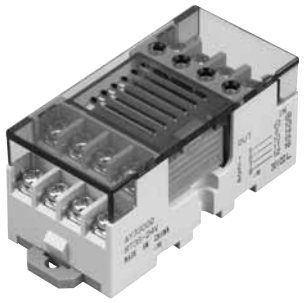
Panasonic
ideas for life

SLIM, SPACE-SAVING RELAY TERMINAL FOR 4-POINT OUTPUT

RT-3 UNIT RELAY
(PA Relay type)



RoHS Directive compatibility information
http://www.mew.co.jp/ac/e/environment/

FEATURES

1. Space-saving type (33 mm 1.299 inch wide) with four independent points on a base measuring 33 × 67 mm 1.299 × 2.638 inch. This contributes to a more compact control panel.

2. PA relays, which have high sensitivity Au clad twin contacts, are installed.

PA relays, 5 mm .197 inch wide, are installed. The PA relays feature high sensitivity (12 V type: 120 mW, 24 V type: 180 mW) and twin contacts with Au-cladding, which combine to ensure high reliability even with minute loads.

3. Can be mounted on a DIN rail or mounted directly (by screw).

4. Equipped with an LED display to allow easy confirmation of operation.

5. Incorporates a surge protector.

Incorporates an absorber circuit for coil surges. This protects the circuitry of the controller and prevents operation errors.

6. Relay installation and removal can be easily accomplished with the removal key accessory.

7. Includes a cover as standard equipment for increased safety.

TYPES

Contact arrangement	Rated input voltage	Part No.
1 Form A × 4	12 V DC	RT3S-12V
	24 V DC	RT3S-24V

Packing quantity: Carton: 1 pc.; Case: 20 pcs.

Notes: 1. Cannot be equipped with Power PhotoMOS standard type relays. However, equipping with voltage sensitive type of Power PhotoMOS relays (AQZ○○○D) is possible.
2. 5 V DC units are also available. Please consult us.
3. Please inquire other contact arrangement.

RATING

1. Input ratings (per PA relay)

Part No.	Rated input voltage	Input current (at rated input voltage, 20°C 68°F) (approx.)	Allowable variation of rated input voltage (–20 to +55°C –4 to +131°F)
RT3S-12V	12 V DC	11.5 mA (Relay 10 mA + LED 1.5 mA)	12 V DC ± 10%
RT3S-24V	24 V DC	10.5 mA (Relay 7.5 mA + LED 3 mA)	24 V DC ± 10%

2. Relay coil specifications (per PA relay) (ref. value)

Relay part No.	Rated coil voltage	Pick-up voltage (at 20°C 68°F) (Initial)	Drop-out voltage (at 20°C 68°F) (Initial)	10% Coil resistance (±10%) (at 20°C 68°F)	Rated comsumption power
PA1a-12V	12 V DC	70%V or less of nominal voltage	5%V or more of nominal voltage	1,200 Ω	120 mW
PA1a-24V	24 V DC			3,200 Ω	180 mA

3. Output ratings (per PA relay)

Specification	Item	Performance
Contact rating	Rated control capacity (resistive load)	3 A 250 V AC, 3 A 30 V DC
	Maximum allowable contact power (resistive load)	500 VA (AC), 60 W (DC)
	Maximum allowable contact voltage	250 V AC, 30 V DC
	Maximum allowable contact current	3 A
	Minimum load (ref. value)	100 mV 100 μA
Expected life	Electrical (resistive load)	Min. 3×10^4: 3 A 250V AC Min. 3×10^4: 3 A 30V DC Min. 10^5: 2 A 250V AC, Min. 10^5: 2 A 30V DC
	Mechanical	Min. 2×10^7 (at 180 cpm)

