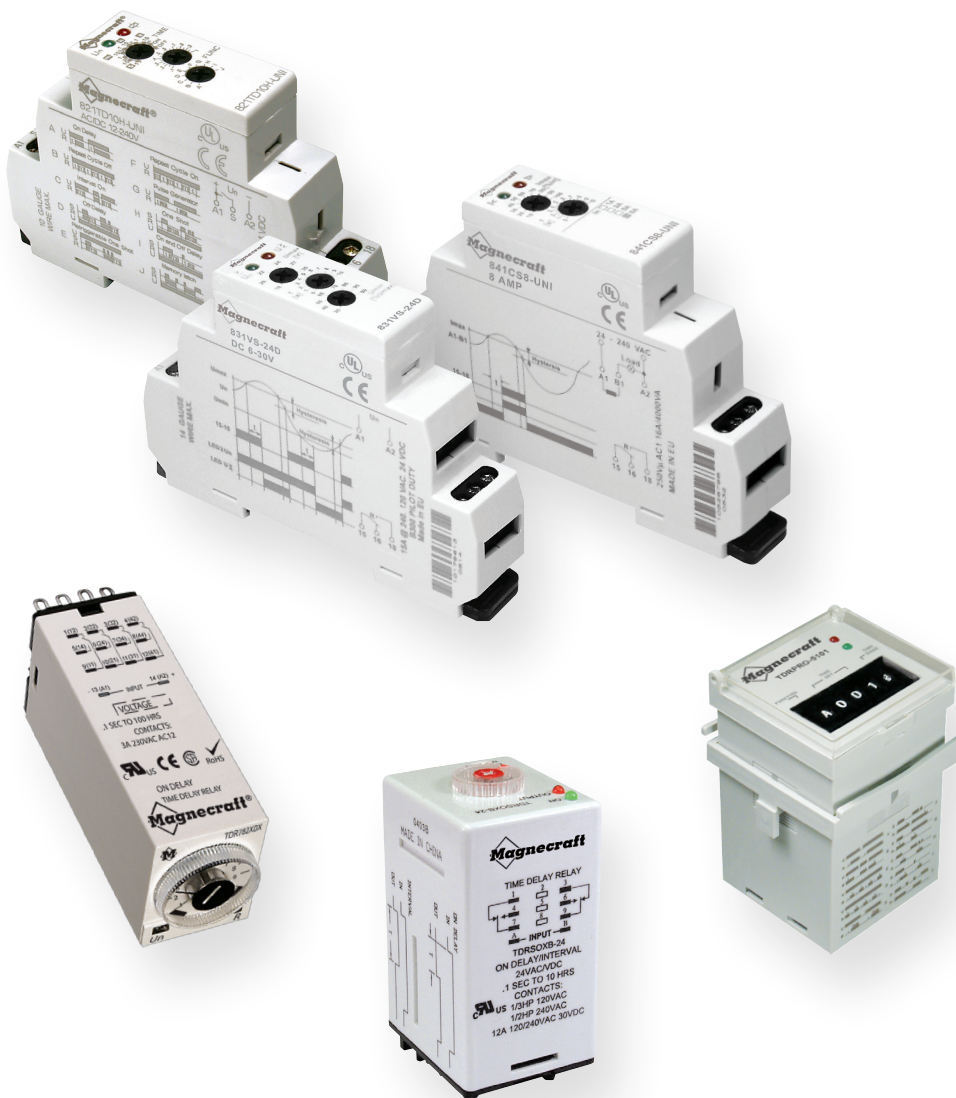


Magnecraft™ Time Delay and Sensor Relays

Catalog
2012



Schneider
Electric™








Magnecraft™ Time Delay and Sensor Relays

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Magnecraft time delay and sensor relays are designed to 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 voltage range from 12 to 240 V
- Single timing range or from 100 ms to 10 days
- DIN or Panel mounting styles
- Conforms to international standards including UL, CSA, RoHS and CE IEC

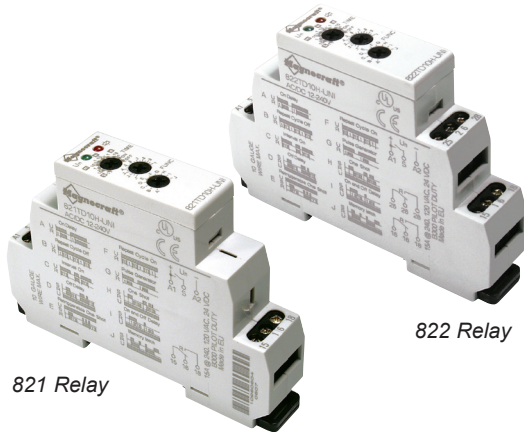
Series	Style	Contact Configuration	Rated Current Load (A)	Timing Range	Number of Functions	Function Type	Input Voltage Range	Page
 820 Relays	Time delay relay DIN mount	SPST	15	100 ms to 10 days	10	All	12 to 240 Vac/Vdc	4
		DPDT						
 831 Voltage Sensing Relays	Voltage Sensing DIN mount relay	SPDT	15	100 ms to 10 sec	1	On Delay	120 Vac; 240 Vac; 24 Vdc	7
 841 Current Sensing Relays	Current sensing DIN mount relay	SPDT	15	100 ms to 10 sec	1	On Delay	24 to 240 Vac	10
 TDR782 Relays	Time delay relay Plug-in w/ Dial	DPDT	5	100 ms to 100 hrs	1	On Delay	12, 24 Vdc; 24, 110, 230 Vac	14
		4PDT	3					
 TDRPRO Relays	Time delay relay Plug-in w/ 5 Digit Thumbwheel	SPDT	12	100 ms to 9990 hrs	10	All	12 to 240 Vac/Vdc	22
		DPDT			3	On Delay / Repeat Cycle / On Interval		
 TDRSOX Relays	Time delay relay Plug-in w/ Dial & DIP switches	DPDT	12	100 ms to 10 hrs	2	On Delay Interval	12 to 120 Vac/Vdc; 240 Vac	25
 TDRSRX Relays	Time delay relay Plug-in w/ Dial & DIP switches	DPDT	12	100 ms to 10 hrs	2	Off Delay Retriggerable one shot	12 to 120 Vac/Vdc; 240 Vac	25

Description

Magnecraft™ Time Delay and Sensor Relays

820 Series

SPDT, 15 A; DPDT, 15 A



Description

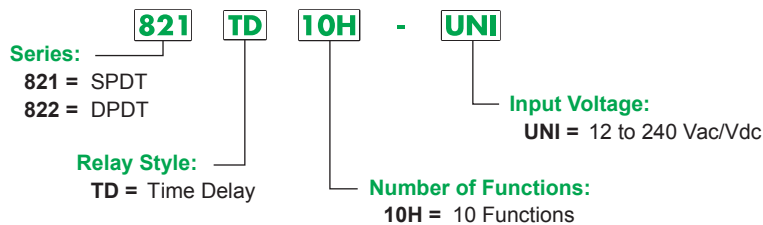
The 820 Series Time Delay Relays are 35 mm DIN rail mountable products offering 10 different timing functions, ultra-wide timing range (10 ms to 10 days) and a universal voltage input (12-240 Vac/Vdc), all in a slim 17.5 mm (0.69 in) modular package.

Feature	Benefit
Up to 10 functions	5 timing functions controlled via supply voltage 4 timing functions controlled via trigger input 1 function of memory latching Meets most timing requirements
Contact configuration	SPDT or DPDT
Universal power supply	12 to 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 (A)	Standard Part Number
12-240 Vac/Vdc	A,B,C,D,E,F,G,H,I,J	10 ms - 10 days	SPDT	15	821TD10H-UNI
12-240 Vac/Vdc	A,B,C,D,E,F,G,H,I,J	10 ms - 10 days	DPDT	2 x 15 A (2 pairs of contacts)	822TD10H-UNI

(1) For function descriptions, see pages 33 and 34.

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 – 110% of 240 V	85% of 12 V – 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)	All	All
Time Scales	8	8
Time Ranges	100 ms to 1 sec 1 sec to 10 sec 0.1 min to 1 min 1 min to 10 min 1 hr to 10 hrs 0.1 hr to 1 hrs 1 day to 10 day 0.1 day to 1 day	100 ms to 1 sec 1 sec to 10 sec 0.1 min to 1 min 1 min to 10 min 1 hr to 10 hrs 0.1 hr to 1 hrs 1 day to 10 day 0.1 day to 1 day
Tolerance	5% of Mechanical setting	5% of Mechanical setting
Repeatability @ 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°C (-22°F) to +70°C (+158°F)	-30°C (-22°F) to +70°C (+158°F)
Operating Temperature Range	-20°C (-4°F) to +55°C (+131°F)	-20°C (-4°F) to +55°C (+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 (Blinks = Timing or On = Energized)	Red LED	Red LED
Enclosure Rating (according to IEC 60529 IP rating)	IP20	IP20
Approvals	cULus (file no. E234203), CE 61810-1, RoHS	cULus (file no. E234203), CE 61810-1, RoHS

(1) For function descriptions, see pages 33 and 34.

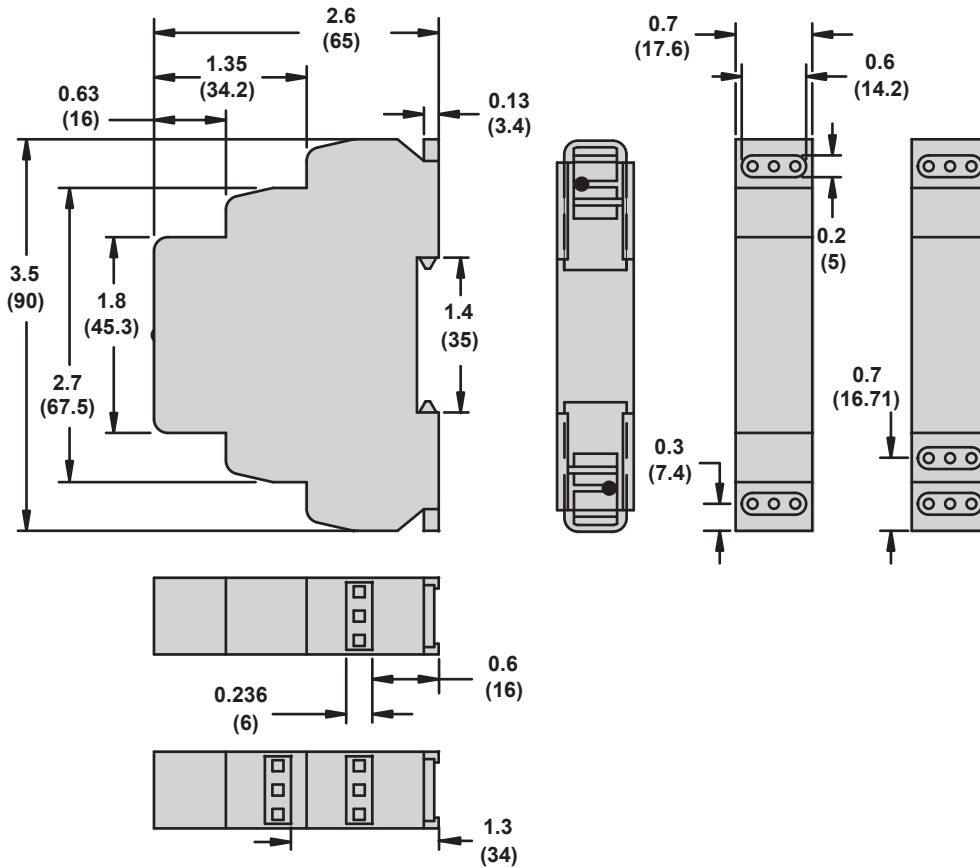
(2) Actual product life will vary based on electrical load, duty cycle, application, and environmental conditions.

Dimensions, Wiring Diagram

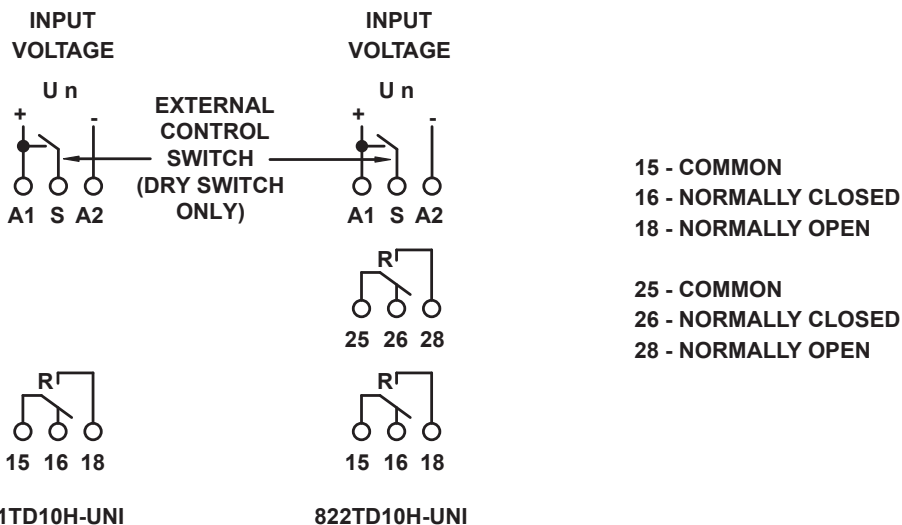
Magnecraft™ Time Delay and Sensor Relays

820 Series
SPDT, 15 A; DPDT, 15 A

Dimensions — inches (millimeters)



Wiring Diagram



Magnecraft™ Time Delay and Sensor Relays

831 Series

SPDT, 15 A



831 Relay

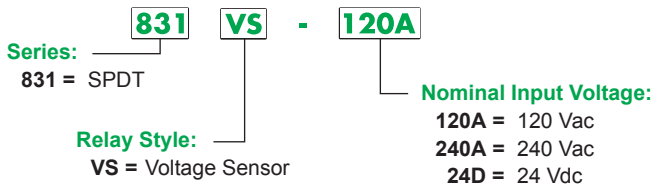
Description

The 831 voltage sensor is a single-phase AC voltage sensing device that is capable of monitoring and reacting to over and under voltage conditions. This product is designed to be wired across terminals A1 and A2 with the voltage that is being monitored. The two LED lamps indicate both when the input voltage is present (Green LED) and also 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 to 10 seconds, when a set point has been violated.

Feature	Benefit
3-state indication LEDs	Indicates normal state and 2 types of faulted states
Timing dial	Adjustable delay 0-10 sec
DIN mountable	Mounts directly on 35 mm DIN rail
Current rating is 15A @ 240 Vac, 24 Vdc	High switching capacity
Only 17.5 mm (0.69 in) wide	Ideal for tight spaces

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

Part Number Explanation



Magnecraft™ Time Delay and Sensor Relays

831 Series

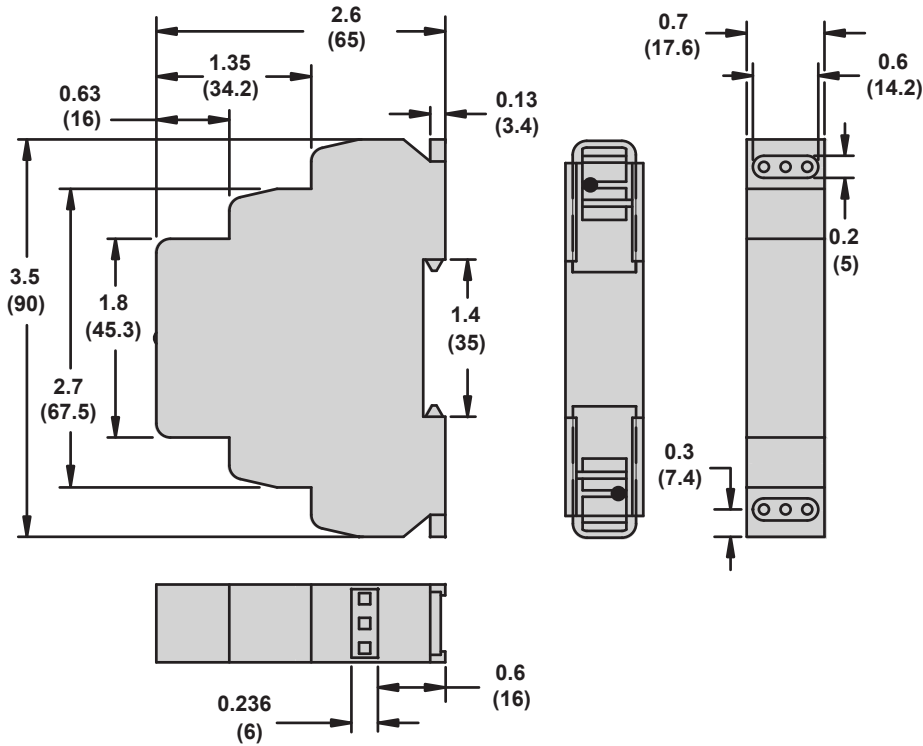
SPDT, 15 A

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 to 150 Vac	160 to 276 Vac	18 to 30 Vdc
Lower Supply Voltage Range	30 to 99% of upper preset	30 to 99% of upper preset	30 to 99% of upper preset
Maximum Power Consumption	1.2 VA	1.2 VA	1.2 W
Time Delay	adjustable 0 to 10 sec	adjustable 0 to 10 sec	adjustable 0 to 10 sec
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 to 6% of adjusted value	2 to 6% of adjusted value	2 to 6% of adjusted value
Output Characteristics			
Contact Configuration	1C / SPDT	1C / SPDT	1C / 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 sec	30 A / <3 sec	30 A / <3 sec
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	3.00E+07	3.00E+07	3.00E+07
Electrical Life	7.00E+04	7.00E+04	7.00E+04
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 or Vdc	100 mA at 5 Vac or Vdc	100 mA at 5 Vac or Vdc
Timing/Sensing Characteristics			
Time Scales	1	1	1
Time Ranges	0 sec to 10 sec	0 sec to 10 sec	0 sec to 10 sec
Tolerance	5% of Mechanical setting	5% of Mechanical setting	5% of Mechanical setting
Repeatability @ constant voltage and temperature	1%	1%	1%
Upper Sensing Voltage Range	85 to 150 Vac	160 to 276 Vac	18 to 30 Vdc
Lower Sensing Voltage Range	30 to 99% of upper preset	30 to 99% of upper preset	30 to 99% of upper preset
General Characteristics			
Dielectric Strength (Input to Contacts)	2.5 kV (I/O)	2.5 kV (I/O)	2.5 kV (I/O)
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°C (-22°F) to +70°C (+158°F)	-30°C (-22°F) to +70°C (+158°F)	-30°C (-22°F) to +55°C (+131°F)
Operating Temperature Range	-20°C (-4°F) to +55°C (+131°F)	-20°C (-4°F) to +55°C (+131°F)	-20°C (-4°F) to +55°C (+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	Green LED	Green LED
Output Indication (Blinks = Timing or On = Energized)	Red LED	Red LED	Red LED
Enclosure Rating (according to IEC 60529 IP rating)	IP40	IP40	IP40
Approvals	UL (E234203), CE (IEC 60947-1, 61000-4), RoHS	UL (E234203), CE (IEC 60947-1, 61000-4), RoHS	UL (E234203), CE (IEC 60947-1, 61000-4), RoHS

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

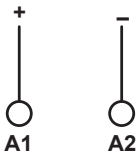
Dimensions — inches (millimeters)



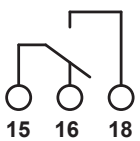
Wiring Diagram

INPUT
VOLTAGE

U_n



15 - COMMON
16 - NORMALLY CLOSED
18 - NORMALLY OPEN



Description

Magnecraft™ Time Delay and Sensor Relays

841 Series
SPDT, 15 A



841 Relay

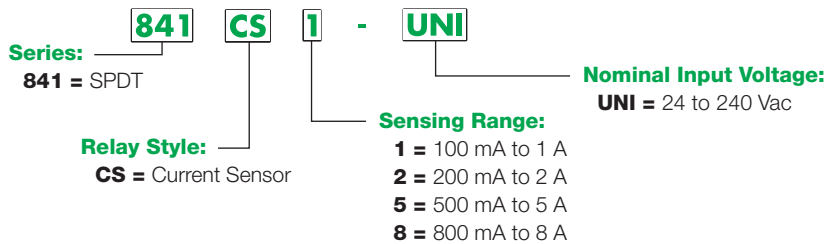
Description

Current sensing relay which allows the user to monitor the current of one circuit (1 to 8 A) and switch another circuit in case of an over current condition; all in a modular, Fingersafe™ (according to IEC 60529 IP rating) package.

Feature	Benefit
Current sensing adjustment knob	Sense anywhere from 10% to 100% of the rated sensing current
Input/output terminals	Accepts up to a 14 AWG Wire
Solid state circuitry	Used for precise sensing and timing control
Input/output indication	Shows status at a glance
DIN rail mountable	Mounts directly on a DIN Rail
Only 17.5 mm (0.69 in) wide	Ideal for tight spaces
Wide input range	Enabled to work with common AC voltages.

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

Part Number Explanation



Magnecraft™ Time Delay and Sensor Relays

841 Series

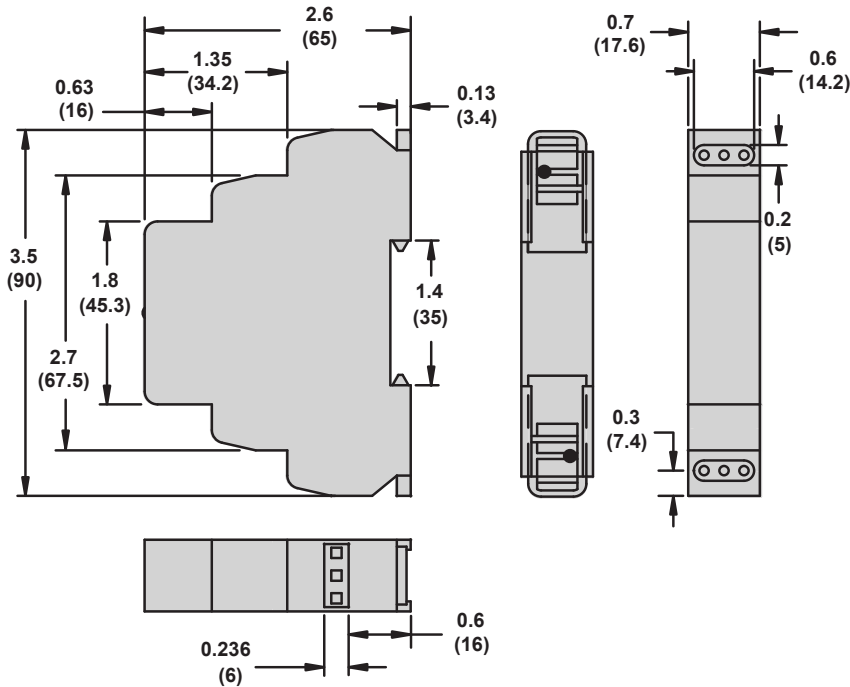
SPDT, 15 A

Specifications

Part Number	841CS1-UNI	841CS2-UNI	841CS5-UNI	841CS8-UNI
Input Characteristics				
Input Voltage Range	24 to 240 Vac	24 to 240 Vac	24 to 240 Vac	24 to 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	15A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 HP @ 120 Vac 1 HP @ 240 Vac Pilot Duty B300	15A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 HP @ 120 Vac 1 HP @ 240 Vac Pilot Duty B300	15A @ 240 Vac, 50/60 Hz, 24 Vdc 1/2 HP @ 120 Vac 1 HP @ 240 Vac Pilot Duty B300	15A @ 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 or Vdc	100 mA at 5 Vac or Vdc	100 mA at 5 Vac or Vdc	100 mA at 5 Vac or Vdc
Timing/Sensing Characteristics				
Time Scales	1	1	1	1
Time Ranges	0 sec to 10 sec	0 sec to 10 sec	0 sec to 10 sec	0 sec to 10 sec
Tolerance	5% of Mechanical setting	5% of Mechanical setting	5% of Mechanical setting	5% of Mechanical setting
Repeatability @ 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	70,000 operations	70,000 operations	70,000 operations
Mechanical Life (Unpowered) (1)	10,000,000 operations	10,000,000 operations	10,000,000 operations	10,000,000 operations
Dielectric Strength (Input to Contacts)	2500 Vac	2500 Vac	2500 Vac	2500 Vac
Dielectric Strength (Between Open Contacts)	1600 Vac	1600 Vac	1600 Vac	1600 Vac
Storage Temperature Range	-30°C (-22°F) to +70°C (+158°F)	-30°C (-22°F) to +70°C (+158°F)	-30°C (-22°F) to +70°C (+158°F)	-30°C (-22°F) to +70°C (+158°F)
Operating Temperature Range	-20°C (-4°F) to +55°C (+131°F)	-20°C (-4°F) to +55°C (+131°F)	-20°C (-4°F) to +55°C (+131°F)	-20°C (-4°F) to +55°C (+131°F)
Terminal Wire Capacity (Input and Output)	14 AWG (2.1 mm ²) maximum	14 AWG (2.1 mm ²) maximum	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	7.1 Lb-in (0.8 N•m) maximum	7.1 Lb-in (0.8 N•m) maximum
Weight	60 g (2.12 oz)	60 g (2.12 oz)	60 g (2.12 oz)	60 g (2.12 oz)
Input Indication	Green LED	Green LED	Green LED	Green LED
Output Indication (Blinks = Timing or On = Energized)	Red LED	Red LED	Red LED	Red LED
Enclosure Rating (according to IEC 60529 IP rating)	IP20	IP20	IP20	IP20
Approvals	cULus (File No. E234203), CE 61810-1, RoHS	cULus (File No. E234203), CE 61810-1, RoHS	cULus (File No. E234203), CE 61810-1, RoHS	cULus (File No. E234203), CE 61810-1, RoHS

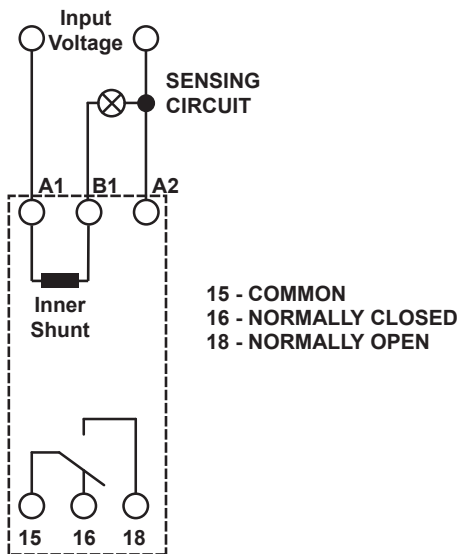
(1) Actual product life will vary based on electrical load, duty cycle, application, and environmental conditions.

