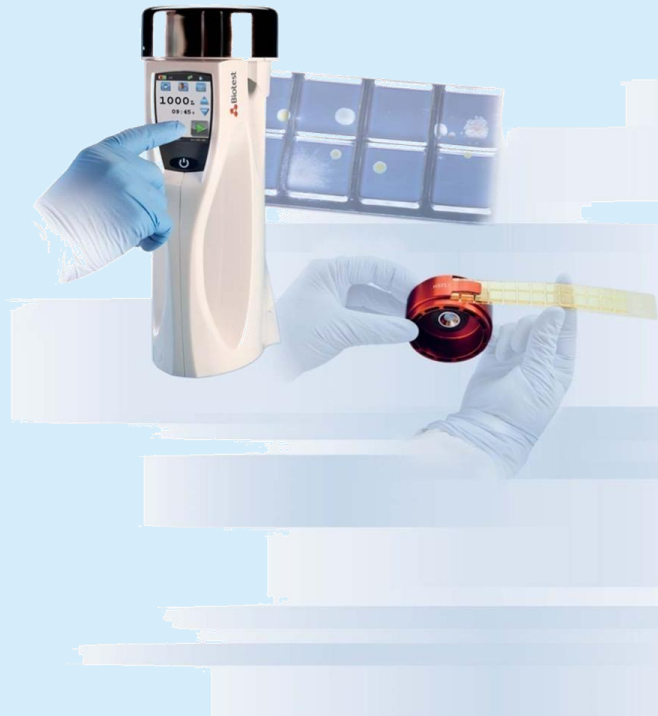


Environmental Monitoring Microbial Air Sampling – RCS High Flow Touch



RCS High Flow Touch - Application RCS® System

RCS = Rotary Centrifugal Air **Sampler**

The RCS® **High Flow Touch Microbial Air Sampler** is a microbiological air sampler used to perform the microbial quality monitoring of the air and compressed gas in the following areas:

- Pharmaceutical industry (e.g. sterile and aseptic production lines)
- Medical device industry
- Hospitals
- Food and beverage industry
- Cosmetic industry
- Packing industry
- Other areas that require indoor or outdoor air quality monitoring



RCS High Flow Touch - Technical Specifications

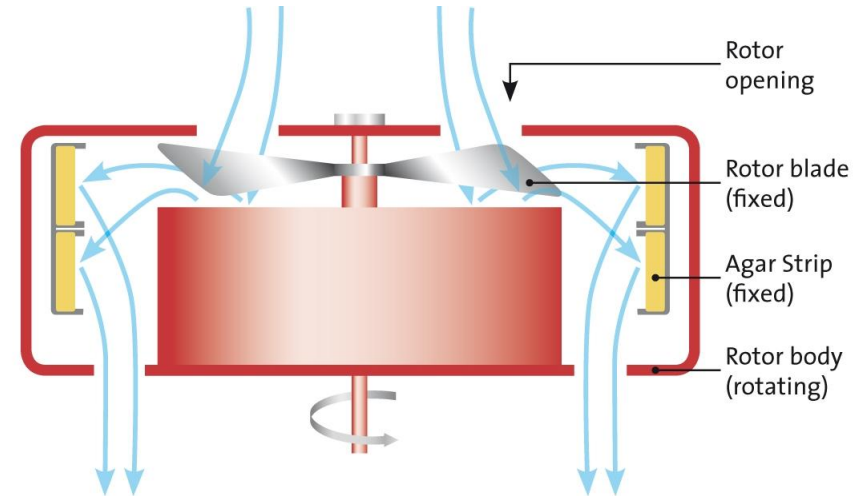
- Portable instrument with integrated Lithium-ion battery
- High-resolution color touch-screen
- Flow rate: 100 L / min (1000 L / 10 min), short sampling time (8200 rpm)
- 10 sampling volumes from 1-2000 L (7 pre-set & 3 user-defined)
- User-defined settings:
 - delay time
 - interval sampling
 - QA-Management
 - date/time, language, rotor management
- Easy disinfection, air stream parts autoclave-able



RCS High Flow Touch - Functional Principle

Centrifugal impaction principle:

