



Figure: AS-1 Biogas with high performance gas suction pump (Option)

Description:	Aspirated system for one (AS-1) or two (AS-2) measured gases: sampling of measured gas and transmitter combined in one wall mounted housing. Continuous sampling and measurement. Version AS-1 Biogas (Particularly suitable for biogas application, e. g. CH ₄ -, CO ₂ - and O ₂ -measurement; not for H ₂ S): Including flame arrester and automatic condensate trap with peristaltic pump.
Features	
Transmitter:	<ul style="list-style-type: none"> Number: 1 (AS-1, AS-1 Biogas) or 2 (AS-2) Types freely selectable (not included in scope of delivery)
Control Unit:	Externally, e. g. by ExTox Control Unit
Sampling of Gas:	<ul style="list-style-type: none"> Gas suction pump Electrical flow monitoring by means of pressure difference measurement: in case of under-scale of the minimum flow, fault indication is issued by breaking the transmitter output signal (4...20 mA) 2 screw-in connections (4/6 mm) for inlet and outlet of measured gas at the bottom of the housing 1 screw-in connections (4/6 mm) for condensate outlet at the bottom of the housing (AS-1 Biogas only)
Conditioning of Measured Gas:	<ul style="list-style-type: none"> Condensate trap with peristaltic pump 340 ml/h (AS-1 Biogas only) Flame Arrester Ⓢ IIG IIB3 in the gas inlet (AS-1 Biogas only)
Hosing:	PE/PP
Operation Conditions	
Distance for Suction:	<ul style="list-style-type: none"> When using hose 4/6 mm(inner/outer Ø: 4/6 mm) Standard: ≤ 50 m High performance gas suction pump (Option): ≥ 100 m
Operation Temperature:	<ul style="list-style-type: none"> -10 °C to +40 °C Additional limitations due to used transmitters have to be considered. In general an installation outside is not recommend, as in principle measuring accuracy and lifetime are influenced in a negative way. In case it is however necessary, please contact ExTox to design a suitable type.
Pressure at Suction Point: (relative to ambient pressure)	<ul style="list-style-type: none"> Standard: up to ±50 hPa High performance gas suction pump (Option): up to ± 100 hPa
Mechanical Features	
Dimensions: (Height x Width x Depth)	<ul style="list-style-type: none"> 380 mm x 300 mm x 155 mm (AS-1) 500 mm x 500 mm x 300 mm (AS-1 Biogas, AS-2)
Housing:	Wall mounted housing with door, mounting plate, foamed-in door sealing, 1 cam lock
Material:	Steel, powder-coated in textured RAL 7035
Ventilation:	2 fans, cross-flow, speed monitored (AS-1 Biogas, AS-2 only)
Storage Temperature:	<ul style="list-style-type: none"> -25 °C to +60 °C Additional limitations due to used transmitters have to be considered.
Electrical Features	
Power Supplies:	<ul style="list-style-type: none"> External: 230 V AC (Pump) From control unit: 24 V DC (Transmitter)
Cable Gland:	<ul style="list-style-type: none"> At the bottom of the housing 1 gland M20 x 1.5 (diameter of cable 7-13 mm) 5 glands M16 x 1.5 (diameter of cable 5-10 mm)
Terminal Assignment:	<ul style="list-style-type: none"> Double stock clamps for Power Supply (230 VAC fused with 6 A) Transmitter (+ 24 VDC, GND, 4...20 mA)

Aspirated Systems for one or two measured gases

AS-1 (Article-No.: 410110)

AS-1 Biogas (Article-No.: 410103)

AS-2 (Article-No.: 410111)

Customer-Specific Design and Documentation

This data sheet describes standard versions of the Aspirated Systems. But special applications need special measuring concepts, too. The modular design of our Aspirated Systems makes it easy for *ExTox* to follow your requests and requirements. You will find some suggestions in our separate data sheet *Special Versions*. Please challenge us!

Each Aspirated System is supplied with an individual documentation which integrates customer-specific modifications. The set of drawings include among others gas flow scheme, wiring diagram, terminal assignment and mechanical construction.

Options

ExTox-Transmitter:

Depending on type of measured component a suitable transmitter can be chosen out of the *ExTox* programme.

ExTox-Control Unit:

The measuring signal supplied by the Aspirated System can be evaluated by every *ExTox*-Control Unit.

Flame Arrestor:

☉ IIG IIB3 (Art.-No. 940250) or ☉ IIG IIC, e. g. for hydrogen, (Art.-No. 940251):

When sampling in hazardous areas the gas flow inside the Aspirated System is decoupled of the monitored process as far as the danger of explosion is concerned. The flame arrestor is connected to the measured gas inlet. When returning the measured gas into the process (not recommended due to technical measurement reasons) another flame arrestor at the measured gas outlet is necessary. Protection class of the flame arrestor shall be adapted to the measured gas.

High performance gas suction pump:

Application in case of far distances to the suction point or high pressure difference relative to ambient.

Condensate trap (great) incl. hose pump 800 ml/h (Art.-No. 940255):

Used for applications where a great amount of condensate will be formed in the measuring pipe.

Suction Filter, plastic (Art.-No. 940618):

Device for gas sampling from the ambient air with a plastic sinter-element for filtering the sampled gas. Mounting at the wall or ceiling. Orientation of sinter-element and hose connector can be chosen variable.

Information for Installation and Operation

The Aspirated System should be installed at an easily accessible place to ensure an easy maintenance. It should be installed protected against weather conditions and bigger climatic fluctuations.

The Aspirated System itself may not be installed in hazardous areas. It is essential to install a flame arrestor at the measured gas inlet in case the measured gas is sampled out of hazardous areas (already included for AS-1 Biogas).

The line from sampling the sampling point to the measured gas inlet of the Aspirated System shall consist of suitable material and shall be protected against damage and leakages. As far as incompatibilities of some gases with hosing materials are concerned *ExTox* will be at your disposal in case you require any advice.

Condensation inside the suction line, e. g. possible when sampling hot process gases, should be avoided. At least at the beginning the measured gas line should be placed with permanent incline to the sampling point to allow the condensate to get back into the process. Hose loops like a siphon in which a higher quantity of condensate can be accumulated shall be avoided. Please contact *ExTox* already in the planning phase if worst conditions are expected.

On principle flammable or toxic measured gases should be lead off safely, e. g. out-of doors via the roof. For flammable gases there might be a classification as hazardous area of Zone 2 in the close-up range around the gas outlet (Radius < 30 cm). In this range there should not be any possible ignition source.

The electrical installation may only be done by electro specialists according to the installation regulations on the subject. Please ensure above all for an adequate protection against lightning and overvoltage.

General recommendations for use and maintenance are described in the Instruction Manual of the of the *ExTox* transmitters. Additionally the gas tubing and the therein additional devices have to be checked for correct function in regular intervals. The gas tubing has to be tight. It has to be ensured that the hoses are not clogged with dust or condensate which would block the flow through. The flow through has to be within the designated nominal range.

Further hints, e. g. according measuring gas sampling, can be found on the *ExTox*-Homepage

(Subject to Technical Changes)