GT5P Miniature Electronic Timers

Economic Efficiency Focused Delayed Output SPDT/5A

- Three operation modes: ON Delay, Cycle, and One Shot
- Repeat error: ±0.2% ±10 ms maximum
- Complies with safety standards
  UL recognized, CSA certified, TÜV approved, EN compliant

Applicable Standards	Mark	File No. or Organization
UL508		UL/c-UL recognized File No. E55996
CSA C22.2 No.14		CSA File No. LR66809
EN61812-1	CE	EU Low Voltage Directive

Package Quantity: 1

Operation Mode	Con-tact	Output	Time Range	Operating Voltage	Part No. (Ordering No.)
ON Delay	SPDT	24V DC/ 120V AC, 5A 240V AC, 3A	3S	100 to 120V AC	GT5P-N3SA100
			10S		GT5P-N10SA100
			30S		GT5P-N30SA100
			60S		GT5P-N60SA100
			3M		GT5P-N3MA100
			6M		GT5P-N6MA100
			10M		GT5P-N10MA100
			1S	200 to 240V AC	GT5P-N1SA200
			6S		GT5P-N6SA200
			10S		GT5P-N10SA200
			30S		GT5P-N30SA200
			60S		GT5P-N60SA200
			3M		GT5P-N3MA200
			6M		GT5P-N6MA200
			10M		GT5P-N10MA200
			1S	24V AC/DC	GT5P-N1SAD24
			6S		GT5P-N6SAD24
			10S		GT5P-N10SAD24
			60S		GT5P-N60SAD24
			6M		GT5P-N6MAD24
			10M		GT5P-N10MAD24
			10S	12V DC	GT5P-N10SD12
			30S		GT5P-N30SD12
			60S		GT5P-N60SD12
			10M		GT5P-N10MD12
Cycle	SPDT	24V DC/ 120V AC, 5A 240V AC, 3A	3S	100 to 120V AC	GT5P-F3SA100
			10S		GT5P-F10SA100
			3S	200 to 240V AC	GT5P-F3SA200
			10S		GT5P-F10SA200
			3S	24V AC/DC	GT5P-F3SAD24
			10S		GT5P-F10SAD24
			3S	12V DC	GT5P-F3SD12
			10S		GT5P-F10SD12
One Shot	SPDT	24V DC/ 120V AC, 5A 240V AC, 3A	3S	100 to 120V AC	GT5P-P3SA100
			3S	200 to 240V AC	GT5P-P3SA200
			10S		GT5P-P10SA200
			3S	24V AC/DC	GT5P-P3SAD24
			10S		GT5P-P10SAD24

Note: S and M of time range indicate second and minute respectively.

Time Ranges

Code	Time Range
1S	0.1 sec to 1 sec
3S	0.1 sec to 3 sec
6S	0.1 sec to 6 sec
10S	0.2 sec to 10 sec
30S	0.5 sec to 30 sec
60S	1 sec to 60 sec
3M	3 sec to 3 min
6M	6 sec to 6 min
10M	10 sec to 10 min

Contact Ratings

Contact Configuration		SPDT
Maximum Switching Voltage		250V AC, 150V DC
Maximum Switching Current		5A
Maximum Switching Power		AC: 960VA DC: 120W
Rated Load	Resistive Load	120V AC / 24V DC, 5A 240V AC, 3A
	Inductive Load cosø = 0.3 - 0.4 L/R = 15 ms	240V AC, 0.8A 120V AC, 1.4A 24V DC, 1.7A
Life	Electrical	100,000 operations minimum (rated resistive load)
	Mechanical	20,000,000 operations minimum

Minimum Applicable Load: 5V DC 10 mA (reference value)

