

Elfin-EE21

RS485 to Ethernet

User Manual

V 1.0



Overview of Characteristic

- ✧ Use MIPS MCU (32MB SRAM) and 16MB Flash, based on Linux OS
- ✧ Support TCP/IP/Telnet /Modbus TCP Protocol
- ✧ Support RS485 To 10/100M Ethernet Conversion, Serial Speed Up to 460800 bps
- ✧ Support 10/100M Ethernet Auto-Negotiation
- ✧ Support Webpage Easy Configuration or PC IOTService Tool
- ✧ Support Security Protocol Such As TLS/AES/DES3
- ✧ Support Heartbeat and Resister Packet Function
- ✧ Support Webpage OTA Wireless Upgrade
- ✧ Wide DC Input 5~18VDC
- ✧ Size: 61 x 26 x 17.8 mm (L x W x H)

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HISTORY

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1. PRODUCT OVERVIEW

1.1. General Description

The Elfin-EE21 provides a RS485 interface to Ethernet connectivity to web enable any device. The Elfin-EE21 integrate TCP/IP controller, memory, 10/100M Ethernet transceiver, high-speed serial port and integrates a fully developed TCP/IP network stack and Linux OS. Elfin-EE21 also includes an embedded web server used to remotely configure, monitor, or troubleshoot the attached device.

The Elfin-EE21 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.

The Elfin-EE21 integrates all serial to Ethernet functionality with 61 x 26 x 17.8mm size.

1.2. Device Parameters

Table1. Elfin-EE21 Technical Specifications

Item	Parameters
System Information	
Processor/Frequency	320MHz
Flash/SDRAM	16MB/32MB
Operating System	OpenWRT Linux
Ethernet Port	
Port Number	1
Interface Standard	10/100 Base-T Auto-Negotiation
Transformer	Integrated
Network Protocol	IP, TCP, UDP, DHCP, DNS, HTTP Server/Client, ARP, AutoIP, ICMP, Telnet, NTP, Modbus TCP
Security Protocol	TLS 1.2 AES 128Bit DES3
Serial Port	
Port Number	EE21: RS485
Data Bits	8
Stop Bit	1,2
Check Bit	None, Even, Odd
Baud Rate	TTL: 600 bps~460800 bps
Flow Control	No Flow Control Software Xon/ Xoff flow control
Software	
Web Pages	Http Web Configuration Customization of HTTP Web Pages

Configuration	Web CLI XML import Telnet IOTService PC Software UART Fast Config
Firmware Upgrade	Webpage, IOTService Tools
Basic Parameter	
Size	61 x 26 x 17.8 mm
Operating Temp.	-25 ~ 70°C
Storage Temp.	-45 ~ 105°C, 5 ~ 95% RH (no condensation)
Input Voltage	5~18VDC
Working Current	~100mA
Power	<400mW

1.3. Key Application

The Elfin-EE21 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 Elfin-EE21 unit is a complete solution for serial port device connecting to network. 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.



