

Industrial Logic

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Counting On Your Process



Powering Business Worldwide

A broad mechanical, electromechanical and electronic product line for every application requirement

Preset Counters Product Overview

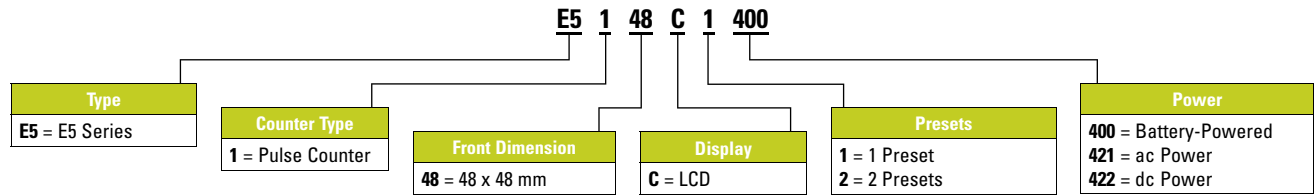
			
Description	E5-148-C1400	E5-148-Cx42X Series	Eclipse Series
Page	Page 120	Page 120	Page 121
Display	2-Line LCD	2-Line LCD	LED
Power Supply	Replaceable Lithium Batteries	10 – 30V dc or 90 – 260V ac	9 – 30V dc or 85 – 265V ac
Number of Digits	6	6	6
Panel Cut-Out Size	45 x 45 mm (1/16 DIN)	45 x 45 mm (1/16 DIN)	92 x 45 mm (1/8 DIN)
Scaling Capability	—	Yes	Yes
Number of Presets	1	1 or 2	2
Max Counting Speed	25 Hz	10 kHz (900 Hz w/ Auto Reset)	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

Industrial Logic

Preset Counters

CATALOG SELECTION / PRODUCT SELECTION

1/16 DIN LCD Preset Counter — Catalog Numbering System



1/16 DIN LCD Preset Counter

Battery-Powered

- 2-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 – 250V ac/DC

AC/DC-Powered

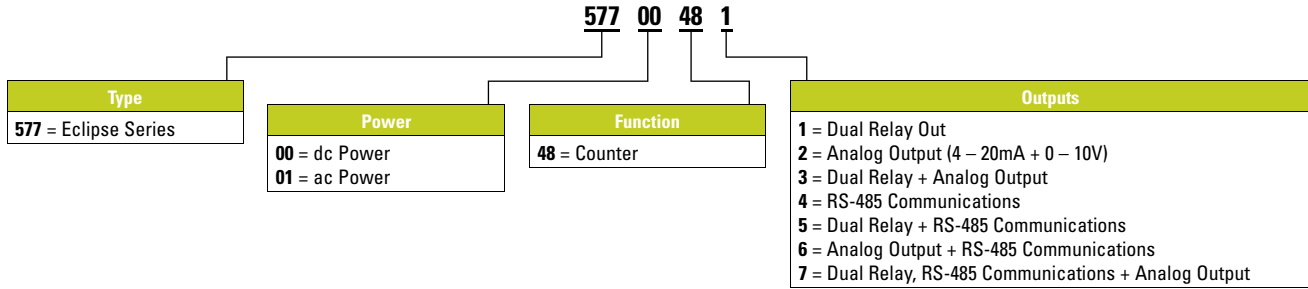
- 2-line LCD display
- Programmable as impulse counter, frequency meter or time meter with sign and zero blanking
- Batch mode



1/16 DIN LCD

Description	Catalog Number
Battery-Powered 1 Preset LCD	
Battery Power 1.89 x 1.89 Inch (48 x 48 mm)	E5-148-C1400
AC/DC-Powered 1 Preset LCD	
90 – 260V ac Power 1.89 x 1.89 Inch (48 x 48 mm)	E5-148-C1421
10 – 30V dc Power 1.89 x 1.89 Inch (48 x 48 mm)	E5-148-C1422
AC/DC-Powered 2 Preset LCD	
90 – 260V ac Power 1.89 x 1.89 Inch (48 x 48 mm)	E5-148-C2421
10 – 30V dc Power 1.89 x 1.89 Inch (48 x 48 mm)	E5-148-C2422

1/8 DIN Eclipse Series Preset Counter — Catalog Numbering System



1/8 DIN Eclipse Series Preset Counter

- 1/8 DIN cutout
- Type 4X front panel protection
- 7-segment LED Display



LED Count Control, 6-Digit

Description	Catalog Number
Relay Out, 9 – 30V dc Power	57700481
Relay Out, 85 – 265V ac Power	57701481
Relay & Analog Out, 9 – 30V dc Power	57700483
Relay & Analog Out, 85 – 265V ac Power	57701483
Relay & RS-485 Out, 9 – 30V dc Power	57700485
Relay & RS-485 Out, 85 – 265V ac Power	57701485
Relay, Analog & RS-485 Out, 9 – 30V dc Power	57700487
Relay, Analog & RS-485 Out, 85 – 265V ac Power	57701487



Bright, Readable Displays



Powering Business Worldwide

Measure process or machine speed, displayed with backlit LCD or super bright LED

Ratemeters Product Overview

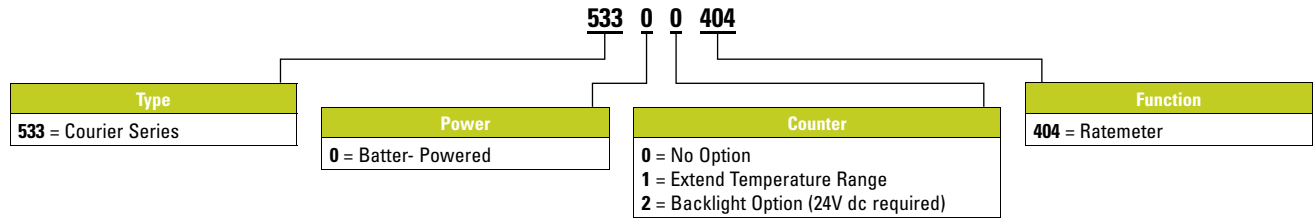
		
Description	Courier	Eclipse
Page	Page 124	Page 125
Display	LCD	LED
Power Supply	Replaceable Lithium Battery	9 – 30V dc or 85 – 265V ac
Number of Digits	5	6
Panel Cut-Out Size	68 x 33 mm	92 x 45 mm (1/8 DIN)
Scaling Capability	Yes	Yes
Number of Presets	—	2 (with optional relay out model)
Update Time	700 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

Industrial Logic

Ratemeters

CATALOG SELECTION / PRODUCT SELECTION

Courier Series Battery-Powered Ratemeter — Catalog Numbering System



Courier Series Battery-Powered Ratemeter

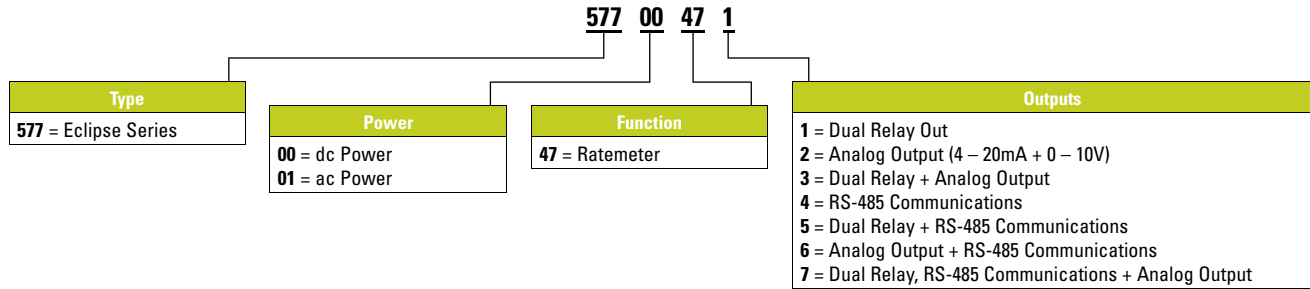
- 1/Tau ratemeter
- Scaling capabilities
- Type 4X protection
- Internal battery: 3V, Lithium



1/Tau LCD Ratemeter

Description	Catalog Number
Battery-Powered	53300404

Eclipse Series 1/8 DIN LED Ratemeter — Catalog Numbering System



Eclipse Series 1/8 DIN LED Ratemeter

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



Eclipse Series 5-Digit LED Ratemeter

Description	Catalog Number
9 – 30V dc	57700470
9 – 30V dc, Alarms	57700471
9 – 30V dc, Analog Out	57700472
9 – 30V dc, Alarms, Analog Out	57700473
9 – 30V dc, RS-485	57700474
9 – 30V dc, Alarms, RS-485	57700475
9 – 30V dc, Analog Out, RS-485	57700476
9 – 30V dc, Alarms, Analog Out, RS-485	57700477
85 – 265V ac	57701470
85 – 265V ac, Alarms	57701471
85 – 265V ac, Analog Out	57701472
85 – 265V ac, Alarms, Analog Out	57701473
85 – 265V ac, RS-485	57701474
85 – 265V ac, Alarms, RS-485	57701475
85 – 265V ac, Analog Out, RS-485	57701476
85 – 265V ac, Alarms, Analog Out, RS-485	57701477

Let Time Take Control



Powering Business Worldwide

Know exactly how many hours have elapsed,
and take action when it's time

Hour Meters Product Overview

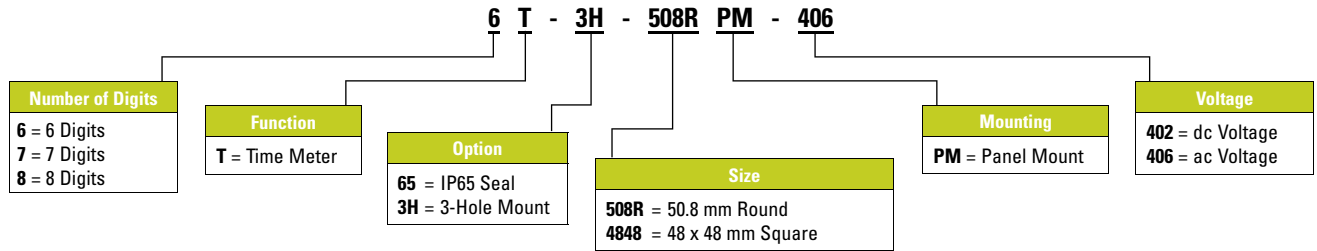
				
Description	T48 Series	6-T-3H Series	E5-224 Series	E42 Series
Page	Page 128	Page 128	Page 129	Page 129
Panel Cut-Out Size	45 x 45 mm (1/16 DIN)	50.8 mm (2") round	22 x 45 mm (1/32 DIN)	52.3 mm (2.06") round OR 24 x 36.8 mm
Display Type	Mechanical	Mechanical	LCD	LCD
Number of Digits	7 for ac Versions, 8 for dc Versions	6	8	6
Power Supply	10 – 30V dc or 100 – 130V ac	115V ac	Internal Battery	12 – 60V dc or 48 – 230V ac
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

Industrial Logic

Hour Meters

CATALOG SELECTION / PRODUCT SELECTION

Electromechanical Hour Meters — Catalog Numbering System



Electromechanical Hour Meters

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



Electromechanical Hour Meters

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

DIN-Rail Adapter — Accessory

Description	Catalog Number
 DIN-Rail Adapter for DIN Electromechanical Hour Meter	T4848DINADAPT

Electronic LCD Hour Meters

Battery-Powered

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



Electronic LCD Hour Meter

Description	Catalog Number
Battery-Powered 1/32 DIN 8-digit LCD	
Hours / Minutes, 0.94 x 1.89 Inch (24 x 48 mm)	E5-224-C0440
Hours / Minutes, 10 – 260V Input, 0.94 x 1.89 Inch (24 x 48 mm)	E5-224-C0448
Minutes / Seconds, 0.94 x 1.89 Inch (24 x 48 mm)	E5-224-C0450
Minutes / Seconds, 10 – 260V Input 0.94 x 1.89 Inch (24 x 48 mm)	E5-224-C0458
AC/DC-Powered Round LCD	
Elapsed Hour Meter, 48 – 150V dc / 100 – 230V ac	E42DIR48230
Elapsed Hour Meter w/ Reset, 48 – 150V dc / 100 – 230V ac	E42DIR48230R
Elapsed Hour Meter, 12 – 48V dc / 20 – 60V ac	E42DIR1260
AC/DC-Powered Compact Rectangular LCD	
Elapsed Hour Meter, 48 – 150V dc / 100 – 230V ac	E42DI2448230
Elapsed Hour Meter, w/ Reset, 48 – 150V dc / 100 – 230V ac	E42DI2448230R
Elapsed Hour Meter, 12 – 48V dc / 20 – 60V ac	E42DI241260





Modes of Flow Control



Powering Business Worldwide

Continuously monitor to know which of many modes to control the flow

Totalizers Product Overview

				
Description	Electromechanical Micro	SE Series	E5-024-C Series	E5-x24-E Series
Page	Page 132	Page 132	Page 133	Page 133
Display Type	Mechanical	Mechanical	LCD	LED
Number of Digits	7	6	8	6
Power Supply	12V dc	12 or 24V dc, 120 or 240V ac	Internal Battery	10 – 30V dc
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 Product Overview

