SD250 Single Pole On/Off with Manual Disconnect

(Part of the Combined Manual Disconnect & Line Contactor Range)

Application	Uninterrupted
Thermal Current Rating (I^th)	250A
Intermittent Current Rating:	
30% Duty	455A
40% Duty	395A
50% Duty	355A
60% Duty	325A
70% Duty	300A
Rated Fault Current Breaking Capacity (I^tcn) 5ms Time Constant: *(in accordance with UL583[1])*	
SD250	1000A at 48V D.C.
SD250B	1000A at 96V D.C.
Maximum Recommended Contact Voltages (U_e):	
SD250	48V D.C.
SD250B	96V D.C.
Typical Voltage Drop per pole across New Contacts at 250A	30mV
Durability:	
Manual-Mechanical Operations[2]	>1 x 10^4 Cycles
Electro-Mechanical Operations[3]	>3 x 10^6 Cycles
Coil Voltage Available (U_S)	From 6 to 240V D.C.
Coil Power Dissipation:	
Highly Intermittent Rated Types	40 - 50 Watts
Intermittently Rated types	30 - 40 Watts
Prolonged Rated Types	15 - 30 Watts
Continuously Rated Types	10 - 15 Watts
Maximum Pull-In Voltage (Coil at 20˚ C) Guideline:	
Highly Intermittent Rated types (Max 25% Duty Cycle)	60% U_S
Intermittently Rated types (Max 70% Duty Cycle)	60% U_S
Prolonged Operation (Max 90% Duty Cycle)	60% U_S
Continuously Rated Types (100% Duty Cycle)	66% U_S
Drop-Out Voltage Range	10 - 30%
Typical Pull-In Time	20ms
Typical Drop-Out Time (N/O Contacts to Open):	
Without Suppression	5 - 10ms
With Diode Suppression	50 - 100ms
With Diode and Resistor *(Subject to resistance value)*	10 - 50ms
Typical Contact Bounce Period	3ms
Operating Ambient Temperature	- 40˚C to + 60˚C
Guideline Contactor Weight:	
SD250	870 gms
With Auxiliary	+ 20 gms
With Blowouts	+ 50 gms
With Lock	+ 60 gms
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	162mm [0.25inch]
Cable	Rated suitable for Application

Key: ◢ *= Uninterrupted*

Note:

Where applicable values shown are at 20˚C

[1] Please check our web site for product UL status

[2] Mechanical Operation via the push/pull action of the manual disconnect button

[3] Mechanical Operation via the energisation/de-energisation of the coil

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.

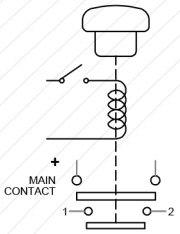
Whilst the switches are primarily intended for use with battery powered vehicles, they are also suitable for use with static power systems. All types are capable of safely rupturing full load battery currents in the event of an emergency.

SD250

Modes of Operation:

Knob depressed
Coil de-energised
Main contacts open
N.O. auxiliary contacts open

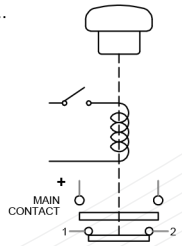
1...



AUXILIARY CONTACT

Knob in "ON" position
Coil de-energised
Main contacts open
N.O. auxiliary contacts closed

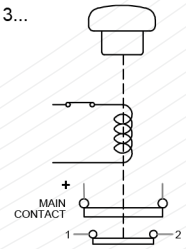
2...



AUXILIARY CONTACT

Knob in "ON" position
Coil energised
Main contacts closed
N.O. auxiliary contacts closed

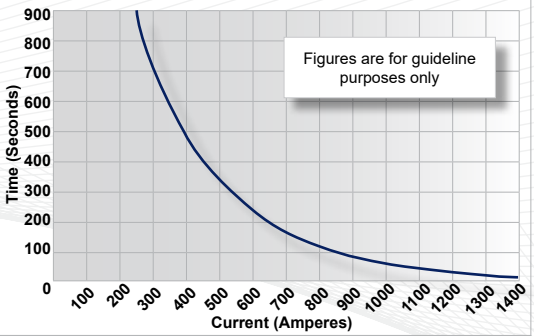
3...



