LaserLight3[™] Wi-Fi Module Setup

Wi-Fi communication is available to the LaserLight3 with W-Fi communication option kit (PN 209118). This document details the procedures required to setup the Wi-Fi module.



NOTE: For more information about LaserLight3, see LaserLight3 Large-Display Weight Indicator Technical Manual (PN 213589) or LaserLight3 Remote Display Technical Manual (PN 214748).

For detailed xPico 200 instructions, visit www.lantronix.com to view the Series User Guide.



Manuals are available from Rice Lake Weighing Systems at www.ricelake.com/manuals

Warranty information is available at www.ricelake.com/warranties



CAUTION: The LaserLight3 does not have a power switch. Before working with the unit, ensure the power cord is disconnected from the power outlet.

Wi-Fi Module Location

Figure 1 displays the Wi-Fi module installed on a CPU Board.



Figure 1. Wi-Fi Module Installation Location on CPU Board

Part No.	Description	Qty
226479	Wi-Fi Module	1
203883	Hex Screw M2.5-0.45 x 8	1
2149009	FL To RP-SMA CABLE	1
214910	Wi-Fi Antenna	1

Table 1. Wi-Fi Kit Parts



Wi-Fi Communications

Enabling Wi-Fi Communication

This section discusses how to enable Wi-Fi communication on LaserLight3 from the WiFi menu.

The following flow chart, displays the menu path to the WiFi menu.

LaserLight3 Large-Display Weight indicator WiFi Menu





Figure 2. WiFi Menu Path

1. Power on the LaserLight3.

2. Enable Setup mode by either pressing the **Menu** button (if a shunt is installed on J24 pins two and three) or opening the LaserLight3 and shorting J25 pins momentarily.

NOTE: Enabling Setup mode grants access to various LaserLight3 menus that are restricted in normal operation, including the Setup menu.



Figure 3. J24 Audit Jumper and J25 Setup Jumper

- 3. Perform one of the following:
 - For LaserLight3 Remote Display, navigate to Setup ▼ Comm ▼ WiFi ▼ Enabled.
 - For LaserLight3 Large-Display Weight Indicator, navigate to Audit ► Setup ▼ Config ► ... ► Comm ▼ WiFi
 ▼ Enabled.
- 4. User arrow keys to set the Enabled parameter to **On**.
- 5. Press . The Trigger parameter displays.
- 6. Press (MENU) to exit the menu.



Wi-Fi Configuration

The LaserLight3 creates a Wi-Fi network (with a soft AP) that can be connected to a computer or the location's network to configure wireless settings. The following procedure is for setting up the Wi-Fi network using the wireless module's built-in Web Manager.

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NOTE: The use of a web browser on a computer or handheld device is needed to access the wireless module's built-in Web Manager.

1. Scan for available Wi-Fi networks using a computer or wireless device and connect to the Soft AP. It might take several attempts before the Soft AP appears on the computer or device.

NOTE: The Soft AP is only compatible with 5 GHz networks. The connecting device must be capable of using the 5 GHz band to connect to the Soft AP. Setup \checkmark Comm \checkmark WiFi \checkmark Enabled parameter defaults to Off and must be set to On to enable the Soft AP.

- Soft AP Name: RLWS_XXXXXX
- Soft AP Password: PASSWORD



Figure 4. Windows Security Key Prompt

NOTE: The X's in the name represent the last 6 digits of the Wi-Fi MAC address. The serial number on the wireless module's label is almost the same, other than the last digit being one number/character less than the Wi-Fi MAC address. FOR EXAMPLE: If the module's serial number is "0080A3E8C27A", then the SSID would be "RLWS_E8C27B". The MAC address is a Hexadecimal value, so the letter A follows the number 9, and this continues to F before incrementing the next most significant digit and returning to 0.

2. Once connected to the Soft AP, use a web browser and enter 192.168.0.1 as the URL address and press Enter.

NOTE: Once connected to a network, a web browser on that network can connect to the Web Manager by simply navigating to the wireless module's IP Address (available on the Status page of the Web Manager).

- 3. Enter the default login credentials for the Web Manager.
 - Username: admin
 - Password: PASSWORD

IMPORTANT: Change default passwords to limit access and enhance security.

