



**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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All of the catalogue and company information can be found at:

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I. Product Overview

Color paperless recorder has 12-channel universal input (configurable selective input: standard voltage, standard current, thermocouple, thermal resistance, millivolt etc.). It can be equipped with 12-channel alarming output or 6-channel transmitted output of analog quantity, RS485 communication interface, Ethernet interface, micro printer interface and USB interface, SD card socket; It can provide power distribution for sensor; It has powerful display function, real-time curve display, historical curve recall, and bar chart display, alarming list display, etc. The characteristics of humanized appearance design, perfect function, reliable hardware quality and exquisite manufacturing technology render the instrument a higher performance-price ratio.



II. Technical Parameters

Measurement inputs	
Input signals	Current: 0~20mA, 0~10mA, 4~20mA, 0~10mA radiation, 4~20mA radiation Voltage: 0~5V, 1~5V, 0~5V radiation, 1~5V radiation, 0~100mV, $\pm 20\text{mV}$, $\pm 100\text{mV}$ Thermal resistance: Pt100, Cu50, Cu53, Cu100, BA1, BA2 Linear resistance: 0~400 Ω Thermal resistance: B, S, K, E, T, J, R, N, F2, Wre3-25, Wre5-26
Output	
Output signals	Analog output: 4~20mA(Load resistance $\leq 380\Omega$), 0~20mA(Load resistance $\leq 380\Omega$), 0~10mA(Load resistance $\leq 760\Omega$), 1~5V(Load resistance $\geq 250\text{K}\Omega$), 0~5V(Load resistance $\geq 250\text{K}\Omega$), 0~10V(Load resistance $\geq 10\text{K}\Omega$)
	Alarming output: Relay normally open contact output, the contact's capacity 1A/250VAC (resistive load).(! Note: when the load exceeds the contact's capacity of the relay, please do not carry with load directly)
	Feed output: DC24V $\pm 10\%$, Load current $\leq 200\text{mA}$
	Communication output: RS485/RS232 communication interface, baud rate of 1200-57600 bps can be set, using the standard MODBUS RTU communication protocol, RS485 communication distance can reach 1km; RS232 communication distance can reach 15m; The EtherNet communication interface, the communication rate is 10M.

Comprehensive parameters	
Accuracy of measurement	0.2%FS±1d
Display refresh cycle	1 second
Setting mode	The panel touch button is set; The parameter's setting value is locked in password; The setting value is cut off for permanent storage.
Display mode	With 7 inch 800*480 dot matrix wide screen and TFT high brightness color graphics LCD display, LED backlight, clear screen, wide viewing angle. The display content can be composed of Chinese characters, numbers, process curves, bar charts, etc. Through panel keys, the screen can be paged up and down, the search of historical data before and after, the change of curve time scale, etc.
Data backup	Support Flash and SD card for data backup and transfer, with the maximum capacity of 8GB, supporting FAT, FAT32 format.
Memory capacity	The memory capacity of internal Flash: 64M Byte
Recording interval	1, 2, 4, 6, 15, 30, 60, 120, 240 seconds, totally 9 gears, are available for selection.
Memory length (UPS Continuous recording)	24 days (while the interval is 1 second)—5825 days (while the interval is 240 seconds) Formula: Recording duration(day)= $\frac{64 \times 1024 \times 1024 \times \text{Recording interval(s)}}{\text{No of channels} \times 2 \times 24 \times 3600}$ (! Note: Calculation of the number of channels: The program divides the number of channels into 5 gears, that is, 4, 8, 16. When the number of instrumentation channels falls between the two gears, the larger number is used as the number of channels. For example, the number of instrument channels is 12-channel, and the number of channels is calculated with 16 in the formula.
Operating environment	Ambient temperature: -10~50℃ Relative humidity: 10 ~ 90%RH (RH); avoid strong corrosive gases. (! Note: In case the site is in bad condition, special instructions must be made when ordering.
Working power supply	AC85 to 264V (switching power supply), 50/60Hz
Power Consumption	≤15W

III. Precautions for Use and Installation

3.1 Precautions for use

3.1.1 Precautions for use of this instrument

- There are more plastic parts for this instrument. When you clean it, please use a dry soft cloth to wipe it. Benzene and banana water etc. should not be used for cleaning, which it

may lead to discoloration or deformation.

- Please do not make the live parts approach the signal terminal, which may cause fault.
- Please do not impact this instrument.
- If you confirm that smoke, undesirable odor, abnormal noise and other abnormal situations occur from the instrument, please cut off the power supply immediately and contact the supplier or our company in time.
- In order to ensure the normal work of instrument measurement, please energize the thermal machine for 30 minutes prior to using the instrument.

