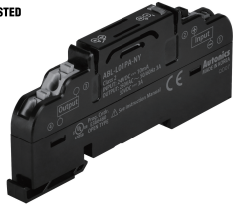


# Autonics

## 1-Point Relay Terminal Block (screwless type) ABL Series

### INSTRUCTION MANUAL



Thank you for choosing our Autonics product.  
Please read the following safety considerations before use.

### 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.

### Ordering Information

Model	Terminal type	Connector type	No. of relay points	Relay type	Input logic	Varistor installation
ABL-L01TN-NN	Screwless	Screwless	1	TAKAMISAWA (Fujitsu) NYP	NPN	Not installed
ABL-L01TN-NY						Installed
ABL-L01TN-PN						Not installed
ABL-L01TN-PY				MATSUSHITA (Panasonic) PA	NPN	Not installed
ABL-L01PA-NN						Installed
ABL-L01PA-PN						Not installed
ABL-L01PA-PY	Installed					

※ 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, homepage).

### Specifications

Model	ABL-L01PA-NN ABL-L01PA-NY <sup>※1</sup> ABL-L01PA-PN ABL-L01PA-PY <sup>※1</sup>	ABL-L01TN-NN <sup>※1</sup> ABL-L01TN-NY <sup>※1</sup> ABL-L01TN-PN ABL-L01TN-PY <sup>※1</sup>
Power supply	24VDC $\pm$ 10%	
Rated load voltage & current	250VAC~ 50/60Hz 3A, 30VDC $\pm$ 3A	
Current consumption <sup>※5</sup>	$\leq$ 10mA	$\leq$ 8mA
Output type	1a contact relay output	
Applied relay	PQ1a-24V (MATSUSHITA (Panasonic))	NYP24W-K (TAKAMISAWA (Fujitsu))
No. of relay points	1	
Terminal type	Screwless	
Terminal pitch	9.0mm (arranging over 2 units)	
Operation indicator	Blue LED	
Applied cable	Solid wire $\phi$ 0.6 to $\phi$ 1.25mm (60°C only)	
Stripped wire length	8 to 10mm	
Insulation resistance	$\geq$ 1,000M $\Omega$ (at 500VDC megger)	
Dielectric coil-contact strength	Between 2,000VAC 50/60Hz for 1 minute	3,000VAC 50/60Hz for 1 minute
Dielectric same contacts <sup>※3</sup>	Between 1,000VAC 50/60Hz for 1 minute	750VAC 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	Mechanical 0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minutes
Shock	Mechanical 1,000m/s <sup>2</sup> (approx. 100G) in each X, Y, Z direction for 3 times	Mechanical 100m/s <sup>2</sup> (approx. 10G) 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	Terminal block: polyamide 66, conducting plate: brass, case&base: poly phenylene sulfide	
Protection structure	IP20 (IEC standard)	
Approval	CE, UL, VDE	
Weight <sup>※6</sup>	Approx. 138g (approx. 21g)	Approx. 135g (approx. 21g)

- ※1: This is for load protection and it is recommend to use at the inductive load.
- ※2: Relay load capacity for resistive load.
- ※3: The current consumption including LED current by one relay.
- ※4: When using stranded wire, use End Sleeve (ferrule terminal) crimp terminals.
- ※5: ABL-L01□-□□□□ (varistor installed type), this is 300VAC.
- ※6: The weight of 1-point unit is per 4 units with packaging and the weight of parenthesis is per 1.

#### Relay

Model	Rated voltage	Must operate voltage	Must release voltage	Rated current	Coil resistance	Power consumption
PA1a-24V	24VDC $\pm$	$\geq$ 70% of rated voltage	$\leq$ 5% of rated voltage	7.5mA	3,200 $\Omega$	180mW
NYP24W-K	24VDC $\pm$	16.1V	2.4V	5mA	4,800 $\Omega$	120mW

#### Contact specifications

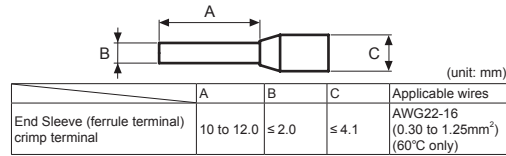
Maker	MATSUSHITA (Panasonic)	TAKAMISAWA (Fujitsu)
Model	PA1a-24V	NYP24W-K
Arrangement	1 Form A (SPST-1a)	
Material	Au-clad AgNi type	Gold overlay silver alloy
Resistance (initial)	30m $\Omega$ (6VDC 1A)	
Rated load (resistive load)	$\geq$ 250VAC~ 5A	$\geq$ 3A 250VAC~ 3A 30VDC $\pm$
Max. switching power	1,250VA	150W
Max. switching voltage	250VAC~	110VDC $\pm$
Max. switching current	5A	270VAC~ 150VDC $\pm$

Electrical characteristics	Insulation resistance	Dielectric strength	Surge voltage	Operate time	Release time
	$\geq$ 1,000M $\Omega$ (at 500VDC megger)	Coil and contacts 2,000VAC 50/60Hz for 1 minute Open contacts 1,000VAC 50/60Hz for 1 minute	4,000V	$\leq$ 10ms	$\leq$ 5ms

