

# Autonics RELAY TERMINAL BLOCK 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 explosion 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.

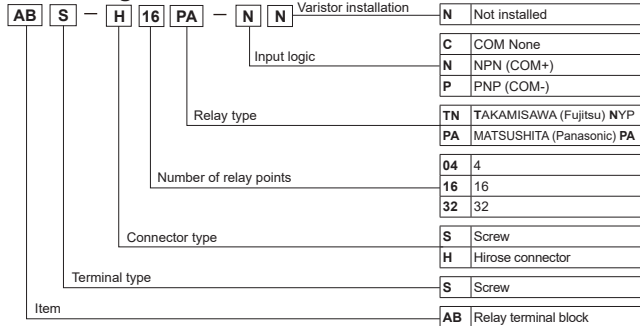
### ⚠ Avertissement

- 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, aéronefs, 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 propriété.

### ⚠ Précaution

- Cette unité ne doit pas être utilisée 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.

## ■ Ordering Information



☒ 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).

## ■ Specifications

Model	ABS-S04PA-CN ABS-S04TN-CN	ABS-H16PA-NN(PN) ABS-H16TN-NN(PN)	ABS-H32PA-NN(PN) ABS-H32TN-NN(PN)
Power supply	24VDC ±10%		
Rated load voltage & current <sup>1)</sup>	250VAC ~ 3A, 30VDC = 3A		250VAC ~ 2A, 30VDC = 2A (2A/1point, 8A/1COM)
Current consumption	PA type TN type	≤ 8mA <sup>2)</sup> ≤ 8.5mA <sup>2)</sup>	≤ 8mA <sup>2)</sup> /≤ 13mA <sup>2)</sup> ≤ 8.5mA <sup>2)</sup> /≤ 13.5mA <sup>2)</sup>
Output type	1a contact relay output		
Applicable relay	PA: APAN3124 [MATSUSHITA (Panasonic)], TN: NYP24W-K [TAKAMISAWA (Fujitsu)]		
No. of relay points	4-point	16-point	32-point (8-point/1COM)
No. of connector pins	—	20-pin	40-pin
Indicator	Operation indicator: blue LED		Operation indicator: red LED, operation and disconnection indicator: blue LED
Applicable wire	AWG22-16 (0.30 to 1.25mm <sup>2</sup> )		
Insulation resistance	≥ 1,000MΩ (at 500VDC megger)		
Dielectric strength	Between coil-contact	3,000VAC 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 min	
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 temp.	-15 to 55°C, storage: -25 to 65°C	
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH	
Material	Case&base: modified polyphenylene oxide, terminal pin: brass	Case: modified polyphenylene oxide, base: polyamide 66 (G25%), terminal pin: brass	
Tightening torque	5.1 to 6.1kgf·cm (0.5 to 0.6 N·m)		
Accessory <sup>4)</sup>	Jumper bar: 2 (Model No. JB-7.62-04)		
Approval			
Weight <sup>5)</sup>	PA type	Approx. 104g (approx. 68g)	Approx. 307g (approx. 224g) / Approx. 438g (approx. 345g)
	TN type	Approx. 107g (approx. 71g)	Approx. 318g (approx. 235g) / Approx. 463g (approx. 370g)

- ☒ 1: Relay contact capacity for resistive load.
- ☒ 2: The current consumption including LED current by one relay.
- ☒ 3: The current consumption including power LED current of '☒1'.
- ☒ 4: For TN type (Fujitsu relay) is 750VAC.
- ☒ 5: ABS-H32 □ □ -NN(PN) does not supply jumper bar.
- ☒ 6: Except 30VDC of rated load voltage for ☒.
- ☒ 7: The weight includes packaging. The weight in parentheses is for unit only.
- ☒ Environment resistance is rated at no freezing or condensation.

