Relay Terminal Block (screwless type)

Line-up

▣ Features

[Common Feature]
- Selectable between independent and load common output with jumper bar
- High tensile force and easy wiring with one-touch screwless type crimp terminal
- Convenient operating status check with operation indicator (blue LED)

[1-point]
- Rated load voltage: 3A
- Selectable between independent and power ommon input with jumper bar
- DIN Rail mounting
- Relay: [Fujitsu] NYP24W-K / [Panasonic] PA1a-24V

[4-point]
- Rated load voltage: 5A
- Selectable between NPN common and PNP common common input with jumper bar insulting location
- Relay protection with the cover
- Easy relay replacement with relay ejector or removal lever
- DIN Rail or screw mounting
- Relay: [Fujitsu] NYP24W-K / [Panasonic] PA1a-24V, PQ1a-24V / [Omron] G6B-1174P-FD-US

[16-point]
- Rated load voltage: 3A
- Relay protection with the cover
- Easy relay replacement with relay ejector
- DIN Rail or screw mounting
- Relay: [Omron] G6B-1174P-FD-US

⚠ **Please read "Safety considerations" in operation manual before using.**

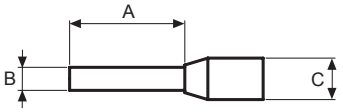
CE c UL US LISTED

▣ Ordering Information

AB **L** – **L** **04** **PQ** – **U** **N**

Varistor installation	**N**	Not installed
	Y	Installed
Input logic	**U**	Universal
	N	NPN
	P	PNP
Relay type	**TN**	**T**AKAMISAWA(Fujitsu) **N**YP
	PA	MATSUSHITA(**P**anasonic) P**A**
	PQ	MATSUSHITA (**P**anasonic) P**Q**
	R6	OM**R**ON G**6**B
No. of relay points	**01**	1
	04	4
	16	16
Connector type	**L**	Screwless
	H	Hirose connector
Terminal type	**L**	Screwless
Item	**AB**	Relay terminal block

▣ Crimp Terminal Specifications



(unit: mm)

	A	B	C	Applicable wire
End Sleeve (ferrule terminal) crimp terminal	10 to 12.0	≤ 2.0	≤ 4.1	AWG22-16 (0.30 to 1.25mm^2) (60℃ only)

▣ Specifications

◎ Rated load current 5A

Model		ABL-L04PQ-UN	ABL-L04PQ-UY※1	ABL-L04R6-UN	ABL-L04R6-UY※1
Power supply		24VDC⎓ ±10%			
Rated load voltage&current※2		250VAC~ 50/60Hz 5A, 30VDC⎓ 5A			
Current consumption※3		≤ 20mA			
Output type		1a contact relay output			
Applied relay		PQ1a-24V [MATSUSHITA (Panasonic)]		G6B-1174P-FD-US [OMRON]	
No. of relay points		4-point			
Terminal type		Screwless			
Terminal pitch		10.2mm			
Indicator		Operation indicator: blue LED			
Applied cable	Solid wire	Ø0.6 to Ø1.25mm (60℃ only)			
	Stranded wire※4	AWG22-16 (0.3 to 1.25mm^2) (60℃ only)			
Stripped wire length		8 to 10mm			
Insulation resistance		≥ 1,000MΩ (at 500VDC megger)			
Insulation resistance	between coil-contacts	4,000VAC 50/60Hz for 1 minute		3,000VAC 50/60Hz for 1 minute	
	Between same contacts※5	1,000VAC 50/60Hz for 1 minute		1,000VAC 50/60Hz for 1 minute	
Vibration	Mechanical	1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours			
	Malfunction	1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minutes			
Shock	Mechanical	1,000m/s^2 (approx. 100G) in each X, Y, Z direction for 3 times			
	Malfunction	100m/s^2 (approx. 10G) in each X, Y, Z direction for 3 times			
Environment	Ambient temp.	-15 to 55℃, storage: -25 to 65℃			
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH			
Material		Terminal block: polyamide 66, conducting plate: brass, case&base: modified polyphenylene oxide			
Accessory		Jumper bar: 1			
Protection structure		IP20 (IEC standard)			
Approval		CE cULus			
Weight※6		Approx. 148g (approx. 92g)	Approx. 150g (approx. 94g)	Approx. 143g (approx. 87g)	Approx. 144g (approx. 88g)

