



**Ankersmid Sampling**

# **User Manual**

**Portable Gas Conditioning System  
Series APS**



# Portable Gas Conditioning System

**Series APS 30x, 31x**



## List of contents

|  |    |
|--|----|
| A. Illustrations.....                                  | 4  |
| B. Used terms and signal indications .....             | 5  |
| C. Electrical standards.....                           | 5  |
| D. Safety instructions .....                           | 6  |
| E. Warranty .....                                      | 7  |
| F. Introduction .....                                  | 7  |
| F.1. Serial number .....                               | 7  |
| F.2. Power supply .....                                | 7  |
| G. Description .....                                   | 8  |
| H. Technical data .....                                | 9  |
| I. Regulation device.....                              | 10 |
| J. Versions, options, consumable and spare parts ..... | 12 |
| K. Receipt & storage of goods .....                    | 16 |
| L. Preparation for installation.....                   | 16 |
| L.1 Mechanical connection.....                         | 17 |
| L.2 Electrical connection.....                         | 18 |
| M. Mounting.....                                       | 18 |
| N. Maintenance .....                                   | 18 |
| N.1 Changing the pump hose .....                       | 19 |
| N.2 Replacing the filter cartridge (optional).....     | 19 |
| O. Shutting down.....                                  | 19 |

## **A. List of illustrations**

|            |  |    |
|------------|--|----|
| Figure 1   | Standard flow chart of a gas sampling line ..... | 8  |
| Figure 2   | Exchanger with humidifier .....                  | 13 |
| Figure 3   | Outside connections .....                        | 17 |
| Figure 4/5 | Inside connections .....                         | 17 |

## B. Used terms and signal indications

### QUALIFIED PERSONNEL

Persons with necessary qualification, who are familiar with installation use and maintenance of the product



### NOTE

The signal is used according to DIN 4844 and EU Recommendation 91/C53/06



### IMPORTANT

Important information about the product or parts referring to operating in hazardous areas

## C. Electrical standards



### CE – Certification

The product described in this operating manual complies with following EC directives:

#### EMV-Instruction

The requirements of the EC directive 89/336/EEG "Electromagnetic compatibility" are met.

#### Low Voltage Directive

This product corresponds to the electrical standard of safety regulations concerning the low-voltage of the EC recommendation **73/23 EEC** and the **recommendation of electromagnetic compatibility 89/336 EEC**.

#### Declaration of conformity

The EU Declaration of conformity is available at Ankersmid Sampling.

## D. Safety instructions

Please read these operating instructions very carefully before start up and use of the equipment.

- Please check before installing the equipment if the device is suitable for:
  - the exposed pressure
  - the exposed temperature
  - the exposed ambient conditions (e.g.: rain, moist, dust,...)
- Attention must be paid to the requirements of **IEC 364 (DIN VDE 0100)** when setting high-power electrical units with nominal voltages of up to 1000 V, together with the associated standards and stipulations.
- Work on electrical equipment should only be carried out by trained specialists.
- Before connecting the equipment, be sure that the main voltage is equal to the voltage mentioned on the type plate on the inside of the electrical box.
- Beware that the apparatus and the control units are switched off before opening of the protection body.
- Installation, maintenance, monitoring and repairs can be done by authorised personnel.



### **IMPORTANT:**

This equipment is, in its standard version, not explosion-proofed!

## **E. Warranty**

If the equipment fails, please contact your ANKERSMID SAMPLING dealer.

The warranty is covered for a period of 1 year countable from the first day of delivery (as also specified in our normal terms and conditions of sale) when the apparatus (\*) is handled and assembled correctly, installed according good craftsmanship, treatment and use or operation of the equipment.

The warranty covers repair at the factory at no cost, or the replacement at no cost of the equipment free ex user location. In case of resend or reshipment, the probe must be properly packed or in his original protective packaging or in a sufficient adapted recipient.



Consumables are only covered by this warranty in case of production defaults.

## **F. Introduction**

ANKERSMID SAMPLING Portable gas conditioning systems are used in mobile gas analysis to prepare a sample gas by filtering the gas according to any dust particles and by lowering the dew point of humid gas to avoid condensate in the analyser. A good and stable gas dew point avoids cross-interference if the analyser is sensitive to H<sub>2</sub>O.

### **F.1 Serial number**

The serial number is mentioned on the type plate on the device.

### **F.2 Power supply**

Depending on the country area the device is available for a power supply of 230V/50Hz or 115V/60Hz.

