TCD210109AD Autonics

Screwless SSR Terminal Block (1-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
- \bullet Switch between independent and load common output with jumper bar
- Operation status indicator (blue LED)
- DIN rail mount and screw mount installation
- · 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.
- 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 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.
- 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 × 4
- Instruction manual
- + 9.0 mm pitch jumper bar (JB-9.0-04L) imes 1

Sold Separately

• 9.0 mm pitch jumper bar (JB-9.0-04L)

Ordering Information

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

ASL

Connector type L: Screwless

Number or SSR 01: 1-point

SSR type

MP0: AQZ202D [Panasonic] SP0: AQG12124 [Panasonic] SP1: AQG22124 [Panasonic] SR0: G3MC-202P [Omron] ST0: SN-24A01C [Fujitsu]

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Input logic

N: NPN P: PNP

 Varistor N: None Y: Equipped

Specifications

Model	ASL-L01MP0-	ASL-L01SP0-	ASL-L01SP1-□	ASL-L01SR0-	ASL-L01ST0-
Applied SSR ⁰¹⁾	AQZ202D [Panasonic]	AQG12124 [Panasonic]	AQG22124 [Panasonic]	G3MC-202P [Omron]	SN-24A01C [Fujitsu]
Output method	1a	1a	1a	1a	1a
Power supply	≤ 24 VDC= ±10 %	≤ 24 VDC= ±10 %	≤ 24 VDC= ±10 %	≤ 24 VDC= ±10 %	≤ 24 VDC= ±10%
Current consumption (2)	≤ 3 mA	≤ 18 mA	≤ 18 mA	≤ 18 mA	≤ 10 mA
SSR output rated spec. (03)	24 VAC ~ 50/60 Hz, 2.7A 24 VDC == 2.7A	75-240 VAC~ 50/60 Hz 1A	75-240 VAC~ 50/60 Hz 2A	24-240 VAC~ 50/60 Hz 2A	24-240 VAC~ 50/60 Hz 1A
Terminal type	Screwless	Screwless			
Terminal pitch	9.0 mm (arranging over 2 units)				
Indicator	Operation indica	Operation indicator: blue			
Varistor	Equipped ⁰⁵⁾ / not equipped model				
Input logic	NPN / PNP model				
Material	Terminal block: PA66, CASE, BASE: PPS, conducting plate: brass				
Approval	C € ĽK : (N) us ustra [III]	C€ Ek c⊕us ustra EH[C 은 比 : (C€ FR c⊕n reuse [H[C€ KEHE
Unit weight (packaged) 06)	≈ 19 g (≈ 130 g)	≈ 20 g (≈ 134 g)	≈ 22 g (≈ 140 g)	≈ 24 g (≈ 148 g)	≈ 21 g (≈ 136 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.
- 06) It is weight per product. The weight in parentheses is for 4 packing units including packing materials.

Insulation resistance	≥ 1,000 MΩ (500 VDC== megger)
Dielectric strength (coil-contact)	2,500 VAC ~ 50/60 Hz for 1 minute
Dielectric strength (same polarity contact) ⁰¹⁾	1,000 VAC \sim 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 (malfunc- tion)	$0.75\mathrm{mm}$ amplitude at frequency of 10 to $55\mathrm{Hz}$ in each X, Y, Z direction for $10\mathrm{minutes}$
Shock	1,000 m/s² (≈ 100 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s^2 ($\approx 10 \text{ G}$) 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)

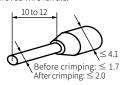
01) Varistor type is 300 VAC \sim .

Applicable wire - solid 01)	Ø 0.6 to 1.25 mm
Applicable wire - stranded 01) 02)	AWG 22-18 (0.30 to 0.80 mm²)
Stripped length	8 to 10 mm

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

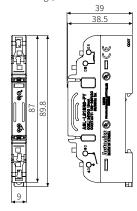
Wire Ferrule Specifications

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



Dimensions

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

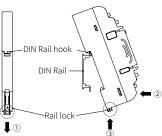


Installation

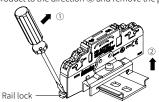
■ DIN Rail

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

- 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.

