

Color Paperless Recorder

INSTRUCTIONS

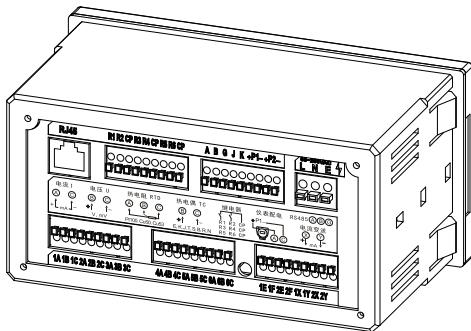
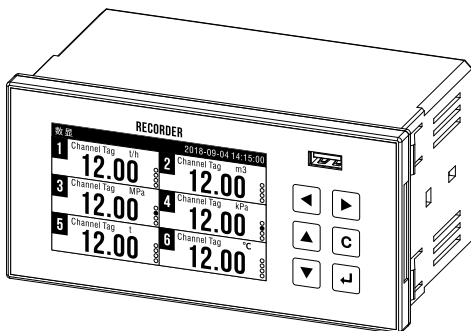


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1 Safety and packing

Document information

Thank you for buying our products. This specification describes the information required for product use, including product identification, storage, installation, commissioning, electrical connections, operation settings and troubleshooting.

Cautions for safe use

- **Installation and Environment of the Instrument.**

Please do not put the instrument in a place where there are flammable gases and steam to run and store.

- **Reliable grounding is necessary.**

In order to prevent the occurrence of electric shock accidents, before closing the power switch, it is necessary to confirm that the grounding of the instrument is effective and reliable.

- **Turn off the power supply when there is a fault.**

When the instrument has abnormal odor, sound, smoke, shell temperature rise, please cut off the power supply.

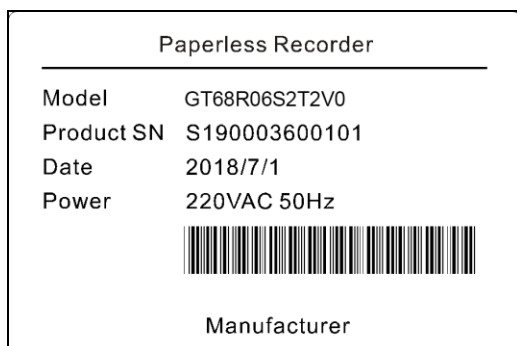
- **Do not repair or alter this instrument by yourself.**

Confirmation of type and packing content

Before opening the packing box, confirm whether the packing is damaged or not; after opening the packing, if you find that there is a wrong model, quantity or physical damage on the appearance, please contact our company or the distributor who sells this product. The contents of packing are as follows:

Name	Quantity
Paperless Recorder	1
Mounting bracket	2
USB Disk	1
Quick Operating Manual	1
Certificate	1

Product identification (nameplate)



Notice: Please check the power specifications according to the order model and make sure that the type of power supply is 220V AC or 24V DC in order to avoid damaging the instrument.

2 Product Technical Indicators

This product is an industrial paperless recorder with 6 channels totally isolated universal input. It can receive signals such as current, voltage, thermocouple and thermal resistance, display them in real time in the form of data and curves, and store the data in the internal electronic memory of the machine regularly. The device can quickly transfer the historical data through the USB interface. The functions of the instrument are as follows:

- 6-Channel Universal Signal Input and Isolated
- Four-inch 800 dot matrix full-color LCD display
- Standard 2-way relay output
- Standardized 2-way DC 24V Distribution
- Standardized High Speed USB Interface
- 128Mb Memory 900,000 History Records

