

WiPort™ NR Data Sheet

General Description

The WiPort NR (No Radio) is the most compact, integrated solution available to add Ethernet networking to any device with a serial interface. Using this integrated hardware and software module, you will add to your profits by significantly reducing product development time, risk, and cost.

With a high level of integration, in a compact package, the WiPort NR Device Server™ features a Lantronix DSTni™ x86 Ethernet Processor SoC, memory, a 10/100 Ethernet transceiver, and dual high-speed serial ports. All of this combines to give you a complete, ready-to-use network enabling solution.

Total pin compatibility with Lantronix's WiPort 802.11 wireless module enables a single board design that can be either wired networking or wireless networking ready using either the WiPort NR or the WiPort.

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

WiPort NR serves web pages to a web browser when there is a need to gather information or communicate with networked devices. The WiPort NR 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 NR 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 NR functions independently of a PC, providing a complete hardware and software solution for adding Ethernet or IP connectivity to your edge devices. Within a single package this powerful device server comes with a 10/100 Ethernet transceiver, a reliable and proven operating system stored in flash memory, an embedded web server and a full TCP/IP protocol stack.

The WiPort NR software runs on a Lantronix DSTni Ethernet Processor SoC which has 256 KB of internal SRAM, and 16 KB of boot ROM. The WiPort NR communicates to the edge device through a 3.3V logic



Key Features

- Complete Ethernet Network Processor Module
- Serial to Ethernet conversion
- Pin Compatible with Lantronix WiPort 802.11 Module
- Dual serial ports
- SPI, I2C and CAN ports available
- 11 General Purpose Input/Output (GPIO) pins
- High performance data throughput up to 921Kbps
- Stable, field proven TCP/IP protocol suite and web-based application framework
- Available 256/128/64 Bit Rijndael AES Encryption
- Easy configuration through a web interface
- Easy installation of customized web pages
- Embedded web server and E-mail alerts
- Upgradeable firmware via the network or serial port
- RoHS Compliant

level interface. Two MB of flash memory is included for storing firmware and web pages

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

Protocol Support

The WiPort NR uses the widely accepted 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:

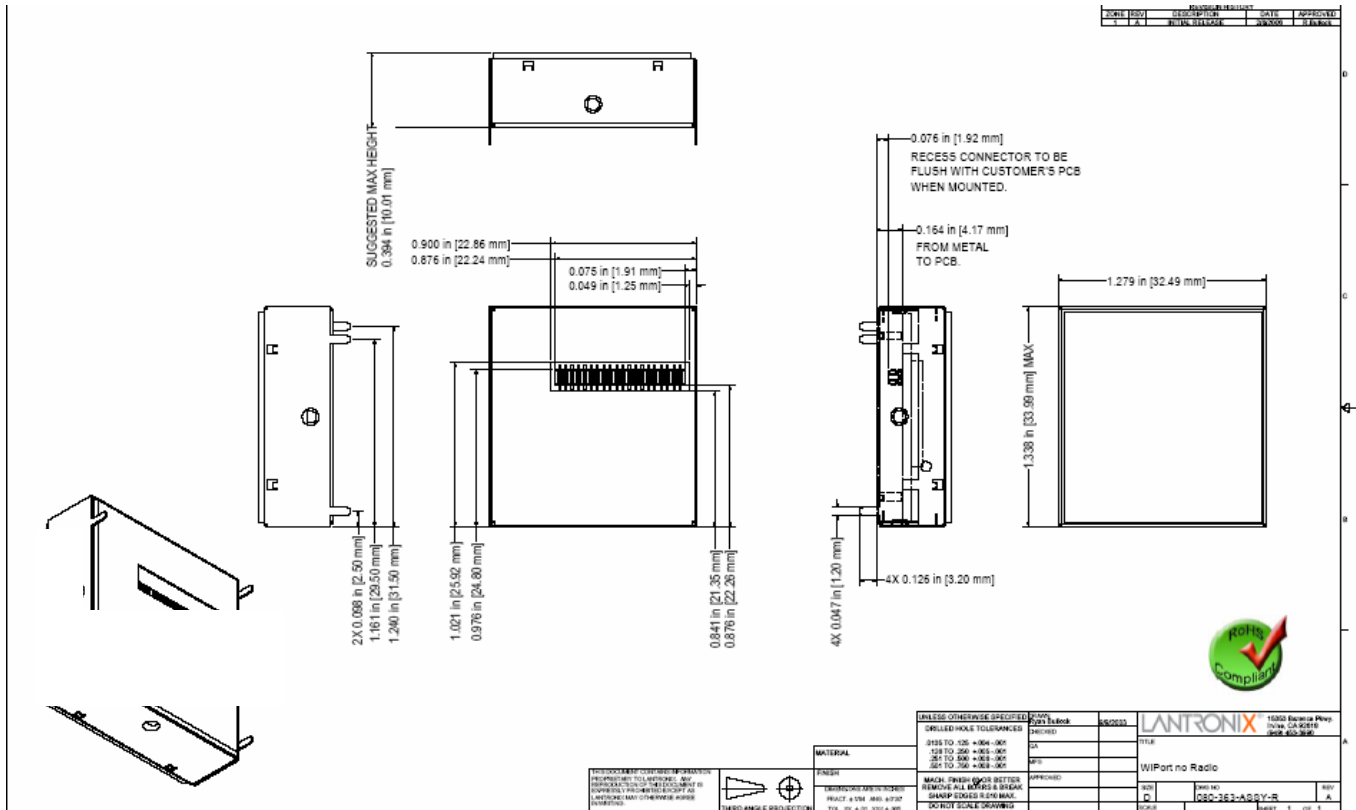
- ARP, UDP, TCP, ICMP, Telnet, TFTP, AutoIP, DHCP, HTTP, and SNMP for network communications.
- TCP, UDP, and Telnet for connections to the serial port.
- TFTP for firmware updates.

