

Instruction manual

Bottle Top Burette

μ 1 D

μ 10 D

μ 20 D



14 General Information

Unpack the instrument carefully and check to see that it is not damaged. It is important that any damage incurred in transport be reported at the time of unpacking. Notify your supplier and the carrier or forwarding agent immediately in case of such damage.

14.1 Unpacking the instrument

Unpack the outer carton containing your instrument. If there are any punctures, side walls crushed, extensive chemical stains, water marks or other physical evidence that the contents may have been damaged, notify the carrier of the potential problem and ask for specific instructions. If there is no visible damage to the carton's exterior, open it in the normal manner. When all parts are laid out, you should have:

- 1 Bottle top burette
- 1 Standard discharge tube
- 2 Adapters (28mm, and 45mm)
- 1 Filling/suction tube (May be cut to desired length)
- 1 Instruction Manual

A selection of additional adapters, discharge tubes and accessories may be found in the pricelist.



Note:




Read the instruction manual carefully prior to operation of the instrument. Please mark points which require special attention in your field of application so they are not overlooked.

Should you have any additional questions, after reading these instructions, concerning the setting up, operation or warranty terms, please contact either your distributor or the manufacturer at the following address:







Goldleaf Scientific
3300 Harrison st suite 2
Riverside, CA 92503 USA
Tel. : (510)487-1390










Website: <http://www.goldleaflabs.com>
Email: support@goldleaflabs.com

14.2 Explanation of the safety instructions in the operating manual





	This symbol highlights the following instructions, which the user has to follow strictly! Failure to follow these instructions can impair the safe function and safety of the user.
	This symbol highlights bans, which the user has to follow strictly! Failure to follow these bans can seriously impair the functionality and safety of the user.
	This symbol highlights instructions that should be strictly followed by the user to ensure safe operation of the device.

14.3 Safety Information

	Attention: Extreme caution should be exercised when handling toxic, corrosive, fuming, volatile or any other potentially dangerous substances.
	Danger: Do not use the device in potentially explosive areas. Mortal danger!
	Attention: Use great caution when working in the vicinity of highly flammable or explosive substances. The instrument is not explosion-proof. Do not use flammable or explosive substances near the instrument.
	Attention: Do not open the instrument. Repairs are only to be carried out by trained service technicians.
	Attention: Observe all markings on the reagent bottles. Dangerous and fuming chemicals must be dispensed in a fume hood. Only employ the instrument for the purpose intended by the manufacturer, and particularly within the resistance limits of the instrument. If in doubt, contact your supplier, or the manufacturer's factory representative at the phone number shown at the front page of this operating instruction.
	Attention: Always use the instrument in such a manner that neither the operator, nor any other person is endangered. When dispensing, maintain a physical distance between the instrument and the body. Avoid splashes; use proper connecting vessels, protective clothing and gloves.

	<p>Attention: Please comply with all safety and accident-prevention regulations applicable to laboratory work.</p>
	<p>Attention: Only instructed users may operate the instrument.</p>
	<p>Attention: Always check the instrument for leaks and air bubbles. Special attention should be directed to determine that all push-ons, threaded connections and suction tubes are firmly in place before beginning operation. Leaking solutions may endanger persons and materials</p>
	<p>Note: This instruction sheet does not purport to address all of the safety problems which might result from the use of this instrument, chemicals, reagents, apparatus or equipment employed in any specific test or protocols. It is the responsibility of the user to consult and establish appropriate safety and health practices, and then determine the applicability of regulatory limitations prior to use.</p>
	<p>Note: Read the instruction manual carefully prior to operation of the instrument. Please mark points which require special attention in your field of application so they are not overlooked.</p>
	<p>Note: Please store the instruction manual in a place easily accessible to every user.</p>
	<p>Note: Only use original spares and accessories. These are in alignment with the instrument and ensure reliability.</p>
	<p>Note: In case of trouble (e.g., piston difficult to move or leakage), immediately stop pumping. Clean the instrument according to the cleaning instructions before any further use of the instrument or contact the manufacturer.</p>
	<p>Note: Please make sure that all safety signs, also on the instrument, are visible.</p>

15 Purpose of the Contiburette




	Attention: Please comply with all safety and accident-prevention regulations applicable to laboratory work.
	Attention: Do not use flammable or explosive substances near the instrument.
	Attention: It is the responsibility of the user to consult and establish appropriate safety and health practices, and then determine the applicability of regulatory limitations prior to use. Should there be any additional questions, after reading these instructions, concerning the set-up, operation or warranty, please contact either your distributor, or the manufacturer.
	Attention: Use the instrument only in compliance of the intended purpose and in way that neither user nor any other persons are endangered.