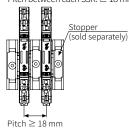


- Removing
- 1. Insert a tool such as screwdriver into the hole of Rail lock.
- 2. Push the tool to the direction ① and pull the Rail lock.
- 3. Lift bottom of the product to the direction ② and remove the product from DIN rail.

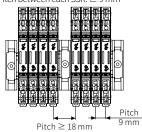


■ Example

• 1 unit individual installation Pitch between each SSR: ≥ 18 mm



• 4 units arranging installation Pitch between each SSR: ≥ 9 mm



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.

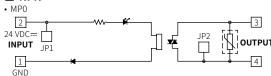


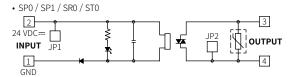
Wire Connection

- [_____is only for the varistor type.
- When mounting four products arrangement, Power/Load common can be done by inserting a jumper bar. Use four products with the same input logic.
- In case of POWER COMMON(NPN: + COM, PNP: -COM), the JP1 terminals of each product are connected.

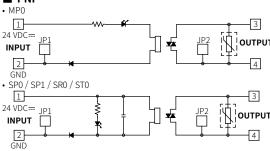
In case of LOAD COMMON, the JP2 termincals of each product are conencted.

■ NPN



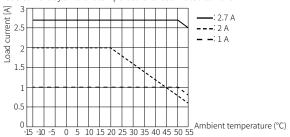


■ PNP

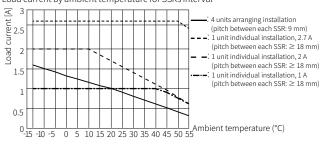


Temperature Characteristic Graph

• Load current by ambient temperature for each rated current



• Load current by ambient temperature for SSRs interval

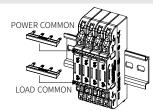


9.0 mm Pitch Jumper Bar (JB-9.0-04L)

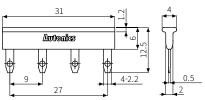
It is example of mounting 4 units.

- POWER COMMON: insert the jumper bar in
- the jumper bar groove above the SSR.

 LOAD COMMON: insert the jumper bar in the jumper bar groove below the SSR.



• Dimensions



SSR: AQZ202D [Panasonic]

■ Input

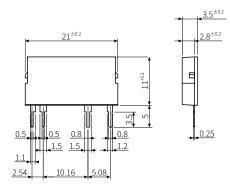
Rated voltage	Operate voltage	Release voltage	Input impedance
30 VDC==	≥4V	≤ 1.3 V	-

■ Output

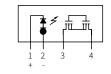
Manufacture	Panasonic
Contact arrangement	SPST-1a (N.O)
Load voltage range	60 VAC~ / DC== (Peak)
Max. load current	≤ 2.7 A
Min. load current	-
Non-repetitive surge current	9 A (Peak)
Output OFF leakage current	10 µА
Output ON on voltage	-
Insulation resistance	\geq 1,000 M Ω (500 VDC== megger)
Dielectric strength (contact-coil)	2,500 VAC \sim 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)

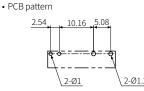
Dimensions

• unit: mm



• Circuit diagram (bottom view)





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

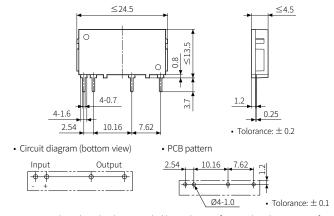
Rated voltage	Operate voltage	Release voltage	Input impedance
24 VDC== + 20 %	> 19 2 VDC==	< 1 V	≈ 16kO

