

Description:

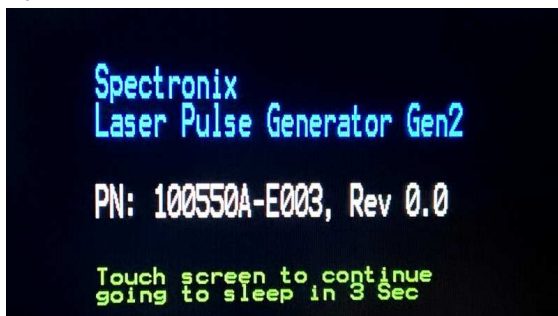
The Laser Pulse Generator is capable of producing precision pulse streams on up to eight wavelengths which can be individually enabled and disabled. The pulse width and period are controlled to a precision of 10nS using the on screen controls, the USB interface, or the optional Ethernet port. The combined optical signal is split internally and provided at two FC/UPC connectors. The unit is powered using a standard USB-C connection or power adapter. The unit consumes approximately 2W of power depending on the laser settings and the Ethernet option adds an additional 0.5W. During sleep mode, the power is reduced to 250mW.



Operation:

The Laser Pulse Generator is controlled using an LCD touch screen, USB, or optional Ethernet port. This document describes the touch screen interface; information on USB and Ethernet control can be found in the software programming guild. The amplitude of each laser source is preset at the factory and requires no user adjustment. Pulse width and period settings are retained between power cycles.

Splash Screen:



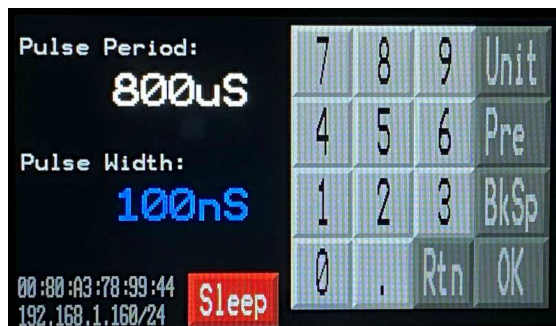
When power is applied, the unit turns on and displays the splash screen shown on the left. Depending on how the unit was last powered down determines if it will remain on when power is applied or if it will return to standby mode. This feature is useful when the unit is primarily controlled via USB or Ethernet.

Laser Control Screen:



Each laser can be enable or disabled from the main control screen; at power up all lasers default to off. The unit can be placed in a low power standby mode by pressing the red “Sleep” button on the main screen. In sleep mode, all lasers and the Ethernet port are powered down. Touching the screen will wake the unit up and restore all settings.

Changing the Waveform Characteristics:



Touching the pulse width or period value on the main screen displays a keypad to allow the user to change the pulse period or width. When selected the value turns white and a keypad is displayed. Use the keypad to enter the desired value; the “units” button cycles between nS, uS, and mS. The valid range is 20nS to 167mS; if a value is set outside this range the value will set the closest allowed value. If the pulse width is set to a value greater than the period, the value will be set equal to the period producing a continuous wave (CW)

signal. Likewise if the period is set to a value less than the pulse width, it will be set to the same value as the pulse width.

The “Pre” (preset) button is used to set the period or pulse width to predefined values. When setting the period, the “Pre” button will cycle between 1.4mS and 800uS and when setting the pulse width the value will cycle between 1uS and 100nS. The “BkSp” button will backspace over the last entry and “Rtn” will exit without making any changes. The “OK” button will save the changes and exit.

Changing the IP Address (Ethernet version only)



On units equipped with Ethernet, the MAC address and IP address are displayed at the lower left corner of the main screen. Touching the IP address will display a keypad similar to the one described above. Type a new IP address and press “OK”. If the IP address is invalid no changes will be made. The update takes a few seconds; during this time the “OK” button will stay red. When complete, the IP address on the main screen will update.

To format the Ethernet module and restore the network settings to their factory default values, enter “123456789” for the IP address, press “OK”, and follow the on-screen instructions.

Power Adjustment:



WARNING: Each laser has been factory set to the maximum recommended power. Caution should be observed if overriding the factory settings since a laser power above -9dBm can result in permanent damage.

