Level | Pressure | Flow | Temperature | Liquid Analysis | Registration | Systems Components | Services | Solutions

Technical Information

# Memocheck Plus CYP01D/Memocheck CYP02D Memocheck Sim CYP03D

## Test tools for liquid analysis measuring points with Memosens technology to simulate contactless, digital signal transmission


### Application

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

### Your benefits

- Easy, fast and reliable sensor simulation with freely definable measured values for CYP03D and fixed values for CYP01D and CYP02D
- Simulation of errors
- Checking of all parameters: pH (glass and ISFET), ORP, conductivity (conductive and inductive), dissolved oxygen (amperometrical and optical), chlorine, turbidity, nitrate
- High variability when commissioning the measuring loop
- Maximum reliability through Memosens technology:
  - No calibration necessary thanks to digital signals
  - No galvanic corrosion
  - Completely watertight
  - No affection by secondary potential thanks to galvanical isolation of simulator and transmitter

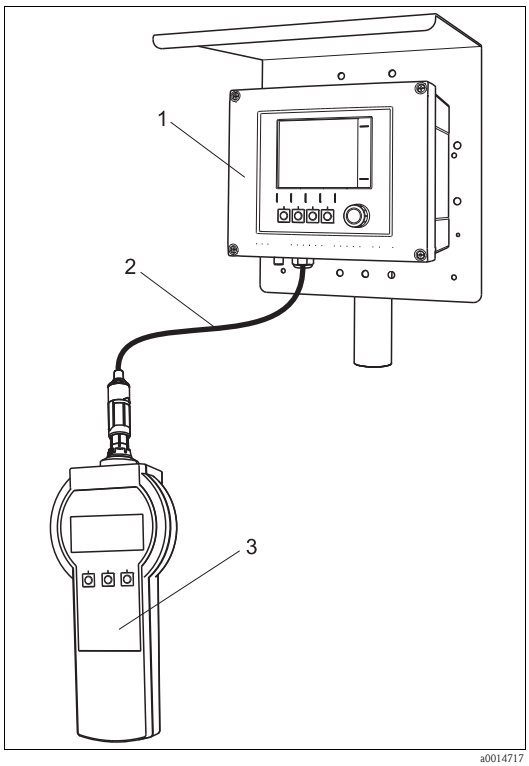
TI00481C/07/EN/14.12
71184084

Endress+Hauser
People for Process Automation

# Function and system design

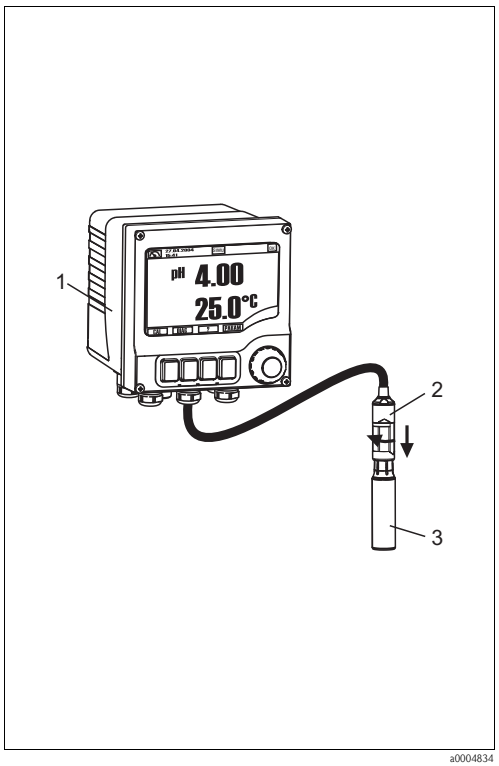
**Simulation**

The sensor simulation in a complete measuring system includes:
- Memocheck Plus CYP01D/Memocheck CYP02D/Memocheck Sim CYP03D
- Transmitter with Memosens technology
- Memosens data cable CYK10




