



VF NUCLEAR

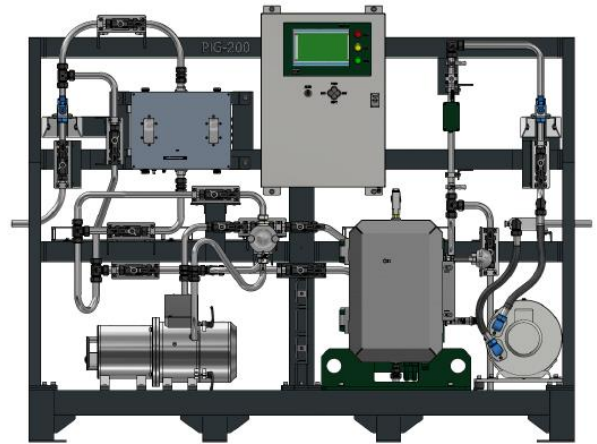


NUCLEAR
POWER PLANTS



RESEARCH
CENTRES

PIG-200 PARTICULATE, IODINE AND NOBLE GAS MONITOR



MAIN ADVANTAGES

- Continuous simultaneous monitoring of ionizing radiation due to airborne particulates, iodine and noble gases
- Determination of total activities released through the ventilation stack
- Local control and display of the measured values and monitor status
- Remote control and display

PURPOSE

The PIG-200 is designed for continuous measurement of volumetric activities of radioactive particulates, iodine and noble gases in the air during routine operation.

It can be used for monitoring of concentrations of radioactive particulates, iodine and noble gases in the sampled air from working environment in nuclear facilities and also for determination of total activities released through the ventilation stack.

The monitor consists of the following components:

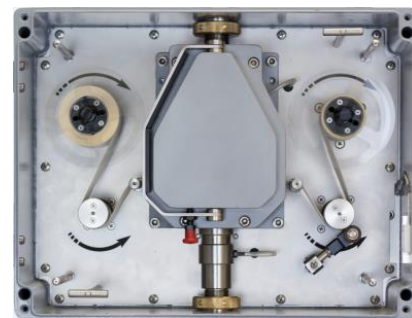
- CPD-14 Continuous Particulate Detector
- CID-03 Continuous Iodine Detector
- NGD-11 Continuous Noble Gas Detector
- Differential pressure flow meter
- Asynchronous air pump
- RPU-12 Processing and Display Unit

All components are mounted on a skid, which can be dismantled into smaller pieces. This feature facilitates, in case of need, its transport and installation in limited spaces.

The monitor draws sampling air through the inlet pipe, which then passes through the CPD-14 particulate detector, where the aerosols are trapped on a moving filter tape. Subsequently, the air passes through the CID-03 iodine detector, which captures radioactive iodine in an iodine cartridge. Finally, the sampled air passes to the measurement chamber of the NGD-11 Noble Gas Detector. GMF-10 flowmeter is located downstream of the detectors. Air flow is corrected to reference temperature and pressure. Anti-vibration mountings are used on the pump.

Air flow values, calculated aerosol activities, iodine and noble gases activities, and monitor status are displayed by the RPU-12 processing unit using its integrated graphic display and LED indications. The RPU-12 also automatically archives the measured values into the local archive and enables its transfer to a host system.

Automated auto-diagnostic features are used in the monitor.



CPD-14 Continuous Particulate Detector

TYPICAL RADIOMETRIC PARAMETERS

Detector	CPD-14	CID-03	NGD-11
Measuring range [Bq/m ³]			
Particulates α (²⁴¹ Am)	5E-2 to 3.9E5		
Particulates β (²⁰⁴ Tl)	0.5 to 5.0E5		
Iodine γ (¹³¹ I)		3.5 to 4.0E6	
Noble gases β (¹³³ Xe)			1.3E3 to 1.1E10
Noble gases β (⁸⁵ Kr)			5.9E2 to 5.2E9

SPECIFICATION

Detector	
CPD-14	Semiconductor (Si)
CID-03	scintillator NaI(Tl)
NGD-11	plastic scintillator
Filter	
CPD-14	moving filter tape LSF-2
CID-03	iodine cartridge TC-45
NGD-11	measurement chamber
Flow rate	Max. 50 l/min
Dimensions (W × H × D)	(2,200 × 1,720 × 680) mm
Weight	1,400 kg
Interface	RS-485/422, TCP Ethernet, current loop 4-20 mA
Temperature range	5 to 60 °C
Temperature of measured air	5 to 60 °C
Ingress protection	IP40

RELATED PRODUCTS

CPD-14	Continuous Particulate Detector
CID-03	Continuous Iodine Detector
NGD-11	Continuous Noble Gas Detector
PIM-301E	Particulate and Iodine Monitor
GEMS-401E	Gaseous Effluents Monitoring and Sampling System for post-accident operation
GEMS-700	Gaseous Effluents Monitoring and Sampling System for routine and post-accident operation
NGM-2000	Noble Gas Monitor with an HPGe detector



CID-03 Continuous Iodine Detector