Operating Instructions
Memocheck Sim CYP03D

Testing tool for analysis measuring points

Endress+Hauser [EH]

People for Process Automation
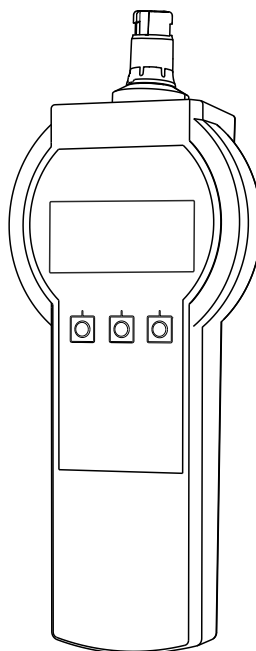
Declaration of Conformity

EU-Konformitätserklärung
EU-Declaration of Conformity
Déclaration UE de Conformité

Endress+Hauser
People for Process Automation

CE

Company	**Endress+Hauser Conducta GmbH+Co. KG**
	Dieselstraße 24, 70839 Gerlingen, Germany
	erklärt als Hersteller in alleiniger Verantwortung, dass das Produkt
	declares as manufacturer under sole responsibility, that the product
	déclare sous sa seule responsabilité en qualité de fabricant que le produit
Product	Sensor-Simulator / sensor simulator / simulateur de capteurs
	Memocheck Sim CYP03D-BB

Zusammen mit Messkabel / together with measuring cable / ensemble avec câble de mesure
CYK10-a**b   a = G, E   b = 1, 2
CYK20-BAab   a = B1, B2   b = C1, C2

Regulations	den folgenden Europäischen Richtlinien entspricht:
	conforms to following European Directives:
	est conforme aux prescription des Directives Européennes suivantes :

EMC	2014/30/EU (L96/79)	
ATEX	2014/34/EU (L96/309)	
RoHS	2011/65/EU (L174/88)	

Standards	angewandte harmonisierte Normen oder normative Dokumente:
	applied harmonized standards or normative documents:
	normes harmonisées ou documents normatifs appliqués :

EN 61326-1 (2013)	EN 60079-0 (2009)	EN 50581 (2012)
EN 61326-2-3 (2013)	EN 60079-11 (2007)	

Certification	EG-Baumusterprüfbescheinigung Nr.	BVS 12 ATEX E 008 X
	EC-Type Examination Certificate No.	
	Numéro de l'attestation d'examen CE de type	
	Ausgestellt von/issued by/délivré par	DEKRA EXAM GmbH (0158)
	Qualitätssicherung/Quality assurance/Système d'assurance qualité	DEKRA EXAM GmbH (0158)

Gerlingen, 22.07.2017
Endress+Hauser Conducta GmbH+Co. KG

i. V. Jörg-Martin Müller
Technology

i. V. Sven-Matthias Scheibe
Technology Certifications and Approvals

EC_00388_02.16

Table of contents

1 About this document

1.1 Warnings

Structure of information	Meaning
⚠ DANGER **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **will** result in a fatal or serious injury.
⚠ WARNING **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **can** result in a fatal or serious injury.
⚠ CAUTION **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or more serious injuries.
NOTICE **Cause/situation** If necessary, Consequences of non-compliance (if applicable) ▶ Action/note	This symbol alerts you to situations which may result in damage to property.

1.2 Symbols used

Symbol	Meaning
🛈	Additional information, tips
✅	Permitted or recommended
❌	Not permitted or not recommended
📖	Reference to device documentation
📄	Reference to page
🖼	Reference to graphic
↪	Result of a step

2   Basic safety instructions

2.1   Requirements for personnel

- Installation, commissioning, operation and maintenance of the measuring system may be carried out only by specially trained technical personnel.
- The technical personnel must be authorized by the plant operator to carry out the specified activities.
- The electrical connection may be performed only by an electrical technician.
- The technical personnel must have read and understood these Operating Instructions and must follow the instructions contained therein.
- Faults at the measuring point may only be rectified by authorized and specially trained personnel.

> Repairs not described in the Operating Instructions provided must be carried out only directly at the manufacturer's site or by the service organization.

2.2   Designated use

Memocheck Sim CYP03D is a test tool for analysis measuring points. It enables the simulation of user-definable measured values and errors of all sensors incorporating Memosens Technology.

The main areas of application are:
- Chemicals and process engineering
- Food, pharmaceutical industry and biotechnology
- Water and wastewater treatment
- Hazardous areas

Use of the device for any purpose other than that described, poses a threat to the safety of people and of the entire measuring system and is therefore not permitted.

The manufacturer is not liable for damage caused by improper or non-designated use.

2.3   Workplace safety

As the user, you are responsible for complying with the following safety conditions:
- Installation guidelines
- Local standards and regulations
- Regulations for explosion protection

Electromagnetic compatibility
- The product has been tested for electromagnetic compatibility in accordance with the applicable international standards for industrial applications.
- The electromagnetic compatibility indicated applies only to a product that has been connected in accordance with these Operating Instructions.

2.4   Operational safety

Before commissioning the entire measuring point:

1. Verify that all connections are correct.
2. Ensure that electrical cables and hose connections are undamaged.
3. Do not operate damaged products, and protect them against unintentional operation.
4. Label damaged products as defective.

During operation:

▶ If faults cannot be rectified:
  products must be taken out of service and protected against unintentional operation.

2.5   Product safety

2.5.1   State-of-the-art technology

The product is designed to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate. The relevant regulations and international standards have been observed.

2.5.2   Safety instructions for electrical equipment in hazardous areas

The Memosens inductive sensor cable connection system consists of:
- Memocheck Sim (Memosens technology) CYP03D
- Measuring cable CYK10

Memosens is approved for measuring applications in explosive atmospheres in accordance with:
- IECEx design approval, IECEx BVS 12.0007
- ATEX design approval BVS 12 ATEX E 008 with amendments

The EC Declaration of Conformity is an integral part of these Operating Instructions.

The Memocheck Sim CYP03D is powered by three alkaline batteries with a total nominal voltage of 4.5 V.

▶ Use only the following battery types!

	Type
Manufacturer	Energizer
Type	EN91
Designation	LR6 (IEC)
$U_{battery, nominal}$	1.5 V
Chemical composition	Zinc/manganese dioxide (Zn / MnO2)

▶ Do **not** open the Memocheck Sim CYP03D in hazardous areas.

▶ Before commissioning the Memocheck Sim CYP03D, make sure that the battery compartment is closed securely with a screw.

▶ The maximum permissible cable length is 100 m (330 ft).

▶ Pay attention to the requirements for electrical installations in explosive atmospheres (EN/IEC 60079-14).

▶ The conductive protective coating on the device is part of the Ex-related safety concept. Make sure that there is no damage >4 cm^2 to the protective coating.

🛈 Hazardous area versions of digital sensors and simulators incorporating Memosens technology are indicated by a red-orange ring on the plug-in head.

IECEx

Connecting the approved digital Memocheck Sim CYP03D sensor simulator to the IECEx-certified, intrinsically safe sensor output circuit of the Liquiline M CM42 (IECEx TUR 11.0007X) transmitter or alternatively to an IECEx-certified, intrinsically safe Memosens sensor output:

Use only the following IECEx-certified measuring cables:

• CYK10-G*** (IECEx BVS 11.0052X)

• or a Memosens measuring cable that has IECEx certification and is identical in terms of design, appliance technology and function.

▶ The electrical connection must be made according to the wiring diagram.

▶ The transmitter's Memosens input must support the following maximum values. In particular, the effective inner inductance and the capacitance of the approved, intrinsically safe sensor output may not exceed these values:

1. Entity Parameters [1]	2. Entity Parameters [1]
U_0 = 5.1 V	U_0 = 5.04 V
I_0 = 130 mA	I_0 = 80 mA
P_0 = 166 mW (linear output curve)	P_0 = 112 mW (trapezoid output curve)
C_i = 15 µF	C_i = 14.1 µF
L_i = 95 µH	L_i = 237.2 µH

1)   Ex-relevant electrical connection parameters

ATEX

Connecting the approved digital Memocheck Sim CYP03D sensor simulator to the ATEX-certified, intrinsically safe sensor output circuit of the Liquiline M CM42 transmitter or alternatively to an ATEX-certified, intrinsically safe Memosens sensor output:

Use only the following ATEX-certified measuring cables:

• CYK10-G*** (BVS 04 ATEX E 121 X incl. amendments)

• or a Memosens measuring cable that has ATEX certification and is identical in terms of design, appliance technology and function.

