BH-485-CL Digital Residual Chlorine Sensor

User Manual

Introduction

The digital residual chlorine sensor is a new generation of intelligent water quality detection digital sensor independently developed by BOQU Instrument. Adopt advanced non-membrane constant voltage residual chlorine sensor, no need to change diaphragm and medicine, stable performance, simple maintenance. It has the characteristics of high sensitivity, fast response, accurate measurement, high stability, superior repeatability, easy maintenance, and multi-function. It can accurately measure the residual chlorine value in solution. It is widely used in self-controlled dosing of circulating water, chlorine control in swimming pools, and continuous monitoring and control of residual chlorine content in aqueous solutions in drinking water treatment plants, drinking water distribution networks, swimming pools, hospital waste water, and water quality treatment projects.

Technical Features

◇ The residual chlorine digital sensor is directly output RS485 signal

◇ High precision, high stability and strong anti-interference ability

◇ No instrument required, can be directly connected to computers, PLC and other equipment with RS485 signal interface for data collection and maintenance;

◇ It is convenient for users to integrate sensors into industrial control environments such as host computer systems and things.

◇ Relevant settings can be set for the sensor through RS485 communication, slave address and baud rate, online calibration, factory reset, , scale factor and incremental compensation and other settings.

◇ Adopt two-point correction method.

Technical Parameters

◇ Measuring range: 0-20.00 mg / L (ppm)

◇ Accuracy: ± 1% or ± 0.01 mg / L

◇ 485 interface: support the Internet of Things (partially compatible with MODBUS protocol)

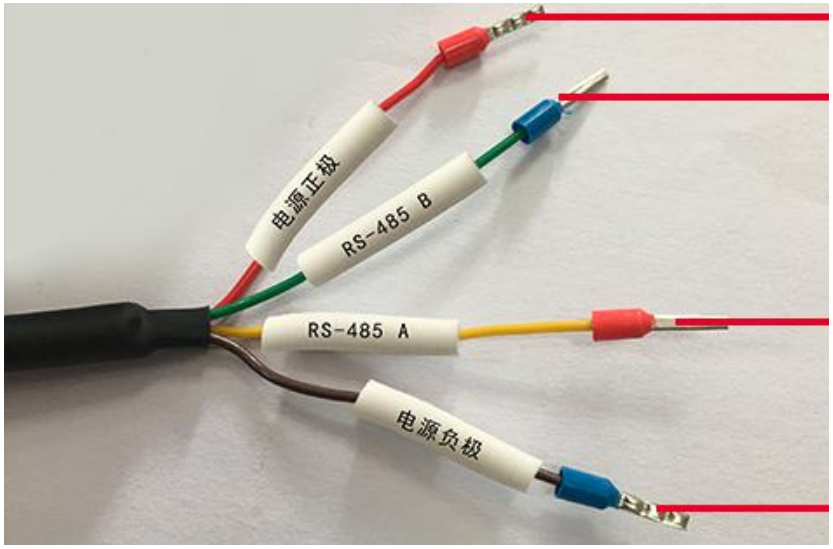
◇ Working conditions: ambient temperature is 0-60 ℃

◇ Input impedance: ≥1 × 1012Ω

◇ Output load: Modbus RTU RS485

◇ Working voltage: DC 12V power supply

◇ Protection level: IP68



Power input+

RS-485 B

RS-485 A

Power input-

MODBUS Communication Protocol

Address	Description	Byte	Unit	Valid bit	Examples	
0001	Residual chlorine Value	16 bit	Mg/L	0.01	03 C6	9.66
0002	Temp Value	16 bit	℃	0.1	00 FA	25.0
0003	Residual chlorine current value	16 bit	nA	0.01	03 D4	9.80
0004	Residual chlorine current value symbol	16 bit	+/-		00 00	+
0005	E0 Residual chlorine current	16 bit	nA	0.01	00 12	0.18
0006	E0 Residual chlorine current symbol	16 bit	+/-		00 00	+
0007	E0 Temp Value	16 bit	℃	0.1	00 FA	25.0
0008	S0 Residual Chlorine Current	16 bit	nA	0.01	00 76	1.18
0009	S0 Residual Chlorine current symbol	16 bit	+/-		00 00	+
000A	S0 Temp Value	16 bit	℃	0.1	00 FA	25.0
000B	Residual chlorine value of calibration solution	16 bit	Mg/L	0.01	00 64	1.00
000C	Temp Compensation Method	16 bit			00 02	Manual compensation
000D	Manual Temp Value	16 bit	℃	0.1	00 FA	25.0

000E	MB Address	16 bit			00 07	MB=07
000F	Filter Setting	16 bit		00/01/02	00 00	Turn off/1/2gear

Host send to sensor 07 03 00 01 00 01 D5 AC , then read the residual chlorine value of the first word
The sensor return to the host 07 03 02 03 C6 b0 e6

