HF18FF-N SMALL MEDIUM POWER RELAY

c UL us
File No.: E133481

File No.: R50147087

cqc
File No.: CQC 09002030026 (DC type)
CQC 09002030027 (AC type)





CNEX 国家防爆
File No.: CNEx25.1916U

Features

- 2 Form C / 4 Form C contact forms optional
- 4 Form C dual contact type, rated for 1 mA load
- Gold-plated / non-gold-plated contacts optional
- Plug-in (DIN rail mount with socket) / PCB solder types optional
- IP50 / IP54 / IP67 (explosion-proof) protection ratings optional

RoHS compliant

CONTACT DATA

Contact arrangement	2C, 4C
Contact resistance	100mΩ max. (at 1A 6VDC)
Contact material	See"ORDERING INFORMATION"
Contact rating (Res. load)	7A 250VAC/ 30VDC (2 Form C)
	6A 250VAC/ 30VDC (4 Form C)
	3A 250VAC/ 30VDC (4ZB)
Least-Load	5mA 5VDC (2 Form C/4 Form C), 1mA 5VDC (4ZB)
Max.swtiching voltage	250VAC/30VDC
Max.switching current	7A(2 Form C),6A(4 Form C),3A(4ZB)
Max.switching power	1750VA 210W(2 Form C),1500VA 180W (4 Form C),750 VA 90W(4ZB)
Mechanical enduranc	1×10^7OPS
Electrical endurance	2 Form C,4 Form C,4ZB: $1X10^5$OPS (Room temp.)

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.

CHARACTERISTICS

Insulation resistance		1000MΩ(500VDC)
Dielectric strength	Between coil & contacts	1000VAC 1min
	Between open contacts	2000VAC 1min
	Between contacts sets	2 Form C: 2000VAC 1min 4 Form C/4ZB:1500VAC 1min
Operate time(at nomi. volt.)		20ms max.
Release time(at nomi. volt.)		15ms(DC type) 25ms max.(AC type)
Temperaturerise[2]		85K max.
Shock resistance	Functional	100m/s²
	Destructive	1000m/s²
Vibration resistance		10Hz to 55Hz 1mm DA
Humidity		5%RH to 85%RH
Ambient temperature		-40℃ to 70℃
Termination		DIP,SMT
Unit weight		Approx. 36.6g

COIL DATA

at 23℃

Nominal Voltage VDC	Pick-up Voltage[1] VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC[2]	Coil Resistance Ω
5	4.0	0.50	5.5	28 ×(1±10%)
6	4.8	0.60	6.6	40 ×(1±10%)
9	7.2	0.90	9.9	90 ×(1±10%)
12	9.6	1.20	13.2	160 ×(1±10%)
21	16.8	2.10	23.1	490 ×(1±10%)
24	19.2	2.40	26.4	640 ×(1±10%)
30	24.0	3.00	33.0	1000 ×(1±15%)
36	28.8	3.60	39.6	1440 ×(1±15%)
48	38.4	4.80	52.8	2560 ×(1±15%)
60	48.8	6.00	66.0	4000 ×(1±15%)
110[3]	80.0	11.0	121.0	12250 ×(1±15%)
125[3]	100.0	12.5	137.5	17360 ×(1±15%)
220	176.0	22.0	242.0	53360 ×(1±15%)

Nominal Voltage VAC	Pick-up Voltage[1] VAC max.	Drop-out Voltage VAC min.	Max. Voltage VAC[2]	Coil Resistance Ω
6	4.80	1.80	6.6	11 ×(1±10%)
12	9.60	3.60	13.2	44 ×(1±10%)
24	19.2	7.20	26.4	177 ×(1±10%)
36	28.8	10.8	39.6	400 ×(1±10%)
48	38.4	14.4	52.8	708 ×(1±10%)
60	48.0	18.0	66.0	1100 ×(1±10%)
110[3]	80.0	33.0	121	3400 ×(1±15%)
120[3]	88.0	36.0	132	4080 ×(1±15%)
220[3]	160.0	66.0	242	13600 ×(1±15%)
230	176.0	72.0	253	16300 ×(1±15%)
240[3]	176.0	72.0	264	16300 ×(1±15%)
277[3]	221.6	83.1	304.7	23590 ×(1±15%)
380	304.0	114.0	418.0	42540 ×(1±15%)

Notes: 1) Under ambient temperature, applying more than 8096 of rating woltage to coil, relay will take action accordingly. But in order to meet the stated product performance, please apply rated woltage to coli.
2) Maximum woltage refers to the maxmum woltage which relay coil could endure in a short period oftime.
3) A110:Rated voltage (100~110) VAC;
A120:Rated voltage (110~120) VAC;
A220:Rated voltage(200~220) VAC;
A240:Rated voltage(220~240) VAC;
110:Rated voltage(100~110) VDC;
125:Rated voltage(110~125) VDC.

CHARACTERISTICS

Construction	Dustproof type meets(IP50)Protection grade Transparent plastic seal type meets(IP54)Protection grade Non-transparent shell plastic sealing satisfaction (IP67)Protection grade

COIL

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

Notes: 1) The above values are the initial values.
2) When measuring temperature rise, only test.

SAFETY APPROVAL RATINGS

UL/CUL	2 Form C	$AgSnO_2$	7A 250VAC/30VDC,Resistive,70℃
	4 Form C	$AgSnO_2$	6A 250VAC/30VDC,Resistive,70℃
	2 Form C	AgNi	7A 277VAC/30VDC or 5mA 5VDC,Resistive,70℃
	4 Form C	AgNi	6A 277VAC/30VDC or 5mA 5VDC,Resistive,70℃
	4ZB	AgNi	3A 277VAC/30VDC or 1mA 5VDC,Resistive,70℃
TÜV	2 Form C	AgNi or $AgSnO_2$	7A 250VAC/30VDC or 5mA 5VDC,Resistive,70℃
	4 Form C	AgNi or $AgSnO_2$	6A 250VAC/30VDC or 5mA 5VDC,Resistive,70℃
	4ZB	AgNi	3A 277VAC/30VDC or 1mA 5VDC,Resistive,70℃
CQC	2 Form C	AgNi or $AgSnO_2$	7A 250VAC/30VDC or 5mA 5VDC,Resistive,70℃
	4 Form C	AgNi or $AgSnO_2$	6A 250VAC/30VDC or 5mA 5VDC,Resistive,70℃
	4ZB	AgNi	3A 277VAC/30VDC or 1mA 5VDC,Resistive,70℃

Notes: 1) All values unspecified are at room temperature.
2) Only typical loads are listed above. Other load specifications can be available upon request.

