Foot Switched

HRF-HD8 Series

Part Number Description

HRF - HD8 - ❶ ❷ ❸ ❹

❶ Protection Structure	S : Standard	L : Anti-Operation-Error Lever Type (HD8L)
❷ Operation Type	1 : Standard 3 : Self-Holding Type [KSB1-A contact block]	8 : Safety-Reset Type [KSB1-S contact block] 2 : Two-Step Operation Type (differential operation) = Two Built-In Contact Blocks [KSB1-1 & 2 contact block]
❸ Contact Block Type★	1 : Standard	
❹ Contact Form	1 : 1N/O + 1N/C - Standard 2 : 2N/O	3 : 2N/O + 2N/C 4 : 2N/C

General Specification

Contact Ratings	Contact Material		Ag Alloy (24K Au Plated)
	Rated Current		20A 250VAC
	Rated Voltage		Max. 440VAC
	Contact Resistance		Max. 50mΩ
General Ratings	Dielectnic Strength		2,000VAC for 1 minute
	Life Cycle	Electical	200,000
		Mechanical	1,000,000
	Degree of Protection		IP67
	Insulation Resistance		100MΩ

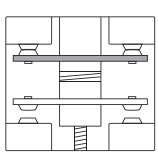
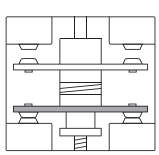
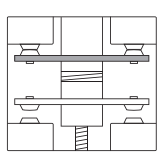
Anti-Operation-Error Lever Type (HRF-HD8L811)

The mechanical anti-operation-error lever prevents the error according to the user's error or external impact, and maximizes the user's convenience. Because the lever is further inside compared with that of other products, it is easy to use, and allows the easy operation of the pedal.

Operation Sequence

Start

Safety Lever Lock	① Safety Lever Unlock ② Pedal Working	Default Status (Reset)	Built-in Switch KSB1

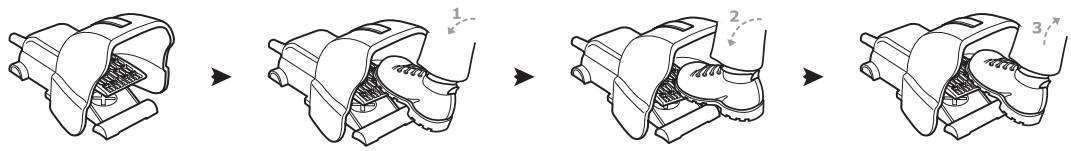

Foot Switched
HRF - HD8 Series

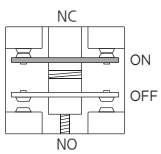
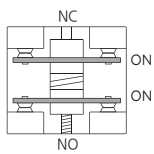
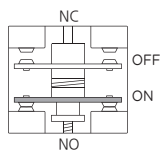
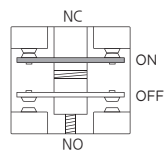
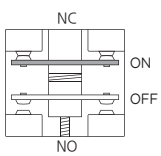
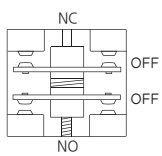
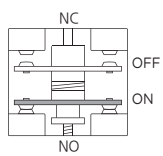
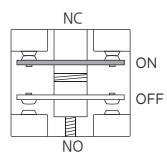
Two-Step Operation Type (HD8S212)

A two-step control system that has a step-stopper and two contact blocks.
One foot pedal can control multiple functions.
Ex) Step 1 : Standby or Operation Start
Step 2 : Operation Start or Stop

Step - Stopper

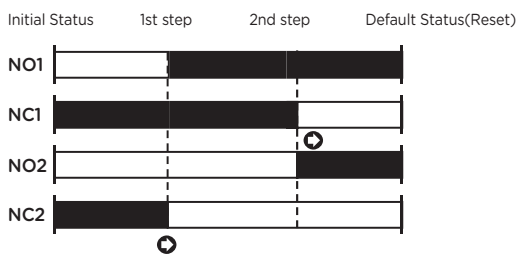
Operation Sequence



	① Default Status NO1-off / NO2-off	② 1st Step NO1-on / NO2-off	③ 2nd Step NO1-on / NO2-on	④ Default Status (Reset) NO1-off / NO2-off
KSB1				
	OFF	ON	ON	OFF
KSB2				
	OFF	OFF	ON	OFF

