HF115FP MINIATURE POWER RELAY

c UL us
File No.: E133481

VDE
File No.: 116934

Features

- 1 pole 16A, 2 pole 8A , 1 CO & 2 CO contacts
- 5kV dielectric, Creepage distance 8 mm (coil to contacts)
- Meeting VDE 0700, 0631 reinforce insulation
- DC/AC coil type relay , Coil power 400mW / 0.75VA
- Manual test device
- Type with mechanical indicator / electrical indicator
- Sockets available

CONTACT DATA

Contact arrangement	1C	2C
Contact resistance1)	100mΩ max.(at 1A 6VDC)	
Contact material	AgNi	
Contact rating (Res. load)	16A 250VAC	8A 250VAC
Max. switching voltage	440VAC	
Max. switching current	16A	8A
Max. switching power	4000VA	2000VA
Mechanical endurance	DC type: 5 x 10^6OPS AC type: 1 x 10^6OPS	
Electrical endurance	1Z3B type: 3 x 10^4OPS (16A 250VAC, Resistive load, at 70˚C, 1s on 9s off) 2Z4B type: 5 x 10^4OPS (8A 250VAC, Resistive load, at 70˚C, 1s on 9s off)	

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

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	5000VAC 1min
	Between open contacts	1000VAC 1min
	Between contact sets	2500VAC 1min
Operate time (at nomi. volt.)		DC type: 15ms max.
Release time (at nomi. volt.)		DC type: 8ms max.
Temperature rise (at nomi. volt.)		DC type: 60K max. AC type: 85K max.
Shock resistance*	Functiona	98m/s²
	Destructive	980m/s²
Vibration resistance*	NO	10Hz to 150Hz 10g
	NC	length direction: 10Hz to 150Hz 2g other direction: 10Hz to 150Hz 5g
Humidity		5% to 85% RH
Ambient temperature		-40˚C to 70˚C
Termination		PCB
Unit weight		Approx. 16g
Mounting distance		5mm, packing of sockets

Notes: 1) The data shown above are initial values.
2) *Index is not that of relay length direction.
3) UL insulation system: Class A

COIL

Coil power	DC type: Approx. 400mW; AC type: Approx. 0.75VA

Notes: The data shown above don't include the power of electronic indicating circuit when the relay picks-up.

COIL DATA at 23˚C

DC type

Nominal Voltage VDC	Pick-up Voltage VDC max.1)	Drop-out Voltage VDC min.1)	Max. Voltage VDC 2)	Coil Resistance Ω
12	8.4	1.2	18	360 x (1±10%)
24	16.8	2.4	36	1440 x (1±10%)
48 3)	33.6	4.8	72	5760 x (1±15%)
110 3)	77.0	11.0	165	25200 x (1±15%)

Notes: 1) The data shown above are initial values.
2) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.
3) For products with rated voltage ⩾ 48V, measures should be taken to prevent coil overvoltage in order to protect coil in test and application (eg. Connect diodes in parallel).

AC type(50Hz)

Nominal Voltage VAC	Pick-up Voltage VAC max.1)	Drop-out Voltage VAC min.1)	Coil Current mA	Coil DC Resistance Ω
24	18.0	3.6	31.6	350 x (1±10%)
115	86.3	17.25	6.6	8100 x (1±15%)
230	172.5	34.5	3.2	32500 x (1±15%)

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

SAFETY APPROVAL RATINGS

UL/CUL	1 Form C	16A 250VAC at 70˚C
	2 Form C	8A 250VAC at 70˚C
VDE	1 Form C	16A 250VAC at 70˚C
	2 Form C	8A 250VAC at 70˚C

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

	HF115FP /	024	-1Z	3	B	(XXX)
Type						
Coil voltage	**012 to 110:** 12, 24, 48, 110 VDC **A24 to A230:** 24, 115, 230 VAC					
Contact arrangement	**1Z:** 1 Form C	**2Z:** 2 Form C				
Version	**3:** 5.0mm 1 pole 16A	**4:** 5.0mm 2 pole 8A				
Contact material	**B:** AgNi					
Special code[2)]	**XXX:** Customer special requirement	**Nil:** Standard				

