Innovative Electronics for a changing World

TCP IP V/A meter for Batteries in Series

Several applications require the use of series connected battery packs for adequate power. These packs often need effective automated equipment to measure the battery voltages from time to time. The voltage is a good indicator of whether any battery is losing charge due to extraneous factors. Some of the factors that contribute towards reduction in life or charge retention of such batteries include the type of battery cell design, ambient temperature, and length of usage/storage. This means that if there are certain subtle differences between the individual batteries, the batteries will not charge/discharge in a uniform manner. The result is that some units will be overcharged, some excessively discharged, and poor performance will result.

All batteries must remain within a high and low voltage operating range to prevent damage. During the discharge cycle, batteries which are less efficient tend to go out of voltage balance before the rest, resulting in an overall limiting of the total battery capacity. Similarly, during the charge cycle, batteries which are more efficient tend to get charged a little higher than the rest, resulting in an overcharge. Batteries that are overcharged are subject to an oxygen recombination cycle at their negative electrodes, and this causes their cycle life to be significantly reduced, the TCP IP V/A meter now allows you to monitor your battery pack remotely.

1. SYSTEM DESCRIPTION
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3. START UP GUIDE and passwords
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MODELS:

TCP IP V/A meter / 30 Amp

TCP IP V/A meter / 100 Amp
1. System description

The TCP IP Volt / Amp meter was designed to assist Network and Wireless Network specialists with Power related information via Ethernet Communication.

The TCP IP V/A meter measures batteries that is connected in the series configuration and report the Battery voltages individually as well as the total battery pack voltage.

One Charge current terminal is available to sense the charge current to the battery pack. Two models is available with either 30 Amp max or 100Amp max current sense.

All information is available from embedded web pages as well as through SNMP (Simple network management protocol) V1 and V2c

Battery 1 to 4 (or what is connected), Total battery pack Voltage and charge current is available via web pages and SNMP

The unit auto sense batteries connected to the system and operates from either 1 to 4 batteries connected. A smart load balancing system ensures that operating current is shared between all batteries connected to the TCP IP V/A meter.

Current Consumption:

- 80 milli-amps @ 12Vdc (1 battery connected)
- 40 milli-amps @ 24Vdc (2 batteries connected)
- 20 milli-amps @ 36Vdc (3 batteries connected)
- 10 milli-amps @ 48Vdc (4 batteries connected)
2. Board Connections

Any number of batteries can be connected to the system from 1 to 4 as long as the batteries start from ground at the GND terminal and then follow 12V to B1 or 24V to B2 or 36V to B3 or 48V to B4.

B1 meaning first battery closest to Ground – B2 next battery up to B4.

3. User Name and Password

The Network configuration and SNMP configuration pages is password protected

Username : admin

Password : microi
4. Home page

Home page displays the serial number, model number and the total battery pack voltage
Total Battery pack volts, charge current and Batteries 1 to 4 is displayed.
If only battery 1 is connected 2,3,4 will result in 00.0V
6. Network Configuration page

User will have to enter password

Enter: admin, microi
6. Network Configuration page

IP address, Gateway and subnet Mask can be changed here
7. SNMP Configuration page

SNMP Community Configuration

Configure multiple community names if you want the SNMP agent to respond to the NMS/SNMP manager with different read and write community names. If less than three communities are needed, leave extra fields blank to disable them.

- **Read Comm1**: public
- **Read Comm2**: read
- **Read Comm3**: 
- **Write Comm1**: private
- **Write Comm2**: write
- **Write Comm3**: public

[SNMP Configuration page image]
8. SNMP screenshots and OID table

![SNMP screenshots](image1)

<table>
<thead>
<tr>
<th>OID</th>
<th>Simple OID</th>
<th>Type</th>
<th>Value</th>
<th>Module</th>
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</table>
**OID table**

45501.1.3.1.0 – Battery 1 (12V)
45501.1.3.2.0 – Battery 2 (24V)
45501.1.3.3.0 – Battery 3 (36V)
45501.1.3.4.0 – Battery 4 (48V)
45501.1.3.5.0 – Total battery pack volts
45501.1.3.6.0 – Charge Amps

Dude “appearance settings”

[Device.Name]
[device_performance()][Device.ServicesDown]

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