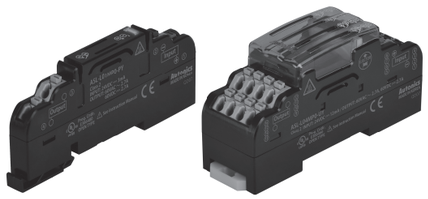
Autonics

SSR Terminal Block (screwless type)
ASL Series

INSTRUCTION MANUAL

CE cULus LISTED (except ASL-L01ST0-□□, ASL-L04ST0-□□)



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

1. **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.
2. **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.
3. **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.
4. **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

1. **Do not use the unit outdoors.**
   Failure to follow this instruction may result in shortening the life cycle of the unit, or electric shock.
2. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in shortening the life cycle of the unit, or fire.
3. **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.
4. **Keep dust and wire residue from flowing into the unit.**
   Failure to follow this instruction may result in fire or product damage.

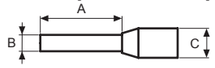
▣ Ordering Information

AS L – L 04 SP0 – U N

Varistor installation	**N**		Not installed
	Y		Installed
Input logic	4-point	**U**	Universal
	1-point	**N**	NPN
		P	PNP
SSR type	**MP0**		AQZ202D (Panasonic)
	SP0		AQG12124 (Panasonic)
	SP1		AQG22124 (Panasonic)
	SR0		G3MC-202P (Omron)
	ST0		SN-24A01C (Fujitsu)
No. of SSR points	**01**		1-point
	04		4-point
Connector type	**L**		Screwless
Terminal type	**L**		Screwless
Model	**AS**		SSR Terminal Block

▣ Crimp Terminal Specification

(unit: mm)

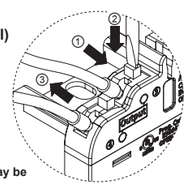


	A	B	C	Applicable wire
End Sleeve (ferrule terminal) crimp terminal	10 to 12.0	≤ 2.0	≤ 4.1	AWG22-16 (0.30 to 1.25mm²) (60℃ only)

▣ 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.



※**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	1-point	**ASL-L01MP0-□N**	**ASL-L01SP0-□N**	**ASL-L01SP1-□N**	**ASL-L01SR0-□N**	**ASL-L01ST0-□N**
		ASL-L01MP0-□Y	**ASL-L01SP0-□Y**	**ASL-L01SP1-□Y**	**ASL-L01SR0-□Y**	**ASL-L01ST0-□Y**
	4-point	**ASL-L04MP0-UN**	**ASL-L04SP0-UN**	—	—	**ASL-L04ST0-UN**
		ASL-L04MP0-UY※1	**ASL-L04SP0-UY**※1	—	—	**ASL-L04ST0-UY**※1
Power supply		24VDC⎓ ±10%				
Rated load voltage & current※2		60VAC~/DC 50/60Hz 2.7A	75-240VAC~ 50/60Hz 1A	75-240VAC~ 50/60Hz 2A	24-240VAC~ 50/60Hz 2A	24-240VAC~ 50/60Hz 1A
Current consumption※3		≤ 3mA	≤ 18mA			≤ 10mA
Output type		1a contact relay output				
Applied SSR		AQZ202D [Panasonic]	AQG12124 [Panasonic]	AQG22124 [Panasonic]	G3MC-202P [Omron]	SN-24A01C [Fujitsu]
Terminal type		Screwless				
Terminal pitch		1-point: 9.0mm (arranging over 2 units)/4-point: 5.0mm				
Operation indicator		Blue LED				
Applied cable	Solid wire	Ø0.6 to Ø1.25mm (60℃ only)				
	Stranded wire※4	AWG22-16 (0.3 to 1.25mm²) (60℃ only)				
Stripped wire length		8 to 10mm				
Insulation resistance		1-point: ≥ 1,000MΩ (at 500VDC megger) / 4-point: ≥ 1,000MΩ (at 500VDC megger)				
Insulation resistance	Between coil-contact	2,500VAC 50/60Hz for 1 minute				
	Between same contacts※5	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/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				
Accessory		Jumper bar: 1, ejector: 1※6				Jumper bar: 1
Protection structure		IP20 (IEC standard)				
Approval		cULus				CE
Weight※7	1-point※8	Approx. 130g (approx. 19g)	Approx. 134g (approx. 20g)	Approx. 140g (approx. 22g)	Approx. 148g (approx. 24g)	Approx. 136g (approx. 21g)
	4-point	Approx. 118g (approx. 65g)	Approx. 122g (approx. 69g)	Approx. 128g (approx. 75g)	Approx. 128g (approx. 75g)	Approx. 126g (approx. 72g)