ORDERING INFORMATION

HF18FF -N /A 240 -2Z B 1 S 3 G D (XXX)

Type	Button RF
Series code	**N**：Meet the protection capability of IP5X and above
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
Coaxial	**B**：Double contact(4 Form C gold-plated only)[1] **Nil**：Single contact
Mounting termination	**1**：Socket **2**：PCB
Encapsulation mode	**S**：Plastic seal type(IP54 or IP67) **Nil**：Non-plastic(IP50)
Contact material	**3**：AgNi **T**：$AgSnO_2$
Contact plating	**G**：Gold plated **Nil**：No gold plated
Component code	**D**：With LED(Not with 335 characteristic) **Nil**：Without Component
Special Code[2]	**XXX:** Customer special requiremen **Nil:** Standard **335:** Passes glow wire test; S-suffix plastic-sealed type: IP67, explosion-proof compliant

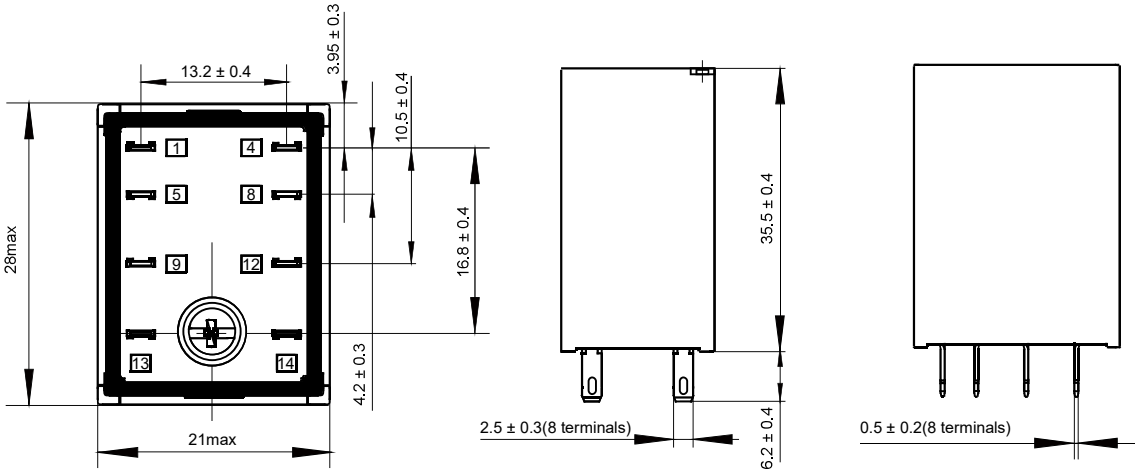
Notes: 1) "B"The double contact only has 4Z contact form, not 2Z contact form.And the double contacts must be gold-plated.
2) "XXX" Customer special requirements are reviewed by our company and identified in the form of a feature number.
3) Explosion-Proof Note:Add suffix "Ex" to model numbers for explosion-proof compliant products, which will be printed with "Ex" marking for distinction.Explosion-proof certification is not available for all specifications; contact our sales team upon demand.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

