APRUS II ™

Operation Manual

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Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1)Reorient or relocate the receiving antenna.
2)Increase the separation between the equipment and receiver.
3)Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4)Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To comply with FCC RF exposure compliance requirements,this grant isapplicable to only mobile configurations. The antennas used for this transmittermust be installed to provide a separation distance of at least 20 cm from allpersons and must not be co-located or operating in conjunction with any otherantenna or transmitter.

Contents

I. Introduction

Welcome to use the Advanced Programmable Remote Utility Server (APRUS II) of Mixlinker Network (Shenzhen) Inc. (herafter referred to as Mixlinker).

APRUS is an advanced programmable Internet of Things adaptor for industrial equipment developed by Mixlinker. APRUS II is the second generation product of Mixlinker, and will be referred to as APRUS II.

APRUS II is an intermediate adapter developed to address theneeds of traditional equipment for IoT. Adaptors are used to establish data communication with equipment (controller) without making changes to equipment, by way of adapting, to send the operation status and data to IoT platform, so as to make the right judgement and take right action to reduce the malfunction of equipment, lowing operation cost. This manual briefly introduces APRUS II to customers, and provide help to customers for using the product.

A2 - 4207 - B

Product Info

	Mixlinker Advanced Programmable Remote Utility Server (APRUS II)

Power Input

B	AC/DC 9~24V Input

Communication Modules

4	2G Communication Module

Interfaces

| 07	CAN,RS485-1,RS485-2

GPS Modules

2	Module with GPS

III. Packaging List
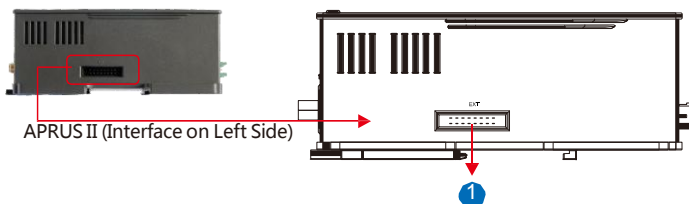
- APRUS II (1)
- GSM Antenna (1)
- Micro SIM Card (1)
- GPS Antenna (1) - optional

IV. Specification

Item	Settings/Configurations
GPRS Antenna Interface	Standard SMA Interface (Female Connector)
Wireless Network	GPRS 2G Network (Not Supporting CDMA)
Input Voltage	AC/DC9~24V
Maximum Power Dissipation	3W
Average Power Dissipation	1W
Operating Temperature	-20° C to +45°C
Storage Temperature	-40° C to +100°C
Operating Humidity	45%-80%
Storage Humidity	30%-90%
Weight	210g
Dimension	146*97*49mm
RS485 Interface	Isolated
USB Interface	Mini USB Female Connector

V. Interfaces

APRUS II (Interfaces on Top)
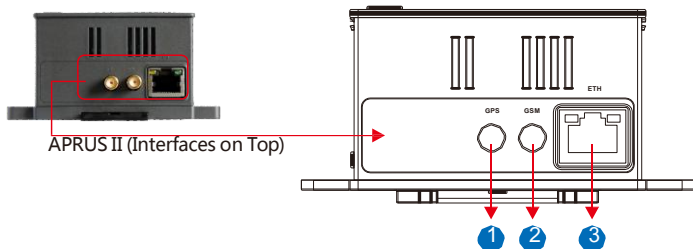
No.	Symbol	Definition
1	GPS	GPS Antenna Interface
2	GSM	GSM Antenna Interface
3	ETH	Ethernet Interface (Optional)

APRUS II (Interface on Left Side)

No.	Symbol	Definition
1	EXT	Extended Interface

V. Interfaces

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APRUS II (Interfaces on Right Side
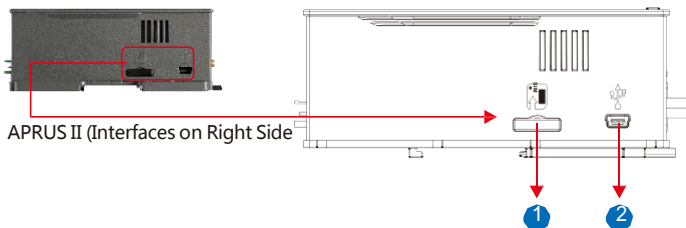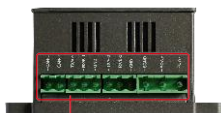
No.	Symbol	Definition
1		Micro SIM Card Slot
2		USB Interface

