minutes Selecting a range is easy using a rotary switch (no math is required or DIP switches to set) Uses industry-standard 8-pin octal socket 10A DPDT output contacts	Multiple user-selectable timing functions and timing ranges in a single unit reduce product variations and stock keeping units (SKUs) Universal input voltages from 12–240 Vac/Vdc eliminate the need to order and stock separate coil voltages Timing ranges up to 9990 hours Dual LED indication makes troubleshooting easy Flexible design for backpanel, through-panel (45 mm x 45 mm cutout), or DIN rail mounting SPDT or DPDT contacts with 12A ratings Plastic dust cover keeps out contaminants and eliminates accidental set point changes Use with standard Eaton D3 sockets
Contact Data			
Configuration	DPDT	DPDT	SPDT and DPDT
Maximum allowable load	10A	10A	12A
Material	—	—	—
Dielectric strength between pole	2000V	2000V	—
Coil Data			
AC	12–240 Vac	24, 120 or 240 Vac	12–240 Vac
DC	12–240 Vdc	24, 120 or 240 Vdc	12–240 Vdc
Power			
VA (Vac)	2 VA	2 VA	2.5 VA
Watts (Vdc)	—	—	2 Watts
General Data			
Ambient temperature			
Storage	—	—	–40° to 85°C
Operational	–4° to 149°F (–20° to 65°C)	–18° to 150°F (–28° to 65°C)	–10° to 55°C
Response time	100 milliseconds	—	25 milliseconds
Life			
Mechanical operations	10 million	2,000,000	10 million
Electrical operations	100,000	100,000	100000

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Terminal Block Relays

Features

- Pluggable relay allows for field replacement
- Functional plug-in bridges
- LED status indication
- Only 6.2 mm wide for single pole versions, 14 mm wide for double pole

Catalog Number Selection

Terminal Block Relays

Terminal Block Relays

XR U 1 D120 G

Type	Connection Type	Number of Poles	Coil Voltage	Size
XR = XR Terminal block relay	**U** = Screw **P** = Spring-cage	**1** = 1 PDT **2** = 2 PDT	**D12** = 12 Vdc **D1204** = 120 Vac/110 Vdc **D24** = 27 Vdc **D246** = 24 Vac/Vdc	**G** = Yes **Blank** = No

Product Selection

Standard Terminal Block Relays

Contacts	Rated Current	Supply Voltage	Standard Pack	Catalog Number
1PDT Screw Connection				
No	6A	12 Vdc	10	**XRU1D12**
No	6A	120 Vac/110 Vdc	10	**XRU1D120U**
Yes	6A	120 Vac/110 Vdc	10	**XRU1D120UG**
No	6A	24 Vdc	10	**XRU1D24**
No	6A	24 Vac/Vdc	10	**XRU1D24U**
Yes	6A	24 Vac/Vdc	10	**XRU1D24UG**
1PDT Spring-Cage Connection				
No	6A	12 Vdc	10	**XRP1D12**
No	6A	120 Vac/110 Vdc	10	**XRP1D120U**
No	6A	24 Vdc	10	**XRP1D24**
No	6A	24 Vac/Vdc	10	**XRP1D24U**
DPDT Screw Connection				
No	6A	12 Vdc	10	**XRU2D12**
No	6A	120 Vac/110 Vdc	10	**XRU2D120U**
No	6A	24 Vdc	10	**XRU2D24**
No	6A	24 Vac/Vdc	10	**XRU2D24U**

General Purpose Plug-In Relays—D1 Series

Features

- Compact relay capable of breaking relatively large load currents
- The contact operation can be easily checked by push-to-test button
- Panel and DIN rail mounting
- Flag indicator shows relay status in manual or powered condition
- LED status lamp shows coil "ON" or "OFF" status—ideal for use in low light applications
- Push-to-test button allows for manual operation of relay without the need for coil power
- Lock-down door holds pushbutton and contacts in the operate position when activated
- Finger-grip cover allows operator to remove relays from sockets easily
- ID tag/write label to identify relays in multiple-relay circuits
- Bi-polar LED allows for reverse polarity applications

Catalog Number Selection

General Purpose Plug-In Relays

D1 Series ①

D1PF 1 A A

Family Type	Contact Configuration	Standard Features	Coil Voltage
D1PR = Standard relay **D1PF** = Full-featured relay	**1** = SPDT	**A** = LED, test button, flag indicator, flange mounting, lock-down door, finger-grip cover, I.D. tag **Blank** = Mechanical flag indicator	**A** = 120 Vac **A1** = 110 Vdc **B** = 240 Vac **P** = 6 Vac **P1** = 6 Vdc **R** = 12 Vac **R1** = 12 Vdc **T** = 24 Vac **T1** = 24 Vdc **W1** = 48 Vdc

Note

① For deciphering catalog numbers. Do not use for ordering as not all combinations are readily available.

Product Selection

General Purpose Plug-In Relays—D1PR/D1PF

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalog Number
Full Featured			
6 Vac	SPDT	12.2	**D1PF1AP**
6 Vdc	SPDT	47	**D1PF1AP1**
12 Vac	SPDT	46	**D1PF1AR**
12 Vdc	SPDT	188	**D1PF1AR1**
24 Vac 50/60 Hz	SPDT	180	**D1PF1AT**
24 Vdc	SPDT	750	**D1PF1AT1**
48 Vac	SPDT	720	**D1PF1AW**
48 Vdc	SPDT	2,600	**D1PF1AW1**
110 Vdc	SPDT	13,800	**D1PF1AA1**
120 Vac 50/60 Hz	SPDT	4,430	**D1PF1AA**
240 Vac 50/60 Hz	SPDT	15,720	**D1PF1AB**

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalog Number
Plain Cover			
6 Vac	SPDT	12.2	**D1PR1P**
6 Vac	SPDT	47	**D1PR1P1**
12 Vac	SPDT	46	**D1PR1R**
12 Vac	SPDT	188	**D1PR1R1**
24 Vac	SPDT	750	**D1PR1T1**
48 Vac	SPDT	720	**D1PR1W**
48 Vac	SPDT	2,600	**D1PR1W1**
110 Vdc	SPDT	13,800	**D1PR1A1**
120 Vac 50/60 Hz	SPDT	4,430	**D1PR1A**
240 Vac	SPDT	15,270	**D1PR1B**

Accessories

D1PR/D1PF Socket and Accessories

Type	Standard Pack	Catalog Number
Socket	10	**D1PAA**
Flange mount adapter	25	**PFC-D11**
Metal spring clip	25	**PMC-1781**

General Purpose Plug-In Relays—D2 Series

Features

- Ultra-high sensitivity relay with quick response
- Designed small, two-pole type break 5A load and four-pole type, 3A load
- High reliability, long life
- Panel, DIN rail and flange mounting
- Small size

Catalog Number Selection

General Purpose Plug-In Relays

D2 Series ①

D2PF 2 A A

Family Type
D2PF
D2PR

Contact Configuration
2 = DPDT
4 = 4PDT
5 = DPDT latching

Standard Features
Blank = Plain cover (only with D2PR)
A = LED, test button, flag indicator, lock-down door, finger-grip cover, ID tag (only with D2PF)

Coil Voltage	
A	= 120 Vac
A1	= 110 Vdc
B	= 240 Vac
P	= 6 Vac
P1	= 6 Vdc
R	= 12 Vac
R1	= 12 Vdc
T	= 24 Vac
T1	= 24 Vdc
W	= 48 Vac
W1	= 48 Vdc

Product Selection

D2PF/D2PR Relay/Socket Quick Reference

Relay Type	Socket	Clip
D2PR2 D2PF2	D2PAL	PWC-D24
		PQC-1782
	D2PA6	PQC-1342
D2PR4 D2PF4	D2PAP	PWC-D24
		PQC-1782
	D2PA7	PWC-D24
		PQC-1782
	D2PA6	PQC-1342
D2PR5	D2PA4	PYC-A1

Note

① For deciphering catalog numbers.
Do not use for ordering as not all combinations are readily available.

General Purpose Plug-In Relays—D2PR/D2PF

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalog Number
Full Featured Style			
6 Vac	DPDT	9.6	**D2PF2AP**
6 Vdc	DPDT	40	**D2PF2AP1**
12 Vac	DPDT	46	**D2PF2AR**
12 Vdc	DPDT	160	**D2PF2AR1**
24 Vac	DPDT	180	**D2PF2AT**
24 Vdc	DPDT	650	**D2PF2AT1**
48 Vdc	DPDT	2,600	**D2PF2AW1**
110/125 Vdc	DPDT	11,000	**D2PF2AA1**
120 Vac	DPDT	4,430	**D2PF2AA**
220/240 Vac	DPDT	15,720	**D2PF2AB**
12 Vac	4PDT	46	**D2PF4AR**
12 Vdc	4PDT	160	**D2PF4AR1**
24 Vac	4PDT	180	**D2PF4AT**
24 Vdc	4PDT	650	**D2PF4AT1**
48 Vdc	4PDT	2,600	**D2PF4AW1**
110/125 Vdc	4PDT	11,000	**D2PF4AA1**
120 Vac	4PDT	4,430	**D2PF4AA**
220/240 Vac	4PDT	15,720	**D2PF4AB**

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalog Number
Plain Cover Style			
6 Vdc	DPDT	40	**D2PR2P1**
12 Vdc	DPDT	160	**D2PR2R1**
24 Vac	DPDT	180	**D2PR2T**
24 Vdc	DPDT	650	**D2PR2T1**
48 Vdc	DPDT	2,600	**D2PR2W1**
110/125 Vdc	DPDT	11,000	**D2PR2A1**
120 Vac	DPDT	4,430	**D2PR2A**
220/240 Vac	DPDT	15,720	**D2PR2B**
6 Vac	4PDT	9.6	**D2PR4P**
6 Vdc	4PDT	40	**D2PR4P1**
12 Vac	4PDT	46	**D2PR4R**
12 Vdc	4PDT	160	**D2PR4R1**
24 Vac	4PDT	180	**D2PR4T**
24 Vdc	4PDT	650	**D2PR4T1**
110/125 Vdc	4PDT	11,000	**D2PR4A1**
120 Vac	4PDT	4,430	**D2PR4A**
220/240 Vac	4PDT	15,720	**D2PR4B**

Accessories

D2PF/D2PR Sockets and Accessories

Type	Standard Pack	Catalog Number
Socket	1	**D2PAL** ①
Socket	10	**D2PA6**
Socket	1	**D2PAP** ①
Socket	10	**D2PA7** ①
Socket	5	**D2PA4**
Flange mount adapter	25	**PFC-D2D72**
Plastic ejector clip	10	**PWC-D24**
Metal spring clip	25	**PQC-1782**
Metal spring clip	25	**PQC-1342**
Hold-down spring	100	**PYC-A1**

Note

① Protection category (finger safe), EN 60529 IP20.

General Purpose Plug-In Relays—D3 Series

Features

- Compact relay capable of breaking relatively large load currents
- The contact operation can be easily checked by push-to-test button
- Panel and DIN rail mounting
- 8- or 11-pin octal plug-in

Catalog Number Selection

General Purpose Plug-In Relays

D3 Series ①

D3PR 2 3 A

Family Type
D3PR = Standard relay
D3PF = Full-featured relay

Contact Configuration
2 = DPDT (8-pin)
3 = 3PDT (11-pin)
5 = DPDT latching (11-pin) ②

Options	
Blank	= Plain cover relay (only with D3PR)
A	= LED, test button, flag indicator, lock-down door, finger-grip cover, ID tag (D3FF only)
1	= Indicating Light (D3PR only)

Coil Voltage	
A	= 120 Vac
A1	= 110 Vdc
B	= 240 Vac
P	= 6 Vac
P1	= 6 Vdc
R	= 12 Vac
R1	= 12 Vdc
T	= 24 Vac
T1	= 24 Vdc
W	= 48 Vac
W1	= 48 Vdc

Product Selection

D3 Relay/Socket Quick Reference

Relay Type	Socket	Clip
D3PR2 D3PF2	D3PA6	PQC-1332
	D3PAL8	PQC-1351
	D3PA2	PQC-1351
D3PR3 D3PF3	D3PA7	PQC-1332
	D3PAL11	PQC-1351
	D3PA3	PQC-1351
D3PR5	D3PA7	PQC-1351
	D3PAL11	PQC-1351
	D3PA3	PQC-1351

Notes

① For deciphering catalog numbers.
Do not use for ordering as not all combinations are readily available.

② D3PR only.

