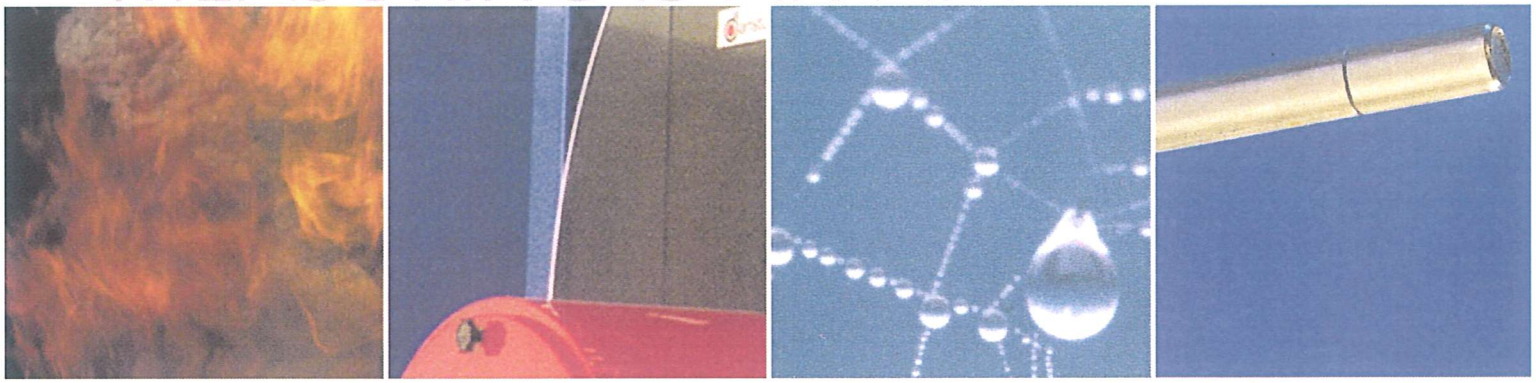
Technical Data Sheet
Carbon Dioxide
Measuring System
MF420-IR-CO2

MEASURING IS AN ART



INNOVATIVE GAS MEASURING SYSTEMS

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1. Properties

The gas measuring system MF420-IR-CO2 determines with the help of a specific infrared sensor the concentration of carbon dioxide in the air mixture at an ambient temperature of -10 to +50° C. It is compact, robust, easy to handle and in normal applications maintenance-free. The aluminium housing is suitable for wall mounting.

Available standard measuring ranges:

- 0-3,000 ppm (0-0.3 Vol%) CO_2
- 0-6,000 ppm (0-0.6 Vol%) CO_2
- 0-10,000 ppm (0-1 Vol%) CO_2
- 0-50,000 ppm (0-5 Vol%) CO_2
- others upon request.

As (1) the measured signals are evaluated and processed according to a new digital algorithm and (2) material and construction of the sample cell are novel, the infrared measuring system MF420-IR-CO2 detects the concentration of carbon dioxide faster, more accurately and at less cost than conventional infrared systems.

The infrared measuring system determines the absolute CO_2 content of the surrounding air, monitors itself continuously and signals malfunctions of the hard- and software. The whole measuring range is linear. Power supply occurs via 24 V DC.

Basic processing and output of the measured values (linear output, 4-20 mA or 0.1-10 V) are integrated into the measuring system. Evaluation and further processing of the measured values occur in a downstream device according to the users specifications (for e.g. ventilation system, limit monitor, display, programmable logic controller). For connection to Ethernet, a special module is available which supplies the net with the measured values.

In normal applications calibration is not necessary, however, if required, calibration can be carried out by an expert.

2. Design of the gas measuring system

The two-beam infrared sensor is mounted in an aluminium housing on a sensor holder above the diffusion opening. The cable entry is a screwed cable gland (PG11). In addition, a transmitter containing a signal amplifier and an output of 4-20 mA or optionally 0.1-10 V is arranged in the housing. The transmitter based on the three-wire system processes and transmits the measured signals (see Fig. 1).

