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QUICK MANUAL



CB1000 REFLECTOMETER



TO MEASURE  TO KNOW



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1 Intended use

The Reflectoquant® reflectometer is intended to be used exclusively according to the operating manual.

The reflectometer was developed for performing analyses of chemical parameters in water, food & beverage samples, and environmental samples using Reflectoquant® test strips in the laboratory, on the production line or in the field.

Any other use is considered to be unauthorized.

2 Getting started

2.1 Package contents

The contents of the reflectometer package comprise the following items:

- 1 Reflectometer including strip adapter
- 1 Recalibration set
- 1 Quick Guide + safety instructions
- 4 1.5-V batteries (AAA)
- 1 ABC sample cup, 1 funnel and 1 glass measuring cylinder
- 1 box filterpaper





2.2 Inserting the batteries

Before operating the system for the first time, the batteries included in the package must be installed.



Dispose of used batteries in accordance with the local regulations.

Insert the batteries into the compartment, heeding the + and – pole indicators.

Recommendation

Do not use rechargeable batteries!

Saving data - Important notes

Before changing the batteries, please shut down the instrument first. Otherwise the date and time settings are lost. During battery change, data in the reflectometer is saved for 60 seconds. If the change time exceeds 60 seconds only date and time are lost, all stored data and settings are still stored.

