

Large Volume Air Samplers



Monitoring the world around us since 1864



Munro Group

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Munro Environmental - Air Sampling and Monitoring

The air we breathe is composed of Nitrogen (78%), Oxygen (21%), Argon (0.9%) and Carbon Dioxide (0.03%) plus many other gases, vapours, mists, dusts and living organisms in minute amounts. These additional materials may be naturally occurring or produced by man. Sources include industry, transport, agriculture, power generation, combustion, incineration, respiration, the weather and volcanic activity. Material also comes from extra-terrestrial sources, meteorites and comets entering the atmosphere. Many of these materials are completely benign or may be beneficial to life. However, some materials can be hazardous to health or the environment at even the smallest measurable concentrations.

Where appropriate, government agencies have established ceiling values and guidance limit values for concentrations of gases, vapours, mists, radionuclides and dusts in the workplace and the environment.

In order to make an assessment of the concentration of these materials in the atmosphere, a sample is taken from the air for analysis. The taking of the sample is a fundamental part of the analysis process. The sample must be accurate, representative and collected in a way that will maintain the condition of the sample until it is analysed. The airborne concentration is calculated from the analytical result and the volume of the air sampled. Therefore it is important that the air flow rate and sample time are recorded with the appropriate accuracy. Most air samplers incorporate an airflow sensor or control mechanism and a clock to provide the user with this data.

The wide variety of materials and applications that may be sampled call for many different air sampler configurations. Munro Environmental air samplers can draw from 5 millilitres per minute to 100 litres per minute or more through a wide variety of sampling media including glass fibre and cellulose filters for dusts and activated carbon for gases and vapours.

In some situations, air pollution studies and walk-through surveys, a dust measurement must be made instantaneously. The direct reading dust monitors supplied by Munro Environmental are used to record variations in concentration in real-time for such applications. While hourly averages calculated from this data may be suitable for some applications, readings taken every second can be reported if required.

The instruments manufactured by Munro Environmental at our factory in east London are supplied alongside other quality environmental monitoring instruments made in the UK and elsewhere.

Large Volume Air Samplers

All of these samplers use rotary vane pumps that ensure pulsation-free airflow with a minimum of wear. The samplers will draw against a restriction of 250 mbar or more so that samples of hundreds of cubic metres can be taken using a variety of media. Sampling of radioactive particles in the nuclear industries is the most common application as well as in pharmaceutical production and environmental monitoring where the lowest detection limits are required.

When the active concentration of a pollutant is very low a real-time monitor may not be sufficiently sensitive to detect background levels. So, to assess concentrations a large sample must be taken quickly and accurately. In order to verify that there is no impact on the local environment, routine air sampling for such pollutants is often undertaken.

Large Volume Air Samplers



L30, L60 and L100

Portable air samplers with nominal flow rates at 30, 60 and 100 litres per minute. The robust and low maintenance rotary vane pump and motor unit has a level of reliability proven in many thousands of units used in the nuclear power industry around the world for over 25 years. Sample volume is calculated from the elapsed time and the flow rate indicated on the gauge.



SPECIFICATIONS

| Reference | L30 | L60 | L100 |
|--|---|---------------|---------------|
| Nominal flow rate (l/min with GF/A filter) | 30 | 60 | 100 |
| Lapsed time indicator | to 9999.99 hr | to 9999.99 hr | to 9999.99 hr |
| Flow gauge (l/min) | 20 to 40 | 40 to 70 | 70 to 110 |
| Sliding vane pump | 4 vanes | 4 vanes | 4 vanes |
| Supply | 110/120V 50Hz 1.3A or 220/240V 50Hz 0.65A | | |
| Motor protection | 800mA at 240V 1.6A at 120V | | |
| Standard filter size | 60mm dia. | 60mm dia. | 60 mm dia. |
| Dimensions | 240mm (H) x 175mm (W) x 330mm (D) | | |
| Weight | 8.8 kg | 10 kg | 11.4 kg |
| Enclosure | Mild steel, powder coated | | |

Variable Flow Air Sampler

L40vF

Flow range 25 to 40 litres per minute

These samplers are appropriate when an application requires a specific airflow rate. The pump has a manually adjusted bypass valve so that the sample flow rate can be set to a required value. An indirect coupling between the pump and the motor acts as a thermal barrier and improves access for service and maintenance. A 60 lpm version, L60vF is also available.



SPECIFICATIONS

| Reference | L40vF |
|------------------------------------|--|
| Flow rate | Nominally 40 litres per minute. |
| actual flow depends on restriction | Floating ball calibrated flow gauge. |
| Flow indication | ±5% of reading |
| Flow gauge accuracy | Sliding vane pump (4 vanes) |
| Prime air mover | 110V/240V 1/15 HP 1400rpm permanent capacitor |
| Motor type | 220/240V 50Hz 0.65A nominal |
| Motor rating | 110/120V 50Hz 1.3A nominal |
| Motor protection | Overload cutout trip |
| Flow adjustment | By knurled hand screw or recessed slotted screw. |
| | Range of adjustment depends on filter restriction. |
| | Up to 30 l/min |
| Dimensions | 207mm (H) x 155mm (W) x 355mm (D) |
| Weight | 12.3 kg |

Microprocessor Controlled Air Sampler



L60iF

A large volume air sampler with an integrated flow monitoring system. Developed from the basic L60 sampler, the addition of microprocessor control and flow monitoring gives the L60iF the proven reliability and improved accuracy that industry demands without compromising quality and value. Suitable for all applications from brief samples (100 litres in 100 seconds) up to long term monitoring (3000 m³ in 30 days). A supervisor can program a sampling schedule that is then initiated by an operator on site at the push of a button. The sample volume and run times are stored in memory for verification. Should a flow interruption occur, the unit will display and sound an alarm, record the event and stop sampling. When power is restored after an interruption the sample will resume the program if the event meets criteria specified by the supervisor.

