

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

- 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.

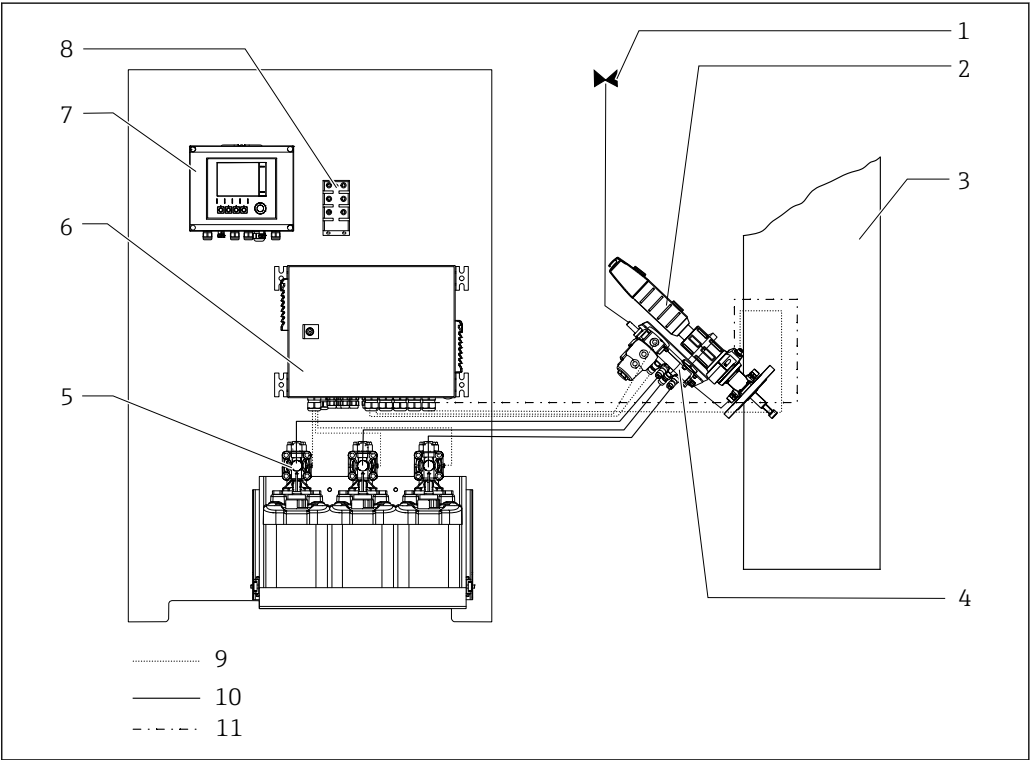
Table of contents

Function and system design	3	Operability	23
Measuring principle	3	Local operation	23
Measuring system	3		
Cleaning/calibration programs	4	Certificates and approvals	24
Calibration and measurement	4		
Equipment architecture	4	Ordering information	25
Communication and data processing	10	Product page	25
Dependability	10	Product Configurator	25
		Scope of delivery	25
Input	10		
Measured variables	10	Accessories	25
Measuring ranges	11	Assemblies	25
Types of input	11	Sensors	26
Input signal	11	Additional functionality	29
Digital sensor inputs, passive in the CDC90 control unit	11	Other accessories	29
Digital inputs, passive in the CDC90 control unit	11		
Digital inputs, passive in pneumatic control unit	11		
Analog inputs, passive in CDC90 control unit	12		
Output	13		
Output signal	13		
Analog outputs, active in CDC90 control unit	13		
Digital outputs, active in pneumatic control unit	13		
Protocol-specific data	13		
Power supply	15		
Supply voltage	15		
Frequency	15		
Power consumption	15		
Cable specification	15		
Overvoltage protection	15		
Electrical connection	15		
Performance characteristics	16		
Response time	16		
Reference temperature	16		
Measured error for sensor inputs	16		
Measured error for current inputs and outputs	16		
Frequency tolerance of digital inputs and outputs	16		
Resolution of current inputs and outputs	16		
Repeatability	16		
Environment	16		
Ambient temperature range	16		
Storage temperature	16		
Relative humidity	16		
Operating height	16		
Degree of protection	16		
Climate class	16		
Electromagnetic compatibility	16		
Pollution degree	16		
Mechanical construction	17		
Dimensions	17		
Weight	20		
Materials	20		
Hose specification	21		

