

# SECTION 4



## TIME DELAY RELAYS

5 TO 15 AMPERES



821

TDRPRO

TDRSOX

TDRSRX

211

222

388KNOB

388

388TRUE

67

246/247

831

235

236



**821**

MANUFACTURED UNDER  
ISO 9002



**TDRPRO**



**TDRSOX / TDRSRX**

MANUFACTURED UNDER  
ISO 9002 QS 9000

**PRODUCT**

L X W X H (INCHES)

3.54 x 0.692 x 2.56

1.87 x 1.87 x 2.86

2.63 x 1.40 x 1.73

**FEATURES**

- ✦ UNIVERSAL INPUT
- ✦ 10 TIMING FUNCTIONS
- ✦ WIDE TIME RANGE
- ✦ DIN MODULE

- ✦ 5 FUNCTIONS
- ✦ UNIVERSAL INPUT
- ✦ WIDE TIME RANGE
- ✦ THUMB WHEEL ADJUSTMENT

- ✦ WIDE TIME RANGE
- ✦ DUAL FUNCTIONS
- ✦ AC OR DC DUAL VOLTAGE
- ✦ FITS ALL STANDARD SOCKETS

**TIMING**

**UNITS**

Functions Available:

10 (see product pages)

3 or 5(see product pages)

2-On delay/interval or Off delay/  
Retriggerable One Shot

Time Scales:

10

7

8

Time Range:

0.1 second to 10 days

0.1 second to 9990 hours

0.1 second to 10 hours

**INPUT**

Standard Voltages:

VAC 50/60Hz  
VDC

12 to 240  
12 to 240

24 to 240  
12 to 240

12,24,120, 240  
12 to 120

Power Consumption:

3 VA / 1.7 W

2.5 VA / 2. W

5 VA / 2.5 W

Reverse Polarity Protection:

Yes

Non-polarity sensitive

Non-polarity sensitive

**OUTPUT**

Contact Configuration:

**SPDT**

**SPDT, DPDT**

**DPDT**

Contact Rating AC Amperes (AC1):

VAC 50/60Hz

15 amps resistive @ 240

12 amps resistive @240

12 amps resistive @240

Contact Rating DC Amperes (DC1):

VDC

15 amps resistive @ 24

12 amps resistive @ 30

12 amps resistive @ 30

Contact Material:

Silver-Nickel 90/10

Silver alloy

Silver alloy

**DIELECTRIC STRENGTH**

Across Open Contacts:

Vrms

1,000

1,000

1,000

Input to Contacts:

Vrms

2,500

2,500

2,500

Pole to Pole:

Not applicable

2,000

2,000

**TEMPERATURE**

Operating, Lower:

°C

-20

-20

-20

Operating, Upper:

°C

+55

+55

+55

Storage, Lower:

°C

-30

-20

-20

Storage, Upper:

°C

+70

+85

+85

**LIFE EXPECTANCY**

Electrical Full Load

operations

70,000

100,000

100,000

Mechanical @ no Load :

operations

10,000,000

10,000,000

10,000,000

**MISCELLANEOUS**

Cover Protection Category:

IP

40

40

40

Weight:

grams

96

122

90

**MATING SOCKETS**

SEE SECTION 7

70-464-1, 70-465-1  
750D8-1, 750D11-1

70-463-1, 70-464-1, 70-465-1  
750D8-1, 750D11-1

**AGENCY APPROVALS**



**PAGE NUMBER**

PAGE 6, 7

PAGE 8, 9

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# TIME DELAY RELAYS



**211**

MANUFACTURED UNDER  
ISO 9002 QS 9000

1.75 x 2.37 x 3.5

- ✦ INDUSTRY STANDARD PACKAGE
- ✦ SINGLE FUNCTION
- ✦ HYBRID TECHNOLOGY
- ✦ UL LISTED



**222**

1.75 x 2.37 x 3.5

- ✦ INDUSTRY STANDARD PACKAGE
- ✦ SINGLE FUNCTION
- ✦ TWO KNOBS
- ✦ HYBRID TECHNOLOGY



**388 KNOB  
ADJUSTMENT**

1.53 x 1.40 x 3.52

- ✦ INDUSTRY STANDARD PACKAGE
- ✦ SINGLE FUNCTION
- ✦ KNOB ADJUSTMENT
- ✦ ELECTROMECHANICAL OUTPUT



LISTED

PAGE 12



UL Recognized  
File No. E43641

PAGE 13



UL Recognized  
File No. E43641

PAGE 4



PRODUCT		1.40 x 1.53 x 1.90	1.53 x 1.40 x 3.52	1.37 x 0.734 x 1.18
<b>FEATURES</b>		<ul style="list-style-type: none"> <li>INDUSTRY STANDARD PACKAGE</li> <li>SINGLE FUNCTION</li> <li>EXTERNAL ADJUSTMENT</li> <li>ELECTROMECHANICAL OUTPUT</li> </ul> <p>NEW REMOTE ADJUST TDRSOXB ALSO AVAILABLE</p>	<ul style="list-style-type: none"> <li>TRUE OFF</li> <li>ELECTRONIC TIMING</li> <li>KNOB ADJUSTMENT</li> <li>ELECTROMECHANICAL OUTPUT</li> </ul>	<ul style="list-style-type: none"> <li>COMPACT</li> <li>RECESSED POTENTIOMER</li> </ul>
<b>TIMING</b>	<b>UNITS</b>			
Functions Available:		On delay, off delay	True off delay	On delay
Time Scales:		1	1	1
Time Range:		0.1 to 120 Seconds	0.1 to 60 Seconds	0.1 to 30 Seconds
<b>INPUT</b>				
Standard Voltages:	VAC 50/60Hz VDC	120 24	120 24	12, 24
Power Consumption:		2.5 VA / 2 W	1.5 VA / 1 W	1.1 W
Reverse Polarity Protection:		Yes	Yes	Yes
<b>OUTPUT</b>				
Contact Configuration:		<b>DPDT</b>	<b>DPDT</b>	<b>DPDT</b>
Contact Rating AC Amperes (AC1):	VAC 50/60Hz VDC	12 amps resistive @ 240	12 amps resistive @ 240	5 amps resistive @ 120
Contact Rating DC Amperes (DC1):		12 amps resistive @ 28	12 amps resistive @ 28	5 amps resistive @ 28
Contact Material:		Silver alloy	Silver alloy	Silver alloy
<b>DIELECTRIC STRENGTH</b>				
Across Open Contacts:	Vrms	1,000	1,000	500
Input to Contacts:	Vrms	2,000	2,000	1,500
Pole to Pole:		2,000	2,000	1,500
<b>TEMPERATURE</b>				
Operating, Lower:	°C	-20	-20	-20
Operating, Upper:	°C	+55	+55	+55
Storage, Lower:	°C	-40	-40	-40
Storage, Upper:	°C	+85	+85	+85
<b>LIFE EXPECTANCY</b>				
Electrical Full Load	operations	100,000	100,000	50,000
Mechanical @ no Load :	operations	5,000,000	5,000,000	5,000,000
<b>MISCELLANEOUS</b>				
Cover Protection Category:	IP	40	40	40
Weight:	grams	85	96	35

<b>MATING SOCKETS</b> SEE SECTION 7	70-463-1	70-463-1	70-307-1, 70-308-1
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<b>AGENCY APPROVALS</b>	 <p>UL Recognized File No. E52197</p>	 <p>UL Recognized File No. E43641</p>	 <p>UL Recognized File No. E43641</p>
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<b>PAGE NUMBER</b>	PAGE 15	PAGE 16	PAGE 17
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# TIME DELAY RELAYS

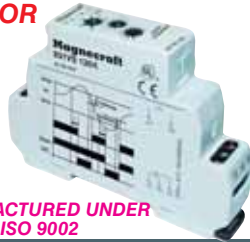
**246 & 247**



2.62 x 1.46 x 4.06

- ✦ INDUSTRIAL
- ✦ VERSATILE DESIGN
- ✦ BLOWOUT MAGNET AVAILABLE
- ✦ LONG OPTION LIST

**831 VOLTAGE SENSOR**



MANUFACTURED UNDER ISO 9002

3.54 x 0.692 x 2.56

- ✦ INDEPENDENT UPPER AND LOWER LIMITS
- ✦ TIME DELAY
- ✦ TWO LEDs
- ✦ DIN MODULE

**236 VOLTAGE SENSOR**



MANUFACTURED UNDER ISO 9002 QS 9000

SEE PAGE 26

- ✦ INDEPENDENT PICK UP AND DROP OUT ADJUSTMENT
- ✦ ELECTROMECHANICAL OUTPUT
- ✦ SOCKET COMPATIBLE









**235 CURRENT SENSOR**



1.53 x 1.40 x 3.52

- ✦ WIDE SENSE RANGE
- ✦ SOCKET COMPATIBLE
- ✦ KNOB ADJUSTMENT

On delay or off delay	Voltage sensor	Voltage sensor	Current sensor
1	1	1	1
0.1 to 300 seconds	0.1 to 10 seconds	Optional on PX	
See ordering code	Normal sense Voltage 120	24, 120, 240, 480 24	120
5 VA / 2.5 W	1.2 VA	3.5 VA / W	2 VA
Yes	Yes	Yes	Yes
<b>DPDT, 3PDT 4PDT AND OTHERS</b>	<b>SPDT</b>	<b>PX=DPDT, CX=SPDT</b>	<b>SPDT</b>
10 amps resistive @ 120	15 amps resistive @ 240	DPDT=10 amps @ 240 SPDT=13 amps @ 240	10 amps @ 120
10 amps resistive @ 28	15 amps resistive @ 24	DPDT=10 amps @ 28 SPDT=13 amps @ 28	6 amps @ 28
Silver alloy	Silver-Nickel 90/10	Silver Alloy	Silver Alloy
1,500	1,000	1,000	500
1,500	2,500	2,500	2,500
1,500	Not applicable	2500	Not applicable
-20	-20	-20	-20
AC:+45, DC: +70	+55	+55	+55
-20	-30	-30	-40
+85	+70	+85	+85
100,000	70,000	100,000	200,000
10,000,000	10,000,000	DPDT= 10,000,000, SPDT= 5,000,000	5,000,000
40	40	40	40
227	60	DPDT: 156, SPDT: 125	113
27390D, 33377D	-	70-463-1, 70-464-1	70-463-1

   <p>UL Recognized File No. E13224</p> <p><b>PAGE 18, 19</b></p>	  <p>LISTED File No. E234203</p> <p><b>PAGE 20</b></p>	  <p>UL Recognized File No. E62636</p> <p><b>PAGE 21</b></p>	  <p>UL Recognized File No. E62636</p> <p><b>PAGE 22</b></p>
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COMPLIES WITH REQUIREMENTS OF

\* IEC STANDARDS 947-4-1 AND 947-5-1 LOW VOLTAGE DIRECTIVE

\* IEC = INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MANUFACTURED UNDER ISO 9002**

