Technical Information

Liquiline Control CDC90

The smart system for automated measuring points

Application

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

Your benefits

- Enhanced workplace safety for your employees: Liquiline Control CDC90 minimizes maintenance and servicing requirements – a significant advantage particularly in hard-to-reach or hazardous environments.
- With customizable cleaning and calibration intervals for up to two sensors, you can ensure a high process reliability, product quality, and optimum product yield. Blockages and soiling of the sensors are removed promptly.
- Smart media distribution and dosing guarantee reproducible calibration results and ensures reliable measured values at all times.
- Minimize operating costs by optimizing buffer and cleaning agent consumption of both measurement points. This is ensured by the sophisticated hydraulics of Liquiline Control CDC90.
- Seamless integration into your process control system thanks to certified communication standards. Analog or digital signals, as well as fieldbus systems, are supported, with options including 0/4–20 mA, PROFIBUS DP, Modbus TCP, EtherNet/IP, PROFINET, and web server technology.

Endress+Hauser [EH]

People for Process Automation

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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, and monitors up to two sensors, thereby reducing maintenance costs, improving workplace safety in hazardous environments and increasing product yield and quality.

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

Measuring system

A complete measuring system comprises the following components:
- Liquiline Control CDC90
- Retractable assembly (e.g. Cleanfit series)
- pH/ ORP/combined sensor
- Lines for compressed air, water and electrics
- Digital measuring cable

The system is available in different versions. Here is a complete overview comprising all of the system's modules.
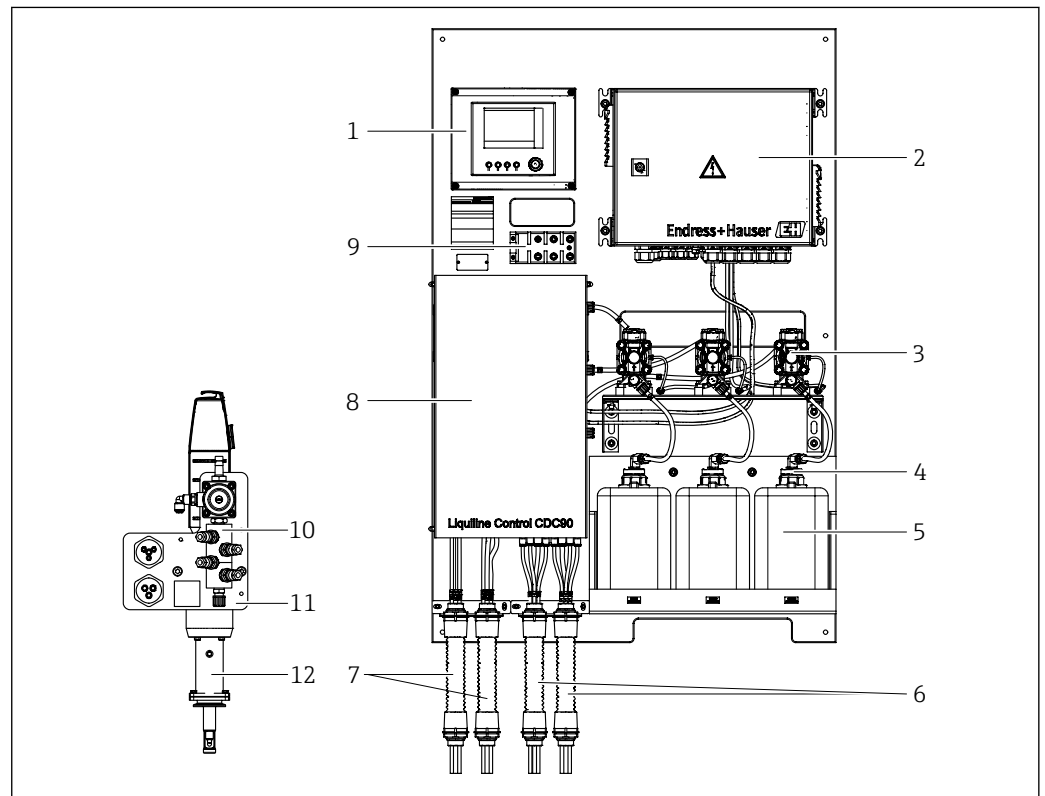
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🖼 *1   Overview of CDC90*

1	*CDC90 control unit*	*7*	*Multihoses M1/M3*
2	*Pneumatic control unit*	*8*	*Cover*
3	*Pumps*	*9*	*Ethernet switch*
4	*Float switch*	*10*	*Rinsing block*
5	*Canister for buffer solutions and cleaner*	*11*	*Rinsing block bracket*
6	*Multihoses M2/M4*	*12*	*Assembly (not included in delivery)*

Cleaning/calibration programs

You can choose from the following cleaning and calibration options:

Predefined programs for:
- Cleaning the sensor
- Cleaning and calibrating the sensor
- Assembly retraction in measuring and service position

All preconfigured programs can be customized to meet your specific requirements. Additionally, you can freely configure new programs to optimally tailor the device to your process. The predefined programs are used for faster configuration.

Calibrating	**Calibration options**

- pH glas, ISFET sensors
  - One-point calibration
  - Two-point adjustment or two-point calibration
- ORP sensors
  - One-point calibration
  - One-point adjustment

Setting the buffer solutions used allows automatic pH value calculations to be performed, depending on the temperature (temperature compensation). Buffer tables, e.g. Endress+Hauser, DIN are stored in Liquiline Control CDC90.

Device architecture	**Inputs and outputs**

The CDC90 control unit consists of various modules and a separate industrial PC (IPC).