▶ The electrical connection must be made according to the wiring diagram.

▶ The transmitter's Memosens input must support the following maximum values. In particular, the effective inner inductance and the capacitance of the approved, intrinsically safe sensor output may not exceed these values:

1. Entity Parameters [1]	2. Entity Parameters [1]
U_0 = 5.1 V	U_0 = 5.04 V
I_0 = 130 mA	I_0 = 80 mA
P_0 = 166 mW (linear output curve)	P_0 = 112 mW (trapezoid output curve)
C_i = 15 µF	C_i = 14.1 µF
L_i = 95 µH	L_i = 237.2 µH

1)   Ex-relevant electrical connection parameters

Temperature classes

Simulator		Ambient temperature range T_a	Temperature class
Memocheck Sim	CYP03D-**+**	-20 to +50 ˚C (-4 to 122 ˚F)	T4

If the ambient temperatures shown above are not exceeded no invalid temperatures for the particular temperature class will occur at the simulator.

CSA

▶ Pay attention to the documentation and control drawings for the transmitter.

2.5.3   IT security

We only provide a warranty if the device is installed and used as described in the Operating Instructions. The device is equipped with security mechanisms to protect it against any inadvertent changes to the device settings.

IT security measures in line with operators' security standards and designed to provide additional protection for the device and device data transfer must be implemented by the operators themselves.

3   Device description

3.1   Measuring system

Sensor simulation in a complete measuring system consists of:
- Memocheck Sim CYP03D
- Transmitter with Memosens Technology, e. g. Liquiline M CM42 or Liquiline CM44x
- Memosens data cable CYK10
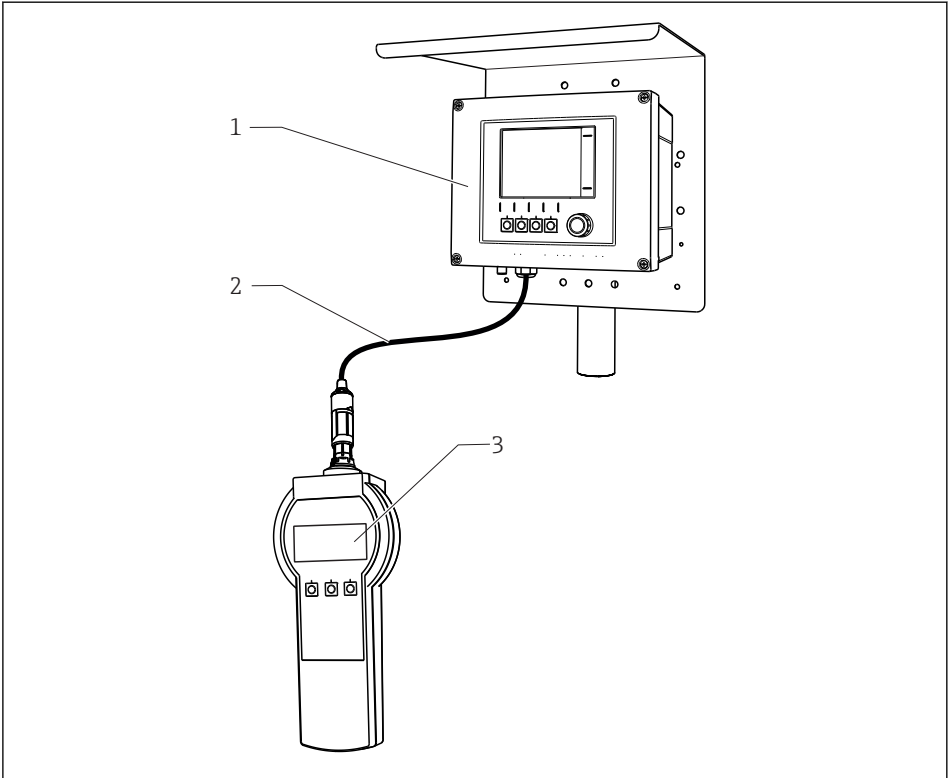
A0025995

⊡ *1   Measuring system with Memocheck Sim CYP03D*

1   Transmitter Liquiline CM44x
2   Memosens data cable CYK10
3   Memocheck Sim CYP03D

3.2   Simulation values

With the Memocheck Sim CYP03D you can simulate the following data:

- Simulation values
  - Main values
  - Raw values
  - Temperature
- Parameter
  - pH glass (**pH glass**)
  - pH glass, SIL sensor (**pH glass SIL**)
  - pH ISFET (**pH Isfet**)
  - ORP (**ORP**)
  - pH + ORP combined sensor (**pH + ORP**)
  - Conductivity, conductive (**Cond c**)
  - Conductivity, conductive, 4-pin (**Cond c 4-pol**)
  - Conductivity, inductive**Cond i**)
  - Oxygen, amperometric (**Oxygen (amp.)**)
  - Oxygen, optical, Memosens (**Oxygen (opt.Memo.)**)
  - Oxygen, optical, fixed cable (**Oxy. (opt.fixed)**))
  - Chlorine (**Chlorine (CCS142D)**)
  - Free chlorine (**Free chlorine**)
  - Chlorine dioxide (**Chlorine dioxide**)
  - Total chlorine (**Total chlorine**)
  - Turbidity**Turbidity**)
  - Nitrate (**Nitrate**)
  - SAC (**SAC**)
- The main simulation values can be selected as required within the context of the sensor specification values
- Repeated ramp with any increment
- Error, e. g. glass breakage, alarm and warning
- Calibration values

You can freely configure all the values so that they match your process. The data listed above are displayed on the transmitters.

4   Incoming acceptance and product identification

4.1   Incoming acceptance

1. Verify that the packaging is undamaged.
    ↳   Notify the supplier of any damage to the packaging.
        Keep the damaged packaging until the issue has been resolved.
2. Verify that the contents are undamaged.
    ↳   Notify the supplier of any damage to the delivery contents.
        Keep the damaged goods until the issue has been resolved.
3. Check that the delivery is complete and nothing is missing.
    ↳   Compare the shipping documents with your order.
4. Pack the product for storage and transportation in such a way that it is protected against impact and moisture.
    ↳   The original packaging offers the best protection.
        Make sure to comply with the permitted ambient conditions.

If you have any questions, please contact your supplier or your local Sales Center.

4.2   Product identification

4.2.1   Nameplate

The nameplate provides you with the following information on your device:
• Manufacturer identification
• Order code
• Extended order code
• Serial number
• Ambient and process conditions
• Input and output values
• Safety information and warnings

▸ Compare the information on the nameplate with the order.

4.2.2   Product page

www.endress.com/cyp03d

4.2.3   Interpreting the order code

The order code and serial number of your product can be found in the following locations:
• On the nameplate
• In the delivery papers

Obtaining information on the product

1. Go to www.endress.com.
2. Call up the site search (magnifying glass).

3. Enter a valid serial number.

4. Search.
   ↳ The product structure is displayed in a popup window.

5. Click on the product image in the popup window.
   ↳ A new window (**Device Viewer**) opens. All of the information relating to your device is displayed in this window as well as the product documentation.

4.2.4   Manufacturer address

Endress+Hauser Conducta GmbH+Co. KG
Dieselstraße 24
D-70839 Gerlingen

4.2.5   Scope of delivery

Memocheck Sim CYP03D
- Memocheck Sim CYP03D
- Operating Instructions
- 1 quality certificate as ordered
- Cable as per order (optional)
- Case to store CYP03D and cable (optional)
- Certificate of calibration (optional)

4.3   Certificates and approvals

4.3.1 $C\epsilon$ mark

The product meets the requirements of the harmonized European standards. As such, it complies with the legal specifications of the EU directives. The manufacturer confirms successful testing of the product by affixing to it the $C\epsilon$ mark.

