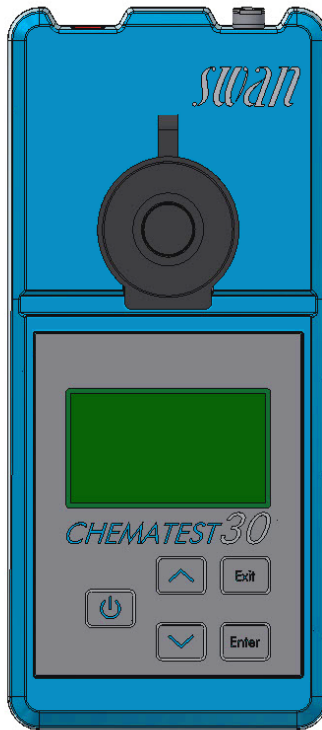


# Chematest 30

## Operator's Manual



SWISS  MADE

## Customer Support

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This manual applies to firmware V2.11 and higher.  
The information contained in this document is subject to change without notice.

## Table of Contents

<b>1. Safety Instructions</b>	<b>3</b>
<b>2. Product Description</b>	<b>5</b>
2.1. Instrument Overview	5
2.2. Keys	6
2.3. Display	7
2.4. CT App	8
<b>3. Initial Setup</b>	<b>9</b>
3.1. Selecting the Language	9
3.2. Setting Time and Date	9
3.3. Setting up ID and User List	9
3.4. Activating Expert Mode	10
3.5. Setting up Favorites List with Fixed Entries	10
3.6. Further Settings	10
<b>4. Photometry</b>	<b>11</b>
4.1. Basic Rules for Photometry	11
4.2. How To Use Reagents	12
4.3. Overview of Methods and Reagents	13
4.3.1 Chlorine	13
4.3.2 Other Disinfectants	13
4.4. Notes on Individual Methods	14
4.5. Performing a Photometric Measurement	15
4.6. Automatic Shutoff	18
<b>5. Additional Parameters</b>	<b>19</b>
5.1. Determination of Acid Binding Capacity ACD pH 4.3	19
<b>6. Data Management</b>	<b>20</b>
6.1. Display of Data History on the Chematest 30	20
6.2. Data Transfer to CT App	20
<b>7. Maintenance</b>	<b>21</b>
7.1. Photometer Verification	21
7.2. Cleaning the Instrument	22
7.3. Setting Time and Date	23
<b>8. Troubleshooting</b>	<b>24</b>
8.1. Instrument Errors	24
8.2. Photometric Measurements	25

**9. Menu Explanations ..... 26**

**10. Part Numbers ..... 32**

10.1. Reagents ..... 32

10.2. Accessories ..... 33

10.3. Spare Parts and Consumables ..... 34

**11. Technical Data ..... 37**

11.1. Instrument Specifications ..... 37

11.2. List of Photometric Methods ..... 38

11.3. Scope of Supply ..... 39

**Appendix: CT App..... 40**

# Operator's Manual

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## 1. Safety Instructions

For safe instrument operation, you must read and understand the instructions in this manual.

### Warning notices

The symbols used for safety-related notices have the following meaning:



#### WARNING

Severe injuries or damage to the equipment can occur if such warnings are ignored.

- ♦ Follow the prevention instructions carefully.



#### CAUTION

Damage to the equipment, minor injury, malfunctions or incorrect process can be the consequence if such warnings are ignored.

- ♦ Follow the prevention instructions carefully.



## Reagents

### WARNING



#### Multiple Hazards

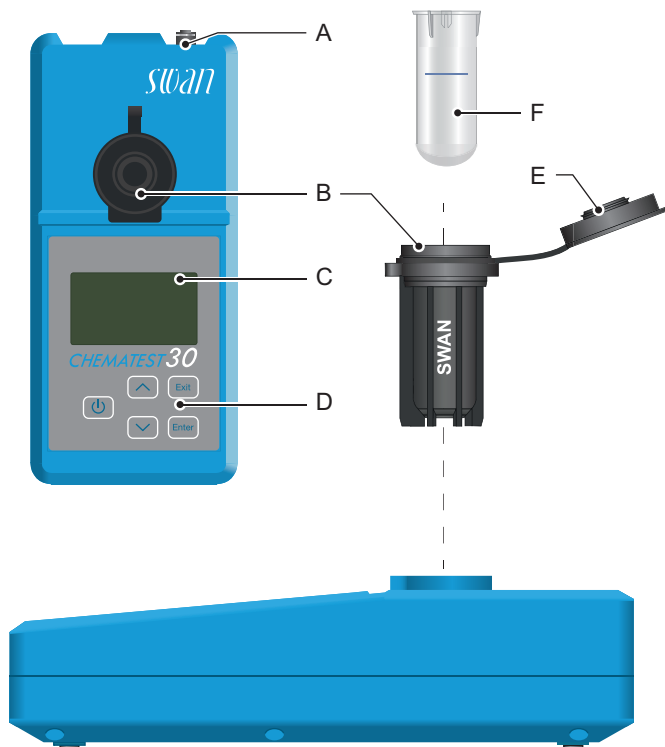
For safe handling of the reagents, you must read and understand the corresponding Material Safety Data Sheets (MSDS). These can be downloaded from **[www.swan.ch](http://www.swan.ch)**.

## General Handling Guidelines

- ♦ Only charge the instrument using a standard type A USB socket and the supplied USB cable.
- ♦ Protect from heat and splash water during charging.
- ♦ When no charging cable is connected, close the charging socket with the cover.
- ♦ Do not expose the instrument to direct sunlight or other sources of heat, especially when charging.
- ♦ The housing of the Chematest 30 must not be opened except for the housing parts specified in the maintenance chapter.
- ♦ The battery must only be replaced by authorized service personnel.