*Measuring system with Memocheck Sim CYP03D*

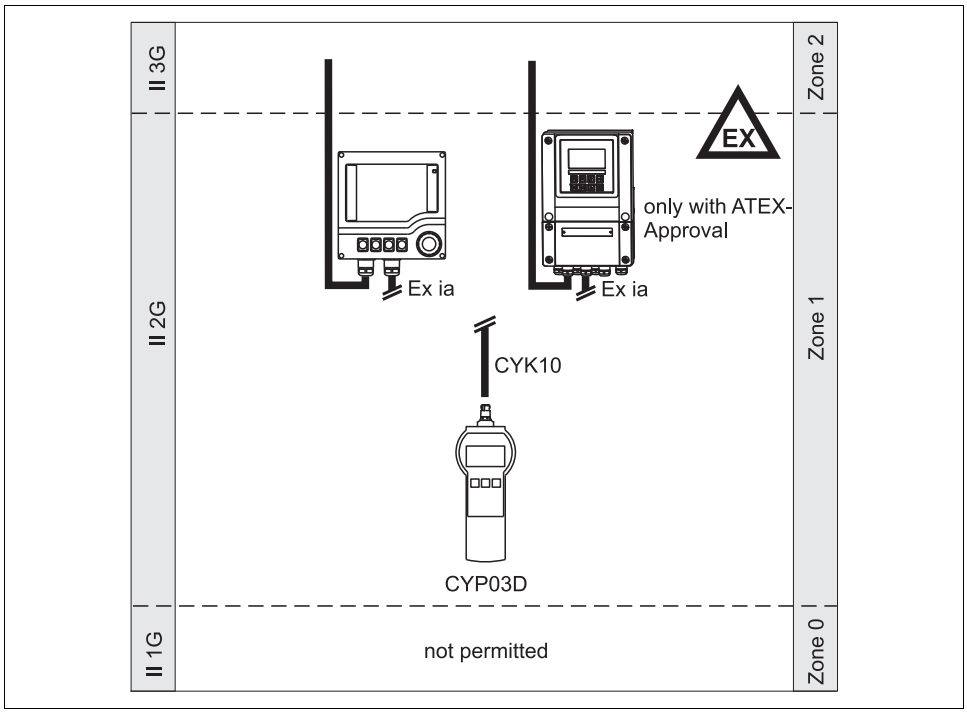
*1 Transmitter with Memosens technology, e.g. Liquiline CM44x*
*2 Memosens data cable CYK10*
*3 Memocheck Sim CYP03D*




*Measuring system with Memocheck Plus CYP01D*

*1 Transmitter with Memosens technology, e.g. Liquiline M CM42*
*2 Memosens coupling*
*3 Memocheck Plus CYP01D*

**Simulation in explosion-hazardous areas**




*Connection in explosion-hazardous areas*

**Simulation values Memocheck Plus CYP01D**

Memocheck Plus CYP01D is a set of 5 sensor plug-in heads of the same parameter with different simulation fixed values. Depending on your order you can simulate the following values:

**Transmitted simulation values 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 |

**Transmitted simulation values 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 |

**Transmitted simulation values 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 |

**Transmitted simulation values for chlorine:**

| **Plug-in head** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| **Chlorine** | 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 |

**Transmitted simulation values for conductive conductivity:**

| **Plug-in head** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| **Conductive conductivity** | 18 MOhm | 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 |

**Transmitted simulation values for dissolved oxygen:**

| **Plug-in head** | **1** | **2** | **3** | **4** | **5** |
|---|---|---|---|---|---|
| **Dissolved oxygen** | 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 above specified data are displayed by the transmitters Liquiline M CM42, Liquiline CM442, Liquisys M CPM223/253 and Mycom S CPM153.
Memocheck Plus CYP01D is maintenance-free. Thanks to digital signals no calibration is necessary.
Memocheck Plus CYP01D can be used as a qualification tool for your measuring point with the optional quality certificate. For recertification it can be sent to Endress+Hauser. Your Memocheck Plus CYP01D will be checked and you will get a new quality certificate.

**Simulation values Memocheck CYP02D**

Memocheck CYP02D consists of two connected independent plug-in heads that provide one parameter each. Depending on your order you can simulate the following values:

**Transmitted simulation values for pH glass and pH ISFET:**

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

**Transmitted simulation values for pH glass and pH glass:**

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

**Transmitted simulation values for pH glass and ORP:**

| | Fixed simulation values | Temperature |
|---|---|---|
| **pH glass** | 4 | 25 °C (77 °F) |
| **ORP** | 750 mV | 90 °C (194 °F) |

**Transmitted simulation values for pH glass and dissolved oxygen:**

| | Fixed simulation values | Temperature |
|---|---|---|
| **pH glass** | 4 | 25 °C (77 °F) |
| **Dissolved oxygen** | 60 nA | 60 °C (140 °F) |