◎ Rated load current 3A

Model		ABL-L01PA-NN ABL-L01PA-NY※1 ABL-L01PA-PN ABL-L01PA-PY※1	ABL-L01TN-NN ABL-L01TN-NY※1 ABL-L01TN-PN ABL-L01TN-PY※1	ABL-L04PA-UN ABL-L04PA-UY	ABL-L04TN-UN ABL-L04TN-UY	ABL-H16R6-NN ABL-H16R6-PN
Power supply		24VDC⎓ ±10%				
Rated load voltage&current※2		250VAC~ 50/60Hz 3A, 30VDC⎓ 3A				
Current consumption※3		≤10mA	≤8mA	≤ 10mA	≤ 8mA	≤20mA
Output type		1a contact relay output				
Applied relay		PA1a-24V [MATSUSHITA(Panasonic)]	NYP24W-K [TAKAMISAWA(Fujitsu)]	PA1a-24V [MATSUSHITA(Panasonic)]	NYP24W-K [TAKAMISAWA(Fujitsu)]	G6B-1174P-FD-US [OMRON]
No. of relay points		1-point		4-point		16-point
Terminal type		Screwless				
Terminal pitch		9.0mm (arranging over 2 units)		5.0mm		≥7.8mm
Indicator		Operation indicator: blue LED		Operation indicator: blue LED		Power indicator: red LED, operation indicator: blue LED
Applied cable	Solid wire	Ø0.6~Ø1.25mm (60℃ only)				
	Stranded wire※4	AWG22-16 (0.3~1.25mm^2) (60℃ only)				
Stripped wire length		8 to 10mm				
Insulation resistance		≥ 1,000MΩ (at 500VDC megger)				
Dielectric strength	Between coil-contact	2,000VAC 50/60Hz for 1 minute	3,000VAC 50/60Hz for 1 minute	2,000VAC 50/60Hz for 1 minute	3,000VAC 50/60Hz for 1 minute	3,000VAC 50/60Hz for 1 minute
	Between same contacts	1,000VAC 50/60Hz for 1 minute	750VAC 50/60Hz for 1 minute	1,000VAC 50/60Hz for 1 minute	750VAC 50/60Hz for 1 minute	1,000VAC 50/60Hz for 1 minute
Vibration	Mechanical	1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours				
	Malfunction	1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 minutes				
Shock	Mechanical	1000m/s2 (approx. 100G) in each X, Y, Z direction for 3 times				
	Malfunction	100m/s2 (approx. 10G) in each X, Y, Z direction for 3 times				
Environment	Ambient temp.	-15 to 55℃, storage: -25 to 65℃				
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH				
Material		Terminal block: polyamide 66, conducting plate: brass, case&base: poly phenylene sulfide		Terminal block: polyamide 66, conducting plate: brass, case&base: poly phenylene sulfide		Terminal block, cover: polycarbonate / CASE&BASE: modified polyphenylene oxide
Accessory		—		Jumper bar: 1		Jumper bar: 2
Protection structure		IP20 (IEC standard)				
Approval		CE cULus				
Weight※6		Approx. 138g (approx. 21g)	Approx. 135g (approx. 21g)	Approx. 125g (approx. 72g)	Approx. 128g (approx. 75g)	Approx. 446g (approx. 348g)

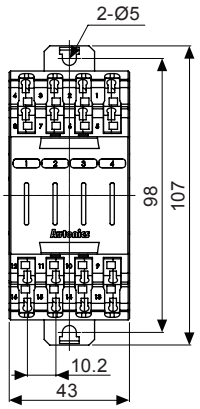
※1: This is for load protection and it is recommend to use at the inductive load.
※2: Relay load capacity for resistive load.
Please connect to a load using the same power supply. Connecting to a load from a different power supply may cause safety issues.
※3: The current consumption including LED current by one relay.
※4: When using stranded wire, use End Sleeve (ferrule terminal) crimp terminals.
※5: In case of ABL-L04 □ - □Y (varistor installed type), this is 300VAC.
※6: The weight includes packaging. The weight in parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.

