

# Portable Gas Conditioning Unit Series PSS<sup>®</sup>

## PSS-10/1

Instruction Manual  
Version 1.00.02



**Dear customer,**

Thank you for buying our product. In this manual you will find all necessary information about this M&C product. The information in the manual is fast and easy to find, so you can start using your M&C product right after you have read the manual.

If you have any question regarding the product or the application, please don't hesitate to contact M&C or your M&C authorized distributor. You will find all the addresses in the appendix of this instruction manual.

For additional information about our products, please go to M&C's website [www.mc-techgroup.com](http://www.mc-techgroup.com). There you can find the data sheets and manuals of our products in German and English.

This instruction manual does not claim completeness and may be subject to technical modifications.

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**PSS**® is a registered trade mark.

Version: 1.00.02

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## 1 GENERAL INFORMATION

The product described in this instruction manual has been built and tested in our production facility.

All M&C products are packed to be shipped safely. To ensure the safe operation and to maintain the safe condition, all instructions and regulations stated in this instruction manual need to be followed. This instruction manual includes all information regarding proper transportation, storage, installation, operation and maintenance of this product by qualified personnel.

Follow all instructions and warnings closely.

Read this manual carefully before commissioning and operating the device. If you have any questions regarding the product or the application, please don't hesitate to contact M&C or your M&C authorized distributor.

## 2 DECLARATION OF CONFORMITY



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

### EMV-Instruction

The requirements of the EU directive 2014/30/EU "Electromagnetic compatibility" are met.

### Low Voltage Directive

The requirement of the EU directive 2014/35/EU "Low Voltage Directive" are met.  
The compliance with this EU directive has been examined according to DIN EN 61010.

### RoHS Directive

The requirements of the RoHS2 ("Restriction of Hazardous Substances 2") directive 2011/65/EU and its annexes are met.

### Declaration of conformity

The EU Declaration of conformity can be downloaded from the **M&C** homepage or directly requested from **M&C**.

### 3 SAFETY INSTRUCTIONS

**Please take care of the following basic safety procedures when mounting, starting up or operating this equipment:**

Read this operating manual before starting up and use of the equipment. The information and warnings given in this operating manual must be heeded.

Any work on electrical equipment is only to be carried out by trained specialists as per the regulations currently in force.

Attention must be paid to the requirements of VDE 0100 (IEC 364) when setting high-power electrical units with nominal voltages of up to 1000 V, together with the associated standards and stipulations.

Check the details on the type plate to ensure that the equipment is connected to the correct mains voltage.

Protection against touching dangerously high electrical voltages:

Before opening the equipment, it must be switched off and hold no voltages. This also applies to any external control circuits that are connected.

The device is only to be used within the permitted range of temperatures and pressures.

Check that the location is weather-protected. It should not be subject to either sun, direct rain or moisture.

Do not use the gas conditioning system PSS-10/1 in hazardous areas.

Installation, maintenance, inspections and any repairs of the devices must be carried out only by qualified skilled personnel in compliance with the current regulations.

### 4 WARRANTY

In case of a device failure, please contact immediately M&C or your M&C authorized distributor.

We have a warranty period of 12 months from the delivery date. The warranty covers only appropriately used products and does not cover the consumable parts. Please find the complete warranty conditions in our terms and conditions.

The warranty includes a free-of-charge repair in our production facility or the free replacement of the device. If you return a device to M&C, please be sure that it is properly packaged and shipped with protective packaging. The repaired or replaced device will be shipped free of delivery charges to the point of use.

## 5 USED TERMS AND SIGNAL INDICATIONS



**DANGER!**

This means that death, severe physical injuries and/or important material damages **will occur** in case the respective safety measures are not fulfilled.



**WARNING!**

This means that death, severe physical injuries and/or important material damages **may occur** in case the respective safety measures are not fulfilled.



**CAUTION!**

This means that minor physical injuries **may occur** in case the respective safety measures are not fulfilled.

**CAUTION!**

Without the warning triangle means that a material damage may **occur** in case the respective safety measures are not met.

**ATTENTION**

This means that an unintentional situation or an unintentional status **may occur** in case the respective note is not respected.



**NOTE!**

These are important information about the product or parts of the operating manual which require user's attention.

**SKILLED STAFF**

These are persons with necessary qualification who are familiar with installation, use and maintenance of the product.

**QUALIFIED PERSONNEL**

These are persons with necessary qualification who are familiar with installation, use and maintenance of the product.



High voltages!

Protect yourself and others against damages which might be caused by high voltages.



Corrosive!

These substances destroy living tissue and equipment upon contact. Do not breathe vapors; avoid contact with skin and eyes.



Wear protective gloves!

Working with chemicals, sharp objects or extremely high temperatures requires wearing protective gloves.



Wear safety glasses!

Protect your eyes while working with chemicals or sharp objects. Wear safety glasses to avoid getting something in your eyes.



Wear protective clothes!

Working with chemicals, sharp objects or extremely high temperatures requires wearing protective clothes.