Dimensions — inches (millimeters)

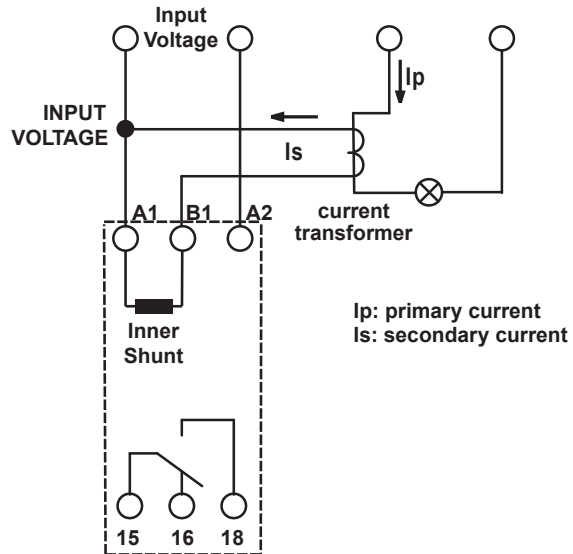


Wiring Diagram

Wiring for direct current sensing:



Wiring for current sensing through current transformer:



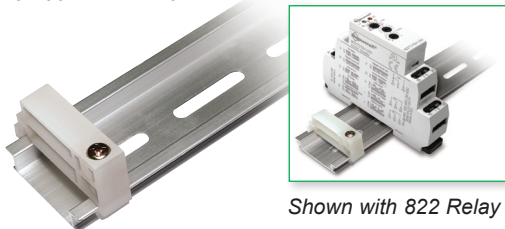
Magnecraft™ Time Delay and Sensor Relays

800 Series Accessories

Description

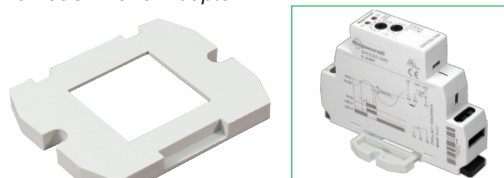
The 16-700DIN DIN Rail provides quick removable and installations of most sockets and the 16-788C1 panel adapter provides a panel mounting option.

16-700DIN DIN Rail



Shown with 822 Relay

16-788C1 Panel Adapter



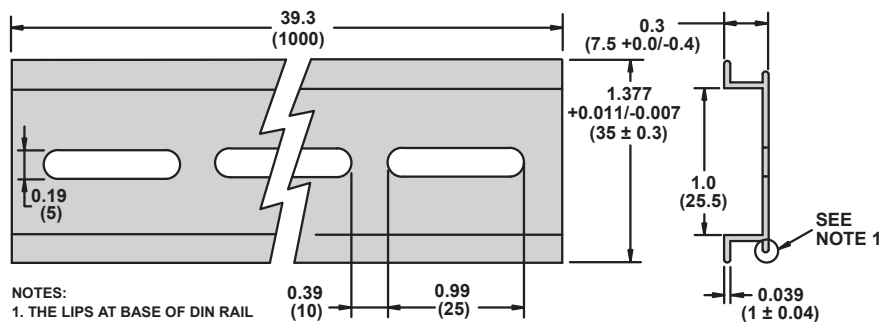
Shown with 841 Relay

Description	Function	For Use With Relays	Packaging Quantities	Standard Part Number
Metal DIN Rail	Quick installation and removable	821, 822, 831, 841	10 (1)	16-700DIN
Panel Adapter	Provides additional panel mount option.	821, 822, 831, 841	10	16-788C1

(1) Length is 39.3 inches.

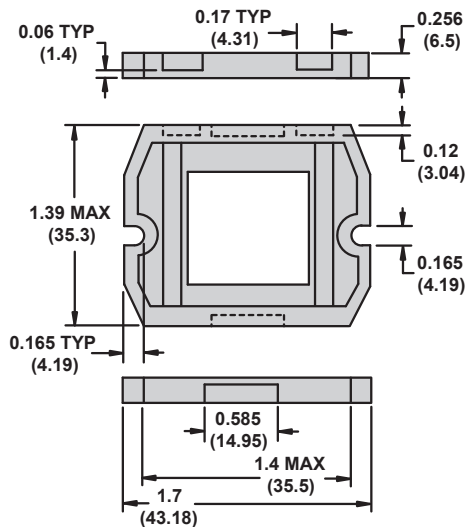
Dimensions — inches (millimeters)

16-700DIN Metal DIN Rail



NOTES:
1. THE LIPS AT BASE OF DIN RAIL MAY OR MAY NOT BE PRESENT ON DIN RAIL EXTRUSIONS.

16-788C1 Panel Mount Adapter



Description

Magnecraft™ Time Delay and Sensor Relays

TDR782 Series

DPDT, 5 A; 4PDT, 3 A



TDR782 Relay

Description

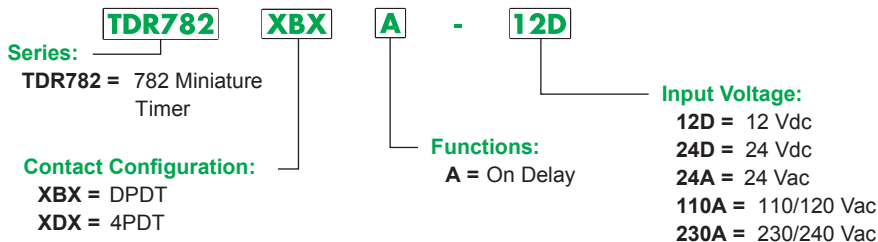
Miniature time delay relay that is single-function, single-voltage and socket-compatible. Ideal for tight spaces.

Feature	Benefit
Time setting	Select 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 tune the time setting
IEC and NEMA terminal numbering	For numbering compatibility

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

(1) For function descriptions, see pages 33 and 34.

Part Number Explanation



Magnecraft™ Time Delay and Sensor Relays

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

Specifications

Part Number	TDR782XBX	TDR782DX
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% to 115% of Nominal	85% to 115% of Nominal
Operating Voltage (Vdc)	90% to 110% of Nominal	90% to 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
Contacts Current Rating	5 A	3 A
Contact Material	Silver Alloy	Silver Alloy
Maximum inrush current	10A @ < 100 ms	10A @ < 100 ms
Minimum Switching Requirement	100 mA at 5 Vac or Vdc	100 mA at 5 Vac or Vdc
Timing Characteristics		
Functions Available (1)	A (On Delay)	A (On Delay)
Time Scales	7	7
Time Ranges	100 ms to 1 sec 1 sec to 10 sec 0.1 min to 1 min 1 min to 10 min 0.1 hr to 1 hr 1 hr to 10 hrs 10 hr to 100 hrs	100 ms to 1 sec 1 sec to 10 sec 0.1 min to 1 min 1 min to 10 min 0.1 hr to 1 hr 1 hr to 10 hrs 10 hr to 100 hrs
Tolerance	5% of Mechanical setting	5% of Mechanical setting
Repeatability @ 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	100,000 operations
Mechanical Life (Unpowered) (2)	10,000,000 operations	10,000,000 operations
Dielectric Strength (Input to Contacts)	2000 Vrms	2000 Vrms
Storage Temperature Range	-40°C (-40°F) to +70°C (+158°F)	-40°C (-40°F) to +70°C (+158°F)
Operating Temperature Range	-20°C (-4°F) to +60°C (+140°F)	-20°C (-4°F) to +60°C (+140°F)
Weight	43 g (1.52 oz)	43 g (1.52 oz)
Input Indication	Green LED	Green LED
Output Indication (On = Energized)	Amber LED	Amber LED
Enclosure Rating (according to IEC 60529 IP rating)	IP50	IP50
Approvals	cURus (File No. E191122), CSA (File No. 254373), CE 61810-1, RoHS	cURus (File No. E191122), CSA (File No. 254373), CE 61810-1, RoHS

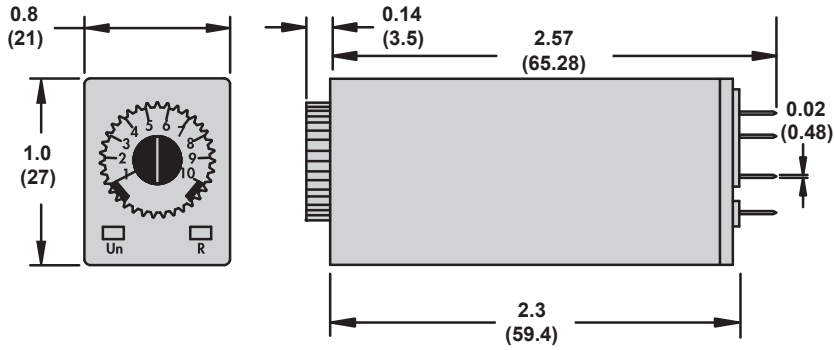
(1) For function descriptions, see pages 33 and 34.

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

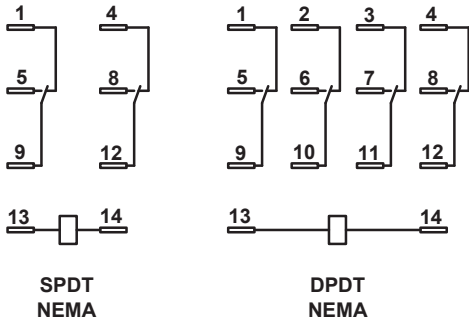
Magnecraft™ Time Delay and Sensor Relays

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

Dimensions — inches (millimeters)

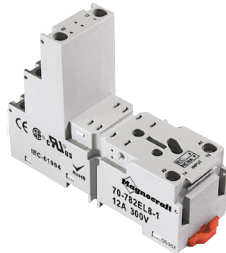


Wiring Diagram



Magnecraft™ Time Delay and Sensor Relays

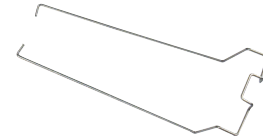
TDR782 Series Accessories



70-782EL8-1 Socket



70-782EL14-1 Socket



16-TDR782SC Spring Clip

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.

Relay Accessories

Description	Function	For Use With Relays	Packaging Quantities	Standard Part Number
Socket	Mounts directly to DIN Rail or Panel	TDR782XBX	10	70-782EL8-1
Socket	Mounts directly to DIN Rail or Panel	TDR782XBX TDR782XDX	10	70-782EL14-1
Socket	DIN/Panel Mount with Rising Elevator Box Terminals	TDR782XBX TDR782XDX	10	70-782E14-1
Socket	DIN/Panel Mount with Screw Terminals & Clamping Plates	TDR782XBX TDR782XDX	10	70-782D14-1
Socket	DIN/Panel Mount with Screw Terminals & Clamping Plates	TDR782XBX TDR782XDX	10	70-461-1
Socket	Solder Terminals for Chassis mount	TDR782XBX TDR782XDX	10	70-378-1
Socket	Printed Circuit Terminals	TDR782XBX TDR782XDX	10	70-379-1
Metal Hold-Down Clip	Helps secure relay in socket	TDR782●●	10	16-TDR782SC

Socket Accessories

Description	Function	For Use With Sockets	Packaging Quantities	Standard Part Number
Metal DIN Rail	Quick installation and removable of sockets	(See table above.)	10 (1)	16-700DIN
ID Tags	Allows for identification of circuits in multi-relay applications	70-782EL8-1 70-782EL14-1 70-782E14-1	10	16-782FT-1

(1) Length is 39.3 inches.

Magnecraft™ Time Delay and Sensor Relays

TDR782 Series Accessories

Specifications

Part Number	70-782EL8-1, 70-782EL14-1	70-782EL14-1	70-782E14-1
Contact Configuration	DPDT	4PDT	4PDT
Number of Terminals	8	14	14
Mounting Style	Panel/DIN Rail	Panel/DIN Rail	Panel/DIN Rail
Current Rating	12 A	10 A	10 A
Nominal Voltage Rating	300 V	300 V	300 V
Storage temperature Range	-40°C (-40°F) to +105°C (+221°F)	-40°C (-40°F) to +105°C (+221°F)	-40°C (-40°F) to +105°C (+221°F)
Protection Category (Fingersafe™)	IP 20	IP 20	IP 20
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 Cu 14 / 16 (2) AWG, 2.5 / 1.5 (2) mm ² Stranded Cu 14 / 16 (2) AWG, 2.5 / 1.5 (2) mm ²	Solid Cu 14 / 16 (2) AWG, 2.5 / 1.5 (2) mm ² Stranded Cu 14 / 16 (2) AWG, 2.5 / 1.5 (2) mm ²	Solid Cu 14 / 16 (2) AWG, 2.5 / 1.5 (2) mm ² Stranded Cu 14 / 16 (2) AWG, 2.5 / 1.5 (2) 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	94V-0 Class	94V-0 Class	94V-0 Class
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 No. E70550), CSA (File No. 40787), CE 60947-1, RoHS	cURus (File No. E70550), CSA (File No. 40787), CE 60947-1, RoHS	cURus (File No. E70550), CSA (File No. 40787), 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/DIN Rail
Current Rating	5A	5A	10A
Nominal Voltage Rating	300 V	300 V	300 V
Storage temperature Range	-40°C (-40°F) to +105°C (+221°F)	-40°C (-40°F) to +105°C (+221°F)	-40°C (-40°F) to +105°C (+221°F)
Protection Category (Fingersafe™)	–	–	IP 20 (for 70-782D14-1)
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 Cu 14 / 16 (2) AWG, 2.5 / 1.5 (2) mm ² Stranded Cu 14 / 16 (2) AWG, 2.5 / 1.5 (2) mm ²	Solid Cu 14 / 16 (2) AWG, 2.5 / 1.5 (2) mm ² Stranded Cu 14 / 16 (2) AWG, 2.5 / 1.5 (2) mm ²
DIN Rail Mounting, EN 60715	–	–	35 mm (1.38 in)
Maximum Screw Torque	–	–	7 lb-in (0.8 N•m)
Flammability Rating	94V-0 Class	94V-0 Class	94V-0 Class
Body Color	Light Gray	Light Gray	Light Gray
DIN Locking Method	–	–	Red Plastic Locking Clip
Product Certifications	cURus (File No. E70550), CSA (File No. 97899), CE 60947-1, RoHS	cURus (File No. E70550), CSA (File No. 97899), CE 60947-1, RoHS	70-461-1: cURus (File No. E70550), CSA (File No. 97899), CE 60947-1, RoHS 70-782D14-1: cURus (File No. E70550), CSA (File No. 40787), CE 60947-1, RoHS

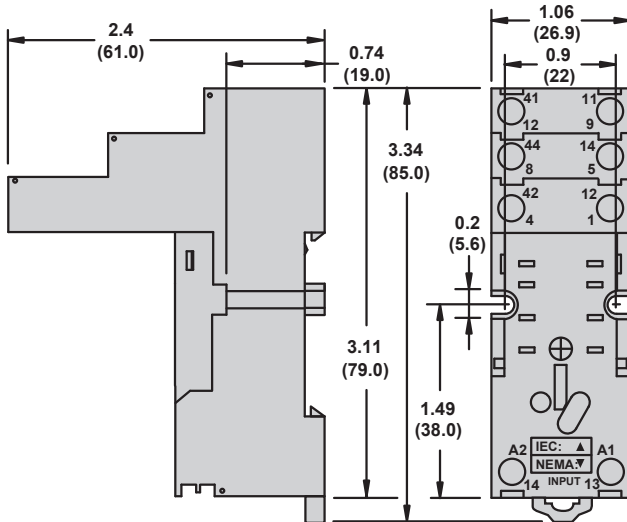
Magnecraft™ Time Delay and Sensor Relays

TDR782 Series Accessories

Dimensions — inches (millimeters)

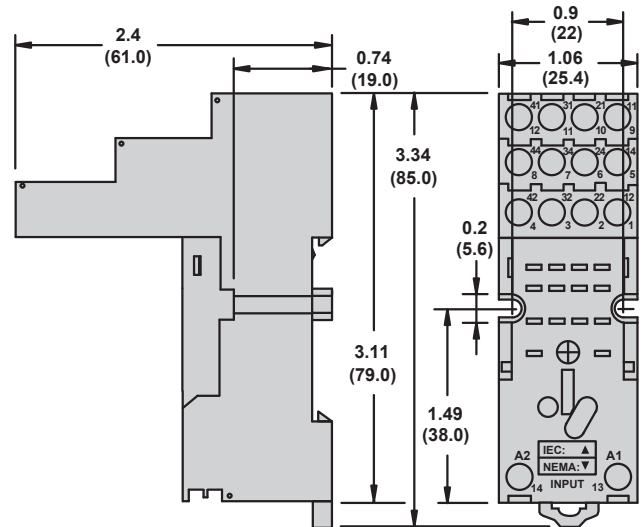
70-782EL8-1

Mounts directly to DIN Rail or Panel



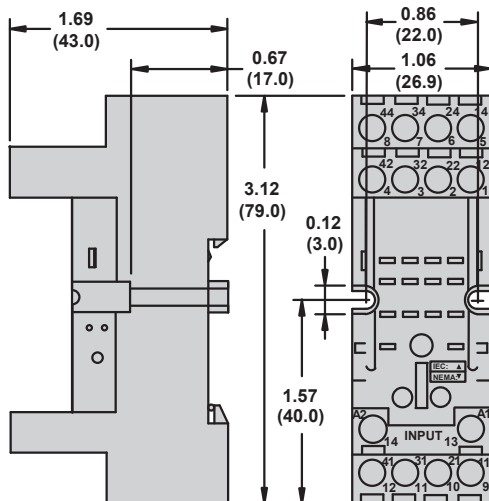
70-782EL14-1

Mounts directly to DIN Rail or Panel



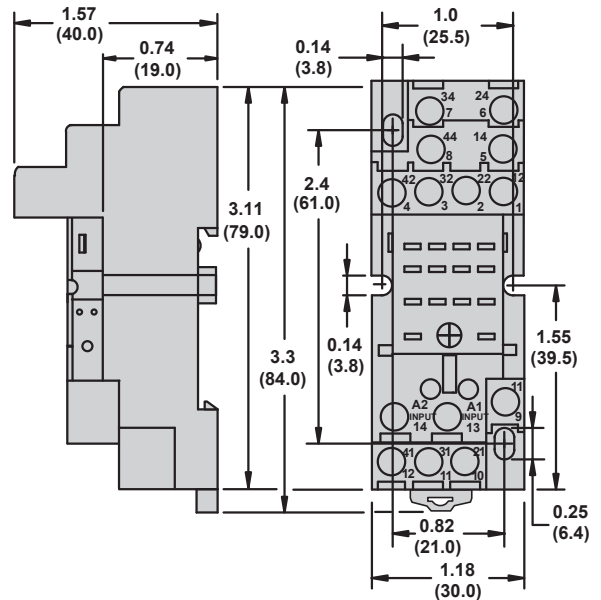
70-782E14-1

DIN/Panel Mount with Rising Elevator Box Terminals



70-782D14-1

DIN/Panel Mount with Screw Terminals and Clamping Plates



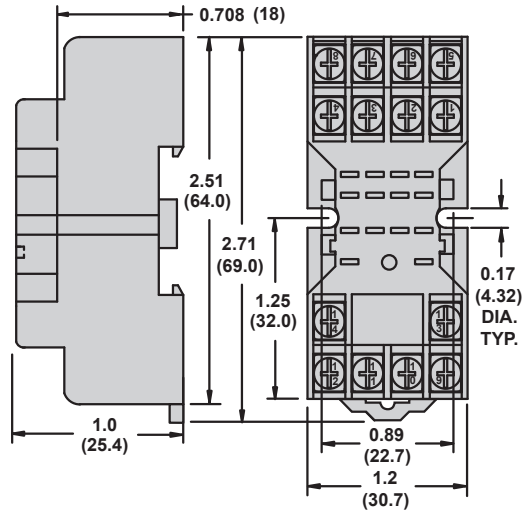
Magnecraft™ Time Delay and Sensor Relays

TDR782 Series Accessories

Dimensions — inches (millimeters)

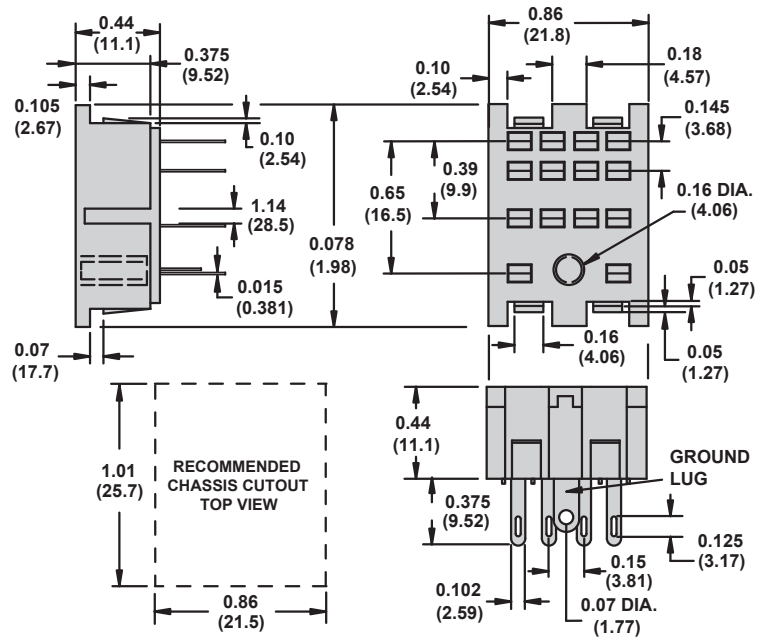
70-461-1

DIN/Panel Mount with Screw Terminals and Clamping Plates



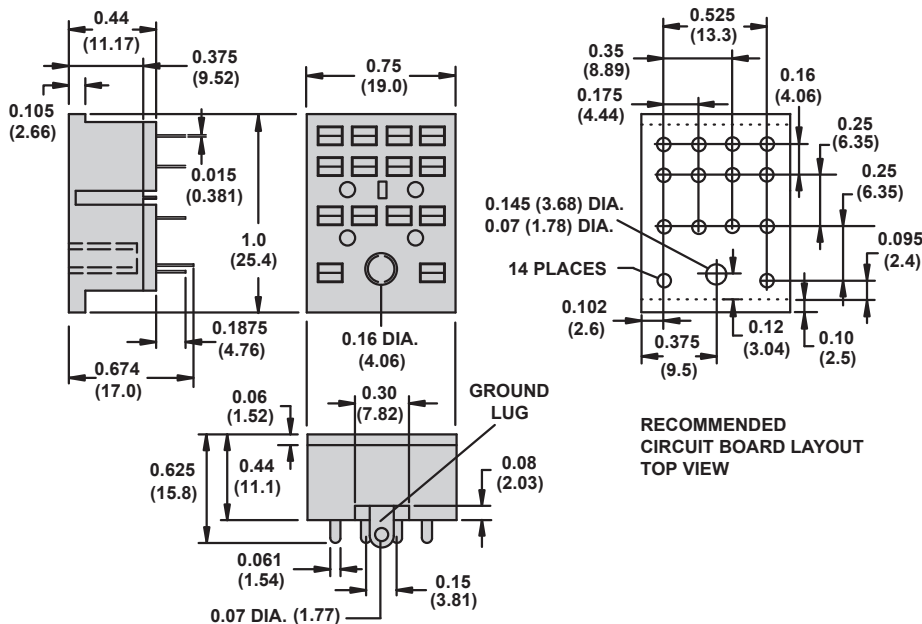
70-378-1

Solder Terminals for Chassis Mount



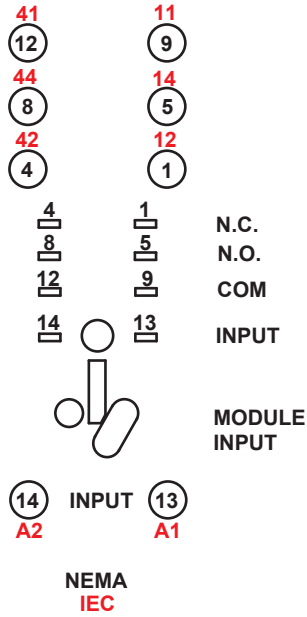
70-379-1

Printed Circuit Terminals

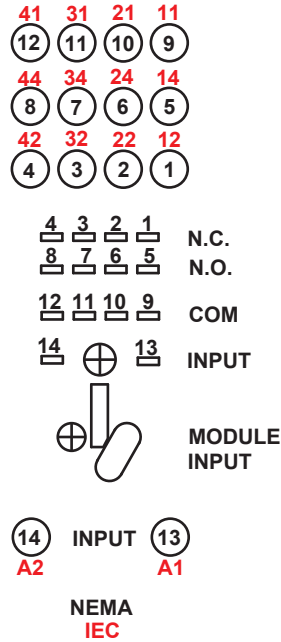


Wiring Diagrams

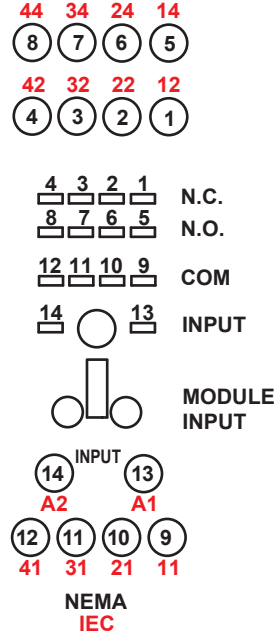
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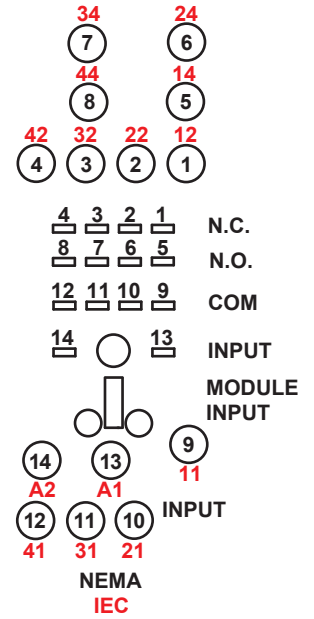
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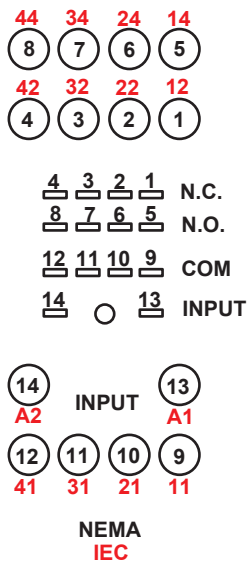
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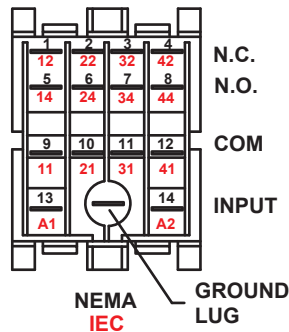
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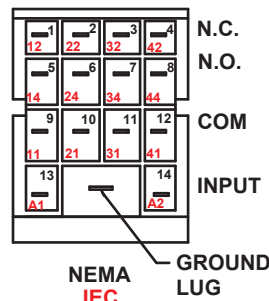
70-461-1



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, multi-function, multi-voltage, and socket-compatible - offering the user 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 function of memory latching
Broad timing range	0.1 Seconds to 9990 hours
Panel mount adapter	Panel mountable
Dust cover	Retains settings / 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 / output state
RoHS compliant	Environmentally friendly

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

(1) For function descriptions, see pages 33 and 34.

