

EN

G 1113

Manometer



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1 About this documentation

1.1 Foreword

Read this document carefully and familiarise yourself with the operation of the product before you use it. Keep this document ready to hand and in the immediate vicinity of the product so that it is available to the personnel/user for reference at all times in case of doubt.

The product was developed according to the state of the art and fulfils the requirements of the applicable European and national Directives. All corresponding documents are available from the manufacturer.

Only technically qualified persons are permitted to carry out commissioning, operation, maintenance and decommissioning. The qualified personnel must have carefully read and understood the operating manual before beginning any work.

1.2 Purpose of the document

- This document describes the operation of the product.
- It provides important information for operating safely and efficiently with the product.
- In addition to the quick reference guide with all relevant legal and safety content in hard copy, this document is a detailed reference option for the product.

1.3 Legal notices

The liability and warranty of the manufacturer for damages and consequential damages are voided with misuse, disregarding this document, disregarding safety notices, assignment of inadequately qualified technical personnel and arbitrary modifications of the product.

Only carry out the maintenance and service tasks on this product that are described in this documentation. In the process, adhere to the specified steps. For your own safety, only use original spare parts and accessories of the manufacturer. We assume no liability for the use of other products and resulting damage.

This document is entrusted to the recipient for personal use only. Any impermissible transfer, duplication, translation into other languages or excerpts from this operating manual are prohibited.

The manufacturer assumes no liability for print errors.

1.4 Correctness of content

The contents of this document were checked for corrected and are subject to a continuous correction and updating process. This does not rule out potential errors. In the event that errors are discovered or in case of suggestions for improvement, please inform us immediately via the indicated contact information in order to help us make this document even more user-friendly.

1.5 Layout of this document

Description

Each chapter is explained at the beginning in the description.

Prerequisite

All mandatory prerequisites are then listed for each step.

Instruction

Tasks to be carried out by the personnel / user are represented as numbered instructions. Adhere to the sequence of the specified instructions.

Representation

Shows an illustrative instruction or a configuration of the product.

Formula

Some instructions include a formula for a general understanding of a configuration, programming or a setting of the product.

Outcome of an action

Result, consequence or effect of an instruction.

Emphases

In order to simplify legibility and provide a clearer overview, various sections / information are emphasised.

- *Display elements*
- *Mechanical controls*
- **Product functions**
- **Product labels**
- Cross-reference [▶ 4]
- *Foot notes*

1.6 Further information

Software version of the product:

- V1.1 or later

2 Safety

2.1 Explanation of safety symbols



DANGER

This symbol warns of imminent danger, which can result in death, severe bodily injury, or severe property damage in case of non-observance.



CAUTION

This symbol warns of potential dangers or harmful situations, which can cause damage to the device or to the environment in case of non-observance.



NOTE

This symbol indicates processes, which can have a direct influence on operation or can trigger an unforeseen reaction in case of non-observance.

2.2 Safety instructions



NOTE

This product does not belong in children's hands!

2.3 Foreseeable misuse

The fault-free function and operational safety of the product can only be guaranteed if applicable safety precautions and the device-specific safety instructions for this document are observed.

If these notices are disregarded, personal injury or death, as well as property damage can occur.



DANGER

Incorrect area of application!

In order to prevent erratic behaviour of the product, personal injury and property damage, the product must be used exclusively as described in the chapter Description [► 8] in the operating manual.

- The product is not suitable for use in explosion-prone areas!
- The product must not be used for diagnostic or other medical purposes on patients!
- For measurements requiring devices that are subject to authorisation or special approvals, this product is not a substitute for such products and can only be used as an aid in preparatory or comparison measurements!

2.4 Intended use

The G 1113 is designed as a manometer and measures even the smallest pressure differential pressures of up to ± 2000 hPa with a maximum resolution of up to 1 Pa in air or in non-corrosive/non-ionising gases between the two pressure connections.

Usual applications include precise measurements of filter condition, gas flow pressure, draught, leak integrity, dynamic pressure flow speed.

