



19"- Compact Gas Conditioning Unit Series CSS®

Version CSS, CSS-3

- **Completely pre-installed and operational within 10 minutes**
- **Compact construction, takes up little space**
- **Self-monitoring and low maintenance**
- **Up to 5 calibration gases manually or externally switchable**
- **Sample outlet dew point +5 °C at 140 NI/hr or 350 NI/hr**

Application

This unit provides completely pre-installed sample gas conditioning for continuous use and can excellently be integrated into gas analysis systems. Its compact construction means that it takes up only little space. The **CSS** units are ready for use within a few minutes. This, at last, makes the usual time-consuming procurement of individual components and assembly superfluous. Examples of applications for **CSS...** sample gas conditioning units: flue gas and process gas conditioning. For special problems such as aerosols, various solvents, explosive gases or mounting in hazard areas, we can provide you with other solutions.

Description

The **M&C** gas conditioning units **CSS** and **CSS-3** are compact, low-maintenance, self-monitoring and completely equipped units (s. page 3) suitable for standard applications.

Toggle switches for the different functions are located on the front panel:

| | | |
|-------------------|---|----------|
| EXTERNAL-INTERNAL | ⇒ | ON |
| PUMP OFF | ⇔ | PUMP ON |
| MEASURE | ⇔ | CHECK |
| SAMPLE GAS | ⇔ | TEST GAS |
| ZERO GAS | ⇔ | SPAN GAS |

With an optional 4-position rotary switch more than one calibration gas can be selected. Active functions are indicated by LED's.

All functions of the **CSS...** can be controlled externally with potential-free switch contacts of an automatic calibration device, which in some cases are all integrated into analysers.

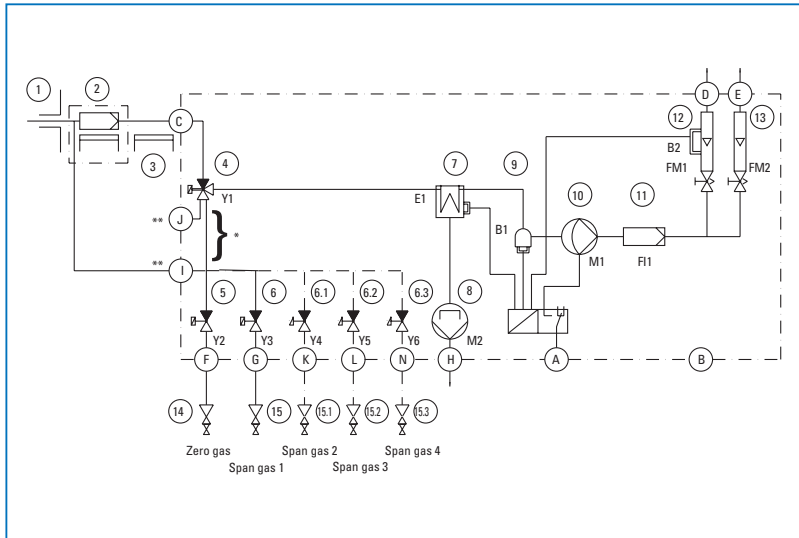
The gas pump is incorporated in an automatic interlock circuit and is only switched on when the electro gas cooler reaches an operating temperature of <+8 °C. In addition, the liquid alarm switches the gas pump and the inlet solenoid valve off automatically in the event of failure.

Great importance has been attached to the unit's maintenance-friendly design. The required maintenance can be easily accessed via a removable front sub-panel without dismantling the entire system.

The gas conditioning systems **CSS...** in the 19" plug-in unit can be supplied for operation at 230V or 115V AC mains supply.

For calibration of the complete analysis system it is possible to give test gases via gas conditioning unit **CSS-3/C** with a special piping to the sample probe (**SP2000-H/R**).

