

Eport Pro-EP20

Super Port User Manual

V 1.0



Overview of Characteristic

- ✧ MIPS MCU with **16MB Flash** and **32MB SRAM**
- ✧ Use **Linux** Operation System
- ✧ Support TCP/IP/Telnet/**Modbus** TCP Protocol
- ✧ Support **Serial To 10/100M Ethernet** Conversion, Serial Speed Upto 460800 bps
- ✧ Support 10/100M Ethernet **Auto-Negotiation**
- ✧ Support Easy Configuration Through a **Web** Interface
- ✧ Support Security Protocol Such As **SSL/AES/DES3**
- ✧ Support Web OTA **Wireless Upgrade**
- ✧ **Single +3.3V** Power Supply
- ✧ **Size: 50 x 23 x 11 mm (L x W x H)**
- ✧ **FCC/CE/RoHS** Certificated

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HISTORY

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1. PRODUCT OVERVIEW

1.1. General Description

The Eport Pro-EP20 is a fully self-contained small form-factor, most compact, integrated solution, which provide a serial interface to Ethernet connectivity to web enable any device. The Eport Pro-EP20 integrate TCP/IP controller, memory, 10/100M Ethernet transceiver, high-speed serial port within a compact RJ45 package and integrates a fully developed TCP/IP network stack and Linux OS. The Eport Pro-EP20 also includes an embedded web server used to remotely configure, monitor, or troubleshoot the attached device.

The Eport Pro-EP20 using highly integrated hardware and software platform, It has been optimized for all kinds of applications in the industrial control, smart grid, personal medical application and remote control that have lower data rates, and transmit or receive data on an infrequent basis. By simply adding an Eport Pro-EP20 unit to a product Design, device manufacturers can reduce their Design cycle and speed up Time-To-Market with very low risk.

The Eport Pro-EP20 integrates all serial to Ethernet functionality into a low-profile, 50 x 23 x 11mm standard RJ45 module package that can be easily mounted on main PCB with application specific circuits and even not change your original Design.

1.2. Device Features

- MIPS MCU with 8MB Flash and 32MB SRAM
- Full Integrated RJ45 Solution
- Support Linux Operation System
- Support TCP/IP、UDP、DHCP、DNS、HTTP Server/Client、ARP、BOOTP、AutoIP、ICMP、Telnet、FTP、TFTP、uPNP、NTP、ModbusTCP Protocol
- Support Serial to 10/100M Ethernet Conversion, Serial Speed Upto 460800 bps
- Support 10/100M Ethernet Auto-Negotiation
- Support Easy Configuration Through a Web Interface
- Support Security Protocol Such As SSL/AES/DES3
- Support Web Wireless Upgrade
- Single +3.3V Power Supply
- Size: 50 x 23 x 11mm (L x W x H)
- FCC/CE/RoHS Certificated

1.3. Device Parameters

Table1. Eport Pro-EP20 Module Technical Specifications

Item	Parameters
System Information	
Processor/Frequency	MIPS/320MHz
Flash/SDRAM	16MB/32MB
Operating System	Linux
Ethernet Port	
Port Number	1 RJ45 with LED
Interface Standard	10/100 Base-T Auto-Negotiation
Protection	2KV Isolation
Transformer	Integrated
Network Protocol	IP, TCP, UDP, DHCP, DNS, HTTP Server/Client, ARP, BOOTP, AutoIP, ICMP, Web socket, Telnet, FTP,TFTP, uPNP, NTP, SNMP,Modbus TCP
Security Protocol	SSL v3 (2048) 、 AES 128Bit、3DES、 SHA-1、MD5、Base-64、RSA、ECC
IPV6 Support	Support
Serial Port	
Port Number	1 + 1 debug
Interface Standard	3.3V TTL: 2 wire (TX,RX)
Data Bits	5,6,7,8
Stop Bit	1,2
Check Bit	None,Even,Odd,Space,Mark
Baud Rate	TTL: 600 bps~460800 bps
Flow Control	No Flow control Hardware RTS/CTS、DSR/DTR Software Xon/ Xoff flow control
Software	
Web Pages	Http Web Configuration Customization of HTTP Web Pages
Log	Remote Realtime Log,
Configuration	Web CLI XML import Telnet IOTManager PC Software
Firmware Upgrade	Web
SDK For Dev.	提供
Basic Parameter	
Size	50 x 23 x 11 mm
Operating Temp.	-45 ~ 70°C
Storage Temp.	-45 ~ 105°C, 5 ~ 95% RH (no condensation)
Input Voltage	3.3V
Working Current	~200mA

