

## WiPort Data Sheet

### General Description

The WiPort™ is the most compact, integrated solution available to add 802.11b/g wireless networking to any device with a serial or wired Ethernet interface. Using this highly integrated hardware and software platform, you will add to your bottom line by significantly reducing product development time, risk, and cost.

The WiPort offers the highest level of integration available in a device server. Within a compact package is a DSTni™ x86 controller, memory, 802.11b/g radio, a 10/100 Ethernet transceiver, and dual high-speed serial ports. All of this combines to give you a complete networking solution. The WiPort is designed with flexibility to support additional wireless standards without requiring redesign.

To enable access to a local network or the Internet, the WiPort integrates a fully developed TCP/IP network stack and OS. The WiPort also includes an embedded web server that can be used to remotely configure, monitor, or troubleshoot the attached device.

WiPort serves web pages to a web browser when there is a need to gather information or communicate with networked devices. The WiPort becomes a conduit between you and your device over the network or Internet.

The Windows™-based configuration software, Device Installer™, simplifies installation and setup. The WiPort can also be configured locally through its serial port, or remotely over a network using Telnet (password-protected) or a web browser. Flash memory provides for maintenance-free, nonvolatile storage of web pages, and allows future system software upgrades.

### Hardware & Software Description

The WiPort functions independently of a PC, providing a complete hardware and software solution for adding wireless connectivity to your edge devices. Within a single package this powerful device server comes with an 802.11b wireless connection, a 10/100 Ethernet transceiver, a reliable and proven operating system stored in flash memory, an embedded web server, a full TCP/IP protocol stack, and WEP security.

The WiPort software runs on a Lantronix DSTni controller which has 256 KB of internal SRAM, and 16 KB of boot ROM. The WiPort communicates to the edge device through a 3.3V logic level interface. 2 MB of flash memory is included for storing firmware and web pages.



### Key Features

- Complete integrated RoHS compliant solution
- Supports 802.11 WLAN or Ethernet connectivity
- Serial to 802.11b/g conversion
- Wired Ethernet to 802.11 b/g WLAN Bridging
- Stable, field proven TCP/IP protocol suite and web-based application framework
- Optional End-to-End 128, 192 and 256 Bit AES Encryption
- WPA PSK TKIP security, 128 bit WEP encryption
- Dual serial ports
- Easy configuration through a web interface
- Easy installation of customized web pages
- Embedded web server
- 11 General Purpose Input/Output (GPIO) pins
- E-mail alerts
- Upgradeable firmware via the network or serial port
- High performance data throughput

The WiPort runs on a single 3.3V supply, and has a built-in voltage supervisory circuit.

The WiPort will connect through a coaxial cable “pigtail” to a panel-mounted external antenna, which makes the electro-mechanical integration very simple.

## Protocol Support

The WiPort uses the widely accepted 802.11g protocol to connect to a wireless infrastructure or ad-hoc network, and is fully backward compatible with legacy 802.11b wireless networks. It uses the Transmission Control Protocol (TCP) to assure that no data is lost or duplicated and that everything sent to the connection arrives correctly at the target.

Other supported protocols are listed below:

- ARP, UDP, TCP, ICMP, Telnet, TFTP, AutoIP, DHCP, HTTP, and SNMP for network communications.
- TCP, UDP, and Telnet for connections to the serial port.
- TFTP for firmware updates.