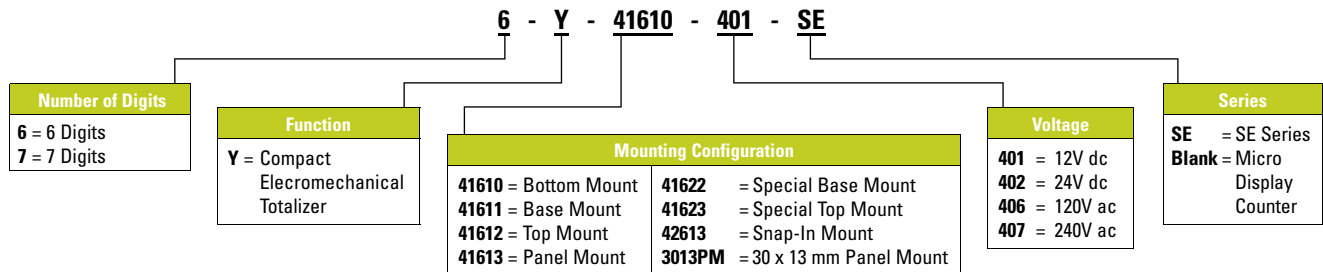
			
Description	Courier Series	E5-496 Series	Eclipse Series
Page	Page 134	Page 135	Page 135
Display Type	LCD	LED	LED
Number of Digits	8	6	6
Power Supply	Replaceable Battery	10 – 30V dc or 90 – 260V ac	9 – 30V dc or 85 – 265V ac
Mounting Configuration(s)	Front Panel 68 x 33 mm	Front Panel 92 x 45 mm (1/8 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

Industrial Logic

Totalizers

CATALOG SELECTION / PRODUCT SELECTION

Electromechanical Totalizer — Catalog Numbering System



Electromechanical Totalizer

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



Micro Display Counter

Description	Catalog Number
Micro Display Counter — 12V dc	7-Y-3013PM-401

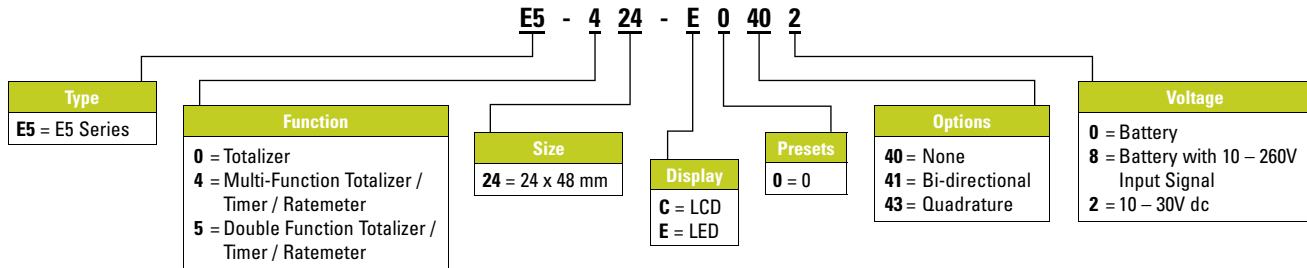
SE Series Electromechanical Totalizer

Description	Catalog Number	Order Number
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6-Digit Counter

Bottom Mount Sub-Miniature 12V dc	6-Y-41610-401-SE	41610401
Bottom Mount Sub-Miniature 24V dc	6-Y-41610-402-SE	41610402
Bottom Mount Sub-Miniature 120V ac	6-Y-41610-406-SE	41610406
Bottom Mount Sub-Miniature 240V ac	6-Y-41610-407-SE	41610407
Base Mount Sub-Miniature 12V dc	6-Y-41611-401-SE	41611401
Base Mount Sub-Miniature 24V dc	6-Y-41611-402-SE	41611402
Base Mount Sub-Miniature 120V ac	6-Y-41611-406-SE	41611406
Base Mount Sub-Miniature 240V ac	6-Y-41611-407-SE	41611407
Top Mount Sub-Miniature 12V dc	6-Y-41612-401-SE	41612401
Top Mount Sub-Miniature 24V dc	6-Y-41612-402-SE	41612402
Top Mount Sub-Miniature 120V ac	6-Y-41612-406-SE	41612406
Top Mount Sub-Miniature 240V ac	6-Y-41612-407-SE	41612407
Panel Mount Sub-Miniature 12V dc	6-Y-41613-401-SE	41613401
Panel Mount Sub-Miniature 24V dc	6-Y-41613-402-SE	41613402
Panel Mount Sub-Miniature 120V ac	6-Y-41613-406-SE	41613406
Panel Mount Sub-Miniature 240V ac	6-Y-41613-407-SE	41613407
Special Base Mount Sub-Miniature 12V dc	6-Y-41622-401-SE	41622401
Special Base Mount Sub-Miniature 24V dc	6-Y-41622-402-SE	41622402
Special Base Mount Sub-Miniature 120V ac	6-Y-41622-406-SE	41622406
Special Base Mount Sub-Miniature 240V ac	6-Y-41622-407-SE	41622407
Special Top Mount Sub-Miniature 12V dc	6-Y-41623-401-SE	41623401
Special Top Mount Sub-Miniature 24V dc	6-Y-41623-402-SE	41623402
Special Top Mount Sub-Miniature 120V ac	6-Y-41623-406-SE	41623406
Special Top Mount Sub-Miniature 240V ac	6-Y-41623-407-SE	41623407
Snap-In Mount Sub-Miniature 12V dc	6-Y-42613-401-SE	42613401
Snap-In Mount Sub-Miniature 24V dc	6-Y-42613-402-SE	42613402
Snap-In Mount Sub-Miniature 120V ac	6-Y-42613-406-SE	42613406
Snap-In Mount Sub-Miniature 240V ac	6-Y-42613-407-SE	42613407

Electronic 1/32 DIN Totalizer — Catalog Numbering System



Electronic 1/32 DIN Totalizer

Battery-Powered LCD

- Low price and high efficiency
- Large 8-digit LCD display, height of the figures 0.31 inch (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 – 30V dc with reverse polarity protection
- Polarity of inputs: programmable, NPN or PNP



1/32 DIN LCD Totalizer

Description	Catalog Number
Battery-Powered 8-Digit LCD Totalizer	
0.94 x 1.89 Inch (24 x 48 mm) LCD Totalizer	E5-024-C0400
10 – 260V Input 0.94 x 1.89 Inch (24 x 48 mm) LCD Totalizer	E5-024-C0408
Count Up / Down 0.94 x 1.89 Inch (24 x 48 mm) LCD Totalizer	E5-024-C0410

DC-Powered 6-Digit LED Totalizer

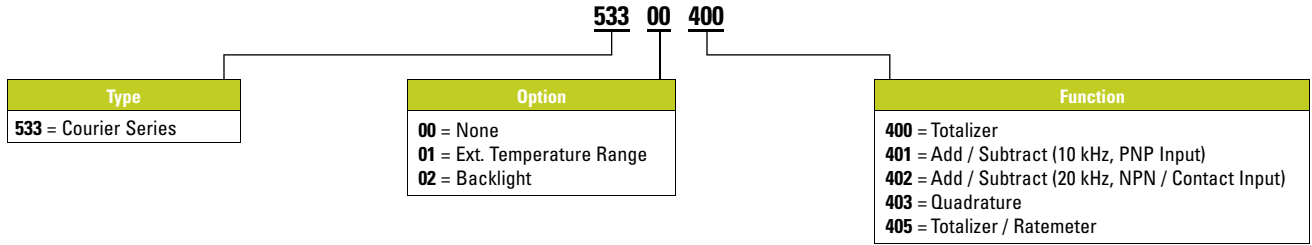
LED Single Channel Totalizer, 10 – 30V dc Power 0.94 x 1.89 Inch (24 x 48 mm)	E5-024-E0402
LED Multifunction Totalizer / Timer / Ratemeter, 10 – 30V dc Power 0.94 x 1.89 Inch (24 x 48 mm)	E5-424-E0402
LED Double-Function Totalizer / Timer / Ratemeter, 10 – 30V dc Power 0.94 x 1.89 Inch (24 x 48 mm)	E5-524-E0402
LED Totalizer with Quadrature, 10 – 30V dc Power 0.94 x 1.89 Inch (24 x 48 mm)	E5-024-E0432

Industrial Logic

Totalizers

CATALOG SELECTION / PRODUCT SELECTION

Electronic Courier Series Battery-Powered LCD Totalizer — Catalog Numbering System



Electronic Courier Series Battery-Powered LCD Totalizer

- 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



Courier Series, 8-Digit LCD

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

LED Multifunction

- Display counter adding and subtracting
- Position display
- Frequency counter / ratemeter
- Display: 6-digit red, 7-segment LED display; 0.55 inch (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



1/8 DIN LED

Description	Catalog Number
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LED Multifunction Counter / Timer / Ratemeter

90 – 260V ac Power 3.78 x 1.89 Inch (96 x 48 mm)	E5-496-E0401
10 – 30V dc Power 3.78 x 1.89 Inch (96 x 48 mm)	E5-496-E0402

Eclipse Series LED Totalizer

9 – 30V dc Power	57700480
85 – 265V ac Power	57701480
Analog Out, 9 – 30V dc Power	57700482
Analog Out, 85 – 265V ac Power	57701482
RS-485 Out, 9 – 30V dc Power	57700484
RS-485 Out, 85 – 265V ac Power	57701484
RS-485 Out and Analog Out, 9 – 30V dc Power	57700486
RS-485 Out and Analog Out, 85 – 265V ac Power	57701486

Know Your Position Exactly



Powering Business Worldwide

Precisely position your motor, with rotary single and quadrature shaft encoders

Encoders Product Overview

		
Description	Cube	Right-Angled
Page	Page 138	Page 138
Power Supply	5 – 28V dc	5 – 28V dc
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"	3/8"
Maximum Axial Loading	10 lbs	80 lbs
Quadrature Output Available	Yes	Yes

Industrial Logic

Encoders

PRODUCT SELECTION

Shaft Encoders

Cube Style

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

Right-Angled

- 5 – 28V dc input power
- Quadrature output, 2 square waves
- Flange mounting
- 3/8" (9.5 mm) shaft diameter



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 Encoder, 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

React to Multiple Events



EATON
Powering Business Worldwide

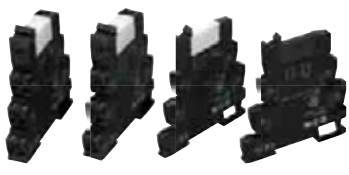





Multiple purpose relays, with dozens of timing, sensing and monitoring capabilities

Industrial Logic

Relays

PRODUCT OVERVIEW

Relays Product Overview

			
Description	XR Series Terminal Block Relays	D2 Series	D3 Series
Page	Page 144	Page 145	Page 147
Approvals			
Features	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Polycarbonate Cover • Indicator Lamp and Pushbutton Available • Panel, DIN and Flange Mounting • Latching 	<ul style="list-style-type: none"> • Polycarbonate Cover • Indicator Lamp and Pushbutton Available • Panel and DIN Mounting • 8- or 11-Pin Octal Plug-In • Latching (D3PR version)

Contact Data

Configuration	SPDT — 6A or 10A, DPDT — 6A OptoCoupler — 2A	DPDT	DPDT Latching	4PDT	SPDT	DPDT	3PDT
Maximum Allowable Load	Available on request	D2PF: 10A at 120V ac D2PR: 5A at 240V ac	3A at 220V ac	3A at 240V ac	12A at 120V ac	12A at 120V ac	10A at 240V ac
Material	—	Ag (Au flashed)			AgCdO (Au flashed)		
Resistance	—	50 Milliohms (initial)			50 Milliohms (initial)		
Dielectric Strength	4000V	1500V			1500V		







Coil Data

AC	24V ac, 120V ac	6 – 240V ac	24 – 240V ac (D3PF) / 6 – 240V ac (D3PR)
DC	12V dc, 24V dc, 110V dc	6 – 110V ac	12 – 110V dc (D3PF) / 6 – 110V dc (D3PR)
Power VA (V ac) Watts (V dc)	1500 VA, 120 mW	1.2 VA 1.1 Watts	2.75 VA 1.2 Watts

General Data

Ambient Temperature Operational Storage	-20° – 60°C	-40 – 158°F (-40° – 70°C) -40 – 221°F (-40° – 105°C)	-49 – 131°F (-45° – 55°C) -40 – 221°F (-40° – 105°C)
Maximum Pick-Up	Available on request	20/25 Milliseconds	15 Milliseconds
Maximum Release	Available on request	20/25 Milliseconds	10 Milliseconds
Life Mechanical Operations Electrical Operations	20 Million —	10 Million 200,000	5 Million (D3PF) / 10 Million (D3PR) 200,000 (D3PF) / 100,000 (D3PR)

Relays Product Overview

			
Description	D4 Series	D5 Series	D7 Series
Page	Page 149	Page 150	Page 152
Approvals			
Features	<ul style="list-style-type: none"> • Polycarbonate Cover • Indicator Lamp Available • Panel and DIN Mounting • Socket Has Built-In Hold Down Spring 	<ul style="list-style-type: none"> • Polycarbonate Cover • Indicator Lamp and Pushbutton Available • Panel, DIN and PC Board Mounting 	<ul style="list-style-type: none"> • Polycarbonate Cover • Indicator Lamp and Pushbutton Available • Panel, DIN and Flange Mounting

Contact Data

Configuration	SPDT	DPDT	SPDT	DPDT	3PDT	SPDT	DPDP	3PDT	4PDT
Maximum Allowable Load	10A at 250V ac	5A at 240V ac	15A at 240V ac	15A at 240V ac	15A at 240V ac	20A at 277V ac	15A at 120V ac	15A at 240V ac	15A at 120V ac
Material	AgCdO		AgCdO (Au flashed)			AgCdO			
Resistance	100 Milliohms (initial)		50 Milliohms (initial)			50 Milliohms (initial)			
Dielectric Strength	5000V		1500V (D5PF) / 2000V (D5PR)			1000V (D7PF1, D7PF2, D7PF3) / 1500V			

