FRONTDAQ

Data acquisition - Data Logger - Monitoring of Process

The FrontDAQ serie represents a new generation of products merging Data acquisition, Data Logger and DAQ interface for the process. management

FrontDAQ has been elected Product of the year in France for 2004 (Groupe Tests / Mesures - n°766).

Three specificities distinguish FrontDAQ:

1. Until 7700 Samples per second and per analog Input.

The FrontDAQ with 20 channels / converters is equivalent to 20 different products in a compact and portable instrument. Low and quick phenomenons can be measured in the same time with different frequencies, resolutions, start and stop conditions, types of Inputs...

2. Its ability to connect with the client Information System without the classical "constraints":

No driver, exe, DLL... to install thanks to a Web server solution, TCP/IP for data and setup transfers, Compact Flash extensions, monitoring via your applications with our XML protocol (LabView, Flexpro...), internal memory (SDRAM)... You just need an Internet Navigator and an IP Address.

3. Its capability to offer specific extensions for applications (Advanced Package Software / ASP)

as Numeric data acquisition, PWM, Patterns producers, Debit meter, incremental coders...

FrontDAQ is an ideal solution for laboratories, monitoring of process, quality assurance applications, embedded applications, on sites measurements.

KEY FEATURES

Analogic and numeric

* **20 synchronised differential analog inputs** (limited common mode). They can be used each one with :
Voltage: Standard (+/-10V), Thermocouple (type K/T/J/N/E/R/S/B) plus cold solder compensation, strain gauges.
Input types: physical or electrical values, pre-regulated sensors.
Current: 0-20 and 4-20 mA.
Resistance: RTD temperature sensors (100, 500, 1000) 2 or 4 wires, Potentiometer (0-2500 Ohms)

* **4 analog outputs, 20 TTL inputs/outputs.**

* **20 Analog to Digital Convertors (ADC)** per analog input in maximum 24 bit of resolution.

* **Cards of interface:** BNC (jack sockets), screwed, with connectors.

Software and ressources

* **Integrated Web server software** (Frontsoft) for setup, monitoring and exports (data and setup files).

* **Standard software (FNM) for the IP adress management** of the FrontDAQ.

* **Time-stamping of files and data exports** with a large range of formats (ASCII, CSV, Excel, simplified, XML..).

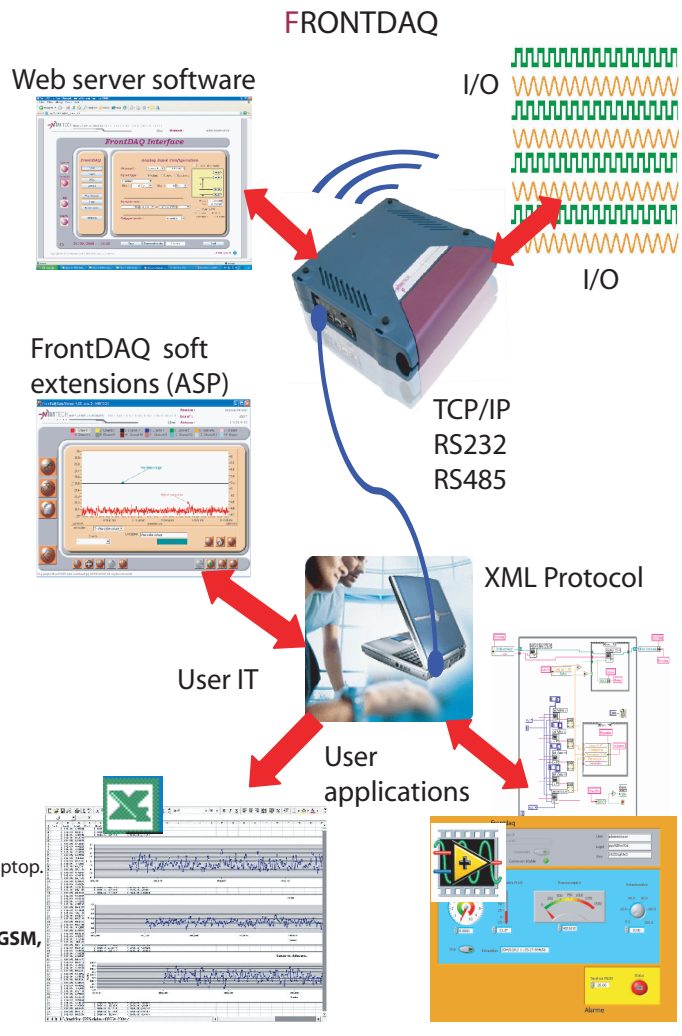
* **Internal memory (SDRAM): up to 930 KSamples per channel** (18.600.KSamples for 20 channels with 256 Mb).

* **External memory extension: Compact Flash** cards, Micro drive,...

* **Readings can be scaled and viewed in real time** on a Network Workstation or in laptop.

* **Communication: TCP/IP** (RJ45 10/100 T basis including WiFi stations...), **RS232, RS485** communication ports and **Compact flash setting for communication with GSM, GPS** extensions.

* **Standard electric power supply or portable** and rechargeable battery.



