

Expert Modular

High Precision Modular Battery Monitor



Complete battery status information at a glance (% , V , A , Ah , W , h:m , °C)
Supports up to three battery banks (12V , 24V and 48V)
Very simple 'Plug and Play' installation
Perfect integration with TBS DC Modular products

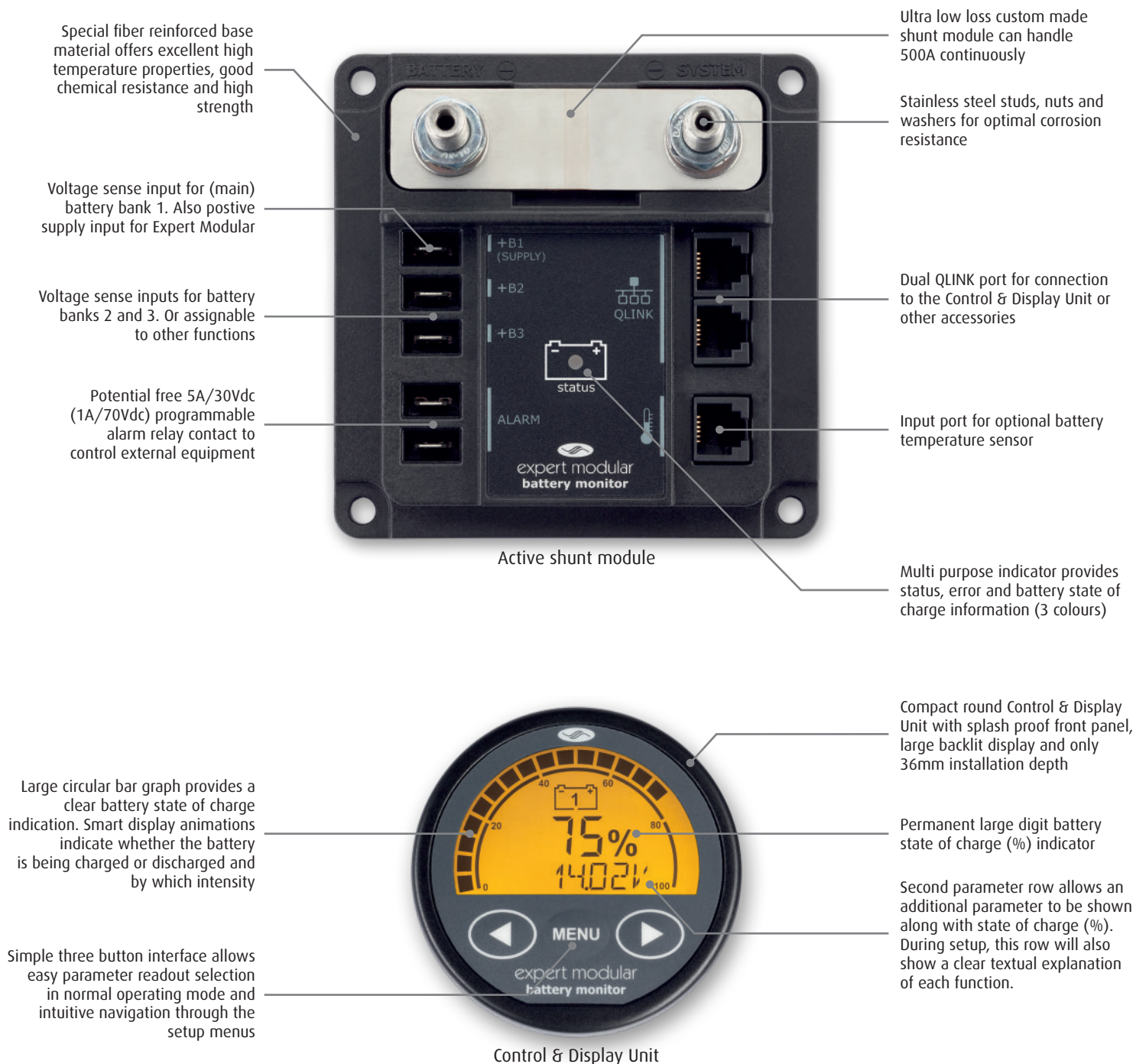
Expert Modular high precision battery monitor

The Expert Modular is our latest generation, highly advanced battery monitor. It consists of an intelligent shunt and a remote control and display unit. The shunt has a Grid Optimized footprint for perfect integration with our DC Modular products.

