Application
The Liquiline Control CDC90 automates the cleaning and calibration of Memosens pH and ORP measuring points in all industries.

Your benefits
- Optimized cleaning and calibration cycles guarantee reliable and reproducible measuring signals that help to improve product yield, quality and raw material consumption.
- Optimized cleaning and calibration cycles, particularly in the event of sensor fouling and clogging, ensure reliable measured values and therefore guarantee your product safety.
- Liquiline Control CDC90 minimizes maintenance and repair activities in environments that are hazardous and difficult to access. This increases workplace safety for your service staff.
- Seamless integration of system into your process control system thanks to certified communication standards such as analog signals (0/4 to 20 mA), PROFIBUS DP, Modbus TCP, EtherNet/IP, Profinet, including web server technology.
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Function and system design

Measuring principle

The Liquiline Control CDC90 automates the cleaning and calibration of Memosens pH and ORP measuring points in all industries. It automatically cleans, calibrates, monitors and verifies up to two sensors, thereby reducing maintenance costs, improving workplace safety in hazardous environments and boosting product output and quality.

Liquiline Control CDC90 can be easily integrated into existing plant infrastructures and enables the practical remote operation of your measuring points via the control station.

Measuring system

A complete measuring system comprises the following components:

- Liquiline Control CDC90
- Retractable assembly (e.g. Cleanfit series)
- pH/ORP sensor
- Lines for compressed air, water and electrics
- Digital measuring cable

![Diagram of a complete measuring system](image)

1. Water connection, at installation location
2. Retractable assembly (e.g. Cleanfit series) with inductive limit switches with pH/ORP sensor
3. Process/medium
4. Rinsing block
5. Pump canister unit
6. Pneumatic control unit
7. CDC90 control unit
8. Ethernet switch
9. Media (cleaners, buffers)
10. Compressed air line
11. Electric cable, signal cable

The system is available in different versions. Here is a complete overview comprising all of the system's modules.
You can choose from the following cleaning and calibration options:

Predefined program for:
- Cleaning the sensor
- Cleaning and calibrating the sensor
- Assembly retraction in measuring and service position
- User-definable programs without predefined program steps

You can freely configure all programs to suit your requirements. The predefined programs are used for faster configuration.

Calibration options for pH glass, ISFET and ORP sensors:
- Single-point or two-point calibration
  The buffer tables e.g. according to DIN, Endress+Hauser etc. are saved by setting the buffers used and automatically calculating the pH values depending on the temperature.
- Automatic acceptance of calibration data for digital sensors with Memosens technology

The CDC90 control unit consists of a Liquiline transmitter and a separate industrial PC (IPC). The Liquiline transmitter acts as the peripheral interface for analog and digital signals. These are controlled by an IPC that has a separate software program for the automation of the measuring point.
The IPC is responsible for retracting the assembly and activating the pilot valve manifold, and processes all the states of the float switches and pressure switches.

The IPC only establishes digital fieldbus communication to the control station.

In both the IPC and the Liquiline transmitter, operation and configuration is possible via the device's web server.

Primary operation is via the IPC. As the Liquiline transmitter is preconfigured upon delivery, it generally does not require any further configuration.

The assignment of the inputs and outputs is provided in the following table and graphic:

<table>
<thead>
<tr>
<th></th>
<th>Liquiline transmitter</th>
<th>IPC</th>
<th>Pneumatic control unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inputs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital</td>
<td>12x0/24 VDC, passive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analog</td>
<td>1 x 0/4 to 20 mA, passive, potentially isolated from one another and from the sensor inputs</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Outputs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital</td>
<td>16x0/24 VDC, 0.5 mA per output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analog</td>
<td>1 or 5 x 0/4 to 20 mA, active, galvanically isolated from each other and from the sensor circuits</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fieldbuses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• EtherNet/IP via Modbus TCP/EtherNet/IP coupler</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PROFIBUS DP via Modbus TCP/Profibus DP coupler</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• PROFINET via Modbus TCP/PROFINET coupler</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Modbus TCP</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Overview of analog and digital communication

