

# **"MYRIASEIS"\***

**Amphibious radio telemetry  
recording system**



# Table of contents

	Page		Page
<b>GENERAL DESCRIPTION</b>	2	<b>— Control VDU 68.02</b>	11
— An overview of the Myriaseis system	2	1 - Setting operating conditions	11
— Operation	3	2 - Setting spread conditions	12
		- Displaying spread conditions	12
		3 - Setting tape parameters	13
		4 - Setting camera parameters	13
		- Displaying trace on screen	14
		5 - Setting test parameters	14
		6 - Transmission control	15
		7 - Tape by-pass	15
		8 - Summing operations	15
		9 - TSU transmission diagnostic	16
		10 - Various functions	16
		11 - Indicator lights	17
<b>TSU TECHNICAL SPECIFICATIONS</b>	4	<b>— Playback VDU 68.03</b>	17
— Physical specifications	4	• Displaying field noise	17
— Electrical specifications	5	<b>— Tape transport unit 68.04</b>	18
— Radio transmission	7	<b>— Transmitter/receiver unit 68.08</b>	19
• Transmitter	7	• Transmitter	19
• Receiver	7	• Receiver	19
• Antennas	7	1 - RF spectrum analyzer	19
— Cable transmission	8	2 - Data synchronizer	19
— Power supply requirements	8	<b>— Power supply unit 68.07</b>	19
• Power supply	8	<b>— Mini-printing unit 68.09</b>	19
• TSU power consumption	8		
• Battery life	8	<b>APPENDIX</b>	20
<b>MYRIASEIS CENTRAL UNIT</b>	9	— Tape formats	20
— Physical specifications	9	— Seismic section	24
— Operating temperature range	9		

\*CGG - IFP trademark

# General description

---

## AN OVERVIEW OF THE "MYRIASEIS" SYSTEM

The "Myriaseis" telemetric seismic data acquisition system consists of telemetry station units (TSU) transmitting data by radio or cable to a central seismic data recording unit.

Special features of the system include:

- seismic signal digitized within each TSU for storage and transmission;
- one seismic channel per TSU;
- up to 10,000 channels possible;
- only two frequencies used, one for transmitting and one for receiving;
- transmission optimized by special transmitters and high sensitivity receivers;
- TSU - central recording unit transmission possible using "Bus" cable (standard twisted pair);
- combined radio and cable transmission also possible. Automatic switching of the two types of transmission at the central recording unit;
- possible summing of the seismic shots within each TSU (up to 128).



## OPERATION

Each TSU consists of:

- an analog data acquisition system for seismic data transmitted from the detector (geophone or hydrophone);
- an analog/digital conversion system;
- a digital memory to store the seismic records for the length of time of one shot;
- a microprocessor to manage the memory and all dialogue between the TSU and the central recording unit. This microprocessor also sums the successive seismic shots;
- a receiver for the various commands transmitted from the central recording unit;
- a transmitter for sending the seismic data (stored in the memory) to the central recording unit.

The general operation is the following:

- at the time break, the central recording unit transmits a general command to all the TSUs authorizing the seismic shot to be recorded in their memory. This is the WRITE command;
- the following instant (when the shot is completed), the central recording unit "reads" the contents of each TSU memory for recording on a magnetic tape transport. These are the READ commands.

