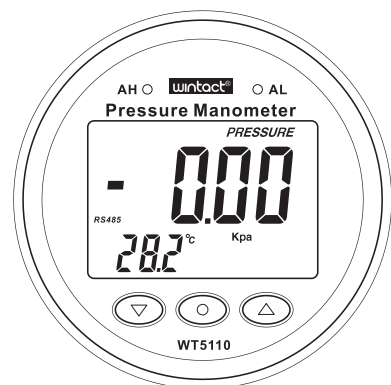


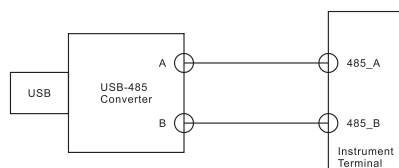
Pressure Manometer Operation manual



Version : WT5110-EN-00

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2. 485 Communication



(1) The 485 transceiver of this device is powered by +5V. The user's 485 transceiver also needs to be powered by +5V to ensure correct communication.

(2) There is a 120 ohm termination resistor between 485_A and 485_B on this device. The user also needs to add a 120 ohm termination resistor between 485_A and 485_B on their side to ensure correct communication.

(3) Multiple device communication is not supported. The 485 of this instrument is used as a slave.

(4) Address setting: Refer to the section on keypad functions.

(5) Cables (not provided): It is recommended to use copper wires with a cross-sectional area of 0.3 square millimeters, such as twisted pair cables.

(6) To purchase a USB-485 converter online, follow the wiring instructions shown in the picture. Open the serial port debugger and set the baud rate to 9600, data bits to 8, parity to even, stop bits to 1, and flow control to none. View the data. The USB-485 converter is only for convenient debugging. Users can also directly connect to the main control device for development using the communication format.

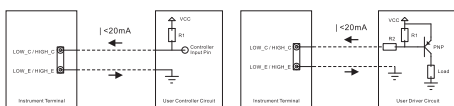
(7) Communication:

1) Data format: Hex;

2) Reading pressure data: Byte 1 (address [0x00~0x63]) + Byte 2 (0xF0) + Byte 3 (0x3B)

3) Returning pressure data: Byte 1 (address) + Byte 2 (0xF0) + Byte 3 (high 8 bits) + Byte 4 (low 8 bits) + Byte 5 (unit [bit7-4] + decimal point position [bit3-2] + over-range indicator [bit1-0]) + Byte 6 (0x3B)

(8) Note: Byte 5 contains three parts of data: the unit of data, data/pow(10, decimal point position), and data over-range indicator.



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I. Introduction

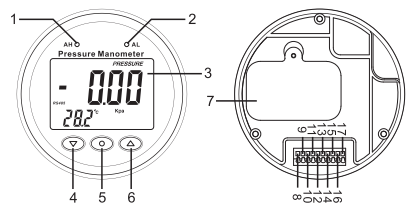
This product has 12 pressure units to choose from: bar, mbar, Kpa, Kg_f/cm², mmHg, cmH₂O, Oz_f/in², Psi, inHg, inH₂O, ftH₂O, Pa.

It can be widely used to measure fan and blower pressure, filter resistance, wind speed, furnace pressure, orifice differential pressure, etc. It is also used for air gas ratio control and automatic valve control during combustion, as well as blood pressure and respiratory pressure monitoring in healthcare equipment.

II. Functional Characteristics

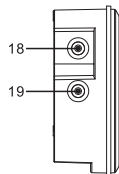
- 12 Pressure units available
- RS485 communication
- Overvalue alarm
- Data hold
- High and low pressure alarm values can be set separately
- Zero adjustment and data correction function
- Low battery alert
- Large LCD backlight display
- Differential pressure mode

III. Name of the Components



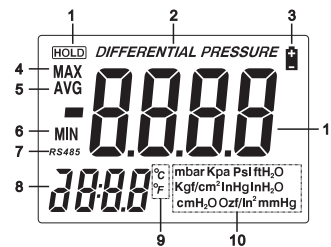
- | | |
|---------------------------------|-------------------------------|
| 1. High Voltage Alarm Indicator | 13. 485_B |
| 2. Low Voltage Alarm Indicator | 14. HIGH_C |
| 3. LCD Display Screen | 15. HIGH_E |
| 4. Left Button | 16. LOW_C |
| 5. Middle Button | 17. LOW_E |
| 6. Right Button | 18. High Pressure Chamber (+) |
| 7. Battery Compartment | 19. Low Pressure Chamber (-) |
| 8. +9~12V | |
| 9. GND | |
| 10. Unused Pin | |
| 11. GND | |
| 12. 485_A | |

Note: Terminal Definitions



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IV. LCD Display



1. Data hold
- Differential pressure
- Low battery level
- Maximum value
- Average value
- Minimum value
- RS485 communication
- Temperature value
- Temperature unit
- Pressure unit
- Pressure value

V. Button Function

1. Power On:
Short press the middle button; long press and hold the middle button to enter full-screen display mode, release the button to start normally.

