

Sefram

Data Acquisition Solution

# DAS1700

## Oscillographic Paperless Recorder




The DAS1700 is a High Speed Data Acquisition Solution well suited for applications ranging from small sensor signal logging (process) to electrical power analysis.

With CAT III safety class, it feature versatile channel configurability, high speed sampling **(1 MSa/s)**, a wide input range (1mV to 1000V), **500GB internal SSD hard drive**.

The 1µs sampling interval in file mode lets you capture some transient events safely. In addition, its large built-in memory capacity allows for data recording for long periods.

Each channel can be easily configured in wide range of parameters to record different signals.

## Features and benefits :

- Fast sampling rate: up to **1** MSa/s (1µs)
- Up to 72 channels (with multiplexed board)
- Modular device by changing acquisition boards
- 4 boards avalaibles: universal, multiplexed, strain gauge and high voltage VDC
- Measure up to 1000VAC with high voltage board and measure Pt100 and Pt1000 with multiplexes board
- 16 bit resolution with multiplexed board / 14 bit resolution with universal board
- 500GB SSD Internal memory
- 16 logic input channels with power supply (12V)
- Wide 15,6 inches touchcreen TFT display
- USB and LAN interfaces
- Battery option (up to 2 hours)
- Free software for control and analysis
- Carrying case include in standard

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# DAS1700

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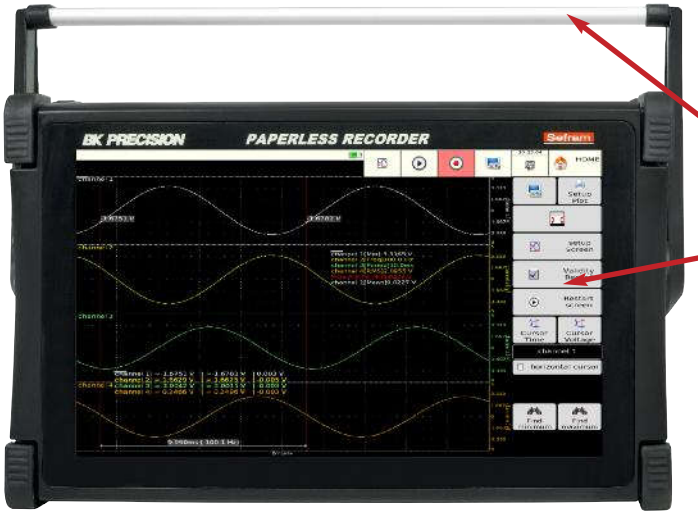
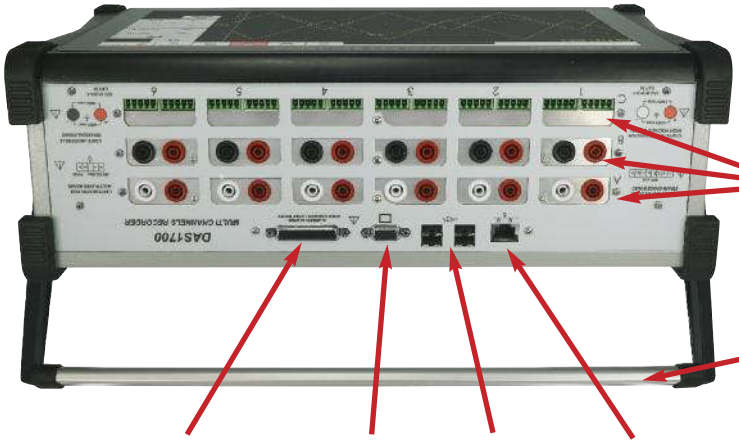
## Front panel




Carry handle / stand

15,6 inch touchscreen

## Top panel



3 Boards slots as standard
3 additional boards with extension module

Carry handle / stand

Logical Inputs and alarms With power supply (12V)

VGA output

USB interface

Ethernet interface

## Back panel



CAN inputs when option is available (5-12V)

