

SX 25000 Recorder

Specifications

GENERAL

Recorder

Performance: Meets or exceeds performance requirements of ANSI C39.4.

Safety: Meets or exceeds requirements of ANSI C39.5.

Maximum Number of Cards: 4.

Chart: Preprinted pack, 35 cm x 8 cm fanfold x 25 meters long.

Chart Speeds: All chart speeds are metric. Selectable from 1-200 cm/hr in 1 cm/hr increments.

Display:

Type: Gas plasma dot matrix.

Resolution: 32 pixels/inch.

Color: Orange.

Size: 1 1/4" x 12" (40 x 384 pixels).

Keyboard:

Operator's: Membrane switch panel.

Programmer's: Custom hand-held membrane switch panel or IBM® AT type.

Update (Scan) Rate: All inputs, pseudo points, etc., are scanned in 1 second for alarms, etc.

Non-Volatile Memory: Battery backed RAM.

Battery type: Lithium.

Battery life: 2 years.

Environmental:

Temperature: Operation, -5 to 50°C.

Storage: -30 to +70° C.

Humidity: 10-90% RH, non-condensing.

Power Requirements:

120 VAC (+10%, -15%) 50/60 Hz

220/240 VAC (+10%, -15%) 50 Hz

Consumption 100 VA. Must be ordered from factory as 50 Hz or 60 Hz and 120, 220 or 240 VAC. Field conversion is possible. Consult the Sales and Service Center nearest you.

Weight: 60 lbs. maximum.

Dimensions: 12.3" H x 17.9" W x 17.2" D (depth measured from front of panel).

Expansion Unit

Maximum Number of Cards: 5.

Environmental:

Temperature: Operation, -10 to +55°C.

Storage: -30 to +70°C.

Humidity: 10-90% RH, non-condensing.

Power Requirements:

120 VAC (+10%, -15%) 50/60 Hz,

220/240 VAC (+10%, -15%) 50 Hz.

40 VA average.

Weight: 45 lbs. maximum.

Dimensions: 17.5" H x 19.0" W x 14.8" D.

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Specifications

I/O CARDS

Analog Input Cards

Input Types: Thermocouple, mV, V, mA (via shunt) and radiation sensors.

Current Inputs: Use terminal board mounted shunt resistors (ordered and supplied separately).

Range Supression: Limits not imposed.

Input Impedance: 20 megohms.

Maximum Source Resistance: 15K ohm (8 point card is 1K ohm).

Point to Point Isolation: 200 Volts peak.

Common Mode Rejection: 120 dB (100 ohm source, 100V max.), 50 or 60 Hz.

Normal Mode Rejection: 60 dB (50 or 60 Hz, 100% span max.)

Input Switching: Low thermal reed relay, 500 million operations rating.

Open Input Check: Selectable on per point basis. Open inputs are indicated in the right hand chart margin. An open input is posted when thermocouple and lead wire resistance is 1K ohm or higher.

The open input is checked on ranges up to 250 mV.

This feature is not available with High/Low Level High Noise Immunity cards 074495 and 078695.

Minimum Span: 10 mV.

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Ranges/Accuracy:

	Range	Card Type		Accuracy* (25± 2°C for 1 Yr.)	Display Resolution
		10/15 Point	8 Point		
V	Selectable Range between -2.000V and +5.000V. Minimum Span, 10mV	X		±0.1% of reading. For Zero Accuracy, see Zero Accuracy table below.	5 digits, including sign & decimal point.
V	Hi level, selectable (between -2.000V and +10.000V), Minimum Span 4.0V.		X	±0.1% of reading + 4mV	5 digits, including sign & decimal point.
TC	E -450 to 2200°F -276 to 1200°C J -350 to 2190°F -212 to 1195°C K -450 to 2800°F -267 to 1535°C T -450 to 760°F -267 to 400°C N -8 to 2372°F 0 to 1300°C W5-W26 0 to 3980°F -18 to 2194°C Plat II -100 to 2500°F -74 to 1372°C B 300 to 4540°F 149 to 2504°C R -50 to 3210°F -45 to 1765°C S -50 to 3640°F -45 to 2004°C	X		±0.1% of reading. For Zero Accuracy, see table below.	0.1° for ranges below 999.9. 1° for ranges above 999.9
	Radiation Ranges	X		See Rayotube and Spectray Table on the following page.	

*can be calibrated to ±0.01% of reading (or display resolution)

Zero Accuracy:

High End of Range (in millivolts)	Zero Accuracy (in microvolts)
0 -10	±15
10 - 24.999	±20
25 - 49.999	±30
50 - 99.999	±60
100 - 249.99	±100
250 - 499.99	±200
500 - 999.99	±500
1000 - 2499.9	±1000
2500 - 4999.9	±2000

Reference Junction Error: 0.3°C (0.5°F).

Conformity Error: 0.3° C (0.5° F).

Source Effect on Accuracy: 0.3 microvolts/100 ohms.

Temperature Stability: 1.5 microvolts/°C.

NOTE: Some of the listed thermocouple range limits go beyond the IPTS 68 tables. This was done for specific customer applications and does not affect the accuracy of the ranges within the IPTS limits. Beyond the published limits, L&N uses extrapolated values.