Technical Indicators

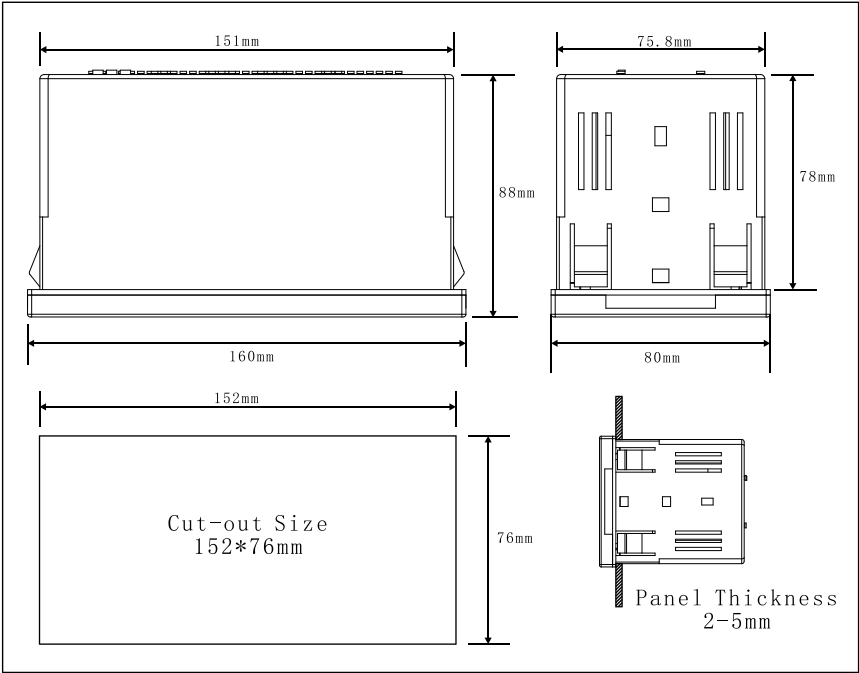
Analog Input			
Channels	6 Channels and isolated		
Signal	Current: 0-10mA、4-20mA、4-20mA Sqrt		
	Voltage: 0-5V、1-5V、0-10V 0-20mV、0-100mV		
	RTD: Pt100、Cu50、Cu53		
	TC: K、S、B、J、R、N、T、E WRe3-25、WRe5-26、F1、F2		

Signal Range			
Category	Signal	Measure Scale	Precision (25 °C)
Current	4-20mA	4.00mA~20.00mA	±0.2%
	0-20mA	0.00mA~20.00mA	±0.2%
	0-10mA	0.00mA~10.00mA	±0.2%

Voltage (V)	1-5V	1.000V~5.000V	$\pm 0.2\%$
	0-5V	0.000V~5.000V	$\pm 0.2\%$
	0-10V	0.00V~10.00V	$\pm 0.2\%$
Voltage mV	20mV	0.00mV~20.00mV	$\pm 0.2\%$
	100mV	0.00mV~100.00mV	$\pm 0.2\%$
Freq	Fr	0Hz~10000Hz	1Hz
RTD	Pt100	-200.0℃~650.0℃	$\pm 0.5^\circ\text{C}$
	Cu50	-50.0℃~140.0℃	$\pm 0.5^\circ\text{C}$
	Cu53	-50.0℃~150.0℃	$\pm 0.5^\circ\text{C}$
TC	S	-50℃~1768℃	$\pm 3^\circ\text{C}$
	R	-50℃~1768℃	$\pm 3^\circ\text{C}$
	B	250℃~1820℃	$\pm 3^\circ\text{C}$
	K	-50℃~1300℃	$\pm 2^\circ\text{C}$
	N	-200℃~1300℃	$\pm 3^\circ\text{C}$
	E	-100℃~1000℃	$\pm 2^\circ\text{C}$
	J	-100℃~1000℃	$\pm 2^\circ\text{C}$
	T	-200℃~400℃	$\pm 2^\circ\text{C}$
	WRe5-26	0℃~2310℃	$\pm 2^\circ\text{C}$
	WRe3-25	0℃~2315℃	$\pm 2^\circ\text{C}$
	F1	700℃~2000℃	$\pm 2^\circ\text{C}$
	F2	700℃~2000℃	$\pm 2^\circ\text{C}$

