

HFE10

MINIATURE HIGH POWER LATCHING RELAY





File No.:E134517

Features

- 50A switching capability
- Lamp load up to 5000W
- Motor load up to 5HP
- Max. inrush current 300A/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	AgSnO2
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 ⁴ OPS (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 ⁶ OPS
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	1 coil latching: Approx. 1.5W 2 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/s ²
	Destructive	980m/s ²
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 (AgSnO2)	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: 1 coil latching L2: 2 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 AgSnO₂ contact material.

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Outline Dimensions

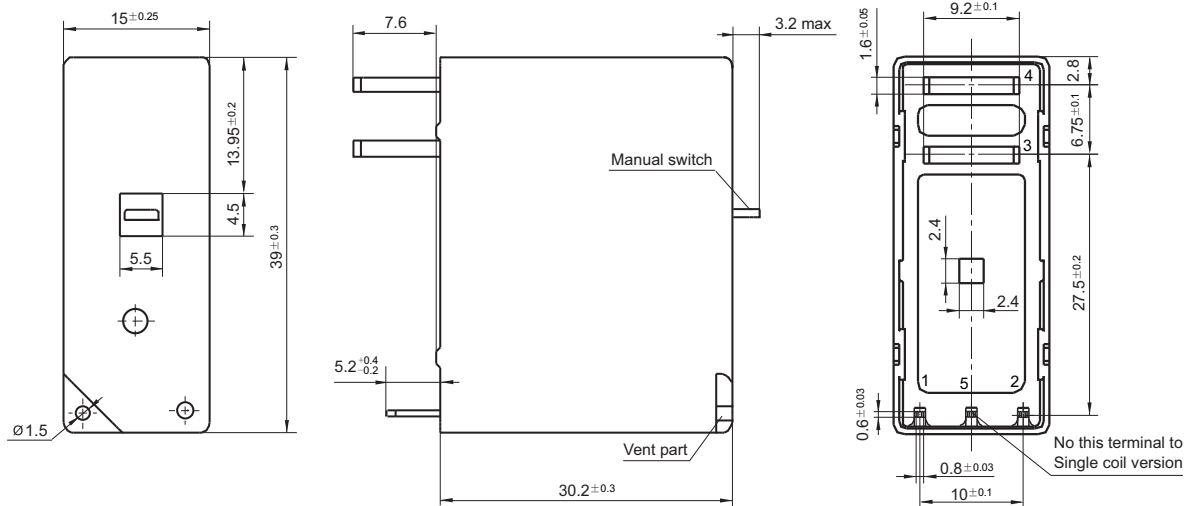
HFE10-1, HFE10-2, HFE10-3, HFE10-4

The technical drawings illustrate the physical specifications of the HFE10 relay. The top view shows a rectangular footprint with a width of 15±0.25 mm and a height of 13.95±0.2 mm. Key features include a manual switch on the right side, an auxiliary convexity on the left, and a vent part at the bottom. The side view shows a height of 39±0.3 mm and a width of 30.2±0.3 mm. The bottom view shows a rectangular footprint with a width of 10±0.1 mm and a height of 27.5±0.2 mm. It includes dimensions for the coil (7.5±0.1 mm), contact gap (1.5±0.05 mm), and contact spacing (2.4±0.05 mm). A note indicates that the terminal for the single coil version is not present.

