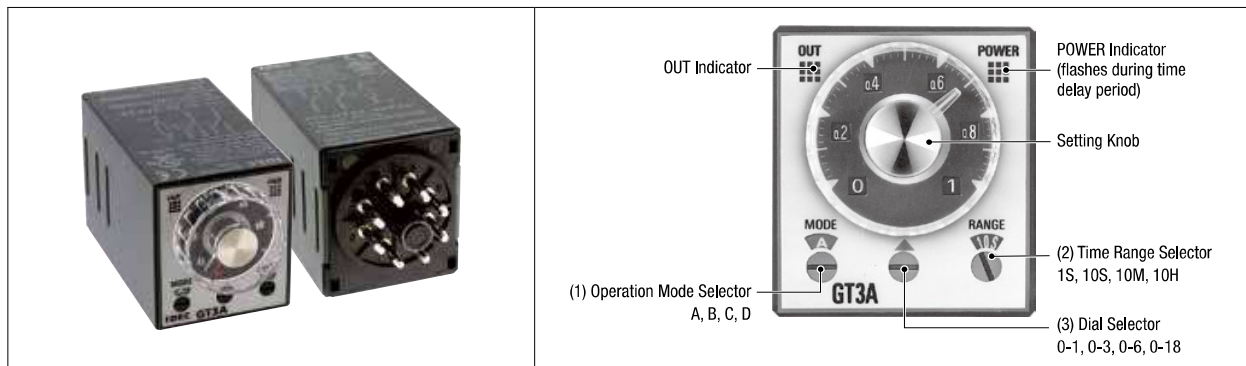


GT3A-1, -2, -3 (8-Pin)

Four Selectable Operation Modes in One Timer: ON Delay, Interval ON, Cycle, Cycle ON



(1) Operation Mode	Rated Voltage	Time Ranges	Output	Contact	Part No.
A: ON Delay B: Interval ON C: Cycle OFF D: Cycle ON	100 to 240V AC	0.1 sec to 180 hours See Time Ranges for details.	240V AC, 3A 120V AC/30V DC, 5A (resistive load)	Delayed SPDT	GT3A-1AF20
	100 to 240V AC			Delayed SPDT + Instantaneous SPDT	GT3A-2AF20
	24V AC/24V DC		240V AC/24V DC, 5A (resistive load)	Delayed DPDT	GT3A-3AF20
	100 to 240V AC			Delayed DPDT	GT3A-3AD24

Time Ranges

(2) Range	(3) Dial	0 - 1	0 - 3	0 - 6	0 - 18
	1S	0.1 sec to 1 sec	0.1 sec to 3 sec	0.1 sec to 6 sec	0.2 sec to 18 sec
10S	0.1 sec to 10 sec	0.3 sec to 30 sec	0.6 sec to 60 sec	1.8 sec to 180 sec	
10M	6 sec to 10 min	18 sec to 30 min	36 sec to 60 min	108 sec to 180 min	
10H	6 min to 10 hours	18 min to 30 hours	36 min to 60 hours	108 min to 180 hours	

Contact Ratings

Model	GT3A-1, GT3A-2	GT3A-3
Rated Load	240V AC, 3A (resistive load) 120V AC/30V DC, 5A (resistive load)	240V AC/24V DC, 5A (resistive load)
Maximum Switching Power	AC: 960VA DC: 120W	AC: 1200VA DC: 120W
Maximum Switching Voltage	250V AC/150V DC	
Maximum Switching Current	5A	
Maximum Switching Frequency	600 operations/hour	600 operations/hour
Minimum Applicable Load	5V DC, 10 mA (reference value)	
External Protection Element	Fuse 250V, 5A	
Life	Electrical	100,000 operations minimum (rated load)
	Mechanical	20,000,000 operations minimum

