HFE10 MINIATURE HIGH POWER LATCHING RELAY

c UL us
File No.:E134517

Features

- 50A switching capability
- Lamp load up to 5000W
- Motor load up to 5HP
- Max. inrush current 500A/2ms
- Dielectric strength: more than 4kV (between coil and contacts)
- Manual switch function available
- Relays with 1.5mm contact gap are available
- Environmental friendly product (RoHS compliant)
- Outline Dimensions: (39.0 x 15.0 x 30.2)mm

CONTACT DATA

Contact arrangement	1A, 1B, 1C
Contact resistance	20mΩ max.(at 1A 24VDC)
Contact material	$AgSnO_2$
Contact rating	1A,1B: 50A 277VAC,1 x 10^5 OPS (Resistive) 5000W 240VAC, 3 x 10^4 OPS (Incandescent lamp) 16A 277VAC, 6000 OPS (Electronic ballast) 5HP 277VAC, 3 x 10^4OPS (Motor) 1C: 40A 277VAC,3 x 10^4 OPS (Resistive)
Max. switching voltage	440VAC
Max. switching current	50A
Max. switching power	1A: 12500VA / 1C: 10000VA
Max. continuous current	50A
Mechanical endurance	1 x 10^6OPS
Electrical endurance	See rated load

COIL DATA at 23°C

Nominal Voltage VDC	Set / Reset Voltage VDC max.	Pulse Duration ms min.	Coil Resistance x (1±10%) Ω	
6	4.8	50	Single coil latching	24
9	7.2	50		54
12	9.6	50		96
24	19.2	50		384
48	38.4	50		1536
6	4.8	50	Double coils latching	12+12
9	7.2	50		27+ 27
12	9.6	50		48+48
24	19.2	50		192+192
48	38.4	50		768+768

COIL

Coil power	Single coil latching: Approx. 1.5W Double coils latching: Approx. 3.0W

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1500VAC 1min
Creepage distance (input to output)		1A,1B: 8mm 1C: 6mm
Operate time (at nomi. volt.)		15ms max.
Release time (at nomi. volt.)		15ms max.
Max. operate frequency		1A,1B: 20cycles/min 1C: 10cycles/min
Shock resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz to 55Hz 1.5mm DA
Humidity		5% to 85% RH
Ambient temperature		-40°C to 70°C
Termination		PCB
Unit weight		Approx. 32g
Construction		Plastic sealed, Flux proofed

Notes: The data shown above are initial values.

SAFETY APPROVAL RATINGS

UL/CUL ($AgSnO_2$)	1 Form A	Resistive: 50A 277VAC Incandescent lamp: 5000W 240VAC
	1 Form C	40A 277VAC

Notes: Only some typical ratings are listed above. If more details are required, please contact us.

ORDERING INFORMATION

	HFE10	-1/	12	-D	1	S	T	-L2	-R	(W)	(XXX)

Type

Version
1: No auxiliary convexity, no manual switch
2: No auxiliary convexity, with manual switch
3: With auxiliary convexity, no manual switch
4: With auxiliary convexity, with manual switch
5: No auxiliary convexity, with manual switch, the reverse action

Coil voltage 6, 9, 12, 24, 48VDC

Contact form [1] **H:** 1 Form A **D:** 1 Form B (No UL approval)
Z: 1 Form C(No for HFE10-5)

Termination [2] **1:** Extra long terminal **5:** Wide terminal
6: Bending extra long terminal **7:** Double PCB terminal
Nil: PCB terminal

Construction [3] **S:** Plastic sealed (Only for HFE10-1 & HFE10-3)
Nil: Flux proofed

Contact material [4] **T:** $AgSnO_2$

Sort **L1:** Single coil latching **L2:** Double coils latching

Polarity **R:** Negative polarity **Nil:** Positive polarity

Customer special code **(W):** Relays with 1.5mm contact gap **Nil:** Standard type

Customer special code **e.g. (399)** stands for Special polarity (See Wiring Diagram)

