INSTALLATION INSTRUCTIONS
TD-7 SERIES DIGITAL-SETTIME DELAY RELAY

December 2020 Rev E **901-0000-110**

Warning
Potentially hazardous voltages are present. Turn off all power supplying this equipment before connecting or disconnecting wiring.

READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.

Installation: Mount the appropriate 8 or 11 pin octal socket in a suitable enclosure. Wire the socket per the wiring diagram on the side of the time delay relay. Make sure to match the terminal numbers on the socket to the ones shown on the wiring diagram (the wiring diagram on the relay is the view looking towards the bottom of the relay vs. the top of the socket). Use #12-20 solid or stranded copper or copper-clad aluminum wires with Macromatic sockets and a terminal tightening torque of 7 in-lbs. Plug the time delay relay into the socket, making sure the key on the center post is in the proper orientation before insertion. If the relay must be removed from the socket, do NOT rock the relay back & forth excessively—the center post could be damaged.

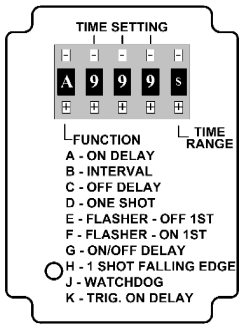


Figure 1- Multi-Function (TD-781)

The following step applies only to the TD-781 Series Multi-Function unit (Figure 1):

Setting Function: Operate the left-most push-button to select one of the ten functions (A-K). The letter designating the selected function is displayed in the function display window. See Page 2 for the description of the function operation. **NOTE: Function cannot be changed with power applied to unit.**

The remaining steps apply to all TD-7 Series units (Figure 1 & Figure 2):

Setting Time Delay and Time Range: Operate the right-most push-button to set the unit of time. Seven time units (0.01S, 0.1S, S, 0.1M, M, 0.1H and H) are selectable. **NOTE:** Three time units are included twice: 0.01S, 0.1S & S. The selected time unit is displayed in the time unit display window. The desired time delay is specified by setting the three Time Setting push-buttons within a range of 001 to 999 for each time unit. **NOTE:** A minimum time delay of 50ms is recommended.

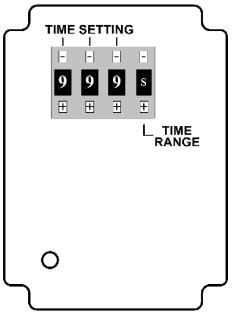


Figure 2- Single Function (All Others)

NOTE: For products:

- That use a 5-6 Trigger to initiate the unit, this Trigger must be a dry-type contact (applying voltage to the pins could damage the unit)
- With DC Input Voltages, make sure the polarity ("+" & "-") matches the wiring diagram (polarity does not matter with AC Input Voltage)
- 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.

LED Indicator: Refer to the table below to determine unit status:

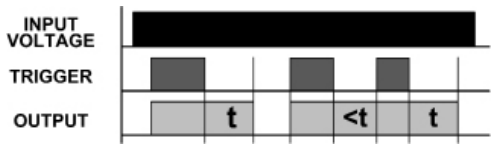
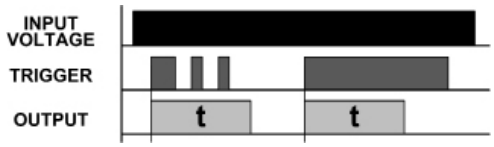
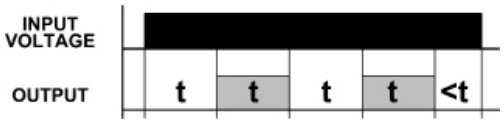
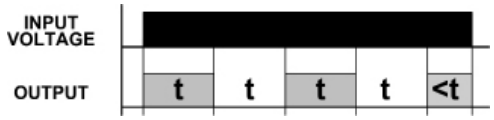
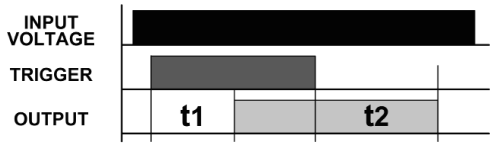
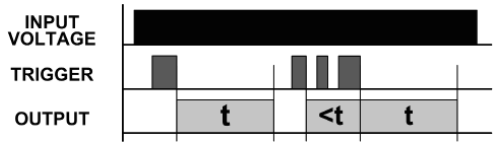
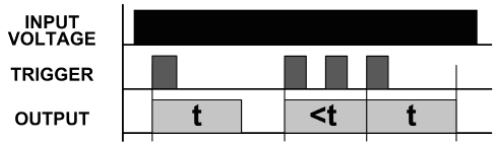
LED STATUS	A - ON DELAY	B - INTERVAL	C - OFF DELAY	D - ONE SHOT	E - FLASHER (OFF 1st)
Steady	Time Out: Relay ON	Time Out: Relay OFF	Input Voltage Applied; Time Out: Relay OFF	Input Voltage Applied; Time Out: Relay OFF	Timing OFF (1st): Relay OFF
Quick Flashing	Timing: Relay OFF	Timing: Relay ON	Trigger Open: Timing, Relay ON	Timing: Relay ON	Timing ON (2nd): Relay ON
Slow Flashing			Trigger Closed: Relay ON		
LED STATUS	**F - FLASHER (ON 1st)**	**G - ON/OFF DELAY**	**H - 1 SHOT FALLING EDGE**	**J - WATCHDOG**	**K - TRIGGERED ON DELAY**
Steady	Timing ON (1st): Relay ON	Input Voltage Applied; On Delay, Time Out: Relay ON Off Delay, Time Out: Relay OFF	Input Voltage Applied; Time Out: Relay OFF	Input Voltage Applied; Time Out: Relay OFF	Input Voltage Applied; Time Out: Relay ON
Quick Flashing	Timing OFF (2nd): Relay OFF	Trigger Open; Off Delay, Timing: Relay ON	Timing; Relay ON	Timing: Relay ON	Timing: Relay OFF
Slow Flashing		Triggered Closed; On Delay, Timing: Relay OFF			

