Milesight

VS350

Passage People Counter

User Guide

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Contents

Chapter 1. Preface

Copyright Statement

Safety Instruction

These instructions are intended to ensure that user can use the product correctly to avoid danger or property loss. Milesight will not shoulder responsibility for any loss or damage resulting from not following the instructions of this operating guide.

CAUTION:
Injury or equipment damage may be caused if any of these cautions are neglected.

- The device is not intended to be used as a reference sensor, and Milesight will not should responsibility for any damage which may result from inaccurate readings.
- The device must not be disassembled or 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.
- In order to protect the security of the device, please change device password when first configuration. The default password is 123456.

Revision History

Release Date	Version	Revision Content
August 31, 2023	V1.0	Initial version

Release Date	Version	Revision Content
April 7, 2024	V1.1	Update installation detection range based on new hardware.
October 15, 2024	V2.0	Initial version based on hardware v2.x: 1. Support to select periodic report mode. 2. Compatible with Milesight Development Platform.
October 15, 2025	V2.1	Battery pre-installed in the device and removed from packing list.

Chapter 2. Product Introduction

Overview

VS350 is an exceptional indoor passage people counter that detects and analyzes the flow of people, allowing for optimum space management and usage. Equipped with dual PIR sensors, it offers a high accuracy rate for bi-directional people counting. When combined with the additional temperature sensor, the VS350 can achieve more potential triggers, increasing its detection capabilities. As a Milesight D2D controller, the VS350 seamlessly communicates with other Milesight D2D devices, establishing more possible connections and paving the way for smoother operations.

With easy configuration and wireless detection, the VS350 facilitates simple deployment and connectivity. Compliant with the Milesight LoRaWAN® gateway and Milesight IoT Cloud solution, users can access the number of passage people and trigger other sensors or appliances easily via a webpage or mobile App remotely.

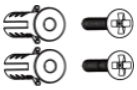
Key Features

- Provide good accuracy rate for bi-directional people counting with dual PIR sensors
- Ultra-low power consumption with up to 4-year battery life without replacement
- 100% anonymity and GDPR-compliant without image capturing, free from privacy concerns
- Equipped with a reliable and cost-effective sensor system for counting people through passages
- Function well with people counting with perfect-fit detecting ranges
- Wireless connectivity and convenient size that improve the accessibility and simplicity of deployment
- Built-in temperature sensor, enabling environmental detection
- Able to store 1000 historical records locally and support retransmission to prevent data loss
- Equipped with NFC for one-touch configuration and support card emulation mode
- Function well with standard LoRaWAN® gateways and network servers
- Compatible with Milesight IoT Cloud and Milesight Development Platform
- Support Milesight D2D protocol to enable ultra-low latency and direct control without a gateway

Chapter 3. Hardware Introduction

Packing List

1 × VS350 Device



2 × Mounting Kits

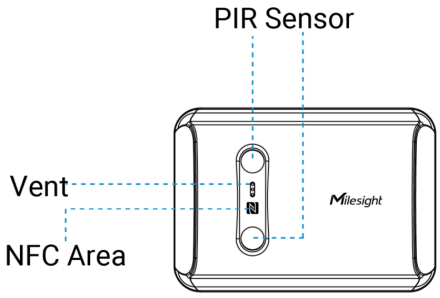
1 × Quick Start Guide

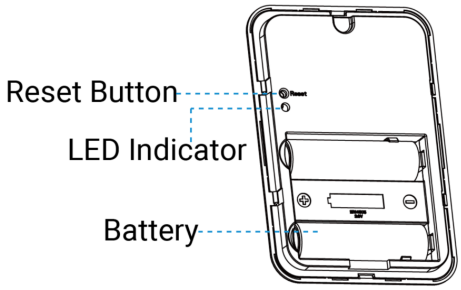
1 × Warranty Card

Note:

If any of the above items are missing or damaged, please contact your sales representative.

Hardware Overview

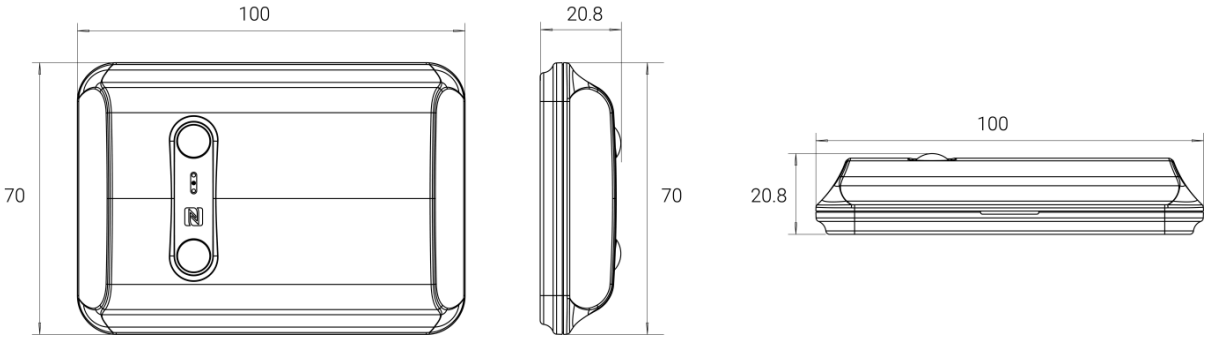




Reset Button and LED Indicator

Function	Action	LED Indicator
Reset to Factory Default	Press and hold the reset button for more than 10 seconds	Blink quickly

Dimensions (mm)



Chapter 4. Quick Start

This chapter describe the steps to quickly configure this device to set up the connection with LoRaWAN® gateway and network server. If you requires more advanced settings, please refer to operation guide chapter.

Power On

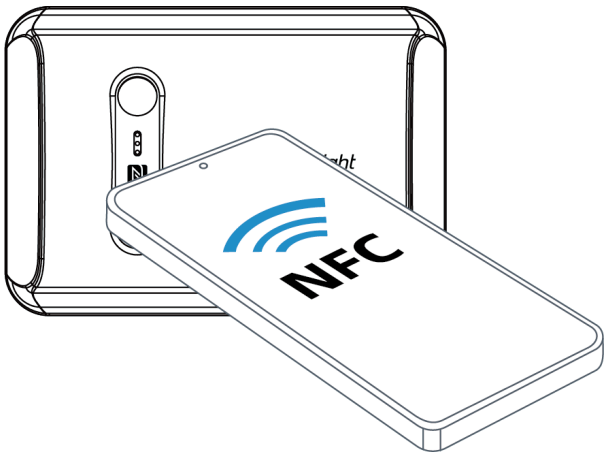
Remove the back cover of the device and take out the battery insulation sheet. The device will turn on automatically.

