

ATO

ATO-RS-EVA-*-2

Evaporation Transmitter

User Manual

(analog type)



1. Product introduction

1.1 Product introduction

ATO-RS-EVA-*-2 evaporation transmitter is an instrument developed to observe the evaporation of water surface. The product is designed with double-layer stainless steel structure, which can prevent evaporation errors caused by direct sunlight, and the measurement accuracy is more accurate. And the whole product is made of 304 stainless steel, which has beautiful appearance and corrosion resistance, which can effectively ensure the service life of the sensor. Using digital sensors, it has the characteristics of high measurement accuracy, wide range, high sensitivity, no temperature drift, time drift, and long-term stable performance. Using standard industrial interface 4~20mA/0~10V/0~5V analog signal output, it can be connected to on-site digital display, PLC, inverter, industrial control host and other equipment.

The equipment adopts the principle of pressure measurement, measures the weight change of the liquid in the evaporating dish through the weighing principle, and then calculates the height of the liquid level, so as to obtain the evaporation amount, the measurement is more accurate, and the data is more scientific; it is not affected by the freezing of the liquid, and overcomes the When using the ultrasonic principle to measure the liquid level, there are disadvantages such as inaccurate measurement when freezing, easy damage to the sensor when there is no water, and low measurement accuracy.

The products are suitable for meteorological observation, plant cultivation, seed cultivation, agriculture and forestry, geological survey, scientific research and other fields. It can not only be used with automatic water adding device, data acquisition and sending device, etc. to realize automatic monitoring of evaporation process, but also can be used in combination with data acquisition and storage device (recorder) to realize automatic storage of evaporation data. It can be used in combination with sending devices to realize automatic observation and remote transmission of evaporation and rainfall processes. In addition, it can be used as a component of rainfall stations, evaporation stations, weather stations, environmental monitoring stations and other equipment to observe "water surface evaporation", one of the meteorological or environmental parameters.

1.2 Features

- The whole machine is made of 304 stainless steel, which is corrosion-resistant, rust-free, beautiful in appearance, and ensures the service life of the sensor;
- Apply the pressure measurement principle, measure the weight change of the liquid in the

evaporating dish through the high-precision weighing principle, and then calculate the liquid level height, so as to measure the evaporation amount, the measurement is more accurate, and the data is more scientific;

- Using the wiring method of the bottom outlet, reducing open lines, avoiding line failures, convenient installation and simple operation;
- Double-layer protection design structure, the product's unique double-layer stainless steel design can effectively isolate external interference and make the measurement results more accurate;
- Strong adaptability, normal observation under wind, wave and rainfall climate conditions, without loss of accuracy, anti-electromagnetic interference, even if the power is turned on again after a power outage, the output data is still correct;
- This product is a digital sensor, without temperature drift, time drift, and long-term stable performance.
- The product has a wide DC power supply of 10-30VDC.

1.3 Technical indicators

Supply voltage	10-30VDC	
Power consumption	0.77W	
Measuring range	0~200mm	
measurement accuracy	$\pm 1\%$ FS	
Response time	< 1s	
output type	Current output	4~20mA
	Voltage output	0~5V/0~10V
load capacity	Current output	output resistance $\leq 250 \Omega$
	Voltage output	$\leq 600 \Omega$
Protection class	IP66	
Inner cylinder diameter	18.4cm	
Inner cylinder height	18.4cm	
Operating temperature	-40~85° C	
Working humidity	0~100%RH	
storage temperature	-40~125° C	
Storage humidity	<80% (no condensation)	

Although this product has high reliability, we recommend to check whether the equipment functions normally and whether the parameters meet the standard before use to ensure that it will not affect the on-site use.