- Air enters the rotor at the front of the instrument and it is set into rotation by the movement of the rotor
- Microorganisms contained in the air are then separated onto the Agar strip through centrifugal forces



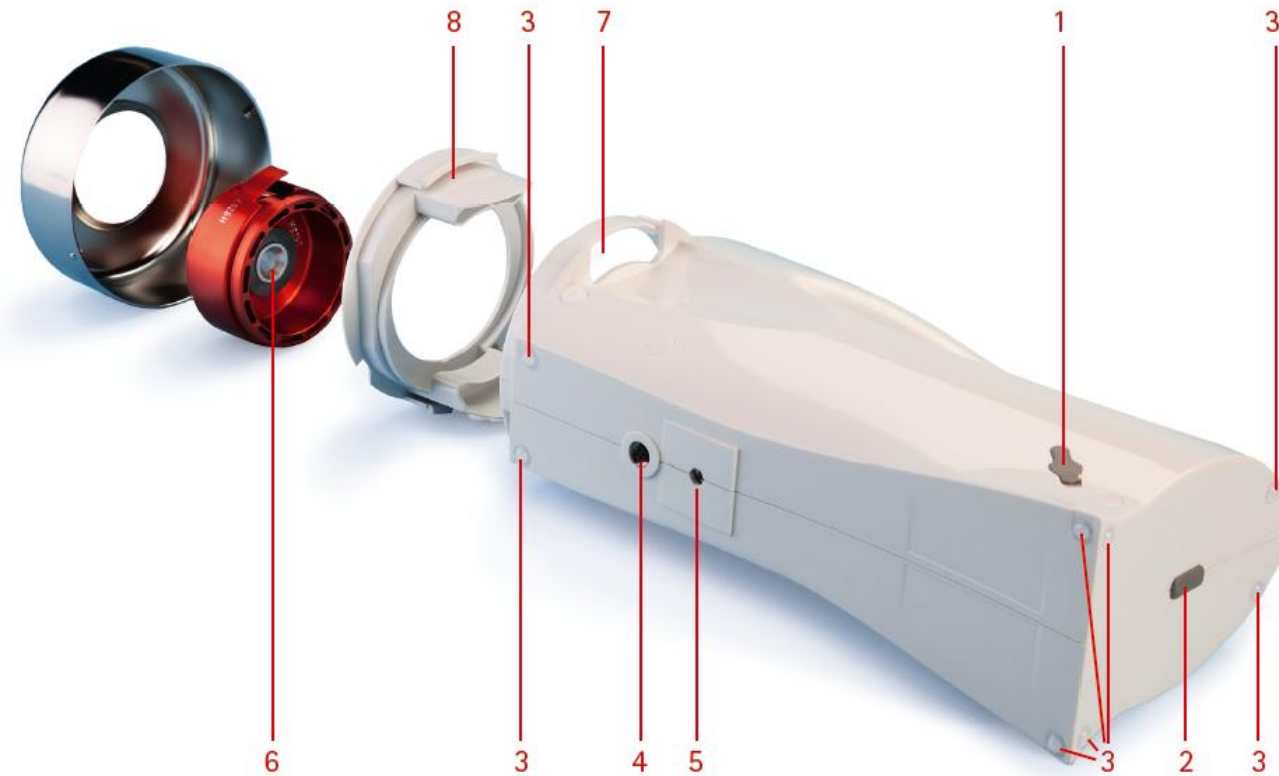
Note: To ensure exact sampling volumes and to allow comparable results between rotors and instruments, each rotor is calibrated with a specific anemometer

RCS High Flow Touch - Main Components



- 1 On/Off
- 2 Touchscreen
- 3 Air direction Ring
- 4 Rotor
- 5 Guide for Agar strip positioning
- 6 Air inlet holes
- 7 Magnetic flange
- 8 Protection cap
- 9 Lock for cap

RCS High Flow Touch - Main Components



- 1 Power supply socket
- 2 Docking station socket
- 3 Housing feet
- 4 Serial RS232
- 5 Tripod
- 6 Magnetic coupling
- 7 Air direction guide
- 8 Air direction cilinder

RCS High Flow Touch - Electrical Supply

RCS is equipped with:

- Lithium-ion battery to allow for flexible operation independent from mains.
- Power supply and a power cord.
- Docking station is available allowing for convenient recharging after each use (optional)
- Recharging the battery can be performed at any time independent from the charging status



RCS High Flow Touch

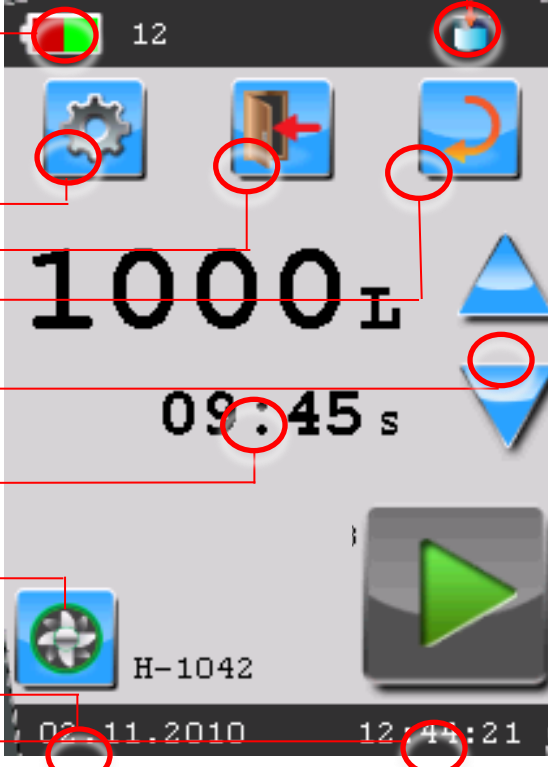
Convenient operation with an easy touch



Intuitive Hardware Software

RCS High Flow Touch - Structure of the main Menu

The Main Menu is subdivided into four information areas:

<p>1</p> <p>Status bar Menu symbol Battery loading status with remaining measurements per selected volume</p>	
<p>2</p> <p>Navigation bar Go to Menu Setting Go back to Main screen One step back</p>	
<p>3</p> <p>Volume selection (Pos. 1-10) by using the arrows displays remaining time during sampling(touch)</p> <p>Rotor selection</p>	
<p>4</p> <p>Status bar Date (dd.mm.yyyy) Time (hh.mm.ss. - 24h or am/pm)</p>	

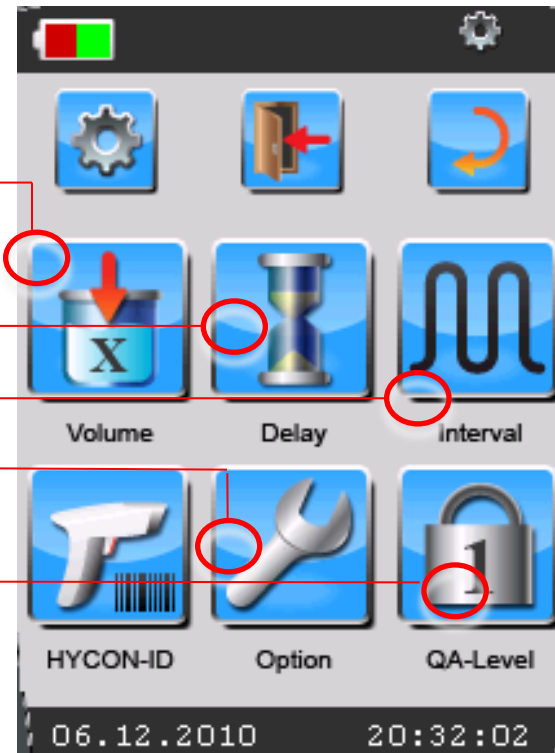
RCS High Flow Touch

Menu setting: User-defined sampling


The  setting icon of the Main Menu provides access to the following functions:

