



# xPico® 200 Series Wi-Fi® IoT Gateway Module Data Sheet

## Table of Contents

<b>xPico® 200 Series Wi-Fi® IoT Gateway Module Data Sheet</b>	<b>1</b>
List of Figures _____	4
List of Tables _____	5
<b>1: Functional Description</b>	<b>6</b>
Overview _____	6
Applications _____	6
Product Features _____	7
<b>2: Hardware and Software Description</b>	<b>8</b>
Software Features _____	9
<b>3: Host Interfaces</b>	<b>13</b>
Ethernet _____	13
UART _____	13
Serial Peripheral Interface (SPI) _____	14
USB Device _____	15
SDIO Interface _____	15
Configurable General Purpose I/O Pins (GPIO) _____	16
System Pins _____	17
Strap Pins _____	17
<b>4: IEEE 802.11 Wireless Lan Specifications</b>	<b>18</b>
<b>5: Antenna Connection Options</b>	<b>19</b>
<b>6: General Technical Data</b>	<b>20</b>
<b>7: Electrical Characteristics</b>	<b>21</b>
Recommended Operating Conditions _____	21
DC Characteristics – Digital I/O Signals _____	21
Dynamic Power Management Modes _____	22
Output Power _____	24
EVM _____	24
Receive Sensitivity _____	25
Power, Reset, Wake, Shutdown and Default Timing _____	26
Memory _____	27

<b>8: Package Description and Mechanical Footprint</b>	<b>28</b>
Pin and Pad Definitions _____	32
<b>9: Product Information Label</b>	<b>35</b>
<b>10: Evaluation Kit</b>	<b>36</b>
<b>11: Compliance (PLANNED)</b>	<b>37</b>
Federal Communication Commission Interference Statement _____	38
Industry Canada statement: _____	39
RoHS, REACH, and WEEE Compliance Statement _____	44
<b>12: Ordering Information</b>	<b>45</b>
Contact Information _____	45
Warranty _____	45

## List of Figures

Figure 2-1 xPico 200 Block Diagram	8
Figure 2-2 Hosted Microcontroller Mode	9
Figure 2-3 Wireless Microcontroller Mode	10
Figure 7-1 Reset Timing	26
Figure 7-2 Reset to Defaults Timing	26
Figure 7-3 Wake Timing	26
Figure 8-1 xPico 200 Enterprise Wi-Fi IoT Wi-Fi Module (Part 1 of 2)	28
Figure 8-2 xPico 200 Enterprise Wi-Fi IoT Wi-Fi Module (Part 2 of 2)	29
Figure 8-3 Layout Footprint for xPico 200 Enterprise Wi-Fi IoT Module	30
Figure 8-4 xPico 200 Edge Connector Module dimensions	31
Figure 9-1 xPico 200 Module Label	35

## List of Tables

Table 2-1: xPico 200 Series Product Variants _____	8
Table 3-1: xPico 200 Ethernet Signal Definitions _____	13
Table 3-2: xPico 200 UART Signal Definitions _____	14
Table 3-3: xPico 200 Module SPI Signal Definitions _____	14
Table 3-4: xPico 200 Module USB Signal Definitions _____	15
Table 3-5: SDIO Interface Pins _____	15
Table 3-6: xPico 200 Module GPIO Signal Definitions _____	16
Table 3-7: xPico 200 Module System Signal Definitions _____	17
Table 3-8 xPico 200 Pins _____	17
Table 4-1: xPico 200 Module Radio Specification _____	18
Table 5-1: External Antenna Options _____	19
Table 5-2: On-Module Antenna Option _____	19
Table 6-1: General Technical Data _____	20
Table 7-1: Recommended Operating Conditions for xPico 200 Module _____	21
Table 7-2: DC Characteristics & Digital I/O Signals _____	21
Table 7-3: xPico 200 Power Consumption 2.4Ghz _____	22
Table 7-4: xPico 200 Power Consumption 5Ghz _____	23
Table 7-5: xPico 200 Module RF Output Power (Preliminary) _____	24
Table 7-6: xPico 200 Module Wi-Fi EVM _____	24
Table 7-7: xPico 200 Module Rx Sensitivity _____	25
Table 7-8 Shutdown Pin Timing _____	27
Table 8-1: xPico 200 Interface Signal Definitions: _____	32
Table 9-1: Datamatrix ECC200 Barcode Standard Descriptions _____	35
Table 11-1: Country Certifications (PLANNED) _____	37
Table 11-2: Country Transmitter IDs _____	38
Table 11-3: Europe – EU Declaration of Conformity _____	43
Table 11-4: Approved External Antenna(s) List _____	44
Table 12-1: xPico 200 Series Order Information _____	45

# 1: Functional Description

## Overview

The Lantronix® xPico 200 series of embedded IoT Gateway modules offers the smallest and highly integrated triple-play combo that provides the quickest and most secure on-ramp to your IoT applications and services.

xPico 200 series delivers always-on dual-band enterprise Wi-Fi, dual-mode Bluetooth (Bluetooth Classic v2.1+EDR and Bluetooth Low Energy v4.2) as well as Ethernet connectivity for business critical assets.

It is a stand-alone module that does not require an external host processor for the wireless and network stack. With customer proven **TruPort** technology, that includes essential IoT connectivity firmware, cloud-based management and an integrated device security framework, xPico 200 series delivers a complete network and IoT connectivity offload solution for any microcontroller.

In many cases, device manufacturers can use xPico 200 series as the wireless microcontroller within their device and focus on the application firmware components while leveraging the integrated secure connectivity and network and cloud service enablement capabilities within the module.

The high performance xPico 200 series is available in different versions (see [Product Features](#)).

With the xPico 200 family, design engineers and system architects can reduce product development time and deploy their secure connected devices with confidence that their products will connect and work as expected.

## Applications

For applications that need Ethernet and wireless connectivity options, xPico 200 delivers a compact combo solution without needing to integrate two different network stacks from different modules or controllers.

Integrated Bluetooth capability (on xPico 250 model) also enables creating Gateway modules that need to aggregate Bluetooth sensor devices or provide BLE location enabled services for the connected products.

Key applications include:

- ◆ Medical devices
- ◆ Industrial Machines
- ◆ Retail/POS
- ◆ Weighing Scales
- ◆ Asset and warehouse management
- ◆ Environmental monitoring
- ◆ Transportation and Telematics

xPico 200 series is designed for applications in a variety of industries where reliability, extended operating temperature range, and robust wireless connectivity are business critical.

xPico 200 series is also particularly well-suited for products with long lifecycles in highly

regulated industries where the constant change in Wi-Fi technologies and certification would typically make it difficult or cost prohibitive to incorporate a wireless solution.

## Product Features

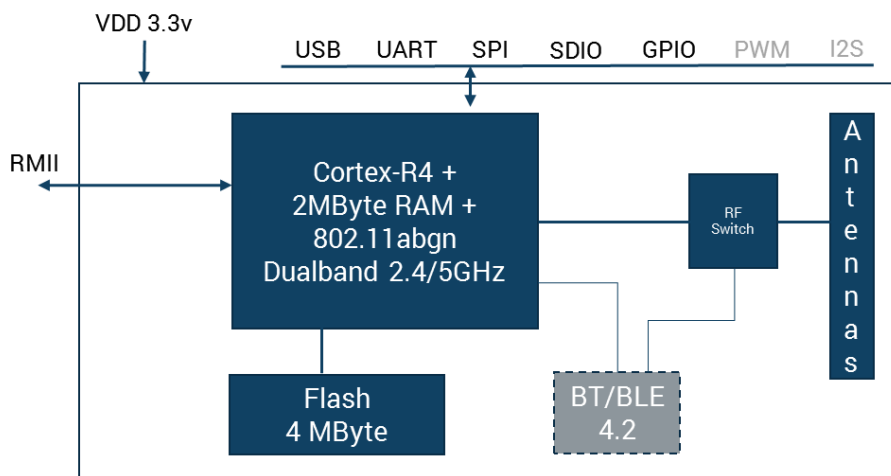
- ◆ Industrial rated dual-band Wi-Fi (802.11 a/b/g/n) for high performance enterprise IoT
- ◆ 2.4GHz and 5 GHz bands supported
- ◆ IEEE 802.3 10/100 Mbps Ethernet (RMII)
- ◆ BT/BLE 4.2 (xPico 250)
- ◆ On-module antenna or Dual u.fl
- ◆ Serial (x1), SPI (x1), USB (Device or Host), SDIO, I2C, GPIO
- ◆ Ethernet MAC(RMII), USB, serial – host interfaces
- ◆ Simultaneous AP and client (STA), AP only, client (STA) only modes
- ◆ TruPort Serial, TruPort USB, TruPort Web providing industry's most compatible device data access technology
- ◆ TruPort Security – adding integrated root of trust security and data-at-rest and data-in-motion encryption, authentication and identification
- ◆ Direct mobile to device service interface via SoftAP or Wi-Fi Direct® technology WPA/WPA2 – Personal and Enterprise Wi-Fi Security
- ◆ SSL/TLS 1.2 with X.509 Certificate Management
- ◆ Dual Network Support
- ◆ Embedded Ethernet to Wi-Fi STA bridge
- ◆ Integrated Cloud Based Device Management Web API, XML Configuration, Serial Command API
- ◆ Modular RF Certification (FCC, IC, ETSI, Japan, AU/NZS, China)
- ◆ Compact SMT (LGA) Footprint (17mm x 25 mm)
- ◆ Operating temperature range: -40°C to +85°C
- ◆ Wi-Fi Alliance® Certified
- ◆ 5 year limited warranty

## 2: Hardware and Software Description

The xPico 200 series is a highly integrated module that includes a Cortex R4 controller, 802.11 a/b/g/n MAC/BB, 10/100Mbps Ethernet MAC, Bluetooth 4.2 (on xPico 250 model), RAM, flash, and antenna connectors.

