



**2024
PRODUCT
INTRODUCTION**

Paperless Recorder

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CONTENTS

I. Product Overview3

II. Main Technical Parameters3

III. Notes for Use and Installment 4

 3.1 Notes for Use4

 3.2 Instrument Installment5

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

Universal input of color paperless recorder (capable of inputting by means of configuration: standard voltage, standard current, thermocouple, thermal resistance, millivolt, etc.). It can be equipped with 18-channel alarm output or 12-channel analog transmitting output, RS232/485 communication interface, Ethernet interface, mini-printer interface, USB interface and SD card socket; can provide sensor distribution; is equipped with powerful display function, real-time curve display, historical curve retrospection, bar graph display, alarm list display, etc. The meter is of high cost effectiveness due to its humanized design, perfect function, reliable hardware quality and exquisite craft.



II. Main Technical Parameters

Input measurement	
Input signal	Current: 0~20mA, 0~10mA, 4~20mA, 0~10mA square root, 4~20mA square root
	Voltage: 0~5V, 1~5V, 0~10V, $\pm 5V$, 0~5V square root, 1~5V square root, 0~20 mV, 0~100mV, $\pm 20mV$, $\pm 100mV$
	Thermal resistance: Pt100, Cu50, Cu53, Cu100, BA1, BA2
	Linear resistance: 0~400 Ω
Thermocouple: B, S, K, E, T, J, R, N, F2, Wre3-25, Wre5-26	
Output	
Output signal	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 $\geq 250K \Omega$), 0~5V (load resistance $\geq 250K \Omega$), 0~10V (load resistance $\geq 500K \Omega$)
	Alarm output: normally open relay contact output, where the contact capacity is 1 A/250 VAC 1A/24VDC (resistive load) (! Note: Please do not carry load directly in case the load exceeds the contact capacity of relay.)
	Feed output: DC24 V ± 1 , load current ≤ 250 mA
	Communication output: RS485/RS232 communication interface, 1,200 ~ 57,600 bps baud rate (able to be set); standard MODBUS RTU communication protocol is adopted; the communication distance of RS-485 can be as long as 1 kilometer; the communication distance of RS-232 can be as long as 15 m; EtherNet communication interface is adopted, where the communication speed is 10 M.

Comprehensive parameters	
Measurement accuracy	0.2%FS±1d
Sampling period	1 s
Setting mode	The button is set in the form of panel soft touch; setting values of parameters are locked with passwords and will be saved permanently in case of outage.
Display method	7-inch 800 * 480 dot-matrix widescreen TFT high brightness color graphics and LCD display; LED backlight; with clear pictures and wide visual angle. Display contents can be composed of characters, figures, conditional curves, bar graphs, etc.; through panel button, page turning, forward and backward search of historical data, time scale change of curves, etc. can be realized.
Data backup	Data backup and conversion storage of USB flash disk and SD card are support, where the maximum capacity is 32 GB; FAT and FAT32 formats are supported.
Storage capacity	The capacity of the internal Flash memory is 64 M Byte.
Recording interval	Nine options including 1, 2, 4, 6, 15, 30, 60, 120 and 140 s can be selected.
Storage length (continuous record without power-off)	24 days (1 s interval) – 5825 days (240 s interval) Calculation formula: recorded time (day) = $\frac{64 * 1024 * 1024 * \text{recording interval(s)}}{\text{Channel number} * 2 * 24 * 3600}$ (! Note: For calculation of channel number, the program divides the channel number into five options, namely 4, 8, 16, 32 and 64, and the bigger figure should be regarded as the channel number for calculation in case the channel number of the instrument is between the said two options. For example: If the channel number of the instrument is 12, then 16 should be adopted in the formula.)
Environment condition	Environment temperature: -10 ~ 50°C; Relative humidity: 10 ~ 90% RH (without condensation of moisture); Avoidance of contact of high corrosive gas. (! Note: If the field environment is poor, special instruction should be given when ordering.)
Working power supply	AC 85 ~ 264 V (power supply of the switches), 50/60 Hz; DC12 ~ 36 V (power supply of the switches);
power consumption	≤20 W.