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.
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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
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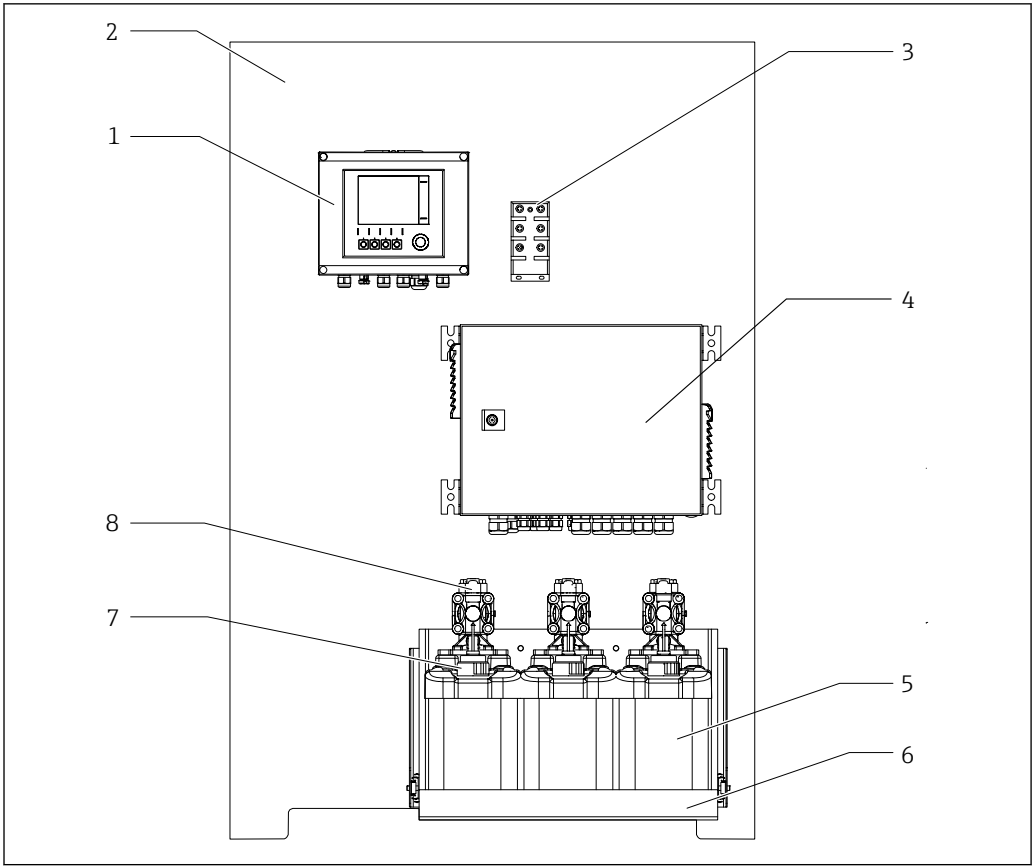


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1 Example of a complete measuring system

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

The system is available in different versions. Here is a complete overview comprising all of the system's modules.



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2 Overview of CDC90

- | | | | |
|---|------------------------|---|---|
| 1 | CDC90 control unit | 5 | Canister for buffer solutions and cleaner |
| 2 | Mounting plate | 6 | Canister holder |
| 3 | Ethernet switch | 7 | Float switch |
| 4 | Pneumatic control unit | 8 | Pumps |

Cleaning/calibration programs

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 and measurement

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

Equipment architecture

Inputs and outputs

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.

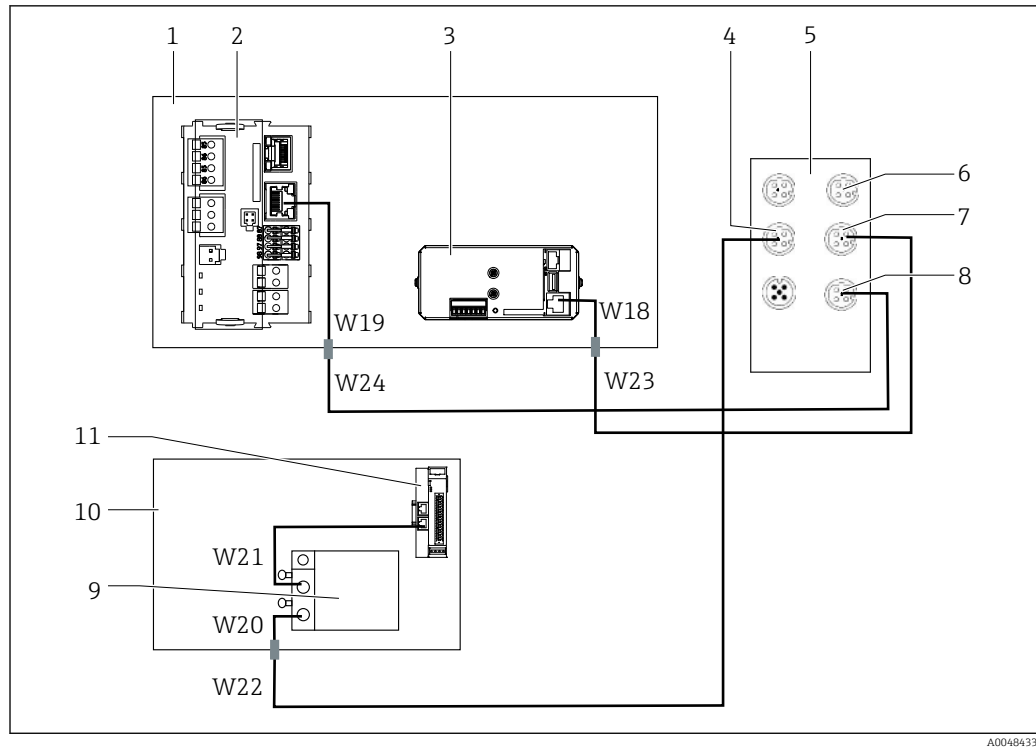
The IPC only establishes digital fieldbus communication to the control station.