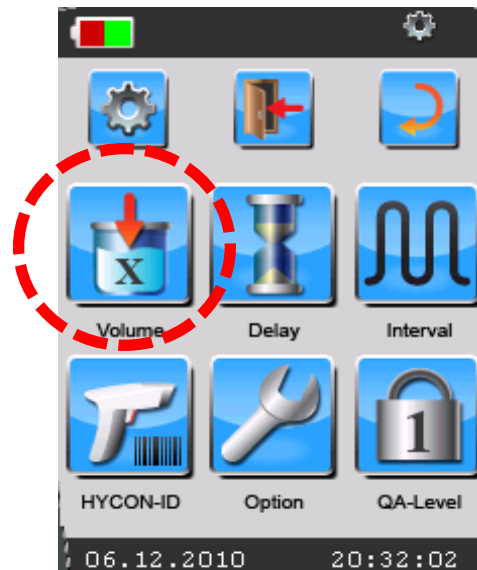
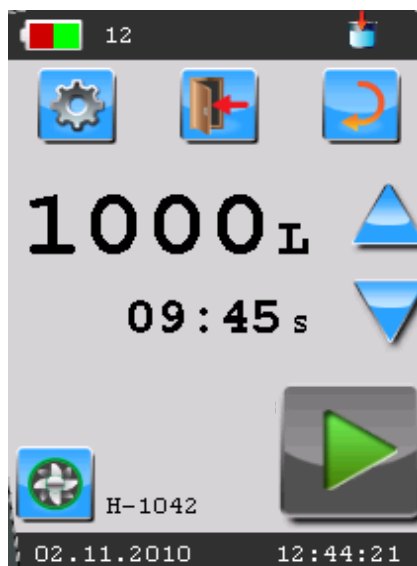
Individual Sampling Volume
Positions 8-10
Delay Time
hh.mm
Interval Sampling
RCS Management Software

Menu Option
system, time, language, rotor, error log
QA-Level
RCS Management Software
QA Level is displayed





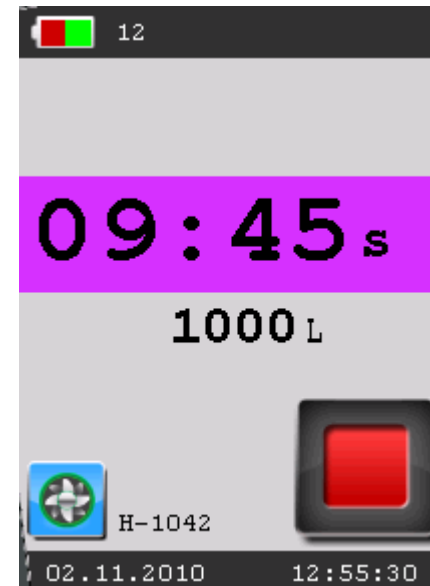
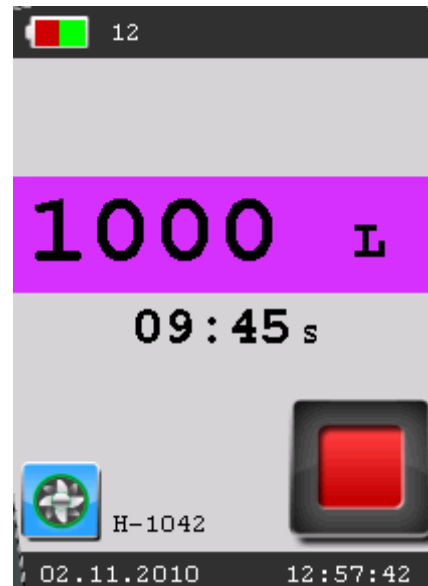
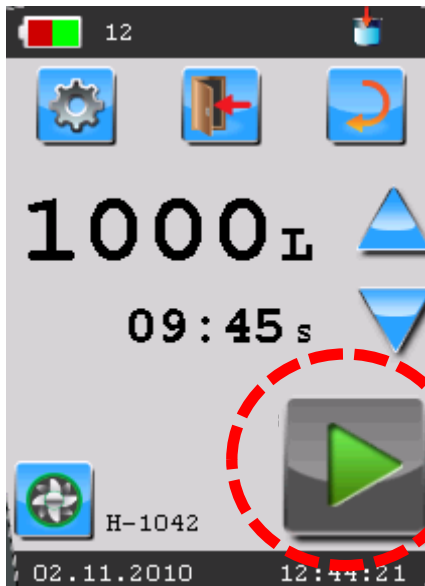
RCS High Flow Touch - Menu Main Screen – Sampling