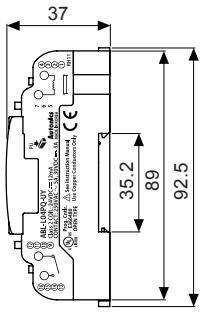
▣ Dimensions

(unit: mm)

◎ Rated load current 5A

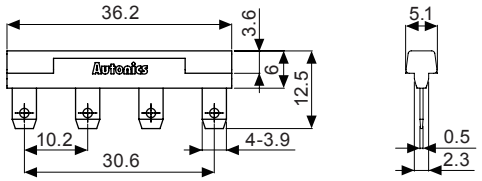
● ABL-L04PQ/R6-□





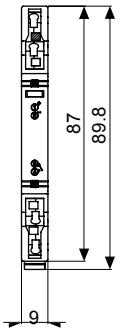
● Jumper bar (model: JB-10.2-04L)

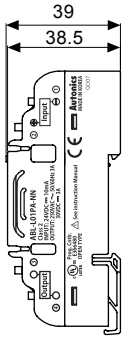
※For the desired application (power/load common), jumper bar is sold separately.



◎ Rated load current 3A

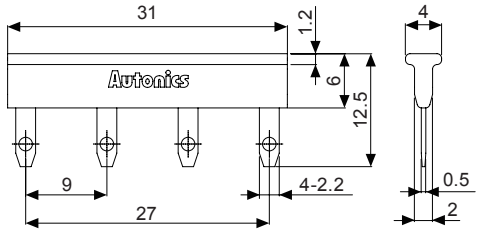
● ABL-L01TN/PA-□



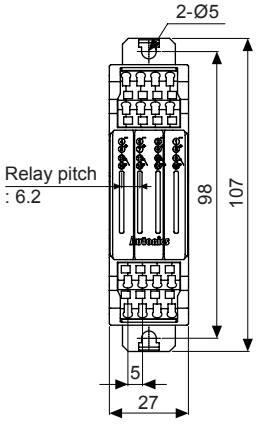


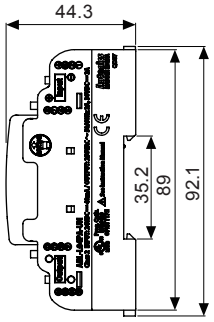
● Jumper bar (model: JB-9.0-04L)

※For the desired application (power/load common), jumper bar is sold separately.



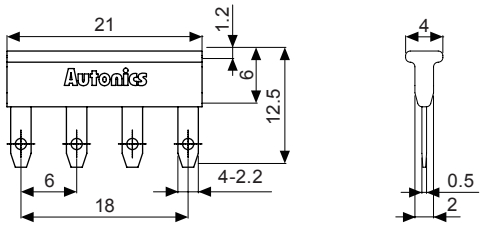
● ABL-L04TN/PA-□



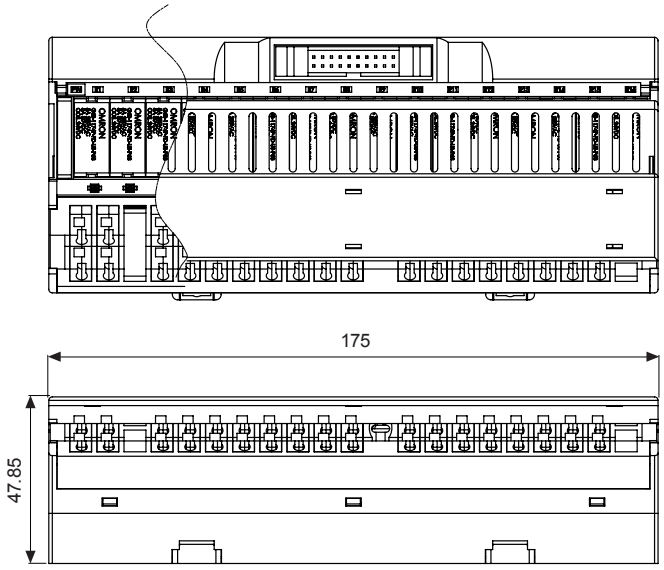


● Jumper bar (model: JB-6.0-04L)

※For the desired application (power/load common), jumper bar is sold separately.

