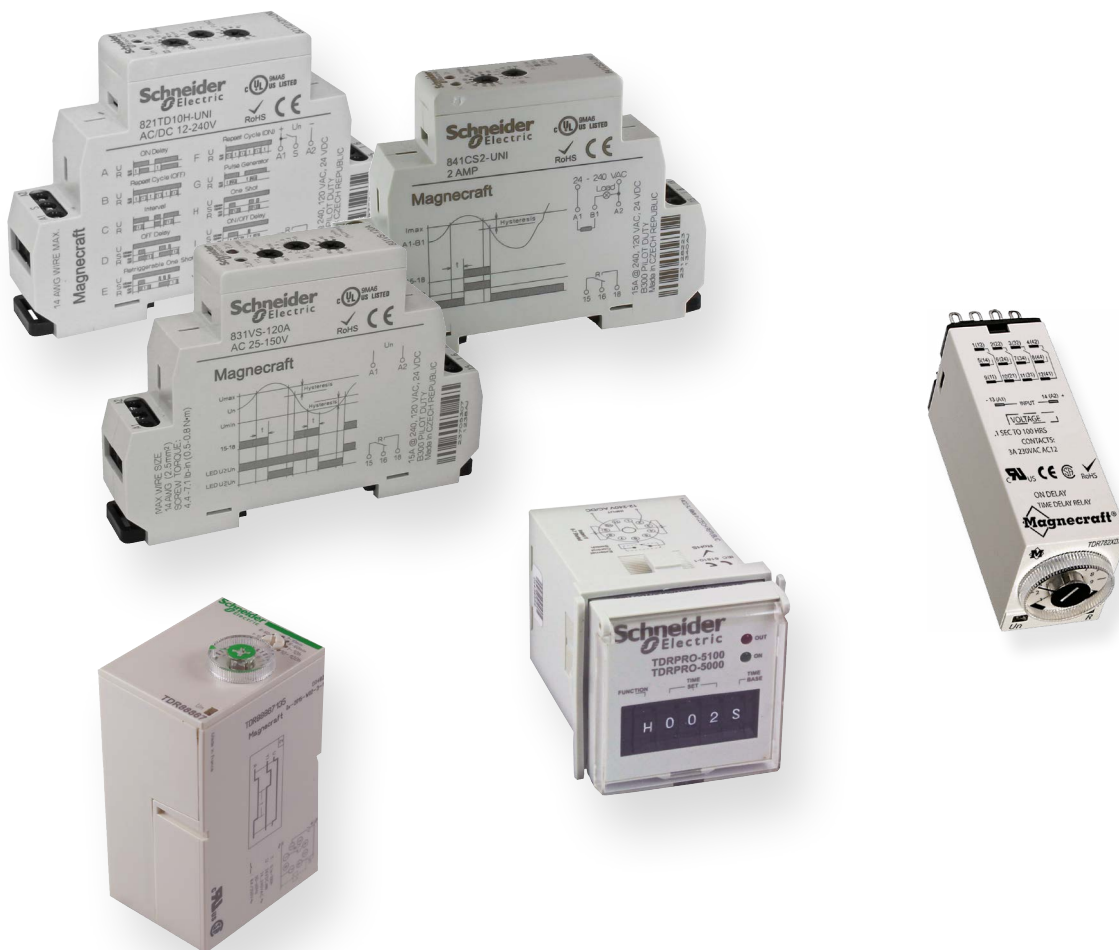


Magnecraft™ Time Delay and Sensor Relays

Catalog
2016



Magnecraft Time Delay and Sensor Relays

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Magnecraft Time Delay and Sensor Relays

Magnecraft 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, Magnecraft 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									
	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									
	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						
	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			
	Time delay relay with dials	SPDT DPDT	8	1 s to 100 hr	1, 2, 10	All	12, 12–240, 24–240 Vac/Vdc	25	

Description

Magnecraft Time Delay and Sensor Relays

820 Series

SPDT, 15 A; DPDT, 15 A



821 Relay

822 Relay

Description

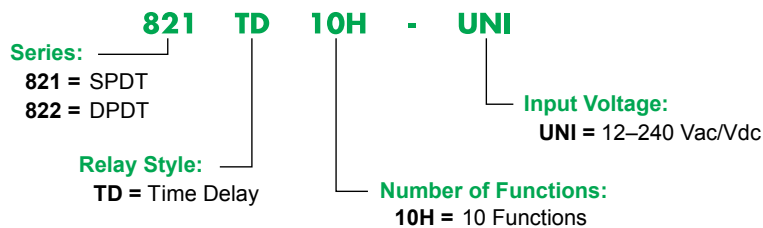
The 820 Series time delay relays are 35-mm DIN-rail mountable products offering ten different timing functions, ultra-wide timing range (10 ms to 10 days), and a universal voltage input (12–240 Vac/Vdc), all in a slim 17.5 mm (0.69 in.) modular package.

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 pages 34–35.

Part Number Explanation



Magnecraft 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 mm ²) maximum	14 AWG (2.1 mm ²) 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 pages 34–35.

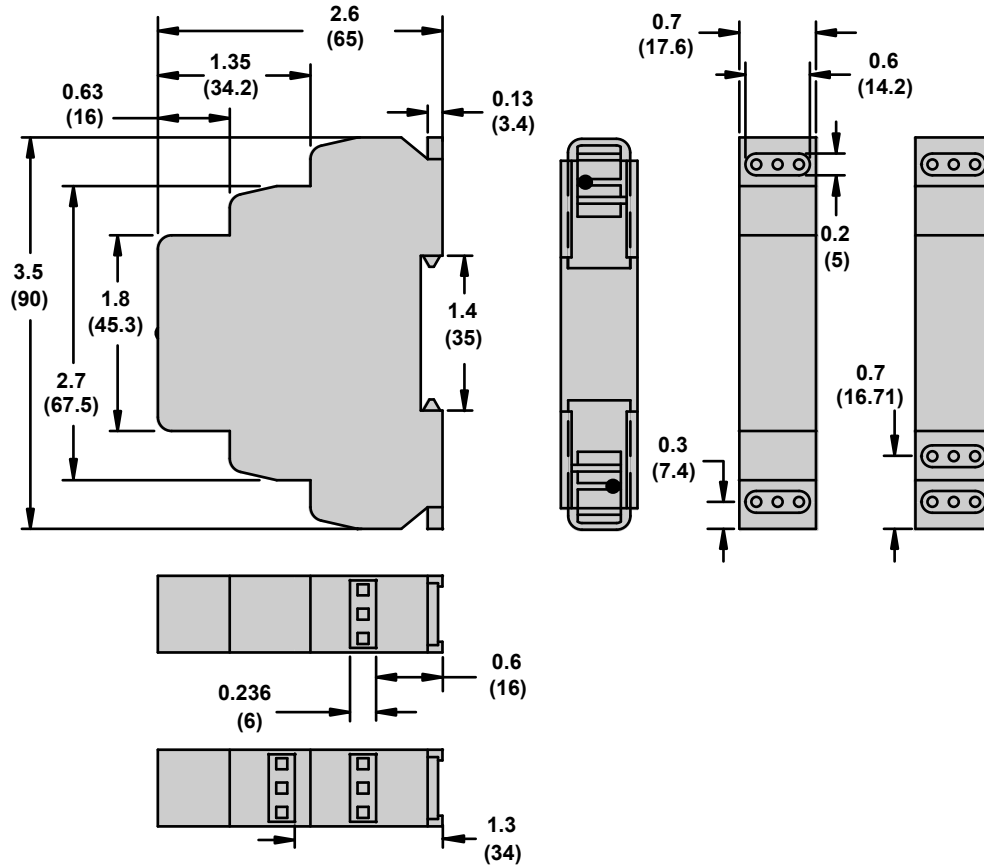
(2) Actual product life varies based on electrical load, duty cycle, application, and environmental conditions.

Dimensions, Wiring Diagram

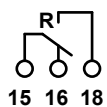
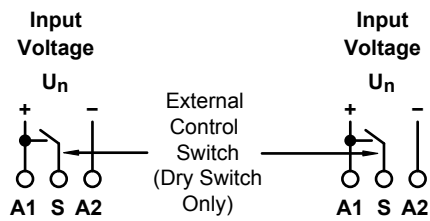
Magnecraft Time Delay and Sensor Relays

820 Series
SPDT, 15 A; DPDT, 15 A

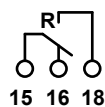
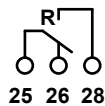
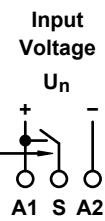
Dimensions—in. (mm)



Wiring Diagram



821TD10H-UNI



822TD10H-UNI

15—Common
16—Normally Closed
18—Normally Open

25—Common
26—Normally Closed
28—Normally Open

Description

Magnecraft 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.

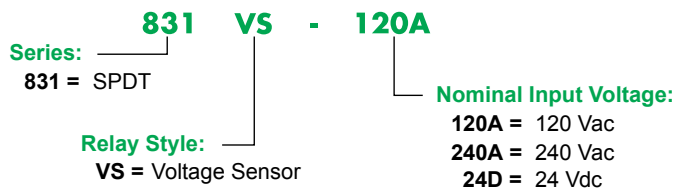
The two LED lamps indicate when the input voltage is present (green LED) and when the output is energized (red LED).