※1: This is for load protection and it is recommend to use at the inductive load.
※2: This is relay load capacity when it is resistive load and temperature characteristic curve is satisfied.
※3: The current consumption including LED current by one relay.
※4: When using stranded wire, use End Sleeve (ferrule terminal) crimp terminals.
※5: **ASL-L01□-□Y/ASL-L04□-□Y (varistor installed type), this is 300VAC.**
※6: Ejector is supplied only for ASL-L04□-□□ (4-point).
※7: The weight includes packaging. The weight in parentheses is for unit only.
※8: 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.

● **SSR**

1) Input

Model	Rated voltage	Must operate voltage	Must release voltage	Input impedance
AQZ202D	30VDC⎓	≥ 4V	≤ 1.3V	—
AQG12124	24VDC⎓ ±20%	≥ 19.2VDC⎓	≤ 1V	Approx. 1.6kΩ
AQG22124	24VDC⎓ ±20%	≥ 19.2VDC⎓	≤ 1V	Approx. 1.6kΩ
G3MC-202P	24VDC⎓ ±20%	≥ 19.2VDC⎓	≤ 1V	Approx. 1.6kΩ±20%
SN-24A01C	24VDC⎓ ±20%	≥ 80% of rated voltage	≤ 1V	2.2kΩ

2) Output

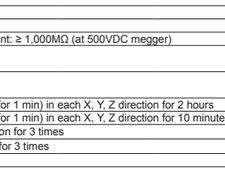
Maker		Panasonic	Panasonic	Panasonic	OMRON	Fujitsu
Model		AQZ202D	AQG12124	AQG22124	G3MC-202P	SN-24A01C
Contact type		SPST-1a (N·O)	SPST-1a (zero cross turn-on)		SPST-1a (zero cross turn-on)	
Rating	Load voltage range	60VAC~/DC⎓ (peak)	75-240VAC~ 50/60Hz		100-240VAC~ 50/60Hz	24-240VAC~
	Max. load current	≤ 2.7A	1A	2A	2A	1A
	Min. load current	—	20mA		—	10mA
	Non-repetitive surge current	9A (peak)	8A	30A	30A	50A
	Output OFF leakage current	10μA	1.5mA (200VAC 60Hz)		1.5mA (200VAC)	3.0mArms (200Vrms 60Hz)
	Output on voltage	—	≤ 1.6V (at max. carrying current)		≤ 1.6V	1.2Vrms
Electrical characteristics	Insulation resistance	≥ 1,000MΩ (at 500VDC megger)				
	Dielectric strength / Coil and contacts	2,500VAC 50/60Hz for 1 min	3,000VAC 50/60Hz for 1 min		2,500VAC 50/60Hz for 1 min	
	Operate time	≤ 10ms	1/2 cycle of voltage sine wave + 1ms			
	Release time	≤ 3ms	1/2 cycle of voltage sine wave + 1ms			
Ambient temperature		-40 to 60℃, storage: -40 to 100℃	-30 to 80℃, storage: -30 to 100℃		-30 to 80℃, storage: -30 to 100℃	-30 to 85℃, storage: -40 to 100℃
Unit weight		—	—		Approx. 2.5g	Approx. 3.5g

▣ Installation

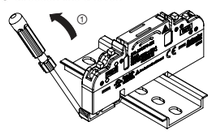
※When installing the unit, keep the interval between the units. (refer to the "▣ Example of Installation".)

