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71560915
2022-02-15

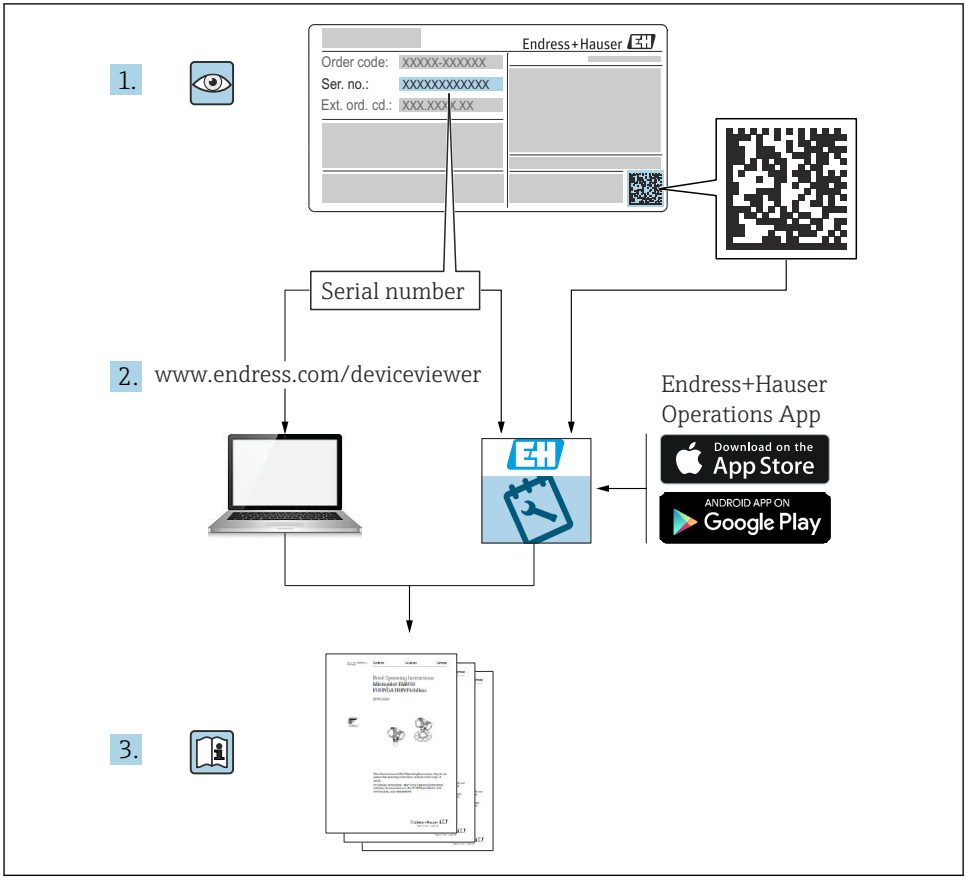
Brief Operating Instructions
Liquiline Control CDC90

Automated cleaning and calibration of Memosens sensors

These instructions are Brief Operating Instructions; they are not a substitute for the Operating Instructions pertaining to the device.

Detailed information on the device can be found in the Operating Instructions and in the other documentation available at:
- www.endress.com/device-viewer
- Smart phone/tablet: Endress+Hauser Operations App

Endress+Hauser
People for Process Automation


1.
Endress+Hauser
Order code: XXXXX-XXXXXX
Ser. no.: XXXXXXXXXXXX
Ext. ord. cd.: XXX.XXX.XXX
Serial number
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www.endress.com/deviceviewer
Endress+Hauser
Operations App
Download on the
App Store
ANDROID APP ON
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1 About this document

Structure of information	Meaning
DANGER **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **will** result in a fatal or serious injury.
WARNING **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **can** result in a fatal or serious injury.
CAUTION **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or more serious injuries.
NOTICE **Cause/situation** If necessary, Consequences of non-compliance (if applicable) ▶ Action/note	This symbol alerts you to situations which may result in damage to property.

1.1 Symbols

- Additional information, tips
- Permitted or recommended
- Not permitted or not recommended
- Reference to device documentation
- Reference to page
- Reference to graphic
- Result of a step

1.1.1 Symbols on the device

- Reference to device documentation
- Do not dispose of products bearing this marking as unsorted municipal waste. Instead, return them to the manufacturer for disposal under the applicable conditions.

1.2 Documentation

The following manuals which are available on the product pages on the internet complement these Operating Instructions:

- Operating Instructions for Liquiline Control CDC90
  - Device description
  - Commissioning
  - Operation
  - Software description (excluding sensor menus; these are described in a separate manual - see below)
  - Device-specific diagnostics and troubleshooting
  - Maintenance
  - Repair and spare parts
  - Accessories
  - Technical data
- Operating Instructions for Memosens, BA01245C
  - Software description for Memosens inputs
  - Calibration of Memosens sensors
  - Sensor-specific diagnostics and troubleshooting

2 Basic safety instructions

2.1 Requirements for the personnel

- Installation, commissioning, operation and maintenance of the measuring system may be carried out only by specially trained technical personnel.
- The technical personnel must be authorized by the plant operator to carry out the specified activities.
- The electrical connection may be performed only by an electrical technician.
- The technical personnel must have read and understood these Operating Instructions and must follow the instructions contained therein.
- Faults at the measuring point may only be rectified by authorized and specially trained personnel.

Repairs not described in the Operating Instructions provided must be carried out only directly at the manufacturer's site or by the service organization.

2.2 Intended use

Liquiline Control CDC90 is a fully automatic measuring, cleaning and calibration system for Memosens sensors. The system is fully equipped with power supply cables and a hose system.

2.2.1 Non-intended use

Use of the device for any purpose other than that described, poses a threat to the safety of people and of the entire measuring system and is therefore not permitted.

The manufacturer is not liable for damage caused by improper or non-designated use.

2.3 Workplace safety

As the user, you are responsible for complying with the following safety conditions:
- Installation guidelines
- Local standards and regulations
- Regulations for explosion protection

Electromagnetic compatibility
- The product has been tested for electromagnetic compatibility in accordance with the applicable international standards for industrial applications.
- The electromagnetic compatibility indicated applies only to a product that has been connected in accordance with these Operating Instructions.

2.4 Operational safety

Before commissioning the entire measuring point:

1. Verify that all connections are correct.
2. Ensure that electrical cables and hose connections are undamaged.
3. Do not operate damaged products, and protect them against unintentional operation.
4. Label damaged products as defective.

During operation:

- If faults cannot be rectified:
  products must be taken out of service and protected against unintentional operation.

⚠ CAUTION

Programs not switched off during maintenance activities.
Risk of injury due to medium or cleaning agent!
- Quit any programs that are active.
- Switch to the Service Mode before you remove sensors from the assembly.
- If you need to test the cleaning function while cleaning is in progress, wear protective clothing, goggles and gloves or take other suitable measures to protect yourself.

2.5 Product safety

2.5.1 State-of-the-art technology

The product is designed to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate. The relevant regulations and international standards have been observed.

2.6 IT security

We only provide a warranty if the device is installed and used as described in the Operating Instructions. The device is equipped with security mechanisms to protect it against any inadvertent changes to the device settings.

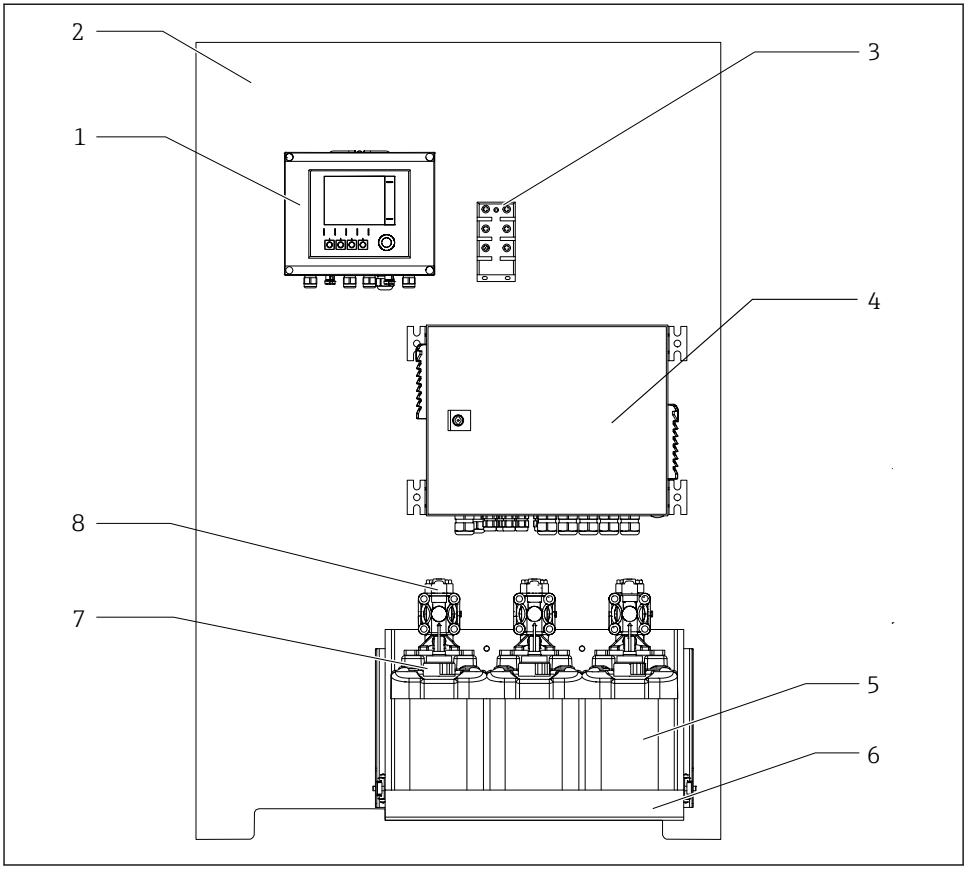
IT security measures in line with operators' security standards and designed to provide additional protection for the device and device data transfer must be implemented by the operators themselves.

3 Product description

3.1 Product design

The complete Liquiline Control CDC90 consists of the following components:
- CDC90 control unit
- Pneumatic control unit
- Canister pump unit
- Ethernet switch

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



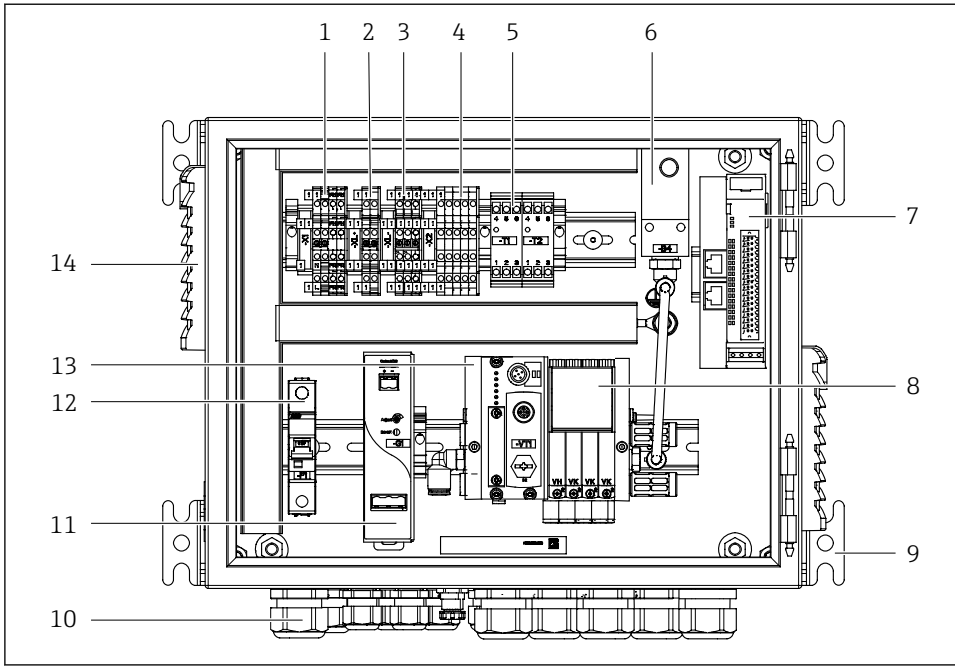
1 Total view of CDC90

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*

3.1.1 Overview of pneumatic control unit

1st measuring point

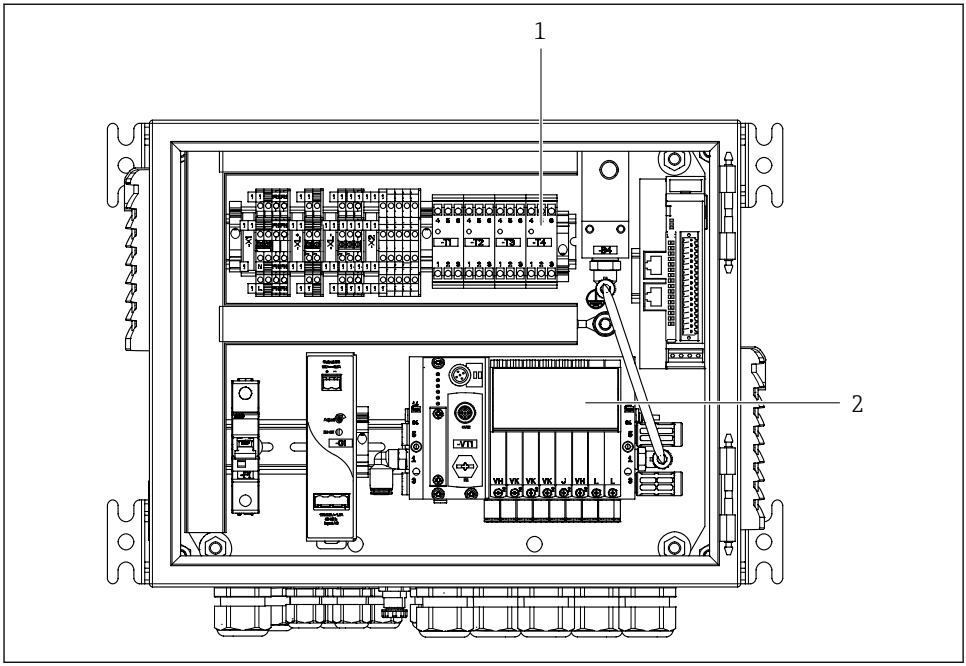
The pneumatic control unit controls air, liquids and electricity. The supply voltage is applied here, for example.