This instrument is designed for dosing liquids up to a concentration of max. 2 Mol/l, observing the following physical limits:

- 15 to 40 °C of instrument and reagent
- When the instrument is correctly used, the dispensed liquid comes into contact with only the following chemically resistant materials:
 - Al₂O₃,
 - ETFE

During operation, the burette must be screwed on a bottle, standing on a plain solid basis. It might be necessary to lock the bottle against tilting.

15.1 Operating Exclusions

	<p>Attention: Compatibility of the instrument for the application must be checked by the user or contact the manufacturer</p>
	<p>Attention: Do not use flammable or explosive substances near the instrument.</p>
	<p>Attention: It is the responsibility of the user to consult and establish appropriate safety and health practices, and then determine the applicability of regulatory limitations prior to use. Should there be any additional questions, after reading these instructions, concerning the set-up, operation or warranty, please contact either your distributor, or the manufacturer.</p>

Never use this instrument for

- liquids attacking Al_2O_3 , ETFE
- suspensions (e.g., of charcoal) as solid particles may clog or damage the instrument
- strongly crystallizing solutions, concentrated acids and bases as well as non-polar solvents which effect swelling of ETFE
- CARBON DISULPHIDE, AS THIS MEDIA INFLAMES EASILY

The burette cannot be autoclaved!

16 Set-up

Ensure that the instrument is standing on a solid surface.

Please observe the specified ambient conditions (temperature and humidity) listed under „Technical Data“ as well as the safety instructions.

16.1 Install suction tube



Note:

Loose connections such as incomplete push-ons, loose threaded fittings or a poorly fitting suction tube lead to ventilation in the system. Inaccurate measurements will result !

Push an end of the filling tube onto the lower end of the suction nozzle housed in the base of the burette. It should be pushed as far as it will go. Then cut off the tubing at the bottom end to the length desired appropriate for the bottle size. The cut should be at an angle to prevent suction blockage.

16.2 Fitting the Contiburette to bottle

When fitting the burette to the titration bottle hold it on the grey housing. Do not carry the mounted instrument by its housing. Carry the mounted instrument by placing one hand underneath the bottle and the other hand around the base of the instrument at the bottleneck.

Two adapters have been provided with your instrument. These adapters enable the burette to fit into bottles of varying neck sizes. Select the appropriate adapter and twist the male threaded end snugly into the base of the burette. Then turn the upper part of the housing of the burette, to make visible the label on the bottle.

16.3 Discharge tube assembly



Attention:

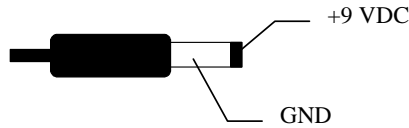
Always check the burette for leaks and air bubbles. Special attention should be directed to determine that all push-ons, threaded connections and suction tubes are firmly in place before beginning operation.

Leaking solutions may endanger persons and materials.


Install the tube provided, by pushing it gently onto the threaded post at the front of the burette as far as it will go. Screw the rigid collar firmly into place and orient the tip of the discharge tube to the beaker, flask or other container receiving the dispensed liquid.

16.4 Connection to the power supply

To connect the burette with the delivered power supply, use the power supply's plug and the socket on the rear side of the Contiburette unit.















Pinout of the power supplys plug




	<p>Attention: Make sure that the voltage printed on the power-supply corresponds to the voltage on your mains.</p>
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17 Description of the Bottle top burette

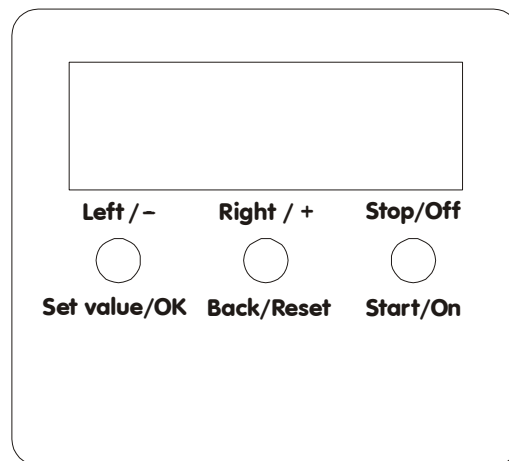
17.1 Safety Information

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	<p>Danger: Do not use the device in potentially explosive areas. Mortal danger!</p>
	<p>Attention: Use great caution when working in the vicinity of highly flammable or explosive substances. The instrument is not explosion-proof. Do not use flammable or explosive substances near the instrument.</p>