SPECIFICATIONS

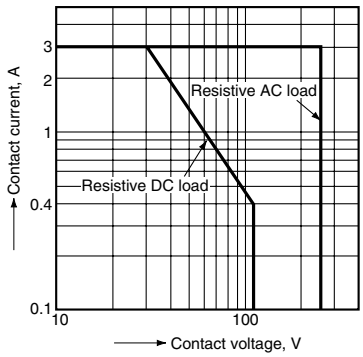
Item		Specifications
Breakdown voltage	Between input and output	2,000 Vrms for 1 min.
	Between different terminals (between relays, both ways)	1,500 Vrms for 1 min.
Insulation resistance		Min. 100 MΩ (Using 500 V DC megger)
Vibration resistance (destructive)		10 to 55 Hz at double amplitude 1 mm .039 inch
Vibration resistance (functional)		10 to 55 Hz at double amplitude 1 mm .039 inch
Shock resistance (destructive)		Min. 196 m/s²
Shock resistance (functional)		Min. 98 m/s²
Ambient temperature		–20°C to +55°C –4°F to +131°F
Ambient humidity		35% to 85% R.H. (Not condensing)
Storage temperature		–30°C to +80°C –22°F to +176°F (Not freezing and condensing)
Terminal screw fasten torque		0.3 to 0.5 Nm {3 to 5 kgf·cm}
Coil surge absorber		Diode (1 A, 400 V)
Cross connection protecting diode		1.5 A, inverse voltage 40 V
Unit weight		Approx. 100 g 3.53 oz

Notes: 1. The value of breakdown voltage and insulation resistance is the initial one.
2. Condensing occurs when the unit relay is exposed to sudden temperature change in a high temperature and high humidity atmosphere. This may cause some troubles like insulation failure of the socket or the print circuit board. Take care under this condition
3. Below 0°C 32°F, condensing water can freeze and cause socket contact failures and other problems. Take care under this condition.

REFERENCE DATA

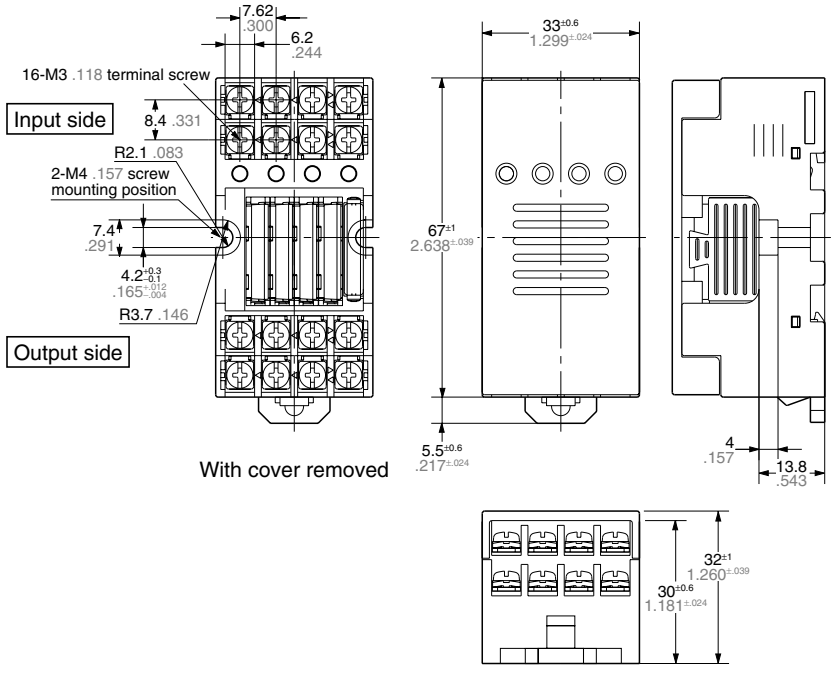
Maximum value for switching capacity (output)