## 2. Product Description

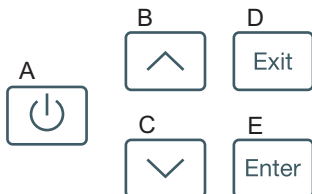
### 2.1. Instrument Overview



**A** Charging socket  
**B** Cuvette adapter  
**C** Display

**D** Keypad  
**E** Cuvette cap  
**F** Cuvette

## 2.2. Keys

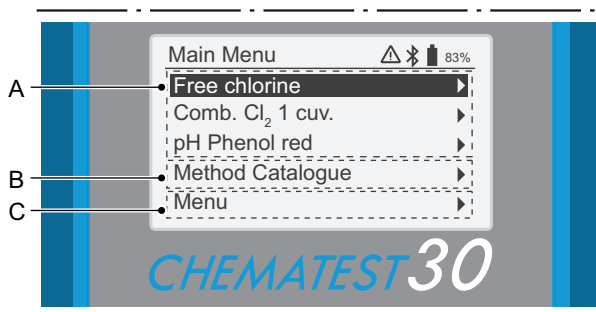


- A POWER**  
to power on or off the instrument
- B ARROW UP**  
to move up in a menu list and to increase digits
- C ARROW DOWN**  
to move down in a menu list and to decrease digits
- D EXIT**  
to exit a menu or command  
to move back to the previous menu level
- E ENTER**  
to open a selected sub-menu  
to accept an entry



## 2.3. Display

Once the instrument has started up, the main menu is displayed. The main menu is organized as follows:



### A Favorites list

The favorites list provides quick access to frequently used methods.

Depending on the configuration, it contains either

- ♦ the last three methods selected from the method catalogue [B] (default setting) or
- ♦ three methods that are defined by the user.

To define the methods that appear in the favorites list, proceed according to [Initial Setup, p. 9](#).

### B Method catalogue





List of all available methods.

### C Menu

Access to further instrument functions. Detailed descriptions of all functions can be found in chapter [Menu Explanations, p. 26](#).

## Symbols

The symbols displayed in the top right corner have the following meaning:

-  Alarm active. See <Menu>/<Diagnostics>/<Alarms> to see all active alarms.
-  Bluetooth activated
-  83% Battery status (remaining capacity in %)
-  Instrument is charging

## **2.4. CT App**

The CT App is a software for communication between the Chematest 30 and a mobile device or PC. The app includes the following functions:

- ♦ Transfer of the stored measurements and export to a CSV or Excel file
- ♦ Editing the user list
- ♦ Editing the ID list
- ♦ Switching between different language packs and language selection

For information on installing and using the app, see [Appendix: CT App, p. 40](#).

## 3. Initial Setup

### 3.1. Selecting the Language

Select the applicable language from <Menu>/<Settings>/<Miscellaneous>/<Language>.

If the required language is not available on the Chematest 30, the CT App can be used to install a different language pack. See [Language packs, p. 42](#) for details.

### 3.2. Setting Time and Date

Set time and date under <Menu>/<Maintenance>/<Set Time>.

### 3.3. Setting up ID and User List

#### Selecting the attributes to be saved


Navigate to <Menu>/<Settings>/<Identification>/<Attribute> and select which attributes should be saved with each measurement:

- ♦ none
- ♦ user
- ♦ ID or
- ♦ user and ID.

#### Entering the ID and user list

If applicable, enter the user and ID lists. The user and ID lists can be edited using the CT App:

 Edit ID list

 Edit User list

Alternatively, the user and ID lists can be entered directly on the Chematest 30 via the menu items

<Menu>/<Settings>/<Identification>/<ID List> and  
<Menu>/<Settings>/<Identification>/<List of Users>.

### 3.4. Activating Expert Mode

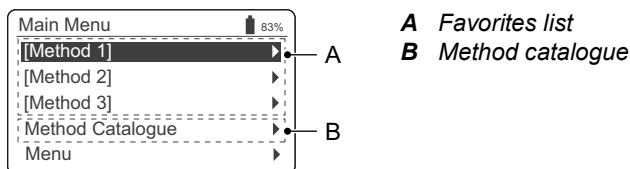
The user can choose between two types of method guidance for photometric measurements. This setting can be changed under <Menu>/<Settings>/<Miscellaneous>/<Expert mode>.

- ♦ Inactive (default setting):  
In this mode, the Chematest 30 displays detailed on-screen instructions. Recommended for inexperienced users.
- ♦ Active:  
In this mode, the Chematest 30 displays the instructions in shortened form and requires as few confirmations from the user as possible.

### 3.5. Setting up Favorites List with Fixed Entries

By default, the instrument is configured to display the last three methods selected from the method catalogue [B] in the favorites list. With this configuration, the favorites list is automatically adjusted each time a method is selected from the method catalogue.

Alternatively, it is possible to set up a favorites list with fixed entries. To do this, perform the following steps:



- 1 Select the required methods from the method catalogue [B] in reverse order: First method 3, then method 2, then method 1. The measurements can be canceled immediately after selection by pressing [Exit].
- 2 Navigate to <Menu>/<Settings>/<Miscellaneous>/<Method save> and select "No".  
⇒ *The favorites list contains the three methods just selected and will remain in this state.*

### 3.6. Further Settings

Detailed descriptions of all instrument settings can be found in chapter Menu explanation, subsection [4 Settings, p. 29](#).

## **4. Photometry**

### **4.1. Basic Rules for Photometry**

The precision and repeatability of a photometric determination depends greatly on the operator's technique. Please observe the following rules:

#### **Always use clean utensils**

Residues from previous measurements can falsify the results. The cuvette cap and all utensils such as syringes or cuvettes must be rinsed with clean water after each measurement. Rinse the cuvette additionally with the sample 2 to 3 times before each measurement. Remove the cuvette from the adapter before emptying it. Otherwise, it may fall out of the adapter.

#### **Keep the outside of the cuvette clean and dry**

Keep the cuvette free of fingerprints and dry the outside of the cuvette before inserting it into the cuvette adapter.

If condensation occurs on the cuvette (cold sample in a warm environment), wipe it off and carry out the measurement as quickly as possible.

#### **Observe proper sampling**

Take the water samples about 10 cm below the water surface and about 50 cm from the edge of the pool. Allow as little time as possible to elapse between taking the sample and making the measurement.

#### **Observe proper dosing and mixing**

Use the 10 ml syringe for exact dosing of the sample. Rinse the syringe several times with the sample. When filling the syringe, make sure that there are no air bubbles and that the volume is 10 ml.

