HF18FZ MINIATURE INTERMEDIATE POWER RELAY

File No：E133481

File No：40048406

File No：CQC17002183722

Features

- Multiple switching capability (2C, 4C type)
- With LED
- Conform to the CE low voltage directive
- 2.0kV dielectric strength(between coil and contacts)
- High electrical life
- High mechanical life
- With test button
- Automatic production

RoHS compliant

CONTACT DATA

Contact arrangement	2C	4C
Contact resistance 1)	100mΩ max.(at 1A 6VDC)	
Contact material	See"ORDERING INFORMATION"	
Contact rating (Res. load)	7A 220VAC/24VDC	5A 220VAC/24VDC
	5A 220VAC/24VDC	3A 220VAC/24VDC
Max. switching voltage	277VAC / 30VDC	
Max. switching current	7A	5A
Max. switching power	1939VA/ 210W	1385VA/ 150W
Mechanical endurance	5 x 10^7OPS(DC type)	
	2 x 10^7OPS(AC type)	
Electrical endurance 2)	2 Form C:1 x 10^5OPS(7A 277VAC or 7A 30VDC, Resistive load,Room temp.,1s on 9s off) 5A 250VAC or 30VDC 0.5s on 1.5s off 5x10^5OPS	
	4 Form C:1 x 10^5OPS(5A 277VAC or 5A 30VDC, Resistive load,Room temp.,1s on 9s off) 3A 250VAC or 30VDC 0.5s on 1.5s off 2x10^5OPS	

Notes: 1) The data shown above are initial values.
2) Please refer to the characteristic curves for detailed electrical endurance information.If you need other conditions.please contact us.

COIL

Coil power	DC type: Approx. 0.8W to 1.1W; AC type: Approx. 0.9VA to 1.5VA

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	2000VAC 1min
	Between open contacts	1000VAC 1min
	Between contact sets	2000VAC 1min(2 Form C)
		1500VAC 1min(4 Form C)
Operate time (at nomi. volt.)		20ms max.
Release time (at nomi. volt.)		DC type: 15ms max.
		AC type: 25ms max.
Temperature rise		85K max.
Shock resistance	Functional	200m/s²(NO), 100m/s²(NC)
	Destructive	1000m/s²
Vibration resistance		10Hz to 55Hz 1mm DA
Humidity		5% to 85% RH
Ambient temperature		-40˚C to 70˚C
Termination		Plug-in
Unit weight		Approx. 39.4g
Construction		Dust protected

Notes: 1) The data shown above are initial values.

COIL DATA

at 23˚C

Nominal Voltage VDC	Pick-up Voltage VDC max.1)	Drop-out Voltage VDC min.	Max. Voltage VDC2)	Coil Resistance Ω
6	4.8	0.60	6.6	41 x (1±15%)
12	9.6	1.20	13.2	165 x (1±15%)
24	19.2	2.40	26.4	662 x (1±15%)
48	38.4	4.80	52.8	2725 x (1±15%)
100/110	80.0	11.0	110/121	11440 x (1±15%)
220	170.0	22.0	242	53780 x (1±15%)

Nominal Voltage VAC	Pick-up Voltage VAC max.1)	Drop-out Voltage VAC min.	Max. Voltage VAC2)	Coil Resistance Ω
12	9.60	3.60	13.2	46 x (1±15%)
24	19.2	7.20	26.4	180 x (1±15%)
48	38.4	14.4	52.8	788 x (1±15%)
100/110	80.0	33.0	110/121	3750 x (1±15%)
110/120	88.0	36.0	121/132	4430 x (1±15%)
200/220	160.0	66.0	220/242	12950 x (1±15%)
220/240	176.0	72.0	242/264	15920 x (1±15%)

Notes: 1) Under ambient temperature, applying more than 80% of rating voltage to coil, relay will take action accordingly. But in order to meet the stated product performance, please apply rated voltage to coli.
2) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.

SAFETY APPROVAL RATINGS

UL/CUL	2 Form C	7A 277VAC or 7A 30VDC
	4 Form C	5A 277VAC or 5A 30VDC Resistive at 70˚C
CQC	2 Form C	7A 277VAC or 7A 30VDC Resistive at 70˚C
	4 Form C	5A 277VAC or 5A 30VDC Resistive at 70˚C
VDE	2 Form C	7A 277VAC or 7A 30VDC Resistive at 70˚C
	4 Form C	5A 277VAC or 5A 30VDC Resistive at 70˚C

Notes: 1) Only typical loads are listed above. Other load specifications can be available upon request.

ORDERING INFORMATION

HF18FZ/ A 12 -2Z 2 3 J 1 (XXX)

Type		
Coil voltage form	**A:** AC(50Hz or 60Hz) **Nil:** DC	
Coil voltage	See "COIL DATA"	
Contact arrangement	**2Z:** 2 Form C **4Z:** 4 Form C	
Termination	**2:** Socket	
Contact material	**3:** AgNi	
Custom component code	**Nil:** Without Component **J:** With free-wheeling diode(Only DC coil specifications)[1]	
Interface function code	**1:** No LED no button **2:** With LED no button **3:** With LED and button	
Special code[2]	**XXX:** Customer special requirement	**Nil:** Standard

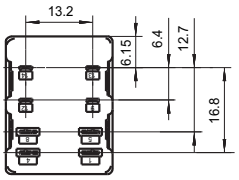
Notes: 1) Free-wheeling diode is available only for DC coil relay.
2) The customer special requirement express as special code after evaluating by Hongfa.

