SZ2101

ZIGBEE wireless wall-mounted PT100 temperature data logger

Product Overview

SZ2101 ZIGBEE wireless wall-mounted PT100 temperature data logger, with U.S. imports sensors, low-cost temperature online monitoring of practical professional module, the module can be used:

(1) SMT industry temperature data monitoring, (2) Electronic Equipment Factory temperature data monitoring (3), cold storage temperature monitoring (4), storage temperature monitoring, (5) pharmaceutical GMP monitoring system, (6) Ambient temperature monitoring (7), telecommunications room temperature monitoring, (8) the need to monitor the temperature of various other occasions.

In order to facilitate networking and industrial applications, the module uses MODBUS-RTU communication protocol widely used in industry, can be easily and PLC, configuration software communications online. Users can communicate with any serial device data query and software settings according to protocol.

This device can be used to detect PT100 temperature sensor or collect and display.

Parameters

Parameter	SZ2101
Display Range	-200 ℃ ~ +500 ℃
Display accuracy	± 1% FSD
Display resolution	0.1 ℃
Baud Rate	9600
Communication port	Zigbee Wireless
Radio frequency	2.4G ISM band global free (ZigBee)
Network Type	Star network
Network Capacity	65,535 network nodes
Power supply	DC6-24V 1A
Power Consumption	2W
Support sensor	PT100
Operating Environment	-40 - 85 ℃
Dimensions	115 × 96 × 30mm ³

ORDERING INFORMATION

| Type	Order No.
SZ2101	SZ2101

Package dimensions

ZIGBEE Introduction

ZigBee is based on IEEE802.15.4 standard low -power personal area network protocol. Under the agreement stipulated technology is a short-range , low-power wireless communication technology . The name comes from the character dancing bees , because bees (bee) is by flying and "buzz " (zig) shake wings " dance " to transfer pollen where location information with their peers , that bees rely on this way constitute a group communication network. Its characteristics are close , low-complexity , self-organizing , low power, low data rate , low cost . Mainly suitable for automatic control and remote control in the field , can be embedded in a variety of devices . In short , ZigBee is a cheap , low-power short-range wireless network communication technology.

ZigBee is a low-speed short-range transmission of wireless network protocols. ZigBee protocol , respectively from the bottom to the physical layer (PHY), media access control layer (MAC), the transport layer (TL), the network layer (NWK), the application layer (APL) and the like. Which the physical layer and MAC layer follow IEEE 802.15.4 standard. ZigBee network is mainly characterized by low power, low cost , low rate , supporting a large number of nodes , supports a variety of network topologies , low complexity, fast, reliable and secure. ZigBee coordinator can be divided into network devices (Coordinator), aggregation node (Router), sensor nodes (EndDevice) , three roles.

A distance farther

zigbee supports up to 15 hops, between points furthest 2KM, can support large distance networking.
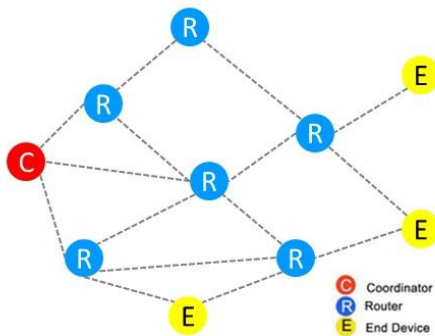
Second, more powerful equipment

Flexible node types, for the center, relay, terminal, multi-node, more convenient and easier

Third, anti-interference ability

Channel detection allows data to reduce collisions

Complex code sequence using DSSS Direct Sequence Spread Spectrum technology, with high rates of pseudo-noise code sequence information code sequence motif with two plus (waveform multiplied) to control the phase of the carrier after a direct sequence spread spectrum signal is obtained, the higher the upcoming original power, with a more narrow frequency becomes low power wideband frequency to obtain satisfactory anti-noise performance in the wireless communications field.

Interface Description

1 Display Description

There are two rows of the instrument display, the display shows the measured temperature, the lower display shows the resistance of PT100.

When the sensor is not connected or disconnected, the bottom two rows show 888.8, when the temperature is below the minimum range is displayed when the show 0.

2. ZIGBEE wireless communication interface

SZ2101 ZIGBEE wireless interface module located on the left, four-pin connector, the pin is defined as shown in the table below:

Pin Number	Pin Definitions	Lead color
1	DC 6-24V power supply positive	Red
2	DC 6-24V power supply negative	Green
3	RS485 A+	Yellow Line
4	RS485 B-	Blue

3 Sensor Interface

PT100 device supports two-wire or three-wire temperature sensor, external sensor interface pins are defined as follows:
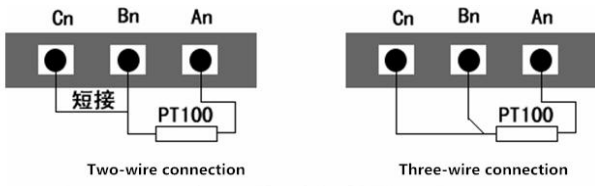
PT100 sensor wiring diagram

Wiring seat logo `Do not A1, B1, C1, if the wire is required when shorting C1, B1.

Communication protocol

Equipment operations or restore commands are all hexadecimal data . The default baud rate : 9600,8, n, 1.

The basic command format :

[Device Address] [Function code] [starting address : 2 bytes] [Data Length : 2 bytes] [CRC16 checksum]

Meaning is as follows :

A, Device Address : Device address range is 1-35 , 250 general-purpose query that 0xFA address, when I do not know the device address , the availability of generic query address queries.

B, function code : function code different needs of different applications , such as data input register 3 for the query .

C, the starting address : query or operation register start address.

D, Data Length : The length of reading , such as reading the temperature sensor 10 , the value 0x00 0A.

E, CRC checksum : CRC16 checksum , high front and low in the post.

1) Read data (function code 0x03)

[Device Address] [03] [starting address : 2 bytes] [Data Length : 2 bytes] [CRC16 checksum]

Device response:

[Device Address] [Order] [Returns the number of bytes] [Data 1] [Data 2] ... [data n] [CRC16 checksum]

Response data meaning is as follows :

A, the number of bytes returned : indicates the number of bytes of data , the data value is 1,2 ... n of the n .

B, the data 1 ... N: measurement value of each sensor , each data occupies two bytes. Integer data , the true value of this value divided by 100 .

For example : Query on the 1st device 2 registers data:

Send : 01 03 00 00 00 02 C4 0B

Response : 01 03 04 00 FF 04 4B 88 F4

Reply data on patients : 01 1,04 meter data table address length is 4 bytes , due to the length of the measuring point two bytes of

data , such as data for the first 00 FF, folded into 10 hex is : 2550 , because the module with a resolution of 0.01 , the value must be divided by 100 , that the actual temperature is 25.50 , empathy : 04 4B is the 2 -way value , decimal data : 10990 , resistance is 109.90 .

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