4.3.2   Ex approvals

Memocheck Sim CYP03D
- ATEX II 2G Ex ia IIC T4 Gb
- IECEx Ex ia IIC T4 Gb
- CSA IS NI Cl. I, Div. 1&2, Group A-D

5   Electrical connection

5.1   Connection in hazardous areas
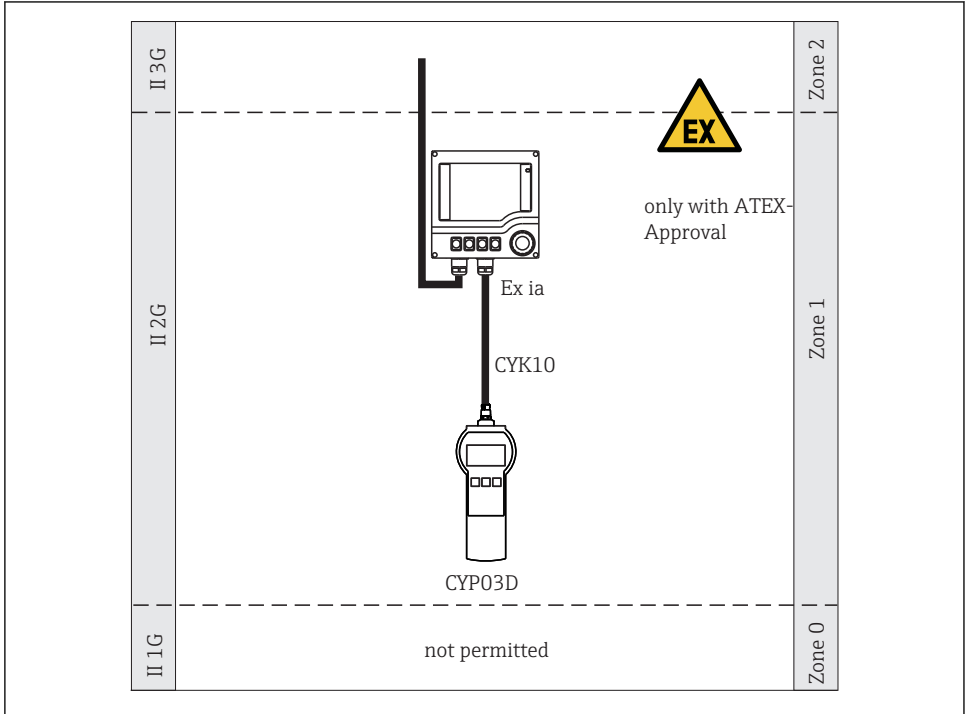
A0026198-EN

⊡ *2*   *Operation in hazardous areas*

5.2   Connecting the simulator

The electrical connection of the sensor's to the transmitter is established using measuring cable CYK10.
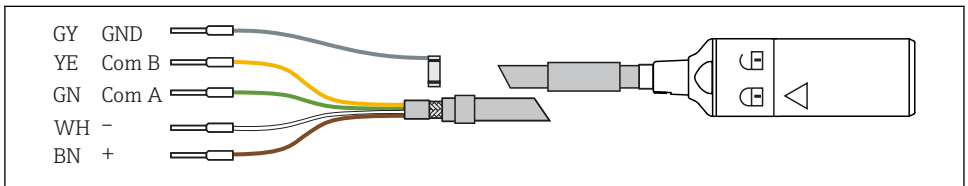
A0024019

⊡ *3*   *Measuring cable CYK10*

6   Operation options

6.1   Overview

6.1.1   Display
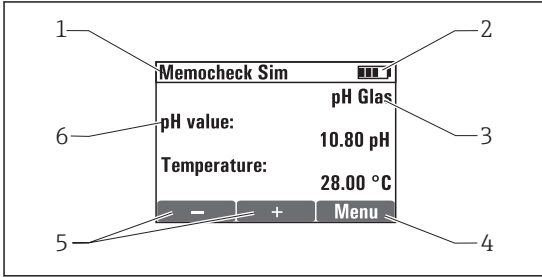
1   Menu path and/or device designation
2   Battery status
3   Simulated parameter
4   Assignment of soft keys, e.g. menu
5   Assignment of soft keys, e.g. ⊞ and ⊟
6   Sim. main value

☒ 4   *Display (e.g. simulation mode)*

6.1.2   Key functions

Ⓔ	**ENTER key** • Switches on the device (press for at least 3 seconds) • Calls up menu when in simulation mode • Saves (confirms) data entered • Selects a menu option • Switches off the device (press for at least 3 seconds)
⊟ or ⊞	**MINUS key or PLUS key** In setup mode, the MINUS and PLUS keys have the following functions: • Configuration of parameters and numerical values • Navigation through menu In simulation mode, the MINUS and PLUS keys have the following functions: "Run through" of sim. main values, with each values being changed by the amount of the delta value
⊟ **and** ⊞	**Escape function** Press MINUS and PLUS key simultaneously • Pressing for a short time: takes you up one level in the menu. • Pressing for a longer time in the main menu: takes you directly to the simulation mode.

⊟ and Ⓔ	**Reset** Press MINUS and ENTER key simultaneously for longer Saved setups remain intact.
⊞ and Ⓔ	**Factory settings** Press PLUS and ENTER key simultaneously for longer • This resets the device to the factory settings. • All the setups saved are deleted.

6.2 Structure and function of the operating menu

6.2.1 Menu structure

Language
Display
    Illumination
Setup
    Contrast
    Simulation
        Parameter
            Memosens
                pH glass
                pH glass SIL
                pH Isfet
                pH + ORP
                ORP
                Cond c
                Cond c 4-pol
                Oxygen (amp.)
                Oxygen (opt.Memo.)
                Chlorine (CCS142D)
                Free chlorine
                Chlorine dioxide
                Total chlorine
            Fixed cable
                Cond i
                Oxy. (opt.fixed)
                Turbidity
                Nitrate
                SAC
        Sim. main value
        Test values
    Save setup
    Load setup
    Advanced
        Date
        Time
        Switch off auto.
Advanc. function
    Calibration value
    Error simulation
    Ramp (continuous)
    Ramp (gradual)
    Sensor state
        Sensor operation
            Operating time *
            Charge *
        Cap operation
            Operating time *
        No. of cap cal
            Zero point *
            Slope *
Diagnostics
    Diagnostic list
    Order code
    Serial number
    Software
    Hardware
    Reset
    Factory settings
Switch off

* *only* **Free chlorine**, **Chlorine dioxide**, **Total chlorine**

6.2.2   Operating concept

Example of changing values within a menu: defining the start value of a ramp

Maximum and minimum values are displayed in the editor. You can only configure values within these limits.

1. Use the arrow keys to select the digit of the value that you want to change.

2. Press Ⓔ to change the value.
   ↳ The digit flashes

```
../Startin...            ▥
-4̲0.0  °C              ✔
Min: −40.00 °C
Max: 150.0 °C
 ←      →    Enter
```
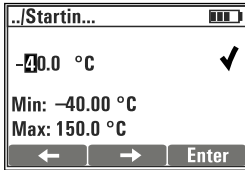
3. Press ⊞ or ⊟ to increase or decrease the value.

4. Confirm entry with Ⓔ.
   ↳ The "Escape" function (⊞ and ⊟ pressed simultaneously) is disabled here in order to prevent incorrect entries.

```
../Startin...            ▥
-1̲0.00 °C              ✔
Min: −40.00 °C
Max: 150.0 °C
 −      +    Enter
```
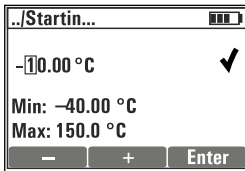
5. Select the check mark (arrow key) and press Ⓔ.
   ↳ The edited value is accepted.

```
../Startin...            ▥
 − 10.00 °C            ☑
Min: −40.00 °C
Max: 150.0 °C
 ←      →    Enter
```
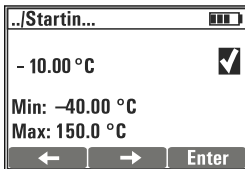
7   Commissioning

7.1   Switching on the measuring device

Switch on the device

▶ Press and hold $\boxed{E}$ for at least 3 seconds.
   ↳ This loads the last setup that was saved.

