



ISEN series Paperless Recorder



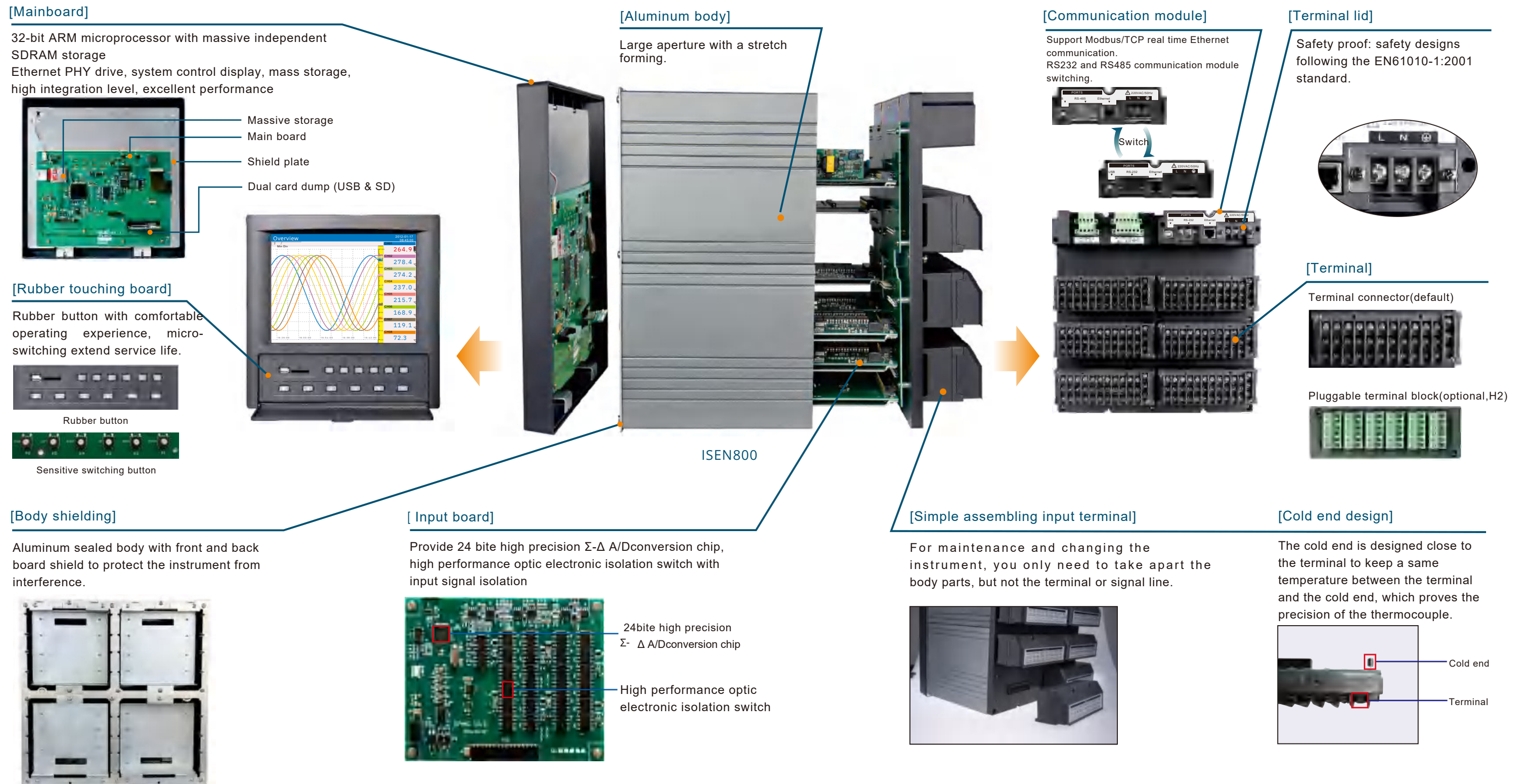
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Instrument structure -Name of all parts, design feature and craft



Design craft and functional features of all parts
(header, body, terminal, etc.).



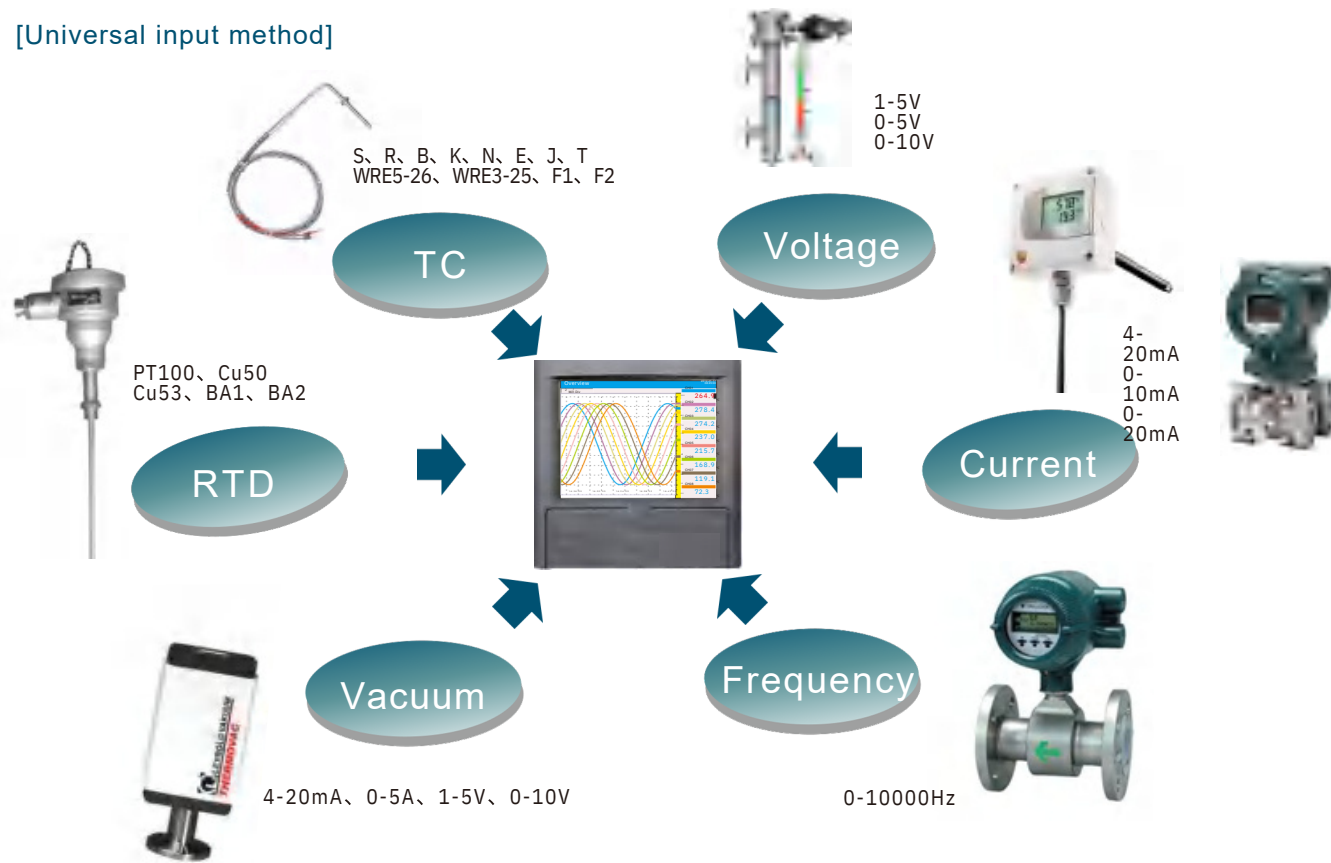
Basic function -Multiple input method, low temperature drift, anti-interference



Universal input method , isolated input signal, 24VDC transmitter power output
Low temperature drift, anti-interference, remarkable performance under mal-condition

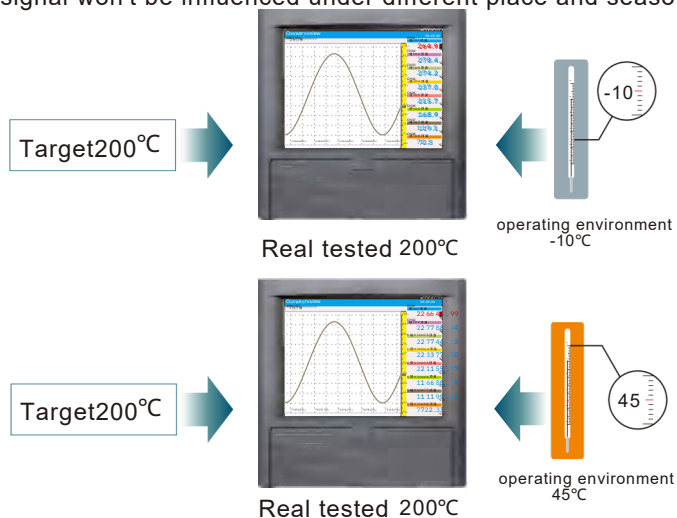
Input function

[Universal input method]



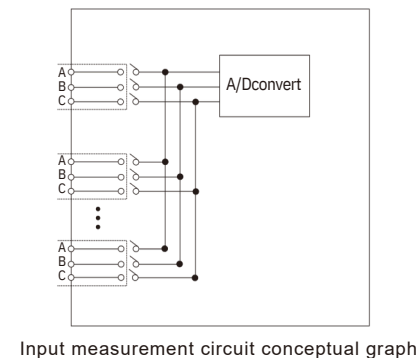
[Low temperature drift]

Low temperature drift coefficient. The testing result of input signal won't be influenced under different place and season.



[Channel segregation]

Every signal input channel is isolated with the isolated voltage: 400VAC
The anti-interference blend membrane proves the stable measurement of the meter under all conditions.



EMC

[Comply with safety and EMC regulation]

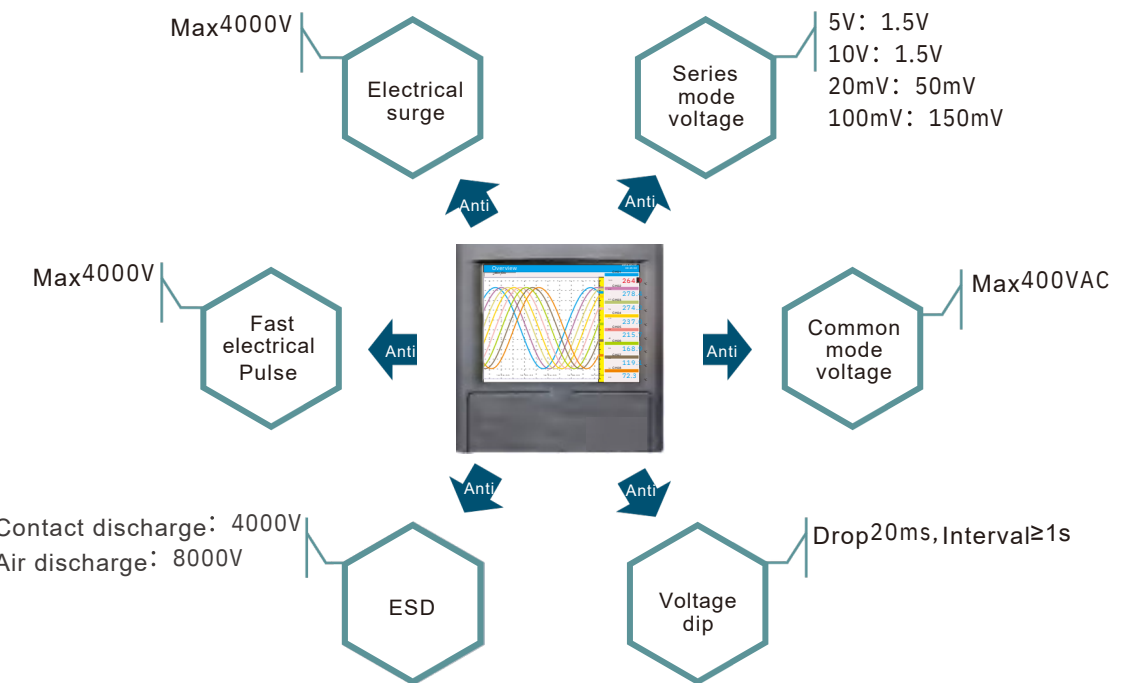
ISEN series has passed district EMC(electromagnetic compatibility) test and has got CE certificate.

Safety verification: EN61010-1:2001

Electromagnetic compatibility: EN61326-1:2006

EN61000-3-2:2006

EN61000-3-3:2008



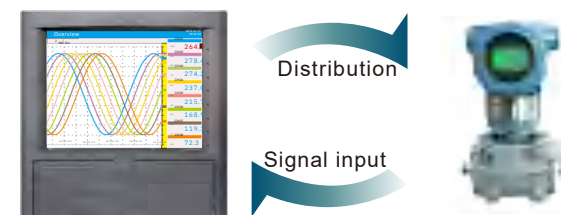
Output function

[24VDC transmitter power output]

Output voltage: 24V $\pm$ 5%

Max output current: 65mA

(Over current protection : about 90mA)



[Analog output]

Output type: 4-20mA

Permitted impedance : $\leq 750\Omega$



Basic function - Multiple recording ways, data backup and dump



Continuous and batch record modes
Real time data record
U disk and SD card real time data backup and dump
Simple configuration mode

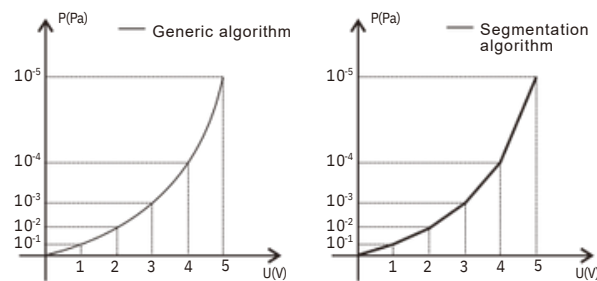
Vacuum operation

[Ordinary vacuum operation]

The Semaphore has a linear relationship with vacuum degree.

[Subsection vacuum operation]

It is divided into several sections according to the magnitude of vacuum degree. The semaphore of each endpoint has a linear relationship with the logarithm of the vacuum degree. The semaphore of the same period has a linear relationship with the vacuum degree.

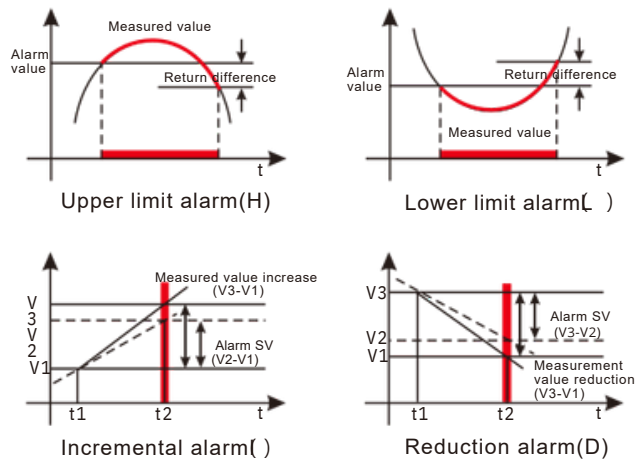


Alarm

Alarm type: HIAL(H), LOAL(L)

Incremental alarm(I), Decrement alarm(D)

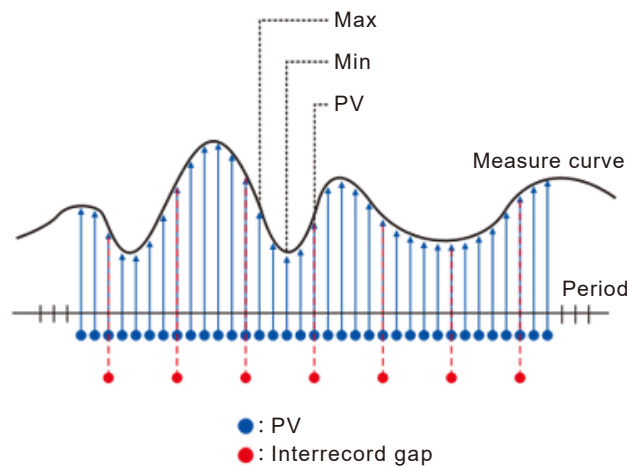
Alarm number: every channel can set four independent different types of alarm.



Record function

[Data content]

The recorded data can show the real time value, minimum value and maximum value of the every recording interval.

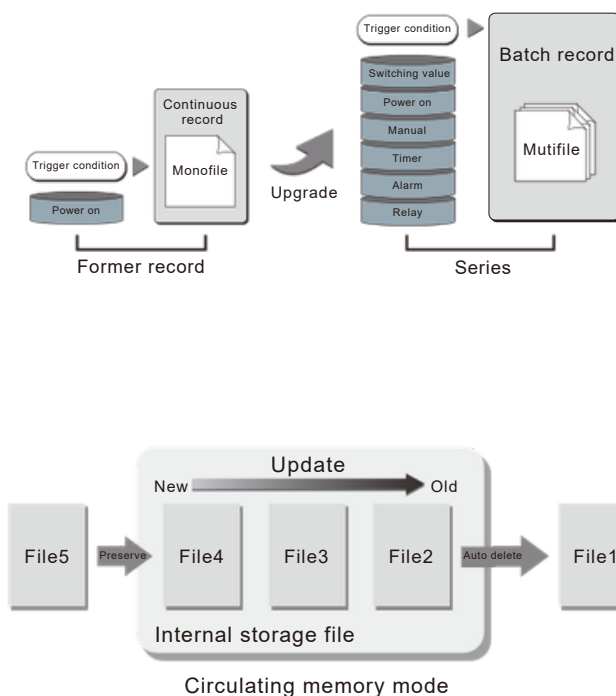


[Inner storage: fifo memory]

Turn on the circular storage mode, the fifo mode can always make sure the file being preserved automatically at the inner storage thus it can maintain the latest data. When the storage is full, the old data will be deleted automatically to make room for the new data. This can ensure the long time continuous use.