Per PA relay



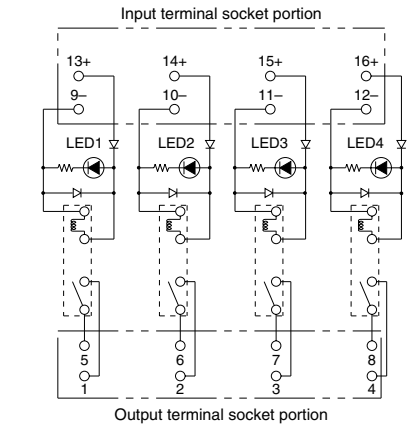
DIMENSIONS (Unit: mm inch)

External dimensions



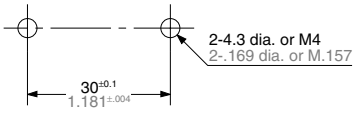
General tolerance: ±0.3 ±.012

Schematic



Note: Cannot be equipped with Power PhotoMOS standard type relays. However, equipping with voltage sensitive type of Power PhotoMOS relays (AQZ○○○D) is possible.

Mounting hole pattern



* For Accessories, see page 210.
** For Caution for Use, see page 209.

CAUTIONS FOR USE

1. Never install modules (relays) into this product other than those designated. Doing so will cause malfunction, breakdown, and breakdown of the connected product.

2. Physical Impact

If a unit is dropped be sure to check its external appearance and characteristics before using it.

3. The operation and return voltage values when equipped with PA relays are based on the relay terminals being face down.

4. Switching lifetime (PA relay)

This characteristic depends on the relay and is effected by coil driving circuit, load type, activation frequency, activation phase, ambient conditions and other factors.

Also, be especially careful of loads such as those listed below.

(1) When used for AC load-operating and the operating phase is synchronous, rocking and fusing can easily occur due to contact shifting.

(2) Frequent switching under load condition

When high frequently switched under load condition that can cause arc at the contacts, nitrogen and oxygen in the air is fused by the arc energy and HNO_3 is formed. This can corrode metal materials. Three countermeasures for these are listed here.

1. Incorporate an arc-extinguishing circuit.
2. Lower the operating frequency
3. Lower the ambient humidity

5. Operating environment

1) Keep the product as far way as possible from power cables, high tension equipment, power equipment, equipment with transmitting devices such as amateur radios, or equipment which generates a large switching surge.

2) The main unit is made of resin; therefore, do not use it in areas where it may come in contact with (or be exposed to) organic solvents such as gasoline, thinner, and alcohol, or strong alkaline substances such as ammonia and caustic soda.

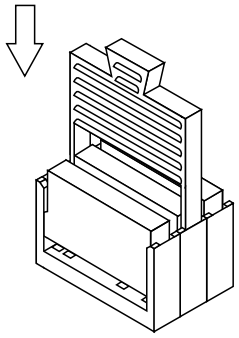
3) Do not use the product in areas where it may be exposed to flammable gases, corrosive gases, excessive dust, or moisture, or areas where it may be subjected to strong vibration or shock.

6. Installing and removing the module

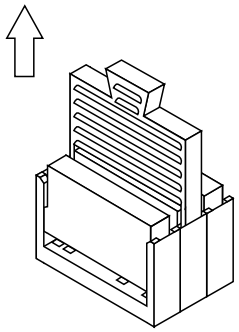
1) Firmly insert the module into the socket with the terminals going in the direction of the blade receptacles.

2) The module can be easily removed using the removal key.

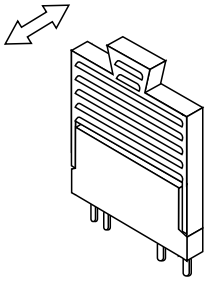
(1) Insert the removal key into the socket slots.



(2) Pull the removal key up to remove the module.



(3) Slide the removal key off of the module.



7. Wiring and circuit configuration

1) Perform wiring according to the internal schematic. Take care not to make any mistakes.

In particular, with the RT-3 relay (PA relay type) and 4-point terminal, be careful of the polarity on the output side when equipped with AQZ10∗D (DC type). Also, with the RT-3 relay (Power PhotoMOS relay type), be careful of the polarity on the output side of the DC type (RT3SP1-∗∗V for type equipped with AQZ102).