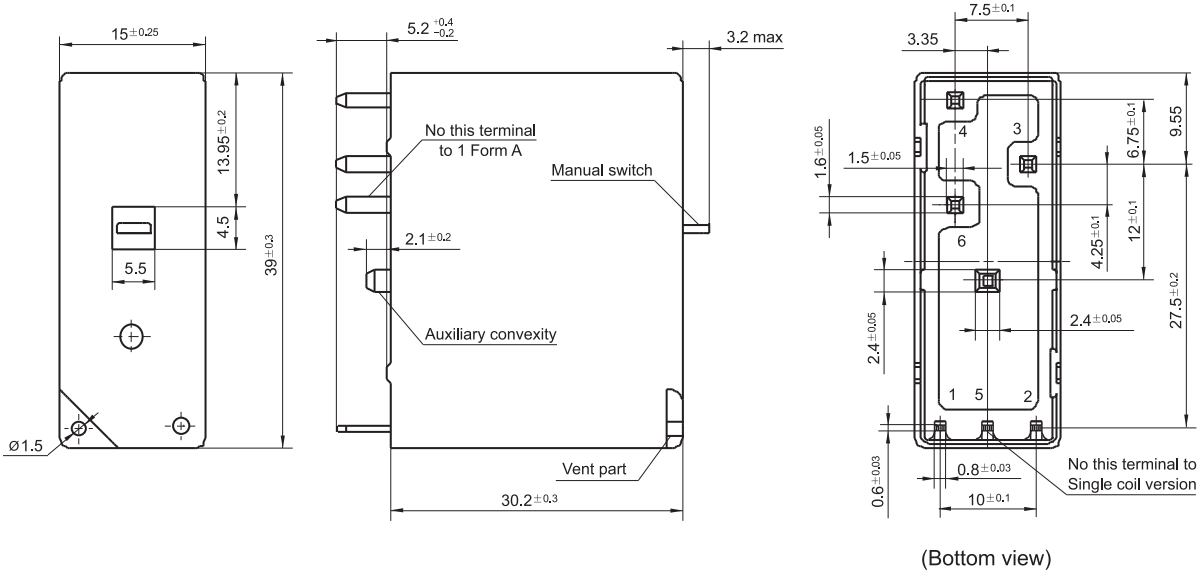
Notes: 1) H means that relay is on the "reset" status when delivery; D means that relay is on the "set" status when delivery.
2) The 1 type, 5 type, 6 type and 7 type is only for HFE10-1/□□□H, HFE10-2/□□□H.
3) If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.
4) As to lamp load, capacitive load, motor load, please choose $AgSnO_2$ contact material.

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Outline Dimensions

HFE10-1, HFE10-2, HFE10-3, HFE10-4



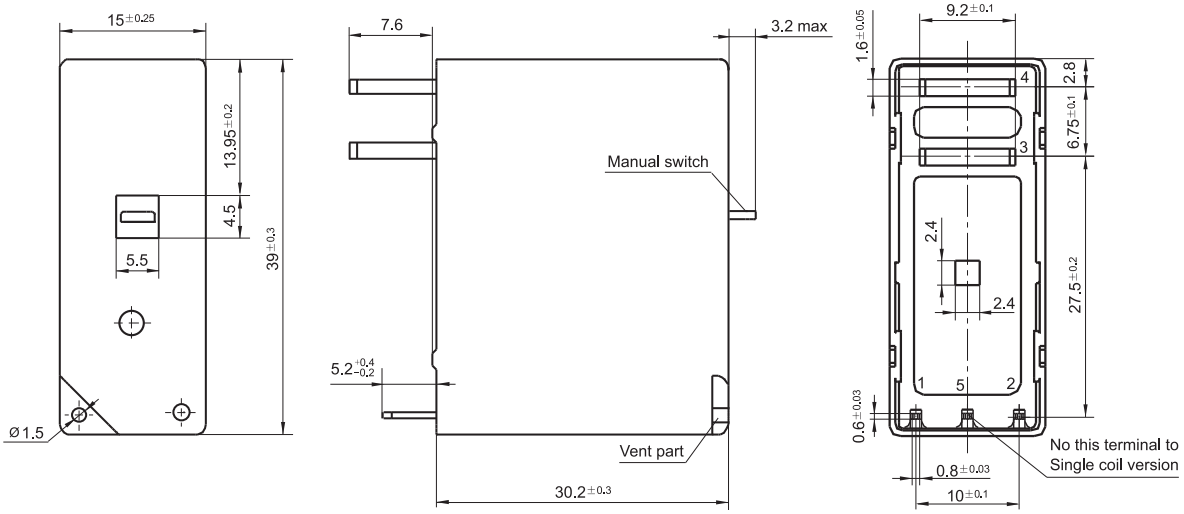
(Bottom view)

