TR-700NW/AW Configuration Guide

Before You Start

Ver. 1.01

Take a few moments before you start to make the following simple checks. A few moments spent before you start installing your system can save a lot of time later by avoiding some of the most common problems that users can encounter.

I) Administrator Rights

For installation of TandD software and drivers it is ABSOLUTELY NECESSARY that you have complete administrator rights. Go to Control Panel > User Accounts and confirm that this is the case. If it is not, then stop right here and correct it.
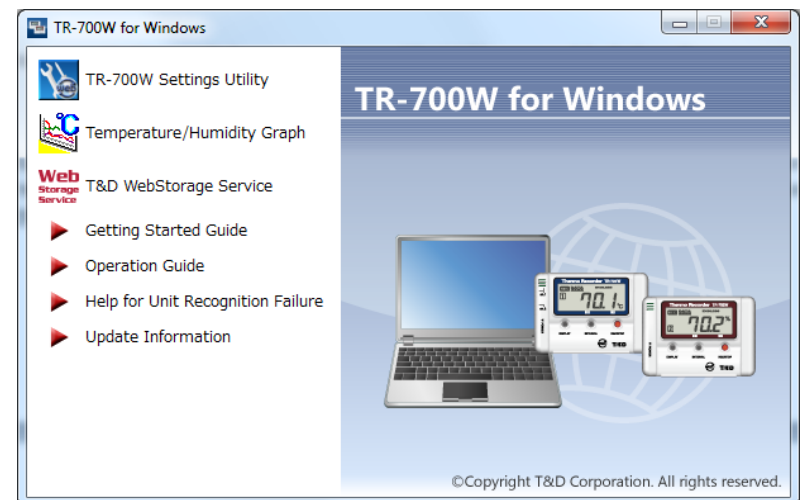
II) Firewall Settings

The TR-700NW/AW resides on your network independently from any PC, with its own IP address. In order for it to perform its functions, however, the unit will have to have an unimpeded communication path to the FTP and Email servers that you specify in the settings. This may also include unimpeded ACCESS TO THE INTERNET. Your network may have firewalls which block this access so it will be necessary to attend to this early on in the setup process.

III) SPAM Filter Settings

If you are going to be sending warning monitoring emails be sure to set your SPAM filter not to block them.

IV) Other Help Sources

Note that TR-700W for Windows has both a Help file and an Operational Guide that contain tips for setup and troubleshooting suggestions. As unusual as it may seem, TandD's Help Files actually are helpful. You can find a lot of useful information in them, so try looking there if you are having problems.


TR-700W for Windows

- TR-700W Settings Utility
- Temperature/Humidity Graph
- T&D WebStorage Service
- Getting Started Guide
- Operation Guide
- Help for Unit Recognition Failure
- Update Information