Part Number Explanation

Series: **TDRPRO** - **5100**

TDRPRO = 48 x 48 mm Time Delay Relay

Contact Configuration/# 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

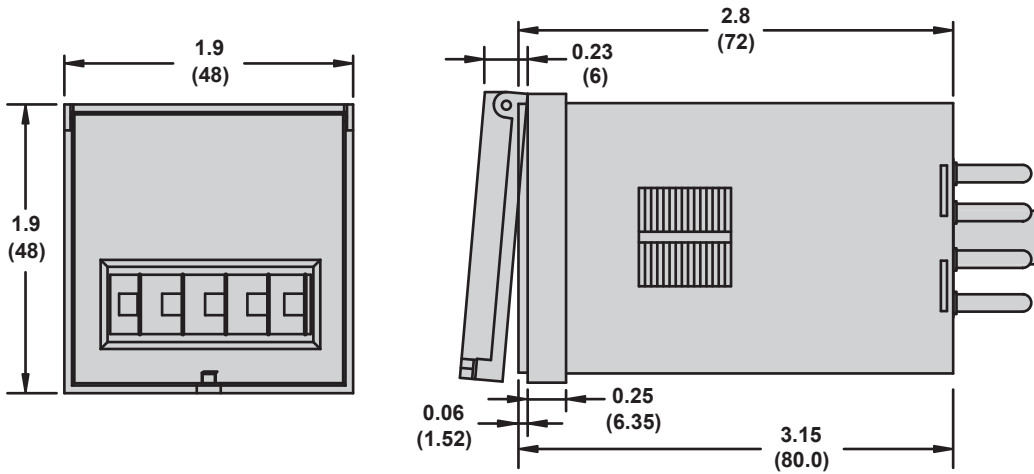
Part Number	TDRPRO-5100	TDRPRO-5101	TDRPRO-5102
Input Characteristics			
Input Voltage Range	12 to 240 Vac/Vdc	12 to 240 Vac/Vdc	12 to 240 Vac/Vdc
Operating Voltage	85% to 115% of Nominal	85% to 115% of Nominal	85% to 115% of Nominal
Maximum Power Consumption (AC)	2.5 VA	2.5 VA	2.5 VA
Maximum Power Consumption (DC)	2W	2W	2W
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 to 999 by 0.1 sec 0 to 999 by sec 0 to 999 by 0.1 min 0 to 999 by min 0 to 999 by 0.1 hr 0 to 999 by hr 0 to 999 by 10 hr	0 to 999 by 0.1 sec 0 to 999 by sec 0 to 999 by 0.1 min 0 to 999 by min 0 to 999 by 0.1 hr 0 to 999 by hr 0 to 999 by 10 hr	0 to 999 by 0.1 sec 0 to 999 by sec 0 to 999 by 0.1 min 0 to 999 by min 0 to 999 by 0.1 hr 0 to 999 by hr 0 to 999 by 10 hr
Repeatability of the time delay @ 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°C (-22°F) to +70°C (+158°F)	-30°C (-22°F) to +70°C (+158°F)	-30°C (-22°F) to +70°C (+158°F)
Operating Temperature Range	-20°C (-4°F) to +60°C (+140°F)	-20°C (-4°F) to +60°C (+140°F)	-20°C (-4°F) to +60°C (+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 (Blinks = Timing or On = Energized)	RED LED	RED LED	RED LED
Enclosure Rating (according to IEC 60529 IP rating)	IP40	IP40	IP40
Approvals	cURus (File No. E43641), CE 61810-1, RoHS, cULus (UL Listed [File No. E43641] when used with Magnecraft socket 70-465)	cURus (File No. E43641), CE 61810-1, RoHS, cULus (UL Listed [File No. E43641] when used with Magnecraft socket 70-464)	cURus (File No. E43641), CE 61810-1, RoHS, cULus (UL Listed [File No. E43641] when used with Magnecraft socket 70-464)

(1) For function descriptions, see pages 33 and 34.

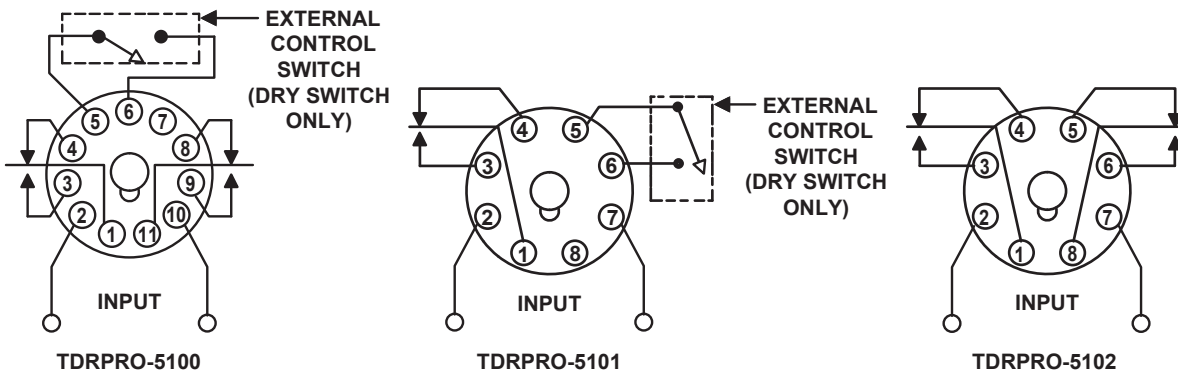
(2) Actual product life will vary based on electrical load, duty cycle, application, and environmental conditions.

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

Dimensions — inches (millimeters)



Wiring Diagrams

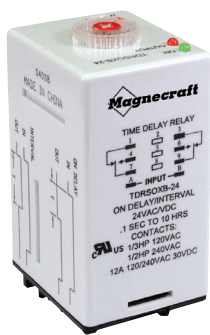


Description

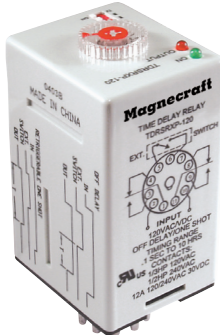
Magnecraft™ Time Delay and Sensor Relays

TDRSOX/SRX Series

DPDT, 12 A



TDRSOXB Relay



TDRSRXP Relay

Description

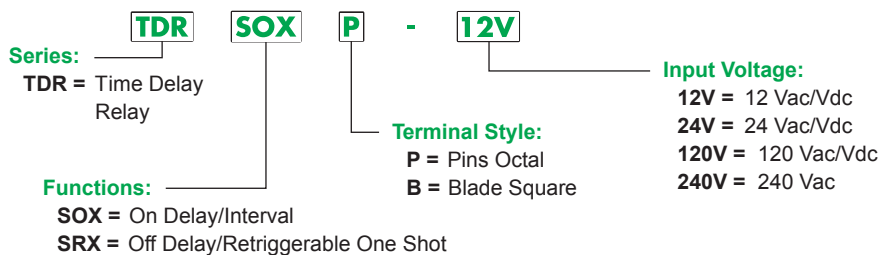
Time delay relays that are dual-function, dual-voltage and socket-compatible. The integrated DIP switching allows the user to easily adjust a wide timing range. Octal and square base available.

Feature	Benefit
Integrated DIP switch	Simplifies the programming of the functions and timing
Output and input indication	Red and green LED for status check
Removable knob	Tamper resistance
Optional side and top flange mounting	Flexibility in mounting techniques
Socket compatible	Makes for easy installation and replacement

Input Voltage	Functions Available (1)	Timing Range	Contact Configuration	Rated Current (A)	Base Type	Standard Part Number
120 Vac/Vdc	A, C	100 ms to 10 hrs	DPDT	12	8 Blade Square Base	TDRSOXB-120V
12 Vac/Vdc	A, C	100 ms to 10 hrs	DPDT	12	8 Blade Square Base	TDRSOXB-12V
24 Vac/Vdc	A, C	100 ms to 10 hrs	DPDT	12	8 Blade Square Base	TDRSOXB-24V
240 Vac	A, C	100 ms to 10 hrs	DPDT	12	8 Blade Square Base	TDRSOXB-240A
120 Vac/Vdc	A, C	100 ms to 10 hrs	DPDT	12	8 Pin Octal Base	TDRSOXP-120V
12 Vac/Vdc	A, C	100 ms to 10 hrs	DPDT	12	8 Pin Octal Base	TDRSOXP-12V
24 Vac/Vdc	A, C	100 ms to 10 hrs	DPDT	12	8 Pin Octal Base	TDRSOXP-24V
240 Vac	A, C	100 ms to 10 hrs	DPDT	12	8 Pin Octal Base	TDRSOXP-240A
120 Vac/Vdc	D, E	100 ms to 10 hrs	DPDT	12	11 Blade Square Base	TDRSRXB-120V
12 Vac/Vdc	D, E	100 ms to 10 hrs	DPDT	12	11 Blade Square Base	TDRSRXB-12V
24 Vac/Vdc	D, E	100 ms to 10 hrs	DPDT	12	11 Blade Square Base	TDRSRXB-24V
240 Vac	D, E	100 ms to 10 hrs	DPDT	12	11 Blade Square Base	TDRSRXB-240A
120 Vac/Vdc	D, E	100 ms to 10 hrs	DPDT	12	11 Pin Octal Base	TDRSRXP-120V
12 Vac/Vdc	D, E	100 ms to 10 hrs	DPDT	12	11 Pin Octal Base	TDRSRXP-12V
24 Vac/Vdc	D, E	100 ms to 10 hrs	DPDT	12	11 Pin Octal Base	TDRSRXP-24V
240 Vac	D, E	100 ms to 10 hrs	DPDT	12	11 Pin Octal Base	TDRSRXP-240A

(1) For function descriptions, see pages 33 and 34.

Part Number Explanation



Magnecraft™ Time Delay and Sensor Relays

TDRSOX/SRX Series

DPDT, 12 A

Specifications

Part Number	TDRSOX	TDRSRX
Input Characteristics		
Input Voltage Range	12, 24, 120 Vac/Vdc 240 Vac	12, 24, 120 Vac/Vdc 240 Vac
Operating Voltage	80% to 110% of Nominal	80% to 110% of Nominal
Maximum Power Consumption (AC)	2.5 VA	2.5 VA
Maximum Power Consumption (DC)	2.5 W	2.5 W
Output Characteristics		
Contact Configuration	DPDT	DPDT
Output Current Rating	12 A	12 A
Contact Material	Silver Alloy	Silver Alloy
Switching Capabilities	240 Vac, 50/60 Hz, 30 Vdc 1/3 HP @ 120 Vac 1/2 HP @ 240 Vac Pilot Duty B300	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 at 5 Vac or Vdc	100 mA at 5 Vac or Vdc
Timing Characteristics		
Functions Available (1)	A,C	D,E
Time Scales	8	8
Time Ranges	0.1 sec to 1 sec 1 sec to 10 sec 10 sec to 100 sec 0.1 min to 1 min 1 min to 10 min 10 min to 100 min 0.1 hr to 1 hr 1 hr to 10 hr	0.1 sec to 1 sec 1 sec to 10 sec 10 sec to 100 sec 0.1 min to 1 min 1 min to 10 min 10 min to 100 min 0.1 hr to 1 hr 1 hr to 10 hr
Tolerance	10% of Mechanical setting	10% of Mechanical setting
Repeatability @ constant voltage and temperature	1%	1%
Reset Time	150 ms	150 ms
Trigger Pulse Length	N/A	50 ms minimum
General Characteristics		
Electrical Life (operations at rated current) (2)	100,000 operations	100,000 operations
Mechanical Life (Unpowered) (2)	10,000,000 operations	10,000,000 operations
Dielectric Strength (Input to Contacts)	2500 Vrms	2500 Vrms
Storage Temperature Range	-30°C (-22°F) to +70°C (+158°F)	-30°C (-22°F) to +70°C (+158°F)
Operating Temperature Range	-20°C (-4°F) to +60°C (+140°F)	-20°C (-4°F) to +60°C (+140°F)
Weight	133 g (4.69 oz)	133 g (4.69 oz)
Input Indication	Green LED	Green LED
Output Indication	RED LED	RED LED
Enclosure Rating (according to IEC 60529 IP rating)	IP40	IP40
Approvals	cULus (UL Listed [File No. E43641] when used with Magnecraft sockets), cURus (File No. E43641), RoHS	cULus (UL Listed [File No. E43641] when used with Magnecraft sockets), cURus (File No. E43641), RoHS

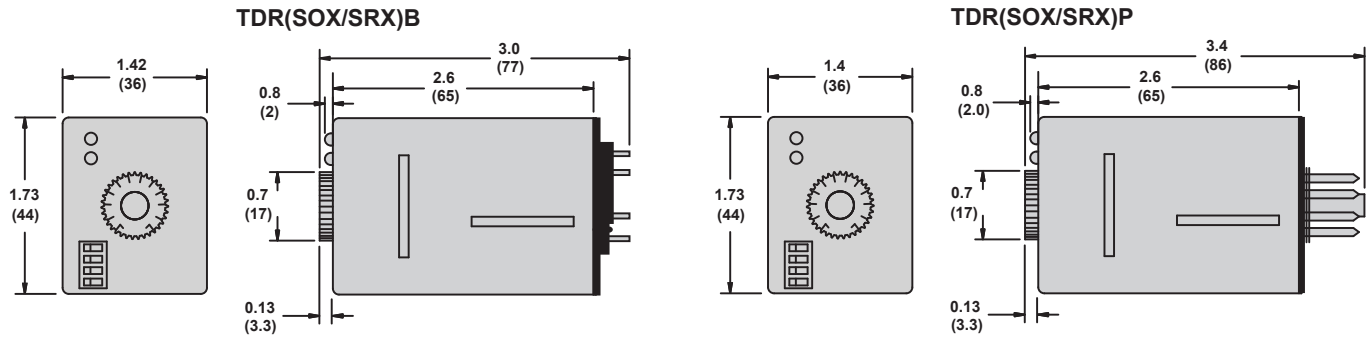
(1) For function descriptions, see pages 33 and 34.

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

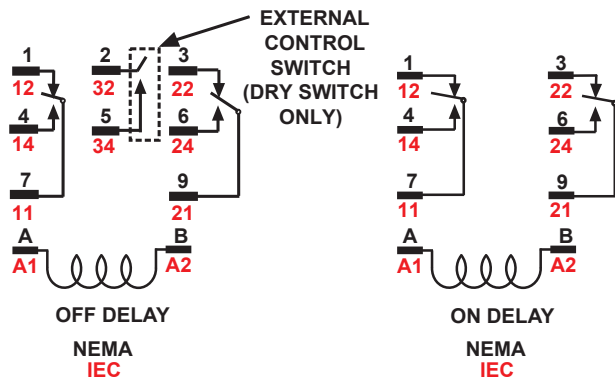
Dimensions, Wiring Diagrams, Selecting Time Range and Function

Magnecraft™ Time Delay and Sensor Relays TDRSOX/SRX Series DPDT, 12 A

Dimensions — inches (millimeters)



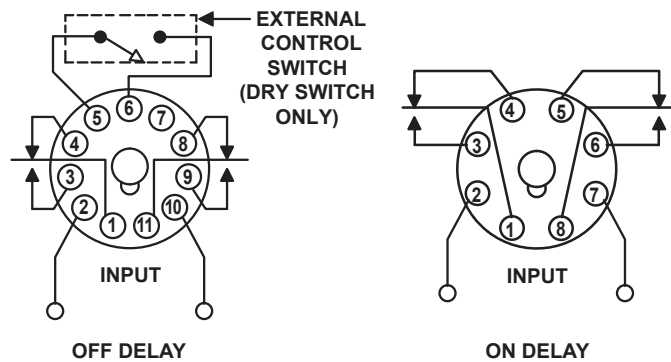
Wiring Diagrams



SRXB

SOXB

cULus Listed with 70-788EL11-1 or 70-463-1 sockets



SRXP

SOXP

cULus Listed with 70-750DL11-1 or 70-750E11-1 or 70-465-1

cULus Listed with 70-750DL8-1 or 70-750E8-1 or 70-464-1

Selecting Time Range

Time Range	Digital Switch Position		
	II	III	IV
0.1 sec – 1 sec	OFF	OFF	OFF
1 sec – 10 sec	OFF	OFF	ON
10 sec – 100 sec	OFF	ON	OFF
0.1 min – 1 min	OFF	ON	ON
1 min – 10 min	ON	OFF	OFF
10 min – 100 min	ON	OFF	ON
0.1 hr – 1 hr	ON	ON	OFF
1hr – 10 hr	ON	ON	ON

Selecting Function (1)

Function SOX	Digital Switch Position
On Delay	OFF
Interval	ON

Function SRX	Digital Switch Position
On Delay	OFF
Interval	ON

(1) For function descriptions, see pages 33 and 34.

Description

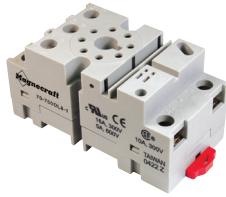
Magnecraft™ Time Delay and Sensor Relays

TDRPRO/SOX/SRX Series Accessories



Description

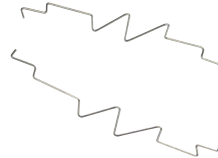
The TDR accessories create a complete system solution for all your application needs. The 70-750DL socket offers an alternate installation option for plug-in models. The 16-TDRPROSC retention clip holds the relay securely in place while allowing quick and efficient installation and maintenance.



70-750DL8-1 Socket



70-750E8-1 Socket



16-TDRPROSC Spring Clip



16-700DIN DIN Rail

Relay Accessories

Description	Function	For Use With Relays	Packaging Quantities	Standard Part Number
Socket	Mounts directly to DIN Rail or Panel	TDRPRO-5101, TDRPRO-5102, TDRSOXP	10	70-750DL8-1
Socket	Mounts directly to DIN Rail or Panel	TDRPRO-5100, TDRSRXP	10	70-750DL11-1
Socket	DIN/Panel Mount with Elevator Terminals	TDRPRO-5101, TDRPRO-5102, TDRSOXP	10	70-750E8-1
Socket	DIN/Panel Mount with Elevator Terminals	TDRPRO-5100, TDRSRXP	10	70-750E11-1
Socket	DIN/Panel Mount with Screw Terminals & Clamping Plates	TDRPRO-5100, TDRSRXP	10	70-465-1
Socket	DIN/Panel Mount with Screw Terminals & Clamping Plates	TDRPRO-5101, TDRPRO-5102, TDRSOXP	10	70-464-1
Socket	Panel Mount with Screw Terminals & Clamping Plates	TDRPRO-5100, TDRSRXP	10	70-170-1
Socket	Panel Mount with Screw Terminals & Clamping Plates	TDRPRO-5101, TDRPRO-5102, TDRSOXP	10	70-169-1
Socket	DIN/Panel Mount with Screw Terminals & Clamping Plates	TDRSRXB, TDRSOXB	10	70-463-1
Metal Hold-Down Clip	Helps secure relay in socket	TDRPRO, TDRSRX	10	16-TDRPROSC
Metal Hold-Down Clip	Helps secure relay in socket	TDRSOX, TDRSRX	100	16-1344

Socket Accessories

Description	Function	For Use With Sockets	Packaging Quantities	Standard Part Number
Metal DIN Rail	Quick installation and removal of sockets	(See table above.)	10 (1)	16-700DIN
ID Tags	Allows for identification of circuits in mult-relay applications	70-750E8-1 70-750E11-1	10	16-750/782FT-1

(1) Length is 39.3 inches.

Magnecraft™ Time Delay and Sensor Relays

TDRPRO/SOX/SRX Series Accessories

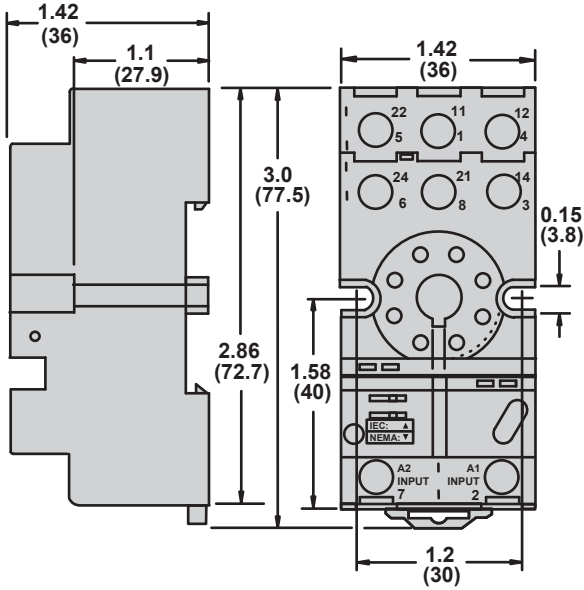
Specifications

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 / DIN rail	Panel / DIN rail	Panel / DIN rail	Panel / DIN rail
Current Rating	16 A	5 A	12 A	12 A
Nominal Voltage Rating	300 V	600 V	600 V	300 V
Temperature Storage Range	-40°C (-40°F) to +105°C (+221°F)	-40°C (-40°F) to +105°C (+221°F)	-40°C (-40°F) to +105°C (+221°F)	-40°C (-40°F) to +105°C (+221°F)
Protection Category according to IEC 60529 IP rating (Fingersafe™)	IP 20	IP 20	IP 20	IP 20
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 Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ² Stranded Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ²	Solid Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ² Stranded Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ²	Solid Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ² Stranded Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ²	Solid Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ² Stranded Cu 12 / 14 (2) AWG, 4 / 2.5 (2) 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	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 No. E70550), CSA (File No. 40787), CE 60947-1, RoHS	cURus (File No. E70550), CSA (File No. 40787), CE 60947-1, RoHS	cURus (File No. E70550), CSA (File No. 40787), CE 60947-1, RoHS	cURus (File No. E70550), CSA (File No. 40787), CE 60947-1, RoHS

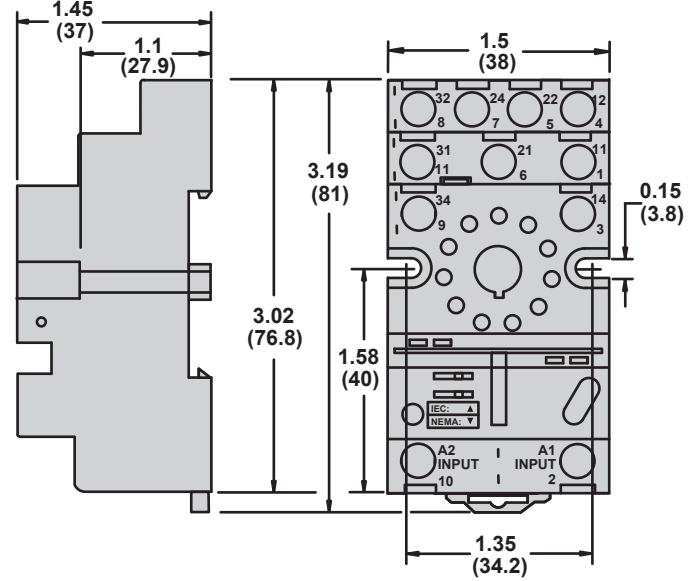
Part Number	70-169-1	70-170-1	70-464-1	70-465-1
Contact Configuration	DPDT	3PDT	DPDT	3PDT
Number of Terminals	8	11	8	11
Mounting Style	Panel	Panel	Panel / DIN rail	Panel / DIN rail
Current Rating	15 A	15 A	15/10 A	15/5 A
Nominal Voltage Rating	300 V	600 V	300/600 V	300/600 V
Temperature Storage Range	-40°C (-40°F) to +105°C (+221°F)	-40°C (-40°F) to +105°C (+221°F)	-40°C (-40°F) to +105°C (+221°F)	-40°C (-40°F) to +105°C (+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 Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ² Stranded Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ²	Solid Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ² Stranded Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ²	Solid Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ² Stranded Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ²	Solid Cu 12 / 14 (2) AWG, 4 / 2.5 (2) mm ² Stranded Cu 12 / 14 (2) AWG, 4 / 2.5 (2) 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	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
Product Certifications	cURus (File No. E70550), CSA (File No. 97877), CE 60947-1, RoHS	cURus (File No. E70550), CSA (File No. 97877), CE 60947-1, RoHS	cURus (File No. E70550), CSA (File No. 97877), CE 60947-1, RoHS	cURus (File No. E70550), CSA (File No. 97877), CE 60947-1, RoHS

Dimensions — inches (millimeters)

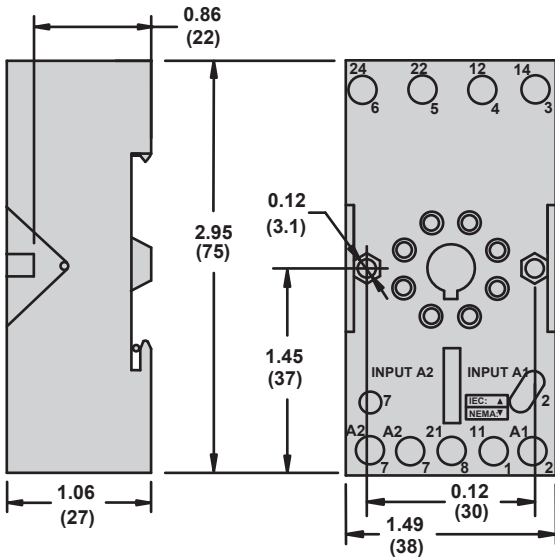
70-750DL8-1
Mounts directly to DIN Rail or Panel



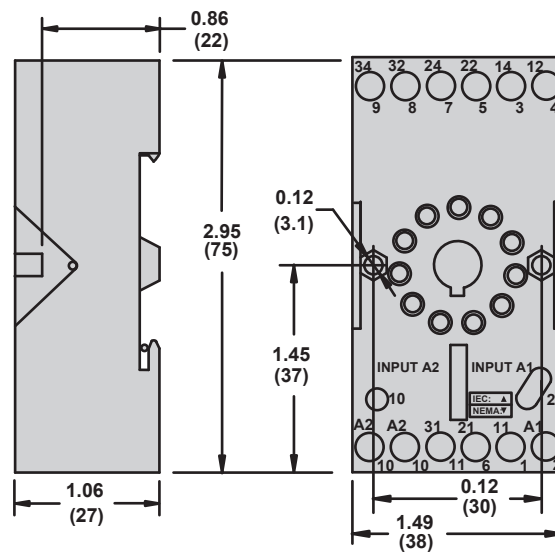
70-750DL11-1
Mounts directly to DIN Rail or Panel



