Technical Information
Memobase Plus CYZ71D

Multichannel multiparameter software for liquid analysis with digital Memosens sensors

Measure, calibrate and document your Memosens sensors with one single tool

Anwendungsbereich

- Memobase Plus manages the complete life cycle of pH, ORP, conductivity, dissolved oxygen and chlorine sensors with the robust Memosens technology.
- It is available for all industries and fulfills the highest demands of the pharmaceutical industry. User management and audit trail enable working in compliance with FDA 21 CFR Part 11.

Your benefits

- Greater efficiency with easy sensor maintenance
- Advanced diagnostics with "Ready for next batch" indication
- Better process safety thanks to sensor traceability
- Full flexibility with multichannel and multiparameter functionality
- 100% consistency between lab and process measurements
- Highest accuracy for your measurement values
- Easy buffer management

Detailed information on the product benefits is available on the product page: www.endress.com/cyz71d

Endress+Hauser
People for Process Automation

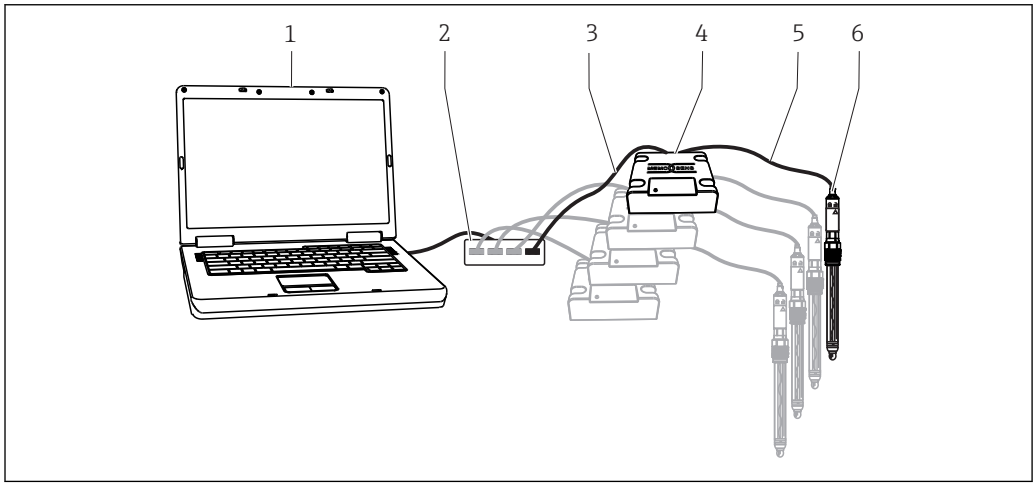
Function and system design

Measuring system

A complete measuring system consists of:
- PC or Windows-based tablet with Memobase Plus software package installed and database connected
- MemoLink sensor terminal box (connection to PC, Ex barrier)
- Thin, flexible CYK20 Memosens laboratory cable or CYK10 Memosens process cable
- USB cable to connect the MemoLink and PC
- Memosens sensor

A PC or Windows-based tablet is not included in the delivery.

Memosens sensors must be ordered separately. Information on this can be found at: www.endress.com/memosens



1 Measuring system for Memobase Plus CYZ71D

1 PC (not supplied)
2 USB hub (optional, not supplied)
3 1 to 4 USB cables
4 1 to 4 MemoLink sensor terminal boxes
5 1 to 4 CYK20 Memosens laboratory cables or CYK10 Memosens process cables
6 1 to 4 Memosens sensors

Connection

- USB → MemoLink sensor terminal box to PC
- Memosens data cable → Sensor to MemoLink sensor terminal box

