Model ST365 LAN Administration

A Network Administration Tool

The ST365 Radiation Counter features a Local Area Network interface. This document explains the network connection and administration features of the ST365 radiation counter.

Outline:

Computer control and network administration software

Connection to LAN or Lap Top

DHCP is Default.

Finding the instrument IP address with Network Administration Tool

The web server setup interface

- Changing Telnet Port Number

- Setting Static IP Address

- Setting "This Device Name"

- Setting non standard Telnet port

- Restore Factory Defaults

Control and Administration Software

LAN connection of the ST356 enables the operator to control the ST365 remotely from a Windows PC or Mac Computer using the **Spectrum Techniques Ultra** software available for free from our web site.

See www.spectrumtechniques.com and look for the Software Downloads link on the main page. Then look for **Spectrum Techniques Ultra**. There are versions of the software for both Windows PC and Mac Computers and instruction on installing them. While you are there also download the Windows program **Tiva™ Board Finder** a utility from Texas Instruments that finds devices such as the ST365 instrument with Texas Instruments LAN components on a Local Area network. Save the **Tiva™ Board Finder** to a folder for later.

Connection to LAN

A LAN connection is typical easy. The LAN connection is on the rear panel of the ST365. Connect a standard straight through (pin 1 White/Orange stripe to pin 1 White/Orange stripe both ends) CAT5/6 cable LAN to the ST365 and connect the other end to a LAN switch/router.

A straight through cable is typically wired with T-568B wiring convention on both ends. We assume the router connection is wired correctly for a straight through cable or has the common feature of automatic switching of the TX RX pair. There is an excellent Wikipedia page on TIA/EIA-586 cable standard.

Direct Connection to a Lap Top

Direct connection of the ST365 to a Lap Top without a LAN switch/router is possible but may require more cable experimentation. Connect a crossover LAN cable from the ST365 to the Lap Top LAN port. A cross over LAN cable is wired T-568A and T-568B on the other end. Pin 1 on one end will be White/Green stripe and the other end will be pin 1 White/Orange stripe.

Some Lap Top computers may have automatic switching on the TX RX pair and so may work with straight through cables. When in doubt try both kinds of cables.

Figure 1 Rear Panel ST365 with 10/100 LAN connection

Dynamic Host Configuration Protocol aka DHCP

From Wikipedia:

> The **Dynamic Host Configuration Protocol** (**Carlin**) is a network management protocol used on UDP/IP networks whereby a DHCP server dynamically assigns an IP address and other network configuration parameters to each device on a network so they can communicate with other IP networks

The ST365 is shipped set up as a DHCP client and will accept IP address assignment from the network DHCP server. If no DHCP server is available, such as when connecting directly to a Lap Top, the ST365 will auto assign an IP address after a time out using the RFC3297 protocol. The AUTOIP address will be of the form 169.254.xx.yy. The Lap Top should do the same.

Finding the IP Address assigned by DHCP

Use the windows program **Tiva™ Board Finder** you downloaded from the instruction above to find the IP address of the ST365.

Figure 2 the finder program in a temp folder.

The **Tiva™ Board Finder** program opened and after pressing "Refresh" to find ST365 on your LAN.

Unless changed in the ST365 instrument, the "Application" field will have the instrument model and serial number. See the example to the right where "ST365 SN00001"

The "Application" is a device name and an administrator can change it as explained later in this document.

The MAC address is unique for every ST365 and printed on a label on the instrument. Check the MAC address in the list and find the IP address assigned to the instrument

Available Tiva Boards
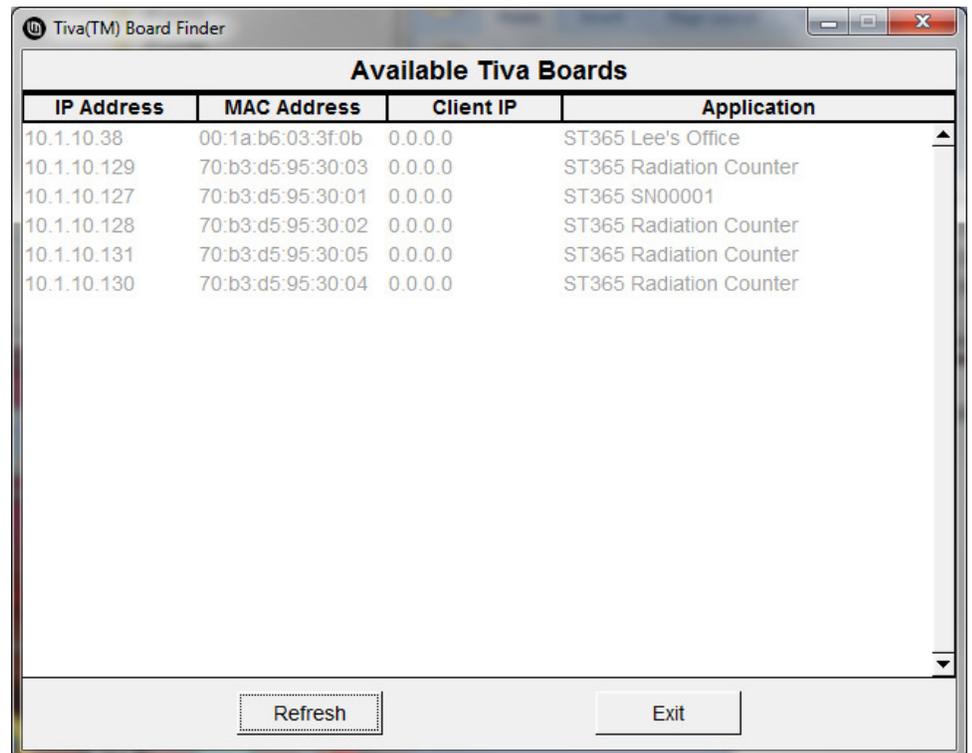
IP Address	MAC Address	Client IP	Application
10.1.10.38	00:1a:b6:03:3f:0b	0.0.0.0	ST365 Lee's Office
10.1.10.129	70:b3:d5:95:30:03	0.0.0.0	ST365 Radiation Counter
10.1.10.127	70:b3:d5:95:30:01	0.0.0.0	ST365 SN00001
10.1.10.128	70:b3:d5:95:30:02	0.0.0.0	ST365 Radiation Counter
10.1.10.131	70:b3:d5:95:30:05	0.0.0.0	ST365 Radiation Counter
10.1.10.130	70:b3:d5:95:30:04	0.0.0.0	ST365 Radiation Counter