	<p>Attention: Do not open the instrument. Repairs are only to be carried out by trained service technicians.</p>
	<p>Attention: Observe all markings on the reagent bottles. Dangerous and fuming chemicals must be dispensed in a fume hood. Only employ the instrument for the purpose intended by the manufacturer, and particularly within the resistance limits of the instrument. If in doubt, contact your supplier, or the manufacturer's factory representative at the phone number shown at the front page of this operating instruction.</p>
	<p>Attention: Always use the instrument in such a manner that neither the operator, nor any other person is endangered. When dispensing, maintain a physical distance between the instrument and the body. Avoid splashes; use proper connecting vessels, protective clothing and gloves.</p>
	<p>Attention: Please comply with all safety and accident-prevention regulations applicable to laboratory work.</p>
	<p>Attention: Only instructed users may operate the instrument.</p>
	<p>Attention: Always check the instrument for leaks and air bubbles. Special attention should be directed to determine that all push-ons, threaded connections and suction tubes are firmly in place before beginning operation. Leaking solutions may endanger persons and materials</p>
	<p>Note: This instruction sheet does not purport to address all of the safety problems which might result from the use of this instrument, chemicals, reagents, apparatus or equipment employed in any specific test or protocols. It is the responsibility of the user to consult and establish appropriate safety and health practices, and then determine the applicability of regulatory limitations prior to use.</p>
	<p>Note: Read the instruction manual carefully prior to operation of the instrument. Please mark points which require special attention in your field of application so they are not overlooked.</p>
	<p>Note: Please store the instruction manual in a place easily accessible to every user.</p>

	<p>Note: Only use original spares and accessories. These are in alignment with the instrument and ensure reliability.</p>
	<p>Note: In case of trouble (e.g., piston difficult to move or leakage), immediately stop pumping. Clean the instrument according to the cleaning instructions before any further use of the instrument or contact the manufacturer.</p>
	<p>Note: Please make sure that all safety signs, also on the instrument, are visible.</p>

17.2 Operating elements



Start/On:

Push button to switch on the burette.

In the Manual-mode the burette runs as long as the button is pressed. In the Auto-mode you start the set dosing cycle.

Stop/Off:

A short push stops a dispensing cycle. To switch OFF the Contiburette hold this button for 3 seconds.

Left / - und Right / +:

With these two buttons you change the menu. When selected a changeable parameter you may change the value. When held pressed the value is changed quickly up or down.

Set Value / OK:

To enter a menu item and confirm the new parameter after changing.

Back / Reset:

To leave a menu item or to reject a set value of a parameter

17.3 Display

cal.! **Volume: 5,83 ml**
Dose: 10,00 ml Flow: 10,00 ml/min
Manual **Auto** **Setup** **Dispense**

Calibration status:	In the left upper corner of the display the actual calibration status is shown. No indication means, that the device is factory calibrated. When user calibrated cal.! is displayed.
Dosed Volume:	The dosed volume is displayed in the right upper corner after Volume:
Target volume and rest volume:	The set volume is shown after Dose: (When no volume is set you see: Cont. , the Contiburette runs without volume limit) When running, the remaining quantity is shown after Rest:
Flow:	The set flowrate is shown
Dispense/Aspirate:	Shows the flow direction dispense or aspirate . When a dosing cycle is interrupted with pressing the stop button once, paused is displayed.
Menu bar:	The selected menu in the menu bar in the lower part of the display is accentuated with a black background.

To switch over from one menu to another use the buttons **Left / -** and **Right / +** in the main menu. The actual menu is shown in the menu bar with a black background. To enter a mode/menu or to change a value use the button **Set Value / OK**. This button serves also to confirm a modified parameter
To leave a menu and to refuse a changed value use the **Back / Reset** button

An overview of all items and values shows the following table.