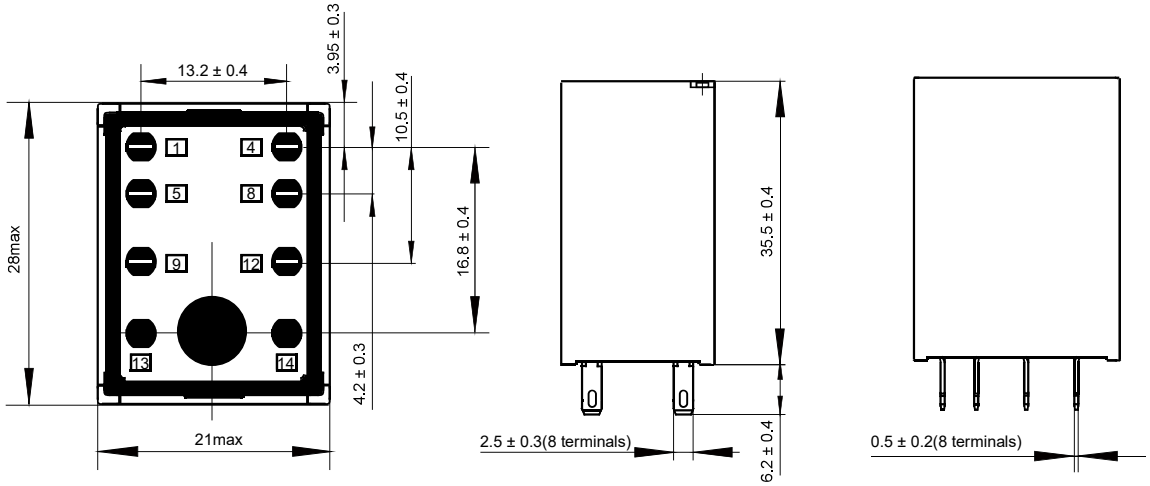
Unit：mm

Outline Dimensions

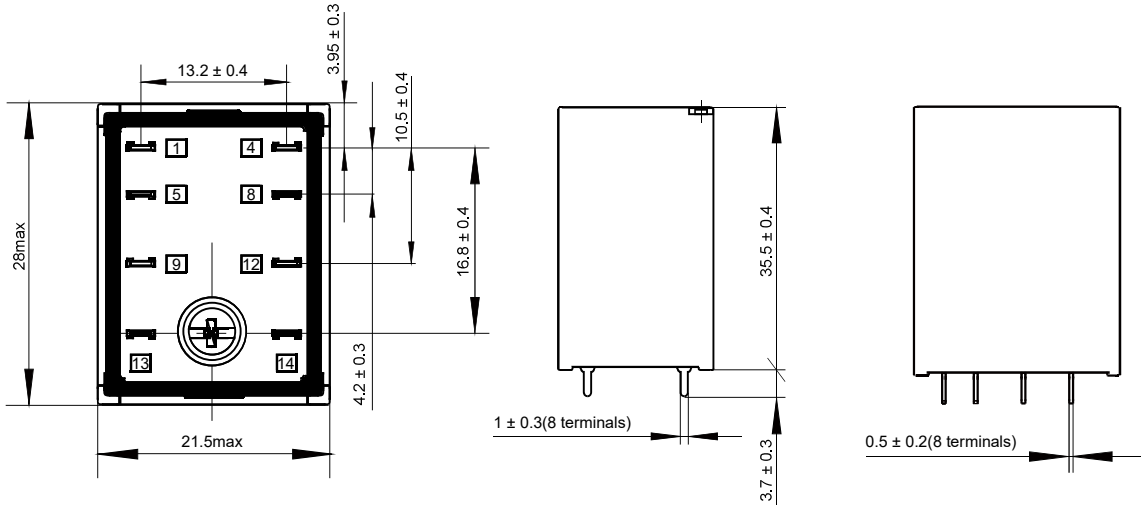
HF18FF-N/□□-2Z1□□□□



HF18FF-N/□□-2Z1S□□□□



HF18FF-N/□□-2Z2□□□□

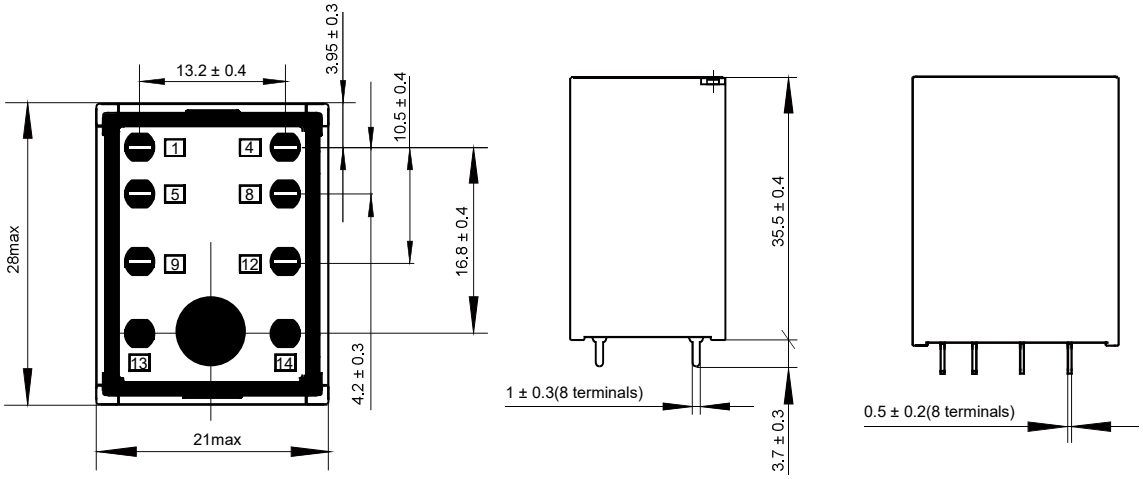


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

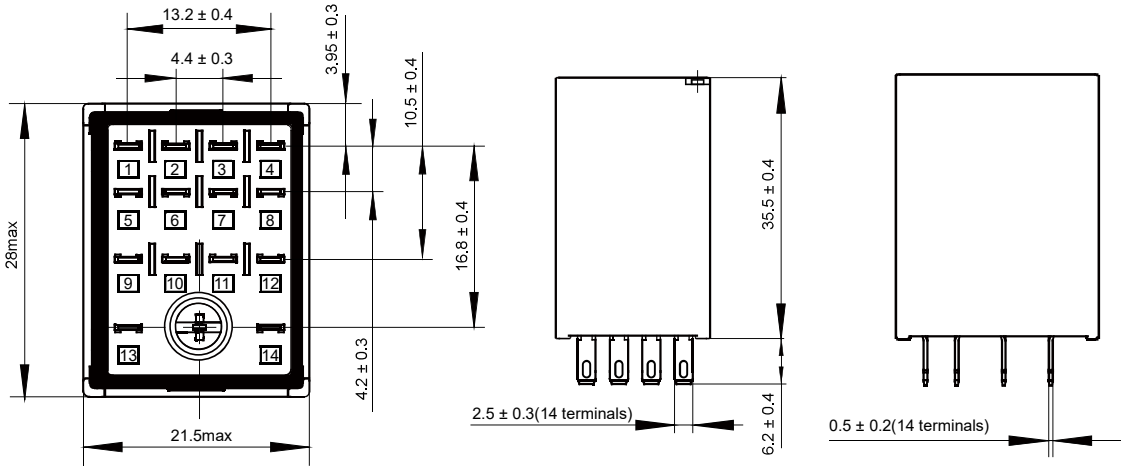
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Outline Dimensions