Refresh   Exit

Figure 3 Program for finding the IP address.

Once you know the IP address you can connect the Spectrum Techniques Ultra desk top software. A full explanation of the Spectrum Techniques Ultra is beyond the scope of this document and is to be found in documentation specific to that software. This explanation is provided for a network administrator.

From the desk top Icon,   , Run the Spectrum Techniques Ultra software.

Figure 4 Spectrum Techniques Ultra, a desk top application

Press the **ST MODELS** button to open the dialog for selecting devices on either USB or LAN interface.

Figure 5 Selecting a device by IP Address and MAC

 Select an instrument and press the **Connect** button. Refer to the Spectrum Techniques Ultra manual for further operating instructions.

Web Server LAN Setup Interface

The ST365 serves a web page for LAN setup. On a computer on the same LAN as the ST365, use the finder program method above find the IP address of the instrument that you want to examine or set up.

Enter the IP address as a URL, example below: 10.1.10.127, and press enter.

Figure 6 ST365 Web Interface Home

Changing The Device Name

Select the Network Settings link from the left menu. This brings up the settings and the dialog where you can change "The Device Name".

Figure 7 Update The Device Name

We suggest you give each ST365 a descriptive name appropriate to your deployment. You do not have to, but we suggest you start with the model number **ST365** (the model) and a descriptive location such as Room 222, Bench 3, or Building 37 Lab Room 4. Press the Update Device Name button to save the change. There is a limit of 40 total characters. However the finder program does not quite display all of The Device Name.

Changing for Static IP Address

CAUTION the following section describes changes to the network setting which if done incorrectly may make connection to the LAN interface impossible and require return to the factory to restore default operation. With great power comes great responsibility.

Some networks may require the ST365 be set for a static IP Address (or telnet connection on other than port 23). The web interface allows such changes.

Select the Network Settings link from the left menu. Scroll down to the IP Address Selection.

Figure 8 Setting Static IP Example

Select Static IP. Enter your network IP Address. Enter you Subnet Mask. Enter your Default Gateway.

If you are very sure of these settings, press the **Update IP Address Settings** button. You will get a warning page

Figure 9 Page warning of IP addresses change.

Success:

Figure 10 The home page at the new static IP address

Changing Telnet Port Number

The LAN connection from the Spectrum Techniques Ultra to the ST365 is by a Telnet protocol on the default port of 23. Some networks may not allow the use of that port so the ST356 user interface allows for an administrator to change the port number. Navigate the web interface to the **IP Port Settings** from the left menu. See the highlighted Local Port Telnet Number below.

Figure 11 IP Port Settings

Enter a port number allowed on your network. Hint: port 5024 or 5025 are common instrument control port numbers. Network administrators should make this change and should know what the network allows.

CAUTION: Make no other changes on this page. Such changes are not compatible with the Spectrum Techniques Ultra desk top software and will prevent communication. These changes are there for possible future use ONLY.

Note there is a check box on the bottom right of the form. Leave it <u>unchecked</u> to test your new port number. Press **Submit** to change. Then test connection with the Spectrum Techniques Ultra. Once you have your new port number chosen and it is tested and is working with the Spectrum Techniques Ultra, check the box and again press **Submit** to make the new port number persistent (you can turn off and on the ST365 and it will keep the new port number).

Figure 12 Check box to make port change persistent.

Success web page.

Reenter the IP Address to get to the home web page.

IP 1 Port Settings

The IP 1 Port has no current function in the ST365 and no settings should be changed.

Reset Settings

In the menu, select the Network Settings item.

Figure 13 Restore Defaults

Scroll down to the bottom and find the "Restore Factory Defaults" section and press the **Restore Defaults** button to return the unit to DHCP and the default telnet port and default Device Name.

Warranty and Repair Information

Spectrum Techniques warrants products of our manufacture against defects in workmanship or material for a period of one year from date of shipment. We will repair or replace, at our option, any instrument that is deemed defective during this time. This warranty covers all replacement parts and labor. The instrument must be returned to our factory prepaid and we in turn will pay the cost of the return shipping.

The warranty does not cover set up rendering the ST365 network connection hard or impossible to access on your network. Spectrum Techniques will charge a fee to restore network settings changed rendering an instrument incompatible with LAN connection.

For warranty-repair, and NON warranty-repair, information or return authorization, contact customer service at:

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