### ● Relay

- Coil specifications

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

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

### 2) Contact specifications

Model	MATSUSHITA (Panasonic)	TAKAMISAWA (Fujitsu)
Model	APAN3124	NYP24W-K
Contact	Arrangement	1 Form A (SPST 1a)
	Material	Au-clad AgNi type
Rating	Resistance (initial)	≤ 30mΩ (at 1A 6VDC =)
	Rated load	5A 250VAC ~ 5A 30VDC =
Electrical characteristics	Max. switching capacity	1,250VA / 150W
	Min. switching capacity	100mVDC = 100uA
	Max. switching voltage	250VAC ~ 110VDC =
	Max. switching current	5A
Mechanical characteristics	Insulation resistance	≥ 1,000MΩ (at 500VDC megger)
	Dielectric strength	Between contact-coil: 3,000VAC 50/60Hz for 1 minute Between open contacts: 1,000VAC 50/60Hz for 1 minute
	Surge voltage	6,000V / 5,080V
	Operate time / Release time	≤ 10ms / ≤ 5ms
Vibration	Mechanical	3.5mm 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 minute
	Mechanical	980m/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
Expected life	Mechanical	≥ 20,000,000 operations (at 180 times/min)
	Electrical <sup>1)</sup>	≥ 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	

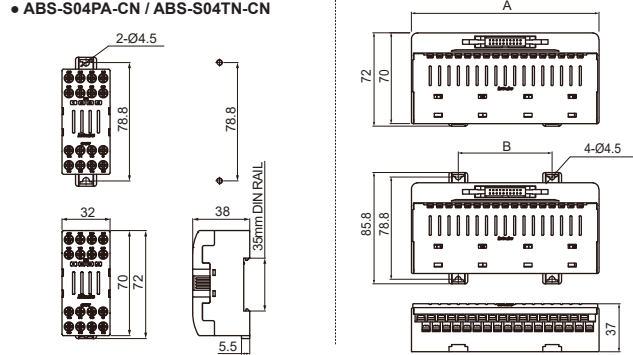
☒ 1: 50,000 operations - 5A 250VAC, 30VDC resistive load. (per 20 operations/min)  
☒ Environment resistance is rated at no freezing or condensation.

- Coil specifications

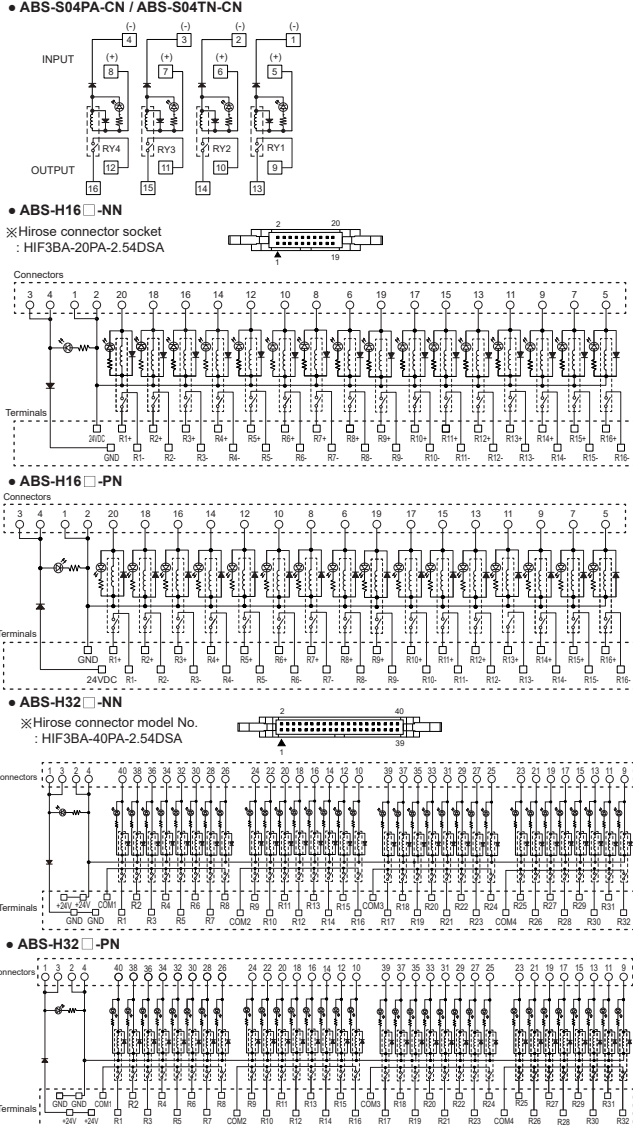
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## ■ Dimensions



