

# **UC50x Series**

User Guide

Milesight IoT

#### **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.
- Make sure electronic components do not drop out of the enclosure while opening.
- When installing the battery, please install it accurately, and do not install the reverse or wrong model.
- The device must never be subjected to shocks or impacts.

#### **Declaration of Conformity**

UC50x series is in conformity with the essential requirements and other relevant provisions of the CE, FCC, and RoHS.



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#### **Revision History**

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## 1. Product Introduction

#### 1.1 Overview

UC50x series is a LoRaWAN<sup>®</sup> controller used for data acquisition from multiple sensors. It contains different I/O interfaces such as analog inputs, digital inputs, digital outputs, serial ports and so on, which simplify the deployment and replacement of LoRaWAN<sup>®</sup> networks.

UC50x series can be easily and quickly configured by NFC or wired USB port. For outdoor applications, it provides solar or built-in battery power supply and is equipped with IP67-rated enclosure and M12 connectors to protect itself from water and dust in harsh environments.

#### 1.2 Features

- Easy to connect with multiple wired sensors through GPIO/AI/RS232/RS485 interfaces
- Long transmission distance up to 11km with line of sight
- Waterproof design including IP67 case and M12 connectors
- Solar powered and built-in battery optional
- Quick wireless configuration via NFC
- Compliant with standard LoRaWAN<sup>®</sup> gateways and network servers
- Quick and easy management with Milesight IoT Cloud solution

## 2. Hardware Introduction

## 2.1 Packing List



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

## 2.2 Hardware Overview



UC501

UC502

#### Data Interface 1:

Pin	Description		
1	5V/9V/12V	(Switchable)	
2	3.	3V	
3	G	ND	
4	GP	901	
5	GP	9102	
6	RS232/RS485(Switchable)		
7			
8	Reserved		
Pin	RS232	RS485	
6	TXD	А	
7	RXD	В	

#### Data Interface 2:

Pin	Description	
1	5V/9V/12V(Switchable)	
2	3.3V	
3	GND	
4	Analog Input 1	
5	Analog Input 2	
6	Reserved	





#### Power Interface (UC501):

Pin	Description
1	VCC(5-24V)
2	GND



## 2.3 Internal Interfaces



Indicator Light Type-C USB

#### **DIP Switch:**

Interface	DIP Switch
Power Output	12V: 1 on 2 off 3 off
	9V: 1 off 2 on 3 off
	5V: 1 of 2 off 3 on
Analog Input	4-20mA ADC: 1 off 2 on 3 on
	0-10V ADC: 1 on 2 off 3 off
	Add 120 $\Omega$ resistor between A and B: 1 on 2 off 3 off
RS485	Add 1k $\Omega$ pull-up resistor on A: 1 off 2 on 3 off
	Add 1k $\Omega$ pull-down resistor on B: 1 of 2 off 3 on

#### Note:

1) Analog inputs are set to 4-20mA by default, power outputs are set to 12V by default.

2) Power output on interface 1 is used for powering serial port devices, power output on interface 2 is used for powering analog devices.

#### **Power Button:**

Function	Action	LED Indication
Turn On	Press and hold the button for more than 3s.	Off → On
Turn Off	Press and hold the button for more than 3s.	On -> Off
Reset	Press and hold the button for more than 10s.	Blinks.
Check		Light On: Device is on.
On/Off Status	Quickly press the power button.	Light Off: Device is off.

## 2.4 Dimensions(mm)



## 3. Hardware Installation

## 3.1 Hardware Switch

When using the analog input or power output of UC50x series, please follow the steps to switch the working mode of hardware interface:

1. Remove the screw caps and take off the roof cover.

2. Change DIP switches that are related analog inputs and power outputs as shown in <u>Section</u> <u>2.3</u>.

3. Put back the roof cover and screw the screws.

Note: Please turn off the device before changing DIP switches.



