IDEC Timers



GT5P Series — ON Delay Timers

Key features of the GT5P series include:

- SPDT, 5A contacts
- 8-pin, octal base
- 9 time ranges
- Repeat error ±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 IDEC's RR2P 8-pin relays



UL Recognized File No. E55996



CSA Certified File No. LR66809



Rated Operating Voltage		100 to 120V AC (50/60Hz) 200 to 240V AC (50/60Hz) 24V AC/DC 12V DC	
Voltage Tolerance		AC type: ±15% DC type: ±10% (ripple 10% maximum)	
	Resistive load	120V AC/24V DC, 5A 240V AC, 3A	
Contact Rating	Inductive load	240V AC, 0.8A 120V AC, 1.4A 24V DC, 1.7A	
Allowable Contact Power	(resistive load)	960VA AC 120W DC	
Contact Form		SPDT	
Voltage		250V AC, 150V DC	
Repeat Error		±0.2% ±10msec	
Voltage Error		±0.5% ±10msec	
Temperature Error		±3% maximum (over –10 to 50°C, reference temperature 20°C)	
Setting Error		±10% maximum	
Reset Time		When turning power off <u>after</u> time up: 0.1 sec maximum When turning power off <u>before</u> time up: 1 sec maximum	
Insulation Resistance		100MΩ minimum	
Dielectric Strength		2000V 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		100,000 operations minimum (at rated load)	
Mechanical Life		20,000,000 operations minimum	
Operating Temperature		-10 to +50°C	
Operating Humidity		45 to 85% RH	

GT5P Table of Contents

Specifications — G-58 Part Numbering List — G-59 Timing Diagrams / Schematics — G-60 GT5P Accessories — G-61 GT5P Dimensions — G-62 Timing Diagrams Overview — G-4

