

OMRON

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Type G9SA-301 Type G9SA-501 Type G9SA-321-T□ Type G9SA-TH301 24VAC/DC Safety Relay Unit

G9SA provides a safety-related interruption of a safety circuit.

English	USER'S MANUAL
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Thank you for purchasing G9SA Safety Relay Unit.
Please read and understand this manual before using the products.
Keep this manual ready to use whenever needed.
Only qualified person trained in professional electrical technique should handle G9SA.
Please consult your OMRON representative if you have any questions or comments.
Make sure that information written in this document are delivered to the final user of the product.

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Declaration of Conformity

Safety Standards	
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Safety Precautions

⚠ WARNING avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally there may be significant property damage.

Precautions for Safe Use

Precautions for Correct Use

locked before operating.

Diagram illustrating the terminal block configuration for the G95A-301 and G95A-321-T modules.

Terminal Block Labels:

- I/O terminals
- Output terminals
- Power input terminal
- Input power indicator
- OFF-delay time setting switch (Only for G95A-321-T)
- Relay operation indicator
- Connector cover
- Power input terminal
- Earth terminal
- Output terminals

Terminal Block Details:

- Type G95A-301:** Shows terminal numbers 1 through 24.
- Type G95A-321-T:** Shows terminal numbers 1 through 24, including the OFF-delay time setting switch.

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10.5

5.9

G9SA-301: Twenty, M3
 G9SA-501: Twenty-four, M3
 G9SA-321-T□: Twenty-four, M3
 G9SA-TH301: Twenty-one, M3

11 12 13 14 15 16 17 18 19 20 21 22 23 24

Mounting holes

		G9SA-301/TH301	G9SA-501	G9SA-321-T□
Input	Rated supply voltage		24VAC / 24VDC	
	Operating voltage range		-15% to +10% of rated supply voltage	
	Rated power consumption	24VAC	5.7VA MAX.	7.4VA MAX.
		24VDC	1.7W MAX.	2.6W MAX.
Output	N.O. contacts *1)		3 N.O. 13/14,23/24,33/34	5 N.O. 13/14,23/24,33/34 43/44,53/54
				3 N.O. 13/14,23/24,33/34
	Off-delay contacts *1) *3)		---	---
				2 N.O. 43/44,53/54
	N.C. contacts *2) Auxiliary contacts		1 N.C. 41/42	1 N.C. 61/62
				1 N.C. 61/62
Rated load		250VAC 5A cosφ=1 30VDC 5A L/R=0ms		
IEC60947-5-1 Table 4		AC15	240VAC 2A cosφ=0.3	
		DC13	24VDC 1A L/R=48ms	
Rated carry current		5A (1 Output)		
Max. switching voltage		250VAC 125VDC		
Rated conditional short-circuit current		1,000A		
Weight		Approx. 210 g	Approx. 270 g	Approx. 270 g

● Characteristics		● Protection class	
Operating time	30ms MAX.	Terminals	IP20
Response time	10ms MAX.	Enclosure	IP40
Vibration resistance	10 to 55Hz 0.375mm single amplitude (0.75mm double amplitude)	● Pollution degree	
Shock resistance	Destruction: 300m/s ² Malfunction: 100m/s ²	External	3
Ambient temperature	-25 to 55°C	Internal	2
Ambient humidity	35 to 85%RH		

Isolation voltage(Ui)	250VAC	
Impulse withstand voltage(Uimp)	4kV	
Insulation resistance	Between inputs and outputs	100Mohm MIN. (by 500VDC Megger)
	Between different poles of output	
Dielectric strength	Between inputs and outputs	2,500VAC 1min.
	Between different poles of output	

Electrical endurance	100,000 operations MIN. Rated load Switching frequency 1,800 operations/h
Mechanical endurance	5,000,000 operations MIN. Switching frequency 7,200 operations/h

[illegible]

1. In order to be category 4 (EN ISO13849-1)
2. 2 channels are needed to external input at T11-T12, T21-T22.
3. The switch at T11-T12, T21-T22 should be constructed with positive open form. In case of using limit switch, another one is requested positive open construction type.
4. The NC contact from a contactor is require to feed back signal T31-T32.
(Refer to the application examples.)
5. PE terminal should be dropped to earth.
6. Automatically start (Auto-reset mode) must be prevented through the superordinate control.

Failure indication by LED	Failure condition	Checking points and measures to take
K1(K3) and K2(K4) LED do not turn on.	Failures of the parts of the internal circuits	Replace with a new product.
	Failures involving the wiring of External input (input line)	Check the wiring to External input. (input line)
	Failures of the parts of the External devices (Contactor etc)	Replace with a new External devices. (Contactor etc)
K1(K3) or K2(K4) LED does not turn on.	Failures of the parts of the internal circuits	Replace with a new product.
	Failures involving the wiring of External input (input line)	Check the wiring to External input. (input line)
Power LED does not turn on.	Failures of the parts of the internal circuits	Replace with a new product.
	Supply voltage outside the rated value	Check the supply voltage to Expansion.
All LED turn on, but the safety output doesn't on.	Failures involving the wiring of External input (output line)	Check the wiring to External input. (output line)
	Failures of the parts of the Protective device (Fuse etc)	Replace with a new Protective device. (Fuse etc)

[illegible]

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

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