

Solid State Relays for Industrial I/O G3TC

Reliable SSRs for I/O Module Mounting Boards

- Use I/O SSRs as an interface between logic circuitry and the load.
- Variety of AC/DC input and output modules with industry-standard footprint and color coding.
- Built-in hold down screw fastens relay to board to eliminate loosening by vibration.
- Optical Isolation - Dielectric strength of 4 kV between input and output terminals.
- Zero cross function on AC output models.
- AC and DC input versions incorporate a rectifier to accept both AC or DC inputs.
- UL, CSA and TUV approved; marked with CE.



Ordering Information

Input Module

Function	Color	Isolation	Input operating voltage range	Logic level output supply voltage	Model
AC input	Yellow	Photo-coupler	90-140 VDC/AC	5 VDC	G3TC-IAC5 AC/DC120
				15 VDC	G3TC-IAC15 AC/DC120
				24 VDC	G3TC-IAC24 AC/DC120
			180-280 VDC/AC	5 VDC	G3TC-IAC5A AC/DC240
				15 VDC	G3TC-IAC15A AC/DC240
				24 VDC	G3TC-IAC24A AC/DC240
DC input	White		10-32 VDC/AC	5 VDC	G3TC-IDC5 DC/AC24
				15 VDC	G3TC-IDC15 DC/AC24
				24 VDC	G3TC-IDC24 DC/AC24