2. Power Off:
Long press the middle button.

3. Backlight On/Off:
Short press any button; the backlight will turn off after approximately 20 seconds.

4. Measurement Mode Switching:
Short press the left button; the data will be held [HOLD] - differential mode [DIFFERENTIAL] - maximum value [MAX] - average value [AVG] - minimum value [MIN] - normal measurement mode.

5. Zero Calibration:
After powering on, if the air pressure connections for the high-pressure chamber (+) or low-pressure chamber (-) on the side of the instrument shell are not connected, place it in the air. If the LCD display shows a value other than 0 KPa, press the middle button three times consecutively to perform zero calibration. It will display [OFS] (referring to the corresponding unit in KPa; other units may not be

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zeroed due to conversion factors) after calibration. After a few seconds, repeat this zero calibration action for best results. It can be repeated 2-3 times. Zero calibration does not need to be performed frequently unless the instrument has not been used for a long time or significant temperature differences occur in the surrounding environment, causing zero offset and requiring zero calibration.

6. High Pressure Alarm Value Setting / Low Pressure Alarm Value Setting / Buzzer On/Off Setting:

Long press the left button to enter the settings, short press the middle button to cycle through high-pressure alarm value setting (Hi), low-pressure alarm value setting (Lo), buzzer on/off function setting (Fun), and use the left and right buttons to adjust the values or select the buzzer on/off. Long press enables fast forward/rewind of values. Press and hold the middle button to save the settings and exit, displaying [ESC].

7. Air Pressure Unit Switching:
Short press the right button.

8. Temperature Unit Switching:
Long press the right button.

9. 485 Address Setting:
While the device is powered off, simultaneously press and hold the left and right buttons, then short press the middle button and release all three buttons. The LCD will display [485], indicating the entry into the 485 address setting function. Short press the left or right button to adjust the address value. The address range for setting is 0 to 99 (decimal). The default address at the time of factory shipment is 0. After setting the desired address value, short press the middle button, and [pass] will be displayed, indicating successful setting. Long press the middle button, and [fail] will be displayed, indicating a failed setting.

VI. Operation Instructions

1. Power Supply
You can use a 9V battery (inserted into the battery compartment) or an external power supply of DC +9~12V/0.5A (connected to the terminal at the back of the instrument) for power. If using the external power supply for a long time, please remove the battery. It is not necessary to remove the battery for short-term use.

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VII. Instrument Parameters

Operating temperature range	-10°C~60°C
Operating humidity range	10%~60% RH
Temperature accuracy	±2°C
Instrument power	About 250mW (DC9~12V power supply, backlight off, buzzer not ringing)
Backlight power	About 70mW
Accuracy (total error)	±0.3%FS~±2%FS, different range has different accuracy
Temperature compensation range	-5~50°C
Overload pressure	×3 FS
Burst pressure	×5 FS
Source gas	This series of pressure sensors is suitable for non-corrosive, non-ionic gases (such as air and other dry gases).

Note:

The temperature display function of this instrument is mainly used for the pressure and temperature compensation inside the instrument, and there will be lag or deviation from the temperature outside the instrument, so it can not be used in the occasions where rapid and precise temperature measurement is needed.

Other:

1. Currently, our company's developed differential pressure gauge products have the following ranges: ±125Pa, ±250Pa, ±500Pa, ±1kPa, ±2kPa, ±2.5kPa, ±4kPa, ±5kPa, ±10kPa, ±40kPa, ±50kPa, ±100kPa.
2. Accuracy range: ±0.3%FS~±2%FS. Different ranges have different accuracies. Please consult our sales personnel for inquiries when making a purchase.
3. The ±40kPa to ±100kPa range may have a slight zero drift, but the error caused by the zero drift generated by a large range can be ignored by the user.

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