Username	admin		
Password			
		Sign in	Cancel

Figure 5. Web Manager Sign in Prompt



- 4. Select Sign in. The Web Manager loads in the browser and the Status page appears.
- 5. Click QuickConnect at the top of the left navigation panel.

	LAKE g systems			xPico 200 Series Configuration
QuickConnect	Product Information		admin	[Logout]
Status 1	Product Type:	xPico250		
Bluetooth	Firmware Version:	4.4.0.0R8		
etooth SPP	Serial Number:	0080A3E8C27A		
evice	Uptime:	17 minutes 26 seconds		
File System	Permanent Config:	Saved		

Figure 6. Quick Connect Option

6. A list of wireless networks appear. Click the network name intended to connect the wireless module's Wi-Fi network to.

NOTE: If the necessary network does not display, click the Scan button again. It may take several attempts until the network displays. If the network is hidden, enter the network name in the box provided.

QuickConnect Status	WLAN Link	admin [Logout] This page shows a scan of the wireless devices within range of the				
Bluetooth	Network name:				Scan	device.
Bluetooth SPP	Refresh scan re	sults every 60 second	ls			It reports:
Device	Network Name	BSSID	Ch	RSSI	Security Suite	 Network name (Service Service Service) Identifier)(SSID)
File System	ABC WIELEC	30-70-35-63-52-84	36		WPA2 CCMP	 Basic Service Set Identifier (BSSID)
Line	ADC WIII 30	30.70.01.03.12.04	- 30	-34	WFA2-OOWF	Channel
Network	ABC Wifi	3C:7C:3F:63:F2:81	4	-36	WPA2-CCMP	Indication (RSSI)
Radio	ARC WHE FC	20-70-25-62-50-24	26		WPA2 COMP	Security Suite
Tunnel	ADC WIII 50	30.70.51.03.E0.34	50	-64	WFA2-COMP	The 🛜 icon indicates the active profile
User						Click on a network name for
WI AN Drofiles						QuickConnect configuration.

Figure 7. Available Networks in Web Manager

NOTE: The Web Manager provides notes and information related to the current page in the far right column. Descriptions for options and settings are also provided when hovering over the item in question.

7. The wireless network information page appears. Enter the network password (if applicable).

NOTE: Contact IT administrator to obtain network credentials as needed.

QuickConnect Status	WLAN Profile "A	admin [Logout] Use the Apply button to try out settings on the WLAN without saving	
Bluetooth		Connect To	them to Flash. If the settings do not work when you report the device, it
Bluetooth SPP	Network Name (SSID):	ABC_Wifi_5G	will still have the original settings.
Device	BSSID:	3C:7C:3F:63:F2:84	Use the Submit button to update the WLAN settings and save them to
File System	Security Suite:	WPA2-CCMP	Flash
Line	Signal Strength:	-34	
Network Radio			
Tunnel	WPAx IEEE 80211r:	O Enabled Disabled	
User	Кеу Туре:	● Passphrase ○ Hex	
WLAN Profiles	Password:		
	>	Advanced	
	2019.1	Apply Submit	

Figure 8. Enter Network Password Credentials in Web Manager



8. Click **Submit** to apply and save the settings. A message displays at the top of the page to indicate if the new network's Profile saved successfully. It does not necessarily mean it is connected to the network.

MOTE: The Apply button only applies the settings for the current session, but does NOT save them.

- 9. To verify wireless module is connected to the network, click Status near the top of the left navigation panel.
- 10. The Status page displays the network connections on the device under Network Settings.
 - If Connected: Interface wlan0 is listed with Connection State showing Connected and the IP Address populated

NOTE: The "/24" at the end of the IP Address indicates the number of bits set for the network subnet mask and is not part of the IP Address itself. There are 32 bits in a subnet mask and "/24" indicates the subnet mask is 255.255.25.0.

