NEPEAN Power

# Relay with Forcibly Guided Contacts


AVAILABLE FROM NEPEAN ELECTRONICS

NEPEAN Power is a proven leader in the supply and manufacture of quality engineered solutions, products and technologies. Established in 1994, through the commitment of our dedicated team we have become a supplier of choice.

The NEPEAN Power relay with forcibly guided contacts is the most reliable way to ensure maximum safety for both person and machine. The N/O and N/C contacts of an elementary relay are connected to one another mechanically through forced guidance. This prevents N/O and N/C contacts from closing at the same time. In conjuction with a suitable circuit, failure to open can be reliably detected.

## Features

- Multi contact arrangements: 2NO+2NC, 3NO+1NC
- Forcibly guided contacts according to EN50205
- 6A switching capability
- Low input power: 360mW
- High insulation capability: 10kV surge voltage between input and output
- UL insulation system: Class F available
- Environmental friendly product (RoHS compliant)
- Outline dimensions: 40 x 13 x 24mm

## Coil Data

| Nominal Voltage VDC | Pick-up Voltage VDC max. | Drop-out Voltage VDC min. | Max. Voltage VDC 1) | Coil Resistance Ω |
|---|---|---|---|---|
| 24 | 18 | 2.4 | 31.2 | 1600 x (1±10%) |

**1)** Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time

## Contact Data

| | |
|---|---|
| **Contact Arrangement** | 2NO+2NC (2H2D type)<br>3NO+1NC (3H1D type) |
| **Forcibly Guided Contacts Type (according to EN50205)** | Type A |
| **Contact Resistance** | 100mΩ max. (at 1A 6VDC) |
| **Contact Material** | $AgSnO_2$ |
| **Contact Rating (Res. Load)** | 6A 250VAC/30VDC |
| **Max. Switching Voltage** | 400VAC/30VDC |
| **Max. Switching Current** | 6A |
| **Max. Switching Power** | 1500VA/180W |
| **Electrical Endurance** | 1 x $10^5$OPS |
| **Mechanical Endurance** | 1 x $10^7$OPS |

## Contact Data

| | | |
|---|---|---|
| **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)<br>400VAC 1 min (other) |
| **Surge Voltage** | Between Coil & Contacts | 10kV (1.2/50 |
| | Between Contact Sets | 5kV (1.2/50) |
| **Operate Time (at rated voltage)** | | 20ms max |
| **Release Time (at rated voltage)** | | 20ms max |
| **Vibration Resistance** | | NO/NC: 10Hz to 55 Hz 1.5mm DA<br>NO: 55Hz to 200Hz. 98m/s² |
| | | NC: 55Hz to 200Hz. 49m/s² |
| **Shock Resistance** | Functional | 100m/s² |
| | Destructive | 980m/s² |
| **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** | | TCB |
| **Unit Weight** | | Approx. 20g |
| **Construction** | | Flux proofed |
| **Failure Rate (B10d)** | | 3000000 |

## Safety Approval Ratings

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

**Notes:** All values unspecified are at room temp.
Only typical loads are listed above. Other load specifications can be available upon request

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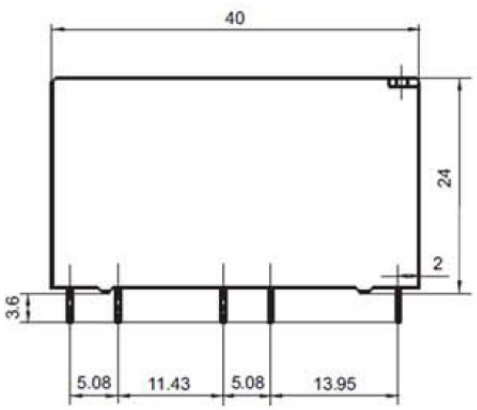
DVE
File No.:40034342

