

# MiiNePort W1 Series User's Manual

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[www.moxa.com/product](http://www.moxa.com/product)

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# MiiNePort W1 Series User's Manual

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# 1

## Introduction

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The MiiNePort W1 series provides serial to 802.11 b/g embedded wireless solution with compact size, and ultra low power consumption features. Numerous operation modes are designed to fulfill the requirements of embedded module application. Complete driver support reduces software redesign effort and accelerate time to market.

The following topics are covered in this chapter:

- **Overview**
- **Product Features**
- **Product Specifications**

## Overview

The MiiNePort W1 series is a very compact module that installs in a serial device to connect it to a wireless LAN. With such a small size, around half the size of a credit card., it can be installed into almost any kind of serial device. The MiiNePort W1 series also comes with a built-in TCP/IP stack for fast integration with your serial devices. This means that your engineers can spend less time with the TCP/IP and wireless details, and more time on developing major features, shortening your product's time to market. The reliable TCP/IP communication firmware can be configured easily using a Windows utility, a web browser, or Telnet console.

An integration kit and a complete development kit are both available for evaluation and development use. The development kit contains a development board, documents, sample code, cables, and accessories.

## Product Features

The MiiNePort W1 series has the following features:

- 802.11 b/g compatible
- AES, WEP 64/128-bit, WPA, WPA2, PSK, 802.11i security support
- 1 Serial port, up to 921.6k bps
- 1 Ethernet port, 10/100Mbps
- SSL/SSH support for configuration
- Fast roaming to enhance connection reliability

## Product Specifications

### Form Factor

**Type:** Drop-in module

**Dimensions:** 44.4 x 44.4 mm (1.75 x 1.75 in)

### System Information

#### Ethernet Interface

**Number of Ports:** 1

**Speed:** 10/100 Mbps, auto MDI/MDIX

#### WLAN Interface

**Standard Compliance:** IEEE 802.11b/g

**Network Modes:** Infrastructure mode (b/g), Ad-Hoc mode (b/g)

**Spread Spectrum Technology:** DSSS, CCK, OFDM

#### Transmit Power:

IEEE 802.11b: 16 dBm (typical)

IEEE 802.11g: 14 dBm (typical)

**Receive Sensitivity:** -71 dBm (Min)

#### Transmission Rate:

IEEE 802.11b: 11 Mbps

IEEE 802.11g: 54 Mbps

#### Transmission Distance:

Up to 100 meters (in open areas)

#### Wireless Security:

AES, WEP 64/128-bit, WPA, WPA2, PSK, 802.11i

#### Serial Interface

**Number of Ports:** 1

**Serial Standards:** TTL

#### Serial Communication Parameters

**Data Bits:** 7, 8

**Stop Bits:** 1, 2

**Parity:** None, Even, Odd

**Flow Control:** RTS/CTS, XON/XOFF

**Baudrate:** 50 bps to 921.6 Kbps

#### Serial Signals

**TTL:** Tx/D, Rx/D, RTS, CTS, DTR, DSR, DCD, GND

#### Software

**Network Protocols:** ICMP, IP, TCP, UDP, DHCP, Telnet, DNS, SNMP V1/V2c/V3, HTTP, SMTP, SNTP, SSH, HTTPS

**Configuration Options:** Web Console, Telnet Console, Windows Utility, Serial command mode (configured through the data port)

**Windows Real COM Drivers:** Windows 95/98/ME/NT/2000, Windows XP/2003/Vista/2008/7 x86/x64, Embedded CE 5.0/6.0, XP Embedded

**Fixed TTY Drivers:** SCO Unix, SCO OpenServer, UnixWare 7, UnixWare 2.1, SVR 4.2, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x

**Linux Real TTY Drivers:** Linux kernel 2.4.x, 2.6.x, 3.0.x

**Operation Modes:** Real COM, TCP Server, TCP Client, UDP, RFC2217

#### Environmental Limits

##### Operating Temperature:

Standard Models: 0 to 55°C (32 to 131°F)

Wide Temp. Models: -40 to 85°C (-40 to 185°F)

