Technical Information

Memobase Pro CZL81

Single-user license software for documentation, reporting and monitoring of Memosens sensors

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

Application area

The Memobase Pro CZL81 software is used for documenting, recording and managing sensor and calibration data as well as measuring points. The basic version contains:

- Sample management
- Calibration
- Fully traceable documentation for sensors

Liquiline Mobile CML18 and Memobase Pro CZL81 offer measurements and sample management for:
- pH

Your benefits

- Digitalized sensor life cycle and traceability: Easily fulfill documentation obligations by exporting and reporting measured values, calibration values and set values, and less manual effort in the field, for quality assurance and in the laboratory
- Easy operation and time savings: Simplify your calibration and adjustment thanks to modern UX, reduced training requirements and intuitive wizards (e.g. for integrating buffer solutions)
- No IT security concerns and flexibility: Memobase Pro CZL81 uses the Windows framework and its authentication to ensure compliance and security

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Function and system design

Measuring system

A maximum of four Liquiline Mobile CML18 transmitters and/or MemoLink sensor terminal boxes can be connected simultaneously. There is the flexibility to individually determine the number of connected devices.

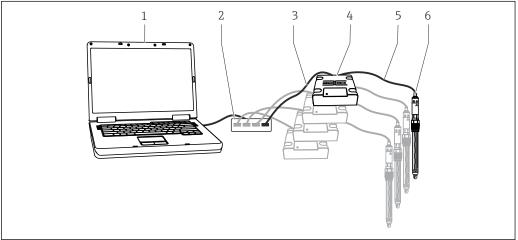**MemoLink measuring system**

A complete measuring system consists of:
• PC or Windows LTSC-based tablet with Memobase Pro CZL81 software package installed and SQLite database connected
• MemoLink sensor terminal boxes (connection to PC, Ex barrier)
• Thin, flexible CYK20 Memosens laboratory cable or CYK10 Memosens process cable
• USB cable to connect the MemoLink sensor terminal box and PC
• Memosens sensors

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

The MemoLink sensor terminal box or Liquiline Mobile CML18 transmitter is not included in the delivery.

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

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🖼 *1   Measuring system for Memobase Pro CZL81*

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

Connection

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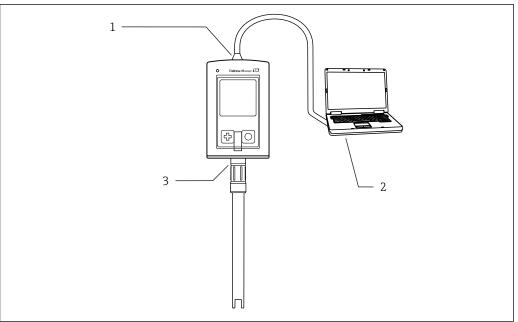• Memosens data cable → Sensor to MemoLink sensor terminal box

Measuring system CML18

The measuring system consists of at least 1–4 Liquiline Mobile CML18 transmitters and 1–4 Memosens sensors.

Connection options:
• M12 connection of the Liquiline Mobile CML18 to a PC for data transmission or to charge the device via the M12 USB cable
• Interface to connect the Liquiline Mobile CML18 to a compatible mobile device (not supplied) for data analysis, data transmission and device configuration via Memobase Pro CZL81
• Memosens connection directly on the device for a Memosens sensor

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⊡ 2   Cable, sensor and PC not supplied

1   M12 connection
2   PC interface
3   Memosens connection

| System requirements		
System requirements for installation and use of Memobase Pro CZL81:		
System requirements		
Operating system	• At least Windows 10 LTSC 1809 (64 bits) • Windows 11 (64 bits)	
Monitor	At least 1280×1024 pixels, also suitable for touchscreen	
Processor	Minimum clock speed of 1 GHz	
Free hard disk memory	At least 4 GB for the program and database	
RAM	4 GB	
USB	At least one type A USB interface At least USB 3.0	