System requirements

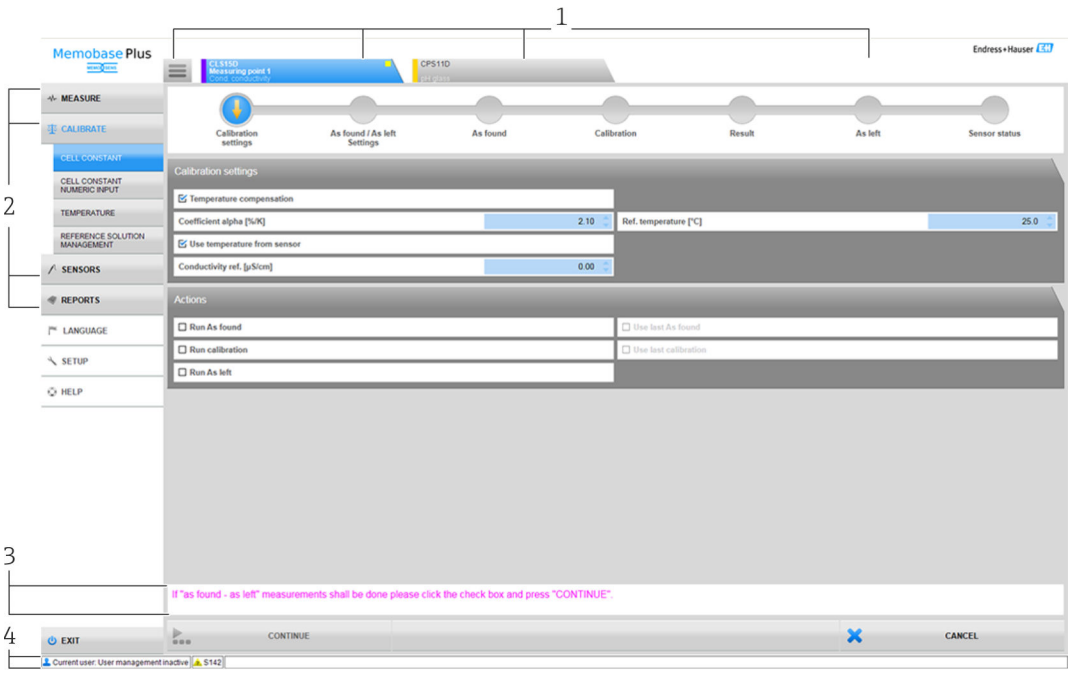
The following system requirements must be met to install and use Memobase Plus:

System requirements	
Operating system	Windows 7 Service Pack 1 (32 and 64 bit) Windows 8 Service Pack 1 (32 and 64 bit) Windows 10 (32 and 64 bit)
Monitor	Min. 1024x768 pixels, also suitable for touchscreen Recommended: min. 1280x1024 pixels
Processor	Minimum clock speed of 1 GHz not a virtual machine
Free hard disk memory	At least 3 GB for the program and database
RAM	1 GB
USB	At least 1 Type A USB port At least USB 2.0
Barcode reader	Supported interfaces: ▪ USB-HID interface ▪ USB-COM interface The interface must be configured on the barcode reader. Minimum resolution: 0.254 mm (10.0 mil)
Other	▪ CD/DVD drive for program installation ▪ Adobe Reader ▪ Printer driver ▪ Microsoft .NET Framework 4.0

Software functions

Memobase Plus has four main functions, which are listed in the navigation bar on the left:
- Measure: measurement including graph and description of sample
- Calibrate: several calibration methods and testing equipment management
- Sensors: settings, administration, status and information
- Reports: database view, report creation and export function

A separate tab is displayed at the top for each sensor connected to a MemoLink sensor terminal box. The tab displays the sensor type, order root, serial number and tag name.



2 *Program structure*

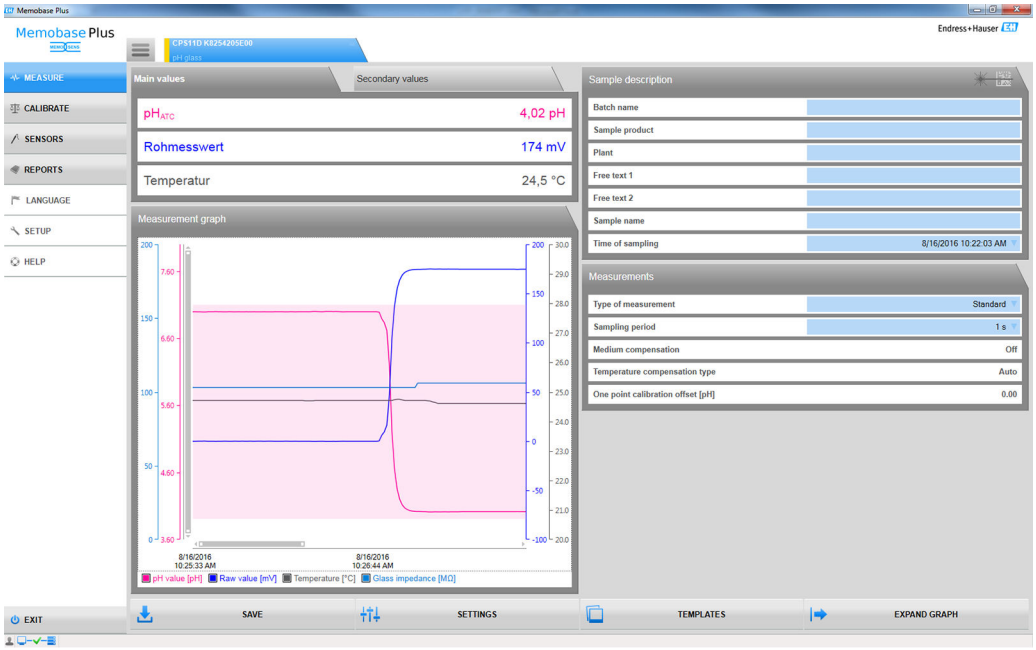
1 *Tabs*
2 *Main menu*
3 *Instruction area*
4 *Status bar*