2 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*

2nd measuring point



3 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

4 Incoming acceptance and product identification

4.1 Incoming acceptance

1. Verify that the packaging is undamaged.
   ↳ Notify the supplier of any damage to the packaging.
   Keep the damaged packaging until the issue has been resolved.
2. Verify that the contents are undamaged.
   ↳ Notify the supplier of any damage to the delivery contents.
   Keep the damaged goods until the issue has been resolved.
3. Check that the delivery is complete and nothing is missing.
   ↳ Compare the shipping documents with your order.
4. Pack the product for storage and transportation in such a way that it is protected against impact and moisture.
   ↳ The original packaging offers the best protection.
   Make sure to comply with the permitted ambient conditions.

If you have any questions, please contact your supplier or your local Sales Center.

4.2 Product identification

4.2.1 Nameplate

The nameplate provides you with the following information on your device:
- Manufacturer identification
- Order code
- Serial number
- Ambient and process conditions
- Input and output values
- Safety information and warnings

► Compare the information on the nameplate with the order.

4.2.2 Product identification

Product page

www.endress.com/cdc90

Interpreting the order code

The order code and serial number of your product can be found in the following locations:
- On the nameplate
- In the delivery papers

Obtaining information on the product

1. Go to www.endress.com.
2. Page search (magnifying glass symbol): Enter valid serial number.

3. Search (magnifying glass).
   ↳ The product structure is displayed in a popup window.
4. Click the product overview.
   ↳ A new window opens. Here you fill information pertaining to your device, including the product documentation.

4.3 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.

▶ If you have any queries:
Please contact your supplier or local sales center.

5 Mounting

5.1 Mounting requirements

The device is intended for wall mounting.

Wall mounting as:
Panel

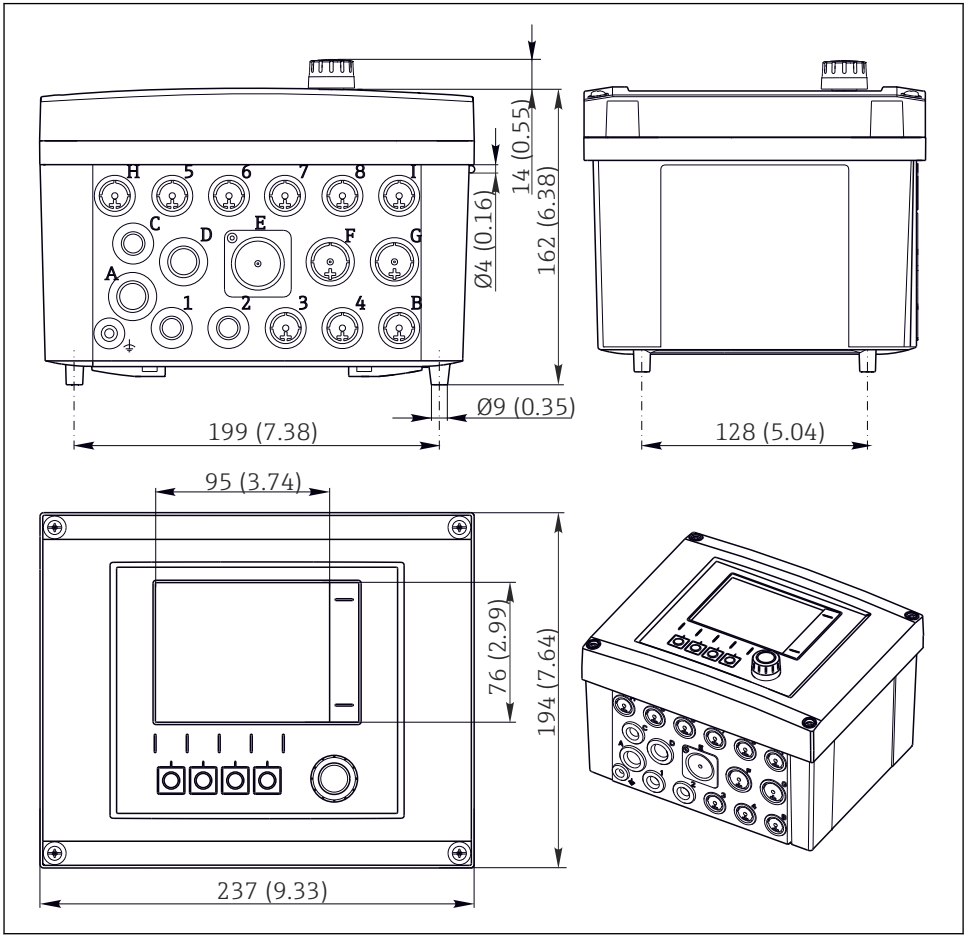
5.1.1 Installation site

Note the following when erecting the device:

1. Make sure that the wall has sufficient load-bearing capacity and is fully perpendicular.
2. Protect the device against additional heating (e.g. from heaters).
3. Protect the device against mechanical vibrations.

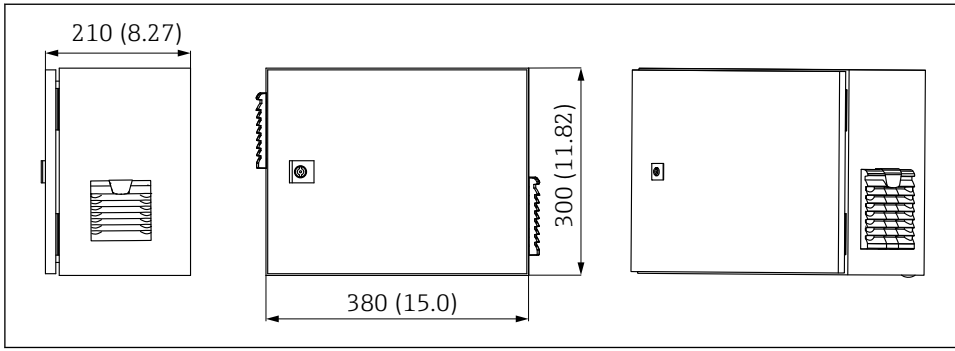
5.1.2 Dimensions

Dimensions of CDC90 control unit



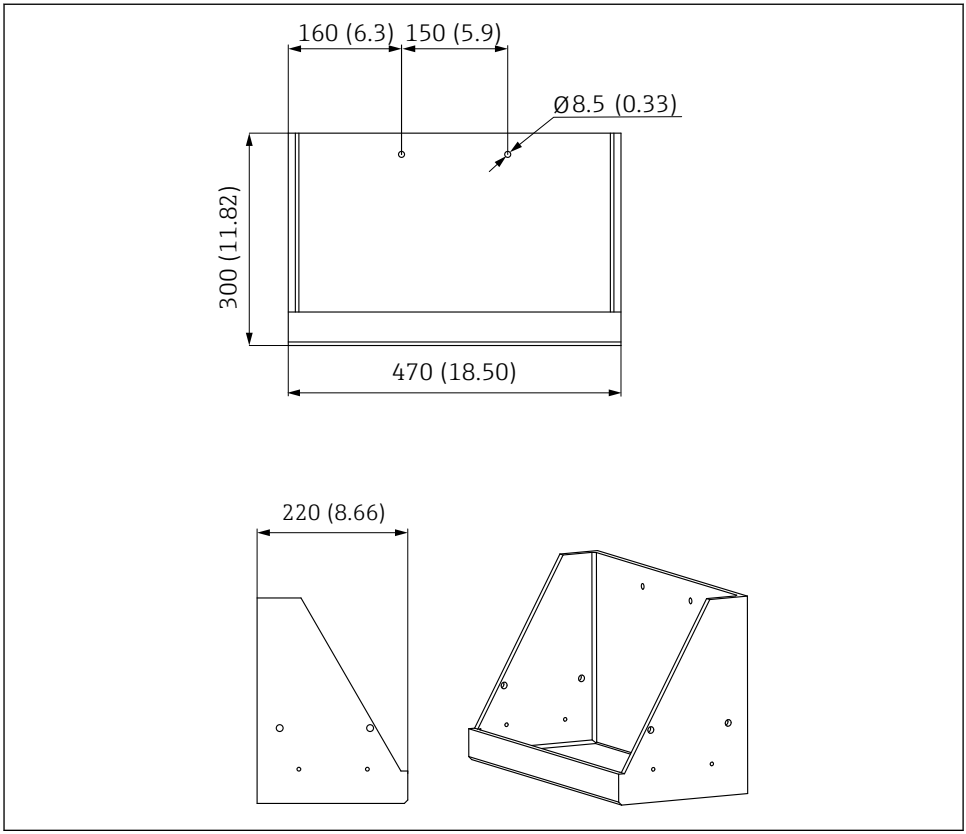
4 Dimensions of field housing in mm (in)

