

USB-Link Technical Guide

USB-Link Code: SS0070



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USB-Link Overview

The USB-Link (OE366) is a portable device that is used as an interface to connect your computer to WattMaster controllers without the need for a CommLink.

The USB-Link provides a direct link to enable you to view the status and configure and adjust the setpoints of any controller on the control system communications loop using Prism II graphical front end computer software.

The USB-Link is small in size and is powered by the USB port of the computer it is plugged into, making it completely portable and allowing connection to the system from any controller.

The USB-Link is supplied with a USB cable, a mini-DIN male communication cable, and two mini-DIN to terminal adapters. The communication cable allows you to walk up to any controller that has a communication socket and plug in the USB-Link to gain access to the system. The adapters are used for boards that do not have a female mini-DIN plug connection.

CAUTION: The USB-Link will not work with Prism software. It will only work with Prism II software.

System Requirements

To enable the USB-Link to work with Prism II, you will need:

- USB-Link with USB cable, mini-DIN male communication cable, and adapters for terminal and modular connections (cables and adapters provided)
- USB drivers on CD-ROM (supplied with USB-Link but also downloadable from any of our websites)
- PC with USB 1.1 or 2.0 port (supplied by others)
- Microsoft® Windows® XP, Vista, or 7
- Prism II software (supplied with USB-Link but also downloadable from any of our websites)

Networked Systems Only

- CommLink(s) with software v3.15 or later and/or Mini Link(s) with software v3.14 or later.

Please note: If these devices contain earlier software versions, you will need to order updated EPROMs from WattMaster. See Troubleshooting on page 16 for further instructions.

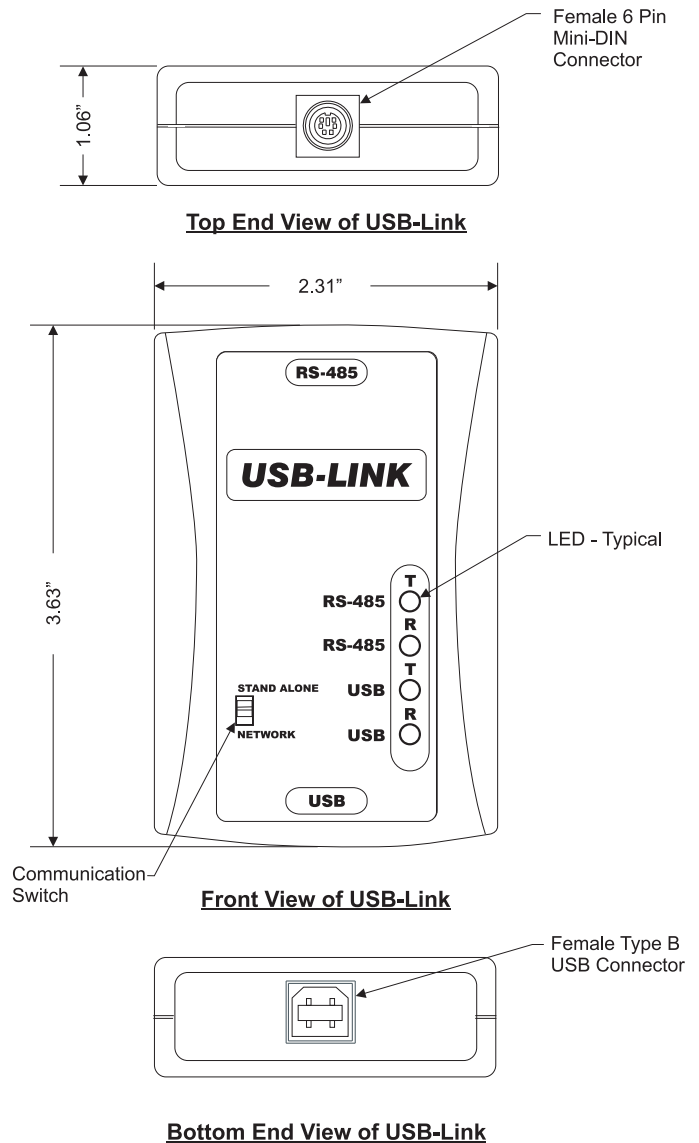


Figure 1: Top, Front, and Bottom Views of the USB-Link

Quick Guide

Important Notes

- Follow the included USB-Link driver installation instructions. Make sure you follow the appropriate directions for your Windows® version - Windows® XP directions are different from Windows® Vista.
- Follow the connection and wiring instructions (**Figure 2 on page 5**) to connect and configure the USB-Link.
- If you use your USB-Link on a network and after installation you cannot view all controllers, you may need an EPROM upgrade in your CommLink(s) and/or MiniLink(s). See Troubleshooting in the back of this guide on page 16 for further instructions.
- Familiarize yourself with all system components and review all documentation. Pay special attention to “Cautions,” “Notes,” and “Warnings” since these may keep you from experiencing unnecessary problems.
- If you encounter any problems, please refer to the Troubleshooting section of this guide first. If you can't resolve the problem, please call WattMaster Technical Support at our toll free number—1-866-918-1100.

Quick Guide for Windows Vista & 7

Follow the five steps below to get your USB-Link up and running in no time.

- Step 1: Set your USB-Link's communication switch to Stand Alone or Network. *See Figure 3 on page 12.*
- Step 2: Install the USB drivers from the included CD-ROM onto your computer.
- Step 3: Attach the USB cable to your USB-Link and plug the other end of the cable into your computer's USB port. *See Figure 2 on page 5.*
- Step 4: Attach the communication cable to your USB-Link and connect the other end of the cable to the Controller's communication port. *See Figure 2 on page 5.*
- Step 5: Install the included Prism II software on your computer.

