



**2024
PRODUCT
INTRODUCTION**

Paperless Recorder



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Company Profile

Weifang AOBO Instrument Technology Development Co., Ltd., founded in 2002, with registration capital of 10 million RMB, is a "High-Tech" and "Double-Software Certification" enterprise specialized in "flow measurement and intelligent measurement & control" industry, integrating R&D, production, sales and service.

The company has a core R&D team for computer software and technology, automatic intelligent control, HVAC engineering design and flow measurement. It has the ability to provide customers with specific solutions and complete sets of products according to their different needs, based on years of practical experience. Especially in the heating industry, by the customer's recognition, has a high reputation in the industry.

The products are mainly used in the measurement and control of "steam, liquid, gas, sewage and tap water"; and especially suitable for energy monitoring and energy-saving control in many industries, such as thermal power plants, thermal companies, residential heating, petroleum, chemical industry, papermaking, food, coating, printing & dyeing and HVAC.

Since its foundation, based on self-developed and leading technology, reliable quality, high-quality service and good reputation, our company has been warmly accepted by customers, and become a designated supplier for many central enterprises and listed companies.

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I. Product Overview

Touch data acquisition and control workstation adopts the new large-scale integrated circuits to realize the reliable protection and robust anti-interference for input, output, power supply and signals. The workstation can achieve seventy-channel universal signal inputs, (The configurable and optional inputs include standard voltage, standard current, thermocouple, resistance temperature detector and millivolt.) It supports twenty-channel alarm outputs, fourteen-channel transmitting outputs and six-channel DI inputs. It has the RS232/485 communication port, EtherNet port, micro-printer port, USB drive port and SD card socket. The sensor distribution is available and the recorder enjoys a powerful display function, which can achieve real-time curve display, historical curve recalling, bar graph display and alarm status display.



II. Technical Parameters

Measurement Input	
Input Signal	Current: 0 – 20 mA, 0 – 10 mA, 4 – 20 mA, 0 – 10 mA (open square operation) and 4 – 20 mA (open square operation) Voltage: 0 – 5 V, 1 – 5 V, 0 – 10 V, ± 5 V, 0 – 5 V (open square operation), 1 – 5 V (open square operation), 0 – 20 mV, 0 – 100 mV, ± 20 mV, ± 100 mV RTD: Pt100, Cu50, Cu53, Cu100, BA1, BA2 Liner resistance: 0 – 400 Ω Thermocouple: B, S, K, E, T, J, R, N, F2, Wre3–25 and Wre5–26 DI input: low level < 1V; 4.5V < high level < 30V
Output	
Output Signal	Analog output: 4 - 20 mA (load resistance $\leq 380 \Omega$), 0 - 20 mA (load resistance $\leq 380 \Omega$), 0 - 10 mA (load resistance $\leq 760 \Omega$), 1 - 5 V (load resistance $\geq 250K \Omega$), 0 - 5 V (load resistance $\geq 250K \Omega$), 0 - 10 V (load resistance $\geq 10K \Omega$)
	Alarm output: Output through normally open contacts of the relays, and the contact capacity are 1A/250VAC and 1A/24VDC (resistive load). (! NOTE: When the load exceeds the relay contact capacity, do not load directly.)
	Feed output: DC24V $\pm$ 10%; load current ≤ 50 mA. Five groups in total.
	Communication output: RS485/RS232 communication ports are included; The baud

