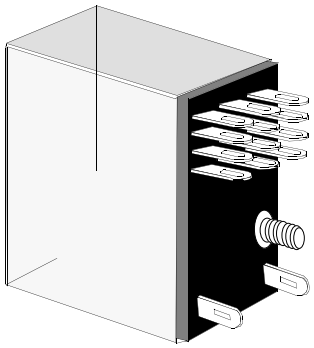
LOW COIL POWER, 3 AMP, 2 & 4 POLE



UL RECOGNIZED
FILE NO. E52197

TYPICAL CONTACT LIFE EXPECTANCY FOR SWITCHING RESISTIVE LOADS @ 25 C

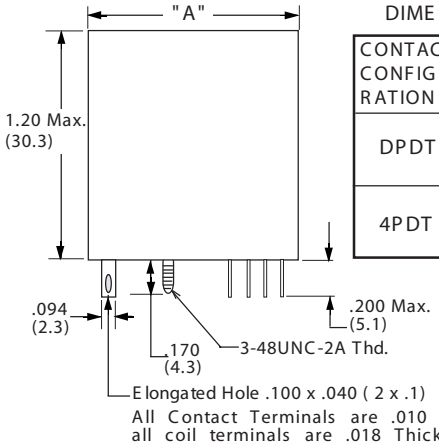
Load Current	Load Voltage	Number of Operations Ultra sensitive
1.0A	28VDC/120VAC	5×10^5
0.5A	28VDC/120VAC	5×10^6
0.1A	6 VDC	5×10^7
1mA	6 VDC	5×10^7

CLASS 67 TYPICAL TIMING VALUES

POLES	DPDT	4PDT
OPERATE TIME	012	.014
RELEASE TIME	.008	.008

Measured at Nominal Voltage @ 25C

Tolerances ± .010 Inches



DIMENSIONS

CONTACT CONFIGU-RATION	"A" DIM.
DPDT	.978 (24.8)
4PDT	1.156 (29.4)

SPECIFICATIONS (@ 25 0C)

COIL

Pickup voltage:	80% of nominal voltage or less.
Dropout voltage:	10% of nominal or more.
Coil resistance:	± 10% measured @ 25 0C
Maximum coil dissipation:	2.2 watts @ 25 0C
Coil Temperature rise:	30 0C per watt
Maximum coil temperature:	105 0C

CONTACTS

Contact material:	Silver, Gold overlay
Contact resistance:	50 milliohms max. initial

CAPACITANCE

Between contacts:	2 pf, typ.
Contact to coil:	2 pf, typ.
Coil to frame:	30 pf, typ.

DIELECTRIC STRENGTH

Contact to coil:	1500 V rms
Across open contacts:	500 V rms
Coil to frame:	1000 V rms
Contacts to frame:	1500 V rms
Insulation resistance:	1000 megohms @ 25 0C & 50% R.H.

TEMPERATURE

Operating:	-55 0C to + 70 0C
Storage:	-55 0C to +105 0C

MISCELLANEOUS

Enclosure Material:	Polycarbonate see thru plastic cover.
Operating Position:	Any
Mounting:	Socket or 3-48 UNC stud
Weight:	0.77 to 1.4 oz. (22 to 40 grams)

STRUTHERS-DUNN

CLASS 67 - DC OPERATED - ULTRA SENSITIVE - PLUG-IN STYLE WITH 3-48 UNC STUD.

STANDARD CONTACTS		COIL Measured @ 25 0C				
PART NUMBERS	CONTACT RATING	NOMINAL INPUT MILLIAMPS DC	NOMINAL RESISTANCE (OHMS)	PULL-IN MILLIAMPS DC	PULL-IN WATTS	CONTACT CONFIGU-RATION
W67SCSX-1	3 AMPS	9.4 mADC	1000	9.2 mADC	85mW	DPDT
W67SCSX-2	3 AMPS	6.4 mADC	2500	6.3 mADC	100mW	DPDT
W67SCSX-3	3 AMPS	4.5 mADC	5000	4.4 mADC	100mW	DPDT
W67SCSX-6	3 AMPS	13.7 mADC	1000	13.5 mADC	200mW	4PDT
W67SCSX-7	3 AMPS	9.1 mADC	2500	8.9 mADC	200mW	4PDT
W67SCSX-8	3 AMPS	6.5 mADC	5000	6.3 mADC	200mW	4PDT

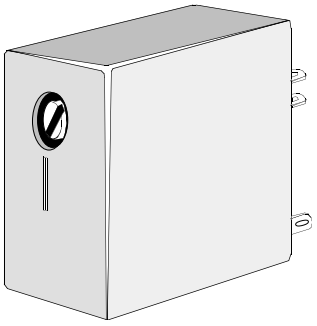
Part numbers shown also available thru Stocking Distribution.

SEE SECTION 10 FOR MATING SOCKETS

MINIATURE 5 AMP TIME DELAY RELAY

UL Recognized
File No: E43641

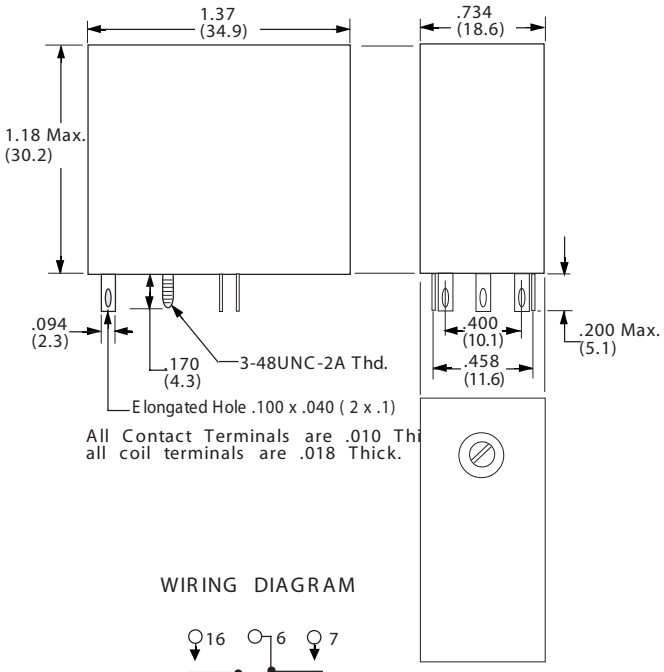
CLASS 67 TIME DELAY RELAY
± 2% REPEATABILITY
DC OPERATION
PLUG-IN/SOLDER TERMINALS



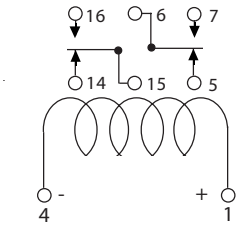
GENERAL SPECIFICATIONS (@ 25 ^{0}C)

TIMING	
Operating Modes Available:	On Delay,
Timing Adjustments Available:	0.1 to 240 Seconds
Repeatability (repeat Accuracy when Stabilized):	± 2% max. @ Nominal Voltage, 25 ^{0}C
Reset time:	100 Milliseconds Max
CONTACTS	
Contact Configuration:	DPDT (2 Form "C").
Contact Rating:	5 Amps @ 120VAC/28 VDC Resistive
Contact Life:	50,000 Operations @ 120 VAC 5 Amps Resistive 1,500,000 Operations @ 120VAC, 2 Amps resistive Load. 12,000,000 Operations @ 120 VAC 1Amp Resistive Load
Mechanical Life:	50,000,000 Operations
INPUT	
Nominal Input Voltage:	12 VDC, 24 VDC
Temperature Range (Operate):	-30 ^{0}C to + 55 ^{0}C
Temperature Range (Storage):	-50 ^{0}C to +85 ^{0}C
Steady State Input Current:	40 mA @ 24 VDC, 80 mA @ 12 VDC
PROTECTION	
Reverse Polarity:	DC models only
Transient:	Twice Nominal Voltage for 1 Millisecond
DIELECTRIC STRENGTH	
Coil to Contacts:	500 V rms
Across Open Contacts:	1250 V rms
MECHANICAL	
Enclosure:	Polycarbonate dust cover.
Mounting:	Socket Plug-in/Solder. Also Available with P.C. Terminals.
Weight:	1.2 oz. 35.2 Grams
Special Note:	Use 6 Pole Socket with plug-in style relays. .

OUTLINE DIMENSIONS
Dimensions shown are in Inches and (Millimeters).



WIRING DIAGRAM



VIEWED FROM PIN END

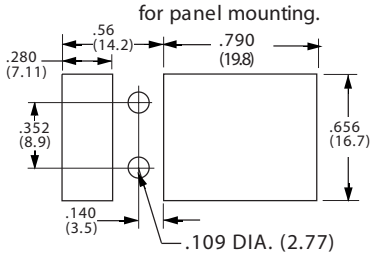
STRUTHERS-DUNN

PART NUMBERS	NOMINAL INPUT VOLTAGE	TIMING RANGE
"ON" DELAY		
W67CPSOX-1	12 VDC	0.1 to 30 Seconds
W67CPSOX-2	24 VDC	0.1 to 30 Seconds

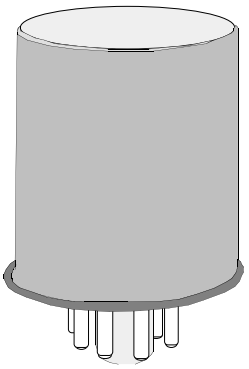
PART NUMBERS SHOWN ALSO AVAILABLE THRU STOCKING DISTRIBUTION

OTHER COIL VOLTAGES, TIMING RANGES, P.C. TERMINALS AND 4PDT CONTACT COMBINATION AVAILABLE ON SPECIAL ORDER.
120 VAC INPUT DESIGN AVAILABLE, CONTACT FACTORY.

CHASSIS CUTOUT
for panel mounting.



CLASS 88HP

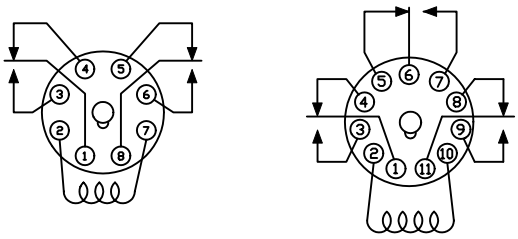


8 OR 11 PIN OCTAL BASE
HERMETICALLY SEALED STEEL CAN

Enclosure is filled with dry nitrogen, solder sealed and then electronically leak checked. The case is painted gray protect against the elements.

WIRING DIAGRAM

VIEWED FROM PIN END

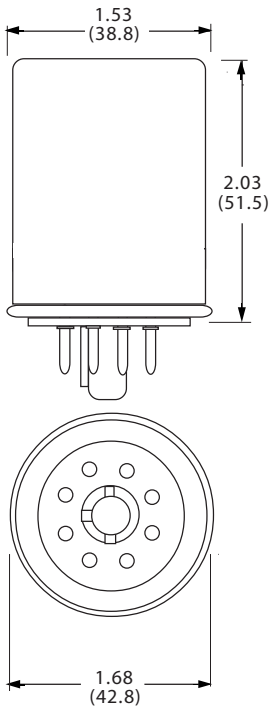


CONTACT RATINGS TABLE

POLES	120 VAC	240 VAC	28 VDC
2 POLE	12 AMP 1/3 HP	8 AMP 1/2 HP	10 AMP
3 POLE	10 AMP 1/3 HP	6 AMP 1.2 HP	10 AMP

OUTLINE DIMENSIONS

Dimensions are shown in Inch and (Millimeter).



SPECIFICATIONS CLASS (@ 25 ^{0}C)

COIL
- Pull-in voltage: 80% of nominal voltage or less. For DC coils; 85% of nominal voltage or less. For AC coils.
- Dropout: 10% of nominal voltage or more.
- Coil resistance: ± 10 % measured @ 25 ^{0}C
- Nominal power: 1.5 Watts for DC coils, 3VA for AC coils
- Max.coil Dissipation: DC coils 3.0 Watts max.
- Duty: Continuous

CONTACTS
- Contact material: 3/16" silver alloy, gold flashed.
- Contact resistance: 50 Milliohms maximum initial resistance at rated current

TIMING
- Operate time: 25mS or less at nominal voltage.
- Release time: 20mS or less at nominal Voltage.

DIELECTRIC STRENGTH
- Contacts to coil: 1500 V rms
- Across open contacts: 1000 V rms
- Pole to pole 1500 V rms
- Contacts to frame: 1500 V rms
- Insulation resistance: 10,000 megohms min. @ 500 VDC

TEMPERATURE
- Operating: -10 ^{0}C to +50 ^{0}C (AC), -10 ^{0}C to +60 ^{0}C (DC)
- Storage: -30 ^{0}C to 105 ^{0}C

SHOCK RESISTANCE
- Operating: 5 G's
- Non operating: 20 G's

VIBRATION RESISTANCE
- Operating: 5 G's, 10 Hz to 55 Hz
- Non operating: 5 G's, 10 Hz to 55 Hz

MISCELLANEOUS
- Enclosure: Hermetically Sealed Steel Can with octal plug.
- Terminals 8 or 11 pin octal plug-in
- Operating Position: Any
- Weight:. 5 ozs. 141.7 g approx.

PART NUMBERS	CONTACT CONFIGU-RATION	NO. OF PINS OCTAL STYLE	COIL Measured @ 25 ^{0}C NOMINAL INPUT VOLTAGE	NOMINAL RESISTANCE (OHMS)	NOMINAL POWER
AC OPERATED 50/60Hz Operation.					
W88AHPX-24	DPDT	8 PIN	120VAC	-	3.0VA
W88AHPX-36	3PDT	11 PIN	120VAC	-	3.0VA
DC OPERATED					
W88HPX-33	DPDT	8 PIN	12 VDC	100	1.5W
W88HPX-34	DPDT	8 PIN	24 VDC	400	1.5W
W88HPX-51	3PDT	11PIN	24 VDC	400	1.5W

PART NUMBERS SHOWN ALSO AVAILABLE THRU STOCKING DISTRIBUTION

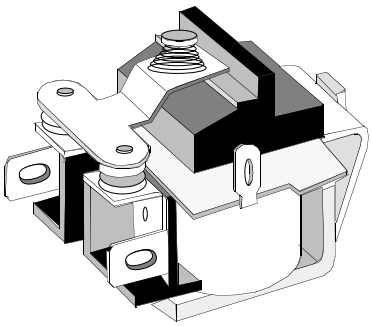
SPDT and other special contact combinations along with other coil voltages up to 240VAC are available. Consult Factory.

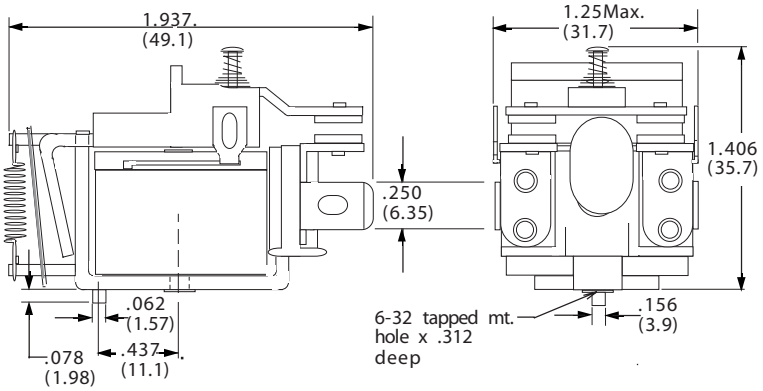
* GF = GOLD FLASHED

CLASS 88UKD RELAY

SIDE COIL SOLDER TERMINALS
SPST-N.O. DM, RATED 30 AMPS
1/4"QUICK CONNECT/SOLDER TERMINALS
SWITCHES UP TO 1 HP AT 600 VAC

UL Recognized
File No. E43641





SPECIFICATIONS (@ 25 ^{0}C)

COIL

Pull-in Voltage (AC):	85% of Nominal Voltage or less
Pull-in Voltage (DC):	80% of Nominal Voltage or less
Dropout Voltage:	10% of nominal voltage or more
Max. allowed voltage	110% of nominal voltage
Coil Resistance:	±10% Measured @ 25^{0}C

CONTACTS

Contact Material:	1/4' silver alloy, gold flashed.
Contact Resistance:	Initial 50 Milliohms @ rated current.
Contact Rating:	30 Amps up to 300VAC/28VDC, Resistive Load 5 Amps @ 600VAC Resistive.Load 1 HP @ 120-600 VAC Motor load.

TIMING

Operate Time:	25 mS Max. @ Nominal Voltage.
Release Time:	20 mS Max. @ Nominal Voltage

DIELECTRIC STRENGTH

Contacts to coil:	3000 V rms
Across open contacts:	1000 V rms
Contacts to frame:	3000 V rms
Insulation Resistance:	1000 megohms min. @ 500 VDC

TEMPERATURE

Operating:	-10 ^{0}C to +50 ^{0}C @ Rated Operation. (AC) -10 ^{0}C to +60 ^{0}C @ Rated Operation. (DC)

VIBRATION RESISTANCE

Functional:	5g's 10 to 55Hz.

SHOCK RESISTANCE

Functional:	5g's 11mS Max.

LIFE EXPECTANCY

Mechanical:	5 Million Operations
Electrical:	100,000 Operations @ Rated Load.

MISCELLANEOUS

Contact Insulation:	Movable & stationary contacts are mounted on a molded plastic barrier insulator.
Style:	Open style construction.
Mounting:	6-32 tapped hole and locating tab.
Weight:	85 Grams, 3 oz. approx.

PART NUMBERS	Coil Measured @ 25 ^{0}C		
	NOMINAL INPUT VOLTAGE	NOMINAL RESISTANCE (OHMS)	NOMINAL POWER
AC OPERATED COIL			
W88UKADX-3	24VAC	-	3VA
W88UKADX-4	120VAC	-	3VA
W88UKADX-5	240VAC,60Hz 220VAC,50Hz	-	3VA
DC OPERATED COIL			
W88UKDX-2	12 VDC	100	1.5W
W88UKDX-3	24 VDC	400	1.5W
W88UKDX-4	110 VDC	8000	1.5W

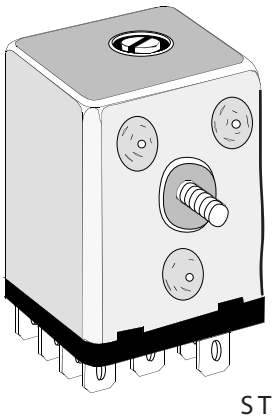
PART NUMBERS SHOWN ALSO AVAILABLE THRU STOCKING DISTRIBUTION.

25 AMPS, 2 POLE, DOUBLE MAKE/DOUBLE BREAK

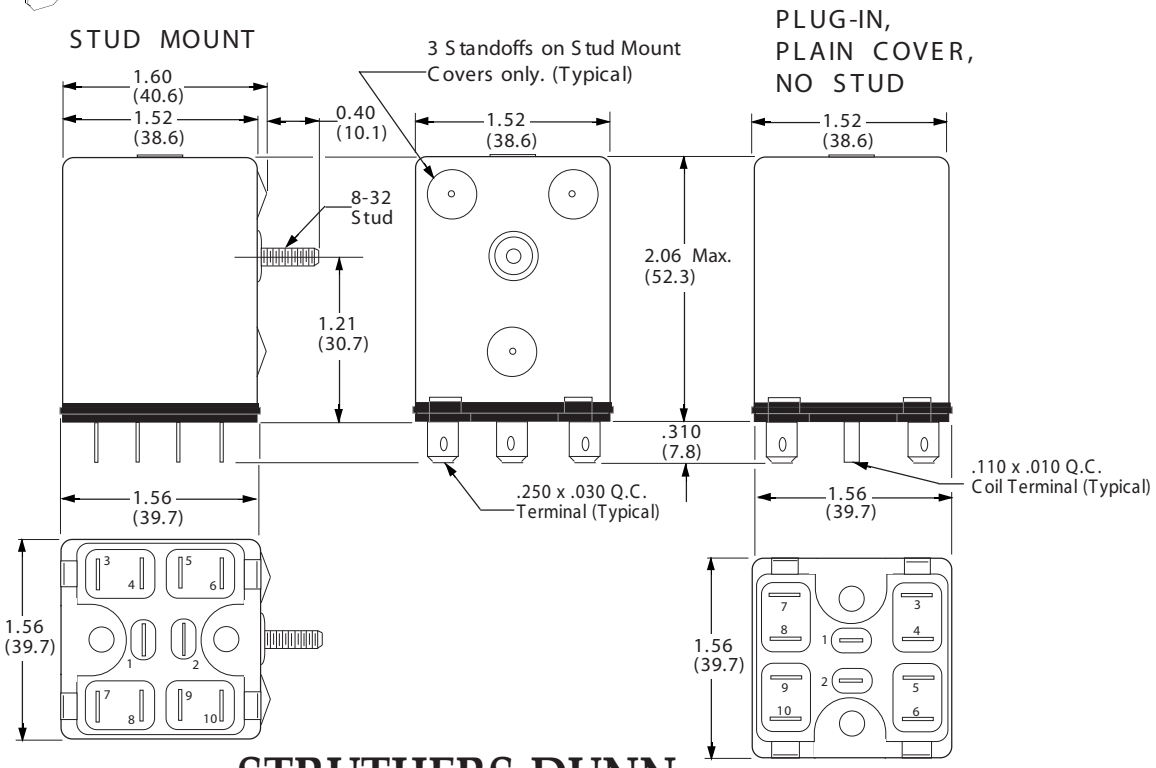
CLASS 97 POWER RELAY

PLUG-IN OR SIDE STUD MOUNT

UL Recognized
File No. E43641



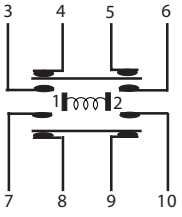
OUTLINE DIMENSIONS
Dimensions shown in Inch & (Millimeter)



STRUTHERS-DUNN

PART NUMBERS	COIL Measured @ 25 ^{0} C		
	Nominal Input Voltage	Nominal Resistance (Ohms)	Nominal Power
STUD MOUNTING STYLE			
W97ACSX-3	120 VAC	-	8 VA
W97ACSX-4	240 VAC, 60 HZ		8 VA
	220 VAC, 50 HZ	-	
W97CSX-1	12 VDC	50	2.5 W
W97CSX-2	24 VDC	200	2.5 W
PLAIN COVER, PLUG-IN (NO STUD)			
W97ACPX-2	24 VAC	-	8 VA
W97ACPX-3	120 VAC	-	8 VA
W97ACPX-4	240 VAC, 60 HZ		8 VA
	220 VAC, 50 HZ	-	
W97CPX-1	12 VDC	50	2.5 W
W97CPX-2	24 VDC	200	2.5 W

WIRING SCHEMATIC
Viewed from Terminal End



PART NUMBERS SHOWN ALSO AVAILABLE THRU STOCKING DISTRIBUTION.

SPECIFICATIONS FOR (@ 25 ^{0} C)

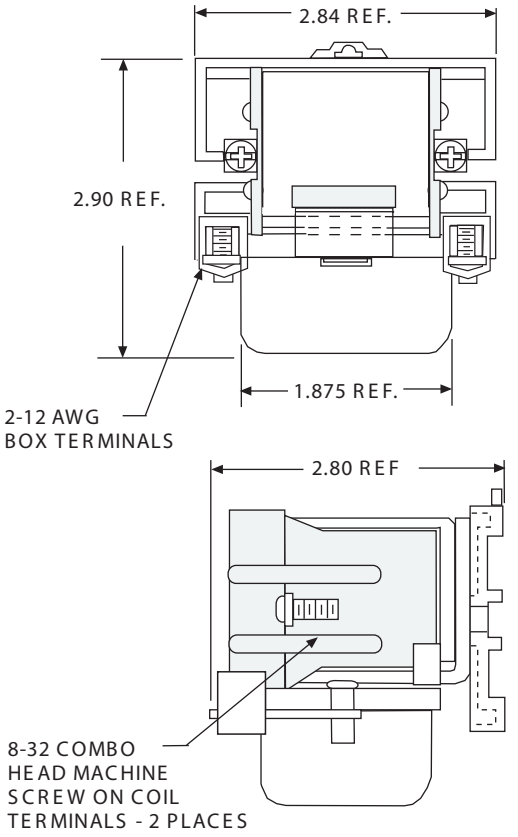
COIL	
Pull-in Voltage:	AC, 85% of Nominal Voltage or less
Dropout Voltage:	DC, 75% of Nominal Voltage or less
Max. allowed voltage:	110% of nominal voltage
Maximum Power	3 Watts
Minimum Power:	1.6 Watts
Duty	Continuous
Resistance	±10%
CONTACTS	
Contact Configuration:	DPDT-NC-NO (DB-DM)
Contact Material:	Silver Alloy
Contact Resistance:	50 Milliohms max. (Initial)
Contact Rating:	25 Amps @ 240 VAC Resistive. 25 Amps @ 277 VAC Resistive. 1 HP @ 120 VAC, 2Hp @ 240 VAC 25 Amps Resistive @ 28 VDC.
TIMING	
Operate Time:	35 mS Max. @ Nominal Voltage.
Release Time:	35mS Max. @ Nominal Voltage.
DIELECTRIC STRENGTH	
Coil to Contacts:	2000 V rms
Across Open Contacts:	1500 V rms
Pole to Pole:	2000 V rms
Contact to Frame:	2000 V rms
Insulation Resistance:	1000 Megohms minimum @ 500 VDC
TEMPERATURE	
Operating:	-35 ^{0} C to +70 ^{0} C @ Rated Operation.
VIBRATION RESISTANCE	
Functional:	5g's; 10 to 55 Hz,
SHOCK RESISTANCE	
Functional:	10 g's
LIFE EXPECTANCY	
Mechanical (No Load):	1 Million Operations
Electrical (Rated Load):	100,000 Operations
Max. Cycle Rate:	1800 per hour
MISCELLANEOUS	
Terminals:	All Terminals on Stud mounted relays are 1/4" x .032 Quick Connect Tabs. Plug-in relays have 1/4" x .032 Quick Connect Tabs and .110 Taper Coil Terminals.
Enclosure:	Plated Steel
Operating Position:	Any
Weight:	259.4 grams

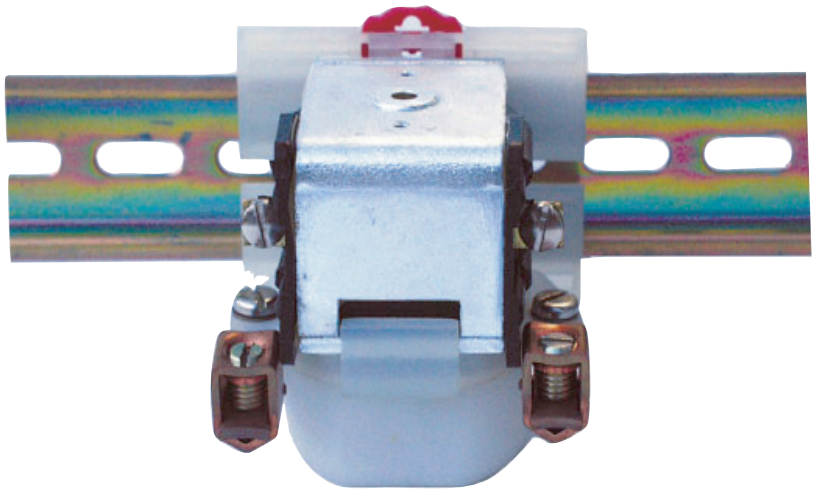
100 AMP CONTACTOR

CLASS B101, IS A DC SOLENOID-ACTUATED, HEAVY DUTY CONTACTOR. EACH CONTACTOR HAS A SINGLE POLE, DOUBLE-MAKE OR DOUBLE-BREAK CONTACT. DIN-RAIL MOUNTING IS STANDARD. THE B101 IS SUITABLE FOR POWER APPLICATIONS IN TELECOMMUNICATIONS, ELEVATOR AND RAIL MASS TRANSIT, AS WELL AS OTHER INDUSTRIES.

