

May 2025

Fisher™ ARMOR 8000 Series Natural Gas Monitoring System



Figure 1. ARMOR 8000 Series

Features

- **One Solution Provider**
 - **Comprehensive Supply:** Offers a complete package of hardware, software and service, ensuring seamless integration and support.
 - **Simplified Maintenance:** Reduces compatibility issues and simplifies troubleshooting with a single point of contact for all components.
- **Regulator Health Insights**
 - **Remote Monitoring:** Provides real-time diagnostics and analytic for both pressure and travel.
 - **Proactive Maintenance:** Helps identify potential issues early, allowing for timely interventions and reducing downtime.
- **Increased Productivity, Reliability and Safety**
 - **User-Friendly Platform:** Designed for ease of use, enhancing productivity by minimizing the time and effort required for monitoring.
 - **Flexible Configuration:** Adaptable to various applications, improving reliability and safety in operations.
- **Unique Monitoring Capability**
 - **Dual Monitoring:** The only device capable of monitoring both pressure and travel, offering a comprehensive view of system performance.
 - **Enhanced Decision-Making:** Provides detailed data for better management and operational decisions.

ARMOR 8000 Series

Specifications

This section lists the specifications for the ARMOR 8000 Series. Factory specification is stamped on the nameplate fastened on the ARMOR 8000 Series at the factory.

Device Configuration 1 Pressure Monitoring 2 Pressure Monitoring 3 Pressure Monitoring 3 Pressure Monitoring with Travel Monitoring Maximum Operating Pressure⁽¹⁾ 1500 psig / 103 bar Pressure Sensor Operating Pressure Pressure Sensor 1 and 2: 0 to 1500 psig / 0 to 103 bar Pressure Sensor 3 (when configured): 0 to 1500 psig / 0 to 103 bar Pressure Sensor Accuracy ± 0.5% of Pressure Span	Maximum Operating Temperature⁽¹⁾ Battery Power: -40 to 149°F / -40 to 65°C External Power: -40 to 158°F / -40 to 70°C Travel Sensor (when configured) Travel Measurement: Up to 3.9 in. / 100 mm Accuracy: ± 0.25% of Travel Span External Power Source Isolated Power Source: DC Output of 9 to 24 VDC Solar Power Controller: DC Output of 12V or 24VDC Communication Channels - MQTT/Sparkplug B - Cellular Connectivity with DeltaV™ SaaS - Ethernet Connectivity - Bluetooth® Connection with Dedicated Application
--	---

1. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.

• Robust and Secure Connectivity

- **Reliable Data Transmission:** Ensures consistent and accurate data flow.
- **Cybersecurity:** Protects against cyber threats, maintaining the integrity and confidentiality of monitoring data.

• Optimized Polling/Scanning and Battery Life

- **Efficient Data Collection:** Balances the frequency of data polling and scanning with battery life, ensuring long-term operation.
- **Remote Suitability:** Ideal for use in remote locations where frequent battery replacement is impractical.

• Configurable Dashboards and Reports

- **Pre-Designed Templates:** Includes templated dashboards and reports for quick setup.
- **Customizable Options:** Allows for customization to meet specific needs, providing tailored insights.
- **Mobile Application:** Offers convenient access to data and insights on the go, enhancing flexibility and responsiveness.

Introduction

The Fisher™ ARMOR 8000 Series is a remote monitoring device that is configurable to serve as a regulator monitoring solution or a station monitoring solution. It can also replace chart recorders, be used for end-of-line monitoring, industrial meter sets, temperature units and more. The ARMOR device offers flexible measurement options, including 2 or 3 pressure points, remote travel monitoring and discrete monitoring. It communicates through various channels, such as MQTT/Sparkplug B, cellular connectivity with DeltaV SaaS, ethernet connectivity and low-energy Bluetooth® Technology with a dedicated application.

The ARMOR device can report the data it collects to the cloud monitoring service via cellular connectivity making data accessible anytime, anywhere. This level of connectivity leads to the increasing importance of cybersecurity and compliance with standards like IEC/ISA 62443-4-2 is non-negotiable. The ARMOR device has been developed and tested to meet these rigorous cybersecurity standards, ensuring data integrity and security.