General Specifications

Model	GT3A-1	GT3A-2	GT3A-3		
Operation System	Solid-state CMOS circuitry				
Operation	Multi-Mode				
Time Range	0.1 sec to 180 hours				
Pollution Degree	2 (IEC60664-1)				
Overvoltage Category	III (IEC60664-1)				
Rated Voltage	AF20	100 to 240V AC (50/60Hz)			
	AD24	24V AC (50/60Hz)/24V DC			
Voltage Range	AF20	85 to 264V AC (50/60Hz)			
	AD24	20.4 to 26.4V AC (50/60Hz)/21.6 to 26.4V DC			
Reset Voltage	Rated voltage × 10% minimum				
Operating Temperature	-10 to +50°C (no freezing)				
Storage Temperature	-30 to +70°C (no freezing)				
Operating Humidity	35 to 85% RH (no condensation)				
Storage Humidity	35 to 85% RH (no condensation)				
Altitude	0 to 2000m (operation), 0 to 3000m (transportation)				
Reset Time	60 ms maximum				
Repeat Error	±0.2%, ±10 ms maximum (Note)				
Voltage Error	±0.2%, ±10 ms maximum (Note)				
Temperature Error	±0.2%, ±10 ms maximum (Note)				
Setting Error	±10% maximum				
Insulation Resistance	100 MΩ minimum (500V DC megger)				
Dielectric Strength	Between power and output terminals: 2000V AC, 1 minute				
	Between contacts of different poles: 2000V AC, 1 minute				
	Between contacts of the same pole: 750V AC, 1 minute (GT3A-1, 2) 1000V AC, 1 minute (GT3A-3)				
Vibration Resistance	GT3A-1/-2/-3: Damage limits: 10 to 55 Hz, amplitude 0.75mm, 2 hours each in 3 directions				
	GT3A-1/-2: Operating extremes: 10 to 55 Hz, amplitude 0.75mm, 2 hours each in 3 directions				
	GT3A-3: Operating extremes: 10 to 55 Hz, amplitude 0.41mm, 2 hours each in 3 directions				
Shock Resistance	Operating extremes: 98 m/s <sup>2</sup> , Damage limits: 490 m/s <sup>2</sup> , 3 shocks each in 6 directions				
Degree of Protection	IP40 (timer), IP20 (socket) (IEC60529)				
Power Consumption (approx.)	AF20	100V AC/60Hz	2.9VA	2.5VA	2.2VA
		200V AC/60Hz	4.7VA	4.3VA	4.0VA
	AD24 (AC/DC)	1.3VA/0.5W	2.0VA/0.8W	1.8VA/0.7W	
Dimensions	40H × 36W × 72.2D mm				
Weight (approx.)	63g		73g	79g	

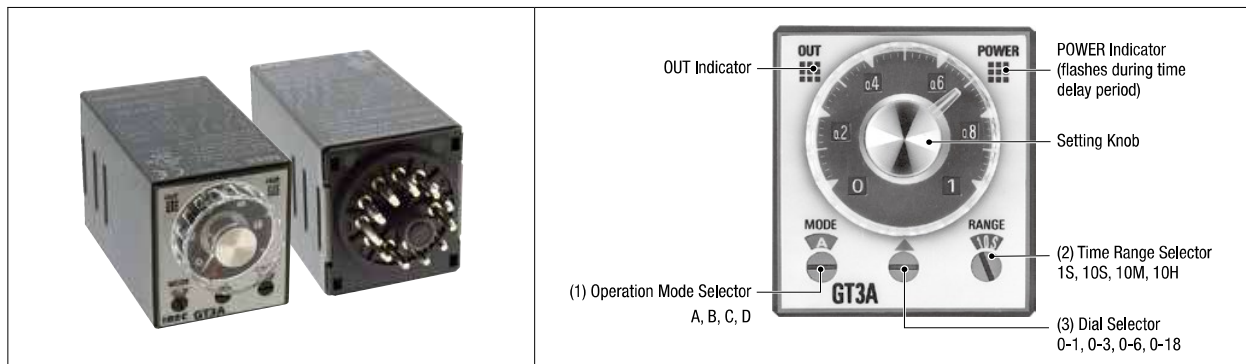
Note: The largest value becomes the error against a preset value depending on the time range.