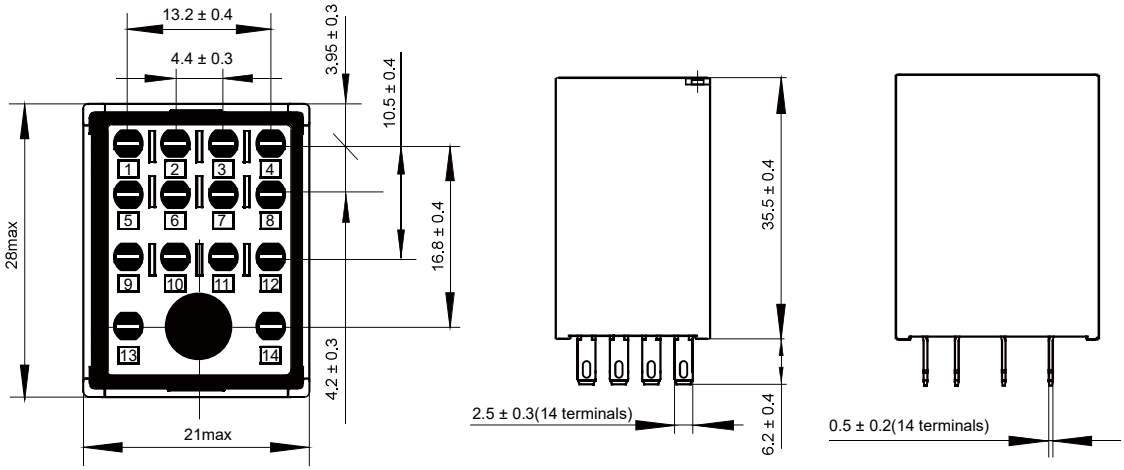
HF18FF-N/□□-2Z2S□□□□



HF18FF-N/□□-4Z1□□□,HF18FF-N/□□-4ZB1□□□



HF18FF-N/□□-4Z1S□□□,HF18FF-N/□□-4ZB1S□□□

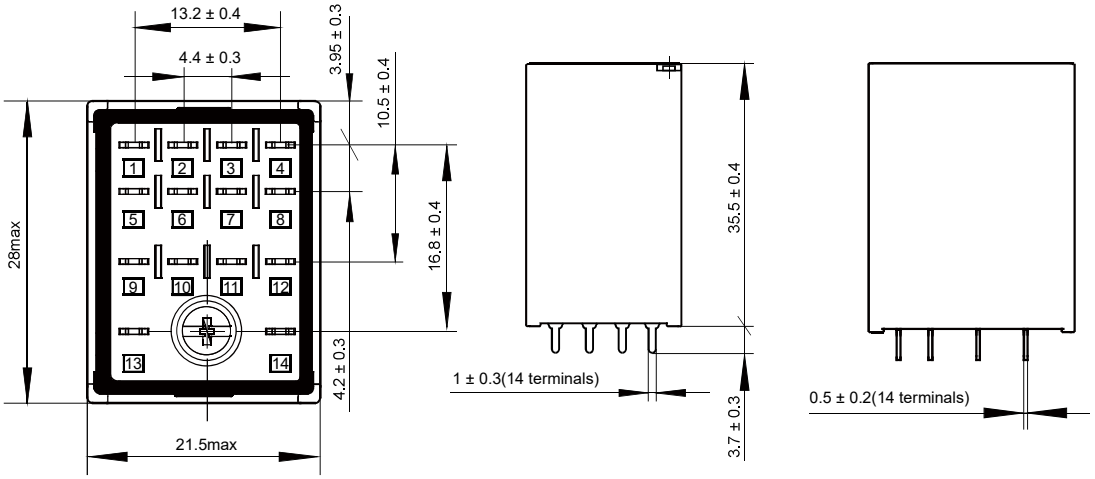


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

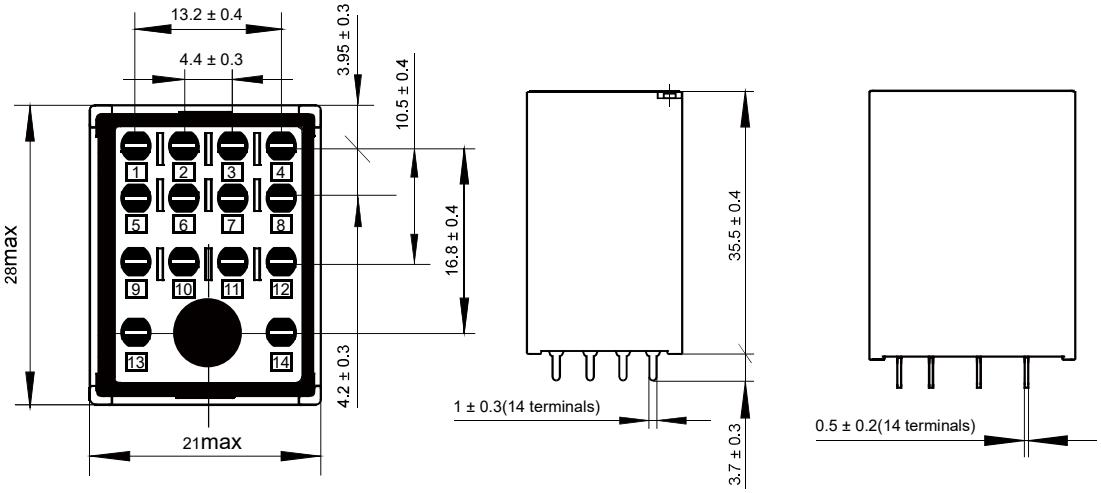
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Outline Dimensions

HF18FF-N/□□-4Z2□□□,HF18FF-N/□□-4ZB2□□□



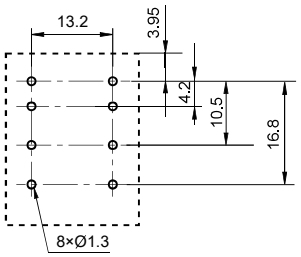
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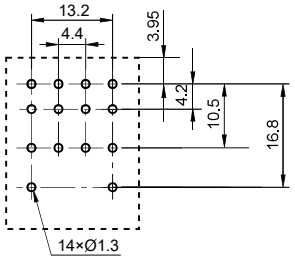
Pc Board Layout

（Bottom view）

2Z: 2 Form C



4Z: 4 Form C



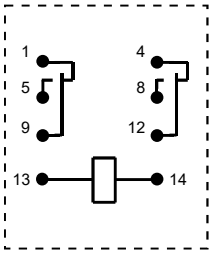
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit：mm

