

HSR-SL series

Slim-type single-phase Solid State Relay

- 22.4mm slim type
- Optimal heat dissipation design, semi-permanent lifespan
- Selectable integrated/separate heat sink
- Bolt, DIN Rail attachment method
- High insulation between input/output

**■ Specification****■ DC input**

Model	Low	HSR-SLD15LR□□	HSR-SLD25LR□□	HSR-SLD40LR□□
		HSR-SLD15LZ□□	HSR-SLD25LZ□□	HSR-SLD40LZ□□
	High	HSR-SLD15HR□□	HSR-SLD25HR□□	HSR-SLD40HR□□
		HSR-SLD15HZ□□	HSR-SLD25HZ□□	HSR-SLD40HZ□□
Certification		CE 60947-4-3) cULus RoHS2		
Weight Integrated heat sink (with box)	CE, UL	Approx. 226g		Approx. 266g

■ S-MARK certified products (DC input)

Model	Low	HSR-SLD15LZ□-S	HSR-SLD25LZ□-S	HSR-SLD40LZ□-S
	High	HSR-SLD15HZ□-S	HSR-SLD25HZ□-S	HSR-SLD40HZ□-S
certification				
Weight Integrated heat sink (with box)	S-MARK	Approx. 226g	Approx. 440g	Approx. 745g

■ DC input Common specifications

LOAD	Rated Load Voltage	Low	24 - 240 V a.c. 50/60 Hz		
		High	24 - 480 V a.c. 50/60 Hz		
	Peak Voltage (Non-repetition)	Low	1,200 V		
		High			
	Rated load current		15A	25A	40A
	Surge current 60 Hz (8.3 ms No repetition)	Low	170A	260A	420A
		High	170A	250A	370A
	Surge current 50 Hz (10 ms No repetition)	Low	160A	250A	400A
		High	160A	230A	350A
	Leakage current		Less than 20 mA		
Output ON voltage dropping		Less than 1.6 V (R.M.S)			
INPUT	Rated Voltage		5 - 24 V d.c.		
	Operating Voltage Range (ON Voltage)		4 - 32 V d.c.		
	return voltage (OFF Voltage)		Less than 3 V		
	Impedance		Less than 4 kΩ		
	Current consumption		Constant current method : Less than 14 mA		
Response Time		1/2 Cycle + 1 ms max. ("R" type below 1 ms)			
Insulating Resistance		500 V d.c., 100 MΩ (Between the input / output and case)			
Dielectric strength		2,500 V a.c. (For 1min at 60 Hz)			
Rated impulse withstand voltage (Uimp)		2,500 V			
Vibration resistance		10 - 55 Hz, Constant current method : 1.5 mm, X·Y·Z each axis direction for 2 hours			
Shock resistance		1,000 m/s ² , X·Y·Z each axis 3 times			
Storage Temperature		-30 ~ 90 °C			
Ambient Temperature		-30 ~ 80 °C (no condensation)			

Ambient Humidity	45 ~ 85 % RH
Pollution level grade	2 Level
bolt tightening torque	Input terminal : 0.05 Nm / Output terminal : 0.25 Nm
Usage	Resistive load
Weight Heating plate removal (with box)	Approx. 94g