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

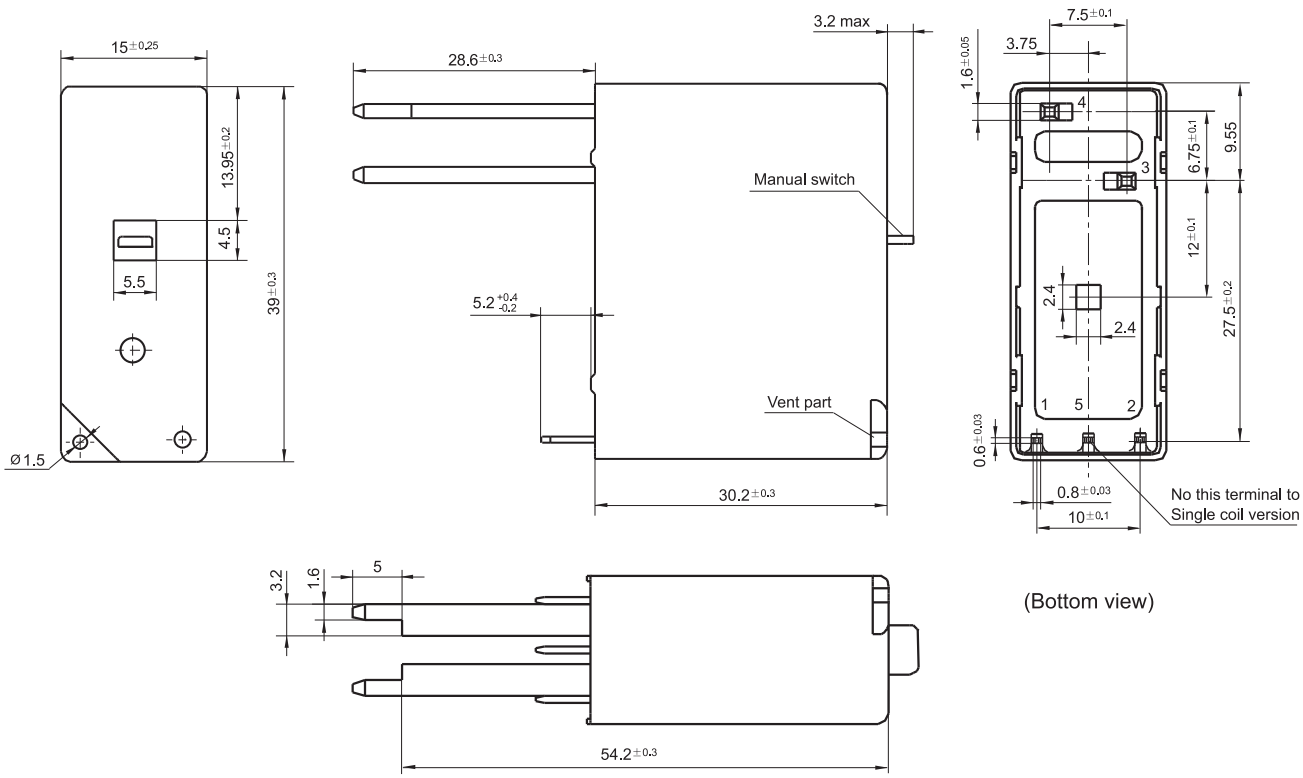
Outline Dimensions

HFE10-1/ □ □ □ H5
HFE10-2/ □ □ □ H5



(Bottom view)