LIN inputs when option is available

Power button when battery option is available

Power Supply / ON / OFF Button

Earth terminal

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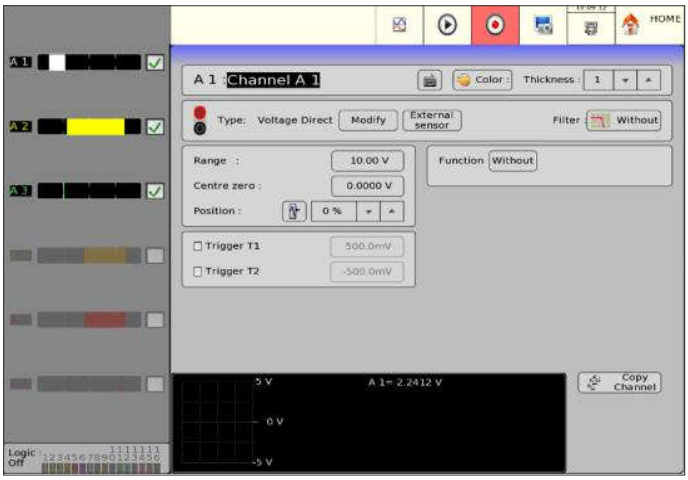
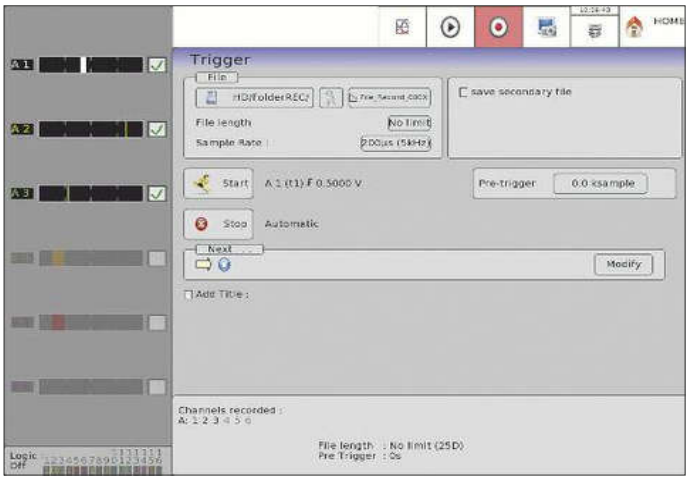
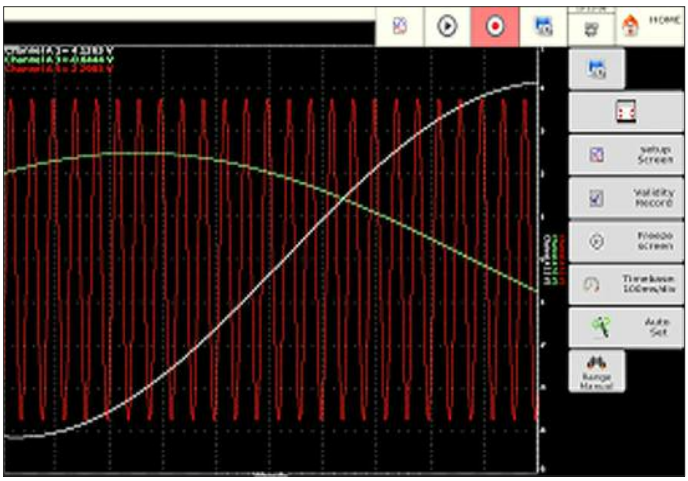
## Operation highlights

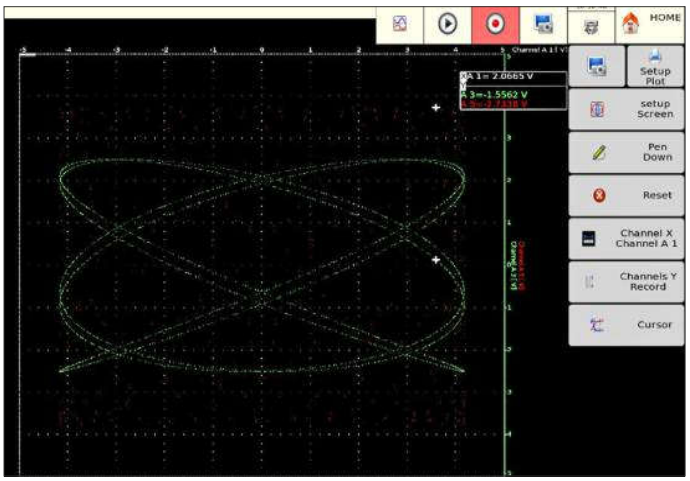



In the same page each channel can be easily and simply prepared to record. Parameters like the type of signal to be recorded (voltage, current, frequency, temperature, counter, PWM), set change unit (to convert a voltage to meters for example), the display range, shift the zero, add functions, choose the best layout for yours graphics and define the trigger positions are showed in the main page.




It is possible to set a trigger or combination of triggers to start and stop recording, for example, start your recording on a logical channel, after a delay, on an analogue channel with a threshold, on a combination of parameters.