Dimensions of pneumatic control unit

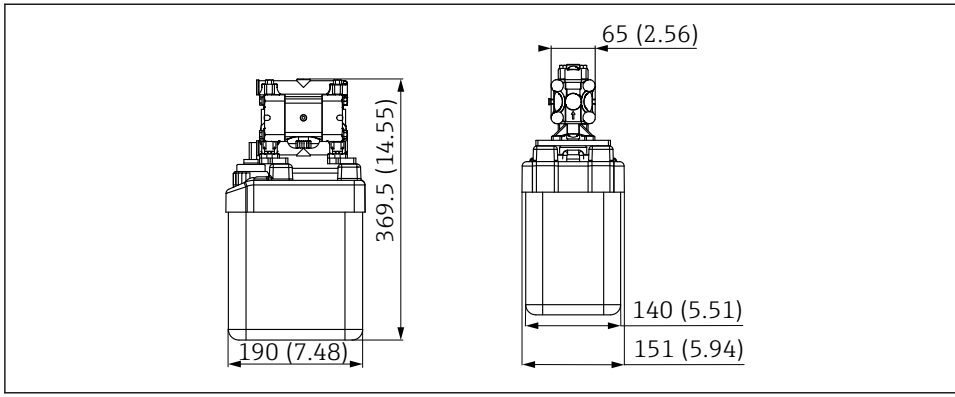


5 Dimensions of pneumatic control unit in mm (in)

Dimensions of canister holder

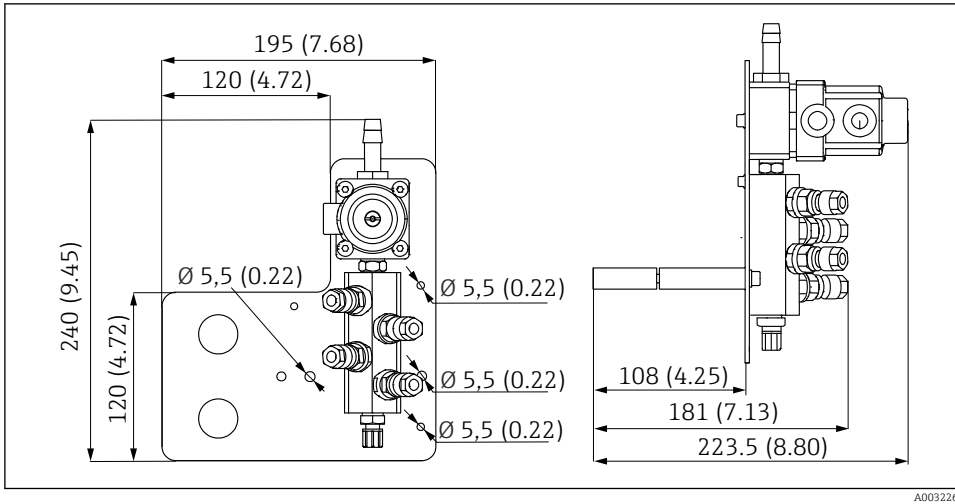


6 Dimensions of canister holder in mm (in)

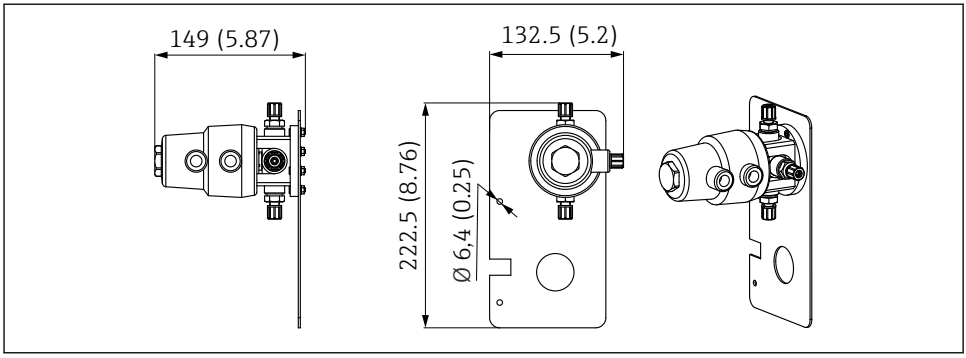


7 Dimensions of canister with pump in mm (in)

Dimensions of rinsing block and changeover valve

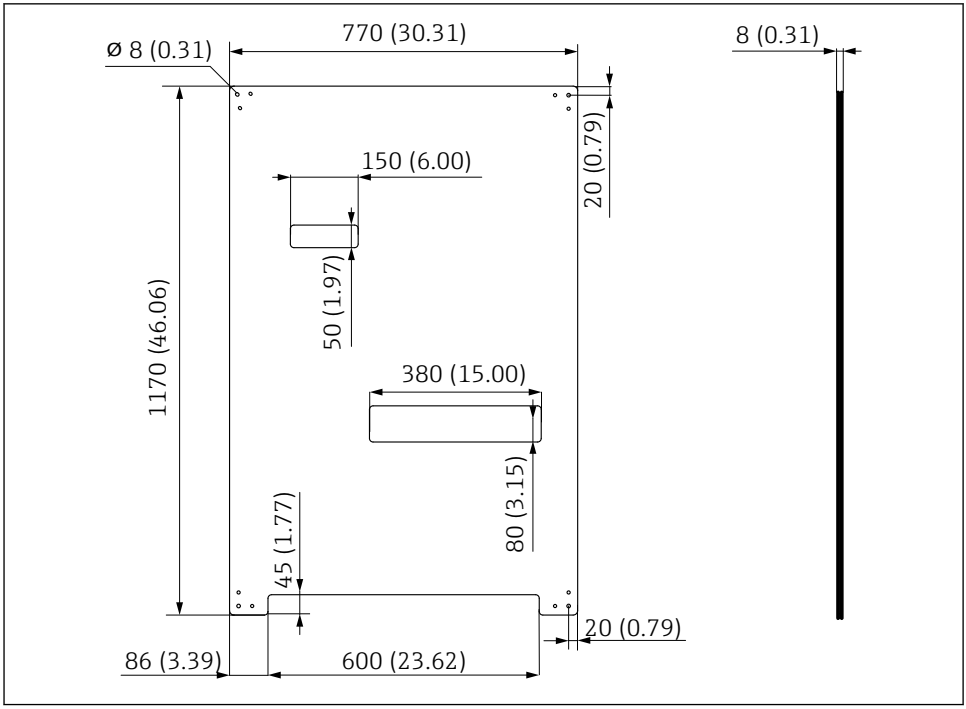


8 Dimensions of rinsing block PVDF, in mm (in)



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

Dimensions of mounting plate



10 Dimensions of mounting plate in mm (in)

5.2 Mounting the system

5.2.1 Wall mounting

CAUTION

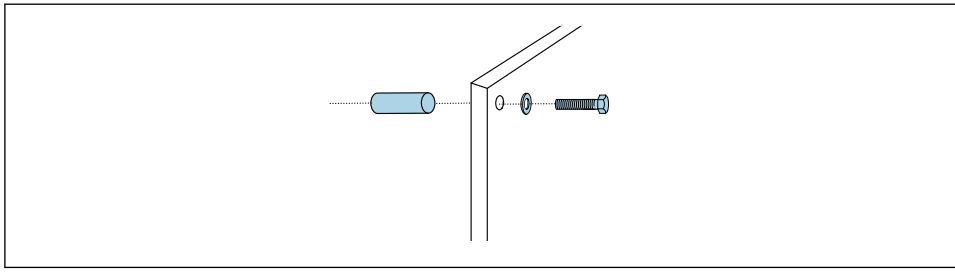
Risk of injury

The weight of the unit may result in crush injuries or other injuries.

- ▶ Mount the device in pairs.
- ▶ Use a suitable mounting tool.

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

Distance sleeves (30 mm (1.2 in) distance) are included in the scope of delivery to secure the mounting plate on the wall.



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11 Wall mounting

The mounting plate features drill holes for the bracket on the wall. The wall plugs and screws must be provided by the customer.

- ▶ Mount the mounting plate at the securing holes provided for this purpose and using the enclosed distance sleeves.

5.2.2 Maximum hose and cable length for one measuring point

The maximum length of the multihose is 10 m (32.8 ft)→ 35.

- ▶ Shorten the hoses if necessary.

NOTICE

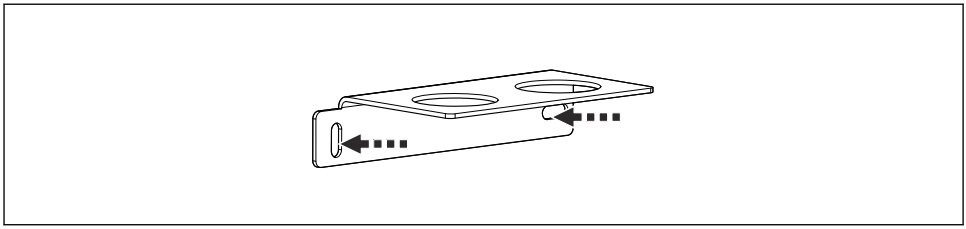
The rinsing block runs dry.

If the rinsing block is mounted below the canisters, the valves of the rinsing block open due to the pressure of the liquid and the canisters empty.

- ▶ Always mount the rinsing block and the assembly above the canisters.

5.2.3 Multihose bracket

Brackets for the multihoses are included in the scope of delivery. The wall plugs, screws and washers must be provided by the customer.



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12 *Multihose bracket*

► Screw the bracket of the multihose onto the wall with washers.

5.2.4 Fix the rinsing block on the assembly

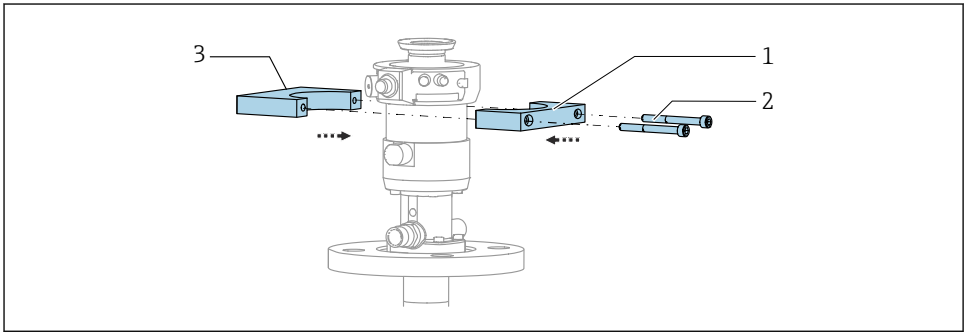
⚠ CAUTION

Risk of injury

Crush injuries or other injuries may occur.

► Use a suitable mounting tool, e.g. an Allen key.

Rinsing block bracket on assembly



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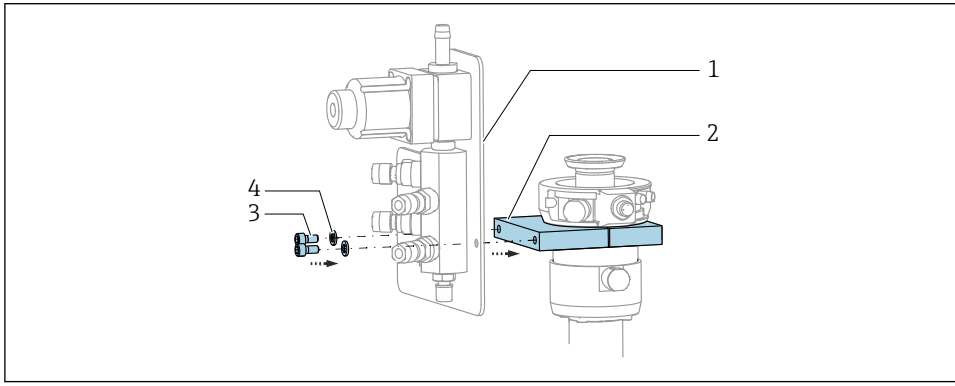
13 *Mounting the rinsing block bracket*

1. Fit one half of the rinsing block bracket (1) on the assembly cylinder.
2. Fit the counterpart (3) on the assembly cylinder from the other side.
3. Connect the rinsing block bracket using the screws (2) provided.

Rinsing block on rinsing block bracket



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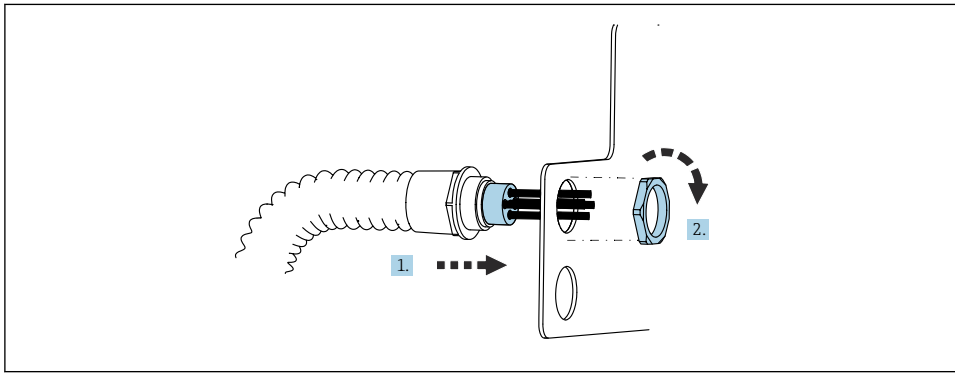
▶ Secure the rinsing block panel (1) to the rinsing block bracket (2) using the screws (3) and washers (4) provided.

Fixing multihose on rinsing block



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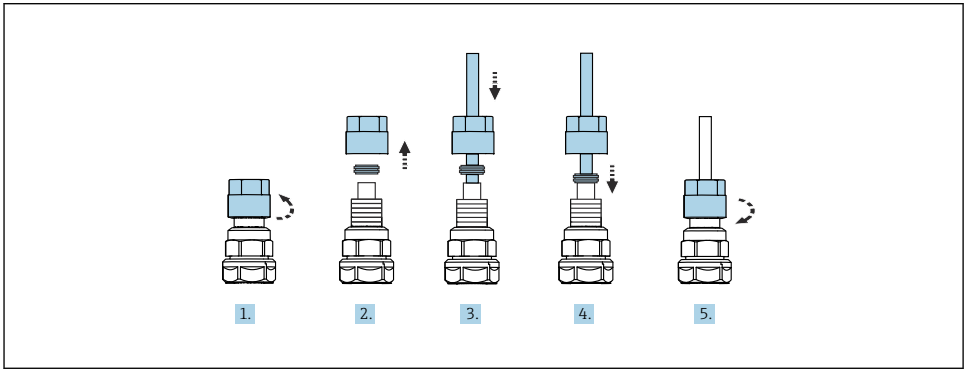
1. Guide the hoses through the opening on the rinsing block plate.
2. Use the counterpart to secure the cable gland.