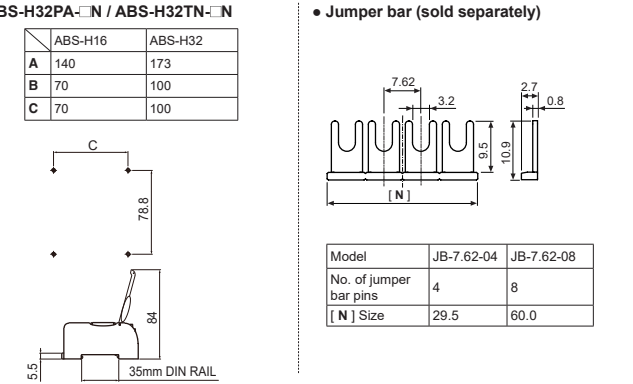
## ■ Connections



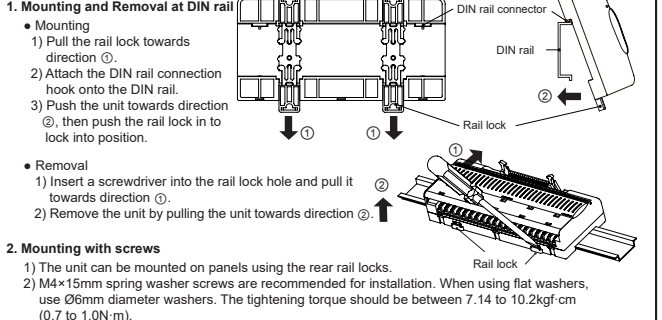
## ■ Crimp Terminal Specifications

	<Spade crimp terminal>		<Ring crimp terminal>		Applicable wires (unit: mm)
	A	B	C	D	
Spade crimp terminal	≥ 4.1	≤ 16.0	≥ 3.0	≤ 5.9	AWG 22-16 (0.30 to 1.25mm <sup>2</sup> )
Ring crimp terminal	≥ 4.1	≤ 16.0	≥ 3.0	≤ 5.9	

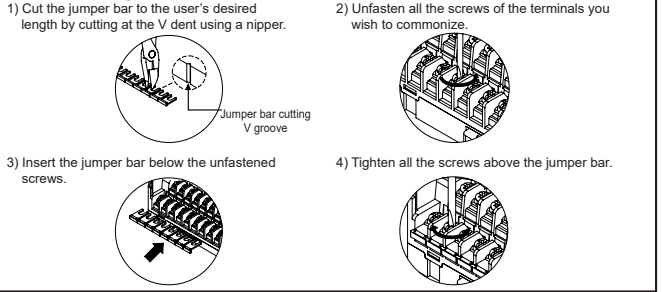
☒ Please use UL certified crimp terminals.



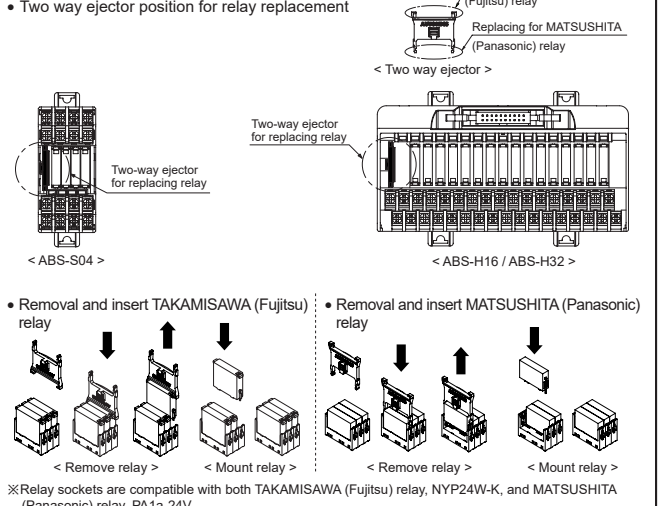
## ■ Installation



## ■ Installing Jumper Bars



## ■ Replacing Relays



## ■ Caution during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- Check the polarity of power or COMMON before connecting PLC or other controllers.
- Do not touch the unit immediately after the load power is supplied or cut. It may cause burn by high temperature.
- 24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- 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.
- 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, 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
- Display Units
- Sensor Controllers

**Autonics Corporation**  
http://www.autonics.com

HEADQUARTERS:  
18, Bansong-ro 513 beon-gil, Haeundae-gu, Busan, South Korea, 48002  
TEL: 82-51-519-3232  
E-mail: sales@autonics.com