

MiiNePort E1 Series

10/100 Mbps embedded drop-in module serial device servers



Features and Benefits

- Same size as an RJ45 connector—only 33.9 x 16.25 x 13.5 mm
- Extremely low power consumption
- Uses the MiiNe, Moxa's second-generation SoC
- NetEZ technology makes integration incredibly easy
- Variety of operation modes, including Real COM, RFC2217, TCP, and UDP

Certifications



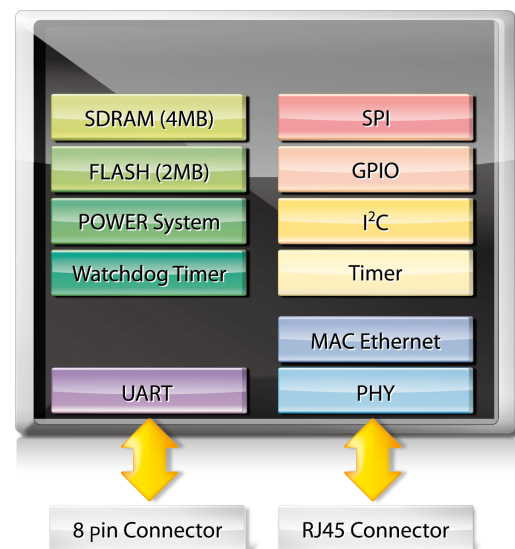
Introduction

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, serial baudrates up to 921.6 kbps, 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.

Moxa's Second-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
- 2 MB Flash and 4 MB SDRAM memory built in



NetEZ Technology

Moxa's NetEZ technology makes the MiiNePort E1 one of the most user-friendly embedded device servers by promising ease-of-use with minimal integration work required. Moxa's NetEZ technology gives serial device manufacturers a range of powerful tools for integrating Ethernet capability into serial devices. These tools include EXTrigger, MCSC (multi-channel serial communications), Serial Communication Mode (SCM), and AutoCFG. With EXTrigger, resetting and restarting the device can be done in an instant by simply pressing the EXTrigger button, making troubleshooting much easier. There is no need to open the device's casing or interrupt operations. MCSC provides dual connections and dual channels for multitask applications, which enable the device to be a server and client at the same time. The MiiNePort's user-friendly SCM allows users to configure the network through serial communications inside the serial device. This function provides another option for on-site troubleshooting without an Internet connection. AutoCFG enables auto-configuration with mass configuration software in order to place default settings on multiple modules simultaneously. This technology not only accelerates time-to-market but also prevents manual errors.

Specifications

Embedded System

CPU	32-bit Arm Core
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Memory

Flash	2 MB
SDRAM	4 MB

Input/Output Interface

Configurable DIO Channels (by software)	1
Digital Input Channels	1
Digital Output Channels	1

Ethernet Interface

10/100BaseT(X) Ports, Auto MDI/MDI-X	8-pin RJ45
Magnetic Isolation Protection	1.5 kV (built-in)

Ethernet Software Features

Configuration Options	Web Console (HTTP) Windows Utility Telnet Console Serial Console
Management	ARP BOOTP Device Search Utility (DSU) DHCP Client HTTP IPv4 SMTP SNMPv1 TCP/IP Telnet TFTP ICMP
Windows Real COM Drivers	Windows 11, 10, 8.1, 8, 7, Vista, XP, ME, 98 and 95 Windows Server 2022, 2019, 2016, 2012 R2, 2008 R2, 2008, 2003, 2000 and NT Windows Embedded CE 5.0 and 6.0, Windows XP Embedded
Linux Real TTY Drivers	Kernel versions: 6.x, 5.x, 4.x, 3.x, 2.6.x and 2.4.x
Fixed TTY Drivers	macOS versions: 14, 13, 12, 11 and 10.1x SCO UNIX, SCO OpenServer, UnixWare 7, QNX 4.25, QNX 6, Solaris 10, FreeBSD, AIX 5.x, HP-UX 11i, Mac OS X
Virtual Machine	VMWare ESXi (Windows 11 / 10) VMware Fusion (Windows on macOS 14, 13, 12, 11 and 10.1x) Parallels Desktop (Windows on macOS 14, 13, 12, 11 and 10.1x)
Arm®-based Platform Support	Windows 11 Linux Kernel 6.x, 5.x and 4.x macOS 14, 13, 12 and 11
Android API	Android 3.1.x and later
Serial Interface	
No. of Ports	1
Serial Standards	TTL

Operation Modes	MiiNePort E1 Series: Real COM mode, RFC2217 mode, TCP Client mode, TCP Server mode, UDP mode MiiNePort E1-SDK: Real COM mode, Ethernet Modem mode Real COM mode TCP Client TCP Server UDP mode RFC2217
Baudrate	MiiNePort E1 Series: 50 bps to 230.4 kbps MiiNePort E1-H/-SDK Series: 50 bps to 921.6 kbps
Data Bits	5, 6, 7, 8
Stop Bits	1, 1.5, 2
Parity	None Even Odd Space Mark
Flow Control	None RTS/CTS XON/XOFF

Serial Signals

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

NetEZ Functions	ExTrigger SCM (Serial Command Mode) AutoCFG MCSC (Multi-Channel Serial Communication)
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Serial Software Features

Serial to Ethernet Sample Source Code	MiiNePort E1-SDK (Integrated in MiiNePort-IDE): 1. TCP Server Echo 2. TCP Server to Serial (Single connection) 3. TCP Server to Serial (Multi-connection) 4. TCP Client Echo 5. TCP Client to Serial (Startup) 6. TCP Client to Serial (Any character) 7. TCP Client to Serial (Designed destination TCP/IP port from serial) 8. UDP Echo 9. UDP to Serial
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Power Parameters

