

# Elfin-EG1X

## RS232/RS485 to GPRS

### User Manual

V 1.2



## Overview of Characteristic

- ◇ Support Four Frequency Bands, Global Standard (850/900/1800/1900M Hz)
- ◇ Support GSM/GPRS and CMCC or CUCC SIM Card
- ◇ Support RS232/RS485 to GPRS Data Transmission, Serial Port Speed Up to 460800bps
- ◇ Supports Max 3 Channel TCP/UDP connections, Each Connection Supports 1400 Bytes of Data Cache, and the Network Channel Can be Bound to the Serial Port.
- ◇ Support Multiple Working Modes: Network Transparent Transmission Mode, HTTP Mode
- ◇ Support IOTService Tool, Remotely and Dynamically Modify Module Parameters
- ◇ Support SMS AT Command Configuration
- ◇ Supports Registration Packet , Heartbeat Packet Function, and the Registration Package Supports ICCID, IMEI, IMSI, Software Version number, GPRS Connection Status and other Combinations.
- ◇ Support NTP
- ◇ Support Modbus TCP to Modbus RTU

- ◇ Support IOTBridge for Remote Control and Config.
- ◇ Support IOTBridge working time, for example only works from 10:00 to 10:30 to save the data flow charge.
- ◇ Support Serial Port, Network OTA Upgrade Firmware.
- ◇ Size: 61 x 26 x 17.8mm
- ◇ 9~18VDC Wide Power Supply

## TABLE OF CONTENTS

TABLE OF CONTENTS.....	3
LIST OF FIGURES.....	4
LIST OF TABLES .....	4
1. PRODUCT OVERVIEW .....	5
1.1. General Description.....	5
1.2. Device Parameters.....	5
1.3. Key Applications.....	6
2. HARDWARE INTRODUCTION .....	8
2.1. APPEARANCE .....	8
2.2. Elfin-EG10 Pin Definition.....	9
2.3. Elfin-EG11 Pin Definition.....	10
2.4. RS232 Interface .....	10
2.5. RS485 Interface .....	11
2.6. Mechanical Size .....	11
2.7. RJ45 8PIN Connector .....	11
2.8. RJ45 4PIN Connector .....	12
2.9. EG10 Interface Conversion Cable .....	14
2.10. EG11 Interface Conversion Cable .....	15
2.11. Fixed Bracket .....	15
2.12. Rail Bracket .....	16
2.13. Bracket .....	16
2.14. RJ45 Transform Connector.....	18
2.15. Product Installation .....	18
2.16. EVK.....	19
2.17. Product Order Information.....	19
APPENDIX A: CONTACT INFORMATION.....	21

## LIST OF FIGURES

Figure 1.	Elfin-EG11 Appearance .....	8
Figure 2.	Elfin-EG10 Appearance .....	8
Figure 3.	Elfin-EG10 RJ45 Interface Pin .....	9
Figure 4.	Elfin-EG11 RJ45 Interface Pin .....	10
Figure 5.	Elfin-EG1X Mechanical Size .....	11
Figure 6.	RJ45 8PIN Connector .....	12
Figure 7.	EG10+8PIN Connector .....	12
Figure 8.	EG11+8PIN Connector .....	12
Figure 9.	RJ45 4PIN Connector .....	13
Figure 10.	EG10 +4PIN Connector .....	13
Figure 11.	EG11+4PIN Connector .....	13
Figure 12.	Interface Conversion Cable .....	14
Figure 13.	Cable Manufacture Guide .....	15
Figure 14.	Interface Conversion Cable .....	15
Figure 15.	Fixed Bracket.....	15
Figure 16.	Rail Bracket .....	16
Figure 17.	Bracket Size.....	16
Figure 18.	Bracket Install Picture .....	17
Figure 19.	RJ45 Transform Connector.....	18
Figure 20.	Product Installation .....	18
Figure 21.	EVK Package.....	19
Figure 22.	Elfin-EG1X Product Order Information.....	20

## LIST OF TABLES

Table1.	Elfin-EG1X Technical Specifications .....	5
Table2.	Elfin-EG10 Interface Definition .....	9
Table3.	Elfin-EG11 Interface Definition .....	10

