Technical Information
Memocheck Plus CYP01D / Memocheck CYP02D / Memocheck Sim CYP03D

Testing tools for analysis measuring points

Simulation of sensors with Memosens technology

Application

- Chemicals and process engineering
- Food, pharmaceutical industry and biotechnology
- Water and wastewater treatment
- Hazardous areas

Your benefits

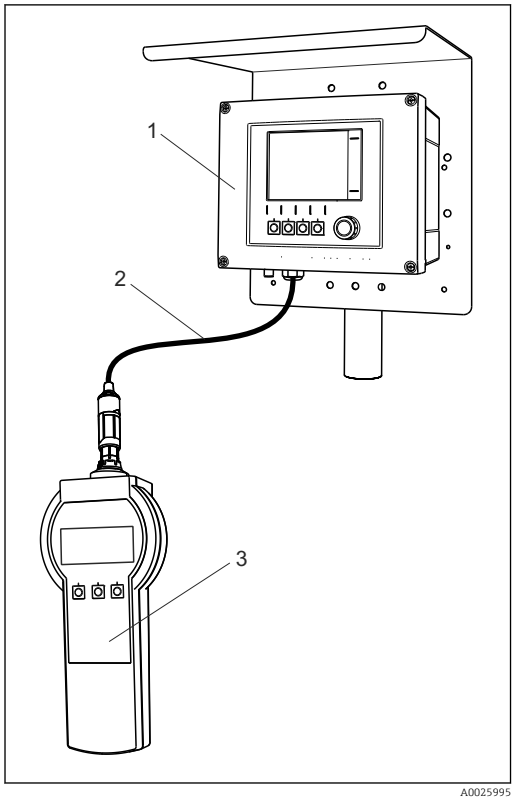
- Increased plant safety thanks to complete sensor and error simulation
- Easy, quick and reliable sensor simulation with user-definable measured values for CYP03D and fixed values for CYP01D and CYP02D
- Error simulation
- Verification of all parameters: pH (glass and ISFET), ORP, conductivity (conductive and toroidal), dissolved oxygen (amperometric and optical), chlorine, turbidity and nitrate
- High degree of flexibility when commissioning the measuring point
- Utmost reliability owing to Memosens technology:
  - No contact corrosion
  - Completely watertight
  - No interference from external potential thanks to galvanic isolation of simulator and transmitter

Endress+Hauser
People for Process Automation

Function and system design

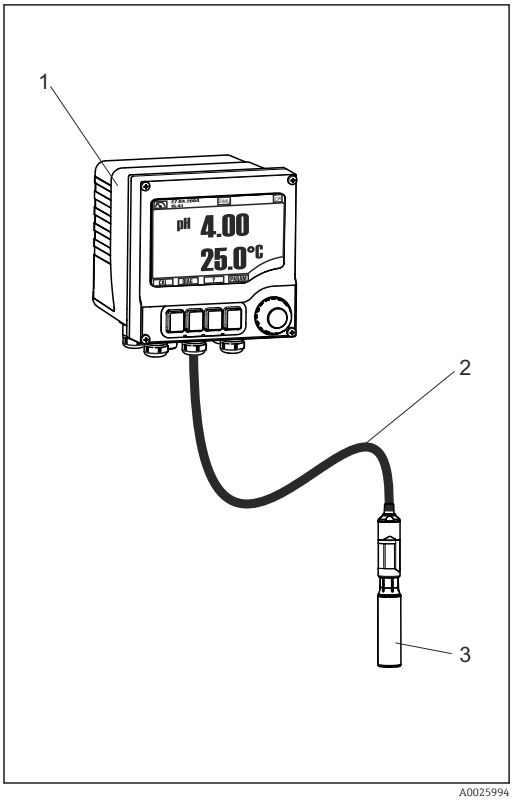
Simulation setup in non-hazardous areas

Sensor simulation in a complete measuring system consists of:
- Memocheck Plus CYP01D or Memocheck CYP02D or Memocheck Sim CYP03D
- Transmitter with Memosens technology, e.g. Liquiline M CM42 or Liquiline CM44x
- CYK10 Memosens data cable