[Record mode]

The record mode is updated from ordinary monofile continuous record to multifile batch record. It also has various trigger conditions: (switching value, power on, manual, timer, alarm, relay).



Backup and dump

[External SD card port]

As an external storage media, SD card can extend the volume of the memory.

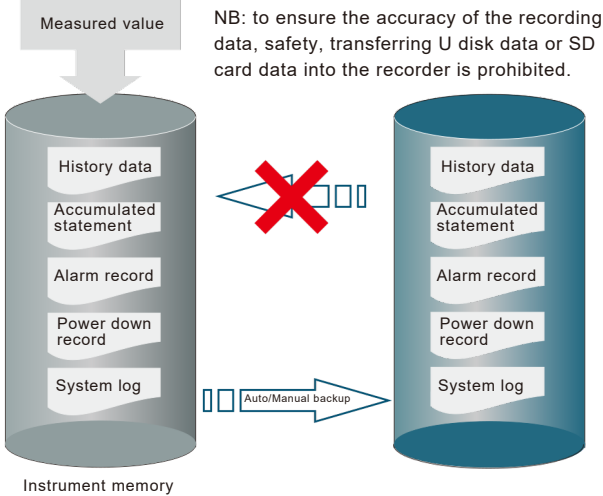
[External u disk port]

U disk port: easy data transfer.



[Auto backup]

It will backup the external SD card automatically. Massive storage. Prolonged record time. If being counted one calculation per second, the record time can upon one year.



NB: to ensure the accuracy of the recording data, safety, transferring U disk data or SD card data into the recorder is prohibited.

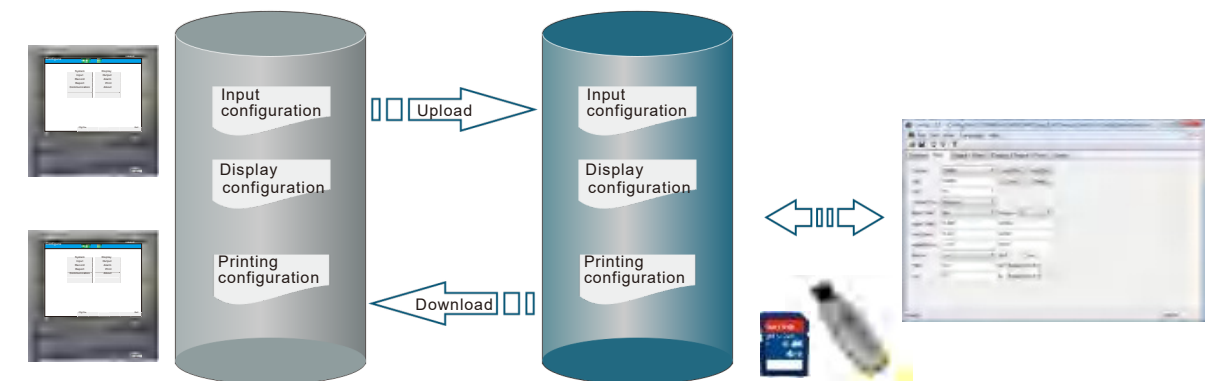
[Data back and dump]

Using SD card and u disk to upload the data into computer. Through the software in upper computer DMR to analyze and preserve data.



[Convenient configuration]

The configuration data can be uploaded into the computer through U disk and SD card, and then we can preserve or modify the data at the management software in upper computer. The modified configuration parameter can be transferred into the instrument via U disk and SD card. It can help save a lot of time of the operator by using this convenient configuration mode.

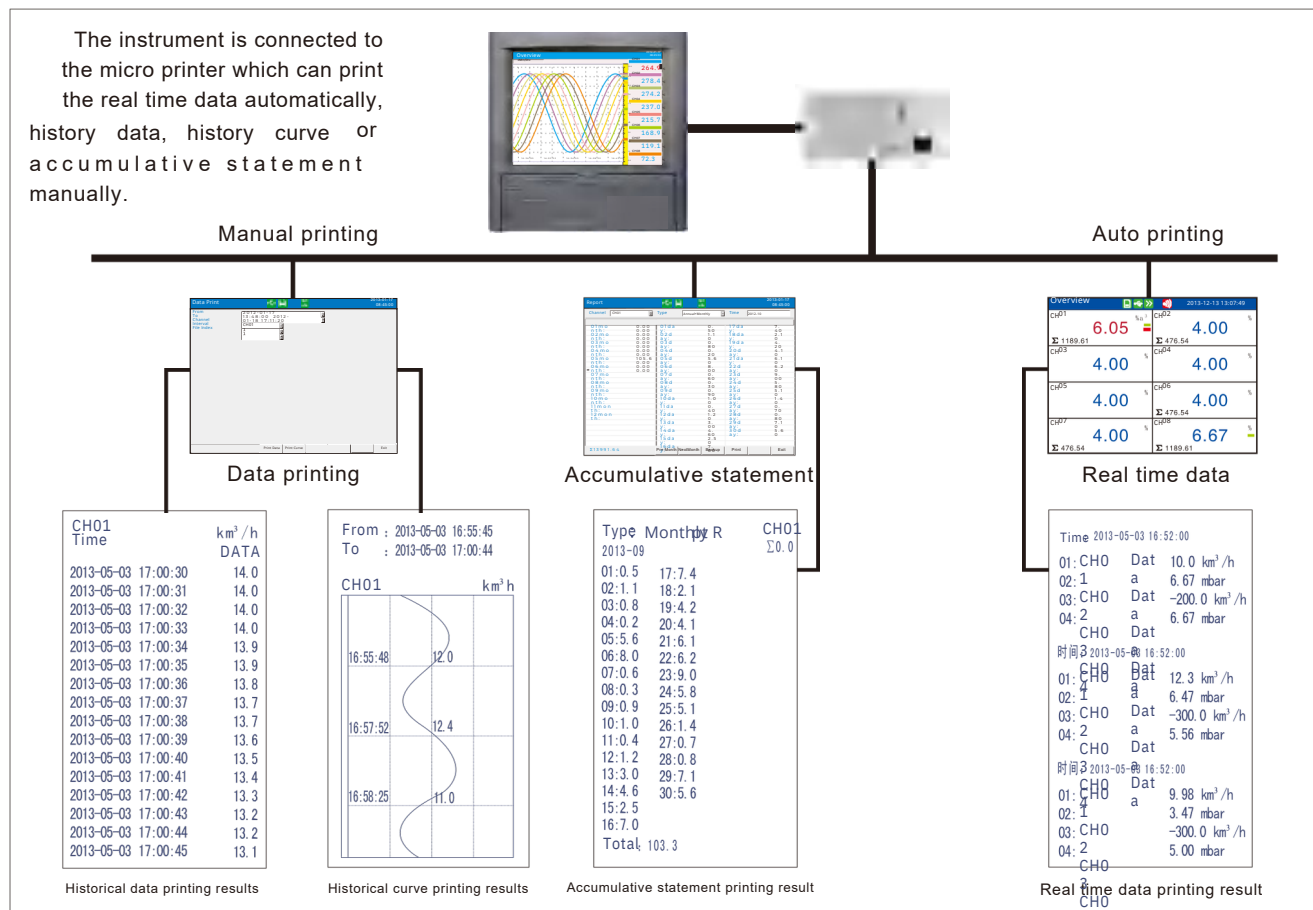


Basic function -Export data by printing and communication



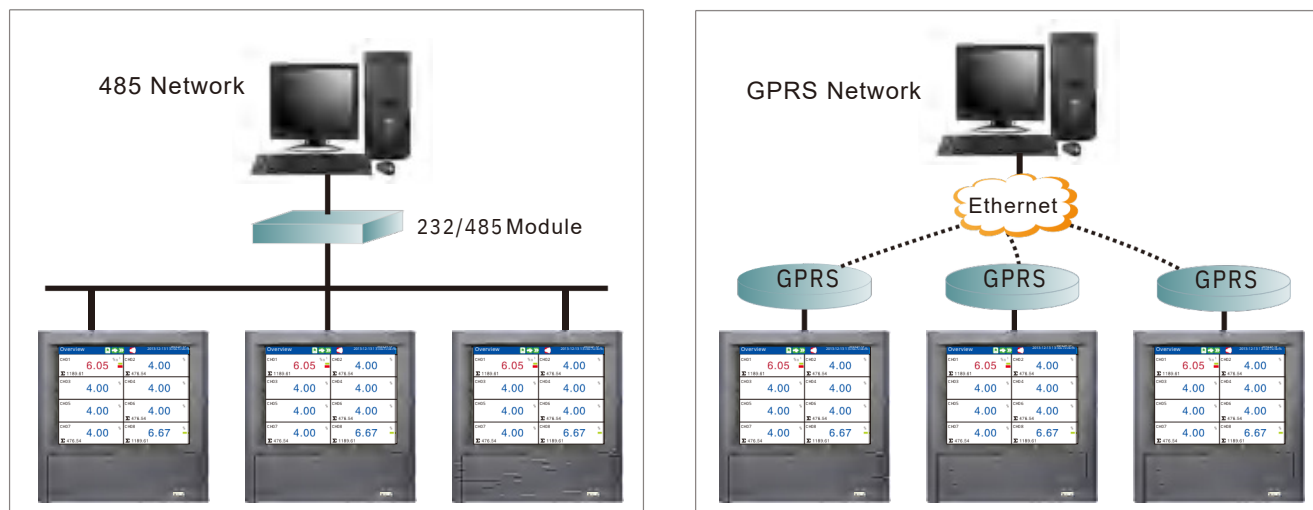
It has two ways of printing: auto and manual, which can print real time data and history data. Connected to the computer via 485 and GPRS network.

Print



Communication

Via RS232C/RS485, 485net, GPRS, the instrument can be connected to the computer to realize the communication.



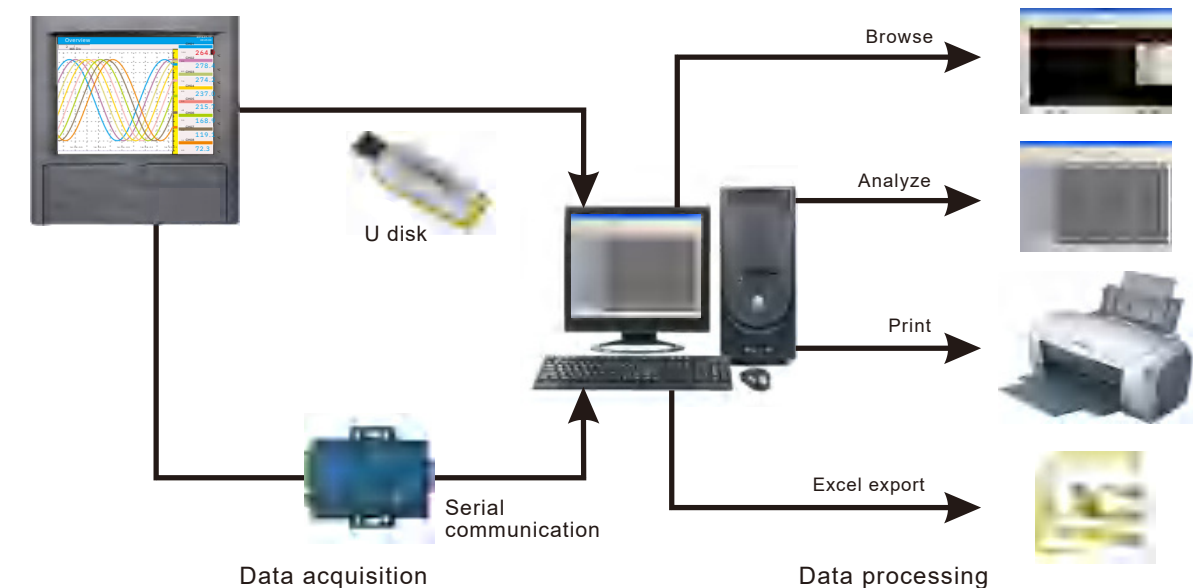
Applied app -Upper computer management software DMR



DMR is special designed for ISEN series. History data inquiry, data analyze, printing and export

Basic function

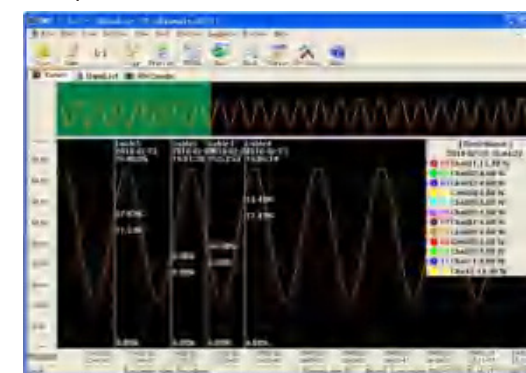
Ways of data collecting: U disk, SD card, serial communication. Using DMR for data browse,analyze,print and export.



- History data browse and analyze
The collected data can be browsed and analyzed by curve or list. Curve browse includes curve zoom, selective display; Data analyze includes statistics, joint file, data printing.
- Data analyze
The software provides three kinds of data analyze: peak value, valley value, mean value. Transfinite statistics, measuring the exceeding time of the upper limit and lower limit. Pulse statistics, measuring the number of the impulse waveform in a certain time.
- Joint file
DRM can joint different files into one so that it's very convenient to browse and analyze the data which is backup in different time period.
- Data printing
It provides three different types of chart for data presentation: curve, list and circle

Real time data collecting

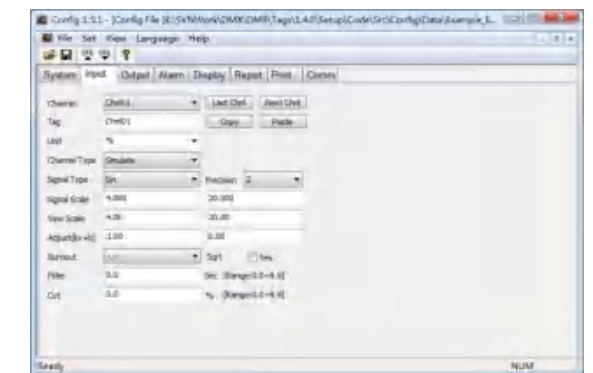
DRM applies RS232 or RS485 to realize single point communication with ISEN series. The collected data will be presented in curve or data list.



Timing curve

Configuration

Simple configuration mode to reduce the configuration time.



Configuration picture

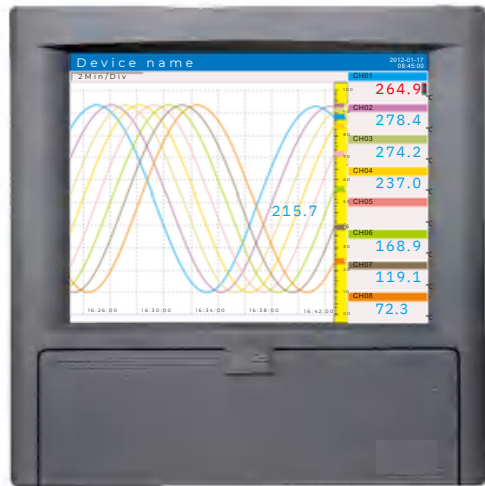
ISEN 800 Color paperless recorder



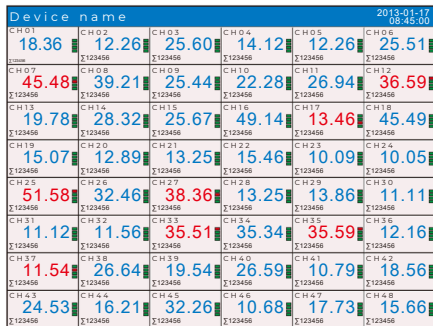
Product overview
Display
Technical index

Product overview

Maximum 48 channel universal input color paperless recorder, can input standard current, voltage, frequency standard, MV, thermocouple, thermal resistance and so on many kinds of signal.Has sensor distribution output, relay alarm output, transmitter output, flow totalizer, cumulative reports, mass storage, historical data storage, on-site printing, serial communications and Ethernet communications.

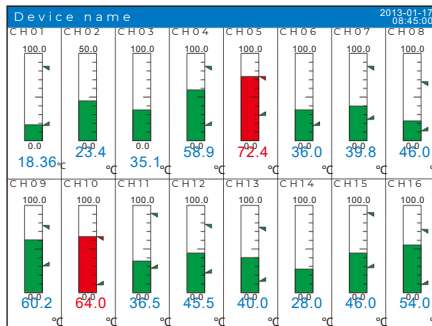


Display



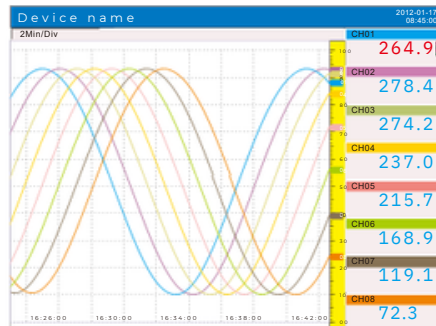
Digital display

Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in digital form.



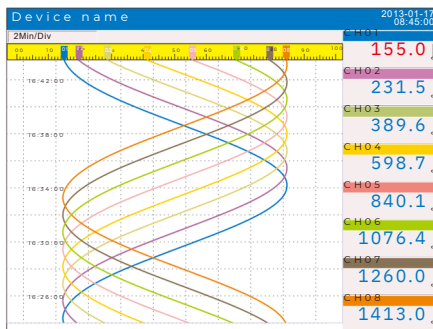
Bar

Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in bar chart.



