

2022

U1000 Unattended payment Terminal

Installation & User Guide



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Document Changes

Data	Version	Description	Notes
September 2022	V1.0	Initial public release	

1、 Abbreviations

- ◆ EMV Europay Mastercard Visa (card payment transactions)
- ◆ EMC Electromagnetic compatibility
- ◆ MDB Multi-Drop Bus
- ◆ MSR Magnetic Stripe Reader
- ◆ SOC System On Chip

2、 Introduction

U1000 is an Unattended Payment Terminal, based on Linux OS with 3.5-inch full color LCD screen.

The U1000 is suitable for payment solutions involving:

- ◆ Laundry
- ◆ Vending machine
- ◆ Parking
- ◆ Ticketing
- ◆ Kiosk

Read this guide to understand and make the best use of your terminal. It presents you the necessary information about use, installation, maintenance, safety and security recommendations.

3、 Specifications

Processing Power	
Controller	32-bit Cortex-A9 secure CPU,500Mhz
Memory	128MB Flash,128MB DDR
OS	Linux
User Interface	
Display	3.5 Inch full color LCD,320*480 resolution Support touch

Magnetic Stripe Reader	Triple track bi-directional, conforming to ISO 7810 /7811/7813 (500,000 swipes)	
Contact Card Reader	EMV L1/L2, conforming to ISO 7816, 1.8V/3V/5V, synchronous & asynchronous, T=0 & T=1 (500,000 insertions)	
Contactless Card Reader	EMV Contactless L1, conforming to ISO 14443 Type A/B, MI fare, Felica	
Prompt interface		
Beeper	Integrated, single-tone buzzer	
Communication Configuration		
WIFI&BT	Wi-Fi (802.11b/g/n), Bluetooth 5.2	optional
4G	FDD、TDD 1*on-board SIM card slot	optional
3G	WCDMA 1*on-board SIM card slot	optional
Ethernet	100MBit, RJ45	
Peripheral Ports		
MDB	MDB Slave	
USB-A	USB Host, USB OTG, USB Type A	
USB-B	USB slave, USB Type B	
RS232	RJ45	
SAM card reader	Built-in dual slot	
SD card reader	UP to 32GB Built-in SD card slot	
Physical buttons	S1、S2 on the back of the terminal	
Wireless antenna interface	SMA	
Mechanics		
Weight	460g (Box and accessories are not included) 597g (with Box and accessories)	
Dimension	107mm(L) x86mm(W) x 63.8mm (H)	

Environmental Conditions	
Operating Temperature Range	-20° to +70°C (-4°F - 158°F)
Storage Temperature Range	-30 to +70°C (-22°F - 158°F)
Operating Humidity Range	5% ~93%RH(40°C non condensing)
mechanical protection (IK code) :	IK09
Ingress Protection (IP code):	IP56(Except IC Card slot)
Power Supply	DC10V-45V via MDB slave
Power Consumption	Operation: < 12V/1A Power Save Mode: typ. 12V/15mA
Certifications	
Security	PCI PTS 6.x
Safety	ATEX
Payment	EMV Co Contact L1&L2、EMV Co Contactless L1 & L2、American Express pay、JCB、Interac、D-PAS、Q-Pass、PAY-PASS、PAY-WAVE
Regulatory	CB、CE、TQM、RoHS

4、 Product Description

4.1 Appearance



Figure 1: six views

4.2 Accessories

Item	Description	Quantity	Notes
1	Power patch cord	1	optional
2	Wireless antenna	1	optional
3	Quick Reference Guide	1	

The Power patch cord is only suitable for the development of prototypes. In the absence of an MDB host terminal, the conventional adapter (DC: 10V-45V) can be used to power on the U1000 directly through the transfer of the power patch cord, so that customers can quickly carry out application adaptation development;

