

LANTRONIX®



xPico™ Wi-Fi®
Embedded Device Server
Evaluation Kit Quick Start Guide

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Disclaimer and Revisions

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- ◆ Reorient or relocate the receiving antenna.
- ◆ Increase the separation between the equipment and receiver.
- ◆ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ◆ Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This device is intended only for OEM Integrators.

Revision History

Date	Rev.	Comments
June 2013	A	Initial document.

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Introduction

Thank you for purchasing the Lantronix® xPico™ Wi-Fi® Embedded Device Server Evaluation Kit. This Evaluation Kit is designed to provide full access to all the input/output ports of the xPico Wi-Fi (XPW1001000-01) and xPico (wired Ethernet) (XPC1001000-01) modules.

This quick start guide describes the procedures for initial connection to the xPico Wi-Fi device through a network connection.

Once a connection is established you can use the Web Manager for configuration and control.

Evaluation Kit Contents

The XPW100100K-01 comes with all that a user needs to evaluate the xPico Wi-Fi Device Server module.

- ◆ xPico Evaluation Board with xPico Wi-Fi module (XPW1001000-01)
- ◆ 2dBi, Whip Antenna with RP SMA connector (930-033-R)
- ◆ 1.5 to 2.5dBi, PCB Strip Antenna with 50mm U.FL cable (930-099-R)
- ◆ 5Vdc Wall-mount power supply AC/DC, 1A with mini-USB connector

For the latest revision of this product document, please check our online documentation at www.lantronix.com/support/documentation.

Figure 1: Evaluation Kit Contents



What You Need to Know

Hardware Address

The unit hardware address (also known as MAC address) is also used as the unique Serial Number to uniquely identify the unit. This number is located on the product label in the format **SN: YYYYYYXXXXXX-**, where the YY represents the Lantronix OUI and XXs are unique numbers within that OUI namespace assigned to the product.