## HISTORY

**V 1.0** 06-25-2018. First Version

**Ed. V1.1** 09-18-2018 Modify power input range. Fix LED description. Add more attachment description.

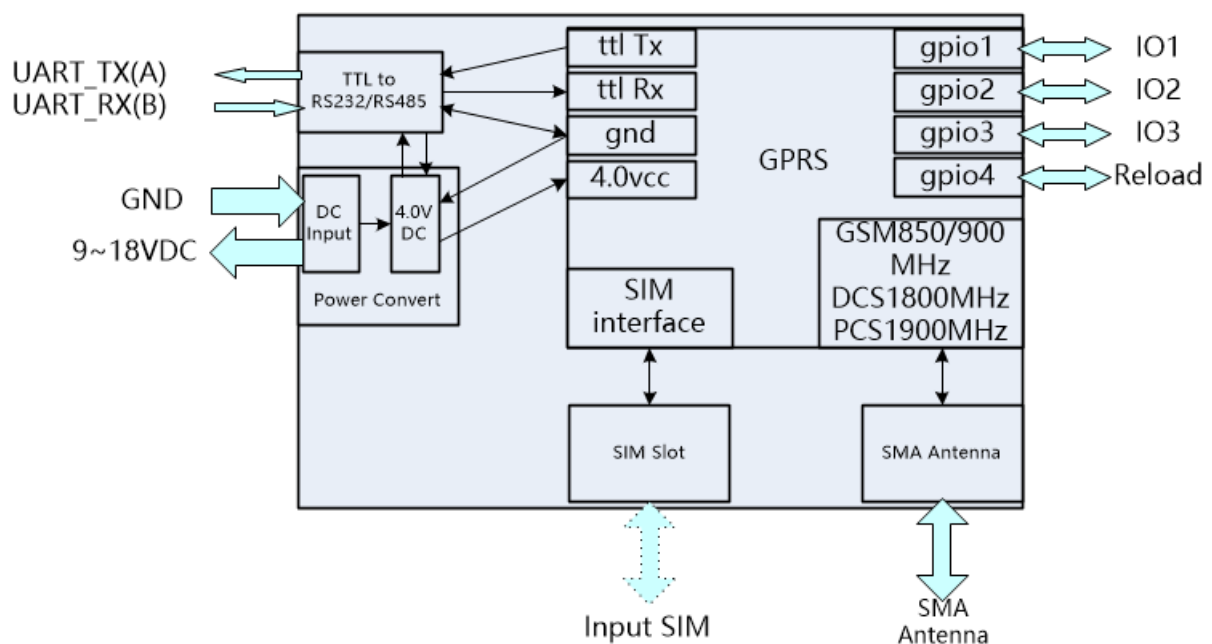
**Ed. V1.2** 04-19-2019 Update accessories.

# 1. PRODUCT OVERVIEW

## 1.1. General Description

The Elfin-EG1X can meet almost all M2M needs, including automotive and personal tracking services, wireless POS machines, smart metering, industrial PDAs, shared bikes, shared cars and more.

The Elfin-EG1X module is an Ethernet RJ45 interface serial server with ultra-small size: 61 x 26 x 17.8mm



Elfin-EG1X Internal Frame Diagram

## 1.2. Device Parameters

Table1. Elfin-EG1X Technical Specifications

Item	Parameter
<b>Wireless Parameter</b>	
GPRS Band	GSM850, EGSM900, DCS1800, PCS1900
GPRS Transmit Power	GSM850/EGSM900: 5dbm~32.5dbm DCS1800/PCS1900: 0dbm~29.5dbm
GPRS Receiving Sensitivity	<-108.5dBm
GPRS Connection Features	GPRS Multi-Slot Level is 10 (default) GPRS Mobile Station Level B

