

# 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
- Uses the MiiNe, Moxa's second generation SoC
- NetEZ technology makes integration incredibly easy
- Versatile choice of operation modes: RealCOM, RFC2217, TCP, and UDP



## Overview

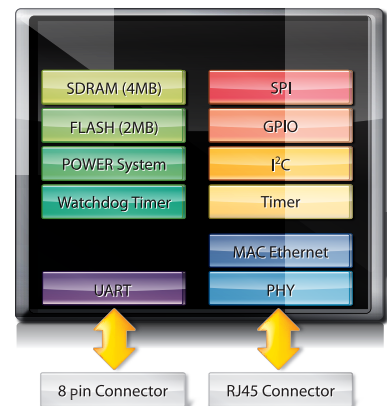
Moxa's MiiNePort E1 embedded device servers are designed for manufacturers who want to add sophisticated network connectivity to their serial devices with minimal integration effort. The MiiNePort E1 is empowered by the MiiNe, Moxa's second generation SoC, which supports 10/100 Mbps Ethernet, up to 921.6 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

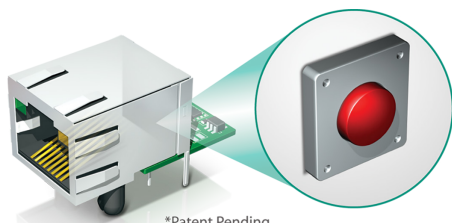


## The MiiNe—Moxa's 2nd Generation SoC



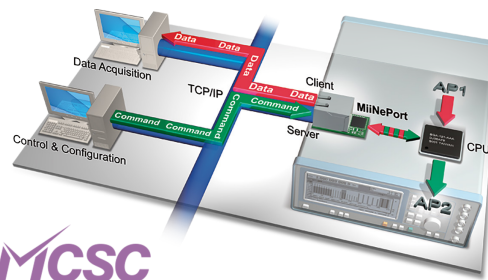
Moxa's NetEZ technology makes the MiiNePort E1 the world's most user-friendly embedded device server by promising ease-of-use with minimal integration work required. Moxa's NetEZ technology gives serial device manufacturers a range of powerful tools for integrating Ethernet capability into serial devices:

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



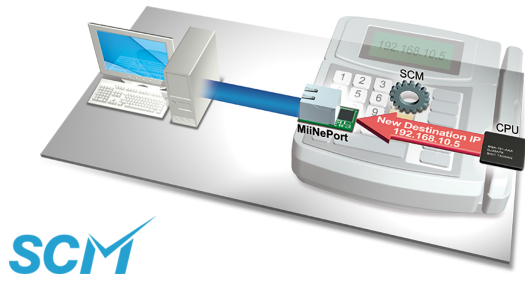
**EXTrigger**

- **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!.



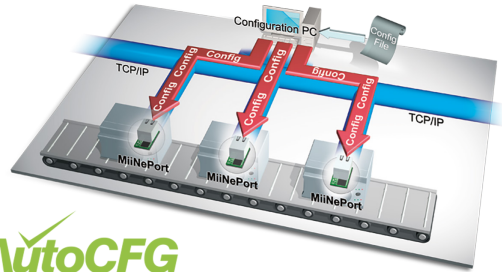
**MCSC**

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



**SCM**

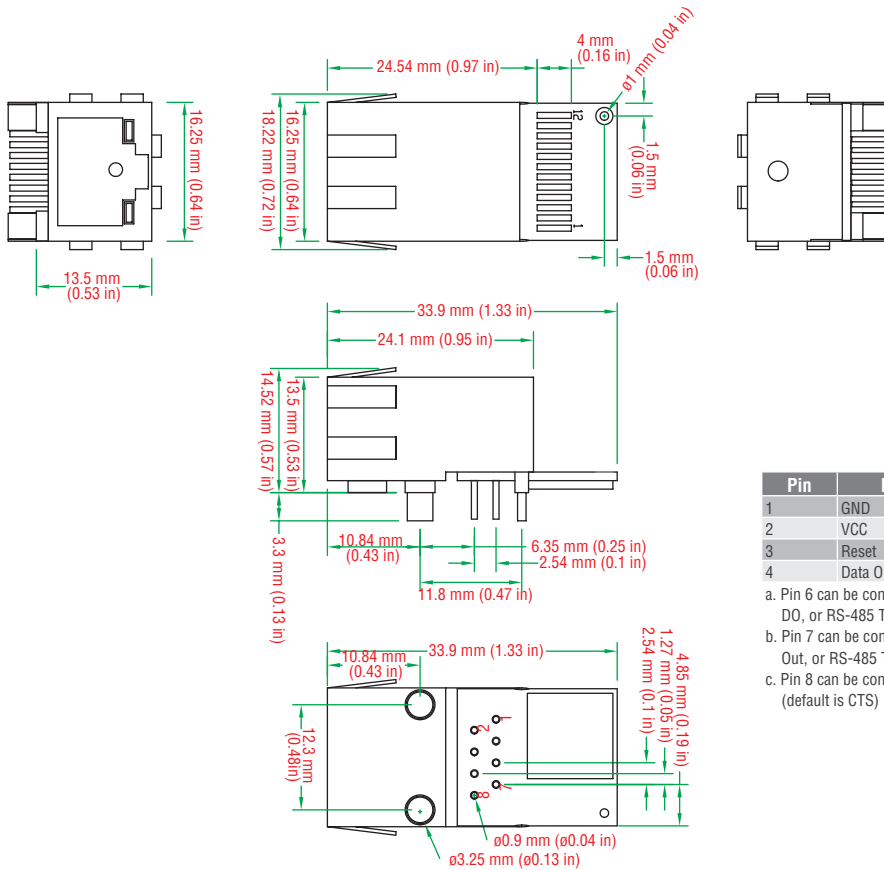
- **AutoCFG:** Tired of spending a large amount of time setting up the device's initial network configuration? Not anymore! The MiiNePort's AutoCFG makes auto-configuration during manufacturing possible.