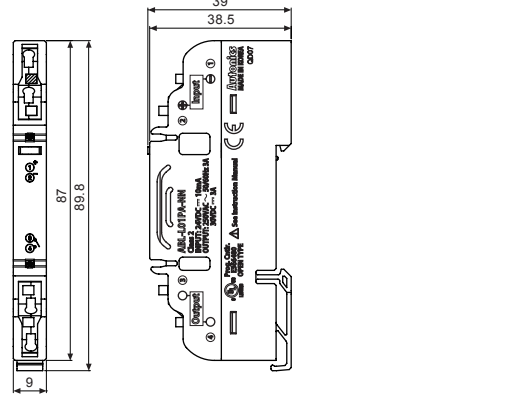
Mechanical characteristics	Vibration	Shock	Life expectancy
	Mechanical 3.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour	Mechanical 980m/s <sup>2</sup> (approx. 100G) in each X, Y, Z direction for 3 times	Mechanical $\geq$ 20,000,000 operations (at 180 times/min)
	Malfunction 2.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minute	Malfunction 147m/s <sup>2</sup> (approx. 15G) in each X, Y, Z direction for 3 times	Electrical $\geq$ 100,000 operations (3A 250VAC, 30VDC resistive load)
	Mechanical 1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minute		Ambient temp. -40 to 70°C
			Ambient humi. 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.

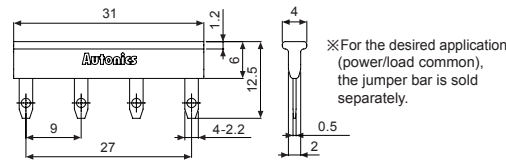
### Crimp Terminal Specification



### Dimensions

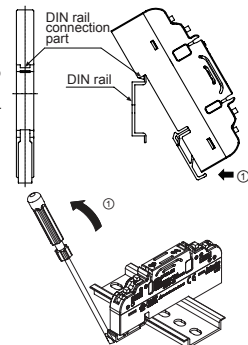


#### Jumper bar (model: JB-9.0-04L)



### Installation

- Mounting and removal at DIN rail
  - Mounting
    - Attach the DIN rail connection part onto the DIN rail.
    - Push the unit at  $\textcircled{A}$  direction to mount it.

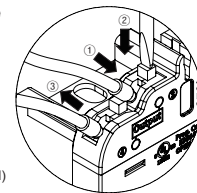


- Removal
  - Pull-up the bottom edge of the unit on rail lock to  $\textcircled{A}$  direction like a lever.

### Connecting Crimp Terminals

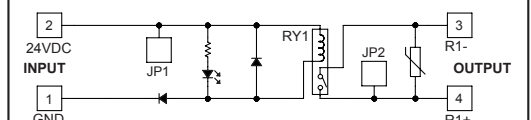
#### Connecting and removing end sleeve (ferrule terminal) crimp terminal at screwless type terminal block

- Connecting
  - Push the end sleeve (ferrule terminal) crimp terminal towards direction  $\textcircled{1}$  to complete the connection.
- Removing
  - Press and hold the catch above the terminal in direction  $\textcircled{2}$  with a flathead screwdriver.
  - Pull and remove the end sleeve (ferrule terminal) crimp terminal towards direction  $\textcircled{3}$ .

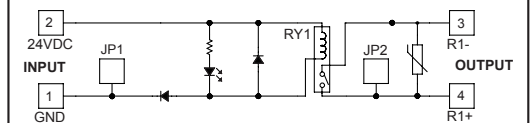


### Wire Connections

#### ABL-L01PA(TN)-NN(NY)



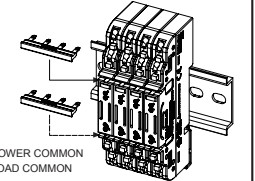
#### ABL-L01PA(TN)-PN(PY)



### Using Jumper Bar

※ABL-L01□-□□□□ model is integrated relay. The unit cannot replace only relay.

The right figure example is for 4 ABL-L01□-□□□□ units with jumper bar. For power common, insert a jumper bar to top. For load common, insert it to bottom.



### Cautions during Use

- Use the unit within the rated environment of specification.
  - Supply power within the rated allowable voltage range.
  - Check the polarity of power or COMMON before connecting PLC or other controllers.
  - 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".
  - Do not connect wire, remove connector, or replace relays while connected to a power source.
  - Do not touch the unit immediately after the load power is supplied or cut. It may cause burn by high temperature.
  - Power supply should be insulated and limited voltage/current or Class 2 SELV power supply device.
  - Do not use the unit at below places.
    - Environments with high vibration or shock.
    - Environments where strong alkali or acids are used.
    - Environments with exposure to direct sunlight.
    - Near machinery which produce strong magnetic force or electric noise
  - This unit may be used in the following environments.
    - Indoors
    - Altitude max. 2,000m
    - Pollution degree 2
    - 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
- Sleeper Motors/Drivers
- Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, Co., 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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