1. Product selection

RS-				company code
	EVA-			Evaporation transmitter
		I20-		4~20mA Current output
		V05-		0~5V Voltage output
		V10-		0~10V Voltage output
			2	Stainless steel shell

3. Equipment installation and introduction

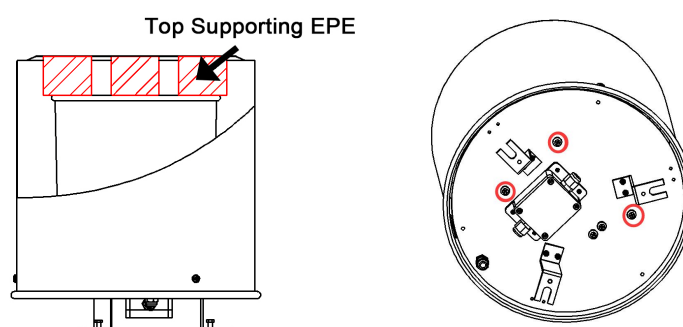
3.1 Equipment wiring

The device wiring sequence is as follows:

brown	V+ (DC10-30V)
black	V-
green	OUT+
blue	OUT-

3.2 Equipment installation

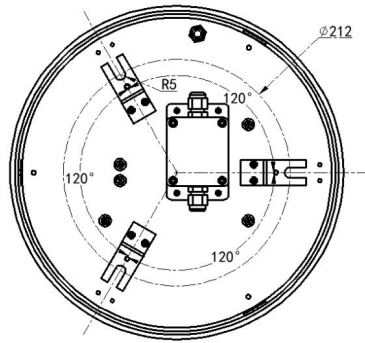
Before installing the equipment, you need to take out the three top support pearl cotton on the top of the equipment, then take out the filler between the inner and outer cylinders, and finally loosen the three supporting scale screws at the bottom counterclockwise (so that the threads are exposed by 3cm). above or directly removed). Adjust the position of the inner cylinder (center the inner cylinder) to avoid affecting the accuracy of the sensor.



device installation:

Installation method one:

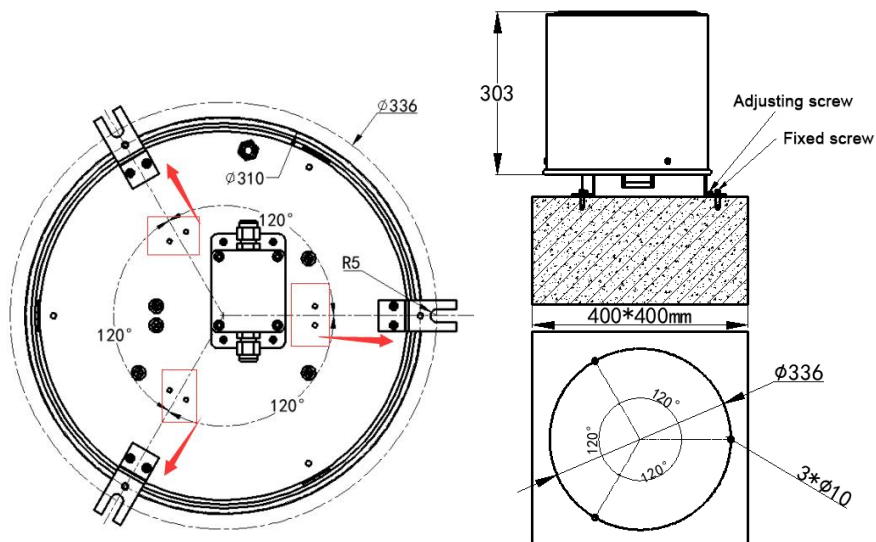
The device can be mounted on a pallet on a weather stand.



