

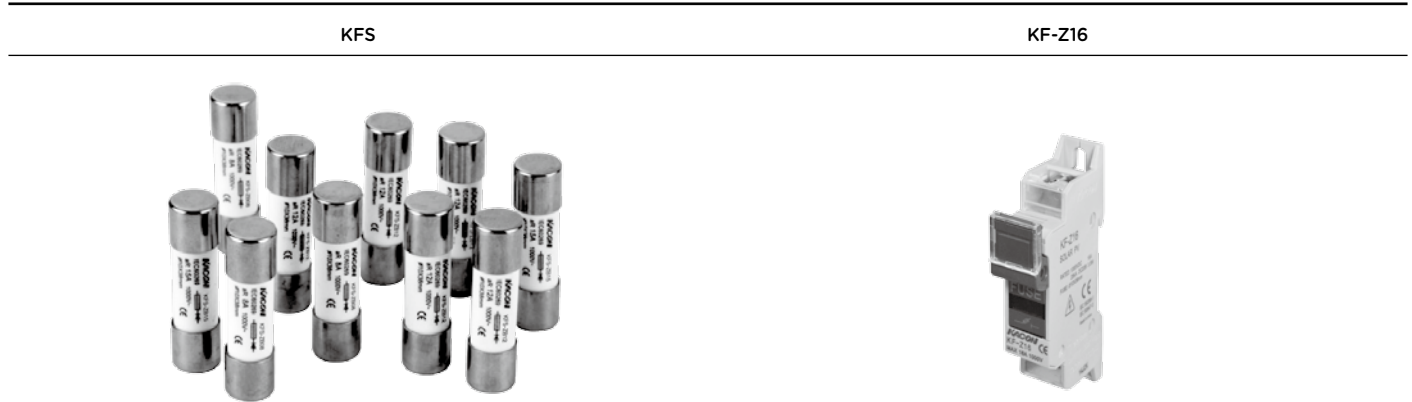
# Solar Purpose Fuse & Fuse Holder

KFS, KF-Z16 Series



- Designed to improve users' safety
- Excellent convenience in construction and in everyday use
- Compact and pleasing appearance

## Product Construction



## Product Specification (Fuse)

Part Number	Size	Rated Voltage (V)	Rated Current (V)	Product Dimension	Length Dimension
KFS-ZB08	Ø10×38	1000	8	Ø10.0	38
KFS-ZB10	Ø10×38	1000	10	Ø10.0	38
KFS-ZB12	Ø10×38	1000	12	Ø10.0	38
KFS-ZB15	Ø10×38	1000	15	Ø10.0	38
KFS-ZB16	Ø10×38	1000	16	Ø10.0	38

## Product Specification (Fuse Holder)

Part Number	Rated Voltage and Current	Insulation Resistance	Dielectric Strength	Vibration Resistance	Ambient Temperature	Ambient Humidity
KF-Z16	16A 1000VDC	100MΩ 500VDC	2,500V per 1minute 50/60Hz	10 - 50 Hz Durable Amplitude 1.5mm	-40 - 70°C (no icing)	Max. 85% RH

Cabling Accessory  
& Solar System

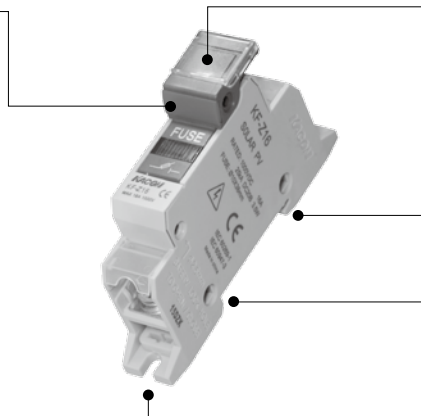
# Solar Purpose Fuse & Fuse Holder

KFS, KF-Z16 Series

## Fuse Holder Feature

### COLOR CODE BAR

- Easy to identify
- Color : B(Blue), G(Green), R(Red), W(White)



