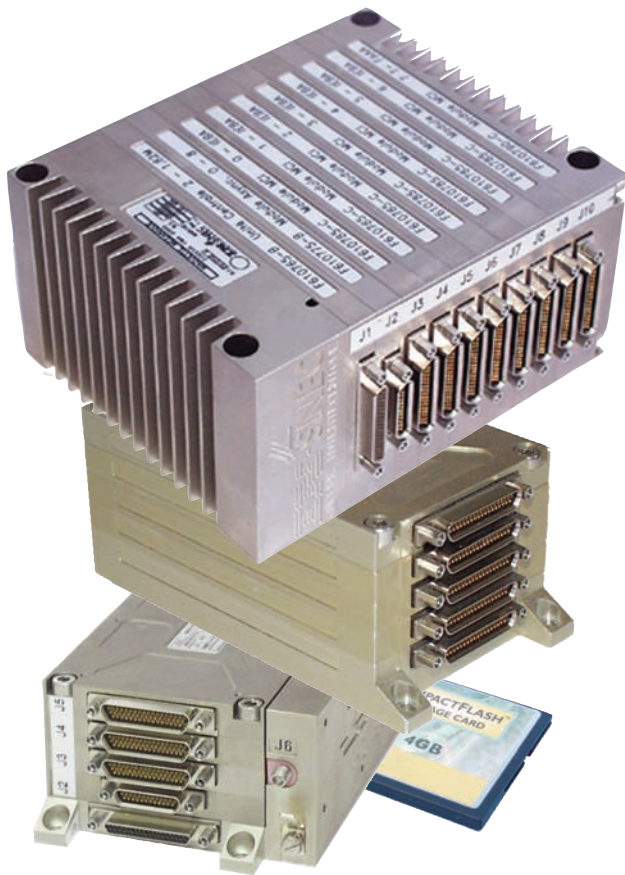


# CMA 2000 - Compact Multi-Acquisition encoder



## IN-SNEC®

The main goals of CMA 2000 are :

- To offer a high level of performance meeting the new demands of our customers
- To provide a high degree of modularity in order to satisfy a wide range of applications, and easier fitting out
- To integrate universal user programmable signal conditioning compatible with almost all sensors currently in use (piezo-electrical sensors excepted)

## 100% SUCCESSFUL MISSIONS

### Data acquisition capability

- Up to 96 analog signals, with or without conditioning, at an overall sampling rate of 500,000 samples per second
- Up to 20 discrete ON/OFF channels
- Up to 6 serial links
  - ◆ MIL-STD 1553 B bus
  - ◆ Asynchronous RS 422 or RS 485 bus (standard or high data rate)
  - ◆ Synchronous RS 422 buses
- Counter, frequency/period measurement (up to 5 channels)
- IRIG-B time acquisition
- GPS acquisition
- Compact Flash PCM storage (capacity depending of available Compact Flash in industrial grade)

### Chaining capability

- Two encoders can be chained by a high speed serial link. One encoder acts as a master and generates the PCM output. The second acts as a slave
- Up to 192 available analog channels

### PCM output user message

- The encoder generates a fully programmable PCM message, at a data bit rate up to 8 Mbits/s, according to IRIG 106-96 or CE83 standards formatted into words of between 8 and 12 data bits with an additional programmable parity bit

## ZODIAC DATA SYSTEMS

AEROSAFETY & TECHNOLOGY  
Telemetry & Telecommunications



## General specifications

### Configurations

2 mechanical configurations

#### Version 1

Highly compact, up to 4 modules over the base block (27W converter) and the CPU module

H x W x L = 4.09"x2.5"x[0.94 +0.33"xN]  
(104x63.5x[23.7 +8.4xN] mm)

#### Version 2

From 4 to 16 modules with a 55W converter

H x W x L = 4.09"x2.5"x[2.26 +0.33"xN]  
(104x63.5x[57.3 +8.4xN] mm)

(N = number of modules)

### Setup

The encoder is configured in factory, or by the user by means of a software toolkit running under Windows

