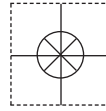


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# User's Guide

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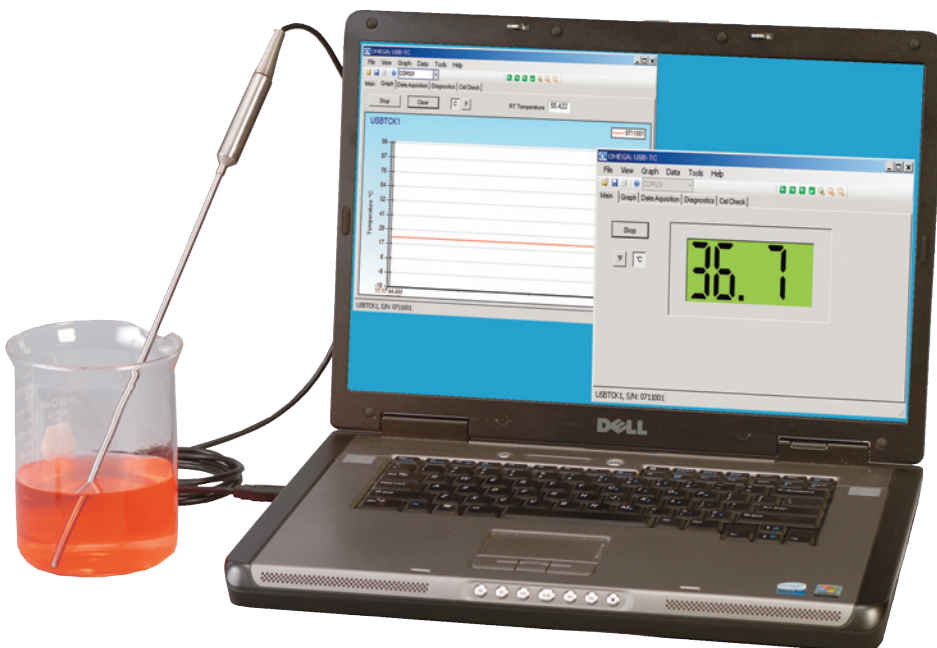
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# TJ-USB Probe



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It is the policy of OMEGA Engineering, Inc. to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

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.

**WARNING:** These products are not designed for use in, and should not be used for, human applications.



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## Section 1 - Introduction

Please read this manual completely before installing and operating your TJ-USB Probe.

It's important read and follow all notes, cautions, warnings and safety precautions before operating this device.

### 1.1 Precautions

- This device is not designed for use in any medical or nuclear applications.
- Do not operate this device in flammable or explosive environments.
- Do not operate this device outside of the recommended use outlined in this manual.

#### NOTE:

There are no user serviceable parts inside your unit. Attempting to repair or service your unit may void your warranty.

### 1.2 Safety Warnings and IEC Symbols

This device is marked with international safety and hazard symbols in accordance with IEC 1010. It is important to read and follow all precautions and instructions in this manual before operating or commissioning this device as it contains important information relating to safety and EMC. Failure to follow all safety precautions may result in injury and or damage to your calibrator. Use of this device in a manner not specified by the manufacturer may impair protection provided within the unit.



IEC symbols	Description
	Caution, refer to accompanying documents
	Waste Electrical and Electronic Equipment Compliance

Figure 1. IEC Symbol

### 1.3 Statement on CE Marking

It is the policy of OMEGA to comply with all world-wide safety and EMI/EMC regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

### 1.4 General Description

Omega's new USB-TC Series of thermocouple probes with direct USB connection feature a rugged transition joint construction, 2 m (6') of shielded output cable and free user software that converts your PC into a temperature meter, chart recorder or data logger.

## Section 2 – Hardware

It is important that you read this manual completely and follow all safety precautions before operating this instrument.

### 2.1 Package Inspection

Remove the packing list and verify that you have received all your equipment. If you have any questions about the shipment, please call our Customer Service Department at **1-800-622-2378** or **203-359-1660**. We can also be reached on the Internet at **www.omega.com**, e-mail: **cservice@omega.com**

When you receive the shipment, inspect the container and equipment for any signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

---

**NOTE:**

The carrier will not honor any damages unless all shipping material is saved for inspection. After examining and removing contents, save packing material and carton in the event reshipment is necessary.

