Schneider Electric Legacy Time Delay and Sensor Relays

Catalog
2017

![Schneider Electric logo](Schneider Electric)

Contents

Legacy Time Delay and Sensor Relays

Schneider Electric

Legacy Time Delay and Sensor Relays

Legacy Schneider Electric™ time delay and sensor relays provide cost effective solutions for your industrial timing and sensing needs. Available in a wide array of forms, fits, and functions, these timers offer the ultimate in flexibility and performance. Accurate adjustments, legible wiring diagrams, and an interactive timer demo make selection quick and easy.

Key Features
- Multiple timing functions
- Wide input voltage range
- Wide timing range
- DIN, panel, or plug-in mounting styles
- Conforms to international standards including UL, CSA, RoHS, and CE IEC

Series	Style	Contact Configuration	Rated Current Load (A)	Timing Range	Number of Functions	Function Type	Input Voltage Range	Page
DIN Mounting								
820 Relays	Time delay relay	SPST DPDT	15	100 ms to 10 days	10	All	12–240 Vac/Vdc	4
831 Voltage Sensing Relays	Voltage sensing relay	SPDT	15	100 ms to 10 s	1	On-Delay	120, 240 Vac; 24 Vdc	7
841 Current Sensing Relays	Current sensing relay	SPDT	15	100 ms to 10 s	1	On-Delay	24–240 Vac	10
Plug-in Mounting								
TDR782 Relays	Time delay relay with dial	DPDT	5	100 ms to 100 hr	1	On-Delay	12, 24 Vdc; 24, 110, 230 Vac	14
		4PDT	3					
TDRPRO Relays	Time delay relay with 5-digit thumb-wheel	SPDT	12	100 ms to 9990 hr	10	All	12–240 Vac/Vdc	22
		DPDT	12	100 ms to 9990 hr	3	On-Delay / Repeat Cycle / On Interval		

Legacy Time Delay and Sensor Relays
820 Series
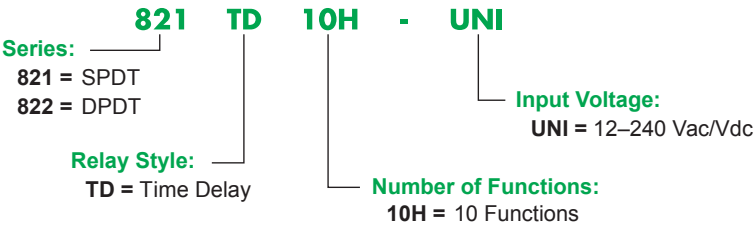SPDT, 15 A; DPDT, 15 A

Description

The 820 Series time delay relays are 35-mm DIN-rail mountable products offering ten different timing functions, ultra-wide timing range (10 ms to 10 days), and a universal voltage input (12–240 Vac/Vdc), all in a slim 17.5 mm (0.69 in.) modular package.

822 Relay

821 Relay

Feature	Benefit
Up to 10 functions	■ 5 timing functions controlled via supply voltage ■ 4 timing functions controlled via trigger input ■ 1 memory latching function Meets most timing requirements
Contact configuration	SPDT or DPDT
Universal power supply	12–240 Vac/Vdc
2 LED status indicators	Shows status at a glance
Only 17.5 mm (0.69 in.) wide	Ideal for tight spaces
DIN-rail mountable	Easy installation (screwdriver required)
RoHS compliant	Environmentally friendly

Input Voltage	Functions Available (1)	Timing Range	Contact Configuration	Rated Current	Standard Part Number
12–240 Vac/Vdc	A,B,C,D,E,F,G,H,I,J	10 ms to 10 days	SPDT	15 A	821TD10H-UNI
			DPDT	15 A (2 pairs of contacts)	822TD10H-UNI

(1) For function descriptions, see page 31.

Part Number Explanation

821 TD 10H - UNI

Series:
821 = SPDT
822 = DPDT

Relay Style:
TD = Time Delay

Number of Functions:
10H = 10 Functions

Input Voltage:
UNI = 12–240 Vac/Vdc

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Legacy Time Delay and Sensor Relays
820 Series
SPDT, 15 A; DPDT, 15 A

Specifications

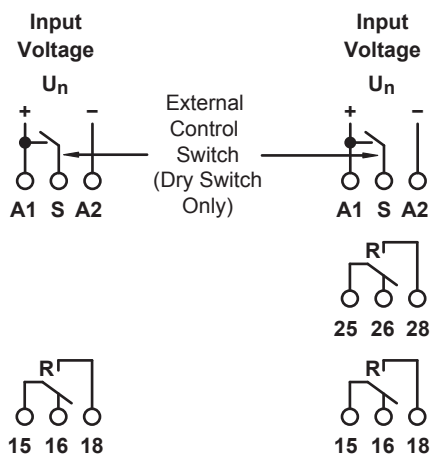| Part Number	821TD10H-UNI	822TD10H-UNI
Input Characteristics		
Input Voltage Range	12–240 Vac/Vdc	12–240 Vac/Vdc
Operating Voltage (% of Nominal)	85% of 12 V to 110% of 240 V	85% of 12 V to 110% of 240 V
Maximum Power Consumption	3 VA 1.7 W	3 VA 1.7 W
Output Characteristics		
Contact Configuration	SPDT	DPDT
Output Current Rating	15 A	15 A
Contact Material	Silver alloy	Silver alloy
Switching Capability	15 A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 hp @ 120 Vac 1 hp @ 240 Vac Pilot duty B300	15 A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 hp @ 120 Vac 1 hp @ 240 Vac Pilot duty B300
Minimum Switching Requirement	100 mA	100 mA
Timing Characteristics		
Functions Available *(1)*	Multifunction	Multifunction
Time Scales	8	8
Time Ranges	100 ms to 1 s 1 s to 10 s 0.1 min to 1 min 1 min to 10 min 0.1 hr to 1 hr 1 hr to 10 hr 0.1 day to 1 day 1 day to 10 days	100 ms to 1 s 1 s to 10 s 0.1 min to 1 min 1 min to 10 min 0.1 hr to 1 hr 1 hr to 10 hr 0.1 day to 1 day 1 day to 10 days
Tolerance	5% of mechanical setting	5% of mechanical setting
Repeatability at Constant Voltage and Temperature	0.2%	0.2%
Reset Time	150 ms maximum	150 ms maximum
Trigger Pulse Length	50 ms minimum	50 ms minimum
General Characteristics		
Electrical Life (Operations at Rated Current) *(2)*	70,000 operations	70,000 operations
Mechanical Life (Unpowered) *(2)*	10,000,000 operations	10,000,000 operations
Dielectric Strength (Input to Contacts)	2500 Vac	2500 Vac
Dielectric Strength (Between Open Contacts)	1600 Vac	1600 Vac
Storage Temperature Range	−30 to +70 °C (−22 to +158 °F)	−30 to +70 °C (−22 to +158 °F)
Operating Temperature Range	−20 to +55 °C (−4 to +131 °F)	−20 to +55 °C (−4 to +131 °F)
Terminal Wire Capacity (Input and Output)	14 AWG (2.1 mm²) maximum	14 AWG (2.1 mm²) maximum
Terminal Screw Torque	7.1 lb-in (0.8 N•m) maximum	7.1 lb-in (0.8 N•m) maximum
Weight	55 g (1.9 oz)	70 g (2.5 oz)
Input Indication	Green LED	Green LED
Output Indication (Blinking = Timing; On = Energized)	Red LED	Red LED
Enclosure Rating (according to IEC 60529 IP rating)	IP20	IP20
Approvals	cULus (File: E234203, CCN: NKCR, NKCR7), CE 61810-1, RoHS	cULus (File: E234203, CCN: NKCR, NKCR7), CE 61810-1, RoHS

(1) For function descriptions, see page 31.
(2) Actual product life varies based on electrical load, duty cycle, application, and environmental conditions.

Legacy Time Delay and Sensor Relays

820 Series
SPDT, 15 A; DPDT, 15 A

Dimensions—in. (mm)

Wiring Diagram

Input Voltage

U_n

External Control Switch (Dry Switch Only)

A1 S A2

Input Voltage

U_n

A1 S A2

R

25 26 28

R

15 16 18

R

15 16 18
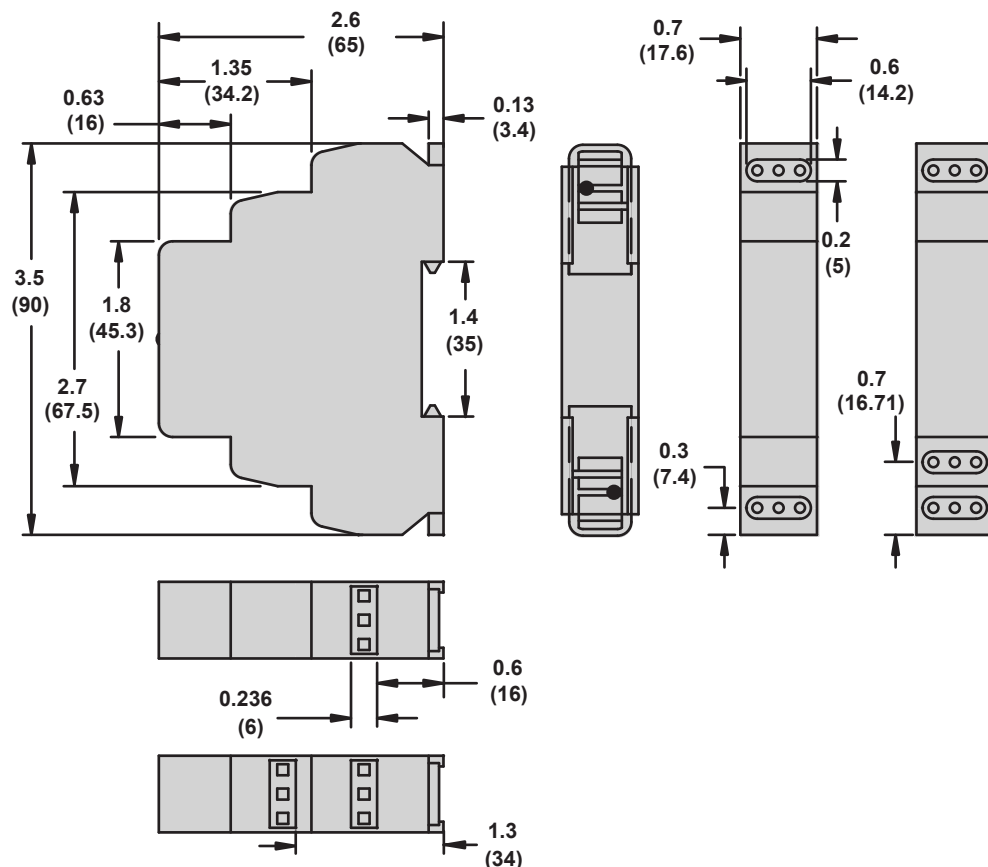
15—Common
16—Normally Closed
18—Normally Open

25—Common
26—Normally Closed
28—Normally Open

821TD10H-UNI

822TD10H-UNI

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Legacy Time Delay and Sensor Relays

831 Series
SPDT, 15 A

831 Relay

Description

The 831 voltage sensor is a single-phase AC voltage sensing device capable of monitoring and reacting to overvoltage and undervoltage conditions. This product is designed to be wired across terminals A1 and A2 with the voltage being monitored.
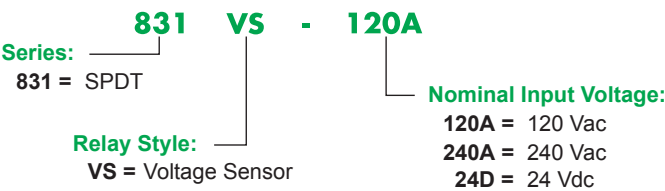
The two LED lamps indicate when the input voltage is present (green LED) and when the output is energized (red LED).

The Umax dial is used to set the upper trip-point for the voltage sensor. The Umin dial is a percentage of the Umax dial and is used to set the lower trip-point for the voltage sensor. The timing dial is used to delay the transfer of the contacts, from 0–10 s, when a set point has been violated.

