

SE Time Delay and Sensor Relays

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SE Time Delay and Sensor Relays

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



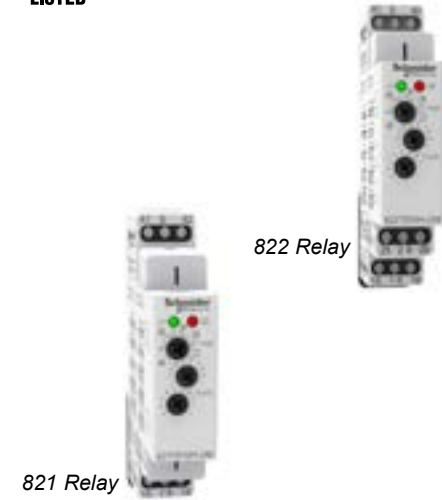
Series	Style	Contact Configuration	Rated Current Load (A)	Timing Range	Number of Functions	Function Type	Input Voltage Range	Page
DIN Mounting								
820 Series Relays	Time delay relay	SPDT DPDT	15	100 ms to 10 days	10	All	12–240 Vac/Vdc	4
831 Voltage Sensing Relays	Voltage sensing relay	SPDT	15	0 to 10 s	1	Off-Delay	120, 240 Vac; 24 Vdc	8
841 Current Sensing Relays	Current sensing relay	SPDT	15	0 to 10 s	1	On-Delay	24–240 Vac	12
Plug-in Mounting								
TDRPRO Relays	Time delay relay with 5-digit thumb-wheel	SPDT	12	100 ms to 9990 hr	10	All	12–240 Vac/Vdc	16
		DPDT	12	100 ms to 9990 hr	3	On-Delay / Repeat Cycle / On Interval		

Description

SE Time Delay and Sensor Relays

820 Series

SPDT, 15 A; DPDT, 15 A



Description

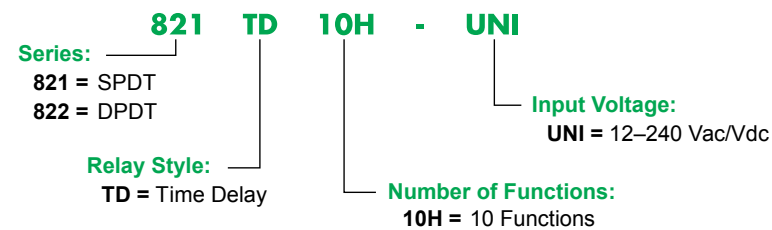
The 820 Series time delay relays are 35-mm DIN-rail mountable products offering ten different timing functions, ultra-wide timing range (10 ms to 10 days), and a universal voltage input (12–240 Vac/Vdc), all in a slim 17.5 mm (0.69 in.) modular package.

Feature	Benefit
Up to 10 functions	<ul style="list-style-type: none"> 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 25.

Part Number Explanation



Specifications

SE 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, 50/60 Hz	12–240 Vac/Vdc, 50/60 Hz
Operating Voltage (% of Nominal)	85% of 12 V to 115% of 240 V	85% of 12 V to 115% of 240 V
Maximum Power Consumption	2 VA 1.5 W	2.5 VA 1.5 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 1/2 hp @ 120 Vac, 50/60 Hz 1 hp @ 240 Vac, 50/60 Hz	15 A @ 240 Vac, 50/60 Hz 1/2 hp @ 120 Vac, 50/60 Hz 1 hp @ 240 Vac, 50/60 Hz
Minimum Switching Requirement	100 mA @ 5 Vac/Vdc	100 mA @ 5 Vac/Vdc
Timing Characteristics		
Functions Available (1)	10	10
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
Minimum Pulse Duration	25 ms minimum	25 ms minimum
General Characteristics		
Electrical Life (Operations at Rated Current) (2)	30,000 cycles, AC-1	30,000 cycles, AC-1
Mechanical Life (No Load) (2)	15,000,000 cycles	15,000,000 cycles
Dielectric Strength (Input to Contacts)	4000 Vac	4000 Vac
Dielectric Strength (Between Open Contacts)	1000 Vac	1000 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 (2.5 mm ²) maximum	14 AWG (2.5 mm ²) maximum
Terminal Screw Torque	3.54 lb-in (0.4 N·m) maximum	3.54 lb-in (0.4 N·m) maximum
Weight	65 g (2.3 oz)	85 g (3.0 oz)
Input Indication	Green LED	Green LED
Output Indication (Blinking = Timing; On = Energized)	Red LED	Red LED
Protection Degree	IP20 (terminals) conforming to IEC60529 IP40 (front panel) conforming to IEC60529	IP20 (terminals) conforming to IEC60529 IP40 (front panel) conforming to IEC60529
Approvals	UL, CE(EN 61812-1), WEEE, RoHS	UL, CE(EN 61812-1), WEEE, RoHS

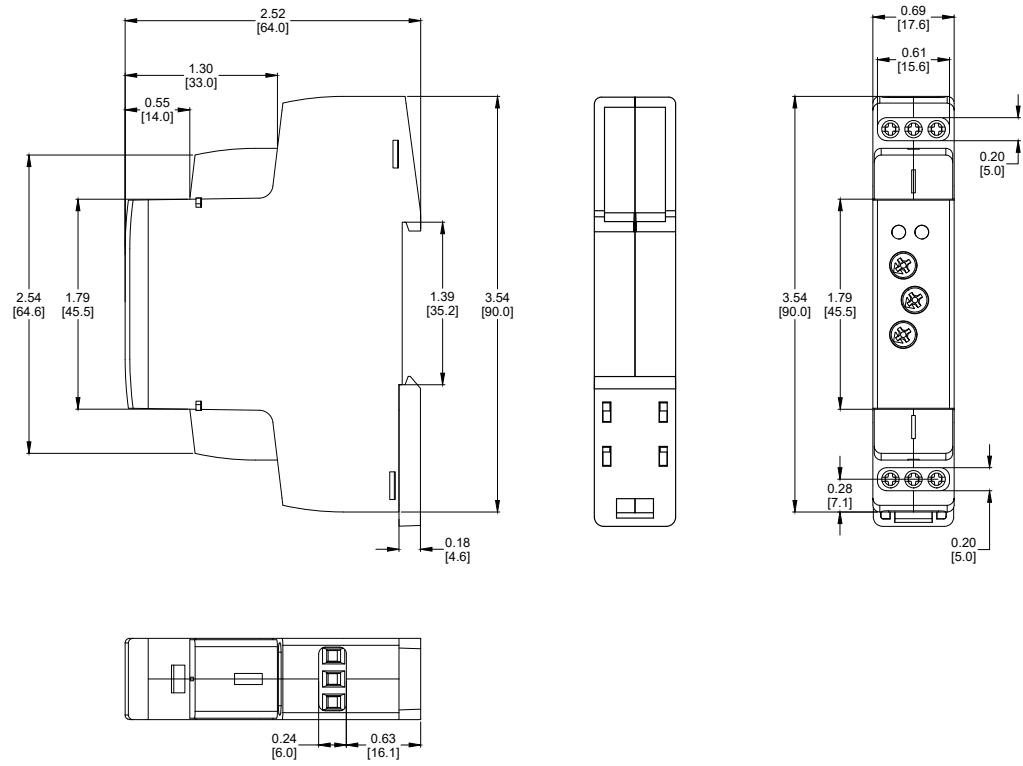
(1) For function descriptions, see page 25.