Operation Chart

		Operation Chart									
Part No.		GT3A-1 <input type="checkbox"/>			GT3A-2 <input type="checkbox"/>			GT3A-3 <input type="checkbox"/>			
Contact		Delayed SPDT			Delayed SPDT + Instantaneous SPDT			Delayed DPDT			
Internal Connection											
Operation Mode Selection											
<b>On Delay</b> <b>MODE A</b>  Set timer for desired delay, apply power to coil. Contacts transfer after preset time has elapsed, and remain in transferred position until timer is reset. Reset occurs with removal of power.	Item	Terminal No.	Operation								
	Power	2-7									
	Delayed Contact	5-8 (NC) 6-8 (NO)									
	Indicator	POWER OUT									
<b>Interval ON</b> <b>MODE B</b>  Set timer for desired delay, apply power to coil. Contacts transfer immediately, and return to original position after preset time has elapsed. Reset occurs with removal of power.	Item	Terminal No.	Operation								
	Power	2-7									
	Delayed Contact	5-8 (NC) 6-8 (NO)									
	Indicator	POWER OUT									
<b>Cycle OFF (OFF start)</b> <b>MODE C</b>  Set timer for desired delay, apply power to coil. First transfer of contacts occurs after preset delay has elapsed, after the next elapse of preset delay contacts return to original position. The timer now cycles between on and off as long as power is applied. The ratio is 1:1. Time Off = Time On	Item	Terminal No.	Operation								
	Power	2-7									
	Delayed Contact	5-8 (NC) 6-8 (NO)									
	Indicator	POWER OUT									
<b>Cycle ON (ON start)</b> <b>MODE D</b>  Functions in same manner as Mode C, with the exception that first transfer of contacts occurs as soon as power is applied. The ratio is 1:1. Time Off = Time On	Item	Terminal No.	Operation								
	Power	2-7									
	Delayed Contact	5-8 (NC) 6-8 (NO)									
	Indicator	POWER OUT									

GT3A-4, -5, -6 (11-Pin)

Four Selectable Operation Modes with Start, Gate, and Reset Inputs for External Control



(1) Operation Mode	Rated Voltage Code	Time Ranges	Output	Contact	Input	Part No.
A: ON Delay C: Signal ON Delay	100 to 240V AC 24V AC/24V DC	0.1 sec to 180 hours See Time Ranges for details	240V AC, 5A 24V DC, 5A (resistive load)	Delayed DPDT	Start Reset Gate	GT3A-4AF20
A: Interval ON C: Signal ON/OFF Delay	100 to 240V AC 24V AC/24V DC					GT3A-4AD24
A: One-Shot C: One-Shot	100 to 240V AC 24V AC/24V DC					GT3A-5AF20
B: Cycle OFF D: Signal OFF Delay	100 to 240V AC 24V AC/24V DC					GT3A-5AD24
B: One-Shot Cycle, D: Signal OFF Delay	100 to 240V AC 24V AC/24V DC					GT3A-6AF20
B: One-Shot ON Delay D: Signal ON/OFF Delay	100 to 240V AC 24V AC/24V DC					GT3A-6AD24

Time Ranges

(2) Range \ (3) Dial	0 - 1	0 - 3	0 - 6	0 - 18
1S	0.1 sec to 1 sec	0.1 sec to 3 sec	0.1 sec to 6 sec	0.2 sec to 18 sec
10S	0.1 sec to 10 sec	0.3 sec to 30 sec	0.6 sec to 60 sec	1.8 sec to 180 sec
10M	6 sec to 10 min	18 sec to 30 min	36 sec to 60 min	108 sec to 180 min
10H	6 min to 10 hours	18 min to 30 hours	36 min to 60 hours	108 min to 180 hours

Contact Ratings

Rated Load	240V AC/24V DC, 5A (resistive load)	
Maximum Switching Power	AC: 1200VA DC: 120W	
Maximum Switching Voltage	250V AC/150V DC	
Maximum Switching Current	5A	
Maximum Switching Frequency	600 operations/hour	
Minimum Applicable Load	5V DC, 10 mA (reference value)	
External Protection Element	Fuse 250V, 5A	
Life	Electrical	100,000 operations minimum (rated load)
	Mechanical	20,000,000 operations minimum

Input Specifications

Start Input	The start input initiates delayed operation and controls output status.	No-voltage contact inputs and NPN open collector transistor inputs are applicable. 24V DC, 1 mA maximum Input response time: 50 ms maximum
Reset Input	When the reset input goes on (L level), the timer is reset to the original time (time at power-on).	
Gate Input	The time delay operation is suspended while the gate input is on (L level).	

