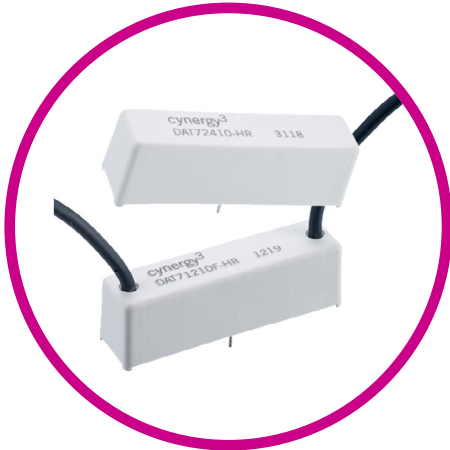


D-HR SERIES

HIGH INSULATION RESISTANCE, HIGH VOLTAGE RELAYS, 5KV, 7.5KV, 10KV & 15KV



Very high isolation voltages, up to 15kV, are achieved through the use of high vacuum reed switches. Rhodium or tungsten contacts make these relays suitable for high reliability applications, such as cardiac defibrillators, test equipment and high voltage power supplies.

The rhodium contact relays have low contact resistance, whilst the tungsten contact relays can switch higher voltages.

Features

- 5kV, 7.5kV, 10kV or 15kV isolation
- Low contact resistance
- 1×10^{14} Ohms minimum insulation resistance
- PCB or flying leads connections
- Ideal for sensitive test and measurement circuits which require low leakage current losses

SPECIFICATIONS

| Contact | Unit Condition | 5kV SPNO | | 5kV SPNC | | 7.5kV SPNO | | 7.5kV SPNC | | 10kV SPNO | | 10kV SPNC | | 15kV SPNO* |
|-----------------------------|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Contact Material | | Rhodium | Tungsten | Rhodium | Tungsten | Rhodium | Tungsten | Rhodium | Tungsten | Rhodium | Tungsten | Rhodium | Tungsten | Tungsten |
| Isolation across contacts | kV DC or AC peak | 5 | 5 | 5 | 5 | 7.5 | 7.5 | 7.5 | 7.5 | 10 | 10 | 10 | 10 | 15 |
| Switching Power Max. | W | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Switching Voltage Max. | V DC or AC peak | 1000 | 3500 | 1000 | 3500 | 1000 | 5000 | 1000 | 5000 | 1000 | 7000 | 1000 | 7000 | 10000 |
| Switching Current Max. | A DC or AC peak | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 2 |
| Carry Current Max | A DC or AC peak | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 3 | 2 |
| Capacitance across contacts | pF coil to screen grounded | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Lifetime Operations | dry switching | 10^9 | 10^9 | 10^9 | 10^9 | 10^9 | 10^9 | 10^9 | 10^9 | 10^9 | 10^9 | 10^9 | 10^9 | 10^9 |
| | 50W switching | 10^6 | 10^6 | 10^6 | 10^6 | 10^6 | 10^6 | 10^6 | 10^6 | 10^6 | 10^6 | 10^6 | 10^6 | 10^6 |
| Contact Resistance | mΩ max (typical) | 50(15) | 250(100) | 50(15) | 250(100) | 50(15) | 250(100) | 50(15) | 250(100) | 50(15) | 250(100) | 50(15) | 250(100) | 250(100) |
| Insulation Resistance | Ω min | 1×10^{14} | 1×10^{14} | 1×10^{14} | 1×10^{14} | 1×10^{14} | 1×10^{14} | 1×10^{14} | 1×10^{14} | 1×10^{14} | 1×10^{14} | 1×10^{14} | 1×10^{14} | 1×10^{14} |

* Form B (n/c) is not available on 15kV models.

