Solid State Relay
Current Monitor
KSR CMD

KSR Current Monitoring Detector

- ○ Short circuit and overload monitoring
- ○ Overload level control
- ○ NPN open collector output
- ○ Two-color chip wide window
  - Red: Overheating alarm
  - Green: Normal operation
- ○ Din-rail or surface-mounted
- ○ Combined use of KSR & KSC

General Specification

▶ Input Ratings (Ambient Temperature 25˚C)

Rated Control Voltage	12 ~ 24VDC
Control Voltage Range	9.6 ~ 30VDC
Input Current	15mA

▶ Load Ratings

Rated Load Voltage	100 ~ 240VAC (50 / 60 Hz)
Maximum Switching Current	50A
Minimum Switching Current	3A

▶ Alarm Ratings

Off-State Collector Dielectric Voltage	Maximum 30VDC
Maximum Switching Current	0.1A
Output Type	NPN Open Collector

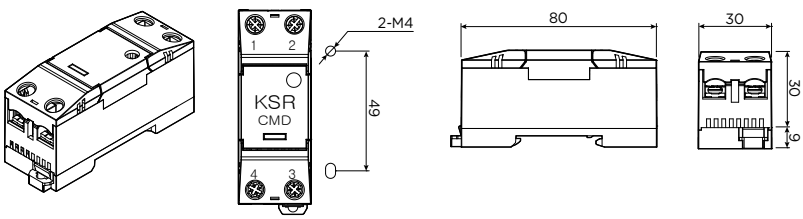
▶ General Ratings

Insulation Resistance	100MΩ DC 500V
Dielectric Strength	2,500VAC, 50/60Hz
Vibration Resistance	10 ~ 55 ~ 10Hz Side Vibration 0.35mm (Both Vibration 0.7mm)
Shock Resistance	294m/s²
Storage Temperature	-30 ~ 70˚C (with no icing or condensing)
Ambient Temperature	-20 ~ 60˚C (with no icing or condensing)
Ambient Humidity	45 ~ 85%RH (no condensing)

	Load	Input
Terminal	3.5 - 4.0	2.0 - 3.5
Screw	M4.0	M3.5
Torque Max / N·m	1.2	0.8

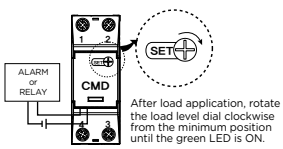
Dimension

unit : mm

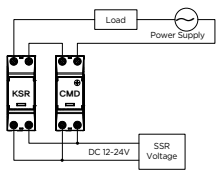


	Load	Input
터미널	3.5 - 4.0	2.0 - 3.5
나사	M4.0	M3.5
Torque Max / N·m	1.2	0.8

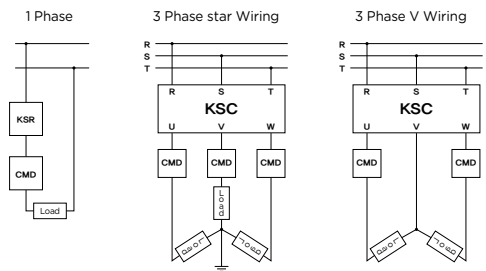
• NPN Open Output Collector & Overload Level Control



• Wiring



• Wiring Diagram



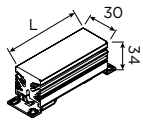
▶ Monitoring Function
- Normal operation: Green lamp on
- Short circuit: Red lamp on / NPN Open Collector output
- Overload: Red lamp flashing / NPN Open Collector output

▶ Caution
- Use the same power supply for KSR / KSC and CMD input. Otherwise, the short circuit monitoring function does not work.
- The input voltage must be within the range of rating, without fluctuation. Otherwise, the monitoring level (load current value) set by the user may change and operating errors may occur.
- The alarm output is NPN Open Collector output. Use the product at 0.1A/30VDC or less.