	rate is 1200 – 38400bps (settable); The standard MODBUS RTU communication protocol is adopted; The communication distances of the RS485 and RS232 ports are 1 km and 15 m respectively. EtherNet communication port (communication rate: 10M/100M, adaptive)
Integrated Parameters	
Measurement Precision	0.2%FS±1d
Sampling Cycle	1s
Setting Mode	The parameter can be locked by password. The set value can be saved permanently when powering off the instrument.
Display Mode	Applies 12.1-inch 800×600 lattice high brightness color graph LCD and LED backlight to create clear images and wide angle of view. Contents displayed include Chinese characters, numbers, process curves and bar graphs, etc. The screen can be changed, the historic data can be searched forward and backward, and the curve time scale can be changed by touching buttons.
Data Backup	Supports data backup and transfer storage through the USB drive and SD card. The maximum capacity is 32GB, and supports FAT and FAT32 formats.
Storage Capacity	The capacity of the internal Flash storage is 200M Byte.
Record Interval	Nine levels can be selected, including 1s, 2s, 4s, 6s, 15s, 30s, 60s, 120s and 240s
Storage Length (Continuous recording)	173 days (interval: 1 second) — 41610 days (interval: 240 seconds) Formula: Recording time (day) = $\frac{200 \times 1024 \times 1024 \times \text{Recording Interval (S)}}{\text{Channel Number} \times 2 \times 24 \times 3600}$ (! NOTE: Calculate the channel numbers according to the actual situation. Calculate with seven channels.)
Operation Environment	Environment temperature: -10 - +50 °C; Relative humidity: 10 - 90%RH (non-condensing); Prevented from strongly corrosive gases. (! NOTE: If the site environment is severe, special instructions must be made when ordering.)
Power Supply	AC85 - 264V (power switch), 50/60Hz
Power Consumption	≤ 40W

III. Precautions and Installation

3.1 Precautions

3.1.1 Precautions for Instrument Using

- The instrument has many plastic components. Use the dry soft cloth to clean the instrument. Do not use the benzoene agent, lacquer thinner, etc. to clean the instrument. Otherwise, discoloration or deformation may be caused.

- Do not make the live products near to the signal terminal. Otherwise, malfunction may be caused.

- Do not impact on the instrument.

- If any abnormality is found, for example, the instrument is smoking, or the odor is smelled, or the abnormal noise is heard, disconnect the power supply immediately and contact the local distributor or the manufacturer in a timely manner.

- To ensure the normal working of the instrument, power on and heat the instrument for 30 min before use.

3.1.2 Precautions for External Storage Medium

- The storage medium is precision product. Use it carefully.

- Except inserting and withdrawing the storage drive, close the operation cover during running the instrument. Prevent the storage medium and USB ports from the dust.

- When the USB drive and SD card are used, pay attention to the electrostatic protection.

- Products manufactured by the manufacturer are recommended.

- When using the storage medium in the high temperature (higher than 40 °C approximately), only insert the storage medium when saving the data. After the data is saved, withdrawn the storage medium and store it appropriately. Do not insert the storage medium in the instrument for a long time.

- Before powering on/off the instrument, withdraw the storage medium.

- Refer to the user manual of the storage medium for the using precautions of the storage medium.

3.2 Instrument Installation

3.2.1 Installation Site

Install the instrument at the following sites.

- Installation panel

The instrument is the panel-mounting type.

- Installation site

Install the instrument indoors, and prevent it from wind, rain and direct sunlight.

- Well-ventilated places

To prevent internal temperature raise of the instrument, install it at the well-ventilated place.

- Place with less mechanical vibration

Install the instrument at the place with less mechanical vibration.

- Horizontal place

During the installation, do not tilt the instrument left or right. Keep the instrument level.

(The instrument can tilted back for 30° maximally.)

! NOTES

★ When moving the instrument from a place with lower temperature and humidity to a place with higher temperature and humidity, if the temperature changes greatly, condensation sometimes occurs, and the TC input measurement errors may occur. At this time, make the instrument adopt to surrounding environment for more than 1 hour before use.

★ If the instrument is used at high temperature for a long time, the LCD lifetime will be reduced, causing screen quality decline. Do not use the instrument at high temperature (higher than 40°C approximately).

Do not install the instrument at the following sites.

- Where is under the direct sunlight or near to the heat apparatus;

Select the place with lower temperature change and the temperature is near to the normal value (23℃) as far as possible. If the instrument is installed at a place with direct sunlight or heat appliance, a bad impact on the instrument inside may be caused.