The CDC90 control unit acts as a peripheral interface for signal processing. Dedicated software is used to manage automation functions for this purpose.

The control of actuators (e.g. retractable assemblies, pumps, valves), as well as the processing of signals and states, takes place within a pneumatic control unit by a pilot valve manifold.

The device is pre-configured; individual inputs and outputs can be freely configured during commissioning. Operation and configuration of the CDC90 is carried out via the CDC90 control unit. Operation and configuration can also be performed via an integrated web server.

An optional gateway is available. The gateway connects a Modbus TCP network with a fieldbus network, enabling seamless information flow between the device and a control system. Only one gateway is required for a one-channel and two-channel system and is included with the order.

Wiring of external inputs and outputs, such as a flowmeter, is carried out within the pneumatic control unit.

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

		CDC90 control unit	Pneumatic control unit
Inputs			
	Digital		12x0/24 VDC, passive
	Analog	1 x 0/4 to 20 mA, passive, potentially isolated from one another and from the sensor inputs	
Outputs			
	Digital		16x0/24 VDC, 0.5 mA per output
	Analog	1 or 5 x 0/4 to 20 mA, active, galvanically isolated from each other and from the sensor circuits	
Fieldbuses			
		• Modbus TCP • EtherNet/IP via Modbus TCP/ EtherNet/IP Gateway • PROFIBUS DP via Modbus TCP/ Profibus DP Gateway • PROFINET via Modbus TCP/ PROFINETGateway	

Fieldbus communication
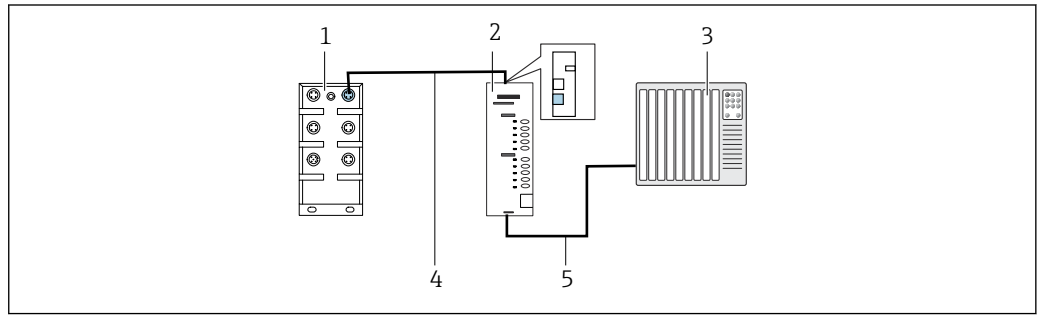
⊡ 2   Example connection for fieldbus communication with optional gateway

1   Ethernet switch on the CDC90
2   Gateway (optional for EtherNet/IP, PROFIBUS DP, Profinet)
3   Process control system
4   Ethernet cable, CDC90/gateway communication (3 m (9.8 ft) cable M12-RJ45 included in scope of supply)
5   Communication connection, gateway/process control system

Analog communication, external inputs and outputs
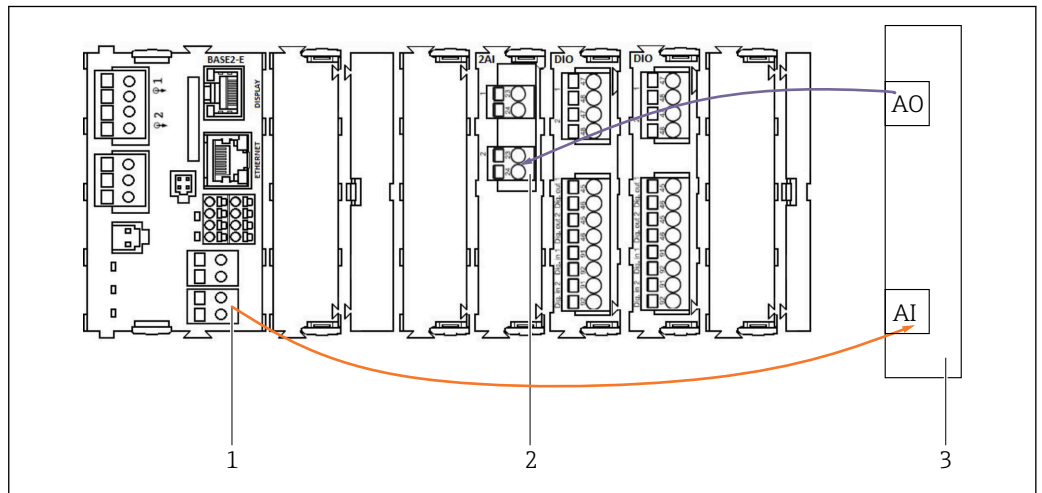
⊡ 3   Example connection for analog communication

