

## Relays



## easy Programmable Relay



## XC152 PLCs



## XV HMI-PLCs



## Preset Counters



## Hour Meters



## Encoders



## 3.1 Relays

Product Overview .....	V9-T3-2
Terminal Block Relays .....	V9-T3-8
General Purpose Plug-In Relays .....	V9-T3-9
General Purpose Type AA Relays .....	V9-T3-23
XTRE Control Relays .....	V9-T3-24
Solid-State Relays .....	V9-T3-26
TR Series Timing Relays .....	V9-T3-29

## 3.2 Programmable Controllers

Product Overview .....	V9-T3-33
Fusion Integrated Machine Controller .....	V9-T3-36
easy Programmable Relays .....	V9-T3-37
easy802/806 Programmable Relays with SmartWire-DT .....	V9-T3-41
XC152 PLCs with and without SmartWire-DT .....	V9-T3-42
XV Series HMI-PLCs with and without SmartWire-DT .....	V9-T3-44
ELC Series Programmable Logic Controllers .....	V9-T3-46

## 3.3 Preset Counters

Product Overview .....	V9-T3-49
1/16 DIN LCD Preset Counter .....	V9-T3-50
1/8 DIN Eclipse Series Preset Counter .....	V9-T3-51

## 3.4 Ratemeters

Product Overview .....	V9-T3-52
Courier Series Battery Powered Ratemeter .....	V9-T3-53
Eclipse Series 1/8 DIN LED Ratemeter .....	V9-T3-54

## 3.5 Hour Meters

Product Overview .....	V9-T3-55
Electromechanical Hour Meters .....	V9-T3-56
Electronic LCD Hour Meters .....	V9-T3-57

## 3.6 Totalizers

Product Overview .....	V9-T3-58
Electromechanical Totalizers .....	V9-T3-59
Electronic 1/32 DIN Totalizers .....	V9-T3-60
Electronic Courier Series Battery Powered LCD Totalizers .....	V9-T3-61
Electronic 1/8 DIN LED Totalizers .....	V9-T3-62

## 3.7 Encoders

Product Overview .....	V9-T3-63
Shaft Encoders .....	V9-T3-64

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

#### Product Overview

#### Relays Selection Guide



3

Description	XR Series Terminal Block Relays			D1 Series	D2 Series		
	Page V9-T3-8			Page V9-T3-9	Page V9-T3-11		
Approvals							
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		
<b>Contact Data</b>							
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		
<b>Coil Data</b>							
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		
<b>General Data</b>							
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						
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	
<b>Contact Data</b>						
Configuration		DPDT	3PDT	SPDT	DPDT	3PDT
Maximum allowable load	16A	16A	16A	10A at 250 Vac	5A at 240 Vac	16A
Material	Silver alloy		AgCdO		Silver alloy	
Dielectric strength between poles	1500V		5000V		1500V	
<b>Coil Data</b>						
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 (D3PR and DPF)		0.9 VA		3 VA	
Watts (Vdc)	2 VA 1.64 Watts (D3PR5 latching)		0.5 Watts		1.4 Watts	
<b>General Data</b>						
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



3

Description	D7 Series				D8 Series		D9 Series	
	Page V9-T3-18				Page V9-T3-20		Page V9-T3-22	
Approvals								
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	
<b>Contact Data</b>								
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	
<b>Coil Data</b>								
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	
<b>General Data</b>								
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 Page V9-T3-23	XTRE Series Page V9-T3-24	D93 Series 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
<b>Contact Data</b>			
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
<b>Coil Data</b>			
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
<b>General Data</b>			
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			
Features	<p>All solid-state circuitry has no moving parts to wear</p> <p>Integral heat sink eliminates the need for added accessories and installation</p> <p>Flexible mounting allows DIN rail or panel mounting without additional hardware or tools</p> <p>Isolated input and output terminals protect the system from electrical noise</p> <p>Internal snubber circuitry protects the SSR from transients</p>	<p>All solid-state circuitry has no moving parts to wear</p> <p>Integral heat sink eliminates the need for added accessories and installation</p> <p>Flexible mounting allows DIN rail or panel mounting without additional hardware or tools</p> <p>Isolated input and output terminals protect the system from electrical noise</p> <p>Internal snubber circuitry protects the SSR from transients</p>	<p>Multiple user-selectable timing functions and timing ranges in a single unit reduce product variations and stock keeping units (SKUs)</p> <p>Universal input voltages from 12 or 24–240 Vac or Vdc eliminate the need to order and stock separate coil voltages</p> <p>Compact, DIN rail mountable case reduces panel size</p> <p>Advanced LED indication makes troubleshooting easy</p> <p>Staggered terminal locations allow access to lower-level terminals after wiring</p> <p>SPDT or DPDT contacts with 8A ratings</p>
<b>Contact Data</b>			
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	—
<b>Coil Data</b>			
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
<b>General Data</b>			
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 Page V9-T3-30	TMR6 Series Page V9-T3-31	TMRP Series Page V9-T3-32
Approvals			
Features	<p>Various configurations available with fixed or adjustable time delays</p> <p>Single operating voltage for simple set-up</p> <p>Plugs in standard 8- or 11-pin octal sockets</p>	<p>Provides OFF delay function without requiring input voltage during OFF time delay</p> <p>Duplicates operation of pneumatic OFF delay timers</p> <p>Each unit has eight timing ranges built in, covering 0.05 seconds to 30 minutes</p> <p>Selecting a range is easy using a rotary switch (no math is required or DIP switches to set)</p> <p>Uses industry-standard 8-pin octal socket</p> <p>10A DPDT output contacts</p>	<p>Multiple user-selectable timing functions and timing ranges in a single unit reduce product variations and stock keeping units (SKUs)</p> <p>Universal input voltages from 12–240 Vac/Vdc eliminate the need to order and stock separate coil voltages</p> <p>Timing ranges up to 9990 hours</p> <p>Dual LED indication makes troubleshooting easy</p> <p>Flexible design for backpanel, through-panel (45 mm x 45 mm cutout), or DIN rail mounting</p> <p>SPDT or DPDT contacts with 12A ratings</p> <p>Plastic dust cover keeps out contaminants and eliminates accidental set point changes</p> <p>Use with standard Eaton D3 sockets</p>

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.