Power	<700mW
Other Information	
Certificate	CE, FCC, RoHS
Material	Metal shell, thermoplastic case

1.4. Key Application

The Eport Pro-EP20 device connects serial device to Ethernet networks using the TCP/IP protocol:

- Remote equipment monitoring
- Asset tracking and telemetry
- Security Application
- Industrial sensors and controls
- Medical devices
- ATM machines
- Data collection devices
- Universal Power Supply (UPS) management units
- Telecommunications equipment
- Data display devices
- Handheld instruments
- Modems
- Time/attendance clocks and terminals

2. HARDWARE INTRODUCTION

The Eport Pro-EP20 unit is a complete solution for serial port device connecting to network. Packageed into a RJ45 connector, this powerful device supports a 10/100BASE-T Ethernet connection, a reliable and proven operating system stored in flash memory, an embedded web server, a full TCP/IP protocol stack, and standards-based (AES) encryption.

Through Ethernet cable connect router with Eport –E10 serial server for data transfer, which makes the electromechanical integration very simple. Eport Pro-EP20 meet EMC Class B security level, It can pass every countries relevant certification test

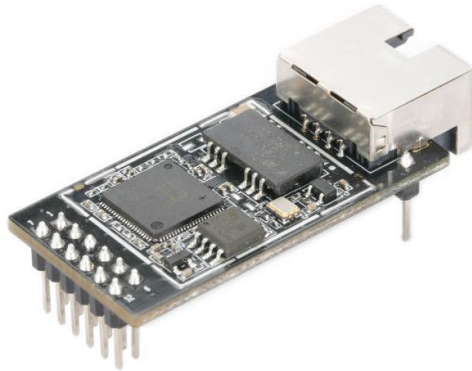


Figure 1. Eport Pro-EP20 Appearance

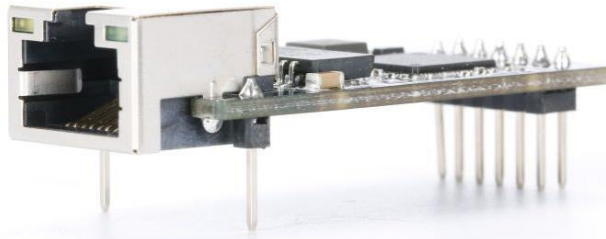


Figure 2. Eport Pro-EP20 Side Appearance

2.1. Pins Definition



Figure 3. Eport Pro-EP20 Pins Map

Table2. Eport Pro-EP20 Pins Definition

Pin	DES3cription	Net Name	Signal Type	Comments
1	GPIO	GPIO1	I/O	Can be configured to UART1:TXD2
2	GPIO	GPIO2	I/O	Can be configured to UART1:RXD2
3	UART0	CTS	O	Can be configured to GPIO
4	UART0	RTS	I	Can be configured to GPIO
5	External Reset In	nRST	I, PU	“Low” effective reset input.
6	Multi-Function Pin	nReload	I,PU	Detailed functions see <Notes>
7	LED indicator	LED2_Data	O	Detailed functions see <Notes>
8	UART0	RXD	I	3.3V, TTL.
9	UART0	TXD	O	3.3V, TTL.
10	Ground	GND	GND	Power Ground
11	+3.3V Power	DVDD	Power	+3.3V
12	LED indicator	LED1_Link	O	Detailed functions see <Notes>

<Notes>

nReload Pin function:

1. Put this pin low before the device powered on (or Reset), This device works in mass production mode to upgrade its firmware, this mode is used for upgrade customized firmware. The corresponding PC tools can be download on High Flying website.
2. After device is powered up, If put this pin to low more than 3 seconds and then put to High, It will restore the product parameters to factory setting.

We strongly suggest user to fan out this pin.