General Specifications

Operation System	Solid-state CMOS circuitry	
Operation	Multi-mode with inputs (11 pins)	
Time Range	0.1 sec to 180 hours	
Pollution Degree	2 (IEC60664-1)	
Overvoltage Category	III (IEC60664-1)	
Rated Voltage	AF20	100 to 240V AC (50/60Hz)
	AD24	24V AC (50/60Hz)/24V DC
Voltage Range	AF20	85 to 264V AC (50/60Hz)
	AD24	20.4 to 26.4V AC (50/60Hz)/21.6 to 26.4V DC
Reset Voltage	Rated voltage × 10% minimum	
Operating Temperature	-10 to +50°C (no freezing)	
Storage Temperature	-30 to +70°C (no freezing)	
Operating Humidity	35 to 85% RH (no condensation)	
Storage Humidity	35 to 85% RH (no condensation)	
Altitude	0 to 2000m (operation) 0 to 3000m (transportation)	
Reset Time	60 ms maximum	
Repeat Error	±0.2%, ±10 ms (Note)	
Voltage Error	±0.2%, ±10 ms (Note)	
Temperature Error	±0.2%, ±10 ms (Note)	
Setting Error	±10% maximum	
Insulation Resistance	100MΩ minimum (500V DC megger)	
Dielectric Strength	Between power and output terminals: 2000V AC, 1 minute	
	Between contacts of different poles: 2000V AC, 1 minute	
	Between contacts of the same pole: 1000V AC, 1 minute	
Vibration Resistance	Damage Limits: 10 to 55 Hz, amplitude 0.75 mm, 2 hours each in 3 directions Operating extremes: 10 to 55 Hz, amplitude 0.41mm, 2 hour each in 3 directions	
Shock Resistance	Operating extremes: 98 m/s <sup>2</sup> Damage limits: 490 m/s <sup>2</sup> 3 shocks each in 6 directions	
Degree of Protection	IP40 (timer), IP20 (socket) (IEC60529)	
Power Consumption (Approx.)	AF20	2.2VA (100V AC/60Hz), 4.1VA (200V AC/60Hz)
	AD24	1.8VA (AC)/0.7W (DC)
Dimensions	40H × 36W × 72.2D mm	
Weight (approx.)	80g	

Note: The largest value becomes the error against a preset value depending on the time range.

### Operation Chart

GT3A-4

Note: While the gate input is on during time delay operation, the POWER indicator flashing slows down.

Contact		Operation Chart	
Internal Connection		Delayed DPDT	
Operation Mode Selection			
		<p>Note: T = Set time  <math>T_a</math> = Shorter than set time  <math>T = T' + T''</math></p>	
On Delay	<p><b>MODE A</b></p> <p>Power is applied to timer at all times. Set time for desired delay. When start input is supplied time delay starts, contacts transfer after preset time has elapsed. Contacts remain in transferred position until timer is reset.</p>	Item	Terminal No.
		Operation	
Cycle	<p><b>MODE B</b></p> <p>Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts transfer after preset time has elapsed and remain in transferred position until preset time elapses a second time. The timer will now continue to cycle in above manner until reset applied.</p>	Item	Terminal No.
		Operation	
Signal ON/OFF Delay	<p><b>MODE C</b></p> <p>For this mode a maintained pushbutton is required for start input. Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts will transfer immediately. After preset time (with start input still present) contacts will transfer back to original position. Remove start signal, at this time contacts will again transfer. Contacts will transfer to original position after preset time. Timer is reset by initiation of reset input.</p>	Item	Terminal No.
		Operation	
Signal OFF Delay	<p><b>MODE D</b></p> <p>Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts immediately transfer. When start input is removed time delay starts. After preset time contacts transfer back to original position. Timer is reset by initiation of reset input.</p>	Item	Terminal No.
		Operation	

