XZ-DS02-TH2A Lora Wireless Temperature & Humidity Sensor

1.Product Features

●Install and work, light sensing activating;
●Periodic detection， period is settable;
●Automatic registering to fit with gateway;
●Automatic routing to fit with repeater;
●Built-in battery and replaceable;
●wireless transmission can reach 5km LOS;
●Centralized acquisition, multi-mode output.

2.Applications

●environmental and meteorological monitoring
●medical and health care
●agriculture such as greenhouse
●storage and transportation,
●refrigeration and cold chain
●constant temperature and humidity production workshop

3. XZ-DS02-TH2A working status indication and description

XZ-DS02-TH2A Working Process
XZ-DS02-TH2A switches to different modes according to using w
Sleeping mode：Sensor no work, no transmission, and sleeping with low consumption
Starting mode：Light sensing triggering，
Trigger 3 times continuously within 10S，after triggering successfully at the 3rd time red light fast blinks 3 times, it means starting successfully.
（Triggering way: hand holds light-sensitive part 1～2S，loosen and red light blinks once）
Notice：please don’t trigger it in dark light, instead using lens hood under hard light
Triggering mode：trigger once，detect sensor and send signal, transmission interval of sensor can be set by user.
Normal Mode：periodically detect sensor and send signal

4.XZ-DS02-TH2A Technical Parameters

General Parameters	
Transmitting power :<17dBm	Sensitivity:<-136dbm
Transmitting current :<120mA	Receiving current:<20mA
Transmission Distance :>5KM(LOS）	Average power consumption:<15uA

Working Temperature:-40～80℃	Battery life:>5years@8700mAH
Working frequency :476.505&488.505MHz（433/868/915/923mhz customized）	
Battery Life:5 years@8700mAH 1pc ER26500 3.6V (Li- -SOCI2) battery (replaceable and included)	
Sensor Parameters	
Sensing probe operating temperature:	-55℃～125℃
Temperature Accuracy: :<±0.5℃（-10℃～85℃）& < ±1℃（<-10℃,>85℃）	
Transmission interval: 5mins default,1-240mins settable by user	

5.XZ-DS02-TH2A Data Protocols

Example：GW_ID:45658,TYPE:T&H,ID:1100001002,STAT:00000001,T:24.0℃,H:92.8%,ST:30M,V:3.50v, SN:109,RSSI:-106dBm,E:160.2020,S:110.2020,Time:2018-2-4 14:20:39,T_RSSI:-91dBm

Explanation：

GID: gateway ID （12345）	TYPE: T&H（Temp+RH sensor）	ID: sensor address（1）
STAT: Sensor Status word BIT7=1 Trigger reporting; BIT6= 0CH,1CH: BIT5=1 Repeater BIT4=1 invalid data BIT3= Reserve; BIT2=1 data searching network; BIT1=0, low speed,1high speed; BIT0=1start		
T: Environmental Temperature 14.5℃	H: Humidity 92.8%	ST: Acquisition interval 1mins
V: Battery Voltage 3.01V	SN: Transmitting Sequence No 2	RSSI: Signal strength -79dBm
Eastern Longitude E: 160.2020, Northern Latitude N:110.2020		Time: 2018-2-4 14:20:39

6.Frequency and model choosing

Model frequency comparison table		Matching gateway selection	
Model Number	Working Frequency	Model Number	Typical docking scene
XZ-DS02-TH2A-433	433MHz	XZ-DSG1	Computer and cloud server
XZ-DS02-TH2A-480	480MHz	XZ-DSG2	computer
XZ-DS02-THA-868	868MHz	XZ-DSG4	Cloud server
XZ-DS02-TH2A-915	915MHz	XZ-DS-MUS	PLC, touch screen
XZ-DS02-TH2A-925	925MHz	Please see following topology diagram	

7.Four Types Gateway for choosing

7.1 RJ45 Network Gateway XZ-DSG1

●Install and use; DC power supply;

●Dynamic and static IP, adaptive public network;

