

# 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.
- ※ ⚠ 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 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.

### ■ 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	Installed
ABL-L01PA-NN						Not installed
ABL-L01PA-NY						Installed
ABL-L01PA-PN	PNP	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, website).

### ■ Specifications

Model	ABL-L01PA-NN ABL-L01PA-NY <sup>1)</sup> ABL-L01PA-PN ABL-L01PA-PY <sup>1)</sup>	ABL-L01TN-NN ABL-L01TN-NY <sup>1)</sup> ABL-L01TN-PN ABL-L01TN-PY <sup>1)</sup>
Power supply	24VDC±10%	
Rated load voltage & current	250VAC~50/60Hz 3A, 30VDC±3A	
Current consumption <sup>1)</sup>	≤ 8mA	≤ 8mA
Output type	1a contact relay output	
Applied relay	APAN3124 (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 wire	Solid wire Ø0.6 to Ø1.25mm (60°C only)	
Cable	Stranded wire AWG22-16 (0.3 to 1.25mm <sup>2</sup> ) (60°C only)	
Stripped wire length	8 to 10mm	
Insulation resistance	≥ 1,000MΩ (at 500VDC megger)	
Dielectric coil-contact strength	Between contacts	3,000VAC 50/60Hz for 1 minute
	Between same contacts	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 minutes
Shock	Mechanical	1,000m/s <sup>2</sup> (approx. 100G) in each X, Y, Z direction for 3 times
	Malfunction	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	
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□□□□ Y (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.
- ※ Environment resistance is rated at no freezing or condensation.

● **Relay**

1) Coil specifications

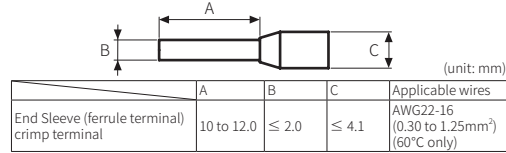
Model	Rated voltage	Must operate voltage	Must release voltage	Rated current	Coil resistance	Power consumption
APAN3124	24VDC±	≥ 70% of rated voltage	≤ 5% of rated voltage	4.6mA	5,236Ω	110mW
NYP24W-K	24VDC±	16.1V	2.4V	5mA	4,800Ω	120mW

2) Contact specifications

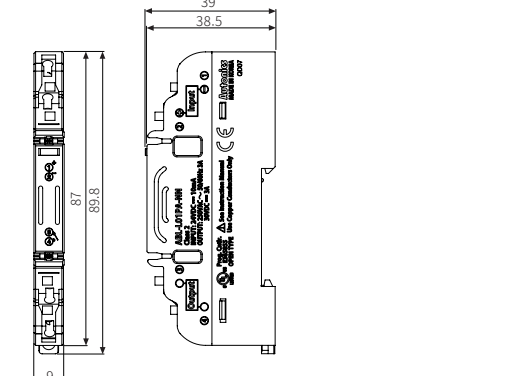
Maker	MATSUSHITA (Panasonic)	TAKAMISAWA (Fujitsu)	
Model	APAN3124	NYP24W-K	
Contact Arrangement	1 Form A (SPST-1a)		
	Material Au-clad AgNi type Gold overlay silver alloy		
Resistance (initial)	≤ 30mΩ (6VDC±1A)		
Rated load (resistive load)	5A 250VAC~	5A 30VDC±	
	3A 250VAC~	3A 30VDC±	
Max. switching power	1250VA	150W	
	250VAC~	110VDC±	
Max. switching current	5A	270V	
	5A	270V	
Insulation resistance	≥ 1,000MΩ (at 500VDC megger)		
	Coil and contacts	3,000VAC 50/60Hz for 1 minute	
Dielectric strength	Open contacts	1,000VAC 50/60Hz for 1 minute	
	Surge voltage	6,000V	
Operate time	≤ 10ms		
	Release time	≤ 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
		Malfunction	2.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minute
Shock	Mechanical	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
Life expectancy	Electrical	Mechanical	≥ 20,000,000 operations (at 180 times/min)
		Electrical	≥ 100,000 operations (3A 250VAC~, 30VDC± resistive load)
Environment	Ambient temp.	-40 to 90°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.

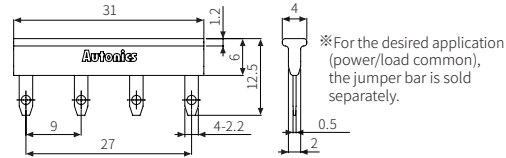
### ■ Crimp Terminal Specification



### ■ Dimensions



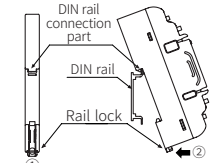
### ● Jumper bar (model: JB-9-0-04L)



### ■ Installation

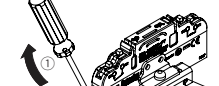
#### ● Mounting and removal at DIN rail

- Mounting
  - 1) Pull the rail lock towards direction ①.
  - 2) Attach the DIN rail connection part onto the DIN rail.
  - 3) Push the unit towards direction ②, then push the rail lock to lock toward the unit.



#### ● Removal

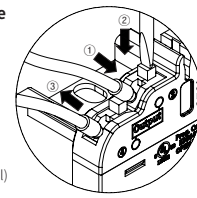
- 1) Insert a screwdriver into the rail lock hole and push it towards direction ①.
- 2) Remove the unit by pulling the unit towards direction ②.



### ■ Connecting Crimp Terminals

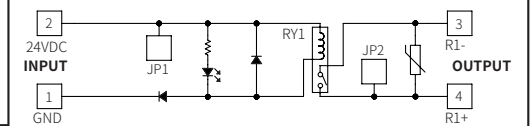
#### ◎ Connecting and removing end sleeve (ferrule terminal) crimp terminal at screwless type terminal block

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

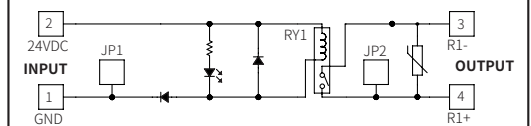


### ■ Wire Connections

#### ● ABL-L01PA(TN)-NN(NY)



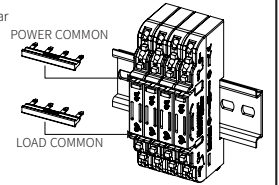
#### ● ABL-L01PA(TN)-PN(PY)



### ■ 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

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 touch the unit immediately after the load power is supplied or cut.  
It may cause burn by high temperature.
4. 24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
5. 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.
6. 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