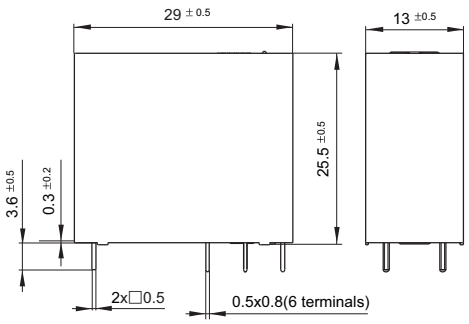
Notes: 1) Flux-proofed relays can not be used in the environment with pollutants like H_2S, SO_2, NO_2, dust, etc.
2) The customer special requirement express as special code after evaluating by Hongfa.
For example:(A29) represents a finished product width ≤12.8mm.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

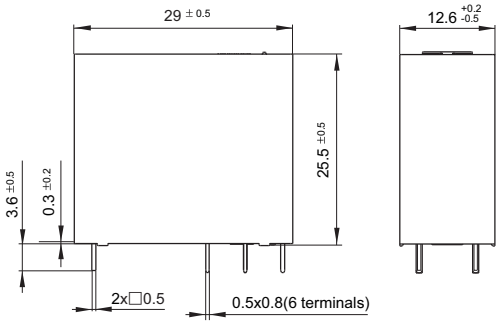
Unit: mm

Outline Dimensions

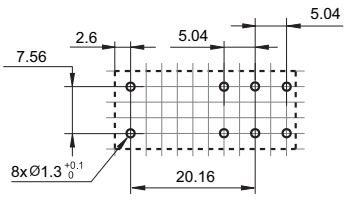
Standard type



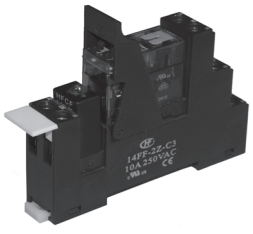
A29 type



PCB Layout (Bottom view)



DIN rail Socket



Solder Socket

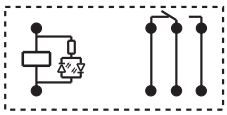
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2) The tolerance without indicating for PCB layout is always ±0.1mm.
3) The width of the gridding is 2.52mm.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

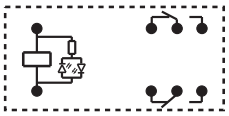
Unit: mm

Wiring Diagram (Bottom view)

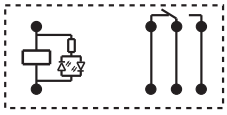
HF115FP/□□□-1Z3B



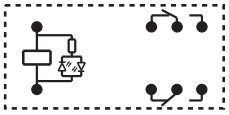
HF115FP/□□□-2Z4B



HF115FP/A□□□-1Z3B



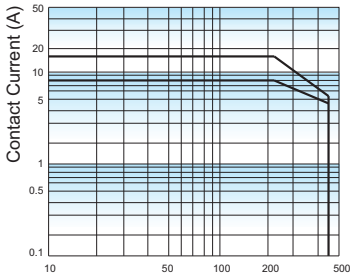
HF115FP/A□□□-2Z4B



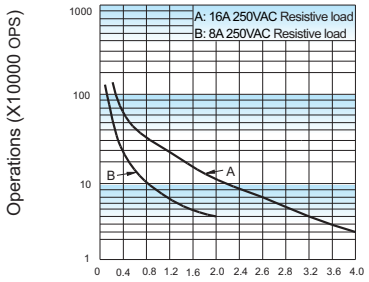
Remark: DC coil with a parrelled diode is available but the coil terminal is different in postive or cathode.

CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER



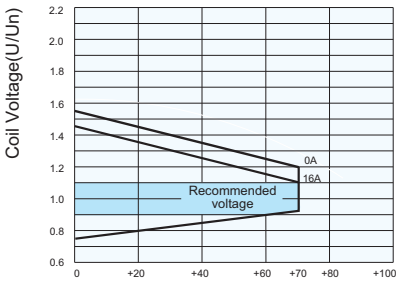
ENDURANCE CURVE



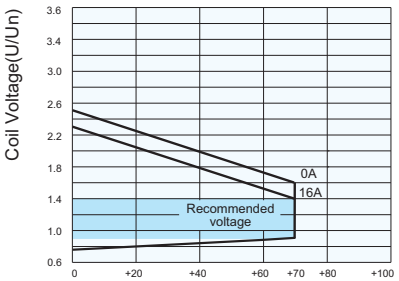
Notes:

1) Curve A: 1Z3B type
   Curve B: 2Z4B type
2) Test conditions:
   NO, Flux proofed, Room temp.,1s on 9s off

COIL OPERATING RANGE (AC) *



COIL OPERATING RANGE (DC) *



Notes: * The use of a relay with an energising voltage other than the rated coil voltage may lead to reduced electrical life.
An energising voltage over the abver range may damage the insulation of relay coil.