Measurement

- Numerical and graphical display of primary and secondary measured values (with zoom function and time bar)
- Sample description for the verifiable assignment of a measurement
- Information on measurement settings is displayed in order to avoid interpretation errors

"Advanced diagnostics" license:

- Sample data easily transmitted by scanning the barcode [1)]
- Measuring range monitoring
  The sensor measuring range is highlighted in color in the graph:
  – Measured values within the sensor measuring range meet the GLP requirements and can be exported and saved
  – Measured values outside the sensor measuring range cannot be exported and saved



3 *Measuring range monitoring ("Advanced diagnostics" license): the measuring range including tolerances is highlighted in color*

1) Prerequisite: generated barcode contains the relevant data (for instructions and specifications, see Operating Instructions BA00502C)

Calibration and adjustment

- Guided step-by-step calibration with clear instructions
- Reference solution management with preprogrammed values for the most common buffer solutions (pH) available on the market
- Live-graph for visual monitoring during calibration enables sensor condition appraisal
- Ability to adapt stability criteria to different requirements for optimized measuring performance
- Optional "as-found-as-left" report provides important information regarding the sensor performance and the consistency of the current process

4 *Multipoint calibration ("Advanced diagnostics" license): buffers 4 and 7 selected as the adjustment points, buffer 9 as the calibration point*

"Advanced diagnostics" license

- Multipoint calibration and adjustment with up to 10 measured values from pH sensors
- For pH: monitoring limits can be defined for deviation between measured value and known standard
- Easy transfer of data from Endress+Hauser testing equipment by simply scanning the barcode [2)]
  - pH: CPY20 buffer solutions [2)]
  - Conductivity: CLY11 calibration solutions [2)]
  - Oxygen: COY8 zero point gel [2)]