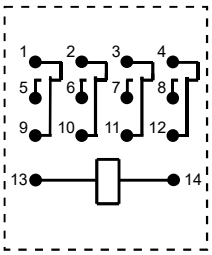
Wiring Diagram

（Bottom view）

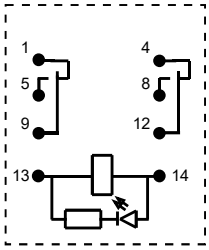
2Z: 2 Form C



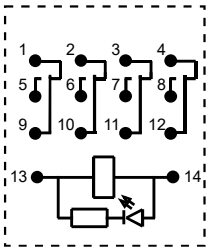
4Z: 4 Form C



2Z: 2 Form C（with LED）



4Z: 4 Form C（with LED）



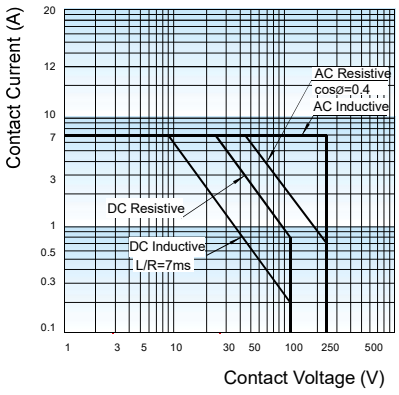
Notes: 1)In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be±2mm; outline dimension ＞1mm and ≤5mm, tolerance should be±3mm; outline dimension ≥5mm, tolerance should be±4mm.

2)The tolerance without indicating for PCB layout is always±0.1mm.

CHARACTERISTIC CURVES

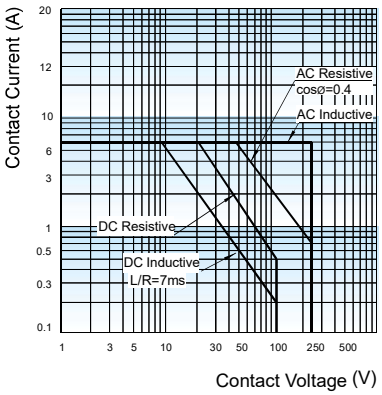
MAX.SWITCHING POWER

(2 Form C)



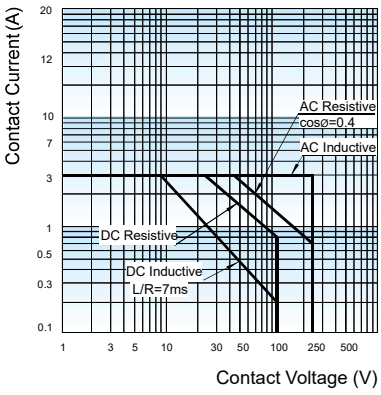
MAX.SWITCHING POWER

(4 Form C)



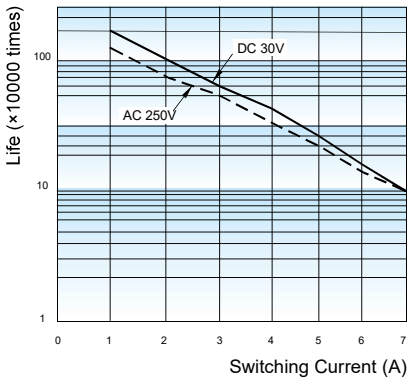
MAX.SWITCHING POWER

(4ZB)

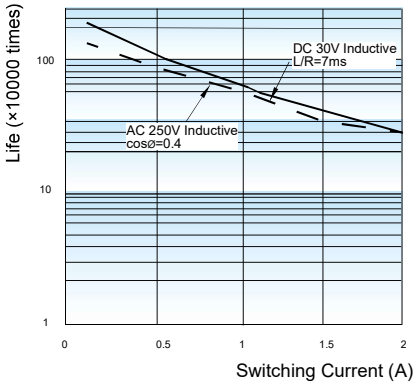


CHARACTERISTIC CURVES

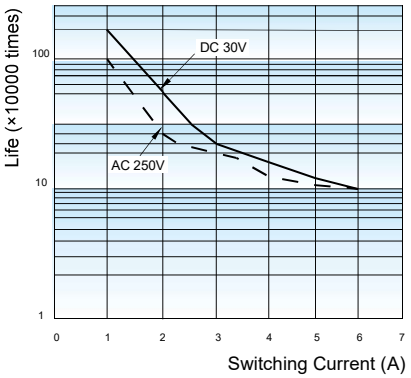
2 Form C
RESISTIVITY ELECTRICAL DURABILITY DIAGRAM



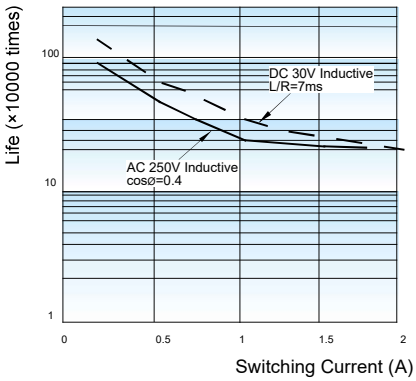
2 Form C
INDUCTIVE ELECTRICAL DURABILITY CURVE



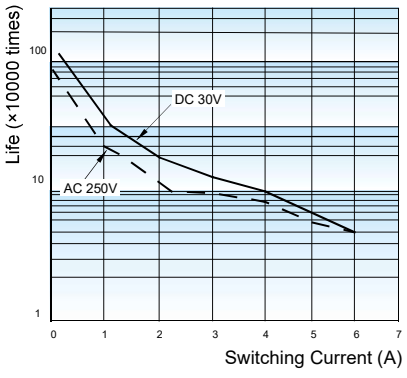
4 Form C
RESISTIVITY ELECTRICAL DURABILITY DIAGRAM



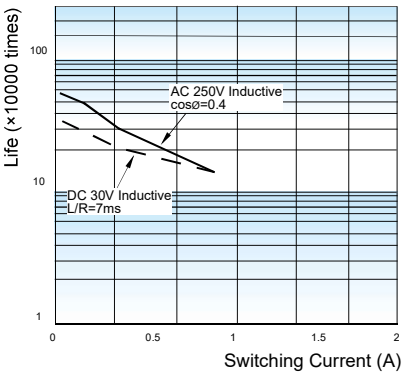
4 Form C
INDUCTIVE ELECTRICAL DURABILITY CURVE