III. Notes for Use and Installment

3.1 Notes for Use

3.1.1 Notes for Use of this Instrument

- Please do not make charged goods close to signal terminals for it may result in failure.
- Please do not bring charged items closely to signal terminals as it may result in failure.

- Please do not shock this instrument.
- If you confirm occurrence of such abnormal circumstances as smoke emission from the instrument, smelling of peculiar smell, abnormal noise sent out by the instrument, etc., please cut off the power supply immediately and contact the supplier or our company timely.
- To ensure the instrument can operate normally, please power the instrument with electric machine for 30 minutes before using it.

3.1.2 Notes for Use of the External Storage Media

- For storage medium is a kind of precision product, please take care in applications.
- Except from inserting and removing the storage media, please close the operation cover in case of operating. Contact with the dust should be reduced in terms of the storage media and the USB interfaces to get protected.
- Please take notice of static protection when using USB flash disk and SD card.
- Products from our company are recommended.
- When using the storage media under high temperature (above 40°C approximately), please insert the storage medium at the time of saving data, remove it after the data are saved, and do not insert it in the instrument for a long time.
- Please remove the storage medium before opening/closing power supply.
- For general notes for use of the storage media, please refer to the instruction manual attached by the used storage medium.

3.2 Instrument Installment

3.2.1 Installment Site

Please install the instrument at the following sites.

- Installment disk

This instrument is with disk mounted type.

- Installed places

The instrument should be installed in the interior, where wind and rain as well as direct

solar radiation should be avoided.

- Places with good ventilation

To prevent the interior temperature of the instrument from increasing, please install the instrument at the places with good ventilation.

- Places with less mechanical vibration

Please choose places with less mechanical vibration to install the instrument.

- Horizontal places

Please do not tend to the left or the right when installing this instrument, but should try best to keep horizontal (able to tend to the back with the maximum of 30°).

! Note

* When moving the instrument from the place with low temperature and humidity to the place with high temperature and humidity, if the temperature is under great change, condensation of moisture may sometimes occur and measurement errors may appear when thermocouple is inputted. In such situation, please adapt to the surrounding environment for over 1 hour before using the instrument.

* If the instrument is used under high temperature for a long time, the service life of LCD may be shortened (reduction of image quality, etc.). Please try not to use the instrument under high temperature (above 40°C approximately).

Please do not install the instrument at the following places:

- Please choose the places with small temperature change and approximate to the normal temperature (23°C) to install the instrument. If the instrument is installed at the places that can be directly shined by sunlight or places near thermal appliances, then bad influences may be imposed on the inside part of the instrument.

- Places with surplus oil smoke, steam, humid gas, dust, corrosive gas, etc.

Oil gas, steam, humid gas, dust, corrosive gas, etc. may impose adverse effects on the

instrument.

- Places near galvanomagnetic generating sources

Please do not make magnetic appliances or magnets close to this instrument. If the instrument is installed near the generating sources of the strong electromagnetic field, the influences brought by the magnetic field may result in display errors.