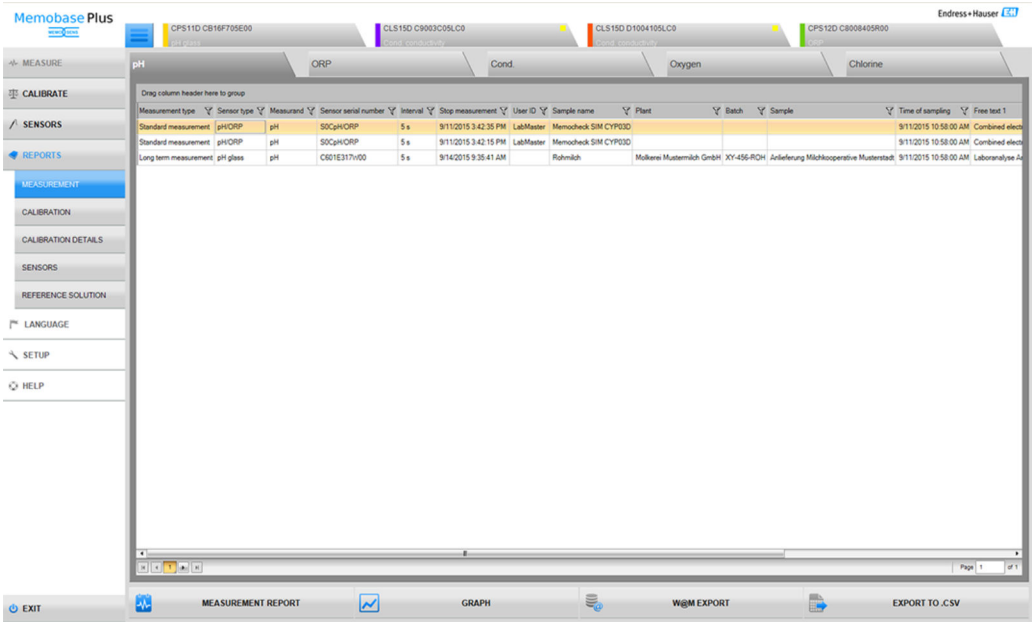
Sensors

- Time stamp for adjustment and deactivation (with explanation) documents the entire sensor life cycle
- Possible to assign sensor to measuring point in the lab
- Specification of calibration method for effective, schedulable work
- Operating hours counter to analyze the sensor condition
- Validity of sensor calibration checked on an hourly basis ("Advanced diagnostics" license)
  - Define intervals on an hourly basis for the calibration and adjustment of sensors
  - Alarms and warnings alert users to pending calibration and adjustments

2) Prerequisite: current Endress+Hauser testing equipment with relevant barcode

Reports

- Subdivision into Measure / Calibrate / Sensors / Test equipment categories and categorization by measuring parameter enables the fast retrieval of data
- Sorting and filter function helps users find data more quickly in every column
- Reports at the touch of a button, optionally with company's own logo
- The report contains all of the required information, including a table with new calibration values, deviations from old values as well as calibration history charts (slope and zero point)
- Export to .PDF, .XML or .CSV file for further processing and analysis, e.g. in Microsoft Excel or LIMS systems



5 *Report creation*

setup

- Audit trail compliant with the requirements of the pharmaceutical industry, and user administration with three roles for full traceability
- Languages:
  - German
  - English
  - Spanish
  - Italian
  - French
  - Dutch
  - Portuguese
  - Polish
  - Czech
  - Russian
  - Turkish
  - Japanese
  - Chinese
- Database settings including test function and initialization

Diagnostic messages

- Diagnostic messages are characterized as per Namur NE 107, including the corresponding symbols
- A window with instructions on how to proceed appears when quality- and safety-related messages are displayed
- All other messages are displayed in the status bar

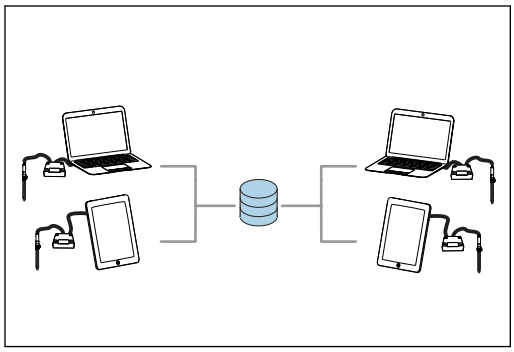
Network architecture

Memobase Plus is based on a client-server architecture and allows several clients to access a shared central database.

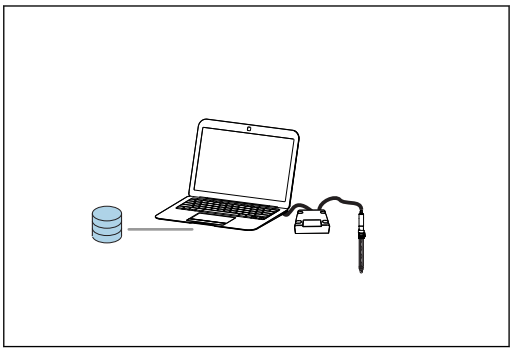
Supported databases:
- PostgreSQL (is supplied)
- Oracle (interface available)

Possible installations:
- Local installation on a PC or Windows-based tablet
- Central installation for simultaneous use by multiple PCs or Windows-based tablets