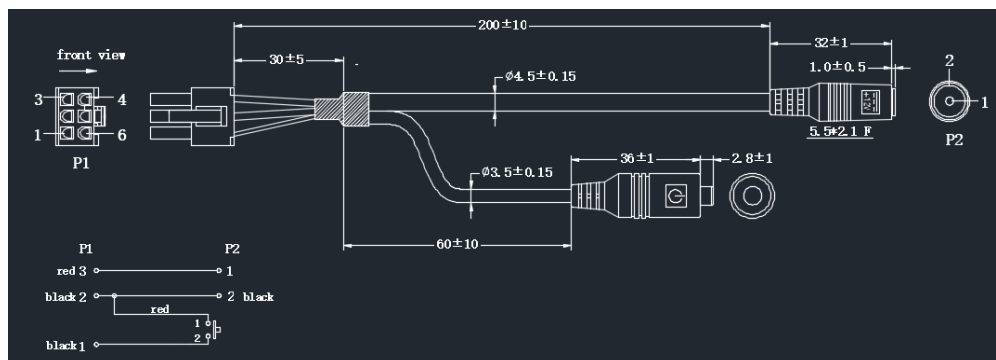


Figure 2: Power patch cord

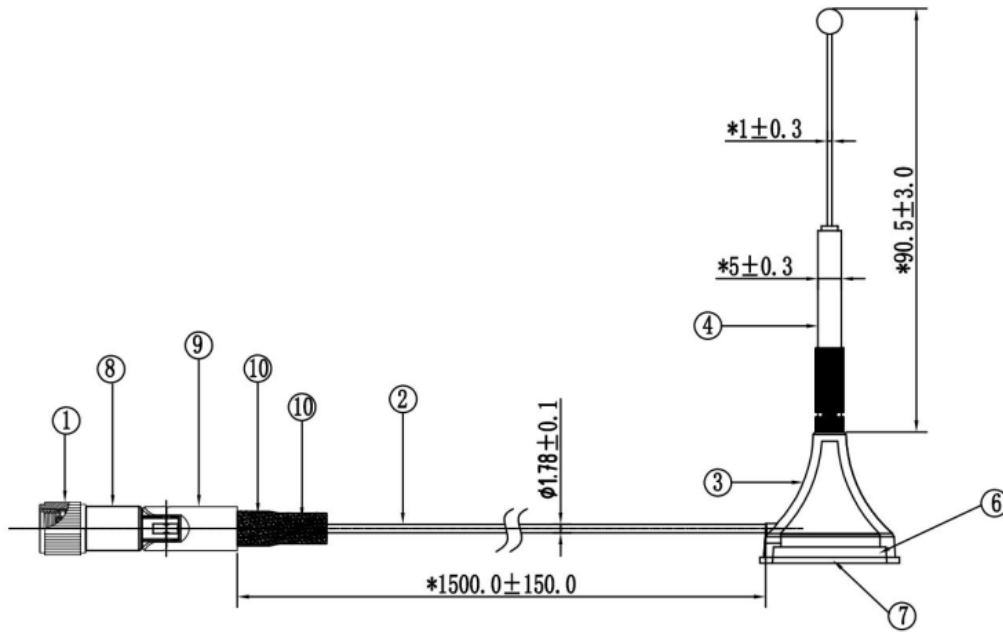


Figure 3: Wireless antenna

4.3 User Interface



Figure 4: User Interface

5、 Safety

Follow the guidelines in this manual when integrating the U1000. We will not bear any responsibility or cost for malfunctioning or any anomaly that may result from incorrect handling of the U1000. We decline any liability if the instructions and precautions contained in this manual are not observed. If you notice that any U1000 component blocks, does not fit, or shows any other malfunction, contact terminal providers. Do not try to repair or alter it in any way. Use only accessories (cables and so on) provided by us or by an approved source.

Operating safety

Keep the U1000 away from excessive heat, fire, high voltage, radiation, shocks and abrasive chemicals. To guarantee safe operation of the U1000, make sure:

- The U1000 is firmly fixed in the machine and correctly powered.
- The machine (e.g.: kiosk/vending etc.) where the U1000 is mounted is protected from dust, strong sunlight, rain, wind and flying debris.
- The operating temperature of the U1000 remains between -20°C and 70°C. This corresponds to an environmental temperature of -20°C to around +50°C, depending on the position of the terminal (in direct sunlight, sheltered, ...) and remembering that the terminal itself generates heat while in operation.
- The U1000 is installed and positioned in line with manufacturer recommendations.

Always

- Use only the power supply compliant with the appropriate specifications.
- Disconnect the power supply before cleaning the housing and for servicing or repair.

Never

- Drop, throw, slam or vibrate the U1000.
- Let oil, water or other liquids enter the U1000.

- Connect any other cables to the U1000.
- Store, install or use the U1000 near any source of excessive voltage fluctuations, electromagnetic fields or microwave radiation (e.g.: electric motors or high-frequency devices etc.).
- Disassemble the terminal.

Repairs and End-Of-Life

All servicing other than the actions described in this manual must be performed by our service Centre. Dispose U1000 at the end of its life accordingly. Do not discard, give away or sell your U1000 as it contains materials that can be recycled and must be treated by a professional party.

6、 Security

Security features are integrated at all levels of the U1000 design, from the external housing to the SOC at the heart of the terminal. To combat fraud from external sources, regular visual checks are essential.