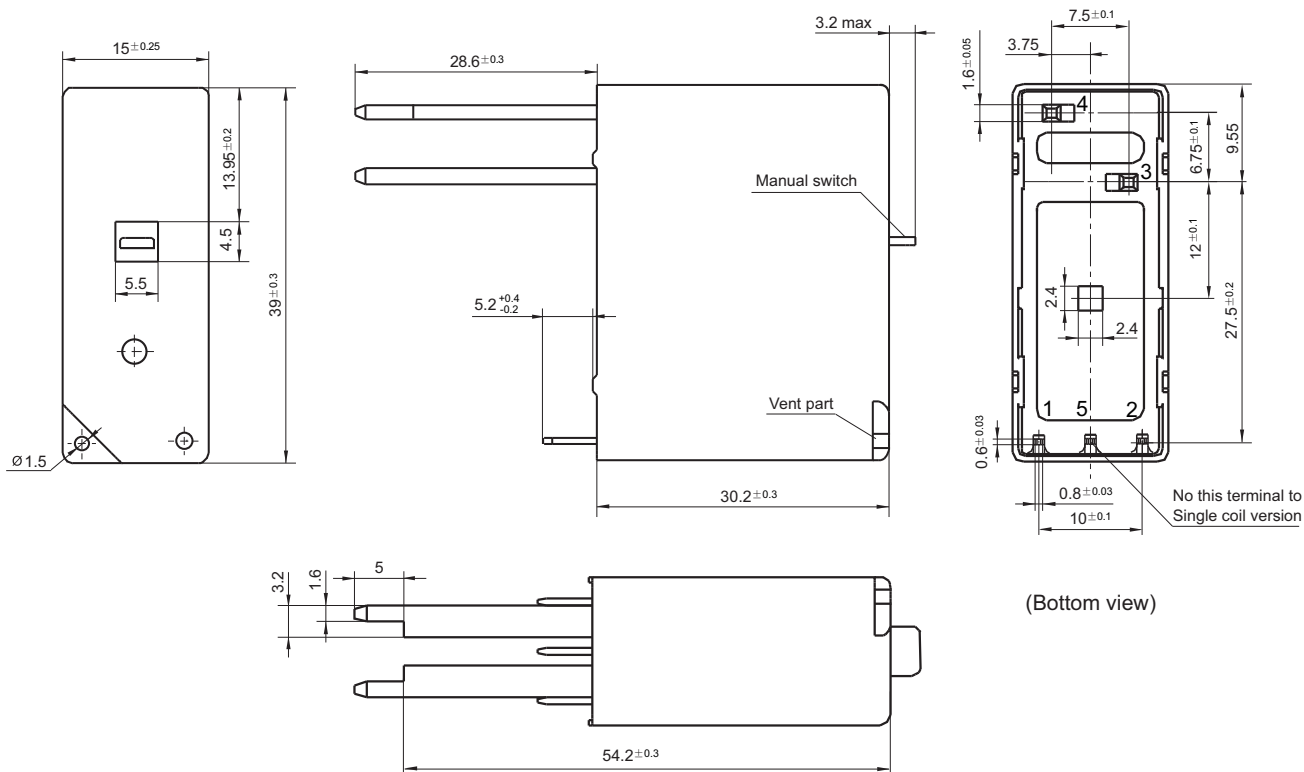
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Outline Dimensions

HFE10-1/ H5HFE10-2/ H5

(Bottom view)

HFE10-1/ H1HFE10-2/ H1

(Bottom view)

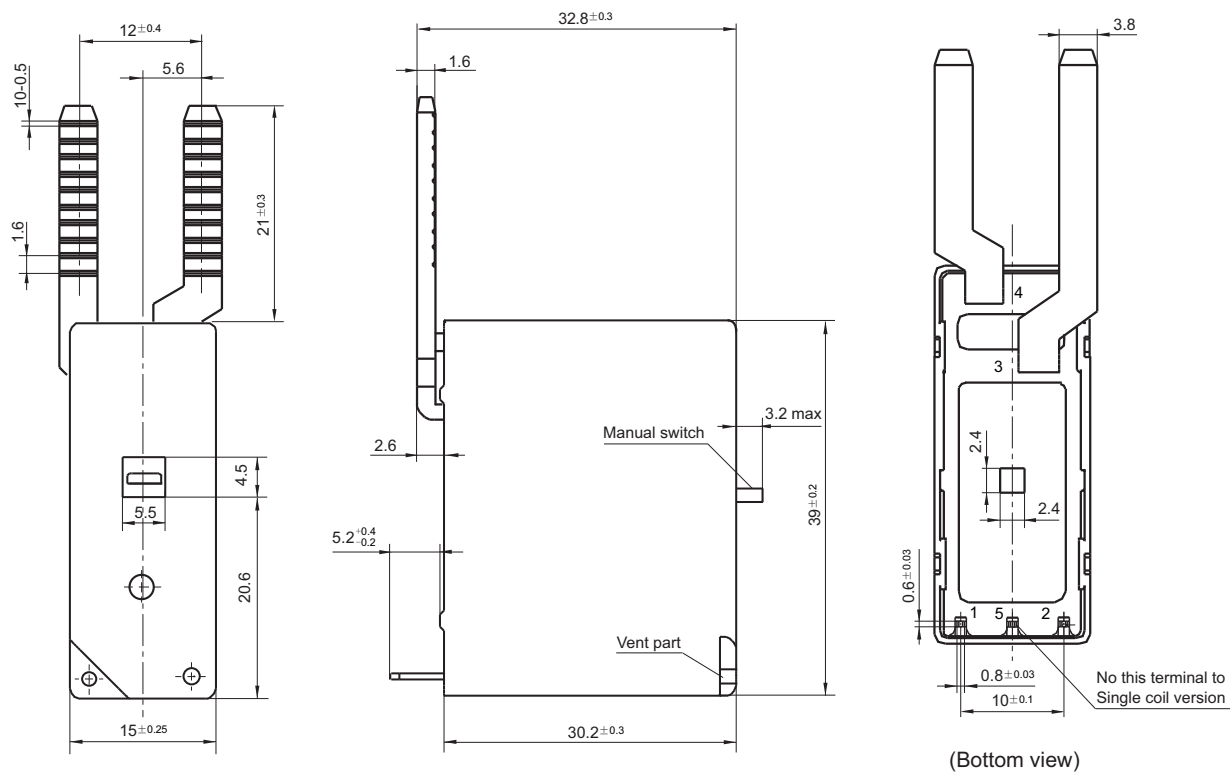
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