Solid State Relay
Current Monitor
KSR & KSC Series

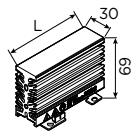
Heatsink

KHS 015 - □



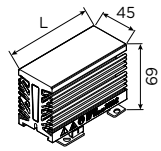
□ : 080 / 100 / 120

KHS 030 - □



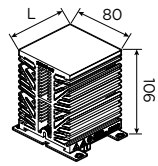
□ : 080 / 100 / 120

KHS 045 - □



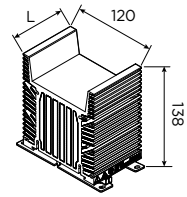
□ : 080 / 100 / 120

KHS 080 - □



□ : 080 / 100 / 120

KHS 120 - □



□ : 080 / 100 / 120 / 130

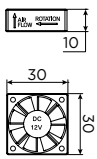
- Maximized heat-radiating surface area via innovative design
- Exclusive advanced Al alloy material for heat radiation
- Special thermal processing for high efficiency use
- Anti-corrosion anodizing surface treatment
- Easily removable structure of air blow fan

- Provision of multiple extended types
  - Optimal heat radiator selectable
  - For diverse environment

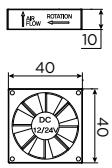
- In-house production
  - Stable quality and supply
  - Quick response to special products

Fan

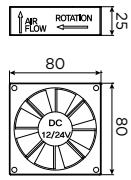
unit : mm



12 VDC



12 / 24 VDC

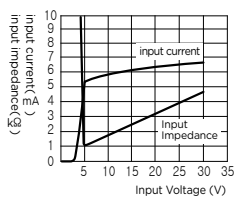


12 / 24VDC (PA6)
100 / 220VAC 50 ~ 60Hz (AL alloy)

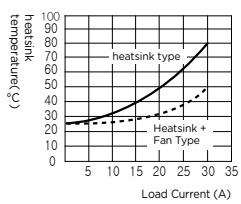
Easily removable structure
- High-performance ball-bearing type
  - Low noise
  - Prolonged life
- Doubled device life

Technical Data

Input Current & Input Impedance

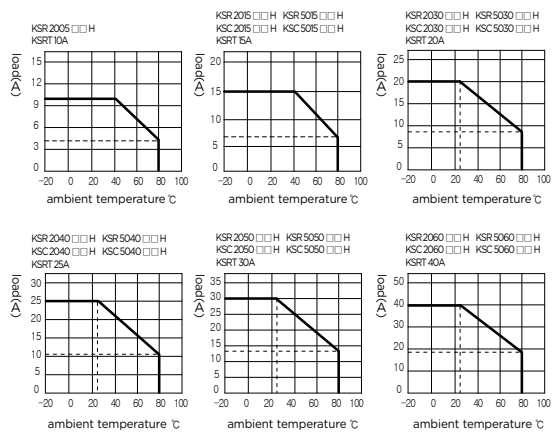


Heatsink Type & Heatsink + Fan Type



☞(ambient temperature 25°C)
vertical mounting

Ambient Temperature-Load Current



▶ Caution
- The radiator fan reduces the radiator temperature by up to 35 ~ 40 % (ambient temperature of 25°C / vertical mounting)
- In the design process, note that the load current characteristic worsens with the increase in the ambient temperature.
- With the high-voltage type, design the system at 80 % of the rating or less.
- The device life is prolonged when the temperature decreases.

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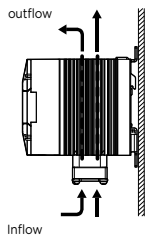
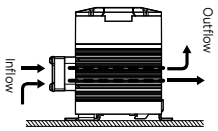
Heatsink Type

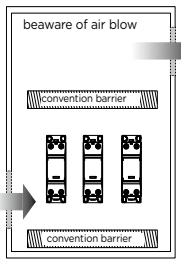
Vertical Mounting



Horizontal Mounting

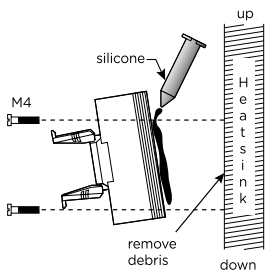


Panel Mounting



- Direct the fan in the lower direction for vertical installation, and in the air inlet direction for horizontal direction.
- If the horizontally mounted device does not have an integrated fan, use it at 50% of the rated current or less.
- Pay attention to the increase in the ambient temperature from the heating of the device. Especially when mounting the device in the panel, be sure to install a fan for sufficient ventilation.
- Remove any obstacles for air flow around the air inlet and outlet.

General Type

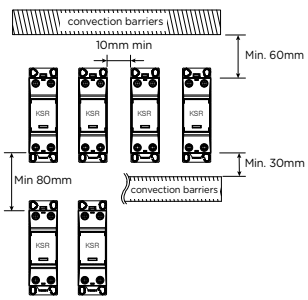


※ silicone grease to provide.