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	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



Magnecraft Time Delay and Sensor Relays

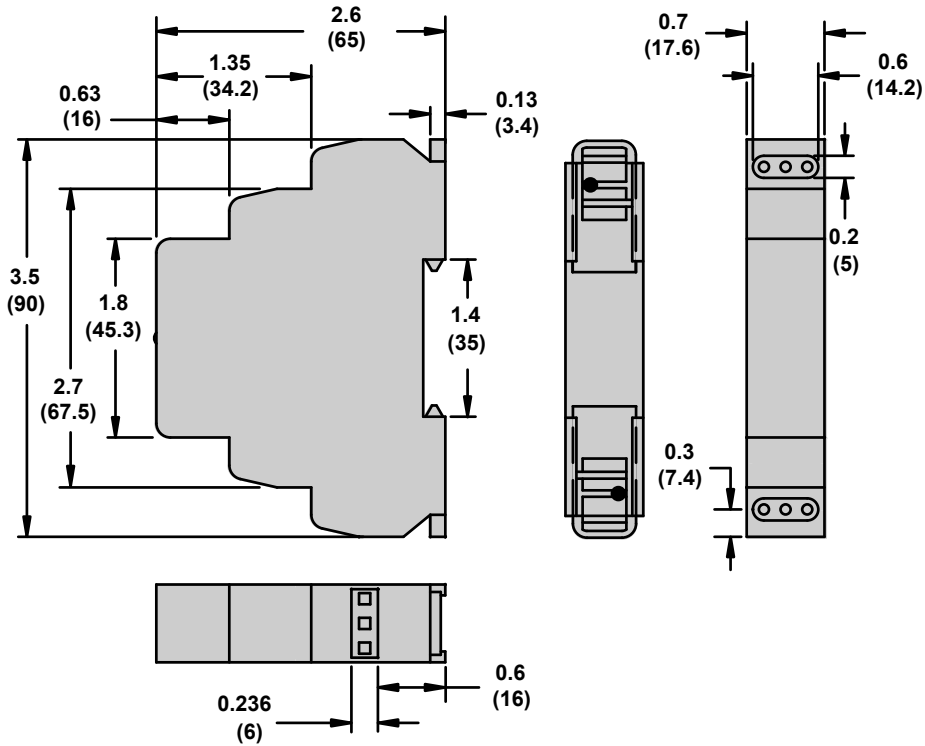
831 Series
SPDT, 15 A

Specifications

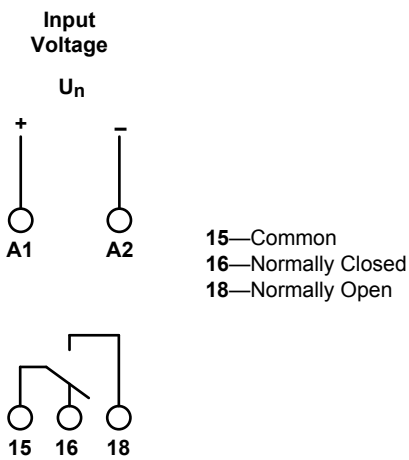
Part Number	831VS-120A	831VS-240A	831VS-24D
Input Characteristics			
Nominal Input Voltage	120 Vac	240 Vac	24 Vdc
Absolute Input Voltage Maximum	200 Vac	280 Vac	35 Vdc
Upper Supply Voltage Range	85–150 Vac	160–276 Vac	18–30 Vdc
Lower Supply Voltage Range	30–99% of upper preset	30–99% of upper preset	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% / °C	<1% / °C	<1% / °C
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 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	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.

Dimensions—in. (mm)



Wiring Diagram



Description

Magnecraft Time Delay and Sensor Relays

841 Series
SPDT, 15 A



841 Relay

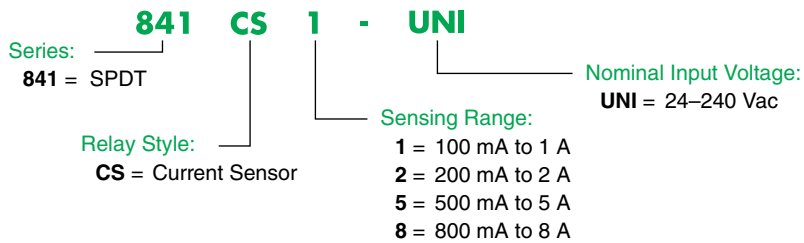
Description

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/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	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



Magnecraft Time Delay and Sensor Relays

841 Series
SPDT, 15 A

Specifications

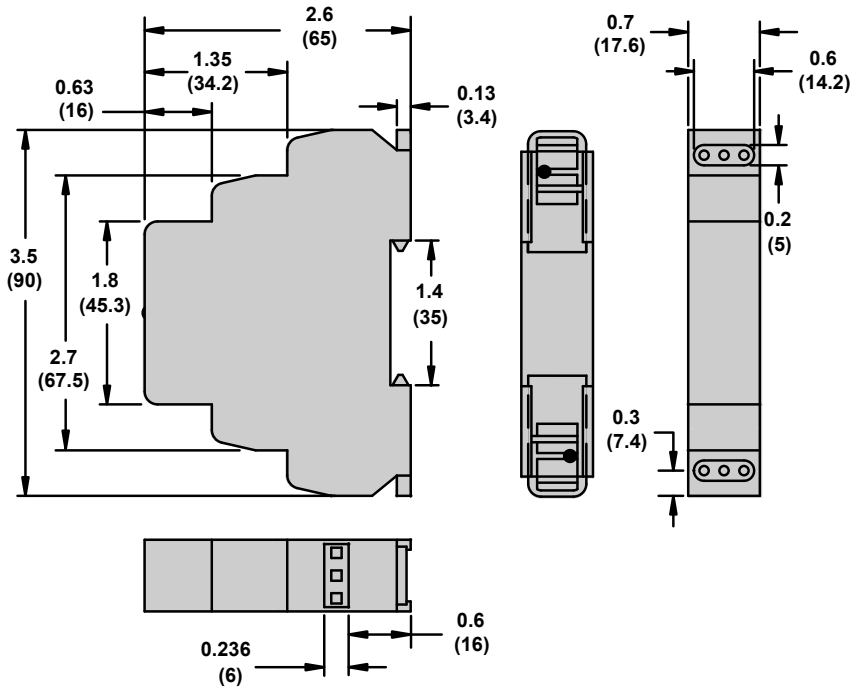
Part Number	841CS1-UNI	841CS2-UNI	841CS5-UNI	841CS8-UNI
Input Characteristics				
Input Voltage Range	24–240 Vac	24–240 Vac	24–240 Vac	24–240 Vac
Maximum Power Consumption	1.2 VA	1.2 VA	1.2 VA	1.2 VA
Output Characteristics				
Contact Configuration	SPDT	SPDT	SPDT	SPDT
Output Current Rating	15 A	15 A	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 mm ²) 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.

Magnecraft Time Delay and Sensor Relays

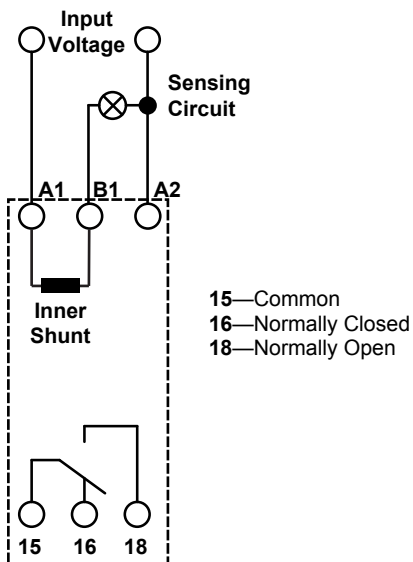
841 Series
SPDT, 15 A

Dimensions—in. (mm)

