



tbs electronics DC Modular 500A Remote Battery Switch Installation Guide

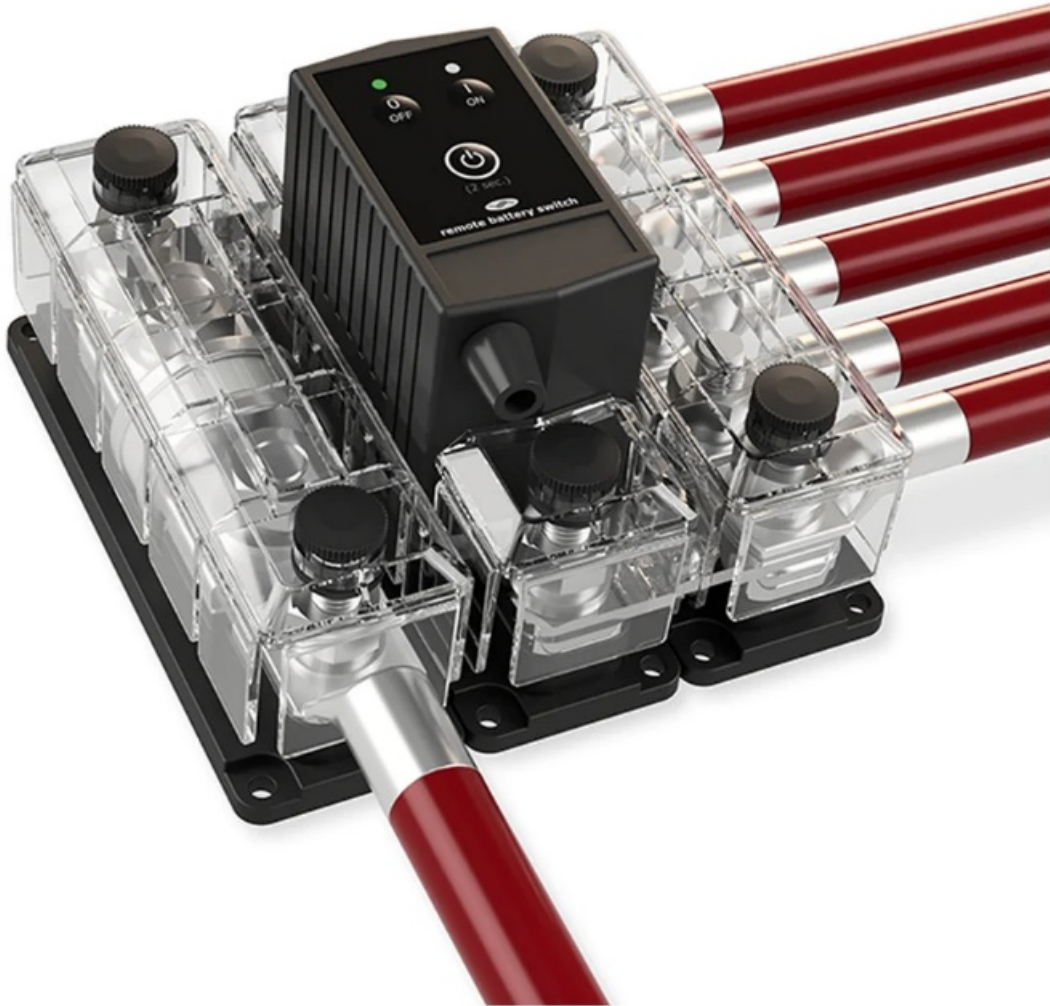
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tbs electronics DC Modular 500A Remote Battery Switch



