Sensata Technologies

D-HR Series

High Insulation Resistance, High Voltage Relays -5kV, 7.5kV,10kV & 15kV

- *5kV, 7.5kV,10kV or 15kV isolation*
- *Low contact resistance*
- *1x10^{14} Ohms minimum insulation resistance*
- *PCB or flying leads connections*
- *Ideal for sensitive test and measurement circuits which require low leakage current losses*

Contact Specification	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	Ωmin		$1x10^{14}$	$1x10^{14}$	$1x10^{14}$	$1x10^{14}$	$1x10^{14}$	$1x10^{14}$	$1x10^{14}$	$1x10^{14}$	$1x10^{14}$	$1x10^{14}$	$1x10^{14}$	$1x10^{14}$	$1x10^{14}$

Coil Specification			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 Specification			
Isolation contact/coil	kV	DC or AC peak	17
Insulation resistance contact to all terminals	Ωmin		$1x10^{14}$
Environmental			
Operating Temp range	ºC		-20 to +70

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.

Part Numbering System

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

Insulation Resistance
-HR = High Insulation Resistance Version

Mounting or Connection Style
No suffix indicates PCB mount
F= PCB mount with & coil connection with flying lead HV connection

[Please refer to this document for circuit design notes:-
http://www.cynergy3.com/blog/application-notes-reed-relays-0](http://www.cynergy3.com/blog/application-notes-reed-relays-0)

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

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ISO9001 CERTIFIED

cynergy3-d-hr-v2

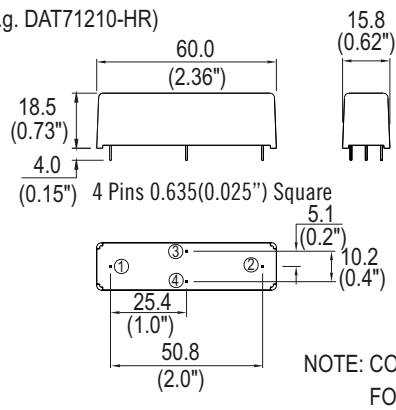
Made in the UK

www.cynergy3.com

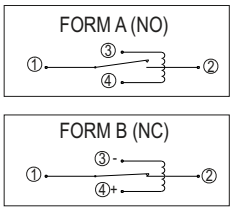
MECHANICAL

STANDARD

(e.g. DAT71210-HR)



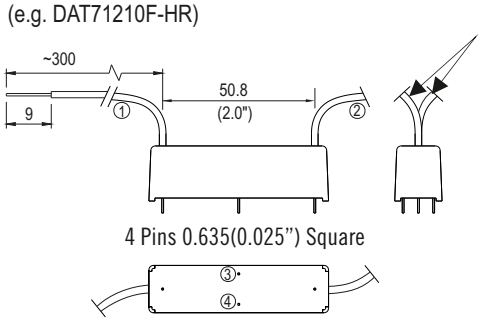
CIRCUIT DIAGRAMS
(ALL VARIANTS)



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:-
http://www.cynergy3.com/blog/application-notes-reed-relays-0