Starting the TR-700W Settings Utility

I) Getting Started

1. After installing TR-700W for Windows on your PC go to the Start Menu and launch the TR-700W Settings Utility. If you have questions about installing the software or the USB Driver open TR-700W for Windows and then select Help for Unit Recognition Failure. The Guide has very complete instructions for this.
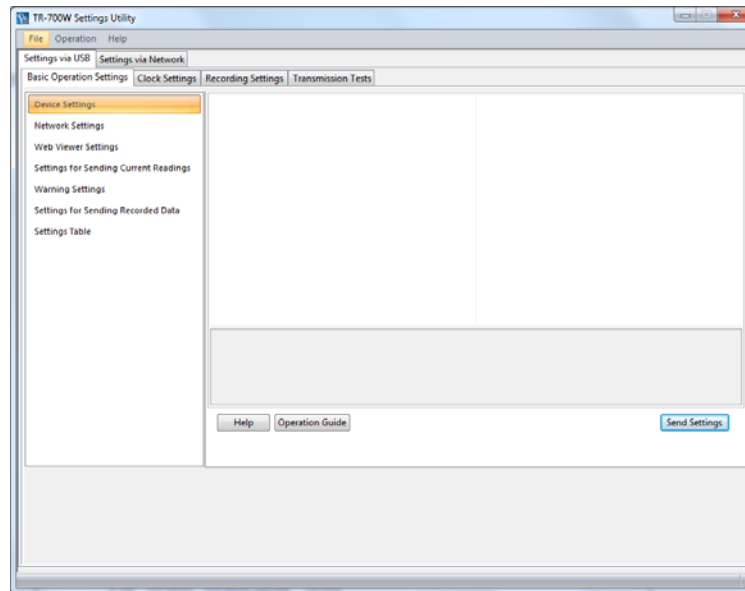
2. Next connect the TR-700NW/AW to your PC using the USB cable supplied with the unit. (Hint: The USB port is on the bottom of the logger.) If the USB driver installed correctly the software should automatically discover the 700W. You will see a "USB Communication in Progress" notification and the device will appear in the Utility Main Window. If this doesn't happen automatically you may have to manually associate the USB Driver with the 700W in your PC's Device Manager.
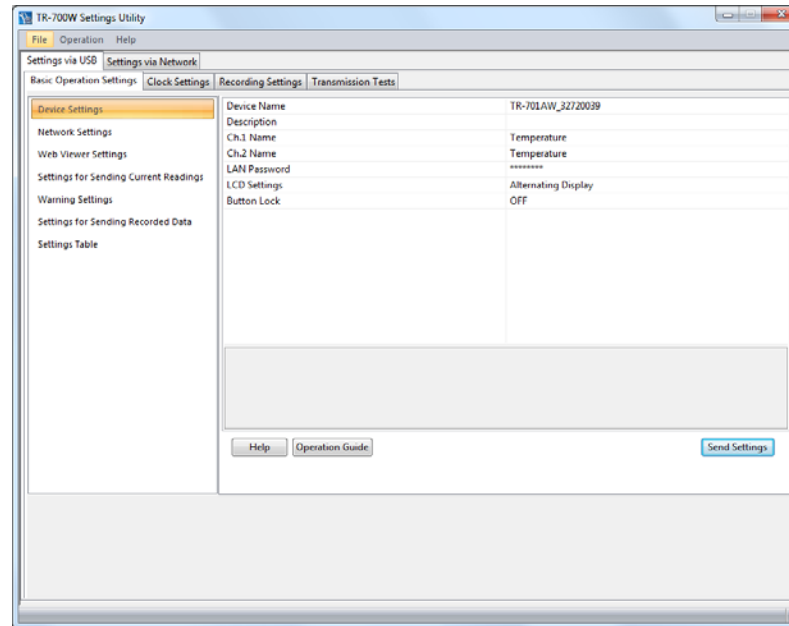
3. The TR-700W Settings Utility will open to the Settings via USB and Basic Operations tabs with the Device Settings page selected. The software will automatically populate the Device Settings Page from the unit that is connected.

The TR-700W Settings Window

II) The Settings Process

Making settings to control the operation of the TR-700NW/AW is a remarkably straightforward process that is all accomplished through the Settings Window, shown here. Initially the device must be set up via USB in order to establish the Network Settings. Once this is done the device can be reconfigured over a network.

The window is divided vertically in two, with page selections in the left hand pane and page contents on the right. Settings are made by selecting a settings page from the pane on the left and then filling in the entries in the page on the right. The process starts with the top page (Device Settings) and then moving down the page list, making the settings page by page, until the last page (Settings for Sending Recorded Data) has been completed. (We will talk about the Settings Table later.)

AFTER MAKING SETTINGS BE SURE TO CLICK ON "SEND SETTINGS" BEFORE LEAVING EACH SCREEN
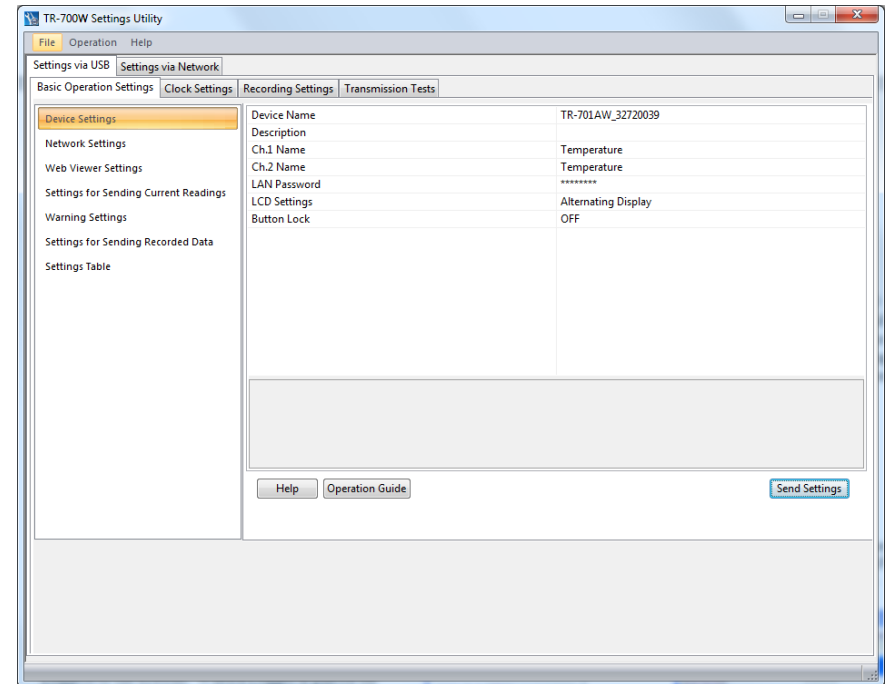
III) Basic Operation Settings