1. Inductive load (reference), $\cos\theta = .3$ to .4 or L/R=15msec.

2. Minimum applicable load: 5VDC/10mA (reference).



Part Numbering List

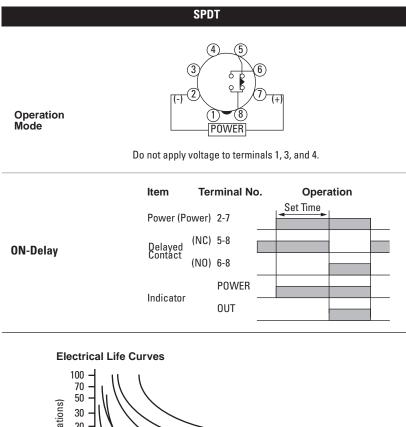
ON-Delay SPDT 24V DC/ 120V AC 1S	Mode of Operation	Contact	Output	Rated Voltage	Time Range	Complete Part No.			
0N-Delay SPDT 24V DC/ 12UV AC, 5A 24V AC/DC 6S					1S				
0N-Delay SPDT 24V DC/ 5A 100 to 120 V AC, 5A 100 to 120 V AC, 5A 100 to 120 V AC, 5A 105 GT5P-N10SA100 0N-Delay SPDT 24V AC, 5A 15 GT5P-N10SA200 100 107 GT5P-N10SA200 105 GT5P-N10SA200 100 GT5P-N10SA200 105 GT5P-N10SA200 105 GT5P-N10SA200 100 GT5P-N10SA200 105 GT5P-N10SA200 105 GT5P-N10SA200 100 GT5P-N10SA200 106 GT5P-N10SA200 106 GT5P-N10MA200 100 GT5P-N10MA200 106 GT5P-N10MA200 106 GT5P-N10MA200 240 V AC, 3A 105 GT5P-N10SA202 105 GT5P-N10MA202 240 V AC/CD 105 GT5P-N10SA024 105 GT5P-N10SA024 240 V AC/DE 105 GT5P-N10MAD24 105 GT5P-N10MAD24 240 V AC/DE 105 GT5P-N10MAD24 105 GT5P-N10MAD24 101 GT5P-N10MAD24 105 GT5P-N10MAD24 105 1015					3S	GT5P-N3SA100			
N-Delay SPDT 100 to 100					6S				
N-Delay SPDT 24V DC/ 240V AC, 3A					10S	GT5P-N10SA100			
0N-Delay SPDT 24V DC/ 24V AC/CC 60S 615P-N10SA100 6M 615P-N10MA100 6M 615P-N10MA100 715P-N10MA100 715P-N10SA200 30S 615P-N10SA200 30S 615P-N10SA200 30S 615P-N10SA200 30S 615P-N30SA200 60S 615P-N10SA200 30S 615P-N10SA200 30S 615P-N10SA200 74 74V DC/ 72V AC, 240V AC, 74 74V DC/ 74V AC, 74V DC/ 74V AC, 74V DC/ 74V AC, 74V DC/ 74V AC, 74V AC, 755-N10SA024 755-N10SA024 74V AC, 74V AC, 755-N10SA024 74V AC, 74V AC, 74V AC, 755-N10SA024 74V AC, 74V AC, 755-N10SA024 74V AC, 74V AC, 755-N10SA024 74V AC, 74V AC, 755-N10SA024 74V AC, 74V AC, 755-N10SA024 74V AC, 74V				100 to 120V AC	30S	GT5P-N30SA100			
N-Delay SPDT					60S	GT5P-N60SA100			
N-Delay SPDT					3M	GT5P-N3MA100			
N-Delay SPDT 24V DC/ 200 to 240V AC, 3A 1S GT5P-N1SA200 3U GT5P-N30SA200 30S GT5P-N30SA200 60S GT5P-N30SA200 60S GT5P-N30SA200 60S GT5P-N30SA200 60S GT5P-N30SA200 60S GT5P-N30SA200 60S GT5P-N30SA200 60S GT5P-N10MA200 60S GT5P-N10MA200 10M GT5P-N10SA024 3S 30S GT5P-N10SA024 3S 6S GT5P-N10SA024 30S 6S GT5P-N10SA024 30S					6M	GT5P-N6MA100			
N-Delay SPDT 24V DC/ 120V AC, 5A 24V DC/ 240V AC, 5A 24V DC/ 240V AC, 240V AC, 30S GT5P-N6SA200 GOS GT5P-N6SA200 GOS GT5P-N6SA200 GOS 10M GT5P-N6MA200 GT5P-N10MA200 GT5P-N10MA200 240V AC, 3A 1S GT5P-N1SAD24 GT5P-N1SAD24 24V AC/DC 1S GT5P-N6SAD24 GT5P-N6SAD24 24V AC/DC 30S GS GT5P-N6SAD24 10M GT5P-N6SAD24 30S 6S GT5P-N6SAD24 30S 6S GT5P-N6MAD24 30S 6S GT5P-N6MAD24 30S 6S GT5P-N6MAD24 3M 10M GT5P-N10MD24 3M 10M GT5P-N10MD24 10M GT5P-N10MD24 10M GT5P-N10MD24 10S GT5P-N10SD12					10M	GT5P-N10MA100			
0N-Delay SPDT 24V DC/ 240V AC 200 to 240V AC 200 to 240V AC 30S GTSP-N10SA200 3M GTSP-N30SA200 60S GTSP-N60SA200 3M GTSP-N10MA200 6M GTSP-N10MA200 10M GTSP-N1SAD24 3S 240V AC, 3A 1S GTSP-N10SAD24 240V AC, 3A 1S GTSP-N10SAD24 24V AC/DC 30S 6S GTSP-N10SAD24 3M 6S GTSP-N10SAD24 3M 6M GTSP-N10SAD24 3M 6M GTSP-N10MAD24 3S 6S 3S 6S <td></td> <td></td> <td></td> <td></td> <td>1S</td> <td>GT5P-N1SA200</td>					1S	GT5P-N1SA200			
0N-Delay SPDT 24V DC/ 120V AC, 5A 24V DC/ 120V AC, 5A 24V DC/ 120V AC, 5A 10S GTSP-N00SA200 30S GTSP-N00SA200 30S GTSP-N00SA200 0N-Delay SPDT 24V DC/ 120V AC, 3A 1S GTSP-N00SA200 0M GTSP-N10MA200 1S GTSP-N10MA200 0M GTSP-N10SAD24 3S 3M GTSP-N10SAD24 3S 6S GTSP-N60SAD24 3M 3SS 6M GTSP-N10MAD24 1N GTSP-N10MAD24 1S -					3S				