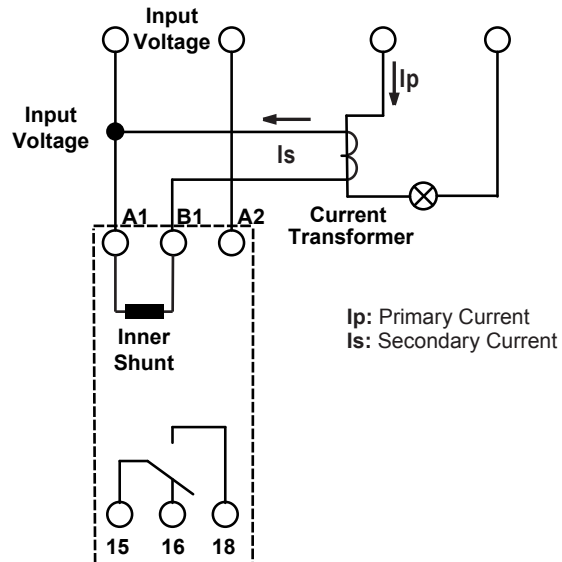


Wiring Diagram

Direct current sensing



Current sensing through a current transformer



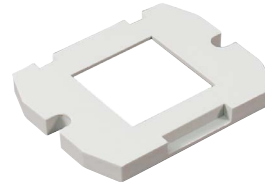
Magnecraft Time Delay and Sensor Relays

800 Series Accessories

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



Shown with an 821 Relay



16-788C1 Panel Adapter



Shown with an 831 Relay

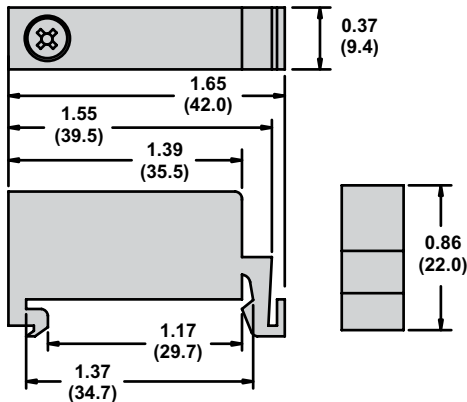
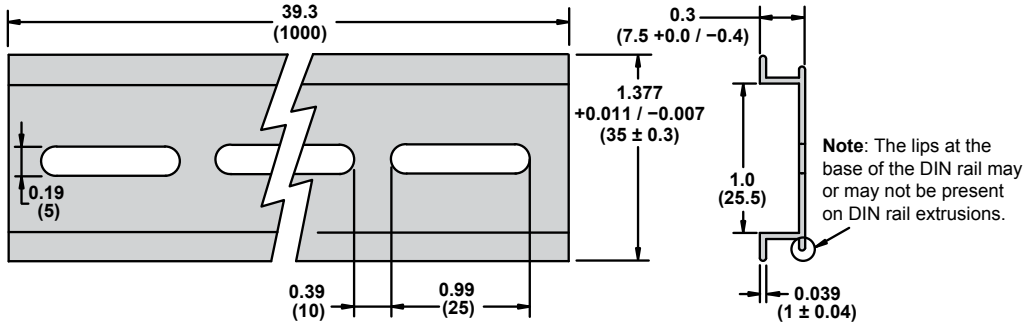
Description

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.

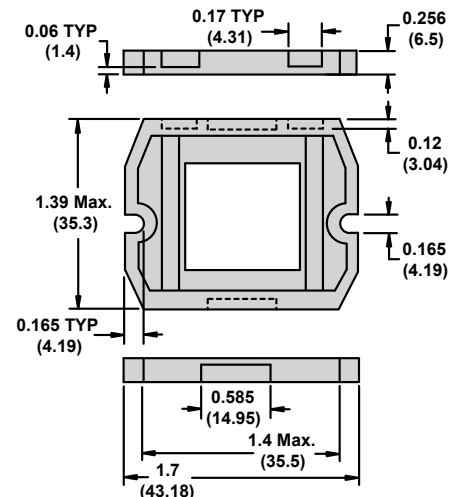
Description	Function	For Use With Relays	Packaging Quantities	Standard Part Number
Metal DIN Rail 39.3 in. (1 m).	Quick installation and removal	821, 822, 831, 841	10	16-700DIN
DIN Rail End Clip	Holds sockets firmly in place on the DIN rail	—		16-DCLIP-1
Panel Adapter	Provides additional panel mounting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

Dimensions—in. (mm)

16-700DIN Metal DIN Rail



16-788C1 Panel Adapter



Description

Magnecraft Time Delay and Sensor Relays

TDR782 Series

DPDT, 5 A; 4PDT, 3 A



TDR782 Relay

Description

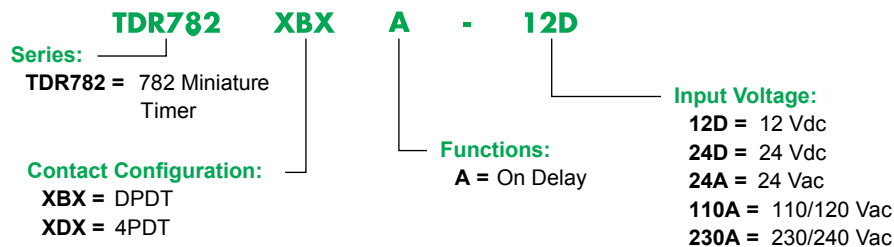
Miniature time delay relay that is single-function, single-voltage, and socket-compatible. Ideal for tight spaces.

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 pages 34–35.

Part Number Explanation



Magnecraft 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
	Vdc	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 pages 34–35.

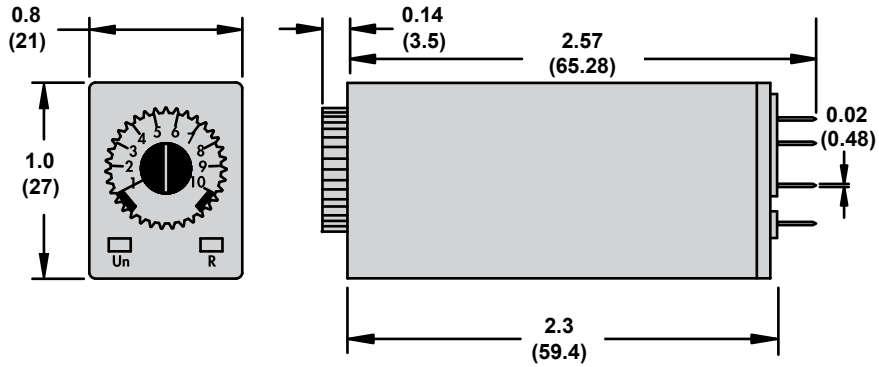
(2) Actual product life varies based on electrical load, duty cycle, application, and environmental conditions.

Dimensions, Wiring Diagram

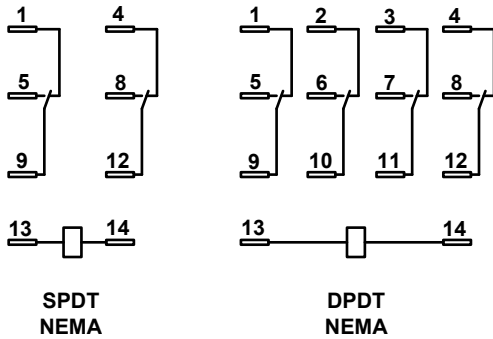
Magnecraft Time Delay and Sensor Relays

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

Dimensions—in. (mm)



Wiring Diagram



Magnecraft Time Delay and Sensor Relays

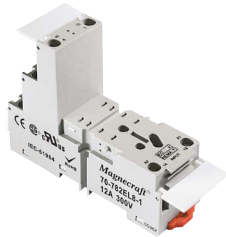
TDR782 Series Accessories



Description

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

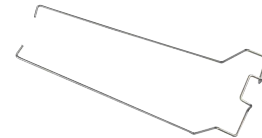
- The 70-782EL socket offers an alternate installation option for plug-in models.
- The 16-TDR782SC retention clip holds the relay securely in place while allowing quick and efficient installation and maintenance.



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

Magnecraft 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 mm ²)	Solid or Stranded Cu: Two 14–16 AWG (1.5–2.5 mm ²)	Solid or Stranded Cu: Two 14–16 AWG (1.5–2.5 mm ²)
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 mm ²)	Solid or Stranded Cu: Two 14–16 AWG (1.5–2.5 mm ²)
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

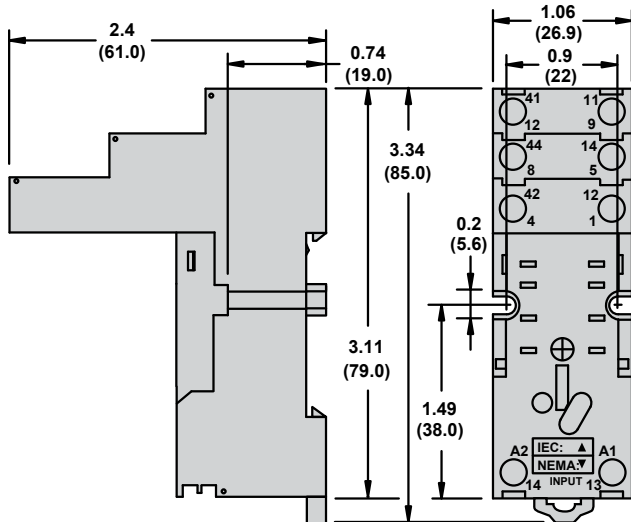
Magnecraft Time Delay and Sensor Relays

TDR782 Series Accessories

Dimensions—in. (mm)

