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 capability up to 1800 A
- Continuous current of 190 A at 85°C
- Short circuit protection up to 1500 A
- Optimized dimensions:
  L x H x W (in mm) = 60 x 35 x 35 (excluding connector and load terminals, see dimensional drawing for details)
- Minimal weight (7.41 oz./210 g)
- Monostable version available

Typical Applications

- High current applications
  - Diesel pre-heater
  - Large electro-hydraulic pumps
  - Catalytic pre-heaters
- Battery disconnection of starter 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.


Powertrain Systems


Chassis Systems


Safety Systems


Security


Body


Driver Information


Convenience


Car Industry


Truck Industry


Other Industry

Multipurpose High Current Component

Tyco Electronics announces a multi-purpose 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 capability of up to 1800 A as well as the continuous current capability of 190 A at 85°C. The BDS-A facilitates short-circuit protection up to 1500 A. To complete the product range a monostable version is also available.

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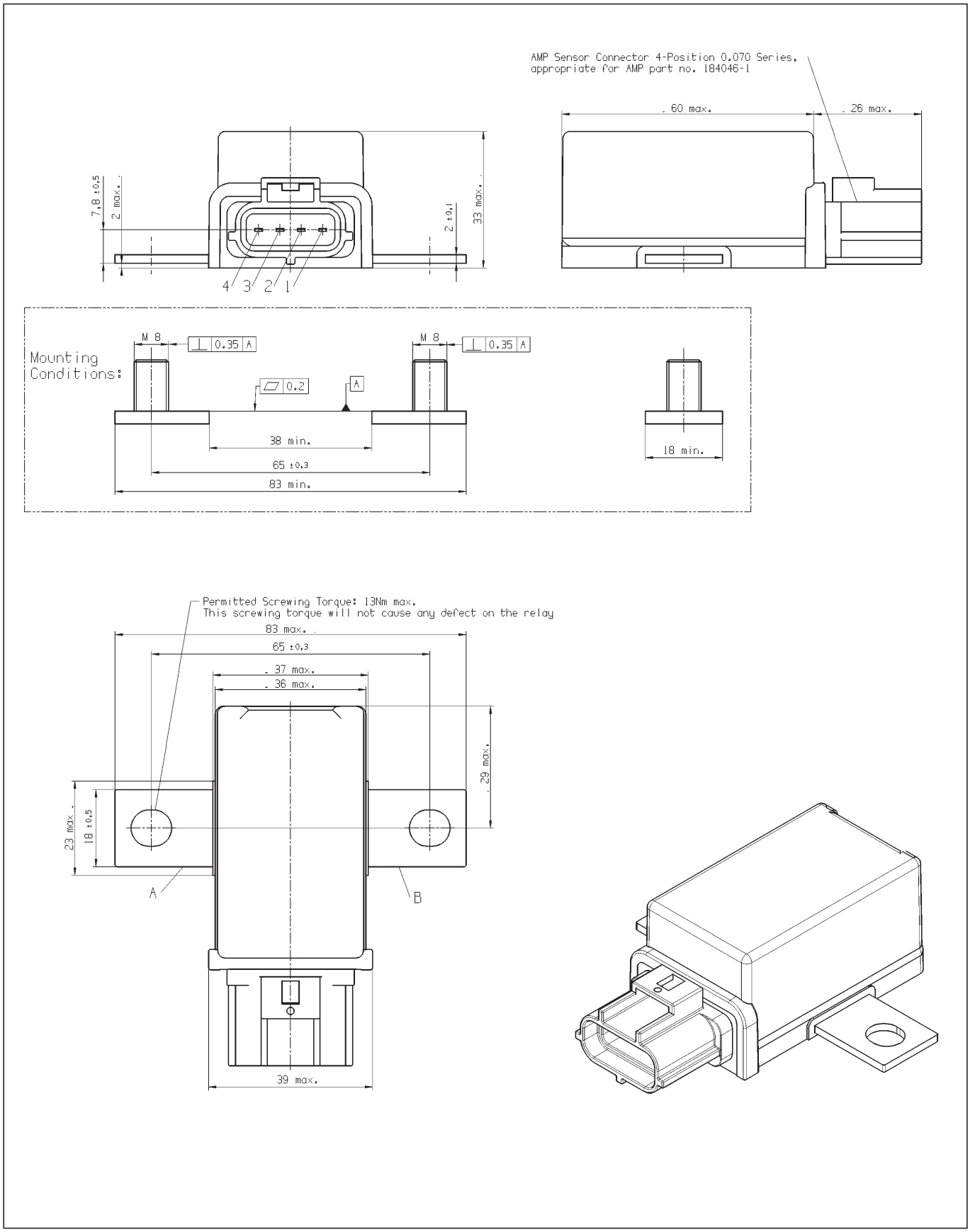
Dimensional Drawing

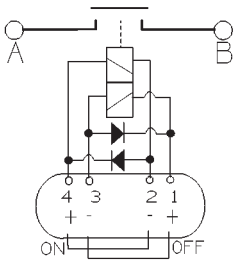


Battery Disconnect Switch BDS-A

Contact Data (valid for cable size ≥ 50 mm²)	
Contact configuration	Form X
Circuit symbol [1), 2)]	
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°C (free convention), ≥ 5 s break	1000 A [3)]
Limited current for 0.2 s at $T_{amb.}$ = 20°C (free convention), ≥ 5 s break	1500 A [3)]
Voltage drop at 100 A (initial)	< 40 mV
Mechanical endurance (without load)	> 0.5 x 10^6 operations
Electrical endurance: max. switching current OFF/ON/OFF 100 A [4)]	> 10^5 operations
Max. temperature at load terminals	140°C
Mechanical shock, halfsine, 6 ms, 6 directions (OFF→ON)	40 g [3)]

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

Coil Data	
Available for nominal voltages	12 V
Must operate voltage at 20°C (ON→OFF→ON) [3)]	6 V
Non operate voltage at 20°C [3)]	2 V
Must operate current at 20°C [3)]	1.3 A
Test voltage winding/contact	500 VAC_{rms}
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 [5)]	Typ. 86 dB (A)

1) Delivery status “ex works”.
2) Refer to *Latching Relay* in the “Glossary”.
3) Values are influenced by system temperature and load current. For further details please consult our Technical Application Engineers.
4) 0.1 mH; max. 1 s make; min. 5 s break time; at $T_{amb.}$ (-40/25/120°C) 2h.
5) Equivalent average sound pressure level leq, switch cycled with 1 Hz, microphone distance 10 cm, measuring time 15 s.

Operating Conditions				
Temperature range, storage	Refer to *Storage* in the "Glossary"			
Test	Relevant standard	Testing as per	Dimension	Comments
Vibration resistance [1)]	IEC 68-2-6 (sine sweep)		22-500 Hz, min. 10 g	No change in the switching state > 10 ms
Shock resistance [1)]	IEC 68-2-27		11 ms, min. 30 g	No change in the switching state > 10 ms
Sealing	EN 60529 (IEC 529)		IP 54	

[1)] 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	1-1414462-0	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)