



MODEL FF-27 TRITIUM SURFACE CONTAMINATION MONITOR

The **Model FF-27** is an open-window gas proportional monitor for measuring tritium (and C-14) surface contamination on flat surfaces. The FF-27 utilizes the TS-27 probe, a large, rectangular windowless gas proportional detector with 100cm² sensitive area (6cm x 21.6cm) to rapidly scan large flat areas. Uses poly tape to provide repeatable spacing from the surface as well smooth, scratch-free movement. The poly tape is easily cleaned, but may also be replaced if contaminated. The probe is remotely connected to the electronics and counting gas supply for easy use.



TS-27 Probe

Active Detection Area: 100cm²

Sensitivity: 100 Bq/100cm²

Efficiency: >50% (2pi) for H₃ and C₁₄

P-10 counting gas is used for operating the FF-27. It is non-combustible and can be used in any environment. Two small lecture cylinders for P-10 gas are included with the instrument, but are shipped empty due to shipping restrictions. The lecture bottle is mounted to the electronics and includes a flowmeter. P-10 gas use is minimized by careful design of the probe and by auto shut-off of gas flow when the 'trigger' on the probe handle is released. Gas flow is typically set at 800 cc/min providing a total of one hours use for the lecture bottle size, or longer with a larger cylinder. Typical counting efficiency is 50% 2pi of all tritium beta emissions escaping the surface. An optional "Model H Face Plate" can be used which will help improve counting efficiency when measuring objects that aren't completely flat such as hands, clothing, and equipment.

PRS-7 Electronics

Includes PRS-7 scaler/counter/analyzer, which is a digital display pulse counter that covers a 6-decade range (1-100,000 CPS or other unit of choice). The PRS-7 is battery powered, with an internal lithium cell and charger, and an external 12V AC power input. The PRS-7 has a preamplifier with a built-in single channel analyzer and two adjustable thresholds so that pulses may be selected by their pulse height and cancel out other noise. It can also scale the counter display by a multiplier over a wide range, and the display can show both pulse rate and total pulse count, with a timer that will stop the counter after a preset interval. In Auto timing mode, the measurement time is repeated continuously versus only once in Single Shot mode. Includes an adjustable high voltage power supply with a range of 200-2500 Volts, audible/visible alarms, and RS-232 output.



PRS-7 Electronics

Highly Sensitive	100 Bq/100cm ²
Large Detection Area	100cm ² quickly scans large areas
Low Gas Consumption	800cc/min with auto shut-off
Portable	Lightweight design with long battery life
Detects	Tritium, C-14, S-35, and other low energy betas

The Overhoff Technology Model **FF-27** is a portable surface contamination monitor with a 100cm² probe for quickly measuring large, flat areas for surface contamination. Designed for measuring tritium and other low-energy beta emitters such as C-14 and S-35.

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MODEL FF-27

TRITIUM SURFACE CONTAMINATION MONITOR

TECHNICAL SPECIFICATIONS

MEASUREMENT RANGE	6 decades, 1 to 100,000 CPS or other measurement unit of choice
FLOWMETER	10-1000 cc/min, needle valve control, factory set to 800cc/min
BACKGROUND	15 CPS
DETECTOR	Windowless gas flow proportional counter
SENSITIVE AREA	100cm ²
SENSITIVITY	100 Bq/100cm ² , 35 CPS above background
EFFICIENCY	2pi 50% or more for C-14 and H ₃
TIMER	Crystal controlled, 1 to 10,000 seconds, user settable
DISPLAY MODES	Rate or Integrate
ALARMS	Visible: orange light on front panel, Audible: piezoelectric sounder with volume control
CALIBRATION	4 range pots and 1 overall control, internal
INDICATORS	Pilot light: Green indicator that the power is on Panel meter: Red Lion CUB5 LCD digital display Sonalert: Acoustic click for each pulse detected Alarm: Orange light indicating an alarm condition, if the alarm is enabled
CONTROLS	<u>Main Controls:</u> On-Off, Show HV, HV Set, Alarm On or Mute <u>Time Interval Controls:</u> Auto or Single Shot Mode, Start, Stop In auto mode, the measurement time is repeated continuously versus only once in single shot <u>Energy Window Controls:</u> Discriminator Level: 10-turn lockable dial adjusts discriminator threshold Window Level: 10-turn lockable dial adjusts window threshold Presets D, A, B: 3-position toggle switch to select one of 3 values for the discriminator threshold Position D is the 10-turn dial. A and B are alternative internal 10-turn potentiometers
CONNECTORS	The connector for the probe is on the front panel, all other connectors are on the left side of case Power: 2.5mm round socket, 12V DC from an AC powered converter MHV: Coaxial cable connection to probe (MHV on instrument, BNC on probe end) HV Output: Separate HV connection that may be used instead of the HV on the MHV Alarm: 3-pin Philmore: Isolated connections for a remote alarm: common, NO, NC
SIZE AND WEIGHT	<u>Probe:</u> 11" L x 2.25" W x 3.75" H including handle and gas shut-off switch, 0.57 kg (1 lb 4 oz.) <u>Electronics with gas cylinder bracket:</u> 10" L x 4.1" W x 7" H including handle, 2.5 kg (5 lbs) including batteries P-10 Gas lecture bottle: 0.6 kg (2 lbs 6 oz) when full (cylinders are shipped empty)
	<u>Accessories included:</u> <ul style="list-style-type: none">• 2 empty P-10 gas lecture bottles• Cables and hoses• Optional: Model H faceplate for measuring clothing, hands, and other uneven surfaces

Other similar models:

Model SF-TF-6: Gas proportional detector with a shielded drawer system for measuring wipes, filter papers, etc.

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