1. Housing of the CDC90 control unit
2. BASE2-E module
3. IPC
4. EtherCAT connection between Ethernet switch and pneumatic control unit (W20-W21-W22)
5. Ethernet switch
6. Connection to PCS
7. Modbus TCP connection between Ethernet switch and BASE2-E (W19-W24)
8. Modbus TCP connection between Ethernet switch and IPC (W18-W23)
9. Pilot valves
10. Pneumatic control unit
11. External remote IO, DIO

CDC90 control unit

Liquiline transmitter

Modules:
- Slot 1: base module BASE2-E (contains 2 sensor inputs, 2 current outputs)
- Slot 2–3: empty
- Slot 4: module 2AI (2 current inputs)
- Slot 5–6: 2x module DIO
- Slot 7: retrofittable: module 4AO (4 current outputs)

Example of terminal name:
Basic rule for hardware upgrades

Please note the following if upgrading the device:
- Upgrade only to 1x 4 AO module possible
- A maximum of two "DIO" modules may be used.

IPC ports

Connection to Ethernet switch.
Pneumatic control unit

1 measuring point

1 100 / 230 VAC terminal
2 24 V terminal
3 0 V terminal
4 Terminals for float switches and pressure switches
5 Output interface terminal for assemblies, limit position switch
6 Pressure switch
7 External remote IO, DIO
8 Pilot valves
9 Mounting
10 Cable gland
11 24 VDC power unit
12 F1 system fuse
13 Pilot valve manifold, bus node
14 Ventilation slot
2 measuring points

1. Pneumatic control unit for a 2nd measuring point
2. Extension of the output interface terminals for a 2nd measuring point
3. Extension of the pilot valves for a 2nd measuring point

Rinsing block

1. Water connection (hose barb D12 PP)
2. Liquid canister 1
3. Liquid canister 2
4. Outlet rinse connection to assembly
5. Multihose connection
6. Liquid canister 3
7. Air rinsing block (pilot valve 4)

A changeover valve is used in conjunction with the rinsing block for a second measuring point.
Communication and data processing

Types of communication

Several digital communication protocols are available to enable the Liquiline Control CDC90 to be integrated into a customer's digital infrastructure (process control system).

The data connection is established and managed exclusively via the internal controller of the CDC90, and not via the fieldbus module of the integrated Liquiline transmitter.

Additional Special Documentation is available for the integration process. However, if analog signals are used (current inputs/outputs), the current input and output modules of the Liquiline transmitter act as the interface to the customer's control system / PCS. Output 1:2 on the base module and input 4:2 on the AI module are preconfigured. Only the current outputs on the 4 AO module need to be configured for measured value transmission.

Liquiline Control CDC90 has an internal communication process via Modbus, which is designed exclusively to ensure safe and reliable processing and the trouble-free operation of the device. These communication processes are not designed for external communication with the customer. Therefore, with the exception of the Liquiline transmitter's web server functionality, do not connect the interfaces of the transmitter to other interfaces.

You can choose from the following communication options in the CDC90 control unit:
- Analog current output, current signals (4 to 20 mA)
  Via AO modules in the CDC90 control unit. The settings can be made via the web server or local display.
  Power transmission is via the current input/output modules of the CDC90 control unit. The input/outputs are already preconfigured.
- EtherNet/IP (adapter)
- PROFIBUS DP (slave)
- Modbus TCP (server)
- PROFINET (device)

More detailed information on fieldbus communication is provided on the product pages on the Internet:
- EtherNet/IP (adapter) via Modbus TCP - EtherNet/IP gateway: BA02241C
- Modbus TCP (server): BA02238C
- PROFIBUS DP (slave) via Modbus TCP - PROFIBUS DP gateway. BA02239C
- PROFINET (device) via Modbus TCP - PROFINET gateway: BA02240C

Dependability

Reliability
- Level and consumption indicator
  The level and amount of buffer or cleaning solution are displayed.
- Information about the current program step
  Transparent status indication with time information
- Sensor verification
  Sensor accuracy is verified. If a tolerance range is exceeded during calibration, Liquiline Control rejects the calibration values. Therefore you are guaranteed that your measured value is always accurate.
- Seal condition monitoring
  Monitoring of the seals on the assembly, pumps, water valve and additional valves. With this function, the system can predict when the assembly will require new sealing rings.
- System pressure monitoring to activate the assembly and pumps. If the pressure drops below the minimum level, the system signals an alarm.