## 6 INTRODUCTION

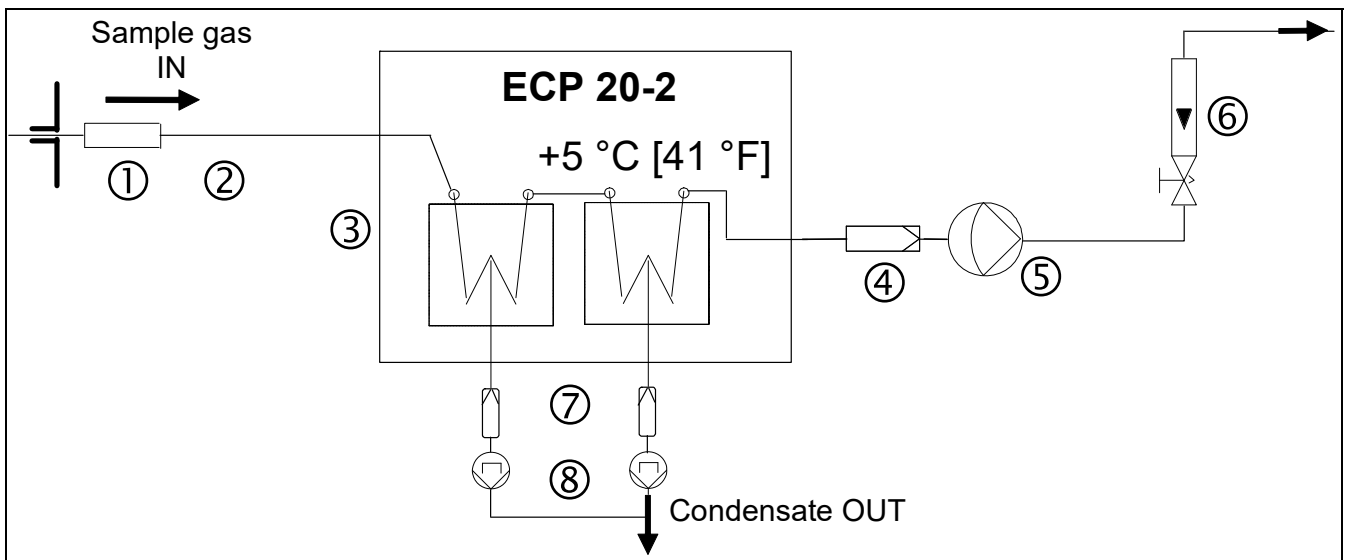
The portable gas conditioning and sampling system **PSS-10/1** has been especially designed so that precise gas analyses can be carried out in any place and at any time.

The entire gas conditioning system is housed in a compact and robust aluminium framed case which ensures that the components can be removed easily, and gas analysis carried out quickly, safely and with a minimum amount of maintenance.

## 7 APPLICATION

The gas conditioning and sampling system is ideally suited for both intermittent and continuous operation.

The components of the system **PSS-10/1** are intended for "standard use." We also provide a wide range of additional equipment and other components should special measurements be required.



**Figure 1** Flow sheet

- ① Sample gas probe, material stainless steel 316, diameter 4/6 mm, length 0.5 m
- ② Sample gas line, PVC hose DN 4/6 mm, length 3 m
- ③ Gas cooler **ECP20/2**
- ④ Fine filter **FP-2T**, filter element fineness 2 µm
- ⑤ Sample gas diaphragm pump **N9KPE**
- ⑥ Flowmeter **FM40**, option
- ⑦ Pre-filter **PF 2**
- ⑧ Peristaltic pump **SR25.1** for continual removal of condensate



