TRANBALL QR3613B Networking 8-Channel SHT30 Temperature and Humidity Logger User Manual

QR3613B
User Ma nual
File Version: V22.1.14

QR3613B using the standard RS485 bus MODBUS-RTU protocol,easy access to PLCDCS and other instruments or systems for monitoring temperature,humidity@8 state quantities.The internal use of high-precision sensing core and related devices to ensure high reliability and excellent long-term stability can be customized RS232, RS485, CAN,4-20mA, DC0~5V10V, ZIGBEE, Lora, WIFI, GPRS and other output methods.

Contents

Technical Parameters

Technical parameter	Parameter value
Brand	TRANBALL
Communication Interface	RS485
Power	DC5~24V 1A
Display	1.8 TFT
Storage	8M
Max Records	65000
Running temperature	-40~80°C
Working humidity	5%RH~90%RH

Product Size

Sensor terminal block

95mm

High:55mm
Guide:35mm

130mm

Sensor terminal block

Power supply
and RS485 interface

Power indicator (left)
Communication indicator (right)

30mm

ø3.5mm

15mm

40mm

100mm

How to wiring?

Wiring method (sensor)		Wiring method (RS485)	
V1	Sensor PWR+	V+	PWR+
D1	Sensor out	V-	PWR-
S1	Sensor out	A+	RS485 A+
V-	Sensor PWR-	B-	RS485 B-
......			
V8	Sensor PWR+		
D8	Sensor out		
S8	Sensor out		
V-	Sensor PWR-		

※Note: When wiring, connect the positive and negative poles of the power supply first, and then connect the signal wire

Application solution
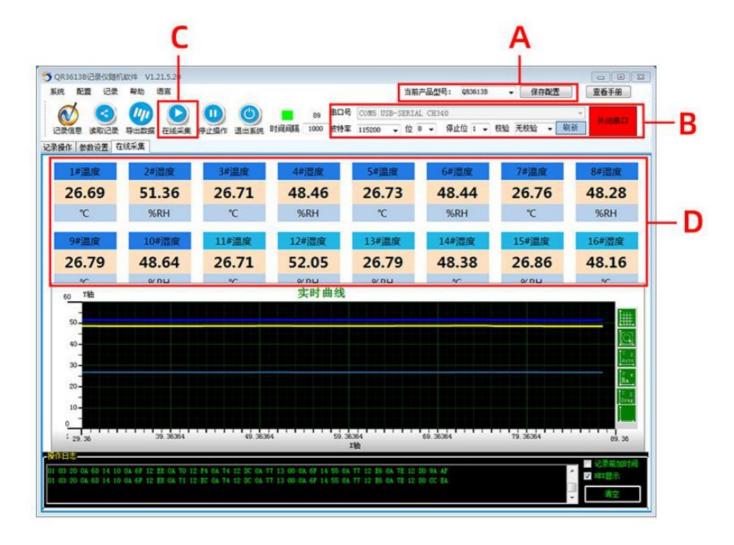
COMBINATION SET RECOMMENDATION

8-channel temperature
and humidity acquisition module

Isolated USB-485 converter
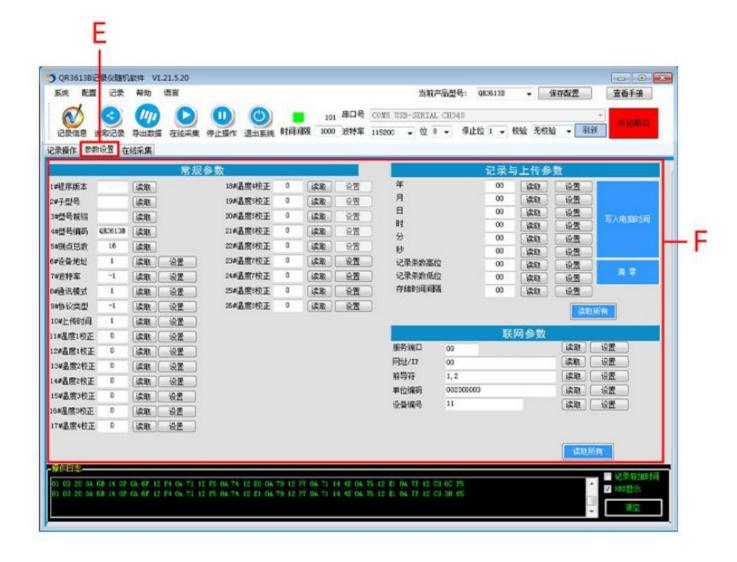
SHT3X temperature and humidity sensor
(Recommended quantity is 8, standard
configuration is 1 meter, length can be customized)