Quick Guide for Windows XP

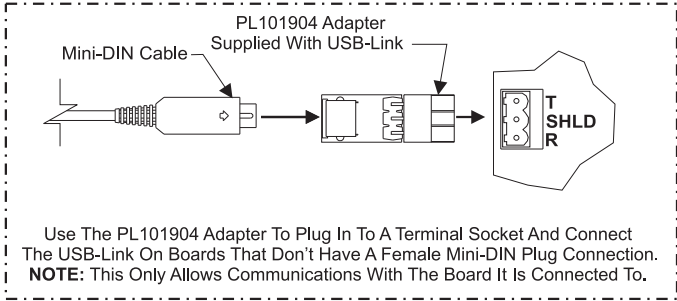
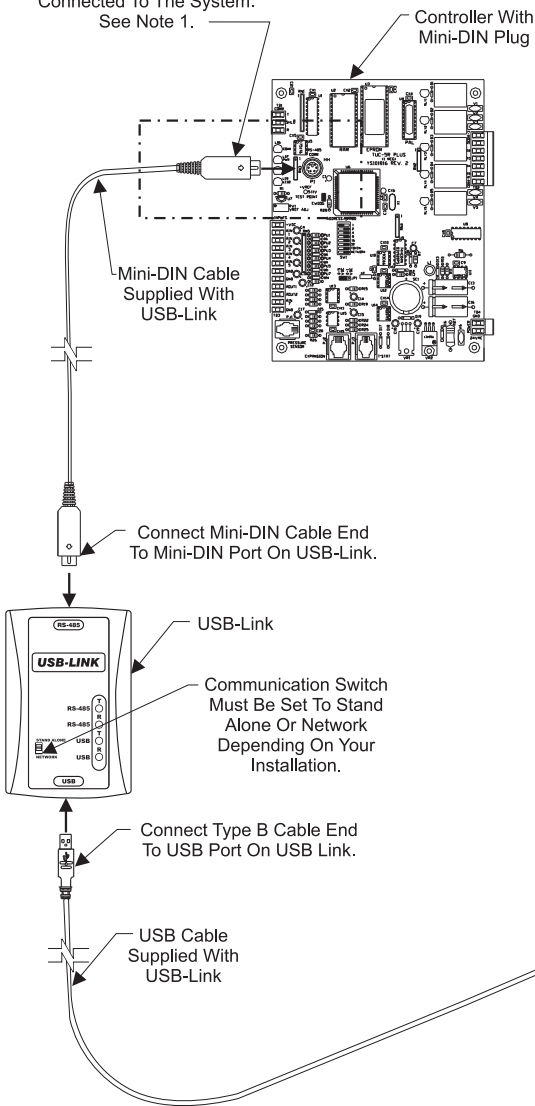
Follow the five steps below to get your USB-Link up and running in no time.

- Step 1: Set your USB-Link's communication switch to Stand Alone or Network. *See Figure 3 on page 12.*
- Step 2: Attach the USB cable to your USB-Link and plug the other end of the cable into your computer's USB port. *See Figure 2 on page 5.*
- Step 3: Attach the communication cable to your USB-Link and connect the other end of the cable to the Controller's communication port. *See Figure 2 on page 5.*
- Step 4: Install the USB drivers located on the included CD-ROM.
- Step 5: Install the included Prism II software on your computer.

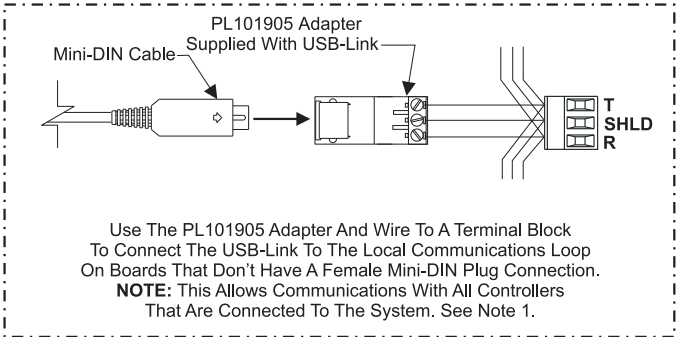
Notes:

1. For Networked Systems, In The Event That Your CommLink II or III Has An EPROM Software Version Earlier Than 3.15 Or Your MiniLink Has An EPROM Software Version Earlier Than 3.14, You Will Need An EPROM Upgrade Before You Can View All Controllers On Your System. See Troubleshooting For More Information. In The Meantime, In Order To View A Single Controller Using Prism II, You Must Disconnect The Communication Loop From The Controller Your USB-Link Is Plugged Into, Set The USB-Link Communication Switch To Stand Alone, Set The Type Of CommLink In Prism II To USB Link Stand Alone, And Cycle Power By Disconnecting And Reconnecting the USB Power Supply Cable.

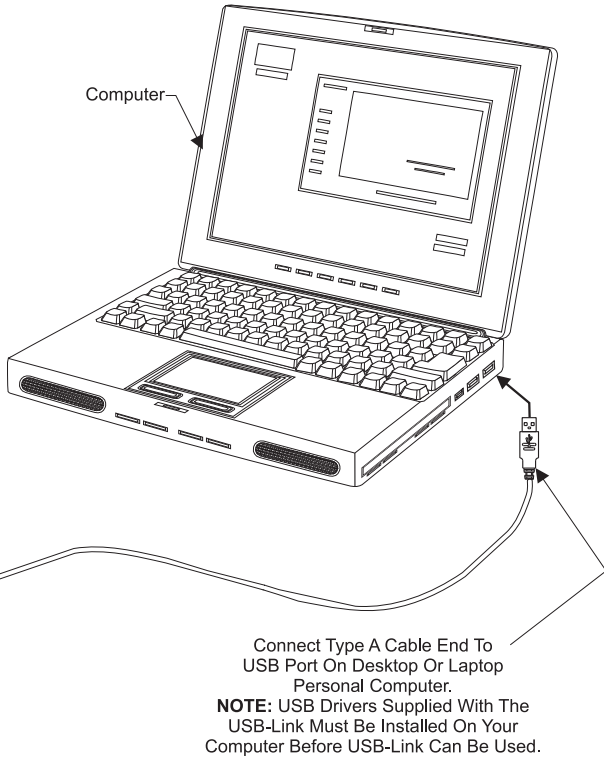
Connect The USB-Link Mini-DIN Cable To The Female Mini-DIN Plug Connector On Controllers That Are Supplied With Them. **NOTE:** This Allows Communications With All Controllers That Are Connected To The System. See Note 1.