Access the Sensor via NFC

1. Download and install “Milesight ToolBox” App from Google Play or Apple Store on an NFC-supported smartphone.
2. Enable NFC function on the smartphone.
3. Launch Milesight ToolBox, and select the default mode as NFC.
4. Attach the smart phone with NFC area to the device and click  to read device information. Basic information, data, and settings of the device will be shown on the Milesight ToolBox App if it’s recognized successfully.
5. Adjust the settings on the App, then attach the smartphone with NFC area to the device and click **Write** to write the settings. After writing, reread the device to check if the configuration is written well.

Note:

- Ensure the location of smartphone NFC area and it’s recommended to take off phone case.
- If the smart phone fails to read/write configurations via NFC, keep the phone away and back to try again.
- The default device password is 123456. Please change a new password for security.



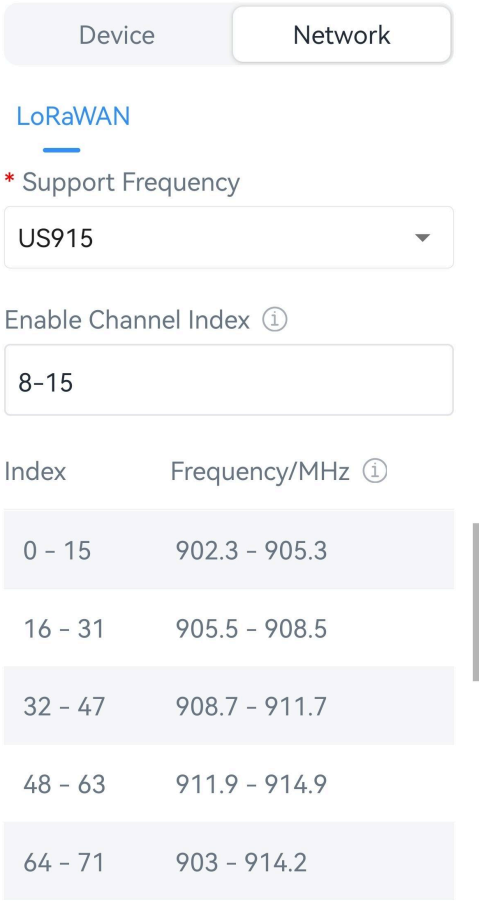
Configure the Network Setting

1. Go to **Network** settings page, select the join type as OTAA or ABP as required.

Note:
OTAA mode is required if you connect device to Milesight IoT Cloud or Milesight Development Platform.

2. Select supported frequency the same as LoRaWAN® gateway.

Note:
Set the channel index as 8-15 for US915 or AU915 if using default settings of Milesight gateways.

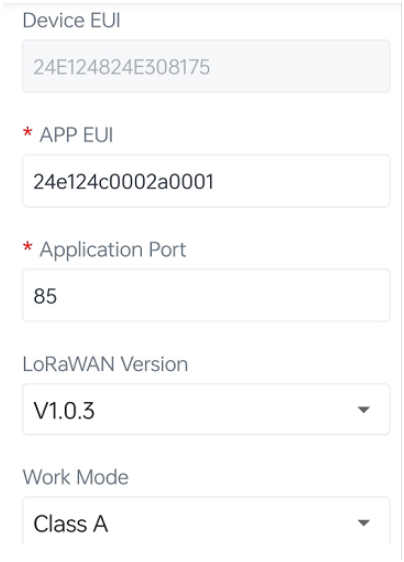


3. Keep other settings by default and click **Write** to save the settings.

Chapter 5. Operation Guide

LoRaWAN® Settings

Configure AppEUI, Join Type, Application Key, and other information. You can also keep all the default settings.

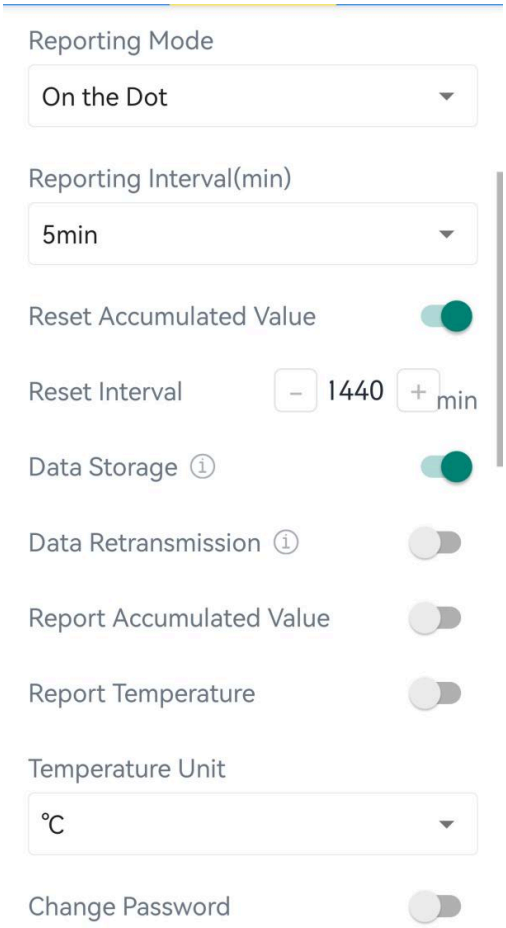


Parameters	Description
Device EUI	Unique ID of the device which can be found on the device. **Note:** please contact sales for device EUI list if you have many units.
App EUI	The default App EUI (join EUI) is 24E124C0002A0001.
Application Port	The port used for sending and receiving data, the default port is 85.
LoRaWAN® Version	V1.0.2 and V1.0.3 are available.
Work Mode	It's fixed as Class A.
Confirmed Mode	If the device does not receive ACK packet from network server, it will resend data once.
Join Type	OTAA and ABP mode are available.