HFE10-1/ □ □ □H1
HFE10-2/ □ □ □H1



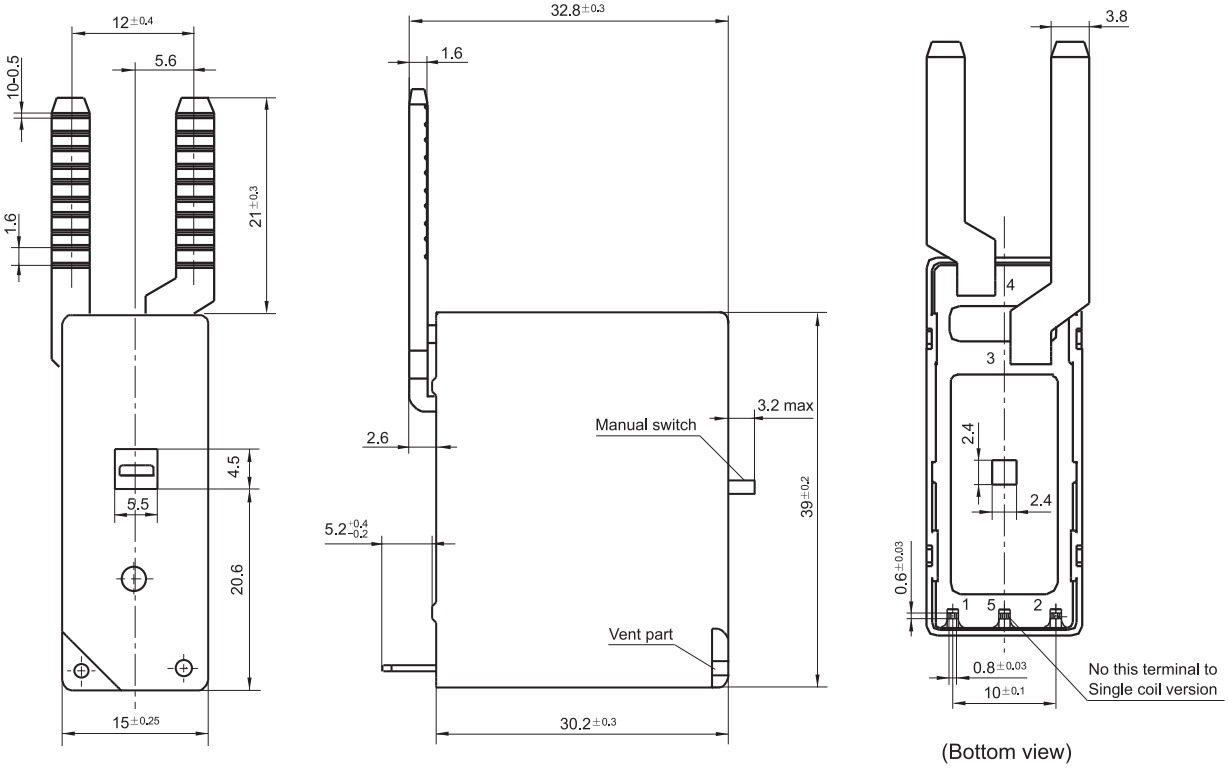
(Bottom view)

