

## Battery Disconnect Switch BDS-A (Latching)

- Limiting continuous current 190A at 85°C
- Electrically settable and resettable ON/OFF bistable device
- High peak current carrying capability up to 1500A<sup>1)</sup>

### Typical applications

Preheating systems (e.g. for diesel engines, catalytic converters), battery disconnection to prevent fire caused by short circuits during an accident, dual battery applications provide the start reliability by a separate starter battery, keeps the power net in balance and to control and secure the health of the energy storage systems, seasonal, service and transport deactivation, high current switching, energy management, battery coupling.



### Contact Data

Contact arrangement	1 form X, 1 NO DM (bridge)	
Rated voltage	12VDC/24VDC	
Maximum switching voltage	16VDC/32VDC	
Limiting continuous current <sup>1)</sup> load cable 50mm <sup>2</sup> load current from terminal B(+) to A(-)		
23°C	260A	
85°C	190A	
125°C	88A	
Limiting making current, resistive load, cable 50mm <sup>2</sup> , 23°C, ton/toff=0.5s/10min	1500A, >5 ops. <sup>1)</sup>	
Limiting breaking current, resistive load, cable 50mm <sup>2</sup> , 23°C, ton/toff=0.5s/10min	1500A, >5 ops. <sup>1)</sup>	

### Contact Data (continued)

Limiting short-time current, overload current at 23°C, cable 50mm <sup>2</sup> , 1000A, 1s - 0A, 9s	50x10 <sup>3</sup> ops. <sup>2)</sup>
Contact material	silver alloy
Min. contact load <sup>3)</sup>	1A 5VDC
Initial voltage drop NO DM contacts at 100A	max. 40mV after 1 min
Operate time	typ. 5ms
Release time	typ. 5ms
Mechanical endurance	>1.5x10 <sup>5</sup> ops.

### Electrical Endurance 12VDC Coil

Load voltage/ coil voltage	Load type	Load current 1 form X NO DM	On / off ratio	Electrical endurance <sup>4)</sup>	
				Diode	
14VDC	inductive L=0.1mH cable 35mm <sup>2</sup>	make	180A 100A	1.5s/5s	>1.3x10 <sup>4</sup> ops. >5.0x10 <sup>4</sup> ops.
		break	180A 100A	1.5s/5s	>1.3x10 <sup>4</sup> ops. >5.0x10 <sup>4</sup> ops.

### Electrical Endurance 24VDC Coil

28VDC	inductive L=0.1mH cable 35mm <sup>2</sup>	make	150A 100A	0.5s/5s	>2.5x10 <sup>4</sup> ops. >7.0x10 <sup>4</sup> ops.
		break	150A 100A	0.5s/5s	>2.5x10 <sup>4</sup> ops. >7.0x10 <sup>4</sup> ops.

All tests performed under temperature change (-40°C / 25°C / 120°C) 2h each

1) Important: please pay attention to load current direction.

2) Values are influenced by system temperature and load current. For further details please consult TE relay application engineers.

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

4) According Weibull

## Battery Disconnect Switch BDS-A (Latching) (Continued)

### Coil Data

Magnetic system	bistable (two coil system)			
Coil voltage range	2021: 6VDC - 12VDC (15-100ms)			
23°C (set - reset)	2421: 12VDC - 24VDC (15-100ms)			
Rated coil voltage	12/24VDC			
Polarity for set/reset energization	set		reset	
	-	+	-	+
	pin 2	pin 4	pin 3	pin 1

### Coil versions, bistable 2 coils

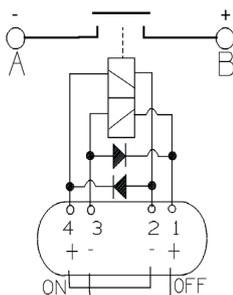
Coil code	Rated voltage [VDC]	Set voltage [VDC]	Reset voltage [VDC]	Set/reset coil resistance ±10% [Ω]	Impulse length [ms]
2021	12	6.0	6.0	4.7	15 - 100
2421	24	12.0	12.0	19.9	15 - 100

All figures are given for coil without pre-energization, at ambient temperature +23°C.

### Terminal Assignment

X2D2C

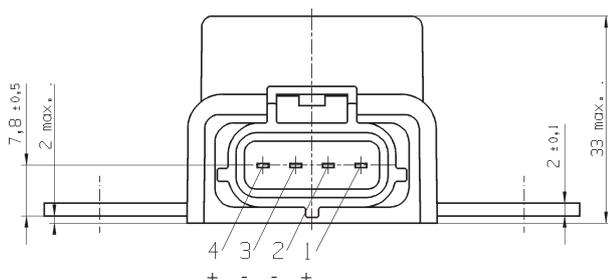
1 form X, 1 NO DM (bridge), with 2 coils and 2 diodes



