

DR3601A Outdoor Digital Pressure Switch



1. Product Overview

The DR3601A is an outdoor version of the DR3601 series intelligent digital pressure switch, specifically designed for pressure measurement, display, and automatic control in outdoor or exposed industrial environments.

The instrument features a full electronic structure. Its front-end adopts an oil-filled piezoresistive pressure sensor with an isolated diaphragm. The signal is converted by a high-precision A/D converter, processed by a microprocessor, and then displayed locally on a 4-digit LED screen. The device provides relay control outputs as well as optional analog or digital signal transmission. While retaining all core functions of the DR3601 series, the DR3601A is equipped with an IP66-rated outdoor enclosure, offering reliable protection against dust, rain, and powerful water jets — making it ideal for a wide range of outdoor installation scenarios.

2. Key Features

- 4-digit LED display for real-time pressure indication
- 2 or 5 relay outputs, independently configurable switching points
- 4-20mA analog output or RS485 digital communication (optional)
- Power supply: 24VDC or 220VAC (selectable)
- Switching points can be set to any value within the measuring range
- Adjustable switching hysteresis (return difference)
- On-site configuration via front-panel push buttons
- IP66 protection rating — suitable for outdoor installations
- All stainless steel construction for corrosion resistance and durability

3. Technical Specifications

Parameter	Specification
Product Type	Outdoor Digital Pressure Switch
Pressure Range	-0.1 ~ 0 ~ 100MPa (customizable)
Accuracy	±0.5% F.S.
Overload Capacity	200% F.S.
Pressure Type	Gauge (standard), Absolute / Sealed Gauge (optional)
Long-term Stability	≤0.1% / year
Power Supply	24VDC or 220VAC
Display	0.56" 4-digit LED
Display Range	-1999 ~ 9999

Parameter	Specification
Response Time	<30ms (for 2-relay version)
Ambient Temperature	-20°C ~ +70°C
Relative Humidity	≤80%
Housing	Outdoor Enclosure (IP66)
Wetted Material	Stainless Steel 304
Diaphragm Material	Stainless Steel 316L
Relay Outputs	2 relays or 5 relays
Analog Output	4-20mA (optional)
Digital Output	RS485 (optional)
Relay Contact Load	24VDC 3A / 220VAC 3A
Pressure Connection	M20×1.5 (standard); G1/4, G1/2, NPT1/4, NPT1/2 (optional)

Note: The IP66 rating indicates dust-tight protection and resistance to powerful water jets. The instrument is not designed for submersible use.

4. Installation

4.1 Mechanical Connection

The DR3601A can be directly installed on hydraulic pipelines via its pressure connection thread (standard M20×1.5; other thread sizes available upon request).

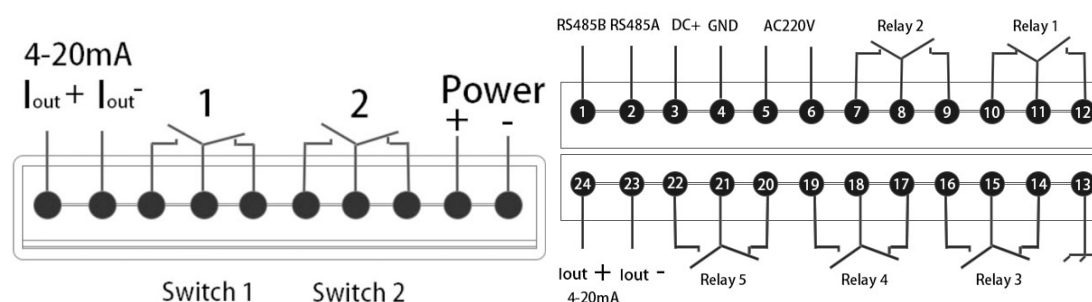
For applications involving severe vibration or mechanical shock, it is recommended to use a flexible hose to mechanically decouple the pressure connection from the pipeline.

Note: For measuring ranges below 100KPA, the instrument must be installed vertically.

4.2 Electrical Connection

To minimize electromagnetic interference, please observe the following guidelines:

- Keep cable runs as short as possible
- Use shielded cables
- Route cables away from interference sources such as motors, inverters, or other electrical devices
- If a flexible hose is used for installation, the instrument housing must be grounded separately



2-Relay Version

5-Relay Version

5. Relay Output Configuration

5.1 2-Relay Version

The 2-relay version provides two independently configurable switching outputs. Each channel can be configured with separate pull-in (connection) and release (disconnection) values.

Parameter	Description
AL1H	Switch 1 pull-in value (relay energizes)
AL1F	Switch 1 release value (relay de-energizes)
AL2H	Switch 2 pull-in value (relay energizes)
AL2F	Switch 2 release value (relay de-energizes)
FILT	Filter coefficient for display stability
END	Save and exit settings

5.2 5-Relay Version

The 5-relay version provides five independently configurable switching outputs, allowing multiple pressure thresholds to be controlled from a single instrument.

