

Aquark Chlorinator MODBUS-RTU Protocol V2.9

1. Protocol Description

1. The communication interface is RS485, standard MODBUS-RTU communication protocol, the control board is a slave (address range: 1~28), and the default address of the slave device (slave number): 8.
2. The data format is: 1ST+8DATA+1SP; the baud rate: 9600.
3. The master read bit variable command (0x02) is: slave number + read command + address high byte + address low byte + bit variable quantity high byte + bit variable quantity low byte + CRC low byte + CRC high byte, 8 bytes in total.
4. Slave read bit variable command (0x02) reply: slave number + read command + byte number N + N byte data + CRC low byte + CRC high byte, a total of N + 5 bytes.
5. The master read register command (0x03/0x04) is: slave number + read command + address high byte + address low byte + register quantity high byte + register quantity low byte + CRC low byte + CRC high byte, 8 bytes in total.
6. Slave read register command (0x03/0x04) reply: slave number + read command + byte number N+N*2 byte data + CRC low byte + CRC high byte, total N*2+5 bytes.
7. The master write register command (0x06) is: slave number + write command + address high byte + address low byte + register high byte + register low byte + CRC low byte + CRC high byte, a total of 8 bytes.
8. Slave write register command (0x06) reply: slave number + write command + address high byte + address low byte + register high byte + register low byte + CRC low byte + CRC high byte, a total of 8 bytes.
9. After receiving the command from the master in normal use, the slave will respond within 300ms, and if the timeout expires, it will be judged as a communication failure.
10. When the host reads data: the first address must be the first address allowed in the table; the length is an integer multiple of 16 for bit variables, and the longest length is 48. Regardless of bit variables and word variables, the first address + length cannot exceed the data address range.
11. The master needs to ensure that the content of the communication data is correct, and the slave does not support error response for the time being.

2. Data Definition

Parameter address (R means the parameter is read-only, RW means the parameter is readable and writable)

Data Address	Description	Setting Range (d)	Note (d)	Unit	Read & Write	Function Code (h)	Note (d)
0x0000	model	0, 1, 2, 3	Default 0	--	RW	Read: 0x03 / Write: 0x06	0:Shutdown 1:Auto mode 2:Shock mode 3:Factory test mode
0x0001	Parallel address setting	1~28	Default 8	--	RW	Read: 0x03 / Write: 0x06	
0x0002	Ideal ORP settings	650~800	Default 700	mv	RW	Read: 0x03 / Write: 0x06	
0x0003	Ideal pH setting	720~760	Default 720	--	RW	Read: 0x03 / Write: 0x06	(Divided by 100 for actual value)
0x0004	Pool Volume Settings	5~120	Default 30	m ³	RW	Read: 0x03 / Write: 0x06	
0x0005	Timer enable	0, 1	Default 0	--	RW	Read: 0x03 / Write: 0x06	0: disable 1: enable
0x0006	Power on timing time	0~23, 0~59	Default 0	--	RW	Read: 0x03 / Write: 0x06	The high byte is the hour, the low byte is the minute
0x0007	Power off timing time	0~23, 0~59	Default 0	--	RW	Read: 0x03 / Write: 0x06	The high byte is the hour, the low byte is the minute

0x0000	ORP	-2000~2000		mv	R	Read: 0x04 / Write: --	
0x0001	PH	0~1400		--	R	Read: 0x04 / Write: --	(Divided by 100 for actual value)
0x0002	Electrical conductivity	0~9999		ppm	R	Read: 0x04 / Write: --	

Data Address	Description	Setting Range (d)	Note (d)	Unit	Read & Write	Function Code (h)	Note (d)
0x0003	Pool temperature	-1000~1000		°C	R	Read: 0x04 / Write: --	
0x0004	Controller Temperature	-1000~1000		°C	R	Read: 0x04 / Write: --	
0x0005	Chlorine production	0~120		%	R	Read: 0x04 / Write: --	
0x0006	Water Quality	0, 1, 2		--	R	Read: 0x04 / Write: --	0:Poor water quality 1:Good water quality 2:Perfect water quality
0x0007	Electrolytic plate specifications	13, 17, 21, 25		g	R	Read: 0x04 / Write: --	
0x0008	SJ	0~3300		mv	R	Read: 0x04 / Write: --	Factory test use
0x0009	SI	0~4095		--	R	Read: 0x04 / Write: --	Factory test use
0x000A	SV	0~4095		--	R	Read: 0x04 / Write: --	Factory test use
0x000B	I	0~1000		A	R	Read: 0x04 / Write: --	Electrolytic current, divided by 100 for actual value (for factory testing)
0x000C	U	0~2400		V	R	Read: 0x04 / Write: --	Electrolytic voltage, divided by 100 for actual value (for factory testing)

