Walfront Wal fronteuvgmdrn07-02

Walfront G3/8 Pressure Sensor (0-5 BAR) Instruction Manual

Model: Wal fronteuvgmdrn07-02

1. Introduction

The Walfront G3/8 Pressure Sensor is a high-precision device designed for accurate pressure measurement in various industrial and commercial applications. Featuring a robust stainless steel casing, advanced ceramic core, and customized processing chip, this sensor offers stable performance, high accuracy, and a long service life. It is equipped with IP65 protection and provides an analog signal output, making it suitable for integration into diverse monitoring systems.

This manual provides essential information for the proper installation, operation, and maintenance of your Walfront pressure sensor. Please read it thoroughly before use to ensure optimal performance and safety.

2. Features

- **High Accuracy:** Designed for precise pressure measurement.
- **Durable Construction:** Stainless steel casing with an advanced ceramic core.
- **Compact and Lightweight:** Small size and light weight for easy installation.
- **Stable Performance:** Ensures long-term low drift and extended operational life.
- **EMC Protection:** Enhanced stability and reliability.
- **IP65 Protection:** Provides resistance against dust and water ingress.
- **Analog Signal Output:** Compatible with standard control systems.
- **G3/8 Screw Connection:** Standardized connection for easy integration.

3. Specifications

Parameter	Value
Protection Class	IP65

Parameter	Value
Input Voltage	5 ± 0.25 VDC / 5~32 VDC
Technology	Piezoresistance
Screw Connection	G3/8
Output Signal	Analog Signal
Measuring Range	0-5 BAR (Current Model)
Overload Pressure	2 times full pressure
Blast Pressure	3 times full pressure range
Accuracy (Non-linearity + Repeatability + Hysteresis)	± 1% FS (0 ~ 80 °C) ± 1.5% FS (-20 ~ 100 °C) ± 3% FS (-40 ~ 125 °C)
Electrical Connection	Packard connector (three-core)
Material	Stainless Steel
Color	Silver
UPC	765613925002

4. Setup

4.1 Physical Installation

1. **Preparation:** Ensure the system where the sensor will be installed is depressurized and free of contaminants.
2. **Mounting Location:** Select a mounting point that is representative of the pressure to be measured and easily accessible for maintenance. Avoid locations with excessive vibration or extreme temperatures beyond the sensor's operating range.
3. **Connection:** Carefully screw the G3/8 threaded end of the sensor into the corresponding port. Use appropriate sealing tape or compound if necessary to ensure a leak-free connection. Do not overtighten, as this can damage the sensor or the port.
4. **Orientation:** The sensor can generally be installed in any orientation, but ensure the cable is not strained or exposed to sharp edges.

Figure 1: Close-up view of the G3/8 screw terminal for physical connection.

Figure 2: General view of the Walfront pressure sensor.

4.2 Electrical Connection

The sensor uses a three-wire electrical connection, typically compatible with Packard connectors. Refer to the wiring diagram below for correct connections.

1. **Power Supply:** Connect the positive power supply (5 ± 0.25 VDC or 5~32 VDC) to the designated positive terminal (Pin 1, typically Red wire).
2. **Common/Ground:** Connect the common end (Pin 3, typically Black wire) to the system ground.
3. **Signal Output:** Connect the analog signal output (Pin 2, typically Blue/Green wire) to your measurement or control equipment. The output signal range is typically 0.5V to 4.5V for the 0-5 BAR range.