Item	Range:	Display:	Changeable from:	Stored when burette switched off:	Description:
Volume	0.00ml ... 9999.99ml	Always	Reset Manual and Automodus and RS485	No	Shows the dosed volume
Dose (Set volume)	μ 1 D: 0-50 ml μ 10 D: 0-500 ml μ 20 D: 0-750 ml	AutoModus	AutoModus and RS485	Yes	Shows the set volume
Flow	μ 1 D: 0.02-2 ml/min μ 10 D: 0.2-20 ml/min μ 20 D: 0.3-30 ml/min	ManualModus, AutoModus	ManualModus, AutoModus and RS485	Yes	Shows the set flowrate
Direction	Dispense Aspirate	Always	ManualModus, AutoModus and RS485	Yes	Shows the pump direction
Calibration	noCal. userCal	When needed	SetupMenü	Yes	Shows the calibration status. When the burette is not calibrated or calibrated by the user, you see a warning message.
Address	1 ... 255	SetupMenü	SetupMenü and RS485	Yes	Shows the address No. of the burette. Default setting: 1
Baudrate	1200 / 2400 / 4800 / 9600 baud	SetupMenü	SetupMenü and RS485	Yes	Shows the baudrate of the unit. Default setting: 9600 bd
Protokoll	RS485 / RS232	SetupMenü	SetupMenü und RS485	Yes	Shows the actual protocol setting. Recommended: RS 485
FastAspirate	On / off	SetupMenü	SetupMenü und RS485	Yes	Shows the setting of the fast aspirate function

18 Operating of the bottle top burette

18.1 Switch on/off

The push button to turn on the instrument is located at the front of the burette in the far right position of the group of three. After pushing the button "ON", the LCD display will be activated. To switch off the instrument, press and hold the button "OFF".

18.2 Filling the instrument and removing the air

After the filling/suction tube has been placed in the liquid, place a beaker or flask under the discharge tube and dose in the manual mode (see Chapter xxx) until the liquid in the tube is clear of air bubbles.

18.3 Volumetric and continual dosing

- Select the mode **Auto** and enter with **Set value**
- The display shows all relevant parameters: dosed volume, flowrate, pump direction. Are the settings correct, you can start the dosing with the "Start" button.
- With "Set value" and the + and – buttons you change the set volume. For continuously dosing set the value to zero, "Cont." is then displayed.
- Pressing "Set value" again takes the value and the display changes to flowrate. To change use the + and – buttons. Is the flow direction correct, the dosing is started with the "Start" button. To change the flow direction press "Set value". The flowrate is accepted and the display changes to "Set Direction". Change with + and – buttons. Start dosing with "Start".
- The dispensed volume is displayed top right. The burette runs till the set volume is dosed or the "Stop" button is pressed. When the Stop button is pressed once, the dosing cycle is interrupted and can be proceeded with "Start". Another "Stop" aborts the dosing cycle finally.
- The dosed volume is set to zero with the "Back" button when the burette is not running.
- The flowrate can be varied with the + and – buttons while the burette runs. Press simultaneously "Start" and + or -

18.4 Manually dosing

- Select the Manual-mode with the + and – buttons, "Manual" is accentuated.
- The display shows all relevant parameters: dosed volume, flowrate, pump direction.
- With "Set value" and the + and – buttons the flowrate is changed.
- The dosed volume is set to zero with the "Back" button when the burette is not running.
- Pressing „Set value“ again takes the value and the flow direction is displayed. It might be changed with + or - .
- The dosing cycle is then started with the "Start" button.
- The „Back“ button cancels the input and the Contiburette goes back to the main menu.

The dosed volume is displayed top right. The burette runs as long the "Start" button is holded. The burette stops when the start button is released. The flowrate can be varied with the + and – buttons while the burette runs ("Start" button is holded)

18.5 Setup Menu

This menu serves to set:

- Calibration / Adjusting (see Chapt. 19 / 20)
- Fast aspirate
- RS 485 address of the Contiburette
- RS 485 baudrate
- RS 485 or RS 232 mode

To change one of these settings:

- Enter the Setup-Menu with „Set value“.
- „Select“ is blinking
- Select with + und – the desired parameter
- Change the parameter with „SetValue“ and + und - buttons.
- Save the setting with „SetValue“ and return to the main menu.
- The „Back“ button cancels the input and the old value remains.

