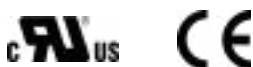# PROGRAMMABLE | MULTI-FUNCTION
TR-6 Series Time Ranger ™

- ◆ Four or eight timing functions in one unit easily selectable with rotary switch
- ◆ Each unit has 16 timing ranges built-in covering 0.05 seconds-100 hours
- ◆ Selecting a range is easy using a 16-position rotary switch (no math is required or DIP switches to set)
- ◆ Universal control voltage : 24-240V AC & 12-125V DC
- ◆ Utilizes industry-standard 8 or 11 pin octal sockets
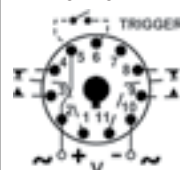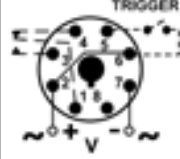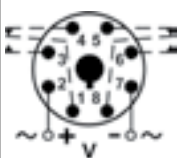- ◆ 10A SPDT or DPDT output contacts can handle most pilot duty and fractional HP loads

The TR-681 & TR-682 Series offer the flexible programmability of a multi-function and multi-range time delay relay together with a universal control voltage . These products provide an easy method to select one of eight (TR-681) or four (TR-682) time delay functions and any time range between 0.05 seconds and 100 hours. Programming is accomplished through the use of two rotary switches to select function and time range. The actual time delay is then set by using the potentiometer to adjust within the selected time range. This product can literally replace hundreds of different catalog numbers, thereby reducing inventory requirements.

FUNCTION ■	OUTPUT	Control Voltage 50/60Hz.	CATALOG NUMBER	WIRING/ SOCKETS
ON DELAY INTERVAL ON OFF DELAY SINGLE SHOT FLASHER (ON 1st) **SINGLE SHOT** (Falling Edge) **WATCHDOG ON DELAY** (Triggered)	11 Pin DPDT	24-240V AC & 12-125V DC	TR-6812U	11 PIN OCTAL **70170-D** **DIAGRAM 210**
	8 Pin SPDT	24-240V AC & 12-125V DC	TR-6816U	8 PIN OCTAL **70169-D** **DIAGRAM 211**
ON DELAY INTERVAL ON FLASHER (OFF 1st) **FLASHER** (ON 1st)	8 Pin DPDT	24-240V AC & 12-125V DC	TR-6822U	8 PIN OCTAL **70169-D**

■ See "Definitions of Timing Functions".

Timing Ranges

Select one of the 16 built-in time ranges by setting the rotary switch per a chart on the unit (see right) and then adjust within that range using the knob on top.

Dial Setting	Timing Range	Dial Setting	Timing Range
A	0.05 - 0.5 Sec.	I	1 - 10 Min.
B	0.1 - 1 Sec.	J	3 - 30 Min.
C	0.5 - 5 Sec.	K	6 - 60 Min.
D	1 - 10 Sec.	L	0.2 - 2 Hr.
E	3 - 30 Sec.	M	0.5 - 5 Hr.
F	6 - 60 Sec.	N	1 - 10 Hr.
G	0.2 - 2 Min.	O	2.4 - 24 Hr.
H	0.5 - 5 Min.	P	10 - 100 Hr.

MACROMATIC

Better. By Design.

800.238.7474

WWW.MACROMATIC.COM

SALES@MACROMATIC.COM

Sockets & Accessories available

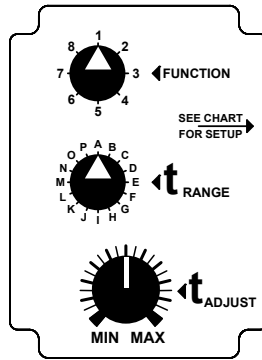Build your Time Delay Relays with the *Online Product Builder*

PROGRAMMABLE | MULTI-FUNCTION
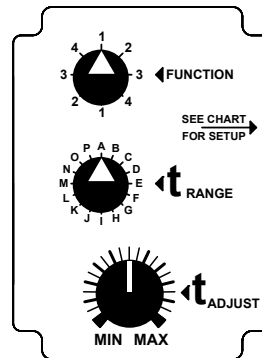## TR-6 Series Time Ranger ™