1 Measuring system with Memocheck Sim CYP03D

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

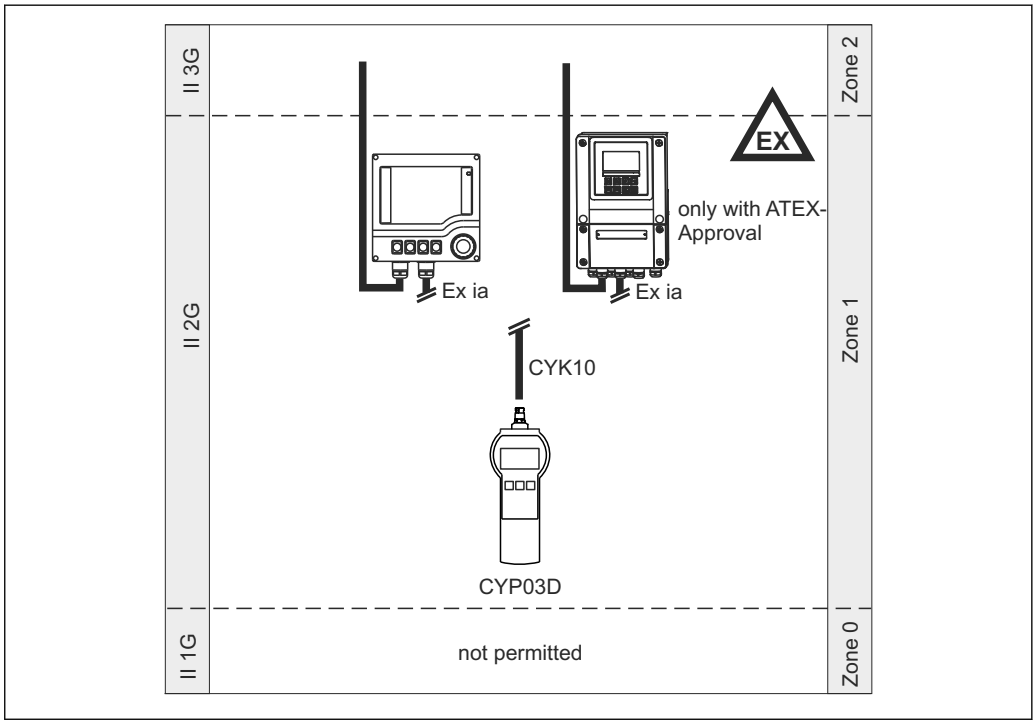


2 Measuring system with Memocheck Plus CYP01D

1 *Liquiline M CM42 transmitter*
2 *CYK10 Memosens data cable*
3 *Memocheck Plus CYP01D*

Simulation setup in hazardous areas

Sensor simulation in a complete measuring system consists of:
- Memocheck Sim CYP03D
- Transmitter with Memosens technology and Ex approval, e.g. Liquiline M CM42
- CYK10 Memosens data cable



3 Operation in hazardous areas

Performance characteristics

Simulation values of Memocheck Plus CYP01D

Memocheck Plus CYP01D comprises a set of 5 sensor plug-in heads for the same parameter with different fixed simulation values. You can simulate the following parameters depending on your order:

Simulation values output for pH glass

Plug-in head	**1**	**2**	**3**	**4**	**5**
pH value	0	4	7	10	14
Temperature	-15 °C (5 °F)	25 °C (77 °F)	60 °C (140 °F)	90 °C (194 °F)	135 °C (275 °F)
Sensor status	o.k.	o.k.	o.k.	o.k.	Error

Simulation values output for pH ISFET

Plug-in head	**1**	**2**	**3**	**4**	**5**
pH ISFET	0	4	7	10	14
Temperature	-10 °C (14 °F)	25 °C (77 °F)	60 °C (140 °F)	90 °C (194 °F)	135 °C (275 °F)
Sensor status	o.k.	o.k.	o.k.	o.k.	Error