## FEATURES

UNIVERSAL VOLTAGE SUPPLY

10 TIMING FUNCTIONS

WIDE TIME RANGE

TWO STATUS LEDS

DIN MODULE

## BENEFITS

ACCEPTS 12 TO 240 VAC / VDC

IDEAL FOR MOST APPLICATIONS

0.1 SECOND TO 10 DAYS

INDICATES STATUS AT A GLANCE

CLIP DIRECTLY TO 35 mm DIN RAIL

## GENERAL SPECIFICATIONS (@ 25°C)

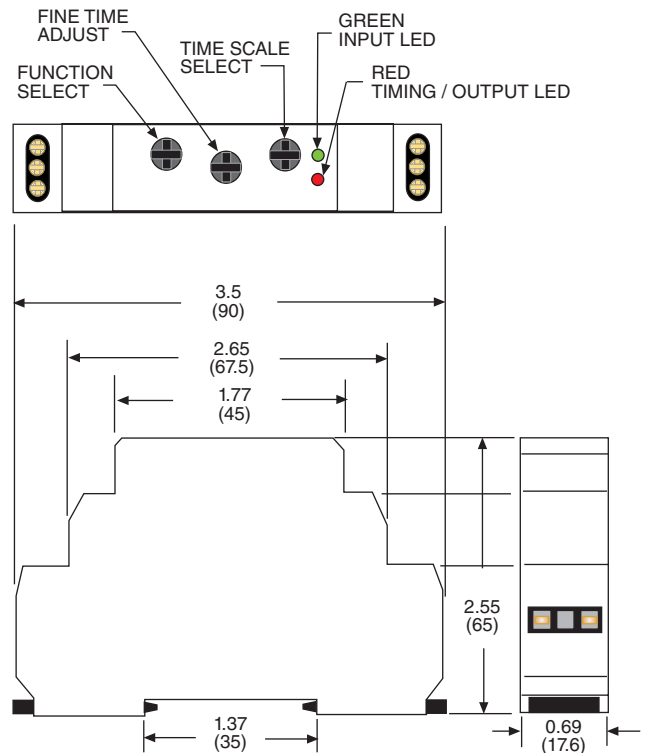
	UNITS	
<b>TIMING</b>		
Functions Available:		10 (see product pages)
Time Scales:		10
Time Range:		0.1 second to 10 hours
Timing Adjustment:		Potentiometer
Timing Deviation (mechanical setting):	%	+5
Timing Repeatability (Constant voltage and temperature):	%	0.2
Reset Time:	mS maximum	150
Input Pulse Length:	mS minimum	50
<b>INPUT</b>		
Standard Voltage:	AC /DC	12 to 240
Input Voltage Tolerance:	of nominal maximum	-15%, +10%, 3 VA / 1.7 W
Power Consumption:		Yes
Transient Protection:		Yes
Reverse Polarity Protection:		Green LED
Input Indication:		
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	15 amps resistive @ 240
Contact Rating DC Amperes (DC1):	VDC	15 amps resistive @ 24
Contact Rating Pilot Duty:		B300
Minimum Load:	mW	500
Contact Material:		Silver-Nickel 90/10
Output Indication:		Red: LED: Blinks = timing On = energized
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	V rms	1,000
Input to Contacts:	V rms	2,500
Pole to Pole:		Not applicable
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-30
Storage, Upper:	°C	+70
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	70,000
Mechanical @ no Load :	operations	10.000.000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Maximum Wire Size		2.5 mm (UL-14 gauge)
Cover Protection Category:	IP	40
Pollution Degree:		2
Terminals:		Captive screws
Weight:	grams	96

TYPE 821 IS A DIN RAIL MOUNTED PRODUCT OFFERING MULTIPLE TIMING FUNCTIONS, MULTIPLE TIME SCALES AND A UNIVERSAL VOLTAGE INPUT IN ONE PACKAGE.



### OUTLINE DIMENSIONS

DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



# 821 TIME DELAY RELAY



## SPDT, 15 AMPS

### WIRING DIAGRAM

### TIMING SCALES

TEN DIFFERENT TIME SCALES FROM 0.1 SECOND TO 10 DAYS AND ALWAYS ON OR ALWAYS OFF

SECONDS	MINUTES	HOURS	DAYS	OTHER
0.1 TO 1	0.1 TO 1	0.1 TO 1	0.1 TO 1	ALWAYS ON
1 TO 10	1 TO 10	1 TO 10	1 TO 10	ALWAYS OFF

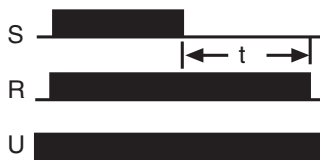
### TIMING DIAGRAMS

U = INPUT VOLTAGE, R = RELAY OUTPUT, S = CONTROL SWITCH

A) On delay - Power on



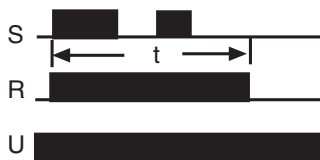
F) Off delay - S break



B) Interval - Power on



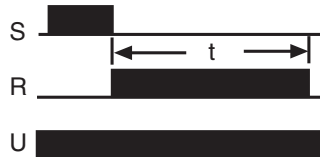
G) Interval - S make



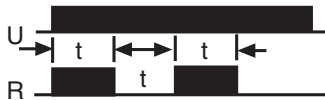
C) Repeat / Off first - Power on



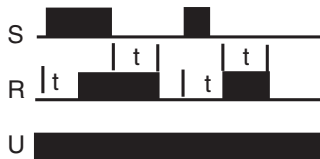
H) Interval - S break



D) Repeat / On first - Power on



I) On & Off delay - S make / break



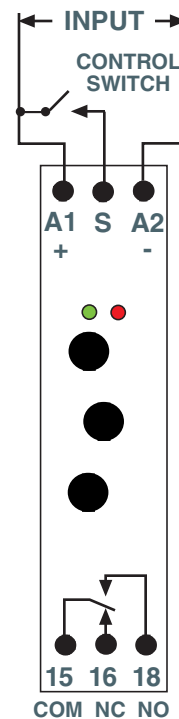
E) Pulse Generator - Power on



J) Memory Latch - S make



0.5 S PULSE



- CONTROL SWITCH IGNORED FUNCTIONS "A" TO "E"

- CONTROL SWITCH REQUIRED FUNCTIONS "F" TO "J"



STANDARD PART NUMBER

821TD10H - UNI



## FEATURES

## BENEFITS

**UL**  
UL Recognized  
File No. E43641

5 TIMING FUNCTIONS, TIMING RANGES FROM 0.1 SECONDS TO 9,990 HOURS, UNIVERSAL VOLTAGE INPUT AND 12 AMP OUTPUT FOR HIGHER POWER APPLICATIONS

UNIVERSAL POWER SUPPLY ALLOWS FOR INPUT VOLTAGES FROM 24 TO 240 VDC OR VAC 50/60HZ.

CLASS "F" INSULATION SYSTEM

THUMB WHEEL ADJUSTMENTS FOR FUNCTION AND TIMING

RED L.E.D. LAMP INDICATOR

0.1 % ACCURACY USING A CRYSTAL CLOCK

MOUNTING CLIP ALLOWS FOR VARIED PANEL THICKNESSES,

FIVE FUNCTIONS - ONE PACKAGE

ONE PART FOR MOST VOLTAGES

12 AMPS CONTACT RATING

POSITIVE POSITION THUMB WHEEL ADJUSTMENT

STATUS L.E.D.

ACCURATE TIME, ALL THE TIME

PANEL CLIP INCLUDED



## GENERAL SPECIFICATIONS (@ 25°C)

	UNITS	
<b>TIMING</b>		
Functions Available:		2-On delay/interval or off delay/ retriggerable one shot
Time Scales:		7
Time Range:		0.1 second to 9990 hours
Timing Adjustment:		Thumbwheels
Timing Deviation (mechanical setting):	%	None
Timing Repeatability (Constant voltage and temperature):	%	0.1
Reset Time:	mS maximum	150
Input Pulse Length:	mS minimum	50
<b>INPUT</b>		
Standard Voltage:	AC/DC	24 to 240
Input Voltage Tolerance:	of nominal	-15% , +15%,
Power Consumption:	maximum	2.5 VA / 2. W
Transient Protection:		Yes
Reverse Polarity Protection:		Non-polarity sensitive
Input Indication:		See output indication
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	12 amps resistive@ 240
Contact Rating DC Amperes (DC1):	VDC	12 amps resistive @ 30
Contact Rating Pilot Duty:		B300
Minimum Load:	mW	500 mW
Contact Material:		Silver alloy
Output Indication:		Red LED: blinks = timing On = energized

	UNITS	
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	Vrms	1,000
Input to Contacts:	Vrms	2,500
Pole to Pole:	Vrms	2,000
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-20
Storage, Upper:	°C	+85
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	100,000
Mechanical @ no Load :	operations	10,000,000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Cover Protection Category:	IP	40
Terminals:		TDRPRO-5000= 11pin octal TDRPRO-5001, 5002= 8 pin octal
Weight:	grams	122

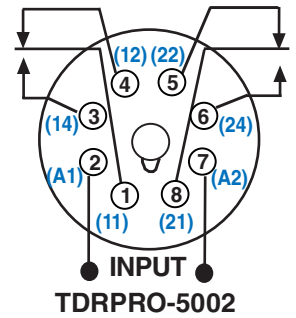


# TDRPRO-5000 PROGRAMMABLE TIME DELAY RELAY

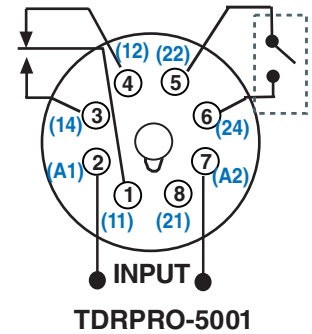


## SPDT & DPDT, 12 AMPS

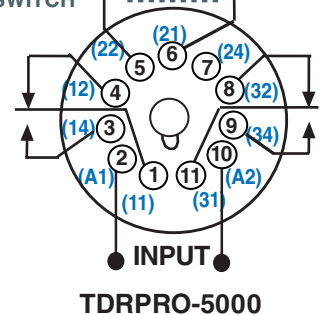
### WIRING DIAGRAM (VIEWED FROM PIN END)



#### EXTERNAL CONTROL SWITCH



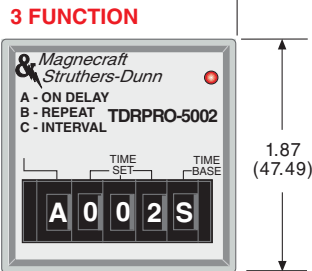
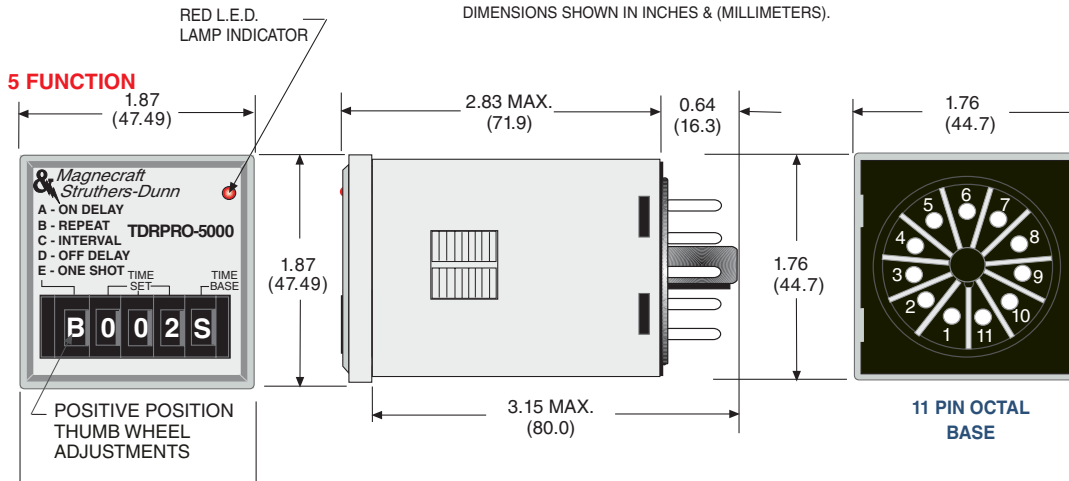
#### EXTERNAL CONTROL SWITCH



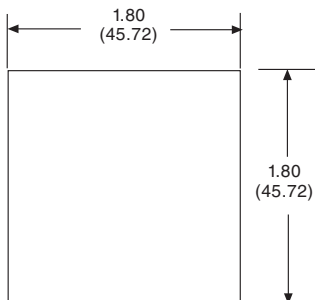
EXTERNAL SWITCH SHALL NOT BE CONNECTED TO ANY EXTERNAL LOAD OR VOLTAGE. DAMAGE TO INTERNAL COMPONENTS MAY OCCUR.