OUTLINE DIMENSIONS

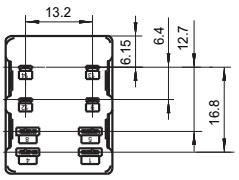
Unit: mm

Outline Dimensions

HF18FZ/□□□□-2Z2□□□1□
HF18FZ/□□□□-2Z2□□□2□



HF18FZ/□□□□-2Z2□□□3□

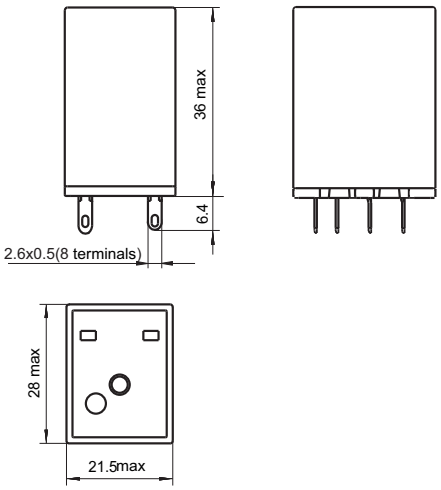


OUTLINE DIMENSIONS

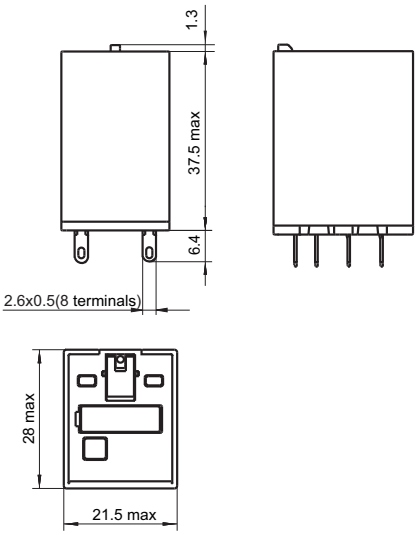
Unit: mm

Outline Dimensions

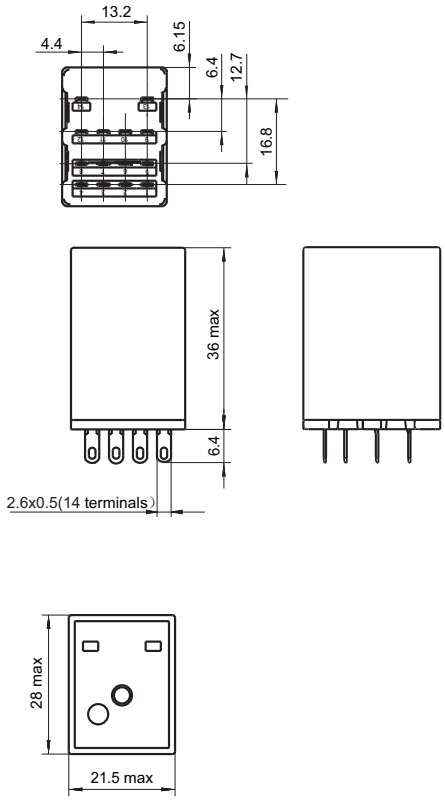
HF18FZ/□□□□-2Z2□□□1□
HF18FZ/□□□□-2Z2□□□2□



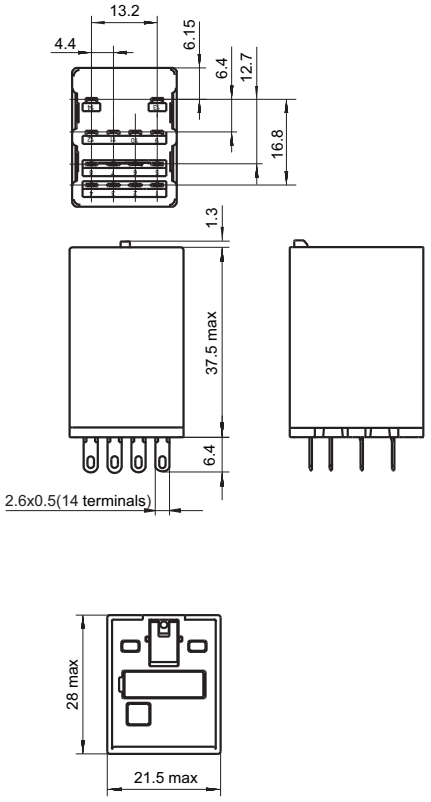
HF18FZ/□□□□-2Z2□□□3□



HF18FZ/□□□□-4Z2□□□1□
HF18FZ/□□□□-4Z2□□□2□



HF18FZ/□□□□-4Z2□□□3□

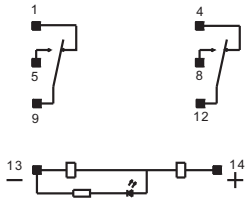


Remark: In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.

WIRING DIAGRAM(BOTTOM VIEW)

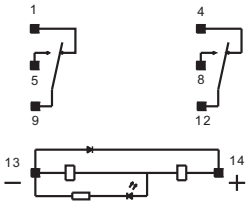
HF18FZ/□□□-2Z232
HF18FZ/□□□-2Z233

2 Form C(DC,With LED)
(Without 220VDC)



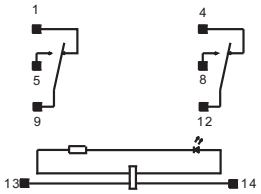
HF18FZ/□□□-2Z23J2
HF18FZ/□□□-2Z23J3

2 Form C
(DC, With fly-wheel diode and LED)
(Without 220VDC)



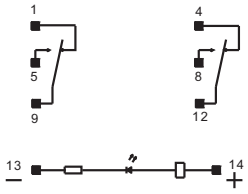
HF18FZ/A□□□-2Z232
HF18FZ/A□□□-2Z233

2 Form C
(AC, With LED)



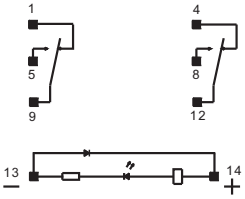
HF18FZ/220-2Z232
HF18FZ/220-2Z233

2 Form C(DC, With LED)
(220VDC)



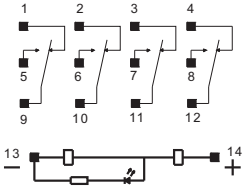
HF18FZ/220-2Z23J2
HF18FZ/220-2Z23J3

2 Form C
(DC, With fly-wheel diode and LED)
(220VDC)



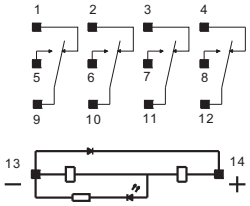
HF18FZ/□□□-4Z232
HF18FZ/□□□-4Z233

4 Form C
(DC, With LED)
(Without 220VDC)



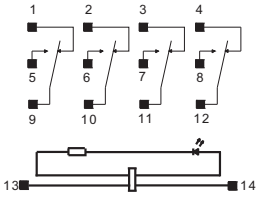
HF18FZ/□□□-4Z23J2
HF18FZ/□□□-4Z23J3

4 Form C
(DC, With fly-wheel diode and LED)
(Without 220VDC)



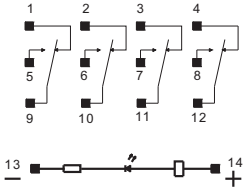
HF18FZ/A□□□-4Z232
HF18FZ/A□□□-4Z233

4 Form C
(AC, With LED)



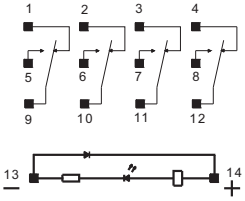
HF18FZ/220-4Z232
HF18FZ/220-4Z233

4 Form C
(DC, With LED)
(220VDC)



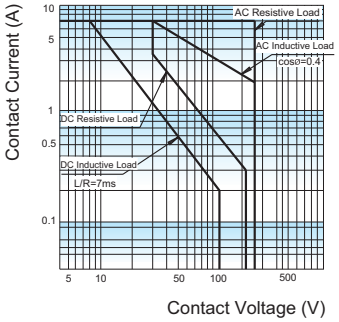
HF18FZ/220-4Z23J2
HF18FZ/220-4Z23J3

4 Form C
(DC, With fly-wheand LED)
(220VDC)

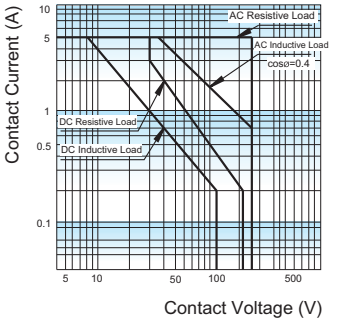


CHARACTERISTIC CURVES

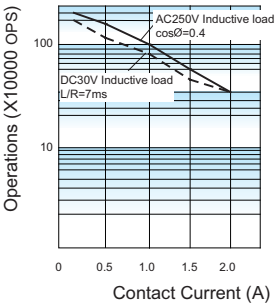
MAXIMUM SWITCHING POWER
(2 Form C)



