Wind Differential Pressure Transmitter

I. Product Definition

The Anhui Qidian QDF70B Air Pressure / Differential Pressure Transmitter is an industrial-grade sensor specifically designed for measuring slight differential pressures in air and other gases. air pressure. Featuring an aluminum alloy housing and an integrated high-precision sensing unit, it converts gas pressure differential signals into standard industrial electrical signals (such as 4-20mA, RS485, etc.) for output. It supports various configurations, including versions without a display, with LED numeric displays, LCD displays, and explosion-proof models, to meet the monitoring and control needs of different industrial scenarios.

Core Features:

1. Precise Differential Pressure / Air Pressure Measurement: Supports gas differential pressure measurement across a wide range of scales, from ultra-low ranges such as ±50 Pa and 0–100 Pa to high ranges such as ±10 kPa and 0–100 kPa. It can measure as low as ±25 Pa with an accuracy of up to 0.2% F.S., making it suitable for air pressure and differential pressure monitoring in applications such as HVAC systems, fan ducts, and boiler furnaces.

2. Multiple Versions for Different Applications:
No-Display Model: Pure signal output, suitable for centralized data acquisition by PLC/DCS systems, ideal for enclosed spaces or cabinet installations where on-site readings are not required.
LED Display Model: Features a high-brightness red LED display, enabling real-time on-site reading of values, suitable for well-lit industrial environments.
LCD Display Model: Features a green backlit LCD screen for readability in low-light conditions; select models support local parameter configuration, meeting on-site commissioning needs in complex operating conditions.
Explosion-Proof Model: Complies with intrinsically safe explosion-proof standards (e.g., Exia II CT5), suitable for environments with flammable and explosive gases such as chemical plants and coal mines; certified for safe use in hazardous areas.

3. Standard Industrial Signal Output: Supports various output formats, including 4-20mA analog current signals and RS485 digital signals, compatible with the vast majority of industrial control systems, enabling long-distance signal transmission and integrated equipment control.

4. Wide Power Supply Range and Strong Environmental Adaptability: Features a wide-range DC 12–36 V power supply (typically DC 24 V) and supports operation in a wide temperature range of -20°C to +85°C. With an IP65 protection rating, it offers dustproof, waterproof, vibration-resistant, and electromagnetic interference (EMI) resistant capabilities, making it suitable for complex industrial environments.

5. Flexible Installation and Commissioning: Equipped with dual ports (high-pressure port H and low-pressure port L), it features M10×1.5 tower-style hose connectors for quick hose connections. Models with displays support local parameter settings (such as zero calibration and span correction), allowing commissioning to be completed without disassembling the unit, thereby reducing maintenance costs.

II. Working Principle

The operating process of the QDF70B air pressure differential transmitter can be broken down into three steps: “pressure acquisition → signal conversion → signal output.” It is based on the piezoresistive/capacitive sensing principle and differential pressure measurement mechanisms. A simplified explanation is provided below:

1. Pressure Acquisition: The transmitter’s two ports (High-Pressure Port H and Low-Pressure Port L) are connected to two pressure points of the measured gas (e.g., static and dynamic pressure in an air duct, or the positive and negative pressure zones in a furnace chamber). The gas pressures at the high- and low-pressure ports are transmitted via flexible pressure-conducting tubing to both sides of the internal sensing unit.

2. Signal Conversion Stage: The internal core MEMS (Micro-Electro-Mechanical Systems) sensing diaphragm undergoes minute deformation (displacement) due to the pressure difference across its two sides. This deformation alters the integrated resistance (piezoelectric) or the distance between electrodes (capacitive), thereby generating a weak electrical signal proportional to the pressure difference; The circuit module amplifies, filters, temperature-compensates, and linearly corrects this weak signal to eliminate the effects of environmental temperature, electromagnetic interference, and other factors, ensuring signal accuracy.

3. Signal Output Stage: The processed signal is converted into a standard industrial signal (such as a 4–20 mA current signal, corresponding to 0–100% of the differential pressure range; or an RS485 digital signal, directly outputting the pressure value) and transmitted to a PLC, DCS, or field instrument. Models equipped with a display feature an LED/LCD module that simultaneously displays the pressure value directly on the panel for easy reading by on-site personnel.

4. Additional Notes: In air pressure measurement, the transmitter indirectly calculates air velocity by measuring the difference between dynamic and static pressure within the duct (based on Bernoulli’s equation, where dynamic pressure is proportional to the square of air velocity). Consequently, it is widely used for monitoring air velocity and airflow in HVAC systems.

III. Core Value and Pain Point Solutions

1. Customer Pain Point: Low accuracy and high error rates in micro-differential pressure measurement, leading to system control failure
Q: Why can’t traditional air pressure measurement devices (such as standard pressure gauges and simple sensors) meet the micro-differential pressure measurement requirements of industrial applications?
A: Traditional devices typically use mechanical pointers or low-precision sensing units, resulting in significant measurement errors for micro-differential pressures within ±100 Pa. They are also susceptible to temperature and vibration, causing measurement data drift; In contrast, the QDF70B employs a high-precision MEMS sensing unit with an accuracy of up to 0.2% F.S. It features a built-in temperature compensation circuit that ensures stable output in environments ranging from -20°C to +85°C. This resolves the pain points of inaccurate micro-differential pressure measurement and data drift, ensuring precise control of fan and HVAC systems.

2. Customer Pain Points: Inconvenient on-site commissioning/reading, high maintenance costs
Q: How does a transmitter without a display address the issues of being unable to read values directly on-site and relying on a host computer for commissioning?
A: The QDF70B offers LED/LCD display models that support real-time on-site value reading. The LCD model also supports local button settings for zero point and range parameters, allowing commissioning to be completed without relying on a PLC/DCS; Meanwhile, the non-display model supports retrofitting with a display module to accommodate commissioning needs in various scenarios, reducing on-site maintenance time and labor costs.

3. Customer Pain Points: Conventional transmitters cannot be used in flammable and explosive environments, posing safety hazards
Q: Why can’t conventional transmitters be used in environments with flammable and explosive gases, such as chemical plants and coal mines? How does the QDF70B explosion-proof model address these safety concerns?
A: Conventional transmitters lack explosion-proof certification; sparks generated by internal circuits could ignite flammable and explosive gases, posing safety risks. The QDF70B explosion-proof model complies with intrinsically safe explosion-proof standards (e.g., Exia II CT5). It features an explosion-proof housing and intrinsically safe circuit design that limits circuit energy to prevent spark generation. With explosion-proof certification, it can be safely used in hazardous areas, addressing measurement safety concerns in flammable and explosive environments.

4. Customer Pain Points: Signal Transmission is Prone to Interference, and Data Distortion Occurs During Long-Distance Transmission
Q: In industrial environments with strong electromagnetic interference, transmitter signal transmission is prone to data distortion and fluctuations.

How can this be resolved?
A: The QDF70B features a built-in electromagnetic interference (EMI) suppression circuit and an aluminum alloy shielded housing. Its 4–20 mA current signal offers strong interference resistance, enabling stable transmission over distances of hundreds of meters. The RS485 digital signal version supports the Modbus protocol, providing even longer transmission distances and higher data stability, thereby addressing the common challenges of signal interference and data distortion in industrial environments.

5. Customer Pain Points: Difficult installation, incompatible interfaces, and poor adaptability
Q: What should be done if the pressure tubing specifications vary across different scenarios and the transmitter interfaces do not match? How can the device be adapted when installation space is limited?
A: The QDF70B uses a universal M10×1.5 tower-style tubing connector compatible with common 6mm/8mm pressure tubing, allowing for simple plug-and-play installation; The transmitter is compact (dimensions approx. 60×103×27mm) and supports wall-mounted or DIN-rail installation, making it suitable for confined spaces such as cabinets and duct sidewalls. This resolves the pain points of poor installation adaptability and space constraints.

