

## Wiring

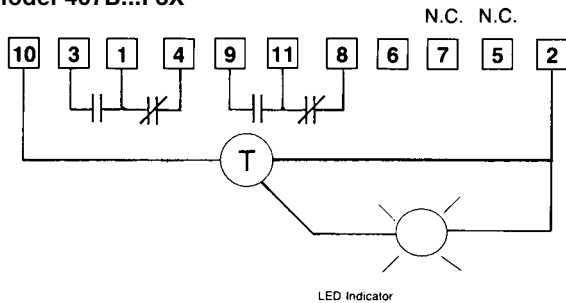


# Series 407

## 1/16 DIN Multi-Mode Timer

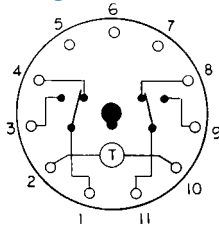
TIMERS

### Model 407B...F3X



### Terminal Wiring

**CAUTION!** Do NOT connect terminal 6 to L1 (AC Hot or DC+). Damage to unit will result. Terminal 6 is a dry contact only!



### The 407B Directly Replaces 407A.

## PRODUCT HIGHLIGHTS

### ON-DELAY / OFF-DELAY / INTERVAL TIMING MODES

The 407 is available with selectable On-Delay, Off-Delay or Interval timing modes. These timing modes energize a set of DPDT output contacts. When in the On-Delay mode, the 407 begins timing when the timer is energized. In On-Delay mode, the contacts transfer at time out. When in the Off-Delay mode, the 407 begins timing when the Start input is de-energized. In Off-Delay mode, the contacts transfer at time out. When in the Interval mode, the contacts transfer when the timer is energized. In Interval mode, the contacts release at time out.

### UNIVERSAL POWER SUPPLY

All 407 timers can be powered using 24-240 VAC or 24 VDC power, greatly simplifying ordering and inventory management of replacement units.

### HIGH ACCURACY

The 407's timing circuit is not a simple RC circuit. It utilizes the sophistication of a proprietary integrated circuit that includes counting technology along with a stable oscillator to provide repeatable time delays.

### 48mm<sup>2</sup> DIN HOUSING

The 48mm<sup>2</sup> (1/16 DIN) housing is compact and is watertight when panel mounted. The 407 is mounted in an 11-pin round socket. With an optional mounting clip, the 407 can be panel mounted.

The Dial on the 407 is extra large and is easy to read. When fractional ranges are selected, decimal points are clearly indicated.

The Mode select and Range select switches are located on the side of the unit, so that when panel mounted, these switches are not accessible to the operator. This tamper proof feature prevents unauthorized or hazardous changes to the timing mode and range from being made.

### CYCLE PROGRESS INDICATION

The 407 LED indicator provides a unique and effective method of cycle progress indication. Off before timing, the LED blinks at an ever increasing rate as the cycle progresses; once every 3 1/2 seconds during the first 10% of the cycle, twice during the second 10%, and so on. At time out, the LED pulses at a high rate. (In the 1, 5, 10 and 50 second ranges, the LED is Off before timing, steady On during timing, and pulsing On after time-out).

### APPROVALS

See Agency Listing on page 391.

## FEATURES

- Selectable On-Delay/Off-Delay/Interval Timing Modes
- Separate Start Input
- Output Contacts rated 10A at 120/240 VAC and 30 VDC
- Six Timing Ranges in a single unit
- Timing Ranges:
  - 1 and 10 sec., min., and hours
  - 5 and 50 sec., min., and hours
- Universal Power Supply; 24-240 VAC and 24 VDC
- 48mm<sup>2</sup> DIN Standard housing
- Large and easy to read dial shows decimal points
- Round (octal) socket mount or mount in panel cutout
- Watertight when panel mounted
- Range and Mode select are tamper proof when panel mounted
- Unique flashing cycle progress indication

**OPERATIONS**

Timing begins when the start switch is closed (ON-delay and INT modes) or opened (OFF-delay mode). 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, the 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.

**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.

**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 407B then resets and is ready for another cycle.

**OFF-DELAY MODE:**

Power must be applied to the timer before and during timing (terminals #10 & 2). Upon closure of the start switch, the DPDT relay transfers its contacts. The timing begins when the start switch is opened. The relay remains energized during timing. At time out, the relay de-energizes.

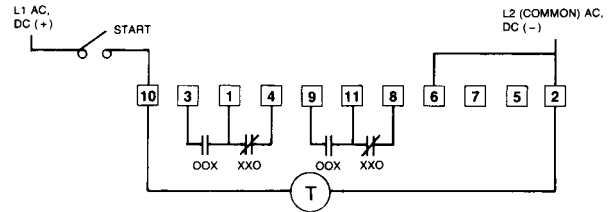
**Special note for Off-Delay operation:**

When operated from AC, the start switch must be of a dry contact type such as a relay contact or mechanical switch.

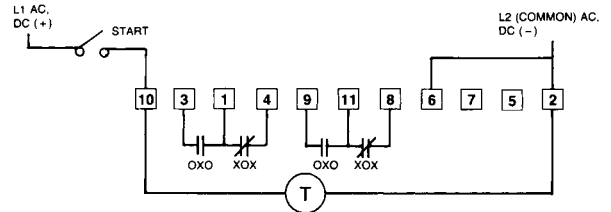
When operated from DC, the start switch can be a dry contact type such as a relay contact or mechanical switch. In addition, a **solid-state device** may be used as long as its saturation voltage drop is less than 1.5 VDC at 50mA.

