Sefram

**Make sure to visit our Website**
http://www.sefram.fr

# SEFRAM DAS30 / DAS50 / DAS60

## Multifunction handheld recorders

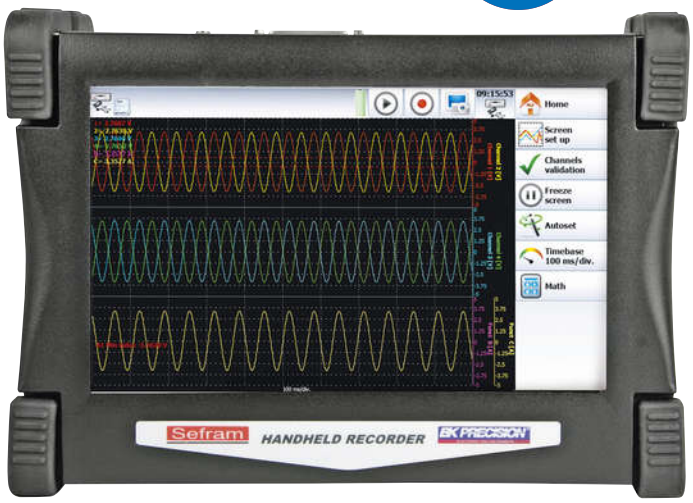
### Capabilities

- 2 to 6 analogue channels
- Universal input
- DC, AC+DC RMS voltage measurement
- Frequency, counter
- Temperature: thermocouple, Pt100/Pt1000*
- Power analysis function (up to 400Hz for DAS60)
- 16 logical channels
- 14-bit resolution
- 10" TFT panoramic LCD touch screen
- 1 Ms/s sampling rate
- 100 kHz bandwidth
- 32 GB internal hard disk (64GB for DAS60)
- 32 Mword memory
- Interfaces: 2 x USB, Ethernet
- Lithium-ion battery
- Autonomy: up to 9,5 hours.
- 110mm Thermal printer module*
- IEC 1010 CAT III 600V

* **factory options:** - printer module (all models)
- Pt100 / Pt1000 (DAS30/50)

NEW

2 YEAR WARRANTY




**DAS30 / 50 / 60**

### Multifunction recorders for all your applications

The new DAS30 / 50 / 60 series recorders have been designed to meet the requirements of all applications in industry (IEC 61010, CAT. III 600V). You can view your measurements (traces, digital values) and record directly in the internal memory or into a USB memory stick. Using Sefram software, you can transfer easily your records on a computer.

### Universal input

The new DAS30 / 50 / 60 recorders offer universal input, which are convenient for all types of signals :

- voltage ranges from 1mV to 1000V DC or 425Vrms
- temperature (thermocouples) and Pt100/Pt1000*
- counter, frequency
- current (with optional shunt)

### Easy-to-use

Thanks to the new user interface combined with its large touch screen LCD, the portable DAS recorders are design for ease of use for a wide range of data recording applications and easy transfer of your records.

### Typical applications

The new DAS30 / 50 / 60 recorders are general purpose and multifunction recorders and are suitable for many applications:

- maintenance/failure diagnostic on electrical systems
- voltage, current, temperature recording and monitoring
- power analysis for single-phase and three-phase systems

### Selection guide

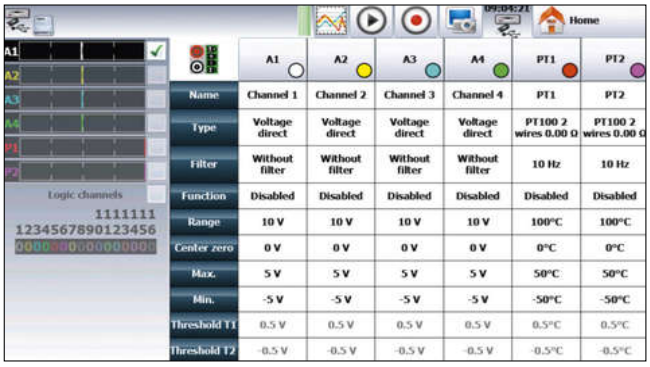
| | DAS30 | DAS50 | DAS60 |
|---|---|---|---|
| 2 isolated universal channels | ● | | |
| 4 isolated universal channels | | ● | |
| 6 isolated universal channels | | | ● |
| Memory | 32GB | 32GB | 64GB |
| 2 Pt100/Pt1000 input | factory option | factory option | ● |
| 110mm thermal printer | factory option | factory option | factory option |

