Model RS400, RS400-HTO

MODEL RS400
and RS400-HTO

HIGH PERFORMANCE TRITIUM IN AIR PORTABLE SURVEY MONITOR

SENSITIVITY

Useful for measurements as low as 3 μCi/m^3, the electrometer in the Model 400 Series Portables measures in the 10^{-16} ampere range. The result is a tritium in air monitor that exhibits low noise and excellent zero stability.

RADON INTERFERENCE, NOISE RESPONSE

For an unambiguous measurement of very low tritium levels, a monitor must be able to ignore response to ambient radon. The 400 series incorporates this capability and therefore measures with ±3 μCi/m^3 accuracy.

GAMMA COMPENSATION

The Model 400 Series Portable design uses quadruple ionization chambers in a cruciform arrangement. This provides gamma compensation that is typically three orders of magnitude better than instruments using dual ionization chambers in a side by side arrangement.

FAST RESPONSE

Exceptional response time is due to unique abiltiy to ignore radon. The electronic time constant is only 10 seconds, and 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 to settle to zero. Long term drift has been eliminated and manual zero adjustments are no longer necessary.

MODEL RS400, RS400-HTO

This version includes all the above features, plus an RS232 Serial Data output

HTO DISCRIMINATION (MODEL RS400-HTO)

An HTO discriminating version is available. With 6 hose connections and by addition of a desiccant column interposed between measuring and compensating ionization chambers, this model will specifically measure HTO in the presence of other radioactive gases as well as background gamma. The desiccant can be regenerated for reuse.

Minimum Detectable Activity (MDA)	3 μCi/m^3
Fast Response	10 second time constant
Gamma Compensated	virtually no offset in 10 mR/h fields
Radon Suppression	ensures low level detection
No Zero Drift	long term zero stability to better than 3μCi/m^3
Rapid Warm Up	ready to use in less than 1 minute

Overhoff Technology’s Model **400 Series** portable tritium monitor is an instrument with unequaled performance in sensitivity, stability, speed of response and gamma compensation.

OVERHOFF TECHNOLOGY CORPORATION

1160 US ROUTE 50
MILFORD, OHIO 45150-9705
TELEPHONE (513) 248-2400
FACSIMILE (513) 248-2402
E-MAIL sales@overhoff.com
WEB www.OVERHOFF.com

MODEL RS400, RS400-HTO

PERFORMANCE SPECIFICATIONS, μCi/m^3 VERSION

MODEL RS400 and RS400-HTO SPECIFICATIONS

MEASUREMENT RANGE	1 – 19,999 μCi/m^3, basic sensitivity of the order of 3 μCi/m^3
DISPLAY	0 – 19,999 digits, LCD panel meter
ACCURACY, SPAN	±10% of reading, ±3 μCi/m^3, whichever is greater
NOISE LEVEL	±3 μCi/m^3, 1 S.D. (10 second electronic time constant)
ZERO STABILITY	±3 μCi/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 level alarm 2 - 1,000 μCi/m^3, steady tone. An OFF position is included. 2. Low flow produces an intermittent tone 3. Mute switch silences audible tone
ALARM (VISUAL)	LEVEL: red LED; when tritium level exceeds set point FLOW: yellow flashing LED; low pump flow LOW BAT: red LED; D-cell batteries need to be replaced **-AND-** HVPS: red LED illuminates to indicate a malfunction of the high voltage power supply (HVPS) used to bias the ionization chambers
EXTERNAL CONNECTIONS	mini DIN jack with RS232 Serial Data Output
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 for a flow rate from 1.5 - 2 LPM
ENVIRONMENTAL	5° C to +40° C, 10 - 95% RH, non-condensing
BATTERIES	two “D” size batteries, rechargeable NiMH with external jack for supplementary power and charger 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	transit case non-rechargeable batteries (alkaline)

MODEL RS400-HTO with NOBLE GAS DISCRIMINATION:

This special version, is a 400 series instrument as above, for measurement of tritium (oxide) in the presence of radioactive noble gases. With 6 hose connections and by addition of a desiccant column interposed between measuring and compensating ionization chambers, this instrument will respond solely to HTO, ignoring all other airborne radio nuclides and gamma fields.

OVERHOFF TECHNOLOGY CORPORATION
1160 US ROUTE 50
MILFORD, OHIO 45150-9705
TELEPHONE (513) 248-2400
FACSIMILE (513) 248-2402
E-MAIL sales@overhoff.com
WEB www.OVERHOFF.com

MODEL RS400, RS400-HTO

PERFORMANCE SPECIFICATIONS, MBq/m^3 VERSION

MEASUREMENT RANGE	0.1 – 1999.9 MBq/m^3, basic sensitivity of the order of 0.1 MBq/m^3
DISPLAY	0 – 19,999 digits, LCD panel meter
ACCURACY, SPAN	±10% of reading, 0.1 MBq/m^3, whichever is greater
NOISE LEVEL	±0.1 MBq/m^3, 1 S.D. (10 second electronic time constant)
ZERO STABILITY	±0.1 MBq/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 level alarm 0.2 - 100.0 MBq/m^3, steady tone. An OFF position is included. 2. Low flow produces an intermittent tone 3. Mute switch silences audible tone
ALARM (VISUAL)	LEVEL: red LED; when tritium level exceeds set point FLOW: yellow flashing LED; low pump flow LOW BAT: red LED; D-cell batteries need to be replaced **-AND-** HVPS: red LED illuminates to indicate a malfunction of the high voltage power supply (HVPS) used to bias the ionization chambers
EXTERNAL CONNECTIONS	mini DIN jack with RS232 Serial Data Output
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 for a flow rate from 1.5 - 2 LPM
ENVIRONMENTAL	5° C to +40° C, 10 - 95% RH, non-condensing
BATTERIES	two “D” size batteries, rechargeable NiMH with external jack for supplementary power and charger 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	transit case non-rechargeable batteries (alkaline)

MODEL RS400-HTO with NOBLE GAS DISCRIMINATION:

This special version, is a 400 series instrument as above, for measurement of tritium (oxide) in the presence of radioactive noble gases. With 6 hose connections and by addition of a desiccant column interposed between measuring and compensating ionization chambers, this instrument will respond solely to HTO, ignoring all other airborne radio nuclides and gamma fields.

OVERHOFF TECHNOLOGY CORPORATION
1160 US ROUTE 50
MILFORD, OHIO 45150-9705
TELEPHONE (513) 248-2400
FACSIMILE (513) 248-2402
E-MAIL sales@overhoff.com
WEB www.OVERHOFF.com

MODEL RS400-HTO

MODEL RS400-HTO with NOBLE GAS DISCRIMINATION:

This special version, is a 400 series instrument as above, for measurement of tritium (oxide) in the presence of radioactive noble gases. With 6 hose connections and by addition of a desiccant column interposed between measuring and compensating ionization chambers, this instrument will respond solely to HTO, ignoring all other airborne radio nuclides and gamma fields.

MODEL RS400-HTO

This view shows the 6 hose connections configured for total tritium mode.

MODEL RS400-HTO

With desiccant column and hoses connected to the monitor for operation in Noble Gas Discrimination Mode for measuring HTO only.

OVERHOFF TECHNOLOGY CORPORATION
1160 US ROUTE 50
MILFORD, OHIO 45150-9705
TELEPHONE (513) 248-2400
FACSIMILE (513) 248-2402
E-MAIL sales@overhoff.com
WEB www.OVERHOFF.com