GPRS Date Features	GPRS Data Downlink Transmission: Up to 85.6 kbps GPRS Data Uplink Transmission: Up to 85.6 kbps Encoding Format: CS-1, CS-2, CS-3 and CS-4
GPRS Antenna Interface Characteristic Impedance	50Ω
<b>Serial Port</b>	
Port Number	1
Interface Standard	RS232/RS485
Data Bits	7, 8
Stop Bits	1, 2
Check Bit	None, Even, Odd
Baud Rate	TTL: 1200 bps~460800 bps,
Flow Control	No Flow Control Half Flow Control(RS485)
<b>Software</b>	
Configuration	Serial AT Command IOTService Serial Port Configuration Software IOTService Network Configuration Software
Firmware Upgrade	Serial Port or OTA Upgrade
<b>Basic Parameter</b>	
SIM Card Interface	Support Nano-SIM Card: 1.8V, 3V
Working Temp	-40°C~85°C
Storage Temp	-45°C~90°C
Input Voltage	9V~18VDC
Start 20s Average Current	61mA
Networked Standby Average Current	22mA
100 bytes/10 Seconds to Send Data Average Current	57mA
100 bytes/5 Seconds to Send Data Average Current	91mA
100 bytes/2 Seconds to Send Data Average Current	233mA
Peak Current	2A
Size	61 x 26 x 17.8mm

### 1.3. Key Applications

The Elfin-EG1X module connects the serial device to the Internet and conforms to the TCP/IP protocol for transmitting serial data.

- Remote device monitoring

- Production asset tracking and monitoring
- Security field
- Industrial sensors and controllers
- Health medical equipment
- ATM equipment
- Data acquisition equipment
- UPS power management equipment
- Telecommunication equipment
- Data display device
- Hand-held device
- Attendance system and terminal equipment

## 2. HARDWARE INTRODUCTION

Elfin-EG1X is a GPRS solution for serial device networking. Data transmission via GPRS makes product integration very easy. This product meets EMC Class B security level and can pass relevant certification tests in various countries.

### 2.1. APPEARANCE



Figure 1. Elfin-EG11 Appearance



Figure 2. Elfin-EG10 Appearance



## 2.2. Elfin-EG10 Pin Definition

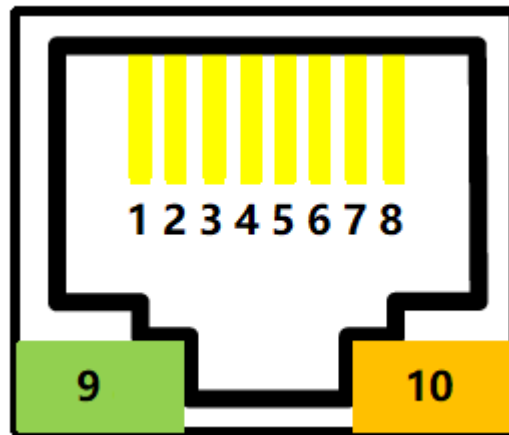


Figure 3. Elfin-EG10 RJ45 Interface Pin

Table2. Elfin-EG10 Interface Definition

Pin	Description	Net Name	Signal Type	Notes
1	GPIO	GPIO	IO	Reserved
2	GPIO	GPIO	IO	Reserved
3	GPIO	GPIO	IO	Reserved
4	Restore to Factory	nReload	I	Default high. Long press this button ("Low">3s) and loose to make the module restore to factory setting.
5	UART_1TX	UART1_TXD	O	RS232
6	UART_1RX	UART1_RXD	I	RS232
7	Power VCC	VCC	Power	9~18VDC
8	Power GND	GND	Power	
9	<b>Green LED</b> Net Status	Net	O	Boot On: Power is OK. 2s Off -> 2s On: GPRS Register is OK. 0.1s Off -> 0.1s On: GPRS data is transferring.
10	<b>Amber LED</b> 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.