Feature	Benefit
Three-state indication LEDs	Indicate normal state and two types of faulted states
Timing dial	Adjustable delay 0–10 s
DIN mounting capability	Mounts directly on a 35 mm DIN rail
Current rating: 15 A @ 240 Vac, 24 Vdc	High switching capacity
Narrow width: 17.5 mm (0.69 in.)	Ideal for tight spaces

Nominal Input Voltage	Sensing Voltage Range	Timing Range	Contact Configuration	Rated Current	Standard Part Number
120 Vac	Upper: 85–150 Vac Lower: 30–99% of upper				831VS-120A
240 Vac	Upper: 160–276 Vac Lower: 30–99% of upper	0–10 s	SPDT	15 A	831VS-240A
24 Vdc	Upper: 18–30 V Lower: 30–99% of upper				831VS-24D

Part Number Explanation

831 VS - 120A

Series:
831 = SPDT

Relay Style:
VS = Voltage Sensor

Nominal Input Voltage:
120A = 120 Vac
240A = 240 Vac
24D = 24 Vdc

Legacy Time Delay and Sensor Relays
831 Series
SPDT, 15 A

Specifications

Part Number	831VS-120A	831VS-240A	831VS-24D
Input Characteristics			
Nominal Input Voltage	120 Vac	240 Vac	24 Vdc
Absolute Input Voltage Maximum	200 Vac	280 Vac	35 Vdc
Upper Supply Voltage Range	85–150 Vac	160–276 Vac	18–30 Vdc
Lower Supply Voltage Range	30–99% of upper preset	30–99% of upper preset	30–99% of upper preset
Maximum Power Consumption	1.2 VA	1.2 VA	1.2 W
Time Delay	adjustable, 0–10 s	adjustable, 0–10 s	adjustable, 0–10 s
Accuracy			
Mechanical Setting	5%	5%	5%
Repeat Accuracy	<1%	<1%	<1%
Temperature Variation	<1% / ºC	<1% / ºC	<1% / ºC
Hysteresis (from fault to normal)	2–6% of adjusted value	2–6% of adjusted value	2–6% of adjusted value
Output Characteristics			
Contact Configuration	SPDT	SPDT	SPDT
Output Current Rating	15 A @ 120, 240 Vac, 24 Vdc	15 A @ 120, 240 Vac, 24 Vdc	15 A @ 120, 240 Vac, 24 Vdc
Breaking Capacity	4000 VA/AC1, 384 W/DC	4000 VA/AC1, 384 W/DC	4000 VA/AC1, 384 W/DC
Inrush Current	30 A / <3 s	30 A / <3 s	30 A / <3 s
Maximum Switching Voltage	250 Vac / 24 Vdc	250 Vac / 24 Vdc	250 Vac / 24 Vdc
Minimum Breaking Capacity DC	500 mW	500 mW	500 mW
Mechanical Life (1)	10,000,000 operations	10,000,000 operations	10,000,000 operations
Electrical Life (1)	70,000 operations	70,000 operations	70,000 operations
Contact Material	Silver alloy	Silver alloy	Silver alloy
Switching Capability	15 A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 hp @ 120 Vac 1 hp @ 240 Vac Pilot duty B300	15 A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 hp @ 120 Vac 1 hp @ 240 Vac Pilot duty B300	15 A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 hp @ 120 Vac 1 hp @ 240 Vac Pilot duty B300
Minimum Switching Requirement	100 mA at 5 Vac/Vdc	100 mA at 5 Vac/Vdc	100 mA at 5 Vac/Vdc
Timing/Sensing Characteristics			
Time Scales	1	1	1
Time Ranges	0–10 s	0–10 s	0–10 s
Tolerance	5% of mechanical setting	5% of mechanical setting	5% of mechanical setting
Repeatability at Constant Voltage and Temperature	1%	1%	1%
Upper Sensing Voltage Range	85–150 Vac	160–276 Vac	18–30 Vdc
Lower Sensing Voltage Range	30–99% of upper preset	30–99% of upper preset	30–99% of upper preset
General Characteristics			
Dielectric Strength (Input to Contacts)	2500 Vac	2500 Vac	2500 Vac
Dielectric Strength (Between Open Contacts)	1600 Vac	1600 Vac	1600 Vac
Mounting Position	Any, 35 mm DIN rail EN 50022	Any, 35 mm DIN rail EN 50022	Any, 35 mm DIN rail EN 50022
Overvoltage Category	III	III	III
Pollution Degree	2	2	2
Storage Temperature Range	−30 to +70 °C (−22 to +158 °F)	−30 to +70 °C (−22 to +158 °F)	−30 to +55 °C (−22 to +131 °F)
Operating Temperature Range	−20 to +55 °C (−4 to +131 °F)	−20 to +55 °C (−4 to +131 °F)	−20 to +55 °C (−4 to +131 °F)
Terminal Wire Capacity (Input and Output)	14 AWG (2.5 mm²) maximum	14 AWG (2.5 mm²) maximum	14 AWG (2.5 mm²) maximum
Terminal Screw Torque	7.1 lb-in (0.8 N•m) maximum	7.1 lb-in (0.8 N•m) maximum	7.1 lb-in (0.8 N•m) maximum
Weight	62 g (2.19 oz)	62 g (2.19 oz)	88 g (3.10 oz)
Input Indication	Green LED		
Output Indication (Blinking = Timing; On = Energized)	Red LED		
Enclosure Rating (according to IEC 60529 IP rating)	IP40		
Approvals	UL (E234203, CCN: NKCR, NKCR7), CE (IEC 60947-1, 61000-4), RoHS		

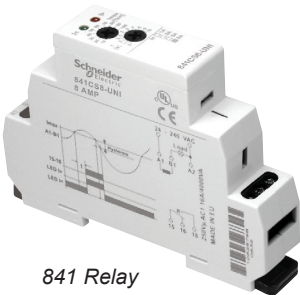*(1) Actual product life varies based on electrical load, duty cycle, application, and environmental conditions.*

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Legacy Time Delay and Sensor Relays
831 Series
SPDT, 15 A

Dimensions—in. (mm)

2.6
(65)

1.35
(34.2)

0.63
(16)

0.13
(3.4)

3.5
(90)

1.8
(45.3)

2.7
(67.5)

1.4
(35)

0.7
(17.6)

0.6
(14.2)

0.2
(5)

0.3
(7.4)

0.236
(6)

0.6
(16)

Wiring Diagram

**Input
Voltage**

U_n

+

−

A1

A2

15—Common
16—Normally Closed
18—Normally Open

15   16   18

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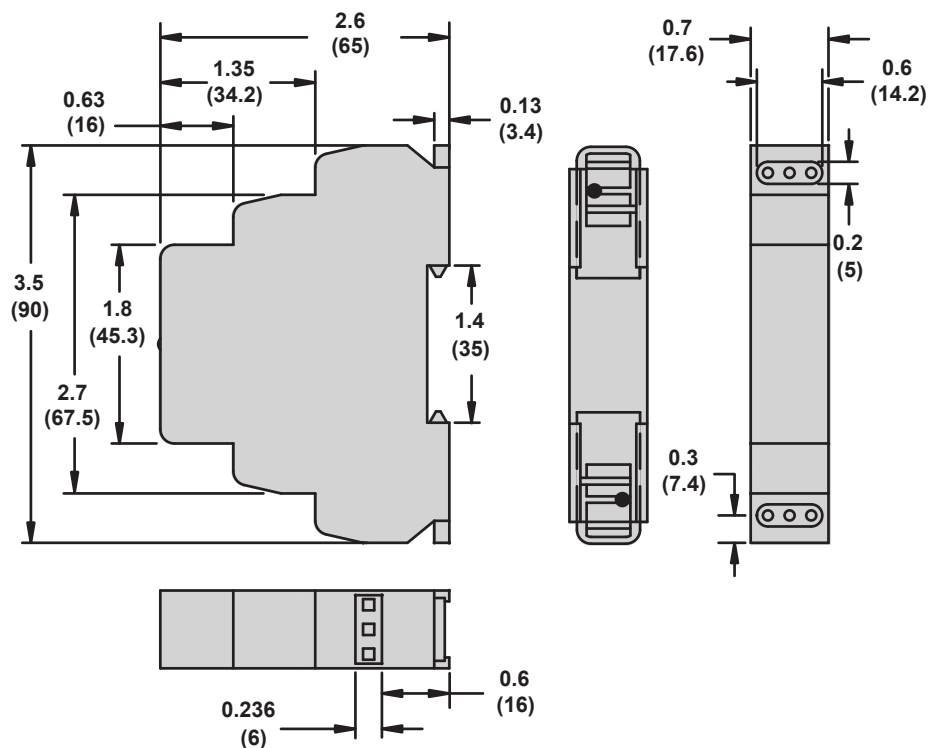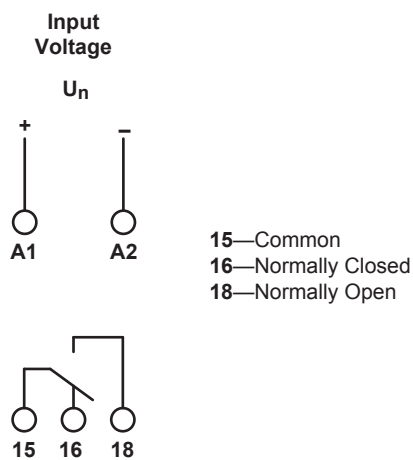
Legacy Time Delay and Sensor Relays

841 Series
SPDT, 15 A

841 Relay

Description

This current sensing relay allows you to monitor the current of one circuit (1–8 A) and switch another circuit in case of an overcurrent condition. The relays are modular and finger protected (according to IEC 60529 IP rating).

Feature	Benefit
Current-sensing adjustment knob	Sense from 10–100% of the rated sensing current
Input/ouput terminals	Accepts wire up to 14 AWG
Solid-state circuitry	Used for precise sensing and timing control
Input/output indication	Shows status at a glance
DIN rail mounting capability	Mounts directly on a DIN Rail
Narrow width: 17.5 mm (0.69 in.)	Ideal for tight spaces
Wide input range	Works with common AC voltages

Input Voltage	Timing Range	Contact Configuration	Output (A)	Sensing Current Range (AC)	Standard Part Number
24–240 Vac	100 ms to 10 s	SPDT	15	100 mA to 1 A	841CS1-UNI
				200 mA to 2 A	841CS2-UNI
				500 mA to 5 A	841CS5-UNI
				800 mA to 8 A	841CS8-UNI

Part Number Explanation

841 CS 1 - UNI

Series:
841 = SPDT

Relay Style:
CS = Current Sensor

Sensing Range:
1 = 100 mA to 1 A
2 = 200 mA to 2 A
5 = 500 mA to 5 A
8 = 800 mA to 8 A

Nominal Input Voltage:
UNI = 24–240 Vac

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Legacy Time Delay and Sensor Relays

841 Series
SPDT, 15 A

Specifications

Part Number	841CS1-UNI	841CS2-UNI	841CS5-UNI	841CS8-UNI
Input Characteristics				
Input Voltage Range	24–240 Vac	24–240 Vac	24–240 Vac	24–240 Vac
Maximum Power Consumption	1.2 VA	1.2 VA	1.2 VA	1.2 VA
Output Characteristics				
Contact Configuration	SPDT	SPDT	SPDT	SPDT
Output Current Rating	15 A	15 A	15 A	15 A
Contact Material	Silver alloy	Silver alloy	Silver alloy	Silver alloy
Switching Capability	15 A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 hp @ 120 Vac 1 hp @ 240 Vac Pilot duty B300	15 A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 hp @ 120 Vac 1 hp @ 240 Vac Pilot duty B300	15 A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 hp @ 120 Vac 1 hp @ 240 Vac Pilot duty B300	15 A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 hp @ 120 Vac 1 hp @ 240 Vac Pilot duty B300
Minimum Switching Requirement	100 mA at 5 Vac/Vdc	100 mA at 5 Vac/Vdc	100 mA at 5 Vac/Vdc	100 mA at 5 Vac/Vdc
Timing/Sensing Characteristics				
Time Scales	1	1	1	1
Time Ranges	0–10 s	0–10 s	0–10 s	0–10 s
Tolerance	5% of mechanical setting	5% of mechanical setting	5% of mechanical setting	5% of mechanical setting
Repeatability at Constant Voltage and Temperature	1%	1%	1%	1%
Sensing Range	100 mA to 1 A	200 mA to 2 A	500 mA to 5 A	800 mA to 8 A
General Characteristics				
Electrical Life (Operations at Rated Current) *(1)*	70,000 operations			
Mechanical Life (Unpowered) *(1)*	10,000,000 operations			
Dielectric Strength (Input to Contacts)	2500 Vac			
Dielectric Strength (Between Open Contacts)	1600 Vac			
Storage Temperature Range	−30 to +70 °C (−22 to +158 °F)			
Operating Temperature Range	−20 to +55 °C (−4 to +131 °F)			
Terminal Wire Capacity (Input and Output)	14 AWG (2.1 mm²) maximum			
Terminal Screw Torque	7.1 lb-in (0.8 N•m) maximum			
Weight	60 g (2.12 oz)			
Input Indication	Green LED			
Output Indication (Blinking = Timing; On = Energized)	Red LED			
Enclosure Rating (according to IEC 60529 IP rating)	IP20			
Approvals	cULus (File: E234203, CCN: NKCR, NKCR7), CE 61810-1, RoHS			

(1) Actual product life varies based on electrical load, duty cycle, application, and environmental conditions.