ON-Delay SPDT 24V DC/ 24V AC, 5A 24V DC/ 24V AC, 5A 30S GT5P-N30SA200 0M GT5P-N60SA200 3M GT5P-N30MA200 6M GT5P-N10MA200 6M GT5P-N10MA200 10M GT5P-N10MA200 10M GT5P-N10MA200 24V AC, 3A 1S GT5P-N1SAD24 3S 6S GT5P-N6SAD24 10S GT5P-N10SAD24 30S 24V AC/DC 24V AC/DC 30S 60S GT5P-N60SAD24 00 00 GT5P-N60SAD24 00					6S	GT5P-N6SA200			
ON-Delay SPDT 24V DC/ 120V AC, 5A 24V AC/ 2120V AC, 5A 60S GT5P-N6MA200 240V AC, 3A 240V AC, 3A 10M GT5P-N10MA200 10M GT5P-N10MA200 10M GT5P-N10MA200 10M GT5P-N10MA200 10M GT5P-N10AD24 3S 6S GT5P-N60SAD24 10S GT5P-N10SAD24 30S 60S GT5P-N60SAD24 3M 6M GT5P-N10MAD24 3M 6M GT5P-N10MAD24 3M 6S GT5P-N10MAD24 10M GT5P-N10MAD24 10M GT5P-N10MAD24 10M GT5P-N10MAD24 10M GT5P-N10MAD24 10M GT5P-N10MAD24 10M GT5P-N10SD12					10S	GT5P-N10SA200			
ON-Delay SPDT 24V DC/ 120V AC, 5A 240V AC, 5A 60S GT5P-N60A200 240V AC, 3A 240V AC, 5A 10M GT5P-N10MA200 240V AC, 3A 1S GT5P-N10A204 240V AC, 3A 1S GT5P-N10SAD24 240V AC, 3A 1S GT5P-N10SAD24 24V AC/DC 30S 6S GT5P-N60SAD24 10M GT5P-N10SAD24 30S 60S GT5P-N60SAD24 30M 60S GT5P-N10SAD24 30S 60S GT5P-N10MAD24 30M 60M GT5P-N10MAD24 30M 6S 3S 3S 3S 3S 3S 6S 10S GT5P-N10SD12				200 to 240V AC	30S	GT5P-N30SA200			
ON-Delay SPDT 24V DC/ 120V AC, 5A 6M GT5P-N6MA200 240V AC, 3A 1S GT5P-N10MA200 240V AC, 3A 1S GT5P-N1SAD24 3S 6S GT5P-N6SAD24 10S GT5P-N6SAD24 30S 60S GT5P-N60SAD24 3M 6M GT5P-N6MAD24 3M 6M GT5P-N6MAD24 3M 6M GT5P-N6MAD24 3M 6S 3S 6S GT5P-N6MAD24 10M GT5P-N10MAD24 3S 3S 6S 3S 6S 6S 10S GT5P-N10SD12				2101 70	60S	GT5P-N60SA200			
ON-Delay SPDT 120V AC, 5A 10M GT5P-N10MA200 240V AC, 3A 1S GT5P-N1SAD24 3S 6S GT5P-N10SAD24 10S GT5P-N10SAD24 3M 60S GT5P-N60SAD24 3M 6M GT5P-N10MAD24 3M 6M GT5P-N10MAD24 10M GT5P-N10MAD24 10M GT5P-N10MAD24 10M GT5P-N10MAD24 10M GT5P-N10MAD24 10M GT5P-N10MAD24 10M GT5P-N10MAD24 10S GT5P-N10SD12					3M	GT5P-N3MA200			
ON-Delay SPDT 120V AC, 5A 10M GT5P-N10MA200 240V AC, 3A 240V AC, 3A 1S GT5P-N1SAD24 3S 6S GT5P-N10SAD24 10S GT5P-N10SAD24 30S 60S GT5P-N60SAD24 3M 60M GT5P-N60AD24 3M 60M GT5P-N10MAD24 3S 10M GT5P-N10MAD24 3M 6M GT5P-N10MAD24 3S 10M GT5P-N10MAD24 6S 6S 10M GT5P-N10MAD24 10S GT5P-N10MAD24 6S 6S 6S 6S </td <td></td> <td></td> <td>24V DC/</td> <td></td> <td>6M</td> <td>GT5P-N6MA200</td>			24V DC/		6M	GT5P-N6MA200			
Short 240V AC, 3A 1S GT5P-N1SAD24 3S 6S GT5P-N06SAD24 10S GT5P-N10SAD24 30S 60S GT5P-N60SAD24 30S 60S GT5P-N60SAD24 30S 60S GT5P-N60SAD24 30M 60M GT5P-N10MAD24 3M 10M GT5P-N10MAD24 3S 10S 6S 10S GT5P-N10MAD24 10S GT5P-N10SD12			120V AC,		10M	GT5P-N10MA200			
6S GT5P-N6SAD24 10S GT5P-N10SAD24 30S 60S GT5P-N60SAD24 3M 6M GT5P-N6MAD24 10M GT5P-N10MAD24 10M GT5P-N10MAD24 10M GT5P-N10MAD24 10S 6S 10S GT5P-N10MAD24 10S GT5P-N10SD12	ON-Delay	SPDT			1S	GT5P-N1SAD24			
10S GT5P-N10SAD24 24V AC/DC 30S — 60S GT5P-N60SAD24 3M — 6M GT5P-N6MAD24 10M GT5P-N10MAD24 10S — 6S — 6S — 10S GT5P-N10SD12			3A		3S				
24V AC/DC 30S — 60S GT5P-N60SAD24 3M — 6M GT5P-N6MAD24 10M GT5P-N10MAD24 1S — 6S — 6S — 10S GT5P-N10SD12					6S	GT5P-N6SAD24			
60S GT5P-N60SAD24 3M — 6M GT5P-N6MAD24 10M GT5P-N10MAD24 1S — 3S — 6S — 10S GT5P-N10SD12					10S	GT5P-N10SAD24			
3M 6M GT5P-N6MAD24 10M GT5P-N10MAD24 1S 3S 6S 10S GT5P-N10SD12				24V AC/DC	24V AC/DC 30S —				
3M 6M GT5P-N6MAD24 10M GT5P-N10MAD24 1S 3S 6S 10S GT5P-N10SD12					60S	GT5P-N60SAD24			
10M GT5P-N10MAD24 1S — 3S — 6S — 10S GT5P-N10SD12									3M
1S — 3S — 6S — 10S GT5P-N10SD12					6M	GT5P-N6MAD24			
3S — 6S — 10S GT5P-N10SD12					10M	GT5P-N10MAD24			
6S — 10S GT5P-N10SD12					1S				
10S GT5P-N10SD12					3S				
					6S				
12V DC 30S GT5P_N/30SD12					10S	GT5P-N10SD12			
				12V DC	30S	GT5P-N30SD12			
60S GT5P-N60SD12					60S	GT5P-N60SD12			
3M —					3M				
6M —					6M				
10M GT5P-N10MD12									