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

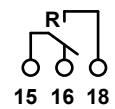
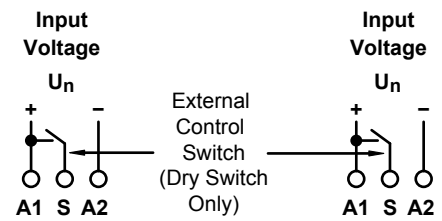
**SE Time Delay and
Sensor Relays**
820 Series
SPDT, 15 A; DPDT, 15 A

Dimensions—in. (mm)

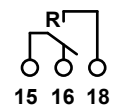
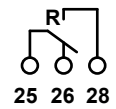
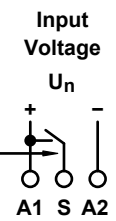
821TD10H



Wiring Diagram



821TD10H-UNI



822TD10H-UNI

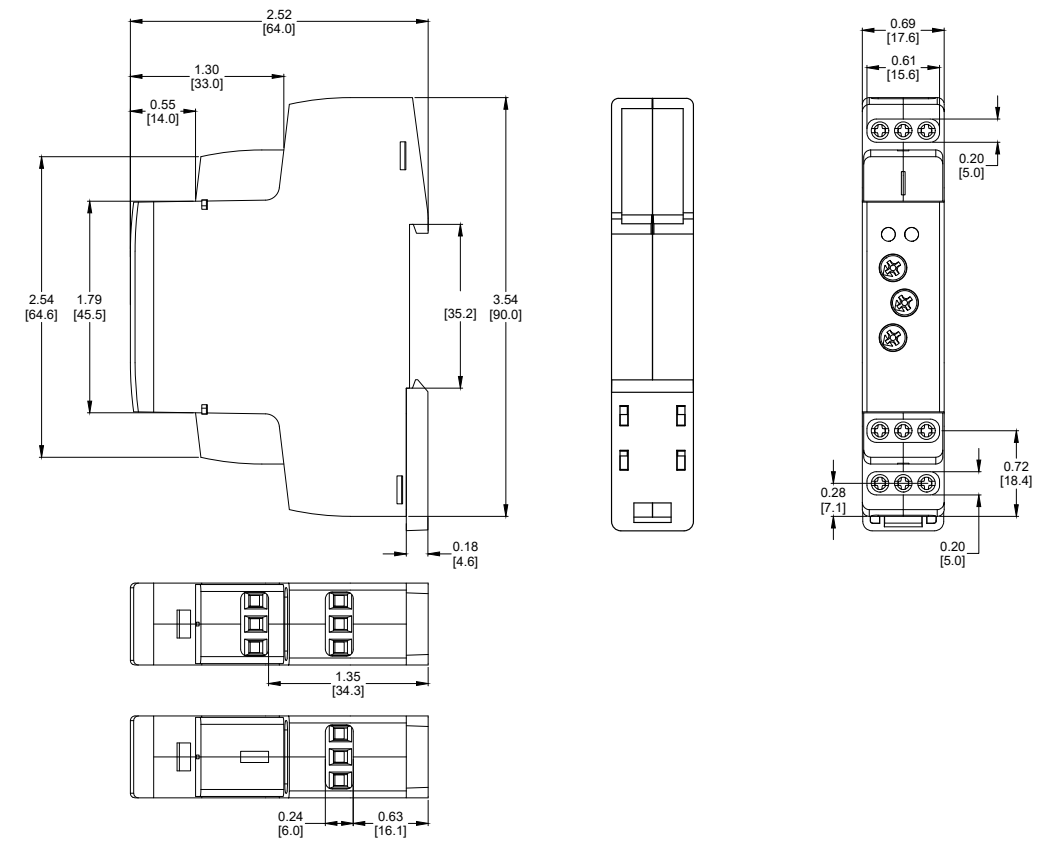
- 15—Common
- 16—Normally Closed
- 18—Normally Open

- 25—Common
- 26—Normally Closed
- 28—Normally Open

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

Dimensions—in. (mm)

822TD10H



Description

SE Time Delay and Sensor Relays

831 Series
SPDT, 15 A



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.

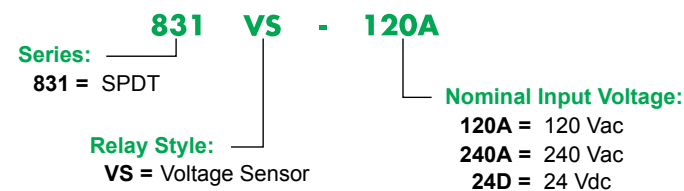


831 Relay

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	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	0–10 s	SPDT	15 A	831VS-120A
240 Vac	Upper: 160–276 Vac Lower: 30–99% of upper				831VS-240A
24 Vdc	Upper: 18–30 V Lower: 30–99% of upper				831VS-24D