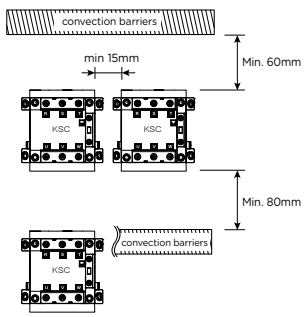
- Be sure to attach the normal KSR/KSC to the heatsink with a high heat radiation performance.
  ☞ Do not attach them to low-thermal-conductivity materials, including glass, wood and plastic.
  - Otherwise, it may cause damage to the device and fire.
- Remove the foreign matters from the mounting surface of the radiator or heatsink, and apply silicon grease for heat radiation to the surface.
- The heat radiation effect greatly depends on the mounting condition and silicon grease application. Poor treatment may cause damage to the device.
- The heat radiation effect is ensured when the device and radiator are vertically mounted with good ventilation.
- Tighten the fixing bolts at the specified torque for fixing the device to the radiator.

☞ KSR, KSC fixing bolt M4-tightening torque 1.2 N·m

KSR Mounting Distance



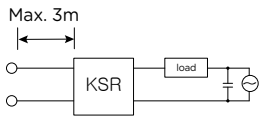
KSC Mounting Distance



- The heat radiation effect decreases when there is not much room. Limit the load current below the rating.
- Install the device as far as possible from a heating unit, if there is any.
- Allow the longest distance possible between the device and other unit.

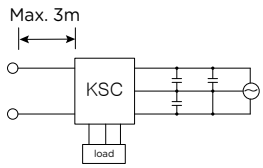
EMC Wiring

KSR Type



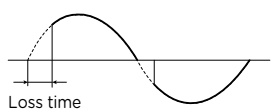
- Connect the film condenser at the Power in Parallel
- Limit the input wire length Maximum 3 m

KSC Type



손실시간

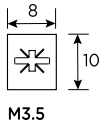
- Time Loss
  Note that low voltage and current of the load increases time loss. Check if any problem exists.



Terminal

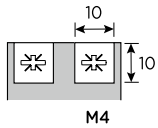
• When using crimp terminals, refer to the terminal specifications for terminal part spaces.

KSR Input Terminal

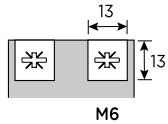


KSR Load Terminal

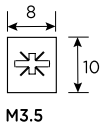
5 / 15 / 30A Type



40 / 50 / 60 / 80A Type

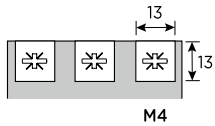


KSC Input Terminal

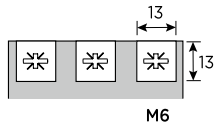


KSC Load Terminal

5 / 15 / 30A Type

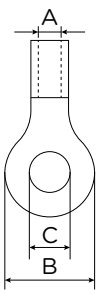


40 / 50 / 60 / 80A Type



Rated Termial specification

unit : mm



Model		Bolt	A (mm)	B (mm)	C (mm)	Terminal	Wire Ø	Torque Max N·m
Load	KSR 5 / 15 / 30A	M4.0	3.0	8.3	4.3	3.5-4.0	2.0	1.2
	KSR 40 / 50 / 60A	M6.0	5.8	12.0	6.4	4.0-6.0	4.2	2.5
	KSR 80A	M6.0	5.8	12.0	6.4	4.0-6.0	5.3	2.5
	KSC 15 / 30A	M4.0	3.0	8.3	4.3	3.5-4.0	2.0	1.2
	KSC 40 / 50 / 60A	M6.0	5.8	12.0	6.4	4.0-6.0	4.2	2.5
	KSC 80A	M6.0	5.8	12.0	6.4	4.0-6.0	5.3	2.5
Input	all	M3.5	2.3	6.6	3.7	2.0-3.5	2.0	0.8

☞ input terminal Color : ⊕ red, ⊖ black

• Be sure to conduct wiring only after switching off the power.
• Select the wire size according to the current.
• Tighten screws firmly at the specified torques.
• Applying an excessive torque may cause the screw to fail. Pay attention especially when using an electric driver.
• The screw at the output terminal must not be loosened. Abnormal heating at the terminal may cause fire.
• After wiring, be sure to lock the terminal safety cover in the closed position to prevent an electric shock or a short circuit.