

## Short Operating Instructions Dräger FG4200



Managing PC measuring data  
by Internet download!

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## General safety instructions

**Any use of the FG4200 requires full understanding and compliance with the operating instructions 5695051, the relevant standards, as well as the relevant statutory regulations.**

The device is intended only for the uses described in this manual. Any improper use of the device may lead to electric shock or destruction of the measuring instrument!

Before using the measuring device for the first time, the integrity of all components must be checked, e.g.:

Device exhibits no visible damage  
No condensed water in the gas preconditioner  
The gas preconditioner filter is clean  
Gas hoses without defects  
Visual inspection of the probe

**Always fully charge the FG4200 via the USB interface with a 5 V DC / 1 A USB power supply adapter only.**

Incomplete charging affects the charging capacity of the battery in the long term. For longer periods of inactivity, we recommend a monthly charge for at least 8 hours. When charging, no measurements should be performed.

## Operating Instructions and managing PC measuring data

The operating instructions and the measurement data management can be found on our website <http://www.draeger-msi.de/home/?L=1> under the menu item **Online-Services** → **Download** → **FG4200**. The necessary USB drivers are installed automatically by downloading the PC data management.



Since 2005, EU-wide regulations apply to the disposal of electrical and electronic equipment. In essence, these regulations set out that collection and recycling options must be available for private households. Because the FG4200 is not registered for use in private households, it must not be disposed of through such channels. The devices can be returned to your national retailer or to your national Dräger Safety Organization for disposal. Please contact Dräger MSI GmbH, if you have any questions regarding disposal.

## Maintenance

To ensure proper function and accuracy, calibration and adjustment should be performed once a year. Device maintenance must only be carried out by trained service personal.

## Switching on

Press the display slightly for 1 second, then press **Next**.

## Switching off

Select and activate the **OFF** menu item in the main menu or press the display for 5 seconds whilst in any menu point.

**Make sure that the gas outlet on the side is unobstructed and not closed or blocked!**

## Functional areas

The individual tests and measurements are accessed via the main menu.

## Flue gas measurement

To perform a complete flue gas measurement, we recommend a measurement time of at least 2 minutes. In addition to the flue gas measurement, it is also possible to calculate averages and measure the draft and enter the combustion system date.

Switch on the device and wait for system check. Then connect the flue gas probe to the unit (see connection diagram).

## Ambient air CO measurement

Measurement of the CO concentration in ambient air. The zero point adjustment has to be done with fresh air.

## Pressure measurement

Pressure measurement up to 160 hPa (mbar) for gas, nozzles or kinetic pressure. Connect the measuring point of the gas pressure hose with the pressure input **P** of the measuring device.

## Documentation

After completion of the measurement, all measurements can be printed using the MSI IR3 infrared printer or stored in the FG4200. An alphanumeric keyboard allows customer and system data to be entered or changed. The saved data and measured values can be provided and printed out using PC data management with pre-prepared measuring reports including company logo and address.

## Checklists

Checklists can be configured using the PC software. Up to 4 checklists each with up to 20 items can be stored in the device, and edited and annotated with the alphanumeric keyboard.

## Data memory

Information about the data memory – e.g. number of stored customers and measurements and number of allocated memory locations.

The stored measurements can be displayed and printed out, the inspector table can be edited. Measurement data can be deleted.

## Info

Details of the measuring device - such as type, manufacturer, software version, serial number

## Settings

Customizing and setting user-specific functions - e.g. time, backlight, displaying built-in help, address input for print-outs via the MSI IR3 infrared printer.

Additional activation of averaging, draft measurement and input of combustion system data.

## Flue gas measurement procedure

### 1. Fuel selection

Select fuel and press **Next**.

### 2. Combustion air measurement

Insert flue gas probe into the inspection opening of the combustion air supply or optionally keep the flue gas probe in the room air. After stabilization of the combustion air values, press **Hold**. Then press arrow key **>>**.

### 3. Flue gas measurement

Insert the flue gas probe into the exhaust pipe and search for the flow centre (maximum gas temperature, minimum oxygen concentration). After stabilization of the flow centre, press **Hold** or **Start** for the average measurement. Then press arrow key **>>** twice for documentation or draft measurement.

### 4. Draft measurement

Unplug flue gas probe from the gas inlet **G** and connect to pressure connection **P**. Measure draft and press **Hold**. Then press arrow key **>>**.

### 5. Entering combustion system data

Enter boiler temperature and / or the smoke number and the appearance of oil derivatives. Then press arrow key **>>**.

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### General technical specifications

Display:	Colour display with touch screen
Interfaces:	USB, IR
Power supply:	Li-ion battery, 3.6 V, 1500 mAh, charge level indicator Primary charger 100 - 240 V AC; Secondary 5 V DC, 1 A
Battery life:	Typical 8 hours
Dimensions:	75 x 200 x 27 mm (W x H x D)
Weight:	approx. 258 g
Operating temperature:	+ 5 °C to + 40 °C
Storage temperature:	- 20 °C to + 50 °C
Relative humidity:	10 - 90 % RH, not condensing
Air pressure:	800 to 1100 hPa
Certification:	DIN EN 50379 Part 1 and Part 3

### Technical specifications for flue gas measurement and pressure measurements

Display	Principle of measurement	Measuring range	Resolution	Accuracy
<b>Combustion air temperature</b>	Thermocouple	- 10 ... + 100 °C	0.1 °C	< ± 1 °C
<b>Exhaust gas temperature</b>	Thermocouple	0 ... + 600 °C	0.1 °C (< 100 °C) 1 °C (≥ 100 °C)	< ± 2 °C or < ± 1.5 % of MV*
<b>O<sub>2</sub>, oxygen</b>	El.-chem. sensor	0 ... 25 vol %	0.1 vol %	< ± 0.3 Vol %
<b>CO, carbon monoxide</b>	El.-chem. sensor	0 ... 8,000 ppm	1 ppm	0 ... 2,000 ppm: < ± 20 ppm or < ± 5 % of MV* 2,000 ... 8,000 ppm: < ± 10 % of MV*
<b>Draft**</b>	Piezo bridge	- 50 ... + 200 Pa	1 Pa	< ± 2 Pa or < ± 5 % of MV*
<b>Pressure**</b>	Piezo bridge	0 ... 100 hPa (mbar) + 100 ... 160 hPa (mbar)	0.01 hPa (mbar) 0.1 hPa (mbar)	0.5 hPa (mbar) or < ± 1 % of MV* or < ± 5 % of MV*

\*MV = Measurement value

\*\* = Pmax. 750 hPa (mbar)

### Calculated values

<b>CO, undiluted</b>	calculated	0 ... 9,999 ppm	1 ppm
<b>CO<sub>2</sub>, carbon dioxide</b>	calculated	0 ... CO <sub>2</sub> max.	0.1 vol %
<b>Exhaust gas losses</b>	calculated	0 ... + 100 % - 20 ... + 100 %***	0.1 %
<b>Efficiency</b>	calculated	0 ... + 100 % 0 ... + 120 %***	0.1 %
<b>Excess air</b>	calculated	1.00 ... 9.99	0.01

\*\*\* = taking into account of the gain in calorific value