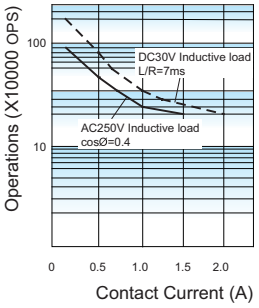
MAXIMUM SWITCHING POWER
(4 Form C)



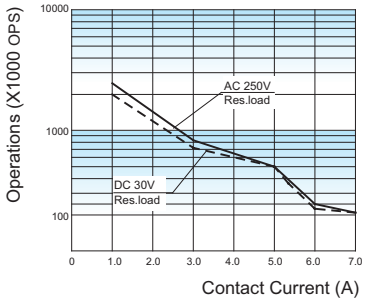
INDUCTIVE LOAD ENDURANCE CURVE
(2 Form C)



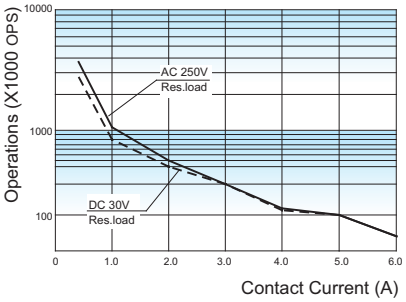
INDUCTIVE LOAD ENDURANCE CURVE
(4 Form C)



RES. LOAD ENDURANCE CURVE
(2 Form C)



RES. LOAD ENDURANCE CURVE
(4 Form C)



Relay Sockets

File No.: E253370

Features

- The dielectric strength can reach 2000VAC and the insulation resistance is 1000MΩ
- Three mounting types are available: PCB mounting screw mounting and DIN rail mounting.
- With finger protection device
- Many kinds of Plug-in modules are available with the function of energizing indication and wiring protection.
- Components available: retainer, Marker and plug-in module

RoHS compliant

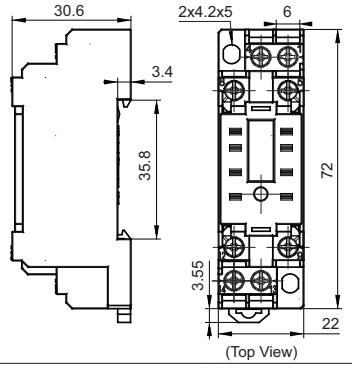
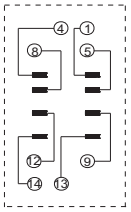
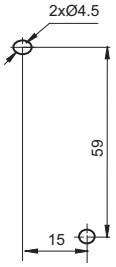
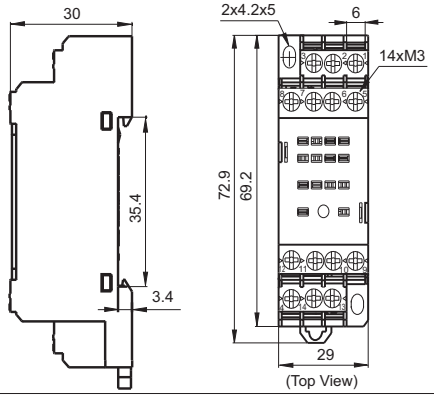
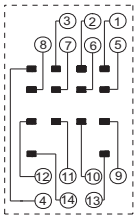
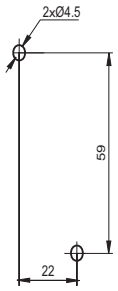
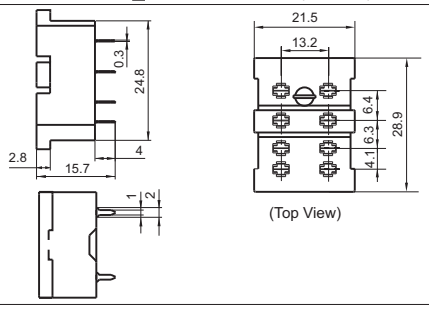
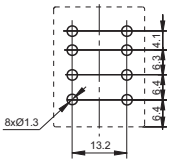
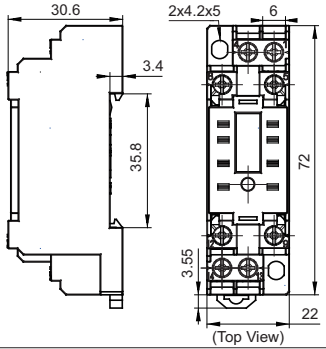
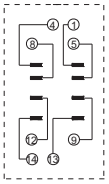
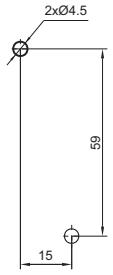
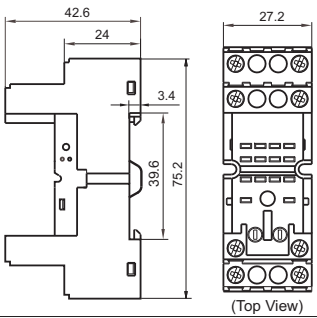
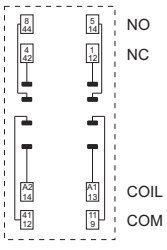
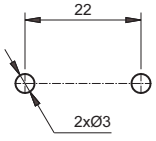
CHARACTERISTICS