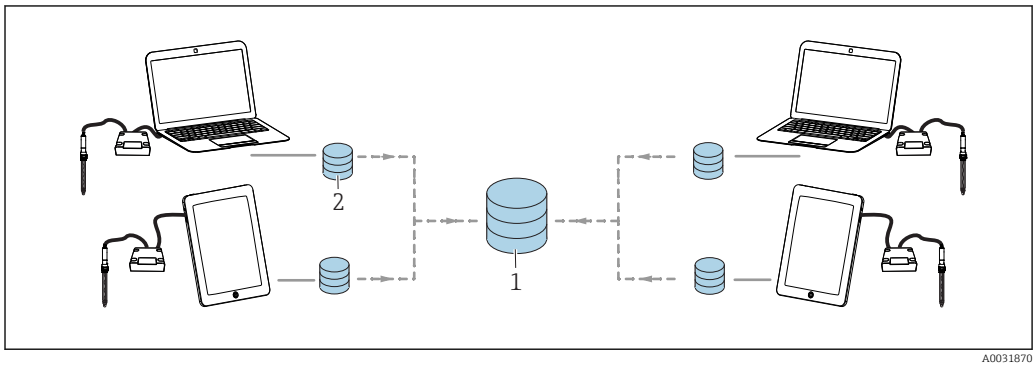
Possible operating modes:
- Master mode:
  A local or central database is connected to Memobase Plus
- Master-slave mode:
  - A central database is set up as the "master" and one or more local databases act as the "slave"
  - Data can be saved in a local database and transmitted to a central database at a later stage



6 Example 1 for master mode: installation with 1 central database which 4 clients access



7 Example 2 for master mode: installation with 1 local database



8 Example for master-slave mode: installation with 1 central and 4 local databases

1 Central database (master)
2 Local databases (slaves)

Operation with local and central database (master-slave mode)

Enjoy complete mobility with Memobase Plus:
- Save measurement and calibration data on your PC or Windows-based tablet to a local database.
- The next time you connect to the network, the values and sensor data saved locally can be easily replicated with a central database.

Replicated data:

Master to slave	Slave to master
▪ Templates ▪ Testing equipment ▪ Specifications from user administration	▪ Sensor data ▪ Measuring and calibration data ▪ Testing equipment recorded in slave database ▪ Data recorded in the audit trail ("Pharmaceutics compliance" license)

Memosens technology

Memosens

Memosens makes your measuring point safer and more reliable:

- Non-contact, digital signal transmission enables optimum galvanic isolation
- No contact corrosion
- Completely watertight
  - Can even be connected under water
  - No contact corrosion
- Sensor can be calibrated in a lab, thus increasing the availability of the measuring point in the process
- Predictive maintenance thanks to recording of sensor data, e.g.:
  - Total hours of operation
  - Hours of operation with very high or very low measured values
  - Hours of operation at high temperatures
  - Number of steam sterilizations
  - Sensor condition

MemoLink input

Type of input

Memosens port : M12 socket

Measured values

All sensors with an inductive Memosens plug-in head are suitable for connection (pH/ORP, conductive conductivity, dissolved oxygen and chlorine) and inductive conductivity with a fixed cable and M12 connector. All sensors contain a temperature sensor.

→ More information is provided in the documentation for the connected sensor.

MemoLink output

Output type

- USB port: mini USB 2.0 Type B
- USB class: HID

Output voltage

2.8 to 3.3 V

Output current

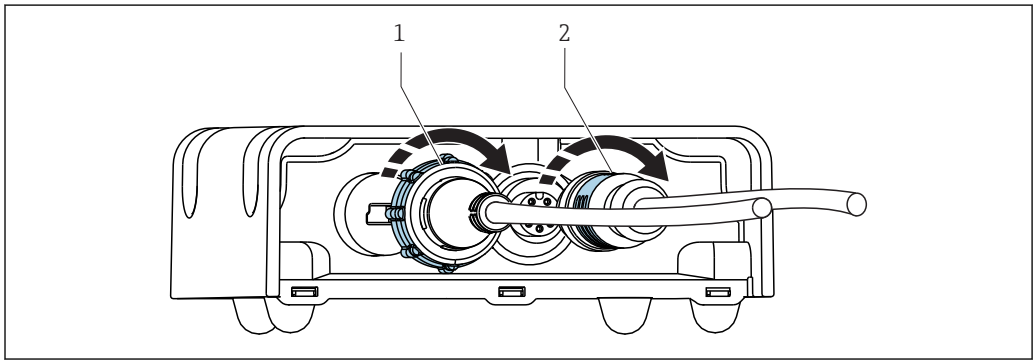
10 mA

Power supply

Supply voltage

The PC powers the sensor(s) and MemoLink(s) via the USB cable and enables the bidirectional transfer of Memosens data. If a USB hub is used, it must have a power unit.