**Storage Temperature:** -40 to 60°C (-40 to 140°F)

**Ambient Relative Humidity:** 5 to 95% (non-condensing)

#### Power Requirements

**Input Voltage:** 3.3 to 5 VDC ( $\pm 5\%$ )

**Power Consumption:** 400 mA @ 3.3 VDC, 330 mA @ 5 VDC input max.

#### Standards and Certifications

**Safety:** UL 60950-1, EN 60950-1

**EMC:** CE, FCC

**EMI:** EN 55022 Class A, FCC Part 15 Subpart B Class A

#### EMS:

EN 55024,

EN 61000-4-2 (ESD),

EN 61000-4-3 (RS),

EN 61000-4-4 (EFT),

EN 61000-4-5 (Surge),

EN 61000-4-6 (CS),

EN 61000-4-8,

EN 61000-4-11

**Radio:** EN301 489, EN300 328, EN300 893, FCC 15C,

EN61121/EN500 385

**Shock:** IEC-68-2-27

**Freefall:** IEC-68-2-34, IEC-68-2-32

**Vibration:** IEC-68-2-6

**Green Product:** RoHS, CRoHS, WEEE

#### Reliability

**Automatic Reboot Trigger:** Built-in WDT (watchdog timer)

#### Warranty

**Warranty Period:** 5 years

Details: See [www.moxa.com/warranty](http://www.moxa.com/warranty)

# 2

## Getting Started

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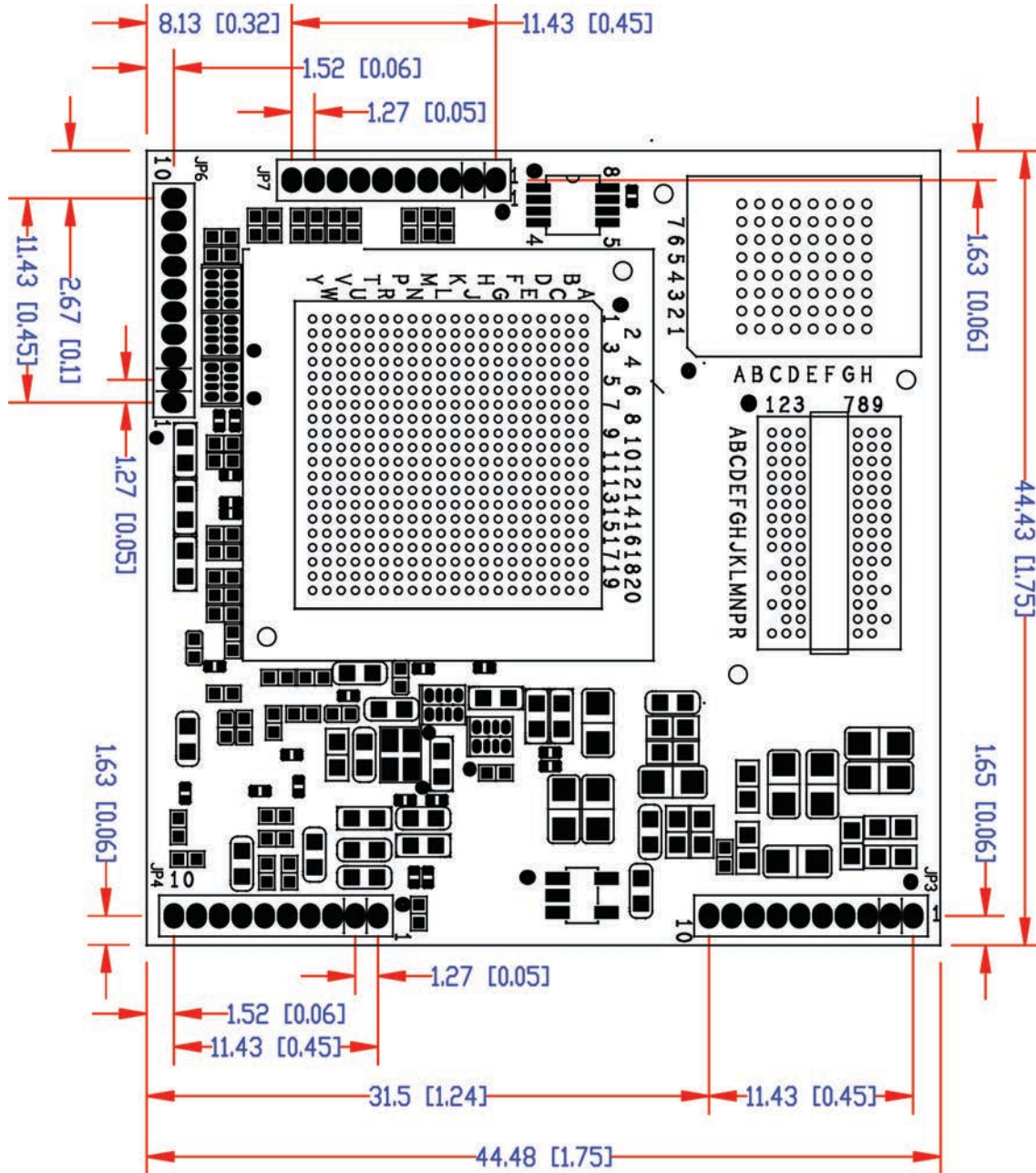
This chapter includes information about installing MiiNePort W1 series.

