ECA-EC Conductivity Modbus communication protocol

register address	The address of the message	data type	Reading and writing	Length	Description
40001	0x0000	Unsigned int	R	1	Alarm code
40002	0x0001	float	R	2	Conductivity data (μS/cm)
40004	0x0003	----	R	2	Salinity (PPT or PSU), TDS
40006	0x0005	float	R	2	temperature data
40008	0x0007	float	R	2	Conductivity signal value (resistance)
40010	0x0009	Unsigned int	R/W	1	unit of measurement 0x0000: μS/cm 0x0001: mS/cm 0x0002: mS/m
40011	0x000A	float	R/W	2	temperature compensation factor
40013	0x000C	float	R/W	2	electrode coefficients
40015	0x000E	Unsigned int	R/W	1	Auxiliary parameter selection 0x0000:Salinity PPT 0x0001:Salinity PSU 0x0002:TDS mg/L
40016	0x000A	----	-	1	NC
40017	0x0010	String	R	8	Product Name(16Byte)
40025	0x0018	String	R	8	Serial Number (16Byte)
40033	0x0020	String	R	1	Hardware version (1Byte)
40034	0x0021	String	R	2	Software Version (4 Byte)
40036	0x0023	Unsigned int	R/W	1	Correspondence address (initial value: 4)
40037	0x0024	Unsigned int	R/W	1	Baud rate (initial value: 9600)
40038	0x0025	Unsigned int	R	1	type of equipment
40039	0x0026	Float	R/W	2	TDS coefficients
40049	0x0030	----	-	1	NC
40050	0x0031	Float	R/W	2	the first point signal value
40052	0x0033	Float	R/W	2	The first point calibration value
40054	0x0035	----	-	2	NC
40058	0x0039	Unsigned int	R/W	1	activate the conductivity

					calibration flag (0x0001: start one point calibration)
40059	0x003A	Float	R/W	2	temperature calibration parameters
40061	0x003C	Unsigned int	R/W	1	Initiating temperature calibration (0x0001: Start temperature calibration)
40065	0x0040	Float	R/W	2	temperature signal value

- alarm code information

Alarm code is 16 Bit, each Bit represents a type of alarm, when the corresponding Bit is 0, it means that there is no such alarm, when the corresponding Bit is 1, it means that this type of alarm occurs.

Bit Bit	Alarm description	Alarm type
Bit0	Temperature out of range	Warning alarms
Bit1	conductivity data is out of range	Warning alarms
Bit8	Temperature sensor malfunction	Fault Alarm

- baud rate

Bit Bit	baud rate
0x0000	4800 bps
0x0001	9600 bps
0x0002	19200 bps
0x0003	38400 bps
0x0004	57600 bps
0x0005	115200 bps

Modbus Calibration Operation

conductivity one-point calibration

Step 1:Place the sensor into the conductivity standard solution.

Step 2:Obtain the signal value of the electrode (40008 Float).

40008	0x0007	float	R	2	Conductivity signal value (resistance)

Step 3: Write the acquired signal value of the electrode into the calibration signal value register (40050 Float).

40050	0x0031	Float	R/W	2	the first point signal value

Step 4: Enter the conductivity value of the standard solution into the calibration value register (40052 Float).

40052	0x0033	Float	R/W	2	The first point calibration value

Step 5: Start a little calibration and rewrite the 40058 register to 0x0001.

40058	0x0039	Unsigned int	R/W	1	Write 0x0001: initiate a one-point calibration

Temperature one-point calibration

Step 1:Write the exact temperature of the current solution to the temperature calibration parameter register (40059 Float).

40059	0x003A	Float	R/W	2	temperature calibration parameters

Step 2: Start temperature calibration, rewrite 40061 register to 0x0001.

40061	0x003C	Unsigned int	R/W	1	Write to 0x0001 to initiate temperature calibration