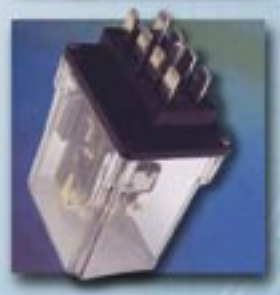
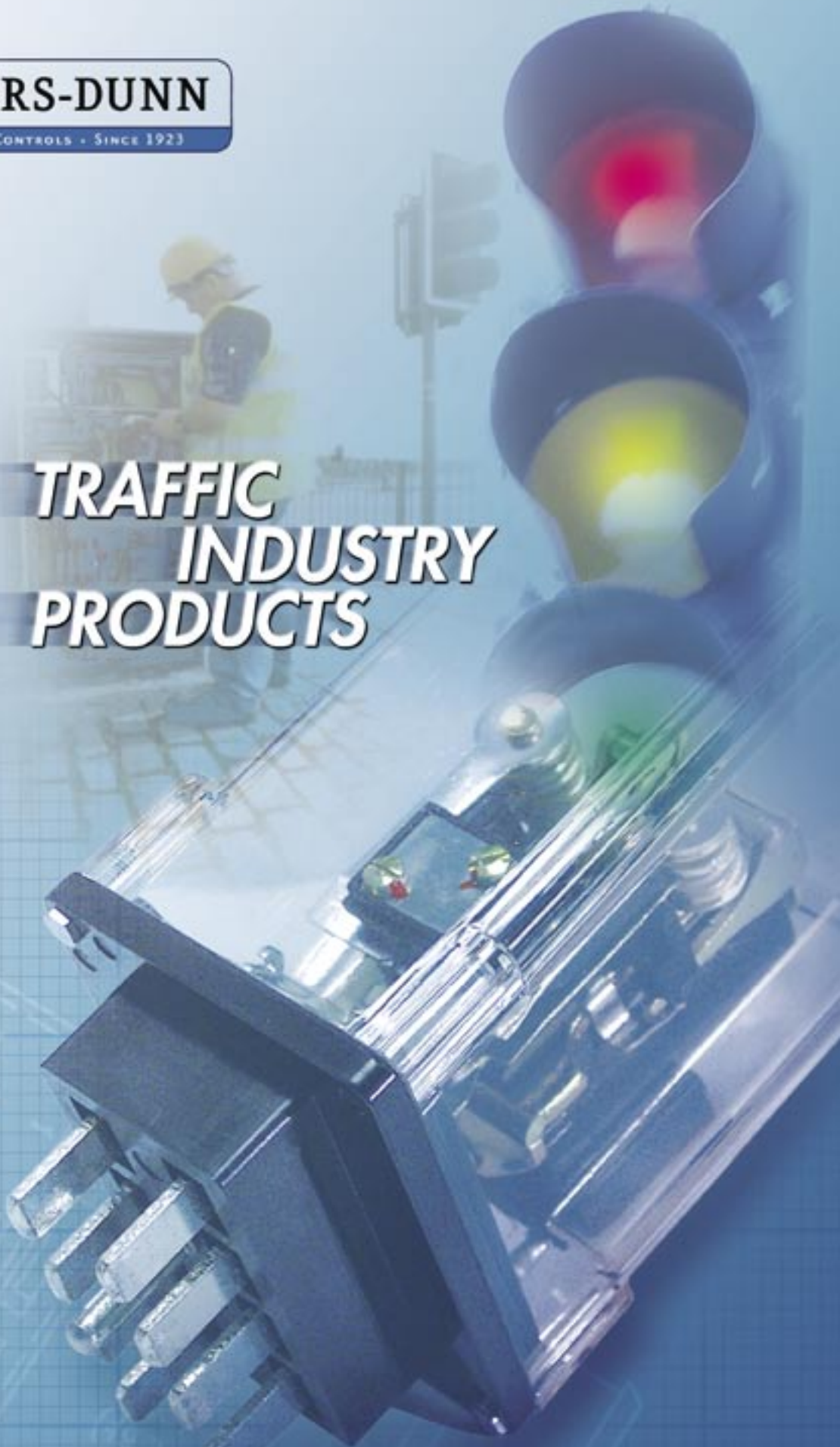
STRUTHERS-DUNN