Product Information

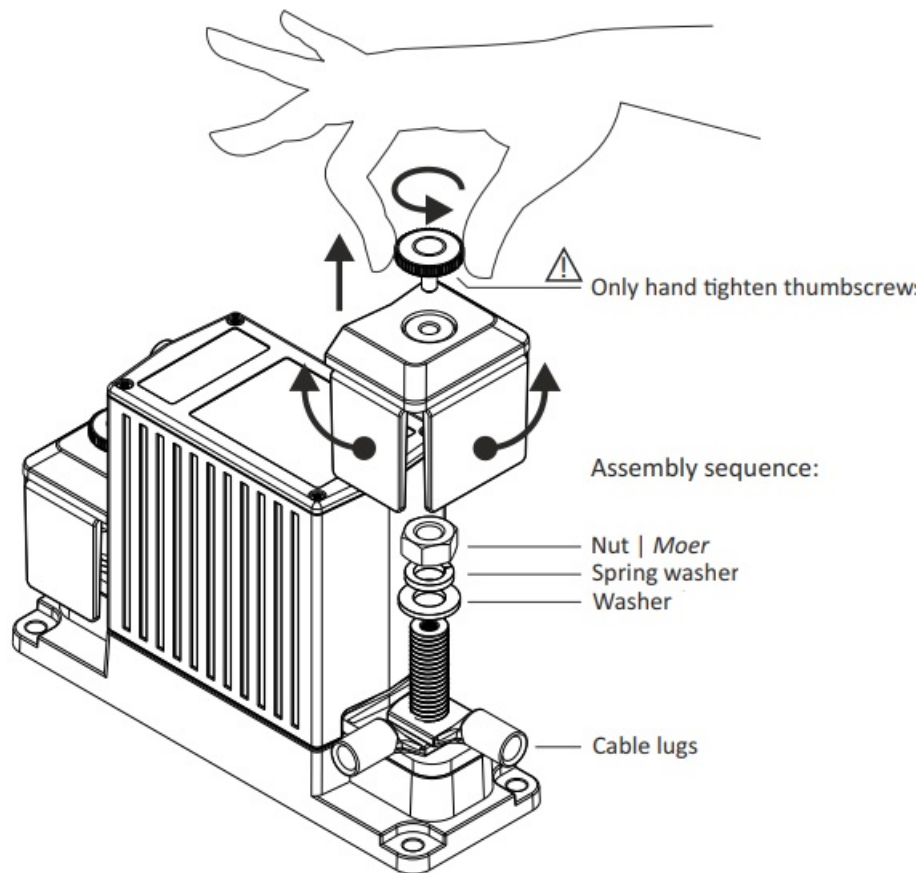
The DC Modular is a 500A Remote Battery Switch (RBS) with a maximum switching capacity of 34V / 100mA (Ruit 10). It has a standard function that operates on a +Vdc continuous supply and ground. The RBS also has an external momentary switch (TBS art.no. 5095000-1) for control. The RBS has two LEDs, one for OPEN and one for CLOSE, which indicate the status of the contact. The RBS also has an error table that provides information on possible issues. The product dimensions are 38.0mm x 138.0mm x 150.0mm.