Sensor Address 07 Read command 03

Address	Host Sent	Sensor send back
0x0001	07 03 00 01 00 01 D5 AC	07 03 02 00 03 70 45
	Read Residual Chlorine Value Mg/L 0.01	0．03 Mg/L
0x0002	07 03 00 02 00 01 25 AC	07 03 02 01 4D F1 E1
	Read temp Value ℃ 0.1	33．3 ℃
0x0003	07 03 00 03 00 01 74 6C	07 03 02 00 16 B1 8A
	Read residual chlorine current value nA 0.01	0．22 nA
0x0004	07 03 00 04 00 01 C5 AD	07 03 02 00 00 30 44
	Read residual chlorine current symbol positive +/ Negative-	00 positive+ / 01 Negative- （Normally, it is positive）
0x0005	07 03 00 05 00 01 94 6D	07 03 02 00 13 71 89
	Read E0 residual chlorine current value nA 0.01	0．19 nA (No higher than 99.00)
0x0006	07 03 00 06 00 01 64 6D	07 03 02 00 00 30 44
	Read E0 residual chlorine current symbol positive +/ Negative-	00 positive+ / 01 Negative- （Normally, it is positive）
0x0007	07 03 00 07 00 01 35 AD	07 03 02 00 FA B0 07
	Read E0 Temp value 0.1	25．0 ℃ (no higher than 50.0)
0x0008	07 03 00 08 00 01 05 AE	07 03 02 00 77 70 62
	Read S0 residual chlorine current value nA 0.01	1．19 nA (no higher than 99.00)

0x0009	07 03 00 09 00 01 54 6E	07 03 02 00 00 30 44
	Read E0 residual chlorine current symbol positive +/ Negative-	00 positive+ / 01 Negative- （Normally, it is positive）
0x000A	07 03 00 0A 00 01 A4 6E	07 03 02 00 FA B0 07
	Read S0 Temp Value 0.1	25．0 ℃ (No higher than 50.0)

Sensor Address 07 Read command 03

Address	Host Sent	Sensor send back
0x000B	07 03 00 0B 00 01 F5 AE	07 03 02 00 64 31 AF
	Read S0 residual chlorine solution value Mg/L 0.01	1．00 Mg/L (No higher than 20.00)
0x000C	07 03 00 0C 00 01 44 6F	07 03 02 00 01 F1 84
	Read Temp compensation method 00—OFF/01—NTC/02—manual	02—manual compensation (Only receive 00/01/02, others are regard as 00)
0x000D	07 03 00 0D 00 01 15 AF	07 03 02 00 FA B0 07
	Read manual temp compensation value 0.1	25．0 ℃ (No higher than 50.0)
0x000E	07 03 00 0E 00 01 E5 AF	07 03 02 00 07 71 86
	Read MB address (Sensor address)	MB Add = 07 (No higher than 250)
0x000F	07 03 00 0F 00 01 B4 6F	07 03 02 00 01 F1 84
	Read filter switch	SW= 00 / 01 / 02

Sensor address 04 Enter Command 06

Address	Host sent	ensor send back
0x0005	04 06 00 05 00 0A 19 99	04 06 00 05 00 0A 19 99
	Enter E0 residual chlorine value nA 0.01	Enter successfully 0．10 nA (No higher than 99.00)

0x0006	04 06 00 06 00 00 69 9E	04 06 00 06 00 00 69 9E
	Enter E0 residual chlorine current symbol positive+	Enter successfully 00 positive+ (It is positive+ normally)
	04 06 00 06 00 01 A8 5E	04 06 00 06 00 01 A8 5E
	Enter E0 residual chlorine current symbol negative-	Enter successfully 01 negative- (It is positive+ normally)
0x0007	04 06 00 07 00 C8 39 C8	04 06 00 07 00 C8 39 C8
	Enter Temp value 0.1	Enter successfully 20.0℃ （No higher than 50.0）
0x0008	04 06 00 08 00 A5 C8 26	04 06 00 08 00 A5 C8 26
	Enter S0 residual chlorine value nA 0.01	Enter successfully 1.65nA (No higher than 99.00)
0x0009	04 06 00 09 00 00 59 9D	04 06 00 09 00 00 59 9D
	Enter E0 residual chlorine current symbol positive+/ negative-	Enter successfully 00 positive+ (It is positive+ normally)
0x000A	04 06 00 0A 00 DC A8 04	04 06 00 0A 00 DC A8 04
	Enter S0 Temp value 0.1	Enter successfully 22.0 ℃ (No higher than 50.0)
0x000B	04 06 00 0B 00 78 F8 7F	04 06 00 0B 00 78 F8 7F
	Enter S0 residual chlorine solution value Mg/L 0.01	Enter successfully1.20mg/L (No higher than 20.00)
0x000C	04 06 00 0C 00 02 C8 5D	04 06 00 0C 00 02 C8 5D
	Enter Temp compensation method 00—OFF /01—NTC / 02—manual	Enter successfully 02—Manual
0x000D	04 06 00 0D 01 18 19 C6	04 06 00 0D 01 18 19 C6
	Enter manual temp compensation value 0.1	28．0 ℃ (No higher than 50.0)

Sensor address 04 Enter command 06

Address	Host send	ensor send back
0x000E	04 06 00 0E 00 08 E9 9A	04 06 00 0E 00 08 E9 9A

	Enter MB address (This sensor address)	MB Add = 08 (No higher than 250) Attention:The original address cannot communicated after modification
0x000F	04 06 00 0F 00 01 78 5C	04 06 00 0F 00 01 78 5C
	Enter filter switch 01	Enter successfully, filter switch is 01
	04 06 00 0F 00 00 B9 9C	04 06 00 0F 00 00 B9 9C
	Enter filter switch 00	Enter successfully, filter switch is 00
	04 06 00 0F 00 02 38 5D	04 06 00 0F 00 02 38 5D
	Enter filter switch 02	Enter successfully, filter switch is 02

07 06 00 0E 00 01 29 AF

01 03 00 0E 00 01 E5 C9

01 03 00 01 00 01 D5 CA