Recommendations

Integrators must implement appropriate procedures to guarantee that every installation on the field is checked regularly. The purpose of the checks is to make sure that:

- No camera has been set up to track cardholder activity.
- No skimming device has been attached.
- No foreign object is present in either of the card-readers.

For security reasons, merchants are advised to check their U1000 every working day and make sure that:

- There is no sign of unusual cables connected anywhere on the terminal.
- There is no foreign object in either of the card-readers.
- The terminal is not displaying any warning message.
- The housing is not visibly damaged.

- The terminal serial number (on the label) corresponds to the inventory.

Note:

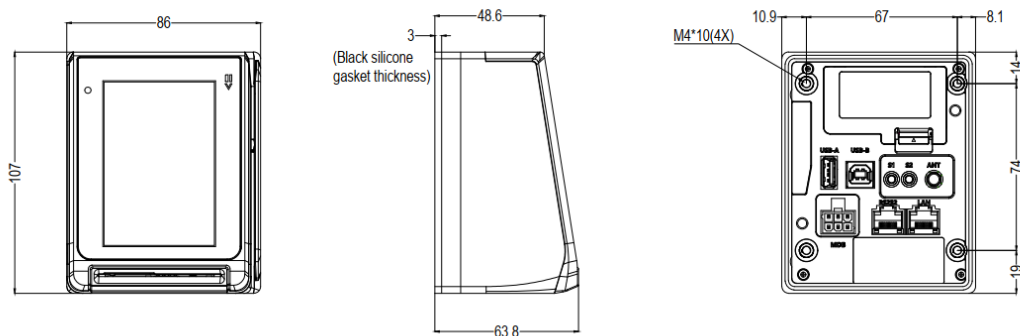
If anything suspicious is found in the IC card slot, or if the U1000 is displaying a warning message (e.g.: “tampered”, “attacked” etc.), the integrator must:

1. Disconnect the terminal from the power source.
2. Alert the police or computer crime unit and provide them with any requested elements for investigation.
3. Alert the acquirer with precise details on location and situation.

7、 Installation

Before installation

- Please check the items when you receive the product and if there is anything defective or missing, please contact your terminal provider.
- Please read the “safety” and “Security” Part (P5,P6) of this document.
- General dimensions



Installation dimension diagram: U1000

Installation requirements :

- Power Supply

Item	Model	Power 1: MDB DC	Remark
1	U1000	DC10V~45V (MDB Port)	

- Location requirements

The mounting surface must be flat, smooth and rigid with no unfinished edges on any of the holes or openings.

Avoid a position that exposes the U1000 to extremely cold and hot zones.

Avoid water spray areas, especially corrosive environments.

Avoid a position that exposes the display to direct sunlight.

Avoid the shielding area of the metal cover to ensure that the WIFI / BT antenna signal is not affected.

- Interface Description

See APPENDIX A “U1000 External Interface Description”

Installation and steps

Step1: Connect power and communication cables

To prevent the interface cannot be connected after the U1000 is locked on the platform.

The interfaces should be leaded out with customized cables before integrating the U1000 into the host terminal. (e.g.: “MDB”, “RS232”, “LAN” etc.) SIM card, SD card, SAM card also needs to be installed in advance; The connection diagram of each interface is as follows:

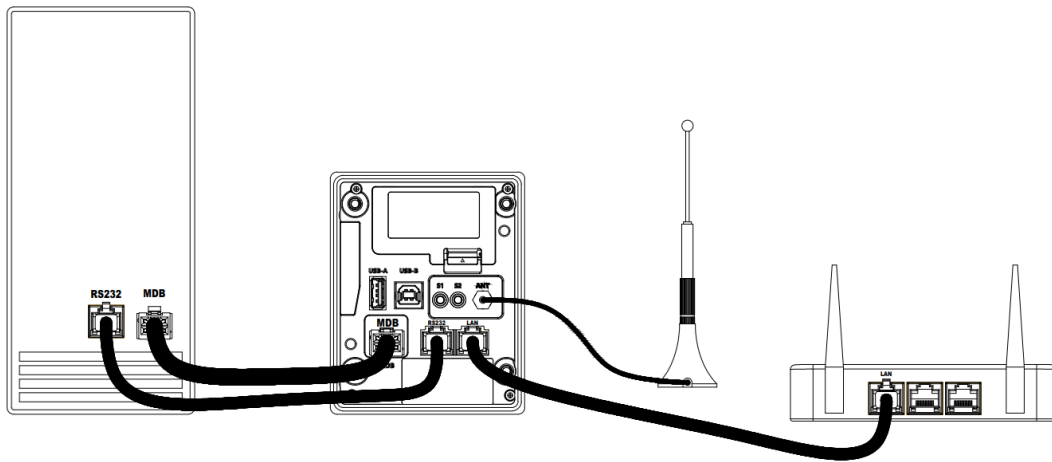


Figure 5: Interface connection diagram

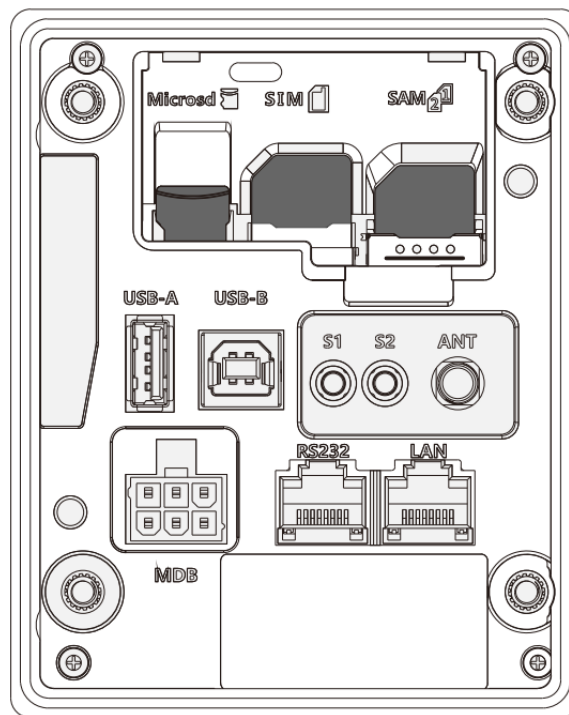


Figure 6:SD、SIM、SMA Installation diagram

Step2: Install terminal to panel

Line up the U1000 with the front panel screw opening on the machine or the mounting surface. Tighten the screws, to avoid damaging the U1000 and ensure the sealing performance of Silicone Gasket do not over-tighten the screws.0.25~0.35 Nm is

recommended.

IMPORTANT NOTES: Ensure U1000 is fitted with the Black Silicone Gasket on the internal flange. This component is critical to successfully installing the device.

The U1000 needs to be installed on a stable platform. The platform needs to have 4 screw holes to match the screw holes on the back of the terminal. The terminal is fixed on the platform by screws. As shown below :

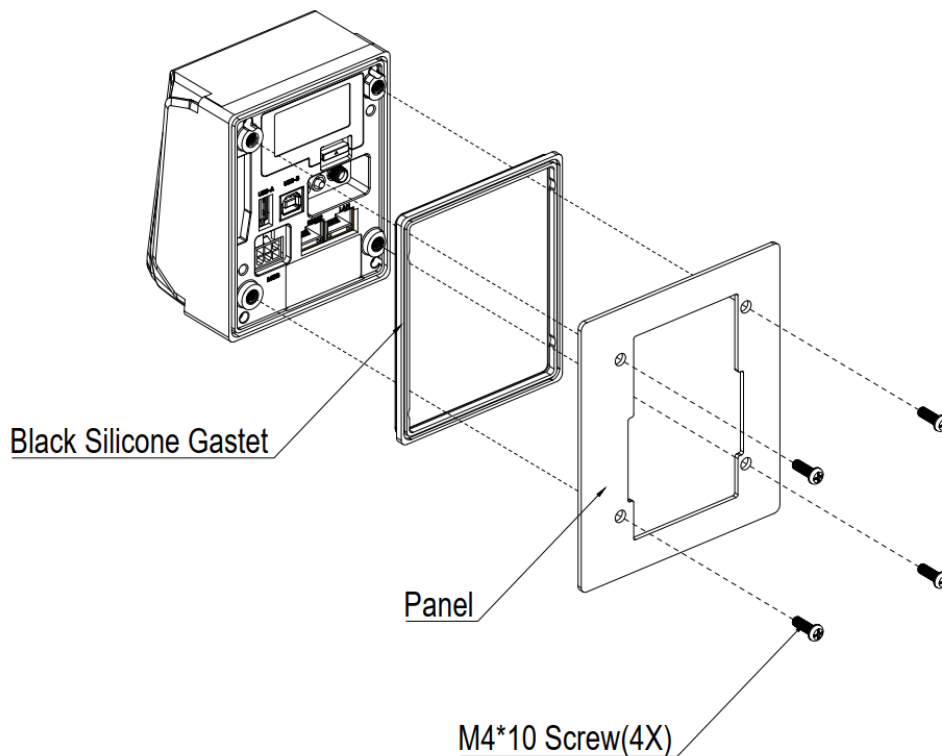


Figure 7: Installation diagram

During installation, the customer needs to choose the length of the screw according to the actual installation situation. The depth of the screw hole of the terminal is 12.7mm. If the screw is screwed into the screw hole of the terminal to a depth of more than 12.7mm, it will pierce the bottom of the screw hole and cause the internal seal to rupture;