- Places with excessive fume, steam, moisture, dust and corrosive gas

The fume, steam, moisture, dust and corrosive gas may cause bad impact on the instrument.

- Places near to the electromagnetic source

Do not approach magnetic appliances or magnets to this instrument. If the instrument is installed near to the strong electromagnetic source, the electromagnetic field may cause error to the instrument.

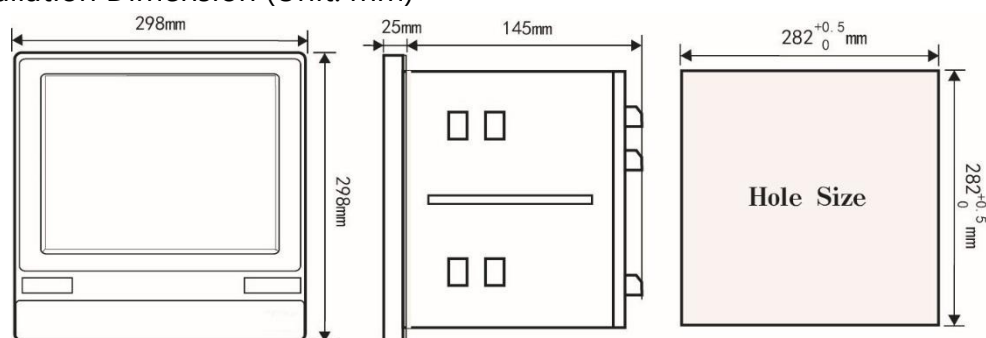
To prevent the instrument from abnormal working, when the RF generator is used at the site, keep it more than 50 cm from the instrument.

- Places uneasy to view the screen

The display part of the instrument is a 12.1-inch TFT true color LCD. If viewing the screen from an extremely partial perspective, it will be difficult to see the display clearly. Therefore, install the instrument in a place where the observer can view the screen in the front as far as possible.

3.2.2 Installation Methods

- Installation Dimension (Unit: mm)



- Installing the Instrument

(1) Installation methods

A. Install the instrument at the front of the instrument panel.

B. Install the instrument by the installation brackets provided with the instrument.

Install the instrument as shown in the figure the right.

▲ Use the four installation brackets to fix the instrument at the two sides.

The installation diagram is in the right.