The pressure connection is made at the supplied interchangeable pressure connection ports with suitable hoses - 4 different connection options are available as standard, many other connection options can be used easily and reliably with G 1/8 adapters.

The product must only be used under the conditions and for the purposes for which it was designed.

It must be handled with care and used according to the technical data (do not throw, strike, etc.). Suitable measures must be used to protect the pressure connections and be protected from dirt and moisture.

2.5 Qualified personnel

For commissioning, operation and maintenance, the relevant personnel must have adequate knowledge of the measuring process and the significance of the measurements. This document makes a valuable contribution to this. The instructions in this document must be understood, observed and followed.

In order to avoid any risks arising from interpretation of the measurements in the concrete application, the user must have additional expertise. The user is solely liable for damages/danger resulting from misinterpretation due to inadequate expertise.

3 Description

3.1 Scope of delivery

Please check to ensure the completeness of the product after opening the package. You should find the following components:

- Quick reference guide
- Handheld measuring device, ready for operation, including batteries
- Test protocol



NOTE

Individual components may vary depending on which set you have selected.

3.2 Functional description

The product offers precision, speed and reliability in a compact, ergonomic housing. Additional impressive features include the waterproof design in accordance with IP 67 (except for the pressure connections: Only for gas pressure!) and the illuminated 3-line display, which also offers a 180° rotated display at the push of a button. A high-quality, position-independent sensor is the key component. The operating elements are used to switch the product on and off and for configuration.

The following basic functions are also provided:

- Min/max value display
- Freeze measurement (hold function)
- Zero function
- Switching of the display to head-up
- Expansion of the resolution to 1 Pascal with the *F₁ nE* function

The pressure connection of gas hoses is selectable.

- UT connection for 6 x 1 mm hoses (4 mm inside, e.g. PVC hoses GDZ-01) and 8 x 1 mm (6 mm inside, e.g. silicon hoses for quick connection in heating service GDZ-31)
- QC6 Quick-Connect for 6 x 1 mm (Ø 4 mm inside) PVC, PE, PUR, PA hoses
- QC6 screw connection for 6 x 1 mm (Ø 4 mm inside) PVC, PE, PUR, PA hoses
- MCM mini-quick coupling connection for quick couplers



NOTE

The pressure connections can be changed out at any time at the G 1/8 inch universal ports. You can choose the most practical connection type for your application - the basic device remains the same.

4 The product at a glance

4.1 The G 1113



4.2 Display elements

Display

 Battery indicator	Evaluation of the battery status
 Unit display	Display of the units or Min/Max/Hold information text
 Main display	Measurement of the current pressure or value for min/max/hold
 Auxiliary display	Measurement of the current pressure in Min/Max/Hold mode
 Bar graph	Trend display with the special function F_1 , nE

4.3 Operating elements



On / Off button

Press briefly

Switch on the product

Activate / deactivate lighting

Long press

Switch off the product

Reject changes in a menu

**Up / Down button**

Press briefly	Display of the min/max value Change value of the selected parameter
Long press	Reset the min/max value of the current measurement
Both simultaneously	Rotate display, overhead display

**Function key**

Press briefly	Freeze measurement (Hold) Return to measurement display Call up next parameter
Long press, 2s	Start menu configuration, $CONF$ appears in the display Close menu, changes are saved
Long press, 4s	Depending on the selected special function: Activation of the Tare function nLL , high-resolution measurement F, nE or rapid measurement with mean value RVr

4.4 Connections

Universal connection	Interchangeable pressure connection via G1/8" thread.
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5 Operation