LED2_Data Pin

1. When there are data transmitting and receiving, This LED will flashing. If there is no data transmit and receive, It will output High.

LED1_Link Pin

1. When Ethernet connected normal, It will output Low, If there is no Ethernet connection, It will output High.

2.2. Electrical Characteristics

Table3. Absolute Maximum Ratings:

Parameter	Condition	Min.	Typ.	Max.	Unit
Storage Temperature Range		-45		125	°C
Maximum Soldering Temperature	IPC/JEDEC J-STD-020			260	°C
Supply Voltage		0		3.8	V
Voltage on any I/O pin		0		3.3	V
ESD (Human Body Model HBM)	TAMB=25°C			2	KV
ESD (Charged Device Model, CDM)	TAMB=25°C			1	KV

Table4. Power Supply & Power Consumption:

Parameter	Condition	Min.	Typ.	Max.	Unit
Operating Supply Voltage		3.1	3.3	3.6	V
Operating Temperature Range		-45		70	°C
Supply Current (10BASE-T activity)@ 96MHz	Without data transmit and receive		150		mA
Supply Current (100BASE-T activity)@ 96MHz	5KB/S data		200		mA
Input Leakage Current	Ii	-10		10	uA
Output high voltage	@IOH=2mA	2.8			V
Output Low Voltage	@IOL=2mA			0.3	V
Input High Voltage		1.6		3.6	V
Input Low Voltage		-0.3		1.4	V
GPIO Input pull-up resistor			200		kΩ
GPIO Input pull-down resistor			200		kΩ

2.3. Ethernet Interface

The 10/100 Ethernet magnetics, network status LEDs, and RJ45 connector are all integrated into the Eport Pro-EP20 unit.

Table5. Ethernet Interface Definition

Pin	DEScription	Net Name	Signal Type
1	Transmit Data +	TX+	O
2	Transmit Data -	TX-	O
3	Receive Data +	RX+	I
4	NC		
5	NC		
6	Receive Data -	RX-	I
7	NC		
8	NC		
9	Case Ground	SHIELD	

2.4. Ethernet LED Interface

The device contains two bi-color Ethernet LED indicator (Detailed position is in dimension drawing .)

Table6. LED Interface Definition

Link LED (Left Side)		Activity LED (Right Side)	
Color	Meaning	Color	Meaning
Off	No Connection	Off	No Data
Yellow	10/100Mbps	Green	Have Data

2.5. Mechanical Size

The dimensions of Eport Pro-EP20 are defined as following picture (mm):

