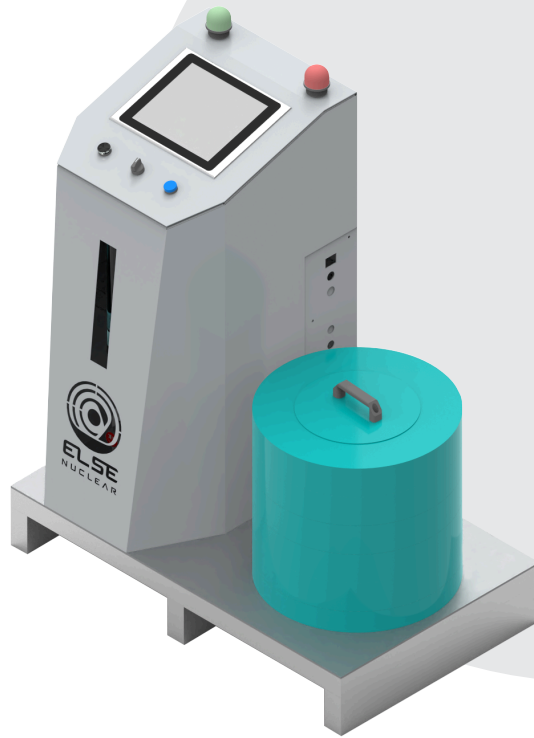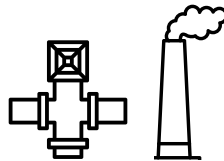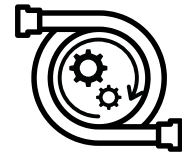# MISTRAL XM

AIR ACTIVATION MONITORING SYSTEM

Extremely high sensitivity

Rooms and stack monitoring

Fully configurable work cycle

Lead well for 3 l Marinelli geometry

Detector: NaI(Tl) 2"x2" scintillator with MCA

Electrovalves for automatic sampling of up to 5 rooms

Acquisition/processing SW, display of energy spectra

Relays for external devices

MDA (F-18): < 1 Bq/l (300 s)

MISTRAL XM is a system designed to sample and monitor the gamma activity concentration resulting from air activation, in Marinelli geometry.

In particular, **MISTRAL XM Rooms** is designed for free air monitoring, whereas **MISTRAL XM Stack** is used to monitor the air expelled from a chimney or a stack. In both cases, "X" indicates the number of sampling points: up to 5 (Rooms) or 1 (Stack).

The system is composed of:

- acquisition and processing unit: APU
- sampling and detection unit: SDU-XM

The APU is the main user interface with the system, and it consists in a command and control console including: a panel PC, the system electronics, a control flow meter for the pump, and an array of electrovalves (if needed). The SDU-XM includes the NaI(Tl) detector with MCA, a lead shielding well, and a pump for air sampling. The system also manages the expulsion of the monitored air.

The Stack version includes a flow rate meter (STACK-DFM), to calculate the specific activity of the expelled air volume.

The software installed on the PC displays in real time the measurement, controls the system status, and allows to set the operative parameters, such as the alarm thresholds. The user can define specific regions of interest (ROIs) and thus determine the specific activity (Bq/g) of the sampled air.

TECHNICAL SPECIFICATIONS

General
- Overall dimensions (WxHxD): 100 x 120 x 60 cm
- Total weight: less than 750 kg
- Material: stainless steel AISI 304

Sampling and detection unit
- Detector: 2"x2" NaI(Tl)
- MDA (F-18): < 1 Bq/l in 5 min measurement
- Energy range: 30 keV ÷ 2 MeV
- Temperature range: 0 - 40 °C
- Geometry: 3 liters Marinelli beaker
- Shielding: lead well, 100 mm thick

Acquisition and processing unit
- 12" panel PC
- Status indicators, main switch and connectors
- Alternative remote APU: wheeled support, 19" PC, 60 x 170 x 60 cm, approx. 80 kg
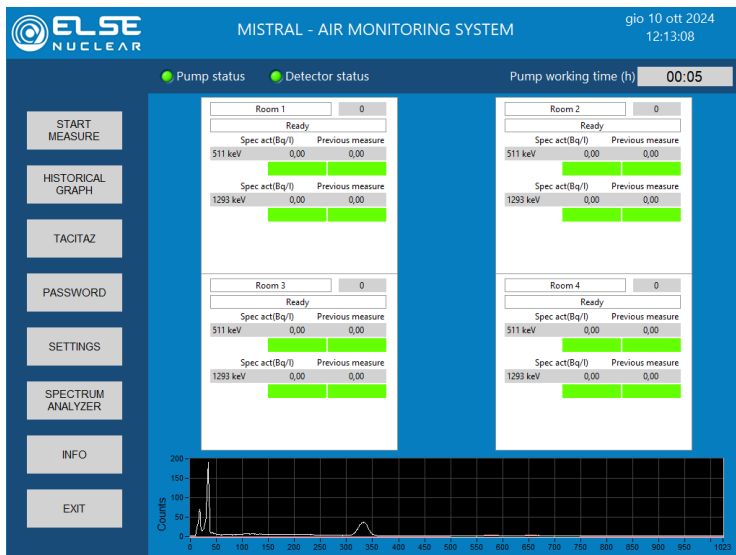
I/O management board
- Type of relay outputs: N.C. / N.O.
- 16 input/output available

Acquisition, processing and display software
- Data acquisition every second
- Data archiving
- Operative and calibration parameters set-up
- Good functioning and alarm signals management
- Data display in alphanumeric and graphic form
- Display of the gamma spectrum

Air sampling pump (typical)
- Flow rate: 16 m³/h (nominal)
- Protection grade: IP 54

MISTRAL 4M Rooms software example

Remote APU version example

OPTIONS
- $LaBr_3 (Ce^{3+})$ scintillator instead of NaI(Tl), for higher sensitivity and better gamma spectrum resolution
- Alternative version with remote APU

ACCESSORIES AVAILABLE UPON REQUEST
- Warranty extension from 12 months to 24 months