### 2.3. Elfin-EG11 Pin Definition

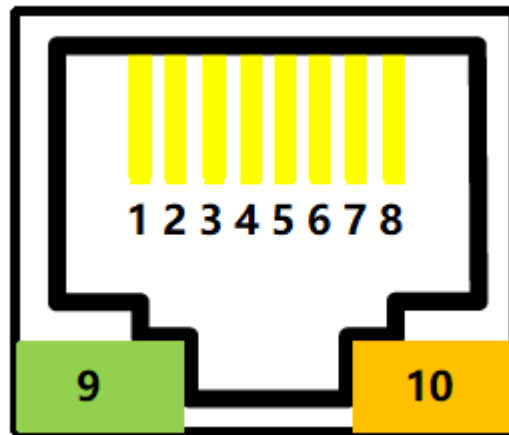


Figure 4. Elfin-EG11 RJ45 Interface Pin

Table3. Elfin-EG11 Interface Definition

Pin	Description	Net Name	Signal Type	Notes
1	Debug TX	HOST_TXD	O	TTL Voltage
2	Debug RX	HOST_RXD	I	TTL Voltage
3	GPIO	GPIO	IO	Reserved
4	Restore to Factory	nReload	I	Default high. Long press this button ("Low">3s) and loose to make the module restore to factory setting.
5	UART1_TXD	RS485_A+	IO	RS485 A+
6	UART1_RXD	RS485_B-	IO	RS485 B-
7	Power VCC	VCC	Power	9~18VDC
8	Power GND	GND	Power	
9	<b>Green LED</b> Net Status	Net	O	Boot On: Power is OK. 2s Off -> 2s On: GPRS Register is OK. 0.1s Off -> 0.1s On: GPRS data is transferring.
10	<b>Amber LED</b> 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.

**<Notes>:**

I — Input; O — Output; Power—Power Supply

### 2.4. RS232 Interface

RS232 don't have hardware flow control function, and the physical voltage is  $\pm 8V$ .

## 2.5. 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 32 485 device, device. The cable maximum length is 1200 meters. Need to add 120Ohm terminal resistor for over 300 meters.

## 2.6. Mechanical Size

The dimensions of Elfin-EG1X are defined as following pictures(mm):