- Instrument wiring diagram

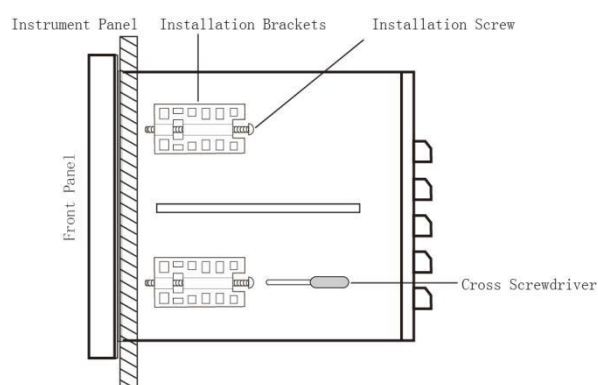
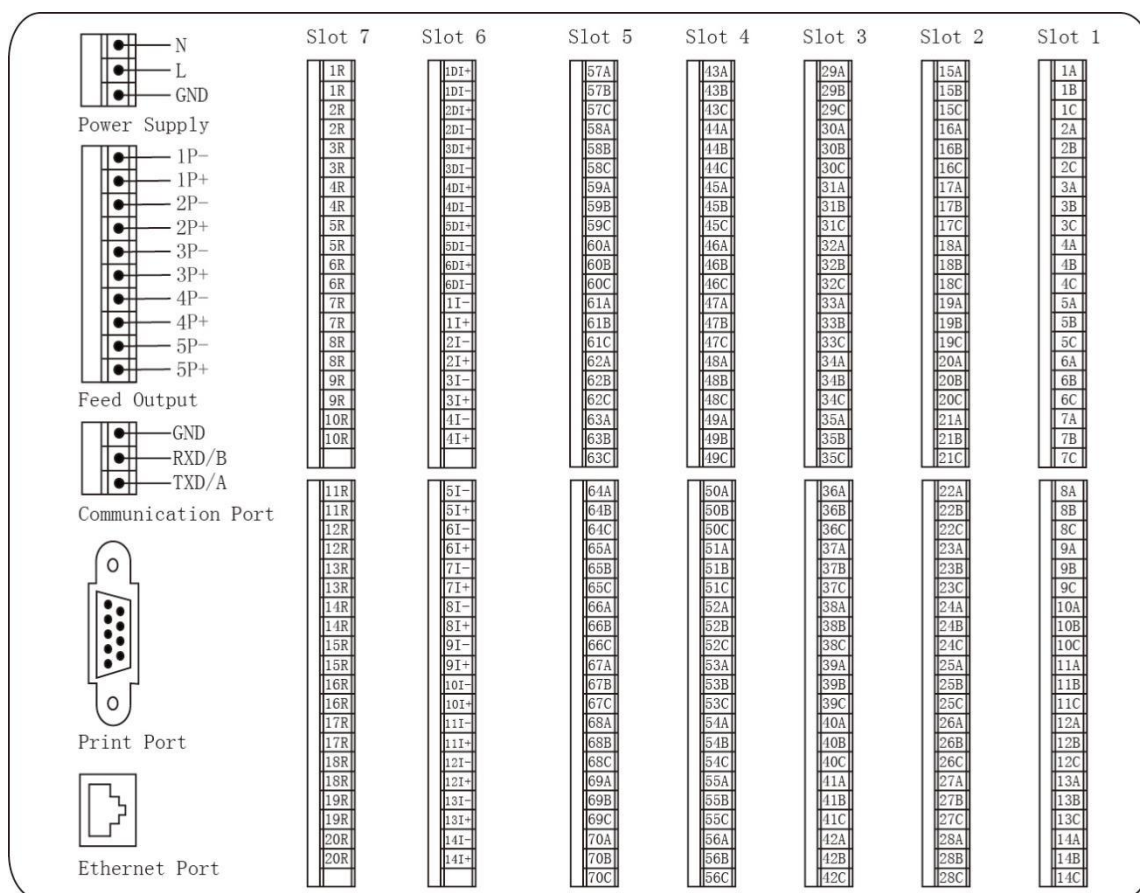
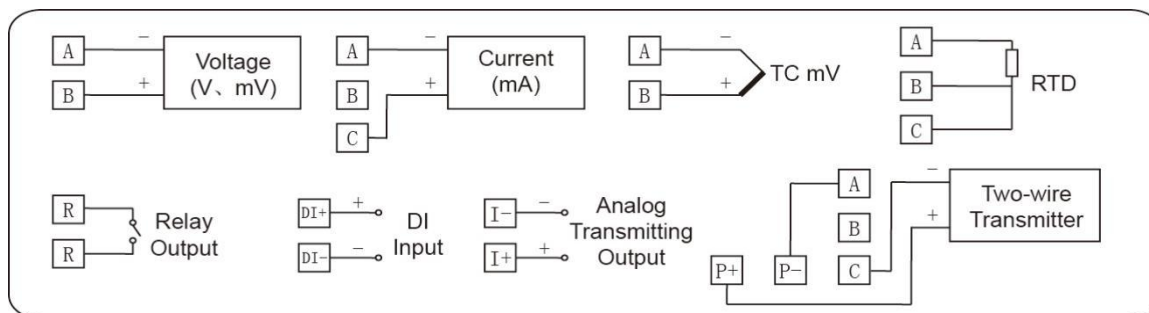


Diagram of Terminals at Instrument End



Wiring description



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