XY mode for plotting one varying signal versus another and F(t) mode like oscilloscope with 100 kHz bandwith

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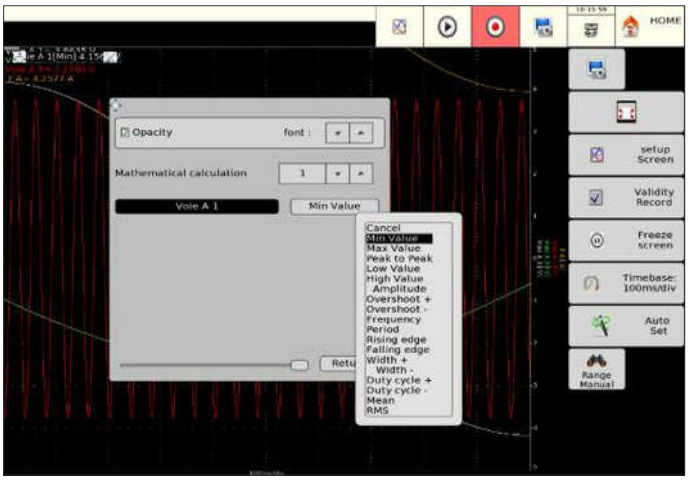
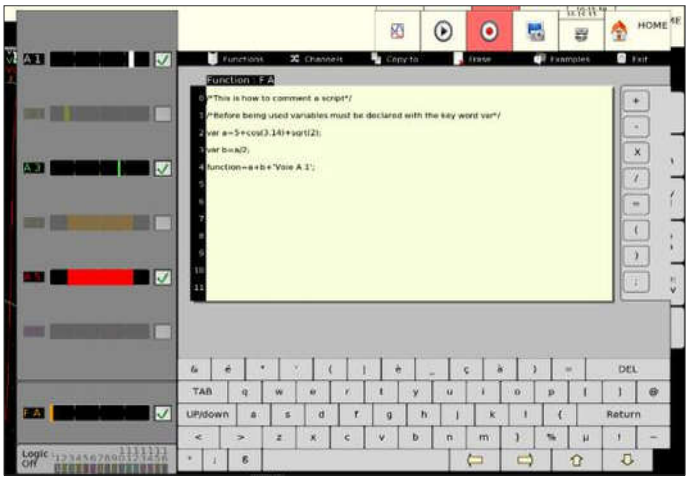
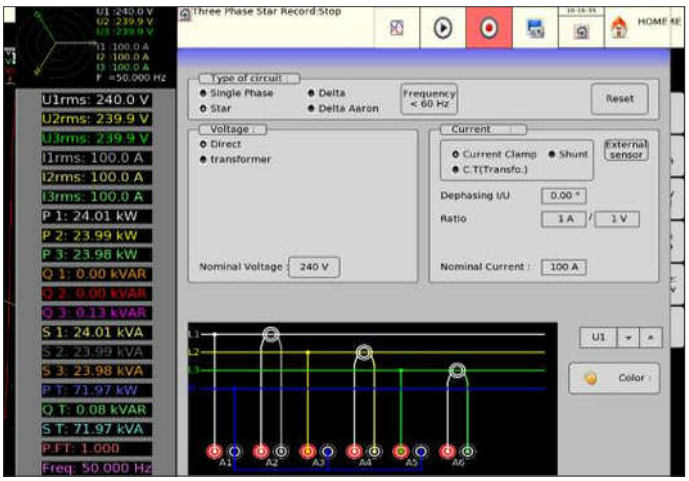
## Operation highlights

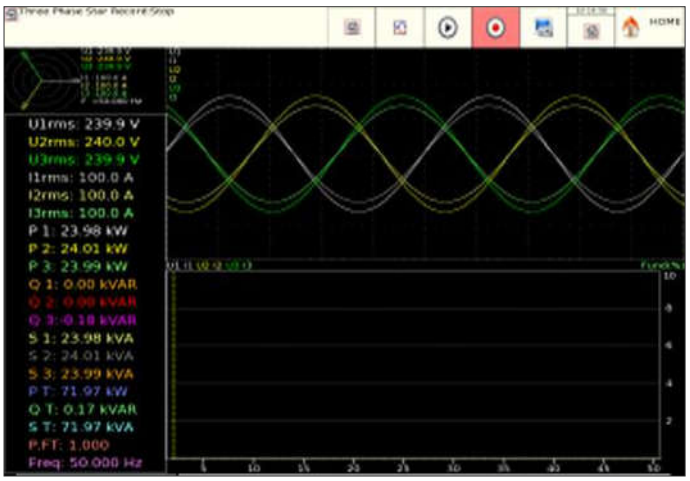



Benefit from up to 19 calculations on the recorded channels. View the values on your graphs




The power of the DAS1700 makes it possible to perform complex mathematical calculations between the channels. Use up to 24 channels functions. These channels are calculation channels and will not decrease the number of acquisition channels.
For even more complex calculations, a function editor in the script syntax language is available.




A powerful power analysis mode is available on the DAS1700. Analyze up to 4 power networks simultaneously. Easily configure your power analysis and define the type of network you want to analyze: single-phase, star three-phase or delta three-phase. Analyze networks up to 1000 Hz and use voltage or current transformers to analyze high voltage networks.
Once the setup is complete, access the measurement menu and view the voltages, currents, Fresnel diagram and display and measure up to 61 parameters (RMS voltage, power, current, energy, harmonics up to the 50th order,...). Also save this data in the internal memory of the device with a sampling rate up to 200µs.