Type	Nominal Voltage	Nominal Current	Ambient Temperature	Dielectric Strength min.	Screw Torque	Wire Strip Length	Unit weight Approx.
18FZ-2Z-C2	250VAC	7A	-40 ˚C ~ 70˚C	2000VAC	0.6N · m	7mm	Approx.30g
18FZ-4Z-C2	250VAC	5A	-40 ˚C ~ 70˚C	2000VAC	0.6N · m	7mm	Approx.44g
18FF-2Z-A2	250VAC	7A	-40 ˚C ~ 70˚C	2000VAC	—	—	Approx.8g
18FF-2Z-C2	250VAC	7A	-40 ˚C ~ 70˚C	2000VAC	0.8N · m	7mm	Approx.36g
18FF-2Z-C4	250VAC	7A	-40 ˚C ~ 70˚C	2000VAC	0.6N · m	7mm	Approx.53g
18FF-2Z-C5	250VAC	7A	-40 ˚C ~ 70˚C	2000VAC	0.6N · m	7mm	Approx.64g
18FF-2Z-C8	250VAC	7A	-40 ˚C ~ 70˚C	2000VAC	0.6N · m	7mm	Approx.41g
18FF-2Z-C9	250VAC	7A	-40 ˚C ~ 70˚C	2000VAC	—	7mm	Approx.70g
18FF-2Z-C10	300VAC/DC	10A	-40 ˚C ~ 70˚C	2000VAC	—	10mm	Approx.57g
18FF-2Z-C10/P	300VAC/DC	10A	-40 ˚C ~ 70˚C	2000VAC	—	10mm	Approx.58g
18FF-4Z-A2	250VAC	7A*	-40 ˚C ~ 70˚C	2000VAC	—	—	Approx.8g
18FF-4Z-C1	250VAC	7A*	-40 ˚C ~ 70˚C	2000VAC	0.8N · m	7mm	Approx.58g
18FF-4Z-C2	250VAC	7A*	-40 ˚C ~ 70˚C	2000VAC	0.8N · m	7mm	Approx.59g
18FF-4Z-C4	250VAC	7A*	-40 ˚C ~ 70˚C	2000VAC	0.6N · m	7mm	Approx.64g
18FF-4Z-C5	250VAC	7A*	-40 ˚C ~ 70˚C	2000VAC	0.6N · m	7mm	Approx.76g
18FF-4Z-C8	250VAC	7A*	-40 ˚C ~ 70˚C	2000VAC	0.6N · m	7mm	Approx.51g
18FF-4Z-C9	250VAC	7A*	-40 ˚C ~ 70˚C	2000VAC	—	7mm	Approx.81g
18FF-4Z-C10	300VAC/DC	6A*	-40 ˚C ~ 70˚C	2000VAC	—	10mm	Approx.65g
18FF-4Z-C10/P	300VAC/DC	6A*	-40 ˚C ~ 70˚C	2000VAC	—	10mm	Approx.66g

Remark: For sockets marked *, their group of current totally should be not more than 20A.

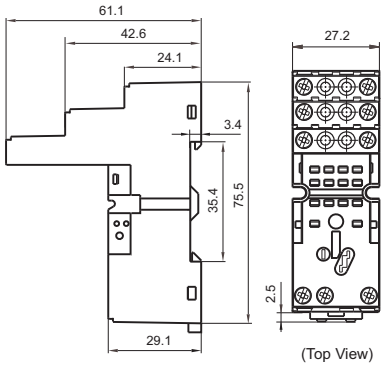
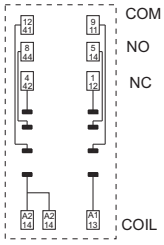
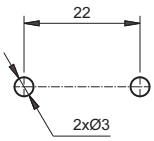
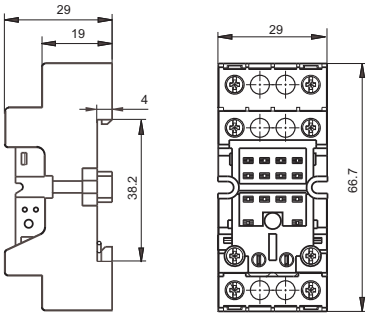
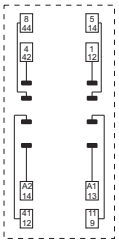
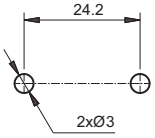
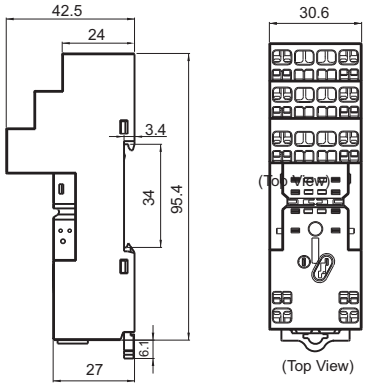
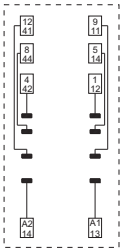
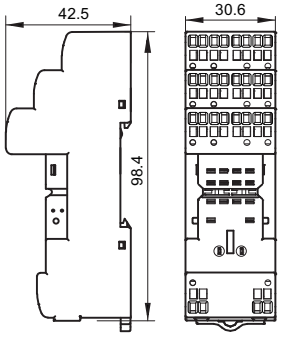
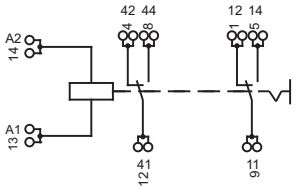
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Socket	Outline Dimensions	Wiring Diagram	PCB Layout	Components Available
18FZ-2Z-C2  Screw Terminal, DIN rail or Screw mounting, With finger protection device				Metallic retainer 18FZ-H1 18FF-H2 (be used in sets)
18FZ-4Z-C2  Screw Terminal, DIN rail or Screw mounting, With finger protection device				Metallic retainer 18FZ-H1 18FF-H2 (be used in sets)
18FF-2Z-A2  PCB Terminal, PCB mounting Applicable for 2 poles				Metallic retainer 18FF-H1
18FF-2Z-C2  Screw Terminal, DIN rail or Screw mounting, With finger protection device Applicable for 2 poles				Metallic retainer 18FZ-H1 18FF-H2 (be used in sets)
18FF-2Z-C4  Screw Terminal, DIN rail or Screw mounting, With finger protection device Applicable for 2 poles				Plastic retainer 18FF-H4 Metallic retainer 18FF-H5 Marker 18FF-M1 Plug-in module HFAA to HFHU*