6. Customer Pain Point: Different measurement requirements across multiple scenarios necessitate the purchase of various devices, resulting in high costs
Q: Within the same project, some scenarios require on-site readings while others require explosion-proof solutions. How can we avoid the cost waste associated with purchasing multiple devices?
A: The QDF70B supports modular configuration. A single model can be adapted to different scenarios by selecting options such as no display, LED or LCD display, standard or explosion-proof versions, and different output signals (4-20mA or RS485). There is no need to change the base model; diverse requirements can be met simply by adjusting the configuration. This reduces procurement and inventory costs while minimizing the variety of spare parts required for future maintenance.

IV. Key Product Parameters & Specifications
4.1 Basic Electrical Parameters
General Parameters
Measured Medium: Dry, non-corrosive gases (air, nitrogen, inert gases, etc.); customizable versions for mildly corrosive gases are available
Measurement Range: Customizable; standard specifications are as follows:
Low Differential Pressure Range: ±25 Pa, ±50 Pa, ±100 Pa, ±500 Pa, ±1000 Pa
Positive Pressure Range: 0–100 Pa, 0–500 Pa, 0–1 kPa, 0–5 kPa, 0–10 kPa, 0–100 kPa
Negative Pressure / Bidirectional Range: -1 kPa to +1 kPa, -10 kPa to +10 kPa
Measurement Accuracy: Standard model: 0.5% F.S.; High-precision model (optional): 0.2% F.S.; Temperature drift: ≤±0.03% F.S./°C
Non-linearity: ≤±0.2% F.S. (0.2% accuracy model) / ≤±0.5% F.S. (0.5% accuracy model)
Repeatability: ≤±0.1% F.S.
Hysteresis: ≤±0.1% F.S.
Response time: ≤10 ms
Overload Capacity: 300% F.S. (sustained without damage or impact on accuracy)
Output Signals:
Analog: 4–20 mA (2-wire), 0–10 V/0–5 V/1–5 V (3-wire)
Digital: RS485 (Modbus-RTU protocol, standard on models with display)
Load Capacity:
4-20mA: ≤500Ω (when powered by 24V DC)
Voltage Output: ≥10kΩ (input impedance)
RS485: Standard Modbus, supports multi-device networking
Insulation Resistance: Between power supply and housing ≥100MΩ @ 500V DC; between signal and housing ≥100MΩ @ 500V DC
Parameter Differences by Version
Table
Version Type Additional Electrical Characteristics
Non-Display Version No additional display circuitry; faster signal output response; no additional power consumption
LED Display Version Display module drive current ≤20mA; high-brightness red LED display; supports direct on-site reading
LCD Model Backlight module drive current ≤30 mA; green backlight; supports local parameter settings (zero point / range / address)
Explosion-Proof Model Intrinsically safe circuit design; limited circuit energy; no risk of electric sparks; compatible with intrinsically safe safety barriers

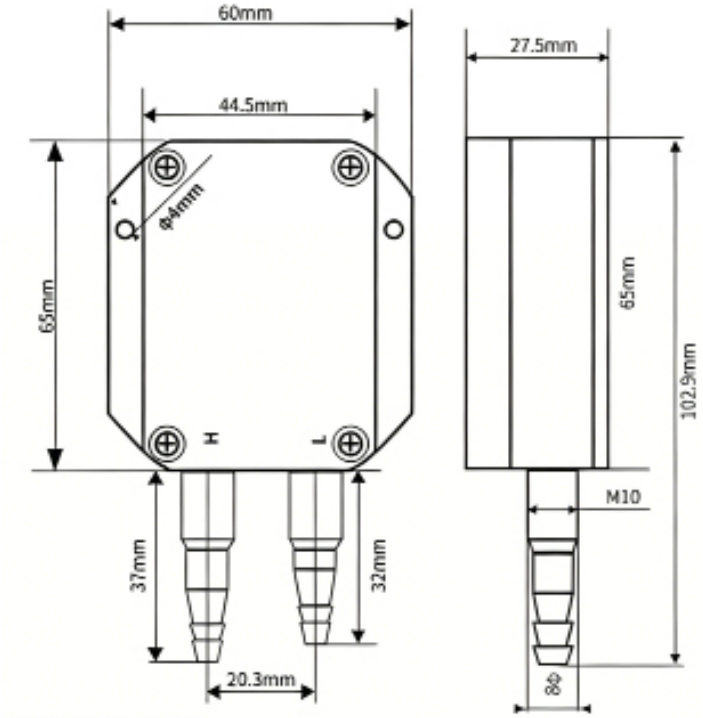
4.2 Isolation Performance Parameters
Input / Output / Power Supply Isolation Method:
Standard Model: Power supply and signal share a common ground; no electrical isolation (suitable for general industrial applications)
Isolated Model (Optional; Standard on Explosion-Proof Models): Three-point electrical isolation (power supply – input – output), isolation voltage ≥1500 V AC/1 min, insulation resistance ≥1000 MΩ, electromagnetic interference (EMI) resistance compliant with industrial EMC standards
Interference Resistance:
EMI/RFI Resistance: CE/EMC certified; resistant to power frequency interference and electromagnetic radiation interference
Surge Protection: ±1 kV/1.2×50 μs (line-to-line), ±2 kV/1.2×50 μs (line-to-ground), with TVS transient suppression circuit
Signal Interference Suppression Measures: Aluminum alloy shielded housing + grounding terminal, effectively suppressing the impact of on-site electromagnetic interference on signals

4.3, Power Supply & Power Consumption Parameters
Supply Voltage:
Standard Supply: DC24V (±20% fluctuation, i.e., DC19.2V–28.8V)
Wide-Voltage Power Supply: DC 12V–36V (Universal across the entire series, suitable for various industrial power distribution scenarios)
Power Consumption Parameters (DC 24V power supply, full load):
Model without display: ≤1W (Standby power consumption ≤0.8W)
Model with LED display: ≤1.2W (Includes power consumption of the LED display)
LCD model: ≤1.5W (Includes power consumption of the backlight and keypad circuitry)
Explosion-proof model: ≤1W (Intrinsically safe circuit design with low power consumption; no additional load)
Power Distribution Output: No additional power distribution output; this is a passive signal output device requiring only a single DC power supply (the two-wire 4–20mA model can be powered via the signal loop)

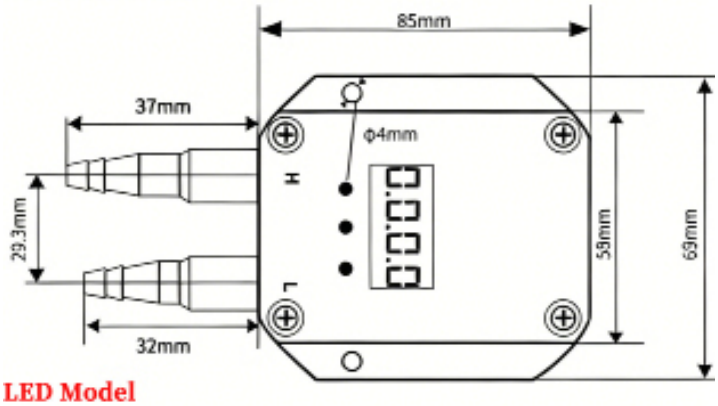
4.4 Environmental Adaptation Parameters
General Environmental Parameters
Operating Temperature: -20°C to +85°C (Standard Model); -40°C to +125°C (High-Temperature Custom Model)
Compensation Temperature: 0°C to +50°C (Temperature compensation range, ensuring accuracy)
Storage Temperature: -40°C to +100°C
Operating Humidity: ≤95% RH (non-condensing)
Protection Rating: IP65 (aluminum alloy housing + sealing ring design, dustproof and splash-proof, suitable for outdoor/humid environments)
Vibration/Shock Protection: 10–2000 Hz, 5g (GB/T 13823 standard), high resistance to vibration and shock
Explosion-Proof Model Specific Parameters
Explosion-Proof Rating: Intrinsically Safe Ex ia II C T5 Ga (optional Ex ib II B T4), compliant with GB3836.1/4 standard
Compatible Safety Barrier Models: Compatible with isolated explosion-proof safety barriers (e.g., QDY70B-VD series), suitable for use in intrinsically safe circuits
Explosion-proof certification: Optional third-party explosion-proof certification (e.g., CNEX certification), suitable for environments with flammable and explosive gases such as coal mines and chemical plants
Safety barrier parameter requirements:
Safety barrier output voltage ≤ 28 V DC, output current ≤ 100 mA
The safety barrier must meet intrinsic safety circuit certification requirements to ensure that the energy of field devices is limited to a safe range