Coil Data

AC	6 – 240V ac	24 – 110V ac (D5PF) 6 – 240V ac (D5PR)	6 – 240V ac
DC	6 – 110V ac	24 – 110V ac (D5PF) 6 – 110V ac (D5PR)	6 – 110V ac
Power VA (V ac) Watts (V dc)	0.9 VA 0.5 Watts	2.75 VA 1.2 Watts	3.0 VA (D7PF3, D7PF4) / 2.55 VA 2.3 Watts (D7PF1, D7PF2, D7PF4); 3.4 Watts (D7PF3) / 1.5 Watts

General Data











Ambient Temperature Operational Storage	-40 – 158°F (-40 – 70°C) -40 – 158°F (-40 – 70°C)	-22 – 122°F (-30 – 50°C) -22 – 212°F (-30 – 100°C)	-40 – 158°F (-40 – 70°C) -40 – 212°F (-40 – 100°C)
Maximum Pick-Up	15 Milliseconds	24 Milliseconds	20 Milliseconds (D7PF1, D7PF4) 25 Milliseconds (All Others)
Maximum Release	10 (AC) / 5 (DC) Milliseconds	26 Milliseconds	20 Milliseconds / 25 Milliseconds
Life Mechanical Operations Electrical Operations	10 Million 100,000	5 Million 200,000 (D5PF) / 100,000 (D5PR)	10 Million 100,000 (D7PR3, D7PR4, D7PF1) 150,000 (D7PF3, D7PF4) 200,000 (D7PF2, D7PR1, D7PR2)

Industrial Logic

Relays

PRODUCT OVERVIEW

Relays Product Overview

					
Description	D8 Series	D9 Series	Type AA Series	XTRE Series	E5-248 Series
Page	Page 154	Page 155	Page 156	Page 157	Page 159
Approvals					
Features	<ul style="list-style-type: none"> Dust Cover Panel, DIN and Flange Mounting Quick-Connect and Screw Terminals 	<ul style="list-style-type: none"> Dust Cover Pushbutton Available Panel Mounting Screw Terminals 	<ul style="list-style-type: none"> Available Blowout Magnets for High dc Switching Available Auxiliary Switches Combo Head Screws for Simple Hook-Up Riveted Construction for Long Service Life 	<ul style="list-style-type: none"> 4-Pole Configurations IP20 Finger & Back-of-Hand Proof Positively Driven Contacts Between the Relay and Auxiliary Contact Modules as well as within the Auxiliary Contact Modules 	<ul style="list-style-type: none"> 9 Timing Ranges and 8 Timing Functions in One Unit Battery-Powered, No Need for External Power Source Contacts Programmable as NO or NC High-Contrast 2-Line LCD Display

Contact Data

Configuration	SPST-NO	DPST-NO	4PST NO, NC		DPDT	NO-NC Variations in a 4-Pole Relay Plus 4-Pole Aux. Module	SPST
Maximum Allowable Load	30A at 220V ac	25A at 220V ac	25A at 220V ac	8A at 220V ac	40A	16A (I _{th})	8A
Material	AgCdO		AgCdO		Silver Cadmium Oxide, Gold Flashed	—	—
Resistance	50 Milliohms (initial)		50 Milliohms (initial)		—	—	—
Dielectric Strength	4000V		4000V		1500V (between contacts)	6000V ac (U _{imp})	—









Coil Data

AC	6 – 240V ac	6 – 240V ac	6 – 600V ac	12 – 600V ac	—
DC	12 – 24V ac	12 – 110V ac	6 – 220V dc	24 – 240V dc	3V (battery supplied)
Power VA (V ac) Watts (V dc)	2.5 VA 1.9 Watts	2.6 VA 2.0 Watts	10 VA 4 Watts	3.3 VA 3 Watts	—

General Data

Ambient Temperature Operational Storage	-4 – 185°F (-20 – 85°C) -4 – 185°F (-20 – 85°C)	-13 – 140°F (-25 – 60°C) -13 – 140°F (-25 – 60°C)	-40 – 131°F (-40 – 55°C) -40 – 185°F (-40 – 85°C)	-13 – 140°F (-25 – 60°C) -40 – 176°F (-40 – 80°C)	14 – 122°F (-10 – 50°C) -4 – 158°F (-20 – 70°C)
Maximum Pick-Up	30 Milliseconds	50 Milliseconds	50 Milliseconds	21 Milliseconds (ac) 31 Milliseconds (dc)	—
Maximum Release	30 Milliseconds	50 Milliseconds	35 Milliseconds	18 Milliseconds (ac) 12 Milliseconds (dc)	20 Milliseconds
Life Mechanical Operations Electrical Operations	5 Million 100,000	1 Million 100,000	— 6000	20 Million 100,000	5 Million 100,000

Relays Product Overview

				
Description	TR Series	TMR5 Series	D65 Series	D65C Series
Page	Page 160	Page 161	Page 162	Page 164
Approvals				
Features	<ul style="list-style-type: none"> Available in Octal Pin or Blade Plug-In Configurations 20 Timing Ranges and 10 Timing Functions in One Unit Space-Saving, Compact Design LED Indicator for Quick Troubleshooting 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Various Combinations of Protection Available Compact Cases for Easy Mounting LED Indicators for Quick Troubleshooting 	<ul style="list-style-type: none"> Monitors AC Single-Phase Currents from 0.1 – 10 A External CT can be Used to Extend Ranges LED Indicates Output Relay Status Choice of Fixed or User-Adjustable Settings

Contact Data

Configuration	DPDT	DPDT	SPDT or DPDT	—
Maximum Allowable Load	10A	10A	10A	Less than 5 VA
Material	—	—	—	—
Resistance	—	—	—	—
Dielectric Strength	2000V (between poles)	2001V	2000V	—

Coil Data

AC	24 – 240V ac	12 – 240V ac	24 – 480V ac	—
DC	24V dc	12 – 240V dc	24 – 120V dc	—
Power VA (V ac) Watts (V dc)	— 11.6 Watts (max)	2 VA —	5 VA —	— —

General Data

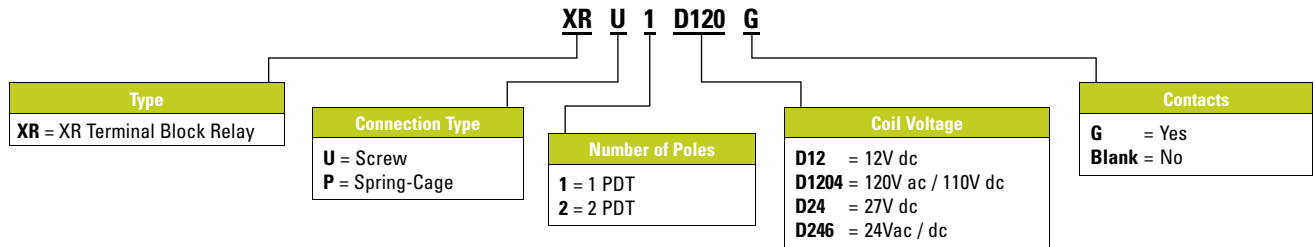
Ambient Temperature Operational Storage	-4 – 149°F (-20 – 65°C)	-4 – 149°F (-20 – 65°C)	-4 – 149°F (-20 – 65°C)	-20° to 131°F (-28° to 55°C)
Maximum Pick-Up	—	80 Milliseconds	<= 500 Milliseconds	Overcurrent: Adjustable through-out current range monitored / Undercurrent: Fixed at 5% above adjustable drop-out setting
Maximum Release	100 Milliseconds	100 Milliseconds	<= 500 Milliseconds	Overcurrent: Fixed at 95% of pick-up setting for D65CE; adjustable from 50 – 95% of pick-up setting for D65CEK / Undercurrent: Adjustable throughout current range monitored
Life Mechanical Operations Electrical Operations	50 Million 500,000	10 Million 100,000	10 Million 100,000	10 Million 100,000

Industrial Logic

Relays

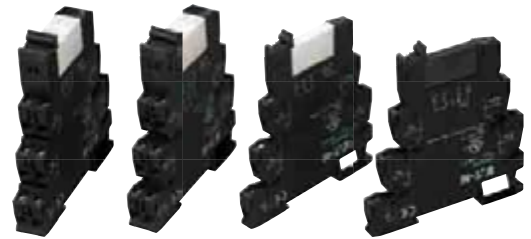
CATALOG SELECTION / PRODUCT SELECTION

Terminal Block Relays — Catalog Numbering System



Terminal Block Relays

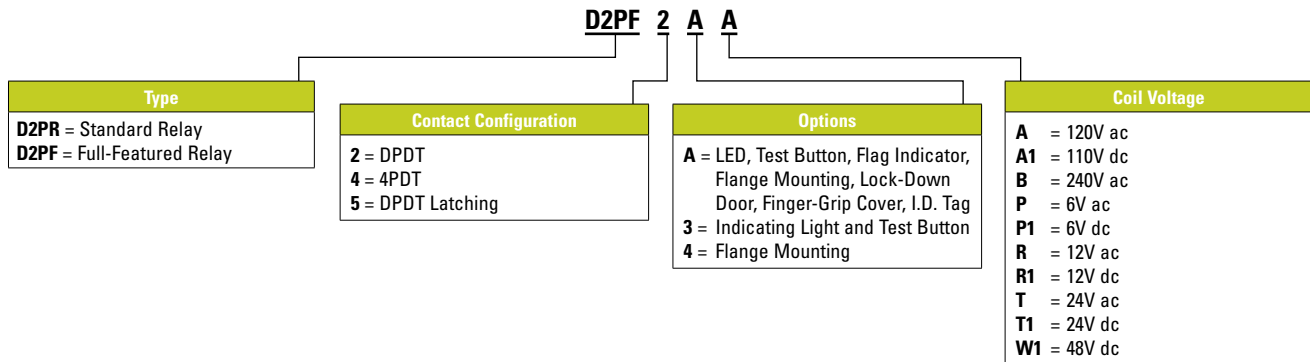
- Pluggable relay allows for field replacement
- Functional plug-in bridges
- LED status indication
- Only 6.2 mm wide for single pole versions, 14 mm wide for double pole



Standard Terminal Block Relays

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

General Purpose Plug-in Relays — D2 Series — Catalog Numbering System ①



① For deciphering Catalog Numbers. Do not use for ordering as not all combinations are readily available.

General Purpose Plug-In Relays — D2 Series

- Ultra-high sensitivity relay with quick response
- Designed small, 2-pole type break 5A load and 4-pole type, 3A load
- High reliability, long life
- Panel, DIN-Rail and flange mounting
- Small size



D2PR Relay / Socket Quick Reference

Relay Type	Socket	Hold Down Spring/Clip
D2PR2	D2PA6	PMC-A1
D2PR4	D2PA6	PMC-A1
D2PR5	D2PA4	PYC-A1

D2PR Standard Relays

Coil Voltage	Catalog Number
--------------	----------------

Standard DPDT

24V ac	D2PR2T D2PR2A D2PR2B D2PR2R1 D2PR2T1
110V ac	
240V ac	
12V dc	
24V dc	

DPDT with Indicating Light and Test Button

24V ac	D2PR23T D2PR23A D2PR23T1
110V ac	
24V dc	

DPDT Flange Mount

110V ac	D2PR24A
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Standard 4PDT

24V ac	D2PR4T D2PR4A D2PR4R1 D2PR4T1 D2PR4A1
110V ac	
12V dc	
24V dc	
24V dc	
110V dc	

D2PR Standard Relays (continued)

Coil Voltage	Catalog Number
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4PDT with Indicating Light and Test Button

24V ac	D2PR43T D2PR43A D2PR43R1 D2PR43T1 D2PR43A1
110V ac	
12V dc	
24V dc	
24V dc	
110V dc	

4PDT Flange Mount

110V ac	D2PR44A
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DPDT Latching

110V ac	D2PR5A D2PR5T1
24V dc	

D2PR Sockets and Accessories

Description	Standard Pack	Catalog Number
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DIN-Rail or Panel Mount Socket and Accessories

4-Pole Socket	10	D2PA6 PMC-A1 PFM-M
Spring Clip	100	
DIN Rail End Stop	100	

DIN-Rail or Panel Mount Socket and Accessories for D2PR5 Latching Relays

4-Pole Socket	10	D2PA4 PYC-A1 PFM-M
Hold-Down Spring	100	
DIN-Rail End Stop	100	

Industrial Logic

Relays

PRODUCT SELECTION

General Purpose Plug-In Relays — D2 Series

D2PF Relay/Socket Quick Reference

Relay Type	Socket	Socket Type	Hold Down Clip
D2PF2	D2PA6	Screw Terminal	PQC-1342
	D2PA7	Screw Terminal, Finger-Safe	Included with Socket
D2PF4	D2PA6	Screw Terminal	PQC-1342
	D2PA7	Screw Terminal, Finger-Safe	Included with Socket

D2PF Sockets and Accessories

Description	Standard Pack	Catalog Number
4-Pole DIN or Panel Mount Socket	10	D2PA6
Hold Down Clip	10	PQC-1342
4-Pole DIN or Panel Mount Socket — Finger-Safe	10	D2PA7
DIN-Rail End Stop	200	PPF-M