## 3.2 UC50x Installation

#### **Wall Mounting**

Make sure you have wall mounting bracket, bracket mounting screws, wall plugs, wall mounting screws and other required tools.

#### Steps:

1. Mount the enclosure to the mounting bracket with the bracket mounting screws.



2. Align the mounting bracket horizontally to the desired position on the wall, use a marker pen to mark four mounting holes on the wall, and then remove the mounting bracket from the wall. Note: The connecting lines of adjacent points are at right angles.

3. Drill the four holes by using your drill with a 6 mm drill bit on the positions you marked previously on the wall.

4. Insert four wall plugs into the holes respectively.

5. Mount the mounting bracket horizontally to the wall by fixing the wall mounting screws into the wall plugs.



#### **Pole Mounting**

Make sure you have wall mounting bracket, bracket mounting screws, hose clamp and other required tools.

#### Steps:

1. Mount the enclosure to the mounting bracket with the bracket mounting screws.



2. Loosen the hose clamp by turning the locking mechanism counter-clockwise.



3. Straighten out the hose clamp and slide it through the rectangular holes in the mounting bracket, wrap the hose clamp around the pole.

4. Use a screwdriver to tighten the locking mechanism by turning it clockwise.



## 4. Operation Guide

#### 4.1 Log in the ToolBox

UC50x series can be monitored and configured via ToolBox APP or ToolBox software. Please select one of them to complete configuration.

#### 4.1.1 NFC Configuration

#### Preparation:

- Smartphone (NFC supported)
- Milesight ToolBox APP: V1.3.9 and above

#### Steps:

- 1. Download and install from Google Play or Apple Store.
- 2. Enable NFC on the smartphone and open "Milesight ToolBox" APP.
- 3. Attach the smartphone with NFC area to the device to read basic information.



4. Basic information and settings of devices will be shown on ToolBox if it's recognized

successfully. You can turn on/off the device by tapping the button on the Device Status. In order to protect the security of devices, password validation is required when configuring via unused phone. Default password is **123456**.

Status		
SN		6412A4304414
Model		UC501-915M
Device EUI	24e	124412a430441
Firmware Version		V1.1
Hardware Version		V2.1
Device Status		Off 🌒
	Read	
	nedu	

- 5. Tap "Read" button to check current status of device.
- 6. Tap "Write" button to write all your settings to the device.

Device

#### Note:

1) Ensure the location of smartphone NFC area and it's recommended to take off phone case.

2) If the smartphone fails to read/write configurations via NFC, keep the phone away and back to try again.

3) UC50x series can also be configured by dedicated NFC reader, which can be purchased from Milesight IoT.

#### 4.1.2 USB Configuration

#### **Preparation:**

- Type-C USB cable
- PC (Windows 10 is recommended)
- ToolBox: V6.35 and above



#### Steps:

- 1. Download ToolBox from <u>Milesight IoT website</u>.
- 2. Open the case of UC50x and connect the UC50x to computer via type-C port.



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

Туре	General	-
Serial port	COM4	•
Login passw	rord	
Baud rate	115200	-
Data bits	8	•
Parity bits	None	•
Stop bits	1	•

4. After logging in the ToolBox, you can click "Power On" or "Power Off" to turn on/off device and change other settings.

	Status >		Power On
Status	Model: Serial Number:	UC501-915 6412A4304414	
General	Firmware Version: Hardware Version: Device Status: Join Status: RSSI/SNR:	01.01 2.1 Of	
<b>((0))</b> LoRaWAN Settings	Battery: Channel Mask: Uplink Frame-counter: Downlink Frame-counter:	· · ·	

## 4.2 LoRaWAN Settings

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

Step 1: Go to "LoRaWAN -> Basic" of ToolBox software or "Setting->LoRaWAN Settings" for ToolBox APP to configure join type, App EUI, App Key and other information. You can also keep all settings by default.