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Rayotube and Spectray Ranges

RAYOTUBE RANGES

1. 18890	~ 1 – 24 MV	
18890 – 3302	750 – 1600° F	399 – 871° C
18890 – 0073	800 – 1800° F	427 – 982° C
18890 – 0074	1100 – 2300° F	594 – 1260° C
18890 – 0035	1200 – 2600° F	649 – 1426° C
18890 – 0412	1375 – 3000° F	747 – 1648° C
18890 – 0075	1500 – 3300° F	816 – 1815° C
18890 – 1729	1650 – 3600° F	899 – 1982° C
18890 – 0643	1850 – 4000° F	1010 – 2204° C
18890 – 0216	2110 – 4600° F	1155 – 2537° C
18890 – 5423	2210 – 5000° F	1210 – 2760° C
18890 – 0163	200 – 1000° F	94 – 537° C
2. 18894 / 18899	~ 0 – 10 mV	
18899 – 8814	340 – 1800° F	172 – 982° C
18894 – 9014	752 – 2552° F	400 – 1400° C
18894 – 0579	752 – 2552° F	401 – 1400° C
3. Spectray	~ 0 – 125 mV	(18885 / 18886)
18885	1832 – 3452° F	1000 – 1900° C
18886	1832 – 3452° F	1001 – 1900° C
18885 – 1	1292 – 2912° F	700 – 1600° C
18885 – 2	806 – 1400° F	430 – 760° C
18886 – 1	1292 – 2912° F	701 – 1600° C
4. Fiberay	1 – 5 V	
070701	1472 – 2372° F	800 – 1300° C
070705	2192 – 2912° F	1200 – 1600° C
070703	1832 – 2732° F	1000 – 1500° C
5. 18874 / 18875	1 – 5 V	
18874 – 0578	752 – 2552° F	400 – 1400° C
18875 – 0579	752 – 2552° F	401 – 1400° C

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Specifications

RTD Input Card

Type: 10 point, 3 lead (all leads switched).

Input Types: 10 ohm copper, 100 ohm platinum (alpha = .00385 ohm/ohm°C), 1000 ohm platinum (alpha = .00375 ohm/ohm°C).

Input Type	Range	Accuracy
Cu, 10 ohm	-50° to +150° C	±0.15%* + .30° C
Pt, 100 ohm	-180° to +850° C	±0.15%* + .30° C
Pt, 1000 ohm	-184° to +537° C	±0.15%* + .30° C

Input Type	Resolution
Cu, 10 ohm	0.1°, thru
Pt, 100 ohm	999.9, 1°
Pt, 1000 ohm	above 999.9

Conformity Error: 0.3° C (0.5° F).

Temperature Stability: 1.5 microvolts/° C.

Excitation Current: 1 mA.

Maximum Compensation for Lead Resistance:
5 ohms.

Minimum Resistance Span: 8 ohms.

Point to Point Isolation: 200 Volts peak.

Input Switching: Low thermal reed relay, 500 million operations rating.

Common Mode Rejection: 120 dB (100 ohm source, 100V max.), 50 or 60 Hz.

Normal Mode Rejection: 60 dB (50 or 60 Hz, 100% span maximum)

Pulse Input Card

No. of Inputs: 5.

Frequency Range: 10 Hz to 10 KHz pulse rate.

Input Level:

- 1) 5 volt - sine to square wave
"0" level < 1.0V
"1" level 3.5 to 6.5V
Current 1.6 mA source
- 2) 24 volt - sine to square wave
"0" level < 1.0V
"1" level 5 to 30V
- 3) Open collector-customer supplied voltage and pullup resistor

Duty Cycle: 40 to 60%.

Input Type: DC coupled floating isolated input.

Accuracy: 1 pulse per update period.

Minimum Pulse Width: 0.1 ms.

Input Isolation: Point to point, point to ground, optical.

* percent of reading

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Discrete Inputs/Outputs

All SSR (Solid-State Relay) discrete input/output cards use single plug-in modules (Potter & Brumfield, Opto-22, or equivalent) for each point. Isolation of all solid-state relay modules is 4 KVRMS, input to output. All SSR output modules are individually fused.

15 point AC Input

Voltage Range: 90 to 140 VAC or 180 to 280 VAC
Input Current: 12mA maximum
Turn On/Off Time: 20 ms

15 point DC Input

Voltage Range: 10 to 32 VDC
Input Current: 35 mA maximum
Turn On/Off Time: 5 ms

10 point AC Output

Voltage Range: 24 to 280 VAC
Current Rating: 1 A
Surge Current for 1 Cycle (16 ms): 15A.
Minimum Current: 20 mA
Switching: Zero-crossing

10 point DC Output

Voltage Range: 5 to 60 VDC
Current Rating: 1 A
Turn-On Time: 500 microseconds
Turn-Off Time: 750 microseconds

10 point Relay Output

Type: SPDT Form C relays, plug-in
Contact Rating: 1A Maximum (3A for selected relays with a maximum of 70A for any Recorder or Expansion Unit) at 120/240 VAC

7 point AC Input/8point AC Output

AC Inputs: 90 to 140 VAC
AC Outputs: 24 to 280 VAC @ 1 A.
Surge Current for 1 cycle (16 ms): 15A.

7 point DC Input/8 point DC Output

DC Inputs: 10 to 32 VDC
DC Outputs: 5 to 60 VDC @ 1 A

10 point DC Output

Voltage Range: 10 to 200 VDC
Current Rating: 1 A @ 25°C; .5 A @ 55°C (linear derating)
Turn-On Time: 500 microseconds
Turn-Off Time: 750 microseconds

7 point DC Input/8 point DC Output

DC Inputs: 10 to 32 VDC
DC Outputs: 10 to 200 VDC

Analog Outputs

Output Base Card Capacity: 2 to 8 retransmission outputs (4 dual output cards).

Function: Retransmission of analog inputs, calculations, function block outputs.

Type: Dual Voltage Output.

Isolation: Dual output card to dual output card, 480 VRMS.

Dual Voltage Output Card:

Outputs/Card: 2 (independent).

Isolation: Input to output, 240 VRMS.

Range: 0 to 5V, 0 to 10V at 10 mA maximum

Resolution: 0.025%.