The xPico 200 series operated on 3.3V power with 3.3V logic, and has a built-in voltage supervisory circuit.

**Figure 2-1 xPico 200 Block Diagram**



**Table 2-1: xPico 200 Series Product Variants**

Model Number	Part Number	Description
xPico 240	XPC240100B	xPico 240 Wi-Fi IoT Gateway module, 802.11 abgn, Eth, Dual u.fl, Ind. Temp, LGA, Bulk
	XPC240200B	xPico 240 Wi-Fi IoT Gateway module, 802.11 abgn, Eth, On-module Antenna, Ind. Temp, LGA, Bulk
	XPC240300B	xPico 240 Wi-Fi IoT Gateway module, 802.11 abgn, Eth, Dual u.fl, Ind. Temp, EdgeConn, Bulk
xPico 250	XPC250100B	xPico 250 Wi-Fi IoT Gateway module, 802.11 abgn, Eth, BT/BLE 4.2, Dual u.fl, Ind. Temp, LGA, Bulk
	XPC250200B	xPico 250 Wi-Fi IoT Gateway module, 802.11 abgn, Eth, BT/BLE 4.2, On-module Antenna, Ind. Temp, LGA, Bulk
	XPC250300B	xPico 250 Wi-Fi IoT Gateway module, 802.11 abgn, Eth, BT/BLE 4.2, Dual u.fl, Ind. Temp, EdgeConn, Bulk



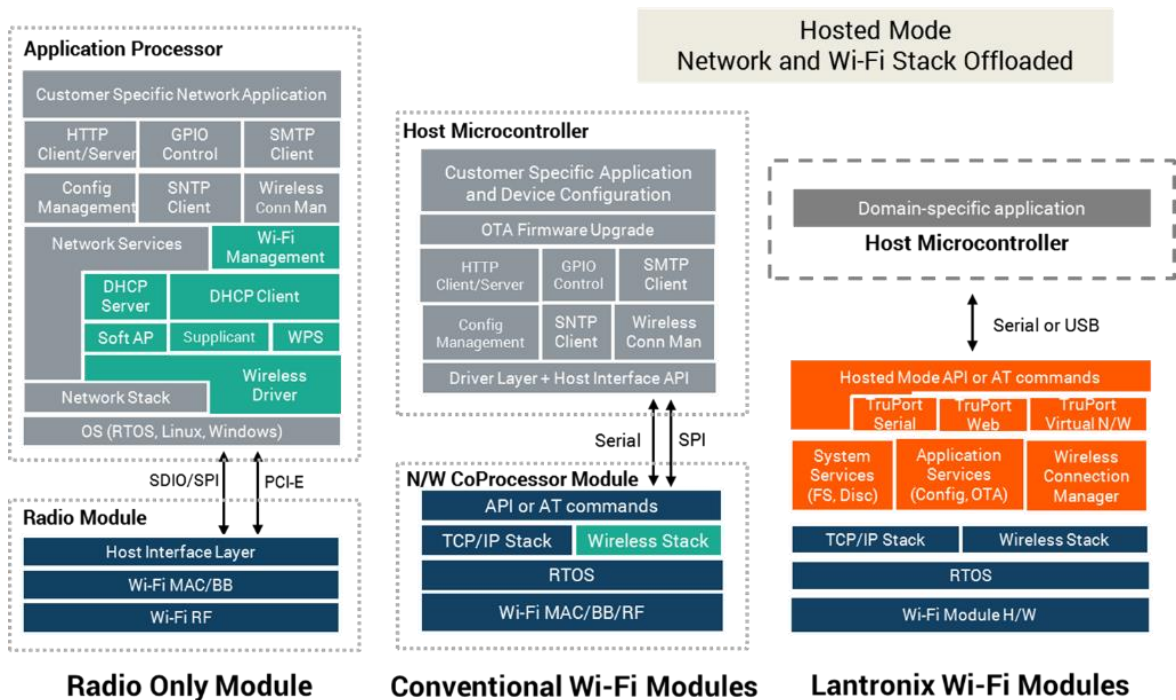
## Software Features

xPico 200 software stack provides the essential IoT connectivity infrastructure for building secure connected products. Device Manufacturers can offload this complexity from their application microcontroller when interfacing with the module in **Hosted Mode** or use the module as the wireless microcontroller in **Host-less or Standalone Mode**.

### Hosted Microcontroller Mode

The module completely offloads all Wi-Fi and secure network connectivity requirements for attached microcontrollers thereby reducing device firmware complexity while accelerating OEM's time to introduce and support secure connected products in the market. The host interfaces available for connecting to the microcontroller are UART, USB, SPI and Ethernet.

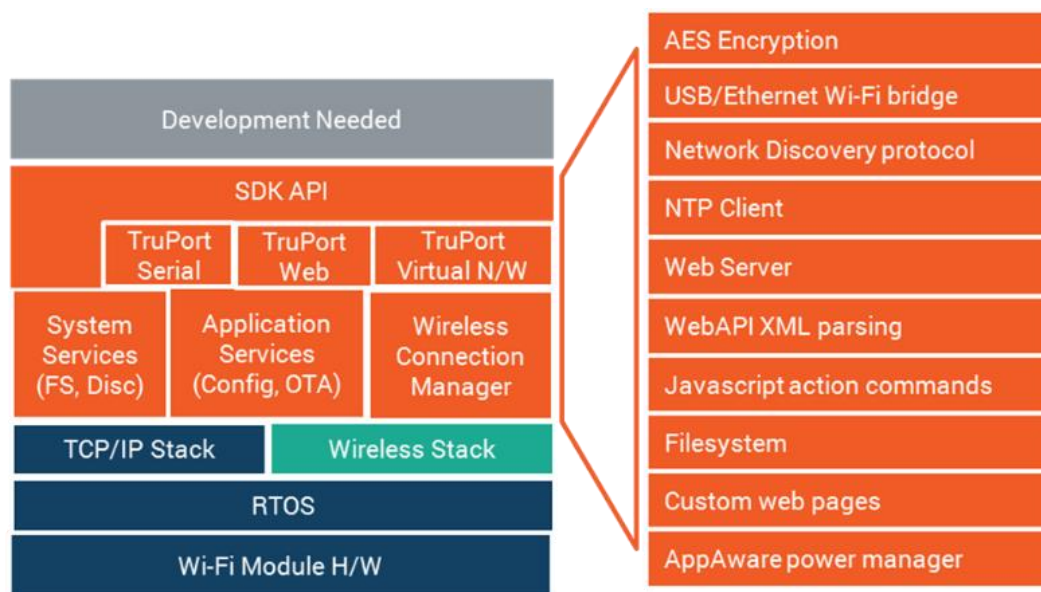
Figure 2-2 Hosted Microcontroller Mode



### Wireless Microcontroller Mode

In addition to these interfaces, xPico 200 series also offers additional interface such as I2C, GPIOs and SDIO along with their control lines to support integration with other peripherals and use as a wireless microcontroller in standalone mode. With the provided SDK, device manufacturers can leverage not only network and wireless stacks, but also the complete application framework that includes the configuration management system, reliable remote OTA firmware upgrades, automated connection management features described below.

**Figure 2-3 Wireless Microcontroller Mode**



### TruPort Serial

Robust serial to Wi-Fi and serial to Ethernet application that supports transparent transport of hundreds of serial protocols over the network. TruPort Serial is very suitable for hosted microcontroller applications with very little to no programming and development effort.

Key capabilities included are:

- ◆ Support RS232 serial and USB (CDC Serial and CDC ACM Device Classes)
- ◆ Advanced connectivity modes and configuration knobs to tune the connection parameters for a specific protocol without requiring custom software programming
- ◆ Automatic and Manual connect modes
- ◆ Inbound (Accept Mode) and Outbound (Connect Mode) connections
- ◆ Modem emulation mode enables connecting to different servers using a standard AT command set
- ◆ AES (128-bit, 192-bit, 256-bit) Encrypted session and TLS session modes for secure tunneling

### TruPort Offload

Connect your device microcontroller to multiple services and communicate directly with mobile devices and cloud services at the same time via TruPort Offload. The simple API for TruPort Offload is available via the UART or USB interface operating in CDC ACM mode.

Seamlessly switch between data mode and module management mode (CLI access) for total control and data channel access from your device application microcontroller.

Access TCP, UDP, TLS, HTTP, SMTP channels and communicate with external services through these channels without implementing these protocol stacks within your microcontroller.

## TruPort Security

Device Manufacturers are exposed to new security risks that emerge with having connected products. They also have to navigate the engineering complexity of providing integrated security within their connected devices. Lantronix TruPort Security provides an integrated device security framework that lets device manufacturers build this into their connected products from the start of their design cycle instead of as an after-thought or bolted on component.

TruPort Security enables building secure connected products quickly and easily with a full range of features including:

- ◆ Secure Boot – run only signed software on device
- ◆ Secure Connectivity – Enterprise Wi-Fi Security, Data-at-rest and Data-in-motion authentication and encryption
- ◆ Encrypted Storage – stored configuration and device data securely
- ◆ Fine Grained Port Access Control – Prevent back-doors with fine grained control over network ports
- ◆ Root of Trust and Device Identity – Certificate Management, Secure Key Storage, OEM Keys

## Ethernet to Wi-Fi Client Bridge

For devices with microcontrollers that include a network stack and also have Ethernet connectivity available, the Gateway module software provides wireless connectivity to these devices via the Ethernet to Wi-Fi Client Bridge mode. In this mode, the Wi-Fi stack is fully offloaded and managed via the configuration interface. This mode is most suitable for networked microcontrollers that do not have the resources to integrate wireless device drivers and add-on the complexity of managing the wireless stack.

