HFE10 MINIATURE HIGH POWER LATCHING RELAY

File No.:40035869

File No.:E134517

Features

- 50A switching capacity
- Lamp load up to 5000W
- Motor load up to 3HP
- Max.inrush current 480A/2.1ms
- Dielectric strength:more than 4kV (between coil and contacts)
- Manual switch function available
- (A81): Switching without load
- (W): Contact gap available≥1.5mm

RoHS compliant

CONTACT DATA

Contact arrangement	1A,1B,1C
Contact resistance 1)	Typical value:2)≤20mΩ(1A 24VDC)
Contact material	$AgSnO_2$
Contact rating	**(A81): Switching without load:** Making at 50A 250VAC, breaking (without load) 2x10⁵ops **Standard products:** 1A, 1B:50A 277VAC, 1x10⁵ops(Resistive) 5000W 240VAC, 3x10⁴ops (incandescent lamp) 16A 277VAC, 6000ops(Electronic ballast) 3HP 277VAC, 3x10⁴ops(Motor) 1Z:40A 277VAC, 3x10⁴ops(Resistive)
Max. switching voltage	440VAC
Max. switching current	50A
Max. switching power	1A:12500VA /1C:10000VA
Mechanical endurance	1 X 10⁶ops
Electrical endurance	See “contact rating”

Notes:1) The data shown above are initial values.
2) Typical value: Sampling quantity for contact resistance shall not less than 20 pcs, take the average value from 5 continous measurements for each sample.

COIL DATA at 23˚C

Nominal Voltage VDC	Set / Reset Voltage VDC 1)	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

Notes:1) The data shown above are initial values.
2) The above set voltage, reset voltage are the test value for relay without load. Please use 1~1.5 times of rated voltage to drive the relay for your application.

COIL

Rated power	Single coil latching: Approx. 1.5W Double coils latching: Approx. 3.0W Type W-Single coil latching:Approx. 2.4W Type W-Double coils latching: Approx. 4.8W

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1500VAC 1min
Creepage distance (between input and output side)		1A, 1B: 8mm 1C: 6mm
Set time (at nomi. volt.)		15ms max.
Reset 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 ~ 85˚C
Termination	Coil termination	PCB
	Load termination	PCB&QC
Unit weight		Approx. 26 g
Construction		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
VDE	1 Form A 1 Form B	Resistive: 50A 277VAC

Notes: 1) All values unspecified are at room temperature.
2) Only some typical ratings are listed above. If more details are required, please contact us.

COIL DATA

23°C

Type W-Single coil latching

Nominal Voltage VDC	Set / Reset Voltage VDC max. 1)	Pulse Duration ms min.	Coil Resistance x (1±10%) Ω
6	≤4.8	≥50	15
9	≤7.2	≥50	33.8
12	≤9.6	≥50	60
24	≤19.2	≥50	240
48	≤38.4	≥50	960

Type W-Double coils latching

Nominal Voltage VDC	Set / Reset Voltage VDC max. 1)	Pulse Duration ms min.	Coil Resistance x (1±10%) Ω
6	≤4.8	≥50	7.5+7.5
9	≤7.2	≥50	16.9+16.9
12	≤9.6	≥50	30+30
24	≤19.2	≥50	120+120
48	≤38.4	≥50	480+480

Notes:1) The data shown above are initial values.
2)The above set voltage, reset voltage are the test value for relay without load. Please use 1~1.5 times of rated voltage to drive the relay for your application.
3) W-type for special code (W).

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 arrangement 1) **H:** 1 Form A **D:** 1 Form B (No UL approval)
Z: 1 Form C（Not applicable to HFE10-5）(No VDE approval)

Termination 2) **1:** Extended terminal **5:** Wide terminal
6: Extended bending terminal **7:** Double PCB terminal
Nil: PCB terminal

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

Contact material **T:** $AgSnO_2$

Coil type **L1:** Single coil latching **L2:** Double coils latching

Polarity **R:** Reverse polarity **Nil:** Standard polarity

Special code **(W):** Relay with approx. 1.5mm contact gap (Only for 1 form A, with VDE certification(250VAC 32A))

