

**MODEL 357BWC
CART MOUNTED SEMI-PORTABLE TRITIUM MONITOR**

The Model 357BWC is a single range, ionization chamber monitor for the measurement of tritium. It is contained on a mobile stainless steel cart and is suitable for moving to multiple sampling points and for continuous duty. The display /control unit is enclosed in a NEMA 12 enclosure on top the cart. It is suited for the monitoring of rooms, glove boxes, fume hoods, exhaust stacks and systems, as well as process piping. The NEMA enclosure has a hinged door with a tempered glass window and is double hinged so that it can be opened for servicing the various components inside.



Major distinguishing features include the following:

- 1-10,000 $\mu\text{Ci}/\text{m}^3$
- Quad 2L Ionization Chambers (gamma compensation)
- Contamination/Plate-out Proof Design (wire grids)
- Alpha Pulse Suppression (radon compensation)
- Dual Desiccant Dryer Cartridges (noble gas compensation)
- Heavy duty pump, HEPA filter and Flow Meter

300/400 UNITS - FIXED CONFIGURATION:PAGE 13



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PERFORMANCE SPECIFICATIONS

MEASUREMENT

Range	single, 1 – 19,999 $\mu\text{Ci}/\text{m}^3$
Display	4½ digit panel meter
Accuracy	$\pm 5\%$ of reading, $\pm 1\mu\text{Ci}/\text{m}^3$ whichever is greater
Stability and Drift	$\pm 1\mu\text{Ci}/\text{m}^3$ long term (thirty days), ambient temperature conditions
Noise	$\pm 1\mu\text{Ci}/\text{m}^3$, 1 sigma, with alpha suppression in use
Response Rate	two linear electronic time constants approximately 20 seconds for signals up to about $80\mu\text{Ci}/\text{m}^3$ approximately 3 seconds for signals above $80\mu\text{Ci}/\text{m}^3$
Offset Compensation	Manual compensation control provided to offset the effects of gamma radiation and/or tritium build-up
Warm Up Time	less than five minutes

ALARM SYSTEMS

High Level Alarm	A single set point alarm system is adjustable with digital thumb switches over a 1 to 10,000 $\mu\text{Ci}/\text{m}^3$ range
Indicator	Audible and Visual flashing red LED
Mode Switch	A toggle switch is used to select the operating mode, Latching or Non Latching with a momentary Reset position
Malfunction Alarm	Audible and Visual steady amber LED indicates when either one of two conditions occur, A failure of any one of the internal D.C. power supplies or malfunction of the electrometer
Low Flow Alarm	Audible and Visual steady amber LED indicates when the sample flow rate has dropped to below 1 LPM
Acknowledge Push Button	Silences the audible indicator for all of the above alarms

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IONIZATION CHAMBER

Measuring volume	1800 cm ³
Total wetted volume	4,000 cm ³
Electrodes	Wire Grid, contamination resistant
Gaskets	Silicone rubber
Pressure	0.1 to 2 atmospheres
Ports	1/4" Stainless Steel Gyrolok
Material of Construction	Stainless Steel
Electrometer Housing	Aluminum

SAMPLE FLOW SYSTEM

Pump	115Vac, 50/60 Hz, diaphragm type Thomas 107CAB11
Flow Rate	6 LPM Maximum, 5 LPM recommended
Flow Meter	1-10 LPM, Dwyer RMA-21-SSV
Dust Filter	HEPA respirator type Scott 803562-01
Maximum Pressure	103kPa (1 atmosphere)
Connections	1/4" stainless steel gyrolok tube fittings
Tubing	316L Stainless Steel, 1/4" OD
Low Flow Sensor	Differential pressure switch, Dwyer Model 1823-2 adjusted to trip <1 LPM.
Pump Control	ON/OFF circuit breaker power to pump
Sampling Modes	Sample Mode; the sample stream passes through the both the upstream and downstream ionization chambers and exits through the sample outlet hose.
By-Pass Mode	Manually operated valves change the flow path to exclude the ionization chambers and the desiccant column.
Inlet Temperature	Thermometer -20°C to +120°C Range
Moisture Trap	Parker Type S1P with visible coalescing element

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ENVIRONMENTAL

Temperature	5° C to +50° C Operating
Humidity	0 – 95 % RH
Air Conditioning	Ventilation or air conditioning is not required.

PHYSICAL, MAIN CABINET

Mounting	The system is mounted on a heavy-duty cart of stainless steel construction with low friction casters (two swivel types at one end and two straight types at the other). The swivel casters have locking mechanisms.
Size	24" [610mm] Wide x 41.02" [1042mm] Long x 36" [914mm] Height to top shelf of cart with a 53" [1346mm] Overall Height
Enclosure	NEMA 12 Rating
Weight	288 lbs [131kg]
Inlet/Outlet Hoses	Sample inlet and outlet hoses are braided stainless steel construction with quick connect couplers at each end. Length is 42" [1.07 meters]