MiiNePort E1 Series

10/100 Mbps embedded serial device servers

> **Same size as an RJ45 connector—only 33.9 x 16.25 x 13.5 mm**
> **Extremely low power consumption—only 160 mA @ 3.3 VDC input**
> **Uses the MiiNe, Moxa's second generation SoC**
> **NetEZ technology makes integration incredibly easy**
> **Versatile choice of operation modes: Real COM, RFC2217, TCP, TCP, and UDP**

RoHS CE FC

: Overview

Moxa's MiiNePort E1 embedded device servers are designed for manufacturers who want to add sophisticated network connectivity to their serial devices with minimal integration effort. The MiiNePort E1 is empowered by the MiiNe, Moxa's second generation SoC, which supports 10/100 Mbps Ethernet, up to 921.6 Kbps serial baudrate, a versatile selection of ready-to-use operation modes, and requires

only a small amount of power. By using Moxa's innovative NetEZ technology, the MiiNePort E1 can be used to convert any device with a standard serial interface to an Ethernet enabled device in no time. In addition, the MiiNePort E1 is the size of an RJ45 connector, making it easy to fit into virtually any existing serial device.

: The MiiNe—Moxa's 2nd Generation SoC

The MiiNe was created to provide manufacturers with a competitive embedded serial-to-Ethernet solution. The MiiNePort E1, which uses the MiiNe for its SoC, is one of the world's tiniest embedded device servers, and has the lowest power consumption of any similar product. The MiiNe has the following features:

• Designed for 1 or 2-port serial-to-Ethernet applications
• Uses a 32-bit ARM 7 core
• Uses Moxa's own advanced UART technology
• Has 2 MB Flash and 4 MB SDRAM memory built in

SDRAM (4MB)	SPI
FLASH (2MB)	GPIO
POWER System	I²C
Watchdog Timer	Timer
	MAC Ethernet
UART	PHY

8 Pin Connector   RJ45 Connector

: NetEZ Technology

NetEZ ™
It's That Easy! | EXTrigger | SCM | AutoCFG | MCSC
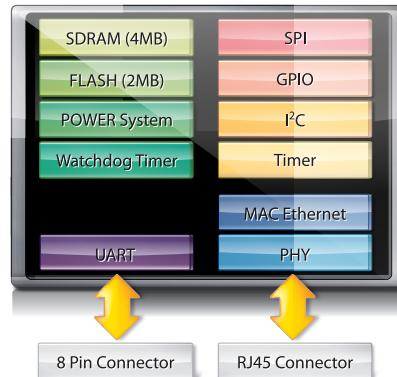
Moxa's NetEZ technology gives serial device manufacturers a range of powerful tools for integrating Ethernet capability into serial devices:

• **EXTrigger:** Want to troubleshoot your network with ease? Use the MiiNePort's EXTrigger button to reset network settings with just one push.

• **SCM:** Need an easy tool to configure the network through serial communication inside the device? Try MiiNePort's friendly SCM (Serial Command Mode).
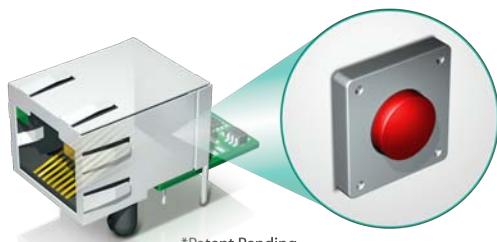
*Patent Pending

EXTrigger
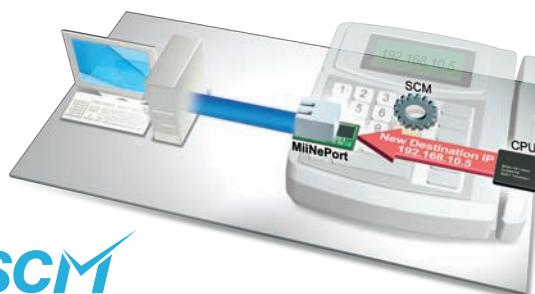
SCM

- **AutoCFG:** Tired of spending a large amount of time and effort setting up a network? Not anymore! The MiiNePort's AutoCFG makes auto-configuration during manufacturing possible.