4.5. Physical Specifications
General Physical Specifications
Mounting Type: Wall-mounted
Dimensions (Basic Model, without display / LED Model):
Main Unit Dimensions: Length 103 mm × Width 60 mm × Height 27 mm (approx. 40 mm including connector height)

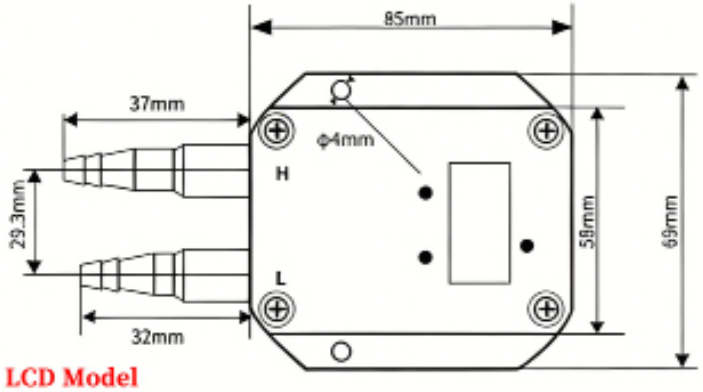
Pressure-conducting connector: M10×1.5 tower-style hose connector, compatible with 6mm/8mm inner diameter pressure-conducting hoses
Mounting holes: 2 M4 mounting holes, hole spacing 52mm×40mm (compatible with wall-mount and rail brackets)
Dimensions of the LCD Model: Due to the LCD display panel, the main body height increases to 33mm; other dimensions are slightly larger than the base model.
Housing Material and Protection Details:
Housing Material: Aluminum alloy extrusion, brushed anodized finish, corrosion-resistant and scratch-resistant
Protection Details: Housing sealed with O-rings; cable ports feature waterproof caps; pressure-conducting connector includes a dust-proof cap; IP65 protection rating
Weight: Approx. 150g (Base Model); Approx. 180g (LCD Model); Approx. 200g (Explosion-Proof Model; features a reinforced explosion-proof housing)
Product Dimensions:



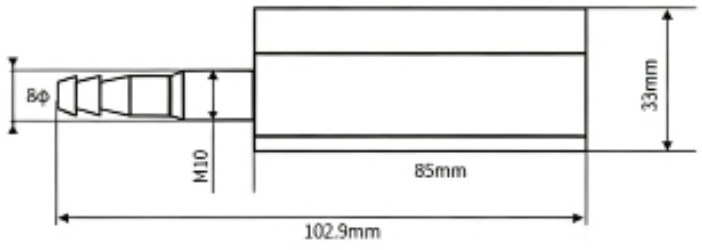
Standard Model

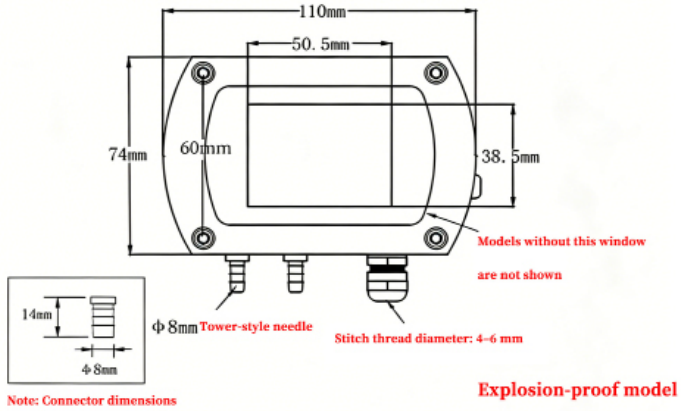


LED Model

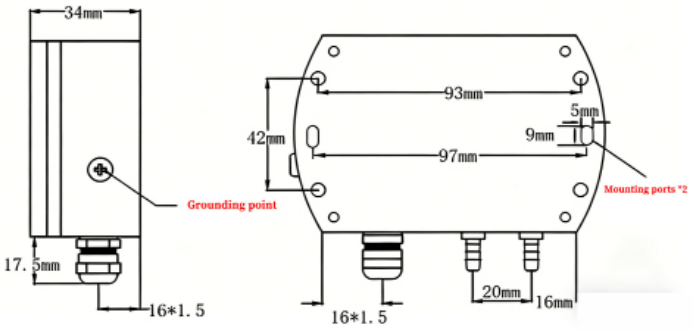


LCD Model





Explosion-proof model



V. Application-Specific Selection Guide

5.1 Key Selection Criteria

1. Signal Type

First, confirm the signal protocol compatible with the control system: For general PLC/DCS applications, prioritize the 4–20 mA analog current signal model, which offers strong interference resistance and stable transmission; For scenarios requiring digital networking, remote debugging, or centralized management of multiple devices, prioritize models with RS485 (Modbus-RTU protocol) digital signals, which support address allocation and remote parameter modification.

For special signal requirements (such as 0–10 V voltage signals or HART protocol), corresponding output versions can be customized based on control system compatibility.

2. Channel Configuration

For standard differential pressure measurement scenarios (1 high-pressure channel + 1 low-pressure channel), select the standard 1-in-1-out (dual-input, single-differential-pressure-output) model, which meets the vast majority of air pressure/differential pressure measurement requirements.

For scenarios requiring simultaneous monitoring of two independent differential pressure signals, choose the dual-differential-pressure-channel custom model. A single device outputs two independent signals, reducing installation space requirements and cabling costs.

3. Power Supply

For standard industrial environments, prioritize the 24V DC model, which is compatible with most industrial power distribution systems and supports a wide input voltage range of 12–36V DC to accommodate on-site voltage fluctuations.

For low-power scenarios (such as battery-powered monitoring devices), prioritize the low-power custom model, which has a static power consumption of ≤0.5W to extend the battery life of the power supply.

4. Explosion-Proof Requirements

For ordinary non-flammable and non-explosive environments, select the standard model, which does not require explosion-proof certification and

offers better value for money.
In environments with flammable and explosive gases or dust—such as chemical plants, coal mines, and paint shops—the intrinsically safe explosion-proof model must be selected. Verify the explosion-proof rating (e.g., Ex ia II C T5 Ga) and use it in conjunction with a certified intrinsically safe safety barrier.

5. Installation Environment
For installation in indoor cabinets or on the side walls of air ducts, the standard wall-mounted model is sufficient; its IP65 protection rating meets general dust and water resistance requirements.
For outdoor environments with high humidity, heavy dust, or strong electromagnetic interference, prioritize the custom IP67-rated model, paired with an aluminum alloy shielded housing and grounding terminals to enhance interference resistance.
For installation in confined spaces (such as inside ducts or equipment cabinets), prioritize the model without a display to reduce the device's footprint and ensure a compact fit.

6. Installation Space.
On-site Reading and Debugging Requirements
For scenarios where on-site readings are unnecessary and data is collected centrally via PLC, select the model without a display to reduce costs and minimize additional power consumption.
For scenarios requiring direct on-site reading of values and local parameter debugging, select the LED numeric display or LCD model; in low-light environments, prioritize the backlit LCD model to ensure clear readability.

