



# LoRaWAN<sup>®</sup> Controller

## UC11 Series

User Guide



## Applicability

This guide is applicable to UC11 series controllers shown as follows, except where otherwise indicated.

| Model  | Description                                                 |
|--------|-------------------------------------------------------------|
| UC1114 | 2 × Digital Inputs, 2 × Digital Outputs                     |
| UC1122 | 1 × Digital Input, 1 × Digital Output, 2 × Analog Inputs    |
| UC1152 | 1 × Digital Input, 1 × Digital Output, 1 × RS232, 1 × RS485 |

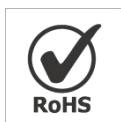
## Safety Precautions

Milesight will not shoulder responsibility for any loss or damage resulting from not following the instructions of this operating guide.

- ❖ The device must not be remodeled in any way.
- ❖ Do not place the device close to objects with naked flames.
- ❖ Do not place the device where the temperature is below/above the operating range.
- ❖ Power off the device when installing or wirings.
- ❖ Make sure electronic components do not drop out of the enclosure while opening.
- ❖ The device must never be subjected to shocks or impacts.

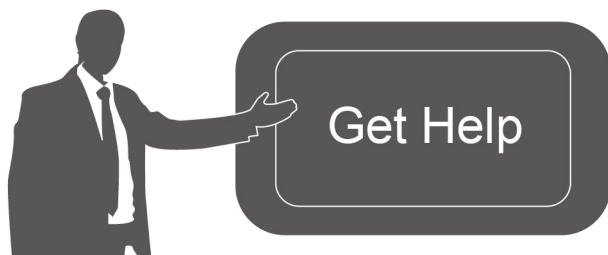
## Declaration of Conformity

UC11 series is in conformity with the essential requirements and other relevant provisions of the CE, FCC, and RoHS.



**Copyright © 2011-2022 Milesight. All rights reserved.**

All information in this guide is protected by copyright law. Whereby, no organization or individual shall copy or reproduce the whole or part of this user guide by any means without written authorization from Xiamen Milesight IoT Co., Ltd.



For assistance, please contact  
Milesight technical support:  
Email: [iot.support@milesight.com](mailto:iot.support@milesight.com)

Tel: 86-592-5085280

Fax: 86-592-5023065

Address: Building C09, Software Park III,  
Xiamen 361024, China

**Revision History**

| Date          | Doc Version | Description     |
|---------------|-------------|-----------------|
| Oct. 13, 2021 | V 1.0       | Initial version |

# Contents

|                                         |    |
|-----------------------------------------|----|
| 1. Product Introduction .....           | 5  |
| 1.1 Overview .....                      | 5  |
| 1.2 Features .....                      | 5  |
| 2. Hardware Introduction .....          | 5  |
| 2.1 Packing List .....                  | 5  |
| 2.2 Hardware Overview .....             | 6  |
| 2.3 LED Indicators .....                | 7  |
| 2.4 Dimensions .....                    | 7  |
| 3. Hardware Installation .....          | 7  |
| 3.1 Application Wiring .....            | 7  |
| 3.2 Power Supply .....                  | 8  |
| 3.3 Antenna Installation .....          | 9  |
| 3.4 Wall Mounting .....                 | 9  |
| 4. Operation Guide .....                | 9  |
| 4.1 Log in the ToolBox .....            | 9  |
| 4.2 LoRaWAN Settings .....              | 11 |
| 4.3 Data Interface Settings .....       | 14 |
| 4.3.1 Basic Settings .....              | 14 |
| 4.3.2 DI/DO Settings .....              | 14 |
| 4.3.3 AI Settings .....                 | 15 |
| 4.3.4 RS485 Settings .....              | 15 |
| 4.3.5 RS232 Settings .....              | 18 |
| 4.4 IF-THEN Command .....               | 19 |
| 4.5 Maintenance .....                   | 21 |
| 4.5.1 Upgrade .....                     | 21 |
| 4.5.2 Reset to Factory Default .....    | 21 |
| 5. Milesight IoT Cloud Management ..... | 22 |
| 6. Device Payload .....                 | 23 |

## 1. Product Introduction

### 1.1 Overview

UC11 series is a LoRaWAN® controller used for data acquisition from multiple sensors. It contains different I/O interfaces such as analog inputs, digital inputs, relay outputs, serial ports and so on, which simplify the deployment and replacement of LoRaWAN® networks.

### 1.2 Features

- Easy to connect with multiple wired sensors through GPIO/AI/RS232/RS485 interfaces
- Long transmission distance up to 15 km with line of sight
- Multiple triggering conditions and actions
- Embedded watchdog for work stability
- Industrial metal case design with with operating temperature range
- Compliant with standard LoRaWAN® gateways and network servers
- Quick and easy management with Milesight IoT Cloud solution

## 2. Hardware Introduction

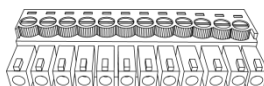
### 2.1 Packing List



1 × UC11 Series  
Device



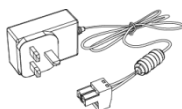
1 × LoRa  
Antenna



1 × 12-Pin Pluggable  
Terminal



2 × Wall Mounting  
Kits



1 ×  
Power Adapter



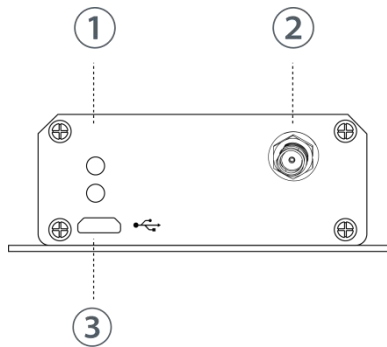
1 × Warranty  
Card



If any of the above items is missing or damaged, please contact your sales Representative.

