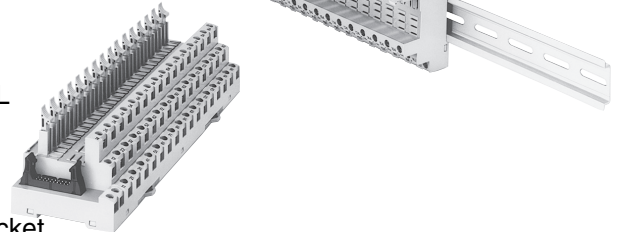


I/O Terminal Socket G70A

16-point I/O Terminal Socket accepts Various Devices such as G2R Relays, Solid State Relays, and Timers for More System Flexibility.



- Connects to a PLC with a simple snap-in connector.
- The G70A-ZOC16-3 can be combined with a DRT1-OD32ML I/O Terminal for DeviceNet connectivity or an SRT2-VOD16ML Connector Terminal for CompoBus/S connectivity.
- SPDT relays can be mounted.
- Conforms to VDE (VDE0106) and CE standards.
- Electric-shock preventive (finger-touch protection) terminal socket.
- DIN rail mountable.
- High-capacity (10 A) terminal socket.
- Excellent noise resistance characteristics.
- Built-in diodes for coil surge suppression.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Ordering Information

I/O Terminal Socket

Classification	Internal I/O common	Rated voltage	Model
Output	NPN (+ common)	24 VDC	G70A-ZOC16-3
	PNP (- common)	24 VDC	G70A-ZOC16-4
Input	NPN/PNP	110 VDC max., 240 VAC max. *	G70A-ZIM16-5

* Each relay to be mounted must incorporate a coil that has proper specifications within the maximum rated voltage range.

Suitable Relay/Solid State Relay/Solid-State Timer

Classification	I/O Terminal Socket	Relay	Solid State Relay (SSR)	Solid-State Timer
Output	NPN: G70A-ZOC16-3 PNP: G70A-ZOC16-4	G2R-1-S G2R-1-SN G2R-1-S (S) G2R-1-SN (S)	G3R-OA202SZN G3R-OA202SLN G3R-ODX02SN G3R-OD201SN G3RZ-201SLN	H3RN-1 H3RN-11
Input	G70A-ZIM16-5	G2R-1A3-SN *1, *2 G2R-13-SN *1, *2 G2R-1A3-SND *1, *2 G2R-13-SND *1, *2	G3R-IAZR1SN G3R-IDZR1SN G3R-IDZR1SN-1	---

*1. G2R-13-SN has twin cross-bar contacts.

*2. Manufacturing of the G2R-1A3-S□ and G2R-13-S□ was discontinued at the end of March 2014.

Accessories (Order Separately) Short Bar

Applicable model	Model
G70A-ZOC16-3 G70A-ZOC16-4 G70A-ZIM16-5	G78-16-E

Connecting Sockets for I/O Terminal Expansion

Number of poles	Model
1 pole (G2R: 1 pole usage)	P2RF-05-E
2 poles (G2R: 2 poles usage)	P2RF-08-E

Cables for I/O Relay Terminals XW2Z-R

- Cable with Loose Wire and Crimp Terminals: XW2Z-RY□C
- Cable with Loose Wires: XW2Z-RA□C
- Cable with connectors
 - Fujitsu connectors (1:1): XW2Z-R□C
 - (1:2): XW2Z-R□C-□
 - (1:3): XW2Z-R□C-□-□
 - (1:1): XW2Z-R□C
 - (1:2): XW2Z-RO□C
 - (1:3): XW2Z-R□-□-□-□
 - (1:1): XW2Z-R□C
 - (1:2): XW2Z-RO□C
 - (1:3): XW2Z-R□-□-□-□
 - XW2Z-RM□-□-□-□
 - XW2Z-RO□-□-□-□

Refer to the **XW2Z-R** Datasheet (Cat. No. G126) for details.

Accessories for DIN Track Mounting

Refer to your OMRON website for details on the PFP-□.

