



VF NUCLEAR



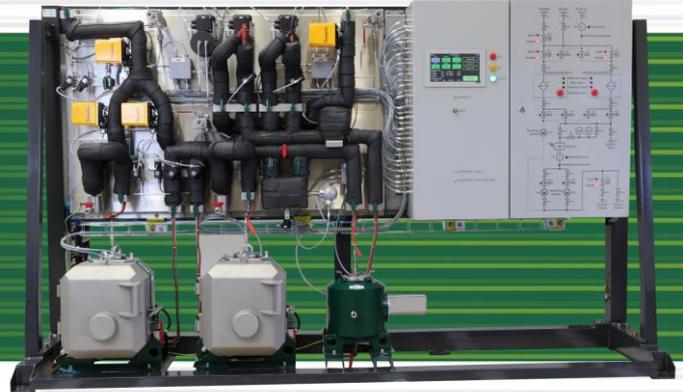
NUCLEAR  
POWER PLANTS



RESEARCH  
CENTRES

## GEMS-401

# GASSEOUS EFFLUENT MONITORING AND SAMPLING SYSTEM



### MAIN ADVANTAGES

- Simultaneous measurement of radioactive noble gases and sampling of particulates and iodine
- Seismic-resistant design
- Operation after the LOCA accident
- Classified as category C according to EN 61226
- Measurement of the dose rate from the particulates and iodine filters
- Safe transport and evaluation of the filters
- Local and remote control and display

### PURPOSE

The GEMS-401 system is designed for measurement of noble gases and sampling of particulates and iodine after the LOCA accidents. The air sample is taken from the containment of nuclear facilities.

The main components are:

- heated stainless steel routes with valves to distribute the measured air,
- two parallel shielded chambers for sampling particulates and iodine (each chamber is equipped with a particulate filter and an iodine cartridge), including dose rate detectors,
- the NGD-14 detector for measuring the volume activity of radioactive noble gases,
- redundant pumps,
- a purge system with a separate pump,
- a processing and display unit with 10 "touch screen,
- a steel frame, ensuring seismic resistance of the system.

Optionally, a trolley for transporting particulate and iodine filters removed from the sample chambers as well as a filter manipulator can be ordered with the system.

The system frame can be dismantled to facilitate transport and installation of the equipment.

SDG-04 dose rate detectors, in the sample chambers, ensure that the maximum deposited activity on the filter does not exceed 1.1E12 Bq. They allow safe handling of filters.

The device is equipped with a system of self-diagnostics of important parts. SDG-04 self-diagnostics is performed by <sup>137</sup>Cs radionuclide control sources. NGD-14 self-diagnostics are provided by a control LED.

The monitor communicates with the host system via the RS-422/485 interface. It can communicate simultaneously with the classified host system and separately send data to a non-classified system.



Display of the processing unit

GEMS-401

# GASSEOUS EFFLUENT MONITORING AND SAMPLING SYSTEM

## SPECIFICATIONS

Dimensions (w × h × d)	2500 × 2000 × 800 mm
Weight	1500 kg
Temperature of measured air mass	max. 90 °C
Temperature of sampling line heating	approx. 95 °C
Pressure of measured air mass	max. 110 kPa
Max. deposited activity on the filter	1,1E12 Bq
Classification according to EN 61226:2011	C
Ingress Protection	IP 40
Power supply	195 - 265 V AC / 47 - 53 Hz
Interface	RS-422

## OPTIONAL ACCESSORIES

<b>ASU-50</b>	Alarm Slave Unit
	Cart for transporting contaminated filters
	Manipulator for contaminated filters

## RELATED PRODUCTS

<b>GEMS-700</b>	Gaseous Effluent Monitoring and Sampling System
<b>CPM-300</b>	Continuous Particulate Monitor
<b>CIM-303</b>	Continuous Iodine Monitor
<b>NGM-30x</b>	Noble Gas Monitors

## MEASURING PARAMETERS

	NGD-14	SDG-04
Measuring rang	from 3,2E08 to 4,8E16 Bq/m <sup>3</sup>	from 1,0E-07 to 2,0E00 Gy/h
Reference radionuclide	<sup>133</sup> Xe	<sup>137</sup> Cs
Lead shielding [cm]	10	-



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Specification subject to change without prior written notice..

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