5.1 Commissioning

5.1.1 Explanation

Description	The product is switched on with the <i>On/Off button</i> . It may be necessary to configure the product after switching on. See Configuration [► 11].										
Prerequisite	– Sufficiently full batteries are inserted in the product.										
Instruction	– Press the <i>On/Off button</i> .										
Outcome of an action	<table border="0"> <tr> <td style="vertical-align: top;"><i>P_{OFF}</i></td> <td style="vertical-align: top;">Automatic shut-off</td> <td style="vertical-align: top;">Automatic shut-off activated. The product is switched off if no buttons have been pressed after the adjusted time</td> </tr> <tr> <td style="vertical-align: top;"><i>P_{r.oF}</i></td> <td style="vertical-align: top;">Offset correction</td> <td style="vertical-align: top;">Calibration of the pressure sensor by the customer</td> </tr> <tr> <td style="vertical-align: top;"><i>P_{r..5L}</i></td> <td style="vertical-align: top;">Gradient correction</td> <td style="vertical-align: top;">Calibration of the pressure sensor by the customer</td> </tr> </table>		<i>P_{OFF}</i>	Automatic shut-off	Automatic shut-off activated. The product is switched off if no buttons have been pressed after the adjusted time	<i>P_{r.oF}</i>	Offset correction	Calibration of the pressure sensor by the customer	<i>P_{r..5L}</i>	Gradient correction	Calibration of the pressure sensor by the customer
<i>P_{OFF}</i>	Automatic shut-off	Automatic shut-off activated. The product is switched off if no buttons have been pressed after the adjusted time									
<i>P_{r.oF}</i>	Offset correction	Calibration of the pressure sensor by the customer									
<i>P_{r..5L}</i>	Gradient correction	Calibration of the pressure sensor by the customer									
	– The product is now ready for measurement.										

5.2 Configuration

5.2.1 Explanation

The following steps describe how to adapt the product for your purposes.



NOTE

There are various configuration parameters available depending on the product version and configuration. These can vary depending on the product version and configuration.

5.2.2 Opening the configuration menu

Description	In order to configure the product, you must first open the Configuration menu. The menu is opened as shown in the illustration.
Prerequisite	– The product is switched on.
Instruction	<ol style="list-style-type: none"> 1. Press the <i>Function key</i> for 2 seconds to open the Configuration menu. 2. <i>CONF</i> appears in the display. Release the <i>Function key</i>. 3. By briefly pressing the <i>Function key</i>, you can scroll through the parameters. Select the parameter you would like to configure. 4. When you have selected the desired parameter, change the parameter to the desired value with the <i>Up button</i> or the <i>Down button</i>. 5. The changes are saved after running through the entire Configuration menu. <i>Stor</i> appears in the display. The Configuration menu can be exited from any arbitrary parameter by pressing and holding the <i>Function key</i> for 2 seconds. The changes made up that point are saved.

Representation

Call up menu	Next parameter	Change value	Save changes	Discard changes
				
2s		Press: Single step Hold: Fast change	2s	2s Product is switched off

Outcome of an action



The **Configuration** menu is closed after the last parameter.

NOTE

If the product is switched off without saving the configuration, the last save value is reproduced on the next start-up of the product.

5.2.3 Configuring parameters of the configuration menu

Description

– The **Configuration** menu is open. See Opening the configuration menu [▶ 11].

Prerequisite instruction

1. Select the desired parameter you would like to configure.
2. Adjust the desired configuration in the selected parameter with the *Up button* or *Down button*.
3. The available configuration options are listed for each parameter in the following representation.

Representation

Parameter	Values	Meaning
		
Display unit		
Unit		hPa mbar bar PSI mmHG

Activatable special functions

F_{unc}

<i>nULl</i>	Tare function available
<i>F_i nE</i>	High-resolution measurement with 1 Pa activatable
<i>AVR 0:02 / AVR 0:05 / AVR 0:10</i>	Rapid measurement with mean value over 2 s / 5 s / 10 s activatable

Measuring rate

r_{ATE}

	Selection of the measurement speed
<i>SLo</i>	Slow
<i>FRSt</i>	Fast

Resolution

r_{Res}

	Selection display resolution
<i>Ruto</i>	Automatic switchover
<i>Lo</i>	Adjusted to the lowest value, e.g. -200.0 .. +200.0 hPa
<i>Hi</i>	Adjusted to the highest value, e.g. -2000 .. +2000 hPa