## Enterprise Wi-Fi Security

Centralized control of security policies and ability to permit and revoke access rights and scaling to support the large number of devices deployed within the enterprise are primary considerations that Enterprise Wi-Fi Security addresses. With support for 802.1X, 802.11i and EAP authentication methods along with support PKI support and X.509 certificate management, connectivity to the enterprise network is handled via configuration and without any integration, testing and certification of supplicant and authenticator software.

## Wi-Fi Connection Profiles

Connect to multiple wireless networks autonomously by configuring the network parameters once and then letting the module automatically select the best network to connect to or set policies for connecting to specific networks. Wi-Fi connection profiles eliminate the need to manage the state of connection management from the device microcontroller or writing this via the SDK in wireless microcontroller mode.

## Configuration and Management Interface

Access the module configuration and management engine via the microcontroller or via the network. Command Line Interface (CLI) mode offers a text based interactive interface versus writing an elaborate driver interface for the AT command and control interface on the device microcontroller. XML and Web API offer the ability to program the module configuration via the Over-The-Air (OTA) or Network interface. For more details on the usage of these management interfaces, please refer to the xPico 200 Command Reference Guide.

## Reliable OTA Firmware Upgrade

As device requirements evolve and new product features are provided, device manufacturers can leverage the reliable OTA firmware upgrade capabilities to prevent “system bricks”. OTA firmware upgrade always ensures there is at-least one known version of firmware available in the event an upgrade operation does not succeed. It operates over the connected network and does not require placing the module into specific operational modes into order to trigger the update. Updates can be performed remotely and securely using the included Secure Boot features.

## 3: Host Interfaces

The xPico 200 module offers a number of common interfaces to allow for easy connectivity to the module. These include 10/100Mbps Ethernet MAC with RMII, UART for asynchronous serial communication, serial peripheral interface for synchronous formatted data, and USB host interface.

### Ethernet

The xPico 200 module has an integrated 10/100Mbps Ethernet MAC and with an RMII interface. External PHY, magnetics and RJ45 are required for connection to a standard Ethernet network. See the *xPico 200 Enterprise Wi-Fi IoT Module Integration Guide* available at [www.lantronix.com/support/documentation](http://www.lantronix.com/support/documentation) for more details.

**Table 3-1: xPico 200 Ethernet Signal Definitions**

Pin Name	Description	xPico 200 SMT Pin	Edge connector pin
RMII_TXD0	RMII TXD0 transmit output	23	73
RMII_TXD1	RMII TXD1 transmit output	24	71
RMII_CLK	RMII interface clock	25	61
RMII_TXEN	RMII transmit enable output	27	67
RMII_RST	RMII reset output	28	70
RMII_RXDV	RMII RX data valid input	30	65
RMII_RXD0	RMII RXD0 receive input	31	55
RMII_RXD1	RMII RXD1 receive input	32	53
MDC	MDIO clock	35	47
MDIO	MDIO data	36	49

### UART

- ◆ The xPico 200 module supports one UART interface
- ◆ The UART supports asynchronous data rate up to 921 Kbps, with Odd/Even parity, and 1 & 2 stop bits
- ◆ Software flow control (Xon, Xoff)
- ◆ Operational mode as a DTE device
- ◆ UART supports TX, RX, RTS, CTS (hardware flow control)

**Table 3-2: xPico 200 UART Signal Definitions**

Pin Name	Description	xPico 200 SMT Pin	Edge Connector pin
TXD1	Serial transmit data output	48	22
RTS1	Serial ready-to-send / serial transmit enable output	46	34
RXD1	Serial receive data input	47	32
CTS1	Serial clear-to-send input	42	36

## Serial Peripheral Interface (SPI)

The xPico 200 module has a master SPI interface. The SPI is multiplexed with five configurable GPIO pins and is managed by configuration at system initialization.

- ◆ Five wire interface consisting of Serial In, Serial Out, Chip Select, Serial Clock and Interrupt

**Table 3-3: xPico 200 Module SPI Signal Definitions**

Pin Name	Description	xPico 200 SMT Pin	Edge connector pin
CP7	Configurable I/O-SPI Clock	10	42
CP8	Configurable I/O-SPI Chip Select	11	40
CP2/INT	Configurable I/O-SPI interrupt input	12	48
CP3	Configurable I/O- SPI MISO	8	46
CP4	Configurable I/O-SPI MOSI	9	44

## USB Device

The xPico 200 module has one USB port interfaces.

- ◆ The USB 2.0 port supports high speed host and device modes
- ◆ Support for USB CDC/ACM serial profile<sup>1</sup> which will have the module appear as a CDC/ACM device enumerated as a virtual COM port.

**Table 3-4: xPico 200 Module USB Signal Definitions**

Pin Name	Description	xPico 200 SMT Pin	Edge Connector pin
USB+	USB Device Port Positive pin	19	3
USB-	USB Device Port Negative pin	20	5
USB_H/D_SEL	USB Host/Device Mode Select Pull high for device mode on USB port. Pull low for host mode on USB port	26	12
USB Host Power Enable (CP2)	Output to enable external USB power switch for host port connector (Use configurable CP2)	12	48
USB Host Port Over Current Flag (CP1)	Input from external USB power switch indicating the host port is over current (Use configurable pin 1)	38	50

## SDIO Interface

The xPico 200 has one external SDIO interface which can be run in master or slave mode. The SDIO port mode (host or slave) is configured by the SDIO mode pin.

**Table 3-5: SDIO Interface Pins**

Pin Name	Description	Reset State	xPico 200 SMT Pin	Edge Connector pin
SDCLK	SDIO Clock <sup>1</sup>	Input	2	9
SDCMD	SDIO CMD <sup>1</sup>	Input	3	11
SDIO0	SDIO Data 0 <sup>1</sup>	Input	4	13
SDIO1	SDIO Data 1 <sup>1</sup>	Input	5	15
SDIO2	SDIO Data 2 <sup>1</sup>	Input	6	17
SDIO3	SDIO Data 3	Input	7	19
SDIO_MODE	Pull high for master mode on SDIO port. Pull low for slave mode on SDIO port.	Input	29	14

## Configurable General Purpose I/O Pins (GPIO)

The xPico 200 module provides up to 12 configurable General Purpose Input/Output (GPIO) pins. Certain of the GPIOs are multiplexed with other interface functions (e.g. SPI). Mapping of these functions to CPs will be driven via configuration and applied at system initialization.

Each CP can be configured as a general purpose input, general purpose output, micro-controller peripheral block or a soft function. These pins are 3.3V CMOS logic level tolerant.

**Table 3-6: xPico 200 Module GPIO Signal Definitions**

Pin Name	Description	Reset State	xPico 200 SMT Pin	Edge Connector pin
CP1	Configurable I/O-USB Over Current Flag	Input	38	50
CP2/INT	Configurable I/O-SPI interrupt input-USB Host Port Power Enable Output	Input	12	48
CP3	Configurable I/O- SPI MISO <sup>1</sup>	Input	8	46
CP4	Configurable I/O-SPI MOSI <sup>1</sup>	Input	9	44
CP5	Configurable I/O-I2CDATA <sup>1</sup>	Input	15	58
CP6	Configurable I/O-I2CCLK <sup>1</sup>	Input	16	60
CP7	Configurable I/O-SPI Clock <sup>1</sup>	Input	10	42
CP8	Configurable I/O-SPI Chip Select <sup>1</sup>	Input	11	40
CP15	Configurable I/O-I2CDATA2 <sup>1</sup>	Input	13	56
CP16	Configurable I/O-I2CCLK2 <sup>1</sup>	Input	14	54
CP17	Configurable I/O-PWM	Input	22	16
CP18	Configurable I/O-PWM	Input	37	62

<sup>1</sup> Available in a future release. Contact your local sales representative for availability.



## System Pins

**Table 3-7: xPico 200 Module System Signal Definitions**

Pin Name	Description	xPico 200 SMT Pin	Edge Connector Pin
EXT_RESET#	Unit hardware reset, active low. Drive low for 50 ms to reboot unit. Signal should be driven high or pulled high after reset. EXT_RESET# is inactive during module power down (standby) state. Assert WAKE signal to come out of low power states prior to asserting reset.	41	52
DEFAULT#	Unit reset to default, active low. Drive low for 6 seconds or longer to reset unit to default settings. May be left floating if unused.	57	23
WAKE <sup>2</sup>	Toggle signal to WAKE from SLEEP or STANDBY state. WAKE signal is noise sensitive. Filter as close as possible to the module pin.	17	20

## Strap Pins

The xPico 200 module has two strap pins for setting the mode of the USB and SDIO ports. These pins must be strapped high or low. The mode definitions are listed below.

**Table 3-8 xPico 200 Pins**

Pin Name	Description	xPico 200 SMT Pin	Edge Connector Pin
USB_H/D_SEL	Pull high for device mode on USB port. Pull low for host mode on USB port.	26	12
SDIO_MODE	Pull high for master mode on SDIO port. Pull low for slave mode on SDIO port.	29	14

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<sup>2</sup> Available in a future release. Contact your local sales representative for availability.

## 4: IEEE 802.11 Wireless Lan Specifications

The table below provides the specifications and performance attributes for the xPico 200 module IEEE 802.11 radio.