G70A

Specifications

Ratings/Characteristics

Item	G70A-ZOC16-3	G70A-ZOC16-4	G70A-ZIM16-5
Contact resistance	10 mΩ (excluding the resistance of the relay to be used)		
Permissible current	10 A		100 mA
Max. operating voltage	380 VAC, 125 VDC		30 VDC
Dielectric strength	4,000 VAC, 50/60 Hz for 1 min between connector and output terminals 2,000 VAC, 50/60 Hz for 1 min between output terminals 250 VAC, 50/60 Hz for 1 min between connectors		4,000 VAC, 50/60 Hz for 1 min between connector and input terminals 2,000 VAC, 50/60 Hz for 1 min between coil terminals 250 VAC, 50/60 Hz for 1 min between connectors
Insulation resistance	Between connector and I/O terminals: 1,000 MΩ (at 500 V) Other: 100 MΩ (at 500 V)		
Vibration resistance	Malfunction: 10 to 61.2 to 10 Hz, 0.1-mm single amplitude (0.2-mm double amplitude); 61.2 to 150 to 61.2 Hz, 14.7 m/s ²		
Shock resistance	Malfunction: 200 m/s ²		
Noise immunity	Noise level: 2.0 kV; pulse width: 100 ns to 1 μs		
Ambient temperature	Operating: 0 to 55°C (with no condensation or icing)		
Ambient humidity	Operating: 35% to 85%		
Coil surge absorption element	Diode: 1 A, 400 V		Varistor *
Protection diode for inverse connection	Diode (2 A, withstand inverse voltage: 40 V)		
Tensile strength	No damage when a tensile force of 49 N is applied for 1 second in any direction		
I/O terminal tightening torque	Tightening strength: 0.59 N·m; Tensile strength 49 N for 1 min.		
Weight	Approx. 400 g		

* Use a DC relay with a built-in diode because a DC relay without a built-in diode does not absorb any coil surge.

Approved standards G70A

UL508	Fille No. E95399
CSA C22.2 (No.14)	Fille No. LR 35535
VDE EN-50178	Fille No. 125362

●Relay (G2R-1-S, G2R-1-SN, G2R-1-S (S), G2R-1-SN (S))

Coil Ratings

Rated voltage	24 VDC	
Rated current	21.8 mA	
Coil resistance	1,100 Ω	
Coil inductance	Armature OFF	4.27
(H) (ref. value)	Armature ON	8.55
Must operate voltage	70% min. of rated voltage	
Must release voltage	15% min. of rated voltage	
Max. voltage	110% of rated voltage	
Power consumption	Approx. 0.53 W	

Contact Ratings

Number of poles	1 pole	
Load	Resistive load (cosφ = 1)	Inductive load (cosφ = 0.4; L/R = 7 ms)
Rated load	10 A at 250 VAC; 10 A at 30 VDC	7.5 A at 250 VAC; 5 A at 30 VDC
Rated carry current	10 A	
Max. operating voltage	380 VAC, 125 VDC	
Max. operating current	10 A	
Max. switching capacity	2,500 VA, 300 W	1,875 VA, 150 W
Min. permissible load	100 mA at 5 VDC	

●Relay (G2R-1A3-SN (SND), G2R-13-SN (SND))

Coil Ratings

Rated voltage		230 VAC	12 VDC	24 VDC
Rated current	50 Hz	3.7 mA	43.6 mA	21.8 mA
	60 Hz	3.1 mA		
Coil resistance		30,000 Ω	275 Ω	1,100 Ω
Must operate voltage		80% max. of rated voltage	70% max. of rated voltage	
Must release voltage		30% min. of rated voltage	15% min. of rated voltage	
Max. voltage		110% of rated voltage		
Power consumption		Approx. 0.7 W (60 Hz)	Approx. 0.53 W	

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of $+15\%/_{-20\%}$ (AC rated current) or $\pm 10\%$ (DC coil resistance).

2. LEDs are used for the built-in operation indicator. For models equipped with these indications, the VAC rated current must be increased by approximately 1 mA; the VDC rated current, by approximately 4 mA.

3. Operating characteristics are measured at a coil temperature of 23°C.

Contact Ratings

Refer to Ratings/Characteristics of G70A-ZIM16-5.