# 3.1

## Logic Devices

### Relays

3

#### Terminal Block Relays



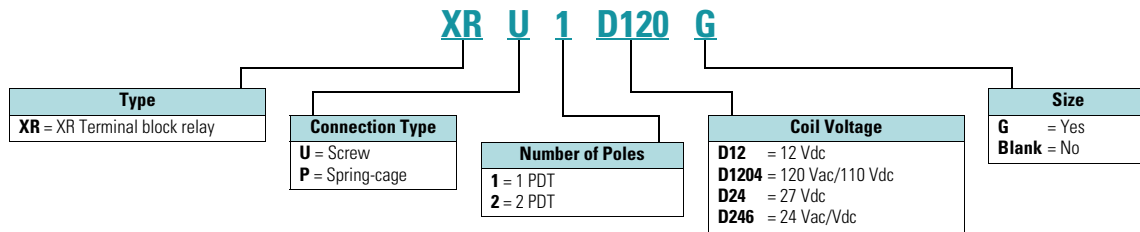
#### Features

- 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



### Product Selection

#### Standard Terminal Block Relays

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



General Purpose Plug-In Relays—D1 Series



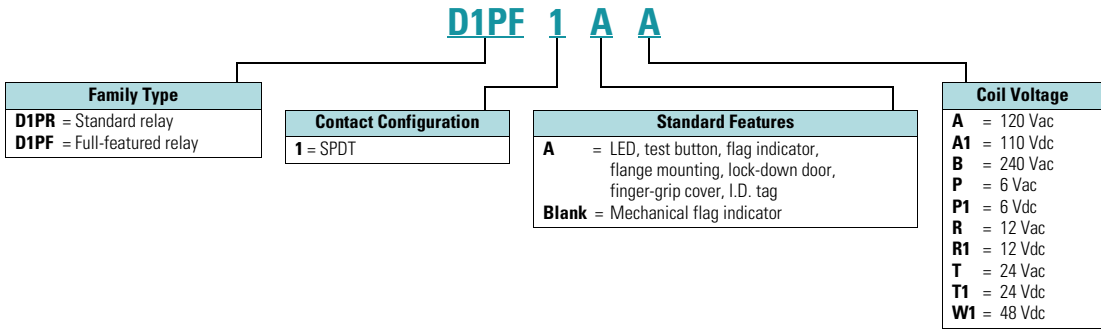
Features

- 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



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
<b>Full Featured</b>			
6 Vac	SPDT	12.2	<b>D1PF1AP</b>
6 Vdc	SPDT	47	<b>D1PF1AP1</b>
12 Vac	SPDT	46	<b>D1PF1AR</b>
12 Vdc	SPDT	188	<b>D1PF1AR1</b>
24 Vac 50/60 Hz	SPDT	180	<b>D1PF1AT</b>
24 Vdc	SPDT	750	<b>D1PF1AT1</b>
48 Vac	SPDT	720	<b>D1PF1AW</b>
48 Vdc	SPDT	2,600	<b>D1PF1AW1</b>
110 Vdc	SPDT	13,800	<b>D1PF1AA1</b>
120 Vac 50/60 Hz	SPDT	4,430	<b>D1PF1AA</b>
240 Vac 50/60 Hz	SPDT	15,720	<b>D1PF1AB</b>

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

## Accessories

### D1PR/D1PF Socket and Accessories

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

General Purpose Plug-In Relays—D2 Series



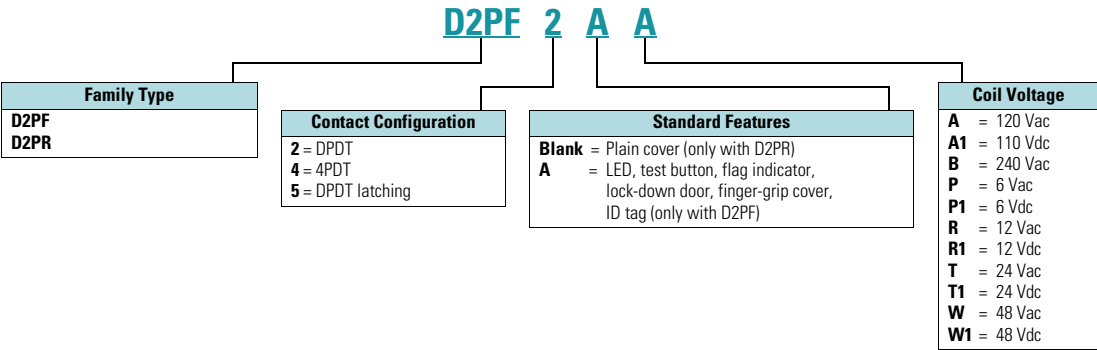
Features

- 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



Product Selection

D2PF/D2PR Relay/Socket Quick Reference

Relay Type	Socket	Clip
D2PR2	D2PAL	PWC-D24
D2PF2		PQC-1782
	D2PA6	PQC-1342
D2PR4	D2PAP	PWC-D24
D2PF4		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
<b>Full Featured Style</b>			
6 Vac	DPDT	9.6	<b>D2PF2AP</b>
6 Vdc	DPDT	40	<b>D2PF2AP1</b>
12 Vac	DPDT	46	<b>D2PF2AR</b>
12 Vdc	DPDT	160	<b>D2PF2AR1</b>
24 Vac	DPDT	180	<b>D2PF2AT</b>
24 Vdc	DPDT	650	<b>D2PF2AT1</b>
48 Vdc	DPDT	2,600	<b>D2PF2AW1</b>
110/125 Vdc	DPDT	11,000	<b>D2PF2AA1</b>
120 Vac	DPDT	4,430	<b>D2PF2AA</b>
220/240 Vac	DPDT	15,720	<b>D2PF2AB</b>
12 Vac	4PDT	46	<b>D2PF4AR</b>
12 Vdc	4PDT	160	<b>D2PF4AR1</b>
24 Vac	4PDT	180	<b>D2PF4AT</b>
24 Vdc	4PDT	650	<b>D2PF4AT1</b>
48 Vdc	4PDT	2,600	<b>D2PF4AW1</b>
110/125 Vdc	4PDT	11,000	<b>D2PF4AA1</b>
120 Vac	4PDT	4,430	<b>D2PF4AA</b>
220/240 Vac	4PDT	15,720	<b>D2PF4AB</b>

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

## Accessories

## D2PF/D2PR Sockets and Accessories

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

**Note**

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

General Purpose Plug-In Relays—D3 Series



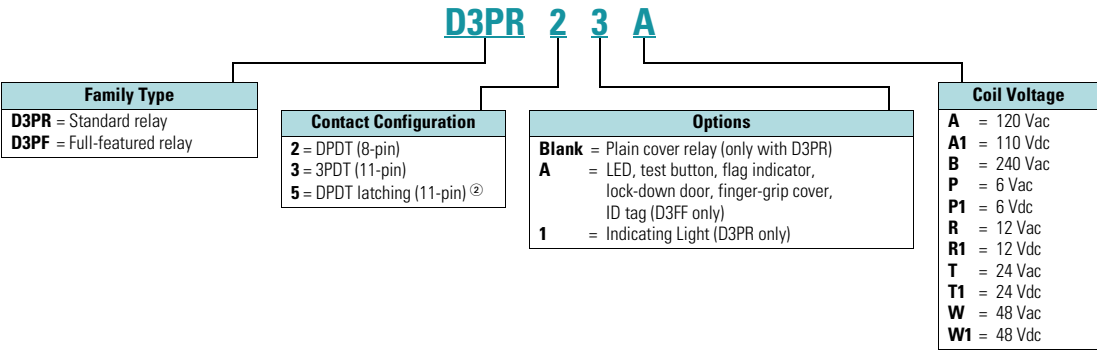
Features

- 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



Product Selection

D3 Relay/Socket Quick Reference

Relay Type	Socket	Clip
D3PR2	D3PA6	PQC-1332
D3PF2	D3PAL8	PQC-1351
	D3PA2	PQC-1351
D3PR3	D3PA7	PQC-1332
D3PF3	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
<b>Full Featured Style</b>			
120 Vac	DPDT	1,700	<b>D3PF2AA</b>
240 Vac	DPDT	7,200	<b>D3PF2AB</b>
12 Vdc	DPDT	120	<b>D3PF2AR1</b>
24 Vdc	DPDT	470	<b>D3PF2AT1</b>
48 Vdc	DPDT	1,800	<b>D3PF2AW1</b>
120 Vac	3PDT	1,700	<b>D3PF3AA</b>
220/240 Vac	3PDT	7,200	<b>D3PF3AB</b>
6 Vdc	3PDT	32	<b>D3PF3AP1</b>
24 Vac	3PDT	72	<b>D3PF3AT</b>
24 Vdc	3PDT	470	<b>D3PF3AT1</b>
48 Vdc	3PDT	1,800	<b>D3PF3AW1</b>
<b>Plain Cover Style</b>			
120 Vac	DPDT	1,700	<b>D3PR2A</b>
110/125 Vdc	DPDT	10,000	<b>D3PR2A1</b>
220/240 Vac	DPDT	7,200	<b>D3PR2B</b>
6 Vac	DPDT	4.2	<b>D3PR2P</b>