- The volume value can be selected by using the arrows
- Volumes 10, 20, 50, 100, 200, 500 and 1000 liters and three additional volume can be created
- Three additional individual volumes (from 1 to 2000 L) can be programmed by
 1. Touching the  icon
 2. After selecting the sample position, using the arrows to adjust the volume
 3. When touching the OK button the main menu is displayed and the new volume can be selected




RCS High Flow Touch - Menu Main Screen – Sampling

- The air sampling process is started by touching the  icon
- During sampling, the remaining volume and remaining time is displayed
- Touching the  icon the sampling process is stopped. The process can be resumed (Start button) or aborted (back to main menu)



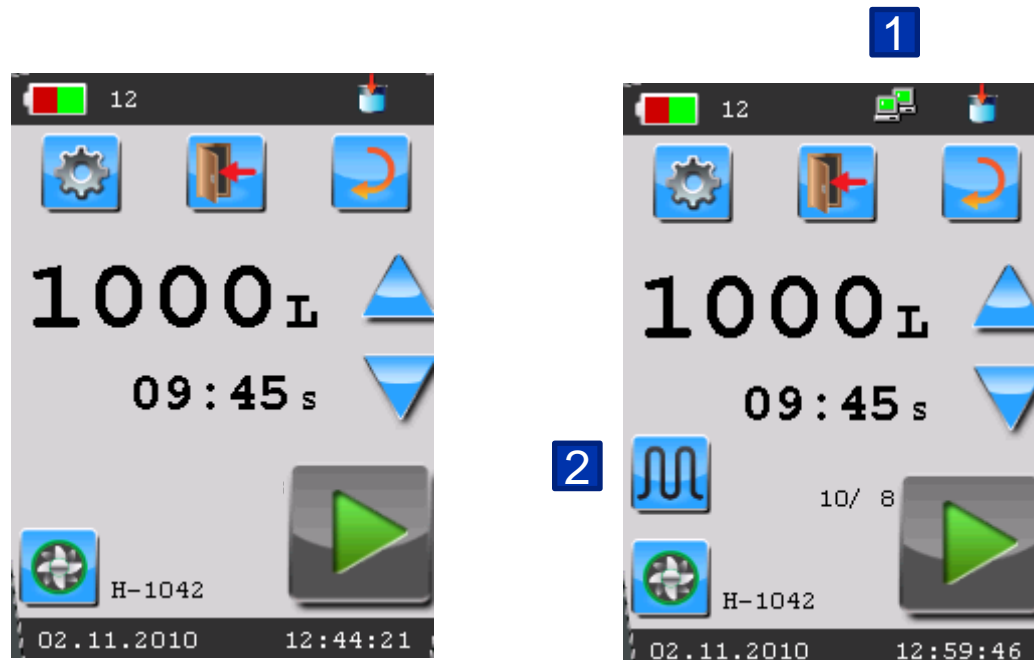
RCS High Flow Touch - Menu Delay Time

- The delay time (from 1 minute to 1 h 59 minutes) is programmed as follows
 1. Touch the  icon
 2. Adjust the time by using the arrows
 3. Select the activation button and then the OK button
 4. The main menu displays the icon for delay time and the selected value



RCS High Flow Touch - PC connection

- Connection of RCS High Flow Touch and a PC via the serial RS232 interface (optional: USB-Adapter)
 - 1 Symbol for PC connection
 - 2 Icons for Individual Settings (transferred with RCS Management Software)

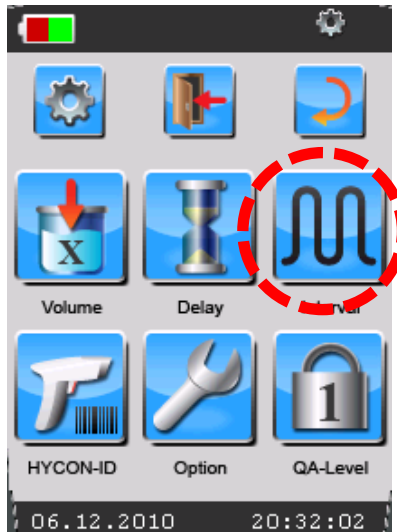


RCS High Flow Touch - Menu Interval Sampling

- Interval Sampling is programmed via the RCS Management Software and then transferred to the instrument via the RS232 interface.