●Solid State Relay (G3R-I/O)

Ratings

Input Module

Input

Model	Rated voltage	Operating voltage	Input current	Must operate voltage	Must release voltage
G3R-IAZR1SN	100 to 240 VAC	60 to 264 VAC	15 mA max.	60 VAC max.	20 VAC min.
G3R-IDZR1SN	5 VDC	4 to 6 VDC	8 mA max.	4 VDC max.	1 VDC min.
	12 to 24 VDC	6.6 to 32 VDC		6.6 VDC max.	3.6 VDC min.
G3R-IDZR1SN-1	5 VDC	4 to 6 VDC		4 VDC max.	1 VDC min.
	12 to 24 VDC	6.6 to 32 VDC		6.6 VDC max.	3.6 VDC min.

Output

Model	Load voltage	Load current
G3R-IAZR1SN	4 to 32 VDC	0.1 to 100 mA
G3R-IDZR1SN		
G3R-IDZR1SN-1		

Output Module

Input

Model	Rated voltage	Operating voltage	Input current	Must operate voltage	Must release voltage
G3R-OA202SZN	5 to 24 VDC	4 to 32 VDC	15 mA max. (at 25°C)	4 VDC max.	1 VDC min.
G3R-OA202SLN			8 mA max.		
G3R-ODX02SN					
G3R-OD201SN					

Output

Model	Load voltage	Load current *1, *2	Inrush current
G3R-OA202SZN	75 to 264 VAC	0.05 to 2 A	30 A (60 Hz, 1 cycle)
G3R-OA202SLN			
G3R-ODX02SN	4 to 60 VDC	0.01 to 2 A	8 A (10 ms)
G3R-OD201SN	40 to 200 VDC	0.01 to 1.5 A	8 A (10 ms)

*1. Depends on the ambient temperature. Refer to the Engineering Data (Reference Value) *Load Current vs. Ambient Temperature Rating* on page 6 for details.

*2. The minimum current value is measured at 10°C min.

Characteristics

Input Module

Item	G3R-IAZR1SN	G3R-IDZR1SN	G3R-IDZR1SN-1
Operate time	20 ms max.	0.1 ms max.	15 ms max.
Release time	20 ms max.	0.1 ms max.	15 ms max.
Response frequency	10 Hz	1 kHz	10 Hz
Output ON voltage drop	1.6 V max.		
Leakage current	5 μ A max.		
Insulation resistance	100 M Ω min. between input and output		
Dielectric strength	4,000 VAC, 50/60 Hz for 1 min between input and output		
Vibration resistance	10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)		
Shock resistance	1,000 m/s ²		
Ambient temperature	Operating: -30 to 80°C (with no icing) Storage: -30 to 100°C (with no icing)		
Ambient humidity	Operating: 45% to 85%		
Weight	Approx. 18 g		

Output Module

Item	G3R-OA202SZN	G3R-OA202SLN	G3R-ODX02SN	G3R-OD201SN
Operate time	1/2 of load power source cycle + 1 ms max.	1 ms max.		
Release time	1/2 of load power source cycle + 1 ms max.		2 ms max.	
Response frequency	20 Hz		100 Hz	
Output ON voltage drop	1.6 V max.			2.5 V max.
Leakage current	1.5 mA max.		1 mA max.	
Insulation resistance	100 M Ω min. between input and output			
Dielectric strength	4,000 VAC, 50/60 Hz for 1 min between input and output			
Vibration resistance	10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)			
Shock resistance	1,000 m/s ²			
Ambient temperature	Operating: -30 to 80°C (with no icing) Storage: -30 to 100°C (with no icing)			
Ambient humidity	Operating: 45% to 85%			
Weight	Approx. 18 g			

●Solid State Relay (G3RZ)

Ratings

Item Model	Input					Output			
	Rated voltage	Operating voltage	Impedance	Voltage level		Rated load voltage	Load voltage range	Load current *	Surge withstand current
				Must-operate voltage	Must-release voltage				
G3RZ-201SLN	5 VDC	4 to 6 VDC	400 Ω \pm 20%	4 VDC max.	1 VDC min.	5 to 240 VAC 5 to 100 VDC	3 to 264 VAC 3 to 125 VDC	100 μ A to 1.0 A	10 A (10 ms)
	12 VDC	9.6 to 14.4 VDC	1.1 k Ω \pm 20%	9.6 VDC max.					
	24 VDC	19.2 to 28.8 VDC	2.2 k Ω \pm 20%	19.2 VDC max.					

* Depends on the ambient temperature. Refer to the reference data *Load Current vs. Ambient Temperature Rating* on page 6 for details.