Coil Voltage	Contact Configuration	Coil Resistance (Ohms)	Catalog Number
<b>Plain Cover Style, continued</b>			
6 Vdc	DPDT	32	<b>D3PR2P1</b>
12 Vac	DPDT	18	<b>D3PR2R</b>
12 Vdc	DPDT	120	<b>D3PR2R1</b>
24 Vac	DPDT	72	<b>D3PR2T</b>
24 Vdc	DPDT	470	<b>D3PR2T1</b>
48 Vac	DPDT	290	<b>D3PR2W</b>
48 Vdc	DPDT	1,800	<b>D3PR2W1</b>
120 Vac	3PDT	1,700	<b>D3PR3A</b>
110/125 Vdc	3PDT	10,000	<b>D3PR3A1</b>
220/240 Vac	3PDT	7,200	<b>D3PR3B</b>
12 Vac	3PDT	18	<b>D3PR3R</b>
12 Vdc	3PDT	120	<b>D3PR3R1</b>
24 Vac	3PDT	72	<b>D3PR3T</b>
24 Vdc	3PDT	470	<b>D3PR3T1</b>
48 Vdc	3PDT	1,800	<b>D3PR3W1</b>

## Accessories

## D2PF/D2PR Sockets and Accessories

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

**Note**

① Protection category (finger safe) EN 60529 IP20.

General Purpose Plug-In Relays—D4 Series



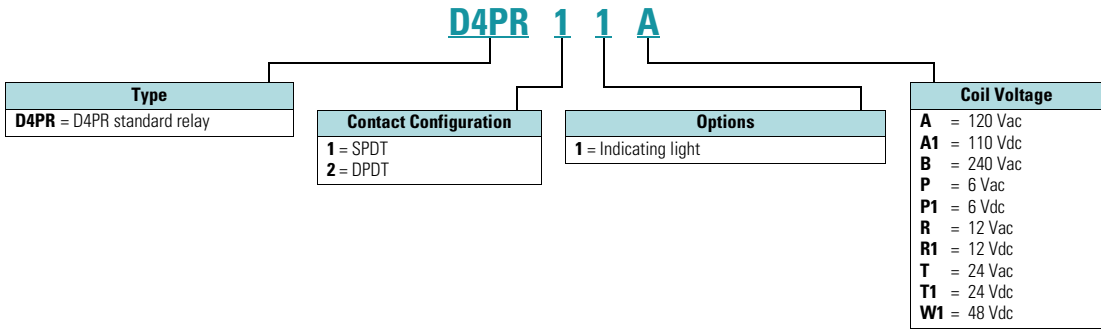
Features

- 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



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
<b>Standard SPDT</b>	
24 Vac	<b>D4PR1T</b>
120 Vac	<b>D4PR1A</b>
24 Vdc	<b>D4PR1T1</b>
<b>SPDT with Indicating Light</b>	
24 Vac	<b>D4PR11T</b>
120 Vac	<b>D4PR11A</b>
24 Vdc	<b>D4PR11T1</b>

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

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

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.

# 3.1

## Logic Devices

### Relays

3

#### General Purpose Plug-In Relays—D5 Series



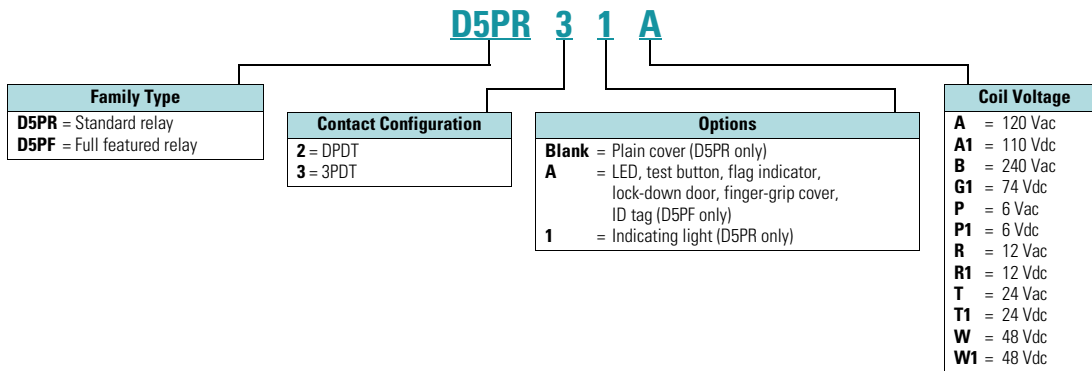
#### Features

- 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



### 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
<b>Full Featured</b>			
120 Vac	DPDT	1,700	<b>D5PF2AA</b>
110/125 Vdc	DPDT	10,000	<b>D5PF2AA1</b>
220/240 Vac	DPDT	7,200	<b>D5PF2AB</b>
12 Vdc	DPDT	120	<b>D5PF2AR1</b>
24 Vac	DPDT	72	<b>D5PF2AT</b>
24 Vdc	DPDT	470	<b>D5PF2AT1</b>
48 Vdc	DPDT	1,800	<b>D5PF2AW1</b>
120 Vac	3PDT	1,700	<b>D5PF3AA</b>
110/125 Vdc	3PDT	10,000	<b>D5PF3AA1</b>
220/240 Vac	3PDT	7,200	<b>D5PF3AB</b>
12 Vdc	3PDT	120	<b>D5PF3AR1</b>
24 Vac	3PDT	72	<b>D5PF3AT</b>
<b>Plain Cover</b>			
120 Vac	DPDT	1,700	<b>D5PR2A</b>
110/125 Vdc	DPDT	10,000	<b>D5PR2A1</b>
220/240 Vac	DPDT	7,200	<b>D5PR2B</b>
74 Vdc	DPDT	4,800	<b>D5PR2G1</b>
6 Vac	DPDT	4.2	<b>D5PR2P</b>

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

## Accessories

## D5 Sockets and Accessories

Description	Standard Pack	Catalog Number
Socket	10	<b>D5PAL</b> ①
Socket	10	<b>D5PA2</b>
Socket	10	<b>D5PA3L</b>
Socket	10	<b>D5PA3S</b>
Metal spring clip	10	<b>PQC-1351</b>

**Note**

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

# 3.1

## Logic Devices

### Relays

3

#### General Purpose Plug-In Relays—D7 Series



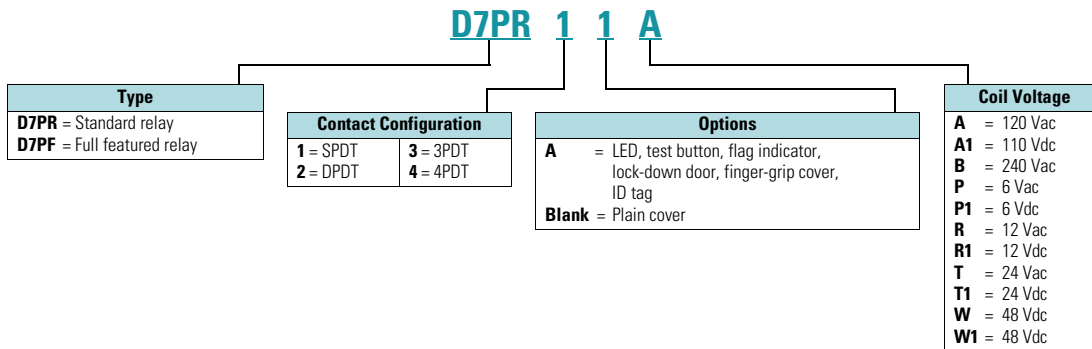
#### Features

- 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



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

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

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

Note

① Protection category (finger safe) EN 60529 IP20.

