Operating instructions

SAM-1950 / SAM-3000

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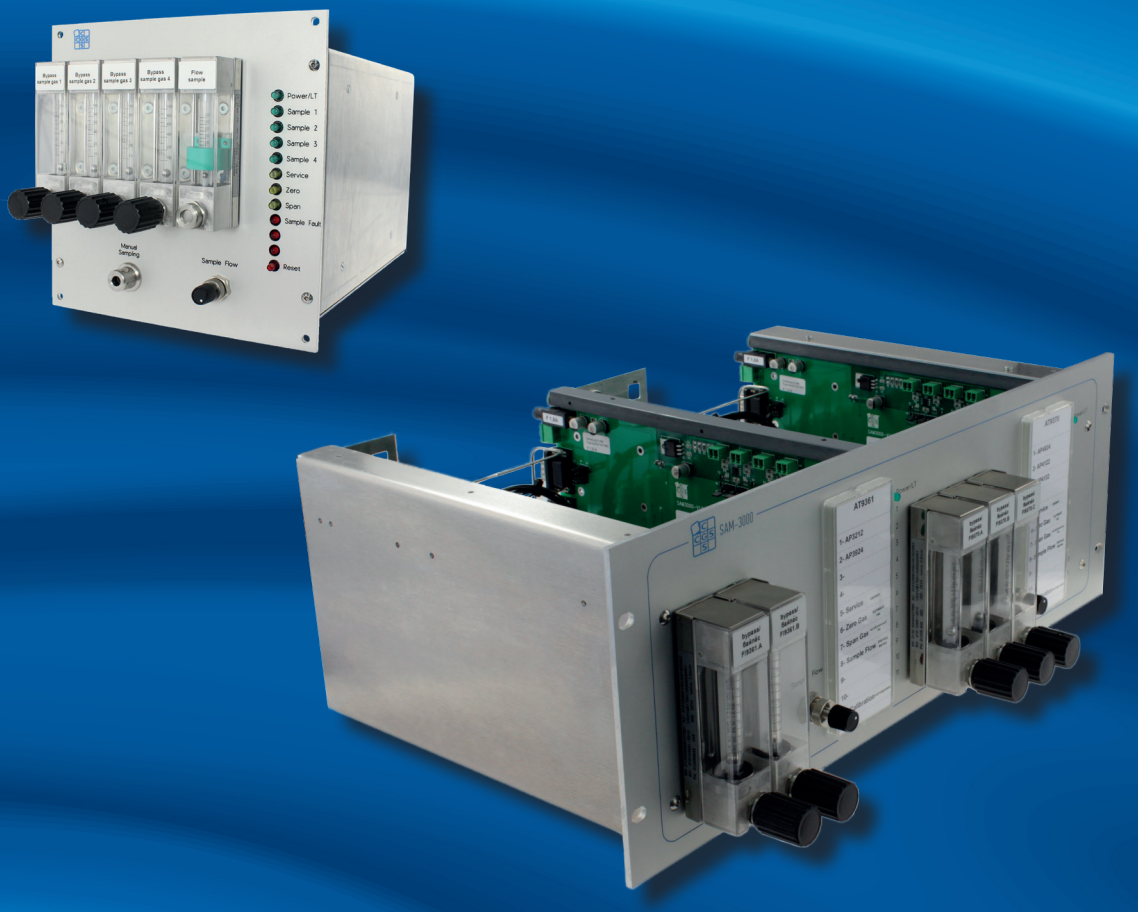

NOTE

Read these operating instructions carefully before assembly, installation and implementation.

These operating instructions are also available as a digital document on:
www.cgs-company.de/downloads/MDZ_E_B_SAM-3000.pdf

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1 General information

1.1 Device version and validity

This documentation is restricted to the specified product and is only valid for this respective product. The documentation describes the installation, implementation and maintenance of the device and provides information about its function.

1.2 Information for our customers

Read this manual before commencing work on this device! It contains important information and data that, when observed, will ensure the device functions properly and save service costs. Implementation of this device is thereby considerably facilitated, leads to reliable measurement results and prevents damage caused by improper use of the product.

1.3 General

This device has left the factory in a technically and operationally safe condition. To maintain this condition and to ensure safe operation of this product, it must be implemented only in the manner specified by the manufacturer. In addition, correct and safe operation of this product depends upon proper transport, proper storage and installation as well as careful operation and maintenance.
This manual contains the information necessary for the proper use of the product described herein.
It is written for technically qualified personnel who are specially trained or have relevant knowledge in the field of automation technology (measurement, control and feedback control systems).
Knowledge and technically correct implementation of the safety instructions and warnings contained in this manual are required for the safe installation and implementation of the product described and for its safety during operation and maintenance. Only qualified personnel have the necessary expertise to interpret the generally applicable safety instructions and warnings in specific cases and to apply them in practice.
This manual is an integral part of the scope of delivery even if a separate order is possible due to logistical reasons.
Because of the large number of technical details, it is not possible to consider all the details for all versions of the described product and for every conceivable installation, operation, maintenance and implementation in systems.
If you need additional information, or should particular problems arise which are not sufficiently covered in this document, please request the necessary information from your local or responsible CGS representative.

1.4 Warnings and explanatory texts

This manual describes how you can properly run, commission, operate and maintain this device.
You must pay particular attention to all warning and explanatory texts. These are separated from the text and specifically identified by the relevant icons. They provide you with valuable tips for avoiding operating errors and accidents.

1.5 Intended use

The intended use for the purposes of this manual means that this product must only be used for the applications described in the catalogue and in the technical description and only in conjunction with external devices and components approved or recommended by CGS.
The product described in this manual has been developed, manufactured, tested and documented in compliance with the applicable safety standards. No danger to personal health or property damage therefore normally ensues from compliance with the handling guidelines and safety instructions described for its project planning, assembly, intended use and maintenance.

1.6 Qualified personnel

Only those persons who are familiar with the installation, assembly, implementation and operation of the product are qualified.

These persons have the following qualifications:

- They are authorised, trained or instructed to operate and maintain equipment and systems in accordance with established safety procedures for electrical circuits, high pressures and aggressive and hazardous media.
- For devices with explosion protection: They are authorised, trained or instructed in carrying out work on electrical circuits for hazardous systems.
- They are trained or instructed in the maintenance and use of protective equipment in accordance with established safety procedures.

1.7 Warranty information

The contents of this manual is neither part of any previous or existing agreement, commitment or a previous or existing legal relationship, nor should anyone modify these. All obligations by CGS arise from the respective sales contract, which also contains the complete and solely applicable warranty terms and conditions.
These contractual warranty regulations are neither extended nor limited by the contents of the manual. The manufacturer accepts no liability for damage or malfunctions resulting from failure to observe the operating instructions.
Apart from the operating instructions and regulations regarding accident prevention applicable in the country and place of use, you must also observe the recognised technical regulations for safe and proper work.

The warranty claim expires if the device is not installed, implemented, operated and maintained in accordance with regulations.

Proper maintenance means:
- Adherence to the maintenance plan (see Chapter: Maintenance)
- Maintenance by trained maintenance personnel
- Use of original CGS spare parts

Maintenance should be performed by the CGS service technician or, on the operator side, by CGS-trained service technicians.

The warranty is void in case of:
- improper use
- use of unauthorised equipment
- faulty connection and existing components that are not part of the scope of delivery and service
- failure to use original spare parts and accessories
- retrofitting that was not performed by CGS itself
- non-compliance of prescribed maintenance work

The contents reflect the state of the art at the time of publication.
We reserve the right to make any technical changes due to further development.

1.8 Delivery information

The respective scope of delivery is listed in the shipping documents accompanying the delivery based on the valid contract.
Please observe the corresponding information on the packaging material when opening the packaging. Check the delivery for completeness and intactness. In particular, you should, where applicable, compare the order number on the nameplates with the ordering data.
If possible, please keep the packaging materials so that you can use it for future return deliveries (see Chapter: Packaging and transport).

1.9 Norms and regulations

The specification and production of this device were based on the harmonised European Norms whenever possible. If no harmonized European Norms have been applied, then the norms and regulations of the Federal Republic of Germany shall apply.
When using this product outside the scope of these norms and regulations, you must comply with the norms and regulations valid in the operator's country.

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1.10 Disclaimer

All technical information, data and operating instructions contained in this manual correspond to the latest state of development at the creation of this manual and are based on our previous experience and knowledge to the best of our knowledge.

We reserve the right to make any technical changes in the course of further development of the device described in these operating instructions. No claims can be derived from the data, illustrations and descriptions in this manual.

We assume no liability for any damage and interruptions caused by operator error, non-observance of these operating instructions or improper repairs.

We expressly state that only original spare parts and accessories approved by us must be used. This also applies to the subassemblies of other manufacturers.

The installation or use of non-approved replacement parts and accessories and any unauthorised modifications and changes are not permitted for safety reasons and exclude liability by CGS for any resulting damages.

