

LoRaWan 2-in-1 Radar Flow Meter with water level sensor

AETRHWWF3003 can detect water velocity and water level. The flow meter uses radar technology to achieve simple and fast non-contact water surface velocity measurement. The non-contact radar flow measurement system is unaffected by sewage corrosion and silt. It collects the fluid surface velocity and calculates the average velocity of the cross-section through a model. Then, it connects to the water level gauge to measure the water level and calculate the cross-sectional area. The flow rate is then obtained using the formula: $\text{Flow Rate} = \text{Average Velocity} \times \text{Cross-sectional Area} \times \text{Correction Factor}$. The correction factor is calculated based on standard values obtained from the actual measurement environment.

The communication channel rides on ChinoINT LoRaWan technology, which enables FCC, and OFCA type approved LoRaWan communication module.

Radar Sensor Specification



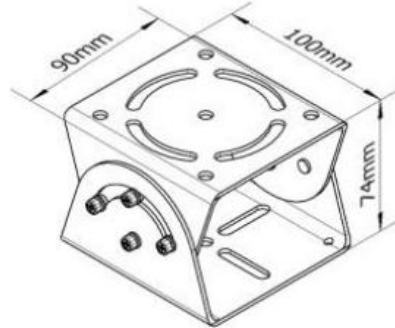
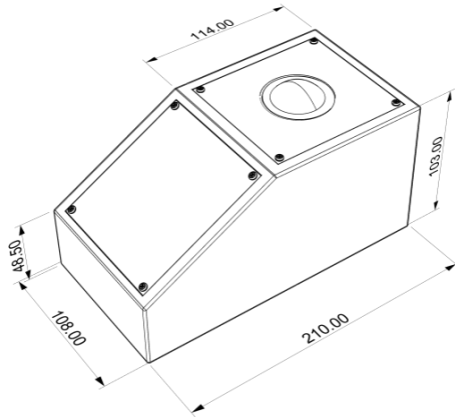
Parameter	Specification
Power Supply	DC 12V
Maximum Power Consumption	1.3W
Operating Condition	-40°C~+80°C, 0%RH~95%RH (non-condensing)
Speed Measurement Transmission Frequency	24.00GHz
Speed Measurement Range	0.1 ~20m/s
Speed Measurement Accuracy	±2%
Speed Resolution	0.01m/s
Ranging Transmission Frequency	77GHz~79GHz
Water Level Ranging Range	0.15 m ~65m (maximum range when measuring water level only)
Ranging Accuracy	±1mm@ (4m, 40%RH, 25°C)
Ranging Resolution	1mm
Operating Altitude	0~20m
Waterproof Rating	IP67

LoRaWan Sensor Node Specifications

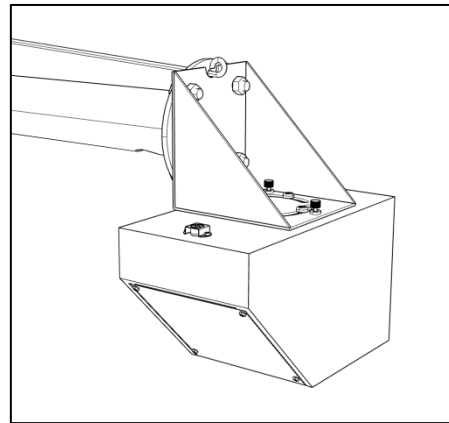
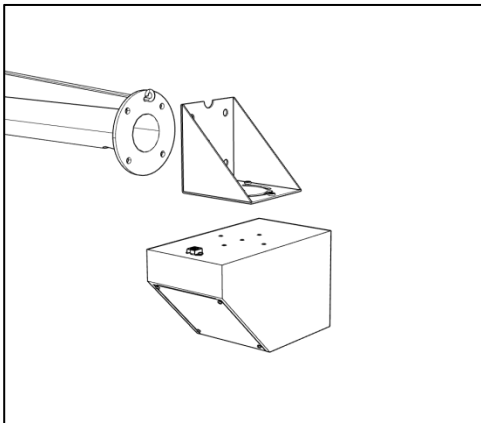
Parameter	Specification
Dimension	83 x 58 x 33mm (Housing can be custom-made to fit application)
LoRaWan	1.0.2
Frequency Band	CN470/EU433/AS923 (Contact us for other frequencies)
Max Tx	+20 dBm
Rx sensitivity	-148 dBm
Antenna	Built-in
Sensor Protocol	RS485, UART, I2C, 4-20mA, 0-10V, GPIO x 5
Battery	3500 mAh
Battery Life	10 years standby (30 min heartbeat, sensor loading excluded)
Low Battery Alert	Support
Certification	FCC, HKCA1078
IP Rating	IP65