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:

	Liquiline transmitter	IPC	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		■ EtherNet/IP via Modbus TCP/EtherNet/IP coupler ■ PROFIBUS DP via Modbus TCP/Profibus DP coupler ■ PROFINET via Modbus TCP/PROFINET coupler ■ Modbus TCP	



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3 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

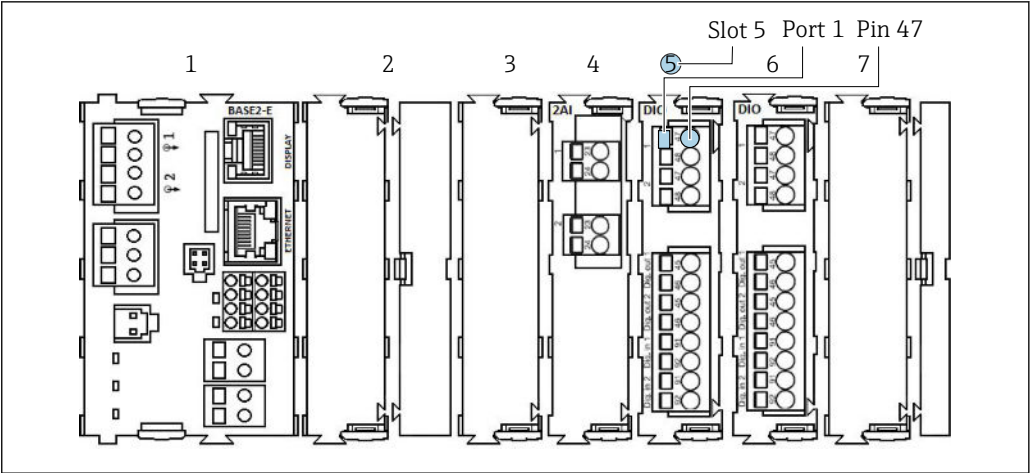
CDC90 control unit

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:



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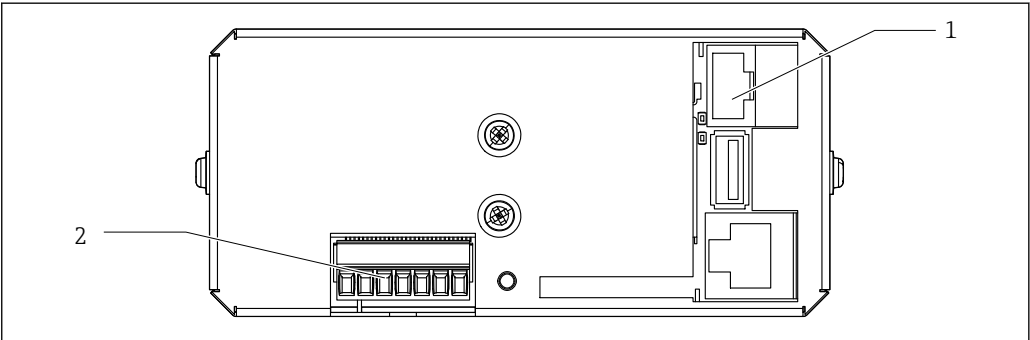
4 Example of port assignment

Basic rule for hardware upgrades

- i 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.



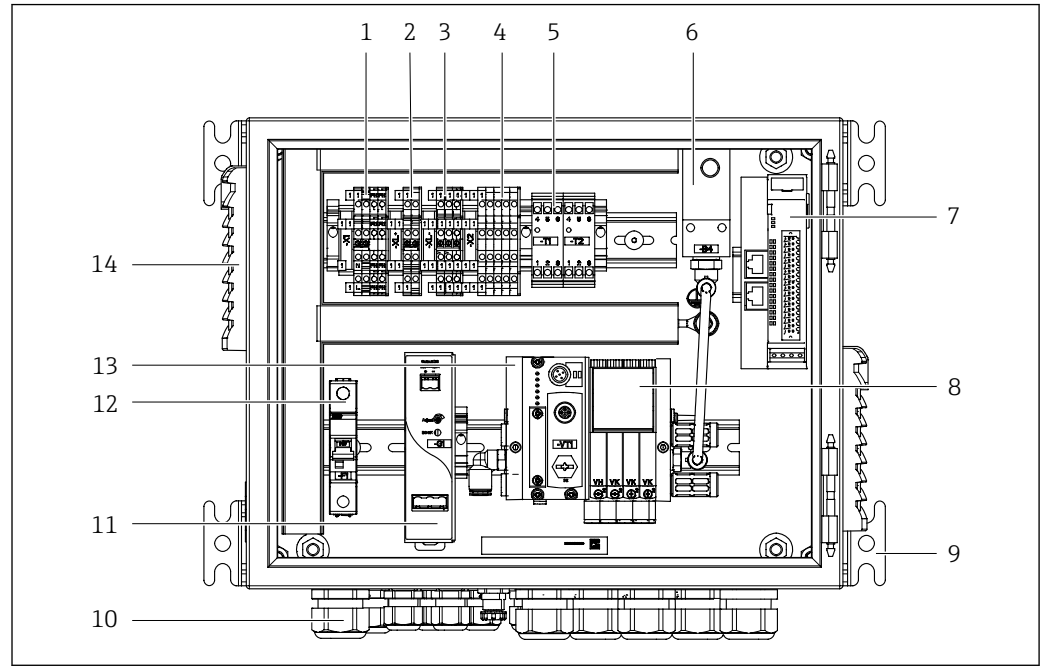
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5 IPC ports