19 Calibration of the Contiburette

In line with ISO 9000 “Monitoring of Testing Apparatus” and GLP or when using a medium with different density and viscosity other than distilled water there is a possibility to calibrate the Contiburette $\mu 1$ D, $\mu 10$ D or $\mu 20$ D. For adjustment of the unit please see chapter 20.

19.1 Procedure of calibration:

1. Fill the burette with demi-water, dispense the water into a separate vessel until there are any bubbles are in the dispensing tube left.
2. Set the display to zero.
3. Dispense 5 ml into a vessel.
4. Weigh the dispensed quantity with a precision balance.
5. Calculate the volume, taking the temperature into account.
6. Repeat step 2-5 at least 10 times.
7. Calculate the accuracy A% and coefficient of variation CV% by means of the formulas of the statistical computation.

Calculations:

Mean value $\bar{m} = \frac{\sum m_i}{n}$ m_i : results of weighing, n : number of weighing

Mean Volume $\bar{V} = \bar{m} \cdot Z$ Z : Correction factor

Accuracy $A \% = \frac{\bar{V} - V_0}{V_0}$ V_0 : Nominal volume

Coefficient of variation $CV \% = \frac{100 s}{\bar{V}}$ s : Standard deviation of the results of weighing m_i

A detailed description of this test procedure you find e.g. in DIN EN ISO 8655-6.

Table 1: Correction factors Z ($\mu\text{l}/\text{mg}$ at 1013 hPa, abstract of EN ISO 8655-6)

Temperature °C	Correction factor Z	Temperature °C	Correction factor Z
15,0	1,0020	23,0	1,0035
15,5	1,0020	23,5	1,0036
16,0	1,0021	24,0	1,0038
16,5	1,0022	24,5	1,0039
17,0	1,0023	25,0	1,0040
17,5	1,0024	25,5	1,0041
18,0	1,0025	26,0	1,0043
18,5	1,0026	26,5	1,0044
19,0	1,0027	27,0	1,0045
19,5	1,0028	27,5	1,0047
20,0	1,0029	28,0	1,0048
20,5	1,0030	28,5	1,0050
21,0	1,0031	29,0	1,0051
21,5	1,0032	29,5	1,0052
22,0	1,0033	30,0	1,0054
22,5	1,0034		

20 Adjusting of the burette

The burette is factory adjusted before delivery with water. It might be appropriate to adjust the burette after a longer period of using or for specific applications, e.g. when used as liquid, which has a significant other density than water.

20.1 Procedure to adjust the burette (usercal.):

- Switch **On** the burette.
- Select **Setup** with the **Left / -** and **Right / +** buttons and confirm with **Set Value / OK**.
- Select with the **Left / -** and **Right / +** buttons **Select> Calibration:Factory** and confirm with **Set Value / OK**
- Select **Change Usercal. Yes** with the button **Right / +** and confirm with **Set Value / OK**
- Fill the burette with degassed distilled water by pressing the **Start** button till the tubing is completely free of gas bubbles. Confirm with **Set Value / OK**.
- Select the number of piston turns between 10 and 100. Default value is 25. Confirm with **Set Value / OK**.
- Select the number of cycles between 1 and 10. Default value is 3. Confirm with **Set Value / OK**.
- Tare the balance, then press **Start**
- Weigh the dosed amount and enter the balance value in grams, using the **Left / -** and **Right / +** buttons. Confirm with **Set Value / OK**.
- Repeat the last two steps when required. Confirm with **Set Value / OK**.
- After the input of the last dosed amount, the average amount is displayed for checking purposes. Confirm with **Set Value / OK**.
- Enter the water temperature by using the **+** and **-** buttons. Confirm with **Set Value / OK**. The instrument is now doing the automatic calibration itself. The display shows the smallest volume amount you can dose.
- The sign **cal!** is an indication for the user calibration.
- Return to the main menu with **Set Value / OK**.
- With **Back / Reset** you can step backward at any time

20.2 Return to Factory Setting

To return to factory setting please carry out the following steps:

- Switch **On** the burette.
- Select **Setup** with the **Left / -** and **Right / +** buttons and confirm with **Set Value / OK**.
- Select with the **Left / -** and **Right / +** buttons **Select> Calibration:User** and confirm with **Set Value / OK**
- Select with the **Left / -** and **Right / +** buttons **Change usercal > Reset** and confirm with **Set Value / OK**
- The sign **cal!** as an indication for the user calibration disappears and the factory calibration is restored.