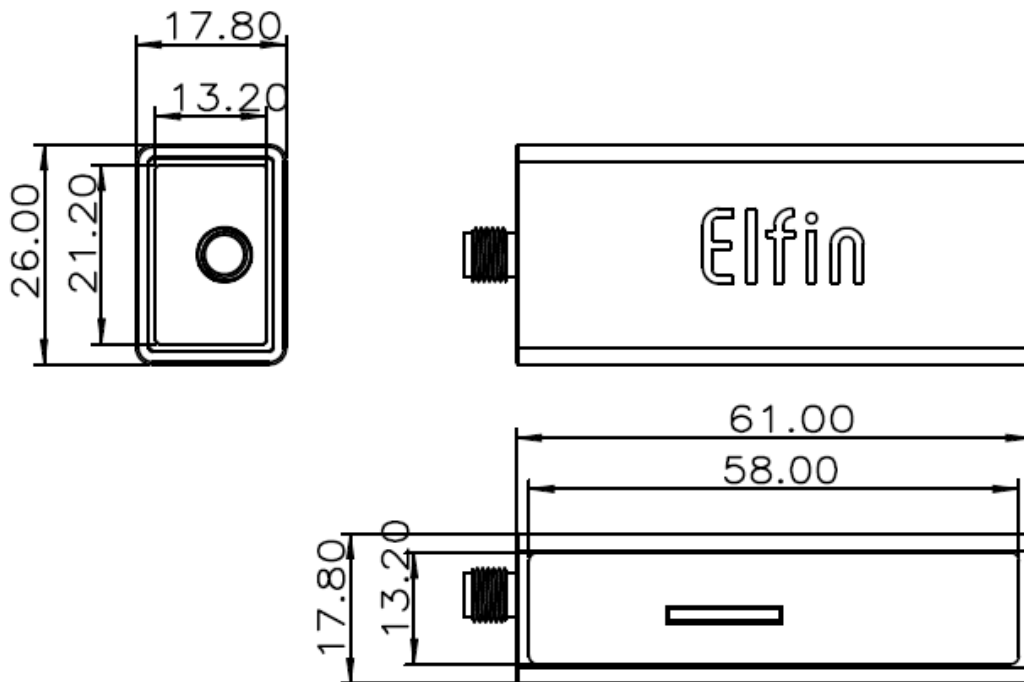


Figure 5. Elfin-EG1X Mechanical Size

## 2.7. RJ45 8PIN Connector

RJ45 8PIN Connector Type Order: 10810001001



Figure 6. RJ45 8PIN Connector



Figure 7. EG10+8PIN Connector



Figure 8. EG11+8PIN Connector

## 2.8. RJ45 4PIN Connector

RJ45 4PIN Connector Type Order: 10810001002



Figure 9. RJ45 4PIN Connector

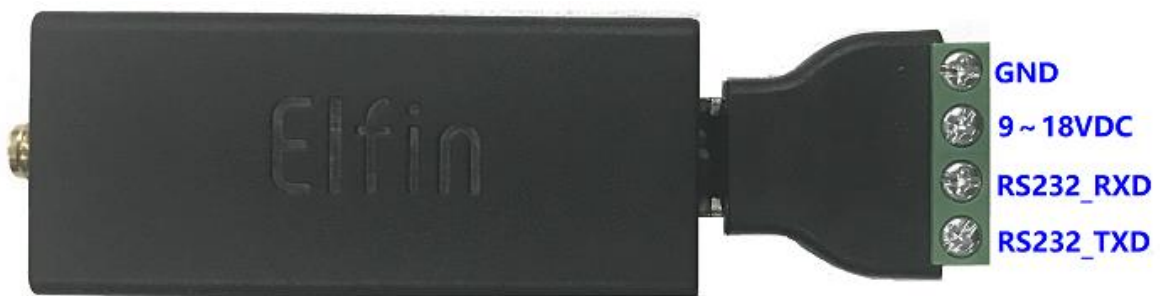


Figure 10. EG10 +4PIN Connector



Figure 11. EG11+4PIN Connector

## 2.9. EG10 Interface Conversion Cable



Figure 12. Interface Conversion Cable

May also make cable according to the following picture.

