

# SEFRAM DAS 20/DAS 40

- 2 to 4 analogue channels
  - Universal input
  - DC, AC+DC RMS voltage measurement
  - Frequency, Thermocouple
  - Power analysis function
  - 16 logical channels
  - 14-bit resolution
  - 7" TFT LCD screen
  - 1 Ms/s sampling rate
  - 100 kHz bandwidth
  - 8 GB internal hard disk
  - 32 Mword memory
  - Interfaces : USB, Ethernet,
  - Lithium-ion battery
  - Autonomy 10 hours.
  - IEC 1010 CAT III 600V
  - Printer mode\* : 110 mm paper width
- \*Factory option.



DAS 20/40

## DAS 20 & 40 multifunction recorders

The new DAS 20-40 series offer direct record on the internal hard disk, with 100kHz rate and 4 channels simultaneously. USB ports are provided for external memory devices (USB memory,...).

Thanks to the new user interface under Windows CE™, its large LCD TFT screen 7", the portable DAS recorders are design for ease of use for a wide range of data recording applications and easy transfer of your records.

### Selection Guide :

	DAS 20	DAS 40
2 universal analogue channels	●	
4 universal analogue channels		●
Printer mode 110 mm paper width	Factory option*	Factory option*

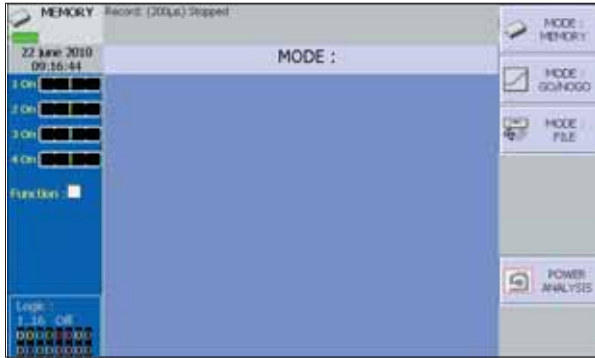
\*Please specify when you place your order.

### Universal Inputs :

Bandwidth	100 kHz
Sampling rate	1 Ms /s
Voltage	-500 V / + 500 V 425 V RMS
Temperature	Thermocouple
Counter	From 10 Hz to 100 kHz
Current	AC+DC current (with external shunt or clamp)
Logical channels	16 logical channels 2 alarms output 0-5 V

## EASY TO USE PRODUCTS

Konfigurieren Sie Ihren Recorder in wenigen Schritten:



1

Selektieren Sie die Betriebsart des Recorders



Schalten Sie die Aufzeichnungskanäle ein



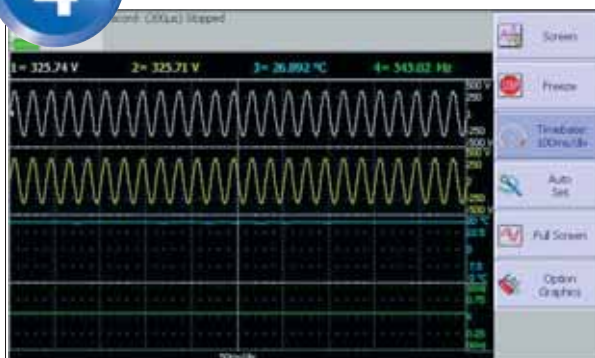
2

Wählen Sie die Funktionsart und die Parameter der Messkanäle

oder starten Sie den Auto-Setup



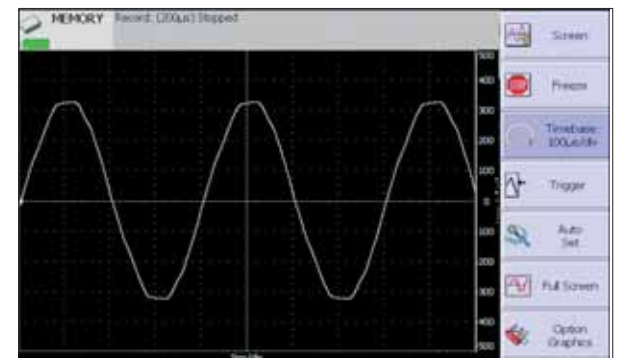
4

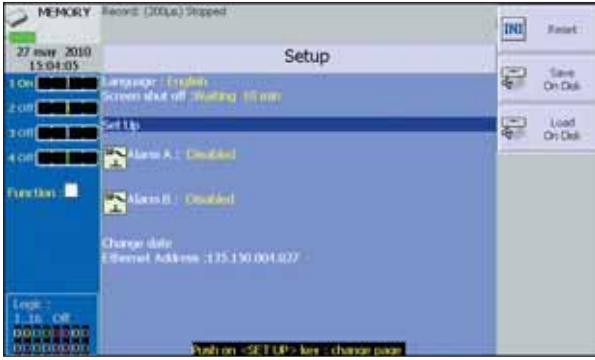


Konfigurieren der Triggereinstellungen für die Aufzeichnung auf Papier, int. RAM, ext. USB-Stick oder int. HD oder Sie starten die Aufzeichnung per Hand