☞ Second stage opeating force : 15kg·f Minimum

Default The Contacts Operating Charts



Built-in Switch

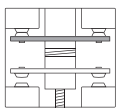
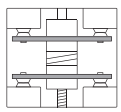
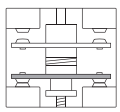
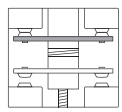
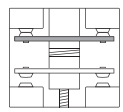
KSB1-1

KSB1-2

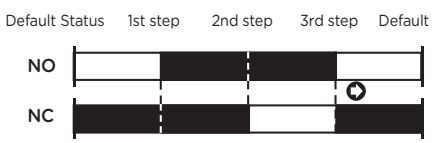
Maintained Type (HRF-HD8S311)

This type is suitable for frequent or continuous operations. Reduced operator's fatigue → Increased working efficiency
(In emergency, pressing the pedal immediately stops the machine.)

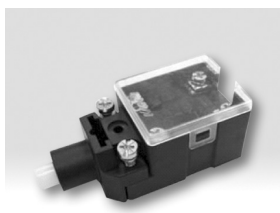
Operation Sequence

① Default Status	② 1st Step	③ 2nd Step (Alternate)	④ 3rd Step	⑤ Default Status (Reset)
				
Default status (NC-on / NO-off)	In this first step, the pushing operation has the contacts of the NC and NO all turned on.	In the second step, by pushing the button the NC contacts are turned off and NO contact is still on. (Until pressing the reset button, the status is maintained On even when the pedal is not stepped on.)	Releasing the self-holding state by pressing the pedal again (NC-on/NO-off)	Default status

The Contacts Operating Chart



Built-in Switch KSB1-A



Foot Switched
HRF - HD8 Series

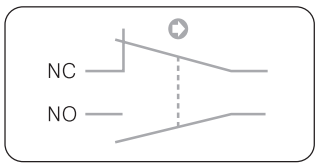
Contact Block Types

This type is suitable for frequent or continuous operations. Reduced operator's fatigue → Increased working efficiency
(In emergency, pressing the pedal immediately stops the machine.)

■ **Limit switch type**

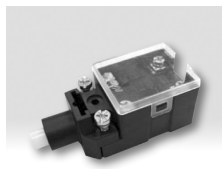
1. EN60947 standard forced contact shutoff (NC only)
2. Large capacity contact 20A/250VAC
3. Electrical life: One million times
4. 24k gold-plated contact

The Circuit Drawing of The Limit Switch



KSB1 : Standard

KSB1-A : Maintained type



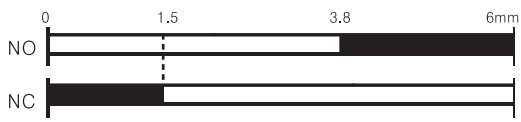
KSB1-S : Safety-Reset

Contact Operating Charts

KSB1-S

NO on is followed by NC off. This is applied only to the safety-reset and Maintained type.

KSB1 / KSB1-A

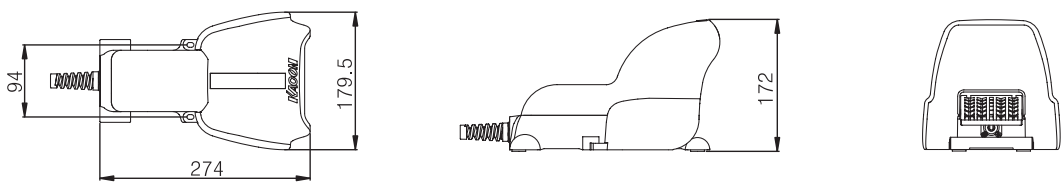


NC off is followed by NO on. This is applied to the Standard type.

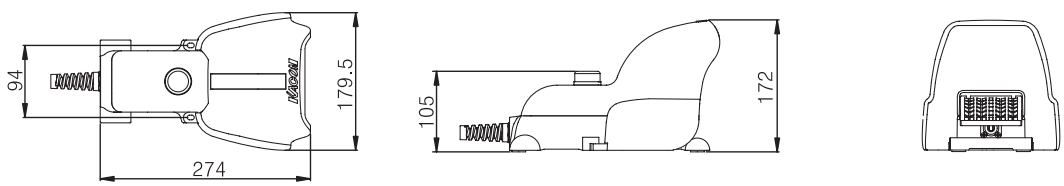
■ Contact : ON

Dimension (mm)