---

### 2.2 Included Items

The following items are supplied in the box.

- 1 TJ-USB Probe Assembly
- 1 User's Manual
- 1 Software Disk

## Section 3 – Software

### 3.1 Getting Started

The following program files are included on the TJ-USB User Software CD supplied with your Probe. These files can be downloaded from the [omega.com](http://omega.com) website should you misplace your CD.

- USB-TEMP Measurement and Data Logging Program
- TJ-USB Series Manual (pdf format)

### 3.2 Software Installation

#### 3.2.1 System Requirements

Your PC should meet the following minimum requirements:

- Pentium Class or higher processor
- Hard Drive Space: 30 meg
- Ram: 256 meg
- 1 Available USB Port
- 1 CD-ROM Drive
- Windows 2000, XB, or Vista (32bit) Operating System

#### 3.2.2 Software Installation

Insert the USB-Temp Series User CD that was included with your unit into the CD-ROM drive on your PC. Your system should begin the installation process automatically.



Figure 2. Welcome Screen

This welcome screen should be visible on your computer screen. To continue with installing the program click the "Next >" button.

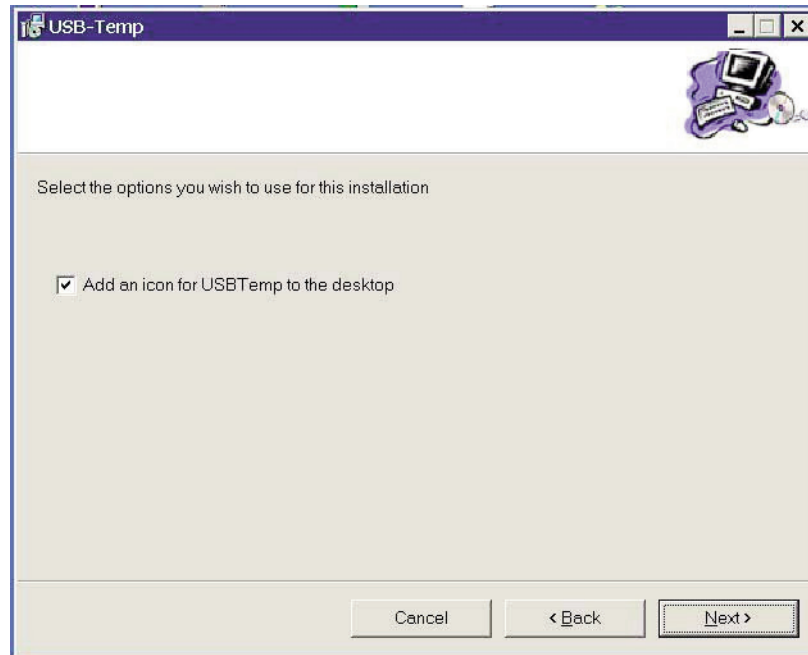


Figure 3. Add Desktop Icon Screen

From this screen you select the folder where you want the program files installed on your PC. The default setting will install the software under your "Program" folders in a new folder named "Omega". To continue with installing the program click the "Next >" button.