**Table 4-1: xPico 200 Module Radio Specification**

Feature	Description
Frequency Band	2.412 – 2.484 GHz (channels 1 – 14) 4.9 to 5.845 Ghz Channels dependent on assigned country code
Supported Data Rates	802.11abgn (20) a, b, g data rates up to 54 Mbps n data rates up to MCS7
Modulation	OFDM with BPSK, QPSK, 16-QAM, 64-QAM 801.11b with CCK and DSSS
802.11 MAC Features	WEP, WPA, WPA2, WMM, WMM-PS (UAPSD), WMM-SA, AES, TKIP, CKIP
802.11 PHY Features	802.11b, 802.11g, 802.11n, 802.11a
802.11 modes	/n/a/b/g/d/h/i

## 5: Antenna Connection Options

The xPico 200 module supports wireless connectivity via two U.FL connectors for single stream transmit and receive diversity.

An on-module stamped metal antenna version is also available as a product SKU option. The single antenna is used for transmit and receive. Diversity is not available on the module with the on-module antenna.

The xPico 200 modules are certified using the antennas listed in [Table 5-1](#) and [Table 5-2](#) below.

Refer to the compliance section below for certification requirements related to antenna selection.

**Table 5-1: External Antenna Options**

Antenna Type	Peak Gain Typical	Lantronix Part Number	Vendor	Vendor Part Number	Approved Region
PCB strip antenna with 50 mm cable to U.FL connector With tape backing	2.5 dBi, 2.39 Ghz to 2.49 Ghz 5dBi, 4.9Ghz to 5.9Ghz	XPW100A 003-01-B 50 piece bulk pack	Ethertronics	1001077	FCC, IC, EU, AUS/NZS, JPN, China, Mexico
PCB strip antenna with 50 mm cable to U.FL connector Without tape backing	2.5 dBi, 2.39 Ghz to 2.49 Ghz 5dBi, 4.9Ghz to 5.9Ghz		Ethertronics	1000668	FCC, IC, EU, AUS/NZS, JPN, China, Mexico
Swivel type antenna, with RP-SMA(M) connector	2 dBi, 2.4 Ghz to 2.5 Ghz, 2 dBi, 5.15 Ghz to 5.85 Ghz	930-033-R-ACC 50 piece bulk pack	Wanshih	WSS002	FCC, IC, EU, AUS/NZS, JPN, China, Mexico
Swivel type antenna, with RP-SMA(M) connector	3.8 dBi, 2.4Ghz to 2.5Ghz, 5.5 dBi, 4.9 Ghz to 5.8Ghz		Taoglas	GW.71.5153 (Not for EU use)	FCC, IC, AUS/NZS, JPN, China, Mexico

Note: Antenna gain listed above excludes cable loss.

**Table 5-2: On-Module Antenna Option**

Antenna Type	Peak Gain Typical
On module stamped metal antenna	0 dBi 2.4 Ghz, 4 dBi 5 Ghz

## 6: General Technical Data

**Table 6-1: General Technical Data**

Category	Description
Firmware	OTA upgradable
Internal Web Server	Serves web pages
Weight	1.654g (with on module antenna option), 1.552g (with two U.FL option)
Material	Metal shell
Temperature	Operating range: -40°C to +85°C (-40°F to +185°F) Storage range: -40°C to +85°C (-40°F to +185°F)
Relative Humidity	Operating: 5% to 85% no- condensing
Shock/Vibration	Non-operational shock: 500 g's. Non-operational vibration: 20 g's.
RAM	2 MB SRAM
Flash	8MB NOR Serial Flash

## 7: Electrical Characteristics

### Recommended Operating Conditions

Table 7-1 specifies the recommended operation conditions and parameters for optimum performance of the xPico 200 module.

**Table 7-1: Recommended Operating Conditions for xPico 200 Module**

Parameter	Symbol	Min	Typ	Max	Units
Voltage	VCC	3.15	3.3	3.45	V DC
Supply Voltage Ripple/droop	VCC pp			± 1%	
Extended Operating Temperature	T <sub>a</sub>	-40		+85	°C
Humidity (non-condensing, relative)				85	%
Power Supply ramp rate	VCC	40		1000 <sup>1</sup>	us

<sup>1</sup>For slower power supply ramp rates it is recommended to assert reset for 50ms after power reaches 3.15V.

### DC Characteristics – Digital I/O Signals

**Table 7-2: DC Characteristics & Digital I/O Signals**

Symbol	Parameter/Signal	Min	Typ	Max	Unit
VIL	RESET#	-0.5		0.8	V
VIH	RESET#	2.0		VCC + 0.5	V
VIL	CPx, UART, JTAG	-0.5		0.8	V
VIH	CPx, UART, JTAG	2.0		VCC + 0.5	V
VOL	CPx, UART, JTAG			0.4	V
VOH	CPx, UART, JTAG	VCC-0.4			V
VIL	SDIO pins			0.25*VCC	V
VIH	SDIO pins	0.625*VCC			V
VOL	SDIO pins			0.125*VCC	V
VOH	SDIO pins	0.75*VCC			V
RPU			39.58		kΩ
RPD	SDIO_MODE		44.57		kΩ
RPU			44.57		kΩ

## Dynamic Power Management Modes

The table below describes the power management modes for the xPico 200 module, along with their typical and maximum current consumption values.

The xPico 200 module supports power-up and sleep modes within its dynamic power management framework.

**Table 7-3: xPico 200 Power Consumption 2.4Ghz**

Parameter	Power Management	Soft AP	Symbol	Typical	Max	Units
Boot sequence peak	N/A	N/A	I <sub>cc</sub>	580		mA
Idle current average-unit connected to AP on client 11n Ch6	OFF	ON	I <sub>cc</sub>	95		mA
Idle current average-unit connected to AP on client 11n Ch6	ON, Beacon 100 ms, DTIM 5	ON	I <sub>cc</sub>	95		mA
Idle current average unit connected to AP on client 11n Ch6	ON, Beacon 100 ms, DTIM 5	OFF	I <sub>cc</sub>	41		mA
Idle current average unit not connected to AP on client	OFF	OFF	I <sub>cc</sub>	TBD		mA
Iperf(UDP) in bridge mode to AP on client interface 1Mbps-Sustained 11n Ch6	ON, Beacon 100 ms, DTIM 5	OFF	I <sub>cc</sub>	95		mA
Transmitter surge, 11g 54Mbps, 15dBm	N/A	N/A	I <sub>cc</sub>	345	399	mA
Transmitter surge, 11n, 20 Mhz BW, MCS7, 17 dBm	N/A	N/A	I <sub>cc</sub>	345	398	mA
Transmitter surge, 11g 54Mbps, 0dBm	N/A	N/A	I <sub>cc</sub>	298	358	mA
Transmitter surge, 11n, 20Mhz BW, MCS7, 0dBm	N/A	N/A	I <sub>cc</sub>	299	356	mA
Stand by, external IO connections removed @+25C	N/A	N/A	I <sub>cc</sub>	30		uA
Stand by with external PHY, other external IO connections removed @ +25C	N/A	N/A	I <sub>cc</sub>	97		uA
Ethernet ping, Wi-Fi disabled. External PHY current not included	N/A	N/A	I <sub>cc</sub>	37		mA

**Table 7-4: xPico 200 Power Consumption 5Ghz**

Parameter	Power Management	Soft AP	Symbol	Typical	Max	Units
Boot sequence peak	N/A	N/A	I <sub>cc</sub>	580		mA
Idle current average-unit connected to AP on client 11n Ch48	OFF	ON	I <sub>cc</sub>	148		mA
Idle current average-unit connected to AP on client 11n Ch48	ON, Beacon 100ms, DTIM 5	ON	I <sub>cc</sub>	148		mA
Idle current average unit connected to AP on client 11n Ch48	ON, Beacon 100ms, DTIM 5	OFF	I <sub>cc</sub>	40		mA
Idle current average unit not connected to AP on client,	OFF	OFF	I <sub>cc</sub>	TBD		mA
Iperf(UDP) in bridge mode to AP on client interface 1Mbps-Sustained, 11n Ch48	ON, Beacon 100ms, DTIM 5	OFF	I <sub>cc</sub>	134		mA
Transmitter surge, 11a 54Mbps, 14dBm	N/A	N/A	I <sub>cc</sub>	390	465	mA
Transmitter surge, 11n, 40Mhz BW, MCS7, 14dBm	N/A	N/A	I <sub>cc</sub>	401	494	mA
Transmitter surge, 11a 54Mbps, 0dBm	N/A	N/A	I <sub>cc</sub>	316	395	mA
Transmitter surge, 11n, 40Mhz BW, MCS7, 0dBm	N/A	N/A	I <sub>cc</sub>	334	419	mA
Stand by, external IO connections removed @+25C	N/A	N/A	I <sub>cc</sub>	30		uA
Stand by with external PHY, other external IO connections removed @ +25C	N/A	N/A	I <sub>cc</sub>	97		uA
Ethernet ping, Wi-Fi disabled. External PHY current not included	N/A	N/A	I <sub>cc</sub>	37		mA

## Output Power

xPico 200 module RF output power is listed in the [Table 7-4](#) below.

**Table 7-5: xPico 200 Module RF Output Power (Preliminary)**

Characteristics		TYP.	Criteria	Unit
RF Average Output Power, 802.11b	1 Mbps	17	$\pm 2$	dBm
	11 Mbps	17	$\pm 2$	dBm
RF Average Output Power, 802.11g	6 Mbps	15	$\pm 2$	dBm
	54 Mbps	15	$\pm 2$	dBm
RF Average Output Power, 802.11n (2.4Ghz)	MCS0	15	$\pm 2$	dBm
	MCS7	15	$\pm 2$	dBm
RF Average Output Power, 802.11a	6 Mbps	15	$\pm 2$	dBm
	54 Mbps	15	$\pm 2$	dBm
RF Average Output Power, 802.11n (5Ghz)	MCS0	13	$\pm 2$	dBm
	MCS7	13	$\pm 2$	dBm

## EVM

xPico 200 module TX EVM follow the IEEE specification listed in [Table 7-6](#) below.

