

# 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.
- ※Safety considerations are categorized as follows.
- ⚠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.
- ※The symbols used on the product and instruction manual represent the following  
 ⚠Symbol represents caution due to special circumstances in which hazards may occur.

#### ⚠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, fire, or economic loss.
- Do not repair, or inspect the unit while connected to a power source.** Failure to follow this instruction may result in fire or electric shock.
- Do not use the unit where flammable or explosive gas, humidity, direct sunlight, radiant heat, vibration, or impact may be present.** Failure to follow this instruction may result in fire or explosion.
- Do not disassemble or modify the unit. Please contact us if necessary.** Failure to follow this instruction may result in electric shock, fire, or product damage.

#### ⚠Caution

- Do not use the unit outdoors.** Failure to follow this instruction may result in shortening the life cycle of the unit, or electric shock.
- Use the unit within the rated specifications.** Failure to follow this instruction may result in shortening the life cycle of the unit, or fire.
- Do not use water or oil-based detergent when cleaning the unit. Use dry cloth to clean the unit.** Failure to follow this instruction may result in electric shock or product damage.
- Keep dust and wire residue from flowing into the unit.** 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.
- ※S'il vous plaît suivre les conseils suivants pour la sécurité.
- ⚠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.
- ※La signification des icônes utilisées dans le produit et le manuel sont les suivants:  
 ⚠Précaution: Blessure ou danger peuvent se produire dans des conditions particulières.

#### ⚠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 œuvre Médecine, de véhicules, Rails, aéronefs, Brûleurs ou produits de sécurité.** L'inaccomplissement peut causer des incendies, lésions personnelles ou dommages à la propriété. 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 des décharges électriques ou des dommages au produit.
- Ne pas laisser de poussière pénétrer l'unité.** Cela pourrait provoquer un incendie ou un dysfonctionnement.

### ■ 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	Min. 4.1	Max. 16.0	Min. 3.0	Max. 5.9	AWG22-16 (0.30 to 1.25mm <sup>2</sup> )
Ring crimp terminal	Min. 4.1	Max. 16.0	Min. 3.0	Max. 5.9	

※Please use UL certified crimp terminals.

### ■ Specifications

Model	ABS-S01PA-CN	ABS-S01TN-CN
Power supply	24VDC ±10%	
Rated load voltage & current <sup>※1</sup>	250VAC 3A, 30VDC 3A	
Current consumption <sup>※2</sup>	Max. 10.5mA	Max. 8.5mA
Output type	1a contact relay output	
Applicable relay	PA: PA1a-24V [MATSUSHITA (Panasonic)]; TN: NYP24W-K [TAKAMISAWA (Fujitsu)]	
No. of relay points	1-point	
Indicator	Operation indicator: Blue LED	
Applicable wire	AWG22-16 (0.30 to 1.25mm <sup>2</sup> )	
Insulation resistance	Min. 1,000MΩ (at 500VDC megger)	
Dielectric strength	Between coil-contact	2,000VAC 50/60Hz for 1 minute
	Between same contacts <sup>※3</sup>	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 <sup>2</sup> (approx. 50G) in each X, Y, Z direction for 3 times
	Malfunction	147m/s <sup>2</sup> (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, ATEX	
Weight <sup>※4</sup>	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 10mm<sup>2</sup>.
- ※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

1)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
PA1a-24V	24VDC	Min. 70% of Nominal voltage	Max. 5% of Nominal voltage	7.5mA	3,200Ω	180mW
NYP24W-K	24VDC	16.1V	2.4V	5mA	4,800Ω	120mW

