



# INSTALLATION INSTRUCTIONS

## TIME RANGER™ TR-6 PROGRAMMABLE PLUG-IN TIME DELAY RELAYS

July, 2008 REV F (Replaces REV E Dated April, 2005)

901-0000-100

### WIRING

Wire the socket per the wiring diagram on the side of the time delay relay. NOTE: For products that use a Control Switch to initiate the unit, this Control Switch is a dry-type contact (**applying voltage to the pins could damage the unit**). For products using a Power Trigger to initiate the unit, the Power Trigger is the application of voltage with a value equal to the Input Voltage with the same polarity. For DC Input Voltages, make sure the polarity matches the wiring diagram. If using solid state input devices with any product, problems with leakage current may occur. Contact Macromatic for additional information.

### TROUBLESHOOTING

If the unit fails to operate properly, check that all connections are correct per the wiring diagram on the product. For DC Input Voltages, make sure the polarity matches the wiring diagram. Use the descriptions of how each function operates below & on back of this sheet as a guide to determine if the unit is operating properly. If problems continue, contact Macromatic at 800-238-7474 for assistance. Or visit our website at [www.macromatic.com](http://www.macromatic.com) for more information.

### SETTING THE TIME DELAY

All TR-6 Series programmable products have one or two 16-position rotary switches for selecting one of the 16 built-in time ranges (except the TR-606 products, which have one 8-position rotary switch for selecting one of 8 built-in time ranges). First, determine the desired time range from the Timing Range Chart located on the top of the case (single knob units) or on the side of the case (dual knob units). Position the rotary switch to the letter that matches the desired time range. Those products with two rotary switches (dual knob units) can have different ON & OFF time ranges selected. **DO NOT CHANGE THE SETTING OF THESE SWITCHES WITH POWER APPLIED TO THE UNIT.** Finally, adjust the time delay within the programmed time range by rotating the large knob located on the top of the unit. Note: the tick marks are for reference only.

### WARRANTY

All products 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 the date of manufacture.

Function	Wiring	Product	Operation	Timing Chart
On Delay	Standard	TR-602	Upon application of input voltage, the preset time begins. At the end of the preset time, the relay contacts transfer. Input voltage must be removed and reapplied to reset the time delay relay.	
Interval On	Standard	TR-605	Upon application of input voltage, the relay contacts transfer and the preset time begins. At the end of the preset time, the contacts return to their normal condition. Input voltage must be removed and reapplied to reset the time delay relay.	
Single Shot	5-6 Trigger	TR-615	Upon application of input voltage, the time delay relay is ready to accept trigger signals. Upon application of the trigger signal, the relay contacts transfer and the preset time begins. During time-out, the trigger signal is ignored. The time delay relay is reset by applying the trigger signal when the relay is not energized.	
	Power Trigger	TR-617		
Off Delay	5-6 Trigger	TR-616	Upon application of input voltage, the time delay relay is ready to accept trigger signals. Upon application of the trigger signal, the relay contacts transfer and hold. Upon release of the trigger signal, the preset time begins. At the end of the preset time, the relay contacts return to their normal condition. Any application of the trigger signal will reset the time.	
	Power Trigger	TR-619		
Watchdog	5-6 Trigger	TR-613	Upon application of input voltage, the time delay relay is ready to accept trigger signals. Upon application of the trigger signal, the relay contacts transfer and the preset time begins. At the end of the preset time, the relay contacts return to their normal condition unless the trigger signal is opened and closed prior to time out (before preset time elapses). Continuous cycling of the trigger signal at a rate faster than the preset time will cause the relay contacts to remain closed.	
	Power Trigger	TR-618		

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<b>Repeat Cycle Off/On Delay</b>	Standard	TR-631	Upon application of input voltage, a preset delay begins. At the end of the preset delay, the relay contacts transfer and remain in that condition for a second, independently adjustable preset time. At the end of this time, the relay contacts drop out and the sequence repeats until input voltage is removed.	<p>INPUT POWER (VOLTAGE) ON OFF</p> <p>OUTPUT (LOAD) ON OFF</p> <p>Reset</p> <p>ACTION CONTINUES UNTIL POWER IS REMOVED</p>
<b>Repeat Cycle On/Off Delay</b>	Standard	TR-651	Upon application of input voltage, the relay contacts transfer and a preset delay begins. At the end of the preset delay, the relay contacts drop out and remain in that condition for a second, independently adjustable preset time. At the end of this time, the relay contacts pull in and the sequence repeats until input voltage is removed.	<p>INPUT POWER (VOLTAGE) ON OFF</p> <p>OUTPUT (LOAD) ON OFF</p> <p>Reset</p> <p>ACTION CONTINUES UNTIL POWER IS REMOVED</p>
<b>Delayed Interval</b>	Standard	TR-661	Upon application of input voltage, a preset delay begins. At the end of the preset delay, the relay contacts transfer and remain in that condition for a second, independently adjustable preset time. At the end of this time, the contacts drop out and the sequence stops. Input voltage must be removed and reapplied to reset the time delay relay.	<p>INPUT POWER (VOLTAGE) ON OFF</p> <p>OUTPUT (LOAD) ON OFF</p> <p>Reset</p> <p>NO FURTHER ACTION UNTIL POWER IS REMOVED AND RE-APPLIED</p>
<b>Delayed Interval</b>	5-6 Trigger	TR-665	Upon application of input voltage, the time delay relay is ready to accept trigger signals. Upon application of the trigger signal, a preset delay begins (OFF). At the end of the preset delay, the relay contacts transfer and remain in that condition for a second, independently adjustable preset time (ON). At the end of the second preset time, the relay contacts return to their normal condition.	<p>INPUT POWER (VOLTAGE) ON OFF</p> <p>TRIGGER SIGNAL CLOSED OPEN</p> <p>OUTPUT (LOAD) ON OFF</p> <p>Reset</p>
<b>Flasher</b>	Standard	TR-608	Upon application of the input voltage, the preset time (T1) begins. At the end of the preset time, the relay contacts transfer and remain in that condition for the preset time (T1). At the end of this time, the relay contacts drop out and the sequence repeats until input voltage is removed.	<p>INPUT POWER (VOLTAGE) ON OFF</p> <p>OUTPUT (LOAD) ON OFF</p> <p>Reset</p> <p>T1 T1 T1 T1</p> <p>ACTION CONTINUES UNTIL POWER IS REMOVED</p>
<b>True Off Delay</b>	Standard	TR-606	Upon application of input voltage, the relay is energized. When the input voltage is removed, the preset time begins. At the end of the preset time, the relay is de-energized. <b>Voltage must be applied for a minimum of 0.5 seconds to assure proper operation.</b> Any application of the input voltage during the preset time will keep the relay energized & reset the time delay. No external trigger switch is required.	<p>INPUT POWER (VOLTAGE) ON OFF</p> <p>OUTPUT (LOAD) ON OFF</p> <p>Reset</p> <p>← DELAY →</p>

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