

**Sefram**  
Sefram

# SEFRAM DAS 1400

## **A NEW FAMILY OF PAPERLESS RECORDERS 6 TO 36 UNIVERSAL CHANNELS TO COVER ALL YOUR APPLICATIONS**

- 6 to 36 channels
- Universal inputs
- DC Voltage, TRMS AC+DC,
- Frequency, Thermocouples, PT100.
- 16 logic channels
- Power Analysis function
- 16 Bit resolution
- Colour LCD TFT screen (12")
- Max. sampling frequency : 1Ms/s par channel
- Bandwidth: 100 kHz
- Memory : 32 Mword
- Internal hard disk : 80 Gb
- Interfaces: USB, XGA, Ethernet
- IEC 1010 - CAT III - 600V

2008

**NEW**

- Power Analysis
- Strain Gauge measurements



**DAS 1400**

### **UNIVERSAL INPUTS: 3 ALTERNATIVES**

The DAS 1400 can be configured with 6, 12, 18, 24, 30 or 36 analogue channels and 16 logical channels. You can choose between three types of input modules:

- 6 universal inputs : Designed for high speed and high voltage applications
- 6 Channels for strain gauge measurements
- 12 multiplexed inputs

The DAS1400 is very flexible. The user can configure or upgrade the recorder for particular applications with up to three modules. Modules can be added or exchanged without return to the factory.

### **EASE OF USE**

DAS 1400 are the easiest to use recorders on the market today. The concept of previous families has been maintained, but now backed by the Linux operating system.

All parameters are displayed on the screen. With the mouse, you can access and change functions and parameters. A help screen is provided for each function.

### **DATA ACQUISITION AND INTERFACES**

The DAS 1400 offers various storage options: internal hard disk (80GB), external USB flash memory (USB key), USB storage devices (CD/DVD writer, external hard disk,...).

You can save your records and the recorder parameters (setup). The Ethernet interface provides fast and efficient remote control of the recorder and will allow very fast transfer of data files to personal computers.

### **PANORAMIC LCD SCREEN**

The high resolution LCD screen provides excellent quality real-time graphical display, even in difficult conditions.

### **COMPLETE SOFTWARE**

SEFRAM View displays graphs on your personal computer as well as export to a spreadsheet (Excel™) or word processor (Word™).

Flexpro software (option): Powerful analysis software with more than 100 functions.

### **REAL TIME ACQUISITION ON HARD DISK**

For long recording, the DAS 1400 provides direct acquisition on to the internal hard disk – up to 100kHz for 6 channels simultaneously.





# DAS 1400

Recorder

## SPECIFICATIONS - UNIVERSAL INPUT BOARD

Channels : 6 per board

### VOLTAGE

DC voltage ranges : 1mV to 1000 V  
Max offset : ± 5 ranges ( except 1000V)  
Accuracy : ± 0,1% ± 10µV ± 0,2% offset  
TRMS AC+DC ranges : 200mV to 500V.  
Bandwidth (-3dB) : 5Hz to 500Hz  
Crest factor : 2,2

### FREQUENCY

Sensitivity : 300mV rms min.  
Duty cycle : 10%  
Frequency range : 10Hz to 100kHz  
Basic accuracy : 0.2% of full scale  
Maximum input voltage : ± 500VDC or 440V AC (sine)

### TEMPERATURE

Sensor	Using environnement	Ranges
J	-20°C to 1200°C	20°C to 2000°C
K	-250°C to 1370°C	20°C to 2000°C
T	-200°C to 400°C	20°C to 500°C
S	-50°C to 1760°C	50°C to 2000°C
B	-200°C to 1820°C	50°C to 2000°C
E	-250°C to 1000°C	20°C to 1000°C
N	-250°C to 1300°C	20°C to 1000°C
W5	0 to 2320°C	50°C to 2000°C

Accuracy Cold junction compensation : ± 1,25°C

### SAMPLING

Resolution : 14 bits  
Sampling rate : 1M sample/sec per channel max.  
Memory length : 32Mword in segments of up to 128 Blocks

Triggering : Positive edge, negative edge, on logical input, delay, Go No Go.