D2PF Full-Featured Relays

Coil Voltage	Catalog Number
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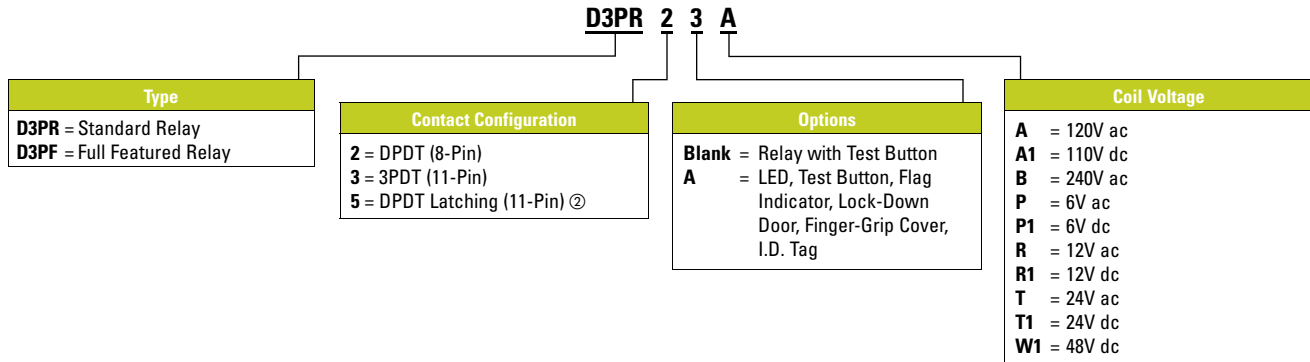
DPDT

6V ac 6V dc 12V ac 12V dc 24V ac	D2PF2AP D2PF2AP1 D2PF2AR D2PF2AR D2PF2AT
24V dc 48V dc 110V dc 120V ac 240V ac	D2PF2AT1 D2PF2AW1 D2PF2AA1 D2PF2AA D2PF2AB

4PDT

6V ac 12V ac 12V dc 24V ac 24V dc	D2PF4AP D2PF4AR D2PF4AR1 D2PF4AT D2PF4AT1
48V dc 110V dc 120V ac 240V ac	D2PF4AW1 D2PF4AA1 D2PF4AA D2PF4AB

General Purpose Plug-In Relays — D3 Series — Catalog Numbering System ①



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 — D3 Series

- 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



Relay / Socket Quick Reference

Relay Type	Socket Type	Socket	Hold Down Spring/Clip
D3PR2	8-Pin Octal	D3PA2 D3PA4 D3PA6	PQC-1344 Not Available PQC-1332
D3PF2	8-Pin Octal	D3PA2	PQC-1344
	8-Pin Octal — Finger-Safe Terminals	D3PA6	PQC-1332
D3PR3	11-Pin Octal	D3PA3-A2 D3PA5 D3PA7	PQC-1351 Not Available PQC-1332
D3PF3	11-Pin Octal	D3PA3-A2	PQC-1351
	11-Pin Octal — Finger-Safe Terminals	D3PA7	PQC-1332
D3PR5	11-Pin Octal	D3PA3-A2 D3PA5 D3PA7	PQC-1351 Not Available PQC-1332

Industrial Logic

Relays

PRODUCT SELECTION

General Purpose Plug-In Relays — D3 Series

D3 Series

Coil Voltage	Catalog Number
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Standard DPDT with Test Button

12V ac	D3PR2R
24V ac	D3PR2T
120V ac	D3PR2A
240V ac	D3PR2B
12V dc	D3PR2R1
24V dc	D3PR2T1
110V dc	D3PR2A1

DPDT Full Featured Relay

24V ac	D3PF2AT
120V ac	D3PF2AA
240V ac	D3PF2AB
12V dc	D3PF2AR1
24V dc	D3PF2AT1
110V dc	D3PF2AA1

Standard 3PDT with Test Button

24V ac	D3PR3T
120V ac	D3PR3A
240V ac	D3PR3B
12V dc	D3PR3R1
24V dc	D3PR3T1
110V dc	D3PR3A1

3PDT Full Featured Relay

24V ac	D3PF3AT
120V ac	D3PF3AA
240V ac	D3PF3AB
24V dc	D3PF3AT1
110V dc	D3PF3AA1

DPDT Latching ①

24V ac	D3PR5T
120V ac	D3PR5A

① CSA approval is not applicable to D3PR5 Latching Relays.

D3 Series Sockets and Accessories

Description	Standard Pack	Catalog Number
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DIN-Rail Sockets

2-Pole (8-Pin)	10	D3PA2
2-Pole (8-Pin) Finger-Safe ①	10	D3PA6
3-Pole (11-Pin)	10	D3PA3-A2
3-Pole (11-Pin) Finger-Safe ①	10	D3PA7

Panel Mount Sockets

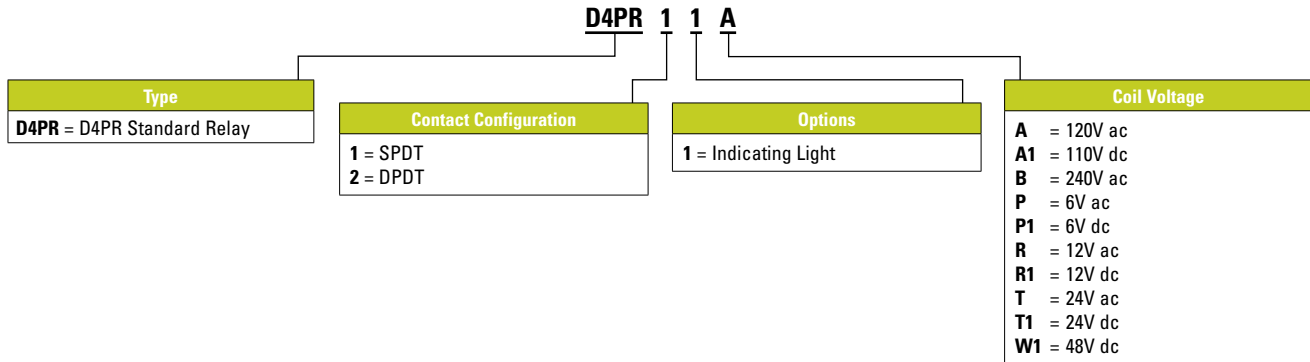
2-Pole	10	D3PA4
3-Pole	10	D3PA5

Accessories

Hold Down Clip	10	PQC-1344
Hold Down Clip	25	PQC-1332
Hold Down Clip	10	PQC-1351
Hold Down Clip	100	PWC-1325
Coil Buss Jumper for D3PA6 & D3PA7	25	D3PJ1
DIN-Rail End Stop	100	FFP-M

① IP20 rated.

General Purpose Plug-In Relays — D4 Series — Catalog Numbering System ①



① For deciphering Catalog Numbers. Do not use for ordering as not all combinations are readily available.

General Purpose Plug-In Relays — D4 Series

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



Relay / Socket Quick Reference

Relay Type	Socket	Hold Down Clip
D4PR1	D4PA1	①
D4PR2	D4PA2	①

① Socket has built-in hold down spring.

D4 Series

Coil Voltage	Catalog Number
Standard SPDT	
24V ac 120V ac	D4PR1T D4PR1A
24V dc	D4PR1T1
SPDT with Indicating Light	
24V ac 120V ac	D4PR11T D4PR11A
24V dc	D4PR11T1
Standard DPDT	
24V ac 120V ac	D4PR2T D4PR2A
12V dc 24V dc	D4PR2R1 D4PR2T1
DPDT with Indicating Light	
120V ac	D4PR21A
24V dc	D4PR21T1
DIN-Rail Sockets	
1-Pole 2-Pole	D4PA1 D4PA2
Accessories	
DIN-Rail End Stop	PFP-M

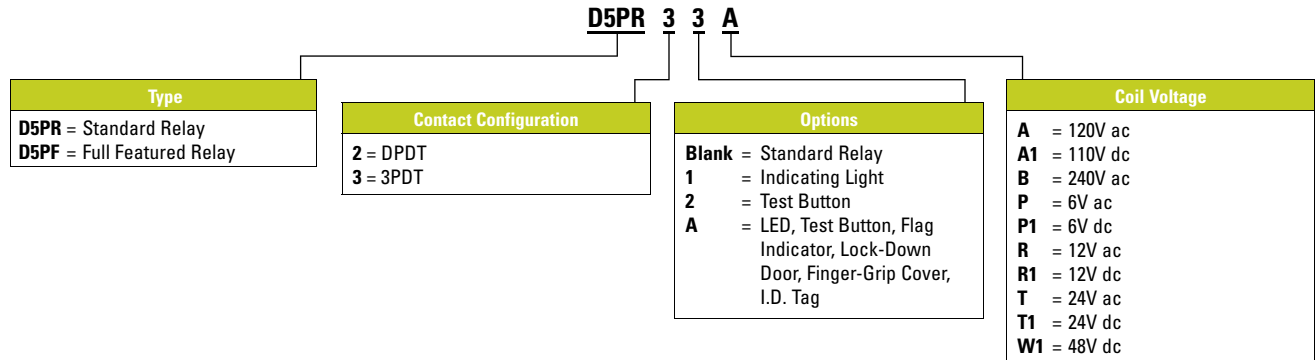
② Additional coil voltages available — consult Sales Office or Customer Support Center.

Industrial Logic

Relays

CATALOG SELECTION / PRODUCT SELECTION

General Purpose Plug-In Relays — D5 Series — Catalog Numbering System ①



① For deciphering Catalog Numbers. Do not use for ordering as not all combinations are readily available.

General Purpose Plug-In Relays — D5 Series

- Industrial rated 300V, 15A relay in 2-pole and 3-pole configurations
- Compact design can be panel or DIN-Rail mounted



Relay / Socket Quick Reference

Relay Type	Socket Type	Socket	Hold Down Spring
D5PR2	11-Pin Screw	D5PA2	D5PB2
	11-Pin Solder	D5PA3S or D5PA3L	D5PB2
D5PR3	11-Pin Screw	D5PA2	D5PB2
	11-Pin Solder	D5PA3S or D5PA3L	D5PB2
D5PF2/D5PF3	11-Pin Screw	D5PA2	PWC-1351
	11-Pin Solder	D5PA3S or D5PA3L	PWC-1325

General Purpose Plug-In Relays

D5 Series

Coil Voltage	Catalog Number
--------------	----------------

DPDT

24V ac 120V ac 240V ac	D5PR2T D5PR2A D5PR2B
12V dc 24V dc 110V dc	D5PR2R1 D5PR2T1 D5PR2A1

DPDT with Indicating Light

120V ac	D5PR21A
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DPDT with Test Button

120V ac	D5PR22A
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3PDT

24V ac 120V ac 240V ac	D5PR3T D5PR3A D5PR3B
12V dc 24V dc 110V dc	D5PR3R1 D5PR3T1 D5PR3A1

3PDT with Indicating Light

120V ac	D5PR31A
24V dc	D5PR31T1

3PDT with Test Button

120V ac	D5PR32A
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DPDT — 11-Pin Screw

24V ac 120V ac 240V ac 12V dc 24V dc 110V dc	D5PF2AT D5PF2AA D5PF2AB D5PF2AR1 D5PF2AT1 D5PF2AA1
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3PDT — 11-Pin Solder

24V ac 120V ac 240V ac 12V dc 24V dc 110V dc	D5PF3AT D5PF3AA D5PF3AB D5PF3AR1 D5PF3AT1 D5PF3AA1
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D5 Series Sockets and Accessories

Description	Standard Pack	Catalog Number
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DIN-Rail or Panel Mounting

Screw Terminal Socket	10	D5PA2
Hold Down Spring	100	D5PB2
Hold Down Clip	100 100	PMC-1325 PMC-1351
End Clamp with Mounting Screw (use with track below, one at each end)	100	PPF-M
35 mm x 7.5 mm Aluminum DIN Mounting Track (1 meter lengths)	20	D5PD2-20

Panel Mount Socket — Square Base

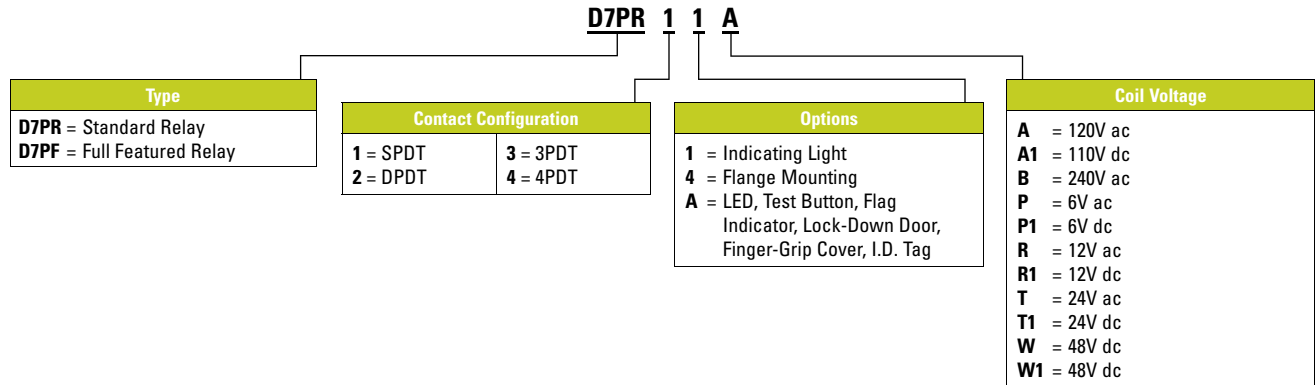
Long 0.130" Solder	10	D5PA3L
Standard 0.130" Solder	10	D5PA3S

Industrial Logic

Relays

CATALOG SELECTION / PRODUCT SELECTION

General Purpose Plug-In Relays — D7 Series — Catalog Numbering System ①



① For deciphering Catalog Numbers. Do not use for ordering as not all combinations are readily available.