Product Usage Instructions

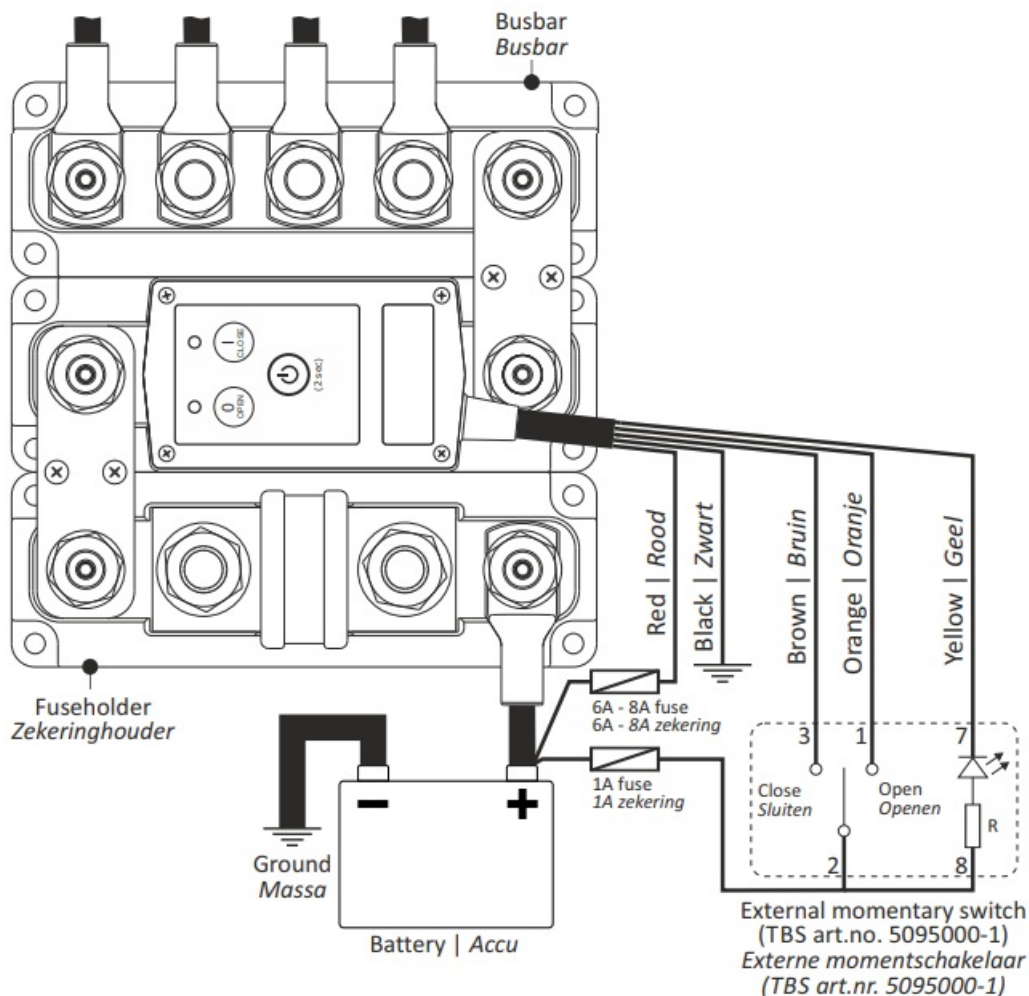
- **Main Cable Installation:** The main cable installation requires the assembly of nuts, spring washers, washers, and rings.
The cable lugs should also be installed in the correct order. The thumbscrews should be tightened by hand only.
- **Wiring Example:** The DC Modular has a wiring example that shows the connection of a busbar to the product.
- **Wire Table:** The wire table provides information on the wire colors and their corresponding functions. Red is for +Vdc continuous supply, black is for ground, brown is for +Vdc pulse closes contact, and orange is for +Vdc pulse opens contact.
- **Error Table:** The error table provides information on possible issues with the RBS. Both LEDs flashing red indicates that the supply voltage is too low or too high, or the RBS temperature is too high. If the contacts are welded, the RBS needs to be replaced. If the OPEN LED or CLOSE LED is flashing red, it indicates that the contact fails to open or close. Check if the supply voltage is within range; otherwise, return the RBS for service.

- **Control Mode Table:** The control mode table provides information on the different control modes available for the RBS. The modes include 2-wire with no contact change at power-up, 2-wire with contact closes at power-up, 2-wire with contact opens at power-up, and single-wire with normally open contact.
- **Change Control Mode:** To change the control mode, press all three buttons simultaneously for three seconds to enter the setup mode. Then, step through the control modes by pressing the OPEN (up) or CLOSE (down) buttons.