Application database
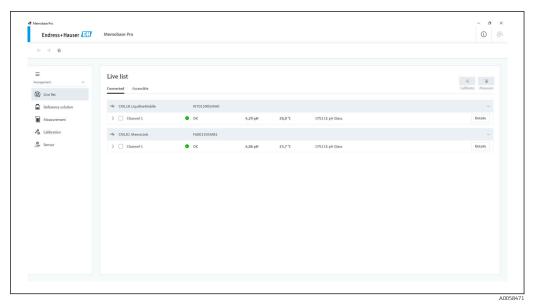
- The database file is saved under the following path for all users: **%PROGRAMDATA%\Endress +Hauser\MemorbasePro**
- All users can work with the same database
- Add user and source information to the data tables
- Allow access only for a single instance at the same time

Software functions

Memobase Pro CZL81 has five main functions, which are listed in the navigation bar on the left:
- Live list: Connection and management of Memosens sensors via MemoLink or Liquiline Mobile CML18
- Reference buffer solution management: Management of reference buffer solutions (testing equipment management)
- Measure: Measurement including graph and description of sample
- Calibrate and adjust: Several calibration methods
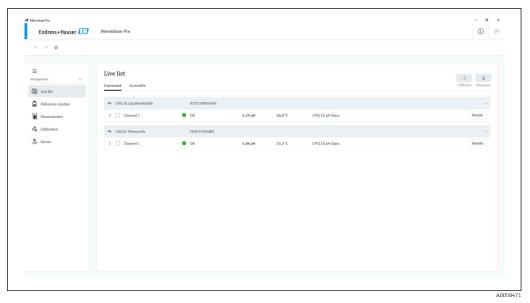- Sensors: Settings, administration, status and information

A separate tab appears at the top for each connected sensor. The tab displays the sensor type, order root, serial number and tag name.
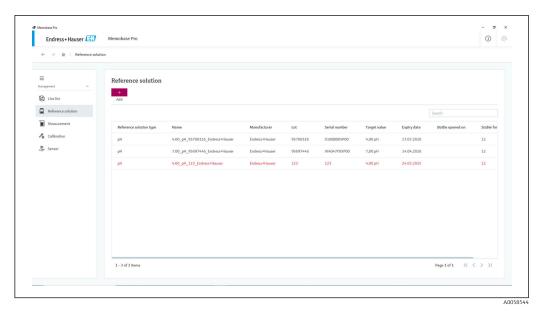
3 *Program structure*

Live list

- Connection of up to four Memosens sensors via MemoLink and Liquiline Mobile CML18
- Display of the measured values and temperature values of Memosens sensors
- Display of expanded measurement information by expanding the connected tab

4 *Live list*
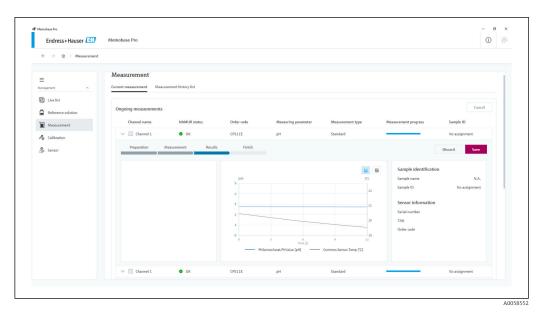
Reference buffer solution management

- Manual addition of reference buffer solutions (for example, buffer or standard solutions)
- Reference buffer solution management: Set indicator if, for example, the buffer bottle has been opened
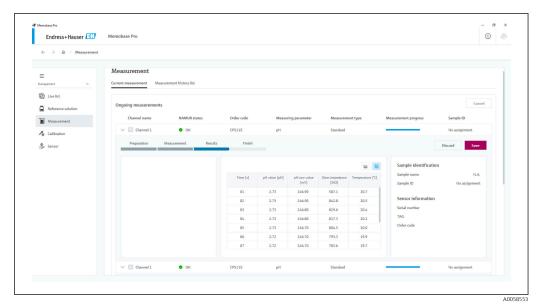- Tracking the expiration date of the reference buffer solutions

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🖼 *5 Reference buffer solution management*