ALTERNATE NEMA OR IEC ( ) NUMBERS VIEWED FROM PIN SIDE

### OUTLINE DIMENSIONS DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



### PANEL CUTOUT FOR PANEL MOUNTING



STANDARD PART NUMBERS	CONTACT CONFIGURATION	TIMING RANGE	MATING SOCKETS See section 7
<b>5 FUNCTION - 11 PIN, 12 AMP</b>			
TDRPRO-5000	DPDT	0.1 SECOND TO 9,990 HOURS	70-465-1 70-750D11-1
<b>5 FUNCTION - 8 PIN, 12 AMP</b>			
TDRPRO-5001	SPDT	0.1 SECOND TO 9,990 HOURS	70-464-1 70-750D8-1
<b>3 FUNCTION - 8 PIN, 12 AMP</b>			
TDRPRO-5002	DPDT	0.1 SECOND TO 9,990 HOURS	70-464-1 70-750D8-1

COMPARE TO: IDEC RTE SERIES, OMRON H3 SERIES & P & B CN SERIES

## FEATURES

## BENEFITS

WIDE TIME RANGE:

AC / DC:

ALL POPULAR VOLTAGES AVAILABLE:

DUAL FUNCTION:

INDICATOR LED'S:

ELECTROMECHANICAL OUTPUT:

COMPACT SIZE:

FITS INDUSTRY SOCKETS:

ACCEPTS FLANGE ADAPTORS:

REMOVABLE KNOB:

0.1 SECONDS TO 10 HOUR, 8 SCALES, FINE ADJUSTMENT WITH KNOB

NO NEED TO SPECIFY AC OR DC (AC ONLY FOR 240)

12, 24, 120, 240

ON DELAY / INTERVAL  
OFF DELAY / RETRIGGERABLE ONE SHOT

GREEN SHOWS POWER ON  
RED SHOWS OUTPUT RELAY ENERGIZED

UP TO 12 AMPS PER POLE, DPDT

36mm WIDE TO OPTIMIZE DIN RAIL SPACE

8 PIN OCTAL, 11 PIN OCTAL OR BLADES

PANEL MOUNT OR DIN MOUNT  
WITH TERMINALS EXPOSED

PREVENT TAMPERING, REMOVE KNOB TO EXPOSE RECESSED SCREWDRIVER SLOT

MANUFACTURED  
UNDER  
ISO 9002  
& QS 9000

UL Recognized  
File No. E43641

**TDRSRXB  
TDRSOXB**



BLADES →  
(QUICK CONNECT)

**TDRSRXP  
TDRSOXP**



PINS →  
(OCTAL BASE)

**TOP OR SIDE MOUNT  
BRACKET ADAPTORS**

ORDERED AND SHIPPED  
SEPARATELY



DIN ADAPTER  
16-711C4



FLANGE ADAPTER  
16-711C1

## GENERAL SPECIFICATIONS (@ 25°C)

	UNITS	
<b>TIMING</b>		
Functions Available:		2-On delay/interval or Off delay/ Retriggerable One Shot
Time Scales:		8
Time Range:		0.1 second to 10 hours
Timing Adjustment:		KNOB
Timing Deviation (mechanical setting):	%	±10
Timing Repeatability (Constant voltage and temperature):	%	1
Reset Time:	mS maximum	150
Input Pulse Length:	mS minimum	50
<b>INPUT</b>		
Standard Voltage:	VAC/VDC	12, 24, 120, 240 (240 AC only)
Input Voltage Tolerance:	of nominal	-20% , +10%,
Power Consumption:	maximum	5 VA / 2.5 W
Transient Protection:		Yes
Reverse Polarity Protection:		Non-polarity sensitive
Input Indication:		Green LED
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	12 amps resistive @ 240
Contact Rating DC Amperes (DC1):	VDC	12 amps resistive @ 30
Minimum Load:	mW	500 mW
Contact Material:		Silver alloy
Output Indication:		Red LED

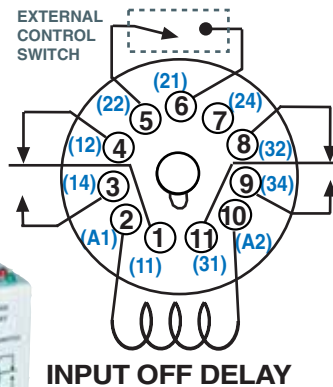
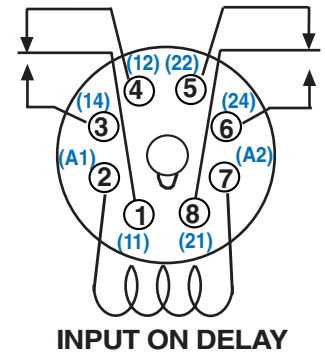
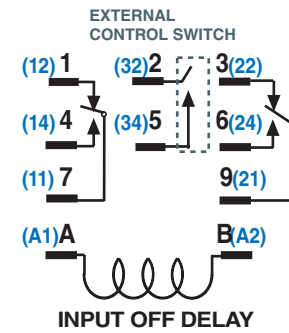
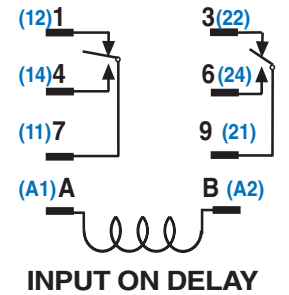
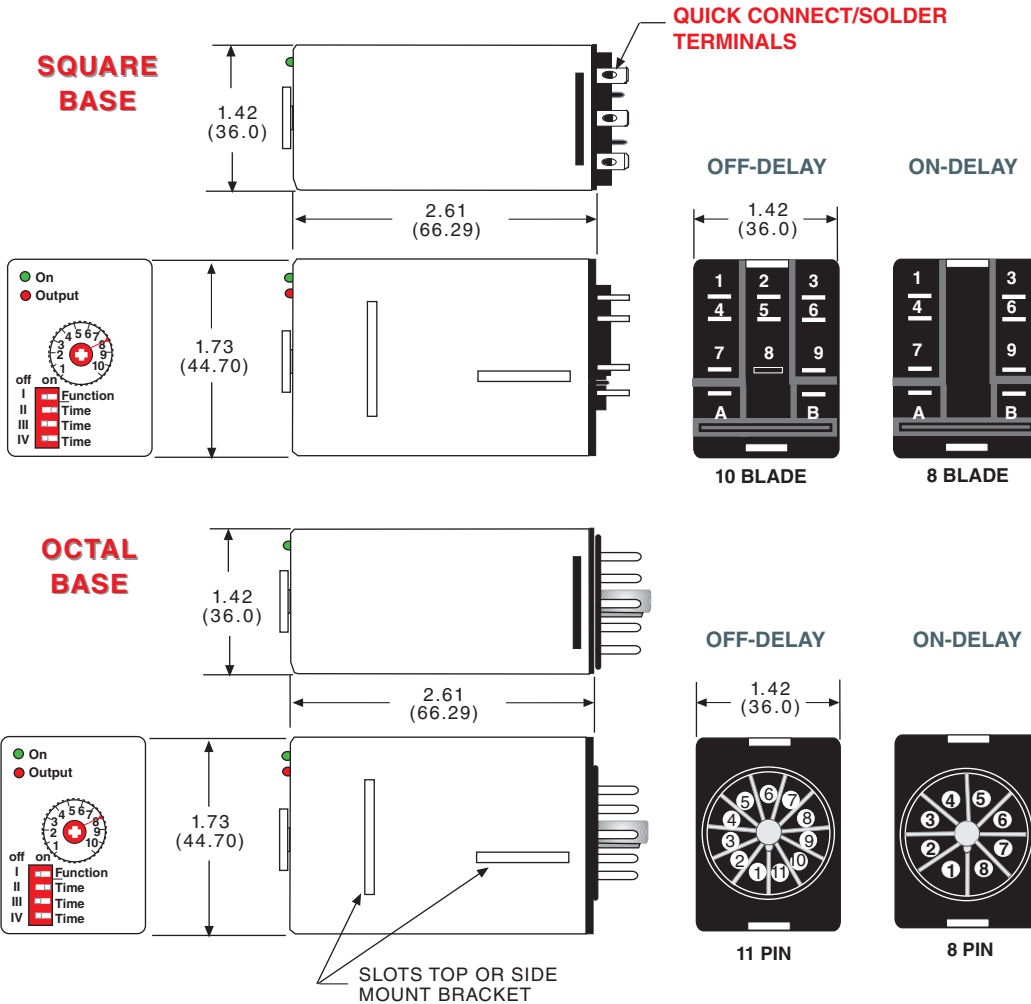
	UNITS	
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	Vrms	1,000
Input to Contacts:	Vrms	2,500
Pole to Pole:	Vrms	2,000
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-20
Storage, Upper:	°C	+85
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	100,000
Mechanical @ no Load :	operations	10,000,000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Cover Protection Category:	IP	40
Terminals:		XB= 0.187 x 0.020" quick connect OXP=8 pin octal, RXP=11 pin octal
Weight:	grams	90

# TDR SERIES COMPACT TIME DELAY RELAYS



## DPDT, 12 AMPS

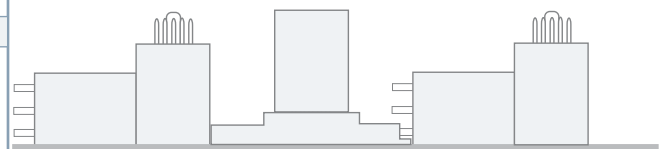
### WIRING DIAGRAM (VIEWED FROM PIN END)



STANDARD PART NUMBERS	CONTACT CONFIGURATION	NOMINAL INPUT VOLTAGE	MATING SOCKETS See section 7
<b>8 PIN OCTAL BASE - ON DELAY / INTERVAL, 12 AMP</b>			
TDRSOXP-12	DPDT	12 VAC/VDC	<b>70-464-1</b> <b>70-750D8-1</b>
TDRSOXP-24		24 VAC/VDC	
TDRSOXP-120		120 VAC/VDC	
TDRSOXP-240		240 VAC	
<b>11 PIN OCTAL BASE - OFF DELAY / RETRIGGERABLE ONE SHOT, 12 AMP</b>			
TDRSRXP-12	DPDT	12 VAC/VDC	<b>70-465-1</b> <b>70-750D11-1</b>
TDRSRXP-24		24 VAC/VDC	
TDRSRXP-120		120 VAC/VDC	
TDRSRXP-240		240 VAC	
<b>8 BLADE SQUARE BASE - ON DELAY / INTERVAL, 12 AMP</b>			
*TDRSOXB-12	DPDT	12 VAC/VDC	<b>70-463-1</b>
*TDRSOXB-24		24 VAC/VDC	
*TDRSOXB-120		120 VAC/VDC	
TDRSOXB-240		240 VAC	
<b>10 BLADE SQUARE BASE - OFF DELAY / RETRIGGERABLE ONE SHOT, 12 AMP</b>			
TDRSRXB-12	DPDT	12 VAC/VDC	<b>70-463-1</b>
TDRSRXB-24		24 VAC/VDC	
TDRSRXB-120		120 VAC/VDC	
TDRSRXB-240		240 VAC	



ALTERNATE NEMA OR IEC ( ) NUMBERS VIEWED FROM PIN SIDE



## DPDT, 10 AMPS

### WIRING DIAGRAM (VIEWED FROM PIN END)



UL Recognized  
File No. E43641



LISTED 367G  
IND. CONT. EQ.

WHEN USED WITH  
SOCKETS:  
70-464-1 (8 PIN)  
70-465-1 (11 PIN)



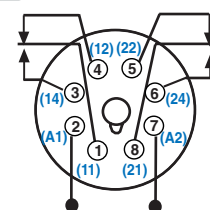
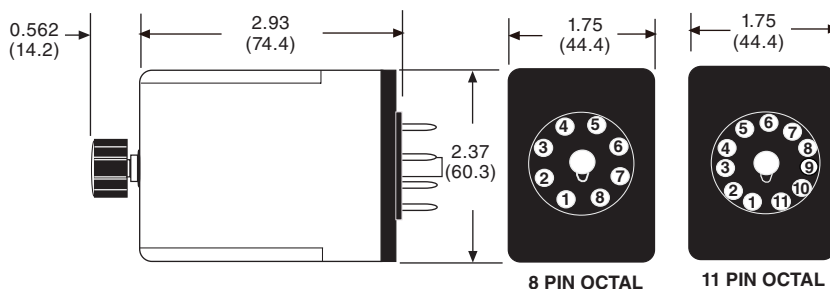
COMPLIES WITH REQUIREMENTS OF

\* IEC STANDARDS 947-4-1 AND 947-5-1 LOW VOLTAGE DIRECTIVE

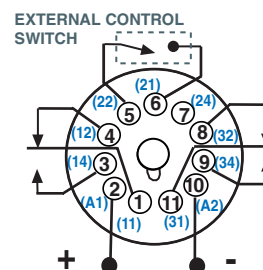
\* IEC - INTERNATIONAL ELECTROTECHNICAL COMMISSION

\* CE TESTING AND EVALUATION PERFORMED BY THE UNDERWRITERS LABORATORIES AS A THIRD PARTY PARTICIPANT

### OUTLINE DIMENSIONS DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



INPUT ON DELAY



INPUT OFF DELAY

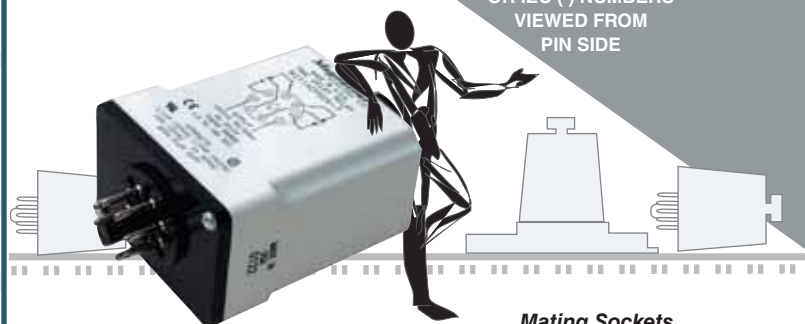
EXTERNAL SWITCH SHALL NOT BE CONNECTED TO ANY EXTERNAL LOAD OR VOLTAGE. DAMAGE TO INTERNAL COMPONENTS MAY OCCUR.