LEADERS IN RELAYS & CONTROLS • SINCE 1923



TRAFFIC INDUSTRY PRODUCTS



Producing Quality Products For Over 80 Years

Hermetically Sealed

MERCURY displacement RELAYS

for **MAIN INPUT** to **TRAFFIC CABINETS**

1 POLE

2 POLE

3 POLE

- ✓ Excellent Surge Capability
- ✓ Long Life
- ✓ Hermetically Sealed Contact Chamber

GENERAL SPECIFICATION (@25° C)

ELECTRICAL RATING	
Pull-in Voltage:	80% of nominal voltage, Typ. AC & DC coils
Dropout Voltage:	10% of nominal or higher
DIELECTRIC STRENGTH	
All Mutually Insulated Points:	2650 Vrms
TEMPERATURE	
Operating:	-35° C to +60° C
MISCELLANEOUS	
Insulation Material:	Class B 130° C
Mounting Position:	Vertical ± 10°
Other:	Combination of SPST-NO & SPST-NC contacts available.

* CONTAINS MERCURY

UL

Mercury Relays

Flash Transfer Relays

W21ACPX-2
136-627200
FLASH TRANSFER RELAYS

DOT APPROVED

✓ Proven
✓ Long Lasting
✓ Reliable
✓ Consistent Quality

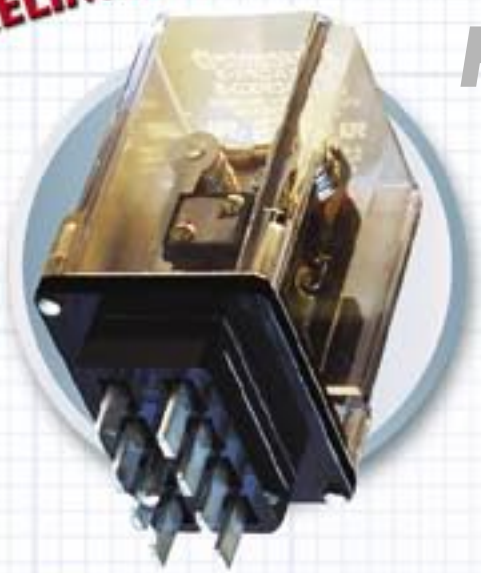
- Meets or exceeds NEMA TS2-2003 specifications.
- Low Power Consumption - Typical is only 2.4VA.
- Series diode to reduce power consumption in "21".
- Shunt diode to protect controlling circuitry from back EMF in "21".
- Superior magnetic structure.
  - Un-matched low pick up voltage - 75VAC.
  - Exceptional brown out protection.
  - Chatter-free operation.

GENERAL SPECIFICATION (@25° C)

	W21ACPX-2 UL Recognized	136-627200
Input Voltage Range	75 to 132VAC	102 to 132VAC
Drop out Voltage Minimum	12VAC	12VAC
Coil Power Typical	2.4VA	6VA
Contacts Configuration	Double pole double throw	Double pole double throw
Construction	DC coil with diodes	AC coil with shader
Contacts Rating	30A @ 120 / 240VAC	30 A @ 120 / 240VAC
Resistive	20 A @ 28VDC	20 A @ 28 VDC
Tungsten	2.4kW @ 120 / 240VAC	1kW @ 120 / 240VAC
Life Cycles - Full Load	200,000 Cycles	100,000 Cycles
Operating Temperature Range	-40° to 84° C	-40° to 84° C

Both relays mate with new Struthers-Dunn sockets SK-TRF8 - FW or BW [Cinch-Jones® 2408SB]

