

USB Driver:

In order for Windows to recognize the device the USB driver must first be installed, after which it appears as an additional COM port on the computer.

1. Copy the file "cdc_NTXPV764.inf" from the supplied CD to the hard drive.
2. Plug the unit into a free USB port. When the hardware installation wizard asks for the driver location, browse to the "cdc_NTXPVista.inf" file on the hard drive.
3. After the driver has been installed right click "my computer" and select "properties". In the properties window select the "hardware" tab. Click on "device manager" and expand the "Ports (COM & LPT)" item. Locate the "Spectronix, Inc." entry and note the assigned COM number, (ie "COM4"). This is the COM port that the software will use to communicate with the Quad Cell Viewer.

Note, on some operating systems such as Window 7, manual USB driver installation may be necessary. If the hardware installation wizard fails, go to "My Computer" > "Properties" > "Hardware" > "Device Manager", and find the "Spectronix" or "SERIAL DEMO" entry under "Other Devices" and select "Update Driver". At this point you will be able to browse to the location of the driver.

Ethernet:

Some devices allow communication over an Ethernet port. The default IP address is 192.168.1.160, port 2101. The commands below can be used over USB or Ethernet.

Commands:

The device uses ASCII data to communicate with a host computer; the tables below list the individual commands, parameters, and responses from the unit.

Notes:

1. All communication is initiated by the host.
2. Text is not case sensitive.
3. A space should be inserted between the command and any parameters.
4. All commands should be terminated with <CR>, <LF>, or both.
5. Responses from the OSTs are framed using a binary 0x00 character (start) and terminated with 0x0D0AFF (<CR><LF>0xFF). These framing bytes are not shown in the tables below.
6. Response parameters are variable width, may contain white spaces, and are separated by commas.
7. For the descriptions below, values inside quotations ("") are literal ASCII values, text inside brackets ([]) are variable ASCII values, and values inside <> are binary values.

Example Command / Response:

Command set the laser power:

Command: **SetLaserdBm -5<CR><LF>**

Commands

Get Unit Information	
Command:	Description:
"?"	
Response:	Description:
"?"	Echo command
"100529A" or "100560A"	Unit name (fixed)
[major.minor]	Firmware version
<i>Example:</i>	
<i>Notes:</i>	

Calibrates the OPM against a known input power	
Command:	Description:
"CalOPM"	
[channel]	Channel 0 or 1 (always 0 for 100529A)
[power]	Desired power (dBm)
Response:	Description:
"CalOPM"	Echo command
[channel]	Channel 0 or 1
[offset]	Desired power – measured power (dB*1000)
<i>Example:</i>	
<i>Notes: Connect a source of known power to the OPM input and execute the command. A deviation of more than +/-20dB will be rejected and set the power measurements to nominal.</i>	

Zero the laser power	
Command:	Description:
"ZeroLaser"	
Response:	Description:
"ZeroLaser"	Echo command
[zero value]	DAC value at 0dBm (0:65536)
<i>Example:</i>	
<i>Notes: Connect the laser output directly to the power meter port and execute this command. The laser will automatically be adjusted for 0dBm. The calibration will be stored and used to adjust</i>	

the laser power. This takes about 2S, during which time the unit will be unresponsive.

Set the laser power level

<u>Command:</u>	<u>Description:</u>
"SetLaserdBm"	
[value]	dBm (-10:0 in 1dB steps)
<u>Response:</u>	<u>Description:</u>
"SetLaserdBm"	Echo command
[laser power]	Laser power (dBm)
<i>Example: "SetLaserdBm -5" (sets the laser to -5dBm)</i>	
<i>Notes: The laser must be zero'd before using this command. Any value other than zero is an approximation. A value less than -10 will set the laser to its minimum output power. This power will vary from unit to unit but is typically in the range of -30 to -70dBm.</i>	

Calibrate the VOA

<u>Command:</u>	<u>Description:</u>
"CalVOA"	
<u>Response:</u>	<u>Description:</u>
[read response]	Periodically sends the "read" response during cal
<i>Example:</i>	
<i>Notes: Connect the laser output (or other stable 0dBm source) to the VOA input, connect the VOA output to the power meter port, and execute this command. The tester will build a look up table</i>	

Calibrate the Power Meter at Low Power values

<u>Command:</u>	<u>Description:</u>
"CalOPMLP"	
<u>Response:</u>	<u>Description:</u>
[read response]	Periodically sends the "read" response during cal
<i>Example:</i>	
<i>Notes: Calibrates the low power end of the OPM dynamic range.</i>	
<i>Set the laser power to 0dBm. Connect the laser output to the VOA input and the VOA output to the power meter input using external attenuators so that the power meter reads between -80 and -75dBm. Due to the large amount of attenuation and the low power levels, it's suggested to split the attenuation equally between the four ports.</i>	

Set the relative VOA attenuation	
<u>Command:</u>	<u>Description:</u>
"SetVOAdB"	
[value]	Relative attenuation in dB*10 (0:600 in 0.1dB steps)
<u>Response:</u>	<u>Description:</u>
"SetVOAdB"	Echo command
[value]	Relative attenuation in dB*10 (0:600 in 0.1dB steps)
<i>Example: "SetVOAdB 125" (sets the attenuation to 12.5dB relative to its insertion loss)</i> <i>Notes: The VOA must first be calibrated. The attenuation value will be limited to the max calibrated value.</i>	