The order in which sample and reagents are added to the cuvette varies from method to method. If the reagents are added to the cuvette after the sample, special care must be taken to ensure that the sample and the reagents mix well.

#### **Observe reaction times**

With most methods, the measurement can be carried out immediately after the reagents have been added and mixed with the sample. If a reaction time is required, this is indicated on the screen.

## **4.2. How To Use Reagents**

Whenever possible, Swan supplies reagents in liquid form, as used in professional laboratories. We believe that the disadvantage of shorter shelf life is more than compensated for by the ease of use compared to tablets or powders.

The OXYCON-DPD reagent is delivered in two small bottles to increase shelf life. One contains DPD as powder (DPD 1a), the other contains the solvent (DPD 1b). Before use, fill the contents of DPD 1b into DPD 1a, close the bottle with the drop counter and shake firmly until the DPD powder has completely dissolved. Write the mixing date on the bottle. The prepared reagent can be stored at room temperature for 2 months.

The reagents OXYCON START and OXYCON 2 have a shelf life of at least 6 months. They will last a year if handled carefully and stored at 5 °C. With the blister pack, all reagents can be taken out of the case at once and placed in the refrigerator.

To dispense the necessary number of drops, hold the bottle at a 45° angle. Before proceeding with the measurement, make sure that the reagents are well mixed with the sample.

The Chematest 30 is calibrated against Swan's OXYCON reagents. Accuracy may suffer severely if reagents from other sources are used.

## 4.3. Overview of Methods and Reagents

### 4.3.1 Chlorine

Method	Reagent 1	Reagent 2	Reagent 3	Result(s) shown
Free chlorine	Oxycon Start	Oxycon DPD	---	Free chlorine in ppm Cl <sub>2</sub>
Total chlorine	Oxycon 2	Oxycon DPD	---	Total chlorine in ppm Cl <sub>2</sub>
Combined chlorine (1 cuvette)	Oxycon Start	Oxycon DPD	Oxycon 2	Free chlorine (fac), total chlorine (tc) and combined chlorine (cc) in ppm Cl <sub>2</sub> cc = tc - fac
Combined chlorine (2 cuvettes)	Cuvette 1: Measurement of free chlorine			Free chlorine (fac), total chlorine (tc) and combined chlorine (cc) in ppm Cl <sub>2</sub> cc = tc - fac
	Oxycon Start	Oxycon DPD	---	
	Cuvette 2: Measurement of total chlorine			
	Oxycon 2	Oxycon DPD	---	
Free chlorine in presence of chlorine dioxide or bromine	Measurement A			Free chlorine in ppm Cl <sub>2</sub> fac = A - B
	Oxycon Start	Oxycon DPD	---	
	Measurement B			
	Oxycon GL	Oxycon Start	Oxycon DPD	

### 4.3.2 Other Disinfectants

Method	Reagent 1	Reagent 2	Reagent 3	Result(s) shown
Ozone	Oxycon 2	Oxycon DPD	---	ppb as O <sub>3</sub>
Ozone in presence of chlorine	Measurement A			ppb as O <sub>3</sub> O <sub>3</sub> = A - B
	Oxycon 2	Oxycon DPD	---	
	Measurement B			
	Oxycon GL	Oxycon 2	Oxycon DPD	
Bromine	Oxycon Start	Oxycon DPD	---	ppm as Br <sub>2</sub>
Iodine	Oxycon Start	Oxycon DPD	---	ppm as I <sub>2</sub>
Chlorine dioxide	Oxycon Start	Oxycon DPD	---	ppm as ClO <sub>2</sub>

## 4.4. Notes on Individual Methods

### Free chlorine and cyanuric acid

When free chlorine is determined in the presence of cyanuric acid, two forms of chlorine are measured: free chlorine and chlorine bound to cyanuric acid. To determine the disinfection capacity of the water, the concentration of cyanuric acid must also be measured and the result of the chlorine determination must be corrected as follows:

Cyanuric acid	20 mg/l	30 mg/l	50 mg/l	70 mg/l
Percentage of free chlorine in the measured value	50%	43%	26%	19%

### Combined chlorine

The method catalogue of the Chematest 30 contains two options for measuring combined chlorine:

- ♦ with one cuvette or
- ♦ with two cuvettes.

Apart from the fact that one or two cuvettes are used, the two methods are identical. Measuring with only one cuvette is faster and requires less reagents. However, some standards require measurement with two cuvettes. The selection of the method should be based on the site-specific requirements.

### Ozone

Ozone decomposes in a very short time and is usually only present in traces. It is essential to rinse the cuvette three times with the ozone-containing sample before starting the measurement. Carry out the further steps as quickly as possible, but work meticulously.



## 4.5. Performing a Photometric Measurement

### WARNING




#### Multiple Hazards

For safe handling of the reagents, you must read and understand the corresponding Material Safety Data Sheets (MSDS). These can be downloaded from **[www.swan.ch](http://www.swan.ch)**.

#### General

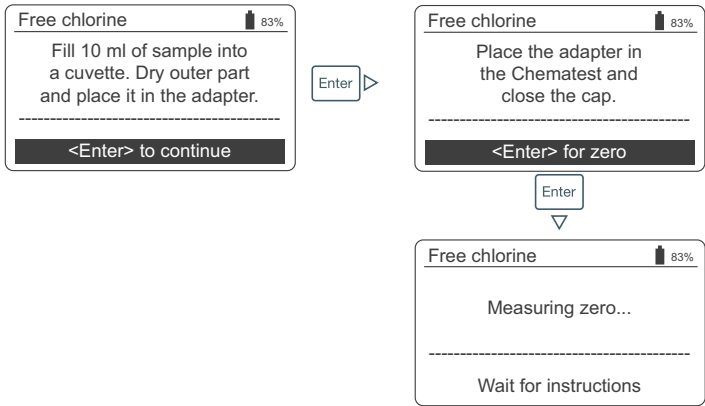
A photometric measurement with the Chematest 30 consists of the following steps:

- ♦ Step 1: Zero measurement
- ♦ Step 2: Addition of reagents and subsequent measurement (for some methods with further intermediate steps and/or reaction times)
- ♦ Step 3: Display and storage of the measured results. For details on the result screen, see example on  17.