## 8 TECHNICAL DATA

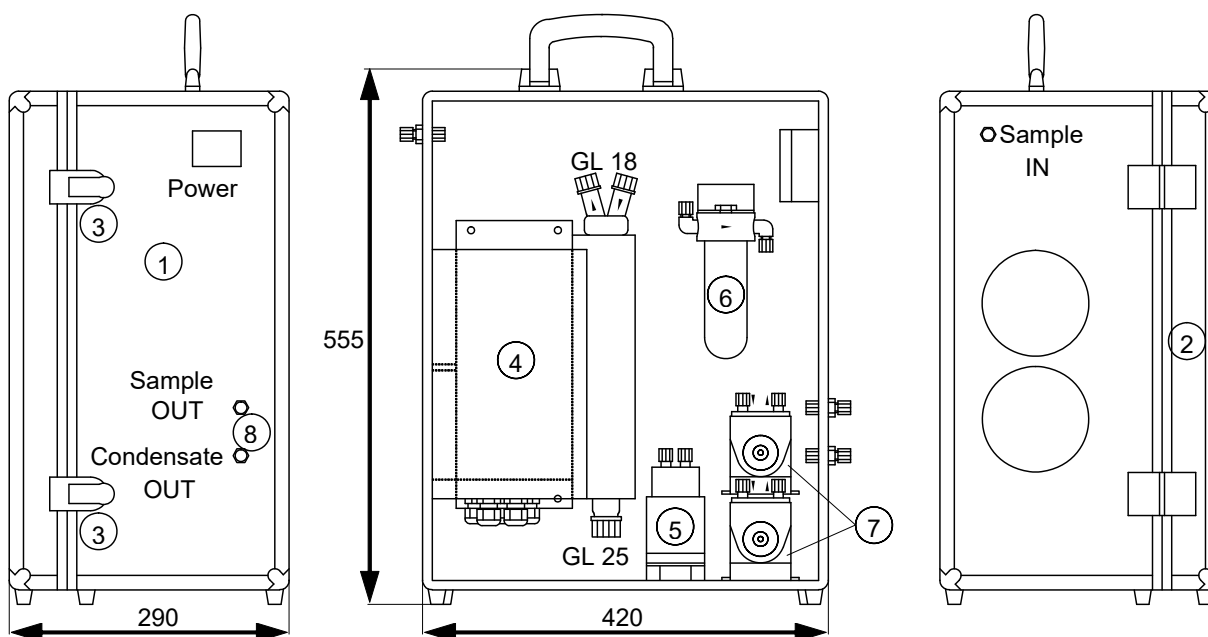
Gas conditioning unit	Version PSS-10/1
Sample outlet dew point	Range of adjustment: +2 to +15 °C [35.6 to 59 °F], factory setting: +5 °C [41 °F]
Dew point stability	At const. conditions: < ±0.1°C [±0.18 °F]
Sample inlet temperature	**Max. 80 °C [176 °F] optional: **max.180 °C [356 °F] with stainless steel bulkhead union
Sample inlet dew point	**Max. +80 °C [176 °F]
Gas flow rate	**Max. 480 NI/h
Ambient temperature	**+5 up to +40 °C [41 to 104 °F]
Storage temperature	-25 up to +65 °C [-13 to +149 °F]
Pressure	0.7 bar up to 1.4 bar abs.
Total cooling capacity at 25 °C ambient temperature	Max. 80 kJ/h
Number of gas inlets	1
Number of gas outlets	1 Optional: max. 4
Medium connections	Tube connection 4/6 mm
Material of sample contacting parts	Stainless steel, glass, PVDF, VITON, Novopren®
Ready for operation	Approx. 10 min
Power supply	230 V 50 Hz ±10 % or 115 V 60 Hz ±10 %
Power consumption	Max. 350 VA
Fuse protection	6.3 A slow-acting, 5 x 20 mm with option temperature controller: 10 A slow-acting
Electrical connection	Cold appliance plug with 2 m [≈ 6.56 ft] of cable
Case protection	IP20 (EN 60529)
Housing	Portable aluminium framed case
Housing dimensions (H x W x D)	555 x 460 x 290 mm [≈ 21.9" x 18.1" x 11.4"]
Weight	Approx. 24 kg [≈ 52.9 lbs]
Part No. for 230 V 50 Hz version	01G5000
Part No. for 115 V 60 Hz version	01G5000a
<b>Options:</b> Flow meter <b>DK800R</b> mounted in sample gas outlet:	Altern. 10-100 l/h (Part No.: 01G9020), 25-250 l/h (01G9021) and 50-50 l/h (01G9022) air
Temperature controller for heated line:	Range of control: 0 – 200 °C      230 V, max. 4 A input PT100                              115 V, max. 4 A
Liquid alarm type	<b>LA 1S/LA-1.4</b>
Electrical equipment standard	EN 61010

PPH=Polypropylene, PTFE=Polytetrafluoroethylene (Teflon®), PVC=Polyvinyl chloride, PVDF=Polyvinylidenfluoride

\* Standard

\*\* Maximum values in technical datas must be rated in consideration of total cooling capacity at 25 °C ambient temperature and an outlet dew point of 5 °C.

## 9 DESCRIPTION



**Figure 2** Design of the portable conditioning and sampling system PSS-10/1

All the components of the gas conditioning system can be easily removed from the portable case. The door ② of the case can be opened by moving the toggle-type fasteners ③ on the side and the top to the left.

The installation of a gas cooler ④ and an appropriate diaphragm gas pump ⑤ will be carried out according to the maximum flow of gas extracted (see instruction manual for individual components). The possible combinations are listed in the following table:

The minimum amount of flow is determined by the sample gas pump. Premature damage can be caused to the pump membrane if less than the minimal total amount of flow is extracted as a result of excess pressure.

All gas coolers are equipped with a Duran glass heat exchanger. Heat exchangers of PVDF or stainless steel are also available.

The preliminary filter **FP-2T** (2 µm filter element fineness) installed in front of the gas measuring pump ensures that the correct amount of solid matter is precipitated.

The sample gas pump ⑥ is turned off and on automatically by means of an excess temperature contact on the cooler (+8 °C).

The resulting condensation is continually lead off by means of the **SR25.1** ⑦ peristaltic pump (see Appendix for individual component instructions).

A preliminary filter, **PF2** has been fitted in the condensation hose in between the heat exchanger and peristaltic pump. This prevents particles in the condensate entering the pump.

The 4/6 mm hose connections ⑧ for the condensate and measuring leads are located on the right-hand side of the case (see figure 2 and 3).

The stainless steel sample probe (0.5 m length, 6 mm diameter) and the 3 m sample line (DN 4/6 mm) are delivered with all models.

The ventilation grids located in the lid and the left-hand side of the case ensure that the equipment is sufficiently ventilated.

## Options

The gas conditioning and sampling system **PSS-10/1** consists of standard one gas-measuring outlet terminal. An additional flow meter (**DK800R**), with needle valve, can be fitted to this terminal, whereby the adjustment of the terminals is carried out in accordance with the specified volume flow rate (see 3.).