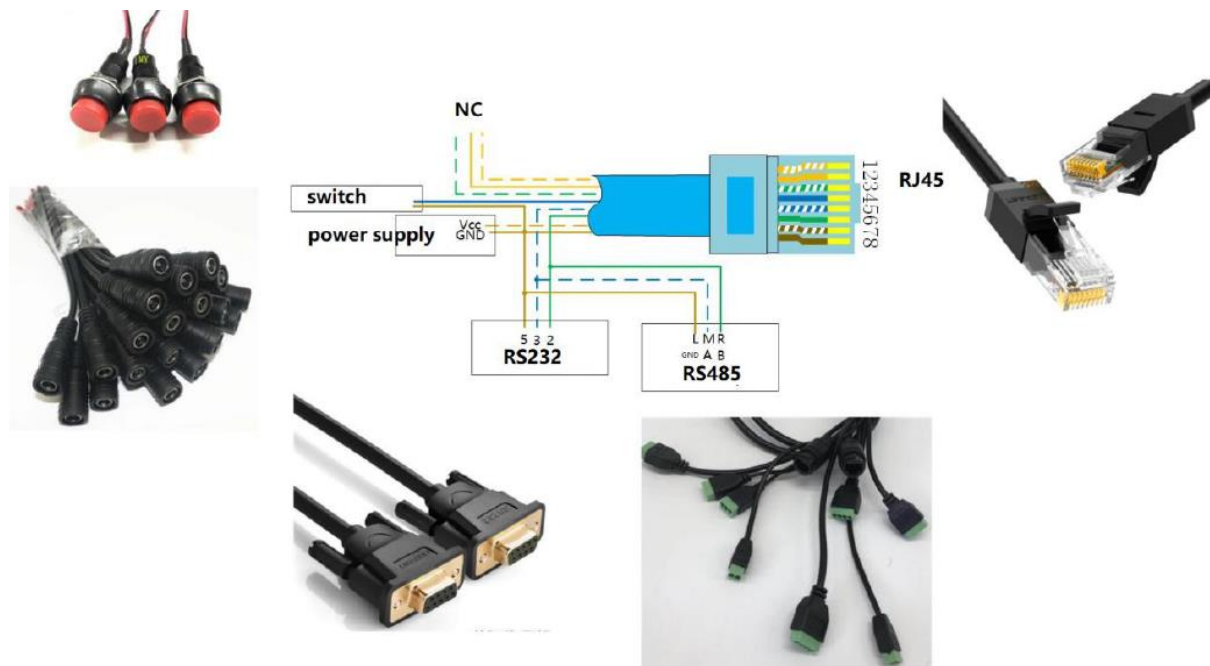


Figure 13. Cable Manufacture Guide

### 2.10. EG11 Interface Conversion Cable



Figure 14. Interface Conversion Cable

### 2.11. Fixed Bracket



Figure 15. Fixed Bracket



### 2.12. Rail Bracket



Figure 16. Rail Bracket

### 2.13. Bracket

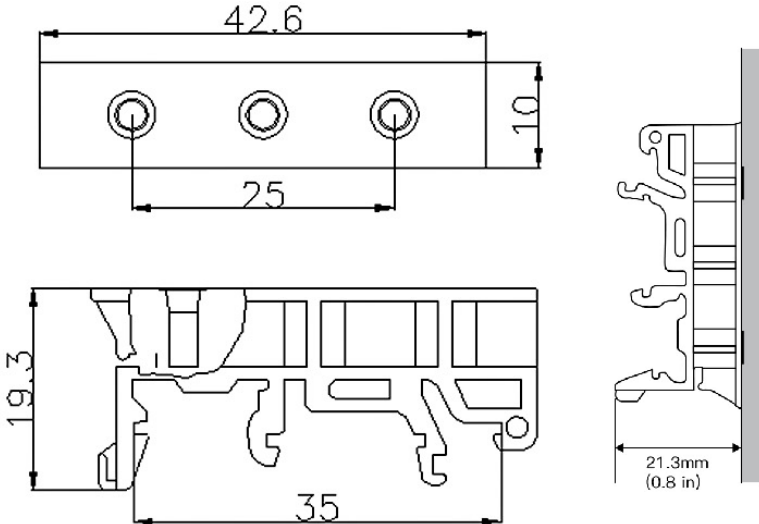
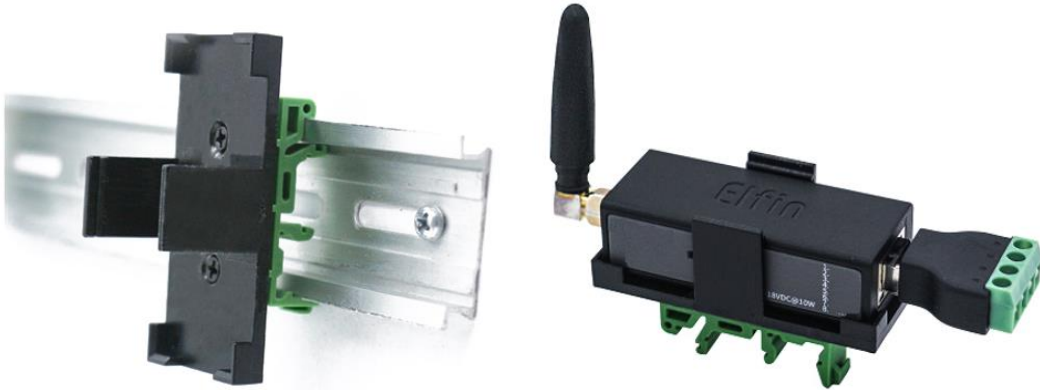