3 Dimensions and mounting

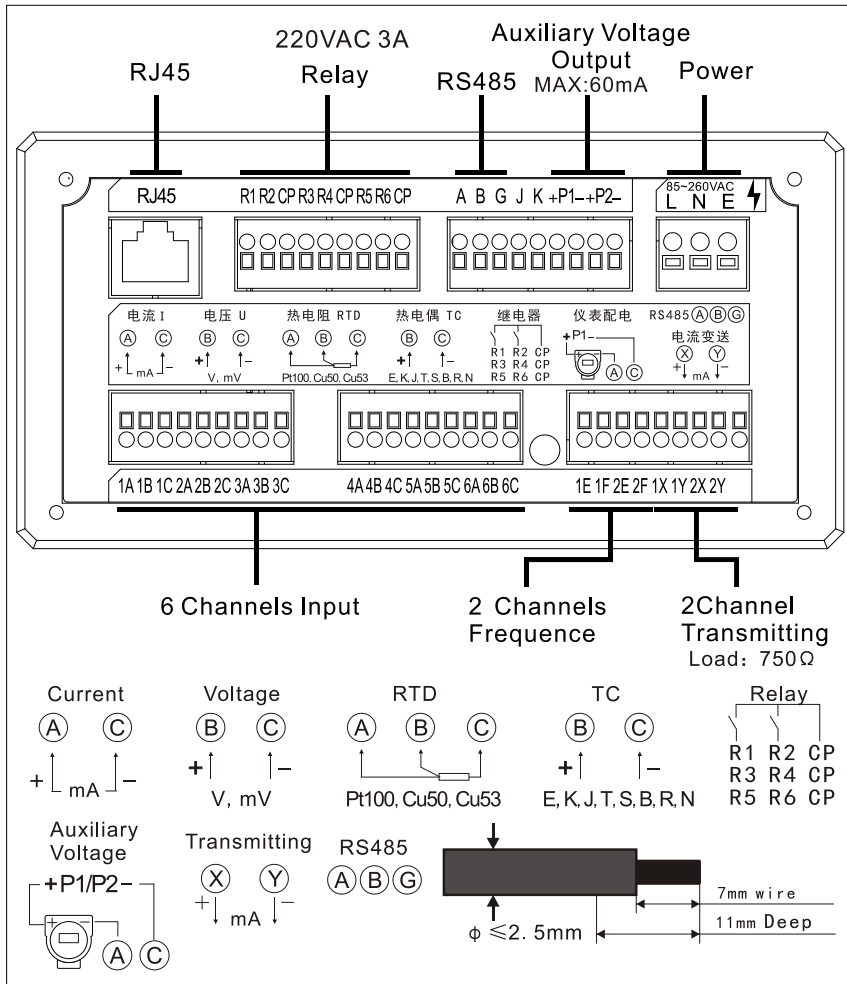
This product is designed as an indoor panel mounting instrument. The dimensions of the instrument and the opening are as follows:



4 Electrical Connection

The analog signal input of this product is universal signal input, the channel is completely isolated, and the frequency signal has a dedicated input channel. Before wiring the instrument, please pay attention to:

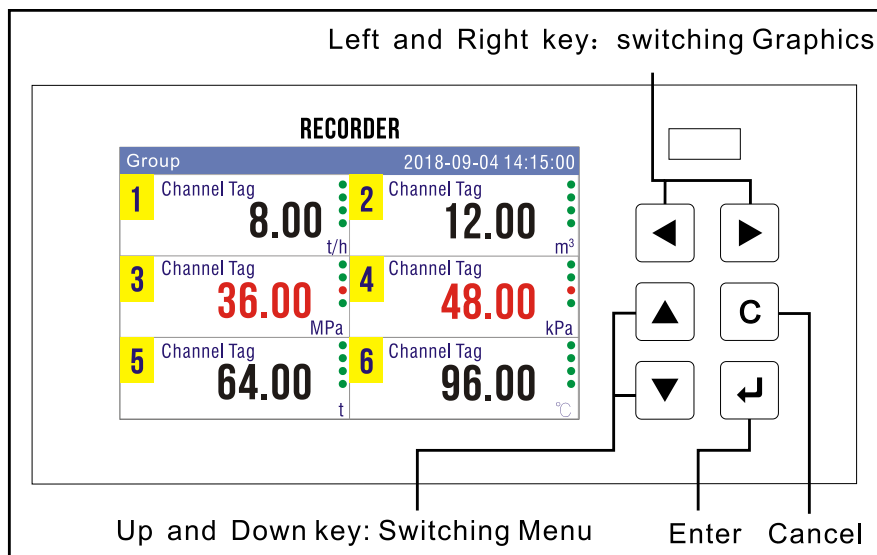
- Please operate when the instrument is powered off.
- Make sure the ground wire is connected before wiring.