21 The interface of the burette

The burette has a RS485 interface. To connect the burette to a PC use level converter (PN: 61703-00) to transfer the RS 232 level from the PC to RS 485 level of the burette (and vice versa). Connect the converter to the right rear socket. You have the option to switch the software from RS 232 mode to RS 485 mode. In the RS 232 mode, the burette sends a handshake and the address "0" for all connected burettes is available. In the RS 485 mode, the burettes do not send a handshake; the address "0" cannot be used.

The standard address of the burette is 1; the default baudrate is 9600 baud.



Notice: Do not use other cables or adapters from other suppliers. You risk the damage of the burette and other connected electronic equipment.

21.1 Commands

CMD. CODE	Explanation	Parameter list	Range	Example
RTY	Read Type and Version of device	1. Dummy parameter to initiate transfer -> Device sends in handshake: 1. name/type of device 2. Version number of software	1 text number	1,RTY,1
PON	Switch on Device	1. Security parameter 1234	1234	1,PON,1234
OFF	Switch off Device	1. Security parameter 1234	1234	1,OFF,1234
WON	Set Status (ON/OFF control) of Contiburette	1. Contiburette ON/OFF (0-> Off, 1-> On)	0/1	1,WON,1
RON	Read Status of Contiburette	1. Dummy parameter to initiate transfer -> Device sends in handshake: 1. Device Status	0=Idle, 1=Manual or ContRun, 2=StepDose, 3=Stoping, 4=Calibration Modus	1,RON,1
RDS	Read dispensed volume	1. Dummy parameter to initiate transfer -> Device sends in handshake: 1. Dispensed Volume in µl	1 -9999990...9999990	1,RDS,1
WRS	Display Reset	1. Dummy parameter to initiate transfer	1	1,WRS,1
WFR	Set Flowrate & Direction	1. Flowrate in µl/min 2. Direction	µ 1 D: 20...2000 µ 10 D: 200...20000 µ 20 D: 400...40000 0=normal, 1=reverse	1,WFR,1000,0
RFR	Read Flowrate & Direction	1. Dummy parameter to initiate transfer -> Device sends in handshake: 1. Flowrate in µl/min 2. Direction	200...20000 0=normal, 1=reverse	1,RFR,1
WVO	Set DoseVolume	1. Dose in µl Continuous dosing: 0µl	µ 1 D: 0, 1...50000 µ 10 D: 0, 10...500000 µ 20 D: 0, 20...1000000	1,WVO,1000
RVO	Read DoseVolume	1. Dummy parameter to initiate transfer -> Device sends in handshake: 1. Dosevolume in µl	0, 10...500000	1,RDV,1
WFA	Write FastAspirate	1. FastAspirate ON/OFF (0-> Off, 1-> On)	0/1	1,WFA,1
WSA	Set RS485 slave-address, + renumber slaves	1. New slave-address of device	1...255	1,WSA,3
WGA	Set Global Adress	1. New global slave address of device (address 0 = global address off)	0, 1...255	1,WGA,20
WCP	Set Communication Protokoll	1. Number of Communication Protokoll	0=RS485, 1=RS232	1,WCP,1
WBD	Set RS485 Baudrate	1. New baudrate of device	0 = 1200 baud, 1 = 2400 baud 2 = 4800 baud 3 = 9600 baud	1,WBD,3

21.2 Change of the user calibration value

The actual calibration value of the user calibration can be read and changed via interface. A systematic difference between set volume and dosed volume can be corrected easily.

The actual value of the user calibration is read with the command RCX. The answer of the burette has two parameters. The first one is the actual stepvolume in nl, the second parameter shows the calibration state: 0 = no calibration, 1 = factory calibration, 2 = user calibration

With the command WCU a new value of the user calibration is set. For a volume of 11111 nl per step use the command: 1,WCU,11111,1234 . When used 0 as stepvolume you return to the factory calibration.