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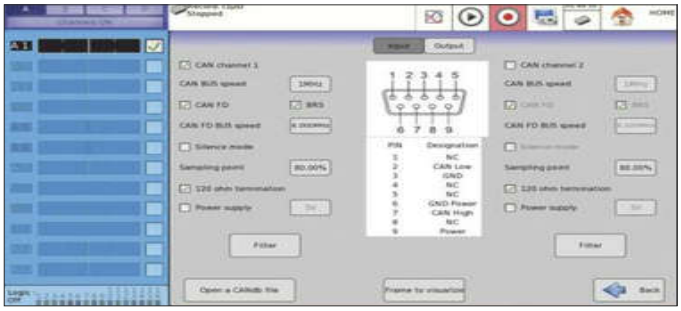
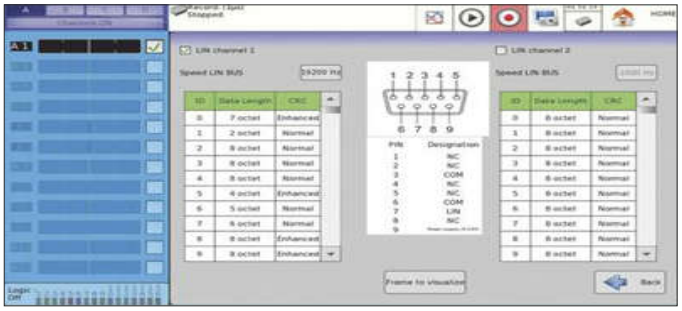
## CAN/LIN Mode

With this new feature, you can analyze the following buses:

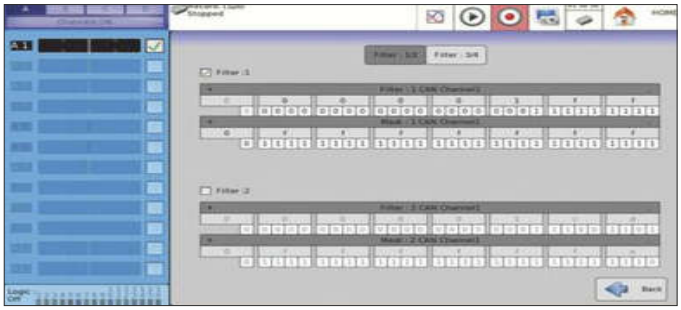
- CAN 2,0 A / B
- CAN FD
- LIN 1.3 / 2.X

2 isolated LIN input and 2 isolated CAN channels are provided on the rear panel of the DAS1700.
An external 5-12V supply is available for users.





Easy and intuitive setup of all types of buses

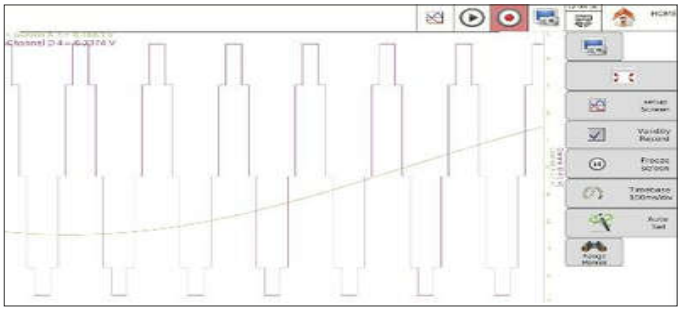


Hardware filtering of CAN frames

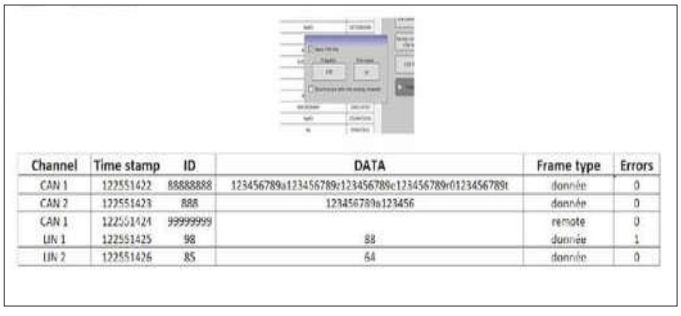


Display of complete frames of the selected bus



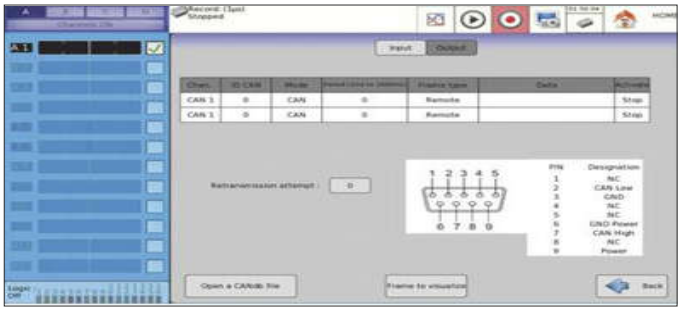


Graphical waveform conversion with analogue signal comparison



| Channel | Time stamp | ID | DATA | Frame type | Errors |
|---|---|---|---|---|---|
| CAN 1 | 122551422 | 88888888 | 123456789a123456789r123456789e123456789r0123456789t | donnée | 0 |
| CAN 2 | 122551423 | 888 | 123456789a123456 | donnée | 0 |
| CAN 1 | 122551424 | 99999999 | | remote | 0 |
| LIN 1 | 122551425 | 98 | 88 | donnée | 1 |
| LIN 2 | 122551426 | 85 | 64 | donnée | 0 |