Terminal Layout

5 Display and Operation

5.1 Keyboard Operation



Right and left key: switch display screen

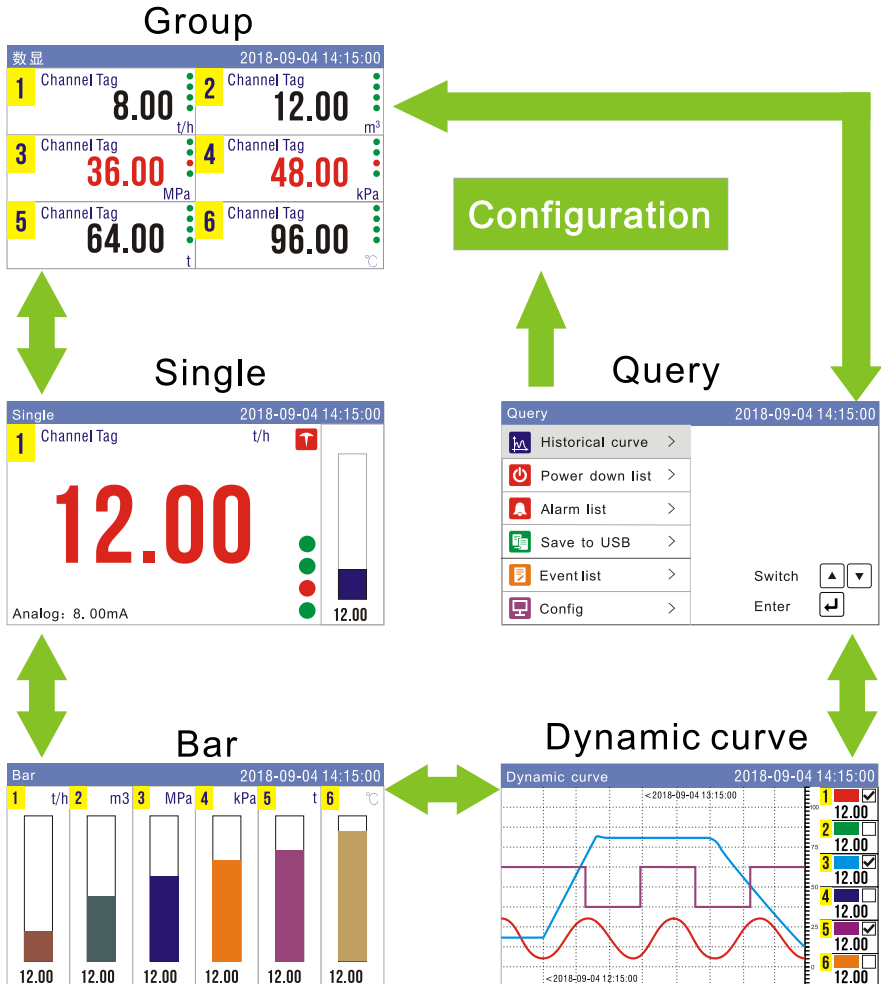
Up and down keys: toggle menu entries

Enter key: Confirm or enter the lower menu, edit data

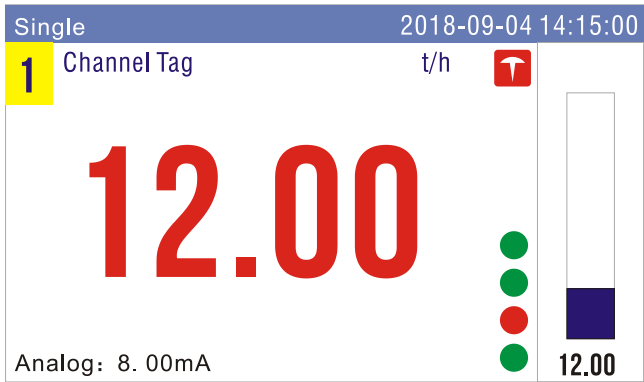
Cancel key: Return or cancel the current operation

5.2 Running Display Screen

The running display screen is switched in the following order, and the screen is switched by pressing the left and right buttons.