Measuring

- Display of primary and secondary values both numerically and graphically
- Sample description for the verifiable assignment of a measurement
- Parallel measurement with a maximum of four connected Memosens sensors
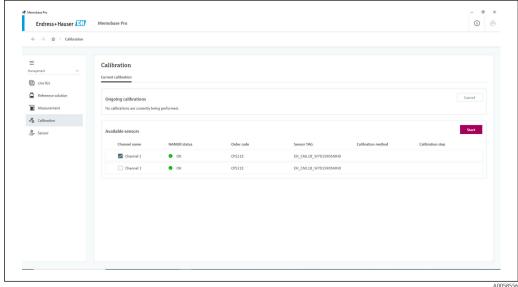

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🖼 *6 Ongoing measurement with graphic visualization*

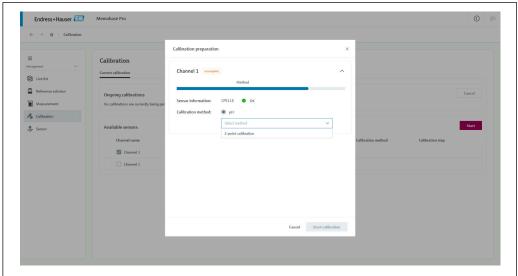⊠ *7*   *Ongoing measurement with tabular visualization*

Calibrating

- Guided step-by-step calibration with clear instructions
- Testing equipment management with preprogrammed values for the most common buffer solutions (pH) available on the market
- Ability to adapt stability criteria to different requirements for optimized measuring performance
- Calibration methods for pH:
  - Two-point calibration and adjustment
  - Three-point calibration and adjustment
- Distinction between calibration and adjustment: Calibration can only be saved and documented in Memobase Pro CZL81 following the calibration wizard. If a sensor adjustment is required, this can also be done upon reaching the end of the process in the wizard. In this case, the adjustment results are then written to the sensor.
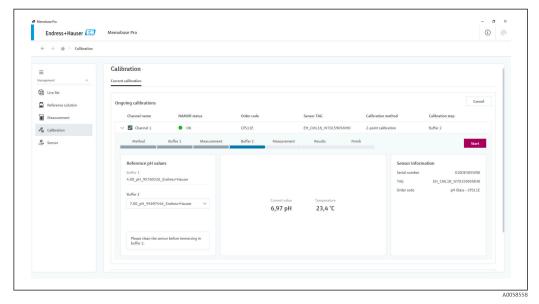

⊠ *8*   *Selection of the sensor*
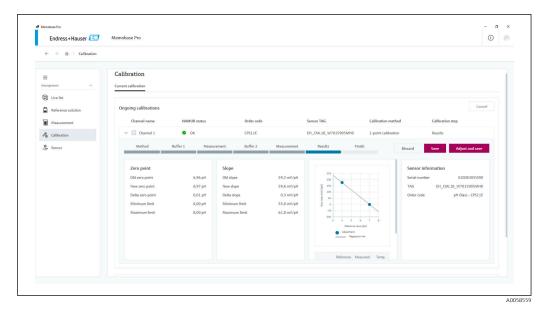
9   Selection of the calibration method
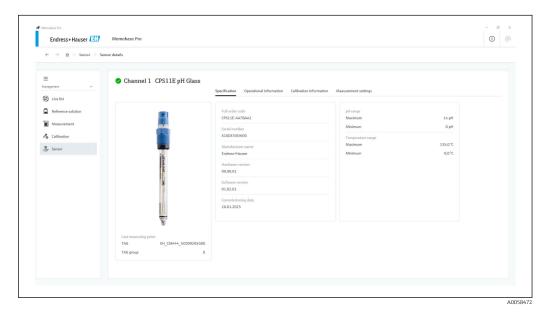
10   Two-point calibration

⊠ *11   Calibration results with regression graph*

Sensors

- Specification: Documentation of the specifications and applications of the sensor.
- Operating information: Operating hours counter and other load indicators for evaluating the sensor condition.
- Calibration information: Time stamp of previous adjustments to document the entire calibration life cycle of the sensor.
- Measurement settings: Setting of the measuring time.