Hardware Address: _____

Evaluation Kit Layout

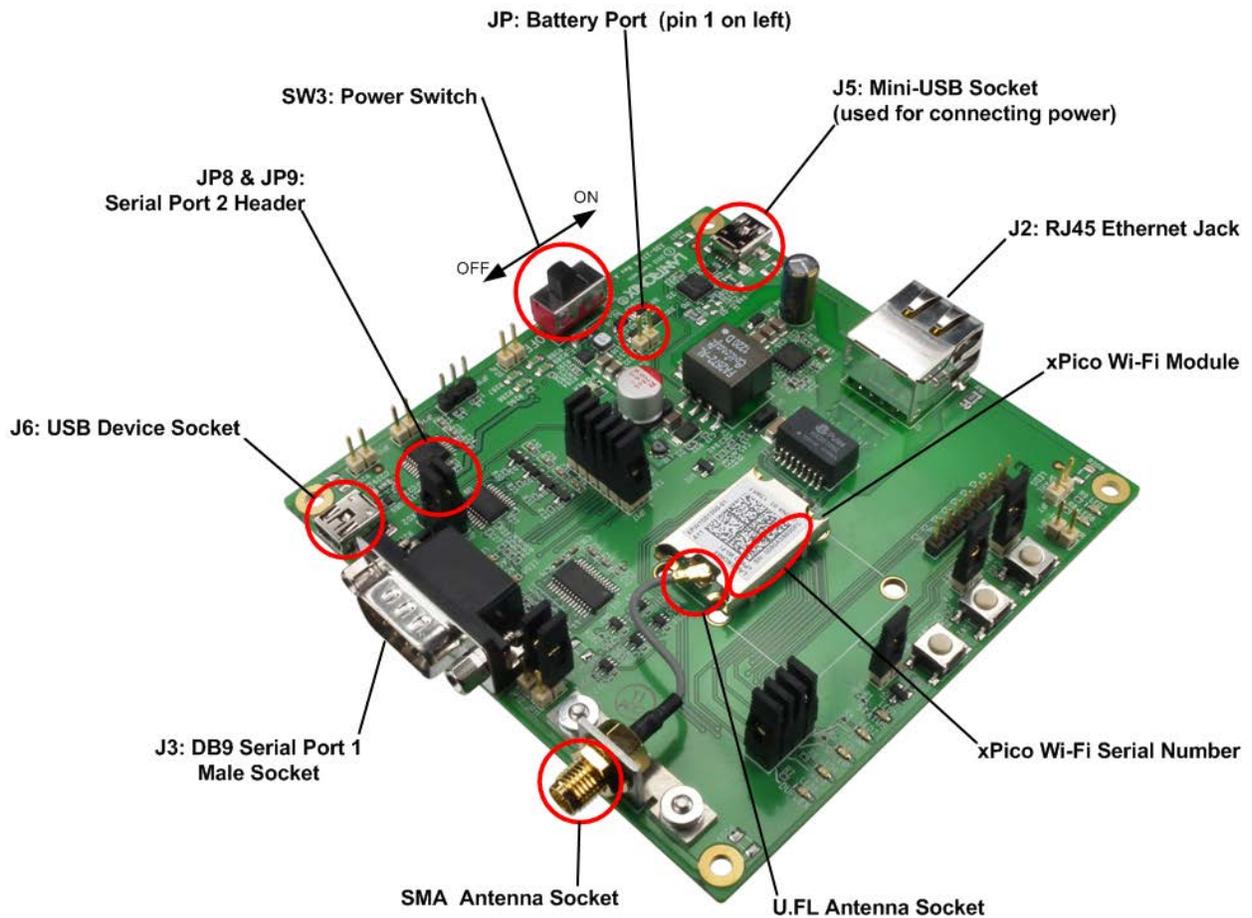


Table 1: xPico Wi-Fi Embedded Device Server Components

Component	Description
xPico Serial Number	Also the module MAC Address. The last six digits are used in the default SSID for Soft AP mode.
u.FL Socket	Used to connect either the SMA antenna cable or the alternative PCB strip antenna to the xPico Wi-Fi Module.
SMA	If using External antenna attach at this point.
SW3	Power switch, turns power on and off to the Evaluation PCB.
J5	Mini-USB socket used for connecting power to the Evaluation Kit or to connect to the xPico module serial port 2 via an on-board USB to serial converter
JP19 (pin 1 +, pin 2 GND)	Battery Port (2.2 to 5.5V) provides power to the xPico Wi-Fi Module via on board DC to DC converter.
J3	DB9 for Serial Port 1
JP11 and JP12	Leave JP11 and JP12 open for RS232 mode on serial port 1. Install jumper on JP11 for RS422 (4-wire) mode. Install JP11 and JP12 for RS485 (2 wire mode)
JP17	Serial Port 1 break-out header. Leave jumpers installed to route module signals to J3 DB9 serial port
JP18	Serial Port 2 RS232 header. Pin 1 TX(out), pin 2 GND, pin 3 RX(in)
JP8 and JP9	Jumpers for serial port 2 selection, install positions 1 to 2 to route serial port 2 to JP18 RS232 port. Install positions 2 to 3 to route serial port 2 to J5 USB to serial converter port.
J6	USB device port (xPico Wi-Fi only)
J2	RJ45 Ethernet Socket. This is not used with the xPico Wi-Fi module, it can be used if a xPico serial to Ethernet Device Server module is used in place of the xPico Wi-Fi
JP14, JP15	Voltage test pins. Monitor only. JP14 is 3.3V and JP15 is Ground

Connecting an xPico Wi-Fi Device

Connecting Power to the xPico Wi-Fi Evaluation Module

There are five methods of providing power to the Evaluation Kit PCB. Use one of the methods below.

1. Connect the provided universal power supply with mini-USB connector to J5.
2. Connect the USB to serial converter port J5 to a PC USB host port
3. Connect the USB device port J6 to a PC USB Host Port (xPico Wi-Fi only)
4. Connect a battery pack or external power supply (2.2V to 5.5V) between JP19 pin 1 (+) and JP19 pin 2 (-)
5. Connect Ethernet Port to a Power over Ethernet compliant PSE source (xPico module only)

Wireless Connection Using Internal Soft AP

Select your antenna of choice. If ducktail, this can be screwed directly into the SMA socket located on the Eval Board. If the PCB antenna is to be used, the wire between the xPico Wi-Fi module u.FL connector and the on-board SMA connector has to be carefully disconnected and the plug on the PCB strip antenna should be inserted.



1. Once power and antenna is connected, turn on the board by moving switch SW3 in to the marked ON position.

By default the SoftAP mode is enabled with a default SSID of XpicoWiFi_xxxxxxx. Where xxxxxxx are the last six characters of the unique xPico Wi-Fi serial number. This number is available on the module label. For example if the serial number on label were 0080A398010E then the SSID would be XpicoWiFi_98010E.

2. Using the Wi-Fi Connection Manager of your connecting device the above SSID should be presented as an available connection choice. Select the SSID and follow the device connection manager instructions to continue to connect.

The default security for xPico Wi-Fi SoftAP is WPA2 and the passphrase is XPICOWIFI. These defaults can be changed through the configuration web manager after the initial connection has been established.