SPST-N.O.-D.M. OR
SPST-N.C.-D.B.,
100 AMPS

OUTLINE DIMENSIONS
DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).





STRUTHERS-DUNN

ORDERING CODE FOR RELAYS

B101 HXX -28D

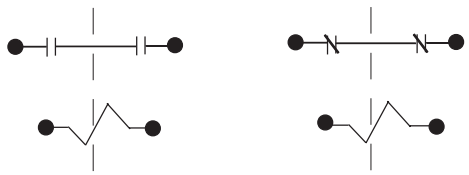
CLASS:
100 AMP, 1 POLE

CONTACT ARRANGEMENTS:
HXX 1 POLE N.O.-D.M.
XXH 1 POLE N.C.-D.B.

COIL VOLTAGE:
DC: 12, 28 & 48 ADD "D" FOR DC COILS
AC: 120, 240 ADD "A" FOR AC COILS

OPTIONS (CONSULT FACTORY)
AC COIL INPUT VOLTAGES
NON STANDARD DC COIL VOLTAGES

WIRING DIAGRAM



HXX
SPST N.O.-D.M.

XXH
SPST N.C.-D.B.

STRUTHERS-DUNN
WEBSITE: www.struthers-dunn.com EMAIL:info@struthers-dunn.com FAX # 1-843-662-8862 PHONE # 1-843-664-3303

100 AMP CONTACTOR

SPST-N.O.-D.M. OR
SPST-N.C.-D.B.,
100 AMPS

GENERAL SPECIFICATION (@ 25 ^{0}C)

COIL

Pull-in Voltage:	80% of nominal voltage or less for DC coils,
Dropout Voltage:	10% of nominal voltage or more @ 25 ^{0} C
Max. allowed voltage:	± 110%
Coil Resistance:	± 10% @ 25 ^{0}C
Duty:	Continuous

CONTACTS

Contact Material:	Silver Alloy
Contact Ratingl:	100 amps @ 120/240 VAC 100 amps @ 28 VDC

TIMING

OperateTime:	60 mS max. @ nominal voltage.
Release Time:	30 mS max. @ nominal voltage.

DIELECTRIC STRENGTH

All Mutually Insulated Points:	1500V rms bwtween all mutually Insulated current carrying parts and those parts to ground.
Insulation Resistance:	1000 Megohms minimum @ 500 VDC

TEMPERATURE

Temperature Rating:	-45 ^{0} C to +65 ^{0} C @ rated operation.

LIFE EXPECTANCY

Mechanical:	1,000,000 operations @ no load
Electrical:	100,000 operations @ rated load.

TERMINALS

Coil Terminals:	#6-32
Load Terminals:	AWG 2-12 pressure wire connector

MISCELLANEOUS

Mounting:	Panel or 35 mm DIN-rail
Weight:	370 Grams

AC CONTACT RATINGS

VOLTAGE AC (60HZ)	RESISTIVE LOADS (AMPS) Series B101
120	100
240	100

DC CONTACT RATINGS

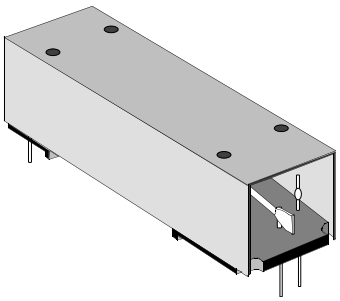
VOLTAGE DC	RESISTIVE LOADS (AMPS) Series B101
30	100

DC COIL SPECIFICATION @ 25^{0}C

Nominal Voltage (VDC)	B101 (10.5W Max.) Resistance Ohms +/-10%
12	17
28	75
48	290

STRUTHERS-DUNN
WEBSITE: www.struthers-dunn.com EMAIL:info@struthers-dunn.com FAX # 1-843-662-8862 PHONE # 1-843-664-3303

OPEN STYLE, METAL COVER/SHIELD REED RELAY

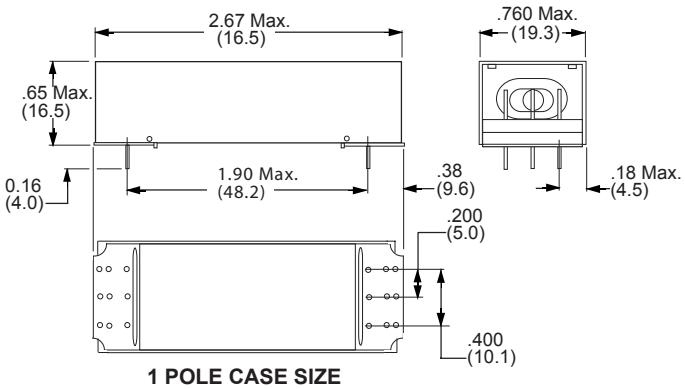


102MPCX/RMPCX

SPST-N.O.
METAL SHIELD ON THREE SIDES.
0.2 GRID SPACING.

OUTLINE DIMENSIONS

Dimensions shown are in Inch and (Millimeter)

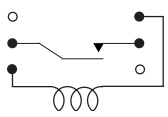
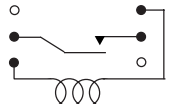


1 POLE CASE SIZE

GENERAL SPECIFICATIONS 102 @ 25 ^{0}C

RELAY CLASS	102	102R
Contact Resistance Initial:	200	200
Across Open Contacts:	700 VDC	450 VDC
Between all other mutually Insulated points.:	1000 VDC	
Operate Time (mS):	1.0	2.0
Bounce Time No Diode (mS):	2	2

RELAY CLASS	102	102R
Capacitance, Non Shield, N.O.:	1.0 pf	1.5 pf
Insulation Resistance:	10^9 at 100 VDC	
Coil Dissipation(mW)	50 to 1.5W	600
Mounting Position:	Any	
Shock (Non operation):	30 G's 11mS ±1 mS 1/2 Sign	
Vibration:	10 G"s 10 to 1000 Hz	
Temperature Range(operating):	-40^0 C to + 85 ^{0} C	
Life At rated load:	200 Million	20 Million @ 1A, 115V rms

CIRCUIT DIAGRAM (TOP VIEW)	PART NUMBERS	COIL MEASURED AT 25 ^{0} C					MAX. CONTACT RATING		
		NOMINAL INPUT VOLTAGE	MAXIMUM PULL-IN	MINIMUM DROPOUT	NOMINAL RESISTANCE (OHMS)	NOMINAL POWER (mW)	SWITCHING LOAD	SWITCHING CURRENT & VOLTAGE	CARRY CURRENT
SPST-N.O. 1 AMP									
	W102MPCX-7	12	9.0	1.0	250 Ω	580 mW	15VA	1 AMP 250VDC	2 AMPS
	W102MPCX-8	24	18.0	2.0	1000 Ω				
SPST-N.O. 3 AMP									
	W102RMPCX-2	12	9.0	1.0	250 Ω	580 mW	100VA	3 AMP 250VDC	3.5 AMPS
	W102RMPCX-3	24	18.0	2.0	1000 Ω				

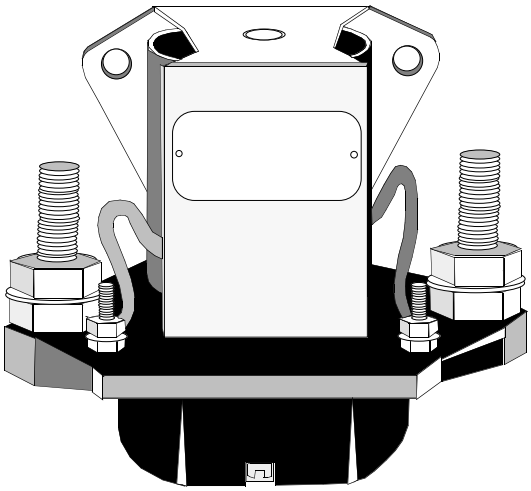
PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

STRUTHERS-DUNN
WEBSITE: www.struthers-dunn.com - EMAIL:info@struthers-dunn.com FAX # 1-843-662-8862 PHONE # 1-843-664-3303

200 & 300 AMP SINGLE POLE DC CONTACTORS

The Series 102 and 103 are solenoid-actuated, heavy duty contactors. Contacts are enclosed with a molded plastic cover.

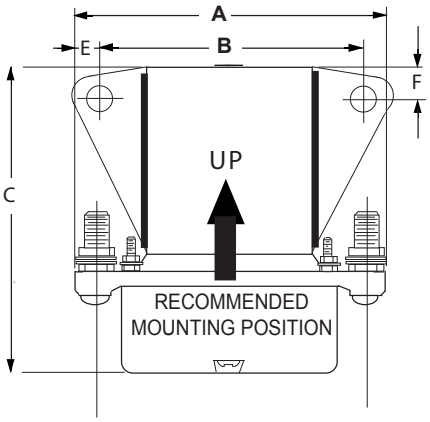
The series 102 is rated 200 amps continuous and the series 103 is rated at 300 amps continuous. Coils are rated for DC only, as standard. The powerful magnetic structure creates very high contact pressure which results in very reliable and low resistance contacts, making them suitable for power applications in telecommunications, elevator and rail mass transit as well as other Industries.



UP

RECOMMENDED
MOUNTING POSITION

OUTLINE DIMENSIONS



Dimensions shown in Inch and (Millimeters)

Dim.	102HXX	103HXX
A	3.38 (85.73)	4.25 (107.9)
B	2.25 (57.1)	2.40 (60.9)
C	3.22 (81.79)	3.53 (89.66)
D	2.09 (53.0)	2.65 (67.31)
E	0.56 (14.2)	0.92 (23.3)
F	0.50 (12.7)	0.56 (14.2)

Mounting holes (2) - .265 (6.73) Inch Dia.
D = depth front to back

STRUTHERS-DUNN

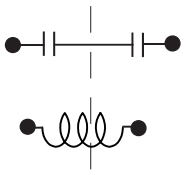
ORDERING CODE
Typical Type No. 102 HXX -28D

Series
102 Screw Term., 200 Amp, 1 pole
103 Screw Term., 300 Amp, 1 pole

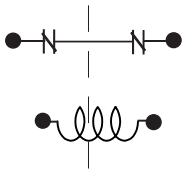
Contact Arrangements
HXX- 1 Pole D.M.- N.O. Standard.
HXH- 2 Pole D.B. -1 N.C. and 1 N.O.103 only.
JXX- 2 Pole D.M. N.O
XRX- SPDT-M-B (Make before break, 103 only)
XXH- 1Pole-D.B. + 1NC (103 only)

Coil Voltage
DC: 12, 28, 48, 115-125 (Add "D")
AC: 48, 120, 240, (Add "A")
DM: Double Make

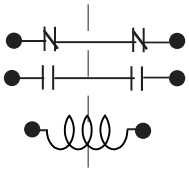
WIRING DIAGRAM



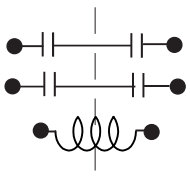
HXX
SPST N.O.-D.M.



XXH
SPST N.C.-D.B.



HXH
DPST 1 N.O.-D.B.
1 N.O.-D.M.



JXX
DPST N.O.-D.M.

OPTIONS (CONSULT FACTORY)

PART NUMBER SHOWN ALSO AVAILABLE THRU STOCKING DISTRIBUTION

200 & 300 AMP SINGLE POLE DC CONTACTORS

GENERAL SPECIFICATION (@ 25°C)

COIL	
Pull-in Voltage:	AC: 85% of nominal DC: 80% of nominal
Dropout Voltage:	10% of nominal voltage or more
Max. allowed Voltage:	± 110%
Coil Resistance:	± 10% @ 25 °C
CONTACTS	
Contact Material:	Silver alloy
TIMING	
Operate Time:	60 mS max. @ nominal voltage.
Release Time:	30 mS max. @ nominal voltage.
DIELECTRIC STRENGTH	
All Mutually Insulated Points:	1500V rms between all mutually Insulated current carrying parts and those parts to ground.
Insulation Resistance:	1000 Megohms min. @ 500 VDC
TEMPERATURE	
Operating:	-45 °C to +65 °C
LIFE EXPECT	
Mechanical:	5,000,000 operations @ no load
Electrical:	100,000 operations @ rated load.

TERMINALS	Coil	Load Term.
	102 - #8-32	#1/4-20
	103 - #8-32	#3/8-18

MOUNTING	Clearance Holes, ea. .265 in dia.
Weight:	13 oz., 370 Grams

AC CONTACT RATINGS

VOLTAGE AC (60HZ)	RESISTIVE LOADS (AMPS)	
	Series 102	Series 103
120	200	300
240	200	300

DC CONTACT RATINGS

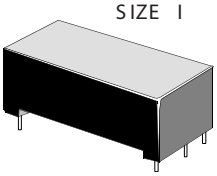
VOLTAGE DC	RESISTIVE LOADS (AMPS)	
	Series 102	Series 103
30	200	300

DC COIL SPECIFICATION @ 25°C

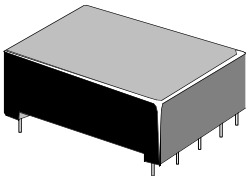
Nominal Voltage (VDC)	102HXX (10.5W Max.)	103HXX (13.3W Max.)
	Resistance Ohms +/-10%	Resistance Ohms +/-10%
12	17	10.8
28	75	59
48	290	173

DRY MINIATURE REED RELAY

SIZE I

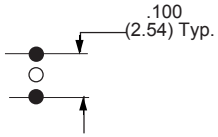


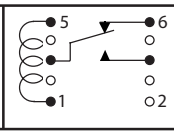
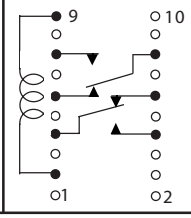
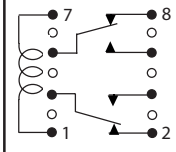
SIZE II



PIN SPACING OF .100" IS STANDARD. PIN SPACING OF .150 IS AVAILABLE ON SPECIAL ORDER. ALSO AVAILABLE ARE MODELS WITH ELECTROSTATIC SHIELDS. CONSULT FACTORY FOR PART NUMBERS. NONSTANDARD SCHEMATICS AND PIN-OUTS CAN ALSO BE PRODUCED FOR SPECIFIC CUSTOMER REQUIREMENTS.

Spacing between filled in circles in schematics are on a .100 Grid Pattern. Pin omitted on unfilled circles.



CASE SIZE	CIRCUIT DIAGRAM TOP VIEW	PART NUMBERS	COIL MEASURED AT 25 ^{0} C					MAX. CONTACT RATING		
			NOMINAL INPUT VOLTAGE	MAXIMUM PULL-IN	MINIMUM DROPOUT	NOMINAL RESIS-TANCE (OHMS)	NOMINAL POWER (mW)	MAX. SWITCHING LOAD	SWITCHING CURRENT & VOLTAGE	CARRY CURRENT
SPDT										
I		W104MPCX-3	24	18.0	2.0	2600	220	4 VA	0.25 AMP 100VDC	0.5 AMPS
DPDT										
II		W104MPCX-6	12	9.0	1.0	230	626	4 VA	0.25 AMP 100VDC	0.5 AMPS
DPDT										
II		W104MPCX-149 W104MPCX-150 W104MPCX-151	5 12 24	4.0 9.0 18.0	0.5 1.0 2.0	45 230 1200	556 626 480	4 VA	0.25 AMP 100VDC	0.5 AMPS

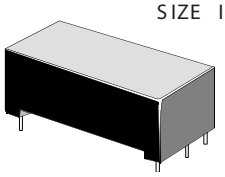
PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

STRUTHERS-DUNN
WEBSITE: www.struthers-dunn.com - EMAIL:info@struthers-dunn.com - FAX # 1-843-662-8862 PHONE # 1-843-664-3303

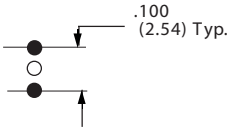
MERCURY REED RELAY

PIN SPACING OF .100" IS STANDARD. PIN SPACING OF .150 IS AVAILABLE ON SPECIAL ORDER. ALSO AVAILABLE ARE MODELS WITH ELECTROSTATIC SHIELDS. CONSULT FACTORY FOR PART NUMBERS. NONSTANDARD SCHEMATICS AND PIN-OUTS CAN ALSO BE PRODUCED FOR SPECIFIC CUSTOMER REQUIREMENTS.

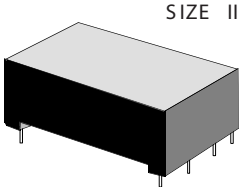
SIZE I

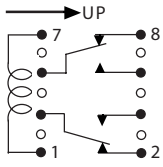
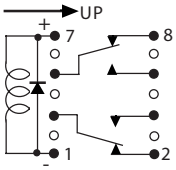
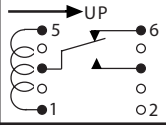


Spacing between filled in circles in schematics are on a .100 Grid Pattern. Pin omitted on unfilled circles.



SIZE II

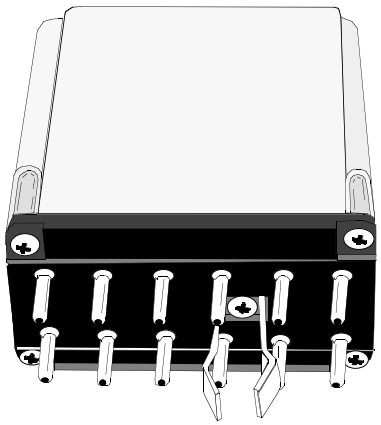


CASE SIZE	CIRCUIT DIAGRAM TOP VIEW	PART NUMBERS	COIL MEASURED AT 25 0 C					MAX. CONTACT RATING		
			NOMINAL INPUT VOLTAGE	MAXIMUM PULL-IN	MINIMUM DROPOUT	NOMINAL RESIS-TANCE (OHMS)	NOMINAL POWER (mW)	MAX. SWITCHING LOAD	SWITCHING CURRENT & VOLTAGE	CARRY CURRENT
DPDT MERCURY										
II		W134MPCX-7 W134MPCX-8	5 12	4.0 9.6	0.5 1.0	45 230	560 620	50 VA	1.0 AMP 500 VDC	2.0 AMPS
DPDT MERCURY WITH CLAMPING DIODE										
II		W134MPCX-10 W134MPCX-11	5 12	4.0 9.6	1.0 1.0	45 230	560 620	50 VA	1.0 AMP 500 VDC	2.0 AMPS
SPDT MERCURY										
I		W134MPCX-1 W134MPCX-2 W134MPCX-3	5 12 24	4.0 9.0 18.0	0.5 1.0 2.0	60 330 1400	417 435 410	50 VA	1.0 AMP 500 VDC	2.0 AMPS

PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

Allow a minimum of 30 seconds after mounting for excess Mercury to clear from the contacts before using.

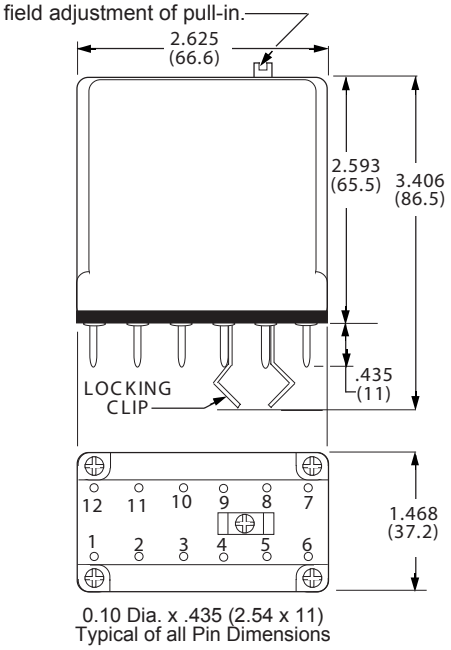
2 AMP. LOW COIL POWER, 1 & 2 POLE PLUG-IN



Class 112 low coil power relays are available with SPDT aor DPDT contact arrangements. The coils require as little as 11.4 mW or 51.7 mW of DC coil power respectively. All 112's are available with AC or DC coils. AC coils can withstand 5 times their minimum rating, while DC coils can withstand 10 times their minimum rating, up to 300 volts. One application for this relay is to detect high resistance grounds which could have low leakage current.

OUTLINE DIMENSIONS

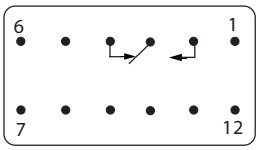
Dimensions are shown in INCHES and (MILLIMETERS)



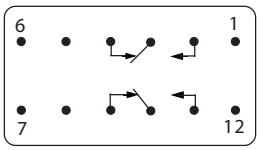
0.10 Dia. x .435 (2.54 x 11)
Typical of all Pin Dimensions

WIRING DIAGRAMS
Viewed from Pin end

112XAX-PGF
(SPDT)



112XBX-PGF
(DPDT)



112-PGF Relays have front removable covers. When cover is removed the relay can be adjusted without being plugged in.

STRUTHERS-DUNN

ORDERING CODE

Typical Type No. **112 XBX PGF** **Specify Coil separately**

Series
- A112 base mounted, low coil power, 1 Form "C"
- 112 Low coil power, 1 & 2 Form "C" plug-in , 2 Form "C" base mount.

Contact Arrangements
- XAX-SPDT (use with A112 base mount or 112-PGF)
- XBX - DPDT
- AXX SPST-NO (use with A112 base mount or 112-PGF
- BXX- DPST-NO
- AXA - SPST-NO +SPST-NC

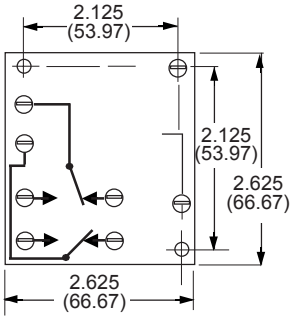
Construction Style
- Base mounted open style - NO CODE
- Industrial Plug-in, Polycarbonate cover, front removable - CODE PGF

Coil Voltage
- Because of the wide variety of coils, both voltage and current to choose from, specify as a separate item.

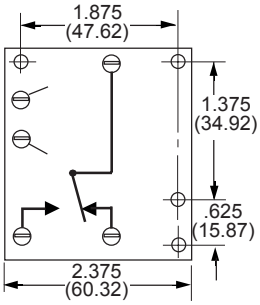
OPTIONS (CONSULT FACTORY)

DIMENSIONS & WIRING DIAGRAMS
Front View

A112XBX-
Base mounted
open style
(DPDT)



A112XAX-
Base mounted
open style
(SPDT)



USE SOCKET 27390D

GENERAL SPECIFICATIONS (@ 25^{0}C)

COIL	
Overvoltage, max.	AC, 5 x min. voltage, DC, 10 x min. voltage (up to 300V)
CONTACTS	
Contact Material:	Fine Silver
TIMING	
Operate Time:	20 mS Max. @ Nominal Voltage.
Release Time:	20 mS Max. @ Nominal Voltage.
DIELECTRIC STRENGTH	
Across open contacts:	500 V rms
All Mutually Insulated current carrying parts to ground:	1500 V rms
TEMPERATURE	
Rated Operation:	-45^0 C to +65^0 C
LIFE EXPECTANCY	
Mechanical:	500,000 Operations no load
Electrical:	100,000 Operations @ Rated Load.
MISCELLANEOUS	
Enclosure:	Clear polycarbonate. (112-PGF Only)
Weight:	7.05 oz. (200 g) approx.

Approvals for
A112XAX & XBX Only.
UL Recognized
File No. E7104

CONTACT RATINGS

LOAD	30VDC	120VAC	240VAC
AC	2A	2A	2A
DC	2A	0.25A	-

OPERATING DATA:(All Types)

Min. Voltage: Selected from coil tables
Min. Current: Selected from coil tables
Series Coils: Available for connection in series with loads up to 50 Amps for series 112, and 10 Amps for series 112-PGF.

