ΩΞ OMEGA™

X-SERIES

4, 8, 12 and 16-Channel RTD Based Temperature Data Logger

OM-CP-QUADRTDTEMP-A2
4-Channel RTD Temperature Data Logger
RTD Range: -200 °C to +850 °C

CHANNEL INPUTS

RTD1	RTD2	RTD3	RTD4

OM-CP-OCTRTDTEMP-A2
8-Channel RTD Temperature Data Logger
RTD Range: -200 °C to +850 °C

CHANNEL INPUTS

RTD5	RTD6	RTD7	RTD8
RTD1	RTD2	RTD3	RTD4

OM-CP-X12RTDTEMP-A2
12-Channel RTD Temperature Data Logger
RTD Range: -200 °C to +850 °C

CHANNEL INPUTS

RTD9	RTD10	RTD11	RTD12
RTD5	RTD6	RTD7	RTD8
RTD1	RTD2	RTD3	RTD4

OM-CP-X16RTDTEMP-A2
16-Channel RTD Temperature Data Logger
RTD Range: -200 °C to +850 °C

CHANNEL INPUTS

RTD13	RTD14	RTD15	RTD16
RTD9	RTD10	RTD11	RTD12
RTD5	RTD6	RTD7	RTD8
RTD1	RTD2	RTD3	RTD4
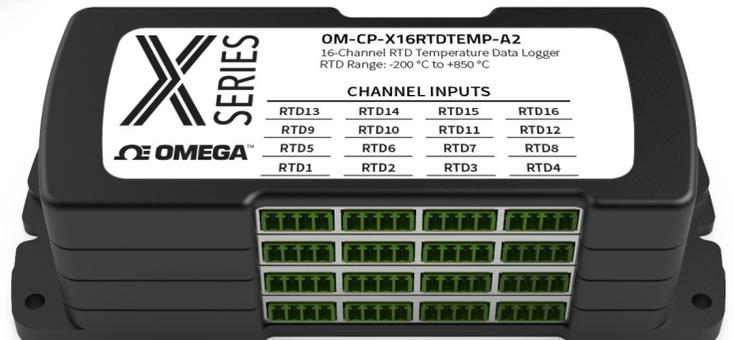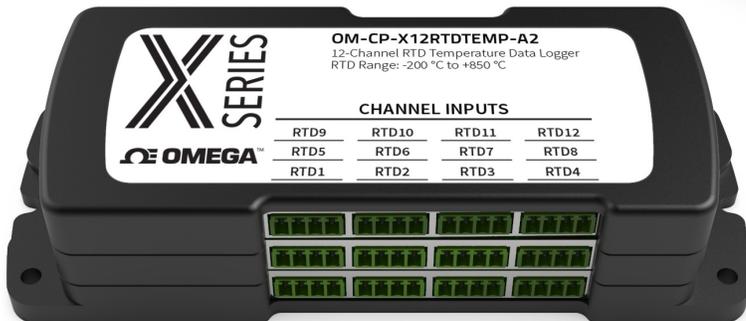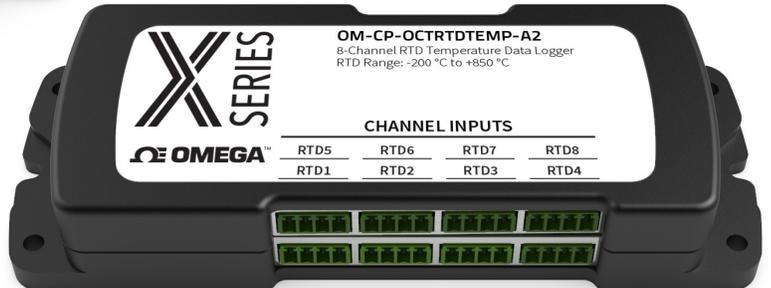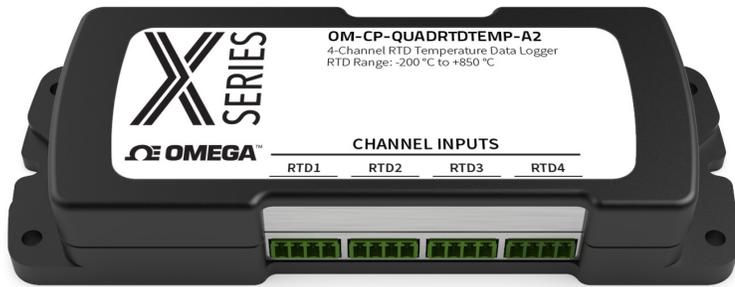
Quick Start Steps

