pHOENIX SERIES 1800
ION SELECTIVE MONITORS

- Measures Ammonia, Nitrate, Fluoride or Chloride
- Fast response
- Bench, wall or floor mounting
- Intermittent or continuous operation
- Auto cal at two points
- Programmable measuring range
- Temperature controlled water bath for rapid response
- Sensor diagnostics
- RS232 and analogue outputs
- Easy to maintain
- On board data logging option

APPLICATIONS:

- RIVER AND SEWAGE WORKS MONITORING
- WATER TREATMENT INTAKES
- DOSING CONTROL SYSTEMS
- INDUSTRIAL EFFLUENT MONITORING

USE
Soluções em Medição e Controle

pHOENIX
INSTRUMENTATION LIMITED

DUAL POINT STANDARDISATION AUTO ANALYSER STYLE MIXING

GENERAL

The Series 1800 ISM is a family of instruments for continuously monitoring determinands that can be quantitively measured by Ion Selective or similar electrodes, for example Ammonia, Nitrate, Fluoride. The instrument contains both electrical and mechanical sections for conditioning the sample to ensure continuous stable measurement. The pHOENIX series of ISMs represent a new dimension in this field and offers the following facilities:

CABINET

Lockable steel finished in blue epoxy resin coat for durability. The Series 1800 is available for wall, bench or floor mounting. A viewing window is provided for the electronics section.

MONITORING SYSTEM - All Types

Two-section approach with an upper electronics section sealed from a "wet-end" containing all liquid handling components.

ELECTRONICS UNITS

Based on the latest advances in micro-processor circuitry, the electronic module incorporates the following facilities.

a) Sensor output amplification via a dual input high impedance amplifier.
b) Dual LED & LCD display.
c) Isolated power supply.
d) Dual automatic calibration with low (approx. 20% of selected scale) and high value (approx. 80% of selected scale) standards.
e) Auto timing of all functions.
f) Selectable linearised ranges from 0-2 to 0-1000 ppm.
g) Selectable mA outputs.
h) RS232 interface.
i) Continuous or intermittent operation.
j) Sample failure switch to standby.
k) Sensor diagnostics.
l) Water bath temperature control with alarm feature.
m) Hi/Lo alarms.

ELECTRONICS SECTION FEATURING:
Dual Display and Memory Card Logger

1800 "WET END"

LIQUID HANDLING

In the 1800, the complete liquid handling system is mounted on a "swing frame" to allow easy access to all user serviceable components. Large bore (4mm) sample tubing is used throughout to eliminate blocking. Reagent and sample delivery is via robust "quick load" peristaltic pumps utilising Tygon long life tubing.
Auto analyser style mixing coils immersed in a temperature-controlled waterbath ensure that a perfectly blended sample is delivered at the right temperature to the temperature-stabilised sensor. In the case of most Ion Selective Electrodes a more rapid and accurate response is achieved at temperatures between 25° and 35°C so the water bath is typically set at 30°C.
Systems that operate below this temperature range and particularly in the range of 0-15°C are prone to slow response and inaccurate readings.
All reagents and standard solutions are stored in standard 10 litre containers supplied in a wall or floor mounting PVC carrier. In the intermittent operation mode these quantities are sufficient for a minimum of 1 month's operation.

SYSTEM INTEGRITY

All models are equipped with the facility to indicate and transmit a system failure, e.g.: failure to calibrate.
In addition a flow failure device is fitted to switch the monitor to standby in the event of sample loss.

SIMPLE TO OPERATE
EASY TO MAINTAIN

OPERATION

Figure 1 shows the hydraulic arrangement within an Ammonia monitor. On other models the reagents and pump numbers will vary depending upon the determinand being measured but the "heart" of the system is always as illustrated.