⊠ *12   Connected sensors*

Diagnostic messages

- 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

| Memosens technology | **Memosens** ᴹᴱᴹᴼ⊙ˢᴱᴺˢ |

Memosens makes your measuring point safer and more reliable:
- Contactless, digital signal transmission enables optimum galvanic isolation
- No contact corrosion
- Completely watertight
  - The plug-in system 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

Power supply

| Input | **Type of input** |

Memosens port : M12 socket

Measured variables

All pH/ORP sensors with inductive Memosens plug-in head can be connected.

📖 For detailed information on "Measured variables", see the Operating Instructions for the connected sensor.

| Output | **Type of output** |

- USB port: USB 3.0
- USB class: HID

Output voltage

2.8 to 3.3 V

Output current
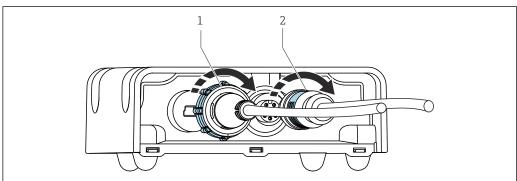
10 mA

| Power supply | **Supply voltage** |

The PC supplies the sensor and the MemoLink sensor terminal box with power via the USB cable and enables bidirectional transmission of Memosens data. If a USB hub is used, it must have a power unit.

Connection

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1   Cable with mini USB plug
2   Cable with M12 plug

Power supply

- 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 lab cable CYK20: 1.5/3.0 m (4.9/9.8 ft) (depending on order version)
- Memosens process cable CYK10: 3 to 100 m (9.8 to 328.1 ft) (depending on order version)

Performance characteristics	**Maximum measurement error**

📖 For detailed information on "Measured error", see the documentation for 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 the measured values are not affected by MemoLink, the cable or the software.

Environment	**Ambient temperature**

- MemoLink: –10 to 50 ℃ (14 to 122 ℉)
- Memosens lab cable CYK20: –10 to 50 ℃ (14 to 122 ℉)
- Memosens process cable CYK10: –25 to 135 ℃ (–13 to 277 ℉)

Storage temperature

- MemoLink: –25 to 85 ℃ (–13 to 185 ℉)
- Memosens lab cable CYK20: –10 to 50 ℃ (14 to 122 ℉)
- Memosens process cable CYK10: –25 to 135 ℃ (–13 to 277 ℉)

Relative humidity

Maximum 85 %, non-condensating

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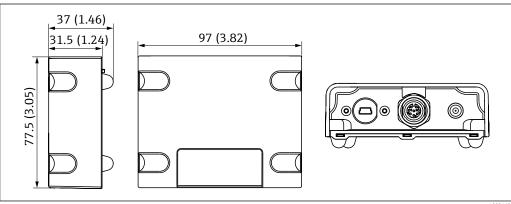
- MemoLink: IP 65 (mated, i.e. when cables are connected) in accordance with EN 60529 and Type 2 in accordance with UL
- CYK20 Memosens laboratory cable: IP 68
- CYK10 Memosens process cable: IP 68

Electromagnetic compatibility

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

Mechanical construction	**Dimensions**

▣ 13   Dimensions of MemoLink in mm (in)

ℹ 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	**Ex approval**

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

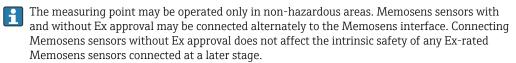> The measuring point may be operated only in non-hazardous areas. Memosens sensors with and without Ex approval may be connected alternately to the Memosens interface. Connecting Memosens sensors without Ex approval does not affect the intrinsic safety of any Ex-rated Memosens sensors connected at a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

Input CML18

Ordering information

Product page	www.endress.com/czl81

Product Configurator	

1. **Configure**: Click this button on the product page.
2. Select **Extended selection**.
   ↳ The Configurator opens in a separate window.
3. Configure the device according to your requirements by selecting the desired option for each feature.
   ↳ In this way, you receive a valid and complete order code for the device.
4. **Apply**: Add the configured product to the shopping cart.

> For many products, you also have the option of downloading CAD or 2D drawings of the selected product version.

5. **Show details**: Open this tab for the product in the shopping cart.
   ↳ The link to the CAD drawing is displayed. If selected, the 3D display format is displayed along with the option to download various formats.

