



Operating Manual

EN

RS 1710

Stock number: 205-0959

RS 1720

Stock number: 205-0960





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1 About this documentation

1.1 Purpose of the document

- For this reason, read the operating manual before operating the product for the first time.

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:

- V1.2 or later

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

NOTE

For information about the software version, press and hold the ON button to switch on the product for longer than 5 seconds. The series is shown in the main display and the software version of the product is shown in the secondary display.

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!
- Not suitable for use with requirements on functional safety, e.g. SIL!

2.3 Safety instructions

CAUTION

Stab injury!

Products with insertion probes entail the risk of stab injuries due to the pointed probe design.

- Handle insertion probes with care!
- Fit a protective cap on the measuring probe!

NOTE

This product does not belong in children's hands!

NOTE

The sensor handle, connecting cable and product housing are not designed for continuous contact with foods.

Designed for continuous contact with foods in accordance with EC Regulation 1935 / 2004:

- The temperature sensor from the measuring tip to approx. 1 cm before the end of the stainless steel tube.

2.4 Intended use

The product is a water-protected thermometer. It is designed for precise and instantaneous temperature measurements in the following media:

- Food
- Liquids
- Gases
- Soft plastic materials
- Bulk material





3 The product at a glance

3.1 RS 1700 series



3.2 Display elements

Display

 Battery indicator	Evaluation of the battery status
 Unit display	Display of units or type of mode, min/max/hold
 Main display	Measurement of the current temperature or value for min/max/hold
 Auxiliary display	Measurement of the current temperature in min/max/hold mode with unit

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

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
	 	
Alarms		
RL		
	oFF	No active alarm
	oN	Alarm alerting via text display, acoustic signal and flashing of the backlighting
	$bEEP$	Alarm alerting via text display and acoustic signal
	LtE	Alarm alerting via text display and flashing of the backlighting
$RLLo$		
	$-70.0 .. RLHi$	Min. alarm limit; a min. alarm is triggered when the value is undercut, e.g. at $-94.0\text{ }^{\circ}\text{F}$
$RLHi$		
	$RLLo .. 250.0$	Max. alarm limit; a min. alarm is triggered when the value is exceeded, e.g. at $482.0\text{ }^{\circ}\text{F}$

Shut-off time

PaFF

<i>aFF</i>	No automatic shut-off
<i>15 30 60 120 240</i>	Automatic shut-off after a selected time in minutes, during which no buttons have been pressed

Backlight

Li tE

<i>aFF</i>	Backlight deactivated
<i>15 30 60 120 240</i>	Automatic shut-off of the backlight after a selected time in seconds, during which no buttons have been pressed
<i>on</i>	No automatic shut off of the backlight

Display unit

Un t

<i>°C</i>	Temperature display in °C
<i>°F</i>	Temperature display in °F

Factory settings




ln t

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

4.2 Adjustment of the measuring input

The temperature input can be adjusted with the zero point correction and the gradient correction. If an adjustment is made, you change the pre-adjusted factory settings. This is signalled with the $\epsilon.\sigma F$ or $\epsilon.5L$ display text when the product is switched on.

1. The product is switched off
2. Press and hold the *Down button*.
3. Press the *On/Off button* to switch on the product and open the **Configuration** menu. Release the *Down button*. The display shows the first parameter.

Parameter	Values	Meaning
	 	
Zero point correction of the temperature		
$\epsilon.\sigma F$		
	0.00	No zero point correction
	-5.00 .. 5.00	Zero point correction in °C. and/or at °F -9.00 .. 9.00

Gradient correction of the temperature

$\epsilon.5L$		
	0.00	No gradient correction
	-5.00 .. 5.00	Gradient correction in %

Formula:

Zero point correction: Displayed value = measured value – $\epsilon.\sigma F$

Gradient correction °C: Display = (measured value - $\epsilon.\sigma F$) * (1 + $\epsilon.5L$ / 100)

Gradient correction °F: Display = (meas. value - 32 °F - $\epsilon.\sigma F$) * (1 + $\epsilon.5L$ / 100) + 32 °F

5 Operation and maintenance

5.1 Operating and maintenance notices

NOTE

The product and temperature probe must be handled with care and used in accordance with the technical data. Do not throw or strike.

NOTE

Plugs and sockets must be protected from soiling.

NOTE

If the product is stored at a temperature above 50 °C, or is not used for an extended period of time, the batteries must be removed. Leaks from the batteries are avoided as a result.

5.2 Battery

5.2.1 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.

5.2.2 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.

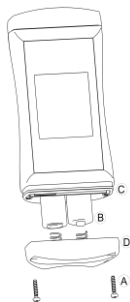
! NOTE

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).

6 Error and system messages

Display	Meaning	Possible causes	Remedy
----	No suitable measuring probe connected	Incorrect measuring probe	Connect a suitable measuring probe
	Measurement far outside of the measuring range	Measuring probe or product defect	Measurement leaves the permissible range Send in for repair
5Err5 Error	Sensor cable defect	Cable breakage	Send in for repair
	Sensor or probe defect	Defective sensor or probe	Send in for repair
	Measuring range exceeded or undercut	Measurement outside of the measuring range	
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
Err.1	Measuring range exceeded	Measurement too high	Stay within allowable measurement range
		Incorrect measuring probe connected	Check measuring probe
		Measuring probe or product defect	Send in for repair
Err.2	Measuring range is undercut	Measurement too low	Stay within allowable measurement range
		Measuring probe or product defect	Check measuring probe
			Send in for repair



545 Err	System error	Error in the product	Switch product on/off Replace batteries Send in for repair
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7 Technical data

Measuring range temperature	-70.0 .. +250.0 °C (-94.0 .. +482.0 °F)
Accuracy temperature	-20 .. +100 °C: $\pm 0.1 \text{ K} \pm 1 \text{ digit}$ otherwise: $\pm 0.2 \%$ of measured value $\pm 2 \text{ digits}$
Response time T90 water (0.4 m/s)	approx. 3 s
Measuring cycle	approx. 2 measurements per second
Probe	Immersion sensor $\varnothing 3 \text{ mm}$, Pt1000 permanent 2-wire connection, V4A, 1 m cable (RS 1710)
	Durable insertion sensor $\varnothing 3 \text{ mm}$, Pt1000 permanent 2-wire connection, V4A, 1 m cable (RS 1720)
Response time T 90	$\varnothing 3 \text{ mm}$: Water 0.4 m/s <2 s (RS 1710)
	$\varnothing 3 \text{ mm}$: Water 0.4 m/s <2 s (RS 1720)
Display	3-line segment LCD, additional symbols, illuminated (adjustable white, permanent illumination)
Additional functions	Min/max/hold, alarm (optical and acoustic)
Compensation	Offset and gradient correction

Housing		Break-proof ABS housing
	Protection rating	IP65 / IP67
	Dimensions L*W*H [mm]	108 * 54 * 28 mm without kink protection
	Weight	150 g, incl. battery and sensor
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. 0.4 mA, approx. 2 mA with lighting Service life > 5000 hours with alkaline batteries (without backlighting)
	Battery indicator	4-stage battery status indicator, Replacement indicator for depleted batteries: "BAT"
Auto-power-OFF function		The device switches off automatically if this is activated
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</p> <p>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 errors: < 0.5 % FS</p> <p>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>



8 Service

8.1 Manufacturer

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

Contact **RS Components Limited**

Birchington Road

Corby

Northamptonshire

NN17 9RS

WEE/GF0002ZR