Claims for damages are excluded regardless of the legal grounds of such claims.

Translations are made in good faith. We cannot accept any liability for any translation errors not even when the translation was made by us or on our behalf. Only the original text is binding.

The text and illustrations do not necessarily reflect the scope of delivery or a possible spare parts order. The drawings and diagrams are not to scale.

1.11 Disposal

This product comes from an environmentally conscious manufacturer and complies with the 2012/19/EU directive on waste electrical and electronic equipment (WEEE).
This product may contain substances which, if improperly disposed of (landfills, incinerators), are potentially environmentally harmful. It must therefore not be disposed of in this way.
Therefore, behave environmentally conscious:

- Arrange for this product to be recycled at the end of its life cycle via the relevant on-site facilities!
- Observe the relevant regulations for your country!

2 Warnings and safety instructions

This manual contains important **Warnings and safety instructions** which you must observe to ensure your own personal safety and to avoid property damage. The instructions referring to your personal safety are indicated by a warning symbol. Instructions referring only to property damage have no warning symbol. Depending on the hazard level, warnings are displayed in descending order as follows.

DANGER

indicates that death or severe personal injury **will result** if no appropriate precautions are taken.

WARNING

indicates that death or severe personal injury **can result** if no appropriate precautions are taken.

CAUTION

with warning triangle indicates that minor personal injury **can result** if no appropriate precautions are taken.

CAUTION

without warning triangle indicates that property damage **can result** if no appropriate precautions are taken.

NOTE

means that an undesirable event or situation can occur if the corresponding information is not observed.

If more than one hazard level occurs then the warning representing the highest degree of danger will be used. If a warning triangle is used to warn against personal injury then the same warning can be added to warn against property damage.

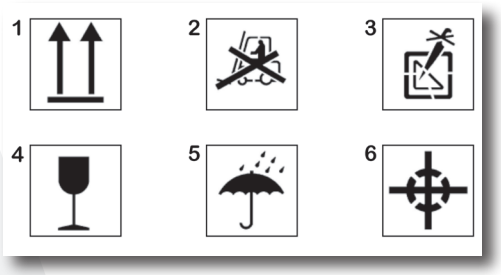
3 Packaging and transport

3.1 Packaging material

The individual system components and modules are shipped in different packaging. Primary packaging materials: wood, cardboard and plastics (films, foams), but also including hoop iron (for bundles), for example. Packing materials include materials which are added to the packages for moisture protection (e.g. silica gel bags).
If no agreement was reached on returning the packaging material then the packaging material remains with the customer.
Waste disposal that is environmentally friendly and in accordance with the applicable disposal regulations must be ensured. If necessary, assign waste disposal companies with the disposal of the packaging material.
The system components are to be transported as far as possible in the package to the installation site and kept in the package until assembly.

3.2 Shipping labels

Symbols are attached on the packages which must be observed during all transport phases including storage.



1. TOP! The package must be stored, handled and transported in such a way that the arrows always point upwards. Rolling, swinging, severe tipping or walking of goods marked in this way must be avoided.

2. Do not use forklift truck here

3. Do not destroy barrier!

4. Fragile, handle with care! Goods marked with this symbol should be handled carefully and should never be rolled over or tied tightly.

5. Keep dry. Since goods of this type should also be protected from high levels of humidity, they must be transported in closed vehicles or containers.

6. Center of gravity. This symbol is intended to provide a clear indication of the position of the center of gravity.

3.3 Transport inspection

Important:

Check the entire shipment for completeness and possible transport damage immediately upon arrival. Failure to observe the following instructions in the event of damage shall cease the obligation of the insurer to render performance.

- Even in case of suspected damage: Only acknowledge receipt with reservation (e.g. including shipping documents) by specifying the alleged damage.
- Assert claims for compensation against third parties:
  Carriers, freight forwarders, warehouse keepers:
  - demand joint damage inspection
  - request a certificate of damage
  - hold these liable for damages in writing and describe the damage in detail,
  namely:
  - in case of visible damage prior to accepting delivery of the goods
  - in case of no apparent outward damage immediately upon discovery
- Set deadlines for complaints and observe these!
- Ensure mitigation of incurred damage and avoidance of further damage.
- Immediately consult an insurance adjuster to record the damage and provide advice for securing claims against third parties and for measures to mitigate the damage incurred.
- Never change the status of the consignment and its packaging until the arrival of the adjuster insofar this is not required to mitigate and prevent further damage.
- Immediately notify the insurer about the insurance case and quickly submit the complete claim documents to accelerate claims settlement (latest time before any preclusion and/or limitation periods for claims against third parties).

3.4 Storage

After unloading, the packages must be stored until installation in accordance with the shipping markings. Packed machine parts and accessories may not be unpacked.

Observe the applicable regulations for storage:

- Store in a cool dry place. Maximum humidity: 60 %.
  Make sure the packages are not stored outdoors.
  Also ensure that the storage room floor is dry during storage.
- Protect against direct sunlight. Storage temperature 5° C to 35 °C.
- Store in a dust-free location!
- Avoid mechanical shock and damage.
- For longer storage over 3 months, check the conservation measures.
  In case of aggressive weather conditions, conservation must be renewed if necessary.

4 Installation, assembly information

Safety measures:

Installation and assembly must only be performed by specially trained and qualified personnel. The general accident prevention regulations must thereby be observed.

A formal handover to the operator occurs in case of implementation by CGS or its authorised representatives. The device can subsequently be properly operated according to the operating instructions and applicable safety regulations.

Before opening the device, disconnect it from the power supply in any case.

Requirements for the installation site:

- No exposure to direct sunlight
- Low exposure to dust
- Sufficient space for operation and maintenance
- Available and easily accessible escape routes
- No tripping hazards caused by cables that run close to the ground, etc.
- Maximum height: 2000 m above sea level

Technical prerequisites (supply voltage, gas pressures, etc.) can be found in the Technical Data section.

5 Setup and function

5.1 Functional description

The cabinet sample module series SAM-1000_DP is used to connect different sample points to analysers. Because of its modular design, it can be used for various applications in the chemical and petrochemical industries for gaseous high-purity gases.

Special features:
The SAM-3000 especially distinguishes itself through the following features:

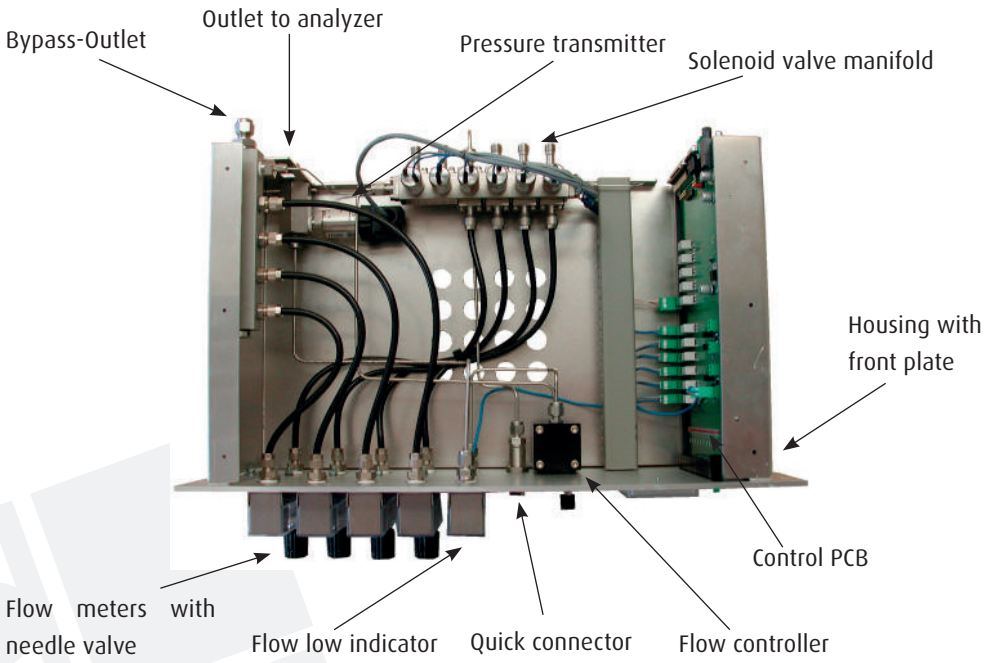
- Compact construction
- Minor dead volume
- Modular configuration
- High leak thightness
- Multi-purpose applications possible
- PROFIBUS connectivity possible (optional)

Depending on the expansion stage of SAM-3000 can be switched up to 4 sample gases and 2 calibration gases to an analyzer. For monitoring the gas ways at a glance LED's shows the selected way. The LED's can be optionally arranged as Pushbuttons. Filter frits at the inlet of the switching module protects the following analysers. So that impurities are filtered out of the sample gases and avoids pollutions and damages at the analyzer. Filter frits are available in 20 µm and 50 µm fineness of filtration. With the solenoid valve manifold concerning purging or no purging the dead volumes are minimized. For high purity applications the solenoid valves on the manifold are optimally arranged. By activation of a solenoid valve a potential free contact can be used to send a feedback signal to the DCS. Up to 4 flow indicators can be used to monitor the flow rate of sample gases. The SAM-3000 optional includes an integrated pressure transmitter. The estimation of additional attended connectors and tubing connections can be much reduced and supports a fast installation. A high variety of connectors can be chosen for different tubing diameters. Depending on application different materials for the tubing inside of SAM-3000 can be selected. Free configurable bridge circuits on control PCB compliance individual requirements. So for e.g. the LED's displays the individual task of function. Optionally the SAM-3000 can be connected to a Profibus.

