OM-CP-VOLT101A
DC Voltage Data Logger

Voltage Recorder
OM-CP-VOLT101A
Voltage Range
-3 to +3 VDC
Product Overview

The OM-CP-VOLT101A data loggers are versatile data logging devices with many uses and applications. Connect negative and positive wire leads directly to the terminal port on the OM-CP-VOLT101A to monitor and measure voltage levels. The OM-CP-VOLT101A is commonly used to assess battery efficiencies or photovoltaic studies to identify how much energy is being created from solar cells.

The OM-CP-VOLT101A features a removable terminal block to allow for simple retrieval of the data logger for downloading while leaving the leads connected. With a ten year battery life and the ability to store up to one million time and date stamped readings, this device is ideal for long term deployment and voltage studies.

Four models of the OM-CP-VOLT101A are available. The 2.5V is capable of measuring -3V to 3 V, the 15 V capable of measuring -8V to 24V, and the 30V which can measure from -8V to 32V. For lower voltage applications that require a higher resolution, Omega also offers the OM-CP-VOLT101A-160MV model, which can measure voltage between -160 and 160mV.

Wiring the Data Logger

<table>
<thead>
<tr>
<th>OM-CP-VOLT101A, 2.5V, 15V and 30V models</th>
<th>OM-CP-VOLT101A-160MVDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Ended Wiring</td>
<td>Differential Wiring</td>
</tr>
<tr>
<td>Two-position removable screw terminal connections; accepts 2-wire configurations.</td>
<td>Three position removable screw terminal connections, accepts 3 wire configurations.</td>
</tr>
</tbody>
</table>

Warning: Note the polarity instructions. Do not attach wires to the wrong terminals.

LEDs
- Green LED blinks: 10 seconds to indicate logging and 15 seconds to indicate delay start mode
- Red LED blinks: 10 seconds to indicate low battery and/or memory and 1 second to indicate an alarm condition

Engineering Units
Native measurement units can be scaled to display measurement units of another type. This is useful when monitoring voltage outputs from different types of sensors such as temperature, CO2, flow rate and more.

Password Protection
An optional password may be programmed into the device to restrict access to configuration options. Data may be read out without the password.

Multiple Start/Stop Mode Activation
- To start device: Press and hold the pushbutton for 5 seconds, the green LED will flash during this time. The device has started logging.
- To stop the device: Press and hold the pushbutton for 5 seconds, the red LED will flash during this time. The device has stopped logging.

Alarm
User selectable high and low voltage limits.
Troubleshooting Tips

Why is the wireless data logger not appearing in the software?
If the OM-CP-VOLT101A or OM-CP-VOLT101A-160MV doesn’t appear in the Connected Devices panel, or an error message is received while using the OM-CP-VOLT101A or OM-CP-VOLT101A-160MV, try the following:

- Check that the OM-CP-IFC200 is properly connected. For more information, see Troubleshooting Interface Cable problems (below).
- Ensure that the battery is not discharged. For best voltage accuracy, use a voltage meter connected to the battery of the device. If possible, try switching the battery with a new OM-CP-BAT105.
- Ensure that no other Omega software is running in the background.
- Ensure that Omega Software is being used.
- Ensure that the Connected Devices panel is large enough to display devices. This can be verified by positioning the cursor on the edge of the Connected Devices panel until the resize cursor appears, then dragging the edge of the panel to resize it. The screen layout may also be reset in the options menu by selecting File, Options, and scrolling to the bottom.

Troubleshooting Interface Cable problems

Check that the software properly recognizes the connected OM-CP-IFC200.
If the data logger is not appearing in the Connected Devices list, it may be that the OM-CP-IFC200 is not properly connected.
1. In the software, click the File button, then click Options.
2. In the Options window, click Communications.
3. The Detected Interfaces box will list all of the available communication interfaces. If the OM-CP-IFC200 is listed here, then the software has correctly recognized and is ready to use it.

Check that Windows recognizes the connected OM-CP-IFC200.
If the software does not recognize the OM-CP-IFC200, there may be a problem with Windows or the USB drivers.
1. In Windows, click Start, right-click Computer and choose Properties or press Windows+Break as a keyboard shortcut.
2. Click Device Manager in the left hand column.
3. Double click Universal Serial Bus Controllers.
4. Look for an entry for Data logger Interface.
5. If the entry is present, and there are no warning messages or icons, then windows has correctly recognized the connected OM-CP-IFC200.
6. If the entry is not present, or has an exclamation point icon next to it, the USB drivers may need to be installed. These are available on the software flash drive included with the OM-CP-IFC200.

Ensure that the USB end of the OM-CP-IFC200 is securely connected to the computer.
1. Locate the USB-A plug of the OM-CP-IFC200.
2. If the interface cable is connected to the PC, unplug it. Wait ten seconds.
3. Reconnect the cable to the PC.
4. Check to make sure that the red LED is lit, indicating a successful connection.
Installation Guide

Installing the Interface cable
- OM-CP-IFC200
  Refer to the “Quick Start Guide” included in the package.

