

### 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\_302

#### 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.

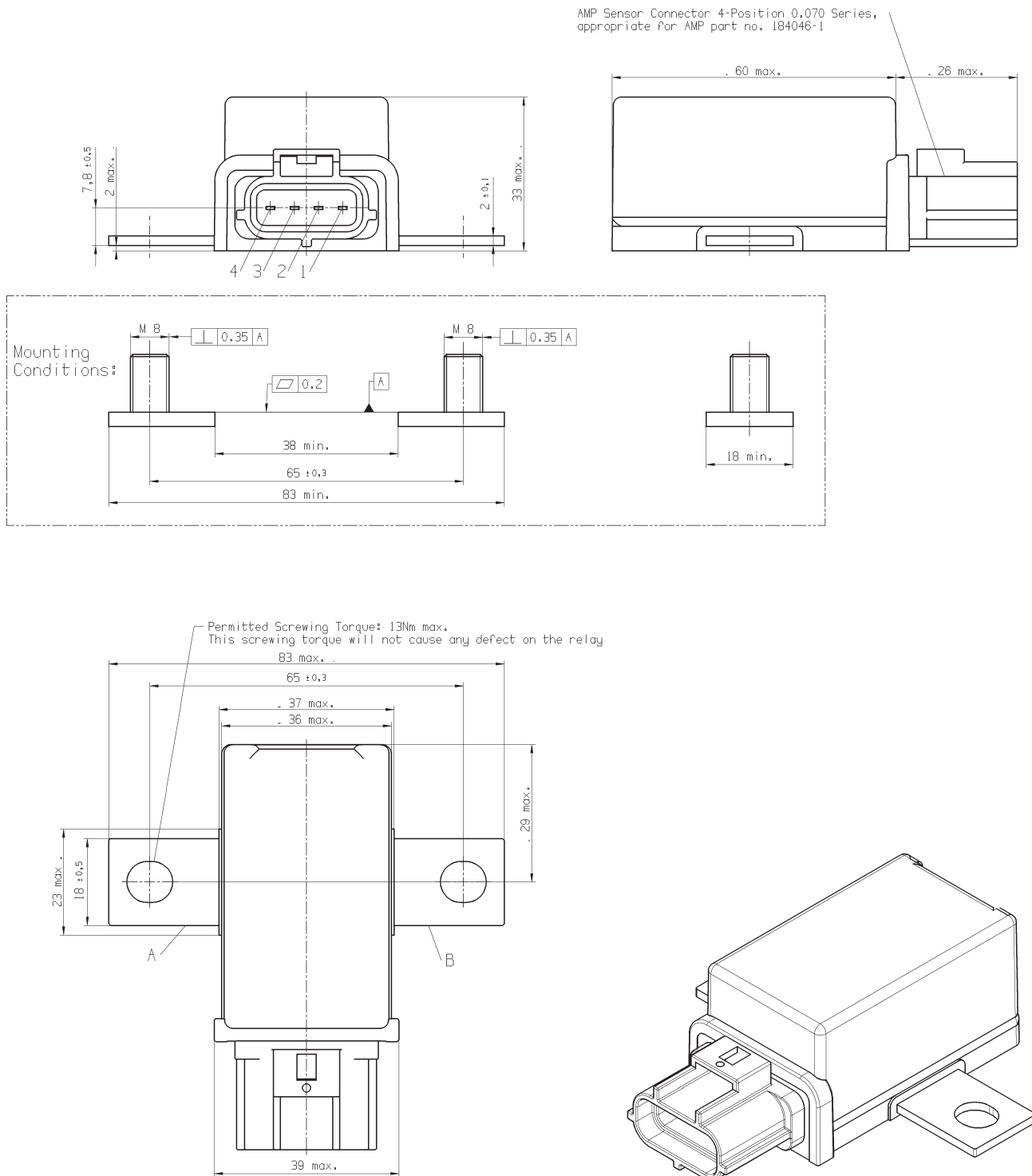
For general storage and processing recommendations please refer to our Application Notes and especially to *Storage* in the "Glossary" page 23 or at <http://relays.tycoelectronics.com/appnotes/>

#### 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.

## Battery Disconnect Switch BDS-A

### 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                                                                       | <div>23°C 260 A</div> <div>85°C 190 A</div> <div>125°C 88 A</div>                   |                   |
| 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".

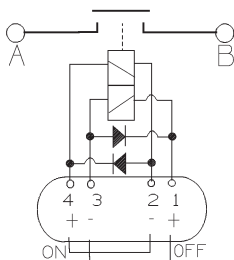
<sup>2)</sup> Refer to *Latching Relay* in the "Glossary".

<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.

## Battery Disconnect Switch BDS-A

### 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<br>> 10 µs |
| Shock resistance <sup>1)</sup>     | IEC 68-2-27                                                                                                                                                        |                | 11 ms, min. 40 g       | No change in the switching state<br>> 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<br>(see table below for coil data) |             | Circuit/Contact<br>Arrangement | Contact<br>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<br>for<br>BDS-A | Rated Coil<br>Voltage<br>(V) | Coil Resistance<br>±10%<br>(Ω) | Must<br>Operate Voltage<br>at 20°C (V) | Must<br>Release Voltage<br>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