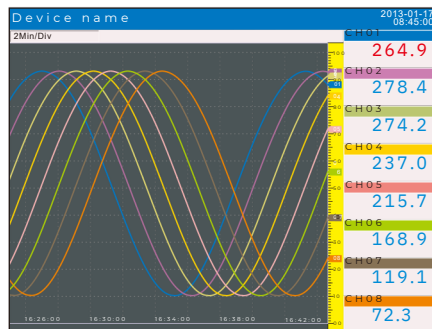
Timing curves (crosswise)

Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in timing curves.



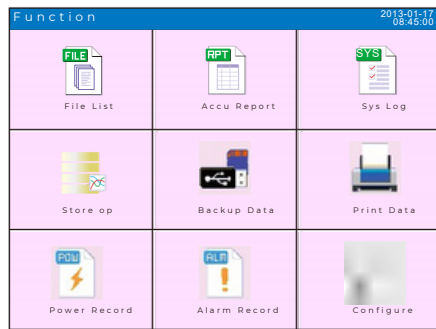
Timing curves (lengthways)

Free choice of vertical and horizontal paper feed and custom curve colors.



Historical curves

Historical data can be represented in curves.



Menu

Present inquiry and backup content.

Technical index

Structure

Installation method	Embedded installation (vertical)
Installation angle	Uppermost 30 degrees of backward inclination
Mounting plate thickness	2-10mm
External size	288(W)×288(H)×254(D)
Net weight	<7.5Kg(Optional component not included)

Power

Nominal voltage: 220VAC
Voltage range: 100VAC ~ 240VAC
Rated frequency: 50Hz
Consumption: ≤50W(Optional function included)

Input

Input channel: 8, 16, 24, 32, 40, 48Channel
Measurement period: 1sec
Signal type: Direct current(I), Direct voltage(V), TC, RTD, FR
Input signal type and measurable range:

Signal type	Signal type	Measurable range	Accuracy(25°C)	Input resistance
I	4-20mA	4.00mA-20.00mA	±0.2%	≤300Ω
	0-20mA	0.00mA-20.00mA	±0.2%	≤300Ω
	0-10mA	0.00mA-10.00mA	±0.2%	≤300Ω
V	1-5V	1.000V-5.000V	±0.2%	1MΩ
	0-5V	0.000V-5.000V	±0.2%	1MΩ
	0-10V	0.000V-10.000V	±0.2%	1MΩ
	20mV	0.00mV-20.00mV	±0.2%	10MΩ
R	100mV	0.00mV-100.00mV	±0.2%	10MΩ
	400Ω	0.0Ω-400.0Ω	±0.2%	---
	PT100	-200.0°C-650.0°C	±0.4°C	---
RTD	Cu50	-50.0°C-150.0°C	±0.4°C	---
	Cu53	-50.0°C-150.0°C	±0.4°C	---
	BA1	-200°C-650°C	±0.4°C	---
	BA2	-200°C-650°C	±0.4°C	---
TC	S	-50°C-1768°C	±2°C	10MΩ
	R	-50°C-1768°C	±2°C	10MΩ
	B	500°C-1820°C	±2°C	10MΩ
	K	-200°C-1372°C	±1°C	10MΩ
	N	-200°C-1300°C	±1°C	10MΩ
	E	-200°C-1000°C	±1°C	10MΩ
	J	-200°C-1200°C	±1°C	10MΩ
	T	-200°C-385°C	±1°C	10MΩ
	WRE5-26	0°C-2310°C	±2°C	10MΩ
	WRE3-25	0°C-2310°C	±2°C	10MΩ
	F1	700°C-2000°C	±2°C	10MΩ
	F2	700°C-2000°C	±2°C	10MΩ
FR	FR	0Hz-10000Hz	±1Hz	---
	FR	0.0Hz-3000.0Hz	±0.1Hz	---

Frequency input

Low level: 0~2V
High level: 4~24V
Duty cycle: 10%~90%
Drive current: Min 5mA

Analog input board card

Resolution ratio: 16 bit
Sample rate: 1 per second
Signal terminal pressure: Min -24VDC,Max +24VDC
Series of common mode voltage(50Hz):
5V: 1.5V
10V: 1.5V
20mV: 50mV
100mV:150mV

Sensor break line detection:
Thermocouple, thermal resistance sensor disconnection.
4-20mA, input current lower than 2mA.
Does not adapt to other signals.

Display

Display: 10.4 inches TFT color LCD display (800×600Point) .
Display unit : 8 units.
Bit number: 7 characters or 15 letters(numbers).
Unit: 3 characters or 7 letters(or numbers).
Status display: picture name, board card status, alarm status, SD card status, USB status, circular display status, time.
Picture: measuring data(showed in digital, bar or curve), historical curve, function menu (file list, storage manipulation ,data backup, print, cumulative statement).
Curve : presented in crosswise or vertical curves, costume color function available.
Historical curve: shows the storage data, which can be magnified 1/2/4/8 /16/32 times.
Frame rate: 1 second.

Memory recording time

Batch record mode, see the relation between time length and inter-record gap in below:If channel numbers are reduced, the recording time will become longer. The upmost recording gap setting is 30 minutes.

Recordgap	1s	2s	10s	1min	2min	5min
8channel	36d	72d	1y	6y	12y	30y
48channel	6d	12d	2m	1y	2y	5y

24VDC transmitter power output

Circuit : 6channel (3circuits was segregated)
Output voltage: 24V±5%
Output current: 65mA (over current protection: about 90m A)

Alarm

Alarm number: 4 alarms every channel.
Alarm type: HIAL(H), LOAL(L), Incremental alarm(I) , Decrement alarm(D).
Alarm delaying time: 0-10 seconds.
Alarm output: the alarm will be output to the internal relay.
Display: when alarming, the corresponding picture will show the alarming status, and the alarm logo will be present in status bar.
Alarm log: the alarm history will be showed in alarming list.

Transportation and storage condition

Temperature: -10°C ~ 60°C
Humidity: 0% ~ 95%(no dew formation)

Additional specification

Analog output (/T4,T8)

Output channel: 4or 8 channels
Output type: 4~20mA
Load: ≤750Ω

Alarm output relay (/A12,/A24,/A36)

Output points: 12, 24, 36
Contact capacity: 250VAC/3A, 30VDC/3A(resistive load)
Contact type: normally open contact
Relay sharing: operable (shared by multi channels)

Communication (/C2,/C3)

Connection: RS232C(/C2) or RS485(/C3)
Protocol: Modbus-RTU protocol
Transmission speed:1200/2400/4800/9600/19200/38400/57600/115200
Byte swap: 2-1 4-3, 1-2 3-4, 4-3 2-1, 3-4 1-2

Print function(/MP)

Printer: penal micro printer
Printing content: real time data, historical data, accumulative report
Printing method: manual print, time print

Ethernet(/E)

Protocol: Modbus-TCP
Port number: 1

USB function(/U)

Protocol: compatible USB 2.0 protocol
Port number: 1

SD card function(/S)

Protocol: compatible SD protocol
Port number: 1



Selective table
 Installation dimension
 Terminal connection chart

Selective table

Type	Function code	Specification code	Instruction	
ISEN808			8 channel input*1	
ISEN816			16 channel input*1	
ISEN824			24 channel input*1	
ISEN832			32 channel input*1	
Function Type	R		Recording function	
	F		Temperature and pressure compensation	
	AS		Compliance with FDA 21 CFR Part 11	
Additional specification			/T□	4 4 channel 4-20mA signal output
				8 8 channel 4-20mA signal output
			/A□	12 12 normally open contact output*2
				24 24 normally open contact output*2
			/C□	2 RS232 communication
				3 RS485 communication
			/MP	Micro printer terminal *3
			/U	USB function
			/S	SD card function
			/L	Accumulate/ report

Type	Function code	Specification code	Instruction	
ISEN840			40 channel input*1	
Function Type	R		Recording function	
	F		Temperature and pressure compensation	
	AS		Compliance with FDA 21 CFR Part 11	
Additional specification			/T4	4 4 channel 4-20mA signal output
				12 12 normally open contact output*2
			/A□	24 24 normally open contact output*2
			/C□	2 RS232 communication
				3 RS485 communication
			/MP	Micro printer terminal *3
			/U	USB function
			/S	SD card function
			/L	Accumulate/ report

Type	Function code	Specification code	Instruction	
ISEN848			48 channel input*1	
Function Type	R		Recording function	
	F		Temperature and pressure compensation	
	AS		Compliance with FDA 21 CFR Part 11	
Additional specification			/A□	12 12 normally open contact output*2
				24 24 normally open contact output*2
			/C□	2 RS232 communication
				3 RS485 communication
			/MP	Micro printer terminal *3
			/U	USB function
			/S	SD card function
			/L	Accumulate/ report

Customized function

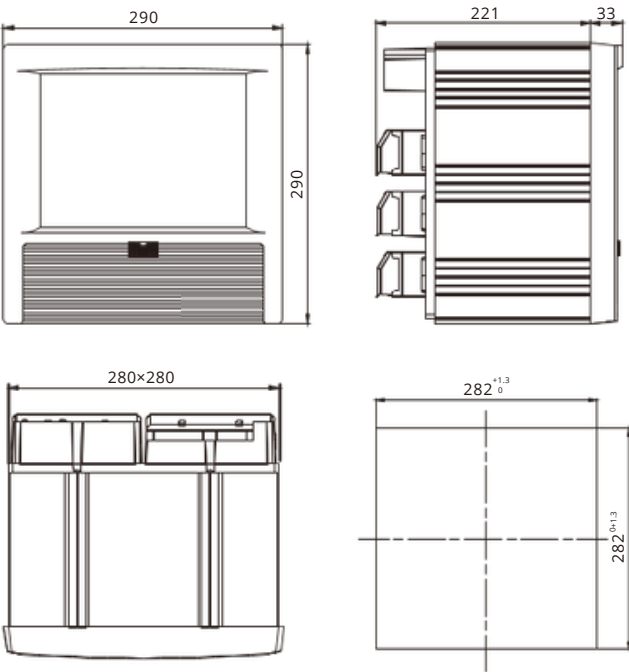
Specification code	Instruction
/M1	Extend memory 1GB
/E	Ethernet communication
/H2	Plug the signal terminal

*1 The default input for analog universal input, please contact to the manufacture to custom frequency input if needed.
 *2 Please contact to the manufacture to custom no.36 alarm.
 *3 Only support special micro printer.

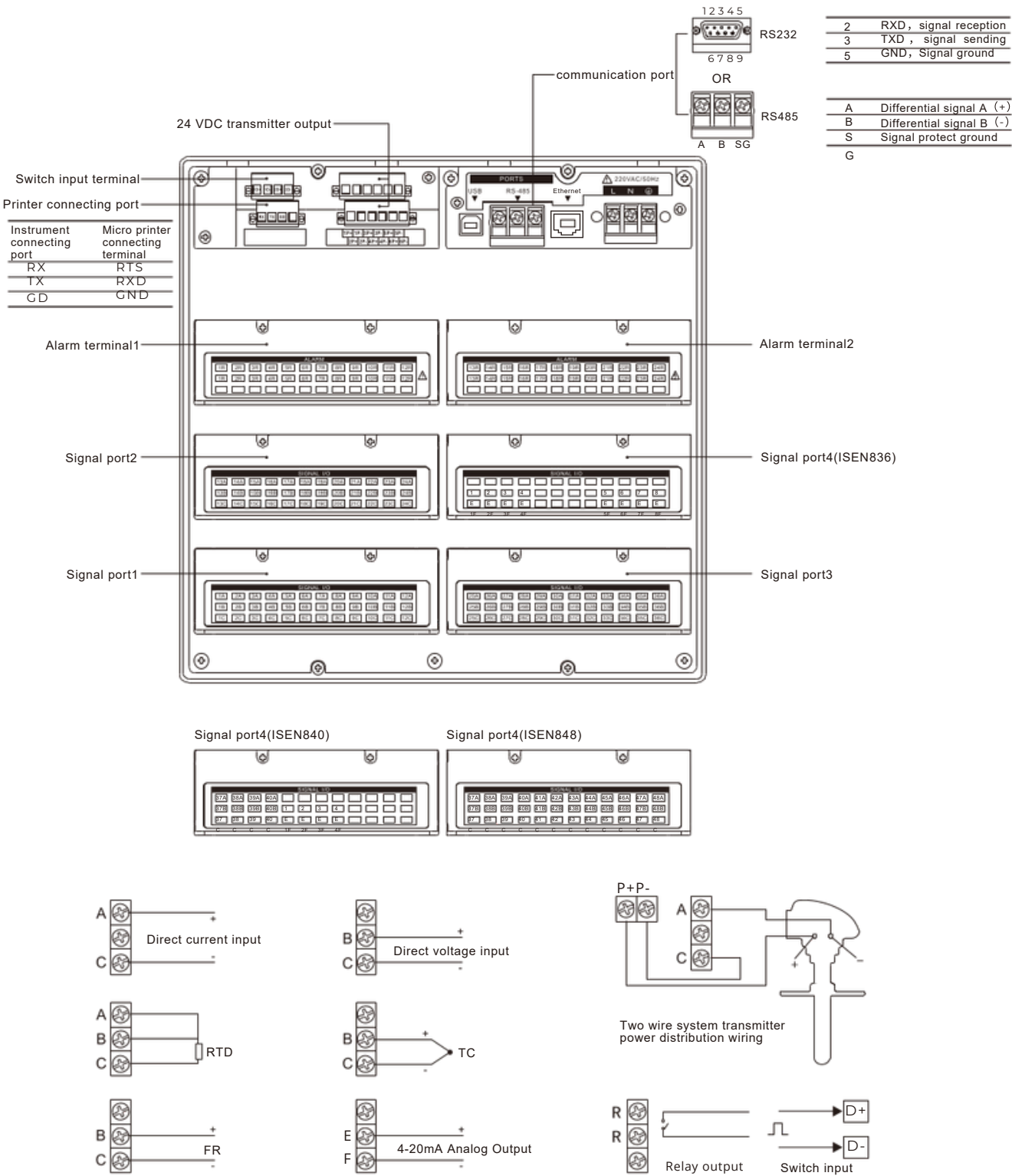
Product accessories (sold separately)

Product	Type	Specification
U disk	860207	8GB
SD card reader	860301	USB connection
SD card	860307	8GB
Communication circuit	862007	RS232 communication connect(1.5m)
	862006	RS485 communication connect(1.5m)
Power filter	863101	220VAC/1:1/50W
Software	864801	MDMR Machine data management software

Installation dimension(mm)



Terminal connection diagram



ISEN 600 Color paperless recorder



Product overview
Display
Technical index

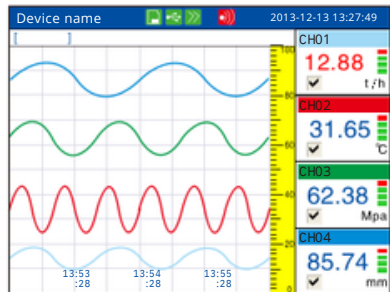
Product overview

Maximum 16 channel universal input color paperless recorder, can input standard current, voltage, frequency standard, MV, thermocouple, thermal resistance and so on many kinds of signal.Has a sensor distribution output, relay alarm output, transmitter output, flow totalizer / reports, historical data storage, on-site printing and serial communication functions.

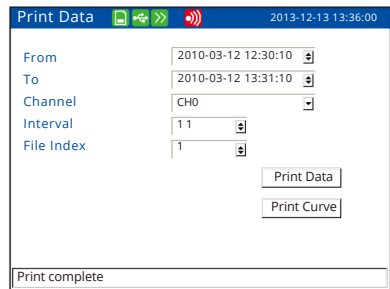
Display



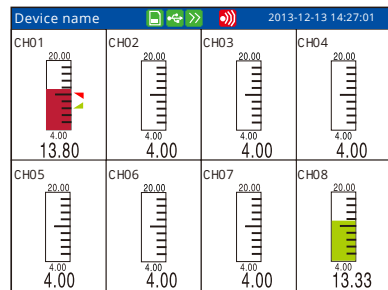
Digital display
Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in digital form.



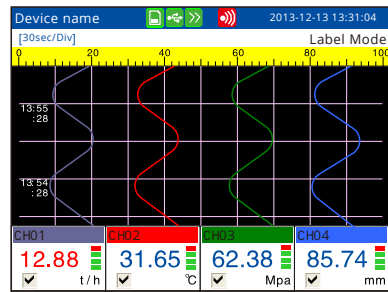
Timing curves (crosswise)
Free choice of vertical and horizontal paper feed and custom curve colors.



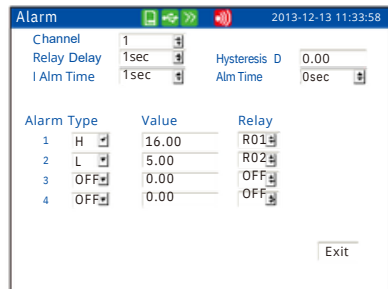
Data printing
Print the chosen period historical data in curves.



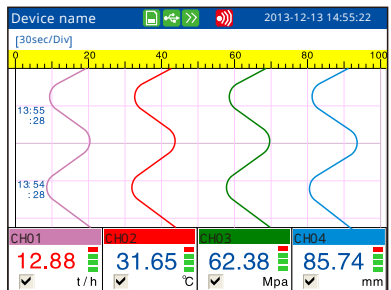
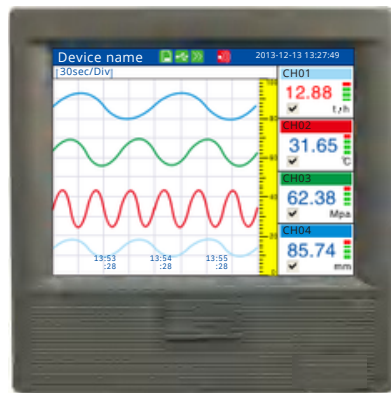
Bar
Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in bar chart.