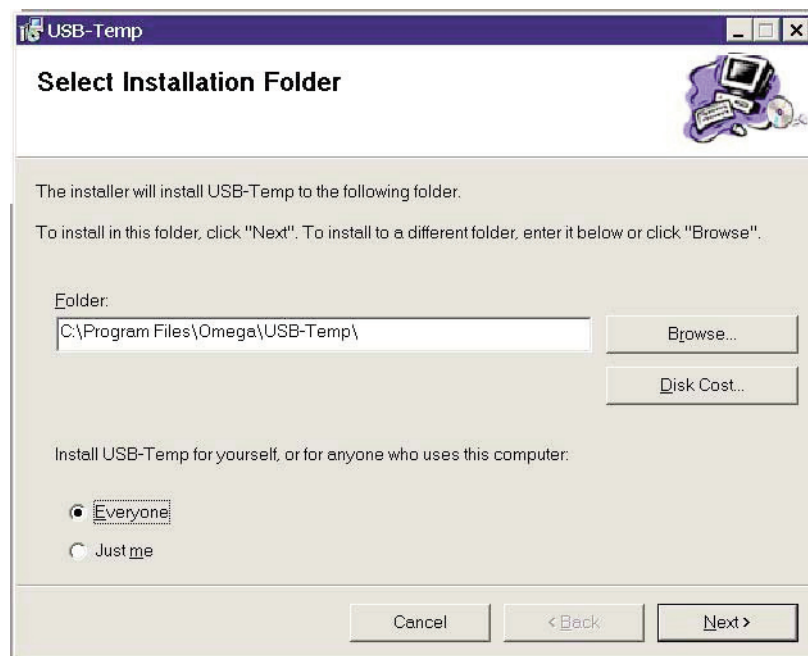


Figure 4. Select Installation Folder Screen

The setup wizard now has all the information to complete the installation of the software on your PC. To continue with installing the program click the "Next >" button.



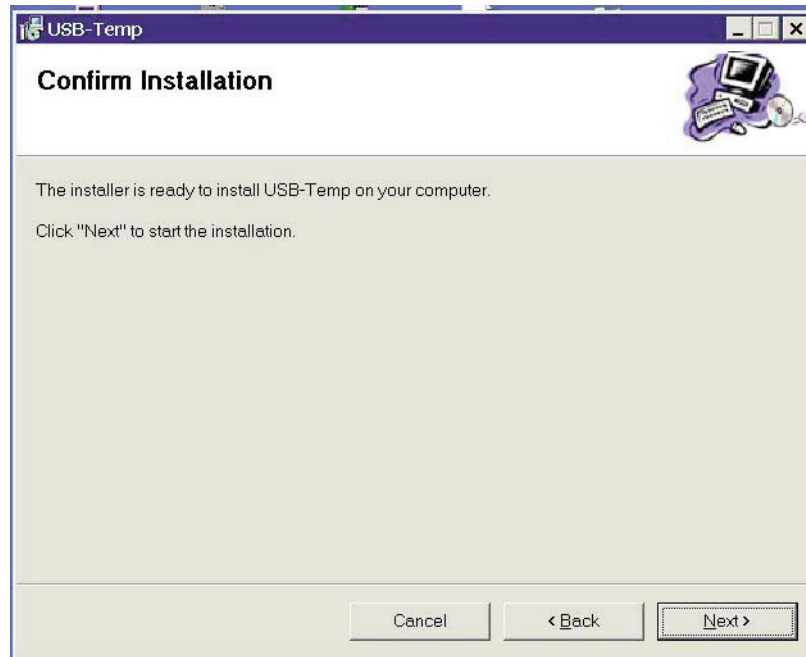


Figure 5. Confirm Installation Screen



Figure 6. License Agreement Screen

From this screen you must select "Agree" to continue installing your program. After making your selection click the "Next >" button. The setup wizard will now install the software.

