

Screwless Relay Terminal Block (4-point)

ABL Series INSTRUCTION MANUAL

TCD210107AA

Autonics

Thank you for choosing our Autonics product.

Read and understand the instruction manual and manual thoroughly before using the product.

For your safety, read and follow the below safety considerations before using. For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

Keep this instruction manual in a place where you can find easily.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Follow Autonics website for the latest information.

Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

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

01. 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.

02. 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.

03. Do not connect, repair, or inspect the unit, remove connector, or change Relay while connected to a power source.

Failure to follow this instruction may result in fire or electric shock.

04. Do not disassemble or modify the unit.

Failure to follow this instruction may result in fire or electric shock.

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

01. Use the unit within the rated specifications.

Failure to follow this instruction may result in fire or product damage.

02. 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.

03. 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.

Cautions 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.
 - Indoors (in the environment condition rated in 'Specifications')
 - Altitude max. 2,000 m
 - Pollution degree 2
 - Installation category II

Product Components

- Product
- Instruction manual

- PA, TN: 6.0 mm pitch jumper bar (JB-6.0-04L), Two Way Ejector
- PQ, R6: 10.2 mm pitch jumper bar (JB-10.2-04L)

Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

ABL - L 04 ① - U ②

① Relay type	② Varistor
PA: MATSUSHITA(Panasonic) PA	N: None
TN: TAKAMISAWA(Fujitsu) NYP	Y: Equipted
PQ: MATSUSHITA(Panasonic) PQ	
R6: OMRON G6B	

Sold Separately

- PA, TN: 6.0 mm pitch jumper bar (JB-6.0-04L)
- PQ, R6: 10.2 mm pitch jumper bar (JB-10.2-04L)

Specifications

Model	ABL-L04PA-□	ABL-L04TN-□	ABL-L04PQ-□	ABL-L04R6-□
Applied relay⁽⁰¹⁾	APAN3124 [MATSUSHITA (Panasonic)]	NYP24W-K [TAKAMISAWA (Fujitsu)]	PQ1a-24V [MATSUSHITA (Panasonic)]	G6B-1174P-FD-US [OMRON]
Output method	1a	1a	1a	1a
Power supply	≤ 24 VDC±10%	≤ 24 VDC±10%	≤ 24 VDC±10%	≤ 24 VDC±10%
Current consumption⁽⁰²⁾	≤ 8 mA	≤ 8 mA	≤ 20 mA	≤ 20 mA
Rated load voltage & current^{(03) (04)}	250 VAC~50/60 Hz 3A, 30 VDC±3A	250 VAC~50/60 Hz 3A, 30 VDC±5A		
Terminal type	Screwless	Screwless		
Terminal pitch	5.0 mm	10.2 mm		
Indicator	Operation indicator: blue	Operation indicator: blue		
Varistor	Equipted ⁽⁰⁵⁾ / not equipped model	Equipted ⁽⁰⁵⁾ / not equipped model		
Input logic	NPN / PNP selectable with jumper bar	NPN / PNP selectable with jumper bar		
Material	Terminal block: PA66, CASE, BASE: PPS, conducting plate: brass	Terminal block: PA66, CASE, BASE: MPPQ, conducting plate: brass		
Approval	CE, RoHS, ENEC	CE, RoHS, ENEC		
Unit weight (packaged)	≈ 72 g (≈ 125 g)	≈ 75 g (≈ 128 g)	≈ 94 g (≈ 150 g)	≈ 88 g (≈ 144 g)

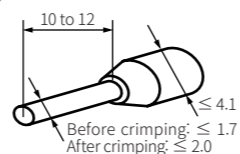
- (01) For the detailed information about each relay, please refer to 'Power Relay' or data sheet from the manufacturer.
 (02) It is current consumption for a relay including LED current.
 (03) This value is rated with resistive load.
 (04) When connecting loads to output part, please connect loads of same power type. Connecting loads of different power type may cause safety issues.
 (05) Since the varistor type is for protecting the contact, it is recommended to use with an inductive load.

Insulation resistance	≥ 1,000 MΩ (500 VDC± megger)
Dielectric strength (coil-contact)	PA, TN, R6: 3,000 VAC~50/60 Hz for 1 minute PQ: 4,000 VAC~50/60 Hz for 1 minute
Dielectric strength (same polarity contact)⁽⁰¹⁾	PA, PQ, R6: 1,000 VAC~50/60 Hz for 1 minute TN: 750 VAC~50/60 Hz for 1 minute
Vibration	PA, TN: 0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours PQ, R6: 1.5 mm amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Vibration (malfunction)	PA, TN: 0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 10 minutes PQ, R6: 1.5 mm amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 10 minutes
Shock	1,000 m/s ² (≈ 100 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s ² (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-15 to 55 °C, storage: -25 to 65 °C (a non freezing or condensation environment)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (a non freezing or condensation environment)
Protection structure	IP20 (IEC standard)
Applicable wire - solid⁽⁰¹⁾	Ø 0.6 to 1.25 mm
Applicable wire - stranded^{(01) (02)}	AWG 22-18 (0.30 to 0.80 mm ²)
Stripped length	8 to 10 mm

- (01) Use the cable of copper conductor in 60 °C temperature class.
 (02) When using the stranded wire, use End Sleeve (wire ferrule).