PRELIMINARY



21ACPXL-120VAC
FLASH TRANSFER RELAYS
for LED and Incandescent Lighting

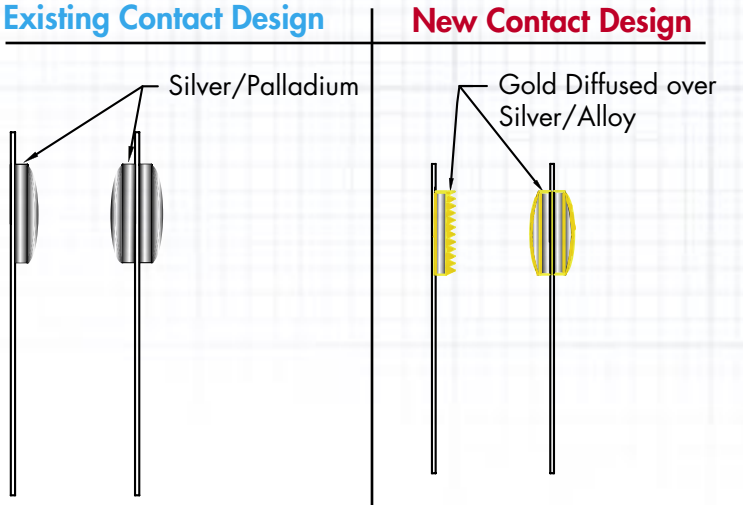
- ✓ **New for LED**
- ✓ **Available Early 2006**

The 21 and 136 Flash Transfer Relays have a proven industry record of reliability. Their rugged "overbuilt" design has allowed the product to be plugged in and left, for years of service. Recent changes in lighting techniques from incandescent to LED have prompted us to respond with a redesigned relay better suited for the low currents of LED lighting, but equally usable with tungsten lamps.

The original 21/136 relays were designed with oversized silver/palladium contacts capable of withstanding high surges and steady state currents of tungsten lamps. In cases where only a few low current LED lamps are used, or contacts provide input to a conflict monitor, there is now a better choice for flash transfer.

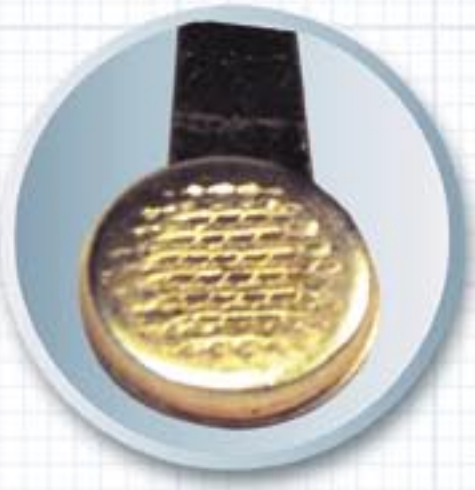
The 21 LED Relay uses proven technology of the 21. Improvements come from a new contact design and enhanced contact materials. A multi-point contact surface (serrated) ensures numerous individual circuit closures over the face of the contacts. Additionally, low resistance gold has been added to the silver / palladium contacts with a diffusing process. It becomes part of the contact ensuring it can't be burnt off even by a tungsten surge. The result is an enhanced flash transfer relay capable of reliably switching low level LED current, yet still able to handle the demands of incandescent lighting.

CONTACT design PRINCIPALS



- Silver/Palladium
- Single Point Contact

- Gold Diffused/Alloy
- "Multipoint" Contact



Face of Contact

Multipoint Contacts – A pattern of hills and valleys (serrations) is imprinted onto the face of the stationary contact blade ensuring multiple points of contact for circuit connections over the entire contact area.

Advantage – A solid connection every time for low current LED circuits.

Gold Diffusing – A process where low resistance gold is melted into the silver palladium contacts. Unlike a surface plating or flashing, diffused gold becomes part of the contact and doesn't burn off after the first high current surge. Gold penetrates into the contact and remains for the life of the product.

Advantage – Lower contact resistance. Higher resistance to corrosion.

(Tested to 100,000 cycles at 10mA to simulate input to a conflict monitor/100,000 cycles @15 Amps/repeat 100,000 cycles @ 10 mA).

Contact us to request a sample, order parts, or for additional information.

SOCKETS for TRAFFIC CABINETS

Struthers-Dunn has over 80 years of history with sockets and products that plug into them. Recognizing how rugged the 21 relay is, it is only natural that we expand its use into other areas. To do so we needed another socket family. The entire socket family fits well in the Traffic Industry. Now there is new product from a known supplier with history and experience.