**Table 7-6: xPico 200 Module Wi-Fi EVM**

Characteristics		EVM Value MAX	Unit
RF Average Output EVM (11g)	6 Mbps	-5	dB
	54 Mbps	-25	dB
RF Average Output EVM (11n 2.4Ghz)	MCS0	-5	dB
	MCS7	-27	dB
RF Average Output EVM (11a)	6 Mbps	-5	dB
	54 Mbps	-25	dB
RF Average Output EVM (11n 5Ghz)	MCS0	-5	dB
	MCS7	-27	dB



## Receive Sensitivity

xPico 200 module Rx sensitivity is listed in [Table 7-7](#) below.

**Table 7-7: xPico 200 Module Rx Sensitivity**

<b>Receiver Characteristics</b>	<b>TYP.</b>	<b>MAX.</b>
PER <8%, Rx Sensitivity @ 802.11b 1 Mbps		
PER <8%, Rx Sensitivity @ 802.11b 11 Mbps		
PER <10%, Rx Sensitivity @ 802.11g 6 Mbps		
PER <10%, Rx Sensitivity @ 802.11g 54 Mbps		
PER <10%, Rx Sensitivity @ 802.11n 2.4Ghz MCS0		
PER <10%, Rx Sensitivity @ 802.11n 2.4Ghz MCS7		
PER <10%, Rx Sensitivity @ 802.11a 6 Mbps		
PER <10%, Rx Sensitivity @ 802.11a 54 Mbps		
PER <10%, Rx Sensitivity @ 802.11n 5Ghz MCS0		
PER <10%, Rx Sensitivity @ 802.11n 5Ghz MCS7		
PER <10%, Rx Sensitivity @ 802.11ac MCS8 HT20		
PER <10%, Rx Sensitivity @ 802.11ac MCS9 HT80		

## Power, Reset, Wake, Shutdown and Default Timing

The diagrams below show the timing requirement for VCC, RESET#, DEFAULT#, WAKE and SHDN.

Figure 7-1 Reset Timing

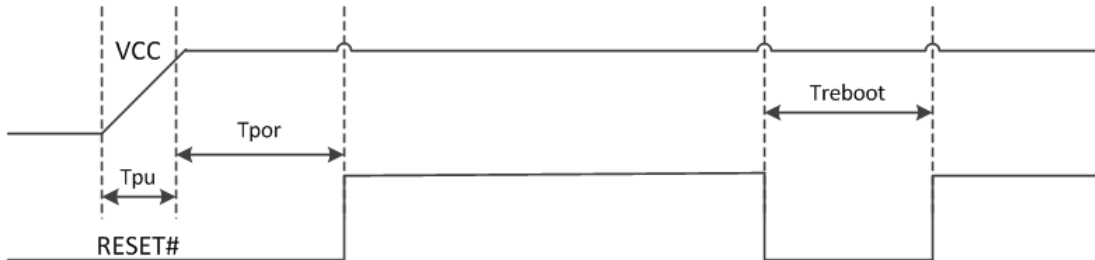


Figure 7-2 Reset to Defaults Timing

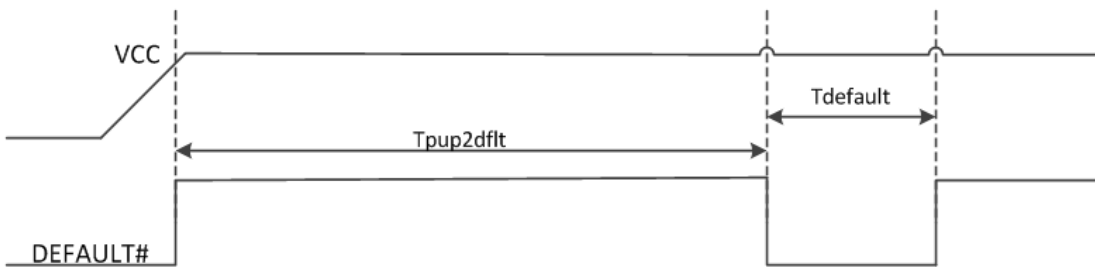
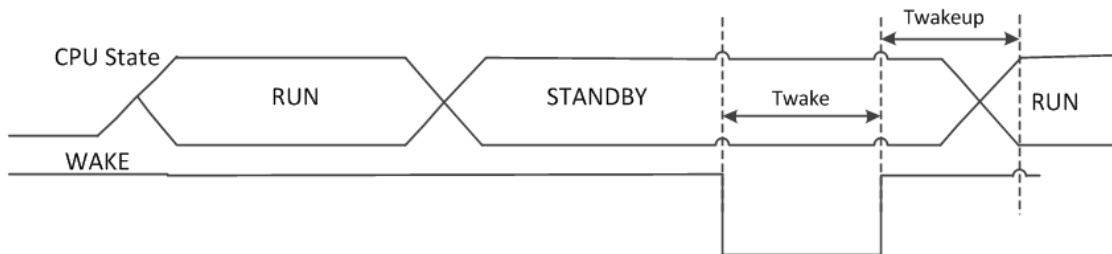


Figure 7-3 Wake Timing



**Table 7-8 Shutdown Pin Timing**

Parameter	Description	Minimum	Maximum	Unit
T <sub>pu</sub>	Time for VCC to reach 90% of its maximum value	40	1000	us
T <sub>por</sub>	Time from VCC to reach 90% of its maximum value and de-assertion of external reset.	50		ms
T <sub>reboot</sub>	Recommended reset pulse for system reboot	50		ms
T <sub>pup2dflt</sub>	Time from VCC power up to DEFAULT# assertion. Note DEFAULT# can be left floating if unused.	0		ns
T <sub>default</sub>	Assertion time for DEFAULT# to unit reset to default and reboot.	6		S
T <sub>wake</sub>	Wake pulse width. Note wakeup is triggered on the rising edge.	100		us
Teio_off	Time recommended to shut off external IO to prevent leakage into module	0		ms

## Memory

The xPico 200 module comes with the following memory profile:

### Flash Memory

The xPico 200 module has 8MB serial NOR flash that is shared between the boot, OS, and user space

### SRAM

The xPico 200 module has 2MB SRAM

# 8: Package Description and Mechanical Footprint

The xPico 200 module comes in two different mechanical packages. The first is an SMT module with an LGA footprint. The LGA footprint version is for SMT applications. The second mechanical package is the xPico 200 module mounted on an edge card. The mechanical dimensions for both options are shown below. Both mechanical packages also come with options for two u.FL connectors for connection to external antennas or a single on-module antenna. Note, Bluetooth is not available for the options with on-module antenna. The Edge Connector version mates to TE Connectivity part number 2199230-4.

## Dimensions

The size and thickness of the xPico 200 module is 25 mm (L) x 17 mm (W) x 2.53 mm (H) +/- 0.3 mm (including shielding). The PCB footprint is shown in the figure on the next page.

Figure 8-1 xPico 200 Enterprise Wi-Fi IoT Wi-Fi Module (Part 1 of 2)