General Purpose Plug-In Relays — D7 Series

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



Relay / Socket Quick Reference

Relay Type	Socket	Hold Down Spring
D7PR1	D7PA2 / D7PA5	PMC-A1
D7PR2	D7PA2 / D7PA5	PMC-A1
D7PR3	D7PA3	PYC-B2
D7PR4	D7PA4	PYC-B2
D7PF1 / D7PF2	D7PA9 / D7PA5	PQC-1342
D7PF1 / D7PF2	D7PAA	PQC-1349
D7PF3	D7PA3	N/A
D7PF4	D7PA4	N/A
D7PF3	D7PAB	PQC-1350
D7PF4	D7PAD	PQC-1351

General Purpose Plug-In Relays

D7 Series

Coil Voltage	Catalog Number
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Standard SPDT

24V ac 120V ac 240V ac	D7PR1T D7PR1A D7PR1B
6V dc 12V dc 24V dc	D7PR1P1 D7PR1R1 D7PR1T1

SPDT with Indicating Light

24V ac 120V ac	D7PR11T D7PR11A
24V dc	D7PR11T1

SPDT Flange Mount

120V ac	D7PR14A
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SPDT Full Featured Relay

120V ac 110V dc 12V dc 24V ac 24V dc	D7PF1AA D7PF1AA1 D7PF1AR1 D7PF1AT D7PF1AT1
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Standard DPDT

24V ac 120V ac 240V ac	D7PR2T D7PR2A D7PR2B
12V dc 24V dc 48V dc 110V dc	D7PR2R1 D7PR2T1 D7PR2W1 D7PR2A1

DPDT Full Featured Relay

120V ac 110V dc 240V ac 12V dc 24V ac 24V dc	D7PF2AA D7PF2AA1 D7PF2AB D7PF2AR1 D7PF2AT D7PF2AT1
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DPDT Flange Mount

24V ac 120V ac	D7PR24T D7PR24A
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Standard 3PDT

120V ac	D7PR3A
12V dc 24V dc	D7PR3R1 D7PR3T1

3PDT with Indicating Light

120V ac	D7PR31A
12V dc 24V dc	D7PR31R1 D7PR31T1

D7 Series (Continued)

Coil Voltage	Catalog Number
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3PDT Flange Mount

120V ac	D7PR34A
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3PDT Full Featured Relay

120V ac 110V dc 240V ac 12V dc 24V ac 24V dc	D7PF3AA D7PF3AA1 D7PF3AB D7PF3AR1 D7PF3AT D7PF3AT1
---	---

Standard 4PDT

Coil Voltage: 24V ac 120V ac	D7PR4T D7PR4A
24V dc 110V dc	D7PR4T1 D7PR4A1

4PDT Full Featured

Coil Voltage: 120V ac 240V ac 12V ac 12V dc 24V ac 24V dc 48V dc	D7PF4AA D7PF4AB D7PF4AR D7PF4AR1 D7PF4AT D7PF4AT1 D7PF4AW1
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4PDT Flange Mount

120V ac	D7PR44A
24V dc	D7PR44T1

D7 Series Sockets and Accessories

Description	Standard Pack	Catalog Number
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DIN-Rail Mount Sockets

1- and 2-Pole	10	D7PA2
1- and 2-Pole Finger-Safe ①	10	D7PAA
3-Pole	10	D7PA3
3-Pole Finger-Safe ①	10	D7PAB
4-Pole	10	D7PA4
4-Pole Finger-Safe ①	10	D7PAD

Panel Mount Sockets

1- and 2-Pole	10	D7PA5
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Accessories

Spring Clip	100	PMC-A1
DIN-Rail End Stop	100	PPF-M
Hold Down Spring	100	PYC-B2

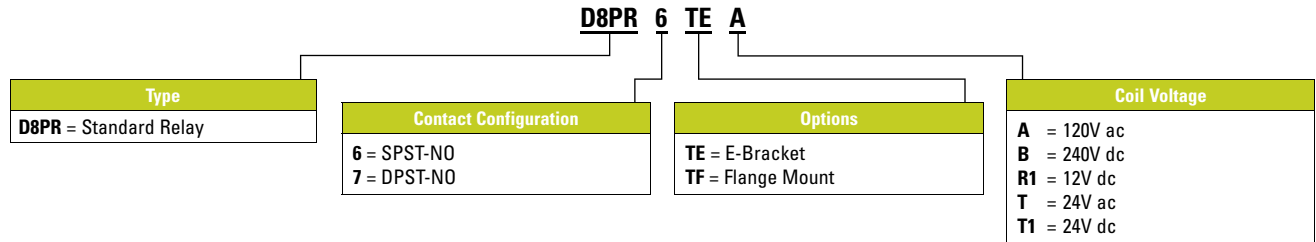
① IP20 rated.

Industrial Logic

Relays

CATALOG SELECTION / PRODUCT SELECTION

General Purpose Plug-In Relays — D8 Series — Catalog Numbering System ①



① For deciphering Catalog Numbers. Do not use for ordering as not all combinations are readily available.

General Purpose Plug-in Relays — D8 Series

- 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



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

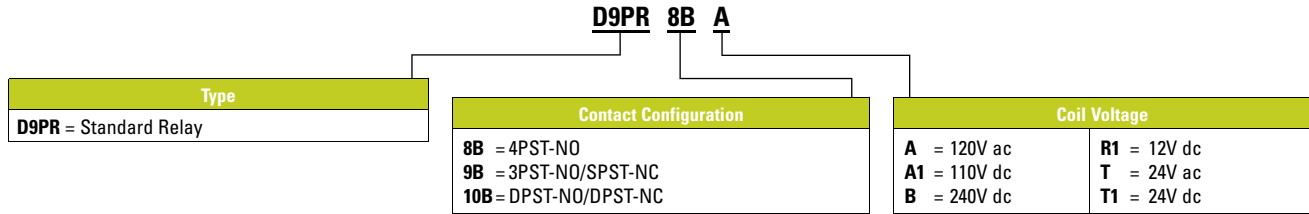
D8 Series Sockets and Accessories

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	PPF-M

D8 Series

Coil Voltage	Catalog Number
SPST E-Bracket	
24V ac	D8PR6TET
24V dc	D8PR6TET1
SPST Flange Mount	
120V ac	D8PR6TFA
24V dc	D8PR6TFT1
DPST E-Bracket	
120V ac	D8PR7TEA
DPST Flange Mount	
120V ac	D8PR7TFA
24V dc	D8PR7TFT1

General Purpose Plug-In Relays — D9 Series — Catalog Numbering System ①



① For deciphering Catalog Numbers. Do not use for ordering as not all combinations are readily available.

General Purpose Plug-In Relays — D9 Series

- Ideal for 3-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



D9 Series

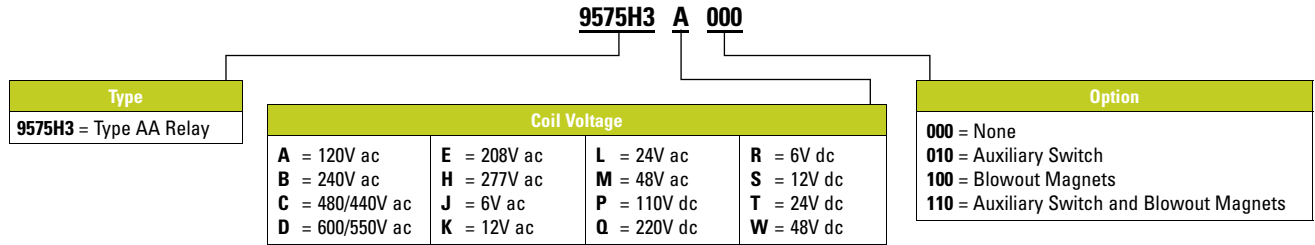
Coil Voltage	Catalog Number
4PST-NO-Power Relay	
24V ac	D9PR8BT
120V ac	D9PR8BA
240V ac	D9PR8BB
24V dc	D9PR8BT1
3PST-NO/SPST-NC Power Relay	
120V ac	D9PR9BA
DPST-NO/DPST-NC Power Relay	
24V ac	D9PR10BT
120V ac	D9PR10BA
24V dc	D9PR10BT1

Industrial Logic

Relays

CATALOG SELECTION / PRODUCT SELECTION

General Purpose Type AA Relays — Catalog Numbering System



General Purpose Type AA Relays

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



Type AA Relays

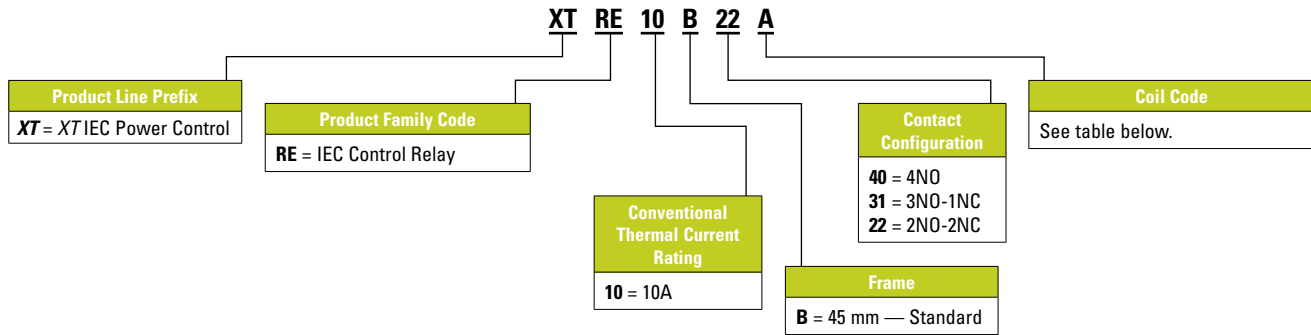
Relay Style	Catalog Number ①
Relay (DPDT)	9575H3_000
Relay with Auxiliary Switch	9575H3_010
Relay with Blowout Magnets	9575H3_100
Relay with Auxiliary Switch and Blowout Magnets	9575H3_110

① Underscore indicates missing coil voltage suffix code. See table below.

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
Volts DC		
110	—	P
220	—	Q
6	—	R
12	—	S
24	—	T
48	—	W

XTRE Control Relays — Catalog Numbering System



XTRE Control Relays

- 16A conventional thermal current (open at 60°C I_{th})
- 4-pole configurations
 - 4NO
 - 3NO – 1NC
 - 2NO – 2NC
- Expandable to 8-pole with add-on front-mount auxiliary contacts
- Built-in surge suppression on dc coils



Control Relays

Conventional Thermal Current I_{th} (A), Open at 60°C	Contact Configuration	Rated Operational Current AC-15 I_e (A)			Circuit Symbol	Catalog Number — Screw Terminals ①
		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_ ②

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

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

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
24V dc	TD
415V 50 Hz, 480V 60 Hz	C
550V 50 Hz, 600V 60 Hz	D
208V 60 Hz	E





Industrial Logic

Relays

PRODUCT SELECTION

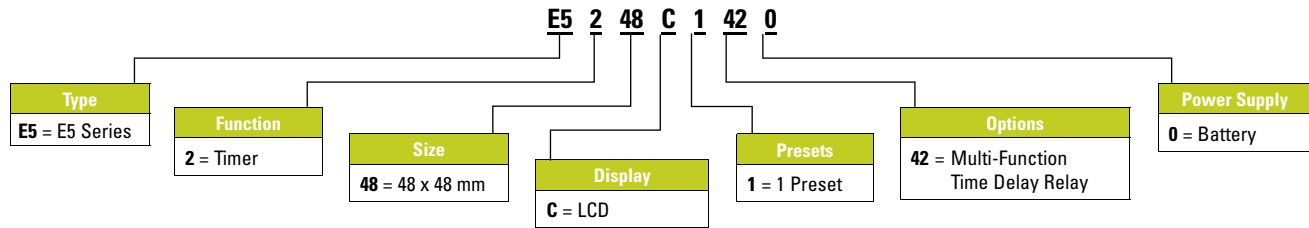
XTRE Control Relays

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)			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	XTCEXFAC20
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

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.