- Accepts Industry Standard NEMA Traffic Products.
  - 12 Pin - Load Switch
  - 8 Pin - Flash Transfer Relay
  - 6 Pin - Flasher
- Direct replacements for existing socket - form, fit, function.
- Suitable for LED and incandescent lighting (Tungsten Surge).
- Qualified to standards of UL 508.
- Flange or bracket style available.

✓ **Reliability**
✓ **Quality**
✓ **Service**

GENERAL SPECIFICATION (@25° C)

NUMBER OF TERMINALS	6, 8 OR 12
ELECTRICAL RATING Nominal Voltage Rating: Nominal Current Rating:	 250 VOLTS 15 AMPS
DIELECTRIC STRENGTH Adjacent Terminals: Terminals To Bracket/Flange:	 2000 Vrms 2000 Vrms
TEMPERATURE Operating:	 -40° C TO +125° C
MISCELLANEOUS Wire Size: Body Color: Weight:	 AWG12 (3.0 mm^2) Black 35, 45, 50 grams

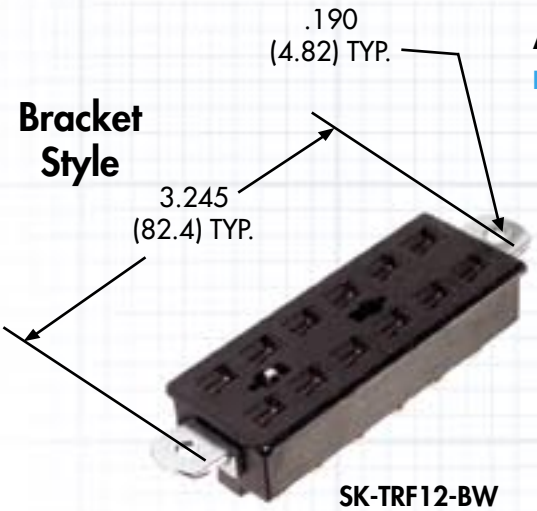
Sockets

Sockets

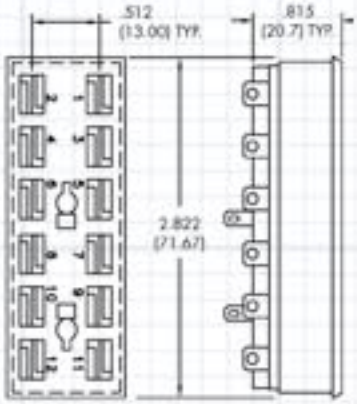
Accepts Traffic Industry NEMA

■ Load Switches (12 pin) ■ Flash Transfer Relays (8 pin) ■ Flashers (6 pin)

