

Autonics

1 POINT RELAY TERMINAL BLOCK (3A)

ABS Series

INSTRUCTION MANUAL



Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.

※⚠ symbol represents caution due to special circumstances in which hazards may occur.

Warning Failure to follow these instructions may result in serious injury or death.

Caution Failure to follow these instructions may result in personal injury or product damage.

Warning

- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.** (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.) Failure to follow this instruction may result in personal injury, economic loss or fire.
- Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.** Failure to follow this instruction may result in personal injury or fire.
- Do not connect, repair, or inspect the unit, remove connector, or change Relay (SSR) while connected to a power source.** Failure to follow this instruction may result in fire or electric shock.
- Do not disassemble or modify the unit.** Failure to follow this instruction may result in fire or electric shock.

Caution

- Use the unit within the rated specifications.** Failure to follow this instruction may result in fire or product damage.
- Use a dry cloth to clean the unit, and do not use water or organic solvent.** Failure to follow this instruction may result in fire or electric shock.
- Keep the product away from metal chip, dust, and wire residue which flow into the unit.** Failure to follow this instruction may result in fire or product damage.
- Do not use the product when a screw of terminal is loosened.** Failure to follow this instruction may result in fire or product damage.

Précautions pour la sécurité

※Après avoir lu ce guide, s'il vous plaît, placez-le dans un lieu où vous pouvez récemment le trouver.

※⚠Précaution: Blessure ou danger peuvent se produire dans des conditions particulières.

Avertissement L'inaccomplissement des instructions peut provoquer des blessures graves.

Précaution Le produit peut être endommagé ou de provoquer des blessures si les consignes ne sont pas respectées.

Avertissement

- Utilisez le produit seulement après avoir relié un double dispositif de sécurité pour les instruments qui ont un grand effet pour le corps humain et la propriété, comme sont les dispositifs d'énergie atomique, mets en oeuvre Médecine, de véhicules, Rails, avions, Brûleurs ou produits de sécurité.** L'inaccomplissement peut causer des incendies, lésions personnelles ou dommages à la propriété.
- Ne pas réparer ou vérifier le produit tout alimenté.** L'inaccomplissement peut provoquer un incendie ou des décharges électriques.
- Utilisez le produit avec l'environnement comme il est décrit dans le manuel. Évitez le lieu d'émission de gaz corrosifs, gaz inflammables, incorporation température, haute humidité, vibrations, choc, etc.** L'inaccomplissement peut provoquer un incendie ou une explosion.
- Ne pas démonter et modifier cet appareil. S'il vous plaît nous contacter si cela est nécessaire.** L'inaccomplissement pourrait causer des décharges électriques, incendies, lésions personnelles ou dommages à la produit.

Précaution

- Cette unité ne doit pas être utilisé à l'extérieur.** Peut raccourcir le cycle de vie du produit ou causer un choc électrique.
- S'il vous plaît respecter les spécifications nominales.** L'inaccomplissement peut raccourcir le cycle de vie du produit et provoquer un incendie.
- Dans nettoyer l'appareil, n'utilisez pas d'eau ou de solvants organiques. Et utiliser un chiffon sec.** L'inaccomplissement peut donner lieu de décharges électriques ou des dommages au produit.
- Ne pas laisser de poussière pénétrer l'unité.** Cela pourrait provoquer un incendie ou un dysfonctionnement.

※The above specifications are subject to change and some models may be discontinued without notice.
※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, website).

Model

Model	Terminal type	Connector type	Number of relay points	Relay type	Input logic	Varistor installation
ABS-S01PA-CN	Screw	Screw	1	MATSUSHITA (Panasonic) PA	COM	Not installed
ABS-S01TN-CN				TAKAMISAWA (Fujitsu) NYP	None	

Crimp Terminal Specifications

	A	B	C	D	Applicable wires
Spade crimp terminal	≥ 4.1	≤ 16.0	≥ 3.0	≤ 5.9	AWG22-16 (0.30 to 1.25mm ²)
Ring crimp terminal	≥ 4.1	≤ 16.0	≥ 3.0	≤ 5.9	

<Spade crimp terminal> <Ring crimp terminal> ※Please use UL certified crimp terminals.