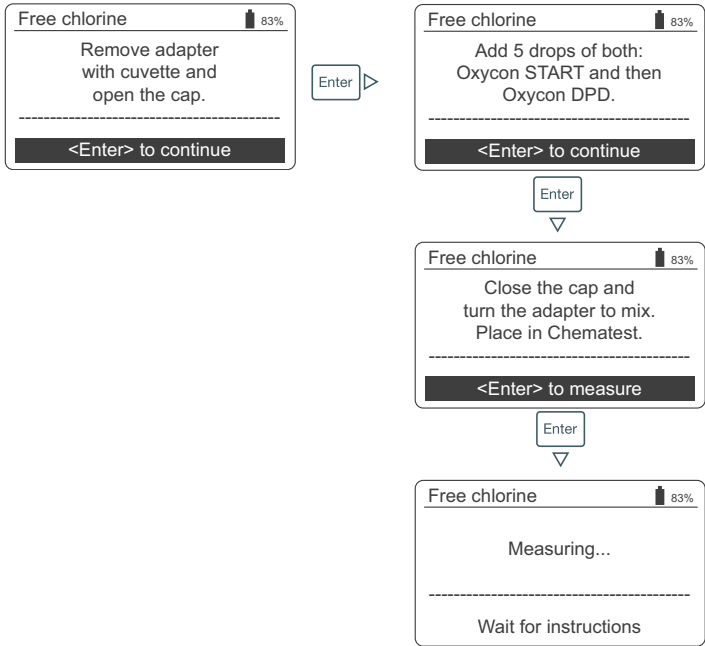
All photometric measurements are completely menu-driven. Just select the corresponding method on the main screen or in the menu catalogue and follow the instructions on the screen.

**Example:  
Measurement  
of free chlorine**

**Step 1: Zero measurement**



**Step 2: Addition of reagents and subsequent measurement**



### Step 3: Display and storage of the measured results

Free chlorine 83%

0.26 ppm

<Enter> to save

- ♦ Pressing [Enter] saves the measurement in the data history.  
⇒ *The measurement is initially saved without ID and user.*

**Note:** Pressing [Exit] discards the measurement.

Free chlorine 83%

Please select

ID ID1

User User1

<Enter> to continue

⇒ Depending on the configuration, a selection dialog for user and/or ID is displayed or the summary screen is displayed directly. This can be set under [Attribute](#), p. 29.

Free chlorine 83%

Please select

ID ID1

User User1

<Enter> to continue

- ♦ If applicable:
  - Select an ID from the list.
  - Select a user from the list.

**Note:** If you press [Exit] at this point, you return to the main screen, saving the measurement without user and ID.

Free chlorine 83%

Please select

User User 1

ID ID1

<Enter> to continue

- ♦ Select "<Enter> to continue" and confirm with [Enter].  
⇒ *The ID and the user are added to the entry in the data history.*

Free chlorine 83%

Please select

ID ID1

User User1

<Enter> to continue

Summary 83%

Date, Time 05.11.18 15:21

Free chlorine 0.26 ppm

<Enter> to finish

- ♦ Press [Enter] to return to the main screen.

## **4.6. Automatic Shutoff**

When the instrument is waiting for a user input (e.g. when the measurement result is displayed) and no key is pressed for 10 minutes, the instrument shuts off automatically to save power. This affects the storage of measurement results in the same way as pressing the [Exit] key. See [Step 3: Display and storage of the measured results, p. 17](#) for details.

## 5. Additional Parameters

### 5.1. Determination of Acid Binding Capacity ACD pH 4.3

<b>Required utensils</b>	Use the following utensils from the Chematest 30 carrying case: <ul style="list-style-type: none"><li>♦ cuvette</li><li>♦ cuvette adapter</li><li>♦ syringe</li></ul>
<b>Procedure</b>	<ol style="list-style-type: none"><li>1 Place the cuvette in the cuvette adapter.</li><li>2 Empty 10 ml of sample into the cuvette using the syringe.</li><li>3 Add 5 drops of Oxycon-IN.</li><li>4 Close the cap of the cuvette adapter and turn it over to mix. ⇒ <i>The solution turns blue.</i></li><li>5 Add Oxycon-CH drop by drop and count the exact number of drops. Mix after each drop and check the sample color. ⇒ <i>First, the sample color changes to light gray. After the required number of drops has been added, the solution turns light red.</i></li><li>6 Once the sample has turned light red, stop reagent addition.</li><li>7 From the number of drops, calculate the carbonate hardness according to the conversion factors below.</li></ol>
<b>Conversion factors</b>	Each drop of Oxycon-CH corresponds to one German degree of carbonate hardness. 1 °dH German degree corresponds to: <ul style="list-style-type: none"><li>♦ 1,25 °eH English degrees</li><li>♦ 1.78 °fH French degrees</li><li>♦ 17.8 mg CaCO<sub>3</sub> per liter</li><li>♦ 0.357 mmol/l acid binding capacity K<sub>S</sub> 4.3</li><li>♦ 0.18 mmol/l alkaline-earth ions</li></ul>

## 6. Data Management

Up to 2700 measurements are memorized. Then the oldest measurement is deleted to save the newest one.

### 6.1. Display of Data History on the Chematest 30

Previous measurements can be displayed under <Menu>/<Data Storage>/<Data History>.

Scrolling  
through the  
data history

Data History	4	83%
Date, Time	20.03.19 07:59	↑
Free chlorine	0.26 ppm	
ID	ID 1	
User	User 1	
		↓

- ◆ Press the ARROW DOWN and ARROW UP keys to scroll through the data history.



Two-page  
entries

Data History	5	83%
Date, Time	20.03.19 08:25	↑
Free chlorine	0.22 ppm	
Total chlorine	0.26 ppm	
Comb. chlorine	0.04 ppm	
<Enter> for more		↓

- ◆ <Enter for more> indicates that the selected entry consists of two pages. Use the ENTER key to toggle between the pages.