5

Wie ein Oszilloskope, der Recorder zeigt die Signale auf dem Display mit numerischen Werten





Speichern Sie die Geräte-Konfiguration

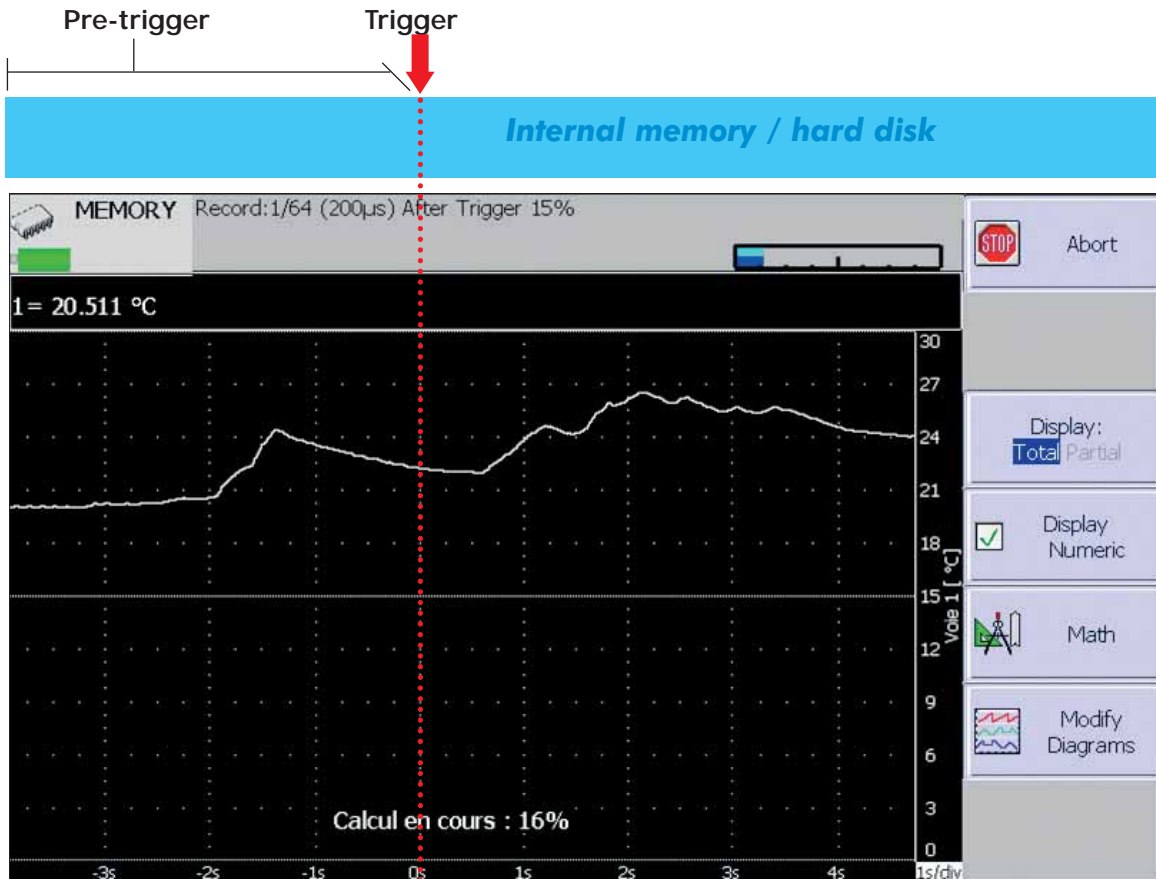
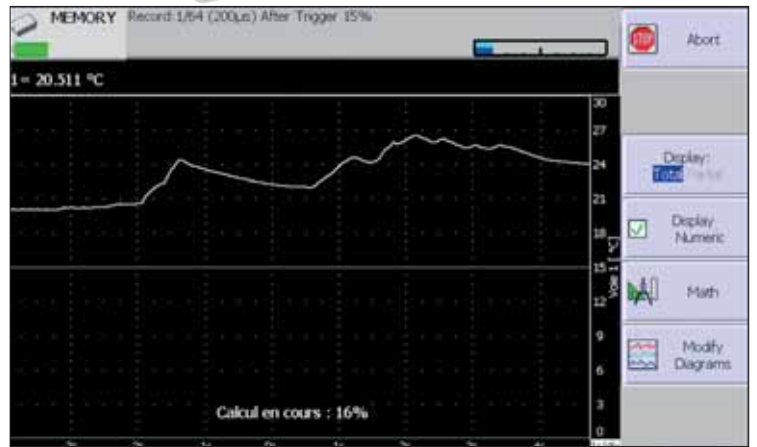
**4 acquisition channels on battery... for 10 hours !\***

\*without printer mode

**RECORD !**



You can save your data on 8 GB hard disk or on 32 Mword memory for fastest acquisition.