A: After opening the software, enter the main interface, select the corresponding product model at the time of purchase, and save the settings after selection, in case you need to reselect it after opening it next time.
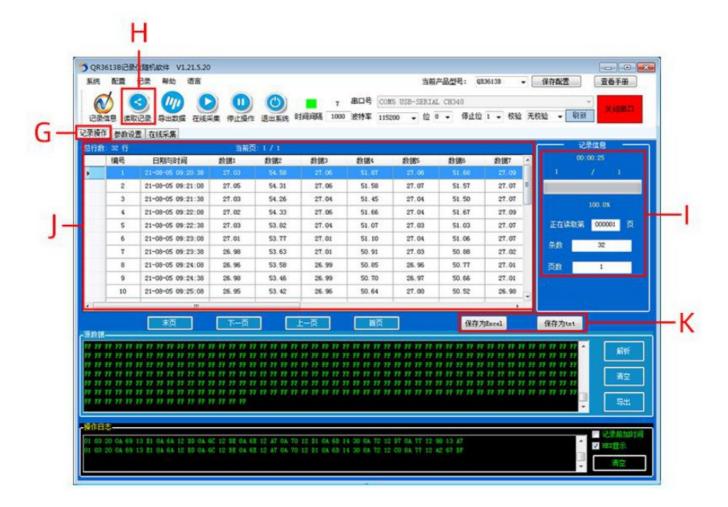
B: Use the USB converter to insert the computer's USB2.0 interface, the driver will be installed automatically, If the installation fails, you can install it in the driver wizard software. After connecting to the computer, Select the serial port number: USB-SERIAL CH340 (COM5), set the baud rate Click to open the serial port to complete the connection.

C D: After opening the serial port, click online collection (C) to see the real-time measurement data (D).

E: Enter the parameter setting interface

F: A variety of parameters can be set in the parameter setting, such as temperature and humidity correction, baud rate, upload time, and other parameters. For the parameters on the right, you can click on "read all" to set the parameters on the recorder.
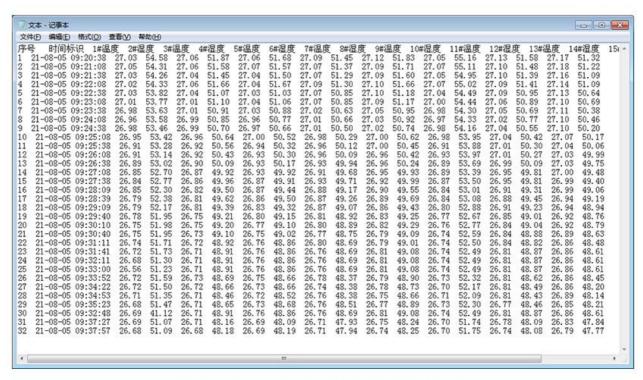
G: Enter the record operation interface

H: Click "Read Data' to start transferring the data on the recorder to the software.

I: After the step (H), the number of read data, the total number of data, and the number of pages will be displayed at the top of the reading.