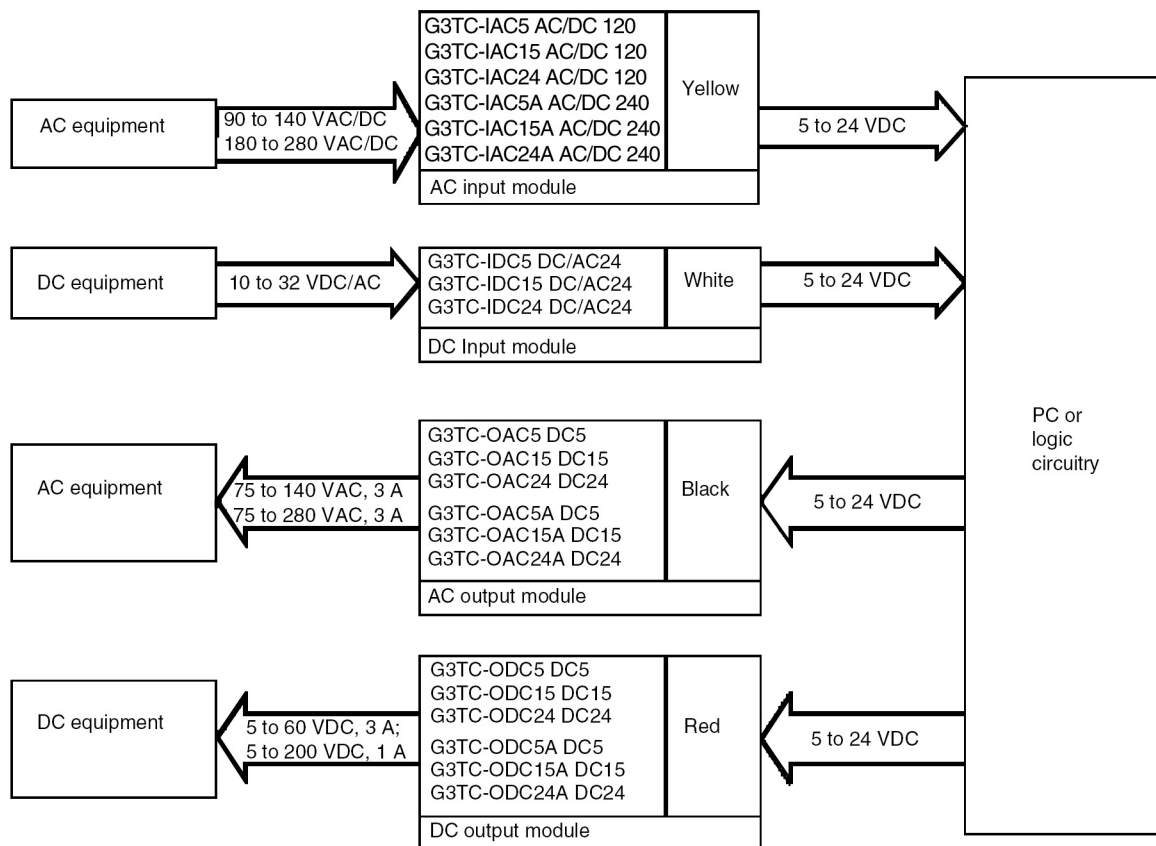
Output Module

Function	Color	Isolation	Rated input voltage	Rated output voltage (Applicable output voltage)	Model
AC output	Black	Photo-triac	5 VDC	3 A at 120 VAC (3 A at 75-140 VAC)	G3TC-OAC5 DC5
			15 VDC		G3TC-OAC15 DC15
			24 VDC		G3TC-OAC24 DC24
			5 VDC	3 A at 240 VAC (3 A at 75-280 VAC)	G3TC-OAC5A DC5
			15 VDC		G3TC-OAC15A DC15
			24 VDC		G3TC-OAC24A DC24
DC output	Red	Photo-coupler	5 VDC	3 A at 60 VDC (3 A at 5-60 VDC)	G3TC-ODC5 DC5
			15 VDC		G3TC-ODC15 DC15
			24 VDC		G3TC-ODC24 DC24
			5 VDC	1 A at 200 VDC (1 A at 5-200 VDC)	G3TC-ODC5A DC5
			15 VDC		G3TC-ODC15A DC15
			24 VDC		G3TC-ODC24A DC24

■ Typical Applications

- HVAC, refrigeration equipment
- Automation controls
- Injection molding machines
- Packaging equipment

■ I/O Classification by Color



Specifications

■ Common Characteristics

Insulation resistance	100 MΩ min at 500 VDC
Dielectric strength	4000 VAC, 50/60 Hz for 1 minute between input and output
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5 mm double amplitude
Shock resistance	Malfunction: 1,000 m/s ²
Ambient temperature	Operating: -30° C to 80° C with no icing or condensation Storage: -30° C to 100° C with no icing or condensation
Ambient humidity	Operating: 45% to 85%
Approved standards	UL508, UL60950, CSA22.2 No 14, No 950, EN60950

■ AC Input Module G3TC-IAC

Ratings (Ambient Temperature 25° C)

Input

Item	G3TC-IAC5	G3TC-IAC15	G3TC-IAC24	G3TC-IAC5A	G3TC-IAC15A	G3TC-IAC24A
Rated voltage	120 VAC/DC			240 VAC/DC		
Operating voltage	90-140 VAC/DC			180-280 VAC/DC		
Must operate voltage	90 VAC/DC max.			180 VAC/DC max.		
Must release voltage	25 VAC/DC min.			45 VAC/DC min.		
Input current at rated voltage	5 mA max.			5 mA max.		
Input resistance (see note 1)	30k Ω			69k Ω		

Output

Item	G3TC-IAC5	G3TC-IAC15	G3TC-IAC24	G3TC-IAC5A	G3TC-IAC15A	G3TC-IAC24A
Output supply voltage-nominal	5 VDC	15 VDC	24 VDC	5 VDC	15 VDC	24 VDC
Output supply voltage-range	4.5-6 VDC	12-18 VDC	20-30 VDC	4.5-6 VDC	12-18 VDC	20-30 VDC
Output supply current at rated input voltage (see note 2)	12 mA max.	15 mA max.	18 mA max.	12 mA max.	15 mA max.	18 mA max.
Control resistance (Rc in circuit configuration - see note 1)	240 Ω	1k Ω	2.2k Ω	240 Ω	1k Ω	2.2k Ω
Output current	50 mA max.					

Characteristics

Item	G3TC-IAC5	G3TC-IAC15	G3TC-IAC24	G3TC-IAC5A	G3TC-IAC15A	G3TC-IAC24A
Operate time (see note 3)	20 ms max.					
Release time (see note 3)	20 ms max.					
Output ON voltage drop	0.4 V max.					
Leakage current	100 μ A max.					
Weight	Approx. 40g					

Note: 1. Resistance values are reference.