Memosens

Memosens makes your measuring point safer and more reliable:
- Non-contact, digital signal transmission enables optimum galvanic isolation
- Completely watertight
- Sensor can be calibrated in a lab, thus increasing the availability of the measuring point in the process
- Maintenance thanks to recording of sensor data, e.g.:
  Total hours of operation

Input

Measured variables
- Documentation of the connected sensor
### Measuring ranges

→ Documentation of the connected sensor

### Types of input

- Digital sensor inputs for sensors with Memosens protocol (Base-E module in the CDC90 control unit)
- Digital inputs (DIO module in the CDC90 control unit)
- Digital inputs, Namur (pneumatic control unit)
- Analog inputs (AI module in the CDC90 control unit)

### Input signal

Depending on version:
- Max. 2 x binary sensor signal
- Standard: 2 x 0/4 to 20 mA
- 0 to 30 V DC

### Digital sensor inputs, passive in the CDC90 control unit

<table>
<thead>
<tr>
<th>Span</th>
<th>&gt; 0 to 20 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal characteristic</td>
<td>Linear</td>
</tr>
<tr>
<td>Internal resistance</td>
<td>Non-linear</td>
</tr>
<tr>
<td>Test voltage</td>
<td>500 V</td>
</tr>
</tbody>
</table>

### Digital inputs, passive in the CDC90 control unit

| Electrical specification | drawing power (passive)  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Galvanically isolated</td>
</tr>
<tr>
<td>Span</td>
<td>High: 11 to 30 V DC</td>
</tr>
<tr>
<td></td>
<td>Low: 0 to 5 V DC</td>
</tr>
<tr>
<td>Nominal input current</td>
<td>max. 8 mA</td>
</tr>
<tr>
<td>PFM function</td>
<td>Minimum pulse width: 500 µs (1 kHz)</td>
</tr>
<tr>
<td>Test voltage</td>
<td>500 V</td>
</tr>
<tr>
<td>Cable specification</td>
<td>Max. 2.5 mm² (14 AWG)</td>
</tr>
</tbody>
</table>

### Digital inputs, passive in pneumatic control unit

| Span          | High: 11 to 30 V DC  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low: 0 to 5 V DC</td>
</tr>
<tr>
<td>Nominal input current</td>
<td>max. 8 mA</td>
</tr>
<tr>
<td>Cable specification</td>
<td>Max. 2.5 mm² (14 AWG)</td>
</tr>
<tr>
<td>Analog inputs, passive in CDC90 control unit</td>
<td>Span</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td></td>
<td>&gt; 0 to 20 mA</td>
</tr>
</tbody>
</table>

**Signal characteristic**
- Linear

**Internal resistance**
- Non-linear
Output

Output signal
- Analog outputs, on the Base-E module, active in the CDC90 control unit
- Digital outputs, on the External Remote IO, DIO, active in the pneumatic control unit

Analog outputs, active in CDC90 control unit

Signal on alarm
Adjustable, as per NAMUR Recommendation NE 43
- In measuring range 0 to 20 mA: failure current from 20 to 23 mA
- In measuring range 4 to 20 mA: failure current from 2.4 to 23 mA
- Factory setting for failure current for both measuring ranges: 22.5 mA

The failure current of 22.5 mA represents 'Failure-category' alarms of the transmitter. More detailed information is available in the Operating Instructions for the transmitter.