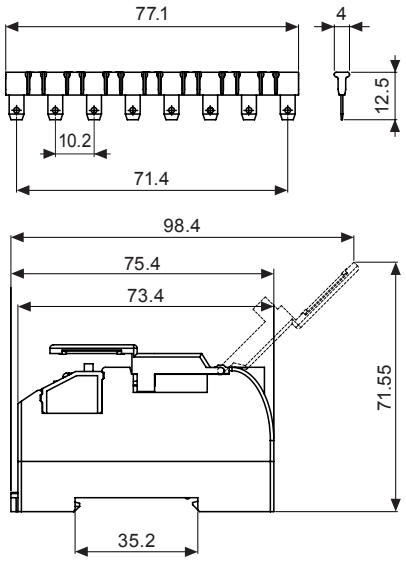


● **ABL-H16R6-NN/PN**



● **Jumper bar (model: JB-10.2-08L)**

※For the desired application (load common), jumper bar is sold separately.

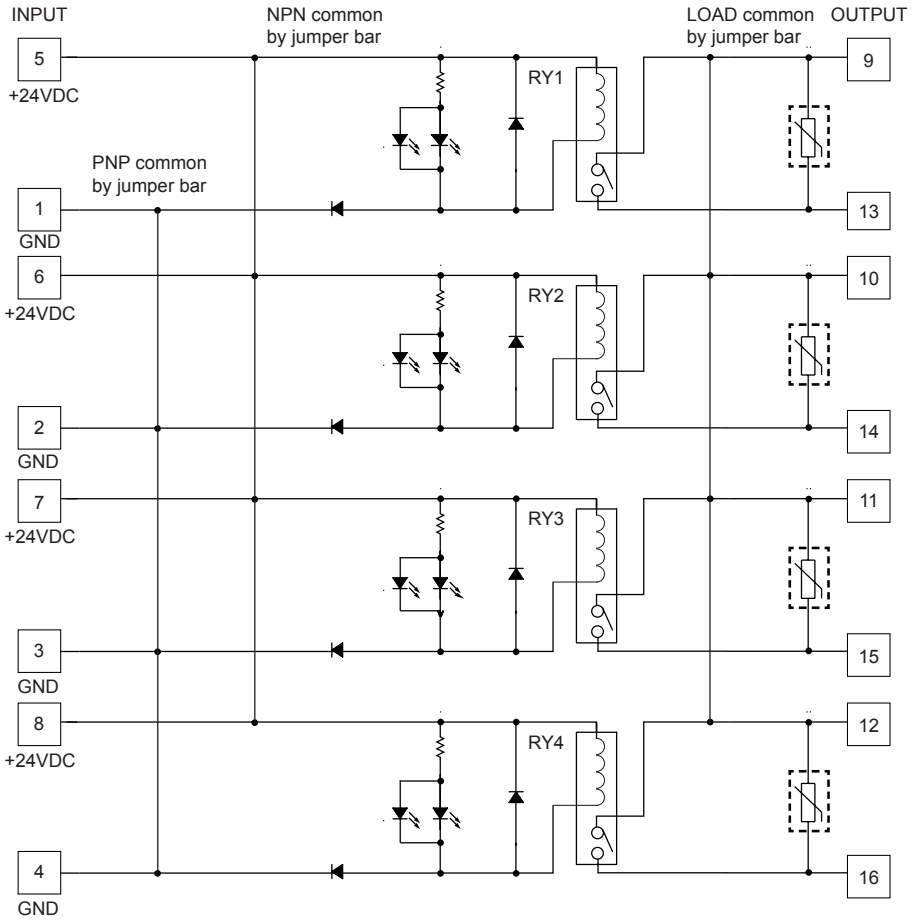


▣ Connections

◎ Rated load current 5A

● **ABL-L04PQ(R6)-UN(UY)**

※NPN, PNP, LOAD common are operated by the inserting position of the Jumper bar. Please refer to the '2. Using jumper bars' of '▣ Replacing Relay and Using Jumper Bar'.

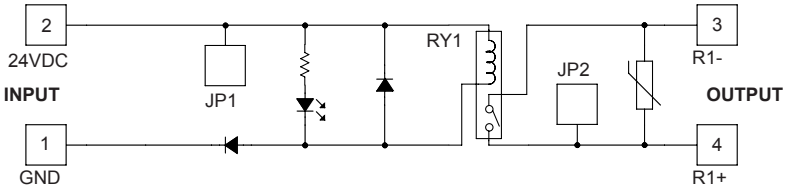


※ parts are only for ABL-L04 □-UY (varistor installed type).