**Transmitted simulation values for pH glass and conductive conductivity:**

| | Fixed simulation values | Temperature |
|---|---|---|
| **pH glass** | 4 | 25 °C (77 °F) |
| **Conductive conductivity** | 20 µS/cm | 60 °C (140 °F) |

**Transmitted simulation values for pH glass and chlorine:**

| | Fixed simulation values | Temperature |
|---|---|---|
| **pH glass** | 4 | 25 °C (77 °F) |
| **Chlorine** | 60 nA | 25 °C (77 °F) |

The above specified data are displayed by the transmitters Liquiline M CM42, Liquiline CM442, Liquisys M CPM223/253 and Mycom S CPM153.
Memocheck CYP02D is maintenance-free. Thanks to digital signals no calibration is necessary.

**Simulation values Memocheck Sim CYP03D**

You can simulate the following data with Memocheck Sim CYP03D:

- Simulation values
  - Primary values
  - Raw values
  - Temperature
- Parameter
  - pH glass / pH glass SIL
  - pH ISFET
  - ORP
  - Conductivity (conductive and inductive)
  - Dissolved oxygen (amperometrical and optical)
  - Chlorine
  - Turbidity
  - Nitrate
- Main simulation values can be freely defined within the limits of the specification values of the sensor
- Repeating ramp for any step rate
- Errors, e.g. glass breakage, alarm and warning
- Calibration values

All values can be freely configured making them fit to your process.
The above specified data are displayed by the transmitters Liquiline M CM42, Liquiline CM44x, Liquisys M CPM223/253 and Mycom S CPM153.
Memocheck Sim CYP03D is maintenance-free. Thanks to digital signals no calibration is necessary.
Memocheck Sim CYP03D can be used as a qualification tool for your measuring point with the quality certificate. For recertification it can be sent to Endress+Hauser. Your Memocheck Sim CYP03D will be checked and you will get a new quality certificate.

# Environment

**Ambient temperature**

**Memocheck Plus CYP01D/Memocheck CYP02D:**
-15 to 70 °C (5 to 158 °F)

**Memocheck Sim CYP03D:**
-20 to 50 °C (-4 to 122 °F)

**Storage temperature**

**Memocheck Plus CYP01D/Memocheck CYP02D:**
-15 to 70 °C (5 to 158 °F)

**Memocheck Sim CYP03D:**
-20 to 55 °C (-4 to 131 °F)

**Ingress protection Memocheck Sim CYP03D**

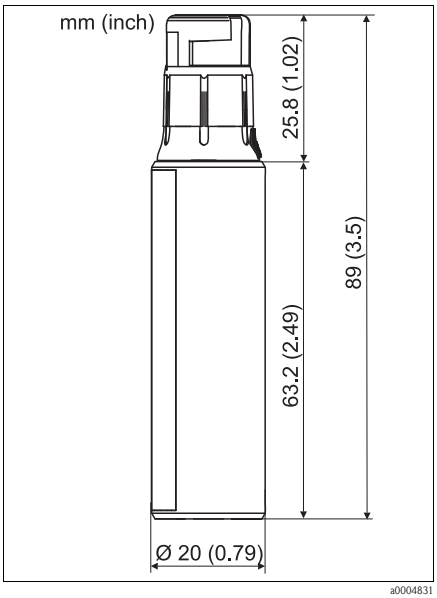
IP 65

**Electromagnetic compatibility Memocheck Sim CYP03D**

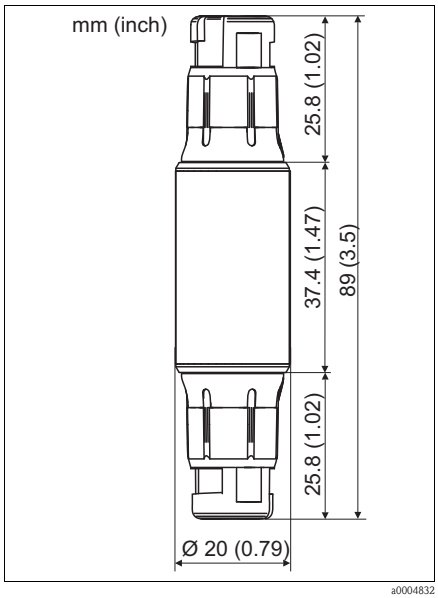
Interference emission and interference immunity as per EN 61326-1: 2006, class A for industry