In addition, a failure current of 10 mA represents 'Failure-category' alarms of the overall system. More detailed information is available in the Special Documentation on Analog Communication. SD02527C

Load
Max. 500 Ω

Linearization/transmission behavior
Linear

Electrical specification
- Passive
- Open collector, max. 30 V, 15 mA
- Maximum voltage drop 3 V

PFM function
Minimum pulse width: 500 µs (1 kHz)

Digital outputs, active in pneumatic control unit

Electrical specification
- Outputs:16
- Max. current: 0.5 A per output
- Total current: max. 8 A

Cable specification
Max. 2.5 mm² (14 AWG)

Protocol-specific data

<table>
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<tr>
<th>IPC output signals</th>
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<th>PROFIBUS DP (via gateway)</th>
<th>PROFINET (via gateway)</th>
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</thead>
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<tr>
<td>Signal encoding</td>
<td>IEEE 802.3 (Ethernet)</td>
<td>IEEE 802.3 (Ethernet)</td>
<td>PROFIBUS-DP-compliant as per IEC 61158</td>
<td>IEEE 802.3 (Ethernet), IEC 61131-3-Code</td>
</tr>
<tr>
<td>Data transmission rate</td>
<td>10 / 100 Mbit/s</td>
<td>10 / 100 Mbit/s</td>
<td>9.6 kBit/s - 12 MBit/s autodetect</td>
<td>10 / 100 Mbit/s</td>
</tr>
<tr>
<td>Galvanic isolation</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Connection</td>
<td>M12</td>
<td>See gateway</td>
<td>See gateway</td>
<td>See gateway</td>
</tr>
<tr>
<td>IP address</td>
<td>192.168.0.1</td>
<td>192.168.0.6</td>
<td>192.168.0.5</td>
<td>192.168.0.7</td>
</tr>
<tr>
<td>Address</td>
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</table>
Modbus TCP

**NOTICE**
The device uses an EtherCat connection for internal communication. Depending on the network load, EtherCAT may cause failures in the CDC90 IPCs if multiple CDC90 devices are integrated in the same network.

- To reduce the network load in the case of a Modbus TCP connection, the networks must be separated. Physical separation with a VLAN-enabled switch, e.g. Layer 2 managed switch, or software-based separation is possible.

| TCP port | 502 |
| TCP connections | 3 |
| Log | TCP |
| Function codes | 03, 04, 06, 08, 16, 23 |
| Broadcast support for function codes | 06, 16, 23 |
| Supported features | Address can be configured using DHCP or software |

<table>
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<th>Input (T → O)</th>
<th>Program control</th>
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<td>Measured values</td>
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<tr>
<td>IO Feedback</td>
<td>Sensor calibration</td>
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**Web server**
The Liquiline Control's IPC features a web server that allows users to configure the device, visualize measured values and check the status of the entire system.

The web server of the CDC90 control unit enables the direct configuration of the connected sensor and peripheral modules for digital/analog inputs and outputs. The two web servers can be accessed via separate IP addresses.

**Liquiline transmitter**

| TCP port | 80 |
| Supported features | Remote-controlled device configuration |
| | Save/restore device configuration (via SD card) |
| | Export as SQLite database |
| | Access to web server via Internet browser |

**IPC**

| TCP port | 8080 |
| Supported features | Remote-controlled device configuration |
| | Access to web server via Internet browser |
## Power supply

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<thead>
<tr>
<th><strong>Supply voltage</strong></th>
<th>100 to 230 V AC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency</strong></td>
<td>50/60 Hz</td>
</tr>
<tr>
<td><strong>Power consumption</strong></td>
<td>Max. 50 VA</td>
</tr>
</tbody>
</table>

### Cable specification

**Power supply cable (mains)**

- **Cable cross-section:**
  - Minimum cross-section 3 x 0.75 mm² to 10 m length
  - Minimum cross-section 3 x 1.5 mm² to 20 m length

### Overvoltage protection

- Integrated overvoltage protection according to EN 61326
- Protection category 1 and 3