■ AC input

Model		Low	HSR-SLA15LR□□	HSR-SLA25LR□□	HSR-SLA40LR□□
			HSR-SLA15LZ□□	HSR-SLA25LZ□□	HSR-SLA40LZ□□
		High	HSR-SLA15HR□□	HSR-SLA25HR□□	HSR-SLA40HR□□
			HSR-SLA15HZ□□	HSR-SLA25HZ□□	HSR-SLA40HZ□□
LOAD	Rated Load Voltage	Low	24 - 240 V a.c. 50/60 Hz		
		High	24 - 480 V a.c. 50/60 Hz		
	Peak Voltage (Non-repetition)	Low	1,200 V		
		High			
	Rated load current		15A	25A	40A
	Surge current 60 Hz (8.3 ms No repetition)	Low	170A	260A	420A
		High	170A	250A	370A
	Surge current 50 Hz (10 ms No repetition)	Low	160A	250A	400A
		High	160A	230A	350A
	Leakage current		Less than 20 mA		
Output ON voltage dropping		Less than 1.6 V (R.M.S)			
INPUT	Rated Voltage		100 - 240 V a.c. 50/60 Hz		
	Operating Voltage Range (ON Voltage)		90 - 264 V a.c. 50/60 Hz		
	return voltage (OFF Voltage)		Less than 50 V		
	Impedance		Less than 40 kΩ		
	Current consumption		Less than 14 mA		
	Response Time		1/2 Cycle + 1 ms max. ("R" type below 1 ms)		
Insulating Resistance		500 V d.c., 100 MΩ (Between the input / output and case)			
Dielectric strength		2,500 V a.c. (For 1min at 60 Hz)			
Rated impulse withstand voltage (Uimp)		2,500 V			
Vibration resistance		10 - 55 Hz, Constant current method : 1.5 mm, X-Y-Z each axis direction for 2 hours			
Shock resistance		1,000 m/s ² , X-Y-Z each axis 3 times			
Storage Temperature		-30 ~ 90 °C			
Ambient Temperature		-30 ~ 80 °C (no condensation)			
Ambient Humidity		45 ~ 85 % RH			
Pollution level grade		2 Level			
bolt tightening torque		Input terminal : 0.05 Nm / Output terminal : 0.25 Nm			
Usage		Resistive load			
certification		 60947-4-3)  RoHS2			
Weight Integrated heat sink (with box)		Approx. 226g		Approx. 266g	
Weight Heating plate removal (with box)		Approx. 94g			

■ Suffix code

■ CE, UL certified products

Model	Code						Content
HSR-SL	□	□	□	□	□	□	Slim-type single-phase Solid State Relay
Control input voltage	D						4 - 32 V d.c.
	A						90 - 240 V a.c.
Rated load current		15					15A

	25					25A
	40					40A
Operating load voltage	L					24 - 240 V a.c. (Low voltage)
	H					24 - 480 V a.c. (High voltage)
Method of operation	Z					Zero-cross switching (standard product)
	R					Random switching
Heat sink & Option	S					Integrated heat sink (standard product)
	T					Heat sink + Bimetal mounted
	N					No heat sink * CAUTION 1) When using a separate heat sink, you must use a heat sink that meets the thermal resistance table.
point of contact	1C					1 Point of contact (Unmarked)
	2C					2 Point of contact (Unmarked) * CAUTION 2) Only for 15 A

* CAUTION 2) 2 contact : Only available for 15 A items (HSR-SL□15LZS2C, HSR-SL□15HZS2C)

■ S-MARK certified products

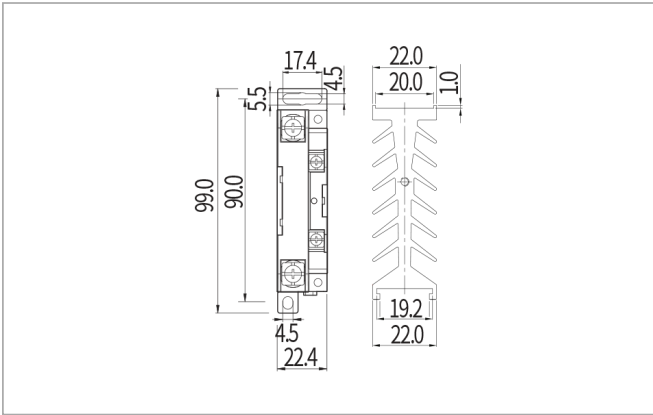
Model	Code						Content
HSR-SL	☐	☐	☐	☐	☐	-S	Slim-type single-phase Solid State Relay
Control input voltage	D						4 - 32 V d.c.
Rated load current	15						15A
	25						25A
	40						40A
Operating load voltage	L						24 - 240 V a.c. (Low voltage)
	H						24 - 480 V a.c. (High voltage)
Method of operation		Z					Zero-cross switching (standard product)
Heat sink & Option	S						Integrated heat sink (standard product) * CAUTION 2) Please refer to the dimensions of the 25A and 40A heat sink.
	T						Heat sink + Bimetal mounted
	N						No heat sink * CAUTION 1) When using a separate heat sink, you must use a heat sink that meets the thermal resistance table.