1. Device Settings

There is not much to discuss here. The Device Name and Description fields can be used to enter a logical name for the TR-700W that may have more meaning to you than the factory assigned serial number. This can be particularly helpful if you have more than one 700W on your network. You can also customize the Channel Names, select the mode of the LCD display and whether to lock out the unit's front panel buttons. The LAN Password will be used to access the 700W later when it is connected to your network, rather than via USB.

2. Network Settings

Here you must make a decision based on how you intend to use the unit. If you are not going to access the device's built-in Web Server, then set the DHCP field to ON and the settings boxes for IP address, etc. will disappear and can be ignored. If you are going to use the internal Web Server, however, this requires a fixed IP address. In this case set DHCP to off and make the entries for the IP Address you will use along with the Subnet Mask, Default Gateway, and DNS Server(s). If you are unsure what to enter for these values see Appendix I; Determining Router & Server IP Addresses

Note that when you select an entry in the right hand window you will also see some basic guidance for it along the bottom.

If you have a TR-700AW you will also need to make the settings for your wireless LAN. If you are in doubt about what settings to use here check the documentation that came with your router, or with your IT department. Remember that the SSID and password are case sensitive. As a note, the TR-700AW supports WPA2 encryption for use in 802.11n networks.

**Note:** At this time the TR-700AW does not support Enterprise Mode encryption.

3. Web Viewer Settings

This is a very simple window. You can select the update interval for the Web Viewer and a title for the window that will show in the Browser.

4. Settings for Sending Current Readings

In this window you can elect to send Current Readings from the unit, how often they are sent and by what means. Here we are sending the readings every 5 minutes via FTP to TandD's free WebStorage Service, although you can select any FTP server. You can also elect to send Current Readings by E-Mail, although this may result in a lot of E-Mails. Note that if you are sending Current Readings to TandD's free WebStorage Service via FTP, the Destination Folder must be left blank.