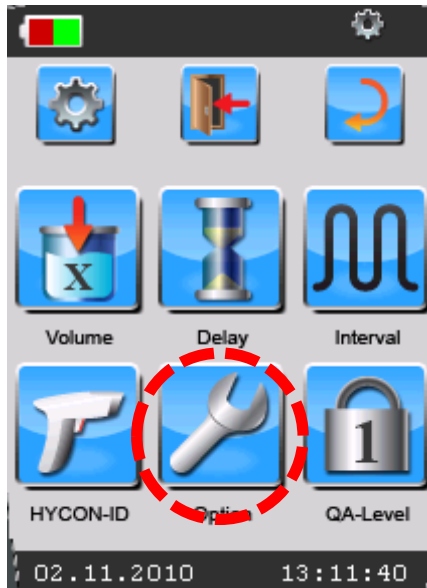
For activation 

1. Touch the icon
2. Select the activation button
3. Confirm with the OK button
4. The main menu displays the icon for interval sampling and the selected values



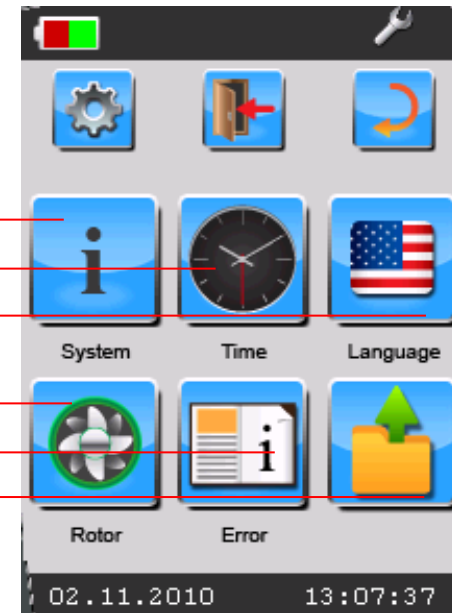
RCS High Flow Touch - Menu Option

- Menu Option Contains the following submenus:
 - User-defined settings – Date/Time, language and Rotor
 - Instrument data – Software and firmware information, error list (occured errors)



System Information
Time
Language

Rotor / Calibration Factor
Error Loglist
Touchscreen Calibration (Service)



RCS High Flow Touch Menu QA-Level


- Programed via RCS Management Software
- QA Level is indicated by the number displayed in the lock
- With different QA Levels the access to the functions calibration factor, rotor selection and volume selection can be blocked.




 Level 1: Factory setting, access to all functions

 Level 2: Changing the calibration factor is blocked



 Level 3: In addition, change of the sampling volume is blocked



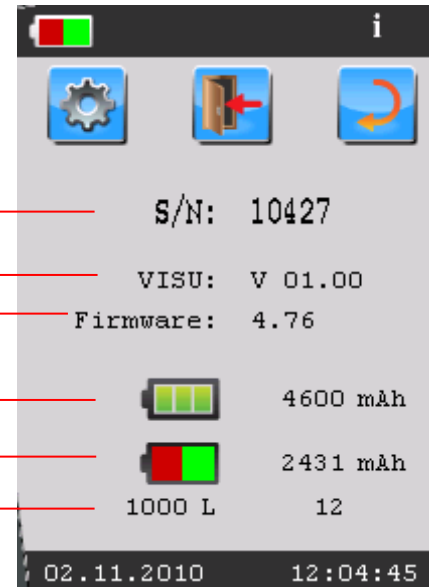
 Level 4: In addition, change of the rotor is blocked



RCS High Flow Touch - Menu System information



Serial Number
Software version
Firmware version



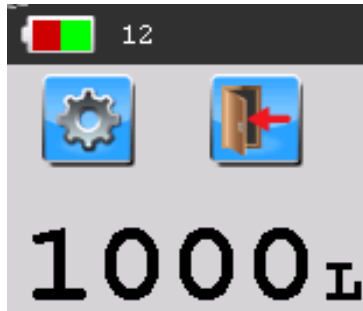
Total battery capacity
Actual battery capacity
Sample volume / remaining measurements

