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BATTERY MONITOR UNIT – UMB10

APPLICATION FIELDS

- Oil & Gas
- Power Generation
- Trasports
- Process control
- Industrial

POINTS OF STRENGHT

Constant control of the battery bank
- Compatible with AGM/Gel /Pb/NiCd batteries
- Easy installation
- Takes power from the battery bank being monitored
- 10 voltage measurement channels
- Easy system configuration via WEBSERVER
- Remote control via WEBSERVER
- Sends email in case of battery abnormality detection
- GENERAL FAULT relay on board
- Compatible with planned BOOST / MANUAL charge rectifiers
- MODBUS TCPIP communication
- Color backlit LCD display for:

immediate and intuitive diagnostics via messages
Measurement of battery voltage value
Identification of device operating status
Identification of the measurement channel in fault

WHAT IT'S FOR

The UMB10 Battery Monitoring Unit was created for the purpose of preventing inefficiencies to UPS and DC UPS systems caused by problems with the storage batteries.

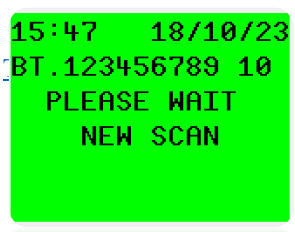
In fact, if a preventive maintenance and control activity is not carried out on this important element of the uninterruptible power supply system, one notices its inefficiency only at the time of greatest importance, i.e., when a blackout occurs.

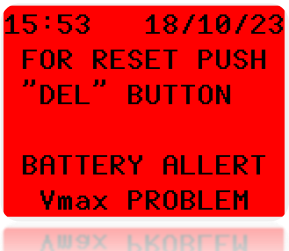
In this context, the economic and material damage is often considerable.

It is precisely for this reason that performing timely, constant and continuous checks on batteries over time is of fundamental importance for the proper functioning of the uninterruptible power supply system.

The UMB10 device, with its repeated and precise checks, alerts you in advance of the onset of problems at the battery bank, thus avoiding abnormal situations at the preferred load.

The UMB10 device is available as a single wall-mounted stand-alone unit or can be integrated into our battery cabinets.





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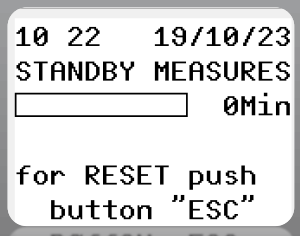
GENERAL DATA		
Auxiliary supply voltage.	17 ÷ 330 Vdc (Nota 1)	
Current drawn by the system	< 0.5Amp	
Number of measurement channels	10	
Measurement range for single channel	1 ÷ 100Vdc	
Measurement resolution	0.1 decimale	
Accuracy of battery voltage measurement	Max. +/- 0.2Vdc	
Scan time between channels	10 seconds	
Measurement channel electrical resistance	>80 kohm	
Reverse polarity protection on single measurement channel	Present	
Isolation between aux. power supply and measurement channels	Present	
ALARMS and SIGNALS		
Maximum battery voltage	Message on LCD	
Minimum battery voltage	Message on LCD	
Battery charging voltage not regular	Message on LCD	
General failure	Via dedicated relay (Note 1)	
On interface card	Led matched to each measurement channel	
On interface board	Led matched to general fault relay (Note 1)	
ALARM THRESHOLDS (factory setting)		
	AGM/Gel/Pb	**NiCd**
Maximum voltage alarm (floating charging mode)	2.35 V/el.	1.45 V/el.
Maximum voltage alarm (boost charging mode)	2.5 V/el.	1.72 V/el.
Minimum voltage alarm	1.75 V/el.	1 V/el.
Non-regular charging alarm	2 ÷ 2.2 V/el.	1 ÷ 1.3 V/el.
MAXIMUM NUMBER of ELEMENTS that can be set for a single channel		
	AGM/Gel/Pb	**NiCd**
Floating charge mode	41 el.	66 el.
Boost charge mode	38 el.	56 el.
OTHER FUNCTIONS		
MODBUS TCPIP communication	Present (Note 1)	
Built-in webserver	Present (Note 1)	
Mail server	Present (Note 1)	
Configuration of maximum number of measurement channels	Yes from webserver	
Number of battery elements per single measurement channel	Yes from webserver	
AGM-Pb / NiCd battery management	Present (Note 1)	
Alarm thresholds management for rectifiers with boost charging	Present (Note 1)	
Alarm thresholds management for rectifiers with manual charge	Present (Note 1)	
System interface operation status check	Present	
MECHANICAL CHARACTERISTICS		
Container	Wall-mounted switchboard 36 modules without door made of plastic resin . External degree of protection = IP20	
Operating temperature	-10 ÷ + 40°C	
Storage temperature	-25 ÷ + 70°C	
Relative humidity	5 - 95 % (IEC 60068-2-30, IEC 60068-2-78)	
Approximate weight	3kG	
Approximate dimensions (lxpxh)mm	400x140x400	