J: The read data will be displayed on it

K: You can export the read data in Excel or txt format

EXCEL table export preview

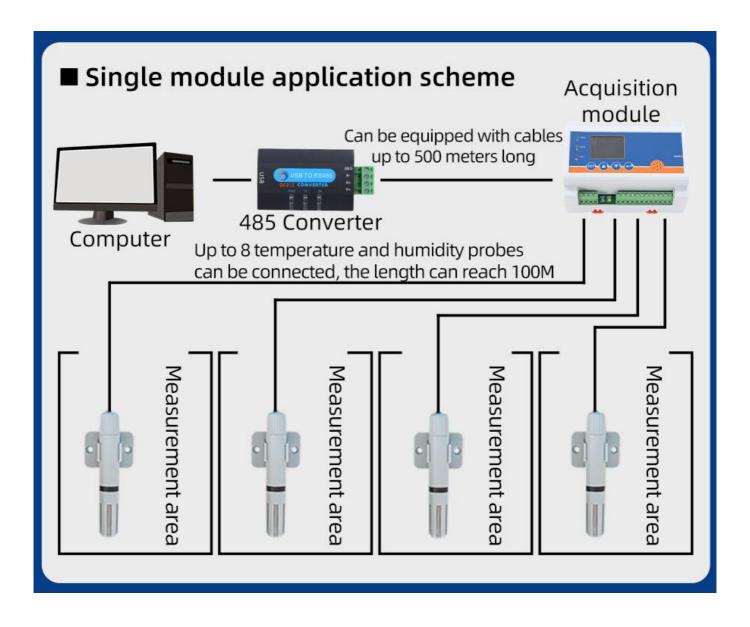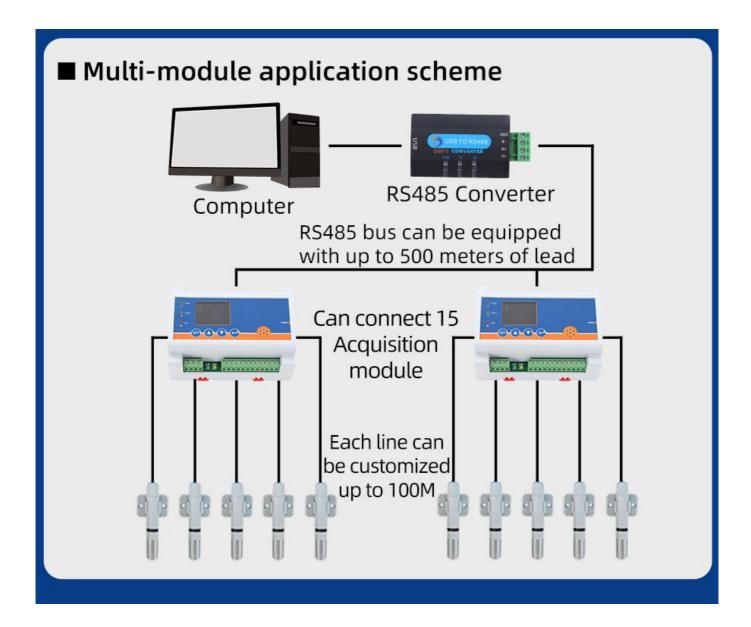| ID	Time	1#温度	2#湿度	3#温度	4#湿度	5#温度	6#湿度	7#温度	8#湿度	9#温度	10#湿度	11#温度	12#湿度	13#温度	14#湿度	15#温度	16#湿度
1	2021/8/5 9:20	27.03	54.58	27.06	51.87	27.06	51.68	27.09	51.45	27.12	51.83	27.05	55.16	27.13	51.58	27.17	51.32
2	2021/8/5 9:21	27.05	54.31	27.06	51.58	27.07	51.57	27.07	51.37	27.09	51.71	27.07	55.11	27.1	51.48	27.18	51.22
3	2021/8/5 9:21	27.03	54.26	27.04	51.45	27.04	51.5	27.07	51.29	27.09	51.6	27.05	54.95	27.1	51.39	27.16	51.09
4	2021/8/5 9:22	27.02	54.33	27.06	51.66	27.04	51.67	27.09	51.3	27.1	51.66	27.07	55.02	27.09	51.41	27.14	51.09
5	2021/8/5 9:22	27.03	53.82	27.04	51.07	27.03	51.03	27.07	50.85	27.1	51.18	27.04	54.49	27.09	50.95	27.13	50.64
6	2021/8/5 9:23	27.01	53.77	27.01	51.1	27.04	51.06	27.07	50.85	27.09	51.17	27	54.44	27.06	50.89	27.1	50.69
7	2021/8/5 9:23	26.98	53.63	27.01	50.91	27.03	50.88	27.02	50.63	27.05	50.95	26.98	54.3	27.05	50.69	27.11	50.38
8	2021/8/5 9:24	26.96	53.58	26.99	50.85	26.96	50.77	27.01	50.66	27.03	50.92	26.97	54.33	27.02	50.77	27.1	50.46
9	2021/8/5 9:24	26.98	53.46	26.99	50.7	26.97	50.66	27.01	50.5	27.02	50.74	26.98	54.16	27.04	50.55	27.1	50.2
10	2021/8/5 9:25	26.95	53.42	26.96	50.64	27	50.52	26.98	50.29	27	50.62	26.98	53.95	27.04	50.42	27.07	50.17
11	2021/8/5 9:25	26.91	53.28	26.92	50.56	26.94	50.32	26.96	50.12	27	50.45	26.91	53.88	27.01	50.3	27.04	50.06
12	2021/8/5 9:26	26.91	53.14	26.92	50.43	26.93	50.3	26.96	50.09	26.96	50.42	26.93	53.97	27.01	50.27	27.03	49.99
13	2021/8/5 9:26	26.89	53.02	26.9	50.09	26.93	50.17	26.93	49.94	26.96	50.24	26.89	53.69	26.99	50.09	27.03	49.75
14	2021/8/5 9:27	26.85	52.7	26.87	49.92	26.93	49.92	26.91	49.68	26.95	49.93	26.89	53.39	26.95	49.81	27	49.48
15	2021/8/5 9:27	26.84	52.77	26.86	49.96	26.87	49.91	26.93	49.71	26.92	49.99	26.87	53.5	26.95	49.81	26.99	49.4
