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# SEFRAM 8420

## 4 to 16 channels thermal recorder with colour LCD screen

### Specifications

- 4 to 16 channels
- Integrated Universal Inputs  
DC Voltage, Thermocouples, Pt100, AC RMS Voltage\*, Current (via shunt\*)
- 14 bit resolution
- Colour TFT LCD screen
- 270 mm paper width
- Post-acquisition calculation functions
- Max. sampling freq.: 250 kHz/channel
- Bandwidth : 30 kHz
- Memory : 2 or 16\* Mword
- Storage: floppy standard\*, hard drive\*
- Interfaces : RS232, mouse, keyboard  
VGA
- Ethernet\*, GPIB\*

\* option



### Integrated universal inputs

The new 8420 series data recorder can be configured with either 4, 8, 12 or 16 universal measurement channels, together with 16 'logic' channels. For ease-of-use, the 8420 incorporates universal measurement inputs. It is the ideal instrument for measuring multiple inputs of DC voltage, RMS voltage, current and temperature using a Pt100 probe or thermocouples.

The menu gives access to the offset adjustment of each channel. Moreover, the 8420 recorder allows a '0' plotting visualisation (GROUND fonction).



### Ease of use

The 8420 recorder is designed for ease of use in a wide range of data recording applications. The instrument's front panel has a large colour LCD screen, on which each analog and logical trace can be displayed and easily analysed. High resolution plots can be obtained on the 270 mm wide thermal paper.

Its modern design and its high performance make the 8420 suitable for a wide range of applications in the laboratory, at the plant or in the field.

Owing to its stand, the recorder can be maintained in vertical position, enhancing screen reading.

### Data Acquisition and Interfaces

The 8420 has its own PC compatible 3.5 in disk drive to store data and configurations. As an option, you can also integrate an internal hard drive (8 Go) and/or a Compact Flash card. The instrument also has built in an RS232 interface, GPIB (optional), an input for external keyboard, a mouse connector and a VGA output. Ethernet interface (optional) will allow you a fast data transfer.

The 8420 is fully equipped for ease of integration with data acquisition and data analysis systems.

Pour obtenir des informations complémentaires, contactez nous au +33.(0).4.77.59.36.81



## GENERAL SPECIFICATIONS

Channels : 4, 8, 12 or 16 Logic channels : 16

Types of measurements :

|                 |                                                                                                                                   |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| DC Voltage      | ranges : 1 mV to 1000 V<br>max. drift : $\pm 5$ range (except 1000 V)<br>accuracy : $\pm 0.1\% \pm 10 \mu\text{V} + 0.2\%$ offset |
| AC RMS Voltage* | ranges : 200 mV to 500 V<br>bandwidth (-3 dB) : 5 Hz - 25 kHz<br>crest factor : 10 (for any range < 5V)                           |

## Temperature

| Sensor             | Using Environment | Ranges         |
|--------------------|-------------------|----------------|
| Pt100 (2,3,4 wire) | -200°C to 850°C   | 20°C to 1000°C |
| Couple J           | -210°C to 1200°C  | 20°C to 2000°C |
| Couple K           | -250°C to 1370°C  | 20°C to 2000°C |
| Couple T           | -200°C to 400°C   | 20°C to 500°C  |
| Couple S           | -50°C to 1760°C   | 50°C to 2000°C |
| Couple B           | -200°C to 1820°C  | 50°C to 2000°C |
| Couple E           | -250°C to 1000°C  | 20°C to 1000°C |
| Couple N           | -250°C to 1300°C  | 20°C to 1000°C |
| Couple W5          | 0°C to 2320°C     | 50°C to 2000°C |

Cold junction compensation accuracy :  $\pm 1,25^\circ\text{C}$ 

## SAMPLING

Resolution : 14 bits

Sampling frequency :

- memory mode : max. sampling frequency : 250 kHz  
min. sampling frequency : 10 min.

- memory length : 2 Mword in segments of up to 64 blocks

Triggering : positive and negative edge (16 triggers), GO/no-GO mode.

## BANDWIDTH

Analog input bandwidth (typ. -3 dB)

- range > 500 mV : 30 kHz  
- range < 500 mV : 4 kHz

Programmable filters : 10 kHz, 1 kHz, 100 Hz, 10 Hz, 1 Hz, 10 s, 1 min., 10 min.