Set the power meter filtering	
<u>Command:</u>	<u>Description:</u>
"SetFilter"	
[value]	value (see below)
<u>Response:</u>	<u>Description:</u>
"SetFilter"	Echo command
[value]	Filter value
<i>Example: "SetFilter 1920" (sets the filtering to normal, 10SpS)</i> <i>"SetFilter 384" (sets the filtering to fast, 50 SpS)</i> <i>Notes: Setting applies to both channels</i>	

Read power measurements	
<u>Command:</u>	<u>Description:</u>
"Read" or "ReadNew"	
<u>Response:</u>	<u>Description:</u>
"Read"	Echo command
[mode]	'r'= run, 'v'= calibrating VOA
[laser power]	Laser power setting (dBm)
[attenuation]	VOA attenuation (dB)
[meas power 0]	First channel Measured optical power (dBm)
[meas power 1]	Second channel Measured optical power (dBm)

[min atten]	Minimum VOA attenuation (dB)
[max atten]	Maximum VOA attenuation (dB)
[Raw power 0]	First channel uncalibrated power (dBm)
[Raw power 1]	Second channel uncalibrated power (dBm)

Example:

Notes: "Read" returns power readings immediately, "ReadNew" waits until new measurements has been taken before returning. "ReadNew" commands received before a previous one has been serviced will be ignored.

Read laser and VOA calibration values	
<u>Command:</u>	<u>Description:</u>
"ReadCal"	
<u>Response:</u>	<u>Description:</u>
"ReadCal"	Echo command
	Text friendly cal values for laser, VOA, and OPMs.
<i>Example:</i>	

Ethernet Interface Configuration Commands

The following commands require the internal controller to place the XPort module in CLI mode. During command execution the Ethernet interface will disconnect from the host and not send responses via the Ethernet. In some cases the interface will automatically reboot or require a power cycle as noted below.

These commands are intended to be executed from the USB interface but can be also be executed via the Ethernet with the above limitations. The only exception is that the "XPortTerm" command cannot be executed from the Ethernet interface.

Before executing any of the following command, the XPort interface should be allowed to fully start which takes approximately 30 seconds after powerup.

Configure the Ethernet port to factory defaults and format flash file system	
<u>Command:</u>	<u>Description:</u>
"XPortConfig"	
<u>Response:</u>	<u>Description:</u>
[status]	Plain text status from XPort during configuration and reboot (USB only). A typical response is shown below. status status>device

```

status Device>factory defaults

CONFIRM: Reload factory default settings?

(okay/cancel)okay

WARNING: Rebooting for factory defaults...

Command Line started.

Factory restore complete, power cycle required

```

Notes:

After power up, the unit should be allowed at least 30 seconds to start before executing this command.

The command can be executed from either USB or Ethernet but only returns status information via USB.

When complete the unit should be power cycled for the changes to take effect. The complete process takes approximately 60 seconds.

User changes to the XPort CPM or line settings can prevent the XPortConfig command from executing properly. In this case the user should use the web page management tool to reset the device to the Lantronix factory defaults, then execute the XPortConfig command.

The default IP address is 192.168.1.160 using socket 2101.

Read the Ethernet IP and MAC addresses

<u>Command:</u>	<u>Description:</u>
"XPortGetIP"	Get IP and MAC from device and send to host
"XPortGetIPr"	Return results only (do not read from device)
<u>Response:</u>	<u>Description:</u>
"XPortGetIP"	Echo command
[IP address]	Example: "192.168.1.160"
[MAC address]	Example: "00:80:A3:78:28:51"

Notes:

This command takes about 5 seconds to execute, after which the XPort interface is automatically rebooted. If executing this command from the Ethernet interface, the response will be lost during reboot. After reboot is complete (~15 seconds), the connection should be reestablished and the XPortGetIPr" command should be sent to read the results. Sending the command with the "r" appended will return the result immediately without causing a reboot.

A result of zero or null indicates the IP and MAC have not been read.

Set the Ethernet IP address

<u>Command:</u>	<u>Description:</u>
"XPortSetIP"	
[IP address]	Example: "192.168.1.160"
<u>Response:</u>	<u>Description:</u>
"XPortSetIP"	Echo command
[IP address]	Example: "192.168.1.160"
<i>Notes:</i>	
<p><i>This command takes about 10 seconds to execute, after which the XPort interface is automatically rebooted. If executing this command from the Ethernet interface, the response will be lost during reboot. After reboot is complete (~15 seconds), the device should be power cycled for the changes to take effect.</i></p>	

Start / access the XPort command line interface (CLI) terminal through the USB

<u>Command:</u>	<u>Description:</u>
"XPortTerm"	
[CLI commands]	See Lantronix XPort documentation
	<escape> key to exit
<u>Response:</u>	<u>Description:</u>
<p>Command Line started.</p> <p>></p>	See XPort documentation
[CLI responses]	See XPort documentation
<i>Notes:</i>	
<p><i>This command takes about 10 seconds to execute, after which the XPort interface enters the CLI mode and responds with the CLI command prompt through the USB interface. The USB can be used as the CLI terminal to the XPort device until exiting by pressing the <esc> key. This command should only be used via the USB interface.</i></p>	