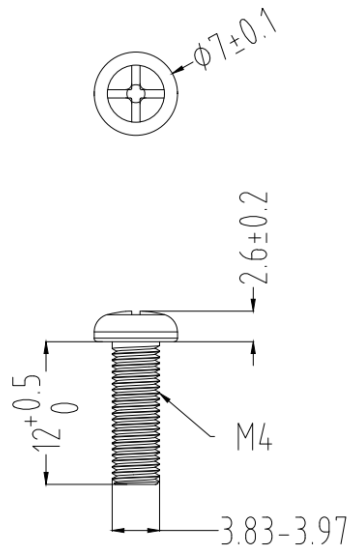


Figure 8: M4 screw illustration

Step3: Commissioning

Turn on the host Power, and then the U1000 will be power up automatically, the initial installation is completed. For further validation, use the application.

Installation Precautions :

- a、 The back of the terminal in the installation area should be sealed and kept dry;
- b、 The terminal needs to be installed at a certain height
- c、 The terminal installation platform needs a certain degree of stability, and it is not recommended to install it on an unstable platform;
- d、 The surface of the installation platform needs to be a flat surface;

8、 Maintenance and Usage

Although U1000 terminal is defined as unattended terminal, it still needs regular maintenance and cleaning. It is recommended that your business implement an ongoing maintenance plan to help avoid unnecessary losses and maximize the service life of U1000.

Maintenance recommendations

- Use a soft and wet cleaning cloth to cleaning the terminal surface (Do not use corrosive agents).
- Use a Card Reader Cleaning Card to clean the MSR and IC card reader (usually every ~3 months, but a dusty environment may require more frequent cleaning.)
- When cleaning, do not remove the terminal and wash it in water.
- Avoid dirt or water from entering the IC card slot during maintenance.
- Do not disassemble the terminal or damage any of the cables.
- Make sure the terminals the power or MDB cables connect to provide the appropriate voltages at the proper pins.
- Do not insert unknown materials into any port/slot on the U1000.
- If the U1000 becomes defective, please contact a professional technician for repairs instead of attempting them on your own.

IMPORTANT NOTES:

- The U1000 is designed for outdoor use; however, during normal use its surface should still be kept clear of dirt and possible liquid contaminants, Especially magnetic card and IC card slot.
- While the U1000 is designed to resist ingress of dust and liquids from the front face, it is not designed to resist pressurized liquids such as water hoses. Keep the back of the device away from dust and liquids as much as possible.

Technical Support - Contact information

Please contact your terminal provider for specific information on available contact hours.

When seeking support, please have your serial number ready.

APPENDIX A External Interface

U1000 External Interface Description

1、RS232 serial port

It can be used for software debugging; can be used to connect an external PIN pad. The maximum output current is 5V/500mA. If it is only used for serial communication, it should be ensured that the connected external device V5.0_OUT and MDB_WAKE pins are floating;

