

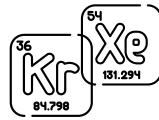


NAUSICAA 2IC

FIXED EFFLUENT GAS MONITOR



Twin ionisation chambers



Extremely sensitive detector
of noble gas interaction



Powerful and user-friendly
interface

Rugged equipment

Easy access to
serviceable components

Active volume of each
chamber: 10 l

Local visualization of
acquired data and statuses

Connectable to a host PC
through RS485 or Ethernet
connection

The **NAUSICAA 2IC** system is designed to quantify the beta activity in air or gas streams, due to the presence of tritium or other noble gases, while compensating for the gamma background.

NAUSICAA 2IC can be used in activities involving air sampling from rooms, stacks, hoods, or other effluent passages, process piping, glove boxes, and similar.

NAUSICAA 2IC is composed of:

- two identical, cylindrical, 10 litres, stainless-steel ion chambers
- a pneumatic sampling system
- an electrometer to amplify and manage the (typically very weak) ionisation current
- a local control unit with display and software

The air to be monitored is sampled inside the upper chamber, while the lower one is sealed and filled with clean air (reference gas). The ionization occurring in the upper chamber is due to both environmental gamma background and beta contamination of the sampled air, whereas inside the lower chambers only gamma background is detected. The two chambers are provided with an opposite-polarity HV. This way, the resulting output current is actually the difference of the two single outputs, i.e. the net beta contamination of the sampled air, expressed in activity concentration. An accessory equipment for filtering and drying the sampled air helps limiting as much as possible any spurious signals.

The NAUSICAA 2IC control unit manages the data acquisition, processing and visualization. The user interacts locally with the system through the touch-screen display, setting up the system parameters and reading the measurement results. A built-in acoustic and luminous alarm column provides proper warnings in case of alarm or malfunctioning.

NAUSICAA 2IC can be connected to a remote host PC through RS485 or ETH connection. The host PC could then be used to remotely visualize the measurement data.

With a 600 V value each camera can generate currents up to 10^{-8} A, with a saturation error < 20%.

TECHNICAL SPECIFICATIONS

General characteristics

- Overall dimensions: rack 33U 19"
- Total weight: approx. 150 kg
- Wheeled aluminium frame

Measurement performances

- Meas. range (H-3): $37 \text{ kBq/m}^3 \div 370 \text{ GBq/m}^3$
- Sensitivity:
 - Kr-85: 2.0 pA/MBq/m^3
 - H-3: 0.3 pA/MBq/m^3
 - Xe-133: 4.0 pA/MBq/m^3
- Gamma sensitivity: $10^{-13} \text{ A}/(\mu\text{Sv/h})$

Electrical characteristics

- Power supply: 230 VAC 50 Hz
- Consumption: 1.5 kW (typical, pump included)
- Temperature range: $0 \div 40 \text{ }^\circ\text{C}$



Twin 10 l ion chambers

Detection unit

- Type: 2 identical 10 l ion chambers
- Material: AISI 316 stainless steel
- Dimensions (ØxH) = 30 x 85 cm
- Total measurement unit weight: 21 kg
- Shock/vibration absorbing supports
- Heating bands

Pneumatic sampling system

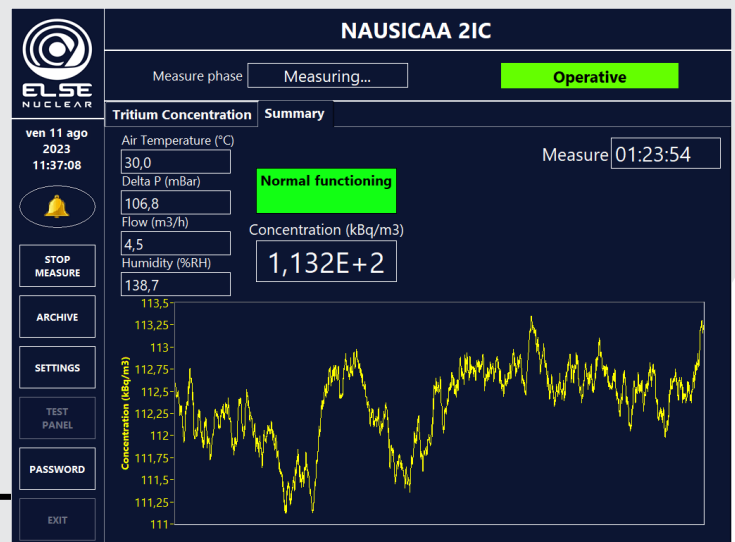
- High efficiency HEPA filter
- Typical flow rate: 40 l/min
- Pump: low-noise, long-life continuous duty, oil-less diaphragm vacuum pump

Acquisition and control unit

- Alarm system: user-settable alarm set-points with two levels (pre-alarm and alarm)
- Visual LED indicators: green (normal), yellow (pre-alarm) and red (alarm)
- Acoustic indicator: high power ($\geq 90 \text{ dB}$ at 1 m) for alarm
- External connections: Ethernet, USB, RS-485 available on connectors
- USB, ETH/RS485 (Modbus protocol) available

ACCESSORIES AVAILABLE UPON REQUEST

- Stainless steel free-standing frame
- Warranty extension from 12 months to 24 months



NAUSICAA 2IC user interface