16	2021/8/5 9:28	26.85	52.3	26.82	49.5	26.87	49.44	26.88	49.17	26.9	49.55	26.84	53.01	26.91	49.31	26.99	49.06
17	2021/8/5 9:28	26.79	52.38	26.81	49.62	26.86	49.5	26.87	49.26	26.89	49.69	26.84	53.08	26.88	49.45	26.94	49.19
18	2021/8/5 9:29	26.79	52.17	26.81	49.39	26.83	49.32	26.87	49.07	26.86	49.43	26.8	52.88	26.91	49.23	26.94	48.94
19	2021/8/5 9:29	26.78	51.95	26.75	49.21	26.8	49.15	26.81	48.92	26.83	49.25	26.77	52.67	26.85	49.01	26.92	48.76
20	2021/8/5 9:30	26.75	51.98	26.75	49.2	26.77	49.1	26.8	48.89	26.82	49.29	26.76	52.77	26.84	49.04	26.92	48.79
21	2021/8/5 9:30	26.75	51.95	26.73	49.1	26.75	49.02	26.77	48.75	26.79	49.09	26.74	52.59	26.84	48.88	26.89	48.63
22	2021/8/5 9:31	26.74	51.71	26.72	48.92	26.76	48.86	26.8	48.69	26.79	49.01	26.74	52.5	26.84	48.82	26.86	48.48
23	2021/8/5 9:31	26.72	51.73	26.71	48.91	26.76	48.86	26.76	48.69	26.81	49.08	26.74	52.49	26.81	48.87	26.86	48.61
24	2021/8/5 9:32	26.68	51.3	26.71	48.91	26.76	48.86	26.76	48.69	26.81	49.08	26.74	52.49	26.81	48.87	26.86	48.61
25	2021/8/5 9:33	26.56	51.23	26.71	48.91	26.76	48.86	26.76	48.69	26.81	49.08	26.74	52.49	26.81	48.87	26.86	48.61
26	2021/8/5 9:33	26.72	51.59	26.73	48.69	26.75	48.66	26.78	48.37	26.79	48.9	26.73	52.32	26.81	48.62	26.86	48.45
27	2021/8/5 9:34	26.72	51.5	26.72	48.66	26.73	48.66	26.74	48.38	26.78	48.73	26.7	52.17	26.81	48.49	26.86	48.2
28	2021/8/5 9:34	26.71	51.35	26.71	48.46	26.72	48.52	26.76	48.38	26.75	48.66	26.71	52.09	26.81	48.43	26.89	48.14
29	2021/8/5 9:35	26.68	51.47	26.71	48.65	26.73	48.68	26.76	48.51	26.77	48.89	26.73	52.3	26.77	48.46	26.85	48.21
30	2021/8/5 9:32	26.69	41.12	26.71	48.91	26.76	48.86	26.76	48.69	26.81	49.08	26.74	52.49	26.81	48.87	26.86	48.61
31	2021/8/5 9:37	26.69	51.07	26.71	48.16	26.69	48.09	26.71	47.93	26.75	48.24	26.7	51.74	26.78	48.09	26.83	47.84
32	2021/8/5 9:37	26.68	51.09	26.68	48.18	26.69	48.19	26.71	47.94	26.74	48.25	26.7	51.75	26.74	48.08	26.79	47.77