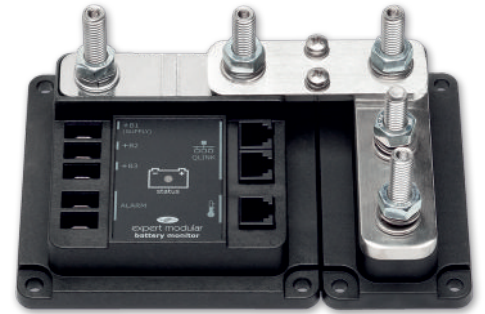
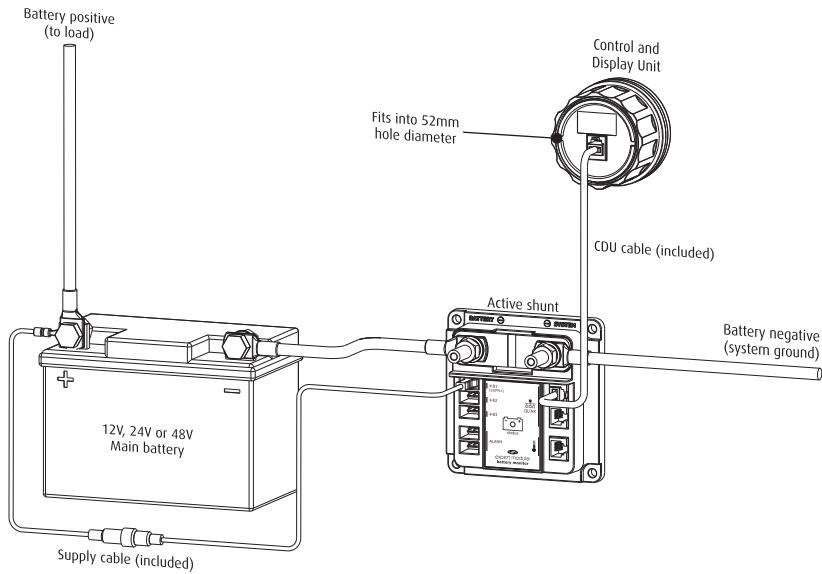
This advanced battery monitor not only shows the true state of charge of your battery system. It also offers a large amount of additional features to optimally supervise your battery system and control external equipment. The Expert Modular is compatible with lead based and Lithium batteries (LiFePO4).

The Expert Modular can monitor up to three battery banks. The inputs for battery bank 2 and 3 can also be configured for other purposes, like mid-point voltage measurement, keyswitch input, setup lock or backlight control. The Expert Modular battery monitor can measure DC currents up to 600Amps (500Amp continuous) and voltages up to 70Vdc. So any lead- or lithium based battery from 12V up to 48V can be monitored.

The installation time is minimal, requiring only one supply wire to the intelligent shunt base and a single 'QuickLink' cable between the shunt base and the control/display unit (CDU). Additionally, the battery minus cable must be interrupted in order to insert the shunt into the high current circuit. The fused supply wire and the QuickLink cable are both included in the package, avoiding the need for a separate connection kit.



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Example schematic of a single battery setup. Notice the small amount of cables that are needed to get the Expert Modular up and running. The supply and CDU cables are both included. Also included but not shown in the above picture are rubber caps to cover unused I/O ports against pollution.

The Expert Modular active shunt base has a Grid Optimized footprint. This enables perfect system integration with busbars and fuseholders from the TBS DC Modular product lineup. The above picture shows a nice solution to avoid stacking all battery negative return cables on the single "System side" stud of the shunt.



The image on the left shows the normal operating mode with the second parameter row disabled. This results in a clean display area that only shows the battery state of charge (%) and the bar graph. A perfect mode for less technical end users.



By enabling the second parameter row, the user can scroll through the following battery parameters: Volt, Amp, Ah, time remaining, temperature, Watts, and maintenance hours. The second parameter row can be set to automatically hide after a specified number of seconds or to stay present permanently. It is also possible to selectively disable certain parameter readings that are not relevant to the user.



During function setup, status or history readout, each parameter is clearly explained using scrolling text in the display. This will make it a lot easier to browse through the Expert Modular menu, without having to consult a list of parameter numbers.



When an alarm is activated (for example due to a low battery state of charge), the alarm bell icon will be lit and an explanation about the type of alarm will scroll through the display. An audible alarm can be enabled to let the CDU beep for additional attention.