7. Measurement Range and Accuracy Requirements
For standard applications such as HVAC and fan ducting, the 0.5% F.S. accuracy model is sufficient to meet requirements.
For high-precision control applications (e.g., laboratories, precision ventilation systems), prioritize the 0.2% F.S. high-precision model, which features a built-in temperature compensation circuit to minimize errors caused by ambient temperature drift.

5.2. Recommended Models for Industry Applications
1. Chemical Industry
Flammable and explosive gas/dust environments (e.g., chemical reactors, conveying pipelines): We recommend explosion-proof models (Ex ia II C T5 Ga) with RS485 digital signals and LCD displays, paired with intrinsically safe barriers, to enable safety monitoring in hazardous areas while supporting both on-site readings and remote data transmission.
Ventilation system monitoring in non-explosive zones: We recommend the general-purpose LCD display model with a 4–20 mA signal, compatible with PLC systems, to monitor duct air pressure and furnace differential pressure, enabling coordinated fan control.

2. Power Industry
Power plant boiler, induced draft fan, and furnace negative pressure monitoring: We highly recommend the general-purpose high-precision model (0.2% F.S.) with a 4-20mA signal. For scenarios requiring on-site commissioning, the LED display model is an option. These models are compatible with power system DCS control requirements, ensuring stable furnace negative pressure and preventing air leakage and flashback risks.
Dust Removal System Air Pressure Monitoring in Power Plants: We recommend IP67-rated custom models with a 4-20mA signal, suitable for dusty and humid on-site environments. These models reliably monitor the differential pressure at the inlet and outlet of dust collectors to detect filter bag blockages.

3. Metallurgy Industry
Differential Pressure Monitoring for Blast Furnaces and Hot Blast Stoves: We prioritize recommending a wide-temperature custom model (-40°C to +125°C) with an RS485 signal. This model is designed for high-temperature, high-vibration metallurgical environments and supports data upload to industrial IoT platforms for remote monitoring.
Workshop Ventilation and Dust Collection Systems: We recommend a standard model without a display and a 4-20mA signal. Installed on the sidewall of the air duct, it reliably monitors changes in air pressure, automatically controls the start/stop of dust collection fans, and optimizes dust collection efficiency.

4. Pharmaceutical Industry
Pressure differential monitoring in cleanrooms and biopharmaceutical production areas (e.g., sterile rooms, negative-pressure wards): We highly recommend the high-precision LCD display model with a 4-20mA signal, which supports real-time on-site reading of pressure differential data to ensure stable positive/negative pressure in cleanrooms and meet GMP certification requirements for environmental control.
Monitoring of pipeline gas delivery systems: We recommend IP65-rated models with RS485 signals, suitable for the humid and clean environments of pharmaceutical production areas. These models eliminate the risk of dust contamination and provide stable monitoring of gas delivery differential pressure.

5. Smart Manufacturing Industry
Monitoring of ventilation and dust removal systems in automated production lines: We prioritize models with universal LED displays and 4-20mA signals, which integrate with automated control systems to coordinate fan adjustments and achieve automatic control of air pressure in the production line environment.
Ventilation systems for smart warehousing and logistics equipment: Recommended: Non-display model + RS485 signal, integrated with warehouse management systems to enable centralized collection of air pressure data and anomaly alarms.

6. HVAC Industry
Duct air pressure/air velocity monitoring for central air conditioning and fresh air systems: We primarily recommend the standard basic model (without display / LED model) with a 4-20mA signal, compatible with HVAC control systems, to coordinate fan operation and adjust airflow, thereby achieving energy-saving control.
Ventilation systems in large shopping malls and office buildings: We recommend the LCD display model with an RS485 signal, supporting multi-device networking to centrally monitor differential pressure in ducts across all floors and optimize the operational efficiency of the ventilation system.

5.3 Common Selection Pitfalls
Pitfall 1: Ignoring the isolation level and directly selecting a non-isolated, general-purpose model
Risk: In industrial environments with strong electromagnetic interference (such as near motors or variable frequency drives), non-isolated transmitters are susceptible to interference, leading to signal fluctuations, data distortion, or even equipment damage.
Correct Approach: In high-interference environments such as those near motors or inverters, models with three-terminal electrical isolation (isolation voltage ≥ 1500 V AC) must be selected to enhance interference resistance.

Misconception 2: Selecting the wrong signal range—either too wide or too narrow
Risk: If the range is too wide, the proportion of the low-differential pressure signal is too small, compromising accuracy; if the range is too narrow, over-range conditions may occur, damaging equipment and failing to accommodate operational fluctuations.
Correct Approach: Based on the maximum differential pressure value under actual operating conditions, select a range specification with a margin of 1.2 to 1.5 times the maximum value to balance accuracy and overload capacity. For example, if the maximum differential pressure is 800 Pa, prioritize a 0–1000 Pa range model.

Misconception 3: Neglecting load matching, leading to abnormal signal transmission
Risk: When the load resistance of a 4–20 mA signal model exceeds 500 Ω, excessive signal voltage drop occurs, causing the output signal to fail to reach full scale and affecting data acquisition by the control system.
Correct Approach: Verify the transmitter's load capacity based on the PLC/DCS input impedance. For 4–20 mA models powered by 24 VDC, the load resistance must be ≤500 Ω; for voltage signal models, ensure the control system's input impedance is ≥10 kΩ.

Misconception 4: Selecting General-Purpose Models in Explosion-Proof Environments, Creating Safety Hazards
Risk: In flammable and explosive environments, general-purpose models lack explosion-proof certification. Electrical sparks generated by internal

internal circuits may ignite gases or dust, leading to safety incidents, and such models fail to meet safety regulations.
Correct Approach: In explosion-proof environments, intrinsically safe models must be selected. Verify that the explosion-proof rating matches the on-site environment, and use them in conjunction with intrinsically safe barriers that have the corresponding certification to ensure the intrinsically safe circuit complies with regulations.

Section 5: Overreliance on Local Displays, Neglecting Device Size and Cost
Risk: In confined spaces or scenarios where local readings are unnecessary, selecting a model with a display increases the device's size and cost. Additionally, the extra display circuitry increases power consumption and affects device stability.
Best Practice: Select the display version based on actual needs. In scenarios where local readings are unnecessary, prioritize models without displays to reduce costs and power consumption.

5.4 Customization Recommendations
1. Custom Signal Solutions
For scenarios where the control system is incompatible with 4-20mA/RS485 signals, we can customize voltage signals such as 0-10V, 0-5V, or 1-5V, or special digital signal output versions such as the HART protocol or Modbus-TCP to adapt to different industrial control systems.
Low-Power Customization: For battery-powered or solar-powered applications, low-power versions with static power consumption ≤0.5W can be customized. These support low-voltage power supplies (e.g., DC 5V/12V) to extend the battery life of the powering equipment.

2. Custom Solutions for Non-Standard Operating Conditions
Wide Temperature Range / High-Temperature Customization: For high-temperature environments such as metallurgy and power plants, we offer a wide-temperature operating version (-40°C to +125°C) featuring high-temperature-resistant sensor units and sealing materials to withstand extreme temperature conditions.
High Protection Rating Customization: For outdoor, humid, dusty, or highly corrosive environments, we offer IP67/IP68-rated versions featuring stainless steel housings and corrosion-resistant sealing materials to withstand harsh conditions.
Special Media Customization: For weakly corrosive gases (such as industrial exhaust containing trace amounts of acids or alkalis), we provide versions with corrosion-resistant sensor diaphragms to extend equipment lifespan.