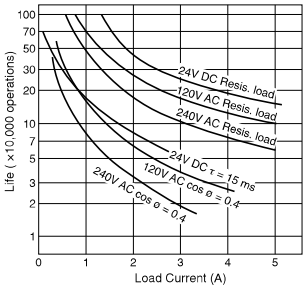
Accessories

Item		Part No.	Ordering No.	Package Quantity	Remarks
DIN Rail Mount Socket	Socket	SR2P-06A	SR2P-06A	1	
		SR2P-05A	SR2P-05A	1	
		SR2P-05C	SR2P-05C	1	UL/CSA/TÜV
	Hold-Down Spring	SFA-202	SFA-202PN20	10 sets (20 pcs)	For SR2P-06A (2 pcs/set)
		SFA-203	SFA-203PN20	10 sets (20 pcs)	For SR2P-05A (2 pcs/set)
Panel Mount Socket	w/Solder Terminals	SR2P-511	SR2P-511	1	UL/CSA
	w/Wire Wrap Terminals	SR2P-70	SR2P-70	1	

General Specifications

Model		GT5P-N	GT5P-F	GT5P-P
Operation		ON Delay	Cycle	One Shot
Pollution Degree		2 (IEC60664-1)		
Rated Operational Voltage	A200	200 to 240V AC (50/60Hz)		
	A100	100 to 120V AC (50/60Hz)		
	AD24	24V AC (50Hz/60Hz)/24V DC		
	D12	12V DC		
Voltage Range	A200	170 to 264V AC (50/60Hz)		
	A100	85 to 132V AC (50/60Hz)		
	AD24	20.4 to 26.4V AC (50/60Hz)/21.6 to 26.4V DC		
	D12	10.8 to 13.2V DC		
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		30 to 85% RH (no condensation)		
Altitude		0 to 2000m (operation) 0 to 3000m (transportation)		
Reset Time		100 ms maximum		
Repeat Error		±0.2%, ±10 ms		
Voltage Error		±0.5%, ±20 ms		
Temperature Error		±3%		
Setting Error		±10%		
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		
Vibration Resistance		10 to 55Hz, amplitude 0.75 mm, 2 hours each in 3 directions		
Shock Resistance		Operating extremes: 98 m/s², Damage limits: 490 m/s²		
Power Consumption (approx.)	A200	3.9 VA (60Hz)		5.6 VA (60Hz)
	A100	2.3 VA (60Hz)		2.9 VA (60Hz)
	AD24	1.3 VA (60Hz)/0.5W		1.2 VA (60Hz)/0.5W
	D12	0.6W		0.6W
Dimensions		36H × 29W × 81.5D mm		
Weight (approx.)		49g		

Electrical Life Curves

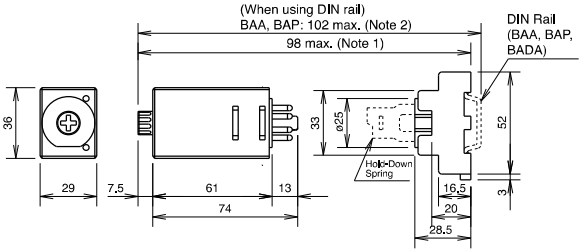


Dimensions

(When using DIN Rail Mount Socket)

SR2P-05A

For SR2P-05C, see Relay Sockets catalog.

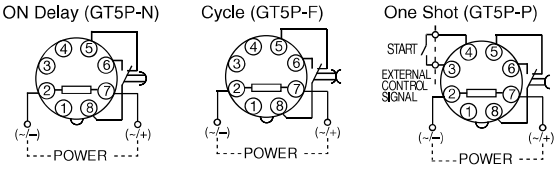


Note 1: SR2P-05C: 99.5 max.
Note 2: SR2P-05C: 103.5 max.

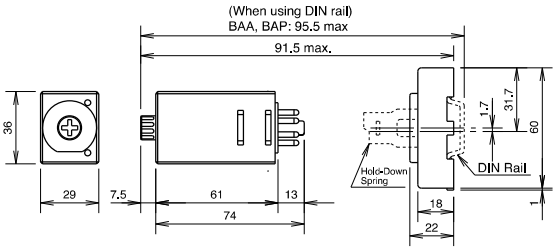
Operation Charts and Internal Connections

Operation Mode	Item	Operation
On Delay	Terminal No. 2-7 (POWER)	Set Time
	5-8 (NC)	
	6-8 (NO)	
	POWER Indicator	
	OUT Indicator	
Cycle	Terminal No. 2-7 (POWER)	Set Time, T, T
	5-8 (NC)	
	6-8 (NO)	
	POWER Indicator	
	OUT Indicator	
One Shot	Terminal No. 13-14 (POWER)	
	3-4 (Start Input)	50ms minimum
	5-8 (NC)	
	6-8 (NO)	
	POWER Indicator	
	OUT Indicator	