Connecting the individual hoses in the multihose to the rinsing block valve



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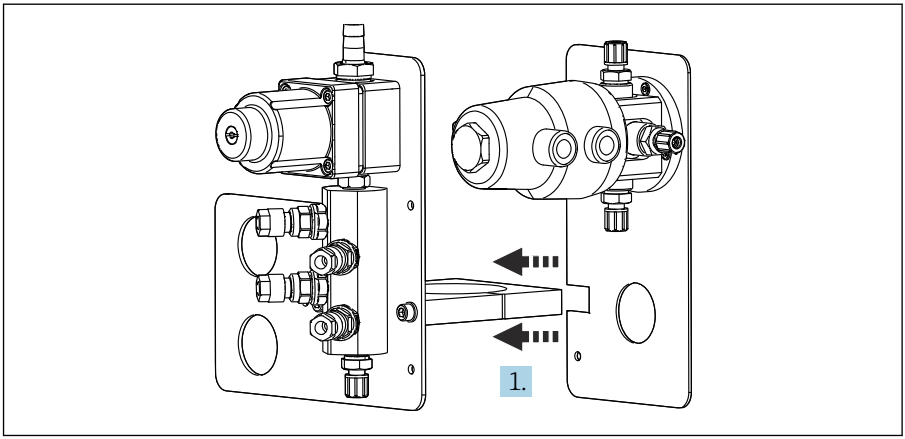
1. Unscrew the union nut of the valve.
2. Remove the union nut and the clamping ring located underneath it.
3. Guide the hose through the union nut and the clamping ring into the valve.
4. Using the clamping ring, secure the hose to the valve by pressing lightly on it.
5. Screw the union nut back onto the valve.
   ↳ The hose is now firmly positioned in the valve.

5.2.5 Mounting the changeover valve for the 2nd measuring point

1.



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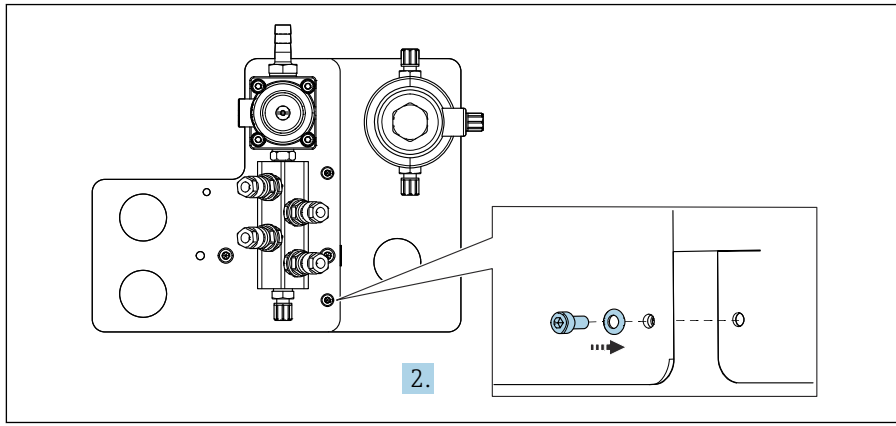
Guide the mounting plate with the changeover valve along the holder of the rinsing block.

2.



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Connect the two parts using the screws provided.

5.2.6 Mechanical connection

⚠ CAUTION

Very loud pumps

The noise from the pumps can hurt the ears.

► Wear ear protectors in the vicinity of the pumps.

Connecting the medium and compressed air

Hose connection diagram

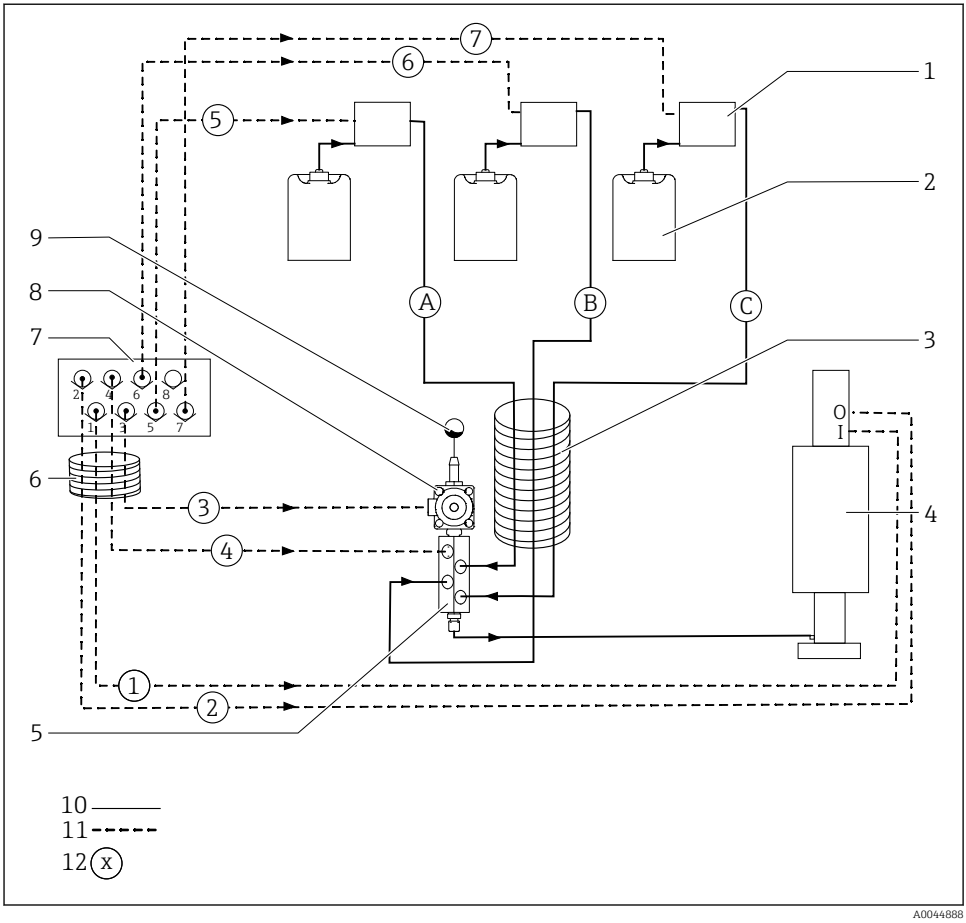
The system contains a hose package comprising:
Compressed air and rinsing hoses

⚠ CAUTION

Excessive water temperatures will damage the rinsing hoses.

Risk of injury due to water vapor discharge.

► Ensure that the water temperature does not exceed 60 °C (140 °F).



14 *Hose connection diagram for medium and compressed air for one measuring point*

1	*Pumps 1-3*	*7*	*Pilot valve manifold in pneumatic control unit (view from below)*
2	*Canister 1-3*	*8*	*Process valve*
3	*Multihose M2*	*9*	*Water connection*
4	*Assembly (connection I = measure, connection O = service)*	*10*	*Liquid*
5	*Rinsing block*	*11*	*Compressed air*
6	*Multihose M1*	*12*	*Hose name*

The individual hoses are grouped together in multihoses.

Multihose	Function	Hose numbers
M1 (compressed air hose)	Compressed air control for process valve, water	3
	Compressed air control for assembly, measuring position, 1st measuring point	1
	Compressed air control for process valve, purge air	4
	Compressed air control for assembly, service position, 1st measuring point	2
M2 (liquid hose)	Pump 1 / canister 1 (left)	A
	Pump 2 / canister 2 (center)	B
	Pump 3 / canister 3 (right)	C
M3 in the case of two measuring points	Compressed air control for changeover valve, 2nd measuring point	8, 11
	Compressed air control for assembly, measuring position, 2nd measuring point	9
	Compressed air control for assembly, service position, 2nd measuring point	10

Connecting compressed air supply

Compressed air supply

When connecting, pay attention to the following:
- The compressed air line is to be provided by the customer.
- The compressed air is 4 to 6 bar (58 to 87 psi).
- The optimum operating air pressure is 6 bar (87 psi)
- The air must be filtered (50 µm) and free from oil and condensate.
- The internal diameter must be at least 6 mm (0.24 in).
- The outer diameter must be at least 8 mm (0.31 in).

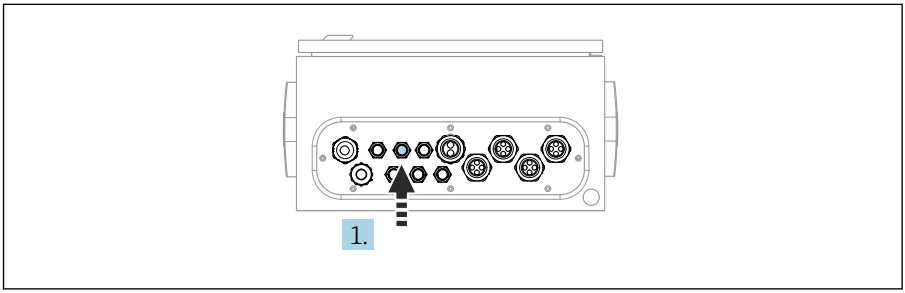
Hose specification

Hose	Size
Water connection via hose barb	For water hose with internal diameter 12 mm (0.47 in)
Compressed air	D 6/8 mm (0.24/0.31 in)

Connection in the pneumatic control unit

The hose system for the internal compressed air supply in the pneumatic control unit is already connected at the factory.

1.



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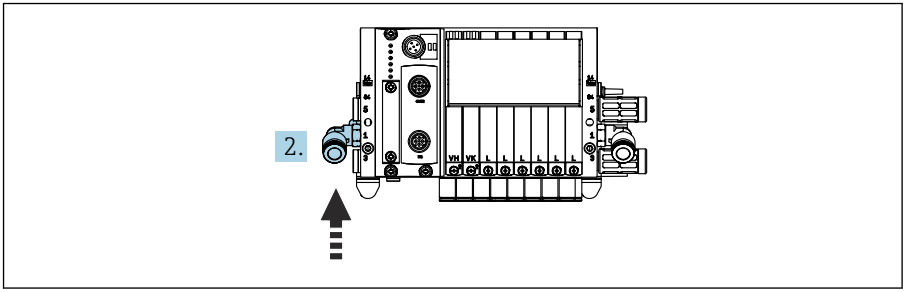
Guide the hose for the external compressed air supply into the cable gland provided on the pneumatic control unit.

2.



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Connect the hose for the compressed air supply to the supply for the pilot valve manifold.

Connecting multihoses

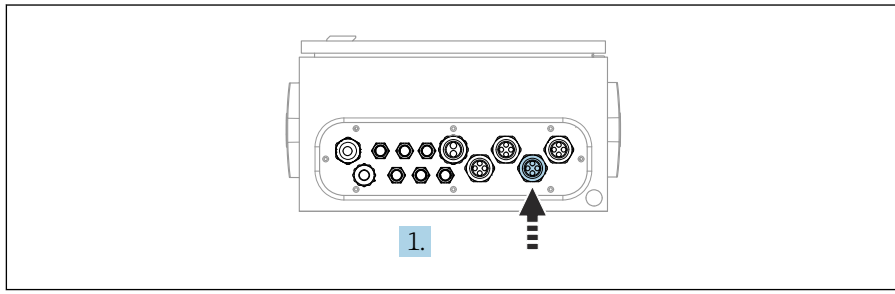
M1- air hoses from the pneumatic control unit to the rinsing block and assembly

M1 connection in the pneumatic control unit

The air hoses for the pilot valves in the pneumatic control unit are already connected at the factory.

The air hoses for the pilot valves are located in the hose package of the M1 multihose.

1.



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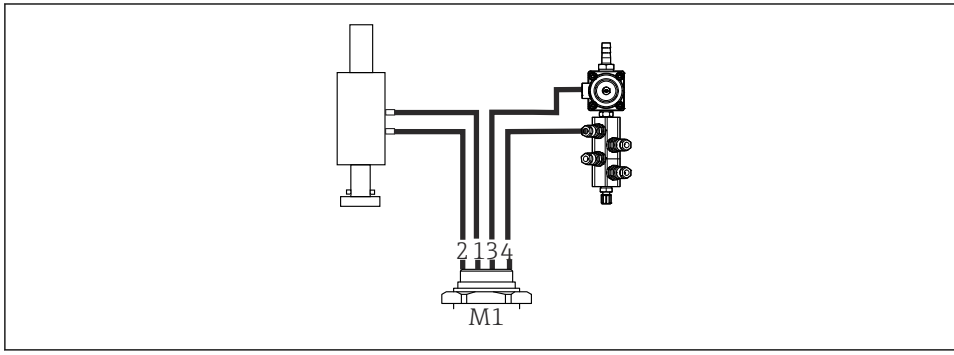
Guide hoses 1, 2, 3 and 4 of the M1 multihose into the cable gland provided on the pneumatic control unit.

