

# Open channel flow simplified: Universal controller and radar level sensor

Discover how FlexView FMA90 and Micropilot FMR20B deliver accurate non-contact level measurement, easy commissioning and remote access for water and wastewater applications

## Benefits at a glance

- Simplified commissioning
- Remote connectivity
- Improved accuracy
- Intuitive interface
- Enhanced security
- Operational flexibility
- Reduced downtime



**Summary** An industrial site using open channel flow to totalize its wastewater discharge to a municipal wastewater entity, and operating a small open channel flow application, faced ongoing challenges for years with an older level measurement device installed on a six-inch Palmer-Bowlus flume. The installation was not optimal, and since the customer had limited experience with instrumentation, remote

troubleshooting became difficult. Frequent issues and the inability to send service technicians regularly created a need for a more reliable and user-friendly solution.

Upgrading to the FlexView FMA90 controller paired with the Micropilot FMR20B radar level sensor delivered a modern, intuitive system that simplified setup, improved connectivity and enhanced overall performance.



Micropilot FMR20B



FlexView FMA90

**Challenge** The previous system required complex configuration and frequent adjustments, which was a major hurdle for a customer unfamiliar with instrumentation. Coaching over the phone proved ineffective and repeated service visits were not an option. To make matters even more challenging, a third-party provider had originally introduced the concept and sold calibration services that were inefficient. Large adjustments were made just to make the system read correctly.

These practices left the customer with uncertainties. The installation's physical limitations added to the challenge, resulting in unreliable measurements and operational headaches. The customer needed a solution that was easy to commission, simple to operate and capable of remote support.

**Solution** The upgrade to FlexView FMA90 and Micropilot FMR20B radar level sensor provided advanced technology designed for ease of use. The Micropilot FMR20B radar level probe was set to straight level mode and values were entered into the FlexView FMA90 via HART communication rather than analog scaling, which streamlined commissioning and improved accuracy. WLAN connectivity and the SmartBlue App (for the

Micropilot FMR20B) were enabled, allowing remote visualization and even screen-sharing if needed.

A quick tutorial permitted the customer to utilize the secure integrated webserver. Once connected, the customer was coached on SmartBlue and WLAN functionality, making remote access simple and secure.

Additional configuration included setting the pulse output to trip every 250 gallons for sampler input and creating multi-group display screens for quick troubleshooting. These features, combined with FlexView FMA90's intuitive 3.5-inch color touchscreen, guided setup wizards and ProtectBlue® cybersecurity measures, ensured secure remote access and audit-proof event logging.

FlexView FMA90 is designed for demanding water and wastewater applications, making it ideal for open channel flow measurement using non-contact level measurement technology. It also supports rake control where suspended solids occur, pump control in confined spaces and stormwater basin monitoring in remote locations. Its ability to connect to two level measurement devices — radar, ultrasonic, hydrostatic or universal 4–20 mA — combined with eight digital switching outputs provides flexibility for diverse installations.

**Results** The customer reported that setup was very easy and appreciated the ability to input values over HART rather than scaling 4–20 mA signals. WLAN and SmartBlue connectivity enabled remote support, eliminating the need for repeated site visits and reducing downtime. Level measurement became reliable and flow calculation outputs accurately controlled sampling operations.

Moreover, feedback highlighted the intuitive interface, fast commissioning and helpful multi-group display options. The customer expressed interest in future enhancements, which will include a resettable daily totalizer in 2026. When Endress+Hauser's sales and service representative, TriNova, Inc., arrived at the customer location, with the help of the plant electrician, they were able to wire up the new system and have it fully commissioned in roughly three hours.

By replacing outdated equipment with a radar level sensor and a modern controller capable of open channel flow measurement, the customer gained a robust, easy-to-use system that supports remote troubleshooting and ensures long-term reliability.

## FAQ

### **What are the advantages of using radar level sensors over traditional methods?**

Radar level sensors provide non-contact measurement unaffected by temperature, pressure or density changes. They deliver reliable performance in harsh conditions such as vapor, dust and turbulence, offer high accuracy even in narrow installations, require minimal maintenance and integrate easily with digital protocols like HART and remote access tools.

### **What should I consider when choosing a radar level gauge for industrial use?**

Consider process conditions (temperature, pressure, vapor), measurement range and accuracy, material compatibility, mounting options, communication protocols (HART, PROFIBUS, Ethernet), ease of use features like Bluetooth or WLAN and overall reliability for long-term operation.

### **Can you recommend tools or calculators for open channel flow analysis?**

Yes. Use the Endress+Hauser Q/h Calculation Tool for linearization tables, FlexView FMA90 for integrated flow calculation using radar level sensors, EPA's Open Channel Flow Calculator for basic computations and hydraulic software like HEC-RAS for advanced modeling.



To learn more about the  
FlexView FMA90



To learn more about the  
Micropilot FMR20B



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