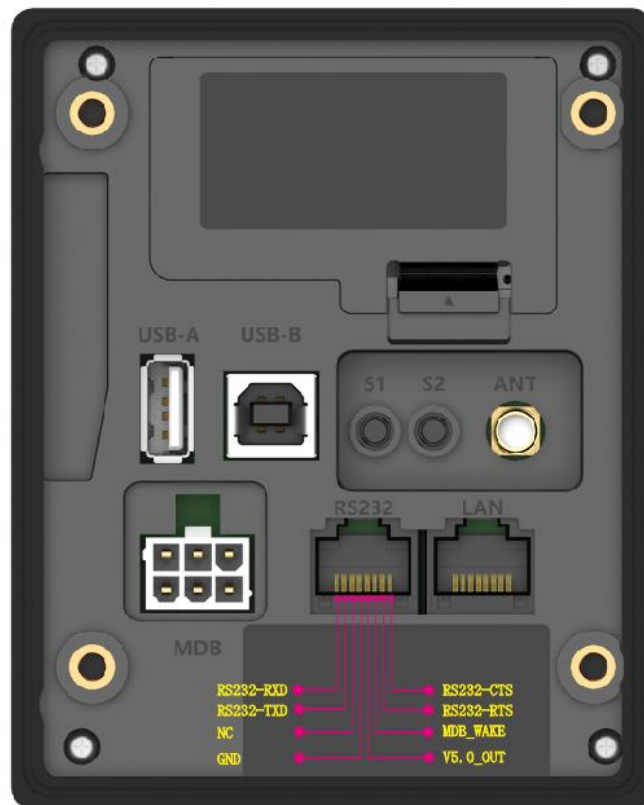


Figure 9: RS232 serial port

PIN	Pin definition	Description
1	RS232-CTS	RS232 serial port clear to send PIN
2	RS232-RTS	RS232 serial port request to send PIN
3	MDB_WAKE	Sleep wake-up pin
4	V5.0_OUT	Power supply pin, Max. power DC 500mA@5V

5	GND	GND
6	NC	NC
7	RS232-TXD	RS232 serial port signal transmitted data pin, connect to the RX of the external terminal
8	RS232-RXD	RS232 serial port signal received data pin, connect to the TX of the external terminal

2、MDB serial port

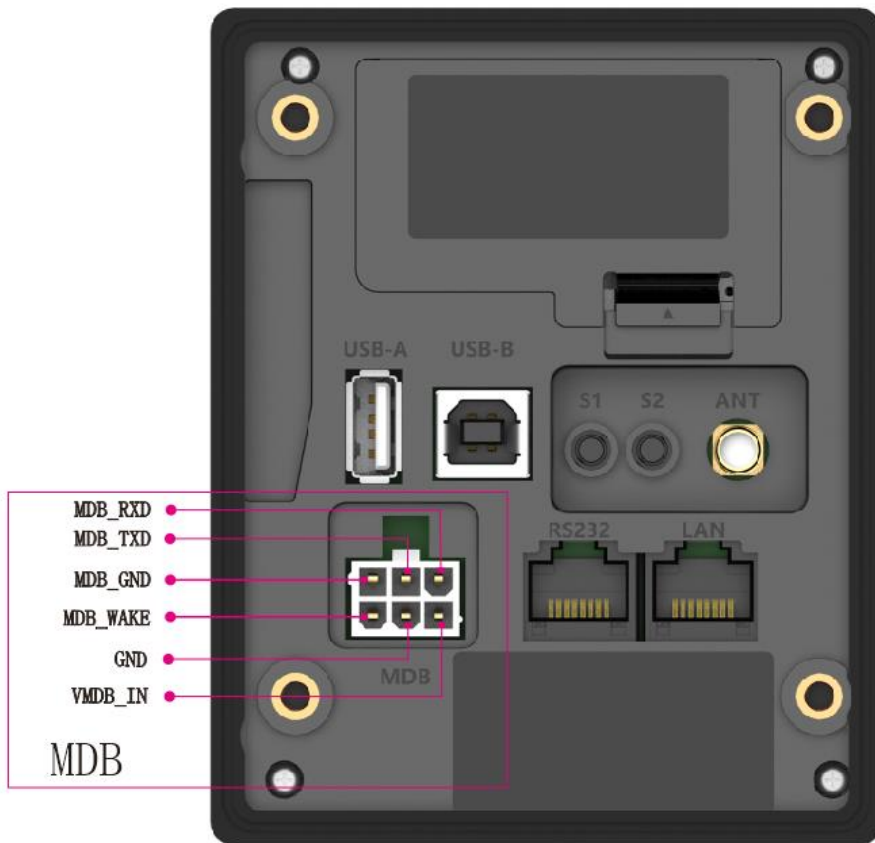


Figure 10: MDB serial port

PIN	Pin definition	Description
1	VMDB_IN	MDB Power input PIN, DC: 10V-45V
2	GND	GND

3	MDB_WAKE	Sleep wake-up pin
4	MDB_GND	MDB serial port GND, connect to the MDB_GND of the MDB host terminal
5	MDB_TXD	MDB serial port signal transmitted data pin, connect to the MDB_RX of the MDB host terminal
6	MDB_RXD	MDB serial port signal received data pin, connect to the MDB_TX of the MDB host terminal

3、USB-A(HOST)

The U1000 has a standard USB-A port that can be used to connect devices such as USB sticks;