Simulation values output for ORP

Plug-in head	**1**	**2**	**3**	**4**	**5**
ORP	-1500 mV	-750 mV	0 mV	750 mV	1500 mV
Temperature	-10 °C (14 °F)	25 °C (77 °F)	60 °C (140 °F)	90 °C (194 °F)	135 °C (275 °F)
Sensor status	o.k.	o.k.	o.k.	o.k.	Error

Simulation values output for chlorine

Plug-in head	**1**	**2**	**3**	**4**	**5**
Sensor current	0 nA	5 nA	60 nA	150 nA	300 nA
Temperature	0 °C (32 °F)	10 °C (50 °F)	25 °C (77 °F)	35 °C (95 °F)	45 °C (113 °F)
Sensor status	o.k.	o.k.	o.k.	o.k.	Error

Simulation values output for conductive measurement of conductivity

Plug-in head	**1**	**2**	**3**	**4**	**5**
Conductivity	18 MΩ [1)]	1 µS/cm	20 µS/cm	200 µS/cm	10 mS/cm
Temperature	25 °C (77 °F)	10 °C (50 °F)	45 °C (113 °F)	25 °C (77 °F)	60 °C (140 °F)
Sensor status	o.k.	o.k.	o.k.	o.k.	Error

1) Resistivity

Simulation values output for oxygen

Plug-in head	**1**	**2**	**3**	**4**	**5**
Sensor current	0.0 nA	1.0 nA	60 nA	300 nA	600 nA
Temperature	-10 °C (14 °F)	25 °C (77 °F)	60 °C (140 °F)	90 °C (194 °F)	135 °C (275 °F)
Sensor status	o.k.	o.k.	o.k.	o.k.	Error

The data listed are displayed on the transmitters.

Memocheck Plus CYP01D is maintenance-free.

With the quality certificate, Memocheck Plus CYP01D can also be used as a qualification tool for your measuring point. It can be sent into Endress+Hauser for recertification. Your Memocheck Plus CYP01D is tested fully and a new quality certificate is issued.

Simulation values of Memocheck CYP02D

Memocheck CYP02D consists of two interconnected sensor plug-in heads which are independent of one another, and which each supply one specific parameter. You can simulate the following values depending on your order:

Simulation values output for pH glass and pH ISFET

	Fixed simulation value	**Temperature**
pH glass	4	25 °C (77 °F)
pH ISFET	7	60 °C (140 °F)

Simulation values output for pH glass and pH glass

	Fixed simulation value	**Temperature**
pH glass	4	25 °C (77 °F)
pH glass	7	60 °C (140 °F)

Simulation values output for pH glass and ORP

	Fixed simulation value	**Temperature**
pH glass	4	25 °C (77 °F)
ORP potential	750 mV	90 °C (194 °F)

Simulation values output for pH glass and oxygen

	Fixed simulation value	**Temperature**
pH glass	4	25 °C (77 °F)
Oxygen	60 nA [1)]	60 °C (140 °F)

1) Sensor current

Simulation values output for pH glass and conductive measurement of conductivity

	Fixed simulation value	**Temperature**
pH glass	4	25 °C (77 °F)
Conductivity	20 µS/cm	60 °C (140 °F)

Simulation values output for pH glass and chlorine

	Fixed simulation value	**Temperature**
pH glass	4	25 °C (77 °F)
Chlorine	60 nA [1)]	25 °C (77 °F)

1) Sensor current

The data listed above are displayed on the transmitters.

Memocheck CYP02D is maintenance-free.

Simulation values for Memocheck Sim CYP03D

You can simulate the following data with Memocheck Sim CYP03D:
- Simulation values
  - Main values
  - Raw values
  - Temperature
- Parameters
  - pH glass/pH glass SIL
  - pH ISFET
  - ORP
  - Conductive/Toroidal conductivity
  - Oxygen amperometric/optical
  - Chlorine
  - Turbidity
  - Nitrate
- 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.

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.

