



## BATTERY DISCONNECT RELAY 12V

### APPLICATIONS

- 12V Battery Systems
- Dual/Multi Battery
- Smart Power Management
- Heating/Cooling
- Engine Start/Stop
- Industrial Heat Pumps

TE Connectivity's Battery Disconnect Relay 12V (BDR 12V) is a bistable, high-performance automotive relay that can be used to switch off high currents of up to 200 amps (continuous) at 85° C.

The BDR 12V is a latching relay solution. Traditional relays require permanent coil activation while the car is being driven, resulting in unnecessary power consumption. With a latching relay, the voltage pulse that activates the switch lasts only a few milliseconds, causing the contact armature to close and latch. This results in an enormous energy savings potential.

### PRODUCT BENEFITS

- High-performance, high-current switching solution in a compact & lightweight package
- Low power consumption: bistable, latching mechanism requires only 100 milliseconds of energy to activate
- Very high shock/vibration resistance – up to 150G – enables use even in the harshest environments
- Unique H-shaped rotating armature manages higher currents in a smaller size
- Well suited for battery management systems
- Simplifies seasonal & maintenance shut-down periods
- Fully automation-ready

### TARGET MARKETS

- Automotive passenger car & electric vehicle OEMs
- Commercial/industrial transportation OEMs
- Harness makers & component aggregate manufacturers
- Battery system & subsystem manufacturers

### CONTACT DATA

Contact arrangement	1 form A, 1 NO
Rated voltage	12VDC
Maximum switching voltage	16VDC
Limiting continuous current <sup>1)</sup> 23°C 85°C 110°C	Load cable 50mm <sup>2</sup> 250A 200A 180A
Limiting breaking current, resistive load, cable 50mm <sup>2</sup> , 23°C	2000A, 150ms, 14VDC, 4 ops.
Contact material	Silver alloy
Min. contact load <sup>2)</sup>	1A 5VDC
Initial voltage drop NO contacts at 100A, after 30s	typ. 30 mV max. 50 mV
Operate time Release time	<30ms at 12VDC (coil voltage) <30ms at 12VDC (coil voltage)
Mechanical endurance	5x10 <sup>4</sup> ops.

### Electrical endurance 12VDC coil

Load voltage/coil voltage	Load type		Load current	On / off ratio	Electrical endurance <sup>3)</sup>
			1 form A 1 NO		
14VDC	Inductive 0.1mH cable 50 mm <sup>2</sup>	Make/Break	150/150 A	1s/5s	>5x10 <sup>4</sup> ops. <sup>4)</sup>
14VDC	Inductive 0.1mH cable 50 mm <sup>2</sup>	Make/Break	250/250 A	1s/5s	>1x10 <sup>4</sup> ops. <sup>4)</sup>

1) Values refer to a passive cooled relay and max. relay load terminal temperature of 150°C

2) See Definitions for automotive relays <http://relays.te.com/definitions/> and chapter Diagnostics of Relays in our Application Notes at <http://relays.te.com/appnotes/>

3) According Weibull

4) Performed at cyclic temperature -40 °C to 85 °C

**COIL DATA**

Magnetic system	Bistable			
Rated coil voltage	12VDC			
Polarity for set/reset energization	<div><div>set</div><div>- +</div><div>PIN 4 PIN 2</div></div> <div><div>reset</div><div>- +</div><div>PIN 1 PIN 3</div></div>			

**COIL VERSION, BISTABLE**

Coil Code	Rated Voltage [VDC]	Set Voltage Min. [VDC]	Reset Voltage Min [VDC]	Set /Reset Coil Resistance $\pm 10\%$ [ $\Omega$ ]	Impulse Length [ms]
1101	12	6.0	6.0	8.8	100 - 1000

All figures are given for coil without pre-energization, at ambient temperature +23°C.  
Exceeding the maximum coil pulse length can result in coil damage.