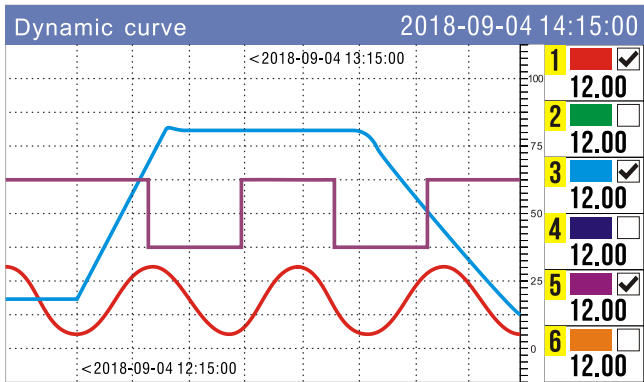


Single Channel Display



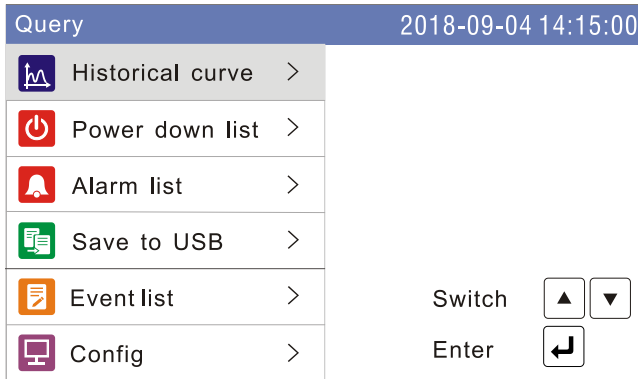
Up and down key: Switch channel
Enter key: Fix display channel

Real-time Curve Display



Up and down key: Toggle channel selection
Enter key: Hide or show channel curve

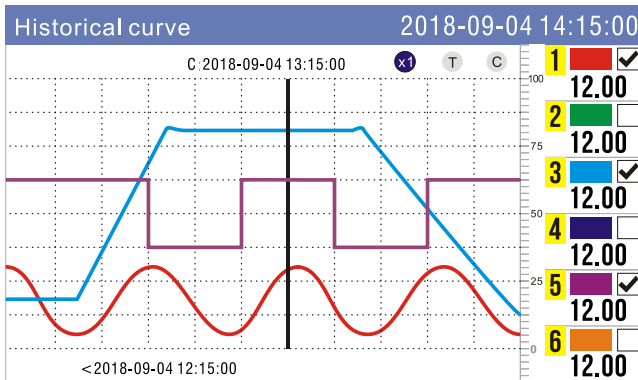
Query



Up and down key: Switch function entry

Enter key: Enter into

5.3 Showing measured values history



Left and right key: Move cursor

Up and down key: switch function

Enter key: Execution

ⓧ1 Zoom 1/2/4/8 Times Ⓒ Show/Cursor Cursor

Ⓓ Historical Data Query ☒ Show/Hide channel

5.4 Power/Alarm/System log

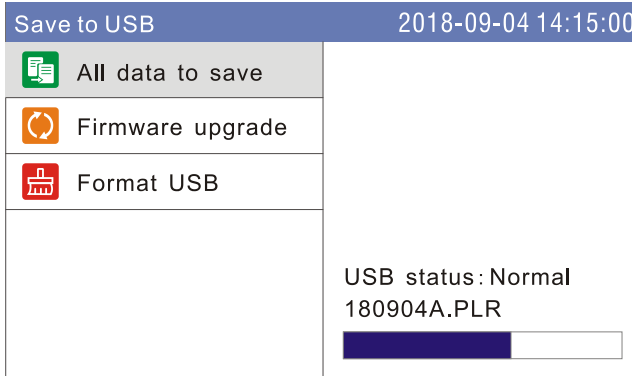
There are 256 records of power down, alarm and system logs respectively. [Left and Right Keys] Page-turning browse, [Up and Down Keys] single line browse, [Cancel key] exit.