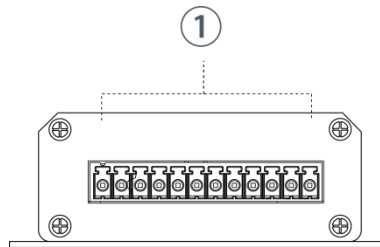
## 2.2 Hardware Overview

### A. Front Panel



- ① LED Indicator Area  
SYSTEM: System Indicator  
ACT: Network Status Indicator
- ② LoRa Antenna Connector
- ③ Micro USB Port

### B. Rear Panel



- ① Data Interfaces & Power Interface

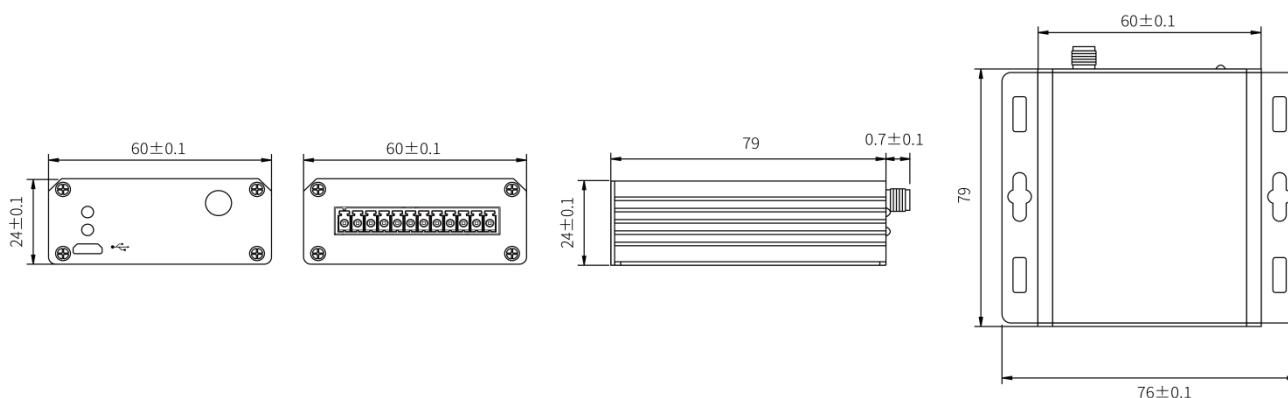
| Model | UC1114     |             | UC1122     |                   | UC1152     |             |
|-------|------------|-------------|------------|-------------------|------------|-------------|
| PIN   | Definition | Description | Definition | Description       | Definition | Description |
| 1     | GND        | Ground      | GND        | Ground            | GND        | Ground      |
| 2     | VIN        | 5-24 VDC    | VIN        | 5-24 VDC          | VIN        | 5-24 VDC    |
| 3     | IN1        | DI 1        | NC         | Reserved          | RXD        | RS232       |
| 4     | IN1_COM    |             | AIN1+      | AI 1<br>(4-20 mA) | TXD        |             |
| 5     | IN2        | DI 2        | AIN1-      |                   | GND        | RS485       |
| 6     | IN2_COM    |             | AIN2+      | AI 2<br>(4-20 mA) | A          |             |
| 7     | OUT1_COM   | DO 1        | AIN2-      |                   | B          |             |
| 8     | OUT1_NC    |             | IN         | DI                | IN         | DI          |
| 9     | OUT1_NO    | DO 2        | IN_COM     |                   | IN_COM     |             |
| 10    | OUT2_COM   |             | OUT_COM    | DO                | OUT_COM    | DO          |
| 11    | OUT2_NC    |             | OUT_NC     |                   | OUT_NC     |             |
| 12    | OUT2_NO    |             | OUT_NO     |                   | OUT_NO     |             |

**Note:** OUT\_NC=Normally Closed, OUT\_No=Normally Open.

## 2.3 LED Indicators

| LED    | Indication     | Status                        | Description                           |
|--------|----------------|-------------------------------|---------------------------------------|
| System | System Status  | Static                        | System Start-up                       |
|        |                | On for 500 ms, off for 500 ms | The system is running properly        |
|        |                | On for 200 ms, off for 200 ms | The system does not connect to server |
| Act    | Network Status | Off                           | Fails to join the network             |
|        |                | On for 500 ms, off for 500 ms | Join the network successfully         |

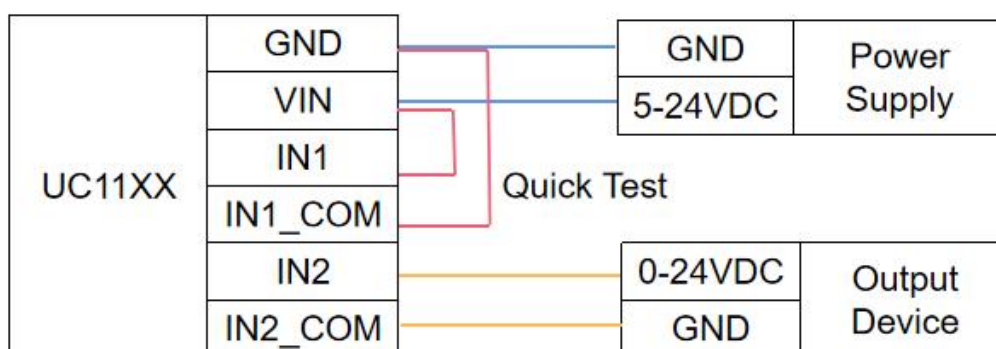
## 2.4 Dimensions (mm)