Shut-off time

P_{oFF}

<i>oFF</i>	No automatic shut-off
<i>0:15 0:30 1:00 4:00 12:00</i>	Automatic shut-off after a selected time in hours and minutes, during which no buttons have been pressed

Backlight

L_i tE

<i>oFF</i>	Backlight deactivated
<i>0:15 0:30 1:00 4:00</i>	Automatic shut-off of the backlight after a selected time in minutes and seconds, during which no buttons have been pressed
<i>on</i>	No automatic shut off of the backlight

Factory settings

in_i t

<i>no</i>	Use current configuration
<i>YES</i>	Reset product to factory settings. <i>in_i t donE</i> appears in the display

Outcome of an action

The changed value is saved and the **Configuration** menu is closed. *Star* appears in the display. If necessary, the product is restarted automatically in order to adopt the changed values.

5.2.4 Open the adjustment menu

Description	In order to change sensor calibration, you must first open the adjustment menu menu. The menu is opened as shown in the illustration.
Prerequisite	<ul style="list-style-type: none"> – The product is switched off.
Instruction	<ol style="list-style-type: none"> 1. Press and hold the <i>Down button</i>. 2. Press the <i>On/Off button</i> to switch on the product. 3. Release the <i>On/Off button</i> after 1 second and then the <i>Down button</i> in order to call up the adjustment menu. The display shows the first parameter. 4. By briefly pressing the <i>Function key</i>, you can scroll through the parameters. Select the parameter you would like to configure. 5. When you have selected the desired parameter, change the parameter to the desired value with the <i>Up button</i> or the <i>Down button</i>. 6. The changes are saved after running through the entire adjustment menu. Star appears in the display. The adjustment menu can be exited from any arbitrary parameter by pressing and holding the <i>Function key</i> for 2 seconds. The changes made up that point are saved.
Representation	<p>Call up menu</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Hold</p> </div> <div style="text-align: center;">  <p>1s</p> </div> <div style="text-align: center;">  <p>Release</p> </div> <div style="text-align: center;">  <p>Release</p> </div> </div>
Outcome of an action	The adjustment menu is closed after the last parameter.

5.2.5 Parameters of the adjustment menu

Description	<p>Zero point</p> <ul style="list-style-type: none"> – The zero point can be calibrated easily without additional tools. Both pressure connection ports can be connected to a hose for this purpose in order to eliminate interfering influences of air movement. – The zero point correction is used together with the gradient correction primarily for compensation of sensor deviations. The entry takes place in the display unit. <p>Gradient</p> <ul style="list-style-type: none"> – A pressure reference is necessary for the gradient adjustment, e.g. in the form of a pressure source and a reference display device. – The gradient correction is used together with the zero point correction primarily for compensation of sensor deviations.
Prerequisite	<ul style="list-style-type: none"> – The adjustment menu has been opened. See Open the adjustment menu [► 14].
Instruction	<ol style="list-style-type: none"> 1. Select the desired parameter you would like to configure. 2. Adjust the desired configuration in the selected parameter with the <i>Up button</i> or <i>Down button</i>. 3. The available configuration options are listed for each parameter in the following representation.

Representation

Parameter	Values	Meaning
	 	
Zero point correction		
$Pr.oF$	0.0	No offset
$Pr.oF$	-50.0 .. 50.0	Offset active
Gradient compensation specification		
$Pr.SL$	0	No slope
$Pr.SL$	-5.00 .. 5.00	Slope active

Formula

Sensor zero point correction offset $Pr.oF$

A zero point shift can be made for the measurement.

Displayed value = measured value – offset

Standard setting: 0.0, i.e. no correction is made.

Sensor gradient correction $Pr.SL$

The gradient of the measurement can be influenced with this factor (factor is in %):

Displayed value = measured value * (1+Pr.SL/100)

Standard setting: 0.000, i.e. no correction is made.