Input impedance :  
• if range between 1 mV and 2 V : > 25 M $\Omega$   
• if range > 2V : 2 M $\Omega$

Maximum voltage : maximum permissible voltages

- between 1 channel and the frame ground :  $\pm 500$  V
- between 2 channels : 1000 V
- between 2 terminals of 1 channel :  $\pm 500$  V

Common mode rejection : &gt;140 dB

## LOGIC INPUTS

Channels : 16

Input impedance : 300 k $\Omega$ 

TTL

Max. voltage : 24V

Available functions :

- triggering acquisition, alarm
- channels paper trace
- triggering on logical words
- acquisition in memory mode
- GO/no-GO mode



## RECORDINGS AND TRACES

Paper width : 270 mm

Paper speed :

- direct mode : 1 mm/h up to 200 mm/s
- mixed mode : 1 mm/h up to 50 mm/s
- memory transcription : max. 10 mm/s.
- quick advance : 100 mm/s
- external control : max. 50 mm/s
- text mode : 1 line/1 sec. at 8 channels up to 1 line/h
- XY mode : 100 x 100, 200 x 200, 250 x 250 mm

Resolution and accuracy :

- Y axis : 8 points per mm
- X axis : 16 points per mm up to 10 mm/s
- XY mode : 8 points per mm on both axes
- accuracy in relation to graticule : 0.01%

Specifications subject to change without notice - FT842000A/00



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## Writing options

- 5 preprogrammed graticules
- diagrams programmable by the user
- entry of channel names, instantaneous values, recording name, ranges, date, relative or absolute time

## DISPLAY

Backlight LCD screen (10\*4), TFT colour

- f(t) and XY functions, text
- memory mode display
- zoom, cursors,  $\Delta V$ ,  $\Delta t$ , zoom between cursors
- VGA output

Calculation functions :  $y = ax + b$ ,  $y = a/x$ ,  $y = a\sqrt{x} + b + c$ ,  
 $y = ax^2 + b$ ,  $y = a(\log x) + b$ ,  $y = ae^{(kx-b)} + c$

Mathematic functions between channels : +, -,  $\div$ , x

Post-acquisition calculation Functions : 20 functions (Min, Max, F, T, ...)

Configuration backup : 16 named

Alarms outputs : on 2 relays

Storage : standard floppy 3,5" (1.44 Mb)

Option : Compact Flash card

8 Go internal hard drive

Interfaces : RS 232C VGA external output, mouse,  
keyboard, GPIB and Ethernet (optional)

Dimensions and weight : 370(P) x 440(L) x 195 (H) mm (240 mm for 16 channels model), 11 to 15 kg

Warranty : 1 year

## ENVIRONMENT

Operating temperature : 0°C to 40 °C

Max. relative humidity : 80% (without condensation)

Storage temperature : -20°C to 60°C

Power supply : 110/220V, 47 to 63Hz

Max. consumption : 230 W (60W when not plotting)

IEC Safety : CAT III 600 V

## SUPPLIED WITH

All recorders are supplied with two banana plugs and one DIN PT100 sensor per input, one power cord, one paper roll, one logic channels connector, SEFRAM LINK & SEFRAM CONNECT software and a user's manual.

## OPTIONAL ACCESSORIES, SERVICES AND CONSUMABLES

## ✓ Accessories

- 984201000 - 8 Go internal hard drive
- 984202000 - Compact Flash interface
- 984162000 - RMS input (200 mV/500 V / 4 channels)
- 984204000 - IEEE GPIB interface
- 984203000 - Ethernet interface, 10 base T RJ45
- 984165000 - 16 Mword memory
- 984167000 - Carrying case for 8420 / 12 and 16 channels
- 984005000 - Carrying case for 8420 / 4 and 8 channels
- 984208000 - 19" rack kit
- 910007100 - Shunt (0,01  $\Omega$ ; 1 %, 3 A max.)
- 910007200 - Shunt (0,1  $\Omega$ ; 1 %, 1 A max.)
- 207030301 - Shunt (0,01  $\Omega$ ; 0,5 %, 30 A max.)
- 207030500 - Shunt (0,001  $\Omega$ ; 0,5 %, 50 A max.)
- 989006000 - Shunt (1  $\Omega$ ; 0,1 %; 0,25 W max.)
- 989007000 - Shunt (50  $\Omega$ ; 0,5 %; 0,25 W max.)
- 984167900 - 256 Mo compact Flash card
- 984205000 - External Compact Flash card driver for PC, USB port
- 910008100 - Basic FLEXPRO software
- 910008200 - Comprehensive FLEXPRO software
- 984206000 - Mouse
- 910009300 - AZERTY keyboard
- 298504246 - Ethernet crossed cable - 5m

✓ Services : when ordering, test certificate with or without values, warranty expansion

✓ Consumables : details of thermal paper and other consumables available on request.



For assistance and ordering