- 1 Connection to Ethernet switch
- 2 Supply voltage

Pneumatic control unit

1 measuring point

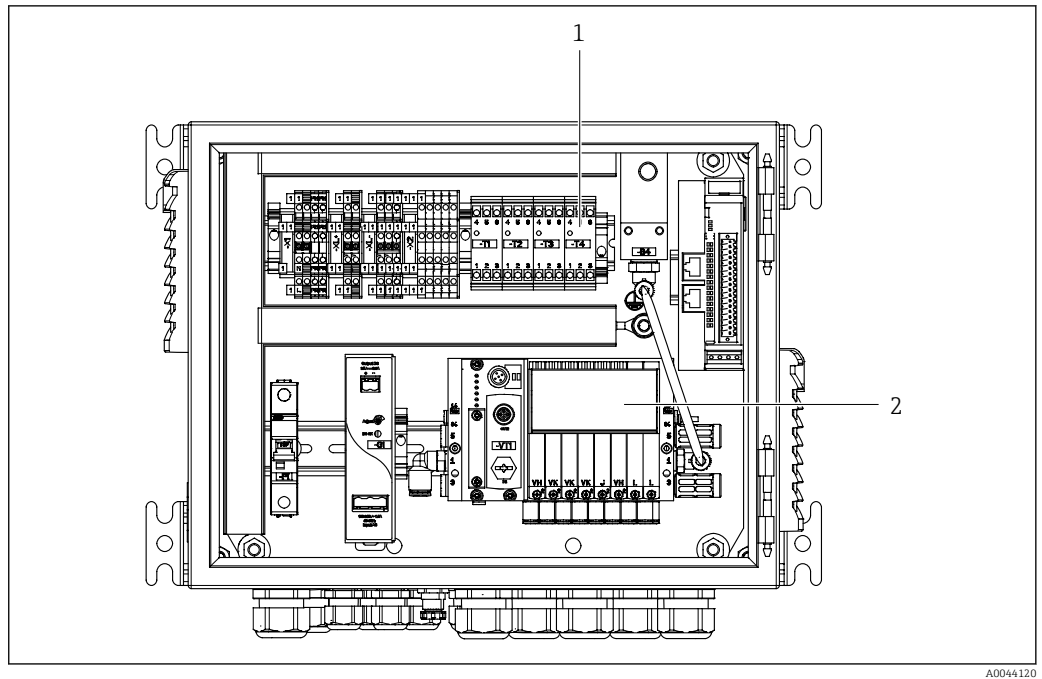


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6 Pneumatic control unit for one measuring point

- | | | | |
|---|---|----|--------------------------------|
| 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 measuring points



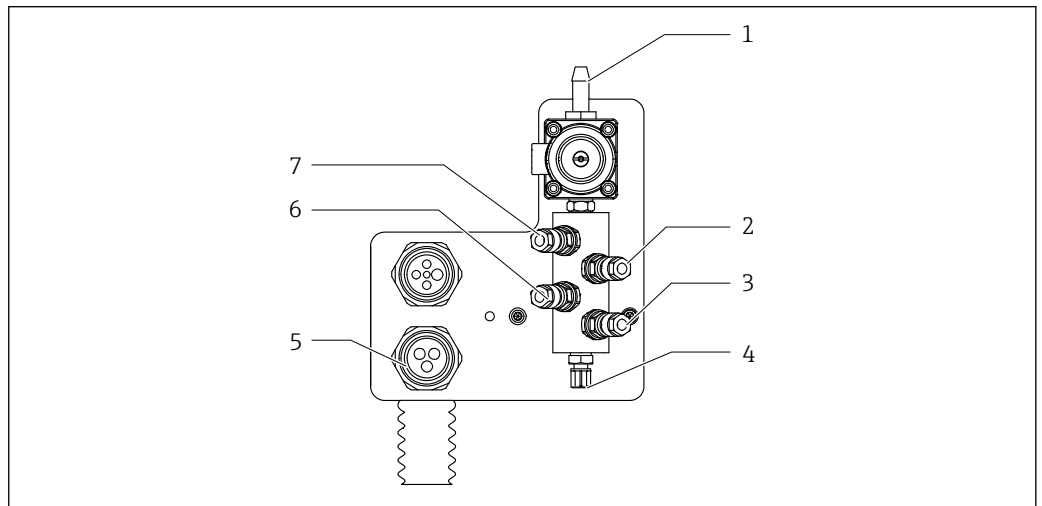
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7 Pneumatic control unit for a 2nd measuring point