Device EUI	24E124412A430441
App EUI	24E124C0002A0001
Application Port	85
Working Mode:	Class A
Join Type	OTAA 💌
Application Key	******
Spread Factor	SF10-DR2
Comfirmed Mode	
Rejoin Mode 🤇	
Set the number of packets sent	32 packets
ADR Mode	
TXPower	TXPower0-22 dBm

Parameters	Description
Device EUI	Unique ID of the device which can also be found on the label.
App EUI	Default App EUI is 24E124C0002A001.
	The port used for sending and receiving data, default port is 85.
Application Port	Note: RS232 data will be transmitted via another port.
	UC501: Class A and Class C are available;
Working Mode	UC502: Class A.
Join Type	OTAA and ABP mode 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	
Key	Nwkskey for ABP mode, default is 5572404C696E6B4C6F52613230313823.
Application	
Session Key	Appskey for ABP mode, default is 5572404C696E6B4C6F52613230313823.
Spread Factor	If ADR is disabled, the device will send data via this spread factor.
	If the device does not receive ACK packet from network server, it will resend
Confirmed Mode	data 3 times at most.
Rejoin Mode	Reporting interval ≤ 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.
	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	Based on LoRaWAN <sup>®</sup> regional parameter document.

#### 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.

Step 2: Go to "**LoRaWAN** -> **Channel**" of ToolBox software or "**Setting**->**LoRaWAN Settings**" for ToolBox APP to select supported frequency and select channels to send uplinks. Make sure the channels match the LoRaWAN<sup>®</sup> gateway.

Basic		Channel				
	Index	Support Frequency : Frequency/MHz	EU868 Max Datarate	T	Min Datarate	
	0	868.1	5-SF7BW125	<u> </u>	0-SF12BW125	<u> </u>
	1	868.3	5-SF7BW125	<u>*</u>	0-SF12BW125	<u>*</u>
2	2	868.5	5-SF7BW125	<u> </u>	0-SF12BW125	<u> </u>
	3	0	5-SF7BW125	<u>.</u>	0-SF12BW125	<u>*</u>
	4	0	5-SF7BW125	<u> </u>	0-SF12BW125	<u> </u>
	5	0	5-SF7BW125	<u></u>	0-SF12BW125	Ŧ
	6	0	5-SF7BW125	<u> </u>	0-SF12BW125	<u></u>
	7	0	5.057DW405	-1	0.0540004405	21

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						
inabled Channel Index: 0-71								
Channel Index	Frequency/MHz	Channel Spacing/MHz	BW/kHz					
<mark>0 -</mark> 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					

#### Note:

For -868M model, default frequency is EU868;

For -915M model, default frequency is AU915.

#### 4.3 Interface Settings

UC50x series support data collection by multiple interfaces including GPIOs, analog inputs and serial ports. Besides, it can also power the terminal devices by power output interfaces. Basic settings are as follows:

Step 1: Go to "General->Basic" of ToolBox software or "Setting->General Settings" page to change the reporting interval.

Reporting Interval	600	S
The device returns to the power supply state	Last working status	•
Interface 1 (Pin2) 3V3 Output		
Interface 2 (Pin2) 3V3 Output		
Change Password		

Parameters	Description
Reporting Interval	Reporting interval of transmitting data to network server.Default: 600s <b>Note:</b> RS232 transmission will not follow the reporting interval.
The device returns to the power supply state	If the device loses power and return to power supply, the device will be on or off according to this parameter.

Interface 1/2 3V3	Enable 3.3V power output. After enabled, the power output will supply
Output	power <b>continuously</b> .
Change Password	Change the password for ToolBox APP or software to read/write this
	device.

Step 2: Go to corresponding pages to change GPIO, analog input or serial port settings as following chapters.

#### 4.3.1 RS485 Settings

Step 1: Connect RS485 device to RS485 port on interface 1. If you need UC50x to power this device, please connect the power cable to 5V/9V/12V power output on interface 1.

Step 2: Go to "General -> Serial" of ToolBox software or "Setting->Serial Setting" to enable RS485 and configure serial port settings. Serial port settings should the same as RS485 terminal devices.