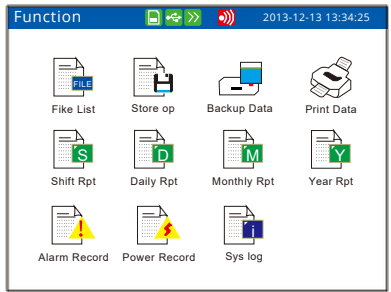
Historical curves
Historical data can be represented in curves.



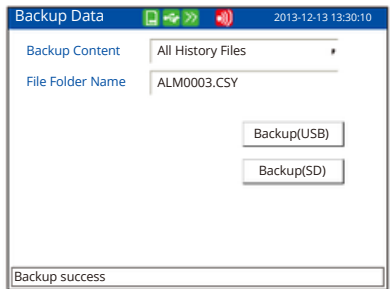
Alarm configuration
Every channel can set four random alarm points.



Timing curves (lengthways)
Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in timing curves.



Menu
Present inquiry and backup content.



Data backup
Backup the chosen period historical data to U disk and SD card in files.

Technical index

Structure

Installation method	Embedded installation (vertical)
Installation angle	Uppermost 30 degrees of backward inclination
Mounting plate thickness	1-10mm
External size	144(W)×144(H)×249(D)
Net weight	<2.6Kg(Optional component not included)

Power

Nominal voltage: 220VAC
Voltage range: 100VAC ~ 240VAC
Rated frequency: 50Hz
Consumption: ≤20W(Optional function included)

Input

Input channel: 1-16channel
Measurement period: 1sec
Signal type: Direct current(I), Direct voltage(V), TC, RTD, FR

Input signal type and measurable range:

Signal type	Signal type	Measurable range	Accuracy(25°C)	Input resistance
I	4-20mA	4.00mA-20.00mA	±0.2%	≤300Ω
	0-20mA	0.00mA-20.00mA	±0.2%	≤300Ω
	0-10mA	0.00mA-10.00mA	±0.2%	≤300Ω
V	1-5V	1.000V-5.000V	±0.2%	1MΩ
	0-5V	0.000V-5.000V	±0.2%	1MΩ
	0-10V	0.000V-10.000V	±0.2%	1MΩ
	20mV	0.00mV-20.00mV	±0.2%	10MΩ
	100mV	0.00mV-100.00mV	±0.2%	10MΩ
R	400Ω	0.0Ω-400.0Ω	±0.2%	---
	PT100	-200.0°C-650.0°C	±0.4°C	---
RTD	Cu50	-50.0°C-150.0°C	±0.4°C	---
	Cu33	-50.0°C-150.0°C	±0.4°C	---
	BA1	-200°C-650°C	±0.4°C	---
	BA2	-200°C-650°C	±0.4°C	---
	S	-50°C-1768°C	±2°C	10MΩ
	R	-50°C-1768°C	±2°C	10MΩ
TC	B	500°C-1820°C	±2°C	10MΩ
	K	-200°C-1372°C	±1°C	10MΩ
	N	-200°C-1300°C	±1°C	10MΩ
	E	-200°C-1000°C	±1°C	10MΩ
	J	-200°C-1200°C	±1°C	10MΩ
	T	-200°C-385°C	±1°C	10MΩ
	WRE5-26	0°C-2310°C	±2°C	10MΩ
	WRE3-25	0°C-2310°C	±2°C	10MΩ
	F1	700°C-2000°C	±2°C	10MΩ
	F2	700°C-2000°C	±2°C	10MΩ
FR	FR	0Hz-10000Hz	±1Hz	---
	FR	0.0Hz-3000.0Hz	±0.1Hz	---

Frequency input

Low level: 0~2V
High level: 4~24V
Duty cycle: 10%~90%
Drive current: Min 5mA

Analog input board card

Resolution ratio: 16 bit
Sample rate: 1 per second
Signal terminal pressure: Min -24VDC,Max +24VDC
Series of common mode voltage(50Hz):
5V: 1.5V
10V: 1.5V
20mV: 50mV
100mV:150mV

Sensor break line detection:
Thermocouple, thermal resistance sensor disconnection. 4-20mA, input current lower than 2mA. Does not adapt to other signals.

Display

Displayer: 5.6 inches TFT color LCD display (320×234Point) .
Display unit : 8 units.
Bit number: 7 characters or 15 letters(numbers).
Unit: 3 characters or 7 letters(or numbers).
Status display: picture name, board card status, alarm status, SD card status, USB status, circular display status, time.
Picture: measuring data(showed in digital, bar or curve), historical curve, function menu (file list, storage manipulation ,data backup, print, cumulative statement).
Curve : presented in crosswise or vertical curves, costume color function available.
Historical curve: shows the storage data, which can be magnified 1/2/4/8 /16/32 times.
Frame rate: 1 second.

Memory recording tim

Batch record mode, see the relation between time length and inter-record gap in below.If channel numbers are reduced, the recording time will become longer. The upmost recording gap setting is 30 minutes.

Recordgap	1s	2s	10s	1min	2min	5min
1channel	80d	160d	2.2y	13.2y	26.4y	66y
16channel	5d	10d	50d	300d	1.6y	4y

24VDC transmitter power output

Circuit : 4channel
Output voltage: 24V±5%
Output current: 65mA (over current protection: about 90m A)

Alarm

Alarm number: Each channel can be set up to 4 alarm.
Alarm type: HIAL(H), LOAL(L), Incremental alarm(I) , Decrement alarm(D).
Alarm delaying time: 0-10 seconds.
Alarm output: the alarm will be output to the internal relay.
Display: when alarming, the corresponding picture will show the alarming status, and the alarm logo will be present in status bar.
Alarm log: the alarm history will be showed in alarming list.

Transportation and storage condition

Temperature: -10°C ~ 60°C
Humidity: 0% ~ 95%(no dew formation)

Additional specification

Analog output (/T1/T2/I)

Output channel: 1-4 channels
Output type: 4~20mA
Load: ≤750Ω

Alarm output relay (/A6/A8/A12)

Output points: 6, 8, 12
Contact capacity: 250VAC/3A, 30VDC/3A(resistive load)
Contact type: normally open contact
Relay sharing: operable (shared by multi channels)

Communication (/C2/C3)

Connection: RS232C(/C2) or RS485(/C3)
Protocol: Modbus-RTU protocol
Transmission speed:1200/2400/4800/9600/19200/38400/57600/115200
Byte swap: 2-1 4-3, 1-2 3-4, 4-3 2-1, 3-4 1-2

Print function (/C4)

Printer: penal micro printer
Printing content: real time data, historical data, accumulative report
Printing method: manual print, time print

Ethernet(/E)

Protocol:Modbus-TCP
Port number: 1

USB function (/U)

Protocol: compatible USB 2.0 protocol
Port number: 1

SD card function (/S)

Protocol: compatible SD protocol
Port number: 1

ISEN 600 Color paperless recorder



Selective table
 Installation dimension
 Terminal connection chart

Selective table

Type	Function code	Specification code	Instruction
ISEN601			1 channel input
ISEN602			2 channel input
ISEN603			3 channel input
ISEN604			4 channel input
ISEN605			5 channel input
ISEN606			6 channel input
ISEN607			7 channel input
ISEN608			8 channel input
Function Type	R		Recording function
	F		Temperature and pressure compensation
Additional specification	/T□	1-4	1-4 channel 4-20mA signal output
		6	6 normally open contact output
		8	8 normally open contact output
	/A□	12	12 normally open contact output
		2	RS232 communication
		3	RS485 communication
		4	Micro printer terminal *1
	/U		USB function
	/S		SD card function
	/L		Accumulate/ report

Type	Function code	Specification code	Instruction
ISEN609			9 channel input
ISEN610			10 channel input
ISEN611			11 channel input
ISEN612			12 channel input
Function Type	R		Recording function
	F		Temperature and pressure compensation
Additional specification	/A□	6	6 normally open contact output
		8	8 normally open contact output
		12	12 normally open contact output
	/C□	2	RS232 communication
		3	RS485 communication
		4	Micro printer terminal *1
	/U		USB function
	/S		SD card function
	/L		Accumulate/ report

Type	Function code	Specification code	Instruction
ISEN613			13 channel input
ISEN614			14 channel input
ISEN615			15 channel input
ISEN616			16 channel input
Function Type	R		Recording function
	F		Temperature and pressure compensation
Additional specification	/A□	6	6 normally open contact output
		8	8 normally open contact output
		12	12 normally open contact output
	/C□	2	RS232 communication
		3	RS485 communication
		4	Micro printer terminal *1
	/U		USB function
	/S		SD card function
	/L		Accumulate/ report

Customized function

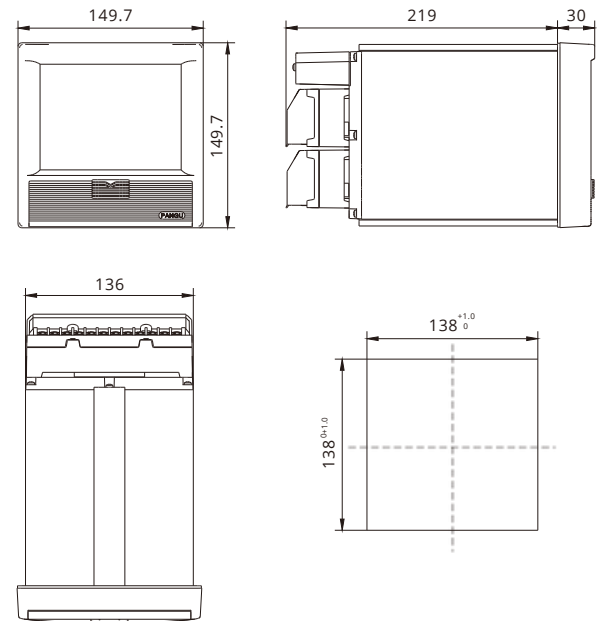
Specification code	Instruction
/A □ 1-12	1-12 Channel Frequency input, with 12V power*2 1-12
/FC □ 1-12	Channel Frequency input, with 24V power*2
/PT	Anti-corrosion paint protection
/P1	24VDC power supply
/E	Ethernet communication

*1 Only support special micro printer.
 *2 Please contact to the manufacture to custom frequency input channel.

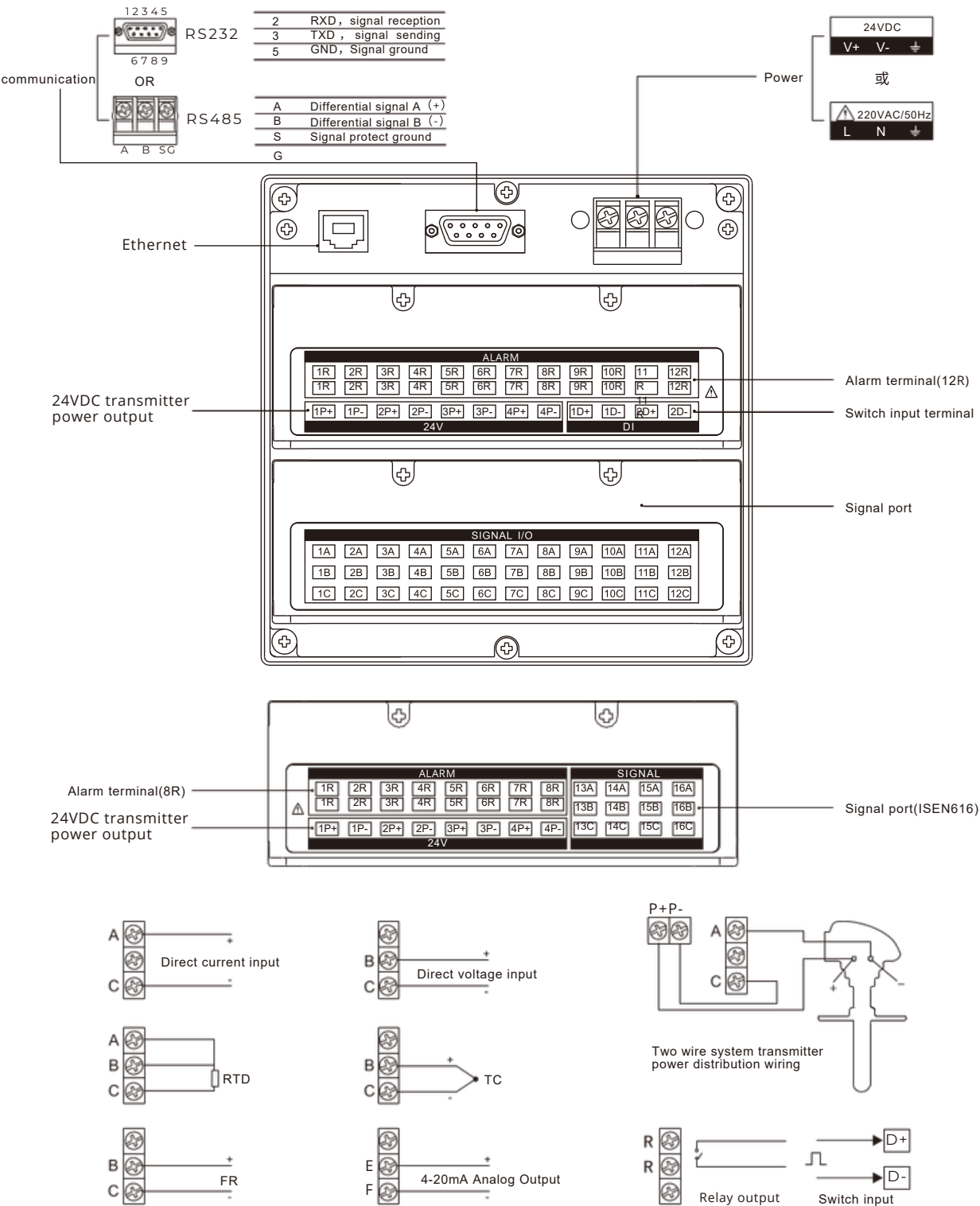
Product accessories (sold separately)

Product	Type	Specification
U disk	860207	8GB
SD card reader	860301	USB connection
SD card	860307	8GB
Communication circuit	862007	RS232 communication connect(1.5m)
	862006	RS485 communication connect(1.5m)
Power filter	863101	220VAC/1:1/50W
Software	864801	MDMR Machine data management software

Installation dimension(mm)



Terminal connection diagram



ISEN600P Waterproof color paperless recorder



Product overview
Display
Technical index

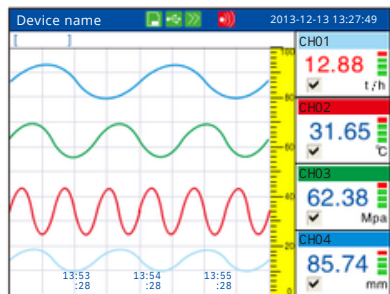
Product overview

ISEN 600P maximum 16 road input type waterproof color paperless recorder, wall hanging type structure, input current, voltage, frequency standard standard, MV, thermocouple, Has a thermal resistance and so on many kinds of signal. sensor distribution output, relay alarm output, flow totalizer / reports, historical data storage, on-site printing and serial communication functions.

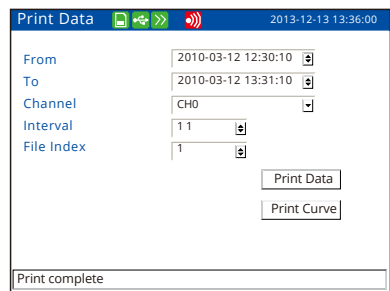
Display



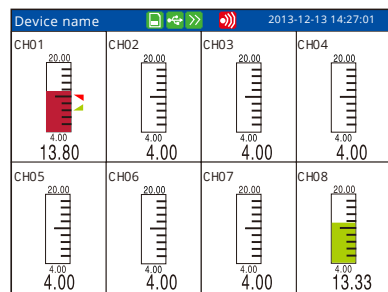
Digital display
Measured values, channel number, engineering unit, alarm status and accumulative message, all of them will be displayed in digital form.



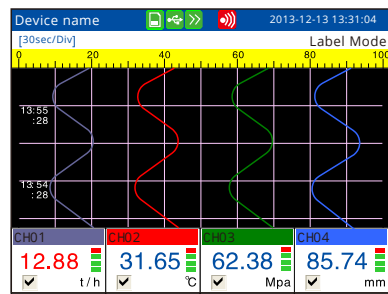
Timing curves (crosswise)
Free choice of vertical and horizontal paper feed and custom curve colors.



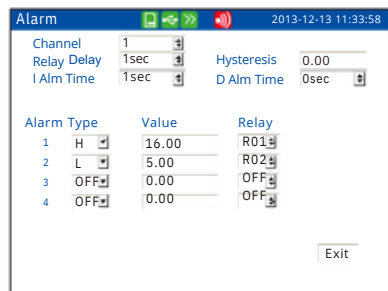
Data printing
Print the chosen period historical data in curves.



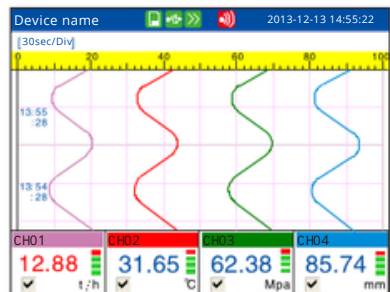
Bar
Measured values, channel number, engineering unit, alarm status and accumulative message, all of them will be displayed in bar chart.



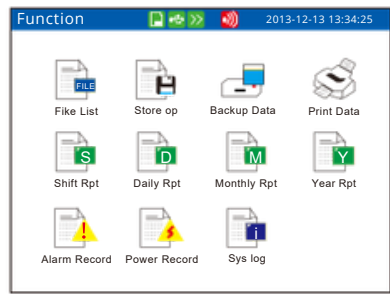
Historical curves
Historical data can be represented in curves.