2. The input module supplies the current on I/O circuit board at nominal output voltage.

3. At nominal output supply voltage, rated input voltage and 25° C.

■ DC Input Module G3TC-IDC

Ratings (Ambient Temperature 25° C)

Input

Item	G3TC-IDC5	G3TC-IDC15	G3TC-IDC24
Rated voltage	24 VDC/AC		
Operating voltage	10-32 VDC/ 15-32 VAC		
Must operate voltage	10 VDC/15 VAC max.		
Must release voltage	3 VDC/ 3 VAC min.		
Input current rated voltage	25 mA max.		
Input resistance	1.5k Ω		

Output

Item	G3TC-IDC5	G3TC-IDC15	G3TC-IDC24
Output supply voltage-nominal	5 VDC	15 VDC	24 VDC
Output supply voltage-range	4.5-6 VDC	12-18 VDC	20-30 VDC
Output supply current at rated input voltage (see note 2)	12 mA max.	15 mA max.	18 mA max.
Control resistance (Rc in circuit configuration - see note 1)	240 Ω	1k Ω	2.2k Ω
Output current	50 mA max.		

Characteristics

Item	G3TC-IDC5	G3TC-IDC15	G3TC-IDC24
Operate time (see note 3)	5 ms max.		
Release time (see note 3)	5 ms max.		
Output ON voltage drop	0.4 V max.		
Leakage current	100 μ A max.		
Weight	Approx. 40g		

- Note:**
1. Resistance values are reference.
 2. The input module supplies the current on I/O circuit board at nominal output voltage.
 3. At nominal output supply voltage, rated input voltage and 25°C.

■ AC Output Module G3TC-OAC

Ratings (Ambient Temperature 25°C)

Input

Item	G3TC-OAC5	G3TC-OAC15	G3TC-OAC24	G3TC-OAC5A	G3TC-OAC15A	G3TC-OAC24A
Rated voltage	5 VDC	15 VDC	24 VDC	5 VDC	15 VDC	24 VDC
Operating voltage	2.5-8 VDC	9-16 VDC	18-32 VDC	2.5-8 VDC	9-16 VDC	18-32 VDC
Must operate voltage	2.5 VDC max.	9 VDC max.	18 VDC max.	2.5 VDC max.	9 VDC max.	18 VDC max.
Must release voltage	1 VDC min.					
Input current at rated voltage (see note 1)	18 mA max.					
Control resistance (R _c in circuit configuration - see note 2)	240 Ω	1k Ω	2.2k Ω	240 Ω	1k Ω	2.2k Ω

Output

Item	G3TC-OAC5	G3TC-OAC15	G3TC-OAC24	G3TC-OAC5A	G3TC-OAC15A	G3TC-OAC24A
Rated load voltage	120 VAC			240 VAC		
Load voltage range	75-140 VAC			75-280 VAC		
Load current	0.05 to 3 A					
Inrush current	45 A (60 Hz, 1 cycle)					

Characteristics

Item	G3TC-OAC5	G3TC-OAC15	G3TC-OAC24	G3TC-OAC5A	G3TC-OAC15A	G3TC-OAC24A
Operate time (see note 3)	1/2 of load power source cycle + 1 ms max.					
Release time (see note 3)	1/2 of load power source cycle + 1 ms max.					
Output ON voltage drop	1.6 V (RMS) max.					
Leakage current	2.5 mA max. (at 120 VAC)			5 mA max. (at 240 VAC)		
Weight	Approx. 45g					

- Note:**
1. Resistance values are reference.
 2. The input module supplies the current on I/O circuit board at nominal output voltage.
 3. At nominal output supply voltage, rated input voltage and 25°C.