Figure 1. Elfin-EE21 Appearance

2.1. Elfin-EE21 Pins Definition

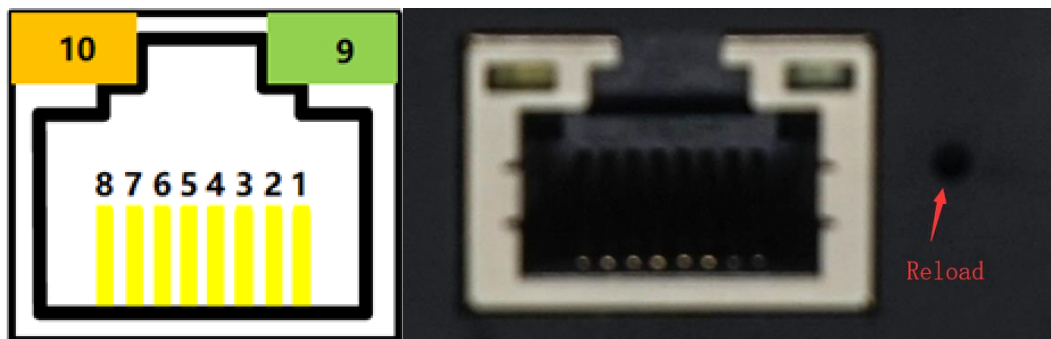


Figure 2. Elfin-EE21 RJ45 Interface Pin

Table2. Elfin-EE21 Interface Definition

Pin	Description	Net Name	Signal Type	Notes
1	Ethernet TX+	TX+	O	Connect to Standard Ethernet RJ45 PIN1
2	Ethernet TX-	TX-	O	Connect to Standard Ethernet RJ45 PIN2
3	Ethernet RX+	RX+	I	Connect to Standard Ethernet RJ45 PIN3
4	Ethernet RX-	RX-	I	Connect to Standard Ethernet RJ45 PIN6
5	RS485_A+	RS485_A+	IO	
6	RS485_B-	RS485_B-	IO	
7	Power VCC	VCC	Power	9~18VDC@1A
8	Power GND	GND	Power	

Pin	Description	Net Name	Signal Type	Notes
9	Green LED Net Status	Net	O	On: Bootup OK. 0.3s Off -> 3s On: Ethernet connection is OK. 0.3s Off -> 0.3s On: No Ethernet connection.
10	Amber LED Data Transfer	Active	O	Off: No data transfer 0.3s Off -> 0.9s On: UART TX Output 0.3s Off -> 0.3s On: UART RX Receive On: UART bidirection.
	Restore to Factory	nReload	I	Default high. Long press this button ("Low">3s) and loose to make the module restore to factory setting.

<Notes>

I — Input; O — Output; I/O: Digital I/O; Power—Power Supply

2.2. RS485 Interface

RS485 use two wire links, A(DATA+), B(DATA-). Connect A(+) to A(+), B(-) to B(-) for communication. Suggest to connect GND together when interference is very severe.

The RS485 interface support maximum 32 RS485 device. The cable maximum length is 1200 meters. Need to add 120Ohm terminal resistor for over 300 meters.

2.3. Mechanical Size

The dimensions of Elfin-EE21 are defined as following picture (mm):