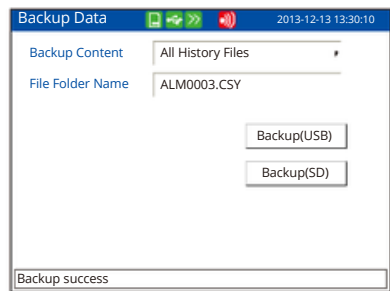
Alarm configuration
Every channel can set four random alarm points.



Timing curves (lengthways)
Measured values, channel number, engineering unit, alarm status and accumulative message, all of them will be displayed in timing curves.



Menu
Present inquiry and backup content.



Data backup
Backup the chosen period historical data to U disk and SD card in files.

Technical index

Structure	
Installation method	Wall mount installation
External size	280(W)×242(H)×157(D)
Net weight	<2.5Kg(optional component not included)

Power	
Nominal voltage:	220VAC
Voltage range:	100VAC ~ 240VAC
Rated frequency:	50Hz
Consumption:	≤20W(Optional function included)

Input section	
Input channel:	4\8\12\16 channel
Measurement period:	1sec
Signal type:	Direct current(I), Direct voltage(V), TC, RTD, FR
Input signal type and measurable range:	

Signal type	Signal type	Measurable range	Accuracy(25°C)	Input resistance
I	4-20mA	0.00mA-20.00mA	±0.2%	≤300Ω
	0-20mA	0.00mA-20.00mA	±0.2%	≤300Ω
	0-10mA	0.00mA-10.00mA	±0.2%	≤300Ω
V	1-5V	1.000V-5.000V	±0.2%	1MΩ
	0-5V	0.000V-5.000V	±0.2%	1MΩ
	0-10V	0.000V-10.000V	±0.2%	1MΩ
	20mV	0.00mV-20.00mV	±0.2%	10MΩ
	100mV	0.00mV-100.00mV	±0.2%	10MΩ
R	400Ω	0.0Ω-400.0Ω	±0.2%	---
RTD	PT100	-200.0°C-650.0°C	±0.4°C	---
	Cu50	-50.0°C-150.0°C	±0.4°C	---
	Cu53	-50.0°C-150.0°C	±0.4°C	---
	BA1	-200°C-650°C	±0.4°C	---
	BA2	-200°C-650°C	±0.4°C	---
TC	S	-50°C-1768°C	±2°C	10MΩ
	R	-50°C-1768°C	±2°C	10MΩ
	B	500°C-1820°C	±2°C	10MΩ
	K	-200°C-1372°C	±1°C	10MΩ
	N	-200°C-1300°C	±1°C	10MΩ
	E	-200°C-1000°C	±1°C	10MΩ
	J	-200°C-1200°C	±1°C	10MΩ
	T	-200°C-385°C	±1°C	10MΩ
	WRE5-26	0°C-2310°C	±2°C	10MΩ
	WRE3-25	0°C-2310°C	±2°C	10MΩ
FR	F1	700°C-2000°C	±2°C	10MΩ
	F2	700°C-2000°C	±2°C	10MΩ
	FR	0Hz-10000Hz	±1Hz	---
	FR.	0.0Hz-3000.0Hz	±0.1Hz	---

Frequency input	
Low level:	0~2V
High level:	4~24V
Duty cycle:	10%~90%
Drive current:	Min 5mA

Analog input board card	
Resolution ratio:	16 bit
Sample rate:	1 per second
Signal terminal pressure:	Min -24VDC, Max +24VDC
Series of common mode voltage(50Hz):	
5V:	1.5V
10V:	1.5V
20mV:	50mV
100mV:	150mV

Sensor break line detection:
Thermocouple, thermal resistance sensor disconnection. 4-20mA, input current lower than 2mA. Does not adapt to other signals.



Display	
Displayer:	5.6 inches TFT color LCD display (320×234Point) .
Display unit :	8 units.
Bit number:	7 characters or 15 letters(numbers).
Unit:	3 characters or 7 letters(or numbers).
Status display: picture name, board card status, alarm status, SD card status, USB status, circular display status, time.	
Picture: measuring data(showed in digital, bar or curve), historical curve, function menu (file list, storage manipulation ,data backup, print, cumulative statement).	
Curve : presented in crosswise or vertical curves, costume color function available.	
Historical curve: shows the storage data, which can be magnified 1/2/4/8 /16/32 times.	
Frame rate: 1 second.	

Memory recording tim	
Batch record mode, see the relation between time length and inter-record gap in below:	If channel numbers are reduced, the recording time will become longer. The upmost recording gap setting is 30 minutes.

Record gap	1s	2s	10s	1min	2min	5min
1channel	80d	160d	2.2y	13.2y	26.4y	66y
16channel	5d	10d	50d	300d	1.6y	4y

24VDC transmitter power output	
Circuit :	4channel
Output voltage:	24V±5%
Output current:	65mA (over current protection: about 90m A)

Alarm	
Alarm number:	Each channel can be set up to 4 alarm.
Alarm type:	HIAL(H), LOAL(L), Incremental alarm(I), Decrement alarm(D).
Alarm delaying time:	0-10 seconds.
Alarm output:	the alarm will be output to the internal relay.
Display:	when alarming, the corresponding picture will show the alarming status, and the alarm logo will be present in status bar.
Alarm log:	the alarm history will be showed in alarming list.

Transportation and storage condition	
Temperature:	-10°C ~ 60°C
Humidity:	0% ~ 95%(no dew formation)

Additional specification

Alarm output relay (/A6,/A8,/A12)	
Output points:	6, 8, 12
Contact capacity:	250VAC/3A, 30VDC/3A(resistive load)
Contact type:	normally open contact
Relay sharing:	operable (shared by multi channels)

Communication (/C2,/C3)	
Connection:	RS232C(/C2) or RS485(/C3)
Protocol:	Modbus-RTU protocol
Transmission speed:	1200/2400/4800/9600/19200/38400/57600/115200
Byte swap:	2-1 4-3, 1-2 3-4, 4-3 2-1, 3-4 1-2

Print function (/C4)	
Printer:	penal micro printer
Printing content:	real time data, historical data, accumulative report
Printing method:	manual print, time print

USB function (/U)	
Protocol:	compatible USB 2.0 protocol
Port number:	1

SD card function (/S)	
Protocol:	compatible SD protocol
Port number:	1



Selective table
Installation dimension
Terminal connection chart

Selective table

Type	Function code	Specification code	Instruction
ISEN604			4 channel input
ISEN608			8 channel input
ISEN612			12 channel input
Function Type	P		Waterproof function
Additional specification	/A□	6	6 normally open contact output
		8	8 normally open contact output
		12	12 normally open contact output
	/C□	2	RS232 communication
		3	RS485 communication
		4	Micro printer terminal *1
	/U		USB function
	/S		SD card function
	/L		Accumulate/ report

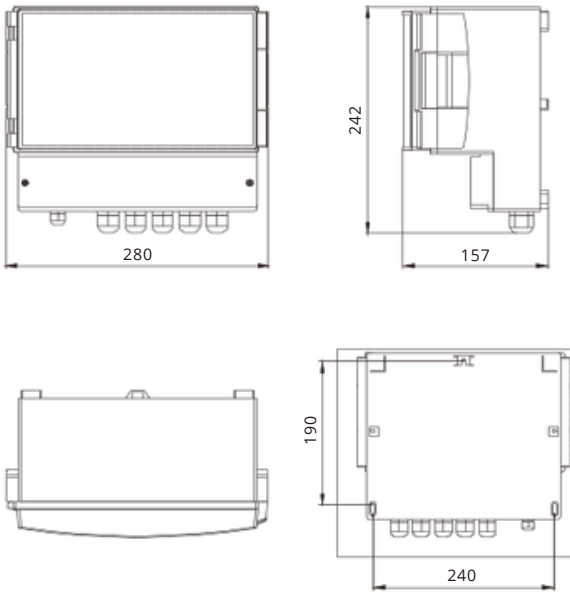
Type	Function code	Specification code	Instruction
ISEN616			16 channel input
Function Type	P		Waterproof function
Additional specification	/A□	6	6 normally open contact output
		2	RS232 communication
	/C□	3	RS485 communication
		4	Micro printer terminal *1
	/U		USB function
	/S		SD card function
	/L		Accumulate/ report

*1 Only support special micro printer.

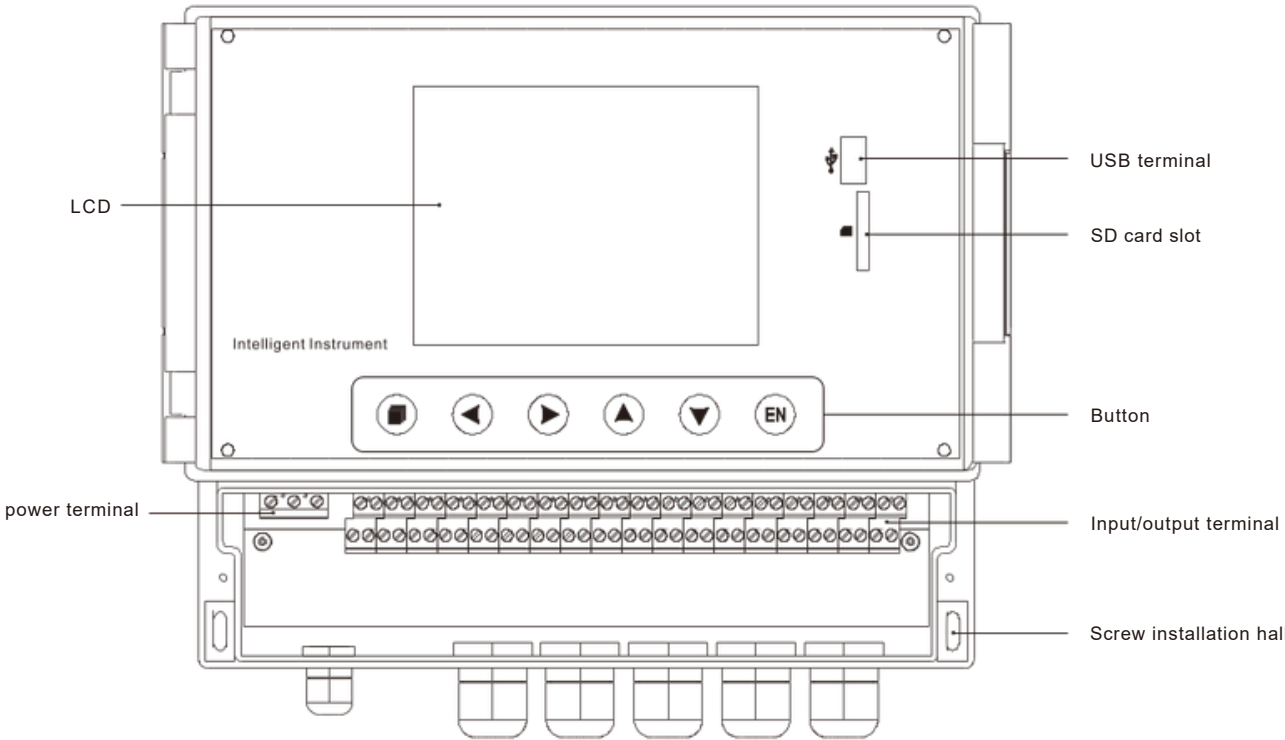
Customized function

Product	Type	Specification
U disk	860207	8GB
SD card reader	860301	USB connection
SD card	860307	8GB
Communication circuit	862007	RS232 communication connect(1.5m)
	862006	RS485 communication connect(1.5m)
Power filter	863101	220VAC/1:1/50W
Software	864801	MDMR Machine data management software

Installation dimension(mm)



Terminal connection diagram



power terminal

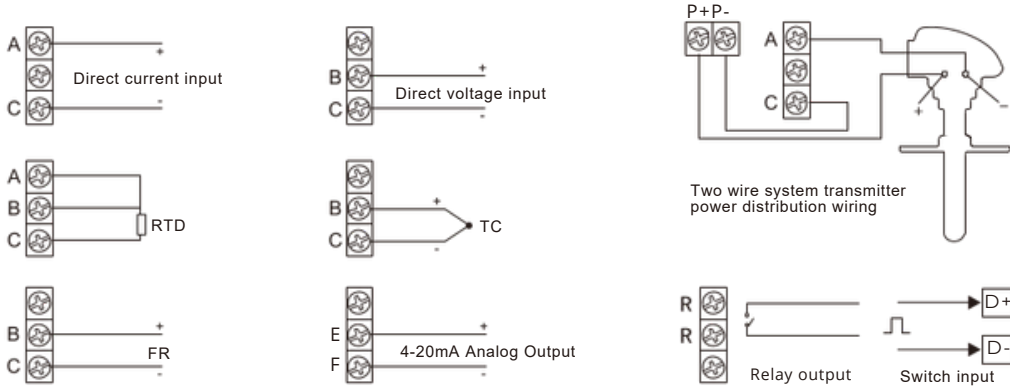


Input/output terminal



L N 

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1A	1B	1C	3A	3B	3C	5A	5B	5C	7A	7B	7C	9A	9B	9C	11A	11B	11C	R1	R1	R3	R3	R5	R5	R7	R7	R9	R9	R	R	P1	P1	P2	P2	P3	P3
2A	2B	2C	4A	4B	4C	6A	6B	6C	8A	8B	8C	10A	10B	10C	12A	12B	12C	R2	R2	R4	R4	R6	R6	R8	R8	R	R	R	R	D+	D-	RATB	G		
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	63	64	65	66	67	68	69	70	71	72	73



ISEN500 Blue screen paperless recorder



Product overview
Display
Technical index

Product overview

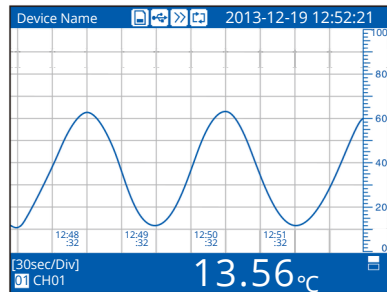
Maximum 16 channel universal input Blue screen paperless recorder, can input standard current, voltage, frequency standard, MV, thermocouple, thermal resistanceand so on many kinds of signal.Has a sensor distribution output, relay alarm output, transmitter output, flow totalizer / reports, historical data storage, on-site printing and serial communication functions.

Display



Digital display

Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in digital form.



Timing curves(crosswise)

Free choice of vertical and horizontal paper feed and custom curve colors.

Data Print

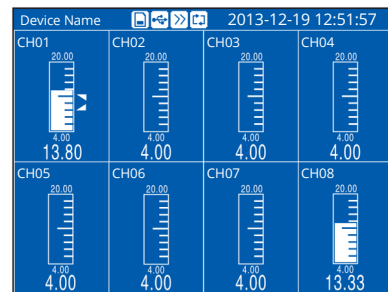
From: 2013-12-19 12:30:50
To: 2013-12-19 12:31:59
Channel: CH01
Interval: 1
File Index: 1

Print Data
Print Curve

Print complete

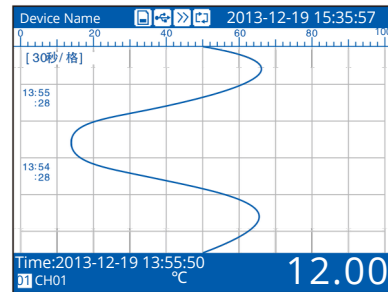
Data printing

Print the chosen period historical data in curves.



Bar

Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in bar chart.



Historical curves

Historical data can be represented in curves.

ALarm

Channel: 1
Relay Delay: 0sec
I Alm Time: 1sec

Hysteresis: 0.00
D Alm Time: 1sec

Alarm	Type	Value	Relay
1	H	11	R01
2	L	5	R02
3	OFF	0.00	OFF
4	OFF	0.00	OFF

Exit

Alarm configuration

Every channel can set four random alarm points.



Timing curves(lengthways)

Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in timing curves.

Function

File List, Store op, Backup Data, Print Data, Shift Rpt, Daily Rpt, Monthly Rpt, Year Rpt, Alarm Record, Power Record, Sys log

Menu

Present inquiry and backup content.

Backup Data

Backup Content: All History Files
File Folder Name: ALM0003.CSY

Backup(USB)
Backup(SD)

Backup success

Data backup

Backup the chosen period historical data to U disk and SD card in files.

Technical index

Structure

Installation method	Embedded installation (vertical)
Installation angle	Uppermost 30 degrees of backward inclination
Mounting plate thickness	1-10mm
External size	144(W)×144(H)×249(D)
Net weight	<2.6Kg(Optional component not included)

Power

Nominal voltage: 220VAC
Voltage range: 100VAC ~ 240VAC
Rated frequency: 50Hz
Consumption: ≤20W(Optional function included)

Input

Input channel: 1-16channel
Measurement period: 1sec
Signal type: Direct current(I), Direct voltage(V), TC, RTD, FR

Input signal type and measurable range:

Signal type	Signal type	Measurable range	Accuracy(25°C)	Input resistance
I	4-20mA	4.00mA-20.00mA	±0.2%	≤300Ω
	0-20mA	0.00mA-20.00mA	±0.2%	≤300Ω
	0-10mA	0.00mA-10.00mA	±0.2%	≤300Ω
V	1-5V	1.000V-5.000V	±0.2%	1MΩ
	0-5V	0.000V-5.000V	±0.2%	1MΩ
	0-10V	0.000V-10.000V	±0.2%	1MΩ
	20mV	0.00mV-20.00mV	±0.2%	10MΩ
	100mV	0.00mV-100.00mV	±0.2%	10MΩ
R	400Ω	0.0Ω-400.0Ω	±0.2%	---
	PT100	-200.0°C-650.0°C	±0.4°C	---
RTD	Cu50	-50.0°C-150.0°C	±0.4°C	---
	Cu33	-50.0°C-150.0°C	±0.4°C	---
	BA1	-200°C-650°C	±0.4°C	---
	BA2	-200°C-650°C	±0.4°C	---
	S	-50°C-1768°C	±2°C	10MΩ
	R	-50°C-1768°C	±2°C	10MΩ
TC	B	500°C-1820°C	±2°C	10MΩ
	K	-200°C-1372°C	±1°C	10MΩ
	N	-200°C-1300°C	±1°C	10MΩ
	E	-200°C-1000°C	±1°C	10MΩ
	J	-200°C-1200°C	±1°C	10MΩ
	T	-200°C-385°C	±1°C	10MΩ
	WRE5-26	0°C-2310°C	±2°C	10MΩ
	WRE3-25	0°C-2310°C	±2°C	10MΩ
	F1	700°C-2000°C	±2°C	10MΩ
	F2	700°C-2000°C	±2°C	10MΩ
FR	FR	0Hz-10000Hz	±1Hz	---
	FR	0.0Hz-3000.0Hz	±0.1Hz	---

Frequency input

Low level: 0~2V
High level: 4~24V
Duty cycle: 10%~90%
Drive current: Min 5mA

Analog input board card

Resolution ratio: 16 bit
Sample rate: 1 per second
Signal terminal pressure: Min -24VDC,Max +24VDC
Series of common mode voltage(50Hz):
5V: 1.5V
10V: 1.5V
20mV: 50mV
100mV: 150mV

Sensor break line detection:
Thermocouple, thermal resistance sensor disconnection. 4-20mA, input current lower than 2mA.
Does not adapt to other signals.