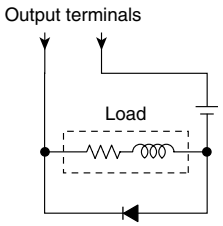
2) We recommend the use of wire-pressed terminals for connection to the terminal portion.

• Example of applicable wire-pressed terminal

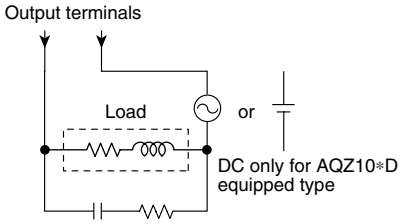
Company Name	Part Name	Applicable wire-pressed terminal
J.S.T. Mfg Co., Ltd.	1.25 to C3A	0.25 to 1.65mm²

3) When the load is inductive, limit spike voltages generated from the load to less than the maximum load voltage. Typical circuits are shown below.

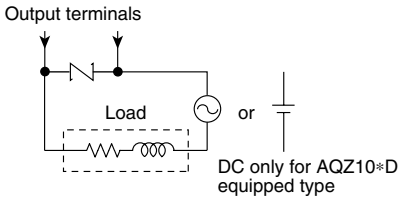
Add a clamp diode to the load.



Add an R-C snubber to the load.



Add a varistor between the output terminals.

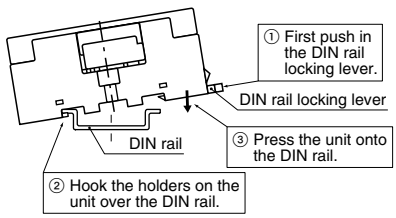


4) Even if spike voltages generated from the load are limited by a clamp diode or R-C snubber, inductances in long circuit wires will still create spike voltages. Keep wires as short as possible to minimize inductance.

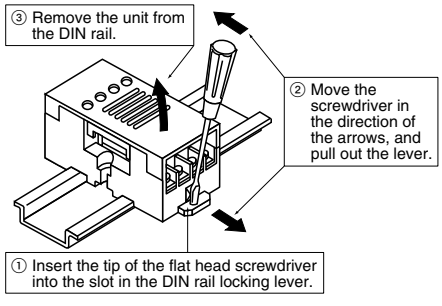
8. Installation

1) Perform mounting hole cutout according to the panel cutout drawings.

2) When installing the unit on a DIN rail, use the DIN rail locking lever on the side of the unit. Installation is accomplished by simply fitting the unit onto the rail and pressing gently.



3) To remove the unit from the DIN rail, use a flat head screwdriver to pull out the DIN rail locking lever.



CAUTIONS FOR USE

9. Transporting and storage

1) If the product is subjected to extreme vibration while being transported, the relays may become detached, the lead may become bent, and the unit may become damaged. Handle the inner and outer boxes with care.

2) If the product is stored in an extremely adverse environment, visible defects and deterioration of performance characteristics may result. We recommend the following storage conditions.

- Temperature: 5 to 30°C 41 to 86°F
- Humidity: Max. 60% R.H.
- Environment: No hazardous substances such as sulfurous acid gases and little dust.

10. When equipped with Power PhotoMOS relay voltage drive type

Since the Power PhotoMOS relay voltage drive type does not require the current-controlling resistance on the input side, it can be used together with PA relays on RT-3 unit relay (PA relay type) or RT-2 relay terminals.

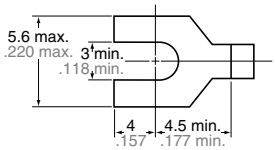
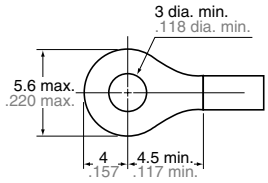
When connecting Power PhotoMOS relay voltage drive types, since it will be a close connection, it will be necessary to be careful of load currents. Be sure to refer to the information given regarding load currents and ambient temperature characteristics in the precautions given for use of RT-2 relay terminals.

