

THE *Apex* SERIES OF PUMPS.

The *Apex* series is one of the most reliable, high performance personal air samplers available. Born out of extensive marketing and design research, and built on over 40 years of experience in the personal air sampling industry, the *Apex* is a completely new design. Utilising the most up to date and innovative design technologies it has true volumetric flow control circuitry, and offers many advanced features over its competitors, whilst still retaining the ability to be intuitive and easy to use.

Built to comply with EN1232, MDHS14/3 and NIOSH 0600 and with a flow range from 5ml/min* to 5 l/min the pump is suitable for most sampling applications including solvent, fume, gases, asbestos dust and general personal sampling regimes.

The *Apex* incorporates a large, clear custom LCD to display the following real time parameters; flow rate, volume sampled, elapsed sample time, ambient temperature, current operating mode as well as program details. The *Apex* features fully digital control circuitry and true volumetric flow sensing, resulting in an extremely stable flow control and allowing long periods of operation between calibrations.

* with a Lo Flow adapter



..... MORE ADVANCED FEATURES FOR A NEW GENERATION OF PUMP

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Design Features

- The most compact light weight 5 l/min pump on the market
- Ultra light weight, only 460g (16.2oz)
- Wide flow range, from 0.005 to 5 l/min (with Lo Flow adapter)
- Large, clear, informative custom LCD display
- Visual run and error indicators
- Intuitive 3 key user interface
- Tamperproof, lockable key pad
- Audible & visual alert alarms
- New direct volumetric flow feedback and control
- All digital control circuitry for excellent flow control response
- Gas Bag outlet port
- Auto stop when bag full
- Flow error shutdown with auto re-try after 1 min

Advanced Technology

- Automatic Data Logging function; 100 events (*Pro* only)
- Infrared wireless downloading (*Pro* only)
- Programmable run time duration on all models
- Advanced sample scheduling programs (*Pro* only)
- Automatic Service indicator (2500 hrs.)
- Multi language firmware
- Pump Manager application software

Power charging features:

- Convenient, intelligent "drop-in" fast charger system
- High capacity, 'Green' NiMH battery technology
- 22hr run time @ 2 litres/min with a GF/A filter
- Emergency dry cell battery pack

Applications

- Personal dust monitoring
- Gas and Vapour monitoring
- TWA and STEL monitoring
- Personal Asbestos sampling
- Time scheduled boundary monitoring
- Remote workplace monitoring



THE *Apex*

The *Apex* range of pumps is based on an extremely compact double acting pump design providing excellent efficiency and reliability at high flow and pressure drop specifications. Along with a completely new "all digital" control circuit and large custom LCD screen, this makes the *Apex* a world leader in pump design and technology.

There are two versions available: the *Apex* and the advanced programmable version the *Apex Pro*.

	<i>Apex</i>	<i>Apex Pro</i>
5ml/min -5 l/min range	✓	✓
LCD Display	✓	✓
Real time flow rate display	✓	✓
Fast charge via base	✓	✓
Bag Mode	✓	✓
Duration Mode	✓	✓
TWA Mode	✗	✓
Program Mode	✗	✓
Internal Data logging	✗	✓



THE APEX GIVES YOU BETTER FLOW PERFORMANCE, BETTER SPECIFICATION, BETTER FEATURES, BETTER VALUE FOR MONEY!



Pump used with gas bag

SAMPLING FOR GASES AND VAPOURS

Combined with the Lo Flow adapter, the *Apex* series can be used for flow rates from 5 to 750 ml/min. This enables sampling through charcoal, silica or other adsorbent tubes (see accessories section for other selection of tubes).

The pumps also feature an outlet port and bag fill mode which allows the units to be used for gas bag or grab sampling of gases and vapours. The unit can then be attached to a gas bag and will automatically stop when full.

FOR OTHER SAMPLING HEADS AND ACCESSORIES SEE THE SECTION 08, SAMPLING ACCESSORIES.

THE *Apex Pro*

The *Apex Pro* offers many advanced features that are unique.

- **Data Storage:** The *Apex Pro* is capable of storing up to 100 sets of data; which include start and stop times, flow rates, average sample temperature, volume sampled plus any error events that may have occurred. Whenever the pump is started and stopped data logging is enabled.