5.2 Design and operating mode

The SAM-3000 is designed as a plug-in module for 19“ racks or 19“ cabinets.

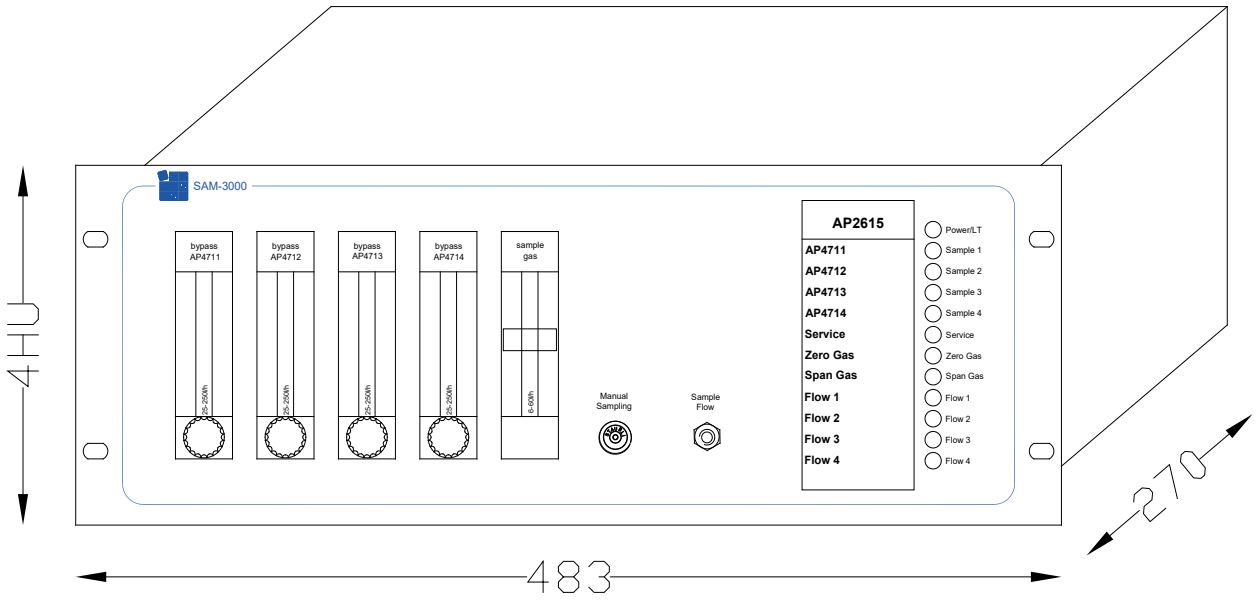
- Aluminium housing with mounted front plate
- Control PCB
- Solenoid valve manifold
- Outlet manifold
- Depending on the expansion stage bulkhead unions, flow meters and flow regulators

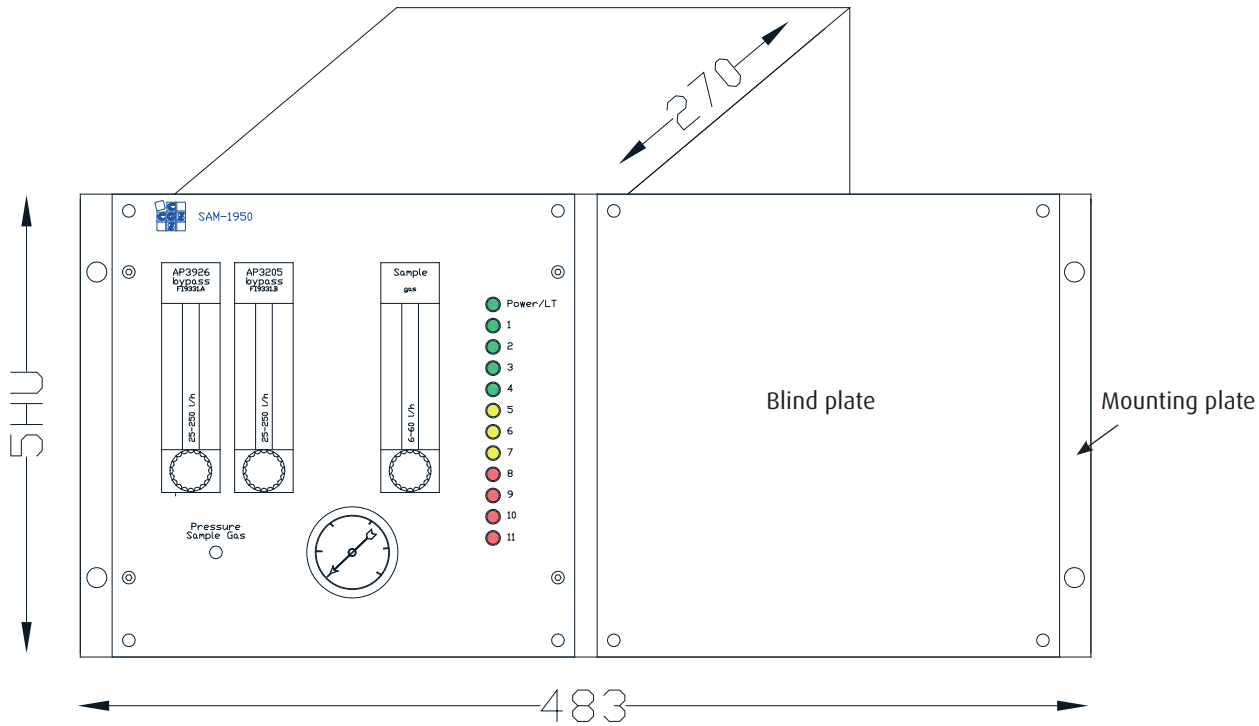


In the main case the inner of the module includes a solenoid valve manifold with selectable tubings in different materials (metal, plastic or mixture of both) available. To control the solenoid valves and to evaluate the signals is a control PCB integrated. The top of the LED’s the Pushbuttons are implemented in the front plate of the SAM-3000. Depending on expansion stage there are bulkhead unions, flow meters and flow regulators monted at the front plate.

5.3 Dimensional drawing

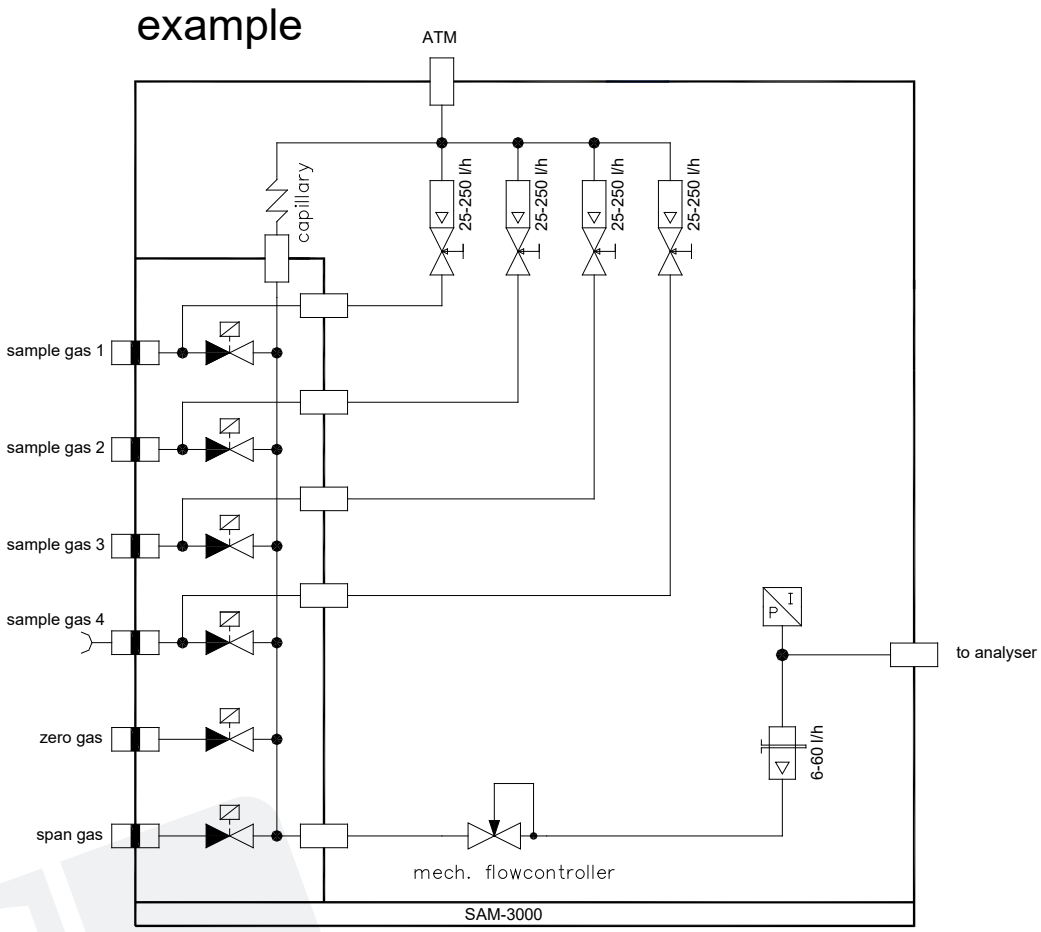
The following drawing shows the necessary space required:





5.4 Gas flow schematic

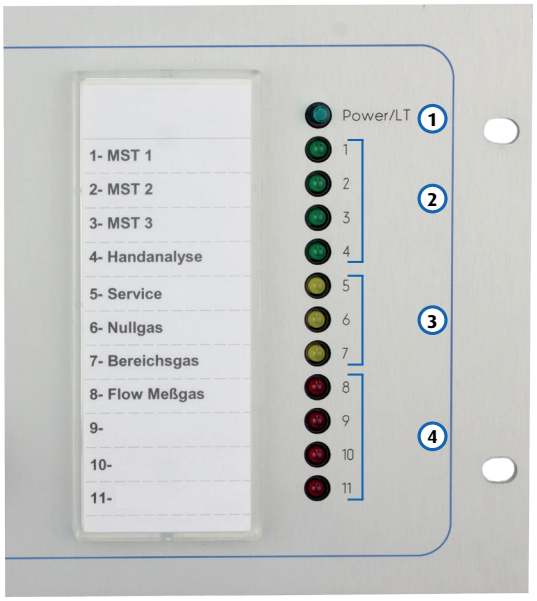
A exemplary gas diagram is shown below:



5.5 Control PCB

The dimensions of control PCB is developed for using in the 19“plug-in device. Via guiding rails the control PCB gets through the module. On control PCB mounted diodes and Pushbuttons for inspection and service are implemented in the front plate.
The connection plugs are located at the rear side of control PCB. Power supply plug, the connection to analyzer and the plug for connection to the DCS. The control PCB is supplied by 24 V DC and protected by a fuse. For a failure-free operation the voltage is stabilized onboard.

5.5.1 Design and operating mode of the control PCB with LED v.1.0



1 Pushbuttons

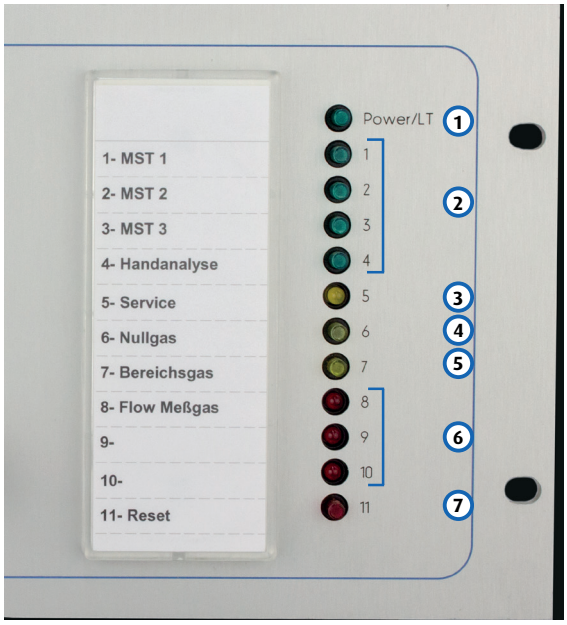
Used to test the lights on the front panel

2 Green LEDs to display sample gases

3 Yellow LEDs to display service, zero and span gas

4 Red LEDs for FLOW- Sample gas/ or. costomized display variants

5.5.2 Design and operating mode of the control PCB with button v.2.0



1 Pushbuttons

Used to test the lights on the front panel

2 Pushbuttons for different sample gases

Switches the sample gases

3 LED for the service mode

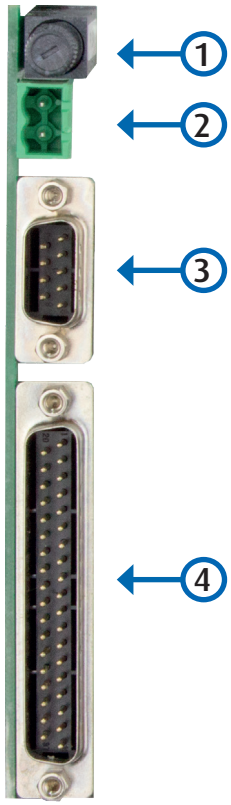
4 Pushbutton for zero gas

5 Pushbutton for span gas

6 LED for FLOW- Sample gas/ or. costomized display variants

7 Pushbutton for Reset- Sample gas/ span gas

5.5.3 Design of both Control PCBs (back view)



1 Micro-fuse

2 Power supply 24 VDC

3 Connection to analyzer SUB-D 9-pin

4 Connection to DCS SUB-D 37-pin

Description of display- and operating controls:

Power/LT (green):
LED is shining permanently, if the module is connected to the power supply. By pressing the button the function of LEDs can be checked (all LEDs are shining).

Sample 1 (green):
LED is shining permanently, if sample gas 1 is switched to the analyzer.

Sample 2 (green):
LED is shining permanently, if sample gas 2 is switched to the analyzer.

Sample 3 (green):
LED is shining permanently, if sample gas 3 is switched to the analyzer.

Sample 4 (green):
LED is shining permanently, if sample gas 4 is switched to the analyzer.

Service (yellow):
LED is shining permanently, if DCS releases manual service handling.

Zero Gas (yellow):
LED is shining permanently, if zero gas is switched to the analyzer.

Span Gas (yellow):
LED is shining permanently, if span gas is switched to the analyzer.

Flow 1 (red):
LED is shining by individual customer requirements. The LED can shine for instance if the gas flow of sample gas 1 is in tolerance range or outside of tolerance range.

Flow 2 (red):
See above „Flow 1".

Flow 3 (red):
See above „Flow 1".

Flow 4 (red):
See above „Flow 1".

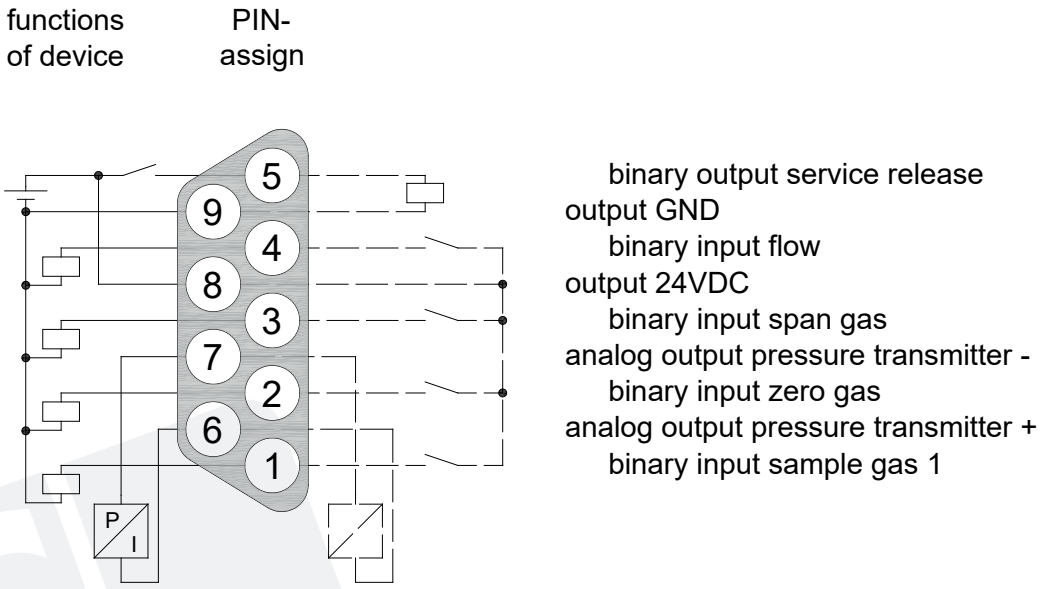
Plug connections:

Power supply (2-pin plug):

Pin	Function	Description
1	24 V DC voltage	+ 24 VDC
2	GND-connection	GND

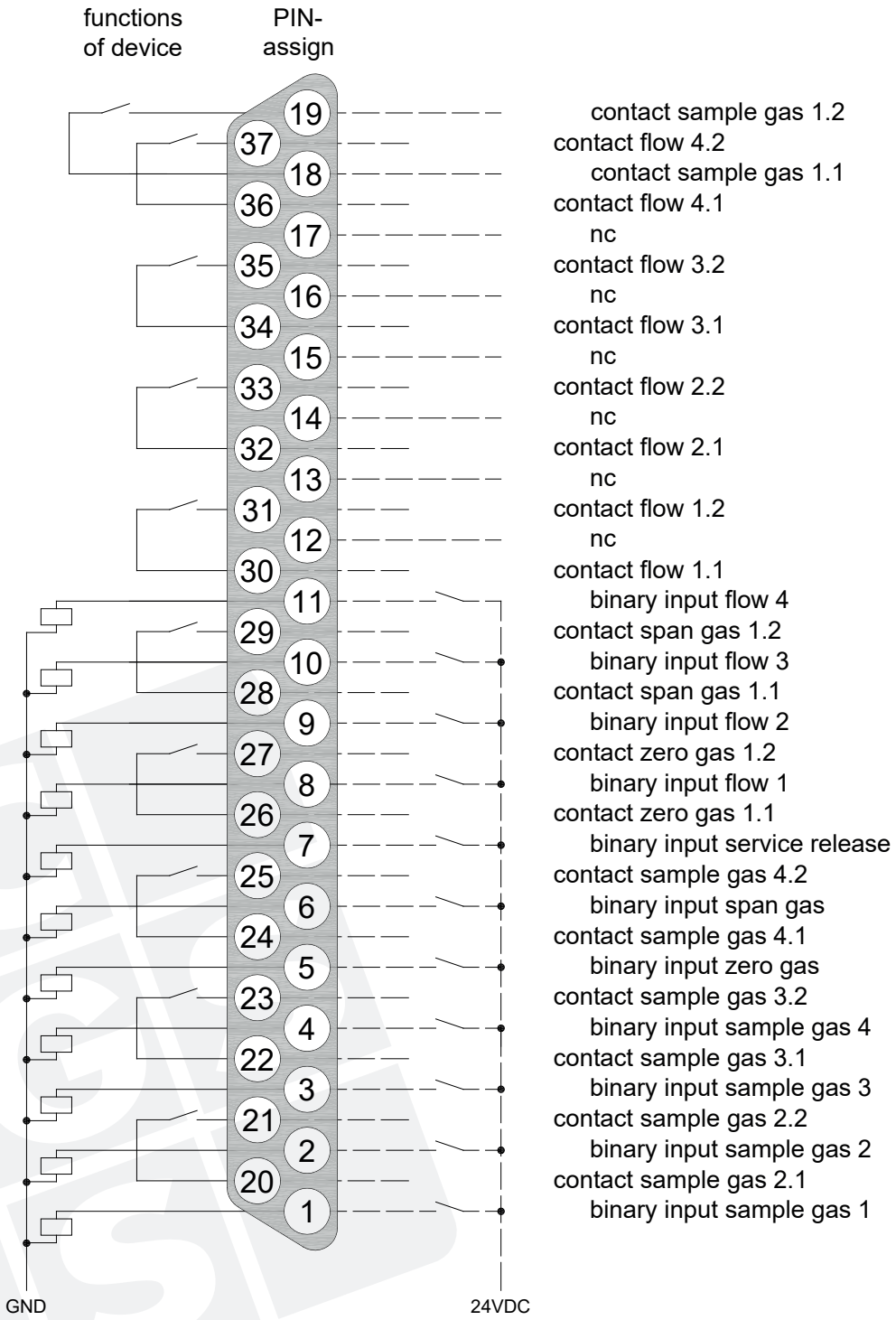
SUB-D 9-pin plug for connection to analyzer:

The left side „functions of device“ of diagram shows the schematic design of the control PCB.
The right side of diagram shows the connections to peripheral devices.



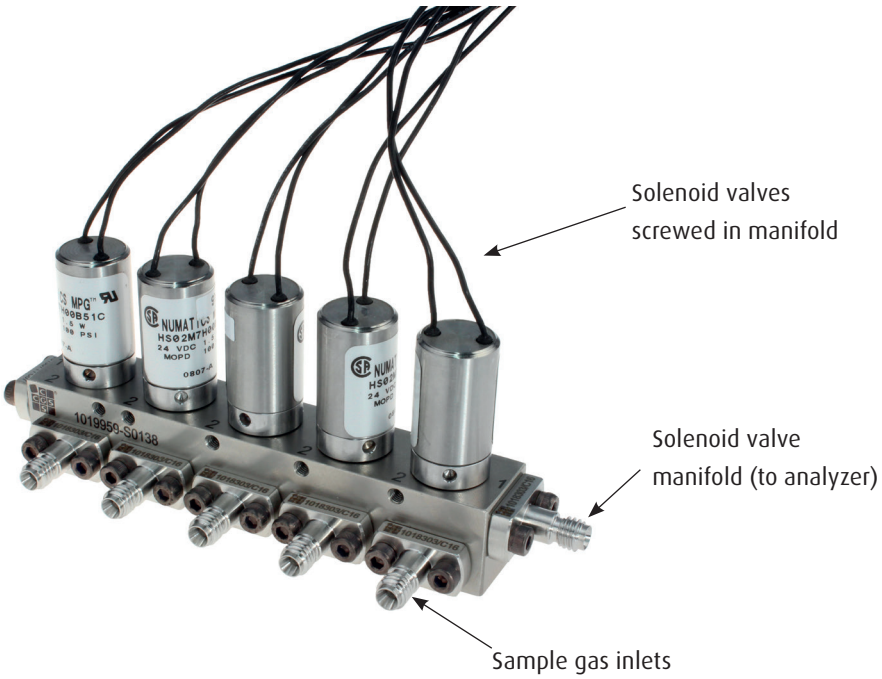
Connection to DCS via a SUB-D 37-pin plug:

The left side „functions of device“ of diagram shows the schematic design of the control PCB.
The right side of diagram shows the connections to peripheral devices.



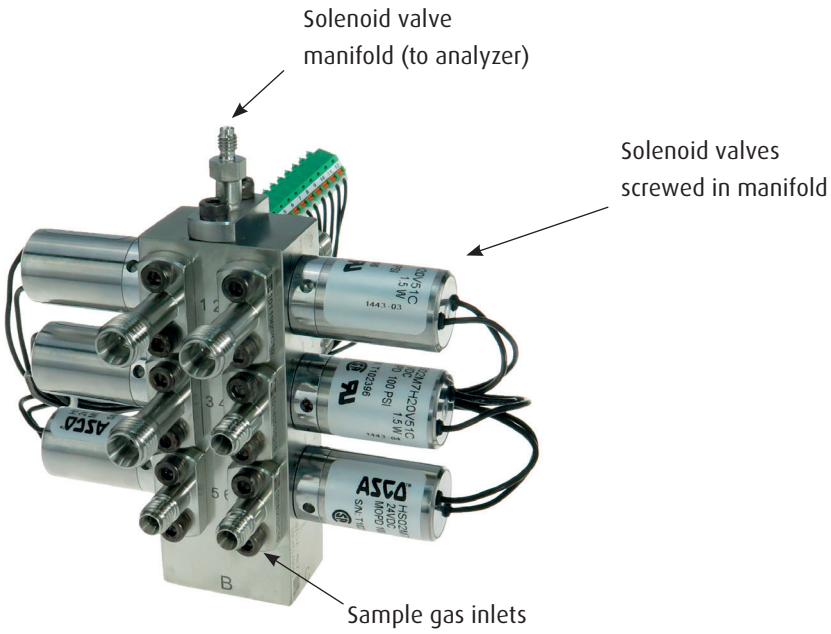
5.6. Design and functions of solenoid valve manifold

5.6.1 MVB-S



The standard solenoid valve block of 1.4305 is used for stream switching up to 10 different streams. It has rapid switching solenoid valves, which have a very long life time – tested over 500 million switching operations. Due to the small design the solenoid valve block can be installed in an 19“-rack directly behind the analyzer.
The connections for the individual sample gases and the calibration gases are made by flange adapters, which have integrated sinter metal filters. In addition the sample gas inlet can be equipped with a continuously bypass to minimize the total response time. The valve block has a common tubule which is connected to the analyzer. The other side of the tubule has a blind flange. Alternatively at low concentrations this flange will be changed by a capillary for a very low split flow.