Designed for durability, the ARMOR device boasts an intrinsically safe battery with a 5-year life span. It's built to withstand harsh environments, with an IP66 water and dust resistance rating and CSA Class 1 Division 2 certification, functioning in temperatures ranging from -40 to 160°F / -40 to 60°C.

Bluetooth® is a mark owned by Bluetooth SIG, Inc.

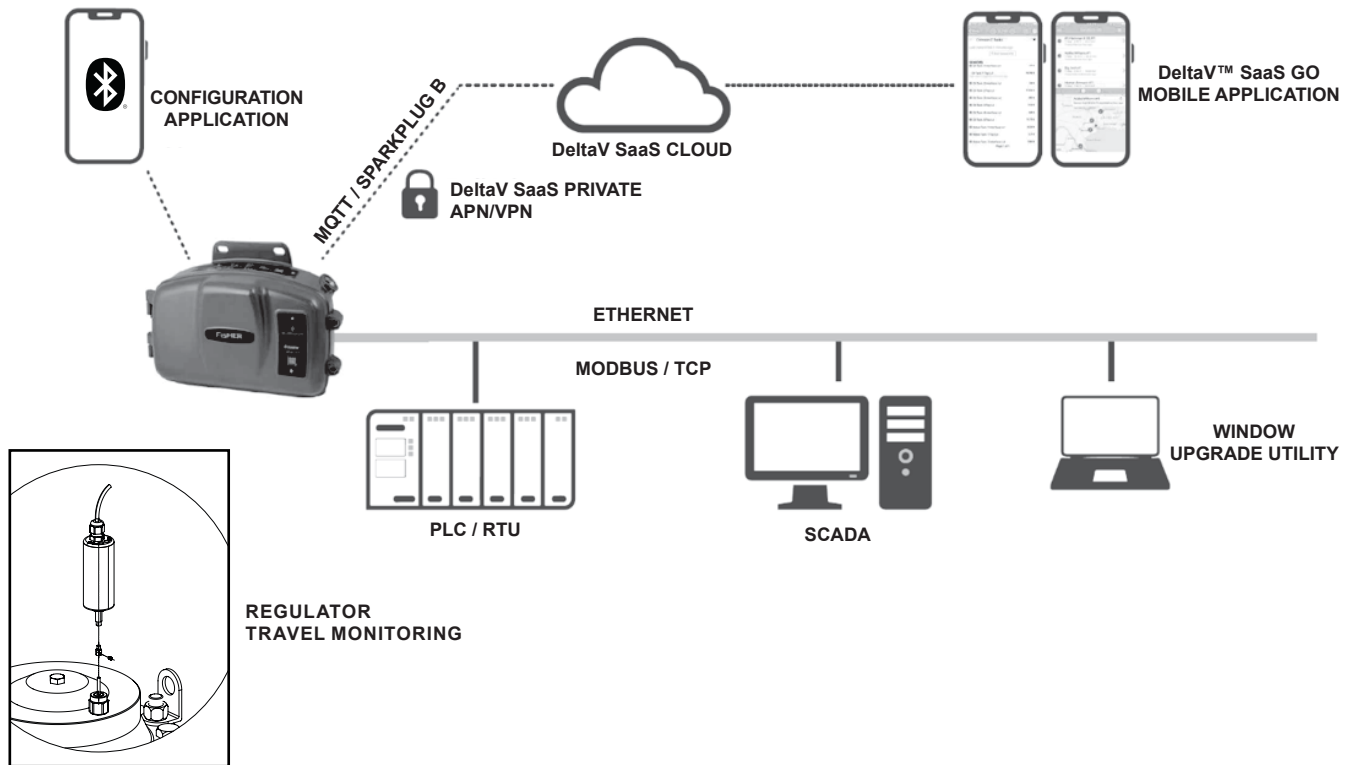


Figure 2. ARMOR 8000 Series Communication Channels

Monitoring

Pressure Monitoring

Fast Pressure Recording: The ARMOR device is capable of recording pressure readings as frequently as every 5 seconds. This rapid recording capability ensures that even the smallest fluctuations in pressure are captured, providing detailed and precise monitoring.

Data Storage: The ARMOR device can store up to six months of pressure data internally. This extensive storage capacity allows for long-term monitoring and analysis in case of any network failure. It ensures that historical data is readily available for trend analysis and troubleshooting.