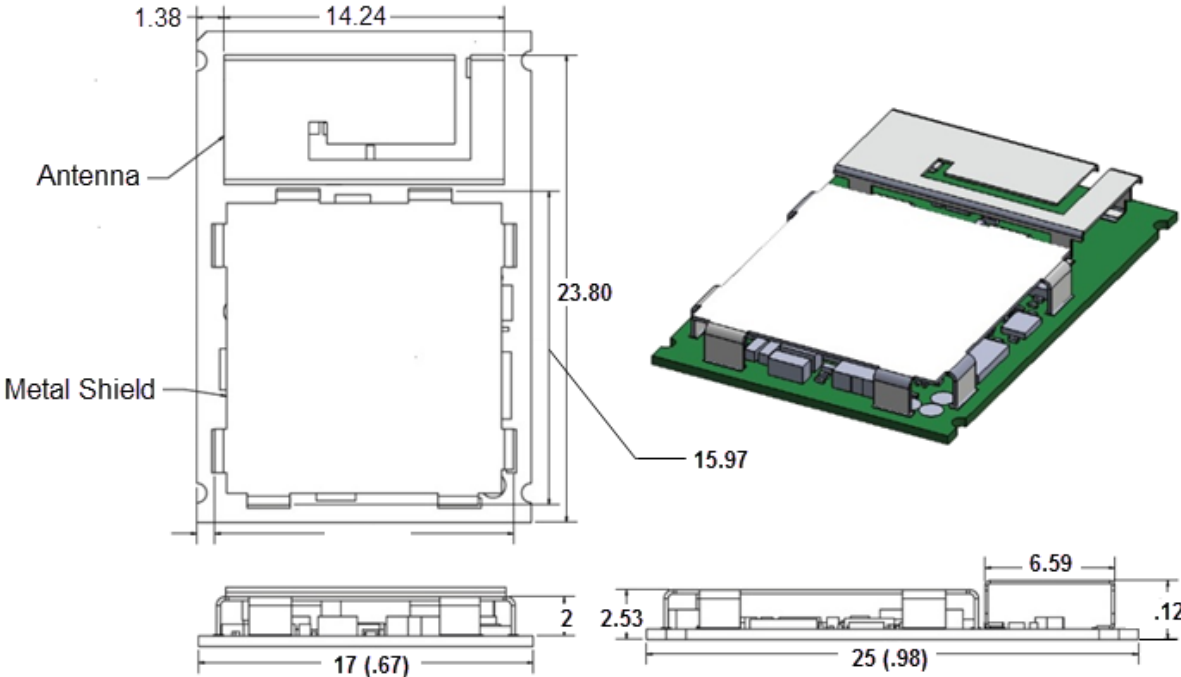
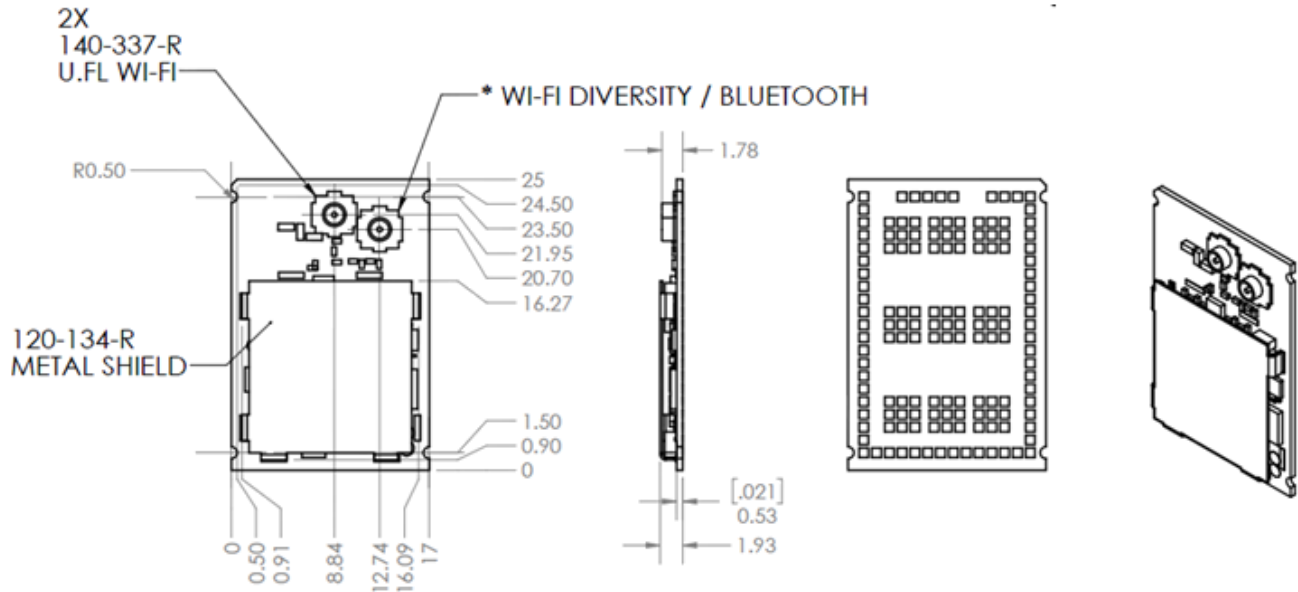
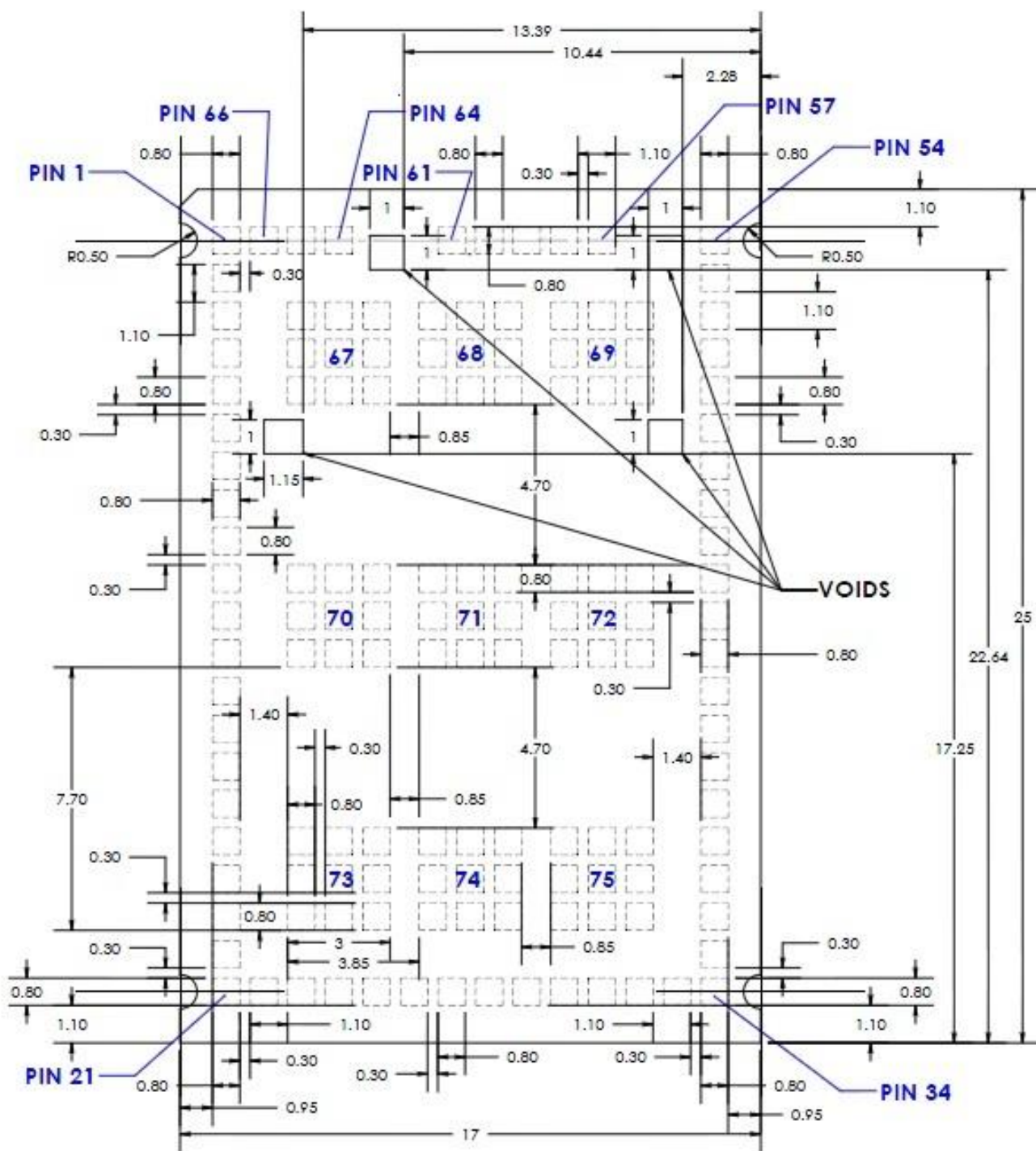


Figure 8-2 xPico 200 Enterprise Wi-Fi IoT Wi-Fi Module (Part 2 of 2)



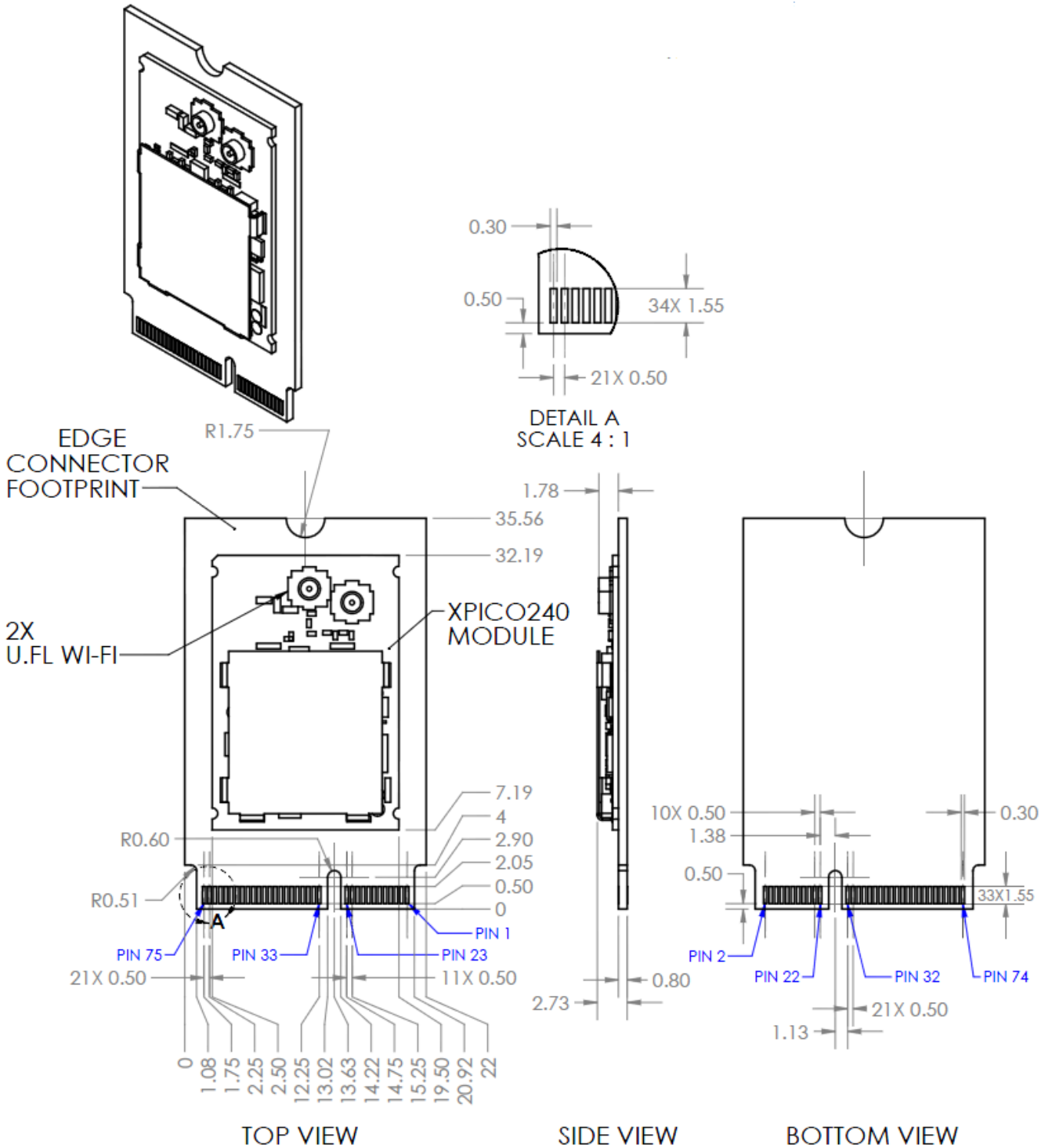
\* WI-FI DIVERSITY NOT AVAILABLE ON UNITS WITH BLUETOOTH

Figure 8-3 Layout Footprint for xPico 200  
Enterprise Wi-Fi IoT Module



**Note:** It is recommended to follow the evaluation platform layout. The evaluation platform CAD reference files are available upon request. Contact your local FAE or sales account manager for access to the CAD package.