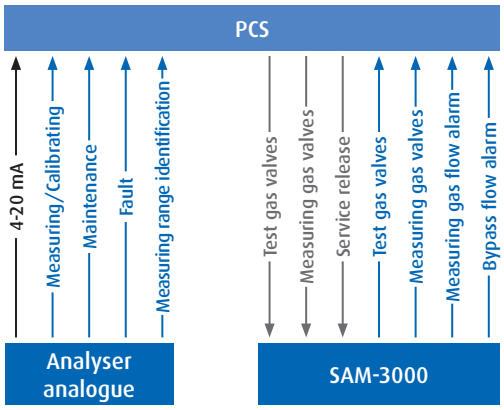
5.6.2 MVB-K



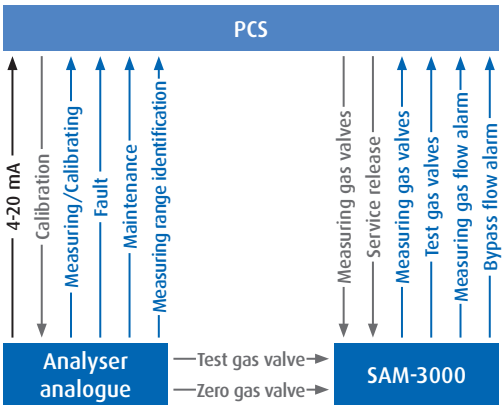
The standard solenoid valve block compact is a further development of the standard block. Due to the new design the solenoid valves are mounted on opposite sides of the block. This reduces the length of the block by half. The solenoid valve block can now be equipped with up to 20 gas inlets. New is also the continuously purging of the solenoid valves. These rapid switching solenoid valves have a very long life time – tested over 500 million switching operations. The connections for the individual sample gases and the calibration gases are made by flange adapters, which have integrated sinter metal filters. In addition the sample gas inlet can be equipped with a continuously bypass to minimize the total response time. The valve block has a common tubule which is connected to the analyzer. The other side of the tubule has a blind flange. Alternatively at low concentrations this flange will be changed by a capillary for a very low split flow.

6 Connection options

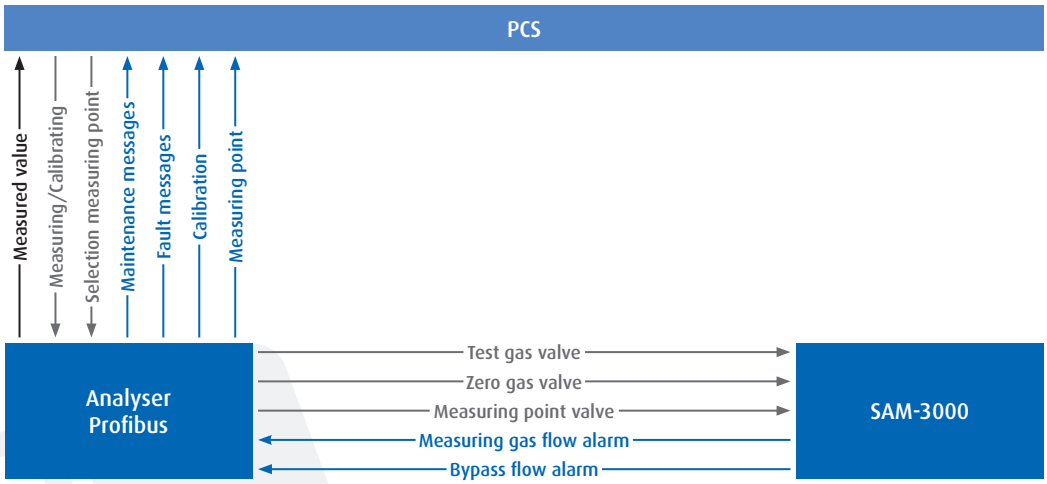
1. Analyser without control function

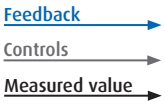


2. Analyser with Autocal function



3. Analyser with Profibus interface





7 Technical data

Inlets	Quantity Inlet filter fineness Diameter (outer)	1 ... 6 without; 20 µm or 50 µm 2 mm; 3 mm; 6 mm or 1/8“; 1/4“
Solenoid valves	Standard Option 1 Option 2	2/2-ways normally closed 2/2-ways normally open 3/2-ways
Bypass flow meters	Quantity Flow rate	1 ... 4 variable 5-1200 l/h
Flow alarm	Quantity Flow rate	1 ... 4 variable 5 - 1200 l/h
Flow limitation	Standard Option	Needle valve Flow Controller 0 .. 96 l/h
Pressure transmitter	Measuring range (Standard) Output signal (Standard)	0 ... 1 bar 4 ... 20 mA
Materials	All-wetted parts Hounsing	Stainless steel 1.4571 PTFE Aluminium, anodised
Interfaces	DCS Optional Analyzer	bit parallel SUB-D 37-pin PROFIBUS DPV2 SUB-D 9-pin
Dimensions	SAM-3000 SAM-1950	483 x 4HU x 270 mm 241,5 x 5HU x 270 mm
Weight	By complete expansion stage	approx. 7 kg
Electrical connections	Power supply Fuse	24 V DC M 1.6 A

8 Maintenance & repair

Maintenance or repair must only be performed by CGS service technicians. This can also be done by CGS-instructed / trained technicians.
The warranty and liability expires in case of unauthorised maintenance or repair work.
The applicable safety and accident prevention regulations must be observed in any case.

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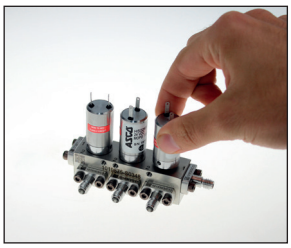
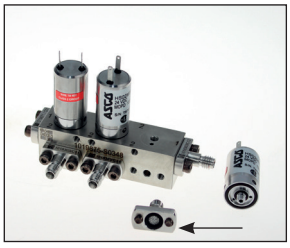
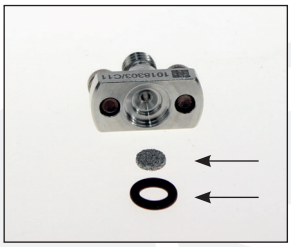
8.1 Replacing the solenoid valves / replacing the filter



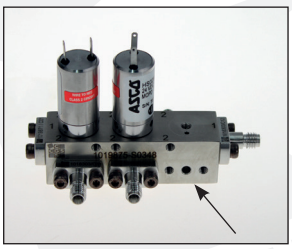
- To replace the solenoid valve, unscrew it using a hook spanner (Item No.: 1017105)



- O-ring (Item No.: 1026311) and the filter (Item No.: 1026309 (50µ)) are located on the bottom of the connection
- To change the filter frits, loosen the Allen screws and remove the connection



- Remove the O-ring and take out the filter



- Before inserting the new filter and O-ring, clean the contact surfaces of the O-ring so that it can properly seal.

Illustr. similar

9 Cleaning

9.1 Cleaning the surface

CAUTION

Make absolutely sure that no water enters the device while cleaning.
Before cleaning the device, disconnect it from the power mains!

The front panels are washable. We recommend using a sponge or cloth soaked in a mild detergent.

9.2 Cleaning the interior

After opening the device, you can, if necessary, carefully blow out the interior with a compressed air gun.

10 Device configuration (order code)

SAM-1950-
SAM-3000- [ ][ ][ ][ ][ ] . [ ][ ][ ][ ][ ] . [ ][ ][ ][ ][ ] . [ ][ ][ ]