70-750E8-1
DIN/Panel Mount with Elevator Terminals



70-750E11-1
DIN/Panel Mount with Elevator Terminals

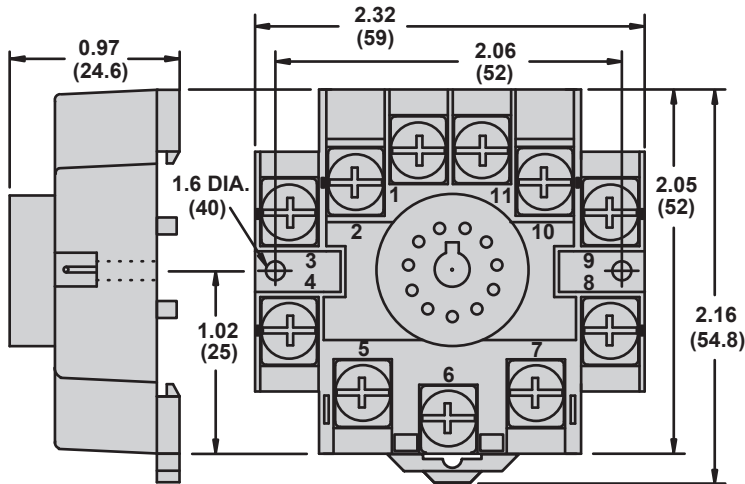


Magnecraft™ Time Delay and Sensor Relays

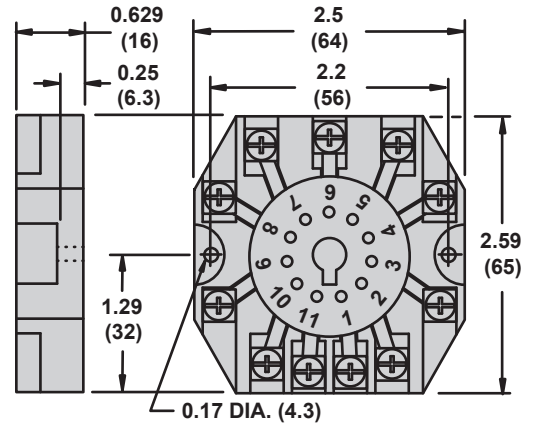
TDRPRO/SOX/SRX Series Accessories

Dimensions — inches (millimeters)

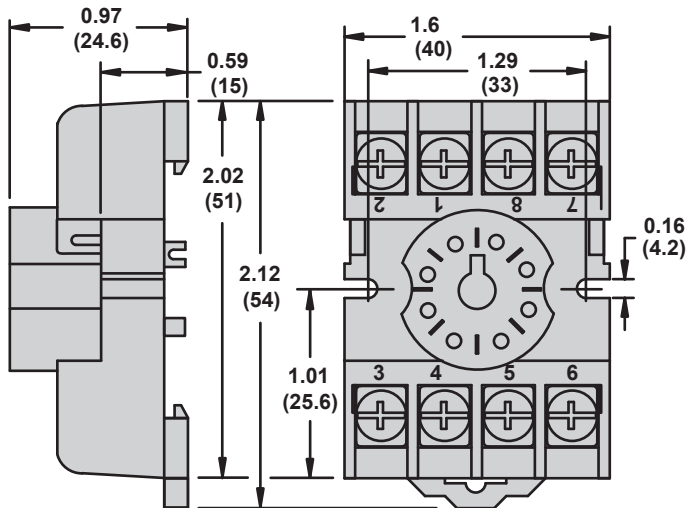
70-465-1
DIN/Mount with Screw Terminals & Clamping Plates



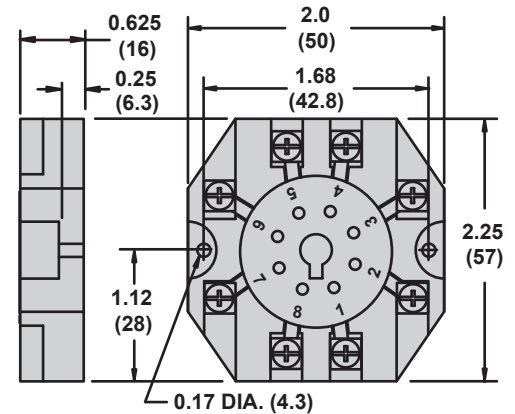
70-170-1
Panel Mount with Screw Terminals & Clamping Plates



70-464-1
DIN/Mount with Screw Terminals & Clamping Plates

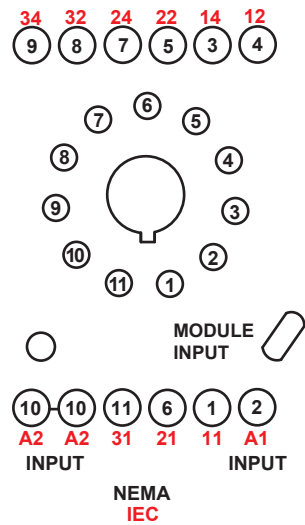


70-169-1
Panel Mount with Screw Terminals & Clamping Plates

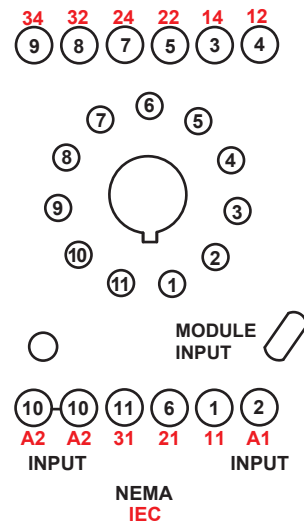


Wiring Diagrams

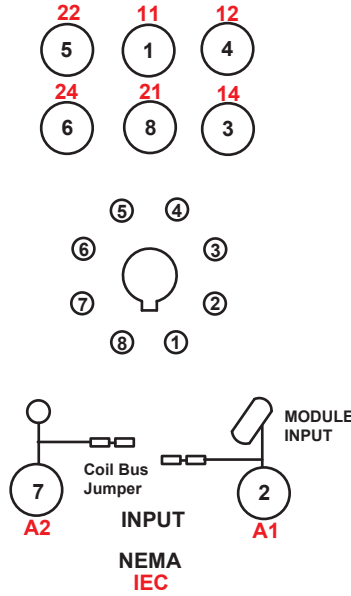
70-750E8-1



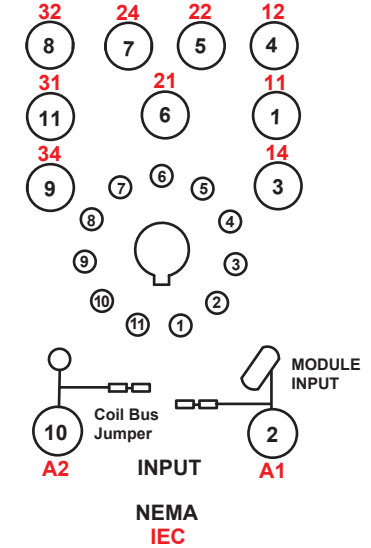
70-750E11-1



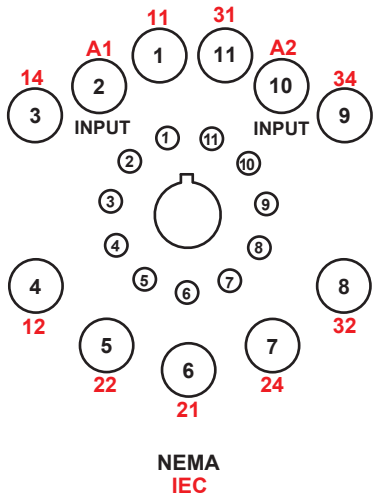
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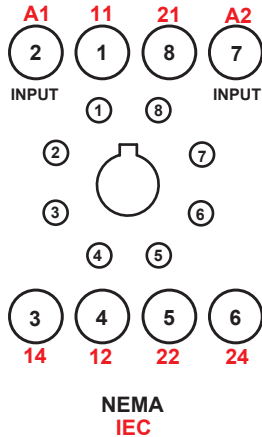
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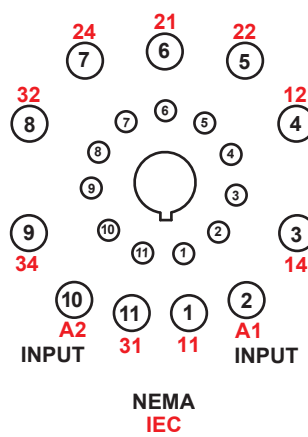
70-465-1



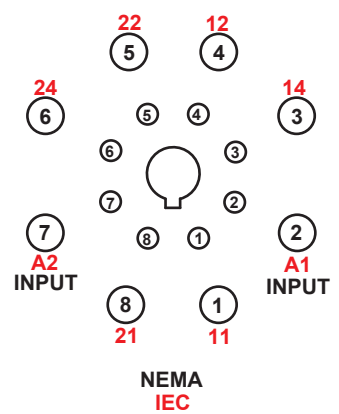
70-464-1



70-170-1



70-169-1



Time Delay Relay Functions: Power Trigger

Function	Description	Timing Chart	Relays
On Delay (A)	<ul style="list-style-type: none"> When the input voltage U is applied, timing delay T begins. Relay contacts R change state after time delay is complete. Contacts R return to their shelf state when input voltage U is removed. Trigger switch is not used in this function. 		<ul style="list-style-type: none"> 821, 822, TDR782, TDRPRO-5100, TDRPRO-5101, TDRPRO-5102, TDRSOX, 831, 841
Repeat Cycle: Starting Open (B)	<ul style="list-style-type: none"> When input voltage U is applied, time delay T begins. When time delay T is complete, relay contacts R change state for time delay T. This cycle will repeat until input voltage U is removed. Trigger switch is not used in this function. 		<ul style="list-style-type: none"> 821, 822, TDRPRO-5100, TDRPRO-5101, TDRPRO-5102, TDRSOX
Interval (C)	<ul style="list-style-type: none"> When input voltage U is applied, relay contacts R change state immediately and timing cycle begins. When time delay T is complete, contacts return to shelf state. When input voltage U is removed, contacts will also return to their shelf state. Trigger switch is not used in this function. 		<ul style="list-style-type: none"> 821, 822, TDRPRO-5100, TDRPRO-5101, TDRPRO-5102, TDRSOX
Repeat Cycle: Starting Closed (F)	<ul style="list-style-type: none"> 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 will repeat until input voltage U is removed. Trigger switch is not used in this function. 		<ul style="list-style-type: none"> 821, 822, TDRPRO-5100, TDRPRO-5101
Pulse Generator (G)	<ul style="list-style-type: none"> Upon application of input voltage U, a single output pulse of 0.5 seconds is delivered to relay after time delay T. Power must be removed and reapplied to repeat pulse. Trigger switch is not used in this function. 		<ul style="list-style-type: none"> 821, 822, TDRPRO-5100, TDRPRO-5101

Timing Chart Key

- U** = Input voltage (Power supply)
- R** = Relay contacts
- T** = Setting time

Time Delay Relay Functions: Switch Trigger

Function	Description	Timing Chart	Relays
Off Delay (D)	<ul style="list-style-type: none"> 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, relay contacts R return to their shelf state. 		<ul style="list-style-type: none"> 821, 822, TDRPRO-5100, TDRPRO-5101, TDRPRO-5102, TDRSRX
Retriggerable One Shot (E)	<ul style="list-style-type: none"> Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of the trigger signal S, the relay contacts R transfer and the preset time T begins. At the end of the preset time T, the relay contacts R return to their normal condition unless the trigger switch S is opened and closed prior to time out T (before preset time elapses). Continuous cycling of the trigger switch S at a rate faster than the preset time will cause the relay contacts R to remain closed. If input voltage U is removed, relay contacts R return to their shelf state. 		<ul style="list-style-type: none"> 821, 822, TDRPRO-5100, TDRPRO-5101, TDRPRO-5102, TDRSRX
One Shot (H)	<ul style="list-style-type: none"> Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of the trigger signal S, the relay contacts R transfer and the preset time T begins. During time-out, the trigger signal S is ignored. The relay resets by applying the trigger switch S when the relay is not energized. 		<ul style="list-style-type: none"> 821, 822, TDRPRO-5100, TDRPRO-5101
On and Off Delay (I)	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> 821, 822, TDRPRO-5100, TDRPRO-5101
Memory Latch (J)	<ul style="list-style-type: none"> Input voltage U must be applied continuously. Output changes state with every trigger switch S closure. If input voltage U is removed, relay contacts R return to their shelf state. 		<ul style="list-style-type: none"> 821, 822, TDRPRO-5100, TDRPRO-5101

Timing Chart Key

- U** = Input voltage (Power supply)
- S** = Switch trigger (Control switch)
- R** = Relay contacts
- T** = Setting time

Definition

A time delay is defined as the controlled period between the functioning of two events. A time delay relay is a combination of an electromechanical output relay and a control circuit. The control circuit is comprised of solid state components that control operation of the relay and 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/Off Delay, and Memory Latch. Each function is explained in the tables on pages 33 and 34. Time delay relays have a broad choice of timing ranges from less than one second to many days. There are many choices of timing adjustments from calibrated external knobs, DIP switches, thumbwheel switches, or 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 & close: on a control relay, it happens when voltage is applied and removed from the coil; on time delay relays, the contacts will open or close 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 & Interval/Flasher).
- opening or closing of a trigger signal (Off Delay, Single Shot & Watchdog).

These trigger signals can be one of two designs:

- a control switch (dry contact), i.e., limit switch, push button, float switch, etc.
- voltage (commonly known as a power trigger).

Definitions:

Input Voltage: Control voltage applied to the input terminals (see wiring diagrams below). Depending on the function, input voltage will either initiate the unit or make it ready to initiate when a trigger signal is applied.

Trigger Signal: On certain timing functions, a trigger signal is used to initiate 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).

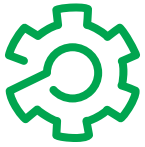
Output (Load): Every time delay relay has an internal relay (usually mechanical) with contacts that open & close to control the load. They are represented by the dotted lines in the wiring diagrams. Note that the user must provide the voltage to power the load being switched by the output contacts of the time delay relay.

Magnecraft™ Time Delay and Sensor Relays

Applications

Magnecraft time delay and sensor relays are designed to 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



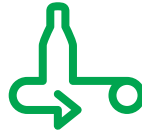
Lighting Control

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) is designed to enable users to easily find the proper relay to fit design requirements and to help simplify and shorten workflow.

Easily find the proper relay to fit 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

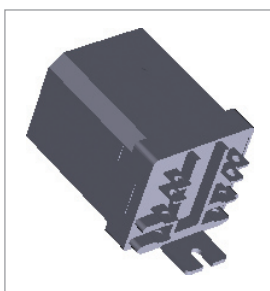
Search our comprehensive database to identify products by manufacturer and part number, and link directly to part specifications.

■ 3D CAD Library

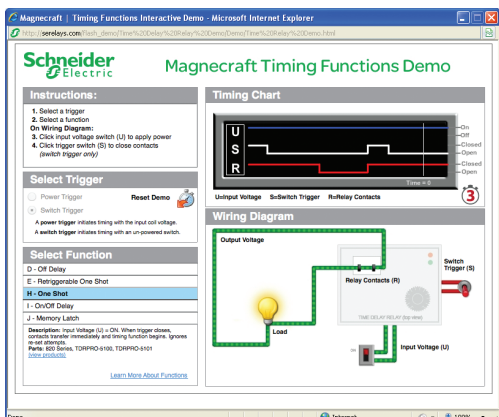
View, email, download, or insert a file directly into your open CAD software. There are 18 different file formats to choose from.

■ 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 not available for all distributors).

16-700DIN	13	TDRSRXP-120V	25
	17	TDRSRXP-12V	25
	28	TDRSRXP-24V	25
16-750/782FT-1	28	TDRSRXP-240V	25
16-782FT-1	17		
16-788C1	13		
16-1344	28		
16-TDR782SC	17		
16-TDRPROSC	28		
70-169-1	28		
70-170-1	28		
70-378-1	17		
70-379-1	17		
70-461-1	17		
	28		
70-463-1	28		
70-465-1	28		
70-750DL11-1	28		
70-750DL8-1	28		
70-750E11-1	28		
70-750E8-1	28		
70-782D14-1	17		
70-782E14-1	17		
70-782EL14-1	17		
70-782EL8-1	17		
821TD10H-UNI	4		
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841CS1-UNI	10		
841CS2-UNI	10		
841CS5-UNI	10		
841CS8-UNI	10		
TDR782XBXA-110A	14		
TDR782XBXA-24A	14		
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TDR782XDXA-230A	14		
TDR782XDXA-24A	14		
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TDRSOXB-12V	25		
TDRSOXB-24V	25		
TDRSOXB-240V	25		
TDRSOXP-120V	25		
TDRSOXP-12V	25		
TDRSOXP-24V	25		
TDRSOXP-240V	25		
TDRSRXB-120V	25		
TDRSRXB-12V	25		
TDRSRXB-24V	25		
TDRSRXB-240V	25		

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Replaces 8501CT1104, 11/2011

Magnecraft™ Power Relays

Catalog
2013



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Designed with heavy-duty contacts coupled with a specialized magnetic armature and coil to provide the necessary power handling, Magnecraft Power Relays easily handle current loads of 20 to 50 A and can also switch currents as low as 100 mA. With multiple features as well as panel and DIN mounting options, these relays offer the performance and flexibility needed to improve design, expedite installation, and simplify testing of your application.

Key Features

- Rated up to 50 A
- Socket compatible models available
- Flux tight versions available
- Blowout magnet options for high DC voltage switching
- Feature-rich covers, mounting options and accessories to suit a multitude of applications

	Series	Style	Terminals	Contact Configuration	Contact Current Range (A)	Motor Load Ratings	Page
 199 Series Relays	199	Open style	Screw	SPST; SPDT; DPST; DPDT	40 to 50	2 hp at 120 to 600 Vac 50/60 Hz	4
 725 Series Relays	725	Plug-in, DIN & panel mount	Quick Connect & Screw	SPST-NO; DPST-NO	25 to 30	1.5 hp (SPST)/1.0 hp (DPST) at 120 Vac 50/60 Hz; 3.0 hp (SPST)/2.0 hp (DPST) at 277 Vac 50/60 Hz	9
 389F Series Relays	389F	Ice cube plug-in & flange mount	Quick Connect	SPST; SPDT; DPDT; 3PDT	20 to 30	1 hp at 120–199 Vac 50/60 Hz; 1.5 hp at 200–600 Vac 50/60 Hz FLA/LRA: 17/60 A at 300 Vac 50/60 Hz (Form X) 22/98 A at 120 Vac 50/60 Hz (Form A or X)	14
 300 Series Relays	300	Ice cube, DIN & flange mount	Quick Connect	SPST-NO; DPST-NO	10 to 30	1 hp at 120 Vac 50/60 Hz; 2 hp at 208–600 Vac 50/60 Hz	20
 92 Series Relays	92	DIN & panel mount	Quick Connect	SPST-NO; DPST-NO	10 to 30	1 hp at 120 Vac 50/60 Hz; 3 hp at 240 Vac 50/60 Hz FLA/LRA: 22/96 A at 240 Vac (NO contacts, AC coil) 25.3/110 A at 240 Vac (NO contacts, DC coil)	23
 9A Series Relays	9A	Panel mount	Quick Connect	SPST-NO	3 to 30	1 hp at 125 Vac 50/60 Hz; 2 hp at 240 Vac 50/60 Hz FLA/LRA: 22/98 A at 120 Vac 50/60 Hz (NO contact) 30/80 A at 240 Vac 50/60 Hz (NO contact) 12/30 A at 240 Vac 50/60 Hz (NC contact)	26

Description

Magnecraft™ Power Relays

199

SPST-NO-DM, 40 A; SPDT, 40 A;
DPST-NO, 40 A; DPDT, 40 A*



199 Series Relay

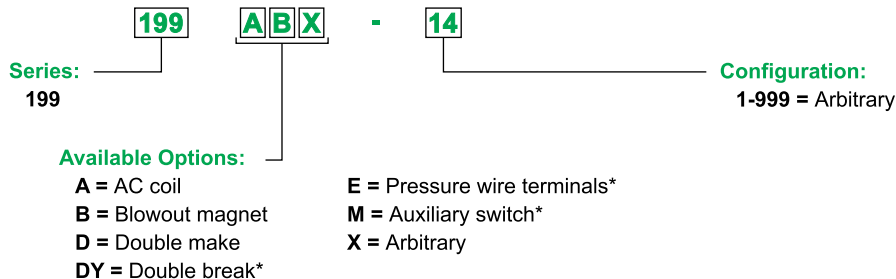
Description

The 199 series open type, heavy duty power relays offer high-capacity switching with high dielectric strength.

Feature	Benefit
High-power contacts	Increased contact ratings (up to 50 A, 2 hp) and electrical endurance; suitable for high-power switching applications
Riveted construction	Helps to increase the mechanical life of the relay
Blowout magnet option	Helps to increase DC voltage switching up to 500 V
RoHS compliant	Environmentally friendly; Complies with the European Restriction of Hazardous Substances directive

Rated Contact Current	Contact Configuration	Coil Voltage	Coil Resistance (Ω)	Special Features	Standard Part Number
40 A*	SPST-NO-DM	120 Vac	290		199ADX-4
		12 Vdc	70		199DX-2
		24 Vdc	290	Blowout Magnet	199DBX-3
		48 Vdc	1200	Blowout Magnet	199DBX-6
	SPDT	120 Vac	290		199AX-4
		12 Vdc	70		199X-2
		24 Vdc	290		199X-3
	DPST-NO	120 Vac	290		199AX-9
		240 Vac	1200		199AX-10
		12 Vdc	70		199X-7
		24 Vdc	290		199X-8
	DPDT	24 Vac	12		199AX-13
		120 Vac	290	Blowout Magnet	199ABX-14
					199AX-14
		240 Vac	1200		199AX-15
		12 Vdc	70	Blowout Magnet	199BX-12
					199X-12
		24 Vdc	290	Blowout Magnet	199BX-13
				199X-13	
110/125 Vdc	6000	Blowout Magnet	199BX-14		
			199X-14		

Part Number Explanation



* 50 A versions and additional options available. Call Customer Service for more information (847-441-2540).

Specifications (UL 508)

Part Numbers	199AX, 199X, 199ABX ¹ , 199BX ¹	199ADX, 199DX, 199DYX, 199DBX ¹
Contact Characteristics		
Contact Configuration	SPST, SPDT, DPST, DPDT	SPST-DM, SPST-DB
Contact Material	AgSnO	
Thermal (Carrying) Current	40 A	
Maximum Switching Voltage	600 V(rms)	
Rated Switching Current at Voltage	Resistive: 40 A at 300 Vac 50/60 Hz; 5 A at 480 Vac 50/60 Hz; 5 A at 600 Vac 50/60 Hz; 40 A at 28 Vdc	Resistive: 40 A at 300 Vac 50/60 Hz; 12 A at 480 Vac 50/60 Hz; 10 A at 600 Vac 50/60 Hz; 40 A at 28 Vdc
	Motor: 2 hp at 120–600 Vac 50/60 Hz	
	Tungsten: 15 A at 120 Vac 50/60 Hz	
	Pilot Duty: A600	
Minimum Switching Requirement	1 A at 5 Vac/Vdc	
Coil Characteristics		
Coil Voltage Range ²	6–600 Vac 50/60 Hz; 6–250 Vdc ²	
Operating Range (% Of Nominal)	85%–110% (AC); 80%–110% (DC)	
Average Consumption (Maximum)	10 VA (AC); 4 W (DC)	
Drop-Out Voltage Threshold	10% (AC/DC)	
General Characteristics		
Electrical Life At Rated Load (Resistive)	Please refer to Table 3 on page 6	
Maximum Operating Time (Response Time)	30 ms	
Dielectric Strength	Between coil and contact: 2200 V	Between coil and contact: 2200 V
	Between poles: 2200 V	Between poles: 2200 V
	Between open contacts: 1600 V	Between open contacts: N/A
Storage Temperature Range	-55 – +100 °C (-67 – +212 °F)	
Operating Temperature Range	-55 – +55 °C (-67 – +131 °F)	
Maximum Wire Capacity	10 AWG (5.3 mm ²)	
Terminal Tightening Torque	11–15 in-lb (1.2–1.7 N•m)	
Weight	227–312 g (8–11 oz)	
Agency Approvals	UL (E43641), CSA (168986), CE (per IEC 60947-1), RoHS	

Note: Actual product performance may vary depending on application and environmental conditions.

¹ For ratings with blowout magnet, please refer to Table 1 below.

² For available standard coil voltages, please refer to the standard part number table on page 4.

Table 1: Additional DC Ratings with Blowout Magnet

Load Voltage	Contact Rating
110 Vdc	20 A
220 Vdc	8 A
325 Vdc	4 A
500 Vdc	2 A

Table 2: Auxiliary Switch Ratings (Non-Standard Option)

Load Type	Contact Rating
Resistive Load 120/250 Vac (50/60 Hz)	10 A
Motor Load 125/250 Vac (50/60 Hz)	0.25 hp
Tungsten Load 125 Vac (50/60 Hz)	3 A

* 50 A versions and additional options available. Call Customer Service for more information (847-441-2540).

Table 3: Contact Ratings & Electrical Endurance (per IEC 60947-1, 60947-4-1)

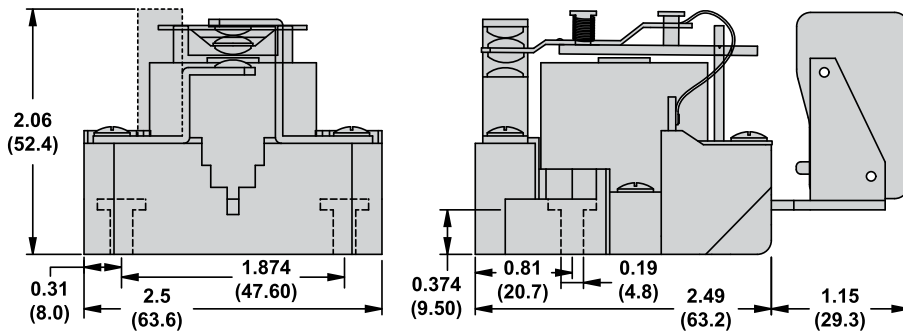
Contact Ratings	Load Voltage	Frequency	Load Type	Estimated Electrical Endurance	See Note(s)
AC Load					
40 A	300 V	50/60 Hz	Resistive	50,000 cycles	1, 3
2 hp	120–600 V		Motor	50,000 cycles	2, 3
15 A	120 V		Tungsten	20,000 cycles	3, 4
A600	---		Pilot Duty	100,000 cycles	3
DC Load					
40 A	28 V	DC	Resistive	100,000 cycles	3
20 A	110 V				
8 A	220 V				
4 A	325 V				
2 A	500 V				

Notes:

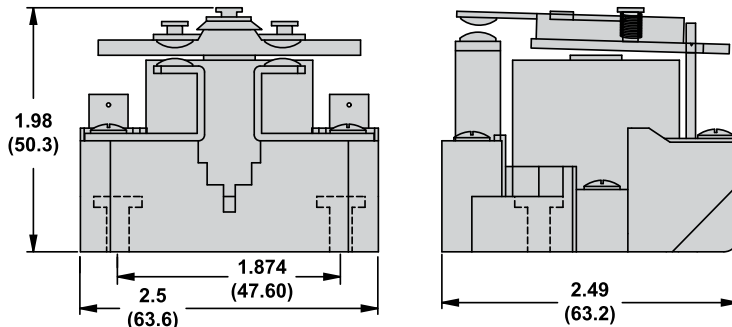
1. Resistive AC load ratings are based on a power factor of 0.85 to 1.0.
2. Motor horsepower ratings are based on a power factor of 0.4 to 0.5, and an initial inrush current not in excess of six times the full load current.
3. All ratings are based on applying the rated nominal power to the relay coil in such a manner as to provide a “clean” make and break that does not result in any contact chatter or multiple actuation of the contacts.
4. The tungsten rating is based on cold filament inrush current not exceeding 15 times the rated steady state lamp current.