1   Analog output in BASE2-E
2   Analog input 2AI
3   Process control system, PCS

Digital communication, external inputs and outputs
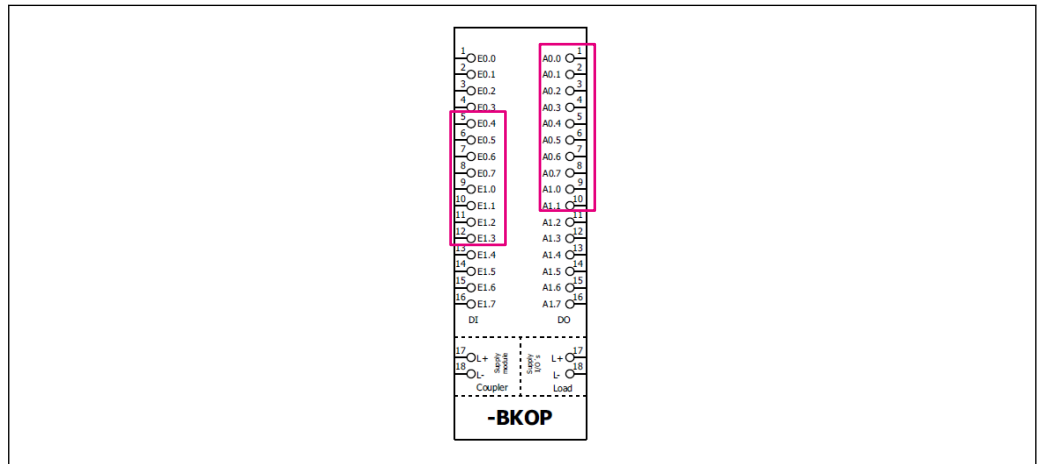
⊡ 4   Example connection for external inputs and outputs in the remote IO/DIO

CDC90 control unit

CDC90 control unit, inside

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

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.
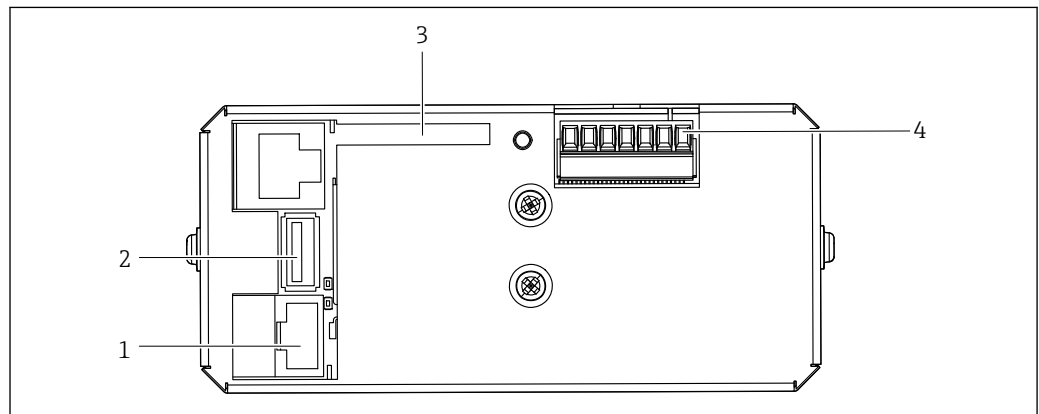
 5   CDC90 control unit, IPC

1   Connection to Ethernet switch
2   USB port
3   SD card
4   Supply voltage

Pneumatic control unit

1-channel
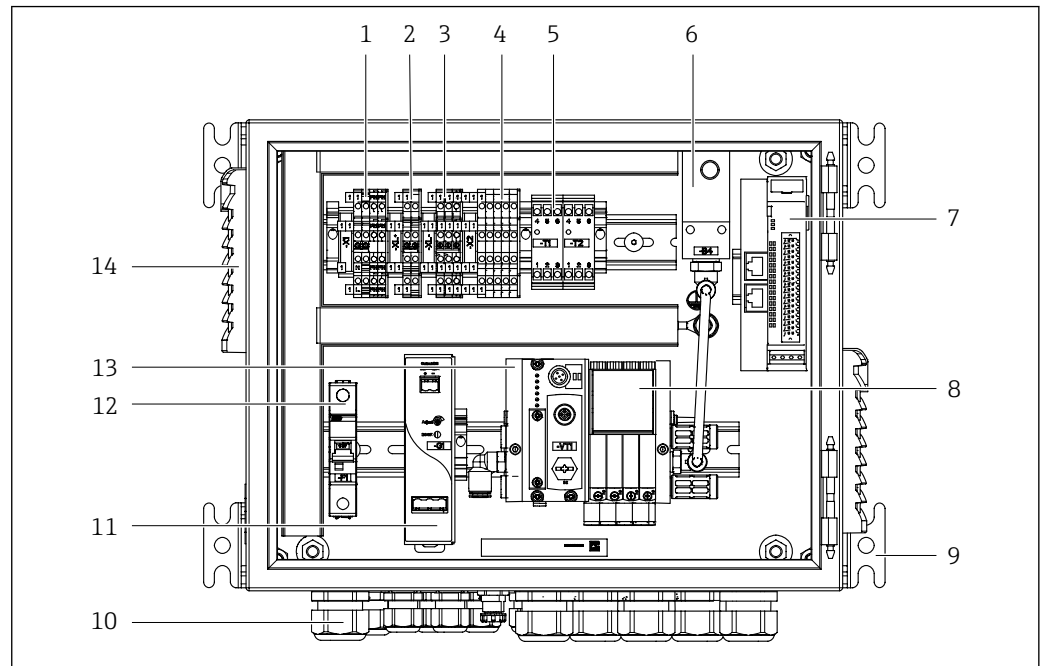
🖼 *6   Pneumatic control unit for a single channel*