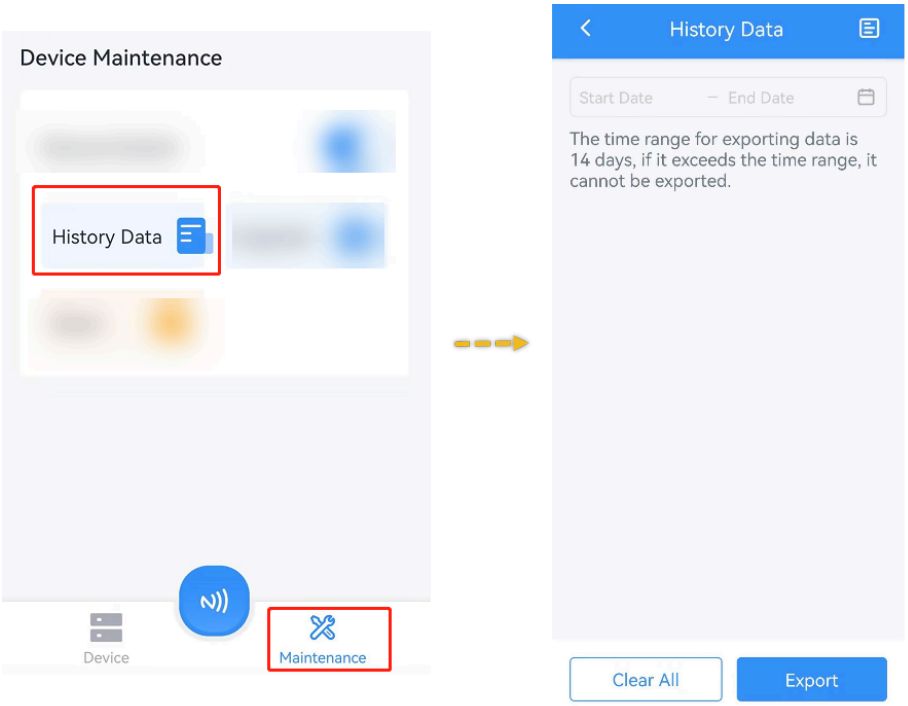
Parameters	Description
	Note: it's necessary to select OTAA mode if connecting device to Milesight IoT Cloud or Milesight Development Platform.
Application Key	Appkey for OTAA mode, default value: "Device EUI" + "Device EUI" (since Q4 of 2025). Example: 24e124123456789024e1241234567890 **Note:** • The default value of earlier devices is 5572404C696E6B4C6F52613230313823. • Please contact sales before purchase if you require random App Keys.
Network Session Key	Nwkskey for ABP mode, the default is 5572404C696E6B4C6F52613230313823.
Application Session Key	Appskey for ABP mode, the default is 5572404C696E6B4C6F52613230313823.
Device Address	DevAddr for ABP mode, default is the 5th to 12th digits of SN.
Rejoin Mode	Reporting interval≤35 mins: the device will send a specific number of LinkCheck-Req MAC packets to the network server every reporting interval or every double reporting interval to validate connectivity; If there is no response, the device will re-join the network. Reporting interval > 35 mins: the device will send a specific number of LinkCheck-Req MAC packets to the network server every reporting interval to validate connectivity; If there is no response, the device will re-join the network.

Parameters	Description
	Note: 1. Only OTAA mode supports rejoin mode. 2. The actual sending number is **Set the number of packets sent** +1.
Channel Mode	Select **Standard-Channel** mode or **Single-Channel** mode. When **Single-Channel** mode is enabled, only one channel can be selected to send uplinks.
Supported Frequency	Enable or disable the frequency to send uplinks. If frequency is one of CN470/AU915/US915, enter the index of the channel 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: Indicate that all channels are disabled
ADR Mode	Enable or disable network server to adjust Spreading Factor, Bandwidth an Tx Power to optimize data rates, airtime and energy consumption in the network.
Spreading Factor	If ADR mode is disabled, the device will send uplink data following this SF parameter. The higher the spreading factor, the longer the transmission distance, the slower the transmission speed and the more the consumption.
Tx Power	Tx power (transmit power) refers to the strength of the outgoing signal transmitted by the device. This is defined by LoRa alliance.
RX2 Data Rate	RX2 data rate to receive downlinks or send D2D commands.
RX2 Frequency	RX2 frequency to receive downlinks or send D2D commands. Unit: Hz

General Settings



Parameters	Description
Reporting Mode	Select the periodic reporting mode: "On the Dot" or "From Now On". **On the Dot:** Report at regular time marks. For example, if the current time is 0:07 and the interval is set to 10 minutes, reports will be sent at 0:10, 0:20, 0:30, etc. **From Now On:** Start reporting immediately and continue at regular intervals from that point forward.
Reporting Interval	The time interval for reporting people counting data and battery level to the network server. Default: 10 minutes.

Parameters	Description
Reset Accumulated Value	Enable or disable automatic reset of accumulated in/out counting values. Before resetting the accumulated value, the device reports the current accumulated value once, and then clears it. **Note:** the device will reset automatically when accumulate counting values reaches 65535 even this option is disabled.
Reset Interval	The time to reset accumulated in/out counting values. **Note:** The cumulative value will be reported once before reset.
Data Storage	Disable or enable to store **periodic report** data locally. The stored data can be exported as CSV format file and saved to smartphone via ToolBox. VS350 only stores people counting data. 

Parameters	Description
	Note: 1. It is necessary to sync the time to ensure the data is stored in correct time. 2. The device will still store the data even the network status is de-activated. 3. ToolBox App can only export the last 14 days' data at most.
Data Retransmission	Disable or enable data retransmssion. When the device detects the network status is de-activated via Rejoin Mode, the device will record a data lost time point and re-transmit the lost data after device re-connects to the network. **Note:** 1. This setting only takes effect when Data Storage is enabled. 2. If the device is rebooted or re-power when data retransmission is not completed, the device will re-send all retransmission data again after device is reconnected to the network. 3. If the network is disconnected again during data retransmission, it will only send the latest disconnected data. 4. The default report data retransmission interval is 600s, this can be changed via downlink command. 5. The reported format of retransmission data will include timestamps and is different from periodic report data. 6. This setting will increase the uplink frequencies and shorten the battery life.
Report Accumulated Value	Disable or enable to report accumulated counting values in periodic packets.
Report Temperature	Disable or enable to report temperature in periodic packets, this option will not affect temperature threshold alarm packets.
Temperature Unit	Set the temperature unit displayed on the status page.

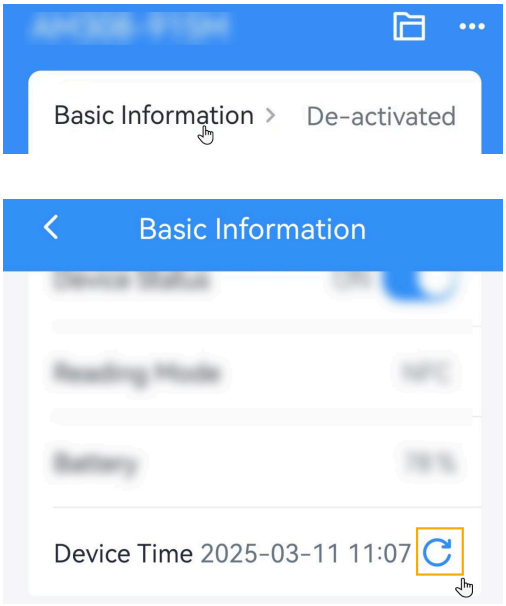
Parameters	Description
Change Password	Change the password for ToolBox App to write this device.

Time Synchronization

This section describes how to sync the time of the device.

Sync via ToolBox App

After reading the device via Milesight ToolBox App, sync the device time with time zone from the smart phone.



Sync via Network Server

This requires to ensure the LoRaWAN® network server supports device time synchronization feature. Example: Milesight gateway embedded NS.