AUXILIARY CONTACT

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.

SD250 Contactor Performance



Contact Performance Key: —— **Uninterrupted Current**

- **Performance data provided should be used as a guide only. Some de-rating or variation from figures may be necessary according to application.**
- **Thermal current ratings stated are dependant upon the size of conductor being used**
- **For further technical advice email: technical@albrightinternational.com**
- **Albright reserve the right to change data without prior notice**

SD250 Available Options

General		Suffix
Auxiliary Contacts	○	A
Auxiliary Contacts - V3	X	
Magnetic Blowouts†	○	B
Magnetic Blowouts - High Powered†	X	
Armature Cap	X	
Mounting Brackets	X	
Magnetic Latching† (Not fail safe)	X	
Closed Contact Housing	○	
Environmentally Protected IP66	X	
EE Type (Steel Shroud)	X	
Lockable	○	L
Contacts		
Large Tips	X	
Textured Tips	○	T
Silver Plating	X	
Coil		
AC Rectifier Board (Fitted)	X	
Coil Suppression†	○	
Flying Leads	X	F
Manual Override Operation	●	
M4 Stud Terminals	X	
M5 Terminal Board	X	
Vacuum Impregnation	○	

Key: Optional ○ Standard ● Not Available X

† *Connections become polarity sensitive*

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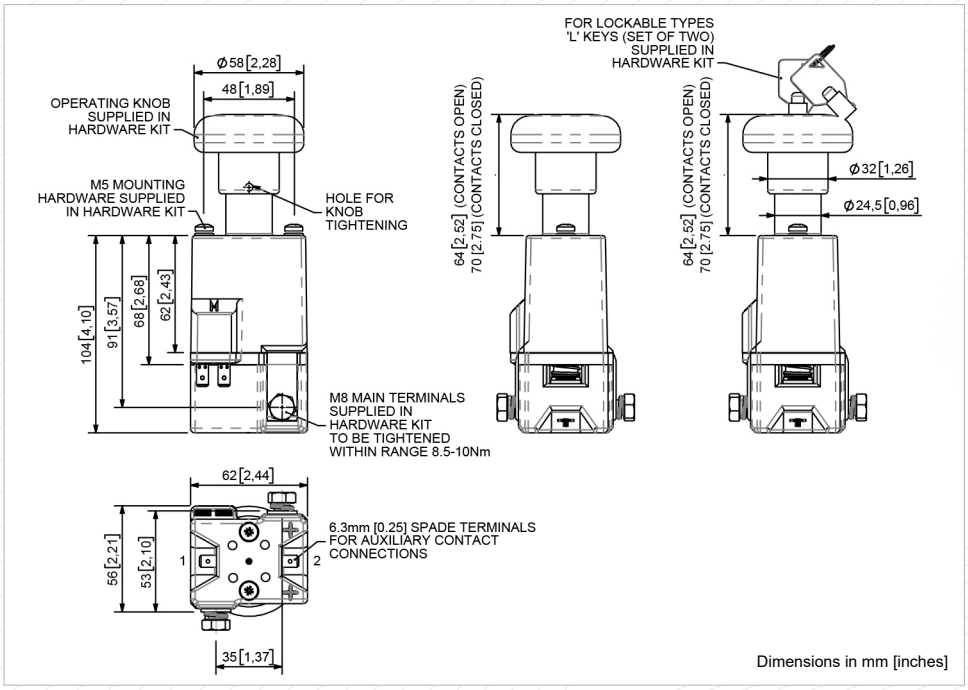
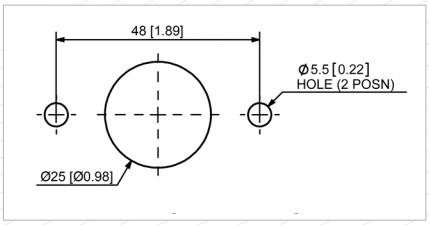
The Use of Battery Disconnecting Switches in Electric Vehicles

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





Drilling Details for Mounting

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.**

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