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

2-channel
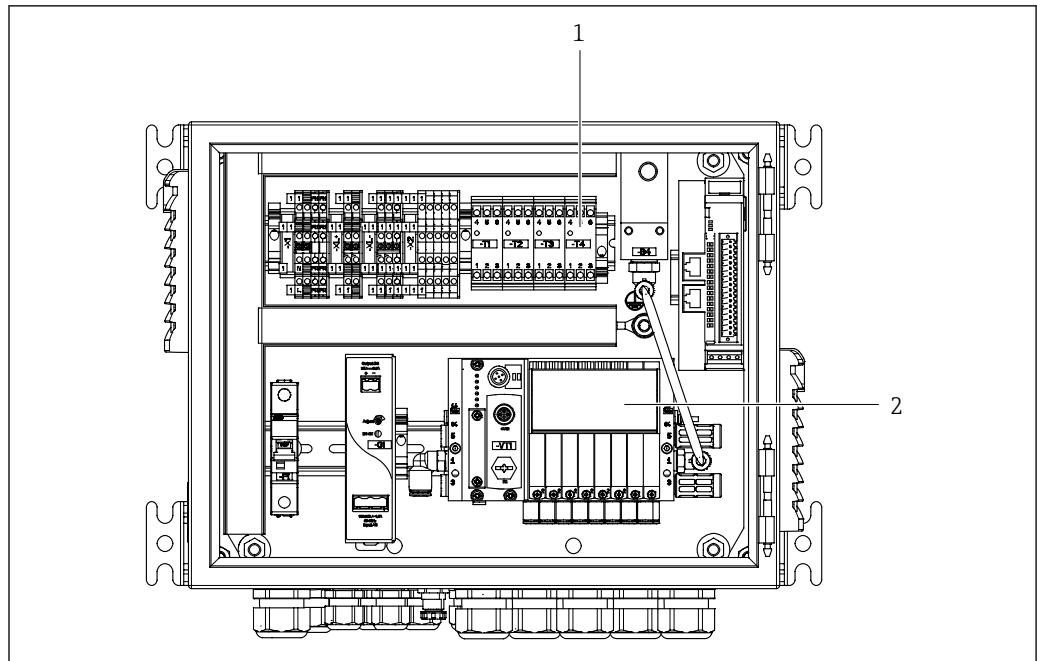
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🖼 *7   Pneumatic control unit for 2 channels*

1   Extension of the output interface terminals for a 2nd measuring point
2   Extension of the pilot valves for a 2nd measuring point

Rinsing block
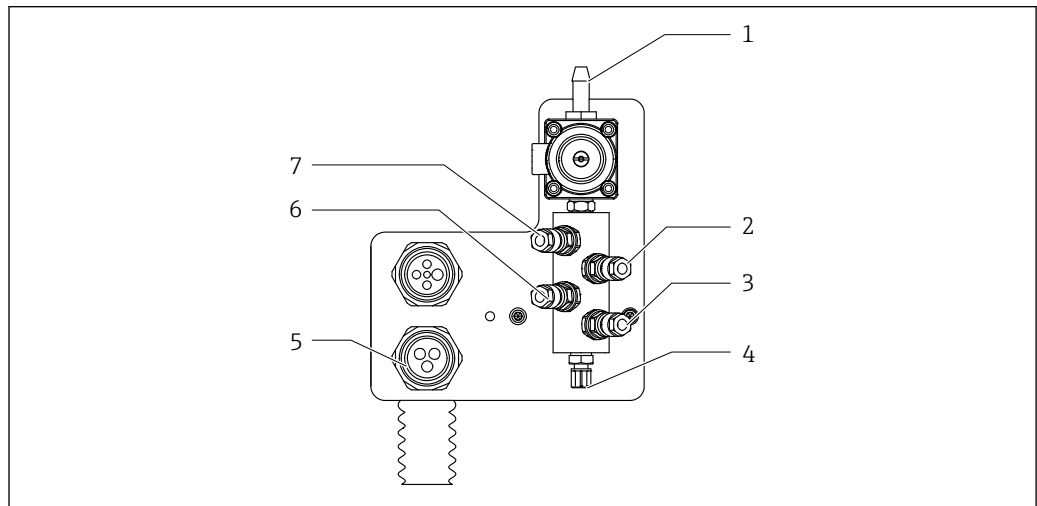
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🖼 *8   Rinsing block*

1	*Water connection (hose barb D12 PP)*	*5*	*Multihose connection*
2	*Pump A, liquid*	*6*	*Pump B, liquid*
3	*Pump C, liquid*	*7*	*Rinsing block, air*
4	*Outlet rinse connection to assembly*		

Communication and data processing

Types of communication

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

Additional Special Documentation is available for the integration process. If analog signals are used (current inputs/outputs), the current input and output modules of the CDC90 control unit, inside, serve as an interface to customer control/process control system.

The Liquiline Control CDC90 features internal communication via Modbus TCP and EtherCAT.

The following communication options are available:
- Analog current output, current signals (4 to 20 mA) and digital inputs and outputs
- 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

Reliability	**Reliable function**

- The status light clearly displays the device status according to NAMUR.
- Level and consumption indicator
  The level and amount of buffer or cleaning solution are displayed.
- Color display with indication of device status and current measured values. Displays currently active and scheduled programs.
- Automatic sensor monitoring
  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.
- Predictive maintenance
  Monitoring of operating hours as well as switching and movement cycles of pumps, valves, and assemblies. This allows operating and wearing parts to be maintained and replaced before failure occurs.
- System pressure monitoring to activate the assembly and pumps. If the pressure drops below the minimum level, the system signals an alarm.