4ZB
RESISTIVITY ELECTRICAL DURABILITY DIAGRAM



4ZB
INDUCTIVE ELECTRICAL DURABILITY CURVE



Relay Sockets



File No.: E253370

Features

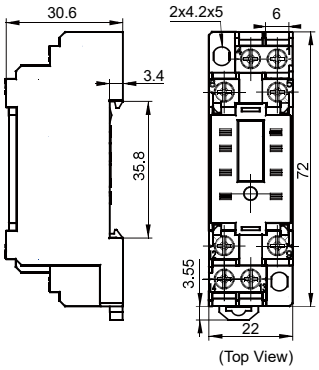
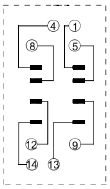
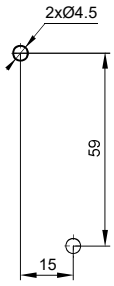
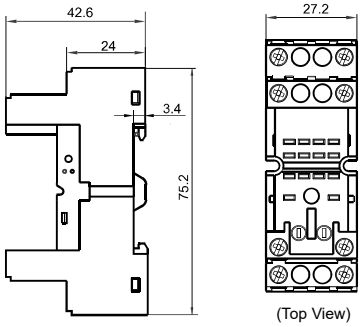
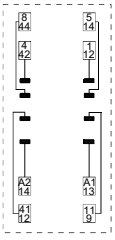
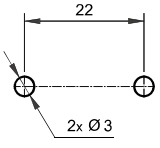
- The dielectric strength can reach 2000VAC, and the insulation resistance is 1000MΩ.
- Three mounting types are available: PCB mounting screw mounting and DIN rail mounting.
- With finger protection device.
- Many kinds of plug-in modules are available with the function of energizing indication and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

CHARACTERISTICS

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

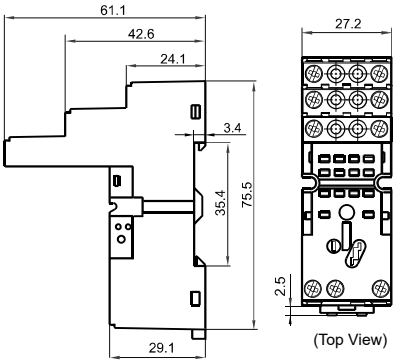
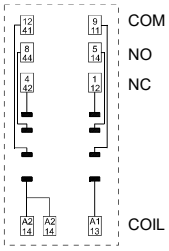
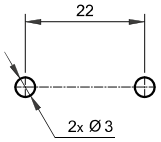
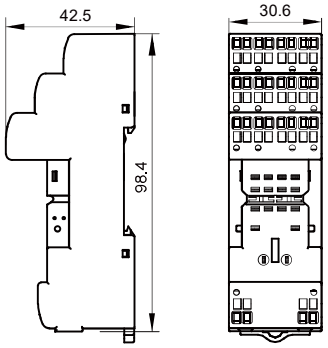
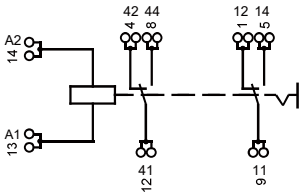
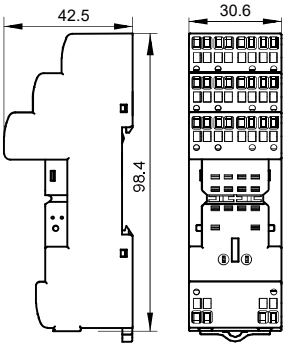
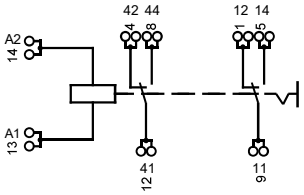
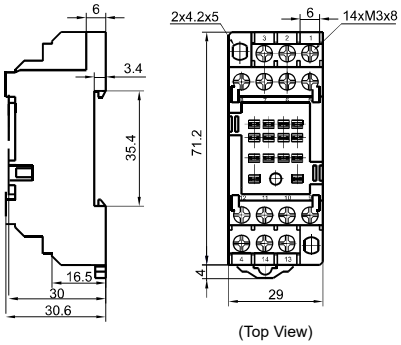
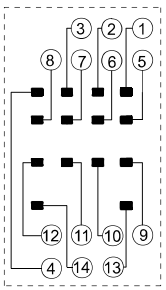
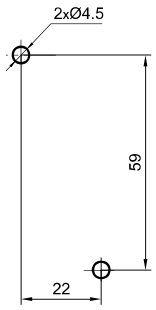
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Socket	Outline Dimensions	Wiring Diagram	PCB Layout	Components Available
18FF-2Z-C2  Screw Terminal, DIN rail or Screw mounting, Without finger protection device Applicable for 2 poles	 (Top View)	 (Top View)		Metallic retainer 18FF-H2 18FF-H3 (be used in sets)
18FF-2Z-C4  Screw Terminal, DIN rail or Screw mounting, Without finger protection device Applicable for 2 poles	 (Top View)	 (Top View)		Plastic retainer 18FF-H4 Metallic retainer 18FF-H5 Marker 18FF-M1 Plug-in module HFAA~HFHU*