3. Multi-Channel Integration Customization Solutions
Dual Differential Pressure Channel Customization: For scenarios requiring simultaneous monitoring of two independent differential pressure signals, dual-input, dual-output versions can be customized. A single device outputs two independent differential pressure signals, reducing installation space requirements and wiring costs.
Multi-Parameter Integration Customization: Air pressure differential transmitters can be integrated with temperature and humidity sensors to create customized, all-in-one transmitters that simultaneously output differential pressure, temperature, and humidity data, reducing the number of devices required and lowering wiring and maintenance costs.

4. Installation and Interface Customization Solutions
Non-Standard Interface Customization: For pressure-conducting hoses with special specifications, non-standard tower connectors (e.g., φ6mm, φ10mm) or threaded connectors can be customized to match on-site hose specifications.
Installation Method Customization: For scenarios without wall-mounting options, a 35mm DIN rail mounting bracket, or adapters for flange or pipe mounting, can be customized to accommodate various installation scenarios.

VI. Installation and Commissioning Guidelines
6.1. Pre-installation Preparation
1. Check Components (Unpacking Inspection)
Confirm that the main unit is undamaged, with no deformation of the housing or damage to the connectors; verify that the model, range (e.g., ±50 Pa/0–10 kPa), output signal type (4–20 mA/RS485), and version (no display / LED / LCD / explosion-proof) match the order.
Check the included accessories: pressure-transmitting hose (compatible with M10×1.5 tower-type connector), rail mounting bracket (if rail mounting is required), waterproof connector O-ring, mounting screws, product manual / certificate of conformity. For explosion-proof models, additionally verify the explosion-proof certification documents and the safety barrier compatibility list.
Inspect the cables: Ensure the insulation of power and signal cables is intact, with no damage or oxidation; Ensure the shielding layer of shielded cables is intact and that the cable length meets on-site wiring requirements.

2. Environmental Inspection
Confirm that the installation location is free of highly corrosive gases and flammable or explosive dust (except for explosion-proof models). Ensure the ambient temperature is within the equipment's operating range (-20°C to +85°C), with humidity ≤95% RH and no condensation.
Avoid sources of strong electromagnetic interference (such as variable frequency drives, motors, and high-voltage cables), and maintain a distance of ≥30 cm from high-voltage equipment; for outdoor installations, avoid locations exposed to direct sunlight or direct rain.
The installation path of the pressure tubing must be free of kinks and blockages, and must prevent water and dust accumulation; the high- and low-pressure ends must correspond correctly to the pressure measurement points, with no risk of reverse connection.

3. Tool List
Basic Tools: Phillips screwdriver, wire strippers, crimping pliers, multimeter (DC/current/voltage ranges), spirit level.
Wiring Tools: Electrical tape, heat-shrink tubing, cable ties; for explosion-proof models, additionally prepare explosion-proof sealant and explosion-proof junction boxes.
Auxiliary Tools: Electric drill (for wall-mounted installation), rail cutter (for 35mm rail installation), waterproof junction box (for use in humid environments).

4. Safety Precautions
Non-explosion-proof models must not be installed or used in flammable or explosive environments. Explosion-proof models must be wired only after power has been disconnected; opening the cover while the unit is energized is strictly prohibited.
Before wiring, ensure the power supply at the site is completely disconnected to avoid the risk of short circuits or electric shock caused by live operations.
When installing pressure tubes, do not probe the sensor interface with sharp tools to prevent damage to the internal sensor diaphragm.
Explosion-proof models must be used in conjunction with intrinsically safe barriers; direct connection to non-explosion-proof circuits is strictly prohibited. Installation must comply with the GB3836 explosion-proof installation standards.

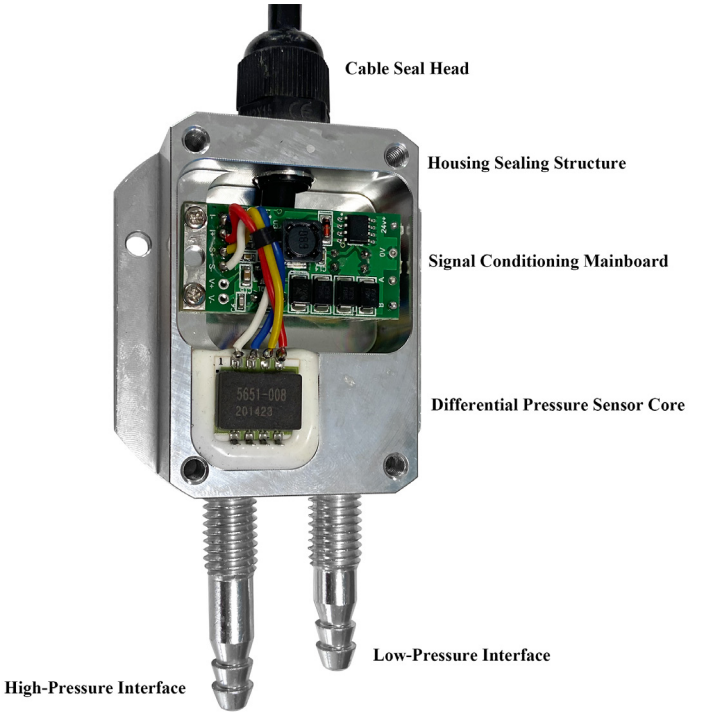
6.2 Standard Installation Procedure
1. Installation Method Selection and Mounting
Method 1: Wall-mounted Installation (Suitable for duct sidewalls and walls)
Based on the device's mounting hole dimensions (52×40 mm for models without a display; 58×42 mm for models with a display), mark the drilling positions on the mounting surface.
Drill holes using an electric drill and install expansion anchors. Secure the transmitter to the wall or duct sidewall with screws, ensuring the device housing is firmly flush with the mounting surface and does not wobble.
Adjust the device angle so that the pressure tubing port faces downward or remains horizontal to prevent water and dust accumulation caused by an upward-facing port.

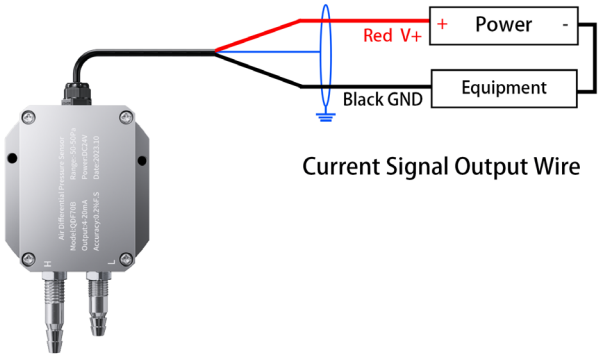
2. Wiring Specifications (Distinction Between Power, Input, and Output Terminals)
General Wiring Principles
All wiring must be performed with the power disconnected; power should only be applied for testing after wiring is complete.
Strip the wire insulation to a length of 5–8 mm to prevent short circuits caused by excessive bare wire; use cold-pressed terminals for multi-strand wires to prevent loose connections and oxidation.
For shielded cables, ground the shield at a single point—only on the control cabinet side. Leave the shield floating on the transmitter side to

prevent ground loops from interfering with the signal.
Wiring Instructions by Model
Model without Display (4-20mA Two-Wire System)
Terminal Definitions: V+ (Power +), OUT (Signal +, shared with power), GND (Power -/Signal -).
Wiring Method: Connect the positive terminal of the 24 VDC power supply to V+, and the negative terminal to GND; connect the positive terminal of the 4-20 mA signal input from the PLC/DCS to OUT, and the negative terminal to GND (two-wire loop-powered configuration, where the signal and power share the same loop).
LED/LCD Display Model (4-20 mA/RS485 Universal)
Terminal Definitions: V+ (DC24V+), V- (DC24V-), 485+ (RS485A), 485- (RS485B), OUT+ (4-20mA+), OUT- (4-20mA-), GND (Ground Terminal).
4-20mA Wiring: Connect power supply to V+/V-, connect the positive terminal of the PLC input to OUT+, and the negative terminal to OUT-.
RS485 Wiring: Connect power supply to V+/V-, connect the PLC or host computer's RS485A to 485+, and RS485B to 485-. A 120Ω terminating resistor must be connected to the end device on the bus.
Explosion-Proof Version (Intrinsically Safe Circuit)
Must be connected to an intrinsically safe barrier circuit; power must be supplied via the barrier output. Direct connection to non-explosion-proof power sources is strictly prohibited.
Terminal definitions are the same as for the standard version, but explosion-proof cables and junction boxes must be used. The junction box must be filled with explosion-proof sealing compound to ensure circuit sealing.