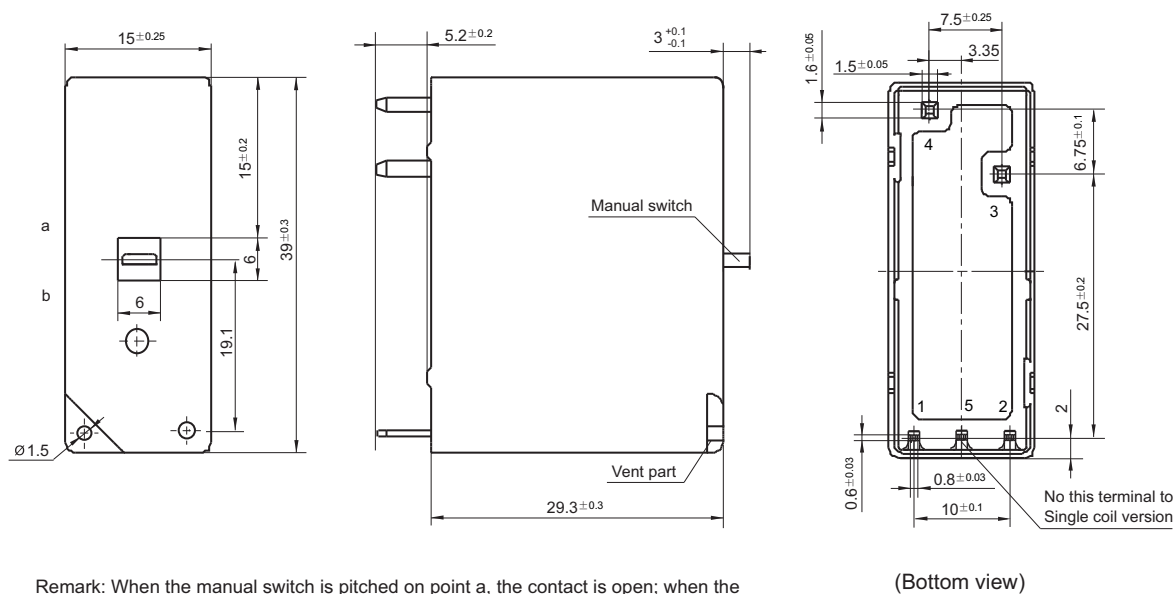
Outline Dimensions

HFE10-1/□□□H6

HFE10-2/□□□H6



HFE10-5/□□□H



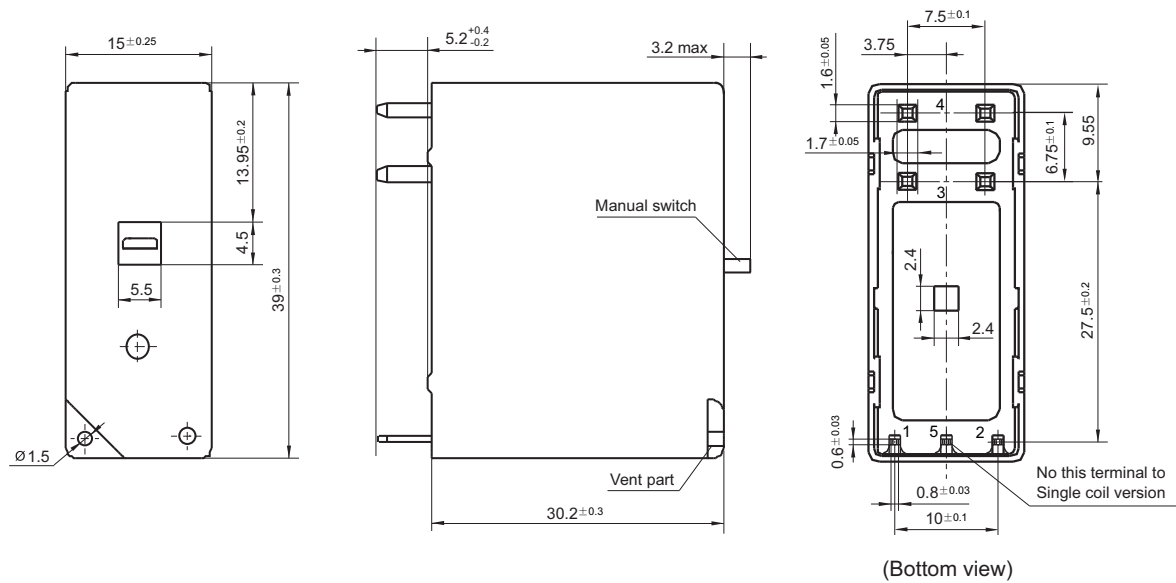
Remark: When the manual switch is pitched on point a, the contact is open; when the manual switch is pitched on point b, the contact is closed.