TXT text export preview

文本 - 记事本
文件(F)　编辑(E)　格式(O)　查看(V)　帮助(H)

序号	时间标识	1#温度	2#湿度	3#温度	4#湿度	5#温度	6#湿度	7#温度	8#湿度	9#温度	10#湿度	11#温度	12#湿度	13#温度	14#湿度	15#...
1	21-08-05 09:20:38	27.03	54.58	27.06	51.87	27.06	51.68	27.09	51.45	27.12	51.83	27.05	55.16	27.13	51.58	27.17 51.32
2	21-08-05 09:21:08	27.05	54.31	27.06	51.58	27.07	51.57	27.07	51.37	27.09	51.71	27.07	55.11	27.10	51.48	27.18 51.22
3	21-08-05 09:21:38	27.03	54.26	27.04	51.45	27.04	51.50	27.07	51.29	27.09	51.60	27.05	54.95	27.10	51.39	27.16 51.09
4	21-08-05 09:22:08	27.02	54.33	27.06	51.66	27.04	51.67	27.09	51.30	27.10	51.66	27.07	55.02	27.09	51.41	27.14 51.09
5	21-08-05 09:22:38	27.03	53.82	27.04	51.07	27.03	51.03	27.07	50.85	27.10	51.18	27.04	54.49	27.09	50.95	27.13 50.64
6	21-08-05 09:23:08	27.01	53.77	27.01	51.10	27.04	51.06	27.07	50.85	27.09	51.17	27.00	54.44	27.06	50.89	27.10 50.69
7	21-08-05 09:23:38	26.98	53.63	27.01	50.91	27.03	50.88	27.02	50.63	27.05	50.95	26.98	54.30	27.05	50.69	27.11 50.38
8	21-08-05 09:24:08	26.96	53.58	26.99	50.85	26.96	50.77	27.01	50.66	27.03	50.92	26.97	54.33	27.02	50.77	27.10 50.46
9	21-08-05 09:24:38	26.98	53.46	26.99	50.70	26.97	50.66	27.01	50.50	27.02	50.74	26.98	54.16	27.04	50.55	27.10 50.20
10	21-08-05 09:25:08	26.95	53.42	26.96	50.64	27.00	50.52	26.98	50.29	27.00	50.62	26.98	53.95	27.04	50.42	27.07 50.17
11	21-08-05 09:25:38	26.91	53.28	26.92	50.56	26.94	50.32	26.96	50.12	27.00	50.45	26.91	53.88	27.01	50.30	27.04 50.06
12	21-08-05 09:26:08	26.91	53.14	26.92	50.43	26.93	50.30	26.96	50.09	26.96	50.42	26.93	53.97	27.01	50.27	27.03 49.99
13	21-08-05 09:26:38	26.89	53.02	26.90	50.09	26.93	50.17	26.93	49.94	26.96	50.24	26.89	53.69	26.99	50.09	27.03 49.75
14	21-08-05 09:27:08	26.85	52.70	26.87	49.92	26.93	49.92	26.91	49.68	26.95	49.93	26.89	53.39	26.95	49.81	27.00 49.48
15	21-08-05 09:27:38	26.84	52.77	26.86	49.96	26.87	49.91	26.93	49.71	26.92	49.99	26.87	53.50	26.95	49.81	26.99 49.40
16	21-08-05 09:28:09	26.85	52.30	26.82	49.50	26.87	49.44	26.88	49.17	26.90	49.55	26.84	53.01	26.91	49.31	26.99 49.06
17	21-08-05 09:28:39	26.79	52.38	26.81	49.62	26.86	49.50	26.87	49.26	26.89	49.69	26.84	53.08	26.88	49.45	26.94 49.19
18	21-08-05 09:29:09	26.79	52.17	26.81	49.39	26.83	49.32	26.87	49.07	26.86	49.43	26.80	52.88	26.91	49.23	26.94 48.94