Use The PL101904 Adapter To Plug In To A Terminal Socket And Connect The USB-Link On Boards That Don't Have A Female Mini-DIN Plug Connection. **NOTE:** This Only Allows Communications With The Board It Is Connected To.



Use The PL101905 Adapter And Wire To A Terminal Block To Connect The USB-Link To The Local Communications Loop On Boards That Don't Have A Female Mini-DIN Plug Connection. **NOTE:** This Allows Communications With All Controllers That Are Connected To The System. See Note 1.



NOTE: USB Drivers Supplied With The USB-Link Must Be Installed On Your Computer Before USB-Link Can Be Used.

Figure 2: USB-Link Connection & Wiring

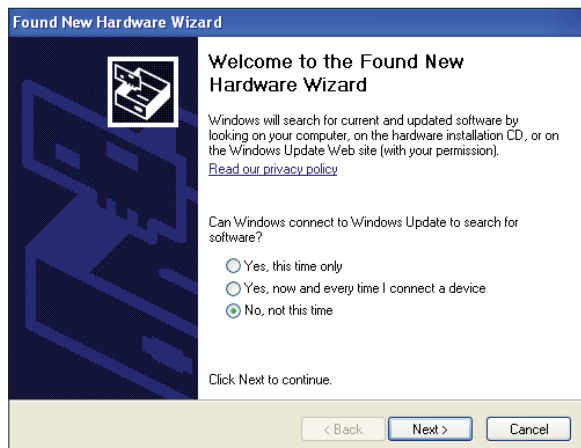
USB-Link Driver Installation for Windows® XP

USB Serial Converter Driver Installation for Windows® XP

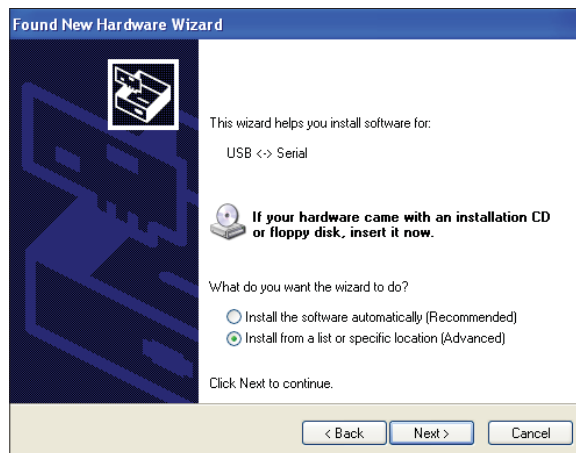
CAUTION: You must use the drivers on the CD-ROM supplied with the USB-Link.

NOTE: If for any reason you cancel out of the New Hardware Wizard before installing the USB drivers or if you receive an error message during installation, the drivers will not be installed. You must then install the drivers using the directions in the XP Troubleshooting Section on page 14.

1. Plug the USB cable attached to the USB-Link into your computer's USB port.
2. Insert the USB Drivers CD-ROM into your CD-ROM drive.
3. A message should pop up from the toolbar that reads, "Found New Hardware." Click on the Found New Hardware Wizard application from the toolbar.
4. The window that appears will ask the question, "Can Windows connect to Windows Update to search for software?" as shown below. Select "No, not this time" and click <Next>.



5. The next window that appears will ask, "What do you want the wizard to do?" Select "Install from a list or specific location (Advanced)" as shown below and click <Next>.



6. In the next window that appears, select the radio button in front of the option "Search for the best driver in these locations." Uncheck the box that reads, "Search removable media" and instead check the box "Include this location in the search:"



7. Click <Browse> and locate the drive that your CD-ROM is located on. Click <Next>.

USB-Link USB Driver Installation for Windows® XP

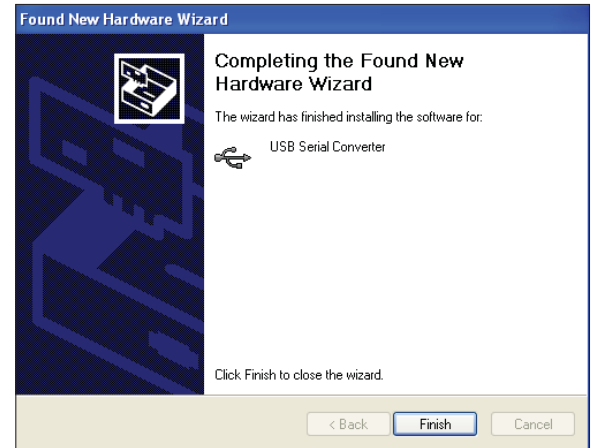
8. Highlight the Win98_Win_2000_WinXP directory by clicking on it and then click <OK>.



9. The screen will now state, "Please wait while the wizard installs the software..."



10. While the files are downloading, a *Hardware Installation Window* might pop up as shown below. Click <Continue Anyway>.