Data History	5	83%
ID	ID 1	↑
User	User 1	
<Enter> for more		↓

### 6.2. Data Transfer to CT App

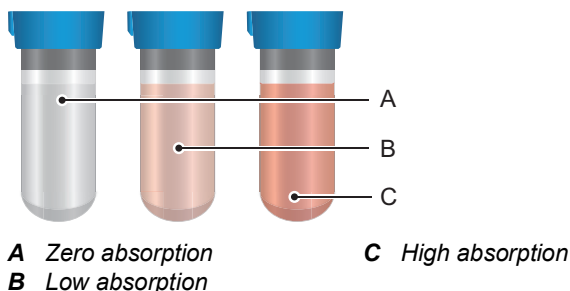
The measurement history can be transferred to a mobile device or PC and converted into an Excel or CSV file using the CT App.

⇓ Start of data transfer and conversion

## 7. Maintenance

### 7.1. Photometer Verification

**Overview** The verification kit contains two reference cuvettes (labeled “Low” and “High”) with certified reference absorptions of approximately 0.3 and 1.5 and an additional cuvette for zero point determination. The exact values are specified in the enclosed calibration certificate.



**Reference values** Prior to performing the first verification and after each recertification, set the reference values for the cuvettes “Low” and “High” in <Menu>/<Settings>/<Sensors>/<Photometer>.

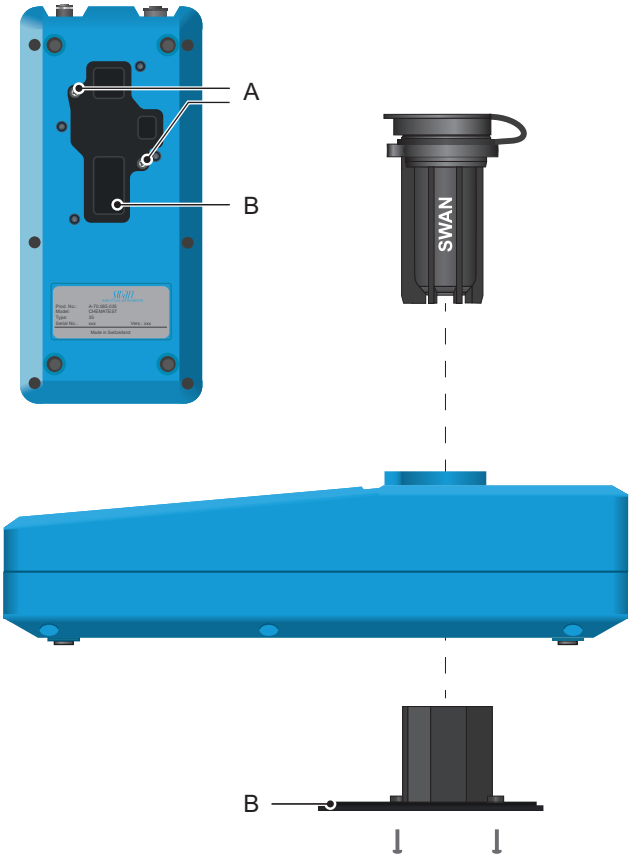
**Verification procedure** Before each use, check the expiration date on the calibration certificate. If the expiration date has passed, send the verification kit to Swan for recertification.  
To start the verification, navigate to <Menu>/<Maintenance>/<Verification>/<Photometer>. Select cuvette “Low” and follow the instructions on the screen.  
Repeat the same procedure with the cuvette “High”.

**Verification history** Can be reviewed in <Menu>/<Data Storage>/<Ver. History>. Up to 64 verifications are memorized. Then the oldest verification is deleted to save the newest one.

7.2. Cleaning the Instrument

Photometer compartment

The photometer compartment can be easily cleaned if water or reagents have been spilled. Turn the unit to the rear, loosen the two screws [A] and remove the cover [B]. Use a soft, lint-free cloth moistened with water to clean the photometer compartment.



A Screws

B Photometer cover

Outside of the housing

If reagents drip onto the housing, wipe them off quickly with a soft cloth moistened with water.



### **7.3. Setting Time and Date**

The correct setting of the clock is important for the identification of stored measurements. It is therefore recommended to check the date and time setting regularly.

The time and date can be set under the menu item <Menu>/<Maintenance>/<Set Time>.



## 8. Troubleshooting

### 8.1. Instrument Errors



When this symbol is displayed at the top of the screen, the instrument has an error. Navigate to <Menu>/<Diagnostics>/<Alarms>/<Pending errors> to see the error message.

Error	Description	Corrective action
<b>E001</b>	Bluetooth	<ul style="list-style-type: none"> <li>– Switch the instrument on and off and check if the error disappears.</li> <li>– Call support.</li> </ul>
<b>E002</b>	IC ADC	<ul style="list-style-type: none"> <li>– Call support.</li> <li>– Send the instrument back to Swan.</li> </ul>
<b>E003</b>	Factory data	<ul style="list-style-type: none"> <li>– Call support.</li> <li>– Send the instrument back to Swan.</li> </ul>
<b>E004</b>	Invalid time	<ul style="list-style-type: none"> <li>– Set time and date in &lt;Menu&gt;/&lt;Maintenance&gt;/&lt;Set Time&gt;.</li> </ul>
<b>E017</b>	Events erased	<ul style="list-style-type: none"> <li>– This message informs that the measured data have been deleted by calling the “Set to factory defaults” function.</li> <li>– No action necessary.</li> </ul>

## 8.2. Photometric Measurements

### Measurement cannot be started

Error message "Operation not possible! Consult the manual." is displayed

Possible cause	Corrective action
Error E002, E003 or E004 is present	♦ See <a href="#">Instrument Errors, p. 24</a> for details.

### Zero measurement fails

Error message "Operation not possible! Signal out of range. Consult the manual." is displayed.

Possible cause	Corrective action
Extraneous light	♦ Make sure that the cuvette cap is properly closed.
Cuvette dirty	♦ Clean and rinse the cuvette.
Residues of reagents	♦ Clean and rinse the cuvette.
Lenses dirty	♦ Open the photometer compartment and clean all lenses, see <a href="#">Cleaning the Instrument, p. 22</a> .
Turbid or bubble-containing sample	♦ Avoid formation of bubbles when filling the sample into the cuvette. ♦ Check sample / sampling point. ♦ Repeat measurement.