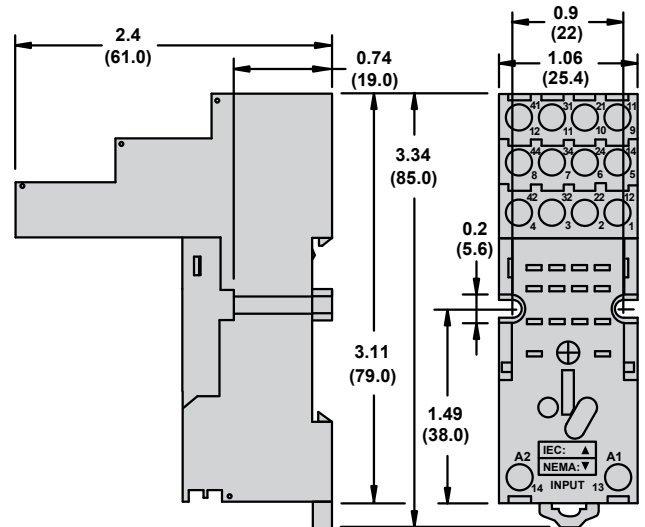
70-782EL8-1

Mounts Directly to the DIN Rail or Panel



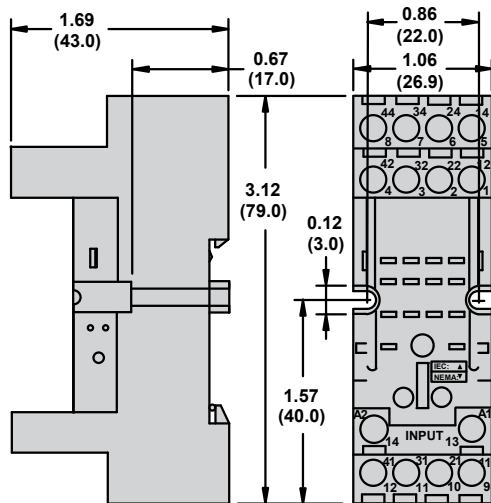
70-782EL14-1

Mounts Directly to the DIN Rail or Panel



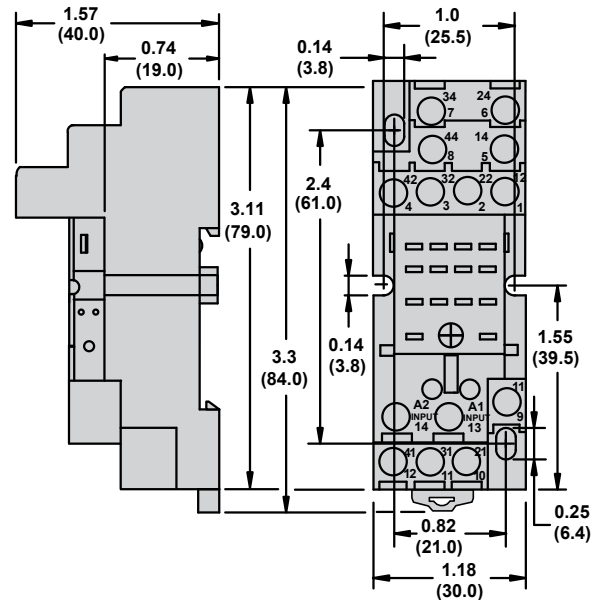
70-782E14-1

DIN or Panel Mounting with Rising Elevator Box Terminals



70-782D14-1

DIN or Panel Mounting with Screw Terminals and Clamping Plates



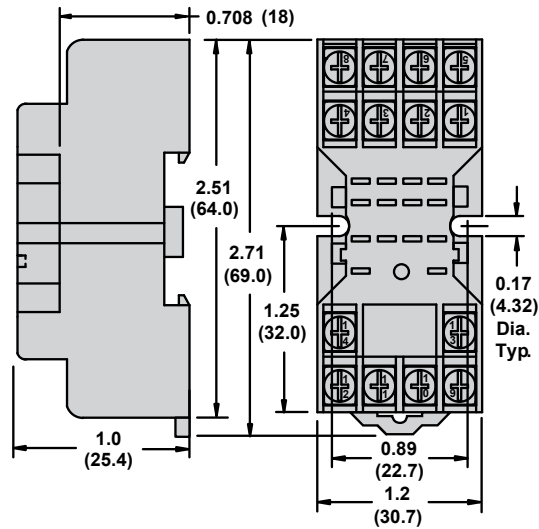
Magnecraft Time Delay and Sensor Relays

TDR782 Series Accessories

Dimensions—in. (mm)