■ DC Output Module G3TC-ODC

Ratings (Ambient Temperature 25° C)

Input

Item	G3TC-ODC5	G3TC-ODC15	G3TC-ODC24	G3TC-ODC5A	G3TC-ODC15A	G3TC-ODC24A
Rated voltage	5 VDC	15 VDC	24 VDC	5 VDC	15 VDC	24 VDC
Operating voltage	2.5-8 VDC	9-16 VDC	18-32 VDC	2.5-8 VDC	9-16 VDC	18-32 VDC
Must operate voltage	2.5 VDC max.	9 VDC max.	18 VDC max.	2.5 VDC max.	9 VDC max.	18 VDC max.
Must release voltage	1 VDC min.					
Input current at rated voltage (see note 1)	18 mA max.					
Control resistance (Rc in circuit configuration - see note 2)	240 Ω	1k Ω	2.2k Ω	240 Ω	1k Ω	2.2k Ω

Output

Item	G3TC-ODC5	G3TC-ODC15	G3TC-ODC24	G3TC-ODC5A	G3TC-ODC15A	G3TC-ODC24A
Rated load voltage	60 VDC			200 VDC		
Load voltage range	5-60 VDC			5-200 VDC		
Load current	0.01 to 3 A			0.01 to 1.0 A		
Inrush current	18 A (10 ms)			9 A (10 ms)		

Characteristics

Item	G3TC-ODC5	G3TC-ODC15	G3TC-ODC24	G3TC-ODC5A	G3TC-ODC15A	G3TC-ODC24A
Operate time (see note 3)	50 μs max.			100 μs max.		
Release time (see note 3)	50 μs max. (see note 4)			750 μs max.		
Output ON voltage drop	1.6 V (RMS)max.					
Leakage current	1 mA max. (at 60 VAC)			1 mA max. (at 200 VAC)		
Weight	Approx. 45g			Approx. 40g		

Note: 1. The output module supplies the current on I/O circuit board at nominal input voltage.

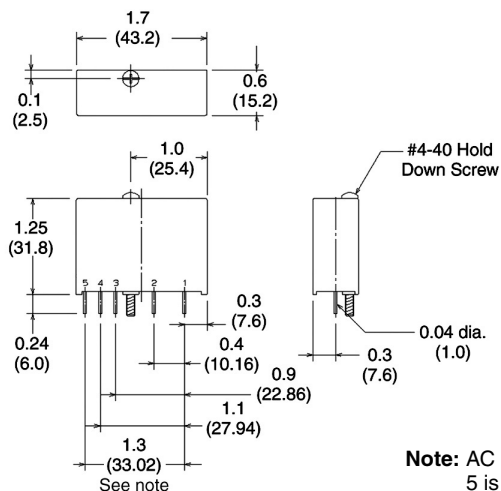
2. Resistance values are reference.

3. At rated load voltage, maximum rated load current, rated input voltage and 25° C.

4. At 24 VDC load voltage, 3 A load current and 25° C.

Dimensions

Unit: Inch (mm)



Note: AC and DC input versions only; pin 5 is not present on output modules.

■ Approvals

UL (File No. E64562)/CSA (File No. 35535)

Input

Model	Input voltage
G3TC-IAC5, -IAC15, -IAC24	90-140 V AC/DC
G3TC-IAC5A, -IAC15A, -IAC24A	180-280 V AC/DC
G3TC-IDC5, -IDC15, -IDC24	10-32 VDC, 12-32 VAC
G3TC-ODC5, -ODC5A, -OAC5, -OAC5A	5 VDC
G3TC-ODC15, -ODC15A, -OAC15, -OAC15A	15 VDC
G3TC-ODC24, -ODC24A, -OAC24, -OAC24A	24 VDC

Output

Model	Load voltage	Load current
G3TC-IAC5, -IAC15, -IAC24	5/15/24 VDC	50 mA
G3TC-IAC5A, -IAC15A, -IAC24A	5/15/24 VDC	50 mA
G3TC-IDC5, -IDC15, -IDC24	5/15/24 VDC	50 mA
G3TC-ODC5, -ODC15, -ODC24	5-60 VDC	3 A
G3TC-ODC5A, -ODC15A, -ODC24A	5-200 VDC	1 A
G3TC-OAC5, -OAC15, -OAC24	75-140 VAC	3 A
G3TC-OAC5A, -OAC15A, -OAC24A	75-280 VAC	3 A

Note: The rated values approved by each of the safety standards (e.g., UL, CSA and TUV) may be different from the performance characteristics individually defined in this catalog.