■ Dimension

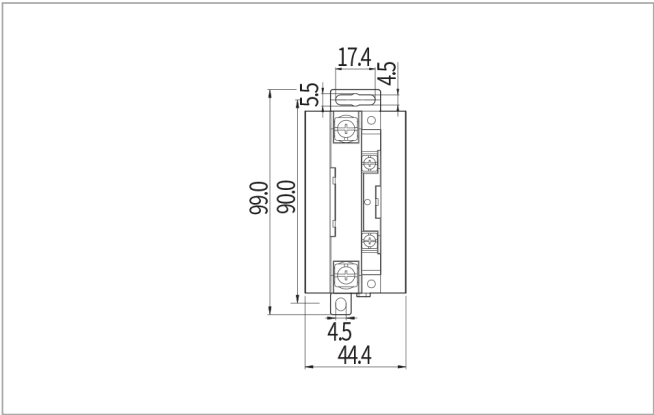
[Unit : mm]

■ CE, UL certified products

■ 15A, 25A

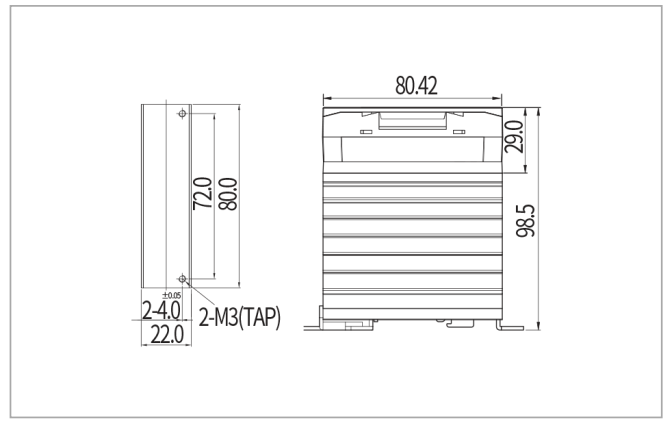
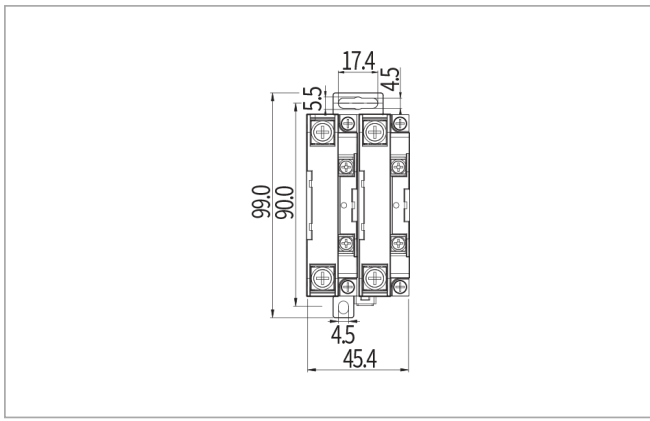


■ 40A



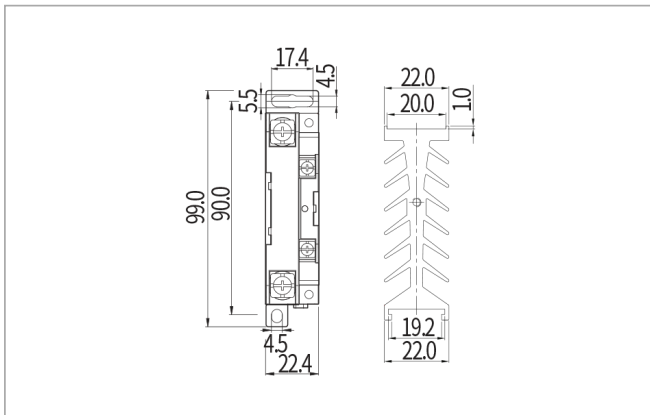
■ 2C (2 Point of contact)

■ N (Heating plate removal)