## G. Description

The portable conditioning systems are developed, designed, patented and assembled by Ankersmid Sampling in Belgium.

The temperature of this Peltier cooler unit is regulated by an electronic device with a standard setting of 4°C.

The temperature regulation unit offers the possibility to bring out alarm or fault contacts.

In option a 2-way Modbus / RS485 communication is possible; this combines all Ankersmid controllers, so that digital communication with the control room is possible.

The content and use of a portable system is shown in below standard flow chart, marked with a dashed frame:

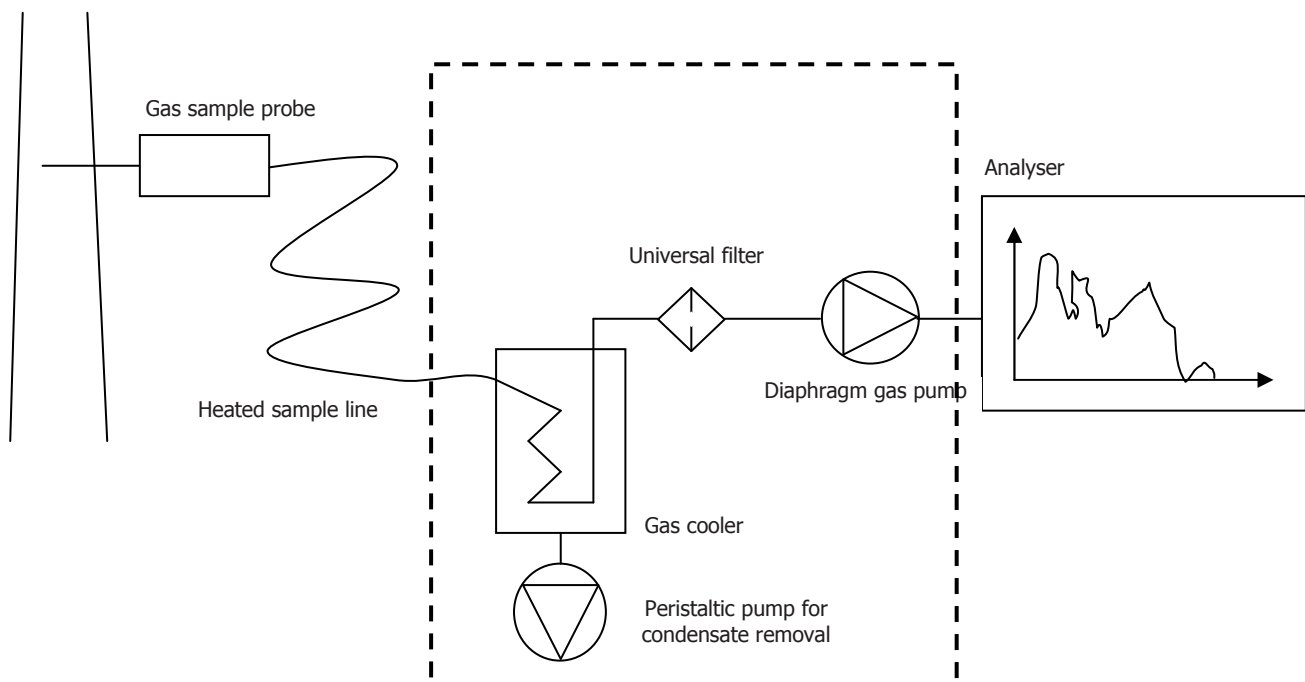


Figure 1 Standard flow chart of a gas sampling line

The standard exchanger, made of Duran glass with a PTFE screwed head, is cooled by a complete system of a Peltier element, a cooling block, a heat sink, and a ventilator.

By lowering the temperature of the sample gasses, condensate liquid will be formed on the sides of the exchanger. Condense drops will form and descend to the bottom of the vessel. This condensate liquid will be removed by a peristaltic pump which is mounted inside the portable case.



