BG20

EN

INSTRUCTIONS
GAS DETECTOR

TROTEC

TRT-BA-BG20-TC230711TTRT03-005-EN

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Information on the use of these instructions

Symbols

Warning of electrical voltage
This symbol indicates dangers to the life and health of persons due to electrical voltage.

Danger
This signal word indicates a hazard with a high risk level which, if not avoided, will result in serious injury or death.

Warning
This signal word indicates a hazard with an average risk level which, if not avoided, can result in serious injury or death.

Caution
This signal word indicates a hazard with a low risk level which, if not avoided, can result in minor or moderate injury.

Notice
This signal word indicates important information (e.g. material damage), but does not indicate hazards.

Info
Information marked with this symbol helps you to carry out your tasks quickly and safely.

Follow the manual
Information marked with this symbol indicates that the instructions must be observed.

You can download the current version of these instructions via the following link:



BG20

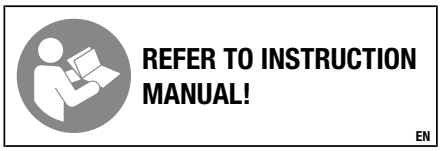
https://hub.trotec.com/?id=40283

Safety

Read this manual carefully before starting or using the device. Always store the manual in the immediate vicinity of the device or its site of use!

Warning
Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. **Save all warnings and instructions for future reference.**

- The device is supplied with a warning sign. Prior to initial start-up, make sure to paste the corresponding warning sign in your local language, if available, over the one present at the rear of the device as described in chapter Operation. Otherwise, choose a label in a language you know.



- Do not use the device in potentially explosive rooms or areas and do not install it there.
- Do not use the device in an aggressive atmosphere.
- Do not immerse the device in water. Do not allow liquids to penetrate into the device.
- The device may only be used in dry surroundings and must not be used in the rain or at a relative humidity exceeding the operating conditions.
- Protect the device from permanent direct sunlight.
- Do not open the device.
- Do not remove any safety signs, stickers or labels from the device. Keep all safety signs, stickers and labels in legible condition.
- Use batteries of type 6LR61 (9 V battery).
- Never charge a battery that cannot be recharged.
- Insert the battery into the battery compartment according to the correct polarity.

- Remove the discharged battery. Batteries contain materials hazardous to the environment. Dispose of the battery according to the national regulations.
- Remove the battery from the device if you will not be using the device for a longer period of time.
- Never short-circuit the terminal of the battery!
- Do not swallow batteries! If a battery is swallowed, it can cause severe internal burns within 2 hours! These burns can lead to death!
- If you think batteries might have been swallowed or otherwise entered the body, seek medical attention immediately!
- Keep new and used batteries and an open battery compartment away from children.
- Observe the storage and operating conditions (see Technical data).
- High concentrations of highly flammable gases can cause explosions, fire, suffocation and other hazards. Please obtain information on the gas you are working with and take the appropriate precautions.
- Calibrate the device in an environment that is free from gases affecting the measurement.

Intended use

Only use the device to measure the carbon monoxide concentration in the air. The measuring range is between 0 ppm and 1,000 ppm with an accuracy of ±5 % or ±10 ppm.

The device is only intended for private, non-commercial use in interior spaces.

Any use other than the intended use is regarded as misuse.

Reasonably foreseeable misuse

Do not use the device in hazardous areas or in any areas where an explosive gas/air mixture is likely to prevail.

The device is not intended for professional/commercial use.

Do not use the device as monitoring device for your personal safety. The device is no protective equipment.

Do not use the device for measurements in liquids and at live parts.

Any unauthorised modifications, alterations or structural changes to the device are forbidden.

Personnel qualification

People who use this device must:

- have basic knowledge of how to safely handle electrical equipment.
- be aware of the dangers that occur when working with carbon monoxide measuring devices.
- have read and understood the instructions, especially the Safety chapter.

Residual risks

Danger

Even low concentrations of carbon monoxide (CO) are life-threatening!
Carbon monoxide is toxic by inhalation! Make yourself familiar with the signs of CO poisoning and learn to recognize them.
Immediately remove persons who have inhaled carbon monoxide to fresh air. Immediately seek medical help!

Warning of electrical voltage

There is a risk of a short-circuit due to liquids penetrating the housing!
Do not immerse the device and the accessories in water. Make sure that no water or other liquids can enter the housing.