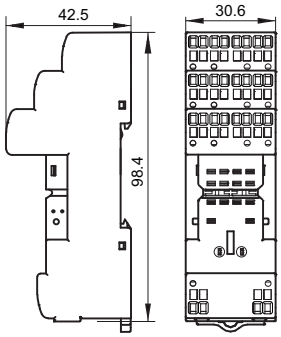
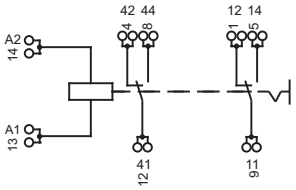
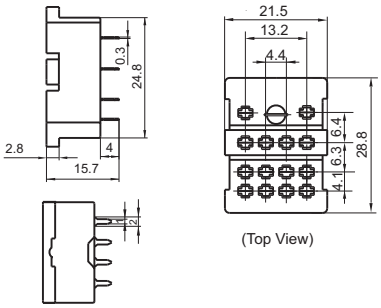
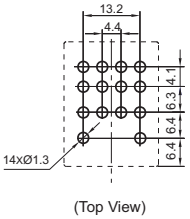
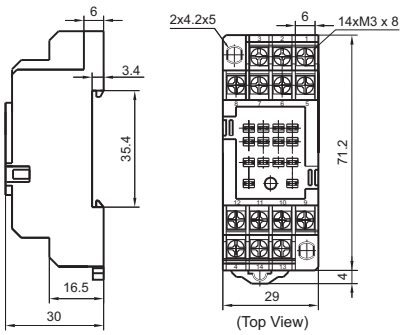
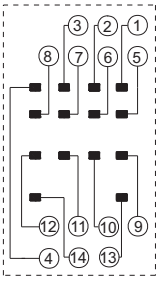
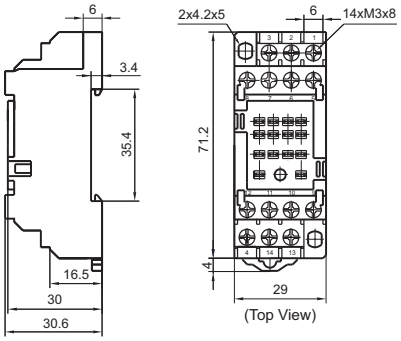
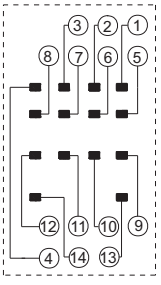
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Socket	Outline Dimensions	Wiring Diagram	PCB Layout	Components Available
18FF-2Z-C5  Screw Terminal, DIN rail or Screw mounting, With finger protection device Applicable for 2 poles				Plastic retainer 18FF-H4 Metallic retainer 18FF-H5 Marker 18FF-M1 Plug-in module HFAA to HFHU*
18FF-2Z-C8  Screw Terminal, DIN rail or Screw mounting, With finger protection device Applicable for 2 poles				Plastic retainer 18FF-H4 Metallic retainer 18FF-H5 Marker 18FF-M3 Plug-in module HFAA to HFHU
18FF-2Z-C9  Spring-loaded terminal DIN rail mounting With finger protection device Applicable for 2 poles				Plastic retainer 18FF-H4 Metallic retainer 18FF-H5 Plug-in module HFAA ~ HFHU* Marker 18FF-M3
18FF-2Z-C10 				Retainer* 18FF-H4 18FF-H5 Jumper* 18FF-J2 Marker* 18FF-M1 Plug-in module* HFAA~HFHU

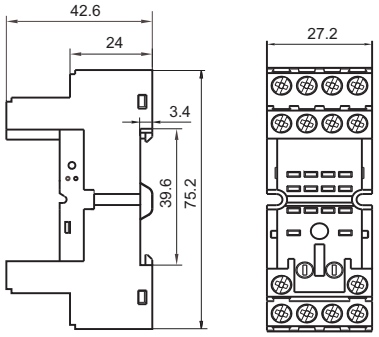
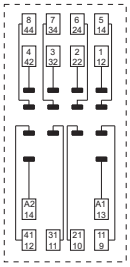
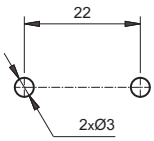
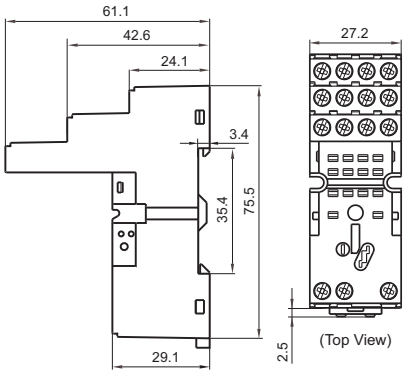
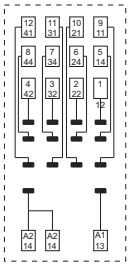
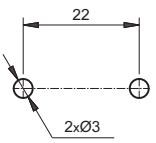
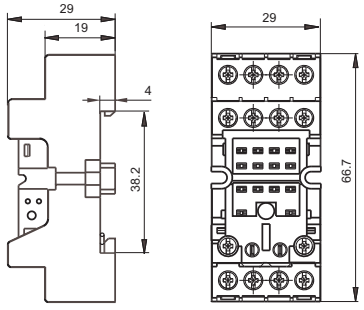
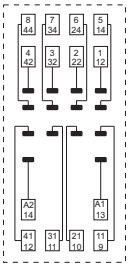
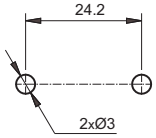
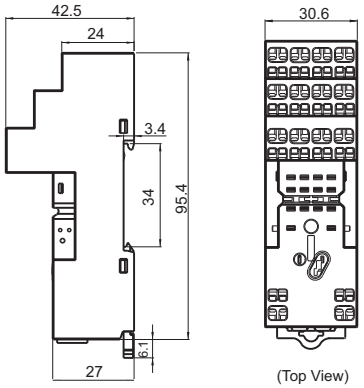
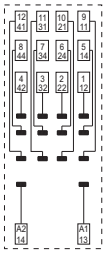
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Socket	Outline Dimensions	PCB Layout	Components Available
18FF-2Z-C10/P  	 	 	Retainer* 18FF-H4 18FF-H5 Jumper* 18FF-J2 Marker* 18FF-M1 Plug-in module* HFAA~HFHU
18FF-4Z-A2  PCB Terminal, PCB mounting Applicable for 4 poles	 	 	Metallic retainer 18FF-H1
18FF-4Z-C1  Screw Terminal, DIN rail or Screw mounting, Withtout finger protection device Applicable for 4 poles	 	 	Metallic retainer 18FZ-H1 18FF-H2 (be used in sets)
18FF-4Z-C2  Screw Terminal, DIN rail or Screw mounting, With finger protection device Applicable for 4 poles	 	 	Metallic retainer 18FZ-H1 18FF-H2 (be used in sets)