TERMINAL BLOCK

We recommend using wire-pressed terminals for connection to the terminal portion.

- Applicable electrical wire
  0.25 to 1.65 mm² .01 to .065 inch
- Applicable wire-pressed terminals

mm inch

		
Company Name	Part Name	Part Name
J.S.T. Mfg Co., Ltd.	1.25 to C3A	1.25 to 3
NICHIFU	1.25Y to 3N	1.25 to 3
Nippon Tanshi Co., Ltd.	VD1.25 to 3	R1.25 to 3

ACCESSORIES

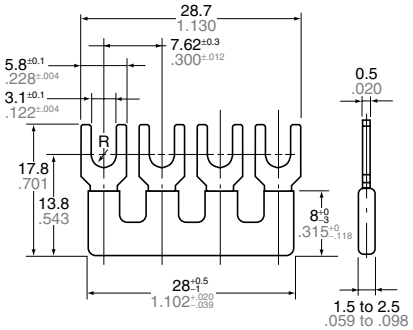
mm inch

Short circuit plate

Use when you want to bridge terminals.

< With insulator >

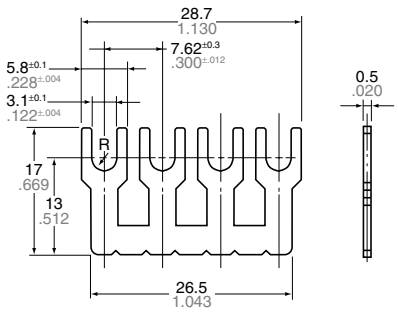
AY3802



General tolerance: ±0.5 ±.020

< Without insulator >

AY3803



General tolerance: ±0.5 ±.020

010-68008911　68008909 北京　　0755-83656114　83655259 深圳

www.shuntu.net　　http://www.nais-omron.com/

4 点单元继电器 PA 继电器型 relay 松下继电器 NAIS
正规授权代理商
实现了细长、省空间的 4 点输出。机械继电器配备型。
配置半导体继电器，维护自由。
1.宽度 33mm 的省空间细长型、独立 4 点、底面积仅为 33×67mm。
实现了控制盘与机器的小型化。
2.搭载高感度 Au 包层双芯接点的 PA 继电器。
搭载宽度 5mm 的 PA 继电器。
对于 PA 继电器而言，通过高灵敏度（12V 型:120mW、24V 型:180mW）的 Au 包层双芯接点，即使微小负载也可具有较高的可靠度。
3.可使用 DIN 导轨安装，也可使用直接安装（螺丝安装）。
4.附带 LED 显示，使操作确认简易化。
5.内置电涌吸收线路。
内置线圈电涌的吸收线路。保护控制器的线路，防止误操作。
6.继电器可通过附属于本体的拆除键简易拆除。
7.为提高安全性，装有外部保护罩。

订货产品号	型番	产品名
AY30000	RT3BB	4 点单元继电器 relay 松下继电器 NAIS 固态继电器
AY30001	RT3BB-12V	4 点单元继电器 relay 松下继电器 NAIS 固态继电器
AY30002	RT3BB-24V	4 点单元继电器 relay 松下继电器 NAIS 固态继电器
AY33001	RT3S-12V	4 点单元继电器 relay 松下继电器 NAIS 固态继电器
AY33002	RT3S-24V	4 点单元继电器 relay 松下继电器 NAIS
AY33009	RT3S-5V	4 点单元继电器 relay 松下继电器 NAIS
AY34001	RT3SP1-12V	4 点单元继电器 relay 松下继电器 NAIS
AY34002	RT3SP1-24V	四点单元继电器 relay 松下继电器 NAIS
AY35001	RT3SP2-12V	四点单元继电器 relay 松下继电器 NAIS
AY35002	RT3SP2-24V	四点单元继电器 relay 松下继电器 NAIS