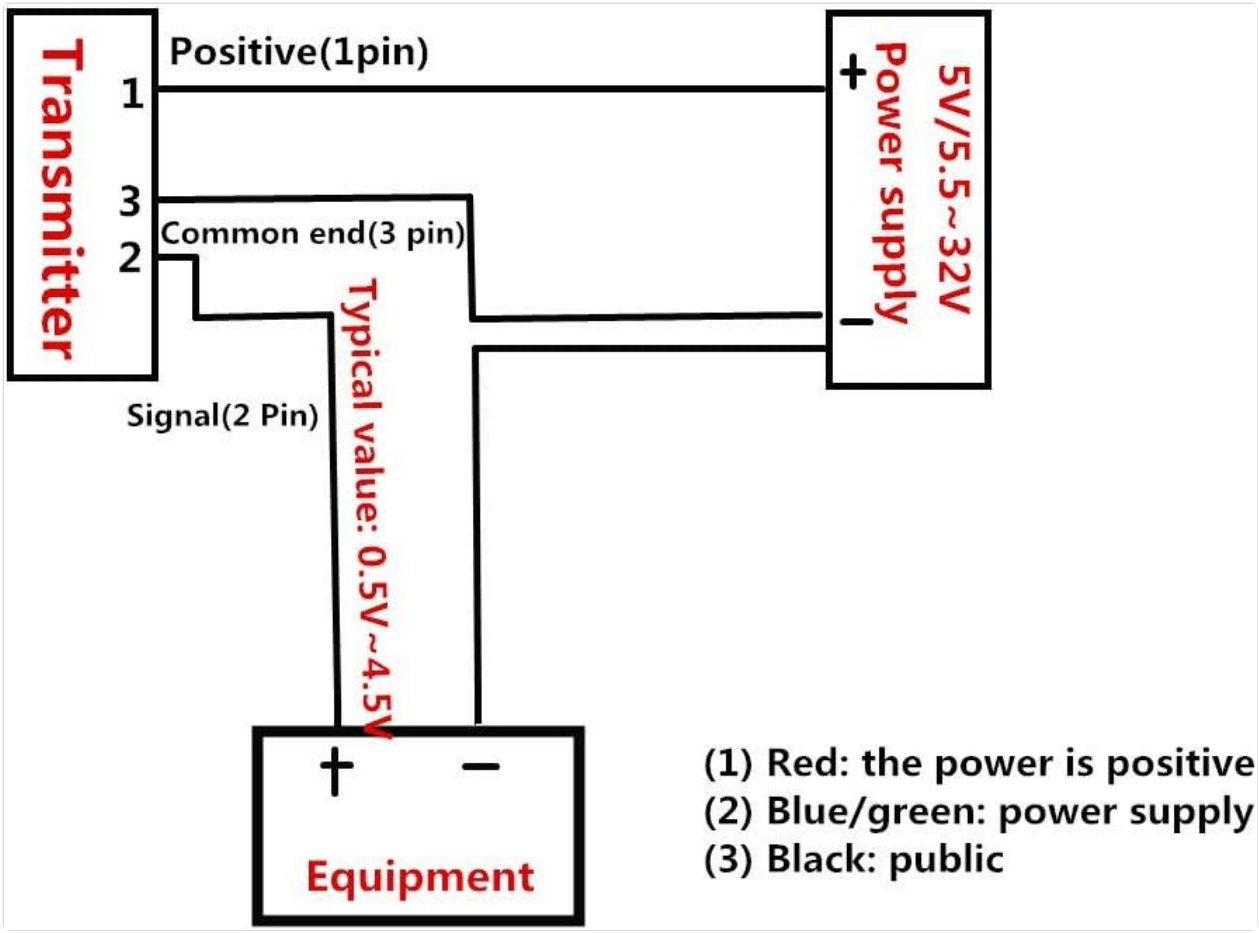

Figure 3: Electrical wiring diagram for the pressure sensor.

Important: Ensure the power supply voltage is within the specified range to prevent damage to the sensor. Incorrect wiring can lead to malfunction or permanent damage.

5. Operating Instructions

5.1 Powering On

Once physically and electrically connected, apply power to the sensor. The sensor will immediately begin measuring pressure and outputting an analog signal.

5.2 Reading the Analog Signal

The sensor provides an analog voltage output that corresponds to the measured pressure. For the 0-5 BAR model, the typical output range is 0.5V to 4.5V. You will need a suitable analog-to-digital converter (ADC) or control system (e.g., PLC, microcontroller) to interpret this voltage into a pressure reading.

Example Conversion (for 0-5 BAR, 0.5V-4.5V output):

- 0.5V typically corresponds to 0 BAR.

- 4.5V typically corresponds to 5 BAR.

The pressure (P) can be calculated from the measured voltage (V_out) using a linear interpolation formula:

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P = ((V_out - V_min) / (V_max - V_min)) * (P_max - P_min) + P_min
```

Where:

- V_out = Measured output voltage
- V_min = Minimum output voltage (e.g., 0.5V)
- V_max = Maximum output voltage (e.g., 4.5V)
- P_min = Minimum pressure (e.g., 0 BAR)
- P_max = Maximum pressure (e.g., 5 BAR)

5.3 Environmental Considerations

Ensure the operating environment is within the sensor's specified temperature and humidity ranges. While the sensor has IP65 protection, avoid prolonged exposure to harsh chemicals or extreme physical impact.

6. Maintenance

The Walfront pressure sensor is designed for low maintenance. However, periodic checks can help ensure its longevity and accuracy.

- **Cleaning:** If the sensor's exterior becomes dirty, wipe it with a soft, damp cloth. Do not use abrasive cleaners or solvents that could damage the stainless steel or sealing materials. Ensure the pressure port is clear of debris.
- **Connection Check:** Periodically inspect the physical and electrical connections for any signs of corrosion, loosening, or damage. Tighten connections as needed.
- **Calibration Check:** For critical applications, periodically verify the sensor's readings against a known, calibrated pressure source. If significant drift is observed, consider recalibration or replacement.
- **Storage:** If the sensor is to be stored for an extended period, ensure it is clean, dry, and protected from extreme temperatures and physical shock.

7. Troubleshooting

7.1 No Output or Incorrect Readings

- **Check Power Supply:** Verify that the sensor is receiving the correct input voltage (5 ± 0.25 VDC or 5~32 VDC) and that the polarity is correct.
- **Wiring:** Double-check all electrical connections against the wiring diagram (Figure 3). Ensure no wires are loose, shorted, or incorrectly connected.
- **Pressure Application:** Confirm that pressure is actually being applied to the sensor and that the pressure is within the 0-5 BAR measuring range.
- **Measurement Equipment:** Ensure your receiving equipment (ADC, PLC) is correctly configured to read the analog voltage signal (0.5V-4.5V) and that its input impedance is suitable.
- **Physical Blockage:** Inspect the pressure port for any blockages or debris that might prevent accurate pressure transmission.

7.2 Leaks at Connection Point

- **Tightness:** Ensure the G3/8 screw connection is adequately tightened.
- **Sealing:** Verify that appropriate sealing tape (e.g., PTFE tape) or thread sealant was used during installation and that it is applied correctly.
- **Damage:** Inspect the threads on both the sensor and the mating port for any damage that could prevent a proper seal.

7.3 Sensor Not Responding

- **Environmental Extremes:** Check if the sensor has been exposed to temperatures or pressures outside its specified operating limits, which could cause permanent damage.
- **Physical Damage:** Inspect for any visible physical damage to the sensor casing or cable.

8. Warranty and Support

8.1 Return Policy

This product is typically covered by a 30-day return policy for refunds or replacements, subject to the terms and conditions of your purchase. Please refer to your purchase documentation for specific details.

8.2 Customer Support

For further assistance, technical inquiries, or support regarding your Walfront pressure sensor, please contact Walfront customer service through the retailer where the product was purchased. Walfront is committed to providing quality goods and services.