The on amplitude of each laser can be adjusted using amplitude adjustment screen. When setting the amplitudes, it's recommended to use a CW waveform by setting the period and pulse width equal. To enter the power adjustment screen, swipe from the top left corner of the screen along the left side to a point about half way

down. If using a power meter, the pulse width and period must be manually set to the same value prior to entering the power adjustment screen in order to produce a CW waveform.

Select a laser and adjust the amplitude the between 1 and 15 using the +/- buttons; these values are stored in nonvolatile memory and used for all subsequent waveforms. The current laser's amplitude is displayed above the buttons. Press the OK button to exit.

Statement of Volatility and Clearing:

The USB only version of the Laser Pulse Generator contains no user accessible memory other than the pulse width and period values and eight nonvolatile laser amplitude values. If necessary these values can be set to nominal values.

The optional Ethernet module contains user accessible non-volatile memory. This memory can be formatted and returned to its factory default state by following the "restore the network settings" procedure under the "Changing the IP Address" section above. If successful the module will respond with the confirmation message "Complete – Touch screen to continue", if it fails the module will display "CONFIG FAILED – Touch screen to continue". clearing should be performed using the web interface. See the Laser Pulse Generator Software Programming Guide for more information.

The commands to the module and its responses during this procedure are provided below. These are also sent over the USB interface when active and connected. Refer to the Lantronix XPort Edge documentation for more information.

```

status>file System
status File System>format
CONFIRM: All files on the file system will be destroyed! Continue?
(okay/cancel)okayThe file system has been formatted.
status File System>
status File System>exit
status>device
status Device>factory defaults
CONFIRM: Reload factory default settings?
(okay/cancel)The file system has been formatted.okay
WARNING: Rebooting for factory defaults...Command Line started.
>config
config>interface eth0
config Interface eth0>DHCP Client Disabled
Changed Interface eth0 DHCP Client to "Disabled".

```

```
WARNING: Change in Interface settings require "write" and reboot before they take effect.

config Interface eth0>write
The changes have been saved permanently.
config Interface eth0>IP Address 192.168.1.160
Changed Interface eth0 IP Address to "192.168.1.160/24".
WARNING: Change in Interface settings require "write" and reboot before they take effect.
config Interface eth0>write
The changes have been saved permanently.
config Interface eth0>exit
config>cpm
config CPM>role factory defaults
config CPM Role Factory Defaults>cp 1
Changed CPM Role Factory Defaults CP to "1".
WARNING: Change will not persist after reboot unless you "write".
config CPM Role Factory Defaults>state enabled
Changed CPM Role Factory Defaults State to "Enabled".
WARNING: Change will not persist after reboot unless you "write".
config CPM Role Factory Defaults>assert low
Changed CPM Role Factory Defaults Assert to "Low".
WARNING: Change will not persist after reboot unless you "write".
config CPM Role Factory Defaults>write
The changes have been saved permanently.
config CPM Role Factory Defaults>exit
config CPM>exit
config>line 1
config Line 1>Interface RS232
WARNING: Flow control is required for XML import/export and file upload through
Command Line.
config Line 1>state enabled
WARNING: Flow control is required for XML import/export and file upload through
Command Line.
config Line 1>protocol Tunnel
Changed Line 1 Protocol to "Tunnel".
WARNING: Change will not persist after reboot unless you "write".
WARNING: Flow control is required for XML import/export and file upload through
Command Line.
config Line 1>write
The changes have been saved permanently.
config Line 1>Baud Rate 9600
WARNING: Flow control is required for XML import/export and file upload through
Command Line.
```

```
config Line 1>write
No configuration changes were made.
config Line 1>exit
config>tunnel 1
config Tunnel 1>accept
config Tunnel 1 Accept>Local Port 2101
Changed Tunnel 1 Accept Local Port to "2101".
WARNING: Change will not persist after reboot unless you "write".
WARNING: Line 1 protocol is not "Tunnel".
config Tunnel 1 Accept>protocol tcp
WARNING: Line 1 protocol is not "Tunnel".
config Tunnel 1 Accept>write
The changes have been saved permanently.
config Tunnel 1 Accept>exit
config Tunnel 1>exit
config>
Factory restore complete, power cycle required
```