# Operating Manual

**EN**

RS 1111-UT Stock number: 205-0961
RS 1114-UT Stock number: 205-0965


Made in Germany

# Table of contents

# 1 About this documentation

## 1.1 Purpose of the document

- This document is intended as a quick reference option.

## 1.2 Legal notices

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.

## 1.3 Further information

Software version of the product:

- V1.1 or later

For the exact product name, refer to the type plate on the rear side of the product.

# 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 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 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!

## 2.3 Safety instructions

**NOTE**

This product does not belong in children's hands!

## 2.4 Intended use

The device measures the absolute pressure in the air, clean water or in non-corrosive/non-ionising gases. A direct measurement of the environmental pressure can take place or the measurement pressure is taken with a suitable hose connected to the port. Relative measurements can also be conducted with the integrated special function nuLL.

Applications include:

| **RS 1111** | **RS 1114** |
|---|---|
| Barometric measurements (e.g. weather) | Barometric measurements (e.g. weather) |
| Vacuum measurements (down to 0.0 hPa abs., negative pressure via hose or even with complete device evacuation) | Vacuum measurements (down to 0 hPa abs., negative pressure via hose or even with complete device evacuation) |
| | Pneumatic measurements (up to 14000 hPa abs. or 14 bar abs.) |

The pressure connection is made at the supplied interchangeable pressure connection ports with suitable hoses.

The device 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.

**NOTE**

Complete evacuation see Vacuum measurements [▸ 13].

# 3 The product at a glance

## 3.1 The RS 1100 barometer series

*LCD Display*

*Front view*

*Top view*

## 3.2 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 |

## 3.3 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 NULL or rapid measurement with mean value AVr |

## 3.4 Connections

| | |
|---|---|
| Universal connection | Interchangeable pressure connection via G1/8" thread. |

# 4 Operation

## 4.1 Opening the configuration menu

1. Press the *Function key* for 2 seconds to open the ***Configuration*** menu.
2. ConF appears in the display. Release the *Function key*.

| Parameter | Values | Meaning |
|---|---|---|
|  |  | |
| Display unit | | |
| Unit | | |
| | hPa | |
| | mbar | |
| | bar | (only at RS 1114 ) |
| | PSI | |
| | mmHG | |
| Activatable special functions | | |
| | nuLL | Tare function available |
| | AVR 0:02 / AVR 0:05 / AVR 0: 10 | Rapid measurement with mean value over 2 s / 5 s / 10 s activatable |
| Measuring rate | | |
| rAtE | | Selection of the measurement speed |
| | SLo | Slow |
| | FASt | Fast |

Nautical norm correction

SEA.L

| | | |
|---|---|---|
| | no | Inactive, display measured air pressure directly |
| | YES | Active, display air pressure compensated to sea level |
| ALt. | -500 .. 9000 | Height above sea level in m for correction |

Shut-off time

PoFF

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

Backlight

Li tE

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

Factory settings

ini t

| | | |
|---|---|---|
| | no | Use current configuration |
| | YES | Reset product to factory settings. ini t donE appears in the display |

## 4.2 Open the adjustment menu

1. The product is switched off
2. Press and hold the *Down button*.
3. Press the *On/Off button* to switch on the product.
4. Release the *On/Off button* after 1 second and then the *Down button* in order to call up the ***adjustment menu***. The display shows the first parameter.

| Parameter | Values | Meaning |
|---|---|---|
|  |  | |
| Zero point correction: offset | | |
| Pr.oF | | |
| | 0.00 | No offset |
| | -50.0 .. 50.0 | Offset active (in hPa – at RS 1111) |
| | -500 .. 500 | Offset active (in hPa – at RS 1114) |
| Gradient correction: slope | | |
| Pr.SL | | |
| | 0.00 | No slope |
| | -5.00 .. 5.00 | Slope active (in %) |

Formula:

Zero point correction: Displayed value = measured value – offset

Gradient correction: Display = (measured value - offset) * (1 + slope / 100)

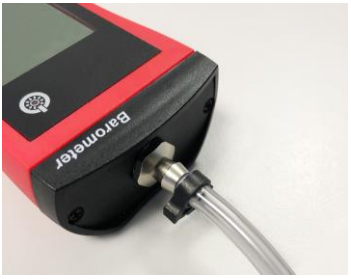
# 5 Measurement Basics

**⚠ CAUTION**

**Air pressure at port variant UT!**

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

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


## 5.1 Vacuum measurements

The device is especially suitable to measure rough vacuum via the pressure port very fast. But if the complete device is evacuated the following has to be considered:

**⚠ CAUTION**

**Damage possible by fast complete evacuation!**

Due to the water tight construction a complete evacuation of the device may degrade water protection. The keypad/display screen may break loose. If the device should still be used for this application, the following options are available:

- Remove the o-ring of the battery compartment! The Instrument then is no more water protected! Changing battery.

## 5.2 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.

### 5.2.1 nuLL Tare function

The special function Func nuLL 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, nuLL 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.

### 5.2.2 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.

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.

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.

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 Operation and maintenance

## 6.1 Operating and maintenance notices

**NOTE**

Pressure connections must be protected from soiling.

## 6.2 Battery

### 6.2.1 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.

### 6.2.2 Changing battery

**DANGER**

**Danger of explosion!**

Using damaged or unsuitable batteries can generate heat, which can cause the batteries to crack and possibly explode!

– Only use high-quality and suitable alkaline batteries!

**CAUTION**

**Damage!**

If the batteries have different charge levels, leaks and thus damage to the product can occur.

– Use new, high-quality batteries!

– Do not use different types of batteries!