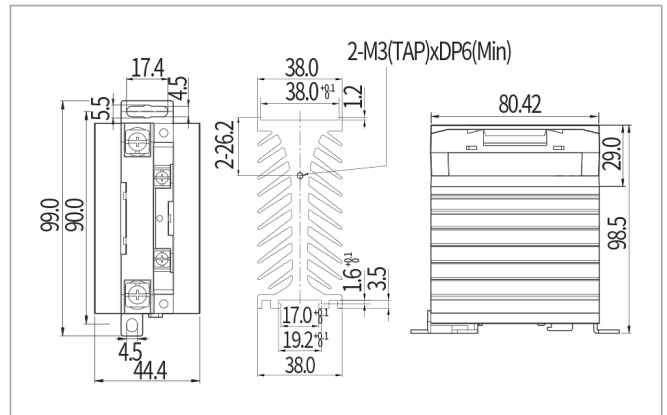


■ S-MARK certified products

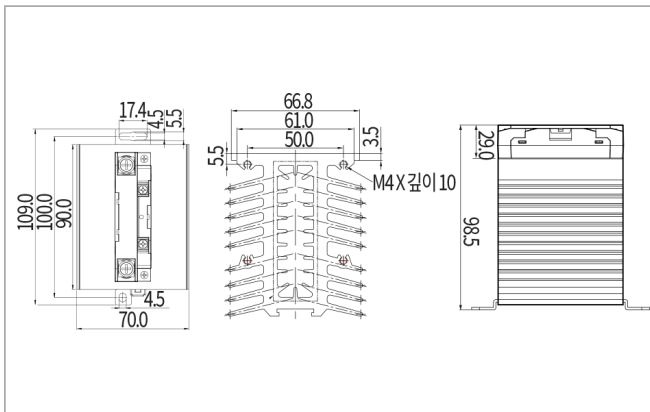
■ 15A



■ 25A



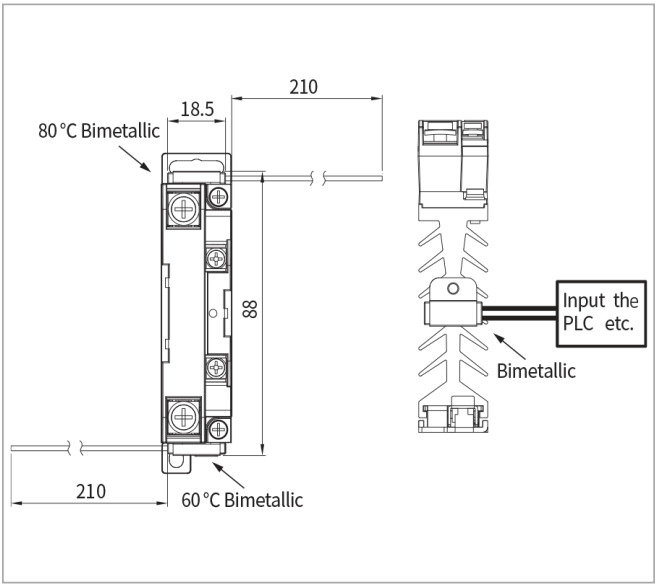
■ 40A



Connection diagram

* This model does not have a fuse internally. So we suggest using fast-acting fuse separately on the outside as following pictures.