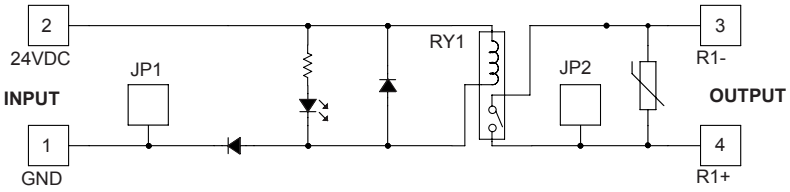
▣ Connections

◎ Rated load current 3A

● ABL-L01PA(TN)-NN(NY)

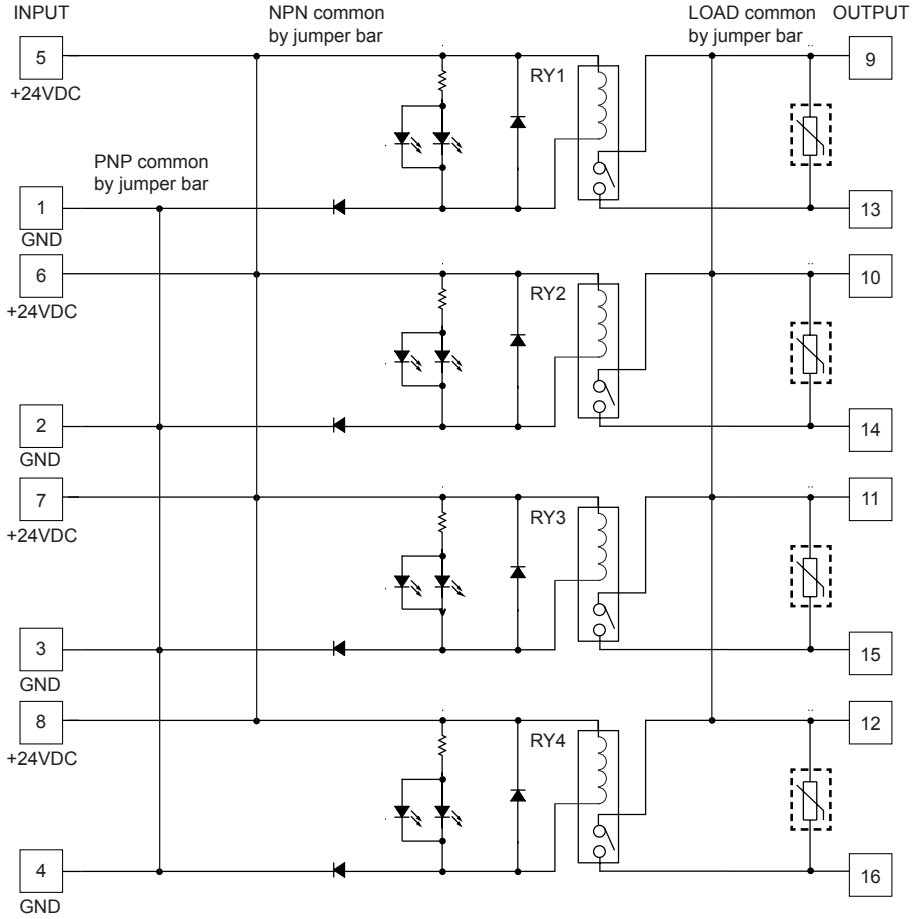


● ABL-L01PA(TN)-PN(PY)



● ABL-L04PA(TN)-UN(UY)

※NPN, PNP, LOAD common are operated by the inserting position of the Jumper bar. Please refer to the '2. Using jumper bars' of '▣ Replacing Relay and Using Jumper Bar'.