Power down list				2018-09-04 14:15:00
NO.	Power down	Power on	Timespan	
1	18-08-01 12:00:00	18-08-01 13:00:00	1h0m0s	
2	18-08-02 12:00:00	18-08-02 13:10:00	1h10m0s	
3	18-08-03 12:00:00	18-08-03 13:20:00	1h20m0s	
4	18-08-04 12:00:00	18-08-04 13:30:00	1h30m0s	
5	18-08-05 12:00:00	18-08-05 13:40:00	1h40m0s	
6	18-08-06 12:00:00	18-08-06 13:50:00	1h50m0s	
7	18-08-07 12:00:00	18-08-07 13:00:00	1h0m0s	
8	18-08-08 12:00:00	18-08-08 13:00:00	1h0m0s	
9	18-08-09 12:00:00	18-08-09 13:00:00	1h0m0s	
10	18-08-10 12:00:00	18-08-10 13:00:00	1h0m0s	
Alarm list				2018-09-04 14:15:00
NO.	Channel	Type	Status	Time
1	1	LO	Alarm	18-08-01 12:00:00
2	1	LO	Elimination	18-08-02 12:00:00
3	1	LO	Alarm	18-08-03 12:00:00
4	1	LO	Elimination	18-08-04 12:00:00
5	1	LO	Alarm	18-08-05 12:00:00
6	1	LO	Elimination	18-08-06 12:00:00
7	1	LO	Alarm	18-08-07 12:00:00
8	1	LO	Elimination	18-08-08 12:00:00
9	1	LO	Alarm	18-08-09 12:00:00
10	1	LO	Elimination	18-08-10 12:00:00
Event list				2018-09-04 14:15:00
NO.	Time	Event		
1	18-08-01 12:00:00	Login		
2	18-08-02 12:00:00	Changing time		
3	18-08-03 12:00:00	Modified interval		
4	18-08-04 12:00:00	Factory Setting		
5	18-08-05 12:00:00	Export		
6	18-08-06 12:00:00	Changing password		
7	18-08-07 12:00:00	Login		
8	18-08-08 12:00:00	Login		
9	18-08-09 12:00:00	Login		
10	18-08-10 12:00:00	Login		

5.5 Data Transfer

After inserting the USB disc, it will automatically go to the data transfer function interface or enter through the function query interface.

[Enter key] Performs data transfer function.

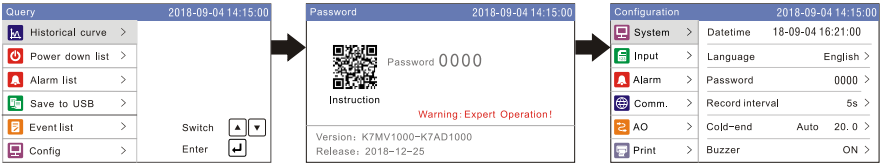


- Data includes historical data, power-down record, alarm record and operation log.
- Files are named by date, such as 180904A. PLR
- File output directory is PLR Folder under Ultimate Root Directory
- Using Paperless Recorder Software (PLR. EXE)
- Firmware upgrade function, please contact the manufacturer

6 Configuration

6.1 Login Configuration

Press [left and right key] to switch to the functional query interface, press [up and down key] to select the configuration settings, press [confirmation key] to enter the login interface, enter the password, press [confirmation key] to enter the configuration interface, the initial password is 0000.



6.2 System configuration

Configuration		2018-09-04 14:15:00
System	>	Datetime 18-09-04 16:21:00
Input	>	Language English >
Alarm	>	Password 0000 >
Comm.	>	Record interval 5s >
AO	>	Cold-end Auto 20.0 >
Print	>	Buzzer ON >

- Date and Time: Setting Instrument System Time
- Language: Chinese or English
- Password: Initial 0000
- Recording Intervals: 1 second, 2 seconds, 5 seconds, 10 seconds, 15 seconds, 30 seconds, 1 minute, 2 minutes, 5 minutes, 10 minutes, 30 minutes, 1 hour
- Cold-end Compensation: automatic and manual

Restore factory settings: The main default parameters are as follows:

System Configuration			
Language	Chinese	Password	0000
Record Interval	5 Seconds	Cold-end Compensation	Automatic
Input Configuration			
Signal	4-20mA	Decimal Point	2
Unit	°C	Scale	0.00-100.00
Communicate Configuration			
Address	1	Baud Rate	9600
Parity	No Parity	Byte Swap	2143
Alarm Configuration			
Relay Delay	0 Second	Alarm Backslash	0.0

6.3 Input Configuration

Configuration		2018-09-04 14:15:00	
 System	>	Channel	01
 Input	>	Tag	Channel01 >
 Alarm	>	Signal type	Current >
 Comm.	>	Signal	4-20mA >
 AO	>	Unit	°C >
 Print	>	Decimal Point	2 >
		Scale L	0. 00 >
		Scale H	100.00 >
		K	1. 00 >
		B	0. 00 >
		Burnout	#### >
		Filter	0. 0s >

Channel: Channel serial number, Hold [Enter key] to copy current parameters to all channels

Channel Tag: Chinese, English, Symbol, 16 Character Length

Signal types: current, voltage V, voltage mV, TC, RTD

Signals:

Current	4-20mA、0-20mA、0-10mA
Voltage V	1-5V、0-5V、0-10V
Voltage mV	0-100mV、0-20mV
TC	K、S、B、J、R、N、T、E、 WRe3-25、WRe5-26、F1、F2
RTD	Pt100、Cu50、Cu53、Cu100