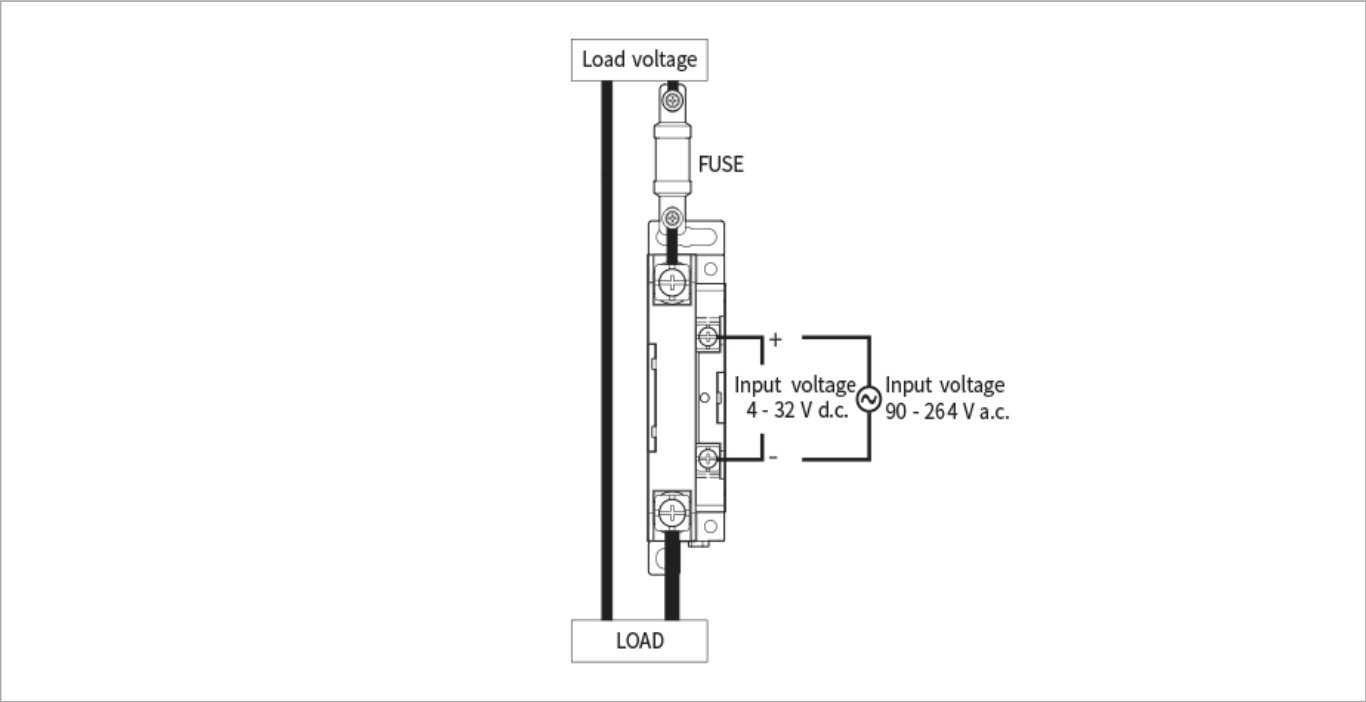
+ BI Option spec diagram (60°C, 80°C bimetal mounted)



※ **Bimetal specification**

- Operating temperature : 60 °C / 80 °C
- Temperature tolerance : Display temperature ±5 °C
- Rating (resistive load)
- 3 A or less / 48 V d.c., 1 A or less / 277 V a.c.

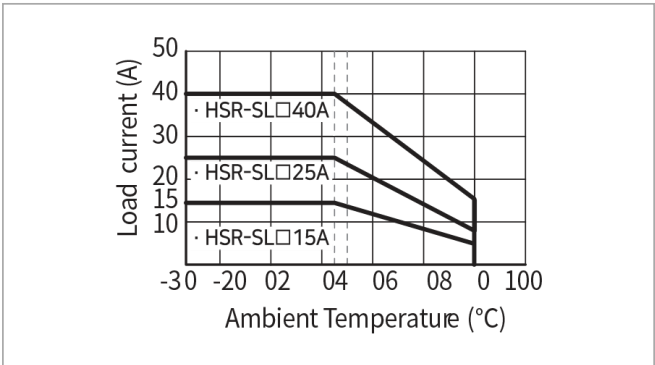
+ **Load and input voltage wiring diagram**