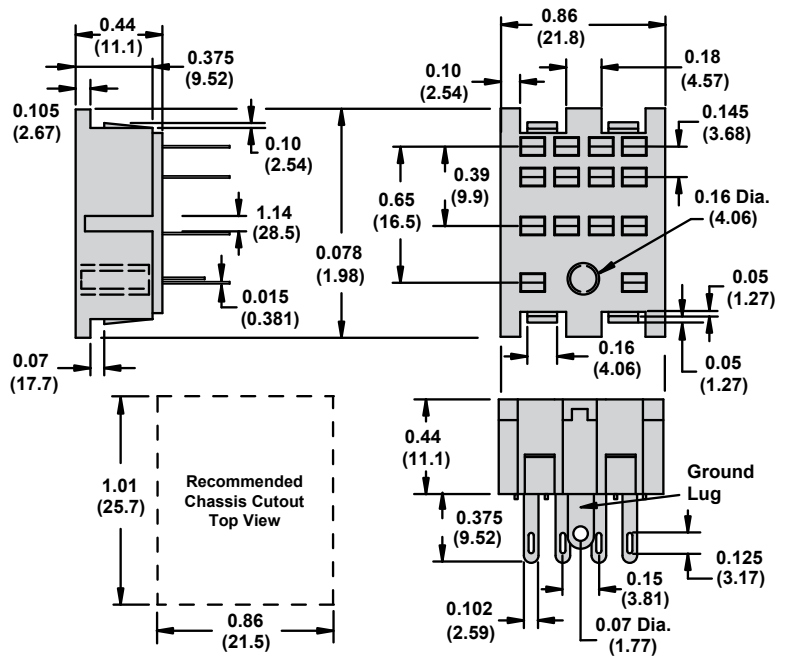
70-461-1

DIN or Panel Mounting with Screw Terminals and Clamping Plates



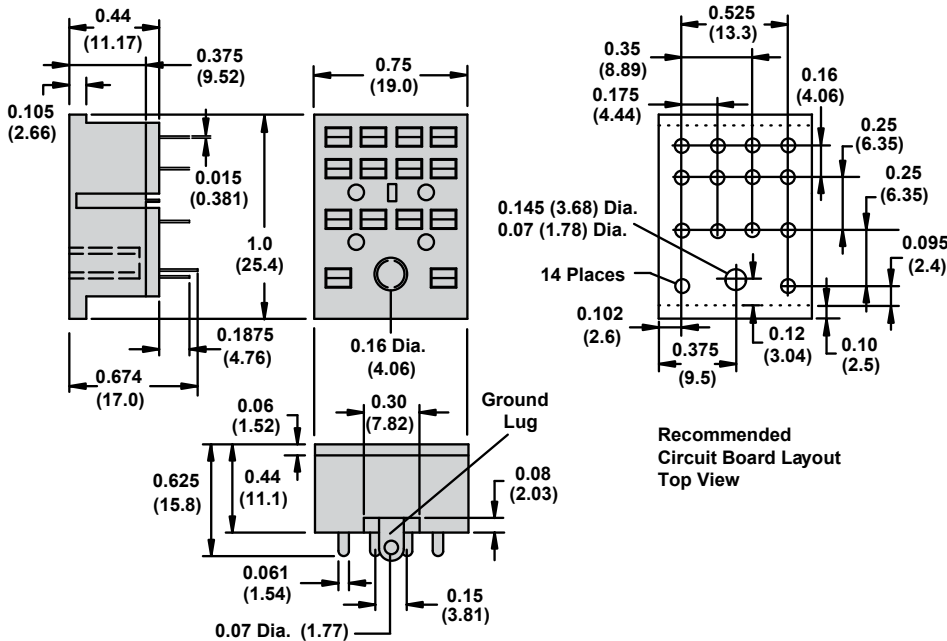
70-378-1

Solder Terminals for Chassis Mount



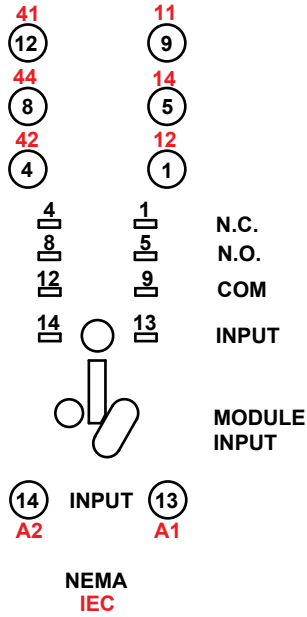
70-379-1

Printed Circuit Terminals

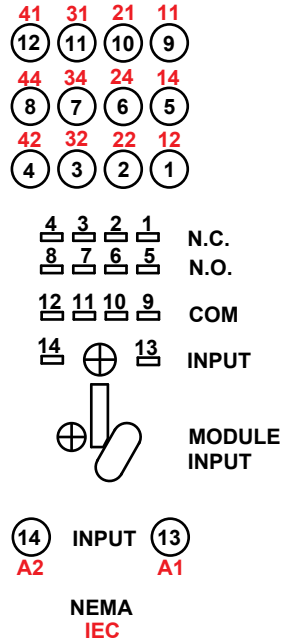


Wiring Diagrams

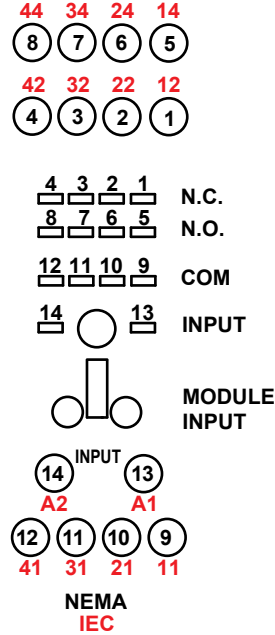
70-782EL8-1



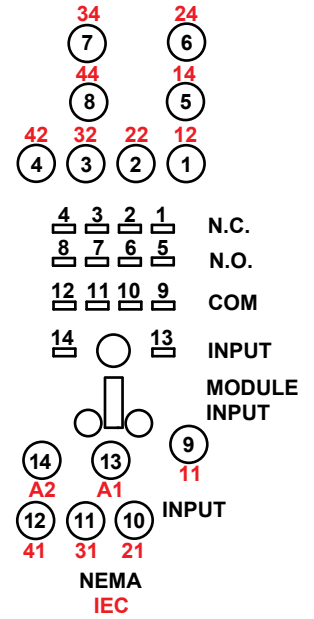
70-782EL14-1



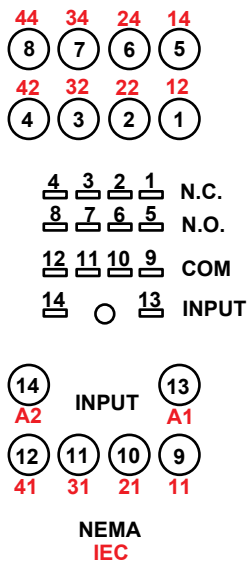
70-782E14-1



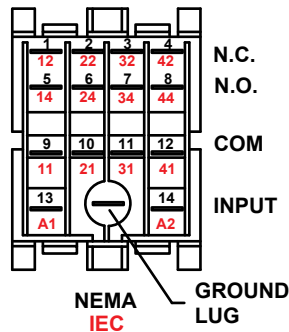
70-782D14-1



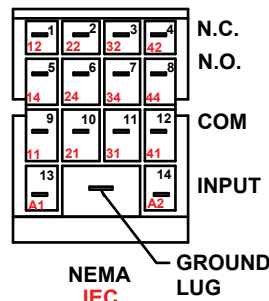
70-461-1



70-378-1



70-379-1



Description

Magnecraft 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 pages 34 and 35.

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

Magnecraft 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 Magnecraft socket 70-465)	cURus (File: E43641, CCN: NLDX2), CE 61810-1, RoHS, cULus (File: E43641, CCN: NLDX2, UL Listed when used with Magnecraft socket 70-464)	cURus (File: E43641, CCN: NLDX2), CE 61810-1, RoHS, cULus (File: E43641, CCN: NLDX2, UL Listed when used with Magnecraft socket 70-464)

(1) For function descriptions, see pages 34–35.

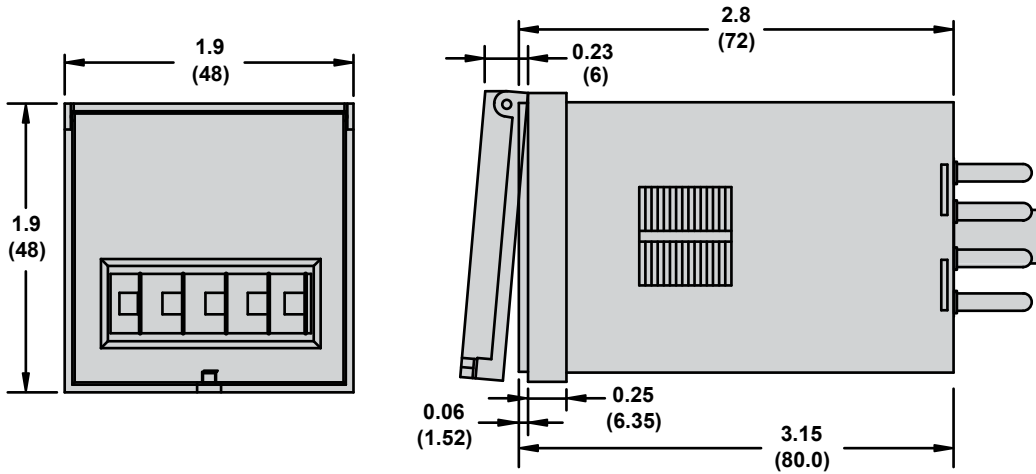
(2) Actual product life varies based on electrical load, duty cycle, application, and environmental conditions.

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

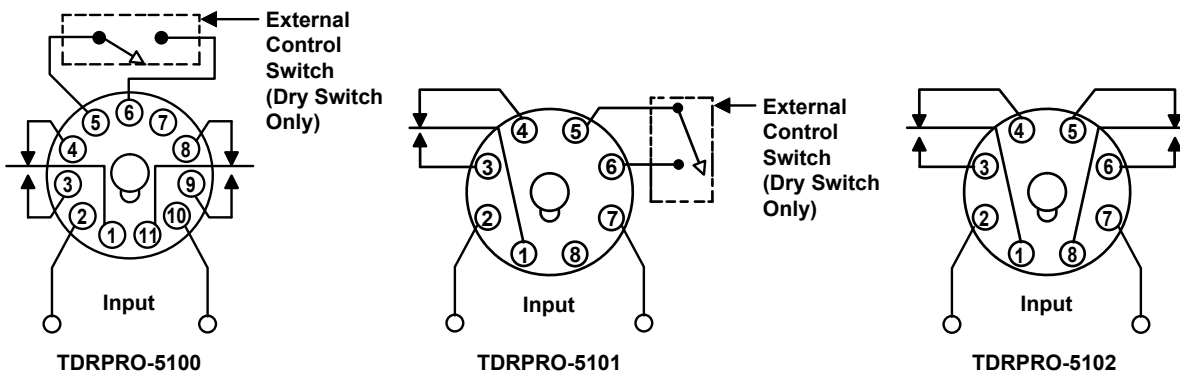
Magnecraft Time Delay and Sensor Relays

TDRPRO Series
SPDT, 12 A; DPDT, 12 A

Dimensions—in. (mm)



Wiring Diagrams



Magnecraft Time Delay and Sensor Relays

TDR88867 Series
SPDT, DPDT, 8 A



Description

The TDR88867 socket-compatible time delay relays offer the following features:

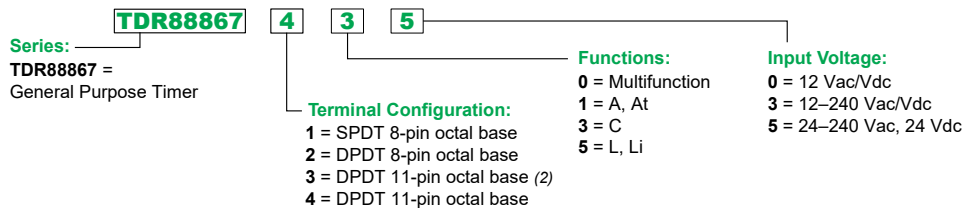
- 35 mm width
- single, dual, or multifunction capability
- easy installation by plugging into standard 8- or 11-pin octal sockets
- 1 or 2 relay outputs capable of switching up to 8 A, for ultimate flexibility
- a single LED with multiple states to clearly indicate the time state at a glance

This excellent feature set makes the TDR88867 an ideal choice in a variety of industrial control applications.

Feature	Benefit
Integrated rotary switch	Simplifies the programming of the functions and timing
LED indication	Displays the state of the timer
Removable knob	Resists tampering
Socket compatible	Allows for easy installation and replacement

Input Voltage	Functions Available (1)	Timing Range	Contact Configuration	Rated Current	Standard Part Number
11-pin Octal Base					
24–240 Vac 24 Vdc	C	0.1 s to 100 hr	DPDT	8 A	TDR88867435
	A, At	0.1 s to 100 hr	DPDT	8 A	TDR88867415
	L, Li	0.1 s to 100 hr	DPDT	8 A	TDR88867455
	A, At, B, C, H, Ht, Di, D, Ac, Bw	0.1 s to 100 hr	DPDT (2)	8 A	TDR88867305
12 Vac/Vdc	A, At, B, C, H, Ht, Di, D, Ac, Bw	0.1 s to 100 hr	DPDT (2)	8 A	TDR88867300
12–240 Vac/Vdc	A, At, B, C, H, Ht, Di, D, Ac, Bw	0.1 s to 100 hr	DPDT (2)	8 A	TDR88867303
8-pin Octal Base					
24–240 Vac 24 Vdc	A	0.1 s to 100 hr	DPDT	8 A	TDR88867215
	C	0.1 s to 100 hr	SPDT	8 A	TDR88867135
	L, Li	0.1 s to 100 hr	SPDT	8 A	TDR88867155
	A, At, B, C, H, Ht, Di, D, Ac, Bw	0.1 s to 100 hr	SPDT	8 A	TDR88867105
12 Vac/Vdc	A, At, B, C, H, Ht, Di, D, Ac, Bw	0.1 s to 100 hr	SPDT	8 A	TDR88867100
12–240 Vac/Vdc	A, At, B, C, H, Ht, Di, D, Ac, Bw	0.1 s to 100 hr	SPDT	8 A	TDR88867103

Part Number Explanation






(1) For function descriptions, see pages 34–35.