ALTERNATE NEMA OR IEC ( ) NUMBERS VIEWED FROM PIN SIDE

## GENERAL SPECIFICATIONS (@ 25°C)

	UNITS	
<b>TIMING</b>		
Functions Available:		On delay, off delay, interval or one shot
Time Scales:		1
Time Range:		0.1 second to 120 minutes
Timing Adjustment:		KNOB
Timing Deviation (mechanical setting):	%	+20
Timing Repeatability (Constant voltage and temperature):	%	0.1
Reset Time:	mS maximum	150
Input Pulse Length:	mS minimum	50
<b>INPUT</b>		
Standard Voltage:		See P/N chart
Input Voltage Tolerance:	VAC 50/60 Hz	85% to 110%,
	VDC	80% to 110%
Power Consumption:	maximum	2.5 VA / 2 W
Transient Protection:		Yes
Reverse Polarity Protection:		Yes
Input Indication:		No
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	10 amps resistive @ 240
Contact Rating DC Amperes (DC1):	VDC	10 amps resistive @ 30
Contact Rating Horsepower:	HP @ VAC	1/3 @ 120, 1/2 @ 240
Contact Rating Pilot Duty:		B300
Minimum Load:	mW	500
Contact Material:		Silver alloy
Output Indication:		No
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	V rms	1,000
Input to Contacts:	V rms	2,500
Pole to Pole:	V rms	2,000
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-40
Storage, Upper:	°C	+85
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	100,000
Mechanical @ no Load :	operations	10,000,000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Cover Protection Category:	IP	40
Terminals:		SOX = 8 pin octal SRX = 11 pin octal
Weight:	grams	115

THE CLASS 211 TIME DELAY RELAY MAKES USE OF HYBRID CIRCUITRY, COMBINING INTEGRATED CIRCUITS FOR A MULTITUDE OF TIMING FUNCTIONS, AND THE RELIABILITY OF RELAY TECHNOLOGY.



Mating Sockets  
70-464-1, 70-750D8-1: SOX, 70-465-1, 70-750D11-1: SRX  
See section 7

STANDARD PART NUMBER	NOMINAL INPUT VOLTAGE	TIMING RANGE
<b>ON DELAY, 10 AMP</b>		
211ACPSOX-3	24 VAC	1 TO 180 SECONDS
W211ACPSOX-5	120 VAC	0.1 TO 10 SECONDS
W211ACPSOX-7	120 VAC	1.0 TO 180 SECONDS
W211ACPSOX-8	120 VAC	2.0 TO 300 SECONDS
W211ACPSOX-60	120 VAC	1.0 TO 15 MINUTES
W211ACPSOX-61	120 VAC	2.0 TO 30 MINUTES
W211ACPSOX-62	120 VAC	4.0 TO 60 MINUTES
W211CPSOX-1	24 VDC	0.1 TO 10 SECONDS
W211CPSOX-3	24 VDC	1.0 TO 180 SECONDS
<b>OFF DELAY, 10 AMP</b>		
W211ACPSRX-5	120 VAC	0.1 TO 10 SECONDS
W211ACPSRX-7	120 VAC	1.0 TO 180 SECONDS
W211ACPSRX-8	120 VAC	2.0 TO 300 SECONDS
W211ACPSRX-60	120 VAC	1.0 TO 15 MINUTES
W211CPSRX-1	24 VDC	0.1 TO 10 SECONDS
W211CPSRX-3	24 VDC	1.0 TO 180 SECONDS

CALL FACTORY FOR OTHER VOLTAGES, TIME AND FUNCTIONS



## DPDT, 10 AMPS

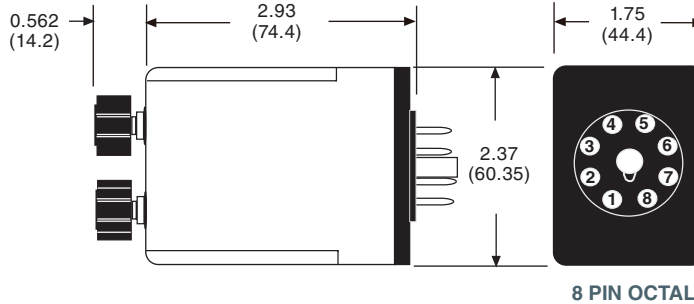
### WIRING DIAGRAM (VIEWED FROM PIN END)



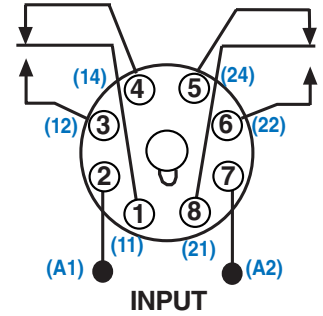
COMPLIES WITH REQUIREMENTS OF

- \* IEC STANDARDS 947-4-1 AND 947-5-1 LOW VOLTAGE DIRECTIVE
- \* IEC = INTERNATIONAL ELECTROTECHNICAL COMMISSION
- \* CE TESTING AND EVALUATION PERFORMED BY THE UNDERWRITERS LABORATORIES AS A THIRD PARTY PARTICIPANT

### OUTLINE DIMENSIONS DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



8 PIN OCTAL



ALTERNATE NEMA OR IEC ( ) NUMBERS VIEWED FROM PIN SIDE

## GENERAL SPECIFICATIONS (@ 25°C)

	UNITS	
<b>TIMING</b>		
Functions Available:		Repeat cycle
Time Scales:		1
Time Range:		0.1 seconds to 30 minutes
Timing Adjustment:		KNOB
Timing Deviation (mechanical setting):	%	+20
Timing Repeatability (Constant voltage and temperature):	%	0.1
Reset Time:	mS maximum	150
Input Pulse Length:	mS maximum	50
<b>INPUT</b>		
Standard Voltage:	AC 50/60 Hz	120
Input Voltage Tolerance:	of nominal	AC: 85% to 110%, DC: 80% to 110%
Power Consumption:	maximum	2.5 VA / 2 W
Transient Protection:		Yes
Reverse Polarity Protection:		Yes
Input Indication:		No
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	10 amps resistive @ 240
Contact Rating DC Amperes (DC1):	VDC	10 amps resistive @ 28
Contact Rating Horsepower:	HP @ VAC	1/3 @ 120, 1/2 @ 240
Contact Rating Pilot Duty:		B300
Minimum Load:	mW	500
Contact Material:		Silver alloy
Output Indication:		No
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	V rms	1,000
Input to Contacts:	V rms	2,500
Pole to Pole:	V rms	2,000
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-40
Storage, Upper:	°C	+85
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	100,000
Mechanical @ no Load :	operations	10,000,000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Cover Protection Category:	IP	40
Terminals:		8 pin octal
Weight:	grams	130

**INDEPENDENT TIME SETTINGS  
FOR BOTH "ON" AND "OFF"  
TIMING RANGES**



**Mating Sockets**  
70-464-1, 70-750D8-1  
See section 7

STANDARD PART NUMBER	NOMINAL INPUT VOLTAGE	TIMING RANGE
<b>REPEAT CYCLE, 10 AMP</b>		
W222ACPF11	120 VAC	0.1 TO 10 SECONDS
W222ACPF16	120 VAC	3 TO 300 SECONDS
W222ACPF27	120 VAC	2 TO 30 MINUTES

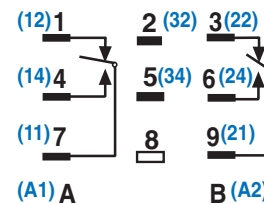
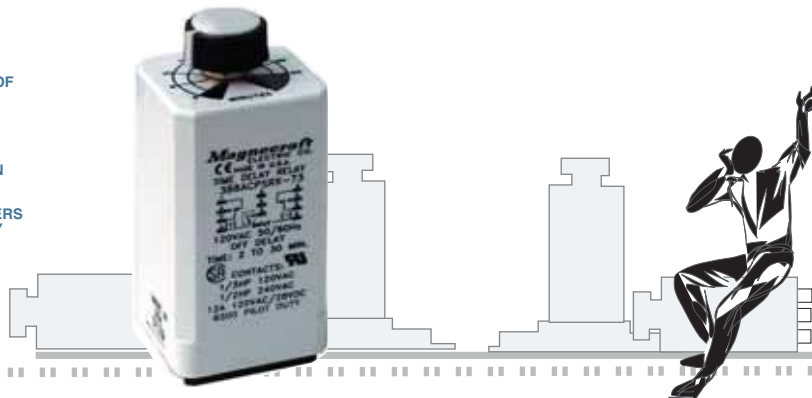
## DPDT, 12 AMPS

### WIRING DIAGRAM (VIEWED FROM PIN END)



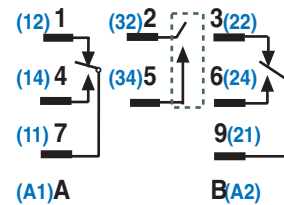
COMPLIES WITH REQUIREMENTS OF

- \* IEC STANDARDS 947-4-1 AND 947-5-1 LOW VOLTAGE DIRECTIVE
- \* IEC = INTERNATIONAL ELECTROTECHNICAL COMMISSION
- \* CE TESTING AND EVALUATION PERFORMED BY THE UNDERWRITERS LABORATORIES AS A THIRD PARTY PARTICIPANT



**INPUT ON DELAY**

EXTERNAL CONTROL SWITCH



**INPUT OFF DELAY**

EXTERNAL SWITCH SHALL NOT BE CONNECTED TO ANY EXTERNAL LOAD OR VOLTAGE. DAMAGE TO INTERNAL COMPONENTS MAY OCCUR.

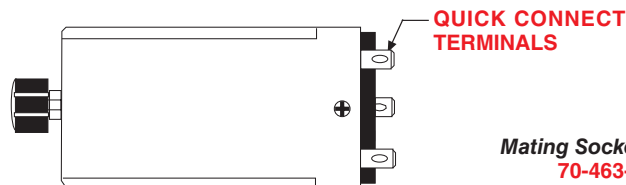
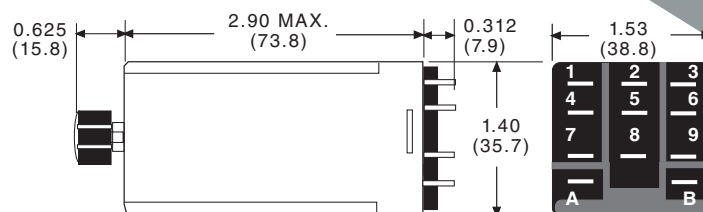
ALTERNATE NEMA OR IEC ( ) NUMBERS VIEWED FROM PIN SIDE

## GENERAL SPECIFICATIONS (@ 25°C)

	UNITS	
<b>TIMING</b>		
Functions Available:		On delay or off delay
Time Scales:		1
Time Range:		0.1 to 180 Seconds
Timing Adjustment:		KNOB
Timing Deviation (mechanical setting):	%	+20
Timing Repeatability (Constant voltage and temperature):	%	0.1
Reset Time:	mS maximum	150
Input Pulse Length:	mS minimum	50
<b>INPUT</b>		
Standard Voltage:	VAC 50/60Hz	AC: 120, DC:24
Input Voltage Tolerance:	of nominal	AC: 85% to 110%, DC: 80% to 110%
Power Consumption:	maximum	2.5 VA / 2 W
Transient Protection:		Yes
Reverse Polarity Protection:		Yes
Input Indication:		No
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	12 amps resistive @ 240
Contact Rating DC Amperes (DC1):	VDC	12 amps resistive @ 28
Contact Rating Horsepower:	HP @ VAC	1/3 @ 120, 1/2 @ 240
Contact Rating Pilot Duty:		B300
Minimum Load:	mW	500
Contact Material:		Silver alloy
Output Indication:		No
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	V rms	1,000
Input to Contacts:	V rms	2,000
Pole to Pole:	V rms	2,000
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-40
Storage, Upper:	°C	+85
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	100,000
Mechanical @ no Load :	operations	5,000,000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Cover Protection Category:	IP	40
Terminals:	Inch	0.187 x 0.020" quick connect
Weight:	grams	96

