TriOS
Optical Sensors

G2 InterfaceBox

Operating instructions

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1 General information

1.1 Introduction

Welcome to TriOS.

We are delighted that you have chosen the G2 InterfaceBox.

The G2 InterfaceBox is available in Variant with and without WiFi. It can be used to configure and control the G2 sensors from TriOS GmbH. This is done via the web interface of the G2 sensors. Access is either via a WiFi or LAN connection. The web interface can be called up in any browser.

In this manual you will find all the information about the G2 InterfaceBox that you need for Commissioning. Technical specifications and dimensions can be found in chapter 5.

Please note that the user is responsible for complying with regional and national regulations for the installation of electronic devices. Any damage caused by incorrect use or unprofessional installation is not covered by the warranty.

All sensors and accessories supplied by TriOS Mess- und Datentechnik GmbH must be installed and operated in accordance with TriOS Mess- und Datentechnik GmbH specifications. All parts have been designed and tested according to international standards for electronic instruments. The device complies with international standards for electromagnetic compatibility. Please use only original TriOS accessories and cables to ensure smooth and professional use of the devices.

Read this manual carefully before using the device and keep it for future reference. Before using the sensor, make sure that you have read and understood the safety precautions described below. Always ensure that the sensor is operated correctly. The safety precautions described on the following pages are intended to ensure problem-free and correct operation of the device and the associated accessories and to prevent you, other persons or devices from being harmed.

NOTICE

If translations differ from the original German text, the German version is binding.

Copyright notice

1.2 Health and safety instructions

This manual contains important information on health and safety regulations. This information is marked in accordance with the international specifications of ANSI Z535.6 (“Product safety information in product manuals, instructions and other collateral materials”) and must be followed. The following categories are distinguished:

⚠ DANGER

Danger / Will cause serious injury or death

⚠ WARNING

Warning / May cause serious injury or death

⚠ CAUTION

Caution / May cause moderate injury

NOTICE

May lead to material damage

Tip / Useful information

Electromagnetic waves

Devices that emit strong electromagnetic waves can influence the measurement data or cause the sensor to malfunction. Avoid operating the following devices in the same room as the TriOS sensor: cell phones, cordless phones, transceivers or other electrical devices that generate electromagnetic waves.

1.3 Warnings

General instructions:

- Do not cut, damage or modify the cables. Ensure that there are no heavy objects on the cables and that the cables do not kink. Ensure that the cables do not run close to hot surfaces.
- If a cable is damaged, it must be replaced with an original part by TriOS Mess- und Datentechnik GmbH customer support.
- Never attempt to disassemble or modify any part of the device unless expressly described in this manual. Inspections, modifications and repairs may only be carried out by the device dealer or by qualified specialists authorized by TriOS.
- Devices from TriOS Mess- und Datentechnik GmbH comply with the highest safety standards. Repairs to the devices (which include the replacement of the connecting cable) must be carried out by TriOS Mess- und Datentechnik GmbH or an authorized TriOS workshop. Incorrect, improper repairs can lead to accidents and injuries.

NOTICE

TriOS does not guarantee the plausibility of the measured values. The user is always responsible for monitoring and interpreting the measured values.

1.4 User and operating requirements

The G2 InterfaceBox was developed as an accessory for G2 sensors and therefore for use in industry and science. The target group for the operation of the G2 InterfaceBox is technically experienced specialist personnel in companies, sewage treatment plants, waterworks and institutes.

The application often requires the handling of hazardous substances. We assume that the operating personnel are familiar with the handling of hazardous substances due to their professional training and experience. In particular, the operating personnel must be able to correctly understand and implement the safety markings and safety instructions on the packaging and in the package inserts of the test kits.

1.5 Intended use

The G2 InterfaceBox can be used to configure and control the G2 sensors from TriOS Mess- und Datentechnik GmbH. Please observe the technical data of the accessories. Any other use is considered improper.

According to current scientific knowledge, the device is safe to use if it is handled in accordance with the instructions in this operating manual.

NOTICE

Damage caused by improper use is excluded from the warranty.