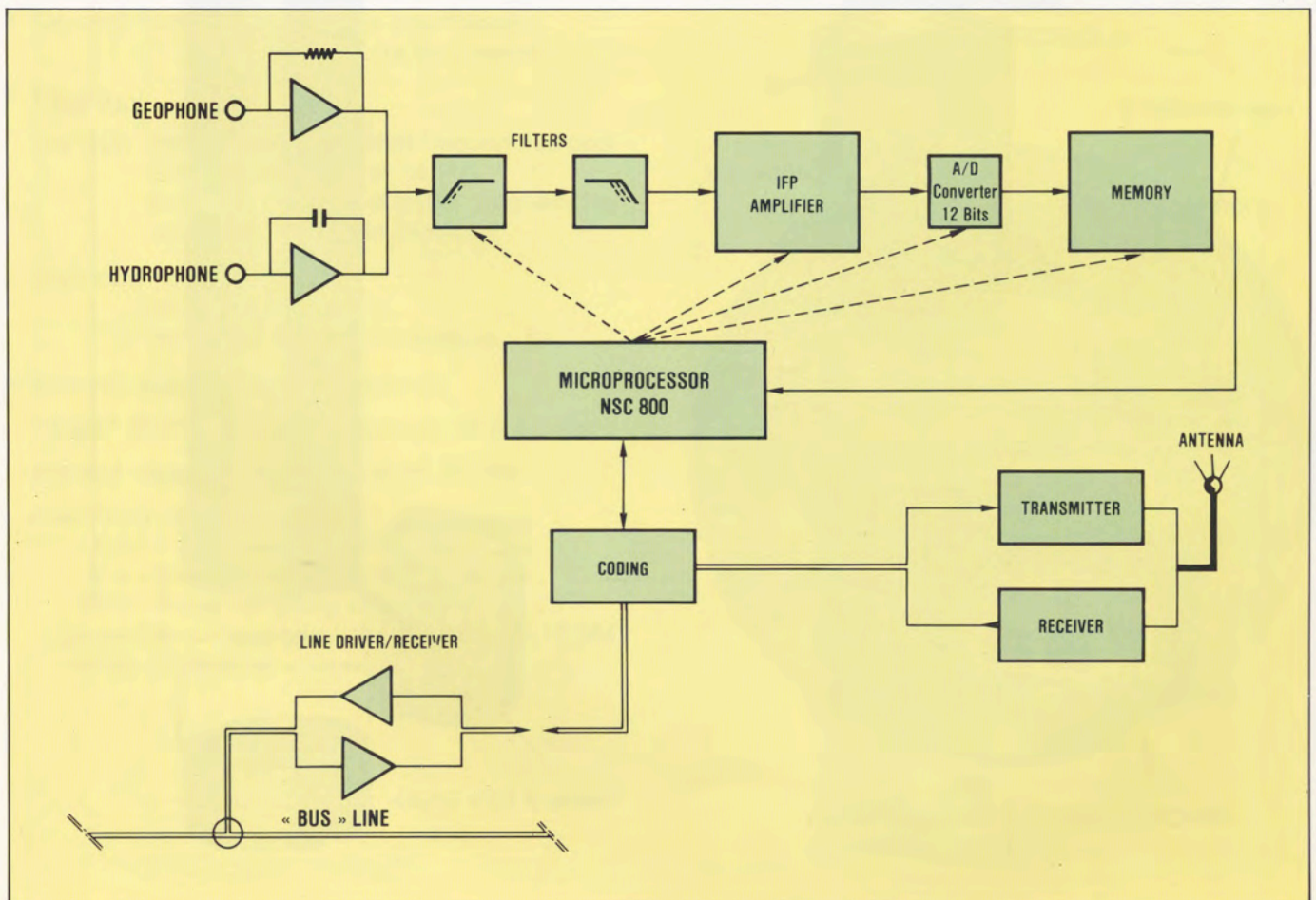
This "reading" is performed by transmitting an address number to each TSU which is recognized only by the TSU of the same number (which may also correspond to the trace number). When the TSU receiver recognizes the address, it goes from "receiving" mode to "transmitting" mode so as to be able to transmit the seismic records from its memory to the central recording unit.

To speed up memory recovery transmission, the "read" time is faster than the "write".

The "Myriaseis" central recording unit records the data on magnetic tape and checks the quality of the data.

It can communicate with the TSUs in three different modes:

- by a radio transmitter/receiver, up to 30 km according to local conditions;
- by "bus" type cable;
- by combined radio and cable.