**TYPICAL CIRCUITS 407B...F3X**

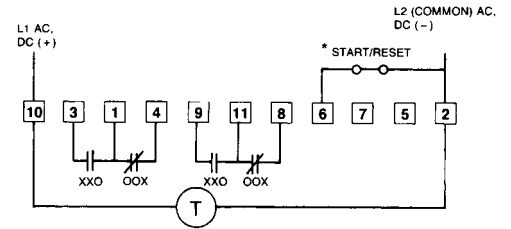
**ON-DELAY (Mode Switch in ON-DELAY POSITION)**



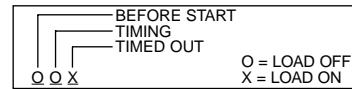
**INTERVAL (Mode Switch in INTERVAL POSITION)**



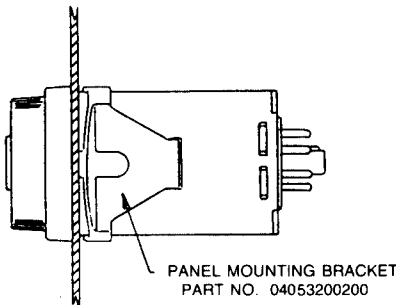
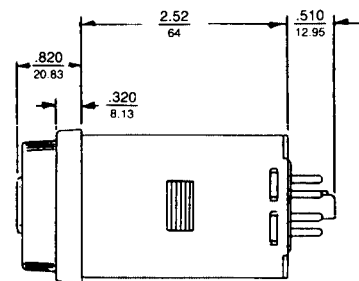
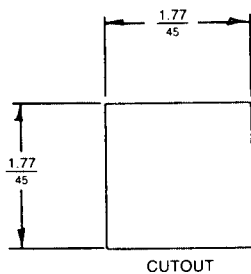
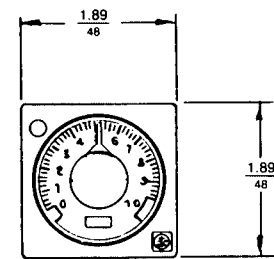
**OFF-DELAY (Mode Switch in OFF-DELAY POSITION)**



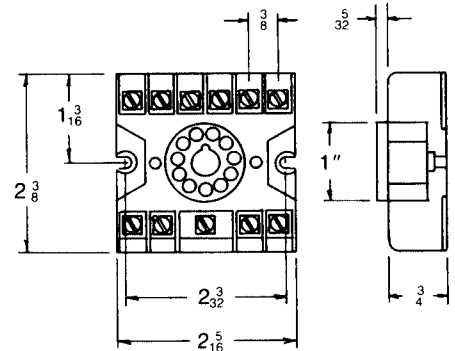
**\*IN OFF-DELAY MODE, START SWITCH MUST BE ISOLATED. DO NOT CONNECT ANY LOAD IN PARALLEL**



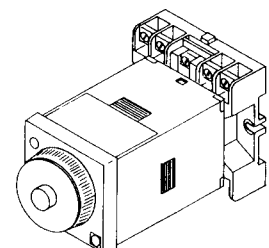
**DIMENSIONS**  
INCHES  
MILLIMETERS



PANEL MOUNTING (UP TO .188 THICK)



11 PIN OPTIONAL SOCKET NO. 00008258600



## SPECIFICATIONS

### For Model 407B Multi-Timer

#### MODELS

407B100F3X - On Delay, Off Delay, Interval Timing with (1) DPDT relay (1 or 10 SEC/MIN/HRS)

407B500F3X - On Delay, Off Delay, Interval Timing 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 50°C (0-122°F)

#### NOISE IMMUNITY

Showering ARC per NEMA ICS 2-230  
 In addition, the 407B will withstand a voltage surge of 4500 volts for 50 usec. without damage.

#### MOUNTING

Plug-in 11-Pin round base.

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

- 0 to 20 msec power interruption: guaranteed no reset.
- 20 to 65 msec; it may reset (40 msec typical reset).
- 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)

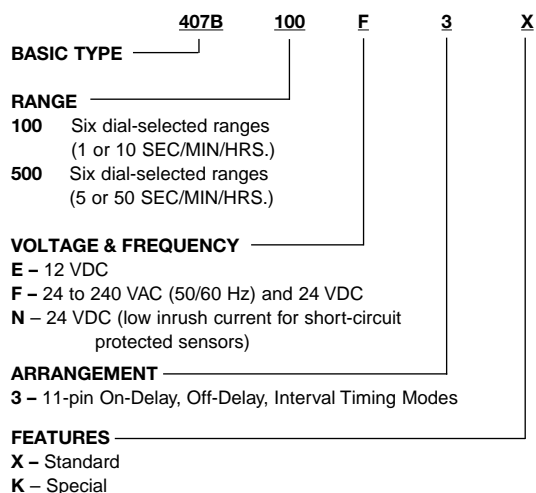
#### TERMINAL #6

(Start switch requirements -- Off-Delay)  
 DC: Minimum Current Rating - 50mA  
 Maximum saturated voltage drop - 1.5 VDC  
 AC: Minimum Current Rating - 1.5 A

#### WEIGHT

5 oz. (140g)

## Ordering Code



#### ACCESSORIES

- 0000-825-86-00:** 11 Pin surface/DIN rail socket
- 0405-025-07-00:** Hold down for above socket
- 0405-320-02-00:** Panel mounting bracket
- 0000-825-88-00:** 11 Pin panel socket w/rear facing terminals
- 0314-260-07-00:** Plug-in socket kit (11-pin)

Before starting your design, read the safety statement on the inside back cover of the ATC catalog.