**AutoCFG**

### Dimensions and Pin Assignment

Unit: mm (inch)



Pin	Function	Pin	Function
1	GND	5	Data In
2	VCC	6	Ready/RTSa
3	Reset	7	Reset to default <sup>b</sup>
4	Data Out	8	CTSc

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 Reset to Default, DIO, Modem Control Out, or RS-485 Tx Enable (default is Reset to Default)

c. Pin 8 can be configured as CTS (Clear to Send), DI, or DSR (default is CTS)

## Specifications

### Form Factor

**Type:** Drop-in module  
**Dimensions:** 33.9 x 16.25 x 13.5 mm (1.33 x 0.64 x 0.53 in)  
**Weight:** 9 g

### System Information

**CPU:** 32-bit ARM 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, DTR/DSR, XON/XOFF  
**Baudrate:**  
 MiiNePort E1: 50 bps to 230.4 Kbps  
 MiiNePort E1-H: 50 bps to 921.6 Kbps

### Serial Signals

**TTL:** Tx/D, Rx/D, RTS, CTS, RST (reset circuit), GND

### Digital I/O Pins

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

### Software

**Network Protocols:** ICMP, ARP, IP, TCP, UDP, DHCP, HTTP, SNMP V1, 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, Windows (2012 x64, XP/2003/Vista/2008/7/8 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, 3.0.x, 4.x  
**Android API:** Android 3.1.x and later  
**Operation Modes:** TCP Server, TCP Client, TCP Mixed, UDP, RealCOM, RFC 2217, MCSC

### 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 (package included):** -40 to 60°C (-40 to 140°F)  
**Ambient Relative Humidity:** 5 to 95% (non-condensing)  
**Altitude:** Up to 2000 m  
*Note: Please contact Moxa if you require products guaranteed to function properly at higher altitudes.*

### Power Requirements

**Input Voltage:** 3.3 VDC (±5%)  
**Power Consumption:**  
 • MiiNePort E1: 160 mA @ 3.3 VDC max.  
 • MiiNePort E1-H: 195 mA @ 3.3 VDC max.

### Standards and Certifications

**EMC:** EN 55032/24  
**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  
**Vibration:** IEC 60068-2-6, 5-25.7 Hz: ±15 mm; 25.7-500 Hz: 20g; 3 hours/axis  
**Shock:** IEC 60068-2-27, 500g/2ms  
**Drop:** IEC 60068-2-34, IEC 60068-2-32, ISTA-2A  
*Note: Standards testing is done with the MiiNePort E1-ST or MiiNePort E1-H-ST starter kits.*

### Reliability

**Automatic Reboot Trigger:** Built-in WDT (watchdog timer)  
**MTBF (mean time between failures):** 5,515,294 hrs

### Warranty

**Warranty Period:** 5 years  
**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

## Ordering Information

### Available Modules

**MiiNePort E1:** Embedded device server for TTL devices, drop-in module, 10/100M with RJ45 connector, 50 bps to 230.4K baudrate, 0 to 55°C operating temperature  
**MiiNePort E1-H:** Embedded device server for TTL devices, drop-in module, 10/100M with RJ45 connector, 50 bps to 921.6K baudrate, 0 to 55°C operating temperature  
**MiiNePort E1-T:** Embedded device server for TTL devices, drop-in module, 10/100M with RJ45 connector, 50 bps to 230.4K baudrate, -40°C to 85°C operating temperature  
**MiiNePort E1-H-T:** Embedded device server for TTL devices, drop-in module, 10/100M with RJ45 connector, 50 bps to 921.6K baudrate, -40°C to 85°C operating temperature

### Available Starter Kits

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

### Package Checklist (modules)

- MiiNePort E1 Series module

### Package Checklist (starter kits)

- MiiNePort E1 module (MiiNePort E1 or E1-H)
- MiiNePort E1 evaluation board
- Universal power adaptor
- 2 power cords
- Null modem cable
- Cross-over Ethernet cable
- Documentation and software CD
- Quick installation guide
- Warranty card