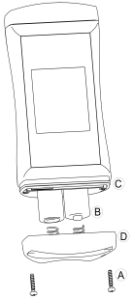
– Remove depleted batteries and dispose of them at a suitable collection point.

## NOTE

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

## NOTE

Read the following handling instructions before replacing batteries and follow them step by step.
If disregarded, the product could be damaged or the protection from moisture could be diminished.




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).

# 7 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 | Battery depleted | Replace battery |
| | System error | Error in the product | Send in for repair |
| | Product is defective | Product is defective | |
| bAt | Battery depleted | Battery depleted | Replace battery |
| bAt Lo | Battery depleted | Battery depleted | Replace battery |
| Err.1 | Measuring range exceeded | Measurement too high | Stay within allowable measurement range |
| | | Product is defective | Send in for repair |
| Err.2 | Measuring range is undercut | Measurement too low | Stay within allowable measurement range |
| | | Product is defective | Send in for repair |
| SYS Err | System error | Error in the product | Switch product on/off |
| | | | Replace batteries |
| | | | Send in for repair |

# 8 Technical data

## 8.1 RS 1111

| | | |
|---|---|---|
| Measuring range | | 0.0 .. 1700.0 hPa (mbar) abs.<br>0.00 .. 25.00 PSI abs.<br>0.0 .. 1300 mmHg (Torr) abs. |
| Accuracy | | < ± 2 hPa typical (at T: 5 .. 30 °C)<br>± 1,5 % FSS max |
| Measuring cycle | | FASt: approx. 25 measurements per second<br>SLo: approx. 2.5 measurements per second |
| Overload | | 3000 hPa abs. |
| Pressure connection | | 1 hose connection, interchangeable with G1/8 universal port |
| Display | | 3-line segment LCD, additional symbols, illuminated (adjustable white, permanent illumination) |
| Standard function | | Min/Max/Hold<br>Auto-power-Off function / if activated, switches the product off automatically |
| Additional functions | | nuLL: Tare function<br>AVr: Averaging over 2 s / 5 s / 10 s |
| Calibration | | Zero point and gradient adjustment |
| Housing | | Break-proof ABS housing |
| | Protection rating | IP67 |
| | Dimensions L*W*H [mm] and weight | 108 * 54 * 28 mm without pressure connector<br>140 g, incl. battery |

| | | |
|---|---|---|
| Operating conditions | | -20 to 50 °C; 0 to 95 % r.h. (short-term condensation possible) |
| Storage temperature | | -20 to 70 °C |
| Current supply | | 2*AA battery (included in the scope of delivery) |
| | Current requirement/<br>Battery life | approx. 1 mA (slow measurement SLO)<br>Operating time approx. 3000 h |
| | Battery indicator | 4-stage battery status indicator,<br>Charge indicator for low charge level: "BAT LO" |
| Auto-power-OFF function | | The device switches off automatically if this is activated |
| Directives and standards | | The devices conform to the following Directives of the Council for the harmonisation of legal regulations of the Member States:<br>2014/30/EU EMC Directive<br>2011/65/EU RoHS<br>Applied harmonised standards:<br>EN 61326-1:2013 Emission limits: class B<br>Immunity according to table 1<br>Additional errors: < 1 % FS<br>EN 50581:2012<br>The device is intended for mobile use and/or stationary operation in the scope of the specified operating conditions without further limitations. |

## 8.2 RS 1114

| | | |
|---|---|---|
| Measuring range | | 0 .. 14000 hPa (mbar) abs.<br>0.00 .. 199.99 PSI abs.<br>0 .. 10500 mmHg (Torr) abs. |
| Accuracy | | < ± 0.1 % MW respectively ± 0.02 % FSS typical (at T: 5 .. 30 °C)<br>± 0.5 % MW ± 0.1 % FSS max. |
| Measuring cycle | | FASt: approx. 25 measurements per second<br>SLo: approx. 2.5 measurements per second |
| Overload | | 20000 hPa abs. |
| Pressure connection | | 1 hose connection, interchangeable with G1/8 universal port |
| Display | | 3-line segment LCD, additional symbols, illuminated (adjustable white, permanent illumination) |
| Standard function | | Min/Max/Hold<br>Auto-power-Off function / if activated, switches the product off automatically |
| Additional functions | | nuLL: Tare function<br>AVr: Averaging over 2 s / 5 s / 10 s |
| Calibration | | Zero point and gradient adjustment |
| Housing | | Break-proof ABS housing |
| | Protection rating | IP67 |
| | Dimensions L*W*H [mm] and weight | 108 * 54 * 28 mm without Pressure connector<br>140 g, incl. battery |
| Operating conditions | | -20 to 50 °C; 0 to 95 % r.h. (short-term condensa- |

| | | |
|---|---|---|
| | | tion possible) |
| Storage temperature | | -20 to 70 °C |
| Current supply | | 2*AA battery (included in the scope of delivery) |
| | Current requirement/ Battery life | approx. 0.6 mA (slow measurement SLO)<br>Operating time approx. 5000 h |
| | Battery indicator | 4-stage battery status indicator,<br>Charge indicator for low charge level: "BAT LO" |
| Auto-power-OFF function | | The device switches off automatically if this is activated |
| Directives and standards | | The devices conform to the following Directives of the Council for the harmonisation of legal regulations of the Member States:<br>2014/30/EU EMC Directive<br>2011/65/EU RoHS<br>Applied harmonised standards:<br>EN 61326-1:2013 Emission limits: class B<br>Immunity according to table 1<br>Additional errors: < 1 % FS<br>EN 50581:2012<br>The device is intended for mobile use and/or stationary operation in the scope of the specified operating conditions without further limitations. |

# 9 Service

## 9.1 Manufacturer

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

Contact

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