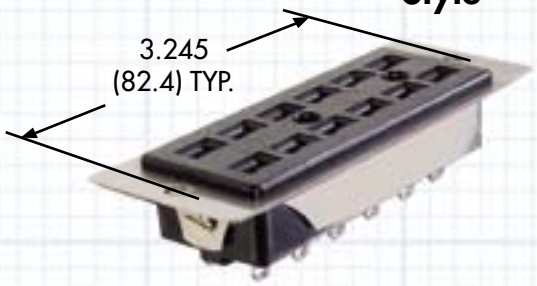
Bracket Style



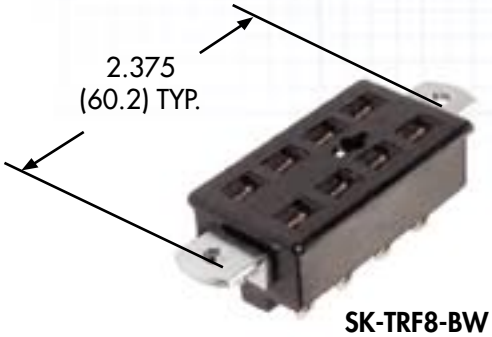
SK-TRF12-BW



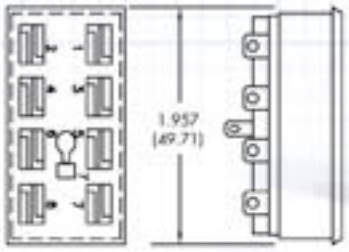
Flange Style



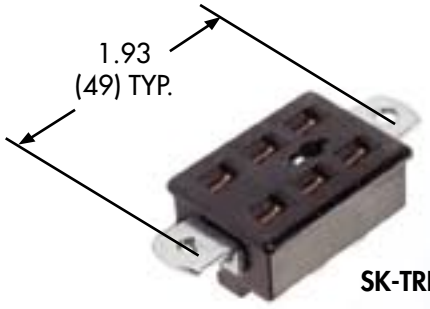
SK-TRF12-FW



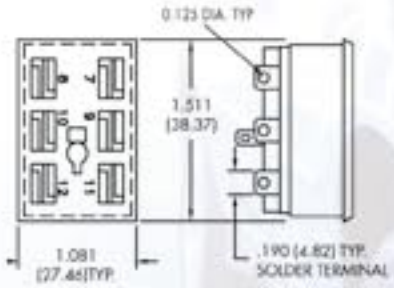
SK-TRF8-BW

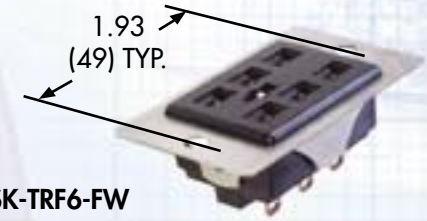


SK-TRF8-FW



SK-TRF6-BW





SK-TRF6-FW

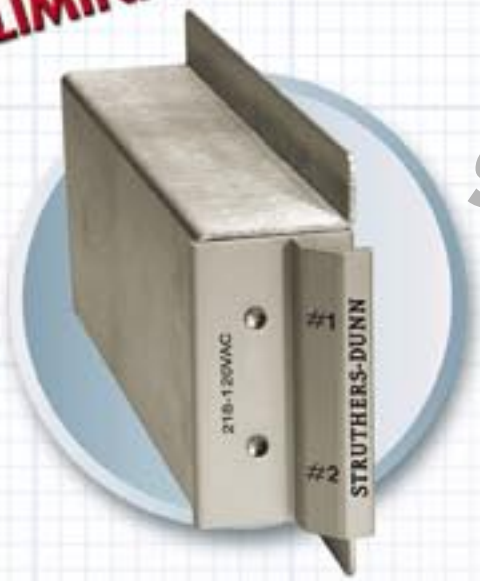
CHASSIS CUTOUT CHART

PINS	LENGTH	WIDTH
6	1.61 (40.8)	1.10 MAX. (27.9)
8	2.05 (52)	
12	2.94 (74.6)	

(Dimensions in inches (mm)

PART NUMBER	DESCRIPTION
SK-TRF6-FW	6 PIN CHASSIS MOUNT WITH FLANGE
SK-TRF8-FW	8 PIN CHASSIS MOUNT WITH FLANGE
SK-TRF12-FW	12 PIN CHASSIS MOUNT WITH FLANGE
SK-TRF6-BW	6 PIN CHASSIS MOUNT WITH END BRACKET
SK-TRF8-BW	8 PIN CHASSIS MOUNT WITH END BRACKET
SK-TRF12-BW	12 PIN CHASSIS MOUNT WITH END BRACKET

PRELIMINARY



218-120VAC SOLID STATE FLASHER MODULE

✓ Coming Soon

GENERAL SPECIFICATION (@25° C)

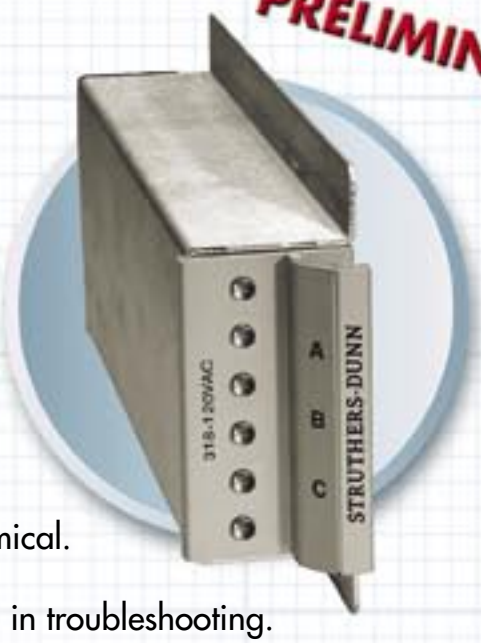
Input Voltage Nominal Load Voltage Input Current	120VAC 60-135VAC Under 20mA
Maximum Load Current Minimum Load Current Turn on Offstage Leakage Current	10 Amps RMS over temperature range 50 mA AC Zero cross <10 mA peak
Number of Circuits	2
Operating Temperature Time Humidity Range Dielectric Isolation	-34° C to 74° C (-30° to 165° F) 0 to 95% RH 2000 Vrms minimum
Flash Rate Duty Cycle Minimum Life, 135 VAC NEMA Standards Connector	56/minute 50 ± 5% 10 Million cycles TS 1, TS 2 Mates with S-D # SK-TRF6-FW socket (Cinch-Jones® 2406SB)
Pin Configuration	per NEMA Standard TS-2

