

## | 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
- $1 \times 10^{14}$  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*
		Rhodium	Tungsten	Rhodium	Tungsten	Rhodium	Tungsten	Rhodium	Tungsten	Rhodium	Tungsten	Rhodium	Tungsten	Tungsten
<b>Isolation across contacts</b>	kV DC or AC peak	5	5	5	5	7.5	7.5	7.5	7.5	10	10	10	10	15
<b>Switching Power Max.</b>	W	50	50	50	50	50	50	50	50	50	50	50	50	50
<b>Switching Voltage Max.</b>	V DC or AC peak	1000	3500	1000	3500	1000	5000	1000	5000	1000	7000	1000	7000	10000
<b>Switching Current Max.</b>	A DC or AC peak	3	2	3	2	3	2	3	2	3	2	3	2	2
<b>Carry Current Max</b>	A DC or AC peak	4	3	4	3	4	3	4	3	4	3	4	3	2
<b>Capacitance across contacts</b>	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
<b>Lifetime Operations</b>	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	$10^6$	$10^6$	$10^6$	$10^6$	$10^6$	$10^6$	$10^6$	$10^6$	$10^6$	$10^6$	$10^6$	$10^6$	$10^6$
<b>Contact Resistance</b>	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)
<b>Insulation Resistance</b>	Ω min	$1 \times 10^{14}$	$1 \times 10^{14}$	$1 \times 10^{14}$	$1 \times 10^{14}$	$1 \times 10^{14}$	$1 \times 10^{14}$	$1 \times 10^{14}$	$1 \times 10^{14}$	$1 \times 10^{14}$	$1 \times 10^{14}$	$1 \times 10^{14}$	$1 \times 10^{14}$	$1 \times 10^{14}$

\* 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 <sup>14</sup>
Environmental Operating Temp range	°C	-20 to +70

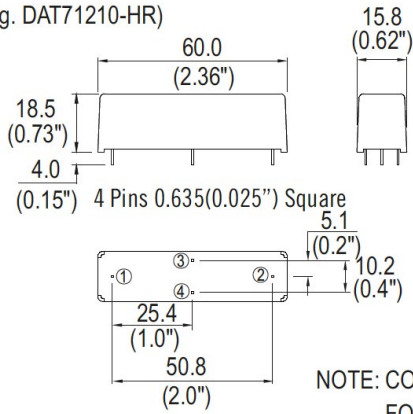


# DIMENSIONS

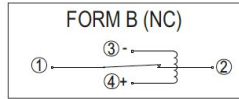
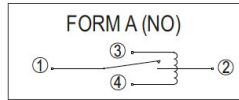
All dimensions are in millimeters.

## STANDARD

(e.g. DAT71210-HR)



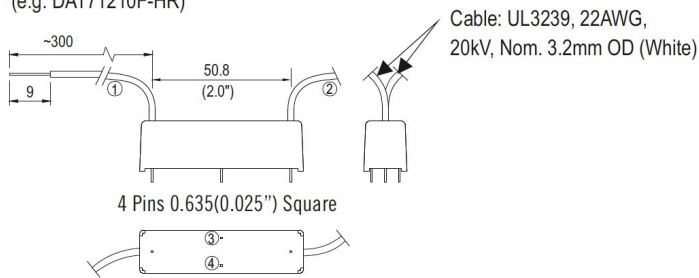
## CIRCUIT DIAGRAMS (ALL VARIANTS)



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

## FLYING LEAD

(e.g. DAT71210F-HR)