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

# 3.1

## Logic Devices

### Relays

3

#### General Purpose Plug-In Relays—D8 Series



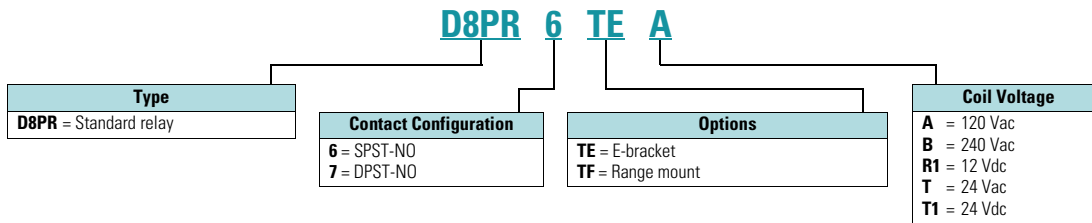
#### Features

- 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



#### 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**

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

**Accessories****D8 Series Sockets and Accessories**

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

# 3.1

## Logic Devices

### Relays

3

#### General Purpose Plug-In Relays—D9 Series



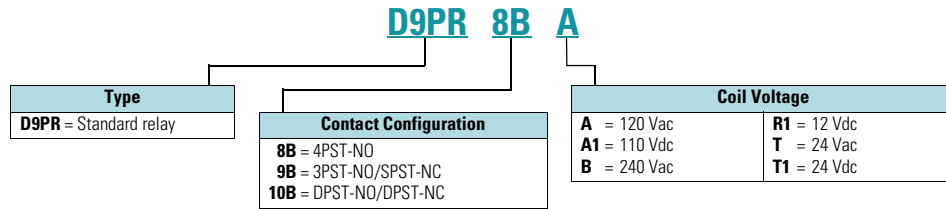
#### Features

- 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



#### Product Selection

##### D9 Series

Coil Voltage	Catalog Number
<b>4PST-NO Power Relay</b>	
24 Vac	D9PR8BT
120 Vac	D9PR8BA
240 Vac	D9PR8BB
24 Vdc	D9PR8BT1
<b>3PST-NO/SPST-NC Power Relay</b>	
120 Vac	D9PR9BA
<b>DPST-NO/DPST-NC Power Relay</b>	
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



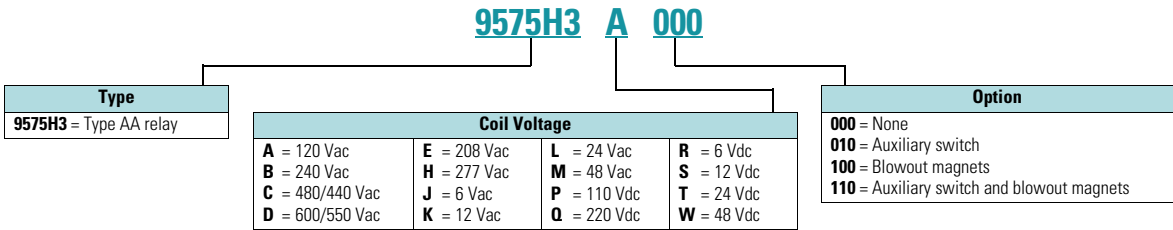
Features

- 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



Product Selection

Type AA Relays

Relay Style	Catalog Number <sup>①</sup>
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
<b>Volts AC</b>		
120	50/60	<b>A</b>
240	50/60	<b>B</b>
480/440	60/50	<b>C</b>
600/550	60/50	<b>D</b>
208	50/60	<b>E</b>
277	50/60	<b>H</b>
6	50/60	<b>J</b>
12	50/60	<b>K</b>
24	50/60	<b>L</b>
48	50/60	<b>M</b>

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

Note

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

#### XTRE Control Relays



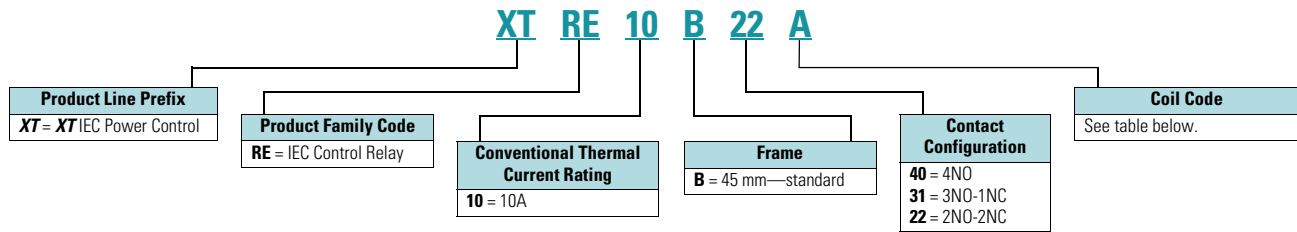
#### Features

- 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



#### Product Selection

##### XTRE Control Relays

Conventional Thermal Current $I_{th}$ (A), Open at 60°C	Contact Configuration	Rated Operational Current AC-15 $I_o$ (A)			Circuit Symbol	Catalog Number—Screw Terminals <sup>①</sup>
		220–240V	380–414V	500V		
16	4NO	6	4	1.5		XTRE10B40_
16	3NO-1NC	6	4	1.5		XTRE10B31_
16	2NO-2NC	6	4	1.5		XTRE10B22_ <sup>②</sup>

##### Coil Voltage Suffix





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

##### Notes

- <sup>①</sup> Underscore (\_) indicates magnet coil suffix required. See table above.
- <sup>②</sup> 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 <sub>th</sub> (A), Open at 60°C	Poles	Rated Operational Current AC-15 I <sub>e</sub> (A)			Contact Configuration	Circuit Symbol	Package Quantity	Catalog Number—Screw Terminals
		220V 230V 240V	380V 400V 415V	500V				
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



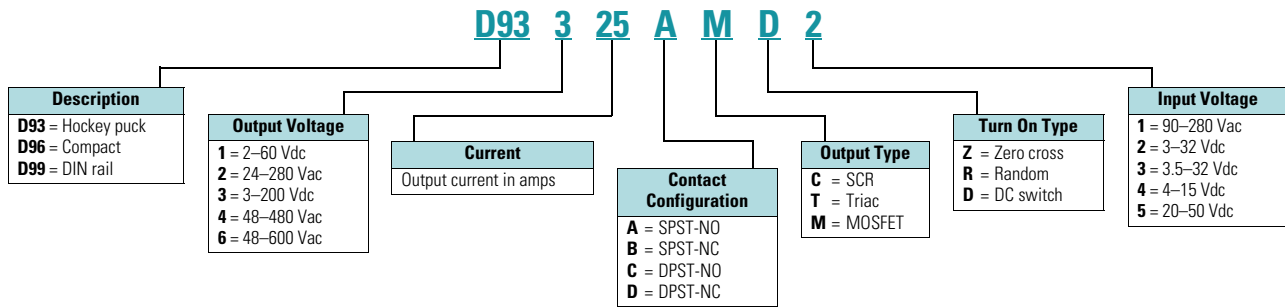
#### Features

- 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



#### 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	<b>D99210ACZ1</b>
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	10	<b>D99210ACZ2</b>
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	25	<b>D99225ACZ1</b>
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	25	<b>D99225ACZ2</b>
90–280 Vac	24–280 Vac	SPST-NO	Zero cross	40	<b>D99240ACZ1</b>
3–32 Vdc	24–280 Vac	SPST-NO	Zero cross	40	<b>D99240ACZ2</b>
90–280 Vac	48–600 Vac	SPST-NO	Zero cross	10	<b>D99610ACZ1</b>
3–32 Vdc	48–600 Vac	SPST-NO	Zero cross	10	<b>D99610ACZ2</b>
90–280 Vac	48–600 Vac	SPST-NO	Zero cross	25	<b>D99625ACZ1</b>
3–32 Vdc	48–600 Vac	SPST-NO	Zero cross	25	<b>D99625ACZ2</b>
90–280 Vac	48–600 Vac	SPST-NO	Zero cross	40	<b>D99640ACZ1</b>
3–32 Vdc	48–600 Vac	SPST-NO	Zero cross	40	<b>D99640ACZ2</b>