1. Set the LoRaWAN® version of the device to V1.0.3.
2. Connect the device to the network server. After joining the network, the device will send a DeviceTimeReq MAC command to enquire the time from network server.

Note:

- This only supports to get the time but not time zone. The time zone can be configured by ToolBox App or downlink command.
- The device will send the DeviceTimeReq command every 5 days since the last sync.

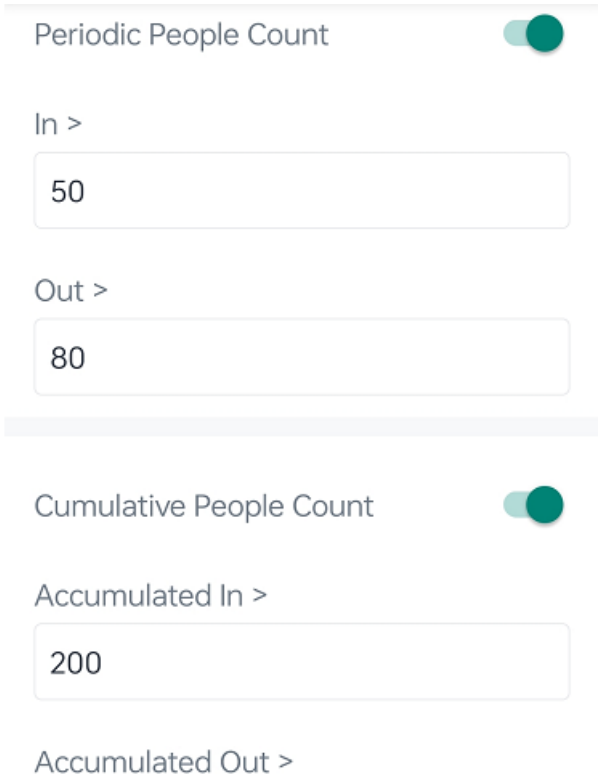
Advanced Settings

Calibration Settings

The device supports numerical calibration of the temperature value. Set the calibration value, the device will add calibration value to the current value and report the final value.

Threshold Settings

If the threshold is triggered, the device will report the threshold alarm packet instantly.



Note:
Before enabling the **Cumulative People Count** function, ensure that **Report Accumulated Value** feature is enabled in the general settings.

Parameter	Description
Periodic People Count	During each reporting interval, when the number of people reaches the set threshold, the device will send a alarm packet once. At the end of the interval, the count is reset to zero, and the next reporting interval begins.
Cumulative People Count	During each reset interval, when the cumulative number of people reaches the set threshold, the device will send a alarm packet once. At the end of the interval, the count is reset to zero, and the next reset interval begins.
Temperature	When the temperature of the device reaches the set threshold, an alarm packet is sent once; when the temperature returns to normal, an alarm release packet will be sent once.

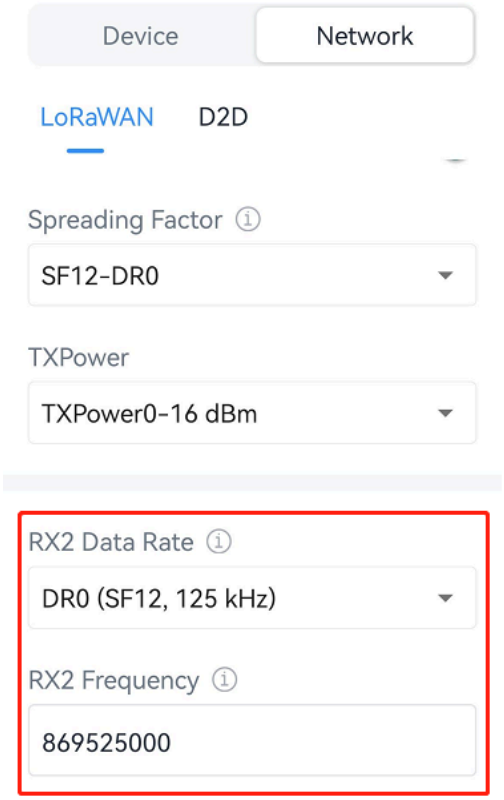
Parameter	Description
	Note: The device will also report an alarm packet when temperature is above 32°C, even if the temperature threshold is disabled.

Milesight D2D Settings

Milesight D2D protocol is developed by Milesight and used for setting up transmission among Milesight devices without gateway. When the Milesight D2D settings is enabled, the device can work as a D2D controller to send control commands to trigger Milesight D2D agent devices.

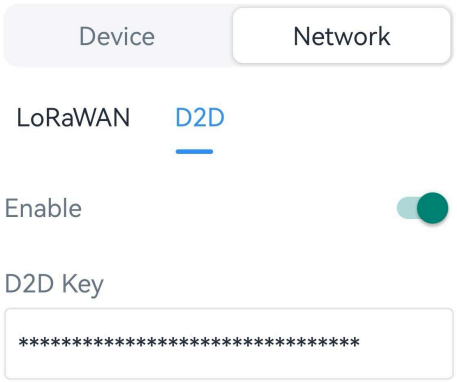
1. Configure the RX2 datarate and RX2 frequency.

Note:
It is suggested to change the default values if there are many LoRaWAN® devices around.



2. Enable and configure the threshold alarm settings.

3. Enable Milesight D2D feature and define a unique D2D key that is the same as Milesight D2D agent devices. (Default D2D key: 5572404C696E6B4C6F52613230313823)



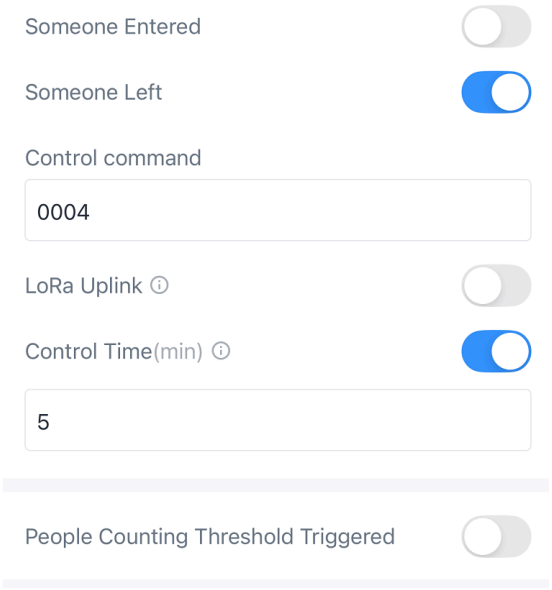
4. Enable one of statuses and configure 2-byte hexadecimal Milesight D2D command.

Note:

- If you enable **LoRa Uplink**, a LoRaWAN® uplink packet that contains corresponding alarm status will be sent to gateway after the Milesight D2D command packet. Otherwise, the alarm packet will not send to LoRaWAN® gateway.
- If you enable the **Control Time** setting, Milesight D2D agent devices will take corresponding actions within this duration after receiving commands from Milesight D2D controller. This feature is currently under development for Milesight D2D agent devices.

