

SACHA

RUGGED ACQUISITION AND RECORDING SYSTEM



SACHA is a complete line of analog and digital acquisition/recorder systems designed to challenge flight and field testing in harsh environment.

SACHA offers optimal prerequisites to acquire highly reliable measurements from sensors such as voltage, strain gauge, accelerometers, potentiometer, temperatures and from most popular ground or avionic buses.

SACHA stores measurements on local SSD memory and simultaneously broadcast them through an Ethernet or PCM link.

- ◆ **Compact acquisition/recorder system**
- ◆ **For harsh environment**
- ◆ **Analog and digital inputs**
- ◆ **3 versions : 3, 6 and 8 slots**
- ◆ **1, 4 or 6 extension slots**
- ◆ **Removable flash memory**
- ◆ **Ethernet and USB interfaces**
- ◆ **IEEE1588 (PTP V2) / IRIG B time stamping ,**
- ◆ **IRIG 106 Chapter 10 data format.**
- ◆ **Battery option for autonomous use**
- ◆ **Long life equipment**

APPLICATIONS

- Aircraft test
- Airborne cargo test
- Armored vehicle test

SACHA systems combines acquisition and recorder functions in an ultra compact and modular housing built with long life and reliable materials.

SACHA exists in 3, 6 and 8 slots version, with 1, 4 or 6 extension slots.

Easy to install and optimally suited for industrial applications SACHA supports a full set of analog and digital inputs :

- Analog signal : voltage, strain gauge, accelerometers, potentiometer, temperatures, with analog filters options
- Digital bus : CAN, serial lines, MIL-STD-1553, ARINC, DIGIBUS. Possible to adjust its internal FPGAs to any kind of specific bus.
- Video : PAL/NTSC inputs, Audio.

SACHA acquisitions are stored on local SSD. Measurements can be simultaneously broadcasted through Ethernet or PCM link.

SACHA can also be used as a single recorder for external devices such as ADAS video encoders or other manufacturers' devices.

SACHA battery (optional) is a perfect protection against platform power losses. It can also act as an autonomous power supply when no other power source is available.

SACHA is an open system running LINUX. Fully user programmable,

SACHA can be used for other functions than strictly data acquisition and recording.

**Specifications given for 25°C*

SACHA BASIC SET**SACHA BASE STRUCTURE**

Processor	Atom Tunnel Creek E640 1 GHz
RAM	1 GB
Storage (Local SSD)	2 GB for system, 4 GB for data
Ethernet	2 x Gb
PCM	1 x Input
Serial	1 RS232 output (maintenance), 2 RS422 outputs
Time synch.	IRIG B input + iIEEE1588
Digital I/O	2 inputs (trigger) , 3 outputs
Power input	20-36 V, 50 W max
Power consumption	2 A, 28 Volts
Slots	3, 6 and 8 slots version. 2 slots used by CPU and power supply
Extension slots	1, 4 or 6 slots
Size (H x D x W)	88 x 138 x 70 or 122 or 157 mm according to slot number
Weight	2,3 or 3 or 3,5 kg according to slot number
Operating temperature	-40..+75°C
Non operating temp.	-55..+100°C
Humidity	90% non condensing
Vibration	sinus 20-2000 Hz - 5g, random 10-2000 Hz - 6g rms
Shocks	50g/6ms
Pressure	250-1100 mbar
Connectors	DMC

TEL410: REMOTE CONTROL (WIRED)

Commands	Power ON/OFF, record ON/OFF, TOP
Displays	Power, recording, System OK
Connectors	for IRIG B signal and Ethernet

BAT 144: BATTERY (OPTION)

Type	14 V, 4.8 Ah Lithium-ion technology
Capacity	70% after 500 cycles
Load power requirement	20-36 Vdc 40 W, 1.5 A
Load duration	3-4 hours
Temp. load	20..+60, Discharge: -20..+70°C
Size (W x H x D)	5.5 x 7.4 x 13.9 mm
Weight	0.9 kg

SACHA-SW: EMBEDDED ACQUISITION SOFTWARE

Data display software	BUSVIEW
Storage format	IRIG 106 Chapter 10, analog, digital, internal audio and busses
External video	AVI, external audio: WAV
PCM format	IRIG 106 chapter 10

STORAGE**SSD-XX: LOCAL XX GB SSD STORAGE XX = 64 / 128 GB****ESSD-CF: COMPACT FLASH ADAPTER FOR REMOVABLE MEDIA.** Also includes one audio input

ANALOG INPUTS EXTENTION BOARDS**EIBN: 24 DIFFERENTIAL ANALOG INPUTS FOR LOW VOLTAGE, POTENTIOMETER OR TEMPERATURE MEASURES**

Programmable gain	1, 2, 4.. up to 128 minor drift amplifier
Voltage input levels	From +20 mV to +2.5 V FS
PT100	Conditioning linearization, 3 wire connection
Thermocouples	Open loop detection and cold junction compensation for thermocouples J, K, T, R, S, E, PLII, with internal or external silicon
Potentiometer	Silicon sensors LM35A, 5 V energizing for acquisition
Analogue filter	4th order Butterworth low pass filter 1.5 to 22 kHz
Sampling	16 bits simultaneous, up to 200 kS/s per channel

EIHN: 16 HIGH LEVEL ISOLATED ANALOG INPUTS

Programmable gain	1, 2, 4, 8
Voltage input levels	from +5 V to +40 FS
Voltage range	Common mode +250 V (ZIN = 500 kOhms)
CMRR	90 dB from -40 to +80°C
Sampling	16 bits simultaneous, up to 40 kSample/s per channel

EIGP: 8 GENERAL PURPOSE ANALOG INPUTS: ACCELEROMETERS, STRAIN GAUGE...