Part Number Explanation



Specifications

SE 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
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
Output Characteristics			
Contact Configuration	SPDT	SPDT	SPDT
Output Current Rating	15 A	15 A	15 A
Breaking Capacity	4000 VA/AC1	4000 VA/AC1	4000 VA/AC1
Inrush Current	30 A / <3 s	30 A / <3 s	30 A / <3 s
Maximum Switching Voltage	250 Vac	250 Vac	250 Vac
Mechanical Life (No Load) (1)	15,000,000 cycles	15,000,000 cycles	15,000,000 cycles
Electrical Life (Operations @ Rated Current) (1)	30,000 cycles, AC-1	30,000 cycles, AC-1	30,000 cycles, AC-1
Contact Material	Silver alloy	Silver alloy	Silver alloy
Switching Capability	15 A @ 240 Vac, 50/60 Hz 1/2 hp @ 120 Vac 1 hp @ 240 Vac	15 A @ 240 Vac, 50/60 Hz 1/2 hp @ 120 Vac 1 hp @ 240 Vac	15 A @ 240 Vac, 50/60 Hz 1/2 hp @ 120 Vac 1 hp @ 240 Vac
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
Temperature Variation	<0.1% / °C	<0.1% / °C	<0.1% / °C
Hysteresis (from fault to normal)	2–6% of adjusted value	2–6% of adjusted value	2–6% of adjusted value
General Characteristics			
Dielectric Strength (Input to Contacts)	4000 Vac	4000 Vac	4000 Vac
Mounting Position	Any, 35 mm DIN rail EN 60715	Any, 35 mm DIN rail EN 60715	Any, 35 mm DIN rail EN 60715
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 +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)	–20 to +55 °C (–4 to +131 °F)
Terminal Wire Capacity (Input and Output)	14 AWG (2.5 mm ²) maximum	14 AWG (2.5 mm ²) maximum	14 AWG (2.5 mm ²) 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	73 g (2.6 oz)	73 g (2.6 oz)	87 g (3.07 oz)
Input Indication	Green LED		
Output Indication	Red/Green LED		
Protection Degree	IP20 (terminals) conforming to IEC60529 IP40 (front panel) conforming to IEC60529		
Approvals	UL, CE(EN60255-26, EN60255-27, EN61010-1), WEEE, RoHS		

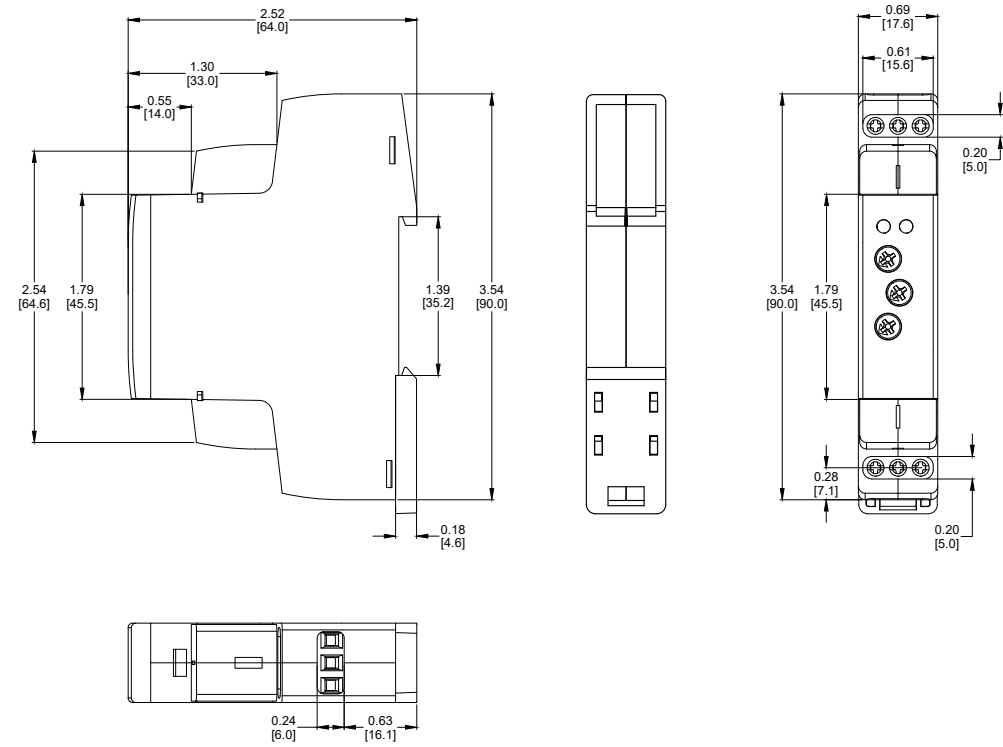
(1) Actual product life varies based on electrical load, duty cycle, application, and environmental conditions.

SE Time Delay and Sensor Relays

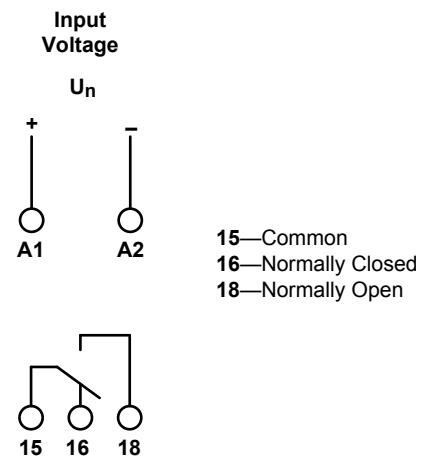
831 Series
SPDT, 15 A

Dimensions—in. (mm)

831VS-120A 831VS-240A



Wiring Diagram

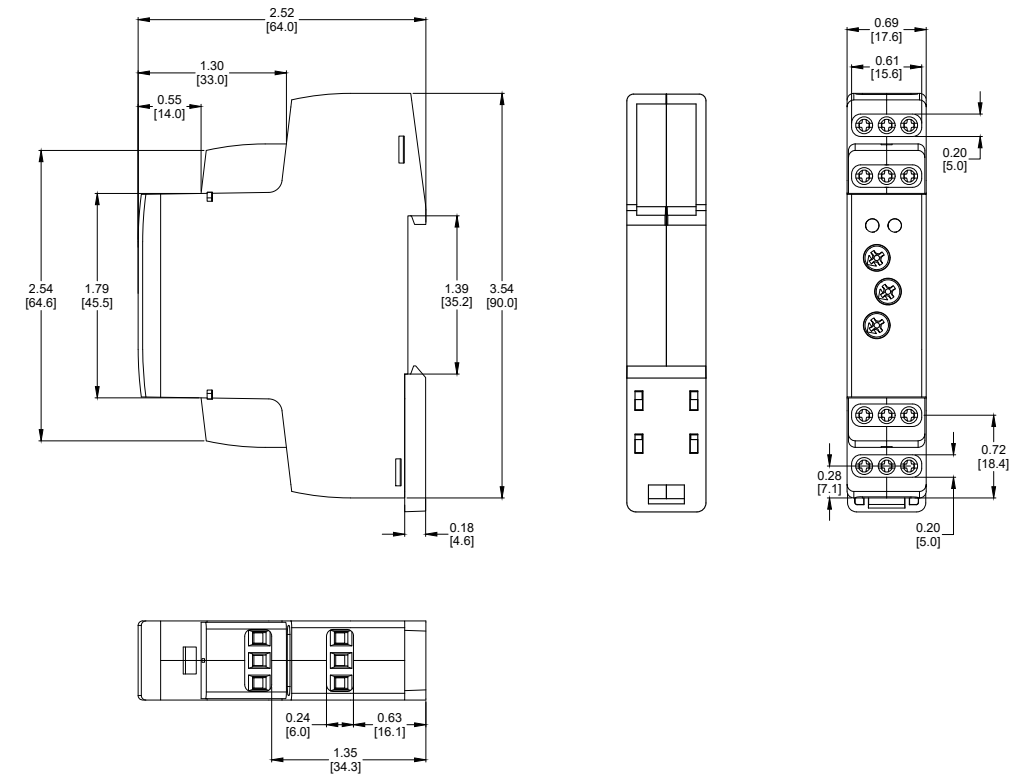


SE Time Delay and Sensor Relays

831 Series
SPDT, 15 A

Dimensions—in. (mm)

