

# Screwless SSR Terminal Block (4-point)



## ASL Series PRODUCT MANUAL

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

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

### Features

- Screwless push-in type connection for simple and easy connection
  - Contactless relay suitable for systems requiring long life-cycle and high-speed response
  - Switch between independent and load common output with jumper bar
  - Switch between NPN and PNP input with jumper bar
  - Operation status indicator (blue LED)
  - DIN rail mount and screw mount installation
  - Convenient SSR removal with ejector clip
  - SSR protection cover
- ※ Autonics CH/CO series I/O terminal block cables are recommended for best performance.

### 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 SSR 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
- 6.0 mm pitch jumper bar (JB-6.0-04L)
- Two Way Ejector

### Sold Separately

- 6.0 mm pitch jumper bar (JB-6.0-04L)
- DIN Rail Stopper

## Ordering Information

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

ASL - ① ② ③ - ④ ⑤

### ① Connector type

L: Screwless

### ② Number of SSR

04: 4-point

### ③ SSR type

MP0: AQZ202D [Panasonic]

SP0: AQG12124 [Panasonic]

ST0: SN-24A01C [Fujitsu]

### ④ Input logic

U: Universal

### ⑤ Varistor

N: None

Y: Equipped

## Specifications

Model	ASL-L04MP0-U□	ASL-L04SP0-U□	ASL-L04ST0-U□
Applied SSR <sup>(01)</sup>	AQZ202D [Panasonic]	AQG12124 [Panasonic]	SN-24A01C [Fujitsu]
Output method	1a	1a	1a
Power supply	≤ 24VDC±10%	≤ 24VDC±10%	≤ 24VDC±10%
Current consumption <sup>(02)</sup>	≤ 3 mA	≤ 18 mA	≤ 10 mA
SSR output rated spec. <sup>(03) (04)</sup>	24 VAC~50/60 Hz 2.7A, 24 VDC~2.7A	75-240 VAC~50/60 Hz 1A	24-240 VAC~50/60 Hz 1A
Terminal type	Screwless		
Terminal pitch	5.0 mm		
Indicator	Operation indicator: blue		
Varistor	Equipped <sup>(05)</sup> / not equipped model		
Input logic	NPN / PNP selectable with jumper bar		
Material	Terminal block: PA66, CASE, BASE: PPS, conducting plate: brass		
Approval	CE, ENEC, ENEC, ENEC	CE, ENEC, ENEC, ENEC	CE, ENEC, ENEC
Unit weight (packaged)	≈ 65 g (≈ 118 g)	≈ 69 g (≈ 122 g)	≈ 172 g (≈ 126 g)

(01) For the detailed information about each SSR, please refer to 'SSR' or data sheet from the manufacturer.

(02) It is current consumption for a SSR including LED current.

(03) This value is rated with resistive load, when the conditions of the temperature characteristic graph are satisfied.

(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 M.Ω (500 VDC≐ megger)
Dielectric strength (coil-contact)	2,500 VAC~50/60 Hz for 1 minute
Dielectric strength (same polarity contact) <sup>(01)</sup>	1,000 VAC~50/60 Hz for 1 minute
Vibration	0.75 mm amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 2 hours
Vibration (malfunction)	0.75 mm amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 10 minutes
Shock	1,000 m/s <sup>2</sup> (≈ 100 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s <sup>2</sup> (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-15 to 55 °C, storage: -25 to 65 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Protection structure	IP20 (IEC standard)

(01) Varistor type is 300 VAC~.

Applicable wire - solid<sup>(01)</sup> Ø 0.6 to 1.25 mm

Applicable wire - stranded<sup>(01) (02)</sup> AWG 22-18 (0.30 to 0.80 mm<sup>2</sup>)

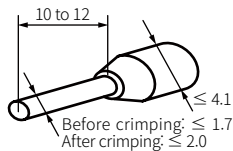
Stripped length 8 to 10 mm

(01) Use the cable of copper conductor in 60 °C temperature class.

(02) When using the stranded wire, use End Sleeve (wire ferrule).

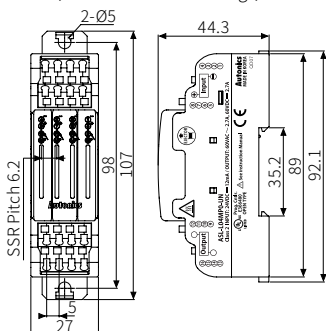
## Wire Ferrule Specifications

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



## Dimensions

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



### High Temperature Caution

While supplying power to the load or right after turning off the power of the load, do not touch the body and heat sink. Failure to follow this instruction may result in a burn due to the high temperature.

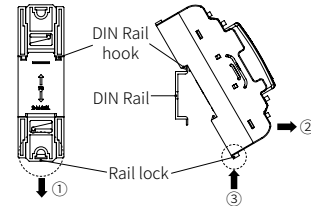
## Installation

### DIN Rail

When installing the product, refer to the example to keep the distance between units.