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
<b>4-Function</b>		
24–240 Vac/Vdc	Compact DIN rail mount, SPDT	<b>TRL04</b>
<b>7-Function</b>		
24–240 Vac/Vdc	Compact DIN rail mount, SPDT	<b>TRL07</b>
12–240 Vac/Vdc	Compact DIN rail mount, DPDT	<b>TRL27</b>
	Asymmetrical pulse generator, DPDT	<b>TRW27</b>

#### TMR5 Series Timing Relays



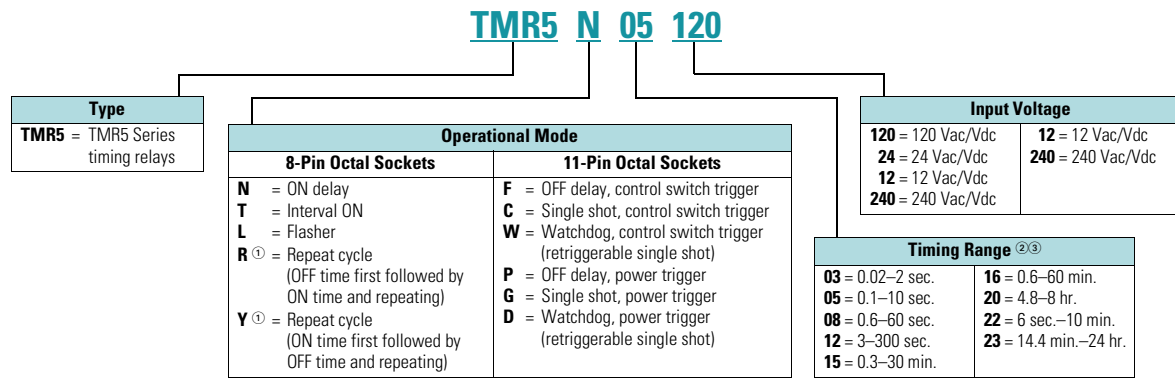
#### Features

- 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



#### Product Selection

##### TMR5 Time Delay Relays

Input Voltage	Socket	Timing Range	Catalog Number
<b>ON Delay</b>			
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
<b>OFF Delay, Control Switch Trigger</b>			
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
<b>Interval ON</b>			
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
<b>Single Shot, Control Switch Trigger</b>			
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
<b>Repeat Cycle (OFF Time First Followed by ON Time and Repeating)</b>			
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
<b>Repeat Cycle (ON Time First Followed by OFF Time and Repeating)</b>			
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



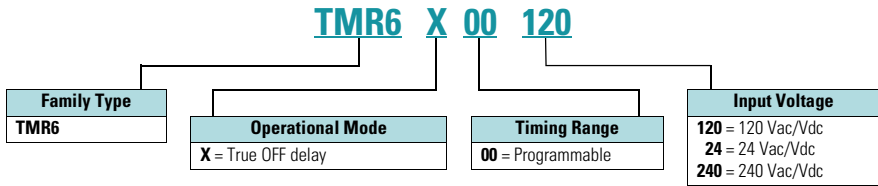
Features

- 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



Product Selection

TMR6 True OFF Delay Relays

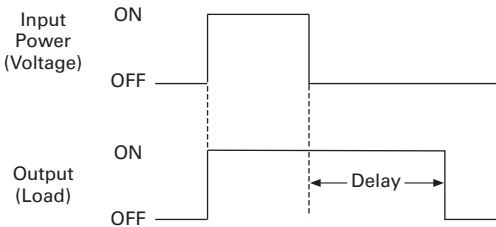
Input Voltage	Timing Range	Catalog Number
120 Vac/Vdc	0.05 sec.–30 min. (user selectable, eight ranges)	TMR6X00120
24 Vac/Vdc		TMR6X0024
240 Vac/Vdc		TMR6X00240

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
<b>10-Function</b>		
12–240 Vac/Vdc	Control switch trigger, DPDT	<b>TMRP5100</b>
	Control switch trigger, SPDT	<b>TMRP5101</b>
	Power trigger, DPDT	<b>TMRP5102</b>



**Product Overview**

**Programmable Controllers Selection Guide**



Description	Fusion Integrated Machine Controllers Page V9-T3-36	easy Programmable Relays Page V9-T3-37	MFD-Titan Multi-Functional Displays Page V9-T3-40	ELC Series PLCs Page V9-T3-46
<b>User Interface</b>				
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 HMI/ 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
<b>I/O Digital</b>				
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
<b>I/O Analog</b>				
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



**Fusion Integrated Machine Controllers**



**easy Programmable Relays**



**MFD-Titan Multi-Functional Displays**



**ELC Series PLCs**

Description	Fusion Integrated Machine Controllers	easy Programmable Relays	MFD-Titan Multi-Functional Displays	ELC Series PLCs
<b>I/O Analog</b>				
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)
<b>I/O Specialty Inputs</b>				
RTD PT100	—	—	—	Four point expansion module
Thermocouple	—	—	—	Four point expansion module
<b>Programming</b>				
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



**Fusion Integrated Machine Controllers**



**easy Programmable Relays**



**MFD-Titan Multi-Functional Displays**



**ELC Series PLCs**

Description	Fusion Integrated Machine Controllers	easy Programmable Relays	MFD-Titan Multi-Functional Displays	ELC Series PLCs
<b>Communications</b>				
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
<b>General Specifications</b>				
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	<b>57550400</b>
Fusion integrated machine controller—85–265 Vac power	<b>57551400</b>

easy500/700/800 Programmable Relays



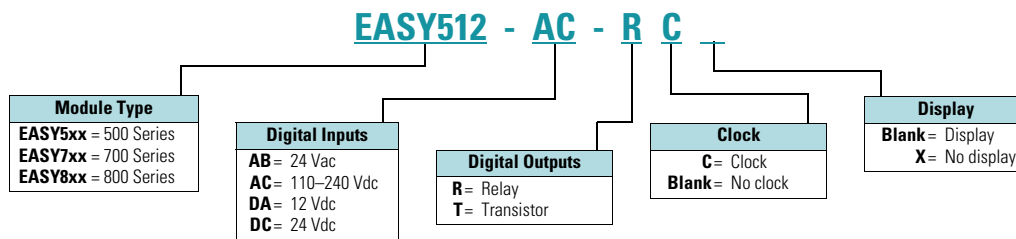
Features

- 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



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

#### Product Selection

3

##### easy500—Display



#### easy500 Programmable Relays (Standalone)

Description	Inputs					Outputs		Catalog Number
	24 Vac	110–240 Vac	12 Vdc	24 Vdc	Analog <sup>①</sup>	Relay	Transistor	
<b>Display</b>								
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
<b>No Display</b>								
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

##### easy500—No Display



##### easy700—Display



#### easy700 Programmable Relays (Expandable and Networkable)

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

##### easy700—No Display



##### easy800—Display



#### easy800 Programmable Relays (Expandable and Networkable)

Description	Inputs			Outputs			Catalog Number
	110–240 Vac	24 Vdc	Analog <sup>①</sup>	Relay	Transistor	Analog	
<b>Display</b>							
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
<b>No Display</b>							
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**