## 3. Hardware Installation

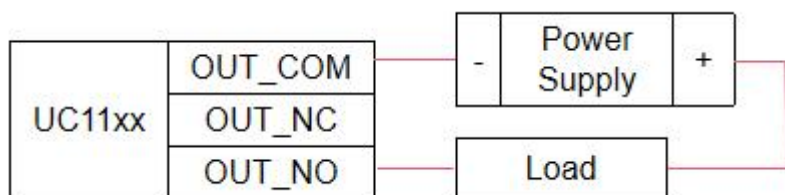
### 3.1 Application Wiring

#### Digital Input:

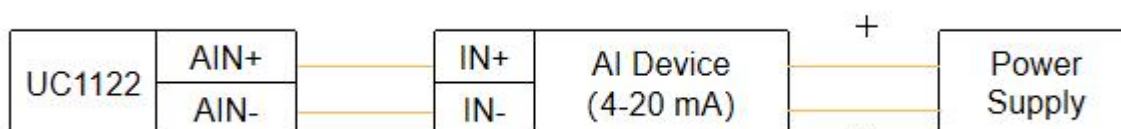


#### Digital Output:

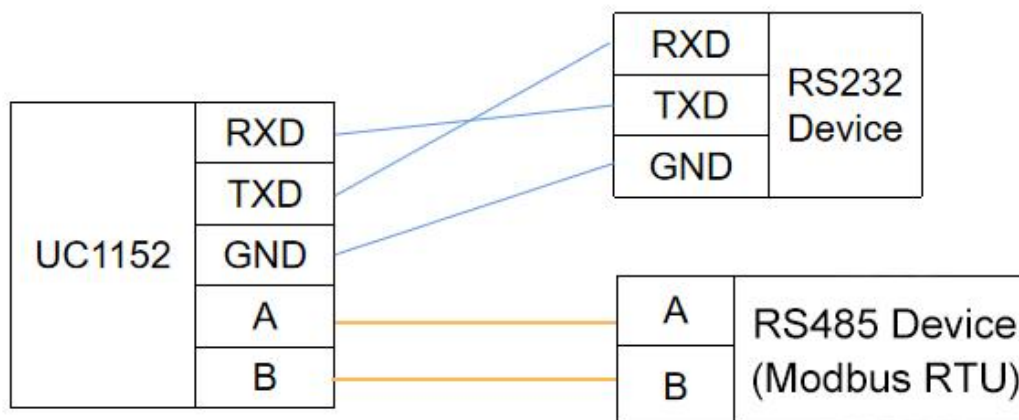
Connect load to either NC or NO according to your application.



### Analog Input:



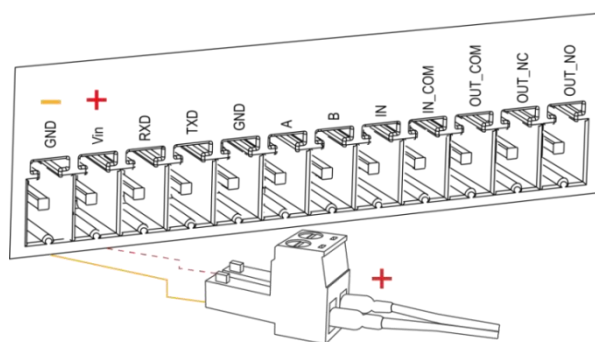
### RS232 & RS485:



## 3.2 Power Supply

UC11 series device support 5-24 VDC power supply. You can use other supplies or power adapter to power on the device.

**Note:** For industrial applications, it's suggested not to release the metal case and use a independent power supply.

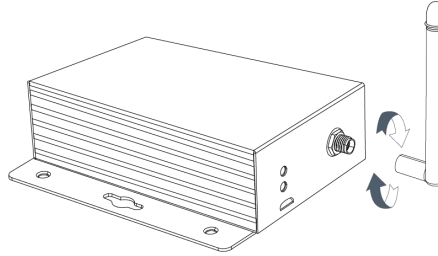




### 3.3 Antenna Installation

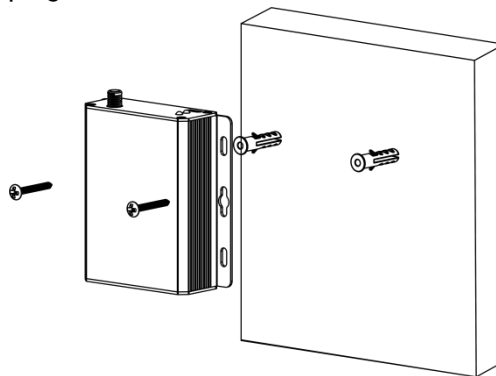
Rotate the antenna into the antenna connector accordingly.

The external LoRa antenna should be installed vertically always on a site with a good signal.