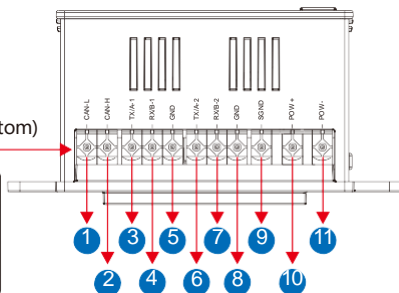APRUS II, when using Micro SIM card, please insert the card "chip down and notched edge facing outward"

V. Interfaces

APRUS II (Interfaces on the Bottom)

Note：
When choosing adapters of one RS485 and one RS232, the default for 3 and 4 is RS232, and 6 and 7 is RS485

No.	Item	Indicator
1	CAN-L	CAN-L
2	CAN-H	CAN-H
3	TX/A-1	RS232_TX1/RS485_A1
4	RX/B-1	RS232_RX1/RS485_B1
5	GND	Shared Ground
6	TX/A-2	RS485_A2
7	RX/B-2	RS485_B2
8	GND	Shared Ground
9	SGND	Shell Ground
10	POW +	Polarity - Positive
11	POW -	Polarity - Negative

V. Interfaces

APRUS II (Front)
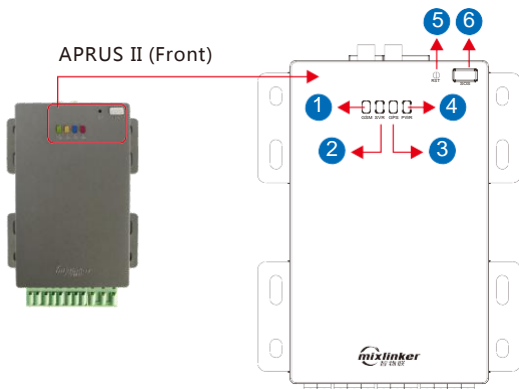
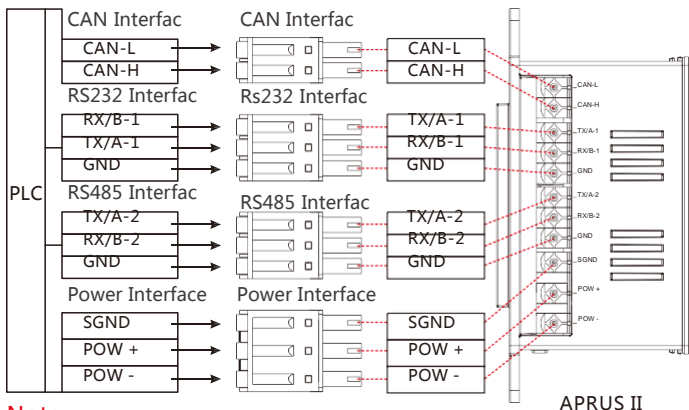| No.	Item	Indicator
1	GSM	GSM Indicator Light
2	SVR	SVR Indicator Light
3	GPS	GPS Indicator Light
4	PWR	Power Indicator Light
5	RST	Reset Button
6	SOS	SOS Button

Note:
Press SOS to trigger a "short press event". Press and hold for 3 seconds to trigger a "long press event". Event will be handled by FIDIS, and may be customized according to customers'needs.

Ⅵ Indicators

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Note: During electrical initialization and self-testing on adaptors, the SVR, GPS and PWR indicators will simultaneously be on for 500ms and off for 500ms.

| Status / Indicator	Normal	Abnormal
❶ **GSM Status Indicator**	1. Upon successful logon of SIM card, indicator shall be on at the interval of 3000ms, for 64ms each time. 2. Upon the connection of GPRS and module is working normally, indicator will be on at the interval of 300ms, for 64ms each time.	1. When SIM card is not registered online, indicator shall be on at the interval of 800ms, for 64ms each time. 2. When module is not powered on, indicator shall be off.
❷ **SVR Status Indicator**	1. When GARDS is correctly connected, indicator shall be on at the interval of 2s, for 60ms each time.	1. When there is no signal for SIM card, or not connected to antenna, indicator shall flash three times every 2s, for 60ms each flashing. 2. Failure of SIM card registration with vendor, indicator shall flash three times every 2s, for 60ms each flashing. 3. When SIM card is not activated, indicator shall flash three times every 2s, for 60ms each flashing. 4. When SIM card is not inserted securely, or the slot on adaptor becomes loose, or slot power source is not compatible with SIM card, indicator shall flash two times every 2s, for 60ms each flashing. 5. When adaptor is not connected to server, indicator shall flash four times every 2s, for 60ms each flashing.
❸ **GPS Status Indicator**	1. When GPS signal is normal, indicator shall be on two times every 2s, for 60ms each time.	1. When GPS signal is not normal, indicator shall be off.
❹ **Power Status Indicator**	1. When power is connected normally, indicator will be on constantly. 2. When MCU is being upgraded, indicator shall flash quickly at the interval of 2s.	1. When power is not connected normally, indicator will be off.

