

HIGH PERFORMANCE TRITIUM IN AIR PORTABLE SURVEY MONITOR

SENSITIVITY

The **400SBD γ C** is useful for measurements as low as $2 \mu\text{Ci}/\text{m}^3$. The new OTC electrometer, which measures to below 10^{-16} amperes combines low noise and high zero stability. Unlike other instruments, the 400 series instruments no longer require a front panel manual zero control. Thermally induced zero shifts of the electrometer and associated electronics have been eliminated.

RADON INTERFERENCE, NOISE RESPONSE

For an unambiguous measurement of very low tritium a monitor must be able to ignore response to ambient radon. The 400SB series incorporates this capability and therefore produces accurate, fast and drift free measurements to nearly $\pm 1 \mu\text{Ci}/\text{m}^3$.

TOTAL GAMMA COMPENSATION

Cruciform ionization chamber geometry provides nearly perfect gamma compensation regardless of photon energy, flux gradient or flux direction. Gamma compensation of the 400 series instruments is typically three orders of magnitude better than instruments using nested or side by side ionization chambers.

FAST RESPONSE

Its exceptionally rapid response is uniquely due to its ability to ignore radon. The electronic time constant is only 10 seconds, the pneumatic time constant of about 12 seconds, for an overall time constant of only 15 seconds. Meter readings will reach 90 % of final value within 30 seconds to a step response of aspirated tritium.

FAST WARM UP, NO ZERO DRIFT

After applying power, the initial transient "warm up" drift effects take less than a minute. Long term drifts have been eliminated, manual zero adjustments are no longer required.

HTO DISCRIMINATION (MODEL 400SBD γ C-HTO)

By addition of a desiccant column, this survey instrument will specifically measure HTO in the presence of other radioactive gases as well as background gamma. The desiccant can be regenerated repeatedly for reuse.



High Sensitivity	to $2.0 \mu\text{Ci}/\text{m}^3$
Fast Response	10 second time constant
Gamma Compensated	virtually no offset in $10 \text{ mR}/\text{h}$ fields
No Response To Radon	ensures complete zero stability
No Zero Drift	long term zero stability to better than $1 \mu\text{Ci}/\text{m}^3$
Rapid Warm Up	less than 30 second warm-up

The Overhoff Technology Corporation Model **400SBD γ C** portable tritium monitor is an instrument with unequalled performance in sensitivity, stability, speed of response and gamma compensation.

MODEL 400SBD γ C

MODEL 400SBD γ C SPECIFICATIONS

PERFORMANCE SPECIFICATIONS

MEASUREMENT RANGE	1 – 19,999 $\mu\text{Ci}/\text{m}^3$, basic sensitivity of the order of 1 $\mu\text{Ci}/\text{m}^3$
DISPLAY	0 – 19,999 digits, LCD panel meter
ACCURACY, SPAN	$\pm 10\%$ of reading, $\pm 1 \mu\text{Ci}/\text{m}^3$, whichever is greater
NOISE LEVEL	$\pm 1 \mu\text{Ci}/\text{m}^3$, 1 S.D. (10 second electronic time constant)
ZERO STABILITY	$\pm 1 \mu\text{Ci}/\text{m}^3$ long term
GAMMA COMPENSATION	Four chambers in a cruciform pattern to reduce errors due to external gamma radiation.
ALPHA PULSE SUPPRESSION	a circuit provides recognition and cancellation of undesirable noise spikes attributed to airborne radon
RESPONSE RATE	30 seconds to reach 90% of final reading
ALARM (ACOUSTIC)	1. Ten position stepped attenuator set point for signal alarm 2 - 1,000 $\mu\text{Ci}/\text{m}^3$, steady tone. An OFF position is included. 2. Low flow produces an intermittent tone 3. Mute switch silences audible tone
ALARM (VISUAL)	signal level: red LED low flow: yellow LED, flashing low battery: red LED
EXTERNAL CONNECTIONS	mini DIN plug for output signal, and for alarms
IONIZATION CHAMBER VOLUME	effective volume: 400 cm^3 port to port volume: 440 cm^3
DUST FILTER	HEPA, in-line disposable cartridge, Pall P/N 12082
PUMP	internal rotary vane pump
FLOW RATE	nominally 1.5 - 2 LPM
ENVIRONMENTAL	0° C to +50° C, 0 - 95 % relative humidity
BATTERIES	two "D" size batteries alkaline external jack for supplementary power input
POWER CONVERTER	100-240 VAC, 50/60 Hz, .25 A to 3.3 Vdc @ 1.2 A 5.5 mm O.D. x 2.1 mm I.D. Plug, center pin is positive
CASE	lightweight aluminum
SIZE AND WEIGHT	7.6" [193mm] L x 5.2" [132mm] W x 6.9" [175mm] H excluding handle, 6.5 lbs (3 kg)
OPTIONAL EQUIPMENT	<ul style="list-style-type: none">transit caseRS232 Serial Data output

NOBLE GAS DISCRIMINATION: MODEL 400SBD γ C -HTO ONLY

A special version of the basic 400 series instrument is for measurement of tritium (oxide) in the presence of radioactive noble gases. By addition of a desiccant cartridge, this instrument will respond solely to HTO, ignoring all other airborne radio nuclides and gamma fields.



PARTS LIST FOR MODEL 400SBD γ C TRITIUM MONITOR

**MODEL 400SBD γ C
PARTS LIST**

<u>Qty Req'd</u>	<u>Part No.</u>	<u>Description</u>
1	50084	Pump (replaces 50030 and G02/CDC/3)
4	1020686	Ionization Chamber
1	PSF-100A-0.5	Pressure Switch
1 to 5	22BH-4-2	Hose Barb, Sample-In
1	230-4-2	Hose Barb, Sample-Out
1	CLIC-51	Holder for Dust Filter (12082)
1	DMO-41	LCD Panel Meter (oldest S/N)
1	DMO-41DC	LCD Panel Meter (intermediate S/N)
1	DMO-742W	LCD Panel Meter (newest S/N)
2	20-3320	Control Knob including Cap and Skirt
1	KU402B1/8	Zero Knob
2	B16	Battery Holder
2	B1-XC	Battery Cap
1	MSR320	Alarm Speaker
1	PSA05R-033	AC Adapter
1	RPS-R	AC Plug for Adapter
1	CP-004A-ND	Plug for DC Power
1	163-5004	Jack for DC Power
2	EN95	Batteries, D-Size Alkaline, Primary Power
4	415	Batteries, 45V Polarizing