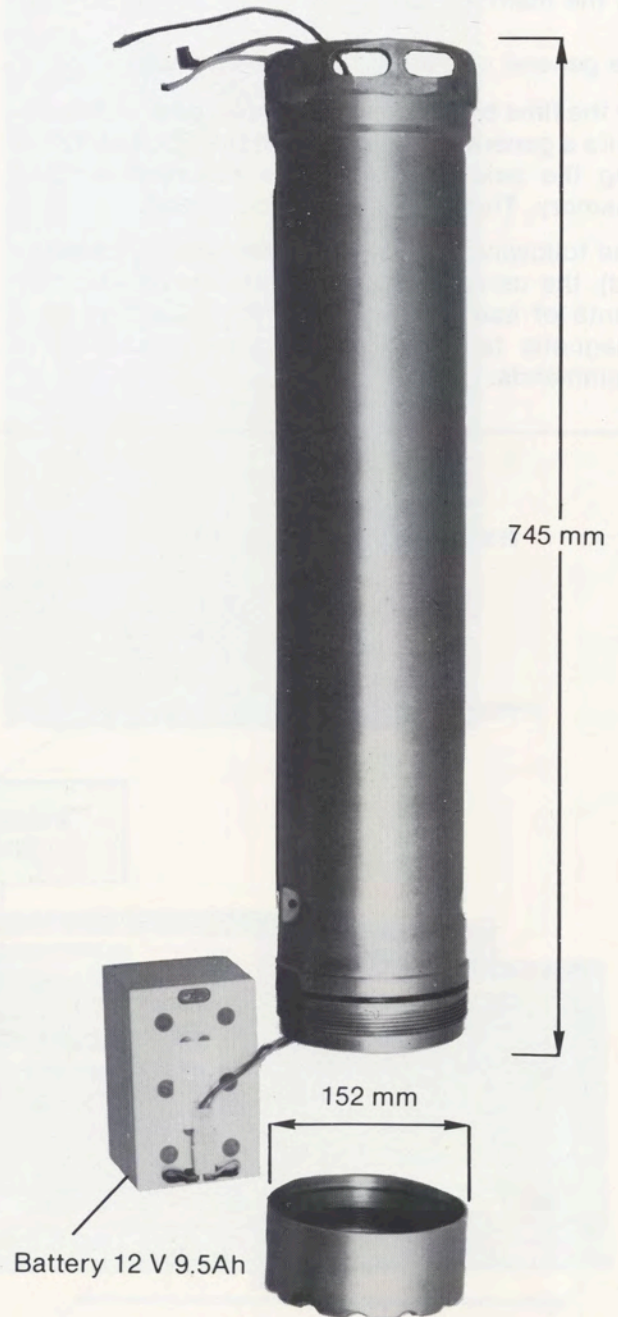
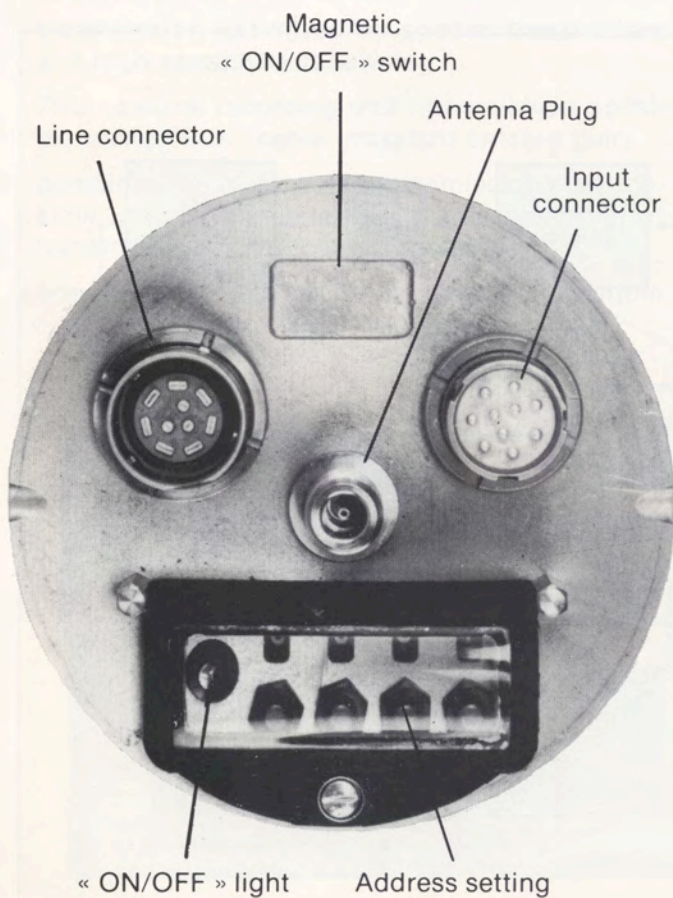