1.6 Disposal instructions

At the end of its service life or useful life, the device and its accessories can be returned to the manufacturer (see address below) for disposal in an environmentally friendly manner. Proof of prior professional decontamination must be provided in the form of a certificate. Please contact us before returning the device for further details.

Address of the manufacturer:

TriOS Mess- und Datentechnik GmbH
Bürgermeister-Brötje-Str. 25
26180 Rastede
Rastede, Germany
Phone: +49 (0) 4402 69670 - 0
Fax: +49 (0) 4402 69670 - 20

1.7 Certificates and approvals

The product meets all requirements of the harmonized European standards. It therefore fulfills the legal requirements of the EU directives. TriOS Mess- und Datentechnik GmbH confirms the successful testing of the product by affixing the CE mark (see appendix).

2 Introduction

2.1 Product identification

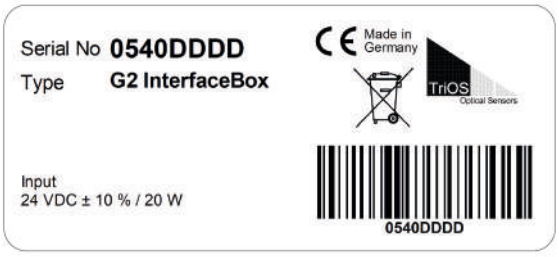
All TriOS Mess- und Datentechnik GmbH products are provided with a product label that clearly shows the product designation.

There is also a type plate on the device with the following information, which you can use to clearly identify the product:

G2 InterfaceBox

Serial number
Product type

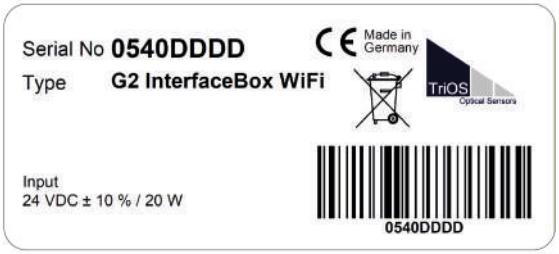
Power supply



G2 InterfaceBox with WiFi

Serial number
Product type

Power supply



The nameplate also contains the product barcode, the TriOS Optical Sensors logo and the CE quality mark.

Please note that the specifications given here are for illustrative purposes only and may vary depending on the product version.

2.2 Scope of delivery

The delivery includes the following components:

G2 InterfaceBox
Art. 11C000000

or

G2 InterfaceBox WiFi
Art. 11C100000

Accessories (included in Scope of delivery):

DC power supply unit
with cable length approx. 1.4 m
and connection adapters for
the USA, Great Britain,
Australia and Europe

The power supply unit has the following approvals:

Ethernet-capable LAN cable
(for Art. 11C000000 only)

Operating Instructions

Keep the original packaging of the device for possible return for maintenance or repair purposes.

2.3 Structure and function

The G2 InterfaceBox can be used universally for all G2 sensors from TriOS Mess- und Datentechnik GmbH and is used both to establish a connection and to supply power to the sensors.

The G2 InterfaceBox is available in two Variants with and without WiFi.

G2 InterfaceBox

There are three connectors on the housing of the G2 InterfaceBox:

1. Power supply 12 or 24 VDC; 2.1 mm barrel connector
2. Sensor connection 8-pin M12
3. Ethernet connection RJ-45 socket

G2 InterfaceBox WiFi

WiFi status LED

Power:	Device switched on, supply voltage OK
SensorLink:	Sensor connected: on / data transfer: flashing
WiFi active:	WiFi initialized: on / data transfer: flashing

3 Commissioning

This chapter covers the Commissioning of the G2 InterfaceBox up to the first function test. Please pay particular attention to this section and follow the safety instructions to protect the product from damage and yourself from injury. The cables must be connected correctly.