General Purpose Plug-In Relays—D3PR/D2PF

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalog Number
Full Featured Style			
120 Vac	DPDT	1,700	**D3PF2AA**
240 Vac	DPDT	7,200	**D3PF2AB**
12 Vdc	DPDT	120	**D3PF2AR1**
24 Vdc	DPDT	470	**D3PF2AT1**
48 Vdc	DPDT	1,800	**D3PF2AW1**
120 Vac	3PDT	1,700	**D3PF3AA**
220/240 Vac	3PDT	7,200	**D3PF3AB**
6 Vdc	3PDT	32	**D3PF3AP1**
24 Vac	3PDT	72	**D3PF3AT**
24 Vdc	3PDT	470	**D3PF3AT1**
48 Vdc	3PDT	1,800	**D3PF3AW1**
Plain Cover Style			
120 Vac	DPDT	1,700	**D3PR2A**
110/125 Vdc	DPDT	10,000	**D3PR2A1**
220/240 Vac	DPDT	7,200	**D3PR2B**
6 Vac	DPDT	4.2	**D3PR2P**
6 Vdc	DPDT	32	**D3PR2P1**
12 Vac	DPDT	18	**D3PR2R**
12 Vdc	DPDT	120	**D3PR2R1**
24 Vac	DPDT	72	**D3PR2T**
24 Vdc	DPDT	470	**D3PR2T1**
48 Vac	DPDT	290	**D3PR2W**
48 Vdc	DPDT	1,800	**D3PR2W1**
120 Vac	3PDT	1,700	**D3PR3A**
110/125 Vdc	3PDT	10,000	**D3PR3A1**
220/240 Vac	3PDT	7,200	**D3PR3B**
12 Vac	3PDT	18	**D3PR3R**
12 Vdc	3PDT	120	**D3PR3R1**
24 Vac	3PDT	72	**D3PR3T**
24 Vdc	3PDT	470	**D3PR3T1**
48 Vdc	3PDT	1,800	**D3PR3W1**

Accessories

D2PF/D2PR Sockets and Accessories

Type	Standard Pack	Catalog Number
Socket	1	**D3PA6** ①
Socket	10	**D3PAL8** ①
Socket	10	**D3PA2**
Socket	1	**D3PA7** ①
Socket	10	**D3PAL11** ①
Socket	10	**D3PA3**
Metal spring clip	25	**PQC-1332**
Metal spring clip	10	**PQC-1351**

Note

① Protection category (finger safe) EN 60529 IP20.

General Purpose Plug-In Relays—D4 Series

Features

- Slim-styled power relay
- Socket has built-in hold-down clip
- Panel or DIN rail mounting

Catalog Number Selection

General Purpose Plug-In Relays—D4 Series

D4 Series ①

D4PR 1 1 A

Type	Contact Configuration	Options	Coil Voltage
D4PR = D4PR standard relay	**1** = SPDT **2** = DPDT	**1** = Indicating light	**A** = 120 Vac **A1** = 110 Vdc **B** = 240 Vac **P** = 6 Vac **P1** = 6 Vdc **R** = 12 Vac **R1** = 12 Vdc **T** = 24 Vac **T1** = 24 Vdc **W1** = 48 Vdc

Product Selection

D4 Relay/Socket Quick Reference

Relay Type	Socket	Hold Down Clip
D4PR1	D4PA1	②
D4PR2	D4PA2	②

D4 Series

Coil Voltage ③	Catalog Number
Standard SPDT	
24 Vac	**D4PR1T**
120 Vac	**D4PR1A**
24 Vdc	**D4PR1T1**
SPDT with Indicating Light	
24 Vac	**D4PR11T**
120 Vac	**D4PR11A**
24 Vdc	**D4PR11T1**

Coil Voltage ③	Catalog Number
Standard DPDT	
24 Vac	**D4PR2T**
120 Vac	**D4PR2A**
12 Vdc	**D4PR2R1**
24 Vdc	**D4PR2T1**
DPDT with Indicating Light	
120 Vac	**D4PR21A**
24 Vdc	**D4PR21T1**

Coil Voltage ③	Catalog Number
DIN Rail Sockets	
Single-Pole	**D4PA1**
Two-Pole	**D4PA2**
Accessories	
DIN rail end stop	**PFP-M**

Notes

① For deciphering catalog numbers. Do not use for ordering as not all combinations are readily available.
② Socket has built-in hold down spring.
③ Additional coil voltages available—consult sales office or customer support center.

General Purpose Plug-In Relays—D5 Series

3

Features

- Industrial rated 300V, 15A relay in two-pole and three-pole configurations
- Compact design can be panel or DIN rail mounted

Catalog Number Selection

General Purpose Plug-In Relays—D5 Series

D5 Series ①

D5PR 3 1 A

Family Type	Contact Configuration	Options	Coil Voltage
D5PR = Standard relay **D5PF** = Full featured relay	**2** = DPDT **3** = 3PDT	**Blank** = Plain cover (D5PR only) **A** = LED, test button, flag indicator, lock-down door, finger-grip cover, ID tag (D5PF only) **1** = Indicating light (D5PR only)	**A** = 120 Vac **A1** = 110 Vdc **B** = 240 Vac **G1** = 74 Vdc **P** = 6 Vac **P1** = 6 Vdc **R** = 12 Vac **R1** = 12 Vdc **T** = 24 Vac **T1** = 24 Vdc **W** = 48 Vdc **W1** = 48 Vdc

Product Selection

D5 Relay/Socket Quick Reference

Relay Type	Socket	Clip
D5PR2	D5PAL	PQC-1351
D5PF2	D5PA2	PQC-1351
D5PR3	D5PA3L	PQC-1351
D5PF3	D5PA3S	PQC-1351

Note

① For deciphering catalog numbers.
Do not use for ordering as not all combinations are readily available.

General Purpose Plug-In Relays—D5

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalog Number
Full Featured			
120 Vac	DPDT	1,700	**D5PF2AA**
110/125 Vdc	DPDT	10,000	**D5PF2AA1**
220/240 Vac	DPDT	7,200	**D5PF2AB**
12 Vdc	DPDT	120	**D5PF2AR1**
24 Vac	DPDT	72	**D5PF2AT**
24 Vdc	DPDT	470	**D5PF2AT1**
48 Vdc	DPDT	1,800	**D5PF2AW1**
120 Vac	3PDT	1,700	**D5PF3AA**
110/125 Vdc	3PDT	10,000	**D5PF3AA1**
220/240 Vac	3PDT	7,200	**D5PF3AB**
12 Vdc	3PDT	120	**D5PF3AR1**
24 Vac	3PDT	72	**D5PF3AT**
Plain Cover			
120 Vac	DPDT	1,700	**D5PR2A**
110/125 Vdc	DPDT	10,000	**D5PR2A1**
220/240 Vac	DPDT	7,200	**D5PR2B**
74 Vdc	DPDT	4,800	**D5PR2G1**
6 Vac	DPDT	4.2	**D5PR2P**

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalog Number
Plain Cover, continued			
6 Vdc	DPDT	32	**D5PR2P1**
12 Vac	DPDT	18	**D5PR2R**
12 Vdc	DPDT	120	**D5PR2R1**
24 Vac	DPDT	72	**D5PR2T**
24 Vdc	DPDT	470	**D5PR2T1**
48 Vac	DPDT	290	**D5PR2W**
48 Vdc	DPDT	1,800	**D5PR2W1**
120 Vac	3PDT	1,700	**D5PR3A**
110/125 Vdc	3PDT	10,000	**D5PR3A1**
220/240 Vac	3PDT	7200	**D5PR3B**
74 Vdc	3PDT	4,800	**D5PR3G1**
6 Vac	3PDT	4.2	**D5PR3P**
6 Vdc	3PDT	32	**D5PR3P1**
12 Vac	3PDT	18	**D5PR3R**
12 Vdc	3PDT	120	**D5PR3R1**
24 Vac	3PDT	72	**D5PR3T**
24 Vdc	3PDT	470	**D5PR3T1**
48 Vdc	3PDT	1,800	**D5PR3W**

Accessories

D5 Sockets and Accessories

Description	Standard Pack	Catalog Number
Socket	10	**D5PAL** ①
Socket	10	**D5PA2**
Socket	10	**D5PA3L**
Socket	10	**D5PA3S**
Metal spring clip	10	**PQC-1351**

Note

① Protection category (finger safe), EN 60529 IP20.

General Purpose Plug-In Relays—D7 Series

Features

- Arc barrier equipped relay with high dielectric strength
- Panel, DIN rail and flange mounting

Catalog Number Selection

General Purpose Plug-In Relays—D7 Series

D7 Series ①

D7PR 1 1 A

Type	Contact Configuration		Options	Coil Voltage
D7PR = Standard relay	**1** = SPDT	**3** = 3PDT	**A** = LED, test button, flag indicator, lock-down door, finger-grip cover, ID tag	**A** = 120 Vac
D7PF = Full featured relay	**2** = DPDT	**4** = 4PDT	**Blank** = Plain cover	**A1** = 110 Vdc
				B = 240 Vac
				P = 6 Vac
				P1 = 6 Vdc
				R = 12 Vac
				R1 = 12 Vdc
				T = 24 Vac
				T1 = 24 Vdc
				W = 48 Vdc
				W1 = 48 Vdc

Product Selection

D7 Relay/Socket Quick Reference

Relay Type	Socket/Adapter	Clip
D7PR1	D7PAA	PQC-1342
D7PR2		PQC-1349
D7PF1	D7PA9	PQC-1342
D7PF2	PFC-D2D72	—
D7PR3	D7PAB	PQC-1783
		PMC-1783
D7PF3	PFC-D73	—
D7PR4	D7PAD	PQC-1784
		PMC-1784
D7PF4	PFC-D74	—

Note

① For deciphering catalog numbers.
Do not use for ordering as not all combinations are readily available.

General Purpose Plug-In Relays—D7

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalog Number
Full Featured			
120 Vac	SPDT	4,430	**D7PF1AA**
6 Vac	SPDT	9.6	**D7PF1AP**
6 Vdc	SPDT	40	**D7PF1AP1**
12 Vac	SPDT	46	**D7PF1AR**
24 Vdc	SPDT	650	**D7PF1AT1**
48 Vac	SPDT	788	**D7PF1AW**
48 Vdc	SPDT	2,600	**D7PF1AW1**
120 Vac	DPDT	4,430	**D7PF2AA**
110/125 Vdc	DPDT	11,000	**D7PF2AA1**
220/240 Vac	DPDT	15,720	**D7PF2AB**
6 Vac	DPDT	9.6	**D7PF2AP**
6 Vdc	DPDT	40	**D7PF2AP1**
12 Vac	DPDT	46	**D7PF2AR**
12 Vdc	DPDT	160	**D7PF2AR1**
24 Vac	DPDT	180	**D7PF2AT**
24 Vdc	DPDT	650	**D7PF2AT1**
48 Vac	DPDT	788	**D7PF2AW**
48 Vdc	DPDT	2,600	**D7PF2AW1**
120 Vac	3PDT	2,770	**D7PF3AA**
6 Vac	3PDT	6	**D7PF3AP**
6 Vdc	3PDT	25	**D7PF3AP1**
12 Vac	3PDT	25.3	**D7PF3AR**
24 Vac	3PDT	103	**D7PF3AT**
24 Vdc	3PDT	400	**D7PF3AT1**
48 Vac	3PDT	412	**D7PF3AW**
48 Vdc	3PDT	1,600	**D7PF3AW1**
120 Vac	4PDT	2,220	**D7PF4AA**
110/125 Vdc	4PDT	7,340	**D7PF4AA1**
240 Vac	4PDT	9,120	**D7PF4AB**
6 Vac	4PDT	5.4	**D7PF4AP**
6 Vdc	4PDT	24	**D7PF4AP1**
12 Vac	4PDT	21.2	**D7PF4AR**
12 Vdc	4PDT	96	**D7PF4AR1**
24 Vac	4PDT	84.5	**D7PF4AT**
24 Vdc	4PDT	388	**D7PF4AT1**
48 Vdc	4PDT	1,550	**D7PF4AW**
48 Vac	4PDT	410	**D7PF4AW1**

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalog Number
Plain Cover			
120 Vac	SPDT	4,430	**D7PR1A**
110/125 Vdc	SPDT	11,000	**D7PR1A1**
220/240 Vac	SPDT	15,720	**D7PR1B**
6 Vac	SPDT	9.6	**D7PR1P**
12 dc	SPDT	160	**D7PR1R1**
24 Vac	SPDT	180	**D7PR1T**
24 Vdc	SPDT	650	**D7PR1T1**
48 Vdc	SPDT	2600	**D7PR1W1**
120 Vac	DPDT	4,430	**D7PR2A**
110/125 Vdc	DPDT	11,000	**D7PR2A1**
220/240 Vac	DPDT	15,720	**D7PR2B**
6 Vac	DPDT	9.6	**D7PR2P**
6 Vdc	DPDT	40	**D7PR2P1**
12 Vac	DPDT	46	**D7PR2R**
12 Vdc	DPDT	160	**D7PR2R1**
24 Vac	DPDT	180	**D7PR2T**
24 Vdc	DPDT	650	**D7PR2T1**
120 Vac	3PDT	2,770	**D7PR3A**
240 Vac	3PDT	12,100	**D7PR3B**
6 Vac	3PDT	6	**D7PR3P**
12 Vac	3PDT	25.3	**D7PR3R**
12 Vdc	3PDT	100	**D7PR3R1**
24 Vac	3PDT	103	**D7PR3T**
24 Vdc	3PDT	400	**D7PR3T1**
48 Vdc	3PDT	1,600	**D7PR3W1**
120 Vac	4PDT	2,220	**D7PR4A**
110/125 Vdc	4PDT	7,340	**D7PR4A1**
240 Vac	4PDT	9,120	**D7PR4B**
6 Vac	4PDT	5.4	**D7PR4P**
24 Vac	4PDT	84.5	**D7PR4T**
24 Vdc	4PDT	388	**D7PR4T1**
48 Vdc	4PDT	1,550	**D7PR4W1**

Accessories

D7 Sockets and Accessories

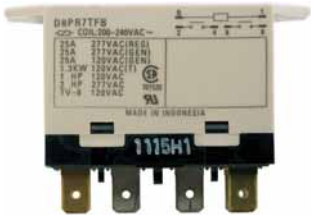
Type	Standard Pack	Catalog Number
Socket	—	D7PAA ①
Socket	1	D7PA9
Socket	—	D7PAD ①
Socket	—	D7PAB ①
Flange mount adapter	25	PFC-D2D72
Flange mount adapter	25	PFC-D73
Flange mount adapter	25	PFC-D74

Type	Standard Pack	Catalog Number
Metal spring clip	25	PQC-1342
Plastic ID clip	10	PQC-1349
Metal spring clip	25	PQC-1784
Plastic ID clip	10	PMC-1784
Hold-down spring	25	PYC-B2
Metal spring clip	10	PQC-1783
Plastic ID clip	10	PMC-1783

Note

① Protection category (finger safe) EN 60529 IP20.