11. The wizard will then finish installing the software.
12. Once the wizard is done, click <Finish>.

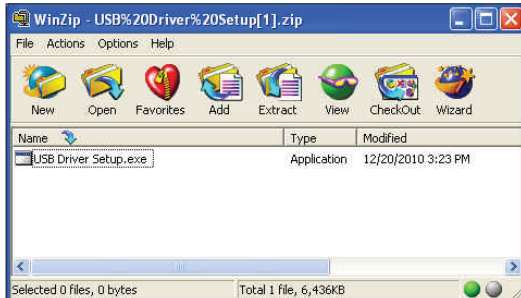
USB Serial Port Driver Installation for Windows® XP

- Once the USB Serial Converter software is installed, the Found New Hardware Wizard will appear again to download the USB Serial Port software.
- Follow steps 1 through 7 of the previously described USB Serial Converter Installation instructions.
- Click <Finish> when the wizard is done downloading the software.
- Windows® XP requires you to restart your computer before the new settings will take effect.
- Continue with the next section "Finding What COM Port Number the USB-Link is Using" on page 9.

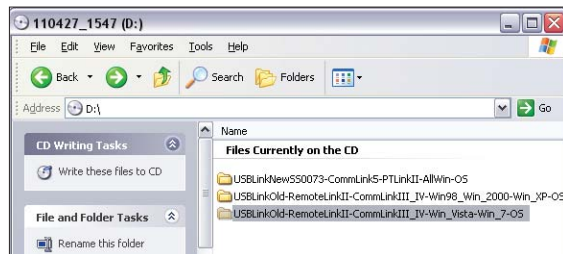
USB Driver Installation For Windows Vista & 7

USB Serial Converter and Serial Port Driver Installation for Windows Vista & 7

1. *Insert* the USB Drivers CD-ROM into your CD-ROM drive or *download* the USB Drivers file from www.orion-controls.com/software-new.html. If using the CD-ROM, go to Step 2. If downloading the file, *click* on the USB Driver Setup.zip file to unzip the file and then go to Step 3.



2. *Double-click* on the Vista/Win_7 folder.



Double-click on USB Driver Setup.exe.

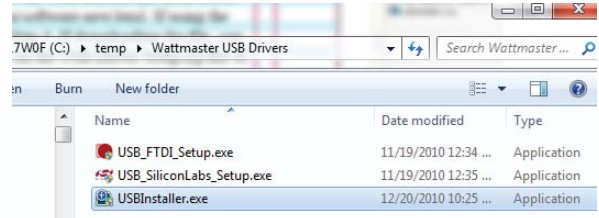


3. The *WattMaster USB Driver Installation Window* will appear.



4. If you wish to change the Destination Folder, *click* <Browse> and change the location. *Click* <Install> to install the software. Then, open the WattMaster USB Driver folder in the temp directory on your hard drive or the new location if you changed the destination folder.

5. *Double-click* USBInstaller.exe.



6. Then *click* the <Begin Install> button.

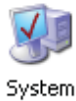


7. The installation program will walk you through the rest of the steps. The program might prompt you to remove old USB drivers from your computer. *Click* <Yes> if so. Once installation is complete, you will need to reboot your computer to have the new settings take effect.
8. With successful USB driver installation, you can now connect your USB device.
9. Follow the procedures on page 9 to verify the Comm Port.

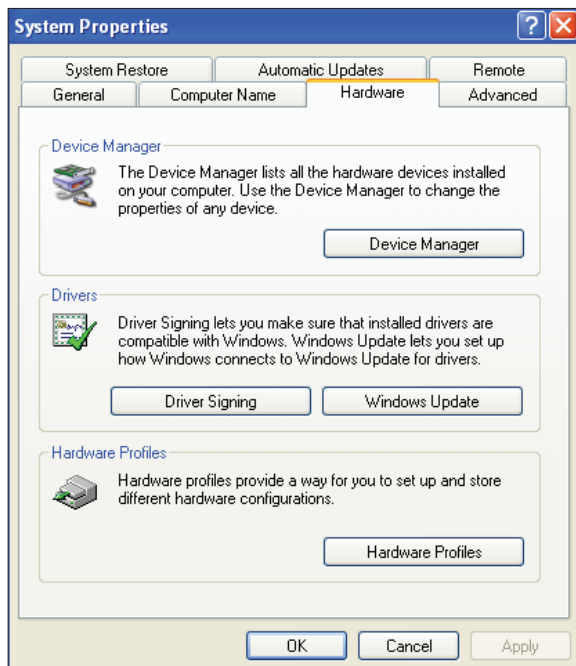
Finding the COM Port Number

Finding What COM Port Number the USB-Link is Using

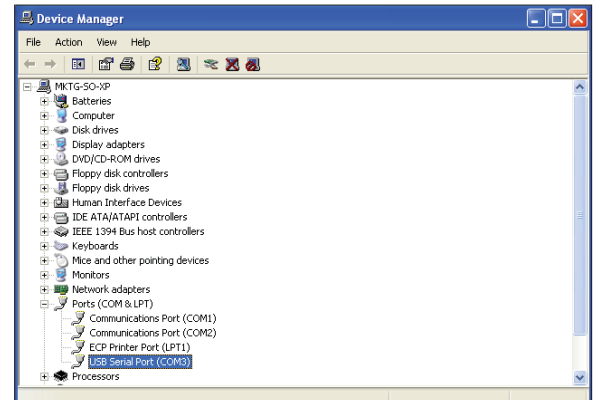
1. Left-click on <Start>, located on the bottom left of the Windows toolbar. Select <Control Panel>. Double-click the <System> icon.