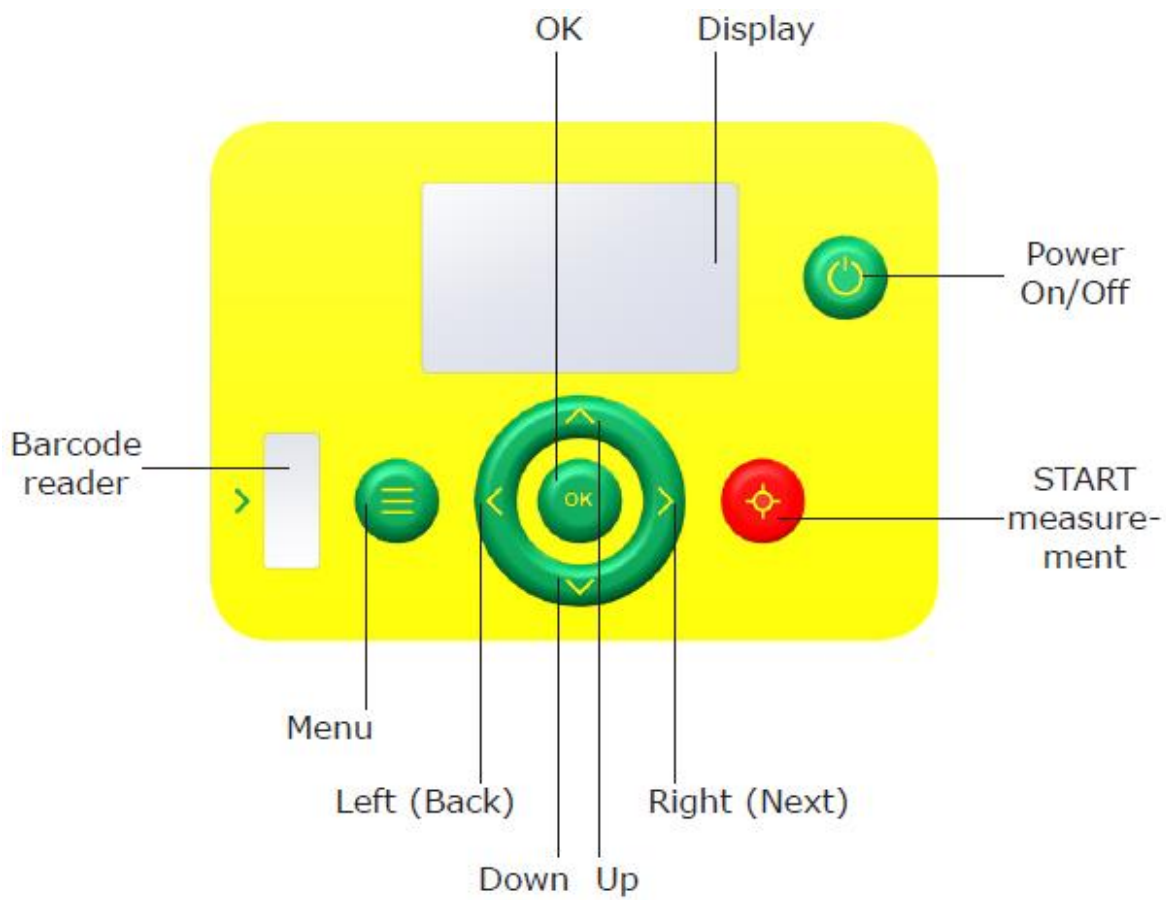
Recommendation

Replacement batteries (AAA non-rechargeable alkaline batteries, 1.5 V) must be on hand for immediate insertion.



2.3 Operation buttons and Display

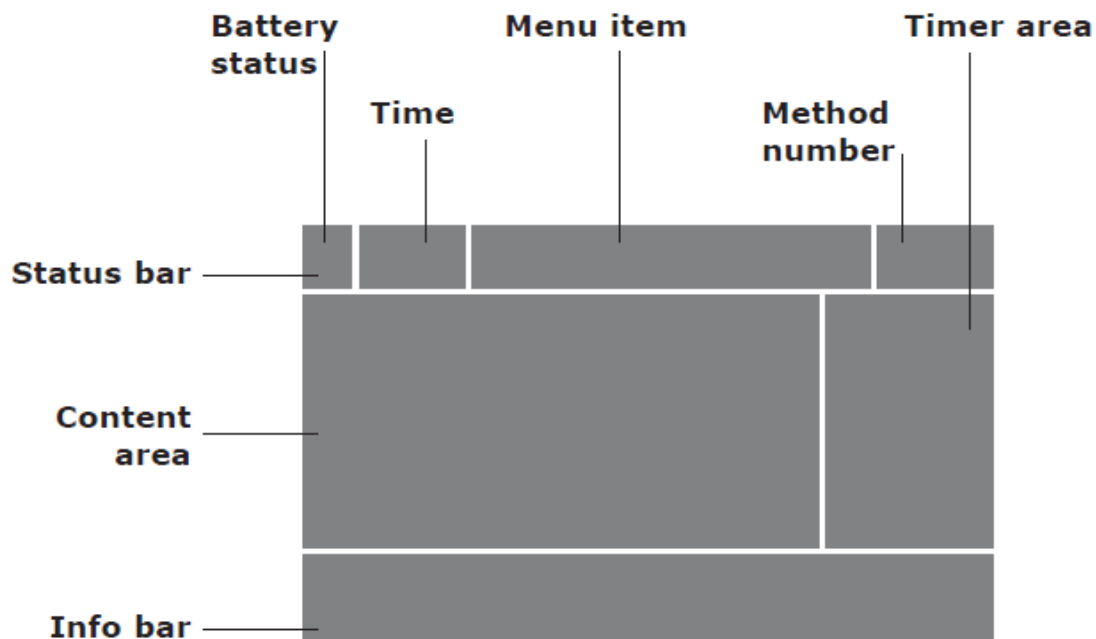
2.3.1 Operation buttons



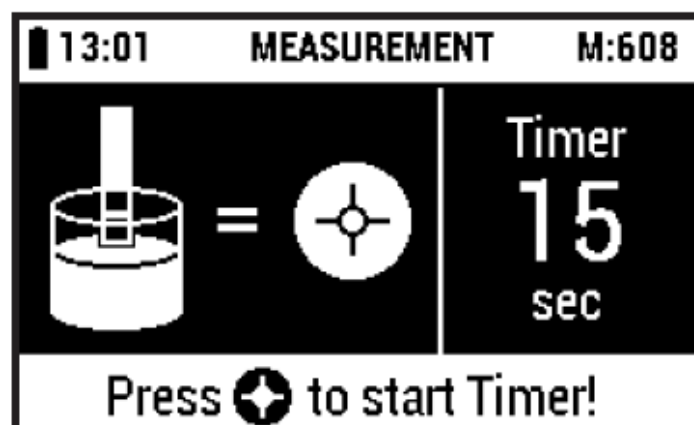


2.3.2 Display

General Structure



Example





2.3.3 Menu items

The following items are displayed in the main menu:

Method List	list of all stored methods
Result List	list of all stored results
Settings	list of instrument settings
Quality Assurance	list of all Analytical Quality Assurance options
Information	list of instrument information

2.4 Settings

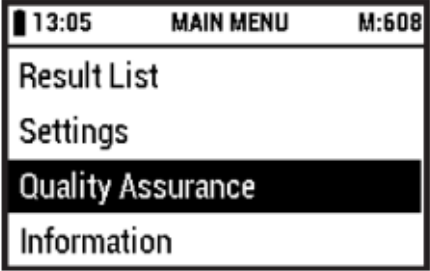
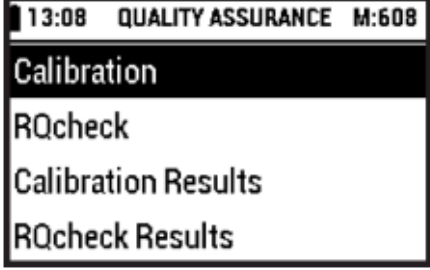

The following items are displayed in the settings menu:

Languages	for setting the desired language (EN - DE - FR - ES - PT - JP - CN)
Date Format	for setting the desired date format (yyyy-mm-dd - dd.mm.yyyy - mm/dd/yyyy)
Time format	for setting the desired time format (24 h - am/pm)
Date	for setting the current date
Time	for setting the current time
Auto Power Off Time	for setting the desired power off time (0 (= Off) - 15 - 30 - 45 - 60 min)
Audible Signal	for setting the audible alert (On / Off)
Acoustic. Countdown Warning	for setting the desired duration of the warning signal for the countdown (0 (= Off) - 5 - 10 - 15 - 20 - 25 - 30 sec)
Memory Capacity Warning	for setting the memory capacity warning (On / Off)



2.5 Initial calibration

The instrument needs to be calibrated before the first measurement is performed. This is required to set the correct baseline for the reflectometric optics. For this purpose, a Reflectoquant® Recalibration Set is delivered with the instrument. Please use the barcode and the plastic test strip for calibration (for details of the Recalibration Set see Operating Manual). Keep the instrument at room temperature for at least 30 minutes.

Select [Quality Assurance] in the [MAIN MENU].	
Select [Calibration].	
Confirm your selection by pressing [OK] or [Right (Next)].	
Follow the instruction shown on the display.	

Correct insertion of the test strip:

Insert the calibration strip of the recalibration set into the strip adapter with the beveled edge outwards and upwards.





A **calibration** has to be repeated

- after changing/cleaning of the strip adapter and/or the internal standard
- in the case of suspect measurement results during the boot up (self-check test failed)
- in the case of error messages E07 or E10 (after cleaning the optics)
- in the case of RQcheck failure (error messages E09 and E11)
- in the case of suspect measurement results
- after severe mechanical distress (e. g. after dropping the instrument).

3 Measurement

There are two scenarios on how to start a measurement:

1. The desired method is not yet saved in the instrument.
Continue with chapter 3.1.
2. The method is already saved in the instrument.
Continue with chapter 3.2.

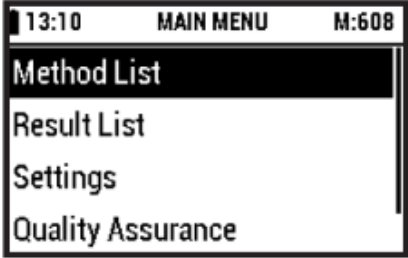
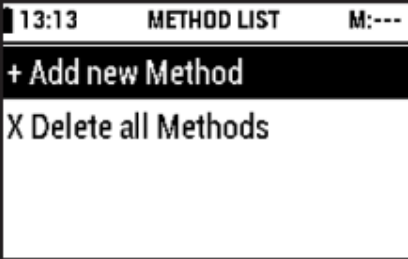