Programmability: The *Pro* can operate via 4 programmable sampling modes. These are set up via the Pump Manager software package, which is also required with the purchase of this pump. This package allows the programs to be configured, uploaded in to the pump and data downloaded. (See Pump Manager section). Programmable sampling modes include: -

1. **Duration:** A sampling duration can be set via the pump keypad. This allows the supervisor or operator to issue the pump in the knowledge that it will cease sampling at the end of the duration set.

2. **TWA:** This is where the operator needs to sample a set volume but possibly needs this to be a representative sample over a whole sampling period. (Some NIOSH methods work on this principle.)

The total sampling duration is entered into the software and the required pump 'ON' exposure run time is calculated by the user and entered into the pump. The pump will then switch on and off throughout the sampling duration to achieve the desired tube exposure time.

3. **Time Schedule Programmes:** Two real-time scheduling programmes are available, which allow the operator to pre-program the pump with start & stop times. Up to 9 on/off routines can be defined for each user programme.

Communication: This is undertaken using the Pump Manager software via the IR cable free data link, which is connected to the PC via the RS232 port. Once the program is running on the PC, it will automatically detect any pump within range. Once the pump has been recognised, any internal data will be instantly downloaded.



Pump with IR interface

Specification

Specification	<i>Apex</i> and <i>Apex Pro</i>
Flow range	0.8 to 5 l/min (free air) 5 to 750 ml/min with a Lo Flow adapter
Flow control accuracy	<5% over all conditions <3% after calibration at a selected flow
Max pressure drop	80cm (32") H ₂ O @ 1 l/min 32cm (13") H ₂ O @ 3.5 l/min
Nominal battery voltage	4.8V (4 x NiMH cells)
Nominal battery capacity	2.7Ah
Charging technique	Drop-in intelligent fast charger
Charge time	3 hrs from fully discharged
Run time	see table below

Filter Type	Typical filter pressure load in cm H ₂ O, Typical battery life in Hours				
	1.0 l/min	2.0 l/min	2.2 l/min	3.5 l/min	4.0 l/min
25mm GFA	5cm, 34 Hrs	9cm, 22 Hrs	9.5cm, 20 Hrs	16cm, 12 Hrs	18cm, Marginal
25mm 0.8µm	18cm, 21 Hrs	31cm, 14 Hrs	34cm, 13 Hrs	56cm	64cm
25mm 1.2µm	11cm, 27 Hrs	21cm, 16 Hrs	23cm, 15 Hrs	37cm	42cm
37mm GFA	3cm, 40 Hrs	5cm, 25 Hrs	6cm, 23 Hrs	9cm, 14 Hrs	11cm, 12 Hrs
37mm 08µm	7cm, 33 Hrs	13cm, 20 Hrs	14cm, 18 Hrs	23cm, 11 Hrs	26.5cm

Operating temperature	5 to 45C
Storage temperature	-10 to +50C
Memory protection with no battery	20 min
Dimensions	145 x 85 x 46mm

Ordering Information

<i>Apex</i>	182000B
<i>Apex Pro</i>	182063B

Pumps supplied with 1 metre of sampling tube & NiMH battery pack, charger needs to be ordered separately, see pump accessories section.



THE PUMP MANAGER SOFTWARE

The software has been designed and structured to simplify the routine management of all sampling data and results. Pump Manager is a customised software package for use with the *Apex Pro* to program the pump and to download run data. One of its unique features is the convenient infrared download communication option. As soon as the pump is placed within 0.4m of the download port and the software is active then the data present in the pump will be automatically downloaded.

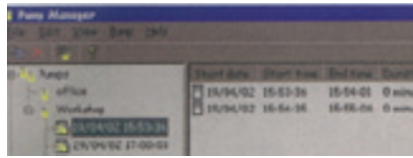
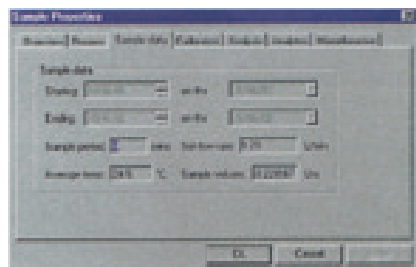
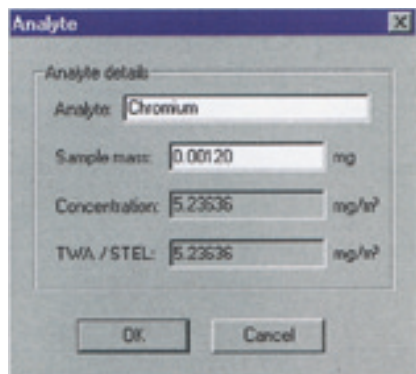
Once the data has been downloaded, it can either be stored under pump identification name, serial number or pump user name.