Outcome of an action

The changed value is saved and the **adjustment menu** is closed. **Star** appears in the display.

**NOTE**

If the product is switched off without saving the configuration, the last saved values are reproduced on the next start-up of the product.

6 Measurement Basics

6.1 Special functions

With the special functions that can be selected via the **Configuration menu**, the device can be optimised for special measuring tasks. After it is switched on, the device starts up in standard measuring mode, the relevant special function is started by pressing and holding the *Function key* for 4 s.

6.1.1 n_{ULL} Tare function

Prerequisite

The special function $F_{unc} n_{ULL}$ has been selected in the configuration menu.

The display can be zeroed by pressing the *Function key* for 4 s. If the tare function is activated, n_{ULL} blinks in the lower display. The tare function can be reset by pressing the *Function key* again for 4 s.



NOTE

The tare function is independent of the zero point correction accessible via the settings menu.

6.1.2 $F_1 nE$ High-resolution measurement with 1 Pa (G 1113)

High-resolution measurement for the finest adjustment work and many other applications with the finest adjustment of pressure.

Prerequisite

In the **Configuration menu**, the special function $F_{unc} F_1 nE$ has been selected.

The high-resolution measurement can be activated by pressing and holding the *Function key* for 4 s. Then the sensor is immediately zeroed and the optimised parameters for this measurement are activated.



CAUTION

When starting the special function, make sure that there is no pressure at the connections.



NOTE

The increased current consumption in this mode decreases battery life.

The quickly determined measurement replaces other devices, such as a U-tube manometer. The four bars in the lower display provide additional support.

- The two middle bars appear: Measurement is stable
- Left bars appear: the measurement decreases
- Right bars appear: the measurement increases

By pressing and holding the *Function key* for 2 s., the special function can be activated. $End F_{unc}$ appears in the display.

6.1.3 $AVr\ 0:02 / AVr\ 0:05 / AVr\ 0:10$

Fast measurement with mean value over 2 s / 5 s / 10 s

Mean value mode for measurement of heavily fluctuating pressures.

Prerequisite

In the **Configuration mode**, a special function $AVr\ 0:02$, $AVr\ 0:05$ or $AVr\ 0:10$ has been selected.

By pressing and holding the *Function key* for 4 s. the measurement with mean value can be activated.

Heavily fluctuating values arise particularly with dynamic pressure/compression measurements in chimney draft tests of forced-air burners and, consequently, conventional electronic manometers are not adequate for task. This special function optimises the device for this application purpose.

The different mean value times of 2, 5 or 10 seconds can be selected depending on the requirement.

The first parameter is shown in the auxiliary display.

By pressing and holding the *Function key* for 2 s., the special function can be activated. *End Func* appears in the display.

Special case

If the Tare function is activated when called up, this special function AVr can be reset by pressing and holding the *Function key* for 4 s. In order to reactivate the Tare, the special function must be switched in the configuration menu.

6.2 Pressure connections



NOTE

Silicon hoses are not necessarily suitable for pressures up to 2 bar, depending on dimensioning. Check for suitability!

The device measures the pressure difference between the two connection ports.

- [+] higher pressure
- [-] lower pressure

Measurement takes place against ambient air for relative pressure measurements, for which purpose the pressure hose is connected to [+], [-] remains free.

6.3 UT operation

Universal hose connection for 6 x 1 mm (4 mm inside) and 8 x 1 mm (6 mm inside) hoses.



Fig. 1: UT connection

The universal hose connection is suitable for plastic and silicon hoses with an outer diameter of 6 mm, for which purpose the hoses are simply connected to the upper part. Rubber/silicon hoses with a larger diameter (e.g. 8 mm) can also be connected. They are fit on the lower part for this purpose.



CAUTION

Air pressure!

With higher pressures greater than 1 bar, the hoses must be secured to prevent unintended loosening. Suitable GDZ hose clamps are used for this purpose.