# TSU technical specifications

OPERATION

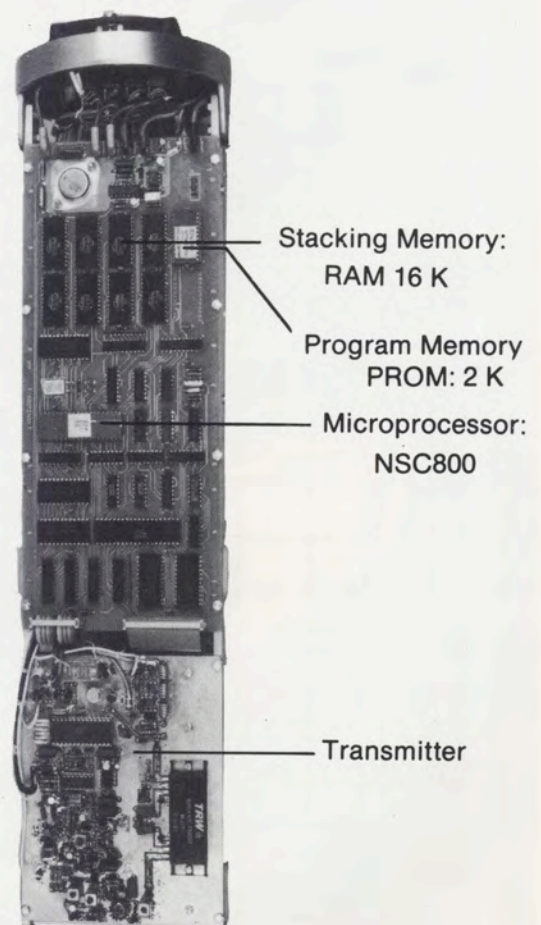
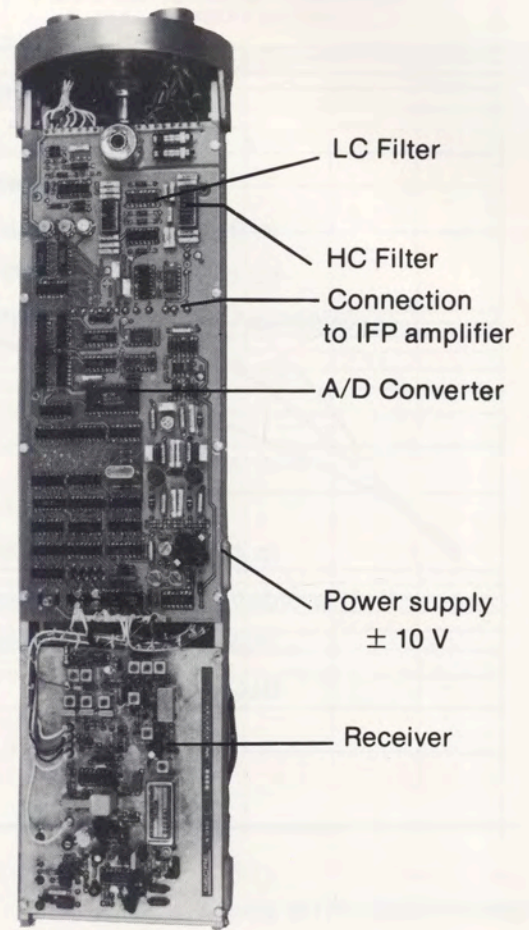
## PHYSICAL SPECIFICATIONS