CE

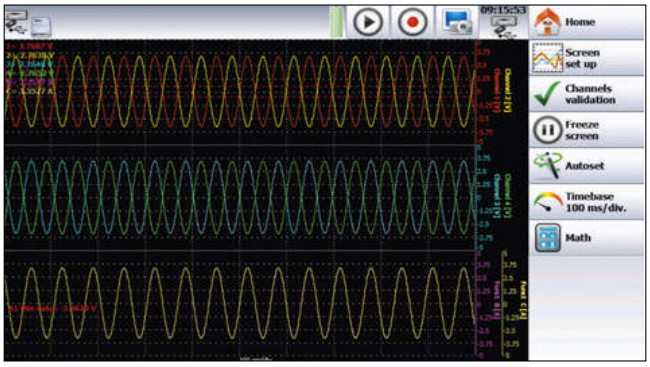
Sefram

# SEFRAM DAS30 / DAS50 / DAS60

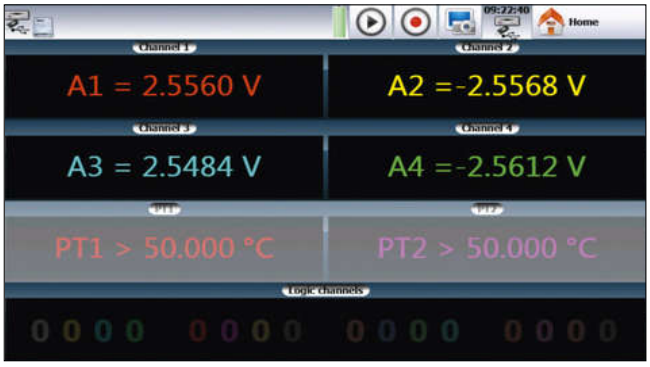
**Multifunction handheld recorders**



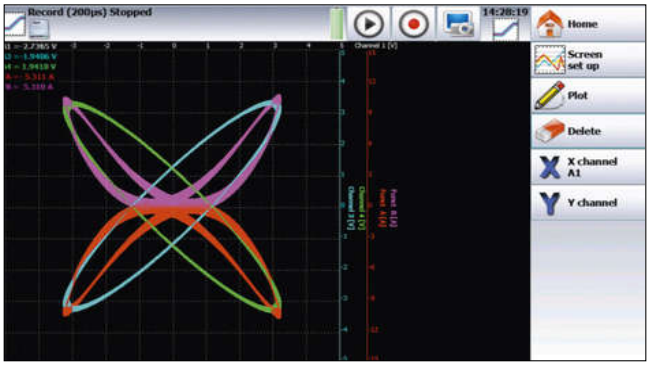

Channels setup: one screen with colors to differentiate channels




Oscilloscope mode




Digital display of measurements




XY mode




Trigger: several type of trigger, one channel, on a level, slope, several channels or combined conditions.




With the thermal printer module, you can set up your print

## *Factory options*

### *110mm thermal printer module*

It's possible to install on Sefram DAS30 / 50 / 60 recorders a thermal printer module (110 mm width, 10 meters thermal paper roll).

### *Pt100/Pt1000 board*

This board is included in the DAS60 and is a factory option for DAS30 / 50. It adds 2 channels dedicated to Pt100/Pt1000 platinium resistance measurements, with 2 wire, 3 wire or 4 wire setup. Using a 20 bit analog to digital converter, this card will provide an excellent accuracy and resolution for temperature measurement.

CE

Sefram

# SEFRAM DAS30 / DAS50 / DAS60

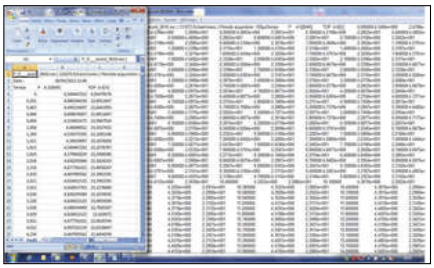
**Multifunction handheld recorders**

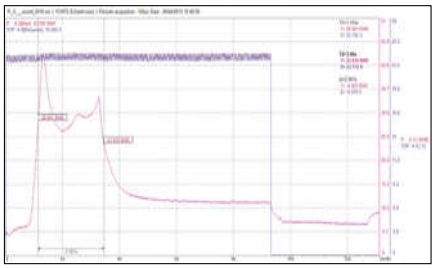
## SEFRAM VIEWER

This licence free software is supplied with each recorder. It allows the visualization of the recordings and the data transfer to other applications. SEFRAM Viewer makes the acquired signal analysis easier.