## H. Technical data

| APS Portable system           | APS 301  | APS 302 | APS 303 | APS 311       | APS 312 | APS 313 |
|-------------------------------|--|---------|---------|---------------|---------|---------|
| Gas flow rate max.            | 350NI/h  | 350NI/h | 350NI/h | 150NI/h       | 150NI/h | 150NI/h |
| Sample outlet dew point       | +1°C ... +15°C, factory setting: +4°C                                |         |         |               |         |         |
| Dew point stability           | ±0,1°C   |         |         |               |         |         |
| Sample inlet temperature      | Max.190°C  |         |         |               |         |         |
| Sample inlet connection       | Stainless steel connection DN4/6mm, suitable for heated sample lines |         |         |               |         |         |
| Sample inlet dew point        | Max. 80°C  |         |         |               |         |         |
| Ambient temperature           | +5°C up to +45°C   |         |         |               |         |         |
| Maximum pressure              | 3 bar abs.   |         |         |               |         |         |
| Material of gas wetted parts* |  |         |         |               |         |         |
| Heat exchanger head           | PTFE   | PVDF    | SS316   | PTFE          | PVDF    | SS316   |
| Heat exchanger body           | Glass  | PVDF    | SS316   | Glass         | PVDF    | SS316   |
| Diaphragm pump                | Head: PPS, Valves: FFPM, Membrane: PTFE-coated                       |         |         |               |         |         |
| Filter                        | head, filter element, element holder: PTFE, body: glass              |         |         |               |         |         |
| Peristaltic pump              | Tube: Novoprene®, Connectors: PVDF                                   |         |         |               |         |         |
| Others                        | Tubing: PTFE, Inlet connector: SS316, Outlet connector: PVDF         |         |         |               |         |         |
| Number of gas inlets          | 1  |         |         |               |         |         |
| Number of gas outlets         | 1 (standard), max. 2   |         |         |               |         |         |
| Filter porosity*              | 2µm  |         |         |               |         |         |
| Alarm contact                 | Free programmable contact 1NO / 1NC, rating: 250V, 16A AC            |         |         |               |         |         |
| Total cooling capacity        | Max. 225kJ/h   |         |         | Max. 215 kJ/h |         |         |
| Storage temperature           | -25 °C up to +65 °C  |         |         |               |         |         |
| Ready for operation           | < 15 min   |         |         |               |         |         |
| Power supply                  | 230V/50Hz or 115V/60Hz   |         |         |               |         |         |
| Power consumption             | 100VA  |         |         |               |         |         |
| Electrical connection         | Cold appliance plug with 1,5 m of cable                              |         |         |               |         |         |
| Housing                       | Portable plastic case  |         |         |               |         |         |
| Housing dimensions            | 52,4mm x 42,8mm x 20,6mm (W x H x D)                                 |         |         |               |         |         |
| Electrical protection         | Fuse 2A  |         |         |               |         |         |
| Electrical standard           | EN61010  |         |         |               |         |         |
| Weight approx.                | 12 kg  |         |         |               |         |         |

\*Maximum values in technical data's must be rated in consideration of total cooling capacity at 25°C ambient temperature and 4°C outlet dew point

PTFE = Polytetrafluoroethylene (Teflon®)

PVDF = Polyvinylidenefluoride

PPS = Polypropylenesulphide (Ryton®)

FFPM = Perfluorelastomer (Kalrez®)

## I. Regulation device

The display of the regulation unit will directly indicate the temperature in real time.  
The setting temperature is set by our manufacturing department.

Settings (alarm etc.) can be done according as follows:

Before starting up check whether the mains power supply voltage corresponds with the information stated on the probe's nameplate.  
Switch on mains power supply.

### Change of set-point value on temperature controller

The display normally shows process value (ex. measured temperature), but can also visualize set-points or value of entering data.

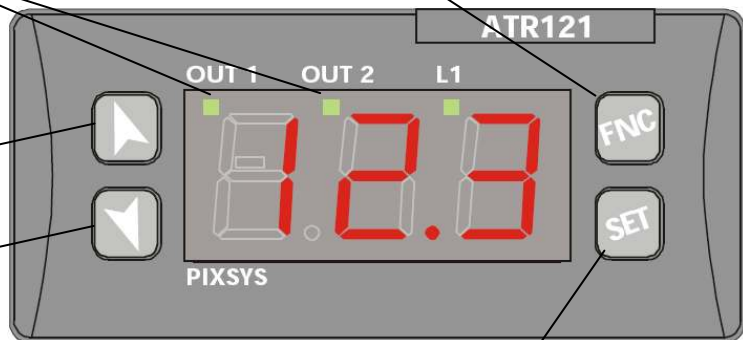
Fleshing when set-point is visualized  
on display and can be modified.  
ON when output is active.