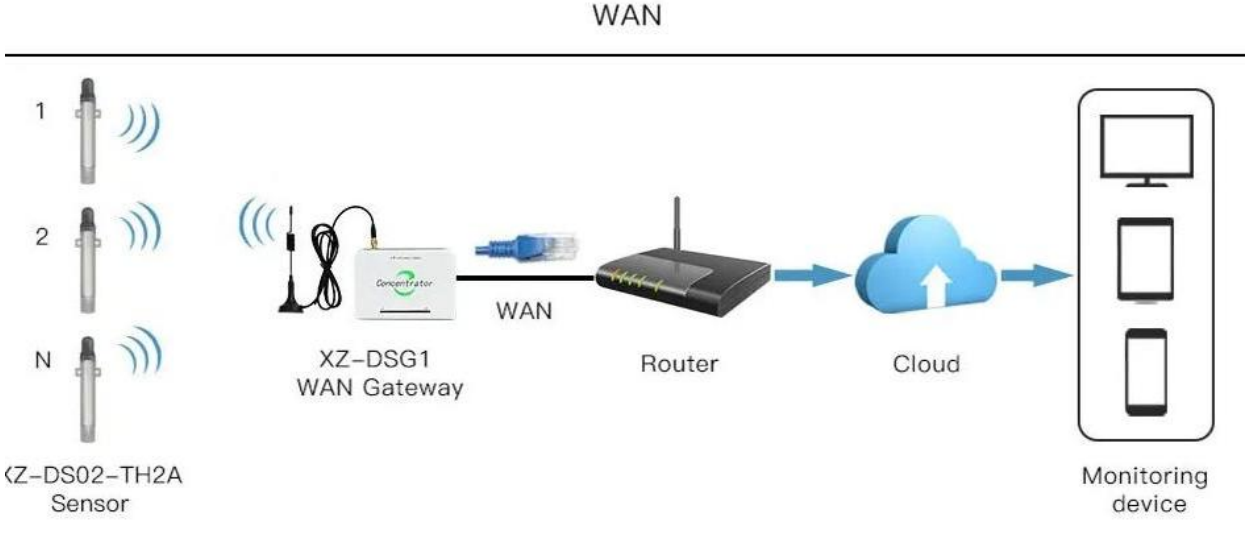
●Automatic routing to adapt to repeaters;

●Wireless transmission more than 5km;

●Centralized acquisition, multimode sensor.

●One Gateway can work with more than 100pcs sensors

Basic parameters		Network Parameters		Wireless Parameters	
Working voltage	DC：5V	Wired network:	RJ45	Working frequency	433MHz /480MHz /868MHz /915MHz /925MHz customized
Working current	<1A	Communication Method	TCP/IP	Receive sensitivity	-136dBm
Working Temperature	-40～80℃	Parameters Configuration	Serial port configuration IP or domain name	Transmission distance	5KM (LOS）



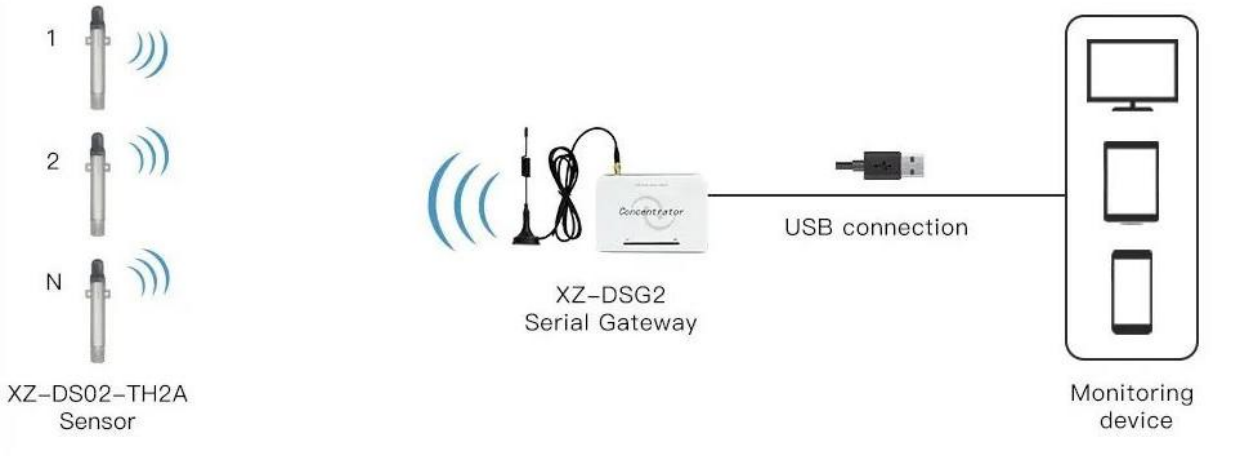
7.2 USB Serial Gateway XZ-DSG2

● Install and use; DC power supply;