(Internal Connections)



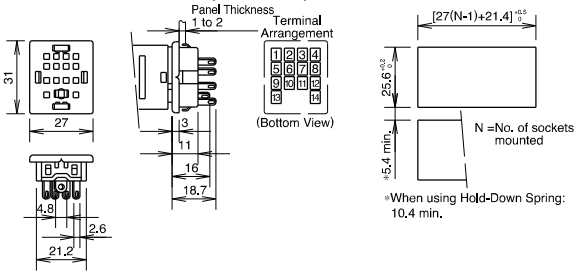
SR2P-06B



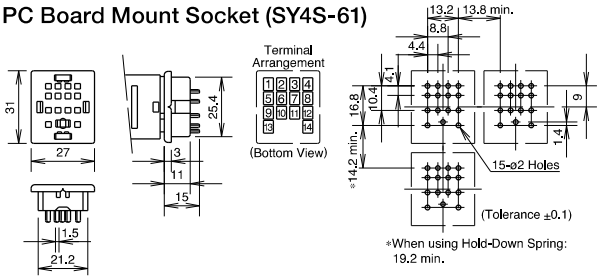
Dimensions / Mounting Hole Layout (for Panel/PC Board Mount Socket)

1. GT5Y-4

Panel Mount Socket (SY4S-51)

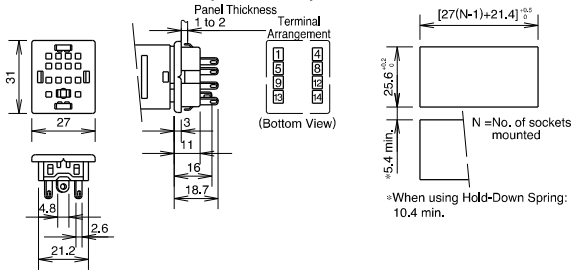


PC Board Mount Socket (SY4S-61)

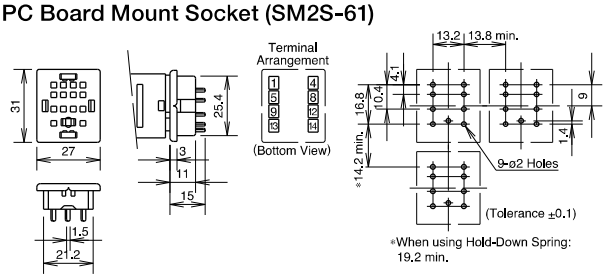


2. GT5Y-2

Panel Mount Socket (SM2S-51)

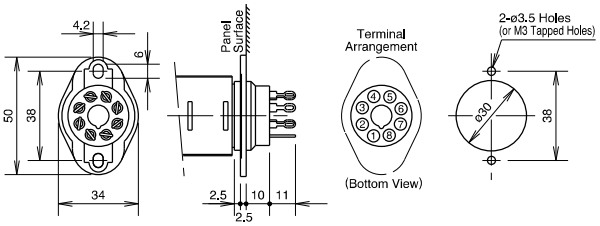


PC Board Mount Socket (SM2S-61)

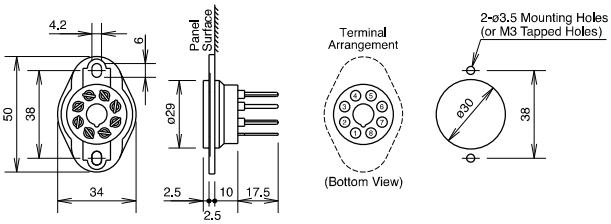


3. GT5P

Solder Terminal (SR2P-511)

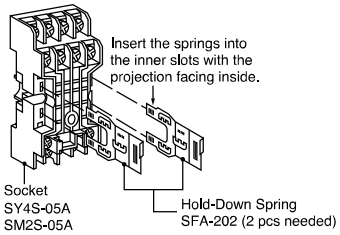


Wire Wrap Terminal (SR2P-70)