■ Output

Manufacture	Panasonic	
Contact arrangement	SPST-1a (zero cross turn-on)	
Load voltage range	75-240 VAC ~ 50/60 Hz	
Max. load current	1 A	
Min. load current	20 mA	
Non-repetitive surge current	8A	
Output OFF leakage current	1.5 mA (at 200 VAC \sim 60 Hz)	
Output ON on voltage	≤ 1.6 V (at max. current input)	
Insulation resistance	\geq 1,000 M Ω (500 VDC== megger)	
Dielectric strength (contact-coil)	$3,000\mathrm{VAC}\sim50/60\mathrm{Hz}$ for $1\mathrm{minute}$	
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



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SSR: AQG22124 [Panasonic]

■ Input

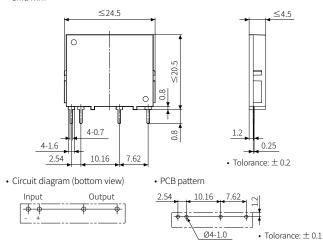
Rated voltage	Operate voltage	Release voltage	Input impedance
24 VDC= ± 20 %	≥ 19.2 VDC==	≤1V	≈ 1.6 kΩ

■ Output

Manufacture	Panasonic	
Contact arrangement	SPST-1a (zero cross turn-on)	
Load voltage range	75-240 VAC~ 50/60 Hz	
Max. load current	2 A	
Min. load current	20 mA	
Non-repetitive surge current	30 A	
Output OFF leakage current	1.5 mA (at 200 VAC \sim 60 Hz)	
Output ON on voltage	≤ 1.6 V (at max. current input)	
Insulation resistance	≥ 1,000 MΩ (500 VDC== megger)	
Dielectric strength (contact-coil)	3,000 VAC~ 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



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SSR: G3MC-202P [Omron]

■ Input

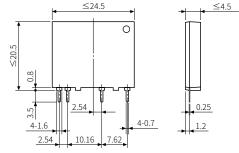
Rated voltage	Operate voltage	Release voltage	Input impedance
24 VDC== ± 20 %	≥ 19.2 VDC==	≤1V	$\approx 1.6 \text{ k}\Omega \pm 20 \%$

■ Output

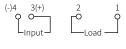
Manufacture	Panasonic	
Contact arrangement	SPST-1a (zero cross turn-on)	
Load voltage range	100-240 VAC∼ 50/60Hz	
Max. load current	2 A	
Min. load current	-	
Non-repetitive surge current	30 A	
Output OFF leakage current	1.5 mA (at 200 VAC ~ 60 Hz)	
Output ON on voltage	≤ 1.6 V (at max. current input)	
Insulation resistance	≥ 1,000 MΩ (500 VDC== megger)	
Dielectric strength (contact-coil)	2,500 VAC ~ 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)	
Weight	≈ 2.5 g	

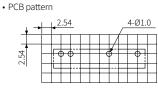
■ Dimensions

• unit: mm



• Circuit diagram (bottom view)





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: SN-24A01C [Fujitsu]

■ Input

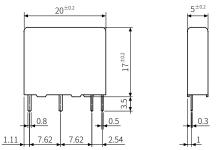
Rated voltage	Operate voltage	Release voltage	Input impedance
24 VDC== ± 20 %	≥ 80% of rated voltage	≤1V	2.2 kΩ

■ Output

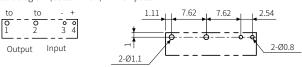
Manufacture	Fujitsu
Contact arrangement	SPST-1a (zero cross turn-on)
Load voltage range	24-240 VAC~
Max. load current	1 A
Min. load current	10 mA
Non-repetitive surge current	50 A
Output OFF leakage current	3.0 mArms (at 200 Vrms 60 Hz)
Output ON on voltage	1.2 Vrms
Insulation resistance	\geq 1,000 M Ω (500 VDC== megger)
Dielectric strength (contact-coil)	$2,500\mathrm{VAC}\sim50/60\mathrm{Hz}$ for $1\mathrm{minute}$
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	≈ 3.5 g

■ 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.