<sup>①</sup> 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	—	<b>EASY618-AC-RE</b>
24 Vdc	12	6	—	<b>EASY618-DC-RE</b>
24 Vdc	12	—	8	<b>EASY620-DC-TE</b>
24 Vdc	6	4	—	<b>EASY410-DC-RE</b>
24 Vdc	6	—	4	<b>EASY410-DC-TE</b>
24 Vdc	—	2	—	<b>EASY202-RE</b>
For distributed connection of a digital input/output expansion at up to 98 ft (30m) distance				<b>EASY200-EASY</b>

**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	<b>EASY406-DC-ME</b>
24 Vdc	1/6	2	—	2	2	<b>EASY411-DC-ME</b>

**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	<b>EASY209-SE</b>

**EASY204-DP**

**Network Interface Modules**



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

**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	—	—	<b>MFD-80-X</b>
MFD display, NEMA 4X indoor rated	—	■	<b>MFD-80</b>
MFD display/keypad, NEMA 4X in conjunction with MFD-XM-80 protective diaphragm	■	—	<b>MFD-80-B-X</b>
MFD display/keypad, NEMA 4X in conjunction with MFD-XM-80 protective diaphragm	■	■	<b>MFD-80-B</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)	<b>MFD-AC-CP4</b>
	AC module for easy500/700 relays and cable MFD-CP4-500-CAB5	<b>MFD-AC-CP4-500</b>
	AC module for easy800 relays and cable MFD-CP4-800-CAB5	<b>MFD-AC-CP4-800</b>
24 Vdc	DC power supply / communication module (no cable)	<b>MFD-CP4</b>
	DC module for easy500/700 relays and cable MFD-CP4-500-CAB5	<b>MFD-CP4-500</b>
	DC module for easy800 relays and cable MFD-CP4-800-CAB5	<b>MFD-CP4-800</b>

**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	<b>MFD-AC-CP8-ME</b>
	Program and screen memory, with easyNet	<b>MFD-AC-CP8-NT</b>
24 Vdc	Program and screen memory	<b>MFD-CP8-ME</b>
	Program and screen memory, with easyNet	<b>MFD-CP8-NT</b>
	Double program and screen memory (as MFD-CP8)	<b>MFD-CP10-ME</b>
	Double program and screen memory (as MFD-CP8), with easyNet	<b>MFD-CP10-NT</b>

**MFD-R16**



**MFD-Titan I/O Modules**

Attach to back of MFD-Titan controller modules.

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

**MFD-TP\_**



**MFD-Titan I/O Modules with Temperature Detection**

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

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

**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	<b>EASY802-DC-SWD</b>

**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	<b>EASY806-DC-SWD</b>
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# 3.2

## Logic Devices

### Programmable Controllers

3

XC152 PLC



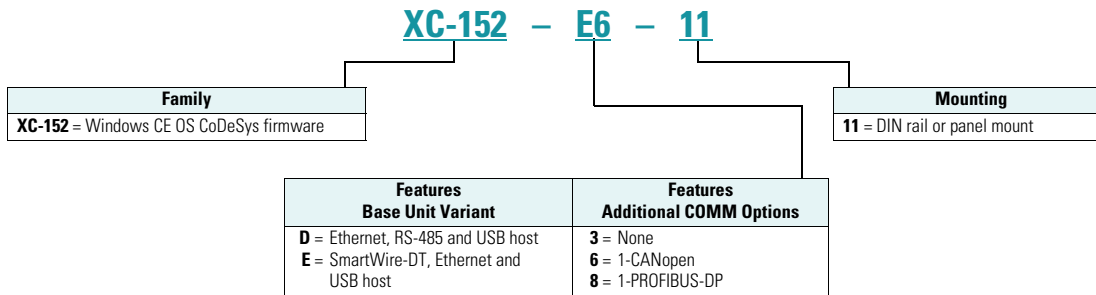
#### Features

- 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



## 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

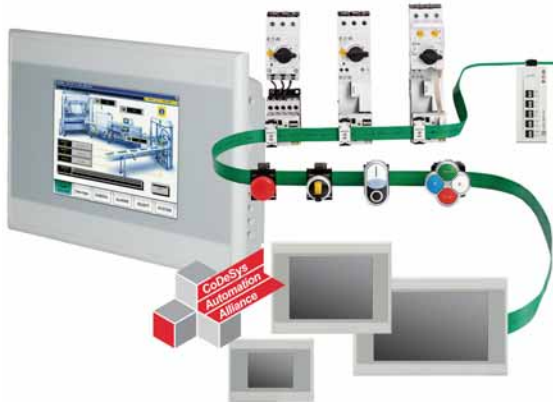
### XC PLC Accessories

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

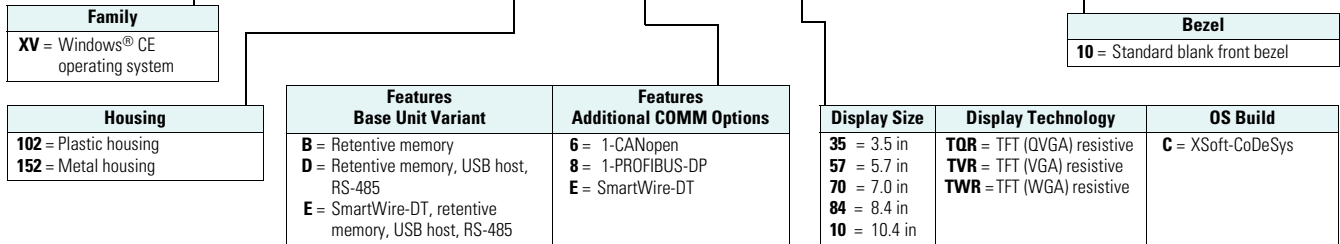
- High resolution resistive touch TFT displays
- Brilliant image display with 65,536 colors
- 3.5 in, 5.7 in or 7 in widescreen displays in robust plastic housings and bezels, or 5.7 in, 8.4 in or 10.4 in displays in high-end aluminum front bezels and metal housings
- Ethernet and RS-485 serial ports 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**



## Product Selection

### XV HMI-PLC



### XV HMI-PLC

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

### 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
<b>Plastic Housing</b>							
3.5 in TFT	QVGA 320x240	Y	None	None	Y	Y	<b>XV-102-BE-35TQRC-10</b>
5.7 in TFT	VGA 640x480	Y	CANopen	Y	Y	Y	<b>XV-102-E6-57TVRC-10</b>
		Y	PROFIBUS-DP	Y	Y	Y	<b>XV-102-E8-57TVRC-10</b>
7.0 in TFT	WGA 800x480	Y	CANopen	Y	Y	Y	<b>XV-102-E6-70TWRC-10</b>
		Y	PROFIBUS-DP	Y	Y	Y	<b>XV-102-E8-70TWRC-10</b>
<b>Metal Housing</b>							
5.7 in TFT	VGA 640x480	Y	CANopen	Y	Y	Y	<b>XV-152-E6-57TVRC-10</b>
		Y	PROFIBUS-DP	Y	Y	Y	<b>XV-152-E8-57TVRC-10</b>
8.4 in TFT	VGA 640x480	Y	CANopen	Y	Y	Y	<b>XV-152-E6-84TVRC-10</b>
		Y	PROFIBUS-DP	Y	Y	Y	<b>XV-152-E8-84TVRC-10</b>
10.4 in TFT	VGA 640x480	Y	CANopen	Y	Y	Y	<b>XV-152-E6-10TVRC-10</b>
		Y	PROFIBUS-DP	Y	Y	Y	<b>XV-152-E8-10TVRC-10</b>