Special code 4) **XXX:** Customer special requirement (A81): switching without load

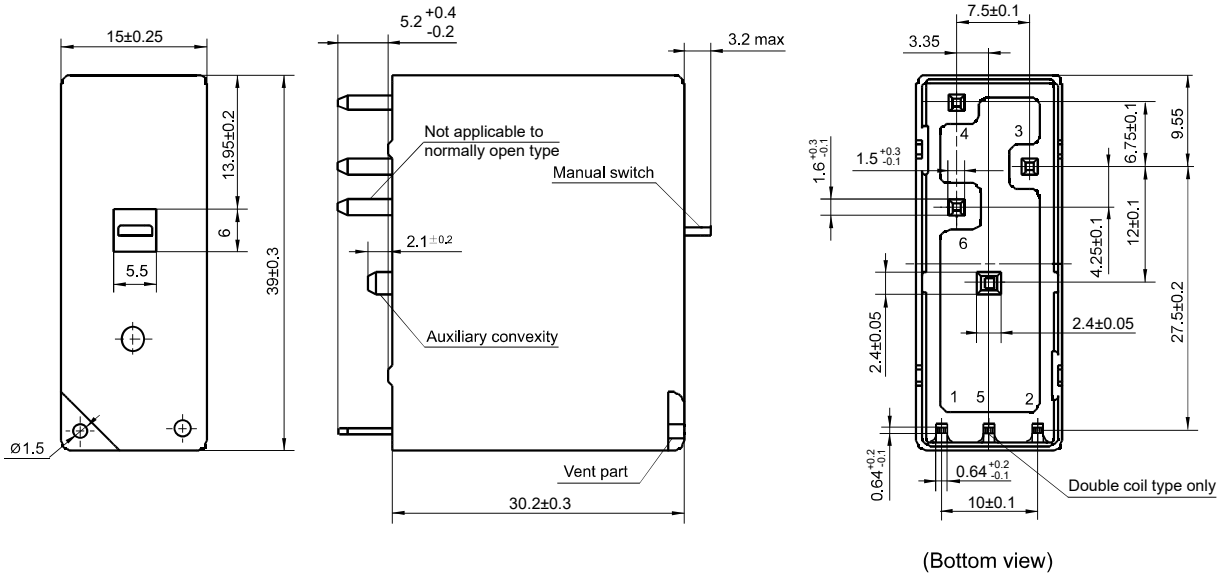
Notes: 1) H means that relay is on the "reset" status when delivery; D means that relay is on the "set" status when delivery.
2) The termination type 1, type 5, type 6, type7 are only for HFE10-1/□□□ H, HFE10-2/ □□□ H.
3) If water cleaning is required after the relay is assembled on PCB, please contact us for suggestion about suitable parts.
4) The customer special requirement express as special code after evaluating by Hongfa. e.g. (399) stands for Special polarity (See Wiring Diagram).