Connection



A0031653

1 Cable with mini USB plug
2 Cable with M12 plug

Power connection

- 5 V DC via USB
- Low power mode: max. 100 mA as per USB specification 2.0

Cable length

- USB cable: 2.0 m (6.6 ft)
- Memosens laboratory cable CYK20: 1.5 m/3.0 m (4.9 ft/9.8 ft) (depending on version ordered)
- Memosens process cable CYK10: 3 to 100 m (9.8 to 328.1 ft) (depending on version ordered)

Performance characteristics

No corrupted measured data

→ Documentation of the connected sensor

MemoLink only transmits data digitally so no measured data can be corrupted. The measuring signal is converted to digital data in the sensor, which means that MemoLink, the cable or PC software do not affect the measured values.

Environment

Ambient temperature range

- MemoLink: -10 to 50 °C (14 to 122 °F)
- CYK20 Memosens laboratory cable: -10 to 50 °C (14 to 122 °F)
- CYK10 Memosens process cable: -25 to 135 °C (-13 to 277 °F)

Storage temperature

- MemoLink: -25 to 85 °C (-13 to 185 °F)
- CYK20 Memosens laboratory cable: -10 to 50 °C (14 to 122 °F)
- CYK10 Memosens process cable: -25 to 135 °C (-13 to 277 °F)

Relative humidity

max. 85%, non-condensing

Degree of protection

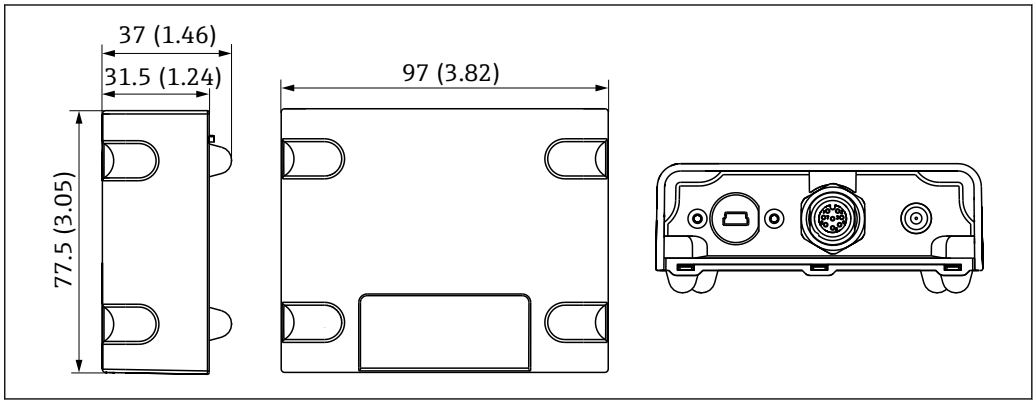
- MemoLink: IP 65 (mated, i.e. when cables are connected) in accordance with EN 60529 and Type 2 in accordance with UL
- CYK20 Memosens laboratory cable: IP 68
- CYK10 Memosens process cable: IP 68

Electromagnetic compatibility

Interference emission and interference immunity as per EN 61326-1:2006, Class B (Industrial)

Mechanical construction

Dimensions



9 *Dimensions of MemoLink in mm (inch)*

The MemoLink sensor terminal boxes can be stacked on top of one another. In such situations, the "Power / Data" LED is still easily visible.

Weight

0.24 kg (0.53 lb.) not including cable

Materials

- Housing: PBT
- Housing feet: EPDM

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 EU directives. The manufacturer confirms successful testing of the product by affixing to it the CE mark.

Ex approval

- MemoLink: ATEX II (2) G [Ex ia Gb] II C
- EMC Directive 2004/108/EC

The measuring point may be operated only in non-hazardous areas. Memosens sensors with and without Ex approval may be connected alternately to the Memosens interface. Connecting Memosens sensors without Ex approval does not affect the intrinsic safety of any Ex-rated Memosens sensors connected at a later stage.

Background: ATEX-certified instruments formally lose their approval as soon as they are connected to non-certified equipment. MemoLink has been developed and certified in a way that prevents this.

Ordering information

Product page

www.endress.com/cyz71d

Product Configurator

On the product page there is a "Configuration" button to the right of the product image.