Characteristics

Operation time	6 ms max.
Release time	10 ms max.
Output ON resistance	2.4 Ω max.
OFF leakage current	10 μ A max. (at 125 VDC) 100 μ A max. (at 200 VAC)
Insulation resistance	100 M Ω min. (at 500 VDC)
Dielectric strength	2,500 VAC at 50/60 Hz for 1 min. between inputs and outputs
Vibration resistance	10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)
Shock resistance	1,000 m/s ²
Storage temperature	-30 to 100°C (with no icing or condensation)
Ambient operating temperature	-30 to 85°C (with no icing or condensation)
Ambient operating humidity	45% to 85%
Weight	Approx. 20 g

●Solid-State Timer (H3RN)

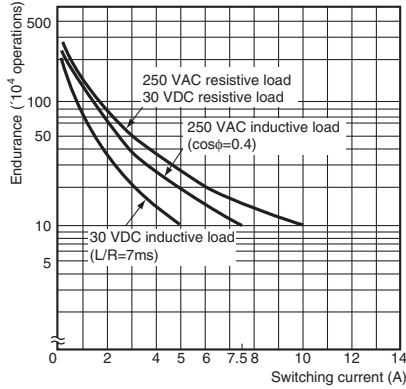
For H3RN specifications, refer to the H3RN Datasheet.

G70A

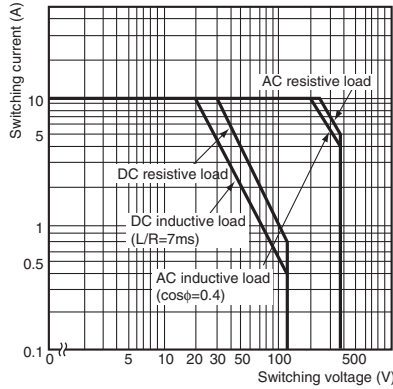
Engineering Data (Reference Value)

When Mounted to a G2R

Endurance



Maximum Switching Power G2R-1-S (24 VDC)

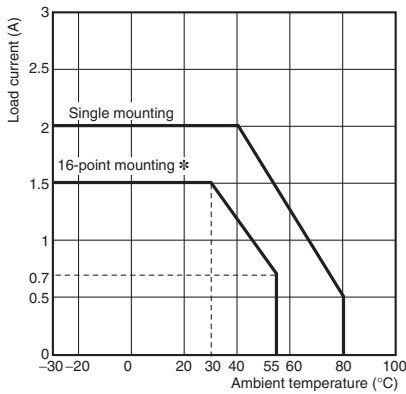


Note: The characteristics shown here are for 16-point mounting. This data was produced from actual values sampled on production lines, and should be used for reference purposes only. Since relays are mass-produced, a certain amount of tolerance is generally allowed in their application.

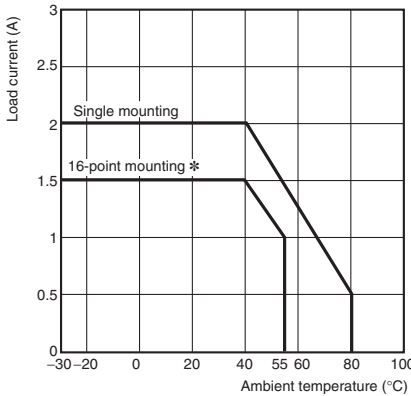
When Mounted to a G3R-I/O

Load Current vs. Ambient Temperature Rating

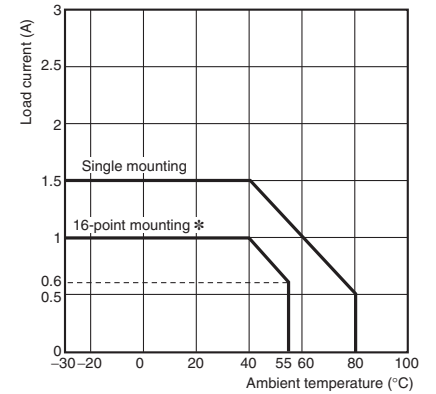
G3R-OA202SZN
G3R-OA202SLN



G3R-ODX02SN



G3R-OD201SN

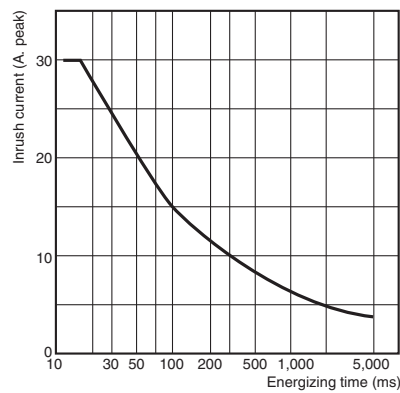


* On G70A-ZOC16, fully mounted.