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

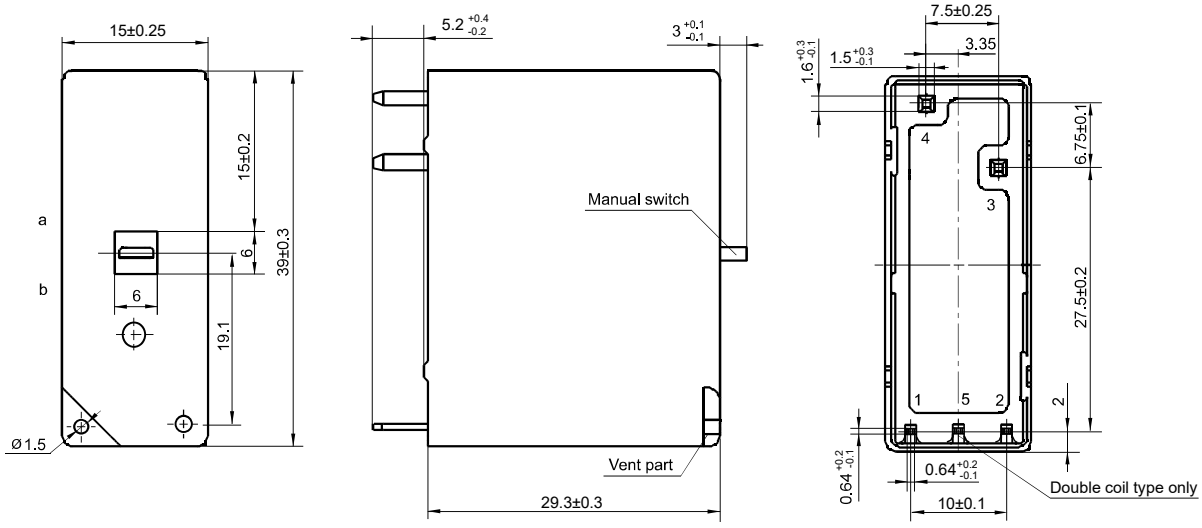
Outline Dimensions

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



(Bottom view)

HFE10-5/ □□□H



(Bottom view)

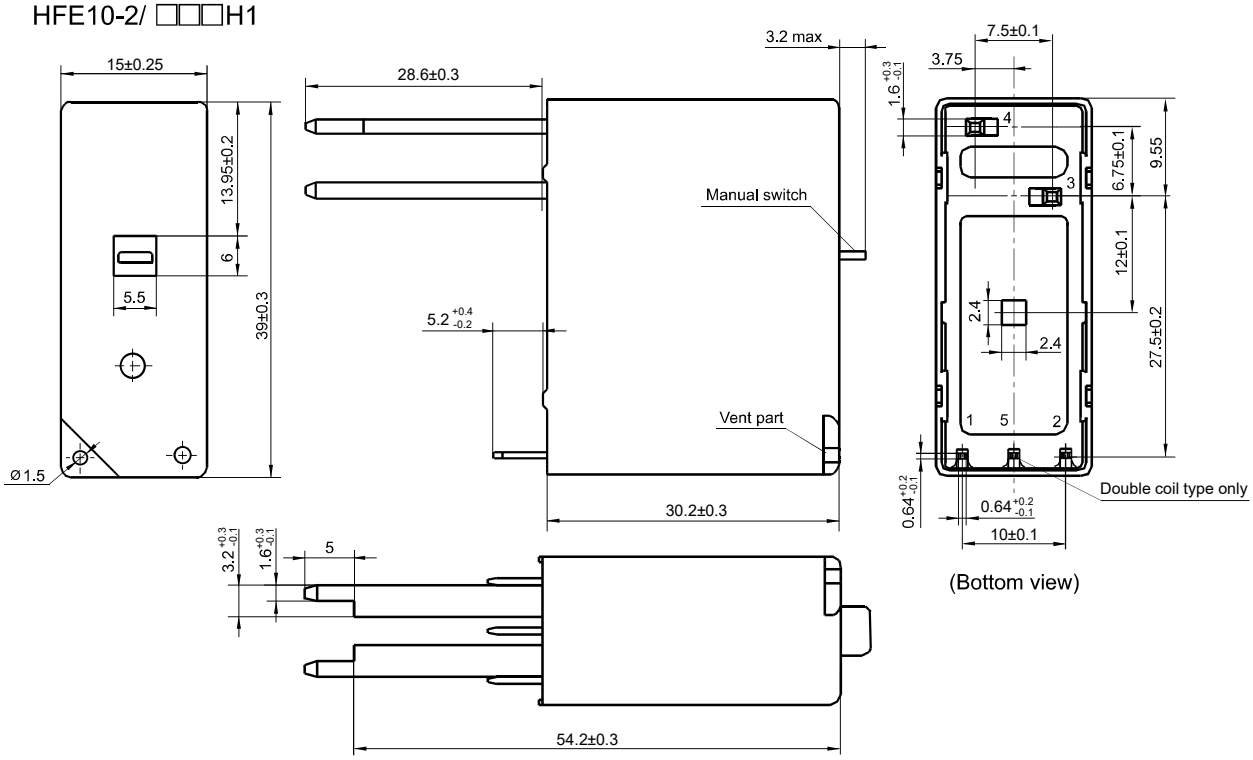
Remark: When the manual switch is pitched on point a, the contact is open; when the manual switch is pitched on point b, the contact is closed.