### Measurement after adding reagents fails

Error message "Operation not possible! Signal out of range. Consult the manual." is displayed.

Possible cause	Corrective action
Extraneous light	♦ Make sure that the cuvette cap is properly closed.
Cuvette dirty	♦ Clean and rinse the cuvette.
Concentration or pH value outside the measuring range of the instrument	♦ Consult <a href="#">Instrument Specifications, p. 37</a> . ♦ Repeat measurement.
Reagents expired	♦ Use new reagents.
Measured value below zero value	♦ Avoid formation of bubbles when filling the sample into the cuvette. ♦ Repeat measurement.

## 9. Menu Explanations

Selecting <Menu> on the main screen displays the following submenus:

- ◆ Menu 1 Data Storage
- ◆ Menu 2 Diagnostics
- ◆ Menu 3 Maintenance
- ◆ Menu 4 Settings

The functions and settings of each menu are explained in the following sections.

### 1 Data Storage

#### 1.1 Data History

Displays saved measurement data. Each record includes the following data:

- ◆ Date, time
- ◆ Measured value(s)
- ◆ ID
- ◆ User

If the fields ID and User contain the text "<Empty>", the assignment of the attributes to the measurement was skipped by the user or deactivated under [4.2 Identification, p. 29](#).

Up to 2700 measurements are memorized. Then the oldest measurement is deleted to save the newest one.

#### 1.2 Verification History

**Photometer** Displays previous photometer verifications. Each record includes the following data:

- ◆ Date, time
- ◆ Reference value
- ◆ Deviation
- ◆ User
- ◆ Verification passed/failed

Up to 64 verifications are memorized. Then the oldest verification is deleted to save the newest one.

## 2 Diagnostics

### 2.1 Alarms

Pending errors	Provides the list of active errors with their status (active, acknowledged). If an active error is acknowledged, it is moved to the Message List.
Message List	Shows the error history: Error code, date and time of issue and status (active, acknowledged, cleared). 64 errors are memorized. Then the oldest error is cleared to save the newest error. The meaning of each error message is explained in section <a href="#">Instrument Errors</a> , p. 24.

### 2.2 Identification

*Designation:* Designation of the instrument, e.g. Chematest 30.  
*S/N:* Serial number of the instrument.  
*Electronics:* Installed electronics version.  
*Firmware:* Installed firmware version.  
*Bootloader:* Installed bootloader version.  
*Language Pack:* Installed language pack.  
*Factory test:* Test date of the instrument.

### 2.3 Sensors

Photometer	Displays the raw value of the photo diode in volts.
Battery	Displays information about the state of the battery.

### 2.4 Bluetooth

Device name	ID that is visible to other Bluetooth-enabled devices.
State	Status of Bluetooth communication. <ul style="list-style-type: none"> <li>♦ <i>Disabled:</i> Bluetooth is switched off.</li> <li>♦ <i>Advertising:</i> The instrument is waiting for a connection request from another device.</li> <li>♦ <i>Connected:</i> A connection with another device has been established.</li> </ul>
MAC	Hardware address of the Chematest 30, which serves as a unique identification feature during Bluetooth communication.
Firmware	Firmware version of the Bluetooth module.
Hardware	Hardware version of the Bluetooth module.

## **3 Maintenance**

### **3.1 Verification**

Photometer    See [Photometer Verification, p. 21.](#)

### **3.2 Set Time**

Adjust date and time.

## 4 Settings

### 4.1 Sensors

- Photometer      Enter the reference values of the verification cuvettes according to the enclosed calibration certificate.  
Range: 0.000–2.000

### 4.2 Identification

Optionally, each measurement can be assigned an ID (e.g. for sampling points) and/or a user name. If activated, the ID and/or user is queried at the end of each measurement.

- Attribute      Select which attributes are to be queried:

Attribute
None
ID
User
ID&User

- ID List      Enter up to 10 IDs.  
List of Users      Enter up to 10 user names.

### 4.3 Units

- Disinfectants      Set the unit for disinfectants (all except ozone) and cyanuric acid.

Disinfectants
ppm
mg/l

- Ozone      Set the unit for ozone.

Ozone
ppb
µg/l
ppm
mg/l

## 4.4 Miscellaneous

**Language** Select the language from the list. The choice of languages varies depending on the installed language pack.

Language pack	Supported languages
Europe-1	German, English, French, Spanish, Italian
Europe-2	Danish, English, Swedish
America	Portuguese, English, French, Spanish
Asia-1	Chinese, English, Turkish

**Factory Setting** The instrument can be reset to factory default values in three different ways:

Set defaults
No
Cal. + Ver.
Data History
Completely

- ♦ **Cal. + Ver.:** Deletes the verification history (photometer verification). All other values are kept in memory.
- ♦ **Data History:** Deletes all recorded measurements. All other values are kept in memory.
- ♦ **Completely:** Deletes all recorded measurements and verifications and sets all settings back to default values.

**Expert mode** Choose between detailed instructions and expert mode for fast workflow.

Expert Mode
Inactive
Active



**Method save** Defines the behavior of the favorites list on the main screen. For details, see [Initial Setup, p. 9](#).

Method save
No
Yes

- ♦ **No:** The favorites list remains unchanged when a method is selected from the method catalogue.
- ♦ **Yes:** The favorites list is automatically adjusted every time a method is selected from the method catalogue.

**Password** Password: Select a password different from 0000 to prevent unauthorized access to the following menus:

- ♦ Maintenance
- ♦ Settings

Each menu can be protected by a different password. If you forgot the passwords, contact the closest SWAN representative.

**LCD Contrast** Adjusts the contrast of the LCD display.

- ♦ EV: Fine adjustment
- ♦ SRR: Coarse adjustment

## 4.5 Bluetooth

**Bluetooth** Activates the Bluetooth connection to connect to the CT App.

Bluetooth
Active
Inactive

## 10. Part Numbers

### Download MSDS

The current Material Safety Data Sheets (MSDS) for the reagents listed below are available for downloading at [www.swan.ch](http://www.swan.ch).