Calibrated Transducers: Each transducer allows for final calibration and characterization at the time of commissioning. This process ensures that the transducers provide accurate and reliable measurements right from the start.

High Accuracy: The instrument boasts a measurement accuracy of $\pm 0.5\%$ of pressure span, which means the recorded pressure values are very close to the actual pressure. The device uses a 1/2 NPT process fitting, making it compatible with a wide range of systems and applications.

Travel Monitoring

Remote Position Sensors with LVDT Technology:

The regulator position indicators are equipped with remote position sensors that utilize Linear Variable Differential Transformer (LVDT) technology. LVDT sensors are known for their high precision and reliability in measuring linear displacement. These sensors convert the mechanical movement of the regulator into an electrical signal, allowing for accurate remote monitoring of the regulator's position.

High Reference Accuracy: The system offers a reference accuracy of $\pm 0.25\%$ of the span. This means that the measurements provided by the sensors are highly precise, with a very small margin of error. Such high accuracy ensures precise monitoring of the regulator position for critical applications.

ARMOR 8000 Series

Extensive Travel Measurement: The sensors can measure travel up to 3.9 in. / 100 mm. This extensive range allows the system to accommodate a wide variety of regulator movements, ensuring wide compatibility for various regulators.

Compatibility with Various Fisher Regulators: The position indicators are matched to the exact travel length for a range of Fisher regulators, including Types EZR, EZH and the 1098. This ensures that the system can be installed on all the afore mentioned regulators without a drop in accuracy across the travel span.

Discrete Monitoring

The ARMOR device is equipped with a discrete input, which allows it to monitor any metric that can be represented as an on/off signal. This capability makes it versatile for various applications where binary states (on/off) need to be tracked.

Slam Shut Monitoring

In natural gas systems, a slam shut valve is a safety device that automatically closes to stop the flow of gas in case of an emergency, such as a sudden pressure surge. The ARMOR device can monitor the status of this valve, providing immediate alerts if the valve is activated, ensuring prompt response to potential safety hazards.

Security Fence or Box Lid Monitoring

The ARMOR device can be used to monitor the status of security fences or box lids. For instance, if a security fence is breached or a box lid is opened, the device can detect these changes and send alerts. This application is crucial for preventing unauthorized access and ensuring the security of natural gas infrastructure.

Pressure Relief Valve Monitoring

Pressure relief valves are critical components in natural gas systems, designed to release excess pressure and prevent system failures. The ARMOR device can monitor the activation of these valves, ensuring that any pressure relief events are promptly detected and addressed, maintaining the safety and integrity of the system.

Power Options

Battery Powered

Long Battery Life: The device can be equipped with a battery that is rated to last up to 5 years under default operating conditions. This extended battery life ensures reliable, long-term operation without the need for frequent replacements, making it ideal for remote or hard-to-access locations.

Custom Fit: The battery is specifically designed to fit the ARMOR 8000 Series, ensuring optimal performance and compatibility. This custom fit minimizes the risk of installation errors and maximizes the efficiency of the power supply.

Spare Battery Availability: The battery (ERAA57423A0) is available as a spare part that can be ordered separately. This allows users to easily replace the battery when needed, ensuring continuous operation of the device without significant downtime.

External Power

The ARMOR device can be configured to operate using an external power source. This option provides flexibility for various installation environments and ensures continuous operation without relying solely on battery power.

It is recommended to use a Class 1 Division 2 certified power supply for safe and reliable operation. This certification ensures that the power supply meets stringent safety standards for use in hazardous locations. DC-DC Converter Options

The following DC-DC controllers are recommended for use with the ARMOR device:

- MINI-PS-12-24DC
Maker: Phoenix Contact
Model No: 2866284
- QUINT4-PS
Maker: Phoenix Contact
Model No: 2910124
- PRO DCDC 96W
Maker: Weidmuller
Model No: 2869000000

Solar Power Option

Alternatively, the ARMOR device can be powered using a solar controller. This option is ideal for remote or off-grid installations where traditional power sources are not available.

Installation

Detailed installation procedure for both DC-DC converter and solar controller configurations can be found in the Instruction Manual, D104668X012. This provides step-by-step guidance to ensure proper setup and operation.

ARMOR 8000 Series

Ordering Information

When ordering, complete the ordering guide on this page. Refer to the Specifications section. Review the description to the right of each specification and the information in each referenced table or figure. Specify your choice whenever a selection is offered.