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

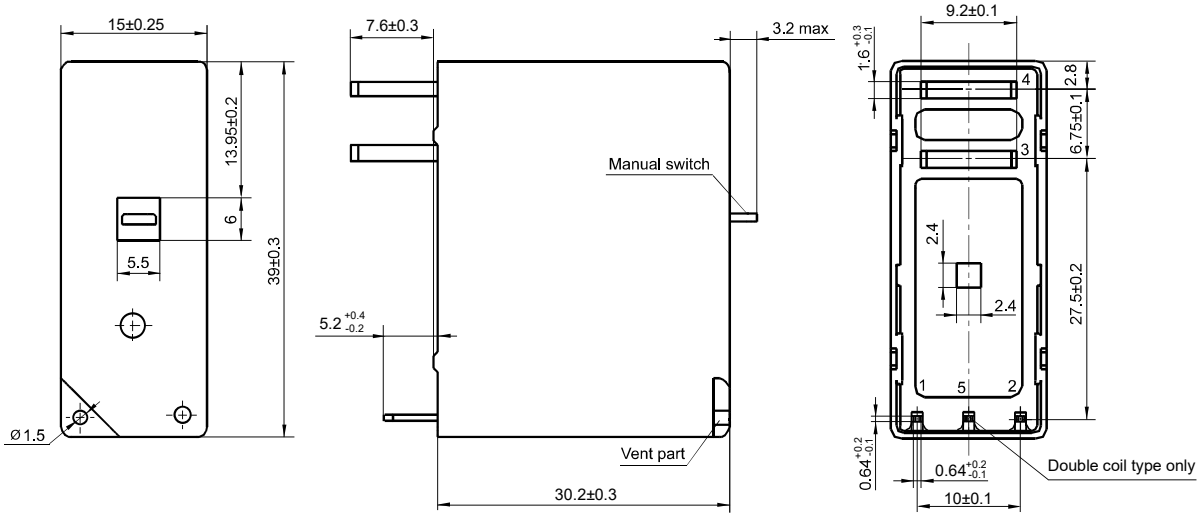
Outline Dimensions

HFE10-1/ □□□H1
HFE10-2/ □□□H1



(Bottom view)

HFE10-1/ □□□ H5
HFE10-2/ □□□ H5



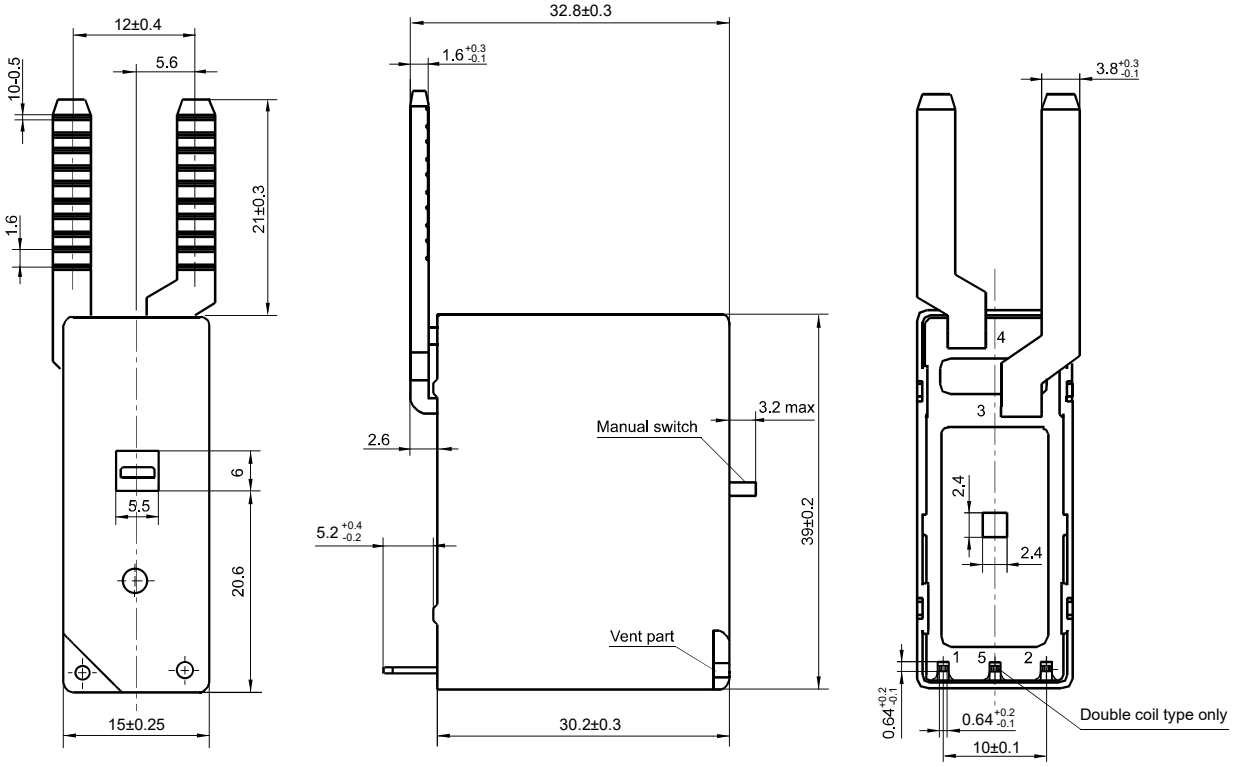
(Bottom view)

OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

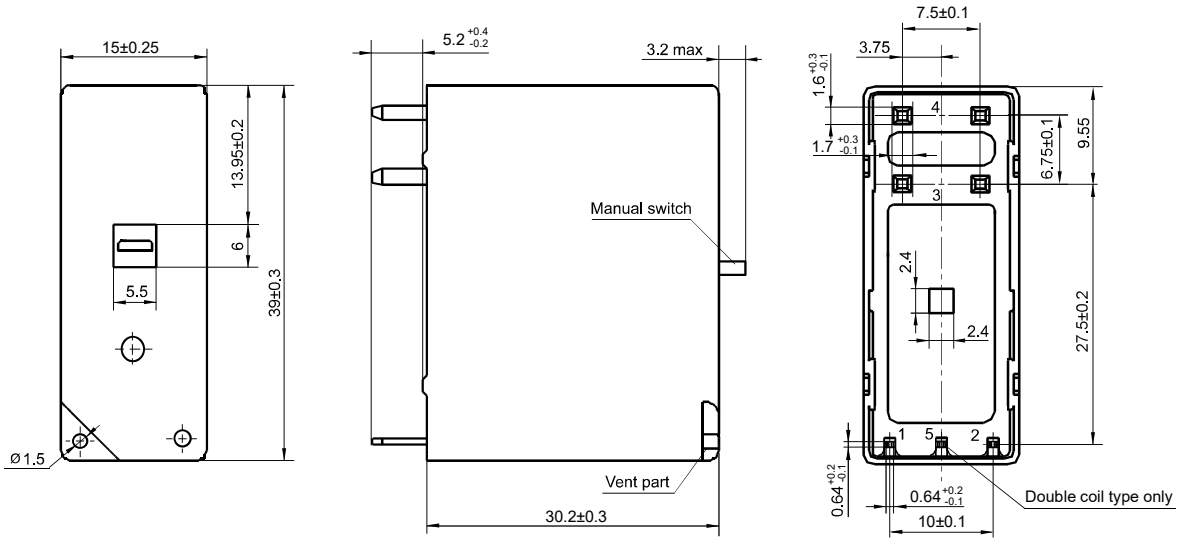
Outline Dimensions

HFE10-1/ □□□ H6
HFE10-2/ □□□ H6



(Bottom view)

HFE10-1/ □□□ H7
HFE10-2/ □□□ H7



(Bottom view)

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.