Specifications

Model	ABS-S01PA-CN	ABS-S01TN-CN
Power supply	24VDC ± 10%	
Rated load voltage & current ^{※1}	250VAC ~ 3A, 30VDC = 3A	
Current consumption ^{※2}	≤ 8mA	≤ 8.5mA
Output type	1a contact relay output	
Applicable relay	APAN3124 [MATSUSHITA (Panasonic)]	NYP24W-K [TAKAMISAWA (Fujitsu)]
No. of relay points	1-point	
Indicator	Operation indicator: blue LED	
Applicable wire	AWG22-16 (0.30 to 1.25mm ²)	
Insulation resistance	≥ 1,000MΩ (at 500VDC megger)	
Dielectric strength	Between coil-contact	3,000VAC 50/60Hz for 1 minute
	Between same contacts ^{※3}	1,000VAC 50/60Hz for 1 minute
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours
	Malfunction	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minute
Shock	Mechanical	500m/s ² (approx. 50G) in each X, Y, Z direction for 3 times
	Malfunction	147m/s ² (approx. 15G) in each X, Y, Z direction for 3 times
Environment	Ambient temperature	-15 to 55°C, storage: -25 to 65°C
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH
Material	Case&base: polyamide 6, terminal pin: brass	
Tightening torque	5.1 to 6.1kgf-cm (0.5 to 0.6 N-m)	
Approval	CE, RoHS	
Weight ^{※4}	Approx. 314.5g (approx. 21.5g)	Approx. 324.5g (approx. 22.2g)

※1: Relay contact capacity for resistive load. ※2: The power consumption including LED current by one relay.

※3: ABS-S01TN-CN model is 750VAC.

※4: Except 30VDC of rated load voltage for CE, RoHS.

※5 The weight of 1-point relays is per 10 units with packing and the weight of parenthesis is per 1.

※Environment resistance is rated at no freezing or condensation.

Relay

※Coil specifications ※All values in the table are measured at 20°C with a tolerance of ±10%

Model	Rated voltage	Must operate voltage	Must release voltage	Rated current	Coil resistance	Power consumption
APAN3124	24VDC =	≥ 70% of Nominal voltage	≤ 5% of Nominal voltage	4.6mA	5,236Ω	110mW
NYP24W-K	24VDC =	16.1V	2.4V	5mA	4,800Ω	120mW

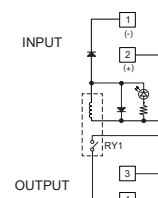
Contact specifications

Maker	MATSUSHITA (Panasonic)	TAKAMISAWA (Fujitsu)		
Model	APAN3124	NYP24W-K		
Contact	Arrangement	1form A (SPST 1a)		
	Material	Au-clad AgNi type		
	Resistance (initial)	≤ 30mΩ (at 1A 6VDC =)		
Rating	Rated load	5A 250VAC ~	5A 30VDC =	
	Max. switching capacity	1,250VA	150W	
	Min. switching capacity	100mVDC =	100uA	
	Max. switching voltage	250VAC =	110VDC =	
Electrical characteristics	Insulation resistance	≥ 1,000MΩ (at 500VDC megger)		
		Dielectric strength	Between contact-coil: 3,000VAC 50/60Hz for 1 minute	3,000VAC 50/60Hz for 1 minute
	Surge voltage	Between open contacts	1,000VAC 50/60Hz for 1 minute	750VAC 50/60Hz for 1 minute
		Operate time	6,000V	5,080V
		Release time	≤ 10ms	≤ 5ms
Mechanical characteristics	Vibration	Mechanical	3.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour	5.0mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour
		Malfunction	2.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min	1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min
	Shock	Mechanical	980m/s ² (approx. 100G) in each X, Y, Z direction for 3 times	1000m/s ² (approx. 100G) in each X, Y, Z direction for 3 times
		Malfunction	147m/s ² (approx. 15G) in each X, Y, Z direction for 3 times	100m/s ² (approx. 10G) in each X, Y, Z direction for 3 times
Expected life	Mechanical	≥ 20,000,000 operations (at 180times/min)		
	Electrical	≥ 100,000 operations (3A 250VAC ~, 30VDC = resistive load)		
Environment	Ambient temperature	-40 to 90°C		
	Ambient humidity	5 to 85%RH		
Unit weight	Approx. 3g		Approx. 3.5g	