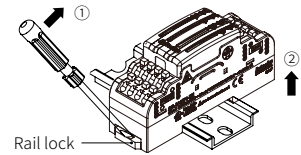
- Mounting

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



- Removing

1. Insert a tool such as screwdriver into the hole of Rail lock.
2. Push the tool to the direction ① and pull the Rail lock.
3. 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.

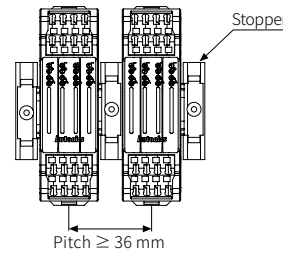
If you use flat washer, its diameter should be Ø 9 mm.

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

### Example

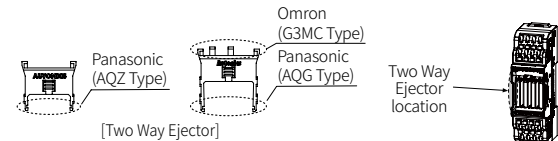
- 1 unit individual installation

Pitch between each SSR: ≥ 6.2 mm

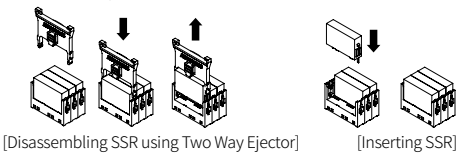


## Replacing SSR

1. Disassemble a SSR by using Two Way Ejector for SSR replacement inside the product.



2. After checking the location of the SSR socket, insert the SSR to be replaced.



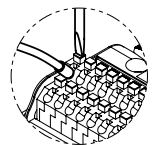
## Wiring

- Connecting

Insert the wire ferrule into the terminal hole.

- Removing

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

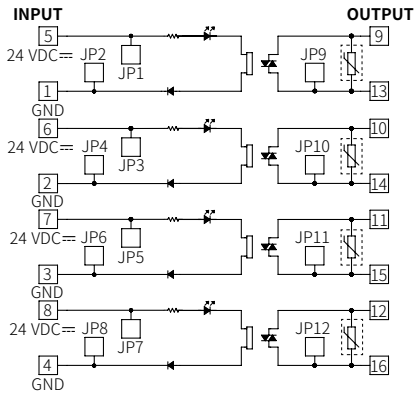


## Wire Connection

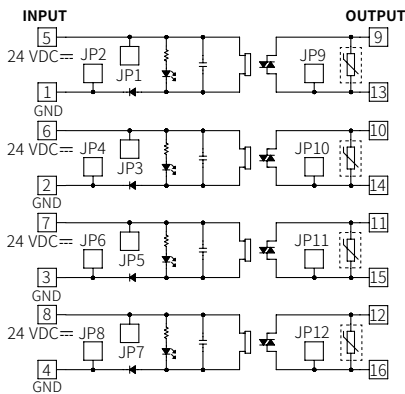
- [Dotted box] is only for the varistor type.
- In case of POWER COMMON(NPN : +COM), the JP1, JP3, JP5, JP7 terminals are connected.
- In case of POWER COMMON(PNP : -COM), JP2, JP4, JP6, JP8 terminals are connected.
- In case of LOAD COMMON, JP9, JP10, JP11, JP12 terminals are connected.

### ■ Wire Connection

- MPO

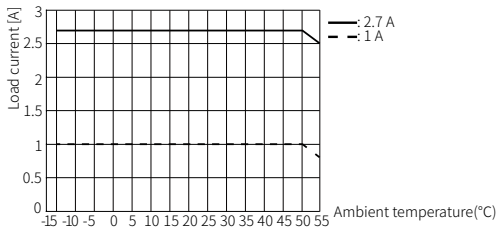


- SP0 / SP1 / SR0 / ST0

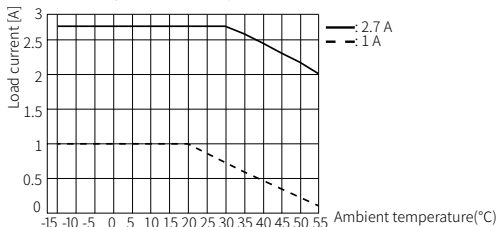


## Temperature Characteristic Graph

- Load current by ambient temperature for each rated current



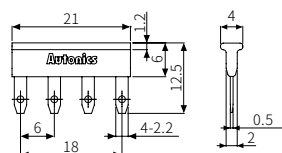
- Load current by ambient temperature for SSRs interval



## 6.0 mm Pitch Jumper Bar (JB-6.0-04L)

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.