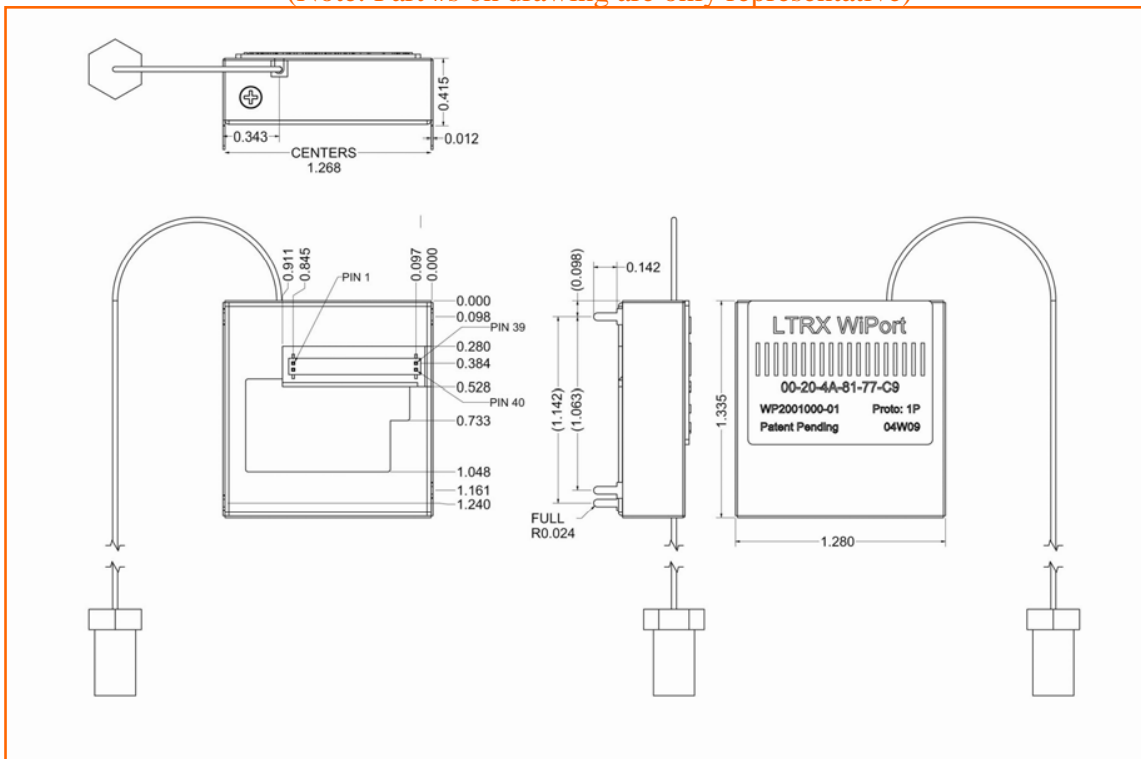
- IP for addressing, routing, and data block handling over the network.
- User Datagram Protocol (UDP) for typical datagram applications in which devices interact with other devices without maintaining a point-to-point connection.

## Dimensions

- The WiPort dimensions are shown in the following drawing:

### WiPort – Embedded Device Server

(Note: Part #s on drawing are only representative)



## WiPort Pin Functionality

Pin Number	WiPort Pin Function
1	3.3V Power
2	3.3V Power
3	RTS0
4	TXD0
5	RXD0
6	Configurable Pin 2
7	Configurable Pin 3
8	CTS0
9	Configurable Pin 10
10	Configurable Pin 8
11	Signal Ground
12	Signal Ground
13	Reset In
14	Configurable Pin 0
15	RTS1
16	TXD1
17	RXD1
18	Configurable Pin 9
19	Configurable Pin 4
20	CTS1

Pin Number	WiPort Pin Function
21	Reserved
22	Reserved
23	Signal Ground
24	Signal Ground
25	Reserved
26	Reserved
27	Ethernet Status LED2
28	Ethernet Status LED1
29	Ethernet TX-
30	Ethernet TX+
31	Ethernet RX Center Tap
32	Ethernet TX Center Tap
33	Ethernet RX-
34	Ethernet RX+
35	Configurable Pin 1
36	Reserved
37	Configurable Pin 6
38	Configurable Pin 5
39	WLAN Activity LED
40	Configurable Pin 7

Mating Connector	Description
Recommended: Samtec FTMH-120-03-F-DV-ES (shrouded header)	The mating connector is a 1mm micro header, 40 pins, 2 x 20.
Alternative: Samtec FTMH-120-03-F-DV (not shrouded)	
Alternative: Oupiin 2411-2X20GDN/017 (not shrouded)	