- 6x1 mm PVC GDZ-01. Up to 5 bar rel., vacuum-suitable!
- 6x1 mm PE GDZ-02. Up to 10 bar rel., vacuum-suitable!
- 6x1 mm PUR GDZ-03. Up to 9 bar rel., vacuum-suitable!



6.4 QC6 operation

Quick-Connect for \varnothing 6 mm hoses.



Fig. 2: QC6 Quick-Connect

The practical quick-change connection is only suitable for plastic hoses with 6 mm outer diameter. The hose end must be clean and undamaged for connection. It is fit by simply pushing it in until the mechanical stop is reached. It is disconnected by simultaneously pressing the ring on the upper end of the connection and pulling the hose.

6.5 ST6 operation

Screw connection for 6 x 1 mm (\varnothing 4 mm inside) plastic hoses.



Fig. 3: ST6 screw connection

The secure screw connection is only suitable for plastic hoses with 6 mm outer diameter (\varnothing 4 mm inside). The hose end must be clean and undamaged for connection. The union nut must be loosened before connection. Then the hose is pushed onto the hose nipple up to the mechanical stop. The union nut is hand-tightened to secure the connection. Disconnection takes place by loosening the union nut and pulling on the hose.

6.6 MCM operation

Mini-quick-coupler plug connector.



Fig. 4: MCM mini-quick-coupler plug connector

Compatible quick-couplers with nominal width 2.7 mm can be used:



Fig. 5: quick-coupler

6.7 Replacement of pressure hoses

The pressure connections are screwed into the product with a standard G 1/8 inch thread with end seal. All common pressure connections with this design can be connected.



NOTE

Use a suitable tool for tightening and observe the maximum torque of 2 Nm!

6.8 Protection of sensors with use of filter membranes

The product and the sensor can be protected easy and effectively with the use of filter membranes (e.g. adhesive membrane for UT connections, GDZ-35). This can prevent destruction of the product, for example, from penetration of potting compound in vacuum-casting applications: In the worst case scenario, only the connection has to be replaced.

7 Operation and maintenance

7.1 Operating and maintenance notices



NOTE

Pressure connections must be protected from soiling.

7.2 Battery

7.2.1 Battery indicator

If the empty frame in the battery display blinks, the batteries are depleted and must be replaced. However, the device will still operate for a certain length of time.

If the *bAt* display text appears in the main display, the battery voltage is no longer adequate for operation of the product. The battery is fully depleted.

7.2.2 Changing battery



NOTE

Unnecessary screwing places the water-tightness of the product, among other things, at risk and should be avoided.

Proceed as follows to replace the batteries.

- The product is switched off.

Description

Prerequisites

Instruction

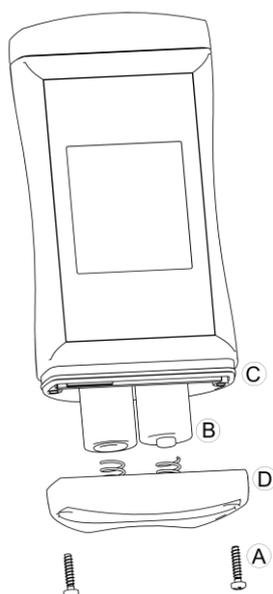


Fig. 6: Batteriewechsel

1. Unscrews the Phillips screws (A) and remove the cover.
2. Carefully replace the two Mignon AA batteries (B). Ensure that the polarity is correct! It must be possible to insert the batteries in the correct position without using force.
3. The O-ring (C) must be undamaged, clean and positioned at the intended depth. In order to facilitate assembly and avoid damage, a suitable grease can be applied.
4. Fit the cover on evenly. The O-ring must remain at the intended depth!
5. Tighten the Phillips screws (A).

Outcome of an action

The product is now ready for use again.

7.3 Calibration and adjustment service

7.3.1 Certificates

The certificates are categorised as ISO calibration certificates and DAkkS calibration certificates. The purpose of the calibration is to verify the precision of the measuring device by comparing it with a traceable reference.