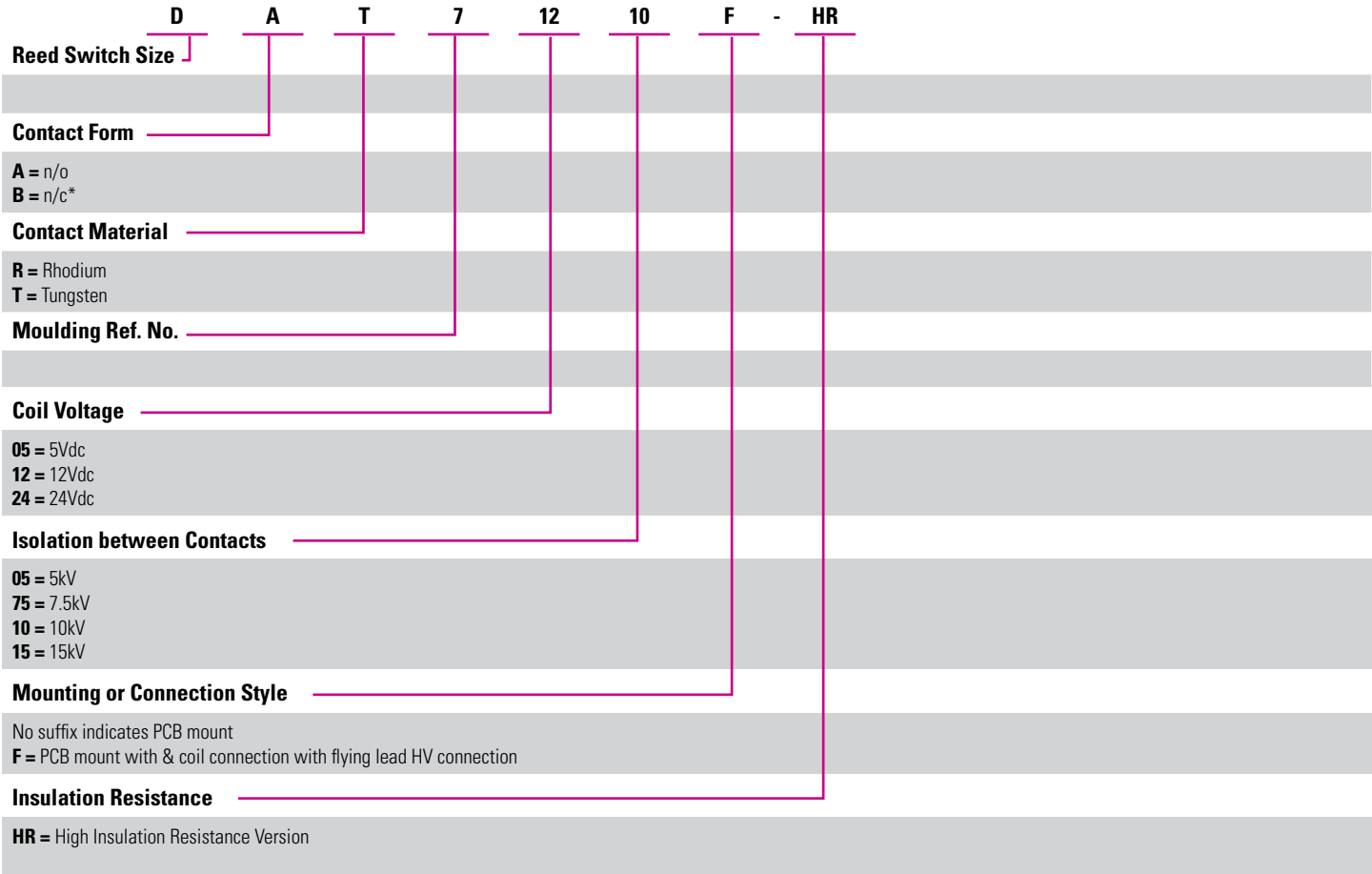
NOTE: PINS WHICH ARE NOT NUMBERED HAVE NO ELECTRICAL CONNECTION.

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



# ORDERING OPTIONS

Example : DAT71210F-HR



\* 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>

Distributor



**amSTECHNOLOGIES**  
where technologies meet solutions

info@amstechnologies.com  
www.amstechnologies-webshop.com

**Contact us**

Made in the UK

Sensata Technologies, Inc. ("Sensata") data sheets are solely intended to assist designers ("Buyers") who are developing systems that incorporate Sensata products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products. Sensata data sheets have been created using standard laboratory conditions and engineering practices. Sensata has not conducted any testing other than that specifically described in the published documentation for a particular data sheet. Sensata may make corrections, enhancements, improvements and other changes to its data sheets or components without notice.

Buyers are authorized to use Sensata data sheets with the Sensata component(s) identified in each particular data sheet. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER SENSATA INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN. SENSATA DATA SHEETS ARE PROVIDED "AS IS". SENSATA MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE DATA SHEETS OR USE OF THE DATA SHEETS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. SENSATA DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO SENSATA DATA SHEETS OR USE THEREOF.

All products are sold subject to Sensata's terms and conditions of sale supplied at [www.sensata.com](http://www.sensata.com) SENSATA ASSUMES NO LIABILITY FOR APPLICATIONS ASSISTANCE OR THE DESIGN OF BUYERS' PRODUCTS. BUYER ACKNOWLEDGES AND AGREES THAT IT IS SOLELY RESPONSIBLE FOR COMPLIANCE WITH ALL LEGAL, REGULATORY AND SAFETY-RELATED REQUIREMENTS CONCERNING ITS PRODUCTS, AND ANY USE OF SENSATA COMPONENTS IN ITS APPLICATIONS, NOTWITHSTANDING ANY APPLICATIONS-RELATED INFORMATION OR SUPPORT THAT MAY BE PROVIDED BY SENSATA.

Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA.