

## DB(UL) Series

### UL Approved\* Normally Closed, High Voltage Relays - 10kV, 7.5kV & 5kV



- Choice of 10kV, 7.5kV or 5kV isolation
- Low contact resistance
- PCB or panel mount
- HV connections via flying leads, solder turret (wire wrap), or 1/4" spade terminals
- Excellent AC characteristics



Recently approved by UL, very high isolation voltages (up to 10kV) are achieved through the use of high vacuum reed switches with either rhodium or tungsten contacts and make these relays suitable for high reliability applications, such as cardiac defibrillators, test equipment and high voltage power supplies.

A choice of 5kV, 7.5kV and 10kV isolation voltages is available

The rhodium contact relays have low contact resistance, while the tungsten contact relays can switch higher voltages, up to 7000V DC/AC peak.

PCB or panel mount, via nylon studs, versions are available.

Connection options, for the HV, include PCB, solder turret(wire wrap), flying lead and 0.25" spade terminals.

Cynergy3 Components Ltd.  
7 Cobham Road  
Ferndown Industrial Estate  
Wimborne, Dorset BH21 7PE, UK  
Telephone: +44 (0)1202 897969  
Email: c3w\_sales@sensata.com

**ISO9001 CERTIFIED**

cynergy3-db-ul-v3

Contact Specification	Unit Condition	10kV		7.5kV		5kV	
Contact Form		N/C (normally closed)					
Contact Material		Rhodium	Tungsten	Rhodium	Tungsten	Rhodium	Tungsten
Isolation across contacts	kV DC or AC peak	10	10	7.5	7.5	5	5
Switching Power Max.	W	50	50	50	50	50	50
Switching Voltage Max.	V DC or AC peak	1000	7000	1000	5000	1000	3500
Switching Current Max.	A DC or AC peak	3	2	3	2	3	2
Carry Current Max.	A DC or AC peak	4	3	4	3	4	3
Capacitance across contacts	pF coil to screen grounded	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Lifetime operations	dry switching	10 <sup>9</sup>	10 <sup>9</sup>	10 <sup>9</sup>	10 <sup>9</sup>	10 <sup>9</sup>	10 <sup>9</sup>
	50W switching	10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>
Contact Resistance	mΩ max (typical)	50 (15)	250(100)	50 (15)	250(100)	50 (15)	250(100)
Insulation Resistance	Ωmin (typical)	10 <sup>10</sup>	(10 <sup>13</sup> )	10 <sup>10</sup>	(10 <sup>13</sup> )	10 <sup>10</sup>	(10 <sup>13</sup> )

Coil Specification		5V	12V	24V
Must Operate Voltage	V DC	3.7	9	20
Must Release Voltage	V DC	0.5	1.25	4
Operate Time	ms diode fitted	2.0	2.0	2.0
Release Time	ms diode fitted	3.0	3.0	3.0
Resistance	Ω	38	240	925

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 (typical)	10 <sup>10</sup> (10 <sup>13</sup> )
Environmental		
Operating Temp range	°C	-20 to +70

#### \*Consult factory for UL ratings

These products have been UL approved for use as per pollution degree 2 classification.

If you require further information as to how this may affect product usage, please contact sales@cynergy3.com.

#### Part Numbering System

Reed Switch Size

Contact Form B =n/c

Contact Material

T=Tungsten

R= Rhodium

Moulding Ref. No.

Coil Voltage

05=5Vdc, 12=12Vdc,

24=24Vdc

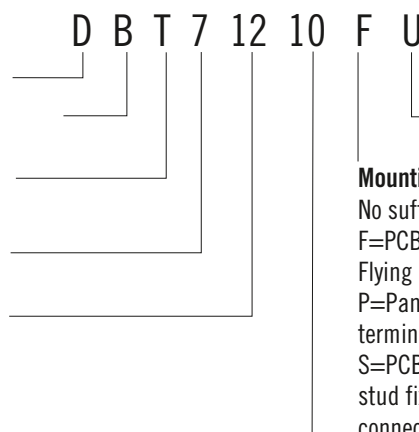
Isolation between

Contacts

10=10kV

75=7.5kV

05=5kV



"U" indicates UL approved

#### Mounting or Connection Style

No suffix indicates PCB mount

F=PCB mount & coil connection with

Flying lead HV connection

P=Panel mount with wire wrap terminals

S=PCB mount & coil connection with

stud fixing & 1/4" spade HV

connection

T=PCB mount & coil connection with

stud fixing & wire wrap HV

connection



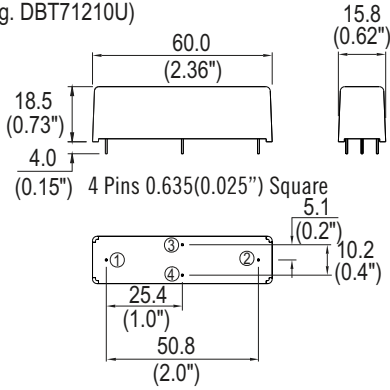
Made in the UK

www.cynergy3.com

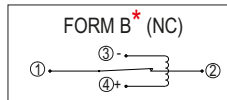
## MECHANICAL

### STANDARD

(e.g. DBT71210U)



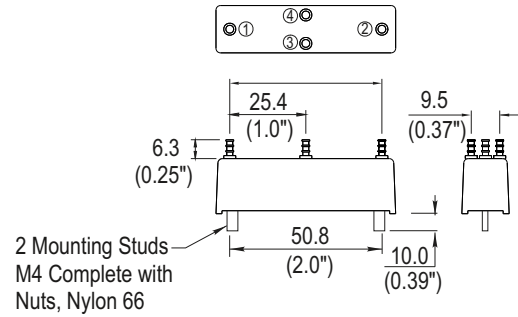
### CIRCUIT DIAGRAMS (ALL VARIANTS)



NOTE: COIL POLARITY IS IMPORTANT

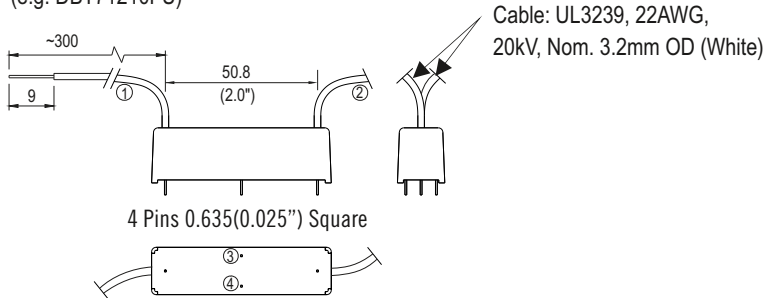
### PANEL MOUNT

(e.g. DBT71210PU)



### FLYING LEAD

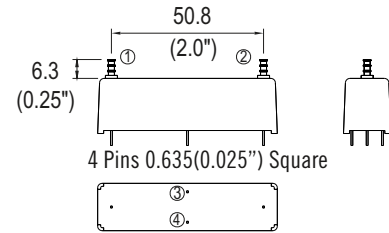
(e.g. DBT71210FU)



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

### TURRET (Wire Wrap)

(e.g. DBT71210TU)



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

### SPADE TYPE

(e.g. DBT71210SU)

'S' Suffix denotes the 0.250" 'Push On' blade connectors, M4 fixing bolts and Epoxy potting.

