

## GT5Y Series — ON Delay Timers



Key features of the GT5Y series include:

- 4PDT, 3A or DPDT, 5A contacts
- 4 time ranges
- Repeat error  $\pm 0.2\%$  maximum
- Control settings by hand or screwdriver
- Power ON and timing out LED indicators
- Uses the same sockets and hold-down clips as RY4S and RM2S relays



UL Recognized  
File No. E55996



CSA Certified  
File No. LR58183



Cert. No. E9950913332314

		GT5Y-2	GT5Y-4	
Specifications	Rated Operating Voltage	100 to 120V AC (50/60Hz) 200 to 240V AC (50/60Hz) 24V DC 24V AC 12V DC		
	Contact Form	DPDT	4PDT	
	Rated Load	Resistive Load	220V AC, 5A 30V DC, 5A	220V AC, 3A 30V DC, 3A
		Inductive Load	220V AC, 2A 30V DC, 2.5A	220V AC, 0.8A 30V DC, 1.5A
	Allowable Contact Power	Resistive Load	1100VA AC 150W DC	660VA AC 90W DC
		Inductive Load Cos $\phi$ = 0.3 L/r = 7msec	440VA AC 75W DC	176VA AC 45W DC
	Allowable Voltage	250V AC, 125V DC		
	Allowable Current	5A	3A	
	Temperature Error	$\pm 3\%$ maximum (over $-10$ to $50\text{C}$ , reference temperature $20\text{C}$ )		
	Setting Error	$\pm 10\%$ maximum		
	Reset Time	When turning power off <u>after</u> time up: 0.1 second maximum When turning power off <u>before</u> time up: 1 second maximum		
	Insulation Resistance	100M $\Omega$ minimum		
	Dielectric Strength	2,000V AC, 1 minute (except between contacts of the same pole)		
	Vibration Resistance	100N (approximate 10G)		
	Shock Resistance	Operating extremes: 100N (approximate 10G) Damage limits: 500N (approximate 50G)		
	Power Consumption	100V AC type: 1.5VA (at 50Hz) 200V AC type: 1.6VA (at 50Hz) 24V DC type: 0.9W		
Electrical Life	500,000 operations minimum (220V AC, 5A)	200,000 operations minimum (110V AC, 3A)		
Mechanical Life	50,000,000 operations minimum	50,000,000 operations minimum		
Operating Temperature	$-10$ to $+50\text{C}$			
Operating Humidity	45 to 85% RH			

## GT5Y Table of Contents

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1. Minimum applicable load: GT5Y-2: 5V DC, 20mA (reference value); GT5Y-4: 5V DC, 10mA (reference value).

2. Inductive load:  $\cos\phi = 0.3$ , L/R = 7msec.

Part Numbering List

Mode of Operation	Contact	Output	Time Range	Rated Voltage	Complete Part No.
ON-Delay	DPDT	220V AC/ 30V DC, 5A	1S/10S/1M/10M	100 to 120V AC	GT5Y-2SN1A100
			3S/30S/3M/30M		GT5Y-2SN3A100
			6S/60S/6M/60M		GT5Y-2SN6A100
			1S/10S/1M/10M	200 to 240V AC	GT5Y-2SN1A200
			3S/30S/3M/30M		GT5Y-2SN3A200
			6S/60S/6M/60M		GT5Y-2SN6A200
			1S/10S/1M/10M	12V DC	GT5Y-2SN1D12
			3S/30S/3M/30M		GT5Y-2SN3D12
			6S/60S/6M/60M		GT5Y-2SN6D12
			1S/10S/1M/10M	24V DC	GT5Y-2SN1D24
			3S/30S/3M/30M		GT5Y-2SN3D24
			6S/60S/6M/60M		GT5Y-2SN6D24
	1S/10S/1M/10M	24V AC	GT5Y-2SN1A24		
	3S/30S/3M/30M		GT5Y-2SN3A24		
	6S/60S/6M/60M		GT5Y-2SN6A24		
	4PDT	220V AC/ 30V DC, 3A	100 to 120V AC	1S/10S/1M/10M	GT5Y-4SN1A100
				3S/30S/3M/30M	GT5Y-4SN3A100
				6S/60S/6M/60M	GT5Y-4SN6A100
			1S/10S/1M/10M	200 to 240V AC	GT5Y-4SN1A200
			3S/30S/3M/30M		GT5Y-4SN3A200
			6S/60S/6M/60M		GT5Y-4SN6A200
			1S/10S/1M/10M	12V DC	GT5Y-4SN1D12
			3S/30S/3M/30M		GT5Y-4SN3D12
			6S/60S/6M/60M		GT5Y-4SN6D12
1S/10S/1M/10M			24V DC	GT5Y-4SN1D24	
3S/30S/3M/30M				GT5Y-4SN3D24	
6S/60S/6M/60M				GT5Y-4SN6D24	
1S/10S/1M/10M	24V AC	GT5Y-4SN1A24			
3S/30S/3M/30M		GT5Y-4SN3A24			
6S/60S/6M/60M		GT5Y-4SN6A24			