Data downloaded and manually entered into the PC may be used to generate comprehensive sampling reports.

Reports contain information regarding pump sampling data, methods, analytes, laboratory results, user details as well as any other process details. TWA and concentrations are also calculated automatically. All sampling data is saved by Pump Manager. Generated sampling reports can be easily exported to other applications. This provides an easy way of recording data for compliance and traceability purposes.

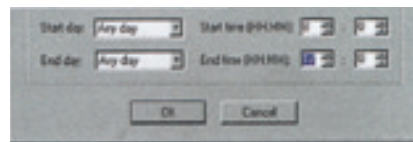
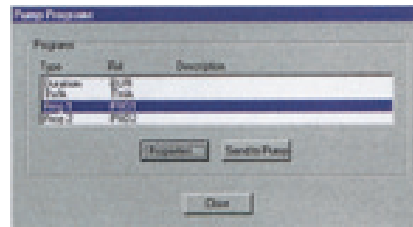
Sample and Analytical Data

Pump Manager allows entry of all sampling data, process notes, laboratory results and analyte details.



Programmability

The *Apex Pro* can be loaded with 2 user programmable sampling sequences. These are configured by the user/supervisor and then transferred into the pump.



Standard Kit contents (pump not included)

AIR SAMPLING ACCESSORY KITS

Starter Kit includes; carry case, accessories box, 0.3 to 3 l/min flowmeter, flowmeter stand, IOM head & cassette (1 off), plastic cyclone & cassettes (5 off) and tweezers.

In addition to the sampling kit, the required pump and charger, and any filter media need to be purchased separately.

Alternatively by following the simple steps below, a personalised sampling kit can be created;

- Choose your preferred sampling pump and charger, the *Apex* or the *Apex Pro*
- If the *Apex Pro* has been chosen, do you require the software and download interface?
- Is there a need for the emergency battery pack?
- Which sampling heads are required if you are sampling for particulates?
 - inhalable
 - respirable
 - any other fraction
- Do you require filters?
 - GFA or MCE, (for any other filter requirements please contact the sales office)
- Or do you need to sample for gases and vapours?
 - if you need to sample for gases and vapours then you will require a Lo Flow adapter, tube holder and appropriate sampling tubes
- How do you wish to calibrate the *Apex* Rotameter and stand or DryCal flowmeter
- Do you require a carry case, standard or upgraded?

Ordering Information

- Standard starter kit P104104
Kit includes: Standard carry case with foam and accessories box, 0.3 to 3 l/min flowmeter, flowmeter stand, IOM head & cassette (1 off), plastic cyclone & cassettes (pack of 5), tweezers
- Pump + charger needs to be ordered separately
- Upgraded kit P104103

Apex ACCESSORIES

Drop-in charger

The *Apex* utilises a convenient and Intelligent 'drop-in' fast charger system that will recharge a fully discharged *Apex* in 3 hours.

The charging system is so effective that even if the unit is only charged for 1 hour, this should provide enough charge to operate the pump for at least 8 hours with most common sample regimes. Once charged the unit remains on trickle charge, which means the pump is always ready for action. This is an attractive feature for many users who may require a very quick turnaround - no overnight charging required. A multi-way charging system is also available.



Emergency battery Pack

The *Apex* is unique in the market place in that the operator can replace the rechargeable battery with a dry cell battery pack if required.

This will allow for operation of the units for emergency situations when for instance the re-charging process has been overlooked.



Lo Flow Adapter Assembly

The *Apex*'s Lo Flow sampling capability from 5 to 750 ml/min uses the Lo Flow adapter system. This is typically used for sorbent tube sampling applications. A full range of tubes are available, see sampling accessories section.



Sampling Harness

A belt/shoulder harness is also available which allows the user to wear the pump safe and secure independent of other clothing.

Ordering Information

Pump manager software and infrared download interface	182091A
Drop in charger for <i>Apex</i> and <i>Apex Pro</i>	182052B
5 way drop in charger system	182108A (UK)/182109A (EURO)/182110A (USA)/182111A (AUS)
Spare rechargeable battery	182073B
Emergency dry cell battery pack	182094A
Lo Flow adapter assembly	P109032
Harness	D8147/Z
Pump Manager Software (alone)	182092A
Download IR interface (alone)	-CMC39