### 3.4 Wall Mounting

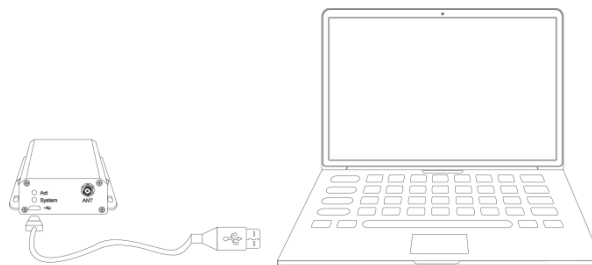
1. Drill 3 holes on the wall according to the device mounting holes, then fix the wall plugs into the wall.
2. Fix the device to the wall plugs with screws.



## 4. Operation Guide

### 4.1 Log in the ToolBox

1. Download ToolBox software from [Milesight IoT website](https://www.milesight.com/en/Products/UC11).
2. Power on the UC11 device, then connect it to computer via micro USB port.



3. Open the ToolBox and select type as "General", then click password to log in ToolBox.  
(Default password: **123456**)

**ToolBox Settings** ✕

Type

General

Serial port

COM4

Login password

Baud rate

115200

Data bits

8

Parity bits

None

Stop bits

1

Save

Cancel

4. After logging in the ToolBox, you can change device settings.

  
Status

  
General

  
LoRaWAN Settings

  
Channel

  
Command

  
Maintenance

### Status >

|                         |                      |
|-------------------------|----------------------|
| Model:                  | UC1152-915           |
| Serial Number:          | 6122A4689821         |
| Partnumber:             | US915                |
| Firmware Version:       | 03.11                |
| Hardware Version:       | 3.0                  |
| Local Time:             | 2020-01-01 00:00:19  |
| Join Status:            | De-Activate          |
| RSSI/SNR:               | 0/0                  |
| Datarate:               | SF10-DR0             |
| Rx2DR:                  | SF12-DR8             |
| Channel Name            | Humidity,Temperature |
| Input:                  | Low                  |
| Output:                 | Low                  |
| Uplink Frame-counter:   | 0                    |
| Downlink Frame-counter: | 0                    |
| Device Time:            | 2020-01-01 00:00:19  |

Sync

## 4.2 LoRaWAN Settings

LoRaWAN settings is used for configuring the transmission parameters in LoRaWAN® network.

1. Go to “**LoRaWAN -> Basic**” to configure join type, App EUI, App Key and other information. You can also keep all settings by default.

|                                |                                               |
|--------------------------------|-----------------------------------------------|
| Device EUI                     | <input type="text" value="24E124122A468982"/> |
| App EUI                        | <input type="text" value="24E124C0002A0001"/> |
| Application Port               | <input type="text" value="85"/>               |
| RS232 Port                     | <input type="text" value="86"/>               |
| Working Mode:                  | <input type="text" value="Class C"/>          |
| Join Type                      | <input type="text" value="OTAA"/>             |
| LoRaWAN Version                | <input type="text" value="V1.1.0"/>           |
| Application Key                | <input type="text" value="*****"/>            |
| Spread Factor                  | <input type="text" value="SF8-DR2"/>          |
| Confirmed Mode                 | <input checked="" type="checkbox"/>           |
| Rejoin Mode                    | <input checked="" type="checkbox"/>           |
| Set the number of packets sent | <input type="text" value="32"/> packets       |
| ADR Mode                       | <input checked="" type="checkbox"/>           |

| Parameters                  | Description                                                                            |
|-----------------------------|----------------------------------------------------------------------------------------|
| Device EUI                  | Unique ID of the device which can also be found on the label.                          |
| App EUI                     | Default App EUI is 24E124C0002A0001.                                                   |
| Application Port            | The port used for sending and receiving data except RS232 data, default port is 85.    |
| RS232 Port<br>(UC1152 Only) | The port used for sending and receiving RS232 data, default port is 86.                |
| Working Mode                | It's fixed as Class C.                                                                 |
| Join Type                   | OTAA and ABP mode are available.                                                       |
| LoRaWAN Version             | V1.0.2, V1.0.3, V1.1 are available.                                                    |
| Application Key             | Appkey for OTAA mode, default is 5572404C696E6B4C6F52613230313823.                     |
| Device Address              | DevAddr for ABP mode, default is the 5 <sup>th</sup> to 12 <sup>th</sup> digits of SN. |
| Network Session<br>Key      | Nwkskey for ABP mode, default is 5572404C696E6B4C6F52613230313823.                     |
| Application<br>Session Key  | Appskey for ABP mode, default is 5572404C696E6B4C6F52613230313823.                     |

|                |                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spread Factor  | If ADR is disabled, the device will send data via this spread factor.                                                                                                                                                                                                                                                                                                                                        |
| Confirmed Mode | If the device does not receive ACK packet from network server, it will resend data once.                                                                                                                                                                                                                                                                                                                     |
| Rejoin Mode    | Reporting interval $\leq$ 30 mins: device will send specific mounts of LoRaMAC packets to check connection status every 30 mins; If no reply after specific packets, the device will re-join.<br>Reporting interval $>$ 30 mins: device will send specific mounts of LoRaMAC packets every to check connection status every reporting interval; If no reply after specific packets, the device will re-join. |
| ADR Mode       | Allow network server to adjust datarate of the device.                                                                                                                                                                                                                                                                                                                                                       |
| Tx Power       | Transmit power of device.                                                                                                                                                                                                                                                                                                                                                                                    |

**Note:**

- 1) Please contact sales for device EUI list if there are many units.
- 2) Please contact sales if you need random App keys before purchase.
- 3) Select OTAA mode if you use Milesight IoT cloud to manage devices.
- 4) Only OTAA mode supports rejoin mode.