Input Current	MiiNePort E1 Series: 160 mA @ 3.3 VDC max. MiiNePort E1-H/-SDK Series: 195 mA @ 3.3 VDC max.
Input Voltage	3.3 VDC

Physical Characteristics

Dimensions	MiiNePort E1-ST/-SDK Series: 140 x 100 mm (5.51 x 3.94 in) 140 x 100 mm (5.51 x 3.94 in) MiiNePort E1/E1-H/E1-SDK Series: 33.9 x 16.25 x 13.5 mm (1.33 x 0.64 x 0.53 in)
Weight	MiiNePort E1/E1-H/E1-SDK Series: 9 g (0.02 lb)
Form Factor Type	Drop-in modules

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) 0 to 55°C (32 to 131°F)
Storage Temperature (package included)	-40 to 60°C (-40 to 140°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

EMC	EN 55032/35
EMI	CISPR 32, FCC Part 15B Class B
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 0.5 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF IEC 61000-4-11
Environmental Testing	IEC 60068-2-1 IEC 60068-2-3
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6

Declaration

Green Product	RoHS, CRoHS, WEEE
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MTBF

Time	5,515,294 hrs
Standards	Telcordia Standard SR-332

Warranty

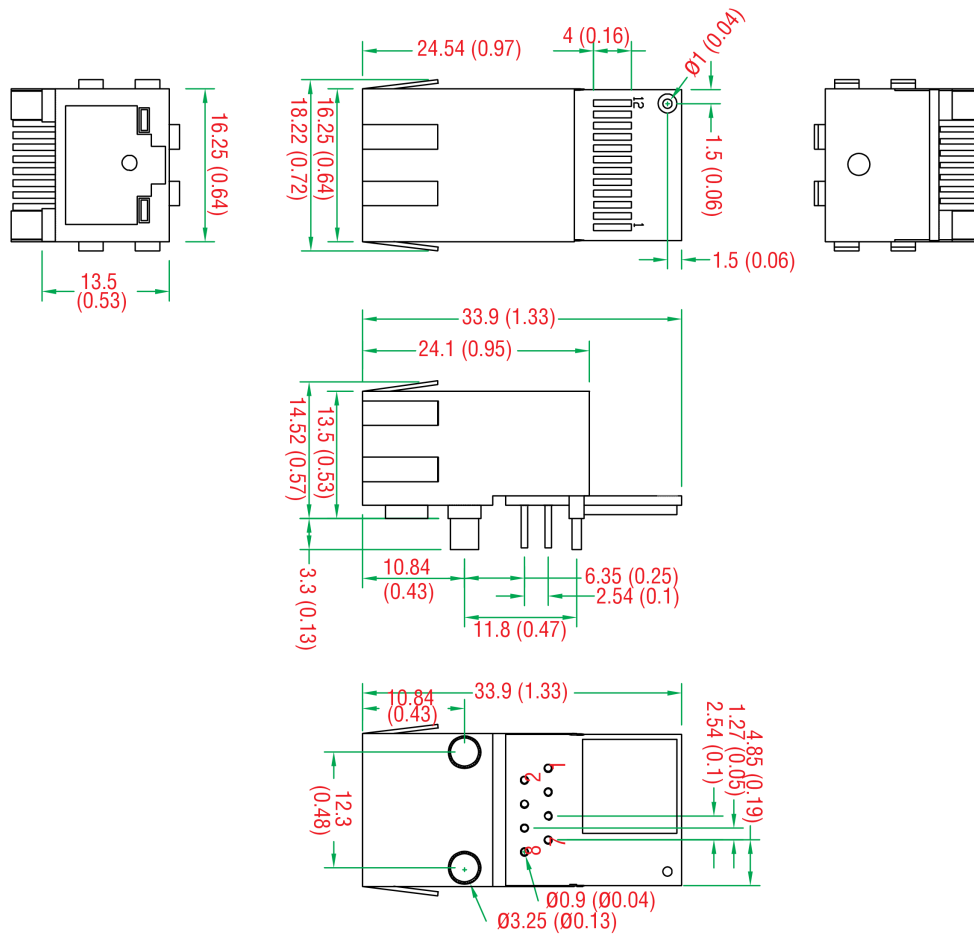
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x MiiNePort E1 Series device server
Cable	1 x Ethernet, crossover cable 1 x Ethernet, crossover 1 x null modem serial cable 1 x Null modem serial 1 x USB cable
Power Supply	1 x power adapter, universal 1 x power adapter, universal 1 x power cord, EU type 1 x power cord, EU type 1 x power cord, US type 1 x power cord, US type
Documentation	1 x quick installation guide 1 x quick installation guide 1 x warranty card 1 x warranty card

Dimensions

Unit: mm (inch)



Ordering Information

Model Name	No. of Serial Ports	Supported Baudrates	Operating Temp.	With Evaluation Board	With Software Development Kit
MiiNePort E1	1	50 bps to 230.4 kbps	0 to 55°C	–	–
MiiNePort E1-H	1	50 bps to 921.6 kbps	0 to 55°C	–	–
MiiNePort E1-T	1	50 bps to 230.4 kbps	–40 to 85°C	–	–
MiiNePort E1-H-T	1	50 bps to 921.6 kbps	–40 to 85°C	–	–
MiiNePort E1-ST	1	50 bps to 921.6 kbps	0 to 55°C	✓	–
MiiNePort E1-ST (w/o Module)	1	50 bps to 921.6 kbps	0 to 55°C	✓	–
MiiNePort E1-SDK	1	50 bps to 921.6 kbps	0 to 55°C	✓	✓

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