

DC410 Smart Manhole Cover _LoRaWAN

Configuration Manual

V2.0

Date :2020-7-31



Revision

V2.0 Modify the hardware version.

V1.1 Modify the angle alarm threshold and working mode.

V1.0 Initial version.



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1 Overview

This document describes the hardware interface and the way to modify device parameters through the serial port, such as cycle upload interval, alarm threshold, and LoRaWAN parameters through serial port, such as deveui,appeui,band frequency, and so on.

2 DC410 Device Interface Definition

The detailed of power interface , uart interface, as shown in figure2.1.

• **Power socket**: Connect to the battery.

• UART interface: This interface is used to configure device parameters (data upload interval, etc.), configure LoRaWAN parameters (Deveui, Appkey, frequency, etc.) or device debugging.



Figure2.1

3 Modify device parameters or LoRaWAN parameters

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The configuration process you can modify the relevant parameters of the device such as upload time, alarm threshold ..

3.1 Required tools

Required tools for configuration of LoRaWAN Device:

- ●TTL tool and its cables, as shown in Figure2.1 and Figure2.2.
- Serial software
- ●Equipment

Note: the TTL tool we sent may be different with the picture.



Steps:

1 Connect TTL to sensor, as shown in figure3.4, e.g. figure3.5. Device serial port definition: GND, TX and RX positions have been marked on the diagram. as shown in figure3.3.









Figure3.5

3.3 Configuring Device parameters(upload time...)

1 Open the serial software when opening, the default information of serial port software is shown in figure 3.6.

Port number (you can select port Number from device manager of your system)

Set the baud rate: 115200

Parity bit: NONE

Data bits: 8

Stop bit: 1



• •	CommUart Assi	istant (V3.8)		×	
COMSettings PortNum COM25 BaudR 115200 DPaity NONE DPaity NONE DataB StopB 1 © Open Recev Options Receive to file Show timestamp Receive as hex Receive pause Save Clear Send Options Data from file Auto checksum Auto checksum Auto checksum Auto checksum Auto checksum Send optio Interval 50 ms	COM port data receive	2.10025000			
Load Clear	http://www.cmsoft.cn QG	Q:10865600		Send	
🝠 Open		Send: 0	Recv: 0	Reset	
Figures 6 Interf	ace by default				

Figure 3.6 Interface by default

• • / (CommUart Ass	istant	(73.8)		×
COMSettings PortNum COM25 V BaudR 115200 V DPaity NONE V DataB 8 V StopB 1 V Close Receive to file Show timestamp Receive as hex Receive pause Save Send Options Data from file Auto checksum Auto clear input Send as hex Send ourlic	COM port data receive				
Interval 50 ms Load Clear	http://www.cmsoft.cn Q	Q:10865600			Send
🕼 COMSettings	1	Ser	id : 0	Recv:0	Reset

Figure 3.7 Parameters setting

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2 Power on

Power DC410 sensor on, or restart sensor by magnet.

3 Send command

When the battery is connected, you can see some information output from the serial port. At this point, the device starts working and can send commands. At this time, the corresponding parameters can be configured to configure the required parameters.

Note: when the serial show "sleep", mean that the sensor have come into sleep mode Sending instructions at this time is invalid.so you need to restart the sensor by replugging battery or using magnet.

For example 1: change upload time to an hour

The command is: 80029999010181, as shown in figure3.9,

Serial port response: UPloadTime: 1 h, indicating that the upload time was modified successfully

• •	ConnUart	Assistant (V3.8)	×
COMSettings	COM port data rece	ve	
PortNum COM25 BaudR 115200 DPaity NONE	data is error timeo AlarmHeight:	ut!! user program is runnin 30 cm	g 1.5
DataB 8 💌 StopB 1 💌	TestTimes: AlarmTemp: AlarmAngle: AlarmBatt: UPloadTime:	60 min 75 ° C 20 ° 20 % 24 h	
Reev Options Receive to file Show timestamp Receive as hex Receive pause Save Clear Send Options Data from file Auto checksum	InitTestTimes: FizMode: FallMode: UltraMode: UltraMode: UltraRange: WorbMode : MaxHeight: NowTime: StartStopTime: StortStopTime: LoraMode: 1 Device/ersion: DFloadTime: 1 h	1 mix OFF OFF OFF 5M 1 5000 mm 0 s 0 s 0 s 0 s	
 Auto clear input Send as hex Send cyclic Interval 50 ms Load Clear 	0010adTime: 1 h UFloadTime: 1 h 80029999010181]	
🕼 Ready!		Send: 42	Recv : 3216 Reset

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Figure3.9

Notes:

1 After the device enters sleep mode, the sending command is invalid;

2 Check whether the RX and TX of the TTL and the device are correctly connected. If the connection is reversed, no output is displayed on the serial port after the device is powered on, and the device can not be configured.

3 If you want to change other parameters,please send the corresponding command in the same way. Please refer to the product protocol for detailed command instructions.