831VS-24D



Description

SE Time Delay and Sensor Relays

841 Series
SPDT, 15 A



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).

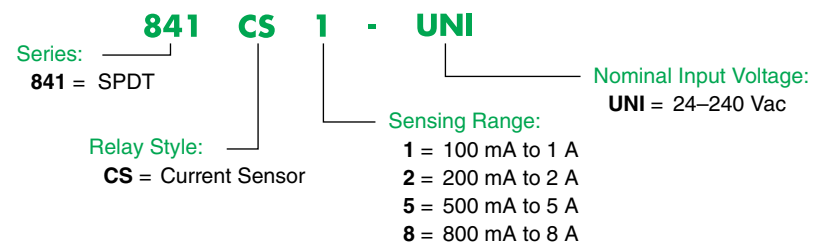


841 Relay

Feature	Benefit
Current-sensing adjustment knob	Sense from 10–100% of the rated sensing current
Input/output 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	0 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



Specifications

SE Time Delay and Sensor Relays

841 Series
SPDT, 15 A

Specifications

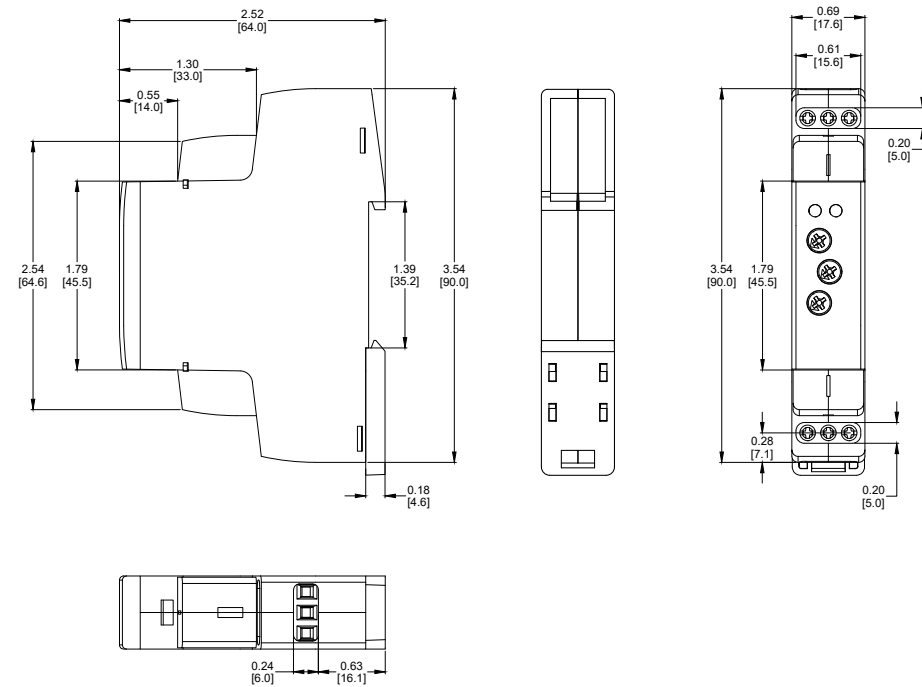
Part Number	841CS1-UNI	841CS2-UNI	841CS5-UNI	841CS8-UNI
Input Characteristics				
Input Voltage Range	24–240 Vac 50/60Hz	24–240 Vac 50/60Hz	24–240 Vac 50/60Hz	24–240 Vac 50/60Hz
Maximum Power Consumption	1.5 VA	1.5 VA	1.5 VA	1.5 VA
Sensing Range	100 mA to 1 A	200 mA to 2 A	500 mA to 5 A	800 mA to 8 A
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 1/2 hp @ 120 Vac 1 hp @ 240 Vac	15 A @ 240 Vac, 50/60 Hz 1/2 hp @ 120 Vac 1 hp @ 240 Vac	15 A @ 240 Vac, 50/60 Hz 1/2 hp @ 120 Vac 1 hp @ 240 Vac	15 A @ 240 Vac, 50/60 Hz 1/2 hp @ 120 Vac 1 hp @ 240 Vac
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
Upper Supply Voltage Range	+10%	+10%	+10%	+10%
Lower Supply Voltage Range	–15%	–15%	–15%	–15%
Electrical Life (Operations at Rated Current) (1)	30,000 cycles			
Mechanical Life (No Load) (1)	15,000,000 cycles			
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%
Temperature Variation	<0.1% / °C	<0.1% / °C	<0.1% / °C	<0.1% / °C
Hysteresis (from fault to normal)	0.6–1.2% of adjusted range	0.6–1.2% of adjusted range	0.6–1.2% of adjusted range	0.6–1.2% of adjusted range
General Characteristics				
Dielectric Strength (Input to Contacts)	4000 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 (2.5 mm ²) maximum			
Terminal Screw Torque	7.1 lb-in (0.8 N•m) maximum			
Weight	63 g (2.22 oz)			
Input Indication	Green LED			
Output Indication	Red/ Green LED			
Protection Degree	IP20 (terminals) conforming to IEC60529 IP40 (front panel) conforming to IEC60529			
Approvals	UL, CE(EN60255-26, EN60255-27, EN61010-1), WEEE, RoHS			