2. Connect the hoses to the pilot valve manifold as follows:

Pilot valve	Function	Hose number
1	Compressed air control for assembly, measuring position	1
2	Compressed air control for assembly, service position	2
3	Compressed air control for process valve, water	3
4	Compressed air control for process valve, purge air	4

M1 connection on rinsing block and assembly



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15 M1 connections on assembly and rinsing block

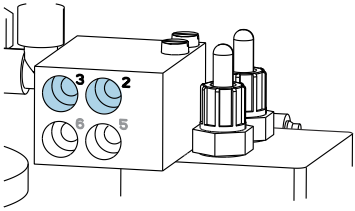
3. Connect hose 1 to the connection for moving the assembly in the measuring position.
4. Connect hose 2 to the connection for moving the assembly in the service position.

5. Connect hose 3 to the compressed air control unit for the process valve for water on the rinsing block.
6. Connect hose 4 (compressed air control unit for the process valve for purge air) to the valve for purge air on the rinsing block.

Connection on assemblies CPA87x and CPA471/472/472D/475

Hose number:	Connection on assembly:
CPA87x	
Hose 1	I, measure position
Hose 2	O, service position
CPA471/472/472D/475	
Hose 1	Upper connection
Hose 2	Lower connection

Connecting assembly CPA473/474



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▶ Connect the hoses as follows:

Hose number:	Connection on assembly:
Hose 1	2 on block, measuring
Hose 2	3 on block, service

M2 - liquid hoses from pumps to rinsing block

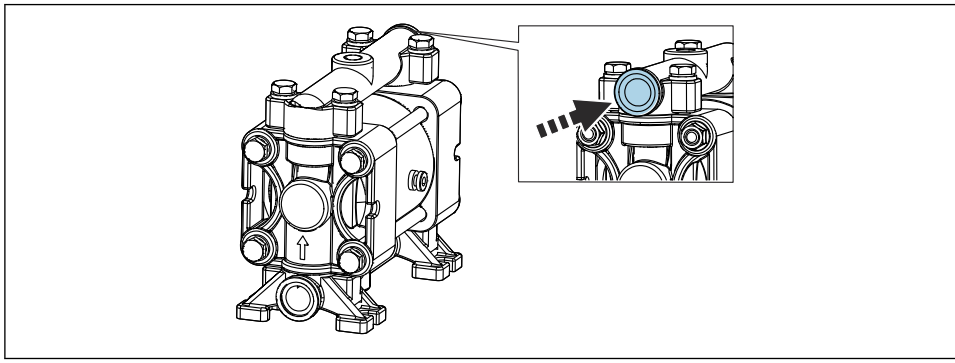
M2 connection to pumps

The hoses for supplying liquid to the rinsing block are located in the hose package of the M2 multihose.

1. Connect the hoses to the pumps from left to right as follows:

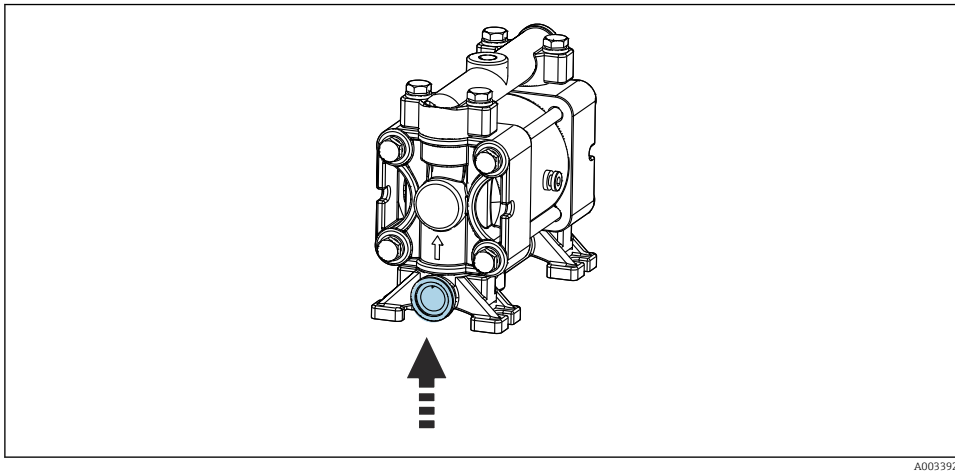
Hose number	Pump	Function
A	Pump 1 (left)	Liquid, canister 1
B	Pump 2 (center)	Liquid, canister 2
C	Pump 3 (right)	Liquid, canister 3

2. Connect the hoses as follows for the transportation of cleaner and buffer at the pump:



A0041603

16 *Connection of media*

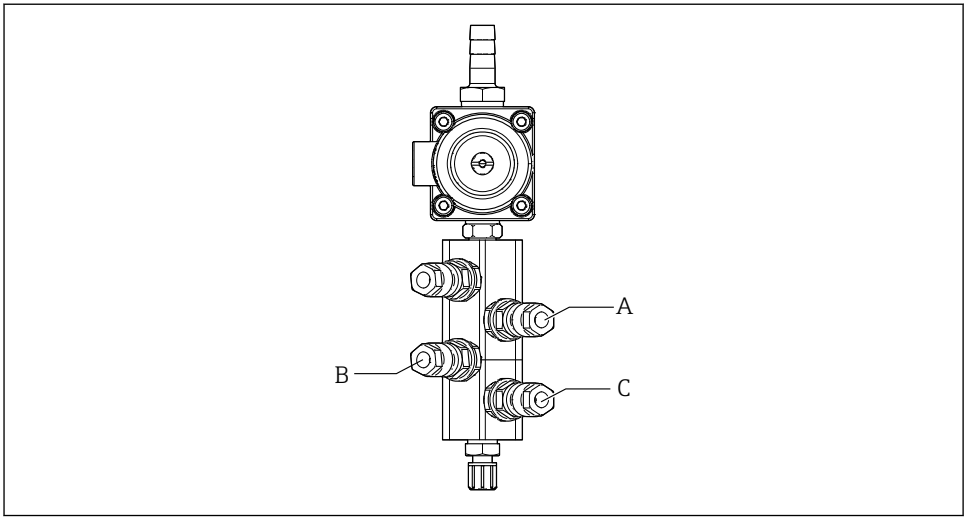


A0033922

17 *Connection of float switch*

M2 connection to rinsing block

▶ Connect the hoses from the pumps to the valves of the rinsing block as follows:



A0033438

Hose number	Function
A	Liquid, canister 1
B	Liquid, canister 2
C	Liquid, canister 3

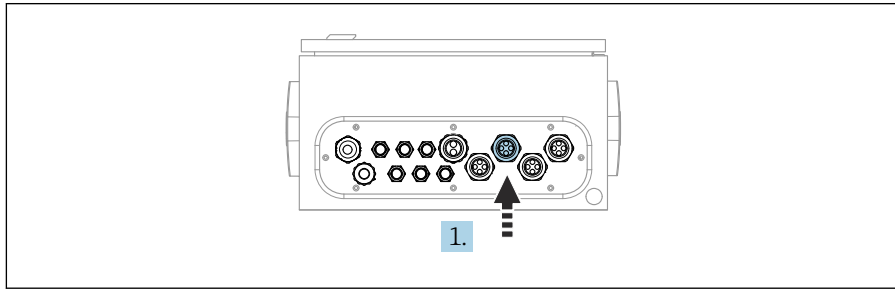
M3 (2nd measuring point)- air hoses from the pneumatic control unit to the changeover valve and assembly of the 2nd measuring point

M3 connection in the pneumatic control unit

The hoses on the pilot valves in the pneumatic control unit are already connected at the factory.

The hose package of the M3 multihose contains the following hoses:
- Changeover valve activation
- Assembly retraction

1.



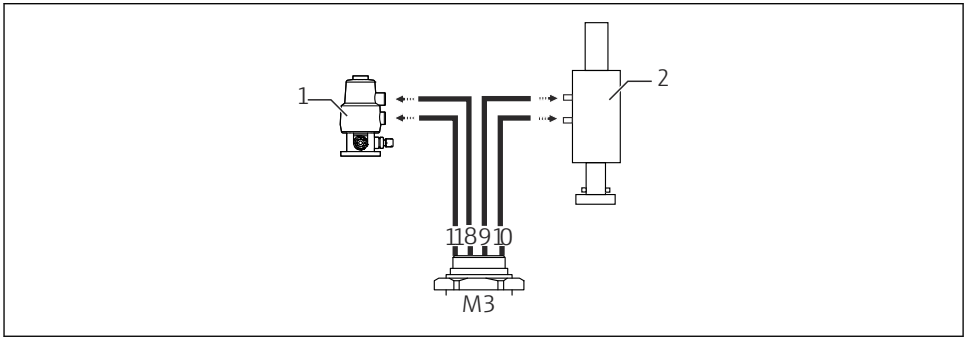
A0033441

Guide the hoses of the M3 multihose into the cable gland provided on the pneumatic control unit.

2. Connect the hoses on the pilot valves in the pneumatic control unit as follows:

Pilot valve	Function	Hose number
9, 10	Compressed air control for changeover valve, top, 1st measuring point	8
	Compressed air control for changeover valve, bottom, 2nd measuring point	11
11	Compressed air control for assembly, measuring position, 2nd measuring point	9
12	Compressed air control for assembly, service position, 2nd measuring point	10

M3 connection to changeover valve and assembly of 2nd measuring point



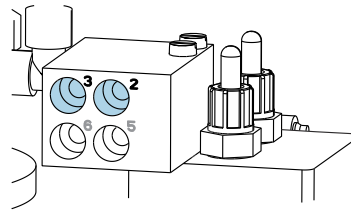
18 M3 connections to changeover valve (1) and assembly (2)

3. Connect hose 8 to the upper connection of the changeover valve (to control the supply of medium to the first measuring point).
4. Connect hose 11 to the lower connection of the changeover valve (to control the supply of medium to the second measuring point).
5. Connect hose 9 to the connection for moving the assembly to the measuring position.
6. Connect hose 10 to the connection for moving the assembly to the service position.

Connection to assemblies CPA87x and CPA47x

Hose number:	Connection on assembly:
CPA87x	
Hose 9	I, measure position
Hose 10	O, service position
CPA47x	
Hose 9	Upper connection
Hose 10	Lower connection

Connecting assembly CPA473/474

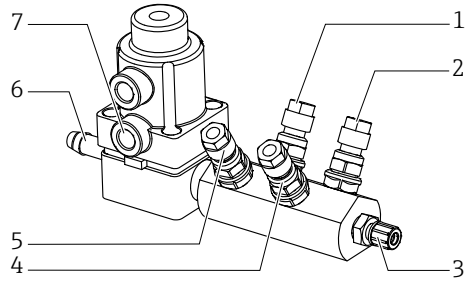


A0033220

► Connect the hoses as follows:

Hose number:	Connection on assembly:
Hose 9	2 on block, measuring
Hose 10	3 on block, service

Rinse pipe on rinsing block



A0032651

19 Rinsing block

1	*Liquid, pump/ canister 1*	*5*	*Air rinsing block (pilot valve 4)*
2	*Liquid, pump/ canister 3*	*6*	*Water connection*
3	*Outlet rinse connection to assembly*	*7*	*Air process valve (pilot valve 3)*
4	*Liquid, pump/ canister 2*		

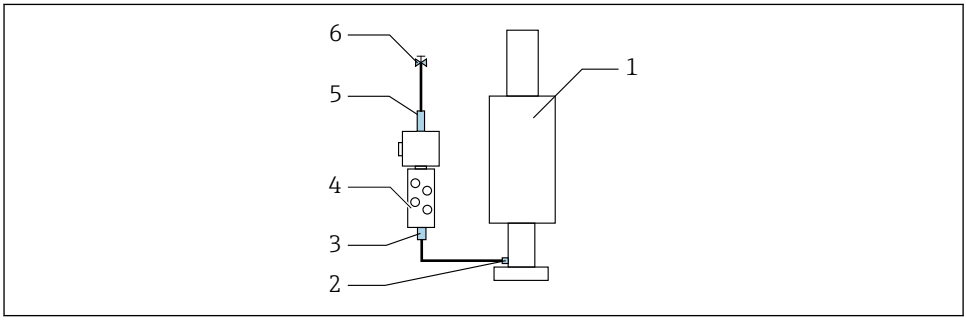
Connecting the rinse water

When connecting the water, pay attention to the following:
- The rinse water pipe is to be provided by the customer.
- The water pressure must be 3 to 6 bar (44 to 87 psi).