| Contact | Unit Condition | 5kV SPNO | 5kV SPNC | 7.5kV SPNO | 7.5kV SPNC | 10kV SPNO | 10kV SPNC | 15kV SPNO* |
|----------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Coil | | 5V 12V 24V | 5V 12V 24V | 5V 12V 24V | 5V 12V 24V | 5V 12V 24V | 5V 12V 24V | 5V 12V 24V |
| Must Operate Voltage | V DC | 3.7 9 20 | 3.7 9 20 | 3.7 9 20 | 3.7 9 20 | 3.7 9 20 | 3.7 9 20 | 3.7 9 20 |
| Must Release Voltage | V DC | 0.5 1.25 4 | 0.5 1.25 4 | 0.5 1.25 4 | 0.5 1.25 4 | 0.5 1.25 4 | 0.5 1.25 4 | 0.5 1.25 4 |
| Operate Time | ms diode fitted | 3.0 3.0 3.0 | 2.0 2.0 2.0 | 3.0 3.0 3.0 | 2.0 2.0 2.0 | 3.0 3.0 3.0 | 2.0 2.0 2.0 | 3.0 3.0 3.0 |
| Release Time | ms diode fitted | 2.0 2.0 2.0 | 3.0 3.0 3.0 | 2.0 2.0 2.0 | 3.0 3.0 3.0 | 2.0 2.0 2.0 | 3.0 3.0 3.0 | 2.0 2.0 2.0 |
| Resistance | Ω | 28 150 780 | 38 240 925 | 28 150 780 | 38 240 925 | 28 150 780 | 38 240 925 | 16 95 350 |

Note. The operate / release voltage and coil resistance will change at a rate of 0.4% per degree C. Values are stated at room temperature (20 degrees C)

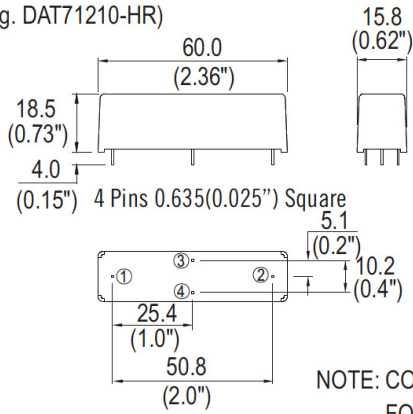
| Relay | | |
|--|------------------|--------------------|
| Isolation contact/coil | kV DC or AC peak | 17 |
| Insulation resistance contact to all terminals | Ω min | 1x10 ¹⁴ |
| Environmental Operating Temp range | °C | -20 to +70 |

DIMENSIONS

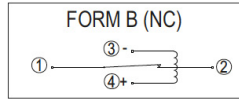
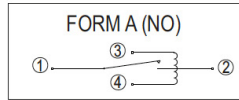
All dimensions are in millimeters.

STANDARD

(e.g. DAT71210-HR)



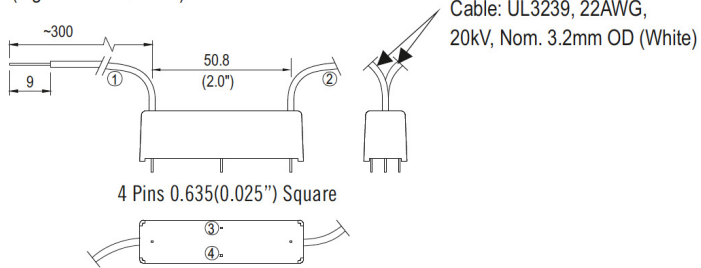
CIRCUIT DIAGRAMS (ALL VARIANTS)



NOTE: COIL POLARITY IS IMPORTANT FOR FORM B VARIANT ONLY.