**KNOB ADJUSTABLE TIME "ON" OR "OFF" DELAY FUNCTIONS.**

**OUTLINE DIMENSIONS**  
DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



Mating Socket  
70-463-1  
See section 7

STANDARD PART NUMBER	NOMINAL INPUT VOLTAGE	TIMING RANGE
<b>ON DELAY, 12 AMP</b>		
W388ACPSOX-42	120 VAC	0.1 TO 10 SECONDS
W388ACPSOX-44	120 VAC	1.0 TO 180 SECONDS
<b>OFF DELAY, 12 AMP</b>		
W388CPSRX-2	24 VDC	0.1 TO 10 SECONDS
W388CPSRX-4	24 VDC	1.0 TO 180 SECONDS

CALL FACTORY FOR OTHER VOLTAGES, TIME AND FUNCTIONS



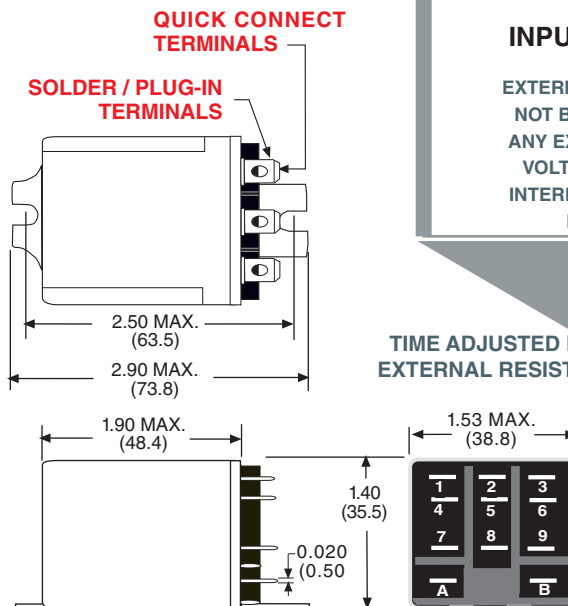
COMPLIES WITH REQUIREMENTS OF

- \* IEC STANDARDS 947-4-1 AND 947-5-1 LOW VOLTAGE DIRECTIVE
- \* IEC = INTERNATIONAL ELECTROTECHNICAL COMMISSION
- \* CE TESTING AND EVALUATION PERFORMED BY THE UNDERWRITERS LABORATORIES AS A THIRD PARTY PARTICIPANT



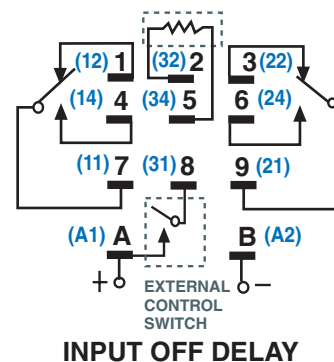
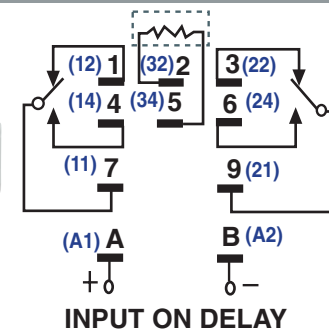
**PLUG-IN TIMER HAS SAME CASE DIMENSIONS AS FLANGE MOUNT EXCEPT - NO FLANGE AND SOCKET MOUNTABLE.**

**OUTLINE DIMENSIONS**  
DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



**QUICK CONNECT TERMINALS**  
**SOLDER / PLUG-IN TERMINALS**

## WIRING DIAGRAM (VIEWED FROM PIN END)



EXTERNAL SWITCH SHALL NOT BE CONNECTED TO ANY EXTERNAL LOAD OR VOLTAGE. DAMAGE TO INTERNAL COMPONENTS MAY OCCUR.

ALTERNATE NEMA OR IEC ( ) NUMBERS VIEWED FROM PIN SIDE

TIME ADJUSTED BY EXTERNAL RESISTOR

Mating Socket  
70-463-1: EXCEPT NO SOCKET FOR FLANGE MOUNT  
See section 7

## GENERAL SPECIFICATIONS (@ 25°C)

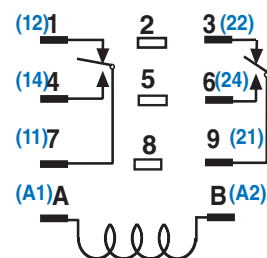
	UNITS	
<b>TIMING</b>		
Functions Available:		On delay or off delay
Time Scales:		1
Time Range:		0.1 to 120 Seconds
Timing Adjustment:		KNOB
Timing Deviation (mechanical setting):	%	+20
Timing Repeatability (Constant voltage and temperature):	%	3
Reset Time:	mS maximum	150
Input Pulse Length:	mS minimum	50
<b>INPUT</b>		
Standard Voltage:	VAC 50/60 Hz	120
	VDC	24
Input Voltage Tolerance:	of nominal of nominal maximum	AC:85% to 110%, DC:80% to 110%
Power Consumption:		2.5 VA / 2 W
Transient Protection:		Yes
Reverse Polarity Protection:		Yes
Input Indication:		No
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	12 amps resistive @ 240
Contact Rating DC Amperes (DC1):	VDC	12 amps resistive @ 28
Contact Rating Horsepower:	HP @ VAC	1/3 @ 120, 1/2 @ 240
Contact Rating Pilot Duty:		B300
Minimum Load:	mW	500
Contact Material:		Silver alloy
Output Indication:		No
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	V rms	1,000
Input to Contacts:	V rms	2,000
Pole to Pole:	V rms	2,000
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-40
Storage, Upper:	°C	+85
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	100,000
Mechanical @ no Load :	operations	5,000,000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Cover Protection Category:	IP	40
Terminals:	Inch	0.187 x 0.020" quick connect
Weight:	grams	85

STANDARD PART NUMBERS	NOMINAL INPUT VOLTAGE	TIMING RANGE	EXTERNAL RESISTOR
<b>ON DELAY PLUG-IN STYLE, 12 AMP</b>			
W388ACPSOX-1	120 VAC	0.1 TO 10 SECONDS	20,000 Ω
W388ACPSOX-2	120 VAC	1.0 TO 120 SECONDS	PER SECOND
W388CPSOX-1	24 VDC	0.1 TO 10 SECONDS	16,000 Ω
W388CPSOX-2	24 VDC	1.0 TO 120 SECONDS	PER SECOND
<b>ON DELAY SURFACE MOUNT FLANGE STYLE, 12 AMP</b>			
W388ACQSOX-1	120 VAC	0.1 TO 10 SECONDS	20,000 Ω
W388ACQSOX-2	120 VAC	1.0 TO 120 SECONDS	PER SECOND
W388CQSOX-2	24 VDC	1.0 TO 120 SECONDS	
<b>OFF DELAY PLUG-IN STYLE, 12 AMP</b>			
W388CPSRX-22	24 VDC	1.0 TO 120 SECONDS	16,000 Ω PER SECOND



## DPDT, 12 AMPS

### WIRING DIAGRAM (VIEWED FROM PIN END)



**INPUT OFF DELAY**

ALTERNATE NEMA  
OR IEC ( ) NUMBERS  
VIEWED FROM  
PIN SIDE



COMPLIES WITH REQUIREMENTS OF

- \* IEC STANDARDS 947-4-1 AND 947-5-1 LOW VOLTAGE DIRECTIVE
- \* IEC = INTERNATIONAL ELECTROTECHNICAL COMMISSION
- \* CE TESTING AND EVALUATION PERFORMED BY THE UNDERWRITERS LABORATORIES AS A THIRD PARTY PARTICIPANT

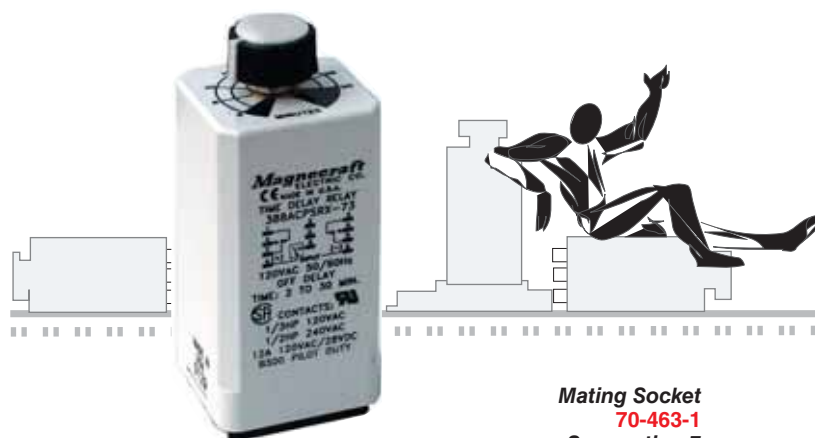
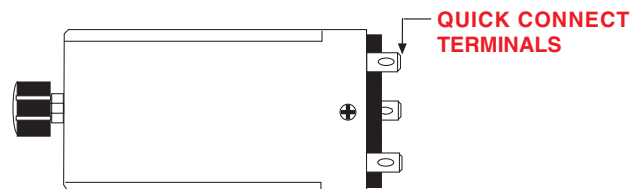
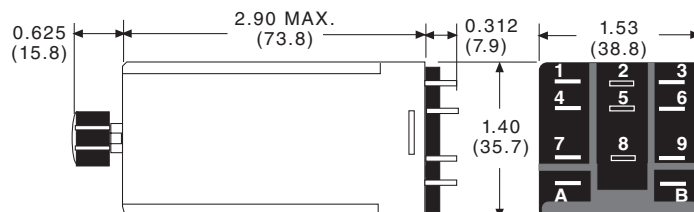
**THE CLASS 388 TRUE OFF DELAY RELAY PULLS IN WHEN POWER IS APPLIED TO THE INPUT. TIMING STARTS WHEN POWER IS REMOVED FROM THE INPUT, AND AT THE END OF THE PRESET TIMING PERIOD THE RELAY WILL DROPOUT.**

## GENERAL SPECIFICATIONS (@ 25°C)

	UNITS	
<b>TIMING</b>		
Functions Available:		True off delay
Time Scales:		1
Time Range:		0.1 to 60 seconds
Timing Adjustment:		KNOB
Timing Deviation (mechanical setting):	%	+20
Timing Repeatability (Constant voltage and temperature):	%	3
Reset Time:	mS maximum	150
Input Pulse Length:	mS minimum	50
<b>INPUT</b>		
Standard Voltage:	VAC 50/60 Hz	120
	VDC	24
Input Voltage Tolerance:	of nominal	AC:85% to 110%, DC:80% to 110%
Power Consumption:	maximum	1.5 VA / 1 W
Transient Protection:		Yes
Reverse Polarity Protection:		Yes
Input Indication:		No
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	12 amps resistive @ 240
Contact Rating DC Amperes (DC1):	VDC	12 amps resistive @ 28
Contact Rating Horsepower:	HP @ VAC	1/3 @ 120, 1/2 @ 240
Contact Rating Pilot Duty:		B300
Minimum Load:	mW	500
Contact Material:		Silver alloy
Output Indication:		No
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	V rms	1,000
Input to Contacts:	V rms	2,000
Pole to Pole:	V rms	2,000
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-40
Storage, Upper:	°C	+85
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	100,000
Mechanical @ no Load :	operations	5,000,000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Cover Protection Category:	IP	40
Terminals:	Inch	0.187 x 0.020" quick connect
Weight:	grams	96

### OUTLINE DIMENSIONS

DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



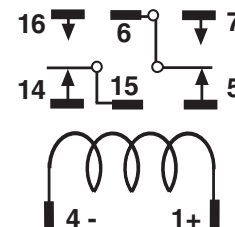
**Mating Socket**  
**70-463-1**  
See section 7

STANDARD PART NUMBER	NOMINAL INPUT VOLTAGE	TIMING RANGE
<b>AC OPERATED, 12 AMP</b>		
W388ACPSRX-29	120 VAC	0.6 TO 60 SECONDS
W388ACPSRX-30	120 VAC	0.1 TO 10 SECONDS
<b>DC OPERATED, 12 AMP</b>		
W388CPSRX-35	24 VDC	0.1 TO 10 SECONDS
W388CPSRX-36	24 VDC	0.6 TO 60 SECONDS