Unit:

"°C", "°F", "kg/h", "t/h", "m3/h", "km3/h", "L/h", "Nm3/h",
 "kNm3/h", "bar", "mbar", "mmH2O", "mmHg", "Pa", "kPa",
 "MPa", "atm", "kgf/cm2", "mm", "cm", "m", "km", "Wh",
 "kWh", "W", "kW", "MW", "kJ", "Hz", "kHz", "MHz",
 "g", "kg", "t", "mV", "V", "kV", "mA", "A", "kA", "kJ/h",
 "MJ/h", "GJ/h", "ppm", "ppb", "%", "‰", "ppmO2", "ppmH2",
 "%O2", "%LEL", "NTU", "ug/h", "ug/kg", "rpm", "uS/cm",
 "mS/cm", "MOcm", "r/min", "PH", "%RH", "N", "mg/L",
 "g/L", "kg/m3", "kcal/m3", "m/min", "m/s"

Decimal Points: 0-3 Bits Settable

Range: -999999-999999 Settable

Multiplier Adjustment K: Quantity Multiplier Adjustment

Addition Adjustment B: Addition and subtraction of works

Broken line processing: \\ maximum, minimum, keep;

Minimum value of data when selecting ##.

Filtering: Inertial filtering, 0.0-9.9 seconds set, the longer the time,
 the stronger the filtering.

6.4 Alarm Configuration

Configuration		2018-09-04 14:15:00
 System >	Channel	01
 Input >	Status	OFF
 Alarm >	Relay delay	0S >
 Comm. >	Backlash	1. 00 >
 AO >	Alarm Low	20. 00 >
 Print >		Relay01 >
	Alarm Hi	80. 00 >
		Relay 02 >
	Alarm LL	10. 00 >
		Relay 03 >
	Alarm HH	90. 00 >
		Relay 04 >

Channel: Channel Number

Status: Enable Close

Relay delay: 0-60 seconds can be set; when alarm triggers, relay suction delay time

Alarm backlash: Prevent alarm from frequent fluctuation due to numerical value near the alarm limit. Set backlash

Alarm limit: greater or less than or equal to the time alarm

Relay: External contact, acoustooptic alarm

6.5 Communication Configuration

Configuration		2018-09-04 14:15:00
 System >	Address	001
 Input >	Baudrate	115200
 Alarm >	Check	None >
 Comm. >	Byte swap	2143 >
 AO >		
 Print >		

Address: 1-247; Modbus RTU slave device address

Baud rate: default 115200; optional 9600, 19200, 38400, 57600, 115200

Check: default no check; optional no check, odd check, even check

Byte swap: default 2143; floating-point byte swap order

The list of parameter register offset addresses is as follows: (in hexadecimal)

Param	Register	Type	Operation
Channel 1	0000H	float	Read Only
Channel 2	0002H	float	Read Only
Channel 3	0004H	float	Read Only
Channel 4	0006H	float	Read Only
Channel 5	0008H	float	Read Only
Channel 6	000AH	float	Read Only

6.6 Transmitting Configuration

Configuration		2018-09-04 14:15:00
 System	>	Channel 01
 Input	>	Source 01
 Alarm	>	
 Comm.	>	
 AO	>	
 Print	>	

Transmitter Channel: Channel Number
Source Channel: Transmitter Source Channel , 0 indicate Close

6.7 Print Configuration

Configuration		2018-09-04 14:15:00
 System	>	Print interval 1 Minute >
 Input	>	
 Alarm	>	
 Comm.	>	
 AO	>	
 Print	>	

Printing interval: 1-30 minutes can be set; after setting the start interval to print data list, need to add a micro printer.

6.8 Input Method

Channel01													C Delete	
Alpha	A	B	C	D	E	F	G	H	I	J	K			
Number	L	M	N	O	P	Q	R	S	T	U	V			
Symbol	W	X	Y	Z	a	b	c	d	e	f	g			
Exit	h	i	j	k	l	m	n	o	p	q	r			
	s	t	u	v	w	x	y	z						
◀▶ Choose Enter key: Confirm														

The input method is used in text editing. On the left, [up and down keys] switch the classification and alphabet, on the right, [left and right keys] move the text cursor, [confirmation keys] select the text, [Cancel C keys] delete the text.