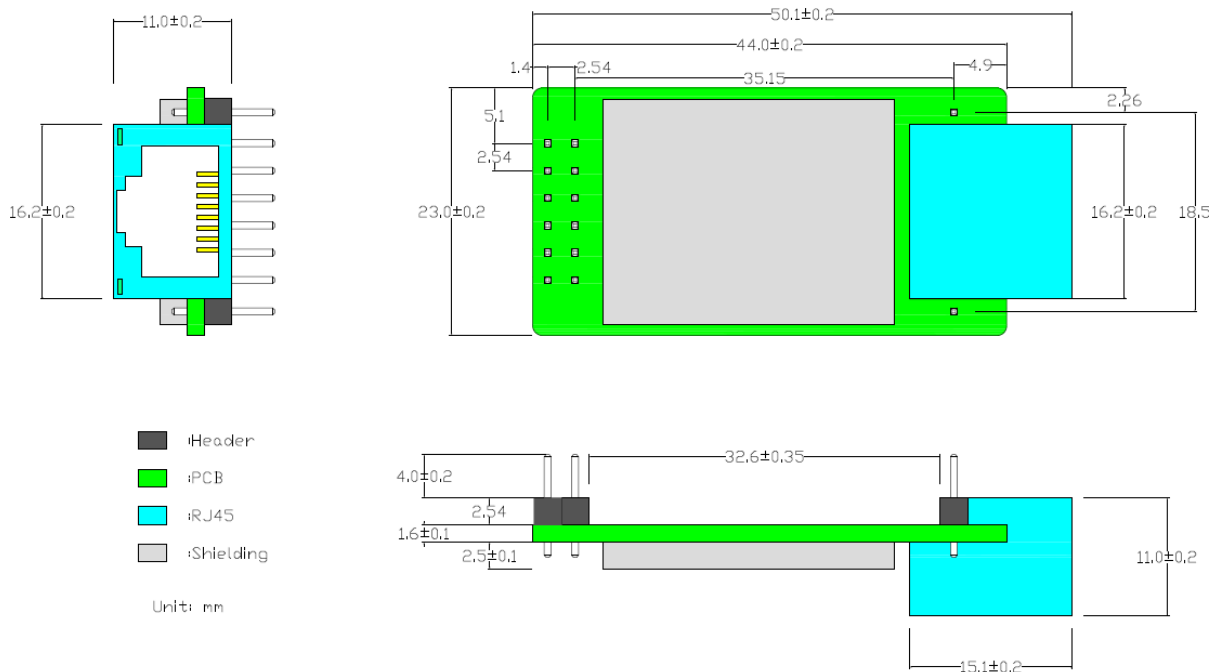


Figure 4. Eport Pro-EP20 Mechanical Dimension

2.6. Order Information

Base on customer detailed requirement, Eport Pro-EP20 provide different configuration version, Details as below:

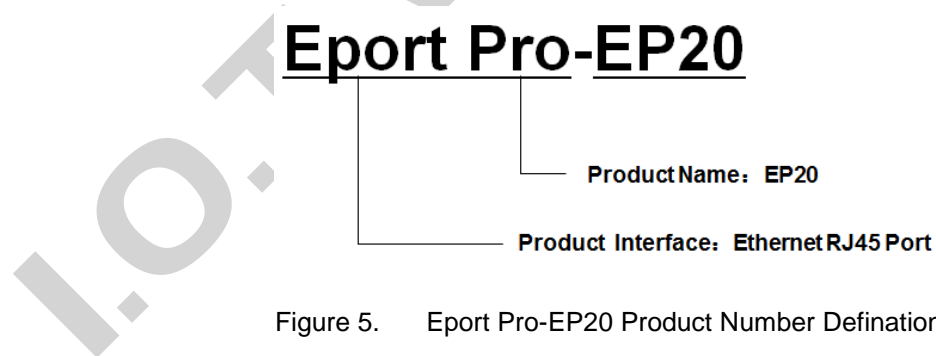


Figure 5. Eport Pro-EP20 Product Number Definition

2.7. Typical Application

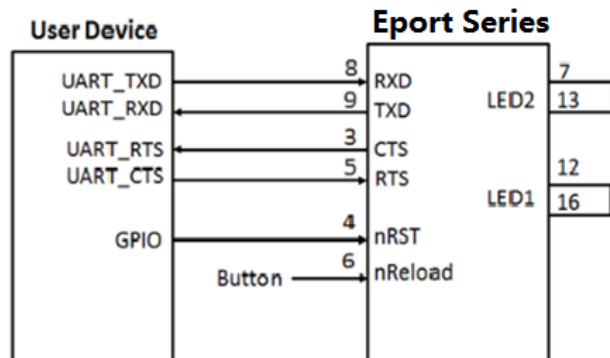


Figure 6. Eport Pro-EP20 Hardware Typical Application

Notes:

nRST- Input. Hardware reset signal. Effective Low.

There is internal pull-up resistor to 3.3V and no external pull-up resistor needed. MCU put nRST signal to low for at least 10ms if need to reset the device.

nReload- Input. Device restore to factory default configuration. Effective Low; (**Recommend this pin to connect button or jumper header, Used for batch upgrade and configuration**)

Can connect with external button or chip pin, When press nReload button, pull the pin to Low level more than 3s, then loose, device will restore to factory default setting and restart itself. If nReload function is not required, Can leave this pin open, Don't need any connection.

TXD/RXD- UART port data transmit and receive signal.

2.8. Function Description

Refer to "Eport Series Function and Cli Command" for detailed function usage.

3. PACKAGE INFORMATION(TBD)

3.1. Recommended Soldering

Wave soldering, temperate less than 180°C.

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APPENDIX A: CONTACT INFORMATION

Address: Room 1002,Building 1,No.3000,Longdong Avenue,Pudong New Area,Shanghai,China,201203

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