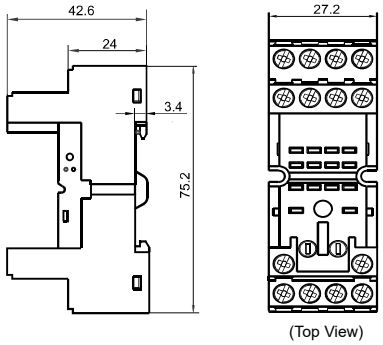
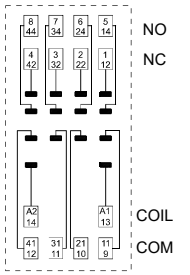
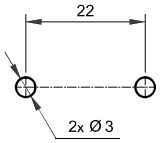
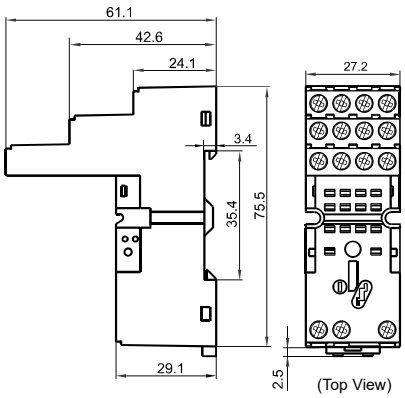
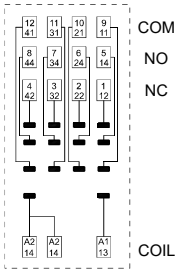
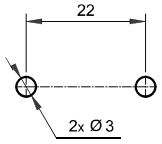
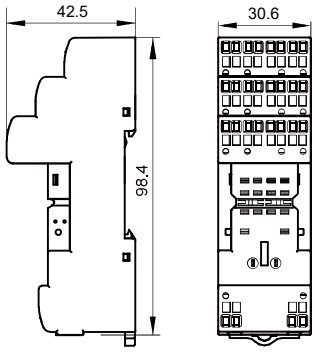
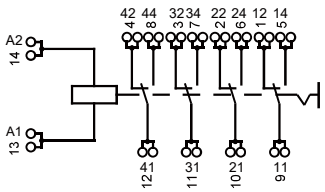
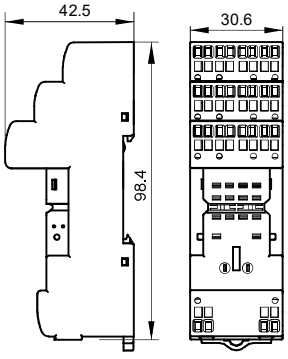
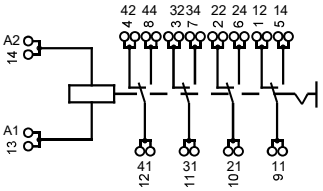
OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

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	 (Top View)	 (Top View)		Plastic retainer 18FF-H4 Metallic retainer 18FF-H5 Marker 18FF-M1 Plug-in module HFAA~HFHU*
18FF-2Z-C10  Spring-loaded terminal DIN rail mounting With finger protection device Applicable for 2 poles	 (Top View)			Retainer 18FF-H4 18FF-H5 Jumper 18FF-J2 Plug-in module HFAA~HFHU* Marker 18FF-M1
18FF-2Z-C10/P 				Retainer 18FF-H4 18FF-H5 Jumper 18FF-J2 Marker 18FF-M1 Plug-in module HFAA~HFHU
18FF-4Z-C2  Screw Terminal, DIN rail or Screw mounting, With finger protection device Applicable for 4 poles	 (Top View)	 (Top View)		Metallic retainer 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				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				Plastic retainer 18FF-H4 Metallic retainer 18FF-H5 Marker 18FF-M1 Plug-in module HFAA to HFHU
18FF-4Z-C10 				Retainer 18FF-H4 18FF-H5 Jumper 18FF-J2 Marker 18FF-M1 Plug-in module HFAA to HFHU
18FF-4Z-C10/P 				Retainer 18FF-H4 18FF-H5 Jumper 18FF-J2 Marker 18FF-M1 Plug-in module HFAA to HFHU

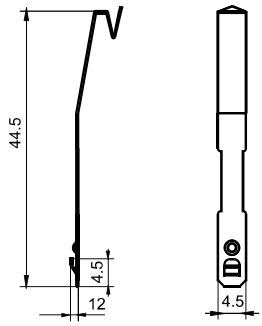
Notes: The socket and accessories, if you need accessories, please order by model or consult our sales staff.

DIMENSION OF RELATED COMPOENT (AVAILABLE)

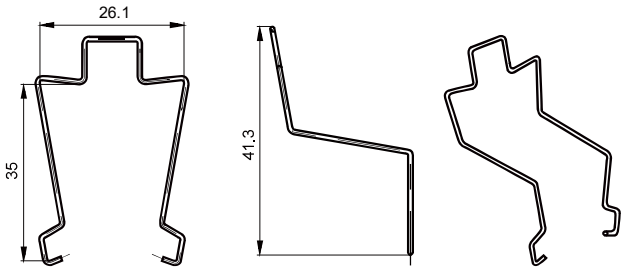
Unit: mm

Retainer

18FF-H2(Metallic retainer)

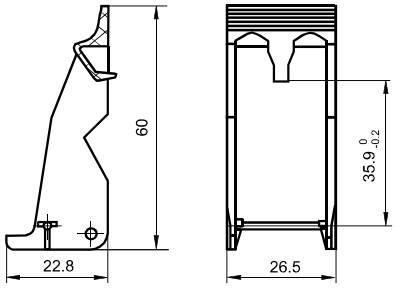


18FF-H3(Metallic retainer)

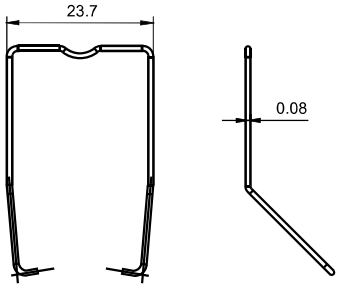


Remark: 18FF-H2 retainer is for specific series.Please be aware before ordering.