General Purpose Plug-In Relays—D8 Series



Features

- Allows switching of 25A and 30A loads
- A high-capacity, high-withstand voltage relay compatible with momentary voltage drops
- No contact chattering for momentary voltage drops up to 50% of rated voltage

Catalog Number Selection

General Purpose Plug-In Relays—D8 Series

D8 Series ①

D8PR 6 TE A

Type	Contact Configuration	Options	Coil Voltage
D8PR = Standard relay	**6** = SPST-NO **7** = DPST-NO	**TE** = E-bracket **TF** = Range mount	**A** = 120 Vac **B** = 240 Vac **R1** = 12 Vdc **T** = 24 Vac **T1** = 24 Vdc

Product Selection

D8 Relay/Socket Quick Reference

Relay Type	Mounting Bracket	Adapter Track/ Panel Mount	Front Connecting Sockets Track/ Panel Mount
D8PR6TE	D8PA5	D8PA1	D8PA2
D8PR7TE	D8PA5	D8PA1	D8PA2

Note

① For deciphering catalog numbers.
Do not use for ordering as not all combinations are readily available.

D8 Series

Coil Voltage	Catalog Number
SPST E-Bracket	
24 Vac	**D8PR6TET**
24 Vdc	**D8PR6TET1**
SPST Flange Mount	
120 Vac	**D8PR6TFA**
24 Vdc	**D8PR6TFT1**
DPST E-Bracket	
120 Vac	**D8PR7TEA**
DPST Flange Mount	
120 Vac	**D8PR7TFA**
24 Vdc	**D8PR7TFT1**

Accessories

D8 Series Sockets and Accessories

Description	Standard Pack	Catalog Number
Sockets		
DIN rail adapter	10	**D8PA1**
Screw terminal adapter	10	**D8PA2**
Bracket adapter	10	**D8PA5**
Accessory		
DIN rail end stop	100	**PFP-M**

General Purpose Plug-In Relays—D9 Series

Features

- Ideal for three-phase motor control applications
- No contact chattering for momentary voltage drops up to 50% of rated voltage
- Push-to-test button is a standard feature to check contact operation

Catalog Number Selection

General Purpose Plug-In Relays—D9 Series

D9 Series ①

D9PR 8B A

Type
D9PR = Standard relay

Contact Configuration
8B = 4PST-NO
9B = 3PST-NO/SPST-NC
10B = DPST-NO/DPST-NC

Coil Voltage	
A = 120 Vac	**R1** = 12 Vdc
A1 = 110 Vdc	**T** = 24 Vac
B = 240 Vac	**T1** = 24 Vdc

Product Selection

D9 Series

Coil Voltage	Catalog Number
4PST-NO Power Relay	
24 Vac	**D9PR8BT**
120 Vac	**D9PR8BA**
240 Vac	**D9PR8BB**
24 Vdc	**D9PR8BT1**
3PST-NO/SPST-NC Power Relay	
120 Vac	**D9PR9BA**
DPST-NO/DPST-NC Power Relay	
24 Vac	**D9PR10BT**
120 Vac	**D9PR10BA**
24 Vdc	**D9PR10BT1**

Note

① For deciphering catalog numbers.
Do not use for ordering as not all combinations are readily available.

General Purpose Type AA Relays

Features

- Type AA panel mounted relays are rated (each pole) 40A up to 300 Vac, 50/60 Hz; 5A at 480/600 Vac, 50/60 Hz and 40A at 28 Vdc
- 9575H Series 3000 relays are ideal for applications when controlling smaller loads such as single-phase motors

Catalog Number Selection

General Purpose Type AA Relays

Type AA

9575H3 A 000

Type
9575H3 = Type AA relay

Coil Voltage			
A = 120 Vac	**E** = 208 Vac	**L** = 24 Vac	**R** = 6 Vdc
B = 240 Vac	**H** = 277 Vac	**M** = 48 Vac	**S** = 12 Vdc
C = 480/440 Vac	**J** = 6 Vac	**P** = 110 Vdc	**T** = 24 Vdc
D = 600/550 Vac	**K** = 12 Vac	**Q** = 220 Vdc	**W** = 48 Vdc

Option
000 = None
010 = Auxiliary switch
100 = Blowout magnets
110 = Auxiliary switch and blowout magnets

Product Selection

Type AA Relays

Relay Style	Catalog Number ①
Relay (DPDT)	**9575H3_000**
Relay with auxiliary switch	**9575H3_010**
Relay with blowout magnets	**9575H3_100**
Relay with auxiliary switch and blowout magnets	**9575H3_110**

Coil Voltage Selection Table

Coil Voltage	Hz	Suffix Code
Volts AC		
120	50/60	**A**
240	50/60	**B**
480/440	60/50	**C**
600/550	60/50	**D**
208	50/60	**E**
277	50/60	**H**
6	50/60	**J**
12	50/60	**K**
24	50/60	**L**
48	50/60	**M**

Coil Voltage	Hz	Suffix Code
Volts DC		
110	—	**P**
220	—	**Q**
6	—	**R**
12	—	**S**
24	—	**T**
48	—	**W**

Note

① Underscore (_) indicates missing coil voltage suffix code. See table above.

XTRE Control Relays

Features

- 16A conventional thermal current (open at 60°C I_{th})
- Four-pole configurations
  - 4NO
  - 3NO-1NC
  - 2NO-2NC
- Expandable to eight-pole with add-on front-mount auxiliary contacts
- Built-in surge suppression on DC coils

Catalog Number Selection

XTRE Control Relays

XTRE Relays

XT RE 10 B 22 A

Product Line Prefix	Product Family Code	Conventional Thermal Current Rating	Frame	Contact Configuration	Coil Code
XT = ***XT*** IEC Power Control	**RE** = IEC Control Relay	**10** = 10A	**B** = 45 mm—standard	**40** = 4NO **31** = 3NO-1NC **22** = 2NO-2NC	See table below.

Product Selection

XTRE Control Relays

Conventional Thermal Current I_{th} (A), Open at 60°C	Contact Configuration	Rated Operational Current AC-15 I_e (A) 220–240V	380–414V	500V	Circuit Symbol	Catalog Number—Screw Terminals ①
16	4NO	6	4	1.5	A1 13 23 33 43 A2 14 24 34 44	**XTRE10B40_**
16	3NO-1NC	6	4	1.5	A1 13 21 33 43 A2 14 22 34 44	**XTRE10B31_**
16	2NO-2NC	6	4	1.5	A1 13 21 31 43 A2 14 22 32 44	**XTRE10B22_** ②

Coil Voltage Suffix

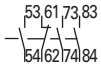
Coil Voltage	Suffix Code
110V 50 Hz, 120V 60 Hz	**A**
220V 50 Hz, 240V 60 Hz	**B**
24V 50/60 Hz	**T**
24 Vdc	**TD**
415V 50 Hz, 480V 60 Hz	**C**
550V 50 Hz, 600V 60 Hz	**D**
208V 60 Hz	**E**

Notes

① Underscore (_) indicates magnet coil suffix required. See table above.

② DC operated control relays XTRE(C)10B22_ can only be combined with two-pole auxiliary contacts.

Front Mount Auxiliary Contacts for Use with XTRE Control Relays ①

Conventional Thermal Current I_{th} (A), Open at 60°C	Poles	Rated Operational Current AC-15 I_e (A) 220V 230V 240V	380V 400V 415V	500V	Contact Configuration	Circuit Symbol	Package Quantity	Catalog Number— Screw Terminals
16	2	6	3	1.5	2NO		5	**XTCEXFAC20v**
16	2	6	3	1.5	1NC-1NC		5	**XTCEXFAC11**
16	4	6	3	1.5	4NO		5	**XTCEXFAC40**
16	4	6	3	1.5	2NO-2NC		5	**XTCEXFAC22**

Note

① Interlocked opposing contacts, to IEC/EN 60947-5-1 Annex L (positively driven), within the auxiliary contact modules (not NOE and NCL contacts) and between the auxiliary contacts and built-in contacts of the XTRE control relays.

Solid-State Relays—D93 Series

Features

- All solid-state circuitry with no moving parts to wear
- Compact, panel mounting for flexible installation
- Isolated input and output terminals to protect the system from electrical noise
- Internal snubber circuitry to protect the SSR from transients
- UL®/cUL® listed—UL 508
- CSA® certified
- CE marked
- RoHS compliant

Catalog Number Selection

Solid-State Relays—D93 Series

D93 Series

D93 3 25 A M D 2

Description	Output Voltage	Current	Contact Configuration	Output Type	Turn On Type	Input Voltage
D93 = Hockey puck **D96** = Compact **D99** = DIN rail	**1** = 2–60 Vdc **2** = 24–280 Vac **3** = 3–200 Vdc **4** = 48–480 Vac **6** = 48–600 Vac	Output current in amps	**A** = SPST-NO **B** = SPST-NC **C** = DPST-NO **D** = DPST-NC	**C** = SCR **T** = Triac **M** = MOSFET	**Z** = Zero cross **R** = Random **D** = DC switch	**1** = 90–280 Vac **2** = 3–32 Vdc **3** = 3.5–32 Vdc **4** = 4–15 Vdc **5** = 20–50 Vdc

Product Selection

D93 Series

Input Voltage	Output Voltage	Contact Configuration	Switching Type	Rated Current Load (A)	Catalog Number
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	10	**D93210ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	10	**D93210ACZ2**
3–32 Vdc	24–280 Vac	SPST-NO	Triac	10	**D93210ATZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	25	**D93225ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	25	**D93225ACZ2**
3–32 Vdc	24–280 Vac	SPST-NO	Triac	25	**D93225ATZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	40	**D93240ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	40	**D93240ACZ2**
3–32 Vdc	24–280 Vac	SPST-NO	Triac	40	**D93240ATZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	50	**D93250ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	50	**D93250ACZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	75	**D93275ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	75	**D93275ACZ2**
3–32 Vdc	3–200 Vdc	SPST-NO	MOSFET	12	**D93312AMD2**
3–32 Vdc	3–200 Vdc	SPST-NO	MOSFET	25	**D93325AMD2**
3–32 Vdc	3–200 Vdc	SPST-NO	MOSFET	40	**D93340AMD2**

Accessory

Heat Sink Accessory

Description	Catalog Number
Heat sink	**D93HS1**

Solid-State Relays—D96 Series

Features

- All solid-state circuitry has no moving parts to wear
- Integral heat sink eliminates the need for added accessories and installation
- Flexible mounting allows DIN rail or panel mounting without additional hardware or tools
- Isolated input and output terminals protect the system from electrical noise
- Internal snubber circuitry protects the SSR from transients
- UL/cUL listed—UL 508
- CSA certified
- CE marked
- RoHS compliant

Product Selection

Solid-State Relays—D96 Series

D96 Series

Input Voltage	Output Voltage	Contact Configuration	Switching Type	Rated Current Load (A)	Catalog Number
3.5–32 Vdc	3–50 Vdc	SPST-NO	DC switch	15	**D96115ACZ3**
3.5–32 Vdc	3–150 Vac	SPST-NO	DC switch	8	**D96208ACZ3**
90–280 Vac	24–280 Vac	SPST-NO	Random	10	**D96210ACR1**
3–32 Vdc	24–280 Vac	SPST-NO	Random	10	**D96210ACR2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	10	**D96210ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	10	**D96210ACZ2**
3–32 Vdc	24–280 Vac	SPST-NC	Random	10	**D96210BCR2**
90–280 Vac	48–480 Vac	SPST-NO	Random	10	**D96410ACR1**
3–32 Vdc	48–480 Vac	SPST-NO	Random	10	**D96410ACR2**
90–280 Vac	48–480 Vac	SPST-NO	Zero cross	10	**D96410ACZ1**
3–32 Vdc	48–480 Vac	SPST-NO	Zero cross	10	**D96410ACZ2**
90–280 Vac	48–600 Vac	SPST-NO	Random	10	**D96610ACR1**
90–280 Vac	48–600 Vac	SPST-NO	Zero cross	10	**D96610ACZ1**
3–32 Vdc	48–600 Vac	SPST-NO	Zero cross	10	**D96610ACZ2**

Solid-State Relays—D99 Series

Features

- All solid-state circuitry has no moving parts to wear
- Integral heat sink eliminates the need for added accessories and installation
- Flexible mounting allows DIN rail or panel mounting without additional hardware or tools
- Isolated input and output terminals protect the system from electrical noise
- Internal snubber circuitry protects the SSR from transients
- UL/cUL listed—UL 508
- CSA certified
- CE marked
- RoHS compliant