Enable		
Interface Type	RS485 (Modbus Master) 💌	
Interface 1 (Pin1) 5/9/12V Output		
Baud Rate	9600 💌	
Data Bit	8 bits	
Stop Bit	1 bits	l
Parity	None	
Execution Interval	50	] m
Max Resp Time	500	m
Max Retry Times	3	]
Modbus RS485 bridge LoRaW	AN	

Parameters	Description
Interface 1/(Pin 1) 5V/9V/12V	Enable 5V/9V/12V power output of interface 1 to supply power to RS485 terminal devices. It's 12V by default and you can change <u>DIP switches</u> to change voltage.
Power Output Time Before Collect	UC50x will power the RS485 terminal devices for a period of time before collecting data for terminal device initialization.
Baud Rate	300/1200/2400/4800/9600/19200/38400/57600/115200 are available.
Data Bit	8 bit is available.

Stop Bit	1 bit/2 bit are available.
Parity	None, Odd and Oven are available.
Execution Interval	The execution interval between each Modbus command.
Max Resp Time	The maximum response time that the UC50x 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.
Modbus RS485 bridge LoRaWAN	If this mode is enabled, UC50x will transparent Modbus RTU commands from network server to RS485 terminal devices and send Modbus reply originally back to network server. <b>Port:</b> Select from 2-84, 86-223.

**Note:** When you use power output to power RS485 Modbus slave devices, it only supplies power when reporting interval is coming.It's suggested to power slave devices with external power during the test.

Step 3: Click  $\bigcirc$  to add Modbus channels, then save configurations.

Channel ID	Name	Slave ID	Address	Quantity	Туре	Sign	Value		
1 💌	Temperature	1	0	1	Input Register(INT16)			Fetch	$\otimes$ (+)

Parameters	Description
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.
Туре	Select data type of Modbus channels.
Sign	The tick indicates that the value has a plus or minus sign.

**Example:** If you configure as following picture, UC50x will send Modbus read command to terminal device regularly: 01 03 00 00 00 01 84 0A

Channel ID	Name	Slave ID	Address	Quantity	Туре	Sign	Decimal Place	Value	
1 💌	Temperature	1	0	1	Holding Register(INT16)		0		Fetch 🛞 🕂
Save									Up to 16 channels

Step 4: For ToolBox software, click "Fetch" to check if UC50x can read correct data from terminal devices. You can also click "Fetch" on the top of list to fetch all channel data.

Channel ID	Name	Slave ID	Address	Quantity	Туре		Sign	Value		
1	1	1	16	1	Input Register(INT16)	•		554 (	Fetch	$\otimes$
2	2	2	12	1	Holding Register(INT16)	۲			Fetch	$\otimes$
3	1	] [1]	17	1	Input Register(INT16)	¥				$\otimes \oplus$

Note: Please do not click "Fetch" frequently since response time to reply is differ for every terminal device.

For ToolBox APP,

a. Tap every Modbus channel, click "Collect" and attach smart phone to device to make device collect data.



b. Click "Fetch" and attach smart phone to make APP read the data.You can also tap "Collect All" and "Fetch All" to fetch all channel data.

#### 4.3.2 RS232 Settings

Step 1: Connect RS232 device to RS232 port on interface 1. If you need UC50x to power this device, please connect the power cable to 5V/9V/12V power output on interface 1.

Step 2: Go to "General -> Serial" of ToolBox software or "Setting->Serial Setting" to enable RS232 and configure serial port settings. Serial port settings should the same as RS232 terminal devices.