COIL SPECIFICATIONS

Measured @ 25^{0}C

TYPES A112XAX, 112XAXPGF

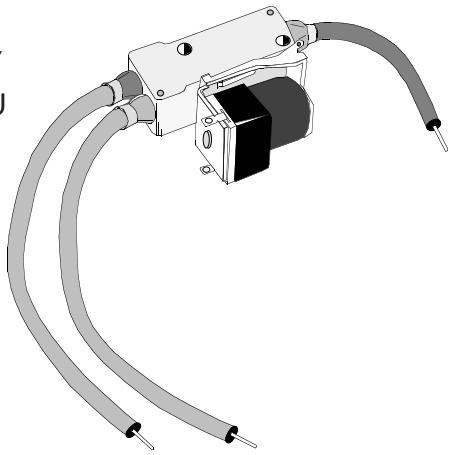
AC COILS, 50/60 HZ			DC COILS		
Minimum Voltage	Minimum Milliamps	Impedance Ohms	Minimum Voltage	Minimum Milliamps	Resistance Ohms
1.0	177	6	0.08	145	0.55
1.4	143	9	0.10	117	0.84
1.6	116	13	0.12	95.0	1.26
2.0	91.0	22	0.15	73.0	2.10
2.5	74.0	34	0.19	60.0	3.10
3.5	52.5	60	0.25	43.0	5.80
4.3	41.5	100	0.30	33.0	9.00
5.0	38.0	130	0.39	31.0	12.5
6.0	31.5	190	0.49	26.0	19.0
8.5	23.0	370	0.62	18.8	33.0
12.0	19.0	630	0.78	15.5	50.0
13.5	15.7	860	0.95	12.8	74.0
16.	11.8	1,350	1.30	9.70	129
20	9.65	2,070	1.60	7.90	197
23	7.65	3,000	2.00	6.30	312
33	6.00	6,500	2.50	4.90	504
43	4.66	9,230	3.20	3.80	840
55	3.85	14,300	3.90	3.15	1,220
67	2.98	22,500	4.80	2.43	1,990
87	2.25	38,500	6.40	1.84	3,450
103	1.93	53,000	8.00	1.58	5,050
130	1.53	85,000	9.70	1.25	7,700
146	1.22	120,600	11.7	1.00	11,700
168	0.95	177,000	16.0	0.84	19,000
225	0.74	300,000	21.0	0.61	34,000

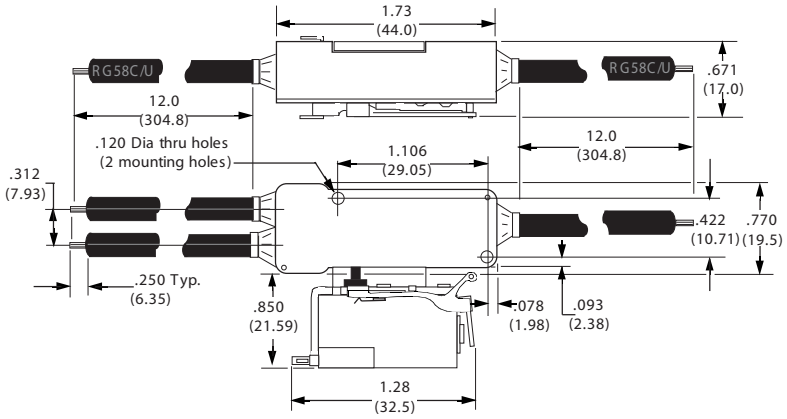
TYPES 112XBX, 112XBXPGF

AC COILS, 50/60 HZ			DC COILS		
Minimum Voltage	Minimum Milliamps	Impedance Ohms	Minimum Voltage	Minimum Milliamps	Resistance Ohms
2.34	390	6	0.18	323	0.55
2.80	310	9	0.22	260	0.84
3.25	250	13	0.27	211	1.26
4.40	200	22	0.34	165	2.10
5.50	160	34	0.41	133	3.10
6.90	114	60	0.55	95.0	5.80
9.10	910	100	0.68	76.0	9.00
10.8	83.0	130	0.86	69.0	12.5
13.1	69.0	190	1.09	57.0	19.0
20.6	50.0	370	1.37	42.0	33.0
26.5	42.0	630	1.72	35.0	50.0
30.0	35.0	860	2.11	29.0	74.0
35.0	26.0	1,350	2.77	22.0	1219
45.5	22.0	2,070	3.46	18.0	197
49.0	16.4	3,000	4.33	14.0	312
72.0	13.0	6,500	5.47	11.0	504
95.0	10.2	9,230	7.11	8.5	840
122	8.5	14,300	8.53	7.0	1,220
146	6.5	22,500	10.8	5.5	1,990
190	4.9	38,500	14.1	4.0	3,450
230	4.9	53,000	17.7	3.5	5,050

120 COAXIAL RELAY

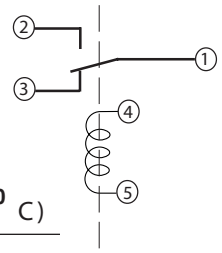
PANEL MOUNT WITH RG58C/U CABLE (50 OHM) SWITCHING UP TO 470 MHz





WIRING DIAGRAM

Side View Coil Down



GENERAL SPECIFICATIONS CLASS 120 (@ 25 ^{0} C)

CONTACTS	
R.F. Load rating:	150 Watts max. up to 470 MHz
Contact Configuration:	SPDT (1 Form "C")
Contact Resistance (Initial):	50 Milliohms max.
VSWR (Voltage Standing Wave Ratio)	1.25 to 1 max., up to 460 MHz
Cross Talk:	40 DB min., up to 470 MHz.
TIMING	
Operate Time:	15 mS Max. @ Nominal Voltage.
Release Time:	7 mS Max. @ Nominal Voltage.
DIELECTRIC STRENGTH	
All Mutually Insulated current carrying parts to ground:	1000 V rms
Insulation Resistance:	1000 Megohms min. @ 500 VDC
TEMPERATURE	
Rated Operation:	-55 ^{0}C to +65 ^{0}C
LIFE EXPECTANCY	
Mechanical:	100,000 Operations @ Rated Load.
Electrical:	5 Million Operations @ no load
MISCELLANEOUS	
Mounting:	Panel mount with 2 mount holes.
Connectors:	None
Cable Type:	RG58C/U, 12" long, with stripped wire length of .250"
Cable Impedance:	50 Ohms
Weight:	3 ozs. 85.0 grams approx.

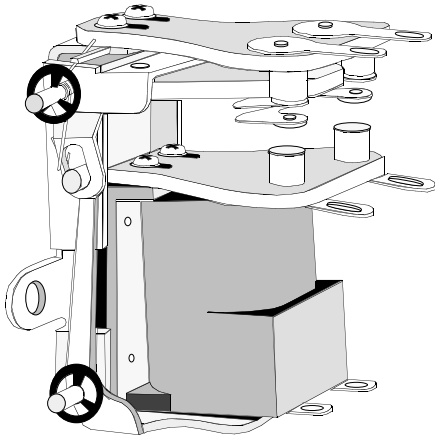
PART NUMBER	CONTACT CONFIGURATION	COIL Measured @ 25 ^{0} C	
		NOMINAL INPUT VOLTAGE	NOMINAL RESISTANCE (OHMS)
DC OPERATED			
W120X-14	SPDT	12 VDC	100

PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

HIGH VOLTAGE SWITCHING RELAYS

CLASS 158

SPDT-DB-DM CONTACT CONFIGURATION
SWITCHES LOADS UP TO 1KVA



SPECIFICATIONS CLASS 158 (@ 25 ^{0}C)

COIL

Coil Dissipation:	DC 5 Watts.

CONTACTS

Contact Material:	Silver alloy, Gold Flashed, 1/4" dia.
Contact Configuration:	SPDT-DB-DM
Switching Voltage max.:	5000 VDC
Contact Rating:	200 mA @ 5000 VDC 1 Amp @ 1000 VDC

DIELECTRIC STRENGTH

Across open contacts:	7500 V rms
Contact to Coil:	8500 V rms
Contact to Frame:	3000 V rms
Insulation Resistance:	1000 Megophms minimum @ 500 VDC

TEMPERATURE

Operating:	-40 ^{0}C to +85 ^{0}C

LIFE EXPECTANCY

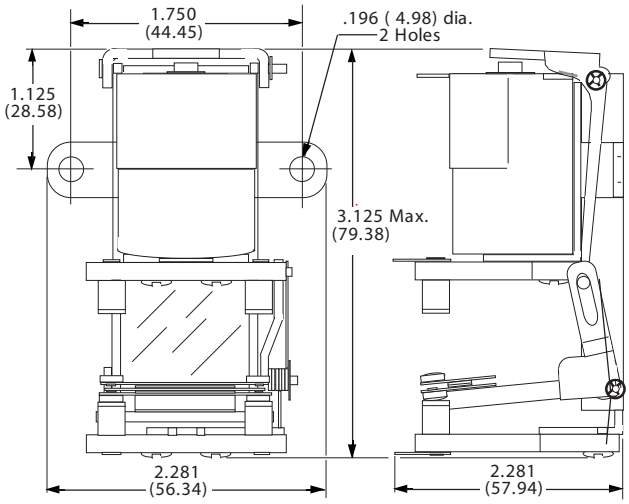
Electrical:	100,000 (Rated Load)
Mechanical:	5 Million Operations Min. @ no load

MISCELLANEOUS

Mounting:	Bracket with 2 Clearance holes 0.196 dia.
Weight:	212.6 grams (7.48 oz.)

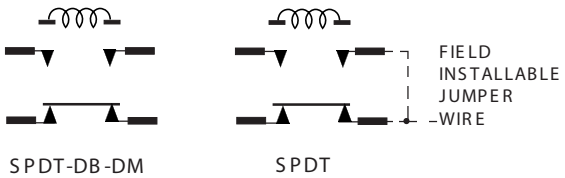
OUTLINE DIMENSIONS

DIMENSIONS SHOWN ARE IN INCHES AND (MILLIMETERS)



WIRING DIAGRAM

VIEWED FROM PIN END



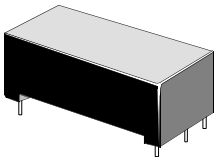
PART NUMBERS	CONTACT CONFIGURATION	Coil Measured at 25 ^{0}C		
		NOMINAL INPUT VOLTAGE	NOMINAL COIL RESISTANCE	NOMINAL POWER
W158HVX-1	SPDT-DB-DM	24VDC	120	5 Watts

PART NUMBERS SHOWN ALSO AVAILABLE THRU STOCKING DISTRIBUTION.

STRUTHERS-DUNN
WEBSITE: www.struthers-dunn.com EMAIL:info@struthers-dunn.com FAX # 1-843-662-8862 PHONE # 1-843-664-3303

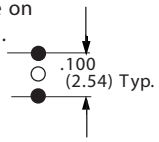
DRY MINIATURE REED RELAY

SIZE I

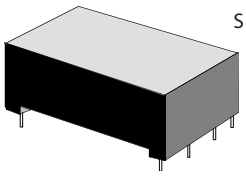


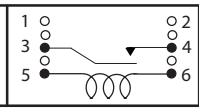
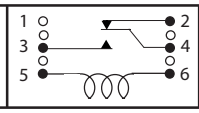
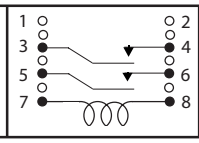
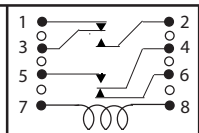
PIN SPACING OF 0.100" IS STANDARD. PIN SPACING OF 0.150 IS AVAILABLE ON SPECIAL ORDER. ALSO AVAILABLE ARE MODELS WITH ELECTROSTATIC SHIELDS. CONSULT FACTORY FOR PART NUMBERS. NONSTANDARD SCHEMATICS AND PIN-OUTS CAN ALSO BE PRODUCED FOR SPECIFIC CUSTOMER REQUIREMENTS.

Spacing between filled in circles in schematics are on .100 Grid Patterns. Pin omitted on unfilled circles.



SIZE II



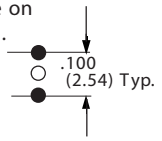
CASE SIZE	CIRCUIT DIAGRAM (Top View)	PART NUMBERS	COIL MEASURED AT 25° C					MAX. CONTACT RATING		
			NOMINAL INPUT VOLTAGE	MAXIMUM PULL-IN	MINIMUM DROPOUT	NOMINAL RESISTANCE (OHMS)	NOMINAL POWER (mW)	MAX. SWITCHING LOAD	SWITCHING CURRENT & VOLTAGE	CARRY CURRENT
SPST-N.O.										
I		W193RE1A3-5S	5	4.0	0.5	500	50	10 VA	0.5 AMP 200 VDC	2 AMPS
		W193RE1A3-12G	12	9.0	1.0	420	350			
		W193RE1A3-24G	24	18.0	2.0	2300	250			
SPDT										
I		W193RE1C3-5S	5	4.0	0.5	350	70	4 VA	0.5 AMP 100 VDC	1 AMP
		W193RE1C3-12G	12	9.0	1.0	420	350			
		W193RE1C3-24G	24	18.0	2.0	2300	250			
DPST-N.O.										
II		W193RE2A3-6G	5	4.0	0.5	70	360	10 VA	0.5 AMP 200 VDC	2 AMP
		W193RE2A3-12G	12	9.0	1.0	280	500			
		W193RE2A3-24G	24	18.0	2.0	1500	390			
DPDT										
II		W193RE2C3-6G	5	4.0	0.5	70	360	4 VA	0.5 AMP 100 VDC	1 AMP
		W193RE2C3-12G	12	9.0	1.0	280	500			
		W193RE2C3-24G	24	18.0	2.0	1500	390			

PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

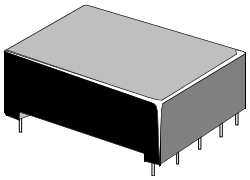
DRY MINIATURE REED RELAY

PIN SPACING OF 0.100" IS STANDARD. PIN SPACING OF 0.150 IS AVAILABLE ON SPECIAL ORDER. ALSO AVAILABLE ARE MODELS WITH ELECTROSTATIC SHIELDS. CONSULT FACTORY FOR PART NUMBERS. NONSTANDARD SCHEMATICS AND PIN-OUTS CAN ALSO BE PRODUCED FOR SPECIFIC CUSTOMER REQUIREMENTS.

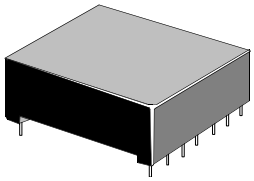
Spacing between filled in circles in schematics are on .100 Grid Patterns. Pin omitted on unfilled circles.

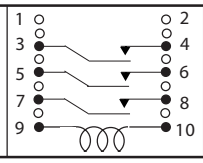
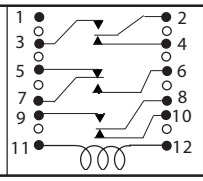
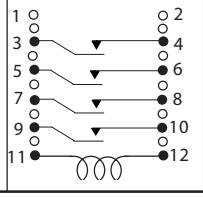
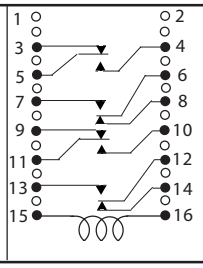


SIZE III



SIZE IV



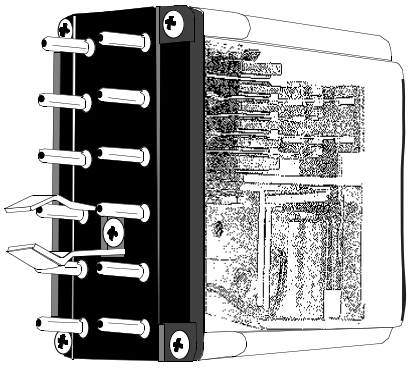
CASE SIZE	CIRCUIT DIAGRAM (Top View)	PART NUMBERS	COIL MEASURED AT 25 ^{0} C					MAX. CONTACT RATING		
			NOMINAL INPUT VOLTAGE	MAXIMUM PULL-IN	MINIMUM DROPOUT	NOMINAL RESIS-TANCE (OHMS)	NOMINAL POWER (mW)	MAX. SWITCHING LOAD	SWITCHING CURRENT & VOLTAGE	CARRY CURRENT
3PST-N.O.										
III		W193RE3A3-6G	5	4.0	0.5	50	500	10 VA	0.5 AMP 200 VDC	2 AMP
		W193RE3A3-12G	12	9.0	1.0	210	690			
		W193RE3A3-24G	24	18.0	2.0	1150	500			
3PDT										
III		W193RE3C3-6G	5	4.0	0.5	50	500	4 VA	0.5 AMP 100 VDC	1 AMP
		W193RE3C3-12G	12	9.0	1.0	210	690			
		W193RE3C3-24G	24	18.0	2.0	1150	500			
4PST-N.O.										
III		W193RE4A3-6G	5	4.0	0.5	50	500	10 VA	0.5 AMP 200 VDC	2 AMP
		W193RE4A3-12G	12	9.0	1.0	210	690			
		W193RE4A3-24G	24	18.0	2.0	1150	500			
4PDT										
IV		W193RE4C3-6G	5	4.0	0.5	35	720	4 VA	0.5 AMP 100 VDC	1 AMP
		W193RE4C3-12G	12	9.0	1.0	140	1030			
		W193RE4C3-24G	24	18.0	2.0	770	750			

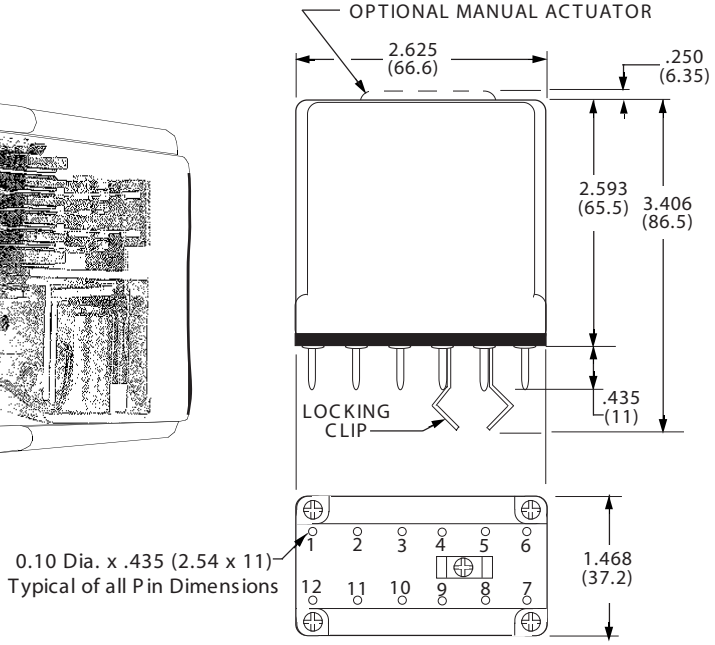
PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

2, 4 OR 6 POLE, 10 AMP INDUSTRIAL RELAY

CLASS 219 INDUSTRIAL PLUG-IN RELAYS OFFER A WIDE VARITY OF CONTACT CONFIGURATIONS ON 12 PIN AND 14 PIN BASES. THE COIL IS ENCAPSULATED FOR PROTECTION.

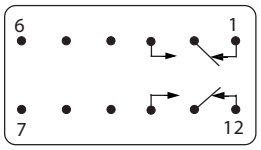
UL Recognized
File No. E13224



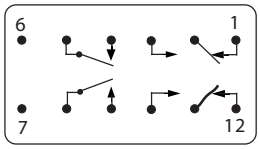


WIRING DIAGRAMS
BOTTOM VIEW

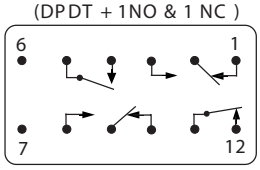
219XBXP
(DPDT)



219BBXP
(DPDT + 2 N.O.)



219ABAP
(DPDT + 1NO & 1 NC)

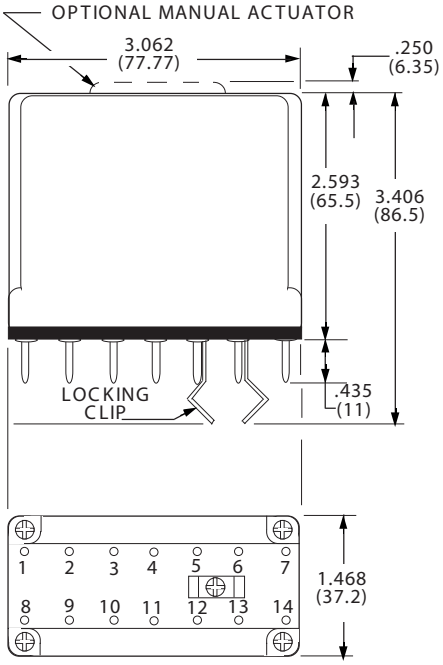


COMMONLY AVAILABLE MODELS

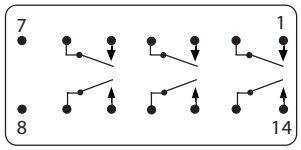
12 PIN	CONTACTS	14 PIN	CONTACTS
219BBXP	DPDT + 2 NO	219XDXP	4PDT
219XBXP	DPDT	219FXXP	6P-NO
219ABAP	DPDT + 1 NO & 1 NC	219DXBP	4P-NO + 2P-NC

Make before break and other Contact configurations available limited only by the number of terminal pins.

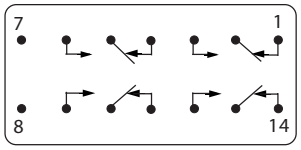
NUCLEAR QUALIFIED VERSIONS AVAILABLE



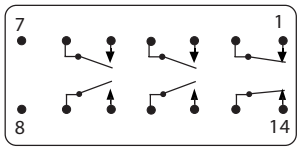
219FXXP
(6P-NO)



219XDXP
(4PDT)



219DXBP
(4P-NO + 2P-NC)



2, 4 OR 6 POLE, 10 AMP INDUSTRIAL RELAY

219 GENERAL SPECIFICATIONS (@ 25 °C)

COIL	
Pull-in, min. AC	85% of Nominal Voltage
Pull-in min. DC	80 % of Nominal Voltage
Overvoltage, max.	110% of nominal Voltage
CONTACTS	
Contact Material:	Silver Alloy, Gold diffused (Standard)
TIMING	
Operate Time:	25 mS Max. @ Nominal Voltage.
Release Time:	20 mS Max. @ Nominal Voltage.
DIELECTRIC STRENGTH	
All Mutually Insulated Points:	1500 V rms
Insulation :	1/4" over surface, 1/8" thru Air
TEMPERATURE	
Rated Operation:	-10 °C to +60 °C
LIFE EXPECTANCY	
Mechanical:	10 Million Operations no load
Electrical:	100,000 Operations @ Rated Load.
MISCELLANEOUS	
Enclosure:	Clear polycarbonate.
Operating Position:	Vertical, Contacts Up
Weight:	8.5 oz. (241 g) approx.

COIL SPECIFICATIONS @ 25 °C

AC RELAYS 50/60 HZ (COIL DATA @ 60HZ Voltage					DC RELAYS, 1.8 WATTS (2.5 W @ 125VDC)			
Nominal Voltage	Resistance Ohms ± 10%	Milliamperes Cold	Milliamperes Hot	Impedance Ohms	Nominal Voltage	Resistance Ohms ± 10%	Milliamperes Cold	Milliamperes Hot
6	1.1	1500	840	7.2	6	15.5	385	304
12	4.2	750	410	27	12	63.5	189	147
24	15.5	375	200	120	24 (28)*	250	96	77
120	540	75	40	2700	32	375	86	62
240	2100	32	17	13,400	115/125*	6200	20	16

* Note: Stock 24 Vdc and 115 Vac relays have nameplates stamped 24-28 and 115-125 Vdc respectively. These relays operate at 80% of the lower voltages and operate within allowable temperature rises at higher voltages. 250 Vdc - Use 125 Vdc relay and series resistor (6000 Ω, 5 W) not supplied.

CONTACT RATINGS

VOLTS	MAKE	CARRY	BREAK RESISTIVE	BREAK INDUCTIVE
24 VDC	30A	10A	10A	10A
120 VAC	30A	10A	10A	3A
240 VAC	30A	10A	5A	1A
28 VDC	30A	10A	10A	3A
125 VDC	30A	10A	0.5A	0.1A
For versions with suffix "69" Permanent Magnet Blowouts				
125 VDC SM	30A	10A	1.5A	0.5A
125 VDC DM	30A	10A	4A	1.5A
250 VDC SM	30A	10A	0.5A	150 mA
250 VDC DM	30A	10A	1.5A	0.5A

STRUTHERS-DUNN

ORDERING CODE

Typical Type No. 219 XBX P L -24D

Series
- 219 Industrial plug-in style

Contact Arrangements
- XBX (DPDT)
- ABA (DPDT + 1 Pole-NO & 1 Pole NC)
- BBX (2 Pole-NO & DPDT)
- XDX (4 PDT)
- FXX (6 Pole-NO)
- DXB (4 Pole-NO & 2 Pole-NC)

Standard Features
- Polycarbonate Cover- CODE "P"

Optional Features
- Indicator Lamp - CODE "L"
- Manual Actuator- CODE "M"
- 130Ω Coil - CODE "U"
- Bifurcated Contacts - CODE "33"
- Perm. Magnet Blowout- CODE "69"

Coil Voltage
- AC: 6, 12, 24, 120, 240 (Add "A")
- DC: 6, 12, (24-28), 32, 115/125 (Add "D")
- Coil Voltages & Frequencies must be specified.

MATING SOCKETS

27390D - 12 PIN
33377D - 14 PIN

ADJUSTABLE CURRENT SENSING RELAY

CLASS 235

SPECIFICATIONS (@ 25 ^{0}C)

CURRENT SENSING:

Sense Current Range:	1.5 to 15 Amperes
Repeatability:	± 2% at constant Voltage & Temperature ± 10% over Voltage & Temperature Range.
Input Current:	15 mA (1.7 VA)
Current Sensor Resistance:	5 Milliohms
Temperature Range Operate:	- 10 ^{0}C to + 55 ^{0}C
Temperature Range Storage:	- 40 ^{0}C to + 85 ^{0}C

CONTACTS

Contact Combinations:	SPDT (1 Form C)
Contact Rating	10 Amps @ 120 VAC, 6 Amps @ 28 VDC.
Transient:	2000 V rms for 5 Microseconds

LIFE EXPECTANCY;

Electrical	200,000 Operations @ Rated Load
Mechanical:	5,000,000 Operations @ No Load

DIELECTRIC STRENGTH

Coil to Contacts:	2500 V rms
Across Open Contacts:	500 V rms

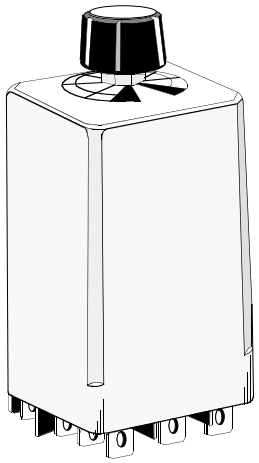
MECHANICAL

Terminals:	Choice of 1/4" or 3/16" Quick Connect terminals.
Mounting:	6-32 Tapped Hole & anti rotation Tab or Plug-in with 3/16" terminals.
Mounting Bracket:	Optional.
Enclosure:	Polycarbonate dust cover.
Weight:	4 oz. (113 g) approx.

CLASS 235 CURRENT SENSOR

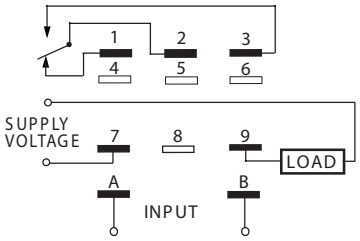
± 2 % REPEATABILITY
SPDT, 10 AMP CONTACTS
FIELD ADJUSTABLE CURRENT SETTINGS.