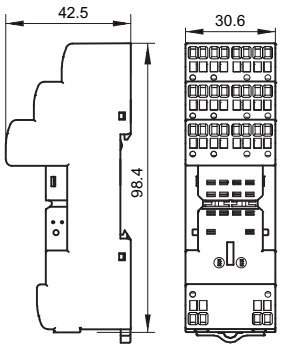
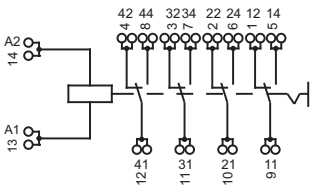
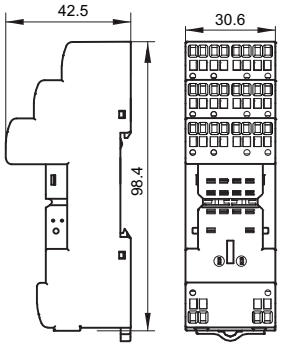
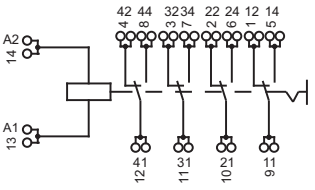
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Socket	Outline Dimensions	Wiring Diagram	PCB Layout	Components Available
18FF-4Z-C4  Screw Terminal, DIN rail or Screw mounting, With finger protection device Applicable for 4 poles	 (Top View)	 (Top View)		Plastic retainer 18FF-H4 Metallic retainer 18FF-H5 Marker 18FF-M1 Plug-in module HFAA to HFHU*
18FF-4Z-C5  Screw Terminal, DIN rail or Screw mounting, With finger protection device Applicable for 4 poles	 (Top View)	 (Top View)		Plastic retainer 18FF-H4 Metallic retainer 18FF-H5 Marker 18FF-M1 Plug-in module HFAA to HFHU*
18FF-4Z-C8  Screw Terminal, DIN rail or Screw mounting, With finger protection device Applicable for 4 poles	 (Top View)	 (Top View)		*Plastic retainer 18FF-H4 *Metallic retainer 18FF-H5 Marker 18FF-M3 *Plug-in module HFAA to HFHU
18FF-4Z-C9  Spring-loaded terminal DIN rail mounting With finger protection device Applicable for 2 poles	 (Top View)	 (Top View)		Plastic retainer 18FF-H4 Metallic retainer 18FF-H5 Plug-in module HFAA ~ HFHU* Marker 18FF-M3

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

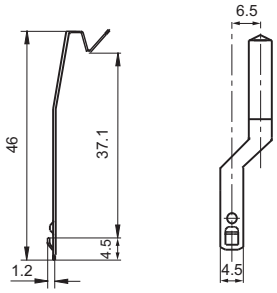
Socket	Outline Dimensions	PCB Layout	Components Available
18FF-4Z-C10 			Retainer* 18FF-H4 18FF-H5 Jumper* 18FF-J2 Marker* 18FF-M1 Plug-in module* HFAA~HFHU
18FF-4Z-C10/P 			Retainer* 18FF-H4 18FF-H5 Jumper* 18FF-J2 Marker* 18FF-M1 Plug-in module* HFAA~HFHU

DIMENSION OF RELATED COMPOENT (AVAILABLE)

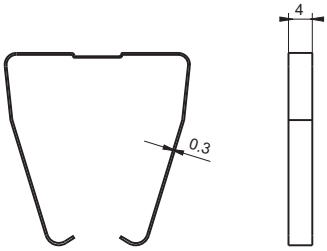
Unit: mm

Retainer

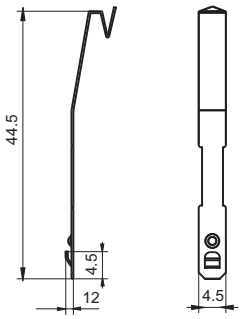
18FZ-H1(Metallic retainer)



18FF-H1(Metallic retainer)

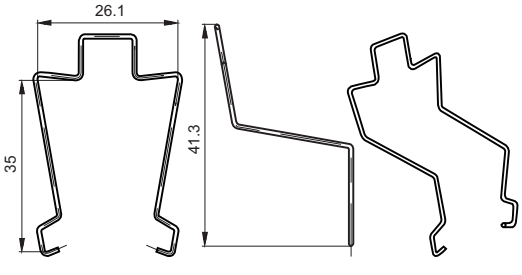


18FF-H2 (Metallic retainer)

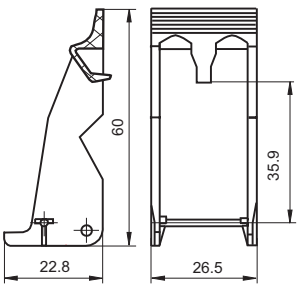


Remark:This retainer is for specific series.Please be aware before ordering.

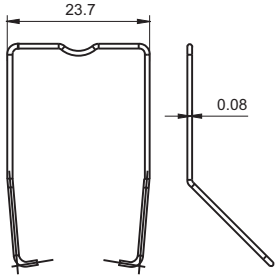
18FF-H3(Metallic retainer)



18FF-H4 (Plastic retainer)



18FF-H5 (Metallic retainer)



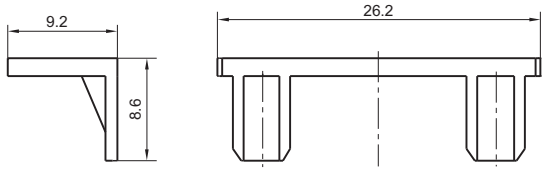
Remark:This retainer is for specific series.Please be aware before ordering.

DIMENSION OF RELATED COMPOENT (AVAILABLE)

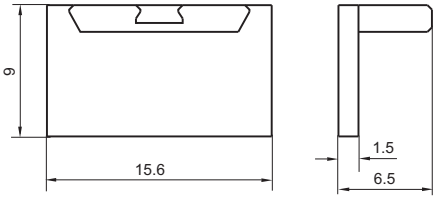
Unit: mm

Marker

18FF-M1



18FF-M3



SELECTION OF PARTS

Type of Relay	Mounting termination	Socket	Retainer	Marker	Module
HF18FZ/□□-2Z□□□1/2□	Without button	18FF-2Z-A2	18FF-H1	-	-
		18FF-2Z-C2	18FF-H2/H3		
		18FZ-2Z-C2			
		18FF-2Z-C4	18FF-H4/H5	18FF-M1	HFAA~HFHU
		18FF-2Z-C5			
		18FF-2Z-C8		18FF-M3	
		18FF-2Z-C9			
HF18FZ/□□-4Z□□□1/2□		18FF-4Z-A2	18FF-H1	-	-
		18FF-4Z-C1	18FF-H2		
		18FF-4Z-C2			
		18FZ-4Z-C2			
		18FF-4Z-C4	18FF-H4/H5	18FF-M1	HFAA~HFHU
		18FF-4Z-C5			
		18FF-4Z-C8		18FF-M3	
		18FF-4Z-C9			
HF18FZ/□□-2Z□□□3□	With button	18FF-2Z-C2	18FZ-H1	-	-
		18FZ-2Z-C2			
		18FF-2Z-C4	18FF-H4	18FF-M1	HFAA~HFHU
		18FF-2Z-C5			
		18FF-2Z-C8		18FF-M3	
		18FF-2Z-C9			
HF18FZ/□□-4Z□□□3□		18FF-4Z-C1	18FZ-H1	-	-
		18FF-4Z-C2			
		18FZ-4Z-C2			
		18FF-4Z-C4	18FF-H4	18FF-M1	HFAA~HFHU
		18FF-4Z-C5			
		18FF-4Z-C8		18FF-M3	
		18FF-4Z-C9			

For your personal safety and the normal operation of the equipment, as well as to prevent fire, please note the following issues :

1.The rated current of the socket should be no less than the rated current of the relay.