Relay Sockets

File No.: E253370

Features

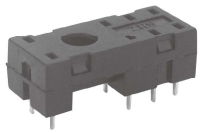
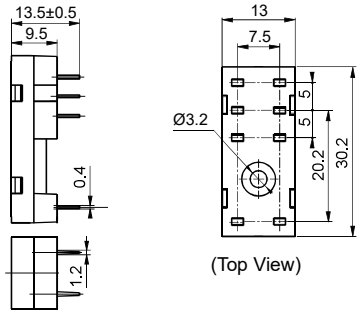
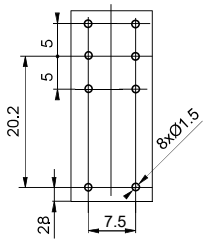
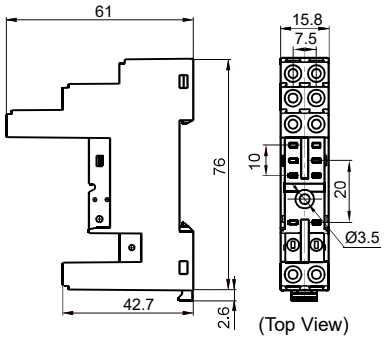
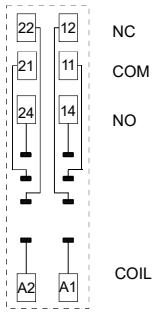
- The insulation resistance is 1000MΩ
- Three mounting types are available: PCB, screw mounting and DIN rail mounting
- With finger protection device
- Many kinds of plug-in modules are available with the function of energizing indication and wiring protection
- Environmental friendly product (RoHS compliant)

CHARACTERISTICS

type	Nominal Voltage	Nominal Current	Ambient Temperature	Dielectric Strength min.	Screw Torque	Wire Strip Length	Unit weight
14FF-2Z-A1	250VAC	10A	-40˚C ~ 70˚C	5000VAC	—	*	Approx.3g
14FF-2Z-C2	250VAC	10A	-40˚C ~ 70˚C	5000VAC	0.6N·m	7mm	Approx.39g
14FF-2Z-C3	250VAC	10A	-40˚C ~ 70˚C	5000VAC	0.6N·m	7mm	Approx.45g
14FF-2Z-C4	250VAC	10A	-40˚C ~ 70˚C	5000VAC	—	9mm	Approx.42g
14FF-2Z-C10	300VAC/DC	10A	-40˚C ~ 70˚C	5000VAC	—	10mm	Approx.36g
14FF-2Z-C10/P	300VAC/DC	10A	-40˚C ~ 70˚C	5000VAC	—	10mm	Approx.37g

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

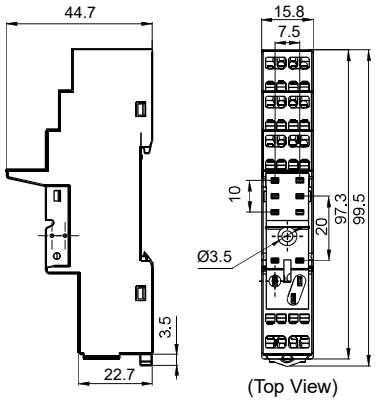
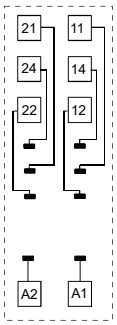
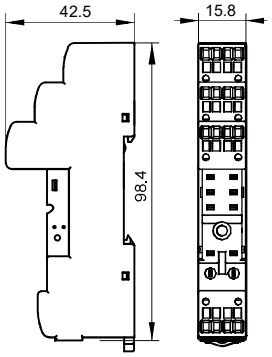
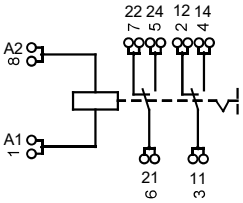
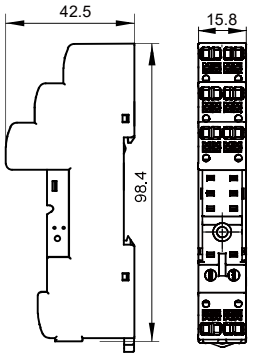
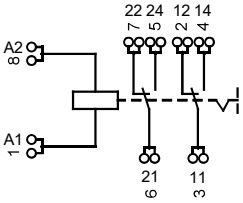
Unit: mm