### Electrical connection

**Electrical safety**

- IEC 61010-1, Class I equipment
- Low voltage: overvoltage category II
- Environment < 2000 m (< 6562 ft) above MSL
**Performance characteristics**

| Response time | Current outputs  
|               | \( t_{90} = \text{max. 500 ms for an increase from 0 to 20 mA} \)  
|               | Current inputs  
|               | \( t_{90} = \text{max. 330 ms for an increase from 0 to 20 mA} \)  
|               | Digital inputs and outputs  
|               | \( t_{90} = \text{max. 330 ms for an increase from low to high} \)  

| Reference temperature | 25 °C (77 °F)  
| Measured error for sensor inputs | → Documentation of the connected sensor  

| Measured error for current inputs and outputs | Typical measured errors:  
|                                               | \(< 20 \mu A \, \text{(with current values < 4 mA)} \)  
|                                               | \(< 50 \mu A \, \text{(with current values 4 to 20 mA)} \)  
|                                               | at 25 °C (77 °F) each  
|                                               | Additional measured error depending on the temperature:  
|                                               | \(< 1.5 \mu A/°C \)  

| Frequency tolerance of digital inputs and outputs | \( \leq 1\% \)  
| Resolution of current inputs and outputs | \(< 5 \mu A \)  
| Repeatability | → Documentation of the connected sensor  

**Environment**

This device is for indoor use only.

| Ambient temperature range | 0 to 45 °C (32 to 113 °F)  
| Storage temperature | −20 to 70 °C (−4 to 158 °F)  
| Relative humidity | 10 to 90 %, non-condensating  
| Operating height | Max. altitude above MSL  
|                   | \(< 2000 \text{ m (} < 6562 \text{ ft)} \) above MSL  
| Degree of protection | CDC90 control unit  
|                   | IP66/Type 4X  
|                   | Pneumatic control unit  
|                   | IP54/Type 12  
| Climate class | As per IEC 60654-1: B2  
| Electromagnetic compatibility | Interference emission and interference immunity as per EN 61326-1:2013, Class A for Industry  
| Pollution degree | The product is suitable for pollution degree 2.  

Mechanical construction

Dimensions of CDC90 control unit

9  Dimensions of field housing in mm (in)

Dimensions of pneumatic control unit

10  Dimensions of pneumatic control unit in mm (in)
Dimensions of canister holder

11 Dimensions of canister holder in mm (in)

12 Dimensions of canister with pump in mm (in)
Dimensions of rinsing block

13  Dimensions of rinsing block PVDF, in mm (in)

14  Dimensions of changeover valve, 2nd measuring point in mm (in)
Dimensions of mounting plate

Weight

<table>
<thead>
<tr>
<th>Device</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete device on mounting plate</td>
<td>Approx. 52 kg (114.64 lbs)</td>
</tr>
<tr>
<td>CDC90 control unit</td>
<td>Approx. 2.1 kg (4.63 lbs) depending on the version</td>
</tr>
<tr>
<td>Pneumatic control unit painted</td>
<td>7.5 kg (16.53 lbs) (empty)</td>
</tr>
<tr>
<td>Pump canister unit</td>
<td>Approx. 1.5 kg (3.30 lbs)</td>
</tr>
<tr>
<td>Mounting plate (Trespa)</td>
<td>Approx. 10 kg (22 lbs)</td>
</tr>
<tr>
<td>Canister shelf</td>
<td>Approx. 3.2 kg (7.05 lbs)</td>
</tr>
<tr>
<td>SD card</td>
<td>Max. 5 g (0.17 oz)</td>
</tr>
</tbody>
</table>

Materials

<table>
<thead>
<tr>
<th>Device</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDC90 control unit</td>
<td></td>
</tr>
<tr>
<td>Module housing</td>
<td>PC (polycarbonate)</td>
</tr>
<tr>
<td>Soft keys</td>
<td>TPE (thermoplastic elastomers)</td>
</tr>
<tr>
<td>LED</td>
<td>POM</td>
</tr>
<tr>
<td>Cable mounting rail</td>
<td>Stainless steel 1.4301 (AISI 304)</td>
</tr>
<tr>
<td>Display glass</td>
<td>Plastic capacitive touchscreen</td>
</tr>
<tr>
<td>Cable glands</td>
<td>PA (polyamide) V0 as per UL94</td>
</tr>
<tr>
<td>M12 cable glands</td>
<td>PA (polyamide)</td>
</tr>
<tr>
<td>Housing seals</td>
<td>EPDM</td>
</tr>
<tr>
<td>Cable gland O-ring</td>
<td>EPDM</td>
</tr>
</tbody>
</table>
## Liquiline Control CDC90