Offset	Adjustable up to 100%
Programmable gain	1, 2, 4, 8, 10, 20, 40, 80, 100, 200, 400, 800 minor drift amplifier
Input level	from +6.4 mV to +5.12 V FS
Filter	Programmable 8th order elliptic progressive low pass filter CF from 10 Hz to 10 KHz
Attenuation	76 dB at CF*2.5
Sampling	16 bits simultaneous, up to 50 kSample/s per channel
Current/voltage sources	8 programmable, from 0 to 20.48 mA and 0 to 10.24 V
Sensor	Compatible with TEDS sensor technology. Open loop and short circuit detection

EISO: 4 ISOLATED ISOCHRONOUS ANALOG INPUTS

Programmable gain	1 to 2024 in 2 ⁿ
Voltage input levels	from +10m V to +10,24 V PE
Filter	Digital decimation filter 1, 4, 16, 128, low pass filter ³ 2 kHz
Isolation	System and inter channel galvanic isolation 500 V DC
Sampling	16 bits simultaneous, up to 20 kSample/s per channel

DIGITAL I/Os, COMMUNICATION AND BUSESSES**EDIO: 24 DISCRETE ISOLATED INPUT/OUTPUT**

Channels	Opto-isolated 28 V inputs/outputs and counters (6 groups of 4 channel)
Direction	Software selectable per group of 4
Input	5 – 36 V I const. 10 mA
Output	Open collector with overload over current
Protection	Overvoltage and thermal shutdown. High drive capability 40 V – 3 A
Isolation	500 V input/output and each channel

EIRS: MULTI INTERFACE CONTROLLER BOARD

Input/output	8 multi purpose multi protocol RS485 with FPGA. Suitable for serial lines, PCM and customer protocols
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EDIG: 2 DIGIBUS OR 1 REDUNDANT DIGIBUS INTERFACES

Acquisition	Full traffic: procedure, data, V bits, echoes
Time stamping	1 μ s resolution
Conformance	Short or long stub. GAM T101 (DIGIBUS) standard conformance checks

E1553: 4 REDUNDANT MIL-STD 1553 BUSES

Acquisition	Full traffic: command, status, data
Time stamping	1 μ s resolution
Conformance	MIL STD 1553 standard conformance checks

EA429: 8 ARINC 429 Rx/Tx INTERFACES

Acquisition	Full traffic, possibility of emission
Data rate	12 or 100 KHz, parity check,
Time stamping	1 μ s resolution

RELATED PRODUCT**EPAL-4: INDEPENDENT 4 VIDEO CHANNEL H264 ENCODER TO ETHERNET**

Format	MPEG-4 Part 10/AVC or Motion JPEG
Resolution	176 x 120 to 720 x 576. 176 x 120 to 1536 x 1152 in Quadra vision mode.
Image control	Configurable picture frequency and throughput
Frame rate	30/25 PAL/NTSC pictures/sec, 15 pps in Quadra-vision
Audio channels	2
Image Processing	Rotation, text insertion, motion detection
Power supply	POE or 24 VDC
Temperature	0..50°C

AIRG: GPS SYNCHRONIZED IRIG B GENERATOR

Use	Dedicated to On-board displays capture simultaneously with system parameters
Conversion	Conversion of VGA images to interlaced PAL or NTSC video
VGA resolution	from 640 x 480 to 1600 x 1200
Size (H x W x D)	231 x 143 x 56 mm
Weight	1.750 kg

COF0x: TRANSPORT AND PROTECTION BOXES

Type	Fiber boxes with internal foam for high level protection of SACHA systems
Format	Available for 3 and 6 slots versions
Size (H x D x W)	159 x 205 x 223 or 276 mm
Weight	COF03 : 1.7 kg ; COF06 : 2.5 kg

ORDERING INFORMATION

SACHA/X	SACHA version with X Slots, X= 6 and 8
SSD-XX	Local XX GB SSD storage, XX = 64 / 128 GB
ESSD-CF	Compact flash and audio adapter
BAT144	Rechargeable lithium-ion battery
EIBN	24 Differential analog inputs board
EIHN	16 High level isolated analog inputs board
EIGP	8 general purpose analog inputs board
EISO	4 Isolated analog inputs board
EDIO	24 discrete I/O
EIRS	12 isolated serial link board
EDIG	DIGIBUS GAM T101 interface board
E1553	4 redundant MIL-STD 1553 busses
EARINC	8 ARINC 429 Rx/Tx interfaces
EPAL-4	Independent 4 video channel H264 encoder to Ethernet
AIRG	GPS synchronized IRIG B generator
COF0x	Transport and protection boxes

Specifications are subject to change. Please, verify the latest specifications prior order.

Release : 14/12/16