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

SE Time Delay and Sensor Relays

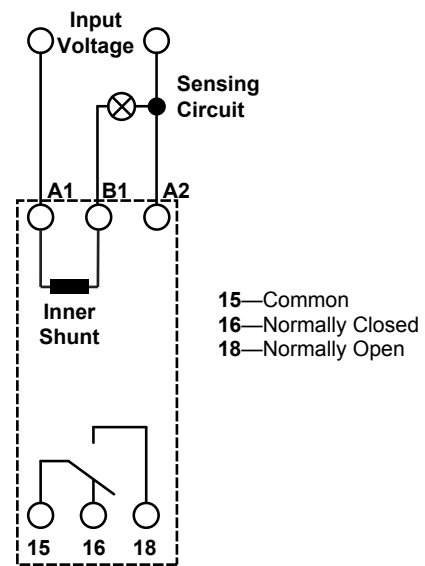
841 Series
SPDT, 15 A

Dimensions—in. (mm)

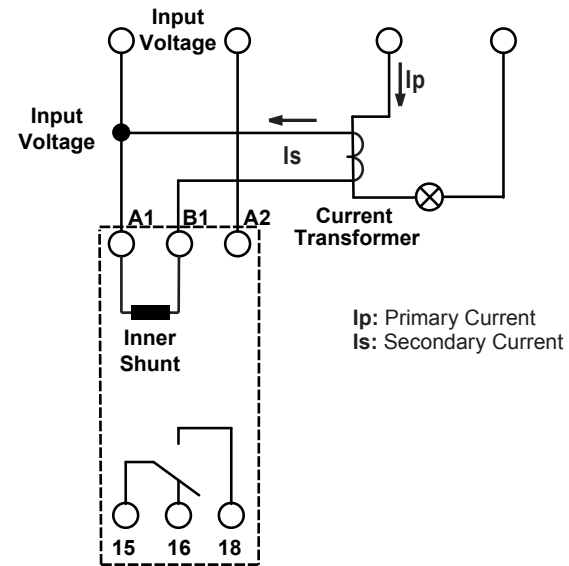


Wiring Diagram

Direct current sensing



Current sensing through a current transformer



SE Time Delay and Sensor Relays

800 Series Accessories

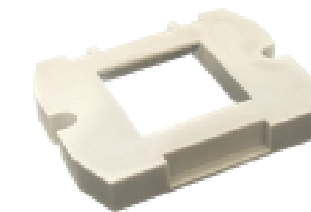
Description

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.

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



Shown with an 831 Relay



16-788C1 Panel Adapter

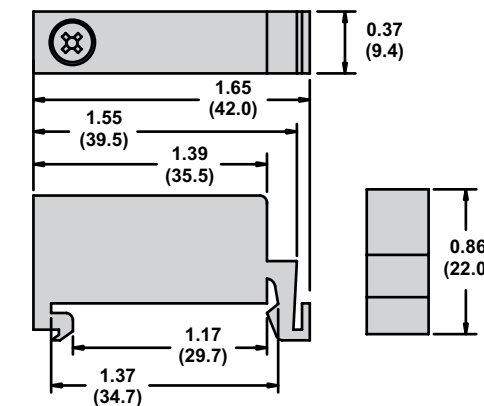
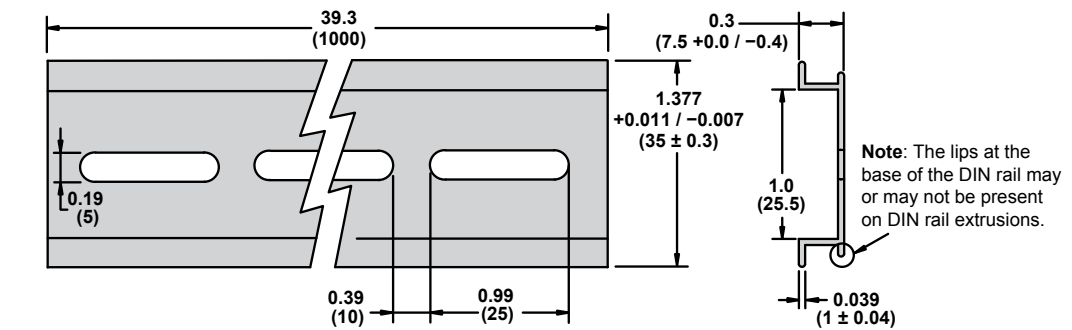


Shown with an 821 Relay

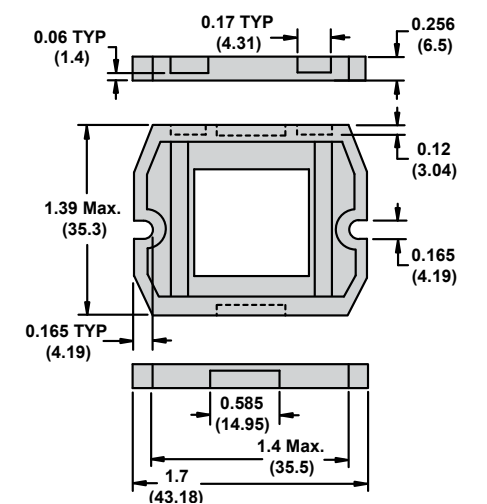
Description	Function	For Use With Relays	Packaging Quantities	Standard Part Number
Metal DIN Rail 39.3 in. (1 m).	Quick installation and removal	821, 822, 831, 841	10	16-700DIN
DIN Rail End Clip	Holds sockets firmly in place on the DIN rail	—		16-DCLIP-1
Panel Adapter	Provides additional panel mounting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

Dimensions—in. (mm)

16-700DIN Metal DIN Rail



16-788C1 Panel Adapter



Description

SE 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 25.

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

Specifications

SE 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 Capabilities	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 25.

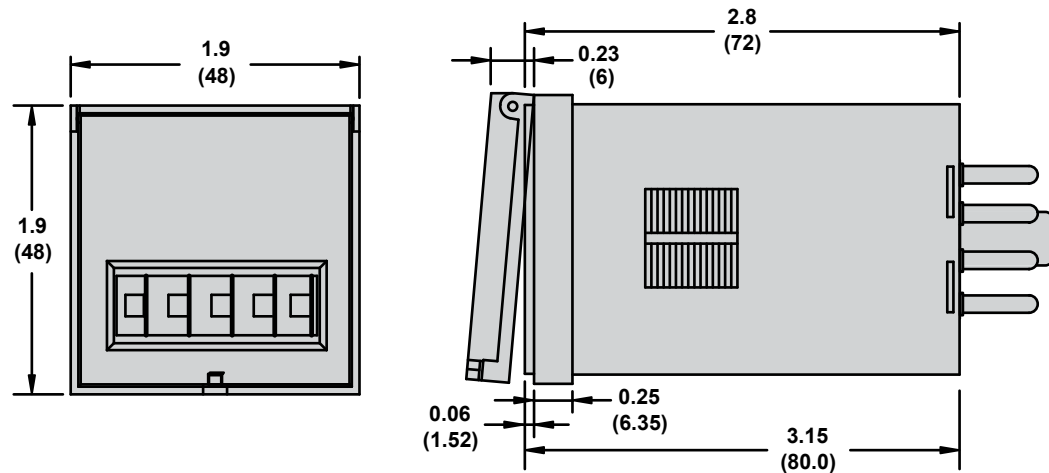
(2) Actual product life varies based on electrical load, duty cycle, application, and environmental conditions.