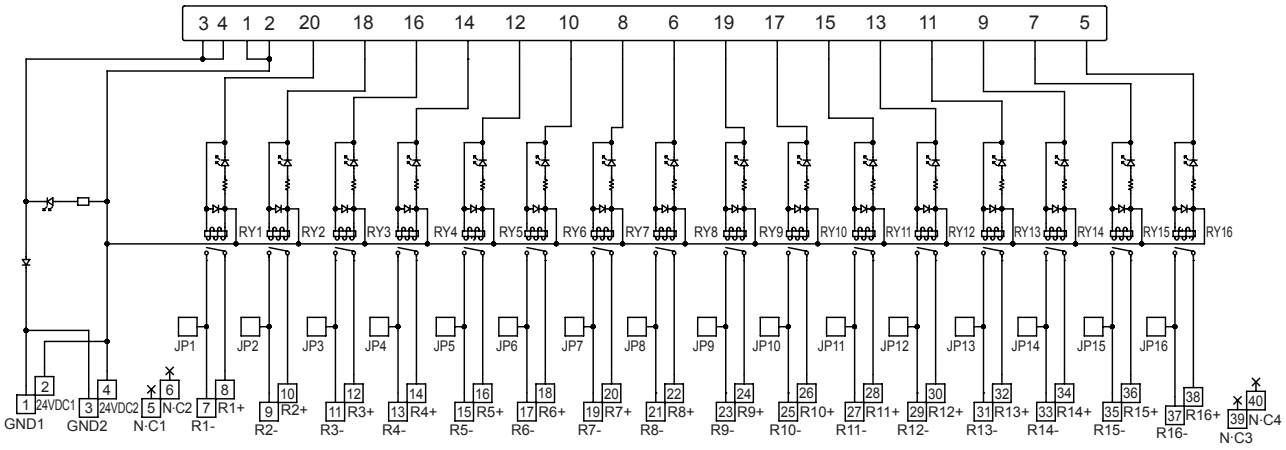


※ parts are only for ABL-L04 □-UY (varistor installed type).

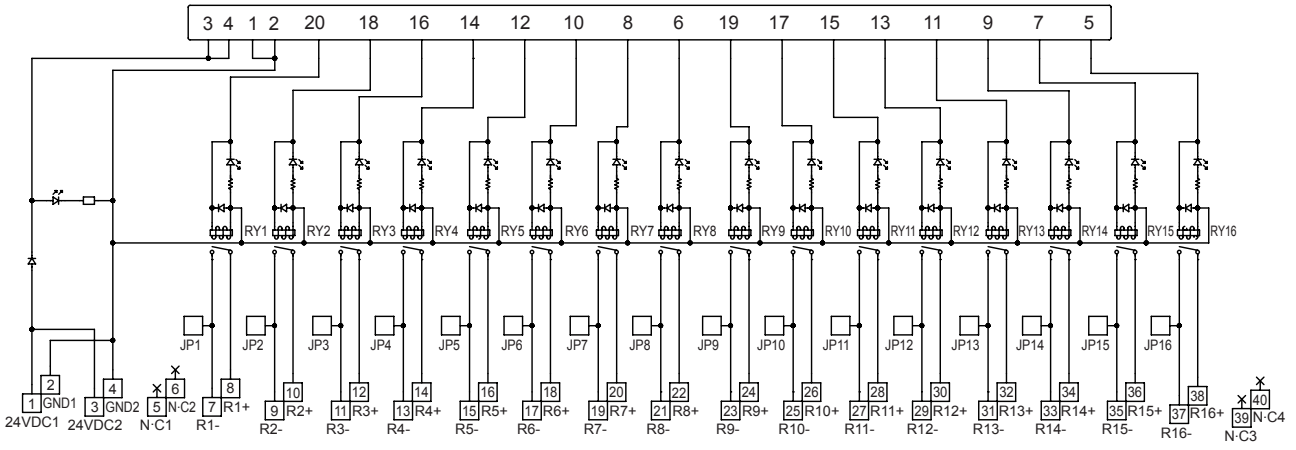
▣ Connections

◎ Rated load current 3A

● **ABL-H16R6-NN**



● **ABL-H16R6-PN**



▣ Connecting Crimp Terminals

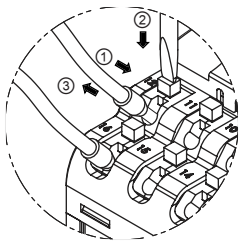
1. Connecting and removing end sleeve (ferrule terminal) crimp terminal at screwless type terminal block

● **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 flat head screwdriver.
2) Pull and remove the end sleeve (ferrule terminal) crimp terminal towards direction ③.



