



Environmental Sampling Unit

87ESU & Fanmaster

87ESU

The Environmental Sampling Unit is a unique product, providing a cost-effective solution for monitoring high-density gases such as chlorine, sulphur dioxide and flammable vapours, in environments where the positioning of conventional sensors is not practical. The sampling chamber is fitted with an electric fan, which draws an air sample via a pipe. A gas sensor is fitted to the chamber to monitor for the presence of flammable or toxic gases.

The Crowcon Environmental Sampling Unit, low cost gas detection **you can trust.**

Low purchase and maintenance costs

The 87ESU is ideal for monitoring large areas such as **chlorine stores**. One unit can monitor up to 12 metres of pipe, removing the need for multiple sensors mounted at floor level.

Less sensors means lower maintenance costs.

Flexible installation options

The 87ESU is supplied with a **wide range of accessories** to suit any installation requirements. **It can monitor from a single point, along an entire floor space or even areas subject to flooding such as a wet well.**

Its rugged design and high-impact ABS enclosure make it **suitable for use in harsh environments.**

Wide range of sensors

Most of Crowcon's Flamgard and TXgard range of sensors are compatible with the 87ESU, enabling a **wide range of gases** to be monitored.

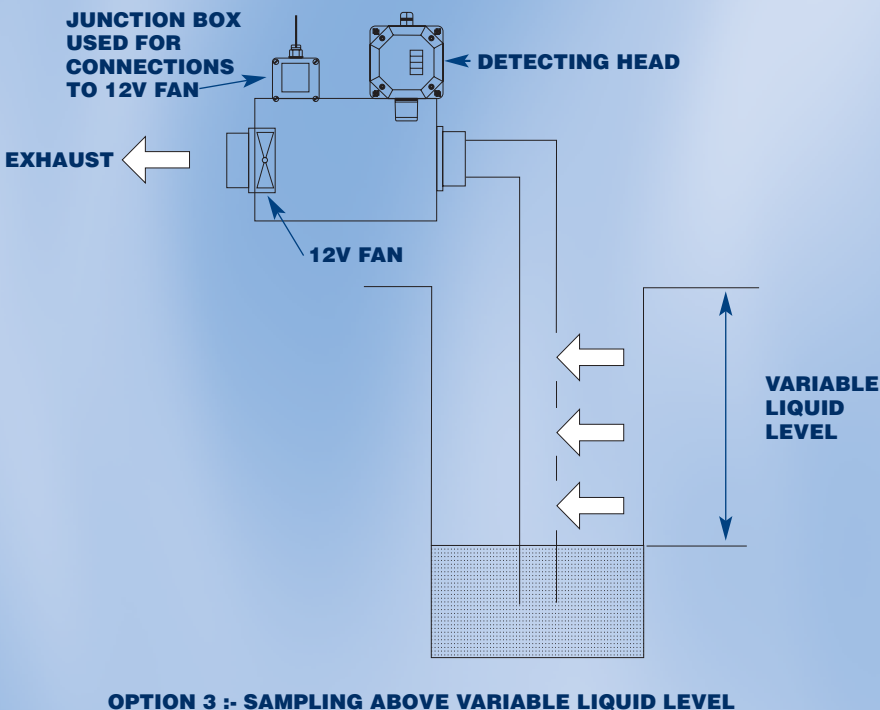
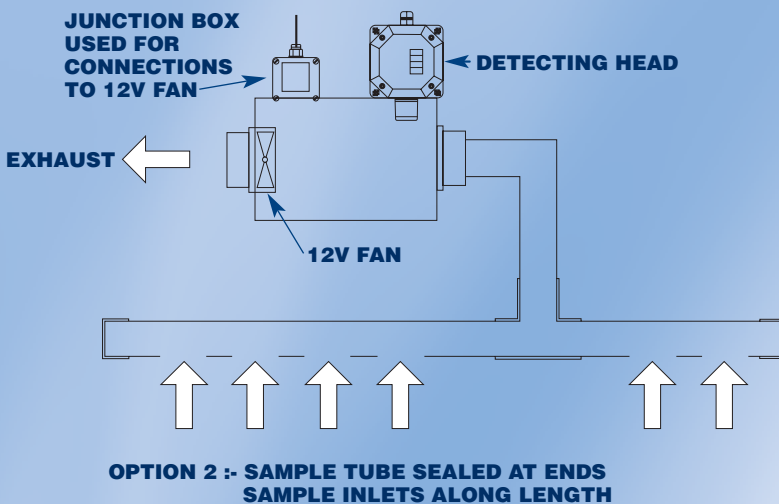
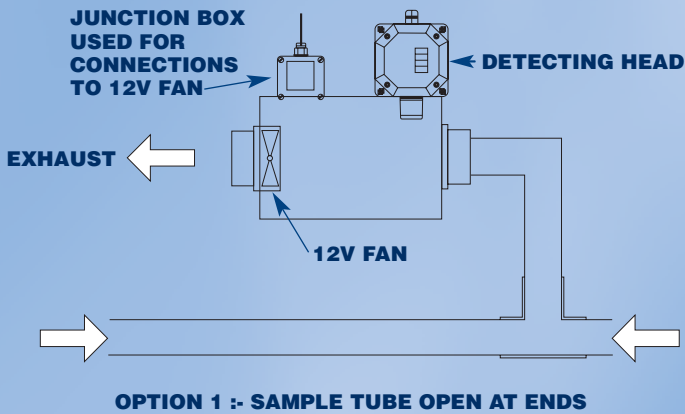
A **certified version** is available for safely monitoring flammable vapours.