Switch off the device

▶ Press and hold $\boxed{E}$ for at least 3 seconds.

7.2   Setting the operating language

Configure language

Available languages (factory settings in bold)
- Deutsch
- **English**
- Français
- Español
- Italiano

1.   Press key for **Menu** .

2.   **Language** Select (using $\boxed{E}$).

3.   Select language, e.g.**English**.

4.   Confirm selection, answer the prompt that follows with $\boxed{E}$.
   ↳ From now on, you will be guided through the menu in the language of your choice.

Pressing $\boxed{+}$and $\boxed{-}$takes you back to the main menu.

7.3   Quick Setup

Selecting a parameter and configuring test values

1.   Under **Setup/Simulation** select the desired parameter, e. g.**ORP** (available parameters → 🗐 10).
   ↳ Confirm entry with $\boxed{E}$.

2.   Under **Setup/Simulation/Test values** , enter the test values (→ 🗐 21).

3.   Press $\boxed{+}$ and $\boxed{-}$ simultaneously.
   ↳ You are in the simulation mode.

You can now simulate the selected parameter using the selected settings.

Once you connect the Memocheck Sim CYP03D to a Memosens transmitter, the Memosens icon ⟨icon⟩ appears in the status line of the simulator. It indicates that the simulator is communicating with the transmitter. The simulation symbol shown on the transmitter display indicates that the transmitter is in simulation mode ($\rightarrow$ Operating Instructions of the transmitter).

8 Operation

8.1 Configuring the measuring device

8.1.1 Display behavior

Possible settings
- Illumination
- Contrast

Path: Menu/Display

▶ Change the illumination or contrast setting for the display using ⊞ or ⊟.
    ↳ Confirm entry with ℰ .

8.1.2 General settings

Path: Menu/Setup/Advanced		
Function	**Configuration options (factory settings in bold)**	**Info**
Date		
Year	09 to 99 **10**	▶ Set current date.
Month	01 to 12 **03**	
Day	01 to 31 **28**	
Time		
Hour	00 to 23 **06**	▶ Set current time.
Minute	00 to 59 **30**	
Second	00 to 59 **21**	
Switch off auto.	5 to 100 min **20 min**	▶ Configure automatic switch-off. ↳ If the simulator is connected to a transmitter, this function is deactivated. In this case, the simulator does not switch off automatically.

8.1.3   Selecting parameters

In the setup, you configure which parameters are to be simulated.

1. Path: **Menu/Setup/Simulation/Parameter**.
   ↳ The parameters currently configured are displayed.

2. Select new parameter: **Parameter/Memosens** or **Fixed cable**. Select the desired parameter.
   ↳ If the parameter is changed, the following prompt appears:
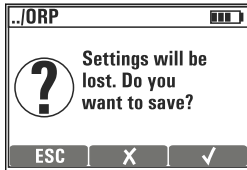
ESC = cancel
✗ = direct parameter change, the last settings for the current parameter are lost
✔ = save setup, followed by a prompt to specify where to save the setup. Select a free location so that setups already saved are not overwritten.

3. Select desired option.

Under **Menu/Setup/Save setup** , you can save up to 10 setups under the relevant parameter name. If you want to use a saved setup, select it under the "Setup/Load setup" menu.

8.1.4   Configuring sim. main value and test values

A setup comprises the selected parameter, a simulation main value and test values.

You can change the simulation main value in the simulation mode using a user-definable delta value. The delta value is the increment by which you change the simulation value by pressing ⊞ and ⊟.

Test values are all other measured values (including raw measured values) of a test setup. Test values are set to a fixed value, which cannot be modified in the simulation mode.

1. **Menu/Setup/Simulation/Parameter/Memosens** or …/**Fixed cable**: Select the parameter, e. g. **pH glass**.

2. **Menu/Setup/Simulation/Sim. main value**: Select the measured value to be simulated, e. g. **pH value**.
   ↳ A prompt asking if you wish to change the delta value (✔) or not (✗).

3. Select ✔.
   ↳ The current delta value is now displayed, e. g. 00.10 pH.

4. Change the current value, e. g. to 00.50 pH.

5. Accept value (use ⊞ to select the ✔ beside the value and then ⓔ).

6. **Menu/Setup/Simulation/Test values**: set other measured values, which are shown on the display (**Temperature**only) or on the transmitter as a fixed value.

7. Change the value to the desired display, e. g. 25.00 ℃.
   - ↳ The test value remains at the value set here and cannot be modified in the simulation mode.

8. Pressing ⊞ and ⊟ for longer takes you directly to the simulation mode.

The **Sim. main value** is displayed as the first value in the simulation mode. You can press ⊞ or ⊟ to change the set delta value. The temperature is displayed as the second value. Pressing ⊞ and ⊟ does not affect this value. The other test values, which are not visible on the Memocheck display, can only be read off the transmitter or output to transmitter outputs.

ℹ **Parameter Chlorine**
To ensure that the simulator and transmitter display the identical chlorine concentration, the pH value which is used for calculation purposes must be the same for the transmitter and the simulator.

ℹ **Parameter Oxygen (amp.) or Oxygen (opt.Memo.)**
To ensure that the simulator and transmitter display the identical oxygen concentration, the following values which are used for calculation purposes must be the same for the transmitter and the simulator: **Salinity** and **Process pressure/Altitude**.

Sim main values **Memosens** *(factory settings in bold)*

pH glass	pH glass SIL	pH Isfet	pH + ORP
• **pH value** • Temperature • Raw value • Raw value temp. • SCS resistance	• **pH value** • Temperature • Raw value • Raw value temp. • SCS resistance	• **pH value** • Temperature • Raw value • Raw value temp.	• **pH value** • ORP potential • rH value • Temperature
ORP	Cond c	Cond c 4-pol	Oxygen (amp.)
• **ORP potential** • ORP [%] • Temperature • Raw value • Raw value temp.	• **Conductivity** • Temperature • Resistance • Raw value temp. • Phase	• **Conductivity** • Temperature • Resistance • Raw value temp.	• **Conc. liquid** • Current • Saturation • Partial pressure • Conc. gas. • Temperature • Salinity • Process pressure • Altitude • Raw value current • Raw value temp.
Oxygen (opt.Memo.)	Chlorine (CCS142D)	Free chlorine	Chlorine dioxide
• Partial pressure • Saturation • **Conc. liquid** • Conc. gas. • Temperature • Salinity • Process pressure • Altitude • Raw value temp.	• **Chlor. concentr.** • Current • Temperature • pH value • Raw value current • Raw value temp.	• **Chlor. concentr.** • Current • Temperature • pH value • Raw value current • Raw value temp.	• **Chlor. concentr.** • Current • Temperature • Raw value current • Raw value temp.
Total chlorine			
• **Chlor. concentr.** • Current • Temperature • Raw value current • Raw value temp.			

Sim main values **Fixed cable** *(factory settings in bold)*

Cond i	Oxy. (opt.fixed)	Turbidity	Nitrate	SAC
• **Conductivity** • Temperature • Resistance • Raw value temp.	• Partial pressure • Saturation • **Conc. liquid** • Temperature • Salinity • Raw value temp. • Slope	• Temperature • **TU value [FNU]** • TU value [g/l] • Raw value temp.	• **Content NO3** • Content NO3-N • Temperature • Raw value temp.	• TOC • CSB • Temperature • **SAC value** • Raw value temp.

8.2   Extended functions

In the **Advanc. function** menu, you can enter the following values. These values always refer to the last parameters selected under **Simulation** .
• Calibration value
• Error simulation
• Ramp (continuous)
• Ramp (gradual)

8.2.1   Calibration value

The calibration value of the simulated sensor is the value to which the sensor adjustment refers.

If you change a calibration value, there will be a brief interruption to communication between the Memocheck Sim CYP03D and the transmitter to allow the transmitter to accept the calibration settings.

ℹ️ An unfavorable configuration may result in measured values outside the specified measuring range. This can lead to fault states in the transmitter. More information on calibration can be found in the Operating Instructions for your transmitter.

8.2.2   Error simulation

You receive a list of possible errors which you can combine with one another.