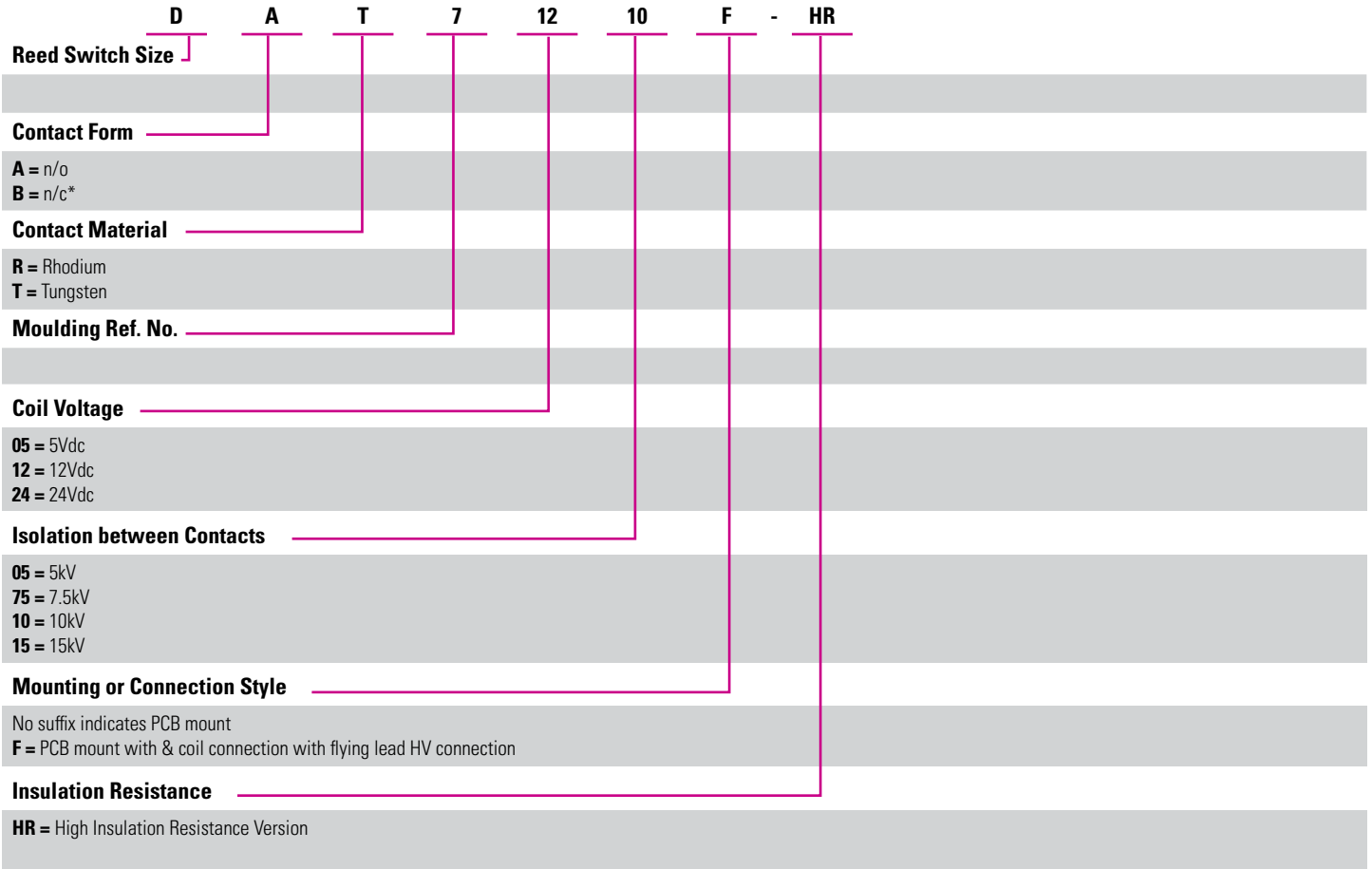
FLYING LEAD

(e.g. DAT71210F-HR)



NOTE: PINS WHICH ARE NOT NUMBERED HAVE NO ELECTRICAL CONNECTION.

Please refer to this document for circuit design notes:-
<https://www.cynergy3.com/blog/reed-relay-application-notes>



* Form B (n/c) is not available on 15kV models.

Please refer to this document for circuit design notes:-
<https://www.cynergy3.com/blog/reed-relay-application-notes>

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