3. When prompted enter the passphrase to complete the Wi-Fi connection authentication process.

With a Wi-Fi client set to the above parameters, your device can connect directly to the xPico Wi-Fi Soft AP.

4. Open a standard browser (E.g. Internet Explorer®, Firefox®, Chrome™, Safari® etc.) and in the address field of the browser enter the following URL; `xpicowifi.lantronix.com` or alternatively use `192.168.0.1` as the IP Address.
5. When prompted enter the username of `admin` and password `PASSWORD` to access the Configuration and Management Web pages as shown below.

- QuickConnect
- Status** 
- Filesystem
- HTTP
- Line
- Network
- System
- Tunnel
- WLAN Profiles

Product Information	
Product Type:	xPicoWifi
Firmware Version:	1.0.0.0R5
Build Date:	Jun 12 2013 (17:01:35)
Serial Number:	0080A398010B
Uptime:	0 days 02:44:43
Permanent Config:	saved
Network Settings	
Interface (ap0)	
State:	Up
SSID:	XpicoWiFi_98010B
Security Suite:	WPA2
IP Address:	192.168.0.1
Interface (wlan0)	
Connection State:	Connected
Radio Firmware Version:	2.2.1
Active WLAN Profile:	skynet
IP Address:	172.19.100.89/16
Default Gateway:	172.19.0.1
Hostname:	
Primary DNS:	172.19.1.1
Secondary DNS:	172.19.1.2
Line Settings	
Line 1:	9600, None, 8, 1, None Tunnel
Line 2:	9600, None, 8, 1, None Trouble Log
Tunneling	
Tunnel 1:	Accept Mode

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By clicking **Network > Network 1 > Link** to get to the **Configuration** page, the SSID, Security Suite Type and Security and passphrase can be modified. Modification to any of these parameters requires a reset/power cycle of the module in order to take effect.

The screenshot shows the 'Access Point (ap0) Configuration' page in the xPico Wi-Fi interface. The left sidebar has 'Network' selected. The main content area has tabs for 'Network 1' and 'Network 2', and sub-tabs for 'Interface' and 'Link'. Below these are 'Status' and 'Configuration' buttons. The configuration form includes fields for Network Name (SSID), Channel, Suite, Encryption, and Passphrase. A right-hand note states: 'This page shows configuration of an Access Point on the device. Settings will take effect after reboot. Use the Submit button to save Access Point settings to flash permanently.'

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It is recommended that you record any changes you make.

SSID: _____
Security Suite: _____
Encryption: _____
Passphrase: _____

QuickConnect

QuickConnect offers the ability to configure the STA (WLAN Client) interface on xPico WiFi to establish connection to an active Access Point.

QuickConnect learns most of the connection properties from the available Access Points and prompts the user only for the security parameters and saves the settings under a corresponding new/existing WLAN profile for future autonomous operation of the WLAN Client interface.

The screenshot shows the 'WLAN Link Scan' page in the QuickConnect section of the xPico Wi-Fi interface. An orange arrow points to the 'QuickConnect' menu item in the sidebar. The main content area has a 'Network name:' input field and a 'Scan' button. Below is a table of detected networks. A right-hand note explains: 'This page shows a scan of the wireless devices within range of the device. Up to 20 networks sorted by RSSI are shown. It reports: Network name (Service Set Identifier), Basic Service Set Identifier, Channel number, Received Signal Strength Indication and Security Suite. Click on any network name for QuickConnect configuration.'

Network Name	BSSID	Ch	RSSI	Security Suite
Lantronix Guest	00:0B:85:52:FF:1B	1	-24 dBm	WPA-TKIP
LantronixWPA	00:0B:85:52:FF:1D	1	-25 dBm	WPA-TKIP
LantronixVoice	00:0B:85:52:FF:1C	1	-26 dBm	WEP
Mart	30:46:9A:F9:A9:03	3	-40 dBm	WPA2-CCMP
vader	C0:8A:DE:B1:0B:B9	10	-44 dBm	WPA2-CCMP
wpa2_subha	C0:8A:DE:71:0B:B8	10	-44 dBm	WPA2-CCMP
wpa_tkip	C0:8A:DE:B1:0B:B8	10	-44 dBm	WPA-TKIP

Upon selection of the QuickConnect option, the xPico Wi-Fi scans and displays up to 20 wireless devices in order of strongest signal strength at the top. Click on a network name to view the connection to that desired Access Point.