The L60iF represents an unbeatable combination of price, quality and reliability. Many hundreds of these samplers are used in and around nuclear facilities throughout the world. An L60iF will run continuously for more than a year with only filter changes required. Applications include perimeter monitoring, emergency response, stack emissions sampling, routine workplace measurements and re-assurance monitoring.



SPECIFICATIONS

| Reference | L60iF |
|-------------------|---|
| Flow rate | >60 l/min (with GF/A filter) |
| Memory | Volume to 9999 m ³ , Time to 9999 hours Battery backup (10 Year life) Last 250 sampling programmes |
| Display | Vacuum Fluorescent |
| Flow loss alarm | Audible and visual |
| Accuracy | Flow \pm 2.5%, Volume \pm 3% |
| Sliding vane pump | 4 vanes |
| Motor rating | 220/240V 50Hz 0.65A 110/120V 50/60Hz 1.3A |
| Motor protection | Overload cutout trip |
| Dimensions | 175mm (H) x 290mm (W) x 310mm (D) |
| Weight | 13.9 kg |
| Enclosure | Steel, powder coated |

Battery Powered Portable Air Samplers



L50EAS

When operating from a vehicle or in an emergency where mains power is not available, a 12Vdc motor ensures that air samples can be taken rapidly. Designed to draw 50 litres/min. through a GFA filter or 25 litres/min. through a Maypack the robust construction ensures high reliability in the field.



SPECIFICATIONS

| Reference | L50/EAS |
|-------------------------|--|
| Flow rate (GF/A filter) | 50 litres per minute |
| Flow gauge | Floating ball 20 to 50 l/min |
| Overload cut-out | Rating 7 Amps |
| Sliding vane pump | 3 vanes |
| Motor | 12V dc shunt wound - 0.05 hp 3000rpm |
| Lapsed time indicator | Hours Run counter - Reading to 9999.99 hours |
| Standard filter size | Maypack |
| Dimensions | 360mm (H) x 220mm (W) x 152mm (D) |
| Weight | 9.5kg |
| Enclosure | Mild steel, powder coated |
| Options | 3 metre extension hose 60mm filter holder Test Orifice |

L10 and L10B

The L10 and L10B are hand-held air samplers with internal batteries (either dry cells or rechargeable). They are designed for short term sampling where several grab samples are taken in succession. The samplers use a high efficiency, sliding vane pump for pulsation-free airflow. The samplers are designed to be easily dismantled for cleaning and maintenance.

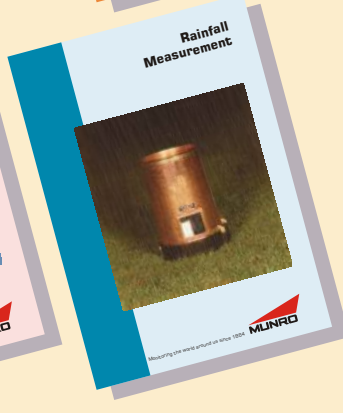
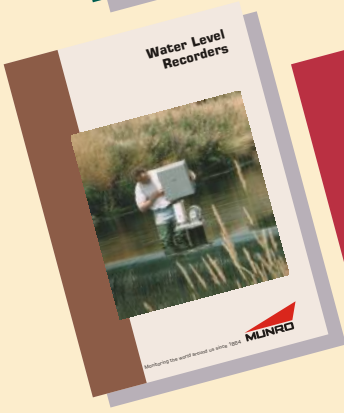
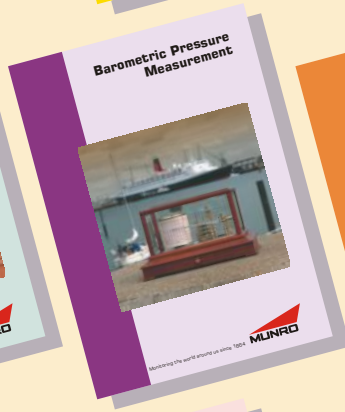
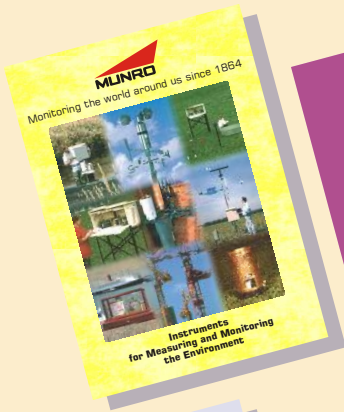


SPECIFICATIONS

| Reference | L10 | L10B |
|-----------------------------|---|-----------------------------------|
| Flow gauge | 5 to 10 l/min | 5 to 10 l/min |
| Flow setting | needle valve | no |
| Maximum load | Flow exceeds 7 l/min at 24.9 mbar | Flow exceeds 7 l/min at 24.9 mbar |
| Operating temperature | -5 to +30 °C | -5 to +30 °C |
| Sliding vane pump | 4 vanes | 4 vanes |
| Supply | 7.2V NiCd rechargeable | 2 x 6V PJ966/4R25 |
| Run time from a full charge | 8 to 10 hours | up to 30 hours |
| Charging time | 14 hours at 200mA | n/a |
| Standard filter size | 60 mm diameter | 60 mm diameter |
| Dimensions (H)x(W)x(D) | 200 x 152 x 114 mm | 235 x 168 x 95 mm |
| Weight | 2.3kg | 2.5kg |
| Enclosure | Mild steel, powder coated | Mild steel, powder coated |
| Options | RM1107 charger Maypack adaptor Extension hose | Maypack adaptor Extension hose |

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