Exit: [Up and down key] Select red exit category, save exit or not.

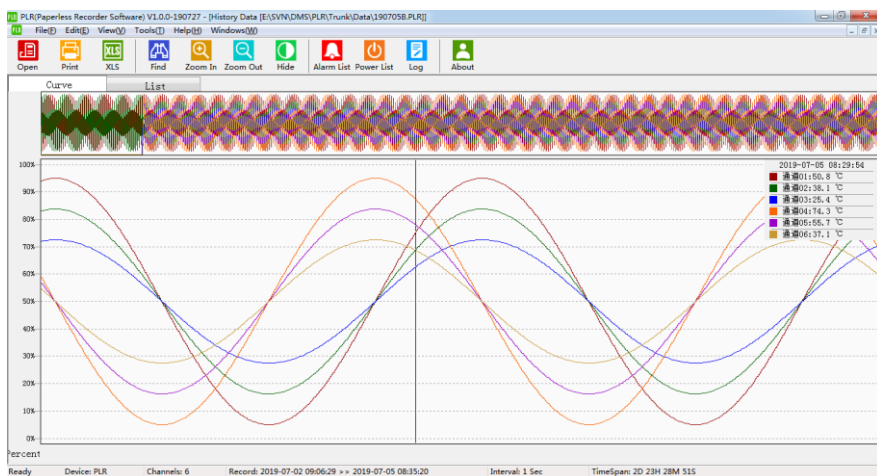
7 PC Software

The file of the recorder is 190401A. PLR, which is opened by the PC software PLR. EXE. The software installation package can be obtained from the recorder. The software icon is as follows:



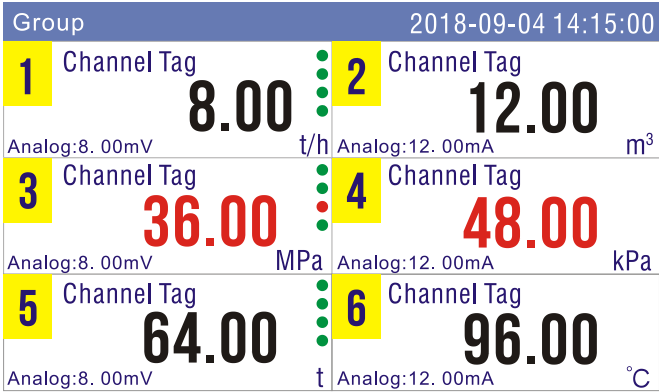
PLR.EXE

The software operation interface is as follows. Please use the software help file for specific software use.



8 Troubleshooting

On the digital display screen, the original signal value is displayed by pressing the confirmation key, which is used to confirm the debugging signal.



Common troubleshooting methods	
The data is not displayed correctly.	Connection error: Please check whether the input signal line is connected correctly.
	Configuration error: whether the signal type, range, etc. are correctly configured.
Display #####	disconnection sign. Please check the configuration and electrical connection correctly.
Disk Insert No Reaction	Format disk or use Ultimate Disk for Equipment

9 Specification

Project	Specification
Instrument dimensions	Panel 160*80mm, opening 152*76mm
Instrument weight	450 grams
Installation mode	Disk-mounted, indoor
Measuring Channel	6-channel universal analog input, channel isolation, 2-channel frequency signal input
measurement accuracy	0.2% F.S.
sampling period	One second
Signal type	Current: 4-20 mA, 0-20 mA, 0-10 mA; Voltage: 1-5V, 0-5V, 0-10V; 0-100mV, 0-20mV; TC: K, S, B, J, R, N, T, E, WRe3-25, WRe5-26, F1, F2; RTD: Pt100, Cu50, Cu53.
24VDC Distribution	2 routes 24 VDC (+10%) 30 mA per route
Alarm relay	6-way open relay, 250VAC 3A, 30VDC 3A (resistive load)
Transmit Output	2-way 4-20 mA transducer output, load < 750_
Power supply	AC 100-240 VAC 50Hz/DC 24VDC+10%
Preheating time	30 minutes after power-on
work environment	Temperature: - 10 - 60 C humidity: 0 - 85% RH (no condensation)
LCD screen	4 inch color LCD screen
Data memory	128Mb, 900,000 records
Other records	256 alarm records, 256 power-down records, 256 operation logs
RS485	Route 1, Standard Modbus RTU Protocol
USB	USB2.0
Ethernet	RJ45