The error categories in accordance with NAMUR (F, M, C, S) are treated as follows:
• The errors declared as "F" in the transmitter are indicated by a flashing display.
• Errors in other categories are displayed in the transmitter's diagnostic list.

8.2.3   Ramps

Ramp (continuous): You define the start and stop value as well as the duration of a ramp (**Starting value**, **Stop value**, **Duration**).

Ramp (gradual): Instead of a total time, you define the number and the duration of the increments (**Number of steps**, **Time per step**).

Ramp (continuous)	Ramp (gradual)
The ramp rises continuously without any jumps.	The ramp is gradual.
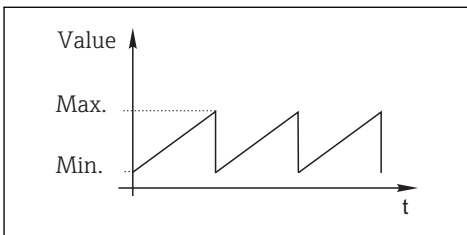
A0017397-EN
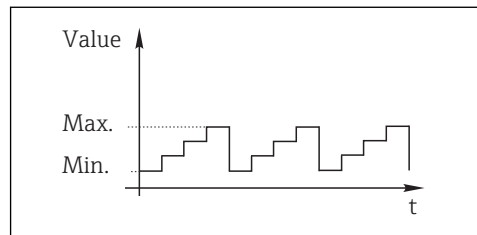
A0017398-EN

- The ramp repeats itself automatically until you stop it.
- The ramp is a simple linear function y = mx + n. The linear element "n" is normally equal to the zero point. The factor "m" is the slope of the line.
- You will obtain a negative slope for the ramp if you set the starting value higher than the stop value.

$$m = \frac{y2 - y1}{x2 - x1}$$
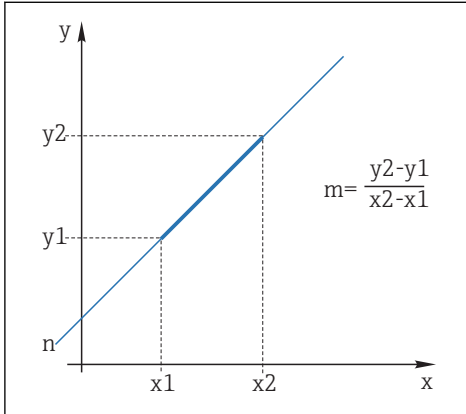
A0017356

☑ 5   *Linear function*

n	*Zero point*
m	*Slope*
y1	*Start Value*
y2	*Stop value*
x	*Time*
	x2-x1 = duration

$$m = \frac{y2 - y1}{x2 - x1}$$
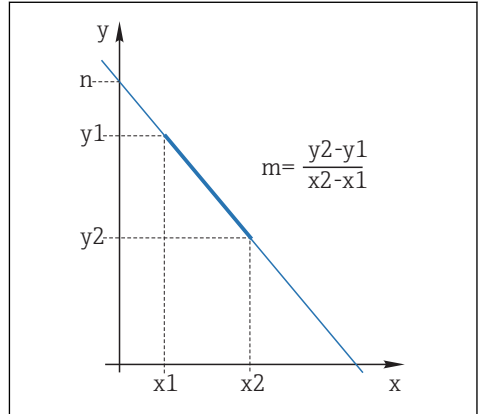
A0017359

☑ 6   *Negative slope*

n	*Zero point*
m	*Slope*
y1	*Start Value*
y2	*Stop value*
x	*Time*
	x2-x1 = duration

8.2.4   Extended functions: pH glass and pH glass SIL

Path: Menu/Advanc. function	
Function	**Configuration options (factory settings in bold)**
Calibration value	
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**
pH comp. isoth.	0.0 to 12.0 pH **7.0 pH**
mV comp. isoth.	-300.0 to 300.0 mV **0.0 mV**
Slope	0.01 to 65.0 mV/pH **59.16 mV/pH**
Zero point	0.0 to 12.0 pH **7.0 pH**

Path: Menu/Advanc. function					
Function	**Configuration options (factory settings in bold)**				
Error simulation	Glass SCS failure Temp. sens. defect Glass SCS warning		1. Select the error (⊡). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again (⊡).		
Ramp			**Ramp (continuous)**	**Ramp (gradual)**	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
pH value	-2.0 to 16.0 pH **-2.0 pH**	-2.0 to 16.0 pH **16.0 pH**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Temperature	-40.0 to 150.0 ˚C **-40.0 ℃**	-40.0 to 150.0 ˚C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value	-750.0 to 750.0 mV **-750.0 mV**	-750.0 to 750.0 mV **750.0 mV**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 150.0 ˚C **-40.0 ℃**	-40.0 to 150.0 ˚C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
SCS resistance	0.001 MΩ to 1.0 TΩ **0.001 MΩ**	0.001 MΩ to 1.0 TΩ **1.0 TΩ**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

8.2.5   Extended functions: pH Isfet

Path: Menu/Advanc. function	
Function	**Configuration options (factory settings in bold)**
Calibration value	
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**
Slope	0.01 to 65.0 mV/pH **59.16 mV/pH**
pH comp. isoth.	0.0 to 12.0 pH **7.0 pH**
mV comp. isoth.	-300.0 to 300.0 mV **0.0 mV**
Asymmetry	-300.0 to 300.0 mV **0.0 mV**

Path: Menu/Advanc. function					
Function	**Configuration options (factory settings in bold)**				
Error simulation	Leak. curr. alarm Leak. curr. warn Temp. sens. defect Sensor supply		1. Select the error (𝔼). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again (𝔼).		
Ramp			**Ramp (continuous)**	**Ramp (gradual)**	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
pH value	-2.0 to 16.0 pH **-2.0 pH**	-2.0 to 16.0 pH **16.0 pH**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Temperature	-40.0 to 150.0 ˚C **-40.0 ˚C**	-40.0 to 150.0 ˚C **150.0 ˚C**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value	-750.0 to 750.0 mV **-750.0 mV**	-750.0 to 750.0 mV **750.0 mV**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 150.0 ˚C **-40.0 ˚C**	-40.0 to 150.0 ˚C **150.0 ˚C**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

8.2.6   Extended functions: pH + ORP

Path: Menu/Advanc. function	
Function	**Configuration options (factory settings in bold)**
Calibration value	
pH value	**-200.0 mV**
pH comp. isoth.	0.0 to 12.0 pH **7.0 pH**
mV comp. isoth.	-300.0 to 300.0 mV **0.0 mV**
Slope	0.01 to 65.0 mV/pH **56.12 mV/pH**
Zero point	0.0 to 12.0 pH **7.0 pH**
ORP potential	
Cal. point 1 [mV]	-2.0 to 2.0 V **-200.0 mV**
Cal. point 2 [mV]	-2.0 to 2.0 V **200.0 mV**
Cal. point 1 [%]	0.0 to 100.0 % **10.0 %**
Cal. point 2 [%]	0.0 to 100.0 % **30.0 %**
ORP % slope	-30.0 to 30.0 mV/% **20.0 mV/%**
ORP % zero point	-1.0 to 1.0 V **-400.0 mV**
rH value	0.0 to 100.0 % **10.0 %**
rH offset	-300.0 to 300.0 rH **0.0 rH**
Temperature	0.0 to 100.0 % **30.0 %**
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**

Path: Menu/Advanc. function					
Function	**Configuration options (factory settings in bold)**				
Error simulation	Glass SCS failure Ref. SCS failure Temp. sens. defect Glass SCS warning Ref. SCS warning Counter spillover Meas. value inval.	1. Select the error (🗉). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again (🗉).			