### SLIDE-TYPE TRANSPARENT NAME AFFIX PLATE

- Convenient to use and secure visibility

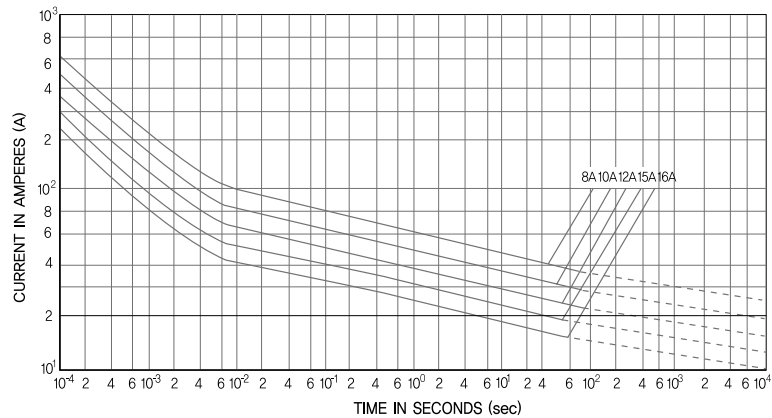
### PIN HOLE FOR EXTENSION

- Easy to assemble when extended to 2P,3P

### Easy mounting

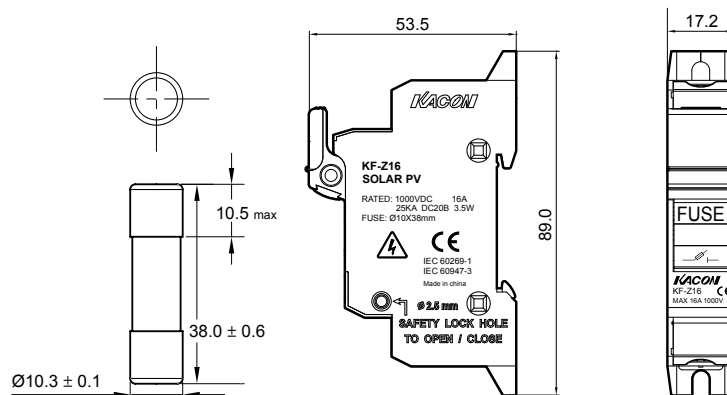
- Din rail
- Use bolts to fasten the kit on surfaces

## Fuse Characteristic Graph



## Dimensions

unit : mm



# Solar Purpose Square Fuse & Fuse Holder

## KFS, KF-SF Series

- A high current withstanding capacity
- Wide current values
- Excellent electrical and mechanical characteristics
- Easy to install, maintain, and repair



### Product Construction

KFS



KF-SF



### Fuse Specification (Fuse)

Part Number	Rated Voltage	Rated Current
KFS-B020S	1000	20
KFS-B032S	1000	32
KFS-B040S	1000	40
KFS-B063S	1000	63
KFS-B080S	1000	80
KFS-B100S	1000	100
KFS-B125S	1000	125

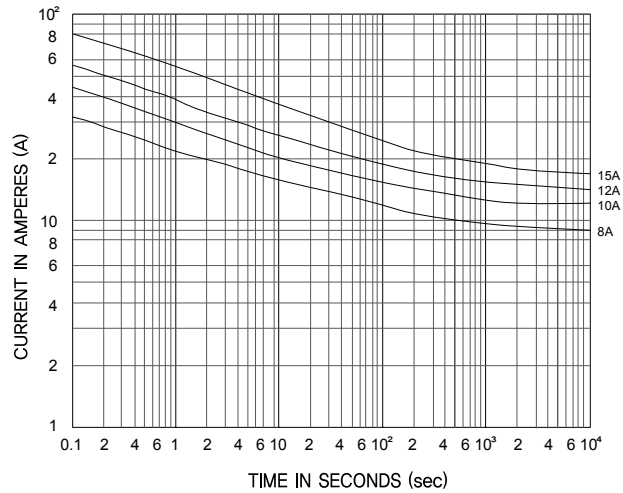
### Fuse Holder Specification (Fuse Holder)

Part Number	Rated Current	Breaking Capacity	Insulation Resistance	Strength Dielectric Voltage	Vibration Resistance	Ambient Temperature	Ambient Humidity
KF-SF	Max. 400A	Max. 200 KA	100MΩ 500VDC	2,500V per 1 minute 50/60 Hz	10 - 50 Hz Durable Amplitude 1.5mm	-40 - 70°C (no icing)	Max. 85% RH

# Solar Purpose Square Fuse & Fuse Holder

KFS, KF-SF Series

## Fuse Characteristic Graph



## Installation Method



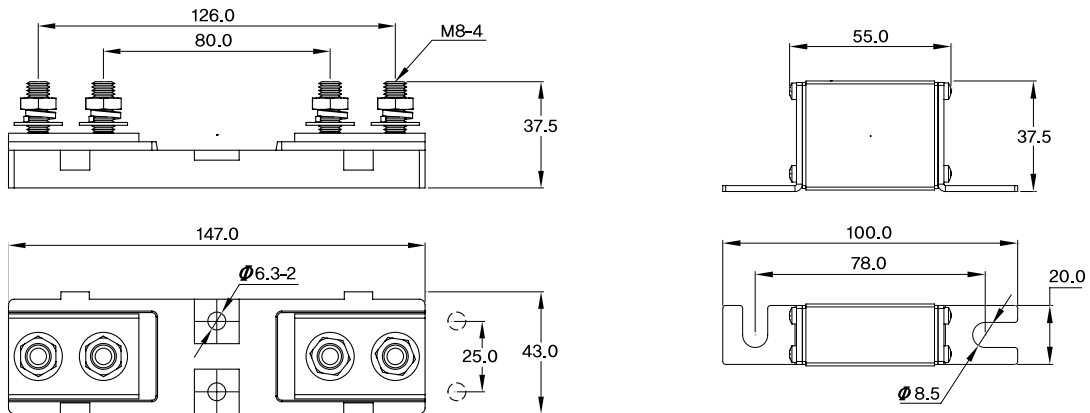
Installation on a panel surface (M6-2)



