Gentos Measurement & Control Co., Ltd.

pFlow

F3R Clip-on Ultrasonic Flowmeter

with LoRa communication



LoRa

RS485/Modbus

Colorful Display

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Product Overview



F3R adopts the principle of ultrasonic transit time measurement, combined with the patented flow algorithm technology, to make accurate measurement of fluid flow in the pipeline. The product is of all-in-one compact structure design, which makes the installation simple and convenient, only 4 steps are required. It does not contact with the fluid during installation, and the flow does not have to be shut off.

F3R comes with LoRa communication. LoRa is a long range and low power wireless communication system that can send small amounts of data over great distances. These two features make it an attractive solution for application in the IoT and IIoT industries. The technology can be utilized by public, private or hybrid networks and provides greater range than Cellular networks.

Features

- LoRa long-range low-power communication
- Easy installation, no pipe damaging
- LCD color display screen
- RS485 with Modbus/Fuji protocol

Applications

- Golf courses, grape vineyard, modern agricultural irrigation, garden irrigation
- Residential water, washing industries, bathing industry, swimming pool, HVAC
- Water in production process, industrial circulating water, reclaimed water, pure/ultra pure water
- Inland aquaculture, RAS, etc.







Architecture

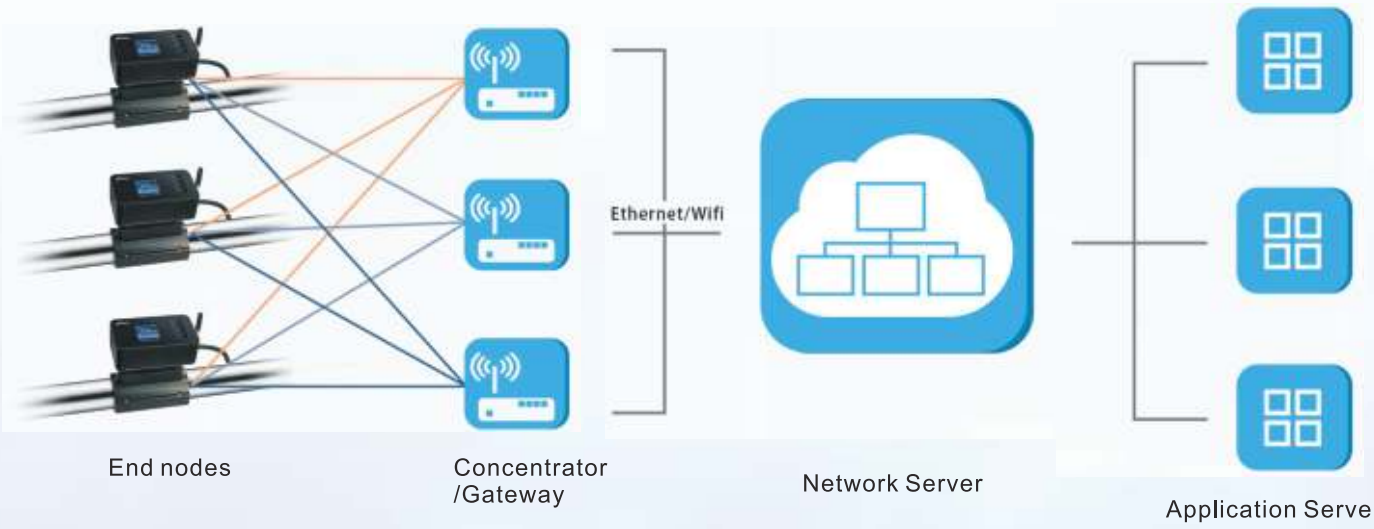
LoRa (from "long range") is a physical proprietary radio communication technique. LoRaWAN (Wide Area Network) defines the communication protocol and system architecture.

Together, LoRa and LoRaWAN define a Low Power, Wide Area (LPWA) networking protocol designed to wirelessly connect devices to the internet in regional, national or global networks, and targets key Internet of things (IoT) requirements such as bi-directional communication, end-to-end security, mobility and localization services.