(3) After the time delay period expires, or upon application of the trigger signal (depending on the selected function).

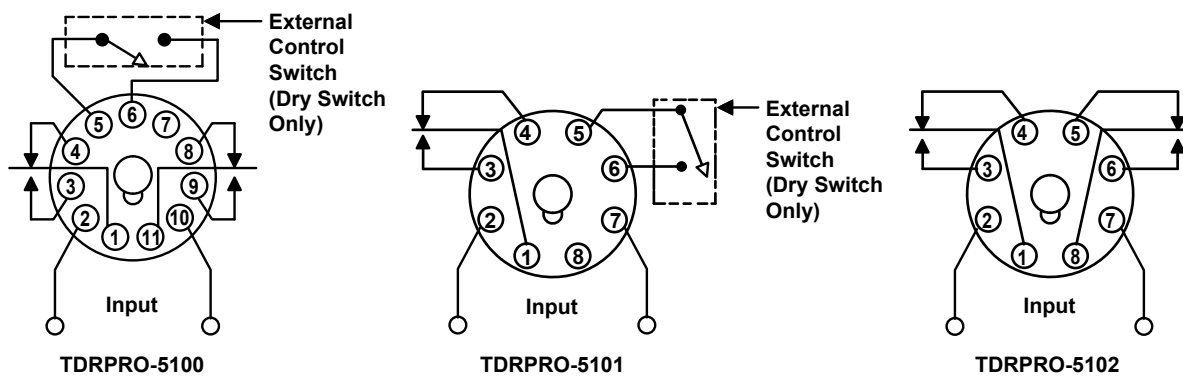
SE Time Delay and Sensor Relays

TDRPRO Series
SPDT, 12 A; DPDT, 12 A

Dimensions—in. (mm)



Wiring Diagrams



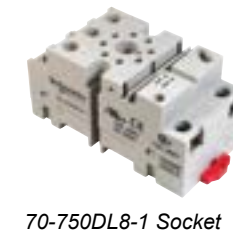
SE Time Delay and Sensor Relays

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.



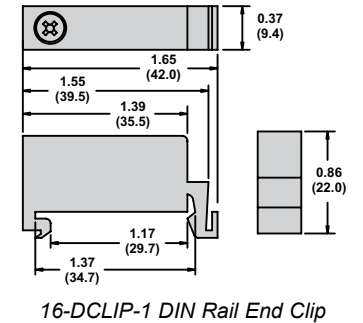
70-750DL8-1 Socket



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	TDRPRO-5102	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	TDRPRO-5101	10	70-464-1
	Mounting directly to DIN Rail or Panel	TDRPRO-5100	10	70-750DL11-1
	DIN or Panel Mounting with Elevator Terminals	TDRPRO-5100	10	70-750E11-1
	DIN or Panel Mounting with Screw Terminals and Clamping Plates	TDRPRO-5100	10	70-465-1
Metal Retention Clip	Helping secure the relay in the socket	TDRPRO	10	16-TDRPROSC
Panel Mounting with Screw Terminals and Clamping Plates			10	70-170-1

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

SE 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 mm ²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm ²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm ²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm ²)
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 mm ²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm ²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm ²)	Solid or Stranded Cu: two 12–14 AWG (2.5–4 mm ²)
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			

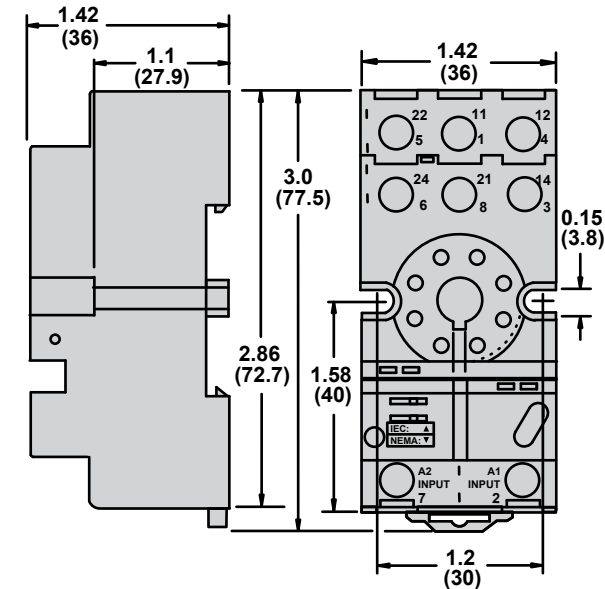
SE Time Delay and Sensor Relays

TDRPRO Series Accessories

Dimensions—in. (mm)