2. Click the <Hardware> tab. Click the <Device Manager> button.



3. Click on the plus sign next to Ports to see all of the COM ports.





4. Locate the USB Serial Port (COM#). The COM# in parentheses is the port it is located on. Write this COM port number down. You will need to know this when setting up the Prism II software.
5. If the COM port number is 10 or greater, go to “Changing the USB COM Port Number” in the Troubleshooting section on page 15; otherwise, continue with the section “Prism II Setup” on page 10.

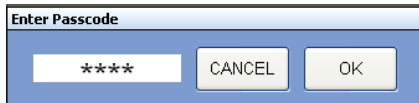
Prism II Setup Instructions


Configuring Prism II for the USB-Link


1. *Insert* your Prism II software CD and follow the prompts to install the software.

2.  The software installation will install the Prism II icon on your desktop. *Click* on this icon to *open* your Prism II software.

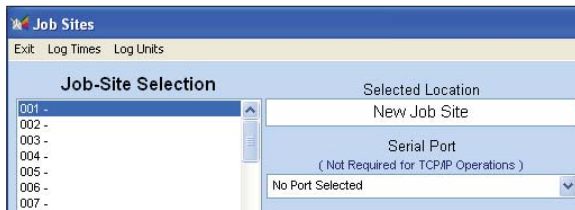
3.  *Click* the <Login> button and *type in* your level 3 passcode (default is “9288”). *Click* <OK>.



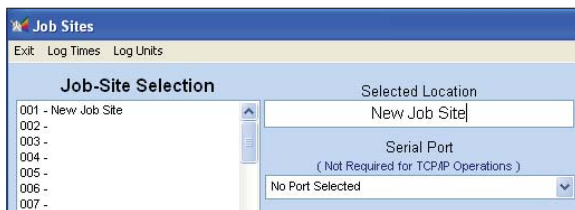
4.  If Prism II is online, *click* the <ON LINE> button to make it go <OFFLINE>.

5.  *Click* the <Job-Site> button to open the *Job Sites Window*.

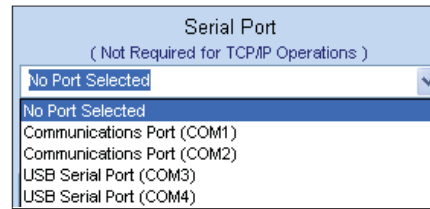
6. *Click* on any empty location in the *Job-Site Selection Window* and *type in* a job name in the Selected Location field. *Press* <Enter>.



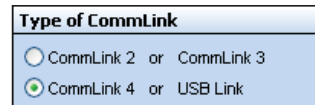
Your job site name will now appear in the *Job-Site Selection Window*.



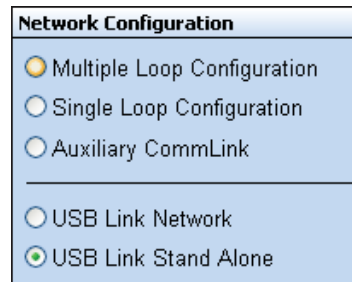
7. In the Serial Port field, *click* on the pull down box and *select* the COM port number that the USB-Link is using.




8. In the Type of CommLink selection box, *select* the radio button next to USB Link.



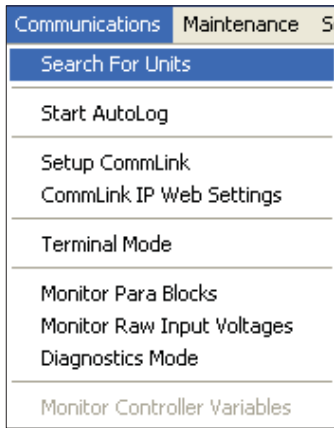
9. In the Network Configuration selection box, *select* the mode for the USB-Link you are using. If using stand alone mode, *select* USB Link Stand Alone. If using network mode, *select* USB Link Network. The position of the slide switch on the USB-Link must also be set to the mode you are using (See **Figure 3** on page 12 for help in setting this switch).



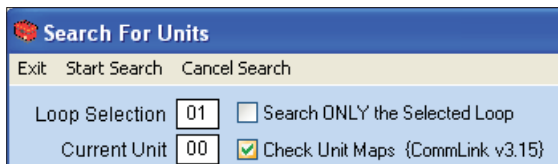
10. *Click* <Exit> to close out of the *Job Sites Window*.

11.  *Click* the <OFFLINE> button to go <ON LINE>.

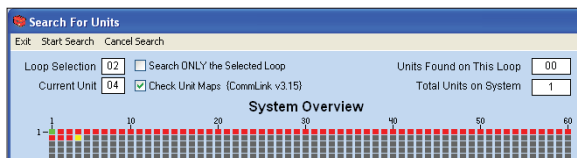
- From the <Communications> menu on the main toolbar, select <Search for Units>.



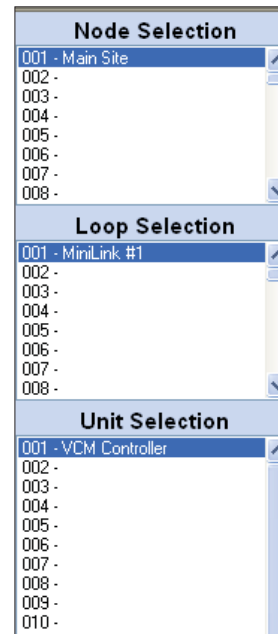
- The *Search For Units Window* will appear. If you haven't performed a previous search, the **Loop Selection** field will read 01 and the **Current Unit** will read 00. You can perform a selective search by entering the loop number you would like to search and checking **Search ONLY the Selected Loop**. The **Check Unit Maps** box will already be checked. Do not deselect this box. Deselecting it will cause the search not to work.



- Click <Start Search> to initiate an automatic detection of all installed controllers on your system.
- If everything is working correctly, **Units Found on this Loop** should increment. You will also see green boxes indicating units that have been found.