RCS High Flow Touch - battery information

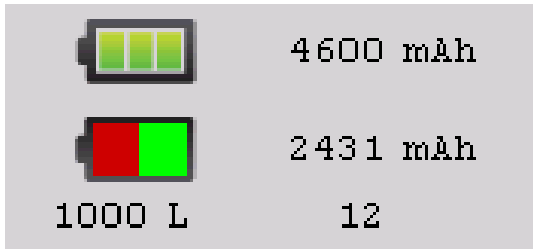
- Integrated Lithium - Ion battery and advanced capacity control options
 - Actual Battery status and total battery capacity is easily controlled via main screen and system status in the menu

Charging status



No. of remaining measurements / sample volume

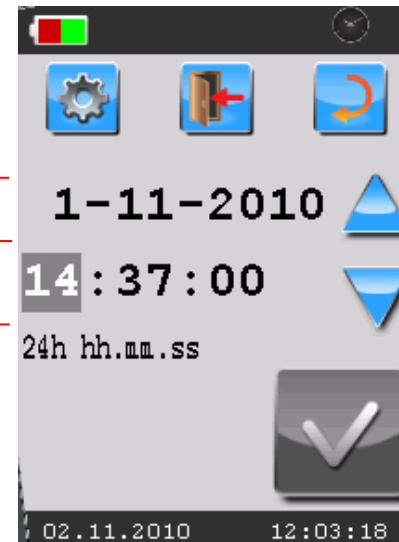
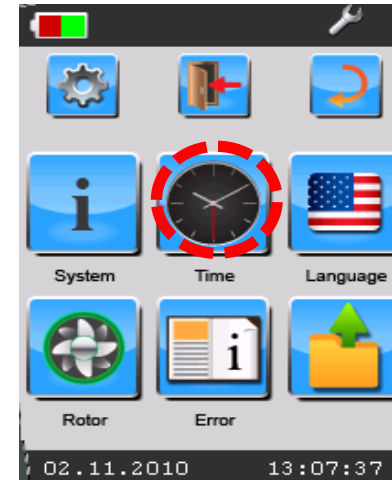


Total battery capacity (upper) and remaining battery capacity (lower) including number of remaining measurements (right) per sample volume (left)



RCS High Flow Touch - Menu Date / Time

- The  icon provides access to the Menu Date/Time
 1. Use arrows to change the time
 2. Choose between a 12h/ 24h display by touching the field
 3. Save new data and return to the Main Menu 
 4. Changed settings are displayed in the lower status bar
- The date can only be changed with the **Management Software**. The new date is then transferred to the instrument via the RS232 interface.




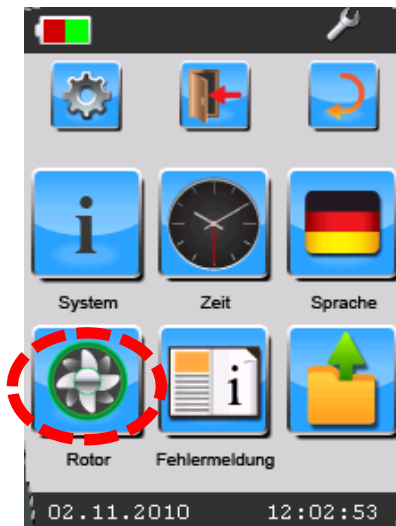
Date (changed via RCS Management Software)

Time (hh.mm.ss)

24h / 12h (am/pm)

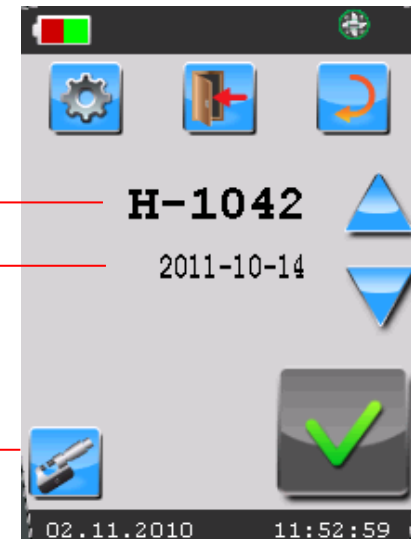
RCS High Flow Touch - Menu Rotor Management