Battery-Powered LCD Time Control — Catalog Numbering System



Battery-Powered LCD Time Control

- No external voltage supply, because of internal replaceable lithium battery
- High contrast, 2-line LCD display, 5-digit with many symbols for easy operation and reading
- 9 programmable time ranges from 0.20 seconds up to 99.999 hours
- 8 timing modes —
 - ON Delay, OFF Delay, One Shot and Single Shot
 - Repeat cycle modes: Delay, Cycle, Symmetrical Delay



Battery-Powered Time Control

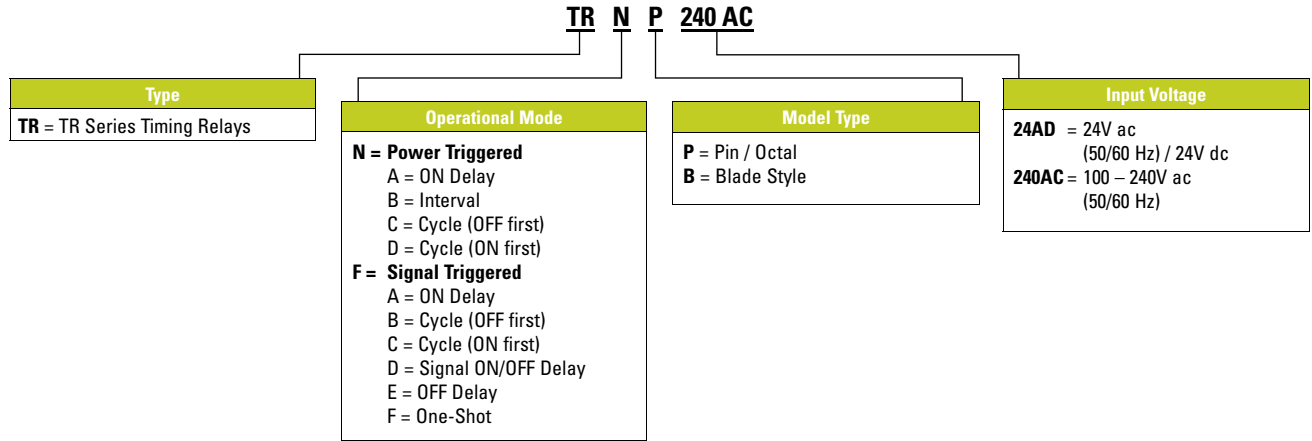
Description	Catalog Number
Battery-Powered LCD Time Control, 1.89 x 1.89 Inch (48 x 48 mm)	E5-248-C1420

Industrial Logic

Relays

CATALOG SELECTION / PRODUCT SELECTION

TR Series Timing Relays — Catalog Numbering System



TR Series Timing Relays

- 20 time ranges and 10 timing functions
- Time delays from 0.1 sec to 600 hrs
- Space-saving, compact package
- 2 Form C DPDT delayed output contacts
- 10A contact rating



TR Plug-In Timing Relays

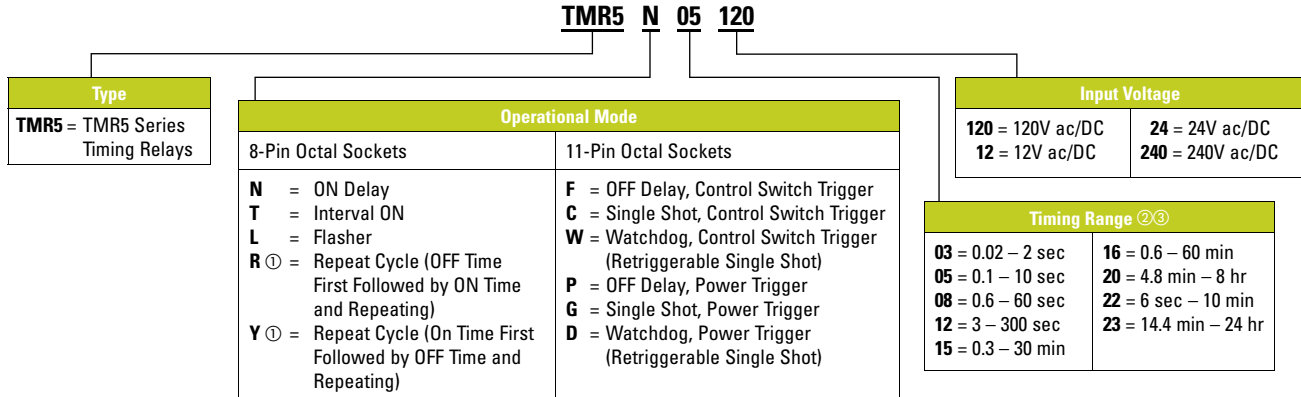
Coil Voltage	Octal	Blade
	Catalog Number	Catalog Number
Power Triggered		
24V ac/dc	TRNP24AD	TRNB24AD
100 – 240V ac	TRNP240AC	TRNB240AC
Signal Triggered		
24V ac/dc	TRFP24AD	TRFB24AD
100 – 240V ac	TRFP240AC	TRFB240AC

Socket for Use with TR Timers — Accessories

Timing Relay	Terminal Style	Catalog Number ①
TRNP	8-Pin Octal	D3PA2
TRFP	11-Pin Octal	D3PA3
TRNB, TRFB	0.187" Solder / QC Terminals (blade style)	D5PA2

① Standard pack of 10.

TMR5 Series Timing Relays — Catalog Numbering System



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.

TMR5 Series Timing Relays

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



TMR5 Time Delay Relays

Input Voltage	Socket	Timing Range	Catalog Number
ON Delay			
120V ac/DC	8-Pin	0.1 – 10 sec	TMR5N05120
120V ac/DC		0.6 – 60 sec	TMR5N08120
24V ac/DC		0.1 – 10 sec	TMR5N0524
24V ac/DC		0.6 – 60 sec	TMR5N0824

OFF Delay, Control Switch Trigger

120V ac/DC	11-Pin	0.1 – 10 sec	TMR5F05120
120V ac/DC		0.6 – 60 sec	TMR5F08120
24V ac/DC		0.1 – 10 sec	TMR5F0524
24V ac/DC		0.6 – 60 sec	TMR5F0824

Interval ON

120V ac/DC	8-Pin	0.1 – 10 sec	TMR5T05120
120V ac/DC		0.6 – 60 sec	TMR5T08120
24V ac/DC		0.1 – 10 sec	TMR5T0524
24V ac/DC		0.6 – 60 sec	TMR5T0824

TMR5 Time Delay Relays (Continued)

Input Voltage	Socket	Timing Range	Catalog Number
Single Shot, Control Switch Trigger			
120V ac/DC	11-Pin	0.1 – 10 sec	TMR5C05120
120V ac/DC		0.6 – 60 sec	TMR5C08120
24V ac/DC		0.1 – 10 sec	TMR5C0524
24V ac/DC		0.6 – 60 sec	TMR5C0824

Repeat Cycle (OFF Time First Followed by ON Time and Repeating)

120V ac/DC	8-Pin	0.1 – 10 sec	TMR5R05120
120V ac/DC		0.6 – 60 sec	TMR5R08120
24V ac/DC		0.1 – 10 sec	TMR5R0524
24V ac/DC		0.6 – 60 sec	TMR5R0824

Repeat Cycle (ON Time First Followed by OFF Time and Repeating)

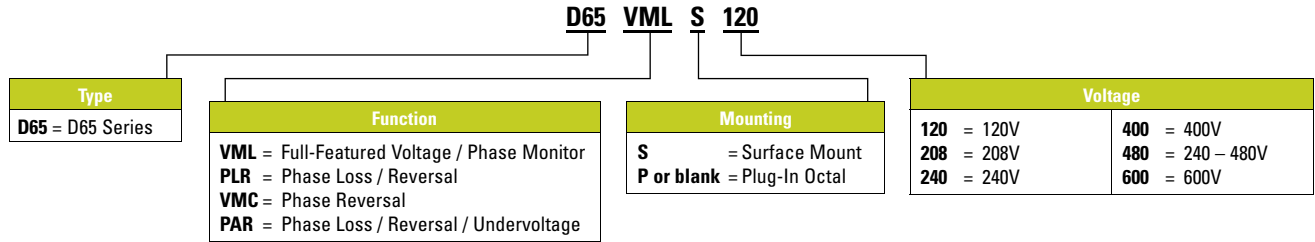
120V ac/DC	8-Pin	0.1 – 10 sec	TMR5Y05120
120V ac/DC		0.6 – 60 sec	TMR5Y08120
24V ac/DC		0.1 – 10 sec	TMR5Y0524
24V ac/DC		0.6 – 60 sec	TMR5Y0824

Industrial Logic

Relays

CATALOG SELECTION / PRODUCT SELECTION

D65 Series Monitoring Relays — Catalog Numbering System



D65 Series Full-Featured Monitoring Relays

- Full-featured voltage / phase monitoring relays
- Undervoltage, overvoltage, phase imbalance, phase loss (single-phasing), phase reversal
- Universal voltage range of 208 – 480V provides the flexibility to cover a variety of applications; 120V and 600V units also available
- Automatic or manual reset after the fault condition is corrected
- User-adjustable settings include nominal voltage, percent phase imbalance, undervoltage drop-out, time delay on undervoltage and time delay on restart after fault



D65VML Series

Style	Operating Voltage, 50/60 Hz	Catalog Number
Surface-Mount (DIN-Rail or Panel)	120V 208 – 480V 600V	D65VMLS120 D65VMLS480 D65VMLS600
Plug-In (DIN-Rail)	120V 208 – 480V	D65VMLP120 D65VMLP480 ①
8-Pin Socket	—	D3PA2
8-Pin IP20 Rated Socket	—	D3PA6

① Requires a 600V rated socket when used on system voltages greater than 300V. The D3PA2 socket is rated 10A, 600V.

D65 Series Phase Reversal Monitoring Relays

- Protects against phase reversal
- One version works on 208 – 480V three-phase systems
- 10A SPDT output contacts



D65VMC Series

Mounting Style	Nominal Voltage 50/60 Hz	Catalog Number
Plug-in	120V	D65VMC120
Plug-in	208 – 480V	D65VMC480 ①

① Requires a 600V rated socket when used on system voltages greater than 300V.

D65 Series Phase Loss and Reversal Monitoring Relays

- Protects against phase loss and phase reversal
- LED indicates both normal and fault conditions
- 10A SPDT output contacts



D65PLR Series

Mounting Style	Nominal Voltage 50/60 Hz	Catalog Number
Plug-In	120V	D65PLR120
Plug-In	208V	D65PLR208
Plug-In	240V	D65PLR240
Plug-In	400V	D65PLR400 ①
Plug-In	480V	D65PLR480 ①

① Requires a 600V rated socket when using on system voltages greater than 300V.

D65 Series Phase Loss, Reversal and Undervoltage

- Protects against phase loss, phase reversal and undervoltage
- Undervoltage setting is adjustable from 75% to 95% of nominal
- LED indicates both normal and fault conditions
- 10A SPDT output contacts



D65PAR Series

Mounting Style	Nominal Voltage 60 Hz	Undervoltage Range	Catalog Number
Plug-In	120V	90 – 115V	D65PAR120
Plug-In	208V	156 – 198V	D65PAR208
Plug-In	240V	180 – 230V	D65PAR240
Plug-In	400V	300 – 380V	D65PAR400 ①
Plug-In	480V	360 – 460V	D65PAR480 ①

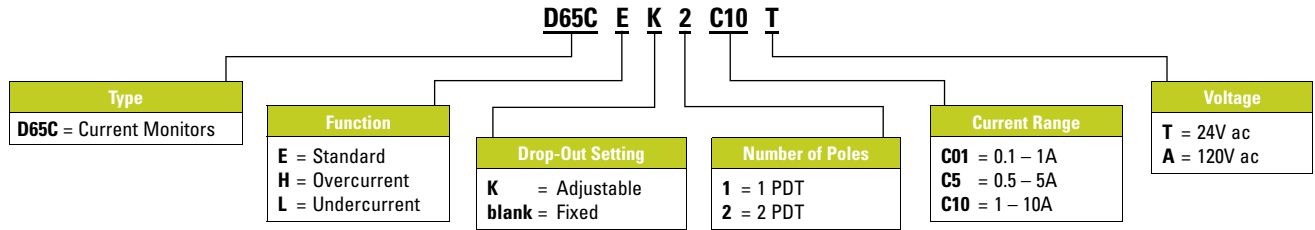
① Requires a 600V rated socket when using on system voltages greater than 300V.

Industrial Logic

Relays

CATALOG SELECTION / PRODUCT SELECTION

D65C Series Current Monitoring Relays — Catalog Numbering System



D65C Standard Current Monitoring Relays

- Monitors AC single-phase currents
- Three separate current monitoring ranges covering 0.1 – 10 amperes
- External CT can be used to extend ranges
- Fixed 100ms pick-up and drop-out time delay



D65C Series, Standard Current Monitors

Pick-Up Setting	Drop-Out Setting	Input Voltage	Current Range Monitored	Catalog Number
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SPDT — 8-Pin Plug-In

Adjustable	Fixed (at 95% of pick-up)	24V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CE1C01T D65CE1C5T D65CE1C10T
		120V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CE1C01A D65CE1C5A D65CE1C10A
Adjustable	Adjustable (50 – 95% of pick-up)	24V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CEK1C01T D65CEK1C5T D65CEK1C10T
		120V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CEK1C01A D65CEK1C5A D65CEK1C10A

DPDT — 11-Pin Plug-In

Adjustable	Fixed (at 95% of pick-up)	24V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CE2C01T D65CE2C5T D65CE2C10T
		120V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CE2C01A D65CE2C5A D65CE2C10A
Adjustable	Adjustable (50 – 95% of pick-up)	24V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CEK2C01T D65CEK2C5T D65CEK2C10T
		120V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CEK2C01A D65CEK2C5A D65CEK2C10A



D65C Overcurrent Monitoring Relays

- Monitors AC single-phase currents for overcurrent conditions
- Three separate current monitoring ranges covering 0.1 – 10 amperes
- External CT can be used to extend ranges
- Adjustable pick-up setting with either fixed or adjustable drop-out setting
- Adjustable time delay of 0.1 – 10 seconds on pick-up
- Fixed 100ms time delay on drop-out
- LED indicates output

D65C Series, Overcurrent Monitors

Pick-Up Setting	Drop-Out Setting	Input Voltage	Current Range Monitored	Catalog Number
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SPDT — 8-Pin Plug-In

Adjustable	Fixed (at 95% of pick-up)	24V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CH1C1T D65CH1C5T D65CH1C10T
		120V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CH1C1A D65CH1C5A D65CH1C10A
Adjustable	Adjustable (50 – 95% of pick-up)	24V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CHK1C1T D65CHK1C5T D65CHK1C10T
		120V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CHK1C1A D65CHK1C5A D65CHK1C10A

DPDT — 11-Pin Plug-In

Adjustable	Fixed (at 95% of pick-up)	24V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CH2C1T D65CH2C5T D65CH2C10T
		120V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CH2C1A D65CH2C5A D65CH2C10A
Adjustable	Adjustable (50 – 95% of pick-up)	24V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CHK2C1T D65CHK2C5T D65CHK2C10T
		120V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CHK2C1A D65CHK2C5A D65CHK2C10A