Taking the Ammonia monitor as representative of the measuring philosophy the sample is drawn from the constant head device by sample pump (P1) and passes through a preheat coil (A) followed by the addition of EDTA by P2. After mixing in coil (B) Sodium Hydroxide is added by P3 prior to coil (C) to raise the pH value to approximately 11. The slow flow rate through the coils immersed in the water bath ensures that the sample arrives at the gas-sensing probe at a constant elevated temperature. The sample is delivered to the sensing membrane in an upward flow jet which minimises response time and eliminates the need for stirring.

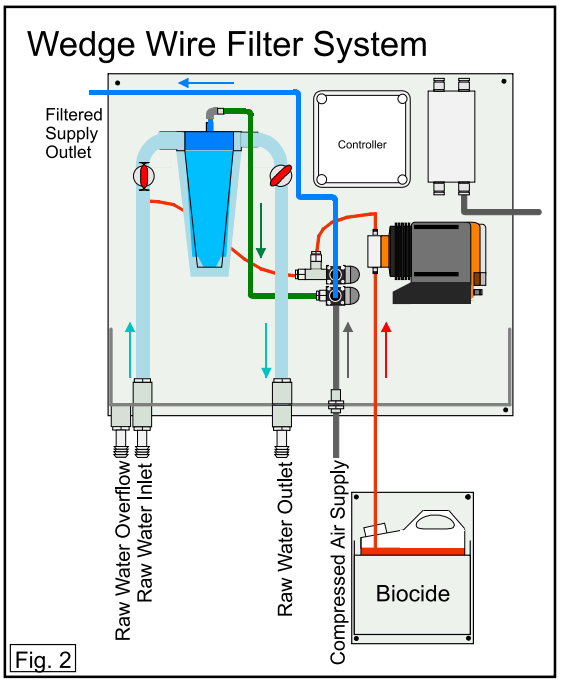
The calibration procedure for the 1800 series is automatic and simply requires two standards, generally at 20% and 80% of the required measuring range.
On start up the system will automatically commence a calibration routine which will be repeated every 12 or 24 hours.
In general all operations are automatically controlled and once operational the 1800 will only require routine maintenance and replenishment of reagents.
In order to conserve reagents and extend periods between maintenance the 1800 can be programmed to operate in an intermittent mode providing 2 sets of readings per hour but in the event of an alarm the instrument will revert to continuous operation.

OPTIONS

a) The 1800 is supplied as standard for bench mounting but accessories are available to convert the unit to floor standing or wall mounting mode.

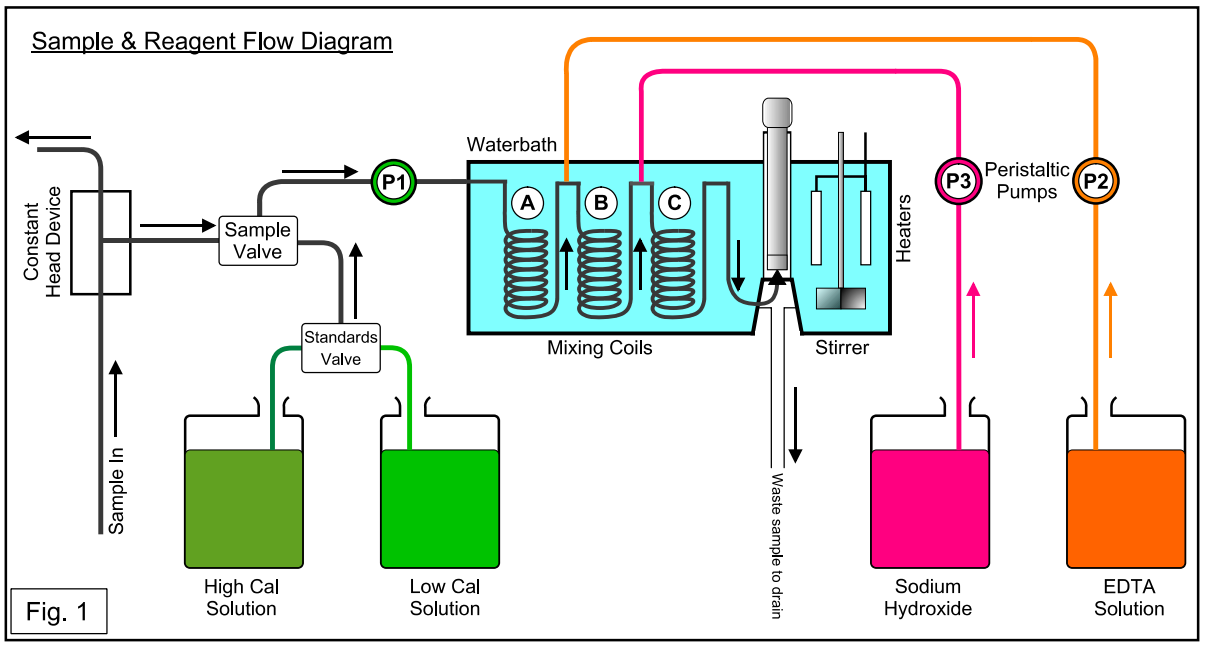
b) A third alarm is available, in particular for the 1803 Fluoride version.