Product Selection

Solid-State Relays—D99 Series

D99 Series

Input Voltage	Output Voltage	Contact Configuration	Switching Type	Rated Current Load (A)	Catalog Number
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	10	**D99210ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	10	**D99210ACZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	25	**D99225ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	25	**D99225ACZ2**
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	40	**D99240ACZ1**
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	40	**D99240ACZ2**
90–280 Vac	48–600 Vac	SPST-NO	Zero cross	10	**D99610ACZ1**
3–32 Vdc	48–600 Vac	SPST-NO	Zero cross	10	**D99610ACZ2**
90–280 Vac	48–600 Vac	SPST-NO	Zero cross	25	**D99625ACZ1**
3–32 Vdc	48–600 Vac	SPST-NO	Zero cross	25	**D99625ACZ2**
90–280 Vac	48–600 Vac	SPST-NO	Zero cross	40	**D99640ACZ1**
3–32 Vdc	48–600 Vac	SPST-NO	Zero cross	40	**D99640ACZ2**

Universal TR Series Timing Relays

Features

- Multiple user-selectable timing functions and timing ranges in a single unit reduce product variations and stock keeping units (SKUs)
- Universal input voltages from 12 or 24–240 Vac/Vdc eliminate the need to order and stock separate coil voltages
- Compact, DIN rail mountable case reduces panel size
- Advanced LED indication makes troubleshooting easy
- Staggered terminal locations allow access to lower-level terminals after wiring
- SPDT or DPDT contacts with 8A ratings
- cULus listed
- CE marked
- RoHS compliant
- IEC/EN 61812

Product Selection

Universal TR Series Timing Relays

Universal TR Series

Supply Voltage	Description	Catalog Number
4-Function		
24–240 Vac/Vdc	Compact DIN rail mount, SPDT	**TRL04**
7-Function		
24–240 Vac/Vdc	Compact DIN rail mount, SPDT	**TRL07**
12–240 Vac/Vdc	Compact DIN rail mount, DPDT	**TRL27**
	Asymmetrical pulse generator, DPDT	**TRW27**

TMR5 Series Timing Relays

Features

- Single timing range for each unit
- Ranges available from 0.02 sec. to 24 hours
- Wide variety of functions available
- 10A DPDT output contacts

Catalog Number Selection

TMR5 Series Timing Relays

TMR5 Series

TMR5 N 05 120

Type
TMR5 = TMR5 Series timing relays

Operational Mode	
8-Pin Octal Sockets	**11-Pin Octal Sockets**
N = ON delay	**F** = OFF delay, control switch trigger
T = Interval ON	**C** = Single shot, control switch trigger
L = Flasher	**W** = Watchdog, control switch trigger (retriggerable single shot)
R ① = Repeat cycle (OFF time first followed by ON time and repeating)	**P** = OFF delay, power trigger
Y ① = Repeat cycle (ON time first followed by OFF time and repeating)	**G** = Single shot, power trigger
	D = Watchdog, power trigger (retriggerable single shot)

Input Voltage	
120 = 120 Vac/Vdc	**12** = 12 Vac/Vdc
24 = 24 Vac/Vdc	**240** = 240 Vac/Vdc
12 = 12 Vac/Vdc	
240 = 240 Vac/Vdc	

Timing Range ②③	
03 = 0.02–2 sec.	**16** = 0.6–60 min.
05 = 0.1–10 sec.	**20** = 4.8–8 hr.
08 = 0.6–60 sec.	**22** = 6 sec.–10 min.
12 = 3–300 sec.	**23** = 14.4 min.–24 hr.
15 = 0.3–30 min.	

Product Selection

TMR5 Time Delay Relays

Input Voltage	Socket	Timing Range	Catalog Number
ON Delay			
120 Vac/Vdc	8-pin	0.1–10 sec.	TMR5N05120
120 Vac/Vdc		0.6–60 sec.	TMR5N08120
24 Vac/Vdc		0.1–10 sec.	TMR5N0524
24 Vac/Vdc		0.6–60 sec.	TMR5N0824
OFF Delay, Control Switch Trigger			
120 Vac/Vdc	11-pin	0.1–10 sec.	TMR5F05120
120 Vac/Vdc		0.6–60 sec.	TMR5F08120
24 Vac/Vdc		0.1–10 sec.	TMR5F0524
24 Vac/Vdc		0.6–60 sec.	TMR5F0824
Interval ON			
120 Vac/Vdc	8-pin	0.1–10 sec.	TMR5T05120
120 Vac/Vdc		0.6–60 sec.	TMR5T08120
24 Vac/Vdc		0.1–10 sec.	TMR5T0524
24 Vac/Vdc		0.6–60 sec.	TMR5T0824

Input Voltage	Socket	Timing Range	Catalog Number
Single Shot, Control Switch Trigger			
120 Vac/Vdc	11-pin	0.1–10 sec.	**TMR5C05120**
120 Vac/Vdc		0.6–60 sec.	**TMR5C08120**
24 Vac/Vdc		0.1–10 sec.	**TMR5C0524**
24 Vac/Vdc		0.6–60 sec.	**TMR5C0824**
Repeat Cycle (OFF Time First Followed by ON Time and Repeating)			
120 Vac/Vdc	8-pin	0.1–10 sec.	**TMR5R05120**
120 Vac/Vdc		0.6–60 sec.	**TMR5R08120**
24 Vac/Vdc		0.1–10 sec.	**TMR5R0524**
24 Vac/Vdc		0.6–60 sec.	**TMR5R0824**
Repeat Cycle (ON Time First Followed by OFF Time and Repeating)			
120 Vac/Vdc	8-pin	0.1–10 sec.	**TMR5Y05120**
120 Vac/Vdc		0.6–60 sec.	**TMR5Y08120**
24 Vac/Vdc		0.1–10 sec.	**TMR5Y0524**
24 Vac/Vdc		0.6–60 sec.	**TMR5Y0824**

Notes

① Indicates DUAL knob unit. All dual knob units can have independently selectable and adjustable ON and OFF times. If different ON and OFF times are desired, add two codes for time ranges in the part number. The first code listed indicates the first timing range of the unit (OFF time for R, ON time for Y) and the second code indicates the second timing range (ON time for R, OFF Time for Y).

② Any time range can be created as a custom unit. Contact Eaton for details.

③ Fixed time delay settings are available for orders of 50 pieces or more.

TMR6 Series Timing Relays

Features

- Provides OFF delay function without requiring input voltage during OFF time delay
- Duplicates operation of pneumatic OFF delay timers
- Each unit has eight timing ranges built in, covering 0.05 seconds to 30 minutes
- Selecting a range is easy using a rotary switch (no math is required or DIP switches to set)
- Uses industry-standard
- 8-pin octal socket
- 10A DPDT output contacts
- cRUus
- UL listed (with Eaton socket)
- RoHS compliant
- CE marked

Catalog Number Selection

TMR6 Series Timing Relays

TMR6 Series

TMR6 X 00 120

Family Type	Operational Mode	Timing Range	Input Voltage
TMR6	**X** = True OFF delay	**00** = Programmable	**120** = 120 Vac/Vdc **24** = 24 Vac/Vdc **240** = 240 Vac/Vdc

Product Selection

TMR6 True OFF Delay Relays

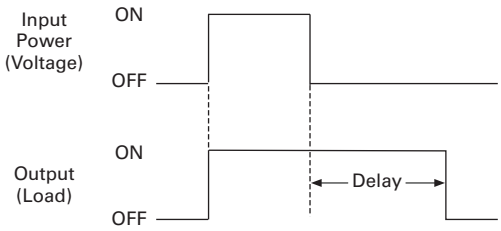
Input Voltage	Timing Range	Catalog Number
120 Vac/Vdc	0.05 sec.–30 min. (user selectable, eight ranges)	**TMR6X00120**
24 Vac/Vdc		**TMR6X0024**
240 Vac/Vdc		**TMR6X00240**

Accessories

Accessories for Use with TMR6 Time Delay Relays

Description	Standard Pack	Catalog Number
8-pin socket	10	**D3PA2**
Hold-down spring	10	**D65CHDS**

True OFF Delay



TMRP Series Timing Relays

Features

- Multiple user-selectable timing functions and timing ranges in a single unit reduce product variations and stock keeping units (SKUs)
- Universal input voltages from 12–240 Vac/Vdc eliminate the need to order and stock separate coil voltages
- Timing ranges up to 9990 hours
- Dual LED indication makes troubleshooting easy
- Flexible design for back-panel, through-panel (45 mm x 45 mm cutout), or DIN rail mounting
- SPDT or DPDT contacts with 12A ratings
- Plastic dust cover keeps out contaminants and eliminates accidental set point changes
- Use with standard Eaton D3 sockets
- UL recognized
- CE marked
- RoHS compliant

Product Selection

TMRP Series Timing Relays

TMRP Timing Relays

Supply Voltage	Description	Catalog Number
10-Function		
12–240 Vac/Vdc	Control switch trigger, DPDT	**TMRP5100**
	Control switch trigger, SPDT	**TMRP5101**
	Power trigger, DPDT	**TMRP5102**

Product Overview

Programmable Controllers Selection Guide

Description	Fusion Integrated Machine Controllers	easy Programmable Relays	MFD-Titan Multi-Functional Displays	ELC Series PLCs
	Page V9-T3-36	**Page V9-T3-37**	**Page V9-T3-40**	**Page V9-T3-46**
User Interface				
LCD display (text/graphics)	3-, 4- or 5-line text (embedded)	4-line text (embedded)	4-line text and graphics (embedded)	Text and graphics thru HM*i* or ELC-GP (external)
Seven-segment display	—	—	4 characters (simulated)	PA only = 2 digital
Keypad for programming	Yes	Optional	Optional	—
Hand-held programmer	—	—	—	Available for all
Potentiometers	Simulated using display	Simulated using optional display	Simulated using optional display	PC/PH = two embedded
I/O Digital				
Embedded digital input types	3.5–30 Vdc	12 Vdc/24 Vdc 24 Vac or 110/240 Vac	24 Vac or 110/240 Vac (using MFD I/O)	24 Vdc or 110/240 Vac
Embedded digital output types	24 Vdc transistor or high current relay (5A resistive)	24 Vdc transistor or high current relay (8A resistive)	24 Vdc transistor or high current relay (8A resistive) (using MFD I/O)	24 Vdc transistor or relay
Embedded digital inputs/outputs per unit	10 control inputs 3 counter inputs/ 2 transistors 5 relays	easy500 = 8/4 easy700/800 = 12 (6 or 8)	12/4 (using MFD I/O)	PA = 4/2 PB = 8/6 PC/PH = 8/4 PV = 16/12
Expansion digital input types	—	24 Vdc or 110/240 Vac	24 Vdc or 110/240 Vac	24 Vdc or 110/240 Vac
Expansion digital output types	—	24 Vdc transistor or high current relay (8A resistive)	24 Vdc transistor or high current relay (8A resistive)	24 Vdc transistor, relay or high current relay (6A resistive)
Max. digital I/O includes embedded and expansion	20	easy500 = 12 easy700/800 = 40 easy800 (link up to 8 expanded units using easyNet) = 320	(link up to 8 expanded units with easyNet) = 320	PA/PB/PC/PH = 112 in/112 out and embedded PV = 240 in/240 out embedded
I/O Analog				
Embedded analog input quantity and types	2 at 4–20 mA 2 at 0–10 Vdc	Optional on 24 Vac or DC input units easy500 = 2 easy700 = 4 easy819/821 = N/A easy820/822 = 1 All 0 to +10 Vdc	Optional on 24 Vac or Vdc input units = 4 All 0 to +10 Vdc	PA = 2 at either –10 to +10 Vdc or –20 to +20 mA
Embedded analog input resolution	6.5 bit	10 bit	10 bit	12 bit
Embedded analog outputs quantity and types	1 at 4–20 mA 1 at 0–10 Vdc	Optional easy820/822 = 1 All 0 to +10 Vdc	Available using MFD-RA17 or MFD-TA17 MFD I/O Modules = 1 All 0 to +10 Vdc	PA = 2 at either –10 to +10 Vdc or –20 to +20 mA
Embedded analog output resolution	6.5 bit	10 bit	10 bit	12 bit
Expansion analog input types	—	0	0	–10 to +10 Vdc or –20 to +20 mA
Expansion analog input resolution	—	—	—	V = 12 bits, I = 11 or 13 bits ①
Expansion analog outputs types	—	0	0	0 to 20 mA, 4 to 20 mA 0 to 10 Vdc, 2 to 10 Vdc ①

Note

① Combo modules have 11 bit resolution; analog input-only modules support 13 bit.