- The icon  provides access to the Menu Rotor., where up to 10 Rotors can be managed. The following functions can be selected
 1. Select a Rotor by using the arrows
 2. Verification of the calibration expiration for the selected rotor
 3. Rotor menu is giving access to the calibration factor menu for a manual correction. When a select a new rotor, the corrector factor is changed automatically.
 4. Save the selected rotor and return to the main manu
- Expired rotors are marked with a red rotor symbol



Rotor No.
Expiration date

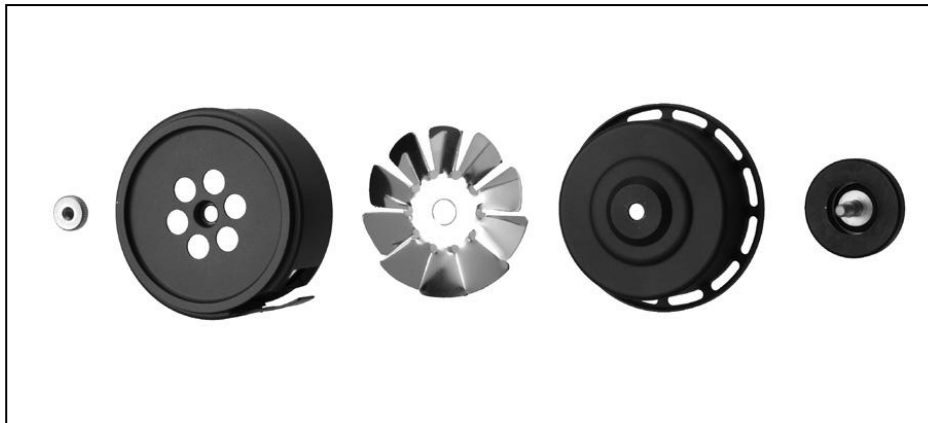
Calibration factor menu



RCS High FlowTouch - Cleaning

- The RCS Air Sampler is made from a very resistant polycarbonate (Lexan polycarbonate).
- It can be disinfected by wiping or spraying with commercial disinfectants (pH 5-8).
- The Rotor, the Protection Cap and the Air Direction Ring can be autoclaved at 121 °C for 20 minutes.
- Occasionally clean the complete rotor thoroughly in an ultrasonic bath or treatment with commercially disinfectant followed by rinsing with water.
- The rotor can be taken apart by unscrewing the knurled nut and the parts can be cleaned in an water bath or by using brush tools

Caution: this operation must be followed by a recalibration.



RCS High Flow Touch

Handling of the Agar Strip and the Rotor (1 of 3)



- First remove the protection cap
- Pull out the rotor from the magnetic flange
- Open the protective foil for approximately 4 cm



- Carefully remove the agar strip without touching the agar surface.

RCS High Flow Touch

Handling of the Agar Strip and the Rotor (2 of 3)



- Insert the agar strip into the rotor with the agar surface facing to the inside. Fully insert the agar strip.



- Position the rotor back on the magnetic flange

RCS High Flow Touch

Handling of the Agar Strip and the Rotor (3 of 3)



5

- Mount the protection cap on top of the rotor



- To remove the agar strip:
 - unscrew the protection cap
 - pull off the strip with the agar side facing downwards
 - place the agar strip back into the protective packaging with the agar surface facing downwards
 - Seal the protective packaging by using a cover slide provided with the agar strips (to not dry up the agar)

RCS High Flow Touch – Incubation and analysis

After strips incubation period → counting of the colonies.

Note: keep the agar strips within its protective packaging

The number of CFU on the entire agar strip is analyzed in relation to the air volume sampled (in liters) → CFU per cubic meter (m³)

The calculation is performed according to the following formula:

$$\text{CFU/m}^3 = \frac{\text{CFU per agar strip}}{\text{Selected sample volume (liters)}} \times 1000 \text{ (liters)}$$

**Thank you
for your attention**