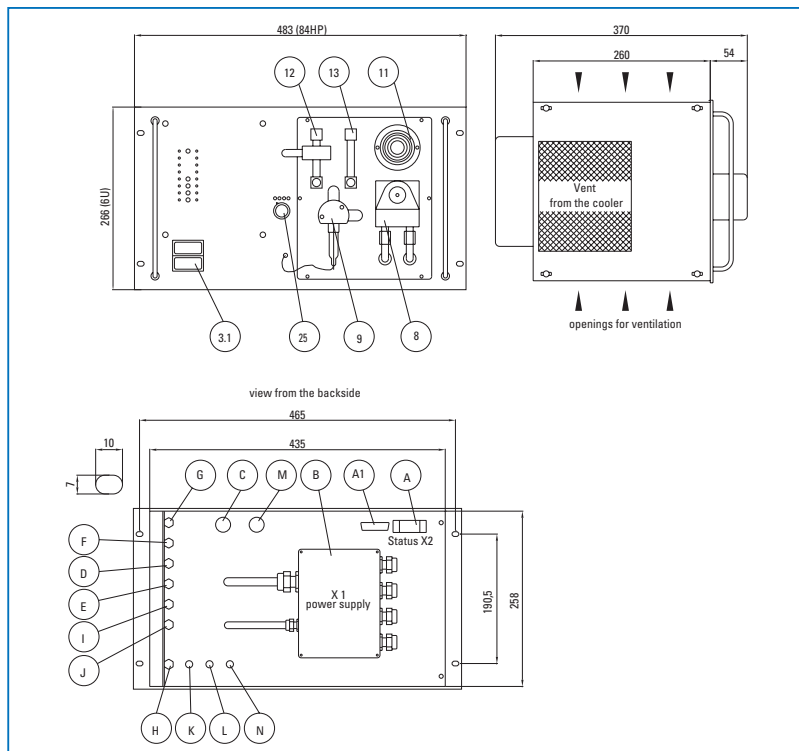
Functional Diagramm



- 1 = gas sample probe **SP2000-H**
- 2 = heated filter
- 3 = heated sample line **4M**.
- 4 = 3-way solenoid valve **124C3**
- 5 = 2-way solenoid valve **2011**
- 6 = 2-way solenoid valve **2011**
- 7 = gas cooler **ECP 1000 / 3000**
- 8 = condensate pump **SR25.1**
- 9 = liquid sensor **LA1**
- 10 = diaphragm pump **N3/9 KPE**
- 11 = gas filter **FPF0,1**
- 12 = flowmeter with alarm **FM40 / FA1**
- 13 = flowmeter **FM40**
- 14 = zero gas
- 15 = span gas, standard 1x, optional + 3x
- A = status alarm / remote control of valves
- B = power supply
- C = sample gas INLET
- D = sample gas OUT 1 with flow alarm
- E = sample gas OUT 2
- F = zero gas IN
- G = span gas IN
- H = condensate OUT
- I = test gas to the probe ****only in CSS-3/C**
- J = vent ****only in CSS-3/C**
- K = span gas 3 - IN option
- L = span gas 3 - IN option
- N = span gas 4 - IN option

* = this piping droppes in version CSS-3/C

Dimensions



Dimensions in mm

- 3.1 = temperature controller **703** option
- 8 = peristaltic pump **SR25.1**
- 9 = liquid alarm sensor **LA1**
- 11 = fine filter **FPF 0,1**
- 12 = flowmeter with alarm **FM40 / FA1**
- 13 = flowmeter **FM40**
- A = status alarm / remote control of valves
- A1 = reserve
- B = power supply
- C = sample gas INLET
- D = sample gas OUT 1 with flow alarm
- E = sample gas OUT 2
- F = zero gas IN
- G = span gas IN
- H = condensate OUT
- I = test gas to the probe ****only in CSS-3/C**
- J = vent ****only in CSS-3/C**
- K = span gas 2 - IN option
- L = span gas 3 - IN option
- M = reserve
- N = span gas 4 - IN option