If you want to keep your data within the confines of your own network, and you don't have access to an existing in-house FTP server, there are alternatives. Most routers today have an FTP function to an attached USB drive. Also there is free software available from companies like Filezilla or zFTPServer that can turn any PC into an FTP server (it will need a fixed IP address however).
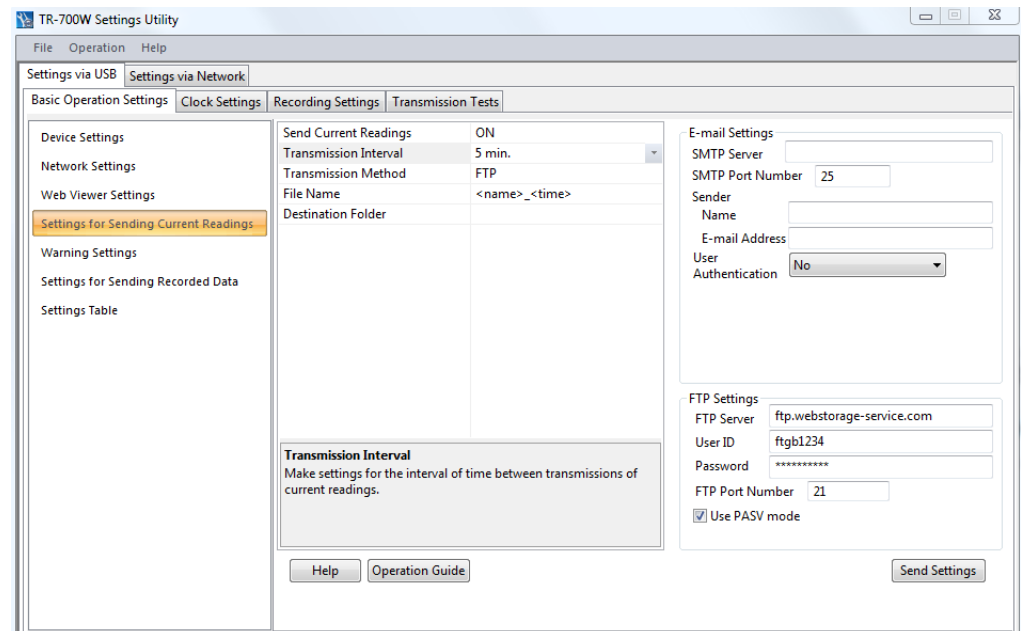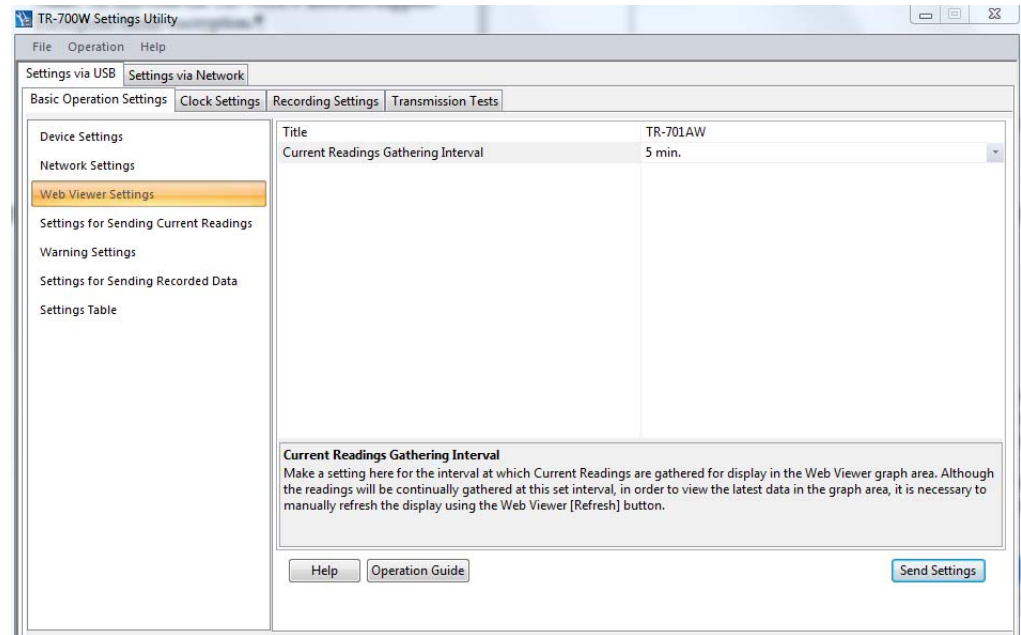
5. Warning Settings

This is the window where warning notifications can be enabled for readings that exceed preset limits. You can elect to enable the contact pair for triggering an external device only or to also send a Warning Notification

Warnings are sent via E-Mail or can be a Text to Cell Phone using the carrier's E-Mail to SMS Gateway. Here you see one warning E-Mail being sent and text messages to an AT&T and a Verizon cell phone. You can designate up to 4 recipients.

If not already done, here is where to make the settings for the server you will be using to send Warning Emails, should you choose to do so. You will need to determine the type of authentication, if any, required by your Email server. The TR-700W supports either SMTP Authentication or POP Before SMTP. For SMTP Authentication the TR-700W uses the LOGIN protocol. If you are unsure about this you should check with your Service Provider, your IT Specialist, or you can try using the "**ehlo**" command as described in Appendix II at the end of this guide. If you are using an in-house server, or have a direct connection to your Email server, it is possible that it may not require any authentication at all.

A Note About Free E-Mail Service: Some of the most popular free e-mail services, such as **Gmail** and **Hotmail**, use SSL encryption, which the TR-700W does not support. Because of this, these services cannot be used to send warning or data E-Mails. There is, however, a free POP3 E-Mail service provided by GMX which has been tested to work with the TR-700W. An account for free POP3 Email service can be quickly established at www.gmx.com. When setting up the TR-700W for a GMX account use the settings shown above:

A Note about Microsoft Exchange Server: The TR-700W will work with MS Exchange Servers. In order to do so, however, it will be necessary to have the IT Specialist who maintains your server set up an unencrypted Client to Server Connector for the TR-700W on port 587

If you have elected to enable Warnings you will want to set the limits which trigger them. You can set upper limit or a lower limit, or both for either channel or both channels.