In order to protect additionally connected analysers against fluid irruption, and increase the operational safety of the entire system, we recommend that a fluid alarm sensor **LA 1S** be installed. In such a case, the preliminary filter **FP-2T**, which is delivered with all models, will be replaced with the **FP-2T-D** preliminary filter by the manufacturer (see appendix). The **LA-1.4** electronics is located on the clamp mounting rail in the upper part of the case. In the event of a fluid irruption, the LA electronics automatically turns off the sample gas pump. The alarm will be raised by means of a red LED. If the equipment is functioning properly, i.e. no alarm, a green LED will be on.

The **PSS-10/1** can also be equipped with an additional gas measuring inlet terminal (see figure 3, part No. 01G9062 and 01G9063) in order to connect a heated sample line. The existing anti-kink device is only to be used for heated sample lines in conjunction with the model "C" connection (part No. 03B1012). Mounting instructions can be found in the Appendix.

The heated sample line, part No. 01B4035, can also be fitted in conjunction with the sample gas probe **PSP 4000**.

In the event that the heated line is ordered as additional equipment, the necessary temperature controller **701** (part No. 01G9055(a)) will be fitted to enclosure by the manufacturer.

A 3-way ball valve (01G9046) or 5-way ball valve (01G9045) can be fitted to the inlet terminal of the gas conditioning system in order to calibrate analyser(s) with check gas, or to switch from one sample gas measurement to another.

## 10 RECEIPT OF GOODS AND STORAGE



**CAUTION!**

**Heavy device!**

**Risk of injury when handling heavy equipment.**

**Do not lift, move or carry the device without help. A second person is required to lift, move or carry the device.**

The portable gas conditioning and sampling system **PSS-10/1** is a completely pre-fitted unit.

The sample gas probe, sample gas line, connection cable and instruction manual are located in the inside part of the case door.

- Please take the portable gas conditioning system and possible special accessories carefully out of the packaging material immediately after arrival, and compare the goods with the items listed on the delivery note.
- Check the goods for any damage caused during delivery and, if necessary, notify your transport insurance company without delay of any damage discovered.



**NOTE!**

**The PSS must be stored in a weather-protected frost-free area!**

## 11 INSTALLATION INSTRUCTIONS



**CAUTION!**

**Heavy device!**

**Risk of injury when handling heavy equipment.**

**Do not lift, move or carry the device without help. A second person is required to lift, move or carry the device.**



**NOTE!**

When in use, the gas conditioning system case should be placed in an area well away from any heat emitting sources in order to prevent damage caused by an accumulation of heat. The air vents in the case must be free at all times.

In order to ensure that the case is safe and stable when being used, it should be placed on a horizontal surface.

The equipment is to be used in a vertical position only. The perfect functioning of the separation and drainage procedures will only be guaranteed if the equipment is used in a vertical position.

When the equipment is being used outside, ample protection against the effects of direct sunlight and dampness must be provided. In winter, the equipment must only be used in frost-free areas.

It is recommended that the case be protected using one of the many models available.

In order to guarantee the operational safety of the gas conditioning system and the additionally connected analysers, and to avoid false alarms, the gas conditioning system should not be used at temperatures other than those specified.

It is of great importance that the analysers which have been additionally connected be used at temperatures well above the specified gas outlet dew point of +5 °C [41 °F]. This prevents the gas in the connector lines from condensing completely.

In the event of the unheated sample gas lines being connected to the gas conditioning system on a slope, it is not necessary to carry out a preliminary condensate removal.