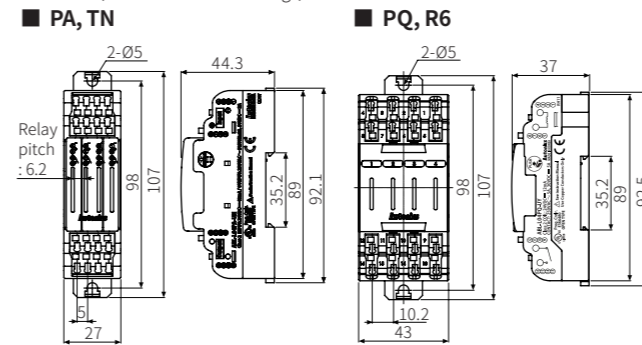
Wire Ferrule Specifications

- Unit: mm, Use the UL approved wire ferrule.



Dimensions

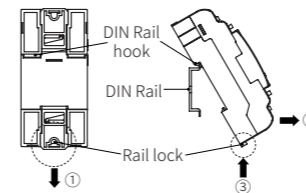
- Unit: mm, For the detailed drawings, follow the Autonics website.



Installation

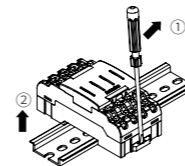
DIN Rail

- Mounting
 - Pull the Rail lock on the rear of the product to the direction ①.
 - Hang DIN rail hook on the rear of the product onto DIN rail.
 - Push the product to the direction ②, and push the Rail lock to the direction ③ to fix onto the DIN rail.



- Removing

- Insert a tool such as screwdriver into the hole of Rail lock.
- Push the toll to the direction ① and pull the Rail lock.
- Lift bottom of the product to the direction ② and remove the product from DIN rail.



Panel

With the DIN rail lock at the top/bottom of the body, the product can be installed on panel with screw.

It is recommended to use M4×10 mm of spring washer screws.

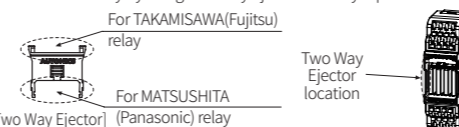
If you use flat washer, its diameter should be Ø 9 mm.

Tighten the screw with the tightening torque of 1.0 to 1.5 N·m.

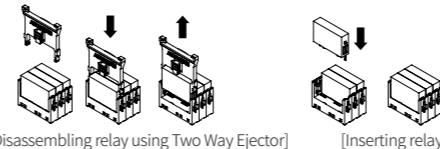
Replacing Relay

PA, TN

- Disassemble a relay by using Two Way Ejector for relay replacement inside the product.



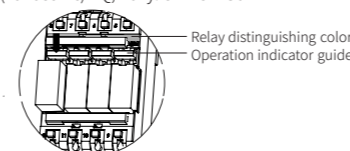
- After checking the location of the relay socket, insert the relay to be replaced.



PQ, R6

- Remove the protection cover.
 - Release the relay by pushing the operation indicator guide.
 - Insert the relay to be replaced into the groove of the case.
- By the color of jumper bar inserting groove, user can distinguish relay of the model. Use only the designated relay.

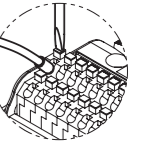
Green: MATSUSHITA(Panasonic) PQ, Navy: OMRON G6B



Wiring

- Connecting

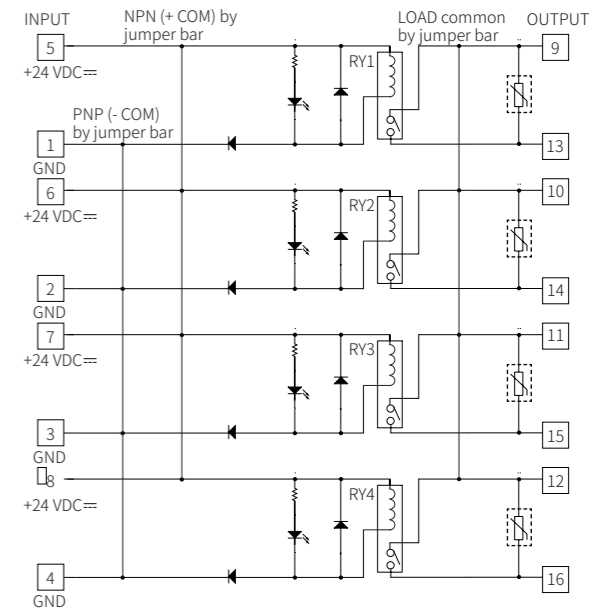
Insert the wire ferrule into the terminal hole.



- Removing
 - Put the (-) screwdriver at the groove on the clamp lever and press it.
 - Pull the cable to disassemble.

Wire Connection

- NPN (+ COM), PNP (- COM), LOAD common are implemented according to the insertion position of the jumper bar. Please refer to 'Jumper bar'.
- is only for the varistor type.



Jumper Bar

Remove the protection cover and use the jumper bar accordingly.

- NPN (+ COM): insert the jumper bar to see NPN mark below terminals 8, 7, 6, 5.
- PNP (- COM): insert the jumper bar to see PNP mark below terminals 8, 7, 6, 5.
- LOAD COMMON: insert the jumper bar above terminals 12, 11, 10, 9.

6.0 mm pitch jumper bar JB-6.0-04L (for PA, TN)

10.2 mm pitch jumper bar JB-10.2-04L (for PQ, R6)