2. Go to “**LoRaWAN -> Channel**” to select supported frequency and select channels to send uplinks. Make sure the channels match the LoRaWAN® gateway.

| <input type="checkbox"/>            | Index | Frequency/MHz | Max Datarate | Min Datarate |
|-------------------------------------|-------|---------------|--------------|--------------|
| <input checked="" type="checkbox"/> | 0     | 868.1         | 5-SF7BW125   | 0-SF12BW125  |
| <input checked="" type="checkbox"/> | 1     | 868.3         | 5-SF7BW125   | 0-SF12BW125  |
| <input checked="" type="checkbox"/> | 2     | 868.5         | 5-SF7BW125   | 0-SF12BW125  |
| <input type="checkbox"/>            | 3     | 0             | 5-SF7BW125   | 0-SF12BW125  |
| <input type="checkbox"/>            | 4     | 0             | 5-SF7BW125   | 0-SF12BW125  |
| <input type="checkbox"/>            | 5     | 0             | 5-SF7BW125   | 0-SF12BW125  |
| <input type="checkbox"/>            | 6     | 0             | 5-SF7BW125   | 0-SF12BW125  |
| <input type="checkbox"/>            | 7     | 0             | 5-SF7BW125   | 0-SF12BW125  |

If frequency is one of CN470/AU915/US915, you can enter the index of the channel that you want to enable in the input box, making them separated by commas.

**Examples:**

1, 40: Enabling Channel 1 and Channel 40

1-40: Enabling Channel 1 to Channel 40

1-40, 60: Enabling Channel 1 to Channel 40 and Channel 60

All: Enabling all channels

Null: Indicates that all channels are disabled

Support Frequency : AU915

Enabled Channel Index: 0-71

| Channel Index | Frequency/MHz | Channel Spacing/MHz | BW/kHz |
|---------------|---------------|---------------------|--------|
| 0 - 15        | 915.2 - 918.2 | 0.2                 | 125    |
| 16 - 31       | 918.4 - 921.4 | 0.2                 | 125    |
| 32 - 47       | 921.6 - 924.6 | 0.2                 | 125    |
| 48 - 63       | 924.8 - 927.8 | 0.2                 | 125    |
| 64 - 71       | 915.9 - 927.1 | 1.6                 | 500    |

3. Go to **"LoRaWAN -> Advanced"** to configure advanced settings. You can also keep all values by default.

|                        |                                    |     |
|------------------------|------------------------------------|-----|
| TXPower                | <input type="text" value="0"/>     |     |
| Join Delay1            | <input type="text" value="5000"/>  | ms  |
| Receive Delay1         | <input type="text" value="1000"/>  | ms  |
| Receive Delay2         | <input type="text" value="2000"/>  | ms  |
| Join Trials            | <input type="text" value="0"/>     |     |
| ReTx                   | <input type="text" value="2"/>     |     |
| RX2 Datarate           | <span>SF12-DR8</span>              |     |
| RX2 Channel Frequency  | <input type="text" value="923.3"/> | MHz |
| ACK Timeout            | <input type="text" value="2000"/>  | ms  |
| Duty Cycle Switch      | <input type="checkbox"/>           |     |
| Duty Cycle             | <input type="text" value="0"/>     | %   |
| Uplink Frame Counter   | <input type="text" value="7"/>     |     |
| Downlink Frame Counter | <input type="text" value="5"/>     |     |

## 4.3 Data Interface Settings

### 4.3.1 Basic Settings

Reporting Interval  s

Device Return to Power Supply, DO Status

Change Password ☐

| Parameters                                          | Description                                                                                                                                        |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Reporting Interval                                  | Reporting interval of transmitting data to network server.Default: 600s<br><b>Note:</b> RS232 transmission will not follow the reporting interval. |
| Device returns to the power supply state, DO Status | If the device loses power and return to power supply, the device relay output will be low or high according to this parameter.                     |
| Change Password                                     | Change the password to login ToolBox.                                                                                                              |

### 4.3.2 DI/DO Settings

#### Digital Input:

1. Connect devices to corresponding DI ports according to [section 3.1](#).
2. Go to “**General**” page of UC1114 or “**General -> Basic**” page of UC1122/UC1152, select type as Digital Input.

**GPIO Settings**

Interface Type

Interface Type

#### Digital Output:

Connect devices to corresponding DO ports according to [section 3.1](#), then you can send downlinks to trigger the DO.

#### Pulse Counter:

Pulse counter feature only works with UC11 series hardware version 3.0.

1. Connect devices to corresponding DI ports.

- Go to **"General"** page of UC1114 or **"General -> Basic"** page of UC1122/UC1152, select type as Counter.

**GPIO Settings**

|                 |          |       |         |
|-----------------|----------|-------|---------|
| Interface Type  | Counter1 |       |         |
| Counter values  | 0        | Start | Refresh |
| Interface Type  | Counter2 |       |         |
| Counter2 values | 0        | Start | Refresh |

- Click "Start" or "Stop" to make the device start/stop counting.
- Check current count values by clicking "Refresh".
- Click "Clear" to make the device count from 0.

**Note:**

- UC11xx only starts counting when it detects 6 pulses from pulse devices;
- UC11xx will send non-changable counting values if you do not click "Start".