Troubleshooting: If the unit fails to operate properly, check that all connections are correct per the appropriate wiring diagram on the product. Refer to the description of the function operation on the next page. If problems continue, contact Macromatic at 800-238-7474 or e-mail tech-support@macromatic.com for assistance.

Warranty: All Catalog-listed TD-7 Series Time Delay Relays manufactured by Macromatic are warranted to be free from defects in workmanship or material under normal service and use for a period of five (5) years from date of manufacture.

Macromatic Industrial Controls, Inc. • 2201 Corporate Drive • Waukesha, WI 53189
For product information and technical support go to www.macromatic.com/contact

Installation Instructions
TD-7 Series Digital-SetTime Delay Relay

Function	Operation	Timing Chart
On Delay **A**	Upon application of input voltage, the time delay (t) begins. At the end of the time delay (t), the output is energized. Input voltage must be removed to reset the time delay relay & de-energize the output.	
Interval On **B**	Upon application of input voltage, the output is energized and the time delay (t) begins. At the end of the time delay (t), the output is de-energized. Input voltage must be removed to reset the time delay relay.	
Off Delay 5-6 Trigger **C**	Upon application of input voltage, the time delay relay is ready to accept a trigger. When the trigger is applied, the output is energized. Upon removal of the trigger, the time delay (t) begins. At the end of the time delay (t), the output is de-energized. Any application of the trigger during the time delay will reset the time delay (t) and the output remains energized.	
One Shot (Single Shot) 5-6 Trigger **D**	Upon application of input voltage, the time delay relay is ready to accept a trigger. When the trigger is applied, the output is energized and the time delay (t) begins. During the time delay (t), the trigger is ignored. At the end of the time delay (t), the output is de-energized and the time delay relay is ready to accept another trigger.	
Flasher (OFF 1ST) **E**	Upon application of input voltage, the time delay (t) begins. At the end of the time delay (t), the output is energized and remains in that condition for the time delay (t). At the end of the time delay (t), the output is de-energized and the sequence repeats until input voltage is removed.	
Flasher (ON 1ST) **F**	Upon application of input voltage, the output is energized and the time delay (t) begins. At the end of the time delay (t), the output is de-energized and remains in that condition for the time delay (t). At the end of the time delay (t), the output is energized and the sequence repeats until input voltage is removed.	
On Delay/ Off Delay 5-6 Trigger **G** *	Upon application of input voltage, the time delay relay is ready to accept a trigger. When the trigger is applied, the time delay (t1) begins. At the end of the time delay (t1), the output is energized. When the trigger is removed, the output contacts remain energized for the time delay (t2). At the end of the time delay (t2), the output is de-energized & the time delay relay is ready to accept another trigger. If the trigger is removed during time delay period (t1), the output will remain de-energized and time delay (t1) will reset. If the trigger is reapplied during time delay period (t2), the output will remain energized and the time delay (t2) will reset.	 * For TD-7 catalog numbers, t1 & t2 are the same length of time.
Single Shot Falling Edge 5-6 Trigger **H**	Upon application of input voltage, the time delay relay is ready to accept a trigger. When the trigger is applied, the output remains de-energized. Upon removal of the trigger, the output is energized and the time delay (t) begins. At the end of the time delay (t), the output is de-energized unless the trigger is removed and re-applied prior to time out (before time delay (t) elapses). Continuous cycling of the trigger at a rate faster than the time delay (t) will cause the output to remain energized indefinitely.	
Watchdog 5-6 Trigger **J**	Upon application of input voltage, the time delay relay is ready to accept a trigger. When the trigger is applied, the output is energized and the time delay (t) begins. At the end of the time delay (t), the output is de-energized unless the trigger is removed and re-applied prior to time out (before time delay (t) elapses). Continuous cycling of the trigger at a rate faster than the time delay (t) will cause the output to remain energized indefinitely.	
On Delay Triggered 5-6 Trigger **K**	Upon application of input voltage, the time delay relay is ready to accept a trigger. When the trigger is applied, the time delay (t) begins. At the end of the time delay (t), the output is energized and remains in that condition as long as either the trigger is applied or the input voltage remains. If the trigger is removed during the time delay (t), the output remains de-energized & the time delay (t) is reset.