(2) One of the outputs can be configured to be either timed or instantaneous.

Magnecraft Time Delay and Sensor Relays

TDR88867 Series
SPDT, DPDT, 8 A

Specifications

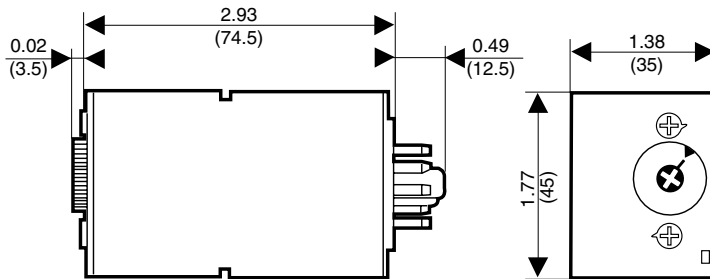
Part Number	TDR88867**0	TDR88867**3	TDR88867**5
Input Characteristics			
Input Voltage Range	12 Vac/Vdc	12–240 Vac/Vdc	24–240 Vac 24 Vdc
Operating Voltage	85–110% of nominal (85–120% of nominal for 12 Vac/Vdc)		
Maximum Power Consumption	AC	4.2 VA @ 240 Vac	
	DC	1.5 W @ 240 Vdc	
Output Characteristics			
Contact Configuration	SPDT, DPDT		
Output Current Rating	8 A		
Contact Material	Silver alloy		
Maximum Switching Voltage	250 Vac/Vdc		
Switching Capabilities	8 A, 250 Vac 1/3 hp @ 240 Vac		
Minimum Switching Requirement	10 mA at 5 Vdc		
Timing Characteristics			
Functions Available (1)	Multifunction		
Time Scales	7		
Time Ranges	0.1–1 s 1–10 s 0.1–1 min 1–10 min 0.1–1 hr 1–10 hr 10–100 hr		
Minimum Duration of the Control Impulse under Load	100 ms		
Maximum Reset Time by De-energization	100 ms		
Repeatability at Constant Voltage and Temperature	± 0.5%		
Temperature Drift	±0.05% / °C		
Voltage Drift	±0.2% / V		
General Characteristics			
Electrical Life (Operations at Rated Current) (2)	100,000 operations		
Mechanical Life (Unpowered) (2)	5,000,000 operations		
Dielectric Strength	Input to Contacts	2.5 kV (1 mA / 1 minute) at 50 Hz	
	Between Open Contacts	2.5 kV (1 mA / 1 minute) at 50 Hz	
Temperature Range	Storage	–22 to 140 °F (–30 to 60 °C)	
	Operation	–4 to 140 °F (–20 to 60 °C)	
Weight	2.8 oz. (0.08 kg)		
Green LED Indication	Operating status indication  Pulsing: relay de-energized, no timing in progress (except Di-D and Li-L)  Flashing: timing in progress  Steady On: relay energized, no timing in progress		
Degree of Protection (Enclosure)	IP40		
Approvals	cURus (File: E191122 CNN: NRNT2, NRNT8), CSA (File: 254373 Class: 3211 07)		

(1) For function descriptions, see pages 34–35.

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

Dimensions—in. (mm)

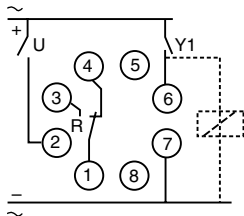
TDR88867 plug-in timers (relay output)



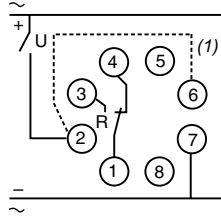
Wiring Diagrams

Wiring connection diagrams for TDR88867 plug-in timers (8-pin, relay output)

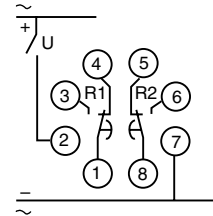
Timing relays with 1 relay output
All functions except L and Li



Functions L and Li



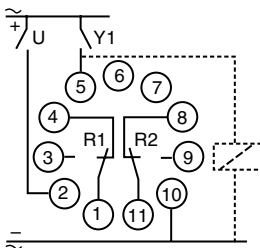
Timing relays with 2 relay outputs
Function A



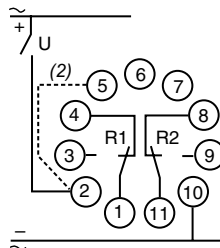
(1) Jumper between pins 2 and 6 for function L only

Wiring connection diagrams for TDR88867 plug-in timers (11-pin, relay output)

All functions except L and Li



Functions L and Li



(2) Jumper between pins 2 and 5 for function L only

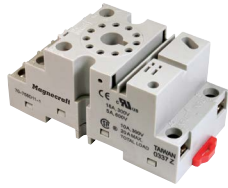
Magnecraft Time Delay and Sensor Relays

TDRPRO/TDR88867 Series Accessories



Description

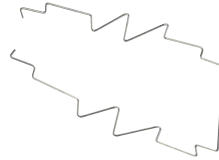
The TDR accessories create a complete system solution for your application needs. The 70-750DL socket offers an alternative installation option for plug-in models. The 16-TDRPROSC retention clip holds the relay securely in place while allowing quick and efficient installation and maintenance.



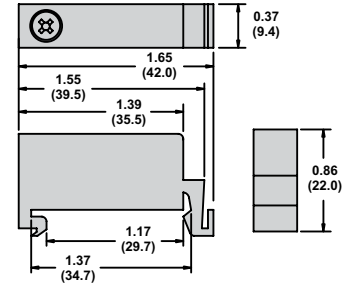
70-750DL8-1 Socket



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, TDR888673**, TDR888674**	10	70-750DL8-1
	Panel Mounting with Screw Terminals and Clamping Plates	TDRPRO-5101, TDR888671**, TDR888672**	10	70-169-1
	DIN or Panel Mounting with Elevator Terminals	TDRPRO-5101, TDR888671**, TDR888672**	10	70-750E8-1
	DIN or Panel Mounting with Screw Terminals and Clamping Plates	TDRPRO-5101, TDR888671**, TDR888672**	10	70-464-1
	Mounting directly to DIN Rail or Panel	TDRPRO-5100, TDR888673**, TDR888674**	10	70-750DL11-1
	DIN or Panel Mounting with Elevator Terminals	TDRPRO-5100, TDR888673**, TDR888674**	10	70-750E11-1
	DIN or Panel Mounting with Screw Terminals and Clamping Plates	TDRPRO-5100, TDR888673**, TDR888674**	10	70-465-1
	Panel Mounting with Screw Terminals and Clamping Plates	TDRPRO-5100, TDR888673**, TDR888674**	10	70-170-1
Metal Retention Clip	Helping secure the relay in the socket	TDRPRO	10	16-TDRPROSC
		TDR88867	25	16-1344

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	Holding sockets firmly in place on 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	70-750E8-1, 70-750EL8-1, 70-750DL8-1, 70-750E11-1, 70-750EL11, 70-750DL11-1	10	16-750/788CBJ-1

Magnecraft Time Delay and Sensor Relays

TDRPRO/TDR88867 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			

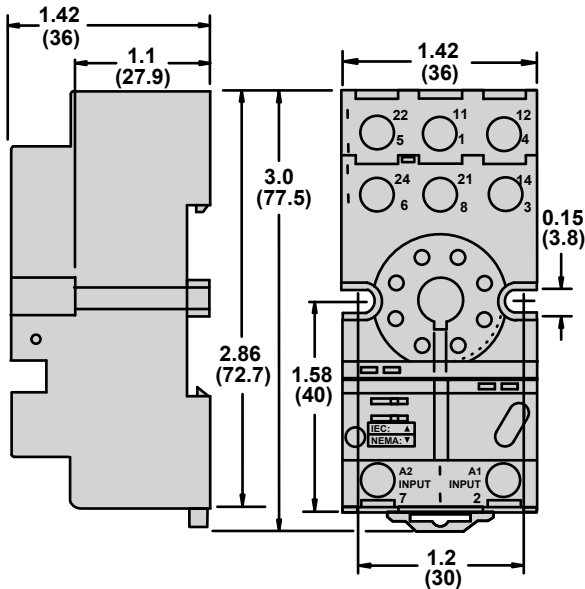
Magnecraft Time Delay and Sensor Relays

TDRPRO/TDR88867 Series Accessories

Dimensions—in. (mm)