Ordering Guide

Device Configuration (Select One)

- ☐ 1 Pressure Monitoring
- ☐ 2 Pressure Monitoring
- ☐ 3 Pressure Monitoring
- ☐ 3 Pressure Monitoring with Travel Monitoring

Pressure Sensor 1 (Select One)

- ☐ 0 to 5 psig / 0 to 0.34 bar
- ☐ 0 to 100 psig / 0 to 6.9 bar
- ☐ 0 to 500 psig / 0 to 34.5 bar
- ☐ 0 to 1500 psig / 0 to 103 bar

Pressure Sensor 2 (Select One)

- ☐ 0 to 5 psig / 0 to 0.34 bar
- ☐ 0 to 100 psig / 0 to 6.9 bar
- ☐ 0 to 500 psig / 0 to 34.5 bar
- ☐ 0 to 1500 psig / 0 to 103 bar

Pressure Sensor 3 (Select One)

- ☐ 0 to 5 psig / 0 to 0.34 bar
- ☐ 0 to 100 psig / 0 to 6.9 bar
- ☐ 0 to 500 psig / 0 to 34.5 bar
- ☐ 0 to 1500 psig / 0 to 103 bar

Travel Sensor Compatibility (Select One)

- ☐ Type 1098
 - ☐ NPS 1 / DN 25
 - ☐ NPS 2 / DN 50
 - ☐ NPS 3 / DN 80
 - ☐ NPS 4 / DN 100
- ☐ Type EZL
 - ☐ NPS 2 / DN 50
 - ☐ NPS 3 / DN 80
 - ☐ NPS 4 / DN 100
- ☐ Type EZH
 - ☐ NPS 2 / DN 50
 - ☐ NPS 3 / DN 80
 - ☐ NPS 4 / DN 100
- ☐ Type EZR
 - ☐ NPS 1 / DN 25
 - ☐ NPS 2 / DN 50
 - ☐ NPS 3 / DN 80
 - ☐ NPS 4 / DN 100
- ☐ Type LS200

Ordering Guide (continued)

ARMOR Mounting Bracket (Optional)

- ☐ Universal ARMOR Bracket

Power (Select One)

- ☐ Battery
- ☐ External

Communication (Select One)

- ☐ AT&T
- ☐ Verizon
- ☐ Telus
- ☐ Bell
- ☐ Ethernet (External Power only)

Regulators Quick Order Guide	
***	Readily Available for Shipment
**	Allow Additional Time for Shipment
*	Special Order, Constructed from Non-Stocked Parts. Consult your local Sales Office for Availability.
Availability of the product being ordered is determined by the component with the longest shipping time for the requested construction.	

Specification Worksheet

Application:

Specific Use _____

Line Size _____

Fluid Type _____

Specific Gravity _____

Temperature _____

Does the Application Require Overpressure Protection?

☐ Yes ☐ No

Pressure:

Maximum Inlet Pressure (P_{1max}) _____

Minimum Inlet Pressure (P_{1min}) _____

Downstream Pressure Setting(s) (P_2) _____

Set Pressure _____

Maximum Flow (Q_{max}) _____

Accuracy Requirements:

Less Than or Equal To:

☐ 5% ☐ 10% ☐ 20% ☐ 40%

Construction Material Requirements (if known):

ARMOR 8000 Series

✉ Webadmin.Regulators@emerson.com

🔍 Fisher.com

Facebook.com/EmersonAutomationSolutions

LinkedIn.com/company/emerson-automation-solutions

X.com/EMR_automation

Emerson

Americas

McKinney, Texas 75069 USA
T +1 800 558 5853
+1 972 548 3574

Europe

Bologna 40013, Italy
T +39 051 419 0611

Asia Pacific

Singapore 128461, Singapore
T +65 6777 8211

Middle East and Africa

Dubai, United Arab Emirates
T +971 4 811 8100

D104672X012 © 2025 Emerson Process Management Regulator Technologies, Inc. All rights reserved. 05/25.

Fisher™ is a mark owned by Fisher Controls International, LLC, an Emerson Company. The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are property of their respective owners.

Neither Emerson nor any of its affiliated entities assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

The contents of this publication are presented for informational purposes only and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