- Height : 745 mm
- Diameter : 152 mm
- Weight : 10 kg
- Operating temperature range :  $- 20^{\circ}\text{C} + 60^{\circ}\text{C}$
- Storage temperature range :  $- 30^{\circ}\text{C} + 85^{\circ}\text{C}$
- Watertight : 2 bars
- Two separate compartmented sections:
  - upper compartment containing the electronic components - Internal pressure: about  $+ 0.1$  bar (dry air or nitrogen);
  - lower compartment containing the battery.



## ELECTRICAL SPECIFICATIONS

- One seismic trace per TSU
- Preamplifier for the geophone input (gain =  $2^4$ ) - Input without transformer; input impedance:  $470\text{ k}\Omega$
- Preamplifier for the hydrophone input (gain =  $2^1$ ); charge amplifier
- Sampling rate : 1, 2 or 4 ms
- Band width : 2 to 300 Hz (1 ms)
- Preamplifier gain : geophone  $2^4$   
hydrophone  $2^1$
- Input noise :  $1.2\ \mu\text{V rms}$  ( $G = 2^4$ )  
( $\leq 0.6\ \mu\text{V}$  with  $G = 2^5$  optional)
- Offset voltage input :  $0.7\ \mu\text{V}$
- Maximum input voltage :  $225\text{ mV rms}$  ( $2^4$ )  
 $1800\text{ mV rms}$  ( $2^1$ )
- Distortion :  $\leq 0.1\%$
- Accuracy :  $5.10^{-3}$
- Variable gain : thirteen 6 dB steps (78 dB)  
step accuracy :  $0.5 \cdot 10^{-3}$
- Analog/digital converter : 12 bits
- General format : 12 bits (mantissa)  
+ 4 bits (exponent)
- Filters
  - low cut: two remote controlled frequencies possible (standard 2 or 16 Hz)  
slope 18 dB/octave (other frequencies possible by plug-in module)
  - high cut: 75 - 150 - 300 Hz  
slope 54 dB/octave  
selection by plug-in module
- Seismic data storage in memory:
  - “RAM” C-MOS dynamic memory: 16 k octets  
storage capacity: 4096 words of 32 bits
  - maximum recording time:
    - 4 s - 1 ms sampling rate
    - 8 s - 2 ms sampling rate
    - 16 s - 4 ms sampling rate
 (possible expansion of the memory to 16,384 words of 32 bits)