- If **Units Found on this Loop** stays at zero, check the wiring to the USB-Link and the controller and/or read through these directions again to make sure all steps were followed. Refer to the Troubleshooting Section in the back of this guide for further help.
- To stop a search, click <Cancel Search>.
- Once you are done searching for units, close out of the window or click <Exit>.
- A window will pop up that asks, "Do you want to save the search results?" Click <Yes> if you wish to save the results. Click <No> if not.
- You can now access any installed unit from the *Main Prism II Screen* by selecting a loop from the *Loop Selection Window* with a single-mouse click and selecting the unit from the *Unit Selection Window* with a double-mouse click.



Communication Settings and LED Descriptions

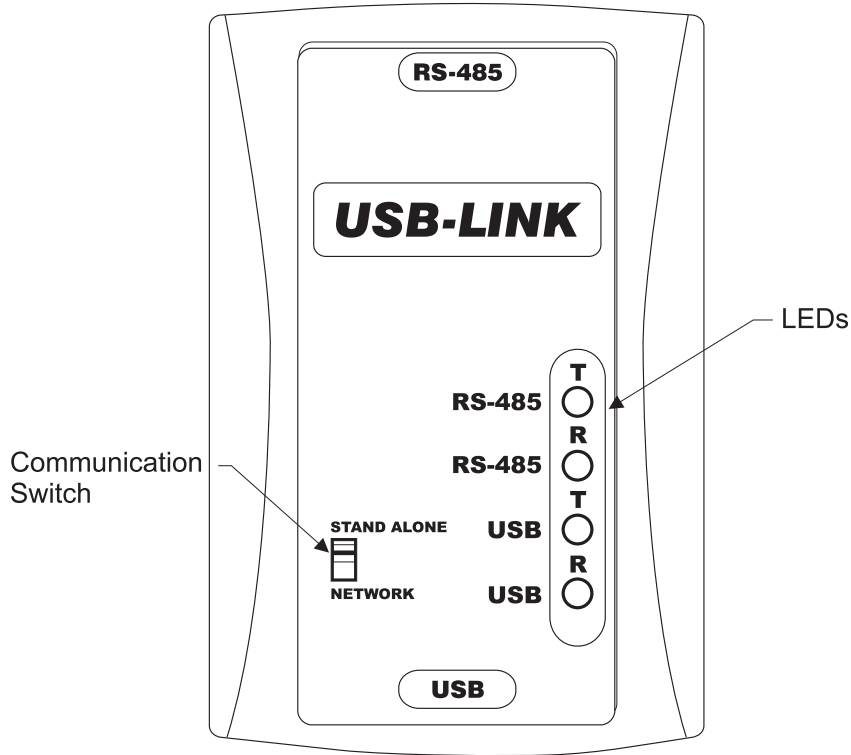


Figure 3: USB-Link Communication Switch and LEDs

USB-Link Communication Settings

The communication switch for stand alone or network mode is found to the left of the LEDs. See Figure 3 above. To set the communication switch, insert a pen tip to move the switch up or down.

NOTE: Whenever you change the communication setting on the USB-Link, you must cycle the power to the USB-Link by disconnecting and reconnecting the USB power supply cable.

Stand Alone - No MiniLink or CommLink - The slide switch on the USB-Link should be set to “Stand Alone” when you are trying to talk to a stand alone controller or multiple controllers on a loop without a CommLink or a MiniLink wired to the communications loop.

Network - MiniLink or CommLink connection - The slide switch on the USB-Link should be set to “Network” any time there is a CommLink or MiniLink wired to the communications loop.

USB-Link LED Descriptions

RS-485 - Indicates communication activity between the USB-Link and the controller(s) that the USB-Link is connected to. When both the “T” and “R” LEDs are flashing, data is being exchanged.

USB - Indicates communication activity between the USB-Link and the computer that the USB-Link is connected to. The “T” and “R” LEDs will flash only when data is sent from Prism II to the USB-Link via USB.

Troubleshooting Tips

Problems with Prism II Software

- Verify that the correct USB serial port created by the USB connection is selected in the *Job Sites Window*. Verify the COM port number in <Control Panel>, <System>, <Hardware>, <Device Manager>, <Ports>.
- Verify that USB Link is selected for Type of CommLink in the *Job Sites Window*.
- Verify that the correct USB Link mode is selected under Network Configuration in the *Job Sites Window*.

Problems with USB Connection

- Verify that the USB LEDs blink when you perform a Search for Units or try to open a status screen in Prism II.
- If the USB LEDs fail to blink, disconnect and reconnect the USB connection.
- If the problem persists, check that the USB drivers have been installed properly

Problems with RS-485 Wiring

- Make sure T connects to T, R to R, and Shld to Shld if multiple boards are wired together on a loop.
- Make sure that the USB-Link mini-DIN communication cable is plugged into a controller or wired to the local side of the loop.

Problems Viewing Controllers on a Network

- Make sure that in Prism II, USB Link Network is selected under Network Configuration in the *Job Sites Window*.
- Make sure that EPROM chips in CommLink II and III are version 3.15 or later and in MiniLinks are version 3.14 or later.

NOTE: WattMaster Controls Technical Support cannot troubleshoot internal PC and/or Windows®-based operating system problems.

Troubleshooting the USB Drivers for Windows® XP

Troubleshooting the USB Drivers for Windows® XP

If the *Found New Hardware Window* did not appear when you plugged in your USB-Link or if you canceled out of the installation procedure for any reason, you will have to follow these instructions to install the USB drivers.

