ScioSense®

UFM-02

Ultrasonic Flow Measurement for Water Dispensers

UFM-02 Ultrasonic Flow Measurement for Water Dispensers Application Note

PMT PRECISION MEASUREMENT TECHNOLOGIES

Your ScioSense Technology Center!
Experienced Engineers and FREE Technical Assistance
www.pmt-fl.com
727.532.6144 | sales@pmt-fl.com

Table of Contents

1. Introduction 3
2. UFM-02 highlights 3
3. Mechanical meter vs. ultrasonic flow meter 4
4. System block diagram 4
5. Total cost of ownership advantage 5
6. Application benefits in water dispensers 5
7. Why pay more for a mechanical meter? 6
8. Conclusion 6
Copyrights & Disclaimer 7

1. Introduction

Modern water dispensers increasingly require accurate, reliable, and maintenance-free flow measurement to support both core functionality and advanced product features. Traditional mechanical flow meters remain common in cost-sensitive designs, but their moving parts, wear over time, and limited digital capabilities can restrict long-term performance, service life, and product differentiation.

The ScioSense UFM-02 ultrasonic flow module offers an alternative designed for next-generation water dispensers. Based on ultrasonic transit-time measurement, the UFM-02 provides precise inline flow sensing without moving parts, enabling stable performance over the full product lifetime. In addition to flow measurement, it supports digital system integration and enables features such as volume control, filter lifetime monitoring, leak detection, and system diagnostics.

This application note outlines the key characteristics of the UFM-02 and explains the technical and economic advantages of using ultrasonic flow measurement in water dispenser applications.

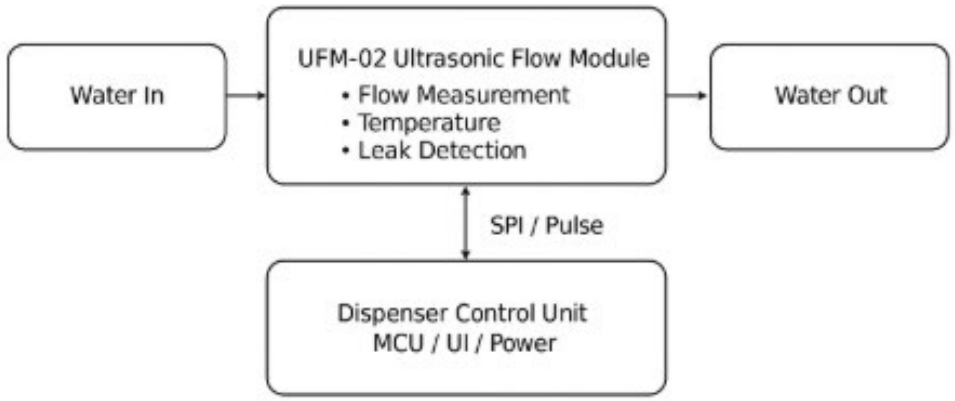
2. UFM-02 highlights

- Ultrasonic transit-time technology – no moving parts
- Flow range from 4 to 18,000 l/h
- Ultra-low power consumption (< 50 µA), ideal for battery-powered systems
- Excellent price/performance ratio for high-volume production
- Integrated temperature measurement
- Various housing sizes and thread options
- Integrated leak detection and abnormal flow detection
- NSF61 certified – approved for drinking water applications
- Very long operational lifetime without wear
- Pulse and SPI interfaces, customization possible
- Compact and lightweight design.

3. Mechanical meter vs. ultrasonic flow meter

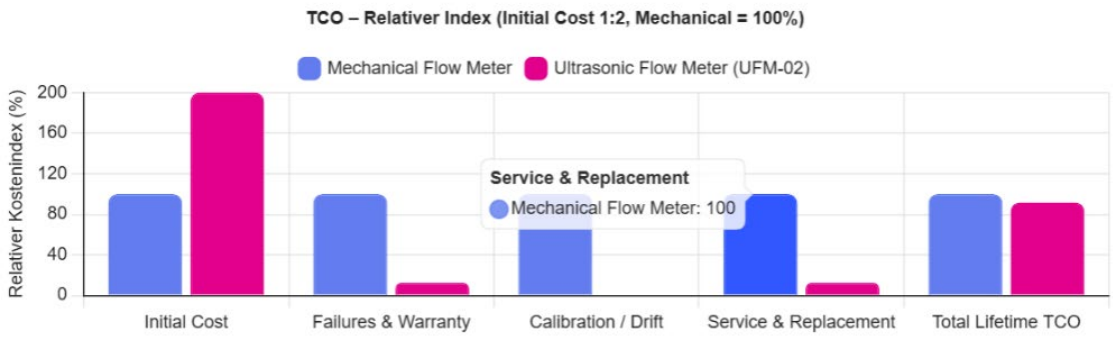
Feature	Mechanical Flow Meter	UFM-02 Ultrasonic Flow Meter
Measurement Principle	Rotating mechanical parts	Non-contact ultrasonic
Accuracy over lifetime	Decreases due to wear	Stable over full lifetime
Digital connectivity	Limited / pulse only	SPI & pulse, smart data
Leak detection	Not possible	Integrated
Maintenance	May require replacement	Maintenance free
Sensitivity to dirt	High	Low
Lifetime	Limited	Very long
Added system intelligence	None	High