1. Mounting and removal at DIN rail

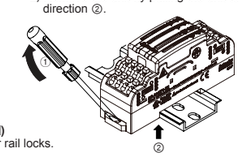
● Mounting
1) Pull the rail lock towards direction ①.
2) Attach the DIN rail connection part onto the DIN rail.
3) Push the unit towards direction ②, then push the rail lock in to lock toward the unit.
※In case of ASL-L01□-□□, hook the DIN rail connection part to DIN rail and push the unit towards direction ②.



● Removal (ASL-L01□-□□)
1)Pull-up the bottom edge of the unit on rail lock to ① direction like a lever.



● Removal (ASL-L04□-□□)
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.

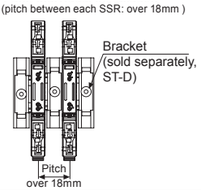


2. Mounting with screws (only for ASL-L04□-□□)
1) The unit can be mounted on panels using the rear rail locks.
2) Pull the rail locks towards up/down directions.
3) M4×10mm spring washer screws are recommended for installation.
When using flat washers, use Ø9mm diameter washers. The tightening torque should be between 1.0 to 1.5N·m.

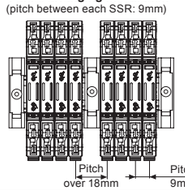
▣ Example of Installation

※Pitch is interval between SSRs.

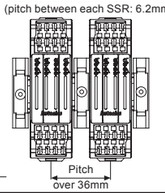
● **ASL-L01□-□□**
1 unit individual installation
(pitch between each SSR: over 18mm)



● **ASL-L01□-□□**
4 units arranging installation
(pitch between each SSR: 9mm)



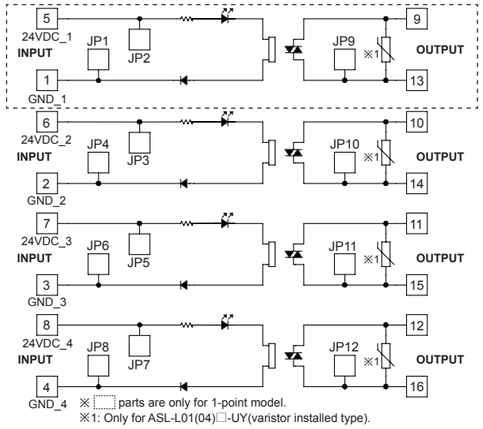
● **ASL-L04□-□□**
individual installation
(pitch between each SSR: 6.2mm)



▣ Wire Connections

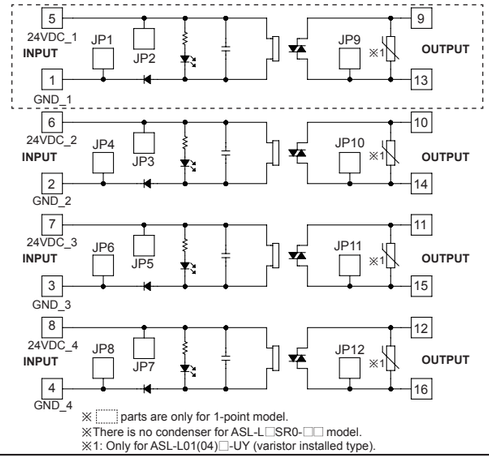
※ NPN, PNP, LOAD common are operated by the inserting position of the Jumper bar.
Please refer to '● Using jumper bars' of '▣ Replacing SSR and Using Jumper Bar'.

◎ **ASL-L01MP0-□□/ASL-L04MP0-□□**



※ ⬚ parts are only for 1-point model.
※1: Only for ASL-L01(04)□-UY(varistor installed type).

◎ **ASL-L01SP0(SP1/SR0/ST0)-□□/ASL-L04SP0(SP1/SR0/ST0)-□□**

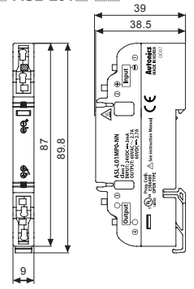


※ ⬚ parts are only for 1-point model.
※There is no condenser for ASL-L□SR0-□□ model.
※1: Only for ASL-L01(04)□-UY (varistor installed type).