### 10.1. Reagents

#### Reagent sets

Part no.	Product name	Allows measurement of
A-85.590.200	Oxycon Pool	<ul style="list-style-type: none"> <li>♦ Free chlorine</li> <li>♦ pH (phenol red)</li> </ul>
A-85.590.300	Oxycon Chlor	<ul style="list-style-type: none"> <li>♦ Free chlorine</li> <li>♦ Total chlorine</li> <li>♦ Combined chlorine</li> </ul>
A-85.590.400	Oxycon Des	<ul style="list-style-type: none"> <li>♦ Free chlorine</li> <li>♦ Free chlorine in presence of chlorine-dioxide or bromine</li> <li>♦ Chlorine-dioxide</li> <li>♦ Bromine</li> <li>♦ Iodine</li> </ul>
A-85.590.500	Oxycon Ozone	<ul style="list-style-type: none"> <li>♦ Ozone</li> <li>♦ Ozone in presence of free chlorine</li> </ul>
A-85.580.300	Oxycon CA	<ul style="list-style-type: none"> <li>♦ Cyanuric acid</li> </ul>
A-85.580.100	Oxycon pH	<ul style="list-style-type: none"> <li>♦ pH (phenol red)</li> </ul>
A-85.610.100	Oxycon Carbonate Hardness	<ul style="list-style-type: none"> <li>♦ Carbonate hardness</li> </ul>

#### Reagents

Part no.	Product name	Description
A-85.510.100	Oxycon Start	Buffer solution
A-85.510.200	Oxycon DPD (1a + 1b)	DPD
A-85.510.300	Oxycon 2	Potassium iodide
A-85.580.200	Oxycon GL	Reagent for masking of free chlorine and ozone

## 10.2. Accessories

Part no.	Description
A-85.153.581	Veri-Kit CT, type P



### 10.3. Spare Parts and Consumables

Part no.	Description
A-70.065.204	Carrying case for Chematest 30
A-70.065.632 <sup>1)</sup>	Cuvette adapter P/T CT3x/42
A-70.065.639 <sup>1)</sup>	Cuvette CT, type P, plastic
A-70.065.640 <sup>1)</sup>	Cuvette CT, type P, plastic, 10x
A-70.065.635 <sup>1)</sup>	Cuvette CT, type P, glass
A-70.065.636 <sup>1)</sup>	Cuvette CT, type P, glass, 10x
A-70.065.633	Spare part set consisting of: <ul style="list-style-type: none"> <li>♦ 1 dropper bottle 125 ml</li> <li>♦ 3 disposable syringes 10 ml</li> <li>♦ 3 disposable syringes 20 ml</li> </ul>
C-85.520.040	Cleaning wipes for cuvette (100-pack)
A-70.065.600	Brush for cuvette
C-88.917.200	USB charging cable
C-89.511.010	Blister pack for reagent bottles

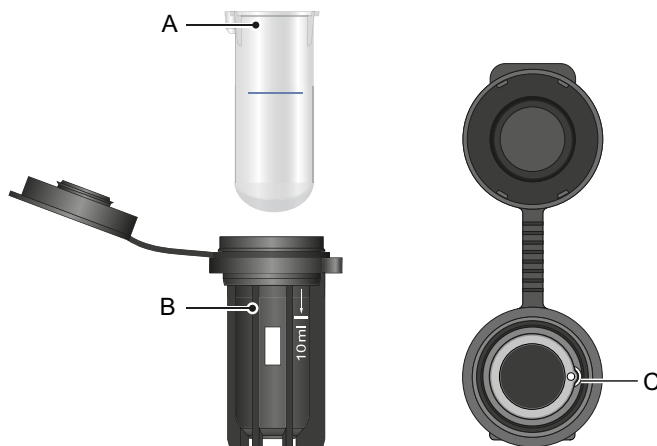
<sup>1)</sup>See [Notes on compatibility, p. 35](#).

### Notes on compatibility

With the introduction of hardware V3-A (see type label on the back of the Chematest 30), the cuvette adapter and the cuvette have been modified. Both versions of the cuvette adapter are compatible with all versions of the Chematest 30, but must be combined with the correct version of the cuvette.

### New version with coding ring

The new version of the cuvette holder and the cuvette can be recognized by the following features:



**A** Cuvette with coding ring

**B** White 10 ml marking and Swan lettering on cuvette adapter

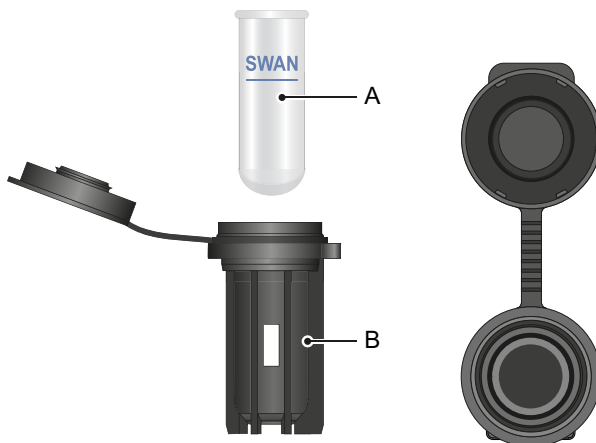
**C** Recess in the cuvette adapter

The new cuvette adapter (A-70.065.632) can be combined with the following items from the spare parts list:

Part no.	Description
A-70.065.639	Cuvette CT, type P, plastic
A-70.065.640	Cuvette CT, type P, plastic, 10x
A-70.065.635	Cuvette CT, type P, glass
A-70.065.636	Cuvette CT, type P, glass, 10x

Old version  
without  
coding ring

The old version of the cuvette holder and the cuvette can be recognized by the following features.



