Product Specification

Digital Flow Meter

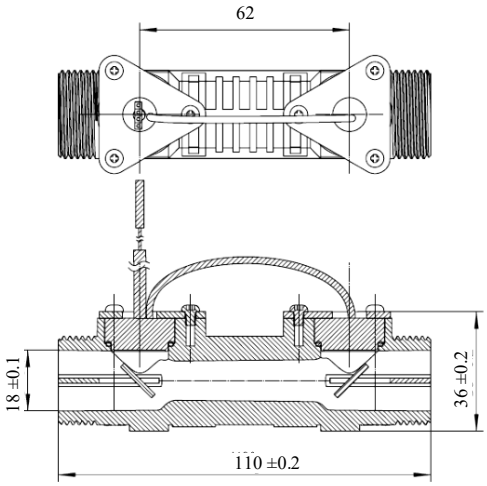
Part Number: FS0001-000

Model Number: DN15-US0024-L561-01

Overview

The Digital Flow Meter uses ultrasonic waves to measure liquid flow rate and outputs the digital flow signals directly. It consists of a lead-free measuring pipe and a pair of master-slave connected ultrasonic sensors. The circuit integrated in the sensor can calculate instantaneous flow rate and accumulated water usage with the time-of-flight method and monitors the status of fluid and pipe. The flow data are transmitted by serial communication for further processing or development.

Appearance and Dimensions, Unit: mm



Basic Properties

Item	Standard	Remarks
Nominal Diameter	DN15	
Power Supply	3.1-3.7V	Powered by DC power supply
Operating Temperature	+0.1 ~ +50°C	
Interface	Serial port	Supports serial communication
Protocol	M-BUS	See Appendix for details
Default Baud Rate	115200	1200, 2400, 4800, 9600 also available
Battery Life	≥6 yr	Condition: average consumption 50μA and a battery of 3500mA capacity

TENTATIVE RELEASE:
This specification is based on design objectives and is strictly Preliminary and subject to change. Test data may exist, but this specification is subject to change based on the results of additional testing and evaluation. Application specific specifications will be produced for approval prior to production product being released.

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Flow Measurement

Item	Standard	Remarks
Accuracy	Class 2	Q1: ±5%; Q2, Q3: ±2%
Repeatability	≤±0.5%	
Flow Range	1-3000 L/h	No accuracy guarantee at 1-15L/h
Dripping Detection Range	1-6L/h	
Turndown Ration (Q3/Q1)	160	Q1 (minimum flow rate): 15L/h Q2 (transition flow rate): 25 L/h Q3 (permanent flow rate): 2500 L/h

Reliability & Packaging

Item	Standard	Remarks
Max. Operating Pressure	1.6 MPa	
Max. Short-term Static Pressure	3.2 MPa · 1 min	
Thread Size	3/4G	British Standard
Operating Temperature	+0.1 ~ +50°C	
Storage Temperature	-25~+55°C	
Mounting Direction	Follow the arrow	
Electromagnetic Environment	E1*	Residential, commercial and light industrial
Pressure Loss	Class Δp25*	23KPa measured at Q3
Climate and Mechanical Environment	Class B*	Stationary flow meter installed indoors
Flow Profile Sensitivity Level	U10/05*	Requires straight pipe with diameter 10 times as large as the nominal diameter at upstream side
Installation length	110 mm	By Vernier Caliper
Pipe Connection	Thread	

*GB/T 778.1-2007 / ISO 4064-1:2005

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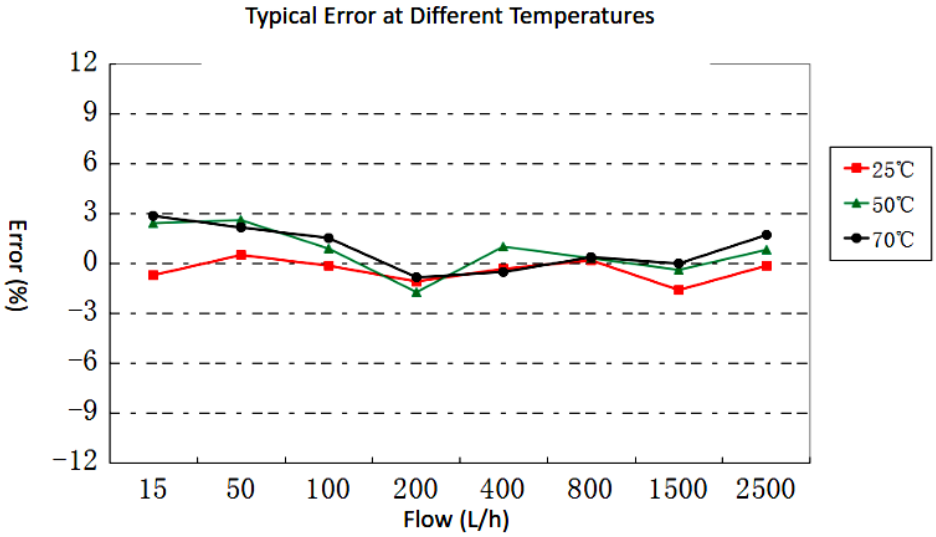
Error Curve:



Wiring Instructions:

Wire Color	Function
Red	Positive power supply 3.3V VDD
Black	Power ground GND
White	Serial output port TXD
Yellow	Serial write port RXD

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Mounting Instructions:

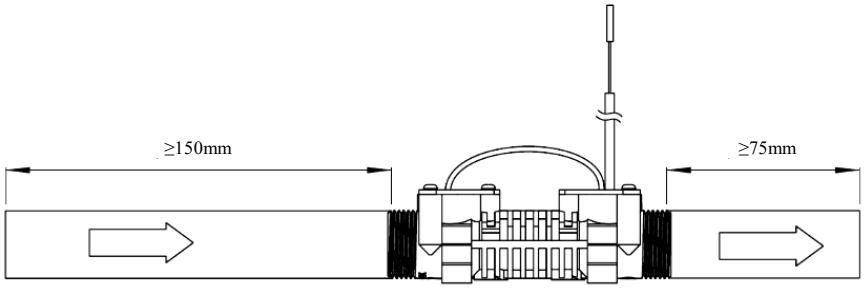
◊ The ultrasonic flow meter body can be mounted horizontally, vertically, or obliquely. But the pipe should be 100% full when it is in operation. Air in the pipe could affect its measurement and should be avoided.

◊ Try to avoid mounting the flow meter near any elbow, pump, tapered tube or changing straight pipe.

◊ The meter body and the straight pipes at upstream and downstream sides should be mounted coaxially. The seals should not be stuck into the pipe.

◊ Make sure that no leakage or seepage occurs after installation to prevent air from being sucked into the pipe.

◊ The flow meter body should be connected with straight pipes with certain length at both upstream and downstream sides. Generally the straight pipe should be no shorter than 15mm at the upstream side and no shorter than 75mm at the downstream side, as shown below:



Precautions for Use:

1. This product should only be used for water. Do not use the product for air or other liquid flow measurement.
2. To avoid accidents caused by product failure, the design of secondary products should include failure protection.
3. To prevent fault, failure and performance degradation of the sensors, avoid using this product in the following or similar conditions:
    A. Intense shock or vibration
    B. In the environments that contain dissolved organic matter
    C. The input voltage exceeds the rated maximum input voltage

Revision History:

Version	Date (MM/DD/YY)	DWN	Statement
A1	8/1/2017		Datasheet created

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