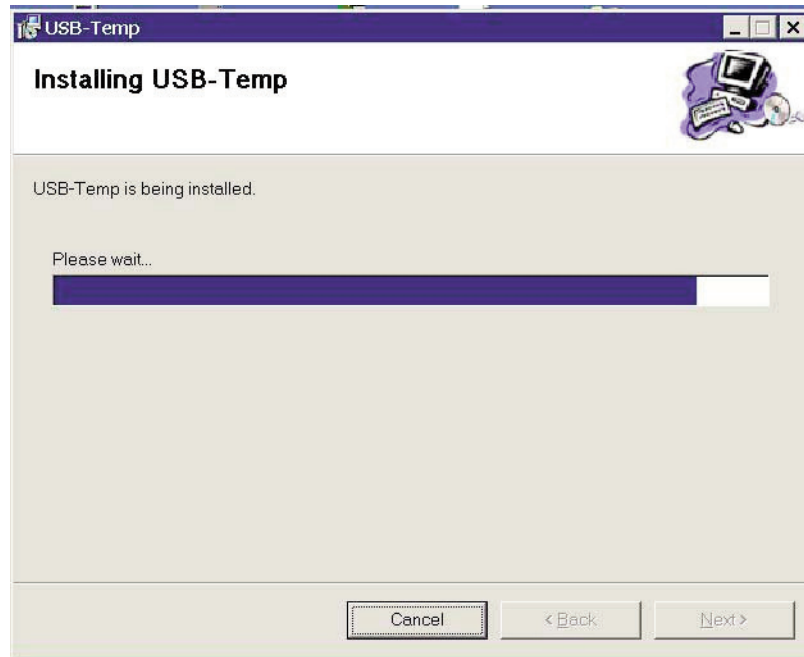


Figure 7. Installing USB-Temp Screen

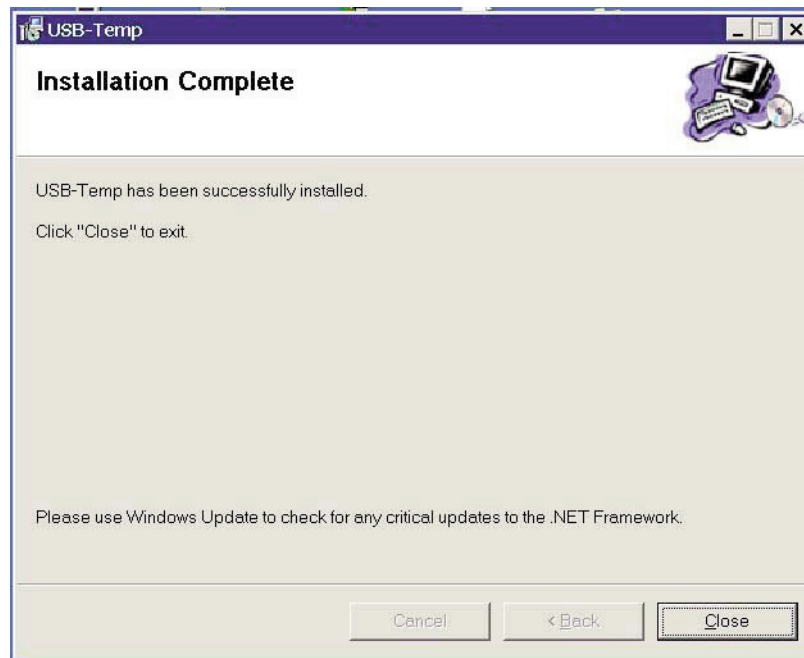


Figure 8. Installation Complete Screen

Congratulations! You have just successfully installed the USB-Temp Program on your PC. To end installing the program and close the setup wizard click the "Close" button.

### 3.3 USB Driver Installation

To install the USB software drivers that are required for your TJ-USB probe to operate correctly follow these procedures.

**NOTE:**

You need to have the User Software CD that was supplied with your probe loaded into the CD drive on your PC.

1. Connect your TJ-USB probe to your computer. You should get a notice box that indicates that your computer “Has Found New Hardware”
2. Your computer will then launch the Found New Hardware Wizard. Follow the instructions indicated on the Wizard boxes and the additional instructions noted in this manual with each box.

**NOTE:**

After completing the Found New Hardware Wizard your system will ask that you repeat this process. This is normal. You should repeat the steps outlined here twice. After the second driver is installed you should then get the “New Hardware Ready For Use” notice.

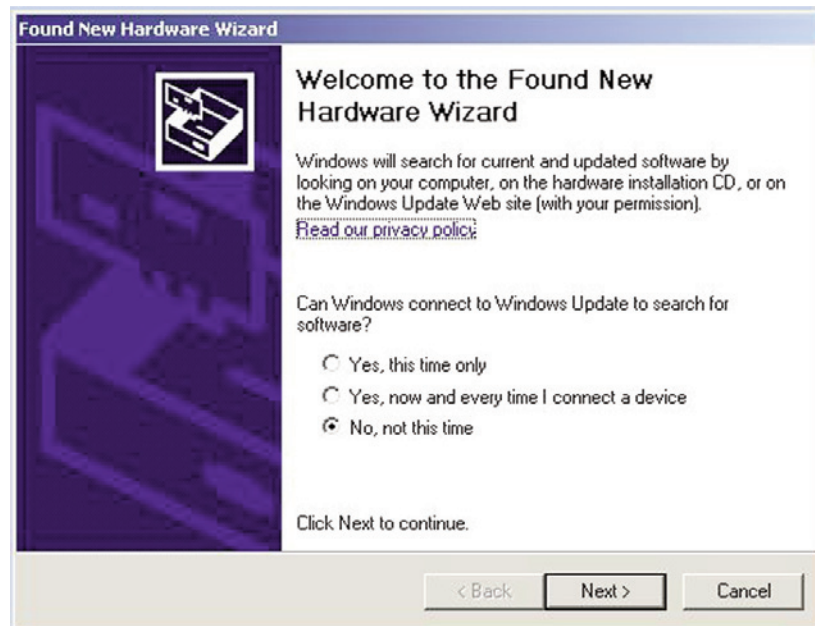


Figure 9. Welcome To The Found New Hardware Wizard Screen

From this box you should check the “No, not at this time” button. Then click the “Next >” button to continue with the driver installation process.