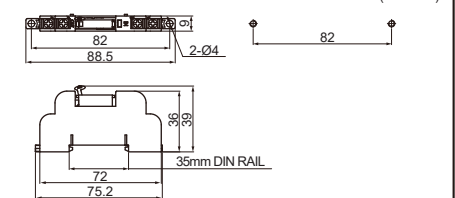
※1: 50,000 operations - 5A 250VAC, 30VDC resistive load. (per 20 operations/min)

※Environment resistance is rated at no freezing or condensation.

Connections



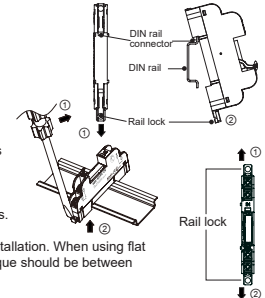
Dimensions



Installation

1. Mounting and Removal at DIN rail.

- Mounting
 - 1) Push the rail lock towards direction ①.
 - 2) Attach the DIN rail connection hook onto the DIN rail.
 - 3) Push the unit towards direction ②, then push the rail lock in to lock into position.
- Removal
 - 1) Insert a screwdriver into the rail lock hole and pull it towards direction ①.
 - 2) Remove the unit by pulling the unit towards direction ②.

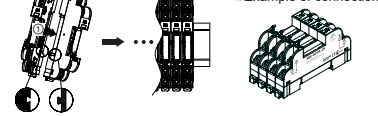


2. Mounting with screws

- 1) This unit can be mounted on panels using the rear rail locks.
- 2) Push rail locks to the directions ①, ②.
- 3) M4×15mm spring washer screws are recommended for installation. When using flat washers, use Ø6mm diameter washers. The tightening torque should be between 7.14 to 10.2kgf-cm (0.7 to 1.0N-m).

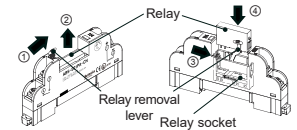
3. Connecting multiple units

Connect multiple units by locking the socket (□) and peg (△) together in direction ①.



Replacing Relay

- 1) Pull the relay removal lever towards direction ① and the relay will pop up in direction ②.
- 2) Remove the relay and return the relay removal lever to its original position ③.
- 3) Check the socket position and insert the relay into the socket.



Caution During Use

1. Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
2. Check the polarity of power or COMMON before connecting PLC or other controllers.
3. Do not apply the excessive force to the removal lever when removing a relay.
4. Do not touch the unit immediately after the load power is supplied or cut. It may cause burn by high temperature.
5. 24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
6. Wire as short as possible and keep away from high voltage lines or power lines, to prevent surge and inductive noise. Do not use near the equipment which generates strong magnetic force or high frequency noise (transceiver, etc.). In case installing the product near the equipment which generates strong surge (motor, welding machine, etc.), use diode or varistor to remove surge.
7. This unit may be used in the following environments.
 - ① Indoors(in the environment condition rated in 'Specifications')
 - ② Altitude max. 2,000m
 - ③ Pollution degree 2
 - ④ Installation category II

Major Products

- Photoelectric sensors
- Fiber optic sensors
- Door sensors
- Door side sensors
- Area sensors
- Proximity sensors
- Pressure sensors
- Rotary encoders
- Connector/sockets
- Switching mode power supplies
- Control switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper motors/drivers/motion controllers
- Graphic/Logic panels
- Field network devices
- Laser marking system (Fiber, CO₂, Nd:YAG)
- Laser welding/cutting system
- Temperature controllers
- Temperature/Humidity transducers
- SSRs/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse (Rate)meters
- Display units
- Sensor controllers

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