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Programmable Controllers Selection Guide, continued

Description	Fusion Integrated Machine Controllers	easy Programmable Relays	MFD-Titan Multi-Functional Displays	ELC Series PLCs
I/O Analog				
Expansion analog output resolution	—	—	—	Voltage = 14 bit Current = 11 or 12 bit ①
Max. expansion analog inputs/outputs	—	0/0	0/0	Up to 32/up to 32 (max. using eight combo modules = 32 in + 16 out)
I/O Specialty Inputs				
RTD PT100	—	—	—	Four point expansion module
Thermocouple	—	—	—	Four point expansion module
Programming				
Programming tools	Software or front panel	Software; on-board keypad; memory module transfer	Software; on-board keypad; memory module transfer	Software; memory module transfer; hand-held programmer
Program size	100 rungs with up to 6 contacts and 1 coil per rung	easy500/700 = 128 rungs easy800 = 256 rungs	MFD = 256 rungs	PB = 4k steps PA/PC/PH = 8k steps PV = 16k steps
Programming languages	Ladder	Ladder; function block	Ladder; function block	Instructions, ladder, sequential function chart
Timers	8	easy500/700 = 16 easy800 = 32	32	PB = 128 PA/PC/PH/PV = 244 standard with additional timers for subroutine and retentive applications
General counters	8	easy500/700 = 16 easy800 = 32	32	PB = 128 PA/PC/PH = 235 PV = 253
High speed counters Quantity at max. speed (pulse train output use may limit maximum counter frequency)	Up to 14 kHz with five presets and prewarn	1 kHz	3 kHz	PB = up to 4, 2 at 20 kHz PA/PC = up to 6, 1 at 30 kHz and 1 at 10 kHz PH = up to 8, 1 at 100 kHz and 1 at 30 kHz PV = up to 8, 2 at 200 kHz 2 at 20 kHz; and 2 at 10 kHz
Pulse train outputs Quantity at max. speed (high speed input use may limit maximum speed for outputs)	—	—	—	PB = 2 at 10 kHz PA/PC = 1 at 30 kHz; and 1 at 10 kHz PH = 1 at 100 kHz; and 1 at 30 kHz PV = up to 2 at 200 kHz; and 1 at 40 kHz
Real time clock	Yes	easy500 = Optional easy700/800 = Yes	Yes	PA/PC/PH/PV = Yes Not available on PB

Note

① Combo modules have 11 bit resolution; analog input-only modules support 13 bit.

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Programmable Controllers Selection Guide, continued

Description	Fusion Integrated Machine Controllers	easy Programmable Relays	MFD-Titan Multi-Functional Displays	ELC Series PLCs
Communications				
Ports	1 RS-232/RS-485	Programming only	Programming only	1 RS-232 device or programming 1 RS-485 master or device
DeviceNet	—	easy700/800 = device only	Device only	PA/PB/PC/PH = device only PV = master and device
Ethernet OPC	—	easy700/800 = device only	Device only	PA/PB/PC/PH = device only PV = limited master and device
ASi	—	easy700/800 = device only	Device only	—
PROFIBUS-DP	—	easy700/800 = device only	Device only	—
CANopen	—	easy700/800 = device only	Device only	—
Modbus Serial	Device only	—	—	ASCII/RTU master and device
General Specifications				
CSA Hazardous location Class I, Division 2	—	Yes	—	—
Agency certifications	UL/cUL/CE	UL/CSA/CE/C-Tick	UL/CSA/CE/C-Tick	cULus/CE/C-Tick
Operating temperature range	0° to 50°C (32° to 122°F)	–25° to 55°C (–13° to 131°F)	–25° to 55°C (–13° to 131°F) Display –5° to 50°C	0° to 55°C (32° to 131°F)
Storage/transport temperature range	–20° to 70°C (–4° to 158°F)	–40° to 70°C (–40° to 158°F)	–40° to 70°C (–40° to 158°F)	–25° to 70°C (–13° to 158°F)
Nominal operating power	100/240 Vac 24 Vdc 12 Vdc	100/240 Vac 24 Vdc 12 Vdc	100/240 Vac 24 Vdc	24 Vdc 110/240 Vac using ELC power supply

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Fusion® Integrated Machine Controller

Features

- User-configurable operator interface with back-lit LCD display and 18-button tactile feedback keypad
- High-speed counter with five presets and prewarn, totalizer, batch counter and ratemeter
- 10 parameter sets
- 13 digital inputs
- (2) 4–20 mA inputs
- (2) 0–10V input
- (3) Form C, 2 Form A, 2 NPN transistor, (1) 4–20 mA, and (1) 0–10V output
- RS-232 and RS-485 serial communications
- 100-line ladder logic processor for ultimate flexibility
- Configuration software included
- Type 4X enclosure

Product Selection

Fusion Integrated Machine Controller

Fusion Integrated Machine Controller

Description	Catalog Number
Fusion integrated machine controller—10–30 Vdc power	**57550400**
Fusion integrated machine controller—85–265 Vac power	**57551400**

easy500/700/800 Programmable Relays

Features

- easy500 Series—for controlling small applications with up to 12 input/output signals
- easy700 Series—for controlling medium-sized applications with up to 40 input/output signals
- easy800 Series—for controlling large-scale applications with up to 320 input/output signals; use easyNet for applications beyond 40 I/O
- Available with or without 2.5 in LCD display
- DIN rail mounted or panel mounted using optional mounting feet

Catalog Number Selection

easy Programmable Relays

easy500/700/800

EASY512 - AC - R C _

Module Type	Digital Inputs	Digital Outputs	Clock	Display
EASY5xx = 500 Series **EASY7xx** = 700 Series **EASY8xx** = 800 Series	**AB** = 24 Vac **AC** = 110–240 Vdc **DA** = 12 Vdc **DC** = 24 Vdc	**R** = Relay **T** = Transistor	**C** = Clock **Blank** = No clock	**Blank** = Display **X** = No display

Note: Not all combinations are possible. See selection tables.

Product Selection

easy500 Programmable Relays (Standalone)

easy500—Display

easy500—No Display

Description	Inputs 24 Vac	110–240 Vac	12 Vdc	24 Vdc	Analog ①	Outputs Relay	Transistor	Catalog Number
Display								
12 I/O, no clock	—	8	—	—	—	4	—	**EASY512-AC-R**
	—	—	—	8	2	4	—	**EASY512-DC-R**
12 I/O, clock	8	—	—	—	2	4	—	**EASY512-AB-RC**
	—	8	—	—	—	4	—	**EASY512-AC-RC**
	—	—	8	—	2	4	—	**EASY512-DA-RC**
	—	—	—	8	2	4	—	**EASY512-DC-RC**
	—	—	—	8	2	—	4	**EASY512-DC-TC**
No Display								
12 I/O, clock	8	—	—	—	2	4	—	**EASY512-AB-RCX**
	—	8	—	—	—	4	—	**EASY512-AC-RCX**
	—	—	8	—	2	4	—	**EASY512-DA-RCX**
	—	—	—	8	2	4	—	**EASY512-DC-RCX**
	—	—	—	8	2	—	4	**EASY512-DC-TCX**

easy700 Programmable Relays (Expandable and Networkable)

easy700—Display

easy700—No Display

Description	Inputs 24 Vac	110–240 Vac	12 Vdc	24 Vdc	Analog ①	Outputs Relay	Transistor	Catalog Number
Display								
18 I/O, clock	12	—	—	—	4	6	—	**EASY719-AB-RC**
	—	12	—	—	—	6	—	**EASY719-AC-RC**
	—	—	12	—	4	6	—	**EASY719-DA-RC**
	—	—	—	12	4	6	—	**EASY719-DC-RC**
20 I/O, clock	—	—	—	12	4	—	8	**EASY721-DC-TC**
No Display								
18 I/O, clock	12	—	—	—	4	6	—	**EASY719-AB-RCX**
	—	12	—	—	—	6	—	**EASY719-AC-RCX**
	—	—	12	—	4	6	—	**EASY719-DA-RCX**
	—	—	—	12	4	6	—	**EASY719-DC-RCX**
20 I/O, clock	—	—	—	12	4	—	8	**EASY721-DC-TCX**

easy800 Programmable Relays (Expandable and Networkable)

easy800—Display

easy800—No Display

Description	Inputs 110–240 Vac	24 Vdc	Analog ①	Outputs Relay	Transistor	Analog	Catalog Number
Display							
18 I/O, clock	12	—	—	6	—	—	**EASY819-AC-RC**
	—	12	4	6	—	—	**EASY819-DC-RC**
19 I/O, clock	—	12	4	6	—	1	**EASY820-DC-RC**
20 I/O, clock	—	12	4	—	8	—	**EASY821-DC-TC**
21 I/O, clock	—	12	4	—	8	1	**EASY822-DC-TC**
No Display							
18 I/O, clock	12	—	—	6	—	—	**EASY819-AC-RCX**
	—	12	4	6	—	—	**EASY819-DC-RCX**
19 I/O, clock	—	12	4	6	—	1	**EASY820-DC-RCX**
20 I/O, clock	—	12	4	—	8	—	**EASY821-DC-TCX**
21 I/O, clock	—	12	4	—	8	1	**EASY822-DC-TCX**

Note

① Analog inputs optional. Use of analog inputs will result in a decrease in the same number of available digital inputs.

EASY618_

Digital I/O Expansion Modules

Can be used via easyLink.

Supply Voltage	Digital Inputs	Outputs		Catalog Number
		Relay 10A (UL)	Transistor	
100–240 Vac	12	6	—	**EASY618-AC-RE**
24 Vdc	12	6	—	**EASY618-DC-RE**
24 Vdc	12	—	8	**EASY620-DC-TE**
24 Vdc	6	4	—	**EASY410-DC-RE**
24 Vdc	6	—	4	**EASY410-DC-TE**
24 Vdc	—	2	—	**EASY202-RE**
For distributed connection of a digital input/output expansion at up to 98 ft (30m) distance				**EASY200-EASY**

EASY406_

Analog I/O Expansion Modules

Can be used via easyLink.

Supply Voltage	Inputs		Digital Outputs		Analog Outputs	Catalog Number
	Digital/ Analog	Can Be Used for Digital	Relay 10A (UL)	Transistor		
24 Vdc	1/2	2	—	2	1	**EASY406-DC-ME**
24 Vdc	1/6	2	—	2	2	**EASY411-DC-ME**

EASY209-SE

Ethernet Gateway Module

Description		Catalog Number
Ethernet gateway	Serial interface easyRelay or MFD-…CP8/CP10_ to Ethernet, for connecting to easyOPC server, easySoft or easyCom	**EASY209-SE**

EASY204-DP

Network Interface Modules

Description		Catalog Number
DeviceNet interface module	Addresses available 0 to 63	**EASY222-DN**
PROFIBUS-DP interface module	Device addresses available 1 to 126	**EASY204-DP**
AS-Interface interface module with 4 in and 4 out	Device: 4 inputs, 4 outputs, 4 parameter bits Addresses available 0 to 31	**EASY205-ASI**
CANopen interface module	Addresses available 1 to 127	**EASY221-CO**

3

MFD-80-B

MFD-Titan Display/Operator Unit

Monochrome display 132 x 64 pixels with switchable backlight and removable front frame.

Description	Keypad	Eaton Logo	Catalog Number
MFD display, NEMA 4X indoor rated	—	—	**MFD-80-X**
MFD display, NEMA 4X indoor rated	—	■	**MFD-80**
MFD display/keypad, NEMA 4X in conjunction with MFD-XM-80 protective diaphragm	■	—	**MFD-80-B-X**
MFD display/keypad, NEMA 4X in conjunction with MFD-XM-80 protective diaphragm	■	■	**MFD-80-B**

MFD-CP4

MFD-Titan Text/Graphics Display Modules

Combine with MFD-80-_ to use as remote text/graphics display.

Supply Voltage	Description	Catalog Number
100–240 Vac	AC power supply / communication module (no cable)	**MFD-AC-CP4**
	AC module for easy500/700 relays and cable MFD-CP4-500-CAB5	**MFD-AC-CP4-500**
	AC module for easy800 relays and cable MFD-CP4-800-CAB5	**MFD-AC-CP4-800**
24 Vdc	DC power supply / communication module (no cable)	**MFD-CP4**
	DC module for easy500/700 relays and cable MFD-CP4-500-CAB5	**MFD-CP4-500**
	DC module for easy800 relays and cable MFD-CP4-800-CAB5	**MFD-CP4-800**

MFD-CP

MFD-Titan Controller Module

Attach to MFD-80-_ display/operator unit and add MFD-Titan I/O modules as needed.

Supply Voltage	Description	Catalog Number
100–240 Vac	Program and screen memory	**MFD-AC-CP8-ME**
	Program and screen memory, with easyNet	**MFD-AC-CP8-NT**
24 Vdc	Program and screen memory	**MFD-CP8-ME**
	Program and screen memory, with easyNet	**MFD-CP8-NT**
	Double program and screen memory (as MFD-CP8)	**MFD-CP10-ME**
	Double program and screen memory (as MFD-CP8), with easyNet	**MFD-CP10-NT**

MFD-R16

MFD-Titan I/O Modules

Attach to back of MFD-Titan controller modules.

Supply Voltage	Description	Inputs ① Digital	Inputs ① Analog	Outputs Relay	Outputs Transistor	Outputs Analog	Catalog Number
100–240 Vac	16 I/O	12	—	4	—	—	**MFD-AC-R16**
24 Vdc		12	4	4	—	—	**MFD-R16**
		12	4	—	4	—	**MFD-T16**
24 Vdc	17 I/O	12	4	4	—	1	**MFD-RA17**
		12	4	—	4	1	**MFD-TA17**

MFD-TP_

MFD-Titan I/O Modules with Temperature Detection

For use with MFD-CP8-_ from device version 08, MFD-CP10.