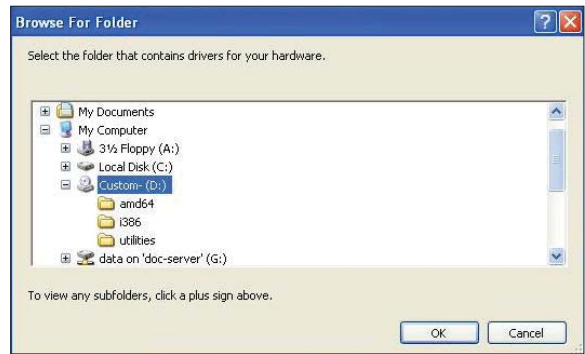
1. Plug the USB cable attached to the USB-Link into your computer's USB port.
2. Click <Start>, click <Control Panel>, and then double-click <System>. The *System Properties Window* will appear. Click the <Hardware> tab and then click <Device Manager>.



3. The *Device Manager Window* will appear. In this window, look for an exclamation point in the categories, "Other devices," "Ports," or "Universal Serial Bus controllers." Click the item containing the exclamation point.



4. Right-click on USB Serial Port and then click <Update Driver>. The *Hardware Update Window* will appear.
5. In response to the question, "Can Windows search for software?" click the radio button, "No, not at this time" and then click <Next>. Insert your USB Drivers CD-ROM into your CD-ROM drive. And then click the radio button, "Install from a list or specific location" and click <Next>.
6. The screen will now display the message, "Search for driver software in this location:" If the location is correct, click <Next> and go to step 8. If not, click <Browse>.
7. Select the CD-ROM location from the list of folders and then click <OK>.



8. A message will appear that states, "Please wait while the wizard installs the software..."
9. When the installation is complete, the window below will appear. Click <Finish>.

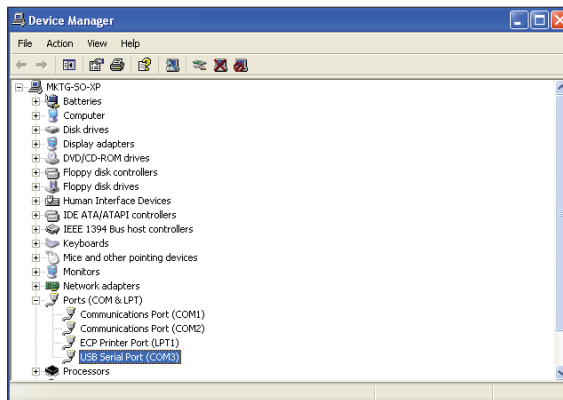


Troubleshooting the COM Port Number

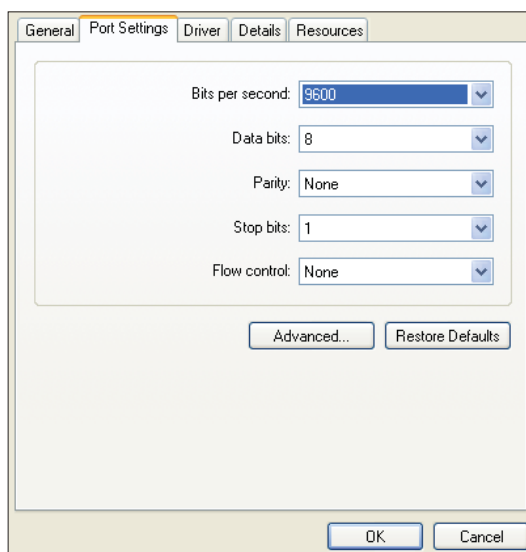
Changing the USB COM Port Number

When the USB-Link is first plugged in, it will be assigned a COM port number to be used for communicating with the Prism II software. If the port number is 10 or greater, it needs to be changed to a value less than 10 to be recognized by Prism II.

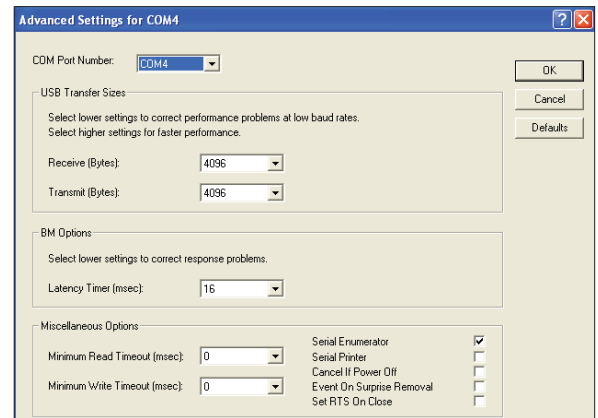
1. Click <Start>, click <Control Panel>, click <System>, click the <Hardware> tab, and then click <Device Manager> to get to the *Device Manager Window*.
2. Click on the plus sign next to Ports to see all of the COM ports.



3. Right-click on “USB Serial Port (COM#)” and select <Properties>. In the *Properties Window*, select the <Port Settings> tab.



4. To assign a port number less than 10, click on <Advanced>. The *Advanced Settings Window* will appear.



5. In the COM Port Number drop box, select which COM port you wish to use. Make sure you select a COM port number that is not currently in use (you can see the ports in use in the *Device Manager Window*). Select a port that is less than 10.

NOTE: Windows® will assign a port number to every device that has ever been installed on your computer. So if there are no available ports below 10, choose a port number less than 10 for a device listed that you know you are not currently using.

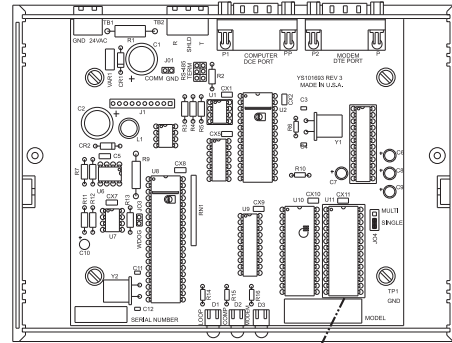
6. Once you select the correct COM port number, click <OK> and close any windows opened in the process of changing the port number. Make note of this number because you will need it for your Prism setup.

