

High Volume Aerosol Sampling Unit

The most important task of an air monitoring system is to give an alarm signal in the shortest time possible, when the radioactivity in the monitored area exceeds the natural level. Resulting from nuclear accidents or explosions, artificial radionuclides of various elements can be released into the atmosphere. The most mobile ones are the noble gases (Xe, Kr) and volatile elements (I, Cs and some others). Warning levels can be established on either the measurement of external dose rate, primarily due to gamma-radiation from a radioactive plume ("skyshine radiation") or from contaminated ground surface or on the measurement of radiocontamination adhered to floating aerosol particulates. In special cases, the first warning signal may also be based on monitoring radioactivity of surface waters.

As aerosol filters coupled to air pumps are capable of accumulating particles from large volumes of air onto a small surface, their radioactive content can be determined with good measuring efficiency thus allowing advantageously low detection and warning levels. The ASU contains two consecutive static filters, the first one is for aerosol particles and the second filter is for molecular iodine.

The primary function of the ASU is sampling air through filters and measuring the activity of the retained aerosols. The unit sends Warning and Alarm messages, when the activity exceeds predefined levels.

Description

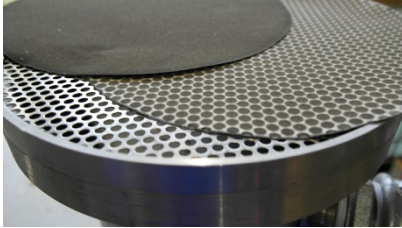
This High Volume Aerosol Sampling unit placed in a 19" rack without an air-conditioned container, only placed in a free-air sunshine-radiation protected, thermo-isolated box.

Use the equipment in the same area from where the aerosol is collected. This avoids condensation of humidity. Optionally a meteorology station connectable to the system.



1. Data logger
2. Control Elements (Key lock, Reset Button)
3. Router
4. Filter Holder
5. Gamma Probe
6. Frequency Controller
7. Flowmeter
8. Pump
9. On top without number: weather station

Technical data



Nominal volume flow rate q_n regulated:
7 days nonstop working*

Maximal Aerosol binding capability:

Aerosol filter: fibreglass

atomic iodine filter: PACI

organics iodine filter: charcoal

Accuracy of measuring of air volume:

Efficiency of retention aerosol filter:

Efficiency of retention of atomic iodine filter:

Efficiency of retention of organic iodine filter:

Side channel blowers:

Noise level from 6 m:

Basic area (with socket):

Height (without weather station):

ASU 120

100 m³/h+/-2% regulated

1100 [mg]

Ø 240 [mm]

Ø 240 [mm]

da158xdi95x h78[mm]

± 2 %

0,3 µm; 99.8 %

99.9 %

90.0 %

max. 2,05 kW; 230V; 50Hz

56 dBA

1000 x 1000 mm

~220 cm (~195 cm)

ASU 200

150 m³/h+/-2%

1100 [mg]

Ø 240 [mm]

Ø 240 [mm]

da158xdi95x h78[mm]

± 2 %

0,3 µm; 99.8 %

99.9 %

90.0 %

max. 4,8 kW; 400V; 50Hz

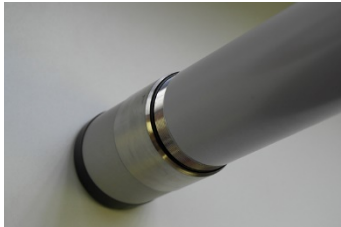
60 dBA

1000 x 1000 mm

~220 cm (~195 cm)

* normal environmental conditions

Technical modifications are subject to change



2" NaI detector

GSP02/232

2" x 2"

10⁻² ÷ 10⁴ Bq/m³

30 keV ÷ 3 MeV

< 7% FWHM at Cs-137

1024 channel

-30°C ÷ +60°C

RS-232

3" NaI detector

GSP02/232

3" x 3"

10⁻² ÷ 10⁴ Bq/m³

30 keV ÷ 3 MeV

< 7% FWHM at Cs-137

1024 channel

-30°C ÷ +60°C

RS-232

Technical modifications are subject to change

V.3.0

Orderable types:

ASU_HV-C-X-W i.e.: ASU 120-2-X-W (sampler with pump 120 m³, 2" detector, rack and weather station)

HV: 120...120 m³/h max. flow rate

200...200 m³/h max. flow rate

C: 2...2" NaI-detector

3...3" NaI-detector

X: O...without rack

W: W...with weather station