Warning of electrical voltage

Work on the electrical components must only be carried out by an authorised specialist company!

Warning of explosive substances

There is a danger of explosion due to sparking.
Switch on the measuring device in an atmosphere that is free from combustible gas. The device calibrates itself automatically after switch-on. If combustible gases are already present in the environment, any further measuring results can be distorted and combustible gases may remain undetected.

Warning

There is a danger of suffocation for children due to packaging material! Keep packaging films and parts away from children. There is a risk of death due to suffocation.

Warning

High concentrations of combustible gases cause a risk of explosion, fire and suffocation.
Make yourself familiar with the safety data sheet regarding the characteristics of the gas to be detected and take the necessary precautions.

Warning

The device is not a toy and does not belong in the hands of children.

Warning

Dangers can occur at the device when it is used by untrained people in an unprofessional or improper way! Observe the personnel qualifications!

Caution

Keep a sufficient distance from heat sources.

Notice

To prevent damages to the device, do not expose it to extreme temperatures, extreme humidity or moisture.

Notice

Do not use abrasive cleaners or solvents to clean the device.

Examples for carbon monoxide concentration in the air

Examples for carbon monoxide concentrations and their effects:

0 to 1 ppm	Normal background levels
9 ppm	Max. permissible concentration for interior spaces
35 ppm	Max. average amount to which one may be exposed over a period of 8 hours. *
100 ppm	Exposure limit, persons ought to leave enclosed spaces. *
150 ppm	Slight headache after 1.5 hours
200 ppm	Mild headache, fatigue, nausea and dizziness
400 ppm	Frontal headache, life-threatening after 3 hours
800 ppm	Dizziness, nausea, convulsions, death within 2 to 3 hours
1600 ppm	Nausea within 20 minutes, death within 1 hour
3200 ppm	Headache, dizziness and nausea within 5 to 10 minutes. Death within 25 to 30 minutes.
12800 ppm	Death within 1 to 3 minutes
* according to OSHA = Occupational Safety & Health Association	

Information about the device

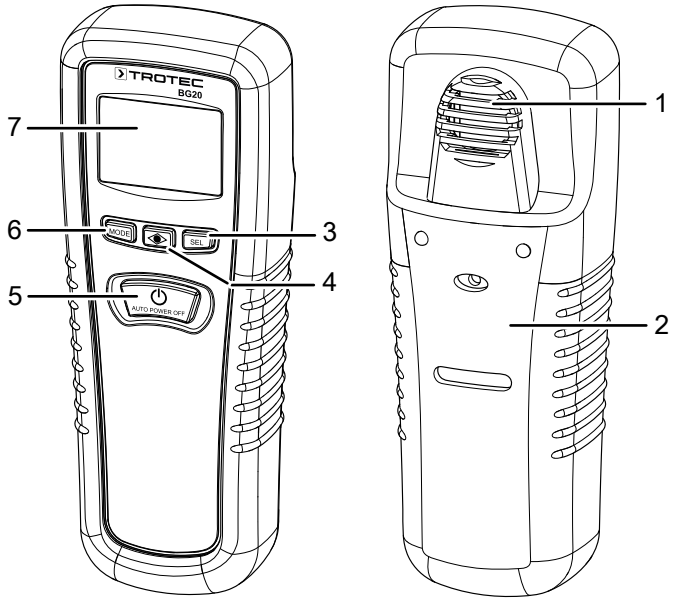
Device description

The carbon monoxide measuring device BG20 serves the purpose of measuring the concentration (ppm) of carbon monoxide (CO) in the air by means of an integrated sensor.

The device is designed for indoor use. The device is equipped with an automatic switch-off and memory function.

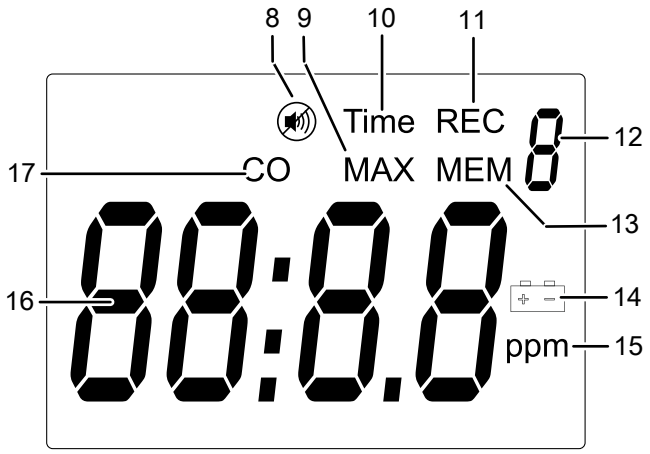
In order to protect it from impact, scratching etc., the device comes equipped with a protective cover.

