

## 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.

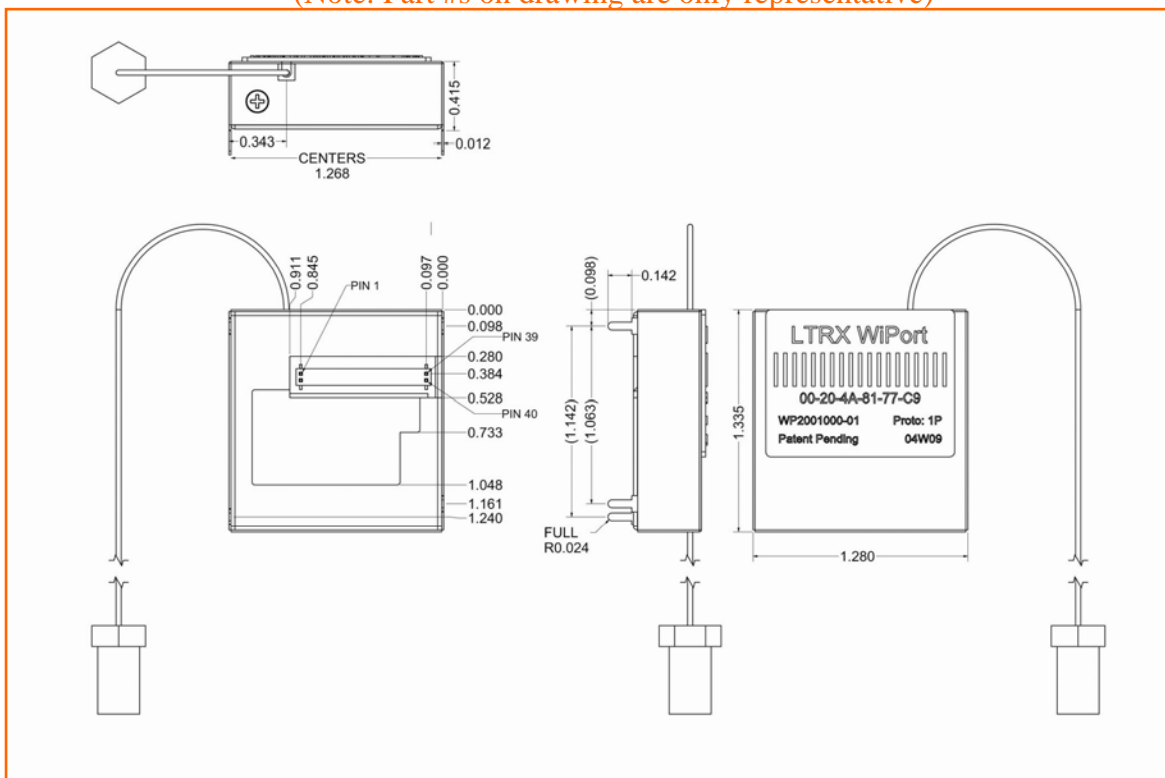
- IP for addressing, routing, and data block handling over the network.
- User Datagram Protocol (UDP) for typical datagram applications in which devices interact with other devices without maintaining a point-to-point connection.

## 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)<br>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<br>-87 dBm for 11Mbps<br>-89 dBm for 5.5Mbps<br>-90 dBm for 2.0Mbps<br>-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<br>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)<br>Serial login, Telnet login<br>DeviceInstaller software   |
| Security                    | Password protection, locking features, 64/128 bit WEP, WPA-PSK, End-to-End AES  |
| Internal Web Server         | Serves web pages<br>Storage capacity: 1.2 MB  |
| Weight                      | 29 grams  |
| Material                    | Metal shell   |
| Temperature                 | Operating range: -30°C to + 70°C (-22°F to 158°F)<br>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<br>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)<br>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<br>Min. order: 25 units     |
| WiPort AES       | WP2002000G-02 | Standard WiPort B/G AES Bulk Pack<br>Min. order: 25 units |
| WiPort SMPL      | WP200200SG-02 | WiPort B/G AES, Sample<br>1 WiPort enclosed               |
| WiPort Eval. Kit | WP200200KG-02 | WiPort B/G AES Evaluation Kit                             |
| WiPort Antenna   | 930-033       | Accessory Antenna   |



For details contact your local Lantronix representative or Lantronix directly:

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