Befehl	Bedeutung	Parameter	Wertebereich	Beispiel
RCX	Read Calibration	1.Stepvolumen in nl 2.Kalibriermodus	μ 1 D: 500...2000 μ 10 D: 5000...20000 μ 20 D: 7500...30000 0 = no calibration 1 = factory calibration 2 = user calibration	Senden: 1,RCX,1 Antwort: 1,HS,OK,5568,1 5568 nl per Step Werkskalibrierung
WCU	Write user calibration	1.Stepvolumen in nl 2. Security parameter 1234	0 = Reset user calibr. μ 1 D: 500...2000 μ 10 D: 5000...20000 μ 20 D: 7500...30000 1234	1,WCU,10000,1234

22 Cleaning and Maintenance

This instrument must be cleaned as follows to assure proper functioning and continued accuracy:

- Immediately if the piston becomes sticky or jammed (Motor is stuttering)
- Daily after use when these liquids are dispensed:

Solutions prone to crystallization

Alkaline solutions

Organic solvents such as aromatics, chlorinated Hydrocarbons and scintillation liquids

Inorganic oxidising solutions such as buret reagent

- Periodically in order to prolong the life of the instrument.
- When changing the reagent
- Prior to long-term storage

Caution: The ceramic parts are subject to binding or freezing if stored after improper cleaning.



Attention:

Be careful to avoid any personal injury from used chemicals. While and even after dispensing liquids, the instrument, the filling and the discharge tubes contain the used reagent. Make sure, that during cleaning and maintenance you avoid splashing chemicals. Wear face screens, protective gloves and protective clothes.

22.1 Preparation for cleaning

Empty the burette by pumping reverse ("Aspirate")

Place the mounted instrument with the bottle into a sink designated for that purpose.

Unscrew the instrument from the bottle and lift the instrument up far enough so that the filling/suction tube is no longer immersed.



Carefully tap the filling tube against the inside of the bottle so that the reagent moves back in. Carefully lift the instrument out of the bottle.

22.2 Cleaning procedure



Attention:

Never turn the hand wheel backward or with force. Be careful to avoid any reagent spillage.

	<p>Attention: Please comply with all safety and accident-prevention regulations applicable to laboratory work.</p>
	<p>Note: The burette is a measuring instrument and designed to provide high accuracy. To maintain this accuracy, we recommend that this instrument be tested at regular intervals, especially after any mishandling (such as hitting or dropping) of the instrument. Testing of the instrument is provided by the manufacturer for a small fee. Under § 4 of the Weights and Measuring Standards of 12.08.88 (Germany), it is required that regular tests and inspections be performed if the Contiburette is used as a medical measuring instrument.</p>

- 2 Put the suction tube into cleaning solution designated for that purpose
- 3 Clean the instrument by pumping. We recommend to pump a minimum volume of 50 times the amount of the strokevolume through the Contiburette for a good cleaning.
- 4 Insert the suction tube into distilled water (or other liquids for sterilisation) for rinsing.


type	strokevolume	min. cleaning volume
μ 1 D	20 μl	1 ml = 50 turns
μ 10 D	200 μl	10 ml = 50 turns
μ 20 D	400 μl	20 ml = 50 turns

22.3 Sterilization

Sterilization is only possible on a chemical basis, such as with the use of alcohol.

23 Dismantling and Disposal

23.1 Dismantling

	<p>Attention: burette and tubing may contain reagents, which endanger persons and material. Make sure of cleaning burette and tubing according Chapter 7 before removing tubing.</p>
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1. Switch the instrument off.

2. Disconnect the instrument from the mains.
3. Disconnect the tubing
4. Now the instrument may be removed from the working area.

23.2 Disposal



Please dispose of used instruments and defective components at your local recycling collection point. Prior to disposal, sort according to materials: metal, glass, plastic, etc. Also be sure to dispose of the packing material in an environmental-friendly manner.

24 Transport and Storage



Attention:

burette and tubing may contain reagents, which endanger persons and material. Make sure of cleaning burette head and tubing according Chapter 7 before removing tubing.

Prior to transport:

Switch the instrument off and unplug the power supply.

Remove tubing and cables

Do not subject the instrument to mechanical shocks or vibration during transporting.

Place the instrument and its parts in its original packaging or another suitable container to protect it during transport. Close the packaging with adhesive tape.

In case you do not use the original packaging please mark the box with the following notes:

- Glass symbol (handle with care, fragile)
- Umbrella (keep dry)
- Content (list of content)

Store the instrument in a dry environment. Please observe the specified conditions of the ambient:

Ambient temperature: 5-40°C
Max. relative air humidity: 80%

24.1 Return for repair or calibration



Note:

For a maximum of protection from health hazards caused by contaminated instruments clean and decontaminate the instrument carefully before returning.

