SX 8000 Paperless Recorder

Product Overview

SX8000 Paperless Recorder color-screen paperless recorder has 40-channel universal input 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, 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 40 channels singals simultaneously.
- 10.4 inch 640x 480 dot-matrix TFT high brightness and color graphic 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.

24-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: ± 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,

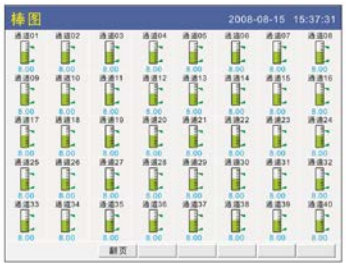
special symbols, subscripts and superscripts input, etc.

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.

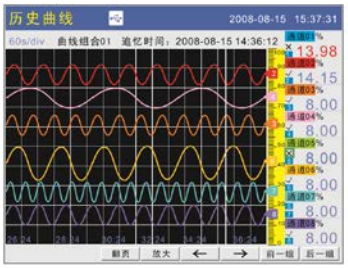
Display Screen

- 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 Display(Horizontal) -
Horizontal trend to display values, combine freely the trends and trend colours.



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

- Alarm Summary -
It can display the recent alarm time, and the time to remove the alarms.

- Flow Display -
It can display flow, temperature, pressure On one display in the flow metering system, it can also display frequency, DP and density ,

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	2-10 mm
Dimensions:	288 (W) * 288 (H) * 168 (D) mm
Net Weight	Less than 6.4 kg (exclusive accessories)

Input section

Input points	8, 16,24,32,40 channels

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

Input type and measuring range:

Input Type	Signal Type	Measuring range	Accuracy	Input Impedance
Current	4-20mA	4.00mA-20.00mA	±0.2 %	≤300 Ω
	10mA	0.00mA-10.00mA	±±0.2 %	≤300 Ω
Voltage	1-5V	1.000-5.000V	±0.2 %	1M Ω
	0-5V	0.000-5.000V	±0.2 %	1M Ω
	0-10V	0.000-10.000V	±0.2 %	1M Ω
	20mV	0.00-20.00 mV	±0.2 %	10M Ω
	100mV	0.00-100 mV	±0.2 %	10M Ω
Resistance	350 Ω	0.0-350.0 Ω	±0.2 %	---
RTD	PT100	-200.0-650.0 ℃	±0.4℃	---
	Cu50	-50.0-150.0 ℃	±0.4℃	---
	Cu53	-50.0-150.0 ℃	±0.4℃	---
	BA1	-200-650.0 ℃	±0.4℃	---
	BA2	-200-650.0 ℃	±0.4℃	---
Thermocouple	S	-50-1768 ℃	±2℃	10M Ω
	R	-50-1768 ℃	±2℃	10M Ω
	B	500-1820 ℃	±2℃	10M Ω
	K	-200-1372 ℃	±1℃	10M Ω
	N	-200-1300 ℃	±1℃	10M Ω
	E	-200-1000 ℃	±1℃	10M Ω
	J	-200-1200 ℃	±1℃	10M Ω
	T	-200-385 ℃	±1℃	10M Ω
	WRE5-26	0-2310 ℃	±2℃	10M Ω
	WRE3-25	0-2310 ℃	±2℃	10M Ω
	F1	700-2000℃	±2℃	10M Ω
	F2	700-2000℃	±2℃	10M Ω
Frequency	Fr	0-10000 Hz	±1Hz	---

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:-24V DC, Max: 24VDC

Sensor Open Circuit Test:
RTD, Thermocouple open circuit
4-20mA input current less than 2mA
Others signals are not applied to.