19	21-08-05 09:29:40	26.75	51.95	26.75	49.21	26.80	49.15	26.81	48.92	26.83	49.25	26.77	52.67	26.85	49.01	26.92 48.76
20	21-08-05 09:30:10	26.75	51.98	26.75	49.20	26.77	49.10	26.80	48.89	26.82	49.29	26.76	52.77	26.84	49.04	26.92 48.79
21	21-08-05 09:30:40	26.75	51.95	26.73	49.10	26.75	49.02	26.77	48.75	26.79	49.09	26.74	52.59	26.84	48.88	26.89 48.63
22	21-08-05 09:31:11	26.74	51.71	26.72	48.92	26.76	48.86	26.80	48.69	26.79	49.01	26.74	52.50	26.84	48.82	26.86 48.48
23	21-08-05 09:31:41	26.72	51.73	26.71	48.91	26.76	48.86	26.76	48.69	26.81	49.08	26.74	52.49	26.81	48.87	26.86 48.61
24	21-08-05 09:32:11	26.68	51.30	26.71	48.91	26.76	48.86	26.76	48.69	26.81	49.08	26.74	52.49	26.81	48.87	26.86 48.61
25	21-08-05 09:33:00	26.56	51.23	26.71	48.91	26.76	48.86	26.76	48.69	26.81	49.08	26.74	52.49	26.81	48.87	26.86 48.61
26	21-08-05 09:33:52	26.72	51.59	26.73	48.69	26.75	48.66	26.78	48.37	26.79	48.90	26.73	52.32	26.81	48.62	26.86 48.45
27	21-08-05 09:34:22	26.72	51.50	26.72	48.66	26.73	48.66	26.74	48.38	26.78	48.73	26.70	52.17	26.81	48.49	26.86 48.20
28	21-08-05 09:34:53	26.71	51.35	26.71	48.46	26.72	48.52	26.76	48.38	26.75	48.66	26.71	52.09	26.81	48.43	26.89 48.14
29	21-08-05 09:35:23	26.68	51.47	26.71	48.65	26.73	48.68	26.76	48.51	26.77	48.89	26.73	52.30	26.77	48.46	26.85 48.21
30	21-08-05 09:32:48	26.69	41.12	26.71	48.91	26.76	48.86	26.76	48.69	26.81	49.08	26.74	52.49	26.81	48.87	26.86 48.61
31	21-08-05 09:37:27	26.69	51.07	26.71	48.16	26.69	48.09	26.71	47.93	26.75	48.24	26.70	51.74	26.78	48.09	26.83 47.84
32	21-08-05 09:37:57	26.68	51.09	26.68	48.18	26.69	48.19	26.71	47.94	26.74	48.25	26.70	51.75	26.74	48.08	26.79 47.77

■ Single module application scheme

Acquisition module

Can be equipped with cables up to 500 meters long

Computer

485 Converter

USB TO RS485
CONVERTER

Up to 8 temperature and humidity probes can be connected, the length can reach 100M

Measurement area

Measurement area

Measurement area

Measurement area

Multi-module application scheme

Computer

RS485 Converter

RS485 bus can be equipped with up to 500 meters of lead

Can connect 15 Acquisition module

Each line can be customized up to 100M

How to use?

