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Created / Released by:	300	Dr. Grönefeld	26-07-2004
Created / Released by:	300	Dr. Grönefeld	08-12-2005



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1. Purpose and application

These technical terms of delivery are valid as supplement to the drawing specifications and are therefore part of the contract. All values and agreements from part specific drawings or specifications, registered values / agreements are prior-ranking to these technical terms of delivery.

They apply to all battery disconnection switches of the series B 612.0001, B 612.0009, B 612.0039, B 612.0050 and B 612.0052. Individual switches of these series can be distinguished by a number added with a hyphen and, if necessary, a dot.

2. Scope / definitions

Keys:

All switches of the series B 612.0050 and B 612.0052 are being switched with a uniform key B 512.0028-2 with a two-sided steel pin. For all switches of the series B 612.0009 and B 612.0001 the key B 512.0008-2 with a single-sided steel pin is being used. For switch B 612.0001 the accompanying steel key will be enclosed in the delivery. The keys for the switches B 612.0009-2 and B 612.0050-4 are not removable. The keys to the other switches are removable and will be delivered without chain or other fasteners. The use of wrong keys can result in malfunctioning or increase the wear and tear and thereby lessen the maximum switching cycles!

Dust guard

The opening for the key is generally susceptible for dirt and can be protected by a dust guard B 512.0047 for the series B 612.0009, B 612.0039, B 612.0050 and B 612.0052 when the keys are removed. When the dust guard is being used, the switches are protected from dust according IP6X / DIN 40050-9, tested with talc according to EN 60529; the switches of the series B 612.0050 and B 612.0052 comply with protection grade IP 66 according to DIN 40050-9.

Please refer to the product documentation to see whether key and dust guard are enclosed in the delivery.

Grounding Resistor

The switches of the series B 612.0039 have two additional contacts, contact W (opener to deload capacities through a grounding resistor) and contact Z (closing to additional energize the ignition coil). We offer a 3,3Ω, 11 Watt resistor for this purpose with radial wires under part number B 413.0024. A qualified electrotechnical person has to check the suitability of the resistor for your application according to the load. You must never use more than one battery with switch in parallel. Otherwise the deloading of one battery through the resistor of the second opened switch will destroy this resistor (see also §8 security advice). The additional contacts W and Z are only for the described application.

3. Field of application

The battery master switches are meant to galvanically disconnect one pole of the battery from all electric consumers when commercial vehicles, industrial trucks, sports equipment and the like are out of use. The switches are designed for high static currents ranging from one to several hundred ampere. In principle the switches are suitable for all applications in the small scale voltage range (so-called ELV according to VDE0100 part 410) where the current supply needs to be cut off in unloaded state, e. g. camping and caravan area, solar systems, magnet coils, galvanics etc.



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4. Switching while loaded

In principle, the separation (break and make) is only permitted in a currentless state, meaning if not loaded. Switching in a range of only few ampere leads to burnings on the contacts and can damage or even destroy the switch especially under inductive charges.

The switch series B 612.0052 has however been consciously designed to be able to tolerate switchings under full constant charge in individual cases. Still, under normal circumstances a switching should be carried out while in unloaded state, as the switching function cannot be ensured after more than 50 switchings.

5. Performance features / temperature

As long as not otherwise specified, the indicated maximum steady current applies to a temperature range from – 40 °C up to 60°C. If indicated, short-term peak current is specified for ambient temperature. For both specifications the assembling position and the environment need to allow for a natural thermal cooling by free convection. For 100A switches, the cross-sectional areas of the lead need to amount to 35 increasing to 70 mm² per connecting lead for 250A steady current switches. In “make” status the switches can carry ohmic, inductive and capacitive charge, as long as the specified steady current is not exceeded in peak.

The switches are designed for on-board voltage of 12V (14V) and 24V (28V).

The use in a 42-volt electrical system is possible in principle, but has not been specified yet.

If not otherwise specified the switches are designed for at least 2000 switching cycles.

6. Optical defects

The formation of streaks on the surface as well as optic flow seams are permitted and don't have any impact on stability and function. The colour of the silver-plated contact screws can vary from silver to very shiny.

7. To be taken into account during installation

The technical characteristics can only be ensured when following specifications are being met:

- Tightness momentum of the M10 contact screws: 12 Nm
- Use terminal wire holders according to DIN 46211 form A. The wire holders have to be situated between the permanent contact faces of the contact screws and the helical spring lock washer (not between the helical spring lock washer and the nut!) and have to cover the contact face entirely.
- Observe the cross-sectional areas of the connecting lead with steady current up to 100A: 35 mm² and up to 250A 70 mm² (item 5)
- For the assembling position observe the natural thermal cooling through convection
- Avoid near heat sources (strong electricity consumers, motors, catalytic converters or the like) as well as the heating through connecting cables
- The specifications regarding the vibration (if specified) is referring to a horizontal switch axis
- Fastening of M6 screws with max. 5 Nm when fitting with the entire surface.



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8. Security advice !

The switches must not be used without testing and the written approval by the supplier under following circumstances: as critical components in appliances, facilities or technical systems to support or maintain essential functions, in manned space flight and nuclear technology as well as all appliances where a malfunctioning could lead to an endangering of human life.

At maximum permissible charge the switches can attain a temperature of approx. 140°C. If malfunctioning (e.g. due to overload or to delayed effects of wrong handling / switching while charged), by far higher temperatures can occur. Therefore, the switches and if existant the grounding resistor (see §2) have to maintain a stand-off distance to all flammable or explosive materials.

The switches must only be installed by production shops designed for that task and by qualified electrotechnic employees or accordingly qualified personnel.

The switches mustn't be used for switching of DC voltage higher than 60V, and mustn't be employed in AC mains voltage of typically 110V or 220V respectively or higher. As the switches don't represent a safe disconnection according to DIN VDE 0106 part 101 in "break" status, accordingly the switching voltage is lower for special applications, e.g. the SELV (Safety Extra Low Voltage) requirement.

As the switches are designed with one terminal, one terminal of the battery will still be connected to the electric circuit when the switch is open (most likely the – terminal = earth). For a full separation of a voltage source / battery both poles would need to be switched. This should be kept in mind when single systems where a contact exists through the cover or the grounding were to be switched free of voltage.

The making of the contacts is carried out by the forcing of the key. The breaking is carried out by the effect of a return spring, meaning that serious soilings or impurities in the key opening as well as extreme straining of the switch can prevent the opening of the contact. Because of security issues, the use of other keys than the original ones is not permitted.

9. Material composition, prohibition of pollutants

All battery master switches comply with the following regulations of the European Parliament.

- 2000/53/EC of 18.09.2000
- 2002/95/EC of 27.01.2003
- 2002/96/EC of 27.01.2003
- 2003/11/EC of 06.02.2003
- 2003/34/EC of 26.05.2003

The VDA 232-101 (list for materials to declare in Automotive industries) is being observed. As being part of the first sampling documentation a material data sheet will be enclosed, stating the substance composition of the materials used for the switches. Users that are officially registered in the International Material Data System IMDS will obtain this data sheet by mail.

Please do not hesitate to contact us in any doubt !