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)

2 Liquid canister 1

3 Liquid canister 3

4 Outlet rinse connection to assembly

5 Multihose connection

6 Liquid canister 2

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	Span > 0 to 20 mA Signal characteristic Linear Internal resistance Non-linear <i>Test voltage</i> 500 V
Digital inputs, passive in the CDC90 control unit	Electrical specification ■ drawing power (passive) ■ Galvanically isolated Span ■ 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 mm² (14 AWG)
Digital inputs, passive in pneumatic control unit	Span ■ High: 11 to 30 V DC ■ Low: 0 to 5 V DC Nominal input current max. 8 mA Cable specification Max. 2.5 mm² (14 AWG)

**Analog inputs, passive in
CDC90 control unit**

Span

> 0 to 20 mA

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 μ s (1 kHz)

Digital outputs, active in pneumatic control unit

Electrical specification

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

Cable specification

Max. 2.5 mm² (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 autotdetect	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. 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	
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

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

Supply voltage	100 to 230 V AC
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)
Measured error for sensor inputs	→ Documentation of the connected sensor
Measured 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

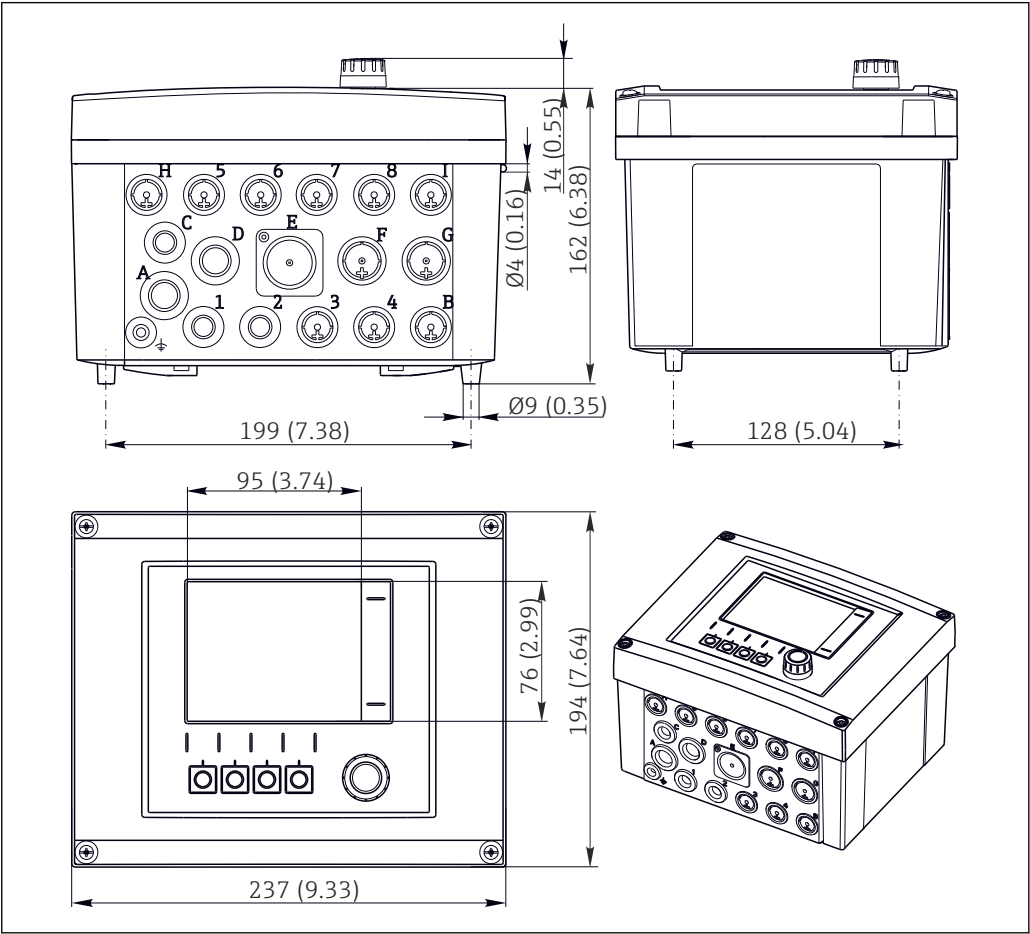
This device is for indoor use only.