### 4.3.3 AI Settings

UC1122 has two analog inputs for analog device connection.

- Connect analog device to analog input ports.
- Go to **"General"** page to configure range and unit, you can keep all settings by default.

**Analog Input 1** ?

|      |       |
|------|-------|
| Osh  | 20.00 |
| Osl  | 4.00  |
| Unit | mA    |

**Analog Input 2** ?

|      |       |
|------|-------|
| Osh  | 20.00 |
| Osl  | 4.00  |
| Unit | mA    |

### 4.3.4 RS485 Settings

UC1152 has one RS485 port for Modbus RTU device connection.

- Connect RS485 device to RS485 port.
- Go to **"General -> RS485"** to enable RS485 and configure serial port settings. Serial port settings should be the **same** as RS485 terminal devices.

| RS485                       | RS232                               |
|-----------------------------|-------------------------------------|
| Enable                      | <input checked="" type="checkbox"/> |
| Baud Rate                   | 9600                                |
| Data Bit                    | 8 bits                              |
| Stop Bit                    | 1 bits                              |
| Parity                      | None                                |
| Modbus RS485 bridge LoRaWAN | <input checked="" type="checkbox"/> |
| Port                        | 123                                 |

| Parameters                  | Description                                                                                                                                                                                                                      |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Baud Rate                   | 4800/9600/19200/38400/57600/115200 are available.                                                                                                                                                                                |
| Data Bit                    | 8 bit is available.                                                                                                                                                                                                              |
| Stop Bit                    | 1 bit/2 bit are available.                                                                                                                                                                                                       |
| Parity                      | None, Odd and Even are available.                                                                                                                                                                                                |
| Modbus RS485 bridge LoRaWAN | <p>If this mode is enabled, UC1152 will transparent Modbus RTU commands from network server to RS485 terminal devices and send Modbus reply originally back to network server.</p> <p><b>Port:</b> Select from 2-84, 86-223.</p> |

3. Go to “**Channel**” page, click  to add Modbus channels, then save configurations.

#### Channel >

|                    |    |    |               |     |    |                 |   |
|--------------------|----|----|---------------|-----|----|-----------------|---|
| Execution Interval | 50 | ms | Max Resp Time | 500 | ms | Max Retry Times | 3 |
|--------------------|----|----|---------------|-----|----|-----------------|---|

| Channel ID | Name        | Slave ID | Address | Quantity | Type                 | Sign                                | Decimal Place | Value |
|------------|-------------|----------|---------|----------|----------------------|-------------------------------------|---------------|-------|
| 1          | Humidity    | 1        | 0       | 1        | Holding Register(16) | <input checked="" type="checkbox"/> | 1             |       |
| 2          | Temperature | 1        | 1       | 1        | Holding Register(16) | <input checked="" type="checkbox"/> | 1             |       |

Save

Up to 16 channels

| Parameters | Description                                         |
|------------|-----------------------------------------------------|
| Execution  | The execution interval between each Modbus command. |



|                |                                                                                                                                                                                           |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Interval       |                                                                                                                                                                                           |
| Max Resp Time  | The maximum response time that the UC1152 waits for the reply to the command. If it does not get a response after the max response time, it is determined that the command has timed out. |
| Max Retry Time | Set the maximum retry times after device fails to read data from RS485 terminal devices.                                                                                                  |
| Channel ID     | Select the channel ID you want to configure, 16 channels selectable.                                                                                                                      |
| Name           | Customize the name to identify every Modbus channel.                                                                                                                                      |
| Slave ID       | Set Modbus slave ID of terminal device.                                                                                                                                                   |
| Address        | The starting address for reading.                                                                                                                                                         |
| Quantity       | Set read how many digits from starting address. It fixes to 1.                                                                                                                            |
| Type           | Select data type of Modbus channels.                                                                                                                                                      |
| Sign           | The tick indicates that the value has a plus or minus sign.                                                                                                                               |
| Decimal Place  | Indicate the decimal place of the channel reading.<br><b>Example:</b> the channel value is 1234, and a Decimal Place is set to 2, then the actual value is 12.34.                         |

**Example:** If you configure as following picture, UC1152 will send Modbus read command to terminal device regularly: 01 03 00 00 00 01 84 0A

The screenshot shows the configuration interface for a single Modbus channel. The fields are as follows:

| Channel ID | Name        | Slave ID | Address | Quantity | Type                    | Sign                     | Decimal Place | Value |
|------------|-------------|----------|---------|----------|-------------------------|--------------------------|---------------|-------|
| 1          | Temperature | 1        | 0       | 1        | Holding Register(INT16) | <input type="checkbox"/> | 0             |       |

Buttons: Save, Fetch, (X), (+). Text: Up to 16 channels

4. Click "Fetch" to check if UC1152 can read correct data from terminal devices.

The screenshot shows the configuration interface with three channels. The first channel has data fetched, indicated by a green checkmark and the value 554.

| Channel ID | Name | Slave ID | Address | Quantity | Type                    | Sign                     | Value           |
|------------|------|----------|---------|----------|-------------------------|--------------------------|-----------------|
| 1          | 1    | 1        | 16      | 1        | Input Register(INT16)   | <input type="checkbox"/> | 554 ✓ Fetch (X) |
| 2          | 2    | 2        | 12      | 1        | Holding Register(INT16) | <input type="checkbox"/> | Fetch (X)       |
| 3          | 1    | 1        | 17      | 1        | Input Register(INT16)   | <input type="checkbox"/> | Fetch (X) (+)   |

**Note:**

- 1) Do not click "Fetch" frequently since response time to reply is differ for every terminal device.
- 2) For hardware version 1.x/2.x, UC1152 supports 8 Modbus channels; for hardware version 3.0, UC1152 supports 16 Modbus channels.