Enter configuration of  
parameters (by password)






Visualize set, increase set or scroll  
parameters (with fast advancement)

Visualize set, decrease set or scroll  
parameters (with fast advancement)

To modify the set-point value, press SET key  
or one of the arrow-keys: led OUT1 flashes  
and it is now possible to enter/modify set-  
point value by pressing the arrow-keys.





|   | Press   | Display  | Do   |
|---|---|--|--|
| 1 |  or <br>or<br> | Display shows <b>main setpoint</b> ; Led OUT1 flashes. | Press  or <br>To modify setpoint (fast advancement available).<br><br>Approx. 4 seconds after last modify, display shows again process value (value read by sensor input). |

If the device does not work properly, the controller stops the running cycle and shows the anomaly.

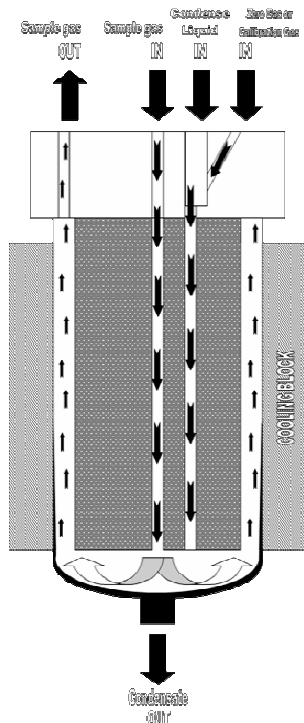
For example the controller will notice the failure of a thermocouple displaying **E-5** (flashing).  
For further error signs check the list below.

| Error       | Cause  | Do   |
|-------------|--|--|
| <b>E-01</b> | Programming error EPROM.   | -  |
| <b>E-02</b> | Cold junction failure or room temperature out of range           | -  |
| <b>E-04</b> | Wrong configuration data.<br>Possible lost of calibration values | Check configuration parameters               |
| <b>E-05</b> | Open thermocouple or room temperature out of range               | Check sensors connection and their integrity |

## J. Versions, options, consumable and spare parts

|         |  |
|---------|--|
| APS 301 | Portable gas conditioning system for 350NI/h. In an heavy duty ABS portable housing, consisting of: Peltier cooler with exchanger made of Duran® Glass (body) and PTFE (head), universal filter AUF 102, diaphragm pump AMP 11E, peristaltic pump ACP 001, Pre-filter type APS 900 (25µm) to protect peristaltic pump. Internal tubing: PTFE. Power: 230V/50Hz |
| APS 302 | Portable gas conditioning system for 350NI/h. In an heavy duty ABS portable housing, consisting of: Peltier cooler with exchanger made of PVDF (body and head), universal filter AUF 102, diaphragm pump AMP 11E, peristaltic pump ACP 001, Pre-filter type APS 900 (25µm) to protect peristaltic pump. Internal tubing: PTFE. Power: 230V/50Hz                |
| APS 303 | Portable gas conditioning system for 350NI/h. In an heavy duty ABS portable housing, consisting of: Peltier cooler with exchanger made of Stainless Steel 316 (body and head), universal filter AUF 102, diaphragm pump AMP 11E, peristaltic pump ACP 001, Pre-filter type APS 900 (25µm) to protect peristaltic pump. Internal tubing: PTFE. Power: 230V/50Hz |
| APS 311 | Portable gas conditioning system for 200NI/h. In an heavy duty ABS portable housing, consisting of: Peltier cooler with exchanger made of Duran® Glass (body) and PTFE (head), universal filter AUF 102, diaphragm pump AMP 26E, peristaltic pump ACP 001, Pre-filter type APS 900 (25µm) to protect peristaltic pump. Internal tubing: PTFE. Power: 230V/50Hz |
| APS 312 | Portable gas conditioning system for 200NI/h. In an heavy duty ABS portable housing, consisting of: Peltier cooler with exchanger made of PVDF (body and head), universal filter AUF 102, diaphragm pump AMP 26E, peristaltic pump ACP 001, Pre-filter type APS 900 (25µm) to protect peristaltic pump. Internal tubing: PTFE. Power: 230V/50Hz                |
| APS 313 | Portable gas conditioning system for 200NI/h. In an heavy duty ABS portable housing, consisting of: Peltier cooler with exchanger made of Stainless Steel 316 (body and head), universal filter AUF 102, diaphragm pump AMP 26E, peristaltic pump ACP 001, Pre-filter type APS 900 (25µm) to protect peristaltic pump. Internal tubing: PTFE. Power: 230V/50Hz |
| APS 001 | Option for APS/ASS 3xx with flow meter (max. 2 pcs.). Material: acylic glass.<br>Range: 0,1-1,2 NI/min   |
| APS 002 | Option for APS/ASS 3xx with flow meter (max. 2 pcs.). Material: acylic glass.<br>Range: 0,5-2,5 NI/min   |
| APS 003 | Option for APS/ASS 3xx with flow meter (max. 2 pcs.). Material: acylic glass.<br>Range: 0,5-6 NI/min   |
| APS 004 | Option for APS/ASS 3xx with flow meter (max. 2 pcs.). Material: acylic glass.<br>Range: 2-14 NI/min  |
| APS 005 | Option for APS/ASS 3xx with flow meter (max. 2 pcs.). Material: acylic glass.<br>Range: 5-30 NI/min  |
| APS 006 | Option for APS/ASS 3xx with liquid alarm unit in APS 30x. Consisting of: filter unit AUF 104 (instead of AUF 102) with drain, Liquid alarm ALA 002, ALA 102 Electronic device.<br>Automatic switch off of sample pump at condensate inrush   |