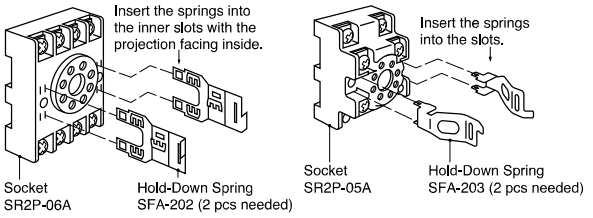
Installation of Hold-Down Springs

DIN Rail Mount Socket



Recommended Tightening Torque and Terminal Screw

Timer	Applicable Socket	Terminal Screw	Recommended Tightening Torque
GT5Y	SY4S-05 SM2S-05	M3	0.6 to 1.0 N·m



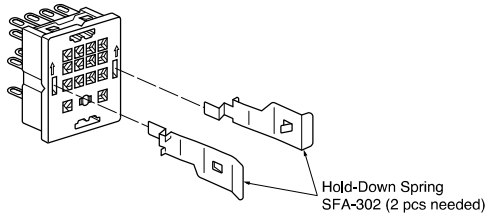
Note: Once installed into sockets, the hold-down springs cannot be removed.

Recommended Tightening Torque and Terminal Screw

Timer	Applicable Socket	Terminal Screw	Recommended Tightening Torque
GT5P	SR2P-05 SR2P-06	M3	1.0 to 1.3 N·m

Panel/PC Board Mount Socket

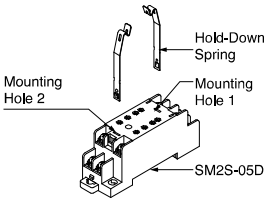
The SFA-302 Hold-Down Springs can be installed to the SY4S-51, SY4S-61, SM2S-51, and SM2S-61 sockets.

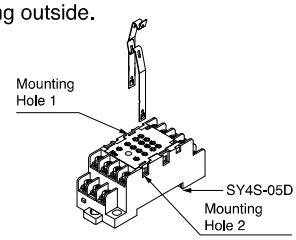


Hold-down springs cannot be installed to SR2P-511 and SR2P-70 panel mount sockets.

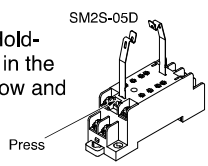
Installation/Removal of Hold-Down Springs

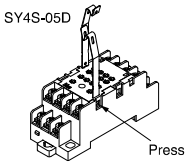
(Installation)
Insert the hold-down springs (SFA-511) into mounting holes 1 and 2 with the projection facing outside.





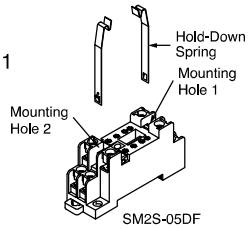
(Removal)
Press the projections of Hold-Down Springs (SFA-511) in the direction shown in the arrow and pull upward to remove.



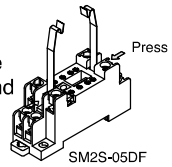


Installation/Removal of Hold-Down Springs

(Installation)
Insert the springs (SFA-511) into mounting holes 1 and 2 with the projection facing outside.



(Removal)
Press the projections of Hold-Down Springs (SFA-511) in the direction shown in the arrow and pull upward to remove.



Note: Apply the same method to SY4S-05DF.

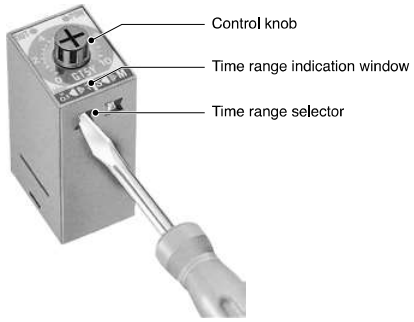
⚠ Safety Precautions

- Be sure to turn off power before mounting, removal, wiring, maintenance and inspection. Otherwise, electric shock or fire could occur.
- Be sure to use timers within rated specification values. Otherwise, electric shock or fire may occur.
- Be sure to use wires to meet voltage and current requirements and tighten M3.5 terminal screws to a tightening torque of 1.0 to 1.3 N·m. Be sure to solder the terminals correctly. Loose terminal screws or incomplete soldering may cause abnormal heat and fire.