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Outline Dimensions

HFE10-1/□□□H7
HFE10-2/□□□H7

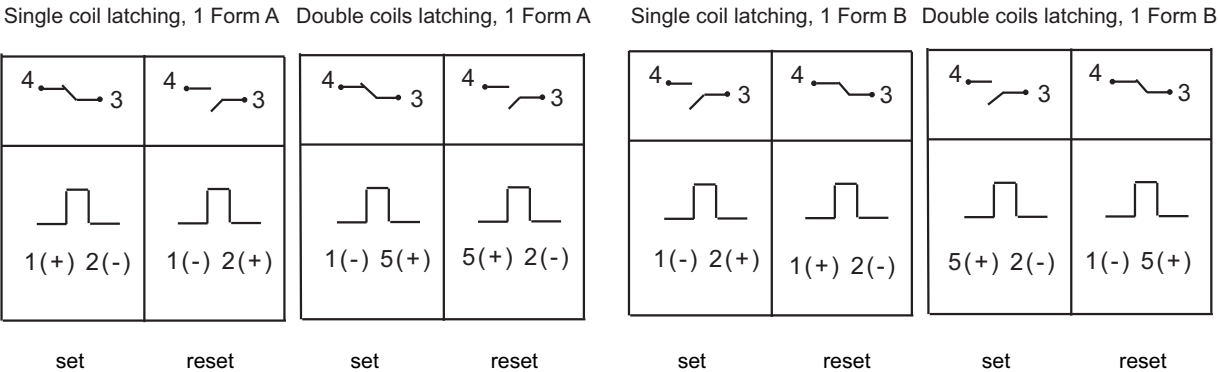


Remark: In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.

Wiring Diagram

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

Positive polarity

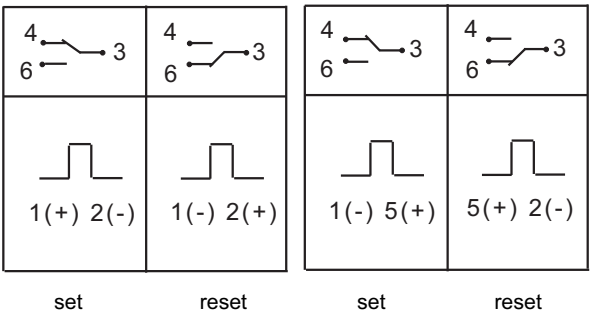


OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Single coil latching, 1 Form C