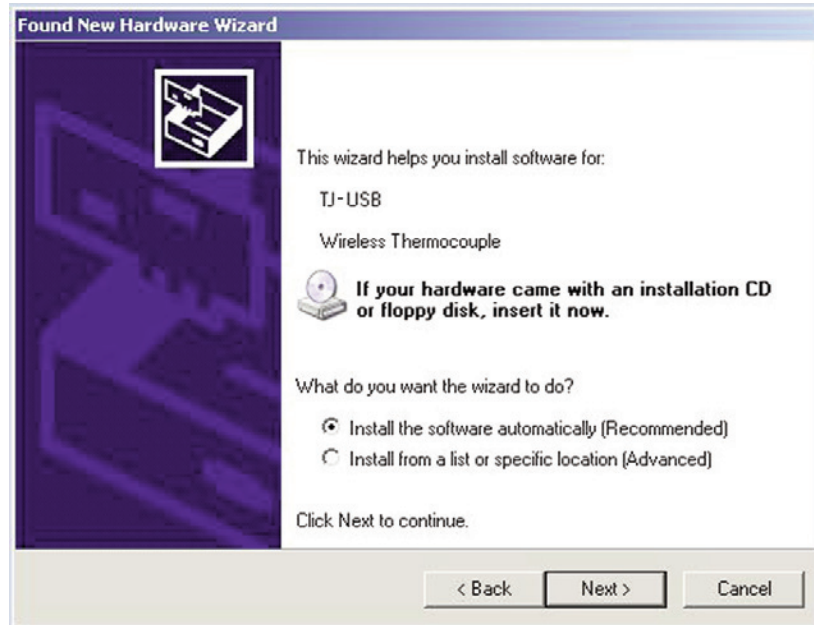


Figure 10. Install Software Automatically Screen

Next, check the “Install the software automatically” button. Then click the “Next>” button to continue.



Figure 11. Completing The Found New Hardware Wizard Screen

This screen will be displayed to indicate that the software drivers have been installed. You should click the “Finish” button to complete the process.

### 3.4 USB-Temp Measurement and Recording Program

To launch the USB-Temp program on your PC begin by accessing the “Programs” list under your “Start Menu” Next, scroll through the list of program folders to find the “USB-Temp” folder. Inside the “USB-Temp” folder click on the “USB-Temp” program link. This will start the software running.