CAN frames recording in CSV format



Periodic frames output on the CAN bus

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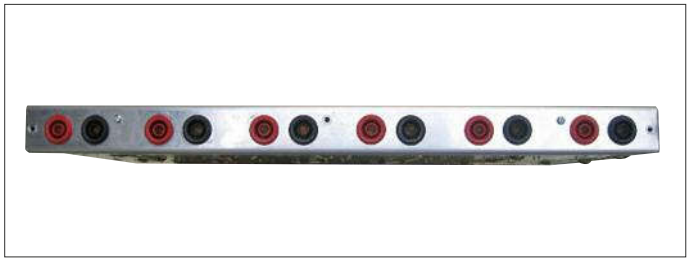
## A modular device

**The DAS1700 is a modular device. Indeed, different acquisition boards are available according to your needs.**

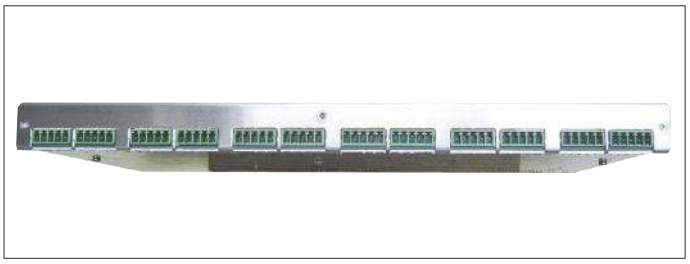
### A versatile acquisition board: universal board



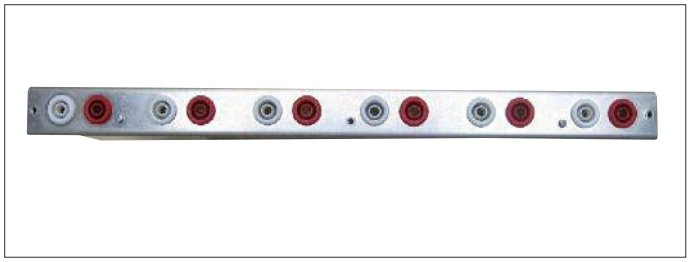
- 6 isolated channels
- Max voltage: ± 500VDC or 424 vrms
- Resolution: 14 bit
- Sampling: 1MSa/s max. (1µs)
- This board is compatible with voltage recording, current recording, frequency recording, RMS recording, thermocouple recording, counter mode and power analysis
- Safety: CAT III - 500V

### An acquisition board for the process: multiplexed board

- 12 channels
- Max voltage: ± 50VDC
- Resolution: 16 bit
- Sampling: 5kSa/s max. (200µs)
- This board is compatible with voltage and current recording, thermocouple and Pt100 - Pt200 - Pt 500 - Pt1000 (2, 3, 4 wires), Resistance.



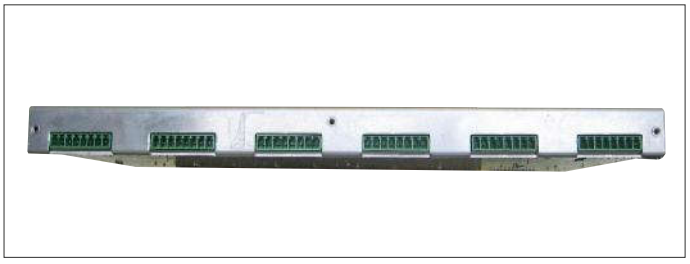
### Acquisition board for high voltage: high voltage board



- 6 isolated channels
- Max voltage: ± 1000VDC or 1000VAC 50Hz
- Resolution: 14 bit
- Sampling: 1Msa/s max. (1µs)
- This board is compatible with frequency recording, RMS recording, counter mode and power analysis
- Safety: CAT III - 1000V and CAT IV - 600V

### Dedicated acquisition board for deformation measurement: Strain gauge board

- 6 channels fully isolated
- Max voltage: ± 50VDC
- Resolution: 16 bit
- Sampling: 100 kSa/s max. (10µs)
- Strain gauge measurement (full bridge, half bridge)
- Bridge supply (2V and 5V)
- Low voltage and temperature (thermocouple) measurement
- Analogue and digital filters
- Pt100 and Pt1000 measurements