# Relay with Forcibly Guided Contacts

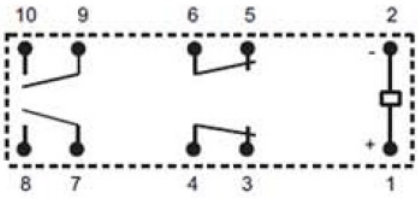
## Dimensions and Wiring

### Outline Dimensions

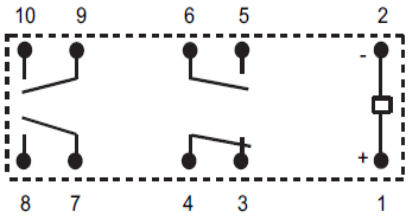




### Wiring Diagram (bottom view)



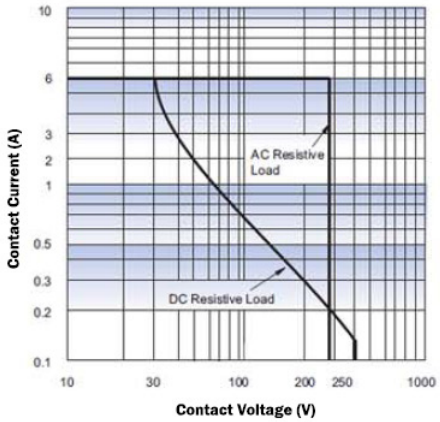

2NO+2NC



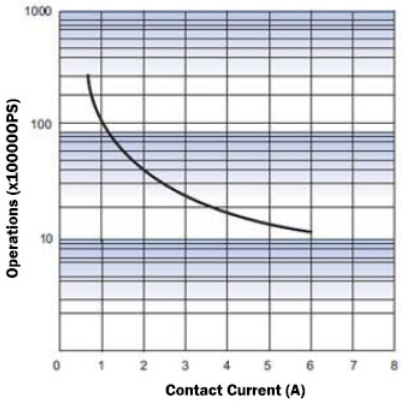

3NO+1NC

## Characteristics Curve

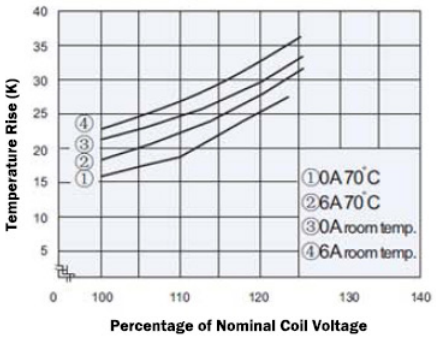
### Maximum Switching Power




### Endurance Curve



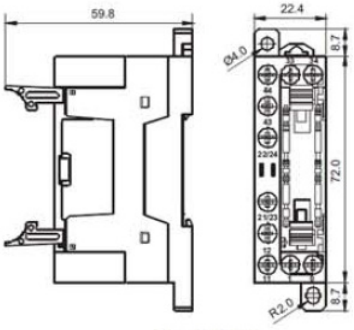

### Coil Temperature Rise




## Relay Sockets

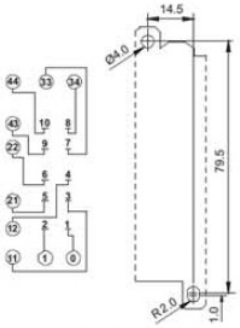
### Socket

### Outline Dimensions




(Top View)

### Wiring Diagram /PCB Layout




(Top View)

- The dielectric strength (between coil and contacts) can reach 4000VAC and the insulation resistance is 1000MΩ
- DIN rail or screw mounting
- With diode to protect the coil and to eliminate the converse current
- With finger protection device
- Built-in retainer and extractor

## Ordering Information

| Part | Part Number | Description |
|---|---|---|
| Relay | HFA4/24-2H2DTGF | Relay with forcibly guided contacts (2NO+2NC) |
| | HFA4/24-3H1DTGF | Relay with forcibly guided contacts (3NO+1NC) |
| Base | A4-4Z-C2 | Socket for relay with forcibly guided contacts |