HRF - HD8 □ 1 □□ / HD8 □ 2□□ / HD8 □ 3□□



HRF - HD8 □ 8 □□



Foot Switched
HRF Series

Part Number Description

HRF - ❶ ❷ ❸ ❹ ❺

❶ Type	M : Medium Duty Type		H : Heavy Duty Type
❷ Material	No mark : Plastic	D : Die-Casting	X : Rolled Steel (Only 1, 8)
❸ Number of Parts	1, 2, 3, 4, 5, 6, 8		3, 5
❹ Safety Cover (H type only)			N : top NX : top + side NS : top + side + front LX : top + side + safety kick lever (Only 3)
❺ Operator Type	No mark : Momentary	3: Maintained	

General Specification

M type

	M1	M2	M3	M5	M52	M53	M6	M8	MX1	MD1	MD2	MD3	MD4
Contact Form	1N/O + 1N/C				2N/O + 2N/C	3N/O + 3N/C	2N/O + 2N/C	1N/O + 1N/C					
Maintained								O	O		O	O	
Material	Plastic								Rolled Steel	Aluminum Die-casting			
Rated Current	10A 250VAC												
Built-in Switch	V type Micro Switch (UL, CUL, VDE, CE certified) + 24k gold plate												
Cable Outlet	0.5mm² X 2m Cable												

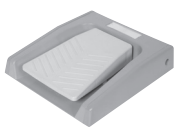
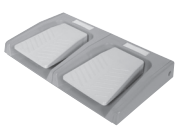
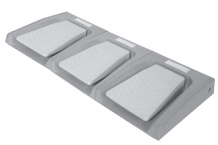
* Option : USB type
* M5 ~ M8 : Molding type Micro Switch

H type

	H3N	HD3	HD3N	HD3NX	HD3NS	HD3LX	HD5N	HD5NX	HD5NS
Contact Form	1N/O + 1N/C						2N/O + 2N/C (2Pedals)		
Rated Current	15A 125/250VAC								
Built-in Switch	Z type Micro Switch (CE certified)								
Material	Plastic	Aluminum Die-casting							
Cable Outlet	By using 1/2 Inch Tap, the flexible cable can be attached (Zn connector 10 ~ 16)								

Foot Switched
HRF Series

Product Selection

	Contact Form	Rated Load	Built-in Switch	Material	Cable outlet	Degree of Protection	Part Number
	1N/O	10A 250VAC	V type Micro Switch (UL, CUL, VDE, CE certified) + 24k gold plat	plastic	0.5mm² × 2Line Cable × 2m	IP54	HRF-M1
	1N/O + 1N/C	10A 250VAC	V type Micro Switch (UL, CUL, VDE, CE certified) + 24k gold plat	plastic	0.5mm² × 3Line Cable × 2m	IP54	HRF-M2
	1N/O + 1N/C	10A 250VAC	V type Micro Switch (UL, CUL, VDE, CE certified) + 24k gold plat	plastic	0.5mm² × 3Line Cable × 2m	IP54	HRF-M3
	1N/O	10A 250VAC	Molding type	plastic	0.5mm² × 2Line Cable × 2m	IP67	HRF-M5
	2N/O (2pedals)	10A 250VAC	Molding type	plastic	0.5mm² × 4Line Cable × 2m	IP67	HRF-M52
	3N/O (3pedals)	10A 250VAC	Molding type	plastic	0.5mm X 6Line cable X 2m	IP67	HRF-M53
	2N/O (2pedals)	10A 250VAC	Molding type	plastic	0.5mm² × 4Line Cable × 2m	IP67	HRF-M6

Product Selection

	Contact Form	Rated Current	Built-in Switch	Material	Cable Outlet	Degree of Preotection	Part Number
	1N/O	10A 250VAC	Molding type	plastic	0.5mm² × 2Line Cable × 2m	IP68	HRF-M8
	1N/O + 1N/C	10A 250VAC	V type Micro Switch (UL, CUL, VDE, CE certified) + 24k gold plat	rolled steel sheets	0.5mm² × 3Line Cable × 2m	IP54	HRF-MX1
	1N/O + 1N/C	10A 250VAC	V type Micro Switch (UL, CUL, VDE, CE certified) + 24k gold plat	aluminum die-casting	0.5mm² × 3Line Cable × 2m	IP54	HRF-MD1
	1N/O + 1N/C	10A 250VAC	V type Micro Switch (UL, CUL, VDE, CE certified) + 24k gold plat	aluminum die-casting	0.5mm² × 3Line Cable × 2m	IP54	HRF-MD2
	1N/O + 1N/C	10A 250VAC	V type Micro Switch (UL, CUL, VDE, CE certified) + 24k gold plat	aluminum die-casting	0.5mm² × 3Line Cable × 2m	IP54	HRF-MD2S
	1N/O + 1N/C	10A 250VAC	V type Micro Switch (UL, CUL, VDE, CE certified) + 24k gold plat	aluminum die-casting	0.5mm² × 3Line Cable × 2m	IP54	HRF-MD3
	1N/O + 1N/C	10A 250VAC	V type Micro Switch (UL, CUL, VDE, CE certified) + 24k gold plat	aluminum die-casting	0.5mm² × 3Line Cable × 2m	IP54	HRF-MD4