**OTHER DATA**

EU RoHS/ELV compliance	Compliant
Ambient temperature	-40 to +110°C
Protection to heat and fire	UL94-HB or better <sup>5)</sup>
Rapid change of temperature (thermal shock), IEC 60068-2-14 (2009-01) Na	100 cycles, -40°C /+110°C
Damp heat cyclic, IEC 60068-2-38 (2009) Z/AD	10 cycles, 240h
Degree of protection IEC 60529 (2014-09)	IP64 (coil connector facing downwards)
Vibration resistance (functional) ISO 16750-3 (2012-12) Test IV	10 to 1000Hz, 2.71g eff. No change of switching state >10 $\mu$ s
Shock resistance (functional) IEC 60068-2-27 (2008-02) Half sine	50g 6ms No change of switching state >10 $\mu$ s
Shock resistance (functional) IEC 60068-2-27 (2008-02) Half sine	150g 4ms No change of switching state after test
Drop test, free fall IEC 60068-2-31 (2008-03)	1m onto concrete
Terminal type	Connector and screw M8
Weight	Approx. 130g (4.6 oz)
Packaging unit and delivery <sup>6)</sup>	60pcs (in carton box)

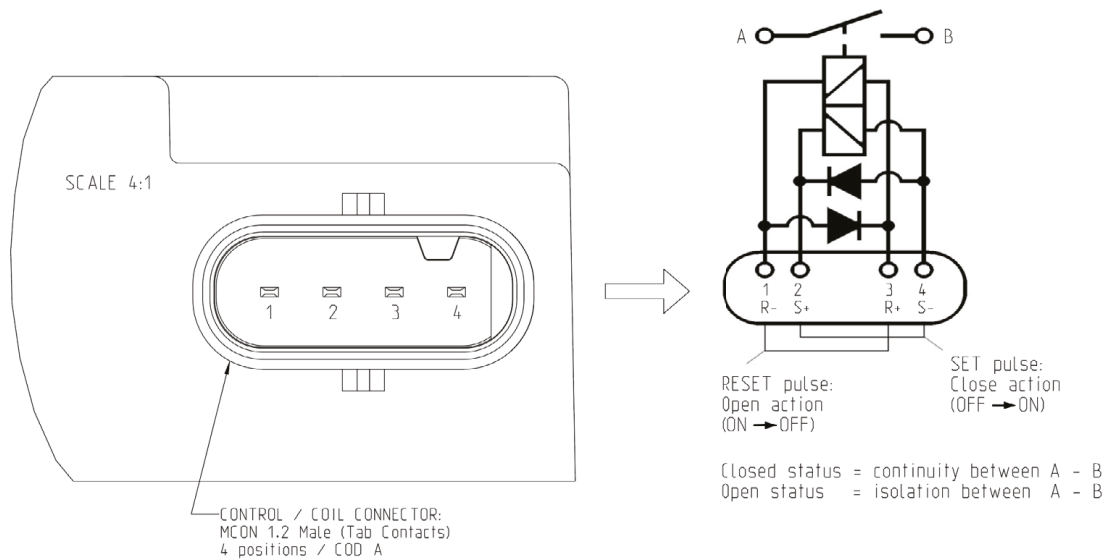
5) Refers to used materials.

6) Bistable relays are delivered in the reset position (open contacts). Due to mechanical impacts during transportation, we advise to check the contact status on receipt.

INSULATION DATA

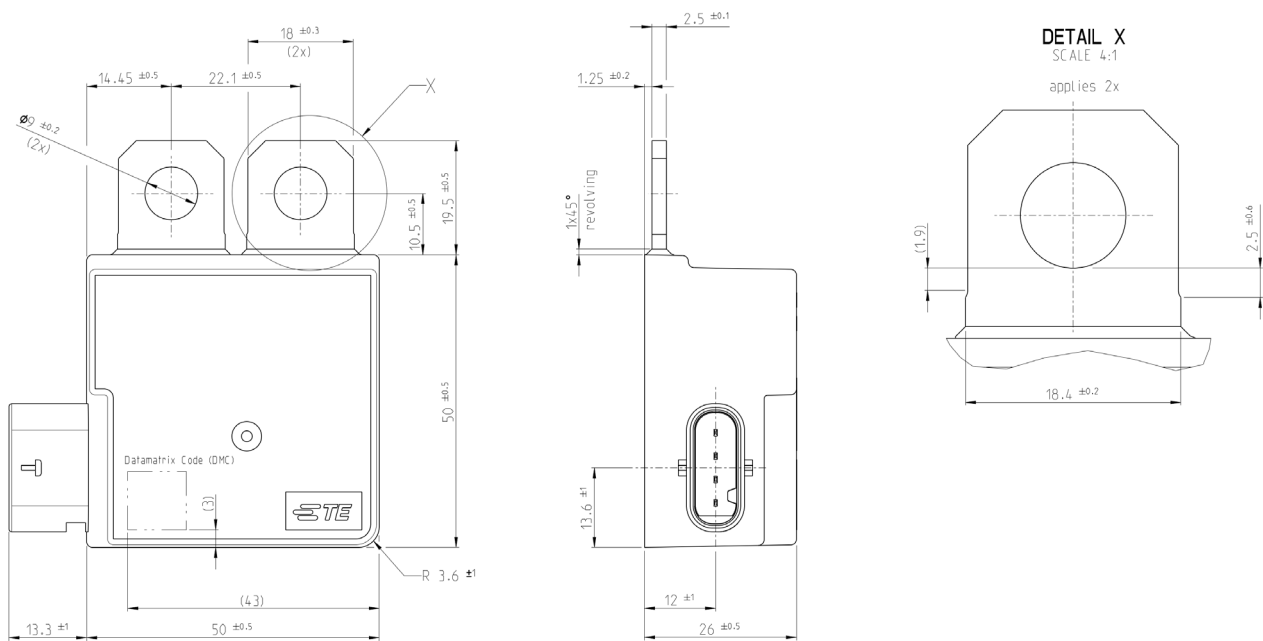
Initial dielectric strength	
<ul style="list-style-type: none"><li>Between open contacts</li><li>Between contact and coil</li></ul>	500VAC <sub>rms</sub> 500VAC <sub>rms</sub>