Enable		
Interface Type	RS232	•
Interface 1 (Pin1) 5/9/12V Output		
Baud Rate	9600	•
Data Bit	8 bits	•
Stop Bit	1 bits	•
Parity	None	•
Port	86	

Parameters	Description
	Enable 5V/9V/12V power output of interface 1 to supply power to RS232
Interface 1/(Pin 1)	terminal devices <b>continuously</b> . Only UC501 supports this feature.
5V/9V/12V	Note: Power output is 12V by default and you can change DIP switches to
	change voltage.
Baud Rate	300/1200/2400/4800/9600/19200/38400/57600/115200 are available.
Data Bit	8 bit is available.
Stop Bit	1 bit/2 bit are available.
Parity	None, Odd and Oven are available.
Port	The port used for RS232 data transmission.

#### 4.3.3 GPIO Settings

Step 1: Connect devices to GPIO ports on interface 1.

Step 2: Go to "General -> GPIO" of ToolBox software or "Setting->GPIO Setting" to enable GPIO port.

Interface Name		GPIO 1		
Enable				
Interface Type		Digital Input1	•	
Digital Input	?	Pull Down		
Status				Fetch
Interface Name		GPIO 2		
Enable		$\square$		
Interface Type		Digital Input2		
Digital Input	(?)	Pull Down		
Status				Fetch
Save				

Step 3: Select GPIO type according to your requirements.

- Digital Input: detect high or low status of devices;
- Digital Output: Send voltage signal to trigger devices;
- **Counter:** pulse counter.

#### **Digital Input:**

Step 4: Select initial status of digital input. If pull up is selected, falling edge will be triggered;

If pull down is selected, rising edge will be triggered.

Step 5: Click "Fetch" to check current status of digital input.

Interface Name		GPIO 1			
Enable					
Interface Type		Digital Input1			
Digital Input	?	Pull Down	-		
Status		Low		$\odot$	Fetch

#### **Digital Output:**

Step 4: Click "Switch" to check if UC50x can trigger devices by digital output.

Step 5: Click "Fetch" to check current status of digital output.

Interface Name	GPIO 1
Enable	
Interface Type	Digital Output1
Status	Low 🥥 Fetch Switch

#### **Pulse Counter:**

Step 4: Select initial status of digital input. If pull up is selected, falling edge will be triggered and increase 1; if pull down is selected, rising edge will be triggered and increase 1.

nterface Name		GPIO 1				
Enable						
Interface Type		Counter	•			
Digital Input	?	Pull Down	•			
Digital Filter	0					
keep last value when	power off					
Counter values		0		Refresh	Start	Clear

Parameters	Description
Digital Input	Initial status of counter. Pull Down: Increase 1 when detecting rising edge Pull Up/None: Increase 1 when detecting falling edge
Digital Filter	It's recommended to enable when pulse period is greater than 250us.
Keep last value when power off	Keep counted values when device powers off.

Step 5: Click "Start" or "Stop" to make the device start/stop counting.

Step 6: Check current count values by clicking "Refresh".

Step 7: Click "Clear" to make the device count from 0.

#### Note:

1) UC50x only starts counting when it detects 6 pulses from pulse devices;

2) UC50x will send non-changable counting values if you do not click "Start".

## 4.3.4 AI Settings

Step 1: Connect analog device to analog input ports on interface 2. If you need UC50x to power the analog device, connect the power cable of device to 5V/9V/12V power output on interface 2.

Step 2: Go to "General -> AI" of ToolBox software or "Setting->AI Setting" to enable analog input.

Interface 2 (Pin1) 5/9/12V Output		
Power Output Time Before Collect	0	ms
Interface Name	Analog Input 1	
Enable		
Analog Input Signal Type	4-20 mA	•
Status		Fetch
Interface Name	Analog Input 2	
Enable		
Analog Input Signal Type	0-10 V	•
Status		Fetch

Step 3: Select analog input type according to analog device type. Note: Ensure <u>DIP switches</u> has changed before changing "Analog Input Signal Type" to 0-10V.

Step 4: Enable "Interface 2(Pin 1) 5V/9V/12V" and configure "Power Output Time Before Collect",

UC50x will power the analog devices for a period of time before collecting data.