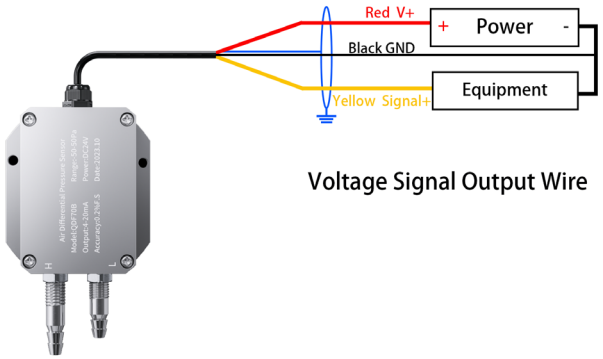
3. Grounding Requirements
The grounding terminal on the transmitter housing must be reliably grounded, with a grounding resistance ≤4Ω. Use a yellow-green grounding wire with a cross-sectional area of ≥1.5mm² and connect it to the field grounding busbar.
The shield of the shielded cable must be grounded at only one end (on the control cabinet side). On the transmitter side, wrap the shield with insulating tape and leave it floating to prevent ground loops caused by grounding at both ends.
For explosion-proof models, the grounding terminal must be connected to a dedicated explosion-proof grounding busbar to ensure compliance with intrinsic safety circuit grounding requirements.

6.3. Wiring Diagram Notes

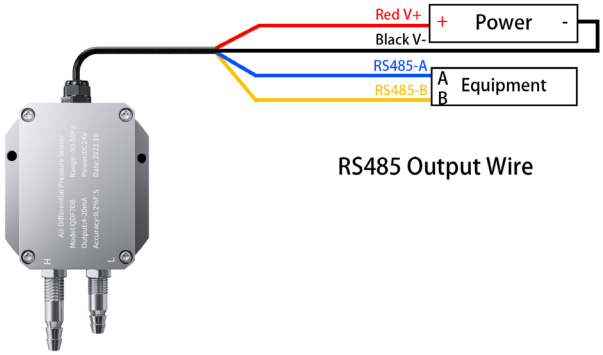




Current Signal Output Wire



Voltage Signal Output Wire



RS485 Output Wire

1. Comparison of Common Wiring Practices: Correct vs. Incorrect
☒ Correct: A two-wire 4–20 mA loop with no additional parallel loads; the shield is grounded at one end; explosion-proof models are equipped with safety barriers.
☒ Incorrect: Additional parallel resistors in a two-wire loop cause signal distortion; the shield is grounded at both ends, creating a ground loop; the explosion-proof model is directly connected to a 220V power supply or a non-explosion-proof circuit.

6.4 Power-On and Commissioning Procedure
1. No-Load Test (After Wiring Is Complete)
Before powering on, use a multimeter to measure the power terminals to confirm the input voltage is DC 24V ±20% and that there are no short circuits or reverse connections.
After powering on, observe the indicator lights: For models without a display, the power light remains on; for LED/LCD models, the power light illuminates and displays the initial value (0 or the current ambient differential pressure); For explosion-proof models, the power indicator remains on without abnormal flashing.
Use a multimeter to measure the 4–20 mA output terminals. Under no-load conditions (no differential pressure), the output should be 4 mA (corresponding to 0% of full scale). If the deviation exceeds ±0.1 mA, check the wiring and power supply.

2. Signal Calibration
Zero Point Calibration: Connect both the high and low pressure ports of the transmitter to atmospheric pressure (no differential pressure). The signal read by the PLC/DCS should be 4 mA (or the value corresponding to 0% of full scale). If the deviation exceeds the tolerance, the zero point can be set using the buttons on the display model, or calibrated remotely

via a host computer (for the RS485 model).
Full-scale calibration: Apply full-scale differential pressure to the transmitter (e.g., apply 1000 Pa differential pressure to a 0–1000 Pa range model). The measured output signal should be 20 mA. If the deviation exceeds the tolerance, adjust the range correction parameters to ensure signal linearity.
Linearity Test: Apply differential pressures of 25%, 50%, and 75% of the full-scale range, respectively. The corresponding outputs should be 8 mA, 12 mA, and 16 mA, with a deviation of ≤±0.5% F.S.

3. Indicator Light Status Assessment
Normal Status: The power indicator light is on, and the ALM light is off; for LED/LCD models, the displayed value is stable with no fluctuations.
Abnormal Status:
Power indicator is off: Check power connections, supply voltage, and ensure terminals are securely connected.
ALM indicator is flashing: Signal is out of range (differential pressure exceeds the device's upper limit) or sensor unit failure. Check if the pressure tubing is blocked and if the range setting is correct.
Value fluctuation/jitter: Check if the shielding wire is properly grounded, if the device is near a strong interference source, and if the power supply has excessive ripple.

4. Accuracy Calibration Methods
Local Calibration (Models with Display): Enter the device settings menu, select "Zero Calibration," and save the zero point with no differential pressure applied; apply a known standard differential pressure (e.g., full scale), select "Span Calibration," save the corresponding value, and complete the linear correction.
Remote Calibration (RS485 Models): Write zero point and span correction values via the Modbus protocol, or perform remote calibration using host computer software; no disassembly is required.
Calibration of Explosion-Proof Models: Calibration must be completed in a non-hazardous area before installation in an explosion-proof environment; opening the cover for calibration in an explosion-proof area is strictly prohibited.

6.5 Installation Precautions
1. Never exceed the rated supply voltage or reverse the polarity of the power supply.
A supply voltage exceeding 36 V DC will burn out the device's circuitry, and reversing the positive and negative terminals will directly damage the transmitter. Before powering on, verify the voltage and polarity with a multimeter.

2. Avoid High-Voltage Interference and Close-Proximity Wiring
Transmitter signal cables must not be routed in the same conduit as 220V/380V high-voltage cables. They must be run separately through metal conduit, maintaining a distance of ≥30 cm from high-voltage cables to prevent signal distortion caused by electromagnetic interference.

3. Unprotected Installation in Damp or Outdoor Environments
In outdoor or damp environments, failure to use waterproof junction boxes or waterproof connectors, or installing pressure tubing with the connection facing upward, can allow rainwater or condensation to enter the device, damaging the circuitry and sensor unit. In such scenarios, IP67-rated models must be used, and connections must be installed facing downward.

4. Improper Installation in Explosion-Proof Environments
Failure to use intrinsic safety barriers with explosion-proof models, use of non-explosion-proof cables, unsealed junction boxes, or opening the cover for debugging while the device is energized violates explosion-proof regulations and poses safety hazards.

5. Improper Installation of Pressure Tubing
Kinks, blockages, or water accumulation in the pressure tubing, or incorrect connection of high- and low-pressure ends, can cause measurement errors and equipment damage due to overpressure; Pressure tubing must remain unobstructed and free of kinks, and the high- and low-pressure ends must correspond one-to-one with the measured pressure points.

6. Loose Equipment Installation / Excessive Leveling Deviation
The equipment is not securely fastened; prolonged vibration causes terminal connections to loosen and signals to become intermittent. Excessive tilt during installation results in uneven stress on the internal sensing diaphragm, affecting measurement accuracy.