UI Recognized
File No. 62636



The Class 235 Current Sensing Relay combines a Solid State Sensor with a SPDT, 10 Amp relay. The Sensor is field adjustable for detecting AC Current levels in equipment. The sensor is non-latching and has no time delay.

WIRING DIAGRAM

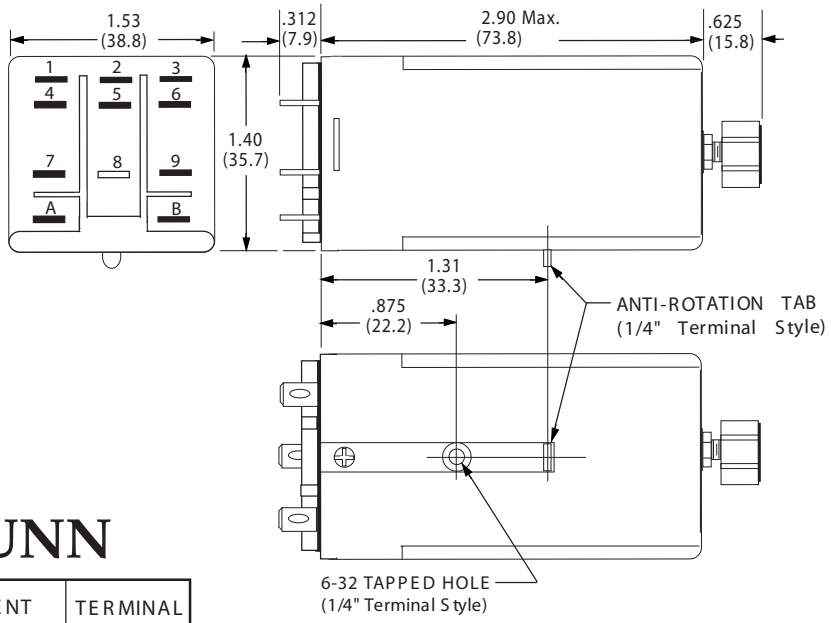


Continuous Voltage must be supplied to Input.

VIEWED FROM TERMINAL SIDE

OUTLINE DIMENSIONS

Dimensions are Shown In Inches and (Millimeters)



STRUTHERS-DUNN

PART NUMBERS	NOMINAL INPUT VOLTAGE	CURRENT RANGE	TERMINAL SIZE
W235ACX-2	120 VAC	1.5 to 15 Amps	1/4" (.250)
W235ACX-3	120 VAC	1.5 to 15 Amps	3/16" (.187)

OTHER CURRENT RANGES AND VOLTAGES AVAILABLE

NOTE: 3/16" (.187) TERMINALS ARE SOCKET MOUNTABLE.
1/4" (.250) TERMINALS, NO SOCKET AVAILABLE FOR THIS STYLE.

ADJUSTABLE VOLTAGE SENSING RELAY

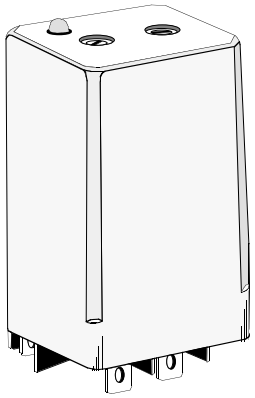
CLASS 236

The Class 236 Voltage Sensing Relay combines a Solid State Sensor with a SPDT, 13 Amp or DPDT 10 Amp relay.
The Sensor is field adjustable for Pull-in & Dropout .
The 236 can be used either as a over or under voltage detecting relay.
The sensor is non-latching and has no time delay.

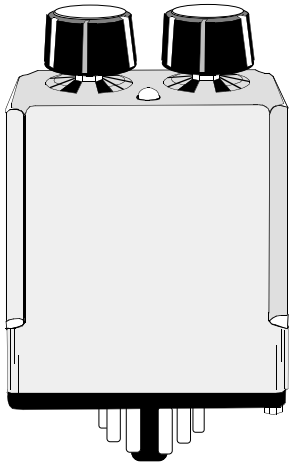
Applications: Brownout protection, warning of under voltage conditions and Over voltage protection. **Prevents equipment burnout.**

CLASS 236 VOLTAGE SENSOR

UI Recognized
File No. 62636



±1 % REPEATABILITY
SPDT, 13 AMP CONTACTS
FIELD ADJUSTABLE



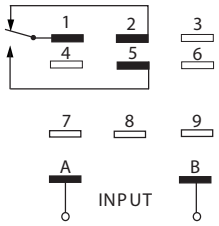
± 1 % REPEATABILITY
DPDT, 10 AMP CONTACTS
FIELD ADJUSTABLE

SPECIFICATIONS CLASS 236 CURRENT SENSOR

VOLTAGE SENSING:	
Nominal Input:	120,240,480 VAC 50/60Hz, 24VAC, 24 VDC. Other AC & DC Voltages Available.
Adjustment Range:	Pull-in 75% to 115% of Nominal Voltage. Dropout 75% to 95% of Pickup setting.
Repeatability:	± 1% @ constant Voltage & Temperature
Input Current:	15 mA (1.7 VA)
Current Sensor Resistance:	Relay "Off" 2 mA max. Relay "On" 22 mA max. @ 120AC (2.7 VA) 12 mA 240AC max. (2.9VA), 7 mA max. 480 AC (3.41 VA)
Temperature Range Operate:	- 30 ^{0} C to + 55 ^{0} C
Temperature Range Storage:	- 40 ^{0} C to + 85 ^{0} C
CONTACTS	
Contact Combinations:	SPDT (1 Form C), DPDT (2 Form "C")
Contact Rating	SPST: 13 Amps @ 240 VAC, 28 VDC Res. 1/3 HP @ 120 VAC, 1/2 HP @ 240/480 AC, 3 AMPS @ 480 VAC, NEMA B300 Pilot Duty DPDT: 10 AMPS @ 240 VAC/28 VDC Res. 1/3Hp @ 120 VAC, 1/2 Hp 240 VAC NEMA B300 Pilot Duty.
Contact Life Electrical:	SPDT: 100,000 Operations @ 13 Amps, 240AC Res. DPDT: 100,000 Operations @ 10 Amps, 240AC Res.
Contact Life Mechanical:	SPDT:5,000,000 Operations DPDT: 50,000,000 Operations.
Transient:	UL 508 Surge 5000 V for 50 microseconds
Noise Immunity:	NEMA ICS2-230, 2500 VAC
DIELECTRIC STRENGTH	
Breakdown:	UL 508 Surge 5KV 1.2 x 50 Microseconds.
Coil to Contacts:	2500 V rms
Across Open Contacts:	1000 V rms
MECHANICAL	
Terminals:	3/16" (.187) Quick Connect terminals. or 8 Pin Octal base
Enclosure:	Polycarbonate dust cover.
Power "ON" Indicator:	L.E.D. (Green)
Weight:	4 oz. 124.4 g, 5 oz 155.5g (8 pin octal)

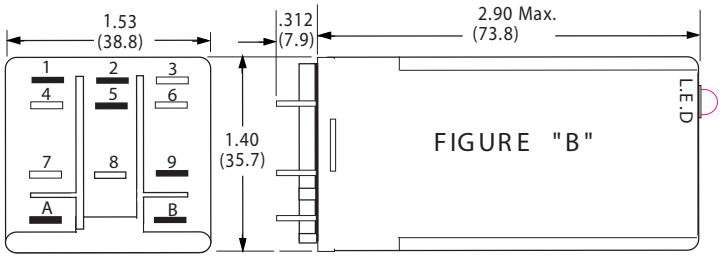
ADJUSTABLE VOLTAGE SENSING RELAY

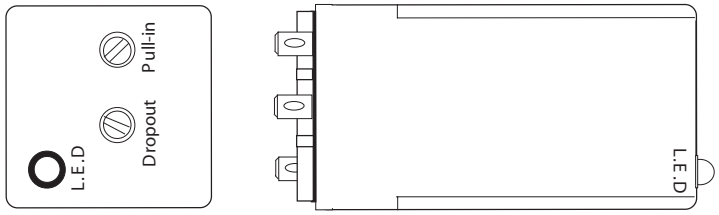
WIRING DIAGRAMS
VIEWED FROM PIN END



SQUARE BASE
Continuous Voltage
must be supplied to Input.

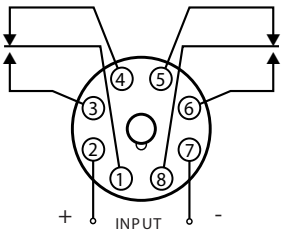
OUTLINE DIMENSIONS
Dimensions are Shown In Inches and (Millimeters)





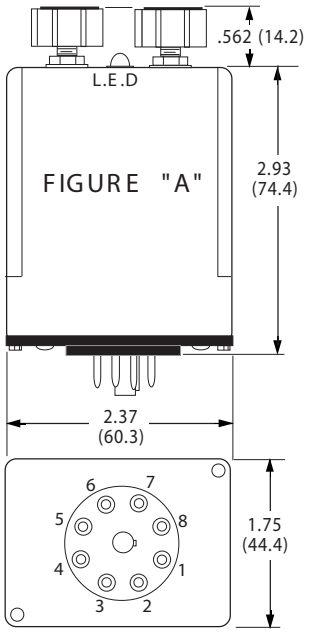
Screw Driver Adjustable with
Graduated scale.

WIRING DIAGRAMS
VIEWED FROM PIN END



8 PIN OCTAL
Continuous Voltage
must be supplied to Input.

OUTLINE DIMENSIONS
Dimensions are Shown In Inches and (Millimeters)



STRUTHERS-DUNN

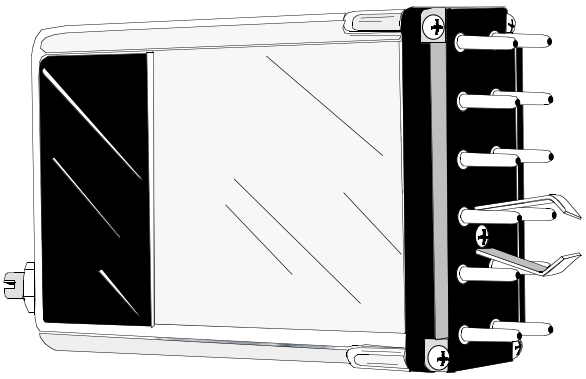
PART NUMBERS	FIG.	NOMINAL INPUT VOLTAGE	VOLTAGE PULL-IN RANGE	VOLTAGE DROP-OUT RANGE
W236ACX-1	B	120 VAC	90 to 138 VAC	75% to 95% of Pickup Voltage Setting
W236ACX-2	B	208/220 240 VAC	180 to 276 VAC	
W236ACX-4	B	480 VAC	360 to 552 VAC	
W236ACPX-1	A	120 VAC	92 to 140 VAC	90 to 138 VAC
W236ACPX-4	A	24 VAC	20 to 30 VAC	18 to 28VAC
W236CPX-1	A	24 VDC	20 to 30 VDC	18 to 28 VDC

PART NUMBERS SHOWN ALSO AVAILABLE THRU STOCKING DISTRIBUTION.

12 PIN, 10 AMP, TIME DELAY RELAY

SERIES 236 ON DELAY, 237 OFF DELAY & 238 BATCH CONTROL INTERVAL (SEE NOTE 3)
AC OR DC INPUT
DPDT OR DPDT WITH 1 N.O. CONTACT ON SERIES 236 & 238
12 PIN PLUG-IN WITH LOCKING CLIP
TIMING: SCREWDRIVER ADJUSTABLE OR FIXED

UL Recognized
File No. E13224



The Series 236, 237 and 238 Time Delay Relays consist of a standard 219 industrial relay and a solid state timing module to provide delayed transfer of relay contacts after application of power or activation of control switch. The relay and timing module are enclosed in a flame resistant polycarbonate cover.

GENERAL SPECIFICATIONS (@ 25°C)

INPUT

Nominal Voltage:	AC: 24 to 240, DC: 12 to 125
Minimum Oper. Voltage:	AC - 85% of Nominal DC - 80% of Nominal
Max. allowed voltage:	110% of nominal voltage

CONTACTS

Contact Material:	Silver Cadmium Oxide.
Rating:	10 Amps @ 120 VAC res. 10 Amps @ 28 VDC

OPERATIONAL CHARACTERISTICS

Repeatability: Accuracy:	DC: ± 3%: @ 20C. AC: ± 3% +16 mS @ 20°C. Adjustable: ± 10% Within temperature & voltage range. Fixed: ± 10% @ 25C
Min. waiting time before starting next cycle (Reset Time):	100 mS (for timing cycle up to 60 sec. 150 mS for timing cycle 60 to 300 sec.

INSULATION CHARACTERISTICS

Dielectric Strength:	500 V rms across open contacts, 1500 V rms between output contacts and ground (Locking clip). (See note 4).
Insulation Resistance:	1000 Megohms min. @ 500 VDC.
Transient Protection:	5 mS, 0 to 2000 V 20 uSec peak
False Contacting:	No false contacting if power is interupted during timing.
Inverse polarity protection:	DC operated are polarity protected. but will not operate if polarity is reversed.

ENVIRONMENTAL CAPABILITIES

Ambient Temperature Rating:	- 10 °C to +70 C

LIFE EXPECTANCY

Mechanical:	10 Million Operations no load
Electrical:	100,000 Operations @ Rated Load.

MISCELLANEOUS

Enclosure:	Clear Polycarbonate
Weight:	8.6 oz approx. (244 g)

STRUTHERS-DUNN

Typical Part Number 236 ABX P 020 120A

Series
- 236 - ON DELAY
- 237 - OFF DELAY (Note 2)
- 238 - INTERVAL (Note 3)

Contact Arrangements
- ABX (DPDT & 1 N.O. Contact) 236 & 238 only).
- XBX (DPDT)

Mounting Options
- P (Plug-in)

Timing Ranges
- 0.2 - 12 Sec - Code 012**
- 0.2 - 20 Sec - Code 020
- 2.0 - 200 Sec - Code 200

Adjustment Options
- Adjustment Screw) - No Code
- Fixed Delay - Specify Fixed Time & Code F *

Operating Voltage
- AC; 24, 48, 120, 240 (Add "A")
- DC; 12, 24, 48, 115-125 (Add "D")

Code 012**- 12 Second timing not available on 237 & 238 models.

(F*Models) - timing code does not apply. Specify single delay time requirement.

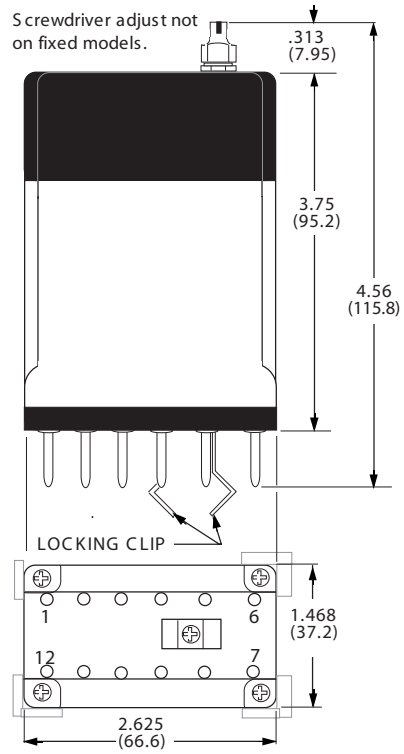
Example of typical fixed time delay relay part number- 236XBXP-3.5F-120A (ON DELAY, DPDT, 3.5 SEC FIXED, 120 VAC INPUT POWER).

NOTES:
1. 236,237,238 -External resistor (to program time delay) or jumper (for built-in timing) must be connected to terminals 8 & 9.
2. 237 models require an external control switch between terminals 5 & 6.
3. 238 switches contacts when input power is applied and starts timing. Contacts switch back to original position at end of timing cycle. Power must be removed to reset timer. If input power is interupted during the timing cycle, timing ends immediately and the relay resets.
4. Dielectric withstanding voltage testing of the Control circuit may damage the solid state components.

NUCLEAR VERSIONS AVAILABLE

OUTLINE DIMENSIONS

Dimensions shown are in INCHES and (millimeters)



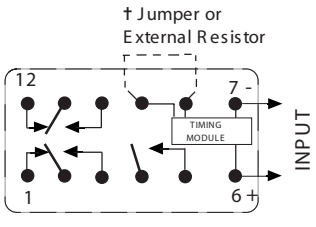
† TIMING * RESISTANCE CHART

236 RANGE: O.2 TO 12 SEC 20K OHMS PER EA.3 SEC 100 K OHMS MAX.
236 RANGE: 0.2 TO 20 SEC 100K OHMS PER EA.7 SEC 500 K OHMS MAX
237/238 RANGE: 0.2 TO 20 SEC. 100K OHMS PER EA.6 SEC 500 K OHMS MAX.
236 RANGE: 2.0 TO 200 SEC 200K OHMS PER EA.60 SEC 1 MEG OHM MAX.
237/238 RANGE: 2.0 TO 200 SEC 200K OHMS PER EA.55 SEC. 1 MEG OHM MAX.

* USE RESISTOR RATED 1/4 WATT OR MORE.

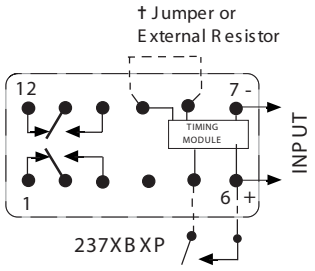
EXAMPLE WIRING DIAGRAMS

Viewed from Top of Relay



236ABXP

ON DELAY
DOUBLE POLE DOUBLE THROW WITH NORMALLY OPEN CONTACT

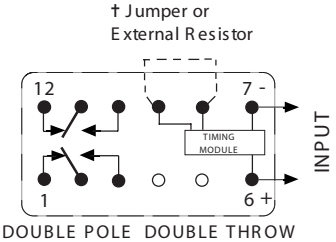


237XBXP

OFF DELAY (NOTE 2)

DOUBLE POLE DOUBLE THROW

† If the jumper wire shown in each diagram is replaced by a resistor, delay time will be added to that which is produced by an internal fixed resistor on fixed time models (code F) or any setting on screwdriver adjustable models. See timing resistance chart above. Relay will not operate without a jumper or resistor. Also see note 1.



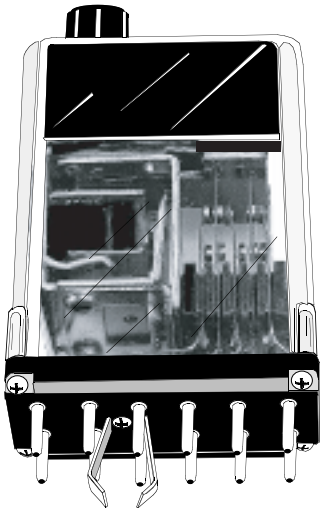
DOUBLE POLE DOUBLE THROW

238XBXP

L

INTERVAL (NOTE 3)

CLASS 246 / 247 INDUSTRIAL 10 AMP, ON-DELAY & OFF DELAY TIMER



SERIES 246 & 247
± 3% REPEATABILITY
PLUG-IN WITH SELF LOCKING CLIP

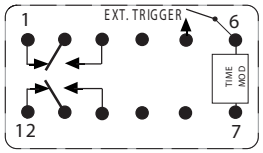
UL Recognized
File No. 13224

Listed when used with Type 29390D Socket

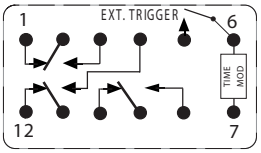
Series 246 CSA Certified

The series 246 & 247 Time Delay Relays are a ON-Delay or Off Delay Function times, with timing ranges from 0.1 to 300 Seconds. The 246 Timer comes in either 2 - 4 poles, and the 247 comes in 2 & 3 Pole models. Both timers incorporate a class 219 relay along with a Solid State timing module. Both timers have a large choice of options and switch up to 30 amp loads.

OFF DELAY FUNCTION

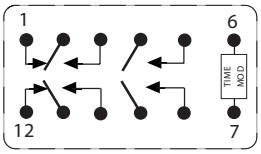


247XBXP

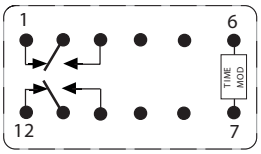


247XCXP

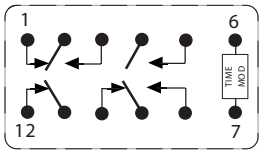
ON DELAY FUNCTION



246BBXP

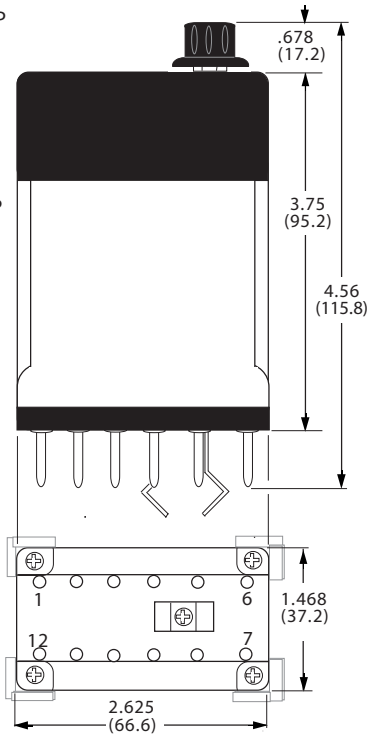


246XBXP



246ABAP

Dimensions shown are in INCHES and (millimeters)



CONTACT LOAD SPECIFICATIONS

Voltage	Make	Carry	Resistive	Inductive
24 VDC	30A	10A	10A	10A
120 VAC	30A	10A	10A	3A
240 VAC	30A	10A	5A	1A
28 VDC	30A	10A	10A	3A
125 VDC	30A	10A	0.5A	0.1A
For Versions with suffix "69" Permant Magnet Blowouts				
125 VDC (SM)	30A	10A	1.5A	0.5A
125 VDC (DM)	30A	10A	4A	1.5A
250 VDC (SM)	30A	10A	0.5A	150mA
250 VDC (DM)	30A	10A	1.5A	0.5A

STRUTHERS-DUNN

Typical Part Number 247 XBX P L -010 __ -120A

Series
246- On Delay Plug-in 2-4 Pole
247- Off Delay Plug-in, 2 & 3 Pole

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.

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

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

Adjustment
Adjustment Knob) - No Code
Fixed - Timing Code does not apply. Ex. 3F = 3 Sec
Fixed) Code F
Remote Adj. (Ext Pot Required) - Code R

Operating Voltage
AC; 24, 48, 120, 240 (Add "A")
DC; 12, 24, 48, 110-125 (Add "D")

GENERAL SPECIFICATIONS SERIES 246 & 247 TIMER

INPUT
Coil Voltage
Minimum Operate Voltage: AC - 85% of Nominal; DC - 80% of Nominal
Max. allowed voltage: 110% of nominal voltage

CONTACTS
Contact Material: Silver Alloy - Gold Diffused

OPERATIONAL CHARACTERISTICS
Repeatability: ± 3% @ 25 ^{0}C (AC +16 mS)
Accuracy: Adjustable ± 10% Within temperature & voltage range.
Recycle Time: 100 mS up to 60 Sec., 150 mS 60 to 300 Sec.
False Contacting: No false contacting if power is interrupted during timing cycle.
Polarity Protection: DC inputs

INSULATION CHARACTERISTICS
Dielectric Strength: 500 V rms across open contacts
All Mutually Insulated Points: 1500 V rms between current carrying parts & Parts to Ground.
Transient Protection: 5 mS 0 to 2000V, 20 uSec peak
Insulation Resistance: 1000 Megohms minimum @ 500 VDC

ENVIRONMENTAL CAPABILITIES
Ambient Temperature Rating: AC: -10 ^{0}C to +45 ^{0}C @ Rated Operation. DC: -10 ^{0}C to +70 ^{0}C

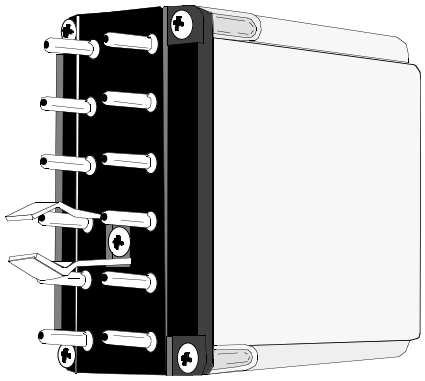
LIFE EXPECTANCY
Mechanical: 10 Million Operations no load
Electrical: 100,000 Operations @ Rated Load. 500,000 @ 1/2 Rated Load.

MISCELLANEOUS
Enclosure: Clear polycarbonate
Weight: 8 oz. (227 g)

STRUTHERS-DUNN
WEBSITE: www.struthers-dunn.com EMAIL:info@struthers-dunn.com FAX # 1-843-662-8862 PHONE # 1-843-664-3303

CLASS 255 DUAL COIL LATCHING PLUG-IN RELAYS

THE SERIES B255 IS A TWO COIL LATCHING VERSION OF THE GENERAL PURPOSE TYPE 219 RELAY. WHEN THE OPERATE COIL IS MOMENTARILY ENERGIZED, THE RELAY MECHANICALLY LATCHES IN THE ENERGIZED POSITION AND REMAINS IN THE ENERGIZED POSITION WITH THE POWER REMOVED FROM THECOIL. THE SECOND COIL WHEN MOMENTARLY ENERGIZED, PROVIDES ELECTRICAL RESET OF THE CONTACTS. ALL CONTACTS OPERATE FROM A COMMON ARMATURE TO PREVENT CONTACT OVERLAPPING. COILS ARE RATED FOR CONTINUOUS DUTY.