The following topics are covered in this chapter:

- **Dimensions**
- **MiiNePort W1 Pin Assignments**
- **Wiring Requirements**
- **Block Diagram**
- **Hardware Installation**
- **Software Installation**

# Dimensions

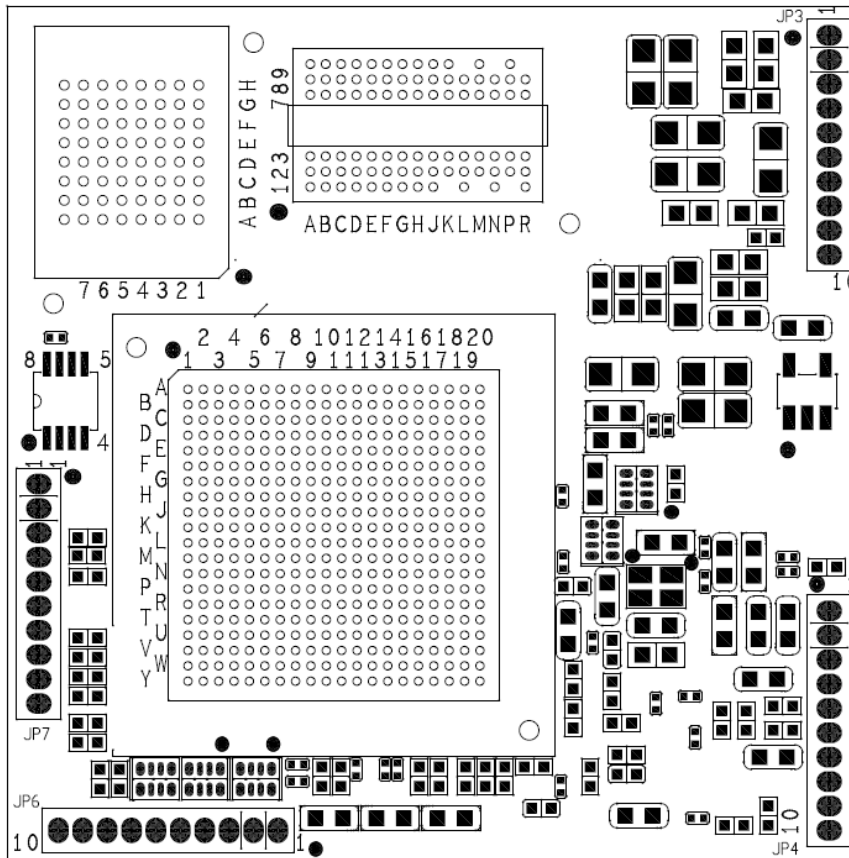
## MiiNePort W1 Series Dimensions



Unit: mm (inch)



# MiiNePort W1 Pin Assignments



Pin	JP3	JP4	JP6	JP7
1	N.C.	Eth_10M_LED	PIO0	LTXD0
2	N.C.	Eth_100M_LED	PIO1	LRTS0
3	N.C.	Eth_Rx+	PIO2	LDTR0
4	RDY_LED	Eth_Rx-	PIO3	LRXD0
5	FLT_LED	Eth_center_tap	PIO4	LCTS0
6	HW_RESET	Eth_center_tap	PIO5	LDSR0
7	SW_RESET	Eth_Tx+	PIO6	LDCD0
8	WLAN_Link	Eth_Tx-	PIO7	N.C.
9	Vin	GND	LTXD1	LCTS1
10	Vin	GND	LRTS1	LRXD1

# Wiring Requirements



## ATTENTION

Before connecting the hardware, follow these important wiring safety precautions:

### Disconnect power source

Do not install or wire this unit or any attached devices with the power connected. Disconnect the power before installation by removing the power cord before installing and/or wiring your unit.

### Follow maximum current ratings

Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.

