

HFA4

FORCE-GUIDED RELAY



File No.:E134517



File No.:40034342



Features

- Multi contact arrangements: 2NO+2NC, 3NO+1NC
- Forcibly guided contacts according to IEC 61810-3
- 6A switching capability
- Low input power: 360mW
- High insulation capability: 10kV surge voltage between input and output
- UL insulation system: Class F available

RoHS compliant

CONTACT DATA

| | |
|---|---|
| Contact arrangement | 2NO+2NC (2H2D type) 3NO+1NC (3H1D type) |
| Forcibly guided contacts Type (according to IEC61810-3) | Type A |
| Contact resistance ¹⁾ | 100mΩ max. (at 1A 6VDC) |
| Contact material | AgSnO ₂ |
| Contact rating (Res. load) | 6A 250VAC / 30VDC |
| Min.contact load ²⁾ | 5VDC 10mA |
| Max. switching voltage | 400VAC / 30VDC |
| Max. switching current | 6A |
| Max. switching power | 1500VA / 180W |
| Mechanical endurance | 1 x 10 ⁷ OPS |
| Electrical endurance ¹⁾ | 1 x 10 ⁵ OPS (1NO: 6A 30VDC, Resistive load, Room temp., 1s on 9s off) 1 x 10 ⁵ OPS (1NO: 6A 250VAC, Resistive load, Room temp., 1s on 9s off) |

- Notes:** 1) The data shown above are initial values.
2) Min. contact load is just a reference value in normal temperature, normal humidity, normal pressure environment and with relay pin up, which will vary depending on the power-on and off frequency, environmental conditions, expected lifespan, and installation direction. Thus, please have confirmation tests with actual load before use. And it is recommended to avoid using the relay when the temperature is below 0°C.
3) No loading test, no mechanical damage after the test.

COIL

| | |
|------------|---------------|
| Coil power | Approx. 360mW |
|------------|---------------|

COIL DATA at 23°C

| Nominal Voltage VDC | Pick-up Voltage VDC max. ¹⁾ | Drop-out Voltage VDC min. ¹⁾ | Max. Voltage VDC ²⁾ | Coil resistance Ω |
|---------------------|--|---|--------------------------------|-------------------|
| 6 | 4.5 | 0.6 | 7.8 | 100 x (1±10%) |
| 9 | 6.8 | 0.9 | 11.7 | 225 x (1±10%) |
| 12 | 9.0 | 1.2 | 15.6 | 400 x (1±10%) |
| 18 | 13.5 | 1.8 | 23.4 | 900 x (1±10%) |
| 24 | 18.0 | 2.4 | 31.2 | 1600 x (1±10%) |
| 36 | 27.0 | 3.6 | 46.8 | 3600 x (1±10%) |
| 48 | 36.0 | 4.8 | 62.4 | 6400 x (1±10%) |

- 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.

CHARACTERISTICS

| | | |
|-------------------------------------|--|---|
| Insulation resistance | 1000MΩ (at 500VDC) | |
| Dielectric strength | Between coil & contacts | 4000VAC 1 min |
| | Between open contacts | 1500VAC 1 min |
| | Between contact sets | 2500VAC 1 min (7-8/9-10) 4000VAC 1 min (Other) |
| Surge voltage | Between coil & contacts | 10kV (1.2 / 50μs) |
| | Between contact sets | 5kV (1.2 / 50μs) |
| Operate time (at rated voltage) | 20ms max. | |
| Release time (at rated voltage) | 20ms max. | |
| Temperature rise (at rated voltage) | ≤60K (Coil driving voltage: 1.1 times Un, Contact current -carrying: rated current, at 85°C) | |
| Vibration resistance | NO/NC:10Hz to 55Hz, 1.5mm DA NO:55Hz to 200Hz, 98m/s ² NC:55Hz to 200Hz, 49m/s ² | |
| Shock resistance | Functional | 100m/s ² |
| | Destructive | 980m/s ² |
| Creepage distance | Between coil & contacts | 8mm |
| | Between contacts | 5.5mm |
| Clearance distance | Between coil & contacts | 8mm |
| | Between contacts | 5.5mm |
| Humidity | 5% to 85% RH | |
| Ambient temperature | -40°C to 85°C | |
| Termination | PCB | |
| Unit weight | Approx. 20g | |
| Construction | Flux proofed | |

- Notes:** 1) The data shown above are initial values.
2) UL insulation system: Class F, Class B.