3.1 Establishing a connection

Proceed as follows to connect a G2 sensor to an Ethernet-capable device (such as a PC or notebook) using the G2 InterfaceBox or the G2 InterfaceBox WiFi:

1. Make sure that the Ethernet adapter of your device is configured to automatically obtain the network settings (IP address and DNS server).
2. Insert the M12 plug at the cable end of the sensor into the M12 socket (2) of the G2 InterfaceBox and close the screw cap.
3. Connect the 24 VDC power supply unit to the G2 InterfaceBox to supply the sensor with power. Wait at least 3 seconds until the sensor and G2 InterfaceBox are fully operational. The G2 InterfaceBox WiFi requires up to 30 seconds until it is fully operational - indicated by the “WiFi active” status LED.
4. Finally, connect your Ethernet-capable LAN cable to your Ethernet-capable device and the G2 InterfaceBox, or connect your WiFi adapter to the WiFi emitted by the G2 InterfaceBox WiFi with the SSID “G2-Interface_IB-XXX”, where XXX is the serial number of the G2 InterfaceBox WiFi.

The web interface can now be called up with any browser using the following URLs:

URL	Example	Note
http://<sensor name>_<sensor ID>/	e.g. http://lisa-color_3805/	
http://<sensor-name>/	e.g. http://lisa-color/	Only without WiFi
http://192.168.77.1/		

After switching on the G2 InterfaceBox WiFi, initialization takes place. This means that it takes up to 30 seconds before it is fully operational.

If the web interface cannot be called up, make sure that the LAN cable is connected after the sensor has been supplied with power and try all three URL options.

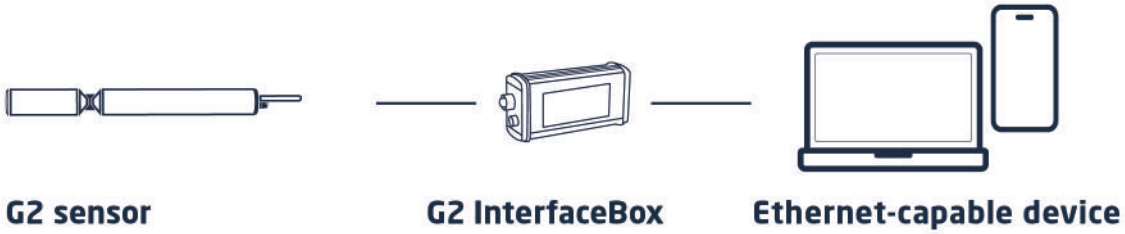
4 Application

4.1 Network

Network with a single G2 sensor

The easiest way to establish a connection with a G2 sensor is with the G2 InterfaceBox. It is used both to establish the connection and to supply power to the sensor and can be used universally for all TriOS G2 sensors.

The following illustration shows a connection setup for a single sensor:



The TriOS G2 InterfaceBox translates the 8-pin M12 sensor connector to the standard connections for the power supply (2.1 mm barrel connector) and for network access (RJ-45 socket).