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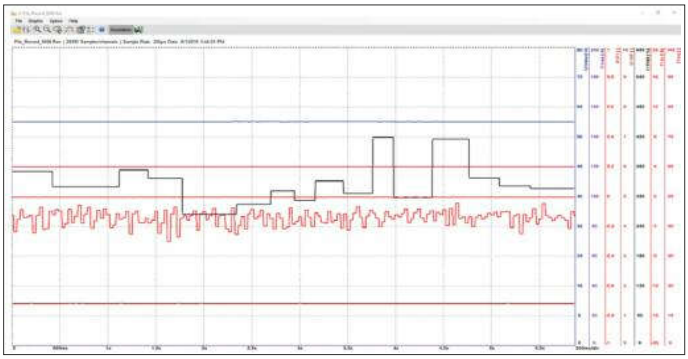
## A complete suite of software

**Several software programs are available for free to remote control the device and analyze the recorded data.**

## Analyze the data recorded

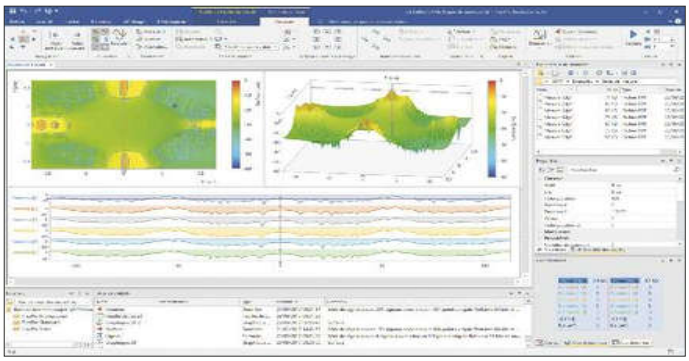


### Sefram viewer

Use the free Sefram Viewer software to use and analyze all data stored on the device. Use the mathematical calculations available in the software to perform calculations after recording (y=ax+b, y=ln(x)+b, y=exp(cx)+b,...). With the software, also convert data saved in Excel© format or in text format for your personnal post analysis.

### Flexpro (paid software)

Use the optional Flexpro software for powerful and advanced analysis of your recordings. Perform automatic analyzes, create test reports, use more than 100 functions of statistical and math analysis, display and visualize your data in 2D and 3D, convert your files into other formats, ...



## Remote control your device




### Pilot Sefram

Set up your device remotely with the free Pilot Sefram software. But that's not all ! Also, view in real-time the data recorded by the device, save the current setup of the device and download the recorded data via the built-in FTP browser.



### VNC viewer

The recorder's built-in VNC provides a graphical desktop sharing system to remotely control the instrument from a computer with a full graphical interface that replicates the instrument's front panel using a mouse and keyboard.

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## Included accessories



917007500 : Carrying case for DAS1700



917006010 : European Power Cord
917006020 : UK Power Cord
917006030 : US Power Cord



917006050 : Logical connector

## Included accessories with universal board



984401100: Accessories for universal board

## Included accessories with multiplexed board



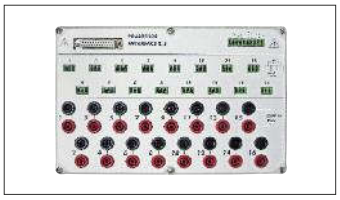
984402100 : Accessories for multiplexed board

## Included accessories with strain gauge board



984402550 : Accessories for strain gauge board

## Optional accessories



984405500 : 16 channel isolated logic adapter



984405000 : Special cord for logical input



SO415 : Banana / BNC female adaptor




9024002000 : WiFi option for DAS1700



989007000 : 50 ohms shunt, 0.1%, 0.05A max



910007100 : 0.01 ohm shunt, 1%, 3A max



910007200 : 0.1 ohm shunt, 1%, 1A max



912008000 : 10 ohms shunt, 0.1%, 0.15A max



989006000 : 1 ohm shunt, 0.1%, 0.5A max



207030500 : 0.001 ohm shunt, 0.5%, 50A max



207030301 : 0.01 ohm shunt, 0.5%, 30A max



A1587 : Flexible Current Clamp 3000A AC



917004000 : Rackmount for DAS1700

# DAS1700

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## Nuclear and Hydroelectric production plant power





During maintenance period, the DAS1700 can record 16 parameters with his isolated analogue input (1000VDC max) and save with safety the records Inside the 500GB hard disk.

## Aeronautic industry application



The DAS1700 is used to test the behavior of the rotor motors.
Thanks to his 1mV sensitivity, the records of pressure, vibration, RPM,temperature are done with an excellent accuracy.
The DAS1700 provides a complete test of physical and Electrical parameters which are integrated in the test report.