Display

Display: 5.6 inches blue LCD display (320×234Point) .
Display unit : 8 units.
Bit number: 7 characters or 15 letters(numbers).
Unit: 3 characters or 7 letters(or numbers).
Status display: picture name, board card status, alarm status, SD card status, USB status, circular display status, time.
Picture: measuring data(showed in digital, bar or curve), historical curve, function menu (file list, storage manipulation ,data backup, print, cumulative statement).
Curve : presented in crosswise or vertical curves, costume color function available.
Historical curve: shows the storage data, which can be magnified 1/2/4/8 /16/32 times.
Frame rate: 1 second.

Memory recording tim

Batch record mode, see the relation between time length and inter-record gap in below.If channel numbers are reduced, the recording time will become longer. The upmost recording gap setting is 30 minutes.

Record gap	1s	2s	10s	1min	2min	5min
1channel	80d	160d	2.2y	13.2y	26.4y	66y
16channel	5d	10d	50d	300d	1.6y	4y

24VDC transmitter power output

Circuit : 4channel
Output voltage: 24V±5%
Output current: 65mA (over current protection: about 90m A)

Alarm

Alarm number: Each channel can be set up to 4 alarm.
Alarm type: HIAL(H), LOAL(L), Incremental alarm(I) , Decrement alarm(D).
Alarm delaying time: 0-10 seconds.
Alarm output: the alarm will be output to the internal relay.
Display: when alarming, the corresponding picture will show the alarming status, and the alarm logo will be present in status bar.
Alarm log: the alarm history will be showed in alarming list.

Transportation and storage condition

Temperature: -10°C ~ 60°C
Humidity: 0% ~ 95%(no dew formation)

Additional specification

Analog output (/T1,T2,I)

Output channel: 1-4 channels
Output type: 4~20mA
Load: ≤750Ω

Alarm output relay (/A6,/A8,/A12)

Output points: 6, 8, 12
Contact capacity: 250VAC/3A, 30VDC/3A(resistive load)
Contact type: normally open contact
Relay sharing: operable (shared by multi channels)

Communication (/C2,/C3)

Connection: RS232C(/C2) or RS485(/C3)
Protocol: Modbus-RTU protocol
Transmission speed:1200/2400/4800/9600/19200/38400/57600/115200
Byte swap: 2-1 4-3, 1-2 3-4, 4-3 2-1, 3-4 1-2

Print function (/C4)

Printer: penal micro printer
Printing content: real time data, historical data, accumulative report
Printing method: manual print, time print

Ethernet(/E)

Protocol:Modbus-TCP
Port number: 1

USB function (/U)

Protocol: compatible USB 2.0 protocol
Port number: 1

SD card function (/S)

Protocol: compatible SD protocol
Port number: 1

ISEN500 Blue screen paperless recorder



Selective table
 Installation dimension
 Terminal connection chart

Selective table

Type	Function code	Specification code	Instruction
ISEN501			1 channel input
ISEN502			2 channel input
ISEN503			3 channel input
ISEN504			4 channel input
ISEN505			5 channel input
ISEN506			6 channel input
ISEN507			7 channel input
ISEN508			8 channel input
Function Type	R		Recording function
	F		Temperature and pressure compensation
Additional specification	/T□	1-4	1-4 channel 4-20mA signal output
		6	6 normally open contact output
		8	8 normally open contact output
	/A□	12	12 normally open contact output
		2	RS232 communication
		3	RS485 communication
		4	Micro printer terminal *1
	/U		USB function
	/S		SD card function
	/L		Accumulate/ report

Type	Function code	Specification code	Instruction
ISEN509			9 channel input
ISEN510			10 channel input
ISEN511			11 channel input
ISEN512			12 channel input
Function Type	R		Recording function
	F		Temperature and pressure compensation
Additional specification	/A□	6	6 normally open contact output
		8	8 normally open contact output
		12	12 normally open contact output
	/C□	2	RS232 communication
		3	RS485 communication
		4	Micro printer terminal *1
	/U		USB function
	/S		SD card function
	/L		Accumulate/ report

Type	Function code	Specification code	Instruction
ISEN513			13 channel input
ISEN514			14 channel input
ISEN515			15 channel input
ISEN516			16 channel input
Function Type	R		Recording function
	F		Temperature and pressure compensation
Additional specification	/A□	6	6 normally open contact output
		8	8 normally open contact output
		12	12 normally open contact output
	/C□	2	RS232 communication
		3	RS485 communication
		4	Micro printer terminal *1
	/U		USB function
	/S		SD card function
	/L		Accumulate/ report

Customized function

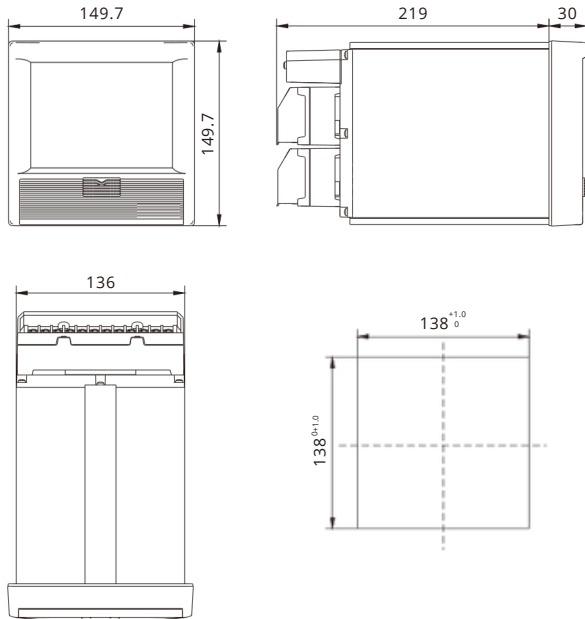
Specification code	Instruction
/A □ 1-12	1-12 Channel Frequency input, with 12V power*2 1-12
/FC □ 1-12	Channel Frequency input, with 24V power*2
/PT	Anti-corrosion paint protection
/P1	24VDC power supply
/E	Ethernet communication

*1 Only support special micro printer.
 *2 Please contact to the manufacture to custom frequency input channel.

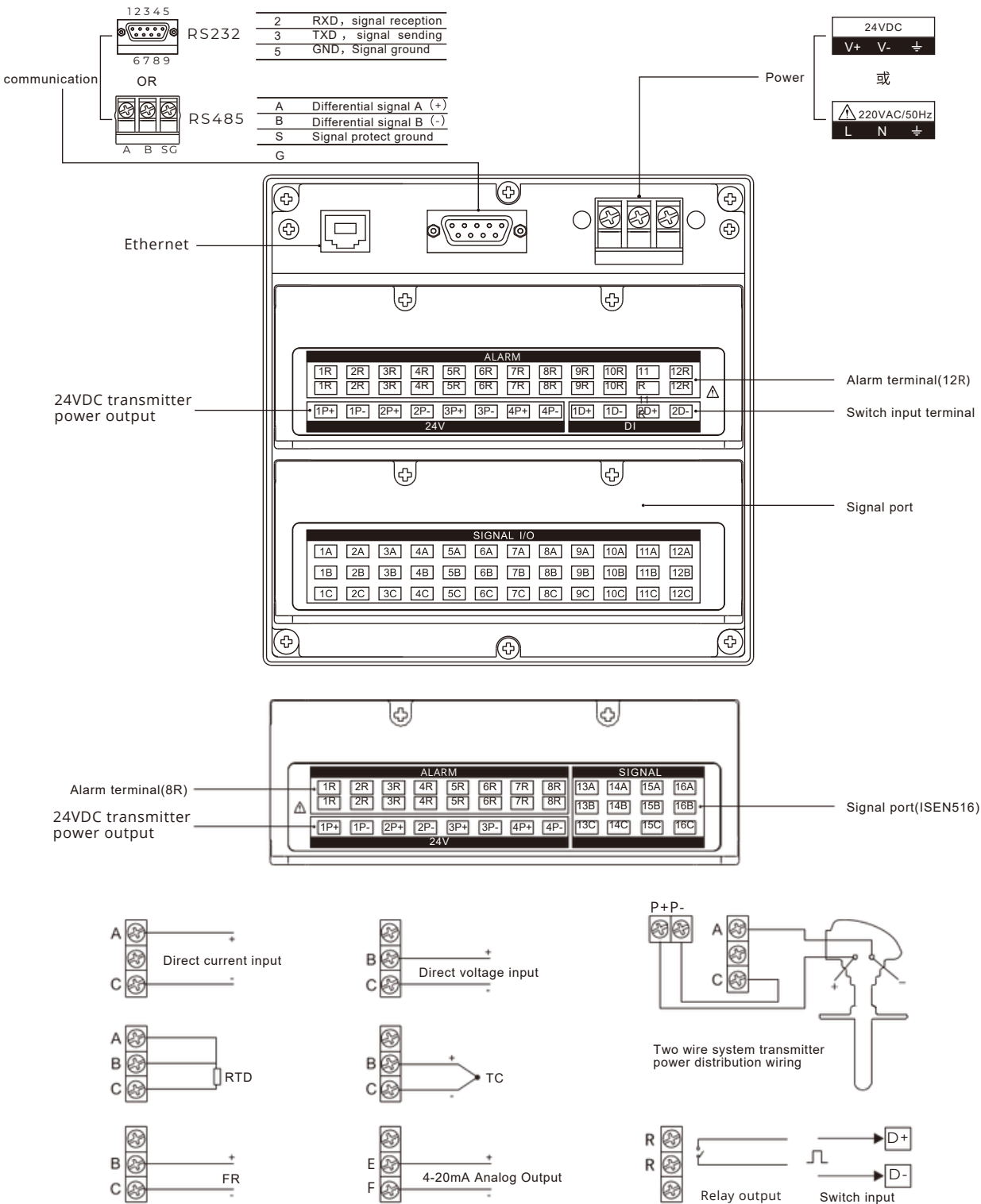
Product accessories (sold separately)

Product	Type	Specification
U disk	860207	8GB
SD card reader	860301	USB connection
SD card	860307	8GB
Communication circuit	862007	RS232 communication connect(1.5m)
	862006	RS485 communication connect(1.5m)
Power filter	863101	220VAC/1:1/50W
Software	864801	MDMR Machine data management software

Installation dimension(mm)



Terminal connection diagram





Product overview
 Display
 Technical index

◆ Product overview

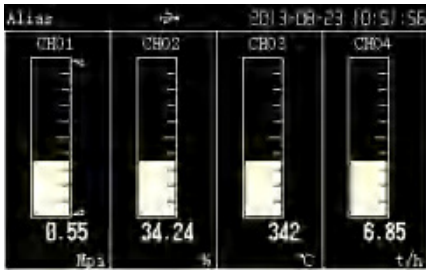
Maximum 4 channel universal input Monochrome paperless recorder, can input standard current, voltage, frequency standard, MV, thermocouple, thermal resistance and so on many kinds of signal.Has a sensor distribution output, relay alarm output, transmitter output, flow totalizer / reports, historical data storage, on-site printing and serial communication functions.



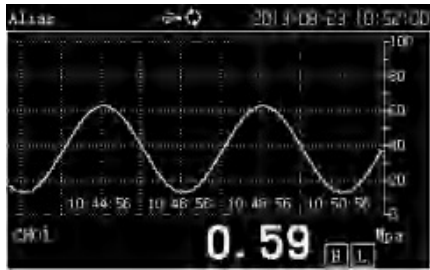
◆ Display



Digital display
 Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in digital form.



Bar
 Measured values, channelnumber, engineering unit, alarm status and accumulative message,all of them will be displayed in bar chart.



Timing curves (lengthways)
 Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in timing curves.



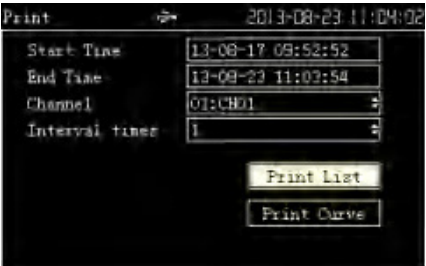
Historical curves
 Historical data can be represented in curves.



Menu
 Present inquiry and backup content.



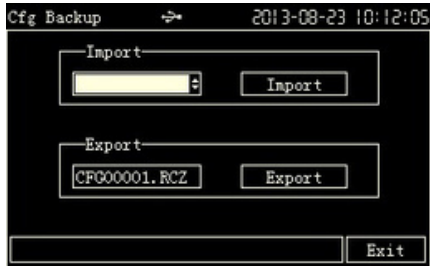
Data backup
 Backup the chosen period historical data to U disk and SD card in files.



Data printing
 Print the chosen period historical data in curves.



Alarm configuration
 Every channel can set four random alarm points.



Configuration backup
 Free input and output of configuration information, easy configuration setting.

◆ Technical index

Structure

Installation method	Embedded installation (vertical)
Installation angle	Uppermost 30 degrees of backward inclination
Mounting plate thickness	1-10mm
External size	160(W)×80(H)×110(D)
Net weight	<0.5Kg(Optional component not included)

Power

Nominal voltage: 220VAC
 Voltage range: 100VAC ~ 240VAC
 Rated frequency: 50Hz
 Consumption: ≤10W(Optional function included)

Input

Input channel: 1-4channel
 Measurement period: 1sec
 Signal type: Direct current(I)、Direct voltage(V)、TC、RTD、FR

Input signal type and measurable range:

Signal type	Signal type	Measurable range	Accuracy(25°C)	Input resistance
I	4-20mA	4.00mA-20.00mA	±0.2%	≤300Ω
	0-20mA	0.00mA-20.00mA	±0.2%	≤300Ω
	0-10mA	0.00mA-10.00mA	±0.2%	≤300Ω
V	1-5V	1.000V-5.000V	±0.2%	1MΩ
	0-5V	0.000V-5.000V	±0.2%	1MΩ
	0-10V	0.000V-10.000V	±0.2%	1MΩ
	20mV	0.00mV-20.00mV	±0.2%	10MΩ
	100mV	0.00mV-100.00mV	±0.2%	10MΩ
R	400Ω	0.0Ω-400.0Ω	±0.2%	---
	PT100	-200.0°C-650.0°C	±0.4°C	---
RTD	Cu50	-50.0°C-150.0°C	±0.4°C	---
	Cu53	-50.0°C-150.0°C	±0.4°C	---
	BA1	-200°C-650°C	±0.4°C	---
	BA2	-200°C-650°C	±0.4°C	---
	S	-50°C-1768°C	±2°C	10MΩ
	R	-50°C-1768°C	±2°C	10MΩ
TC	B	500°C-1820°C	±2°C	10MΩ
	K	-200°C-1372°C	±1°C	10MΩ
	N	-200°C-1300°C	±1°C	10MΩ
	E	-200°C-1000°C	±1°C	10MΩ
	J	-200°C-1200°C	±1°C	10MΩ
	T	-200°C-385°C	±1°C	10MΩ
	WRE5-26	0°C-2310°C	±2°C	10MΩ
	WRE3-25	0°C-2310°C	±2°C	10MΩ
	F1	700°C-2000°C	±2°C	10MΩ
	F2	700°C-2000°C	±2°C	10MΩ
FR	FR	0Hz-10000Hz	±1Hz	---
	FR	0.0Hz-3000.0Hz	±0.1Hz	---

Frequency input

Low level: 0~2V
 High level: 4~24V
 Duty cycle: 10%~90%
 Drive current: Min 5mA

Analog input board card

Resolution ratio: 16 bite
 Sample rate: 1 per second
 Signal terminal pressure: Min -24VDC,Max +24VDC
 Series of common mode voltage(50Hz):
 5V: 1.5V
 10V: 1.5V
 20mV: 50mV
 100mV:150mV

Sensor break line detection:
 Thermocouple, thermal resistance sensor disconnection. 4-20mA, input current lower than 2mA. Does no adapt to other signals.

Display

Displayer: 3.5 inches LCD display (320×200Point) .
 Display unit : 4 units.
 Bit number: 7 characters or 15 letters(numbers).
 Unit: 3 characters or 7 letters(or numbers).
 Status display: picture name, board card status, alarm status, SD card status, USB status, circular display status, time.
 Picture: measuring data(showed in digital, bar or curve), historical curve, function menu (file list, storage manipulation ,data backup, print, cumulative statement).
 Curve : presented in crosswise or vertical curves, costume color function available.
 Historical curve: shows the storage data, which can be magnified 1/2/4/8 /16/32 times.
 Frame rate: 1 second.