Note that due to the internal workings of the logger the temperature limits for Warnings must be stated in **Degrees Celcius.**

You are also asked to enter a Warning Judgment Time. This is not the warning sampling Interval. This time is the duration that the set limit must be exceeded before a warning notification will be sent. The unit will send a Warning Notification to all designated recipients when this condition is met. It will only send the warning once, but will send an OK Notification when the readings return to within normal limits.

The last entry on this page enables the unit to send a Warning Notification when the unit detects that a sensor has been removed or has become defective. You can enable this for either channel or for both.

6. Settings for Sending Recorded Data

This is the screen where downloads of the data recorded by the loggers are enabled, the frequency of downloads is specified and the transmission method is set. Recorded Data can be sent at either a fixed time and day, or at fixed intervals. The selected transmission method applies to all times specified. Note that if transmission via FTP is selected and <time> is not included in the File Name, each transmission will overwrite the previous one, resulting in a single data file residing on the server no matter how many uploads are made. Also, as with sending Current Readings, it is important to make sure that if Recorded Data is being sent to TandD's free WebStorage Service the Destination Folder entry must be left blank.

7. Settings Table

The Settings Table is a convenient way of viewing all the settings you have made in summary form. This can be handy for troubleshooting problems or just confirming that settings have been made as intended. Your distributor's technical support specialist may ask you to send screenshots of the Settings Table to assist in a troubleshooting procedure. It is recommended to take a screen capture of this table for future reference.

8. Clock Settings

There's not a lot to say about this screen that isn't already self-evident, with the possible exception of a comment about the necessity for an SNTP server connection. In addition to correcting any errors to the TR-700NW/AW's internal time keeping, a connection to an SNTP server also allows for automatic clock setting after a power failure or surge. While the logger readings would be unaffected, without this all 700W originated messages for warnings and the like will show erroneous times until the unit is manually reset by the user. Again, be sure that any firewalls in your network allow connection to the time server.
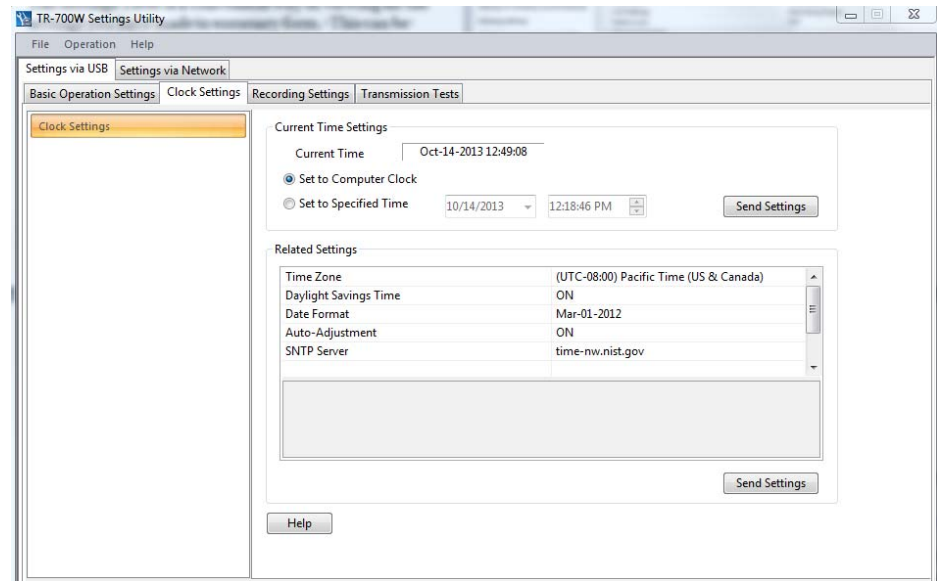
9. Recording Settings

It is in this window that you set the basic logging parameters for the device. Mostly this is all self-explanatory.

One important point is that it is in this window where you can enter any Adjustment Settings. This allows you to enter any reading errors that are noted during a calibration process. Once this is done the data that is displayed and recorded by the unit is "post correction", and further adjustment after downloading becomes unnecessary.