1. Click this button.
   ↳ 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 on the right above the selection window.

For many products you also have the option of downloading CAD or 2D drawings of the selected product version. To do so, click the "CAD" tab and select the desired file type using drop-down lists.

Licensing model

One license is required per workstation. The license can be used for an unlimited period of time. It is connected to the PC or Windows-based tablet that was used to generate the activation code for connection.

1 to 4 MemoLink sensor terminal boxes, with the same number of Memosens sensors (1 to 4), can be connected per license.

The licenses can be ordered as single licenses or as a multi-user license with 2 to 5 licenses.

The license must be activated after installation. The PC or Windows-based tablet on which Memobase Plus is installed does not necessarily need an Internet connection.

License function scope

The functional range depends on the order configuration.

The following functional packages are available:

License	Function scope
Memobase Plus Basic	Measure, calibrate, document
Advanced diagnostics	Functional range of the "Memobase Plus Basic" license and also: ▪ Detection and assessment of sensor condition ▪ Multipoint calibration and adjustment of pH sensors ▪ Monitoring of defined limits for measurements and adjustments ▪ Data for Endress+Hauser reference solutions and sample data transferred via barcode
Pharmaceutics compliance	Functional range of the "Memobase Plus Basic" license and also: Advanced user administration (password protection compliant with FDA21 CFR Part 11)

Demo version

A demo version can be used for free without any obligations. Neither real sensors nor MemoLink need be connected for this purpose. There are also videos available which introduce you to the software functions. For more information, please contact your Endress+Hauser service or sales office.

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.

Kits

Kit CYZ71D MemoLink for Memosens (incl. USB cable)
Order No. 71163002

Kit CYZ71D USB cable
Order No. 71162980

Measuring cable

Memosens laboratory cable CYK20
- For digital sensors with Memosens technology
- Product Configurator on the product page: www.endress.com/cyk20

CYK10 Memosens data cable
- For digital sensors with Memosens technology
- Product Configurator on the product page: www.endress.com/cyk10

Technical Information TI00118C

Memosens data cable CYK11
- Extension cable for digital sensors with Memosens protocol
- Product Configurator on the product page: www.endress.com/cyk11

Technical Information TI00118C

Standard solutions

High-quality buffer solutions from Endress+Hauser - CPY20
The secondary buffer solutions have been referenced to primary reference material of the PTB (German Federal Physico-technical Institute) or to standard reference material of NIST (National Institute of Standards and Technology) according to DIN 19266 by a laboratory accredited by the DAkkS (German accreditation body) according to DIN 17025.
Product Configurator on the product page: www.endress.com/cpy20

Conductivity calibration solutions CLY11
Precision solutions referenced to SRM (Standard Reference Material) by NIST for qualified calibration of conductivity measuring systems in accordance with ISO 9000
- CLY11-A, 74 µS/cm (reference temperature 25 °C (77 °F)), 500 ml (16.9 fl.oz)
  Order No. 50081902
- CLY11-B, 149.6 µS/cm (reference temperature 25 °C (77 °F)), 500 ml (16.9 fl.oz)
  Order No. 50081903
- CLY11-C, 1.406 mS/cm (reference temperature 25 °C (77 °F)), 500 ml (16.9 fl.oz)
  Order No. 50081904
- CLY11-D, 12.64 mS/cm (reference temperature 25 °C (77 °F)), 500 ml (16.9 fl.oz)
  Order No. 50081905
- CLY11-E, 107.00 mS/cm (reference temperature 25 °C (77 °F)), 500 ml (16.9 fl.oz)
  Order No. 50081906

Technical Information TI00162C

COY8
Zero-point gel for oxygen sensors
- Oxygen-free gel for the validation, calibration and adjustment of oxygen measuring cells
- Product Configurator on the product page: www.endress.com/coy8

Technical Information TI01244C

Sensors

Glass electrodes

Orbisint CPS11D
- pH electrode for process technology
- Optional SIL version for connecting to SIL transmitter
- With dirt-repellent PTFE diaphragm

Technical Information TI00028C

Memosens CPS31D
- pH electrode with gel-filled reference system with ceramic diaphragm
- Product Configurator on the product page: www.endress.com/cps31d