(Note 1) : details available in the dedicated TECHNICAL SPECIFICATION



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Principle of operation

The UMB10 device applies the fundamental principle of electronics, namely, Ohm's law V = R*I.
In fact, a set of batteries connected in series with each other can be likened to a set of electrical resistors.
In Fig.2a we show the representation of the internal electrical structure of a battery

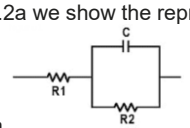
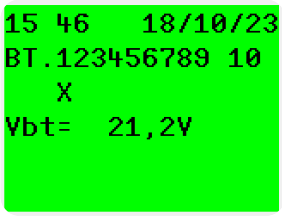
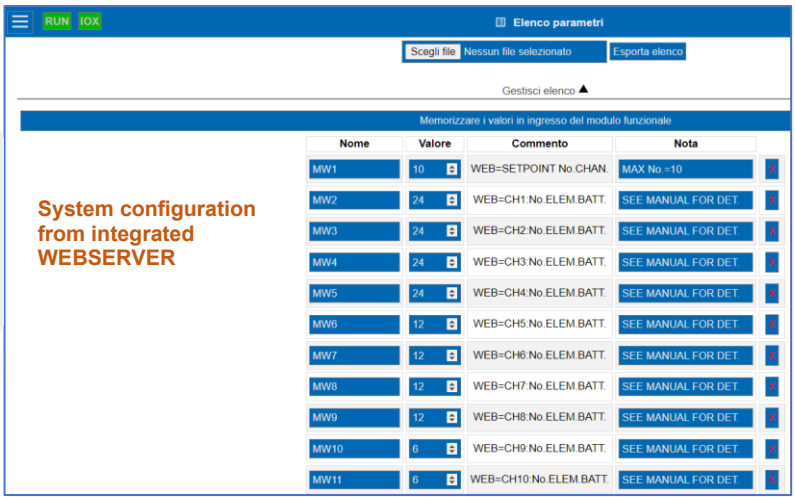


Fig.2a

Assuming the current flowing through them constant and assuming the value of each resistor to be equal, we will be able to measure an identical voltage drop across each resistor. Let us now apply this concept to our battery bank. Originally, the internal resistance of the individual batteries is almost identical; however, over time this parameter tends to change by increasing its value. This is due, for example, to the quality of the materials used to make the battery, the operating temperature, the charge and discharge cycles to which it is subjected, etc. The important thing to note is that the value of internal resistance undergoes non-uniform variation; that is, it does not change in the same way from one battery to another. Going back to the basic principle expressed above and assuming that we are in the process of charging the battery bank with a constant, electronically limited current, it can be understood how, by varying the internal resistance value of the individual battery, different voltage values can be measured at the ends of each individual battery; this is what the UUMB10 device puts into practice.

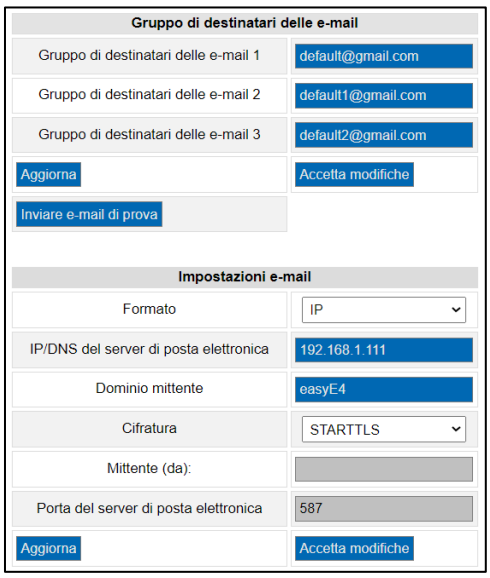
RJ45 port available outside the switchboard for easy connection to the system



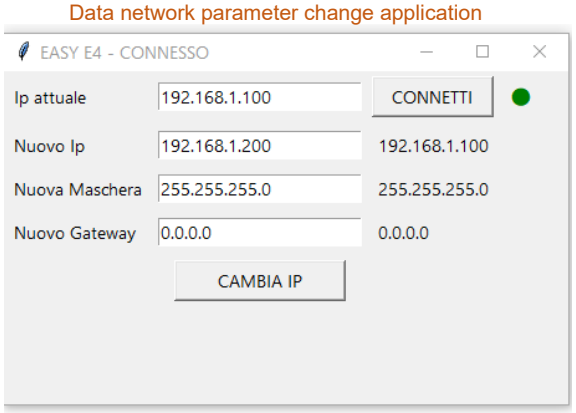


System configuration from integrated WEBSERVER

Integrated mail server



Data network parameter change application



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