

# Multi-Time Range/Function

## TMM Series

### FEATURES

- 100% functionally tested
- Microprocessor controlled timing circuit
- Five logic modes, user selectable
- Five time ranges, user selectable
- Easy 3-digit time cycle setting
- $\pm 0.1\%$  repeatability
- Time cycles from 50 ms to over 16 hours
- Timing light
- Superior transient protection
- Reinforced base locator pin
- Flame-retardant polycarbonate housing
- File #E59090

The TMM Series offers selectable multiple time ranges and functional logic modes all in one plug-in package.

Programming is accomplished by using two 5-position rotary switches. One switch selects one of five time ranges. The other switch selects one of five operating logic modes. A 3-digit push-button switch selects the amount of time required for a timing cycle.

### SPECIFICATIONS

#### TIME DELAY

**Adjustment:** 3 digit push-button switch

**Range:** 50 ms to 999 minutes in 5 ranges

**Repeatability:**  $\pm 0.1\%$ ,  $\pm 0.02$  seconds over specified timing range

#### ACCURACIES

**Delay On Make:**  $\pm 1\%$  of set time, plus fixed error of 80 ms max. (40 ms typical including power-on response time)

**Interval, One shot:**  $\pm 1\%$  of set time, plus fixed error of 35 ms max. (10 ms typical)

**Delay On Break:**  $\pm 1\%$  of set time, plus fixed error of 75 ms max. (10 ms typical)

**Repeat Cycle, On Time:**  $\pm 1\%$  of set time, plus fixed error of 35 ms max. (10 ms typical)

**Repeat Cycle, Off Time:**  $\pm 1\%$  of set time, minus error of 65 ms max. (10 ms typical)

#### INPUT

**Operating Voltage:** 24, 120 VAC, 12, 24, 48 VDC  $\pm 10\%$  (DC models have reverse polarity protection. Unfiltered input voltage to them must be full-wave rectified)

### ORDERING INFORMATION

TIME RANGE	12 VDC	24 VDC	48 VDC	24 VAC	120 VAC
.05 sec. to 999 min.	TMM-0999M-466	TMM-0999M-462	TMM-0999M-464	TMM-0999M-467	TMM-0999M-461

**Power On Response:** .05 sec. max.

**Power Off Reset Time:** .15 sec. min.

**Start Switch Closure Time:** .020 sec. to initiate timing cycle; .050 sec. to reset delay during timing cycle

**Power Consumption:** 2 VA max.

**Frequency:** 50/60 Hz

#### OUTPUT

**Type:** Relay DPDT (2 form C)

**Rating:** 10 A max. resistive at 240 VAC; 100 mA at 5 VDC min. load current

#### Life:

Mechanical: 10,000,000 operations

Full Load: 500,000 operations

#### TIMING LIGHT LOGIC

**Repeat Cycle:** Flashing during ON time; Full On during OFF time

**Other Logic Modes:** Flashing during timing; continuously on after time out

#### PROTECTION

**Transient Voltage:** 12, 24, 48 V timers are protected by an 8.8 joule metal oxide varistor; 120 V timers are protected by a 30 joule metal oxide varistor

**Dielectric Breakdown:** 1500 VAC, RMS min. at 60 Hz between input and outputs and between outputs

#### MECHANICAL

**Termination:** 11-pin plug

**Mounting:** Socket mount, part number MSO-0011P-012

#### ENVIRONMENTAL

**Storage Temperature:**  $-23^{\circ}\text{C}$  to  $70^{\circ}\text{C}$

**Operating Temperature:**  $-23^{\circ}\text{C}$  to  $55^{\circ}\text{C}$

**Humidity:** 95% relative

#### TIMING

**Selectable Time Ranges:** .05 to 9.99 seconds; .1 to 99.9 seconds; 1 to 999 seconds; .1 to 99.9 minutes; 1 to 999 minutes (times less than 50 ms are not recommended due to the response time of the mechanical relay)

**Selectable Operating Logic Modes:**

Repeat Cycle (50% fixed duty cycle)

Single Shot (1 shot)

Delay On Break (D.O.B.)

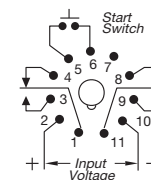
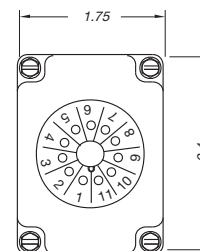
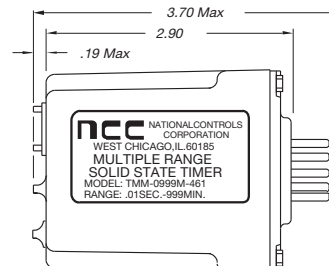
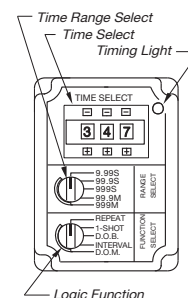
Interval (Interval)

Delay On Make (D.O.M.)

#### PROGRAMMING

To program the timer, remove voltage from the unit and select the operating logic mode and the time range; use the digital switches to select the required time (0 to 999)

Note: 1) Do not apply voltage or ground to the Start switch, 2) Switch leads should be shielded when running close to other wires (Start switch supplied by customer)



PIN CONFIGURATION  
Polarity Shown is for D.C. Models