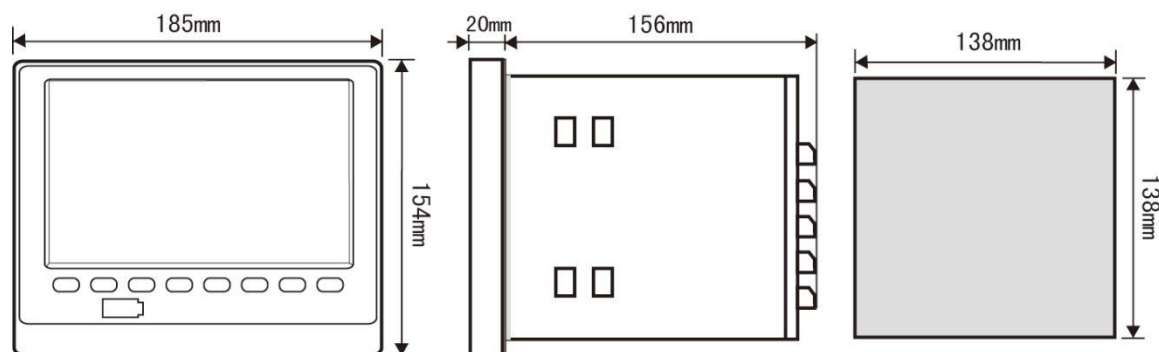
To avoid abnormal operation of the instrument, a distance above 20 cm should be kept from the instrument when radio frequency generator is used on the spot.

- Places inconvenient to watch images

7-inch TFT true-color LCD is adopted for the display part of this instrument. For display contents cannot be seen clearly from an extremely eccentric angle, so please install the instrument at the places where observers can watch from the front face.

3.2.2 Installment Method

- Installment dimensions (Unit: mm)