## Automobile Industry



The DAS1700 includes CAN BUS analysis which is the great solution for automobile application test.
The user can combines CAN BUS signal analysis and physical parameters as well temperature.
The large display offers the ability to display all parameters in the same time for better analysis.

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## Railway Industry application




For this application, the DAS1700 is fixed in the train with his rack mounted kit.
More than 16 channels are used to control and analyse the geometry of the track.
The DAS1700 can be connected to a printer for direct interpretation or the Sefram 8460 can be used with his thermal paper system fully integrated.
The records are saved in the hard disk and or transfer by Ethernet to a computer.



# DAS1700

## Oscillographic Paperless Recorder

## Specifications

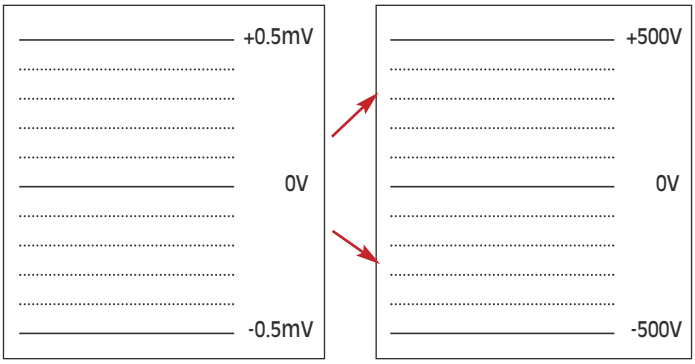
| GENERAL FEATURES |
|---|
| Capacitive backlight touch screen 15,6'' |
| Screen resolution: 1366X768 |
| Internal hard disk memory: 500 GB SSD (up to 2 TB with option) |
| Memory:  128 Mwords divisible by 128 blocks |
| Weight (with one board installed): 8 kg |
| Weight (with one added chassis): 10 kg |
| Dimensions (WxHxD): 271 x 472 x 154mm |
| Dimensions (WxHxD) (with added chassis): 271 x 472 x 236mm |
| Power Supply: 99 VAC to 264 VAC, 47 to 63 Hz |
| Consumption: 80 VA max |
| Operating temperature: 0 to 40°C (0 to 30°C with battery option or without fan |
| Storage temperature: -20 to 60°C |
| Interfaces: 4 USB, 1 VGA, 1 Ethernet |




| UNIVERSAL INPUT  BOARD |
|---|
| **VOLTAGE** |
| Number of channels: 6 isolated channels |
| DC Voltage range: 1 mV to 1000 V |
| Maximum DC voltage: 500 V |
| Direct voltage accuracy: ± 0.1 % of range |
| Bandwith: 100 kHz (-3 dB) |
| AC RMS Voltage range: 200 mV to 500 V |
| Maximum AC RMS voltage: 424 V |
| RMS voltage accuracy: 1 % of range |
| Bandwith for RMS measurement: 5 Hz - 500 Hz |
| Crest factor: 2 |
| Input impedance: 1 MΩ for ranges > 1 V / 25 MΩ for ranges < 1 V |
| High impendance input option: 10 MΩ for ranges > 1 V / 25 MΩ for ranges < 1V |
| Input capacitance: 150 pF |
| **FREQUENCY** |
| Sensitivity: 100 mV |
| Duty cycle: 10 % |
| Frequency range: 1 Hz to 100 kHz |
| Accuracy: 0.02 % of range |
| **TEMPERATURE** |
| Thermocouple type: J, K, T, S, B ,E ,N, C, L: -250 °C to 1760 °C |
| Cold junction compensation: ±  1.25 °C |
| **SAMPLING** |
| Vertical resolution: 14 bits |
| Maximum direct voltage sampling rate: 1 MSa/s (1 µs) each channel |
| Maximum RMS sampling rate: 5 kSa/s (200µs) each channel |
| Analogue filters: 100 Hz, 1 kHz, 10 kHz |
| Digital filters setting: < 100 Hz |
| **SAFETY** |
| Safety: CAT III - 500 V |