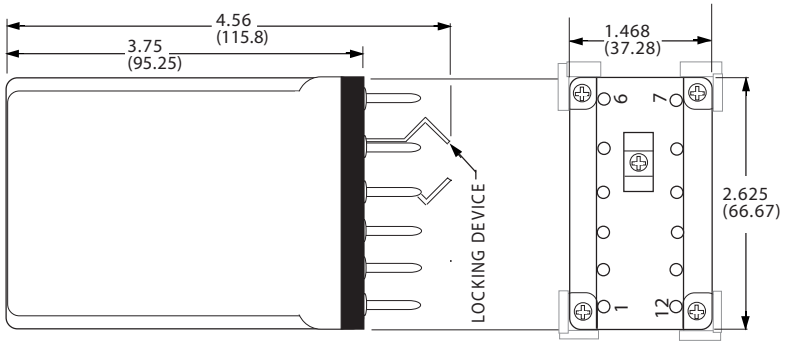


UL Recognized
File No. E13224

NUCLEAR QUALIFIED VERSION AVAILABLE

OUTLINE DIMENSIONS

Dimensions shown Inch & (Millimeters)



OPTIONS

*Electrical Set
Manual Reset

* Manual Set
Electrical Reset

STRUTHERS-DUNN

ORDERING CODE
Typical Type No. B255 XCX P LM -

Series
B255 2 Coil Latch plug-in
Contact Arrangements
XBX DPDT
XCX 3PDT
ABX SPST-NO & 2 Form C
BXB DPST-NO & 2 Form B
Standard Features
Polycarbonate Cover- CODE "P"
Optional Features
Indicator Lamp across both coils - CODE "L"
Manual Actuator- CODE "M"
Perm. Magnet Blowout- CODE "69"
Coil Voltage
Coil Voltages & Frequencies must be specified.

Note: For time delay on energizing reset coil, specify 256 series in lieu of B255

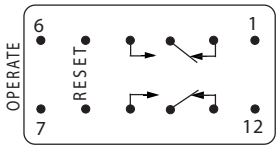
DC RELAYS, 1.8 WATTS (2.5 W @ 125VDC)

OPTIONS	SUFFIX
130^{0}C Coil	U
Coil Suppression	V
Light & Actuator	LM
Fine Silver-Gold Diffused Bifurcated Contacts	33

WIRING DIAGRAMS

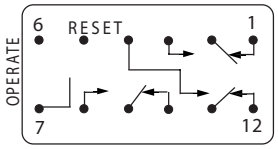
(VIEWED FROM TERMINAL END)

B255XBXP
(DPDT)



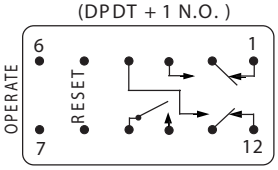
TYPE	CONTACTS
B255ABXP	DPDT + 1 NO
B255XBXP	DPDT
B255XCP	3PDT
B255BXBP	2 NO + 2 NC

B255XCXP
(3 PDT)

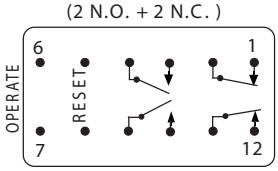


MATING SOCKETS
27390 - 12 PIN

B255ABXP
(DPDT + 1 N.O.)



B255BXBP
(2 N.O. + 2 N.C.)



DUAL COIL LATCHING PLUG-IN RELAYS

GENERAL SPECIFICATIONS

COIL	
Pull-in, min. AC	85% of Nominal Voltage
Pull-in min. DC	80 % of Nominal Voltage
Overvoltage, max.	110% of nominal, voltage
CONTACTS	
Contact Material:	Silver Alloy & Gold Diffused (Standard)
TIMING	
Operate Time: (operate coil)	25 mS Max. @ Nominal Voltage.
Release Time: (Reset coil energized)	20 mS Max. @ Nominal Voltage.
DIELECTRIC STRENGTH	
All Mutually Insulated Points:	1500 V rms
Insulation :	1/4" over surface, 1/8" thru Air
TEMPERATURE	
Rated Operation:	-10 ^{0}C to +60 ^{0}C
LIFE EXPECTANCY	
Mechanical:	10 Million Operations no load
Electrical:	100,000 Operations @ Rated Load. 500,000 Operations 1/2 Rated Load.
MISCELLANEOUS	
Enclosure:	Clear polycarbonate.
Weight:	215 g (7.58 oz.) APPROX.

UL Recognized
File No. E13224

COIL SPECIFICATIONS @ 25^{0}C

*AC COIL, 50/60 HZ

	RESET COIL (3VA)		OPERATE COIL (5VA)	
Nominal Voltage	Resistance Ohms ± 10%	Coil Power (mA)	Resistance Ohms ± 10%	Coil Power (mA)
6	3.0	840	1.10	800
12	14.5	256	4.20	410
24	52.0	150	15.5	200
120	1450	26.5	540	45.0
240	5000	4.8	1815	13.2

Current inrush on all AC coils is less than twice the listed milliamperes ratings as shown in the AC coil data table.
*Currents shown in table measured at 60 Hz.

DC COIL DATA

Nominal Voltage	RESET COIL 1.4W)		OPERATE COIL (1.8W)	
	Resistance Ohms ± 10%	Coil Power (mA)	Resistance Ohms ± 10%	Coil Power (mA)
6	21.0	286	15.5	385
12	85.0	141	63.5	189
24	300	80	250	96.0
115/125	8000	14.4	6200	20.0

DC relays, 1.8 Watts (2.5 W @ 125VDC)

CONTACT RATINGS

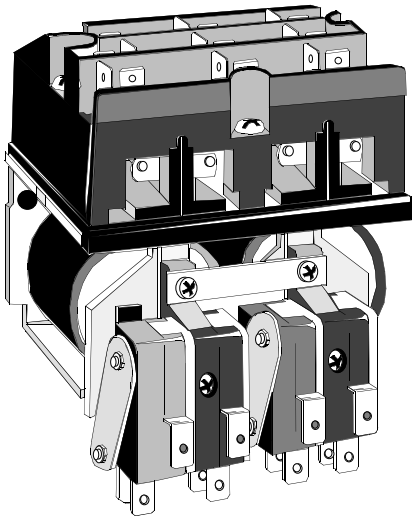
VOLTS	MAKE	CARRY	BREAK	
			RESISTIVE	INDUCTIVE
24 VDC	30A	10A	10A	10A
120 VAC	30A	10A	10A	3A
240 VAC	30A	10A	5A	1A
28 VDC	30A	10A	10A	3A
125 VDC	30A	10A	0.5A	0.1A
** For versions with suffix "69" Permanent Magnet Blowouts				
125 VDC SM	30A	10A	1.5A	0.5A
125 VDC DM	30A	10A	4A	1.5A
250 VDC SM	30A	10A	0.5A	150 mA
250 VDC DM	30A	10A	1.5A	0.5A

**Relays with Code 69 feature (Check with factory for UL & CSA Listing).

MOTOR REVERSING CONTACTOR, 1 & 3 HP, 6 POLE

UL Recognized
File No. E13224B

Class 275 compact motors reversing contactor find extensive applications in the Industrial door operator Industry, the hoist Industry and electronic wheel balancers, to name a few. The 275 has Q.C. coil terminals extending out the back (opposite the contact terminals), mechanically interlocked armatures is a standard feature.

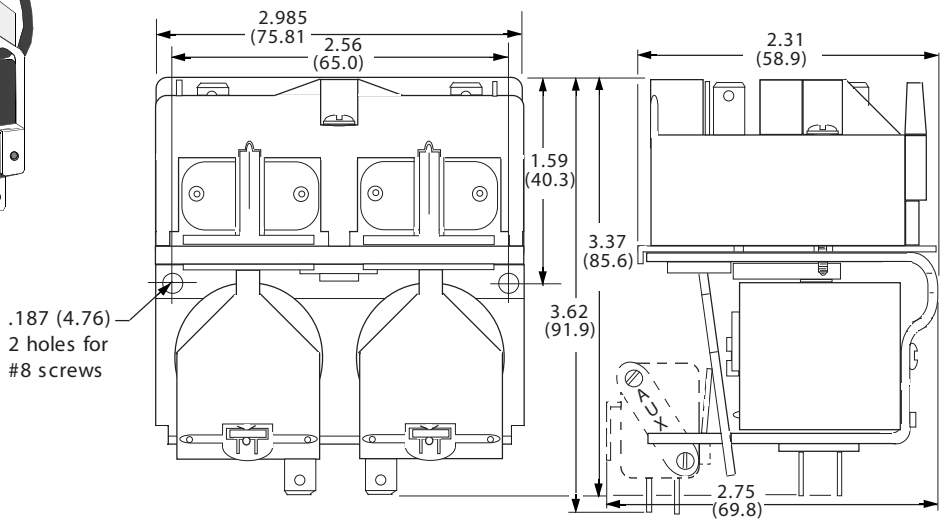


UP

RECOMMENDED
MOUNTING POSITION

OUTLINE DIMENSIONS

Dimensions shown in Inch and (Millimeters)



STRUTHERS-DUNN

ORDERING CODE

Typical Type No. A275 KXX 90 -24A

Series
A275, 1/4" Terminals, motor reversing.
Continuous , 1 & 2 Hp, 3 pole models

Contact Arrangements
KXX (3PDM-NO., per coil)

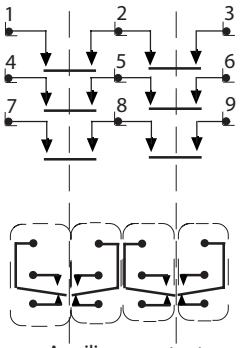
Options
2 Aux. contacts, each SPDT
(1 per coil) 1/4" Q.C. terminals - CODE 90
4 Aux. contacts, each SPDT
(2 per coil) 1/4" Q.C. terminals - CODE 91
Rectified Coil - CODE V2

Coil Voltage
AC12, 24, 110, 120, 220, 240 (Add "A")
DC: 12, 24, 32, 48, 120 (Add "D")

OPTIONS (CONSULT FACTORY)

WIRING DIAGRAM

TOP VIEW
Main contact terminals are
numbered on contactor



Auxiliary contact
Snap Switches

GENERAL SPECIFICATIONS (@ 25^{0}C)

COIL	
Pull-in Voltage:	AC: 85%, DC: 80% of nominal voltage measured at 25 ^{0} C
Dropout Voltage:	10% of nominal voltage or more @ 25 ^{0} C
Max. allowed voltage:	110% of nominal voltage
Coil Resistance:	±10% Measured @ 25 ^{0} C
CONTACTS	
Contact Material:	Silver Cadmium Oxide.
TIMING	
Operate Time:	50 mS Max. @ Nominal Voltage.
Release Time:	30 mS Max. @ Nominal Voltage.
DIELECTRIC STRENGTH	
All Mutually Insulated Points:	2500 V rms between all mutually Insulated current carrying parts and those parts to ground.
Insulation Resistance:	500 VDC Exceeds 1000 Megohms.
TEMPERATURE	
Temperature Rating:	AC: -45 ^{0} C to +50 ^{0} C @ rated operation. DC: -45 ^{0} C to +70 ^{0} C @ rated operation.
LIFE EXPECTANCY	
Mechanical:	5 Million Operations no load
Electrical:	100,000 Operations @ Rated Load. 500,000 Operations @ 1/2 rated load.
MISCELLANEOUS	
Weight:	1 pound, approx..

CONTACT RATINGS

AC CONTACTS:Rated with all contacts in use, not rated per pole.

VOLTAGE (60HZ)	PHASE	MOTOR LOADS (HP)	RESISTIVE LOAD (AMPS)
120	1 - 2 - 3	1	15
240	1	1.5	10
240	2 - 3	3	10
480/600	2 - 3	3	5

DC COIL SPECIFICATIONS @ 25^{0}C

Nominal Voltage	Resistance Ohms ± 10%	Power Consumption
12	31.0	4.5W
24	125	4.6W
32	210	4.9W
48	500	4.6W
120	3240	4.4W

Polypropylene encapsulated coils

DC CONTACTS

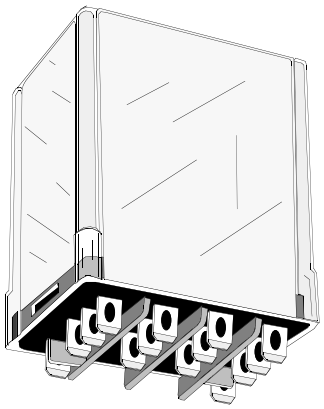
VOLTAGE (DC)	RESISTIVE LOAD (AMPS)
30	15
125	5

600 volt spacing to ground.
300 volt spacing for auxiliary contacts.

AC COIL SPECIFICATIONS @ 25^{0}C

Nominal Voltage	Resistance Ohms ± 10%	Power Consumption
12V/50-60hz	1.24	17VA
24V/50-60hz	4.63	16.7VA
110V/50-120V/60hz	125	16.8VA
220V/50-240V/60hz	500	16.8VA

GENERAL PURPOSE 4 POLE 10 AMP PLUG-IN RELAY

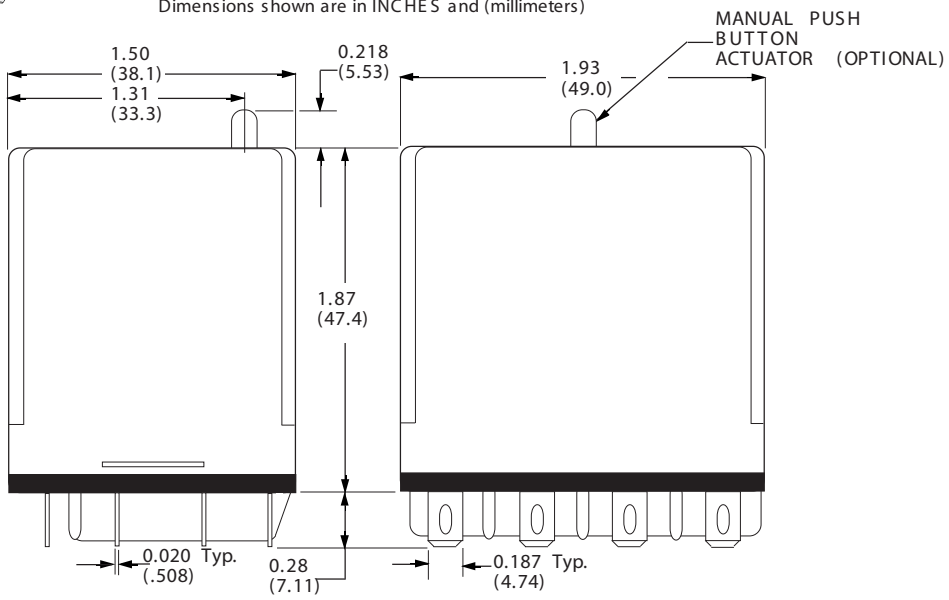


Class 284 relay is a extension of the Class 388/283 style relay except it provides for 4PDT contacts, any one set of contacts capable of switching 10 Amps (total load of 30 Amps at 120 VAC and 20 Amps at 240 VAC). This relay has the 3 way terminal design for greater flexibility in making connections. The 0.187 Spade terminals can be soldered, plugged into sockets or connected using 3/16" Q.C. Female connectors.

UL Recognized
File No. E13224

OUTLINE DIMENSIONS

Dimensions shown are in INCHES and (millimeters)



STRUTHERS-DUNN

ORDERING CODE
Typical Type No. 284 XDX C GLM -240A

Series
284 3 way terminals
10 Amp, 4 pole

Contact Arrangements
XDX (4PDT)

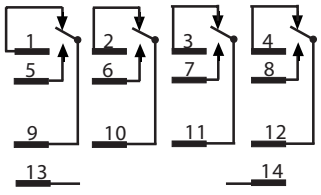
Construction Style
Open, with tapped 6-32 hole - NO CODE
Open, with 6-32 Stud - CODE S
Enclosed, 3 way terminals - CODE C

Options
10 Amp contacts Standard - NO CODE
Gold diffused contacts - CODE G
Indicator Lamp - CODE L
Manual Actuator - CODE M
Printed Circuit Terminals - CODE T
5 Amp contacts (Silver) - CODE Y

Coil Voltage
AC6, 12, 24, 48, 120, 240 (Add "A")
DC: 6, 12, 24, 48, 115, 125 (Add "D")

WIRING DIAGRAM

(VIEWED FROM TERMINAL END)



SEE NEXT PAGE FOR RATINGS & SPECIFICATIONS

WEBSITE:www.struthers-dunn.com - EMAIL:info@struthers-dunn.com FAX # 1-843-662-8862 PHONE # 1-843-664-3303

UL Recognized
File No. E13224

CONTACT RATINGS

LOAD	30VDC	120VAC	240VAC
Resistive Motor Load 80% pF.	10A	10A 1/3Hp	10A 1/2Hp

Maximum total load for 4 pole relay is 30 Amps @ 120VAC, 20Amps @ 240VAC

GENERAL SPECIFICATIONS (@ 25^{0}C)

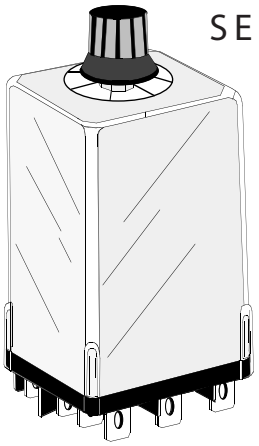
COIL	
Pull-in Voltage:	AC: 85%, DC: 75% of nominal voltage measured at 25 ^{0}C
Dropout Voltage:	10% of nominal voltage or more @ 25 ^{0}C
Max. allowed voltage:	110% of nominal voltage
Coil Resistance:	±10% Measured @ 25^{0}C
CONTACTS	
Contact Material:	Silver Alloy
TIMING	
Operate Time:	15 mS Max. @ Nominal Voltage.
Release Time:	10 mS Max. @ Nominal Voltage.
DIELECTRIC STRENGTH	
All Mutually Insulated Points:	500 V rms across open contacts 1500 V rms between current carrying parts
Insulation Resistance:	1000 Megohms.min. @ 500 VDC
TEMPERATURE	
Temperature Rating:	AC: -45 ^{0}C to +50 ^{0}C@ Rated Operation. (+65 ^{0}C for open style) DC: -45 ^{0} C to +70 ^{0}C +85 ^{0}C for open style)
LIFE EXPECTANCY	
Mechanical:	10 Million Operations no load
Electrical:	100,000 Operations @ Rated Load.
MISCELLANEOUS	
Enclosure:	Clear polycarbonate
Weight:	5.0 oz. approx..

COIL SPECIFICATIONS @ 25 ^{0} C

Nominal Voltage	Resistance Ohms ± 10%	Resistance Ohms ± 10%	Current (MA)		Power Consumption	
	AC	DC	AC	DC	AC	DC
6	3	30	560	200	3.4VA	1.2W
12	12	120	230	100	3.4VA	1.2W
24	48	480	115	50	3.4VA	1.2W
48	-	1920	-	25	3.4VA	1.2W
120AC or 115-125DC	870	8200	31	13-15	3.4VA	1.2W
240AC*	4700	-*	12	-*	3.4VA	1.2W

NOTE: * For 220-250VDC coils use a 8,200 Ω, 5 Watt resistor in series with 110-125 VDC relays

CLASS 286/287 10 AMP SQUARE BASE TIME DELAY RELAY



SERIES 286 ON DELAY, 287 OFF DELAY
AC OR DC INPUT
1, 2 OR 3 POLE 10 AMP CONTACTS.

UL Recognized
File No. E13224

The series 286 On Delay & 287 Off Delay Time Delay Relays have timing ranges from 0.1 to 300 Seconds. The 286 timer has up to three poles and the 287 timer has up to two poles. The 286 & 287 time delay relays are rated at 10 Amps, 120/240 Vac, 28 Vdc.

GENERAL SPECIFICATIONS (@ 25°C)

INPUT
Coil Voltage
- Nominal Voltage: AC: 24 to 240, DC: 12 to 125
- Minimum Oper. Voltage: AC - 85% of Nominal; DC - 80% of Nominal
- Max. allowed voltage: 110% of nominal voltage

CONTACTS
- Contact Material: Silver Alloy
- Rating: 10 Amps @ 120/240 VAC; 10 Amps @ 28 VDC; 1/3 Hp@ 120AC; 1/2 Hp @ 240 VAC

OPERATIONAL CHARACTERISTICS
- Repeatability: ± 3% @ 20°C to 25°C (AC +16 mS)
- Accuracy: Adjustable ± 10% Within temperature & voltage range. Fixed: ± 10% @ 25°C
- Recycle Time: 100 mS up to 60 Seconds\ 150 mS, 60 to 300 Seconds

INSULATION CHARACTERISTICS
- Dielectric Strength: 500 V rms across open contacts
- All Mutually Insulated Points: 1500 V rms between current carrying parts
- Insulation Resistance: 1000 Megohms min. @ 500 VDC.
- Transient Protection: 5 mS, 0 to 2000 V 20 uSec peak
- False Contacting: No false contacting is power is interupted during timing.
- Inverse polarity protection: DC coil are polarity protected.

ENVIRONMENTAL CAPABILITIES
- Ambient Temperature Rating: 10°C to +70°C

LIFE EXPECTANCY
- Mechanical: 10 Million Operations no load
- Electrical: 100,000 Operations @ Rated Load.

MISCELLANEOUS
- Enclosure: Clear Polycarbonate
- Weight: 5.0 oz approx. (142 g)

STRUTHERS-DUNN

Typical Part Number 286 XAX C 001 F 120A

Series
- 286 - ON DELAY
- 287 - OFF DELAY

Contact Arrangements
- XAX (SPDT)
- XBX (DPDT)
- XCX (3PDT)

Mounting Options
- C Plug-in
- C1 Note 1 Bracket
- CS1 Note 1 Top Stud
- C2 Side Tapped Hole
- CS2 Side Stud

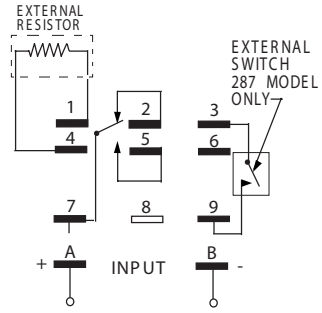
Timing Ranges
- 0.1 - 1.0 Sec - Code 001
- 0.2 - 2.0 Sec - Code 002
- 1.0 - 10 Sec - Code 010
- 3.0 - 30 Sec - Code 030
- 6.0 - 60 Sec - Code 060
- 18 - 180 Sec - Code 180
- 30 - 300 Sec - Code 300

Adjustment Options
- Adjustment Knob) - No Code
- Fixed Delay - Specify Fixed Time & Code F *
- Remote Adjustment - Code R **

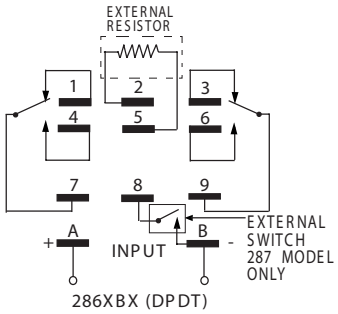
Operating Voltage
- AC; 24, 48, 120, 240 (Add "A")
- DC; 12, 24, 48, 115-125 (Add "D")

(F *Models) - timing code does not apply. Specify single delay time requirement
(R **Models)- Available only for SPDT and DPDT models. External potentiometer required.
Example of typical fixed time delay relay part number- 286XBXCS1-3.5F-120A (ON DELAY, DPDT, TOP STUD, 3.5 SEC FIXED, 120 VAC COIL INPUT)

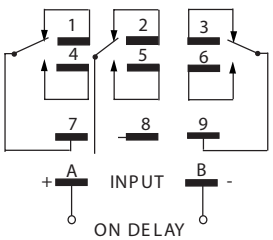
WIRING DIAGRAM
Viewed from Terminal Side



286XAX (SPDT)
287XAX (SPDT)



286XBX (DPDT)
287XBX (DPDT)



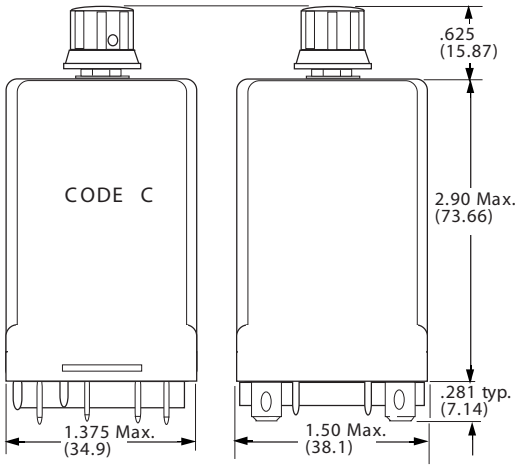
ON DELAY
286XCX

Notes:
Note 1: Bracket & top stud Not available with adjustable timing.