Data Address	Description	Setting Range (d)	Note (d)	Unit	Read & Write	Function Code (h)	Note (d)
0x000D	Software master version number	0~65535		--	R	Read: 0x04 / Write: --	For example, the "2" field in V2.1.3
0x000E	Software sub-version number	0~65535		--	R	Read: 0x04 / Write: --	For example, in V2.1.3, the lower 8 bits: "3" field, higher 8 bits: "1" field
0x000F	Product Type	0~65535		--	R	Read: 0x04 / Write: --	1: Mr. Pure, 2: InverClear

0x0000	Power supply failure	0~1	Can be used as first address (the number of registers to be read at a time must be a multiple of 16)		R	Read: 0x02 / Write: --	0: Trouble-free 1: Faulty
0x0001	PH regulation	0~1		--	R	Read: 0x02 / Write: --	0: Trouble-free 1: Faulty
0x0002	ORP regulation	0~1		--	R	Read: 0x02 / Write: --	0: Trouble-free 1: Faulty
0x0003	Controller over-temperature protection	0~1		--	R	Read: 0x02 / Write: --	0: Trouble-free 1: Faulty
0x0004	Electrolytic cell low-temperature protection	0~1		--	R	Read: 0x02 / Write: --	0: Trouble-free 1: Faulty
0x0005	WiFi connection failure	0~1		--	R	Read: 0x02 / Write: --	0: Trouble-free 1: Faulty
0x0006	PH sensor data reading Failed to read	0~1		--	R	Read: 0x02 / Write: --	0: Trouble-free 1: Faulty

Data Address	Description	Setting Range (d)	Note (d)	Unit	Read & Write	Function Code (h)	Note (d)
0x0007	ORP Sensor Data Read failure	0~1		--	R	Read: 0x02 / Write: --	0: Trouble-free 1: Faulty
0x0008	Power module data Failed to read	0~1		--	R	Read: 0x02 / Write: --	0: Trouble-free 1: Faulty
0x0009	External RS485 Communication failure	0~1		--	R	Read: 0x02 / Write: --	0: Trouble-free 1: Faulty
0x000A~0x002F	--	--		--	--	--	Reserved
0x0030	Calibration required	0~1	Can be used as first address (the number of registers to be read at a time must be a multiple of 16)	--	R	Read: 0x02 / Write: --	0: Not required 1: Required
0x0031	Probes need to be replaced	0~1		--	R	Read: 0x02 / Write: --	0: Not required 1: Required
0x0032	Flow switch	0~1		--	R	Read: 0x02 / Write: --	0: With water flow 1: No water flow
0x0033	Need to add acid	0~1		--	R	Read: 0x02 / Write: --	0: Not required 1: Required
0x0034	Need to add salt	0~1		--	R	Read: 0x02 / Write: --	0: Not required 1: Required
0x0035~0x005F	--	--		--	--	--	Reserved

Data Address	Description	Setting Range (d)	Note (d)	Unit	Read & Write	Function Code (h)	Note (d)
0x0060	Button 1	0~1	Can be used as first address (the number of registers to be read at a time must be a multiple of 16)	--	R	Read: 0x02 / Write: --	0: Loose 1: Press (Factory test use)
0x0061	Button 2	0~1		--	R	Read: 0x02 / Write: --	0: Loose 1: Press (Factory test use)
0x0062	Button 3	0~1		--	R	Read: 0x02 / Write: --	0: Loose 1: Press (Factory test use)
0x0063	Button 4	0~1		--	R	Read: 0x02 / Write: --	0: Loose 1: Press (Factory test use)
0x0064	Button 5	0~1		--	R	Read: 0x02 / Write: --	0: Loose 1: Press (Factory test use)
0x0065	Dry contact/ flow switch Function Test	0~1		--	R	Read: 0x02 / Write: --	0: Failed 1: Passed (Factory test use)
0x0066	WiFi Functionality Test	0~1P		--	R	Read: 0x02 / Write: --	0: Failed 1: Passed (Factory test use)
0x0067	Timer chip function test	0~1		--	R	Read: 0x02 / Write: --	0: Failed 1: Passed (Factory test use)
0x0068	SR_OK	0~1		--	R	Read: 0x02 / Write: --	0: Failed 1: Passed (Factory test use)
0x0069	RC_OK	0~1		--	R	Read: 0x02 / Write: --	0: Failed 1: Passed (Factory test use)

Data Address	Description	Setting Range (d)	Note (d)	Unit	Read & Write	Function Code (h)	Note (d)
0x006A	485_OK	0~1		--	R	Read: 0x02 / Write: --	0: Failed 1: Passed (Factory test use)
0x006B	Dosing pump motor OK	0~1		--	R	Read: 0x02 / Write: --	0: Failed 1: Passed (Factory test use)
0x006C	Buzzer OK	0~1		--	R	Read: 0x02 / Write: --	0: Failed 1: Passed (Factory test use)
0x006D~ 0x006F	--	--		--	--	--	Reserved

Note: Please refer to the manual for the setting range and default values of the parameters.