

Battery Monitoring System

Type M3749



- ✓ 60 Cells per instrument (max 160V)
- ✓ U/I ripple monitoring
- ✓ Charge-Discharge current monitoring
- ✓ Continuous measurement of individual cell impedance
- ✓ 3 potential free alarm contacts
- ✓ Cascadable
- ✓ Megger Torkel compatible
- ✓ PT100 Temperature monitoring
- ✓ Input hydrogen gas concentration
- ✓ USB Logger
- ✓ RS485 Modbus RTU for PLC, PC's
- ✓ High resolution TFT Display
- ✓ Rail mounting 35mm

Technical description

The battery monitoring system is used to permanently monitor fixed installed USV batteries. The instrument monitors the attached battery while it records constantly the battery's parameters to the plugged USB-stick. When needed, the stick can be removed any time to evaluate the current and past battery state.

All cell voltages as well as the current, the ripple current and the ripple voltage of the whole battery are available on the USB-stick if wanted. Furthermore also the battery room temperature and its hydrogen concentration are also written to the USB-stick.

On the high resolution display all measured parameters can directly be displayed without the use of a PC or a tablet. Additionally the instrument can be directly connected via USB to a PC. Since the instrument is equipped with a standard MODBUS

RTU interface, the data can easily be made available on your local PLC or PC without a large software overhead. Like this, the battery is remotely monitored and you have the data available at all times.

In case, you need to monitor more than 60 cells, the instrument can directly be cascaded with its second RS485 interface in order to monitor up to 540 cells.

Furthermore, the instrument has 3 potential free relay contacts. Multiple parameters can be programmed to these relays to have a simple interface. Like this the instrument is connected to a PLC without the use of MODBUS.

For discharge and impedance tests, the instrument can be directly connected to the Megger Torkel instrument.

Specifications

Supply voltage:	20-160VDC, up to max. 300VDC on request
Power consumption:	Max. 5W
Power supply:	universal power supply 20 – 160VDC, for higher voltages connect the middle of the battery
Working temperature range:	-5°C to +45°C
Max. humidity:	95%, non-condensing
Mounting:	DIN-rail 35mm
Max. number of cells:	60, cascadable with up to 8 Slaves (540 cells)
Max. voltage per cell:	0 – 160VDC, up to max. 300VDC on request
Cell input impedance :	1.04MΩ
Min. resolution of cell voltage:	3mV
Accuracy:	+/- 3mV @ 25°C
Long term stability(3 month period):	+/- 0.1%
Limit contacts:	3 potential free change over contacts Trigger criteria's programmable in the instruments menu Symbol on the internal display
- Status	
- Contact hysteresis:	Adjustable, factory setting is +/- 5 counts
- Max. contact load:	1A resistive / 230VAC
- Life span of contacts:	100'000 cycles at max. load 10'000'000 cycles at no load
Measurement input ripple voltage:	no need to connect this signal. The signal is directly measured from the instruments power supply connection.
Accuracy ripple current:	+/- 0.3%
Measurement input current:	depending on the requested maximum current, a current sense module is supplied.
Accuracy current measurement:	+/- 0.1% gain error, Offset +/- 0.1%
Accuracy ripple current measurement:	+/- 0.25% gain error, Offset +/- 0.1%
Temperature measurement:	-30 ... +70 °C, with external 3-wire Pt-100 temperature sensor
Accuracy:	+/- 0.1 °C
Pt-100 sensor cable length:	1000m, automatic cable length compensation
Hydrogen concentration input:	4 ... 20mA, measurement with an external hydrogen sensor
USB data logger:	accepts FAT32 formatted USB-sticks
USB Anschluss:	galvanically separated USB Type B connector for the connection between the Torkel or PC
Data connection to PLC / PC:	RS485, termination resistors selectable by DIP switches
- Galvanically separated	
- Protocol: MODBUS RTU	
- Terminals for the cable shield and the connection to the next instrument on the same bus connection	
Dimensions:	L x W x H = 213mm x 91mm x 62mm
Weight:	425g
CE-conformity:	Fulfilled

Basic diagram