Pre trigger : -100% à +100%

### BANDWIDTH

Analog input bandwidth (-3dB) : range > 1V: 100kHz

range ≤ 50mV: 50kHz  
10 Hz, 100 Hz, 1 kHz, 10 kHz  
Input impedance (DC) : >25MΩ for range <1V  
1 MΩ for upper ranges  
Input capacitance : 150pF typ.  
Maximum input voltage : between one channel and the frame ground ± 500V between 2 terminals of one channel ± 500V

Isolation between frame ground and channel >100Mohms at 500VDC

### POWER ANALYSIS FUNCTION

This function is available only if your recorder has a 6 universal input board + internal software ≥ V2.0

Networks Single phase, 2 phases, 3 phases  
Display Fresnel diagram, oscilloscope, data  
Measurements mean value, RMS value, peak value, crest factor, THD and DF for voltages and currents active, reactive and apparent power power factor (cos Φ)  
Harmonics calculated up to rank 50, with display and record

### LOGIC INPUT

Channels 16  
TTL - Max voltage 24V  
Available functions triggering acquisition on alarm triggering on logical words acquisition in memory mode  
Sensor supply 12 V DC  
Alarms 3 (2 TTL , 1 relay)

### FOR ORDERING

SEFRAM DAS1400/01 Recorder with 6 channels (universal input)  
SEFRAM DAS1400/02 Recorder with 12 channels (universal input)  
SEFRAM DAS1400/03 Recorder with 18 channels (universal input)  
SEFRAM DAS1400/10 Recorder with 12 channels (multiplexed input)  
SEFRAM DAS1400/20 Recorder with 24 channels (multiplexed input)  
SEFRAM DAS1400/30 Recorder with 36 channels (multiplexed input)  
SEFRAM DAS1400/11 Recorder with 18 channels (6 universal input + 12 multiplexed input)  
SEFRAM DAS1400/21 Recorder with 24 channels (12 universal input + 12 multiplexed input)  
SEFRAM DAS1400/12 Recorder with 30 channels (6 universal input + 24 multiplexed input)

## SPECIFICATIONS - MULTIPLEXED BOARD

Channels : 12 per board

### VOLTAGE

DC voltage ranges : 1mV to 50 V  
Max offset : ± 5 ranges  
Accuracy : ± 0,1% ± 10µV ± 0,1% offset  
TRMS AC+DC ranges : 200mV to 50V.  
bandwidth (-3dB) : 5Hz à 100Hz  
Crest factor : 2,2

### TEMPERATURE

Sensor	Using environnement	Ranges
PT100 (2,3,4 wires)	-200°C to 850°C	20°C to 1000°C
J	-20°C to 1200°C	20°C to 2000°C
K	-250°C to 1370°C	20°C to 2000°C
T	-200°C to 400°C	20°C to 500°C
S	-50°C to 1760°C	50°C to 2000°C
B	-200°C to 1820°C	50°C to 2000°C
E	-250°C to 1000°C	20°C to 1000°C
N	-250°C to 1300°C	20°C to 1000°C
W5	0 to 2320°C	50°C to 2000°C

Accuracy Cold junction compensation: ± 1,25°C

### SAMPLING

Resolution : 16 Bits  
Sampling rate : 200 µs maxi.  
Memory length : 32Mword in segments of up to 128 Blocks  
Triggering : Positive edge, negative edge, on logical input, delay, Go No Go.

Pre trigger : -100% to +100%

### BANDWIDTH

Analog input bandwidth (-3dB) : 1 kHz at -3 dB  
Programmable digital filters : 0,1Hz, 1Hz, 10Hz, 100Hz  
Input impedance (DC) : 2 Mohms ranges >5V  
10Mohms for other ranges  
Input capacitance : 150pF  
Maximum input voltage : between one channel and the frame ground ± 50V between 2 terminals of one channel ± 50V all input are differential, non isolated ± 5V for ranges ≤ 5V ± 50V for ranges > 5V  
Common mode voltage (max.) ± 50V for ranges > 5V

## GENERAL SPECIFICATIONS

### DISPLAY

Screen : TFT LCD coloured screen 12 inches f(t) and XY functions  
Zoom, cursors, dV,dT and zoom between cursors  
Calculation functions : y=ax+b , y=/x/+b, y=a√x+b+c, y=ax<sup>2</sup>+b, y=(log x)+b, yae<sup>x+b</sup>+c +, -, x, / between channels  
Automatic measurements 20 automatic measurements ( F, T, Vpp, Tm.....)