3.1.2 Precautions for using external storage media

- Storage media is a sophisticated product. Please use it carefully.
- In addition to inserting and removing storage media, please close the operation cover when running. Storage media and USB interface should reduce contact with dust for protection.
- Pay attention to electrostatic protection when using Flash and SD card.
- Recommend the use of our products.
- When using storage media at high temperature (about above 40°C), please insert the storage media when saving the data. After the data is saved, remove it and keep it. Do not keep inserting it into the instrument for a long time.
- Before you switch on or switch off the power, please remove the storage media.
- For general precautions for use of storage media, please refer to the instructions carried for use of the storage media.

3.2 Installation of instrument

3.2.1 Sites of installation

Please install the following sites:

- Installation disk

This instrument is disk-installed.

- Place for installation

It should be installed indoors, where it can avoid rain and direct sun.

- Well ventilated places.

In order to prevent the temperature rise in the internal of this instrument, please install it in a well ventilated place.

- Places with less mechanical vibration.

Please choose a place with less mechanical vibration.

- Flat place

When installing this instrument, do not incline to the left or right, as flat as possible, with an allowable maximum backward inclination of 30°).

★ Move the instrument from the place with low temperature and humidity to the place with high temperature and humidity. If the temperature changes significantly, it will sometimes result in condensation of moisture. When the thermocouple is input, the measurement error will occur. At this time, please adapt to the surrounding environment for 1 hour or more and then continue using.

★ If it is used at high temperature for a long time, the life of LCD will be reduced (The quality of screens is reduced, etc.). Please try not to use it at high temperature (about above 40°C).

Please do not install it in the following places:

- The place where is exposed directly to the sun and the vicinity of the hot appliances.

Please try hard to choose the place with a small change of the temperature and near the normal temperature (23°C). If the instrument is installed in the place where is exposed directly to the sun or near the hot appliances, it will have a bad impact on the interior of the instrument.

- Places where there are more oil smoke, steam, moisture, dust, corrosive gas and so on.

Oil fume, steam, moisture, dust, corrosive gas and so on will have bad effects on the instrument.

- Near the source of electromagnetism

Please do not approach magnetic appliances or magnets near this instrument. If the instrument is installed near the source of strong electromagnetic field, the display error will be brought about by the influence of magnetic field.

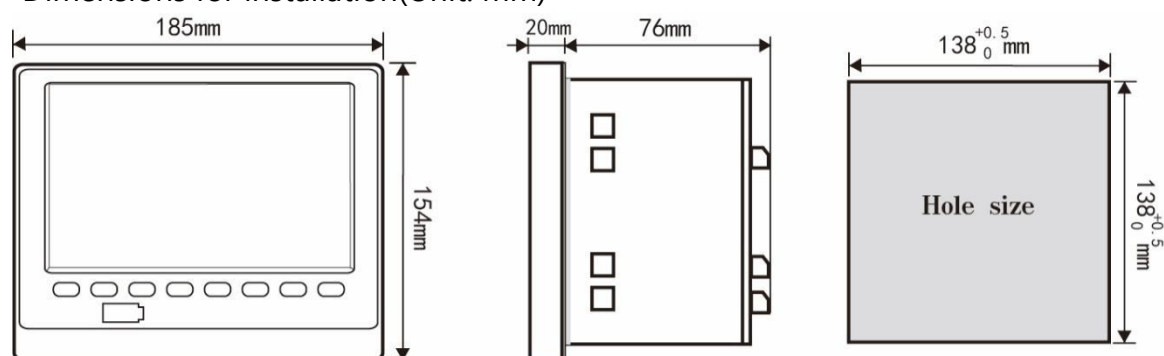
In order to avoid abnormal operation of the instrument, it is necessary to keep a distance of more than 20 cm with the instrument while using the radio frequency generator on site.

- Places that are not easy to see the screens.

The displayed part of this instrument is a 7-inch TFT true-color LCD. If it looks extremely off-centre, it will be difficult to see the display. So please try to fix it in a place where the observer can view it right ahead.