### Example with 1 mV and 1000V range



# DAS1700

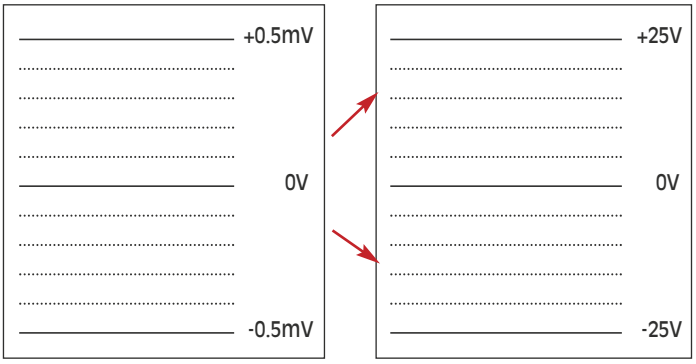
## Oscillographic Paperless Recorder

## Specifications

| STRAIN GAUGE BOARD |
|---|
| **VOLTAGE** |
| Number of channels: 6 isolated channels |
| DC Voltage range: 1mV to 50V |
| Maximum DC Voltage: 50V |
| Voltage accuracy: ± 0.2% of range |
| Bandwith: 18 kHz (-3dB) |
| Excitation gauge bridge voltage: ± 1 V and ± 2,5 V |
| Input impedance: 2 MΩ for ranges < 1 V / 1 MΩ for ranges ≥ 1 V |
| **STRAIN GAUGE** |
| Unity: µSTR |
| Gauge bridge type: full bridge, half bridge |
| Automatic zero setup: up to ± 25000 µSTR |
| Ranges: 1000 µSTR to 50 000 µSTR (1000 µSTR, 2000 µSTR, 5000 µSTR, 10 000 µSTR etc..) |
| Accuracy: ± 0.1% of range ± 5 µSTR + 0.1% of offset |
| **TEMPERATURE** |
| Thermocouple type : J, K, T, S, B ,E ,N, C, L: -250°C to 1760°C |
| Pt100 / Pt1000 (2 and 4 wires): -200°C to 850°C |
| Cold junction compensation: ± 1.25 °C |
| **SAMPLING** |
| Vertical resolution: 16 bits |
| Maximum sampling rate: 100 kSa/s (10 µs) each channel |
| Analogue filters : 100 Hz, 1 kHz |
| Digital filters setting : < 100 Hz |



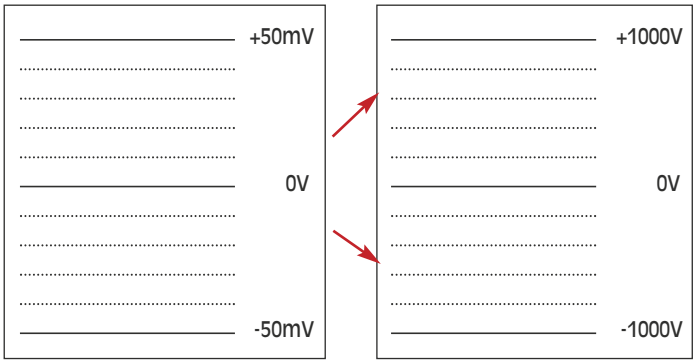
**Example with 1 mV and 50V range**




| HIGH VOLTAGE INPUT BOARD |
|---|
| **VOLTAGE** |
| Number of channels: 6 isolated channels |
| DC Voltage range: 100mV to 2000V |
| Maximum DC Voltage: 1000V DC |
| Direct voltage accuracy: ± 0.2% of range ± 0.2% of offset |
| AC RMS Voltage: 100mV to 1000V RMS |
| Maximum AC Voltage: 1000V AC RMS |
| RMS voltage accuracy: 1% of range |
| Bandwith: 26 kHz |
| Bandwith for RMS measurement: 5Hz - 500 Hz |
| Crest factor: 2,2 |
| Input impedance: 11 MΩ for ranges < 10 V / 25 MΩ for ranges ≥ 1 V |
| Input capacitance: 150 pF |
| **FREQUENCY** |
| Sensitivity: 300 mV |
| Duty cycle: 10% |
| Frequency range: 10 to 100 kHz |
| Accuracy: 0.2% of range |
| **SAMPLING** |
| Vertical resolution: 14 bits |
| Maximum direct voltage sampling rate: 1 MSa/s (1 µs) each channel |
| Maximum RMS sampling rate: 5 kSa/s (200µs) each channel |
| Analogue filters: 100 Hz, 1 kHz, 10 kHz |
| Digital filters setting : < 100 Hz |
| **SAFETY** |
| Safety: CAT III - 1000V and CAT IV - 600 V |



**Example with 100 mV and 2000V range**



Oscillographic Paperless Recorder

# Ordering Informations

## Easily order the combination you need

DAS1700/ ____ ____ ____




*The sum of boards must be at most 3. If you need more than 3 boards, extension option is required

## Board references

**984402000:** Multiplexed board - 12 multiplexed channel
**984401000:** Universal board - 6 universal channel up to 500V
**984402500:** Strain gauge board - 6 strain gauge channel
**916006000:** High voltage board - 6 high voltage channel up to 1000V

## Factory options

**917001000:** Extension option - required for use of 4 to 6 channel boards simultaneous
**917003000:** Battery option - with up to 2 hours of autonomy*
**917005000:** IRIG option - internal clock synchronisation with an IRIG time*
**917005500:** CAN / LIN Bus option*
**917002000:** SENT option
**917009000:** Without fan option for specific environments
**917007000:** 2TB memory extension
**917005600:** GPS option - internal clock synchronisation with an GPS time*
**984402300:** High Impedance input option for universal board (10MΩ).

* not possible with extension option
* Only one GPS or IRG option can be installed

For assistance and ordering

Sefram

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