

**5 YEAR**  
WARRANTY



# **Ω OMEGA<sup>®</sup>** **User's Guide**



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**OM-CP-VOLT101A**  
**DC Voltage Data Logger**

**OM-CP-VOLT101A-160MV**  
**Differential Voltage Data Logger**

# OM-CP-VOLT101A & OM-CP-VOLT101A-160MV

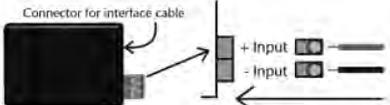
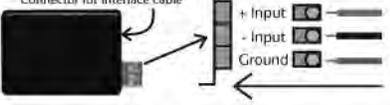
## Product Overview

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

OM-CP-VOLT101A, 2.5V, 15V and 30V models Single Ended Wiring	OM-CP-VOLT101A-160MVDC Differential Wiring
 <p data-bbox="105 1081 682 1123">Two-position removable screw terminal connections; accepts 2-wire configurations.</p>	 <p data-bbox="755 1081 1274 1123">Three position removable screw terminal connections, accepts 3 wire configurations.</p>

*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, CO<sub>2</sub>, 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

The OM-CP-VOLT101A and OM-CP-VOLT101A-160MV standard calibration depends on the range.

Voltage	160mV	2.5V	15V	30V
Range	0V and 90-160mV	0V and 2.25-2.5V	0V and 13.5-15V	0V and 27-30V

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 General Specifications

Range	2.5V	15V	30V
Measurement Range (VDC)	-3 to +3V	-8 to +24V	-8 to +32V
Measurement Resolution (mV)	+0.05%FSR		
Calibrated Accuracy	0.1mV	0.5mV	1.0mV
Overload Protection	±50V, indefinitely		
Memory	1,000,000 readings; software configurable memory wrap 330,000 in enhanced start/stop mode		
Reading Rate	4 readings very second (4Hz) up to 1 reading every 24 hours		
LED Indicator	Red & Green		
Required Interface Package	OM-CP-IFC200		
Baud Rate	115,200		
Typical Battery Life	10 years at a 15 minute reading rate		
Operating Environment	-40°C to +80°C (-40°F to +176°F), 0%RH to 95%RH non-condensing		
Enclosure Material	ABS plastic		
Dimensions	1.4" x 2.5" x 0.6" (36mm x 64mm x 16mm)		
Weight	0.9oz (24g)		
Approvals	CE		

### **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.  
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# OM-CP-VOLT101A-160MV General Specifications

Range	<b>160mV</b>
Measurement Range (VDC)	±160mVDC
Measurement Resolution	5µV
Calibrated Accuracy	±0.01%FSR
Memory	1,000,000 readings; software configurable memory wrap 330,000 in enhanced start/stop mode
Reading Rate	4 readings very second (4Hz) up to 1 reading every 24 hours
LED Indicator	Red & Green
Required Interface Package	OM-CP-IFC200
Baud Rate	115,200
Typical Battery Life	10 years at a 15 minute reading rate
Operating Environment	-40°C to +80°C (-40°F to +176°F), 0%RH to 95%RH non-condensing
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### Servicing North America:

U.S.A.: Omega Engineering, Inc., One Omega Drive, P.O. Box 4047  
Stamford, CT 06907-0047 USA  
Toll-Free: 1-800-826-6342 (USA & Canada only)  
Customer Service: 1-800-622-2378 (USA & Canada only)  
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**WARNING:** These products are not designed for use in, and should not be used for, human applications.



### WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **61 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **five (5) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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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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