Memosens 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	**Range**
	> 0 to 20 mA
	Signal characteristic
	Linear
	Internal resistance
	Non-linear
	Test voltage
	500 V

Digital inputs, passive in the CDC90 control unit	**Electrical specification**
	• Drawing power (passive)
	• Galvanically isolated
	Range
	• High: 11 to 30 V DC
	• Low: 0 to 5 V DC
	Nominal input current
	max. 8 mA
	PFM function
	Minimum pulse width: 500 µs (1 kHz)
	Test voltage
	500 V
	Cable specification
	Max. 2.5 mm^2 (14 AWG)

Digital inputs, passive in the pneumatic control unit	**Range**
	• High: 11 to 30 V DC
	• Low: 0 to 5 V DC
	Nominal input current
	max. 8 mA
	Cable specification
	Max. 2.5 mm^2 (14 AWG)

Analog inputs, passive in CDC90 control unit	**Range**
	> 0 to 20 mA
	Signal characteristic
	Linear
	Internal resistance
	Non-linear

Output

Output types	• Analog outputs (active), connection in CDC90 control unit • Digital outputs (active), connection in 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

Digital outputs, active in the pneumatic control unit	**Electrical specification** • Outputs:16 • Max. current: 0.5 A per output • Total current: max. 8A **Cable specification** Max. 2.5 mm^2 (14 AWG)

Protocol-specific data	*IPC output signals*

	Modbus TCP	EtherNet/IP (via gateway)	PROFIBUS DP (via gateway)	PROFINET (via gateway)
Signal encoding	IEEE 802.3 (Ethernet)	IEEE 802.3 (Ethernet)	PROFIBUS-DP-compliant as per IEC 61158	IEEE 802.3 (Ethernet), IEC 61131-3-Code
Data transmission rate	10 / 100 Mbit/s	10 / 100 Mbit/s	9.6 kBit/s - 12 MBit/s autodetect	10 / 100 Mbit/s
Galvanic isolation	Yes	Yes	Yes	Yes
Connection	M12	See gateway	See gateway	See gateway
IP address	192.168.0.1	192.168.0.6	192.168.0.5	192.168.0.7
Address			77	

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. This can be achieved either through physical separation using a VLAN-capable switch e.g. Layer 2 Managed Switch or via software-based separation.

TCP port	502	
TCP connections	3	
Protocol	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	
IO data	Input (T → O)	Program control
	• Output (O → T) • System Information • Measured values and status • IO Feedback	• Program feedback • Status signals • Measured values • Sensor calibration

More detailed information on fieldbus communication is provided on the product pages on the Internet:

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- PROFINET (device) via Modbus TCP - PROFINET gateway: BA02240C

Web server

The Liquiline Control's IPC features a web server that allows users to configure the device, visualize measurement values and carry out a diagnostic inspection of the entire system.

The web server allows full access to the visualization from the CDC90. When the web server is active, the on-site visualization on the CDC90 is locked.

Power supply

Supply voltage	100 to 230 V AC
	Fluctuations in the mains voltage may not exceed ± 10 percent of the nominal voltage.
Frequency	50/60 Hz
Power consumption	Max. 50 VA
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} = max. 500 ms for an increase from 0 to 20 mA **Current inputs** t_{90} = max. 330 ms for an increase from 0 to 20 mA **Digital inputs and outputs** t_{90} = max. 330 ms for an increase from low to high
Reference temperature	25 °C (77 °F)
Measurement error for sensor inputs	→ Documentation of the connected sensor
Measurement error for current inputs and outputs	**Typical measured errors:** < 20 µA (with current values < 4 mA) < 50 µA (with current values 4 to 20 mA) at 25 °C (77° F) each **Additional measured error depending on the temperature:** < 1.5 µA/K
Frequency tolerance of digital inputs and outputs	≤ 1%
Resolution of current inputs and outputs	< 5 µA
Repeatability	→ Documentation of the connected sensor

Environment

Operate the system only using liquids with a conductivity of > 10 nS/cm.

This device may only be used indoors.

|	
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 m (< 6562 ft) above MSL
Degree of protection	This product is designed for indoor use only and should not come into contact with any wetness or be used in a wet environment. **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, class A for industrial areas