Ramp			Ramp (continuous)	Ramp (gradual)	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
pH value					
pH value	-2.0 to 16.0 pH **-2.00 pH**	-2.0 to 16.0 pH **16.0 pH**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw v. C1-C2 (pH)	-750.0 to 750.0 mV **-750.0 mV**	-750.0 to 750.0 mV **750.0 mV**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
SCS resistance	0.001 MΩ to 1.000 TΩ **0.001 MΩ**	0.001 MΩ to 1.000 TΩ **1.000 TΩ**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Refer. SCS resist.	0.01 to 60.0 kΩ **0.01 kΩ**	-2.0 to 16.0 pH **16.0 pH**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
ORP potential					
ORP potential	-2.0 to 2.0 V **-2.0 V**	-2.0 to 2.0 V **2.0 V**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
ORP [%]	0.0 to 100.0 % **0.0 %**	0.0 to 100.0 % **100.0 %**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw val. -C2 (ORP)	-2.0 to 2.0 V **-2.0 V**	-2.0 to 2.0 V **2.0 V**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value C1	-3.0 to 3.0 V **-3.0 V**	-3.0 to 3.0 V **3.0 V**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
rH value					
rH value	-40.0 to 50.0 rH **-40.0 rH**	-40.0 to 50.0 rH **50.0 rH**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

Path: Menu/Advanc. function					
Function	**Configuration options** **(factory settings in bold)**				
Temperature					
Temperature	-40.0 to 150.0 °C **-40.0 °C**	-40.0 to 150.0 °C **150.0 °C**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 150.0 °C **-40.0 °C**	-40.0 to 150.0 °C **150.0 °C**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

8.2.7 Extended functions: ORP

Path: Menu/Advanc. function	
Function	**Configuration options** **(factory settings in bold)**
Calibration value	
Cal. point 1 [mV]	-2.0 to 2.0 V **-200.0 mV**
Cal. point 2 [mV]	-2.0 to 2.0 V **200.0 mV**
Cal. point 1 [%]	0.0 to 100.0 % **10.0 %**
Cal. point 2 [%]	0.0 to 100.0 % **30.0 %**
ORP mV offset	-1.0 to 1.0 V **0.0 mV**
Temp. offset	-10.0 to 10.0 °C **0.0 °C**
ORP % slope	-30.0 to 30.0 mV/% **16.47 mV/%**
ORP % zero point	-1.0 to 1.0 V **-833.3 mV**

Path: Menu/Advanc. function					
Function	**Configuration options (factory settings in bold)**				
Error simulation	Temp. sens. defect Sensor supply		1. Select the error ($\boxdot$). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again ($\boxdot$).		
Ramp			**Ramp (continuous)**	**Ramp (gradual)**	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
ORP potential	-2.0 to 2.0 V **-2.0 V**	-2.0 to 2.0 V **2.0 V**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
ORP [%]	0.0 to 100.0 % **0.0 %**	0.0 to 100.0 % **100.0 %**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Temperature	-40.0 to 150.0 ˚C **-40.0 ˚C**	-40.0 to 150.0 ˚C **150.0 ˚C**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value	-2.0 to 2.0 V **-2.0 V**	-2.0 to 2.0 V **2.0 V**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 150.0 ˚C **-40.0 ˚C**	-40.0 to 150.0 ˚C **150.0 ˚C**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

8.2.8   Extended functions: Cond c, Cond c 4-pol and Cond i

Path: Menu/Advanc. function		
Function	**Configuration options (factory settings in bold)**	
Calibration value	Conductive	Inductive
Cell constant	0.001 E-03 to 10.0 cm^{-1} **10 E-03 cm^{-1}**	0.001 E-03 to 10.0 cm^{-1} **2.9 cm^{-1}**
Reference value	0.001 mS/cm to 1.0 S/cm **0.005 mS/cm**	0.001 mS/cm to 1.0 S/cm **100.0 mS/cm**
Reference temp.	0.0 to 60.0 ˚C **25.58 ˚C**	0.0 to 60.0 ˚C **25.0 ˚C**
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**	
Temp. gradient	-3.0 to 3.0 **1.0**	

Path: Menu/Advanc. function					
Function	**Configuration options (factory settings in bold)**				
Error simulation	**Cond c** • Polarizat. warn. • No Cond. display • Temp. sens. defect • Sensor supply **Cond c 4-pol** • Polarizat. warn. • Cond. val. invalid • Temp. sens. defect • Broken connector • Meas. value inval. • Resist. maximum **Cond i** • Cond. sens. defect • Cond. val. invalid • Temp. sens. defect • Temp. value inval. • Ind. curr. too high • Ind. curr. too low		1. Select the error (Ⓔ). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again (Ⓔ).		
Ramp			**Ramp (continuous)**	**Ramp (gradual)**	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
Conductivity	0.001 µS/cm to 2000 S/cm **0.001 µS/cm**	0.001 µS/cm to 2000 S/cm **2000 S/cm**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Temperature	-40.0 to 150.0 °C **-40.0 ℃**	-40.0 to 150.0 °C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Resistance	0.001 mΩ to 1.0 GΩ **0.001 mΩ**	0.001 mΩ to 1.0 GΩ **1.0 GΩ**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 150.0 °C **-40.0 ℃**	-40.0 to 150.0 °C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

8.2.9   Extended functions: Oxygen (amp.)

Path: Menu/Advanc. function	
Function	**Configuration options (factory settings in bold)**
Calibration value	
Slope	0.1 pA/hPa to 5.0 nA/hPa **313.5 pA/hPa**
Zero point	-3.2 nA to 3.2 nA **0.0 pA**
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**
Temp. gradient	-3.0 to 3.0 **1.0**
Temp. coeff. 1	20.00 E-03 to 40.00 E-03 **30.79 E-03**
Temp. coeff. 2	100.0 E-06 to 500.0 E-06 **447.6 E-06**
Temp. coeff. 3	500.0 E-09 to 5.000 E-06 **4.224 E-06**
Temp. coeff. 4	1.000 E-09 to 70.00 E-09 **66.75 E-09**

Path: Menu/Advanc. function					
Function	**Configuration options (factory settings in bold)**				
Error simulation	Leak. curr. alarm Leak. curr. warn Temp. sens. defect Sensor supply		1. Select the error (☑). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again (☑).		
Ramp			**Ramp (continuous)**	**Ramp (gradual)**	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
Conc. liquid	-0.02 to 120.0 mg/l **-0.02 mg/l**	-0.02 to 120.0 mg/l **120.0 mg/l**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Current	0.0 pA to 640.0 nA **0.0 nA**	0.0 pA to 640.0 nA **640.0 nA**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Saturation	-0.02 to 1000 % sat **-0.02 % sat**	-0.02 to 1000 % sat **1000 % sat**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Partial pressure	0.0 to 440.0 hPa **0.0 hPa**	0.0 to 440.0 hPa **440.0 hPa**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Conc. gas.	0.0 to 100.0 % **0.0 %**	0.0 to 100.0 % **100.0 %**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Temperature	-40.0 to 60.0 ˚C **-40.0 ˚C**	-40.0 to 60.0 ˚C **60.0 ˚C**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Salinity	0.0 to 40.0 g/kg **0.0 g/kg**	0.0 to 40.0 g/kg **40.0 g/kg**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Process pressure	500 to 9999 hPa **500 hPa**	500 to 9999 hPa **9999 hPa**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Altitude	-300 to 4000 m **-300 m**	-300 to 4000 m **4000 m**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value current	0.0 pA to 640.0 nA **0.0 pA**	0.0 pA to 640.0 nA **640.0 nA**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 60.0 ˚C **-40.0 ˚C**	-40.0 to 60.0 ˚C **60.0 ˚C**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

8.2.10   Extended functions: Oxygen (opt.Memo.)

Path: Menu/Advanc. function	
Function	**Configuration options (factory settings in bold)**
Calibration value	
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**
Temp. gradient	-3.0 to 3.0 **1.0**
Cal. Quality	0.0 to 100.0 % **100.0 %**

Path: Menu/Advanc. function					
Function	**Configuration options (factory settings in bold)**				
Error simulation	Measurement stop No ref. cal. P1 No ref. cal. P2 No amplitude Tau too low Tau too high Wave form Temp. sens. defect Temp. out of spec. Electronics temp. Electronic-error	1. Select the error (🗉). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again (🗉).			