2.Sockets are required to be firmly fixed to prevent the wiring from loosening and affecting the quality of wiring.

3.Be sure to disconnect power to the outlet before installation, disassembly, wiring, maintenance and inspection.

4.Prevent foreign objects such as wire shavings from falling inside this product when wiring.

5.Be sure to install the relay in place, and use accessories such as retainer if necessary to improve contact reliability. Do not use with incomplete connections.

6.Be sure to observe the relay ratings and do not overload the relay.

7.Before selecting a relay, make sure that the drive voltage matches the relay excitation voltage.

Precautions for the use of non-threaded terminal type sockets

1.Lead end socket description:

18FF-2Z/4Z-C9

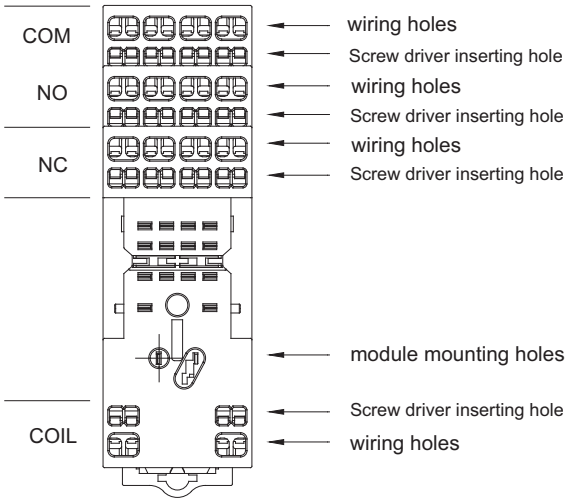


Figure 1

2.Things to be noticed when selecting soft wiring.

・The soft wiring can be divided into the following types.

0.5mm^2 above 1.5mm^2 below or AWG20 above AWG16 below the stranded wire or a single wire.

The front terminal of the wire needs to be peeled off 8mm to 9mm of insulation protection layer, the wire insulation protection layer diameter *2.8mm or less. Please be sure to use according to this size.

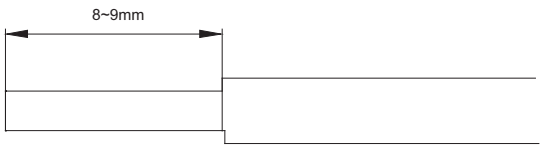


Figure 2

Precautions For Use

• If the protective layer is stripped too short, the wire may be pulled out, and if it is too long, it may be short-circuited to the neighboring wires. If using the stranded wire with cold crimped terminals, please twist the stranded wire tightly before use to avoid loosening the wire.
When wiring, use a screwdriver as shown in the figure.

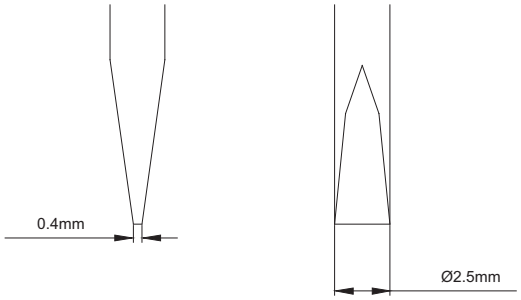


Figure 3

• The insertion position of the wire and the screwdriver and the insertion direction of the screwdriver are as shown in Figure 4.

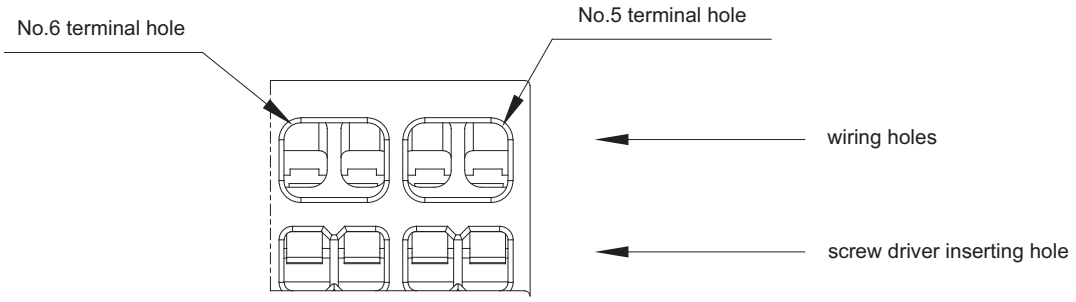


Figure 4

Precautions For Use

Step 1. Insert the screwdriver into the screwdriver insertion hole (square hole) of the socket so that the screwdriver is inserted in a slightly angled direction until the head of the screwdriver is between the back of the spring terminal and the wall of the cover.

Step 2. Keep pushing the screwdriver in until it contacts the stop position inside the socket and the junction is released, keeping the screwdriver in that position. The screwdriver will not come off even if the hand is released.

Step 3. Keeping the screwdriver in the insertion hole, insert the wire or cold crimp terminal to the bottom of the wire insertion hole.

Step 4. Pull out the screwdriver and the wiring is completed.