OUTLINE DIMENSIONS AND WIRING DIAGRAM

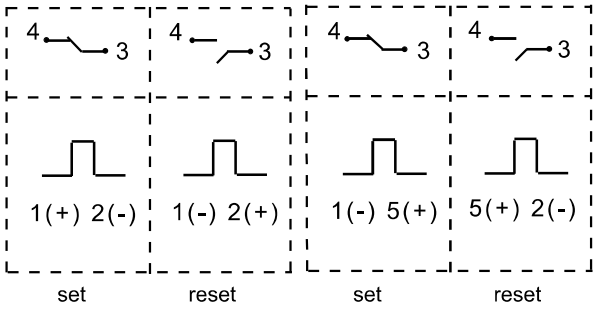
Unit: mm

Wiring Diagram

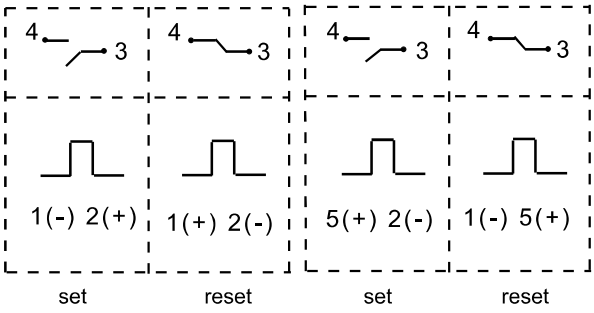
HFE10-1, HFE10-2, HFE10-3, HFE10-4

Standard polarity

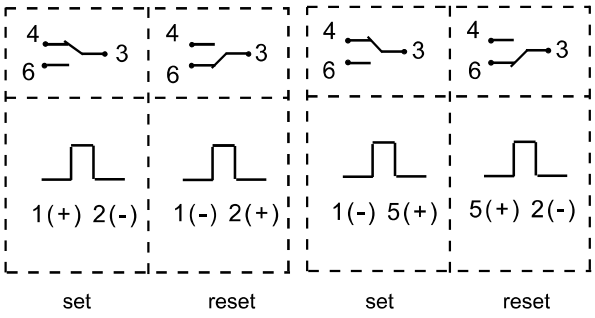
Single coil latching, 1 Form A | Double coils latching, 1 Form A



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

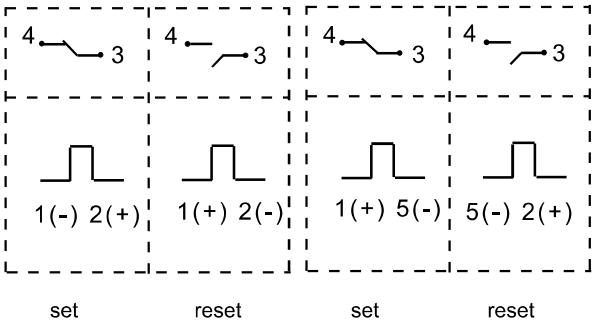


Single coil latching, 1 Form C | Double coils latching, 1 Form C

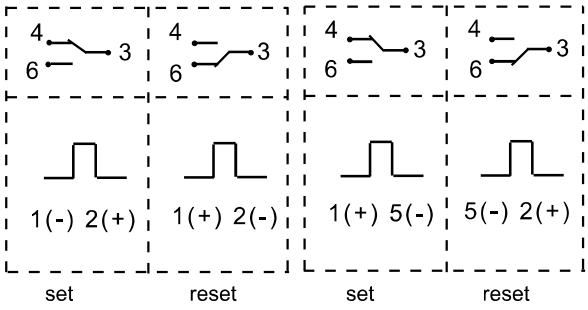


Reverse polarity

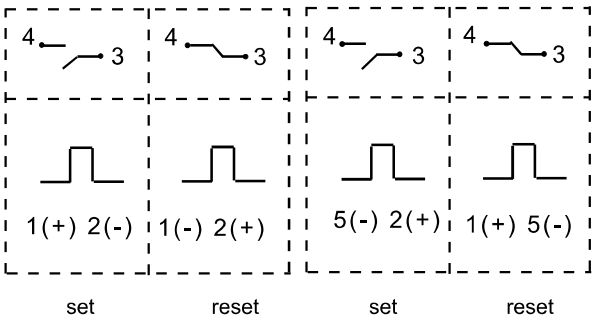
Single coil latching, 1 Form A | Double coils latching, 1 Form A