Socket	Outline Dimensions	Wiring Diagram/PCB Layout	Components Available
14FF-2Z-A1  PCB terminal, PCB or Screw mounting When it used with HF115F、HF115F-A、HF115FP and relay type 3, two pole of socket load must connect in parallel.	 (Top View)	 (Top View)	Metallic retainer 14FF-H1 Remarks:the dielectric strength can reach 1500VAC that sockets mounted 14FF-H1
14FF-2Z-C3  Screw Terminal, DIN rail or Screw mounting, With finger protection device When it used with HF115F, HF115FP-A, HF115FP and relay type 3, "21"-"11", "24"-"14", "22"-"12" of socket must connect in parallel.	 (Top View)	 (Top View)	Retainer: 14FF-H4 Marker: 14FF-M1 Plug-in module: HFAA~HFHU*

Notes: If need accesscry,please order with type.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

Unit: mm

Socket	Outline Dimensions	Wiring Diagram	Components Available
14FF-2Z-C4  Spring-loaded terminal DIN rail mounting With finger protection device When it used with HF115F、HF115FP-A、HF115FP and relay type 3, "21"-"11", "24"-"14", "22"-"12" of socket must connect in parallel.	 (Top View)	 (Top View)	Retainer： 14FF-H4 Marker： 14FF-M1 Plug-in module： HFAA~HFHU*
14FF-2Z-C10 	 (Top View)		Retainer： 14FF-H6 14FF-H8 Marker： 14FF-M1 Plug-in module： HFAA~HFHU
14FF-2Z-C10/P 	 (Top View)		Retainer： 14FF-H6 14FF-H8 Marker： 14FF-M1 Plug-in module： HFAA~HFHU

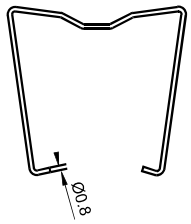
Notes: If need accesscry,please order with type.

DIMENSION OF RELATED COMPOENT (AVAILABLE)

Unit: mm

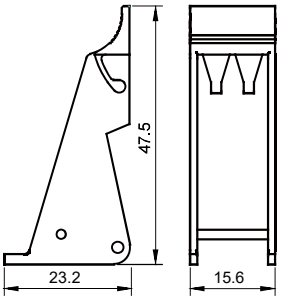
Retainer

14FF-H3 (metallic retainer)



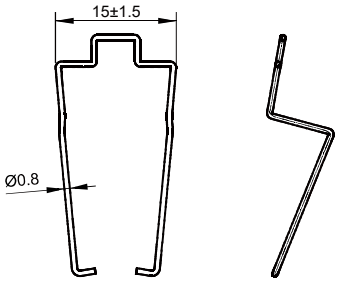
Applicable for HF115FP, HF140FF-G etc..

14FF-H6 (Plastic retainer)



Applicable for HF115FP, HF140FF-G etc.

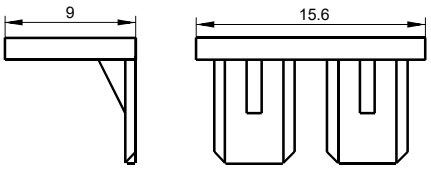
14FF-H8 (metallic retainer)



Applicable for HF115FP, HF14FW, HF140FF-G etc.