Programming Function & Time Delay

Setting Function: To set the function, first select one of the eight (TR-681 Series) or four (TR-682 Series) functions from the Select Function Chart located on the side of the relay (see right). Position the eight-position rotary switch to the number that corresponds to the desired function. **NOTE:** Because the TR-682 Series comes with only four functions, but uses an eight-position rotary switch to select a function, each function can be selected with the same number in two positions. **NOTE: Function cannot be changed with power applied to unit.**

Setting Time Delay and Time Range: To set the desired time delay, first select one of the 16 time ranges from the Timing Range Chart located on the side of the relay. Position the rotary switch to the letter that corresponds to the desired time range. Then adjust the time delay within the selected time range by rotating the large knob of the potentiometer located on top of the unit. **Note:** The tick marks are for reference only.

TR-681 Series

TR-682 Series

TR-681 Series

	Select Function
1	On Delay
2	Interval On
3	Flasher - On 1st
4	Triggered On Delay
5	Watchdog
6	Single Shot
7	Off Delay
8	One Shot Falling Edge

TR-682 Series

	Select Function
1	On Delay
2	Interval On
3	Flasher - Off 1st
4	Flasher - On 1st

Application Data

Voltage Tolerance:

AC Operation: 20.4 – 264V at 50/60 Hz
DC Operation: 10.2 – 137.5V

Load (Burden):
Maximum of 3 VA for all voltages

Setting Accuracy:

Maximum Setting (Adjustable):   +5%, -0%
Minimum Setting (Adjustable):   +0%, -50%

Repeat Accuracy (constant voltage and temperature)**:**
$\pm$0.1% or $\pm$50ms, whichever is greater

Reset Time:
Functions Triggered with Control voltage : 0.1 Seconds
Functions Triggered with Control Switch: 0.04 Seconds

Start-up Time: (Time from when power is applied until unit is timing): 50ms

Maintain Function Time: (Time unit continues to operate after power is removed): 0.01 Seconds

Temperature:
Operating: -28° to 65°C (-18° to 150°F)
Storage: -40° to 85°C (-40° to 185°F)

Functions Triggered By A Control Switch:
Minimum required trigger switch closure time is 50ms.

Compatibility:
Using a solid state switch to initiate the time sequence is acceptable. See **_www.macromatic.com/leakage_** or contact Macromatic for information regarding leakage current limits and other solid state design considerations.

Output Contacts:
10A @ 240V AC/30V DC,
1/2HP @ 120/240V AC (N.O.), 1/3HP @ 120/240V AC (N.C.)
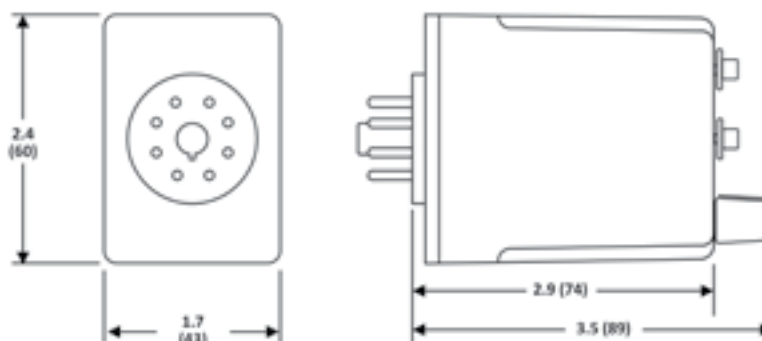B300 & R300 (N.O.); AC15 & DC13

Life:
Mechanical: 10,000,000 operations
Full Load: 100,000 operations

Approvals:

File #E109466

with Appropriate Macromatic Socket

Low Voltage & EMC Directives EN60947-1, EN60947-5-1

Dimensions

All Dimensions in Inches (Millimeters)

2.4 (60)

1.7 (43)

2.9 (74)

3.5 (89)

TIME DELAY RELAYS | PLUG-IN