Gaseingänge / gas inlets																						
Anzahl der Eingänge / quantity of inlets	1																					
Anzahl der Eingänge / quantity of inlets	2																					
Anzahl der Eingänge / quantity of inlets	3																					
Anzahl der Eingänge / quantity of inlets	4																					
Anzahl der Eingänge / quantity of inlets	5																					
Anzahl der Eingänge / quantity of inlets	6																					
Kalibriergase / calibration gases																						
Anzahl / quantity		0																				
Anzahl / quantity		1																				
Anzahl / quantity		2																				
Eingangsfilter / inlet filter																						
Ohne Eingangsfilter / without inlet filter			0																			
Eingangsfilter 20µm / inlet filter 20µm			2																			
Eingangsfilter 50µm / inlet filter 50µm			5																			
Magnetventilausführung / solenoid valve design																						
Magnetventil STD / solenoid valve STD				S																		
Magnetventil zur Feuchtemessung / solenoid valve for moisture analysis				H																		
Magnetventil (NC) Anwendung im Sauerstoff / solenoid valve (NC) for oxygen application				O																		
Magnetventil (NC) Anwendung im Sauerstoff zur Feuchtemessung / solenoid valve (NC) for moisture analysis and oxygen application				Y																		
manueller Messeingang / manual measuring inlet																						
Ohne manuellen Messeingang / without manual measuring inlet					0																	
Manueller Messeingang / manual measuring inlet					1																	
Bypass-Durchflussmesser / bypass flow meter																						
Anzahl Bypass-Durchflussmesser / quantity of bypass flow meter						0																
Anzahl Bypass-Durchflussmesser / quantity of bypass flow meter						1																
Anzahl Bypass-Durchflussmesser / quantity of bypass flow meter						2																
Anzahl Bypass-Durchflussmesser / quantity of bypass flow meter						3																
Anzahl Bypass-Durchflussmesser / quantity of bypass flow meter						4																
Messbereich Bypass-Durchflussmesser / measuring range bypass flow meter																						
Ohne / without							0															
15 - 150 l/h							A															
25 - 250 l/h							B															
Andere / others							C															
Fluss- und Druckregelung / flow and pressure control																						
Ohne / without								A														
Durchflussregler 18l/h / flow controller 18l/h								B														
Durchflussregler 96l/h / flow controller 96l/h								C														
Durchflussregler in Edelstahl 96l/h / flow controller made of SS 96l/h								D														
Nadelventil / needle valve								E														
Druckminderer / pressure reducer								F														
Vordruckregler mit Durchflussmesser / back pressure regulator with flow meter								H														
Durchflussmesser für Messgas / flow meter for sample gas																						
Ohne Durchflussmesser / without flow meter									0													
Durchflussmesser vor dem Analysator / flow meter before analyzer									1													
Durchflussmesser mit Ringinitiator vor dem Analysator/ flow meter with ring initiator before analyzer									2													
Durchflussmesser nach dem Analysator / flow meter after analyzer									3													
Durchflussmesser mit Ringinitiator nach dem Analysator/ flow meter with ring initiator after analyzer									4													
Messbereich Messgas-Durchflussmesser / measuring range sample gas flow meter																						
Ohne / without										0												
0,5-5 l/h										A												
1,6-16 l/h										B												
6-60 l/h										C												
10-100 l/h										D												
2-20 l/h										E												
Andere / others										X												
Drucksensor / pressure sensor																						
Ohne Drucksensor / without pressure sensor											0											
Drucksensor inkl. Verschraubung / pressure sensor incl. threaded connection											1											
Kapillare / capillary																						
Ohne Kapillare / without capillary												0										
Kapillare / capillary												1										
Verrohrung Messgaseingang / piping sample gas input																						
Rohrdurchmesser Messgasanschluss 2mm / diameter for sample gas connection 2mm													A									
Rohrdurchmesser Messgasanschluss 3mm / diameter for sample gas connection 3mm													B									
Rohrdurchmesser Messgasanschluss 6mm / diameter for sample gas connection 6mm													C									
Rohrdurchmesser Messgasanschluss 1/8" / diameter for sample gas connection 1/8"													E									
Rohrdurchmesser Messgasanschluss 1/4" / diameter for sample gas connection 1/4"													F									
Verrohrung Kalibriergaseingang / piping calibration gas input																						
Rohrdurchmesser Kalibrieranschluss 2mm / diameter for calibration gas connection 2mm														A								
Rohrdurchmesser Kalibrieranschluss 3mm / diameter for calibration gas connection 3mm														B								
Rohrdurchmesser Kalibrieranschluss 6mm / diameter for calibration gas connection 6mm														C								
Rohrdurchmesser Kalibrieranschluss 1/8" / diameter for calibration gas connection 1/8"														E								
Rohrdurchmesser Kalibrieranschluss 1/4" / diameter for calibration gas connection 1/4"														F								
Ohne Kalibriergasanschluss / without calibration gas pipe														W								
Verrohrung Bypass / pipe design bypass																						
Verrohrung in Kunststoff 6mm / pipe design with plastic 6mm															1							
Verrohrung in Edelstahl 6mm / pipe design with stainless steel 6mm															2							
Ohne Bypass / without bypass															3							
Ventilblock / valve block																						
MVB-S																A						
MVB-SP																B						
MVB-GC																C						
MVB-K																D						
MVB-KSP																E						
Steuerventile für Membranventile / pilot valves for membran valves																F						
Sonderversion / special version																X						
Aufbauvarianten / different assembly variations																						
Einfach-SAM / Single-SAM																	1					
Doppel-SAM / Double-SAM																	2					
1/2 - 19"-SAM (SAM-1950)																	3					
Sonderversion / special version																	S					
LED Taster / LED push button																						
LED Anzeige V1 / LED indicator V1																					A	
LED Taster V2 / LED push button V2																					B	

11 Delivery contents

Immediately after receipt, check whether the shipment has arrived complete and without damage.

- SAM-3000 / SAM-1950 [1x]
- Documentation [1x]
- Sub-D plug (9-pin) [1x]
- Sub-D plug (37-pin) [1x]
- Power plug (2-pin) [1x]
- Stainless steel nut + ferrule set [according to configuration]

12 Spare parts

Pos	*PU	Article	Order No.
1	1 pcs.	Control and display board	1017998 (V1.0)
2	1 pcs.	Control and display board with button	1018004 (V2.0)
3	1 pcs.	Flow controller; 18 l/h; 1/8“; Alu-body; SS-diaphragm	1011221
4	1 pcs.	Flow controller; 96 l/h; 1/8“; Alu-body; SS-diaphragm	1011223
5	1 pcs.	Flow controller; 96l/h; 1/8“; SS-body; SS-diaphragm	1011224
6	1 pcs.	Pressure Regulator with pressure gauge; Inlet: 20 bar; Outlet: 0.5 - 3 bar; NPT 1/4“ female; Chrome-plated brass; with Panel-Mounting-Ring for SL 20-P	1021835
7	1 pcs.	Flowmeter without valve; 10...100 Nl/h; without limit switch; nickel plated brass; 1/4“ NPT; Air	1028362
8	1 pcs.	Ring sensor; inductive; NAMUR bistable; 10 mm	1014583
9	1 pcs.	Pressure transmitter S-10; 0-25 bar; for general applications; standard version	1019509
10	1 pcs.	Solenoid valve; 2-ways; 24 VDC; D= 1.25mm; FKM; with connection cable 700mm	1027695
11	1 pcs.	Solenoid valve; 3/2-ways; 24 VDC; D=1.25mm; with connection cable 300mm	1019762
12	1 pcs.	Solenoid valve; O2; 2-way; 24 VDC; FKM; with connection cable 700 mm	1030682
13	1 pcs.	Solenoid valve; O2; 2-way; 24 VDC; FKM; with connection cable 700 mm	1030686
14	1 pcs.	Solenoid valve; O2; 3/2-ways; 24 VDC; with connection cable 300 mm	1030684
15	1 pcs.	Solenoid valve; H2O; O2; 3/2-way; 24 VDC; with connection cable 300 mm	1030688
16	1 pcs.	Solenoid valve; H2O; 2-ways; 24 VDC; D=1.25mm; with connection cable 700mm	1024306
17	1 pcs.	Solenoid valve; 3/2-ways; 24 VDC; D=1.25mm; with connection cable 300mm	1024308
18	1 pcs.	SS Integral Bonnet Needle Valve;Cv = 0.09; 3 mm Swagelok Tube Fitting; PCTFE Stem Tip	1021802
19	1 pcs.	Flowmeter with needle valve; 25...250 Nl/h; without limit switch; nickel plated brass; 1/4“ NPT; Air	1027287
20	1 pcs.	Pressure regulator GO; back pressure regulator; outlet: 3.5 bar; 50 PSI; 3 x 1/4“ NPT	1019170
21	1 pcs.	Flowmeter with needle valve; 15...150 Nl/h; without limit switch; nickel plated brass; 1/4“ NPT; Luft	1021111
22	1 pcs.	O-ring set (10 pcs); FKM 6.00x2.00mm	1026311
23	1 pcs.	Sintered metal frit set (10 pcs); D=6.35mm; pore size 50µ	1026309
24	1 pcs.	Quick coupling plug; RBE 03; internal thread M8x1	1015026
25	1 pcs.	Quick coupling plug; RBE 03; internal thread G 1/8	1015027
26	1 pcs.	Tube fitting set 1/16“ SS	1027699

Pos	*PU	Article	Order No.
27	1 pcs.	Tube fitting set 2 mm SS	1027700
28	1 pcs.	Tube fitting set 1/8“ SS	1027701
29	1 pcs.	Tube fitting set 3 mm SS	1027702
30	1 pcs.	Tube fitting set 1/4“ SS	1027703
31	1 pcs.	Tube fitting set 6 mm SS	1027704
32	1 pcs.	Cap nut set 4.3 mm hose	1027705
33	1 pcs.	Cap nut set 6 mm hose	1027706
34	1 pcs.	Phillips-head screw set M6x16 with captive nuts	1027707
35	1 pcs.	PTFE-hose; do=12.0 mm di=10.0 mm; nature	1015713
36	1 pcs.	Hook spanner for screw in solenoid valve; DIN 1810	1017105
37	1 pcs.	Pressure Regulator GO; Back Pressure Regulator; SBPR Series; Control Range 0 - 2.07 bar; 1/4“ NPT; stainless steel / Teflon	1023812
38	1 pcs.	Fuse-links; 5x20mm ; 1,6 A; medium time-lag	1029869