Supply Voltage	Inputs Digital	Inputs Can Be Used For Analog	Inputs Pt100	Outputs Relay 10A (UL)	Outputs Transistor	Outputs Analog	Temperature Ranges	Catalog Number
24 Vdc	6	2	2	—	4	—	–40° to +90°C/0° to +250°C/0° to +400°C	**MFD-TP12-PT-A**
	6	2	2	—	4	—	–200° to +200°C/0° to +850°C	**MFD-TP12-PT-B**
	6	2	—	—	4	—	–40° to +90°C/0° to +250°C	**MFD-TP12-NI-A**
	6	2	2	—	4	1	–40° to +90°C/0° to +250°C/0° to +400°C	**MFD-TAP13-PT-A**
	6	2	2	—	4	1	–200° to +200°C/0° to +850°C	**MFD-TAP13-PT-B**
	6	2	—	—	4	1	–40° to +90°C/0° to +250°C	**MFD-TAP13-NI-A**

Note

① Analog inputs optional.

easy802/806 Programmable Relays with SmartWire-DT

Features

- Combines the functions of an easy800 with direct connection to SmartWire-DT
- Exchange of data as well as power supply for the SmartWire-DT devices and contactors
- Up to 99 SmartWire-DT nodes in total with up to 166 inputs/outputs that can be connected
- Up to eight easy806 controllers can be connected via easyNet
- easy806 controllers include four high-speed inputs, two of which can be outputs
- Serial interface for programming or connection of an MFD remote text display or XV touch panel

Product Selection

easy802/806 Programmable Relays with SmartWire-DT

Control relay for connection of SmartWire-DT and simultaneously for supply of power to the SmartWire-DT devices, such as switchgear and contactors.

EASY802-DC-SWD

easy800 with SmartWire-DT

Supply Voltage	Description	Catalog Number
24 Vdc	Control relay with SmartWire-DT	**EASY802-DC-SWD**

EASY806-DC-SWD

24 Vdc	Control relay with SmartWire-DT, four inputs, two of which can be used as outputs (transistor 24 Vdc, 0.1A), easyNet onboard	**EASY806-DC-SWD**

XC152 PLC

Features

- CoDeSys PLC and Web visualization
- Galileo/CoDeSys remote visualization
- Ethernet port on all models
- Windows® CE 5 operating system
- 32-bit RISC CPU at 400 MHz
- 64 MB internal memory
- SD card slot for external memory
- Run/Stop switch
- Optional: Integrated SmartWire-DT master for 99 nodes
- Optional: RS-232, RS-485, PROFIBUS-DP/MPI, CANopen/easyNet

Catalog Number Selection

XC152 PLCs with and without SmartWire-DT

XC PLC

XC-152 – E6 – 11

Family
XC-152 = Windows CE OS CoDeSys firmware

Features Base Unit Variant	Features Additional COMM Options
D = Ethernet, RS-485 and USB host **E** = SmartWire-DT, Ethernet and USB host	**3** = None **6** = 1-CANopen **8** = 1-PROFIBUS-DP

Mounting
11 = DIN rail or panel mount

Product Selection

XC152 PLC

XC152 PLC

CoDeSys Firmware	Fieldbus Type	RS-232	RS-485	Ethernet	Catalog Number
Y	CANopen	Y	Y	Y	**XC-152-D6-11**
Y	PROFIBUS-DP	Y	Y	Y	**XC-152-D8-11**

XC152 PLC SmartWire-DT

XC152 PLC SmartWire-DT

CoDeSys Firmware	Fieldbus Type	RS-232	RS-485	Ethernet	SmartWire-DT	Catalog Number
Y	None	Y	None	Y	Y	**XC-152-E3-11**
Y	CANopen	None	Y	Y	Y	**XC-152-E6-11**
Y	PROFIBUS-DP	None	Y	Y	Y	**XC-152-E8-11**

Accessories

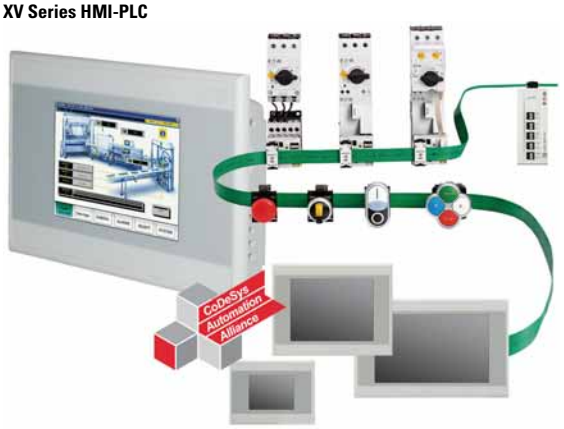
XC PLC Accessories

Description	Catalog Number
PLC programming software, single seat license	**SW-XSOFT-CODESYS-2-S** ①
PLC programming software, multiple seat license	**SW-XSOFT-CODESYS-2-M** ①
SD memory card	**MEMORY-SD-A1-S**

Note

① For details on SW-XSoft-CoDeSys software, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E, Tab 4.

XV Series HMI-PLC



Features

- High resolution resistive touch TFT displays
- Brilliant image display with 65,536 colors
- 3.5 in, 5.7 in or 7 in widescreen displays in robust plastic housings and bezels, or 5.7 in, 8.4 in or 10.4 in displays in high-end aluminum front bezels and metal housings
- Ethernet and RS-485 serial ports on all models
- PROFIBUS-DP or CANopen master on all models larger than 3.5 inches
- Programmable with IEC 61131-3 compliant XSoft-CoDeSys software
- Built-in SmartWire-DT master for 99 nodes
- Easy connection direct to motor control components or I/O modules on the SmartWire-DT flat cable
- Web/remote visualization
- RISC CPU 32-bit 400 MHz
- 64 MB memory
- SD card slot

Catalog Number Selection

XV Series HMI-PLCs with and without SmartWire-DT

XV HMI-PLC

XV – 102 – E6 – 35TQRG – 10

Family
XV = Windows® CE operating system

Housing
102 = Plastic housing
152 = Metal housing

Features Base Unit Variant	Features Additional COMM Options
B = Retentive memory	**6** = 1-CANopen
D = Retentive memory, USB host, RS-485	**8** = 1-PROFIBUS-DP
E = SmartWire-DT, retentive memory, USB host, RS-485	**E** = SmartWire-DT

Display Size	Display Technology	OS Build
35 = 3.5 in	**TQR** = TFT (QVGA) resistive	**C** = XSoft-CoDeSys
57 = 5.7 in	**TVR** = TFT (VGA) resistive	
70 = 7.0 in	**TWR** = TFT (WGA) resistive	
84 = 8.4 in		
10 = 10.4 in		

Bezel
10 = Standard blank front bezel

Product Selection

XV HMI-PLC

XV HMI-PLC

Display Size/Type	Display Resolution	CoDeSys Firmware	Fieldbus Type	RS-485	Ethernet	Catalog Number
Plastic Housing						
3.5 in TFT Resistive	QVGA 320x240	Y	CANopen	Y	Y	**XV-102-B6-35TQRC-10**
		Y	PROFIBUS-DP	Y	Y	**XV-102-B8-35TQRC-10**
5.7 in TFT Resistive	VGA 640x480	Y	CANopen	Y	Y	**XV-102-D6-57TVRC-10**
		Y	PROFIBUS-DP	Y	Y	**XV-102-D8-57TVRC-10**
7.0 in TFT Resistive	WGA 800x480	Y	CANopen	Y	Y	**XV-102-D6-70TWRC-10**
		Y	PROFIBUS-DP	Y	Y	**XV-102-D8-70TWRC-10**
Metal Housing						
5.7 in TFT Resistive	VGA 640x480	Y	CANopen	Y	Y	**XV-152-D6-57TVRC-10**
		Y	PROFIBUS-DP	Y	Y	**XV-152-D8-57TVRC-10**
8.4 in TFT Resistive	VGA 640x480	Y	CANopen	Y	Y	**XV-152-D6-84TVRC-10**
		Y	PROFIBUS-DP	Y	Y	**XV-152-D8-84TVRC-10**
10.4 in TFT Resistive	VGA 640x480	Y	CANopen	Y	Y	**XV-152-D6-10TVRC-10**
		Y	PROFIBUS-DP	Y	Y	**XV-152-D8-10TVRC-10**

XV HMI-PLC with SmartWire-DT

XV HMI-PLC SmartWire-DT

Display Size/Type	Display Resolution	CoDeSys Firmware	Fieldbus Type	RS-485	Ethernet	SmartWire-DT	Catalog Number
Plastic Housing							
3.5 in TFT	QVGA 320x240	Y	None	None	Y	Y	**XV-102-BE-35TQRC-10**
5.7 in TFT	VGA 640x480	Y	CANopen	Y	Y	Y	**XV-102-E6-57TVRC-10**
		Y	PROFIBUS-DP	Y	Y	Y	**XV-102-E8-57TVRC-10**
7.0 in TFT	WGA 800x480	Y	CANopen	Y	Y	Y	**XV-102-E6-70TWRC-10**
		Y	PROFIBUS-DP	Y	Y	Y	**XV-102-E8-70TWRC-10**
Metal Housing							
5.7 in TFT	VGA 640x480	Y	CANopen	Y	Y	Y	**XV-152-E6-57TVRC-10**
		Y	PROFIBUS-DP	Y	Y	Y	**XV-152-E8-57TVRC-10**
8.4 in TFT	VGA 640x480	Y	CANopen	Y	Y	Y	**XV-152-E6-84TVRC-10**
		Y	PROFIBUS-DP	Y	Y	Y	**XV-152-E8-84TVRC-10**
10.4 in TFT	VGA 640x480	Y	CANopen	Y	Y	Y	**XV-152-E6-10TVRC-10**
		Y	PROFIBUS-DP	Y	Y	Y	**XV-152-E8-10TVRC-10**

Accessories

XV HMI-PLC Accessories

Description	Catalog Number
HMI-PLC programming software, single seat license	**SW-XSOFT-CODESYS-2-S** ①
HMI-PLC programming software, multiple seat license	**SW-XSOFT-CODESYS-2-M** ①
SD memory card	**MEMORY-SD-A1-S**
XV-102 parts kit (1 power conductor, 8 mounting brackets, 1 sealing strip, 1 touch pen)	**ACC-TP-57-KG-1**
XV-152 parts kit (1 power conductor, 8 mounting brackets, 1 sealing strip, 1 touch pen)	**ACC-TP-10-12-RES-1**

Note

① For details on SW-XSoft-CoDeSys software, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E, Tab 4.

3

ELC Programmable Logic Controllers

Features

- Modular PLC logic platform with a range of basic to sophisticated CPUs
- Ethernet and DeviceNet master communications
- Distributed I/O for EtherNet/IP, Modbus TCP, PROFIBUS-DP, DeviceNet and Modbus serial networks

Catalog Number Selection

ELC Series Programmable Logic Controllers

Controllers and Expansion Modules

ELC – PA 10 A A D R

Device Types	I/O Count	Analog Inputs	Analog Outputs	Digital Inputs	Digital Outputs
PA = Analog model	**xx** = Total number of I/O	**A** = Analog	**A** = Analog	**A** = AC	**T** = Transistor NPN
PB = Base model		**N** = None	**N** = None	**D** = DC	**R** = Relay
PC = Clock/calendar model				**S** = Switch	**I** = High current relay
PH = High-speed model				**N** = None	**N** = None
PV = Advanced model					**P** = Transistor PNP
AN = Analog expansion module					
EX = Digital expansion module					
PT = Platinum RTD expansion module					
TC = Thermocouple expansion module					

Master Communication Modules

ELC – CO ENETM

Device Type	Module Type
CO = Communication interface model	**DNETM** = DeviceNet master module ①
	ENETM = Ethernet module ①

Distributed I/O Adapter Modules

ELC – CA ENET

Device Type	Module Type
CA = Distributed I/O communication adapter	**ENET** = Modbus TCP/EtherNet/IP adapter
	DNET = DeviceNet adapter
	RS485 = Modbus serial RS-485 adapter
	PBDP = PROFIBUS-DP adapter

Note

① Left side communications module.