Note that adjustments are linear and can be either "1 Point" (offset) or "2 Point" (mX + b). The TR-700W cannot accept quadratic corrections (aX^2+bX+c).
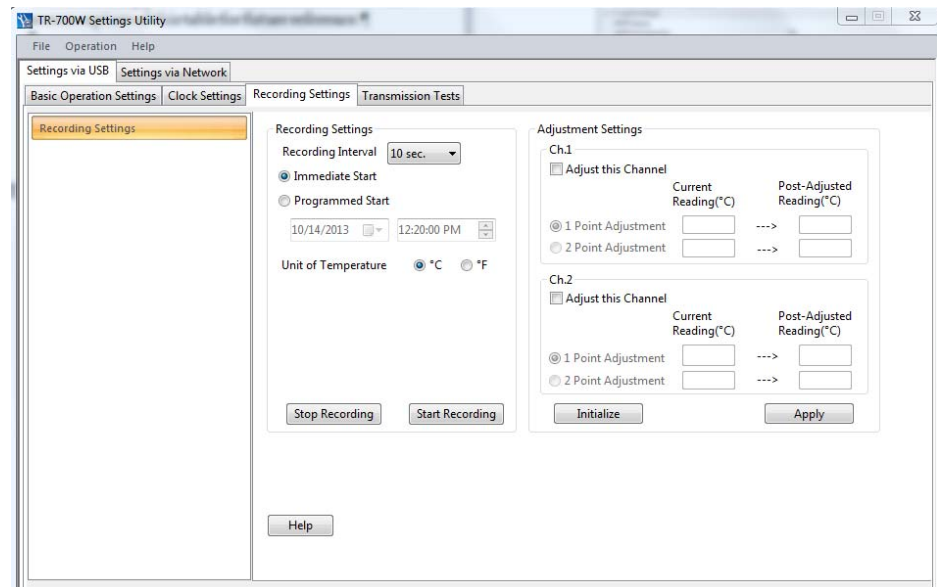
10. Transmission Tests

You will want to perform these tests prior to deploying the unit for service. Doing so now can save a lot of troubleshooting time later.

Important Note: The Transmission Tests determine if communication can be established via the specified method without errors being returned. Because of this the TR-700NW/AW must be connected to the network. This may seem obvious after thinking about it, but it is surprising how often people just proceed to this step while still only connected via USB.

Disconnect the USB cable and plug in the power cable from the A/C Adapter.

If you are configuring a TR-700AW the unit will attempt to connect to your wireless LAN. The Link LED (located on the right side of the unit) will blink while a connection is being established. If the connection is successful the Link LED will remain on solid. If the Link LED goes off the connection to the Wi-Fi router could not be established. If this is the case you should recheck the SSID, however the most common cause is the Security Mode or Shared Key. Double check these settings against those of your router. Please recall that the TR-700AW units do not support Enterprise Mode security.

If you are configuring a TR-700NW connect the unit to your LAN with an Ethernet cable. TR-700NW devices will always connect unless there is a problem with the cable or the router is not configured for DHCP and the logger is expecting to receive an IP address from it.

Next, click on the Settings via Network tab. The software should show a Searching notice and then show your logger in the Address List window. Double click on your logger in the Address List and you will be prompted to enter the LAN Password you set in the Device Settings page. At this point, as long as the password you entered is the correct one, and you have no firewall issues, the software will connect with the logger through the network.
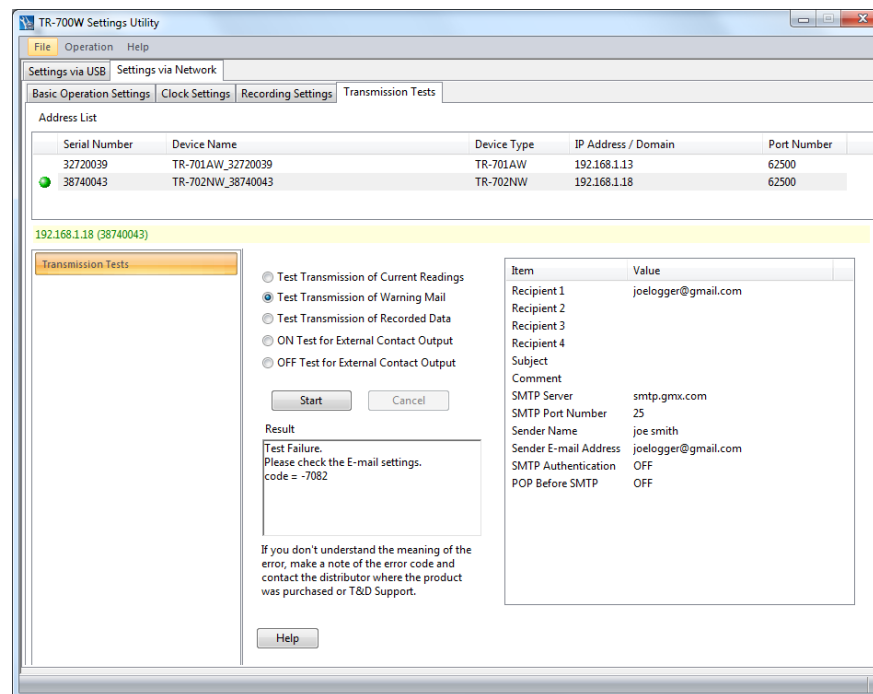
You can now perform the Transmission Tests. Note that while the test is in progress you will usually see a status in the Result window. If the test completes without error you will see a Successful result. If not, a Failure will be reported along with some information about the cause. This usually requires changes to the settings that were made earlier.