### 4.3.5 RS232 Settings

UC1152 has one RS232 for device transparent communication.

1. Connect RS232 device to RS232 port.
2. Go to “**General -> RS232**” to enable RS232 and configure serial port settings. Serial port settings should be the **same** as RS232 terminal devices.

|                       |                                     |
|-----------------------|-------------------------------------|
| Enable                | <input checked="" type="checkbox"/> |
| Baud Rate             | 115200                              |
| Data Bit              | 8 bits                              |
| Stop Bit              | 1 bits                              |
| Parity                | None                                |
| Packet Length         | 256 byte                            |
| Serial Frame Interval | 100 ms                              |

| Parameters            | Description                                                                                                                                                                                                                                                                                                               |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Baud Rate             | 4800/9600/19200/38400/57600/115200 are available.                                                                                                                                                                                                                                                                         |
| Data Bit              | 8 bit is available.                                                                                                                                                                                                                                                                                                       |
| Stop Bit              | 1 bit/2 bit are available.                                                                                                                                                                                                                                                                                                |
| Parity                | None, Odd and Even are available.                                                                                                                                                                                                                                                                                         |
| Packet Length         | When UC1152 receive RS232 data up to this length, it will fragment it as a single packet and send to network server.                                                                                                                                                                                                      |
| Serial Frame Interval | <p>The interval that the device sends out real serial data stored in the buffer area to public network. The range is 10-65535 milliseconds.</p> <p><b>Note:</b> data will be sent out to public network when real serial data size reaches the preset packet size, even though it's within the serial frame interval.</p> |

## 4.4 IF-THEN Command

UC11 series support configuring locally IF-THEN commands to do some actions automatically even without network connection. Besides, you can backup your command settings and import to other devices.

1. Go to "Command" page, click "Read command From Device" to check device command settings. If there is not any command or you need to change one command, click "Edit".

**Settings >**

Read command From Device   Read a command File   Save the command to Device   Save the command as File

| ID | Configuration                                                                                                                                                    | Edit | Delete |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------|
| 1  | If digital input1 and remaining inactive for longer than 2359.3s, then send a custom message and it will not allowed to trigger again until 65.536s has elapsed. |      |        |
| 2  |                                                                                                                                                                  |      |        |
| 3  |                                                                                                                                                                  |      |        |
| 4  |                                                                                                                                                                  |      |        |

**Configuration for command NO.1**

**If** Digital Input1

is continued for 2359.3 s

☒ Set lockout time ? 65.536 s

**Then** Send a custom message **content is** 111222 +

2. Set a IF condition based on the terminal device data or UC11 device status.

| Condition     | Description                                                                                                                                                                                                                                                                                                            |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Time          | Set the time condition. The device time can be synced in Status page or you can send downlink command to configure the time.                                                                                                                                                                                           |
| Digital Input | <p>When UC11 device detect the DI as a specific status.</p> <p><b>is continued for:</b> the DI changed status should last for some time.</p> <p><b>Set lockout time:</b> after the lockout time, UC11 device will detect if DI status matches the condition. 0 means this IF condition will only be detected once.</p> |

|                     |                                                                                                                                                                                                                                                                                                                                                |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Received a message  | When UC11 device receive a specific message from network server. The NS message hex format is ff12+message length + message content.<br><b>Example:</b> set the message content as character "P", then you need to send message as ff120450.(whole message length is 4 bytes, 50 means "P").                                                   |
| The Device Restarts | Reboot the device.                                                                                                                                                                                                                                                                                                                             |
| Channel             | When Modbus channel reaches a specific value/range. This only works in UC1152 device.<br><b>is continued for:</b> the Modbus channel value should last for some time.<br><b>Set lockout time:</b> after the lockout time, UC11 device will detect if Modbus value matches the condition. 0 means this IF condition will only be detected once. |
| Analog              | When analog value reaches a specific value/range. This only works in UC1122 device.<br><b>is continued for:</b> the analog value should last for some time.<br><b>Set lockout time:</b> after the lockout time, UC11 device will detect if analog value matches the condition. 0 means this IF condition will only be detected once.           |
| Counter             | When pulse counter reaches a specific value. This only works when DI works as counter mode.                                                                                                                                                                                                                                                    |

3. Set THEN action according to your request. You can add at most 3 actions in one command.

| Action                | Description                                                                                                                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Send a custom message | Send message to network server.                                                                                                                                                                                      |
| Output Trigger        | DO can be set to activated/de-activated/change status.<br><b>Delay Time:</b> this action will trigger after a specific time;<br><b>Duration:</b> the output status will last for a specific time, 0 means permanent. |
| Restart the Device    | Reboot the device.                                                                                                                                                                                                   |

4. Save the command, then click "Save the command to Device" to make it work.

5. Click "Save the command as File" to save your current command settings to a .dat file. If you need to import it to other device, click "Read a command File" to import the .dat file.

## 4.5 Maintenance

### 4.5.1 Upgrade

UC11 series support upgrade locally via ToolBox software.

