

The CM11 Contamination Monitor is designed for radiation workers to monitor themselves, their clothing and belongings effectively after a minimum of training and supervision. It has the versatility of advanced portable monitors without complexity.

## CM11

Easy-to-use and versatile personnel contamination monitor



### Versatility:

The dual channel CM11 operates with a large range of sensitive probes

### Easy to use correctly:

No user controls or adjustments, clear displays and annunciators, direct readout

### Compactness:

Slim profile with suitable fixtures for mounting to a wall, a personnel monitor or the bench



The CM11 is effective as an add-on device to personnel monitors to increase monitoring throughput rates. This contamination monitor also works well as a monitoring station during temporary work such as plant maintenance. The CM11 is ideal where space is restricted. It is easy to install and to set up, and equally easy to assign to the next application.

The CM11 is ideal as a backup boundary monitor; to confirm Personnel Monitor alarms, to pin-point the position of contamination and amount per 100 cm<sup>2</sup>, to differentiate radon nuisance alarms from others and for use in an emergency or when AC

supplies are down. Monitoring applications arise within power and fuel handling sites, also defense establishments, government laboratories and hot labs in hospitals and industry.

Thermo Fisher Scientific's different versions, CM11A to CM11F, carry hangers for the 20, 50, and 100 cm<sup>2</sup> scintillation probes and the DP11 gas flow probe. The following types of radiation may be monitored:

- $\alpha$ ,  $\beta$ , simultaneous
- $\alpha$  plus  $\beta$ ,
- low energy gamma
- simultaneous <sup>125</sup>I and  $\beta$ .



# System Specifications

## Measurement

Background is measured and stored until the proximity sensor is tripped or the probe lifted from the hanger, when monitoring starts. Background is then subtracted from the counts before they are displayed. The peak hold feature makes it easier to pinpoint spots of contamination, and their levels, by simultaneously displaying the peak and instantaneous readings.

Results are shown on a log scale ranging from 0.2 to 10 alarm levels, and on a digital display in units of countrate, total activity or specific activity. The two readout channels are normally configured for alpha and beta/gamma, but can be configured to separate  $^{125}\text{I}$  from beta/gamma when used with the GP13 low energy gamma probe. Versions in which the probe window faces out allow hands to be monitored before actually touching the probe.

## Special Performance Features

- Radon recognition algorithm - eliminates nuisance alarms by distinguishing radon alarms from others.
- Gas flow and scintillation detectors both use a standard coaxial cable.
- Signal processing for smoother displays of changing countrate with better detection of contamination.
- Internal power source gives at least 2.5 hours operation without main power.
- Operating point can be set by cursor from graphic display of plateau.
- Built-in routines; high voltage scan, plateau plot S plus B and  $S^2/B$  values for probe characterization.
- Gas flow rate and pressure are monitored by electronic means.
- Passive infra-red proximity sensor, or footswitch (optional), allows hands to be monitored before touching the probe.

## QA Features

- A continuous self-test program prevents monitoring of invalid or fault conditions

- The probe can be tested for contamination after each measurement.
- Selectable count-averaging times and confidence levels on the alarms.
- Data recording possibilities; peak readings for each measurement, setup parameters and HV scan results (using the serial port and an external printer).

## Typical Applications

- Monitoring clothing in parallel with hand/foot monitors to speed up throughput.
- Monitoring items next to an IPM or PCM.
- Detection of radon nuisance alarms.
- With a DP6 or DP11 probe, to quantify and pinpoint IPM/PCM alarms from diffuse contamination that pancake geigers cannot detect.
- As a temporary monitoring station.
- A workstation or exit monitor in a small zone.
- As a subchangeroom monitor.
- As a specialized monitor for low energy  $\gamma$  radiation.
- To provide monitoring for feet, identity cards, laundry, tools etc. in combination with special probes.

## Specifications

Display Units: cps, cpm, Bq\*, dpm\*, Bq.cm<sup>-2</sup>\*, nCi\* (\*Probe efficiency and area are entered during setup).

Alarm Levels: 0.1 to 100,000 display units.

Display Channels:  $\alpha$ ,  $\beta/\gamma$ ,  $\alpha$  plus  $\beta/\gamma$ ,  $^{125}\text{I}$  plus  $\beta/\gamma$ .

Monitoring Update Time: 0.1 to 10 s.

Background Update Time: 10 to 100 s.

User Control: Removal of probe from hanger (or triggering optional proximity sensor activates measurement cycle with background subtracted. Replacement of probe causes resumption of background measurements.

Display: CCFL backlit LCD, resolution 240 x 128 pixels. Digital, bargraph and graphic

display. Timed count rate, timed disintegration rate, HV scan and plateau plot.

Audible Indications: Distinct tones for particle detected, alarm and fault condition.

Printout: Peak results, parameter settings and HV scan results.

External Printer: Any RS 232 serial printer. Temperature Range: 5 to 40 °C, (41 to 104 °F) operational -10 to 50 °C (14 to 122 °F) during storage.

Humidity: Up to 95% RH.

Power: 85 to 264 VAC, 74 to 63 Hz, 40VA.

Dimensions: 240 x 380 x 160 mm approx. (9.5" x 15" x 16.5")

## DP11 Gas Flow Probe used with CM11F Technical Specifications

Sensitive Area: 150 x 67 mm (100 cm<sup>2</sup>).

Window: 0.9 mg.cm<sup>-2</sup> aluminized mylar.

Efficiencies: (% surface emission, 100 cm<sup>2</sup> source)  $^{241}\text{Am}$ , 32%;  $^{14}\text{C}$ , 38%;  $^{60}\text{Co}$ , 49%;  $^{137}\text{Cs}$ , 58%.

Gamma Response: 40 cps (approx.) in a uniform field of 1 mSv h<sup>-1</sup> (100 mR h<sup>-1</sup> due to  $^{137}\text{Cs}$ ).

Gas: Ar/CH<sub>4</sub>, 90/10 % to 95/5 % proportion.

Control: Built-in control/cut-off valve and electronic flowmeter.

Consumption: 1.5 liters/hour (25 cc/minute)

## Options and Accessories Include

Proximity Sensor, Footswitch, IPM mounting kit, Bench mounting kit, Trolley for CM11 and gas bottle, Gas bottle kit, Large area check sources

Please note: Probe, cable and accessories are ordered as separate items. For assistance in selecting the appropriate items, please contact our sales staff.

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