- Instrument installment

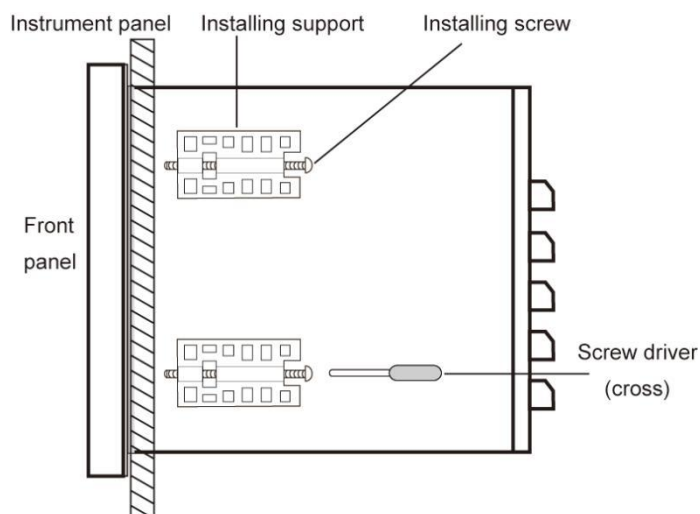
(1) Instrument method

A. Insert the instrument from the front of the instrument panel

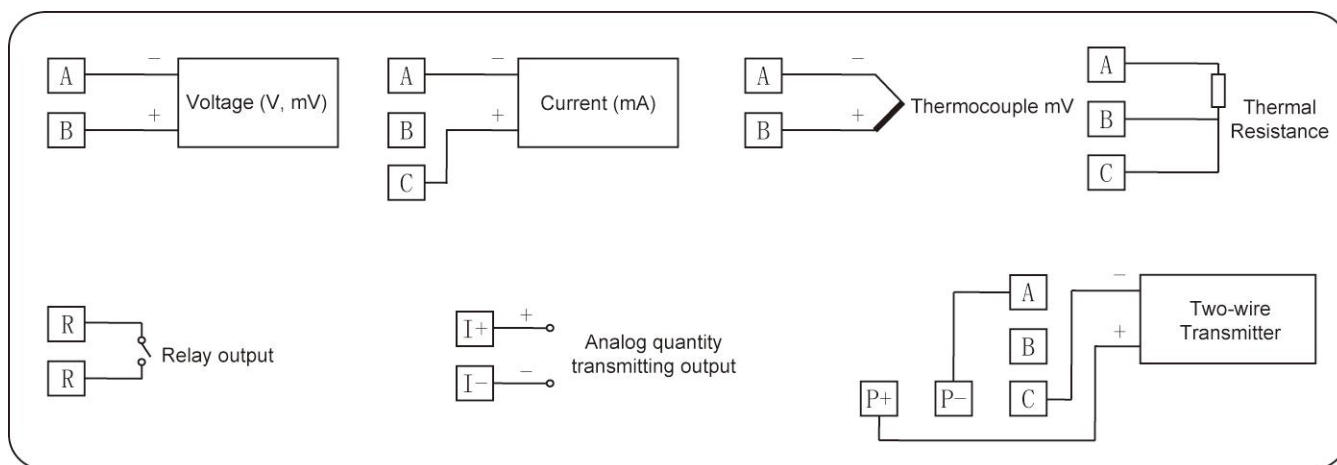
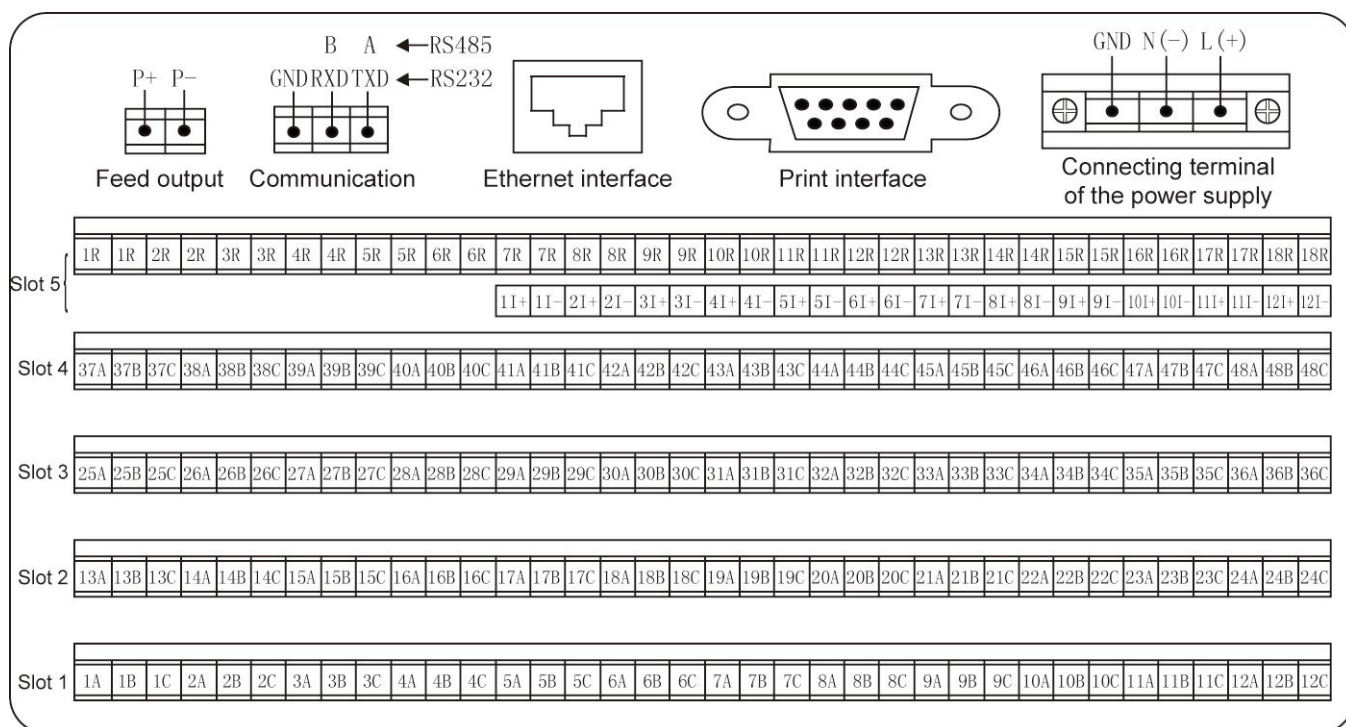
B. Utilize the installing supports equipped by the instrument

Installment method is as shown on the right figure.

- ▲ Two sides of the instrument are



fixed by four installing supports.



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