Ramp			**Ramp (continuous)**	**Ramp (gradual)**	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
Partial pressure	0.0 to 440.0 hPa **0.0 hPa**	0.0 to 440.0 hPa **440.0 hPa**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Saturation	-0.02 to 1000 % sat **-0.02 % sat**	-0.02 to 1000 % sat **1000 % sat**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Conc. liquid	-0.02 to 120.0 mg/l **-0.02 mg/l**	-0.02 to 120.0 mg/l **120.0 mg/l**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Conc. gas.	0.0 to 100.0 % **0.0 %**	0.0 to 100.0 % **100.0 %**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Temperature	-40.0 to 60.0 ˚C **-40.0 ˚C**	-40.0 to 60.0 ˚C **60.0 ˚C**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Salinity	0.0 to 40.0 g/kg **0.0 g/kg**	0.0 to 40.0 g/kg **40.0 g/kg**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Process pressure	500 to 9999 hPa **500 hPa**	500 to 9999 hPa **9999 hPa**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Altitude	-300 to 4000 m **-300 m**	-300 to 4000 m **4000 m**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 60.0 ˚C **-40.0 ˚C**	-40.0 to 60.0 ˚C **60.0 ˚C**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

8.2.11   Extended functions: Oxy. (opt.fixed)

Path: Menu/Advanc. function		
Function	**Configuration options (factory settings in bold)**	
Calibration value		
Slope	0 to 200 % **100%**	
Tau	-5.0 to 105.0 µs **20.0 µs**	
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**	
Temp. gradient	-3.0 to 3.0 **1.0**	
Error simulation	Tau too low Tau too high No signal dropout No amplitude Temp. too low Temp. too high LED voltage No LED current Dynamic error	1. Select the error (🗉). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again (🗉).

Path: Menu/Advanc. function					
Function	Configuration options (factory settings in bold)				
Ramp			Ramp (continuous)	Ramp (gradual)	
Sim. main value	Starting value	Stop value	Duration	Number of steps	Time per step
Partial pressure	0.0 to 440.0 hPa **0.0 hPa**	0.0 to 440.0 hPa **440.0 hPa**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Saturation	-0.02 to 1000 % sat **-0.02 % sat**	-0.02 to 1000 % sat **1000 % sat**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Conc. liquid	-0.02 to 120.0 mg/l **-0.02 mg/l**	-0.02 to 120.0 mg/l **120.0 mg/l**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Temperature	-40.0 to 60.0 ˚C **-40.0 ℃**	-40.0 to 60.0 ˚C **60.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Salinity	0.0 to 40.0 g/kg **0.0 g/kg**	0.0 to 40.0 g/kg **40.0 g/kg**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 60.0 ˚C **-40.0 ℃**	-40.0 to 60.0 ˚C **60.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Slope	0.0 to 200.0 % **0.0 %**	0.0 to 200.0 % **200.0 %**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

8.2.12 Extended functions: Chlorine (CCS142D)

Path: Menu/Advanc. function	
Function	Configuration options (factory settings in bold)
Calibration value	
Slope	-320.0 to -0.01 nA/g/l **-25.0 nA/g/l**
Zero point	-3.200 to 3.200 nA **0.0 pA**
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**
Temp. gradient	-3.000 to 3.000 **1.000**

Path: Menu/Advanc. function					
Function	**Configuration options (factory settings in bold)**				
Error simulation	Temp. sens. defect Sensor supply		1. Select the error (Ⓔ). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again (Ⓔ).		
Ramp			**Ramp (continuous)**	**Ramp (gradual)**	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
Chlor. concentr.	0.00 to 200.0 mg/l **0.00 mg/l**	0.00 to 200.0 mg/l **200.0 mg/l**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Current	-3.620 to 0.020 µA **-3.620 µA**	-3.620 to 0.020 µA **0.020 µA**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Temperature	-40.0 to 60.0 °C **-40.0 ℃**	-40.0 to 60.0 °C **60.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
pH value	-2.0 to 16.0 pH **-2.0 pH**	-2.0 to 16.0 pH **16.0 pH**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value current	-3.620 to 0.020 µA **-3.620 µA**	-3.620 to 0.020 µA **0.020 µA**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 60.0 °C **-40.0 ℃**	-40.0 to 60.0 °C **60.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

8.2.13 Extended functions: Free chlorine, Chlorine dioxide and Total chlorine

Path: Menu/Advanc. function	
Function	**Configuration options (factory settings in bold)**
Calibration value	
Slope	0.01 nA/mg/l to 1.0 µA/mg/l **14.00 nA/mg/l**
Zero point	-15.0 nA to 15.0 nA **0.0 pA**
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**
Temp. gradient	0.500 to 1.500 **1.000**
Error simulation	Leak. curr. alarm Leak. curr. warn Temp. sens. defect Sensor supply

1. Select the error (🗉).
   ↳ The transmitter displays the error.
2. Clear the error: remove the checkmark again (🗉).

Ramp			Ramp (continuous)	Ramp (gradual)	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
Chlor. concentr.	-1.0 to 201.0 mg/l **-1.0 mg/l**	-1.0 to 201.0 mg/l **201.0 mg/l**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Current	-0.020 to 3.620 µA **-0.020 nA**	-0.020 to 3.620 µA **3.620 µA**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Temperature	-40.0 to 150.0 ˚C **-40.0 ℃**	-40.0 to 150.0 ˚C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
pH value *only* **Free chlorine)**(	-2.0 to 16.0 pH **-2.0 pH**	-2.0 to 16.0 pH **16.0 pH**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value current	-0.020 to 3.620 µA **-0.020 nA**	-0.020 to 3.620 µA **3.620 µA**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 150.0 ˚C **-40.0 ℃**	-40.0 to 150.0 ˚C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

Path: Menu/Advanc. function	
Function	**Configuration options** **(factory settings in bold)**
Sensor state	If the sensor and cap operation counter is changed, an exclamation mark appears in the header until the sensor or cap operation values have been read by the transmitter.
Sensor operation	
Operating time	0.00 to 90.00 E03 h **8760 h**
Charge	0.00 to 20.00 As **4.22 As**
Cap operation	
Operating time	0.00 to 90.00 E03 h **8760 h**
No. of cap cal.	
Zero point	1 to 9999 **1**
Slope	1 to 9999 **1**

8.2.14   Extended functions: Turbidity

Path: Menu/Advanc. function	
Function	**Configuration options** **(factory settings in bold)**
Calibration value	
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**

Path: Menu/Advanc. function					
Function	**Configuration options (factory settings in bold)**				
Error simulation	LED error Turbidit. too high Electronics test Sensor polluted Meas. val. uncert. No cal. data Temperature err. Meas. value inval. Measurement stop		1. Select the error (🗉). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again (🗉).		
Ramp			**Ramp (continuous)**	**Ramp (gradual)**	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
Temperature	-40.0 to 150.0 ˚C **-40.0 ℃**	-40.0 to 150.0 ˚C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
TU value [FNU]	0.0 to 10000.0 FNU **0.0 FNU**	0.0 to 10000.0 FNU **10000.0 FNU**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
TU value [g/l]	0.001 to 1000 g/l **0.001 g/l**	0.001 to 1000 g/l **1000 g/l**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 150.0 ˚C **-40.0 ℃**	-40.0 to 150.0 ˚C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

8.2.15   Extended functions: Nitrate

Path: Menu/Advanc. function					
Function	**Configuration options (factory settings in bold)**				
Calibration value					
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**				
Error simulation	Flash lamp defect Turbidit. too high Electronics test Filter change Meas. val. uncert. No cal. data Temperature err. Measurement stop Meas. value inval.	1. Select the error (E). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again (E).			
Ramp			**Ramp (continuous)**	**Ramp (gradual)**	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
Content NO3	0.001 mg/l to 550 mg/l **0.001 mg/l**	0.001 mg/l to 550 mg/l **550 mg/l**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Content NO3-N	0.0 µg/l to 500.0 mg/l **0.0 µg/l**	0.0 µg/l to 500.0 mg/l **500.0 mg/l**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Temperature	-40.0 to 150.0 ˚C **-40.0 ℃**	-40.0 to 150.0 ˚C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 150.0 ˚C **-40.0 ℃**	-40.0 to 150.0 ˚C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