Pollution degree   The product is suitable for pollution degree 2.
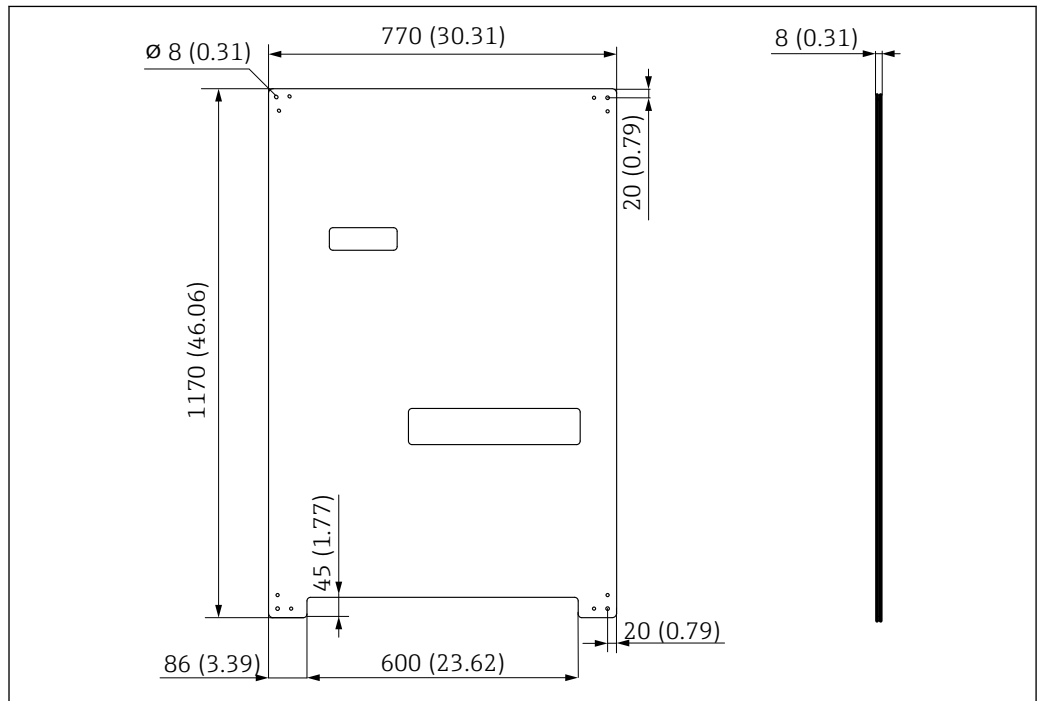
Mechanical construction
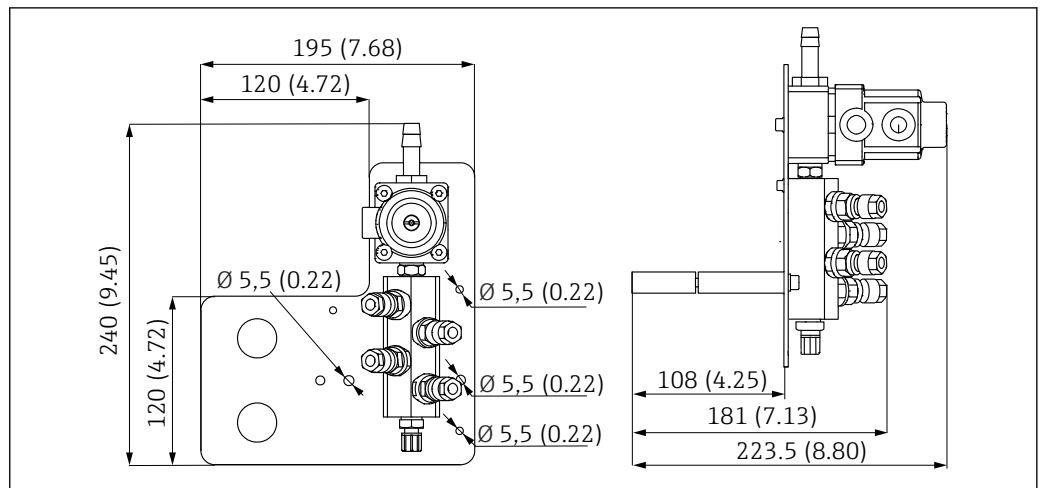
Dimensions

CDC90 panel
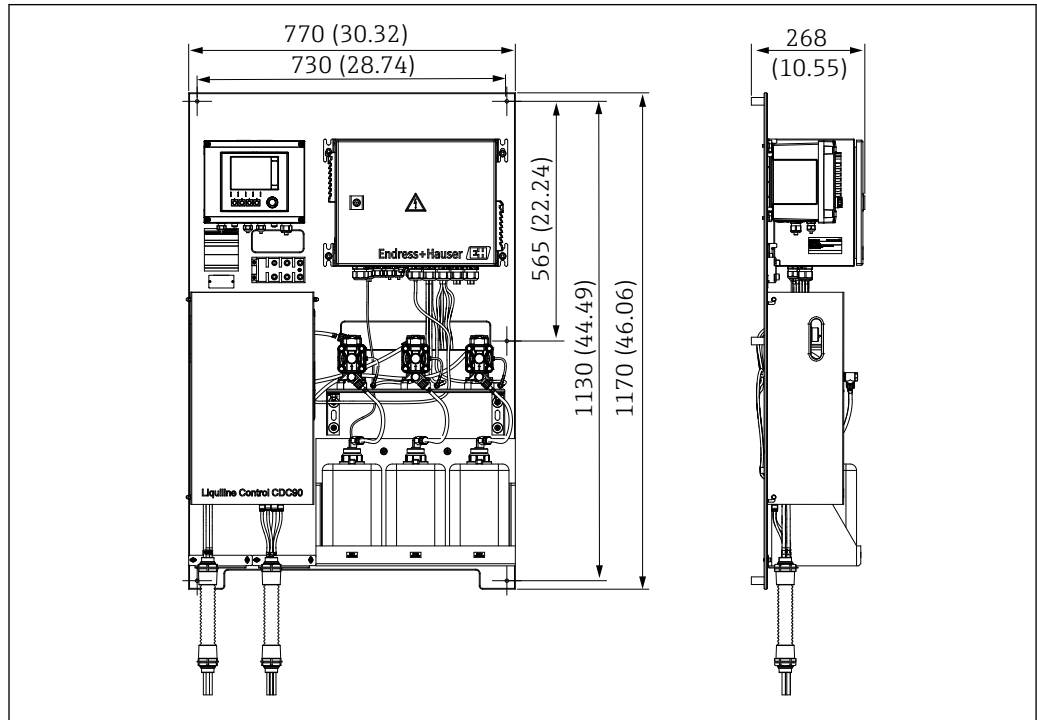
⊠ 9   Panel dimensions. Unit of measurement mm (in)

