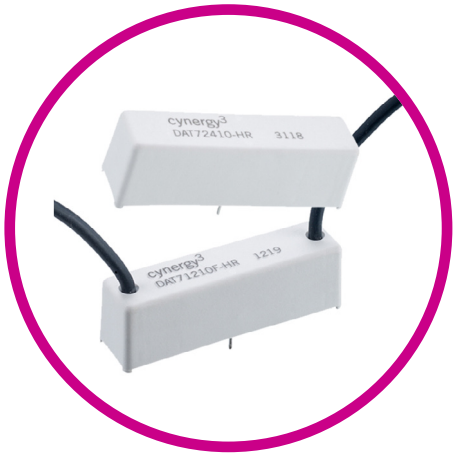
| D-HR SERIES

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
- Insulation resistance $1x10^{12}$ Ohms minimum, $1x10^{14}$ Ohms typical
- 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)

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	Unit Condition	Value
Isolation contact/coil	kV DC or AC peak	17
Insulation resistance min. (typical)	Ω, Between all isolated pins at 1000V, 20°C ±5°C, 45% RH ±10%	10^{12} (10^{14})
Environmental Operating Temperature	°C	-20 to +70

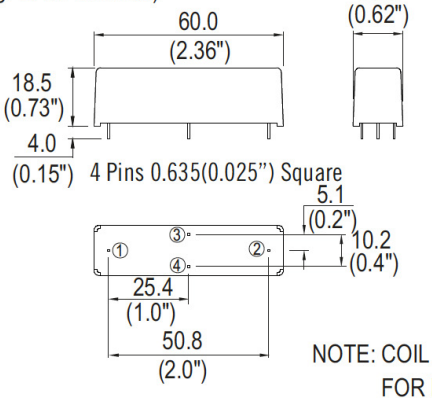
* Form B (n/c) is not available on 15kV models.

DIMENSIONS

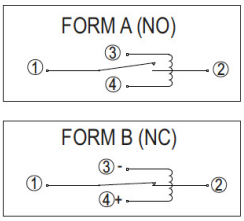
All dimensions are in millimeters.
Tolerances acc. to ISO 2768 class m

STANDARD

(e.g. DAT71210-HR)



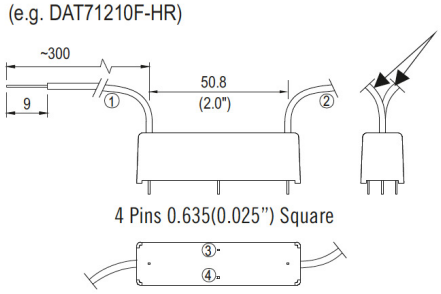
CIRCUIT DIAGRAMS
(ALL VARIANTS)



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

ORDERING OPTIONS

Example : DAT71210F-HR

D	A	T	7	12	10	F	-	HR

Reed Switch Size

Contact Form

A = n/o
B = n/c*

Contact Material

R = Rhodium
T = Tungsten

Moulding Ref. No.

Coil Voltage

05 = 5Vdc
12 = 12Vdc
24 = 24Vdc

Isolation between Contacts

05 = 5kV
75 = 7.5kV
10 = 10kV
15 = 15kV

Mounting or Connection Style

No suffix indicates PCB mount
F = PCB mount with & coil connection with flying lead HV connection

Insulation Resistance

HR = High Insulation Resistance Version

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

Please refer to this document for circuit design notes:-
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