8.2.16   Extended functions: SAC

Path: Menu/Advanc. function					
Function	**Configuration options (factory settings in bold)**				
Calibration value					
Temp. offset	-10.0 to 10.0 ˚C **0.0 ˚C**				
Error simulation	Flash lamp defect Turbidit. too high Electronics test Filter change Meas. val. uncert. No cal. data Temperature err. Measurement stop		1. Select the error (E). ↳ The transmitter displays the error. 2. Clear the error: remove the checkmark again (E).		
Ramp			**Ramp (continuous)**	**Ramp (gradual)**	
Sim. main value	**Starting value**	**Stop value**	**Duration**	**Number of steps**	**Time per step**
TOC	0.000 mg/l to 100.0 g/l **0.000 mg/l**	0.000 mg/l to 100.0 g/l **100.0 g/l**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
CSB	0.000 mg/l to 100.0 g/l **0.000 mg/l**	0.000 mg/l to 100.0 g/l **100.0 g/l**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Temperature	-40.0 to 150.0 ˚C **-40.0 ℃**	-40.0 to 150.0 ˚C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
SAC value	0.0 to 100.0 E03 m^{-1} **0.0 m^{-1}**	0.0 to 100.0 E03 m^{-1} **100.0 E03 m^{-1}**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**
Raw value temp.	-40.0 to 150.0 ˚C **-40.0 ℃**	-40.0 to 150.0 ˚C **150.0 ℃**	10 to 6000 s **60 s**	1 to 200 **10**	0.5 to 600 s **1 s**

9   Diagnostics

Path: Menu/Diagnostics		
Function		Info
Diagnostic list		The diagnostic messages provide information to Endress+Hauser service personnel.
Order code	CYP03D-xxx	
Serial number	xxxxxxxxxxx	
Software	x.xx.xx	
Hardware	x.xx.xx	
▷ Reset		Device is restarted. Your stored settings will be preserved.
▷ Factory settings		All device settings are reset to the factory settings. All the setups saved are deleted.

10   Maintenance

10.1   Cleaning

▶ Clean the device using only commercially available, mild, household cleaning agents.

10.2   Battery replacement

The battery compartment is accessed from behind. Permitted battery types: → 🖹 6.

▶ Only ever open the battery compartment in the non-hazardous area!

10.3   Calibration and qualification

The Memocheck Sim CYP03D can, with the quality or calibration certificate, also be used as a qualification tool for your measuring point.

The quality and calibration certificates can be renewed:
For such services, you will need to return Memocheck Sim CYP03D to Endress+Hauser.
In the case of **requalification,** the device is tested fully and a new quality certificate is issued.
In the case of **recalibration,** in addition to requalification the device is also incorporated into a calibration procedure. A quality certificate and a certificate of calibration are issued. The recommended testing interval is 1 year.

11 Repair

11.1 Spare parts

Battery compartment cover
Order No. 71138380

11.2 Return

The product must be returned if repairs or a factory calibration are required, or if the wrong product was ordered or delivered. As an ISO-certified company and also due to legal regulations, Endress+Hauser is obliged to follow certain procedures when handling any returned products that have been in contact with medium.

To ensure the swift, safe and professional return of the device:

▶ Refer to the website www.endress.com/support/return-material for information on the procedure and conditions for returning devices.

11.3 Disposal

The device contains electronic components. The product must be disposed of as electronic waste.

▶ Observe the local regulations.

Batteries must always be disposed of in accordance with local regulations on battery disposal.

12   Accessories

The following are the most important accessories available at the time this documentation was issued.

▸ For accessories not listed here, please contact your Service or Sales Center.

12.1   Memosens data cable

Order No.	Memosens data cable CYK10 (optional)
71128718	CYK10-A032 + adapter, cable ends; Non-Ex
71128721	CYK10-G032 + adapter; only for CYP03D, Ex

To connect the Memocheck Sim CYP03D to transmitters with M12 sockets and Pg couplings, you require the Memosens data cable CYK10 provided. The cable is always supplied with an adapter piece so that it fits both M12 sockets and Pg couplings. If you wish to simulate fixed cable sensors (turbidity, nitrate, toroidal conductivity, oxygen optical) with the Memocheck Sim CYP03D, you need this cable. When using sensors with an inductive Memosens plug-in head (pH/ORP, oxygen, conductive conductivity, chlorine), the appropriate cable is already included in the measuring point.

12.2   Storage case

Order No.	Case for Memocheck Sim CYP03D
71183327	Ex

In the hazardous area, the Memocheck simulator case should only be opened to remove or put back the Memocheck simulator. When opened, the case should never be exposed to process-related intensive electrostatic charges.

13   Technical data

13.1   Environment

13.1.1   Ambient temperature range
–20 to 50 °C (–4 to 122 °F)

13.1.2   Storage temperature
-20 to 55 °C (-4 to 130 °F)

13.1.3   Degree of protection
IP55

13.1.4   Electromagnetic compatibility
Interference emission and interference immunity as per EN 61326-1:2013, Class A for Industry

13.2   Mechanical construction

13.2.1   Dimensions
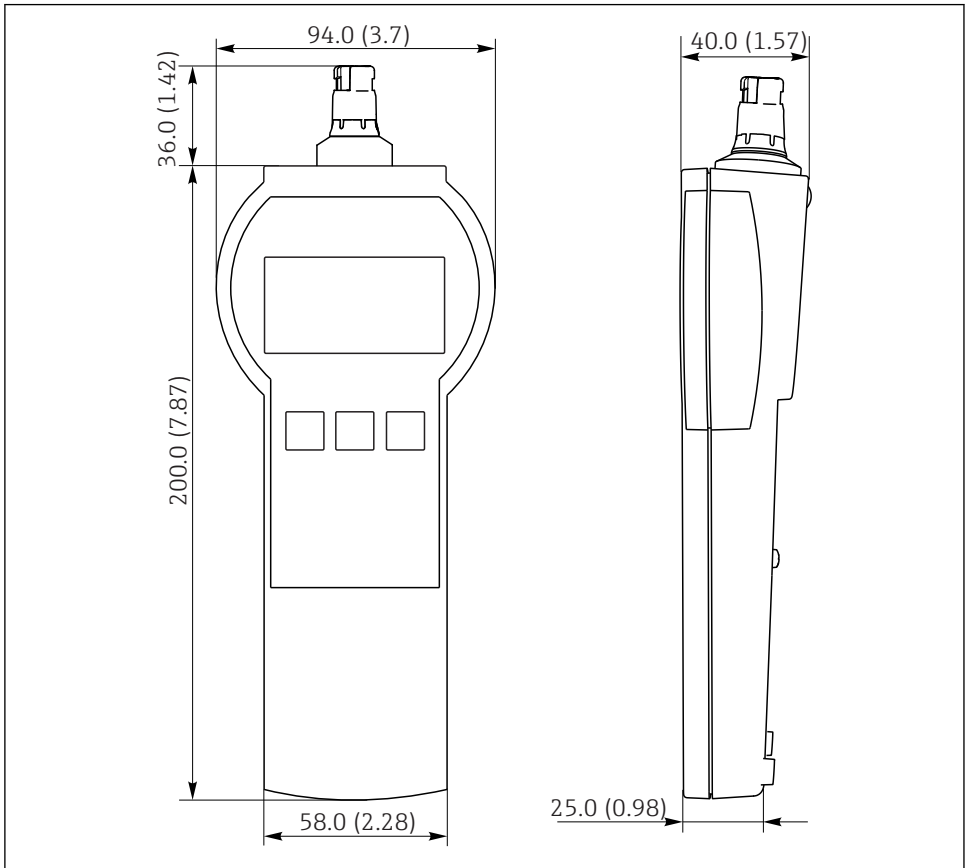
A0026005

⊞ *7   Memocheck Sim CYP03D*

All dimensions in mm (in)

13.2.2   Weight (incl. batteries)

0.3 kg (0.7 lbs)

13.2.3   Materials

Housing: ABS (UL 94 HB)

13.2.4   Batteries

For the Memocheck Sim CYP03D, use only the following battery types, as only these are covered by the Ex approval:
- Energizer, EN91 (AA, 1.5 V, LR6 as per IEC), x 3
- Battery storage temperature: -20 to 35 ˚C (-4 to 95 ˚F)

Index

R

S

T

U

W

71455499

www.addresses.endress.com

Endress+Hauser [EH]

People for Process Automation