**A** Cuvette without coding ring

**B** Cuvette adapter without printed text

The old cuvette adapter (no longer available) can be combined with the following items:

Part no.	Description
A-70.065.603	Glass cuvette
A-70.065.631	Glass cuvettes, 10-pack

## 11. Technical Data

### 11.1. Instrument Specifications

<b>Housing</b>	IP67 rated
<b>Power supply</b>	<p>Rechargeable lithium-ion battery.</p> <p>Only charge the instrument using a standard type A USB socket and the supplied USB cable. Protect from heat and splash water during charging (not IP67).</p> <p>Charging time: approximately 3 hours.</p> <p>Battery life: approximately 5000 measurements or one week of standby operation.</p> <p>Automatic shutoff after 10 minutes of inactivity.</p>
<b>Conditions for operation</b>	<p>Temperature: 0–45 °C</p> <p>Humidity: 0–100% relative humidity (non-condensing)</p>
<b>Conditions for storage</b>	<p>Temperature: –20–60 °C</p> <p>For reagents, separate storage conditions apply. See label on packaging.</p>
<b>Dimensions and weight</b>	<p>Instrument:</p> <p>10 x 7 x 22 cm, 390 g</p> <p>Carrying case with content:</p> <p>40 x 10 x 38 cm, 1.7 kg</p>

## 11.2. List of Photometric Methods

	Method	Range	Issued values
Chlorine	♦ Free chlorine	0–10 ppm	Free chlorine
	♦ Total chlorine	0–10 ppm	Total chlorine
	♦ Combined chlorine using one cuvette	0–10 ppm	Free chlorine (fac), total chlorine (tc), combined chlorine (cc)
	♦ Combined chlorine using two cuvettes	0–10 ppm	Free chlorine (fac), total chlorine (tc), combined chlorine (cc)
	♦ Free chlorine in presence of chlorine-dioxide or bromine	0–10 ppm	Free chlorine
Other disinfectants	♦ Ozone	0–4000 ppb	Ozone
	♦ Ozone in presence of free chlorine	0–4000 ppb	Ozone
	♦ Bromine	0–23 ppm	Bromine
	♦ Iodine	0–35 ppm	Iodine
	♦ Chlorine-dioxide	0–19 ppm	Chlorine-dioxide
Other parameters	♦ Cyanuric acid	0–100 ppm	Cyanuric acid
	♦ pH (phenol red)	6.5–8.0	pH



### 11.3. Scope of Supply



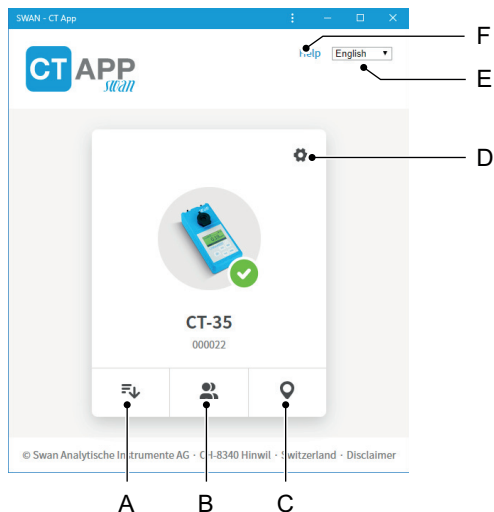
- |   |  |
|---|--|
| <b>A</b> Carrying case                    | <b>F</b> 2 cuvettes  |
| <b>B</b> 10 ml syringe                    | <b>G</b> Blister pack for reagent bottles                    |
| <b>C</b> Dropper bottle for rinsing water | <b>H</b> Chematest 30  |
| <b>D</b> Brush for cuvette cleaning       | <b>I</b> USB charging cable (located under the Chematest 30) |
| <b>E</b> Wipes for cuvette cleaning       |  |

## Appendix: CT App

- Requirements** The mobile device or PC must be equipped with the following software and hardware:
- ♦ Web browser: Google Chrome version 80 or higher or Microsoft Edge version 80 or higher
  - ♦ Operating system: Windows 10, Android 7.0 or macOS
  - ♦ Bluetooth 4.0 interface
- Installation** To install the CT App, proceed as follows:
- 1 Start the Chrome or Edge browser and enter [ctapp.swan.ch](http://ctapp.swan.ch) in the address field.
  - 2 Install the CT App by clicking the appropriate icon or menu item in the browser:
    - ♦ On a Windows PC, click the ⊕ icon in the title bar. Confirm by clicking <Install> in the next dialog.
    - ♦ On an Android device, click <Add Swan CT-App to the home screen> at the bottom of the app. Confirm by clicking <Add> in the next dialog.

⇒ *The app can now be used offline. Depending on your operating system and browser, a shortcut has been created in the start menu or on the home screen of the operating system.*
- Establish Connection**
- 1 Enable Bluetooth on the mobile device or PC.
  - 2 Enable Bluetooth on the Chematest 30 by navigating to <Settings>/<Bluetooth>/<Bluetooth> and selecting “Active”.
  - 3 In the CT App, click on the <Connect device> button.
  - 4 Select the instrument from the list and click on the <Pair> button.

⇒ *The main screen of the CT App is displayed.*

**CT App  
main screen****A Extract records**

Transfers the measurement history of the Chematest 30 to the CT App and exports it to a CSV or Excel file.

**B Edit users**

Allows to modify the user list of the Chematest 30.

**C Edit locations**

Allows to modify the ID list of the Chematest 30.

**D Settings**

Here you can install a different language pack, select a language or disconnect from the Chematest 30.

**E Language**

Sets the language of the CT App.

**F Help**


Opens the download area of the Swan website in a browser window. There you can download the latest version of this manual.

**Language packs**

The menu languages of the Chematest 30 are organized in language packs that can be installed by the user via the CT App.

- ♦ A language pack contains up to 5 languages.
- ♦ One language pack can be installed at a time.

**List of all supported languages**

A list of all supported menu languages across all language packs can be displayed in the CT App under  / <Change language>. For this, the Chematest 30 must be connected to the CT App.



**A** Example: List of all menu languages supported by firmware V2.00

Select the desired language from the list. If the language is part of the currently installed language pack, it can be set directly by clicking <Save>.

If the desired language requires installation of a different language pack, the <Download> button will appear next to the language. A click on <Download> and then on <Install> installs the appropriate language pack.

**Note:** An internet connection is necessary to download and install a language pack.

## Regulatory Information



This product contains a third party Bluetooth module, which has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.  
Contains FCC ID: T9JRN4020



This product meets all requirements of the relevant EU directives.  
The declaration of conformity is available from Swan on request.



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[illegible]

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