CALL FACTORY FOR OTHER VOLTAGES, TIME AND FUNCTIONS

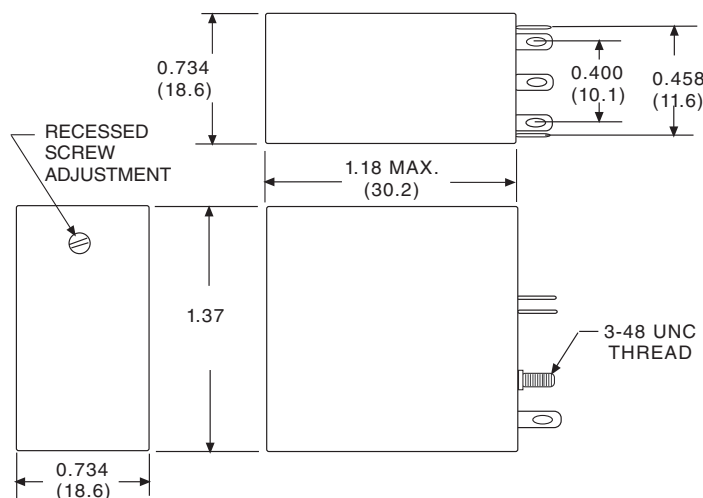
## DPDT, 5 AMPS

### WIRING DIAGRAM (VIEWED FROM PIN END)



### OUTLINE DIMENSIONS

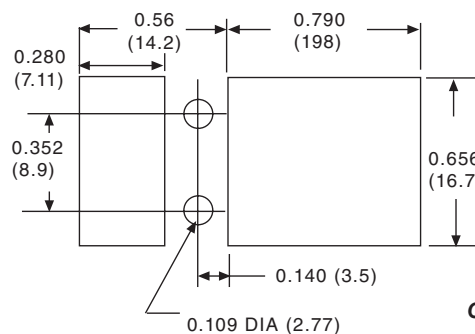
DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



## GENERAL SPECIFICATIONS (@ 25°C)

	UNITS	
<b>TIMING</b>		
Functions Available:		On delay
Time Scales:		1
Time Range:		0.1 to 30 Seconds
Timing Adjustment:		Recessed potentiometer
Timing Deviation (mechanical setting):	%	No scale printed on part
Timing Repeatability (Constant voltage and temperature):	%	2
Reset Time:	mS maximum	150
Input Pulse Length:	mS minimum	Not applicable
<b>INPUT</b>		
Standard Voltage:	VAC 50/60Hz	12, 24
Input Voltage Tolerance:	of nominal	DC: 80% to 110%
Power Consumption:	maximum	1.1 W
Transient Protection:		Yes
Reverse Polarity Protection:		Yes
Input Indication:		No
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	5 amps resistive @ 120
Contact Rating DC Amperes (DC1):	VDC	5 amps resistive @ 28
Contact Rating Horsepower:	HP @ VAC	1/3 @ 120, 1/2 @ 240
Minimum Load:	mW	500
Contact Material:		Silver alloy
Output Indication:		No
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	V rms	500
Input to Contacts:	V rms	1,500
Pole to Pole:	V rms	1,500
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-40
Storage, Upper:	°C	+85
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	50,000
Mechanical @ no Load :	operations	5,000,000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Cover Protection Category:	IP	40
Terminals:	Inch	0.100 x 0.020" tabs
Weight:	grams	35

### CHASSIS CUTOUT FOR PANEL MOUNTING



Chassis Mount:  
**70-307-1**  
PCB:  
**70-308-1**  
See section 7

STANDARD PART NUMBER	NOMINAL INPUT VOLTAGE	TIMING RANGE
<b>ON DELAY, 5 AMP</b>		
<b>W67CPSOX-1</b>	12 VDC	0.1 TO 30 SECONDS
<b>W67CPSOX-2</b>	24 VDC	0.1 TO 30 SECONDS

## UL CONTACT LOAD RATINGS TABLE

UL US  
UL Recognized  
File No. E13224

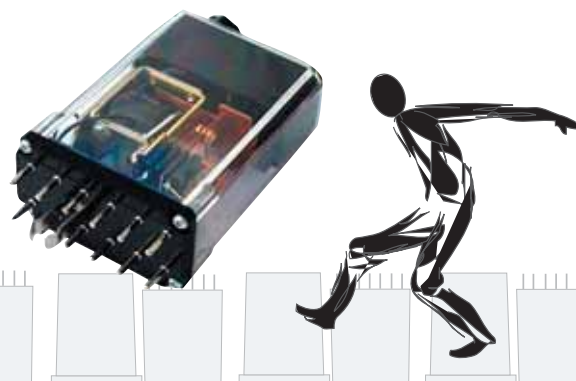
CSA  
Class 246 CSA  
Certified

UL US  
LISTED  
367G  
WHEN USED WITH  
SOCKET 27390D  
or 33377D

POLES	CURRENT OR HORSE POWER	LOAD VOLTAGE	LOAD VOLTAGE FREQUENCY	TYPE OF LOAD
ALL STYLES	10 AMP	120 VAC	50/60 Hz	RESISTIVE
	5 AMP	240 VAC	50/60 Hz	RESISTIVE
	10 AMP	28 VDC	DC	RESISTIVE
	0.5 AMP	125 VDC	DC	RESISTIVE
	3 AMP	120 VAC	50/60 Hz	INDUCTIVE
	1 AMP	240 VAC	50/60 Hz	INDUCTIVE
	3 AMP	28 VDC	DC	INDUCTIVE
	0.1 AMP	125 VDC	DC	INDUCTIVE
<b>SUFFIX "69" WITH BLOWOUT MAGNET FOR DC SWITCHING (NOT UL OR CSA)</b>				
SPST-NO	1.5 AMP	125 VDC	DC	RESISTIVE
SPST-NO-DM	4 AMP	125 VDC	DC	RESISTIVE
SPST-NO	0.5 AMP	250 VDC	DC	RESISTIVE
SPST-NO-DM	1.5 AMP	250 VDC	DC	RESISTIVE
SPST-NO	0.5 AMP	125 VDC	DC	INDUCTIVE
SPST-NO-DM	1.5 AMP	125 VDC	DC	INDUCTIVE
SPST-NO	150 mA	250 VDC	DC	INDUCTIVE
SPST-NO-DM	0.5 AMP	250 VDC	DC	INDUCTIVE

CONTACTS CAN SWITCH 30 AMP LOADS AND CARRY 10 AMPS CONTINUOUSLY AT VOLTAGES SHOWN IN UL CONTACT LOAD RATINGS TABLE.

THE CLASS 246 & 247 ARE AVAILABLE WITH A VARIETY OF POLE AND CONTACT CONFIGURATIONS.  
A LARGE CHOICE OF OPTIONS IS AVAILABLE.



## GENERAL SPECIFICATIONS (@ 25°C)

	UNITS	
<b>TIMING</b>		
Functions Available:	On delay or off delay	
Time Scales:	1	
Time Range:	0.1 to 300 seconds	
Timing Adjustment:	KNOB	
Timing Deviation (mechanical setting):	%	No scale printed on part
Timing Repeatability (Constant voltage and temperature):	%	3
Reset Time:	mS maximum	150
Input Pulse Length:	mS minimum	50
<b>INPUT</b>		
Standard Voltage:	AC 50/60 Hz	See ordering code
Input Voltage Tolerance:	of nominal	AC: 85% to 110%, DC: 80% to 110%
Power Consumption:	maximum	5 VA / 2.5 W
Transient Protection:	Yes	
Reverse Polarity Protection:	Yes	
Input Indication:	Optional	
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	10 amps resistive @ 120
Contact Rating DC Amperes (DC1):	VDC	10 amps resistive @ 28
Minimum Load:	mW	500 mW
Contact Material:	Silver alloy	
Output Indication:	No	

	UNITS	
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	Vrms	1,500
Input to Contacts:	Vrms	1,500
Pole to Pole:	V rms	1,500
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	AC: +45, DC: +70
Storage, Lower:	°C	-20
Storage, Upper:	°C	+85
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	100,000
Mechanical @ no Load :	operations	10,000,000
<b>MISCELLANEOUS</b>		
Operating Position:	Any	
Cover Protection Category:	IP	40
Terminals:	12 or 14 pin rectangular	
Weight:	grams	227

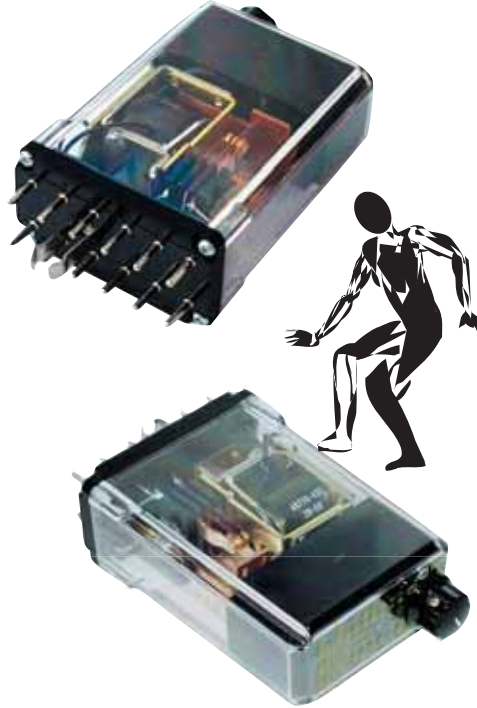
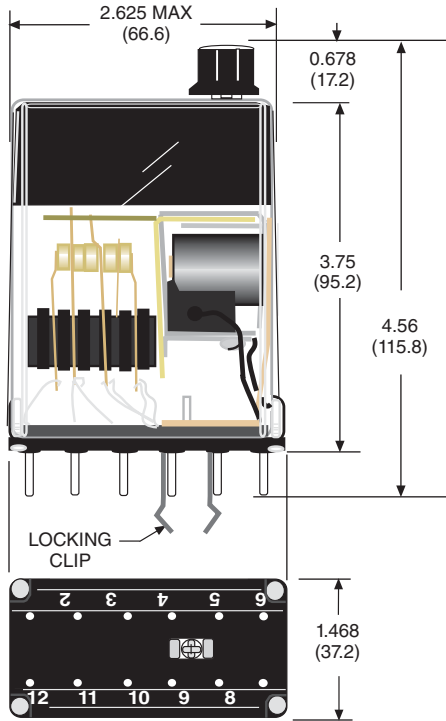
# 246 & 247 INDUSTRIAL DELAY TIMER RELAYS



## DPDT & 4PDT 10 AMPS

### OUTLINE DIMENSIONS

DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



THE AGASTAT ALTERNATIVE

### ORDERING CODE

**247**

**XBX**

**P**

**L**

**-010**

**-120A**

#### CLASS:

246: ON DELAY, 247: OFF DELAY,

#### CONTACT ARRANGEMENTS:

**XBX:** (2 FORM "C"), **XCX:** (3 FORM "C")  
**ABA:** (1 FORM A & 2 FORM C & 1 FORM B).  
**BBX:** (2 FORM A & 2 FORM C) 246 ONLY.  
**DXD:** (4 FORM C) 246 ONLY.