1. Download firmware from [www.milesight-iot.com](http://www.milesight-iot.com) to your PC.
2. Go to “**Maintenance -> Upgrade**”, click “**Browse**” to import firmware and upgrade the device.

**Note:** Any operation on ToolBox is not allowed during upgrading, otherwise the upgrading will be interrupted, or even the device will break down.

#### Maintenance >

**Upgrade**

|                          |                      |               |                |
|--------------------------|----------------------|---------------|----------------|
| Model:                   | UC1152-915           |               |                |
| Firmware Version:        | 03.11                |               |                |
| Hardware Version:        | 3.0                  |               |                |
| Update Locally           | <input type="text"/> | <b>Browse</b> | <b>Upgrade</b> |
| Restore Factory Defaults | <b>Reset</b>         |               |                |

### 4.5.2 Reset to Factory Default

Please select one of following methods to reset device:

**Via Hardware:** Power off and open the case of UC11, hold on the button on the board and then power on the device at the same time, release the button when the LED blinks.

**Via ToolBox Software:** Go to “Maintenance->Upgrade” to click “Reset”.

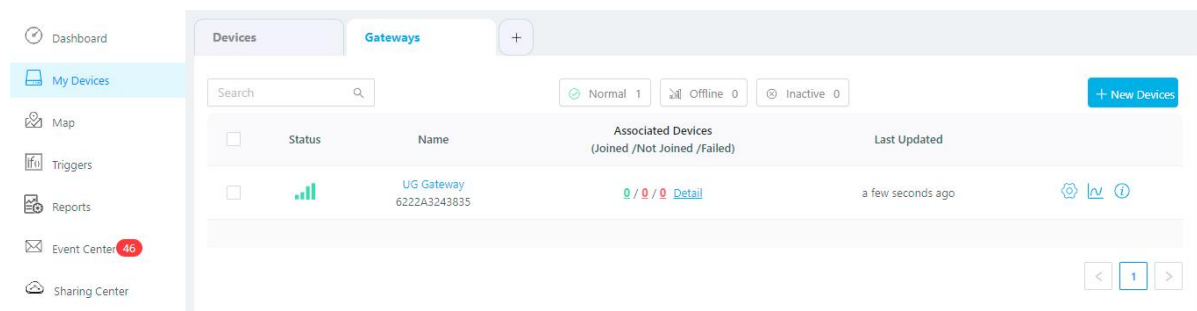
**Upgrade**

|                          |                      |               |                |
|--------------------------|----------------------|---------------|----------------|
| Model:                   | UC1152-915           |               |                |
| Firmware Version:        | 03.11                |               |                |
| Hardware Version:        | 3.0                  |               |                |
| Update Locally           | <input type="text"/> | <b>Browse</b> | <b>Upgrade</b> |
| Restore Factory Defaults | <b>Reset</b>         |               |                |

## 5. Milesight IoT Cloud Management

UC11 series can be managed by Milesight IoT Cloud platform. Milesight IoT cloud is a comprehensive platform that provides multiple services including device remote management and data visualization with the easiest operation procedures. Please register a Milesight IoT Cloud account before operating following steps.

1. Ensure Milesight LoRaWAN® gateway is online in Milesight IoT Cloud. For more info about connecting gateway to cloud please refer to Gateway User Guide.



2. Go to “My Devices” page and click “+New Devices”. Fill in the SN of UC11 series and select associated gateway.

The screenshot shows the 'Add Device' form. It has five input fields: '\* SN:' with value '6116A4241869', '\* Name:' with value 'UC Remote IO', '\* Associated Gateway:' with a dropdown menu showing 'UG Gateway', '\* Device EUI:' with value '24e124116A424186', and '\* Application Key:' with value '5572404c696e6b4c6f52613230313823'. At the bottom right are 'Cancel' and 'Confirm' buttons.

3. After UC11 series is online in Milesight IoT Cloud, click  and go to “Interface Settings” to select used interfaces and customize the name, sign and formulas.

**Note:** Modbus channel settings should be the same as the configuration in ToolBox.

Milesight IoT Cloud

Dashboard / UC1152 / Interface Settings

Basic Settings Interface Settings Maintenance Log

Refresh Share

| Enable                   | Name | Type           | Low | High | Current Value | Alarm Threshold |
|--------------------------|------|----------------|-----|------|---------------|-----------------|
| <input type="checkbox"/> | DI_1 | Digital Input  | Low | High | -             | = Disable       |
| <input type="checkbox"/> | DO_1 | Digital Output | Low | High | -             | = Disable       |

| Channel ID | Channel Name | Type           | Sign                                | Raw Data          | Formula | Value | Unit | Alarm Threshold      | Operation            |
|------------|--------------|----------------|-------------------------------------|-------------------|---------|-------|------|----------------------|----------------------|
| 1          | Humidity     | REG_HOLD_INT16 | <input checked="" type="checkbox"/> | HEX4302<br>DEC579 | x/10    | 57.9  | %    | <input type="text"/> | <input type="text"/> |
| 2          | Temperature  | REG_HOLD_INT16 | <input checked="" type="checkbox"/> | HEX1001<br>DEC272 | x/10    | 27.2  | °C   | <input type="text"/> | <input type="text"/> |

Add

Save

## 6. Device Payload

UC11 Series use the standard Milesight IoT payload format based on IPSO. Please refer to the ***UC11 Series Communication Protocol***, for decoders of Milesight IoT products please click [here](#).

**-END-**