Pay attention to the quality of the rinse water. Particles larger than 100 µm should be filtered using a water filter.

1st measuring point

Two G1/4" adapters to a 6/8 mm hose are enclosed to adapt the rinse connections of the assembly. The assembly must have G 1/4" rinse connections.



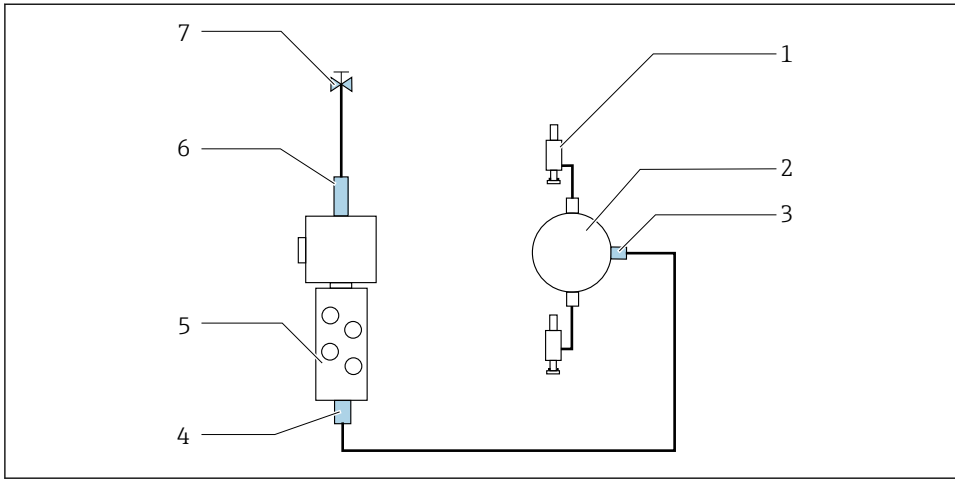
20 Rinsing block with one assembly

1. Rinse the pipe thoroughly.
2. Connect the rinse water (6) to the water connection (5) of the rinsing block (4).
3. Connect the rinse chamber connection (3) on the rinsing block to the rinse connection (2) of the assembly (1).

2nd measuring point

Four G1/4" adapters to a 6/8 mm hose are enclosed to adapt the rinse connections of the assemblies. The assemblies must have G 1/4" rinse connections.

The supply of medium for both assemblies is regulated by the changeover valve.



21 Rinsing block with 2 assemblies (1st and 2nd measuring point)

1. Rinse the pipe thoroughly.
2. Connect the rinse water (7) to the water connection (6) of the rinsing block.
3. Connect the rinse chamber connection (4) on the rinsing block (5) to the rinse connection (3) of the changeover valve (2).
4. Connect the rinse connections of the assemblies (1) to the rinse connections of the changeover valve, 1st measuring point on right, 2nd measuring point on left.

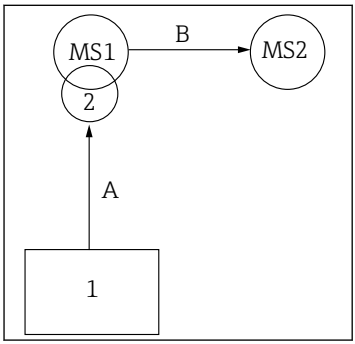
Shortening the multihoses

The hoses in the multihose must be altered depending on the distance.

1. Unscrew the M3 multihose from the rinsing block.
2. Remove the corrugated hose (outer sheathing of the multihose) from the fastener and the plug.
3. Guide the hoses and cables further inside the corrugated hose so that they can be pulled out at the other end.
4. Pull out the hoses and cables to the point where the corrugated hose should be shortened.
5. Carefully cut into the corrugated hose. Take care not to damage the inner hoses or cables.
6. Shorten the corrugated hose to the desired length.
7. Pull the hoses through the fastener and the plug.
8. Secure the corrugated hose to the bracket.

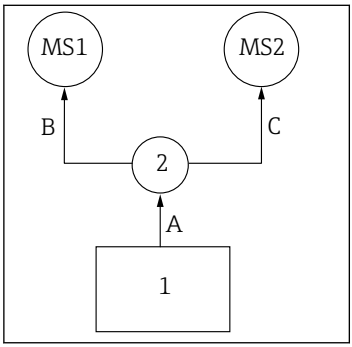
The total length of the hoses to measuring points 1 and 2 may not exceed 10 m (32.8 ft).

Installation option 1



A+B=max 10 m

Installation option 2



A+B= max 10 m
A+C= max 10 m

1 = Pneumatic control unit
2 = Rinsing block and changeover valve
MS1 = Measuring point 1
MS2 = Measuring point 2

A = Length of multihose M2 for media to the rinsing block.
= Length of multihose M1 for air to control measuring point 1 and to control the water valve and purge air.
= Length of individual hoses 8 and 11 from multihose M3 for air to control the changeover valve.
B = Length of the connecting hose from the changeover valve to measuring point 2.
A+B = Length of individual hoses 9 and 10 from multihose M3 for air to control measuring point 2.

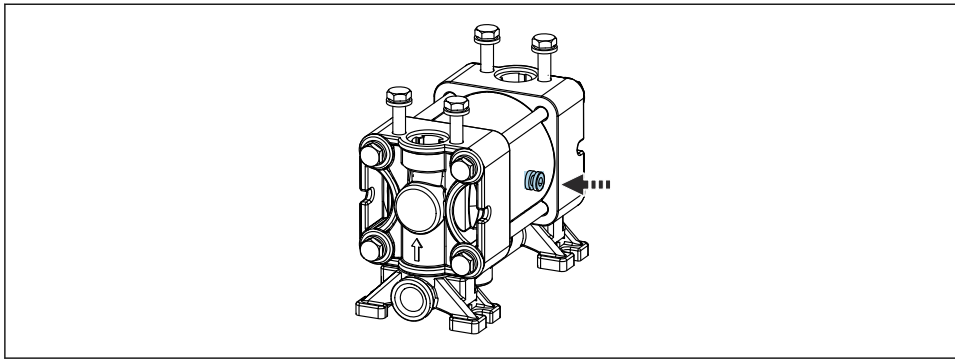
A = Length of multihose M2 for media to the rinsing block.
= Length of individual hoses 3 and 4 from multihose M1 for air to control the water valve and purge air.
= Length of individual hoses 8 and 11 from multihose M3 for air to control the changeover valve.
B, C = Length of the connecting hose from the changeover valve to measuring point 1 or measuring point 2.
A+B, A+C = Length of individual hoses 1 and 2 from multihose M1 for air to control measuring point 1.
= Length of individual hoses 9 and 10 from multihose M3 for air to control measuring point 2.

Connecting the pump

Compressed air control

The compressed air control of the pumps is already connected ex works.

- For the compressed air control of the pumps, connect the 4 mm (0.16 in) tube piece provided and the 4 to 6 mm (0.16 to 0.24 in) conduit adapter as follows:



A0033921

22 Connecting the compressed air control

Pilot valve	Function	Hose number
5	Pump 1, liquid canister 1 (left)	5
6	Pump 2, liquid canister 2 (center)	6
7	Pump 3, liquid canister 3 (right)	7

5.3 Post-mounting check

1. Following the installation, check all devices for damage.
2. Verify that the specified installation clearances have been observed.
3. Ensure that the temperature limits are observed at the mounting location.
4. Verify that all hoses are securely mounted and leak-tight.
5. Verify that all multihoses are positioned in such a way that they are protected.

6 Electrical connection

6.1 Connecting requirements

NOTICE

The device does not have a power switch

- ▶ A fuse with a maximum rating of 16 A must be provided by the customer. Observe the local regulations for installation.
- ▶ The circuit breaker must be a switch or power switch, and must be labeled as the circuit breaker for the device.
- ▶ The protective ground connection must be made before all other connections. If the protective ground is disconnected, this can be a source of danger.
- ▶ The circuit breaker must be located near the device.

1. Make sure to establish a sufficient connection of at least 0.75 mm² (0.029 in²) to the housing protective ground system.
2. Ensure the mechanical loading capacity of the feed cables complies with the conditions at the place of installation.

Only the mechanical and electrical connections which are described in these instructions, and which are necessary for the required, designated use, may be established on the device delivered.

- ▶ Exercise care when carrying out the work.

Supply voltage:
100 to 230 V AC
Fluctuations in the line voltage may not exceed ± 10 %.

6.2 Connecting the CDC90 control unit

⚠ WARNING

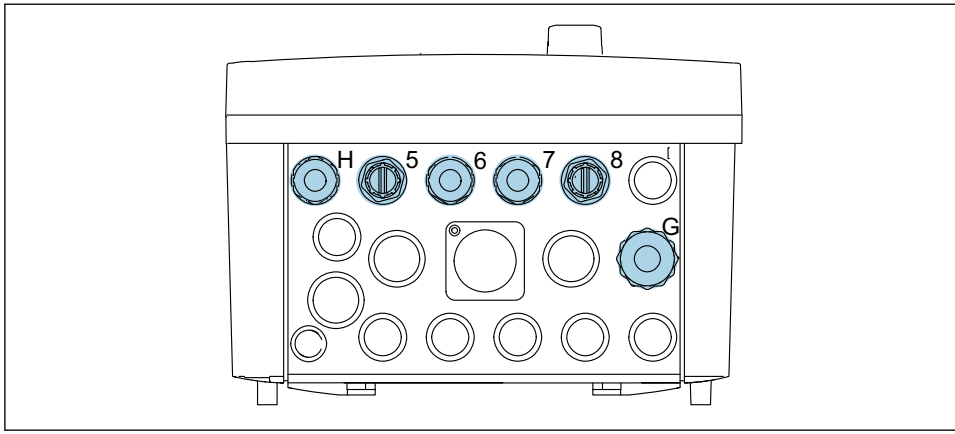
Device is live!

Incorrect connection may result in injury or death!

- ▶ The electrical connection may be performed only by an electrical technician.
- ▶ The electrical technician must have read and understood these Operating Instructions and must follow the instructions contained therein.
- ▶ **Prior** to commencing connection work, ensure that no voltage is present on any cable.

6.2.1 Cable gland assignment

The CDC90 control unit is already wired at the factory.



A0033181

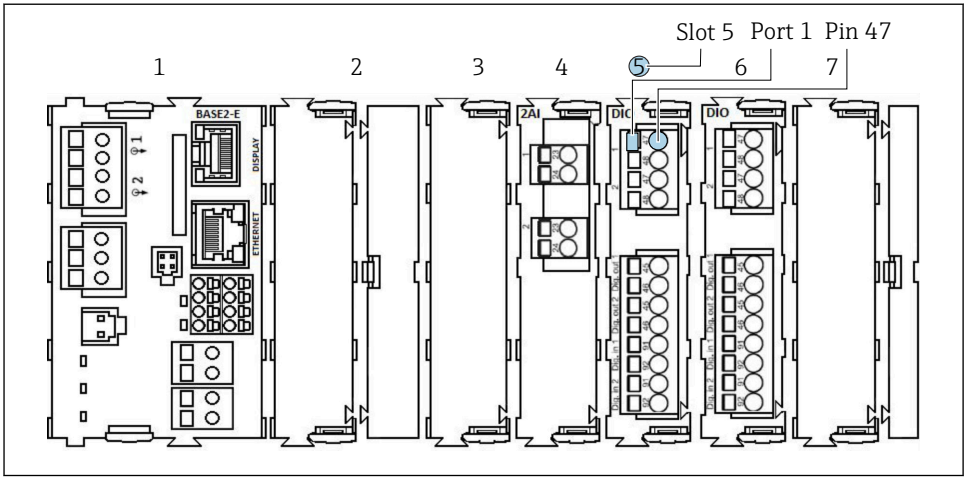
23 CDC90 control unit cable gland

Wiring	Designation	Assignment
CDC90 control unit supply voltage	W11	H
Ethernet cable from IPC to Ethernet switch	W23	5
Sensor, 1st measuring point		6
Sensor, 2nd measuring point		7
Ethernet cable from BASE2-E to Ethernet switch	W24	8
Sensor, float switch, pressure switch, IPC power supply	W8	G

6.2.2 Modules of the CDC90 control unit

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:



24 *Example of port assignment*

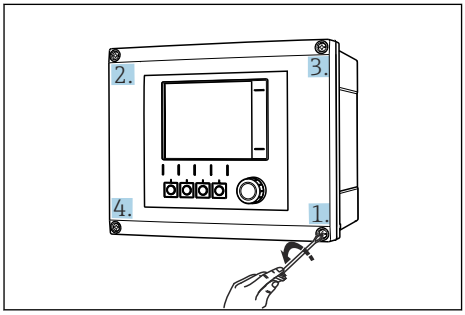
6.2.3 Opening the CDC90 control unit

NOTICE

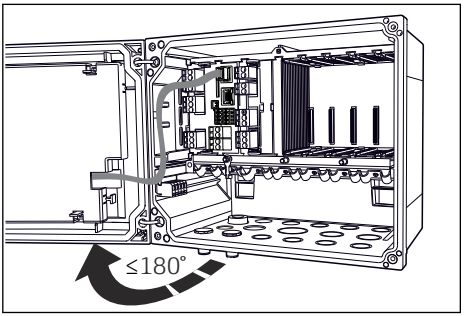
Pointed or sharp tools

The use of unsuitable tools can cause scratches on the housing or damage to the seal, and therefore negatively affect the leak-tightness of the housing!