Ⅶ Connections

Note:

1. This wiring diagram demonstrates an adaptor with a grouping of RS485 and RS232. For adaptors with two groups of RS485, please refer to the above diagram for the wiring of RS485. Please follow the correct wiring. Otherwise data will not be collected from equipment.

2. Please connect the antennas of GPS and GSM correctly. Otherwise equipment shall not pick up signal and GPS will not locate the position.
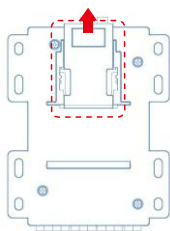
GPS Antenna Interface

GSM Antenna Interface

Ethernet Interface (Optional)
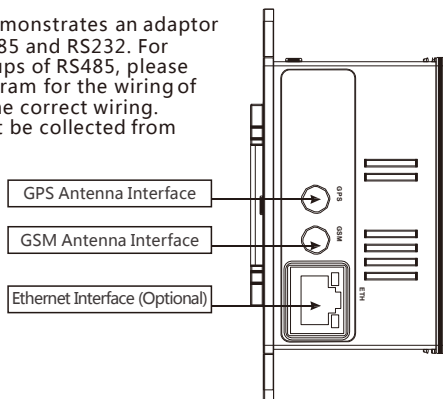
There are two methods for APRUS II installation: 1. With screws, screw size: M4.5, as shown below:
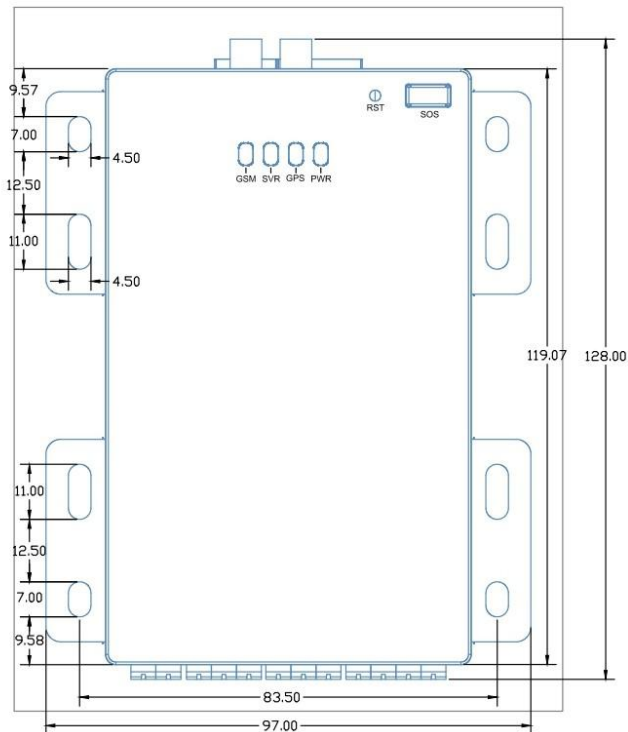
VIII. Installation

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2. Installation with rails, the size of rail: 35mm, as shown below:

Install stopper
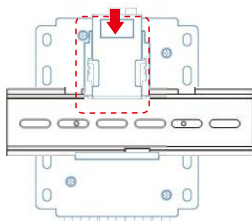
Rail

35mm

Step 1 :
Raise the stopper
on the adaptor.
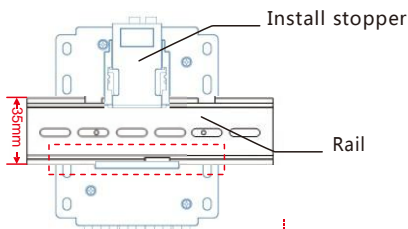
Step 2 :
Install the adaptor onto
the rail. (Please secure
the bottom rail groove
onto the rail bottom first.)

Step 3 :
Push down the stopper.

Note:
1. For the safety of you
   and the equipment
   and adaptor, please
   power off the
   equipment prior to
   performing the
   installation.

2. Prior to installation,
   please insert SIM
   card into slot and
   complete all the
   wiring correctly on
   adaptor.

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