|         |   |
|---------|---|
| APS 007 | Option for APS/ASS 3xx with digital regulation unit ATC 600 (max 10A) for heated line integrated in APS 3xx. Incl. connector and wiring   |
| APS 008 | Option for APS/ASS 3xx with 3-way ball-valve integrated in the gas inlet  |
| APS 009 | Option for APS/ASS 3xx with 5-way ball-valve integrated in the gas inlet  |
| APS 010 | Option for APS/ASS 3xx with adjustable carrying strap   |
| APC 001 | Option APS/ASS with complete heat exchanger unit with humidifier and calibration gas inlet. <b>Only for APS/ASS/ADS series 30x.</b><br>Connections: gas in: G1/4", gas out: G1/4", calibration gas in: G1/4", condensate in: G3/8".<br>Material for APC 301: glass, PVDF, PTFE.<br>Material for APC 302: PVDF, PTFE.<br>Incl. Thermal conductivity paste, 5gr |



This special heat exchanger is suitable for calibration under perfect conditions. The principle is that zero and calibration gas is injected in the special head of this exchanger where they will be 'humidified' with the return of liquid condensate (See Figure 7). This way the calibration or zero gas will be at the same dew point as the sampling gas. The heat exchanger with humidifier is one to one interchangeable with the standard heat exchanger.

Figure 2 Exchanger with humidifier

|         |   |
|---------|---|
| ACP 001 | Peristaltic pump ASR25, capacity 0,25l/h, connection DN4/6. Materials: Novoprene <sup>®</sup> , PVDF. Pressure: 200mbar abs -2,2bar abs., power: 230/115VAC |
| ACP 020 | Set of Novoprene <sup>®</sup> tube with PVDF connectors for ACP, for tube DN4/6.  |
| ACP 022 | Set of Viton <sup>®</sup> tube with PVDF connectors for ACP, for tube DN 4/7  |
| ACP 023 | Set of Acidflex <sup>®</sup> tube DN3x1 with PVDF connectors for ACP, for tube DN4/6  |
| ACP 032 | Set of pressure springs for driver ASR25 (4 Pcs.: 2 left, 2 right)  |
| ACP 034 | Driver complete for ASR25 (green chassis + white pulleys + springs)   |
| ACP 035 | Contact pulley for ASR25 (2 pcs.)   |
| ACP 037 | Conveying belt for ASR25  |
| ACP 039 | S-bolt for ASR25  |
| ACP 045 | Pump head (black) complete with S-bolt without motor and gear for ASR25 (without driver & conveying belt)   |
| ACP 050 | Spring for Novoprene <sup>®</sup> /Viton <sup>®</sup> /Acidflex <sup>®</sup> tubing fixing (2 pcs.)   |
| ACP 500 | Complete motor and gear for ASR25 for ACP 001 (5 RPM)   |