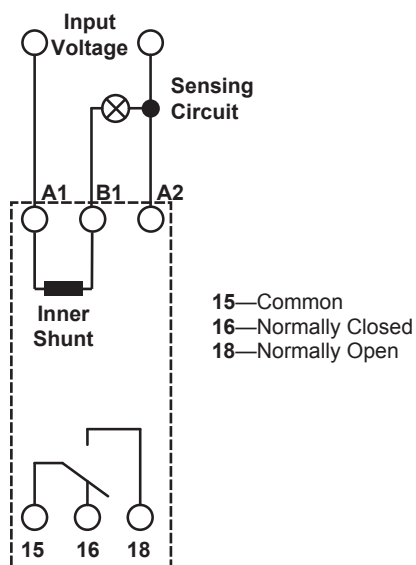# Legacy Time Delay and Sensor Relays
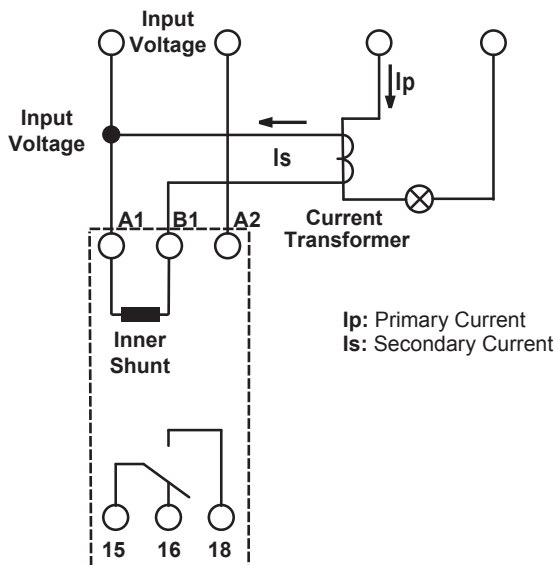841 Series
SPDT, 15 A

Dimensions—in. (mm)

2.6 (65)
1.35 (34.2)
0.63 (16)
0.13 (3.4)
3.5 (90)
1.8 (45.3)
2.7 (67.5)
1.4 (35)

0.7 (17.6)
0.6 (14.2)
0.2 (5)
0.3 (7.4)

0.236 (6)
0.6 (16)
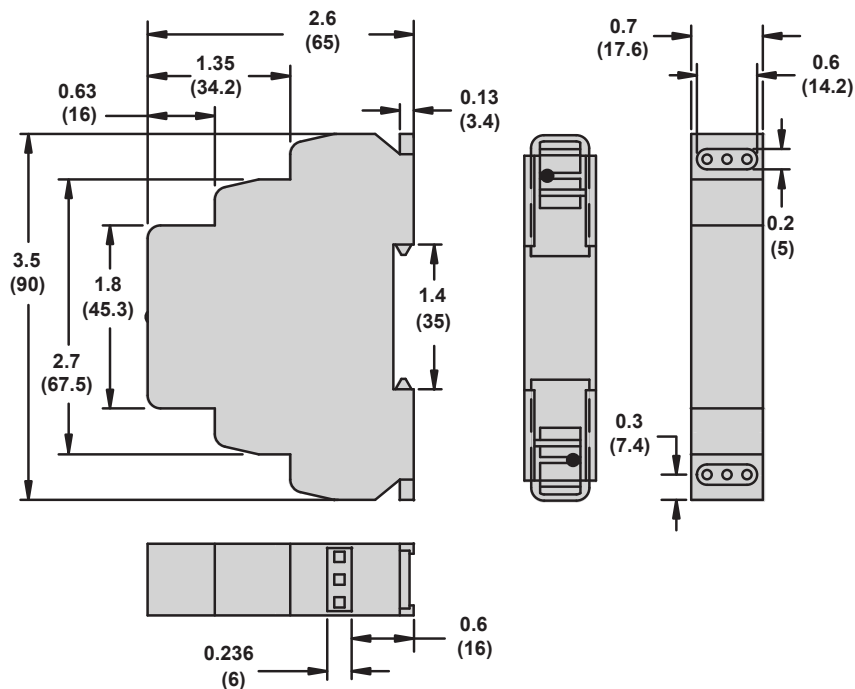
Wiring Diagram

Direct current sensing

Input Voltage

Sensing Circuit

A1   B1   A2

Inner Shunt

15—Common
16—Normally Closed
18—Normally Open

15   16   18

Current sensing through a current transformer

Input Voltage

Input Voltage

Ip

Is

A1   B1   A2

Current Transformer

Inner Shunt

Ip: Primary Current
Is: Secondary Current

15   16   18

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Legacy Time Delay and Sensor Relays
800 Series Accessories

16-700DIN DIN Rail,
16-DCLIP-1 DIN Rail
End Clip

Description

The 16-700DIN DIN rail provides for quick removal and installation of most sockets, while the 16-788C1 panel adapter provides a panel mounting option.
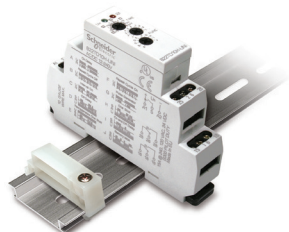
Shown with an 821 Relay
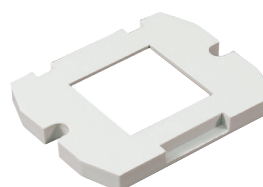
16-788C1 Panel Adapter

Shown with an 831 Relay

Description	Function	For Use With Relays	Packaging Quantities	Standard Part Number
Metal DIN Rail 39.3 in. (1 m).	Quick installation and removal	821, 822, 831, 841	10	16-700DIN
DIN Rail End Clip	Holds sockets firmly in place on the DIN rail	—		16-DCLIP-1
Panel Adapter	Provides additional panel mounting option	821, 822, 831, 841		16-788C1

Dimensions—in. (mm)

16-700DIN Metal DIN Rail
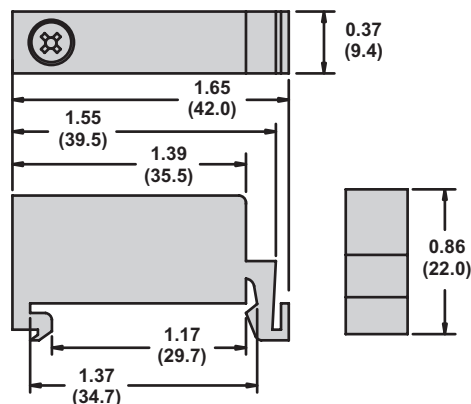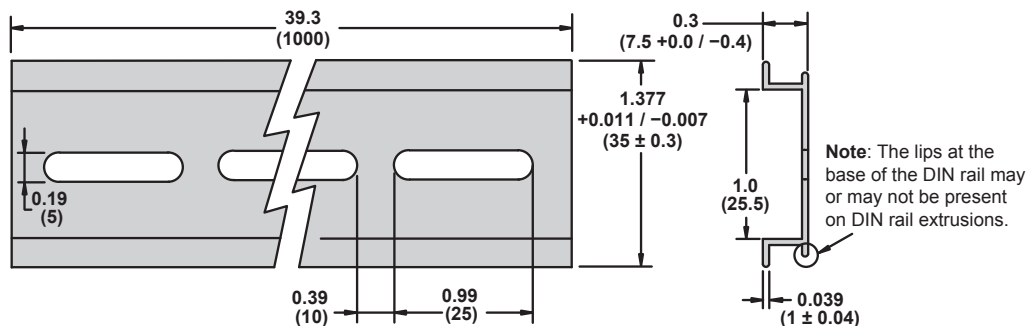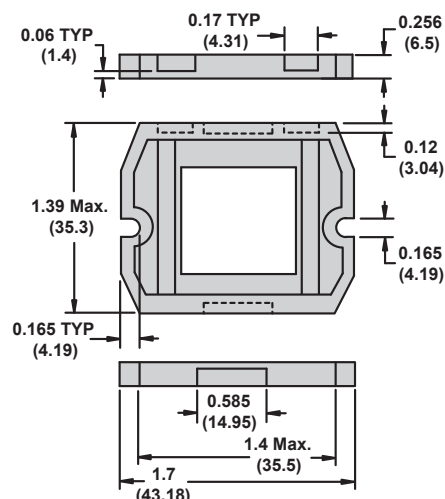
39.3 (1000)

0.3 (7.5 +0.0 / −0.4)

1.377 +0.011 / −0.007 (35 ± 0.3)

0.19 (5)

1.0 (25.5)

Note: The lips at the base of the DIN rail may or may not be present on DIN rail extrusions.

0.39 (10)   **0.99 (25)**

0.039 (1 ± 0.04)

0.37 (9.4)

1.65 (42.0)

1.55 (39.5)

1.39 (35.5)

0.86 (22.0)

1.17 (29.7)

1.37 (34.7)

16-788C1 Panel Adapter

0.06 TYP (1.4)   **0.17 TYP (4.31)**   **0.256 (6.5)**

0.12 (3.04)

1.39 Max. (35.3)

0.165 (4.19)

0.165 TYP (4.19)

0.585 (14.95)

1.4 Max. (35.5)

1.7 (43.18)

Legacy Time Delay and Sensor Relays
TDR782 Series
DPDT, 5 A; 4PDT, 3 A

Description
Miniature time delay relay that is single-function, single-voltage, and socket-compatible. Ideal for tight spaces.

TDR782 Relay

Feature	Benefit
Time setting	Selects between 7 different time scales
Socket compatible	Mounts directly to DIN rail or panel
Input/output indication	Shows status at a glance
Time adjustment dial	Fine-tunes the time setting
IEC and NEMA terminal numbering	Allows numbering compatibility

Input Voltage	Functions Available *(1)*	Timing Range	Contact Configuration	Rated Current	Standard Part Number
AC					
24 Vac	A (On-Delay)	100 ms to 100 hr	4PDT	3 A	TDR782XDXA-24A
			DPDT	5 A	TDR782XBXA-24A
110 Vac	A (On-Delay)	100 ms to 100 hr	4PDT	3 A	TDR782XDXA-110A
			DPDT	5 A	TDR782XBXA-110A
230 Vac	A (On-Delay)	100 ms to 100 hr	4PDT	3 A	TDR782XDXA-230A
DC					
12 Vdc	A (On-Delay)	100 ms to 100 hr	4PDT	3 A	TDR782XDXA-12D
24 Vdc	A (On-Delay)	100 ms to 100 hr	4PDT	3 A	TDR782XDXA-24D
			DPDT	5 A	TDR782XBXA-24D

(1) For function descriptions, see page 31.

Part Number Explanation

TDR782 **XBX** **A** - **12D**

Series:
TDR782 = 782 Miniature Timer

Contact Configuration:
XBX = DPDT
XDX = 4PDT

Functions:
A = On Delay

Input Voltage:
12D = 12 Vdc
24D = 24 Vdc
24A = 24 Vac
110A = 110/120 Vac
230A = 230/240 Vac

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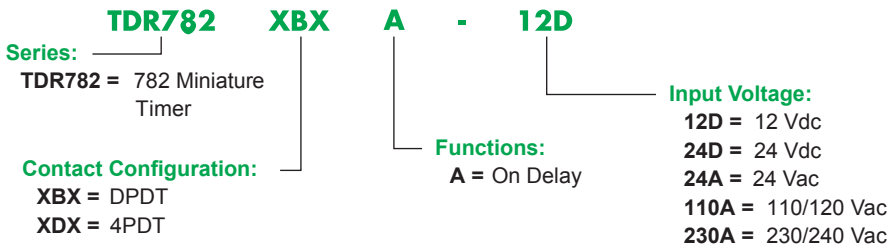
Legacy Time Delay and Sensor Relays

TDR782 Series
DPDT, 5 A; 4PDT, 3 A

Specifications

Part Number		TDR782XBX	TDR782XDX
Input Characteristics			
Input Voltage Range		24, 110/120, 230/240 Vac 12, 24 Vdc	24, 110/120, 230/240 Vac 12, 24 Vdc
Operating Voltage	Vac	85–115% of nominal	85–115% of nominal
	Vdc	90–110% of nominal	90–110% of nominal
Maximum Power Consumption		1.7 VA @ 24 Vac 2.6 VA @ 120 Vac 3 VA @ 230 Vac 1.5 W @ 12 Vdc 1.2 W @ 24 Vdc	1.7 VA @ 24 Vac 2.6 VA @ 120 Vac 3 VA @ 230 Vac 1.5 W @ 12 Vdc 1.2 W @ 24 Vdc
Output Characteristics			
Contact Configuration		DPDT	4PDT
Output Current Rating		5 A	3 A
Contact Material		Silver alloy	Silver alloy
Maximum Inrush Current		10 A @ < 100 ms	10 A @ < 100 ms
Minimum Switching Requirement		100 mA at 5 Vac/Vdc	100 mA at 5 Vac/Vdc
Timing Characteristics			
Functions Available (1)		A (On-Delay)	A (On-Delay)
Time Scales		7	7
Time Ranges		100 ms to 1 s 1 s to 10 s 0.1 min to 1 min 1 min to 10 min 0.1 hr to 1 hr 1 hr to 10 hr 10 hr to 100 hr	100 ms to 1 s 1 s to 10 s 0.1 min to 1 min 1 min to 10 min 0.1 hr to 1 hr 1 hr to 10 hr 10 hr to 100 hr
Tolerance		5% of mechanical setting	5% of mechanical setting
Repeatability at Constant Voltage and Temperature		0.5%	0.5%
Reset Time		50 ms maximum	50 ms maximum
Temperature Drift		0.05% / °C	0.05 % / °C
General Characteristics			
Electrical Life (Operations at Rated Current) (2)		100,000 operations	
Mechanical Life (Unpowered) (2)		10,000,000 operations	
Dielectric Strength (Input to Contacts)		2000 Vrms	
Storage Temperature Range		−40 to +70 °C (−40 to +158 °F)	
Operating Temperature Range		−20 to +60 °C (−4 to +140 °F)	
Weight		43 g (1.52 oz)	
Input Indication		Green LED	
Output Indication (On = Energized)		Amber LED	
Enclosure Rating (According to IEC 60529 IP Rating)		IP50	
Approvals		cURus (File: E191122, CCN: NRNT2, NRNT8), CSA (File No. 254373), CE 61810-1, RoHS	

(1) For function descriptions, see page 31.
(2) Actual product life varies based on electrical load, duty cycle, application, and environmental conditions.