GT3A-5

Contact		Operation Chart																								
Internal Connection		Delayed DPDT																								
Operation Mode Selection																										
		<p>Note: T = Set time                      Ta = Shorter than set time                      T = T' + T''</p>																								
Interval ON	<p><b>MODE</b></p> <p>Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts immediately transfer. After preset delay contacts return to original position. Timer is reset by initiation of reset input.</p>	<table border="1"> <thead> <tr> <th>Item</th> <th>Terminal No.</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>Power</td> <td>2-10</td> <td>[Continuous high signal]</td> </tr> <tr> <td rowspan="3">Input</td> <td>Start</td> <td>6-2 ON or L</td> </tr> <tr> <td>Reset</td> <td>7-2 ON or L</td> </tr> <tr> <td>Gate</td> <td>5-2 ON or L</td> </tr> <tr> <td>Delayed Contact</td> <td>4-1 (NC) 8-11 (NO)</td> <td>[Pulsed signals]</td> </tr> <tr> <td rowspan="2">Indicator</td> <td>POWER</td> <td>[Pulsed signals]</td> </tr> <tr> <td>OUT</td> <td>[Pulsed signals]</td> </tr> <tr> <td>Set Time</td> <td></td> <td>T, Ta, T', T''</td> </tr> </tbody> </table>	Item	Terminal No.	Operation	Power	2-10	[Continuous high signal]	Input	Start	6-2 ON or L	Reset	7-2 ON or L	Gate	5-2 ON or L	Delayed Contact	4-1 (NC) 8-11 (NO)	[Pulsed signals]	Indicator	POWER	[Pulsed signals]	OUT	[Pulsed signals]	Set Time		T, Ta, T', T''
Item	Terminal No.	Operation																								
Power	2-10	[Continuous high signal]																								
Input	Start	6-2 ON or L																								
	Reset	7-2 ON or L																								
	Gate	5-2 ON or L																								
Delayed Contact	4-1 (NC) 8-11 (NO)	[Pulsed signals]																								
Indicator	POWER	[Pulsed signals]																								
	OUT	[Pulsed signals]																								
Set Time		T, Ta, T', T''																								
One-Shot Cycle	<p><b>MODE</b></p> <p>Power is applied to timer at all times. Set timer for desired delay, initiate start input. After preset time has elapsed contacts will transfer. Contacts will transfer to their original position after preset time elapses a second time. Timer is reset by initiation of reset input.</p>	<table border="1"> <thead> <tr> <th>Item</th> <th>Terminal No.</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>Power</td> <td>2-10</td> <td>[Continuous high signal]</td> </tr> <tr> <td rowspan="3">Input</td> <td>Start</td> <td>6-2 ON or L</td> </tr> <tr> <td>Reset</td> <td>7-2 ON or L</td> </tr> <tr> <td>Gate</td> <td>5-2 ON or L</td> </tr> <tr> <td>Delayed Contact</td> <td>4-1 (NC) 8-11 (NO)</td> <td>[Pulsed signals]</td> </tr> <tr> <td rowspan="2">Indicator</td> <td>POWER</td> <td>[Pulsed signals]</td> </tr> <tr> <td>OUT</td> <td>[Pulsed signals]</td> </tr> <tr> <td>Set Time</td> <td></td> <td>T, T, T, Ta, T', T'', T</td> </tr> </tbody> </table>	Item	Terminal No.	Operation	Power	2-10	[Continuous high signal]	Input	Start	6-2 ON or L	Reset	7-2 ON or L	Gate	5-2 ON or L	Delayed Contact	4-1 (NC) 8-11 (NO)	[Pulsed signals]	Indicator	POWER	[Pulsed signals]	OUT	[Pulsed signals]	Set Time		T, T, T, Ta, T', T'', T
Item	Terminal No.	Operation																								
Power	2-10	[Continuous high signal]																								
Input	Start	6-2 ON or L																								
	Reset	7-2 ON or L																								
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	OUT	[Pulsed signals]																								
Set Time		T, T, T, Ta, T', T'', T																								
Signal ON/OFF Delay	<p><b>MODE</b></p> <p>For this mode a maintained pushbutton is required for start input. Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts will transfer immediately. After preset time (with start input still present) contacts will transfer back to original position. Remove start signal, at this time contacts will again transfer. Contacts will transfer to original position after preset time. Timer is reset by initiation of reset input.</p>	<table border="1"> <thead> <tr> <th>Item</th> <th>Terminal No.</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>Power</td> <td>2-10</td> <td>[Continuous high signal]</td> </tr> <tr> <td rowspan="3">Input</td> <td>Start</td> <td>6-2 ON or L</td> </tr> <tr> <td>Reset</td> <td>7-2 ON or L</td> </tr> <tr> <td>Gate</td> <td>5-2 ON or L</td> </tr> <tr> <td>Delayed Contact</td> <td>4-1 (NC) 8-11 (NO)</td> <td>[Pulsed signals]</td> </tr> <tr> <td rowspan="2">Indicator</td> <td>POWER</td> <td>[Pulsed signals]</td> </tr> <tr> <td>OUT</td> <td>[Pulsed signals]</td> </tr> <tr> <td>Set Time</td> <td></td> <td>T, T, Ta, T, Ta, Ta, T, T', T'', Ta</td> </tr> </tbody> </table>	Item	Terminal No.	Operation	Power	2-10	[Continuous high signal]	Input	Start	6-2 ON or L	Reset	7-2 ON or L	Gate	5-2 ON or L	Delayed Contact	4-1 (NC) 8-11 (NO)	[Pulsed signals]	Indicator	POWER	[Pulsed signals]	OUT	[Pulsed signals]	Set Time		T, T, Ta, T, Ta, Ta, T, T', T'', Ta
Item	Terminal No.	Operation																								
Power	2-10	[Continuous high signal]																								
Input	Start	6-2 ON or L																								
	Reset	7-2 ON or L																								
	Gate	5-2 ON or L																								
Delayed Contact	4-1 (NC) 8-11 (NO)	[Pulsed signals]																								
Indicator	POWER	[Pulsed signals]																								
	OUT	[Pulsed signals]																								
Set Time		T, T, Ta, T, Ta, Ta, T, T', T'', Ta																								
Signal OFF Delay	<p><b>MODE</b></p> <p>Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts immediately transfer. When start input is removed time delay starts. After preset time contacts transfer back to original position. Timer is reset by initiation of reset input.</p>	<table border="1"> <thead> <tr> <th>Item</th> <th>Terminal No.</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>Power</td> <td>2-10</td> <td>[Continuous high signal]</td> </tr> <tr> <td rowspan="3">Input</td> <td>Start</td> <td>6-2 ON or L</td> </tr> <tr> <td>Reset</td> <td>7-2 ON or L</td> </tr> <tr> <td>Gate</td> <td>5-2 ON or L</td> </tr> <tr> <td>Delayed Contact</td> <td>4-1 (NC) 8-11 (NO)</td> <td>[Pulsed signals]</td> </tr> <tr> <td rowspan="2">Indicator</td> <td>POWER</td> <td>[Pulsed signals]</td> </tr> <tr> <td>OUT</td> <td>[Pulsed signals]</td> </tr> <tr> <td>Set Time</td> <td></td> <td>T, Ta, Ta, T, T', T''</td> </tr> </tbody> </table>	Item	Terminal No.	Operation	Power	2-10	[Continuous high signal]	Input	Start	6-2 ON or L	Reset	7-2 ON or L	Gate	5-2 ON or L	Delayed Contact	4-1 (NC) 8-11 (NO)	[Pulsed signals]	Indicator	POWER	[Pulsed signals]	OUT	[Pulsed signals]	Set Time		T, Ta, Ta, T, T', T''
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Indicator	POWER	[Pulsed signals]																								
	OUT	[Pulsed signals]																								
Set Time		T, Ta, Ta, T, T', T''																								