## 12 SUPPLY CONNECTIONS

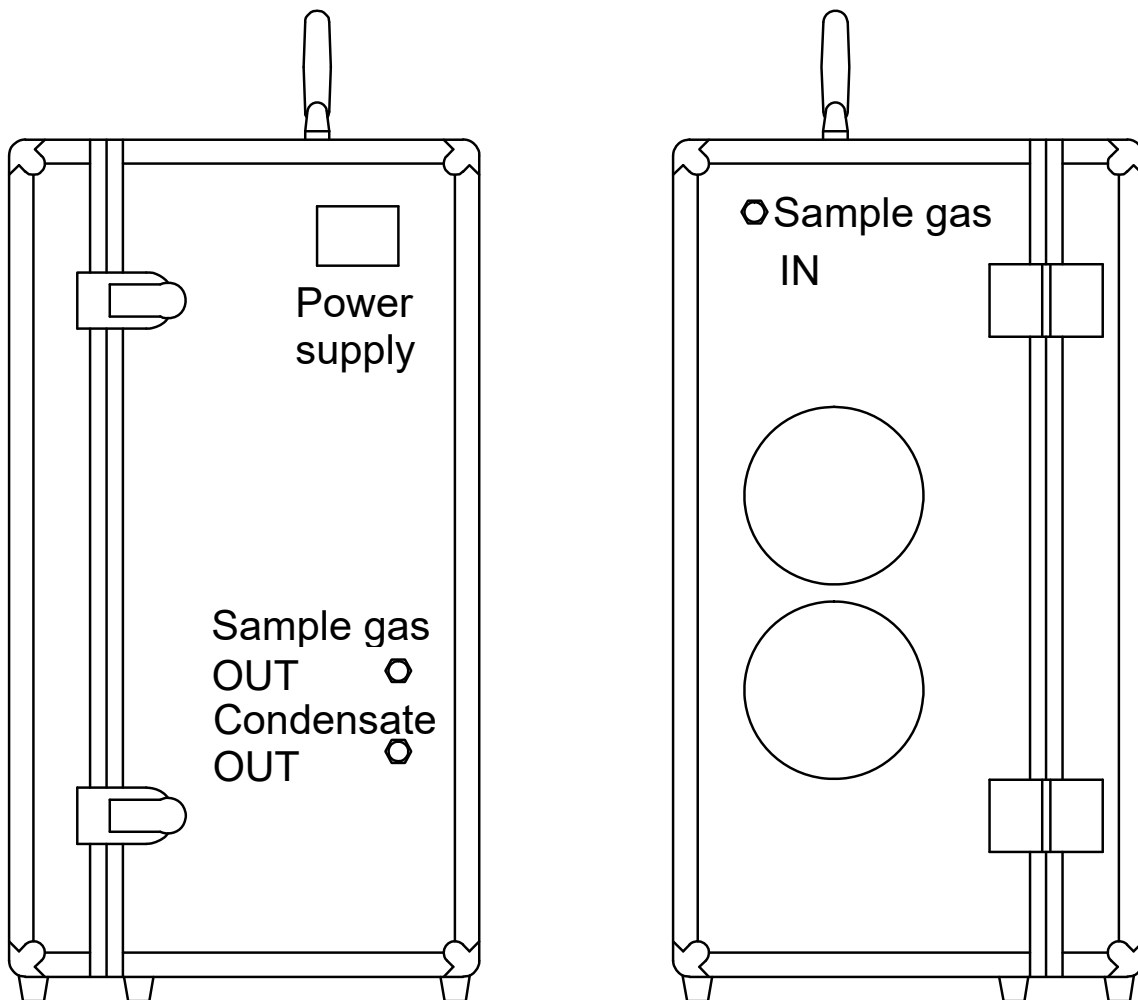
### 12.1 TUBE CONNECTIONS



**NOTE!**

**Do not switch tube connections; connections are marked accordingly.  
After all lines have been connected, the tightness must be checked.**

Figure 3 shows the possible medium connections. These are located in the right-hand side of the gas conditioning case at the rear in a specially immersed assembly frame.



**Figure 3 Medium connections**

All hose connections are equipped with 4/6 mm sealing ring threaded hose couplings made of polypropylene (PP) for gas input temperatures of up to a maximum of 80 °C [176 °F] (see figure 3). If heated sample lines are used, whereby the gas input temperatures are increased up to a maximum of 180 °C [356 °F], additional bulkhead unions made of stainless steel are recommended.

Connecting tubes of dimension 4/6 mm are used as standard.

Install the sample gas tubes and the condensate tube as follows:

1. Remove the union nut from the clamping ring tube fittings by turning it anti-clockwise. The nut should be removed from the thread with great care so as to ensure that the loose sealing ring in the nut is not lost.
2. Place the union nut over the connecting tube.
3. Place the sealing ring over the connecting tube with the thicker bead towards the nut.
4. Place the tube over the nipple on the thread.



**NOTE!**

**The tightness of the connections can only be guaranteed if the connecting tube has a straight rim (hose cutter).**

5. Tighten the union nut hand-tight.

The tube will no longer be able to slip off and is now compression-proof.

Disassemble the tubes in reverse order.



**WARNING! Aggressive condensate is possible.**



**Wear protective glasses and proper protective clothing!**



## 12.2 ELECTRICAL CONNECTIONS



**WARNING!**

**Wrong supply voltage can damage the equipment. When connecting the equipment, make sure that the supply voltage is identical with the information provided on the model type plate!**



**NOTE!**

**For the erection of power installations with rated voltages up to 1000V, the requirements of VDE 0100 and relevant standards and specifications must be observed!**

**The main circuit is equipped with a fuse corresponding to the nominal current (over current protection); for electrical details see technical data.**

The **PSS-10/1** gas conditioning system is available with either 230 V/50 Hz or with 115 V/60 Hz. A 6.3 A slow-acting fuse is used on all models as fuse protection. The fuse is located in the power socket of the PSS enclosure. In the event that a temperature controller is used in conjunction with heated sample lines, the overload protection level is increased to 10 A.

The electrical connection is carried out by means of a cold appliance plug and 2 m of cable located on the left-hand side of the case. The cold appliance plug socket is equipped with two-poled main switch.

### Option 'Heated Sample Lines':

A connector box, as shown in diagram 3, is available for the mains connection when using a heated sample line with a PT100 temperature sensor, or for the connection of other heated components such as a heated sample probe or a heated filter.

The maximum length of the heated sample line which can be used is calculated as follows:

$$L(m) = \frac{\text{max. connection power [W]} - \text{power draw of heated components (i e. sample probes) [W]}}{\text{power draw of heated sample line [W/m]}}$$



## 13 COMMISSIONING

Observe the facility and process-specific safety measures before commissioning.

Carry out the following steps before initial commissioning:

1. Place the cold appliance plug, which is delivered with the mains supply cable, into the cold appliance plug socket.
2. Connect the heated sample line (option).