Legacy Time Delay and Sensor Relays

TDR782 Series
DPDT, 5 A; 4PDT, 3 A

Dimensions—in. (mm)
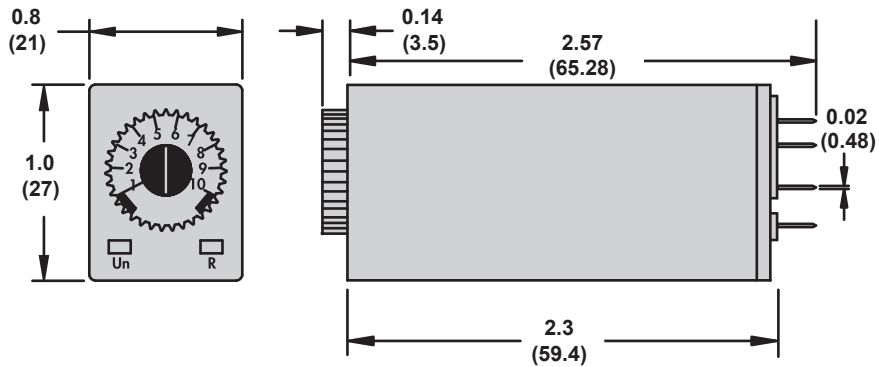
Wiring Diagram

SPDT NEMA

DPDT NEMA

Schneider Electric
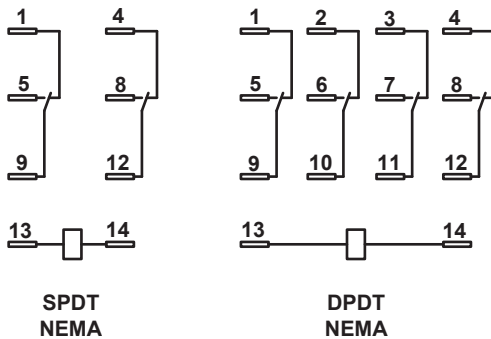
Legacy Time Delay and Sensor Relays
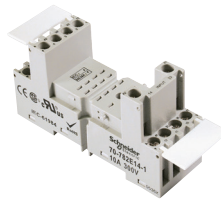## TDR782 Series Accessories

Description

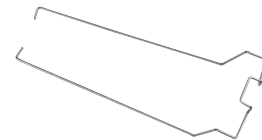The TDR782 accessories create a complete system solution for all your application needs.

- The 70-782EL socket offers an alternate installation option for plug-in models.
- The 16-TDR782SC retention clip holds the relay securely in place while allowing quick and efficient installation and maintenance.
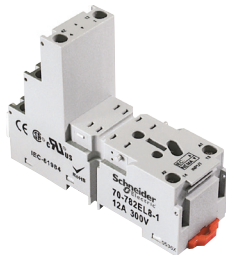
70-782EL8-1 Socket

70-782E14-1 Socket

16-TDR782SC Retention Clip

Relay Accessories

Description	Function	For Use With Relays	Packaging Quantities	Standard Part Number
Socket	Mounts directly to the DIN rail or panel	TDR782XBX	10	70-782EL8-1
		TDR782XBX TDR782XDX	10	70-782EL14-1
	DIN or panel mounting with rising elevator box terminals	TDR782XBX TDR782XDX	10	70-782E14-1
	DIN or panel mounting with screw terminals and clamping plates	TDR782XBX TDR782XDX	10	70-782D14-1
		TDR782XBX TDR782XDX	10	70-461-1
	Solder terminals for chassis mounting	TDR782XBX TDR782XDX	10	70-378-1
	Printed circuit terminals	TDR782XBX TDR782XDX	10	70-379-1
Metal Retention Clip	Helps secure the relay in the socket	TDR782●● *(1)*	10	16-TDR782SC

(1) Replace the bullets (●●) with the the part number suffix. See page 14.

Socket Accessories

Description	Function	For Use With Sockets	Packaging Quantities	Standard Part Number
Metal DIN Rail, 1 m (39.3 in.)	Quick installation and removal of sockets	See table above	10	16-700DIN
DIN Rail End Clip	Holds sockets firmly in place on the DIN rail	—	10	16-DCLIP-1
ID Tags	Allows for identification of circuits in multi-relay applications	70-782EL8-1 70-782EL14-1 70-782E14-1	10	16-782FT-1

Schneider Electric

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Legacy Time Delay and Sensor Relays
TDR782 Series Accessories

Specifications

Part Number	70-782EL8-1	70-782EL14-1	70-782E14-1
Contact Configuration	DPDT	4PDT	4PDT
Number of Terminals	8	14	14
Mounting Style	Panel or DIN Rail	Panel or DIN Rail	Panel or DIN Rail
Current Rating	12 A	10 A	10 A
Nominal Voltage Rating	300 V	300 V	300 V
Storage Temperature Range	−40 to +105 °C (−40 to +221 °F)	−40 to +105 °C (−40 to +221 °F)	−40 to +105 °C (−40 to +221 °F)
Protection Category	IP20 (Finger Protection)		
Internal Metal Tracks	Copper Alloy, Zinc Plated	Copper Alloy, Zinc Plated	Copper Alloy, Zinc Plated
Screw Terminals	Steel, Zinc Plated	Steel, Zinc Plated	Steel, Zinc Plated
Screw Style	Combination Head	Combination Head	Combination Head
Screw Size	M3	M3	M3
Terminal Connection	Elevator	Elevator	Elevator
Terminal Layout	Logic	Logic	Non-Logic
Wire Size Capacity	Solid or Stranded Cu: Two 14–16 AWG (1.5–2.5 mm²)	Solid or Stranded Cu: Two 14–16 AWG (1.5–2.5 mm²)	Solid or Stranded Cu: Two 14–16 AWG (1.5–2.5 mm²)
DIN Rail Mounting, EN 60715	35 mm (1.38 in)	35 mm (1.38 in)	35 mm (1.38 in)
Maximum Screw Torque	7 lb-in (0.8 N•m)	7 lb-in (0.8 N•m)	7 lb-in (0.8 N•m)
Flammability Rating	UL94 Class V-0	UL94 Class V-0	UL94 Class V-0
Body Color	Light Gray	Light Gray	Light Gray
DIN Locking Method	Red Plastic Locking Clip	Red Plastic Locking Clip	Metal Compression Spring
Product Certifications	cURus (File: E70550, CCN: SWIV2, SWIV8), CSA (File: 40787, Class: 3211 07), CE 60947-1, RoHS		

| Part Number	70-379-1	70-378-1	70-461-1, 70-782D14-1
Contact Configuration	4PDT	4PDT	4PDT
Number of Terminals	14	14	14
Mounting Style	PCB	Chassis	Panel or DIN Rail
Current Rating	5 A	5 A	10 A
Nominal Voltage Rating	300 V	300 V	300 V
Storage Temperature Range	−40 to +105 °C (−40 to +221 °F)	−40 to +105 °C (−40 to +221 °F)	−40 to +105 °C (−40 to +221 °F)
Protection Category	–	–	**70-782D14-1**: IP20 (Finger Protection)
Internal Metal Tracks	Copper Alloy, Zinc Plated	Copper Alloy, Zinc Plated	Copper Alloy, Zinc Plated
Screw Terminals	Copper Alloy, Zinc Plated	Copper Alloy, Zinc Plated	Steel, Zinc Plated
Screw Style	–	–	Combination Head
Screw Size	–	–	M3 mm
Terminal Connection	PCB	Solder	Screw Clamping
Terminal Layout	Non-Logic	Non-Logic	Non-Logic
Wire Size Capacity	–	Solid or Stranded Cu: Two 14–16 AWG (1.5–2.5 mm²)	Solid or Stranded Cu: Two 14–16 AWG (1.5–2.5 mm²)
DIN Rail Mounting, EN 60715	–	–	35 mm (1.38 in)
Maximum Screw Torque	–	–	7 lb-in (0.8 N•m)
Flammability Rating	UL94 Class V-0	UL94 Class V-0	UL94 Class V-0
Body Color	Light Gray	Light Gray	Light Gray
DIN Locking Method	–	–	Red Plastic Locking Clip
Product Certifications	cURus (File: E70550, CCN: SWIV2, SWIV8), CSA (File: 40787 Class: 3211 07), CE 60947-1, RoHS		**70-461-1:** cURus (File: E70550, CCN: SWIV2, SWIV8), CSA (File: 40787 Class: 3211 07), CE 60947-1, RoHS **70-782D14-1:** cURus (File: E70550), CSA (File: 40787 Class: 3211 07), CE 60947-1, RoHS

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Legacy Time Delay and Sensor Relays
TDR782 Series Accessories

Dimensions—in. (mm)

70-782EL8-1
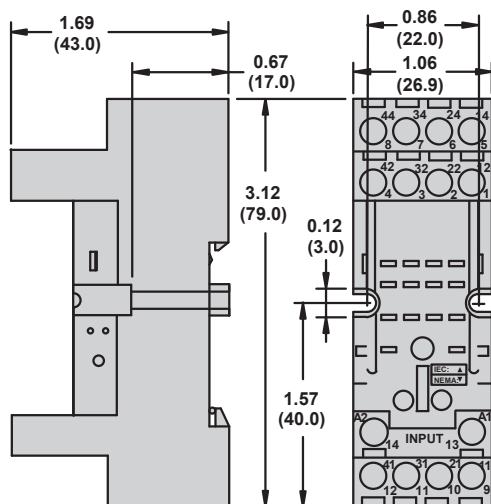**Mounts Directly to the DIN Rail or Panel**
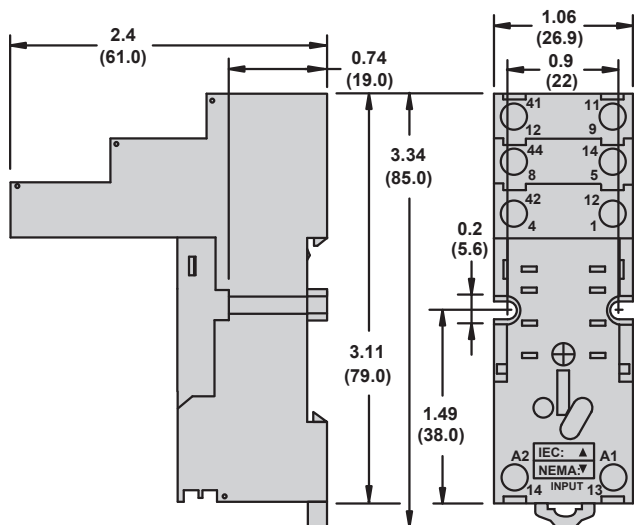
70-782EL14-1
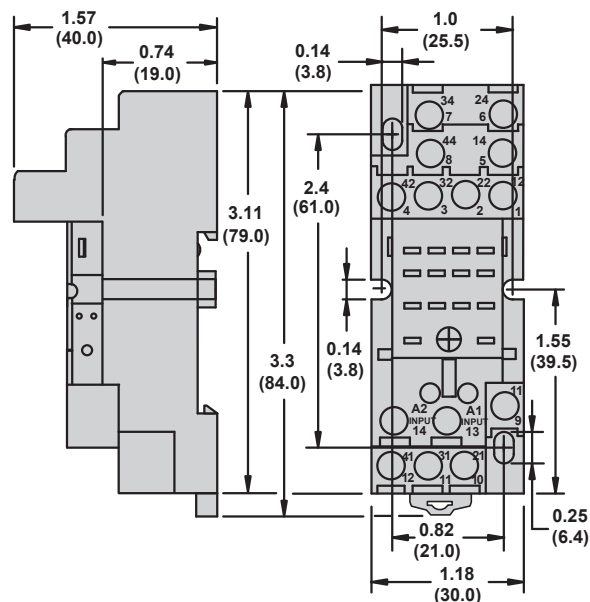**Mounts Directly to the DIN Rail or Panel**
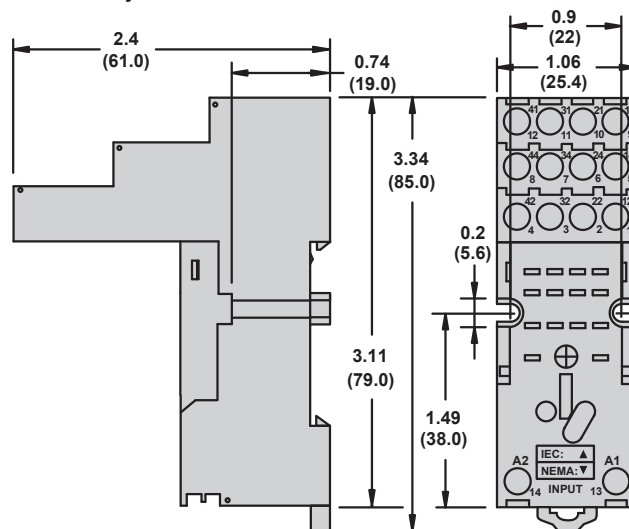
70-782E14-1
DIN or Panel Mounting with Rising Elevator Box Terminals