8

Anzeigen Ihrer Daten auf dem Display und Exportmöglichkeit in eine Auswerte-Software

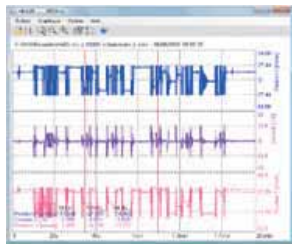
Sefram DAS 20 & DAS 40 recorder's are equipped with a bright 7" TFT LCD screen. User can setup and view the data in the most easy and convenient way.



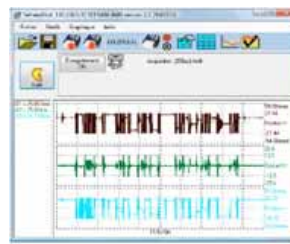
## EXTERNAL PC SOFTWARE

Display data recorded and export

Control the recorder through Ethernet interface



Sefram Viewer



Sefram Pilot



Excel©

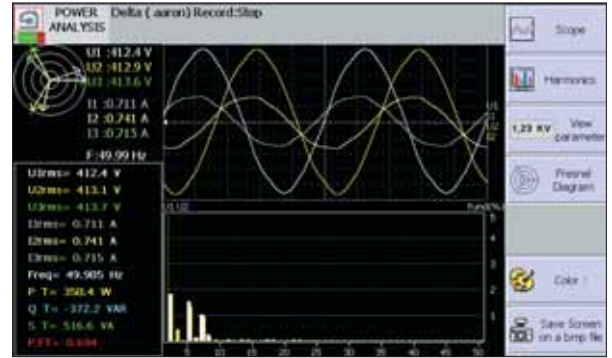
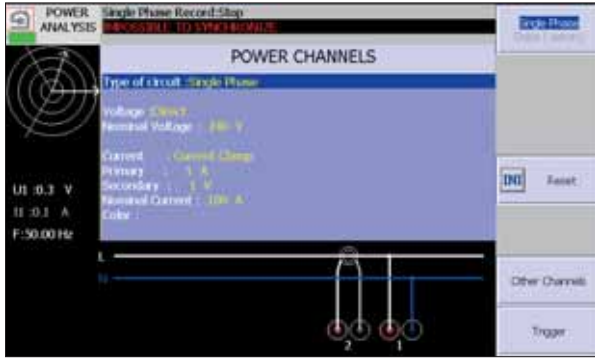
Text file

BMP©

# POWER ANALYSIS FUNCTION

It makes possible to measure power and harmonics. Measured values can be tracked in real time or recorded.

**Connect your application with the schematic provided :**



Fresnel diagram - Oscilloscope mode - Display values and harmonics



# FACTORY OPTIONS

## Optional printer mode

It's possible to install on Sefram DAS 20 & 40 recorders a thermal printer module (110 mm width, 10 meters thermal paper roll).



## Optional temperature measurement module (Pt100 and Pt1000)

2 input for PT100 & PT1000 (available in October 2010).

## SPECIFICATIONS – UNIVERSAL INPUT

Number of channels : 2 (DAS20) or 4 (DAS40)

### VOLTAGE

Bandwidth : 100 kHz  
 DC voltage ranges : 1 mV à 1000 V  
 Maximum input voltage : ± 500 VDC or 440 VAC  
 Max offset : ± 5 ranges (up to ± 500 V)  
 Accuracy : ± 0,1% of range ; ± 10\_V / ± 0,1% offset  
 TRMS AC+DC ranges : to 200 mV to 424 V  
 Bandwidth (- 3 dB) : 5 Hz - 500 Hz  
 Response time : 100 ms typical (40 ms to 50 Hz)  
 Crest factor : 2,2 and 600 V peak voltage

### FREQUENCY

Sensitivity : 100 mV rms min.  
 Duty cycle : 10% min.  
 Frequency range : 0.1 Hz to 100 kHz  
 Basic accuracy : 0,02% of full scale

### TEMPERATURE

Sensor	Ranges
PT100 (2 or 4 wires)*	-200°C to 850 °C
Couple J	-210°C to 1200°C
Couple K	-250°C to 1370°C
Couple T	-200°C to 400°C
Couple S	-50°C to 1760°C
Couple B	200°C to 1820°C
Couple E	-250°C to 1000°C
Couple N	-250°C to 1300°C
Couple C	0 to 2320°C
Couple L	-200°C to 900°C
Accuracy	Cold junction compensation ±1,25°C

