

Battery Disconnect Switch BDS-A



**Features**

- Limiting continuous current 190 A at 85°C
- Electrically settable and resettable ON/OFF bistable device
- Suitable for voltage levels up to 42 V
- High peak current carrying capability up to 1500 A

**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
- Energy-management
- Keeps the power net in balance and to control and secure the health of the energy storage systems
- Seasonal, service and transport deactivation

Please contact Tyco Electronics for relay application support.



130-C\_3D2

**Design**

- ELV/RoHS/WEEE compliant
- Dustproof; protection class IP54 to IEC 529 (EN 60 529)
- Weatherproof protection

**Weight**

Approx. 210 g (7.41 oz.)

**Nominal Voltage**

12 V or 24 V

**Terminals**

- Quick connect terminals (coil)
- Screw terminals (load)

**Conditions**

All parametric, environmental and endurance tests are performed according to EIA Standard RS-407-A at standard test conditions unless otherwise noted:  
23°C ambient temperature,  
20 - 50% RH, 998.9 ±33.9 hPa.

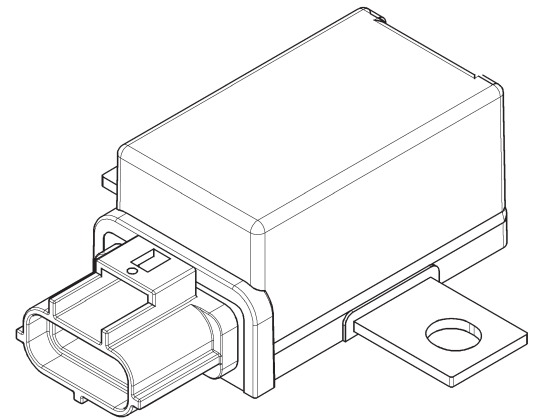
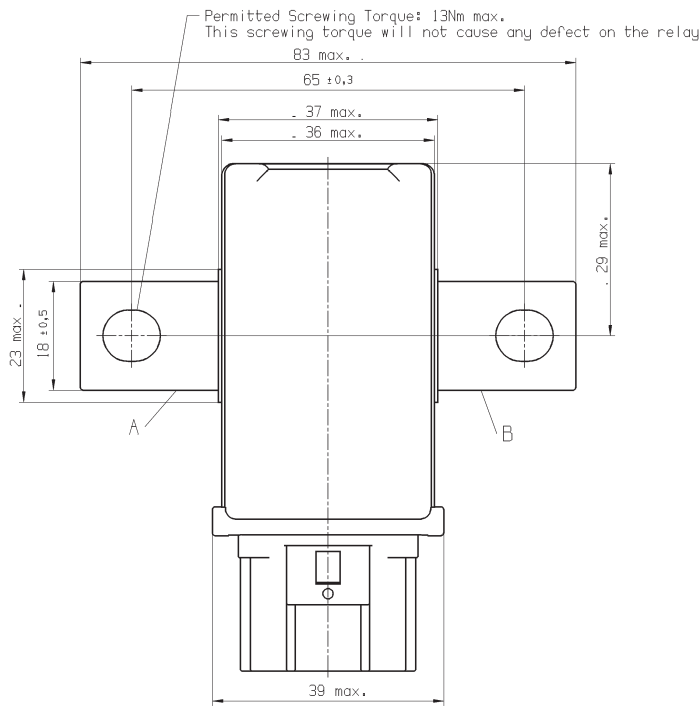
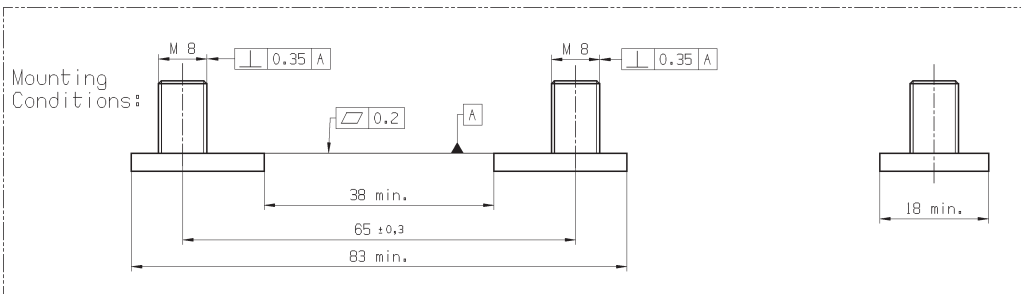
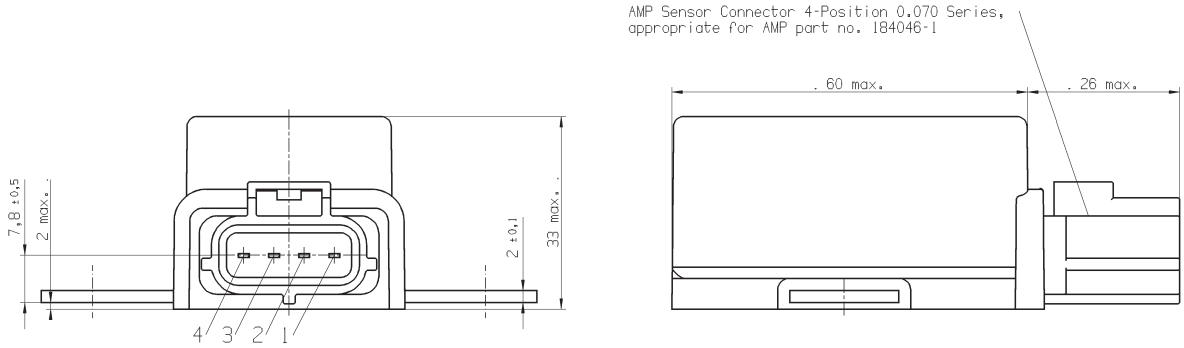
For general storage and processing recommendations please refer to our Application Notes and especially to *Storage* in the "Glossary" page 23 or at <http://relays.tycoelectronics.com/appnotes/>