|         |  |
|---------|--|
| ACC 150 | Heat exchanger outer part for 150NI/h, with 1 x GL25, material: Duran <sup>®</sup> glass. Incl. thermal conductivity paste (5gr).  |
| ACC 151 | Heat exchanger complete for 150NI/h. Material: body made of Duran <sup>®</sup> glass, head made of PTFE. Connections: G 1/4"i + G 1/4"i and 1x G 3/8"i. Incl. thermal conductivity paste (5gr).                              |
| ACC 152 | Heat exchanger complete for 150NI/h. Material: body/head: SS316. Connections: G 1/4"i + G 1/4"i and 1x G 3/8"i. Incl. thermal conductivity paste (5gr).  |
| ACC 153 | Heat exchanger complete for 150NI/h. Material: body made of PVDF, head made of PTFE. Connections: G 1/4"i + G 1/4"i and 1x G 3/8"i. Incl. thermal conductivity paste (5gr).  |
| APC 101 | Heat exchanger complete for 350NI/h. Body: Duran <sup>®</sup> glass, head: PTFE, volume displacer: PVDF. Connections: Gas in: 1x G1/4", gas out 2xG1/4", condensate out: 1x GL25-12mm. Incl. thermal conductivity paste, 5gr |
| APC 103 | Heat exchanger for 350NI/h. Outer part with 1x GL25, material: Duran <sup>®</sup> glass. Incl. thermal conductivity paste, 5gr   |
| APC 102 | Heat exchanger complete for 350NI/h. Body: PVDF, head: PTFE. Connections: Gas in: 1x G1/4", gas out 2xG1/4", condensate out: 1x G3/8". Incl. thermal conductivity paste, 5gr   |
| APC 104 | Heat exchanger for 350NI/h. Outer part, material: PVDF. Incl. thermal conductivity paste,, 5gr   |
| APC 106 | Heat exchanger for 350NI/h. Inner part, material: PVDF   |
| APC 110 | Heat exchanger complete for 350NI/h. Material: body/head: SS316. Connections: Gas in: 1x G1/4", gas out 2xG1/4", condensate out: 1x G3/8". Incl. thermal conductivity paste, 5gr   |
| APC 112 | Heat exchanger for 350NI/h. Outer part, material: SS316. Incl. thermal conductivity paste, 5gr   |
| APC 114 | Heat exchanger for 350NI/h. Inner part, material: SS316  |
| APC 113 | Tent/wick for humidifier of heat exchanger   |
| APC 120 | Thermal conductivity paste -40 to +150°C, 5g   |
| APC 121 | Thermal conductivity paste -40 to +150°C, 50g  |
| APC 130 | Power transistor for APC 3xx series  |
| APC 132 | Temperature sensor PT100 for APC 3xx series  |
| APC 133 | Peltier element for APC 3xx series. Incl. thermal conductivity paste, -20 - +140°C, 5gr  |
| APC 140 | Power supply for APC 3xx series  |
| APC 142 | Insulation set for APC 3xx series  |
| APC 143 | Electronic controller 110/240VAC for APC 3xx series  |
| APC 144 | Electronic controller 110/240VAC for APC 3xx series, with RS485 interface  |
| APC 136 | Fan for APC 3xx series   |
| APC 123 | Fine fuse 1AT (5 pc.) for APC 3xx series   |
| AUF 301 | Extra charge for liquid alarm sensor type ALA 001 mounted to universal filter with glass-body (GL25). Incl. rail-mounting electronics type ALA 101, 230VAC. Max. 3 bar a   |
| AUF 303 | Extra charge for liquid alarm sensor type ALA 002 mounted to universal filter with glass-body (GL25). Incl. rail-mounting electronics type ALA 102, 230VAC. Max. 3 bar a   |
| APC 021 | Connector for optical liquid-alarm sensor ALS 001 connected to digital controller, with 1 contact NO   |