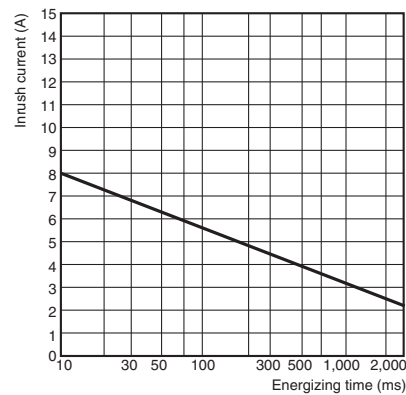
Inrush Current Resistivity

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

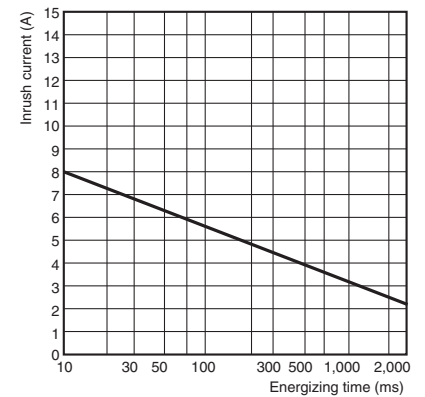
G3R-OA202SZN
G3R-OA202SLN



G3R-ODX02SN



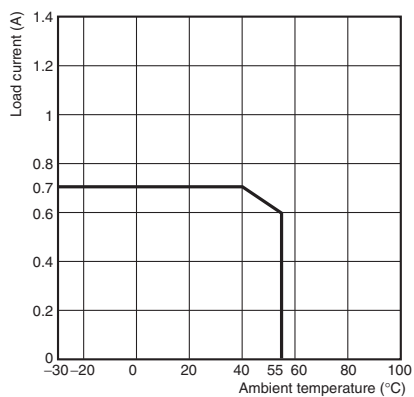
G3R-OD201SN



When Mounted to a G3RZ

Load Current vs. Ambient Temperature Rating

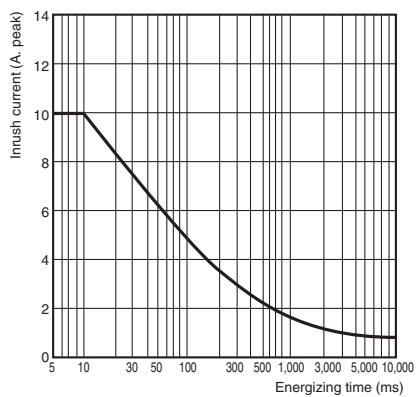