Technical Information TI00030C

Ceraliquid CPS41D
pH electrode with ceramic junction and KCl liquid electrolyte

Technical Information TI00079C

Ceragel CPS71D
pH electrode with reference system including ion trap

Technical Information TI00245C

Memosens CPS171D
- pH electrode for bio-fermenters with digital Memosens technology
- Product Configurator on the product page: www.endress.com/cps171d

Technical Information TI01254C

Orbipore CPS91D
pH electrode with open aperture for media with high dirt load

Technical Information TI00375C

Orbipac CPF81D
- Compact pH sensor for installation or immersion operation
- In industrial water and wastewater
- Product Configurator on the product page: www.endress.com/cpf81d

Technical Information TI00191C

Enamel pH electrodes

Ceramax CPS341D
- pH electrode with pH-sensitive enamel
- Meets highest demands of measuring accuracy, pressure, temperature, sterility and durability
- Product Configurator on the product page: www.endress.com/cps341d

Technical Information TI00468C

ORP sensors

Orbisint CPS12D
ORP sensor for process technology

Technical Information TI00367C

Ceraliquid CPS42D
ORP electrode with ceramic junction and KCl liquid electrolyte

Technical Information TI00373C

Ceragel CPS72D
ORP electrode with reference system including ion trap

Technical Information TI00374C

Orbipac CPF82D
- Compact ORP sensor for installation or immersion operation in process water and wastewater
- Product Configurator on the product page: www.endress.com/cpf82d

Technical Information TI00191C

Orbipore CPS92D
ORP electrode with open aperture for media with high dirt load

Technical Information TI00435C

pH ISFET sensors

Tophit CPS441D
- Sterilizable ISFET sensor for low-conductivity media
- Liquid KCl electrolyte

Technical Information TI00352C

Tophit CPS471D
- Sterilizable and autoclavable ISFET sensor for food and pharmaceutics, process engineering
- Water treatment and biotechnology

Technical Information TI00283C

Tophit CPS491D
ISFET sensor with open aperture for media with high dirt load

Technical Information TI00377C

pH and ORP combined sensors

Memosens CPS16D
- Combined pH/ORP sensor for process technology
- With dirt-repellent PTFE diaphragm
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cps16D

Technical Information TI00503C

Memosens CPS76D
- Combined pH/ORP sensor for process technology
- Hygienic and sterile applications
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cps76d

Technical Information TI00506C

Memosens CPS96D
- Combined pH/ORP sensor for chemical processes
- With poison-resistant reference with ion trap
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cps96d

Technical Information TI00507C

Conductivity sensors with inductive measurement of conductivity

Indumax CLS50D
- High-durability inductive conductivity sensor
- For standard and hazardous area applications
- Product Configurator on the product page: www.endress.com/cls50d

Technical Information TI00182C

Indumax H CLS54D
- Inductive conductivity sensor
- With certified, hygienic design for foodstuffs, beverages, pharmaceuticals and biotechnology
- Product Configurator on the product page: www.endress.com/cls54d

Technical Information TI00508C

Conductivity sensors with conductive measurement of conductivity

Condumax CLS15D
- Conductive conductivity sensor
- For pure water, ultrapure water and Ex applications
- Product Configurator on the product page: www.endress.com/CLS15d

Technical Information TI00109C

Condumax CLS16D
- Hygienic, conductive conductivity sensor
- For pure water, ultrapure water and Ex applications
- With EHEDG and 3A approval
- Product Configurator on the product page: www.endress.com/CLS16d

Technical Information TI00227C

Condumax CLS21D
- Two-electrode sensor in plug-in head version version
- Product Configurator on the product page: www.endress.com/CLS21d

Technical Information TI00085C

Memosens CLS82D
- Four-electrode sensor
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cls82d

Technical Information TI01188C

Oxygen sensors

Oxymax COS22D
- Sterilizable sensor for dissolved oxygen
- With Memosens technology or as an analog sensor
- Product Configurator on the product page: www.endress.com/cos22d

Technical Information TI00446C

Oxymax COS51D
- Amperometric sensor for dissolved oxygen
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cos51d

Technical Information TI00413C

Chlorine sensors

CCS142D
- Membrane-covered amperometric sensor for free chlorine
- Measuring range 0.01 to 20 mg/l
- With Memosens technology
- Product Configurator on the product page: www.endress.com/ccs142d

Technical Information TI00419C

www.addresses.endress.com

Endress+Hauser

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