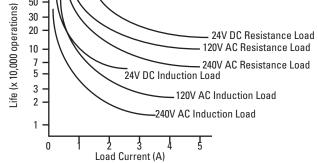


For sockets and accessories, see page G-61.

IDEC Timers

Timing Diagram/Schematic/Electrical Life Curves





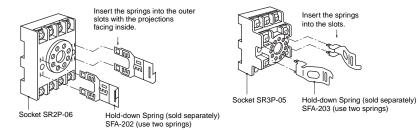
IDEC Timers

Mounting Accessories

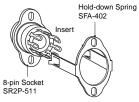
	Part N	Applicable Hold-Down Springs				
	Style	Appearance	Use with Timers	Part No.	Appearance	Part No.
	8-Pin Screw Terminal (dual tier)	Contraction of the second	GT5P	SR2P-05	\$	SFA-203
DIN Rail/	8-Pin Fingersafe Socket		GT5P	SR2P-05C	19 195	
Surface Mounting Accessories	8-Pin Screw Terminal	ALL A	GT5P	SR2P-06	N. C. C.	SFA-202
	DIN Mounting Rail Length 1000mm		_	BNDN1000		
	Part N	umbers: Mounting Accesso	ries and Sockets		Applicable Hold-Dow	n Springs
Mounting Accessories	8-Pin Solder Terminal	000s		SR2P-51		SFA-402

Installation of Hold-Down Springs

DIN Rail Mount Socket



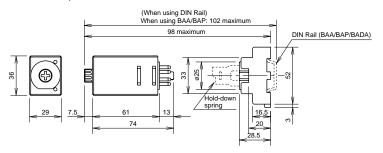




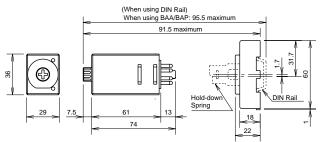
Panel Mount Socket

Dimensions: GT5P Series

GT5P Timer, 8-Pin with SR2P-05



GT5P Timer, 8-Pin with SR2P-06



GT5Y Series — ON Delay Timers

Key features of the GT5Y series include:

