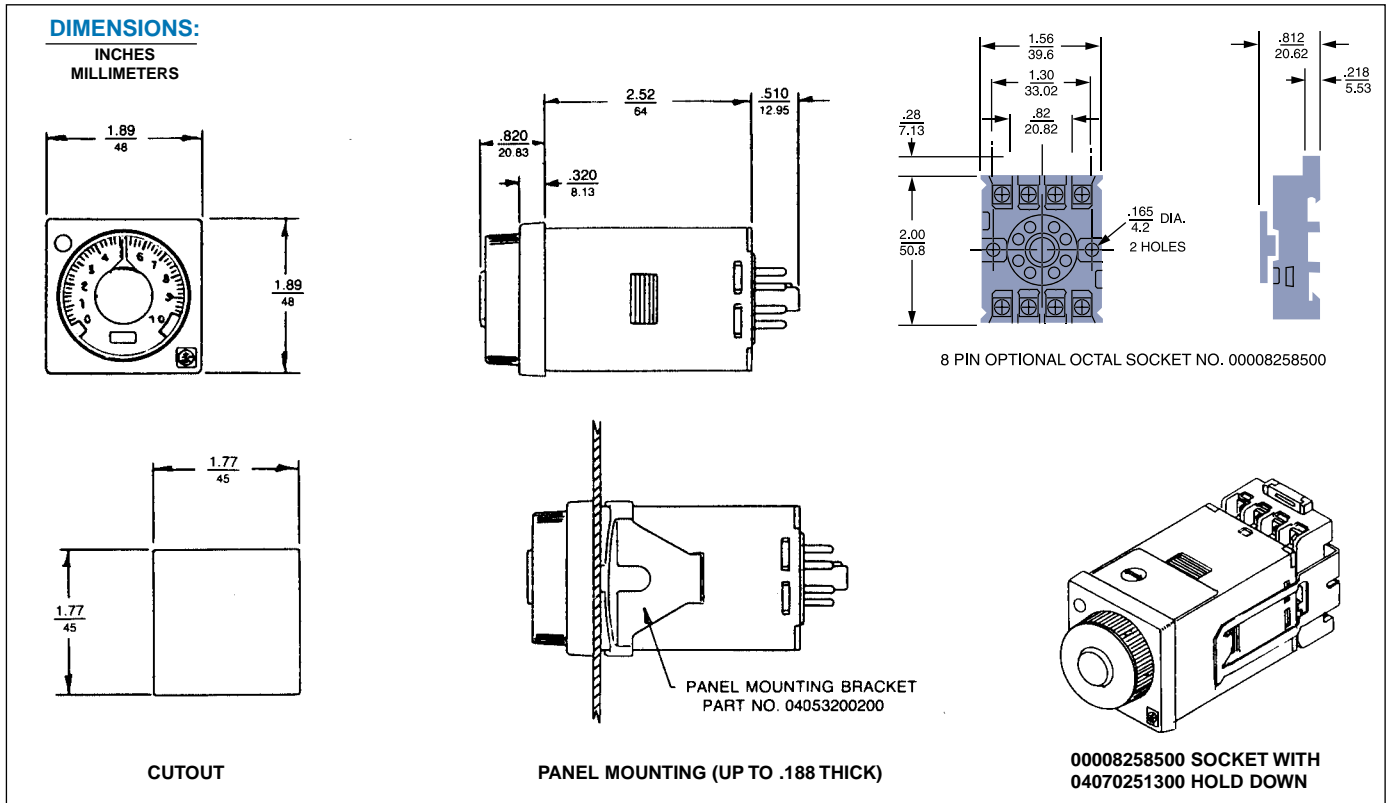


# 405A TIMER



INSTALLATION  
INSTRUCTIONS  
0405-000-01-00



## OPERATION

Timing begins when the start switch is closed. This starts an oscillator which runs at a frequency determined by the time setting. A fixed number of counts from the oscillator determines the end of the timing cycle. The time required to accomplish this depends upon the oscillator frequency. During timing, an LED located on the dial face blinks. For the first 10% of the cycle, LED repeatedly blinks once followed by a pause. For the second 10%, it blinks twice and so on indicating the cycle progress. The LED flashes rapidly and continuously after time out.

## MODEL...F1X

The instantaneous contacts (3-1-4) transfer immediately after the start switch is closed. The delayed contacts (6-8-5) transfer after the timing

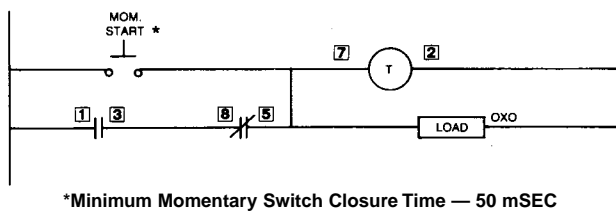
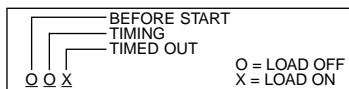
cycle indicated on the front dial setting. Both contacts remain transferred until the unit is reset.