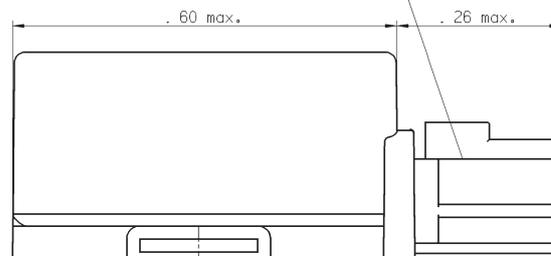
Terminal	Function
4	Set coil (+)
3	Reset coil (-)
2	Set coil (-)
1	Reset coil (+)
A	Load terminal (-)
B	Load terminal (+)

Set voltage for (15-100)ms: load terminals A(-) and B(+) get connected  
 Reset voltage for (15-100)ms: load terminals A(-) and B(+) get disconnected

### Dimensions



AMP Sensor Connector 4-Position 0.070 Series, appropriate for AMP part no. 184046-1



### Insulation Data

Initial dielectric strength	
between open contacts	500VAC <sub>rms</sub>
between contact and coil	500VAC <sub>rms</sub>

### Other Data

EU RoHS/ELV compliance	compliant
Protection to heat and fire	UL94-HB or better <sup>5)</sup>
Ambient temperature	-40 to +125°C
Degree of protection	IP54
IEC 60529 (2014-09)	IP54
Vibration resistance (functional)	
ISO 16750-3 (2007-08)	22 to 500Hz, >10g <sup>6)</sup>
Test IV	No change of switching state >10μs
Shock resistance (functional)	
IEC 60068-2-27 (1995-03)	min. 40g 11ms <sup>6)</sup>
half sine	No change of switching state >10μs
Terminal type	connector and screw
Weight	approx. 210g (7.4oz)
Packaging unit and delivery <sup>7)</sup>	24 pcs

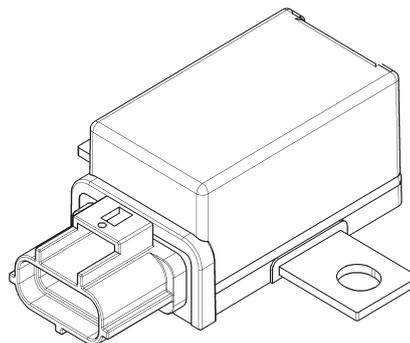
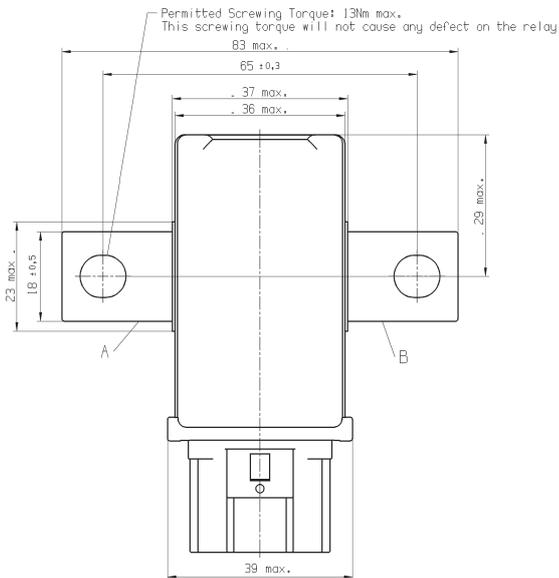
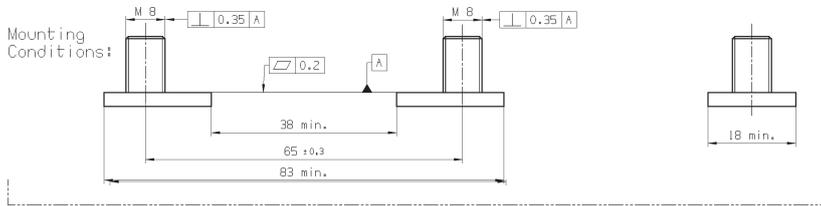
5) Refers to used materials.

6) Valid for reset state. Set state values significantly higher.

7) 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. Latching (delivery status "ex works").

**Battery Disconnect Switch BDS-A (Latching)** (Continued)

**Dimensions**



**Product code structure**

Typical product code **V23130 -C 2021 -A 4 12**

<b>Type</b>	V23130 Battery Disconnect Switch BDS-A					
<b>Contact arrangement</b>	C 1 form X, 1 NO DM					
<b>Coil</b>	2021	12VDC (bistable)	2421	24VDC (bistable)		
<b>Protection class</b>	A IP54					
<b>Contact material</b>	4 Silver alloy					
<b>Standard version</b>	12	Standard 12VDC	31	24VDC		

Product Code	Arrangement	Coil Suppr.	Circuit	Coil	Part Number
V23130-C2021-A412	1 form X, 1 NO DM (bridge)	Diode	X2D2C	12VDC	1-1414939-4
V23130-C2421-A431				24VDC	7-1414778-3

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