SAFETY APPROVAL RATINGS

| | |
|--------|---|
| UL/CUL | 6A 277VAC / 250VAC / 125VAC at 85°C 6A 30VDC at 85°C Pilot duty: 2A 240VAC at room temp. |
| VDE | 6A 250VAC at 85°C 6A 30VDC at 85°C AC-15: 1.5A 240VAC at room temp. AC-15: 2A 240VAC at room temp. |

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



HONGFA RELAY

ISO9001, IATF16949, ISO14001, ISO45001, IECQ QC 080000, ISO/IEC 27001 CERTIFIED

2024 Rev. 1.00

ORDERING INFORMATION

| | |
|----------------------------|---|
| Type | HFA4 / 24 -2H2D T G F (XXX) |
| Coil voltage | 6, 9, 12, 18, 24, 36, 48VDC |
| Contact arrangement | 2H2D: 2NO+2NC 3H1D: 3NO+1NC |
| Contact material | T: AgSnO ₂ |
| Contact plating | G: Gold plated |
| Insulation class | F: Class F Nil: Class B |
| Special code ⁴⁾ | XXX: Customer special requirement Nil: Standard |

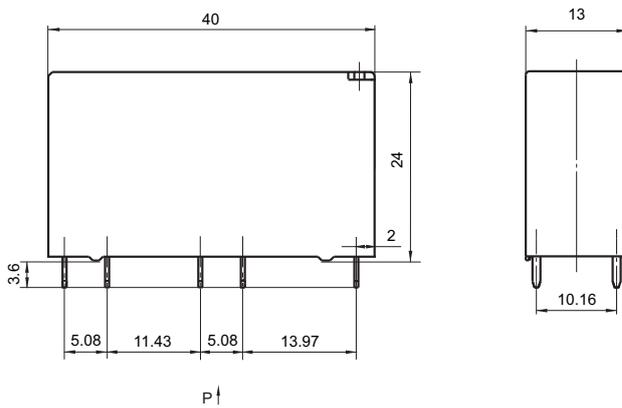
- Notes:**
- 1) Flux-proofed relays can not be used in the environment with pollutants like H₂S, SO₂, NO₂, dust, etc.
 - 2) This product is a soldering flux type products, when the product into the PCB plate welding does not allow for cleaning.
 - 3) Avoid contamination with organic solvents for the case using PC materials, otherwise chemical reactions may occur which may cause the shell to swell or crack.
 - 4) The customer special requirement express as special code after evaluating by Hongfa.(310)Means Construction meets the requirement of IEC61810-1 RT III.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

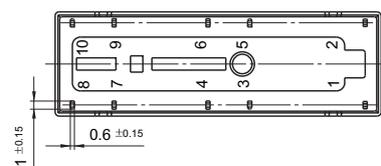
Unit: mm

HFA4/□□-2H2DTG(□□□)

Outline Dimensions

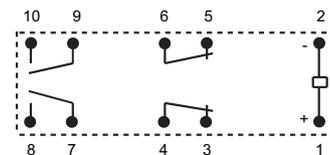


P direction



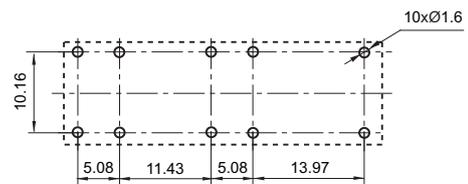
Wiring Diagram

(Bottom view)



PCB Layout

(Bottom view)

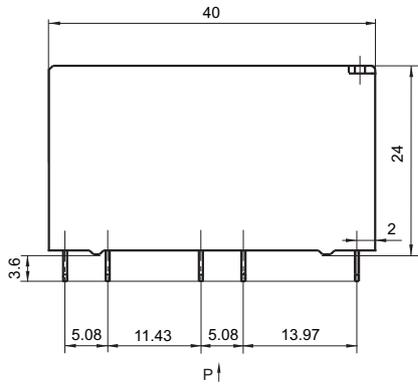


OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

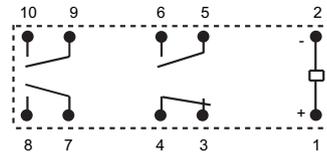
Unit: mm

HFA4/□□-3H1DTG (□□□)

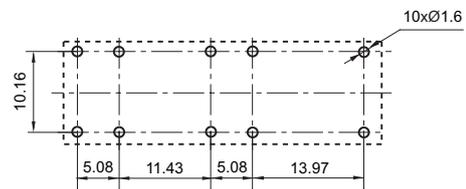
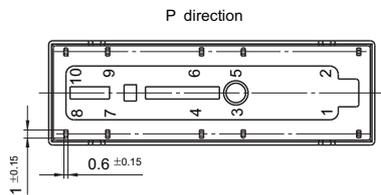
Outline Dimensions



Wiring Diagram
(Bottom view)



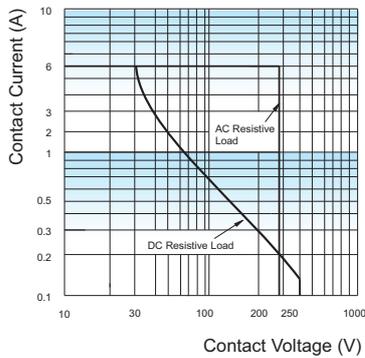
PCB Layout
(Bottom view)