#### STANDARD FEATURES:

PLUG-IN WITH POLYCARBONATE COVER: **CODE P**

#### OPTIONS:

INDICATOR LAMP: **CODE L**  
 MANUAL ACTUATOR: **CODE M**  
 BIFURCATED CONTACTS (5 AMPS MAX): **CODE 33**  
 PERMANENT MAGNET, BLOWOUT: **CODE 69**  
 ADJUSTMENT KNOB: **NO CODE**  
 REMOTE ADJ. (EXT POT REQUIRED) : **CODE R**  
 LOCKING SHAFT POT: **CODE 8**  
 INSTANTANEOUS CONTACTS: **CALL**

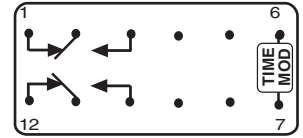
#### TIMING RANGES:

0.1 - 1.0 SEC: **CODE 001**, 0.2 - 2.0 SEC: **CODE 002**, 1.0 - 10 SEC: **CODE 010**  
 3.0 - 30 SEC: **CODE 030**, 6.0 - 60 SEC: **CODE 060**, 18 - 180 SEC: **CODE 180**  
 30 - 300 SEC: **CODE 300**, OVER 300 SEC: **CALL**, FIXED: **CODE F (EX. 3F)**

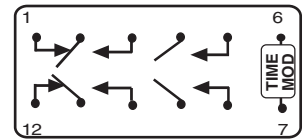
#### OPERATING VOLTAGE:

24, 48, 120, 240 **ADD "A" FOR AC COILS**  
 12, 24, 48, 110-125, 250 **ADD "D" FOR DC COILS**

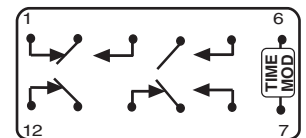
### WIRING DIAGRAM



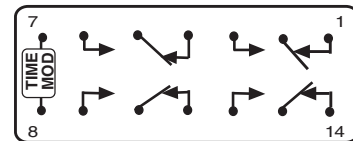
246XBP



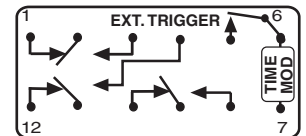
246BBXP



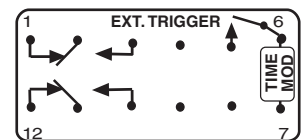
246ABAP



246 XDXP



247XCXP



247XBXP

CROSS REFERENCE AVAILABLE  
CONSULT FACTORY

#### Mating Sockets:

12 Pin: **27390**

14 Pin: **33377**

Add "D" suffix (**27390D, 33377D**)  
for DIN mount socket  
See section 7

CALL FACTORY FOR OTHER VOLTAGES,  
TIME AND FUNCTIONS



COMPLIES WITH REQUIREMENTS OF

\* IEC STANDARDS 947-4-1 AND 947-5-1 LOW VOLTAGE DIRECTIVE

\* IEC = INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MANUFACTURED UNDER ISO 9002**

## FEATURES

INDEPENDENT UPPER AND LOWER LIMITS

TIME DELAY

TWO STATUS LEDs

DIN MODULE

## BENEFITS

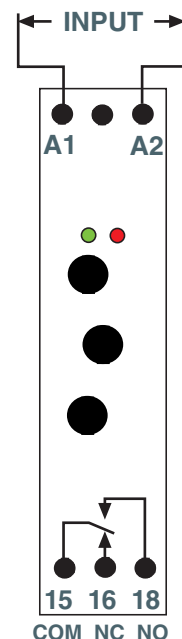
SENSE OVER VOLTAGE, UNDER VOLTAGE OR BOTH

AVOID NUISANCE TRIPPING

INDICATES STATUS AT A GLANCE

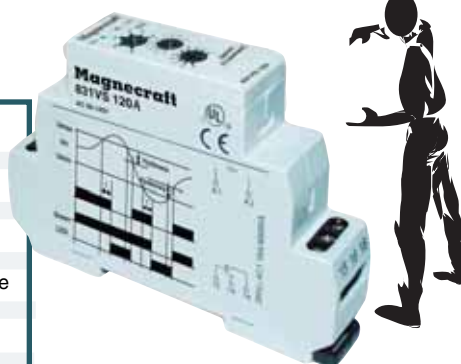
CLIP DIRECTLY TO 35 mm DIN RAIL

## WIRING DIAGRAM



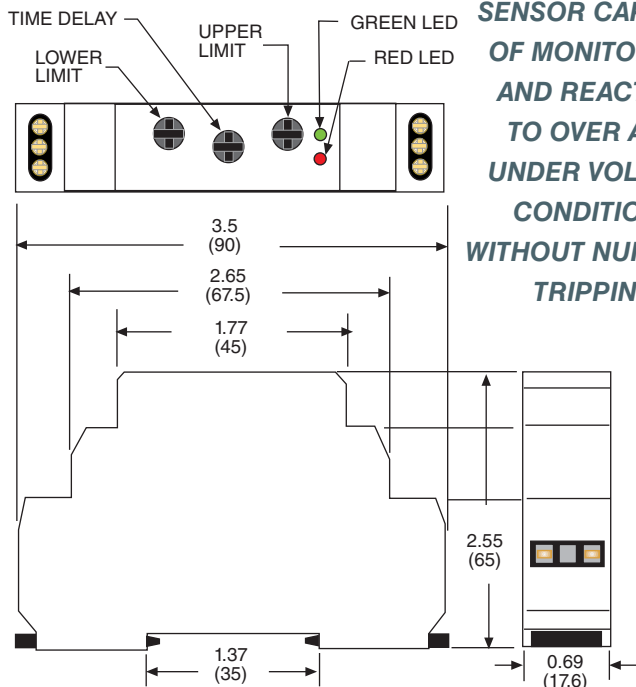
## GENERAL SPECIFICATIONS (@ 25°C)

	UNITS	
<b>INPUT/SENSING</b>		
Standard Voltage Nominal:	VAC 50/60 Hz	120
Input Voltage Absolute Maximum:	VAC 50/60 Hz	200
Upper Input Voltage Range:	VAC 50/60 Hz	80 to 150
Lower Input Voltage Range:	%	30 to 99 of upper limit voltage
Power Consumption:	maximum	1.2 VA
Transient Protection:		Yes
Reverse Polarity Protection:		Not Applicable
Operate Time:	mS maximum	25
Release Time:	mS maximum	20
Input Indication:		Green LED
<b>TIMING</b>		
Time Scales:		1
Time Range:		0 to 10 second
Setting Adjustment:		Recessed potentiometer
Timing Deviation (mechanical setting):	%	5
Timing Repeatability (Constant voltage and temperature):	%	<1
Reset Time:	mS maximum	150
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	15 amps resistive @ 120,240
Contact Rating DC Amperes (DC1):	VDC	15 amps resistive @ 24
Contact Rating Pilot Duty:	mW	500
Contact Material:		Silver-Nickel 90/10
Output Indication:		Red: LED: Blinks = timing On = energized
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	V rms	1,000
Input to Contacts:	V rms	2,500
Pole to Pole:		Not applicable
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-30
Storage, Upper:	°C	+70
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	70,000
Mechanical @ no Load :	operations	10,000,000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Maximum Wire Size		2.5 mm (UL-14 gauge)
Cover Protection Category:	IP	40
Pollution Degree:		2
Terminals:	Inch	Captive screws
Weight:	grams	60



## OUTLINE DIMENSIONS

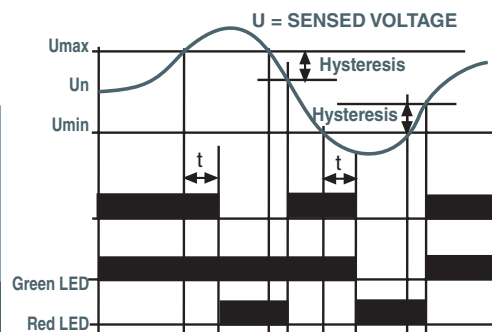
DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



**TYPE 831 IS A SINGLE PHASE AC VOLTAGE SENSOR CAPABLE OF MONITORING AND REACTING TO OVER AND UNDER VOLTAGE CONDITIONS WITHOUT NUISANCE TRIPPING**

## STANDARD PART NUMBER

**831VS-120A**





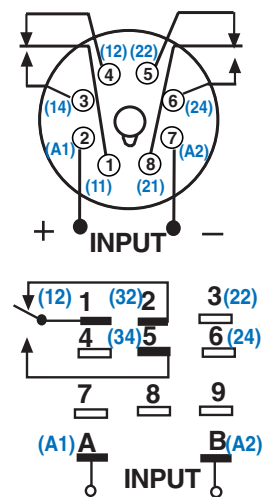
## SPDT, 13 AMPS & DPDT, 10 AMPS

WIRING DIAGRAM  
(VIEWED FROM PIN END)

**UL**  
UL Recognized  
File No. E62636



CLASS 236 VOLTAGE SENSING RELAYS COMBINE A SOLID STATE SENSOR WITH A SPDT, 13 AMP OR DPDT 10 AMP RELAY. PULL-IN & DROPOUT VOLTAGES ARE INDEPENDENTLY ADJUSTABLE. THE 236 CAN BE USED EITHER AS A OVER OR UNDER VOLTAGE DETECTING RELAY. STATUS L.E.D. INCLUDED.



**SQUARE BASE**  
CONTINUOUS VOLTAGE  
MUST BE SUPPLIED TO INPUT.

ALTERNATE NEMA  
OR IEC ( ) NUMBERS  
VIEWED FROM  
PIN SIDE

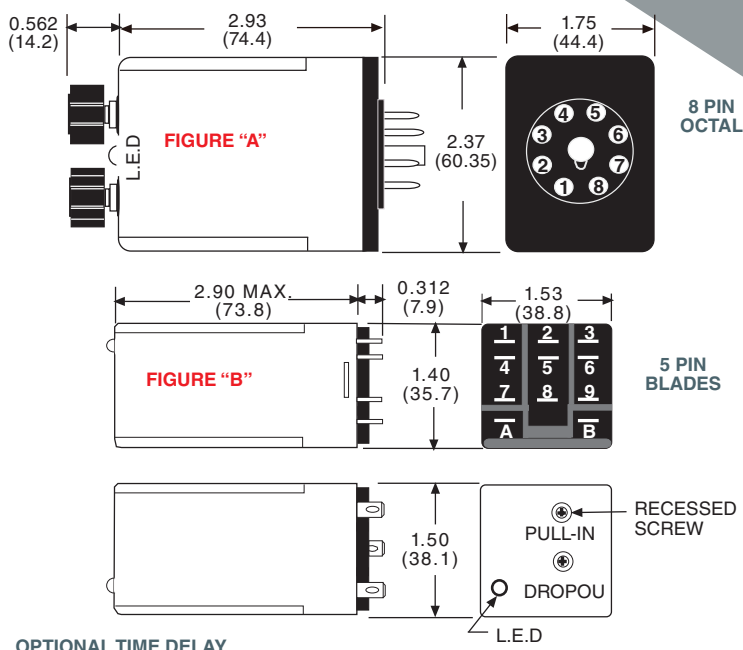
### GENERAL SPECIFICATIONS (@ 25°C)

	UNITS	
<b>INPUT/SENSING</b>		
Standard Voltage Nominal:	VAC 50/60 Hz	24, 120, 240, 480
	VDC	24
Input Voltage Absolute Maximum:	maximum	Nominal +60% except 480volt where 600 VAC is maximum
Upper Input Voltage Range:	nominal	75 to 115%
Lower Input Voltage Range:		75 to 95% of set pickup
Power Consumption:	maximum	3.5 VA / W
Transient Protection:		Yes
Reverse Polarity Protection:	DC	Yes
Operate Time:	mS maximum	25
Release Time:		20
Input Indication:		Green LED
<b>TIMING</b>		
Time Scales:		Optional on PX
Setting Adjustment:		PX= KNOB, CX=Recessed potentiometer
Reset Time:	mS maximum	150
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	DPDT=10 amps @ 240 SPDT=13 amps @ 240
Contact Rating DC Amperes (DC1):		DPDT=10 amps @ 28 SPDT=13 amps @ 28
Contact Rating Horsepower:	HP @ VAC	1/3 @ 120, 1/2 @ 240
Contact Rating Pilot Duty:		B300
Minimum Load:	mW	500
Contact Material:		Silver Alloy
Output Indication:		No
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	V rms	1,000
Input to Contacts:	V rms	2,500
Pole to Pole:	V rms	2,500
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-30
Storage, Upper:	°C	+85
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	100,000
Mechanical @ no Load :	operations	DPDT= 10,000,000 SPDT= 5,000,000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Cover Protection Category:	IP	40
Terminals:		PX= 8 pin octal CX= 0.187 x 0.020 quick connect
Weight:	Inch grams	DPDT: 156, SPDT: 125



### OUTLINE DIMENSIONS

DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



OPTIONAL TIME DELAY  
AVAILABLE IN OCTAL  
PIN VERSION

**Mating Sockets**  
70-464-1, 70-750D8-1: ACPX/CPX 70-463-1: ACX  
See section 7

STANDARD PART NUMBERS	FIG.	NOMINAL INPUT VOLTAGE	VOLTAGE PULL-IN RANGE	VOLTAGE DROP-OUT RANGE
W236ACPX-1	A	120 VAC	92 TO 140 VAC	75% TO
W236ACPX-4	A	24 VAC	20 TO 30 VAC	95% OF
W236CPX-1	A	24 VDC	20 TO 30 VDC	PICKUP
W236ACX-1	B	120 VAC	90 TO 138 VAC	VOLTAGE
W236ACX-2	B	208 / 220 / 240 VAC	180 TO 276 VAC	SETTING
W236ACX-4	B	480 VAC	360 TO 552 VAC	

CALL FACTORY FOR OTHER VOLTAGES,  
TIME AND FUNCTIONS

# 235 CURRENT SENSING RELAY

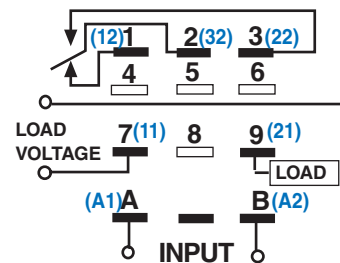
## SPDT, 1.5 TO 15 AMPS

### WIRING DIAGRAM (VIEWED FROM PIN END)

UL US  
UL Recognized  
File No. E62636



CLASS 235 CURRENT SENSING RELAY COMBINES A SOLID STATE SENSOR WITH A SPDT, 10 AMPS RELAY. THE SENSOR IS FIELD ADJUSTABLE FOR DETECTING AC CURRENT LEVELS IN EQUIPMENT.