18FF-H4(Plastic retainer)

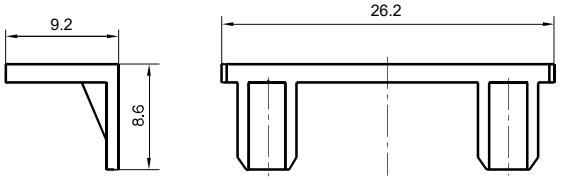


18FF-H5(Metallic retainer)

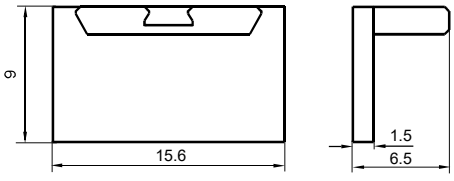


Marker

18FF-M1



18FF-M3



SELECTION OF PARTS

Type of Relay	Mounting termination	Socket	Retainer	Marker	Module
HF18FF-N/□□-2Z1□□□□	Without button	18FF-2Z-C2	18FF-H2/H3	—	—
		18FF-2Z-C4	18FF-H4/H5	18FF-M1	HFAA~HFHU
		18FF-2Z-C5			
		18FF-2Z-C10			
		18FF-2Z-C10/P			
HF18FF-N/□□-4Z1□□□□		18FF-4Z-C2	18FF-H2	—	—
		18FF-4Z-C4	18FF-H4/H5	18FF-M1	HFAA~HFHU
		18FF-4Z-C5			
		18FF-4Z-C10			
		18FF-4Z-C10/P			

Precautions For Use

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.

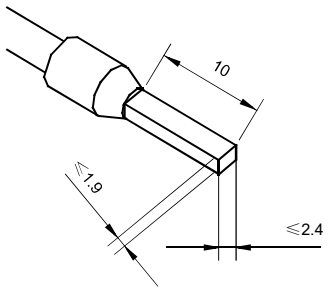
5.Be sure to install the relay in place, and use accessories such as retainer if necessary to improve contact reliability. Do not use with incomplete connections.

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.

Applicable conductor cross section

solid wire	1×0.5/0.75/1.0/1.5/2.5 mm^2	
	2×0.5/0.75/1.0/1.5 mm^2	
Multi-stranded wire	Multi-stranded wire without standard sleeve	1×0.5/0.75/1.0/1.5/2.5 mm^2
		2×0.5/0.75/1.0/1.5 mm^2
	Multi-stranded wire with standard sleeve	1×0.5/0.75/1.0/1.5 mm^2
		2×0.5/0.75/1.0 mm^2

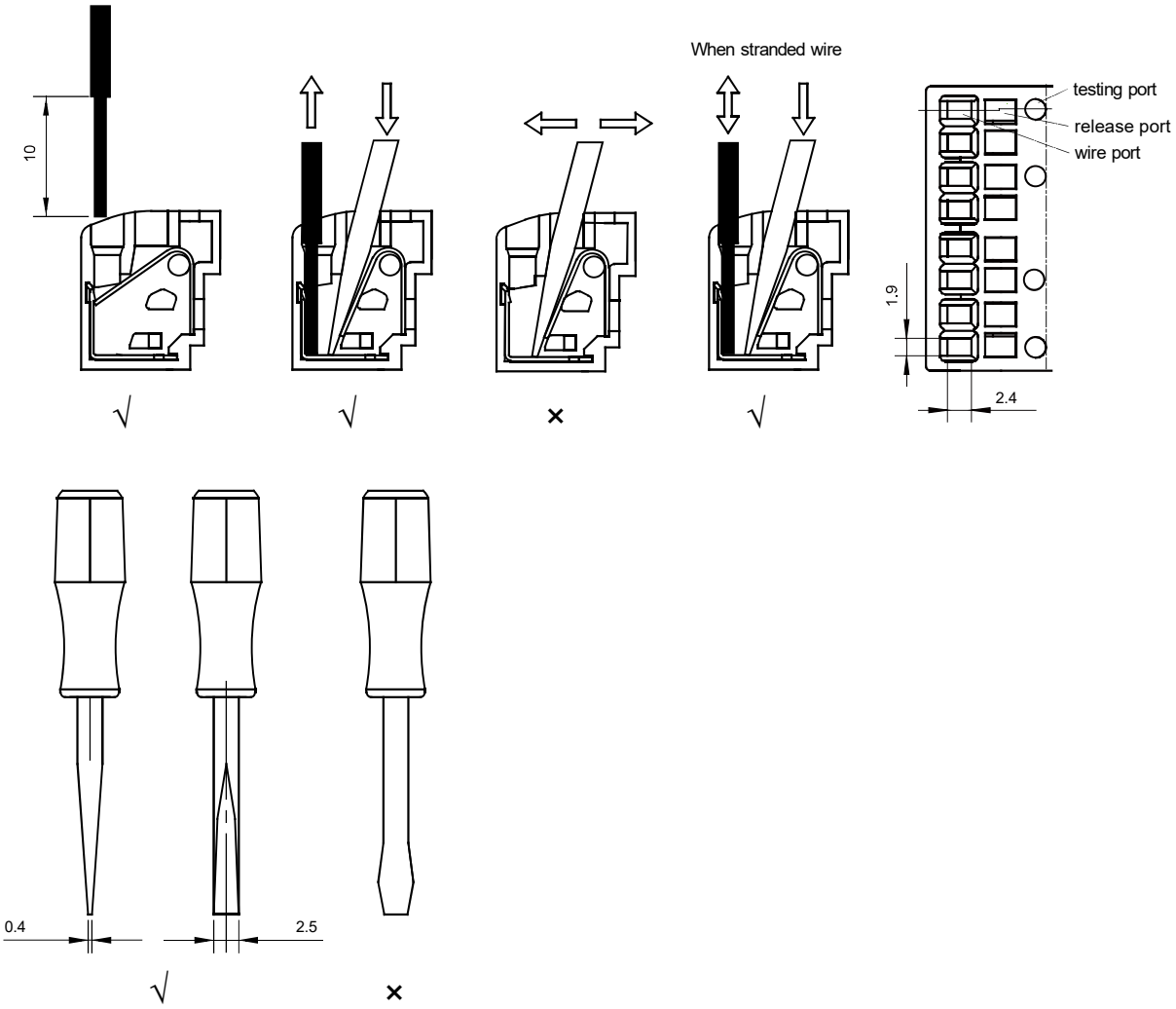


Regarding push in socket

- 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)
0.5~2.5mm2/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，olerance 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 35×7.5×1mm, 35×15×1mm.When installed vertically, the coil terminal at the bottom please .

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.

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