**Disclaimer**

All technical performance data apply to the relay as such, specific conditions of the individual application are not considered. Please always check the suitability of the relay for your intended purpose. We do not assume any responsibility or liability for not complying herewith. We recommend to complete our questionnaire and to request our technical service. Any responsibility for the application of the product remains with the customer only. All specifications are subject to change without notification. All rights of Tyco Electronics are reserved.

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**Dimensional Drawing**



130C\_DD\_3

**Battery Disconnect Switch BDS-A**

**Contact Data for cable size  $\geq 50 \text{ mm}^2$**

Contact configuration	Form X	
Circuit symbol <sup>1), 2)</sup>		
Rated voltage	12 V	24 V
Rated current	190 A	
Limiting continuous current	23°C: 260 A 85°C: 190 A 125°C: 88 A	
Contact material	Silver based	
Load current	From terminal B to A	
Carrying capability: 1000 A 1 s on, 9 s off, 23°C, 50 mm <sup>2</sup>	50.000 operations <sup>3)</sup>	
Carry starter current: 1500 A 0.2 s/600 A 5 s on, 60 s off, 23°C, 50 mm <sup>2</sup>	50.000 operations <sup>3)</sup>	
Voltage drop at 100 A (initial, after 1 min)	< 40 mV	
Electrical endurance: 180 A 0.1 mH 1.5 s on, 5 s off, (-40/25/120)°C/2 h each, 35 mm <sup>2</sup>	13.000 operations	-
Electrical endurance: 100 A 0.1 mH 1.5 s on, 5 s off, (-40/25/120)°C/2 h each, 35 mm <sup>2</sup>	50.000 operations	-
Electrical endurance: 150 A 0.1 mH 0.5 s on, 5 s off, (-40/25/120)°C/2 h each, 35 mm <sup>2</sup>	-	25.000 operations
Electrical endurance: 100 A 0.1 mH 0.5 s on, 5 s off, (-40/25/120)°C/2 h each, 35 mm <sup>2</sup>	-	70.000 operations
Switching capability: 1500 A 0.5 s on, 10 min off, 23°C, 50 mm <sup>2</sup> resistive load	5 operations <sup>3)</sup>	
Max. temperature at load terminals	140°C	
Mechanical shock, half sine, 6 ms, 6 directions (OFF→ON)	40 g <sup>3)</sup>	