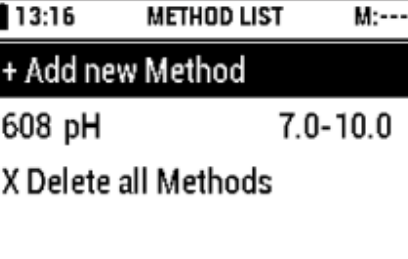
3.1 Add a new method

There are two scenarios for adding a method:

1. Guided way
2. Shortcut



Guided way

Select [Method List] in the [MAIN MENU].	
Select [Add new Method].	
Confirm your selection by pressing [OK] or [Right (Next)].	
Follow the instruction shown on the display.	
The display shows the new added method in the first row.	
Remove the barcode strip from the barcode reader and store it in the supplied packaging material of the Reflectoquant® test (not in the test-strip tube).	



Press the [OK] button for method details.

13:18	METHOD DETAIL	M:---
Article Number		608
Method		pH
Range		7.0-10.0
X Delete Method		

Shortcut

A method can be saved and started directly by inserting the barcode strip of the Reflectoquant® Test.

3.2 Measuring with test kits

There are three ways to measure with test kits:

1. Continue with last used method
2. Choose from method list
3. Shortcut

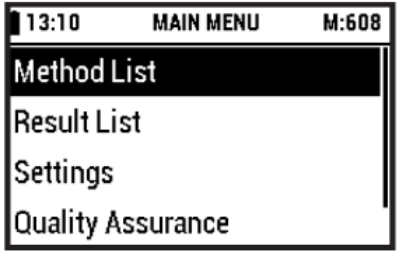
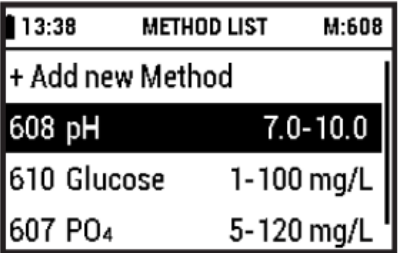

Continue with last used method

The method number shows the last used method, measurement is started immediately after pressing the red [START] button.

13:10	MAIN MENU	M:608
Method List		
Result List		
Settings		
Quality Assurance		



Choose from method list

<p>If another stored method is needed, select [Method List] in the [MAIN MENU].</p>	 <p>13:10 MAIN MENU M:608</p> <p>Method List</p> <p>Result List</p> <p>Settings</p> <p>Quality Assurance</p>
<p>Select the desired method.</p>	 <p>13:38 METHOD LIST M:608</p> <p>+ Add new Method</p> <p>608 pH 7.0-10.0</p> <p>610 Glucose 1-100 mg/L</p> <p>607 PO₄ 5-120 mg/L</p>
<p>Confirm by pressing the [START] button</p>	
<p>and follow the instruction in the package insert of the corresponding Reflectoquant® test, e. g. "Preparation", "Procedure".</p>	

Shortcut

A method can be started directly at any menu item by inserting the barcode strip of the Reflectoquant® test.

Follow the instruction in the package insert of the corresponding Reflectoquant® test, e. g. "Preparation", "Procedure".

Note

For a detailed measurement-workflow description, see Operating Manual.

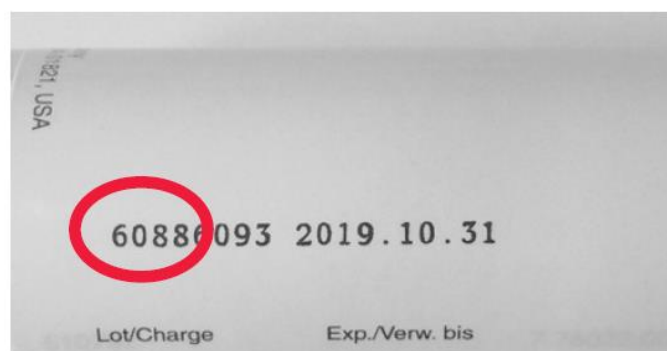


3.3 Notes on the measurement

Code number

The first number (method number) corresponds to the code number of the barcode strip resp. the first three digits of the batch number of the Reflectoquant® pack:

13:38	METHOD LIST	M:608
+ Add new Method		
608	pH	7.0-10.0
610	Glucose	1-100 mg/L
607	PO ₄	5-120 mg/L



Skip the timer

It is possible to interrupt the timer, to perform measurements directly without the countdown function of the instrument. Still, make sure that the reaction time of the test method is met. For details see Operating Manual ("Skip the timer").