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QuickConnect

Status

Filesystem

HTTP

Line

Network

System

Tunnel

WLAN Profiles

WLAN Link Scan

Network name:

Network Name	BSSID	Ch	RSSI	Security Suite
Lantronix_Guest	00:0B:85:52:FF:1B	1	-24 dBm	WPA-TKIP
LantronixWPA	00:0B:85:52:FF:1D	1	-25 dBm	WPA-TKIP
LantronixVoice	00:0B:85:52:FF:1C	1	-26 dBm	WEP
Mart	30:46:9A:F9:A9:03	3	-40 dBm	WPA2-CCMP
vader	C0:8A:DE:B1:0B:B9	10	-44 dBm	WPA2-CCMP
wpa2_subha	C0:8A:DE:71:0B:B8	10	-44 dBm	WPA2-CCMP
wpa_tkip	C0:8A:DE:71:0B:B8	10	-44 dBm	WPA-TKIP

This page shows a scan of the wireless devices within range of the device. Up to 20 networks sorted by RSSI are shown. It reports: Network name (Service Set Identifier), Basic Service Set Identifier, Channel number, Received Signal Strength Indication and Security Suite

Click on any network name for QuickConnect configuration.

When the selected Access Point profile displays, enter the password and click **Submit** to directly connect to the Access Point and to add the profile and configuration details to the WLAN profiles.

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QuickConnect

Status

Filesystem

HTTP

Line

Network

System

Tunnel

WLAN Profiles

WLAN Profile "Lantronix_Guest"

Connect To:

Network Name (SSID):	Lantronix Guest
BSSID:	00:0B:85:52:FF:1B
Security Suite:	WPA-TKIP
Signal Strength:	-24 dBm

Security Configuration

Key Type: Passphrase Hex

Password:

Advanced Configuration

This page shows configuration of a WLAN Profile on the device.

In the **Security Configuration** section, choice of **Suite**, **Key Type** and **Authentication** affect the makeup of other configurables in that section.

In the **Advanced Configuration** section, if **Power Management** is enabled, specify the **Power Management Interval**.

Use the **Apply** button to try out settings on the WLAN without saving them to Flash. If the settings do not work, when you reboot the device, it will still have the original settings.

Use the **Submit** button to both update the WLAN settings and save them to Flash.

If the device is connecting to an access point on a different wireless channel, current connection to the soft AP interface of the device may be dropped due to the switch of channel. Reconnect to the soft AP interface in order to continue access to the device.

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Once added, the Quick Connect profile is connected and is accessible and configurable through WLAN Profiles.

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QuickConnect
 Status
 Filesystem
 HTTP
 Line
 Network
 System
 Tunnel
WLAN Profiles

WLAN Profiles

View or Edit: Delete: Enabled:

Lantronix Guest (Dynamic)

Create new profile:

This page allows view, edit, delete or creation of a WLAN Profile on the device.

Select a profile for editing by clicking the page icon; this takes you to the Configuration web page. icon indicates the active profile.

Enable/Disable/Delete one or more profiles by updating the appropriate checkboxes.

Use the **Apply** button to try out the profiles without saving them to Flash. If the settings do not work, when you reboot the device, it will still have the original settings.

Use the **Submit** button to both update the profiles and save them to Flash.

Use the **Cancel** button to clear out changes that have not been applied.

Create a new profile by entering a name in the text box, then click the Submit button which will appear. The new profile is initially saved with default parameter values.

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Click the new WLAN profile to view and modify settings.

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QuickConnect
 Status
 Filesystem
 HTTP
 Line
 Network
 System
 Tunnel
WLAN Profiles

WLAN Profile "skynet"

Basic Configuration

Network Name (SSID):

State: Enabled Disabled

Security Configuration

Suite:

Key Type: Passphrase Hex

Password:

Encryption: CCMP TKIP

Advanced Configuration

TX Power Maximum: dBm

Power Management: Enabled Disabled

This page shows configuration of a WLAN Profile on the device.

In the **Security Configuration** section, choice of Suite, Key Type and Authentication affect the makeup of other configurables in that section.

In the **Advanced Configuration** section, if Power Management is enabled, specify the Power Management Interval.

Use the **Apply** button to try out settings on the WLAN without saving them to Flash. If the settings do not work, when you reboot the device, it will still have the original settings.

Use the **Submit** button to both update the WLAN settings and save them to Flash.

If the device is connecting to an access point on a different wireless channel, current connection to the soft AP interface of the device may be dropped due to the switch of channel. Reconnect to the soft AP interface in order to continue access to the device.

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Reference Documentation

For more information on the use and operation of the xPico Wi-Fi Device Server please refer to the latest product documents which are available on the Product Website. www.lantronix.com/support/documentation.