- 4PDT, 3A or DPDT, 5A contacts
- 4 time ranges
- Repeat error ±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 IDEC's RY4S and RU series relays

CE



UL, c-uL Listed File No. E55996

			GT5Y-2	GT5Y-4		
	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		
Kated Lo	naleu Luau	Inductive Load	220V AC, 2A 30V DC, 2.5A	220V AC, 0.8A 30V DC, 1.5A		
	Allowable	Resistive Load	1100VA AC 150W DC	660VA AC 90W DC		
	Contact Power	Inductive Load Cos Ø = 0.3 L/r = 7msec	440VA AC 75W DC	176VA AC 45W DC		
	Allowable Voltage		250V AC, 125V DC			
Suo	Allowable Cur	rent	5A	3A		
cati	Temperature E	rror	±3% maximum (over –10 to 50°C, reference temperature 20°C)			
Specifications	Setting Error		±10% maximum			
Spe	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 Res	istance	100MΩ minimum			
	Dielectric Stre	ength	2,000V AC, 1 minute (except between contacts of the same pole)			
	Vibration Resi	stance	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 Li	fe	50,000,000 operations minimum	50,000,000 operations minimum		
	Operating Tem	perature	-10 to +50°C			
	Operating Hum	nidity	45 to 85% RH			
	Operating Hum	nidity	45 to 85% RH			

GT5Y Table of Contents

Part Number List — G-64 Timing Diagrams — G-65 GT5Y Accessories — G-66 GT5Y Dimensions — G-67



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

2. Inductive load: $cos\theta = .3$, L/R=7msec.

www.idec.com

Part Numbering List

ode of eration	Contact	Output	Rated Voltage	Time Range	Complete Part No.
				1S/10S/1M/10M	GT5Y-2SN1A100
			100 to 120V AC	3S/30S/3M/30M	GT5Y-2SN3A100
				6S/60S/6M/60M	GT5Y-2SN6A100
				1S/10S/1M/10M	GT5Y-2SN1A200
			200 to 240V AC	3S/30S/3M/30M	GT5Y-2SN3A200
				6S/60S/6M/60M	GT5Y-2SN6A200
				1S/10S/1M/10M	GT5Y-2SN1D12
	DPDT	220V AC/ 30V DC, 5A	12V DC	3S/30S/3M/30M	GT5Y-2SN3D12
		30V D0, 3A		6S/60S/6M/60M	GT5Y-2SN6D12
				1S/10S/1M/10M	GT5Y-2SN1D24
			24V DC	3S/30S/3M/30M	GT5Y-2SN3D24
				6S/60S/6M/60M	GT5Y-2SN6D24
			24V AC	1S/10S/1M/10M	GT5Y-2SN1A24
				3S/30S/3M/30M	GT5Y-2SN3A24
lay				6S/60S/6M/60M	GT5Y-2SN6A24
ay			100 to 120V AC	1S/10S/1M/10M	GT5Y-4SN1A100
				3S/30S/3M/30M	GT5Y-4SN3A100
				6S/60S/6M/60M	GT5Y-4SN6A100
			200 to 240V AC	1S/10S/1M/10M	GT5Y-4SN1A200
				3S/30S/3M/30M	GT5Y-4SN3A200
				6S/60S/6M/60M	GT5Y-4SN6A200
			1S/10S/1M/10M	—	
	4PDT	220V AC/ 30V DC, 3A	12V DC	3S/30S/3M/30M	GT5Y-4SN3D12
				6S/60S/6M/60M	—
				1S/10S/1M/10M	GT5Y-4SN1D24
			24V DC	3S/30S/3M/30M	GT5Y-4SN3D24
				6S/60S/6M/60M	GT5Y-4SN6D24
				1S/10S/1M/10M	GT5Y-4SN1A24
			24V AC	3S/30S/3M/30M	GT5Y-4SN3A24
				6S/60S/6M/60M	GT5Y-4SN6A24