Dimensions — inches (millimeters)

SPDT – Short Base (shown w/optional Auxiliary Switch)



SPST-NO-DM



* 50 A versions and additional options available. Call Customer Service for more information (847-441-2540).

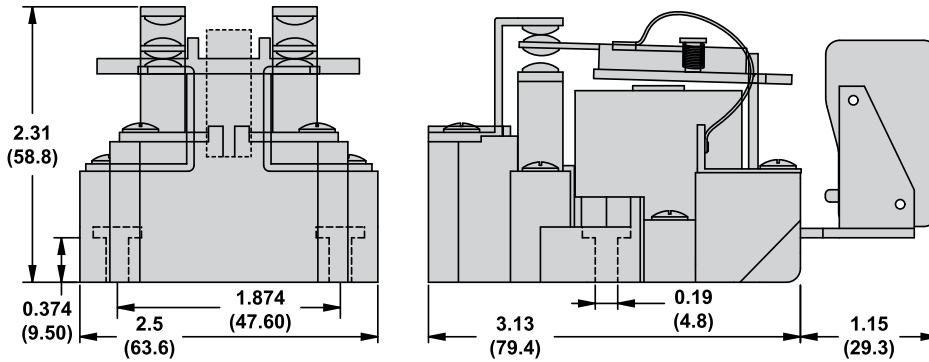
Magnecraft™ Power Relays

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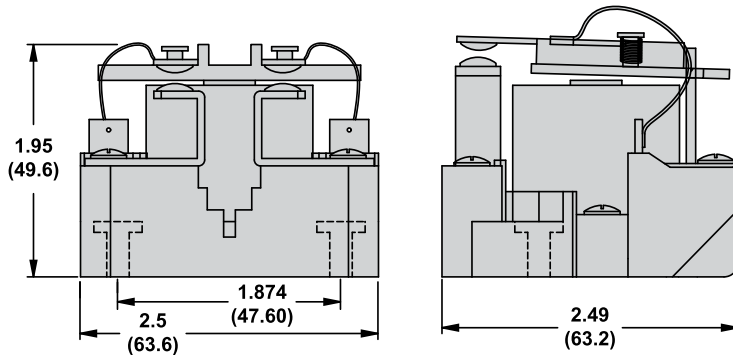
SPST-NO-DM, 40 A*; SPDT, 40 A;
DPST-NO, 40 A; DPDT, 40 A*

Dimensions — inches (millimeters)

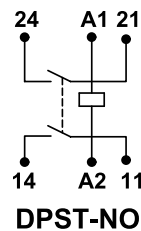
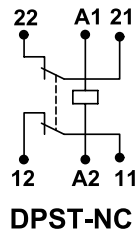
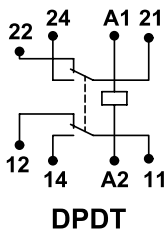
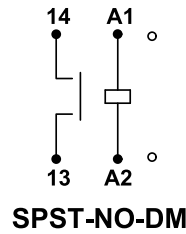
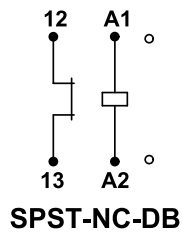
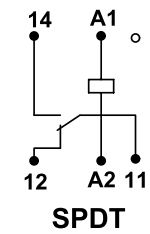
DPDT – Long Base (shown w/optional Auxiliary Switch)



DPST-NO



Wiring Diagrams



* 50 A versions and additional options available. Call Customer Service for more information (847-441-2540).

Magnecraft™ Power Relays

199

Metal Enclosure, 50-1289-1



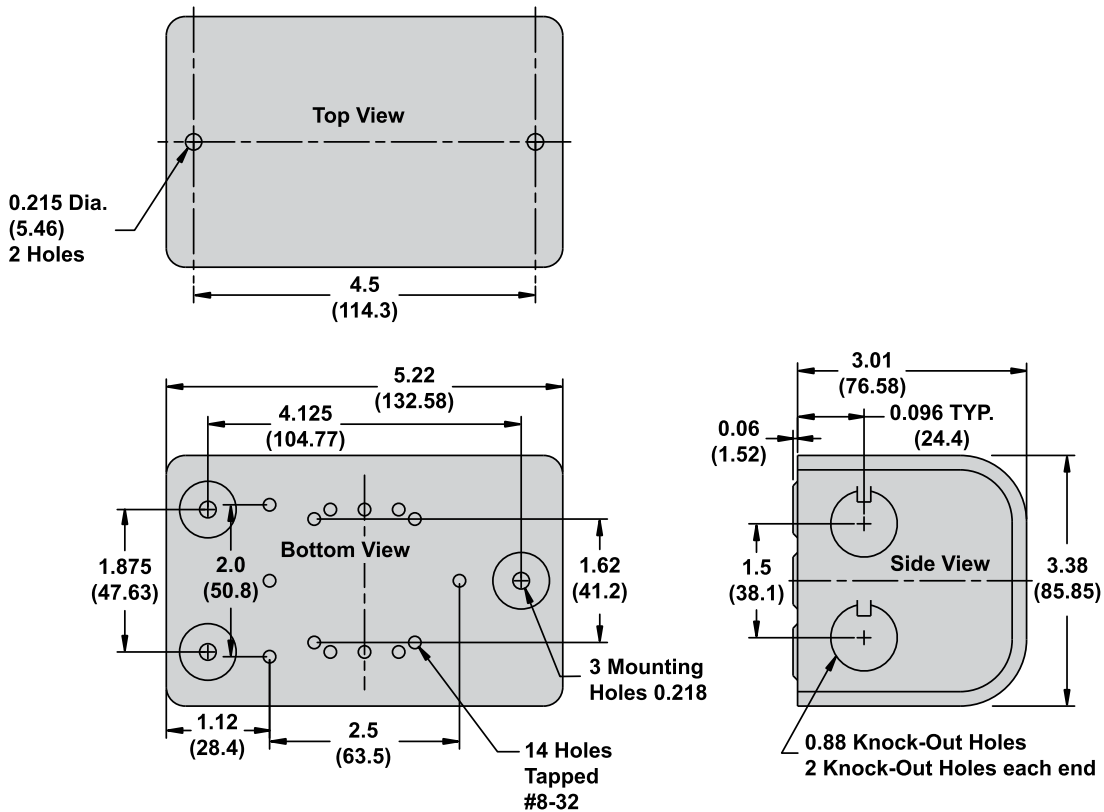
50-1289-1
Shown with 199 Relay

Description

The 50-1289-1 metal enclosure provides cover and protection as well as alternate wiring and mounting options.

Description	Function	Weight	For Use With Relays	Packaging Minimum	Standard Part Number
Metal Enclosure	Covers and protects relays	Approx. 1 lb (16 oz)	199 Series Relays	1	50-1289-1

Dimensions — inches (millimeters)



Description

Magnecraft™ Power Relays

725

SPST-NO, 30 A; DPST-NO, 25 A



Plug-In Socket Mount
Full-feature cover



Panel/DIN Mount
with screw terminals



Panel/DIN Mount
with blade terminals

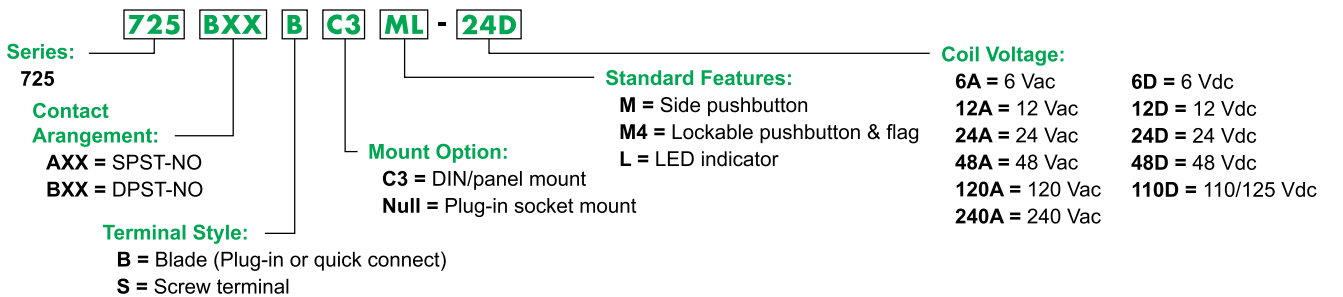
Description

The 725 series power relays offer high-capacity switching with high dielectric voltage resistance capabilities.

Feature	Benefit
High ratings (up to 30 A, 3 hp)	Meets demands for high power applications
4,000 V dielectric strength (coil to contacts)	Helps withstand severe voltage surges and spikes which provides protection for surrounding circuits
Multiple mounting options	Helps to increase functionality and ease of use
Full-feature cover (Plug-in socket mount)	Offers push-to-test button, lock-down door, LED, flag indicators and ID tag to simplify and expedite installation and testing
Fingersafe™ cover (on relays with screw terminals)	Helps prevent the operator from touching live circuits (IP20 degree of protection)

Rated Contact Current	Contact Configuration	Coil Voltage	Coil Resistance (Ω)	Mounting Style	Terminal Style	Standard Part Number
25 A	DPST-NO	24 Vac	275	DIN & panel	Blade terminals	725BXXBC3ML-24A
					Screw terminals	725BXXSC3ML-24A
		120 Vac	5200	DIN & panel	Blade terminals	725BXXBC3ML-120A
					Screw terminals	725BXXSC3ML-120A
		240 Vac	21000	DIN & panel	Blade terminals	725BXXBC3ML-240A
					Screw terminals	725BXXSC3ML-240A
		12 Vdc	75	DIN & panel	Blade terminals	725BXXBC3ML-12D
					Screw terminals	725BXXSC3ML-12D
		24 Vdc	300	DIN & panel	Blade terminals	725BXXBC3ML-24D
					Screw terminals	725BXXSC3ML-24D
30 A	SPST-NO	24 Vac	300	DIN & panel	Blade terminals	725AXXBC3ML-24D
					Screw terminals	725AXXSC3ML-24D
		120 Vac	5200	DIN & panel	Blade terminals	725AXXBC3ML-120A
					Screw terminals	725AXXSC3ML-120A
		240 Vac	21000	DIN & panel	Blade terminals	725AXXBC3ML-240A
					Screw terminals	725AXXSC3ML-240A
		12 Vdc	75	DIN & panel	Blade terminals	725AXXBC3ML-12D
					Screw terminals	725AXXSC3ML-12D
		24 Vdc	275	DIN & panel	Blade terminals	725AXXBC3ML-24A
					Screw terminals	725AXXSC3ML-24A

Part Number Explanation



Specifications (UL 508)

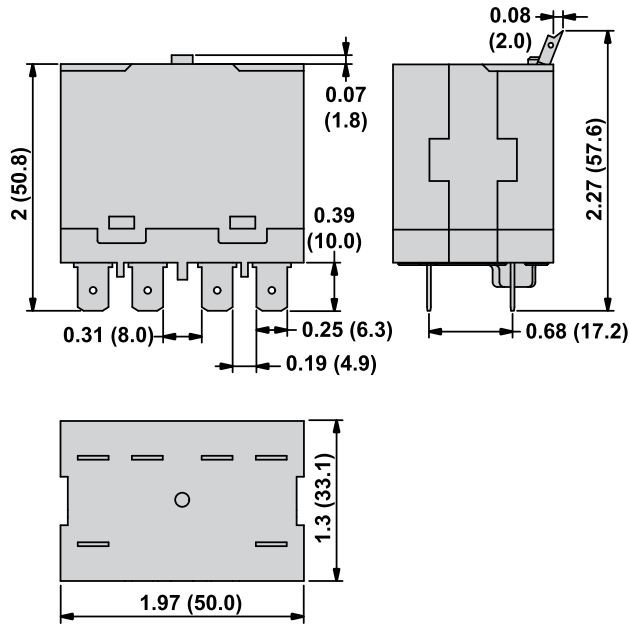
Part Number	725AXX	725BXX
Contact Characteristics		
Contact Configuration	SPST-NO	DPST-NO
Contact Material	Silver Alloy	
Thermal (Carrying) Current	30 A	25 A
Maximum Switching Voltage	300 V	
Current Ratings at Voltage	Resistive: 30 A at 277 Vac 50/60 Hz; 30 A at 30 Vdc Motor: 1.5 hp at 120 Vac 50/60 Hz; 3.0 hp at 277 Vac 50/60 Hz Tungsten: 1.5 kW at 120 Vac 50/60 Hz	Resistive: 25 A at 277 Vac 50/60 Hz; 25 A at 30 Vdc Motor: 1.0 hp at 120 Vac 50/60 Hz; 2.0 hp at 277 Vac 50/60 Hz Tungsten: 1.3 kW at 120 Vac 50/60 Hz
Minimum Switching Requirement	100 mA at 5 Vdc (0.5 W)	
Coil Characteristics		
Coil Voltage Range ¹	6–240 Vac 50/60 Hz (All AC coils are rectified); 6–110/125 Vdc ¹	
Operating Range (% of Nominal)	75%–110% (AC/DC)	
Average Consumption	2.5 VA (AC); 1.9 W (DC)	
Insulation System Per UL 508	Class B (130 °C)	
General Characteristics		
Electrical Life at Rated Load	100,000 operations	
Mechanical Life at No Load (Unpowered)	5,000,000 operations	
Operate Time at Nominal Coil Voltage	30 ms (max)	
Release Time at Nominal Coil Voltage	30 ms (max)	
Dielectric Strength	Coil–contacts: 4,000 V (rms) Across open contacts: 2,000 V (rms) Pole–pole: 2,000 V (rms) (DPST-NO version only) Insulation resistance: 1,000 megaohms at 500 Vdc (minimum)	
Operating Temperature Range	-20 – +55 °C (-4 – +131 °F)	
Storage Temperature Range	-50 – +100 °C (-58 – +212 °F)	
Quick Connect Terminals	0.25 x 0.031 in (6.35 x 0.80 mm)	
Screw Terminals	Coil: M3.5 combination head; Contacts: M4 combination head	
Screw Terminal Torque	Coil and load: 1.2 N•m (10.6 lb in) nominal; 2.3 N•m (20.3 lb in) maximum	
Screw Terminal Maximum Wire Gauge	Load: 10 AWG (5.26 mm ²); Coil: 12 AWG (3.3 mm ²)	
Cover Protection Category	IP20 (screw terminals only)	
Weight (Average)	120 g (4.2 oz)	
Product Certifications	UL (E43641), CSA (168986), CE (per IEC 60947-1), RoHS	

Note: Actual product performance may vary depending on application and environmental conditions.

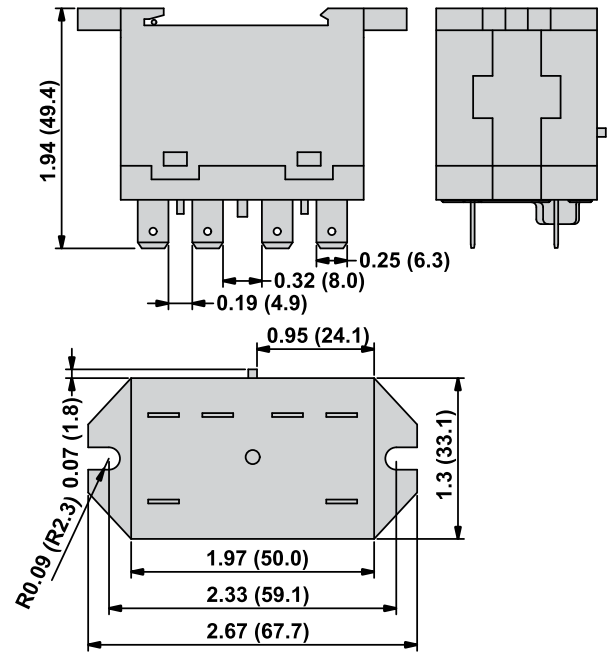
¹ For available standard coil voltages, please refer to the standard part number table on page 9.

Dimensions — inches (millimeters)

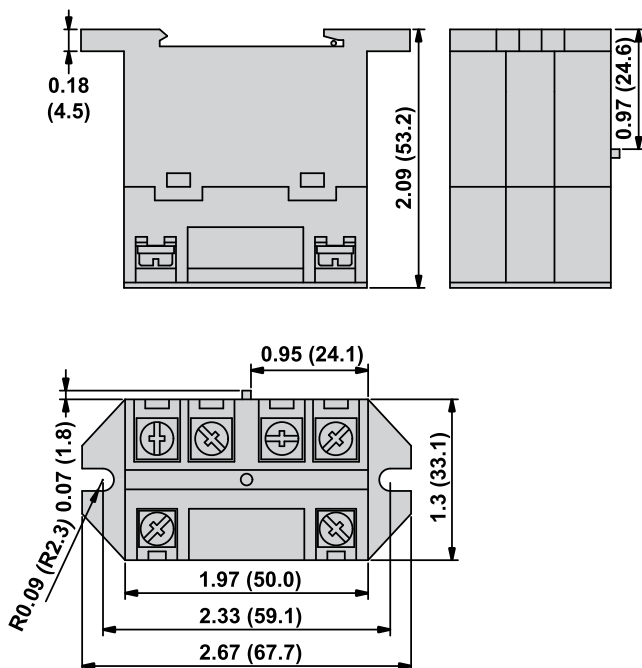
Plug-in Socket Mount (Blade Terminals)



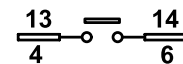
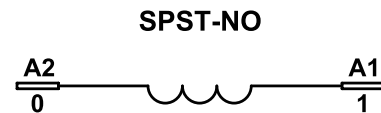
C3 – DIN/Panel Mount (Blade Terminals)



C3 – DIN/Panel Mount (Screw Terminals)



Wiring Diagrams



Magnecraft™ Power Relays

725

Socket, 70-725-1; Panel Mount Adapter, 16-725C1
Spring Clip, 16-725SC; Socket Modules, 70-ASM



Description

The 725 accessories create a complete system solution for all your application needs.

The 70-725-1 socket offers an alternate installation option for plug-in models. The 16-725SC retention clip holds the relay securely in place while allowing quick and efficient installation and maintenance.

Relay Accessories

Description	Function	For Use With Relays	Packaging Minimum	Standard Part Number
Socket	Offers an alternate installation option	725 Relays with plug-in socket mount cover	10	70-725-1
Panel Mount Adapter	Provides additional panel mount option.	725 Relays with plug-in socket mount cover	10	16-725C1

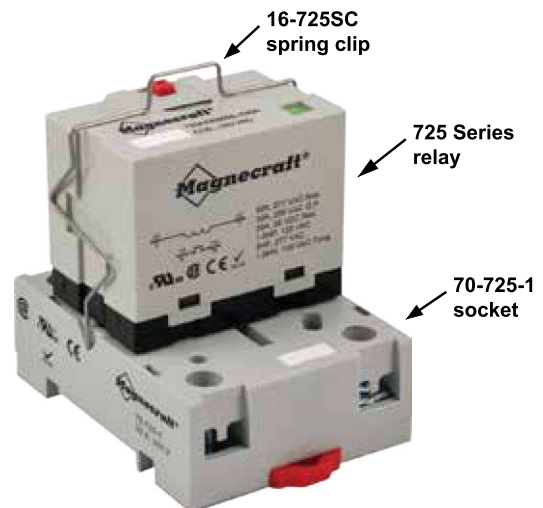
Socket Accessories

Description	Function	Coil Voltage	For Use With Sockets	Packaging Minimum	Standard Part Number
Socket Module*	LED Indicator	120/240 Vac/Vdc	70-725-1	10	70-ASMLG-110/240
	MOV Suppressor	24 Vac/Vdc	70-725-1	10	70-ASMM-24
		120 Vac/Vdc	70-725-1	10	70-ASMM-120
		240 Vac/Vdc	70-725-1	10	70-ASMM-240
	Protection Diode	6 to 250 Vdc	70-725-1	10	70-ASMD-250
	RC Circuit	6 to 24 Vac/Vdc	70-725-1	10	70-ASMR-240
Spring Clip	Relay retention in high vibration conditions	N/A	70-725-1	10	16-725SC

* Use of LED or RC socket module may increase coil power draw by up to 10%. See page 30 for more information.

Socket Specifications (UL 508)

Part Number	70-725-1
Number of Terminals	6
Nominal Voltage Rating	300 V
Nominal Current Rating	30 A
Dielectric Strength	Between adjacent output terminals: 1600 V(rms); Output to input terminals: 1600 V(rms); Terminals to rail/chassis: 1600 V(rms)
Temperature Range	Operation: -40 – +55 °C (-40 – +131 °F); Storage: -40 – +105 °C (-40 – +221 °F)
Protection Category (Fingersafe™)	IP20
Internal Metal Tracks	Copper alloy, Tin plated
Screw Terminals	Steel, Zinc plated combination head
Maximum Screw Torque	10.6 lb-in (1.2 N•m)
Mounting Style	35 mm DIN rail
Wire Connection Method	Screw terminals
Maximum Wire Size	Solid Cu (1): 20 AWG; 6.0 mm ² (2): 10/20 AWG; 6.0/0.5 mm ² Stranded Cu (1 & 2): 10/20 AWG; 6.0/0.5 mm ²
Flammability Rating	94V-0
Weight	2.4 oz (67 g)
Product Certifications	UL (E70550), CSA (40787), CE (per IEC 61810), RoHS



Relay Mounting Example:

Dimensions, Wiring Diagram

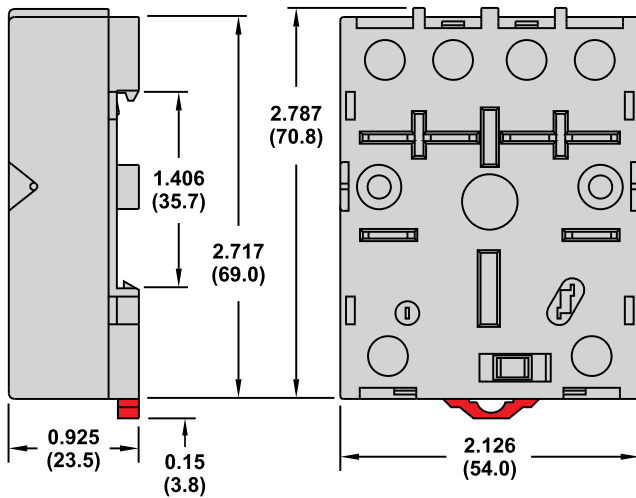
Magnecraft™ Power Relays

725

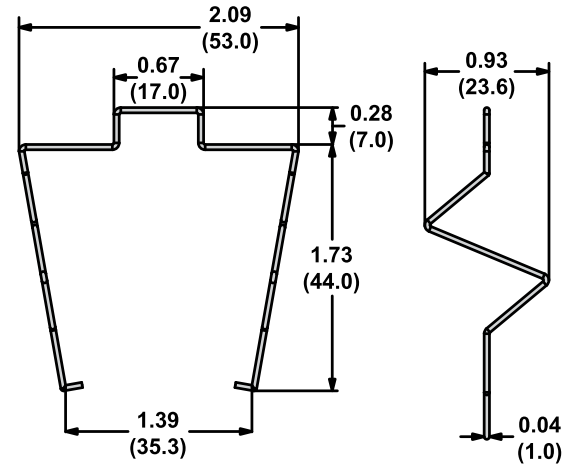
Socket, 70-725-1; Panel Mount Adapter, 16-725C1
Spring Clip, 16-725SC; Socket Modules, 70-ASM

Dimensions — inches (millimeters)

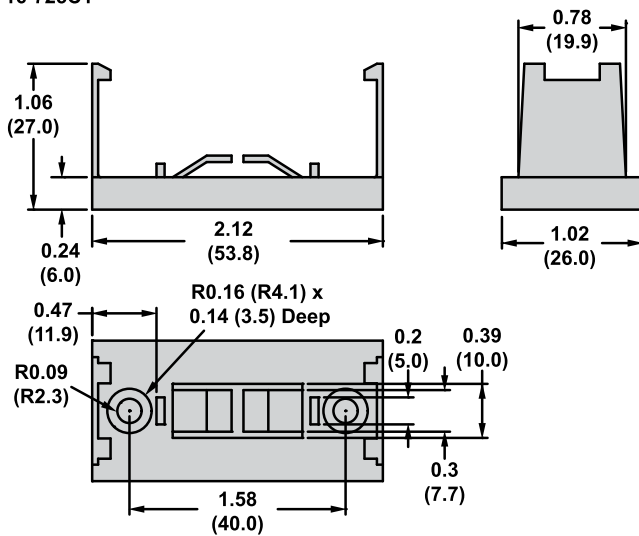
70-725-1



16-725SC

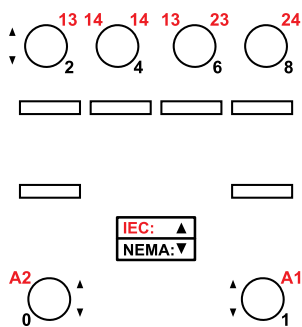


16-725C1



Wiring Diagram

70-725-1



Description

Magnecraft™ Power Relays

389F

SPST, 30 A; DPDT, 20 to 25 A;

SPDT, 25 to 30 A; 3PDT, 20 A



Plug-In (Socket) Cover

Side Flange Cover

Description

The 389F series power relays offer a broad range of contact ratings along with a variety of panel, DIN and socket mount options and accessories, making it the ideal solution for a variety of application requirements.