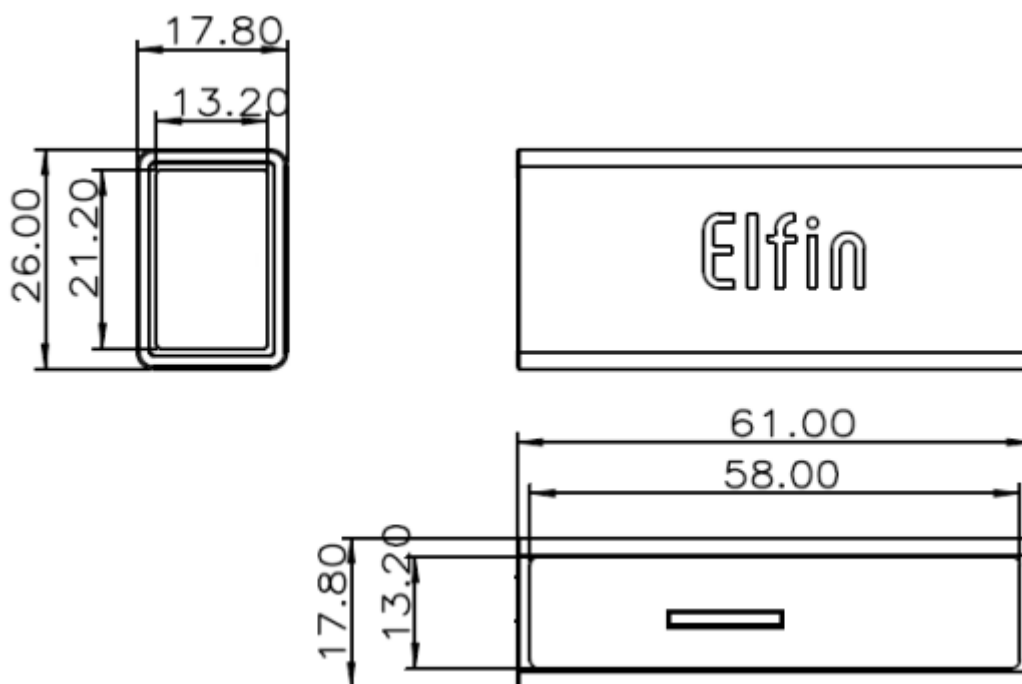


Figure 3. Elfin-EE21 Mechanical Dimension

2.4. RJ45 8PIN Connector

RJ45 8PIN Connector Type Order: 10810001001



Figure 4. RJ45 8PIN Connector



Figure 5. EE21+8PIN Connector

2.5. EE21 Interface Conversion Cable



Figure 6. Interface Conversion Cable

2.6. Fixed Bracket

Bracket Type Order: 10810003001



Figure 7. Fixed Bracket

2.7. Rail Bracket

Bracket Type Order: 10703000003



Figure 8. Rail Bracket

2.8. Bracket

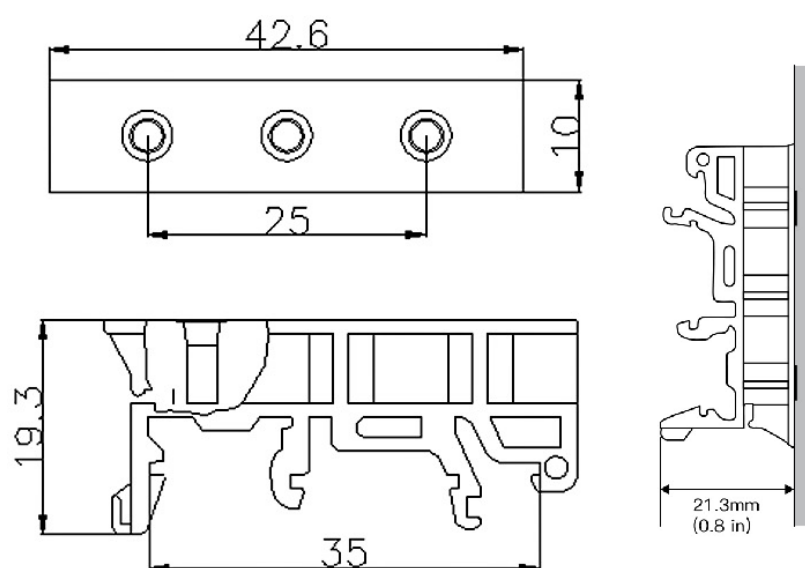


Figure 9. Bracket Size

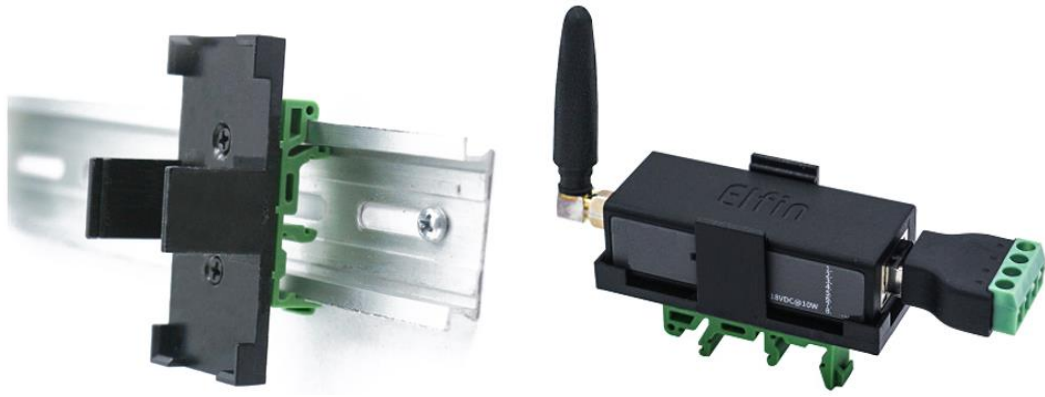