1. Other voltages are available; please contact us for details.  
 2. Sockets and accessories are available!

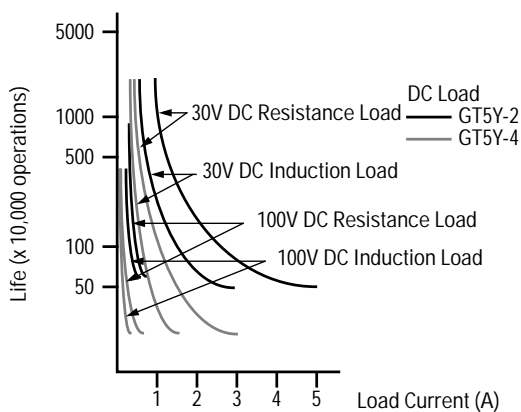
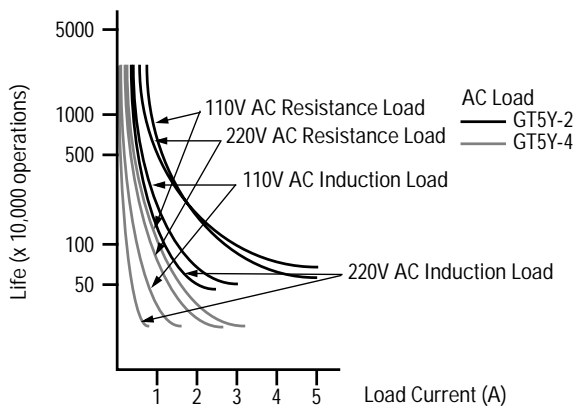
Timing Ranges

Code	Scale	Time Range Indication	Time Range
1S	0 to 10	x 0.1 S	0.1 second to 1 second
10S		x 1 S	0.2 second to 10 seconds
1M		x 0.1 M	1.2 seconds to 1 minute
10M		x 1 M	12 seconds to 10 minutes
3S	0 to 3	x 1 S	0.1 second to 3 seconds
30S		x 10 S	0.5 second to 30 seconds
3M		x 1 M	3 seconds to 3 minutes
30M		x 10 M	30 seconds to 30 minutes
6S	0 to 6	x 1 S	0.1 second to 6 seconds
60S		x 10 S	1 second to 60 seconds
6M		x 1 M	6 seconds to 6 minutes
60M		x 10 M	1 minute to 60 minutes

Timing Diagram/Schematics/Electrical Life Curves

	GT5Y-2	GT5Y-4																
<b>Internal Connections (bottom view)</b>																		
<b>Operation Mode: ON-Delay</b>	<table border="1"> <thead> <tr> <th>Item</th> <th>Terminal No.</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>Power (Power)</td> <td>13-14</td> <td> </td> </tr> <tr> <td rowspan="2">Delayed Contact</td> <td>(NC) 1-9, 2-10, 3-11, 4-12</td> <td> </td> </tr> <tr> <td>(NO) 5-9, 6-10, 7-11, 8-12</td> <td> </td> </tr> <tr> <td rowspan="2">Indicator</td> <td>POWER</td> <td> </td> </tr> <tr> <td>OUT</td> <td> </td> </tr> </tbody> </table>		Item	Terminal No.	Operation	Power (Power)	13-14		Delayed Contact	(NC) 1-9, 2-10, 3-11, 4-12		(NO) 5-9, 6-10, 7-11, 8-12		Indicator	POWER		OUT	
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Electrical Life Curves



**Accessories**

**DIN Rail Mounting Accessories**

**Part Numbers: DIN Rail/Surface Mount Sockets and Hold-Down Springs**

DIN Rail Mount Socket			Applicable Hold-Down Springs	
Style	Appearance	Part No.	Appearance	Part No.
14-Blade Screw Terminal		SY4S-05		SFA-202
14-Blade Screw Terminal (ngersafe)		SY4S-05C		
DIN Mounting Rail Length 1000mm		BNDN1000		




**Panel Mounting Accessories**

**Part Numbers: Panel Mount Socket and Hold-Down Springs**

Panel Mount Socket			Applicable Hold-Down Springs	
Style	Appearance	Part No.	Appearance	Part No.
14-Blade Solder Terminal		SY4S-51		SFA-202

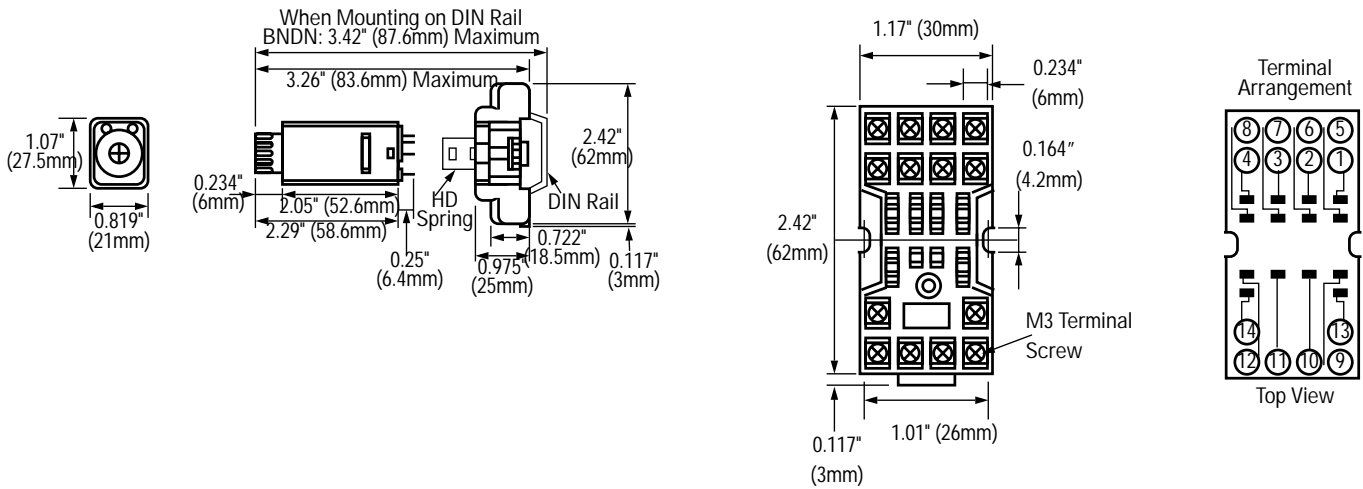
**PCB Mounting Accessories**

**Part Numbers: PCB Mount Sockets with Applicable Hold-Down Springs**

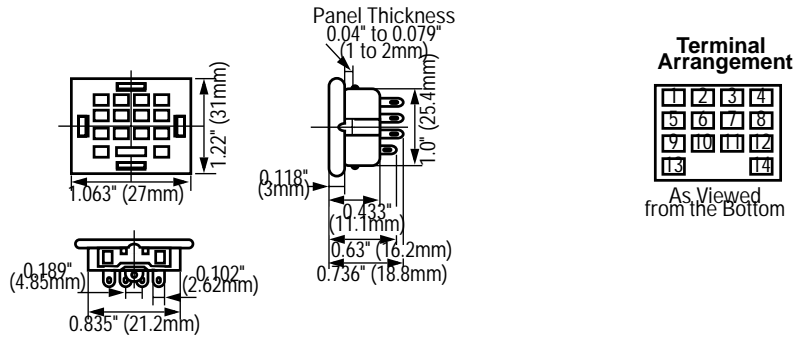
PCB Mount Socket			Applicable Hold-Down Springs	
Style	Appearance	Part No.	Appearance	Part No.
Blade, Solder Terminal		SY4S-61		SFA-302
Blade, Solder Terminal		SY4S-62		

Dimensions

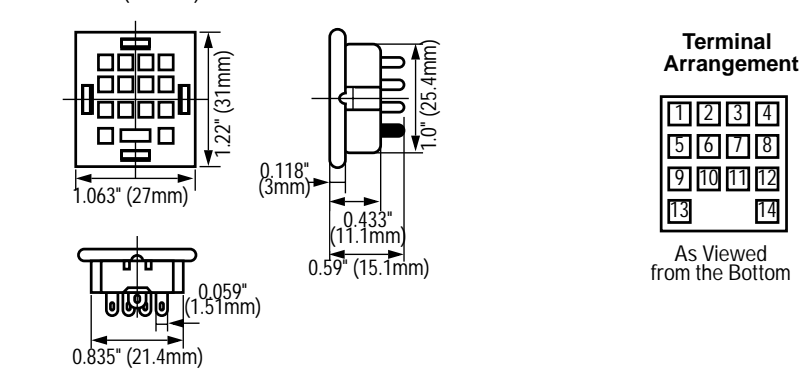
GT5Y Timer, Blade with SY4S-05



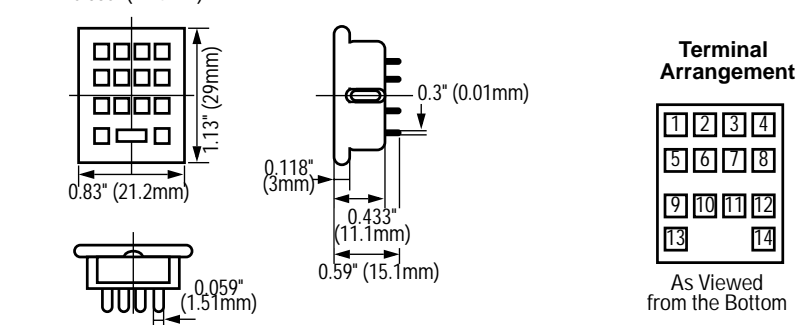
SY4S-51



SY4S-61



SY4S-62



## General Instructions for All Timer Series

### Load Current

With inductive, capacitive, and incandescent lamp loads, inrush current more than 10 times the rated current may cause welded contacts and other undesired effects. The inrush current and steady-state current must be taken into consideration when specifying a timer.

### Contact Protection

Switching an inductive load generates a counter-electromotive force (back EMF) in the coil. The back EMF will cause arcing, which may shorten the contact life and cause imperfect contact. Application of a protection circuit is recommended to safeguard the contacts.

### Continuous Energizing

Continuous energizing for a long period of time may damage the timer's electrical characteristics because of internal heating. Use an additional relay to the output circuit and refrain from continuous energizing of the timer.

### Temperature and Humidity

Use the timer within the operating temperature and operating humidity ranges and prevent freezing or condensation. After the timer has been stored below its operating temperature, leave the timer at room temperature for a sufficient period of time to allow it to return to operating temperatures before use.

### Environment

Avoid contact between the timer and sulfurous or ammonia gases, organic solvents (alcohol, benzine, thinner, etc.), strong alkaline substances, or strong acids. Do not use the timer in an environment where such substances are prevalent. Do not allow water to run or splash on the timer.

### Vibration and Shock

Excessive vibration or shocks can cause the output contacts to bounce, the timer should be used only within the operating extremes for vibration and shock resistance. In applications with significant vibration or shock, use of hold down springs or clips is recommended to secure a timer to its socket.

### Time Setting

The time range is calibrated at its maximum time scale; so it is desirable to use the timer at a setting as close to its maximum time scale as possible. For a more accurate time delay, adjust the control knob by measuring the operating time with a watch before application.

### Input Contacts

Use mechanical contact switch or relay to supply power to the timer. When driving the timer with a solid-state output device (such as a two-wire proximity switch, photoelectric switch, or solid-state relay), malfunction may be caused by leakage current from the solid-state device. Since AC types comprise a capacitive load, the SSR dielectric strength should be two or more times the power voltage when switching the timer power using an SSR.

Generally, it is desirable to use mechanical contacts whenever possible to apply power to a timer or its signal inputs. When using solid state devices, be cautious of inrushes and back-EMF that may exceed the ratings on such devices. Some timers are specially designed so that signal inputs switch at a lower voltage than is used to power the timer (models designated as "B" type).

## Timing Accuracy Formulas

Timing accuracies are calculated from the following formulas:

### Repeat Error

$$= \pm \frac{1}{2} \times \frac{\text{Maximum Measured Value} - \text{Minimum Measured Value}}{\text{Maximum Scale Value}} \times 100\%$$

### Voltage Error

$$= \pm \frac{T_v - T_r}{T_r} \times 100\%$$

$T_v$ : Average of measured values at voltage V

$T_r$ : Average of measured values at the rated voltage

### Temperature Error

$$= \pm \frac{T_t - T_{20}}{T_{20}} \times 100\%$$

$T_t$ : Average of measured values at tC

$T_{20}$ : Average of measured values at 20C

### Setting Error

$$= \pm \frac{\text{Average of Measured Values} - \text{Set Value}}{\text{Maximum Scale Value}} \times 100\%$$



*The maximum scale value of the GT3P equals the preset time for one cycle.*