|         |  |
|---------|--|
| AMP 11E | Analytical diaphragm pump AMP 11E. material: membrane: PTFE-coated, head: PPS, valves: FFPM, capacity: 11NI/min @ atm. pressure. Connections: G 1/8"i, IP00. 230V  |
| AMP 002 | FPM (Viton <sup>®</sup> ) valve and sealing ring for AMP 11E (2 pcs./pump needed)  |
| AMP 003 | Diaphragm for AMP 11E, material: PTFE-coated   |
| AMP 004 | Valve and sealing ring for AMP 11E, material: FFPM (Kalrez <sup>®</sup> ) (2 pcs./pump needed)   |
| AMP 26P | Analytical diaphragm pump AMP 26P, material: membrane: PTFE-coated, head: Ryton, o-rings & valves: FFPM (Kalrez <sup>®</sup> ). Capacity: 5,5NI/min @ atm. pressure. Connections: G1/8"i, IP00. 230V   |
| AMP 603 | Diaphragm for AMP 26P, material: PTFE-coated   |
| AMP 605 | Valve plate for AMP 26P, material: FFPM (Kalrez <sup>®</sup> ) (2 pcs./pump needed)  |
| AMP 604 | Sealing ring for AMP 26P, material: FFPM (Kalrez <sup>®</sup> ) (2 pcs./pump needed)   |
| AUF 102 | AUF-1-P-GO-T02-MB. Universal filter with filter head and filter element holder made of PTFE. Filter body made of Duran <sup>®</sup> glass. Filter element made of PTFE with a porosity of 2µm, length 75mm. Gas in-/out connection: G1/4". Incl. bracket for wall-mounting   |
| AUF 104 | AUF-1-P-GL-T02-MB. Universal filter with filter head and filter element holder made of PTFE. Filter body made of Duran <sup>®</sup> glass, with connection GL25 for condensate outlet or liquid alarm sensor. Filter element made of PTFE with a porosity of 2µm, length 75mm. Gas in-/out connection: G1/4". Incl.: bracket for wall-mounting, Union nut GL 25/15 (ACF 750), PTFE sealing ring GL 25-12 mm (ACF 763)          |
| AUF 132 | AUF-1-P-GO-G0.1-MB. Universal filter with filter head and filter element holder made of PTFE. Filter body made of Duran <sup>®</sup> glass. Filter element made of glass-fibre with a porosity of 0.1µm, Gas in-/out connection: G1/4". Incl. bracket for wall-mounting  |
| AUF 134 | AUF-1-P-GL-G.1-MB. Universal filter with filter head and filter element holder made of PTFE. Filter body made of Duran <sup>®</sup> glass, with connection GL25 for condensate outlet or liquid alarm sensor. Filter element made of glass-fibre with a porosity of 0.1µm, length 75mm. Gas in-/out connection: G1/4". Incl.: bracket for wall-mounting, Union nut GL 25/15 (ACF 750), PTFE sealing ring GL 25-12 mm (ACF 763) |
| AUF 001 | Filter element, material: PTFE, length: 75mm, porosity: 2µm  |
| AUF 002 | Filter element, material: PTFE, length: 75mm, porosity: 20µm   |
| AUF 006 | Filter element, material: SS316, length: 75mm, porosity: 2µm   |
| AUF 007 | Filter element, material: SS316, length: 75mm, porosity: 3µm   |
| AUF 008 | Filter element, material: SS316, length: 75mm, porosity: 20µm  |
| AUF 012 | Filter element, material: ceramics, length: 75mm, porosity: 2µm  |
| AUF 014 | Filter element, material: ceramics, length: 75mm, porosity: 20µm   |
| AUF 030 | Filter element, material: glass fibre, length: 75mm, porosity: 2µm (pack of 25pcs.)  |
| AUF 801 | Filter Glass for filter elements 75mm without drain outlet (Glass only)  |
| AUF 802 | Filter Glass for filter elements 75mm with drain outlet (Glass only)   |
| AUF 900 | Filter element holder for standard filter elements of 75mm, material: PVDF   |
| AUF 904 | O-Ring for filter head, material: Viton <sup>®</sup>   |
| AUF 905 | Filter head, material: PTFE. Incl.: O-ring, mounting bracket   |
| AUF 906 | O-Ring for filter element AUF 091 / AUF 092. Material: Viton <sup>®</sup>  |
| ASP 081 | Gasket for filter element, material: Viton <sup>®</sup>  |
| APS 900 | Pre-filter with filter element, porosity: 25µm   |

## **K. Receipt and storage of goods**

The device is a complete pre-installed unit.

The arrived goods should be carefully unpacked as soon as possible in order to control the good and correct condition.

The goods and the delivery note should be compared. If any difference is noted please contact your Ankersmid Sampling contact person.

The delivery should be checked for any transport damage. If any anomaly is noted, please contact the transport insurer immediately notifying of the damage.

The goods should be stored in a frost-protected area.

## **L. Preparation for installation**

The safety rules and regulations for the prevention of accidents must be observed when carrying out the installation.



### **NOTE**

Especially the information in chapter D. "Safety instructions" must be applied.

This device is to be used in only in VERTICAL position. The device is operating with open and closed lid, but we recommend to always keep the housing closed in order to protect the products inside.

The device should be placed in a ventilated area, away from heat sources and magnetic fields. If the equipment is placed outside, beware that it is prevented against rain, dust, frost, and direct sunlight.



### **IMPORTANT**

A standard version of the device is not an explosion-proofed apparatus!