Example:

When someone is left, the device will send D2D command 0004 to Milesight D2D agent devices, which perform the corresponding action for 5 minutes.



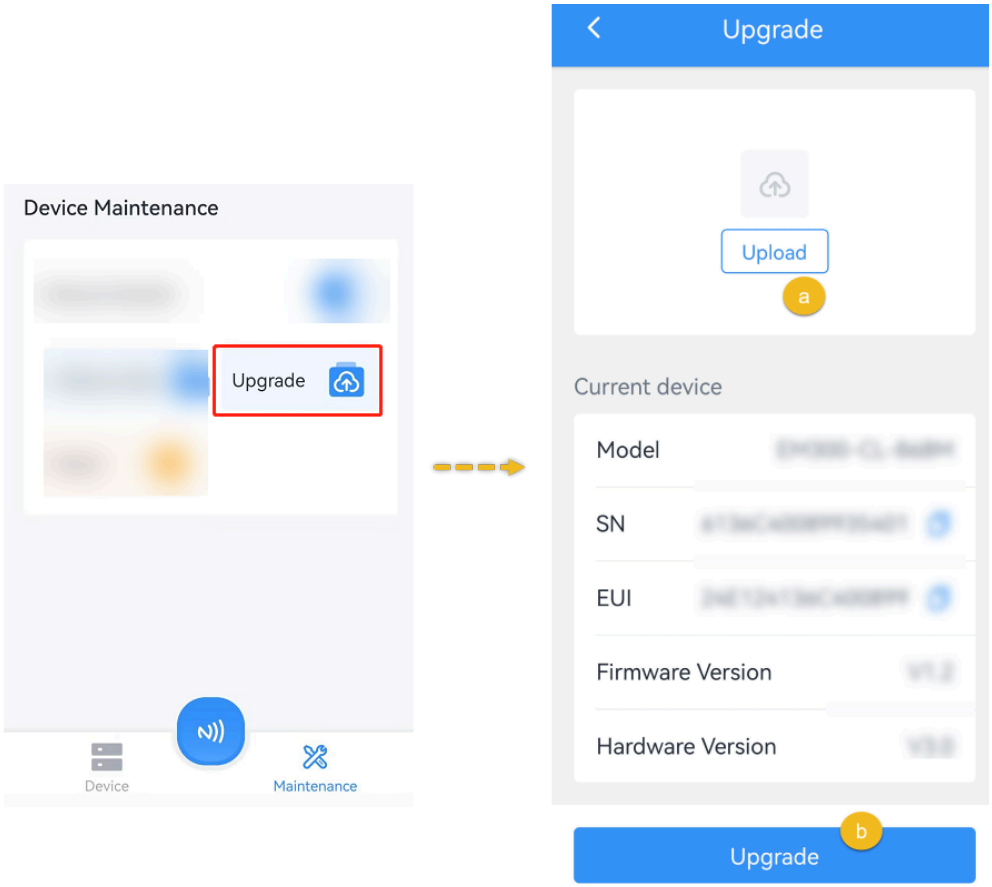
Maintenance

Upgrade

This chapter describes the steps to upgrade the device via ToolBox App.

1. Download firmware from Milesight official website to your smartphone.
2. Read the target device via ToolBox App, click **Upgrade** to upload the firmware file.
3. Click **Upgrade** to upgrade the device.

> **Note:**
> Operation on ToolBox is not supported during an upgrade.



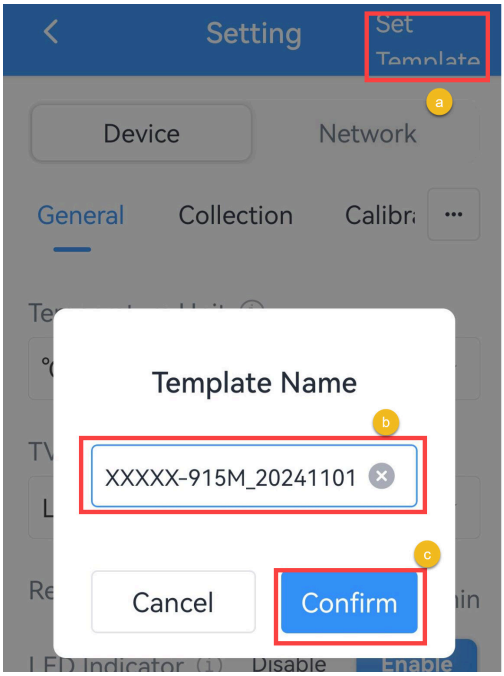
Backup and Restore

This device supports configuration backup for easy and quick device configuration in bulks. Backup and restore is allowed only for devices with the same model and frequency band.

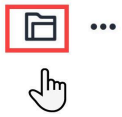
Backup and Restore

1. Launch ToolBox App, attach the NFC area of smartphone to the device to read the configuration.

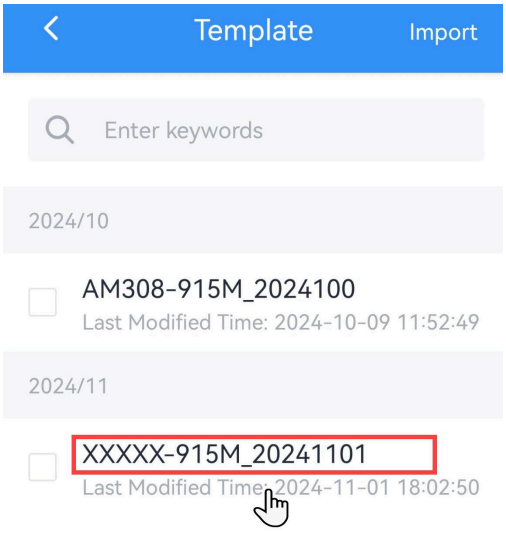
2. Edit the configuration as required, click **Set Template** to save current configuration as a template to the ToolBox App.