**WARNING!**

**Check the temperature at the temperature controller when operating the sample gas conditioning unit with a heated sample gas line.**



3. Connect the mains plug to the power supply.
4. In case of option temperature controller **701** adjust the required temperature at the controller:

The digital display shows the actual temperature value of the heated line after switching on the conditioning unit. The controller is adjusted to 0 °C [32 °F] by factory. To change the set temperature press key *P*. The display shows *SP* and after that it changes to the adjusted set temperature.

Change the value with the arrow keys. After 60 seconds the display switches automatically to the actual value.

The gas measuring cooler will become operational after approximately 10 minutes. The excess temperature alarm contact located in the cooler switches the sample gas pump automatically on as soon as the temperature reaches +8 °C [46.4 °F].



**NOTE!**

**The following minimal gas flow rate has been determined on the basis of the requirements of the maximum pressure on both sides of the gas measuring pump N9-KPE:**

**N 9 KPE approximately 200NL/h air**

**Premature damage can be caused to the pump membrane if less than the minimal total amount of flow is extracted as a result of over pressure.**

**For long-term measurements with a high dust content in the sample gas, a suitable gas sampling probe must be provided to protect the sample line from being clogged.**

## 14 CLOSING DOWN



**NOTE!**

**The area where the gas conditioning unit is placed must remain frost-free even when the unit is switched off.**

No special measures are to be taken in the event of short-term shutdowns of the gas conditioning system.

In the case of long-term shutdowns, for example after a completed series of measurements, it is recommended to purge the gas conditioning system with fresh air or inert gas. A flushing time of 3 to 5 minutes is sufficient under normal conditions. Condensate residues must also be removed from the system.



**WARNING!**

**Aggressive condensate is possible.**



**Wear protective glasses and proper protective clothing!**

## 15 MAINTENANCE

Before the maintenance work is carried out, it is necessary that the specific safety procedures pertaining to the system and operational process be observed!



**WARNING!**

**Dangerous voltage!**



**It is necessary to take the equipment off the mains before any assembly, maintenance or repair work is carried out.**

The frequency of the maintenance work depends on the operational process and can therefore only be determined in each individual case. Maintenance instructions pertaining to individual components can be found in the instruction manual for individual components.

All parts which might require maintenance work are easily accessible housed in the gas conditioning system. The following parts might require maintenance work:

- The filter element of the preliminary filter **FP-2T**.



**NOTE!**

**In order to protect downstream analyzers, the wet filter element must always be replaced in the event of a condensate breakthrough.**

- The preliminary filter for the peristaltic pump **PF2**. If the condensate contains particle residue, the preliminary filter should be replaced at regular intervals. The 'one-way' filter is situated in the suction side of the pump hose and can be easily replaced;
- Hoses of the condensate pump **SR25.1**. These should be checked every six months and, if necessary, replaced (consult the instruction manual in the Appendix);
- Diaphragm of the sample gas pump **N9KPE**. These should be checked every six months and, if necessary, replaced;

## 16 TROUBLE SHOOTING

The following table aims to point out possible operational problems and offer solutions to such problems (not applicable during the starting procedure).

Indication	Problem	Possible Cause	Check/Solution
Upper LED on cooler does not come on;	Interruption of gas flow;	No voltage;	Check supply voltage with model type plate; OK? Check whether the supply voltage plug is insert correctly and if the main switch is turned in position 'I' OK? Check the fine fuse in the power socket; OK?
Middle LED on cooler is green;	Cooler in operation but gas flow interrupted;	Cooler does not function. Cooler alarm registers 'excess temperature'. Cooler turns gas measuring pump of automatically.	Ambient temperature too high. OK? Free convection in case impaired ⇒ case temperature too high; OK? Cooler faulty (for check see manual ECP20-1, 3-1.10ME). OK?
Alarm LED on the LA electro-nics is red		Membrane pump faulty;	Check voltage on clamps X1/11 and X1/8 ;
		Contamination of the membrane pump;	OK? Remove the hoses at head of pump and check; OK? Clean pump if necessary; OK?
		Sample probe/hose clogged up or lead squashed;	Remove sample hose at gas inlet; Gas flow? Clean contaminated lead or replace;
		Sample gas hose to analyser clogged up or squashed;	No gas flow? Remove sample gas hose on analyser side and check via hose thread if sample gas flows; No gas flow? Clean contaminated leads or replace; Gas flows?
		<u>Optional liquid alarm sensor:</u> Sensor turns measuring pump off automatically;	Momentary overloading of the cooler due to excessive amount of condensate; OK? Check hoses for condensate removal; OK? Check Pre-filter and if necessary replace; OK?
		<u>Optional flow meter:</u> Needle valve closed.	Check hoses of the peristaltic pump (see manual SR25.1, 3-7.1-ME); OK? Check peristaltic pump <b>SR25.1</b> (see manual SR25.1, 3-7.1-ME); OK? Check cooler according to instruction manual; Adjust needle valve(s) to the desired flow.