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 m (< 6562 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

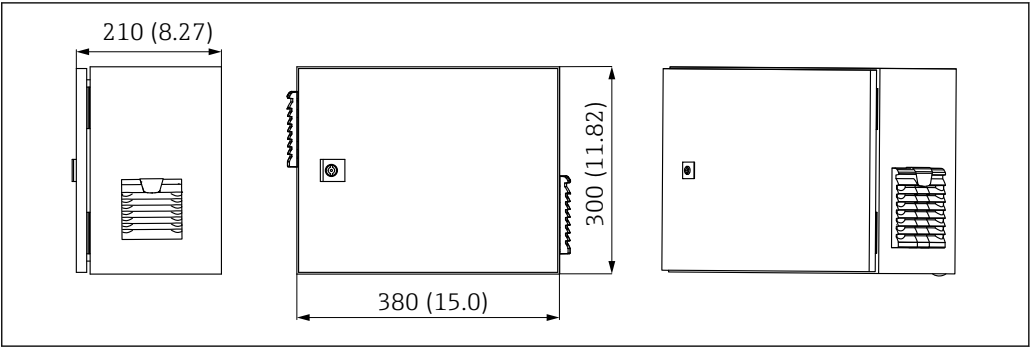
Dimensions

Dimensions of CDC90 control unit



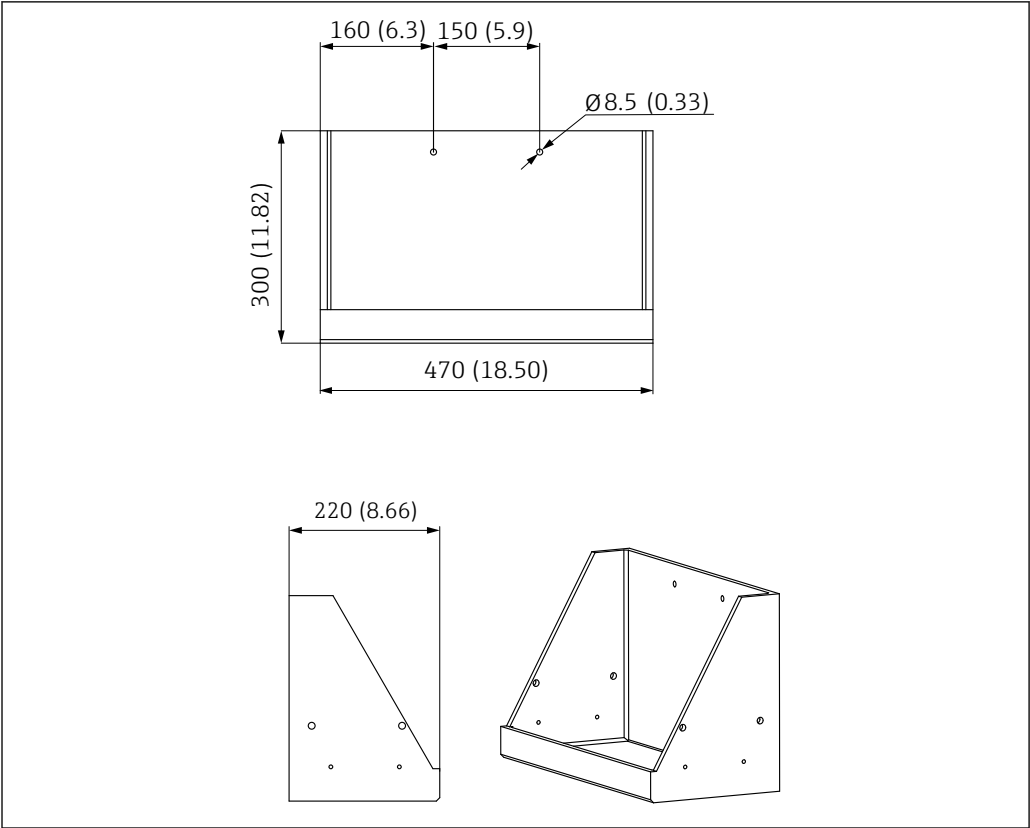
9 Dimensions of field housing in mm (in)