Main cable installation



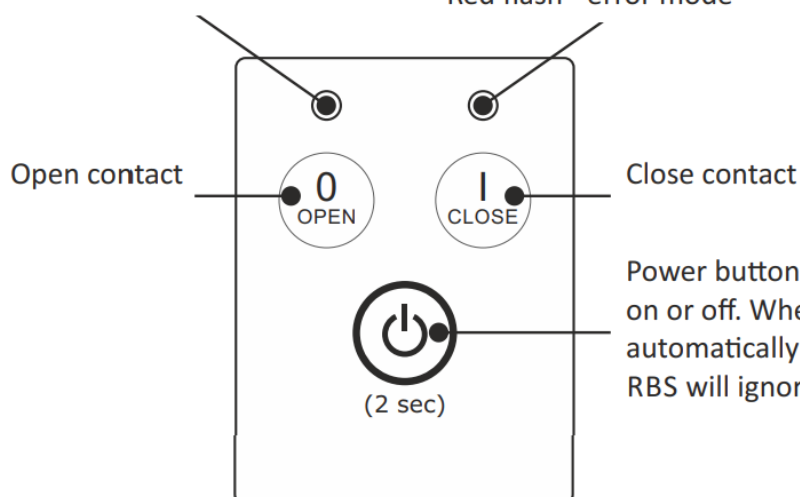
Wiring example



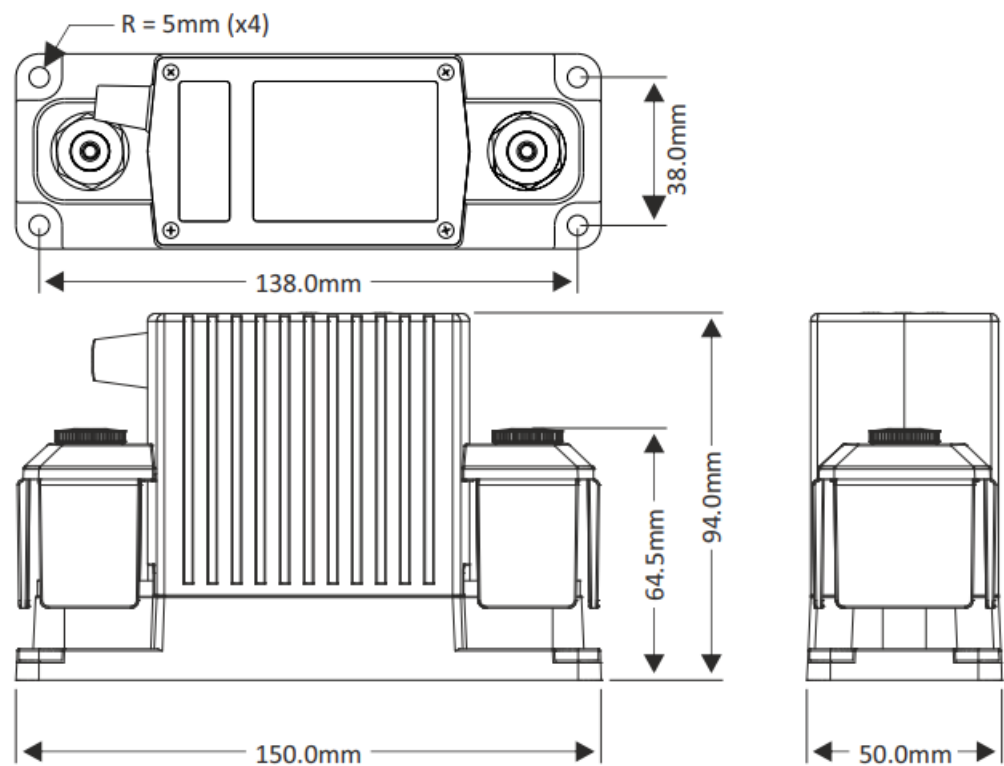
General operation

Green flash - contact open
Red flash - error mode

Green flash - contact closed
Red flash - error mode



Dimensions



Wire table

Wire	Standard function
Red	+Vdc continuous supply
Black	Ground
Brown	+Vdc pulse closes contact
Orange	+Vdc pulse opens contact
Yellow	Status (LED) output

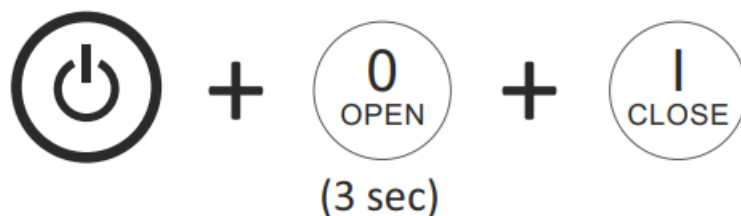
1. The Status output is a ground-referenced open collector port with a maximum switching capacity of 34V / 100mA (Rout ≈ 10 Ω)

Error table

Error table		
Both LEDs flashing red	OPEN LED flashing red	CLOSE LED flashing red
Supply voltage too low <i>Voedingsspanning te laag</i> RBS Temperature too high <i>RBS temperatuur te hoog</i>	Contact fails to open. Check if supply voltage is within range. Otherwise return RBS for service.	Contact fails to close. Check if supply voltage is within range. Otherwise return RBS for service.

Change control mode

When in off mode, press all three buttons simultaneously for three seconds to enter the setup mode:



Step through the control modes by pressing the OPEN (up) or CLOSE (down) buttons

Control mode table			
Mode no.	Open LED	Close LED	Control mode
1	○	ⓐ	2-wire, no contact change at power-up
2	ⓐ	ⓐ	2-wire, contact closes at power-up
3	ⓐ	○	2-wire, contact opens at power-up
4	○	ⓐ	single-wire, normally open contact
5	ⓐ	ⓐ	single-wire, normally closed contact

○ = LED off
 ⓐ = LED green
 ⓐ = LED orange

- When the desired control mode is selected, press the Power button for 2 seconds to save the setting.