- ► Do not use any sharp or pointed objects, e.g. a knife, to open the housing.
- ► Only use a suitable Phillips screwdriver.



25 *Slacken the housing screws crosswise with a Phillips head screwdriver*



26 *Opening display cover, max. opening angle 180° (depends on installation position)*

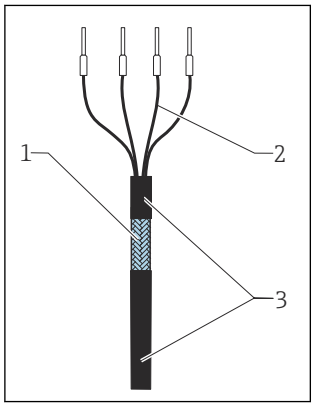
1. Slacken the housing screws crosswise.
2. To close the housing: tighten the screws in a similar step-by-step, crosswise sequence.

6.2.4 Connecting the cable shield

Only use terminated original cables where possible. The sensor cable, fieldbus cable and Ethernet cable must be shielded cables.

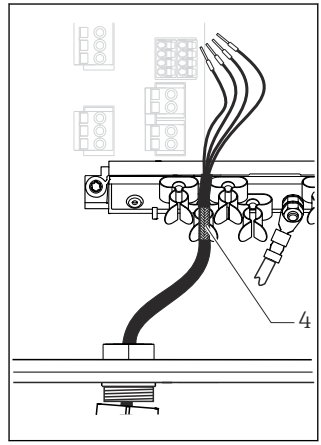
Clamping range of cable clamps: 4 to 11 mm (0.16 to 0.43 in)

Sample cable (does not necessarily correspond to the original cable supplied)



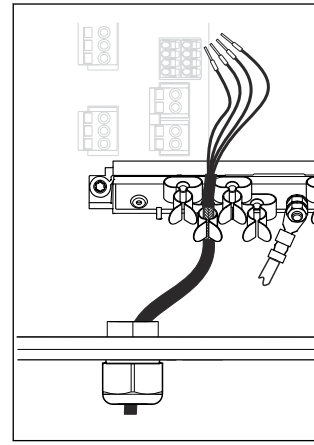
27 *Terminated cable*

1 *Outer shield (exposed)*
2 *Cable cores with ferrules*
3 *Cable sheath (insulation)*



28 *Connect the cable to the grounding clamp*

4 *Grounding clamp*



29 *Press the cable into the grounding clamp*

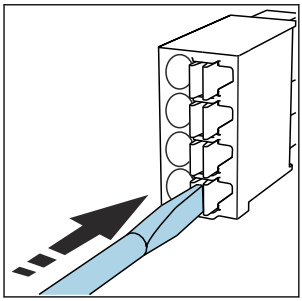
The cable shield is grounded using the grounding clamp [1]

1) Please pay attention to the instructions in the "Ensuring the degree of protection" section

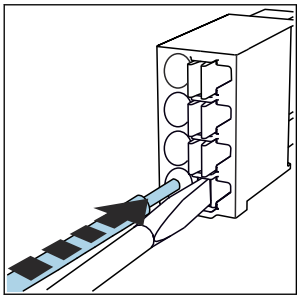
1. Loosen a suitable cable gland on the bottom of the housing.
2. Remove the dummy plug.
3. Attach the gland to the cable end, making sure the gland is facing the right direction.
4. Pull the cable through the gland and into the housing.
5. Route the cable in the housing in such a way that the **exposed** cable shield fits into one of the cable clamps and the cable cores can be easily routed as far as the connection plug on the electronics module.
6. Connect the cable to the cable clamp.
7. Clamp the cable.
8. Connect cable cores as per the wiring diagram.
9. Tighten the cable gland from outside.

6.2.5 Cable terminals

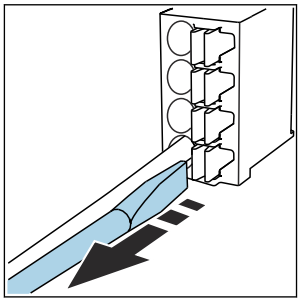
Plug-in terminals for Memosens connections



▶ Press the screwdriver against the clip (opens the terminal).



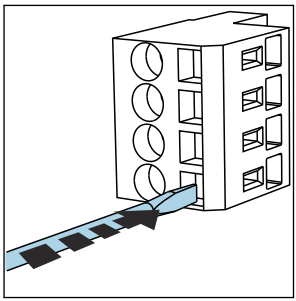
▶ Insert the cable until the limit stop.



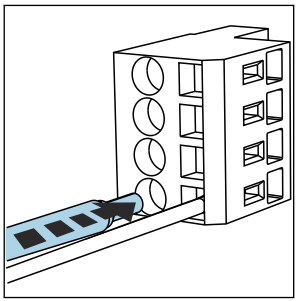
▶ Remove the screwdriver (closes the terminal).

▶ After connection, make sure that every cable end is securely in place. Terminated cable ends, in particular, tend to come loose easily if they have not been correctly inserted as far as the limit stop.

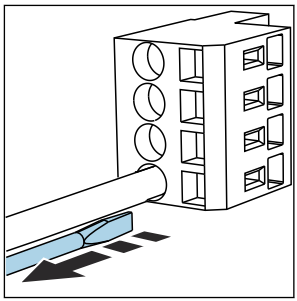
All other plug-in terminals



▶ Press the screwdriver against the clip (opens the terminal).



▶ Insert the cable until the limit stop.

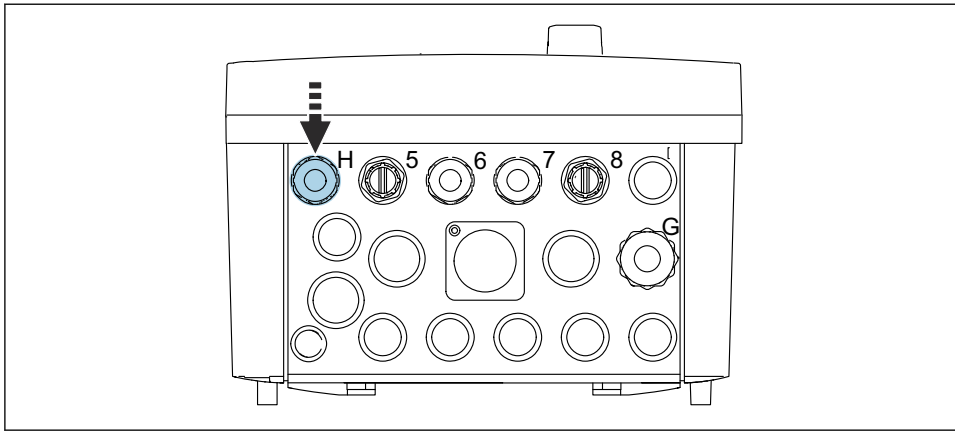


▶ Remove the screwdriver (closes the terminal).

6.2.6 Connecting the supply voltage for the CDC90 control unit

"H" cable gland

The supply voltage for the CDC90 control unit is already wired at the factory.



A0033453

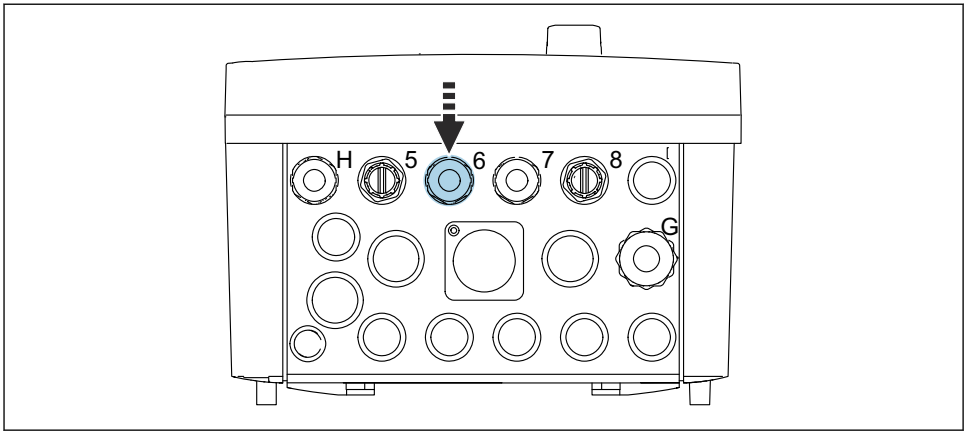
▶ Guide the cable of the supply voltage through the cable gland "H" provided.

6.3 Connecting the sensors

6.3.1 Sensor types

Sensors with Memosens protocol

Sensor types	Sensor cable	Sensors
Digital sensors **without** additional internal power supply	With plug-in connection and inductive signal transmission	▪ pH sensors ▪ ORP sensors ▪ Combined pH/ORP sensors



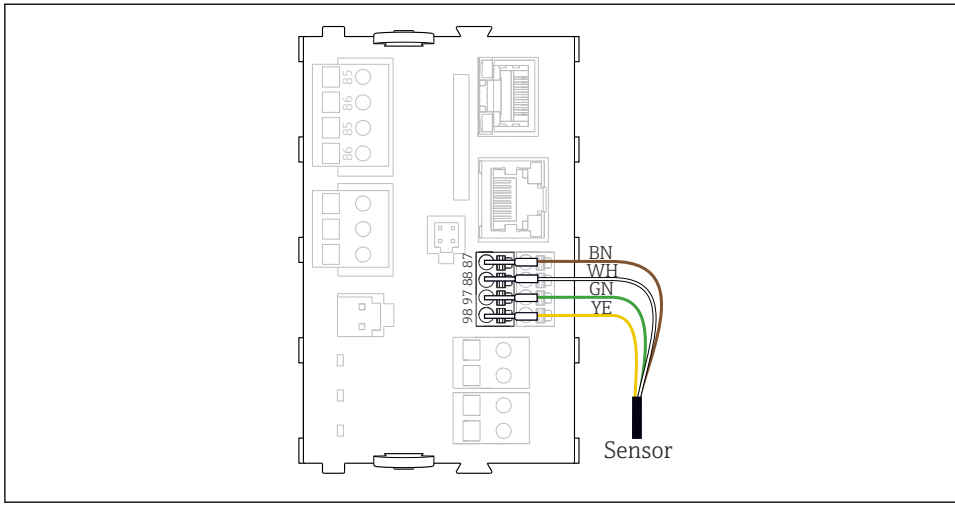
A0033455

▶ Guide the sensor cable of the 1st measuring point through cable gland "6" provided.

Cable gland "7" is provided for the sensor of the 2nd measuring point.

Connecting the sensor cable

1. Sensor cable connected directly
   Connect the sensor cable to the terminal connector of the BASE2-E module.
2. When connecting via M12 connector:
   Connect the sensor connector to an M12 sensor socket which has been previously installed or is supplied on delivery.



30 *Direct connection of sensors without additional supply voltage*

6.4 Connecting additional inputs and outputs

WARNING

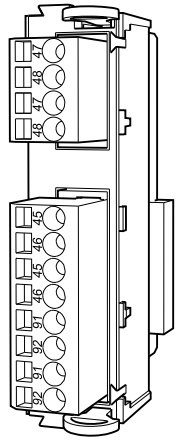
Module not covered

No shock protection. Danger of electric shock!

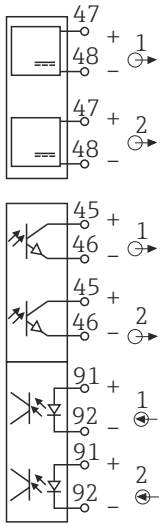
- ▶ Only the 4AO module can be retrofitted at slot 7. Other hardware must not be modified.
- ▶ If additional shields are required, connect them with PE centrally in the control cabinet via terminal blocks supplied by the customer.