1. Install Omega OM-CP Data Logger Software (see specifications for compatible versions) and USB Drivers onto a Windows PC (Windows XP SP3/7/8/10).

2. Launch the Omega Software.

3. The OM-CP-RTDTEMPX Series ships with a USB cable. Plug one end of the cable into an available USB port on the PC and plug the opposite end of the cable into the communication port on the OM-CP-RTDTEMPX Series. The drivers will install automatically.

4. The device will appear in the Connected Devices list, highlight the desired data logger. 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.) The status of the device will change to **"Running"**, **"Waiting to Start"** or **"Waiting to Manual Start"**, depending upon your start method.

5. Disconnect the data logger from the interface cable and place it in the environment to measure.

6. To download data, connect the logger to the interface cable. Highlight the data logger in the Connected Devices list. Click **"Stop"** on the menu bar. Once the data logger is stopped, with the logger highlighted, click **"Download"**. You will be prompted to name your report. Downloading will offload and save all the recorded data to the PC.

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.

Product Overview

The new OM-CP-RTDTempX Series consists of 4, 8, 12 and 16-channel RTD based temperature data logger with a reading rate of up to 4 Hz. X-Series devices ship with a standard USB-A to Micro USB cable for use with free OM-CP PC based software. The X-series has a high memory capacity and increased download speed compared to previous generations of product. To maximize memory capacity, users can enable or disable channels. For easy identification, each channel can be named with up to a ten digit title.

The OM-CP-RTDTempX Series is ideal for a variety of applications, whether it is remote temperature monitoring, or multiple points in a central location. Data from all channels is simultaneously logged. After the monitoring cycle is complete, data can be downloaded for analysis. The OM-CP-RTDTempX Series comes with a wall mounted universal power adapter.

Wiring Options

For 4-wire RTD probes, connect the four lead wires to your RTD logger as shown in the figure below.

For 3-wire RTD probes, short inputs 3 and 4 together, then connect the lead wires to inputs 1, 2 and 3.

For 2-wire RTD probes, short inputs 3 and 4 together and inputs 1 and 2 together, then connect the RTD lead wires to inputs 2 and 3.