<u>If Not Connected</u>: Refresh the browser to see if the information populates, then click WLAN Profiles at the bottom
of the left navigation panel to change the network settings and try again

QuickConnect	D		admin	[Logout]
Status 🔐	Product Information			
Bluetooth	Product Type:	xPico240		
Plustooth SDD	Firmware Version:	4.4.0.0R8		
Davies	Serial Number:	0080A3E8C27A		
Device	Uptime:	1 hour 12 minutes 22 seconds		
File System	Permanent Config:	Unsaved		
Line	Network Settings	•		
Network	Interface ap0			
Radio	MAC Address:	02:80:A3:E8:C2:7B		
Tunnel	State:	Up		
User	SSID:	xPico250 E8C27A		
WLAN Profiles	Security Suite:	WPA2		
	IP Address:	192.168.0.1/24		
	Interface eth0			
	MAC Address:	00:80:A3:E8:C2:7A		
	State:	Down		
	Interface wlan0			
	MAC Address:	00:80:A3:E8:C2:7B		
	Connection State:	Connected		
	Active WLAN Profile:	ABC_Wifi		
	Hostname:			
	IP Address:	192.168.50.24/24		
	Default Gateway:	192.168.50.1		

Figure 9. Web Manager Displays Network Connection Details

- 11. Connecting to the wireless module's server with a remote client is now possible.
- 12. Using a Terminal Emulation program (such as PuTTY) as a remote client connection to the wireless module's server over Telnet is possible using the IP Address (noted in Step 10) and the Local Port number (default is 10001).

Basic options for your PuTTY session						
Specify the destination you want to connect to						
Host Name (or IP address) Port						
192.168.1.24 10001						
Connection type:						
○ Ra <u>w</u> ● <u>T</u> elnet ○ Rlogin ○ <u>S</u> SH	○ Se <u>r</u> ial					

Figure 10. PuTTY Example



NOTE: If the module's IP address changed and there is no longer access to the module through the location's wireless network, connect to the Soft AP and use the Web Manager to learn the new IP Address.

For more information, visit <u>www.lantronix.com</u> to view the xPico 200 Series User Guide.



Server Configuration

The wireless module is configured to be a server by default, with the ability to accept the connection of a client to it.

- · A Server waits to Accept a connection from a Client
- A Client looks to Connect to a remote Server (host)

NOTE: Even though the Wi-Fi module can be configured as a server and client, typically the device is set as one or the other.

The following procedure details where the wireless module's server settings are found using the Web Manager.

NOTE: Making changes to Tunnel 1 Accept Configuration settings may impact the wireless module's connection to the network ("Wi-Fi Configuration" on page 3).

- 1. Refer to Steps 1-4 in Wi-Fi Configuration on page 3 to sign in to the Web Manager.
- 2. Click **Tunnel** in the left navigation panel.

Qu	uickConnect	Product Information		admin [Logout]
St	tatus 🔂	Product Type:	xPico250	
BI	luetooth	Firmware Version:	4.4.0.0R8	
BI	luetooth SPP	Serial Number:	0080A3E8C27A	
De	evice lo System	Uptime:	17 minutes 26 seconds	
	ne	Permanent Config:	Saved	
Ne	etwork	Network Settings		
Ra	adio	Interface ap0		
Tu	Innel	MAC Address:	02:80:A3:E8:C2:7B	
Us	ser	State: SSID:	xPico240 E8C27A	

Figure 11. Tunnel In Navigation Panel

3. Click Accept toward the top of the *Tunnel 1 Status* page.

QuickConnect Status M	Tunnel 1	Tunnel SPP_1	Tunnel SPP_2	Tunnel SPP_3	admin [Logout] This displays all the Tunnel Status both as an Aggregate and broken down by active Accept and Connect
Bluetooth SPP Device File System	Tunnel Virtual_1 Tunnel gSPI_3	Tunnel Virtual_2 Tunnel gSPI_4	Tunnel gSPI_1	Tunnel gSPI_2	tunnels.
Line Network Radio		Status Line Accept Connec	Packing t Disconnect		

Figure 12. Tunnel Accept Option

4. Change Mode and Local Port settings if needed.

Profiles Tunnel 1 Accept	Configuration	
Mode:	Always	1
Local Port:	10001	
Multiple Connections:	O Enabled Disabled	1
Protocol:	TCP V	
Flush Line:	O Enabled O Enabled	
Block Line:	O Enabled O Enabled	
Block Network:	O Enabled O Enabled	
Password:		

Figure 13. Mode and Local Port Settings

5. Click **Submit** at the bottom of the page to apply and save the settings. A message displays at the top of the page to confirm the changes have been saved permanently.