# MYRIASEIS central unit

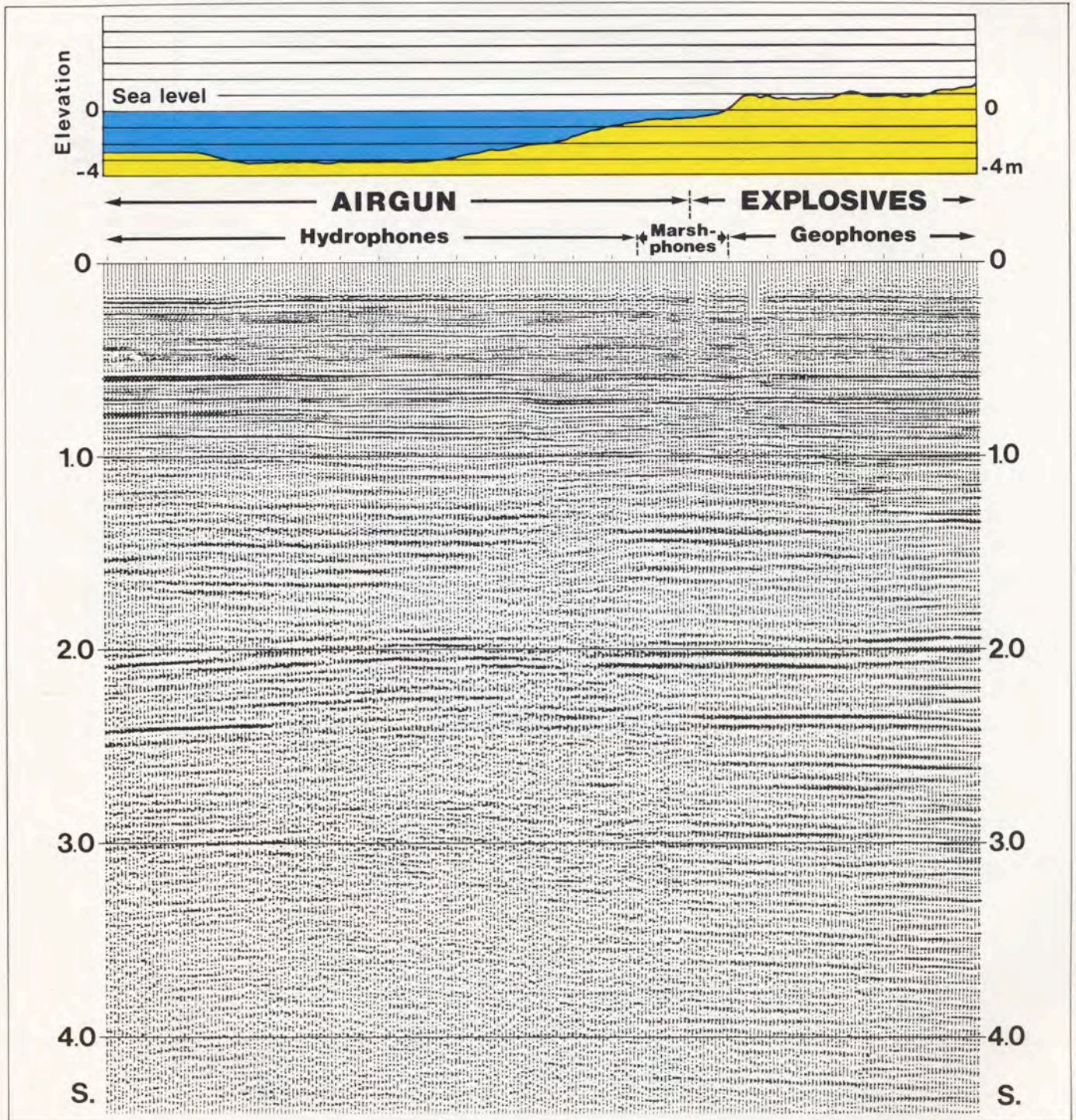
## PHYSICAL SPECIFICATIONS

Description	Reference	Size (mm)	Weight
- Control VDU	68.02	534 × 626 × 353	30 kg
- Playback VDU	68.03	534 × 626 × 356	30 kg
- Tape transport unit	68.04	534 × 537 × 497	50 kg
- Transmitter/Receiver unit	68.08	534 × 359 × 627	42 kg
- Power supply unit	68.07	515 × 420 × 510	65 kg
- Mini-printer unit	68.09	208 × 72 × 207	2.7 kg

Operating temperature range: 0 - 40°C - Non condensating.



Example of Transitional Zone Survey using MYRIASEIS







**GEOMECANIQUE**

Division de Technique Géoproduction  
212, avenue Paul Doumer  
92508 Rueil Malmaison - France

Tél : (1) 732.92.43  
Télex : 204091 F



**Compagnie Générale de Géophysique**

1, rue Léon Migaux - B.P. N° 56  
91301 Massy Cedex - France

Tél : (6) 920.84.08  
Télex : CGGEC 692442 F



**Institut Français du Pétrole**

1 et 4, avenue de Bois-Préau - B.P. N° 311  
92506 Rueil Malmaison - France

Tél : (1) 749.02.14  
Télex : IFP A 203050 F

information subject to change without notice.