# Mechanical construction

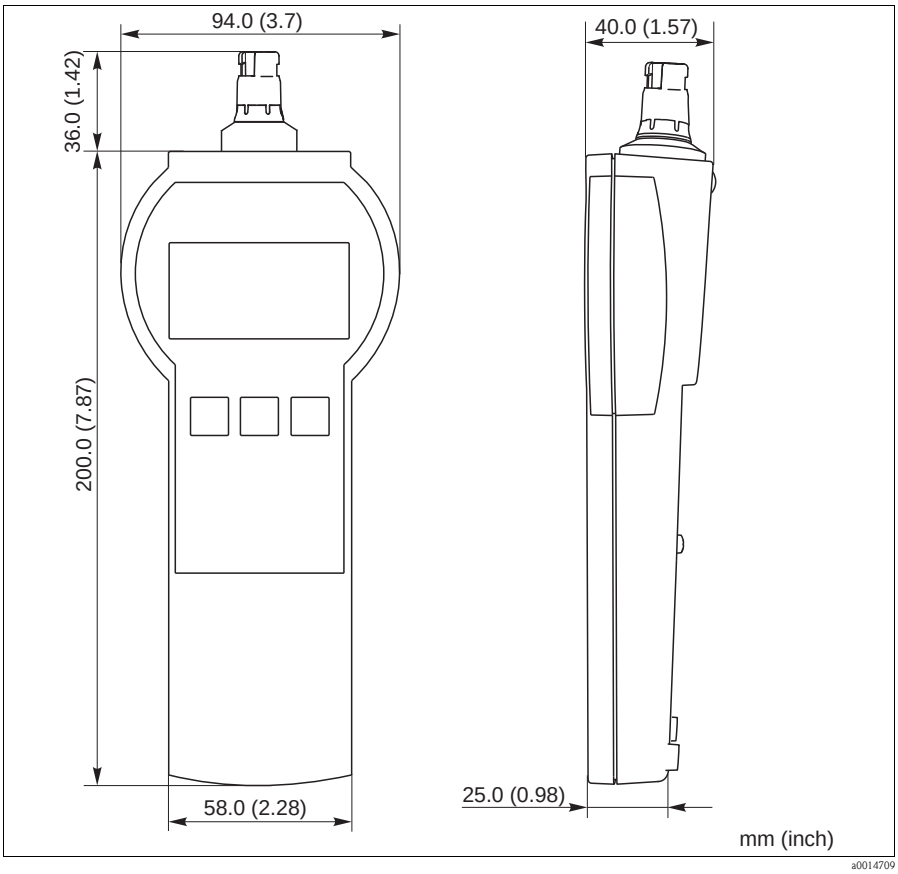
**Dimensions**




*Dimensions of Memocheck Plus CYP01D*




*Dimensions of Memocheck CYP02D*




*Dimensions of Memocheck Sim CYP03D*

**Weight**
**Memocheck Sim CYP03D**

Weight (including batteries): 0.3 kg (0.7 lbs)

**Batteries**

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

Only use the following battery types for Memocheck Sim CYP03D, as only those are included in the Ex approval:
- Duracell Batteries, MN1500 (AA, 1.5 V, LR6 according to IEC), 3 pieces
- Energizer, EN91 (AA, 1.5 V, LR6 according to IEC), 3 pieces

Storage temperature of the batteries: -20 to 35 °C (-4 to 95 °F)

**Material**

**Memocheck Plus CYP01D/Memocheck CYP02D:**

| | |
|---|---|
| White plastic: | PET |
| Blue plastic: | PPS GF 40 |

**Memocheck Sim CYP03D:**

| | |
|---|---|
| Housing: | ABS (UL 94 HB) |

# Certificates and approvals

**Ex approval**

**Memocheck Plus CYP01D**
⟨Ex⟩ II 2G Ex ia IIC T6 Gb

**Memocheck CYP02D**
⟨Ex⟩ II 2G Ex ia IIC T6 Gb

**Memocheck Sim CYP03D**

- **IECEx**
  Ex ia IIC T4 Gb
- **ATEX**
  ⟨Ex⟩ II 2G Ex ia IIC T4 Gb

# Ordering information

**Order code**

You can create a complete and valid order code by using the configurator on the internet product page.

