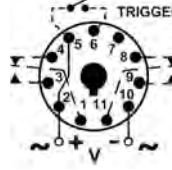
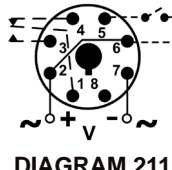
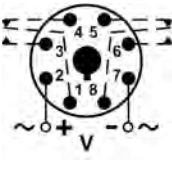


PROGRAMMABLE | MULTI-FUNCTION

TR-6 SERIES TIME RANGER™

The TR-681 & TR-682 Series offer the flexible programmability of a multi-function and multi-range time delay relay together with a universal input 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	INPUT 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  DIAGRAM 1

■ 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.

Sockets & Accessories available

Build your Time Delay Relays with the [Online Product Builder](#)



- ◆ 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 input 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



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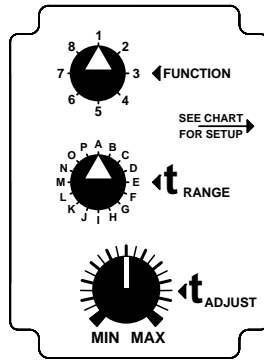
PROGRAMMABLE | MULTI-FUNCTION

TR-6 SERIES TIME RANGER™

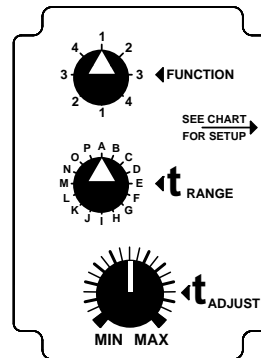
PROGRAMMING FUNCTION & TIME DELAY

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):

±0.1% or ±50ms, whichever is greater

Reset Time:

Functions Triggered with Input 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

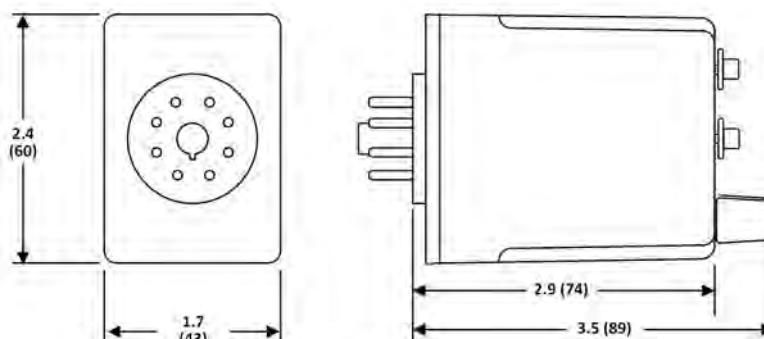
Life:

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

Approvals:



DIMENSIONS



All Dimensions in
Inches (Millimeters)

PROGRAMMABLE | MULTI-RANGE TRUE OFF DELAY TR-6 SERIES TIME RANGER™

APPLICATION DATA

Voltage Tolerance:

AC Operation: +10/-15% of nominal at 50/60 Hz
DC Operation: +10/-15% of nominal

Load (Burden):

Maximum of 2 VA for all voltages. These products draw a brief inrush current on power-up of 1A to charge the internal circuitry.

Setting Accuracy:

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

Repeat Accuracy (constant voltage and temperature):
±50ms

Reset Time: 0.1 Seconds

Start-up Time:

(Time from when power is applied until unit is timing)
0.05 Seconds

Maintain Function Time:

(Time unit continues to operate after power is removed)
0.01 Seconds for all units

Temperature:

-28° to 65°C (-18° to 150°F)

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:

DPDT 10A @ 240V AC; 8A @ 28V DC,
1/2 HP @ 240V AC, 1/4HP @ 120V AC
B300 & R300

Life:

Mechanical: 2,000,000 operations
Full Load: 100,000 operations

IMPORTANT: These relays are shipped from the factory in the OFF state. A shock to the relay during shipping or installation may cause it to change to the ON state. It is recommended that input voltage be applied to the product for at least 0.1 second and removed to cycle the unit to the OFF state prior to use in the application. Please note that it will take as long as the OFF Delay setting to reset the unit once input voltage has been removed.