### STORAGE

Setup backup : 16 named in RAM, unlimited on the hard disk  
Internal hard disk : 80 Gb.  
Interfaces 4 USB ports, VGA, Ethernet

### MISCELLANEOUS

Power supply 85VAC to 264 VAC, 47Hz to 63 Hz  
Max. consumption: 60W  
Dimensions & weight 384 x 445 x 195 , 7.5 kg  
Operating temperature range 0°C to 40°C  
Max. RH 80% (without condensation)  
Storage temperature range : -20°C to 60°C  
Warranty period 1 year  
Safety CEI 1010 CAT III , 600V

### OPTIONAL ACCESSORIES

984401000 12 channels multiplexed board for VDC 1mV to 25 V, T°, PT100  
984402000 6 channels universal input board for VDC 1mV to 1000V , VAC RMS , T°  
984402500 6 channels Strain Gange Isolated, 1mV to 50 V  
984407000 Carrying case  
910008100 Flexpro software (basic)  
910008200 Flexpro software (comprehensive)  
298504246 Ethernet cable (crossed - 5m)  
910007100 shunt - 0,01 ohm 1% 3A  
910007200 shunt - 0,1 ohm 1% 1A  
207030301 shunt - 0,01 ohm 0,5% 30A  
207030500 shunt - 0,001 ohm 0,5% 50A  
989006000 shunt - 1 ohm 0,1% 0,25W  
989007000 shunt - 50 ohms 0,5% 0,25W  
984405500 Isolated logical channels adaptor



For more information, contact our local distributor or us on +33 (0).4.77.59.36.81





# Strain Gauge board for Recorders

## DAS1400 and 8440

**The strain gauge board is fully compatible with SEFRAM 8440 and DAS 1400.**

### Capabilities

Channels	6 (fully isolated)
Measurements	Strain gauge, voltage, thermocouple and current with optional external shunt
Input	differential, fully isolated
input impedance	2 MΩ for ranges < 1 Volt 1 MΩ for ranges >= 1 Volt
Maximum Input voltage <small>(Between one input and ground, or between ground and mechanical chassis)</small>	200V DC
Input voltage	± 50V
Isolation <small>(between channels and mechanical chassis)</small>	>100 MΩ under 500V
input connectors	Fast plug-in / plug-out, 6 contacts per channel
<i>All accuracies are given with 1Hz filter</i>	
<b>Voltage measurement</b>	
Maximum range	50 V
Lowest range	1 mV
Maximum offset	±50V limited at ± 5 ranges
Accuracy	± 0.1% of full scale ± 10µV ± 0.1% of offset
Resolution	16 bit
Offset drift	100ppm/°C ±1 µV/°C
Sampling rate	100kHz (or 10µs)
Noise	<30µV without filter
<b>Strain Gauge measurements</b>	
<small>The unit is µSTR (micro strain) - 2000µSTR = 1 mV/V</small>	
Bridge	Full bridge (4 and 6 wires), half bridge
Automatic balancing range	±25000 µSTR
Bridge supply voltages	2V and 5V (symetrical ±1V and ±2.5V)
Gauge rate	2 (adjustable between 1.8 and 2.2)
Maximum range	50 000 µSTR
Minimum range	1000 µSTR
Maximum offset	±50000µSTR
Accuracy	± 0.1% of full scale ± 5µSTR ± 0.1% of offset
Resolution	16 bit
Sampling rate	100kHz (or 10µs)
Offset drift	100ppm/°C ±1 µV/°C
<b>Bandwidth</b>	
3 dB bandwidth	>18 KHZ
Analogue filter (low pass 60dB/decade)	1KHZ, 100HZ, 10HZ
Low pass (digital)	1 HZ, 0.1 HZ, 0.01 HZ, 0.001 HZ

### Temperature measurement

Cold junction compensation for J,K,T,S,N,E,W5 thermocouples : ± 1.25 °C

Sensor	Maximum possible range	Range
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

To order  
984402500

Supplied with : a set of 6 connectors, user and setup manual

Specifications subject to change without notice - FTDAS1400 A 01



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