Figure 10. Bracket Install Picture

2.9. Product Installation

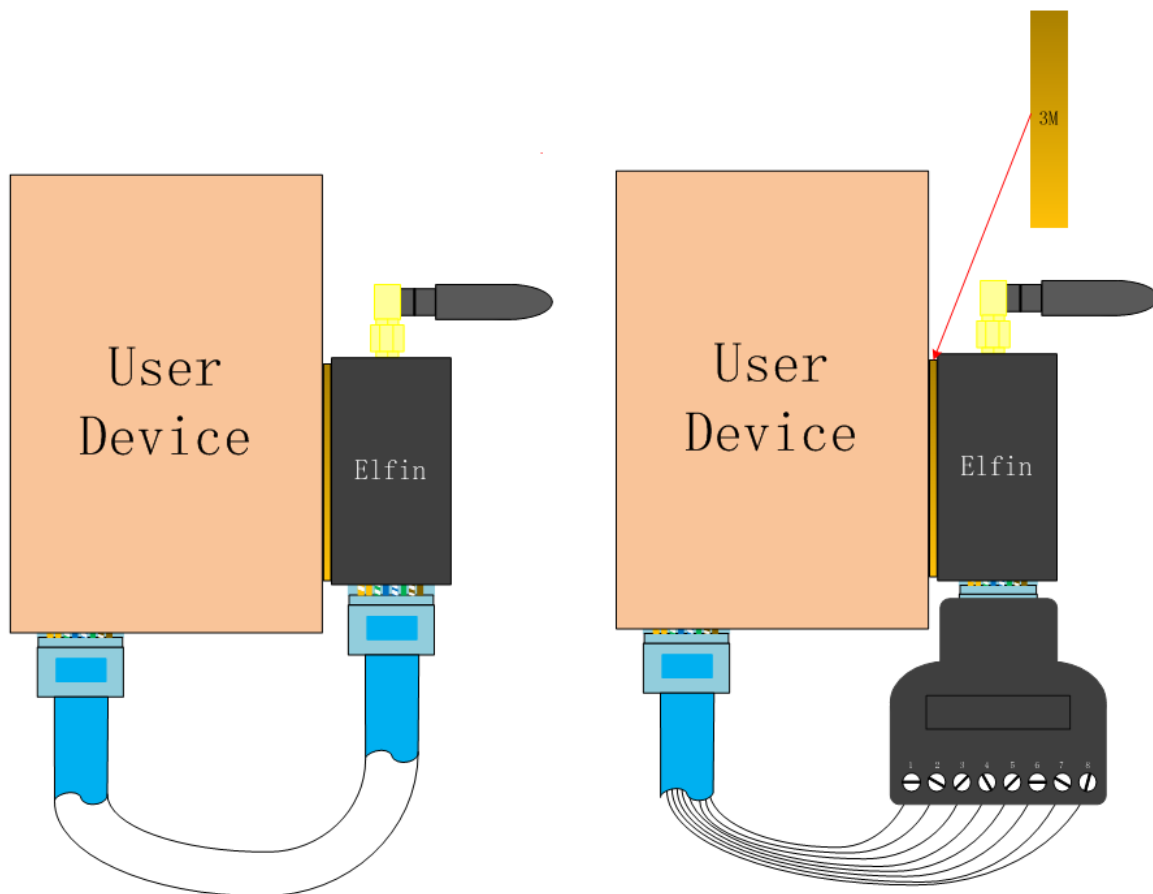


Figure 11. Product Installation

2.10. EVK

EVK include one Elfin device, one RJ45 Connector and one screw driver.



Figure 12. EVK Package

2.11. Order Information

Base on customer detailed requirement, Elfin-EE21 provide different configuration version, Details as below:

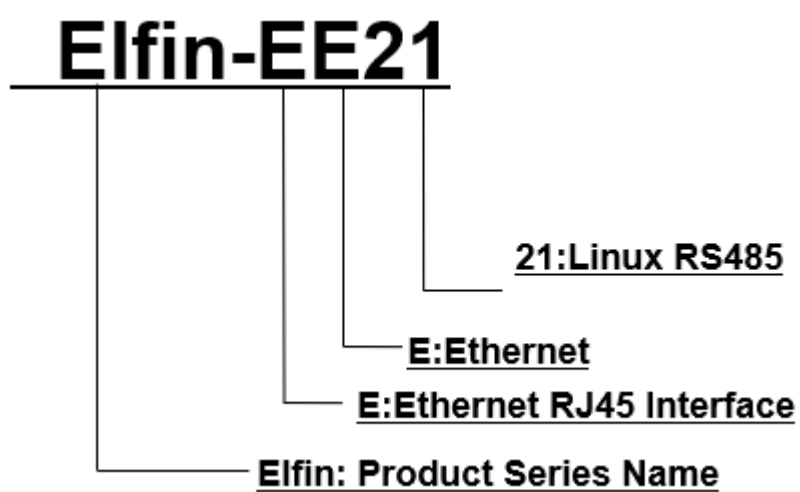


Figure 13. Elfin-EE21 Product Order Information

APPENDIX A: CONTACT INFORMATION

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