Connector for 100 Ω PtRTD
1–Black or Short to 2
2–Black
3–Red
4–Red or Short to 3
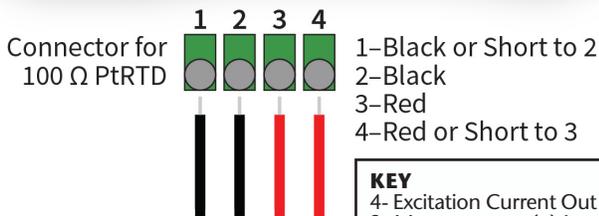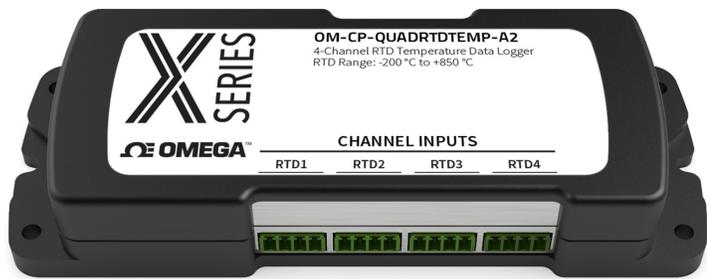
KEY
4- Excitation Current Out (+)
3- Measurement (+) Input
2- Measurement(-) Input
1- Ground (-)
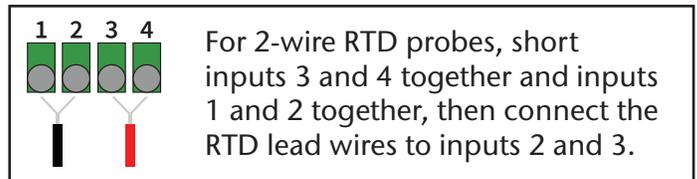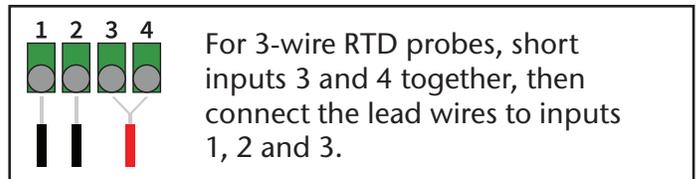
*Warning: Note the polarity instructions. Do not attach wires to the wrong terminals. 100 Ω, 2 or 4 wire RTD probes are recommended for the most accurate performance. Most 100 Ω, 3 wire RTD probes will work, but Omega cannot guarantee the accuracy. To determine whether or not the 3-wire RTD probe will work, the resistance between the two same colored wires should be less than 1 Ω. (**Note:** Please contact the manufacturer of the RTD probe for questions on the resistance.)*

Installation Guide

Installing the Interface Cable
Insert the USB-A to micro USB cable (included) into a USB port. The drivers will install automatically.

Installing the Software
Insert the OM-CP Data Logger Software Flash Drive into an open USB port on a Windows PC. 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

Manual Start
Click the **Custom Start** button on the Device panel, or right-click on the device and hover on the start selection, then chose custom start. Apply the options desired and select **Start**. Once armed through the software, to activate the Manual Start, hold the recessed push button, adjacent to the interface cable plug, down for 10 seconds. To see the change in the status, hit **Refresh Devices** within the software.

Manual Start Button

Channel Naming
Up to a 10-character channel name can be programmed into the data logger for each channel. This ability helps to rename a channel in a report to distinguish it from other similarly named channels.
1. In the **Connected Devices** panel, click the device desired.
2. On the **Device** tab, in the Information Group, click **Properties**. Or, right-click the device and select **Properties** in the context menu.
3. In the Channels panel, find the channel desired, then select "**Use custom name.**"
4. This will prompt a space to type in a name.
5. Select **OK**, then there will be a prompt to reset the device, select **Yes**.

Downloading Data from a Data Logger
1. Connect the logger to the interface cable.
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.

Set Password
To password protect the device so that others cannot start, stop or reset the device:
1. In the **Connected Devices** panel, click the device desired.
2. On the **Device** tab, in the Information Group, click **Properties**. Or, right-click the device and select **Properties** in the context menu.
3. On the **General** tab, click **Set Password**.
4. Enter and confirm the password in the box that appears, then select **OK**.

Device Operation (cont'd)

LED Functionality

Primary LED (Green):
Solid when communicating with computer.
Flashes every 15 seconds when logging.
Flashes every 5 seconds when in delay start.

Secondary LED (Red):
Flashes every 5 seconds when battery is low.
Flashes every 5 seconds when memory is low.

Channel LED (Blue):
Flashes every 2 seconds when reading rate is 2 seconds or faster.
Flashes same as reading rate when reading rate is slower than 2 seconds.

Device Maintenance

Battery Replacement
Materials: 3/32 inch HEX Driver (Allen Key) and a Replacement Battery (OM-CP-BAT103) or any 9 V battery
1. Remove the cover from the device by unscrewing the two screws.
2. Remove the battery from its compartment and unsnap it from the connector.
3. Snap the new battery into the terminals and verify it is secure.
4. Replace the cover taking care not to pinch the wires. Screw the enclosure back together securely.