Foot Switched
HRF Series

Product Selection

	Contact Form	Rated Current	Built-in Switch	Material	Cable Outlet	Degree of Protection	Part Number
	1N/O + 1N/C	15A 125/250VAC	Z type micro switch (CE certified)	plastic	1/2 Inch Tap, the flexible cable can be attached (zinc connector 10 ~ 16)	IP65	HRF-H3N
	1N/O + 1N/C	15A 125/250VAC	Z type micro switch (CE certified)	aluminum die-casting	1/2 Inch Tap, the flexible cable can be attached (zinc connector 10 ~ 16)	IP65	HRF-HD3
	1N/O + 1N/C	15A 125/250VAC	Z type micro switch (CE certified)	aluminum die-casting	1/2 Inch Tap, the flexible cable can be attached (zinc connector 10 ~ 16)	IP65	HRF-HD3N
	1N/O + 1N/C	15A 125/250VAC	Z type micro switch (CE certified)	aluminum die-casting	1/2 Inch Tap, the flexible cable can be attached (zinc connector 10 ~ 16)	IP54	HRF-HD3NX
	1N/O + 1N/C	15A 125/250VAC	Z type micro switch (CE certified)	aluminum die-casting	1/2 Inch Tap, the flexible cable can be attached (zinc connector 10 ~ 16)	IP54	HRF-HD3NS
	1N/O + 1N/C	15A 125/250VAC	Z type micro switch (CE certified)	aluminum die-casting	1/2 Inch Tap, the flexible cable can be attached (zinc connector 10 ~ 16)	IP54	HRF-HD3LX

Product Selection

	Contact Form	Rated Current	Built-in Switch	Material	Cable Outlet	Degree of Protection	Part Number
	2N/O + 2N/C (2pedals)	15A 125/250VAC	Z type micro switch (CE certified)	aluminum die-casting	1/2 Inch Tap, the flexible cable can be attached (zinc connector 10 ~ 16)	IP54	HRF-HD5N
	2N/O + 2N/C (2pedals)	15A 125/250VAC	Z type micro switch (CE certified)	aluminum die-casting	1/2 Inch Tap, the flexible cable can be attached (zinc connector 10 ~ 16)	IP54	HRF-HD5NX
	2N/O + 2N/C (2pedals)	15A 125/250VAC	Z type micro switch (CE certified)	aluminum die-casting	1/2 Inch Tap, the flexible cable can be attached (zinc connector 10 ~ 16)	IP54	HRF-HD5NS
	2N/O + 2N/C (2pedals)	15A 125/250VAC	Z type micro switch (CE certified)	aluminum die-casting	1/2 Inch Tap, the flexible cable can be attached (zinc connector 10 ~ 16)	IP54	HRF-HD202P
	3N/O + 3N/C (3pedals)	15A 125/250VAC	Z type micro switch (CE certified)	aluminum die-casting	1/2 Inch Tap, the flexible cable can be attached (zinc connector 10 ~ 16)	IP54	HRF-HD301P

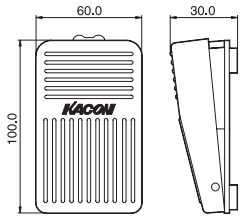
Foot Switched

HRF Series

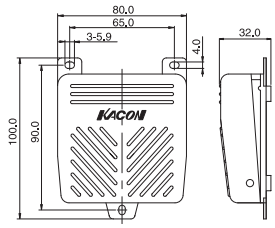
Dimension

(mm)

