Online Digital pH Sensor

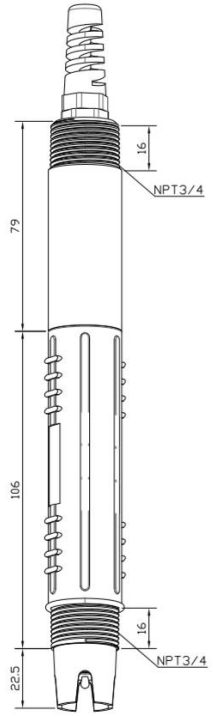
Model:BH-485-PH User Manual

SHANGHAI BOQU INSTRUMENT CO.,LTD

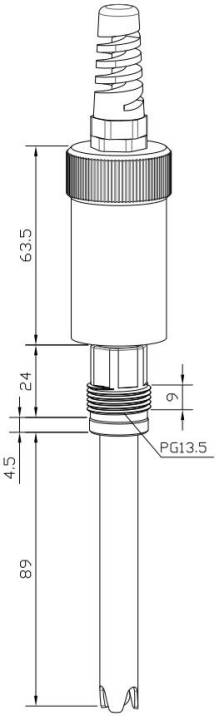
www.boquinstrument.com|email:michael@shboqu.com|mob:86-15000087545

Introduction

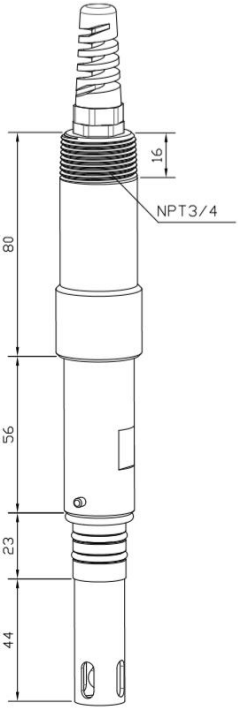
This BH-485-PH is the latest digital pH sensor independently researched, developed and produced by BOQU Instruments. The BH-485-PH pH sensor is directly with RS485 Modbus RTU,easy to install, and has high measurement accuracy, responsiveness, and can work stably for a long time. Built-in temperature 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. Digital pH sensor can be widely used to monitor the pH of solutions such as thermal power, chemical fertilizers, metallurgy, environmental protection, pharmaceutical, biochemical, food, fermentation, brewing and tap water.



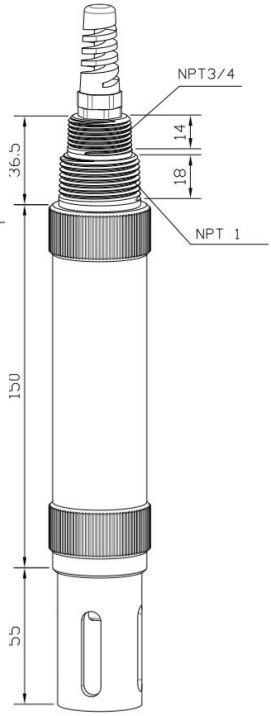
Type-A



Type-B



Type-C



Type-D

Technical Parameters

Type	BH-485-PH
Range	0~14pH ; 0~65℃
Accuracy	±0.1pH ; ±0.5℃
Resolution	0.01pH ; 0.1℃
Power	9~36V DC
Protocol	RS485 Modbus RTU

ModbusRTU Protocol

Addr.	Meaning	Range	Default	Magnification	R/W	Cmd	Remarks
0	Temp	0-1270		0.1℃	R		
1	pH	0-1400		0.01pH	R		
2	MTCT	0-1270	250	0.1℃	R		
3	mV	-4141~4141		0.1mV	R		
5	Temp state	0-2			R		=0:normal;=1:too high/low;=2:no sensor
8	Device addr.	1-254	2		R/W		Change device ID
9	Baud rate	4800-19200	9600	BPS	R/W		Only 4800,9600,19200
10	Recovery				W	1996	Reset to default
11	Device Rst	1524			W	1524	Device reset
13	Cal				W	1	Zero-potential calibration: The electrode is placed in a buffer of pH 7.00 or 6.86.
						2	Slope calibration: The electrode is placed in a buffer of pH 4.00 (10.00) or pH 4.00 (9.18). The buffer group is changed by the register 20.

14	Zero potential adjustment	-5916~5916	0	0.01mV	R/W		This value is automatically updated after calibration
15	slope	0-100	100	1%	R		This value is automatically updated after calibration
20	Buffer group	0,1	0		R/W		0:4.00,7.00,10.00 1: 4.00,6.86,9.18

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.

pH 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

pH 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	pH 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 pH value contains 2 decimal places, then the actual value is 686×0.01= 6.86

Appendix

Wiring:The supporting Meter is pHG-2081S digital pH Meter.

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