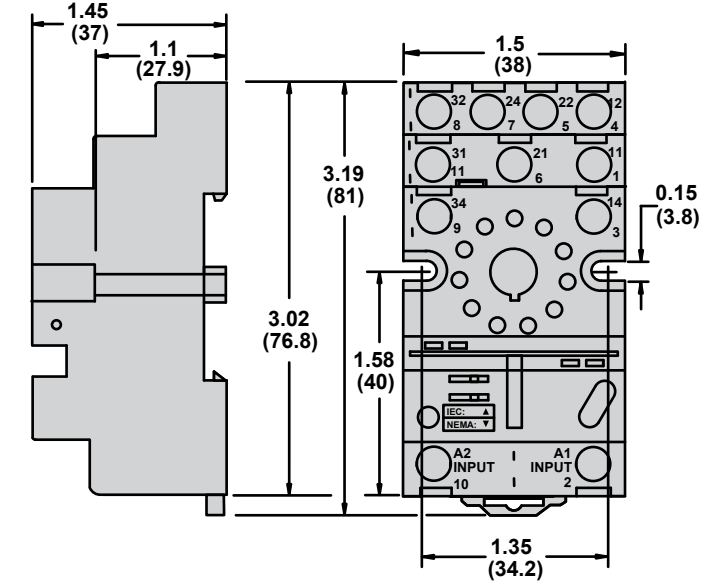
70-750DL8-1

Mounts Directly to the DIN Rail or Panel



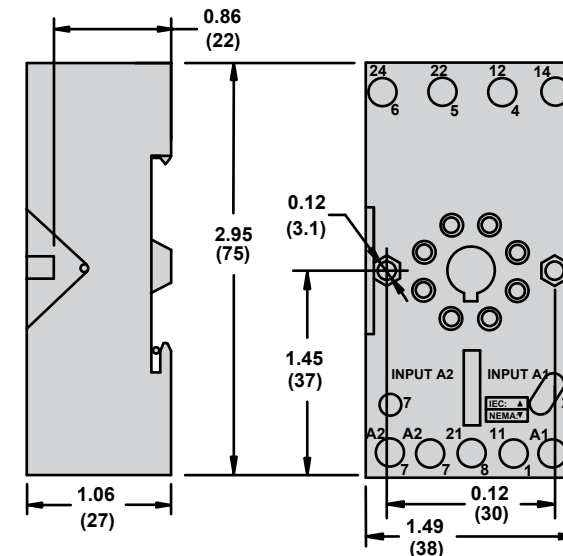
70-750DL11-1

Mounts Directly to the DIN Rail or Panel



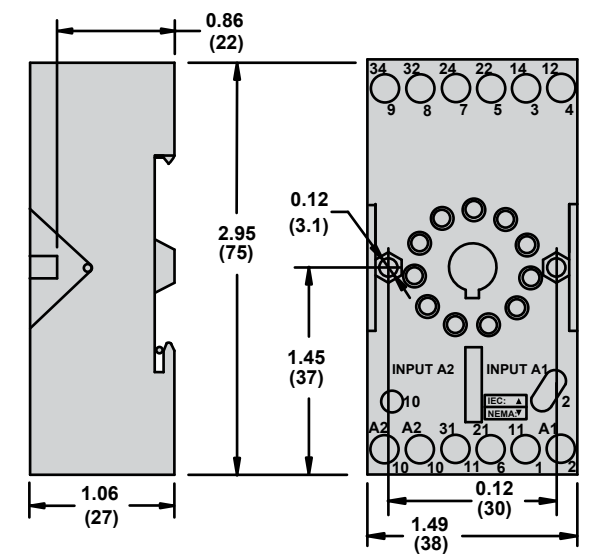
70-750E8-1

DIN or Panel Mounting with Elevator Terminals



70-750E11-1

DIN or Panel Mounting with Elevator Terminals

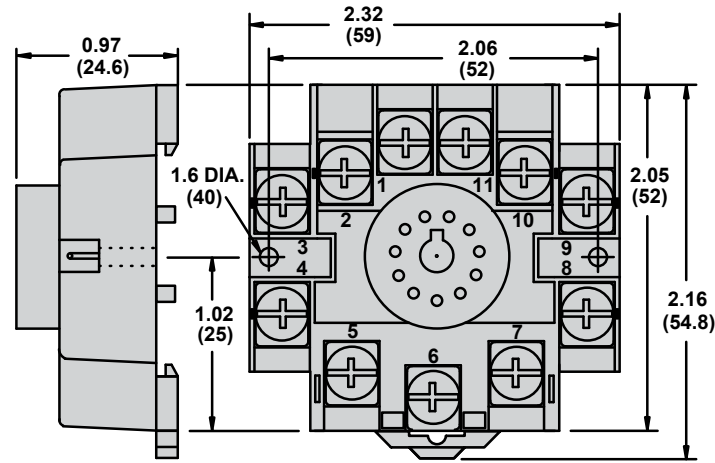


SE Time Delay and Sensor Relays

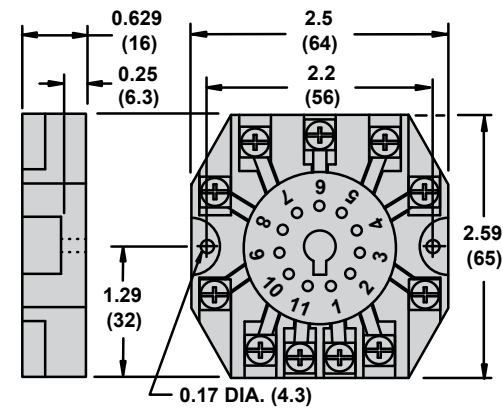
TDRPRO Series Accessories

Dimensions—in. (mm)

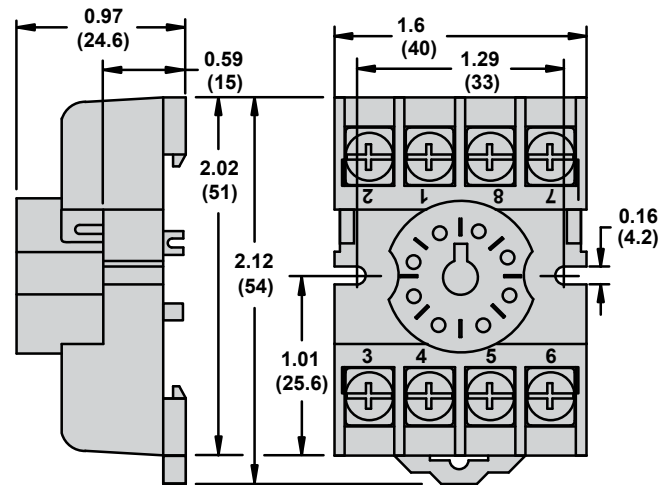
70-465-1
DIN Mounting with Screw Terminals and Clamping Plates



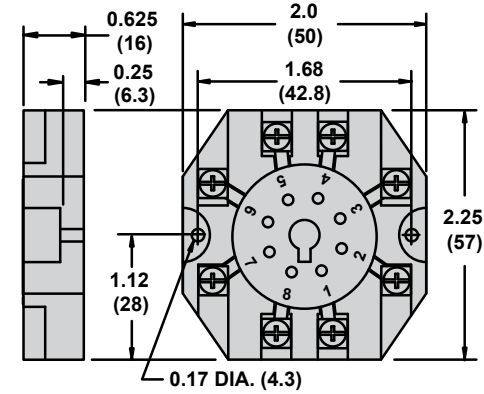
70-170-1
Panel Mounting with Screw Terminals and Clamping Plates