Device depiction



No.	Designation
1	Sensor
2	Rubber cover
3	*SEL* button
4	Indicator LED
5	*Power* button
6	*MODE* button
7	Display

Display



No.	Designation
8	*MUTE* indication
9	*MAX* indication
10	*Time* indication
11	*REC* indication
12	*Memory space* indication
13	*MEM* indication
14	*Battery* indication
15	Indication of the *unit ppm*
16	Measurement value display
17	*CO* indication

Technical data

Parameter	Value
Model	BG20
Weight	180 g
Dimensions (length x width x height)	160 x 56 x 40 mm
Measuring range	0 ppm to 1000 ppm
Accuracy	±10 ppm or ±5 % (depending on which value is larger)
Measuring range resolution	1 ppm
Sensor type	Stabilised electrochemical gas-specific (CO)
Sensor life (typically)	5 years
Memory	For 10 measured values
Warm-up period	<20 seconds
Power supply	1 x 9 V battery
Battery life	approx. 50 hours for an alkaline cell
Operating temperature	0°C to 50°C (32°F to 122°F)
Storage temperature	-30°C to 60°C (-22°F to 140°F)
Operating humidity	0 % RH to 99 % RH (non-condensing)

Scope of delivery

- 1 x Device BG20 (without battery)
- 1 x Bag/holster
- 1 x Quick guide

Transport and storage

Notice

If you store or transport the device improperly, the device may be damaged.
Note the information regarding transport and storage of the device.

Transport

For transporting the device, use the bag included in the scope of delivery in order to protect the device from external influences.

Storage

When the device is not being used, observe the following storage conditions:

- dry and protected from frost and heat
- protected from dust and direct sunlight
- protected from dust ingress in the supplied bag
- at the temperature specified in the technical data
- battery is removed from the device

Operation

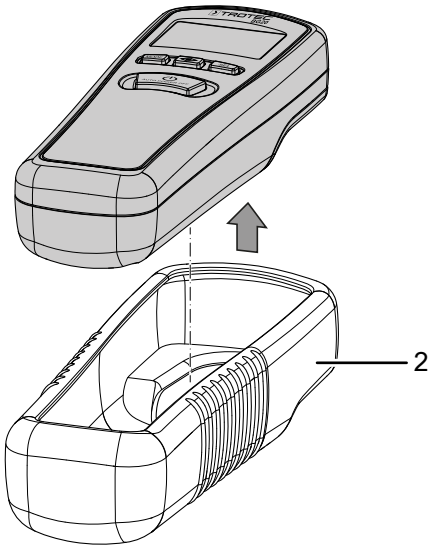
Inserting the battery

Insert the battery before first use.

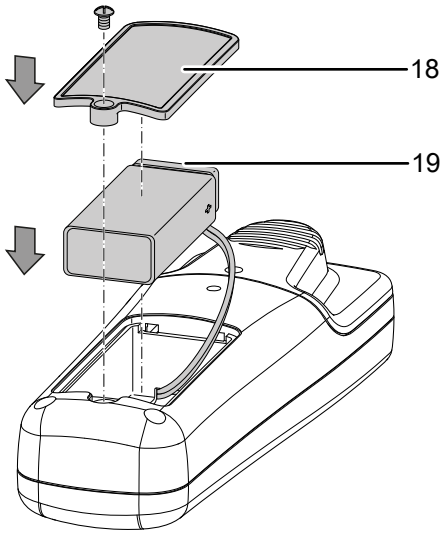
Notice

Make sure that the surface of the device is dry and the device is switched off.

1. Remove the device from the protective rubber cover (2).
   ⇨ The protective rubber cover is fitted tightly. Push the protective cover above the display off the housing and remove it towards the rear.