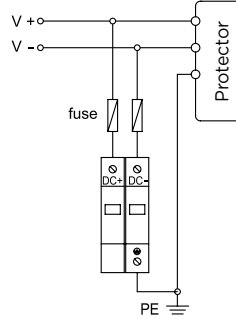
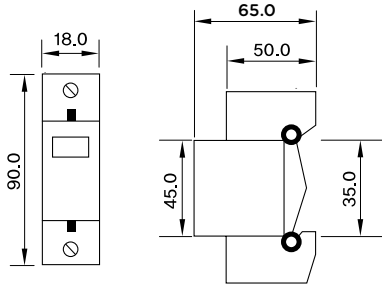
Installation of a fuse

## Dimensions

unit : mm



DC SURGE PROTECTOR



자율화 제어기 & 모터기동보호기

Product Specification

Part Number	Rated discharge current (kA)	Max. Discharge Current I <sub>max</sub> kA	Voltage Protection Level U <sub>p</sub> (V)	Voltage U <sub>n</sub> (V)	Continuous Operating Voltage U <sub>c</sub> (V)	Cable (mm <sup>2</sup> )	Overheating Protection Fuse (A) in Series
KSD-0524	5	10	150	24VDC	32VDC	≥6	10A
KSD-1024	10	20	200	24VDC	32VDC	≥6	16A
KSD-2048	20	40	350	48VDC	62VDC	≥10	16A

DC SURGE PROTECTOR (1,000VDC)



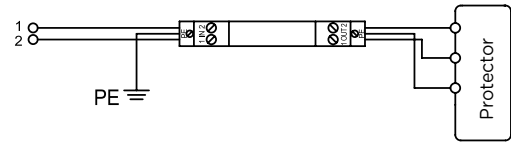
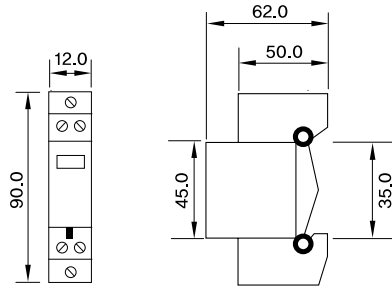
Product Specification

Part Number	Rated discharge current (kA)	Max. Discharge Current I <sub>max</sub> kA	Voltage Protection Level U <sub>p</sub> (V)	Voltage U <sub>n</sub> (V)	Continuous Operating Voltage U <sub>c</sub> (V)	Mounting	Ambient Temperature (°C)	Indicator
KSD-2013	20	40	3,200	1,000VDC	1,060VDC	Symmetrical rail 35mm	-40~+85°	Normal: green Failure: red

# Surge Protectors Device

KSD Series

## COMMUNICATION SURGE PROTECTOR



### Product Specification

Part Number	Rated Voltage Un	Rated discharge current (kA)	Voltage Limit (VDC)	Transmission Speed (Mbps)	Plug-in Damage (dB)	Connection Method
KSD-CH06	6VDC		7VDC			1,2
KSD-CH12	12VDC	5KA	15VDC	10	≤ 0.5	1,2
KSD-CH24	24VDC		28VDC			1,2

### Precautions in Installations

o Be sure to read the instruction manual and safety precautions before using the product.

o Please make the product instruction manual available to the next user or to the repair manager.

#### • Safety Precautions

Be aware of the safety precautions, dangers, etc. before handling, wiring, manipulating, and conducting inspections. Please observe the details regarding safe handling of the product.

#### • Danger

Always follow the instructions. Failure to follow the instructions may result in death or serious injury.

1. Make sure that the upstream breaker is turned OFF at all times. There are dangers of electric shock during installation.
2. Be careful not to get in contact with the exposed parts of the terminals. It can cause electric shocks or short circuits.
3. Be careful not to get in contact with two exposed live wires. It can cause electric shock.

#### • Precautions

Observe the following to avoid to avoid injury.

