

# Product Group Gas Converters.

Product Category Gas Conditioning.





CG-2

## Gas Converter Series CG®

Versions CG-2 and CG-2M: gas inlet and outlet non-heated, in a 19"-rack-housing

Versions CG-2H-W and CG-2MH-W: gas inlet and outlet heated, in a wall-mounting housing

### Special Features

- High-flow capacity, long service life, high conversion efficiency
- Catalyst cartridge easy to change without any tools
- Operating temperature adjustable up to 680 °C [1256 °F]
- Version with non-heated gas inlet and outlet integrated into a compact 19"-rack housing
- Version with heated gas inlet and outlet integrated into a compact wall-mounting housing
- Safe handling and easy servicing
- Bypass solenoid valves

### Application

In many countries, clean-air regulations require a continuous measurement of nitrogen oxides  $\text{NO}_x$ , as the sum of nitrogen dioxide  $\text{NO}_2$  and nitrogen monoxide  $\text{NO}$ , for combustion processes as soon as the share of  $\text{NO}_2$  exceeds 5 % of the total  $\text{NO}_x$  emission.

The M&C gas converters versions CG-2 and CG-2M are designed for "cold gas" conversion with non-heated gas inlet and outlet and the versions CG-2H-W and CG-2MH-W for "hot gas" conversion with heated gas inlet and outlet and internal second heating circuit.

### Description

The M&C gas converter CG converts e.g. the  $\text{NO}_2$  share of the sample gas into  $\text{NO}$  by catalytic means. For this purpose, the sample gas passes through a special stainless steel cartridge with a carbon-molybdenum-based type C catalyst filling. This conversion enables an indirect nitrogen oxide measurement with all  $\text{NO}$ -selective standard measuring instruments. For a ratio of  $\text{NO}_2/\text{NO} > 50 \%$  or for  $\text{NO}_2$  concentrations  $> 200 \text{ ppm}$ , an alternative version with metallic catalyst filling type SS is available.

To bypass the catalyst, e.g. for testing purposes, version CG-2M is equipped with two internally or externally controllable 3/2-way PVDF bypass solenoid valves and version CG-2MH-W with one internally or externally controllable 3/2-way stainless steel bypass solenoid valve.

The CG-2 and CG-2H-W versions are supplied without bypass solenoid valves.

We will be pleased to inform you about a suitable gas conditioning system to be connected up- or downstream the converter!

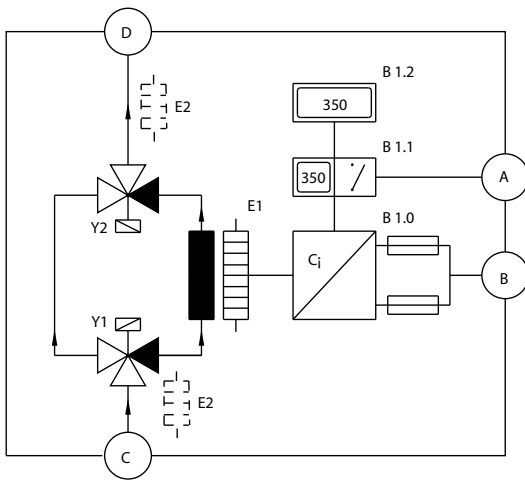
The compact 19" rack design of the M&C gas converters CG-2 and CG-2M guarantees compatible and safe handling as well as easy servicing. The 19" rack housing can optionally be equipped with wall-mounting brackets.

The M&C gas converters CG-2H-W and CG-2MH-W are supplied in a compact, technician-friendly wall-mounting housing.

The cylindrical, ready-to-use, pre-formatted catalyst cartridge is installed in a heat-insulated tube furnace, freely accessible from the outside. It can be removed for replacement by turning the adapter without using tools.

The temperature of the converter can be adjusted between +50 °C [122 °F] and 680 °C [1256 °F] at a PID temperature controller on the front panel of the converter. A status alarm contact for high- and low-temperature alarm is available.

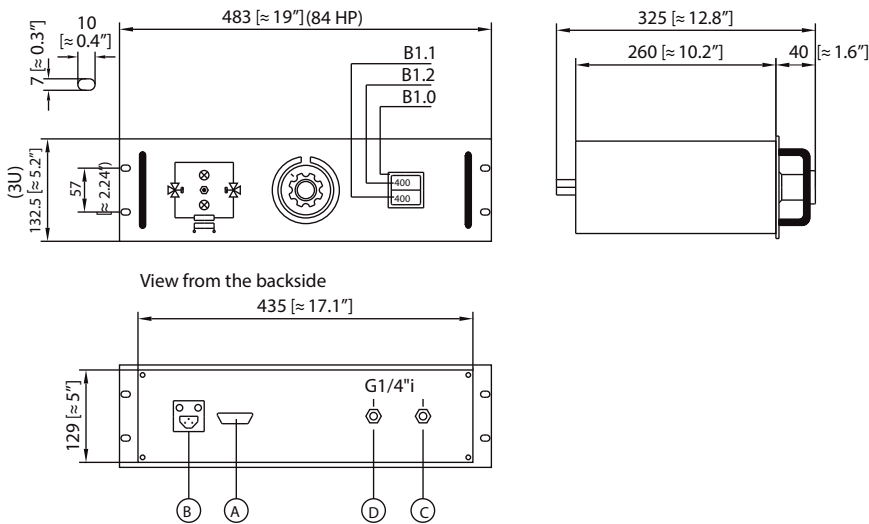
With different catalysts and being able to optimally adapt the cartridge temperature to the catalytic reaction, the M&C gas converter CG can be used in a wide range of applications.



- A** Status alarm temperature
- B** Power supply
- B 1.0** Temperature control
- B 1.1** Temperature alarm
- B 1.2** Temperature display
- C** Sample gas IN
- D** Sample gas OUT
- E 1** Tube furnace
- Y 1** 3/2-way solenoid valve (only in version CG-2M, CG-2MH-W)
- Y 2** 3/2-way solenoid valve (only in version CG-2M)
- E 2** Heating sample gas IN, OUT and Y1 (only in version CG-2MH-W) or heating sample gas IN and OUT (only in version CG-2H-W)

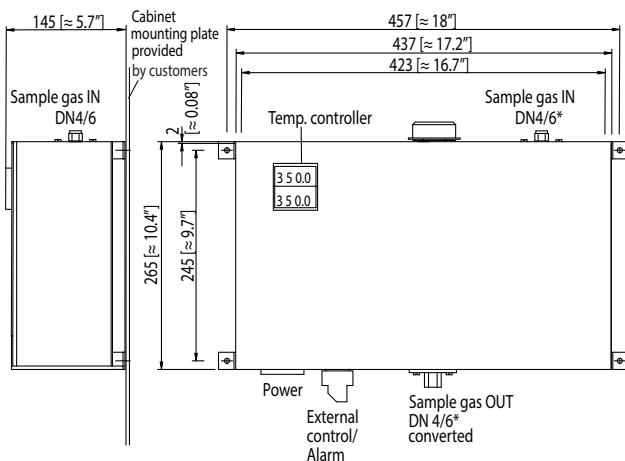
Versions CG-2, CG-2H-W without Y1/2, Version CG-2MH-W without Y2

### Dimensions CG-2, CG-2M, 19"-rack housing non-heated gas inlet and outlet



Dimensions in mm [Inches]

### Dimensions CG-2H-W, CG-2MH-W, wall-mounting housing, heated gas inlet and outlet



Dimensions in mm [Inches]

## Technical Data

Gas Converter Series CG®	CG-2	CG-2M	CG-2H-W	CG-2MH-W
Part No. without catalyst cartridge	50A1600(a)	50A1500(a)	50A1900(a)	50A1920(a)
Part No. catalyst cartridge type C, carbon-molybdenum	95A9003			
Part No. catalyst cartridge type SS, metal filling	95A9004			
Gas inlet and outlet non-heated (cold) or heated (hot)	Non-heated		Heated	
Housing	19" rack mounting 3U, depth 350 mm		Wall-mount enclosure	
Bypass solenoid valves	None	2 x	None	1 x
Temperature of gas inlet	Max. 80 °C [176 °F], dew point "dry"		Max. 250 °C [482°F], dew point < 160 °C [320 °F]	
Temperature range, adjustable	Max. 680 °C [1256 °F]			
Gas flow rate	30 to 60 NI/h, max. 90 NI/h			
Operating pressure	Max. 2 bar abs. (pressure deviations only with max. 0.1 bar/min)			
Warm-up time	Approx. 30 min.			
Operating temperature at NO <sub>2</sub> /NO converter cartridge C	Min. 320 °C [608 °F], typically 350 °C [662 °F], max. 380 °C [716 °F]			
Operating temperature at NO <sub>2</sub> /NO converter cartridge SS	Min. 620 °C [1148 °F], typically 660 °C [1220 °F], max. 680 °C [1256 °F]			
Conversion NO <sub>2</sub> /NO	Efficiency > 95 % with new catalyst			
Catalyst service life NO <sub>2</sub> /NO	Change as a preventive measure every 6 months for type C** Change as a preventive measure every 12 months for type SS**			
Differential pressure	< 20 to 60 mbar depending on type			
Ambient temperature	+10 to 50 °C [50 to 122 °F]			
Storage temperature	-25 to +65 °C [-13 to 149 °F]			
Relative air humidity	< 80 %			
Sample gas connections: inlet and outlet	PVDF fitting G 1/4" i DIN 228/1		ø 6 mm tube connector, SS 316Ti*	
Power supply	230 V 48-62 Hz or (a) 115 V 48-62 Hz			
Power consumption	520 W		620 W	940 W
Electrical connection	Main power plug connector incl. two fine fuses 5 x 20 mm, 230 V: 3.15 A <sub>T</sub> , 115 V: 6.3 A <sub>T</sub> , 2 m [≈ 6.6 ft] connecting cable and shock-proof plug, alarm-/control signals 9-pin sub D connector			
Status signals for temperature	NO contact-potential free, contact rating max. 24 V, 1 A			
Materials of sample-contacting parts	Stainless steel SS 316Ti, PTFE, FKM, PVDF		Stainl. steel SS 316Ti, PTFE, FKM, PVDF, Hard-coated aluminium	
Degree of protection	IP20, EN 60529			
Weight	Approx. 6 kg [≈ 13.2 lbs]			
Electrical equipment standard	EN 61010, EN 60519-1			
<b>Option for 19"-rack housing</b>	Wall-mounting bracket, 3 U - 84 HP, Part No: 50A3000			

\* Standard ø 6 mm, for ø 1/4" – please indicate with order.  
Other versions upon request.

\*\* The preventive lifetime represents a minimum lifetime of the catalyst material under normal conditions and a low corrosive, reducing or oxidizing atmosphere. The operator is responsible for checking and, if necessary, adjusting the life cycles.

Please note: NI/h and NI/min refer to the German standard DIN 1343 and are based on these standard conditions: 0 °C [32 °F], 1013 mbar.