2. Loosen the screw at the cover of the battery compartment (18).

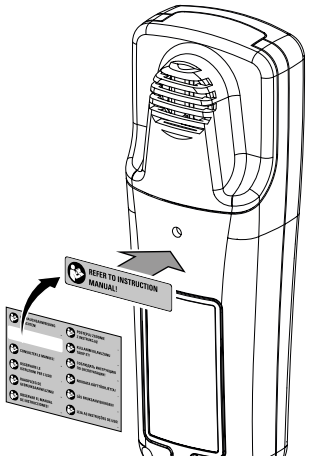


3. Use the battery clip (19) to connect the battery with correct polarity.
4. Screw the cover of the battery compartment (18) back in.
5. Pull the protective rubber cover back over the device.

Attaching the warning sign

Prior to initial start-up, check whether the warning sign at the rear of the device is in your local language, if not, paste the proper one over it. Otherwise, choose a label in a language you know. Please proceed as follows to attach the warning sign to the rear of the device:

1. Remove the desired label from the supplied film.
2. Affix the label in the intended position at the rear of the device.



Moving to another site

Info

Please note that moving from a cold area to a warm area can lead to condensation forming on the device's circuit board. This physical and unavoidable effect can falsify the measurement. In this case, the display shows either no measured values or they are incorrect. Wait a few minutes until the device has become adjusted to the changed conditions before carrying out a measurement.

Switch-on

Notice

The device calibrates after each switch-on taking the CO concentration in the environment as basis. For reasons of safety however, regardless of the actual CO concentration in the environment upon switch-on, the device accepts no more than 10 ppm as upper limit! Example: Should the background concentration of CO amount to 30 ppm, the device will not use 30 ppm as reference value, and hence zero point, but instead maximally 10 ppm! The set alarm threshold of 30 ppm (see also 'Carrying out a measurement') would therefore be activated at an actual CO value of 40 ppm (display: 30 ppm!).

Always make sure to switch the device on in CO-free surroundings, e.g. in fresh air, for otherwise the displayed CO contents of the subsequent measurements will be incorrect!

1. Go to a place with a low CO concentration (e.g. fresh air).
2. Press the *Power* button (5).
   ⇨ The indicator LED (4) will briefly flash red and then be illuminated in green. The warm-up phase of the device, including calibration, is started.
3. Wait until the calibration is completed.
   ⇨ The device displays a countdown from 11 to 0 in the measurement value display (16).
   ⇨ An acoustic signal indicates that the calibration is completed.
   ⇨ The device is ready for operation.

Carrying out a measurement

1. Direct the device towards the supposed CO source.
   ⇨ The measured value is displayed in real time on the measurement value display (16).
   ⇨ If the measured value amounts to more than 30 ppm, a repetitive acoustic warning signal will be emitted. The higher the CO content, the higher the repetition frequency. The LED (4) is illuminated in red.
   ⇨ If the measured value amounts to more than 200 ppm, a constant acoustic warning signal will be emitted. The LED (4) is illuminated in red.

Displaying the maximum value

The device can display the maximum value determined since the beginning of the measurement. To do so, proceed as follows:

1. Press the *MODE* button (6) once.
   ⇨ The indications *MAX* (9) and *REC* (11) appear on the display.
   ⇨ The highest value measured appears in the measurement value display (16).

Save measured value

The device comes equipped with a measured value memory, in which up to 10 measured values can be stored. Saved measured values are preserved even after switch-off. In order to save one or several measured values, please proceed as follows:

1. Press the *MODE* button (6) three times.
   ⇨ The indications *REC* (11) and *memory space* (12) appear on the display.
   ⇨ The value 0 or else the storage location displayed when last calling up the measured value memory will appear in the *memory space* (12) display.
2. Press the *SEL* button (3) to save the current measured value.

Info

The measured value memory is deleted when you perform a zero point reset (see *Resetting the zero point*).

Calling up the measured value memory

To call up saved measured values, please proceed as follows:

1. Press the *MODE* button (6) twice.
   ⇨ The indications *MEM* (13) and *memory space* (12) appear on the display.
2. Repeatedly press the *SEL* button (3) until the storage location with the desired number is displayed.

Calling up the alarm threshold

The value for the alarm threshold is stipulated, can however be called up at any time:

1. Press the *MODE* button (6) four times.
   ⇨ The value 30 ppm is displayed in the measurement value display (16).

Resetting the zero point

Notice

Resetting the zero point should only be effected in the fresh air, thus in surroundings with the lowest possible CO concentration!