<sup>1)</sup> Delivery status "ex works".

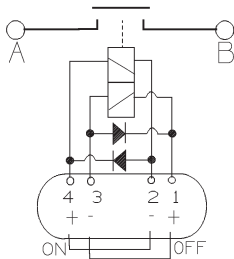
<sup>2)</sup> Refer to *Latching Relay* in the "Glossary".

<sup>3)</sup> Values are influenced by system temperature and load current. For further details please consult our Technical Application Engineers.

**Circuit Diagram**

X2C2D

1 Double make contact/1 Form X  
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 = A and B get connected

130C\_PA\_3

**Coil Data**

Available for nominal voltages	12 V	24 V
Must operate voltage at 20°C (ON→OFF→ON) <sup>1)</sup>	6 V	12 V
Non operate voltage at 20°C <sup>1)</sup>	2 V	4 V
Test voltage winding/contact, contact-contact <sup>1)</sup>	500 VAC <sub>rms</sub>	
Ambient temperature range	-40 to +120°C	
Coil excitation pulse length recommended/maximum	50 ms/100 ms	
Switching time at 14 V	ON-OFF typ. 5 ms/OFF-ON typ. 5 ms	
Noise level <sup>2)</sup>	Typ. 86 dB (A)	

<sup>1)</sup> Values are influenced by system temperature and load current. For further details please consult our Technical Application Engineers.

<sup>2)</sup> Equivalent average sound pressure level  $l_{eq}$ , switch cycled with 1 Hz, microphone distance 10 cm, measuring time 15 s.

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Environmental Conditions				
Temperature range, storage	Refer to <i>Storage</i> in the “Glossary” catalog page 23 or <a href="http://relays.tycoelectronics.com/appnotes/">http://relays.tycoelectronics.com/appnotes/</a>			
Test	Relevant standard	Testing as per	Dimension	Comments
Vibration resistance <sup>1)</sup>	IEC 68-2-6 (sine sweep)		22 - 500 Hz, min. 10 g	No change in the switching state > 10 μs
Shock resistance <sup>1)</sup>	IEC 68-2-27		11 ms, min. 40 g	No change in the switching state > 10 μs
Sealing	EN 60529 (IEC 529)		IP54	

<sup>1)</sup> Values are influenced by system temperature and load current. For further details please consult our Technical Application Engineers.

**Ordering Information**

Part Numbers (see table below for coil data)		Circuit/Contact Arrangement	Contact Material	Enclosure
Relay Description	Part Number			
V23130-C2021-A412	1-1414939-4	1 Form X/1 Double make contact	Silver based	IP54
V23130-C2421-A431	7-1414778-3	1 Form X/1 Double make contact	Silver based	IP54

**Coil Versions**

Coil Data for BDS-A	Rated Coil Voltage (V)	Coil Resistance ±10% (Ω)	Must Operate Voltage at 20°C (V)	Must Release Voltage at 20°C (V)
V23130-C2021-****	12	4.7	6.0 (Set-Reset)	6.0 (Set-Reset)
V23130-C2421-****	24	19.9	12.0 (Set-Reset)	12.0 (Set-Reset)

**Standard Delivery Packs** (orders in multiples of delivery pack)

BDS-A: 24 pieces