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

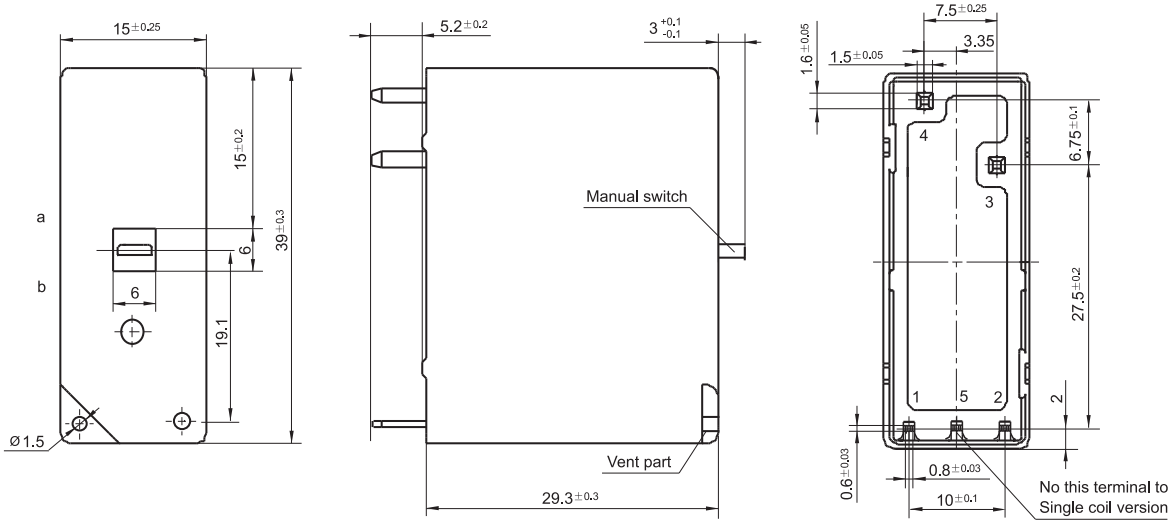
Outline Dimensions

HFE10-1/ □ □ □H6
HFE10-2/ □ □ □H6



(Bottom view)

HFE10-5/□ □ □H



(Bottom view)

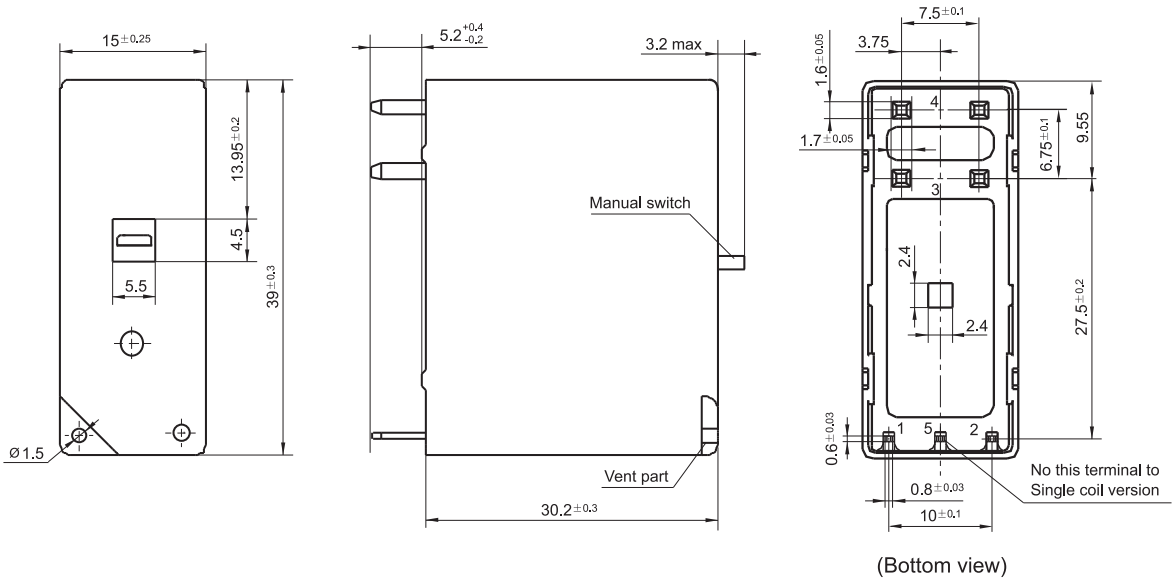
Remark: When the manual switch is pitched on point a, the contact is open; when the manual switch is pitched on point b, the contact is closed.