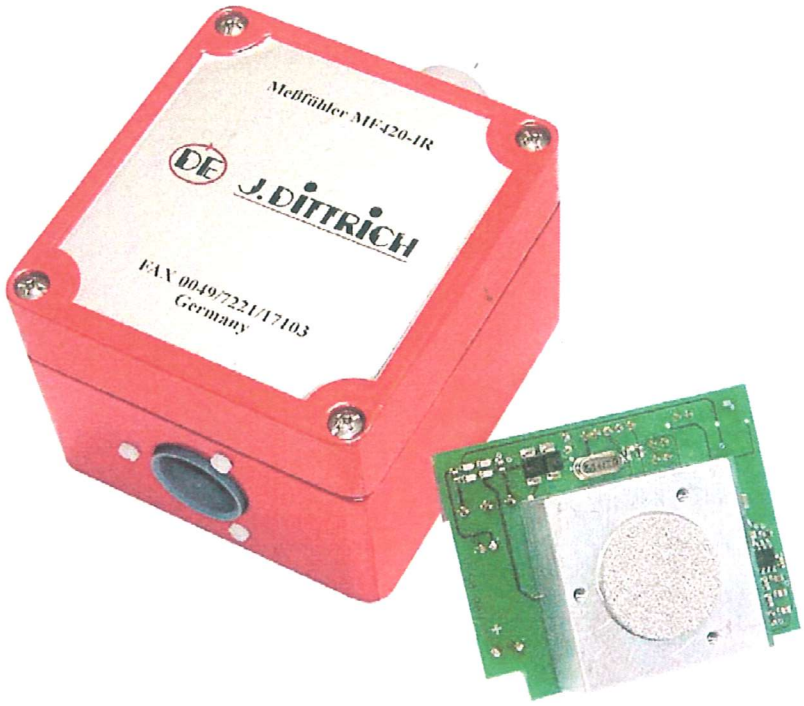

Fig. 1: Gas measuring system MF420-IR-CO2.

3. Technical data

Transmitter		
Power supply		Screw terminals
	Electric current	about 100 mA
Connections	Pin 1	0 V
	Pin 2	4-20 mA or 0.1-10 V
	Pin 3	24 V DC ± 5%
Ambient temperature	-10° C to +50° C	
Air pressure	900 hPa to 1100 hPa	
Permissible humidity	15-95% relative humidity	non-condensing
Output	4-20 mA	max. load 450 Ω
	0.1-10 V	min. 1 KΩ
Housing	Aluminium	red
Protection class of electrical connection housing	IP 54	
Weight of housing	about 500 g	
Size of housing	about L90 x W85 x H65 mm	
Connecting cable	3x1.5 ² Cu + functional ground	Shielded cable
Sensor		
Gas contact	via diffusion	
Measuring range	0-3,000 ppm CO_2	i.e. 0-0.3 Vol% CO_2
	0-6,000 ppm CO_2	i.e. 0-0.6 Vol% CO_2
	0-10,000 ppm CO_2	i.e. 0-1 Vol% CO_2
	0-50,000 ppm CO_2	i.e. 0-5 Vol% CO_2
	others upon request	
Heating-up time	5 min	
Accuracy	± 2% at 25° C	FS (full scale)
Reproducibility	± 1%	
Reaction time	about 30 s	

4. Connection of MF420-IR-CO2

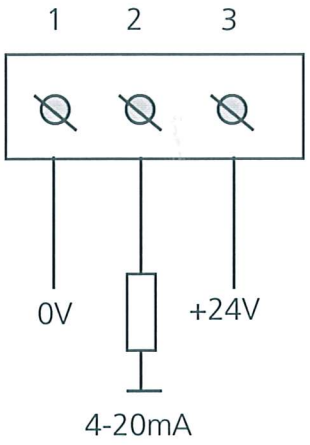

Fig. 2: Connection of MF420-IR-CO2. Pin 2 optionally 0.1-10 V.

The gas measuring system has to be connected to the downstream unit by means of a three-core shielded cable (see Fig. 2). Connection to circuit occurs via Pin 1 and Pin 3, reading of the measured values via Pin 2 (4-20 mA or 0.1-10 V).

5. Calibration of the gas measuring system

The device is in normal applications maintenance-free, calibration therefore usually not necessary. If required, calibration can be carried out by a specialist.

6. Other

The user should test whether the gas measuring system MF420-IR-CO2 is suitable for his application under the given conditions. Special attention has to be paid to compatibility of materials: For e.g. the sample cell must not corrode under any circumstances and the filters must not become opaque.

Subject to technical modifications without notice. (07/09)