

Thermo Scientific FHT 1700

Monitors and warns of gaseous iodine-131 in ambient air or stack gas

The Thermo Scientific™ FHT 1700 Iodine Monitor is designed to monitor gaseous iodine-131 in ambient air of effluent gas. It boasts excellent selectivity against other iodine isotopes or interfering noble gases.

Key Features and Benefits:

- Excellent selectivity against other iodine isotopes or interfering noble gases
- Measuring range for iodine concentration 1Bq/h/m^3 to $0.5 \times 106\text{Bq/h/m}^3$
- Detector assembly comprising Marinelli beaker with iodine adsorbent and NaI(Tl) scintillation detector
- Omnidirectional shielding of detector including the iodine cartridge
- Air flow app. $5\text{ m}^3/\text{h}$; low noise maintenance free gas ring vacuum pump
- Easy system integration via RS232 serial interface and compact 19" design, LAN coupling available
- Measuring electronics FHT 681 operable under Windows with PC



The Thermo Scientific™ FHT 1700 Iodine Monitor is applied for automatic monitoring and early warning of I-131 in ambient air or stack gas.

The detector system is fitted with a NaI scintillation detector having a crystal size of $1.5" \times 2.75"$. The detector is located inside the adsorber cartridge and is embedded in the filter granules head-on and side-on.

The sample air flow is taken in through the lid of the cartridge. The dead volume on top of the adsorber cartridge is minimized to eliminate cross sensitivity against noble gas. Then, the sample air flows through the iodine filter passing the adsorber material. Hereby the iodine is accumulated by the adsorber material.

Having left the iodine filter the sample air flows along the detector and is let out sideways.

The measuring channel FHT 681 is applied as evaluation electronics. It comprises all necessary boards for the detector supply and the evaluation of the measured values. The results are displayed in units of Bq/m^3 .

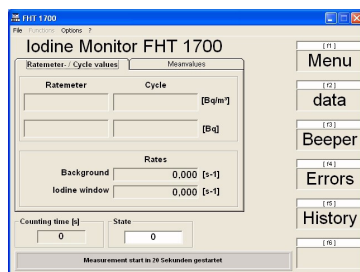
FHT 1700 System components

- NaI-scintillation detector with lead shielding
- Pumping unit with air flow
- Iodine cartridge in Marinelli beaker geometry
- Aerosol pre-filter
- Heating of sample air intake
- Measuring channel FHT 681
- 19"-cabinet for all components

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The FHT 681 includes all functions and programs relevant for the operation of the monitor. Hereby the full functionality of the monitor is established in stand-alone as well as in network operation.

FHT 1700 Main Screen: Iodine Monitor



Specifications

Technical data FHT 1700 Iodine Monitor

Measuring unit

Dimensions	Width	600 mm
	Depth	800 mm
	Height	1600 mm
Weight	Approx. 310 kg	
Power supply	1AC, 253V, AC, 50 Hz	
Power consumption	2400 VA	
Ambient and operation temperature	+ 15 °C ... + 30 °C	
Permitted temp. gradient	Max: 15 K/h	
Sampled air intake temperature	Min. -5 °C ... Max. +45 °C	
Barometric pressure	850 hPa ... 1100 hPa	
Rel. Ambient humidity	10 % ... 80 %, non-condensation	
Pump	Air flow rate: 5 m³/h	
	230V AC, 50 Hz, power consumption 2.1 kW	

Radiological data FHT 1700 Iodine Monitor

Detector	Nal (T1) scintillation detector
Cabinet	19 inch
Crystal size detector	1.5 x 2.75 inch
Measuring range Iodine	0.5 Bq/m³ ... 2.0 x 10⁴ Bq/m³
Background	1.5 cps
Minimum detectable activity concentration	Iodine (¹³¹ I): 0.5 Bq/m³, sampling time = 30 min. reference time = 120 min, Air flow > 5 m³/h, ambient approx. 100 nSv/h
Cross-sensitivity	5 µSv / h for ¹³⁷ Cs
Efficiency	4 ± 1% related to ¹³¹ I
Shielding type	Omni directional lead shielding (50 mm)

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