CONTINUOUS VOLTAGE MUST BE SUPPLIED TO INPUT.

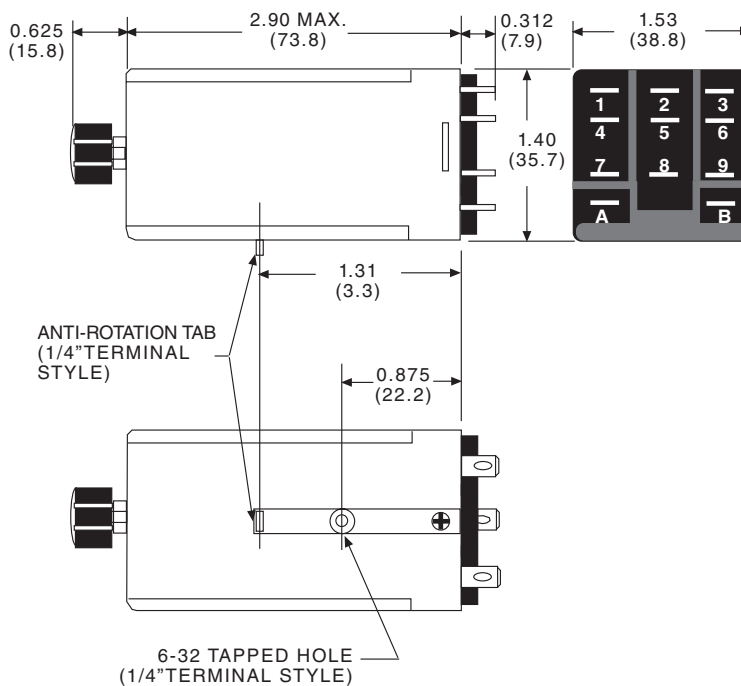
ALTERNATE NEMA OR IEC ( ) NUMBERS VIEWED FROM PIN SIDE

## GENERAL SPECIFICATIONS (@ 25°C)

	UNITS	
<b>SENSING</b>		
Current Sense Range:	A	1.5 to 15
Setting Adjustment:		KNOB
Repeatability (constant voltage temperature):	%	2
Reset Time:	mS maximum	150
<b>INPUT</b>		
Standard Voltage:	VAC 50/60Hz	120
Input Voltage Tolerance AC:	of nominal	-85% to +110%
Power Consumption:	maximum	2 VA
Transient Protection:		Yes
Reverse Polarity Protection:		Yes
Input Indication:	DC	No
<b>OUTPUT</b>		
Contact Rating AC Amperes (AC1):	VAC 50/60Hz	10 amps @ 120
Contact Rating DC Amperes (DC1):	VDC	6 amps @ 28
Minimum Load:	mW	500
Contact Material:		Silver Alloy
Output Indication:		No
<b>TIMING</b>		
Operate Time:	mS maximum	25
Release Time:	mS maximum	20
Input Indication:		No
<b>DIELECTRIC STRENGTH</b>		
Across Open Contacts:	V rms	500
Coil to Contacts (supply to Contacts):	V rms	2,500
<b>TEMPERATURE</b>		
Operating, Lower:	°C	-20
Operating, Upper:	°C	+55
Storage, Lower:	°C	-40
Storage, Upper:	°C	+85
<b>LIFE EXPECTANCY</b>		
Electrical Full Load	operations	200,000
Mechanical @ no Load :	operations	5,000,000
<b>MISCELLANEOUS</b>		
Operating Position:		Any
Cover Protection Category:	IP	40
Terminals:	Inch	0.187 x 0.020 quick connect
Weight:	grams	113

### OUTLINE DIMENSIONS

DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



Mating Socket  
70-463-1: ACX-3  
See section 7  
ACX-2 : no socket available

STANDARD PART NUMBER	NOMINAL INPUT VOLTAGE	CURRENT RANGE	TERMINAL SIZE
W235ACX-2	120 VAC	1.5 TO 15 AMPS	0.250"
W235ACX-3	120 VAC	1.5 TO 15 AMPS	0.187"

CALL FACTORY FOR OTHER VOLTAGES, TIME AND FUNCTIONS



## CROSS REFERENCE GUIDE

MAGNECRAFT & STRUTHERS-DUNN	POTTER & BRUMFIELD	SQUARE D	OMRON	A / B	NCC	IDEC
TDRPRO-5000	CNM5, CNS-35-96, CNS-35-76	9050JCK70V14	H3CA-A			
TDRPRO-5001			H3CA-8H			
TDRPRO-5002	CN1, CNS-35-92, CNS-35-72		H3CA-8			
TDRSOXP-24				700HRM12TU24		RTE-P1AD24
TDRSOXP-120				700HRM12TA17		RTE-P1AF20
TDRSOXP-240				700HRM12TA17		RTE-P1AF20
TDRSRXP-12					T2K-xxxxx-466	RTE-P2D12
TDRSRXP-24					T2K-xxxxx-467/462	RTE-P2AD24
TDRSRXP-120					T2K-xxxxx-461	RTE-P1AF20
TDRSOXB-12						RTE-B1D12
TDRSOXB-24						RTE-B1AD24
TDRSOXB-120						RTE-B1AF20
TDRSRXB-12						RTE-B2D12
TDRSRXB-24						RTE-B2AD24
TDRSRXB-120						RTE-B2AF20
MAGNECRAFT & STRUTHERS-DUNN	POTTER & BRUMFIELD	SQUARE D	CUTLER HAMMER	A / B	SIEMENS	OTHER
W211ACPSOX-18	CDB-38-70001					
W211ACPSOX-5	CDB-38-70003 CGB-38 70010S CHB-38-70001 CKB-38-70010 CB-1003B-70	9050JCK11V20	MTON1P120A	700HT12AA1	OND-0110-120A	SST12AAA (AGASTAT) 5YZ86 (GRAINGER) 7268K23 (McMASTER CAR) TIK-00010-461 (NCC)
W211ACPSOX-7	CKB-38-70180 CHB-38-70003 CB-1005B-70 CDB-38-70005	9050JCK15V20	MTON2P120A	700HT12BA1	OND-1180-120A	5X829 (GRAINGER) 7268K26 (McMASTER CAR)
W211ACPSOX-8	CGB-38-70005M			700HT12CA1		R28-11A10-120M(NET) 5X830 (GRAINGER) 7268K51 (McMASTER CAR)
W211ACPSOX-60	CGB-38-70010M	9050JCK16V20				6X601 (GRAINGER)
W211ACPSOX-61		9050JCK17V20				7268K53 (McMASTER CAR)
W211ACPSOX-62	CGB-38-70050M	9050JCK18V20				7268K54 (McMASTER CAR)
W211ACPSOX-63	CB-1007B70	9050JCK19V20				
W211CPSOX-1	CHD-38-30001 CB-1028D-30 CDD-38-30003			700HT12AZ24	OND-0110-24D	
W211ACPSRX-5	CHB-38-70011 CDB-38-70014 CB-1021B-78	9050JCK21V20	MTOF1P120A	700HT22AA1	OFD-0110-120A	SST22AAA (AGASTAT) 7268K43 (McMASTER CAR)
W211ACPSRX-7	CHB-38-70013	9050JCK25V20	MTOF2P120A	700HT22BA1	OFD-1180-120A	7268K46 (McMASTER CAR) 6X154 (GRAINGER) T3K-00010-461 (NCC)
W211CPSRX-1	CHD-38-30011			700HT22AZ24		7268K32 (McMASTER CAR)
W211CPSRX-3	CHD-38-30013 CDD-38-30008			700HT22BZ24		

THE CROSS REFERENCE IS INTENDED TO MATCH FOOT PRINT, INTERNAL WIRING, AND CONTACT LOAD RATINGS. CONSTRUCTION FEATURES AND GENERAL SPECIFICATIONS SHOULD BE COMPARED IF EXACT REPLACEMENT IS REQUIRED.

# SECTION 4

## CROSS REFERENCE GUIDE



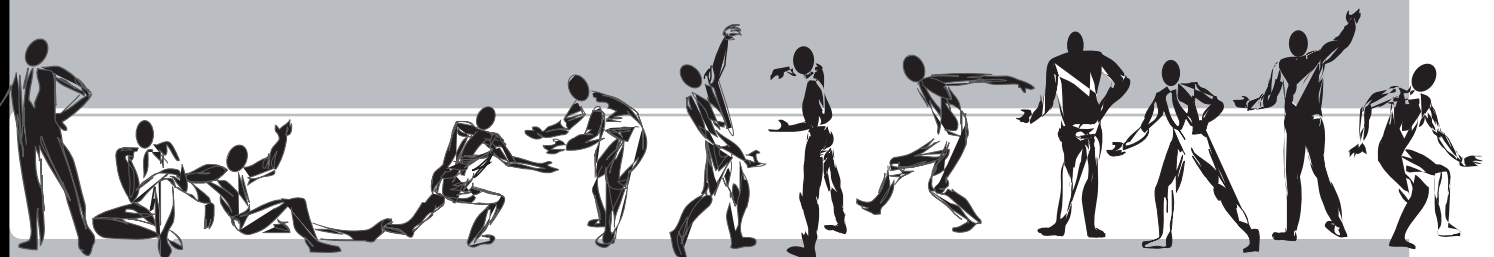
MAGNECRAFT & STRUTHERS-DUNN	POTTER & BRUMFIELD	A / B	SQUARE D	SIEMENS	OTHER
211ACPSOX-3		700HT12BA24	9050JCK15V14	OND-0110-24A	
W211CPSOX-3	CDD-38-30005	700HT12BZ24			7268K35 (McMASTER CAR)
	CHD-38-30003				
	CB-38-70014				
211ACPSRX-8					SS51622-12 (MACROMATIC)
211ACPSRX-60			9050JCK26V20		T3K-00010-461 (NCC)
MAGNECRAFT & STRUTHERS-DUNN	SQUARE D	A / B	McMASTER CAR	GRAINGER	
W222ACPFX-16			7630K17		
W222ACPFX-27	9050JCK57V20	700HV32DA1			
W222ACPFX-11	9050JCK51V20	700HV32AA1	7630K12	1A366	
222CPFX-11		700HV32AZ24			
MAGNECRAFT & STRUTHERS-DUNN	POTTER & BRUMFIELD	A / B	MIDTEX	CUTLER HAMMER	
W388ACPSOX-1	CLF-41-70010				
W388ACPSOX-2			614-12T400		
W388CPSOX-1	CLH-41-70010				
W388CPSOX-2			614-12C400		
W388CPSRX-22	CUA-42-70010		612-12C400		
W388ACPSOX-42	CUA-51-70010	700HS12AA1	612-43T100		
W388ACPSOX-44		700HS12BA1	614-43T400		
W388CPSRX-2		700HS22AZ24	612-43C100	MTON1B120A	
W388CPSRX-4		700HS22BZ24	612-43C400	MTON2B120A	
W388CPSRX-35			612-43T400	MTON2B120A	
W388ACQSOX-1	CLF-42-70010				
MAGNECRAFT & STRUTHERS-DUNN	POTTER & BRUMFIELD	<p><b>FOR TIME DELAY RELAYS APPLICATION ENGINEERING ASSISTANCE</b></p> <p><b>Scott Heilman, PRODUCT MANAGER</b></p> <p>FAX: (843) 395-8530</p> <p>EMAIL: sheilman@magnecraft.com</p>			
W67CPSOX-1	R123012X2E1				
W67CPSOX-2	R123024X2E1				
MAGNECRAFT & STRUTHERS-DUNN	GRAINGER				
W236CPX-1	5Z564				
W236ACPX-1	5Z562				

### U. S. A.

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THE CROSS REFERENCE IS INTENDED TO MATCH FOOT PRINT, INTERNAL WIRING, AND CONTACT LOAD RATINGS. CONSTRUCTION FEATURES AND GENERAL SPECIFICATIONS SHOULD BE COMPARED IF EXACT REPLACEMENT IS REQUIRED.