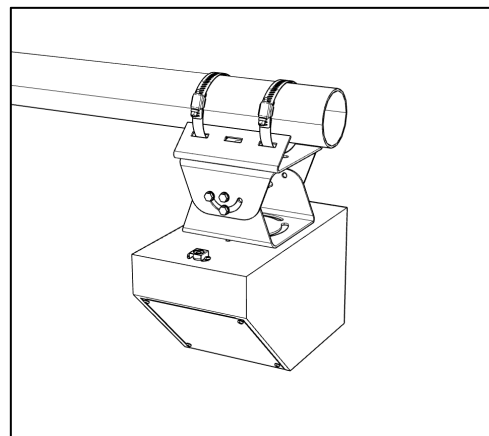
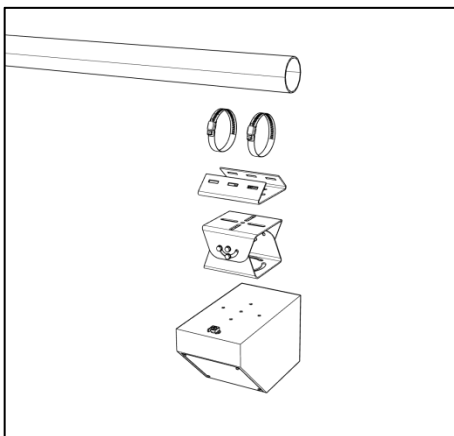
Dimension

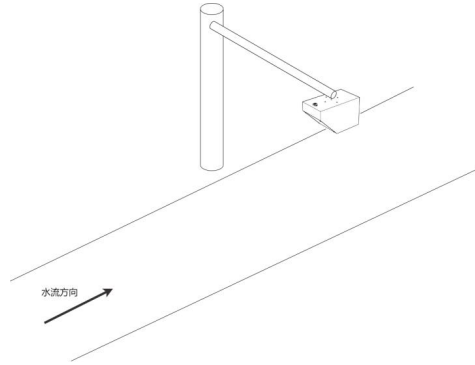


Installation Method 1



Installation Method 2





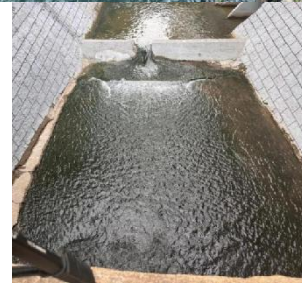
Environmental Selection

The selection of the measurement channel section is directly related to the accuracy of the flow measurement. To obtain better measurement results, the measurement channel section should ideally meet the following conditions:

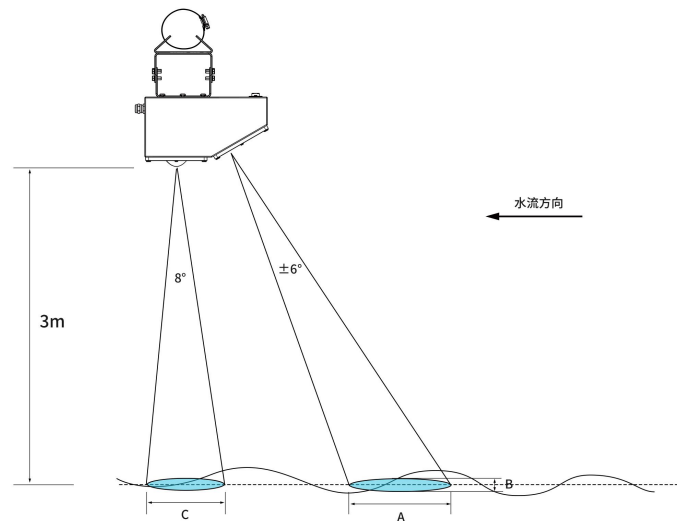
1. The test channel section should be free of large boulders obstructing the water flow, and free of large whirlpools, turbulent flows, etc.
2. The test channel section should be straight, stable, and have concentrated water flow.
3. The test channel section needs to be hardened, and the measurement cross-section should be regular.
4. The test channel section should be kept unobstructed to prevent the accumulation of floating debris.

【Note】 When radar waves are incident on the water surface at an inclined angle, the calm water surface will reflect the electromagnetic waves in the opposite direction to the radar, resulting in a weaker reflected signal received by the radar. This phenomenon is not directly related to the flow velocity. The key is that the radar must be able to receive sufficient energy for data measurement.

Recommended Scenario



Avoid



Warning

Assumes no liability for any damage resulting from the use of this product. CHINOTECH INTERNATIONAL LIMITED reserves the right to change this data sheet at any time without notice. The information furnished by ChinoINT is believed to be accurate and reliable. However, no responsibility is assumed by ChinoINT for its use, not for any infringements of patents or other rights of third parties resulting from its use.

Product Warranty and Customer Support

ChinoINT warrants all products free from defects in material and workmanship for a period of one year from the date of shipping. During the warranty period, we will, at our position, either repair or replace any product that proves to be defective. To report any defect, please inquiry sales@chinoint.com

Unauthorized opening and improper repairs on the device may result in substantial damage to equipment or endanger the user. The product described in this documentation may be operated only by personnel qualified. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products. Always disconnect the power plug before you open the device.

Please have the model, serial number and a detailed problem description available when you call. If the problem concerns a particular reading, please have all meter readings available.

This warranty does not apply to defects resulting from unauthorized modification, misuse. If you install or exchange system expansion and damage your device, the warranty becomes void.

Product Warranty and Customer Support

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