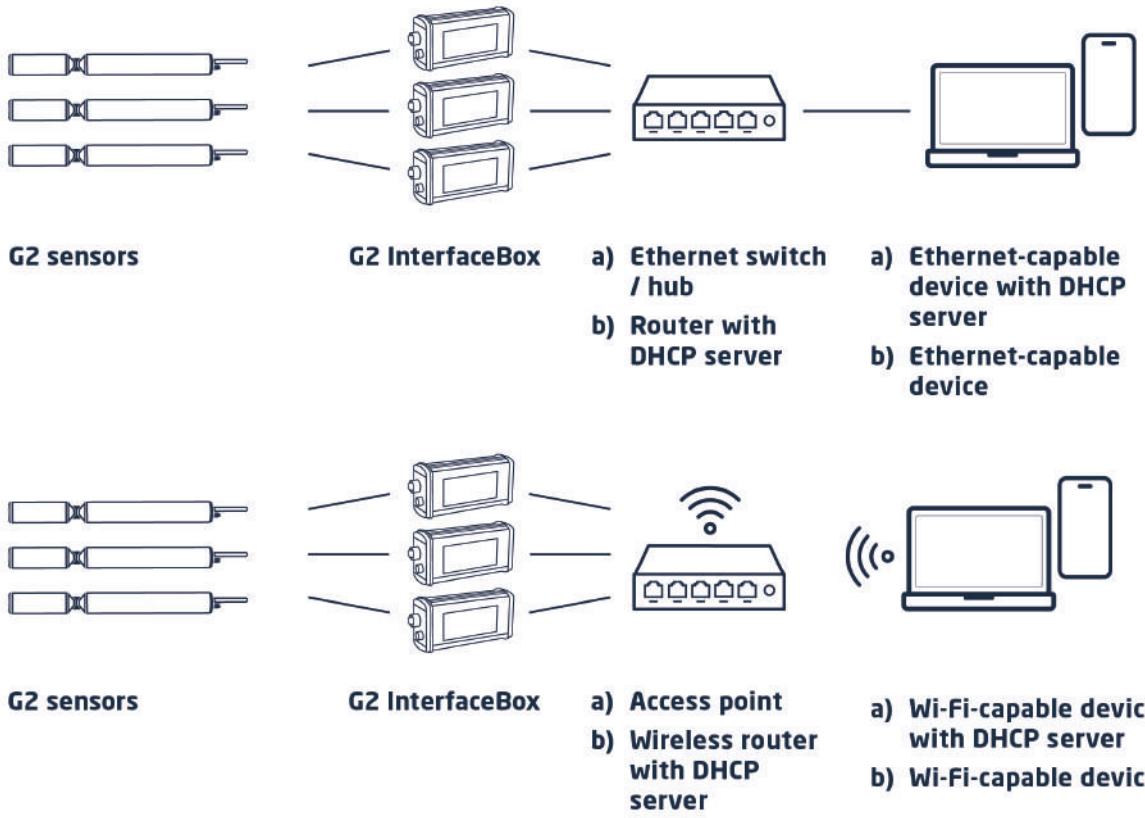
Network with several G2 sensors

Using an Ethernet switch or hub or standard router, it is possible to connect several sensors in a complex network and use them simultaneously. In the sensor network, each sensor requires its own G2 InterfaceBox for the power supply.

The G2 InterfaceBox WiFi is not suitable for this application.

Each G2 sensor provides a simple DHCP server and a simple DNS server, which are configured exclusively for the direct individual connection - as described in the previous section. For a complex sensor network, it is necessary for these servers to be provided by the user. The G2 sensor automatically detects these and then switches off the internal servers. Ask your network administrator for advice on how this can best be implemented in your case.

The following illustrations show examples of different ways to set up a sensor network.



G2 sensors can only be used from one Ethernet-enabled device at a time.

If several sensors are used in a network, the web interface can be accessed via the host name http://Sensor-Name>_<Sensor-ID>/ or via the assigned IP. Ask your network administrator for advice.

NOTICE

Damage caused by improper use is excluded from the warranty!

5 Calibration

Not applicable for this device.

6 Malfunction and maintenance

To ensure error-free and reliable measurement, the device should be checked at regular intervals.

If the web interface cannot be called up, make sure that the LAN cable is connected after the sensor has been supplied with power and try all three URL options (as described under 3.1 Establishing a connection).

If the G2 InterfaceBox WiFi fails to connect to the sensors, try again and bear in mind that the InterfaceBox WiFi needs up to 30 seconds to be fully operational - indicated by the “WiFi active” status LED.

6.1 Return shipment

Please note the procedure for your return.

If you wish to return the sensor or the device, please contact technical support first. To ensure a smooth return process and to avoid incorrect shipments, every return shipment must first be reported to technical support. You will then receive a numbered RMA form, which you must complete in full, check and return to us.

Please stick this form with the number clearly visible on the outside of the return package or write it in large letters on the packaging. This is the only way your return can be correctly assigned and accepted.

Please note! Returns without an RMA number cannot be accepted and processed!

Please note that the sensor or the device must be cleaned and disinfected before shipping.

Use the original packaging to ensure that the goods are sent undamaged. If this is not available, ensure that safe transportation is guaranteed and that the sensors are secured with sufficient packing material.