Environment

Ambient temperature range

Memocheck Plus CYP01D and Memocheck CYP02D

-15 to +70 °C (5 to +160 °F)

Memocheck Sim CYP03D

-20 to 50 °C (-4 to 120 °F)

Storage temperature

Memocheck Plus CYP01D and Memocheck CYP02D

-15 to +70 °C (5 to +160 °F)

Memocheck Sim CYP03D

-20 to 55 °C (-4 to 130 °F)

Degree of protection (only CYP03D)

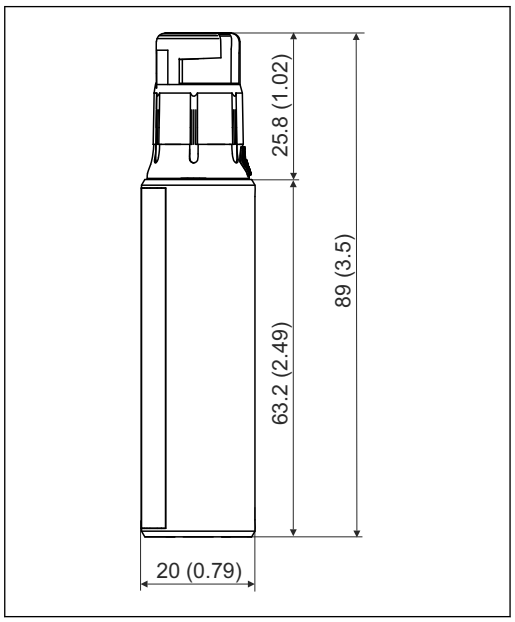
IP55

Electromagnetic compatibility (only CYP03D)

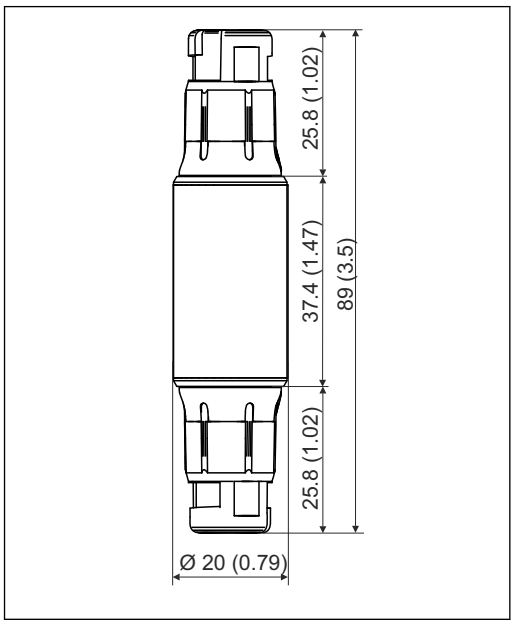
Interference emission and interference immunity as per EN 61326-1:2013, Class A for Industry