- **MCSC:** Ever wanted your device to be a server and client at the same time? The MiiNePort's MCSC (Multi-channel Serial Communication) provides dual connections and dual channels for multi-task applications!.
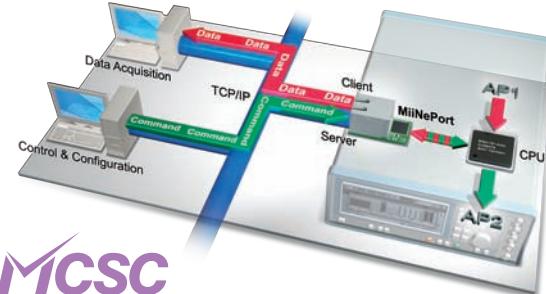
Moxa's NetEZ technology makes the MiiNePort E1 the world's most user-friendly embedded device server by promising ease-of-use with minimal integration work required.

Dimensions

MOXA®

www.moxa.com ▶ info@moxa.com
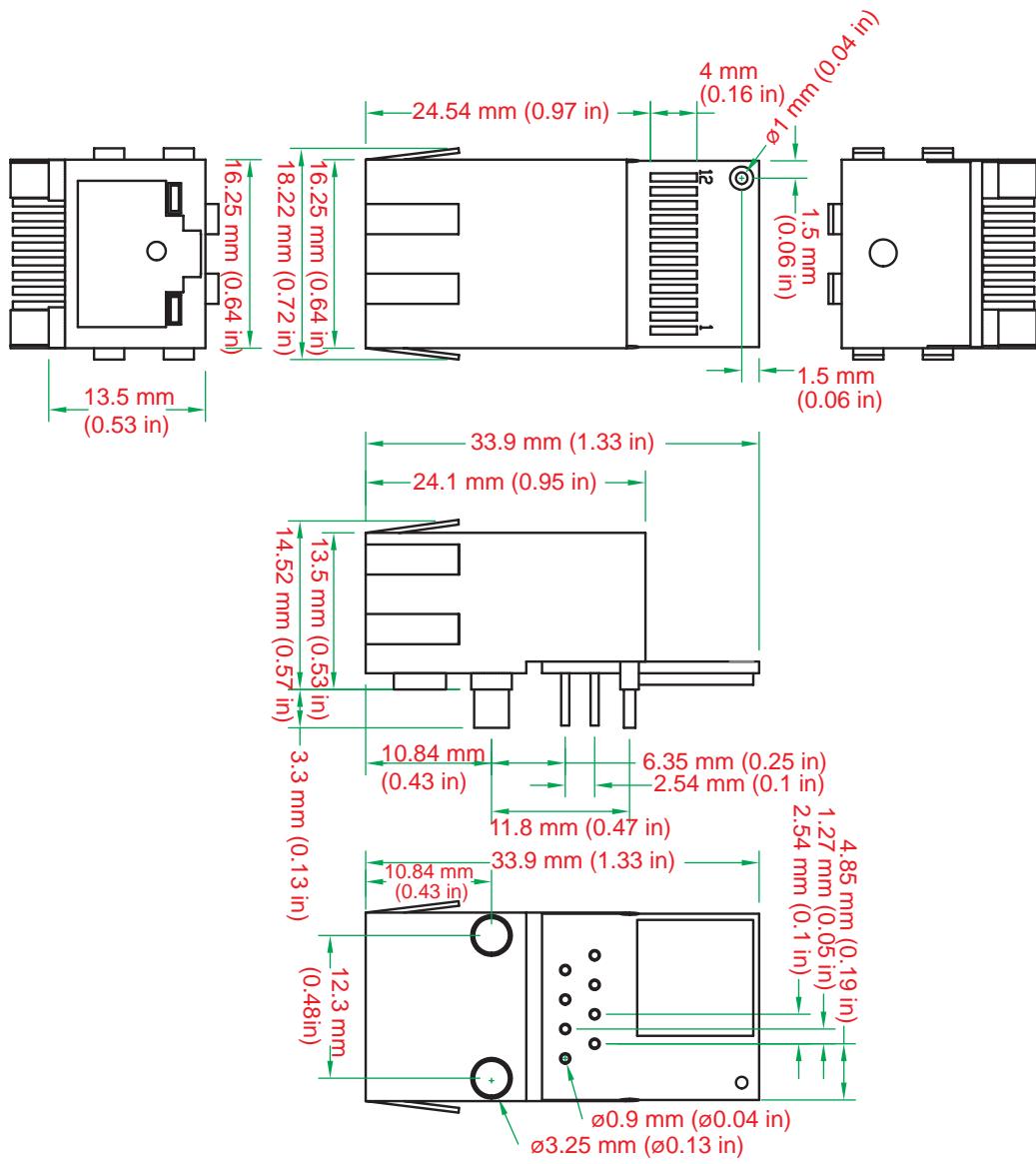
Recommended PC Board Layout
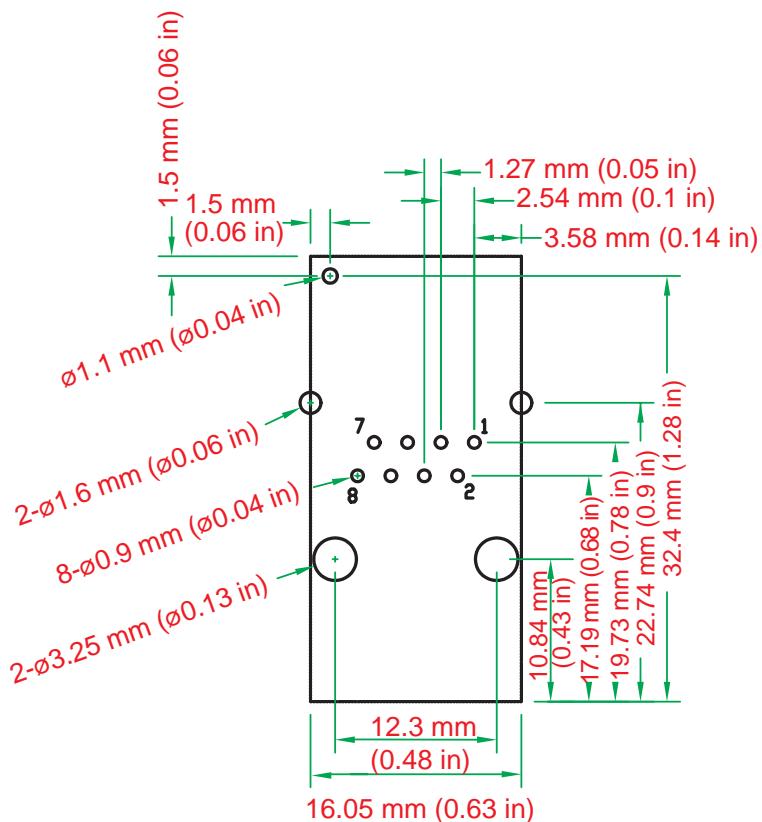
Pin Assignment
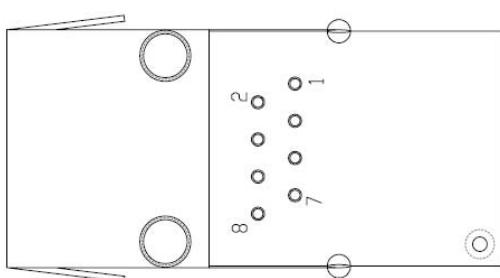
Pin	Function	Pin	Function
1	GND	5	Data In
2	VCC	6	Ready/RTS[a]
3	Reset	7	DIO[b]
4	Data Out	8	CTS[c]

a. Pin 6 can be configured as Ready/RTS (Request to Send), Ready/DO, or RS-485 Tx Enabled (default is Ready/RTS)
b. Pin 7 can be configured as DIO, Modem Control Out, RS-485 Tx Enable, or Reset to Default (default is DIO)
c. Pin 8 can be configured as CTS (Clear to Send), DI, or Modem Control In (default is CTS)

MiiNePort E1 Starter Kit

The MiiNePort E1 Starter Kit includes the MiiNePort E1 module, an evaluation board, power adaptor, software, and serial and Ethernet cables to allow quick and easy evaluation of all embedded device server functions. The evaluation board is equipped with serial, Ethernet, digital I/O, and power circuits to help you test your MiiNePort E1 modules and applications.

