

# EMS SERIES SAMPLE MODULE USER INFORMATION V5



To be read in conjunction with ATEX junction box manual SL-035 available as a download from the IGD website:

W:Internationalgasdetectors.com





Image: Selection of the se



#### Introduction

The Eductor Modular Sampler (EMS) can be added to any standard Tocsin 102 series gas detector. The basic EMS screws mounts to the detector using the accessory mounting thread. Compressed air is used to generate a flow using a patented venturi system. The induced flow does not impinge directly on the detector face but follows a path that ensures any particulate matter is directed away from the detector face allowing only the gas stream to be sampled. This ensures freedom from contamination, a long detector life and excellent response time to the gas flow. The ejected gas stream is diluted by the air supply making it safer to handle and if necessary can be tubed away. The unit has virtually moving parts ensuring minimum maintenance and maximum reliability. A low flow detect alarm is included as a further safeguard to both detect low flow from tube blockages or loss of flow due to failure of the air supply. Accessories are available for trace heating, sample cooling, probe ends etc

The unit is simple and efficient making minimum use of an air supply.



Note that since the air supply mixes with the sample gas stream after analysis the condition of the air supply is not critical. Normal precautions should be taken to limit oil and water in the supplied compressed air. Compressed air usage will vary according to the set flow rate. a regulator should be fitted to ensure a constant supply pressure.

#### **Eductor Performance**

| Supply Pressure | Eductor Flow |
|-----------------|--------------|
| 5 PSIG          | 0.5L/Min     |
| 10 PSIG         | 0.8L/Min     |
| 15 PSIG         | 1.5L/Min     |
| 20 PSIG         | 2.0L/Min     |

Typical air consumption 4.5L/Min at 12 PSIG

Figures are tabulated with 30M of 4mm bore tubing. Do not exceed 30M of sample line. When installing sample lines ensure samples run uphill with no catch points where condensed vapour could accumulate



Note that the unit should be installed to a minimum protection level of IP20

IGD can provide field box enclosures for single or multiple units on request.

System vent. Note that the vent is a mix of sample gas and compressed air and so should be vented to a safe 'outside' location

> A flow restrictor is provided as part of the EMS unit. This is normally left fully open (anti-clockwise). The restrictor is only used to balance performance where a number of EMS units are fitted to one regulated air supply.



Note when connected as an ATEX device an approved barrier device must be used.

See following page for suggested barrier type, wiring details and ratings

Materials of construction for the EMS module 316 Stainless Steel. The flow fail monitor is PEEK G45. Materials are chosen for corrosion and chemical resistance.

EMS Module screws and seals to the accessory thread provided on the front of all Oliver IGD Tocsin 102 series detectors.

Regulated Air Supply, Typically 5-15PSIG. \_ Note this is a standard compressed air line supply with no special requirements.

For correct operation the EMS and detector module assembly must be mounted within 10 degrees of vertical.

Sample inlet. This is a 1/4" OD Swagelok compression fitting.

!! IMPORTANT !! USE A COUNTER WRENCH WHEN MAKING CONNECTION TO AVOID STRIPPING THE MATING THREAD ON THE FLOW SWITCH BODY







#### Installations and accessories

In Practice the Eductor Modular Sampler system provides a simple, robust and maintenance free solution to applications that require a sample to be extracted for gas detection. In practice the application of the device may require the use of additional accessories. Some of the available options are shown below.



End of line sample filter options are also available please contact IGD to determine which type is most suited to your application.



#### Installations and accessories

The following should be noted for installations using cooling coils and extended tubing





## Installations and accessories

The following should be noted for installations using flame arrestors



Other accessories, cooling coils, tubing, filters etc should be placed after the flame arrestor



## **Order Codes**

Enclosed diagram indicates main component parts and spares for the EMS series of samplers





#### **Product Markings**



The sampler housings are manufactured from PEEK G45. Cleaning should only be undertaken using a damp cloth to prevent any static discharge. Ensure the 102 series detector and junction box are correctly earthed to further limit any possibility of static discharge.



## Troubleshooting

| Possible Issue                               | Possible Reason                            | Possible Solution                                                                                                                                                                                                                                                    |
|----------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                              |                                            |                                                                                                                                                                                                                                                                      |
| No Flow Indication                           | Check sample hose for<br>possible blockage | Clear blockage                                                                                                                                                                                                                                                       |
|                                              | Check air supply pressure                  | Reinitiate air supply                                                                                                                                                                                                                                                |
|                                              | Check needle adjustment valve              | If air supply is correct<br>check needle valve<br>adjustment                                                                                                                                                                                                         |
| Unstable gas readings                        | Sample flow may be too high                | Use a flow meter and<br>check flow is between<br>0.5 to 1L/Min adjust as<br>necessary                                                                                                                                                                                |
| Stopped sampling but<br>flow still indicated | Sensor ball is stuck                       | Remove flow switch<br>assembly and check<br>free operation of sensor<br>ball. If blocked with dirt<br>use service kit to clean<br>and replace. Consider fitting<br>end of sample line filters<br>to prevent debris ingress<br>contact IGD to advise<br>correct type. |