Note: Be sure not to over tighten the screws or strip the threads.

Recalibration
Recalibration is recommended annually for all Omega data loggers. The Properties window in the OM-CP Data Logger software displays the date of the last calibration and the date that the device is next due for calibration. The OM-CP Data Logger Software can also be configured to send an on screen notification prior to the calibration due date for each device. By default this is set to seven days prior to calibration due date and can be changed by the user by going to the file tab in the OM-CP Data Logger software and clicking on **Options**. Select device and check **"Display popup notification when a device nears its next calibration date"**. The user can then select the number of days before calibration due date to notify.

Specifications

TEMPERATURE	
Temperature Range*	18.5 Ω to 390.5 Ω -200 °C to +850 °C (-328 °F to +1562 °F) (Probe Dependent)
Temperature Resolution	0.0001 Ω 0.001 °C (0.0018 °F) (Probe Dependent)
Calibrated Accuracy**	±0.015 Ω @ 25 °C (77 °F) ambient ±0.04 °C (±0.072 °F) (Probe Dependent)
Specified Accuracy Range	18.5 Ω to 175.9 Ω -200 °C to +200 °C (-328 °F to 392 °F)
Input Connection	Removable screw terminal; 2, 3 or 4 wire interface
Temperature Coefficient	2 ppm/°C typical

GENERAL	
Memory (All channels enabled)	**4-channel:** 698,709 readings per channel **8-channel:** 349,354 readings per channel **12-channel:** 232,903 readings per channel **16-channel:** 174,677 readings per channel
Start Modes	Software programmable immediate start or delay start, up to 6 months in advance
Real Time Recording	May be used with PC to monitor and record data in real time
LEDs	1 per channel and 2 status LEDs
Reading Rate	4 Hz up to 1 reading every 24 hours
Calibration	Digital calibration through software
Calibration Date	Automatically recorded within device
Battery Type	9 V lithium included, user replaceable
Battery Life	18 months typical
Data Format	Date and time stamped C, °F, K, °R; Ω
Time Accuracy	±1 minute/month
Computer Interface	USB-A to micro USB cable (included); 460,800 baud
Operating System Compatibility	Windows XP SP3/7/8/10
Software Compatibility	Standard Software version 4.2.19.0 or later Secure Software version 4.2.18.0 or later
Operating Environment	-20 °C to +60 °C (-4 °F to +140 °F), 0 %RH to 95 %RH non-condensing
Dimensions	**4-channel:** 2.70 in x 7.25 in x 1.22 in (65.6 mm x 184.2 mm x 31.0 mm) **8-channel:** 2.70 in x 7.25 in x 1.22 in (65.6 mm x 184.2 mm x 31.0 mm) **12-channel:** 2.70 in x 7.25 in x 1.68 in (65.6 mm x 184.2 mm x 42.7 mm) **16-channel:** 2.70 in x 7.25 in x 2.14 in (65.6 mm x 184.2 mm x 54.4 mm)
Weight	**4-channel:** 13 oz (368 g) **8-channel:** 13 oz (368 g) **12-channel:** 20 oz (580 g) **16-channel:** 28 oz (800 g)
Enclosure	Black anodized aluminum
Approvals	CE, ROHS

Battery Warning

BATTERY MAY LEAK, FLAME OR EXPLODE IF DISASSEMBLED, SHORTED, CHARGED, CONNECTED TOGETHER, MIXED WITH USED OR OTHER BATTERIES, EXPOSED TO FIRE OR HIGH TEMPERATURE. DISCARD USED BATTERY PROMPTLY. KEEP OUT OF REACH OF CHILDREN.

Specifications subject to change.
See Omega's terms and conditions at www.omega.com

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The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) 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.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

CONDITIONS: Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a "Basic Component" under 10 CFR 21 (NRC), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

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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