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Outline Dimensions

HFE10-1/ □ □ □H7
HFE10-2/ □ □ □H7

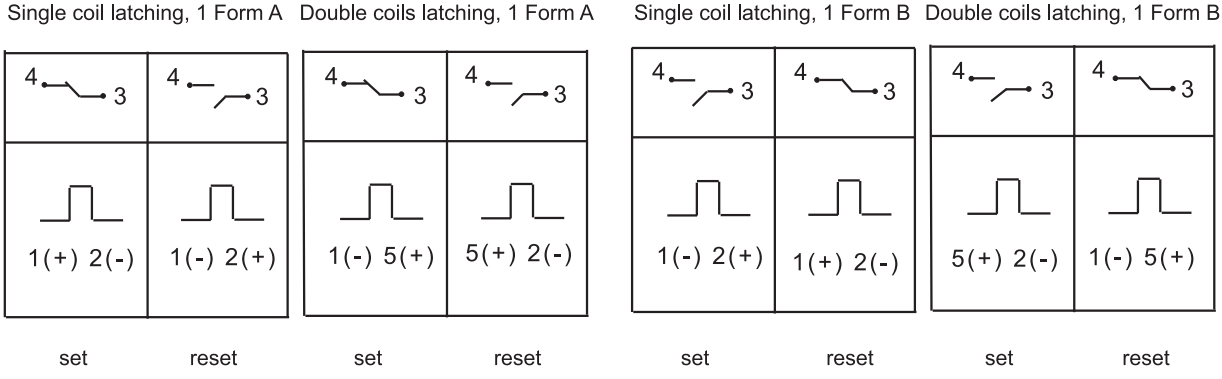


Remark: In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.

Wiring Diagram

HFE10-1, HFE10-2, HFE10-3, HFE10-4

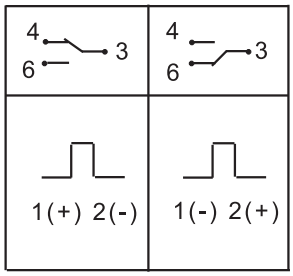
Positive polarity



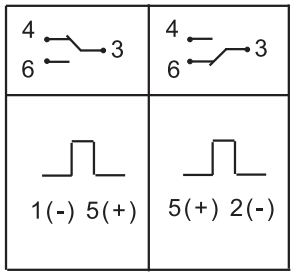
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Single coil latching, 1 Form C