Sensor Open Circuit Response:
RTD, Thermocouple open circuit
4-20mA 2 second
1-5V 2 second
RTD 4 second
Thermocouple 4 second

Display

Display: 10.4-inch TFT color LCD display (640×480points)
group Number: 5 groups

Tag No.:	10 characters (Numbers)
Unit:	7 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)
Trend display:	vertical or horizontal
History trend:	It can display the data stored in memory, it can magnify the trend 1/2/4/8/16/32 times
Alarm	It can record 187 alarms

Temperature and Pressure compensation (Only available on SX8000F)

Measuring devices:	Orifice plate, Vortex flow meter(frequency)
Medium:	Steam, Water, gas
Steam temperature:	0-600℃
Steam pressure:	0.1-22Mpa
Steam status:	Automatically check saturated steam or overheated steam
Water temperature:	0-150℃
Water Pressure:	0.6-1.6Mpa
Gas compressibility coefficient:	Automatically check air, oxygen and nitrogen, others are manually set.
Vortex flow meter factor:	0.00000-999,999

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	1 minute	2 minute	4 minute
Time	3 days	6 days	15 days	30 days	45 days	90 days	180 days	360 days	720 days

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:	85-265VAC
Rated Frequency:	50Hz
Consumption:	≤30W

24V DC Power supply for transmitter

Output Voltage:	24V DC
Max output current:	65mA DC (overload protect current: around 90mA)
Output points:	8 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 ℃
Ambient humidity	0%-95%(Non-condensate)

Standard Operation Conditions

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

Additional Specification

Analog Output (/T4, T8)

Output Channels:	4 channels, 8 channels.
Signal type:	4-20mA
Maximum load:	750Ω

Alarm output relay (/A12, /A24)

Output points:	it can be selected from 12 and 24 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

Report length:

Report Type	Length
Hour	16 days
8 hours	128 days
12 hours	192 days
Day +month	1 year

Model Selection

Model	Function Code	Specification Code		Description
SX8008				Signal Input 8 channels
SX8016				Signal Input 16 channels
SX8024				Signal Input 24 channels
SX8032				Signal Input 32 channels
SX8040				Signal Input 40 channels
Function code	R			Record Function
	F			Temperature & Pressure compensation
	C			PID Control
Additional Specification		/T☐	4	4-20mA output 4 channels *1
			8	4-20mA output 8 channels *1
		/A☐	12	Normal open contact output relays 12 channels
			24	Normal open contact output relays 24 channels
		/C☐	2	RS232
			3	RS485
			4	Micro printer interface *2
		/U		USB interface
		/L		Accumulation/ report

*1 SX8032 can not choose T8,SX8040 can not choose T4/T8
*2 Dedicated micro printer

Customization Function

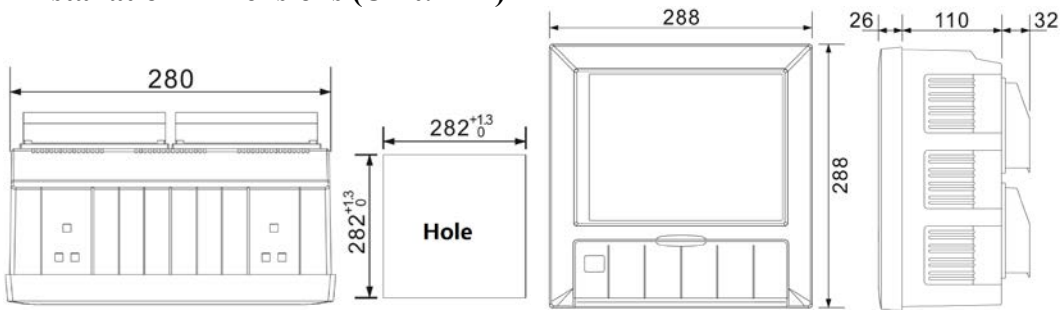
Specification		Description
/F☐	8-40	Frequency input 8-40 channels *3
/FB☐	8-40	Frequency input 8-40 channels, with 12 VDC power supply to transmitters *3
/FC☐	8-40	Frequency input 8-40 channels, with 24 VDC power supply to transmitters *3
/PT		anti-corrosion paint

*3 Contact SILVER to choose the frequency inputs channels.

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