### Climatic

Operating temperature -40°C +70°C

Under vacuum

Pressure 1 bar to 10<sup>-5</sup> mbar

Duration 3 to 8 hours

Temperature 20°C ±5°C

Humid heat

Temperature +35°C

Relative humidity 93% +2 /+0 %

Duration 48 hours

### Mechanical

Sinusoidal vibration

Frequency	Displacement or peak acceleration	Sweep speed
5 Hz to 16 Hz	10 mm	1/3 octave/mn
16 Hz to 60 Hz	10 g	
60 Hz to 70 Hz	22.5 g	
70 Hz to 200 Hz	22.5 g	2 octaves/ mn
200 Hz to 2000 Hz	10 g	

Random vibrations

0.45 g<sup>2</sup>/Hz at 50 Hz to 2000 Hz (effective value : 30 g)

duration : 3 mn per axis

Shock

1/2 sine 120 g with a duration of 2 ms

1/2 sine 50 g with a duration of 11 ms

Constant acceleration

100 g

### Electromagnetic

MIL STD 461D compliant

# CMA 2000

## Multi-Acquisition encoder

### Module specifications

#### Central Processing Unit

4 PCM (IRIG106 & CE83) outputs  
Two redundant pre-filtered outputs  
Code NRZ-L, RNRZ-L, Bf-L, DM-M or DM-S prog  
Output level 200 mV / 2V pp programmable  
One unfiltered and isolated bi-phase output  
One unfiltered serial RS422 output (data + clock)

Bit rate from 62.5kbits/s to 8Mbits/s

Up to 8 different switching formats supported

The CPU also includes 20 discrete ON/OFF input channels

#### Differential analog data acquisition module

16 differential voltage channels  
4 high level ranges from 0/10V or ±5V to 0/40V or ±20V  
14 low level ranges from 0/20 mV or ±10 mV to 0/5 V or ±2.5 V  
9 very low level ranges from 0/2mV or ±1mV to 0/50mV or ±25mV  
Sampling rate per channel 62.500 samples/s maximum  
Absolute accuracy +0.4 to ±1% (range dependant)  
Resolution 8, 9, 10 or 12 bits

#### Integrated signal conditioning analog data acquisition module

8 channels with independent signal conditioning type: "vibration", "temperature", "generic" (pressure or low/high voltage)

Each channel includes :

- a programmable current or voltage source configured in the factory
- a differential amplifier followed by anti-aliasing filter and analog/digital converter manufactory and user programmable
- a user-programmable digital filter

Resolution 8, 9, 10 or 12 bits

Sampling rates 62500 samples/s

Absolute accuracy vibration and generic ±0.4 to ±1% (range dependant)  
temperature ±0.2% typical

#### Digital Serial Data acquisition module

Up to 4 different sources in a single module  
2x 1553B buses and 2x asynchronous or synchronous (in option) RS422/RS485 serial buses

Up to 6 different sources in a single encoder

#### High speed serial data acquisition module

Up to 2x RS485/422 asynchronous serial link with a bit rate of 1.25 Mbps

#### IRIG-B time acquisition module

IRIG 200 standard (IRIG-B 120 LSB of 1 ms)

#### FCP on/off acquisition module

8 channels (TTL level)  
Frequency, Counter, Period individually programmable

#### Compact flash PCM storage module

ATA standard (Types 1 and 2)  
Real time PCM recorder  
Capacity according to available industrial CF cards (typically 4 Gbytes)  
Read back through an USB 2.0 local port or using a standard CF card reader

#### GPS acquisition module

Band	L1
Code	C/A
Antenna	active or passive

## ZODIAC DATA SYSTEMS

Aérodrome d'Arcachon  
33260 La Teste - FRANCE  
Tel. +33 (0)5 57 52 76 30

2 rue de Caen  
14740 Brettville l'Orgueilleuse - FRANCE  
Tel. +33 (0)2 31 29 49 49

5 avenue des Andes  
91978 Courtaboeuf - FRANCE  
Tel. +33 (0)1 69 82 78 00

3 avenue du Canada  
91966 Courtaboeuf - FRANCE  
Tel. +33 (0)1 64 86 34 00

contact\_zds-fr@zodiacaerospace.com - <http://www.zds-fr.com>

www.zds-fr.com