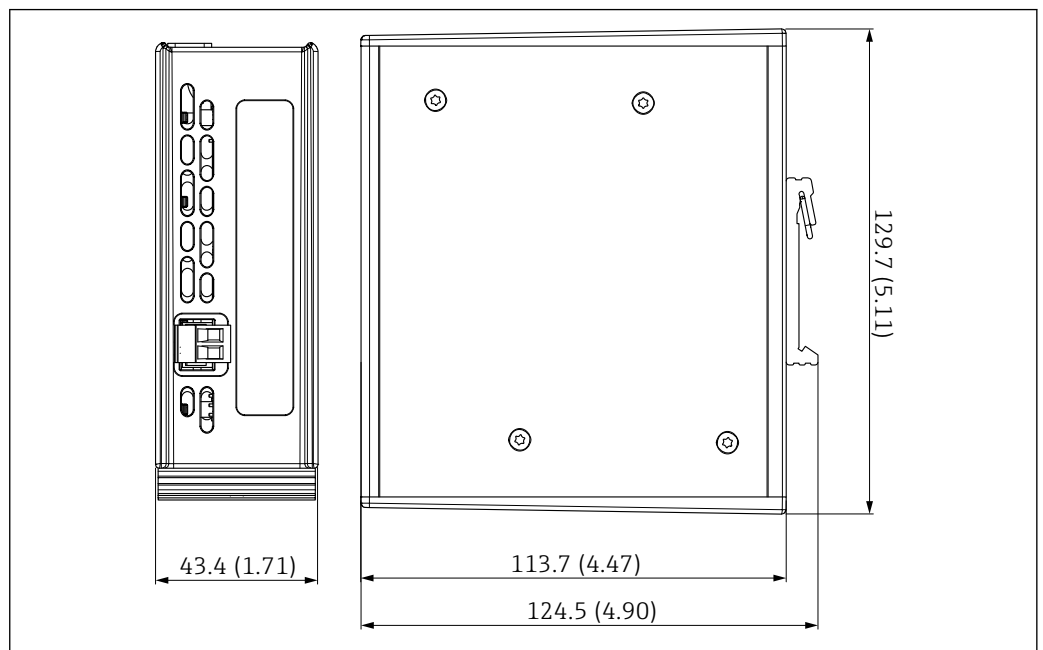*⊠ 10   Dimensions of mounting plate. Unit of measurement mm (in)*

Rinsing block

🔲 *11   Dimensions of PVDF rinsing block. Unit of measurement mm (in)*

Gateway (optional)

🔲 *12   Gateway dimensions. Unit of measurement mm (in)*

Weight   Complete device on mounting plate:

Approx. 71 Kg (156.528 lbs)

Materials

Device	Material
CDC90 control unit	
Module housing	PC (polycarbonate)
Soft keys	TPE (thermoplastic elastomers)
LED	POM
Cable mounting rail	Stainless steel 1.4301 (AISI 304)
Display glass	Plastic capacitive touchscreen
Cable glands	PA (polyamide) V0 as per UL94
M12 cable glands	PA (polyamide)
Housing seals	EPDM
Cable gland O-ring	EPDM
Pneumatic control unit	
Housing	Stainless steel 1.4301 (AISI 304), painted steel
Housing seals	EPDM (ethylene propylene diene rubber)
Cable glands	PA (polyamide) V0 as per UL94
Housing seals	EPDM
Pumps + canister unit	
Pump	PVDF+CF/PP/NBR+PTFE/PTFE/PP
Canister	PE
Float switch	PVC/EPDM/PE
Bracket M5 L110*B40 W8	PP
O-ring	EPDM
Coupling DMG/8*6 1/4	PP
Canister shelf	PP
Rinsing block	
Process valve	EPDM/PP/stainless steel:1.4408/PTFE
Rinsing body	PVDF/1.4401
Rinse connection	PP
Check valves	PVDF+FKM/PVDF+FFKM/1.4571+FKM
Bracket, metal plate	1.4571
Bracket, clamp	1.4404
Hose bracket/cable gland	PA
Sealing plug	Teflon
Double nipple	PVDF
O-ring	FKM/FFKM
Hoses	
Compressed air	PUN-A
Liquid	PUN-A+/PTFE

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. 6 bar (87 psi) (corresponds to 6 l/min delivery rate. The precise delivery rate depends on the system's counterpressure)

Lines
Max. 10 bar (145 psi)

**Operating compressed air**
Max. 6 bar (87 psi)

Connections

Water connection	Size
Water connection via hose barb	Hose barb D12 PP for hoses with internal diameter 12 mm (0.47 in)
Water connection, rinsing block	
Assembly inlet and outlet	Hose coupling D6/8 mm (0.24/0.31 in) PVDF

Hose diameter	Size
Medium	ID 6 mm (0.24 in)/ OD 8 mm (0.31 in)
Compressed air	Compressed air supply, purge air: ID 6 mm (0.24 in)/ OD 8 mm (0.31 in) Compressed air of assemblies, valves, pumps: ID 4 mm (0.16 in)/ OD 6 mm (0.24 in) Pump input, air: ID 2.5 mm (0.1 in)/ AD 4 mm (0.16 in)
Multihoses	Maximum length: 10 m (32.8 ft) OD of the coupling nut: 60 mm (2.36 in)