G3RZ-201SLN



Inrush Current Resistivity

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

G3RZ-201SLN

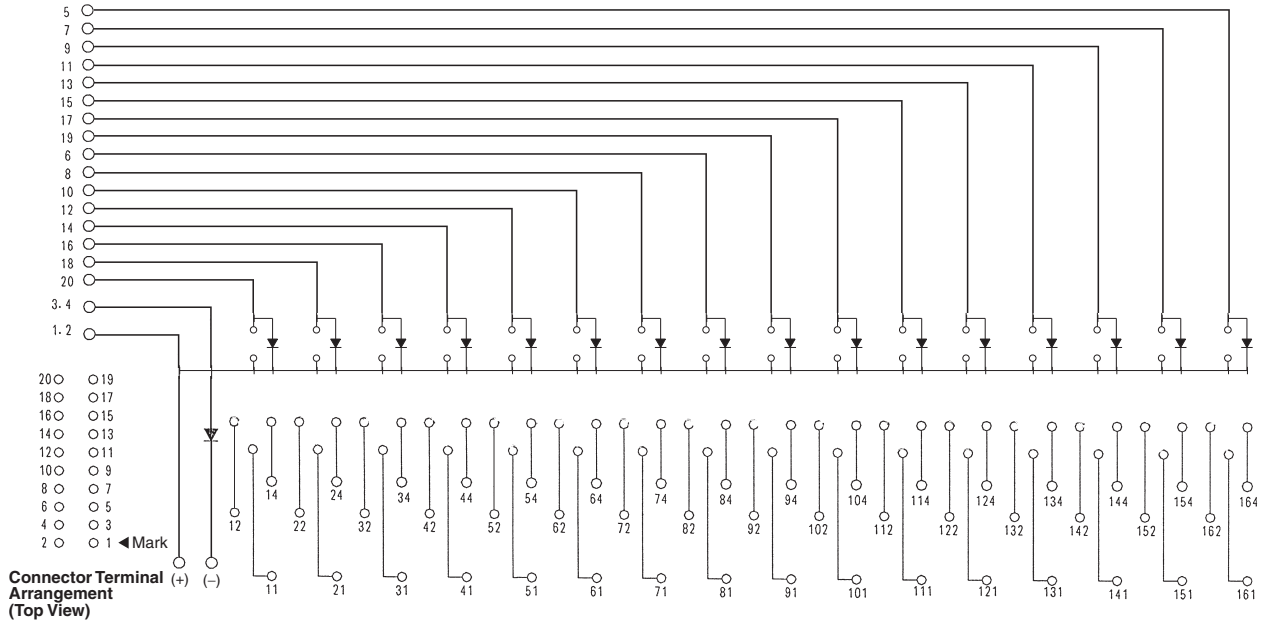


G70A

Internal Circuits

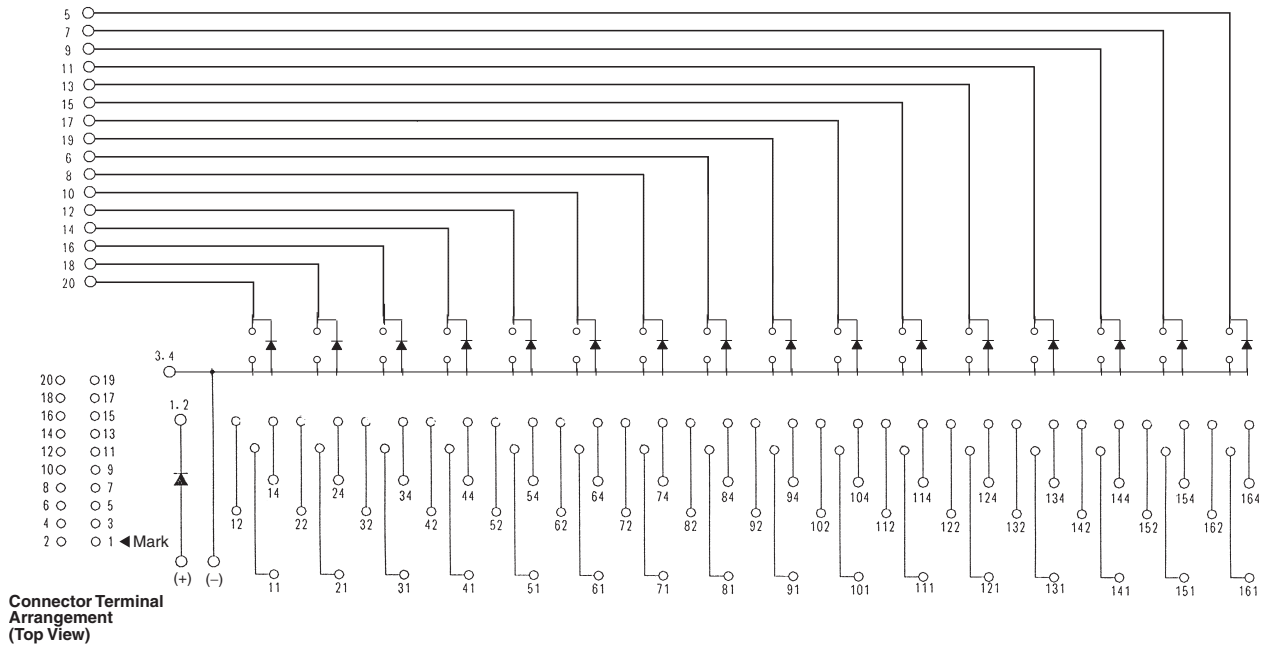
• G70A-ZOC16-3 (NPN)

NPN (positive common): The output at the connected controller will have a negative common from an NPN transistor.