3. Go to **Device >Template** page.



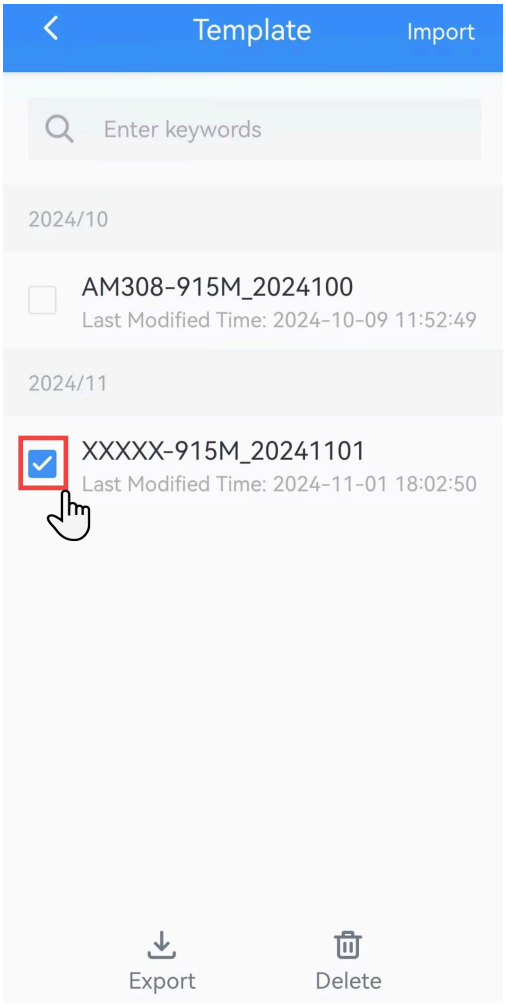
4. Select and click the target template, click **Write** to import the configuration to target devices.



Export and Delete Template

1. Check the box of the target template.

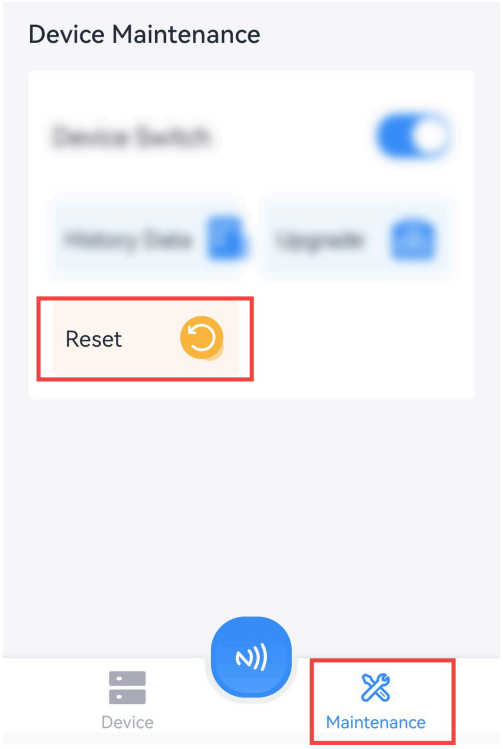
2. Click **Export** to export this template as JSON format file and save it to the smartphone, click **Delete** to delete this template from your ToolBox App.



Reset to Factory Default

Via Hardware: Hold on the reset button for more than 10s until the LED indicator quickly blinks.

Via ToolBox App: Click **Reset** and attach the smartphone to device to reset the device.


Device Maintenance
Reset
Device
Maintenance

Chapter 6. Installation

Note:

1. Wall materials must have sufficient strength and stability to ensure that screws are securely fastened and the overall structure is sturdy.
2. Screws should be fastened in locations that avoid electrical wiring, water pipes, and other elements within the wall to prevent damage to the wall structure or safety hazards.

Ceiling Mount

Note:

1. Do not install the device close to the entrance or exit. If necessary, ensure there are no other doors nearby or that the door remains open most of the time.
2. The optimal operating temperature range is between 15°C and 32°C. Keep the device away from heat sources, cold sources, and areas with strong airflow such as windows, vents, fans, and air conditioners.
3. Avoid installing the device directly against a wall. Ensure there is at least 45 cm of clearance between the device and the wall.
4. Make sure the sensor is facing straight down and parallel to the ceiling.
5. The maximum detection ranges at different heights when environment temperature is 20°C:

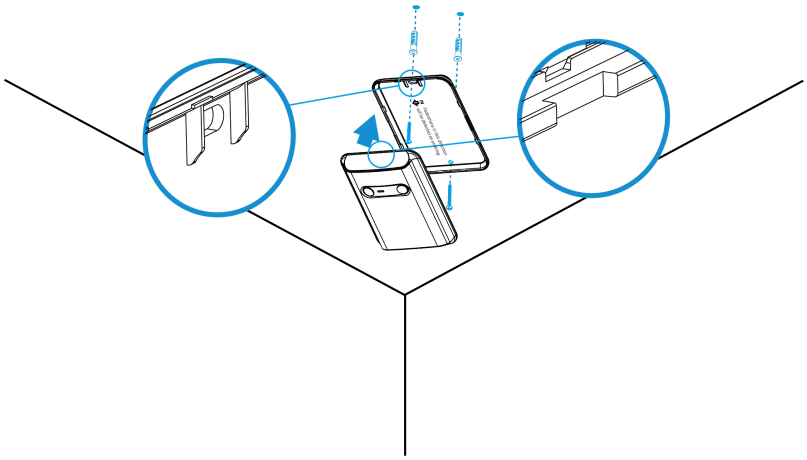
Installation Height (m)	Passage Detection Width (m)
2.2	2
2.3	2.2
2.7	2.5
3.0	2.8

The higher the ambient temperature, the smaller the detection range becomes.

Step 1: Take off the back cover of the device, and drill 2 holes in the ceiling according to the mounting holes on the cover.

Step 2: Fix the wall plugs into the ceiling, then fix the back cover to wall plugs with screws. Note the pedestrian direction arrow on the cover when fixing.

Step 3: Install the device back to the cover.



Wall Mount

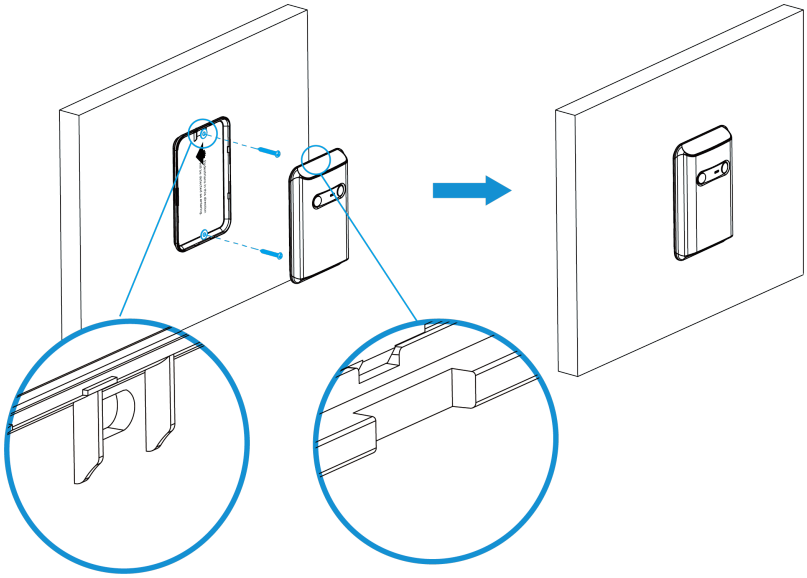
Note:

1. Avoid facing the device to a transparent plate (like glass) as the PIR will detect through it.
2. The best installation height is 1.2~1.3m above the ground.
3. The passage detection width for wall mounting should not exceed 2.3 m.
4. The optimal operating temperature range is between 15°C and 32°C, so keep the device away from heat sources, cold sources, and the areas where airflow varies greatly like areas with windows, vents, fans, and air conditioners.
5. When the ambient temperature is between 29°C and 32°C, it is recommended to install the device on the wall rather than on the ceiling.