Client Configuration

The wireless module is configured to be a server by default, with the capability to accept the connection of a client to it.

- · A Server waits to Accept a connection from a Client
- · A Client looks to Connect to a remote Server (host)

The following procedure details configuring the wireless module as a client and using the Web Manager to connect to an available server connection.

- 1. Refer to Steps 1-4 in Wi-Fi Configuration on page 3 to sign in to the Web Manager.
- 2. Click *Tunnel* in the left navigation panel.

QuickConnect	Product Information		admin [Logout]
Status 1	Product Type:	xPico250	
Bluetooth	Firmware Version:	4.4.0.0R8	
Bluetooth SPP	Serial Number:	0080A3E8C27A	
Device	Uptime:	17 minutes 26 seconds	
File System	Permanent Config:	Saved	
Line	Network Settings		
Retwork	Interface ap0		
Radio	MAC Address:	02:80:A3:E8:C2:7B	
	State:	Up	

Figure 14. Web Manager with Tunnel Option Identified

3. Click **Connect** towards the top of the **Tunnel 1 Status** page.

QuickConnect Status 🔐	Tunnel 1	Tunnel SPP_1	Tunnel SPP_2	Tunnel SPP_3	admin [Logout] This displays all the Tunnel Status both as an Aggregate and broken down by active Accept and Connect
Bluetooth SPP Device	Tunnel Virtual_1 Tunnel gSPI_3	Tunnel Virtual_2 Tunnel gSPI_4	Tunnel gSPI_1	Tunnel gSPI_2	tunnels.
File System Line Network		Status Line Accept Connect	Packing Disconnect		-
Radio Tunnel	Tunnel 1 Stat	tus			

Figure 15. Web Manage with Connect Option Identified

4. Use the drop-down to change the Mode setting, and then click [Edit] to display available Host 1 settings.

NOTE: The Web Manager provides notes and information related to the current page in the far right column. Descriptions for options and settings are also provided when hovering over the item in question.

Tunnel User		Accept Connect Disconnect	Mode may be "Disable", "Always", "Any Character", "Start Character" or
WLAN Profiles	Tunnel 1 Co	onnect Configuration	A Connect Tunnel can be started in a number of ways, according to its
	Mode:	Disable V	"Disabled": never started.
	Host 1:	<none></none>	"Always": always started.
	Connections:	Sequential 🗸	character is read on the Serial Line.

Figure 16. Web Manager with Mode and Host 1 Identified

5. Set the Address and Port as needed to connect to the available server.

Tunnel	Tunnel 1	Connect Configuration		
WLAN Profiles	Mode:	Any Character 🗸		
		Host 1	[Summary]	
	Address:	XXX.XXX.XXX.XXX		
	Port:	XXXX		
	Protocol:	TCP 🗸		

Figure 17. Web Manager with Address and Port Identified



6. Click **Submit** at the bottom of the page to apply and save the settings. A message displays at the top of the page to confirm the changes have been saved.



NOTE: While the wireless module's server is available, it is necessary to adjust the server and client mode settings to allow both to function in unison. Even though the Wi-Fi module can be configured as a server and client, typically the device is set as one or the other. Refer to the xPico 200 Series User Guide at www.lantronix.com for more information.

Timeout Configuration

The wireless module has an optional Disconnect feature that can be configured to break a connection after a set amount of time. This feature applies to both server and client connections.

The following procedure details where the wireless module's timeout setting is found using the Web Manager.

- 1. Refer to Steps 1-4 in Wi-Fi Configuration on page 3 to sign in to the Web Manager.
- 2. Click **Tunnel** in the left navigation panel.