Double coils latching, 1 Form C



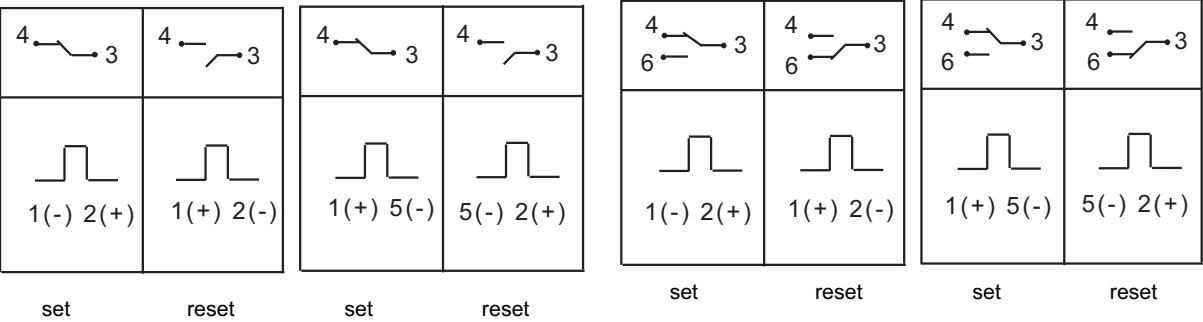
Negative polarity

Single coil latching, 1 Form A

Double coils latching, 1 Form A

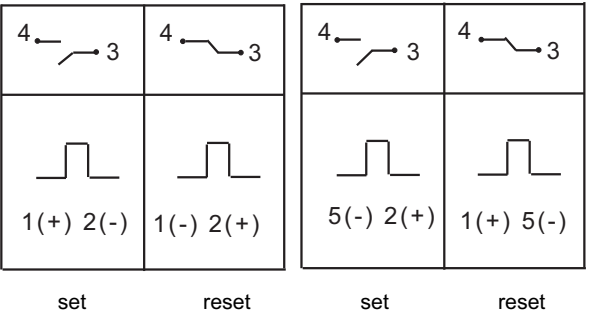
Single coil latching, 1 Form C

Double coils latching, 1 Form C



Single coil latching, 1 Form B

Double coils latching, 1 FormB



HFE10-5

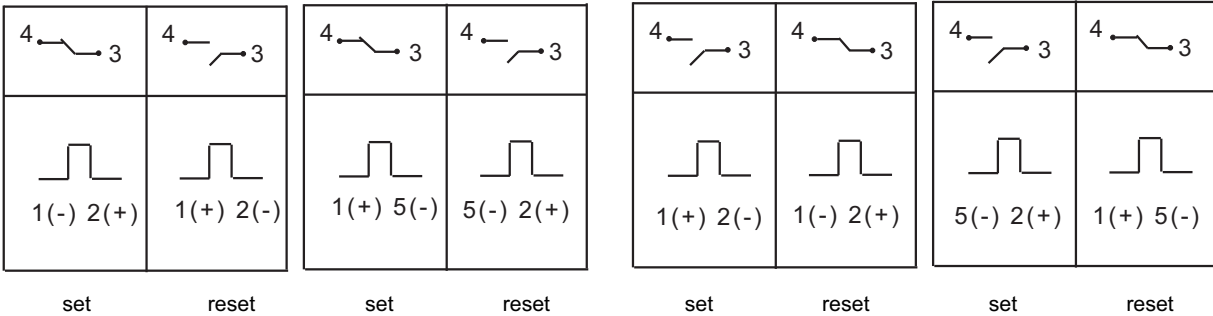
Positive polarity

Single coil latching, 1 Form A

Double coils latching, 1 Form A

Single coil latching, 1 Form B

Double coils latching, 1 Form B



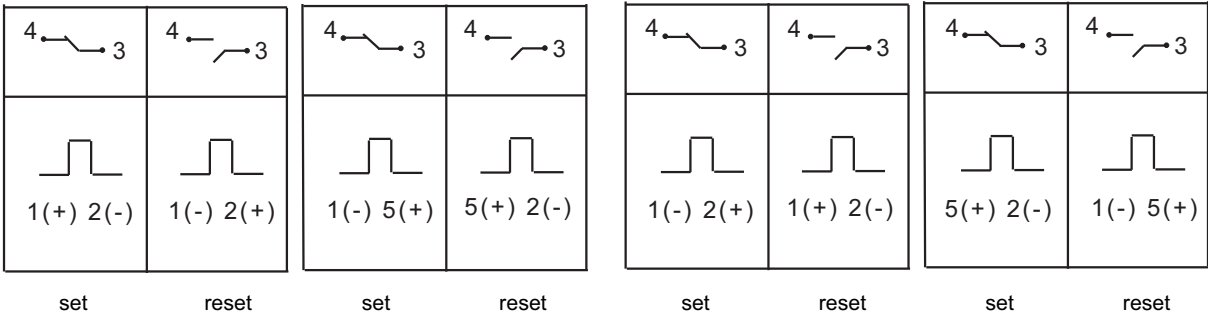
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

Wiring Diagram

Negative polarity

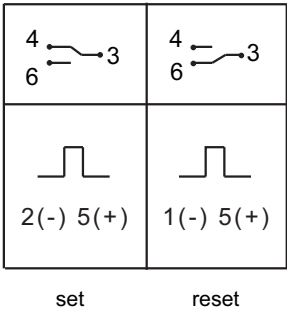
Single coil latching, 1 Form A Double coils latching, 1 Form A Single coil latching, 1 Form B Double coils latching, 1 Form B



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.

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