3.2.2 Methods for installation

- Dimensions for installation(Unit: mm)



- Installation of instruments

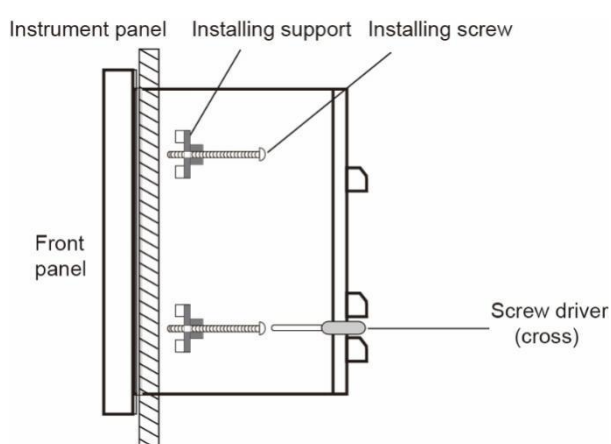
(1) Methods for installation

A. Put in the instrument from the front of the dashboard.

B. Use the mounting support carried with the instrument.

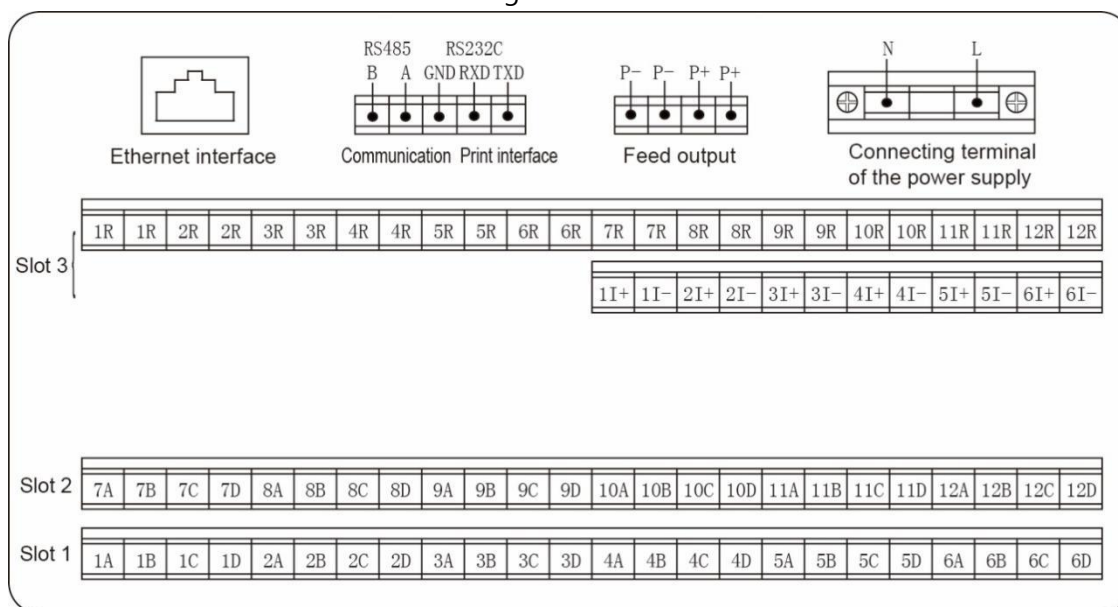
as shown in the right figure.▲Fixed four mounting brackets on both sides of the instrument .

(2) Installation figure is shown as the right figure.

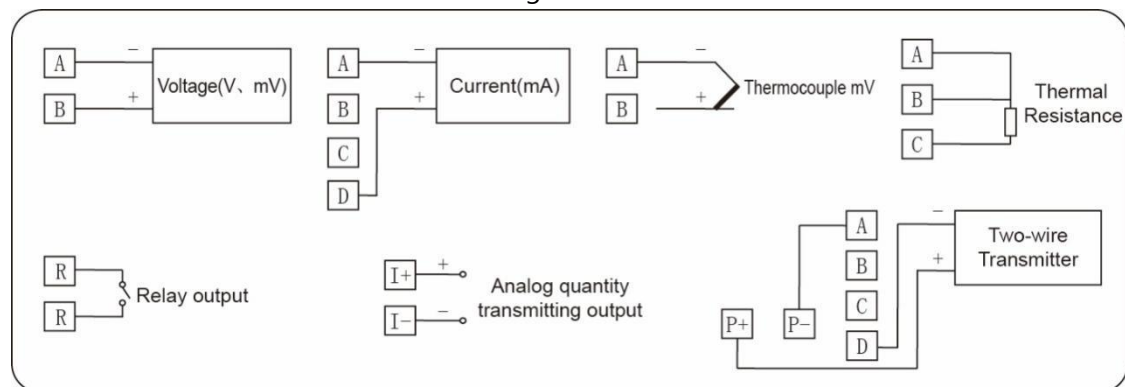


●Wiring diagram for instrument

Terminal diagram of instrument tail



Wiring illustration



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