

Battery Disconnect Switch BDS-A

**Description**

**Features**

- Electrically settable and re-settable ON/OFF bistable device
- Suitable for voltage levels up to 42 V
- Operation range from -40 to +120°C
- High peak current carrying capability up to 1500 A
- Continuous current of 190 A at 85°C
- Current switching ability up to 1500 A
- Optimized dimensions:  
L x H x W (in mm) = 60 x 33 x 37 (excluding connector and load terminals, see dimensional drawing for details)
- Minimal weight (7.41 oz./210 g)

**Typical Applications**

- High current applications
  - Diesel pre-heater
  - Large electro-hydraulic pumps
  - Catalytic pre-heaters
- Battery disconnection in order to prevent fire caused by short circuits during an accident
- Dual battery applications provide the start reliability by a separate starter battery
- Energy-management
  - Keep 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.



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**Multipurpose High Current Component**

Tyco Electronics announces a multipurpose high current component the BDS-A. Due to highest reliability expectations, package restrictions and space limitations the complexity of power nets in automobiles increases.

Tyco Electronics' BDS-A is an electrically settable and re-settable (on-off) bistable (latching) relay specially designed for various voltage levels up to 42 V. This component enables the designer to realize a quiescent current free power net.

Thanks to the bistable concept, the BDS-A is designed to operate between -40 °C and +120 °C and withstand shock up to 40 g.

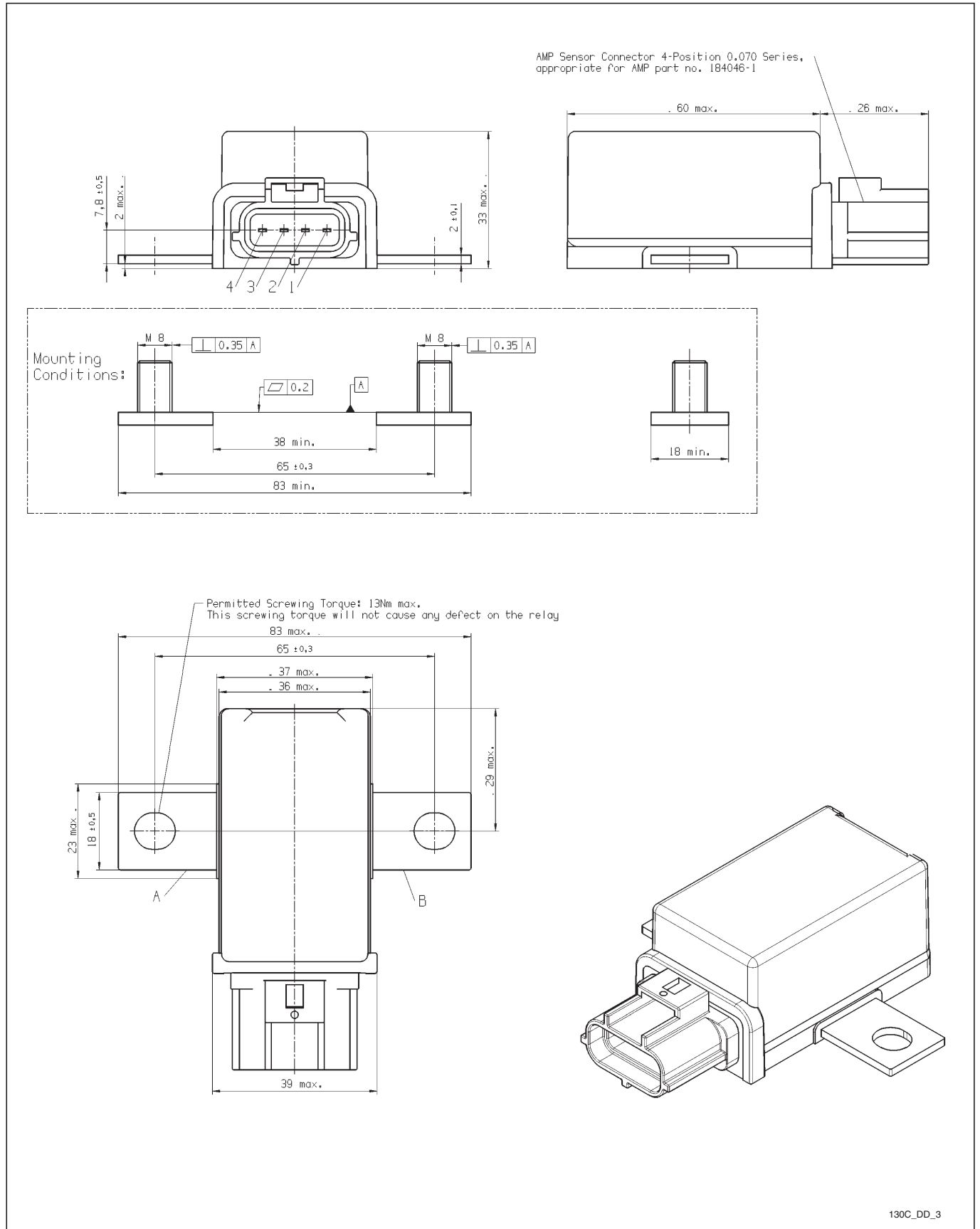
Features to emphasize further are the high peak current carrying capability of up to 1500 A as well as the continuous current capability of 190 A at 85°C. The BDS-A facilitates current switching ability up to 1500 A. To complete the product range 24 V and 42 V versions are also available.