Feature	Benefit
High-power contacts	High contact ratings (up to 30 A, 1.5 hp) and long electrical endurance; suitable for high-power switching applications
Ballast load ratings	Ideal for lighting controls
Multiple contact configurations	Meets a wide variety of applications
Socket mountable (plug-in cover only)	Helps increase design and installation flexibility; allows the use of modules and other accessories
RoHS compliant	Environmentally friendly; Complies with the European Restriction of Hazardous Substances directive

Rated Contact Current	Contact Configuration	Coil Voltage	Coil Resistance (Ω)	Cover Style	Standard Part Number
20 A	3PDT	24 Vac	46	Plug-in (socket)	389FXCXC-24A
		120 Vac	1200	Plug-in (socket)	389FXCXC-120A
				Side flange	389FXCXC1-120A
		240 Vac	4600	Side flange	389FXCXC1-240A
		12 Vdc	100	Side flange	389FXCXC1-12D
		24 Vdc	400	Side flange	389FXCXC1-24D
25 A	DPDT	24 Vac	72	Plug-in (socket)	389FXBXC-24A
				Side flange	389FXBXC1-24A
		120 Vac	1700	Plug-in (socket)	389FXBXC-120A
				Side flange	389FXBXC1-120A
		240 Vac	7200	Side flange	389FXBXC1-240A
	12 Vdc	100	Side flange	389FXBXC1-12D	
	24 Vdc	400	Plug-in (socket)	389FXBXC-24D	
			Side flange	389FXBXC1-24D	
	SPDT	120 Vac	1700	Side flange	389FXAXC1-120A
		12 Vdc	100	Side flange	389FXAXC1-12D
24 Vdc		400	Side flange	389FXAXC1-24D	
120 Vac		1100	Side flange	389FXHXC1-120A	
12 Vdc		100	Side flange	389FXHXC1-12D	
30 A	SPDT-DM-DB	24 Vdc	400	Side flange	389FXHXC1-24D
		120 Vac	1100	Side flange	389FHXC1-120A
		12 Vdc	100	Side flange	389FHXC1-12D
	SPST-NO-DM	120 Vac	1100	Side flange	389FHXC1-120A
	24 Vdc	400	Side flange	389FHXC1-24D	

Part Number Explanation

Series: **389F** Contact Arrangement: **XBX** Cover Style: **C** Coil Voltage: **24A**

Series:
389F

Contact Arrangement:
XAX = SPDT
XBX = DPDT
XCX = 3PDT
XHX = SPDT-DM-DB
HXX = SPST-NO-DM

Cover Style:
C = Plug-in socket mount
C1 = Side flange mount

Coil Voltage:

12A = 12 Vac **12D** = 12 Vdc
24A = 24 Vac **24D** = 24 Vdc
48A = 48 Vac **48D** = 48 Vdc
120A = 120 Vac **110D** = 110/125 Vdc
240A = 240 Vac

Magnecraft™ Power Relays

389F

SPST, 30 A; DPDT, 20 to 25 A;

SPDT, 25 to 30 A; 3PDT, 20 A

Specifications (UL 508)

Part Number	389FXAX, XBX	389FXCX	389FXHX, HXX
Contact Characteristics			
Contact Configuration	SPDT; DPDT	3PDT	SPST-NO-DM; SPDT-DM-DB
Contact Material	Silver Alloy		
Thermal (Carrying) Current	25 A	20 A	30 A
Maximum Switching Voltage	600 V	300 V	600 V
Current Ratings at Voltage	Resistive: 25 A at 300 Vac 50/60 Hz; 13 A at 28 Vdc Motor: 1.5 hp at 208–240 Vac 50/60 Hz; 1 hp at 120 & 480–600 Vac 50/60 Hz Pilot Duty: B600 FLA/LRA: 22/98 A at 120 Vac Ballast: 20 A, 277 Vac 50/60 Hz	Resistive: 20 A at 150 Vac 50/60 Hz; 13 A at 28 Vdc Motor: 0.5 hp at 208–240 Vac 50/60 Hz; 0.5 hp at 120 Vac 50/60 Hz Pilot Duty: B300 FLA/LRA: 22/98 A at 120 Vac Ballast: 20 A, 150 Vac 50/60 Hz	Resistive: 30 A at 300 Vac 50/60 Hz; 30 A at 28 Vdc Motor: 1.5 hp at 200–600 Vac 50/60 Hz; 1 hp at 120–200 Vac 50/60 Hz Pilot Duty: A600 FLA/LRA: 22/98 A at 120 Vac 17/60 A at 300 Vac Ballast: 25 A, 277 Vac 50/60 Hz
Minimum Switching Requirement	100 mA at 5 Vdc (0.5 W)		
Coil Characteristics			
Coil Voltage Range ¹	12–240 Vac 50/60 Hz; 12–110 Vdc ¹		
Operating Range (% of Nominal)	85%–110% (AC); 80%–110% (DC)		
Average Consumption	2–3.5 VA (AC); 1.5 W (DC)		
Drop-Out Voltage Threshold	10% minimum (AC/DC)		
General Characteristics			
Electrical Life at Rated Load	50,000 operations		
Mechanical Life at No Load (Unpowered)	5,000,000 operations		
Operate Time at Nominal Coil Voltage	20 ms (maximum)		
Dielectric Strength	Between coil and contact: 2200 Vac Between poles: 2200 Vac Between contacts: 1600 Vac		
Operating Temperature Range	-30 – +55 °C (-22 – +131 °F)		
Storage Temperature Range	-30 – +100 °C (-22 – +212 °F)		
Weight (Average)	95 g (3.3 oz)		
Product Certifications	UL (E43641), CE (per IEC 60947), CSA (168986)		

Note: Actual product performance may vary depending on application and environmental conditions.

¹ For available standard coil voltages, please refer to the standard part number table on page 14.

Magnecraft™ Power Relays

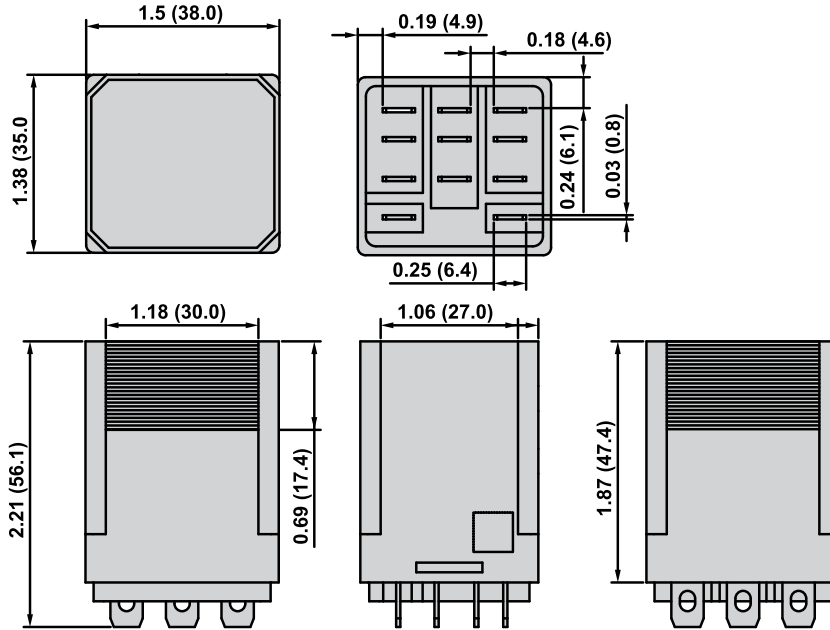
389F

SPST, 30 A; DPDT, 20 to 25 A;

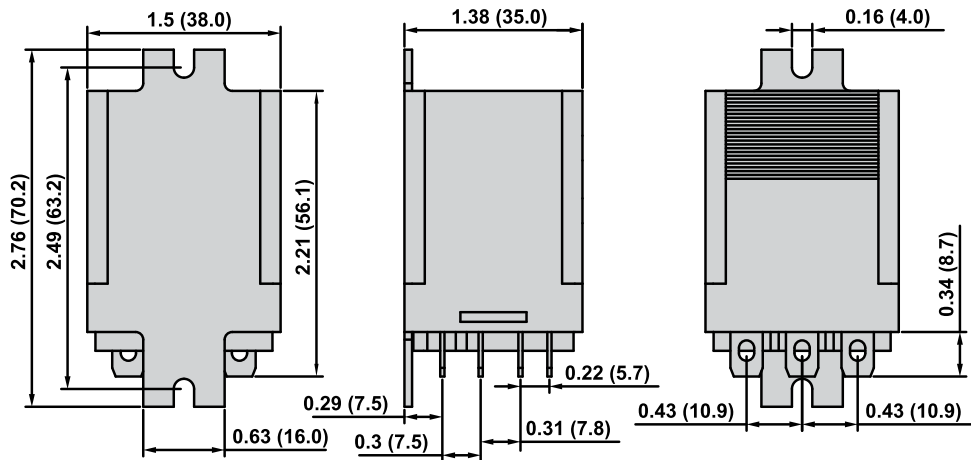
SPDT, 25 to 30 A; 3PDT, 20 A

Dimensions — inches (millimeters)

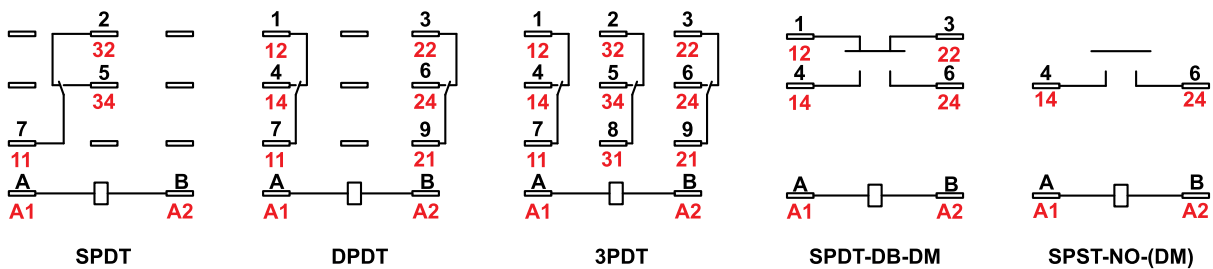
Plug-in Cover Style



Side Flange Cover Style



Wiring Diagrams



NEMA
IEC



Description

The 389F accessories create a complete system solution for all your application needs.



70-788EL11-1



70-ASM



16-750/788FT-1



16-788C1



16-DCLIP-1 & 16-700DIN

Relay Accessories

Description	Function	For Use With Relays	Packaging Minimum	Standard Part Number
Socket	Offers an alternate installation option	389F relays with plug-in (socket) cover	10	70-788EL11-1

Socket Accessories

Description	Function	Coil Voltage	For Use With Sockets	Packaging Minimum	Standard Part Number
Socket Module*	LED Indicator	120/240 Vac/Vdc	70-788EL11-1	10	70-ASMLG-110/240
	MOV Suppressor	24 Vac/Vdc	70-788EL11-1	10	70-ASMM-24
		120 Vac/Vdc	70-788EL11-1	10	70-ASMM-120
		240 Vac/Vdc	70-788EL11-1	10	70-ASMM-240
	Protection Diode	6–250 Vdc	70-788EL11-1	10	70-ASMD-250
RC Circuit	6–24 Vac/Vdc	70-788EL11-1	10	70-ASMR-240	
ID Tag/Label*	Identification of circuits in multi-relay applications	N/A	70-788EL11-1	10	16-750/788FT-1
Panel Mount Adapter	Mounting socket to a panel	N/A	70-788EL11-1	10	16-788C1
Metal DIN Rail*	Quick installation and removal of sockets	N/A	70-788EL11-1	20	16-700DIN
DIN Rail Clip*	Holds sockets firmly in place on DIN rail	N/A	70-788EL11-1	10	16-DCLIP-1

* Use of LED or RC socket module may increase coil power draw by up to 10%. See page 30 for more information.

Socket Specifications (UL 508)

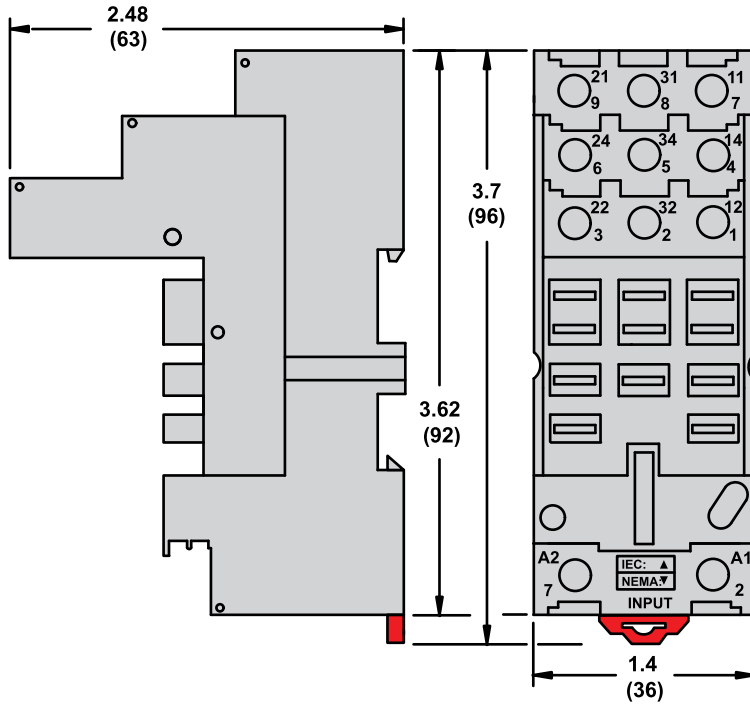
Part Number	70-788EL11-1
Number of Terminals	11
Nominal Voltage Rating	300 V
Nominal Current Rating	25 A
Dielectric Strength	Between adjacent output terminals: 3000 V(rms); Output to input terminals: 3000 V(rms); Terminals to rail/chassis: 3000 V(rms)
Temperature Range	Operation: -40 – +80 °C (-40 – +176 °F); Storage: -40 – +105 °C (-40 – +221 °F)
Protection Category (Fingersafe™)	IP20
Internal Metal Tracks	Copper alloy, Tin plated
Screw Terminals	Steel, Zinc plated combination head
Maximum Screw Torque	9.0 lb-in (1.0 N•m)
Mounting Style	35 mm DIN rail; mounts to panel with 16-788C1 adapter
Wire Connection Method	Elevator terminals
Maximum Wire Size	Solid Cu (2): 10/12 AWG; 6.0/4.0 mm ² ; Stranded Cu (2): 10/12 AWG; 6.0/4.0 mm ²
Flammability Rating	94V-0
Weight	3.39 oz (96 g)
Product Certifications	UL (E70550), CSA (40787), CE (per IEC 61984), RoHS



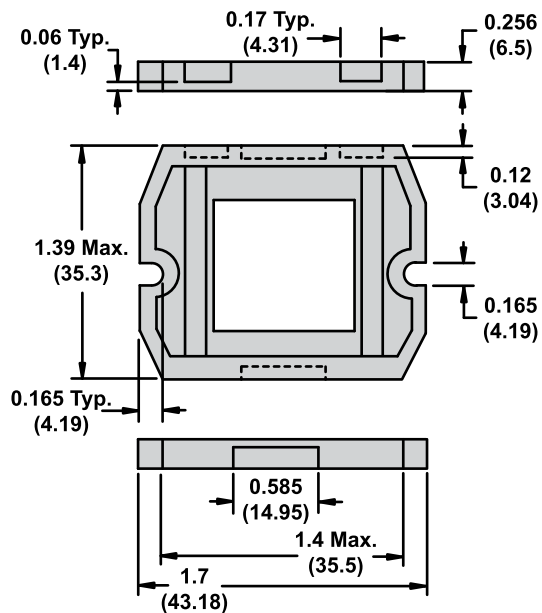
Relay Mounting Example

Dimensions — inches (millimeters)

70-788EL11-1

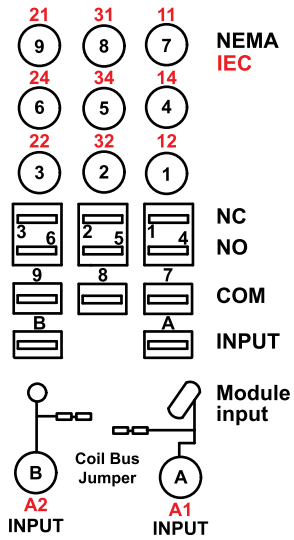


16-788C1 Panel Mount Adapter for 70-788EL11 socket



Wiring Diagram

70-788EL11-1



Description

Magnecraft™ Power Relays

300
DPDT, 30 A



Side Flange Cover



Top DIN Mount Cover

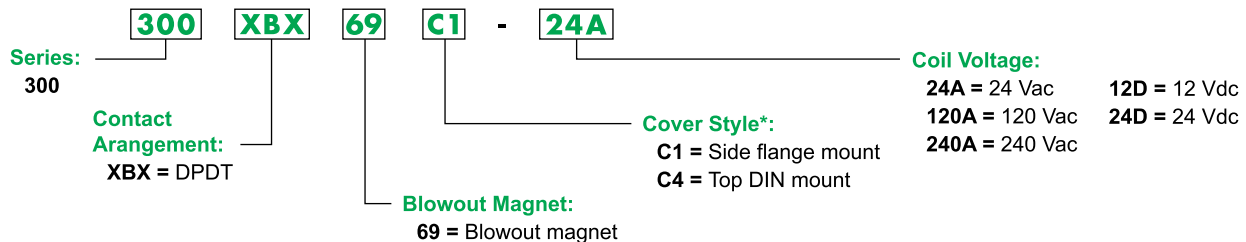
Description

The 300 series power relays offer 2 mm (0.08 in) contact gaps and 8 mm (0.3 in) creepage and clearance which meets international requirements. Options include a variety of covers, mounting solutions, and a blowout magnet for high voltage DC switching.

Feature	Benefit
High-power contacts	High contact ratings (up to 30 A, 2 hp) and long electrical endurance; suitable for high-power switching applications
Improved dielectric strength	4000 V(rms) between mutually isolated conductive elements and frame
Increased spacing between stationary contact terminals	Enables fully booted Quick Connect terminals
Blowout magnet option	Ideal for DC voltage switching

Rated Contact Current	Contact Configuration	Coil Voltage	Coil Resistance (Ω)	Cover Style	Standard Part Number
30 A	DPDT	24 Vac	54	Side flange mount	300XBXC1-24A
		120 Vac	1270	Side flange mount	300XBXC1-120A
				Top DIN mount	300XBXC4-120A
		240 Vac	5400	Side flange mount	300XBXC1-240A
		12 Vdc	75	Side flange mount	300XBXC1-12D
				Side flange mount	300XBXC1-24D
		24 Vdc	300	Top DIN mount	300XBXC4-24D
				Top DIN mount (with magnetic blowout)	300XB69C4-24D

Part Number Explanation



*Additional cover styles available. Contact Customer Service at 847-441-2540.

Specifications (UL 508)

Part Number	300XB¹
Contact Characteristics	
Contact Configuration	DPDT
Contact Material	Silver Alloy
Thermal (Carrying) Current	30 A
Maximum Switching Voltage	600 V
Current Ratings at Voltage ¹	Resistive: 30 A at 300 Vac 50/60 Hz; 30 A at 28 Vdc; 15 A at 600 Vac 50/60 Hz Motor: 1 hp at 120 Vac 50/60 Hz; 2 hp at 208–600 Vac 50/60 Hz; Pilot Duty: 5.5 A at 120 Vac 50/60 Hz; 1.2 A at 600 Vac 50/60 Hz
Minimum Switching Requirement	500 mA at 12 Vac/Vdc
Coil Characteristics	
Coil Voltage Range ²	24–240 Vac 50/60 Hz; 12–110 Vdc ²
Operating Range (% of Nominal)	85%–110% (AC); 80%–110% (DC)
Average Consumption	3.4 VA (AC); 1.5 W (DC)
Drop-out voltage threshold	30% (AC); 10% (DC)
General Characteristics	
Electrical Life at Rated Load	30,000 operations
Mechanical Life at No Load (Unpowered)	5,000,000 operations
Operate Time at Nominal Coil Voltage	20 ms
Dielectric Strength	Between coil and contact: 2500 Vac; Between poles: 4000 Vac; Between contacts: 2500 Vac;
Operating Temperature Range	-40 – +55 °C (-40 – +131 °F)
Storage Temperature Range	-40 – +85 °C (-40 – +185 °F)
Weight (Average)	85 g (3 oz)
Product Certifications	UL (E43641), CSA (168986)

Note: Actual product performance may vary depending on application and environmental conditions.

¹ For ratings with blowout magnet, please refer to Table 1 below.

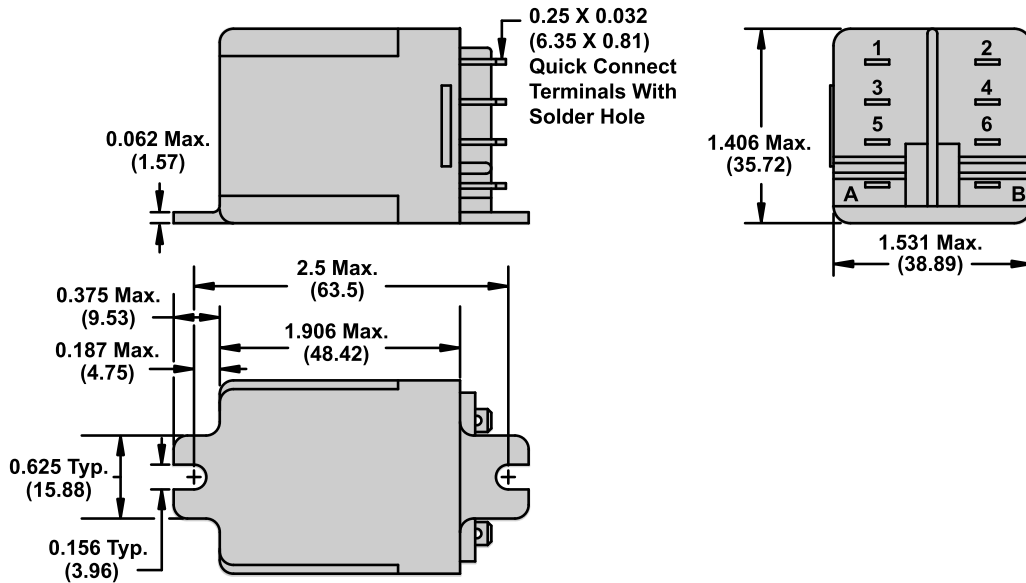
² For available standard coil voltages, please refer to the standard part number table on page 20.

Table 1: Additional DC Ratings with Blowout Magnet

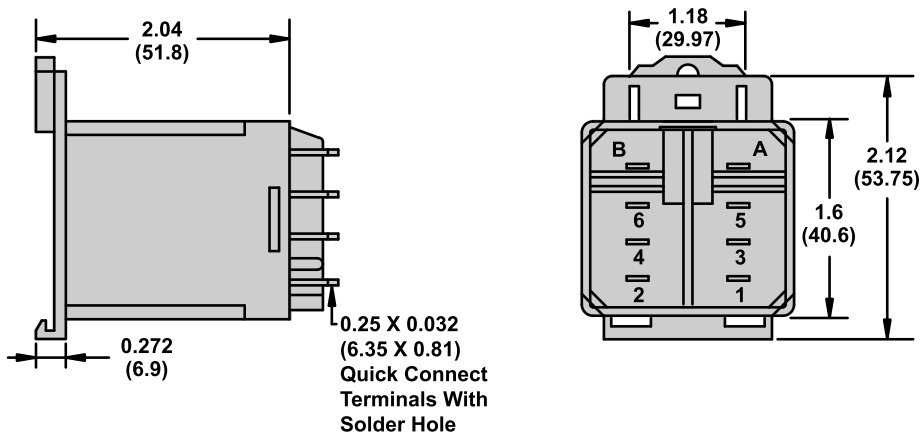
Load Voltage	Contact Rating
150 Vdc	3 A

Dimensions — inches (millimeters)

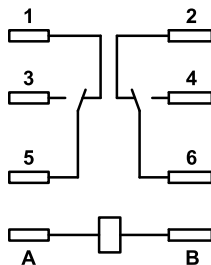
Side Flange Mount Cover



TOP DIN MOUNT COVER



Wiring Diagram



DPDT

Description

Magnecraft™ Power Relays

92

DPST-NO, 30 A;

DPDT, 30 A (NO) / 3 A (NC)



92S11A22D

Description

The 92 series power relays offer a small package size and features Class F insulation for a maximum coil temperature of 155 °C (311 °F). These power relays meet UL508 spacing and are directly DIN or panel mountable.

Feature	Benefit
Standard Class F insulation	Allows for maximum coil temperature of 155 °C (311 °F) which is ideal for elevated temperature applications
DIN and panel mount cover	Mounts directly onto DIN rail or panel and provides flexibility to accommodate last minute design changes
Sealed construction	Suitable for washing to remove flux residues

Rated Contact Current	Contact Configuration	Coil Voltage	Coil Resistance (Ω)	Standard Part Number
30 A	DPST-NO	24 Vac	170 ¹	92S7A22D-24
		120 Vac	4250 ¹	92S7A22D-120
		240 Vac	15600 ¹	92S7A22D-240
		12 Vdc	86	92S7D22D-12
		24 Vdc	350	92S7D22D-24
30 A (NO) / 3 A (NC)	DPDT	24 Vac	170 ¹	92S11A22D-24
		120 Vac	4250 ¹	92S11A22D-120
		240 Vac	16500 ¹	92S11A22D-240
		12 Vdc	86	92S11D22D-12
		24 Vdc	350	92S11D22D-24

¹ All AC coils are rectified.

Part Number Explanation

Series: **92** **S** **7** **A** **22D** - **24**

Series:
92

Cover:
S = Dust cover

Contact Configuration:
7 = DPST-NO
11 = DPDT

Coil Type:
A = AC
D = DC

Mounting Style:
22D = DIN rail and panel mount cover

Coil Voltage:

12 = 12 V 120 = 120 V
24 = 24 V 240 = 240 V

Note: Available coil voltages include 12 Vdc, 24 Vac, 24 Vdc, 120 Vac, and 240 Vac.

