

Online Digital ORP Sensor

Model: BH-485-ORP User Manual

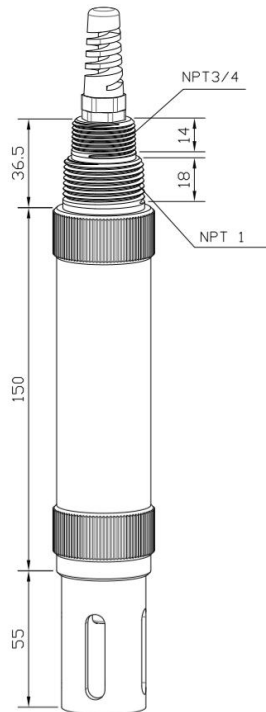


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Introduction

This ORP Sensor is the latest digital ORP electrode independently researched, developed and produced by BOQU Instruments. The electrode is light in weight, easy to install, and has high measurement accuracy, responsiveness, and can work stably for a long time. Built-in temperature probe, instant temperature compensation. Strong anti-interference ability, the longest output cable can reach 500 meters. It can be set and calibrated remotely, and the operation is simple. It can be widely used to monitor the ORP of solutions such as thermal power, chemical fertilizer, metallurgy, environmental protection, pharmaceutical, biochemical, food and tap water.



Technical Parameters

Type	BH-485-ORP
Range	-1999~1999mV 0~65°C
Accuracy	±2mV ±0.5°C
Resolution	1mV 0.1°C
Power	9~36V DC
Protocol	ModbusRTU

ModbusRTU Protocol

Addr.	Meaning	Range	Default	Magnification	R/W	Cmd	Remarks
0	Temp	0-1270		0.1°C	R		
1	Main Value	-19990~19990		0.1mV	R		
2	MTCT	0-1270		0.1°C	R		
3	mV	-19990~19990			R		
5	Temp state	0-2			R		=0 : normal ; =1 : too high/low; =2: no sensor
8	Device addr.	1-254	1		R/W		Change device ID
9	Baud rate	4800-19200	9600	1BPS	R/W		Only 4800,9600,19200
10	Recovery		0		W	1996	Reset to default
11	Device Rst		0		W	1524	Device reset

Example of communication format(take the default setting):

Temp data reading instruction:

Addr. + Func. + Register start Addr. + Number of registers read + CRC check code(Hex)

e.g. Tx:01 03 00 00 00 01 84 0A

Addr.	Func.	Register start Addr.	Number of registers read	CRC check
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				code
01	03	0000	0001	840A

Temp data return instruction:

Addr. + Func. + data length + data + CRC check code(Hex)

e.g. Rx:01 03 02 00 DF F9 DC

Addr.	Func.	Data length	Temp value	CRC check code
01	03	02	00DF	F9DC

The hexadecimal number DF is converted to decimal by a calculator (programmer mode) to obtain the value 223.

The actual temperature value contains 1 decimal place, then the actual value is $223 \times 0.1 = 22.3$.

ORP data reading instruction:

Addr. + Func. + Register start Addr. + Number of registers read + CRC check code(Hex)

e.g. Tx:01 03 00 01 00 01 D5 CA

Addr.	Func.	Register start Addr.	Number of registers read	CRC check code
01	03	0001	0001	D5CA

ORP data return instruction:

Addr. + Func. + data length + data + CRC check code(Hex)

e.g. Rx:01 03 02 02 AE 38 98

Addr.	Func.	Data length	ORP value	CRC check code
01	03	02	02AE	3898

The hexadecimal number 2AE is converted to decimal by a calculator (programmer mode) to obtain the value 686.

The actual value of ORP contains 1 decimal place, then the actual value is $686 \times 0.1 = 68.6$

Appendix

Wiring

The digital ORP Sensor supports pHG-2081S digital pH/ORP Meter.

V+	V-	M_A	M_B
9~36V anode	9~36V cathode	RS485_A	RS485_B