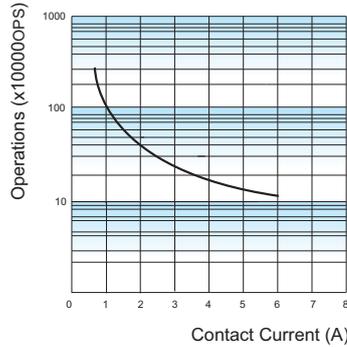
Remark: 1) In case of no tolerance shown in outline dimension: outline dimension $\leq 1\text{mm}$, tolerance should be $\pm 0.2\text{mm}$; outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, tolerance should be $\pm 0.3\text{mm}$; outline dimension $> 5\text{mm}$, tolerance should be $\pm 0.4\text{mm}$.
2) The tolerance without indicating for PCB layout is always $\pm 0.1\text{mm}$.

CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER

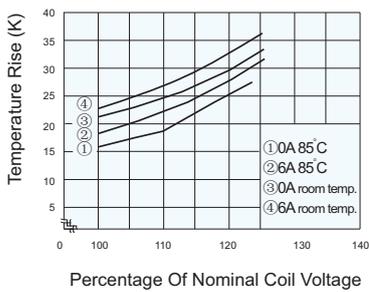


ENDURANCE CURVE

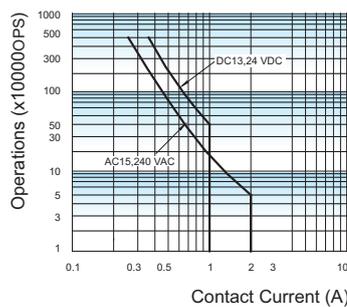


Test conditions:
1NO, Resistive load, 250VAC,
Room temp., 1s on 9s off.
The data shown above are typical values.

COIL TEMPERATURE RISE

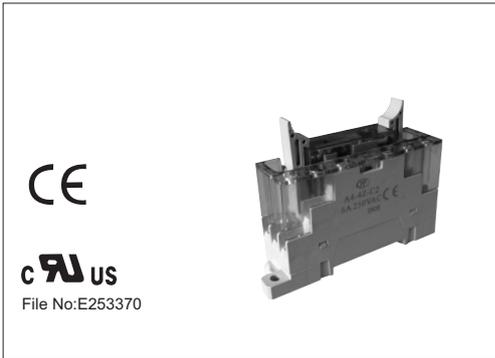


INDUCTIVE DURABILITY CURVE



Test conditions:
Connected to IEC61810-1 Appendix B Table
B.3 method test, at room temperature, 1NO,
1s on and 9s off.

Relay Sockets



Features

- The dielectric strength (between coil and contacts) can reach 2500VAC and the insulation resistance is 1000MΩ
- DIN rail or Screw mounting
- With diode to protect the coil and to Suppress reverse overvoltage
- With finger protection device
- Built-in retainer and extractor

CHARACTERISTICS

| Type | Nominal Voltage | Nominal Current | Applicable coil voltage of relay | Ambient Temperature | Torque* | Max.wire cross section mm ² | Wire Strip Length | Unit weight | Notes |
|---------------|-----------------|-----------------|----------------------------------|---------------------|----------|--|-------------------|-------------|----------|
| A4-4Z-C2-D24 | 250VAC | 6A | (6 to 24)VDC | -25 °C to 55°C | 1.0N · m | 2 x1.5 | 7mm | Approx. 49g | With LED |
| A4-4Z-C2-D60 | 250VAC | 6A | (36 to 60)VDC | -25 °C to 55°C | 1.0N · m | 2 x1.5 | 7mm | Approx. 49g | With LED |
| A4-4Z-C2-A110 | 250VAC | 6A | 48VDC | -25 °C to 55°C | 1.0N · m | 2 x1.5 | 7mm | Approx. 49g | With LED |

Notes: *Refers to wire-assembled torque.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND CIRCUIT DIAGRAM

Unit: mm

| Socket | Outline Dimensions | Wiring Diagram / PCB Layout | Circuit Diagram |
|---|--------------------|-----------------------------|-----------------|
| <p>Screw Terminal, DIN rail mounting, With finger protection device</p> | <p>(Top View)</p> | <p>(Top View)</p> | <p>With LED</p> |

- Notes: 1. Main outline dimension, outline dimension > 50mm, tolerance 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.
 2. DIN rail mounting: recommend to use standard rail 35×7.5×1mm, 35×15×1mm.

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.

© Xiamen Hongfa Electroacoustic Co., Ltd. All rights of Hongfa are reserved.