- 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 NR dimensions are shown in the following drawing:

WiPort NR – Embedded Device Server



WiPort NR 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	Reserved
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 NR 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
Programmable I/O	11 PIO pins (software selectable) sink or source 4mA max
Network Interface	IEEE 802.3 RJ45 Ethernet 10BASE-T or 100BASE-TX (auto-sensing)
Protocols Supported	ARP, UDP, TCP, Telnet, ICMP, SNMP, DHCP, BOOTP, Auto IP, HTTP, SMTP, TFTP
Media Access Control	CSMA/CD with ACK
Peak Supply Current at 3.3V	270mA @ 3.3V
Management	Internal web server, SNMP (read only), Serial login, Telnet login, DeviceInstaller software
Security	Password protection, locking features, optional Rijndael 128-, 192- or 256-bit encryption
Internal Web Server	Serves web pages Storage capacity: 1.2 MB
Weight	22 grams
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 95% non-condensing
Warranty	2-year limited warranty
Regulatory Compliance <i>(NOTE: The OEM manufacturer is responsible for the final certification of the end device)</i>	<p>EN55022: 1998 + A1: 2000 + A2: 2003 CLASS B – Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment</p> <p>EN61000-3-2: 2000 Class A - ELECTROMAGNETIC COMPATIBILITY (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)</p> <p>EN61000-3-3: 1995 +A1: 2001 - ELECTROMAGNETIC COMPATIBILITY (EMC) – Part 3: Limits – Section 3: Limitation of voltage changes, voltage fluctuations and flicker in low-voltage public supply systems, for equipment with rated current < 16 A per phase and not subject to conditional connection</p> <p>EN55024: 1998 +A1: 2001 +A2: 2003 – Information Technology Equipment - Immunity characteristics – Limits and Methods of Measurement</p> <p>CFR Title 47 FCC Part 15 SUBPART B, Class B</p> <p>ICES-003 ISSUE 4: FEBRUARY 2004 CLASS B</p> <p>AS/NZS CISPR 22 (EMC)</p> <p>U.S. and Canadian (Bi-National) Standard for Safety of Information Technology Equipment, CSA-22.2 No. 60950-1-03</p> <p>UL 60950-1</p> <p>Standard for Safety of Information Technology Equipment, EN 60950-1 (Pre Scan)</p>
Included Software	Windows™ 98/NT/2000/XP based DeviceInstaller configuration software and Windows™ based Comm Port Redirector, DeviceInstaller, Web-Manager.

DC Characteristics for Serial and Power Interface

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

Average Power Consumption at 3.3V

Operating Mode	Power Consumption
Active	790mW

Evaluation Kit

Introduction

A WiPort development kit is available to provide a simple, quick and cost-effective way to evaluate the WiPort (which includes an 802.11 radio) or the WiPort NR. Use the development kit to connect the WiPort to your product design, and give your newly networked product a test drive. This kit is intended for both WiPort 802.11 and WiPort NR wired Ethernet evaluation.

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, and the 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 NR	WP5001000-01	WiPort NR Extended Temperature, AES, Bulk Pack Minimum order: 25 units
WiPort NR SMPL	WP500100S-01	WiPort NR Sample with AES 1 WiPort NR enclosed
WiPort Evaluation Kit	WP200200KG-02	WiPort B/G Evaluation Kit 1 WiPort B/G enclosed NOTE: This evaluation kit supports both wireless and wired networking capability (equivalent of the WiPort NR) on one board

For details contact your local Lantronix representative, or Lantronix directly at:

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