1. Make sure to read the precautions before installation, and follow the instructions during installation.
2. A faulty installation can lead to a malfunction of the product and/or accident. Installation, maintenance, and repairs of surge protectors should be conducted by qualified personnel (electric technicians).
3. Please avoid installations at places exposed to rain, oil, dust, direct sunlight, etc. There are dangers of an electric shock, electric leakage, short circuit, fire, malfunction, etc.
  - 1) Application temperature: 40 - 70oC 2) Relative humidity: 40 - 85% 3) Altitude: Lower than 2000 m
  - 4) Do not install the product at places susceptible to abnormal vibration, impact, excessive moisture, oil, smog, dust, corrosive gas, etc.
4. Connect the product to the rated power. Unrated power can lead to a malfunction or breakdown.
5. Insufficient fastening torque can cause excessive heat or fire. Firmly affix the terminal units in accordance with the specified fastening torque in the instruction manual of the product.
6. Install the connecting conductors parallel to each phase when fixing the terminals. Otherwise, there are dangers of short circuits between phases.
7. Do not conduct insulation resistance measurements, or withstand voltage tests between phases. Detach the product from the circuits when conducting the said tests on the circuit lines. Otherwise, there are high risks of breakdowns.
8. Be sure to ground the earth terminals of the electric devices.
9. Unearthed terminals can cause electric shock or fire.
10. Do not conduct unauthorized remodeling of the product.
11. Discard the product in accordance with the Wastes Control Act.

## Considerations in Installations

- o The performance of the surge protectors may differ, depending on the installation methods.
- o Please consider the following details for the installation.

### 1) Protection and Installation Method

To protect various power distribution systems, the installation of surge protectors with sufficient surge capacities at the entrance of the panelboards are highly recommended if the devices and equipment to be protected have sufficient overvoltage withstanding capacity.

### 2) Reciprocal Vibration Phenomena

In cases where the devices and equipment to be protected are far distant from the surge protectors, about two-fold limit voltages of the surge protectors can occur to said equipment due to reciprocal vibrations of plunging surges. Such reciprocal vibrations of surges can be disregarded if the wirings are shorter than 10 m; however, as two-fold voltage can occur even in wirings shorter than 10 m, surge absorbers and protectors inside the devices and equipment must be harmonized.

### 3) Connection Wire Length

To achieve the best possible overvoltage protection, the connection wires for the surge protector should be shortened to restrict inductive voltages.

### 4) Necessity of Additional Protection

When comparatively low lightning surge voltages plunge into the devices and equipment to be protected, it may be enough to install surge protectors at building entrances. If a magnetic field occurs within the building due to lightning discharging electricity, additional protective devices can be used to protect precision equipment, such as computers that are positioned far from the surge protectors installed at the entrance.

### 5) Selection of Surge Protector Installation Places Based on Rating Tests

It is highly recommended to select surge protectors with appropriate specifications by considering lightning surge voltages or overvoltages due to low-voltage wiring systems.

### 6) Concept of Protection Area

In the designs and applications of appropriate surge protectors, it is most recommended to classify the protection areas based on the protection areas regulated in IEC, departmentalize the wiring systems, and install surge protectors at the boundaries of the protection areas.

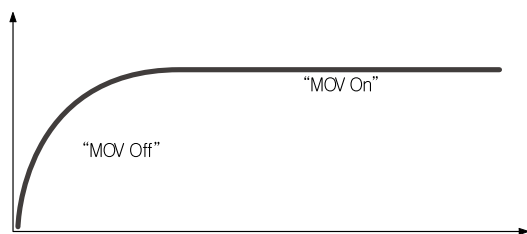
## Characteristics of surge Protectors

MOV is the most reliable technology for attenuating surge voltages. The clamping characteristics of MOV allow it to be applied in more than 95% of SPD for power supplies.

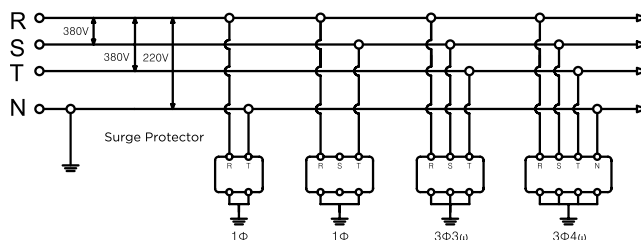
The silicon avalanche diodes (SAD) are frequently used in data cables and communication lines.

The following are the representative characteristics of MOV:

- Almost no current leakage at ceiling voltages.
- The higher the voltage is, the more the current leaks.
- The voltage drop will not increase even at higher current flows.



SPD Voltage and Current Characteristic Curves



- When 380V is applied between phases, the voltage changes to 220V at the surge protector due to the earth potential difference since the earth protector is grounded.

The surge protector should be selected and installed after considering the maximum continuous operating voltage (MCOV) and the voltage protection level (Up).