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Production Introduction

BGT-WZF uses the high-precision weighing principle to measure the liquid weight in the evaporation pan, and calculates the liquid level of evaporation loss by measuring the difference of the liquid weight before and after the measurement. The evaporating dish is made with high-quality stainless steel, which has good anticorrosive and anti erosion characteristics. It ensures the measurement accuracy and can be used in conjunction with the automatic weather station or professional evaporation recorder.

Features

- Compact Size
- High Accuracy
- Fast Response
- Easy to install, easy to operate
- Stainless steel, no rust, ensure sensor life
- Outlet with insect-proof

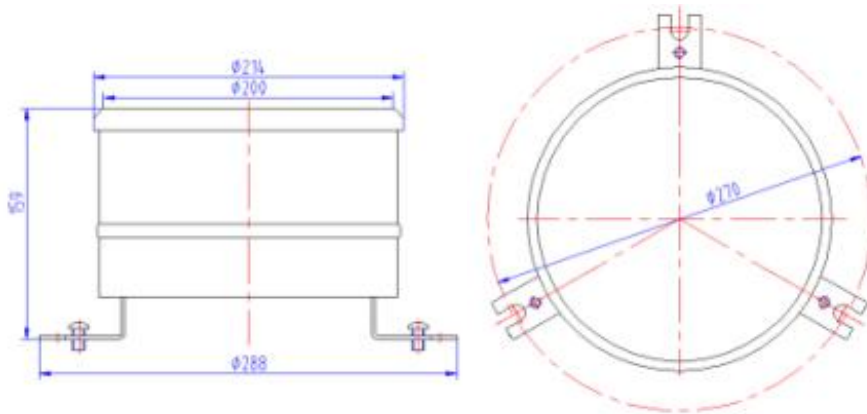
Product parameter

Technical parameters			
Signal output type	Voltage output 0.4-2 V Output impedance <1 Kohm	Current output 4-20 mA Load resistance <500 ohm	RS485 interface, Modbus protocol
Supply voltage	5-24 V/DC DC	9-24 V/DC DC	5-24 V/DC DC
Maximum power consumption	20 mA@12V DC DC	40 mA@12V DC DC	20 mA@12V DC DC
Measuring range	0~80 mm		
Measuring accuracy	± 1%		
Response time	Less than 1 second		
Cal caliber	φ 200mm		
Operating temperature	-30~80°C		
Operating humidity	0~100%		
Protection level	IP65		

Connection instruction:

Model	Colour Description	Aerospace definition
Voltage output	Brown (V+): Power positive	1
	Yellow (G): Power ground	2
	Blue (Vo): Output voltage signal	3
Current output	Brown (V+): Power positive	1
	Yellow (G): Power ground	2
	Blue (Vo): Output current signal	3
RS485 Interface Type Modbus Agreement	Red (V+): Power is on	1
	Black (G): Power ground	2
	Yellow (T+): RS485T+/A/TT+	3
	Green (T-): RS485-/B/ T-	4

Structure:



Fixed mode

Evaporation sensors are set in open and open places, and can be exposed to sunlight all day long, adjust the level, the base is fixed with cement, and 75 mm of water can be injected before observation. The actual evaporation should be obtained by subtracting the rainfall from the observation record.

Analog Output Formula

1. Voltage output 0-2 V water level height $= (\text{output voltage} - 0.4) / 1.6 * 80$

When the output voltage is 1.5 V, measured at 8 a.m., the water level $= (1.5 - 0.4) / 1.6 * 80 = 55$ mm

When the output voltage is 1.4 at 8 pm V, the water level $= (1.4 - 0.4) / 1.6 / 80 / 50$ mm

So the evaporation for these 12 hours is $55 \text{ mm} - 50 \text{ mm} = 5$ mm

2. current output 4-20 mA water level height $= (\text{output current} - 4) / 16 / 80$
 3. RS485 interface, Modbus protocol water level height = register value
 Such as reading 50, the height $= 50 = 50$ mm.

Modbus Protocol

The default value of communication parameters is:

The baud rate is 9600 bps, one start bit, eight data bits, no check and one stop bit.

Modbus register

Parameter Name	Register address (hexadecimal)	Parameter type	Modbus Function Number	Parameter Range and Description	Default
Water level height	x0000 0	INT16, read only	0 x03/ Read	0-200 Actual height values	No
Modbus slave address (ADDRESS)	x1000 0	UINT16, Read and write	0 x03/ Read 0 x16/ Write	0-255	2
Death order	x0202 0	INT16, only write	0 x16/ Write	0	No

Modbus Register parameter description

Water level height		
Range of parameters	0-2000	Default: None
Parameter Storage	No	

Significance: water level height measurement

Example: if the returned value is 0029(hexadecimal, original code), then the first byte high byte is 00, the second byte low byte is 29, then the temperature measurement value is $(00 * 256 + 29) = 41$ mm.

Death order		
Range of parameters	0	Default: None
Parameter Storage	Storage immediately	

Meaning: Output peeling when empty bucket is set

Modbus slave address (ADDRESS)

Range of parameters	0-255	Default :2
Parameter Storage	Storage immediately	

Modbus address, can be set to 0-255. Use 0 address to set any address, after setting need to reboot restart module, make this address effective.

Routine

1. example: read register 0 x0000, that is, the measured value of water level height

Request :02 03 00 00 00 01 84 39(8 bytes)

Device address	1 byte	x02 0
Function Number	1 byte	x03 0
Starting register address	2 bytes	x0000 0
Number of registers	2 bytes	x0001 0
Check	2 bytes	x8439 0

Response :02 03 02 00 29 3D 9A(7 bytes)

Device address	1 byte	x02 0
Function Number	1 byte	x03 0
Number of valid bytes	1 byte	x02 0
Data	2 bytes	0 x 00(High bytes)
		0 x 29(Low bytes)
Check	2 bytes	x 3D9A 0

2. example: modify register 0 x1000, that is, Modbus slave address (ADDRESS)

Request :00 16 10 00 00 01 02 00 03 7A 2A (11 bytes)

Device address	1 byte	x00 0
Function Number	1 byte	x16 0
Starting register address	2 bytes	x1000 0
Number of registers	2 bytes	x0001 0
Number of valid bytes	1 byte	x02 0
Write device address	2 bytes	x0003 0
Check	2 bytes	x7A2A 0

Response :00 16 10 00 00 01 8C D8(7 bytes)

Device address	1 byte	x00 0
Function Number	1 byte	x16 0
Starting register address	2 bytes	x1000 0
Number of registers	2 bytes	x0001 0
Check	2 bytes	x 8CD8 0

Warranty and after-sales:

Warranty: The product has a warranty period of 12 months from the delivery date (except for problems caused by failure to comply with the corresponding technical requirements or other human actions).

After-sales commitment: Users can consult technical questions by Email and get a clear solution.