VII. Recommendations for Daily Use & Maintenance
Applicable to the entire QDF70B series of air pressure/differential pressure transmitters: models without displays, models with LED displays, models with LCD displays, and explosion-proof models. These general specifications are designed to meet the requirements for long-term, stable operation in industrial environments. The text is presented as a list of specific items, making it highly practical.
7.1 Key Points for Daily Inspections
1. Visual inspection of the equipment: Conduct a daily visual inspection of the transmitter housing to ensure it is intact, with no cracks, deformation, rust, or signs of water ingress or condensation. Check that the sealing gaskets and waterproof cable connectors show no signs of aging or detachment, and that the pressure tower connectors and hoses are free from loosening, detachment, or cracking.

2. Operational status inspection: Verify that the power indicator light remains steady; ensure the ALM alarm indicator light does not flash abnormally or remain constantly lit. For models with LED or LCD displays, monitor real-time measurement values on-site to ensure no abnormal phenomena such as erratic fluctuations, sudden changes, or freezing at zero.

3. Signal Stability Monitoring: Periodically verify the differential pressure and air pressure data collected by the PLC, DCS, and host computer against the on-site instrument readings. Confirm that the 4–20 mA analog signals and RS485 communication signals remain consistently stable, with no disconnections, delays, value drift, or interference fluctuations.

4. Monitor ambient temperature and humidity: Continuously monitor the operating temperature and air humidity around the equipment to ensure they remain within the product's rated operating range. Pay special attention to and document conditions such as high-temperature exposure, low-temperature frost formation, and high-humidity condensation environments, and take proactive protective measures in advance.

5. Pipe condition inspection: Inspect pressure-transmitting hoses to ensure they are free of kinks, compression, blockages, water accumulation, or dust buildup. Verify that the high-pressure (H) and low-pressure (L) ports are correctly connected and free of air leaks to prevent measurement inaccuracies caused by pipe abnormalities.

6. Structural Inspection: Check that the 35mm rail clips and wall-mounting screws are secure and have not come loose or fallen off. Ensure the equipment shows no significant vibration or displacement. Reinforce the area around equipment subject to strong vibrations to prevent loose connections caused by prolonged vibration.

7. Special inspection of explosion-proof models: For the intrinsically safe QDF70B explosion-proof model installed in explosion-hazard areas, regularly inspect the integrity of the explosion-proof junction box seals and the condition of the cable sealing compound. Verify that the safety barrier is functioning normally and ensure there are no unauthorized modifications or short-circuiting in the intrinsically safe circuit.

7.2. Regular Maintenance Plan
1. Equipment Cleaning Schedule: Under normal indoor dry conditions, perform surface cleaning once every three months; in harsh environments such as high-dust areas, HVAC ducts, and dust-removal workshops, clean once a month; in chemical, humid, or corrosive environments, shorten the interval to once every 45 days. Clean the enclosure by wiping it with a dry, lint-free soft cloth. Do not use a high-pressure water jet to spray the equipment directly, and do not wipe with corrosive liquids to avoid damaging the protective coating and sealing structures.

2. Wiring Tightness Inspection: Conduct a comprehensive terminal inspection every six months. After powering down, tighten the power, signal, ground, and RS485 communication terminals one by one. Address issues such as loose wires, oxidized wire cores, and damaged insulation. Pay special attention to re-inspecting shield ground wires and equipment

housing grounding points to eliminate loose or broken connections.

3. Maintenance of the pressure-transmitting system: Every six months, disassemble and inspect the interior of the pressure-transmitting hoses, remove accumulated dust, moisture, and debris, and promptly replace any hoses that have aged and hardened. Regularly inspect the seals on the connectors for wear and tear, and replace any aged components simultaneously to ensure the airtightness of the air lines.

4. Recommendations for Accuracy Recalibration: Under normal operating conditions, perform full-unit accuracy calibration and retesting once every 12 months; in high-demand environments such as cleanrooms, pharmaceutical facilities, and precision HVAC systems, perform retesting and calibration every 6 months; in environments with prolonged exposure to high dust levels, high temperatures, or strong interference, perform retesting every 9 months. Correct measurement errors caused by temperature drift and long-term use through zero-point calibration, span comparison, and multi-point linearity verification.

5. Periodic Inspection of Electrical Components: Annually inspect the condition of internal circuit protection and waterproof connectors; for LED and LCD display models, check screen brightness, backlight integrity, and button responsiveness; for explosion-proof models, conduct annual inspections in conjunction with the facility's explosion-proof annual inspection to verify compliance with explosion-proof structural and intrinsically safe parameters.

6. Maintain records of spare parts and operating conditions. Regularly organize equipment operation data, anomaly logs, and calibration records to establish a maintenance ledger. For locations with frequent fluctuations or prone to interference, pre-stock spare parts of the same model to minimize downtime during replacements.

7.3 Tips for Long-Term Maintenance

1. Long-term dust and moisture protection management: Maintain the equipment's original IP65 sealing performance over the long term; do not disassemble the housing or damage the sealing structure without authorization; install waterproof junction boxes and moisture-proof sealant in humid, basement, or semi-outdoor environments; install dust caps on unused pressure ports to prevent dust and moisture from entering the sensor chamber; ensure adequate ventilation at the cabinet installation location to prevent heat buildup and condensation in enclosed spaces.

2. Long-term measures for anti-interference optimization: Run signal cables separately throughout the entire route, keeping them away from variable frequency drives, high-power motors, and high-voltage power cables. Do not run high- and low-voltage cables in the same conduit or cable tray. Strictly adhere to single-end grounding specifications for shielded cables to prevent loop current interference caused by double-end grounding. Ensure the equipment housing's grounding terminal remains reliably grounded at all times, with grounding resistance consistently meeting standards, to enhance electromagnetic shielding capability; In high-interference environments, upgrade to the isolated version to ensure long-term signal purity and stability.

3. Optimized protection for extreme environments: In high-temperature environments, avoid direct sunlight and heat radiation; install sunshades or heat-insulating panels when necessary. In low-temperature and frigid environments, select wide-temperature-range configurations to prevent prolonged low temperatures from causing sensor response delays. In environments with corrosive gases, use custom corrosion-resistant enclosures and perform regular anti-corrosion maintenance on the enclosures. In high-vibration facilities, install vibration-damping brackets and cushioning mounts to reduce mechanical vibration damage to the sensor units.

4. Long-term electrical usage guidelines: Strictly adhere to the rated DC 12–36 V wide-voltage supply range to prevent prolonged operation under low voltage, overvoltage, or voltage fluctuations; do not arbitrarily alter wiring configurations, connect loads in parallel, or short-circuit signal terminals; in RS485 multi-unit network scenarios, install terminating resistors as specified to stabilize bus communication quality.

5. Implement version-specific maintenance protocols: For models without displays, minimize unnecessary power cycles to maintain long-term circuit stability; for models with LED displays, avoid prolonged exposure to direct strong light to delay tube aging; for models with LCD screens, avoid sudden temperature fluctuations to prevent condensation and screen distortion; for explosion-proof models, strictly prohibit on-site disassembly or unauthorized modifications—all maintenance and calibration must be performed in designated safe areas to ensure the long-term validity of the explosion-proof rating.

VIII. Troubleshooting & Emergency Response

Compatible with the entire QDF70B series of air pressure/differential pressure transmitters: models without display, LED display models, LCD display models, and explosion-proof models. The content is listed item by item in plain text, allowing for direct on-site reference during troubleshooting to quickly reduce costs and minimize downtime.

8.1 List of Common Faults

No output signal from the device; no current variation in the 4-20mA signal; inability to communicate via RS485.

Measurement data drift, zero-point offset, values slowly rising or falling; differential pressure readings continue to fluctuate despite no changes in operating conditions.

Abnormal indicator lights: power light does not illuminate, remains off, or flashes frequently; LED/LCD screen is black, distorted, or lacks backlight.

Device alarm triggered; ALM alarm light stays on or flashes frequently; system uploads error codes; host computer displays an error message.

