Digital Dissolved Oxygen Sensor

Model:BH-485-DO User Manual

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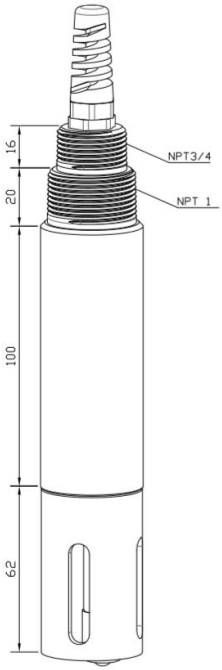
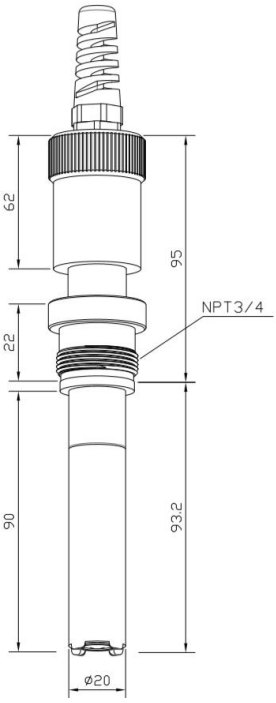
Introduction

This BH-485-DO is the latest digital dissolved oxygen sensor independently researched, developed, and produced by BOQU Instruments. The dissolved oxygen sensor is directly with RS485 Modbus RTU, 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's widely used in urban sewage treatment, industrial sewage treatment, aquaculture and environmental monitoring and other fields.



Type-A



Type-B

Technical Parameters

Type	BH-485-DO
Range	0~20mg/L ;0~65℃
Accuracy	±0.30mg/L;±0.5℃
Resolution	0.01mg/L;0.1℃
Power	9~36V DC
Protocol	RS485 Modbus RTU

RS485 Modbus RTU Protocol

Addr.	Meaning	Range	Default	Magnification	R/W	Cmd	Remarks
0	Temp	0-1270		0.1℃	R		
1	DO	0-2000		0.01mg/L	R		
2	MTCT	0-1270	250	0.1℃	R		
3	nA	0~20000		0.01nA	R		
4	Percentage output	0-3000		0.1%	R		
5	Temp state	0-2			R		=0:normal;=1:too high/low;=2:no sensor
8	Device addr.	1-254	3		R/W		Change device ID
9	Baud rate	4800-19200	9600		R/W		Only 4800,9600,19200
10	Recovery				W	1996	Reset to default
11	Device Rst				W	1524	Device reset
13	Cal				W	1	Zero cal:Put the electrode into anaerobic water, send command ‘1’ after the value is stable.
						2	Saturated Cal: Put the electrode into oxygen-saturated water, send the command ‘2’ after the value is stable.

14	Residual Current	-1000~1000	0	0.01nA	R		Update auto after cal
15	Slope	0~1000	1000	0.1%	R		

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 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 223×0.1= 22.3.

DO data reading instruction:

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

e.g. Tx:03 03 00 01 00 01 D4 28

Addr	Func.	Register start Addr.	Number of registers read	CRC check code
03	03	0001	0001	D428

DO data return instruction:

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

e.g. Rx:03 03 02 00 DF 80 1C

Addr.	Func.	Data length	DO value	CRC check code
03	03	02	00DF	801C

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

The actual value contains 2 decimal places, then the actual value is 223×0.01= 2.23.

Saturation data reading instruction:

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

e.g. Tx:03 03 00 04 00 01 C4 29

Addr.	Func.	Register start Addr.	Number of registers read	CRC check code
03	03	0004	0001	C429

Saturation data return instruction:

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

e.g. Rx:03 03 02 00 DF 80 1C

Addr.	Func.	Data length	Saturation value	CRC check code
03	03	02	00DF	801C

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

The actual value contains 1 decimal place, then the actual value is 223×0.1= 22.3.

Appendix

Wiring : The supporting Meter is DOG-2082S Digital Dissolved Oxygen Meter.

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