By means of resetting the zero point the prevailing CO concentration and hence the current measured value is defined as new reference value (see also *Switch-on*). To do so, proceed as follows:

1. Go to a place with a low CO concentration (e.g. fresh air).
2. Press the *MODE* button (6) four times.
   ⇨ The alarm threshold (30 ppm) is displayed in the measurement value display (16).
3. Press and hold the *SEL* button (3) for approx. 8 seconds until *0* appears in the measurement value display.
   ⇨ The digit 0 flashes six times.
   ⇨ Then the device returns to the measuring mode.
   ⇨ The saved measured values will be deleted.

Show measuring time

The device saves the measuring time after switch-on. Please proceed as follows to retrieve the measurement time:

1. Press the *MODE* button (6) five times.
   ⇨ The *Time* indication (10) appears on the display.
   ⇨ The measuring time is indicated in the measured value display (16) in the format hours:minutes.

Setting the acoustic warning signal

1. Press the *MODE* button (6) six times until either *on* or *off* is displayed.
2. Press the *SEL* button (3) to select the desired setting.
   ⇨ When *on*, the acoustic warning signal is enabled.
   ⇨ When *off*, the acoustic warning signal is disabled. The *MUTE* indication (8) appears on the display.

Switching the display illumination on or off

Ex works the display illumination is switched off.

✓ The device is in normal measuring mode.

1. Press the *SEL* button (3) for approx. 2 seconds.
   ⇨ The display's background illumination is switched on or off.

Switch-off

The device comes equipped with an automatic switch-off function and switches off automatically after 15 minutes of inactivity.

To switch off the device manually, press the *POWER* button (5).

Maintenance and repair

Battery change

A battery change is required if the *Battery* indication (14) lights up on the display, if the indications on the display flicker or are only faintly visible or if the device can no longer be switched on. See chapter Operation.

Sensor

The sensor life amounts to approx. 5 years. During this time, we recommend checking/calibrating the sensor annually.

Cleaning

Clean the device with a soft, damp and lint-free cloth. Make sure that no moisture enters the housing. Do not use any sprays, solvents, alcohol-based cleaning agents or abrasive cleaners, but only clean water to moisten the cloth.

Repair

Do not modify the device or install any spare parts. For repairs or device testing, contact the manufacturer.

Errors and faults

For repairs or device testing, contact the manufacturer.

The device can no longer be switched on:

- The battery is dead. Change the battery, if required (see chapter Inserting the battery).
- Make sure that the battery is properly positioned. Check the polarity is correct.

Display segments are only faintly visible or flicker:

- The battery voltage is too low. Change the battery, if required (see chapter Inserting the battery).
- Make sure that the battery is properly positioned. Check the polarity is correct.

Disposal

Always dispose of packing materials in an environmentally friendly manner and in accordance with the applicable local disposal regulations.



The icon with the crossed-out wheeled bin indicates that this device and any associated components (e.g. remote controls) must not be disposed of with household waste at the end of their life, in accordance with the Waste Electrical and Electronic Equipment Directive (2012/19/EU) and national laws.

You will find collection points for free return of waste electrical and electronic equipment in your vicinity. The addresses can be obtained from your municipality or local administration. You can also find out about other return options that apply for many EU countries on the website https://hub.trotec.com/?id=45090. Otherwise, please contact an official recycling centre for electronic and electrical equipment authorised for your country.

The separate collection of waste electrical and electronic equipment aims to enable the re-use, recycling and other forms of recovery of waste equipment as well as to prevent negative effects for the environment and human health caused by the disposal of hazardous substances potentially contained in the equipment.



This icon with the crossed-out wheeled bin indicates that batteries or accumulators must not be disposed of with household waste at the end of their life. If the device contains batteries or accumulators that contain mercury, cadmium or lead, the respective chemical symbol (Hg, Cd or Pb) is shown below the icon of the crossed-out wheeled bin. To prevent environmental pollution, do not carelessly leave batteries or electrical and electronic equipment containing batteries in public areas. In the European Union, batteries and accumulators must be returned to a designated collection point in accordance with REGULATION (EU) 2023/1542 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 12 July 2023 concerning batteries and waste batteries. Remove batteries/accumulators and dispose of them separately according to the relevant legal requirements.

Only for United Kingdom

According to Waste Electrical and Electronic Equipment Regulations 2013 (SI 2013/3113) (as amended) and the Waste Batteries and Accumulators Regulations 2009 (SI 2009/890) (as amended), devices that are no longer usable must be collected separately and disposed of in an environmentally friendly manner.

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