Warehouse storage

Flower farming

library

HVAC pipes

Animal husbandry

KEY POSITION & SCREEN DISPLAY DESCRIPTION

SET: Set time & storage parameters

▲ ▼ : Up and down

⬅ : Shift/start & stop timing

Current time

T&H display area

① ② ③

1. Upload interval display, up to 100 seconds can be set

   This item is set by SET

2. When the 4J button is pressed, when the icon becomes ⬛, the timing stops on the left

   When the 4.1 button is pressed, when the icon becomes ▶, the timing starts on the left

3. Number of records: The number of records will be increased once at the end of the countdown on the left

(1)时钟设置

年 月 日 时 分 秒

21-03-09 14:23:25

Press "SET" to enter the clock setting

USe ⬅ to shift, adjust the value up and down

Press the second "SET" to enter the storage interval setting
The upper limit can be set to 100 seconds/time

Press the third "SET" to enter the record Start point setting
The upper limit can be set to 65101

Communication Protocol

The product uses RS485 MODBUS-RTU standard protocol format, all operation or reply commands are hexadecimal data. The default device address is 1 when the device is shipped, the default baud rate is 9600, 8, n, 1

1. Read Data (Function id 0x03)

Inquiry frame (hexadecimal), sending example: Query 1# device 1 data, the host computer sends the command:01 03 00 00 00 02 C4 0B.

Device ID	Function id	Start Address	Data Length	CRC16
1	3	0	2	C4 OB

For the correct query frame, the device will respond with data:01 03 04 00 79 00 00 2B EA, the response format is parsed as follows:

Device ID	Function id	Data Length	Data 1	Data 2	Data 3
1	3	4	79	00 7A	00 7B

Data Description: The data in the command is hexadecimal. Take data 1 as an example. 00 79 is converted to a decimal value of 121. If the data magnification is 100, the actual value is 121/100=1.21. Others and so on.

2. Data Address Table

Address	Start Address	Description	Data type	Value range
40001	0	1#temperature register	Read Only	65535
40002	1	2#humidity register	Read Only	65535
40003	2	3#temperature register	Read Only	65535
40004	3	4#humidity register	Read Only	65535
40005	4	5#temperature register	Read Only	65535
40006	5	6#humidity register	Read Only	65535
	…	…	…	…
40015	00 OE	15#temperature register	Read Only	65535
40016	0 F	16#humidity register	Read Only	65535
40101	64	model code	read/write	65535
40102	65	total points	read/write	1-20
40103	66	Device ID	read/write	1-249
40104	67	baud rate	read/write	0-6
40105	68	mode	read/write	1-4
40106	69	protocol	read/write	1-10

3. read and modify device address

(1) Read or query device address

If you don't know the current device address and there is only one device on the bus, you can use the command FA 03 00 64 00 02 90 5F Query device address.

Device ID	Function id	Start Address	Data Length	CRC16
FA	3	00 64	00 02	90 5F

FA is 250 for the general address. When you don't know the address, you can use 250 to get the real device address, 00 64 is the device model register.

For the correct query command, the device will respond, for example the response data is: 01 03 02 07 12 3A 79, the format of which is as shown in the following table:

Device ID	Function id	Start Address	Model Code	CRC16
1	3	2	55 3C 00 01	3A 79

Response should be in the data, the first byte 01 indicates that the real address of the curr ent device is, 55 3C converted to decimal 20182 indicates that the current device main model is 21820, the last two bytes 00 01 Indicates that the device has a status quantity.

