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Dwyer MSX-W-10-IN-LCD

Dwyer MSX Magnesense Differential Pressure Transmitter User Manual

Model: MSX-W-10-IN-LCD

Brand: Dwyer

1. Overview

The Series MSX Magnesense Differential Pressure Transmitter combines the stability and versatility of the original Series MS2 Magnesense II transmitter, specifically designed for building control applications. This transmitter simplifies the configuration process, reducing setup time. It offers pressure ranges in Pascals (Pa), millimeters of water column (mm w.c.), and inches of water column (in w.c.). All pressure ranges can be configured for either unidirectional or bidirectional operation, providing a total of 32 distinct ranges.

The MSX transmitter is capable of providing a linear pressure output or a linear velocity output, utilizing square root extraction for flow calculation. Additional parameters are included to enhance the square root capability for accurate flow measurement. Dual voltage and milliamp output signals are available, allowing for both control and equipment output signal verification.



Figure 1: Front view of the Dwyer MSX Magnesense Differential Pressure Transmitter with LCD display, showing the Dwyer logo and 'MAGNESENSE MSX' branding.

2. Features

- Rotatable 180° display for enhanced readability and installation flexibility.
- UL94 V-0 and plenum ratings, ensuring safety in various application environments.
- Accuracy: ±1% FSO (Full Scale Output).
- Stability: ±1% FSO/year.
- Temperature Limits: -4 to 158°F (-20 to 70°C).
- Power Requirements: 10-36 VDC (2-wire) or 17-36 VDC / isolated 21.6-33 VAC (3-wire).
- Output Signals: 4-20 mA (2-wire) or selectable 0-10 V / 0-5 V (3-wire).
- Response Time: Instantaneous (default) or 3 seconds (selectable).
- Digital push-button for Zero and Span Adjustments.

3. Applications

- Filter monitoring in air handler units.
- Building pressure monitoring in pharmaceutical and semiconductor clean rooms.
- Duct static pressure measurement in commercial buildings.
- Air velocity and flow measurement in Variable Air Volume (VAV) systems.

4. Setup

The MSX transmitter is designed for wall mounting. Ensure the mounting surface is stable and free from excessive vibration. The pressure sensor measurement is unaffected by mounting orientation, providing flexibility during installation.

Electrical connections are made via a 4-wire removable European style terminal block, compatible with 16 to 26 AWG wiring. The electrical entry features a 1/2" NPS thread for secure conduit connection. Process connections for pressure sensing utilize 1/8", 3/16", 1/4", 5 mm, and 6 mm ID flexible tubing.



Figure 2: Rear view of the Dwyer MSX Magnesense Differential Pressure Transmitter, illustrating the three mounting points and the central connection port.

5. Operating Instructions

The MSX transmitter allows for digital push-button adjustments for both zero and span calibration. Refer to the detailed wiring diagrams provided in the complete product manual for specific connections for 2-wire (4-20 mA) and 3-wire (0-10 V or 0-5 V) output configurations.
The response time can be set to instantaneous (default) or a 3-second delay, depending on application requirements. The optional 4-digit LCD provides clear display of measured values.

6. Maintenance

The Dwyer MSX Magnesense Differential Pressure Transmitter is designed for reliable operation with minimal maintenance. Regular inspection of tubing and electrical connections for wear or damage is recommended. Ensure the unit's enclosure remains sealed to maintain its NEMA 4X (IP66) rating.
Periodic calibration checks are advised to ensure continued accuracy, especially in critical applications. Refer to the full product manual for detailed calibration procedures.

7. Troubleshooting

This section provides general guidance for common issues. For complex problems, consult the full product manual or contact Dwyer technical support.

- **No Display/Power:** Verify power supply connections (10-36 VDC or 17-36 VDC / 21.6-33 VAC) and ensure correct polarity. Check for blown fuses in the power circuit.
- **Incorrect Readings:** Ensure pressure tubing is correctly connected and free from kinks or blockages. Perform a zero and span adjustment. Verify the selected pressure range matches the application requirements.
- **No Output Signal:** Check wiring for the 4-20 mA or 0-10V/0-5V output. Verify the load resistance is within specified limits (0-1250 Ω max for current output; min. 1 kΩ for voltage output).
- **Unstable Readings:** Check for excessive vibration at the mounting location. Ensure process connections are secure and not leaking.

8. Specifications

Parameter	Value
Service	Air and non-combustible, compatible gases
Accuracy	±1% FSO
Stability	±1% FSO/year
Temperature Limits	-4 to 158°F (-20 to 70°C)
Power Requirements	10-36 VDC (2-wire), 17-36 VDC or isolated 21.6-33 VAC (3-wire)
Output Signals	4-20 mA (2-wire); 0-10 V or 0-5 V selectable (3-wire)
Loop Resistance (Current)	0-1250 Ω max
Min. Load Resistance (Voltage)	1 kΩ

Current Consumption	21 mA max continuous
Electrical Connections	4-wire removable European style terminal block for 16 to 26 AWG
Electrical Entry	1/2" NPS thread
Display (optional)	4 digit LCD
Process Connections	1/8", 3/16", 1/4", 5 mm, and 6 mm ID flexible tubing
Enclosure Rating	NEMA 4X (IP66), UL 2043 (Plenum), UL94 V-0
Mounting Orientation	Pressure sensor measurement unaffected by orientation
Weight	8.0 oz (230 g)
Agency Approvals	CE

9. Warranty and Support

For detailed warranty information and technical support, please refer to the official Dwyer Instruments, Inc. website or contact their customer service department. Keep your purchase receipt for warranty claims.
Manufacturer: Dwyer Instruments, Inc.
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