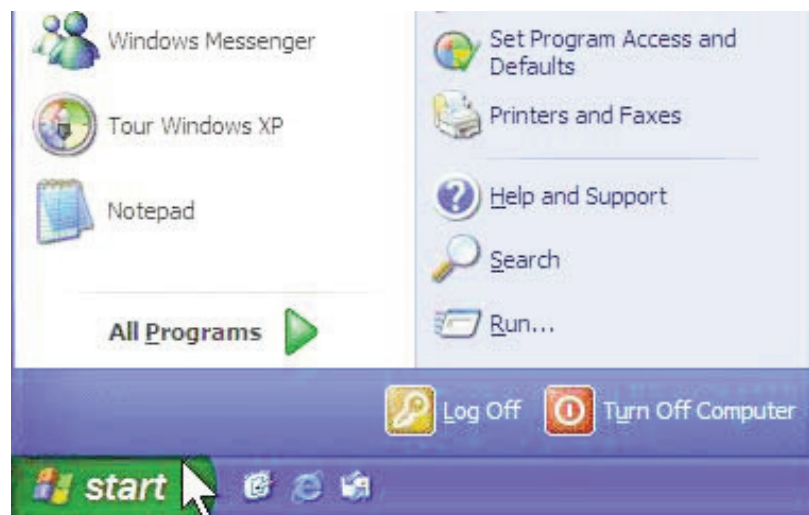


Figure 12. Start Button/Launch Program Screen

#### 3.4.1 Main Tab

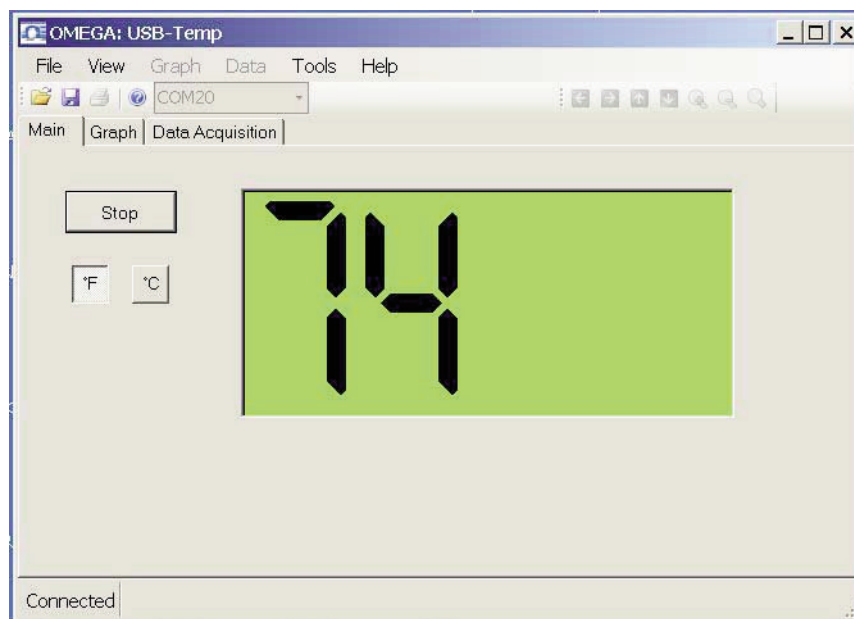


Figure 13. Main Tab Screen

#### Main Tab

The “Main” tab is the default screen that is displayed when you run the program. This screen provides a real-time digital reading of temperature in either °F or °C. You can change from °F to °C by clicking with your pointer the on screen °F or °C buttons.

### 3.4.2 Graph Tab

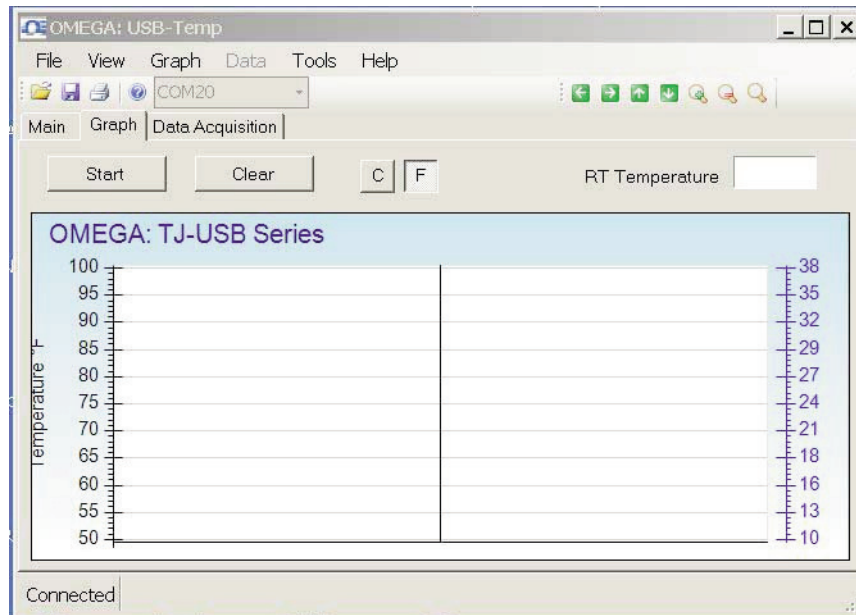


Figure 14. Graph Tab Screen

The Graph View provides Real-Time X-Y plotting of temperature data and also plotting of data loaded from a saved file. Click on the "Graph" tab to select this view.

The "Start" button will display a dialog box allowing you to select the data plotting interval and the number of points to plot. You can also change the line color.

The interval should be set as desired for your particular needs. The total logging time is displayed for the interval setting and the number of points selected.

You can choose to have the data logging/chart recording session end after the total number data points have been plotted, or have the session run continuously. After the total number of data points have been collected in the continuous mode, the oldest data point is shifted out on the left, and the newest data point is added to the right. Data will continue to be collected and displayed until you click on the "Stop" button above the chart.

