Dwyer 475-1-FM

Dwyer 475-1-FM Digital Manometer Instruction Manual

Model: 475-1-FM

Introduction Safety Information Package Contents Setup Operation Maintenance Troubleshooting Specifications Warranty & Support

1. Introduction

The Dwyer 475-1-FM Handheld Digital Manometer is designed for fast, accurate positive, negative, and differential pressure measurements. This device is suitable for use with air and compatible combustible gases. Its robust design and intrinsic safety features make it ideal for various industrial and scientific applications, including HVAC system monitoring, clean rooms, fume hoods, and isolation cabinets.

2. Safety Information

2.1 Intrinsically Safe Operation

The Dwyer 475 Series Manometer is FM-approved intrinsically safe for Class 1, Div. 1, Group A, B, C, D, T4 hazardous locations. Adhere to all local and national safety regulations when operating in such environments.

2.2 Gas Compatibility

This manometer is compatible with air and compatible combustible gases. **Do not use with incompatible or corrosive gases**, as this may damage the instrument and pose a safety risk. Always verify gas compatibility before connecting the manometer.

2.3 General Precautions

- Ensure the manometer is in good working condition before each use.
- Avoid dropping or subjecting the device to severe impact.
- Do not attempt to open or repair the unit yourself, as this may void the warranty and compromise intrinsic safety.
- Keep the device away from extreme temperatures and moisture.

3. Package Contents

Verify that all items listed below are present in your package:

- Dwyer 475-1-FM Handheld Digital Manometer
- Rubber Latex Tubing (3/16 inch ID, 9 foot length)
- Wrist Lanyard
- 9V Alkaline Battery
- Operating Instructions (this manual)

Image: The Dwyer 475-1-FM Digital Manometer shown alongside the included rubber latex tubing. The manometer features a digital display and control buttons for ON/OFF, ZERO, and UNITS.

4. Setup

4.1 Battery Installation

1. Locate the battery compartment cover on the back of the manometer.
2. Remove the cover.
3. Insert the supplied 9V alkaline battery, ensuring correct polarity.
4. Replace the battery compartment cover securely.

4.2 Tubing Connection

The manometer features two barbed connections for tubing. These connections accept 1/8" (3.18 mm) or 3/16" (4.76 mm) I.D. tubing.

1. For positive pressure, connect the tubing from the pressure source to the positive (+) port.
2. For negative pressure (vacuum), connect the tubing from the vacuum source to the negative (-) port.
3. For differential pressure, connect the higher pressure source to the positive (+) port and the lower pressure source to the negative (-) port.
4. Ensure tubing connections are snug to prevent leaks.

5. Operating Instructions

5.1 Powering On/Off

- Press the **ON/OFF** button to power on the device.
- Press the **ON/OFF** button again to power off the device.

5.2 Auto Zero Function

Before taking a measurement, it is crucial to zero the instrument for accuracy.

1. Ensure both pressure ports are open to atmospheric pressure (disconnected from any pressure source).
2. Press the **ZERO** button. The display will show '0.00' or a similar indication, confirming the zeroing process.

5.3 Pressure Unit Selection

The manometer allows selection between U.S. and metric pressure units.

- Press the **UNITS** button to cycle through available pressure units (e.g., in. w.c., kPa).
- Select the desired unit for your measurement.

5.4 Taking Measurements

1. Perform the Auto Zero function as described in Section 5.2.
2. Connect the tubing to the appropriate pressure source(s) as described in Section 4.2.
3. The large LCD will display the pressure reading in the selected units.
4. The manometer can display positive, negative, or differential pressures.

6. Maintenance

6.1 Cleaning

Wipe the exterior of the manometer with a soft, damp cloth. Do not use abrasive cleaners or solvents, as these may damage the casing or display.

6.2 Battery Replacement

When the battery indicator appears on the display, replace the 9V alkaline battery following the steps in Section 4.1. A fresh battery provides up to 100 hours of operation.

6.3 Storage

Store the manometer in a dry, cool place, away from direct sunlight and extreme temperatures. Disconnect tubing and remove the battery if storing for extended periods to prevent leakage.

7. Troubleshooting

Problem	Possible Cause	Solution
No display when powered on	Dead or improperly installed battery	Check battery polarity or replace with a new 9V battery.
Inaccurate readings	Not zeroed correctly; Tubing leaks; Sensor issue	Perform Auto Zero function. Check tubing for kinks or leaks. If problem persists, contact support.
Display shows 'OVER' or 'UNDER'	Pressure exceeds or is below measurement range	Ensure the applied pressure is within the 0-20.00" w.c. range.

8. Specifications

- **Dual Range:** 0-20.00" w.c. (4.982 kPa)
- **Accuracy:**
  - ±0.5% Full Scale, 60 to 78°F (15.6 to 25.6°C)
  - ±1.5% Full Scale, 32 to 60°F and 78 to 104°F (0 to 15.6°C and 25.6 to 40°C)
- **Pressure Hysteresis:** ±0.1% of Full Scale
- **Temperature Limits:** 0 to 140°F (-17.8 to 60°C)
- **Compensated Temperature Limits:** 32 to 104°F (0 to 40°C)
- **Storage Temperature Limits:** -4 to 176°F (-20 to 80°C)
- **Display:** 0.42" (10.6 mm) 4-digit LCD
- **Power Requirements:** 9V alkaline battery (user replaceable)
- **Weight:** 10.8 oz. (306 g)
- **Process Connections:** Two barbed connections for 1/8" (3.18 mm) or 3/16" (4.76 mm) I.D. tubing
- **Service:** Air and compatible combustible gases
- **Agency Approvals:** CE, FM (Intrinsically Safe for Class 1, Div. 1, Group A, B, C, D, T4 hazardous locations)
- **Dimensions:** 6.5 x 3.5 x 0.75 inches
- **Material:** Latex, Rubber (for tubing)

9. Warranty & Support

9.1 Warranty Information

Dwyer Instruments, Inc. warrants this product to be free from defects in material and workmanship for a period of one year from the date of purchase. For full warranty details and conditions, please refer to the official Dwyer Instruments website or contact customer support.

9.2 Technical Support

For technical assistance, troubleshooting beyond this manual, or to inquire about repairs, please contact Dwyer Instruments customer service. Contact information can typically be found on the manufacturer's official website or on the product packaging.