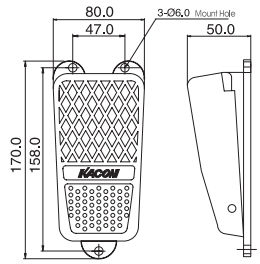
HRF-M1



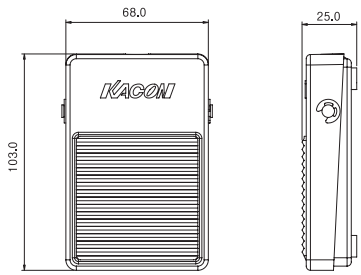
HRF-M2



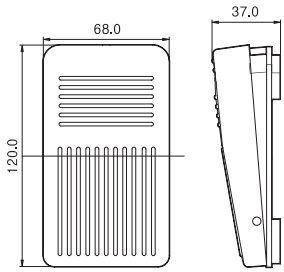
HRF-M3



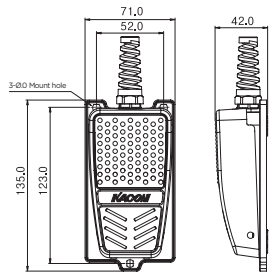
HRF-MX1



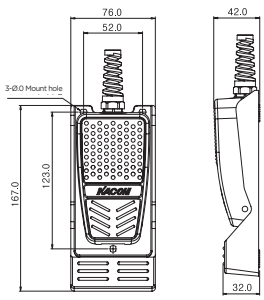
HRF-MD1



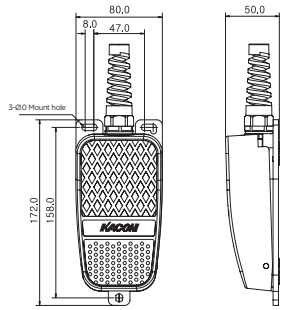
HRF-MD2



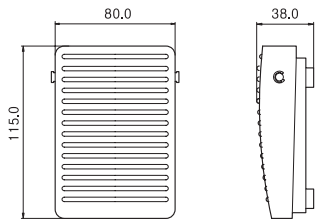
HRF-MD2S



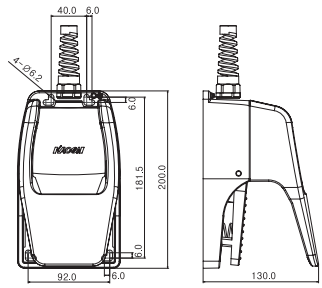
HRF-MD3



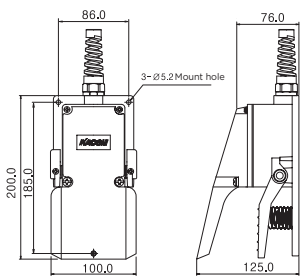
HRF-MD4



HRF-HD3



HRF-H3N



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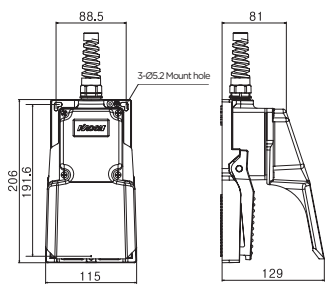
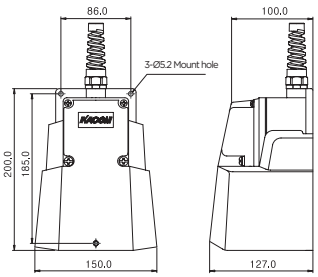


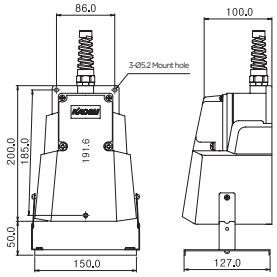
Dimension

(mm)