<table>
<thead>
<tr>
<th>Device</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pneumatic control unit</strong></td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td>Stainless steel 1.4301 (AISI 304), painted steel</td>
</tr>
<tr>
<td>Housing seals</td>
<td>EPDM (ethylene propylene diene rubber)</td>
</tr>
<tr>
<td>Cable glands</td>
<td>PA (polyamide) V0 as per UL94</td>
</tr>
<tr>
<td>Housing seals</td>
<td>EPDM</td>
</tr>
<tr>
<td><strong>Pump canister unit</strong></td>
<td></td>
</tr>
<tr>
<td>Pump</td>
<td>PVDF+CF/PP/NBR+PTFE/PTFE/PP</td>
</tr>
<tr>
<td>Canister</td>
<td>PE</td>
</tr>
<tr>
<td>Float switch</td>
<td>PVC/EPDM/PE</td>
</tr>
<tr>
<td>Canister fitting</td>
<td>ABS/PMMA</td>
</tr>
<tr>
<td>Bracket M5 L110*B40 W8</td>
<td>PP</td>
</tr>
<tr>
<td>O-ring</td>
<td>EPDM</td>
</tr>
<tr>
<td>Coupling DMG/8*6 1/4</td>
<td>PVDF</td>
</tr>
<tr>
<td>Canister shelf</td>
<td>PP</td>
</tr>
<tr>
<td><strong>Rinsing block</strong></td>
<td></td>
</tr>
<tr>
<td>Process valve</td>
<td>EPDM/PP/stainless 1.4408/PTFE</td>
</tr>
<tr>
<td>Rinsing body</td>
<td>PVDF/1.4401</td>
</tr>
<tr>
<td>Rinse connection</td>
<td>PP</td>
</tr>
<tr>
<td>Check valves</td>
<td>PVDF+FKM/PVDF+FFKM/1.4571+FKM</td>
</tr>
<tr>
<td>Bracket, metal plate</td>
<td>1.4571</td>
</tr>
<tr>
<td>Bracket, clamp</td>
<td>1.4404</td>
</tr>
<tr>
<td>Hose bracket/cable gland</td>
<td>PA</td>
</tr>
<tr>
<td>Sealing plug</td>
<td>Teflon</td>
</tr>
<tr>
<td>Double nipple</td>
<td>PVDF</td>
</tr>
<tr>
<td>O-ring</td>
<td>FKM/FFKM</td>
</tr>
<tr>
<td><strong>Hoses</strong></td>
<td></td>
</tr>
<tr>
<td>Compressed air</td>
<td>PUN-A</td>
</tr>
<tr>
<td>Liquid</td>
<td>PUN-A+/PTFE</td>
</tr>
</tbody>
</table>

### Hose specification

**Medium hoses**
Max. 6 bar (87 psi)

**Compressed air hoses**
Pressure ratings of pilot valve manifold:
Max. 10 bar (145 psi)
Pressure switch:
Max. 12 bar (174 psi)

**Pump**
Vacuum pump:
Max. 8 bar (116 psi) (8 bar corresponds to 8 l/min delivery rate, depending on the control air)

**Connections**

<table>
<thead>
<tr>
<th>Water connection</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water connection, rinsing block</td>
<td>Hose barb D12 PP for hoses with internal diameter 12 mm (0.47 in)</td>
</tr>
<tr>
<td>Assembly inlet and outlet</td>
<td>Hose coupling D6/8 mm (0.24/0.31 in) PVDF</td>
</tr>
<tr>
<td>Hose diameter</td>
<td>Size</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>Medium</td>
<td>ID 6 mm (0.24 in) / OD 8 mm (0.31 in)</td>
</tr>
<tr>
<td>Compressed air</td>
<td>Compressed air supply, purge air:</td>
</tr>
<tr>
<td></td>
<td>ID 6 mm (0.24 in) / OD 8 mm (0.31 in)</td>
</tr>
<tr>
<td></td>
<td>Compressed air of assemblies, valves, pumps:</td>
</tr>
<tr>
<td></td>
<td>ID 4 mm (0.16 in) / OD 6 mm (0.24 in)</td>
</tr>
</tbody>
</table>
Operability

Local operation

The CDC90 can be operated via a touchscreen display. Soft keys are also available for program operation.