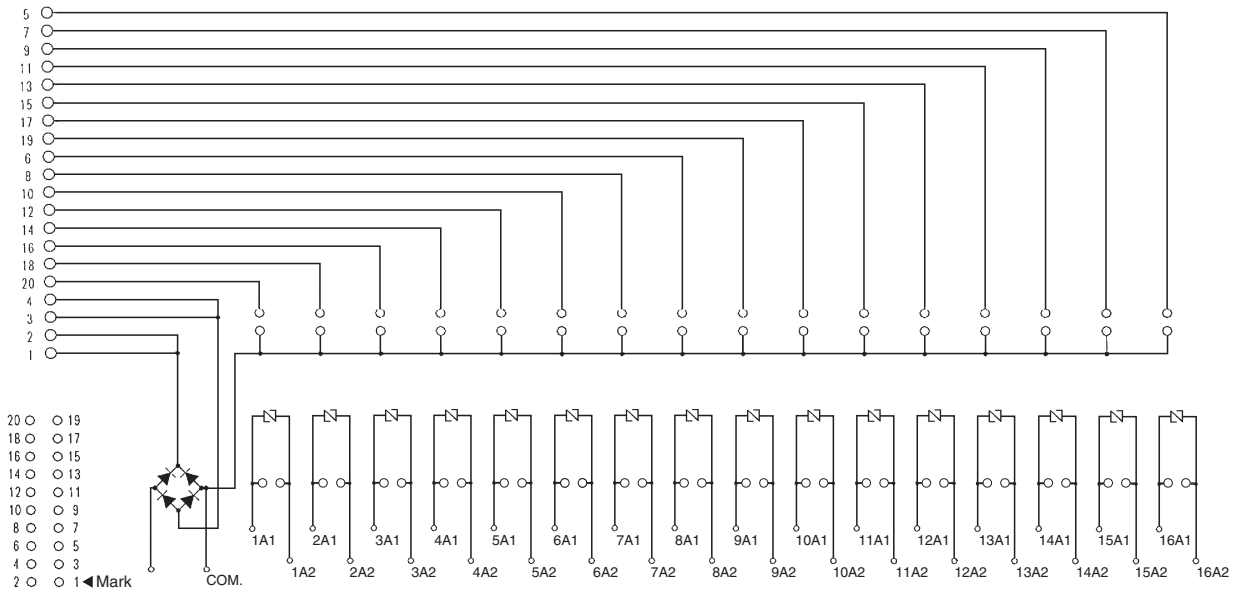
G70A-ZOC16-4 (PNP)

PNP (negative common): The output at the connected controller will have a positive common from a PNP transistor.



Note: Pin numbers are indicated for convenience. The ▲ mark can be used to determine orientation.

G70A-ZIM16-5 (NPN/PNP)



Connector Terminal Arrangement (Top View)

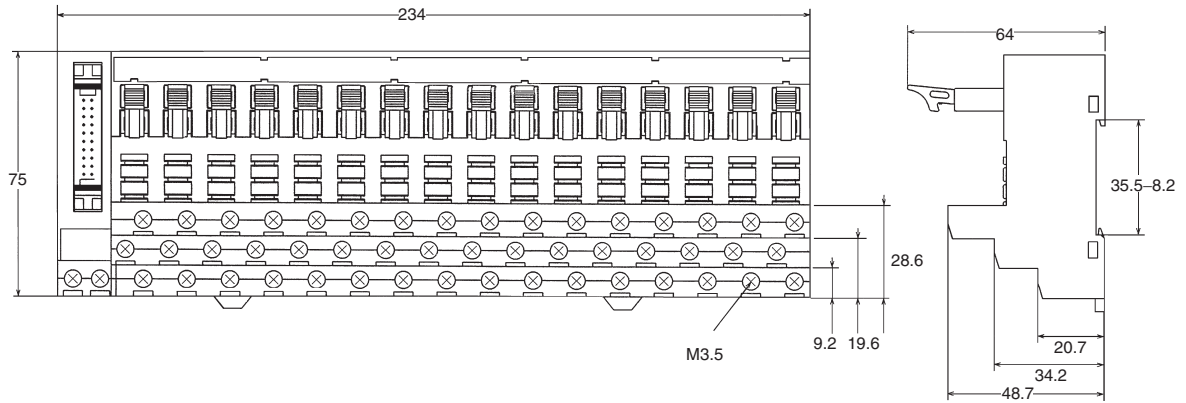
Note: Pin numbers are indicated for convenience. The ▲ mark can be used to determine orientation.