TERMINAL ASSIGNMENT (BISTABLE COIL SYSTEM)



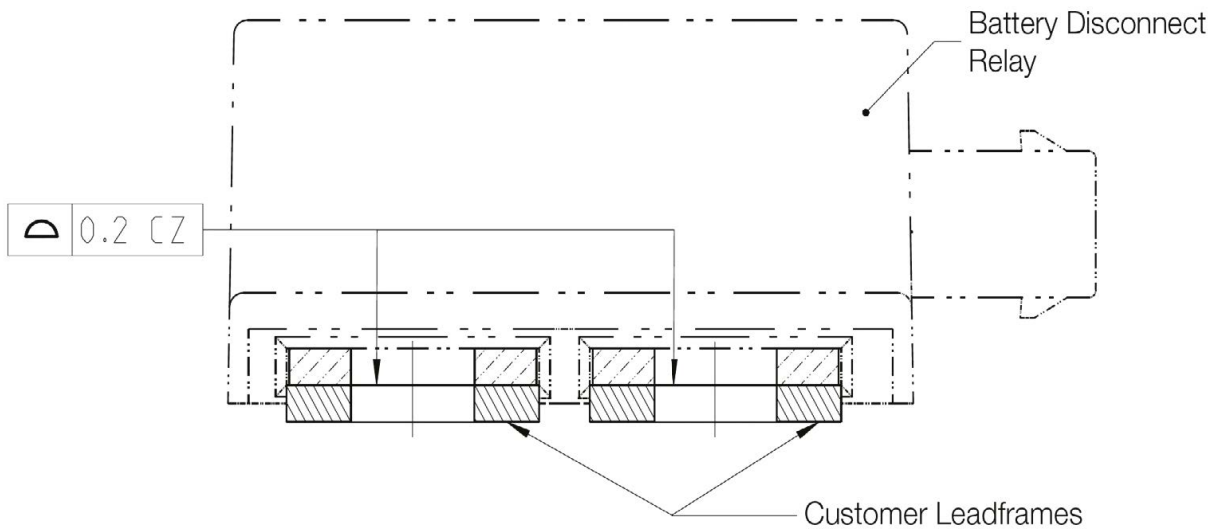
TE matching counterpart: 1-1718645-1

DIMENSIONS



CUSTOMER INTERFACE

Forces due to additional constraints (supports) to be avoided.



DATAMATRIX CODE

Relay Version		Reserved		Date (yymmdd)		Time (hhmmss)		Production Line		Shift		Reserved
V23330L1101A400	#	00	#	240124	#	164308	#	1	#	2	#	000

Date + Time + Production Line + Shift = Unique Serial Number

PRODUCT CODE STRUCTURE

Typical product code		V23330	-L	1101	-A	4	00
Type	Battery Disconnect Relay BDR 12V						
V23330							
Contact arrangement	1 form A, 1 NO						
L							
Coil	12 VDC (bistable)						
1101							
Protection class	IP64						
A							
Contact material	Silver alloy						
4							
Standard version	Standard						
00							

Product code	Arrangement	Coil suppression	Coil	Part number
V23330-L1101-A400	1 form A, 1 NO	Diode	12VDC	5-2356143-1

This list represents the most common types and does not show all variants covered by this datasheet. Other types on request.

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