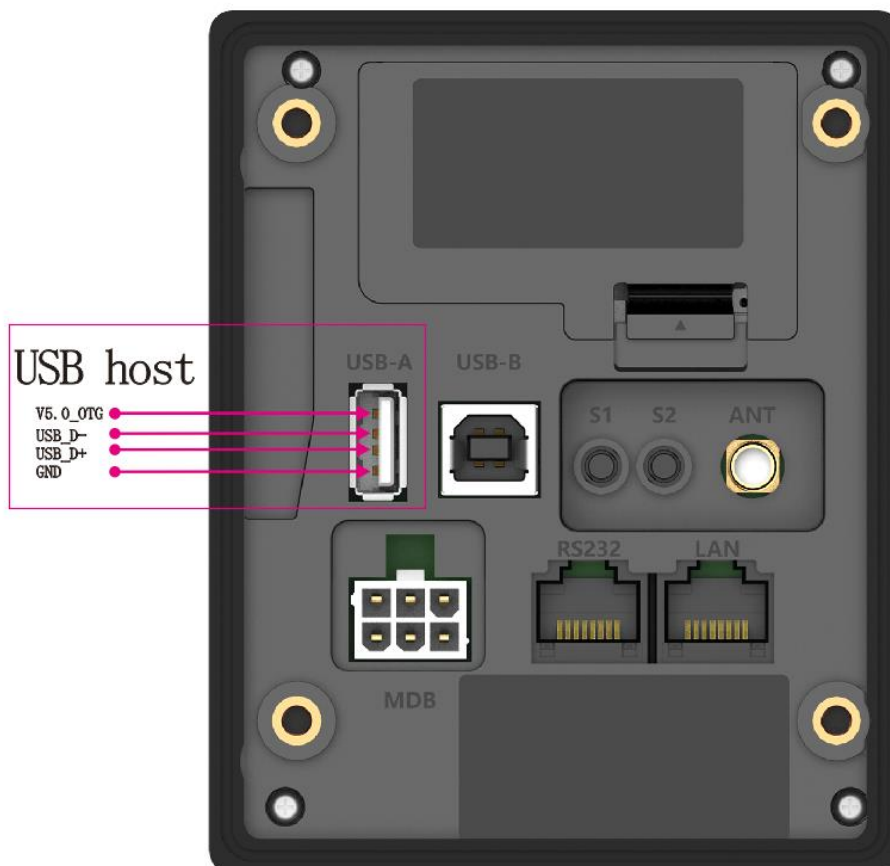


Figure 11: USB-A

PIN	Pin definition	Description
1	V5.0_OTG	Power output DC:5V/500mA
2	USB_D-	Universal Serial Bus Data-
3	USB_D+	Universal Serial Bus Data+
4	GND	GND

4、USB-B(SLAVE)

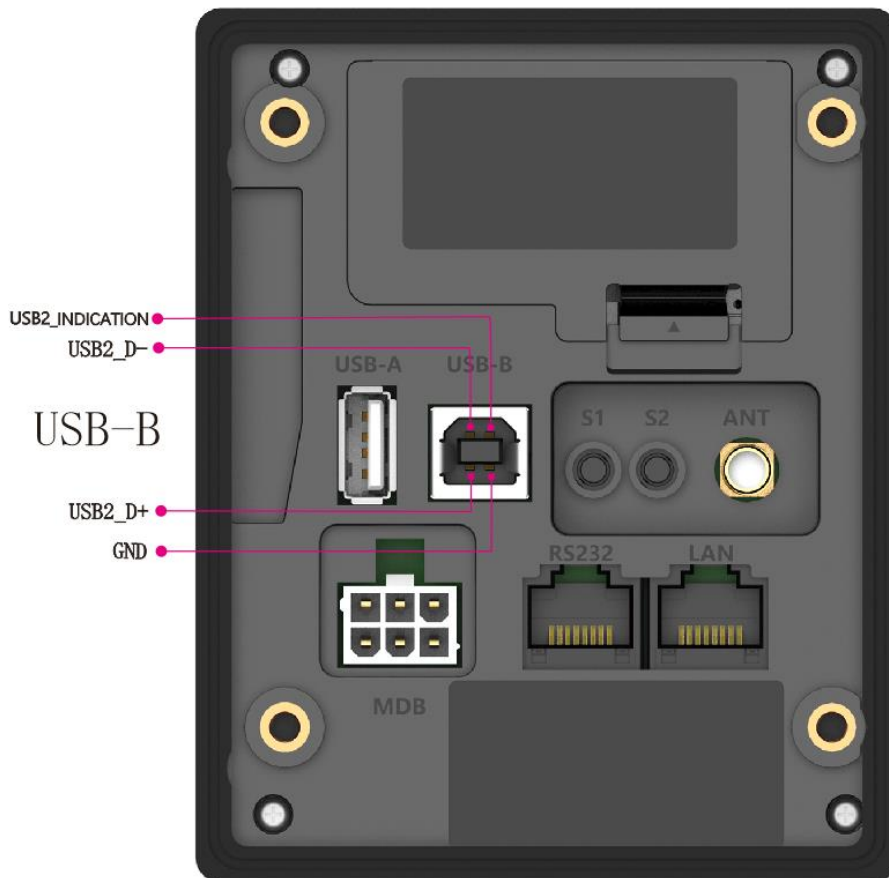


Figure 12:USB-B

PIN	Pin definition	Description
1	USB2_INDICATION	USB insertion detection
2	USB_D-	Universal Serial Bus Data-
3	USB_D+	Universal Serial Bus Data+
4	GND	GND

