

SX 2000 Paperless Recorder

Product Overview

SX2000 Paperless Recorder monochrome paperless recorder has 4-channel universal inputs function. It can input the standard current, standard voltage, frequency, millivolt, thermocouple, thermal resistance and other signals. It also has some other functions, including isolated power distribution output of sensors, relay alarm output, transmitter output, flow accumulation, temperature and pressure compensation, transfer storage of historical data, printing, Ethernet and remote communication.



Functions & Features

System

- Using the latest large-scale integrated circuit.
- Using high-speed & high-performance 32-bit ARM microprocessor, it can detect, record, display and alarm 4 channels signals simultaneously.
- 3.5 inch 320x 200 dot-matrix TFT high brightness LCD, CCFL backlight, clear picture, brilliant color, and wide viewing angles.
- Fully isolated universal input, which can input a variety of signals. It can be configured by software without jumper.
- New switching power supply, which can function properly within the range of 85VAC ~ 265 VAC.
- Integrated hardware real-time clock, which can run accurately in case of power down.
- Provide isolated 24VDC power distribution for transmitter.
- Large capacity storage of FLASH memory chips to store historical data, which will never lose data in case of power-down.
- 4 way relay alarm output.

Signals

- You can input a variety of standard signals: standard current, standard voltage, frequency, millivolt, thermocouple, thermal resistance.
- Signal full-scale accuracy: $\pm 0.2\%$.
- Optoelectronic devices are used between channels and they are completely isolated.
- Providing standard 4-20mA for transmitter output.

Software

- Use password to protect configuration data.
- Easy menu configuration. It can configure freely and display the engineering tag number and engineering units.
- Engineering quantities display wide range of values. It can show five digits: -9999~ 19999, and it also supports the display of vacuum scientific notation.
- Indicate the low low limit alarm, low limit alarm, high limit alarm, high high limit alarm of all channel simultaneously. It can record up to recent 15 alarms.
- Each channel all supports flow accumulation function, and provides hourly report, 8-hour shift report, 12-hour shift report, daily and monthly reports and other reports.
- Trend display mode can select horizontal trend or vertical trend.
- It can realize 12 groups temperature and pressure compensation. It can support orifice flow meter, vortex flow meters to realize compensation on steam, water, common gas.etc.
- 5 groups of trend combination are provided, and each group can be free to choose channel, free and the color of trends.

- It has a powerful T6 input method which is easy to operate. It supports numbers, characters, special symbols, subscripts and superscripts input, etc.

Communication

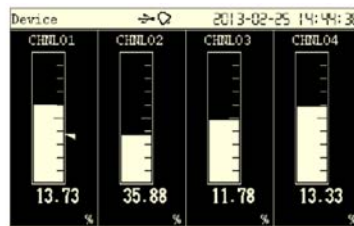
- Standard serial communication interface: RS-485 or RS-232C.
- It supports the standard Modbus-RTU communication protocol, providing a variety of data types, such as the percentage, engineering quantities, accumulation and so on. In addition to supporting our company's data management software, it also supports some popular professional configuration software, such as the iFIX, MCGS, etc.
- Use USB2.0 interface for transfer storage and backup of history records. It can support maximum 8G USB flash drives.
- It supports the FAT32 file system. Windows can automatically identify the backup data files without format conversion.
- It can connect with an external micro-printer, so you can manually print data and trends, and automatically print real-time on a regular basis to meet the needs of the user to print on the filed.
- Ethernet is available upon request from customers.

Display Screen



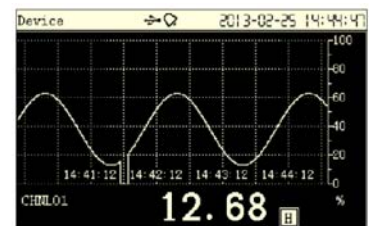
- Overview -

In addition to displaying the test values, digital display can also display the tag number of channels, industrial units, alarm status, and accumulation information.



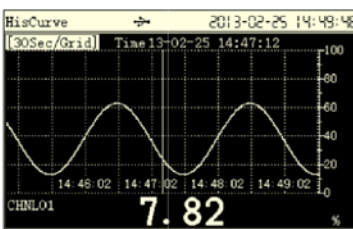
- Bar -

It is convenient and visualized to use bar graph to display the test value. Meantime, it also displays the tag number of channels, industrial units and alarm state information.



- Trend -

Horizontal trend to display values, combine freely the trends and trend colours.



- History -

It can re-appear the historical data stored in memory. Horizontal and vertical display types can be selected.