GT3A-6

Contact		Operation Chart	
Internal Connection		Delayed DPDT	
Operation Mode Selection			
		<p>Note: T = Set time                      Ta = Shorter than set time                      T = T' + T''</p>	
One Shot	<p><b>MODE</b></p>	<p>Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts immediately transfer. After preset time has elapsed contacts transfer back to original position. Reset occurs with initiation of reset input.</p>	
One Shot ON Delay	<p><b>MODE</b></p>	<p>Set timer for desired delay. When power is applied preset time begins and contacts transfer after preset time (no start input needed at this time). Start input is now supplied, this causes the contacts to transfer back to original position. Contacts will remain in this position for preset time, after which they will transfer again. Contacts will now remain in this position until: reset, start input is applied again or power is removed.</p>	
One Shot	<p><b>MODE</b></p>	<p>Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts immediately transfer. After preset time has elapsed contacts transfer back to original position. Reset occurs with initiation of reset input.</p>	
Signal ON/OFF Delay	<p><b>MODE</b></p>	<p>For this mode a maintained pushbutton is required for start input. Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts will transfer immediately. After preset time (with start input still present) contacts will transfer back to original position. Remove start signal, at this time contacts will again transfer. Contacts will transfer to original position after preset time. Timer is reset by initiation of reset input.</p>	