Timers **IDEC**

Timers **Q**

1. *F*

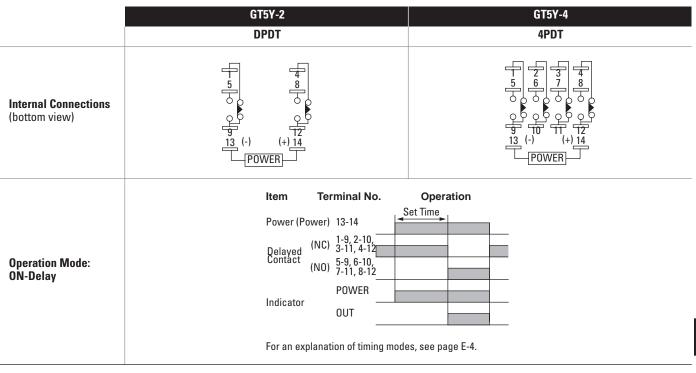
1. For sockets and accessories, see page G-66.

Timing Ranges

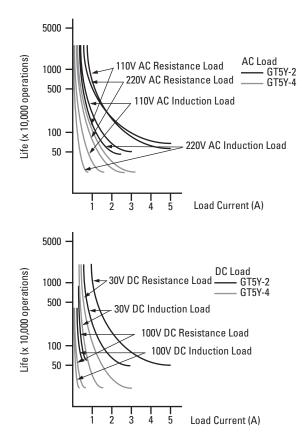
Code	Scale		Range ation	Time Range	
1S		x 0.1	S	0.1 second to 1 second	
10S	0 to 10	x 1	S	0.2 second to 10 seconds	
1M	01010	x 0.1	М	1.2 seconds to 1 minute	
10M		x 1	М	12 seconds to 10 minutes	
3S		x 1	S	0.1 second to 3 seconds	
30S	0 to 3	x 10	S	0.5 second to 30 seconds	
3M	0103	x 1	М	3 seconds to 3 minutes	
30M		x 10	М	30 seconds to 30 minutes	
6S		x 1	S	0.1 second to 6 seconds	
60S	0 to 6	x 10	S	1 second to 60 seconds	
6M	0100	x 1	М	6 seconds to 6 minutes	
60M		x 10	М	1 minute to 60 minutes	



Timing Diagram/Schematics/Electrical Life Curves



Electrical Life Curves



Accessories

nrt Numbers: DIN Rail/Surface DIN F	Rail Mount Socket	//	Applicable Hold-Down S	prings
Style	Appearance	Part No.	Appearance	Part N
4-Blade Screw Terminal	the le	SY4S-05	8 90	
4-Blade Screw Terminal (fingersafe)	ER	SY4S-05C		SFA-20
DIN Mounting Rail Length 1000mm	0	BNDN1000		

Panel Mounting Accessories

Part Numbers: Panel Mount Socket and Hold-Down Springs

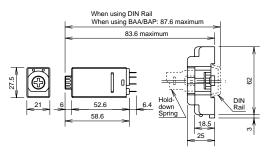
Pa	anel Mount Socket	Applicable Hold-Down Springs		
Style	Appearance	Part No.	Appearance	Part No.
14-Blade Solder Terminal	New Provide	SY4S-51	The the	SFA-302

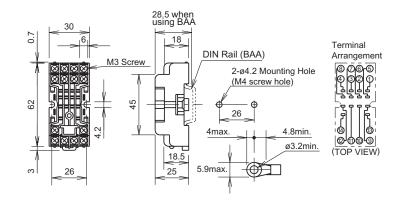
art Numbers: PCB Mount Sc		-Down Springs			
	CB Mount Socket		Applicable Hold-Down Springs		
Style	Appearance	Part No.	Appearance	Part No.	
14 Blade, PCB Terminal	1 Statistics of	SY4S-61	the take	SFA-302	
14 Blade, PCB Terminal		SY4S-62	\sum	SY4S-02F	

IDEC Timers

Dimensions

GT5Y Timer, Blade with SY4S-05





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.

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.

Timers

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Timing Accuracy Formulas

Timing accuracies are calculated from the following formulas:

Repeat Error

= ± <u>1</u> x <u>Maximum Measured Value – Minimum Measured Value</u> x 100% 2 Maximum Scale Value

Voltage Error

= ± <u>Tv - Tr</u>x 100% Tr

 T_{v} : Average of measured values at voltage V $T_{r_{\rm c}}$ Average of measured values at the rated voltage

Temperature Error

= ± <u>Tt - T20</u> x 100% T20

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

Setting Error

= ± <u>Average of Measured Values - Set Value</u> x 100% Maximum Scale Value

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).