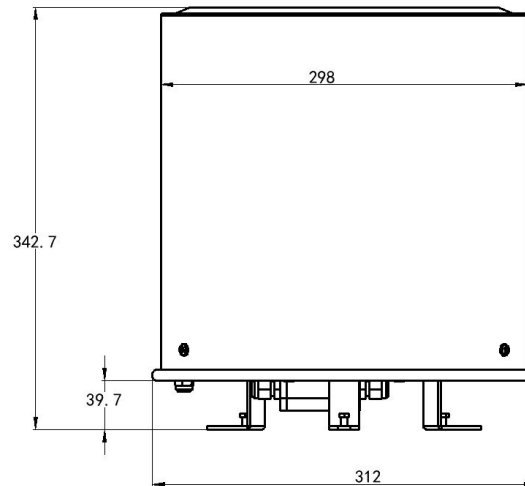
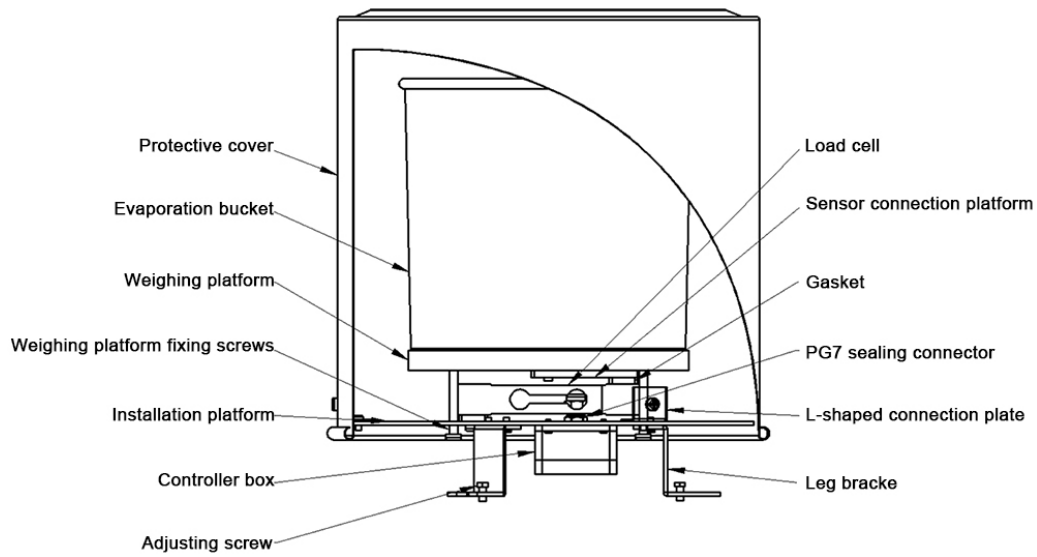
Installation method two:

The equipment can be installed on a cement base higher than the ground to prevent rainwater from flooding the chassis and pouring back into the equipment, thereby causing equipment short-circuits or line failures.

Installation steps: First, disassemble and assemble the three leg brackets to the outer mounting holes of the base. Drill three $\phi 10$ mounting holes on the cement foundation according to the dimensions in the figure below. Place the expansion bolts in the mounting holes and lock them with lock nuts.



3.3 Equipment size



4. Calculation method

4.1 Current type output signal conversion calculation

For example, the range is 0~200mm, 4~20mA output, when the output signal is 12mA, the current water surface height is calculated. The span of this range is 200mm, expressed by a 16mA current signal, $200\text{mm}/16\text{mA}=12.5\text{mm}/\text{mA}$, that is, a current of 1mA represents a change of 12.5mm. The measured value is $12\text{mA}-4\text{mA}=8\text{mA}$. $8\text{mA}\times 12.5\text{mm}/\text{mA}=100\text{mm}$. The current water level is 100mm.

4.2 Voltage type output signal conversion calculation

For example, the range is 0~200mm, 0-10V output, when the output signal is 5V, the current water surface height is calculated. The span of this range is 200mm, expressed by a 10V voltage signal, $200\text{mm}/10\text{V}=20\text{mm}/\text{V}$, that is, a voltage of 1V represents a change of 20mm. The measured value is $5\text{V}-0\text{V}=5\text{V}$. $5\text{V}\times 20\text{mm}/\text{V}=100\text{mm}$. The current water level is 100mm.