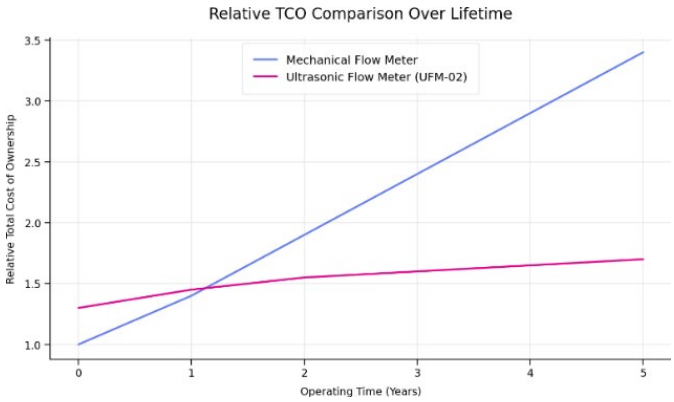
4. System block diagram



5. Total cost of ownership advantage

Although the initial component cost of an ultrasonic flow meter is higher than a mechanical alternative, the overall total cost of ownership is significantly lower. The absence of wear, reduced maintenance, longer lifetime and added smart features clearly outweigh the higher upfront investment.





6. Application benefits in water dispensers

By integrating the ScioSense UFM-02, water dispenser manufacturers can differentiate their products, increase reliability, enable smart features and reduce long-term costs. The UFM-02 is not just a flow sensor – it is a key enabler for next-generation intelligent water dispensers.

7. Why pay more for a mechanical meter?

At first glance, ultra-low costs for a mechanical flow meter seem attractive. However, over the full product lifetime, hidden costs quickly accumulate due to wear, calibration drift, service interventions and limited functionality. The Sciosense UFM-02 ultrasonic flow module eliminates these risks by design.

Key economic benefits:

- No wear, no moving parts – maintenance-free operation
- Stable accuracy over lifetime – fewer warranty claims
- Digital data enables smart features and product differentiation
- Leak detection reduces water damage and liability

The result: higher upfront cost, but significantly lower total cost of ownership.

8. Conclusion

The UFM-02 is more than a flow sensor. It is a strategic component enabling smart, reliable and differentiated water dispenser designs.

Choose ultrasonic technology to:

- Increase product reliability and lifetime
- Reduce service and warranty costs
- Enable digital features and future upgrades

Copyrights & Disclaimer

Copyright **Sciosense B.V., High Tech Campus 10, 5656 AE Eindhoven, The Netherlands**. Trademarks Registered. All rights reserved. The material herein may not be reproduced, adapted, merged, translated, stored, or used without the prior written consent of the copyright owner.

Devices sold by Sciosense B.V. are covered by the warranty and patent indemnification provisions appearing in its General Terms of Trade. Sciosense B.V. makes no warranty, express, statutory, implied, or by description regarding the information set forth herein. Sciosense B.V. reserves the right to change specifications and prices at any time and without notice. Therefore, prior to designing this product into a system, it is necessary to check with Sciosense B.V. for current information. This product is intended for use in commercial applications. Applications requiring extended temperature range, unusual environmental requirements, or high reliability applications, such as military, medical life-support or life-sustaining equipment are specifically not recommended without additional processing by Sciosense B.V. for each application. This product is provided by Sciosense B.V. “AS IS” and any express or implied warranties, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose are disclaimed.

This product is not intended for use as safety device and/or in applications where failure of the product could result in personal injury. Sciosense B.V. shall not be liable to recipient or any third party for any damages, including but not limited to personal injury, property damage, loss of profits, loss of use, interruption of business or indirect, special, incidental or consequential damages, of any kind, in connection with or arising out of the furnishing, performance or use of the technical data herein. No obligation or liability to recipient or any third party shall arise or flow out of Sciosense B.V. rendering of technical or other services.

Address: Sciosense B.V.
High Tech Campus 10
5656 AE Eindhoven
The Netherlands

Contact: www.sciosense.com
info@sciosense.com

PMT PRECISION MEASUREMENT TECHNOLOGIES

Your ScioSense Technology Center!
Experienced Engineers and FREE Technical Assistance
www.pmt-fl.com
727.532.6144 | sales@pmt-fl.com