### Capabilities

- Curve printing
- Display of values (text)
- Cursors and zoom
- File concatenation
- 8 math calculations
- Up to 120 characters text notes
- Bitmap, Excel®, txt, csv export
- Easy setup of curves display

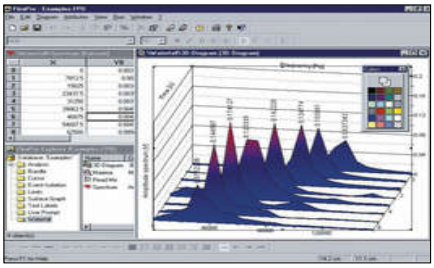


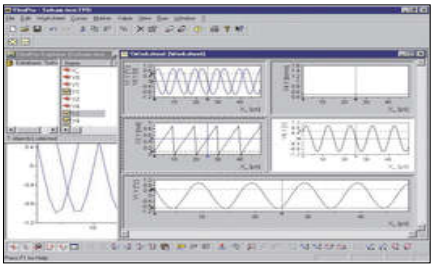


## FLEXPRO™: a powerful software for your data analysis.

With Flexpro® :

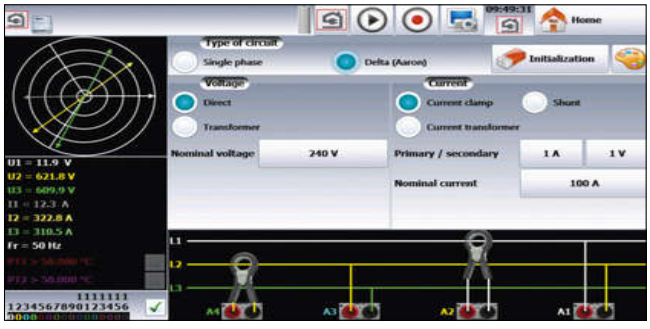
- More than 100 functions of statistical and math analysis
- Powerful graphical display
- Measurement report editing



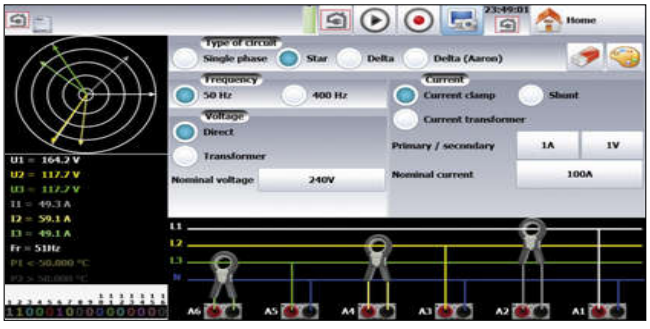


## ENERGY / POWER ANALYSIS

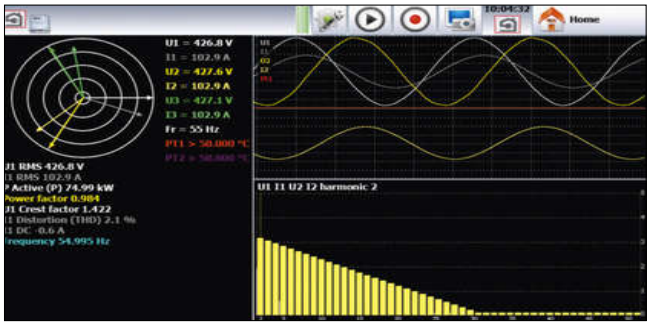
A very powerful analysis for single-phase or three-phase networks. Analysis is provided with Fresnel diagram or oscilloscope mode.
The DAS60 can work with 400Hz networks and has a trigger selection function.



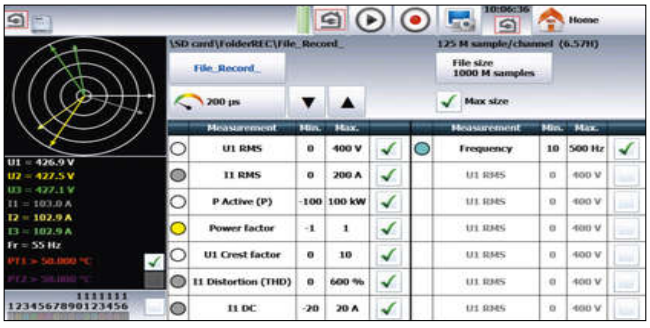

Your instrument shows how to connect the inputs with a schematic and you can setup parameters and measurements on the same screen.




