Dwyer DM-2002-LCD

Dwyer Series DM-2000 Differential Pressure Transmitter User Manual

Model: DM-2002-LCD

1. Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Dwyer Series DM-2000 Differential Pressure Transmitter. The DM-2000 series is designed to accurately sense the pressure of air and compatible gases, providing a standard 4-20 mA output signal. This device is ideal for various industrial and scientific applications requiring precise pressure measurement.

The DM-2000 housing is engineered for easy mounting, fitting into the same diameter cutout as a standard Magnehelic® gage. It features digital push-button zero and span adjustments for simplified calibration. Models with an optional 3.5 digit LCD display process and engineering units, with a single button allowing field selection of 4 to 6 engineering units depending on the range.

2. Safety Information

Always observe the following safety precautions to prevent personal injury and damage to the instrument:

- Ensure the power supply is disconnected before installation or maintenance.
- Only use the transmitter with air and non-combustible, compatible gases.
- Do not exceed the specified pressure range of the device.
- Installation and servicing should only be performed by qualified personnel.
- Protect the device from extreme temperatures, moisture, and corrosive environments.

3. Product Overview

Figure 3.1: Front view of the Dwyer Series DM-2000 Differential Pressure Transmitter. The device features a circular black face with a digital LCD display showing "0.250 IN WC", the "DM-2000 Pressure Transmitter" model name, and two circular buttons labeled "ZERO" and "UNITS" at the bottom. The housing is light gray.

The Dwyer Series DM-2000 is a robust differential pressure transmitter designed for precise measurement. Key components include:

- **LCD Display:** (Optional) Provides real-time pressure readings and selected engineering units.
- **Zero Button:** Used for digital zero adjustment.
- **Units Button:** Allows selection of various engineering units (e.g., in WC, Pa, kPa, mm WC, cm WC, psi).
- **Pressure Connections:** Integrated into the molded housing for quick and easy installation.
- **Electrical Terminal Block:** Screw-type for secure wiring.

4. Setup and Installation

4.1 Mounting

The DM-2000 is designed for vertical mounting. Its housing is specifically sized to fit into the same diameter cutout as a standard Magnehelic® gage, simplifying replacement or new installations.

- Ensure the mounting surface is stable and free from vibrations.
- Mount the unit in a vertical orientation for optimal performance.
- Secure the transmitter using appropriate mounting hardware (not included).

4.2 Electrical Connections

The transmitter provides a standard 4-20 mA output signal. Connect the power supply and signal wires to the screw-type terminal block located on the unit.

- Refer to the wiring diagram provided with your specific model for correct polarity and connections.
- Use appropriate gauge wiring for the power supply and signal lines.
- Ensure all connections are secure to prevent intermittent operation.

4.3 Pressure Connections

Pressure connections are inherent to the glass-filled plastic molded housing. Connect the pressure tubing to the designated ports.

- Connect the higher pressure source to the 'High' port and the lower pressure source to the 'Low' port.
- Ensure tubing is free from kinks and leaks.
- Verify that the gases are non-combustible and compatible with the transmitter's materials.

5. Operating Instructions

5.1 Power On and Initial Reading

Once installed and wired, apply power to the transmitter. The LCD (if present) will illuminate and display the current differential pressure reading.

5.2 Zero Adjustment

The DM-2000 features digital push-button zero adjustment. This simplifies calibration compared to traditional potentiometers.

1. Ensure both pressure ports are open to atmospheric pressure or connected to the same pressure source (zero differential pressure).
2. Press and hold the **ZERO** button until the display shows "0.000" or a similar indication of successful zeroing.
3. Release the button. The transmitter is now zeroed.

5.3 Span Adjustment (Calibration)

Span adjustment is typically performed at the factory. However, digital span adjustment is available for field calibration.

1. Apply a known, stable pressure equal to the full-scale range of the transmitter to the high-pressure port, with the low-pressure port at zero.
2. Press and hold the **UNITS** button (or a combination as per specific model instructions) to enter span adjustment mode.
3. Adjust the reading to match the applied full-scale pressure using the appropriate buttons (consult specific model manual for exact procedure).
4. Save the setting.

5.4 Changing Engineering Units (LCD Models)

For models equipped with an LCD, you can cycle through available engineering units.

- Momentarily press the **UNITS** button.
- Each press will cycle to the next available unit (e.g., in WC, Pa, kPa, mm WC, cm WC, psi).
- The selected unit will be displayed on the LCD.

6. Maintenance

The Dwyer Series DM-2000 Differential Pressure Transmitter is designed for minimal maintenance. Regular checks ensure optimal performance and longevity.

- **Cleaning:** Clean the exterior of the unit with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- **Pressure Connections:** Periodically inspect pressure tubing and connections for leaks or damage. Replace as necessary.
- **Recalibration:** While the digital zero and span simplify calibration, periodic recalibration by a qualified technician is recommended to maintain accuracy, especially in critical applications.
- **Environmental Check:** Ensure the operating environment remains within the specified temperature and humidity ranges.

7. Troubleshooting

This section provides solutions to common issues encountered with the DM-2000 transmitter.

Problem	Possible Cause	Solution
No display/No output	No power; Incorrect wiring; Faulty unit	Check power supply and connections; Verify wiring against diagram; Contact support if unit is faulty.
Inaccurate readings	Needs zeroing; Needs span calibration; Leaks in pressure lines; Incorrect mounting orientation	Perform zero adjustment; Perform span calibration (if applicable); Check pressure connections for leaks; Ensure vertical mounting.
Display shows "OVER" or "UNDER"	Pressure exceeds/falls below range	Verify applied pressure is within the transmitter's specified range.

8. Specifications

Parameter	Value
Model Number	DM-2002-LCD
Brand	Dwyer
Media Compatibility	Air and non-combustible, compatible gases
Output Signal	4-20 mA (standard)
Calibration	Digital push-button zero and span
Electrical Connection	Screw-type terminal block
Mounting Orientation	Vertical
Material	Glass, Plastic
Item Weight	1.1 Pounds
Package Dimensions	5.9 x 5.3 x 2.9 inches

9. Warranty and Support

9.1 Warranty Information

Dwyer Instruments, Inc. warrants its products to be free from defects in material and workmanship for a period of one (1) year from the date of shipment. This warranty does not cover damage due to improper installation, misuse, abuse, or unauthorized repairs. For full warranty terms and conditions, please refer to the official Dwyer Instruments website or contact their customer service.

9.2 Technical Support

For technical assistance, troubleshooting beyond this manual, or to inquire about repairs and replacement parts, please contact Dwyer Instruments customer support.

- **Manufacturer:** Dwyer Instruments
- **Website:** www.dwyer-inst.com (Example link, actual link might vary)
- **Contact Information:** Refer to the manufacturer's website for the most current contact details, including phone numbers and email addresses.