Step 1: Take off the back cover of the device, then fix the wall plugs to the wall according to the device mounting holes on the cover.

Step 2: Secure the back cover to the wall plugs using screws. Please note the pedestrian direction arrow on the cover during installation.

Step 3: Install the device back to the cover.

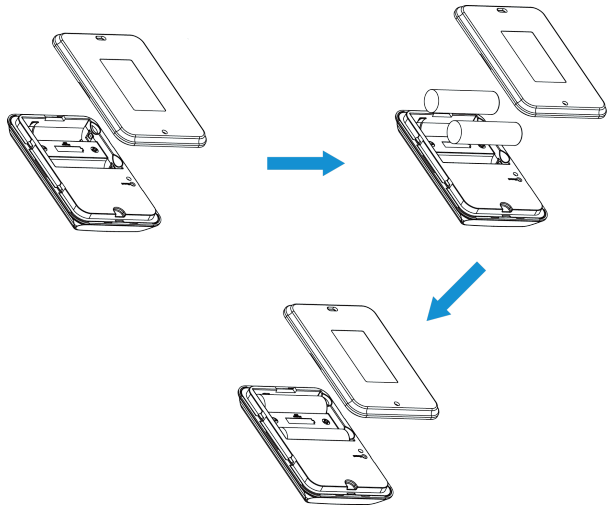


Factors Affecting Accuracy

- If two or more people pass side by side, they may be counted as one individual.
- Two or more people within the distance of 50cm will be counted as one person or reversed.
- Animals or other moving objects will be counted if they are close to the device.
- Walking extremely slowly may cause the data not to be recorded.
- Locations with sudden temperature changes exceeding 5°C can easily result in counting errors.

Chapter 7. Battery Replacement

Remove the battery cover at the back of device to insert two batteries in the right direction. After inserting the batteries, the device will turn on automatically.



Note:

1. The device can only be powered by ER14505 Li-$SOCl_2$ batteries not alkaline batteries.
2. Ensure the battery direction is not reversed.
3. Ensure all replacing batteries are newest; otherwise it may shorten battery life or cause inaccurate power calculation.
4. The battery should be removed from the device if it is not used for an expended period.

Chapter 8. Uplink and Downlink

Overview

All messages are based on following format (HEX), the Data field should follow little-endian:

Channel1	Type1	Data1	Channel2	Type2	Data2	Channel3	...
1 Byte	1 Byte	N Bytes	1 Byte	1 Byte	N Bytes	1 Byte	...

For decoder examples please find files on https://github.com/Milesight-IoT/SensorDecoders.

Uplink Data

Basic Information

The device will report a basic information packet whenever joining the network.

Item	Channel	Type	Byte	Description
Power On	ff	0b	1	Device is on
Protocol Version	ff	01	1	Example: 01=V1
Serial Number	ff	16	8	16 digits
Hardware Version	ff	09	2	Example: 03 10 = V3.1
Software Version	ff	0a	2	01 14 => V1.14
Device Type	ff	0f	1	00: Class A, 01: Class B, 02: Class C, 03: Class C to B

Example:

ff0bff ff0101 ff166791d19604050005 ff090100 ff0a0101 ff0f00		
Channel	**Type**	**Value**
ff	0b	Power On: ff
ff	01	Protocol Version: 01(V1)
ff	16	SN: 6791d19604050005

ff0bff ff0101 ff166791d19604050005 ff090100 ff0a0101 ff0f00		
Channel	**Type**	**Value**
ff	09	Hardware Version: 0100 (V1.0)
ff	0a	Software Version: 0101(V1.1)
ff	0f	Device Type: 00(Class A)

Periodic Report

The device supports the sensor data according to reporting interval.

Item	Channel	Type	Byte	Description
Battery Level	01	75	1	UINT8, Unit: %
Temperature	03	67	2	INT16/10, Unit: °C
Accumulated Counter	04	cc	4	Byte 1-2: Accumulated In Byte 3-4: Accumulated Out
Periodic Counter	05	cc	4	Byte 1-2: Periodic In Byte 3-4: Periodic Out

Examples:

Periodic packet: report as reporting interval (10 minutes by default).

017562 0367d000 04cc0c000700 05cc01000000		
Channel	**Type**	**Value**
01	75	Battery Level: 62=>98%
03	67	d0 00=>00 d0=208 Temperature: 208/10=20.8°C
04	cc	Accumulated In: 0c 00=> 00 0c=12 Accumulated Out: 07 00=>00 07=7
05	cc	Periodic In: 01 00=> 00 01=1

017562 0367d000 04cc0c000700 05cc01000000		
Channel	**Type**	**Value**
		Periodic Out: 00 00=0

Alarm Report

The device supports to report below types of alarm report packets.

Item	Channel	Type	Byte	Description
Temperature Alarm	83	67	4	Byte 1-2: Temperature, INT16/10, Unit: °C Byte 3: Alarm type 00 -Threshold Alarm Release 01 -Threshold Alarm 03 - High Temperature Alarm: temp > 32°C 04 - High Temperature Alarm Release
Accumulated Counter Alarm	84	cc	5	Byte 1-2: Accumulated In Byte 3-4: Accumulated Out Byte 5: 01
Periodic Counter Alarm	85	cc	5	Byte 1-2: Periodic In Byte 3-4: Periodic Out Byte 5: 01

Example:

1. People alarm packet: report when the counting value reaches the threshold.

84cc 0200000001		
Channel	**Type**	**Value**
84	cc	Accumulated in: 0200=>0002=2

84cc 0200000001		
Channel	**Type**	**Value**
		Accumulated out: 0000=0 01= Threshold Alarm

2. Temperature alarm packet: report when the temperature reaches the threshold or is above 32°C.

8367 0e0101		
Channel	**Type**	**Value**
83	67	Temperature: 0e 01 =>01 0e = 270 /10 = 27 °C 01= Threshold Alarm

Historical Data

The device will report retransmission data or stored data as below example.