Technical Data

| 19"-Gas Conditioning System Series CSS® | version CSS | version CSS-3 |
|---|---|---|
| Inlets and max. gas flow** | 1x 140 NI/hr | 1x 350 NI/hr |
| Outlets incl. flowmeters | 2x à 70 NI/hr | 2x à 250 NI/hr |
| Gas pressure | 0,7 to 1,2 bar abs. | |
| Sample gas inlet temperature** | max. 150 °C | |
| Sample gas inlet dewpoint** | max. 80 °C | |
| Sample gas outlet dewpoint | +5 °C | |
| Ambient temperature** | +5 °C to +40 °C | +5 °C to +45 °C |
| Total cooling capacity at +25 °C ambient temperature | max. 50 kJ/hr | max. 90 kJ/hr |
| Storage temperature | -25 °C to +65 °C | |
| Relative humidity | <80% | |
| Ready for work | approx. 10 min | |
| Gas filter | glassfibre, porosity 0,1 µm | |
| Housing | 19" rack mounting 6U, depth 350 mm, color RAL 7032 | |
| Degree of protection | IP 20-EN 60529 | |
| Tube connections | G 1/4 i -DIN ISO 228/1* | |
| Power supply | 230V, 48-62Hz, 150VA or 115V, 48-62Hz, 150VA | 230V, 48-62Hz, 250VA or 115V, 48-62Hz, 250VA |
| Electrical equipment standard | EN 61010 | |
| Electrical connections | power terminals max 4 mm ² , 4x PG13,5 Alarm- / control signals 15-pin Sub-D connector | |
| Status signal | cooler temperature, liquid alarm, flow alarm | |
| Status alarm contact, contact rating | potential free changeover contact, max. 24V, 1A | |
| Test gas inlets | 2 solenoid valves, actuated manually or by external switch* (optional +3 pcs) | |
| Material of sample contacting parts | PVDF, glass, FPM, Novoprene®, PTFE | |
| Weight | approx. 15 kg | approx. 16,5 kg |
| Option: | | |
| Electronic PID temperature controller 703 for heated sample lines | front surface mounting, range 0-200 °C, sensor PT 100 or Fe-CuNi, controlling outlet with a solid state relays 10A # alarm output integrated into the CSS status alarm, parameter free configurable | |

* = Standard

** = Maximum values in technical data must be rated in consideration of total cooling power at 25 °C ambient temperature.

= Standard for max. 20 m heated sample line at 110W /m.

| equipment | conditioning unit CSS | conditioning unit CSS-3 |
|---|--|-----------------------------|
| Sample gas inlet | 1 | |
| Sample gas outlets | 2 | |
| Flowmeter with needle valve | FM 40 à 70 NI/hr air | FM 40 à 250 NI/hr air |
| Electro gas-cooler | ECP 1000-G90® for 150 NI/hr | ECP 3000-G90® for 350 NI/hr |
| Diaphragm pump | N3KPE N9KPE | |
| Peristaltic pump | SR 25.1 | |
| Micro fine filter | FPF 0,1 GF with glass-fibre filter element 0,1 µm | |
| External or manual switching to testing with zero or span gas | 1x 3/2-way solenoid valve 124C3 and 2x 2/2-way solenoid valves 2011, optional +3 pcs. | |
| Hosing and connectors | PTFE-PVDF | |
| Status alarm with optical display | for cooler temperature, flow failure and liquid alarm | |
| Optional: | electronic temperature controller for heated sample line | |

| Part. No. | | |
|--------------|---|---|
| 03 G 1000 | 19"-Gas Conditioning Unit CSS , | 230V for 140 NI/hr |
| 03 G 1000a | 19"-Gas Conditioning Unit CSS , | 115V for 140 NI/hr |
| 03 G 3000 | 19"-Gas Conditioning Unit CSS , | 230V for 350 NI/hr |
| 03 G 3000a | 19"-Gas Conditioning Unit CSS-3 , | 115V for 350 NI/hr |
| 03 G 3100 | 19"-Gas Conditioning Unit CSS-3/C , | 230V for 350 NI/hr and test gas to sample probe |
| 03 G 3100a | 19"-Gas Conditioning Unit CSS-3/C , | 115V for 350 NI/hr and test gas to sample probe |
| 03 G 9020(a) | Extra price for CSS ... with 3 calibration valves (for version 115V please add. on "a") | |
| 03 G 9025(a) | Extra price for CSS ... with 4 calibration valves (for version 115V please add. on "a") | |
| 03 G 9030(a) | Extra price for CSS ... with 5 calibration valves (for version 115V please add. on "a") | |
| 03 G 9000 | extra charge for integrated electronic temperature controller 703 for heated sample line | |

Special execution on request.