\*Factory option

### POWER ANALYSIS FUNCTION

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

### SAMPLING

Resolution : 14 bit  
 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% to +100%

### BANDWIDTH

#### Bandwidth ( -3dB)

Range : > 1 V : 100kHz  
 Range : > 50mV : 50kHz  
 Range : 5 mV : 20kHz  
 Internal analogue filters : 10 kHz, 1 kHz, 100 Hz, 10 Hz.  
 Slope : 20 dB/decade  
 Programmable digital filters : 10 Hz, 1 Hz, 0,1 Hz, 0,01 Hz, 0,001 Hz  
 Slope : 40 dB/decade

Input impedance (DC) : >25MΩ for range <1V  
 1 MΩ for upper ranges  
 150pF typical  
 Maximum input voltage : Between one channel and the frame ground ± 500VAC  
 Between 2 terminals of one channel ± 500VAC  
 Isolation between frame ground and channel : >100 MΩ at 500 VDC

### LOGIC INPUT

Channels : 16  
 TTL – Max voltage : 24V  
 The same sampling rate as analogue inputs.  
 Sensor supply : 9 to 15 V  
 Alarms 2 : A & B 0-5 V output.



## PAPER PLOT CHARACTERISTICS\*

Paper width : 110 mm

Paper speed : from 1 mm/min to 25mm/s  
 Paper speed in memory mode : 10 mm/s max.  
 Resolution & accuracy : Y axis : 8 dots per mm  
 X axis : 16 dots per mm  
 XY mode : 8 dots per mm (both axis)

## GENERAL SPECIFICATIONS

Display : TFT LCD coloured screen 7 inches ; f(t) and XY functions.  
 Zoom, cursors, dV, dT and zoom between cursors.  
 Calculation functions :  $y=ax+b$ ,  $y=x/+b$ ,  $y=a\sqrt{x+b+c}$ ,  $y=ax^2+b$ ,  $y=(\log x)+b$ ,  $y=ae^{(x+b)+c}$   
 Automatic measurements : 20 automatic measurement s (F, T, Vpp, Tm.....)

## STORAGE

Setup backup : unlimited on the hard disk  
 Internal hard disk : 8 Gb.  
 Interfaces : 1 USB port, Ethernet  
 Power supply : 100 to 240 VAC, output 15 V 5A max.  
 Battery (factory install) : Lithium ion 10,8 V, 6,5 Ah.  
 Autonomy : Typically 10 hours after a complete load.  
 2 hours 30 minutes after a quick load of 1 hour (recorder off)  
 Complete load in 4 hours.  
 Max. consumption : 10 Watts without print, 40 w max.  
 Dimensions & weight : 265 x 185 x 85, 2 Kg  
 Operating temperature range : 0°C à 40°C  
 Max. RH. : 80% without condensation.  
 Storage temperature range : -20°C à 60°C  
 Warranty : 1 year  
 Safety : CEI 1010 CAT III, 600V

## OPTIONNAL ACCESSORIES

### Accessory clamps

SP 201 - 200 AAC, 10mV/1A, ø 15 mm.  
 SP 221 - 100 AAC, 100mV/1A, ø 15 mm.  
 SP 230 - 1200 AAC, 10mV/1A, ø 50 mm.  
 SP 261 - 1200 AAC+DC, 1mV/1A, ø 50 mm.  
 SP 270 - 2000 AAC, 1 mV/1A, ø 70 mm.  
 A 1287 - 3000 AAC, 0.333 mV/A, ø 150 mm / Flex

### Shunts

#### Shunts (with banana plugs)

910007100 Shunt CA 0.01 ohm : 3 A  
 910007200 Shunt CA 0.1 ohm : 1 A  
 989007000 Shunt CA 50 ohm : 0.05 A  
 989006000 Shunt CC 1 ohm : 0.5 A  
 912008000 Shunt CA 10 ohm : 0.15 A

#### Shunts (with wires)

207030301 Shunt 0.01 ohm : 30 A max  
 207030500 Shunt 0.001 ohm : 50 A max

### Logical channels.

984405500 16 isolated logical channels.  
 984405000 16 channels logic probe.

### Rugged carrying case

982001000

### FLEXPRO software

910008100 FLEXPRO 7 - VIEW  
 910008200 FLEXPRO 7 - FULL

### Printer option (factory option)

902002000

### Consumables

837500826 Thermal paper roll (10m)



Supplied with : One carrying pouch, a set of red and black accessory per channel (test lead, alligator clip, banana plug)



FT SEFRAM DAS 20/40 A00 - Specifications can be updated without notice



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