FrontDAQ System specifications

ANALOGIC INPUTS (20)	RANGE	PRECISION (50 SAMPLES / SEC BASIS)	FULL SCALE
TYPE OF INPUTS	20 differential channels		
COMMON MODE AVAILABLE SAMPLE FREQUANCY (An ADC 24 Bits per channel)	From 10 to 100 mV between channels according to the gauge.	Ranges: ±20 mV .... ±10 V Precision: ±10 µ V .... ±100µV Resolution: 100 nV .... 50 µV	
FREQUENCY (An ADC 24 Bit per channel)	Until to 7680 Sample/Sec per channel. Channels are synchronized between them.	From 13 to 18 Bit according to the sampling frequency.	
DATA TIME-STAMPING	YYYY/MM/DD/HH/mn/ss:000000		
VOLTAGE	Range 1: From ± 15mV to ± 1 V in 4 ranges. Range 2: From ± 1V to ± 10 V in 7 ranges.	<10 µV	From ± 20mV to ± 1,25 V From ± 1,25V to ± 10V
IMPEDANCE	Range 1: 100 kOhms . Range 2: 14 kOhms .		
THERMOCOUPLES J (Iron – copper / nickel) K (Nickel chromium / nickel aluminium) T (Copper – copper / nickel) N (Nickel - chromium silicon / nickel silicon) E (Nickel - chromium / Copper - nickel) Others thermocouples available with FrontDAQ : R, S, B	 from -180°C to 750°C from -180°C to 1300°C from -250°C to 400°C from -270°C to 1300°C from -40°C to 900°C	 ± 1,2°C ± 1,1°C ± 0,9°C ± 1,7°C ± 0,7°C	
STRAIN GAUGES (1/1, 1/4, 1/2)	Cf. Range of Voltage	± 100 µStr. + 5 µStr. of drift / °C.	
RTD (100, 500, 1000)	RTD100 (from -200 to 850 °C) - RTD500 (850 °C) RTD1000 (400 °C)	RTD100: ±0,01 °C - RTD 500: ±0,05 °C RTD1000: ±0,03 C	
RESISTANCE	From 35 to 2400 Ohms in 7 ranges	±0,1 Ohm	From ±38,5 to ±2500 Ohms

ANALOGIC OUTPUTS (4)			
TYPE OF OUTPUTS	0-10V / 16 Bit	0,5%	
TTL I/O (20)	"0"	"1"	
TTL in Input: Max of Current: *0,5V /+7V	0,8 V	2 V	
TTL in Output: Max of Current: *± 20mA	0,1V à 50 µA 0,36V à 8 mA	4,4V à 50 µA 3,9V à 8 mA	

TRIGGERS	
TYPES	5 types of triggers available. Their setup is non-depending of the analog input setup. Mono or multiple releases per channel
Numeric Trigger	The conditions are checked according to the frequency associated with each channel
Analogic Trigger	Channel 20 coupled with an Analogic output for a reference voltage standard
TTL I/O	Among 20 TTL I/O - Power supply provided
Counters	Among the 4 analogic outputs
Pre, PostTrigger conditions	Parameter setting independent of the triggers - defined per channel
Trigger parameters	Falling and rising edge, duration of sampling, number of samples, ...

COUNTERS Dedicated counters (shared with TTL I/O) / 4 counters 12 bit each. Connected in serie : a counter 48 bit.

CLOCK Precision: 3,85 10^{-07} (from 0°C to 50°C)

POWER SUPPLY 9-32V **POWER CONSUMPTION** 500mA per hour

OPERATING ENVIRONMENT -10°C to + 50°C

MEMORY

INTERNAL (SDRAM) Stop when full or overwrite	128 Mb: 420.000 Samples per channel 256 Mb: 930.000 Samples per channel	EXTERNAL	Compact flash cards 3,3V / 5V - Type 1, 2, 2+

DIMENSION AND WEIGHT W211,5 x D194,7 x H57 mm - 800 grams approx. **ENCLOSURE MATERIAL** ABS

ANALOG-DIGITAL CONVERSION	PROCESSOR	OPERATING SYSTEM	SERVER WEB
TYPE: Sigma-Delta RESOLUTION: from 18 bit efficient (until 150 Samples per sec and per channel) to 13 bit (7680 Samples per sec and channel)	INTEL PXA 255 - 400 MHz	Embedded Linux	Apache
COMMUNICATION	TCP/IP (SMTP, DHCP) / WiFi (802.11g) RS232, RS485 Compact flash setting in standard	Compact flash extensions for communication (with ASP option): GSM, GPS	

FILTERS ANTI-FOLDING UP AND BAND-WIDTH

Band-Width for 7680 Samples/sec: BW-3db= 2,2 KHz

Numerical Filters anti-folding up: SIN^3cardinal + FIR 22 stages adjusted with approximately 30% of the sampling rate.

SOFTWARE (STANDARD)

FrontSOFT
- Server Web soft in the FrontDAQ memory.
- Access via an Internet Navigator
- Available without driver, DLL,...).
- SetUp, monitoring, import-export data files
- Exports: ASCII, CSV, Excel, XML...
- Available for Windows, Linux, MacOS.

FrontDAQ Network Monitoring (FNM)
- TCP/IP monitoring through IP address (Network, standalone workstations).
- Available for Windows NT, 2000, XP.

XML protocol
(commands to use with clients' applications).

SOFTWARE (OPTIONS)

FrontDAQ Data Viewer (FDV)
- Tracer multicurves.
- Limited version with 1 curve and all functions in standard.
- Available for Windows NT, 2000, XP.

Advanced Program Software (ASP)
- Library of extensions for specific needs:
* PWM, Patterns producer.
* Acquisition of numeric data.
* Evoluted counters, debitmeters, incremental coders, ...
* Compact flash monitoring

ACCESSORIES
- Externable rechargeable battery (10h00 - Nimh).
- Wires: 1,5 meter (secured), for integration (extra flat).
- Cards of interface (Screw driver, BNC, connectors).
- RTD100 for Cold soldering.
- Additional power supply unit.
- Transportation box.
- Device to fix FrontDAQ in an equipment (as unit of tests...).

CONFORMITY
- CE compliant.
- Tests and calibration certificates (COFRAC external laboratory).