Specifications

Part Number	92S7	92S11
Contact Characteristics		
Contact Configuration	DPST-NO	DPDT
Contact Material	Silver Alloy	
Thermal (Carrying) Current	30 A	30 A (NO); 3 A (NC)
Maximum Switching Voltage (Conforming to IEC)	250 Vac / 28 Vdc	
Maximum Switching Voltage (Conforming to UL)	300 Vac / 28 Vdc	
Current Ratings at Voltage (Conforming to IEC)	(NO) 30 A at 250 Vac; 30 A at 28 Vdc	(NO) 30 A at 250 Vac; 30 A at 28 Vdc (NC) 3 A at 250 Vac; 3 A at 28 Vdc
Current Ratings at Voltage (Conforming to UL)	(NO) General Use: 30 A at 277 Vac Resistive: 20 A at 28 Vdc Motor: 1.0 hp at 120 Vac; 3.0 hp at 240 Vac LRA/FLA : 96 A / 22 A @ 240 Vac (AC coil), 30,000 cycles 110 A / 25.3 A @ 240 Vac (DC coil), 30,000 cycles Pilot Duty: 720 VA / A 300, 6000 cycles Short Circuit: 5000 A rms @ 240 Vac Tungsten: 10 A at 120 Vac 50/60 Hz, 25,000 cycles 6 A at 250 Vac 50/60 Hz, 25000 cycles	(NO) General Use: 30 A at 277 Vac Resistive: 20 A at 28 Vdc Motor: 1.0 hp at 120 Vac; 3.0 hp at 240 Vac LRA/FLA : 96 A / 22 A @ 240 Vac (AC coil), 30,000 cycles 110 A / 25.3 A @ 240 Vac (DC coil), 30,000 cycles Pilot Duty: 720 VA / A 300, 6000 cycles Short Circuit: 5000 A rms @ 240 Vac Tungsten: 10 A at 120 Vac 50/60 Hz, 25,000 cycles 6 A at 250 Vac 50/60 Hz, 25000 cycles (NC) Resistive: 3 A at 277 Vac (6000 cycles); 3 A at 28 Vdc
Switching capacity	Maximum: 7500 VA / 840 W (when mounted with 13 mm gap between 2 relays); 6250 VA / 700 W (when mounted side by side without a gap) Minimum: 170 mW	
Minimum Switching Requirements.	10 mA at 17 V	
Coil Characteristics		
Coil Voltage Range ¹	24–240 Vac ² 50/60 Hz; 12–110 Vdc	
Operating Range (% of Nominal)	80%–120% (AC); 75%–120% (DC)	
Average Consumption	4 VA (AC); 1.7 W (DC)	
Drop-out Voltage Threshold	15% minimum (AC); 10% minimum (DC)	
General Characteristics		
Electrical Life at Rated Load	Resistive load: 100,000 cycles, unless otherwise specified under rated operational current Inductive load: See load curves on page 25.	
Mechanical Life at No Load (Unpowered)	50,000,000 operations	
Operate Time (Response Time) at Nominal Coil Voltage	25 ms maximum	
Rated Impulse Withstand	4000 V (1.2 μs / 50 μs)	
Dielectric Strength	Between coil and contact: 4000 Vac (reinforced insulation) Between poles: 2000 Vac (basic insulation) Between contacts: 1500 Vac (micro-disconnection)	
Operating Temperature Range	-40 – +55 °C (-40 – +131 °F)	
Storage Temperature Range	-40 – +85 °C (-40 – +185 °F)	
Vibration Resistance	3 g-n, 10–55 Hz	
Shock Resistance	10 g-n (in operation) / 30 g-n (not in operation)	
Weight (Average)	0.082 kg (0.181 oz)	
Conformity to Standards	IEC/EN 61810-1, UL 508, CSA C22-2 n°14	
Product Certifications and Standards	UL Listed (E48539), CSA (2582574), CE, RoHS	

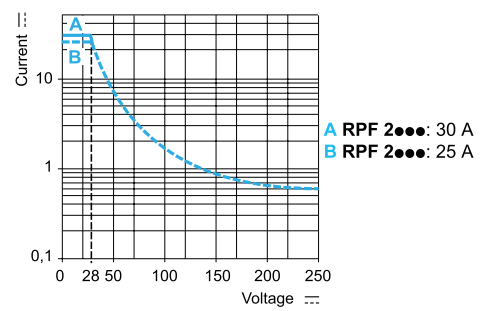
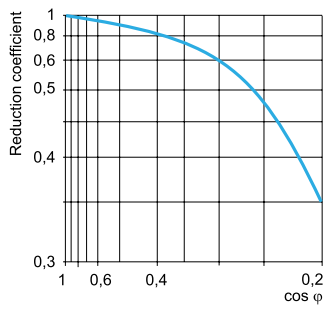
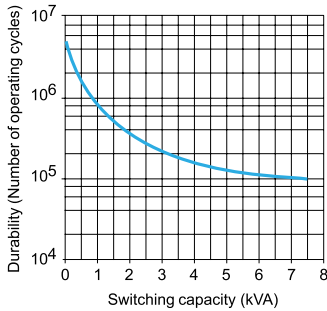
Note: Actual product performance may vary depending on application and environmental conditions.

¹ For available standard coil voltages, please refer to the standard part number table on page 23.

² All AC coils are rectified.

Specifications (continued)

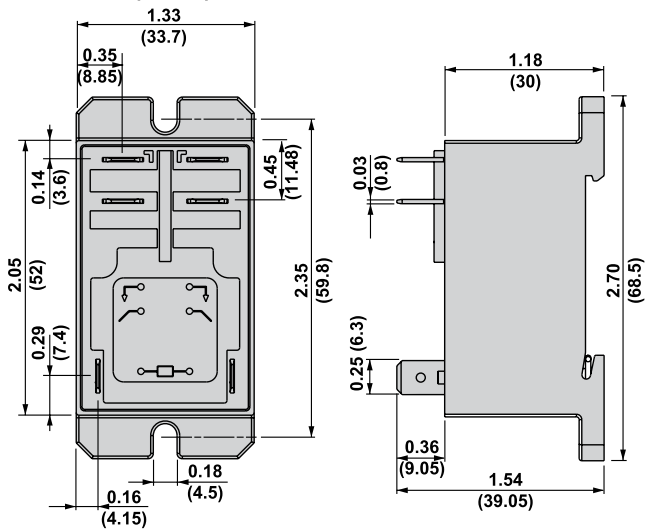
Electrical durability of contacts		
Resistive load	AC reduction coefficient for inductive load (depending on power factor $\cos \varphi$) Durability (inductive load) = durability (resistive load) x reduction coefficient.	Maximum switching capacity on DC resistive load



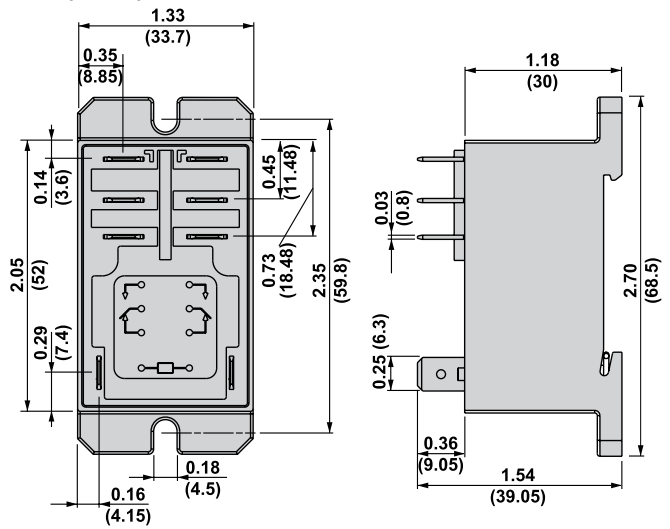
Note: These curves are for reference only and are typical values only. Actual performance is dependant upon the actual load, environment, duty cycle, and other conditions specific to the application.

Dimensions — inches (millimeters)

DPST-NO (2 NO):

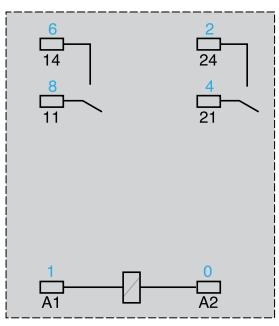


DPDT (2 CO):

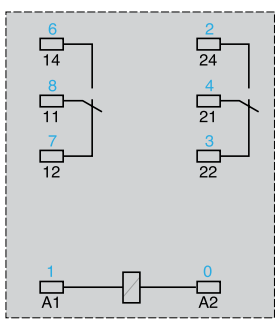


Wiring Diagrams

DPST-NO (2 NO):



DPDT (2 CO):



Description

Magnecraft™ Power Relays

9A

SPST-NO, 30 A;

SPDT, 30 A (NO) / 15 A (NC)



W9AS1D52

Description

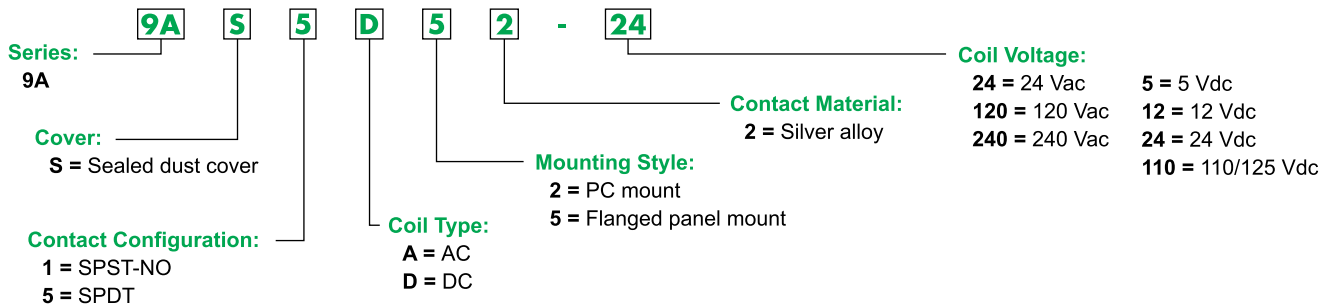
The 9A series power relays offer robust performance in applications such as HVAC, motor controls, and alarm systems.

Feature	Benefit
Standard Class F insulation	Allows for maximum coil temperature of 155 °C (311 °F) which is ideal for high temperature applications
FLA/LRA and hp ratings	Capable of handling motor loads
Ballast load ratings	Suitable for lighting control applications
Small package size	Ideal for small spaces
Standard Quick Connect terminals	Simplifies and expedites installation

Rated Contact Current	Contact Configuration	Coil Voltage	Coil Resistance (Ω)	Standard Part Number
30 A	SPST-NO	24 Vac	576	9AS1A52-24
		120 Vac	3000	9AS1A52-120
		5 Vdc	25	9AS1D52-5
		12 Vdc	144	9AS1D52-12
		24 Vdc	576	9AS1D52-24
30 A (NO); 15 A (NC)	SPDT	24 Vac	576	9AS5A52-24
		120 Vac	3000	9AS5A52-120
		240 Vac	12100	9AS5A52-240
		5 Vdc	25	9AS5D52-5
		12 Vdc	144	9AS5D52-12
		24 Vdc	576	9AS5D52-24

Note: PC mount versions available, please call (847) 441-2540 for more information.

Part Number Explanation



Specifications (UL 508)

Part Number	9AS1	9AS5
Contact Characteristics		
Contact Configuration	SPST-NO	SPDT
Contact Material	Silver Alloy	
Thermal (Carrying) Current	30 A	30 A (NO); 15 A (NC)
Maximum Switching Voltage	300 V	
Current Ratings at Voltage	Resistive: 30 A at 240 Vac 50/60 Hz, 30 A at 28 Vdc; Motor: 1 hp at 125 Vac 50/60 Hz, 2 hp at 240 Vac 50/60 Hz FLA/LRA: 22/98 A (NO) at 120 Vac 50/60 Hz 30/80 A (NO) at 240 Vac 50/60 Hz Ballast: 10 A at 277 Vac Pilot Duty: 470 VA	Resistive: 30 A at 240 Vac 50/60 Hz (NO), 15 A at 240 Vac 50/60 Hz (NC), 30 A at 28 Vdc (NO), 10 A at 28 Vdc (NC) Motor: 1 hp at 125 Vac 50/60 Hz (NO), 1/4 hp at 125 Vac 50/60 Hz (NC), 2 hp at 240 Vac 50/60 Hz (NO), 1/2 hp at 240 Vac 50/60 Hz (NC) FLA/LRA: 22/98 A (NO) at 120 Vac 50/60 Hz 30/80 A (NO) at 240 Vac 50/60 Hz 12/30 A (NC) at 240 Vac 50/60 Hz Ballast: 10 A at 277 Vac (NO); 3 A at 277 Vac (NC) Pilot Duty: 470 VA (NO), 275 VA (NC)
Minimum Switching Requirement	100 mA at 12 Vac, 5 Vdc	
Coil Characteristics		
Coil Voltage Range ¹	24–240 Vac 50/60 Hz; 5–24 Vdc ¹	
Operating Range (% of Nominal)	80%–120% (AC); 75%–120% (DC)	
Average Consumption	2.8 VA (AC); 1 W (DC)	
Drop-out Voltage Threshold	10% (AC/DC)	
General Characteristics		
Electrical Life at Rated Load	100,000 operations	
Mechanical Life at No Load (Unpowered)	10,000,000 operations	
Operate Time at Nominal Coil Voltage	15 ms	
Dielectric Strength	Between coil and contact: 2500 Vac; Between contacts: 1500 Vac	
Operating Temperature Range	-40 – +55 °C (-40 – +131 °F)	
Storage Temperature Range	-40 – +85 °C (-40 – +185 °F)	
Vibration Resistance	3 g-n, 10–55 Hz	
Shock Resistance	10 g-n	
Weight (Average)	33 g (1.16 oz)	
Product Certifications	UL (E43641)	

Note: Actual product performance may vary depending on application and environmental conditions.

¹ For available standard coil voltages, please refer to the standard part number table on page 26.

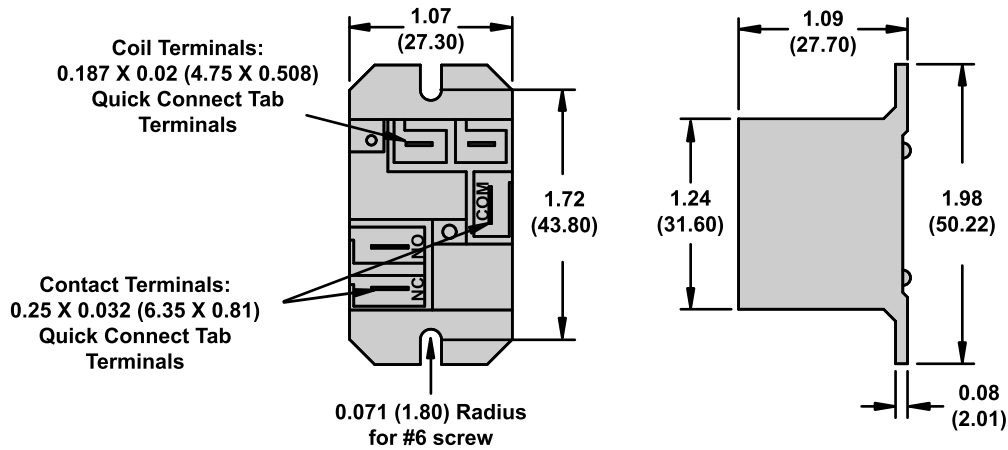
Magnecraft™ Power Relays

9A

SPST-NO, 30 A;

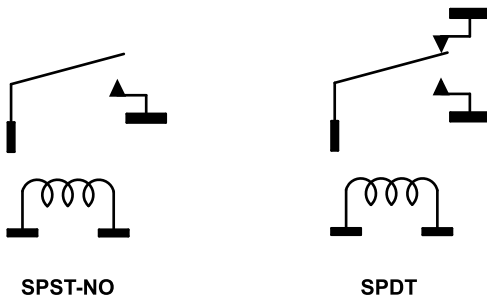
SPDT, 30 A (NO) / 15 A (NC)

Dimensions — inches (millimeters)



Wiring Diagrams

All diagrams are shown from top view



Magnecraft™ Power Relays

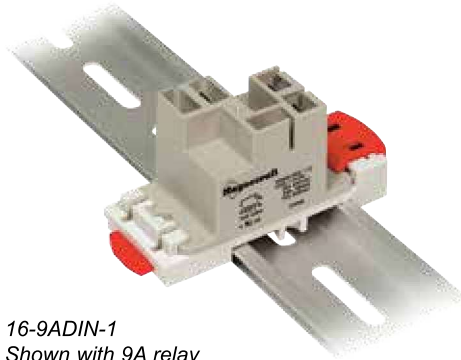
9A

DIN Rail Adapter, 16-9ADIN-1



Description

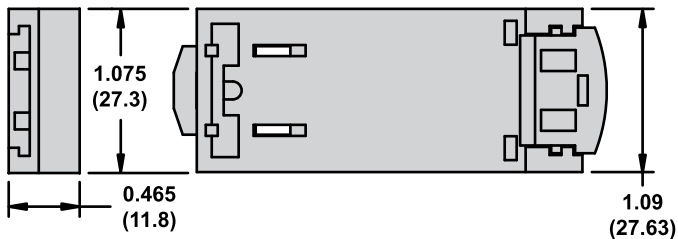
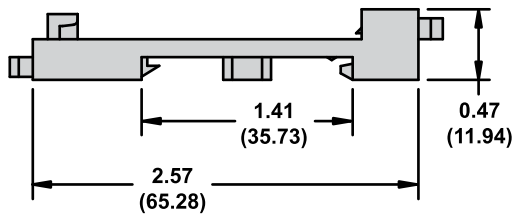
The 16-9ADIN-1 DIN rail adapter provides the mounting flexibility needed to mount the 9A Power Relay in a panel board or control box.



16-9ADIN-1
Shown with 9A relay

Description	Function	For Use With Relays	Packaging Minimum	Standard Part Number
DIN Rail Adapter	Enables the 9A relay to be mounted directly to a DIN rail	9A series relays	10	16-9ADIN-1

Dimensions — inches (millimeters)



Description, Dimensions

Magnecraft™ Power Relays

Socket Accessories

Socket Modules, 70-ASM; Metal DIN Rail, 16-700DIN;
DIN Rail Clip, 16-DCLIP; ID Tags/Labels, 16-750/788FT-1



Description

Socket modules connect the circuit in parallel with the relay and coil when plugged into a socket. No additional wiring or tool is required. The modules fit within the maximum dimensions of both the relay and socket.

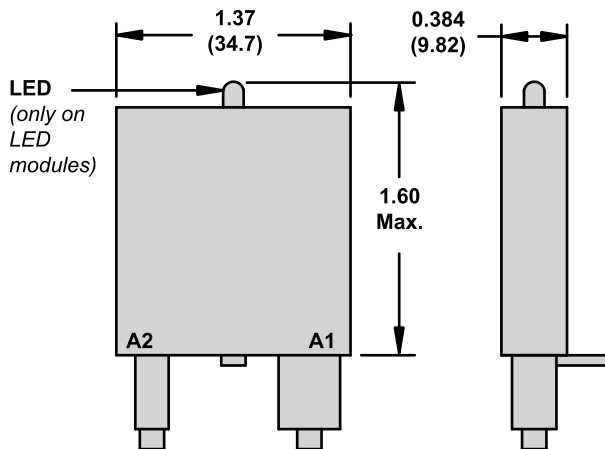
ID Tags/Labels provide quick identification of circuits.

Description	Function	Coil Voltage	Packaging Minimum	Standard Part Number
Socket Module*	LED Indicator: Verifies that power is being supplied to the coil. Ideal for both AC and DC applications. Polarity sensitive for DC applications.	120/240 Vac/Vdc	10	70-ASMLG-110/240
	MOV Suppressor: Protects by shunting potentially damaging electrical spikes away from the relay coil. Ideal for AC and DC Applications.	24 Vac/Vdc	10	70-ASMM-24
		120 Vac/Vdc	10	70-ASMM-120
		240 Vac/Vdc	10	70-ASMM-240
Protection Diode: Protects external drive circuitry from inductive voltages generated when removing coil voltage. DC applications only. Polarity sensitive.	6–250 Vdc	10	70-ASMD-250	
	RC Circuit: Snubs back EMF of relay coil.	6–24 Vac/Vdc	10	70-ASMR-240
ID Tag/Label	Identification of circuits in multi-relay applications	N/A	10	16-750/788FT-1
Metal DIN Rail	Quick installation and removal of sockets	N/A	20	16-700DIN
DIN Rail Clip	Helps to holds sockets firmly in place on the DIN rail	N/A	10	16-DCLIP-1

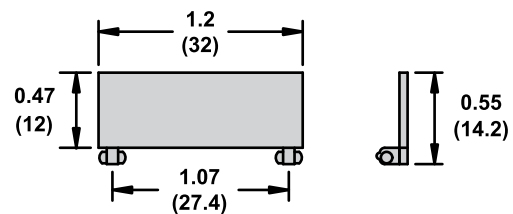
*Use of LED and RC modules may increase coil power draw up to 10%.

Dimensions — inches (millimeters)

70-ASM Socket Modules

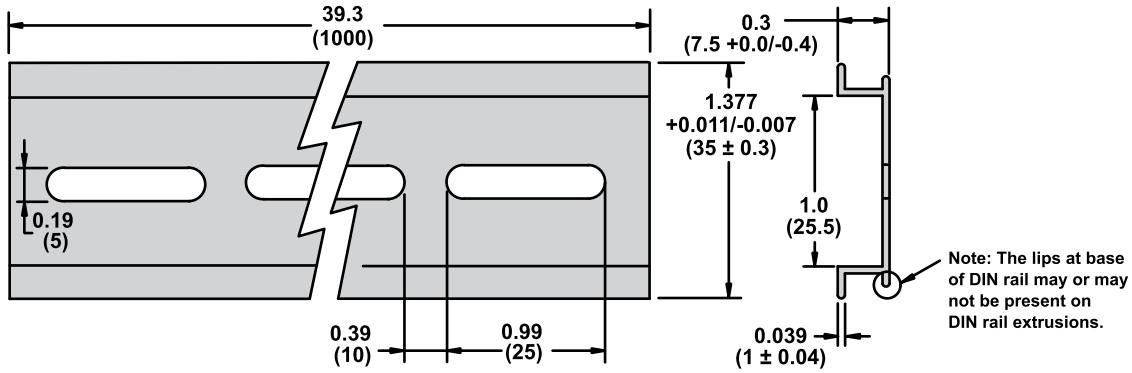


16-750/788FT-1 ID Tag/Label

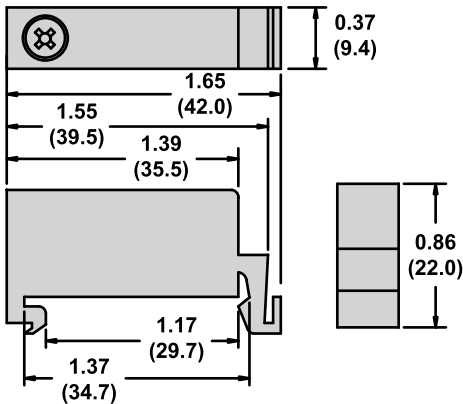


Dimensions — inches (millimeters)

16-700DIN Metal DIN Rail

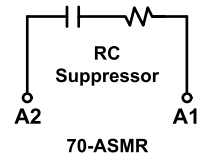
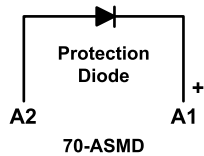
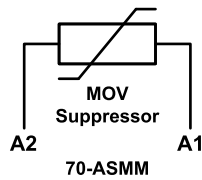
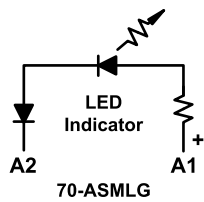


16-DCLIP-1 DIN Rail Clip



Wiring Diagrams

70-ASM Socket Modules



Definition

An electromechanical relay (EMR) is an electrically operated switch which enables current to flow through it on one circuit and can switch a current on and off on a second circuit. Power relays can handle higher power loads, and are typically rated at 20 A and above.

Principle of Operation

A simple electromechanical relay consists of a coil of wire surrounding an iron core, a yoke, a movable armature, and one or more sets of contacts. The armature is hinged to the yoke and mechanically linked to one or more sets of moving contacts. When an electric current is passed through the coil it generates a magnetic field that attracts the armature, and the consequent movement of the movable contact(s) either makes or breaks (depending upon the configuration) with a fixed contact. When the current to the coil is switched off, a spring returns the armature to its original position.

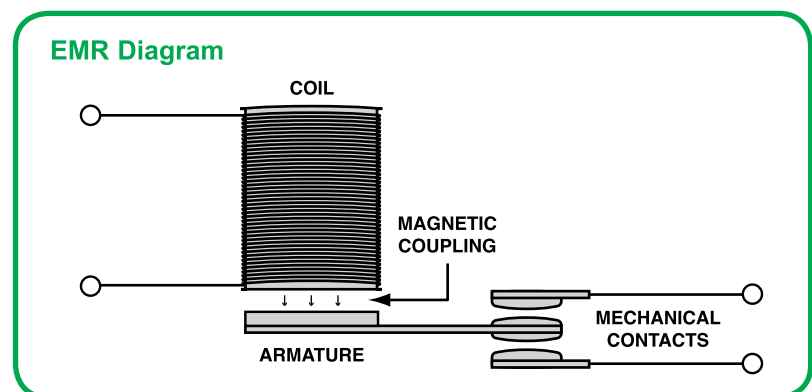
Types of Relay Contacts

- Normally-open (NO) contacts connect the circuit when the relay is activated; the circuit is disconnected when the relay is inactive. It is also called a Form A contact or “make” contact.
- Normally-closed (NC) contacts disconnect the circuit when the relay is activated; the circuit is connected when the relay is inactive. It is also called a Form B contact or “break” contact.
- Change-over (C/O), or double-throw (DT), contacts control two circuits: one normally-open contact and one normally-closed contact with a common terminal. It is also called a Form C contact or “transfer” contact (“break before make”).

Contact Configurations

- SPST – Single Pole Single Throw is used for normally-open (SPST-NO) and normally-closed contacts (SPST-NC).
- SPDT – Single Pole Double Throw is sometimes referred to as single change-over or 1 C/O.
- DPST – Double Pole Single Throw has two pairs of terminals making it equivalent to two SPST switches or relays actuated by a single coil. The contacts may be normally-open (DPST-NO) or normally-closed (DPST-NC).
- DPDT – Double Pole Double Throw is sometimes referred to as two change-over or 2 C/O.

The “S” (Single Pole) or “D” (Double Pole) may be replaced with a number, indicating multiple poles. For example 4PDT indicates a four pole double throw relay.



Advantages

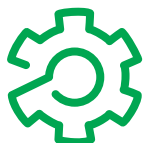
Relays are used where it is necessary to control a circuit by a low-power signal (with complete electrical isolation between control and controlled circuits), or where several circuits must be controlled by one signal. The advantages of power relays include:

- Can withstand current surges and voltage spikes
- Higher dielectric strength provides better line to load separation
- Broad contact current range available, from 100 mA to 50 A.
- Multiple poles available to control separate voltages and circuits simultaneously
- Various contact configurations also available, including normally-open (NO or Form A), normally-closed (NC or Form B), double throw (DT or Form C), double make (DM), and double break (DB)
- Wide ambient temperature range
- No leakage current or ON-state voltage drop

Applications

Designed with heavy-duty contacts coupled with a specialized magnetic armature and coil to provide the necessary power and contact force, Magnecraft Power Relays easily handle current loads of 20 to 50 A. With multiple features as well as panel and DIN mounting options, these relays offer the performance and flexibility needed to improve design, expedite installation, and simplify testing of your application.

Typical Examples of Power Relay Applications



Automation Panels

Process controls, motor controls, standby 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

The Magnecraft Range of Power Relays

Depending on the application, the Magnecraft line of power relays offers a number of advantages, including high contact ratings (up to 50 A), feature-rich covers, mounting options and accessories to suit a multitude of applications.

Selecting a Power Relay

The list below is an example of the specifications to look for when selecting a power relay.

Contract rating(s):	_____
Contact configuration:	_____
Mounting style:	_____
Coil voltage	_____
Features & Accessories	_____

Use the catalog specifications or online parametric search to determine a recommended part number (www.serelays.com).

The Magnecraft website (www.serelays.com) is designed to enable users to easily find the proper relay to fit design requirements and to help simplify and shorten workflow.

Easily find the proper relay to fit 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

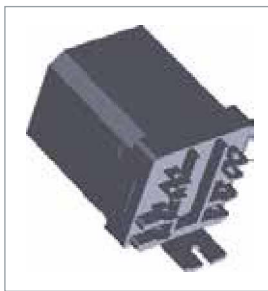
Search our comprehensive database to identify products by manufacturer and part number, and link directly to part specifications.