- English Display

It can have English and Chinese Language choices.



- Backup-

It can backup history, alarm summary, accumulation, system log by USB port.

Main Specifications

Structure

- Installation: Install the embedded instrument panel (vertical instrument panel)
- Installation Angle: It is allowed a maximum 30 degrees tilt back in installation.
- Dashboard thickness: 1-10 mm
- Dimensions: 160 (W) * 80 (H) * 100 (D) mm
- Net Weight: Less than 0.5 kg (exclusive accessories)

Input section

- Input points: 1-4 channels

Measuring period: 1 second
 Input Type: Current, Voltage, Resistance, RTD, thermocouple, frequency

Input type and measuring range:

Input Type	Signal Type	Measuring range
Current	4-20mA	4.00mA-20.00mA
	10mA	0.00mA-10.00mA
Voltage	1-5V	1.000-5.000V
	0-5V	0.000-5.000V
	0-10V	0.000-10.000V
	20mV	0.00-20.00 mV
	100mV	0.00-100 mV
Resistance	400 Ω	0.0-400.0 Ω
RTD	PT100	-200.0-650.0 $^{\circ}\text{C}$
	Cu50	-50.0-150.0 $^{\circ}\text{C}$
	Cu53	-50.0-150.0 $^{\circ}\text{C}$
	BA1	-200-650.0 $^{\circ}\text{C}$
	BA2	-200-650.0 $^{\circ}\text{C}$
Thermocouple	S	-50-1768 $^{\circ}\text{C}$
	R	-50-1768 $^{\circ}\text{C}$
	B	500-1820 $^{\circ}\text{C}$
	K	-200-1372 $^{\circ}\text{C}$
	N	-200-1300 $^{\circ}\text{C}$
	E	-200-1000 $^{\circ}\text{C}$
	J	-200-1200 $^{\circ}\text{C}$
	T	-200-385 $^{\circ}\text{C}$
	WRE5-26	0-2310 $^{\circ}\text{C}$
	WRE3-25	0-2310 $^{\circ}\text{C}$
	F1	700-2000 $^{\circ}\text{C}$
	F2	700-2000 $^{\circ}\text{C}$
Original vacuum/ Segmented vacuum	4-20mA	4.00-20.00 mA
	1-5V	1.000-5.000V
	5V	-5.000-5.000V
	10V	-10.00-10.00V
Square root	4-20mA	4.00-20.00 mA
	20mA	0.00-20.00 mA
	1-5V	1.000-5.000V
	5V	-5.000-5.000V
	10V	-10.00-10.00V
Frequency	Fr	0-10000 Hz

Input Frequency

Low level: 0-2V
 High level: 4-24 V

Analogy Input Board

Resolution ratio: 16 bit
 sampling rate: 1second
 Signal terminal withstand Voltage: Min:-15 DC, Max: 15 VDC
 RTD, Thermocouple open circuit
 Sensor Open Circuit Test: 4-20mA input current less than 2mA

Sensor Open Circuit Response: Others signals are not applied to.
 RTD, Thermocouple open circuit
 4-20mA 2 second
 1-5V 2 second
 RTD 4 second
 Thermocouple 4 second

Display

Display: 3.5-inch LCD display (320×200points)
 Display colour: Black/white
 Tag No.: 7 characters (Numbers)
 Unit: 3 characters (Numbers)
 Status display: Display screen name, card status, alarm status, USB device status, circular display status, year, month, day, hour, minute, seconds
 Display screen: Measuring data display(overview, digital display, bar graph display, the trend display),the historical trend display, the information display (alarm information, the accumulative reports),functional screen (data backup, printing)
 Overview display: Display all the channels and alarm
 Trend display: Vertical or horizontal
 History trend: It can display the data stored in memory, it can zoom in 1/2/4/8/16/32 times
 Alarm: It can record 256 alarms

Storage Function

External Storage
 Media: U disk
 Format: FAT32
 Mode: File
 Capacity: 8GB
 Internal Storage
 Media: Flash memory
 Format: Binary system
 Mode: Continuous record
 Capacity:

Intervals	1 second	2 second	5 second	10 second	15 second	30 second
Time	3 days	6 days	15 days	30 days	45 days	90 days
Intervals	1 minute	2 minute	5 minute	10 minute	30 minute	
Time	180 days	360 days	2.5 year	5 year	15 year	