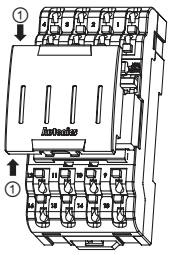
▣ Replacing Relay and Using Jumper Bar

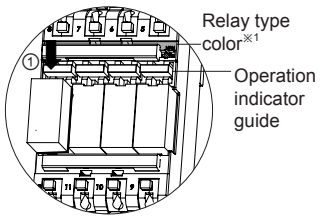
◎ Rated load current 5A

● ABL-L04PQ/R6-□

1. Replacing relays

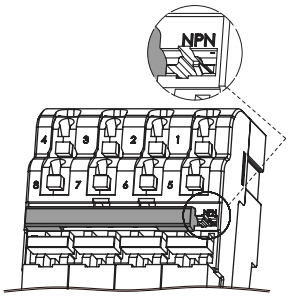
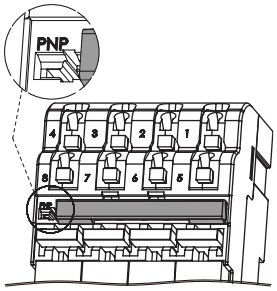
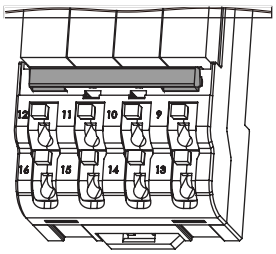
1) Remove the protection cover.
2) Push the operation indicator guide in direction to remove the relay.
3) Insert a new relay to the case.
※1: The color of the jumper bar insertion holes indicate the relay types of the model.
(green: MATSUSHITA (Panasonic) PQ, navy blue: OMRON G6B)
※Only insert designated relays for each model.
※Execute above directions only for replacing relays. If not, it may cause relay damage.





2. Using jumper bars

Remove the protection cover and use the jumper bars accordingly.

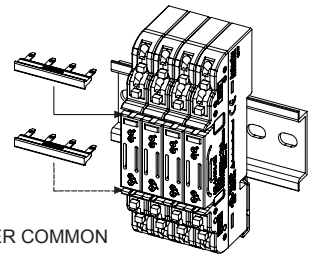
NPN COMMON	PNP COMMON	LOAD COMMON
		
Insert the jumper bar to the far left towards terminals 4 and 8.	Insert the jumper bar to the far right towards terminals 1 and 5.	Insert the jumper bar above terminals 12, 11, 10, 9.

◎ Rated load current 3A

● ABL-L01TN/PA-□

1. Using jumper bar

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

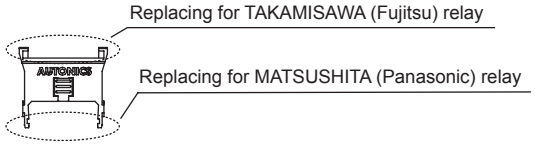


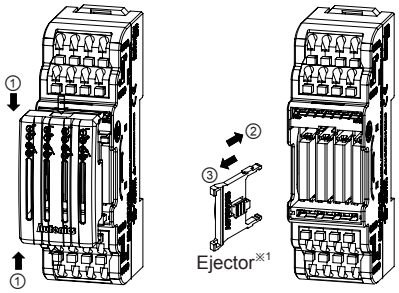
● ABL-L04PA/TN-□

1. Replacing relays

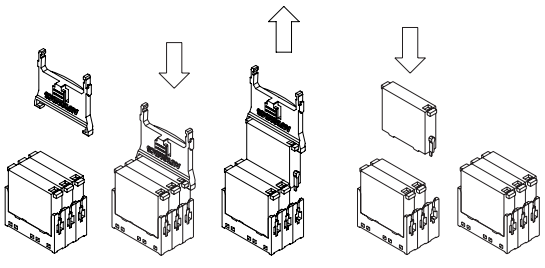
1) Pull the protection cover towards direction ①.
2) Insert the ejector as proper side to ② direction and pull it to ③ direction to remove.
3) Insert a new relay to the case.

