MAB-23 Mobile Particulate Monitor

The MAB-23 monitor is designed for operative monitoring of the area with the possible occurrence of beta particulates. It measures the activity of the particulates on the filter and recalculates it to air volume activity.

The monitor allows the rapid examination of the radiation situation, typically before the start of temporary works.

Purpose

The MAB-23 monitor is designed for operative monitoring of the area with the possible occurrence of beta particulates. The monitor measures the beta activity of the particulates collected on the filter and recalculates the measured values to air volume activity.

The monitor allows the rapid examination of the radiation situation, typically before the start of temporary works such as repairs. It is used at nuclear power plants, in research institutes, etc.

Description

The MAB-23 monitor is designed as a mobile device intended for indoor operation. The device remains stationary while it is being operated; it is positioned vertically.

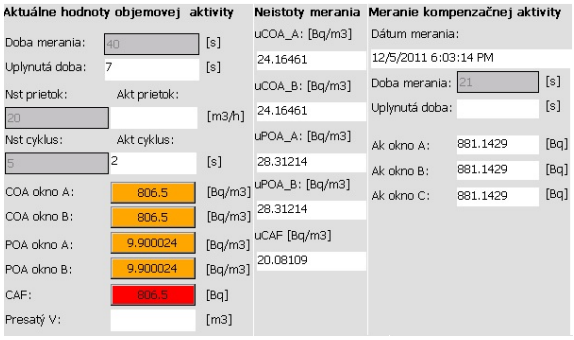
The following primary parts are mounted on the supporting frame fitted with transport wheels:

- Measuring block containing a circular detector and filter. The detector is located close to the filter and measures the beta activity of the filter.
- Display and control unit with a touch-screen display and LED indicator lamps. The unit contains, inter alia, a multichannel analyser MCA-1000, which is intended for the processing of detector signals.
- VOPV-12 air sampler with controlled airflow and conversion to standard airflow (taking account of temperature and pressure)
- Case for auxiliary tools, jigs and other accessories

The FPM 1515 filter cloth is used by default. The filter cloth is replaced, in particular, when it is too contaminated – high background measured, or fouled – high pressure drop measured on the filter.

Main Advantages

- Device optimized for the detection of beta particulates in air
- Mobile device intended for the rapid operative examination of radiation situation
- Controlled airflow allowing conversion to volume activity
- Readily accessible parts for maintenance purposes
- Results recording in local archive
- Local data display and unit control and/or optionally a part of a larger monitoring system



Control screen
- set points and measured values

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Description

The particular measurement (campaign) takes place for a certain period of time. Activity increment on the filter, through which the measured air is sampled, is evaluated. The airflow, sampling time, partial measurement interval, etc., are defined on the control touch screen for the measuring campaign.

The MAB-23 monitor measures the "background" pulses (filter activity) and counts the compensating activity before starting the campaign.

The current settings are shown on the display and the ongoing measurement values are dynamically displayed.

By means of motor speed variation, the air sampler allows the maintenance of the required constant airflow, even in changed sampling conditions, typically in gradual filter fouling.

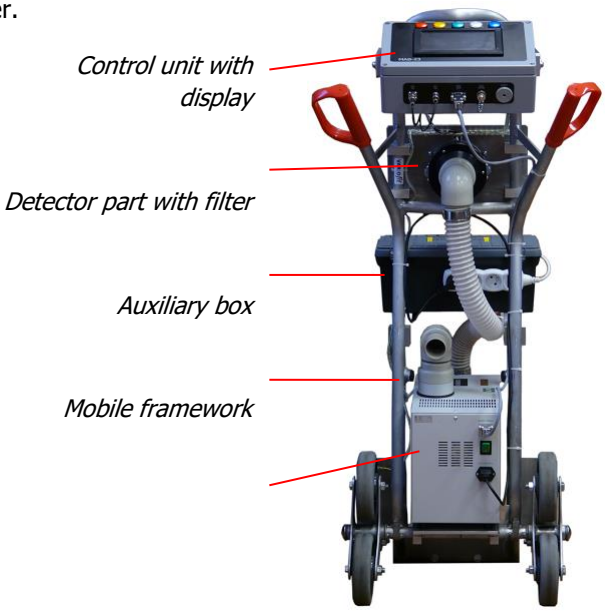
The final count rate is directly proportional to the volume activity of the sampled air and inversely proportional to the sampled volume.

Two energy windows (the so-called "ROI" - Range Of Interest) can be set on the MCA and the results can be retrieved separately for each window.

Two alarm levels can be defined for the total measured activity as well as partial increments; the device indicates the exceeding of these levels on the display by indicator lamps, acoustic (siren) alarm, and optionally by output signal.

For each campaign, the total volume activity, volume activity increment and measurement uncertainty are calculated in addition to the measurement parameters (sampled volume, sampling time, filter activity, etc.). These values are saved in the memory for each individual campaign and the results can be displayed.

The monitor can also be optionally connected to the host monitoring system, thus transmitting information on the device state and the measurement results. The obtained values can be archived and processed further.



Specification

Detector	3" plastic scintillation
Measuring range	1 ÷ 100 000 Bq (27 pCi ÷ 2.7 µCi)
Energy range	300 keV ÷ 2.5 MeV
Filtration material	FPM 1515, Ø 100 mm (4 in)
Retention efficiency	99 %
Pressure drop, max.	10 kPa (75 mmHg)
Flow rate	20 ÷ 50 m^3/h (11.8 ÷ 59.4 cfm)
Medium temperature	+5 ÷ 35 °C (41 ÷ 95 °F)
Communication interface	RS-485
Display and Control	7" TFT display, signal LED lights (5 pcs)
Weight	approx. 42 kg (92.5 lb)
Dimensions (W x H x D)	650 x 1350 x 700 mm (25½ x 53¼ x 27½ in)
Power supply	230 V AC

Models and Accessories

Type	Description
K0347	MAB-23 Mobile Particulate Monitor
Optional Equipment	
▪ software for communication to the host system	
Consumables	
K0022-05	FPM 1515 Filtration Cloth Ø 100 mm (4 in)
Related Products	
K1385	CPM-300 Continuous Particulate Monitor
K1032	CPM-310 Continuous Particulate Monitor
K0215	VOPV-12 Digital High-volume Air Sampler
K0547	VOPV-10 Digital High-volume Air Sampler

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