7 Technical data

7.1 Technical specifications

POWER SUPPLY

Power supply	24 VDC (± 10 %)
Power consumption	≤ 1.5 W plus sensor (variant WiFi only)

SENSOR INTERFACES

Connection	1x M12 plug connector for TriOS G2 sensors
Standard	IEEE 802.3
Protocol	Web interface (for G2 sensors only)
Analog interfaces	No
Switching input/output	No

NETWORK / USB

Connection	1x RJ-45, external WiFi antenna (SMA; variant WiFi only)
Standard	IEEE 802.3, IEEE 802.11 b/g/n (variant WiFi only)
Protocol	TCP/IP (for G2 sensors only)
Web interface	No
USB PORT	No
Data storage	No

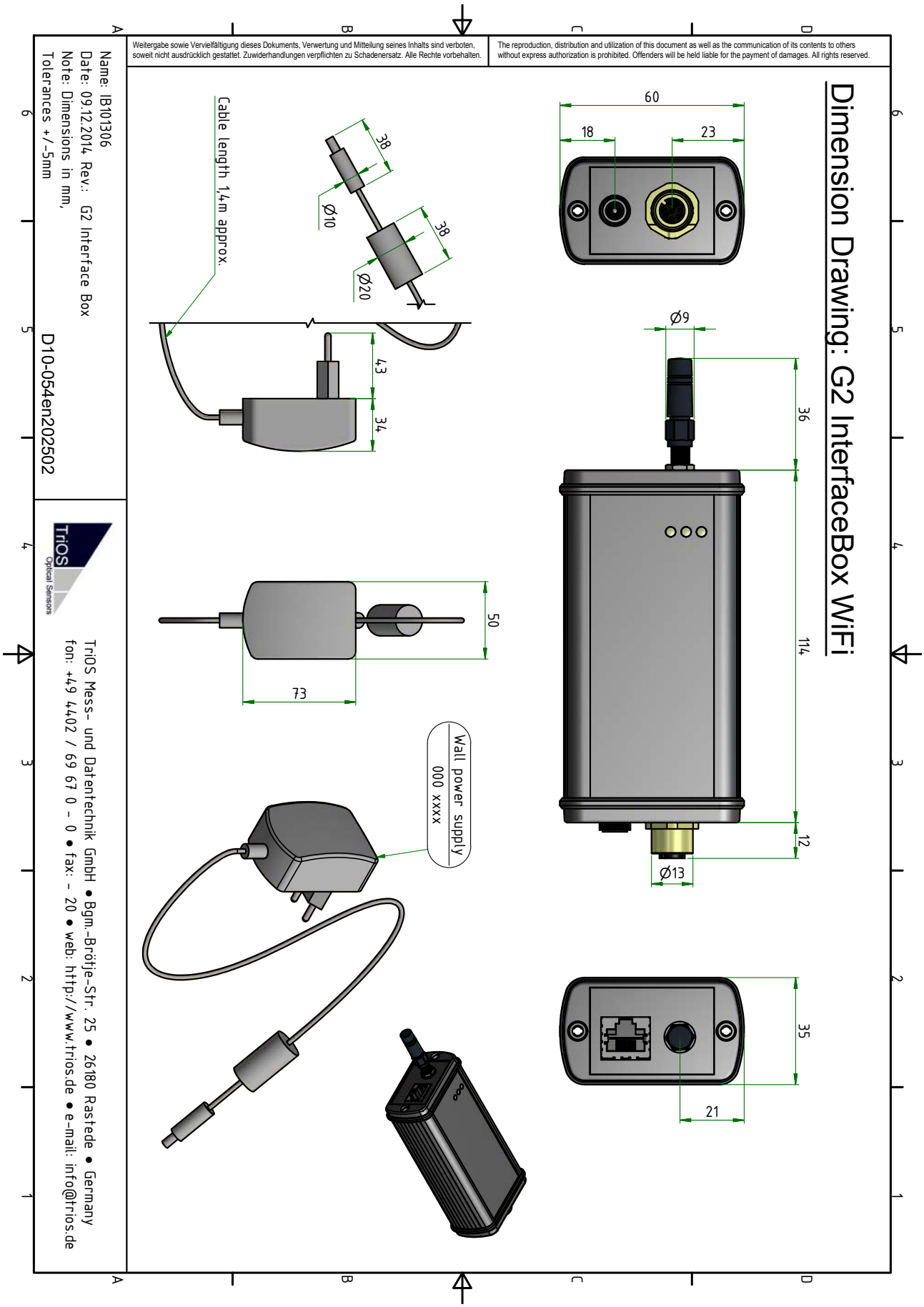
ENVIRONMENT

Operating temperature	0...+40 °C	32...104 °F
Storage temperature	-20...+70 °C	-4...158 °F
Relative humidity	0...95 % (non-condensing)	
Protection class	IP20	NEMA 1

MECHANICS

Dimensions (W/H/D)	60 x 35 x 126 mm 60 x 35 x 162 mm (variant WiFi)	2.4 " / 1.4 " / 5 " 2.4 " / 1.4 " / 6.4 "

7.2 Outer dimensions



8 Accessories

Delivery accessories

See chapter 2.2 Scope of delivery.

9 Warranty

The warranty period for our devices within the EU and the USA is 2 years from the date of invoice. Outside the EU it is 1 year. Excluded from the warranty are all normal consumables
(depending on the product, e.g. light sources or windows).

The guarantee is subject to the following conditions:

- The appliance and all accessories must be installed as described in the relevant manual and operated in accordance with the specifications.
- Damage caused by contact with aggressive and material-damaging substances, liquids or gases, as well as transport damage, are not covered by the guarantee.
- Damage caused by improper handling and use of the appliance is not covered by the warranty.
- Damage caused by modification or unprofessional attachment of accessories by the customer is not covered by the warranty.

NOTICE

Opening the device will void the warranty!

10 Technical support

If you have a problem with a TriOS sensor / a TriOS device, please contact TriOS technical support.