High integrity design

Crowcon manufacture two controllers for monitoring 87ESU's. **Fanmaster** can monitor **up to four** 87ESU fans and raise an alarm if any fan fails.

Gasmaster can monitor the 87ESU fans and gas sensors, providing local and remote indication of gas alarms and fan faults. **Up to two complete 87ESU's can be connected to a single Gasmaster 4.**

Installation Options



The sample pipe connected to the chamber has a maximum length of 12 metres. Two pipes can be used provided their combined length does not exceed 12 metres. Any right-angle bends are equivalent to 2 metres of pipe length. Pipes can be open at the ends, or have capped ends with holes drilled along their length. Care should be taken with the size and location of the holes to ensure an efficient airflow. Contact Crowcon for advice.

Because of the very low pressure developed by the unit, care must be taken with siting the pipes to ensure that extraneous pressure effects are eliminated, particularly in regard to wind and thermal currents with open-ended pipes.

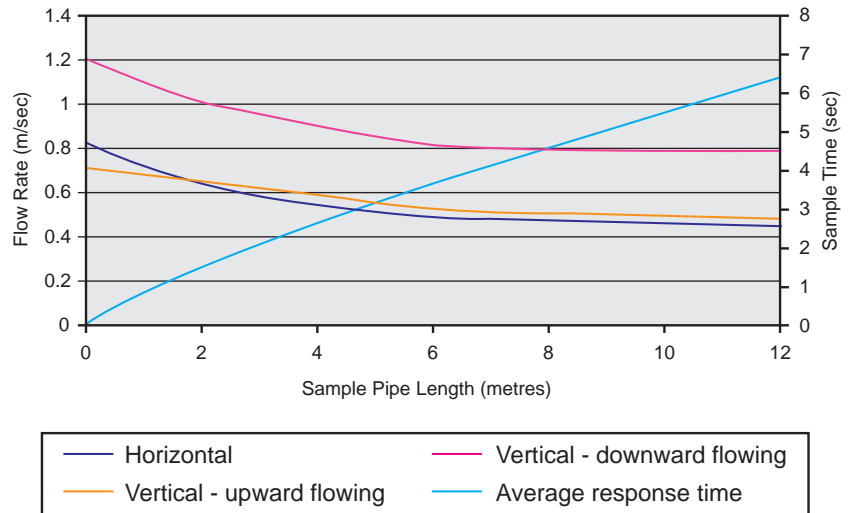
For wet well installations Crowcon recommend that holes are drilled every 500mm (19.7") in a vertical plane from the bottom of the open-ended pipe. To ensure that airflow is always drawn from the lowest level when the end of the pipe is submerged, the holes should be larger at the bottom, gradually reducing in diameter towards the top of the pipe.

As a general rule, the lowest hole should be 6mm (1/4") in diameter, reducing by 1mm (1/25") per hole towards the top of the pipe. These figures are dependent on the total length of the pipe, and should be adjusted as necessary.

Flow Characteristics

The graph shows the relationship between sample pipe length, maximum achievable flow rate with different piping orientations, and typical time taken for a sample to reach the sensor.

87ESU Flow Rates



87ESU Chamber							
Dimensions (excluding detector)	390 x 270 x 180mm (15.3 x 10.6 x 7 ins)						
Material	Polycarbonate						
Fan Power	3W						
Fan Supply Voltage	12v DC (110v AC option available)						
Approval Code (certified type only)	Ⓔ II 2 G EEx m IIC T4						
Certificate Number	Baseefa 03 ATEX 0033X						
Piping	60mm Diameter PVC (2" pipe)						
Weight (exluding piping)	3.5 kg (7.7 lbs)						
Accessories	The 87ESU is supplied with a set of pipe fittings comprising 2 elbows, 2 end caps, 1tee, 2 reducing bushes and 4 pipe clamps. 2" pipe is available separately in 2 metre lengths.						
Fanmaster							
Dimensions	420 x 240 x 90mm (16.5 x 9.5 x 3.5 ins)						
Material	Mild Steel						
Weight	9 kg (20 lbs)						
Supply Voltage	110v/240v AC 50-60Hz 12v/24v DC						
Power	50w Max.						
Battery back-up	0.8Ah						
Operating Temperature	-10 to +40°C (14 to 104°F)						
Humidity	0 - 95% non-condensing						
Inputs	Up to 4 87ESU 12v DC fans						
Outputs	<table border="0"> <tr> <td><i>Common Relays</i></td> <td>DPCO, Contacts rated @ 250vAC 5A Any fan slow, stopped or fault</td> </tr> <tr> <td><i>Individual Relays</i></td> <td>DPCO, Contacts rated @ 250vAC 5A Fan slow or stopped</td> </tr> <tr> <td><i>External Audible/ Visual Alarm Drive</i></td> <td>12v DC 650mA max.</td> </tr> </table>	<i>Common Relays</i>	DPCO, Contacts rated @ 250vAC 5A Any fan slow, stopped or fault	<i>Individual Relays</i>	DPCO, Contacts rated @ 250vAC 5A Fan slow or stopped	<i>External Audible/ Visual Alarm Drive</i>	12v DC 650mA max.
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Alarm indication	Internal audible alarm, individual fan slow/stopped (red LED's), individual fan fault (yellow LED's)						

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