Troubleshooting EPROM Software

Verifying CommLink II, CommLink III, and MiniLink EPROM Software Versions

In order to view controllers with the USB-Link on a networked system, the CommLink II and III must have version 3.15 software or later installed and the MiniLink must have version 3.14 software or later installed. Please follow the directions to determine the current software version.

NOTE: If you purchased your CommLink II, III, or MiniLink after January 1, 2007, there is no reason to check the software version nor is it necessary to check the software version of a CommLink IV.



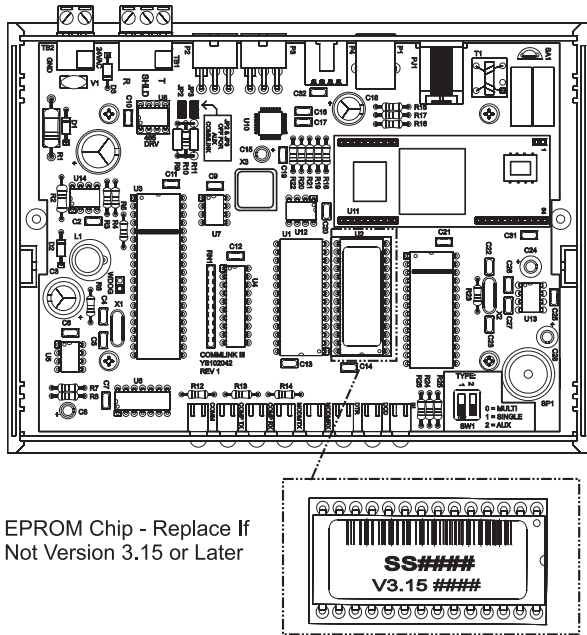
EPROM Chip - Replace If Not Version 3.15 or Later



Figure 4: CommLink II EPROM Upgrade

COMMLINK II DIRECTIONS:

1. Take off the cover of the CommLink II by removing the 2 screws on the bottom.
2. Locate the EPROM chip. See Figure 4.
3. Notice the number in bold letters on the top of the EPROM chip starting with SS. Underneath that in smaller print is the software version number. If it reads V3.15 or later, it is the latest version. If it reads less than 3.15, you must remove the old chip and replace it with the latest EPROM chip (order from WattMaster).
4. In the meantime, while you are waiting for your EPROM upgrade, in order to view a single controller using Prism II, you must disconnect the communications loop from the controller your USB-Link is connected to, set the USB-Link communication switch to Stand Alone, set the Type of CommLink in Prism II to USB Link Stand Alone, and cycle the power to the USB-Link by disconnecting and reconnecting the USB power supply cable.

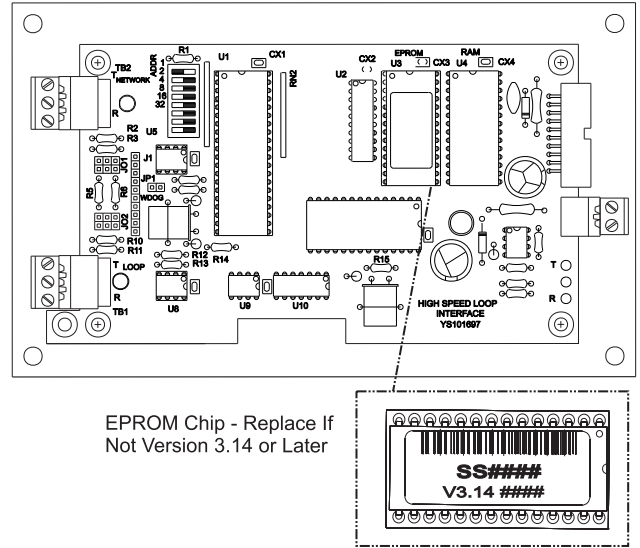


EPROM Chip - Replace If Not Version 3.15 or Later

Figure 5: CommLink III EPROM Upgrade

COMMLINK III DIRECTIONS:

1. Take off the cover of the CommLink III by removing the 2 screws on the bottom.
2. Locate the EPROM chip. See Figure 5.
3. Notice the number in bold letters on the top of the EPROM chip starting with SS. Underneath that in smaller print is the software version number. If it reads V3.15 or later, it is the latest version. If it reads less than 3.15, you must remove the old chip and replace it with the latest EPROM chip (order from WattMaster).
4. In the meantime, while you are waiting for your EPROM upgrade, in order to view a single controller using Prism II, you must disconnect the communications loop from the controller your USB-Link is connected to, set the USB-Link communication switch to Stand Alone, set the Type of CommLink in Prism II to USB Link Stand Alone, and cycle the power to the USB-Link by disconnecting and reconnecting the USB power supply cable.



EPROM Chip - Replace If Not Version 3.14 or Later

Figure 6: MiniLink EPROM Upgrade

MINILINK DIRECTIONS:

1. Locate the EPROM chip. See Figure 6.
2. Notice the number in bold letters on the top of the EPROM chip starting with SS. Underneath that in smaller print is the software version number. If it reads V3.14 or later, it is the latest version. If it reads less than 3.14, you must remove the old chip and replace it with the latest EPROM chip (order from WattMaster).
3. In the meantime, while you are waiting for your EPROM upgrade, in order to view a single controller using Prism II, you must disconnect the communications loop from the controller your USB-Link is connected to, set the USB-Link communication switch to Stand Alone, set the Type of CommLink in Prism II to USB Link Stand Alone, and cycle the power to the USB-Link by disconnecting and reconnecting the USB power supply cable.



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