Alarm

The number of alarms: Each channel has max 4 alarms
 alarm type: High high alarm,high alarm,low low alarm,low alarm
 Alarm delay time: 0-10s
 Alarm output: Alarm outputs to the internal relay
 Display: When alarm occurs, the corresponding screen displays the alarm status; the status display section displays the alarm icon.
 Alarm information: Alarm log in the alarm display

Clock

Clock: Hardware clock(keep running after power off)
 Range: Year 2001-2099
 Accuracy: ±10ppm(0-50℃),exclude the delay(within 1s) caused by power on the meter

Power supply

Rated voltage:	220VAC
Allowable range:	100-240VAC
Rated Frequency:	50Hz
Consumption:	≤20W

24V DC Power supply for transmitter

Output Voltage:	24V DC
Max output current:	65mA DC (overload protect current: around 90mA)
Output points:	1 loops

Frequency Input Power Supply

Output Voltage:	12VDC,24V DC
Max output current:	30mA DC
Output points:	The same as frequency input

Transport and Storage Conditions

Ambient temperature	-10-60 °C
Ambient humidity	0%-95%(Non-condensate)

Standard Operation Conditions

Power supply voltage	220V AC
Power supply frequency	50Hz
Ambient temperature	0-50 °C
Ambient humidity	0%-85%
Warm-up time	At least 30 minutes after power on
Installs position	Indoor

Additional Specification**Analog Output (/T1)**

Output Channels:	1 channel
Signal type:	4-20mA
Maximum load:	750Ω

Alarm output relay (/A2,/A4)

Output points:	2 or 4 points
Electric shock capacity:	250VAC/3A, 30VDC/3A(load resistance)
Output Type:	Normal open
Relay Operation:	Or operation (channels shared)

Communication RS232C/RS485 (/C2./C3)

Physic level:	RS-232、RS485(option)
Protocol:	MODBUS-RTU
Communication rate:	1200/2400/4800/9600/19200/38400/57600
Bytes wap:	2-1 4-3,1-2 3-4,4-3 2-1,3-4 1-2

Print function (/ C4)

Printer:	Panel-type micro printer
Print content:	Real-time data, historical data, accumulative reports
Printing method:	Manual print, regular print

USB Interface (/ U)

USB interface specification:	Compatible USB2.0 protocol
Interface Number:	1

Accumulation/Report Function(/L)

Accumulation Points: The same as input channels, each channel can have accumulation
 Range: 0-999,999,999
 Types: Hour report, 8 hour report, 12 hours report, day report+ month report

Instrument 24VDC Power supply (/P1)

Power supply voltage 20VDC-28VDC
 Consumption ≤20W

Model Selection

Model	Function Code	Specification Code	Description
SX2001			Signal Input 1 channels*1
SX2002			Signal Input 2 channels *1
SX2003			Signal Input 3 channels *1
SX2004			Signal Input 4 channels *1
Function code	R		Record Function, Horizontal type
	V		Record Function, Vertical type
Additional Specification	/T1	1	4-20mA output 1channel
	/A□	2	Normal open contact output relays 2 points
		4	Normal open contact output relays 4 points
	/C□	2	RS232
		3	RS485
		4	Micro printer interface *2
	/U		USB interface
	/L		Accumulation/ report
	/P1		24VDC power supply
	/E		Ethernet function

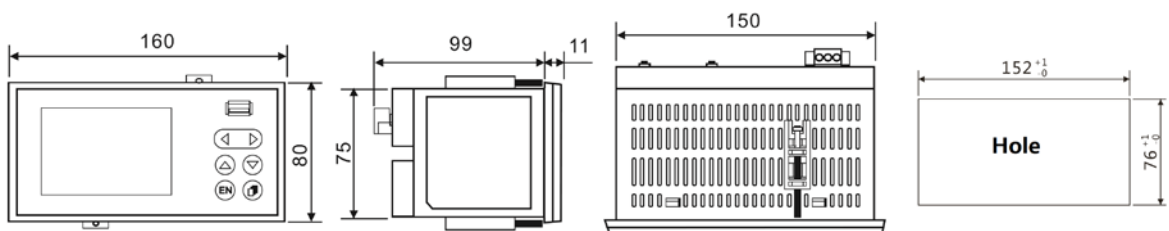
*1 Frequency input has special channel, 1 channel

*2 Dedicated micro printer

Accessories (sold separately)

Product	Model	Specification
USB Flash disk	860206	8 GB
Communication conversion module	862101	Active RS232/RS485 conversion module
Power filter	863101	220VAC/1:1/50W
Software	864801	MDMR multi-machine data management software

Installation Dimensions (Unit: mm)



Terminal Wiring