Menu overview

<table>
<thead>
<tr>
<th>Item</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Time</td>
</tr>
<tr>
<td>2</td>
<td>Display and fast access to the most important error message</td>
</tr>
<tr>
<td>3</td>
<td>Display and navigation to measuring point 1 and display of pH value or ORP value in mV</td>
</tr>
<tr>
<td>4</td>
<td>For one measuring point: second measured value of measuring point 1 and temperature value For two measuring points: display and navigation to measuring point 2 and display of pH value or ORP value in mV</td>
</tr>
<tr>
<td>5</td>
<td>User profile display and log-in</td>
</tr>
<tr>
<td>6</td>
<td>Operating mode</td>
</tr>
<tr>
<td>7</td>
<td>Overview of main menu</td>
</tr>
<tr>
<td>8</td>
<td>Navigation</td>
</tr>
</tbody>
</table>
Certificates and approvals

Current certificates and approvals that are available for the product can be selected via the Product Configurator at www.endress.com:

1. Select the product using the filters and search field.
2. Open the product page.
3. Select Configuration.
Ordering information

Product page  www.endress.com/cdc90

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.

Scope of delivery

The scope of delivery comprises:
- 1 CDC90 control unit in the version ordered
- 1 pneumatic control unit
- Up to 3 pumps for supplying cleaner and buffer with canisters
- Up to 3 float switches, complete with cable to canisters
- 1 rinsing block with bracket for mounting on the process assembly
- 2 hose packages for compressed air and liquid; 3 hose packages if there is more than one measuring point
- 1 x Brief Operating Instructions (hard copy)
- Conduit adapter G 1/4" for hose 6/8 mm (ID/OD) for the assembly rinse connections: x 2 for 1 measuring point/ x 4 for 2 measuring points
- USB stick
- In the case of 2 measuring points: 1 changeover valve to control the supply of medium to the two assemblies

The assemblies are pre-assembled on a mounting plate and pre-wired.

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.

Assemblies

**Cleanfit CPA472D**
- Robust retractable assembly for pH, ORP and other industrial sensors
- Heavy-duty version made of durable materials
- For manual or pneumatic, remote-controlled operation
- Product Configurator on the product page: www.endress.com/cpa472d

**Cleanfit CPA473**
- Stainless steel process retractable assembly with ball valve shutoff for particularly reliable separation of the medium from the environment
- Product Configurator on the product page: www.endress.com/cpa473

Endress+Hauser
Cleanfit CPA474
- Plastic process retractable assembly with ball valve shutoff for particularly reliable separation of the medium from the environment
- Product Configurator on the product page: www.endress.com/cpa474
  Technical Information TI00345C

Cleanfit CPA871
- Flexible process retractable assembly for water, wastewater and the chemical industry
- For applications with standard sensors with 12 mm diameter
- Product Configurator on the product page: www.endress.com/cpa871
  Technical Information TI01191C

Cleanfit CPA875
- Retractable process assembly for sterile and hygienic applications
- For in-line measurement with standard sensors with 12 mm diameter, e.g. for pH, ORP, oxygen
- Product Configurator on the product page: www.endress.com/cpa875
  Technical Information TI01168C

Sensors

Glass electrodes

Memosens CPS11E
- pH sensor for standard applications in process and environmental engineering
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps11e
  Technical Information TI01493C

Orbisint CPS11D
- pH sensor for process technology
- With dirt-repellent PTFE diaphragm
  Technical Information TI00028C

Memosens CPS31E
- pH sensor for standard applications in drinking water and swimming pool water
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps31e
  Technical Information TI01574C

Memosens CPS31D
- pH electrode with gel-filled reference system with ceramic diaphragm
  Technical Information TI00030C

Ceraliquid CPS41D
pH electrode with ceramic junction and KCl liquid electrolyte
  Technical Information TI00079C

Memosens CPS71E
- pH sensor for chemical process applications
- With ion trap for poison-resistant reference
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps71e
  Technical Information TI01496C