Figure 8-4 xPico 200 Edge Connector Module dimensions



**Note:** the Edge Connector Module mates to TE Connectivity part number 2199230-4.

## Pin and Pad Definitions

*Table 8-1* describes the xPico 200 Wi-Fi interface signal definitions as used in the modules. The **Signal Name** column identifies the signal pin being described while the **Primary Function** column provides definitions of the signal pin depending upon the member of the xPico 200 family being used. Differentiating the signal pins is beneficial when using multiple xPico 200 device types on a single platform.

**Table 8-1: xPico 200 Interface Signal Definitions:**

Signal Name	Primary Function	xPico 200 SMT Pin	Edge Connector Pin	Driver Strength
GND	Signal Ground	1	1	
SDCK	SDIO Clock	2	9	8mA
SDCMD	SDIO CMD	3	11	8mA
SDIO0	SDIO Data 0	4	13	8mA
SDIO1	SDIO Data 1	5	15	8mA
SDIO2	SDIO Data 2	6	17	8mA
SDIO3	SDIO Data 3	7	19	8mA
CP3/MISO	Configurable I/O- SPI MISO	8	46	8mA
CP4/MOSI	Configurable I/O-SPI MOSI	9	44	8mA
CP7/SCK	Configurable I/O-SPI Clock	10	42	8mA
CP8/CS	Configurable I/O-SPI Chip Select	11	40	8mA
CP2/INT	Configurable I/O-SPI interrupt input	12	48	8mA
CP15	Configurable I/O-I2CDATA2	13	56	8mA
CP16	Configurable I/O-I2CCLK2	14	54	8mA
CP5/I2CDATA	Configurable I/O-I2CDATA	15	58	8mA
CP6/I2CCLK	Configurable I/O-I2CCLK	16	60	8mA
WAKE	Toggle signal from low to high to WAKE from SLEEP or Power down state. This pin must be pulled high with a 100K ohm resistor. Note: signal is noise sensitive. Filter as close as possible to module pin.	17	20	
GND	Signal Ground	18	7	
USB+	USB Device Port Positive pin	19	3	
USB-	USB Device Port Negative pin	20	5	
GND	Signal Ground	21	33	
CP17/PWM/LED	Configurable I/O-PWM	22	16	8mA
RMII_TXD0	RMII TXD0 transmit output	23	73	



Signal Name	Primary Function	xPico 200 SMT Pin	Edge Connector Pin	Driver Strength
RMII_TXD1	RMII TXD1 transmit output	24	71	
RMII_CLK	RMII interface clock	25	61	
USB_H/DEV_SEL	USB Host/Device Mode Select Pull high for device mode on USB Pull low for host mode on USB Connect to ID pin of USB connector	26	12	
RMII_TXEN	RMII transmit enable output	27	67	
RMII_RST	RMII reset output	28	70	
SDIO_MODE	SDIO Master/Slave select Pull high for master mode on SDIO Pull low for slave mode on SDIO	29	14	
RMII_RXDV	RMII RX data valid input	30	65	
RMII_RXD0	RMII RXD0 receive input	31	55	
RMII_RXD1	RMII RXD1 receive input	32	53	
SYS_LED	System status LED, active high	33	6	
GND	Signal Ground	34	39	
MDC	MDIO clock	35	47	
MDIO	MDIO data	36	49	
CP18/PWM	Configurable I/O-PWM	37	62	8mA
CP1	Configurable I/O	38	50	8mA
RESERVED1	Reserved for future UART RX output	39	66	
RESERVED2	Reserved for future UART TX output	40	68	
EXT_RESET#	Unit hardware reset, active low. Drive low for 50ms to reboot unit. Signal should be driven high or pulled high after assertion. EXT_RESET# is inactive during module power down (standby) state. Assert WAKE signal to come out of low power states prior to asserting reset.	41	52	
CTS1	Serial clear-to-send input	42	36	8mA
VCC	Power input. Must be connected to 3.3V power supply	43	74	

Signal Name	Primary Function	xPico 200 SMT Pin	Edge Connector Pin	Driver Strength
VCC	Power input. Must be connected to 3.3V power supply	44	72	
VCC	Power input. Must be connected to 3.3V power supply	45	2,4	
RTS1	Serial ready-to-send (232) / serial transmit enable (485) output	46	34	8mA
RXD1	Serial receive data input	47	32	8mA
TXD1	Serial transmit data output	48	22	
TMS	JTAG TMS Input	49	43	
TCK	JTAG Clock Input	50	41	
TDI	JTAG Data Input	51	37	
TDO	JTAG Data Output	52	35	
TRST	JTAG Reset Input	53	38	
GND	Signal Ground	54	45	
DEFAULT	Drive low for 6 seconds or longer to reset unit to default settings.	57	23	
GND	Signal Ground	58	51	
GND	Signal Ground	59	57	
GND	Signal Ground	60	63	
GND	Signal Ground	61	69	
GND	Signal Ground	64	75	
GND	Signal Ground	65	18	
GND	Signal Ground	66		
GND_PADS	Signal Ground	67,68,69,70,71,72,73,74,75		

Note1: The current module supports an external 10/100Mbps Ethernet PHY via the RMI interface.

Note2: The logic IO pins are 3.3V tolerant.

Note3: SMT Pins 67 to 75 are the ground pads under the module. These pads must be connected to ground. These pads also provide thermal relief for the module. It is recommended that multiple vias for each pad be used to connect the ground pads to the ground plane. Please see the evaluation board layout as a reference for the ground pad and multiple via in pad recommendation. Contact your local FAE or sales support for the evaluation kit artwork.

Note 4: All unused IO pins may be left floating, except for the required straps on pins 17, 26, and 29.

## 9: Product Information Label

The product information label contains important information about your specific module, including the part number, revision, manufacturing date code, product model, country of origin, datamatrix barcode, and MAC address.

Figure 9-1 xPico 200 Module Label



The xPico 200 module uses the Datamatrix ECC200 barcode standard. The field definitions are as follows:

Table 9-1: Datamatrix ECC200 Barcode Standard Descriptions

Field	Description	Example
V1	Barcode format revision	1
C1	Field count.	6
P1	Part number of the module	
R1	Revision of the module	A11
D1	Manufacturing datecode of the module	14W20
L1	Country and factory ID# of manufacturer	CHINA 03
S1	Serial number	0080A3980404
M1	MAC address	0080A3980404
M2	MAC address 2	0080A3980511
E1	End of barcode	

## 10: Evaluation Kit

A xPico 200 module evaluation kit is available to provide a simple, quick and cost effective way to evaluate the xPico 200 module. Use the evaluation kit to integrate the module into to your product design and find out how simple, easy it is to get started.

- ◆ The TBD\_kit, is a single board with the xPico 200 module mounted.
- ◆ The TBD\_kit2 is a single board with the xPico 250 module mounted.

This allows the simple use of the module and use of the on-module antenna version. The evaluation board includes the necessary keep out areas, so performance and positioning can be evaluated.

## 11: Compliance (PLANNED)

*DRAFT: All certs listed in this section are planned prior to the formal product release. The list is subject to change based on final certification.*

(According to ISO/IEC Guide and EN 45014)

**Manufacturer's Name & Address:**

Lantronix, Inc.



7535 Irvine Center Drive, Suite 100, Irvine, CA 92618 USA

Declares that the following product:

**Product Name Model:** xPico 200

*Conforms to the following standards or other normative documents:*

**Table 11-1: Country Certifications (PLANNED)**

Country	Specification
USA 	FCC Part 15, Subpart B, Class B FCC Part 15, Subpart C 15.247 (WLAN) FCC Part 15, Subpart C 15.247 (BT) FCC Part 15, Subpart E 15.407 (DFS)
Canada	ICES-003:2012 Issue 5, Class B RSS-Gen, Issue 4, 2014-11 RSS-102, Issue 5, 2015-03 RSS-247, Issue 2, 2017-02
EU	See EU Declaration of Conformity below.
Australia, New Zealand  N11206	AS/NZS 4268 2017 AS/NZS 2772.2
Japan	ARIB STD-T66(v3.7), MIC notice 88 Appendix 43 RCR STD-33 (v5.4), MIC notice 88 Appendix 44 ARIB STD-T71(v6.1), MIC notice 88 Appendix 45
China SRRC	Planned
Safety	UL/CSA/EN/IEC 62368-R

**Table 11-2: Country Transmitter IDs**

<b>Country</b>	<b>Specification</b>
USA FCC ID	R68XPICO200 (Pending certification)
Canada IC ID	3867A-XPICO200 (Pending certification)
Japan ID	020-170133
China SRRC	TBD

## Federal Communication Commission Interference Statement

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 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.