If you click the OK button, the data logging session will start, and "DAQ in Progress" will be shown in the status bar. The "Start" button above the chart will change to "Stop", indicating that if you click it again, the charting session will be terminated.

You can also start or stop a data recording session from the File menu. Once data has been collected, you can save it in a (\*.csv) (comma separated values) file and open it in Microsoft Excel for further analysis. It is recommended that you "Save As" in Excel as a Microsoft Excel Workbook (\*.xls). If you do not modify the (\*.csv) version of the file, you can open it from USBTemp's File menu, and display it in the chart and data log.

The "Clear" button will delete all data from the chart and the data log.

The C and F buttons allow you to change units of degrees displayed on the chart, and on the data log.

The Y Axis Min and Y Axis Max controls allow you to adjust the viewable range of temperatures to suit your particular application. The narrower the range between min and max, the more detail can be seen on the chart.

The Graph tab has a context (popup) menu, which can be accessed by right-clicking on the chart. You can access all of the options in the context menu from the Graph menu in the menu bar.

### 3.4.3 Data Acquisition Tab

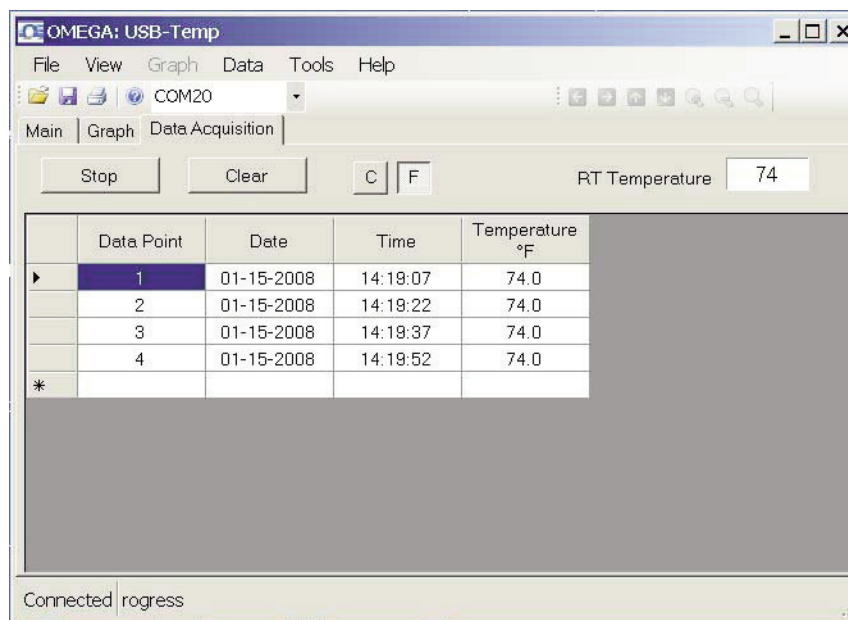


Figure 15. Data Acquisition Tab Screen

#### Data Acquisition Tab

The “Data Acquisition” tab allows you to view received data in a table format. of any data as it is being recorded, or data retrieved from a file. The Start and Clear button perform the same function as the Start and Clear buttons on the Chart Tab. See Chart Tab above. The adjust button resizes the columns to the smallest size necessary to fit the data in the columns. You can also change the engineering units of the data from C to F using the C/F buttons. The Auto Scroll Rows checkbox causes the data to be scrolled up one line each time a new row of data is added to the grid.

#### Menus

##### File Menu

The Open menu item displays a dialog box which allows you to choose a data file to open and display on the graph and in the data log. This file must be a file that was saved by the Save menu item in USB-Temp. If the file has been modified externally, you may not be able to open it.

The Save menu item displays a dialog box which allows you to save the data currently displayed on the graph and in the data log. The file format is (\*.csv) (comma separated values), which can be opened by Microsoft Excel for further analysis and charting. It is strongly recommended that you do not modify this file, or you may not be able to open it again in USB-Temp. Use Excel’s “Save As” option to save it as a Microsoft Excel Workbook (\*.xls), which you can then modify.

The Export Graph menu item displays a dialog box that allows you to either save an image of the current graph on the Graph Tab, or copy it to the clipboard.