Indication	Problem	Possible Cause	Check/Solution
Middle LED on cooler is green;	Cooler and gas pump in operation; condensate in sample gas lead;	Pre-filter clogged up;  Pump hose faulty;  Peristaltic pump <b>SR25.1</b> faulty;  Not sufficient drying of sample gas;	Remove filter from condensate lead; Pump delivering? Change filter; Pump not delivering? Change pump hose (see manual SR25.1); OK? Check peristaltic pump (see manual SR25.1);  OK?
LED of the LA electronics is green;		<u>Optional liquid alarm sensor:</u> Sensor has not turned pump off.	Check cooler (see manual ECP20-1);  Check the LA electronics and if necessary replace.

## 17 PROPER DISPOSAL OF THE DEVICE

At the end of the service life of our products, it is important to take care of the appropriate disposal of obsolete electrical and non-electrical devices. To help protect our environment, follow the rules and regulations of your country regarding recycling and waste management.

## 18 SPARE PARTS LIST

Wear, tear and replacement part requirements depend on specific operating conditions.

The recommended quantities are based on experience and are not binding.

For spare parts of components which are not presented in the following list please see the specific instruction manuals or leaflets mentioned in the appendix.

### Portable Sampling System Version PSS-10/1

(C) consumable parts, (R) recommended spare parts, (S) spare parts

			recommended quantity PSS-10/1 being in operation [years]		
		C/R/S	1	2	3
<b>Fine filter FP-2T:</b>					
90F0002	Filter element <b>F-2T</b> , PTFE, 2 µm	C	6	12	20
90F0040	Viton® O-ring, 26 for FP-	R	1	1	1
90F0056	PVDF filter element clamp <b>F-P</b>	S	-	-	1
90F0012	Filter body <b>F-120G</b> of glass	R	1	1	1
<b>Fine filter FP-2T with Option LA 1S:</b>					
90F0015	Filter body <b>F-120G-D</b> of glass with GL25 condensate connection thread	R	1	1	1
90F0020	Union nut GL 25	R	1	1	1
90F0025	PTFE sealing ring GL 25-12 mm Ø	R	1	1	1
<b>Peristaltic pump SR25.1:</b>					
90P1007	SR25 pump hose with PVDF tube connectors DN 4/6 mm	C	1	2	4
<b>Diaphragm pump type N9 KPE/KP18</b>					
90P2200	Square cap type D9, 1/8" i for N9 KPE/KP18, Material: PVDF	S	-	-	1
90P2220	Diaphragm type S9, for N9 KPE/KP18, Material: Viton®, PTFE coated	C	1	2	3
90P2211	Valve plate with seal for N9 KPE, 1 pc., material: Viton. (2 pcs./pump)	C	2	4	6
90P2205	Intermediate plate type Z9, for N9 KPE/KP18, Material: PVDF	S	-	-	1

## Portable Sampling System Version PSS-10/1

(C) consumable parts, (R) recommended spare parts, (S) spare parts

		C/R/S	recommended quantity PSS-10/1 being in operation [years]		
			1	2	3
<b>Diverse:</b>					
90G0006	Pre-filter <b>PF 2</b> for condensate pump SR25.1	C	5	10	15
90G0030	Fine fuse 6.3 A slow-acting, 5 x 20 mm for <b>PSS...</b>	R	5	5	5
90G0020	Fine fuse 10 A slow-acting, 5 x 20 mm for <b>PSS...</b> with option temp. controller and heated sample line	R	5	5	5

### 19 APPENDIX

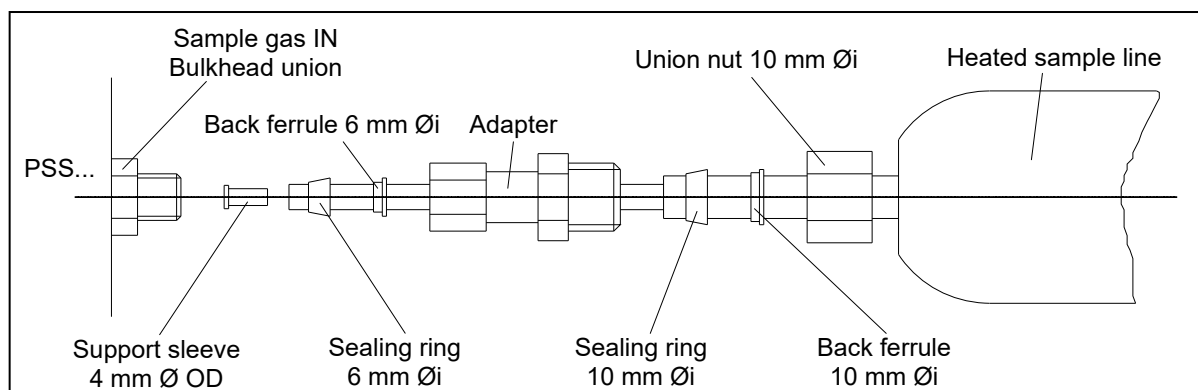
- Connecting the heated sample line with special adapter
- Circuit diagram PSS-10/1, shown here diagram for 230 V



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- Instruction manual electric gas cooler **ECP 20-2**,
- Universal-Filters **FP, FT, FPK, FS, FSS**
- Instruction manual diaphragm pump **Series N**
- Instruction manual peristaltic pump **SR25.1, SR25.1-G**,
- Liquid alarm sensor **LA 1S**,
- Electronic Controllers **LA-1.4**,
- Flow meter **FM40**
- Ball valves **L/PV-1**
- Temperature controller **701**

