The SD250 has been designed to provide a rapid means of disconnecting batteries or other power supplies in the event of serious electrical faults.

- **Uninterrupted** current - no or infrequent load switching requirements (maintains a lower contact resistance).

The SD250 combines the dual function of a manual disconnect and coil operated line contactor. The benefits of this design include compact size and reduced installation costs combined with an electrical capacity sufficient for small and medium size electric vehicles.

Whilst the switches are primarily intended for use with battery powered vehicles, they are also suitable for use with static power systems. All types are capable of safely rupturing full load battery currents in the event of an emergency.

**Modes of Operation:**

1. **Knob depressed**
   - Main contacts open
   - N.O. auxiliary contacts open

2. **Knob in "ON" position**
   - Main contacts open
   - N.O. auxiliary contacts closed

3. **Knob in "ON" position**
   - Main contacts closed
   - N.O. auxiliary contacts closed

The operation of the switch is such that with the operating knob depressed i.e., in the "off" position, no electrical functions can take place. However, if the knob is in the "On" position, the option of energising the coil and thus closing the main contacts becomes available. The coil energisation can be carried out either through the vehicle keyswitch or as a result of a signal from the vehicle electronic controller. When used as an emergency battery disconnect switch, manually depressing the operating knob will override the energised coil such that the main contact and the auxiliary contact (where fitted) will open until such time as the knob is again moved to the "on" position.

**Auxiliary Details**

- **Auxiliary Thermal Current Rating**: 15A
- **Auxiliary Contact Switching Capabilities** (Resistive Load):
  - 15A at 24V D.C.
  - 10A at 48V D.C.
  - 5A at 96V D.C.
- **Advised Connection Sizes for Maximum Continuous Current**
  - Copper busbar: 162mm² (0.25inch²)
  - Cable: Rated suitable for Application

**Contact Performance Key:**

- **Uninterrupted Current**

**SD250 Contactor Performance**

Figures are for guideline purposes only

**SD250 Available Options**

<table>
<thead>
<tr>
<th>General</th>
<th>Suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auxiliary Contacts</td>
<td>A</td>
</tr>
<tr>
<td>Auxiliary Contacts - V3</td>
<td>X</td>
</tr>
<tr>
<td>Magnetic Blowouts†</td>
<td>B</td>
</tr>
<tr>
<td>Magnetic Blowouts - High Powered†</td>
<td>X</td>
</tr>
<tr>
<td>Armature Cap</td>
<td></td>
</tr>
<tr>
<td>Mounting Brackets</td>
<td></td>
</tr>
<tr>
<td>Magnetic Latching‡ (Not fail safe)</td>
<td>X</td>
</tr>
<tr>
<td>Closed Contact Housing</td>
<td></td>
</tr>
<tr>
<td>Environmentally Protected IP55</td>
<td>X</td>
</tr>
<tr>
<td>EE Type (Steel Shroud)</td>
<td></td>
</tr>
<tr>
<td>Lockable</td>
<td>L</td>
</tr>
</tbody>
</table>

**Contacts**

- Large Tips | X |
- Textured Tips | T |
- Silver Plating | X |

**Coil**

- AC Rectifier Board (Fitted) | X |
- Coil Suppression† | F |
- Flying Leads | X |
- Manual Override Operation | F |
- M4 Stud Terminals | X |
- M5 Terminal Board | X |
- Vacuum Impregnation | X |

**Key:**
- Optional: O
- Standard: S
- Not Available: X
- Connections become polarity sensitive

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*† Connections become polarity sensitive

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The Use of Battery Disconnecting Switches in Electric Vehicles

Modern battery powered electric vehicles are inherently very reliable and safe. However, even when sophisticated electronic controllers are used it is desirable to have a means of disconnecting the battery in the event of an emergency, such as a vehicle failing to stop or an electrical short circuit.

In many countries it is mandatory to fit one or more devices to achieve an emergency disconnection of the battery.

SD250A Technical Drawing

Auxiliary Switches

A double circuit normally open, normally closed microswitch auxiliary contact can be fitted. This has a D.C. resistive rating of 15 amperes at 24 volts.

The auxiliary contact operates after the main contacts open, according to the circuit requirements.

The suffix “A” indicates the fitting of auxiliary contacts.

Lockable Switches

Lockable versions feature a key which is necessary for the knob to be moved from the “Off” position to the “On” position. Once in the “On” position, the key can be removed. Thereafter, the knob may be depressed to the “Off” position where it will automatically lock and remain locked until the key is used again to unlock it.

Precautions:

When fitted with magnetic blowouts the polarity marked on the contact housing must be observed when connecting the main terminals. Ensure that the switches are installed in a position where heavy arcs emanating from the switch cannot damage or electrically jump across to adjacent parts.

The switch is to be used to rupture current in an emergency or as a no-load isolator. **Do not use as a regular On-Load Switching Device.**