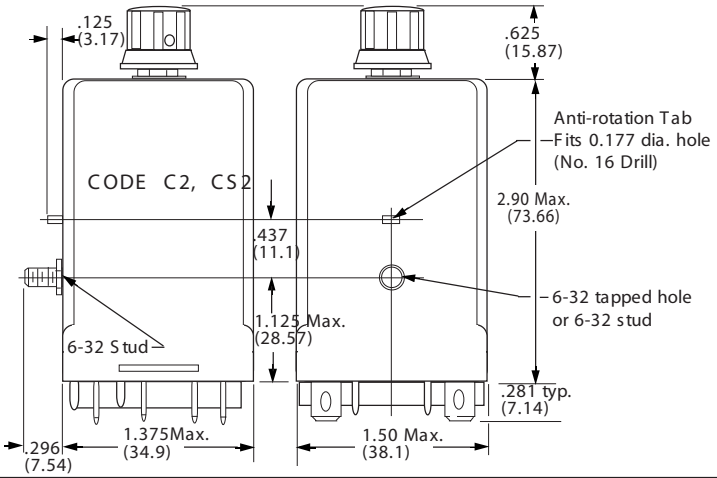
OUTLINE DIMENSIONS

Dimensions shown are in INCHES and (millimeters)

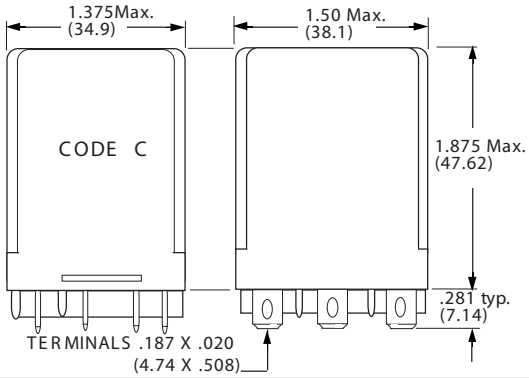
PLUG-IN, ADJUSTABLE TIMING



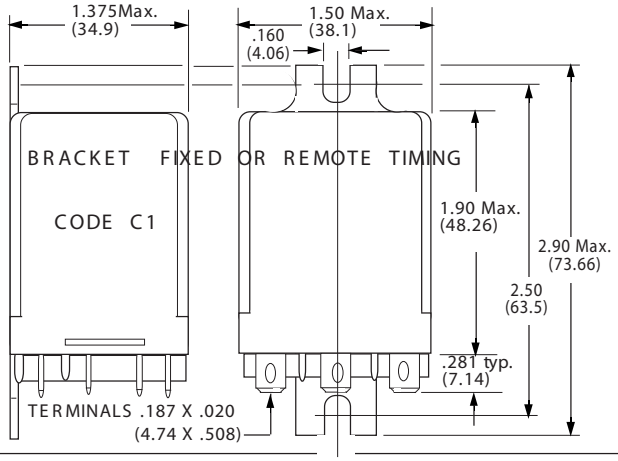
SIDE STUD OR TAPPED HOLE, ADJUSTABLE TIMING



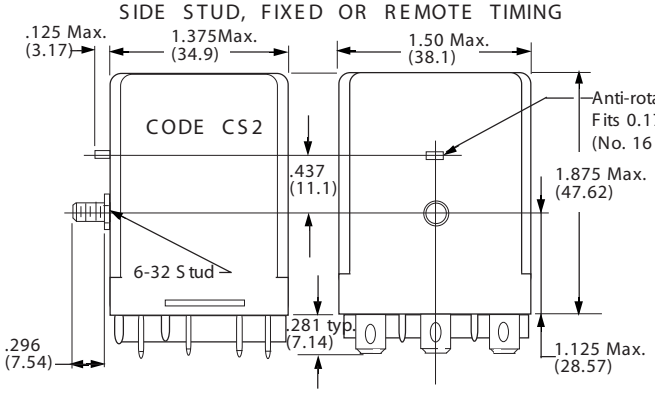
PLUG-IN FIXED OR REMOTE TIMING



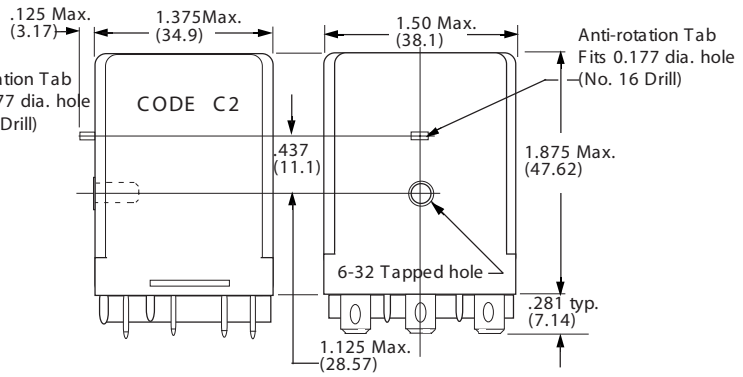
BRACKET FIXED OR REMOTE TIMING



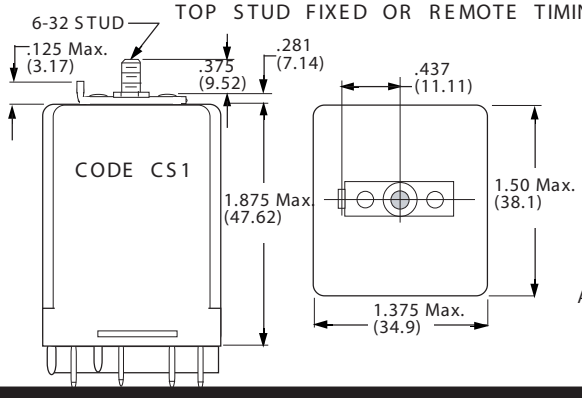
SIDE STUD, FIXED OR REMOTE TIMING

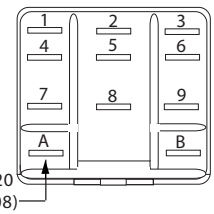


SIDE TAPPED HOLE, FIXED OR REMOTE TIMING



TOP STUD FIXED OR REMOTE TIMING

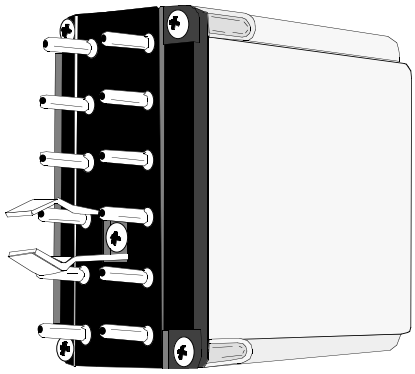


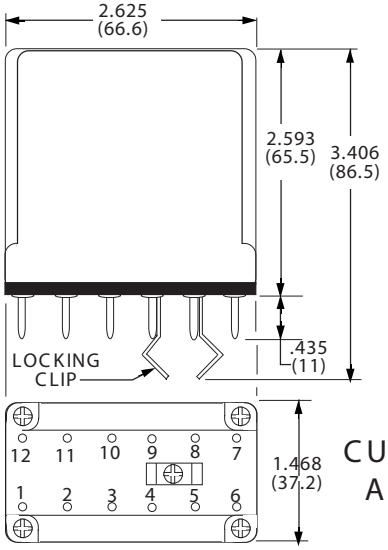


ALL TERMINALS .187 X .020
(4.74 X .508)

CLASS 311 INDUSTRIAL PLUG-IN SEQUENCE (STEPPER), 5 AMP

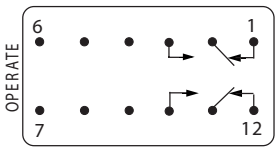
Class 311 Relay is a sequencing version of the 219 series general purpose relay. Contacts transfer on each Impulse to the coil. Models are available with contacts transferring when coil is energized or when de-energized. A double cam movement, one cam per snap switch, allows one or both contacts to be energized or de-energized with the cam rotating one half-step when the coil is energized and the other half step when the coil is de-energized assures reliable sequencing of the two SPDT snap switches.





CUSTOM STEPPING ARRANGEMENTS AVAILABLE

WIRING DIAGRAM
Viewed from Pin Side



A311XBXP
A311XBXPR *
(DPDT)
*Transfer on Release

UL Recognized
File No. E7104

CONTACT RATINGS

LOAD	120VAC	30VDC	115VDC
Resistive Max. Inrush	5A 12A	5A 12A	0.1A 0.25A

GENERAL SPECIFICATIONS (@ 25°C)

COIL	
Pull-in, min. AC	85% of Nominal Voltage
Pull-in min. DC	80 % of Nominal Voltage
Overvoltage, max.	110% of nominal, voltage
CONTACTS	
Contact Material:	Silver Alloy
TIMING	
Operate Time: (operate coil)	35 mS Max. @ Nominal Voltage.
Release Time: (Reset coil energized)	35 mS Max. @ Nominal Voltage.
DIELECTRIC STRENGTH	
Across open Contacts:	500 V rms
Between mutually insulated current carrying parts & those parts to ground:	1500 V rms
Insulation Resistance :	1000 Megohm minimum @ 500 VDC
TEMPERATURE	
Rated Operation:	-10° C to +60° C
LIFE EXPECTANCY	
Mechanical:	5 Million Operations no load
Electrical:	100,000 Operations @ Rated Load.
MISCELLANEOUS	
Enclosure:	Clear polycarbonate.
Weight:	190 g (6.70 oz.) approx.

STRUTHERS-DUNN

ORDERING CODE
Typical Type No. A311 XBX P R L -120A

Series
A311 Industrial plug-in , Sequence Relay, 5 Amp, DPDT

Contact Arrangements
XBX (2 Form C)

Standard Features
Plug-in with Polycarbonate Cover - CODE P

Contact Transfer
When coil is energized - NO CODE
when coil is de-energized CODE R

Options
Indicator Lamp - CODE L
Coil Suppression - CODE V

Coil Voltage
AC6, 12, 24, 120, 240 (Add "A")
DC: 6, 12, 24, 48, 110-125 (Add "D")

MATING SOCKET
27390D

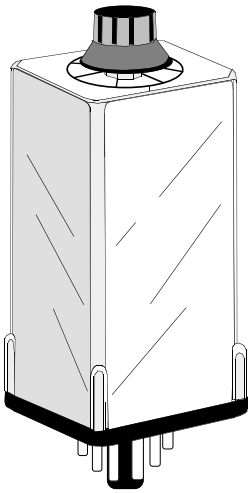
COIL SPECIFICATIONS @ 25° C

AC COIL , 50/60Hz		DC COIL	
Nominal Voltage	Resistance Ohms ± 10%	Nominal Voltage	Resistance Ohms ± 10%
6	1.1	6	15.5
12	4.2	12	63.5
24	15.5	24	250
120	540	48	970
240	1815	110-125	6200

NOTE: Relays with other coil characteristics may be supplied to meet specific application requirements.
250VDC operation may be obtained by wiring a 6,200 Ω, 5 Watt resistor in series with the 110-125VDC coil. The resistor must be mounted external to the A311.

STRUTHERS-DUNN
WEBSITE: www.struthers-dunn.com EMAIL:info@struthers-dunn.com FAX # 1-843-662-8862 PHONE # 1-843-664-3303

CLASS 326/327 OCTAL 8 & 11 PIN TIME DELAY RELAY



SERIES 326 ON DELAY & 327 OFF DELAY
AC OR DC INPUT
1, 2 OR 3 POLES
8 OR 11 PIN OCTAL BASES
TIMING: FIXED, ADJUSTABLE OR REMOTE

UL Recognized
File No. E13224

GENERAL SPECIFICATIONS (@ 25 ^{0}C)

INPUT
Coil Voltage
- Nominal Voltage: AC: 24 to 240, DC: 12 to 125
- Minimum Oper. Voltage: AC - 85% of Nominal; DC - 80% of Nominal
- Max. allowed voltage: 110% of nominal voltage

CONTACTS
- Contact Material: Silver Alloy
- Rating: 10 Amps @ 120/240 VAC; 10 Amps @ 30 VDC; 1/3 Hp@ 120AC; 1/2 Hp @ 240 VAC

OPERATIONAL CHARACTERISTICS
- Repeatability: DC: ± 3% @ 20^{0}C. AC:± 3% +16 mS @ 20 ^{0}C.
- Accuracy: Adjustable ± 10% Within temperature & voltage range.
- Switching time of output relay: 20 mS
- Min. waiting time before starting next cycle (reset time): 100 mS (for timing cycle up to 60 sec.); 150 mS (for timing cycle 60 to 300 sec)

INSULATION CHARACTERISTICS
- Dielectric Strength: 500 V rms across open contacts
- All Mutually Insulated Points: 1500 V rms between mutually insulated conductive elements.
- Insulation Resistance: 1000 Megohms min. @ 500 VDC.
- Transient Protection: 5 mS, 0 to 2000 V 20 uSec peak

ENVIRONMENTAL CAPABILITIES
- Ambient Temperature Rating: -10 ^{0}C to +70 ^{0}C

LIFE EXPECTANCY
- Mechanical: 10 Million Operations no load
- Electrical: 100,000 Operations @ Rated Load.

MISCELLANEOUS
- Enclosure: Clear Polycarbonate
- Weight: 5.0 oz approx. (142 g)

STRUTHERS-DUNN

Typical Part Number 326 XAX 48P 001 F 120A

Series
- 326 - 0N DELAY
- 327 - OFF DELAY

Contact Arrangements
- XAX (SPDT)
- XBX (DPDT)
- XCX (3PDT)

Construction Style
- Octal style plug-in - Code 48P
- Non Standard Wiring - Code 48P-K

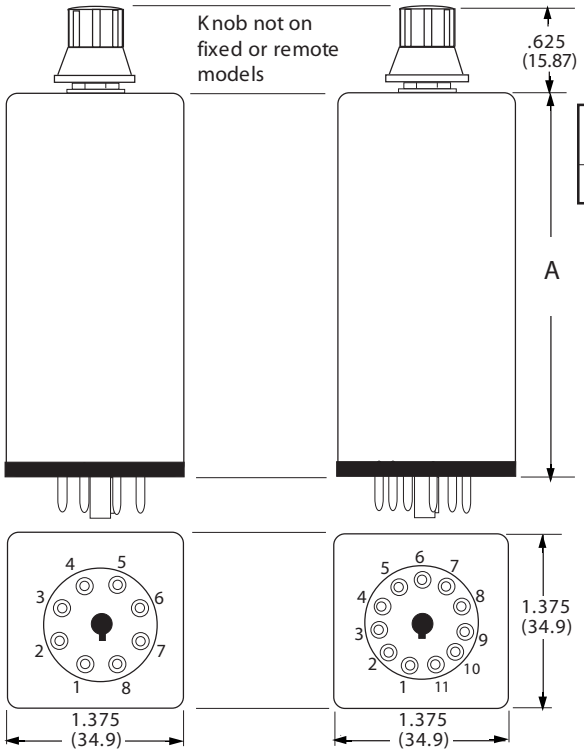
Timing Ranges
- 0.1 - 1.0 Sec - Code 001
- 0.2 - 2.0 Sec - Code 002
- 1.0 - 10 Sec - Code 010
- 3.0 - 30 Sec - Code 030
- 6.0 - 60 Sec - Code 060
- 18 - 180 Sec - Code 180
- 30 - 300 Sec - Code 300

Adjustment
- Adjustment Knob) - No Code
- Fixed Delay - Specify Fixed Time & Code F *
- Remote Adjustment - Code R **

Operating Voltage
- AC; 24, 48, 120, 240 (Add "A")
- DC; 12, 24, 48, 115-125 (Add "D")

(F *Models) - timing code does not apply. Specify single delay time requirement
(R **Models)- Available only for SPDT and DPDT models. External fixed or adjustable resistor required.
Example of typical fixed time delay relay part number- 326XBX48P3.5F-120A
(ON DELAY, DPDT, OCTAL PLUG, 3.5 SEC FIXED, 120 VAC POWER INPUT)

OUTLINE DIMENSIONS



DIMENSION A

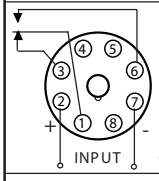
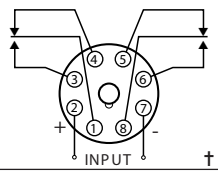
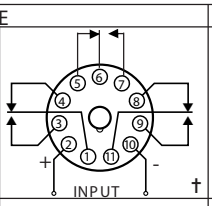
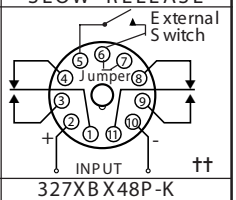
ADJUSTABLE WITH KNOB STYLE	FIXED OR REMOTE STYLE 326 Only
3.0 (76.2)	2.25 (57.15)

Dimensions shown are in INCHES and (millimeters)

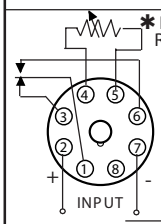
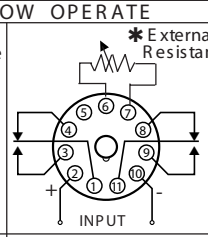
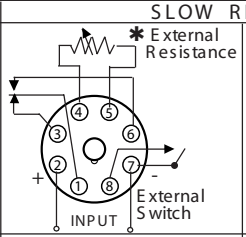
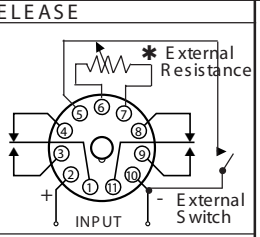
WIRING DIAGRAMS

(VIEWED FROM PIN END) **

MODELS WITH INTERNAL TIMING RESISTOR

SLOW OPERATE			SLOW RELEASE
			
326XAX48P	326XBX48P	326XCX48P	327XBX48P-K Non Standard

MODELS WITH EXTERNAL (REMOTE) TIMING RESISTOR

SLOW OPERATE		SLOW RELEASE	
			
326XAX48P-R	326XBX48P-R	327XAX48P-R	327XBX48P-R

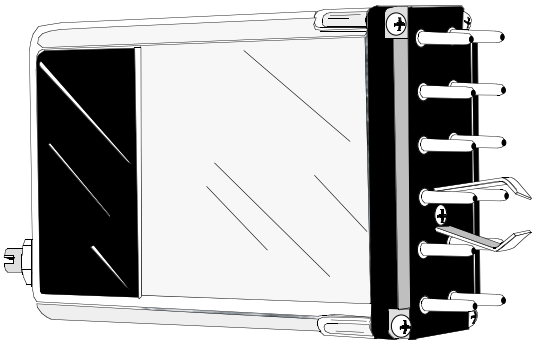
* External Resistor for remote timing adjustment on models 326 or 327 with code R.

† This Diagram also applies to fixed time (code F) models.

†† Duplicates wiring of some similar relays made by others.

** Observe Polarity on DC input models

OVER/UNDER VOLTAGE SENSING, 10 AMP, 2-4 POLE

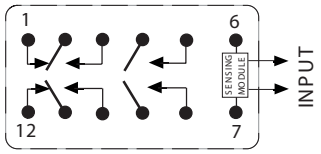


Class 349 Under/Over Voltage Sensing Relay incorporates a Series 219 relay and an Electronic Module. Pull-in Voltage is adjustable between 85 and 135 VAC for frequencies from 50 to 400 Hz. Models available for Single and Three Phase sensing with differential (between pull-in and Dropout) Adjustable from 2 to 14 Volts by external fixed or adjustable resistor. Single Phase relays are also available with standard 3 volt fixed differential and other fixed values up to 14 volts, on special order.

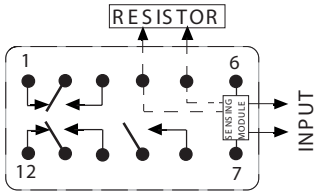
CLASS 349

FREQUENCY 50 to 400 Hz
PULL-IN ADJUSTABLE
BETWEEN 85 to 135 VAC
10 AMP CONTACTS

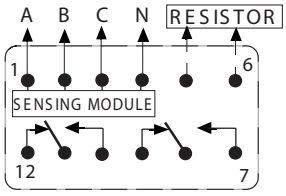
Differential 4.0 volts ± 1 Volt nonadjustable



SINGLE PHASE-349BBXP



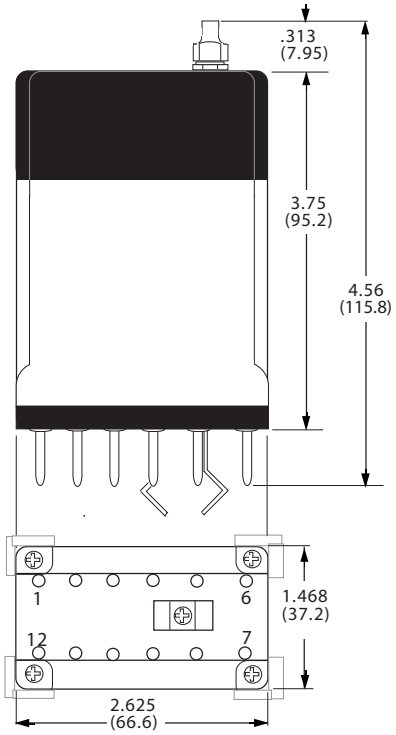
SINGLE PHASE-349ABXP



THREE PHASE-349XBXP

OUTLINE DIMENSIONS

Dimensions shown are in INCHES and (millimeters)



349 ABXP & XBXP Style Differential Adjustment is Externally Adjustable from 3 to 14 Volts.

CONTACT LOAD SPECIFICATIONS

Voltage	Make	Carry	Resistive	Inductive
24 VDC	30A	10A	10A	10A
120 VAC	30A	10A	10A	3A
240 VAC	30A	10A	5A	1A
28 VDC	30A	10A	10A	3A
125 VDC	30A	10A	0.5A	0.1A
For Versions with suffix "69" Permanent Magnet Blowouts				
125 VDC (SM)	30A	10A	1.5A	0.5A
125 VDC (DM)	30A	10A	4A	1.5A
250 VDC (SM)	30A	10A	0.5A	150mA
250 VDC (DM)	30A	10A	1.5A	0.5A

GENERAL SPECIFICATIONS SERIES (@ 25^{0}C)

INPUT
- Module Voltage: Adjustment 85 to 135 VAC, 50 to 400 Hz
- AC Current Drain: De-energized -15 mA, Energized - 50 mA

CONTACTS
- Contact Material: Silver Alloy - Gold Diffused

OPERATIONAL CHARACTERISTICS
- Operate time: 25 Milliseconds
- Release Time: 25 Milliseconds

INSULATION CHARACTERISTICS
Dielectric Strength
- Across Open Contacts: 500 V rms
- All Mutually Insulated Points: 1500 V rms
- Insulation Resistance: 1000 Megohms min. @ 500VDC.

ENVIRONMENTAL CAPABILITIES
- Ambient Temperature Rating: -10 ^{0}C to +60 ^{0}C @ Rated Operation.

LIFE EXPECTANCY
- Mechanical: 20 Million Operations no load
- Electrical: 100,000 Operations @ Rated Load. 500,000 @ 1/2 Rated Load.

MISCELLANEOUS
- Enclosure: Clear polycarbonate
- Weight: 10 oz. (284 g)

STRUTHERS-DUNN

Typical Part Number 349 BBX P L33- 85-135A

Series
349 Sensor-Plug-in, Over/Under Voltage Relay, 10A, 2 -4 poles

Contact Arrangement & Function
- BBX -2 Form A & 2 Form C, (Single Phase) 4V ± 1V Fixed.
- ABX -1 Form A & 2 Form C, (Single Phase) Ext. Adjustment, 3 to 14V
- XBX -2 Form C, (3 Phase) External Adjustment, 3 to 14V

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

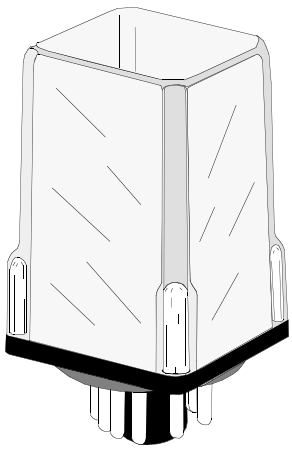
Operating Voltage
- AC; 85 to 135 (Add "A")
- DC; Consult Factory
- Note: For non-Standard Differential Consult Factory

STRUTHERS-DUNN
WEBSITE: www.struthers-dunn.com EMAIL:info@struthers-dunn.com FAX # 1-843-662-8862 PHONE # 1-884-664-3303

LOW COIL POWER, PLUG-IN, 5 AMP, 1 - 3 POLES

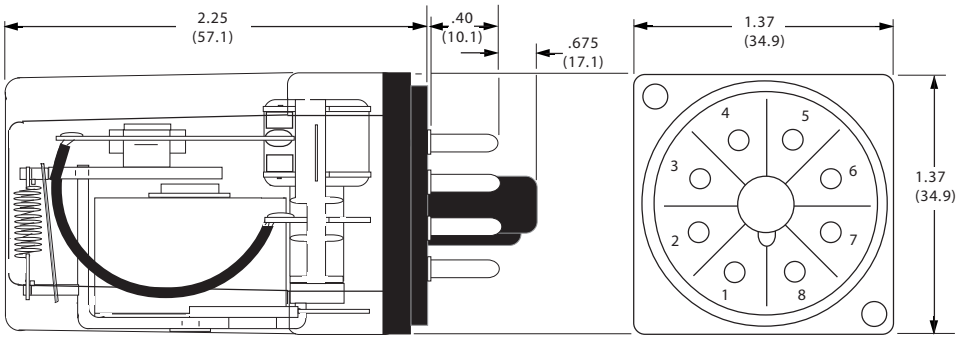
CLASS 392

Class 392 relay has been designed to operate at only125 Milliwatts per pole. Because of the coil sensitivity, the contacts are rated at 5 Amps. The Industry standard 8 pin octal plug is used with SPDT & DPDT contact configurations, and the 11 pin plug is used with 3PDT contact configurations. Silver contacts are standard on this 5 Amp Relay.



OUTLINE DIMENSIONS

Dimensions are shown in INCHES and (MILLIMETERS).



UL Recognized
File No. E13224

CONTACT RATINGS

LOAD	30VDC	120VAC
Resistive	5A	5A

GENERAL SPECIFICATIONS (@ 25 ^{0}C)

CONTACTS	
Contact Material:	Silver
TIMING	
Operate Time:	20 mS Max. @ Nominal Voltage.
Release Time:	15 mS Max. @ Nominal Voltage.
DIELECTRIC STRENGTH	
Across open contacts:	500 V rms
All Mutually Insulated current carrying parts to ground:	1500 V rms
Insulation Resistance:	1000 Megohms min. 500 V
TEMPERATURE	
Rated Operation:	-45 ^{0}C to +70 ^{0}C
LIFE EXPECTANCY	
Mechanical:	10 Million Operations no load
Electrical:	100,000 Operations @ Rated Load.
MISCELLANEOUS	
Enclosure:	Clear polycarbonate
Weight:	3-1/2 oz. (99.2 g approx.).

COIL SPECIFICATIONS @ 25 ^{0}C

Resistance (Ohms)	SPDT 392XAX		DPDT 392XBX		3PDT 392XCX	
	mA	Volts	mA	Volts	mA	Volts
1,000	11.1	15-44	15.8	21-44	19.3	25-44
2,500	7.0	23-68	10.0	32-68	12.0	39-68
5,000	5.0	32-97	7.0	45-97	8.5	55-97
10,000	3.5	45-139	5.0	64-139	6.0	77-139

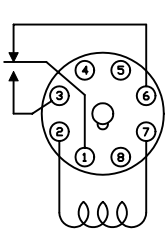
NOTES:

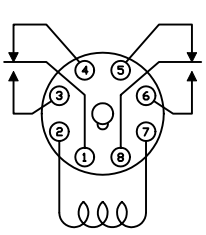
(1) Rates for continuous operation at 25Œ at voltages within listed ranges.

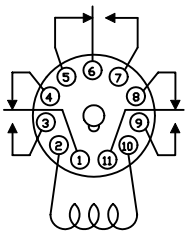
(2) Must operate at min. currents listed. Specify current when ordering

POWER CONSUMPTION125mW per pole @ currents listed in the coil table.