Dimensions of pneumatic control unit

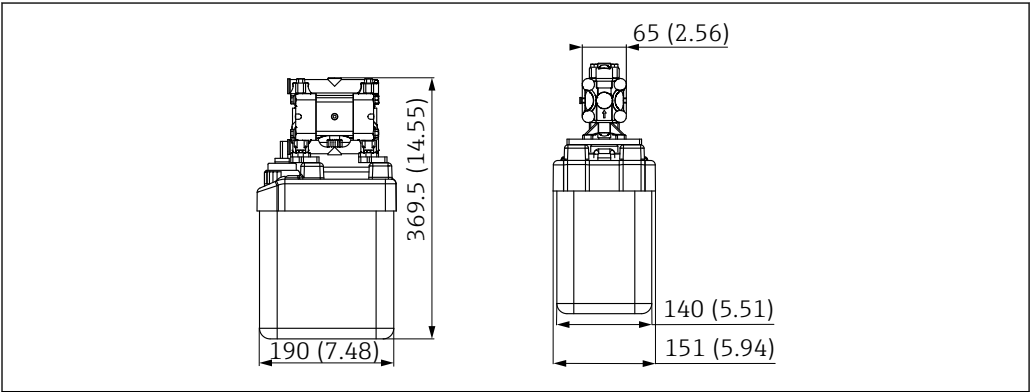


10 Dimensions of pneumatic control unit in mm (in)

Dimensions of canister holder

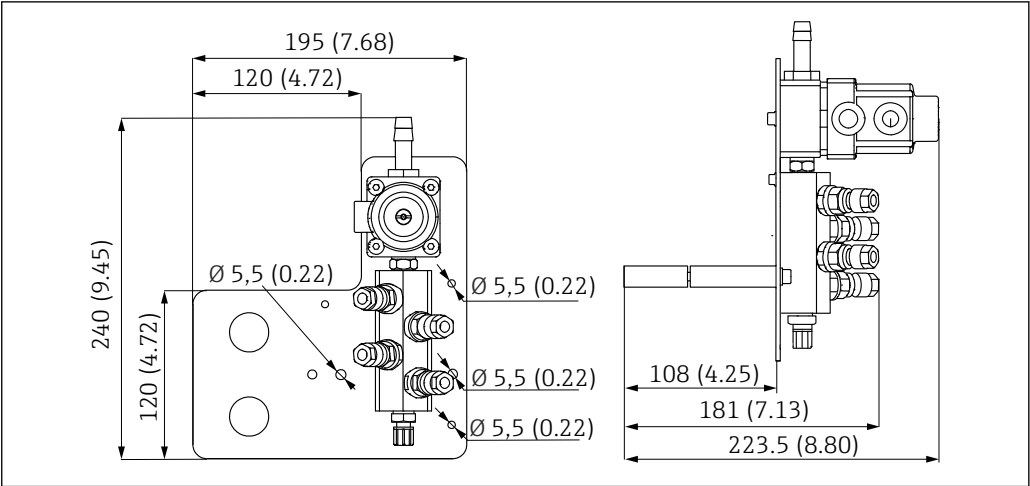


11 Dimensions of canister holder in mm (in)



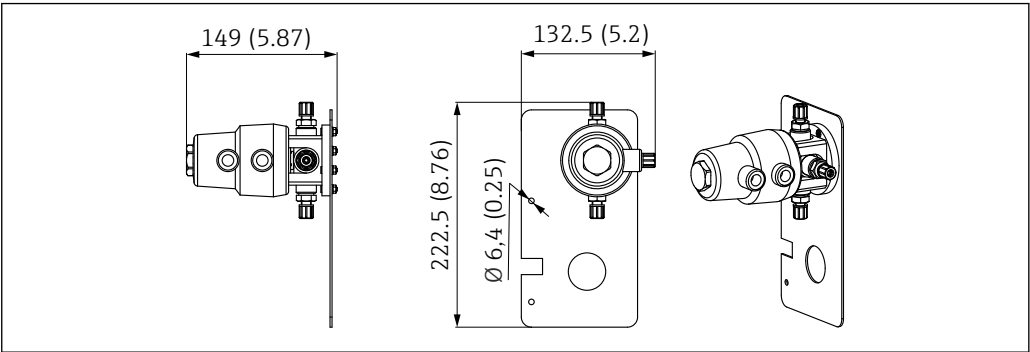
12 Dimensions of canister with pump in mm (in)

Dimensions of rinsing block



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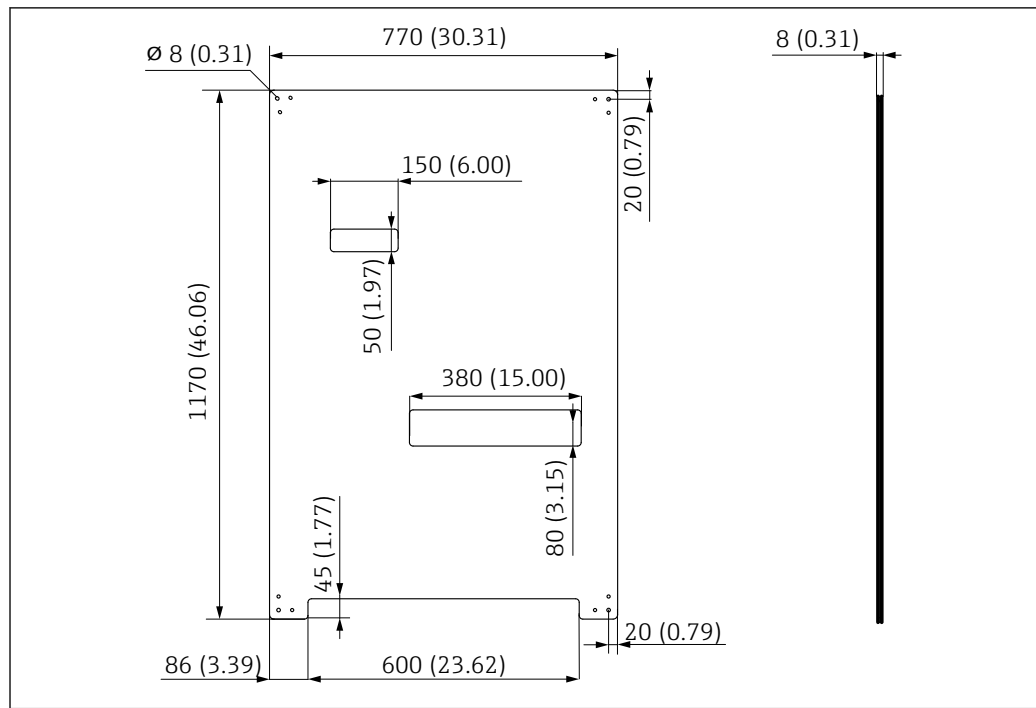
13 Dimensions of rinsing block PVDF, in mm (in)