The Print Preview menu item displays a standard Windows Print Preview dialog, allowing you to view the item(s) as they would be printed on a printer. You can also print from this dialog by clicking the printer icon in the upper left corner. If the Graph Tab is displayed before choosing this option, the current graph image will be previewed. If the Data Acquisition Tab is displayed, the data table in grid style format will be previewed.

The Print menu item displays a standard Windows Print dialog box. This allows you to select printers, printer preferences, page ranges, number of copies, etc. If you click the "Print" button, the specified page(s) will be sent to the printer. If you click the "Apply" button, you can then select the Print Preview menu to view your changes without printing.

The Exit menu option exits the USB-Temp program.

### **View Menu**

The Show Toolbar menu allows you to display an optional toolbar for file open, save, print, and graph positioning.

The Show Most Recently Used menu option displays the most recently used (opened/saved) filenames in the File menu.

The Clear Most Recently Used menu option removes all recently used filenames from the File menu.

### **Graph Menu**

#### **Graph Tools Cursor**

Floating Cursor, when checked, will display a crosshair type cursor that you can move with the mouse. You can use the Floating Cursor to pinpoint a particular temperature and time. The status bar displays the data point number, the time, and the temperature, where the crosshairs meet.

Tracking Cursor, when checked, will perform similarly to the Floating Cursor, except that it will lock on to the plot line. With this option enabled, you can move the mouse left and right without regard to up and down, and the horizontal cursor will remain pointing to the plot line.

Data (Box) Zoom, when checked, allows you to use the mouse to click and drag a rectangle around a line of data to magnify that portion of the chart. The chart size will remain the same, but the axes will be expanded as well and the data line(s) to allow viewing more detail. Click and drag the left mouse button to the right and downwards. A bluish translucent rectangle will appear showing the area that will be displayed when the mouse button is released. Note that moving the mouse in the opposite direction Zooms Out. To cancel data zoom select "Reset Axes" from either the context menu or Graph menu options.

Zoom allows you to change the overall zoom factor of the chart. This is achieved by clicking the left mouse button anywhere on the chart and dragging the mouse. Dragging the mouse toward the bottom of the chart area zooms out while dragging toward the top zooms in. If you have a wheel mouse you can zoom in/out by clicking on the chart then use the wheel to zoom in/out.



## Configure

The Configure Axes menu allows you to adjust the viewable range of temperatures to suit your particular application. The narrower the range between minimum and maximum, the more detail can be seen on the chart.

The Graph Area menu allows you to change the color and/or style of the chart background, lines and markers.

The Show Gridlines option displays or hides gridlines on the graph.

The Show Markers option displays or hides data point markers on the plotted data line.

Cancel Zoom will cancel and uncheck Data (Box Zoom) or Zoom if either is enabled.

Reset Axes returns the graph to its original size.

## Data Menu

The Auto Fit Columns menu option resizes the columns to the smallest size necessary to fit all the data in the columns.

The Auto Scroll menu option causes the data to be scrolled up one line each time a new row of data is added to the grid.

## 4.0 Specifications

<b>Integral Thermocouple:</b>	Type- K (ungrounded)
<b>Measurement Range:</b>	
<b>K1:</b>	-73 to 315°C (-100 to 600°F)
<b>K2:</b>	-200 to 1000°C (-354 to 1832°F)
NOTE: For 304 stainless steel max temperature is 850°C (1562°F)	
<b>Accuracy:</b>	K1: $\pm 1^{\circ}\text{C}$ (1.8°F) K2: $\pm 3^{\circ}\text{C}$ (5.4°F)
<b>Resolution:</b>	USB-TC-K1: 0.1°, USB-TC-K2: 1°
<b>Stability:</b>	USB-TC-K1: $\pm 0.25^{\circ}\text{C}$ , USB-TC-K2: $\pm 0.5^{\circ}\text{C}$
<b>Cold Junction Compensation: (Automatic)</b>	-10 to 70°C
<b>Operating Environment:</b>	-10 to 70°C, 0-95% relative humidity (non-condensing)
<b>PC Interface:</b>	USB
<b>USB Cable:</b>	Integral to probe, (6' shielded) Type A.
<b>Software (Included):</b>	Requires 2000, XP, or Vista operating
<b>Weight:</b>	70 g (2.5 oz)



## 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.

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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.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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