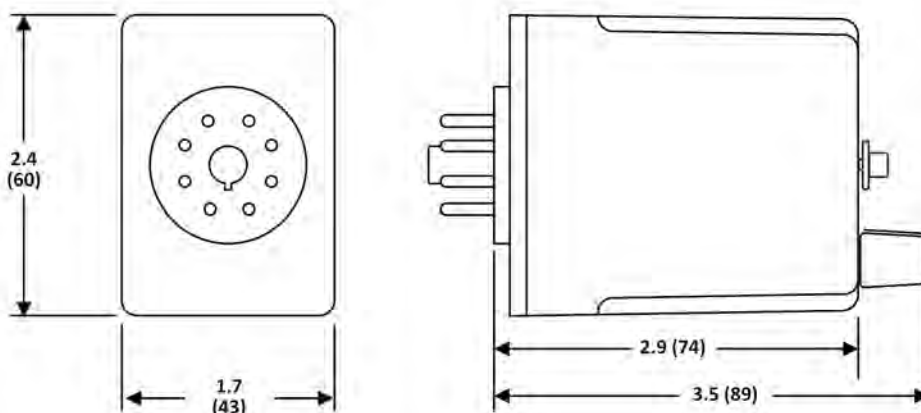
Approvals:

UL US
File #E109466

UL US
with Appropriate
Macromatic Socket

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

DIMENSIONS



All Dimensions in
Inches (Millimeters)

PROGRAMMABLE | SINGLE FUNCTION

DIP-SWITCH | DIGITAL-SET | TD-8 SERIES



Single Mode

Dual Mode

- ◆ DIP-Switches for accurate digital set of time delay
- ◆ 100ms - 1,023 hours programmable time delay
- ◆ Uses industry-standard 8 or 11 pin octal sockets
- ◆ 10A DPDT output contacts
- ◆ LED indicates relay status
- ◆ Pilot duty rating



with appropriate socket

The TD-8 Series time delay relays offer an easy and accurate method to select any time delay between 100ms and 1,023 hours. Programming is accomplished through the use of a 10-position DIP-switch. Each position is marked with a binary time increment. The required delay is selected by moving the switch of each increment to the ON position and adding their corresponding values (see examples below). This method provides a greater setting accuracy than is found on other units with an analog potentiometer. An LED indicates relay status.

FUNCTION ■	INPUT VOLTAGE 50/60Hz.	CATALOG NUMBER **	WIRING/ SOCKETS
ON DELAY A	120V AC/DC 12V DC 24V AC/DC 240V AC	TD-80222-** TD-80226-** TD-80228-** TD-80221-**	8 PIN OCTAL 70169-D
INTERVAL ON B	120V AC/DC 12V DC 24V AC/DC 240V AC	TD-80522-** TD-80526-** TD-80528-** TD-80521-**	
REPEAT CYCLE * (OFF Time First Followed By ON Time and Repeating) L	120V AC/DC 12V DC 24V AC/DC 240V AC	TD-83122-** TD-83126-** TD-83128-** TD-83121-**	8 PIN OCTAL DIAGRAM 1
REPEAT CYCLE * (ON Time First Followed By OFF Time and Repeating) M	120V AC/DC 12V DC 24V AC/DC 240V AC	TD-85122-** TD-85126-** TD-85128-** TD-85121-**	
OFF DELAY Control Switch Trigger C	120V AC/DC 12V DC 24V AC/DC 240V AC	TD-81622-** TD-81626-** TD-81628-** TD-81621-**	11 PIN OCTAL 70170-D
SINGLE SHOT Control Switch Trigger D	120V AC/DC 12V DC 24V AC/DC 240V AC	TD-81522-** TD-81526-** TD-81528-** TD-81521-**	DIAGRAM 2

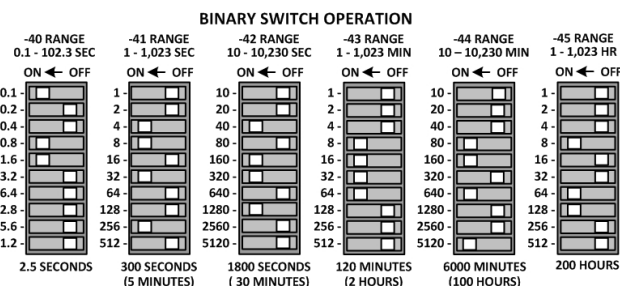
■ See "Definitions of Timing Functions".

* ON & OFF Time Ranges for these functions are the same. See www.macromatic.com/onoff for information on how to order a unit with different ON & OFF time ranges.

TIME DELAYS

****TIMING RANGE TABLE**
COMPLETE PRODUCT NUMBER
USING TWO DIGIT CODE BELOW:
i.e., TD-80222-40

Time Delay Range	Code
0.1 - 102.3 Sec.	40
1 - 1,023 Sec.	41
10 - 10,230 Sec.	42
1 - 1,023 Min.	43
10 - 10,230 Min.	44
1 - 1,023 Hr.	45



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