70-782D14-1
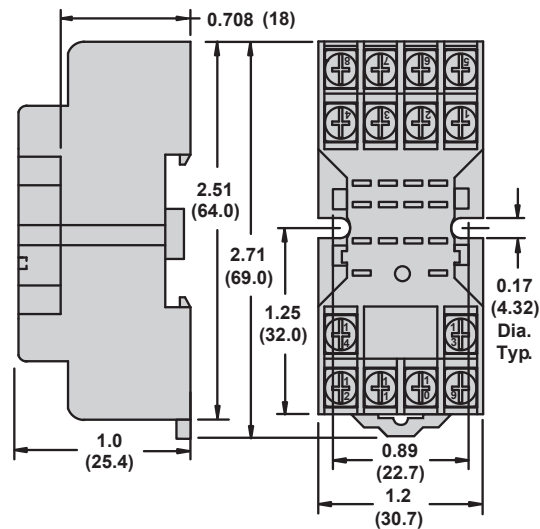**DIN or Panel Mounting with Screw Terminals and Clamping Plates**

Legacy Time Delay and Sensor Relays
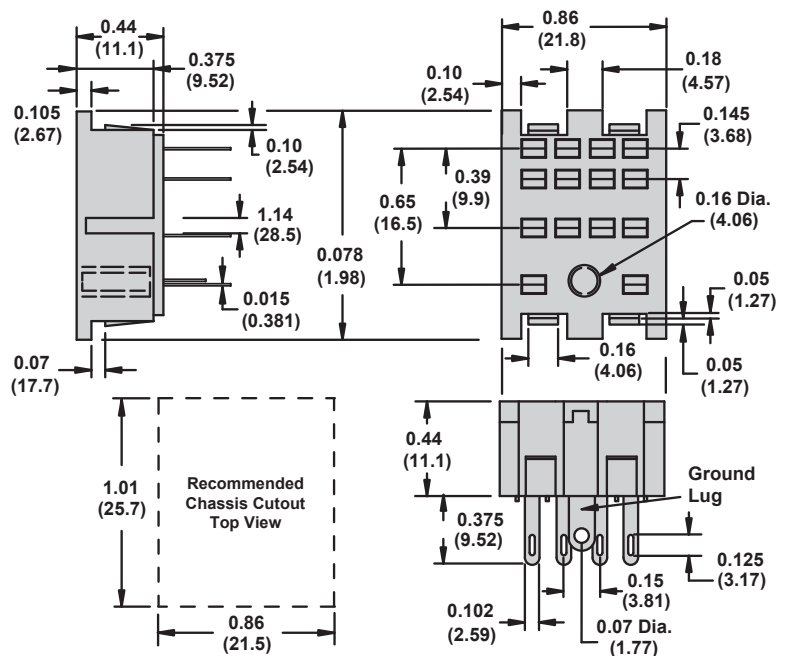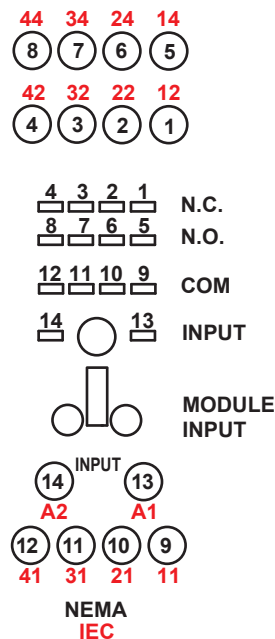## TDR782 Series Accessories

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Dimensions—in. (mm)

70-461-1
DIN or Panel Mounting with Screw Terminals and Clamping Plates

70-378-1
Solder Terminals for Chassis Mount

Recommended Chassis Cutout Top View

Ground Lug

70-379-1
Printed Circuit Terminals

Ground Lug

Recommended Circuit Board Layout Top View

Schneider Electric

Legacy Time Delay and Sensor Relays
TDR782 Series Accessories
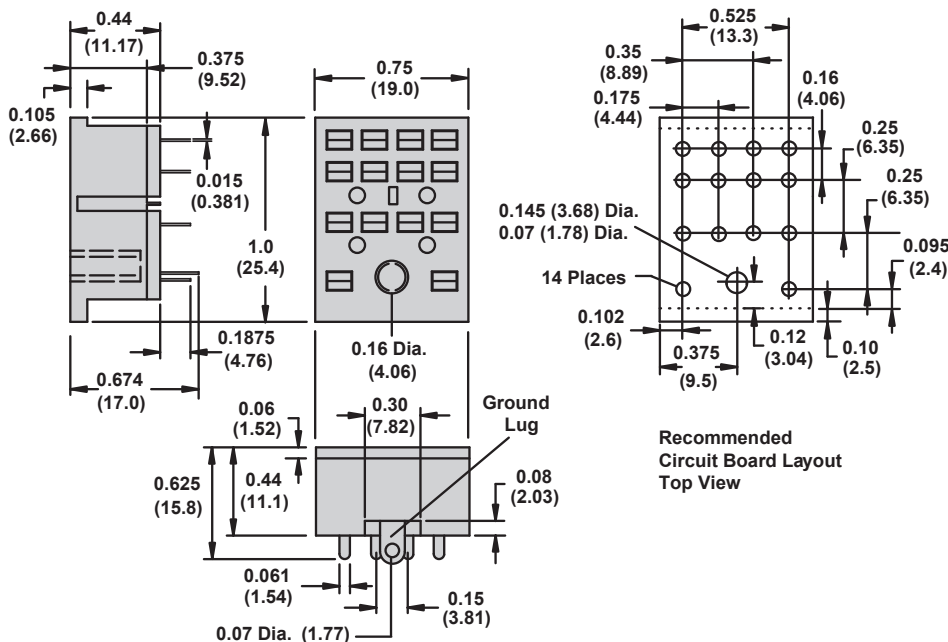
Wiring Diagrams

70-782EL8-1

41		11
(12)		(9)
44		**14**
(8)		(5)
42		**12**
(4)		(1)

4 / 8 / 12 — 1 / 5 / 9 — N.C. / N.O. / COM

14   13   INPUT

MODULE INPUT

(14) INPUT (13)
A2   A1

NEMA
IEC

70-782EL14-1

41	31	21	11
(12)	(11)	(10)	(9)
44	**34**	**24**	**14**
(8)	(7)	(6)	(5)
42	**32**	**22**	**12**
(4)	(3)	(2)	(1)

4 3 2 1 — 8 7 6 5 — N.C. / N.O.

12 11 10 9 — COM

14   13   INPUT

MODULE INPUT

(14) INPUT (13)
A2   A1

NEMA
IEC

70-782E14-1

44	34	24	14
(8)	(7)	(6)	(5)
42	**32**	**22**	**12**
(4)	(3)	(2)	(1)

4 3 2 1 — 8 7 6 5 — N.C. / N.O.

12 11 10 9 — COM

14   13   INPUT

MODULE INPUT

(14) INPUT (13)
A2   A1
(12) (11) (10) (9)
41   31   21   11

NEMA
IEC

70-782D14-1

	34		24	
	(7)		(6)	
	44		**14**	
	(8)		(5)	
42	**32**	**22**	**12**	
(4)	(3)	(2)	(1)	

4 3 2 1 — 8 7 6 5 — N.C. / N.O.

12 11 10 9 — COM

14   13   INPUT

MODULE INPUT

(14) (13) (9)
A2   A1   11
(12) (11) (10) INPUT
41   31   21

NEMA
IEC

70-461-1

44	34	24	14
(8)	(7)	(6)	(5)
42	**32**	**22**	**12**
(4)	(3)	(2)	(1)

4 3 2 1 — 8 7 6 5 — N.C. / N.O.

12 11 10 9 — COM

14   13   INPUT

(14) INPUT (13)
A2   A1
(12) (11) (10) (9)
41   31   21   11

NEMA
IEC

70-378-1

1	2	3	4	N.C.
12	22	32	42	
5	6	7	8	N.O.
14	24	34	44	
9	10	11	12	COM
11	21	31	41	
13			14	INPUT
A1			A2	

NEMA   **GROUND**
IEC   **LUG**

70-379-1

1	2	3	4	N.C.
12	22	32	42	
5	6	7	8	N.O.
14	24	34	44	
9	10	11	12	COM
11	21	31	41	
13			14	INPUT
A1			A2	

NEMA   **GROUND**
IEC   **LUG**

Legacy Time Delay and Sensor Relays

TDRPRO Series
SPDT, 12 A; DPDT, 12 A

TDRPRO Relay

Description

Time delay relays that are programmable, multifunction, multi-voltage, and socket-compatible—offering the ultimate in design flexibility. The thumb-wheel adjustment dials result in no mechanical deviation for supreme accuracy.

Feature	Benefit
Up to 10 functions	5 timing functions controlled via supply voltage 4 timing functions controlled via trigger input 1 memory latching function
Broad timing range	0.1 s to 9990 hr
Panel-mounting adapter	Panel mountable
Dust cover	Retains settings and keeps dust out
Universal power supply	12–240 Vac/Vdc
Thumb-wheel adjustment for function / timing	Helps ensure accuracy and reduces timing deviations
2 LED status indicators	Indicate coil power, timing out, and output state
RoHS compliant	Environmentally friendly

Input Voltage	Timing Range	Functions Available (1)	Contact Configuration	Rated Current	Standard Part Number
12–240 Vac/Vdc	100 ms to 9990 hr	A,B,C,D,E,F,G,H,I,J	DPDT	12 A	TDRPRO-5100
		A,B,C,D,E,F,G,H,I,J	SPDT	12 A	TDRPRO-5101
		A,B,C	DPDT	12 A	TDRPRO-5102

(1) For function descriptions, see page 31.