3.4 Configuring LoRaWAN parameters (DevEui, Appkey, Appeui, band...)

After completing the two steps 3.1 and 3.2, you can refer to this step to configure the corresponding parameters of LoRaWAN through the serial port software, such as frequency band, deveui, appeui, appkey, and so on.

1 serial port software parameter setting

Open the serial port software. The default serial port information is shown in Figure 3.10.

The parameters required for the DC410 serial port are shown in Figure 3.11;

Port number (you can select port Number from device manager of your system) Set the baud rate: 115200

Parity bit: NONE

Data bits: 8

Stop bit: 1



• • /	CommUart Assista	nt (V3.8)	×	
COMSettings	COM port data receive			
PortNum COM25 💌				
BaudR 115200 💌				
DPaity NONE 💌				
DataB 8 💌				
StopB 1 💌				
🖲 Open				
Becy Ontions	1-1 T			
Receive to file				
🔲 Show timestamp				
🥅 Receive as hex				
T Receive pause				
<u>Save</u> <u>Clear</u>				
Send Options				
🗖 Data from file				
🔲 Auto checksum				
Auto clear input				
Send as hex				
Interval 50 mc				
Load Clear	http://www.cmsoft.cn QQ:1086	55600	Send	
🕼 Open		Send: 0 Recv: 0	Reset	
Figure3.10 Interfac	ce by default			
Figure3.10 Interfac	ce by default	nt (V3.8)	×	•
Figure3.10 Interfac	ConnUart Assista	nt (V3.8)	×	
Figure3.10 Interfac	ce by default Complant Assista	nt (73.8)	×	•
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Figure 3.10 Interface	Consulart Assista	nt (V3.8)		
Figure 3.10 Interface	ConsUart Assista COM port data receive	nt (¥3.8)	Send	

Figure 3.11 parameters setting

2 Connect the device's power(battery)

Power DC410 sensor on, or restart sensor by magnet.

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3 Enter the configuration LoRaWAN parameter mode

1)Send command@; Input the command @ in the serial port and send @ cyclically at 50ms interval; as shown in Figure 3.13;

2) Restart sensor; Use the magnet to restart the device and receive the information shown in Figure 3.14;

3)Send 1, and the information shown in Figure 3.15 is received;

4)According to the prompt, switch the port baud rate to 9600, and then start sending the corresponding AT command to configure the LoRaWAN parameters, as shown in Figure 3.16-3.17.

C C	onnUart Assistant (V3.8) 🛛 📃 - 🗆 🗙
COMSettingsCOM	port data receive
PortNum COM25 -	
BaudB 115200 -	»
data	is error
DParty NONE	
DataB 8 🗾 🖓	timeout!! user program is running 1.5
StopB 1 TestT	imes' 60 min
Alarm	Temp: 75 ° C
Close Alarm	Angle: 20 °
Alarm	Batt: 20 %
Recy Options UPloa	dTime: 1 h
Receive to file	estTimes: 1 min
FixMo	de: OFF
Parine scamp FallM	ode: UN Noto: OFF
Final BleMo	de OFF
Keceive pause	Range: 5M
Save Clear WorkM	ode : 1
MaxHe	ight: 5000 mm
Send Uptions NowTin	me: Os
Data from file Start	StopTime: O s
Auto checksum StopT	1mes: Us
Auto clear input	ode. 1 eVersion: DC400-80V2 3 2
Send as hex	
Send cyclic	× .
Interval 50 ms Co	
Load Ulear	Send
💣 Send cyclic	Send: 814 Recv: 7199 Reset

Figure 3.13 Cyclic send command @



COMSettings	COM port data receive	
PortNum COM25 -		- ,
BaudB 115200 -	No. of the second se	
	data is error	
DPaity NUNE	Flease Select Mode: 1 or 2 or 3	
DataB 8 👻	plane Clast Wils 1 and and	
	Place Select Mode: 1 or 2 or 3	
StopB 1	Please Select Mode: 1 or 2 or 3	
	Please Select Mode: 1 or 2 or 3	
Close	Please Select Mode: 1 or 2 or 3	
a la	Please Select Mode: 1 or 2 or 3	
Recv Options	Please Select Mode: 1 or 2 or 3	
TReceive to file	Please Select Mode: 1 or 2 or 3	
E Show timestemp	Please Select Mode: 1 or 2 or 3	
E Passing on her	Please Select Mode: 1 or 2 or 3	
Theceive as nex	Please Select Mode: 1 or 2 or 3	
Receive pause	Please Select Mode: 1 or 2 or 3	
Save Clear	Please Select Mode: 1 or 2 or 3	
	Please Select Mode: 1 or 2 or 3	
Send Options	Plane Salart Mida: 1 or 2 or 2	
	Please Select Mode: 1 or 2 or 3	
🗆 Auto checksum	Flease Select Mode: 1 or 2 or 3	1
T Auto allow insut	Please Select Mode: 1 or 2 or 3	
F Auto crear imput	Place Select Mode: 1 or 2 or 3	
Send as hex	Trease Serect mode. 1 of 2 of 5	
Tational E0	1	·
interval 50 ms	(e)	
Load <u>Clear</u>		Stop
Sanding data	Send: 242 Becv: 4472	Pasat