## L.1 Mechanical connection

|  |  |
|--|--|
| Sample gas inlet                           | Connecting adapter flange with integrated bending protection for rigid mountage of heated sample lines, including fitting and nut. Material: SS316 |
| Sample gas outlet                          | Bulkhead union DN4/6. Material: PVDF   |
| Calibration gas, zero gas inlet (Optional) | Bulkhead union DN4/6. Material: PVDF   |
| Condensate outlet                          | Bulkhead union DN4/6. Material: PVDF   |



### NOTE

The gas inlet and outlet is located inside the portable housing in the heated area. It is important to not mix connections. Ensure that the connections are sealed correctly.

To ensure free removal of condensate, please ensure that the diameter of the tubing for condensate removal is minimum DN4/6mm!

To grant a functional and proper mounting we recommend the use of union pieces with taper pipe and thread type R according to DIN 2999/1 in connection with suitable sealing tape.



Figure 3 Outside connections

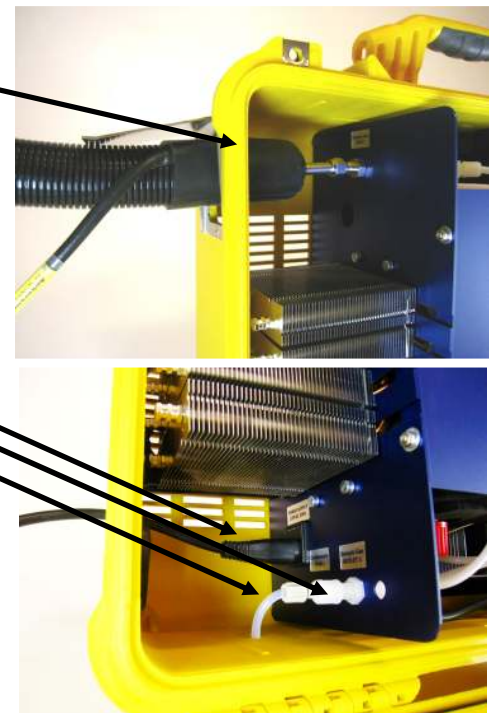


Figure 4/5 Inside connections

## L.2 Electrical connection

### **NOTE**

At connecting the equipment please check that the supply voltage is identical with the information provided on the type plate.

Attention must be paid to the requirements of IEC 364 (DIN VDE0100) when setting high-power electrical units with nominal voltages of up to 1000V, together with the associated standards and stipulations.

Power supply: 230VAC standard (115VAC on request)

## M. Mounting

The conditioning system could be used in portable and stationary conditions and with correct selection of the installation point and proper installation. When used and properly installed in the prescript area ANKERSMID SAMPLING guarantee a long-time of maintenance-free and satisfaction use.

## N. Maintenance

Before the maintenance it is necessary that the specific safety procedures regarding the system and operational process are observed.

### **NOTE**

It is necessary to switch off the power supply before any assembly, maintenance or repair work is carried out!

## N.1 Changing the pump hose

When the condensate pump is operated for a long time, the pump hose eventually wears out. Condensate may leak from the pump hose. In this case, the pump hose must be replaced immediately as there is a risk of external air being sucked from porous points, which may lead to false readings. We recommend replacement of the pump hose after every 3 months as a precautionary measure. Follow the simple guidelines for handling the condensate before and while changing the condensate tube. The device must be switched off before changing the condensate tubes. Hose connection bolted joints must be loosened and hoses must be disconnected.



### **NOTE**

**Condensate may leak**

The lock of the pump hose must then be rotated clockwise till the bearing surface can be dismantled. After dismantling the bearing surface, the pump hose can be disconnected from it along with the hose connection bolted joints. The new pump hose must then be inserted into the bearing surface. The bearing surface of the condensate pump must be mounted again and the lock must be rotated anti-clockwise in order to fix the bearing surface. Condensate lines must be connected again after locking the bearing surface.

## N.2 Replacing the Teflon filter cartridge (optional)

Cartridge of the filter must be replaced in case of contamination. The sample gas pump must be switched off before changing it. The clamping nut of the filter casing can then be removed.



### **NOTE**

**the filter glass may fall out of the clamping nut**

After unscrewing the filter element holder the filter cartridge can be replaced by taking it out and inserting a new one in.

## O. Closing down



### **NOTE**

The area in which the device is placed when not in use must be kept free of frost at all times. If the device unit is putting out of action for a short time no particular measures need to be taken.

We recommended sweeping the device with inert gas or ambient air while the unit is putting out of action for a longer time. Condensate has to be removed completely from the cooler.



### **NOTE**

Aggressive condensate is possible. Wear protective glasses and proper protective clothing!