Null Modem Cable

Cross-over Ethernet Cable

Power Cord (US or Euro plug)

Document & Software CD

Power Adaptor (90 to 240 VAC, 12 VDC)

Evaluation Board
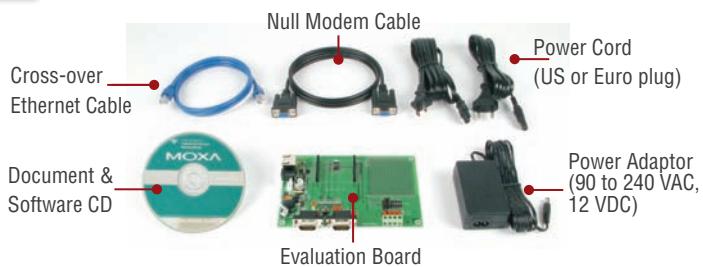
Specifications

Form Factor

Type: Drop-in module

Dimensions: 33.9 x 16.25 x 13.5 mm (13.35 x 6.4 x 5.31 in)

Weight: 9 g

System Information

CPU: 32-bit ARM 7 Core

RAM: 4 MB built in

Flash: 2 MB built in

Ethernet Interface

Number of Ports: 1

Speed: 10/100 Mbps, auto MDI/MDIX

Connector: RJ45 (with magnetics)

Magnetic Isolation Protection: 1.5 KV built-in

LEDs: 10BASE-T & 100BASE-TX Link Activity, Fault/In-Use

Serial Interface

Number of Ports: 1

Transmission Format: Standard TTL

Serial Communication Parameters

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF

Baudrate: 50 bps to 230.4 Kbps* (supports non-standard baudrates)

* Baudrates up to 921.6 Kbps available by request

Serial Signals

TTL: TxD, RxD, RTS, CTS, RST (reset circuit), GND

Digital I/O Pins

GPIO: 3 programmable I/O pins (1 DO, 1 DI, 1 DI/O)

Software

Network Protocols: ICMP, ARP, IP, TCP, UDP, DHCP, HTTP, SNMP V1/V2c, SMTP, TFTP, Auto IP, Telnet, BOOTP

Configuration Options: Web Console, Serial Console (Serial Command Mode), Telnet Console, Windows Utility

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

Fixed TTY Drivers: SCO Unix, SCO OpenServer, UnixWare 7, 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

Operation Modes: TCP Server, TCP Client, UDP, Real COM mode, Modem Mode, 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)

Operating Humidity: 5 to 95% RH

Storage Temperature: -40 to 85°C (-40 to 185°F)

Power Requirements

Input Voltage: 3.3 VDC (±5%)

Power Consumption: 160 mA @ 3.3 VDC max.

Regulatory Approvals

EMC:
• Radiated & conducted emissions: Complies with Class B limits of EN55022:1998
• Direct & Indirect ESD: Complies with EN55024:1998
• Electrical Fast Transient/Burst Immunity: Complies with EN55024:1998
• Power Frequency Magnetic Field Immunity: Complies with EN55024:1998

Shock: 500 g's for non-operational shock

Vibration: 20 g's for non-operational vibration

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

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Ordering Information

Available Modules

MiiNePort E1: Embedded device server for TTL devices, drop-in module, 10/100M with RJ45 connector, 0 to 55°C operating temperature

MiiNePort E1-T: Embedded device server for TTL devices, drop-in module, 10/100M with RJ45 connector, -40 to 85°C operating temperature

Available Starter Kits

MiiNePort E1-ST: Starter kit for the MiiNePort E1 Series, module included

MiiNePort E1-ST (w/o module): Starter kit for the MiiNePort E1 Series, module not included

Package Checklist (modules)

• MiiNePort E1 Series module

Package Checklist (starter kits)

• MiiNePort E1 module
• MiiNePort E1-ST evaluation board
• Universal power adaptor
• 2 power cords
• Null modem cable
• Cross-over Ethernet cable
• Document and Software CD
• Quick Installation Guide
• Warranty Card