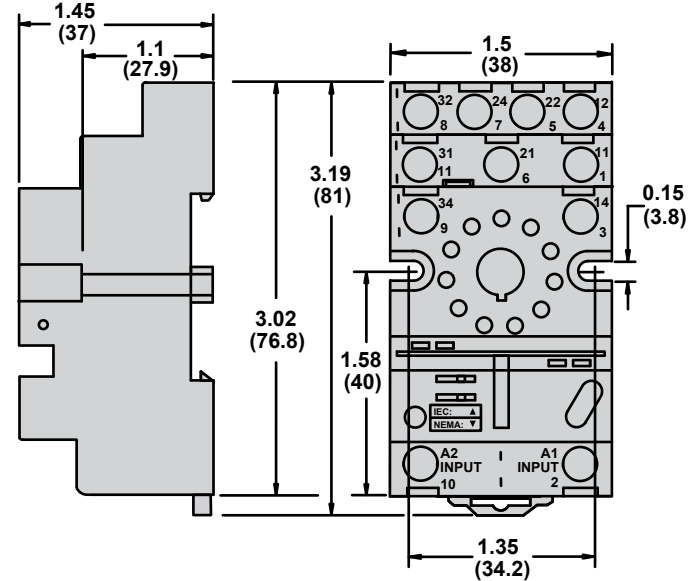
70-750DL8-1

Mounts Directly to the DIN Rail or Panel



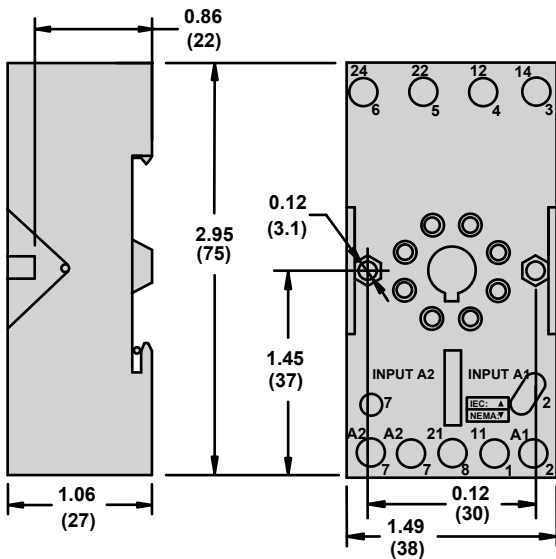
70-750DL11-1

Mounts Directly to the DIN Rail or Panel



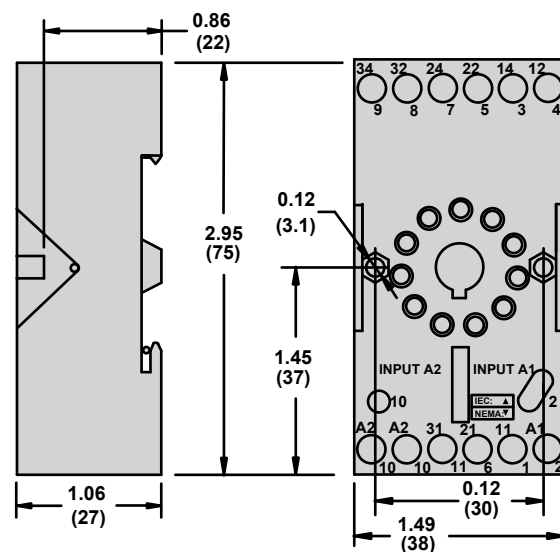
70-750E8-1

DIN or Panel Mounting with Elevator Terminals



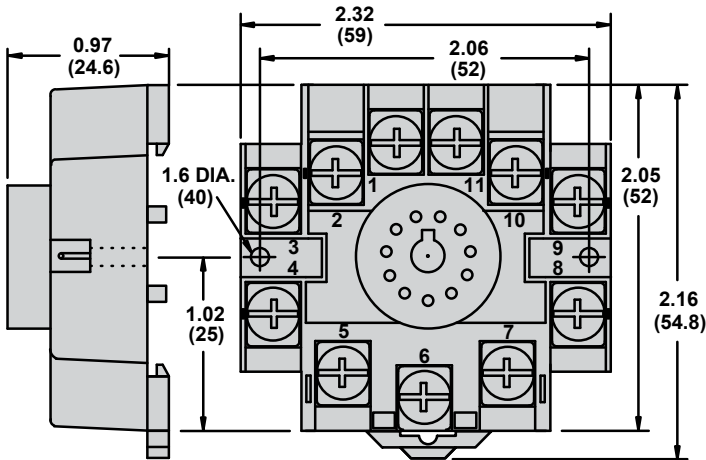
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DIN or Panel Mounting with Elevator Terminals

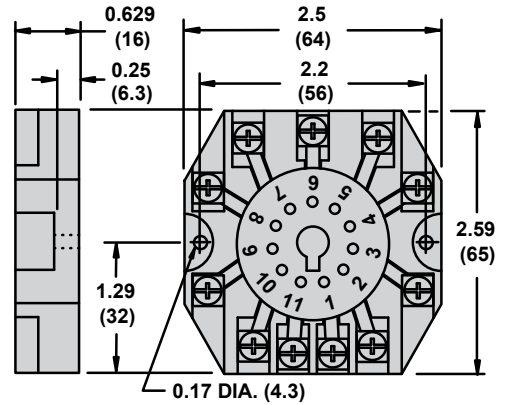


Dimensions—in. (mm)

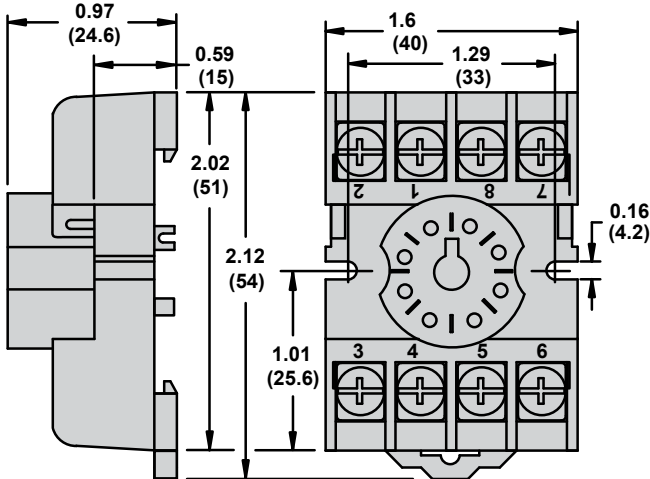
70-465-1
DIN Mounting with Screw Terminals and Clamping Plates



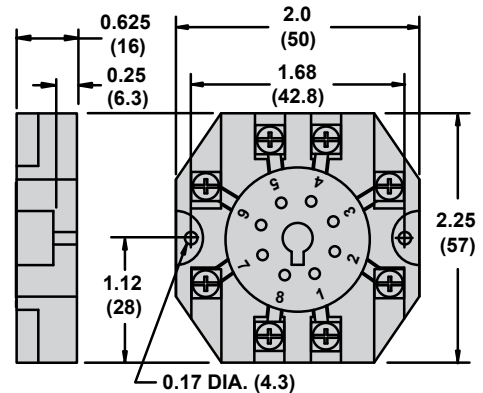
70-170-1
Panel Mounting with Screw Terminals and Clamping Plates