Enter the following address to access the product page:
www.products.endress.com/cyp01d
www.products.endress.com/cyp02d
www.products.endress.com/cyp03d

1. You can choose from the following options on the product page located on the right:

| Product page function |
|---|
| :: Add to product list |
| :: Price & order information |
| :: Compare this product |
| :: Configure this product |

2. Click "Configure this product".
3. The configurator opens in a separate window.
   Use the radio buttons to configure the order code from the nameplate of your device.
4. Afterwards, you can export the order code as a PDF or Excel file.
   To do so, click the appropriate button at the top of the page.

**Product structure Memocheck Plus CYP01D**

The following product structure represents the status of printing. You can create a complete and valid order code on the Internet using the configurator tool.

| | Parameter | |
|---|---|---|
| | CA | Chlorine |
| | LC | Conductivity conductive |
| | OA | Dissolved oxygen |
| | PG | pH; for glass |
| | PI | pH; for ISFET |
| | RG | ORP |

| | | Version | |
|---|---|---|---|
| | | 1 | Standard |

| | | | Certificate | |
|---|---|---|---|---|
| | | | A | Certificate of quality |

| | | | | Approval | |
|---|---|---|---|---|---|
| | | | | G | ATEX II 2G; FM IS NI; CSA IS NI;<br>Ex ia IIC T6; Cl. 1; Div. 1 & 2; Group A-D |
| | | | | 1 | Non-hazardous area |

| | | | | | |
|---|---|---|---|---|---|
| CYP01D- | | | | | **Order code** |

**Product structure Memocheck CYP02D**

| | Parameter | |
|---|---|---|
| | PA | pH; glass + chlorine |
| | PI | pH; glass + pH; ISFET |
| | PL | pH; glass + conductivity conductive |
| | PO | pH; glass + dissolved oxygen |
| | PP | pH; glass + pH; glass |
| | PR | pH; glass + ORP |

| | | Version | |
|---|---|---|---|
| | | 1 | Standard |

| | | | Approval | |
|---|---|---|---|---|
| | | | G | ATEX II 2G; FM IS NI; CSA IS NI;<br>Ex ia IIC T6; Cl. 1; Div. 1 & 2; Group A-D |
| | | | 1 | Non-hazardous area |

| | | | | |
|---|---|---|---|---|
| CYP02D- | | | | **Order code** |

**Product structure Memocheck Sim CYP03D**

| | Approval | |
|---|---|---|
| | AA | Non-hazardous area |
| | BB | ATEX II 2G Ex ia IIC T4 Gb |
| | IA | IECEx Ex ia IIC T4 Gb |

| CYP03D- | | Order code |
|---|---|---|

| | Accessory enclosed |
|---|---|
| KA | For fixed cable sensor: CYK10, 3 m |
| KB | ***Fixed cable CYK10; 3 m; M12-plug |
| KC | Case for Memocheck Sim CYP03D |

Simply append the additional options to the order code you selected above. Please contact your sales office if you have any questions.

**Scope of delivery**

**Memocheck Plus CYP01D**

The scope of delivery includes:
- 5 plug-in heads in a case
- 1 quality certificate (according to your order)
- 1 Brief Operating Instructions (German + English)

**Memocheck CYP02D**

The scope of delivery includes:
- 1 Memocheck CYP02D with 2 plug-in heads
- 1 Brief Operating Instructions (German + English)

**Memocheck Sim CYP03D**

The scope of delivery includes:
- Memocheck Sim CYP03D
- Operating Instructions
- Quality certificate
- Cables according to your order (optional)
- Case for Memocheck Sim CYP03D and cable (optional)

# Accessories

In the following sections, you find the accessories available at the time of issue of this documentation. For information on accessories that are not listed here, please contact your local service or sales representation.

**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 |

For Memocheck Plus CYP01D and Memocheck CYP02D use the Memosens data cable CYK10 which belongs to the measuring point.
To connect Memocheck Sim CYP03D to a transmitter with M12 socket and PG glands you require the Memosens data cable CYK10. It is always provided with an adapter making it fit to M12 sockets as well as PG glands.
If you want to simulate fixed-cable sensors with Memocheck Sim CYP03D (turbidity, nitrate, conductivity inductive, dissolved oxygen), you require the Memosens data cable CYK10.
If you use sensors with inductive Memosens plug-in heads the fitting cable is a component of the measuring point.

**Case for storing**

| Order No. | Case for Memocheck Sim CYP03D |
|---|---|
| 71183325 | Non-Ex |
| 71183327 | Ex |

**Instruments International**

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