The LoRaWAN architecture contains four major components:

End Nodes
Gateway
Network Server
Application Server

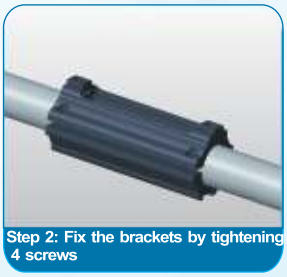
In this architecture, you can see how LoRa and LoRaWAN allow wide and dense networks of edge devices to be connected. This allows you to capture and monitor data from thousands of nodes in a manageable way.

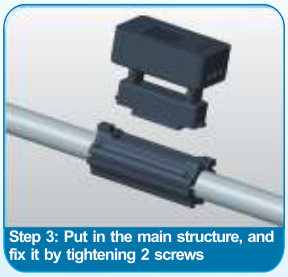


Installation Method

All-in-one design allows easy fast installation.
No need to damage pipe or shut down the flow.
Simple setting with the 4 buttons on panel.


Step 1: Clamp the upper and the base brackets onto the pipe


Step 2: Fix the brackets by tightening 4 screws


Step 3: Put in the main structure, and fix it by tightening 2 screws


Step 4: Connect it to power and boot up

Product Model

Format of type selection Model: F3R; Format: F3R-A-B-C

Model

F3R

Description of Transmitter

Flow Range:	0.1 ft/s ~ ±16ft/s (0.03m/s ~ ±5m/s)	Housing Material:	ABS+PC
		Power supply:	10~36VDC, max 500mA
Accuracy:	± 2.0%	Communication Interface:	LoRa (Theoretical max transmit power: 22dBm), RS485 with Modbus RTU, Fuji Protocol
Repeatability:	0.2%		
Display:	LCD1.44"		
Protection Rate:	IP54		
Pipe Size(Optional):	DN20 ~DN80 (O.D. 21mm-91mm.)	Ambient Temperature:	14°F to 122°F(-10°C~50°C)
Cable Length:	6.6ft (2m)	Fluid Temperature:	32°F to 140°F(0°C~60°C)

Specifications

A — LoRa Frequency Selectionl (7 modes)

1 EU868 Frequency: 863000000~865400000, unit: HZ
2 US915 Frequency: 902300000~914900000, unit: HZ
3 CN779 Frequency: 780100000~786500000, unit: HZ
4 EU433 Frequency: 433775000~434665000, unit: HZ
5 AU915 Frequency: 915200000~927800000, unit: HZ
6 CN470 Frequency: 470300000~489300000, unit: HZ
7 AS923 Frequency: 920000000~925000000, unit: HZ

B — Pipe Material (4 modes)

1 PVC (Plastic)
2 Carbon Steel (galvanized steel)
3 Stainless Steel
4 Copper (Brass)

C — Pipe Size

Pipe OD Range

For Pipe Material (PVC, Carbon Steel, Stainless Steel)

Nominal		Outer Diameter	
Metric	Inch	Metric	Inch
DN20	3/4"	21~29mm	0.827"-1.142"
DN25	1"	28~36mm	1.102"-1.417
DN32	1-1/4"	35~43mm	1.378"-1.693"
DN40	1-1/2"	46~54mm	1.811"-2.126"
DN50	2"	59~67mm	2.323"-2.638"
DN65	2-1/2"	72~80mm	2.835"-3.150"
DN80	3"	83~91mm	3.268"-3.583"

For Pipe Material (Copper)

Nominal		Outer Diameter	
Metric	Inch	Metric	Inch
DN25	3/4"	21~29mm	0.827"-1.142"
DN32	1" or 1-1/4"	28~36mm	1.102"-1.417
DN40	1-1/2"	35~43mm	1.378"-1.693"
DN50	2"	46~54mm	1.811"-2.126"
DN65	2-1/2"	59~67mm	2.323"-2.638"
DN80	3"	72~80mm	2.835"-3.150"

Selection Sample: F3R-7-1-DN20
Description: Model F3R with RS485 and LoRa communication for AS923 frequency band, applied to PVC pipe of DN20 nominal size.

The information provided is for reference only. Specific parameters are subject to the instruction manual.
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