Technical specifications and accessories

Parameter	Expert Modular																						
Supply voltage range	7..70Vdc																						
Supply current (@ 12V/ 24V/48V)	10mA / 6mA / 5mA																						
Input voltage range main battery (+B1)	7..70Vdc ¹⁾																						
Input voltage range second and third battery (+B2, +B3)	1..70Vdc																						
Input current range	-600..+600A ²⁾																						
Battery capacity range	10..10000Ah																						
Operating temperature range	-20..+50°C																						
Storage temperature range	-30..+70°C																						
Readout resolution:	<table border="0"> <tr> <td>Voltage (0..70V)</td> <td>± 0.01V</td> </tr> <tr> <td>Current (0..10A)</td> <td>± 0.01A</td> </tr> <tr> <td>Current (10..100A)</td> <td>± 0.1A</td> </tr> <tr> <td>Current (100..600A)</td> <td>± 1A</td> </tr> <tr> <td>State of charge (0..100%)</td> <td>± 1%</td> </tr> <tr> <td>Time remaining (0..24hrs)</td> <td>± 1min</td> </tr> <tr> <td>Time remaining (24..240hrs)</td> <td>± 1hr</td> </tr> <tr> <td>Amphours (0..10000Ah)</td> <td>± 0.01Ah - 10Ah (variable)</td> </tr> <tr> <td>Power (0..42kW)</td> <td>± 0.01W - 1kW (variable)</td> </tr> <tr> <td>Temperature (-20°C..+50°C)</td> <td>± 0.5°C</td> </tr> <tr> <td>Maintenance hours (0..100000hrs)</td> <td>± 1hr</td> </tr> </table>	Voltage (0..70V)	± 0.01V	Current (0..10A)	± 0.01A	Current (10..100A)	± 0.1A	Current (100..600A)	± 1A	State of charge (0..100%)	± 1%	Time remaining (0..24hrs)	± 1min	Time remaining (24..240hrs)	± 1hr	Amphours (0..10000Ah)	± 0.01Ah - 10Ah (variable)	Power (0..42kW)	± 0.01W - 1kW (variable)	Temperature (-20°C..+50°C)	± 0.5°C	Maintenance hours (0..100000hrs)	± 1hr
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Temperature (-20°C..+50°C)	± 0.5°C																						
Maintenance hours (0..100000hrs)	± 1hr																						
Voltage measurement accuracy	± 0.3%																						
Current measurement accuracy	± 0.4%																						
Dimensions	See section below																						
Weights	Shunt 290grams / CDU 70grams																						
Protection class	IP20 (CDU frontpanel only IP65)																						
Standards	CE certified (EMC Directive 2014/30/EU) including EN50498 Automotive EMC																						

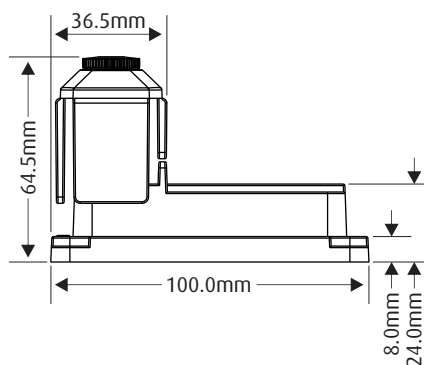
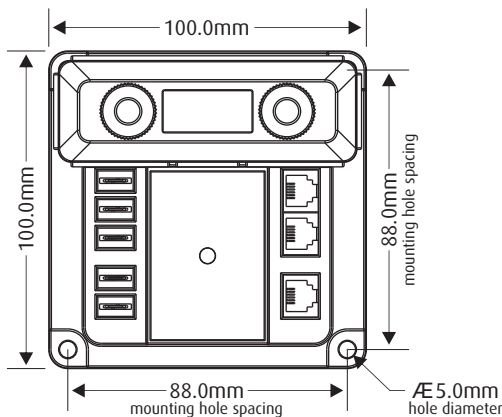
All specifications are subject to change without notice

¹⁾ When input +B1 is only used for supply and +B2 for main battery voltage measurement, the input voltage range for the main battery is 1..70Vdc

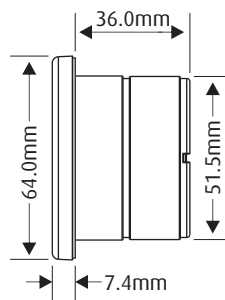
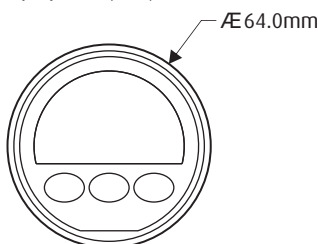
²⁾ +/- 600A is the maximum rating for 20 minutes. The continuous input current range is +/- 500A

Dimensions

Active shunt module:



Control & Display Unit (CDU):



Accessories



Isolated Quicklink to USB interface kit (art# 5092130). Includes Dashboard for Windows software for readout and setup of the Expert Modular.



Isolated Quicklink to RS232 interface kit (art# 5092030). Includes Dashboard for Windows software for readout and setup of the Expert Modular.



Temperature sensor kit 3m (art# 5055310) or 10m (art# 5055340). Monitoring the battery temperature will result in an even more accurate state of charge prediction.



Combine the Expert Modular active shunt seamlessly with busbars and fuseholders from the DC Modular series. Create compact clusters of DC distribution products quickly, easily, and safely.