NOTE

The ISO standard 9001 is applied for the iso-calibration certificates. These certificates are an affordable alternative to the DAkkS calibration certificates and provide information of the traceable reference, a list of individual values and documentation.



NOTE

The DAkkS calibration is based on DIN EN ISO/17025, the accreditation basis is recognised worldwide. These certificates offer high-quality calibration and consistently high quality. DAkkS calibration certificates can only be issued by accredited calibration laboratories which have demonstrated their expertise in accordance with DIN EN ISO/IEC 17025. The DAkkS calibration includes any necessary adjustment with the purpose of minimising a deviation of the measuring device.

DAkkS calibration certificates are accompanied with a list of individual measurements before and after the adjustment, documentation and, if applicable, graphic representation, calculation of the expanded measuring uncertainty and traceability to the national standard.



NOTE

The product is delivered with a test report. This confirms that the measuring device has been adjusted and tested.



NOTE

Only the manufacturer can check the basic settings and make corrections if necessary.

8 Error and system messages

Display	Meaning	Possible causes	Remedy
----	Calculation not possible	Measurement data acquisition is running	Waiting for data collection
No display, unclear characters or no response when buttons are pressed	Battery depleted System error Product is defective	Battery depleted Error in the product Product is defective	Replace battery Send in for repair
bAt	Battery depleted	Battery depleted	Replace battery
bAt Lo	Battery depleted	Battery depleted	Replace battery
Err.1	Measuring range exceeded	Measurement too high Product is defective	Stay within allowable measurement range Send in for repair
Err.2	Measuring range is undercut	Measurement too low Product is defective	Stay within allowable measurement range Send in for repair
Err.3	Display range has been exceeded	Incorrect display unit Incorrect resolution F, nE Function active	Correct setting Deactivate function
Err.4	Display range has been undercut	Incorrect display unit Incorrect resolution F, nE Function active	Correct setting Deactivate function
555 Err	System error	Error in the product	Switch product on/off Replace batteries Send in for repair

9 Disposal

Separation by material and recycling of device components and packaging must take place at the time of disposal. The valid regional statutory regulations and directives applicable at the time must be observed.



NOTE

The device must not be disposed of with household waste. Return it to us, freight pre-paid. We will then arrange for the proper and environmentally-friendly disposal.

Private end users in Germany have the possibility of dropping off the product at the municipal collection centre.

Please dispose of empty batteries at the collection points intended for this purpose.



NOTE

Fill in the return form available from the information base online at www.ghm-group.de and sent it in with the product.

10 Technical data

Measuring range	Measuring range (Hi)	Measuring range (Lo)
	-2000 .. +2000 hPa (mbar) -2.000 .. +2.000 bar -29.00 .. +29.00 PSI -1500 .. +1500 mmHg (Torr)	-200.0 .. +200.0 hPa (mbar) -200.0 .. +200.0 mmHg (Torr)
Accuracy	± 0,1 % FSS typical (at nominal temperature 25 °C) ± 1 % FSS max.	
Overload	Max. ± 3100 hPa	
Pressure connection	2 hose connections, interchangeable with G1/8 universal ports	
Measuring cycle	FR5t: approx. 25 measurements per second 5Lo: approx. 2.5 measurements per second	
Display	3-line segment LCD, additional symbols, illuminated (adjustable white, permanent illumination)	
Standard function	Min/Max/Hold Auto-power-Off function / if activated, switches the product off automatically	
Activatable special functions	null: Tare function F, nE: With 1 Pa resolution AVr: Averaging over 2 s / 5 s / 10 s	
Calibration	Zero point and gradient adjustment	
Housing		Break-proof ABS housing
	Protection rating	IP67 (pressure connections must be protected from soiling and moisture)
	Dimensions L*W*H [mm] and weight	108 * 54 * 28 mm without pressure connection 150 g incl. battery
Operating conditions	-20 to +50 °C; 0 to 95 % r.h. (temporarily 100 % r.h.)	
Storage temperature	-20 to +70 °C	
Current supply		2*AA battery (included in the scope of delivery)
	Current requirement/ Battery life	approx. 1 mA (slow measurement SLO) Operating time approx. 3000 h
	Battery indicator	4-stage battery status indicator, Note for low charge level: "BAT LO"