Part Number Explanation

TDRPRO - 5100

Series:
TDRPRO = 48 x 48 mm
Time Delay Relay

Contact Configuration and Number of Functions:
5100 = DPDT, 10 Functions
5101 = SPDT, 10 Functions
5102 = DPDT, 3 Functions

Legacy Time Delay and Sensor Relays

TDRPRO Series
SPDT, 12 A; DPDT, 12 A

Specifications

Part Number	TDRPRO-5100	TDRPRO-5101	TDRPRO-5102
Input Characteristics			
Input Voltage Range	12–240 Vac/Vdc	12–240 Vac/Vdc	12–240 Vac/Vdc
Operating Voltage	85–115% of nominal	85–115% of nominal	85–115% of nominal
Maximum Power Consumption (AC)	2.5 VA	2.5 VA	2.5 VA
Maximum Power Consumption (DC)	2 W	2 W	2 W
Output Characteristics			
Contact Configuration	DPDT	SPDT	DPDT
Output Current Rating	12 A	12 A	12 A
Contact Material	Silver alloy	Silver alloy	Silver alloy
Switching Capabilties	12 A, 240 Vac, 50/60 Hz, 30 Vdc 1/3 hp @ 120 Vac 1/2 hp @ 240 Vac Pilot duty B300	12 A, 240 Vac, 50/60 Hz, 30 Vdc 1/3 hp @ 120 Vac 1/2 hp @ 240 Vac Pilot duty B300	12 A, 240 Vac, 50/60 Hz, 30 Vdc 1/3 hp @ 120 Vac 1/2 hp @ 240 Vac Pilot duty B300
Minimum Switching Requirement	100 mA	100 mA	100 mA
Timing Characteristics			
Functions Available *(1)*	A,B,C,D,E,F,G,H,I,J	A,B,C,D,E,F,G,H,I,J	A,B,C
Time Scales	7	7	7
Time Ranges	0–999 by 0.1 s 0–999 by 1 s 0–999 by 0.1 min 0–999 by 1 min 0–999 by 0.1 hr 0–999 by 1 hr 0–999 by 10 hr	0–999 by 0.1 s 0–999 by 1 s 0–999 by 0.1 min 0–999 by 1 min 0–999 by 0.1 hr 0–999 by 1 hr 0–999 by 10 hr	0–999 by 0.1 s 0–999 by 1 s 0–999 by 0.1 min 0–999 by 1 min 0–999 by 0.1 hr 0–999 by 1 hr 0–999 by 10 hr
Repeatability of the Time Delay at Constant Voltage and Temperature	0.1%	0.1%	0.1%
Reset Time	150 ms	150 ms	150 ms
Operate Time *(3)*	25 ms maximum	25 ms maximum	25 ms maximum
Release Time *(3)*	25 ms maximum	25 ms maximum	25 ms maximum
General Characteristics			
Electrical Life (Operations at Rated Current) *(2)*	100,000 operations	100,000 operations	100,000 operations
Mechanical Life (Unpowered) *(2)*	10,000,000 operations	10,000,000 operations	10,000,000 operations
Dielectric Strength (Input to Contacts)	2500 Vrms	2500 Vrms	2500 Vrms
Storage Temperature Range	−30 to +70 °C (−22 to +158 °F)	−30 to +70 °C (−22 to +158 °F)	−30 to +70 °C (−22 to +158 °F)
Operating Temperature Range	−20 to +60 °C (−4 to +140 °F)	−20 to +60 °C (−4 to +140 °F)	−20 to +60 °C (−4 to +140 °F)
Weight	133 g (4.69 oz)	133 g (4.69 oz)	133 g (4.69 oz)
Input Indication	Green LED	Green LED	Green LED
Output Indication (Blinking = Timing; On = Energized)	Red LED	Red LED	Red LED
Enclosure Rating (according to IEC 60529 IP rating)	IP40	IP40	IP40
Approvals	cURus (File: E43641, CCN: NLDX2), CE 61810-1, RoHS, cULus (File: E43641, CCN: NLDX2, UL Listed when used with Schneider Electric socket 70-465)	cURus (File: E43641, CCN: NLDX2), CE 61810-1, RoHS, cULus (File: E43641, CCN: NLDX2, UL Listed when used with Schneider Electric socket 70-464)	cURus (File: E43641, CCN: NLDX2), CE 61810-1, RoHS, cULus (File: E43641, CCN: NLDX2, UL Listed when used with Schneider Electric socket 70-464)

(1) For function descriptions, see page 31.
(2) Actual product life varies based on electrical load, duty cycle, application, and environmental conditions.
(3) After the time delay period expires, or upon application of the trigger signal (depending on the selected function).
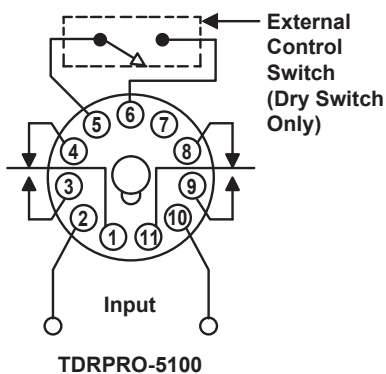
Legacy Time Delay and Sensor Relays

TDRPRO Series
SPDT, 12 A; DPDT, 12 A

Dimensions—in. (mm)
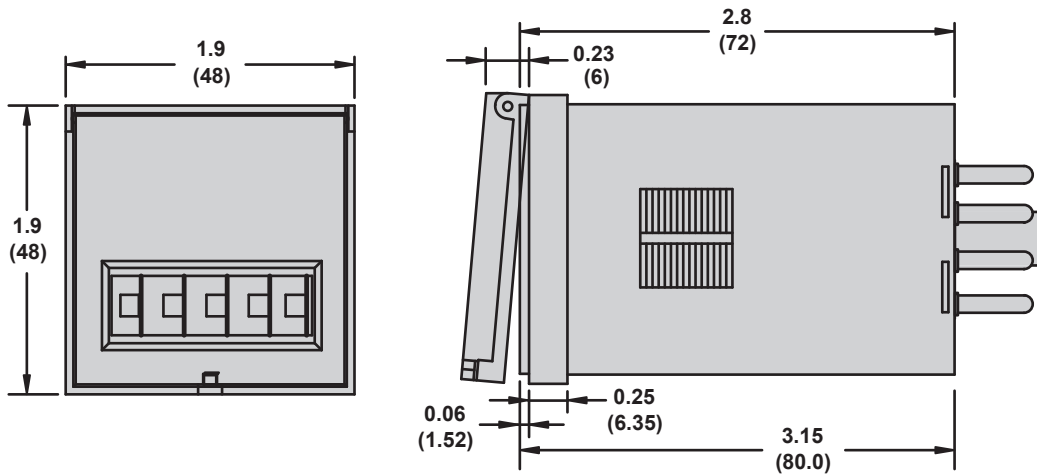
1.9 (48)

1.9 (48)

2.8 (72)

0.23 (6)

0.06 (1.52)

0.25 (6.35)

3.15 (80.0)

Wiring Diagrams

External Control Switch (Dry Switch Only)

Input

TDRPRO-5100

External Control Switch (Dry Switch Only)

Input

TDRPRO-5101

Input

TDRPRO-5102

Schneider Electric
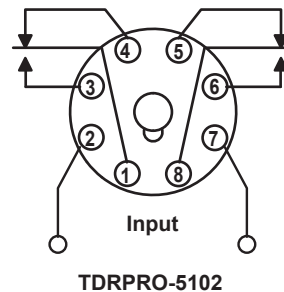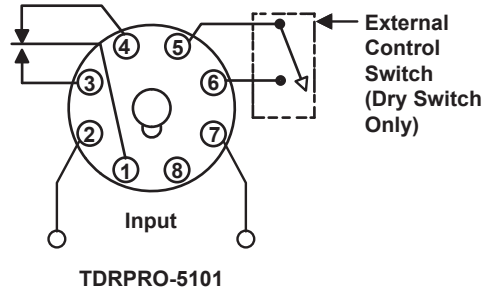
Legacy Time Delay and Sensor Relays
TDRPRO Series Accessories

Description

The TDRPRO accessories create a complete system solution for your application needs. The 70-750DL socket offers an alternative installation option for plug-in models. The 16-TDRPROSC retention clip holds the relay securely in place while allowing quick and efficient installation and maintenance.
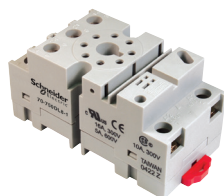
70-750DL8-1 Socket

70-750E8-1 Socket
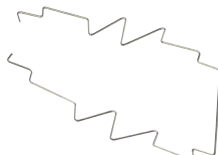
16-TDRPROSC Retention Clip
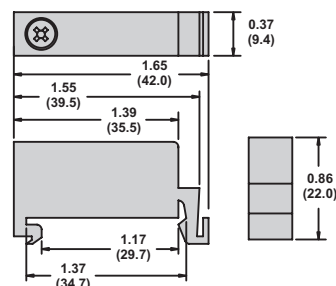
16-DCLIP-1 DIN Rail End Clip

Relay Accessories

Description	Function	For Use With Relays	Packaging Quantities	Standard Part Number
Socket	Mounting directly to DIN Rail or Panel	TDRPRO-5101, TDRPRO-5102	10	70-750DL8-1
	Panel Mounting with Screw Terminals and Clamping Plates		10	70-169-1
	DIN or Panel Mounting with Elevator Terminals	TDRPRO-5101	10	70-750E8-1
	DIN or Panel Mounting with Screw Terminals and Clamping Plates		10	70-464-1
	Mounting directly to DIN Rail or Panel	TDRPRO-5100	10	70-750DL11-1
	DIN or Panel Mounting with Elevator Terminals		10	70-750E11-1
	DIN or Panel Mounting with Screw Terminals and Clamping Plates		10	70-465-1
	Panel Mounting with Screw Terminals and Clamping Plates		10	70-170-1
Metal Retention Clip	Helping secure the relay in the socket	TDRPRO	10	16-TDRPROSC

Socket Accessories

Description	Function	For Use With Sockets	Packaging Quantities	Standard Part Number
Metal DIN Rail, 1 m (39.3 in.)	Quick installation and removal of sockets	Compatible with all sockets listed in the table above.	10	16-700DIN
DIN Rail End Clip	Holding sockets firmly in place on the DIN rail		10	16-DCLIP-1
ID Tags	Identification of circuits in multi-relay applications	70-750E8-1, 70-750EL8-1, 70-750DL8-1, 70-750E11-1, 70-750EL11, 70-750DL11-1	10	16-750/782FT-1
Insulated Coil Bus Jumper System	Wireless socket connection		10	16-750/788CBJ-1

Legacy Time Delay and Sensor Relays
TDRPRO Series Accessories

Specifications

Part Number	70-750DL8-1	70-750DL11-1	70-750E8-1	70-750E11-1
Contact Configuration	DPDT	3PDT	DPDT	3PDT
Number of Terminals	8	11	8	11
Mounting Style	Panel or DIN rail	Panel or DIN rail	Panel or DIN rail	Panel or DIN rail
Current Rating	16 A	5 A	12 A	12 A
Nominal Voltage Rating	300 V	600 V	600 V	300 V
Storage Temperature Range	−40 to +105 °C (−40 to +221 °F)	−40 to +105 °C (−40 to +221 °F)	−40 to +105 °C (−40 to +221 °F)	−40 to +105 °C (−40 to +221 °F)
Protection Category according to IEC 60529 IP rating (finger protection)	IP20	IP20	IP20	IP20
Internal Metal Tracks	Copper Alloy, Zinc Plated	Copper Alloy, Zinc Plated	Copper Alloy, Zinc Plated	Copper Alloy, Zinc Plated
Screw Terminals	Steel, Zinc Plated	Steel, Zinc Plated	Steel, Zinc Plated	Steel, Zinc Plated
Screw Style	Combination Head	Combination Head	Combination Head	Combination Head
Screw Size	M3.5 mm	M3.5 mm	M3.5 mm	M3.5 mm
Maximum Screw Torque	9 lb-in (1.0 N•m)	9 lb-in (1.0 N•m)	9 lb-in (1.0 N•m)	9 lb-in (1.0 N•m)
Terminal Connection	Screw Clamping	Screw Clamping	Elevator	Elevator
Terminal Layout	Logic	Logic	Non-Logic	Non-Logic
Maximum Wire Size	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm²)
DIN Rail Mounting, EN 60715	35 mm (1.38 in)	35 mm (1.38 in)	35 mm (1.38 in)	35 mm (1.38 in)
Chassis Mounting Screw Torque	7 lb-in (0.8 N•m)	7 lb-in (0.8 N•m)	7 lb-in (0.8 N•m)	7 lb-in (0.8 N•m)
Flammability Rating	94V-0 Class	94V-0 Class	94V-0 Class	94V-0 Class
Body Color	Light Gray	Light Gray	Light Gray	Light Gray
DIN Locking Method	Red Plastic Locking Clip	Red Plastic Locking Clip	Red Plastic Locking Clip	Red Plastic Locking Clip
Agency Approvals	cURus (File: E70550, CCN: SWIV2, SWIV8), CSA (File: 40787, Class: 3211 07), CE 60947-1, RoHS	cURus (File: E70550, CCN: SWIV2, SWIV8), CSA (File: 40787, Class: 3211 07), CE 60947-1, RoHS	cURus (File: E70550, CCN: SWIV2, SWIV8), CSA (File: 40787, Class: 3211 07), CE 60947-1, RoHS	cURus (File: E70550, CCN: SWIV2, SWIV8), CSA (File: 40787, Class: 3211 07), CE 60947-1, RoHS

| Part Number	70-169-1	70-170-1	70-464-1	70-465-1
Contact Configuration	DPDT	3PDT	DPDT	3PDT
Number of Terminals	8	11	8	11
Mounting Style	Panel	Panel	Panel or DIN rail	Panel or DIN rail
Current Rating	15 A	15 A	15/10 A	15/5 A
Nominal Voltage Rating	300 V	600 V	300/600 V	300/600 V
Temperature Storage Range	−40 to +105 °C (−40 to +221 °F)	−40 to +105 °C (−40 to +221 °F)	−40 to +105 °C (−40 to +221 °F)	−40 to +105 °C (−40 to +221 °F)
Internal Metal Tracks	Copper Alloy, Zinc Plated	Copper Alloy, Zinc Plated	Copper Alloy, Zinc Plated	Copper Alloy, Zinc Plated
Screw Terminals	Steel, Zinc Plated	Steel, Zinc Plated	Steel, Zinc Plated	Steel, Zinc Plated
Screw Style	Combination Head	Combination Head	Combination Head	Combination Head
Screw Size	M3.5 mm	M3.5 mm	M3.5 mm	M3.5 mm
Maximum Screw Torque	9 lb-in (1.0 N•m)	9 lb-in (1.0 N•m)	9 lb-in (1.0 N•m)	9 lb-in (1.0 N•m)
Terminal Connection	Screw Clamping	Screw Clamping	Screw Clamping	Screw Clamping
Terminal Layout	Non-Logic	Non-Logic	Non-Logic	Non-Logic
Maximum Wire Size	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm²)
DIN Rail Mounting, EN 60715	35 mm (1.38 in)	35 mm (1.38 in)	35 mm (1.38 in)	35 mm (1.38 in)
Chassis Mount Screw Torque	7 lb-in (0.8 N•m)	7 lb-in (0.8 N•m)	7 lb-in (0.8 N•m)	7 lb-in (0.8 N•m)
Flammability Rating	94 V-0 Class	94 V-0 Class	94 V-0 Class	94 V-0 Class
Body Color	Light Gray	Light Gray	Light Gray	Light Gray
DIN Locking Method	–	–	Red Plastic Locking Clip	Red Plastic Locking Clip
Product Certifications	cURus (File: E70550, CCN: SWIV2, SWIV8), CSA (File: 40787, Class: 3211 07), CE 60947-1, RoHS			