## WiPort Wireless Specifications

Category		Description
Network Standards		IEEE 802.11b ; IEEE 802.11g
Frequency Range		2.412 – 2.484 GHz
Antenna Connector		1, no diversity supported.
Data Rates		1,2,5,5,11Mbps(802.11b) 6,9,12,18,24,36,48,54Mbps(802.11g)
Radio	Number of Selectable Subchannels	Up to 14 channels. Profiles available will include USA, France, Japan, Spain, Canda and "Other" (multiple countries)
	Modulations	OFDM, DSSS, DBPSK, DQPSK, CCK , 16QAM, 64QAM
	Antenna Connector	1
Security		WEP 64/128, WPA – PSK, TKIP, AES end-to-end encryption
Maximum Receive Level		-10 dBm (with PER < 8%)
Receiver Sensitivity		-72dBm for 54Mbps -87 dBm for 11Mbps -89 dBm for 5.5Mbps -90 dBm for 2.0Mbps -92 dBm for 1.0Mbps
WLAN Power and Link LED Current		Max: 4 mA

## WiPort Technical Data

Category	Description
CPU, Memory	Lantronix DSTni-EX 186 CPU, 256 KB zero wait state on-chip SRAM, 2048 KB Flash, 16 KB Boot ROM
Firmware	Upgradeable via TFTP and serial port
Reset Circuit	Reset In is low active. Minimum reset pulse width is 2 ms at IIL = -500µA
Serial Interface	CMOS (Asynchronous) 3.3V-level signals Rate is software selectable (300 bps to 921600 bps)
Serial Line Formats	7 or 8 data bits, 1-2 Stop bits, Parity: odd, even, none
Modem Control	DTR, DCD
Flow Control	XON/XOFF (software), CTS/RTS (hardware), none
Network Interface	Wireless 802.11b, 802.11g and 10/100 Ethernet
Protocols Supported	ARP, UDP, TCP, Telnet, ICMP, SNMP, DHCP, BOOTP, Auto IP, HTTP, SMTP, TFTP
Media Access Control	CSMA/CA with ACK
Frequency Range	2.412 – 2.484 GHz
Range	Up to 328 feet (100m) indoors
Modulation Techniques	<ul style="list-style-type: none"> <li>▪ OFDM</li> <li>▪ DSSS</li> <li>▪ CCK</li> <li>▪ DQPSK</li> <li>▪ DBPSK</li> <li>▪ 64 QAM</li> <li>▪ 16 QAM</li> </ul>
Transmit Output Power	14 dBm + 1.5dBm/- 1.0 dBm
Peak Supply Current at 3.3V	650 mA
Management	Internal web server, SNMP (read only) Serial login, Telnet login DeviceInstaller software
Security	Password protection, locking features, 64/128 bit WEP, WPA-PSK, End-to-End AES
Internal Web Server	Serves web pages Storage capacity: 1.2 MB
Weight	29 grams
Material	Metal shell
Temperature	Operating range: -30°C to + 70°C (-22°F to 158°F) Storage range: -40°C to +85°C (-40°F to 185°F)
Warranty	2-year limited warranty
Included Software	Windows™ 98/NT/2000/XP based DeviceInstaller configuration software and Windows™ based Comm Port Redirector, DeviceInstaller, Web-Manager.

## Average Power Consumption at 3.3V

WLAN / Ethernet Mode	High Performance (@ 88 MHz) / Nominal Performance (@ 48 MHz)	Power Consumption
WLAN mode	High performance, data transfer at 922 kbps	1300mW
WLAN mode	Nominal performance, data transfer at 230 kbps	950mW
WLAN mode	High performance, no data transfer	580mW
WLAN mode	Nominal performance, no data transfer	300mW
Ethernet mode *	Nominal performance, no data transfer	750mW

\* Applicable only when the wired 802.3 interface is implemented and activated.