## SSR: AQZ202D [Panasonic]

### ■ Input

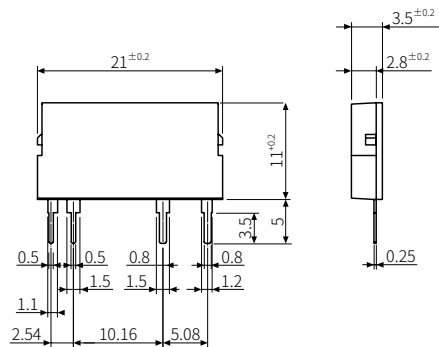
Rated voltage	Operate voltage	Release voltage	Input impedance
30 VDC≒	≥ 4 V	≤ 1.3 V	-

### ■ Output

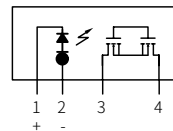
Manufacture	Panasonic
Contact arrangement	SPST-1a (N.O)
Load voltage range	60 VAC~ / DC≒ (Peak)
Max. load current	≤ 2.7 A
Min. load current	-
Non-repetitive surge current	9 A (Peak)
Output OFF leakage current	10 μA
Output ON on voltage	-
Insulation resistance	≥ 1,000 MΩ (500 VDC≒ megger)
Dielectric strength (contact-coil)	2,500 VAC~ 50/60 Hz for 1 minute
Operate time	≤ 10 ms
Release time	≤ 3 ms
Ambient temperature	-40 to 60 °C, storage: -40 to 100 °C (a non freezing or condensation environment)

### ■ Dimensions

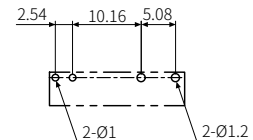
- unit: mm



- Circuit diagram (bottom view)



- PCB pattern



It was written based on the data provided by each manufacturer, but there is room for change, so be sure to check the manufacturer's data.

## SSR: AQG12124 [Panasonic]

### Input

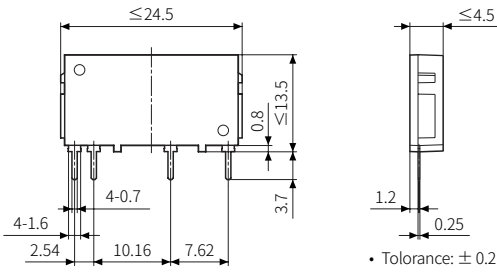
Rated voltage	Operate voltage	Release voltage	Input impedance
24 VDC $\pm$ 20 %	$\geq$ 19.2 VDC $\pm$	$\leq$ 1 V	$\approx$ 1.6 k $\Omega$

### Output

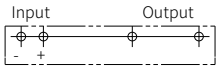
Manufacture	Panasonic
Contact arrangement	SPST-1a (zero cross turn-on)
Load voltage range	75-240 VAC $\sim$ 50/60 Hz
Max. load current	1 A
Min. load current	20 mA
Non-repetitive surge current	8 A
Output OFF leakage current	1.5 mA (at 200 VAC $\sim$ 60 Hz)
Output ON on voltage	$\leq$ 1.6 V (at max. current input)
Insulation resistance	$\geq$ 1,000 M $\Omega$ (500 VDC $\pm$ megger)
Dielectric strength (contact-coil)	3,000 VAC $\sim$ 50/60 Hz for 1 minute
Operate time	1/2 cycle of voltage sine wave + 1 ms
Release time	1/2 cycle of voltage sine wave + 1 ms
Ambient temperature	-30 to 80 °C, storage: -30 to 100 °C (a non freezing or condensation environment)

### Dimensions

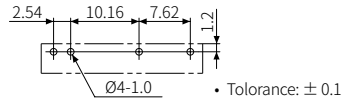
• unit: mm



• Circuit diagram (bottom view)



• PCB pattern



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## SSR: SN-24A01C [Fujitsu]

### Input

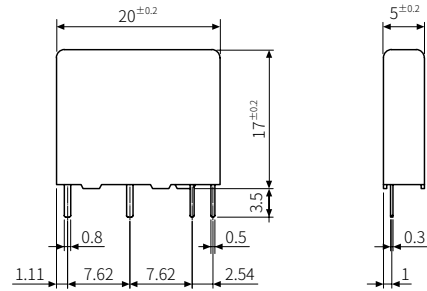
Rated voltage	Operate voltage	Release voltage	Input impedance
24 VDC $\pm$ 20 %	$\geq$ 80% of rated voltage	$\leq$ 1 V	2.2 k $\Omega$

### Output

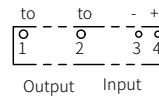
Manufacture	Fujitsu
Contact arrangement	SPST-1a (zero cross turn-on)
Load voltage range	24-240 VAC $\sim$
Max. load current	1 A
Min. load current	10 mA
Non-repetitive surge current	50 A
Output OFF leakage current	3.0 mArms (at 200 Vrms 60 Hz)
Output ON on voltage	1.2 Vrms
Insulation resistance	$\geq$ 1,000 M $\Omega$ (500 VDC $\pm$ megger)
Dielectric strength (contact-coil)	2,500 VAC $\sim$ 50/60 Hz for 1 minute
Operate time	1/2 cycle of voltage sine wave + 1 ms
Release time	1/2 cycle of voltage sine wave + 1 ms
Ambient temperature	-30 to 85 °C, storage: -40 to 100 °C (a non freezing or condensation environment)
Weight	$\approx$ 3.5 g

### Dimensions

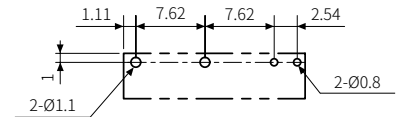
• unit: mm



• Circuit diagram (bottom view)



• PCB pattern



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