

**Question: What is the purpose of the Alpha-7 and how does it work?**

Answer: The Alpha-7 collects airborne particulates and measures the concentrations of alpha-emitting isotopes by continuously passing air through a filter paper using an external vacuum source that may be a regulated air pump or a house vacuum system. The surface of the filter paper is mounted close to a detector that measures the alpha emissions. The energy of the particles are determined using a multi-channel analyzer and a peak-fitting algorithm to separate and quantify concentrations of specific isotopes of interest. Once the isotopes and their activity on the filter paper is known, the Alpha-7 uses the measured volume of air that has passed through the filter paper to calculate the concentration of the isotope in the sampled air and the accumulated dose. The concentration or dose is displayed.

**Question: What are the vacuum pump requirements?**

Answer: The operating sample flow range of the Alpha-7 is 0.5 CFM to 2.0 CFM (14 lpm to 57 lpm). Recommended flow rate is 1.5 cubic feet per minute (or 42 lpm). The flow source can be either a vacuum pump or house vacuum system.

**Question: How is the Alpha-7 configured for measuring ambient air?**

Answer: A basic system will require the ALPHA7A display unit, ALPHA7OPT2 smart remote radial entry detector head, a CA-134-03FT remote head cable, and a RAP-1 vacuum pump.

**Question: When is the In-Line Sampling Head used?**

Answer: The In-Line Sampling Head, P/N ALPHA7OPT3, allows the same configuration to be used for either room air monitoring or sampling from stacks or ducts.

**Question: When is Radial Entry Sampling Head used?**

Answer: The Alpha-7 radial inlet sampling head, P/N ALPHA7OPT2, is primarily intended to sample ambient room air.

**Question: What vacuum pump is used and how is it used?**

Answer: The model RAP-1 is a portable system containing an oilless carbon vane vacuum pump, motor and air flow regulator. The airflow regulator is designed to maintain a constant pressure drop across an in-line orifice by controlling a variable bypass valve into the pump. The orifice is adjustable, permitting flow rate adjustment from near zero up to the maximum pump flow velocity.

**Question: What is RadNet and Is the Alpha-7 RadNet compliant?**

Answer: RadNet is a non-proprietary data acquisition solution for radiation monitoring instruments that allows various types of instruments from many different manufacturers to be placed in an Ethernet network and viewed over the network using a single piece of software. The Alpha-7 is fully RadNet compliant supporting the transmission of both current readings and spectrum data across a network.

**Question: Does the Alpha-7 measure Beta emitting isotopes?**

Answer: The Alpha-7 measures Alpha-emitting isotopes only. The AMS-4 measures Beta emitting isotopes.

**Question: Is there data logging capability?**

Answer: The data can be logged in an Open Data Base Connectivity (ODBC) compliant format and can be easily viewed and analyzed using Microsoft Access.

**Question: What microprocessor is used in the Alpha-7?**

Answer: The Alpha-7 is a PC-based instrument with a Pentium class microprocessor running the Windows NT 4.0 operating system.

**Question: What is meant by Smart Head technology?**

Answer: The Alpha-7 incorporates *Smart Head* technology, which means that calibration parameters are saved, not in the Alpha-7 display unit itself, but in the remote sampling head. This means that a calibrated remote head can be connected to any Alpha-7 display unit and put into immediate service. All calibration parameters, including gain and efficiency information, the head serial number, a property ID, and the next calibration due date, are downloaded to the sampling head at the end of the calibration. The calibration of several remote heads can be performed in the shop using a single Alpha-7 display unit and hot-swapping the sampling heads when the procedure is completed.

**Question: What isotopes can be monitored other than Pu-238 and Pu-239?**

Answer: The Alpha-7 can be shipped configured with any list of isotopes. It is usually configured with only three radon daughters: Po-218 (RaA), Po-214 (RaC') and Po-212. An isotope list can be created by adding isotopes from a data base library.

**Question: What is the hose size for the vacuum line used between the inline head and RAP1?**

Answer: The vacuum line hose size is 5/16 inch I.D. x 9/16 inch O.D. clear PVC tubing, part number M



MMTU2