c) Data logging, recording and serial communications options are available on all models.



SAMPLE PREPARATION SYSTEMS

Generally the 1800 will require some form of sample handling system when the sample has high levels of solids, particularly if they are abrasive. pHOENIX can offer a range of options to cope with almost any situation. A typical unit is illustrated in Fig 2 using our wedge wire filter system.



SPECIFICATION:
ISM 1800 MONITORS

OPERATION:	Continuous or intermittent - customer selectable
SAMPLE PREPARATION	Sample to be filtered to reduce solids to approximately 100 ppm @ max. 100 μm particle size.
SAMPLE FLOW TO MONITOR	2 - 50 litres/hr
SAMPLE FLOW THROUGH MONITOR	Approximately 0.5 litres/hr
SENSORS	pHOENIX/Moller Ammonia - IS570 NH_3 Nitrate - IS561 NO_3 Fluoride - IS550F
SAMPLE TEMPERATURE RANGE	0 - 35°C Higher values need a pre cooler
WATERBATH TEMPERATURE STABILITY	Better than 0.2°C
AMBIENT TEMPERATURE	0 - 35°C
RESPONSE TIME	All sensors better than 4 mins in the range 0- 5 ppm for a full step change.
INSTRUMENT RANGE	The 1800 can be programmed to any range within 0.05 - 1000 mg/l. However for NH_3 and NO_3 the recommended minimum range is 0-5mg/l due to the possible deterioration of low standards. Fluoride monitors can be ranged 0-2mg/l.
STANDARDISATION	Automatic with manual override at two concentrations at 12 or 24 hour intervals
REAGENTS	NH_3 - Sodium Hydroxide 150 g/l EDTA (Di-Sodium Salt) 60 g/l NO_3) - Various buffers can be used F)
REAGENT AND STANDARDS STORAGE	4 x 10 litre containers supplied but can be increased or decreased in size subject to operation mode
REAGENT AND STANDARDS CONSUMPTION	Approximately 3 litres per week in continuous operation and 12 hour calibration cycle Considerably reduced in intermittent mode
OUTPUT SIGNALS	Analogue - Isolated 4-20mA max 750 ohms load Serial Port - RS232
POWER SUPPLY	240V AC 50Hz 2 amps or 110V AC 50Hz 4 amps selectable (60 Hz available)
SAMPLE PIPE CONNECTIONS	Inlet 4 x 6 mm Outlet 4 x 6 mm Waste 6 mm
CABINET	Mild steel with blue epoxy resin finish 660mm H x 480mm W x 260mm D
RECOMMENDED WORKING AREA	At front - 1 metre Sides - 0.5 metre
TOTAL WEIGHT	Approx 35 Kg
OPTIONS	
DATA LOGGER	PCMCIA System Memory Cards Memory Space - up to 4 MB Typically - 256 K card - 65 days capacity
FLOOR MOUNTING STAND	Approx. 1610 mm H x 535mm W x 560 mm D

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