NOTE: Most E-Mail failures are the result of authentication issues. If you receive a Failure result for an attempted E-Mail see the comments relating to this in Section 5: Warning Settings.
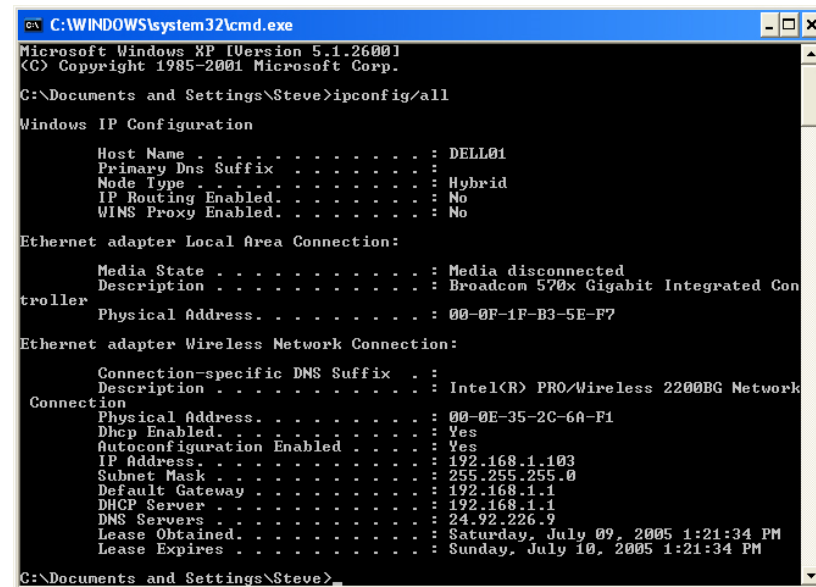
Once all of the Transmission Tests for the operations you have enabled have been completed you can close the TR-700W for Windows software and the logger is ready to deploy.

Appendix I

Determining Router & Server IP Addresses

Key addresses for your router and ISP server can be obtained from your computer. In order to display this information use the following procedure:

1. Connect your PC to the LAN that the TR-700W will reside on.
2. Go to the Start menu and click on Run.
3. Enter "Cmd".
4. In the DOS prompt window enter "ipconfig/all".
5. In the "Connection" Section find:
   - The IP address of the PC
        (as assigned by the router)
   - The assigned subnet mask
   - The router's default gateway address
   - The IP address of your ISP's DNS server

```
C:\WINDOWS\system32\cmd.exe                                    _ □ ×
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Steve>ipconfig/all

Windows IP Configuration

        Host Name . . . . . . . . . . . . : DELL01
        Primary Dns Suffix  . . . . . . . :
        Node Type . . . . . . . . . . . . : Hybrid
        IP Routing Enabled. . . . . . . . : No
        WINS Proxy Enabled. . . . . . . . : No

Ethernet adapter Local Area Connection:

        Media State . . . . . . . . . . . : Media disconnected
        Description . . . . . . . . . . . : Broadcom 570x Gigabit Integrated Con
troller
        Physical Address. . . . . . . . . : 00-0F-1F-B3-5E-F7

Ethernet adapter Wireless Network Connection:

        Connection-specific DNS Suffix  . :
        Description . . . . . . . . . . . : Intel(R) PRO/Wireless 2200BG Network
 Connection
        Physical Address. . . . . . . . . : 00-0E-35-2C-6A-F1
        Dhcp Enabled. . . . . . . . . . . : Yes
        Autoconfiguration Enabled . . . . : Yes
        IP Address. . . . . . . . . . . . : 192.168.1.103
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 192.168.1.1
        DHCP Server . . . . . . . . . . . : 192.168.1.1
        DNS Servers . . . . . . . . . . . : 24.92.226.9
        Lease Obtained. . . . . . . . . . : Saturday, July 09, 2005 1:21:34 PM
        Lease Expires . . . . . . . . . . : Sunday, July 10, 2005 1:21:34 PM

C:\Documents and Settings\Steve>_
```
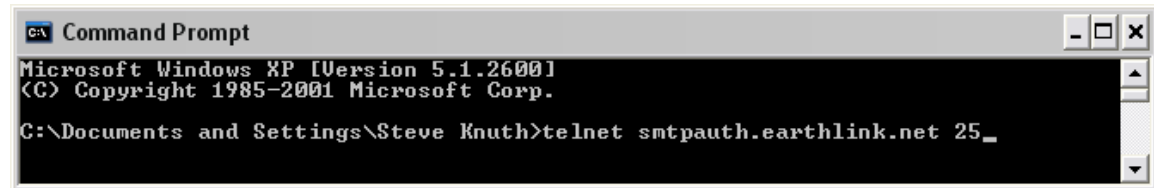
DOS Prompt Window

Appendix II

Determining E-Mail Authentication Type

This procedure can be used with many E-Mail servers to determine what authentication will be accepted.

1) Open the Cmd prompt. Then type:

telnet <server_name>
<smtp_port_no> (return)

```
Command Prompt                                              _ □ ×
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Steve Knuth>telnet smtpauth.earthlink.net 25_
```
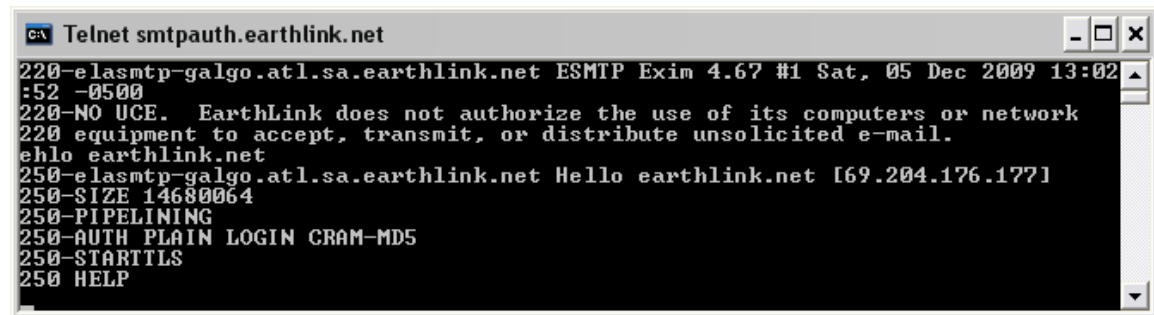
2) After server response, Type:

ehlo <your_domian_name> (return)

```
Telnet smtpauth.earthlink.net                               _ □ ×
220-elasmtp-galgo.atl.sa.earthlink.net ESMTP Exim 4.67 #1 Sat, 05 Dec 2009 13:02
:52 -0500
220-NO UCE.   EarthLink does not authorize the use of its computers or network
220 equipment to accept, transmit, or distribute unsolicited e-mail.
ehlo earthlink.net_
```

3) The server will respond something like the following:

In this case you can see that Earthlink accepts PLAIN, LOGIN and CRAM-MD5 smtp authentication. Since LOGIN is accepted the TR-700W will work fine with this server.

```
Telnet smtpauth.earthlink.net                               _ □ ×
220-elasmtp-galgo.atl.sa.earthlink.net ESMTP Exim 4.67 #1 Sat, 05 Dec 2009 13:02
:52 -0500
220-NO UCE.   EarthLink does not authorize the use of its computers or network
220 equipment to accept, transmit, or distribute unsolicited e-mail.
ehlo earthlink.net
250-elasmtp-galgo.atl.sa.earthlink.net Hello earthlink.net [69.204.176.177]
250-SIZE 14680064
250-PIPELINING
250-AUTH PLAIN LOGIN CRAM-MD5
250-STARTTLS
250 HELP
```

ThermoWorks