HRF-HD3NX

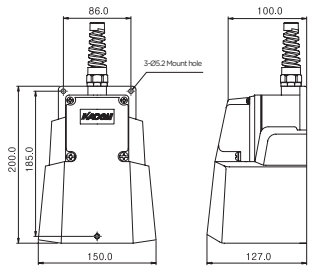


HRF-HD3NS

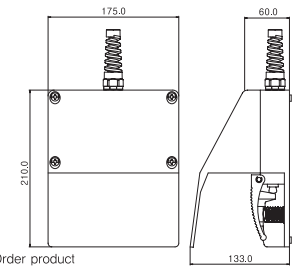


Order product

HRF-HD3LX

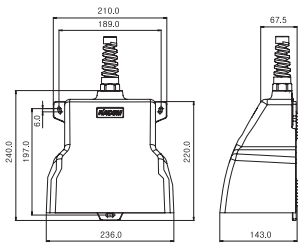


HRF-HD5N



Order product

HRF-HD5NX



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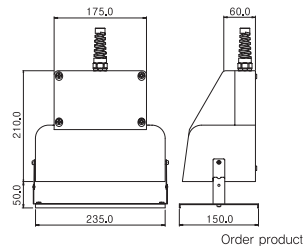
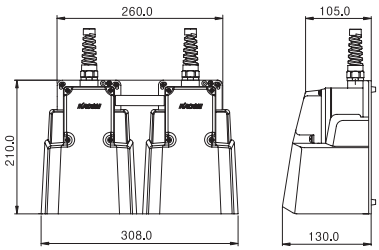
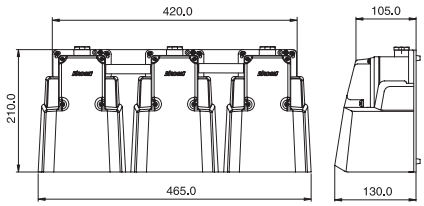


Order product

HRF-HD202P

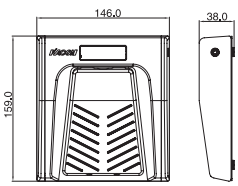


HRF-HD301P

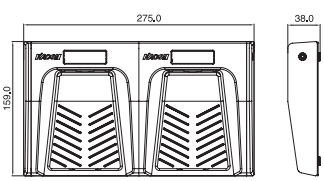


for medical and beauty product

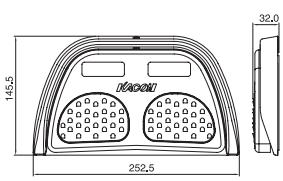
HRF-M5



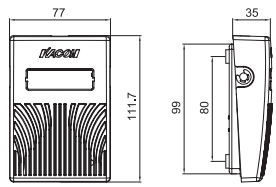
HRF-M52



HRF-M6

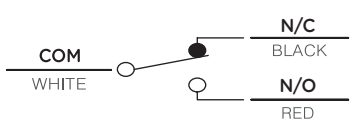


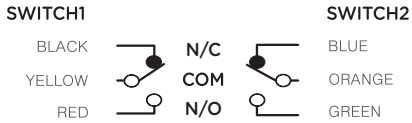
HRF-M8



Foot Switched
HRF Series

Circuit Drawing





Caution

- Use the large current breaker for the large current above the rating considering the load type.
- Use caution for short or open circuits when the product is transported or moved.
- Consider the ambient environment, e.g., water, oil and dirt.
- Severe impact or falling matters may cause operating errors.

☞ Be sure to observe the safety precautions to prevent accidents and risks by using the product safely and properly.

☞ Precautions are classified into three categories: danger, warning, and caution.

⚠ **Danger** : Failure to observe this instruction may lead to an urgent situation including serious injury or significant damage.
⚠ **Warning** : Failure to observe this instruction may lead to serious injury or death.
⚠ **Caution** : Failure to observe this instruction may lead to light injury or damage to the product.

☞ The meaning of the symbol in the product and user's guide are as follows.

⚠ is the symbol that a specific condition may generate a danger, which must be avoided.

⚠ **Danger**
Be sure to attach double safety lock to the product when using it for the devices that significantly influence human lives or properties (nuclear, control, healthcare, burning, processing and transport). Otherwise, it may lead to fire, injury and damage to properties.

⚠ **Warning**
1. Do not connect the wire when the power is on
   • It may cause an electric shock.
2. Only the KACON's technician can modify the product.
   • It may cause electric shock or fire.
3. Do not use it as a safety device.
   • It may cause injury or damage to the product.

⚠ **Caution**
1. Do not use the product outdoors.
   • It may be the cause of reduced life and lead to an electric shock.
2. Do not use the product in the flammable or explosive environment
   • It may lead to fire and explosion.
3. Use the product at the rated voltage.
   • Failure to use the rated voltage may lead to a reduced product life.
4. Do not use the product outside the operating voltage range nor apply AC power to the DC power product.
   • It may lead to the damage to the product.
5. Do not miswire (e.g., polarity)
   • It may lead to the damage to the product.
6. Do not use the product in the vibration environment.
   • It may lead to fire.
7. Do not use organic solvent for cleaning.
   • It may lead to electric shock and fire.
8. Do not short the load.
   • It may lead to the damage to the product.
9. For the disposal of this product, classify the product as industrial.