**FCC Caution:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

***Operations in the 5.15-5.25GHz band are restricted to indoor usage only.***

## Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

## **This device is intended only for OEM integrators under the following conditions:**

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as **2** conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

**IMPORTANT NOTE:** *In the event that these conditions cannot be met (for example certain laptop configurations or colocation with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.*

## **End Product Labeling**

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: **R68XPICO200**". The grantee's FCC ID can be used only when all FCC compliance requirements are met.

## **Manual Information To the End User**

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

## **Industry Canada statement:**

This device complies with RSS-247 of the Industry Canada 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.

Ce dispositif est conforme à la norme CNR-247 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

## **Radiation Exposure Statement:**

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

### **Déclaration d'exposition aux radiations:**

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

### **This device is intended only for OEM integrators under the following conditions: (For module device use)**

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

### **Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes: (Pour utilisation de dispositif module)**

- 1) L'antenne doit être installée de telle sorte qu'une distance de 20 cm est respectée entre l'antenne et les utilisateurs, et
- 2) Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

Tant que les 2 conditions ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

### **IMPORTANT NOTE:**

*In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the IC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.*

### **NOTE IMPORTANTE:**

*Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considéré comme valide et l'ID IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.*

### **End Product Labeling**

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains IC: 3867A-**XPICO200**".

### **Plaque signalétique du produit final**

Ce module émetteur est autorisé uniquement pour une utilisation dans un dispositif où l'antenne peut être installée de telle sorte qu'une distance de 20cm peut être maintenue entre l'antenne et



les utilisateurs. Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: 3867A-**XPICO200**".

### Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

### Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.

Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.

### Caution :

*(i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to cochannel mobile satellite systems;*

*(ii) the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;*

*(iii) the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate; and*

*(iv) Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.*

### Avertissement:

Le guide d'utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :

(i) les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;

(ii) le gain maximal d'antenne permis pour les dispositifs utilisant les bandes de 5250 à 5350 MHz et de 5470 à 5725 MHz doit être conforme à la limite de la p.i.r.e.;

(iii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande de 5725 à 5850 MHz) doit être conforme à la limite de la p.i.r.e. spécifiée pour l'exploitation point à point et l'exploitation non point à point, selon le cas;

(iv) De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.



7535 Irvine Center Drive, Suite 100, Irvine, CA 92618

## EU DECLARATION OF CONFORMITY

*This declaration of conformity is issued under the sole responsibility of the manufacturer.*

Object of the declaration			
Product Information	Product Name: xPico 200		
	Model	SW Version (Radio FW)	HW Version
	xPico 240	7.15.168.87	11 (or later)
	xPico 250	7.15.168.87	11 (or later)
<b>The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:</b> <ul style="list-style-type: none"><li>•References to the relevant harmonised standards used or references to the technical specifications in relation to which conformity is declared</li></ul>			
<b>Radio Equipment Directive 2014/53/EU</b>			
EN 300 328 V2.1.1			
EN 301 489-1 V2.1.1			
EN 301 489-17 V3.1.1			
EN 301 893-1 V2.1.1			
EN 62311:2008			
62368-1			

The notified body, \_\_\_\_\_, performed a conformity assessment of the technical construction file and issued certificate \_\_\_\_\_.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Name: Daryl R. Miller

Title: VP of Engineering, Lantronix, Inc.

**Table 11-3: Europe – EU Declaration of Conformity**

<b>cs</b>	Česky [Czech]	Lantronix tímto prohlašuje, že tento xPico 200 je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2014/53/EU.
<b>da</b>	Dansk [Danish]	Undertegnede Lantronix erklærer herved, at følgende udstyr xPico 200 overholder de væsentlige krav og øvrige relevante krav i direktiv 2014/53/EU.
<b>de</b>	Deutsch [German]	Hiermit erkläre Lantronix, dass sich das Gerät xPico 200 in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 2014/53/EU befindet.
<b>et</b>	Eesti [Estonian]	Käesolevaga kinnitab Lantronix seadme xPico 200 vastavust direktiivi 2014/53/EU põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
<b>en</b>	English	Hereby, Lantronix, declares that this xPico 200 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
<b>es</b>	Español [Spanish]	Por medio de la presente Lantronix declara que el xPico 200 module cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/EU.
<b>el</b>	Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Lantronix ΔΗΛΩΝΕΙ ΟΤΙ xPico 200 ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2014/53/EU.
<b>fr</b>	Français [French]	Par la présente Lantronix déclare que l'appareil xPico 200 est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/EU.
<b>it</b>	Italiano [Italian]	Con la presente Lantronix dichiara che questo xPico 200 è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/EU.
	Latviski [Latvian]	Ar šo Lantronix deklarē, ka xPico 200 atbilst Direktīvas 2014/53/EU būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
	Lietuvių [Lithuanian]	Šiuo Lantronix deklaruoja, kad šis xPico 200 atitinka esminius reikalavimus ir kitas 2014/53/EU Direktyvos nuostatas.
<b>nl</b>	Nederlands [Dutch]	Hierbij verklaart Lantronix dat het toestel xPico 200 overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EU.
<b>mt</b>	Malti [Maltese]	Hawnhekk, Lantronix, jiddikjara li dan xPico 200 jikkonforma malħtiġġiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
<b>hu</b>	Magyar [Hungarian]	Alulírott, Lantronix nyilatkozom, hogy a xPico 200 megfelel a vonatkozó alapvető követelményeknek és az 2014/53/EU irányelv egyéb előírásainak.
<b>pl</b>	Polski [Polish]	Niniejszym Lantronix oświadcza, że xPico 200 jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2014/53/EU.
<b>pt</b>	Português [Portuguese]	Lantronix declara que este xPico 200 está conforme com os requisitos essenciais e outras disposições da Directiva 2014/53/EU.
<b>sl</b>	Slovensko [Slovenian]	Lantronix izjavlja, da je ta xPico 200 v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2014/53/EU.
	Slovensky [Slovak]	Lantronix týmto vyhlasuje, že xPico 200 enterprise Wi-Fi IoT module spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 2014/53/EU.
<b>fi</b>	Suomi [Finnish]	Lantronix vakuuttaa täten että xPico 200 tyyppinen laite on direktiivin 2014/53/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
<b>sv</b>	Svenska [Swedish]	Härmed intygar Lantronix att denna xPico 200 står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EU.

查詢 NB no.

<http://ec.europa.eu/enterprise/newapproach/nando/index.cfm?fuseaction=notifiedbody.main>

**Table 11-4: Approved External Antenna(s) List**

<b>Antenna Type</b>	<b>Peak Gain Typical</b>	<b>Lantronix Part Number</b>	<b>Vendor</b>	<b>Vendor Part Number</b>	<b>Approved Region</b>
PCB Strip Antenna with 50 mm cable to U.FL connector With tape backing	2.5dBi, 2.39 Ghz to 2.49 Ghz 5dBi, 4.9Ghz to 5.9Ghz	XPW100A0 03-01-B 50 piece bulk pack	Ethertronics®	1001077	FCC, IC, EU, AUS/NZS, JPN, China,
PCB Strip Antenna with 50 mm cable to U.FL connector Without tape backing	2.5dBi, 2.39 Ghz to 2.49 Ghz 5dBi, 4.9Ghz to 5.9Ghz		Ethertronics	1000668	FCC, IC, EU, AUS/NZS, JPN, China,
Swivel type antenna, with RP-SMA(M) connector	2 dBi, 2.4 Ghz to 2.5 Ghz, 2 dBi, 5.15 Ghz to 5.85 Ghz	930-033-R-ACC 50 piece bulk pack	Wanshih	WSS002	FCC, IC, EU, AUS/NZS, JPN, China,
Swivel type antenna, with RP-SMA(M) connector	3.8 dBi, 2.4Ghz to 2.5Ghz, 5.5 dBi, 4.9 Ghz to 5.8Ghz		Taoglas	GW.71.5153 (Not for EU use)	FCC, IC, AUS/NZS, JPN, China,

**Manufacturer's Contact:**

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**RoHS, REACH, and WEEE Compliance Statement**

Please visit <http://www.lantronix.com/legal/rohs/> for Lantronix's statement about RoHS, REACH and WEEE compliance.

## 12: Ordering Information

**Table 12-1: xPico 200 Series Order Information**

Part Number	Description
XPC240100B	Pico 240 Emb GW, Wi-Fi, Eth, Dual u.fl, LGA, BULK
XPC240200B	xPico 240 Emb GW, Wi-Fi, Eth, Module Ant, LGA, BULK
XPC240300B	xPico 240 Emb GW, Wi-Fi, Eth, Dual u.fl, Edge, BULK
XPC240300K	xPico 240 Evaluation Kit with Edge Connector Module
XPC250100B	xPico 250 Emb GW, Wi-Fi, Eth, BT, Dual u. fl, LGA, BULK
XPC250300B	xPico Emb GW, Wi-Fi, Eth, BT, Dual u. fl, Edge, BULK
XPC250300K	xPico 250 Evaluation Kit with Edge Connector Module

### Contact Information

For details contact your local Lantronix representative or Lantronix directly:

- ◆ Asia Pacific Region via e-mail at [asiapacific\\_sales@lantronix.com](mailto:asiapacific_sales@lantronix.com)
- ◆ Europe via e-mail at [eu\\_sales@lantronix.com](mailto:eu_sales@lantronix.com)
- ◆ Japan via e-mail at [japan\\_sales@lantronix.com](mailto:japan_sales@lantronix.com)
- ◆ United States via e-mail at [sales@lantronix.com](mailto:sales@lantronix.com) or call OEM sales support at 800-526-8764.

### Warranty

The xPico 200 module comes with an industry best 5-year warranty. For more details on the Lantronix warranty replacement policy, please go to our web site at [www.lantronix.com/support/warranty](http://www.lantronix.com/support/warranty).

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