## MODEL...F2X

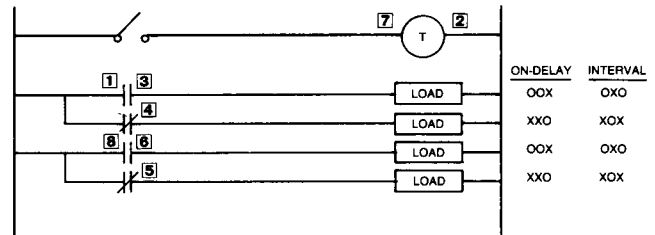
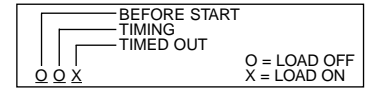
**ON DELAY MODE** - At time out, the DPDT relay transfers its contacts. These contacts remain transferred until the start switch is opened or power is removed by some other means. The 405A then resets and is ready for another cycle.

**INTERVAL MODE** - When the start switch is closed, the DPDT relay transfers its contacts. The contacts remain transferred until time out. The timer will not start again until the start switch is opened or power is removed by some other means. The 405A then resets and is ready for another cycle.

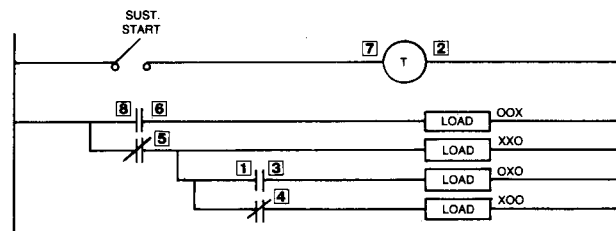
## TYPICAL CIRCUITS 405A...F1X



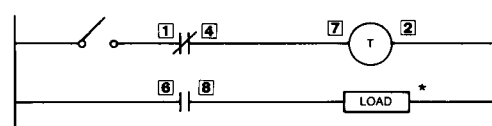
## TYPICAL CIRCUITS 405A...F2X



\* For Interval Operation With A Momentary Start Switch, Jumper 7 & 3



For Repeat Cycle Pulse Operation In On-Delay Mode.



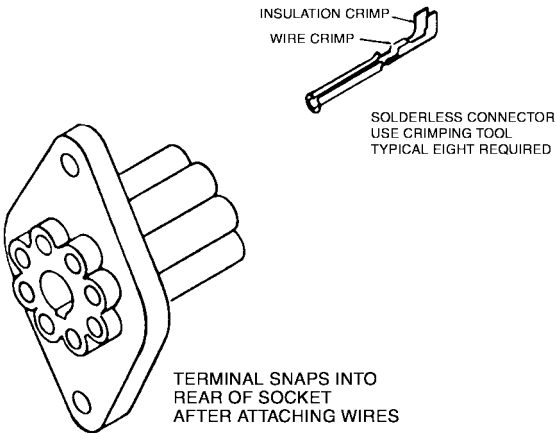
\* Load Will Pulse On For 30 — 60 mSEC

## INSTALLATION INSTRUCTIONS — 405A TIMER/TDR

### PANEL MOUNTING:

To panel mount, cut a 1 25/32" square cutout (1.77")

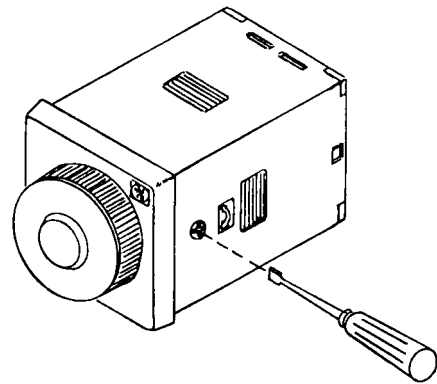
1. Insert the 405A through the panel from the front with the plug going through the cutout first.
2. While holding the 405A in place, push the mounting bracket over the 405A from the back and snap into place as shown in the panel mounting dimensions drawing.
3. When using the 405A in a panel mounted configuration, the optional 03192614500 plug-on socket can be used. See illustration below.



### SETTING THE RANGE AND TIMING MODE:

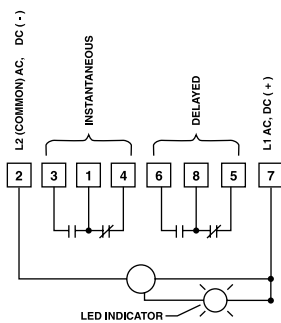
Refer to the drawing. Using a small screwdriver inserted into the adjusting slot as shown, rotate the range or mode adjusting switch. The range selected will appear through the window at the top of the dial face. The timing mode is indicated on the housing.