Flasher Module

Load Switch Module

PRELIMINARY

318-24VDC LOAD SWITCH MODULE



Long associated with a successful and growing ine of solid state relays, Struthers-Dunn is taking the experience into new areas. Years of exposure to various applications have taught us what it takes to make a solid state relay robust, reliable and economical.

Features two LED,s per circuit (input and output) to aid in troubleshooting.

✓ **Coming Soon**

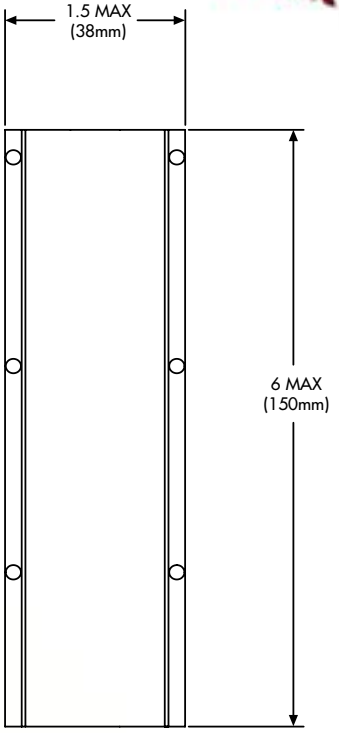
GENERAL SPECIFICATION (@25 ˚C)

Input Voltage Load Voltage Range Input Current	24 VDC 60-135VAC Under 20mA
Maximum Load Current Maximum Load Current Turn On Offstage Leakage Current	10 Amps RMS over temperature range 50mA AC Zero cross <10mA peak
Number of Circuits	3
Operating Temperature Range Humidity Range Dielectric Isolation	-34° C to 74° C (-30° to 165° F) 0 to 95% RH 2000 Vrms minimum
Minimum Life @120 VAC NEMA Standards Connector	10 million cycles TS 1, TS 2 Mates with S-D #SK-TRF12-FW socket Cinch Jones® 2412SB
Pin Configuration	per NEMA Standard TS-2

418-60A-120VAC

60 Amp SOLID-STATE RELAY for Traffic Control Cabinets

PRELIMINARY



Similar dimensions & same mounting holes as MDR's.

Hg

No Mercury Inside

Although some states are banning the use of mercury, initial activity is geared toward preventing its use in consumer products. The time will come when the use of mercury in Traffic Control Cabinets will not be permitted.