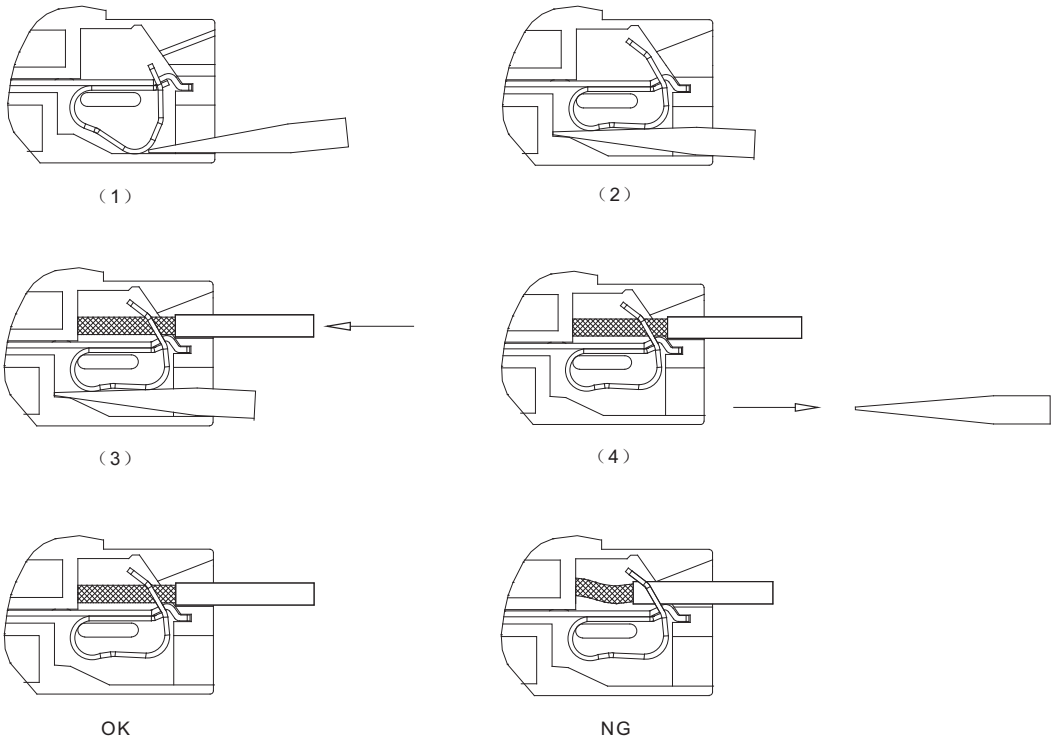


Figure 5

Notes: When using wire with insulation protection diameter of 2mm or less, do not insert the insulated part of the wire into the spring clamp opening position .

Things to be noticed when selecting sockets:

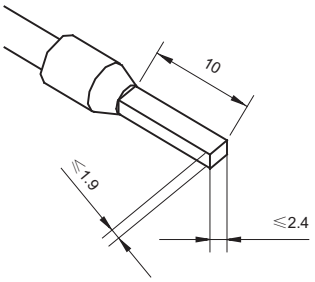
1. Please choose suitable relay socket according to the actual mounting environment, relay contact poles and terminal layout. If there is any query on selection, please contact Hongfa for the technical service.
2. Socket which can be mounted with Markers is furnished with a Marker; as for other related components, they should be selected separately. Please do give clear indication of the types of relay sockets and related components you choose while placing order.
3. The above is only an example of typical socket and related component type which is suitable to HF18FF relay. If you have any special requirements, please contact us.
4. Main outline dimension, outline dimension＞50mm ,tolerance should be ±1mm; 20mm＜outline dimension ≤50mm, tolerance should be ±0.5mm; 5mm＜outline dimension ≤20mm, tolerance should be ±0.4mm; outline dimension≤5mm, tolerance should be ±0.3mm.
5. DIN rail mounting: recommend to use standard rail 35×7.5×1mm, 35×15×1mm.

Precautions For Use

18FF-2Z/4Z-C10
18FF-2Z/4Z-C10/P

Applicable conductor cross section

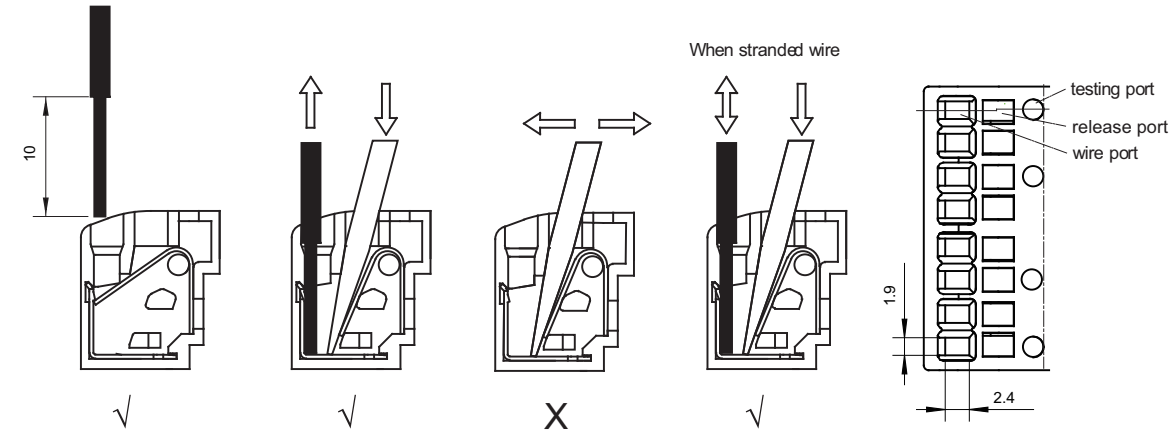
solid wire	1x0.5/0.75/1.0/1.5/2.5 mm^2	
	2x0.5/0.75/1.0/1.5 mm^2	
Multi-stranded	Multi-stranded wire without standard sleeve	1x0.5/0.75/1.0/1.5/2.5 mm^2
		2x0.5/0.75/1.0/1.5 mm^2
	Multi-stranded wire with standard sleeve	1x0.5/0.75/1.0/1.5 mm^2
		2x0.5/0.75/1.0 mm^2

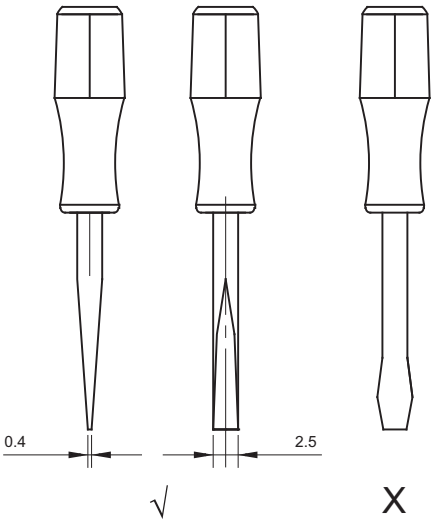


Regarding push in socket

- The screwdriver insertion hole must not be wired.
- When inserting the screwdriver into the hole, please insert it at an angle.
- Do not twist or wiggle the screwdriver when it is in the hole, as this may cause damage the socket.
- Do not forcibly bend or pull on the wire. Otherwise it may result broken wire.
- Do not insert more than one wires into one wiring hole.
- To prevent smoke and fire from the wiring material, check the power supply rating and that the wire sleeves used are in accordance with DIN 46228-4.
  The conductors used comply with GB/T 5023.3-2008 (IEC 60227-3) standard.

Recommended Wires	Film peel (when bar terminals are not used)
0.5~2.5mm^2/ AWG20~14	⩾10mm





Precautions For Use

Things to be noticed when selecting sockets:

1. Please choose suitable relay socket according to the actual mounting environment, relay contact poles and terminal layout. If there is any query on selection, please contact Hongfa for the technical service.
2. Relevant accessories must be selected separately. Please indicate the model of the selected accessories when ordering;
3. Main outline dimension, outline dimension＞50mm ,tolerance should be ±1mm; 20mm＜outline dimension ≤50mm, tolerance should be ±0.5mm;5mm＜outline dimension ≤20mm, tolerance should be ±0.4mm; outline dimension≤5mm, tolerance should be ±0.3mm.
4. DIN rail mounting: recommend to use standard rail 35 x7.5 x 1mm, 35 x 15 x 1mm.
   When installed vertically, the coil terminal at the bottom please .