■ 3D CAD Library

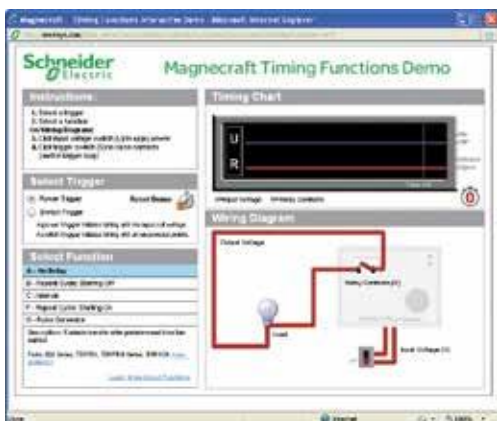
View, email, download, or insert a file directly into your open CAD software pane. There are 18 different file formats to choose from.

■ 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 not available for all distributors).

Schneider Electric USA, Inc.
1300 S. Wolf Rd.
Des Plaines, IL 60018
Tel: 847-441-2540
www.serelays.com

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8501CT1003R06/13, 06/2013

Replaces 8501CT1003R011/11 dated 11/2011

Description

Magnecraft General Purpose Relays

750 Series

DPDT and 3DPT, 10 A



UL listed when used with proper Magnecraft sockets



750 Clear Cover



750 Full-Feature Cover

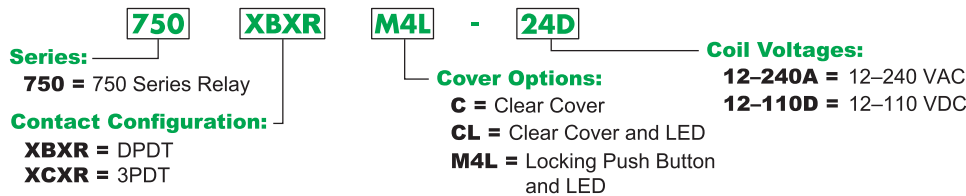
Description

The 750 series octal base, plug-in relays offer clear or full-feature covers with multiple mounting options and accessories.

Feature	Benefit
Octal style mounting	Robust and historically-proven mounting platform that provides excellent structural support
10 A max. switching current	Ideal for automation panels and controls
Clear or full-feature cover options	Full-feature covers include LED indicator and locking test button
DPDT and 3PDT contact configurations	Simultaneously control separate circuits
Socket mount option	Simplifies installation and maintenance while also allowing the use of protection modules, hold-down clips and other accessories
Gold-flashed contacts	Reduces contact oxidation and increases shelf life
Mechanical flag indicator	Standard feature displays relay status during testing or operation

Contact Rating	Contact Configuration	Nominal Voltage	Coil Resistance (Ω)	Standard Part Number: Clear Cover	Standard Part Number: Clear Cover with LED	Standard Part Number: Full-Feature
10 A	DPDT	12 Vac 50/60Hz	16.9	750XBXRC-12A	750XBXRCL-12A	750XBXRM4L-12A
		24 Vac 50/60Hz	72	750XBXRC-24A	750XBXRCL-24A	750XBXRM4L-24A
		120 Vac 50/60Hz	1700	750XBXRC-120A	750XBXRCL-120A	750XBXRM4L-120A
		240 Vac 50/60Hz	6800	750XBXRC-240A	750XBXRCL-240A	750XBXRM4L-240A
		12 Vdc	120	750XBXRC-12D	750XBXRCL-12D	750XBXRM4L-12D
		24 Vdc	470	750XBXRC-24D	750XBXRCL-24D	750XBXRM4L-24D
		48 Vdc	1800	750XBXRC-48D	750XBXRCL-48D	750XBXRM4L-48D
	110 Vdc	7300	750XBXRC-110D	750XBXRCL-110D	750XBXRM4L-110D	
	3PDT	12 Vac 50/60Hz	16.9	750XCXRC-12A	750XCXRCL-12A	750XCXRM4L-12A
		24 Vac 50/60Hz	72	750XCXRC-24A	750XCXRCL-24A	750XCXRM4L-24A
		120 Vac 50/60Hz	1700	750XCXRC-120A	750XCXRCL-120A	750XCXRM4L-120A
		240 Vac 50/60Hz	6800	750XCXRC-240A	750XCXRCL-240A	750XCXRM4L-240A
		12 Vdc	120	750XCXRC-12D	750XCXRCL-12D	750XCXRM4L-12D
		24 Vdc	470	750XCXRC-24D	750XCXRCL-24D	750XCXRM4L-24D
48 Vdc		1800	750XCXRC-48D	750XCXRCL-48D	750XCXRM4L-48D	
110 Vdc	7300	750XCXRC-110D	750XCXRCL-110D	750XCXRM4L-110D		

Part Number Explanation



Please contact Customer Service for more information (847-441-2540).

Magnecraft General Purpose Relays

750 Series

DPDT and 3DPT, 10 A

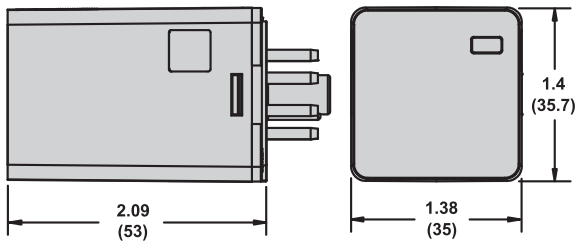
Specifications

Part Number	750XBXR	750XCXR
Contact Characteristics		
Terminal Style	Octal	Octal
Contact Configuration	DPDT	3PDT
Maximum Current	10 A	10 A
Contact Materials	Silver Alloy	Silver Alloy
Maximum Switching Voltage	IEC: 250 Vac / 28 Vdc UL/CSA: 300 Vac / 30 Vdc	IEC: 250 Vac / 28 Vdc UL/CSA: 300 Vac / 30 Vdc
Rated Switching Current at Voltage (Conforming to IEC AC-1 and DC-1)	NO: 10 A at 250 Vac, NC: 5 A at 250 Vac NO: 10 A at 28 Vdc, NC: 5 A at 28 Vdc	NO: 10 A at 250 Vac, NC: 5 A at 250 Vac NO: 10 A at 28 Vdc, NC: 5 A at 28 Vdc
Rated Switching Current at Voltage (Conforming to UL)	Resistive: 10 A at 277 Vac 50 / 60 Hz, 200k cycles Resistive: 10 A at 30 Vdc, 200k cycles Motor: 1/3 HP at 120 Vac, 6k cycles Motor: 1 HP at 277 Vac, 6k cycles Pilot Duty: B300, 6k cycles	Resistive: 10 A at 277 Vac 50 / 60 Hz, 200k cycles Resistive: 10 A at 30 Vdc, 200k cycles Motor: 1/3 HP at 120 Vac, 6k cycles Motor: 1 HP at 277 Vac, 6k cycles Pilot Duty: B300, 6k cycles
Minimum Switching Requirement	10 mA at 17 Vdc	10 mA at 17 Vdc
Coil Characteristics		
Maximum Operating Voltage	110% (AC / DC)	110% (AC / DC)
Maximum Pickup Voltage	85% (AC); 80% (DC)	85% (AC); 80% (DC)
Drop-out Voltage Threshold	15% (AC); 10% (DC)	15% (AC); 10% (DC)
Average Consumption	3 VA (AC); 1.4 W (DC)	3 VA (AC); 1.4 W (DC)
General Characteristics		
Electrical Life at Rated Load	100,000 operations	100,000 operations
Mechanical Life	5,000,000 operations	5,000,000 operations
Operating Time (Response Time)	20 ms	20 ms
Dielectric Strength - Between Coil and Contact (AC)	2500 V(rms)	2500 V(rms)
Dielectric Strength - Between Poles (AC)	2000 V(rms)	2000 V(rms)
Dielectric Strength - Between Open Contacts (AC)	1500 V(rms)	1500 V(rms)
Ambient Air Temperature around the Device - Storage	-40 to +85 °C (-40 to +185°F)	-40 to +85 °C (-40 to +185 °F)
Ambient Air Temperature around the Device - Operation	-40 to +55 °C (-40 to +131°F)	-40 to +55 °C (-40 to +131 °F)
Vibration Resistance - Operational	+/- 1 mm (10–35 Hz) and 3 g-n (35–150 Hz)	+/- 1 mm (10–35 Hz) and 3 g-n (35–150 Hz)
Shock Resistance	10 g-n	10 g-n
Degree of Protection (Housing Only)	IP 40	IP 40
Weight	83 g (2.93 oz)	83 g (2.93 oz)
Agency Approvals	UL with socket, UR (E164862), CE, CSA (225619), RoHS	

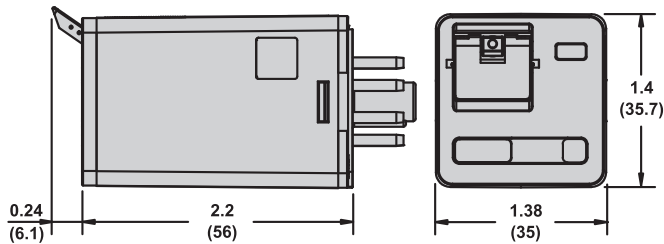
Note: Actual product performance may vary depending on application and environmental conditions.

Dimensions — inches (millimeters)

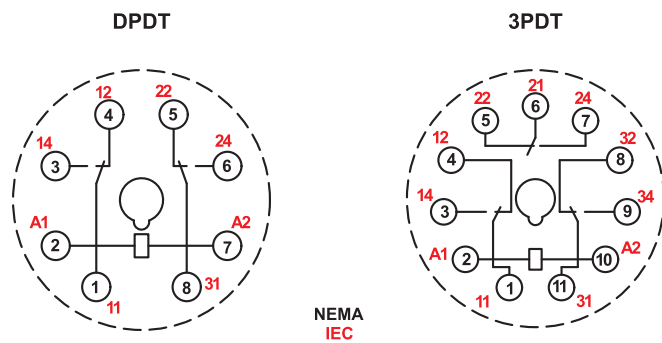
Clear Cover Dimensions

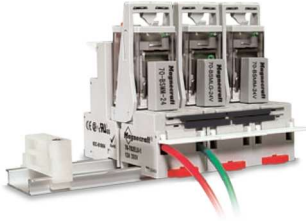


Full-Feature Cover Dimensions



Wiring Diagrams

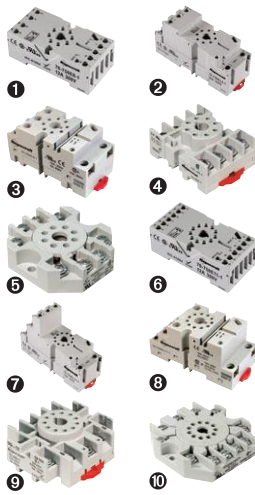




Description

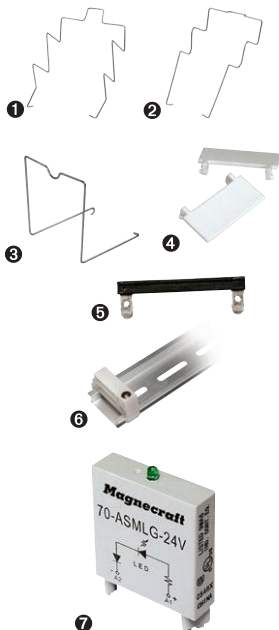
Optional sockets offer customizable, Fingersafe solutions including protection modules, hold-down clips, and ID tags. Sockets are DIN rail and panel mount compatible.

Relay Accessories



Description	Function	For Use With Relays	Pkg. Min.	Standard Part Number
Socket 1	DIN/Panel mount, module compatible	750XBXR	10	70-750E8-1
Socket 2	DIN/Panel mount with elevator terminals, module compatible	750XBXR	10	70-750EL8-1
Socket 3	DIN/Panel mount, module compatible	750XBXR	10	70-750DL8-1
Socket 4	DIN/Panel mount with screw terminals and clamping plates	750XBXR	10	70-464-1
Socket 5	Panel mount with screw terminals and clamping plates	750XBXR	10	70-169-1
Socket 6	DIN/Panel mount with elevator terminals, module compatible	750XCXR	10	70-750E11-1
Socket 7	DIN/Panel mount with elevator terminals	750XCXR	10	70-750EL11-1
Socket 8	DIN/Panel mount, module compatible	750XCXR	10	70-750DL11-1
Socket 9	DIN/Panel mount with screw terminals and clamping plates	750XCXR	10	70-465-1
Socket 10	Panel mount with screw terminals and clamping plates	750XCXR	10	70-170-1

Socket Accessories



Description	Function	For Use With Sockets	Coil Voltage	Pkg. Min.	Standard Part Number
Metal Spring Clip 1	Secures relay in socket	70-750EL8-1, 70-750E8-1, 70-750E11-1, 70-464-1	–	10	16-1351
Metal Spring Clip 2	Secures relay in socket	70-750E8-1, 70-750DL8-1, 70-750E11-1, 70-464-1	–	10	16-1344
Metal Spring Clip 3	Secures relay in socket	70-750DL8-1	–	10	16-1332
Plastic I.D. Tag 4	Write-on plastic labels	70-750E8-1, 70-750EL8-1, 70-750DL8-1, 70-750E11-1, 70-750EL11, 70-750DL11-1	–	10	16-750/788FT-1
Insulated Coil Bus Jumper System 5	Wireless socket connection	70-750EL11, 70-750DL11-1	–	10	16-750/788CBJ-1
Extruded Aluminum DIN Rail, 39.37" (1000 mm) 6	Quick installation and removal of sockets	70-750E8-1, 70-750E8-1, 70-750DL8-1, 70-750E11-1, 70-464-1, 70-465-1	–	10	16-700DIN
DIN Rail End Clip 6	Plastic end clip with locking screw	–	–	10	16-DCLIP-1
Large Socket Module	MOV Suppressor (Protects from damaging electrical spikes)	70-750E8-1, 70-750EL8-1, 70-750DL8-1, 70-750E11-1, 70-750EL11-1, 70-750DL11-1	24 Vac/Vdc	10	70-ASMM-24
Large Socket Module	Protection Diode (Protects external drive circuitry from inductive voltages)	70-750E8-1, 70-750EL8-1, 70-750DL8-1, 70-750E11-1, 70-750EL11-1, 70-750DL11-1	250 Vdc	10	70-ASMD-250
Large Socket Module 7	LED Indicator (Provides coil status at a glance)	70-750E8-1, 70-750EL8-1, 70-750DL8-1, 70-750E11-1, 70-750EL11-1, 70-750DL11-1	110/240 Vac/Vdc	10	70-ASMLG-110/240
Large Socket Module	RC Suppressor (Snubs back EMF of relay coil)	70-750E8-1, 70-750EL8-1, 70-750DL8-1, 70-750E11-1, 70-750EL11-1, 70-750DL11-1	110/240 Vac	10	70-ASMR-110/240

Note: Use of LED or RC socket module may increase coil power draw by up to 10%.

Description

Magnecraft Power Relays

199

SPST-NO-DM, 40 A; SPDT, 40 A;
DPST-NO, 40 A; DPDT, 40 A*



199 Series Relay

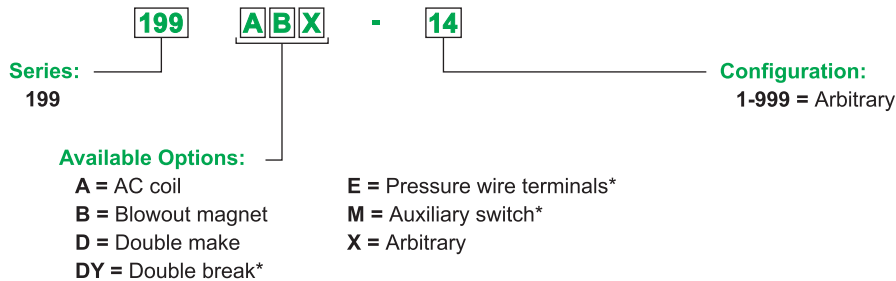
Description

The 199 series open type, heavy duty power relays offer high-capacity switching with high dielectric strength.

Feature	Benefit
High-power contacts	Increased contact ratings (up to 50 A, 2 hp) and electrical endurance; suitable for high-power switching applications
Riveted construction	Helps to increase the mechanical life of the relay
Blowout magnet option	Helps to increase DC voltage switching up to 500 V
RoHS compliant	Environmentally friendly; Complies with the European Restriction of Hazardous Substances directive

Rated Contact Current	Contact Configuration	Coil Voltage	Coil Resistance (Ω)	Special Features	Standard Part Number
40 A*	SPST-NO-DM	120 Vac	290		199ADX-4
		12 Vdc	70		199DX-2
		24 Vdc	290	Blowout Magnet	199DBX-3
		48 Vdc	1200	Blowout Magnet	199DBX-16
	SPDT	120 Vac	290		199AX-4
		12 Vdc	70		199X-2
		24 Vdc	290		199X-3
	DPST-NO	120 Vac	290		199AX-9
		240 Vac	1200		199AX-10
		12 Vdc	70		199X-7
		24 Vdc	290		199X-8
	DPDT	24 Vac	12		199AX-13
		120 Vac	290	Blowout Magnet	199ABX-14
					199AX-14
		240 Vac	1200		199AX-15
		12 Vdc	70	Blowout Magnet	199BX-12
				199X-12	
24 Vdc		290	Blowout Magnet	199BX-13	
			199X-13		
	110 Vdc	6000	Blowout Magnet	199BX-14	
				199X-14	

Part Number Explanation



* 50 A versions and additional options available. Call Customer Service for more information (847-441-2540).

Specifications (UL 508)

Part Numbers	199AX, 199X, 199ABX ¹ , 199BX ¹	199ADX, 199DX, 199DYX, 199DBX ¹
Contact Characteristics		
Contact Configuration	SPST, SPDT, DPST, DPDT	SPST-DM, SPST-DB
Contact Material	AgSnO	
Thermal (Carrying) Current	40 A	
Maximum Switching Voltage	600 V(rms)	
Rated Switching Current at Voltage	Resistive: 40 A at 300 Vac 50/60 Hz; 5 A at 480 Vac 50/60 Hz; 5 A at 600 Vac 50/60 Hz; 40 A at 28 Vdc	Resistive: 40 A at 300 Vac 50/60 Hz; 12 A at 480 Vac 50/60 Hz; 10 A at 600 Vac 50/60 Hz; 40 A at 28 Vdc
	Motor: 2 hp at 120–600 Vac 50/60 Hz	
	Tungsten: 15 A at 120 Vac 50/60 Hz	
	Pilot Duty: A600	
Minimum Switching Requirement	1 A at 5 Vac/Vdc	
Coil Characteristics		
Coil Voltage Range ²	6–600 Vac 50/60 Hz; 6–250 Vdc ²	
Operating Range (% Of Nominal)	85%–110% (AC); 80%–110% (DC)	
Average Consumption (Maximum)	10 VA (AC); 4 W (DC)	
Drop-Out Voltage Threshold	10% (AC/DC)	
General Characteristics		
Electrical Life At Rated Load (Resistive)	Please refer to Table 3 on page 6	
Maximum Operating Time (Response Time)	30 ms	
Dielectric Strength	Between coil and contact: 2200 V	Between coil and contact: 2200 V
	Between poles: 2200 V	N/A
	Between open contacts: 1500 V	Between open contacts: N/A
Storage Temperature Range	-55 – +100 °C (-67 – +212 °F)	
Operating Temperature Range	-55 – +55 °C (-67 – +131 °F)	
Maximum Wire Capacity	10 AWG (5.3 mm ²)	
Terminal Tightening Torque	11–15 in-lb (1.2–1.7 N•m)	
Weight	227–312 g (8–11 oz)	
Agency Approvals	UL (E43641), CSA (168986), CE (per IEC 60947-1), RoHS	

Note: Actual product performance may vary depending on application and environmental conditions.

¹ For ratings with blowout magnet, please refer to Table 1 below.

² For available standard coil voltages, please refer to the standard part number table on page 4.

Table 1: Additional DC Ratings with Blowout Magnet

Load Voltage	Contact Rating
110 Vdc	20 A
220 Vdc	8 A
325 Vdc	4 A
500 Vdc	2 A

Table 2: Auxiliary Switch Ratings (Non-Standard Option)

Load Type	Contact Rating
Resistive Load 120/250 Vac (50/60 Hz)	10 A
Motor Load 125/250 Vac (50/60 Hz)	0.25 hp
Tungsten Load 125 Vac (50/60 Hz)	3 A

* 50 A versions and additional options available. Call Customer Service for more information (847-441-2540).

Magnecraft Power Relays

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SPST-NO-DM, 40 A*; SPDT, 40 A;
DPST-NO, 40 A; DPDT, 40 A*

Table 3: Contact Ratings & Electrical Endurance (per IEC 60947-1, 60947-4-1)

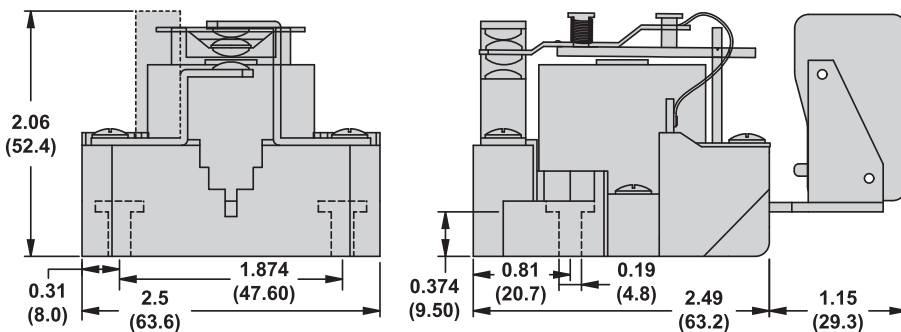
Contact Ratings	Load Voltage	Frequency	Load Type	Estimated Electrical Endurance	See Note(s)
AC Load					
40 A	300 V	50/60 Hz	Resistive	50,000 cycles	1, 3
2 hp	120–600 V		Motor	50,000 cycles	2, 3
15 A	120 V		Tungsten	20,000 cycles	3, 4
A600	---		Pilot Duty	100,000 cycles	3
DC Load					
40 A	28 V	DC	Resistive	100,000 cycles	3
20 A	110 V				
8 A	220 V				
4 A	325 V				
2 A	500 V				

Notes:

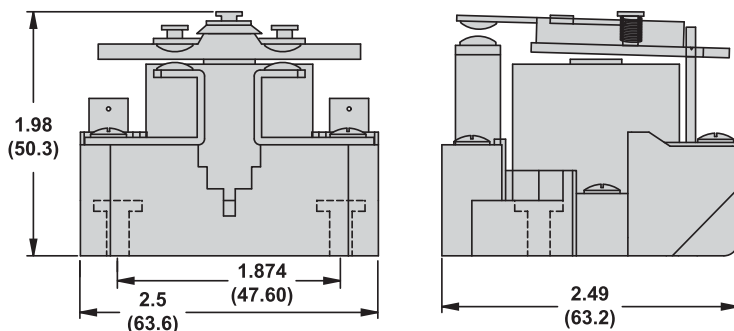
1. Resistive AC load ratings are based on a power factor of 0.85 to 1.0.
2. Motor horsepower ratings are based on a power factor of 0.4 to 0.5, and an initial inrush current not in excess of six times the full load current.
3. All ratings are based on applying the rated nominal power to the relay coil in such a manner as to provide a “clean” make and break that does not result in any contact chatter or multiple actuation of the contacts.
4. The tungsten rating is based on cold filament inrush current not exceeding 15 times the rated steady state lamp current.

Dimensions — inches (millimeters)

SPDT – Short Base (shown w/optional Auxiliary Switch)



SPST-NO-DM



* 50 A versions and additional options available. Call Customer Service for more information (847-441-2540).

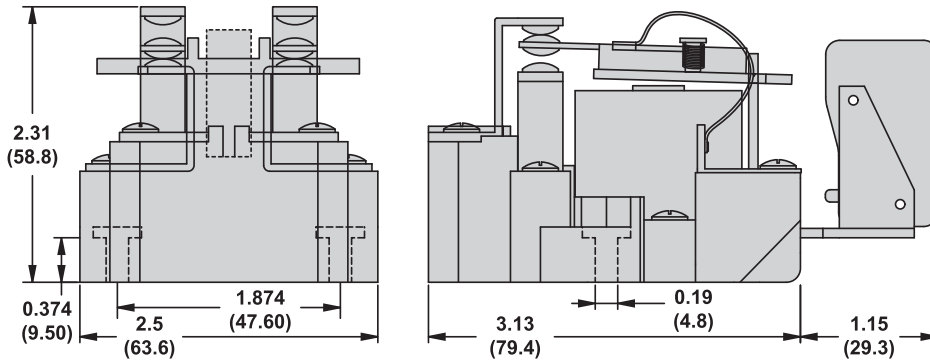
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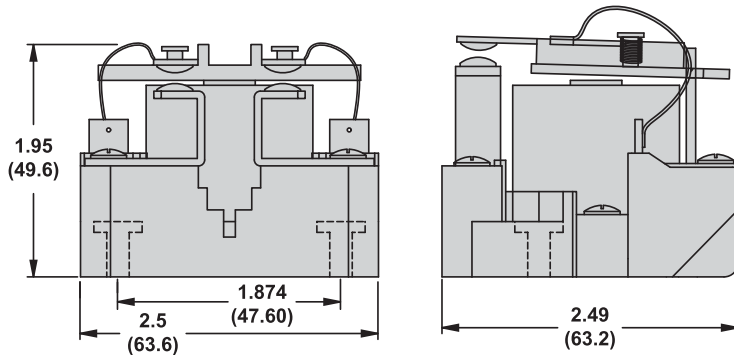
SPST-NO-DM, 40 A*; SPDT, 40 A;
DPST-NO, 40 A; DPDT, 40 A*

Dimensions — inches (millimeters)

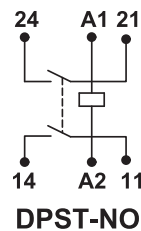
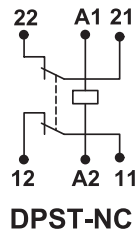
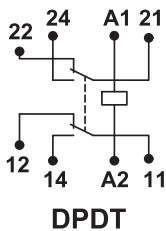
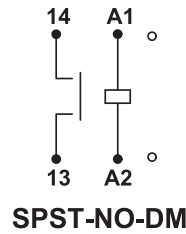
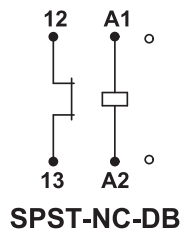
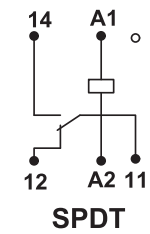
DPDT – Long Base (shown w/optional Auxiliary Switch)



DPST-NO



Wiring Diagrams



* 50 A versions and additional options available. Call Customer Service for more information (847-441-2540).

Magnecraft Power Relays

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Metal Enclosure, 50-1289-1



50-1289-1
Shown with 199 Relay

Description

The 50-1289-1 metal enclosure provides cover and protection as well as alternate wiring and mounting options.

Description	Function	Weight	For Use With Relays	Packaging Minimum	Standard Part Number
Metal Enclosure	Covers and protects relays	Approx. 1 lb (16 oz)	199 Series Relays	1	50-1289-1

Dimensions — inches (millimeters)