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Legacy Time Delay and Sensor Relays
TDRPRO Series Accessories

Dimensions—in. (mm)

70-750DL8-1
Mounts Directly to the DIN Rail or Panel
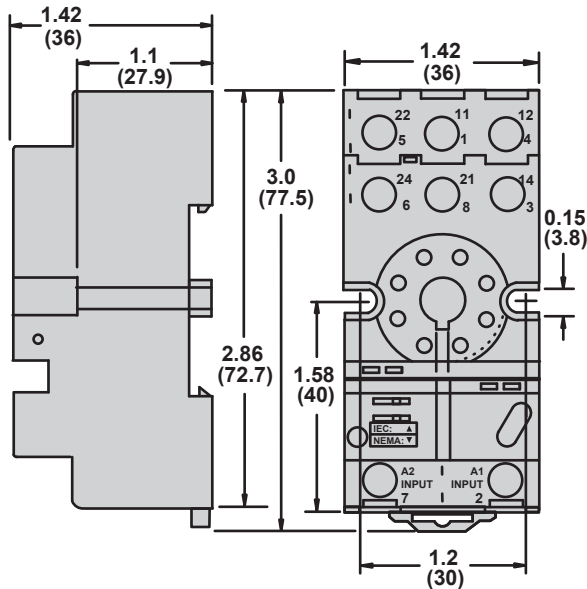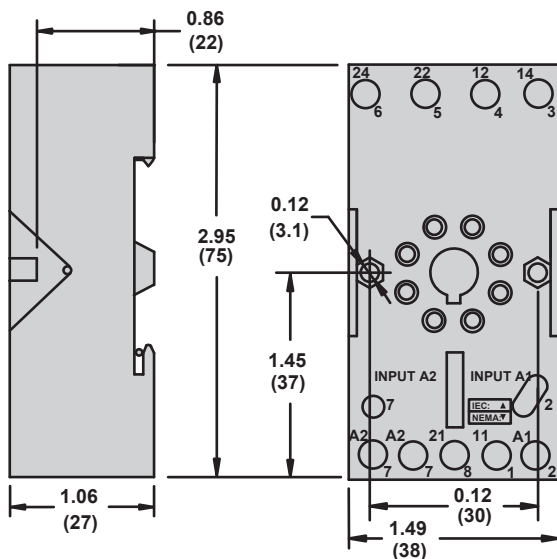

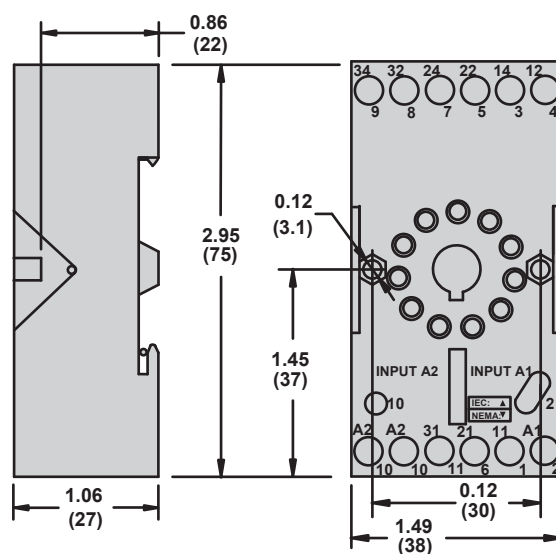### 70-750DL11-1
Mounts Directly to the DIN Rail or Panel
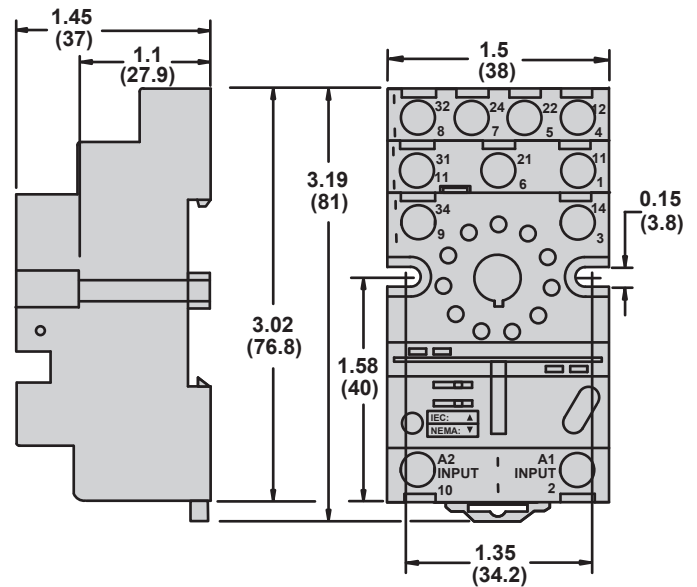
70-750E8-1
DIN or Panel Mounting with Elevator Terminals

70-750E11-1
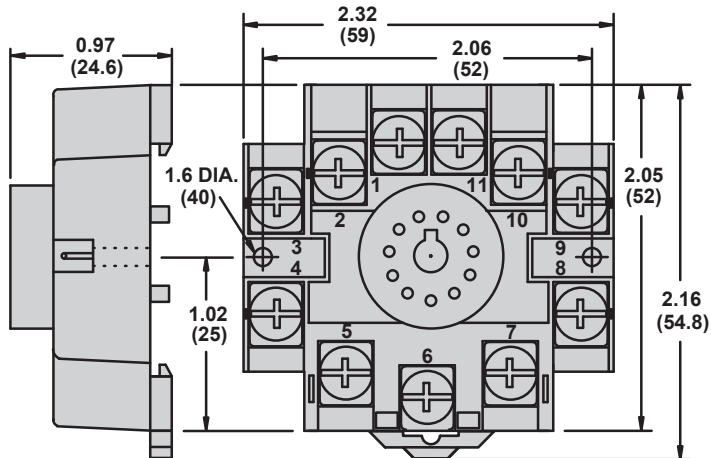**DIN or Panel Mounting with Elevator Terminals**

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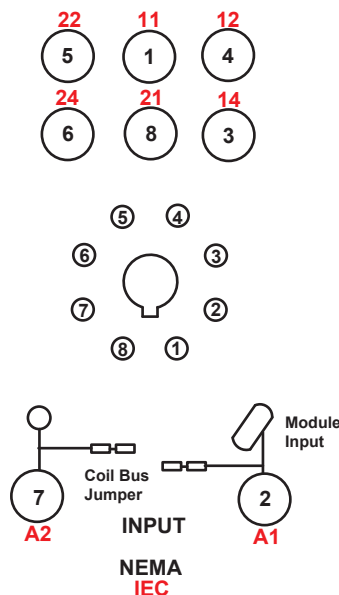# Legacy Time Delay and
Sensor Relays
TDRPRO Series Accessories

Dimensions—in. (mm)

70-465-1
DIN Mounting with Screw Terminals and Clamping Plates

70-170-1
Panel Mounting with Screw Terminals and Clamping Plates
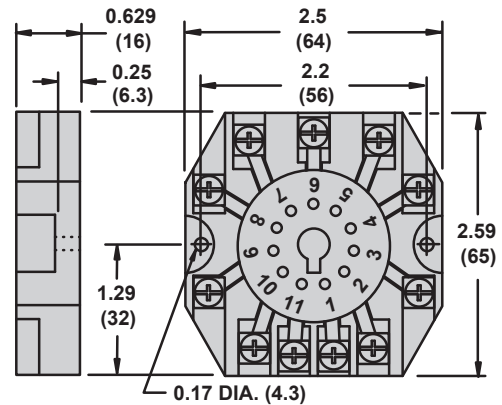
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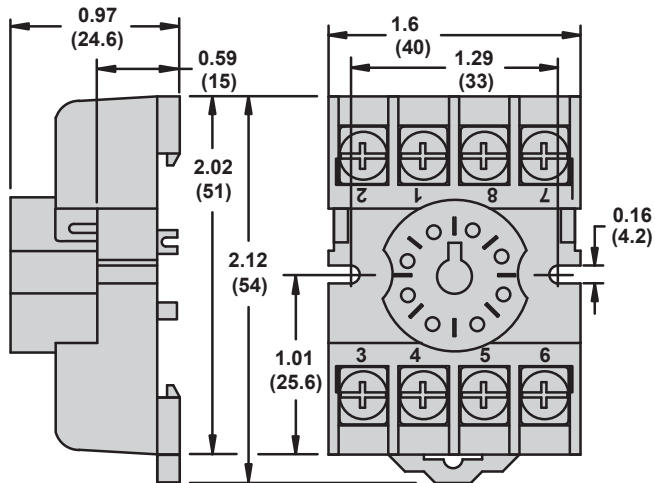
70-169-1
Panel Mounting with Screw Terminals and Clamping Plates
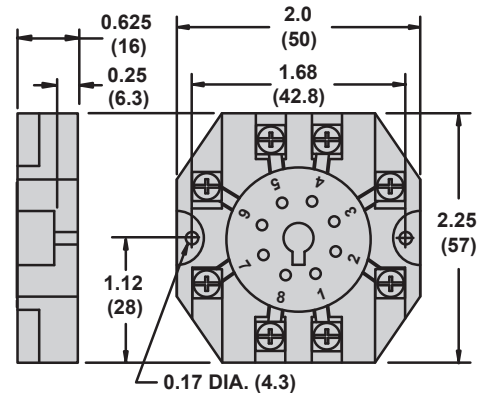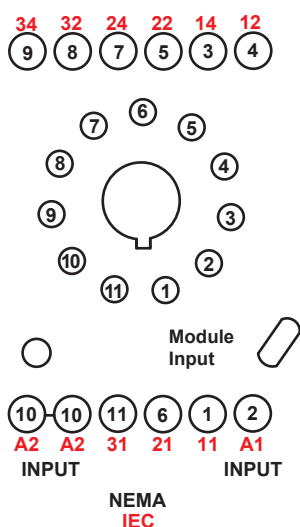
Legacy Time Delay and Sensor Relays
TDRPRO Series Accessories