Channel	Type	Byte	Description
20	ce	9/13	Byte 1-4: Unix Timestamp, Unit: s Byte 5: 00-Periodic Counter 01-Periodic Counter + Accumulated Counter Byte 6-7: Periodic In Counter Byte 8-9: Periodic Out Counter Byte 10-11: Accumulated In Counter Byte 12-13: Accumulated Out Counter

Example:

20ce 4a7c5b63 01 0700 0300 4a00 3800			
Channel	**Type**	**Time Stamp**	**Value**
20	ce	4a7c5b63 => 63 5b 7c 4a = 1666939978s	01=Periodic Counter + Accumulated Counter Period In: 0700=>0007=7 Period Out: 0300=>0003=3 Accumulated In: 4a00=>004a=74 Accumulated Out: 3800=>0038=56

Downlink Command

This device supports downlink commands for configuration and control. The downlink application port is 85 by default.

General Setting

Item	Channel	Type	Byte	Description
Reboot	ff	10	1	ff
Report Interval	ff	8e	3	**Byte 1**: 00 **Byte 2-3**: UINT16, Unit: minute
Reset Accumulated Value	ff	a6	1	00: disable, 01: enable
Reset Interval	ff	a7	2	Unit: min
Reset Accumulated Value	ff	a8	1	01: reset accumulate in value 02: reset accumulate out value
Data Storage	ff	68	1	00: Disable, 01: Enable
Data Retransmission	ff	69	1	00: Disable, 01: Enable
Data Retrans-mission Interval	ff	6a	3	**Byte 1**: 00 **Byte 2-3**: UINT16, Unit: s, Range: 30~1200, Default: 600

Item	Channel	Type	Byte	Description
Report Accumulated Value	ff	a9	1	00: disable, 01: enable
Report Temperature	ff	aa	1	00: disable, 01: enable

Example:

1. Reboot the device.

ff10ff		
Channel	**Type**	**Value**
ff	10	ff

2. Set reset interval as 5 minutes.

ffa7 0500		
Channel	**Type**	**Value**
ff	a7	05 00=>00 05=>5 mins

3. Set report interval as 20 minutes.

ff8e001400		
Channel	**Type**	**Value**
ff	8e	1400=>0014=20minutes

Alarm Setting

Item	Channel	Type	Byte	Description
Threshold Alarm	ff	06	9	Byte 1: **Bit0~Bit2:** 000-disable 001-below (minimum threshold) 010-above (maximum threshold)

Item	Channel	Type	Byte	Description
				011-within 100-below or above **Bit3~Bit5:** 001-in/out threshold 010-accumulated in/out threshold 011-temperature threshold **Bit6~Bit7:** 11 Byte 2-3: Min. value Byte 4-5: Max. value Byte 6-9: 00000000

Example:

Set temperature threshold alarm.

ff06 dc 9600 2c01 00000000		
Channel	**Type**	**Value**
ff	06	dc=>11 011 100: 100=below or above, 011=temperature threshold Min. value: 96 00=>00 96=15°C Max. value: 2c 01=>01 2c=30°C

Calibration Setting

Item	Channel	Type	Byte	Description
Temperature Calibration	ff	ab	3	Byte 1: 00-disable, 01-enable Byte 2-3: calibration value*0.1, Unit: °C

Example:

Enable temperature and set calibration value.

ffab 01 fdff		
Channel	**Type**	**Value**
ff	ab	01=Enable fdff=>fffd=-3*0.1=-0.3 °C

Milesight D2D Setting

Item	Channel	Type	Byte	Description
D2D Feature	ff	84	1	00: Disable, 01: Enable
D2D Key	ff	35	8	The first 16 digits of D2D key, and the last 16 digits are fixed as 0.
D2D Settings	ff	96	8	Byte 1: 01-Someone Entered 02-Someone Left 03-People Counting Threshold Triggered Byte 2: 01-enable, 00-disable Byte 3: 01-enable LoRa Uplink, 00-disable LoRa Uplink Byte 4-5: D2D control command Byte 6-7: control time, unit: min Byte 8: 00-disable control time, 01-enable control time

Example:

1. Set D2D Key as 12345678123456780000000000000000.

ff35 1234567812345678		
Channel	**Type**	**Value**
ff	35	1234567812345678

2. Set D2D settings.

ff96 03 01 01 04e0 0500 01		
Channel	**Type**	**Value**
ff	96	03=> People counting threshold triggered; 01=>Enable; 01=>Enable LoRa Uplink; 04 e0=>e0 04, Control Command is e0 04; 05 00=>00 05, Control time is 5 mins; 01=>Enable Control Time

Historical Data Enquiry

The device supports data retrievability feature to send downlink command to enquire the historical data stored in the device. Before that, ensure the device time is correct and data storage feature was enabled to store data.

Command Format:

Item	Channel	Type	Byte	Description
Enquire Data in Time Point	fd	6b	4	Unix timestamp, Unit: s
Enquire Data in Time Range	fd	6c	8	Byte 1-4: Start timestamp, Unit: s Byte 5-8: End timestamp, Unit: s

Item	Channel	Type	Byte	Description
Stop Query Data Report	fd	6d	1	ff
Data Retrievability Interval	ff	6a	3	Byte 1: 01 Byte 2-3: UINT16, Unit: s, Range: 30~1200, Default: 60

Reply Format:

Item	Channel	Type	Byte	Description
Enquiry Result	fc	6b/6c	1	00: Enquiry success. The device will report the historical data according to data retrievability interval. 01: Time point or time range invalid 02: No data in this time or time range

Note:

1. Use Unix Timestamp Converter to calculate the time.
2. The device only uploads no more than 300 data records per range enquiry.
3. When enquiring the data in time point, it will upload the data which is closest to the search point within the reporting interval range. For example, if the device's reporting interval is 10 minutes and users send command to search for 17:00's data, if the device find there is data stored in 17:00, it will upload this data; if not, it will search for data between 16:50 to 17:10 and upload the data which is closest to 17:00.

Example:

Enquire the historical data in a time range.

fd6c 64735b63 7c885b63		
Channel	**Type**	**Value**
fd	6c	Start time: 64 73 5b 63 => 63 5b 73 64 = 1666937700s

fd6c 64735b63 7c885b63		
Channel	**Type**	**Value**
		End time: 7c 88 5b 63 => 63 5b 88 7c = 1666943100s

Reply:

fc6c00		
Channel	**Type**	**Value**
fc	6c	00: Enquiry success

20ce 4a7c5b63 01 0700 0300 4a00 3800			
Channel	**Type**	**Time Stamp**	**Value**
20	ce	4a7c5b63 => 63 5b 7c 4a = 1666939978s	01=Periodic Counter + Accumulated Counter Period In: 0700=>0007=7 Period Out: 0300=>0003=3 Accumulated In: 4a00=>004a=74 Accumulated Out: 3800=>0038=56

Chapter 9. Services

Milesight provides customers with timely and comprehensive technical support services. End-users can contact your local dealer to obtain technical support. Distributors and resellers can contact directly with Milesight for technical support.

Technical Support Mailbox: iot.support@milesight.com

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Resource Download Center: https://www.milesight.com/iot/resources/download-center/

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