Directives and standards	<p>The devices conform to the following Directives of the Council for the harmonisation of legal regulations of the Member States:</p> <p>2014/30/EU EMC Directive 2011/65/EU RoHS</p> <p>Applied harmonised standards:</p> <p>EN 61326-1:2013 Emission limits: Class B Immunity according to Table 2 Additional error: < 1 % FS EN 50581:2012</p> <p>The device is intended for mobile use and/or stationary operation in the scope of the specified operating conditions without further limitations.</p>
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11 Spare parts and accessories

A selection of spare parts and accessories for this product is listed below.

Article

Number	Name	Description
601060	GKK 1100	Case with nap foam, 340 x 275 x 83 mm
611373	ST-G1000	Protective device sleeve
475820	GCLIP1000	Self-adhesive metal belt clip
	G 1/8 inch connections	GDZ-UT, GDZ-QC6, GDZ-ST6, GDZ-MCM
	Hoses	GDZ-01, GDZ-02, GDZ-03, GDZ-04, GDZ-31
601576	GDZ-18	Hose clamp for hoses with 6 mm outer diameter
480328	GDZ-35	Self-adhesive filter membrane Ø 7 mm, 10 pcs for use with -UT

A complete list of all accessories- and spare parts is available in our product catalogue or on our home page. We can also provide further information by phone.

Contact

Internet:www.greisinger.de

Tel: +49 94029383-52

12 Ordering code

G 1113

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1.	Pressure connection	
	UT	2x 1/8 inch port, incl. connections for 6x1 mm (4 mm inside) and 8x1 mm (6 mm inside) hoses.
	QC6	2x 1/8 inch port, incl. quick-fit connector for hose outer Ø 6 mm
	ST6	2x 1/8 inch port, incl. screw connector for hose outer Ø 6 mm
	MCM	2x 1/8 inch port incl. mini-quick-coupler plug connector
2.	Set option	
		Device only
	SET	Measuring device, incl. 6 x 1 mm 1 m hose, GKK 1002 case

13 Service

13.1 Manufacturer

If you have any questions, please do not hesitate to contact us:

Contact

GHM Messtechnik GmbH

GHM GROUP - Greisinger

Hans-Sachs-Str. 26

93128 Regenstauf | GERMANY

Email: info@greisinger.de | www.greisinger.de

WEEE reg. no. DE 93889386



13.2 Repairs processing

Defective products are repaired professionally and quickly in our service centre.

Open hours and contact

Monday to Thursday from 8:00 to 16:00

Friday from 8:00 to 13:00

GHM Messtechnik GmbH

GHM GROUP - Greisinger

Hans-Sachs-Str.26

Service Centre

93128 Regenstauf | GERMANY

Tel: +49 94029383-39

Fax: +49 94029383-33

service@greisinger.de



NOTE

Fill in the return form available from the information base online at www.ghm-group.de and sent it in with the product.

13.3 Sales offices

North Sales Office
Post code:

00000 – 25999 | 27000 – 34999

37000 – 39999 | 98000 – 99999

Email:

vertrieb-nord@ghm-messtechnik.de

Tel:

+49 4067073-0

Fax:

+49 4067073-288

West Sales Office

Post code: 26000 – 26999 | 35000 – 36999
40000 – 69999

Email: vertrieb-west@ghm-messtechnik.de

Tel: +49 2191 9672-0

Fax: +49 2191 9672-40

South Sales Office

Post code: 70000 – 97999

Email: vertrieb-sued@ghm-messtechnik.de

Tel: +49 9402 9383-52

Fax: +49 9402 9383-33