Wiring Diagrams

70-750E8-1

34	32	24	22	14	12
9	8	7	5	3	4

Module Input

10	10	11	6	1	2
A2	A2	31	21	11	A1

INPUT   INPUT

NEMA
IEC

70-750E11-1

34	32	24	22	14	12
9	8	7	5	3	4

Module Input

10	10	11	6	1	2
A2	A2	31	21	11	A1

INPUT   INPUT

NEMA
IEC

70-750DL8-1

22	11	12
5	1	4
24	21	14
6	8	3

Module Input

7 — Coil Bus Jumper — 2

A2   INPUT   A1

NEMA
IEC

70-750DL11-1

32	24	22	12
8	7	5	4
31		21	11
11		6	1
34			14
9			3

Module Input

10 — Coil Bus Jumper — 2

A2   INPUT   A1

NEMA
IEC

70-465-1

NEMA
IEC

70-464-1

NEMA
IEC

70-170-1

NEMA
IEC

70-169-1

NEMA
IEC
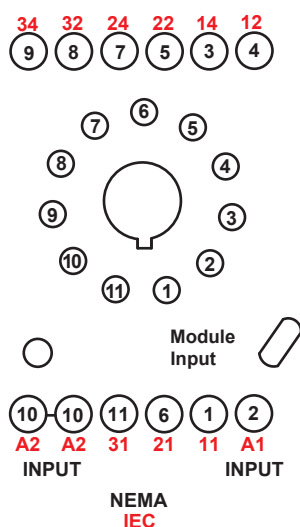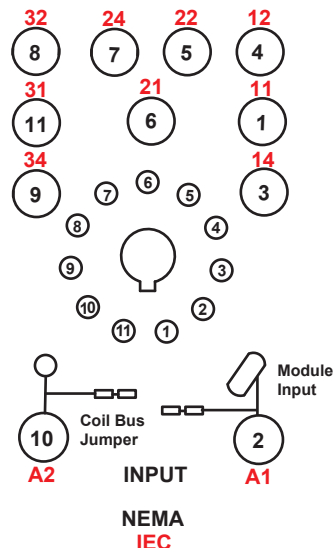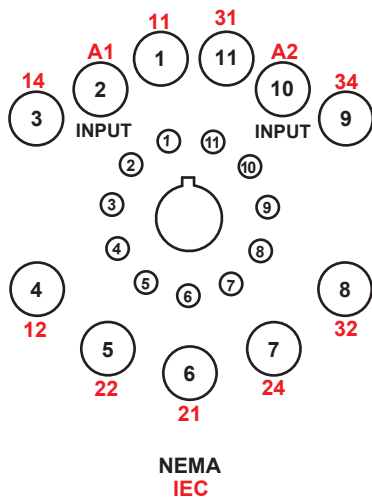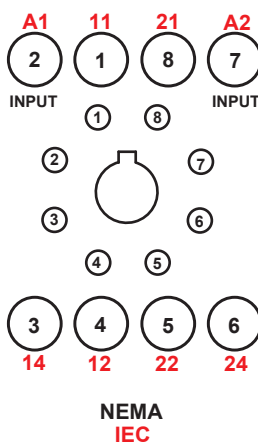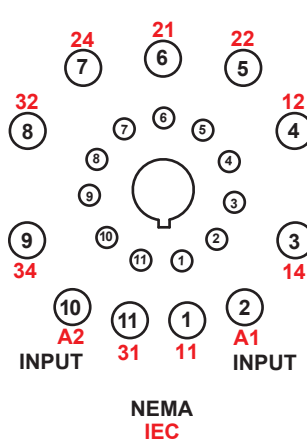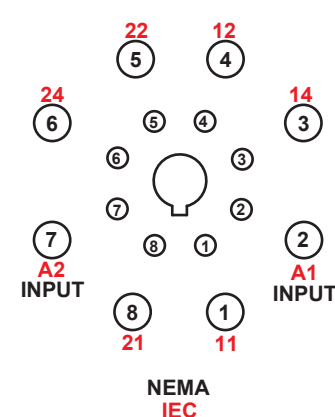
Legacy Time Delay and Sensor Relays

Definition

A time delay is a controlled period between the functioning of two events. A time delay relay combines an electromechanical output relay and a control circuit. The control circuit is composed of solid-state components that control the operation of the relay and the timing range.

Typical time delay functions include:

- On-Delay
- Repeat Cycle (Starting Off)
- Interval
- Off-Delay
- Retriggerable One-Shot
- Repeat Cycle (Starting On)
- Pulse Generator
- One-Shot
- On- and Off-Delay
- Memory Latch

Each function is explained in the table on page 31. Time delay relays offer a broad choice of timing ranges from less than one second to many days. There are many choices of timing adjustments from calibrated external knobs, DIP switches, thumbwheel switches, or a recessed potentiometer.

Principle of Operation

Time delay relays are simply control relays with a time delay built in. Their purpose is to control an event based on time. The difference between relays and time delay relays is *when* the output contacts open and close:

- on a control relay, contacts change state when voltage is applied and removed from the coil
- on time delay relays, contacts change state before or after a pre-selected, timed interval

Typically, time delay relays are initiated or triggered by one of two methods:

- application of input voltage (On-Delay, Interval On, Flasher, Repeat Cycle, Delayed Interval, and Interval/Flasher)
- opening or closing of a trigger signal (Off-Delay, Single Shot, and Watchdog)

These trigger signals can be one of two designs:

- a control switch (dry contact)—for example, limit switch, push button, float switch
- voltage (commonly known as a power trigger)
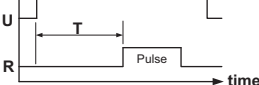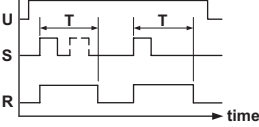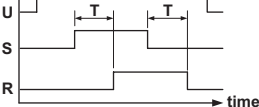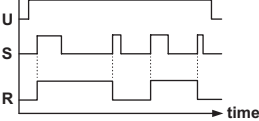
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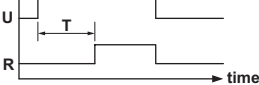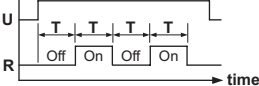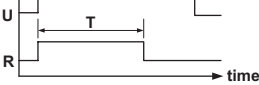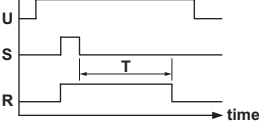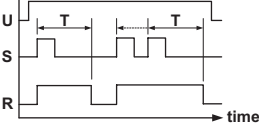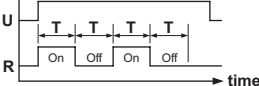
Input Voltage: Control voltage applied to the input terminals (see the wiring diagrams on page 31). Depending on the function, input voltage either initiates the unit or readies it to initiate when a trigger signal is applied.

Trigger Signal: On certain timing functions, a trigger signal initiates the unit after input voltage has been applied. As noted above, this trigger signal can either be a control switch (dry contact switch) or a power trigger (voltage).

Output (Load): A time delay relay has an internal relay (usually mechanical) with contacts that open and close to control the load. The contacts are represented by the dotted lines in the wiring diagrams.

NOTE: For the time delay relay to operate properly, voltage must be applied to power the load being switched by the relay's output contacts.

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Time Delay Relay Functions

| Function	Description	Timing Chart	Relays
On-Delay (A)	When the input voltage U is applied, time delay T begins. Relay contact(s) R change state after the time delay is complete. Contacts R return to their shelf state when input voltage U is removed. A trigger switch is not used in this function.		821, 822, TDR782, TDRPRO-5100, TDRPRO-5101, TDRPRO-5102, 831, 841
Repeat Cycle: Starting Open (B)	When input voltage U is applied, time delay T begins. When time delay T is complete, relay contact(s) R change state for time delay T. This cycle repeats until input voltage U is removed. A trigger switch is not used in this function.		821, 822, TDRPRO-5100, TDRPRO-5101, TDRPRO-5102
Interval (C)	When input voltage U is applied, relay contact(s) R change state immediately and the timing cycle begins. When time delay T is complete, contacts return to shelf state. When input voltage U is removed, contacts also return to their shelf state. A trigger switch is not used in this function.		821, 822, TDRPRO-5100, TDRPRO-5101, TDRPRO-5102
Off-Delay, with Switch Trigger (D)	Input voltage U must be applied continuously. When trigger switch S is closed, relay contacts R change state. When trigger switch S is opened, delay T begins. When delay T is complete, contacts R return to their shelf state. If trigger switch S is closed before time delay T is complete, then time is reset. When trigger switch S is opened, the delay begins again, and relay contacts R remain in their energized state. If input voltage U is removed, then relay contacts R return to their shelf state.		821, 822, TDRPRO-5100, TDRPRO-5101, TDRPRO-5102
Retriggerable One-Shot with Switch Trigger (E)	Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of trigger signal S, relay contacts R transfer, and preset time T begins. At the end of preset time T, relay contacts R return to their normal condition—unless trigger switch S is opened and closed before preset time T elapses. Continuous cycling of trigger switch S at a rate faster than preset time T causes relay contacts R to remain closed. If input voltage U is removed, relay contacts R return to their shelf state.		821, 822, TDRPRO-5100, TDRPRO-5101, TDRPRO-5102
Repeat Cycle: Starting Closed (F)	When input voltage U is applied, relay contacts R change state immediately and time delay T begins. When time delay T is complete, contacts return to their shelf state for time delay T. This cycle repeats until input voltage U is removed. A trigger switch is not used in this function.		821, 822, TDRPRO-5100, TDRPRO-5101
Pulse Generator (G)	Upon application of input voltage U, a single output pulse of 0.5 s is delivered to the relay after time delay T. Power must be removed and reapplied to repeat the pulse. A trigger switch is not used in this function.		821, 822, TDRPRO-5100, TDRPRO-5101
One-Shot with Switch Trigger (H)	Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of trigger signal S, relay contacts R transfer, and preset time T begins. During time-out, trigger signal S is ignored. The relay is reset by applying trigger switch S when the relay is not energized.		821, 822, TDRPRO-5100, TDRPRO-5101
On- and Off-Delay with Switch Trigger (I)	Input voltage U must be applied continuously. When trigger switch S is closed, time delay T begins. When time delay T is complete, relay contacts R change state and remain transferred until trigger switch S is opened. If input voltage U is removed, relay contacts R return to their shelf state.		821, 822, TDRPRO-5100, TDRPRO-5101
Memory Latch with Switch Trigger (J)	Input voltage U must be applied continuously. The output changes state with every closure of trigger switch S. If input voltage U is removed, relay contacts R return to their shelf state.		821, 822, TDRPRO-5100, TDRPRO-5101

Note: G = Gate. R = Relay contacts or outputs. S = Switch trigger. Y1 = Control contact. T = Time delay setting. U = Input voltage (power supply).

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Legacy Time Delay and Sensor Relays

Applications

Legacy Schneider Electric time delay and sensor relays provide cost effective solutions for your industrial timing and sensing needs. Available in a wide array of forms, fits, and functions, these timers offer flexibility and performance for process control and industrial building applications.

Typical Examples of Timer Applications
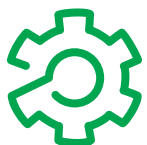
Automation Panels
Process controls, motor controls, emergency lighting

Food & Beverage
Commercial/industrial cooking equipment, filtration systems, bottling, chillers, convection ovens

Packaging Machinery
Conveyor motors, food processors, product/shrink wrap, solenoid controls

Lighting Control
Traffic signal systems, motorway information systems, theatrical lighting, ballast lighting

Power Supplies
Universal power supplies, battery backup systems

Material Handling
Motor control, conveyor controls

HVAC & Refrigeration
Anti-condensation equipment, compressor controls, blower controls, motorized duct/vent controls

Appliances
Air conditioners, water heaters, portable heaters, spa controls, water pumps

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Legacy Time Delay and Sensor Relays

The Schneider Electric Relays website **(www.serelays.com)** helps you to easily find the proper relay to fit your design requirements, and to simplify and shorten workflow.

Easily find the proper relay to fit your design requirements

■ Online Catalog

Find the right product by choosing specifications, compare products side-by-side, and view technical specifications, 2D and 3D drawings, and associated accessories.

■ Cross-Reference Search

Search our comprehensive database to identify products by manufacturer and part number, and link directly to part specifications.

■ 3D CAD Library

View, email, download, or insert a file directly into your open CAD software. You can choose from 18 different file formats.

■ Order Free Samples

Schneider Electric offers free samples as a courtesy to individuals and companies evaluating our products for their designs and applications. Sample orders are subject to approval.
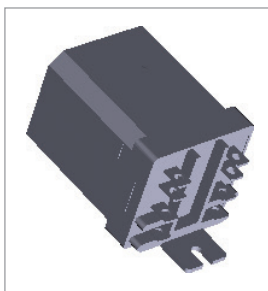
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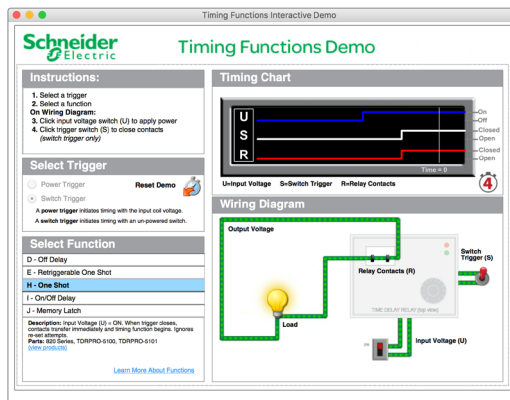
Simplify and shorten workflow

■ Interactive Tools

View interactive demonstrations, such as our Time Delay Relay Interactive Demo (left), which visually demonstrates the ten different timing functions offered on legacy Schneider Electric time delay relays.

■ Distributor Inventory Search

Search authorized distributors' current Schneider Electric inventory and buy online.
(Buy online is not available for all distributors.)

Time Delay Relay Demo

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