Marker

14FF-M1



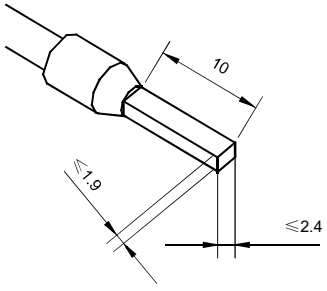
Precautions For Use

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

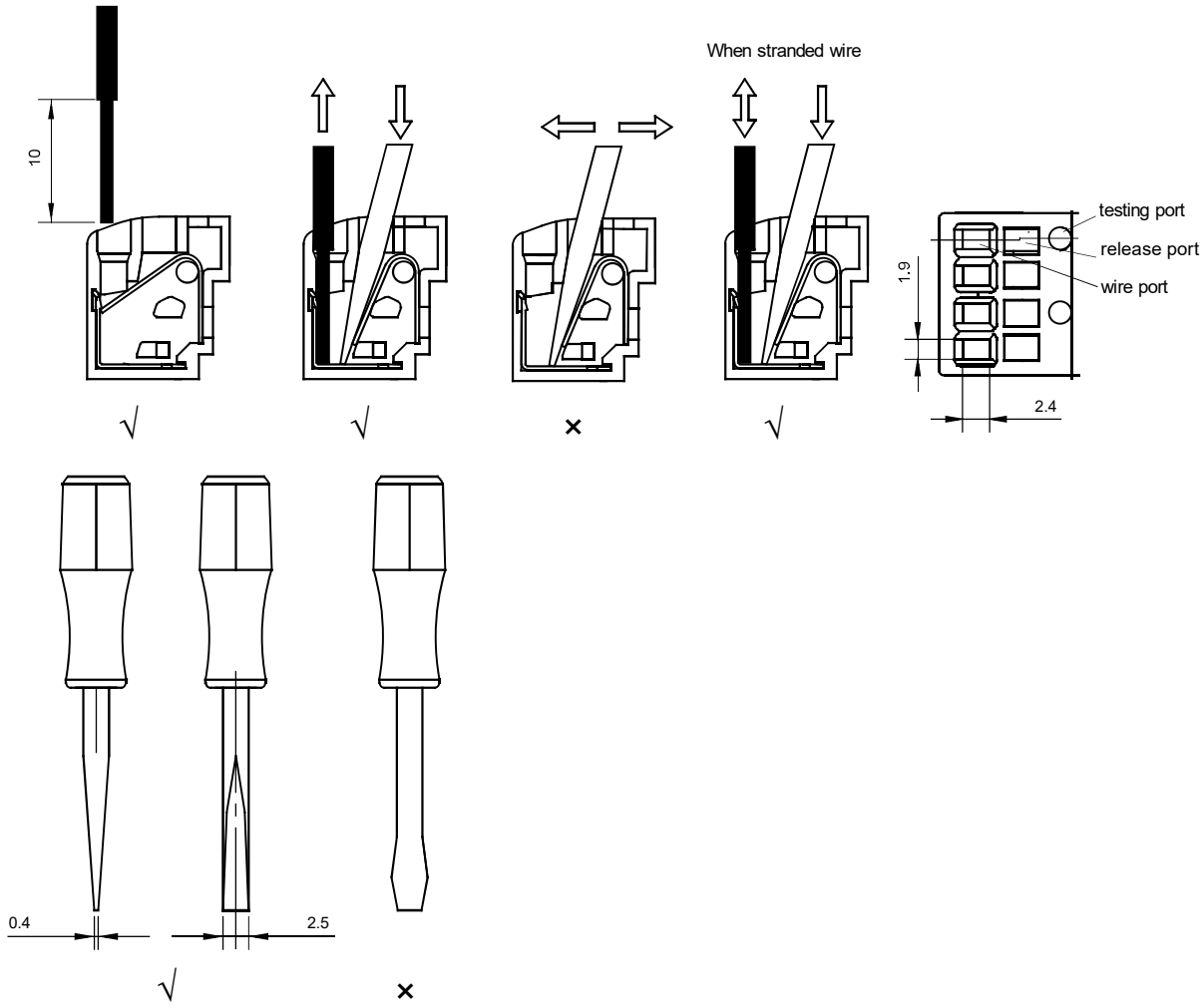


Precautions For Use

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



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 HF115FP relay. If you have any special requirements, please contact us.
4. 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;
5. 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.