Load/Surge current Characteristics

+ **Load current Characteristics**

- Integrated heat sink

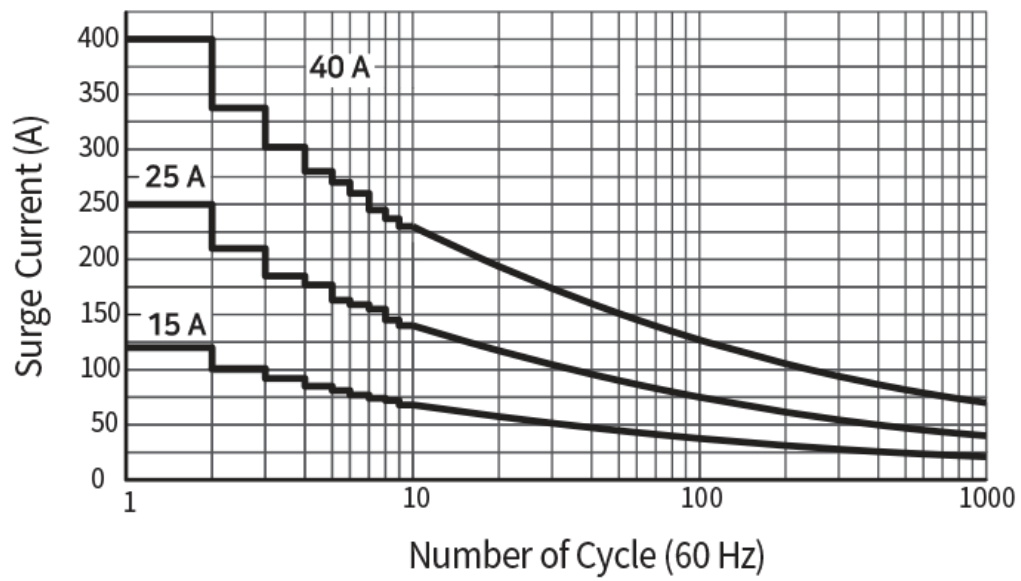


25 °C	15A	25A	40A
80 °C	6A	8A	15A

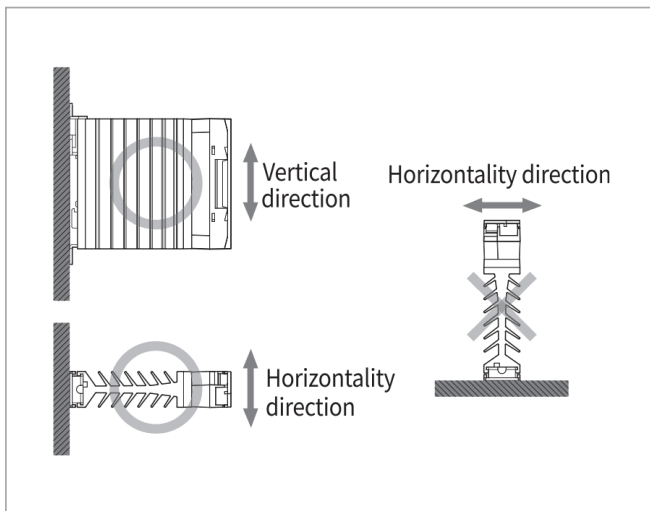
- **CAUTION 1**

load capacity	Heatsink thermal resistance
15A	0.92 °C/W
25A	0.71 °C/W
40A	0.25 °C/W

+ Surge current Characteristics

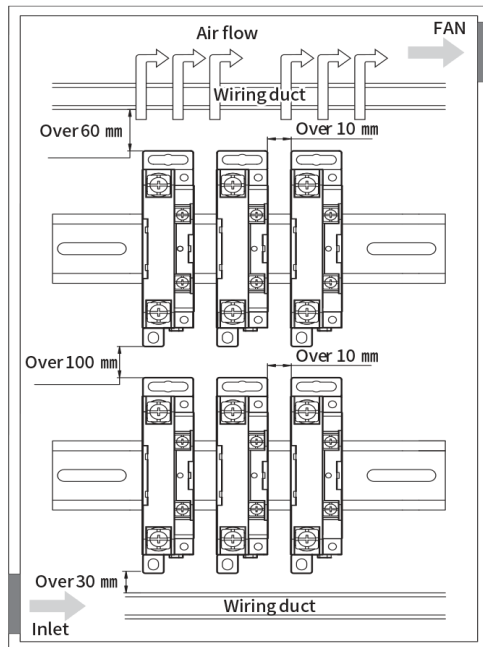


How to install



- Please install HSR in the vertical direction.
- Otherwise, production performance may be reduced to less than 50 %.
- Since the weight of the product is heavy, install it stably when installing DIN rail

Installation intervals



- Please make intervals more than following picture.
- Please install wiring duct less than half the height of the heat sink to prevent obstruction the flow of air.
- The optimal performance of our HSR is in the ambient temperature by 25 °C so please use it lower than 25 °C

Caution

- Since the width of the load output terminal is 10.6mm and the input terminal is 6.8mm, use a smaller terminal than the standard and tighten it with the rated torque.
- When the product is defective, separate main body and exchange it.
- Use it under temperature 25 °C when a real load current is 35 ~ 40 A.
- When 40 A maximum load is used, use 10 SQ wiring. Use clamping unit or lug when tightening it.

- Input terminal wiring

1 X 0.5 mm² (1 X AWG20) or larger

1 X 1.5 mm² (1 X AWG16) or less than 2 X 1.5 mm² (2 X AWG16)

- Output terminal wiring

1 X 1.5mm² (1 X AWG16) or larger

1 X 16 mm² (1 X AWG6) or less than 2 X 6 mm² (2 X AWG10)

* Connect the wiring suitable for the load current capacity to the output terminal.