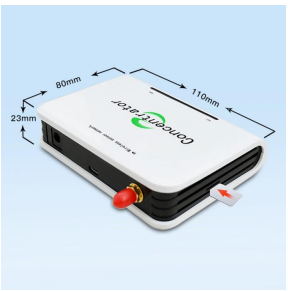
- Micro USB to serial port,9600bps;
- Automatic routing to adapt to repeaters;
- Wireless transmission more than 5000m;
- Centralized acquisition, multimode sensor.
- One Gateway can work with more than 100pcs sensors

Basic parameters		Serial Port Parameters	Wireless Parameters	
Working voltage	DC：5V	Micro USB to serial port	Working frequency	433MHz /480MHz /868MHz /915MHz /925MHz customized
Working current	<1A	9600bps	Receive sensitivity	-136dBm
Working Temperature	-40～80℃	8N1	Transmission distance	5KM (LOS）

SERIAL



7.3 4G Gateway XZ-DSG4



- Install and use, DC power supply;
- Support full netcom,4G/3G/2G
- Automatic routing, adapting to repeaters;
- Wireless transmission, more than 5KM Line of sight;

● Centralized acquisition, multi-mode sensor.

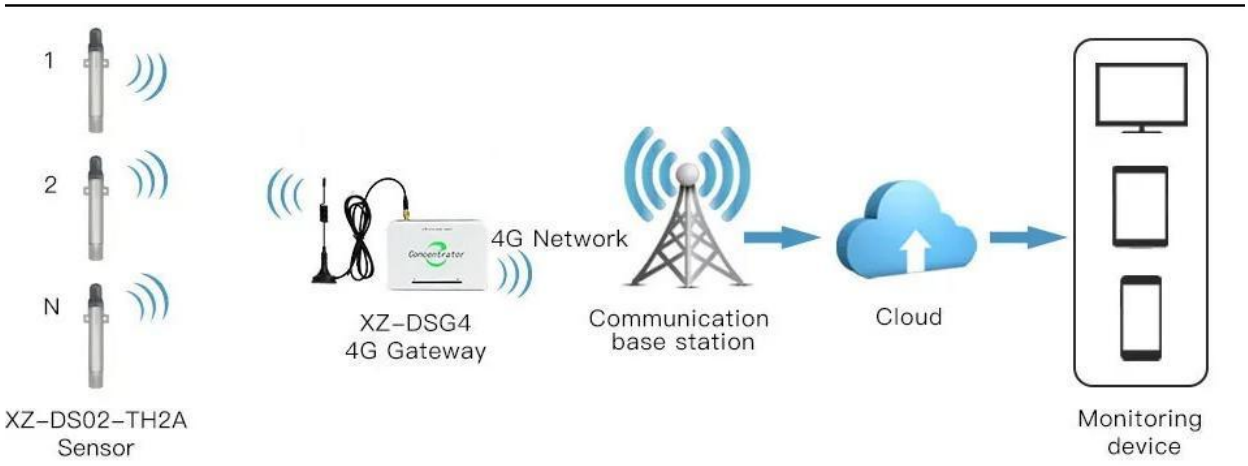
●Working on hopping frequency, Strong anti-interference ability

●One Gateway can work with more than 100pcs sensors

Product Parameters:

Basic parameters		Network Parameters		Wireless Parameters	
Working voltage	DC：5V	All Netcom	4G/3G/2G	Working frequency	433MHz /480MHz /868MHz /915MHz /925MHz customized ）
Working current	<1A	Communication Method	TCP/IP	Receive sensitivity	-136dBm
Working Temperature	-40～80℃	Parameters Configuration	Serial port configuration IP or domain name	Transmission distance	5KM (LOS）

4G



7.4 Modbus Gateway XZ-DS-MUS

XZ-DS-MUS can receive lora sensor data and store it into the corresponding configured space then read out from the serial port through the MODBUS protocol

One Gateway can work with 30pcs sensors.

Product parameter

Working Frequency	433MHz/480MHz/868MHz/915MHz/925MHz customized
Transmit Power	<18dBm
Sensitivity	<-128dBm
Transmit current	<120mA
Receiving current	<40mA
Working Voltage	5~36V @ XZ-DS-MUS
Transmission distance	>2KM(Line of sight)
Working temperature	-40℃～+80℃
Interface	9600bps,8N1, RS485

XZ-DS-MUS Pin Definition

	Pins	XZ-DS-MUS	Remark
DB9male connector	1	VCC (+5V)	5 ～ 36V customized
	2	RS-232/RXD	
	3	RS-232/TXD	
	4	GND	Power Ground
	5	AGND	Signal grounding
	6	RS-485/A	
	7	RS-485/B	
	8		
	9		

MODBUS