Interface 2 (Pin1) 5/9/12V Output			
Power Output Time Before Collect	0	ms	

**Note:** When you use power output to power analog devices, it only supplies power when reporting interval is coming. It's suggested to power slave devices with external power during the test.

Step 5: For ToolBox software, click "Fetch" to check if UC50x can read correct data from analog devices.

Interface Name	Analog Input 2	
Enable		
Analog Input Signal Type	0-10 V	•
Status	0.00 V	Setch

For ToolBox APP,

- a. Click "Collect" and attach smart phone to device to make device collect data.
- b. Click "Fetch" and attach smart phone to make APP read the data.

AI Settings		$\wedge$
Interface 2(Pin 1) 5/9/12V		
Analog Input 1		
Analog input Signal Type		
4-20mA		•
Status	- mA	Collect

## 4.4 Maintenance

#### 4.4.1 Upgrade

UC50x series support upgrade locally or over the air only via ToolBox software.

Upgrade	Backup and Reset			
Model:	UC501-915			
Firmware Vers	ion: 01.01			
Hardware Vers	ion: 2.1			
Domain:	Singapore Serv	ver 💌		
FOTA:	Up to da	ate		
Update Locally	/		Browse	Upgrade

#### **Upgrade Locally:**

Step 1: Click "Browse" to import firmware from your computer. Step 2: Click "Upgrade" to start the upgrade.

#### **Upgrade Over the Air:**

Step 1: Select the upgraded server according to your region and make sure your computer can access the Internet.

Step 2: Click "Up to date" to search for latest firmware of devices. If your firmware is latest version, ToolBox will prompt "Your device is up to date".

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

#### 4.4.2 Backup

UC50x devices support configuration backup for easy and quick device configuration in bulk. Backup is allowed only for devices with the same model and LoRa frequency band. Please select one of following methods to backup device:

#### Via ToolBox Software

Step 1: Go to "Maintenance->Backup and Reset", click "Export" to save current configuration as json format backup file.

Step 2: Click "Browse" to select backup file, then click "Import" to import the configurations.

Upgrade	Backup and Reset			
Config Backup		Export		
Config File			Browse	Import
Restore Factor	y Defaults	Reset		

#### Via ToolBox APP

Step 1: Go to "Template" page on the APP and save current settings as a template. You can also edit the template file.

Step 2: Select one template file which saved in the smartphone and click "Write", then attach to another device to write configuration.



#### 4.4.3 Reset to Factory Default

Please select one of following methods to reset device:

Via Hardware: Open the case of UC50x and hold on power button more than 10s.

Via ToolBox Software: Go to "Maintenance->Backup and Reset" to click "Reset".

Upgrade	Backup and Reset			
Config Backup	Expo	ort		
Config File			Browse	Import
Restore Factor	y Defaults Res	et		

**Via ToolBox APP:** Go to "Device->Reset" to click "Reset", then attach smart phone with NFC area to UC50x to complete reset.





## 5. Milesight IoT Cloud Management

UC50x 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.

## 5.1 Add a Milesight Gateway

Step 1: Enable "Milesight" type network server and "Milesight IoT Cloud" mode in gateway web GUI.

Status	General	Radios	Advanced	Custom	Traffic	
Packet Forwarder	General Settir					
Network Server	Gateway EUI Gateway ID	24E124FF				
Network	Frequency-Syn	Disabled	~			
System	Multi-Destinati	ion				
Maintenance		ID	Enable	Туре	Server Address	Operation
maintenance P		0	Enabled	Milesight	localhost	
APP						<b>H</b>
Status	Gen	eral A	pplications	Profiles	Device	Gateways
Packet Forwarder	Gene	ral Setting	_			
Network Server	Enabl	le ight IoT Cloud				
Network	NetID	i)	010203			
	Join E	Delay	5		sec	
System	RX1 [	Delay	1		sec	
		e Time	8760-0-0		hh-mm-ss	
Maintenance	Log L	evel	info	~		

**Note:** Ensure gateway has accessed the Internet.

Step 2: Go to "My Devices" page and click "+New Devices" to add gateway to Milesight IoT Cloud via SN. Gateway will be added under "Gateways" menu.