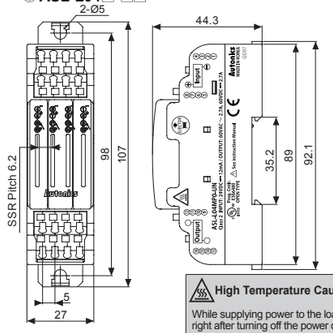
▣ Dimensions

(unit: mm)

◎ **ASL-L01□-□□**

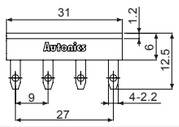


◎ **ASL-L04□-□□**

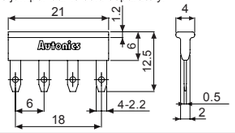


High Temperature Caution
While supplying power to the load or right after turning off the power of the load, do not touch the body and heat sink.
Failuar to follow this instruction may result in a burn due to the high temperature.

● **Jumper bar (model: JB-9.0-04L)**
※For the desired application (Power/Load common), the jumper bar is sold separately.



● **Jumper bar (model: JB-6.0-04L)**
※For the desired application (NPN/PNP/Load common), the jumper bar is sold separately.

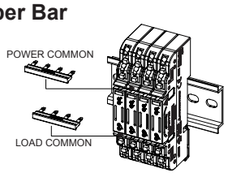


▣ Replacing SSR and Using Jumper Bar

◎ **ASL-L01□-□□**

※ASL-L01□-□□ model is SSR integrated type.
It is not allowed to replace only SSR of the unit.

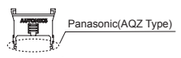
● **Using jumper bar**
The right figure example is for 4 ASL-L01□-□□ units with jumper bar.
For power common, insert a jumper bar to top (belows 1, 2 terminals).
For load common, insert a jumper bar to bottom (above 3, 4 terminals).

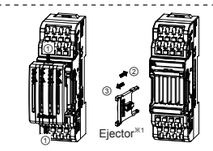


◎ **ASL-L04□-□□**

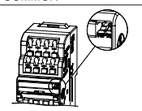
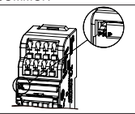
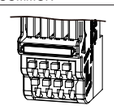
● **Replacing SSR**
1) Pull the protection cover towards direction ①.
2) Insert the ejector as proper side to ② direction and pull it to ③ direction to remove.
3) Insert a new SSR to the case.

※1: Two way ejector position for SSR replacement (there is no ejector for SSR SN-24A01C model)



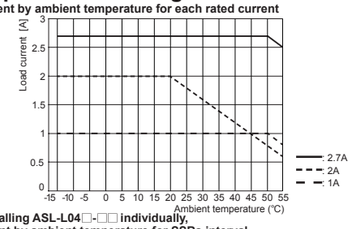


● **Using jumper bars**
1) Remove the protection cover and use the jumper bars accordingly.

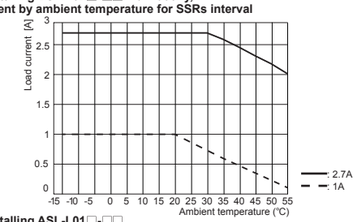
NPN COMMON	PNP COMMON	LOAD COMMON
		
Insert the jumper bar to the far left towards terminals 4 and 8.	Insert the jumper bar to the far right towards terminals 1 and 5.	Insert the jumper bar above terminals 12, 11, 10, 9.

▣ Temperature Derating Curve

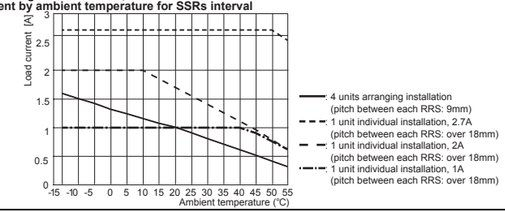
● **Load current by ambient temperature for each rated current**



● **When installing ASL-L04□-□□ individually, load current by ambient temperature for SSRs interval**



● **When installing ASL-L01□-□□, load current by ambient temperature for SSRs interval**



▣ 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 SSR 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 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 Indoors ② Altitude max. 2,000m
   ③ Pollution degree 2 ④ 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
- Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, Co_2, 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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