### Certifications (Please contact Lantronix for latest updates)

Description	Country	Certifications
Product Safety	USA/Canada	U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment, CSA-22.2 No. 60950-1-03 * UL 60950-1
	Europe (Pre-test scan only)	Standard for Safety of Information Technology Equipment, EN 60950-1
	International	IEC 60950-1

### Agency Compliance (Please contact Lantronix for latest updates)

Description	Country	Compliance
Electromagnetic Compatibility	USA	CFR Title 47 FCC Part 15-B, Class B
	Europe	EN 300 328; Data Transmission Equipment Operating in the 2.4GHz ISM Band and Using Spread Spectrum Techniques EN 301 489-17 & EN 301 489-1; EMC Standard for Radio Equipment and Services
	Canada	Industry Canada RSS-210 Low Power License-Exempt Radiocommunication Devices
	Australia /New Zealand	AS/NZS CISPR 22 (EMC) AS/NZS 4771 (Radio)

### DC Characteristics for Serial and Power Interface

Symbol	Parameter	Min	Nominal	Max	Units
V <sub>CC</sub>	Supply voltage (typical 3.3) (+/-2%)	3.135	3.3	3.45	V
V <sub>IL</sub>	Low Level Input Voltage	-0.3		0.8	V
V <sub>IH</sub>	High Level Input Voltage	2.0		5.5	V
V <sub>OL</sub>	Low Level Output Voltage			0.4	V
V <sub>OH</sub>	High Level Output Voltage	2.4			V
I <sub>L</sub>	Input Leakage Current		+/-0.01	+/-1	µA

## Evaluation Kit

### Introduction

A WiPort evaluation kit is available to provide a simple, quick and cost-effective way to evaluate the WiPort. Use the development kit to connect the WiPort to your product design, and give your newly networked product a test drive.



### Features of the Evaluation Kit

- Complete, ready-to-use WiPort and supporting Evaluation Board
- 3.3V power supply
- RS-232 cable, DB9F/F, null modem
- CAT5e UTP RJ45M/M Ethernet cable
- WiPort CD containing complete user documentation, DeviceInstaller, Comm Port Redirector (with 30 day free evaluation of Secure Comm Port Redirector)
- Antenna

### Features of the Evaluation Board

The WiPort evaluation board includes a WiPort integrated with the following features:

- Ready to use – just plug in the WiPort and connect to your system
- Dual high-speed RS-232 transceivers & DB9 connectors for easy connection to a PC
- Complete Ethernet interface, including magnetics, RJ-45 jack, and status LEDs
- Test header for easy access to all 40 of the WiPort power & I/O pins

## Ordering Information

Model	Part Number	Description
WiPort	WP2001000G-02	Standard WiPort B/G Bulk Pack Min. order: 25 units
WiPort AES	WP2002000G-02	Standard WiPort B/G AES Bulk Pack Min. order: 25 units
WiPort SMPL	WP200200SG-02	WiPort B/G AES, Sample 1 WiPort enclosed
WiPort Eval. Kit	WP200200KG-02	WiPort B/G AES Evaluation Kit
WiPort Antenna	930-033	Accessory Antenna

# LANTRONIX®

For details contact your local Lantronix representative or Lantronix directly:

**Asia Pacific Region** (E-mail): [AsiaPacific\\_sales@lantronix.com](mailto:AsiaPacific_sales@lantronix.com)

**Europe** (E-mail): [eu\\_sales@lantronix.com](mailto:eu_sales@lantronix.com)

**Japan** (E-mail): [japan\\_sales@lantronix.com](mailto:japan_sales@lantronix.com)

**United States** (E-mail): [sales@lantronix.com](mailto:sales@lantronix.com)

**Latin America & Caribbean** (E-mail): [la\\_sales@lantronix.com](mailto:la_sales@lantronix.com) or call OEM sales support at 800-526-8764.

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