Memory recording tim

Continuous recording mode, the recording time length relationship table and the recording interval:
 The recording interval can be set up to 30 minutes.

Record gap	1s	2s	10s	1min	2min	5min
Time length	3d	6d	1m	6m	1y	2.5y

24VDC transmitter power output

Circuit : 1 channel
 Output voltage: 24V±5%
 Output current: 65mA (over current protection: about 90m A)

Alarm

Alarm number: Each channel can be set up to 4 alarm.
 Alarm type: HIAL(H), LOAL(L), Incremental alarm(I) , Decrement alarm(D).
 Alarm delaying time: 0-10 seconds.
 Alarm output: the alarm will be output to the internal relay.
 Display: when alarming, the corresponding picture will show the alarming status, and the alarm logo will be present in status bar.
 Alarm log: the alarm history will be showed in alarming list.

Transportation and storage condition

Temperature: -10°C ~ 60°C
 Humidity: 0% ~ 95%(no dew formation)

◆ Additional specification

Analog output (/T1)

Output channel: 1 channels
 Output type: 4—20mA
 Load: ≤750Ω

Alarm output relay (/A2,/A4)

Output points: 2、4
 Contact capacity: 250VAC/3A, 30VDC/3A(resistive load)
 Contact type: normally open contact
 Relay sharing: operable (shared by multi channels)

Communication (/C2,/C3)

Connection: RS232C(/C2) or RS485(/C3)
 Protocol: Modbus-RTU protocol
 Transmission speed:1200/2400/4800/9600/19200/38400/57600/115200
 Byte swap: 2-1 4-3, 1-2 3-4, 4-3 2-1, 3-4 1-2

Print function (/C4)

Printer: penal micro printer
 Printing content: real time data, historical data, accumulative report
 Printing method: manual print, time print

Ethernet communication (/E)

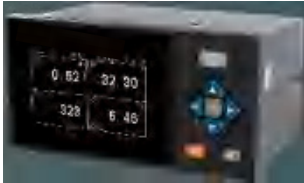
Protocol: compatible USB 2.0 protocol
 Port number: 1

USB function (/U)

Protocol:Modbus-TCP protocol
 Port number: 1



Selective table
Installation dimension
Terminal connection chart



Selective table

Type	Function code	Specification code	Instruction	
ISEN201			1 channel input*1	
ISEN202			2 channel input*1	
ISEN203			3 channel input*1	
ISEN204			4 channel input*1	
Function Type	R		Recording function	
Additional specification		/T1	1 channel 4-20mA signal output	
		/A□	2	2 normally open contact output
			4	4 normally open contact output
		/C□	2	RS232 communication
			3	RS485 communication
			33	Double RS485 communication
			4	Micro printer terminal *2
		/U	USB function	
		/L	Accumulate/ report	

Customized function

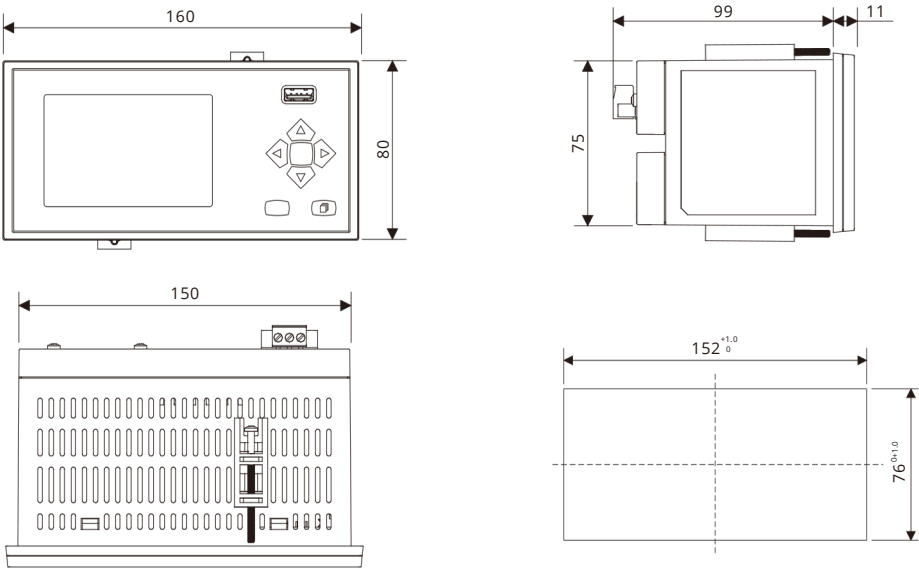
Specification code	Instruction
/PT	Anti-corrosion paint protection
/P1	24VDC power supply

*1 Please contact to the manufacture to custom frequency input channel.
*2 Only support special micro printer.
*3 Ethernet communication and printer interface can not be selected at the same time.

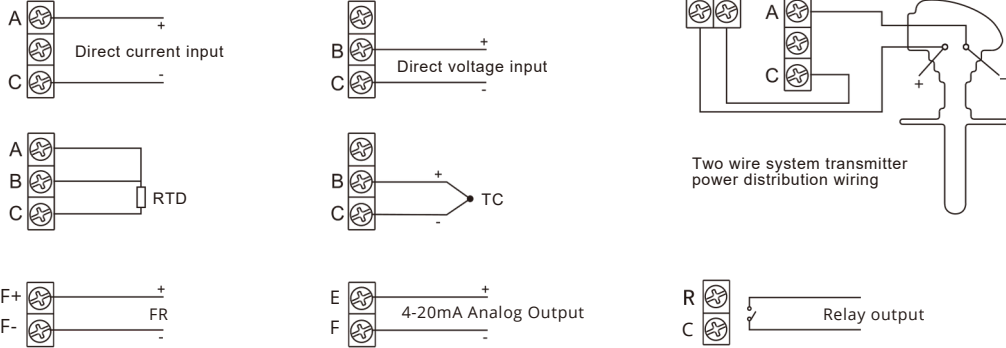
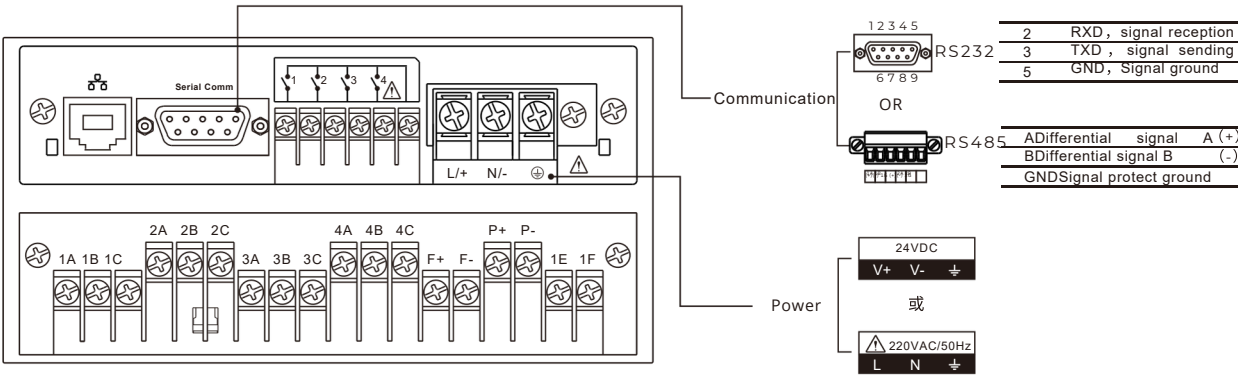
Product accessories (sold separately)

Product	Type	Specification
U disk	860207	8GB
Communication circuit	862007	RS232 communication connect(1.5m)
	862006	RS 485 communication connect(1.5m)
Power filter	863101	220VAC/1:1/50W
Software	864801	MDMR Machine data management software

Installation dimension(mm)



Terminal connection diagram



ISEN 100 Color paperless recorder

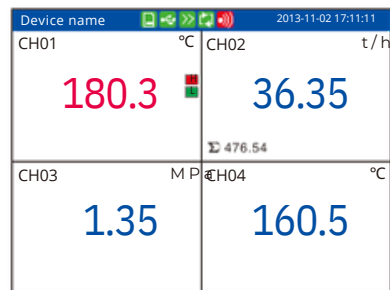


Product overview
Display
Technical index

Product overview

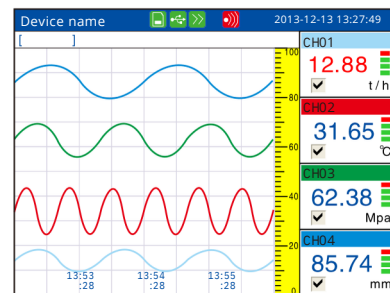
Maximum 4 channel universal input color paperless recorder, can input standard current, voltage, frequency standard, MV, thermocouple, thermal resistance and so on many kinds of signal. Has a sensor distribution output, relay alarm output, transmitter output, flow totalizer / reports, historical data storage, on-site printing and serial communication functions.

Display



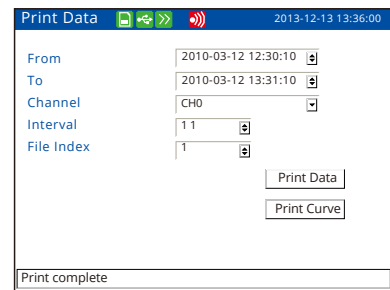
Digital display

Measured values, channel number, engineering unit, alarm status and accumulative message, all of them will be displayed in digital form.



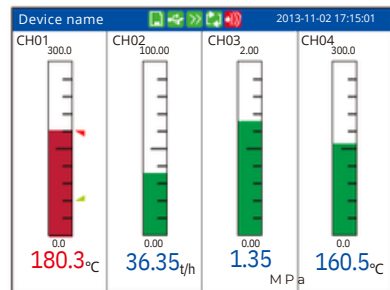
Timing curves (crosswise)

Free choice of vertical and horizontal paper feed and custom curve colors.



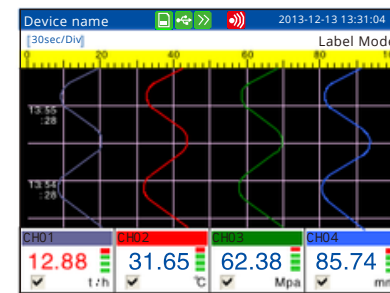
Data printing

Print the chosen period historical data in curves.



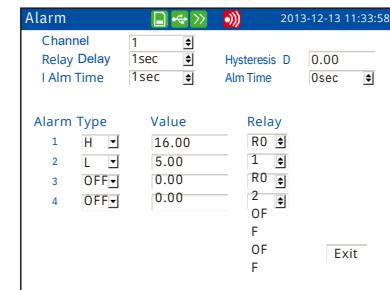
Bar

Measured values, channel number, engineering unit, alarm status and accumulative message, all of them will be displayed in bar chart.



Historical curves

Historical data can be represented in curves.



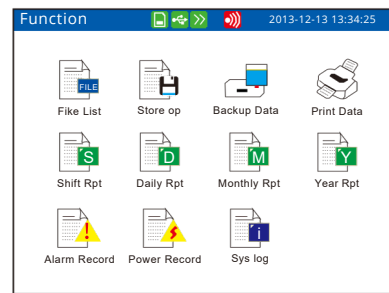
Alarm configuration

Every channel can set four random alarm points.



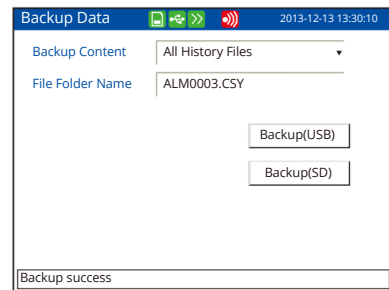
Timing curves (lengthways)

Measured values, channel number, engineering unit, alarm status and accumulative message, all of them will be displayed in timing curves.



Menu

Present inquiry and backup content.



Data backup

Backup the chosen period historical data to U disk and SD card in files.

Technical index

Structure

Installation method	Embedded installation (vertical)
Installation angle	Uppermost 30 degrees of backward inclination
Mounting plate thickness	1-10mm
ISEN100R External size	96(W)×96(H)×123(D)
ISEN100H External size	160(W)×80(H)×118(D)
Net weight	<0.8Kg(Optional component not included)

Power

Nominal voltage: 220VAC
Voltage range: 100VAC ~ 240VAC
Rated frequency: 50Hz
Consumption: ≤10W(Optional function included)

Input

Input channel: 1-4channel
Measurement period: 1sec
Signal type: Direct current(I), Direct voltage(V), TC, RTD, FR

Input signal type and measurable range:

Signal type	Signal type	Measurable range	Accuracy(25°C)	Input resistance
I	4-20mA	4.00mA-20.00mA	±0.2%	≤300Ω
	0-20mA	0.00mA-20.00mA	±0.2%	≤300Ω
	0-10mA	0.00mA-10.00mA	±0.2%	≤300Ω
V	1-5V	1.000V-5.000V	±0.2%	1MΩ
	0-5V	0.000V-5.000V	±0.2%	1MΩ
	0-10V	0.000V-10.000V	±0.2%	1MΩ
	20mV	0.00mV-20.00mV	±0.2%	10MΩ
	100mV	0.00mV-100.00mV	±0.2%	10MΩ
R	400Ω	0.0Ω-400.0Ω	±0.2%	---
	PT100	-200.0°C-650.0°C	±0.4°C	---
RTD	Cu50	-50.0°C-150.0°C	±0.4°C	---
	Cu53	-50.0°C-150.0°C	±0.4°C	---
	BA1	-200°C-650°C	±0.4°C	---
	BA2	-200°C-650°C	±0.4°C	---
	S	-50°C-1768°C	±2°C	10MΩ
TC	R	-50°C-1768°C	±2°C	10MΩ
	B	500°C-1820°C	±2°C	10MΩ
	K	-200°C-1372°C	±1°C	10MΩ
	N	-200°C-1300°C	±1°C	10MΩ
	E	-200°C-1000°C	±1°C	10MΩ
	J	-200°C-1200°C	±1°C	10MΩ
	T	-200°C-385°C	±1°C	10MΩ
	WRE5-26	0°C-2310°C	±2°C	10MΩ
	WRE3-25	0°C-2310°C	±2°C	10MΩ
	F1	700°C-2000°C	±2°C	10MΩ
	F2	700°C-2000°C	±2°C	10MΩ
	FR	0Hz-10000Hz	±1Hz	---
	FR	0.0Hz-3000.0Hz	±0.1Hz	---

Frequency input

Low level: 0~2V
High level: 4~24V
Duty cycle: 10%~90%
Drive current: Min 5mA

Analog input board card

Resolution ratio: 16 bit
Sample rate: 1 per second
Signal terminal pressure: Min -24VDC, Max +24VDC
Series of common mode voltage(50Hz):
5V: 1.5V
10V: 1.5V
20mV: 50mV
100mV: 150mV

Sensor break line detection:
Thermocouple, thermal resistance sensor disconnection. 4-20mA, input current lower than 2mA. Does not adapt to other signals.

Display

Display: 3.5 inches TFT color LCD display (320×240Point).
Display unit: 4 units.
Bit number: 7 characters or 15 letters(numbers).
Unit: 3 characters or 7 letters(or numbers).
Status display: picture name, board card status, alarm status, SD card status, USB status, circular display status, time.
Picture: measuring data(showed in digital, bar or curve), historical curve, function menu (file list, storage manipulation, data backup, print, cumulative statement).

Curve: presented in crosswise or vertical curves, costume color function available.
Historical curve: shows the storage data, which can be magnified 1/2/4/8 /16/32 times.
Frame rate: 1 second.

Memory recording time

Batch record mode, see the relation between time length and inter-record gap in below: If channel numbers are reduced, the recording time will become longer. The upmost recording gap setting is 30 minutes.

Record gap	1s	2s	10s	1min	2min	5min
1 Channel	12d	24d	4m	2y	4y	10y
4 Channel	3d	6d	1m	6m	1y	2y

24VDC transmitter power output

Circuit: 1 channel
Output voltage: 24V±5%
Output current: 65mA (over current protection: about 90mA)

Alarm

Alarm number: Each channel can be set up to 4 alarm.
Alarm type: HIAL(H), LOAL(L), Incremental alarm(I), Decrement alarm(D).
Alarm delaying time: 0-10 seconds.
Alarm output: the alarm will be output to the internal relay.
Display: when alarming, the corresponding picture will show the alarming status, and the alarm logo will be present in status bar.
Alarm log: the alarm history will be showed in alarming list.