Example of a three-phase network.




Real time display of signals and harmoics (up to rank 50)




Setup of parameters to measure or calculate.

## SPECIFICATIONS – UNIVERSAL INPUT

**Number of channels :** 2 (DAS30), 4 (DAS50), 6 (DAS60)

### VOLTAGE

| | |
|---|---|
| Bandwidth : | 100 kHz |
| DC voltage ranges : | 1 mV to 1000 V |
| Maximum input voltage : | ± 500 VDC or 440 VAC |
| Max offset : | ± 5 ranges (up to ± 500 V) |
| Accuracy : | ± 0,1% of range ; ± 10µV / ± 0,1% offset |
| TRMS AC+DC ranges : | from 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 |
|---|---|
| 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°C to 2320°C |
| Couple L | -200°C to 900°C |

Accuracy Cold junction compensation ±1,25°C

### 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<br>1 MΩ for upper ranges // 150pF typical |
| Maximum input voltage : | ± 500VAC between one channel and the frame ground |
| 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 |
| Sampling rate : | The same sampling rate as analogue inputs. |
| Sensor supply : | 9 to 15 V |
| Alarms 2 : | A & B 0-5 V output. |

### PT100 / PT1000* INPUT (factory option for DAS30 / 50)

| | |
|---|---|
| Number of channels : | 2 |
| Current : | 1mA for Pt100 and 100µA for Pt1000 |
| Resolution : | 20 bits |
| Temperature range: | -200°C to +850°C |
| Measurements : | 2, 3, 4 wires |
| Accuracy at 20°C : | ±0,2°C |



### PAPER PLOT CARACTERISTICS (factory option for all models)

| | |
|---|---|
| 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) |

**Storage**

| | |
|---|---|
| Setup backup : | unlimited on the hard disk |
| Internal hard disk : | 32 GB (solid state) for DAS30 / 50 and 64GB for DAS60 |

## GENERAL SPECIFICATIONS

| | |
|---|---|
| Display : | 10 inches TFT LCD coloured touch screen<br>F(t)and XY functions.<br>Zoom, cursors, dV, dT and zoom between cursors.<br>Calculation functions<br>y=ax+b , y=/x/+b, y=a√x+b+c,<br>y=ax2+b, y=(log x)+b, yae(x+b)+c |
| Automatic measurements : | 20 automatic measurements ( F, T, Vpp, Tm…) |
| Interfaces : | 2 x USB port, Ethernet |
| Power supply : | 100 to 240 VAC, ouput 15 V 5A max. |
| Battery (factory installed) : | Lithium ion 10,8 V, 6,5 Ah. |
| Autonomy : | Typically 9h30min after a complete charge<br>4 hours without screen saver |
| Charging time: | 1 hour (recorder off)<br>Complete charge in 4 hours. |
| Dimensions & weight : | 295 x 210 x 105 mm, 2,5 Kg |
| Operating temperature range : | 0°C to 40°C |
| Max. RH. : | 80% without condensation. |
| Storage temperature range : | -20°C to 60°C |
| Warranty : | 2 years |
| Safety : | IEC 61010 - 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 interface
**902407000** 16 channels logic probe.



**Rugged carrying case**
**903001000** Rugged carrying case for DAS30/50
**906002000** Rugged carrying case for DAS60



**FLEXPRO software**
**916002100** FlexPro View
**916002200** FlexPro Standard
**916002300** FlexPro Professional
**916002400** FlexPro Developer Suite

**Printer module (factory option)**
**903002000** Thermal printer module for DAS30/50
**906003000** Thermal printer module for DAS60

**Consumables**
**837500526** Thermal paper roll (10m)




**Pt100/Pt1000 (factory option for DAS30 / 50)**
**903003000** 2 channels Pt100/Pt1000

**19" rackmount kit**
**903004000** Rackmount kit for DAS30/50
**906001000** Rackmount kit for DAS60

**Supplied with :** a carrying case, a set of red and black cable + alligator clip + quick banana plug, main adaptor, manual (CD-ROM).

CE



**For assistance and ordering**

Sefram

afaq ISO 9001 Qualité AFNOR CERTIFICATION 1997/7001

32, rue Edouard Martel • B.P. 55 • 42009 - St Etienne cedex 2
**Tel.+33 (0).4.77.59 36 81**
Fax. +33 (0).4.77.57.23.23
Website : www.sefram.fr • e-mail : sales@sefram.fr