If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

### Use caution - unit may get hot

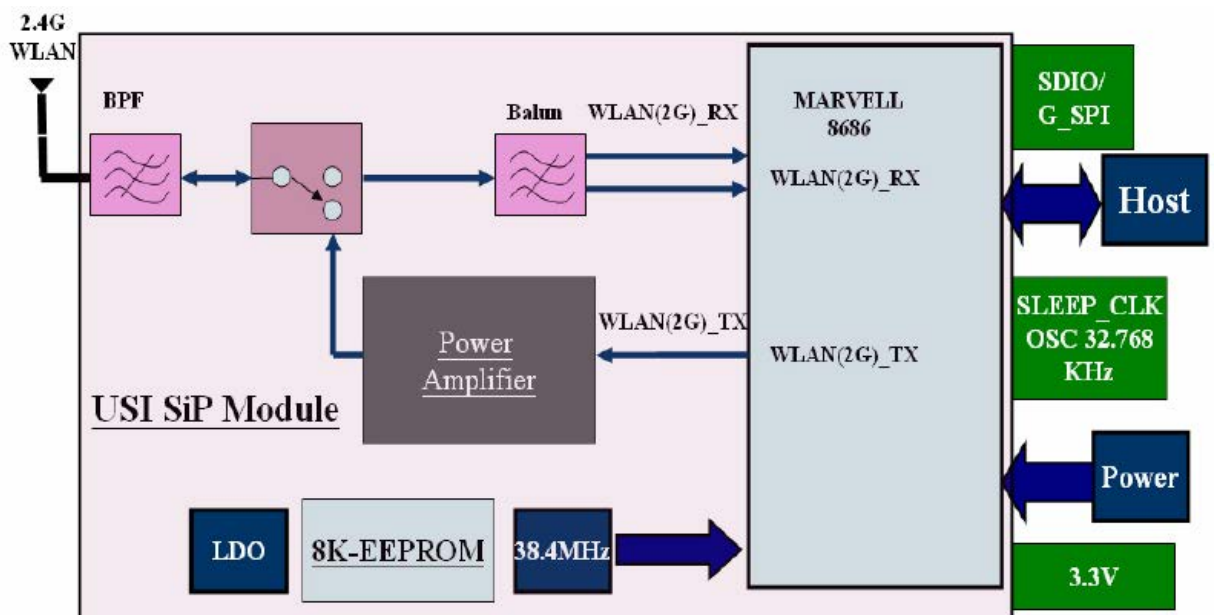
The unit will generate heat during operation, and the casing may feel hot to the touch. Take care when handling unit. Be sure to leave adequate space for ventilation.

The following guidelines will help ensure trouble-free signal communication:

- Use separate paths to route wiring for power and devices to avoid interference. Do not run signal or communication wiring and power wiring in the same wire conduit. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.
- Keep input wiring and output wiring separate.

Label all wiring to each device in the system for easier testing and troubleshooting

## Block Diagram



# Hardware Installation

## Steps for Installation

1. Attach the WLAN antenna to connect MiiNePort W1
2. Let MiiNePort W1 Module connect to device.

# Software Installation

After physically installing the MiiNePort W1, the module must be recognized on the new system board by the following steps.

## Step for Installation

1. Apply power to the system board.

## Compliance Notice

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The following topics are covered in this chapter:

- ❑ **Federal Communications Commission Statement**
- ❑ **Labeling Requirements**
- ❑ **End Product Labeling**
- ❑ **Information for OEM and Integrators**
- ❑ **Antenna List**

# Federal Communications Commission Statement

**WARNING**

This is a Class B product. In a domestic environment, this product may cause radio interference. The user may be required to take appropriate measures.

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 or more of the following measures:

- Redirect or relocate the receiving antenna.
- Increase the distance 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.

**CAUTION**

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

## Labeling Requirements

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.

**WARNING****RF exposure warning**

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance..

## End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20cm 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: SLE-W1

# Information for OEM and Integrators

The following statement must be included with all versions of this document supplied to an OEM or integrator, but should not be distributed to the end user.

1. This device is intended for OEM integrators only.
2. Please see the full Grant of Equipment document for other restrictions.

This radio transmitter FCCID: SLE-W1 has been approved by FCC to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

## Antenna List

No.	Manufacturer	Model No.	Antenna Type	Peak Gain
1	WANSHIH	ANT-WDB-O-2 BK	Dipole Antenna	2 dBi for 2.4GHz
2	KINSUN	ANT-WDB-ARM-02	Dipole Antenna	1.21 dBi for 2.4GHz

Note: The antenna connector is Reverse SMA type.