License model and application packages	Memobase Pro CZL81 is only available as a single station license model with the multi-user option. The license for the Memobase Pro CZL81 application package can only be installed on one piece of hardware (e.g. laptop or PC). All users who can access the hardware have access to the installed Memobase Pro CZL81 software.

The functional range depends on the order configuration.

The following functional packages are available:

Application packages	Range of functions
Memobase Pro CZL81 Basic	Measure, calibrate, document
Memobase Pro CZL81 Plus [1]	Functional range of the "Memobase Plus Basic" license and also: • Sensor management • Advanced diagnostics
Memobase Pro CZL81 Premium [2]	Functional range of the "Memobase Pro CZL81 Plus" license and also: • Audit trail function • Function for digital signatures • Prediction models (based on laboratory + process data)

[1] Available in the future
[2] Available in the future

Trial subscription (grace period)	After installation, the full range of software functions is available to the user. The user can use the application free of charge for the first 60 days as part of a trial subscription. After the 60 days, a paid subscription must be obtained from Endress+Hauser.

Accessories

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

Listed accessories are technically compatible with the product in the instructions.

1. Application-specific restrictions of the product combination are possible.
   Ensure conformity of the measuring point to the application. This is the responsibility of the operator of the measuring point.

2. Pay attention to the information in the instructions for all products, particularly the technical data.

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

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

Memosens data cable CYK10
- 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

Sensors

Glass electrodes

Orbisint CPS11E
- pH sensor for process technology
- Optional SIL version for connecting to SIL transmitter
- With dirt-repellent PTFE junction
- Product Configurator on the product page: www.endress.com/cps11e

Memosens CPS31E
- pH electrode with gel-filled reference system with ceramic junction
- Product Configurator on the product page: www.endress.com/cps31e

Ceraliquid CPS41E
- pH electrode with ceramic junction and KCl liquid electrolyte
- Product Configurator on the product page: www.endress.com/cps41e

Ceragel CPS71E
- pH electrode with reference system including ion trap
- Product Configurator on the product page: www.endress.com/cps71e

Orbipore CPS91E
- pH electrode with hole junction for media with high dirt load
- Product Configurator on the product page: www.endress.com/cps91e

Orbipac CPF81D
- Compact pH sensor for installation or immersion operation
- In industrial water and wastewater
- Product Configurator on the product page: www.endress.com/cpf81e

pH ISFET sensors

Tophit CPS47E
- Sterilizable and autoclavable ISFET sensor for food and pharmaceutics, process engineering
- Product Configurator on the product page: www.endress.com/cps47e

CPS77E
- Digital, sterilizable and autoclavable pH electrode for hygienic production processes with a bacteria-proof ceramic junction
- Product Configurator on the product page: www.endress.com/cps77e

CPS97E
- Digital pH electrodes with open junction for clogging media such as suspended particulate matter, dispersion, precipitation reaction
- Product Configurator on the product page: www.endress.com/cps97e

Combined pH/ORP sensors

Memosens CPS16E
- Combined pH/ORP sensor for process technology
- With dirt-repellent PTFE junction
- With Memosens technology
- Product Configurator on the product page: www.endress.com/cps16e

CPL51E
- Digital Memosens 2.0 pH sensor for standard use in the laboratory and sample measurement in the field
- Robust pH sensor with plastic shaft
- Product Configurator on the product page: www.endress.com/cpl51e

CPL53E
- Digital Memosens 2.0 gel compact pH glass electrode for standard use in the laboratory
- Versatile pH sensor with very fast response time
- Product Configurator on the product page: www.endress.com/cpl53e

CPL57E
- Digital Memosens 2.0 gel compact pH glass electrode for laboratory and sample measurements
- Reference system with salt storage for drift-free measurement in low-conductivity media
- Product Configurator on the product page: www.endress.com/cpl57e

CPL59E
- Digital Memosens 2.0 gel compact pH glass electrode for laboratory and sample measurements
- Robust pH sensor with PTFE junction and ion trap
- Product Configurator on the product page: www.endress.com/cpl59e

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