We intend to give our staff a maximum of protection from health hazards caused by contaminated instruments. We therefore ask for your understanding that we cannot carry out any calibration / repair unless the

Declaration on the Absence of Health Hazards

is submitted completed and signed.

Please copy the declaration in the appendix and attach it completed and signed to the instrument when returned to your distributor or to the manufacturer.

Please provide us with the following supplementary information:

- Detected defect
- Media which the instrument has been used with

25 Warranty and Liability



The manufacturer agrees to correct for the original user of this product, either by repair, or at the manufacturer's discretion, by replacement, any defects in material or workmanship which develop within 24 months after delivery of this product to the original user. In the event of replacement, the replacement unit will be warranted for the remainder of the original twelve (24) months period of ninety (90) days, whichever is longer.

If this product should require service, contact your distributor or manufacturer for necessary instructions.

This warranty shall not apply if the defect or malfunction was caused by accident, neglect, unreasonable use, improper service, or other causes not arising out of defects in material or workmanship.

There are no warranties, expressed or implied, including, but not limited to, those of merchantability or fitness for a particular purpose, which extended beyond the description and period set forth herein.

The manufacturer's sole obligation under this warranty is limited to the repair or replacement of a defective product and the manufacturer shall not, in any event, be liable for any incidental or consequential damages of any kind resulting from improper use or misuse or possession of the product.

	<p>Attention: In case of malfunction do not try to carry out any repair works. The instrument does not consist of any part which may be serviced or maintained by the user. Any attempt by the user to repair the unit will cancel the warranty.</p>
	<p>Attention: Do not open the instrument. Any work on the electronics of the unit should only be done by knowledgeable and trained personnel.</p>

26 Technical Data



Attention:

The user has to determine, if the instrument is suitable for his specific application. If there are any further questions, contact your local dealer or the manufacturer.

EX 20 °C

Subdivision μ 1 D: 0,001 ml
 μ 10 D: 0,01 ml
 μ 20 D: 0,02 ml

Volume setting: μ 1 D: 0-50 ml
 μ 10 D: 0-500 ml
 μ 20 D: 0-750 ml

Flowrate: μ 1 D: 0.02-2 ml/min
 μ 10 D: 0.2-20 ml/min
 μ 20 D: 0.3-30 ml/min

Error limit:

Bürette [®] μ 10 D				
Dosing volume ml	accuracy		coefficient of variation	
	e _s	e _s	CV	s _r
	≤ ± %	≤ ± μl	≤ ± %	≤ ± μl
1,0	0,6	6	0,9	9
2,5	0,5	12	0,25	6
5,0	0,25	12	0,12	6
10,0 and more	0,12	12	0,06	6

According DIN EN ISO 8655-6 at same temperature (20 °C) von Contiburette, environment und aqua dest.

Ex 20° C

e_s = systematic error

CV = coefficient of variation

s_r = standard deviation

The resolution of the display is 0,01 ml

Operating Temperature Range: 10 – 40°C

Transport and Storing Temps: Maximum 60°C

Power supply: 9 V DC 1A

26.1 Chemical Resistance

Materials which come into contact with the dispensed Liquids:

Aluminium oxide Al₂O₃ (99,7%)

Sapphire hard, fused crystalline alumina - excellent chemical resistance to most commonly used fluids - mechanically resistant to common abrasives.

ETFE & FEP

Excellent chemical resistance characteristics.

27 Declaration on the Absence of Health Hazards

Please copy this declaration and attach it completed and signed to the instrument

Device designation:.....

Serial No.:

The Undersigned hereby declares:

- ◆ That the instruments have been carefully cleaned and decontaminated before shipment.
- ◆ That the instruments pose no danger through bacteriological, chemical, radiological or viral contamination.
- ◆ To be authorised to make declarations on behalf of the Institution represented.
- ◆ That he / she is aware that shipment of contaminated instruments is a violation of law, and that he / she personally and the Institution represented may be held liable for any damages caused by contaminated instruments.
- ◆ For calibrating service only: minor repairs of a value up to € 30,--+ VAT will be carried out and invoiced without further queries (cross out if not applicable).

Sender:

Firm / Laboratory:

Name

.....

Position

Address:

.....

Date, Signature

.....

Tel. for enquiry:

.....

.....

- ◆ In case of Return for Repair, please provide us with the following supplementary information:

Detected defect:

.....

Media which the instrument has been used with:

.....