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

Dimensions of mounting plate



15 Dimensions of mounting plate in mm (in)

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

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

Device	Material
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
Pump canister unit	
Pump	PVDF+CF/PP/NBR+PTFE/PTFE/PP
Canister	PE
Float switch	PVC/EPDM/PE
Canister fitting	ABS/PMMA
Bracket M5 L110*B40 W8	PP
O-ring	EPDM
Coupling DMG/8*6 1/4	PVDF
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. 8 bar (116 psi) (8 bar corresponds to 8 l/min delivery rate, depending on the control air)

Pipes:

Max. 10 bar (145 psi)

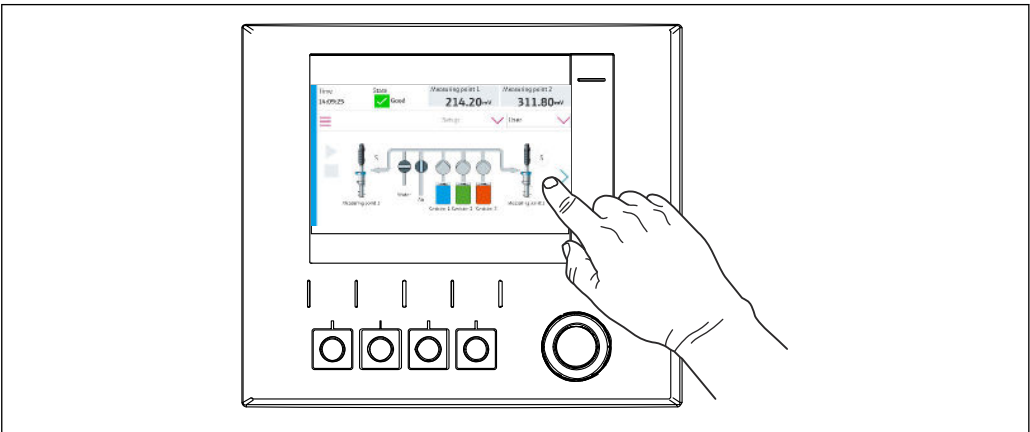
Connections

Water connection	Size
Water connection, rinsing block	Hose barb D12 PP for hoses with internal diameter 12 mm (0.47 in)
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)

Operability

Local operation

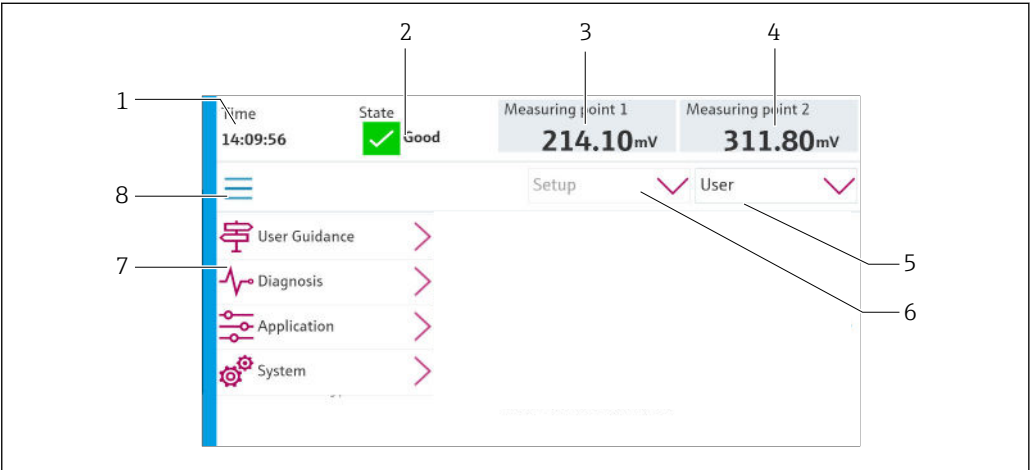


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16 Touchscreen display

The 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	Display and navigation to measuring point 1 and display of pH value or ORP value in mV
4	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
5	User profile display and log-in
6	Operating mode
7	Overview of main menu
8	Navigation

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  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
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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
- 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

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 pharmaceuticals, 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



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



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www.addresses.endress.com