Installing the software
Insert the Omega Software Flash Drive in an open USB port. If the autorun does not appear, locate the drive on the computer and double click on Autorun.exe. Follow the instructions provided in the Installation Wizard.

Device Operation

Connecting and Starting the data logger
1. Once the software is installed and running, plug the interface cable into the docking station.
2. Connect the USB end of the interface cable into an open USB port on the computer. Place the data logger into the docking station.
3. The data logger will automatically appear under Connected Devices within the software.
4. For most applications, select “Custom Start” from the menu bar and choose the desired start method, reading rate and other parameters appropriate for the data logging application and click “Start”. (“Quick Start” applies the most recent custom start options, “Batch Start” is used for managing multiple loggers at once, “Real Time Start” stores the dataset as it records while connected to the logger.)
5. The status of the device will change to “Running”, “Waiting to Start” or “Waiting to Manual Start”, depending upon your start method.
6. Disconnect the data logger from the docking station and place it in the environment to measure.
   Note: The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

Downloading data from a data logger
1. Connect the logger to the docking station.
2. Highlight the data logger in the Connected Devices list. Click “Stop” on the menu bar.
3. Once the data logger is stopped, with the logger highlighted, click “Download”. You will be prompted to name your report.
4. Downloading will offload and save all the recorded data to the PC.
Product Maintenance

Battery Replacement

**Materials:** Small Phillips Head Screwdriver & Replacement Battery (OM-CP-BAT105)
1. Puncture the center of the back label with the screw driver and unscrew the enclosure.
2. Remove the battery by pulling it perpendicular to the circuit board.
3. Insert the new battery into the terminals and verify it is secure.
4. Screw the enclosure back together securely. *Note: Be sure not to over tighten the screws or strip the threads.*

Recalibration


<table>
<thead>
<tr>
<th>Voltage</th>
<th>160mV</th>
<th>2.5V</th>
<th>15V</th>
<th>30V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0V and 90-160mV</td>
<td>0V and 2.25-2.5V</td>
<td>0V and 13.5-15V</td>
<td>0V and 27-30V</td>
</tr>
</tbody>
</table>

Recalibration is recommended annually for any Omega data logger; a reminder is automatically displayed in the software when the device is due.
## OM-CP-VOLT101A & OM-CP-VOLT101A-160MV

### OM-CP-VOLT101A General Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>OM-CP-VOLT101A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range</strong></td>
<td>2.5V</td>
</tr>
<tr>
<td><strong>Measurement Range (VDC)</strong></td>
<td>-3 to +3V</td>
</tr>
<tr>
<td><strong>Calibrated Accuracy</strong></td>
<td>±0.05%FSR</td>
</tr>
<tr>
<td><strong>Measurement Resolution (mV)</strong></td>
<td>0.1mV</td>
</tr>
<tr>
<td><strong>Overload Protection</strong></td>
<td>±50V, indefinitely</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>1,000,000 readings; software configurable memory wrap 330,000 in enhanced start/stop mode</td>
</tr>
<tr>
<td><strong>Reading Rate</strong></td>
<td>4 readings very second (4Hz) up to 1 reading every 24 hours</td>
</tr>
<tr>
<td><strong>LED Indicator</strong></td>
<td>Red &amp; Green</td>
</tr>
<tr>
<td><strong>Required Interface Package</strong></td>
<td>OM-CP-IFC200</td>
</tr>
<tr>
<td><strong>Baud Rate</strong></td>
<td>115,200</td>
</tr>
<tr>
<td><strong>Typical Battery Life</strong></td>
<td>10 years at a 15 minute reading rate</td>
</tr>
<tr>
<td><strong>Operating Environment</strong></td>
<td>-40°C to +80°C (-40°F to +176°F), 0%RH to 95%RH non-condensing</td>
</tr>
<tr>
<td><strong>Enclosure Material</strong></td>
<td>ABS plastic</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>1.4” x 2.5” x 0.6” (36mm x 64mm x 16mm)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>0.9oz (24g)</td>
</tr>
<tr>
<td><strong>Approvals</strong></td>
<td>CE</td>
</tr>
</tbody>
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**Battery Warning**

WARNING: FIRE, EXPLOSION, AND SEVERE BURN HAZARD. DO NOT SHORT CIRCUIT, CHARGE, FORCE OVER DISCHARGE, DISASSEMBLE, CRUSH, PENETRATE OR INCINERATE. BATTERY MAY LEAK OR EXPLODE IF HEATED ABOVE 80°C (176°F).

Specifications subject to change.
See Omega’s terms and conditions at www.omega.com
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<tr>
<td>Measurement Range (VDC)</td>
<td>±160mVDC</td>
</tr>
<tr>
<td>Measurement Resolution</td>
<td>5µV</td>
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<tr>
<td>Calibrated Accuracy</td>
<td>±0.01%FSR</td>
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**RETURN REQUESTS / INQUIRIES**

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:
1. Purchase Order number under which the product was **PURCHASED**,  
2. Model and serial number of the product under warranty, and  
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:
1. Purchase Order number to cover the COST of the repair,  
2. Model and serial number of the product, and  
3. Repair instructions and/or specific problems relative to the product.

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