Figure 17. Bracket Size





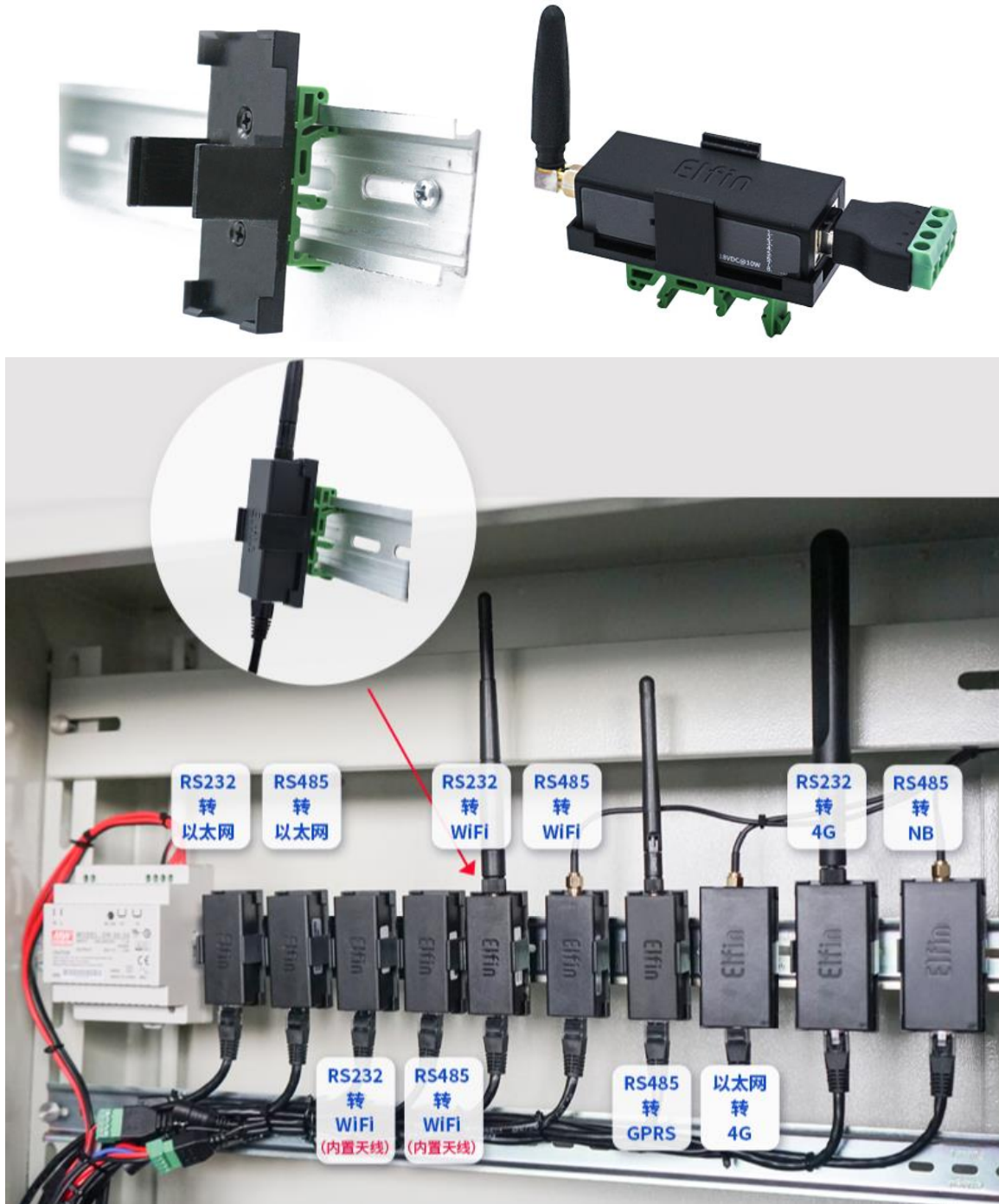


Figure 18. Bracket Install Picture

## 2.14. RJ45 Transform Connector

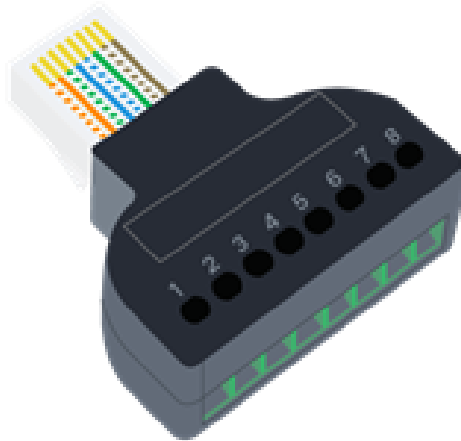


Figure 19. RJ45 Transform Connector

## 2.15. Product Installation

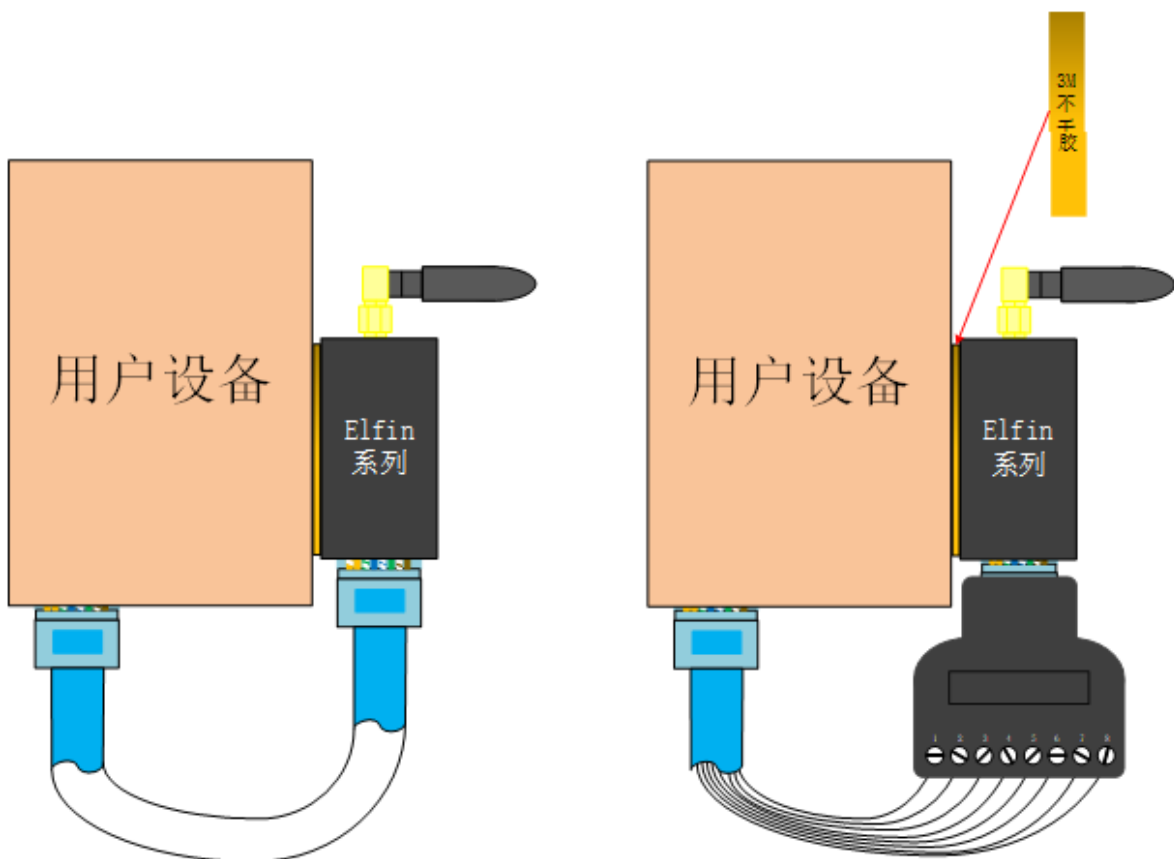


Figure 20. Product Installation

## 2.16. EVK

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



Figure 21. EVK Package

## 2.17. Product Order Information

Based on customers detailed requirements, we provide different configuration Elfin-EG1X, details as below:

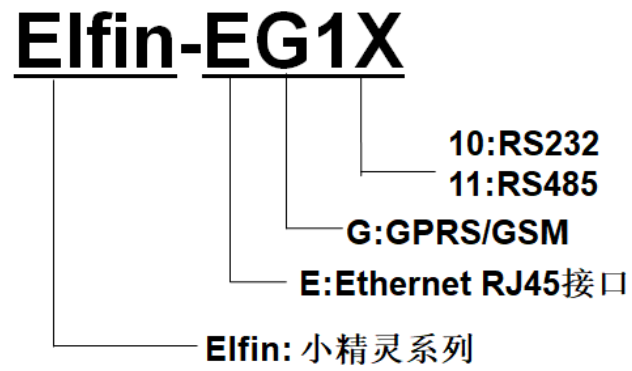


Figure 22. Elfin-EG1X Product Order Information

## APPENDIX A: CONTACT INFORMATION

---

**Address:** Room1002 , #1Building, No.3000 Longdong Avenue, Pudong District, Shanghai, China 201202

**Website:** [www.iotworkshop.com](http://www.iotworkshop.com) or [www.hi-flying.com](http://www.hi-flying.com)

**Contact:**

Sales: [sales@iotworkshop.com](mailto:sales@iotworkshop.com)

Support: [support@iotworkshop.com](mailto:support@iotworkshop.com)

Service: [service@iotworkshop.com](mailto:service@iotworkshop.com)

Business: [business@iotworkshop.com](mailto:business@iotworkshop.com)

---

For more information about us, please visit our website: [www.iotworkshop.com](http://www.iotworkshop.com)

---

< END OF DOCUMENT >