

Sensor Technical Specifications

Reyocto Agrimation Private Limited

3rd Floor, No.33, Sana Enclave, 17th Cross, MC Layout, Vijayanagar- Bangalore-560040.

Phone: +91 80 43711222. Email: contact@reyocto.com

Digital pH Sensor



Measuring principle	Electrolyte
pH range	0~14pH
Response time	≤10 seconds (reaching up to T95%)
pH Resolution	0.01pH
Calibration method	Two-point calibration
Output method	RS-485 bus, Modbus/RTU protocol
Working conditions	0~110°C, <0.6MPa
Protection level	IP68
Installation method	Immersive Mounting, 3/4NPT thread

For the cable, there are four wires
 Red wire and Black wire are 12V power
 Yellow wire and Green wire are RS485 output
 Green ----- RS485 +
 Yellow ----- RS485 -
 Red ----- 12V +
 Black ----- 12V -

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Protocol Type: MODBUS -RTU

Slave ID: pH sensor default= 1 (programmable), ORP sensor default=2 (programmable)

Parameters: 9600,8, N,1

Physical Layer: Serial RS485

The send command is: 01 04 00 00 00 10 F1 C6 (pH only) 02 04 00 00 00 10 F1 F5 (ORP only)

Format:	ID	function code	Register NO.	LENGTH OF DATA	CRC
	01	04	00 00	00 10	F1 C6

The receive data is: 01 04 XX XX —XX XX CRC

XX XX —XX XX detail Analysis as below table

function\code	Register address	Register name	range	High byte	Low byte
Received data Function code 04 read	0000H	PH value	0.00pH~14.00pH	16-bit integer data 0—1400	
	0001H	Decimal point and unit		Decimal places	Unit pH
	0002H	PH electrode signal	-2000mV~2000mV	16-bit integer data -2000~2000	
	0003H	Decimal point and unit		Decimal places	Unit mV
	0004H	ORP value	-2000mV~2000mV	16-bit integer data -2000~2000	
	0005H	Decimal point and unit		Decimal places	Unit mV
	0006H	ORP electrode signal	-2000mV~2000mV	16-bit integer data -2000~2000	
	0007H	Decimal point and unit		Decimal places	Unit mV
	0008H	Temperature value	-10.0°C~130.0°C	16-bit integer data -100~1300	
	0009H	Decimal point and unit		Decimal places	Unit °C
	000AH				
	000BH				
	000CH				
	000DH				

Unit query form

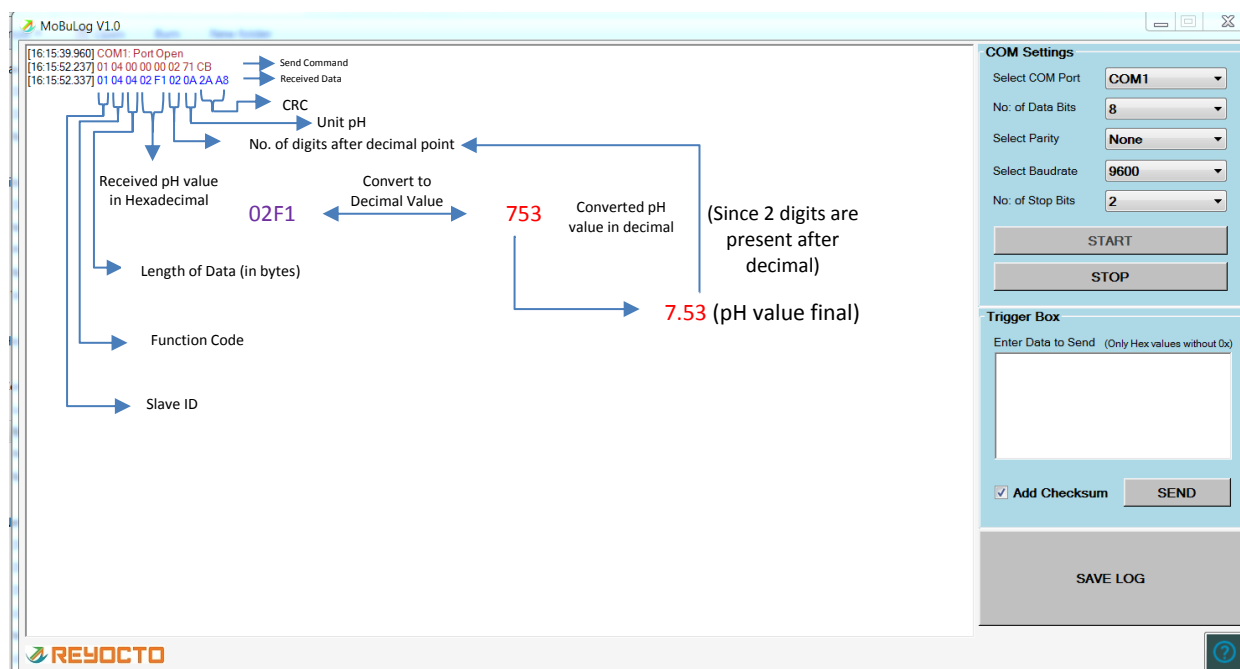
data	0X00	0X01	0X02	0X03	0X04	0X05	0X06
unit	mV	nA	uA	mA	Ω	KΩ	MΩ
data	0X07	0X08	0X09	0X0A	0X0B	0X0C	0X0D
unit	uS	mS	S	pH	°C	°F	ug/L
data	0X0E	0X0F	0X10	0X11	0X12	0X13	0X14
unit	mg/L	g/L	ppb	ppm	ppt	%	mbar
data	0X15	0X16	0x17				
unit	bar	mmHg	ppt				

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Sample Reading from the Tool:



pH/ORP digit sensor calibrate and setup

Set instruction:

PH Calibration instructions and procedures

01 06 00 40 00 60 CRC	01 06 00 40 00 60 88 36
01 06 00 41 00 04 7.00pH	01 06 00 41 00 04 d8 1d
01 06 00 40 00 60 CRC	01 06 00 40 00 60 88 36
01 06 00 41 00 02 4.01pH	01 06 00 41 00 02 58 1f
01 06 00 40 00 60 CRC	01 06 00 40 00 60 88 36
01 06 00 41 00 08 10.01pH	01 06 00 41 00 08 d8 18

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Setting parameters

```
//-----  
01 06 00 24 00 00 Buffer type      0: NIST (default) 01 06 00 24 00 00 c9 c1  
01 06 00 24 00 01 Buffer type      1: USA           01 06 00 24 00 01 08 01  
//-----  
01 06 00 3e 00 xx Set the ID address, Take 02 as an example 01 06 00 1e 00 02 68 0d  
//-----  
01 06 00 40 00 10 CRC      Return to measurement mode      01 06 00 40 00 10 89 d2  
  
01 06 00 21 xx xx Set the temperature value (Enter the actual value*10)  
reset  
01 06 00 40 00 50 Enter the data initialization 01 06 00 40 00 50 88 22  
01 06 00 41 00 ff Data initialization          01 06 00 41 00 ff 99 9e  
//=====
```

ORP Calibration instructions and procedures

```
02 06 00 40 00 60 CRC      02 06 00 40 00 60 88 05  
02 06 00 41 00 56 CRC      86mV      02 06 00 41 00 56 59 D3 (Take 86 mV calibration as an example)
```

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