G70A

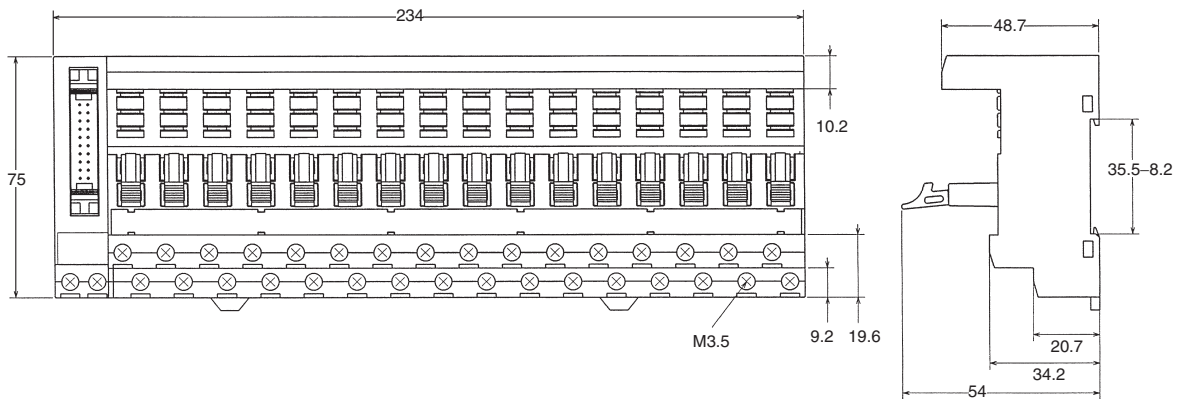
Dimensions

(Unit: mm)

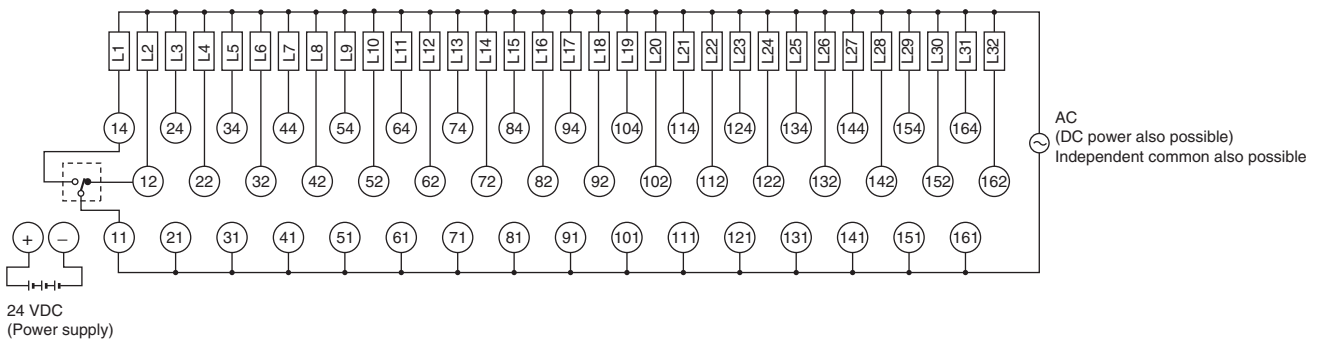
G70A-ZOC16 (Output)



G70A-ZIM16 (Input)



Terminal Arrangement/Internal Connection



Note: The above diagram shows the Unit mounted to a G2R-1-S.
 When mounting to a G3R-OA□ or G3RZ-201SLN, pins 11 to 14 are output terminals.
 When mounting to a G3R-OD□, pin 14 is a plus terminal and pin 11 is a minus terminal. When mounting to G3RZ-201SLN, there is no polarity.

Safety Precautions

Be sure to read *the Safety Precautions for All I/O Relay Terminals* in the website: <http://www.ia.omron.com/>.

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