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 are reserved.

Standard conditions as in EIA RS-407-A (23 °C, 20-50% RH, 29.5 ± 1.0" Hg / 998.9 ±33.9 hPa) apply unless otherwise noted.


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Dimensional Drawing



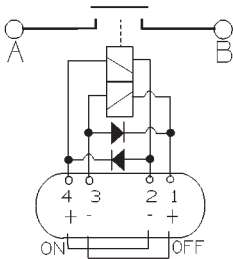
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**Contact Data (valid for cable size  $\geq 50 \text{ mm}^2$ )**

Contact configuration	Form X
Circuit symbol <sup>1), 2)</sup>	
Rated voltage	12 V
Rated current at 85°C	190 A
Contact material	Silver based
Load current	From terminal B to A
Limited current for 1 s at $T_{amb.} = 20^\circ\text{C}$ (free convection), $\geq 5$ s break	1000 A <sup>3)</sup>
Limited current for 0.2 s at $T_{amb.} = 20^\circ\text{C}$ (free convection), $\geq 5$ s break	1500 A <sup>3)</sup>
Voltage drop at 100 A (initial)	< 40 mV
Electrical endurance: max. switching current OFF/ON/OFF 100 A <sup>4)</sup>	> $0.5 \times 10^5$ operations
Max. temperature at load terminals	140°C
Mechanical shock, halfsine, 6 ms, 6 directions (OFF→ON)	40 g <sup>3)</sup>

**Pin Assignment**

1 Form X



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

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**Coil Data**

Available for nominal voltages	12 V
Must operate voltage at 20°C (ON→OFF→ON) <sup>3)</sup>	6 V
Non operate voltage at 20°C <sup>3)</sup>	2 V
Must operate current at 20°C <sup>3)</sup>	1.3 A
Test voltage winding/contact	500 VAC <sub>rms</sub>
Ambient temperature range	-40 to +120°C
Coil excitation puls 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>5)</sup>	Typ. 86 dB (A)

<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.

<sup>4)</sup> 0.1 mH; max. 1 s make; min. 5 s break time; at  $T_{amb.}$  (-40/25/120°C) 2h.

<sup>5)</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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**Operating Conditions**

Temperature range, storage	Refer to <i>Storage</i> in the "Glossary" at <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)		IP 54	

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

Sample Ordering Information

Part Numbers (see table below for coil data)		Contact Arrangement	Contact Material	Enclosure
Relay Part Number	Tyco Order Number			
V23130-C2021-A411	4-1414779-4	Form X	Silver based	IP 54

Coil Versions

Coil Data for BDS-A	Rated Coil Voltage (V)	Coil Resistance +/- 10% (Ω)	Must Operate Voltage at 20°C (V)	Must Operate Voltage at 20°C (V)
V23130-C2021-****	12	4.7	6.0 (ON-OFF)	6.0 (OFF-ON)