Search		Q. Ø	Normal 0 🖄 Alarm 0 교 Offline 2	⊗ Inactive 0		+ New Devices
	Status	Add Device		×	Update Time	
	38	* SN: 6222A	3243835		2020-12-01 09:10	0 <u>v</u> 0
	201	* Name : UG Ga	eway		2020-03-12 14:26	@ <u>~</u> @
	DUDĄ	(i) Please enal	ole Milesight IoT Cloud mode on gateway first.		2020 00 12 14/20	
						< 1
			Cancer	oniinii		
		Status	Status  Add Device	Status  Add Device    Add Device  * SN: 6222A3243835    Add  * Name:    UG Gateway    Image: I	Status  Add Device    Add Device  ×    Add  • SN:    Add  • SN:    Add  • SN:    Ball  • SN:    Ball  • Name:    UG Gateway    Image: Please enable Milesight tot Cloud mode on gateway first.	Status  Add Device  Update Time    Add Device  ×  2020-12-01 09:10    Add  × SN:  6222A3243835    Add

Step 3: Check if gateway is online in Milesight IoT Cloud.

🕑 Dashboard	Devices		Gateways	+		
My Devices	Search		Q	⊘ Normal 1 🛛 🔊 Offline 0 🛞 Ir	nactive 0	+ New Devices
🖄 Мар		Status	Name	Associated Devices (Joined /Not Joined /Failed)	Last Updated	
If Triggers		at	UG Gateway		a few seconds ago	<u>ه ۲۷</u>
Reports		all	6222A3243835	¥7 ¥7 ¥ ¥××××		
Event Center 46						
Sharing Center						

## 5.2 Add UC50x to Milesight IoT Cloud

Step 1: Go to "My Devices" page and click "+New Devices". Fill in the SN of UC50x and select associated gateway.

* SN:	6412A5196409	
* Name:	UC501	
* Associated Gateway:	UG Gateway	V
* Device EUI:	24e124412A519640	
* Application Key:	5572404c696e6b4c6f52613230313823	

Step 2: Default working mode of UC50x devices is Class A. If you need to change the mode of UC501 to Class C, click and go to "Basic Settings" to change mode to Class C.

asic Settings	Interface Settings	Maintenance	Log		Refresh
	* N	Name: UC501			
	* Application	n Key: 5572404c696e	6b4c6f52613230313823		
	LoRaWAN Clas	ss 🕧: classC		Y	
	Descri	ption:			
	* Reporting Interv	al (0): 20		min	

Step 3: After UC50x 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.

Dashboard	Devices / UC50	1 / Interface S	ettings								
My Devices	Basic Settin	gs	Interface Settings	Maintenance	Log					Refresh	Sha
Мар	Enable ()	Name	Туре		Custo	om Name		Current Value		Alarm Thres	hold
Triggers		GPIO_1	Digital Input	t Low	Low	High	High	÷	=	Disable	v
Reports Event Center 47		GPIO_2	Digital Outpu	ut Low	Low	High	High	ā	=	Disable	~
Sharing Center	Enable	Name	Туре	c	Øsh	Osl	Unit	Current Value		Alarm Thres	hold
Me		Al_1	4 - 20mA		4		mA	Ccy: - mA Min: - mA Max: - mA Avg: - mA	2		
		AI_2	4 - 20mA		4		mA	Ccy: - mA Min: - mA Max: - mA Avg: - mA	×		
	Channel ID	Channel M	lame Type	Sign	Raw Data 🕧	Formul	a 🕧 Value	Unit	Alarm T	hreshold	Operation
	1 ×	Temperat			HEX:-				≤		面

## 6. Device Payload

UC50x Series use the standard Milesight IoT payload format based on IPSO. Please refer to the *UC50x Series Communication Protocol*, for decoders of Milesight IoT products please click <u>here</u>.