## Accessories

### XV HMI-PLC Accessories

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

#### Note

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

#### ELC Programmable Logic Controllers



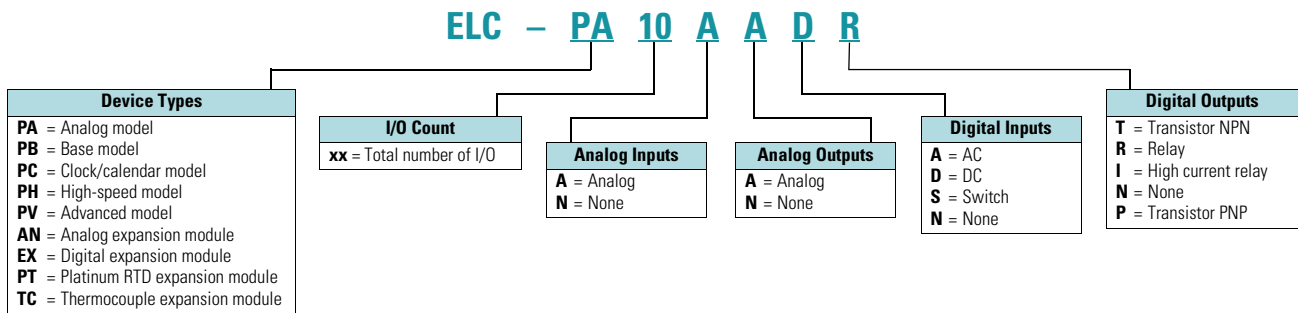
#### Features

- 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

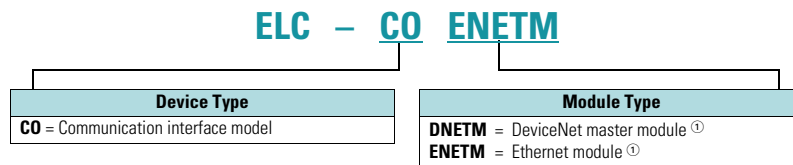
### Catalog Number Selection

#### ELC Series Programmable Logic Controllers

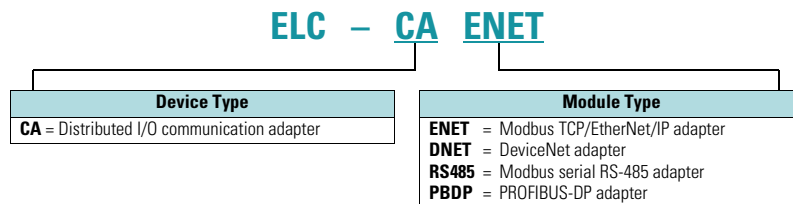
##### Controllers and Expansion Modules



##### Master Communication Modules



##### Distributed I/O Adapter Modules



**Note**

<sup>①</sup> 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	<b>ELC-PB14NNDR</b>
	(8) 24 Vdc	(6) Transistor, 100 mA	—	(2) 20 kHz inputs	150 mA	<b>ELC-PB14NNDT</b>
ELC-PC Model and 12 I/O built-in	(8) 24 Vdc	(4) Relay, 1.5A	—	(1) 30 kHz inputs	150 mA	<b>ELC-PC12NNDR</b>
	(8) 24 Vdc	(4) Transistor, 100 mA	—	(1) 30 kHz inputs	150 mA	<b>ELC-PC12NNDT</b>
	(8) 110 Vac	(4) Relay, 1.5A	—	(1) 30 kHz inputs	150 mA	<b>ELC-PC12NNAR</b>
ELC-PH Model and 12 I/O built-in	(8) 24 Vdc	(4) Transistor, 100 mA	—	(1) 100 kHz inputs	170 mA	<b>ELC-PH12NNDT</b>
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	<b>ELC-PA10AADR</b>
	(4) 24 Vdc	(2) Relay, 1.5A	(2) In and (2) Out	(1) 30 kHz inputs	210 mA	<b>ELC-PA10AADT</b>
ELC-PV Model and 28 I/O built-in	(16) 24 Vdc	(12) Relay, 1.5A	—	(2) 200 kHz inputs	220 mA	<b>ELC-PV28NNDR</b>
	(16) 24 Vdc	(12) Transistor, 100 mA	—	(2) 200 kHz inputs	220 mA	<b>ELC-PV28NNDT</b>

### Distributed I/O Adapter Modules

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

### Network Communication Master Modules (Left Side Bus)

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

### 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-CBPCEGP3
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 Page V9-T3-50	E5-648-C Series Page V9-T3-50	Eclipse Series 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

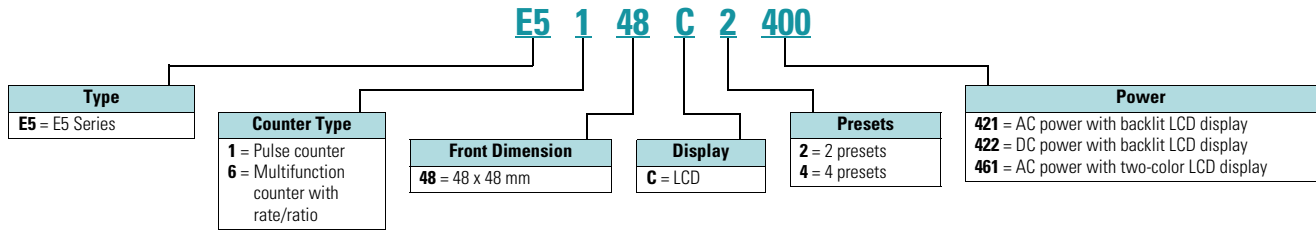
AC/DC powered

- 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



### Product Selection

#### 1/16 DIN LCD

Description	Catalog Number
<b>Battery Powered 1 Preset LCD</b>	
Battery power 1.89 x 1.89 in (48 x 48 mm)	E5-148-C1400
<b>AC/DC Powered 2 Preset LCD</b>	
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
<b>AC Powered 4 Preset Two-Color LCD</b>	
90–260 Vac power 1.89 x 1.89 in (48 x 48 mm)	E5-648-C4461