WIRING DIAGRAM
VIEWED FROM PIN END







STRUTHERS-DUNN

ORDERING CODE

Typical Type No. 392 XBX 48P LM -5.0M

Series

Series 392 enclosed plug-in, low power consumtion coil.
Open Style (Consult Factory)

Contact Arrangements

XAX- SPDT
XBX - DPDT
XCX - 3PDT

Construction Style

Open Style: (Consult Factory for mounting styles, special wiring etc.).
Enclosed Plug-in - CODE 48P

Options

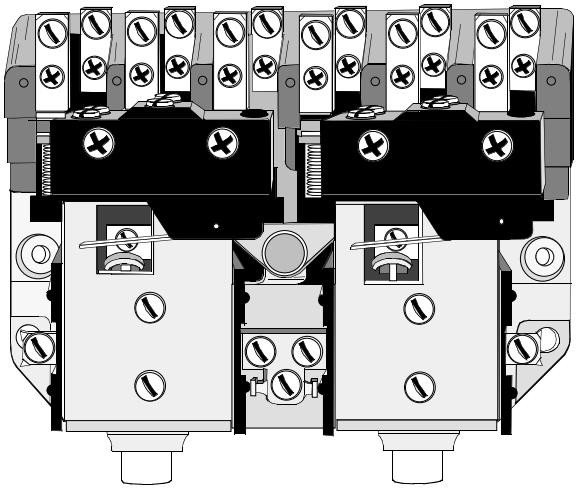
Indicator Lamp, (125 VDC coil only.see coil specifications) - CODE L
Manual Actuator - CODE M

Operating Current (DC Only)

XAX: 11.1, 7.0, 5.0, 3.5 (Add M)
XBX: 15.8, 10.0, 7.0, 5.0 (Add M)
XCX: 19.3, 12.0, 8.5, 6.0 (Add M)

2 COIL MOTOR REVERSING CONTACTOR 1.5-7.5HP, 6 POLE

Class 575 relay is rated to 7.5 HP. Two sets of 3 pole, double-make, N.O. contacts are mechanically Interlocked to prevent simultaneous closure. Front mounted auxiliary contacts are available for electrical lockup and lockout. The 575 motor reversing contactor is widely used for control of overhead doors, elevators, hoists, machine tools, and other similar devices that requires frequent jogging

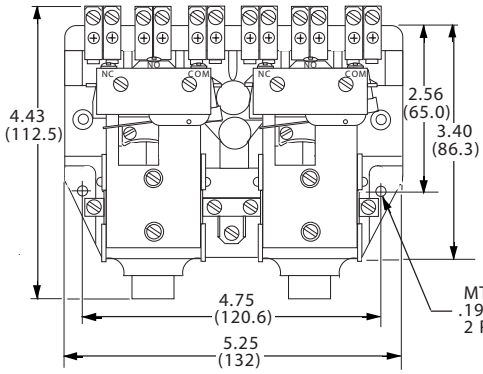


UP

RECOMMENDED
MOUNTING POSITION

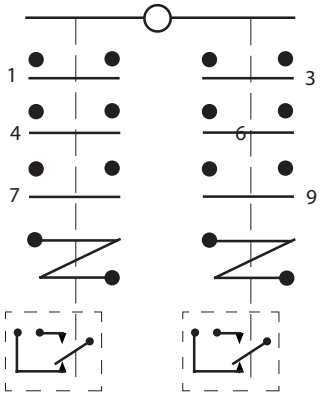
UL Recognized
File No. E13224

OUTLINE DIMENSIONS
Dimensions shown in Inch and (Millimeters)



MAXIMUM DEPTH DIMENSION OF CONTACTOR 3.00", (76.2)

WIRING DIAGRAM



AUXILIARY
CONTACTS

STRUTHERS-DUNN

ORDERING CODE

Typical Type No.	A575	KXX	90	-24A

Series
A575, Screw Terminals, 2 coil motor rev. contactor, 1.5 - 7.5 HP

Contact Arrangements
KXX (3PDM-NO., per coil)

Options
1 Form SPST-NO & SPST-NC Aux. contacts per coil, Rated 5 Amps - CODE 74
SPDT Aux. contact per coil Rated 5 Amps. - CODE 90

Coil Voltage
AC12, 24, 120, 240, 440, 550 (Add "A")
DC: 12, 24, 115-125, 240 (Add "D")

Mechanical Interlock omitted, Consult Factory

OPTIONS (CONSULT FACTORY)

PART NUMBER SHOWN ALSO AVAILABLE THRU STOCKING DISTRIBUTION

2 COIL MOTOR REVERSING CONTACTOR 1.5-7.5HP, 6 POLE

GENERAL SPECIFICATIONS (@ 25 ^{0} C)

COIL	
Pull-in Voltage:	AC: 85%, DC: 80% of nominal voltage measured at 25 ^{0} C
Dropout Voltage:	10% of nominal voltage or more @ 25 ^{0} C
Max. allowed voltage:	110% of nominal voltage
Coil Resistance:	±10% Measured @ 25 ^{0} C
CONTACTS	
Contact Material:	Silver Alloy
TIMING	
Operate Time:	60 mS Max. @ Nominal Voltage.
Release Time:	30 mS Max. @ Nominal Voltage.
DIELECTRIC STRENGTH	
All Mutually Insulated Points:	2500 V rms between all mutually Insulated current carrying parts and those parts to ground.
Insulation Resistance:	1000 Megohms minimum @ 500 VDC
TEMPERATURE	
Temperature Rating:	-40 ^{0} C to +50 ^{0} C@ rated operation.
LIFE EXPECTANCY	
Mechanical:	5 Million Operations no load
Electrical:	100,000 Operations @ Rated Load.
	250,000 Operations @ 1/2 rated load.
MISCELLANEOUS	
Weight:	1.5 pounds, approx..

AC COIL SPECIFICATIONS @ 25 ^{0}C (22VA)

Nominal Voltage	Resistance Ohms ± 10%	Nominal Current
12	1.00	1.833 AMP
24	5.30	0.917 AMP
*120	92.0	0.183 AMP
240	420	0.920 AMP
440	2100	0.050 AMP
550	3100	0.040 AMP

* AC coil is 120, 50-60HZ

CONTACT RATINGS

LOAD	VOLTAGE (60HZ)	PHASE	MOTOR LOADS (HP)	RESISTIVE LOAD (AMPS)
3PST-DM-NO (per pole)	120	1	1-1/2	30
	208/240	1	3	30
	208/240	2 - 3	5	30
	480/600	2 - 3	7-1/2	15

DC CONTACTS

LOAD	VOLTAGE (DC)	RESISTIVE LOAD (AMPS)
3PST-DM-NO (per pole)	115	15
	230	2

DC COIL SPECIFICATIONS @ 25 ^{0}C (10 WATT)

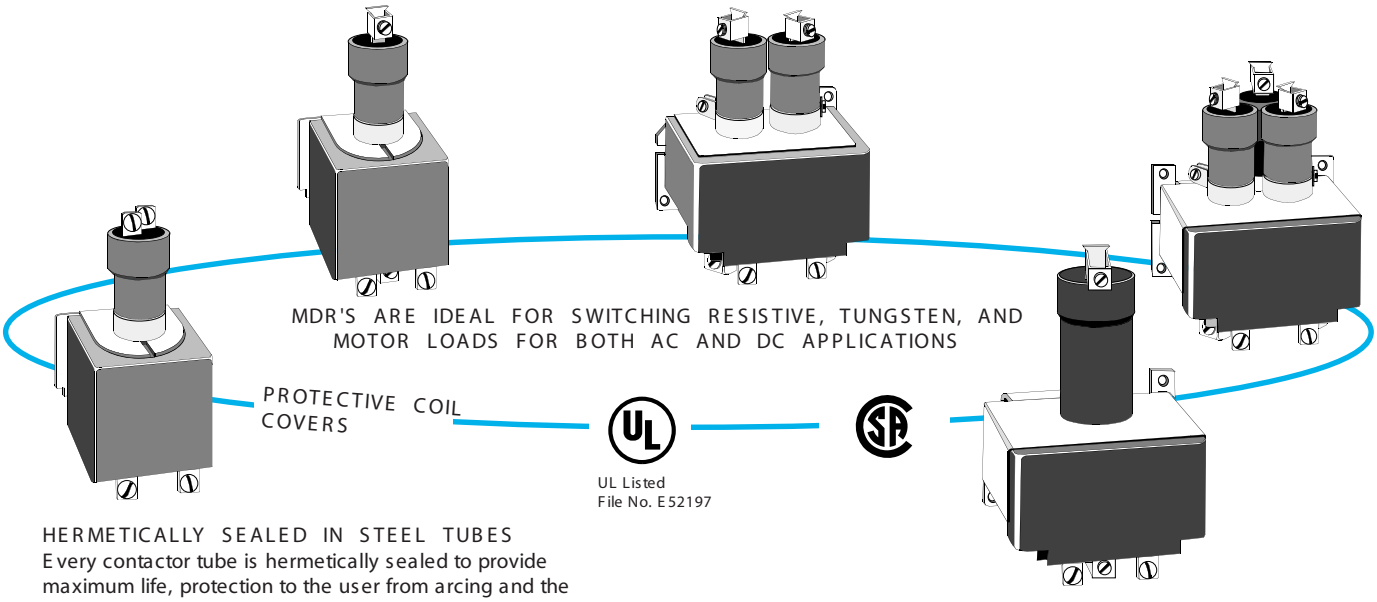
Nominal Voltage	Resistance Ohms ± 10%	Nominal Current
12	16.5	0.727
24	58.2	0.412
**120	1,450	0.083
240	4,200	0.055

** DC coil is 110-125 VDC

AUXILIARY CONTACTS

LOAD	VOLTAGE (AC)	RESISTIVE LOAD (AMPS)
1 FORM "A"	120	5
"B" OR "C"	240	5

GENERAL SPECIFICATIONS



MDR'S ARE IDEAL FOR SWITCHING RESISTIVE, TUNGSTEN, AND MOTOR LOADS FOR BOTH AC AND DC APPLICATIONS

PROTECTIVE COIL COVERS

UL Listed
File No. E52197

HERMETICALLY SEALED IN STEEL TUBES
Every contactor tube is hermetically sealed to provide maximum life, protection to the user from arcing and the hazards of switching heavy loads with exposed contacts.

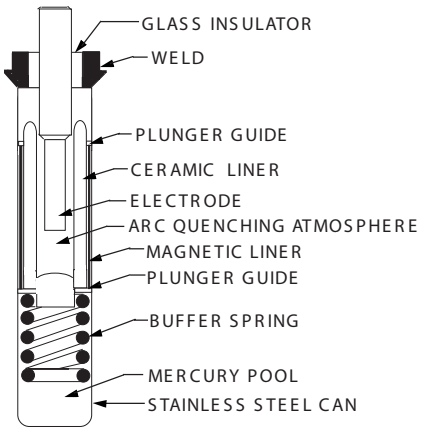
LIQUID MERCURY CONTACT
Liquid mercury means a new contact surface after every operation. Mercury is self-renewing, it cannot pit, weld, disintegrate or oxidize. The internal resistance of the contact surfaces typically measure only a few Milliohms and is ideal for switching large loads safely.

SPECIFICATIONS (@ 25^{0}C)

COIL	
Frequency of Operation:	60 per minute maximum
Pull-in voltage	80% of nominal voltage, Typ. AC & DC coils.
Dropout voltage	10% of nominal minimum
CONTACTS	
Material:	Mercury
Contact resistance:	.003 ohm typical
TIMING	
Operate (at nominal voltage)	50 Milliseconds typical
Dropout (at nominal voltage)	80 Milliseconds typical
DIELECTRIC STRENGTH	
All mutually insulated points to ground:	2650 V rms
TEMPERATURE	
Operating:	- 35 ^{0}C to + 60 ^{0}C
LIFE	
Mechanical: (No load)	5,000,000 Operations
Electrical (Rated load)	250,000 Operations
MISCELLANEOUS	
Insulation Material:	Class B - 130 ^{0}C & M35 pressure connectors for AWG 6-14 wire; M60 pressure connectors for AWG 2 - 12 wire
Mounting:	Vertical ±10 ^{0}
Options:	Combination of SPST-NO & SPST-NC contact configurations. available. Other coil voltages available .

APPLICATION DATA

MERCURY DISPLACEMENT TUBE



PRINCIPLE OF OPERATION

The sectional view shows our normally open style Mercury Displacement tube with the plunger assembly floating on the mercury pool.
When the coil power is off, the mercury level is below the electrode tip. No electrical path exists between the electrode and mercury pool.
When coil power is applied, the plunger is drawn down into the mercury by the pull of the magnetic field. This action raises the mercury level, so it covers the end of the electrode closing the circuit.
When coil power is turned off, the buoyant force of the mercury causes the plunger assemble to rise, dropping the mercury level, and breaking the circuit.

APPLICATION DATA

Mercury Displacement relays are ideal for adverse environments-
....Where high inrushes are encountered
....Where hermetically sealed contact operation is required because of corrosive, dirty, or moist ambient conditions.
....Where use does not permit contact maintenance.
....Where reduced noise levels are required.
....where minimum weight and size are desired.

DESIGN FEATURES

Liquid Mercury Contact provides a new contact surface with every actuation. Mercury is self-renewing and does not pit, weld, disintegrate or oxidize.
Hermetic sealing- provides internal and external protection from arcing.
Inert Gas atmosphere contactor tube is evacuated, then pressurized with a combination of gases which extinguish arcing and contribute to long life. The pressurized gases provide for a high dielectric withstanding voltage between contact surfaces.
Low Contact Resistance Large electrode and mercury volume creates low contact resistance and provides high inrush current capability.
Quiet Operation- Switch clacking normally associated with conventional hard contactors, is eliminated with mercury displacement tubes and the buffer spring assembly.

APPLICATION OF "M" SERIES VS "ML" SERIES

The series "ML" is physically the same as the "M" series except for the type of gases used in the contactor tubes. The "ML" series was developed for use with resistive and tungsten loads on AC power ONLY. The "ML" series will give much greater life than the "M" series for these types of loads and is intended for high activation use, such as molding machines or ovens.
The "ML" series, however is not intended for use with motor loads on AC power, or for resistive, tungsten, or motor loads on DC power. The "M" series, which is our universal series is rated to be used on all types of loads resistive, tungsten, and motor for both AC and DC power

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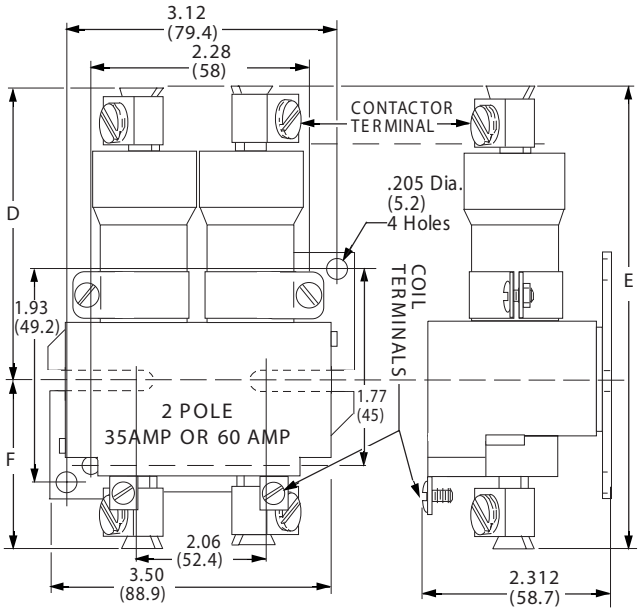
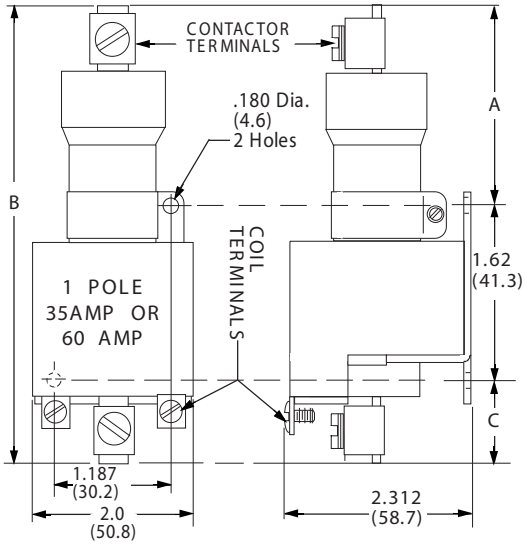
M35 AND M60 DIMENSIONS

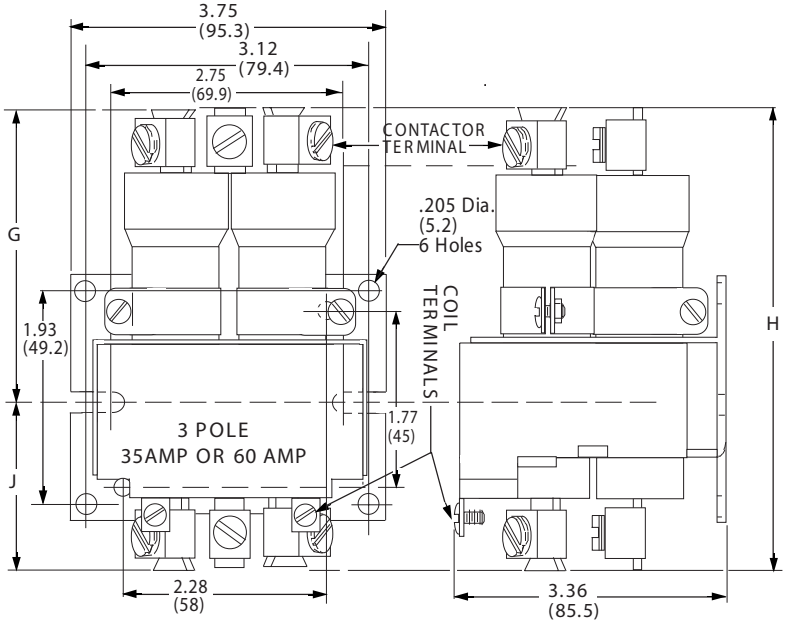
DIMEN-SION		M60A-ML60A	M60B-ML60B	M35A-ML35A	M35B-ML35B
1 POLE	A	2.375 Max. (60.3)	1.50Max. * (38.1)	2.312 Max. (58.7)	1.375 Max. (34.9)
	B	5.06 Max. (128.52)	5.062 Max. (128.52)	4.875 Max. (123.8)	4.875 Max. (123.8)
	C	1.06 Max. (27)	1.937 Max. (49.2)	0.937 Max. (23.8)	1.875 Max. (47.6)
2 POLE	D	3.250 Max. (82.6)	2.281Max. (57.9)	3.187 Max. (81.0)	2.218 Max. (56.3)
	E	5.062 Max. (128.52)	5.062 Max. (128.52)	4.875 Max. (123.8)	4.875 Max. (123.8)
	F	1.812 Max. (46.0)	2.781 Max. (70.6)	1.687 Max. (42.9)	2.656 Max. (57.4)
3 POLE	G	3.250 Max. (82.6)	2.281 Max. (57.9)	3.187 Max. (81.0)	2.218 Max. (56.3)
	H	5.062 Max. (128.52)	5.062 Max. (128.52)	4.875 Max. (123.8)	4.875 Max. (123.8)
	J	1.812 Max. (46)	2.781 Max. (70.6)	1.687Max. (42.9)	2.656 Max. (67.4)

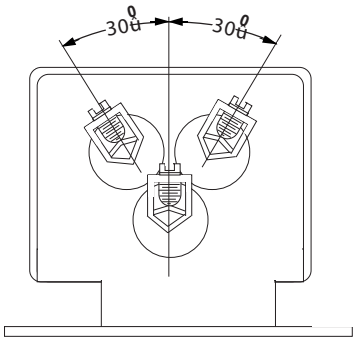
* SPST-NC outline is not shown. The SPST-NC tube is positioned lower on the coil so Dimension A is lower, but the overall height remains the same.

DIMENSIONS SHOWN IN INCHES AND (MILLIMETERS)









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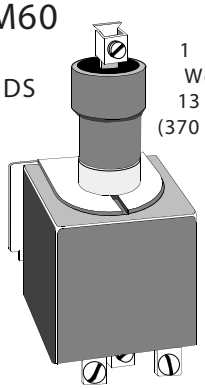
UL Listed
File No. E52197

CLASS WM35 and WM60

SWITCHES RESISTIVE,
TUNGSTEN, AND MOTOR LOADS
STAINLESS STEEL TUBES
HIGH INRUSH CAPACITY

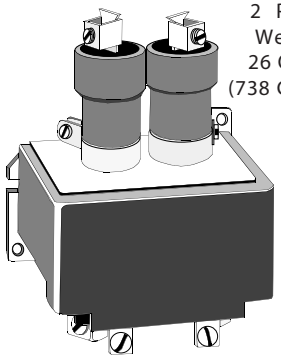


1 POLE
Weight
13 Ozs.,
(370 Grams)

CONTACTOR RATINGS FOR M35A - M35B

VOLTAGE	PHASE	HP		MOTOR AMPS		RESISTIVE AMPS	TUNGSTEN AMPS
		1-	3-	1-	3-		
120VAC	1- 3-	3*	5*	34	30	35*	35*
240VAC	1- 3-	5*	7.5*	28	19	35*	17
480VAC	1- 3-	5*	10*	14	14	35*	9
600VAC	1- 3-	5*	10*	11.2	11	25 **	7
24VDC	DC	1/2		27		35*	35*
48VDC	DC	1/2		13.5		35*	35*
125VDC	DC	1/2		5.2		16*	16*
250VDC	DC	1/2		2.6		12*	12*

* UL and CSA Listed ** CSA only



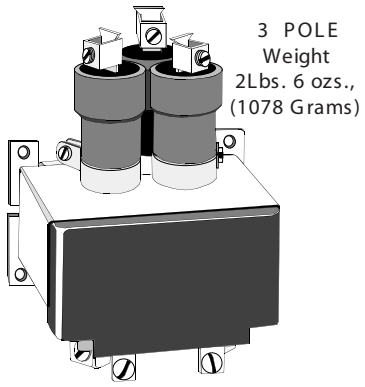
2 POLE
Weight
26 Ozs.,
(738 Grams)

CONTACTOR RATINGS FOR M60A - M60B

VOLTAGE	PHASE	HP		MOTOR AMPS		RESISTIVE AMPS	TUNGSTEN AMPS "A" (N.O.)	TUNGSTEN AMPS "B" (N.C.)
		1-	3-	1-	3-			
120VAC	1- 3-	3*	5*	34	30	60*	60*	45*
240VAC	1- 3-	5*	10*	28	28	60*	30	22.5
480VAC	1- 3-	7.5*	15*	21	21	60*	15	11.2
600VAC	1- 3-	7.5*	15*	16	17	50 **	12	9
24VDC	DC	3/4		39		60*	50*	50*
48VDC	DC	3/4		19.5		60*	50*	50*
125VDC	DC	3/4		7.4		40*	40*	40*
250VDC	DC	3/4		3.7		20*	20*	20*

* UL and CSA Listed ** CSA only

SEE MDR GENERAL SPECIFICATIONS AND DIMENSIONS.



3 POLE
Weight
2Lbs. 6 ozs.,
(1078 Grams)

RECOMMENDED MOUNTING
POSITION ± 10

STRUTHERS-DUNN

PART NUMBERS	COIL Measured @ 25°C NOMINAL INPUT VOLTAGE	NOMINAL RESISTANCE (OHMS)	NOMINAL CURRENT (AMPS)	NOMINAL POWER
1 POLE NORMALLY OPEN CONTACT				
WM35A-120A WM35A-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	700 2,800	.058 .029	7VA 7VA
WM35A-24D	24VDC	186	.120	3.5W
2 POLE NORMALLY OPEN CONTACT				
WM35AA-120A WM35AA-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	218 1,200	.135 .063	16.5VA 16.5VA
WM35AA-24D	24VDC	98	.232	6W
3 POLE NORMALLY OPEN CONTACT				
WM35AAA-120A WM35AAA-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	111 430	.220 .117	28VA 28VA
WM35AAA-24D	24VDC	64	.375	9W
1 POLE NORMALLY CLOSED CONTACT				
WM35B-120A	120VAC	460	.115	13VA

STRUTHERS-DUNN

PART NUMBERS	COIL Measured @ 25°C NOMINAL INPUT VOLTAGE	NOMINAL RESISTANCE (OHMS)	NOMINAL CURRENT (AMPS)	NOMINAL POWER
1 POLE NORMALLY OPEN CONTACT				
WM60A-120A WM60A-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	700 2,800	..058 .029	7VA 7VA
WM60A-24D	24VDC	186	.120	3.5W
2 POLE NORMALLY OPEN CONTACT				
WM60AA-120A WM60AA-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	218 1,200	.135 .063	16.5VA 16.5VA
WM60AA-24D	24VDC	98	.232	6W
3 POLE NORMALLY OPEN CONTACT				
WM60AAA-120A WM60AAA-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	111 430	.220 .117	28VA 28VA
WM60AAA-24D	24VDC	64	.375	9W
1 POLE NORMALLY CLOSED CONTACT				
WM60B-120A	120VAC	460	.115	13VA

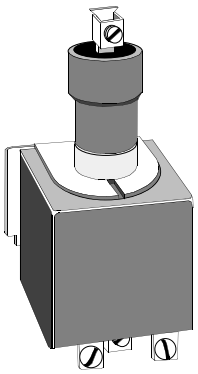
PART NUMBER SHOWN ALSO AVAILABLE THRU STOCK DISTRIBUTION

35 AND 60 AMP MERCURY DISPLACEMENT RELAYS

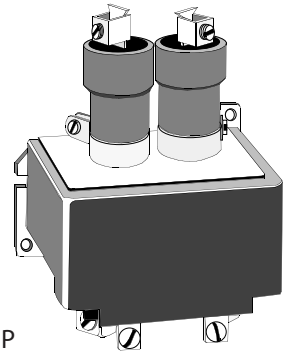
UL Listed
File No. E52197

CLASS WML35 and WML60

RECOMMENDED FOR MUCH LONGER LIFE
WHEN SWITCHING RESISTIVE AND TUNGSTEN LOADS.
AVAILABLE FOR AC LOADS ONLY.
NOT RECOMMENDED FOR SWITCHING DC LOADS.