## Connecting the heated sample line with special adapter



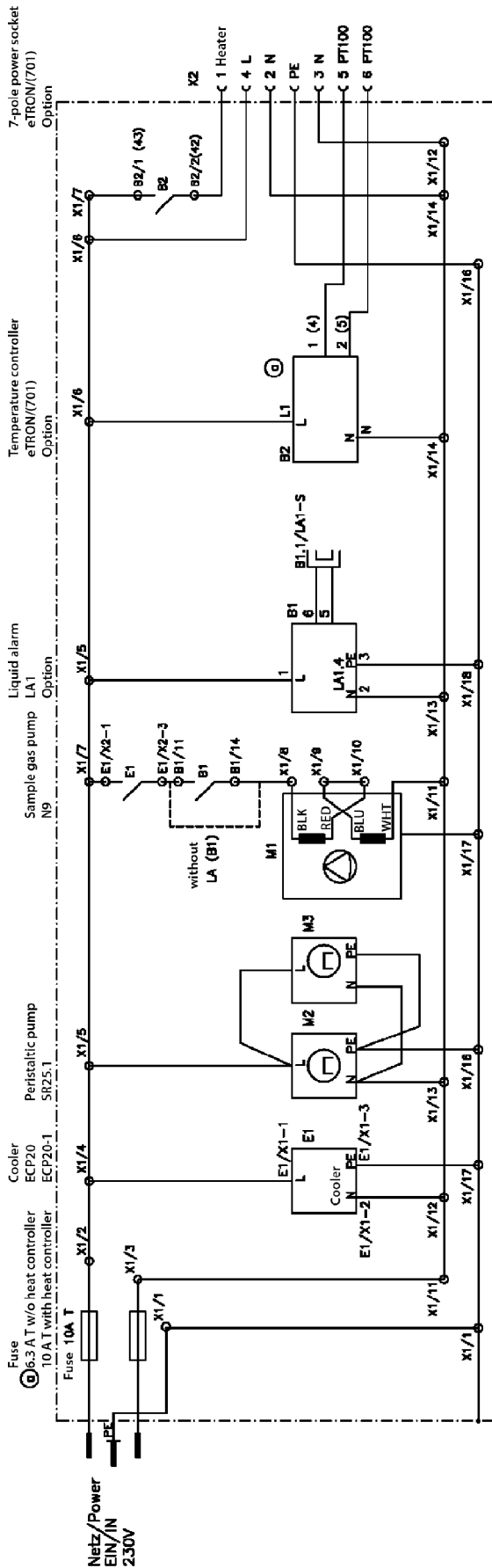
**Figure 4 Connecting heated sample line with special adapter (option)**

The heated line is connected to the gas conditioning with the connection adapter (Part No. 01G9060) as follows:

1. Place the special adapter (Part No. 01G9060) on the PTFE tube according to the drawing seen above;
2. Place the support sleeve into the PTFE tube;
3. Insert the PTFE tube as far as it will go into the 'Sample Gas IN' bulkhead fitting and hand-tighten the adapter;
4. Tighten the adapter 1 1/4 turns with a wrench (SW 14), while holding the lock nut of the bulkhead connection with a wrench (SW 15);
5. Insert the 10 mm tube of the heating line into the adapter as far as it will go and hand-tighten it with the union nut;
6. Tighten union nut with wrench (SW 19) 1 1/4 turns; hold adapter with wrench against.

The screw connection is now cut gas-tight and can be loosened as often as required.





Values in brackets refer to temperature controller 701

Terminal 230V

Terminal 115V

At the bottom		X1		At the top		At the bottom	
1	PE	1	PE	1	PE	1	Power PE
2	X1/11	2	X1/11	2	N	2	Power L
3	Power N	3	Power N	3	Power N	3	Power L
4	M1/Red	4	M1/Red	4	E1/X1-1	4	E1/X1-1
5	M1/White	5	M1/White	5	M2/L 230V	5	M2/L 230V
6	X2/3	6	X2/3	6	X2/4	6	X2/4
7	E1/X1-2	7	E1/X1-2	7	E1/X1-2	7	E1/X1-2
8	M2/N 115V	8	M2/N 115V	8	M2/N 115V	8	E1/X2-1
9	E1/X2-1	9	E1/X2-1	9	X2/2	9	E1/X2-3
10	X2/2	10	X2/2	10	B2/N	10	X1/10
11	B2/N	11	B2/N	11	B1/3	11	M2/PE
12	B1/3	12	B1/3	12	PE 18	12	M1/PE
13	PE 18	13	PE 18	13	PE 19	13	M1/PE
14	PE 19	14	PE 19	14	PE 17	14	M1/PE
15	PE 17	15	PE 17	15	PE 16	15	M1/PE
16	PE 16	16	PE 16	16	PE 15	16	M1/PE
17	PE 15	17	PE 15	17	PE 14	17	M1/PE
18	PE 14	18	PE 14	18	PE 13	18	M1/PE
19	PE 13	19	PE 13	19	PE 12	19	M1/PE

Figure 5 Circuit diagram PSS-10/1, shown here: circuit diagram for 230 V