QuickConnect			admin [Logou
Status 6	Product Information		
	Product Type:	xPico250	
Bluetooth	Firmware Version:	4.4.0.0R8	
Bluetooth SPP	Serial Number:	0080A3E8C27A	
Device	Uptime:	17 minutes 26 seconds	
File System	Permanent Config:	Saved	
ine	Network Settings		
Network	Interface ap0		
Radio	MAC Address:	02:80:A3:E8:C2:7B	
Tunnel	State:	Up	
User	SSID:	-F	

Figure 18. Web Manager with Tunnel Identified

3. Click **Disconnect** toward the top of the **Tunnel 1 Status** page.

QuickConnect					admin [Logout]
Status 🔂	Tunnel 1	Tunnel SPP 1	Tunnel	Tunnel	This displays all the Tunnel Status both as an Aggregate and broken
Bluetooth	-		3FF_Z	366_3	down by active Accept and Connect tunnels
Bluetooth SPP	Virtual 1	Virtual 2	a SPI 1	aSPI 2	
Device	Tunnel a SPI 3	Tunnel a SPI 4	3	30	
File System					-
Line		Status Line	Packing		
Network		Accept Connect	Disconnect	◄—	
Radio					
Tunnel	Tunnel 1 Stat	us			

Figure 19. Web Manager with Disconnect Identified

4. Enter the desired value in milliseconds for the **Timeout** setting. A value entry of 0 disables the Disconnect feature.

Network Radio	А	ccept Connect	Disconnect
Tunnel User	Tunnel 1 Disc	onnect Config	juration
WLAN Profiles	Stop Character:	<none></none>	
	Modem Control:	O Enabled 🖲 Dis	abled
>	Timeout:	<disabled></disabled>	milliseconds
	Flush Line:	O Enabled O Dis	abled

Figure 20. Web Manager with Timeout Identified

5. Click **Submit** at the bottom of the page to apply and save the settings. A message displays at the top of the page to confirm the changes have been saved.



Wireless Module Specifications

The LaserLight3 features a Lantronix[®] xPico 200 Series wireless module. Visit <u>www.lantronix.com</u> to view the latest list of technical specifications on the wireless module.

Wireless Specifications

- IEEE 802.11 a/b/g up to 54 Mbps; 802.11 n (1×1) up to 150 Mbps
- 20 and 40 MHz channel width with optional SGI
- Dual Band 2.4 GHz and 5 GHz, Channels 1-13, UNII-1, 2a, 2e and 3
- Supports IEEE 802.11 d/h/i
- 802.11r fast roaming

Data Communication

- TruPort® Serial Technology TCP and UDP Server Mode, TCP and UDP Client Mode, Multi-host Connect; TLS Client and Server
- TruPort® Socket Multi-host Client and Server Modes, HTTP(S), Sockets, TLS
- · Authenticated SMTP Support Send email directly from device

Security and Authentication

- TruPort® Security Software
 - · Secure Boot, Secure Firmware-Over-the-Air (FOTA) Updates
 - Secure Key Storage, Encrypted Configuration
 - Secure Connections with SSL/TLS, HTTPS
 - Software Controlled Network Service Ports Enable/Disable
 - Role Based Access Control
- AES/CCMP and TKIP encryption, WPA/WPA2 Personal
- WPA2 Enterprise (EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-FAST)
- SSLv3/TLS 1.2 with PKI and X.509 Certificates (up to 4096-bit Keys)
- · AES Algorithm, 256-bit, 192-bit, 128-bit

Management Interfaces

- · Lantronix ConsoleFlow™ Cloud Software Platform, REST, MQTT
- Lantronix Discovery Protocol (77FE)
- Serial Port, Internal Web Server (HTTP/HTTPS)
- XML Configuration and XML Status (CLI, API)
- Secure Firmware Upgrade via HTTPS, ConsoleFlow™

Protocol Support

- DHCP Client, Server (Soft AP), HTTP Server/Client
- IPv4, TCP/IP, UDP/IP, ARP, ICMP, Auto-IP, DNS
- SNMP v1/v2
- IPv6

Wireless Features

- Concurrent Soft AP + STA (Client), Client, Soft AP
- · Up to 5 simultaneous client connections to Soft AP interface
- Up to 4 in Concurrent Mode
- Connect to multiple WLAN networks, WLAN QuickConnect

Certifications & Compliance

- Type Approvals: USA (FCC Part 15), Canada (IC RSS), EU (RED), Japan (MIC), China (SRRC), AU/NZS
- Safety: IEC 62368 EN 62368, EN 62311, UL 60950
- · RoHS, REACH
- FCC ID: R68XPICO200
- Canada IC: 3867A-XPICO200
- CMIIT ID: 2017AJ6663(M)





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