

TRANSPORTABLE TRITIUM IN AIR MONITOR CMS H35L-P

The CMS-H35L-P is a rugged and robust monitor for measuring airborne Tritium concentration within nuclear facilities. The instrument, which marries the proven, ratemeter algorithms of the CMS range with high sensitivity ion chamber detection technology, offers the user distinct measurement, operational and alarm response benefits



The CMS-H35L-P is a compact lightweight device that consists of detection system, amplifier and processing electronics in a rugged transportable enclosure. The system, designed for routine and non-routine sampling of the workplace, possesses a top mounted display, which provides the user with an instantaneous readout of tritium concentration in air. Alarm and failure events are indicated via audible-visual indicators and a keypad, set in the top panel, allows the user to access working parameters and review the history buffer / event log on the display.

The CMS-H35L-P uses a detection system consisting of two matched, two litre ion chambers. In operation, sample air is routed through the sample chamber and out through the exhaust outlet.. The second chamber is sealed and measures gamma background interference. Full background compensation is facilitated by subtracting the current output of the sealed background chamber from the sample chamber

Fast response CMS firmware, using a unique dynamic time constant, guarantees low detectable concentrations with an unprecedented speed to alarm. During normal conditions a long time constant is used to achieve a stable, high sensitivity result. In the event of a statistically certain rise in count-rate, a short time constant is automatically applied to ensure the system responds quickly to a change in the concentration value.

- **High Sensitivity, Accurate Tritium Measurement**
- **Rugged, Transportable Instrumentation**
- **Wide Range of Measurement**
- **Fast audible / Visual Alarm Indication**
- **Fully Network Compatible via Communication Node Points**
- **Continuous Gamma Compensation**
- **100% Insensitive to Radon-thoron Progeny**
- **Multi-parameter Sets for Different Operational Applications**
- **Fast Response Ratemeter Algorithms**

Information and specification within this publication may change without notice



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Specifications

Detectors

- Chamber assembly consists of two each nominal two litre ion chambers.
- One chamber is closed and detects background and the other receives air through the pre-filter and de-ioniser.

Measurement Range

- CMS-H35L-P measures airborne Tritium concentration (in HT and HTO form)
- 33kBq/m³ to over 0.1 TBq/m³ (1 µCi/cc - 27 µCi/cc)

Accuracy

- +/- 10% of the decade

Response

- Two user definable time constant settings, automatically switching on the statistical increase / decrease of count-rate, provide low MDC's with fast alarm response

Parameters

- All working parameters protected by three levels of passcodes (user, supervisor and calibrator)
- 8 independent measurement protocols allow user to switch between parameter settings, depending on application

Alarms

- Alarm indication for:
 - High activity
 - Alert Activity
 - Detector Fail
 - Detector Overrange
 - Flow alarms (High, Low and Critical)

Status Indicators

- 3 X 20 mm (1") multi element LED lamps
- Large, clear 20 x 142 mm (5.5") digital display
- Four dual colour function key indicators
- High intensity alarm strobe module
- 80 dB Alarm sounder

Power

- AC single mains connection
- voltage 85-264 VaC
- Frequency: 47-440HZ

Dimensions

- Width - 530mm (21")
- Height - 370mm (14.5")
- Depth - 240mm (9.5")

Weight

- Approx.7.8kg

Outputs

- RS-485 / RS-232
- Current (optional)
- Volt free contacts (optional)

Pump System

- The CMS H35L-P is operable with the Lab Impex PMP-3 vacuum pump or a distributed vacuum main as appropriate

Environmental Requirements

- Operating Temperature Range:0 - 40^o C (32 - 104^oF)
- Relative Humidity: 0 - 95%
- CMS H35L-P designed to IP65 (Nema type 13 equivalent)

CE Marking

- CMS H35L-P is CE marked, declarations of conformity with:-
 - EMC directive 89/336/EEC, 92/31/EEC
 - Low voltage directive 93/23/EEC, 93/68/EEC
- Conforms to EMC standards BSEN50081-1 1995 and BSEN50082-2 1993

Drift

- Less than 1% of the instrument range in 24 hours.



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