Product Selection

Controllers

Description	Inputs	Outputs	Analog	High Speed I/O	Maximum Current Consumption (at 24 Vdc)	Catalog Number
ELC-PB Model and 14 I/O built-in	(8) 24 Vdc	(6) Relay, 1.5A	—	(2) 20 kHz inputs	150 mA	**ELC-PB14NNDR**
	(8) 24 Vdc	(6) Transistor, 100 mA	—	(2) 20 kHz inputs	150 mA	**ELC-PB14NNDT**
ELC-PC Model and 12 I/O built-in	(8) 24 Vdc	(4) Relay, 1.5A	—	(1) 30 kHz inputs	150 mA	**ELC-PC12NNDR**
	(8) 24 Vdc	(4) Transistor, 100 mA	—	(1) 30 kHz inputs	150 mA	**ELC-PC12NNDT**
	(8) 110 Vac	(4) Relay, 1.5A	—	(1) 30 kHz inputs	150 mA	**ELC-PC12NNAR**
ELC-PH Model and 12 I/O built-in	(8) 24 Vdc	(4) Transistor, 100 mA	—	(1) 100 kHz inputs	170 mA	**ELC-PH12NNDT**
ELC-PA Model and 10 I/O built-in	(4) 24 Vdc	(2) Relay, 1.5A	(2) In and (2) Out	(1) 30 kHz inputs	210 mA	**ELC-PA10AADR**
	(4) 24 Vdc	(2) Relay, 1.5A	(2) In and (2) Out	(1) 30 kHz inputs	210 mA	**ELC-PA10AADT**
ELC-PV Model and 28 I/O built-in	(16) 24 Vdc	(12) Relay, 1.5A	—	(2) 200 kHz inputs	220 mA	**ELC-PV28NNDR**
	(16) 24 Vdc	(12) Transistor, 100 mA	—	(2) 200 kHz inputs	220 mA	**ELC-PV28NNDT**

Distributed I/O Adapter Modules

Description	Catalog Number
Modbus TCP/EtherNet/IP I/O adapter	**ELC-CAENET**
Modbus serial RS-485 I/O adapter	**ELC-CARS485**
DeviceNet I/O adapter	**ELC-CADNET**
PROFIBUS-DP I/O adapter	**ELC-CAPBDP**

Network Communication Master Modules (Left Side Bus)

Description	Catalog Number
Ethernet Modbus TCP (master/node)	**ELC-COENETM**
DeviceNet scanner (master/node)	**ELC-CODNETM**

Digital Expansion Modules (Right Side Bus)

Description	Inputs	Outputs	Maximum Current Consumption (at 24 Vdc)	Catalog Number
8 DC input module	(8) 24 Vdc	—	50 mA	**ELC-EX08NNDN**
16 DC input module	(16) 24 Vdc	—	100 mA	**ELC-EX16NNDN**
8 DC input/output module	(4) 24 Vdc	(4) Transistor (sink), 0.3A	70 mA	**ELC-EX08NNDT**
16 DC input/output module	(8) 24 Vdc	(8) Transistor (sink), 0.3A	90 mA	**ELC-EX16NNDT**
16 DC input/output module	(8) 24 Vdc	(8) Transistor (source), 0.3A	100 mA	**ELC-EX16NNDP**
8 DC input/relay output module	(4) 24 Vdc	(4) Relay, 1.5A	70 mA	**ELC-EX08NNDR**
16 DC input/relay output module	(8) 24 Vdc	(8) Relay, 1.5A	90 mA	**ELC-EX16NNDR**
8 AC input module	(8) 110 Vac	—	50 mA	**ELC-EX08NNAN**
8 Transistor output module	—	(8) Transistor (sink), 0.3A	70 mA	**ELC-EX08NNNT**
8 Relay output module	—	(8) Relay, 1.5A	70 mA	**ELC-EX08NNNR**
6 High current relay output module	—	(6) Relay, 6A	70 mA	**ELC-EX06NNNI**
8 Toggle switch input module	(8) Switches	—	20 mA	**ELC-EX08NNSN**

Analog and Temperature Expansion Modules (Right Side Bus)

Description	Analog Inputs	Analog Outputs	Maximum Current Consumption (at 24 Vdc)	Catalog Number
4 Analog input module	4	—	90 mA	**ELC-AN04ANNN**
2 Analog output module	—	2	125 mA	**ELC-AN02NANN**
4 Analog output module	—	4	170 mA	**ELC-AN04NANN**
6 Analog input/output module	4	2	90 mA	**ELC-AN06AANN**
4 Thermocouple input module (J, K, R, S and T)	4	—	90 mA	**ELC-TC04ANNN**
4 Platinum RTD input module (PT100)	4	—	90 mA	**ELC-PT04ANNN**

Specialty Expansion Modules (Right Side Bus)

Description	Catalog Number
Single axis motion control module (Add up to 8 modules per controller)	**ELC-MC01**
RS-485 Easy Connect adapter (DB9, RJ12, 2-pin connections to RS-485)	**ELC-485APTR**

Accessories and Software

Description	Catalog Number
ELC programming software	**ELCSOFT**
24 Vdc, 1A power supply	**ELC-PS01**
24 Vdc, 2A power supply	**ELC-PS02**
Cable to connect a PC or a GP unit to ELC, 1 meter (DB9 pin female to 8-pin DIN)	**ELC-CBPCELC1**
Cable to connect a PC or a GP unit to ELC, 3 meters (DB9 pin female to 8-pin DIN)	**ELC-CBPCELC3**
Cable to connect a PC to a GP unit, 3 meters (DB9 pin female to DB9 pin female)	**ELC-CBPCGP3**
Program transfer module for ELC controllers	**ELC-ACPGMXFR**
Plate mount for specialty modules, qty. 10	**ELC-ACCOVER**

Product Overview

Preset Counters Selection Guide

Description	E5-148-C1400	E5-648-C Series	Eclipse Series
	Page V9-T3-50	**Page V9-T3-50**	**Page V9-T3-51**
Display	Two-line LCD	Two-line LCD	LED
Power supply	Replaceable lithium batteries	10–30 Vdc or 90–260 Vac	9–30 Vdc or 85–265 Vac
Number of digits	6	6	6
Panel cut-out size	45 x 45 mm (1/16 DIN)	45 x 45 mm (1/16 DIN)	92 x 45 mm (1/8 DIN)
Scaling capability	—	Yes	Yes
Number of presets	1	2 or 4	2
Max. counting speed	25 Hz	10 kHz	Up to 8,250 Hz
Front panel protection	IP65	IP65	Type 4X
Other features/functions	—	Timer/rate indicator	Analog retransmission/RS-485 communications
Relay rating(s)	2A	3A	5A

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

1/16 DIN LCD Preset Counter

Features

Battery powered

- Two-line LC displays count, preset and level of the output
- Replacement for electromechanical preset counters
- No power supply necessary (battery operated)
- Count and reset input electrically separated from counter through optocoupler input range 12–250 Vac/Vdc

AC/DC powered

- Two-line LCD with optional two-color display
- Programmable as impulse counter, frequency meter or time meter with sign and zero blanking
- Batch mode
- Add/subtract/ratio functions

Catalog Number Selection

1/16 DIN LCD Preset Counter

LCD Preset Counter

E5 1 48 C 2 400

Type	Counter Type	Front Dimension	Display	Presets	Power
E5 = E5 Series	**1** = Pulse counter **6** = Multifunction counter with rate/ratio	**48** = 48 x 48 mm	**C** = LCD	**2** = 2 presets **4** = 4 presets	**421** = AC power with backlit LCD display **422** = DC power with backlit LCD display **461** = AC power with two-color LCD display

Product Selection

1/16 DIN LCD

Description	Catalog Number
Battery Powered 1 Preset LCD	
Battery power 1.89 x 1.89 in (48 x 48 mm)	**E5-148-C1400**
AC/DC Powered 2 Preset LCD	
90–260 Vac power 1.89 x 1.89 in (48 x 48 mm)	**E5-648-C2421**
10–30 Vdc power 1.89 x 1.89 in (48 x 48 mm)	**E5-648-C2422**
AC Powered 4 Preset Two-Color LCD	
90–260 Vac power 1.89 x 1.89 in (48 x 48 mm)	**E5-648-C4461**

1/18 DIN Eclipse Series Preset Counter

Features

- 1/8 DIN cutout
- Type 4X front panel protection
- Seven-segment LED display

Catalog Number Selection

1/18 DIN Eclipse Series Preset Counter

Eclipse Series Preset Counter

577 00 48 1

Type	Power	Function	Outputs
577 = Eclipse Series	**00** = DC power **01** = AC power	**48** = Counter	**1** = Dual relay out **2** = Analog output (4–20 mA + 0–10V) **3** = Dual relay + analog output **4** = RS-485 communications **5** = Dual relay + RS-485 communications **6** = Analog output + RS-485 communications **7** = Dual relay, RS-485 communications + analog output

Product Selection

LED Count Control, 6-Digit

Description	Catalog Number
Relay out, 9–30 Vdc power	**57700481**
Relay out, 85–265 Vac power	**57701481**
Relay and analog out, 9–30 Vdc power	**57700483**
Relay and analog out, 85–265 Vac power	**57701483**
Relay and RS-485 out, 9–30 Vdc power	**57700485**
Relay and RS-485 out, 85–265 Vac power	**57701485**
Relay, analog and RS-485 out, 9–30 Vdc power	**57700487**
Relay, analog and RS-485 out, 85–265 Vac power	**57701487**

Product Overview

Ratemeters Selection Guide

Description	Courier Series	Eclipse Series
	Page V9-T3-53	**Page V9-T3-54**
Display	LCD	LED
Power supply	Replaceable lithium battery	9–30 Vdc or 85–265 Vac
Number of digits	5	6
Panel cut-out size	68 x 33 mm	92 x 45 mm (1/8 DIN)
Scaling capability	Yes	Yes
Number of presets	—	2 (with optional relay out model)
Update time	700 ms	500 ms
Front panel protection	Type 4X	Type 4X
Other features/functions	Optional backlight, optional extended temperature range	Analog retransmission/RS-485 communications
Relay rating(s)	—	5A

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Courier Series Battery Powered Ratemeter

Features

- 1/Tau ratemeter
- Scaling capabilities
- Type 4X protection
- Internal battery: 3V, lithium

Catalog Number Selection

Courier Series Battery Powered Ratemeter

Courier Series

533 0 0 404

Type	Power	Counter	Function
533 = Courier Series	**0** = Battery powered	**0** = No option **1** = Extend temperature range **2** = Backlight option (24 Vdc required)	**404** = Ratemeter

Product Selection

1/Tau LCD Ratemeter

Description	Catalog Number
Battery powered	**53300404**

Eclipse Series 1/8 DIN LED Ratemeter

Features

- 1/8 DIN cutout
- Type 4X front panel protection
- Front panel programming

Catalog Number Selection

Eclipse Series 1/8 DIN LED Ratemeter

Eclipse Series

577 00 47 1

Type	Power	Function	Outputs
577 = Eclipse Series	**00** = DC power **01** = AC power	**47** = Ratemeter	**1** = Dual relay out **2** = Analog output (4–20 mA + 0–10V) **3** = Dual relay + analog output **4** = RS-485 communications **5** = Dual relay + RS-485 communications **6** = Analog output + RS-485 communications **7** = Dual relay, RS-485 communications + analog output

Product Selection

Eclipse Series 5-Digit LED Ratemeter

Description	Catalog Number
9–30 Vdc	**57700470**
9–30 Vdc, alarms	**57700471**
9–30 Vdc, analog out	**57700472**
9–30 Vdc, alarms, analog out	**57700473**
9–30 Vdc, RS-485	**57700474**
9–30 Vdc, alarms, RS-485	**57700475**
9–30 Vdc, analog out, RS-485	**57700476**
9–30 Vdc, alarms, analog out, RS-485	**57700477**
85–265 Vac	**57701470**
85–265 Vac, alarms	**57701471**
85–265 Vac, analog out	**57701472**
85–265 Vac, alarms, analog out	**57701473**
85–265 Vac, RS-485	**57701474**
85–265 Vac, alarms, RS-485	**57701475**
85–265 Vac, analog out, RS-485	**57701476**
85–265 Vac, alarms, analog out, RS-485	**57701477**

Product Overview

Hour Meters Selection Guide

Description	T48 Series	6-T-3H Series	E5-224 Series	E42 Series
	Page V9-T3-56	**Page V9-T3-56**	**Page V9-T3-57**	**Page V9-T3-57**
Panel cut-out size	45 x 45 mm (1/16 DIN)	50.8 mm (2 in) round	22 x 45 mm (1/32 DIN)	52.3 mm (2.06 in) round OR 24 x 36.8 mm
Display type	Mechanical	Mechanical	LCD	LCD
Number of digits	7 for AC versions, 8 for DC versions	6	8	6
Power supply	10–30 Vdc or 100–130 Vac	115 Vac	Internal battery	12–60 Vdc or 48–230 Vac
Timing method	Synchronous motor	Quartz	Solid-state	Solid-state
Front panel protection	IP65	Type 4X	IP65	No protection ratings
Resolution	0.1 hour	0.1 hour	0.1 second	0.1 hour

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Electromechanical Hour Meters

Features

1/16 DIN

- High shock-resistance
- Without reset
- Data retention if power is lost

71.1 mm round

- 6-digit hour meter for round panel cut-out
- Low cost
- Waterproof
- Type 4X protection

Catalog Number Selection

Electromechanical Hour Meters

Hour Meters

6 T – 3H 508R PM – 406

Number of Digits	Function	Option	Size	Mounting	Voltage
6 = 6 digits **7** = 7 digits **8** = 8 digits	**T** = Time meter	**65** = IP65 seal **3H** = 3-hole mount	**508R** = 50.8 mm round **4848** = 48 x 48 mm square	**PM** = Panel mount	**402** = DC voltage **406** = AC voltage

Product Selection

Electromechanical Hour Meters

Description	Catalog Number
1/16 DIN	
10–30 Vdc, 1.89 x 1.89 in (48 x 48 mm)	**8-T-65-4848PM-402**
100–130 Vac, 1.89 x 1.89 in (48 x 48 mm)	**7-T-65-4848PM-406**
71.1 mm Round	
115 Vac, 2.80 in (71.1 mm) round	**6-T-3H-508RPM-406**
10–80 Vdc, 2.80 in (71.1 mm) round	**6-T-3H-508RPM-402**

Accessories

DIN Rail Adapter

DIN Rail Adapter

Description	Catalog Number
DIN rail adapter for DIN electromechanical hour meter	**T4848DINADAPT**

Electronic LCD Hour Meters

Features

Battery powered

- Low price and high efficiency
- Large 8-digit LCD display, height of the figures 0.31 in (8 mm)
- Different time ranges from 0.1 second to 100,000 hours
- Lifetime of the battery is approximately eight years

