

Digital Flow Meter



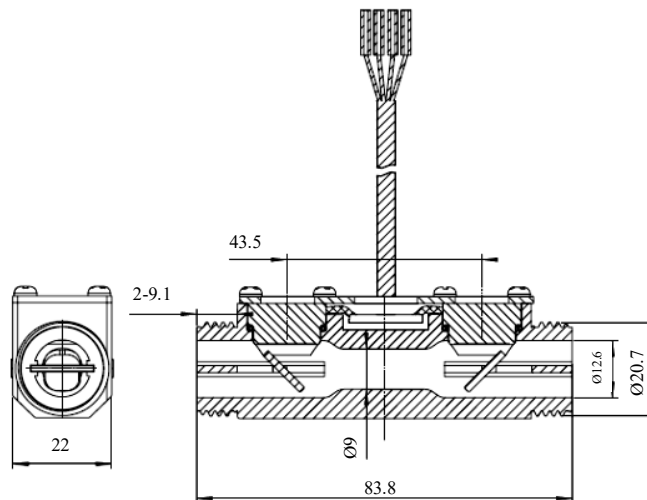
Part Number: FS0002-000

Model Number: DN10-US0013-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	DN10	
Power Supply	3.1-3.7V	Powered by DC power supply
Operating Temperature	0.1 ~ +60°C	
Interface	TTL serial	Supports serial communication
Protocol	M-BUS	See Appendix for details
Default Baud Rate	115200	1200, 2400, 4800, 9600 also available
Battery Life	≥6 yr	

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	20~35°C: $\leq \pm 2\%$ Others: $\leq \pm 3\%$	15~25L/h only meet $\leq \pm 5\%$
Repeatability	$\leq \pm 1\%$	
Flow Range	1.5-1600 L/h	No accuracy guarantee at 1-15L/h
Dripping Detection Range	1.5-6L/h	

Reliability & Packaging

Item	Standard	Remarks
Max. Operating Pressure	1.6 MPa	
Max. Short-term Static Pressure	3.2 MPa · 1 min	
Thread Size	1/2G	British Standard
Operating Temperature	0.1 ~ +50°C	
Storage Temperature	-25~+55°C	
Mounting Direction	Follow the arrow	

Wiring Instructions:

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

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Mounting Instructions:

- ◇ The flow meter can be mounted horizontally, vertically, or obliquely. But the pipe should be ensured 100% full when it is in operation. The 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 pipes upstream and downstream. A straight pipe with internal diameter of 10mm and length not less than 100mm must be installed at the upstream side of the flow meter. Another straight pipe with the same internal diameter and length not less than 50mm must be installed at the downstream side.
- ◇ 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.

Precautions for Use:

1. This product should only be used for water. Do not use the product for air or other liquid.
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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