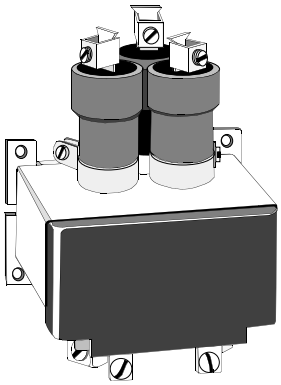


1 POLE
Weight
13 Ozs., (370 Grams)



UP

2 POLE
Weight
26 Ozs., (738 Grams)



3 POLE
Weight
2Lbs. 6 ozs., (1078Grams)

RECOMMENDED MOUNTING
POSITION ±10

CONTACTOR RATINGS FOR ML35A - ML35B

VOLTAGE	RESISTIVE AMPS	TUNGSTEN AMPS
120VAC	35*	35*
240 VAC	35*	17
480VAC	35*	9
600VAC	25 **	7

* UL and CSA Listed ** CSA only

CONTACTOR RATINGS FOR ML60A - ML60B

VOLTAGE	RESISTIVE AMPS	TUNGSTEN	
		AMPS "A" (N.O.)	AMPS "B" (N.C.)
120VAC	60*	60*	45*
240VAC	60*	30	22.5
480VAC	60*	15	11.2
600VAC	50 **	12	9

* UL and CSA Listed ** CSA only

STRUTHERS-DUNN

PART NUMBERS	COIL Measured @ 25°C			
	NOMINAL INPUT VOLTAGE	NOMINAL RESISTANCE (OHMS)	NOMINAL CURRENT (AMPS)	NOMINAL POWER
1 POLE NORMALLY OPEN CONTACT				
WML35A-120A WML35A-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	700 2,800	..058 .029	7VA 7VA
2 POLE NORMALLY OPEN CONTACT				
WML35AA-120A WML35AA-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	218 1,200	.135 .063	16.5VA 16.5VA
3 POLE NORMALLY OPEN CONTACT				
WML35AAA-120A WML35AAA-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	111 430	.220 .117	28VA 28VA

STRUTHERS-DUNN

PART NUMBERS	COIL Measured @ 25°C			
	NOMINAL INPUT VOLTAGE	NOMINAL RESISTANCE (OHMS)	NOMINAL CURRENT (AMPS)	NOMINAL POWER
1 POLE NORMALLY OPEN CONTACT				
WML60A-120A WML60A-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	700 2,800		0.058 VA 0.029 VA
2 POLE NORMALLY OPEN CONTACT				
WML60AA-120A WML60AA-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	218 1,200		0.135 VA 0.063 VA
3 POLE NORMALLY OPEN CONTACT				
WML60AAA-120A WML60AAA-240A	120 VAC 240VAC, 60HZ 220VAC, 50HZ	111 430		0.220 VA 0.117 VA

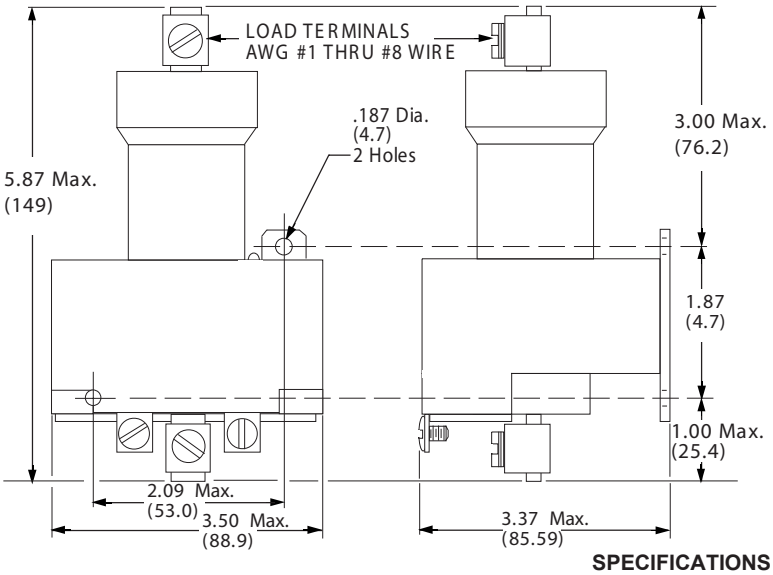
PART NUMBER SHOWN ALSO AVAILABLE THRU STOCKING DISTRIBUTION

WEBSITE: www.struthers-dunn.com EMAIL:info@struthers-dunn.com FAX # 1-843-662-8862 PHONE # 1-843-664-3303

100 AMP MERCURY DISPLACEMENT RELAY

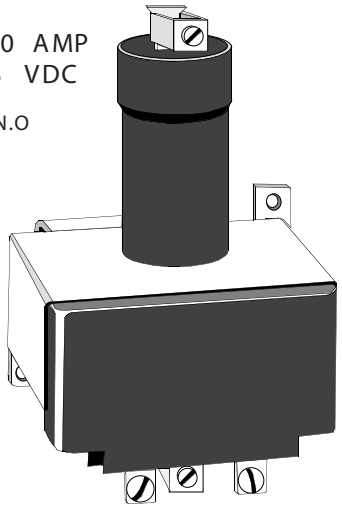
CLASS WM100

CAPABLE OF SWITCHING 100 AMP
LOADS UP TO 480 VAC/48 VDC



AVAILABLE IN 1 POLE N.O CONTACTS ONLY.

UL Listed
File No. E52197



UP

RECOMMENDED MOUNTING POSITION ± 10 ^{0}

SPECIFICATIONS FOR (@ 25 ^{0} C)

COIL

Frequency of Operation:	60 per minute max.
Pull-in voltage:	80% of nominal voltage, Typ. AC & DC coils.
Dropout voltage:	78% of nominal voltage, typ. AC coils. 65% of nominal voltage, typ. DC coils.

CONTACTS

Material:	Mercury.
Contact resistance:	.001 ohm Typical.

TIMING

Operate (at nominal voltage):	50 Milliseconds typical.
Dropout (at nominal voltage):	100 Milliseconds typical.

DIELECTRIC STRENGTH

Across open Contact:	2650 V rms.
Coil to Contact:	2650 V rms.
Contact to Frame:	2650 V rms.
Coil to Frame:	2650 V rms.

TEMPERATURE

Operating:	- 35 ^{0}C to + 60 ^{0}C Under continuous load.

LIFE

Mechanical (No load):	5,000,000 Operations.
Electrical (Rated load):	100,000 Operations.

MISCELLANEOUS

Insulation Material:	Class B - 130 ^{0}C.
Terminals:	# 1 thru 8 AWG wire.
Options:	Coil Voltages from 12VAC to 480VAC, 5VDC. thru 250VDC. Consult Factory.
Weight:	15.87 ozs. 450 grams.

STRUTHERS-DUNN

PART NUMBERS	COIL Measured @ 25 ^{0}C			
	NOMINAL INPUT VOLTAGE	NOMINAL RESIS-TANCE (OHMS)	NOMINAL CURRENT (AMPS)	NOMINAL POWER
1 POLE NORMALLY OPEN CONTACT				
WM100A-120A	120 VAC	73.5	.275	33VA
WM100A-240A	240VAC, 60HZ 220VAC, 50HZ	300	.138	33VA
WM100A-24D	24VDC	53	.380	10W

PART NUMBER SHOWN ALSO AVAILABLE THRU STOCK DISTRIBUTION

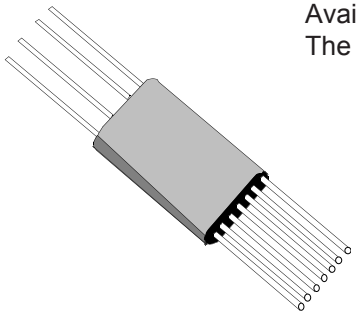
CONTACTOR RATING FOR M100

VOLTAGE	RESISTIVE AMPS	TUNGSTEN AMPS	HORSEPOWER SINGLE PHASE
120VAC	100	100*	3
240VAC	100	60	5
480VAC	100	30*	15
600VAC	80*	24*	10*
24VDC	100	100	1.5*
48VDC	100	100	1.5*
120VDC	80	80	1.5*
250VDC	40	40	1.5*

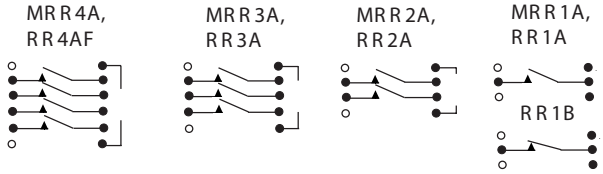
* NON UL RATING

AXIAL LEAD, SHIELDED REED RELAY

Class MRR/RR Axial lead epoxy molded reed relays hve solid wire leads on each end. They are available with two grid spacings - 0.1 inch for the MRR and 0.2 for the RR. Available contacts UP TO 12PST-NO for the MRR and 14PST-NO or NC for the RR. The MRR and RR come with an external Half shield fixed to the body of the relay.



WIRING DIAGRAM (Terminal view)



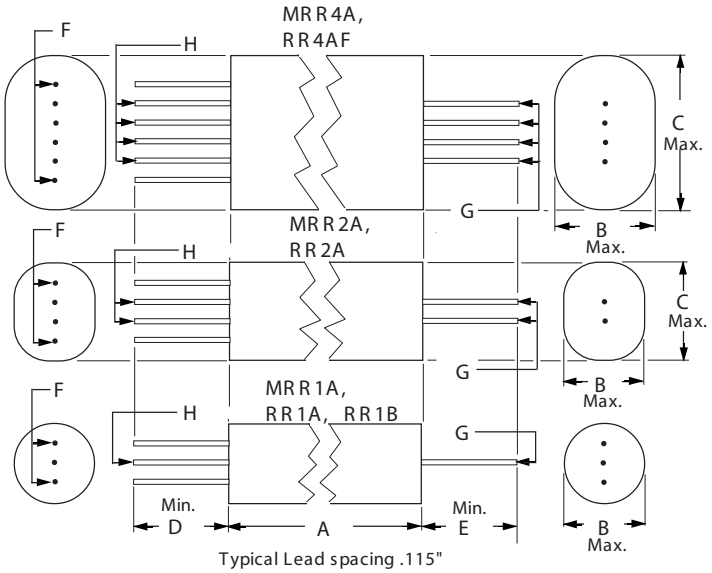
DIMENSIONAL CHART FOR MRR & RR SERIES RELAYS

SERIES	DIMENSIONS (Inches)							
	A	B	C	D	E	F	G	H
MRR1A	1.062 ± .005	.425	.425	.500	.500	.028	.028	.018 X .030
MRR2A		.440	.515					
MRR4A		.535	.810					
RR1A, RR1B	1.875	.655	.655	.875	.500	.035	.035 X .061	.055
RR2A		.670	.840					
RR4AF		.810	1.385					

To convert Inch dimensions to Millimeter use 25.4 x Dimension = Millimeters.

OUTLINE DIMENSIONS

See dimensional chart above



Typical Lead spacing .115"

Typical Lead spacing .115"

SPECIFICATIONS (@ 25^{0}C)

Contact Material:	Rhodium
Ambient Temperature:	- 40 ^{0}C to + 85 ^{0} C
Dielectric Strength:	MRR 400 V rms Across open contacts RR 500 V rms Across open contacts 1500 V rms All other points
Insulation Resistance:	1000 Megohms Min.
Capacitance:	0.4 pF typical coil to contacts
Shock Resistance:	50 G's
Vibration Resistance:	MRR - 20 G's to 2000 Hz RR - 10 G's to 450 Hz
Operate & Release Time:	2 to 10 Milliseconds based on the amount of contacts.
Life:	10 Million operations at rated load 200 Million operations no load

COIL DATA MRR SERIES

Coil Resistance & Nominal Voltage Measured at ± 10% @ 25 ^{0} C.

	SPST-NO	DPST-NO	4PST-NO	12PST-NO
VDC	OHMS	OHMS	OHMS	OHMS
6	288	144	72	24
12	1152	576	288	94
24	4600	2300	1152	384
48	—	—	3300	1536

Must operate at 70% of nominal voltage @ 25 ^{0}C

COIL DATA RR SERIES

Coil Resistance & Nominal Voltage Measured at ± 10% @ 25 ^{0} C.

	SPST-NO or NC	DPST-NO	4PST-NO
VDC	OHMS	OHMS	OHMS
6	90	36	24
12	360	145	94
24	1440	580	384
48	5760	2300	1536

Must operate at 80% of nominal voltage @ 25 ^{0}C

Options RR only Preformed leads welded lead extensions.

CONTACT DATA MRR SERIES

Material - Rhodium on Dry Reeds

Contacts	Max. VDC	Max. mA	VA
1-4PST-NO	200	500	10

CONTACT DATA RR SERIES

Material - Rhodium on Dry Reeds

Contacts	Max. VDC	Max. AMPS	VA
1-4PST-NO	250	1.0	15
SPST-NC	250	1.0	15

NOTE: Voltage, Current, and Power ratings in the tables above are independent maximums and no single value is to be exceeded. Ratings are based on noninductive, straight resistive, AC or DC loads without inrush. Other loads require contact protection and /or de-rating.

STRUTHERS-DUNN

ORDERING CODE

Typical Type No. MRR or RR 2A -12D

Series
- MRR - 0.1" Lead spacing
- RR 0.2" Lead spacing

Contact Arrangements
- 1A - SPST-NO
- 2A - DPST-NO
- 3A - 3PST-NO
- 4A - 4PST-NO
- 1B - SPST-NC (RR series Only)

Coil Voltage (DC only)
- DC: 6, 12, 24, 48 (Add "D")
- (5 volt and other voltages available)

PM OPEN STYLE POWER RELAYS

UP TO 35 AMPS AC, UP TO 20 AMPS DC

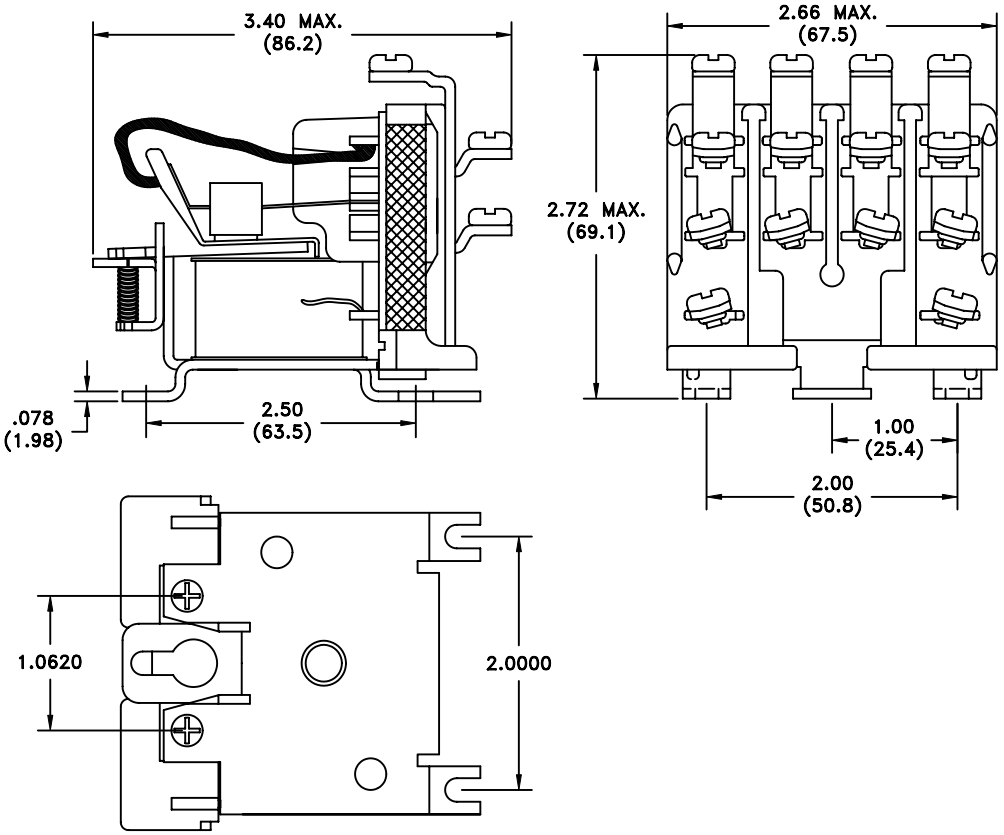
c UL us
UL Recognized
File No. E43641

® UL us
LISTED 367G
IND. CONT. EQ.

***4PDT POWER RELAY
RATING TO 35 AMPS**

***QC TERMINATIONS
8-32 SCREW OR 0.250**

***PLASTIC COVER AVAILABLE**



STRUTHERS-DUNN

PM | ☐ | -17 | A | Y | -120

CLASS:

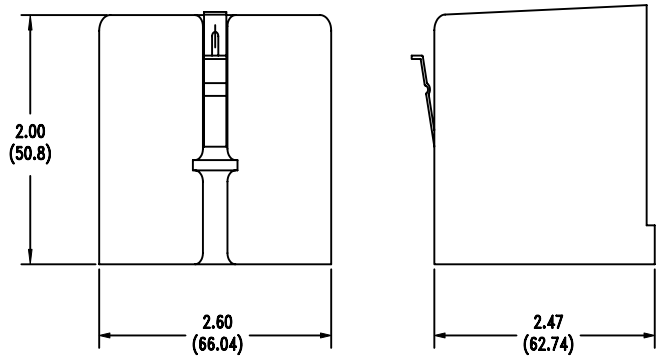
TYPE:
LEAVE BLANK=OPEN RELAY WITH SCREW TERMINAL
T = OPEN RELAY WITH 0.250" (6.35mm) QUICK CONNECT TERMINALS.
C = PLASTIC DUST COVER

CONTACT ARRANGEMENT:
17=4 FORM C (4PDT)

CONTACT INPUT:
A = AC, D = DC

CONTACT MATERIAL:
Y = SILVER ALLOY

COIL VOLTAGE:
UP TO 240 ADD "A" FOR AC COILS
UP TO 125 ADD "D" FOR DC COILS



(OPTIONAL) PLASTIC DUST COVER
PART NUMBER 35D203

UP TO 35 AMPS AC, UP TO 20 AMPS DC

c UL us
UL Recognized
File No. E43641

® UL us
LISTED 367G
IND. CONT. EQ.

CONTACT LOAD RATINGS TABLE

UP TO 277 VAC 50/60Hz	35 A, RESISTIVE (AC1)
28 VDC	20 A, RESISTIVE (DC1)
MOTOR LOAD, 240 VAC 50/60Hz	1 1/2 HP
MOTOR LOAD, 480 VAC 50/60Hz	2 HP
TUNGSTEN, 240 VAC 50/60Hz	10 A

GENERAL SPECIFICATIONS (@ 25°C)

COIL

Pull-in Voltage:	Coil voltage Minimum operate AC: 85% DC: 80%
Pull-in Voltage:	DC: 80% of Nominal measured at 25°C
Dropout Voltage:	AC: 10% of Nominal voltage or more at 25°C
Dropout Voltage:	DC: 10% of Nominal voltage or more at 25°C
Maximum Voltage:	± 110%
Resistance Tolerance:	± 10% at 25°C
Coil Power (50/60Hz):	AC: 14 Va
Coil Power:	DC: 4.4 W
Insulation System Per UL Standard 1446:	Class B (130°C)
Duty:	Continuous

CONTACTS

Material:	Silver Alloy
Minimum Recommended Load:	1 amp @ 5 VDC or 5w

TIMING

Operate Time:	40 ms @ Nominal Voltage
Release Time:	30 ms @ Nominal Voltage

DIELECTRIC STRENGTH

Coil to Contacts:	2000 V rms
Across Open Contacts:	1500 V rms
Pole to Pole:	1500 V rms
Cotacts to Frame:	2000 V rms
Insulation Resistance:	1000 megohms @ 500 VDC Minimum

TEMPERATURE

Rated Operations:	-40°C to +50°C (AC) -40°C to +55°C (DC)
Storage:	-55°C to +100°C

LIFE EXPECTANCY

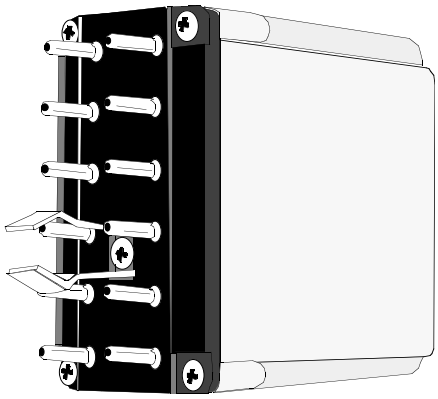
Electrical:	100,000 Operations @ Rated Loads
Mechanical:	10,000,000 Operations @ No Load

MISCELLANEOUS

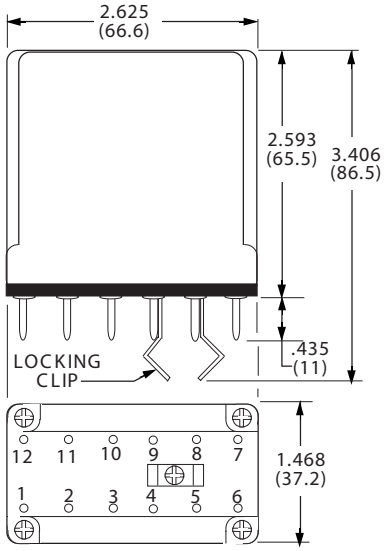
Operating Position:	Any
Terminal PM:	#8-32 Comb. Head Screw
Terminal PMT:	.250 Q.C. Terminals
Weight:	397 Grams

DC COILS		AC COILS	
NOMINAL INPUT VOLTAGE	DC RESISTANCE IN OHMS ± 10%	NOMINAL INPUT VOLTAGE	DC RESISTANCE IN OHMS ± 10%
6	8.2		
12	33	12 VAC 50/60Hz	1.4
24	132	24 VAC 50/60Hz	5.0
48	526	120 VAC 50/60Hz	120
110	2760	240 VAC 50/60Hz	587
125	3570		

INDUSTRIAL PLUG-IN ALARM RELAY 5 AMP, 2 POLE



The RSX1800 Alarm Relay consists of a pair of 2 pole or 3 pole relays enclosed in a clear plastic cover.
The relay is wired so that it performs the basic functions of Interfacing between a alarm point and an alarm light and/or an acoustic sounding device.
The RSX1800 operates from a normally closed trouble contact, while the RSX1800Z operates from a normally open trouble contact. Either a sustained or momentary alarm condition will energize the relay when signalled by an external trouble contact. The Alarm can be allowed to continue until the trouble has been corrected, at which time it automatically resets.



COIL DATA
Measured at 25 ^{0}C

AC Coils, 50/60Hz			AC Coils, 50/60Hz		
Volts	Ohms	mA	Volts	Ohms	mA
6	10.7	200	6	35	170
12	41.1	100	12	150	80
24	170	59	24	560	43
120	4500	10	115-125	11,000	10.5

STRUTHERS-DUNN

ORDERING CODE
Typical Type No. RSX1800 S 120A

Series
219 Industrial plug-in style Alarm relay
5 Amp, 2 Pole

Design for Trouble Contacts
Operate from N.C. trouble contact- CODE S*
Operate from N.O. Trouble contact- CODE Z*

Coil Voltage
AC6, 12, 24, 120, (Add "A")
DC: 6, 12, 24 110-125 (Add "D")

* Codes "S" & "Z" are 120 VAC only. All other codes are "AD" for NC input or "ZZ" for NO input.

MATING SOCKET 27390D

GENERAL SPECIFICATIONS (@ 25 ^{0}C)

LEGEND

K1 - Alarm/Silencing Relay.
K2 - Alarm/Silencing Relay.
A - Horn & optional Flasher.
TT - Lamp test (optional).
L1 - Line voltage.
R - Reset (optional for manual reset only.
S - Horn Silence (acknowledge).
F - Flasher (Optional).
N - Neutral.
Relays are supplied only with the items and wiring shown within the rectangles in schematics.

NOTE: For additional alarms, jumper to like terminals as shown.

CONTACTS

Contact Material:	Silver Cadmium Oxide.
Rating:	5 AMP, 120Vac/30Vdc Resistive 20 mS Max. @ Nominal Voltage.

TIMING

Operate Time:	25 Milliseconds max.
Release Time:	20 milliseconds max.

DIELECTRIC STRENGTH

Across open contacts:	500 V rms
Between all mutually insulated current carrying parts:	1500 V rms

TEMPERATURE

Rated Operation:	-10^{0}C to +70 ^{0}C

LIFE EXPECTANCY

Mechanical:	20 Million Operations no load
Electrical:	500,000 Operations @ Rated Load.

MISCELLANEOUS

Enclosure:	Clear polycarbonate.
Operating Position:	Any
Weight:	8.8 oz (250 g) approx.

MANUAL RESET (RSX1800S)

Manual (Push-button) Reset Sequence.	K1	K2	Flasher	Horn	Lamp
1- Normal	ON	ON	OFF	OFF	OFF
2- Alarm	OFF	ON	ON	ON	Flashing
3- Acknowledge	OFF	OFF	OFF	OFF	ON
4- Alarm Contact Recloses	OFF	OFF	OFF	OFF	ON
5- Reset	ON	ON	OFF	OFF	OFF
6- Lamp Test	ON	ON	OFF	OFF	ON

AUTOMATIC RESET (RSX1800S)

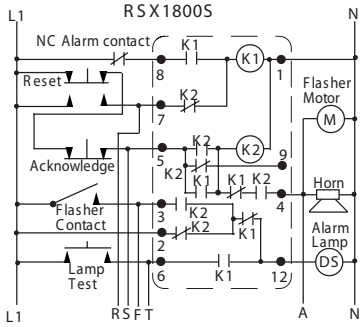
Automatic Reset Sequence.	K1	K2	Flasher	Horn	Lamp
1- Normal	ON	ON	OFF	OFF	OFF
2- Alarm	OFF	ON	ON	ON	Flashing
3- Acknowledge	OFF	OFF	OFF	OFF	ON
4- Alarm Contact Recloses	On	On	OFF	OFF	OFF
5- Lamp Out	ON	ON	OFF	OFF	ON

* OMIT for RESET (RSX1800Z)

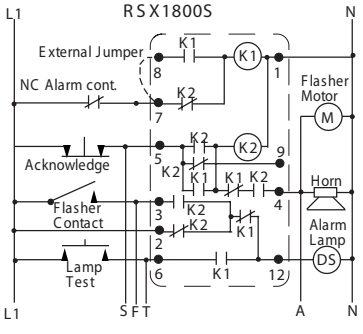
Automatic or Manual	K1	K2	Flasher	Horn	Lamp
1- Normal	OFF	ON	OFF	OFF	OFF
2- Alarm	ON	ON	ON	ON	Flashing
3- Acknowledge	ON	OFF	OFF	OFF	ON
4- Trouble Contact Reopens. Auto reset Manual reset	OFF ON	ON OFF	OFF OFF	OFF OFF	OFF ON
5- Reset	OFF	ON	OFF	OFF	OFF
6- Lamp Test	OFF	ON	OFF	OFF	ON

* External Jumper supplied be Customer.

MANUAL RESET
RSX1800S



AUTOMATIC RESET
RSX1800S



AUTO or MANUAL RESET
RSX1800Z