5、 Wireless antenna port

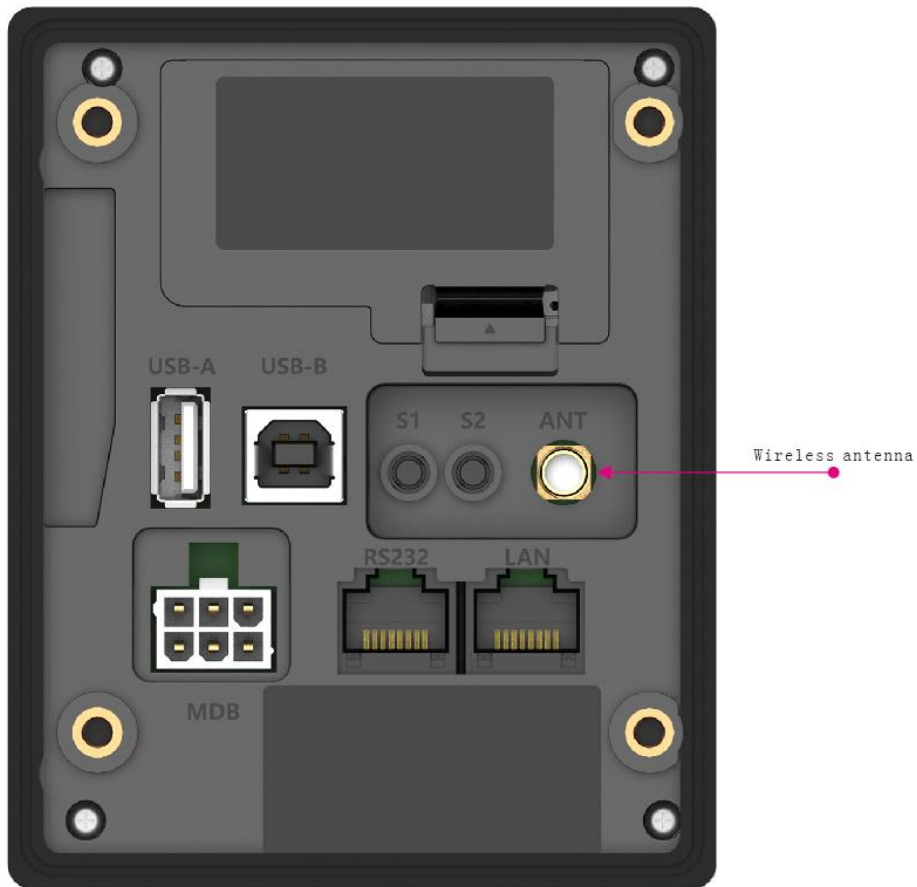


Figure 13: Wireless antenna port

APPENDIX B Warranty

Situations not covered by Warranty

The following situations, without limitation, are not covered by the Warranty:

- Malfunctions and breakdown caused by installation and use in disagreement with the instructions provided by Newland and lack of proper maintenance or improper storage (such as in improper environmental conditions, in particular temperature and humidity);
- Malfunctions and breakdown caused by using environment disagreed with the product's protection standards provided by Newland (temperature and humidity, waterproof and dustproof, explosion-proof, etc.)
- Malfunctions due to vandalism, fire, fortuitousness or force majeure, faults in the electricity network, including voltage, lightning and flood; or due to improper packaging when returning the Equipment and its accessories to Newland;
- External and internal faults caused by users to the Equipment and its accessories, including artificial aesthetic breakdowns such as scratches on the cabinet/display; damage to the IC/Magnetic cards reading slot caused by improper insertion of sharp objects/corrosive substance and deliberate water spraying; other irregular uses such as smack/drop of the Equipment.
- Defects caused by modifications of the Equipment and its accessories carried out without Newland's authorization or by repairs performed by companies not accredited/homologated by Newland;
- Equipment block caused by violation or attempted violation, impact, voltage

variation of the electrical network or invasion of areas of memory caused by third-party software;

- Use of accessories such as cables, sources, batteries and connectors not original and not homologated by Newland.