※1: Two way ejector position for relay replacement



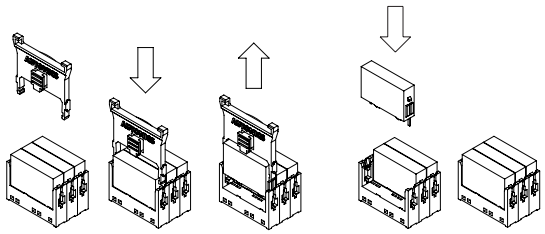


• Removal and insert TAKAMISAWA (Fujitsu) relay



< Removal > < Insert >

• Removal and insert MATSUSHITA (Panasonic) relay

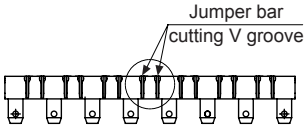


< Removal > < Insert >

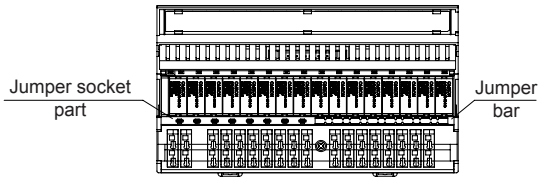
● ABL-H16R6-NN/PN

1. Using jumper bars

1) Cut the jumper bar to the user's desired length by cutting at the V dent (two) using a nipper.

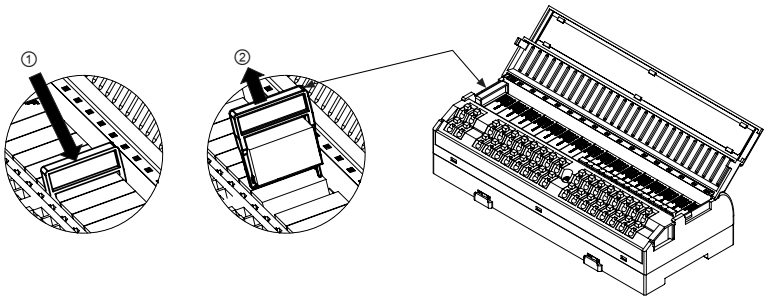


2) Insert the cut jumper bar to the desired jumper bar socket position.



2. Replacing relays

1) Insert the relay ejector at both ends of the installed relay to direction ①.
2) Pull the relay ejector to direction ② for removing the relay.



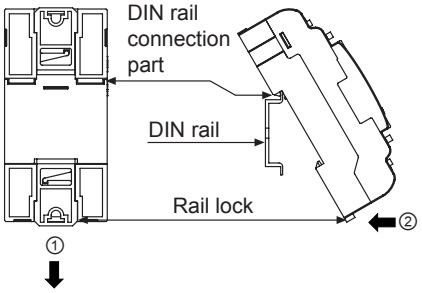
▣ Installation

※Each model appearance is different by no. of relay points.

1. Mounting and removal at DIN rail

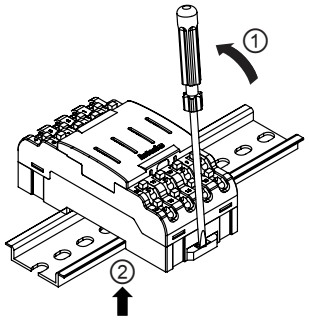
● Mounting

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 in to lock toward the unit.



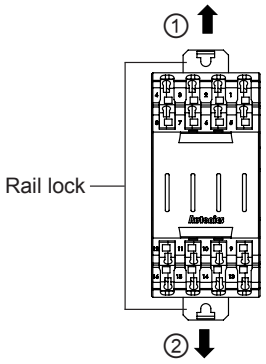
● Removal

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.



2. Mounting with screws

1) The unit can be mounted on panels using the rear rail locks.
2) Pull the rail locks towards directions ① and ②.
3) M4×10mm spring washer screws are recommended for installation. When using flat washers, use Ø9mm diameter washers. The tightening torque should be between 1.0 to 1.5N·m.



▣ Cautions 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 1.25mm²). For using crimp terminals, refer to '▣ Crimp Terminal Specifications'.
5. Do not connect wire, remove connector, 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. Power supply should be insulated and limited voltage/current or Class 2 source, SELV power supply device.
8. Do not use the unit at below places.
   ① Environments with high vibration or shock.
   ② Environments where strong alkali or acids are used.
   ③ Environments with exposure to direct sunlight.
   ④ Near machinery which produce strong magnetic force or electric noise
9. This unit may be used in the following environments.
   ① Indoos
   ② Altitude max. 2,000m
   ③ Pollution degree 2
   ④ Installation category II