70-464-1
DIN Mounting with Screw Terminals and Clamping Plates



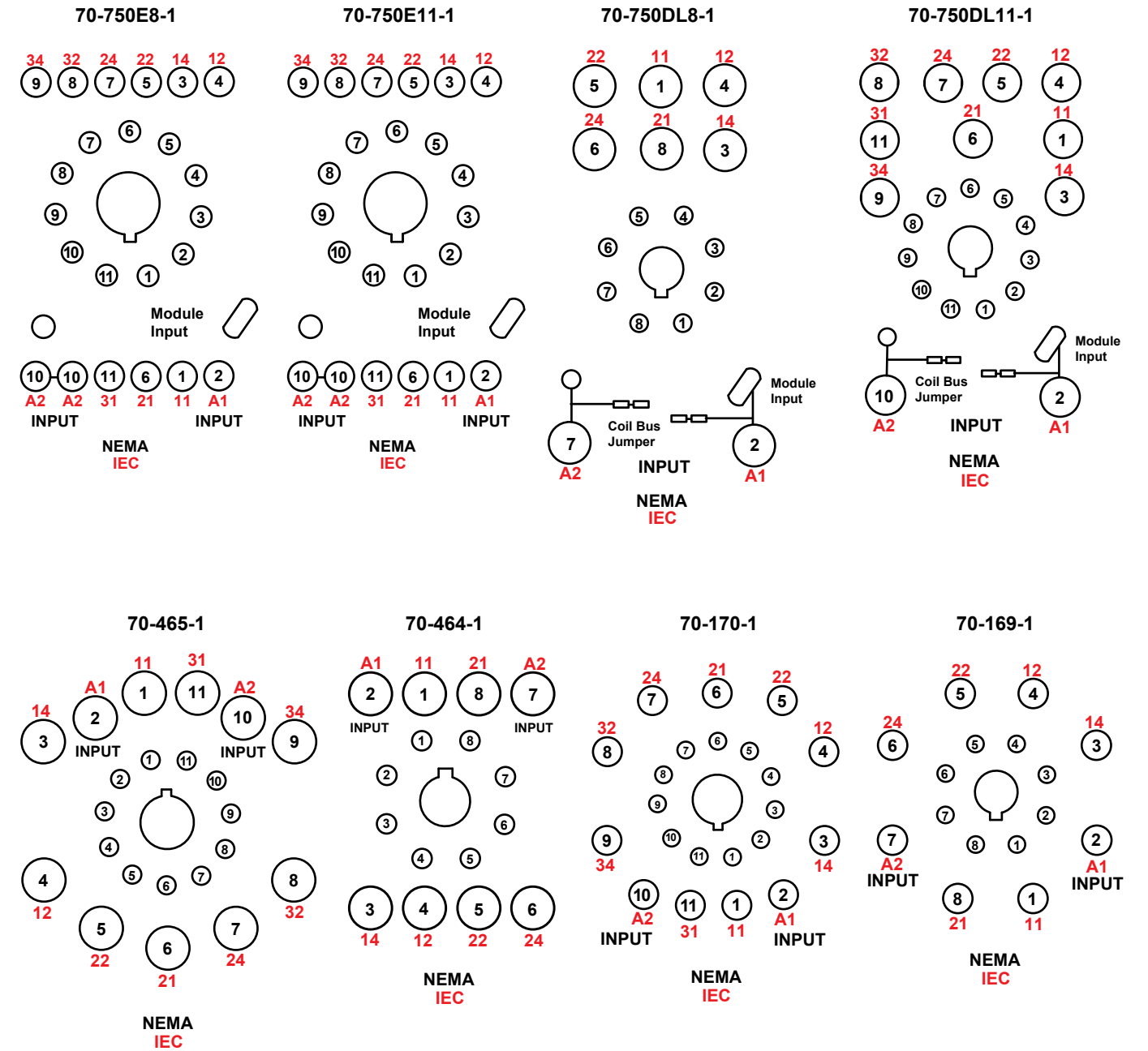
70-169-1
Panel Mounting with Screw Terminals and Clamping Plates



SE Time Delay and Sensor Relays

TDRPRO Series Accessories

Wiring Diagrams



SE 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 25. 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, thumb-wheel 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)

Definitions:

Input Voltage: Control voltage applied to the input terminals (see the wiring diagrams on page 25). 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.

SE Time Delay and Sensor Relays

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, 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).

SE Time Delay and Sensor Relays

Applications

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

SE 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

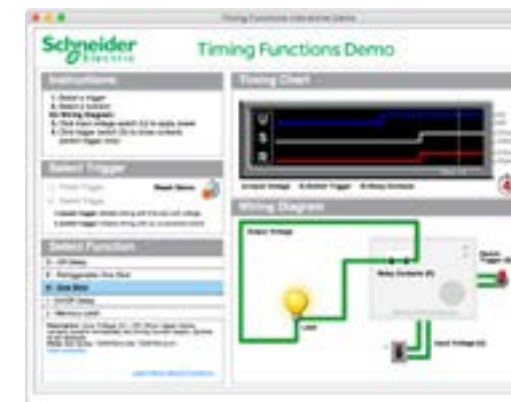
View, email, download, or insert a file directly into your open CAD software. You can choose from 18 different file formats.

■ 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.



3D Models



Time Delay Relay Demo

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 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.)

SE Time Delay and Sensor Relays

16-700DIN	<u>15</u>	<u>19</u>
16-750/782FT-1	<u>19</u>	
16-788C1	<u>15</u>	
16-DCLIP-1	<u>15</u>	<u>19</u>
16-TDRPROSC	<u>19</u>	
70-169-1	<u>19</u>	<u>20</u>
70-170-1	<u>19</u>	<u>20</u>
70-464-1	<u>19</u>	<u>20</u>
70-465-1	<u>19</u>	<u>20</u>
70-750DL8-1	<u>19</u>	<u>20</u>
70-750DL11-1	<u>19</u>	<u>20</u>
70-750E8-1	<u>19</u>	<u>20</u>
70-750E11-1	<u>19</u>	<u>20</u>
821TD10H-UNI	<u>4</u>	<u>5</u>
822TD10H-UNI	<u>4</u>	<u>5</u>
831VS-24D	<u>8</u>	<u>9</u>
831VS-120A	<u>8</u>	<u>9</u>
831VS-240A	<u>8</u>	<u>9</u>
841CS1-UNI	<u>12</u>	<u>13</u>
841CS2-UNI	<u>12</u>	<u>13</u>
841CS5-UNI	<u>12</u>	<u>13</u>
841CS8-UNI	<u>12</u>	<u>13</u>
TDRPRO-5100	<u>16</u>	<u>17</u>
TDRPRO-5101	<u>16</u>	<u>17</u>
TDRPRO-5102	<u>16</u>	<u>17</u>

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8501CT1104R04/23, 03/2024
Replaces 8501CT1104R02/21 dated 10/2021