We recommend sending in sensors every 2 years for maintenance and calibration. To do this, please request an RMA number from technical support.

Contact technical support:

E-mail: support@trios.de
Phone: +49 (0) 4402 69670 - 0
Fax: +49 (0) 4402 69670 - 20

To enable us to help you quickly, please send us the sensor ID number (serial number with 8 digits, consisting of letters and numbers, e.g. 6700003F) by e-mail.

11 Contact us

We are constantly working on improving our devices. Please visit our website for the latest news.

If you have found a fault in one of our devices or programs or would like additional functions, please contact us:

Technical Support:	support@trios.de
General questions/sales:	sales@trios.de
Website:	www.trios.de

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13 Appendix

Declaration of Conformity

Hersteller/Manufacturer/Fabricant: TriOS Mess- und Datentechnik GmbH
Bürgermeister-Brötje-Str. 25
D- 26180 Rastede

Konformitätserklärung
Declaration of Conformity
Déclaration de Conformité

Die TriOS GmbH bescheinigt die Konformität für das Produkt
The TriOS GmbH herewith declares conformity of the product
TriOS GmbH déclare la conformité du produit

Bezeichnung Product name Designation	**G2 InterfaceBox**
Typ / Type / Type	Art.Nr.11C000000 ohne WiFi *Art.Nr.11C100000 mit WiFi
Mit den folgenden Bestimmungen With applicable regulations Avec les directives suivantes	2014/30/EU EMV-Richtlinie 2011/65/EU RoHS-Richtlinie + (EU) 2015/863 + (EU) 2017/2102 *2014/53/EU RED-Richtlinie
Angewendete harmonisierte Normen Harmonized standards applied Normes harmonisées utilisées	EN IEC 61326-1:2021 *EN 300 328 V2.2.2 *EN 301 489-1 V2.1.1 *EN 301 489-17 V3.1.1 EN 61010-1:2010 +A1:2019 +A1:2019/AC:2019 EN IEC 63000:2018
Datum / Date / Date	Unterschrift / Signature / Signature
21.05.2024	R. Heuermann

D05-054yy202405

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