Industrial Logic

Relays

PRODUCT SELECTION

D65C Undercurrent Monitoring Relays

- Monitors AC single-phase currents for undercurrent conditions
- Three separate current monitoring ranges covering 0.1 – 10 amperes
- External CT can be used to extend ranges
- Adjustable drop-out setting with fixed pick-up setting
- Adjustable time delay of 0.1 – 10 seconds on drop-out
- Fixed 100ms time delay on pick-up



D65C Series, Undercurrent Monitors

Pick-Up Setting	Drop-Out Setting	Input Voltage	Current Range Monitored	Catalog Number
SPDT — 8-Pin Plug-In				
Fixed (at 5% of drop-out)	Adjustable	24V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CL1C1T D65CL1C5T D65CL1C10T
		120V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CL1C1A D65CL1C5A D65CL1C10A
SPDT — 11-Pin Plug-In				
Fixed (at 5% of drop-out)	Adjustable	24V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CL2C1T D65CL2C5T D65CL210T
		120V ac	0.1 – 1A 0.5 – 5A 1 – 10A	D65CL2C1A D65CL2C5A D65CL2C10A

Modularly Manage More I/O



EATON
Powering Business Worldwide

- Machine operator interface, logic and high-speed counting in one integrated controller
- Lower costs using intelligent relays to replace timers, relays and expandable I/O
- Small, yet scalable controllers with multiple I/O options and multi-vendor communications
- Low cost add-on I/O and communications enables creation of distributed control systems

Industrial Logic

Programmable Logic Controllers

PRODUCT OVERVIEW

Programmable Logic Controllers — Product Overview

				
Description	Fusion Integrated Machine Controller	EZ Relay EZ500 / EZ700 / EZ800	EZ Relay EZD	ELC PA / PB / PC / PH / PV
Page	Page 171	Page 172	Page 174	Page 175

User Interface

LCD Display (text / graphics)	3, 4 or 5-Line Text (embedded)	4-Line Text (embedded)	4-Line Text & Graphics (embedded)	Text & Graphics thru HMI or ELC-GP (external)
7-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 = 2 Embedded

I/O Digital

Embedded Digital Input Types	3.5 – 30V dc	12V dc / 24V dc 24V ac or 110/240V ac	24V ac / 110/240V ac (using EZD I/O)	24V dc or 110/240V ac
Embedded Digital Output Types	24V dc Transistor or High Current Relay (5A resistive)	24V dc Transistor or High Current Relay (8A resistive)	24V dc Transistor or High Current Relay (8A resistive) (using EZD I/O)	24V dc Transistor or Relay
Embedded Digital Inputs / Outputs per Unit	10 Control Inputs 3 Counter Inputs / 2 Transistor 5 Relay	EZ500 = 8 / 4 EZ700 / 800 = 12 (6 or 8)	12 / 4 (using EZD I/O)	PA = 4 / 2 PB = 8 / 6 PC / PH = 8 / 4 PV = 16 / 12
Expansion Digital Input Types	—	24V dc or 110/240V ac	24V dc or 110/240V ac	24V dc or 110/240V ac
Expansion Digital Output Types	—	24V dc Transistor or High Current Relay (8A resistive)	24V dc Transistor or High Current Relay (8A resistive)	24V dc Transistor, Relay or High Current Relay (6A resistive)
Max. Digital I/O Includes Embedded & Expansion	20	EZ500 = 12 EZ700 / 800 = 40 EZ800 (link up to 8 expanded units using EZ-NET) = 320	(link up to 8 expanded units with EZ-NET) = 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 @ 4-20 mA 2 @ 0-10V dc	Optional on DC Input Units EZ500 = 2 EZ700 = 4 EZ819 / 821 = N/A EZ820 / 822 = 1 All 0 to +10V dc	Optional on DC Input Units = 4 All 0 to +10V dc	PA = 2 @ Either -10 to +10V dc 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 @ 4-20 mA 1 @ 0-10V dc	Optional EZ820 / 822 = 1 All 0 to +10V dc	Available Using EZD-RA17 or EZD-TA17 EZD I/O Modules = 1 All 0 to +10V dc	PA = 2 @ Either -10 to +10V dc 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 +10V dc or -20 to +20 mA
Expansion Analog Input Resolution	—	—	—	V = 12 Bits, I = 13 Bits ①
Expansion Analog Outputs Types	—	0	0	0 to +20 mA, +4 to +20 mA 0 to +10V dc, +2 to +10V dc ①

① Combo modules have slightly different specifications.

Programmable Logic Controllers — Product Overview

				
Description	Fusion Integrated Machine Control	EZ Relay EZ500 / EZ700 / EZ800	EZ Relay EZD	ELC PA / PB / PC / PH / PV

I/O Analog

Expansion Analog Output Resolution	—	—	—	Voltage = 14 Bit Current = 12 Bit
Max. Expansion Analog Inputs / Outputs	—	0 / 0	0 / 0	Up to 32 / Up to 32 (max. using 8 combo modules = 32 in + 16 out)

I/O Specialty Inputs

RTD PT100	—	—	—	4 Point Expansion Module
Thermocouple	—	—	—	4 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	EZ500 / 700 = 128 Rungs EZ800 = 256 Rungs	EZ800 = 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	EZ500 / 700 = 16 EZ800 = 32	32	PB = 128 PA / PC / PH / PV = 244 Standard with Additional Timers for Subroutine and Retentive Applications
General Counters	8	EZ500 / 700 = 16 EZ800 = 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 5 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	EZ500 = Optional EZ700 / 800 = Yes	Yes	PA / PC / PH / PV = Yes Not Available on PB

Industrial Logic

Programmable Logic Controllers

PRODUCT OVERVIEW

Programmable Logic Controllers — Product Overview

				
Description	Fusion Integrated Machine Control	EZ Relay EZ500 / EZ700 / EZ800	EZ Relay EZD	ELC PA / PB / PC / PH / PV

Communications

Ports	1 RS-232 / RS-485	Programming Only	Programming Only	1 RS-232 Slave or Programming 1 RS-485 Master or Slave
DeviceNet	—	EZ700 / 800 = Slave Only	EZ700 / 800 = Slave Only	PA / PB / PC / PH = Slave Only PV = Master and Slave
Ethernet Modbus	—	EZ700 / 800 = Slave Only	EZ700 / 800 = Slave Only	PA / PB / PC / PH = Slave Only PV = Limited Master and Slave
ASi	—	EZ700 / 800 = Slave Only	EZ700 / 800 = Slave Only	—
PROFIBUS	—	EZ700 / 800 = Slave Only	EZ700 / 800 = Slave Only	—
CanOpen	—	EZ700 / 800 = Slave Only	EZ700 / 800 = Slave Only	—
Modbus Serial	Slave Only	—	—	ASCII / RTU Master and Slave

General Specifications

Hazardous Location Class I, Division 2	—	Yes	—	Yes
Agency Certifications	UL / CUL / CE	UL / CSA / CE / C-Tick	UL / CSA / CE / C-Tick	UL / CUL / 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 / 240V ac 24V dc 12V dc	100 / 240V ac 24V dc 12V dc	100 / 240V ac 24V dc	24V dc 110 / 240V ac using ELC Power Supply

Fusion® Integrated Machine Controller

- User-configurable operator interface with back-lit LCD display and 18-button tactile feedback keypad
- High-speed counter with 5 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



Fusion Integrated Machine Control

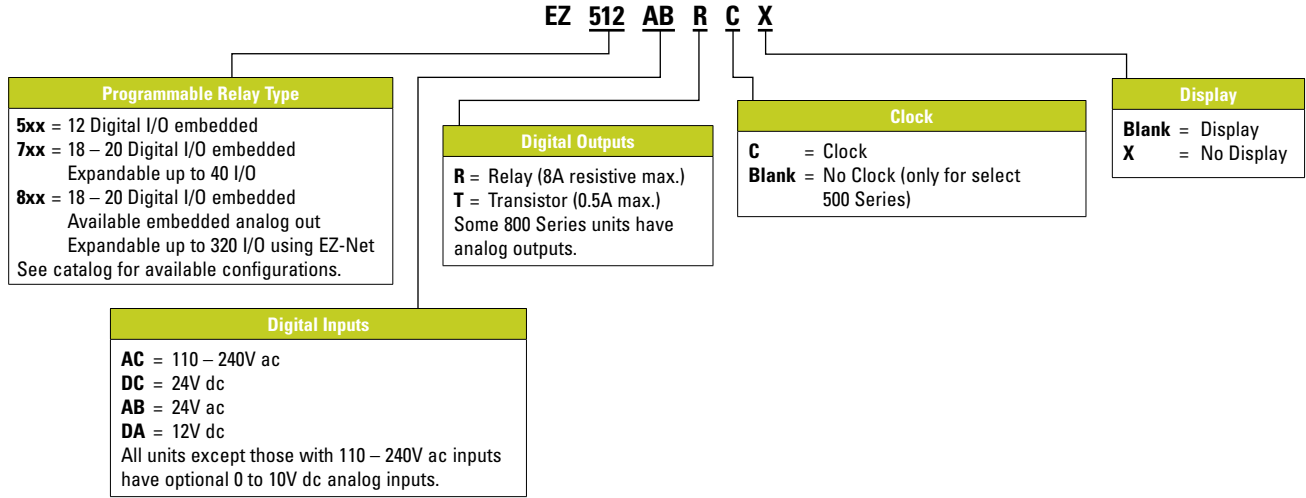
Description	Catalog Number
Fusion Integrated Machine Control — 10 – 30V dc Power	57550400
Fusion Integrated Machine Control — 85 – 265V ac Power	57551400

Industrial Logic

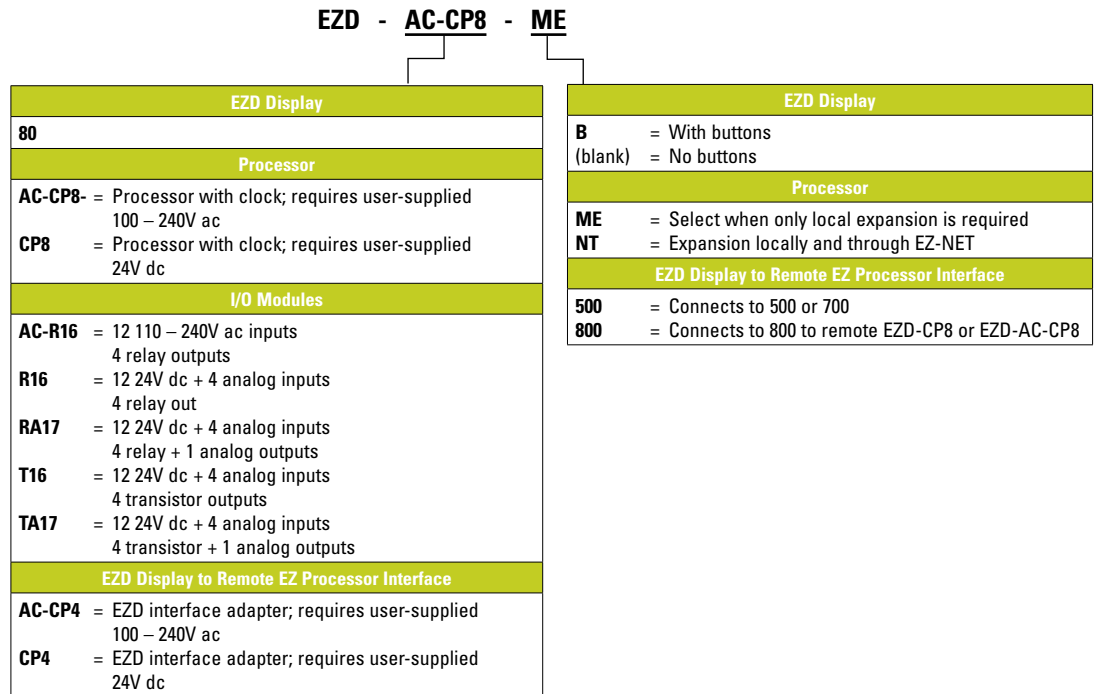
Programmable Logic Controllers

CATALOG SELECTION

EZ Intelligent Relay — Catalog Numbering System



EZD Intelligent Relay Displays and Controllers — Catalog Numbering System



EZ Intelligent Relays

- EZ500 Series — for controlling small applications with up to 12 input / output signals
- EZ700 Series — for controlling medium-sized applications with up to 40 input / output signals
- EZ800 Series — for controlling large-scale applications with up to 320 input / output signals; use EZ-NET for applications beyond 40 I/O
- EZD Series — for controlling applications with visualization. The EZD display can be linked to the EZ500 / 700 / 800 models for text only; graphics capabilities are available when using the CP8 modules



EZ500 Intelligent Relays

Description	Inputs					Outputs		Catalog Number
	24V ac	110 – 240V ac	12V dc	24V dc	Analog	Relay	Transistor	
12 I/O, Clock, Display	8	—	—	—	2	4	—	EZ512-AB-RC
12 I/O, Clock, No Display	8	—	—	—	2	4	—	EZ512-AB-RCX
12 I/O, No Clock, Display	—	8	—	—	—	4	—	EZ512-AC-R
12 I/O, Clock, Display	—	8	—	—	—	4	—	EZ512-AC-RC
12 I/O, Clock, No Display	—	8	—	—	—	4	—	EZ512-AC-RCX
12 I/O, Clock, Display	—	—	8	—	2	4	—	EZ512-DA-RC
12 I/O, Clock, No Display	—	—	8	—	2	4	—	EZ512-DA-RCX
12 I/O, No Clock, Display	—	—	—	8	2	4	—	EZ512-DC-R
12 I/O, Clock, Display	—	—	—	8	2	4	—	EZ512-DC-RC
12 I/O, Clock, No Display	—	—	—	8	2	4	—	EZ512-DC-RCX
12 I/O, Clock, Display	—	—	—	8	2	—	4	EZ512-DC-TC
12 I/O, Clock, No Display	—	—	—	8	2	—	4	EZ512-DC-TCX

Note: Analog inputs optional; use of analog inputs will result in a decrease in the same number of available digital inputs.