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

Memosens CPS91E
- pH sensor for heavily polluted media
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps91e
  Technical Information TI01497C

Orbipore CPS91D
pH electrode with open aperture for media with high dirt load
  Technical Information TI00375C

ORP sensors

Memosens CPS12E
- ORP sensor for standard applications in process and environmental engineering
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps12e
  Technical Information TI01494C

Memosens CPS42E
- ORP sensor for process technology
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps42e
  Technical Information TI01575C

Orbisint CPS12D
ORP sensor for process technology
  Technical Information TI00367C

Ceraliquid CPS42D
ORP electrode with ceramic junction and KCl liquid electrolyte
  Technical Information TI00373C

Memosens CPS72E
- ORP sensor for chemical process applications
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps72e
  Technical Information TI01576C

Ceragel CPS72D
ORP electrode with reference system including ion trap
  Technical Information TI00374C

Memosens CPS92E
- ORP sensor for use in heavily polluted media
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps92e
  Technical Information TI01577C

Orbipore CPS92D
ORP electrode with open aperture for media with high dirt load
  Technical Information TI00435C
pH ISFET sensors

Memosens CPS47D
- Sterilizable and autoclavable ISFET sensor for pH measurement
- Refillable KCl liquid electrolyte
- Product Configurator on the product page: www.endress.com/cps47d
  Technical Information TI01412C

Memosens CPS77E
- Sterilizable and autoclavable ISFET sensor for pH measurement
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps77e
  Technical Information TI01396

Memosens CPS77D
- Sterilizable and autoclavable ISFET sensor for pH measurement
- Product Configurator on the product page: www.endress.com/cps77d
  Technical Information TI01396

Memosens CPS97D
- ISFET sensor for pH measurement with long-term stability in media with high dirt loads
- Product Configurator on the product page: www.endress.com/cps97d
  Technical Information TI01405C

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

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
### Additional functionality

**Hardware extension modules**

**Kit, extension module DIO**
- 2 x digital input
- 2 x digital output
- Auxiliary voltage supply for digital output
- Order number: 71135638

**Kit, extension module 4AO**
- 4 x analog output 0/4 to 20 mA
- Order number: 71135633

### Other accessories

**Cables**

**Memosens data cable CYK10**
- For digital sensors with Memosens technology
- Product Configurator on the product page: [www.endress.com/cyk10](http://www.endress.com/cyk10)

**Technical Information TI00118C**

**Storage options**
- Industrial Flash Drive, 1 GB
- Order number: 71110815

**CDC90 USB stick kit**
- 64 GB
- Order No. 71518248

**Cable glands**

**Kit CM44x: gland M**
- Set, 6 pieces
- Order number: 71101768

**Kit CM44x: gland NPT**
- Set, 6 pieces
- Order number: 71101770

**Kit CM44x: gland G**
- Set, 6 pieces
- Order number: 71101771

**Kit CM44x: dummy plug for cable gland**
- Set, 6 pieces
- Order number: 71104942

**M12 built-in socket and cable junction with Velcro strip**

**CM442/CM444/CM448/CSF48 kit: M12 built-in socket for digital sensors**
- Pre-terminated
- Order number: 71107456

**CM442/CM444/CM448/CSF48 kit: M12 built-in socket for Ethernet**
- Only for devices with BASE-E module
- D-coded, pre-terminated
- Order number: 71140893

**CDC90 Ethernet cable kit, M12-RJ45 90°**
- For devices with BASE2-E module:
- Order number: 71518244

**Kit: external CDI socket, complete**
- Retrofit kit for CDI interface, with terminated connecting cables
- Order number: 51517507

**Cable junction with Velcro strip**
- 4 pieces, for sensor cable
- Order number: 71092051

**Graphic display**
- For installation in the control cabinet door or panel
- Order number: 71185295
Service display
- Portable, for commissioning
- Order number: 71185296

Buffer 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

ORP buffer solution CPY3
- 220 mV, pH 7
- 468 mV, pH 0.1

Product Configurator on the product page: www.endress.com/cpy3