Operability

Operation and configuration of the CDC90 are carried out via the CDC90 control unit and are additionally accessible via an integrated web server.
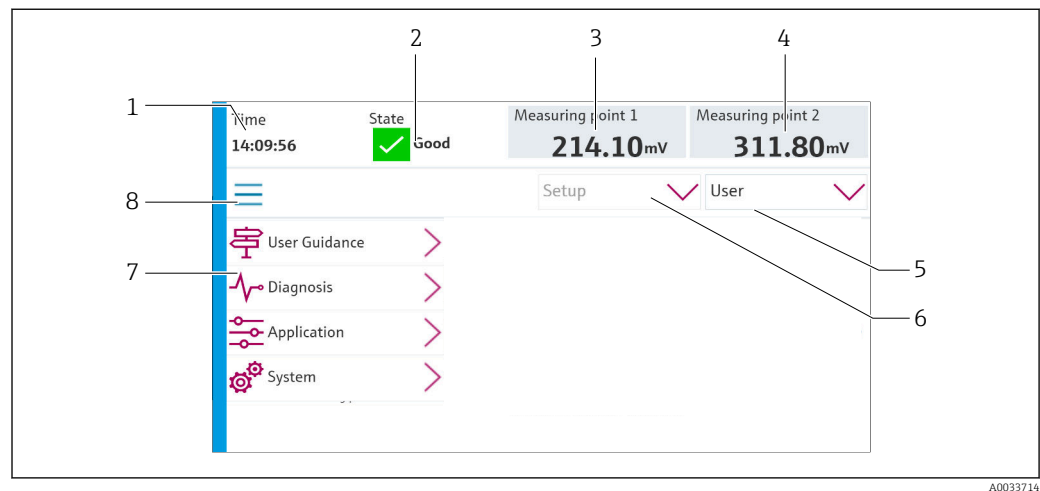
Onsite operation
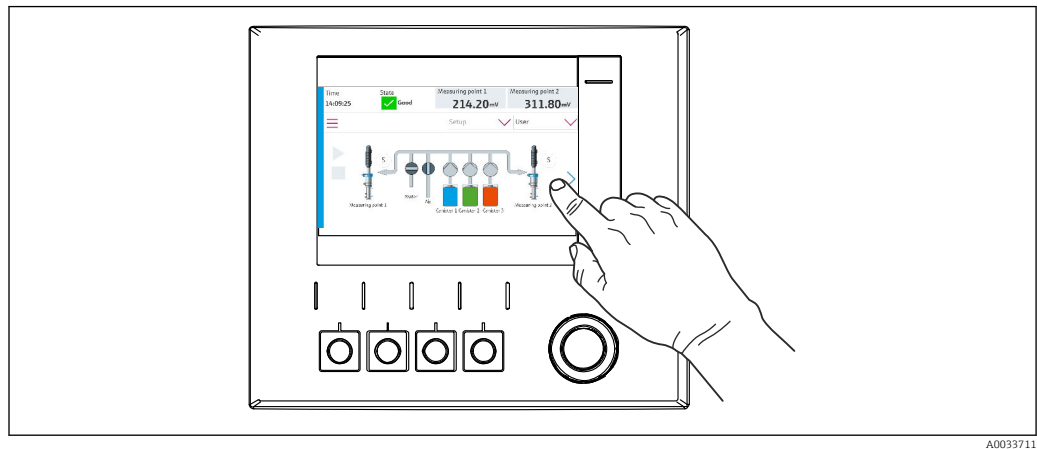
🖼 *13   Touchscreen display*

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

Menu overview

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Item	Function
1	Time
2	Display and fast access to the most important error message
3	Navigation to measuring point 1 and display of: • pH sensor: pH value • ORP sensor: ORP value in mV • Combined pH-/ORP sensor: pH value
4	For one measuring point: • pH sensor: temperature in ℃ • ORP sensor: or ORP value in mV • Combined pH/ORP sensor: temperature in ℃ For two measuring points: Navigation to measuring point 2 and display of: • pH sensor: pH value • ORP sensor: ORP value in mV • Combined pH-/ORP sensor: pH value

Item	Function
5	User profile display and log-in
6	Operating mode
7	Overview of main menu
8	Navigation

Certificates and approvals

Current certificates and approvals for the product are available at www.endress.com on the relevant product page:

1. Select the product using the filters and search field.
2. Open the product page.
3. Select **Downloads**.

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. **Accept**: 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. **CAD**: Open this tab.
   ↳ The drawing window is displayed. You have a choice between different views. You can download these in selectable formats.

Scope of delivery

The scope of delivery comprises:

Basic version
- 1 Liquiline Control CDC90, version as ordered
- 1 x Brief Operating Instructions (hard copy)
- USB stick for data transmission and backup, software update
- Gateway (optional, only for EtherNet/IP, PROFIBUS DP, Profinet version)
- Cabinet key for pneumatic control unit
- Ethernet cables
- Distance sleeves for wall mounting

1-channel version
- 2 hose packs for compressed air and liquid
- 1 rinsing block with mount for installation
- 2 conduit adapters G 1/4" for hose 6/8 mm (ID/AD) for the rinse connections of the assembly

2-channel version
- 4 Hose packs for compressed air and liquid
- 2 rinsing block with mount for installation
- 4 conduit adapters G 1/4" for hose 6/8 mm (ID/AD) for the rinse connections of the assembly

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.

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

Technical Information TI00403C

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

   📖 Technical Information TI00344C

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

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 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

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

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

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

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

pH-ISFET sensors

Memosens CPS47E
- ISFET sensor for pH measurement
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps47e

📖 Technical Information TI01616C

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 CPS97E
- ISFET sensor for pH measurement
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps97e

📖 Technical Information TI01618C

Combined sensors

Memosens CPS16E
- pH/ORP sensor for standard applications in process technology and environmental engineering
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps16e

📖 Technical Information TI01600C

Memosens CPS76E
- pH/ORP sensor for process technology
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps76e

📖 Technical Information TI01601C

Memosens CPS96E
- pH/ORP sensor for heavily polluted media and suspended solids
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps96e

📖 Technical Information TI01602C

Additional functionality	**Hardware extension modules**
	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

[📘] 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
Solutions that are produced in the production laboratory and bottled for testing in the calibration laboratory are used as secondary reference buffer solutions. This test is carried out on a partial sample in accordance with the requirements of ISO 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

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