Parameter	Description
AL1H	Switch 1 pull-in value
AL1L	Switch 1 release value

Parameter	Description
AL2H	Switch 2 pull-in value
AL2L	Switch 2 release value
AL3H	Switch 3 pull-in value
AL3L	Switch 3 release value
AL4H	Switch 4 pull-in value
AL4L	Switch 4 release value
AL5H	Switch 5 pull-in value
AL5L	Switch 5 release value
END	Save and exit settings

6. Switching Logic (Upper-Limit / Lower-Limit Alarm)

The switching behavior is determined by the relationship between the pull-in value and the release value:

- Upper-limit alarm (normally open): Pull-in value > Release value

Example: Relay energizes when pressure $\geq 4.00\text{MPa}$; de-energizes when pressure $< 3.95\text{MPa}$

- Lower-limit alarm (normally closed): Pull-in value < Release value

Example: Relay energizes when pressure $\leq 10.00\text{MPa}$; de-energizes when pressure $> 9.95\text{MPa}$

The difference between the pull-in and release values defines the switching hysteresis (return difference). This prevents relay chattering around the setpoint.

7. Setting Procedure

Follow these steps to configure the switching points:

1. Press the "SET" key to enter the configuration menu
2. The display will show "LOCK" — enter the password (default: 0001 or 1) using the ▲ / ▼ keys
3. Press "SET" to confirm the password
4. Use ▲ / ▼ to navigate through the menu parameters (AL1H, AL1L, AL2H, AL2L, etc.)
5. Press "SET" to enter the selected parameter
6. Use ▲ / ▼ to adjust the value
7. Press "SET" to confirm the new value
8. Navigate to "END" and press "SET" to save all changes and exit

Auto-exit: If no key is pressed for 30 seconds, the instrument will automatically exit the setting mode. Any unsaved changes will be discarded.

8. Output Options

The DR3601A can be configured with the following output options:

Output Type	Description
4-20mA	Analog current output proportional to the measured pressure. Suitable for connection to PLCs, data acquisition systems, and industrial controllers.
RS485	Digital communication interface for integration with industrial monitoring and control networks (Modbus protocol compatible).

9. Power Supply Options

Option	Voltage	Typical Applications
U1	24VDC	PLC systems, industrial control cabinets, battery-backed systems
U2	220VAC	Standard AC mains power installations

10. Ordering Information

Ordering Code Structure

DR3601A – [Range] – [Installation] – [Relay] – [Output] – [Power] – [Connection] – [Pressure Type]

Example

DR3601A – [0~10]bar – Z1 – R2 – O1 – U1 – C4 – G

Code Tables

Code	Relay Outputs
R1	2 Relays
R2	5 Relays
Code	Output Signal
O1	4-20mA
O2	RS485
Code	Power Supply
U1	24VDC

Code	Output Signal
U2	220VAC
Code	Pressure Type
G	Gauge
A	Absolute
S	Sealed Gauge
Code	Installation
Z1	Radial Mounting
Z2	Axial Mounting
Code	Pressure Connection
C1	M20×1.5 (face seal)
C2	M20×1.5 (waterline seal)
C3	G1/2 male
C4	G1/4 male
C5	G1/4 female
C6	NPT1/2 male
C7	NPT1/4 male

11. Applications

The DR3601A is particularly suitable for outdoor and exposed-environment applications, including:

- Outdoor hydraulic systems — pressure monitoring and control in mobile or stationary equipment
- Water supply and pump systems — pump start/stop control, high-pressure protection, low-pressure alarms
- Irrigation systems — remote pressure monitoring and control in agricultural applications
- Outdoor industrial machinery — pressure switching integrated with machinery control

systems

- Compressor systems — pressure protection and control in outdoor compressor stations
- Water treatment equipment — pressure control in filtration and treatment processes
- Remote pressure monitoring points — where instruments are installed outside control cabinets or shelters
- Petroleum and chemical equipment — pressure measurement and control of compatible fluid media in outdoor process skids

12. Safety and Usage Notes

1. The instrument should be stored and operated in environments where the ambient temperature is between -20°C and +70°C and relative humidity is $\leq 80\%$.
2. When connecting the instrument to pipelines, ensure the connector is properly aligned and seated to avoid leakage or damage.
3. Verify all electrical connections before powering on the instrument.
4. The IP66 protection rating is achieved only when the electrical connectors/cables are properly installed and sealed.
5. Do not immerse the instrument in liquids. The IP66 rating does not permit submersible operation.
6. For measuring ranges below 100KPA, vertical installation is required.

13. Ordering Example

Code Segment	Selection	Description
DR3601A	Product Type	Outdoor Digital Pressure Switch
[0~10]bar	Range	0 to 10 bar measuring range
Z1	Installation	Radial mounting
R2	Relay	5 Relays
O1	Output	4-20mA
U1	Power	24VDC
C4	Connection	G1/4 male
G	Pressure Type	Gauge

Full Ordering Code: DR3601A-[0~10]bar-Z1-R2-O1-U1-C4-G

Specifications subject to change without notice. Please refer to the official DR3601A datasheet for the most current information.