AC/DC powered

- Solid-state hour meters
- Record and display up to 99,999.9 hours, rollover and continue timing
- EEPROM memory can retain data for 25+ years
- Time accumulation indicated by flashing hourglass icon

Product Selection

Electronic LCD Hour Meters

LCD Hour Meters

Description	Catalog Number
Battery Powered 1/32 DIN 8-Digit LCD	
Hours/minutes, 0.94 x 1.89 in (24 x 48 mm)	**E5-224-C0440**
Hours/minutes, 10–260V input, 0.94 x 1.89 in (24 x 48 mm)	**E5-224-C0448**
Minutes/seconds, 0.94 x 1.89 in (24 x 48 mm)	**E5-224-C0450**
Minutes/seconds, 10–260V input 0.94 x 1.89 in (24 x 48 mm)	**E5-224-C0458**
AC/DC Powered Round LCD	
Elapsed hour meter, 48–150 Vdc/100–230 Vac	**E42DIR48230**
Elapsed hour meter w/reset, 48–150 Vdc/100–230 Vac	**E42DIR48230R**
Elapsed hour meter, 12–48 Vdc/20–60 Vac	**E42DIR1260**
AC/DC Powered Compact Rectangular LCD	
Elapsed hour meter, 48–150 Vdc/100–230 Vac	**E42DI2448230**
Elapsed hour meter, w/reset, 48–150 Vdc/100–230 Vac	**E42DI2448230R**
Elapsed hour meter, 12–48 Vdc/20–60 Vac	**E42DI241260**

Product Overview

Totalizers Selection Guide

Description	Electromechanical Micro	SE Series	E5-024-C Series	E5-x24-E Series
	Page V9-T3-59	**Page V9-T3-59**	**Page V9-T3-60**	**Page V9-T3-60**
Display type	Mechanical	Mechanical	LCD	LED
Number of digits	7	6	8	6
Power supply	12 Vdc	12 or 24 Vdc, 120 or 240 Vac	Internal battery	10–30 Vdc
Mounting configuration(s)	Front panel (13 x 30 mm cut-out)	Base mount, bottom mount, top mount, or front panel mount	Front panel 22 x 45 mm (1/32 DIN)	Front panel 22 x 45 mm (1/32 DIN)
Maximum counting speed	25 Hz	10 Hz	12 kHz	20 kHz
Count reset method(s)	—	—	Front panel or electronic, can be locked out	Front panel or electronic, can be locked out
Front panel protection	IP65	—	IP65	IP65

Totalizers Selection Guide, continued

Description	Courier Series	E5-496 Series	Eclipse Series
	Page V9-T3-61	**Page V9-T3-62**	**Page V9-T3-62**
Display type	LCD	LED	LED
Number of digits	8	6	6
Power supply	Replaceable battery	10–30 Vdc or 90–260 Vac	9–30 Vdc or 85–265 Vac
Mounting configuration(s)	Front panel 68 x 33 mm	Front panel 92 x 45 mm (1/8 DIN)	Front panel 92 x 45 mm (1/8 DIN)
Maximum counting speed	10 kHz	60 kHz	8.2 kHz
Count reset method(s)	Front panel or electronic, can be locked out	Front panel or electronic, can be locked out	Front panel or electronic, can be locked out
Front panel protection	Type 4X	IP65	Type 4X

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Electromechanical Totalizers

Features

Micro display

- Low power consumption; suitable for battery consumption
- Small dimensions
- Long service life

SE Series

- Low-cost electromechanical counter
- Multiple voltage ranges for almost any application
- Compact with various mounting options

Catalog Number Selection

Electromechanical Totalizers

Totalizers

6 – Y – 41610 – 401 – SE

Number of Digits
6 = 6 digits
7 = 7 digits

Function
Y = Compact electromechanical totalizer

Mounting Configuration

41610 = Bottom mount	**41622** = Special base mount
41611 = Base mount	**41623** = Special top mount
41612 = Top mount	**42613** = Snap-in mount
41613 = Panel mount	**3013PM** = 30 x 13 mm panel mount

Voltage
401 = 12 Vdc
402 = 24 Vdc
406 = 120 Vac
407 = 240 Vac

Contact Configuration
SE = SE Series
Blank = Micro display counter

Product Selection

Micro Display Counter

Description	Catalog Number
Micro display counter—12 Vdc	**7-Y-3013PM-401**

SE Series Electromechanical Totalizers

Description	Catalog Number	Order Number
6-Digit Counter		
Bottom mount sub-miniature 12 Vdc	**6-Y-41610-401-SE**	**41610401**
Bottom mount sub-miniature 24 Vdc	**6-Y-41610-402-SE**	**41610402**
Bottom mount sub-miniature 120 Vac	**6-Y-41610-406-SE**	**41610406**
Bottom mount sub-miniature 240 Vac	**6-Y-41610-407-SE**	**41610407**
Base mount sub-miniature 12 Vdc	**6-Y-41611-401-SE**	**41611401**
Base mount sub-miniature 24 Vdc	**6-Y-41611-402-SE**	**41611402**
Base mount sub-miniature 120 Vac	**6-Y-41611-406-SE**	**41611406**
Base mount sub-miniature 240 Vac	**6-Y-41611-407-SE**	**41611407**
Top mount sub-miniature 12 Vdc	**6-Y-41612-401-SE**	**41612401**
Top mount sub-miniature 24 Vdc	**6-Y-41612-402-SE**	**41612402**
Top mount sub-miniature 120 Vac	**6-Y-41612-406-SE**	**41612406**
Top mount sub-miniature 240 Vac	**6-Y-41612-407-SE**	**41612407**
Panel mount sub-miniature 12 Vdc	**6-Y-41613-401-SE**	**41613401**
Panel mount sub-miniature 24 Vdc	**6-Y-41613-402-SE**	**41613402**

Description	Catalog Number	Order Number
6-Digit Counter, continued		
Panel mount sub-miniature 120 Vac	**6-Y-41613-406-SE**	**41613406**
Panel mount sub-miniature 240 Vac	**6-Y-41613-407-SE**	**41613407**
Special base mount sub-miniature 12 Vdc	**6-Y-41622-401-SE**	**41622401**
Special base mount sub-miniature 24 Vdc	**6-Y-41622-402-SE**	**41622402**
Special base mount sub-miniature 120 Vac	**6-Y-41622-406-SE**	**41622406**
Special base mount sub-miniature 240 Vac	**6-Y-41622-407-SE**	**41622407**
Special top mount sub-miniature 12 Vdc	**6-Y-41623-401-SE**	**41623401**
Special top mount sub-miniature 24 Vdc	**6-Y-41623-402-SE**	**41623402**
Special top mount sub-miniature 120 Vac	**6-Y-41623-406-SE**	**41623406**
Special top mount sub-miniature 240 Vac	**6-Y-41623-407-SE**	**41623407**
Snap-in mount sub-miniature 12 Vdc	**6-Y-42613-401-SE**	**42613401**
Snap-in mount sub-miniature 24 Vdc	**6-Y-42613-402-SE**	**42613402**
Snap-in mount sub-miniature 120 Vac	**6-Y-42613-406-SE**	**42613406**
Snap-in mount sub-miniature 240 Vac	**6-Y-42613-407-SE**	**42613407**

Electronic 1/32 DIN Totalizers

Features

Battery powered LCD

- Low price and high efficiency
- Large 8-digit LCD display, height of the figures 0.31 in (8 mm)
- Lifetime of the battery is approximately 8 years

DC Powered LED

- Display counter adding and subtracting
- Position display
- Frequency counter/ratemeter
- Timer
- Supply voltage: 10–30 Vdc with reverse polarity protection
- Polarity of inputs: programmable, NPN or PNP

Catalog Number Selection

Electronic 1/32 DIN Totalizers

Electronic Totalizers

E5 – 4 – 24 – E – 0 40 2

Type	Function	Size	Display	Presets	Option	Options
E5 = E5 Series	**0** = Totalizer **4** = Multi-function totalizer/ timer/ratemeter **5** = Double function totalizer/ timer/ratemeter	**24** = 24 x 48 mm	**C** = LCD **E** = LED	**0** = 0	**40** = None **41** = Bi-directional **43** = Quadrature	**40** = Battery **41** = Battery with 10–260V input signal **43** = 10–30 Vdc

Product Selection

1/32 DIN LCD Totalizers

Description	Catalog Number
Battery Powered 8-Digit LCD Totalizer	
0.94 x 1.89 in (24 x 48 mm) LCD totalizer	**E5-024-C0400**
10–260V input 0.94 x 1.89 in (24 x 48 mm) LCD totalizer	**E5-024-C0408**
Count up/down 0.94 x 1.89 in (24 x 48 mm) LCD totalizer	**E5-024-C0410**
DC Powered 6-Digit LED Totalizer	
LED single channel totalizer, 10–30 Vdc power 0.94 x 1.89 in (24 x 48 mm)	**E5-024-E0402**
LED multifunction totalizer/timer/ratemeter, 10–30 Vdc power 0.94 x 1.89 in (24 x 48 mm)	**E5-424-E0402**
LED double-function totalizer/timer/ratemeter, 10–30 Vdc power 0.94 x 1.89 in (24 x 48 mm)	**E5-524-E0402**
LED totalizer with quadrature, 10–30 Vdc power 0.94 x 1.89 in (24 x 48 mm)	**E5-024-E0432**

Electronic Courier Series Battery Powered LCD Totalizers

Features

- 8-digit totalizer
- 1/Tau ratemeter is an additional capability on the 53300405 only
- Scaling capabilities
- Remote reset terminal
- Type 4X protection
- Internal battery: 3V, lithium, replaceable battery

Catalog Number Selection

Electronic Courier Series Battery Powered LCD Totalizers

Courier Series

533 00 400

Type	Option	Function
533 = Courier Series	**00** = None **01** = Ext. temperature range **02** = Backlight	**400** = Totalizer **401** = Add/subtract (10 kHz, PNP input) **402** = Add/subtract (20 kHz, NPN/contact input) **403** = Quadrature **405** = Totalizer/ratemeter

Product Selection

Courier Series, 8-Digit LCD Totalizers

Description	Catalog Number
Totalizer, battery	**53300400**
Add/subtract (10k Hz, PNP input) totalizer, battery	**53300401**
Add/subtract (20 Hz, NPN/contact input) totalizer, battery	**53300402**
Quadrature (10k Hz, PNP input) totalizer, battery	**53300403**
Totalizer/ratemeter, battery	**53300405**

Electronic 1/8 DIN LED Totalizers

Features

LED Multifunction

- Display counter adding and subtracting
- Position display
- Frequency counter/ratemeter
- Display: 6-digit red, 7-segment LED display; 0.55 in (14 mm) high
- Polarity of inputs: programmable, NPN or PNP for all inputs

Eclipse Series

- 1/8 DIN cutout
- Type 4X front panel protection
- Front panel programming

Product Selection

Electronic 1/8 DIN LED Totalizers

1/8 DIN LED Totalizers

Description	Catalog Number
LED Multifunction Counter/Timer/Ratemeter	
90–260 Vac power 3.78 x 1.89 in (96 x 48 mm)	**E5-496-E0401**
10–30 Vdc power 3.78 x 1.89 in (96 x 48 mm)	**E5-496-E0402**
Eclipse Series LED Totalizer	
9–30 Vdc power	**57700480**
85–265 Vac power	**57701480**
Analog out, 9–30 Vdc power	**57700482**
Analog out, 85–265 Vac power	**57701482**
RS-485 out, 9–30 Vdc power	**57700484**
RS-485 out, 85–265 Vac power	**57701484**
RS-485 out and analog out, 9–30 Vdc power	**57700486**
RS-485 out and analog out, 85–265 Vac power	**57701486**

Product Overview

Encoders Selection Guide

Description	Cube	Right-Angled
	Page V9-T3-64	**Page V9-T3-64**
Power supply	5–28 Vdc	5–28 Vdc
Output signal	NPN transistor	NPN transistor
Pulses per revolution	Up to 600	Up to 1,800
Maximum shaft speed	6000 RPM	8000 RPM
Mounting configuration(s)	Face or base mounted	Flange mounted
Shaft size	3/8 in	3/8 in
Maximum axial loading	10 lbs	80 lbs
Quadrature output available	Yes	Yes

For our complete product offering, see Volume 7—Logic Control, Operator Interface and Connectivity Solutions, CA08100008E and PG05400001E.

Shaft Encoders

Features

Cube style

- 5–28 Vdc input power
- Single channel and quadrature models
- 3/8 in (9.5 mm) double-ended shaft

Right-angled

- 5–28 Vdc input power
- Quadrature output, two square waves
- Flange mounting
- 3/8 in (9.5 mm) shaft diameter

Product Selection

Shaft Encoders

Cube Shaft Encoders

Description	Catalog Number
Single Channel	
60 pulses per revolution	**38150060**
100 pulses per revolution	**38150100**
120 pulses per revolution	**38150120**
600 pulses per revolution	**38150600**
Quadrature	
60 pulses per revolution	**38151060**
100 pulses per revolution	**38151100**
120 pulses per revolution	**38151120**
600 pulses per revolution	**38151600**

Right-Angled Shaft Encoders, Size 20

Description	Catalog Number
100 pulses per revolution	**38159100**
120 pulses per revolution	**38159120**
600 pulses per revolution	**38159600**
1000 pulses per revolution	**381591000**
1800 pulses per revolution	**381591800**