- Press the Power button again for 2 seconds to activate
- Modes 1, 2 & Vdc pulse on brown wire to close, +Vdc pulse on orange wire to open.
- Mode 4: +Vdc continuous on brown wire to close, OVdc on brown wire to open. Orange wire not used.
- Mode 5: +Vdc continuous on brown wire to open, OVdc on brown wire to close. Orange wire not used.

Installation details

Precautions

1. Please install this product in a dry indoor location, as close as possible to the battery. To be installed only by qualified technicians.
2. To avoid fire hazards, use correctly sized cables which are suitable to carry the expected load currents in your application. The maximum continuous RBS current rating of 500A is only valid when a total cable size of at least 200mm² is connected to the M10 studs. Or when the RBS is part of a DC Modular system containing large busbars and fuseholders.
3. To avoid fire hazards or damaging the RBS, please make sure that all nuts are securely tightened. Please apply our recommended torque rating of 22Nm for the M10 nuts.
4. To avoid fire hazards or damaging the RBS, please make sure that spring- and flat washers are always placed directly below the nut. Never place washers between: busbar and cable lug, multiple cable lugs on the same stud, busbar and linkplate or cable lug and linkplate.
5. Please make sure that all connection cables are properly strain relieved, to avoid excessive mechanical stress on the RBS

RBS features

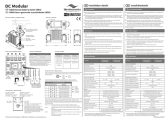
- Smart high current magnetic latching relay, draws virtually no current in On (Close) or Off (Open) state.
- Silver alloy contacts and silver plated copper busbars, for maximum conductivity and high reliability when switching live loads.
- Local Open and Close buttons on top, to manually override the switch state.
- 5 wire interface cable for external control by panel switch, battery monitor or BMS. Compatible with two wire or single wire On/Off control. Includes status wire for controlling indicator light or providing feedback to BMS.
- Stainless steel studs, washers and nuts for optimal corrosion resistance.
- Unique grid optimized footprint allows space saving arrangements with other DC Modular products.
- Special fiber reinforced plastic housing offers excellent high temperature properties, good chemical resistance and high strength.
- Robust transparent covers with breakouts to allow wire access from any direction.
- Smart terminal design allows dual mirrored cable lug connections.

RBS specifications

Parameter	DCM-RBS-12-500 (art# 5074510)	DCM-RBS-24-500 (art# 5074520)
Contact circuit (electrical)		
Rated voltage	60Vdc	
Nominal current @ 25°C	500A (see Precau on #2)	
Cranking current (1 minute)	1000A	
Nominal make / break current	500A (0 .. 34Vdc) 350A (35 .. 60Vdc)	
Peak make / break current ¹⁾	1600A (0 .. 34Vdc) 1200A (35 .. 60Vdc)	
Control circuit (electrical)		
Coil / supply voltage (+Vdc)	7.5 .. 17Vdc	15 .. 34Vdc
Coil / supply current (idle state)	< 100µA	
Coil / supply current (state change)	< 6A	< 3A
Control wire supply current	< 3mA (when ac ve)	
Control wire threshold voltage	> 5Vdc	
General		
Remote control ²⁾	By control wires (length 40cm, max. 15m)	
Local control	On/Standby, Close contact, Open contact	
Indicators	Contact open, Contact close, Error and Setup	
Protected against	High temperature, High/Low supply voltage, Igni on (ISO 8846)	
Mechanical life	100000 cycles	
Electrical life	10000 cycles (@ 400A/24V/resis ve)	
Opera ng temperature range	-20 .. +60°C	
Connec on studs / DCM grid size	M10 / 1 x 3	
Protec on class / weight	IP 65 / 800 grams	
Standards	EMC: 2014/30/EU & UNECE Regula on 10, Low voltage Direc ve: 2014/35/EU, RoHS: 2011/65/EU, ISO 8846	

1. When switching in the upper voltage range, it is advised to install a proper pre-charge circuit to
2. keep the peak make current significantly below this value
3. Panel switch with LED indicator optionally available (Art. no. 5095000-1)

Documents / Resources



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5095000-1, DC Modular 500A Remote Battery Switch, 500A Remote Battery Switch, Remote B
attery Switch, Battery Switch

References

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