Device ID	Function id	Start Address	Destination	CRC16
1	6	66	2	E8 14

(2)Change device address

For example, if the current device address is 1, we want to change to 02, the command is:01 06 00 66 00 02 E8 14 .

Device ID	Function id	Start Address	Destination	CRC16
1	6	66	2	E8 27

After the change is successful, the device will return information: 02 06 00 66 00 02 E8 27, its format is parsed as shown in the following table:

Response should be in the data, after the modification is successful, the first byte is the new device address. After the general device address is changed, it will take effect immediately. At this time, the user needs to change the query command of the software at the same time.

4. Read and Modify Baud Rate (1) Read baud rate

The device default factory baud rate is 9600. If you need to change it, you can change it according to the following table and the corresponding communication protocol. For example, read the current device's baud rate ID, the command is:01 03 00 67 00 01 35 D5 , its format is parsed as follows.

Device ID	Function id	Start Address	Data Length	CRC16
1	3	67	1	35 D5

Read the baud rate encoding of the current device. Baud rate encoding: 1 is 2400; 2 is 4800; 3 is 9600; 4 is 19200; 5 is 38400; 6 is 115200.

For the correct query command, the device will respond, for example the response data is: 01 03 02 00 03 F8 45, the format of which is as shown in the following table:

Device ID	Function id	Data Length	Rate ID	CRC16
1	3	2	00 03	F8 45

coded according to baud rate, 03 is 9600, ie the current device has a baud rate of 9600.

(2)Change the baud rate

For example, changing the baud rate from 9600 to 38400, ie changing the code from 3 to 5, the command is: 01 06 00 67 00 05 F8 1601 03 00 66 00 01 64 15.

Device ID	Function id	Start Address	Target Baud Rate	CRC16
1	3	66	1	6415

Change the baud rate from 9600 to 38400, changing the code from 3 to 5. The new baud rate will take effect immediately, at which point the device will lose its response and the baud rate of the device should be queried accordingly. Modified.

5. Read Correction Value

(1) Read Correction Value

When there is an error between the data and the reference standard, we can reduce the display error by adjusting the correction value. The correction difference can be modified to be plus or minus 1000, that is, the value range is 0-1000 or 64535 -65535. For example, when the display value is too small, we can correct it by adding 100. The command is: 01 03 00 6B 00 01 F5 D6 . In the command 100 is hex 0x64 If you need to reduce, you can set a negative value, such as -100, corresponding to the hexadecimal value of FF 9C, which is calculated as 100-65535=65435, and then converted to hexadecimal to 0x FF 9C. The correction value starts from 00 6B. We take the first parameter as an example. The correction valu e is read and modified in the same way for multiple parameters.

Device ID	Function id	Start Address	Data Length	CRC16
1	3	00 6B	1	F5 D6

For the correct query command, the device will respond, for example the response data is: 01 03 02 00 64 B9 AF, the format of which is as shown in the following table:

Device ID	Function id	Data Length	Data value	CRC16
1	3	2	64	B9 AF

In the response data, the first byte 01 indicates the real address of the current device, and 00 6B is the first state quantity correction value register. If the device has multiple parameters, other parameters operate in this way. The same, the general temperature, humidity have this parameter, the light generally does not have this item.

(2) Change correction value

For example, the current state quantity is too small, we want to add 1 to its true value, and the current value plus 100 correction operation command is:01 06 00 6B 00 64 F9 FD.

Device ID	Function id	Start Address	Destination	CRC16
1	6	00 6B	64	F9 FD

After the operation is successful, the device will return information: 01 06 00 6B 00 64 F9 FD, the parameters take effect immediately after successful change.

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Documents / Resources

TRANBALL QR3613B Networking 8-Channel SHT30 Temperature and Humidity Logger [pdf] User Manual
QR3613B Networking 8-Channel SHT30 Temperature and Humidity Logger, QR3613B, Networking 8-Channel SHT30 Temperature and Humidity Logger

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