Instructions

Time Range Setting

The time range is calibrated at its maximum time scale, therefore it is desirable to use the timer at a setting as close to its maximum time scale as possible for accurate time delay. For a more accurate time delay, adjust the control knob by measuring the operating time with a watch before application.
On the GT5Y timers, a desired time range can be selected using the time range selectors on the side surface. Turn the multiplier and time unit selectors using a flat screwdriver until they click.



Timing Accuracy

Timing accuracies are calculated from the following formulas:

Repeat Error

$$= \pm \frac{1}{2} \times \frac{\text{Max. measured value} - \text{Min. measured value}}{\text{Maximum scale value}} \times 100\ (\%)$$

Voltage Error

$$= \pm \frac{Tv - Tr}{Tr} \times 100\ (\%)$$

Tv: Average of measured values at voltage V
Tr: Average of measured values at the raged voltage

Temperature Error

$$= \pm \frac{Tt - T_{20}}{T_{20}} \times 100\ (\%)$$

Tt: Average of measured values at t°C
T_{20}: Average of measured values at 20°C

Setting Error

$$= \frac{\text{Average of measured values} - \text{Set value}}{\text{Maximum scale value}} \times 100\ (\%)$$

Use of External Input (GT5P-P Only)

1. Do not apply voltage to external input terminals 3 and 4. Be sure not to connect external inputs to other terminals because the internal circuit may be damaged.
2. Use reliable mechanical contacts capable of switching approximately 22V DC, 1 mA to close input terminals 3 and 4. (Closed: 1 kΩ maximum, Open: 100 kΩ minimum) The input terminals should not be connected to a ground wire of other devices.
3. Do not install input lines in parallel with high-voltage or motor lines. Use shielded wires or separate conduit for input lines, and make the input lines as short as possible.

Load Current

The rated current of the contact (or control output) should not be exceeded. Especially for inductive, capacitive, and incandescent lamp loads, the inrush current as large as a few to several tens times the rated current may cause welded contacts and other troubles. The amount of inrush current as well as steady-state current must be taken into consideration.

Contact Protection

Switching an inductive load generates a counter-electromotive force in the coil. The counter emf will cause arcing, which may shorten the contact life. Application of a protection circuit is recommended for contact protection.

Rest Time

When turning power off after time-out, allow a rest time of 0.1 sec, and during operation, 1 sec at least.

Power

Since DC types are designed to operate on DC power containing 10% or less ripple, insert a smoothing circuit when using a rectified AC power to operate DC type timers.

Continuous Energizing

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

Dielectric Strength Test

When performing an insulation resistance or dielectric strength test on control panels containing timers, make sure that the dielectric strength of the timer is not exceeded. In case the dielectric strength is exceeded, remove the timers from the panels.

Operating Environment

Temperature and Humidity
Use the timer within the operating temperature and operating humidity ranges and prevent freezing and condensation. After storing below the operation temperature, leave the timer at room temperature for a sufficient period of time before use.

Environment
Prevent a corrosive gas such as sulfurous or ammonia gas, organic solvents (alcohol, benzine, thinner, etc.), strong alkaline substances or strong acids from touching to the timer, and do not use the timer in such an environment. Keep the timer from water splashes or steam.

Vibration and Shock
Since excessive vibrations or shocks cause the output contacts to open, the timer should be used within the operating extremes of vibration and shock resistance. Use of hold-down springs is recommended for secure mounting on sockets.

Others

- Use a mechanical-contact switch or relay to supply power to the time.
- When driving the timer using a solid-state output device such as two-wire proximity switch, photoelectric switch or solid-state relay directly, malfunction may be caused by a leakage current from the solid-state device. Be sure to check thoroughly before using.
- Since AC types (such as A100 and A200) comprise a capacitive load, the SSR dielectric strength should be two or more times as large as the power voltage when switching the timer power using an SSR.
- To make a sequence circuit by connecting timer and relay, check the timer operation sufficiently in consideration of the reset time of the timer.