Serial measurements

It is possible to interrupt the timer to perform serial measurements. For details see Operating Manual ("Serial measurements").



3.4 Application notes

Besides the Reflectoquant® Tests, various detailed application notes are available to support your analysis, especially the sample preparation step of your workflow.

4 Maintenance of the instrument

4.1 Handling

Please treat this instrument with the same care as you do with all other electronic devices. Ensure that no liquid enters the instrument case, since this may result in damage that is not covered by the warranty.

Do not expose the instrument to excessively humid conditions or to excessive heat or cold (see Technical data).

If the external casing of the measurement instrument needs cleaning, please wipe the casing and the display carefully with a moist cloth.

Clean the optics and the strip adaptor only with water and a mild detergent or ethanol, 70% (v/v) on a tissue or cloth after dismantling the strip adapter (see 4.2). Do not rinse the instrument or parts of it.

4.2 Cleaning the strip adapter

The strip adapter should be thoroughly cleaned (dismantling the strip adapter into its individual components) at the end of each working day.

The strip adapter must be cleaned immediately if an error message (see Operating Manual, "Troubleshooting") is displayed.

Clean the strip adapter only with water and a mild detergent or ethanol, 70% (v/v) on a tissue or cloth after dismantling the strip adapter. Do not rinse the instrument or parts of it.



5 Troubleshooting

The most commonly encountered problems are caused by

- incorrect insertion
- incorrect reaction time
- incorrect use of the tests (e. g. strips not properly stored, pH range not correctly adjusted).

For more details see the Operating Manual ("Trouble-shooting"). The tables there show explanations of the error messages and tips on how to avoid incorrect measurements.



6 Technical data

Dimensions:	184 x 79 x 30 mm
Weight:	253 g (including batteries)
Memory:	50 test methods, 200 measurement results
Interface:	yes (for technical service only)
Light source:	4 LEDs, green/red, double optics
Power source:	4 x 1.5-V batteries (AAA)
Display:	Reflective LCD Graphic Module (256x160 dot)
System diagnosis:	yes
Measurement range:	4 - 90 % rel. remission
Reflection area:	4 x 6 mm
Resolution:	0.1 % rel. remission
Operating temperature:	5 - 40 °C for ideal measurements
Operating humidity:	below 80 % for ideal measurements

7 Accessories

Reflectoquant® Strip adapter Replacement part for reflectometer	1.16953.0001
Reflectoquant® Recalibration Set Replacement part for reflectometer	1.16954.0001
Reflectoquant® RQcheck set for reflectometer Accessory for reflectometer	1.17247.0001



8 Service / Warranty

Our instruments are 100% quality-controlled, which means that each individual instrument has been tested before leaving the factory. In addition to the described cleaning and calibration of reflectometer, the device is maintenance-free. The detailed instruction should allow for problem-free operation.

In the event that you encounter an unsolvable problem, please contact the technical support specialist.

Warranty

The manufacturer grants for this reflectometer a total replacement warranty of 12 months from the date of purchase.

All warranty work is provided by our customer service unit. In the event of a proven production or material defect, we will provide you with a new or as-new replacement reflectometer free of charge.

Improper handling results in loss of warranty. No water or any other liquid must be allowed to enter the instrument. In such cases the warranty becomes invalid.

All warranty rights become invalid in the event that the purchaser or an unauthorized third person repairs or opens the instrument, or if changes are made to the warranty slip. Only the customer service unit is authorized to carry out maintenance on components.

If the instrument is sent in for repair under the terms of the warranty, a copy of the invoice or of another proof of purchase must be enclosed in all cases.



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