EZ700 Intelligent Relays

Description	Inputs					Outputs		Catalog Number
	24V ac	110 – 240V ac	12V dc	24V dc	Analog	Relay	Transistor	
18 I/O, Clock, Display	12	—	—	—	4	6	—	EZ719-AB-RC
18 I/O, Clock, No Display	12	—	—	—	4	6	—	EZ719-AB-RCX
18 I/O, Clock, Display	—	12	—	—	—	6	—	EZ719-AC-RC
18 I/O, Clock, No Display	—	12	—	—	—	6	—	EZ719-AC-RCX
18 I/O, Clock, Display	—	—	12	—	4	6	—	EZ719-DA-RC
18 I/O, Clock, No Display	—	—	12	—	4	6	—	EZ719-DA-RCX
18 I/O, Clock, Display	—	—	—	12	4	6	—	EZ719-DC-RC
18 I/O, Clock, No Display	—	—	—	12	4	6	—	EZ719-DC-RCX
20 I/O, Clock, Display	—	—	—	12	4	—	8	EZ721-DC-TC
20 I/O, Clock, No Display	—	—	—	12	4	—	8	EZ721-DC-TCX

Note: Analog inputs optional; use of analog inputs will result in a decrease in the same number of available digital inputs.

EZ800 Intelligent Relays

Description	Inputs			Outputs			Catalog Number
	110 – 240V ac	24V dc	Analog	Relay	Transistor	Analog	
18 I/O, Clock, Display	12	—	—	6	—	—	EZ819-AC-RC
18 I/O, Clock, No Display	12	—	—	6	—	—	EZ819-AC-RCX
18 I/O, Clock, Display	—	12	4	6	—	—	EZ819-DC-RC
18 I/O, Clock, No Display	—	12	4	6	—	—	EZ819-DC-RCX
19 I/O, Clock, Display	—	12	4	6	—	1	EZ820-DC-RC
19 I/O, Clock, No Display	—	12	4	6	—	1	EZ820-DC-RCX
20 I/O, Clock, Display	—	12	4	—	8	—	EZ821-DC-TC
20 I/O, Clock, No Display	—	12	4	—	8	—	EZ821-DC-TCX
21 I/O, Clock, Display	—	12	4	—	8	1	EZ822-DC-TC
21 I/O, Clock, No Display	—	12	4	—	8	1	EZ822-DC-TCX

Note: Analog inputs optional; analog outputs optional; use of analog inputs will result in a decrease in the same number of available digital inputs.

Industrial Logic

Programmable Logic Controllers

PRODUCT SELECTION

EZ Intelligent Relays

EZD Displays (EZD-80) and EZD Controllers (EZD-CP8)

Description	Catalog Number
EZD, No Buttons	EZD-80
EZD, Buttons	EZD-80-B
EZD CPU with 24V dc, Power Supply, Clock	EZD-CP8-ME
EZD CPU with 24V dc, Power Supply, Clock, EZ-Net	EZD-CP8-NT
EZD CPU with 100 – 240V ac, Power Supply, Clock	EZD-AC-CP8-ME
EZD CPU with 100 – 240V ac, Power Supply, Clock, EZ-Net	EZD-AC-CP8-NT

EZD Display to EZ Communication Modules (EZD-CP4)

Description	Catalog Number
EZD Display to EZ500/700 DC Communication Module. Use with EZ800 Communication Cable (EZD-CP4-800-CAB5)	EZD-CP4-500
EZD Display to EZ800 or EZD DC Powered Communication Module. Use with EZ800 Communication Cable (EZD-CP4-800-CAB5)	EZD-CP4-800
EZD Display to EZ500/700 AC Communication Module with EZ500/700 Communication Cable (EZD-CP4-500-CAB5)	EZD-AC-CP4-500
EZD Display to EZ800 or EZD AC Powered Communication Module. Use with EZ800 Communication Cable (EZD-CP4-800-CAB5)	EZD-AC-CP4-800

EZD Controller I/O Modules

Description	Inputs			Outputs			Catalog Number
	110 – 240V ac	24V dc	Analog	Relay	Transistor	Analog	
16 I/O	12	—	—	4	—	—	EZD-AC-R16
16 I/O	—	12	4	4	—	—	EZD-R16
17 I/O	—	12	4	4	—	1	EZD-RA17
16 I/O	—	12	4	—	4	—	EZD-T16
17 I/O	—	12	4	—	4	1	EZD-TA17

Note: Analog inputs optional; use of analog inputs will result in a decrease in the same number of available digital inputs.

EZ / EZD I/O Expansion Modules ①

Description	Inputs		Outputs		Catalog Number
	110 – 240V ac	24V dc	Relay	Transistor	
2 I/O Expansion	—	—	2	—	EZ202-RE
18 I/O Expansion	12	—	6	—	EZ618-AC-RE
18 I/O Expansion	—	12	6	—	EZ618-DC-RE
20 I/O Expansion	—	12	—	8	EZ620-DC-TE
Coupling Module for Remote Mounting of Expansion Modules					EZ200-EZ

① All expansion modules include one EZ-LINK-DS.

EZ / EZD Communication Interface Modules

Description	Catalog Number
PROFIBUS-DP Slave Interface Module	EZ204-DP
AS-Interface Slave with 4 In and 4 Out Interface Module	EZ205-ASI
CANopen Interface Module	EZ221-CO
DeviceNet Slave Interface Module	EZ222-DN
Ethernet / IP Gateway	EZ209-SE

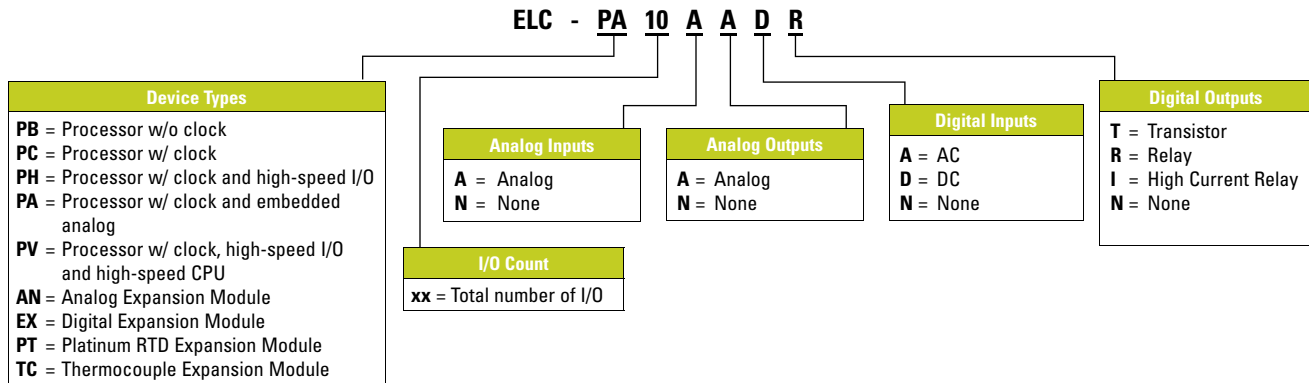
EZ / EZD-CP8 Power Supplies and Software

Description	Catalog Number
Programming Software for EZ500 / 700 / 800 and EZD	EZSOFT
100 – 240V ac Input to 12V dc at 20 mA / 24V dc at 250 mA	EZ200-POW
100 – 240V ac Input to 24V dc at 1.25A	EZ400-POW

EZ / EZD Cables and Connectors

EZ500 / 700 to EZD-CP4 Communication Cable, 5 m	EZD-CP4-500-CAB5
EZ800 to EZD-CP8 Communication Cable, 2 m	EZD-800-CAB
EZ800 to EZD-CP8 Communication Cable, 5 m	EZD-800-CAB5
EZ800 to EZD-CP4 Communication Cable, 5 m	EZD-CP4-800-CAB5
EZ800 / EZD EZ-NET Cable, 0.3 m	EZ-NT-30
EZ800 / EZD EZ-NET Cable, 0.8 m	EZ-NT-80
EZ800 / EZD EZ-NET Cable, 1.5 m	EZ-NT-150
EZ800 / EZD Network Termination Resistor, 2/Pack	EZ-NT-R
EZ800 / EZD EZ-NET Cable (cable only, no connectors, see EZ-NT-RJ45), 100 m	EZ-NT-CAB
RJ45 Network Connectors for EZ-NET Cable (EZ-NT-CAB), 10/Pack	EZ-NT-RJ45

ELC Eaton Logic Controller — Catalog Numbering System



ELC Eaton Logic Controller

- Sophisticated PLC logic with an extensive set of I/O and communication capabilities, in packages as small as 1" W x 24" D x 3.5" H



ELC Controllers (PB, PC, PH, PA, PV)

Description	Inputs			Outputs			Max. Current Consumption (at 24V dc)	Catalog Number
	AC	DC	Analog	Relay	Transistor	Analog		
14 I/O PB Series	—	8	—	6	—	—	150 mA	ELC-PB14NDR
14 I/O PB Series	—	8	—	—	6	—	150 mA	ELC-PB14NNDT
12 I/O PC Series	8	—	—	4	—	—	150 mA	ELC-PC12NNAR
12 I/O PC Series	—	8	—	4	—	—	150 mA	ELC-PC12NNDR
12 I/O PC Series	—	8	—	—	4	—	150 mA	ELC-PC12NNDT
12 I/O PH Series	—	8	—	—	4	—	170 mA	ELC-PH12NNDT
10 I/O PA Series	—	4	2	2	—	2	210 mA	ELC-PA10ADR
10 I/O PA Series	—	4	2	—	2	2	210 mA	ELC-PA10AADT
28 I/O PV Series	—	16	—	12	—	—	220 mA	ELC-PV28NDR
28 I/O PV Series	—	16	—	—	12	—	220 mA	ELC-PV28NNDT

Industrial Logic

Programmable Logic Controllers

PRODUCT SELECTION

ELC Eaton Logic Controller

Right Side Digital Expansion Modules

Description	Inputs		Outputs		Max. Current Consumption (at 24V dc)	Catalog Number
	AC	DC	Relay	Transistor		
6 Relay OUT (6 Amp)	—	—	6	—	70 mA	ELC-EX06NNNI
AC IN	8	—	—	—	50 mA	ELC-EX08NNAN
DC IN	—	8	—	—	50 mA	ELC-EX08NNDN
Relay OUT	—	—	8	—	70 mA	ELC-EX08NNNR
Transistor OUT	—	—	—	8	70 mA	ELC-EX08NNNT
IN / OUT Combo	—	4	4	—	70 mA	ELC-EX08NNDR
IN / OUT Combo	—	4	—	4	70 mA	ELC-EX08NNDT
16 I/O Expansion — IN / OUT Combo	—	8	8	—	90 mA	ELC-EX16NNDR
16 I/O Expansion — IN / OUT Combo	—	8	—	8	90 mA	ELC-EX16NNDT
8 I/O Expansion — Switch Input	—	8	—	—	20 mA	ELC-EX08NNSN

Right Side Analog and Specialty Modules

Description	Analog In	Analog Out	Mac. Current Consumption (at 24V dc)	Catalog Number
Analog In	4	—	90 mA	ELC-AN04ANNN
Analog Out	—	2	125 mA	ELC-AN02NANN
Analog Out	—	4	170 mA	ELC-AN04NANN
Analog In/Out	4	2	90 mA	ELC-AN06AANN
Thermocouple J, K, R, S, T	4	—	90 mA	ELC-TC04ANNN
Platinum RTD, PT100	4	—	90 mA	ELC-PT04ANNN

Other Right Side Specialty Expansion Modules

Description	Catalog Number
PROFIBUS-DP (Slave)	ELC-COPBDP
DeviceNet (Slave)	ELC-CODNET
RS-485 Easy Connect Adapter, DB9, RJ-12, 2-Pin Connections to RS-485	ELC-485APTR
Motion Control, 1 Axis Module (up to 8 modules per controller)	ELC-MC01

Left Side Specialty Expansion Modules (Require a PV Series Controller)

Description	Catalog Number
Ethernet Modbus TCP (Master / Slave)	ELC-COENETM
DeviceNet Scanner (Master / Slave)	ELC-CODNETM

ELC Accessories and Software

Description	Catalog Number
ELC Programming Software	ELCSOFT
24 Watt, 1 Amp Power Supply	ELC-PS01
48 Watt, 2 Amp Power Supply	ELC-PS02
Hand-held Programmer (includes ELC-CBHHELC15)	ELC-HHP
Cable to Connect a PC or a GP Mnit 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 GP Units	ELC-GPXFERMOD
Program Transfer Module for ELC Controllers	ELC-ACPGMXFR
Plate Mount for Specialty Modules, Qty. 10	ELC-ACCOVER
ELC Starter Kit (includes ELC-PA10AADT, ELC-PS01, ELC-GP04, ELC-CBPCELC3, ELC-CBPCEGP3, ELCSOFT, ELCSOFT GP)	ELCSTARTKIT1