Note: To prevent a hazard to personnel or property, change range and/or timing mode with electrical power off.

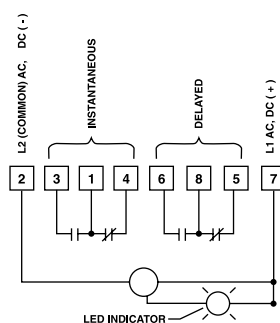


## WIRING

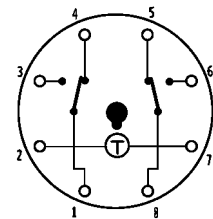
Model 405A...F1X



Model 405A...F2X



## TERMINAL WIRING



Bottom View of TDR

## SPECIFICATIONS

### For Model 405A Timer/TDR

#### MODELS

405A100F1X - On Delay w/instantaneous & delayed relays (1 or 10 SEC/MIN/HRS)

405A500F1X - On Delay w/instantaneous & delayed relays (5 or 50 SEC/MIN/HRS)

405A100F2X - On Delay/Interval with (1) DPDT relay (1 or 10 SEC/MIN/HRS)

405A500F2X - On Delay/Interval with (1) DPDT relay (5 or 50 SEC/MIN/HRS)

Both models available in 6 ranges from 1 sec. to 10 hrs. or 5 sec. to 50 hrs.

#### CONTACT RATING

Rated 10 AMPS resistive at 30 VDC or 250 VAC (or less)  
1/8 HP @ 120 VAC  
1/4 HP @ 240 VAC  
240 VA @ 240 VAC

LIFE: 10 million operation with no load  
100,000 operations with:  
10 AMPS at 30 VDC (or less) or  
10 AMPS at 250 VAC (or less)

CONTACT MATERIAL:  
Silver Cadmium Oxide

#### TEMPERATURE RATING

-18°C to 60°C (0 to 140°F)

#### NOISE IMMUNITY

Showering ARC per NEMA ICS 2-230. In addition, the 405A will withstand a voltage surge of 4500 volts for 50 usec. without damage.

#### MOUNTING

Plug-in octal base; mounts in any position with retaining clip.

Options: Surface mounting socket  
DIN rail mounting socket  
Panel-mounting adapter kit  
Plug-on socket kit

#### POWER REQUIREMENTS

Universal power supply - reverse polarity protected

Unit will accept power from  
24 to 240 VAC, 50 or 60 Hz, (+10%, -20%)  
24 VDC (+20%, -20%)

**AC:** Inrush - 1.5 Amps

Power required - 1.2 watts

**DC:** Maximum ripple @100Hz - 5%

Current required - 50mA

Power required - 1.2 watts

"F" option - Peak inrush current =

2 AMPS @ 24 VDC

"N" option - Peak inrush current =

150 mA @ 24 VDC

#### REPEAT ACCURACY

Varies as a function of temperature.

Any voltage (constant temperature): +/-0.5%\*

Any voltage (32° F to 140° F): +/-1.5%\*

Any voltage (0° F to 140° F): +/-2.0%\*

\*Variation from average actual time.

#### MINIMUM SETTING

2% of range, with the exception of 50 msec on the 1 second range

#### SETTING ACCURACY

+/-5% of range

#### RESET

a. 0 to 20 msec power interruption: guaranteed no reset.

b. 20 to 65 msec; it may reset (40 msec typical reset).

c. Over 65 msec guaranteed to reset.

The TDR will reset properly and not start timing when subjected to an open start switch leakage of 1.5 mA or less. (Prox switch and Triac drive applications)

#### WEIGHT

5 oz. (140g)

## ORDERING CODE

BASIC TYPE	405A	100	F	1	X
RANGE					
100	Six dial-selected ranges (1 or 10 SEC/MIN/HRS.)				
500	Six dial-selected ranges (5 or 50 SEC/MIN/HRS.)				
VOLTAGE & FREQUENCY					
E	12 VDC				
F	24 to 240 VAC (50/60 Hz) and 24 VDC				
N	24 VDC (low inrush current for short-circuit protected sensors)				
ARRANGEMENT					
1	8 pin On-Delay (with instantaneous contacts) Timing Mode				
2	8 pin On-Delay, Interval Timing Modes				
FEATURES					
X	Standard				
K	Special				
ACCESSORIES					
0000-825-85-00	8 Pin surface/DIN rail socket				
0407-025-13-00	Hold down for above socket				
0405-320-02-00	Panel mounting bracket				
0319-261-45-00	Plug on socket kit (8-pin)				
0000-825-87-00	8 Pin panel socket w/rear facing terminals				