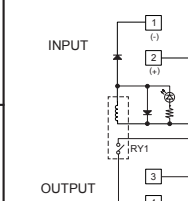
#### 2)Contact specifications

Maker	MATSUSHITA (Panasonic)	TAKAMISAWA (Fujitsu)
Model	PA1a-24V	NYP24W-K

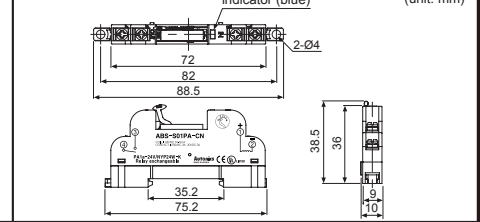
Contact	Arrangement	1form A (SPST 1a)	Au-clad AgNi type	Gold overlay silver alloy
Rating	Resistance (initial)	Max. 30mΩ (at 1A 6VDC)		
	Rated load	5A 250VAC	5A 30VDC	3A 250VAC
	Max. switching capacity	1,250VA	150W	750VA
	Min. switching capacity	100mVDC 100uA		5VDC 1mA
Electrical characteristics	Max. switching voltage	250VAC	110VDC	270VAC
	Max. switching current	5A		150VDC
Mechanical characteristics	Insulation resistance	Min. 1,000MΩ (at 500VDC megger)		
	Dielectric strength	Between contact-coil	2,000VAC 50/60Hz for 1 minute	3,000VAC 50/60Hz for 1 minute
		Between open contacts	1,000VAC 50/60Hz for 1 minute	750VAC 50/60Hz for 1 minute
	Surge voltage	4,000V		5,080V
Operate time	Max. 10ms			
	Release time		Max. 5ms	
Expected life	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	
		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 <sup>2</sup> (approx. 100G) in each X, Y, Z direction for 3 times	1000m/s <sup>2</sup> (approx. 100G) in each X, Y, Z direction for 3 times
		Malfunction	147m/s <sup>2</sup> (approx. 15G) in each X, Y, Z direction for 3 times	100m/s <sup>2</sup> (approx. 10G) in each X, Y, Z direction for 3 times

- ※1: 50,000 operations - 5A 250VAC, 30VDC resistive load. (per 20 operations/min)
- ※Environment resistance is rated at no freezing or condensation.
- ※The above specifications are subject to change and some models may be discontinued without notice.

### ■ Connections



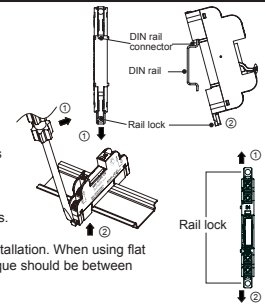
### ■ Dimensions



### ■ 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.

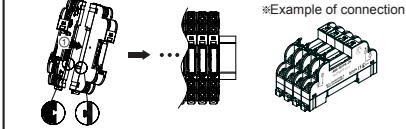


#### 2. Mounting with screws

- 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).

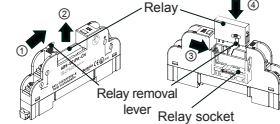
#### 3. Connecting multiple units

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 this 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. Use the unit within the rated environment of specification.
2. Supply power within the rated allowable voltage range.
3. Check the polarity of power or COMMON before connecting PLC or other controllers.
4. When connecting the power input, use AWG22-16 (0.30 to 1.25mm<sup>2</sup>). For using crimp terminals, refer to "Crimp Terminal Specifications".
5. Do not connect wire, or replace relays while connected to a power source.
6. Do not touch the unit immediately after the load power is supplied or cut. It may cause burn by high temperature.
7. Do not use the unit when screws are released. It may cause malfunction or burnout.
8. Do not apply the excessive force to the removal lever when removing a relay.
9. In case of 24VDC signal input, isolated and limited voltage/current or Class 2 source should be provided for power supply.
10. Do not use the unit at below places.
  - ① Environments with high vibration or shock.
  - ② Environments where strong alkalis or acids are used.
  - ③ Environments with exposure to direct sunlight.
  - ④ Near machinery which produce strong magnetic force or electric noise
11. This unit may be used in the following environments.
  - ① It shall be used indoor
  - ② Altitude Max. 2,000m
  - ③ Pollution Degree 2
  - ④ Installation Category II

※Failure to follow these instructions may result in product damage.

### ■ 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, CO<sub>2</sub>, Nd:YAG)
- Laser welding/cutting system
- Temperature controllers
- Temperature/Humidity transducers
- SSRs/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse (Rate)meters
- Sensor controllers

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