CSS

19”- Gas Conditioning Unit Series CSS®

Version CSS for max. 150Nl/hr
Version CSS-3 for max. 350Nl/hr

Special Features

- **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**
- **Outlet dew point adjustable from +2 °C to +15 °C**
- **Dew point stability ± 0,1 °C**
- **Optimum reliability**

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 then 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).

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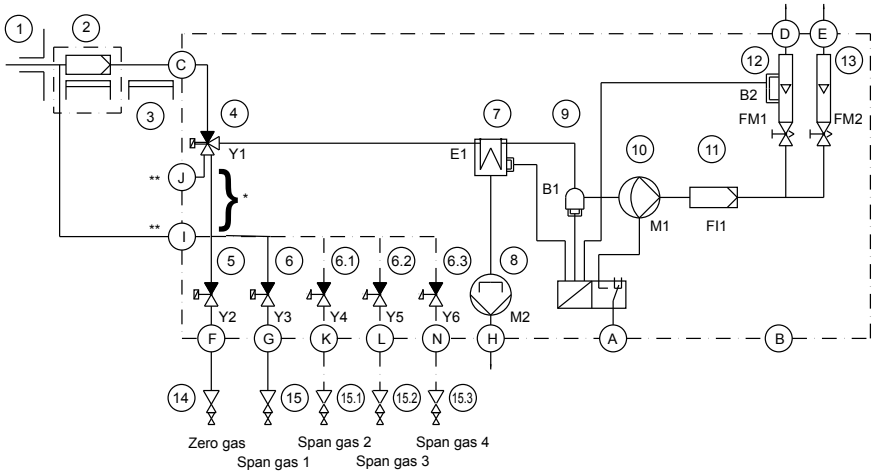
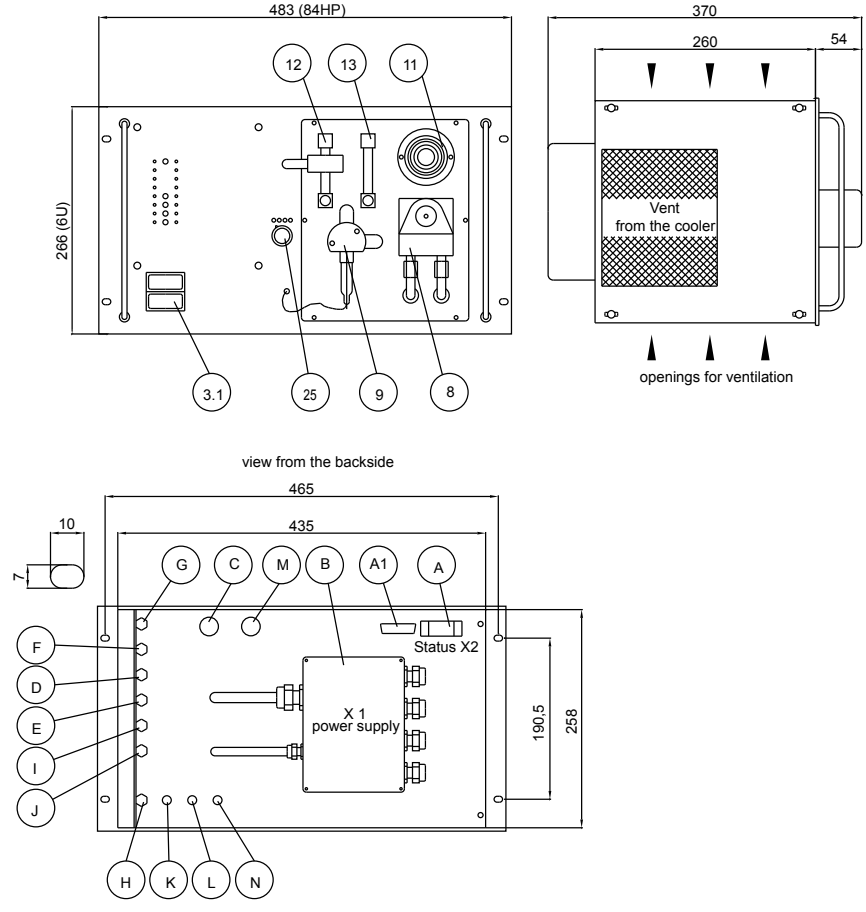
Functional Diagramm



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



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

Dimensions in mm

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Technical Data

19"-Gas Conditioning System Series CSS®	version CSS	version CSS-3
Inlets and max. gas flow**	1x 140 Nl/hr	1x 350 Nl/hr
Outlets incl. flowmeters	2x à 70 Nl/hr	2x à 250 Nl/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	range of adjustment: +2 °C ..... +15 °C, factory setting: +5 °C	
Dew point stability	at constant conditions < ±0,1 °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 humiditiy	<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 mm², 4x PG13,5 Alarm- / control signals 15-pin Sub-D connector	
Status signal	cooler temperature, liquid alarm, flow alarm	
Satus alarm contact, contact rating	potential free changeover contact, max. 24V, 1A	
Test gas inlets	2 solenoid valves, actuated manually orby 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 contoller 703 for heated sample lines	front surface mounting, range 0-200 °C, sensor PT 100 or Fe-CuNi, controlling outlet with a solid state relais 10A # alarm output integrated into the CSS status alarm, parameter free configurable	

* = Standard
** = Maximum values in technical data's must be rated in consideration of total cooling capacity at 25 °C ambient temperature and 5 °C outlet dew point.
# = 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 70 Nl/hr air	FM 40 250 Nl/hr air
Electro gas-cooler	ECP 1000-G90° for 150 Nl/hr	ECP 3000-G90° for 350 Nl/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	1x 3/2-way solenoid valve 124C3 and	
testing with zero or span gas	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 Nl/hr
03 G 1000a	19"-Gas Conditioning Unit CSS, 115V for 140 Nl/hr
03 G 3000	19"-Gas Conditioning Unit CSS, 230V for 350 Nl/hr
03 G 3000a	19"-Gas Conditioning Unit CSS-3, 115V for 350 Nl/hr
03 G 3100	19"-Gas Conditioning Unit CSS-3/C, 230V for 350 Nl/hr and test gas to sample probe
03 G 3100a	19"-Gas Conditioning Unit CSS-3/C, 115V for 350 Nl/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 versions on request.