Transportation and storage condition

Temperature: -10°C ~ 60°C
Humidity: 0% ~ 95%(no dew formation)

Additional specification

Analog output (/T1)

Output channel: 1 channels
Output type: 4~20mA
Load: ≤750Ω

Alarm output relay (/A2,/A4)

Output points: ISEN100R has 2 points, ISEN100H has 2or4 points
Contact capacity: 250VAC/3A, 30VDC/3A(resistive load)
Contact type: normally open contact
Relay sharing: operable (shared by multi channels)

Communication (/C2,/C3)

Connection: RS232C(/C2) or RS485(/C3)
Protocol: Modbus-RTU protocol
Transmission speed: 1200/2400/4800/9600/19200/38400/57600/115200
Byte swap: 2-1 4-3, 1-2 3-4, 4-3 2-1, 3-4 1-2

Print function (/C4)

Printer: pen micro printer
Printing content: real time data, historical data, accumulative report
Printing method: manual print, time print

USB function (/U)

Protocol: compatible USB 2.0 protocol
Port number: 1

SD card function (/S)

Protocol: compatible SD protocol
Port number: 1

ISEN 100 Color paperless recorder



Selective table
 Installation dimension
 Terminal connection chart

ISEN100R Selective table

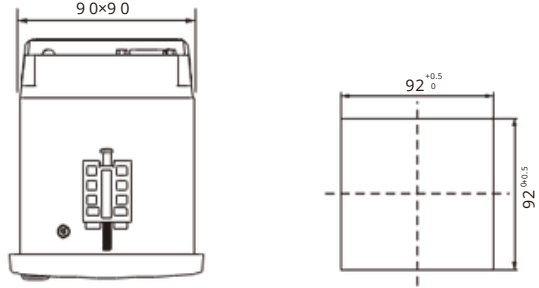
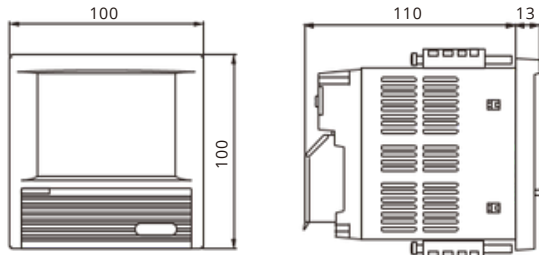
Type	Function code	Specification code	Instruction
ISEN101			1 channel input*1
ISEN102			2 channel input*1
ISEN103			3 channel input*1
ISEN104			4 channel input*1
Function Type	R		Recording function
Additional specification	/T1		1 channel 4-20mA signal output
	/A		2 normally open contact output
	2	2	RS232communication
		3	RS485communication
	/C	4	Micro printer terminal *2
	/U		USB function
	/S		SD card function
	/L		Accumulate/ report

Customized function

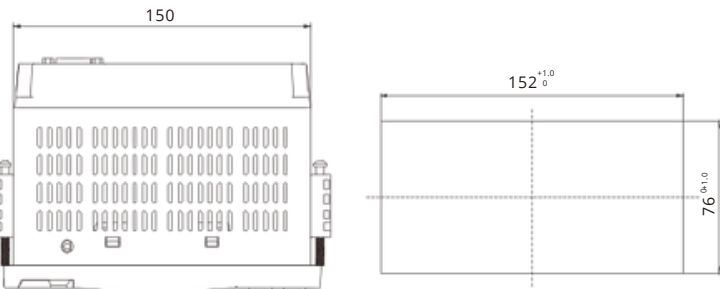
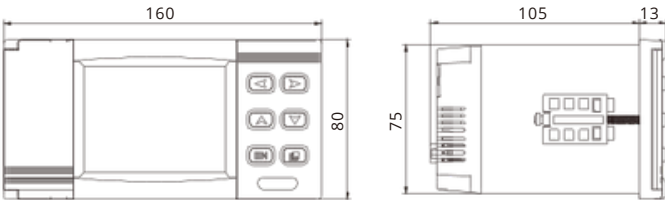
Specification Code	Note:
/PT	Anti-corrosion paint protects
/P1	24VDC power supply.

*1 The frequency signal uses a dedicated channel, 1 channel.
 *2 Only supports Pangu dedicated mini printers.

ISNE100R Installation dimension(mm)



ISEN100H Installation dimension(mm)



ISEN100H Selective table

Type	Function code	Specification code	Instruction
ISEN101			1 channel input*1
ISEN102			2 channel input*1
ISEN103			3 channel input*1
ISEN104			4 channel input*1
Function Type	H		Recording function
Additional specification	/T1		1 channel 4-20mA signal output
	/A	2	2 normally open contact output
		4	4 normally open contact output
	/C	2	RS232 communication
		3	RS485 communication
		4	Micro printer terminal *2
	/U		USB function
	/S		SD card function
	/L		Accumulate/ report

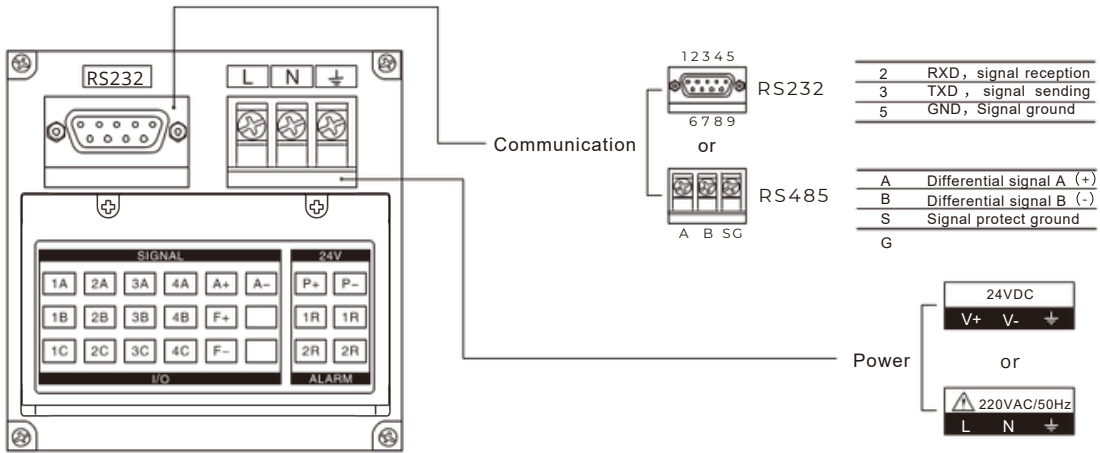
Product accessories(sold separately)

Product	Type	Specification
U disk	860207	8GB
SD card reader	860301	USB connection
SD card	860307	8GB
Communication circuit	862007	RS232 communication connect(1.5m)
	862006	RS485 communication connect(1.5m)
Power filter	863101	220VAC/1:1/50W
Software	864801	MDMR Machine data management software

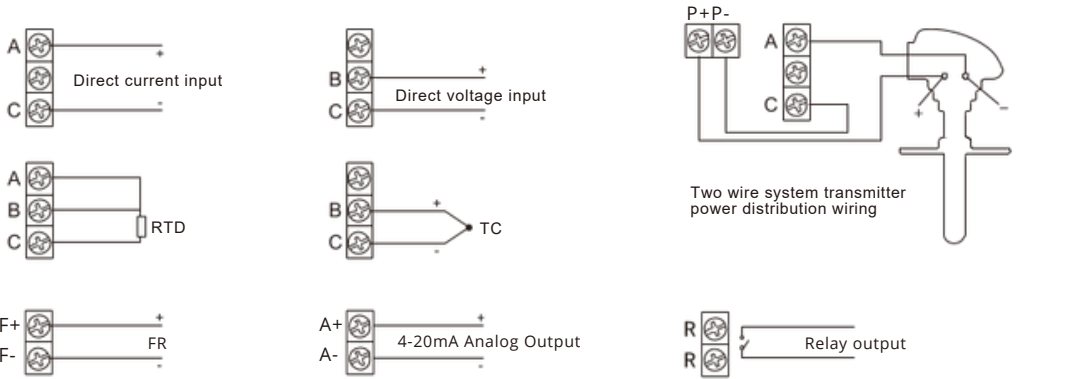
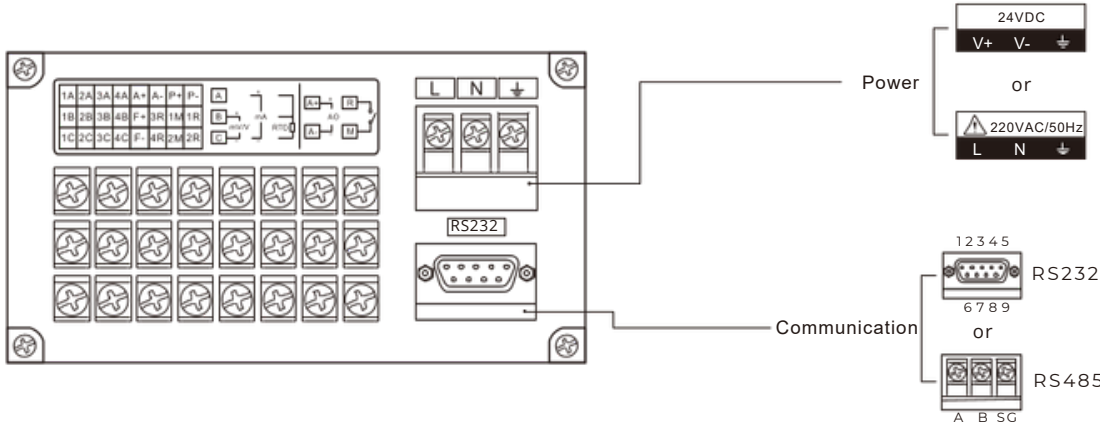


Terminal connection diagram

ISEN100R Terminal arrangement



ISEN100H Terminal arrangement





- Product overview
 Technical index
 Installation dimension
- Display
 Selective table
 Terminal connection chart

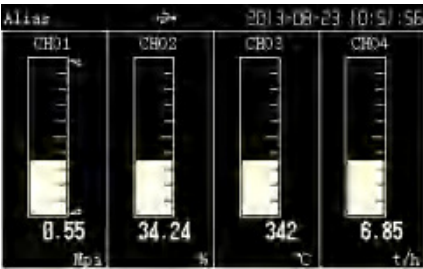
◆ **Product overview**

ISEN400 paper recorder support 4 universal input, input DC current, DC voltage, frequency, MV, thermocouple, thermal resistance and so on many kinds of signal. Sensor with power output, relay alarm output, transmission output,flow accumulative calculating/report, historical data dump, present printing function. Under certain occasions such as when present data are needed, it's better to use PANGU ISEN400 paper recorder. User can print historical data, historical curves, timing data, accumulative report according to their need. See printing type in ISENP micro printer.

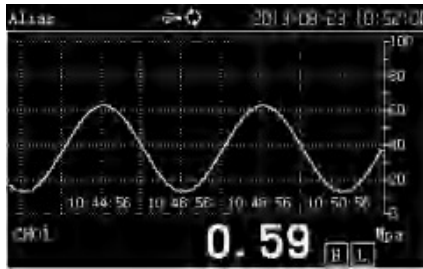
◆ **Display**



Digital display
 Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in digital form.



Bar
 Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in bar chart.



Timing curves (lengthways)
 Measured values, channel number, engineering unit, alarm status and accumulative message,all of them will be displayed in timing curves.



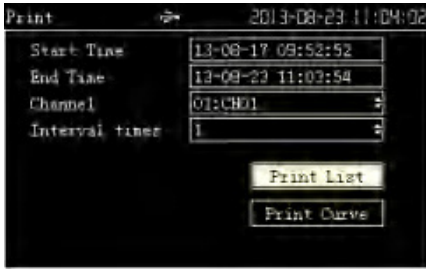
Historical curves
 Historical data can be represented in curves.



Menu
 Present inquiry and backup content.



Data backup
 Backup the chosen period historical data to U disk and SD card in files.



Data printing
 Print the chosen period historical data in curves.



Alarm configuration
 Every channel can set four random alarm points.



Print Configuration
 Setting button print and regular print, print real-time data for each channel.

◆ **Technical index**

Structure	
Installation method	Embedded installation (vertical)
Installation angle	Uppermost 30 degrees of backward inclination
Mounting plate thickness	1-10mm
External size	160(W)×164(H)×110(D)
Net weight	<1.5Kg(Optional component not included)

Power	
Nominal voltage:	220VAC
Voltage range:	100VAC ~ 240VAC
Rated frequency:	50Hz
Consumption:	≤25W(Optional function included)

Printing function	
Printer:	micro penal printer
Print content:	timing data, historical data, accumulative report
Print type:	manual print, time print

Memory recording tim	
Continuous recording mode, the recording time length relationship table and the recording interval:	
The recording interval can be set up to 30 minutes.	

Record gap	1s	2s	10s	1min	2min	5min
Time length	3d	6d	1m	6m	1y	2.5y

Other functions	
The same with ISEN200.	

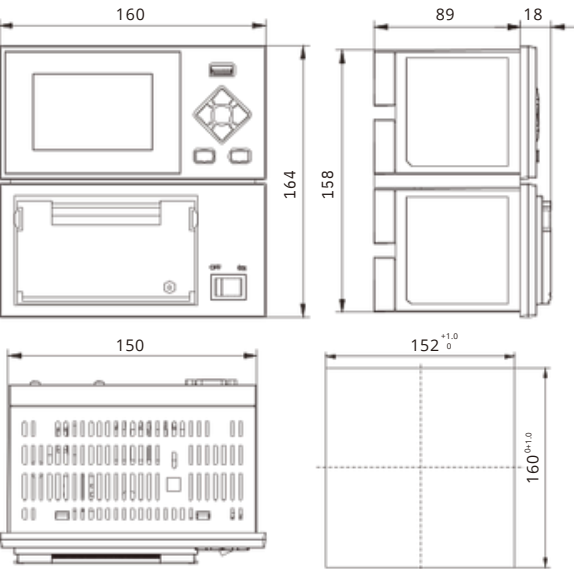
◆ **Selective table**

Type	Function code	Specification code	Instruction
ISEN401			1 channel input
ISEN402			2 channel input
ISEN403			3 channel input
ISEN404			4 channel input
Function Type	R		Recording function
Additional specification	/T1		1 channel 4-20mA signal output
		2	2 normally open contact output
	/A□	4	4 normally open contact output
	/U		USB function
	/L		Accumulate/ report

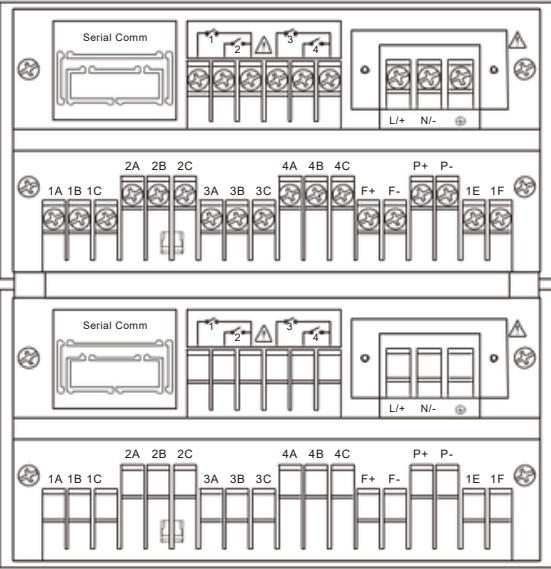
◆ **Product accessories(sold separately)**

Product	Type	Specification
U disk	860207	8GB
Power filter	863101	220VAC/1:1/50W
Printing paper	861001	Applied to ISEN400R、ISENP series
Print ribbon	861101	Applied to ISEN400R、ISENP series

◆ **Installation dimension(mm)**



◆ **Terminal connection diagram**



NB: the connection method are the same with ISEN200

ISENP Micro printer



Product overview
 Technical index
 Type style

Product overview

ISENP disk installed wide line printer is the ISEN series instruments supporting products. Plate mounting structure of the printer can be mounted directly on the instrument panel, the front panel for paper, the installation is very convenient to use.



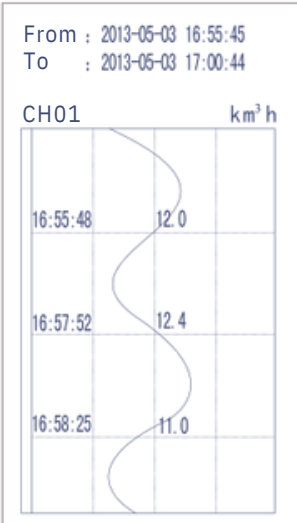
Technical index

- The wide line high speed printing, printing density of 240 point / line, print contentclear and rich.
- With no paper recorder supporting the use of.
- The RS232 serial connection.
- It can print data and curve.
- The former paper type, convenient use and maintenance.
- The AC220 AC power supply, power consumption is less than or equal to 15W.
- Printing paper： ordinary white paper, the maximum diameter $\phi 40\text{mm}$, paper width $57.5 \pm 0.5\text{mm}$.
- Ribbon: ERC-09 cartridge.
- External size： 160(W) $\times$ 80(H) $\times$ 100(D)mm.
- Hole size： 152(W) $\times$ 76(H)mm.

Type style

CH01 Time	km ³ /h DATA
2013-05-03 17:00:30	14.0
2013-05-03 17:00:31	14.0
2013-05-03 17:00:32	14.0
2013-05-03 17:00:33	14.0
2013-05-03 17:00:34	13.9
2013-05-03 17:00:35	13.9
2013-05-03 17:00:36	13.8
2013-05-03 17:00:37	13.7
2013-05-03 17:00:38	13.7
2013-05-03 17:00:39	13.6
2013-05-03 17:00:40	13.5
2013-05-03 17:00:41	13.4
2013-05-03 17:00:42	13.3
2013-05-03 17:00:43	13.2
2013-05-03 17:00:44	13.2
2013-05-03 17:00:45	13.1

Historical data print result



Historical curve print result

Type	Month	Day	CH01
2013-09			Σ0.0
01:0.5	17:7.4		
02:1.1	18:2.1		
03:0.8	19:4.2		
04:0.2	20:4.1		
05:5.6	21:6.1		
06:8.0	22:6.2		
07:0.6	23:9.0		
08:0.3	24:5.8		
09:0.9	25:5.1		
10:1.0	26:1.4		
11:0.4	27:0.7		
12:1.2	28:0.8		
13:3.0	29:7.1		
14:4.6	30:5.6		
15:2.5			
16:7.0			
Total	103.3		

Accumulative report print result

Time	2013-05-03 16:52:00
01:CH01 Data	10.0 km ³ /h
02:CH02 Data	6.67 mbar
03:CH03 Data	-200.0 km ³ /h
04:CH04 Data	6.67 mbar
时间	2013-05-03 16:52:00
01:CH01 Data	12.3 km ³ /h
02:CH02 Data	6.47 mbar
03:CH03 Data	-300.0 km ³ /h
04:CH04 Data	5.56 mbar
时间	2013-05-03 16:52:00
01:CH01	9.98 km ³ /h
02:CH02	3.47 mbar
03:CH03	-300.0 km ³ /h
04:CH04	5.00 mbar

Timing data print result