



MODEL SF-TF-6 TRITIUM WIPE TEST COUNTER

The **Model SF-TF-6** is a small portable gas proportional counter with a shielded drawer system for measuring surface contamination collected on wipes, filter papers, or other thin samples. It is suitable for measuring any alpha or beta emitter, but the most common use is measuring low energy beta emitters such as tritium and C-14. Contaminated wipes are inserted into a 2" wide metal drawer with two sample cavities of 1.25" (31mm) diameter and 0.18" (4.5mm) depth and surrounded by 1" lead shielding. Two cavities allow the user to save time loading and unloading samples. Usable sample diameter is limited by the 1" (25mm) diameter of the detector face.

The detector is a low background windowless gas flow proportional detector with a nominal outside diameter of 1.38" (35mm) and inside diameter of 1" (25mm). P-10 or similar counting gas is required for use of the instrument. Steady state gas usage is about 250cc/min, and some users turn the flow rate up to 600cc/min between samples as a purge. Six feet of 1/4" tubing is supplied with the instrument for connecting to a P-10 gas supply. The instrument body is a lead shield approximately 3.87" x 3.5" x 3" (98x87x76mm) to reduce background radiation in the detector cavity, and a carrying handle attaches to the shield block for easy carriage.

SENSITIVITY

0.5 nCi (18.5 Bq) per sample

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 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 data output.

Gas proportional probes generate signal pulses of heights proportional to the energy of the detected radiation events. The single channel analyzer (SCA) in the PRS-7 consists of two comparators with adjustable thresholds. The thresholds are called "discriminator" and "window" and are controlled by 10-turn potentiometers on the front panel. The SCA selects which pulses to pass along to the counter based on the two thresholds and the mode setting.

Discriminator Mode: Only the discriminator threshold is used and all pulses with heights exceeding the threshold are passed then counted. A dial setting of 100 is typically used to block low level pulses which are predominately noise. Note: A 3-way toggle switch allows you to select from 3 different adjustable preset discriminator levels (D, A, and B) for convenience when measuring different isotopes. Position D is the 10-turn dial on front panel, whereas A and B are internally recessed.

Window Mode: Both the discriminator threshold and window threshold are used, and only pulses that are above the discriminator and below the window will be passed then counted. When performing measurements where there is significant background or the possibility of more than one radioactive emitter, use window mode to eliminate higher energy from the counted pulses.



PRS-7 Electronics

Highly Sensitive	0.5 nCi (18.5 Bq) / sample
Shielding	1" lead shielding to reduce background
Low Gas Consumption	250cc/min
Portable	Compact design with long battery life
Detects	Any alpha or beta emitter but is designed for tritium and C-14

The Overhoff Technology Model **SF-TF-6** is a highly-sensitive gas proportional counter with a shielded drawer system for measuring surface contamination collected on wipes, air filter papers, and other thin samples.

Overhoff Technology Corporation

1160 U.S. Highway 50, Milford, Ohio, 45150-9705 USA

Telephone: 513 248 2400 Fax: 513 248 2402

Email: sales@overhoff.com www.overhoff.com



MODEL SF-TF-6 TRITIUM WIPE TEST COUNTER

TECHNICAL SPECIFICATIONS

MEASUREMENT RANGE	6 decades, 1 to 100,000 CPS or other measurement unit of choice
BACKGROUND	<10 CPM
DRAWER (SAMPLE SIZE)	2" wide drawer with two sample cavities 1.25" (31mm) diameter and 0.18" (4.5mm) depth
DETECTOR	Windowless gas flow proportional counter with 1" diameter (25mm) sensitive area
SHIELDING	1" lead shielding around detector and sample cavity
SENSITIVITY	0.5 nCi (18.5 Bq) / sample
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 on front panel. 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 and shield assembly:</u> 3.87" L x 3.5" W x 12" H including handle, 6.4 kg (14 lbs) <u>Electronics (NEMA-4X polycarbonate gasket sealed enclosure):</u> 10" L x 4.1" W x 7" H including handle, 2.5 kg (5 lbs) including batteries

Accessories included:

- Cables
- Six feet of ¼" tubing for connecting to P-10 supply

Other similar models:

Model FF-27: Tritium surface contamination monitor with 100cm² active probe for flat surfaces

Overhoff Technology Corporation

Phone: 513-248-2400
Fax: 513-248-2402
Email: sales@overhoff.com
Website: www.overhoff.com