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



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

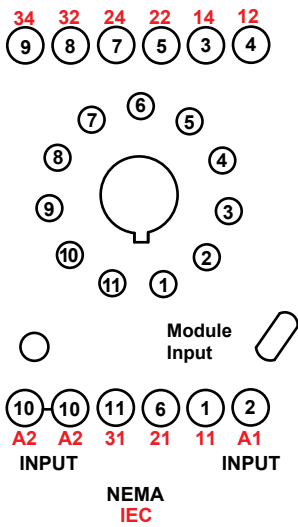


Magnecraft Time Delay and Sensor Relays

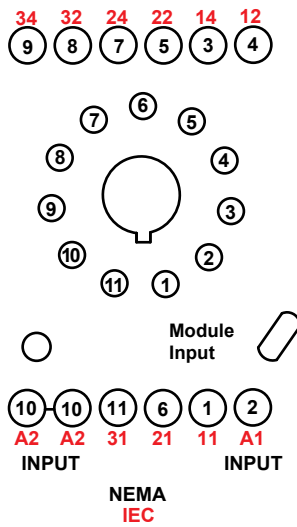
TDRPRO/TDR88867 Series Accessories

Wiring Diagrams

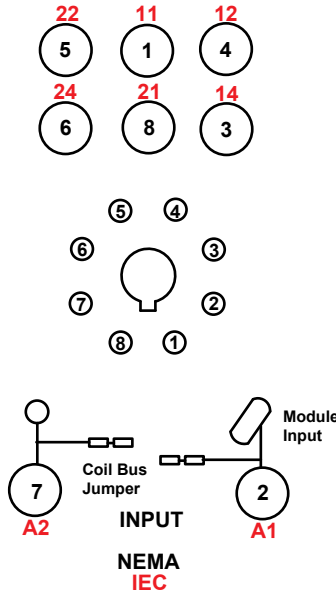
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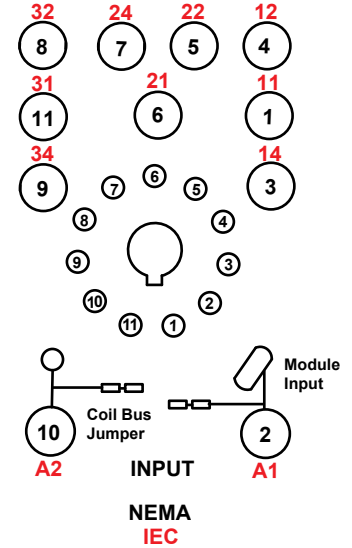
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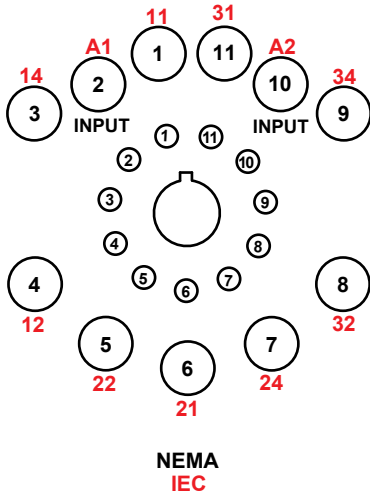
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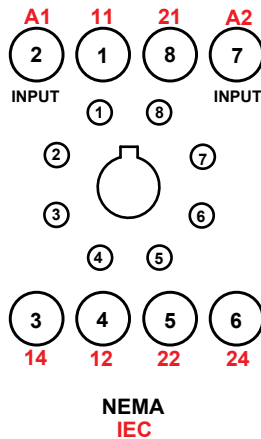
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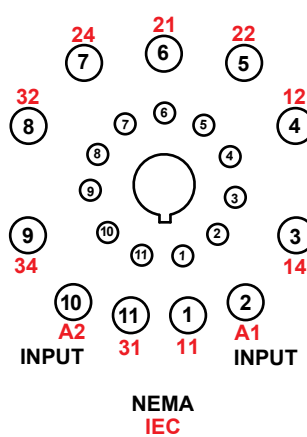
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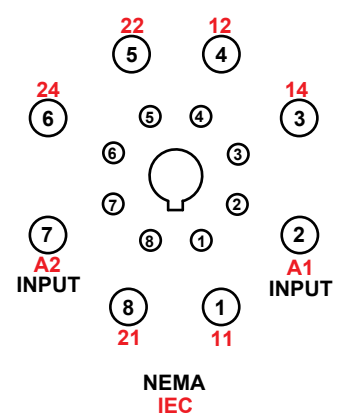
70-464-1



70-170-1



70-169-1



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 tables on pages 34 and 35. 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 pages 34–35). 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.

Time Delay Relay Functions (continued on page 35)

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
Power-On Delay (A)	The timing period T begins on energization. After timing, output(s) R close. When using a TDR88867*0* relay, the second output can be either timed or instantaneous (inst).		TDR88867
On-Delay and Off-Delay, with Control Signal (Ac)	After power-up and energization of Y1, timing period T starts. At the end of this timing period, output(s) R close. With de-energization of Y1, timing period T starts. At the end of timing period T, output(s) R revert to their initial position. When using a TDR88867*0* relay, the second output can be either timed or instantaneous.		TDR88867
Power-On Delay, with Summation Control Signal (At)	After power-up, the timing period T starts. Timing can be interrupted or paused each time Y1 energizes. When the cumulative total of the elapsed time periods reaches the pre-set value T, output(s) R close. When using a TDR88867*0* relay, the second output can be either timed or instantaneous.		TDR88867
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 Relay, with Control Signal (B)	After power-up, pulsing or maintaining control contact Y1 starts timing period T. Outputs R close for the duration of timing period T, then revert to their initial state. When using a TDR88867*0* relay, the second output can be either timed or instantaneous.		TDR88867
Double Interval, with Control Signal (Bw)	After power-up, transition of Y1 (either from energization to de-energization or vice versa) causes output(s) R to close for the duration of timing period T, and then revert to their initial state. When using a TDR88867*0* relay, the second output can be either timed or instantaneous.		TDR88867
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 Control Signal (C)	After power-up and closing of the control contact Y1, output(s) R close. When control contact Y1 re-opens, timing T starts. At the end of the timing period, outputs R revert to their initial state. When using a TDR88867*0* relay, the second output can be either timed or instantaneous (inst).		TDR88867
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
Symmetrical Flasher (Starting Pulse Off) (D)	Repetitive cycle with two timing periods T of equal duration, with output(s) R changing state at the end of each timing period T. When using a TDR88867*0* relay, the second output can be either timed or instantaneous.		TDR88867

(1) Option only available in TDR88867*0* relays.

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

Time Delay Relay Functions (continued from page 34)

Function	Description	Timing Chart	Relays
Symmetrical Flasher (Starting Pulse On) (Di)	Repetitive cycle with two timing periods T of equal duration, with output(s) R changing state at the end of each timing period T. When using a TDR88867•0• relay, the second output can be either timed or instantaneous.		TDR88867
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
Interval Relay (H)	On energization of the relay, timing period T starts, and output(s) R close. At the end of timing period T, output(s) R revert to their initial state. When using a TDR88867•0• relay, the second output can either be timed or instantaneous.		TDR88867
Interval Relay (Summation) with Control Contact (Ht)	On power-up, output(s) R close and timing period T starts. The timing can be interrupted or paused each time Y1 energizes. When the cumulative total of the elapsed time periods reaches the preset value T, output(s) R revert to their initial state. When using a TDR88867•0• relay, the second output can either be timed or instantaneous.		TDR88867
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
Asymmetrical Flasher Relay (Starting Pulse Off) (L)	Repetitive cycle consisting of two independently adjustable timing periods Toff and Ton. Each timing period corresponds to a different state of the output(s) R.		TDR88867
Asymmetrical Flasher Relay (Starting Pulse On) (Li)	Repetitive cycle consisting of two independently adjustable timing periods Ton and Toff. Each timing period corresponds to a different state of the output(s) R.		TDR88867

(1) Option only available in TDR88867•0• relays.

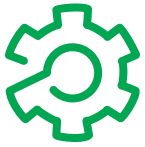
Note: G = Gate. R = Relay contacts or outputs. S = Switch trigger. Y1 = Control contact. T = Time delay setting. U = Input voltage (power supply).

Magnecraft Time Delay and Sensor Relays

Applications

Magnecraft 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, Magnecraft 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



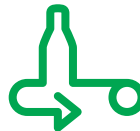
Lighting Control

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

Magnecraft Time Delay and Sensor Relays

The Magnecraft 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 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

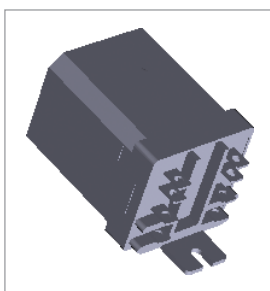
Search our comprehensive database to identify products by manufacturer and part number, and link directly to part specifications.

■ 3D CAD Library

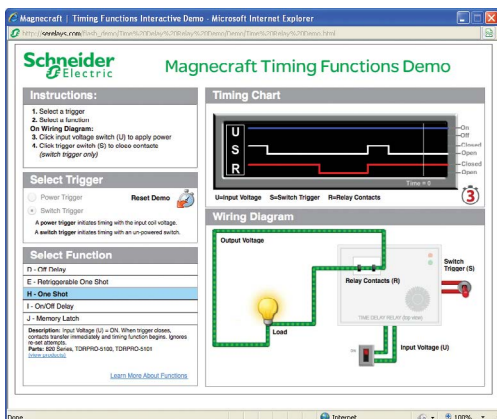
View, email, download, or insert a file directly into your open CAD software. You can choose from 18 different file formats.

■ Order Free Samples

Magnecraft 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 Magnecraft time delay relays.

■ Distributor Inventory Search

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

Magnecraft Time Delay and Sensor Relays

16-700DIN	13, 17, 28
16-750/782FT-1	28
16-782FT-1	17
16-788C1	13
16-1344	28
16-DCLIP-1	13, 17, 28
16-TDR782SC	17
16-TDRPROSC	28
70-169-1	28, 29
70-170-1	28, 29
70-378-1	17, 18
70-379-1	17, 18
70-461-1	17, 18
70-464-1	28, 29
70-465-1	28, 29
70-750DL8-1	28, 29
70-750DL11-1	28, 29
70-750E8-1	28, 29
70-750E11-1	28, 29
70-782D14-1	17, 18
70-782E14-1	17, 18
70-782EL8-1	17, 18
70-782EL14-1	17, 18
821TD10H-UNI	4, 5
822TD10H-UNI	4, 5
831VS-24D	7, 8
831VS-120A	7, 8
831VS-240A	7, 8
841CS1-UNI	10, 11
841CS2-UNI	10, 11
841CS5-UNI	10, 11
841CS8-UNI	10, 11
TDR782XBX	14, 15
TDR782XDX	14, 15
TDR88867**0	26
TDR88867**3	26
TDR88867**5	26
TDR88867100	25
TDR88867103	25
TDR88867105	25
TDR88867135	25
TDR88867155	25
TDR88867215	25
TDR88867300	25
TDR88867303	25
TDR88867305	25
TDR88867415	25
TDR88867435	25
TDR88867455	25
TDRPRO-5100	22, 23
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