*PU = Packing Unit

13 Appendix A
(EU Declaration of Conformity)

E

EU-Konformitätserklärung
EU Declaration of Conformity

Hersteller/Manufacturer:

CGS Analysen-, Mess und Regeltechnik GmbH
Keltenstraße 3
85095 Denkendorf

Hiermit erklären wir, dass unser Produkt, Typ:
Hereby, we declare that the product, type:

SAM-1000* / SAM-3000 / SAM-3500 / SAM-1950***

folgenden einschlägigen Bestimmungen entspricht:
is in conformity with the following applicable standards:

2014/35/EU	Niederspannungsrichtlinie Low Voltage Directive
2014/30/EU	EMV-Richtlinie EMC-Directive
2014/68/EU	Druckgeräterichtlinie Pressure Equipment Directive

CE

Angewendete harmonisierte Normen, insbesondere:
Applied harmonised standards, especially:

DIN EN 61010-1:2020-03 (VDE 0411-1:2020-03)	Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 1: Allgemeine Anforderungen Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements
DIN EN 61010-2-010:2015-05 (VDE 0411-2-010:2015-05)	Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 2-010: Besondere Anforderungen an Laborgeräte für das Erhitzen von Stoffen Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-010: Particular requirements for laboratory equipment for the heating of materials
DIN EN 61326-1:2013-07 (VDE 0843-20-1:2013-07)	Elektrische Mess-, Steuer-, Regel- und Laborgeräte EMV-Anforderungen - Teil 1: Allgemeine Anforderungen Electrical equipment for measurement, control and laboratory use EMC requirements - Part 1: General requirements
DIN EN 1779:1999-10	Zerstörungsfreie Prüfung - Dichtheitsprüfung - Kriterien zur Auswahl von Prüfmethoden und -verfahren; Non-destructive testing - Leak testing - Criteria for the method and technique selection;

Jahreszahl der CE-Kennzeichenvergabe: 20

Denkendorf, den 13.07.2021

Alfons Geyer
Geschäftsführer / Managing director

E

EU-Konformitätserklärung
EU Declaration of Conformity

Hersteller/Manufacturer:

CGS Analysen-, Mess- und Regeltechnik GmbH
Keltenstraße 3
85095 Denkendorf

Hiermit erklären wir, dass unser Produkt, Typ:
Hereby, we declare that the product, type:

SAM-1950 / SAM-1950_DP

folgenden einschlägigen Bestimmungen entspricht:
is in conformity with the following applicable standards:

2014/35/EU	Niederspannungsrichtlinie Low Voltage Directive
2014/30/EU	EMV-Richtlinie EMC-Directive
2014/68/EU	Druckgeräterichtlinie Pressure Equipment Directive

CE

Angewendete harmonisierte Normen, insbesondere:
Applied harmonised standards, especially:

DIN EN 61326-1:2013-07 (VDE 0843-20-1:2013-07)	Elektrische Mess-, Steuer-, Regel- und Laborgeräte EMV-Anforderungen - Teil 1: Allgemeine Anforderungen Electrical equipment for measurement, control and laboratory use EMC requirements - Part 1: General requirements
DIN EN 61010-1 (VDE 0411-1:2011-07)	Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 1: Allgemeine Anforderungen Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements
DIN EN 61010-2-201:2014-01 (VDE 0411-2-201:2014-01)	Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 2-201: Besondere Anforderungen für Steuer- und Regelgeräte Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-201: Particular requirements for control equipment
DIN EN 1779:1999-10	Zerstörungsfreie Prüfung - Dichtheitsprüfung - Kriterien zur Auswahl von Prüfmethoden und -verfahren Non-destructive testing - Leak testing - Criteria for the method and technique selection

Jahreszahl der CE-Kennzeichenvergabe: 12

Denkendorf, den 19.11.2020

Alfons Geyer
Geschäftsführer / Managing director

14 Appendix B (Inspection protocols)

Qualitätszeugnis

Hiermit bestätigen wir, dass unsere Produkte nach aktuellem Stand der Technik produziert und geprüft wurden.

Die verwendeten Materialien sind nach den Einsatzspezifikationen ausgesucht und nach handwerklichen Richtlinien verarbeitet.

Hierbei kommen maßgebliche nationale und internationale Normen und Standards zur Anwendung.

Das fertige Produkt wurde nach technischen Gesichtspunkten in einem Qualitäts-sicherungssystem geprüft und kontrolliert.

Quality certificate

Hereby we confirm that our products were produced and examined after current state of the art.

The used materials were selected after guidelines relating to crafts and processed according to the employment specifications.

Here relevant national and international norms and standard are used.

The finished product was examined and controlled in quality insurance system on the basis of technical criteria.

Denkendorf, 29.09.2015

Alfons Geyer

E

Prüfbescheinigung für Gaskomponenten in Sauerstoff
Inspection document for gas components in oxygen

Hersteller: *manufacturer:*	CGS Analysen-, Mess- und Regeltechnik GmbH Keltenstraße 3 D-85095 Denkendorf

Produktreihe: *product series:*	SAM-3000
Gaskomponente: *gas compontent:*	Sauerstoff *oxygen*
Anwendung: *application:*	Gasanalyse / Sauerstoff Öl- und Fettfrei *gas analysis / oxygen free of oil and grease*

Verfahren: *method:*		**Nr.** *no.*
Reinigungsmethode: *cleaning method:*	Ultraschallbad *ultrasonic bath*	1
	Aceton *acetone*	2
Spülen der Gaswege: *purge of gas pathes:*	Stickstoff *nitrogen*	3
Temperatur: *temperature:*	± 20°C	4
Trocknung: *drying:*	Stickstoffspülung *nitrogen purging*	5
Drucktest: *pressure test:*	3 bar (a) / 5 min.	6
	1 bar (a) / 10 min.	7

Sauerstoffführende Komponenten:
oxygen transmitted components:

Bauteile: *components:*	**Verfahren:** *method:*
• Edelstahlrohr *stainless steel tube*	2, 3, 4, 6
• Magnetventilblock *solenoid valve block*	1, 3, 4, 5, 6
• Druckregler *pressure regulator*	3, 4, 5, 6/7
• Manometer *gauge*	3, 4, 5, 6/7
• Flow Controller *flow controller*	3, 4, 5, 6
• Durchflussmesser *flow meter*	3, 4, 5, 6
• Nadelventil *needle valve*	3, 4, 5, 6
• Absperrventil *ball valve*	3, 4, 5, 7
• Umschalthahn *manifold valve*	3, 4, 5, 7
• Regulierventil *control valve*	3, 4, 5, 6
• Rückschlagventil *check valve*	1, 3, 4, 5, 6/7
• Überströmventil *relief valve*	3, 4, 5, 6/7
• Verschraubungen *fittings*	1, 3, 4, 5, 6
• Filterfritten für Magnetventilblock *filter frit for solenoid valve block*	3, 4, 5

Denkendorf, 29.09.2015

Alfons Geyer

Generelle Konformitätserklärung für Sauerstoffanwendungen

Für Komponenten und Systeme, die für Produktion, Lagerung und Transport von gasförmigem Sauerstoff verwendet werden und mit ihm in Berührung kommen, ist eine extrem saubere Oberfläche erforderlich.

CGS Analysen-, Mess- und Regeltechnik GmbH bestätigt, dass die gasführenden Bauteile unserer Analysenanlagen für Sauerstoffanwendungen gemäß den aktuellen Vorschriften gebaut werden. Somit sind die Werkstoffe für Druckregler, Rohr, Manometer… speziell gereinigt und mit Inertgas gespült. Materialien sind frei von

- Fett, Öl und anderem organischen Material (Kohlenwasserstoffverbindungen)
- Wasser
- Lacken, Anstrichsystemen und anderen Beschichtungen
- losem Rost, Walzhaut, Füllmaterial, Schweißverfärbungen und Schweißspritzern.

General confirmation certification for oxygen applications

Components and systems used for production, storage and transportation of gaseous oxygen and come into contact with, an extremely clean surface is required.

CGS Analysen-, Mess- und Regeltechnik GmbH confirms that gas-bearing components of your analyzer systems for oxygen applications are build according to the current standard regulations. Therefore the materials of pressure regulators, tubes, gauges… are special cleaned and inert gas-purged. Materials are clear of

- grease, oil and other organic materials (hydrocarbon)
- water
- laquer, painting systems and other coatings
- loose rust, mill scale, filling material, sweat stains and spatters.

Denkendorf, 29.09.2015

Alfons Geyer

CGS Analysen- Mess und Regeltechnik GmbH
Keltenstraße 3
85095 Denkendorf
Fon: +49 8466 9415-0

www.cgs-company.de