1/18 DIN Eclipse Series Preset Counter



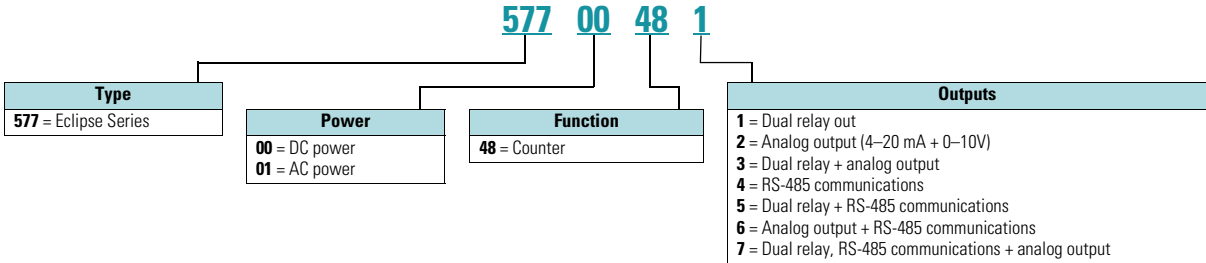
Features

- 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



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

3



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



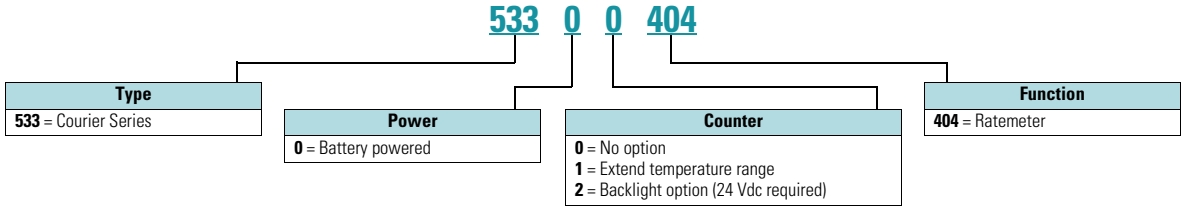
Features

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

Catalog Number Selection

Courier Series Battery Powered Ratemeter

Courier Series



Product Selection

1/Tau LCD Ratemeter

Description	Catalog Number
Battery powered	53300404

Eclipse Series 1/8 DIN LED Ratemeter



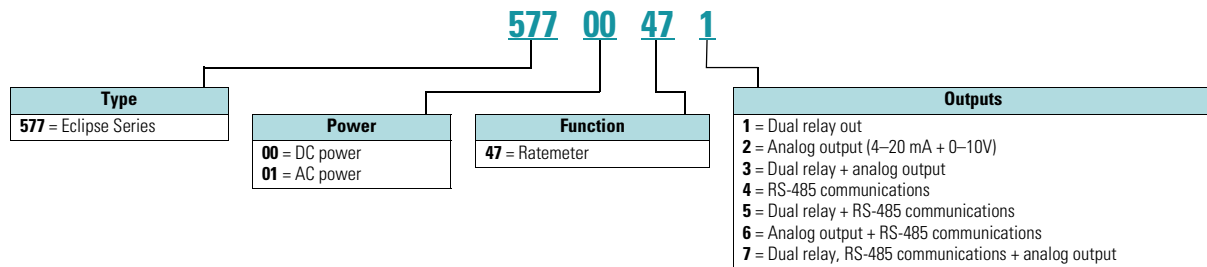
### Features

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

### Catalog Number Selection

#### Eclipse Series 1/8 DIN LED Ratemeter

#### Eclipse Series



### 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 Page V9-T3-56	6-T-3H Series Page V9-T3-56	E5-224 Series Page V9-T3-57	E42 Series 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



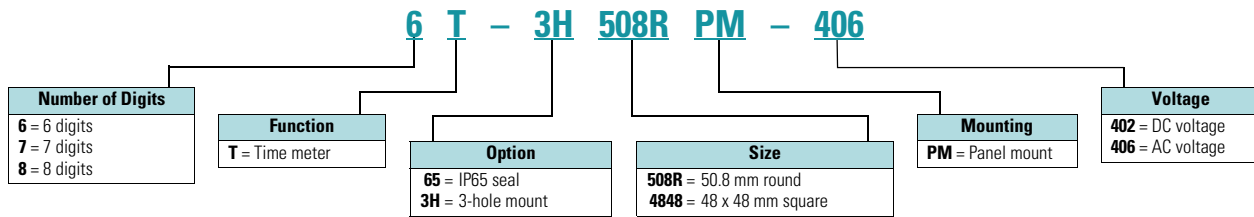
#### Features

- 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



#### Product Selection

##### Electromechanical Hour Meters

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

#### Accessories

##### DIN Rail Adapter



##### DIN Rail Adapter

Description	Catalog Number
DIN rail adapter for DIN electromechanical hour meter	<b>T4848DINADAPT</b>



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

### Product Overview

#### Totalizers Selection Guide



Description	Electromechanical Micro Page V9-T3-59	SE Series Page V9-T3-59	E5-024-C Series Page V9-T3-60	E5-x24-E Series 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 Page V9-T3-61	E5-496 Series Page V9-T3-62	Eclipse Series 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

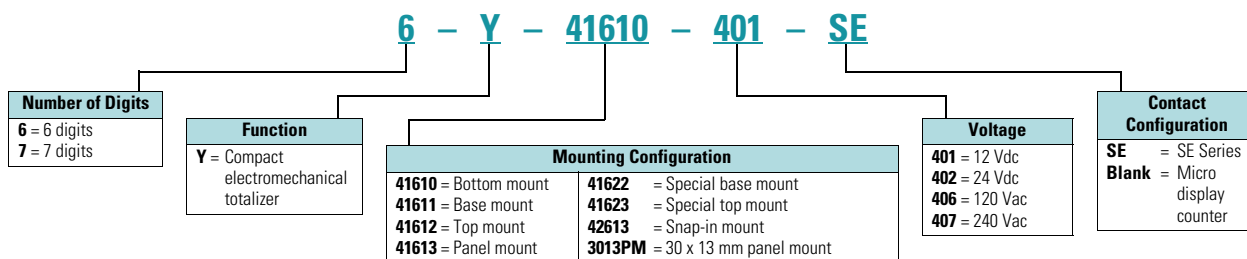
SE Series

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

Catalog Number Selection

Electromechanical Totalizers

Totalizers



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
<b>6-Digit Counter</b>		
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
<b>6-Digit Counter, continued</b>		
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

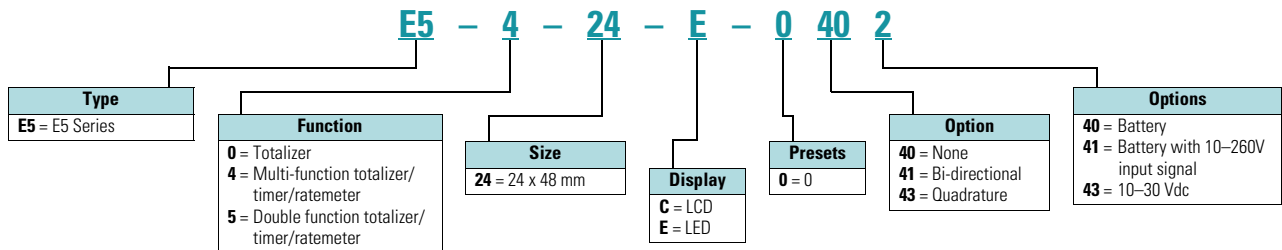
DC Powered LED

- 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



#### Product Selection

##### 1/32 DIN LCD Totalizers

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

Electronic Courier Series Battery Powered LCD Totalizers



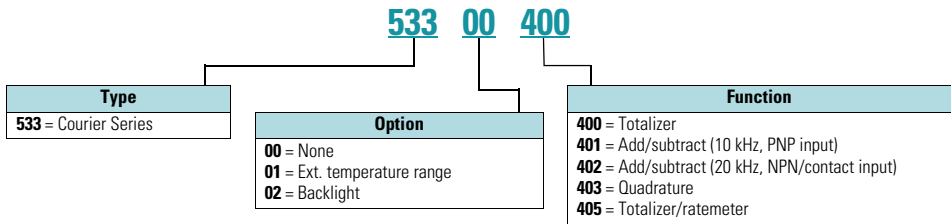
Features

- 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



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

Product Overview

Encoders Selection Guide



Description	Cube	Right-Angled
	<b>Page V9-T3-64</b>	<b>Page V9-T3-64</b>
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
<b>Single Channel</b>	
60 pulses per revolution	<b>38150060</b>
100 pulses per revolution	<b>38150100</b>
120 pulses per revolution	<b>38150120</b>
600 pulses per revolution	<b>38150600</b>
<b>Quadrature</b>	
60 pulses per revolution	<b>38151060</b>
100 pulses per revolution	<b>38151100</b>
120 pulses per revolution	<b>38151120</b>
600 pulses per revolution	<b>38151600</b>

##### Right-Angled Shaft Encoders, Size 20

Description	Catalog Number
100 pulses per revolution	<b>38159100</b>
120 pulses per revolution	<b>38159120</b>
600 pulses per revolution	<b>38159600</b>
1000 pulses per revolution	<b>381591000</b>
1800 pulses per revolution	<b>381591800</b>



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