Signal interference and distortion; values jump erratically, fluctuate wildly, or exhibit significant instability; irregular jitter.

Inaccurate measurement values; incorrect range selection; reversed high/low pressure connections causing negative pressure errors.

Abnormalities in explosion-proof intrinsically safe circuits, safety barrier alarms, or failure of equipment in hazardous areas to collect signals normally.

8.2, Analysis of Fault Causes

Wiring issues: Reversed power supply polarity, loose terminal connections, loose wires, incorrect shield grounding, mixing of high- and low-voltage circuits, or reversed Communication A/B lines.

Power Supply Abnormalities: Insufficient supply voltage, overvoltage, excessive power supply ripple, circuit load exceeding limits, or insufficient power in two-wire circuits.

Signal Overload Issues: Actual pressure differential exceeds the device's rated range; prolonged overpressure surges; or local pressure buildup caused by blocked pressure-transmitting lines.

Environmental Interference Factors: Proximity to variable frequency drives, high-power motors, or high-voltage cables resulting in strong electromagnetic radiation; on-site humidity, condensation, dust accumulation, or severe vibration; ambient temperatures exceeding the device's compensation range.

Installation and Piping Issues: Reversed high/low-pressure connections, kinked or leaking pressure-transmitting hoses, water or dust accumulation in piping, or obstructed air passages.

Damage to the device itself: Long-term aging, water ingress due to seal failure, damaged sensor diaphragm, burned-out internal circuit components, or display module failure.

Explosion-proof-specific issues: Mismatched safety barrier selection, unauthorized modifications to the intrinsically safe circuit, failed explosion-proof seals, or unsealed explosion-proof junction boxes.

8.3, Step-by-Step Troubleshooting

1. Issue 1: No output or signal from the device

Troubleshooting Steps:

Step 1: Disconnect power and inspect power connections to confirm normal DC 12–36V supply and no reversed polarity.

Step 2: Use a multimeter to measure terminal voltage and check for issues with circuit breakers, power modules, or open circuits.

Step 3: Check the tightness of signal output terminals, confirm that the 4–20 mA load resistance is within the allowable range, and verify that the RS485 bus has no short circuits.

Remedial Actions:

Re-crimp and tighten all terminals; correct power and signal wiring; replace damaged power cables and communication cables; reduce the number of devices in series and lower loop resistance if the load exceeds limits.

Emergency Workaround:
In the event of an on-site emergency, temporarily replace the transmitter with a spare QDF70B unit of the same measurement range, quickly reconnect the wiring, and ensure continuous system operation.

2. Fault 2: Signal Drift, Zero Point Offset
Troubleshooting Steps:
Step 1: Connect both the high- and low-pressure ports to atmospheric pressure simultaneously. Observe whether the zero point automatically returns to zero to determine if zero point drift is occurring.
Step 2: Check for sudden spikes or drops in ambient temperature, excessive on-site humidity, or condensation.
Step 3: Inspect the pressure-transmitting lines for micro-leaks, blockages, or water accumulation that may cause long-term pressure drift.
Remedial Actions:
For models with LED/LCD displays, manually reset and calibrate the zero point locally; for RS485 models, remotely adjust the zero point and range via a host computer; clean water and dust from the pressure-conducting lines and replace aged hoses; ensure the equipment housing is properly grounded to minimize the impact of temperature drift.
Emergency Workaround:
Temporarily lock the system's differential pressure parameters to maintain basic operation of fans, ventilation, and dust removal equipment, and perform a unified calibration during a production shutdown window.

3. Fault 3: Abnormal Indicator Lights, Display Malfunctions
Troubleshooting Steps:
Step 1: For models without a display, check only the PWR power indicator light; if the light is off, prioritize troubleshooting the power supply circuit.
Step 2: For models with LED numeric displays, if the display flickers or is dim, check if the supply voltage is too low.
Step 3: For models with LCD displays, if the screen is black, distorted, or the backlight is off, check the display power supply circuit and internal ribbon cables.
Remedial Measures:
Restable the power supply voltage; clean the housing to remove heat-trapping and dust buildup. If the display module fails, disable the local display function and retain only signal output; in environments with extreme temperature fluctuations, add thermal insulation and protective measures.
Emergency Workaround:
Disable the local display function and rely on PLCs or DCS host computers to read data; this will not affect pressure data acquisition or automatic control.

4. Fault 4: Alarm triggered, ALM light flashing
Troubleshooting steps:
Step 1: Confirm whether the actual on-site pressure differential exceeds the transmitter's upper range limit, causing an overpressure alarm.
Step 2: Check for blocked air lines, pressure buildup on one side, or reversed high/low pressure connections.
Step 3: For explosion-proof models, check the safety barrier alarm status and whether the intrinsically safe circuit is abnormal.
Remedial Actions:
Replace the transmitter with a model of larger capacity or adjust the operating pressure range; swap the high/low-pressure (H/L) ports and clear the pressure tubing; for explosion-proof models, replace the safety barrier with a compatible model and restore the intrinsically safe circuit to standard wiring.
Emergency Workaround:
Temporarily reduce the system's air pressure load to avoid overpressure-triggered alarms and ensure stable operation of the equipment under low load.

5. Fault 5: Interference Distortion, Erratic Value Fluctuations
Troubleshooting Steps:
Step 1: Check whether signal cables are routed in the same cable tray or conduit as high-voltage cables.
Step 2: Verify that shielded cables are grounded at a single point; investigate whether grounding at both ends is causing loop current interference.
Step 3: Confirm that the equipment housing is securely grounded and that the grounding resistance meets specifications.
Remedial Measures:
Route power cables and signal cables separately, maintaining a safe distance; modify the shield grounding method to ensure strict single-point grounding; install isolated transmitters or signal isolators to suppress electromagnetic interference; keep the equipment away from variable frequency drives and high-power equipment.
Emergency Workaround:
Temporarily increase signal filtering parameters and extend the data sampling interval to mitigate value fluctuations caused by transient interference.

8.4 After-Sales Repair Guidelines
1. Failure Determination Criteria
If the fault persists after rechecking wiring, testing power supply, performing zero-point calibration, and inspecting piping, the issue is deemed a fault in the device itself.
In cases of burned casing, water ingress, physical damage, complete sensor unresponsiveness, or damage caused by repeated over-range conditions, the hardware is deemed irreversibly damaged.
If the explosion-proof structure of explosion-proof models is damaged or the intrinsically safe circuit is permanently damaged, the device cannot continue to be used on-site and must be reported for repair or replacement.

2. Repair Process
Record complete device information: full model number, measurement range, output signal, version type (no display / LED / LCD / explosion-proof), device serial number, and installation environment.
Document the fault symptoms: time of occurrence, abnormal behavior, on-site photos, and abnormal data records from the host computer.
Contact the manufacturer's technical support team to submit the device information and fault description, and simultaneously explain the on-site troubleshooting steps.
Follow the instructions for returning the device for factory testing, repair, or replacement. Unauthorized disassembly or repair of explosion-proof products is strictly prohibited.

3. Warranty Coverage
The standard factory warranty period for the entire series of Anhui Qidian QDF70B differential pressure transmitters is valid and compliant.
Under normal operating conditions, free repairs and replacement of parts are provided for damage not caused by human error, improper installation, or use exceeding pressure or temperature limits.
The following situations are not covered by the free warranty: unauthorized disassembly or modification, power supply exceeding pressure limits, opening the cover of explosion-proof equipment in violation of regulations, damage caused by external force, corrosion or water ingress, natural disasters, and damage resulting from misuse.

4. Usage Guidelines
For the entire QDF70B transmitter series, unauthorized disassembly of the housing or damage to the sealing structure is strictly prohibited.
For explosion-proof models, strictly adhere to explosion-proof zone management regulations. All maintenance, calibration, and replacement operations must be performed in strict accordance with intrinsically safe explosion-proof electrical standards to avoid safety risks.