Figure 3.14 Information after restarting the device

• • /	CommUart Assistant (V3.8)	×
COMSettings	COM port data receive	
	Trease Serect mode. 1 of 2 of 5	
PortNum COM25	Please Select Mode: 1 or 2 or 3	^
BaudB 115200 -	Please Select Mode: 1 or 2 or 3	
	Please Select Mode: 1 or 2 or 3	
DPaity NUNE	Please Select Mode: 1 or 2 or 3	
DataB 8	Please Select Mode: 1 or 2 or 3	
	Please Select Mode: 1 or 2 or 3	
StopB 1	Please Select Mode: 1 or 2 or 3	
	Please Select Mode: 1 or 2 or 3	
Close	Please Select Mode: 1 or 2 or 3	
	Please Select Mode: 1 or 2 or 3	
Recy Options	Please Select Mode: 1 or 2 or 3	
	Please Select Mode: 1 or 2 or 3	
Keceive to file	Please Select Mode: 1 or 2 or 3	
🔲 Show timestamp	Please Select Mode: 1 or 2 or 3	
🦵 Receive as hex	Please Select Mode: 1 or 2 or 3	
Receive pause	Please Select Mode: 1 or 2 or 3	
	Please Select Mode: 1 or 2 or 3	
Save Clear	Please Select Mode: 1 or 2 or 3	
a 10.1	Please Select Mode: 1 or 2 or 3	
Send Uptions	Please Select Mode: 1 or 2 or 3	
🔲 🔲 Data from file	Please Select Mode: 1 or 2 or 3	
🗖 Auto checksum	Please Select Mode: 1 or 2 or 3	
- Auto clear input	Please Select Mode: 1 or 2 or 3	
	BaudRate: 9600	
) Send as hex	·	
Send cyclic		× .
Interval 50 ms		
Load Clear		Send
💣 COMSettings	Send : 809 Recv : 6171	Reset

Figure 3.15 Information after sending instruction 1



· · / (CommUart Assistant (V3.8)	- 🗆 ×	•	CommUart Assistant (V3.8)	×
COMMettings Potthum, COM25 J BauGR 11500 J Daily 300 D Daily 300 D Daily 300 D Daily 300 D Daily 300 D Daily 300 D Case of the second	COM pot data receive Plass Select Mode: 1 or 2 or 3 Plass Se	Send	COMSettings PortNum COM25 v BaudR 3600 v DPaty NONE v Data 8 v Stop8 1 v Close Receive to file Show timestam Receive to file Show timestam Receive pause Save Close Save Sata from file Auto checkrum Auto checkrum Auto checkrum Auto checkrum Sand cyclic Interval 50 ms Load Clear	COM pot dos receive Places Salest Made: 1 or 2 or 3 Places Sales	↓ Send
🕼 Ready!	Send: 809	Hecv: 6171 Reset	🕼 COMSettings	Send: 809	Hecv: 6171 Reset

Figure 3.16 Switching baud rate

Figure 3.17 Switching baud rate

Example 1: Reading LoRaWAN parameters

Command:AT+ID

Enter the command in the serial port software, click Enter, and click Send, as shown

in Figure 3.18.

Reply:

- +ID: DevAddr, 00:00:36:F6
- +ID: DevEui, 8C:F9:57:20:00:00:36:F6
- +ID: AppEui, 8C:F9:57:20:00:00:00



	CommUart Assistant (V3.8)	(×
COMSettings PottNum COM25 BaudR 3600 DPaity NONE DataB 8 StopB 1 Close Receive to file Show timestamp Receive as hex	CONTURENT ASSESSMENT (VX. 8) COM pot data receive Please Select Mode: 1 or 2 or 3 Please Select	<u> </u>
Receive pause Save Clear Send Options	BaudRate: 9600 +INFO: Input timeout	
☐ Data from file ☐ Auto checksum ☐ Auto clear input ☐ Send as hex ☐ Send cyclic	<pre>TIRT0: Input timeout +TD: DevAddr, 00:00:36:F6 +TD: DevEni, 80:F9:57:20:00:00:36:F6 +TD: AppEui, 80:F9:57:20:00:00:00:00</pre>	v
Interval 50 ms Load Clear	AT+TD	Send
🍠 Ready!	Send : 814 Recv : 6322	Reset



Notes:

1 If you need to configure other LoRaWAN parameters, such as DevEui, AppEui, etc., send the corresponding command on this serial port. For details of other instructions, please refer to the LoRaWAN module AT command manual.

2 After configuring the LoRaWAN parameter and restarting the device with a magnet, you can exit the configuration of the LoRaWAN parameter mode to make it work normally.