Mechanical construction

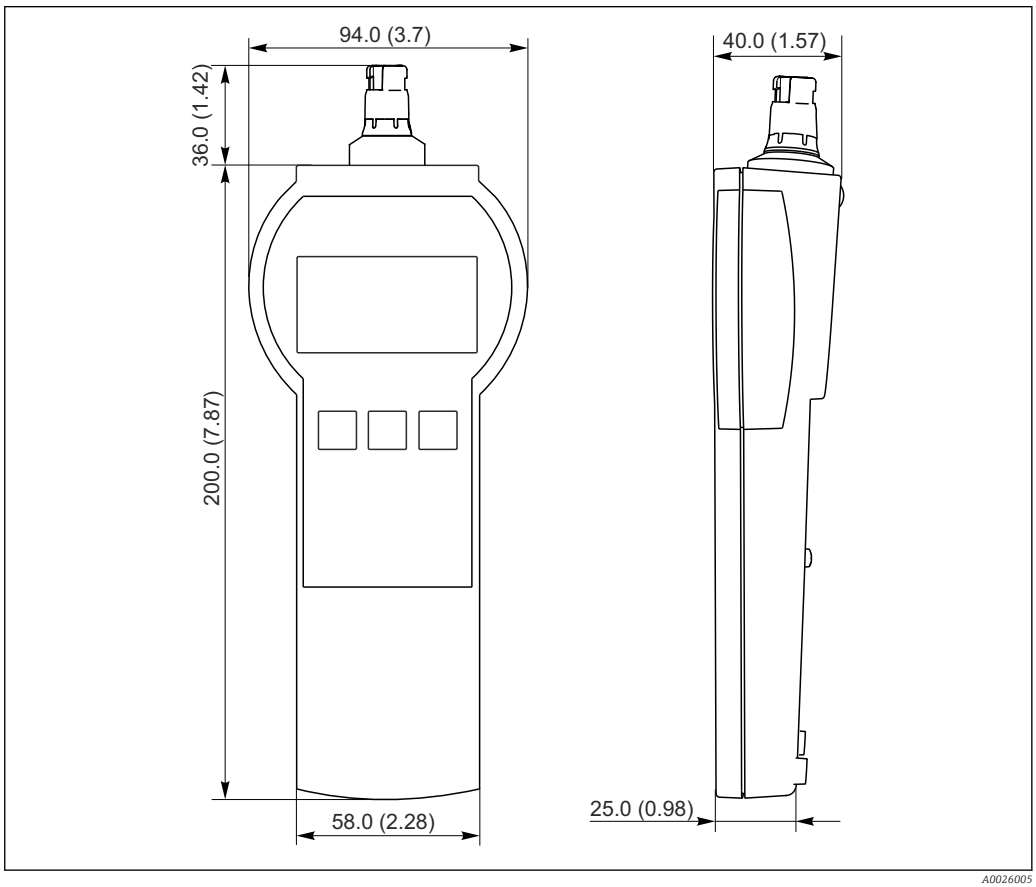
Dimensions



4 *Memocheck Plus CYP01D*



5 *Memocheck CYP02D*



6 *Memocheck Sim CYP03D*

All dimensions in mm (inch)

Weight (only CYP03D incl. batteries)

0.3 kg (0.7 lbs)

Materials

Memocheck Plus CYP01D and Memocheck CYP02D:

White plastic:	PET
Blue plastic:	PPS GF 40

Memocheck Sim CYP03D:

Housing:	ABS (UL 94 HB)

Batteries

No batteries are required for Memocheck Plus CYP01D and Memocheck CYP02D.

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)

Certificates and approvals

CE mark

The product meets the requirements of the harmonized European standards. As such, it complies with the legal specifications of the EC directives. The manufacturer confirms successful testing of the product by affixing to it the CE mark.

Ex approvals

Memocheck Plus CYP01D
- ATEX/IECEx II 2G Ex ia IIC T6 Gb
- FM/CSA IS NI Cl.I Div.1&2, Group A-D

Memocheck Plus CYP02D
- ATEX/IECEx II 2G Ex ia IIC T6 Gb
- FM/CSA IS NI Cl.I Div.1&2, Group A-D

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

Ordering information

Product page

www.endress.com/cyp01d

www.endress.com/cyp02d

www.endress.com/cyp03d

Product Configurator

The navigation area is located on the right of the product page.

1. Under "Device support" click "Configure your selected product".
   ↳ The Configurator opens in a separate window.
2. Select all the options to configure the device in line with your requirements.
   ↳ In this way, you receive a valid and complete order code for the device.
3. Export the order code as a PDF or Excel file. To do so, click the appropriate button at the top of the screen.

Scope of delivery

Memocheck Plus CYP01D
- 5 plug-in heads in case
- 1 quality certificate
- 1 set of Brief Operating Instructions (de + en)

Memocheck Plus CYP02D
- 1 Memocheck CYP02D with 2 plug-in heads
- 1 set of Brief Operating Instructions (de + en)

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)

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 office.

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

You can use the Memosens data cable CYK10 pertaining to the measuring point for Memocheck Plus CYP01D and Memocheck CYP02D .

To connect Memocheck Sim CYP03D to transmitters with M12 sockets and Pg couplings, you require the Memosens data cable CYK10 supplied. 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 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.

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.

www.addresses.endress.com

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