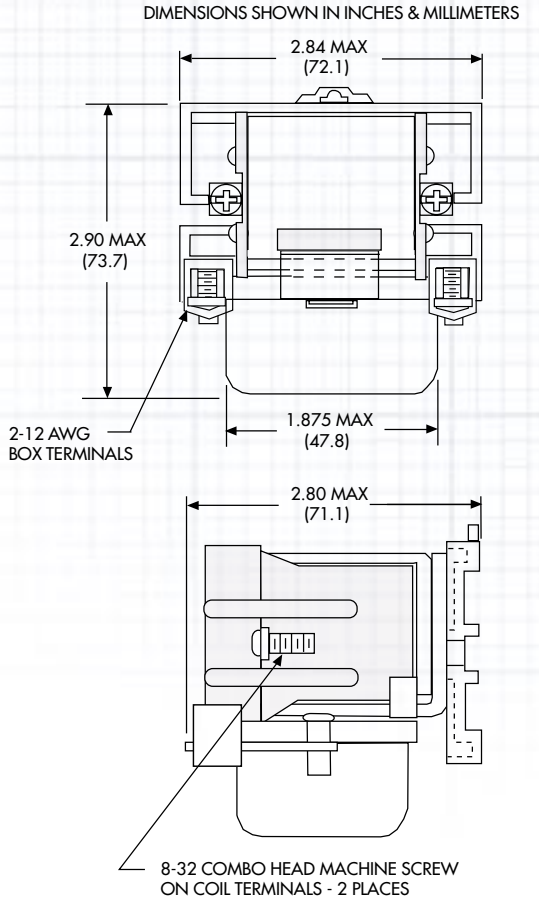
In anticipation, Struthers-Dunn has pro-actively designed a non-mercury solid-state "drop-in" replacement for the mercury relay currently used.

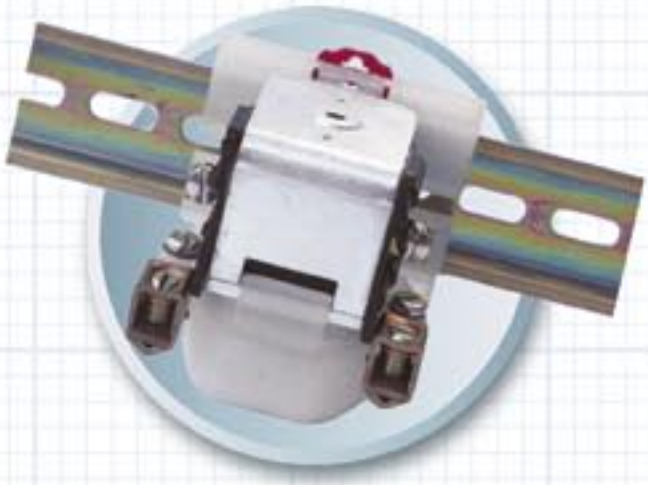
- Full rating at -34° to +74° C per NEMA specification.
- Capable of handling continuous Tungsten or LED load and incandescent lamp surge.
- No special orientation necessary - mount in any position.
- Same hole centers for mounting as MDR (drop in replacement on retrofits).
- No wiring modification required.
- Long life highly reliable solid-state device (no moving parts).

  Solid State Relay applications may have additional thermal considerations (heat dissipation) above those of mercury relays. Our engineering team will support you if you need design assistance.

Solid State

Contactor





B101HXX
100 AMP
CONTACTOR

IDEAL for **STREET LIGHTING**

GENERAL SPECIFICATION (@25° C)

ELECTRICAL RATING	
Pull-in Voltage: Dropout Voltage: Max. allowed voltage:	85% of nominal voltage or less for DC coils, 10% of nominal voltage or more @ 25° C ± 110% of nominal..
DIELECTRIC STRENGTH	
All Mutually Insulated Points:	1500V rms between all mutually insulated current carrying parts and those parts to ground.
Insulation Resistance:	1000 Megohms minimum @ 500 VDC
TEMPERATURE	
Operating:	-45° C to +65° C
MISCELLANEOUS	
Mounting:	Panel, 35 mm DIN rail or custom (example- mounted on electric meter base)
Weight:	370 Grams

200 & 300 Amp Products also available as used by The City of Chicago

About Us

Established in 1923, Struthers-Dunn has been a leader in supply ing "overbuilt," (high quality, high in reliability) products to our customers. The consistent high quality product and excellent service has created a loyal customer base. These loyal customers continually utilize us to meet their electo-mechanical application requirements.

Our focus is to meet the ever changing demands of industrial ap plications for the traffic industry, power generation and distribution, factory automation, elevators, cranes, hoists, motor control and water treatment, among many others.

We realize that all customers have a choice of suppliers. We intend to build on our flash transfer business with new products. Through quality, service and cost we intend to offer value to our customers so their choice will be Struthers-Dunn.

As one of the last remaining U.S. manufacturers of Power Rela ys and Contactors, our engineers are always ready to customize solutions to meet your design needs.

Contact us to request a sample, order parts, or for additional information.

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