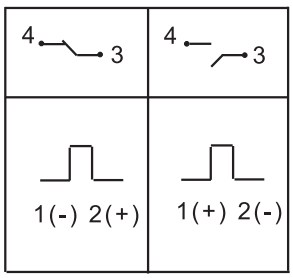


Double coils latching, 1 Form C

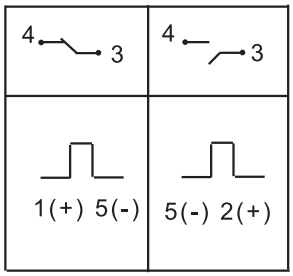


Negative polarity

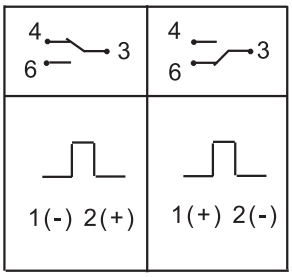
Single coil latching, 1 Form A



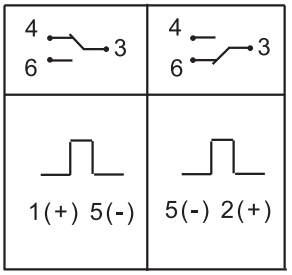
Double coils latching, 1 Form A



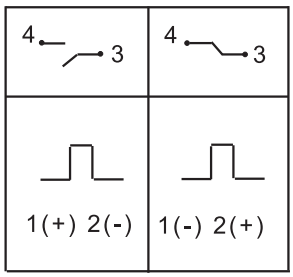
Single coil latching, 1 Form C



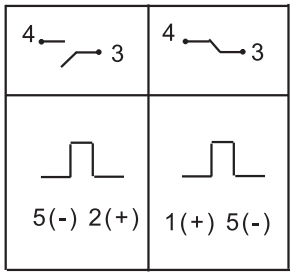
Double coils latching, 1 Form C



Single coil latching, 1 Form B



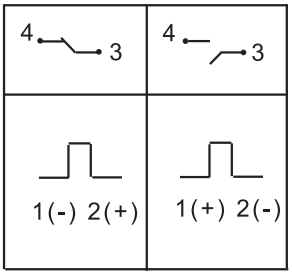
Double coils latching, 1 FormB



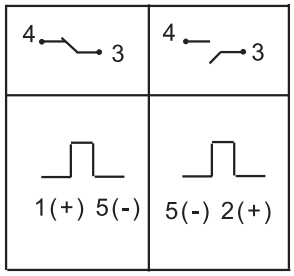
HFE10-5

Positive polarity

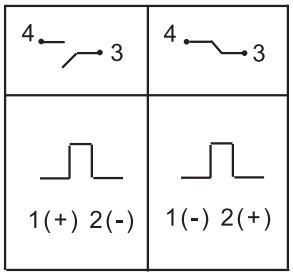
Single coil latching, 1 Form A



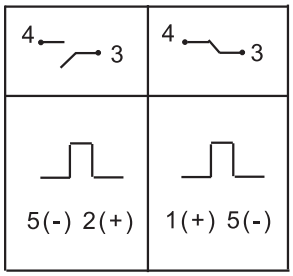
Double coils latching, 1 Form A



Single coil latching, 1 Form B



Double coils latching, 1 Form B



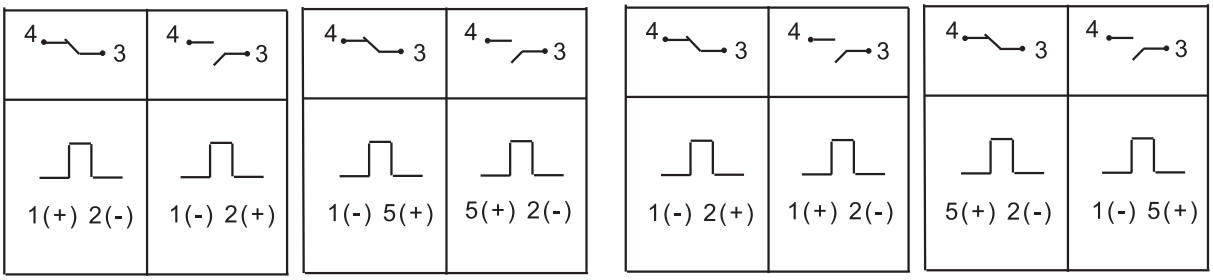
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Wiring Diagram

Negative polarity

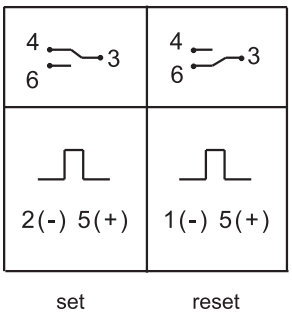
Single coil latching, 1 Form A Double coils latching, 1 Form A Single coil latching, 1 Form B Double coils latching, 1 Form B



HFE10-1, HFE10-2, HFE10-3, HFE10-4, HFE10-5

(399):Special polarity

Double coils latching



Notice

1. Relay is on the “reset” or "set" status when being released from stock, with the consideration of shock risen from transit and relay mounting, relay would be changed to “set” or "reset" status, therefore, when application (connecting the power supply), please reset the relay to “set” or “reset” status on request.
2. In order to maintain “set” or “reset” status, energized voltage to coil should reach the rated voltage, impulse width should be 5 times more than “set” or “reset” time. Do not energize voltage to “set” coil and “reset” coil simultaneously. And also long energized time (more than 1 min) should be avoided.
3. The terminals of relay without twisted copper wire can not be tin-soldered, can not be moved willfully, more over two terminals can not be fixed at the same time.

Disclaimer

This datasheet is for the customers’ reference. All the specifications are 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.