Single coil latching, 1 Form C | Double coils latching, 1 Form C



Single coil latching, 1 Form B | Double coils latching, 1 FormB



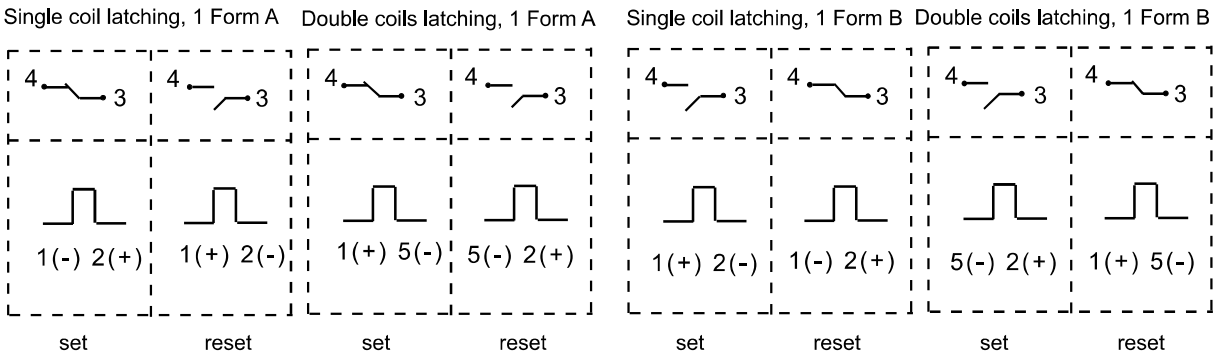
OUTLINE DIMENSIONS AND WIRING DIAGRAM

Unit: mm

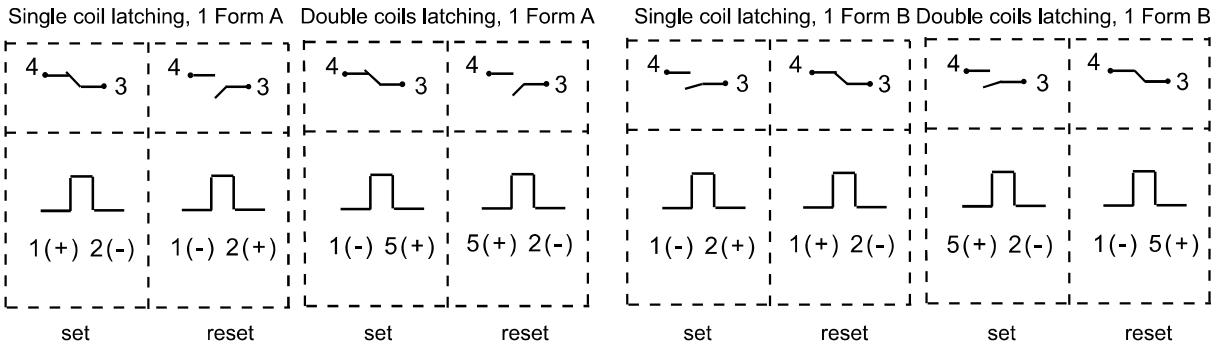
Wiring Diagram

HFE10-5

Standard polarity



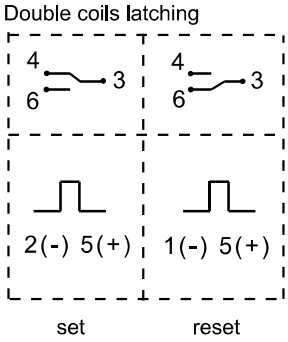
Reverse polarity



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

(399):Special polarity

Double coils latching



CAUTIONS

1.The recommended soldering temperature range is 250±10°C with the duration of 2～5s. It is not suggested to apply reflow soldering method, if it is required indeed, please contact with our technicians. It is general required that the wave soldering temperature at 250°C shall not more than 2s.
2. Latching relay is on the "reset" or "set" status when delivery, 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.
3. In order to maintain "set" or "reset" status, energized voltage applied across the 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.

Wave soldering temperature distribution chart