6.4.1 Digital inputs and outputs

DIO module



31 *Module*



32 *Wiring diagram*

For monitoring the compressed air and the float switches.

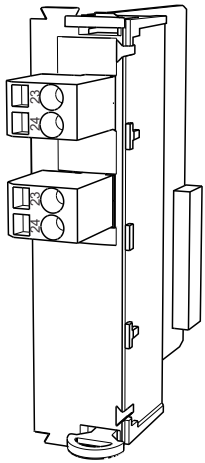
Connecting the DIO

Digital I/O connection to the actuator terminal in the pneumatic control unit

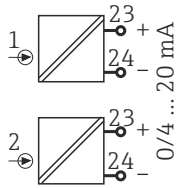
Cable wire	CDC control unit: DIO module	Pneumatic control unit: terminal X2, bottom	Function
W8, 5	Slot 5 (24V DC - 1) – terminal 47	1	Pressure switch BK, float switch, pump 1 BK
W8, 6	Slot 5 DI 1 terminal 91	2	Float switch, pump 1 BN
W8, 7	Slot 5 DI 2 terminal 91	3	Pressure switch BN
W8, 8	Slot 6 (24V DC - 1)	4	Float switch, pump 3 BK
W8, 9	Slot 6 DI 1 terminal 91	5	Float switch, pump 3 BN
W8, 10	Slot 6 (24V DC - 2) terminal 47	6	Float switch, pump 2 BK
W8, 11	Slot 6 DI 2 terminal 91	7	Float switch, pump 2 BN

6.4.2 Current inputs

2AI module



33 *Module*



34 *Wiring diagram*

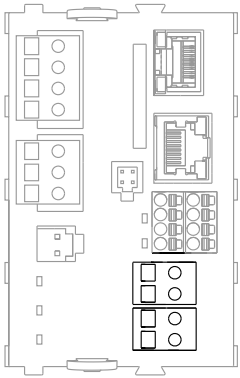
Input for control signal from soft keys.

1. Input for control signal from soft keys.

2. Input for control signal from control station to control the implementation of the program remotely.

6.4.3 Current outputs

Module BASE2-E, 2AO



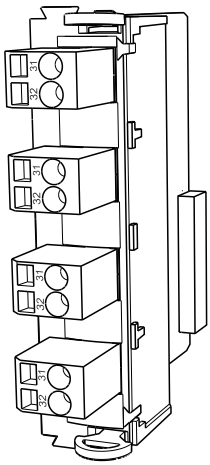
A0045051

Transmission of the status signals from the measuring point to the control system.

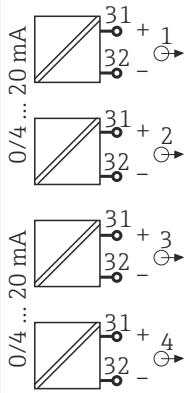
1. Output to control the status LED on the CDC90 control unit
2. Output to transmit the status signals from the measuring point to the control system

Optional: additional 4AO module for measured values.

4AO (optional)



35 *Module*



36 *Wiring diagram*

Transmission of the measured values (user-definable) from the measuring point to the control system.

6.5 Connecting digital communication

6.5.1 Connecting the Ethernet

CAUTION

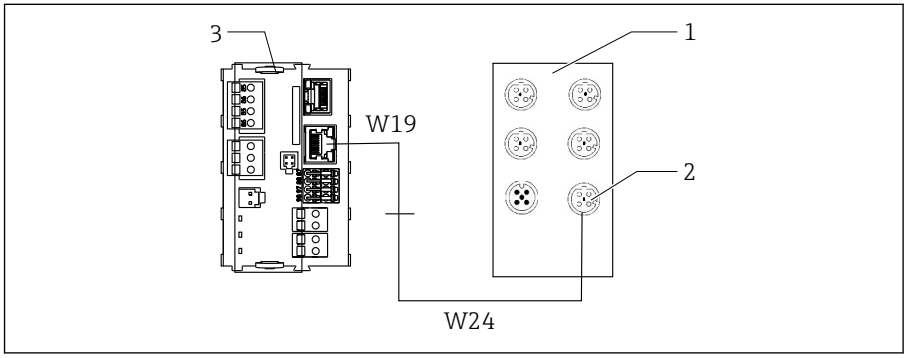
Electric shock!

- The connected external devices must be insulated against dangerous voltages that may occur.

Connecting the Ethernet switch communication cable to the CDC90 control unit

The communication between the CDC90 control unit and the Ethernet switch is already wired at the factory.

1.

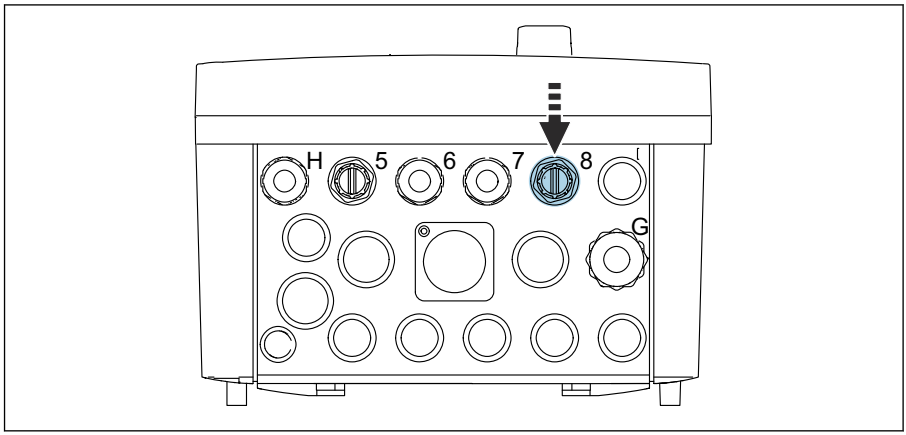


A0033466

1 Ethernet switch
2 Ethernet connection
3 BASE2-E module

In the CDC90 control unit, connect the Ethernet adapter cable W19 to the Ethernet connection of the BASE2-E module (3).

2.



A0033454

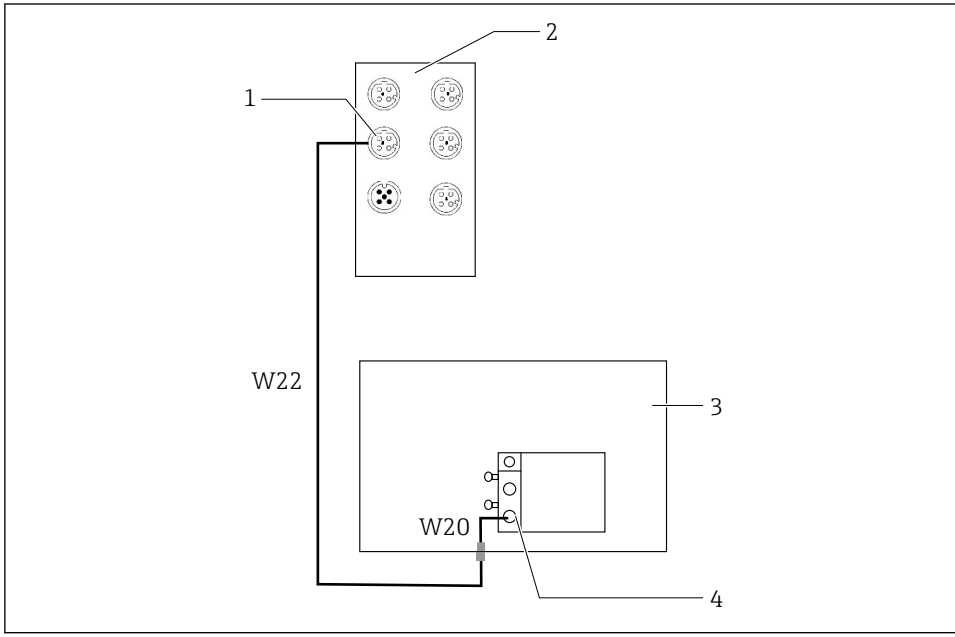
Connect the Ethernet adapter cable W24 to cable gland "8" provided.

↳ The W19 and W24 cables form a bridge.

3. Connect the EtherNet adapter cable at the EtherNet switch (1) to the connection (2) provided for this purpose.

Connecting the Ethernet switch communication cable to the pneumatic control unit

The Ethernet cable for internal communication between the Ethernet switch and the pneumatic control unit is already wired at the factory.



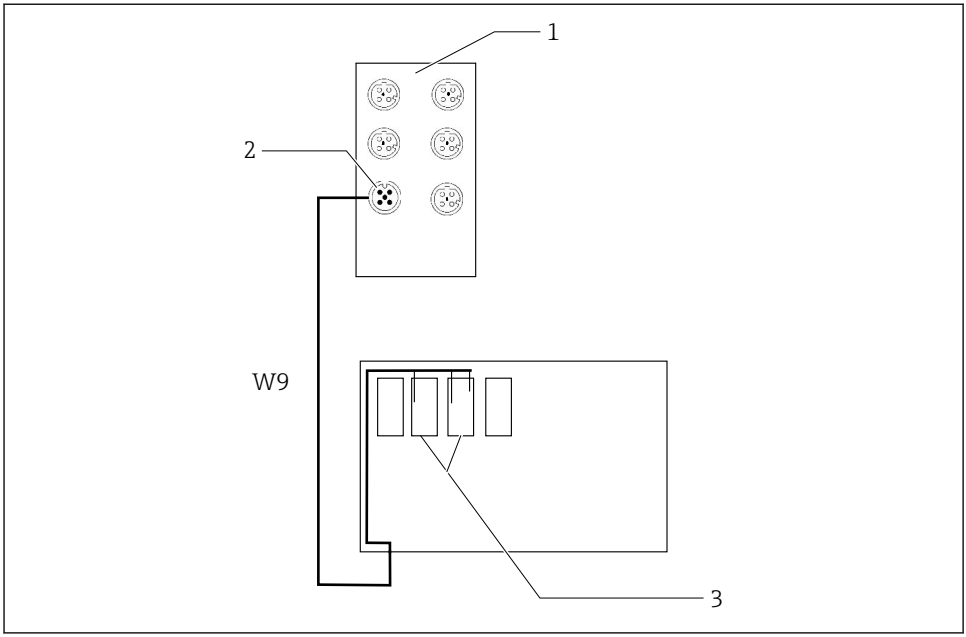
37 *Wiring of the Ethernet switch at the fieldbus interface*

1 Connection on Ethernet switch
2 Ethernet switch
3 Pneumatic control unit
4 Fieldbus interface IN1 of the bus node

1. Connect the communication cable (W22) at the Ethernet switch (2) to the connection (1).
2. Connect the W22 cable to cable gland "4" of the pneumatic control unit (3) from below.
3. Connect the W20 cable in the pneumatic control unit (3) to cable gland "4" from the inside.
   ↳ The W22 and W20 cables form a bridge.
4. Connect the W20 cable in the pneumatic control unit (3) to the fieldbus interface IN1 of the bus node (4).

Connecting the supply voltage of the Ethernet switch

The supply voltage of the Ethernet switch is already wired in the pneumatic control unit at the factory.



38 Wiring of the Ethernet switch at terminals XL

1 Ethernet switch
2 Connection on Ethernet switch
3 Terminals XL in the pneumatic control unit

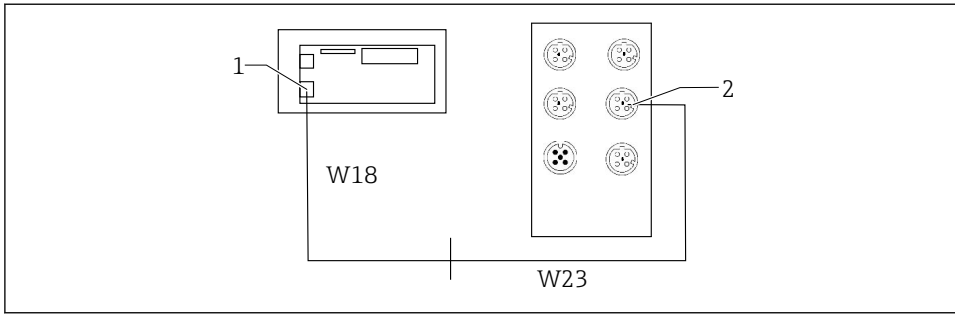
1. Connect the supply voltage (W9) at the Ethernet switch (1) to the connection (2).
2. Guide the W9 cable into the cable gland "9" of the pneumatic control unit.
3. Connect the wires as follows (3):

Terminal -XL+	Cable wire
+2	Brown

Terminal -XL-	Cable wire
-2	Blue
PE	Gray

6.5.2 Connecting the IPC

The IPC is already connected to the Ethernet switch at the factory.



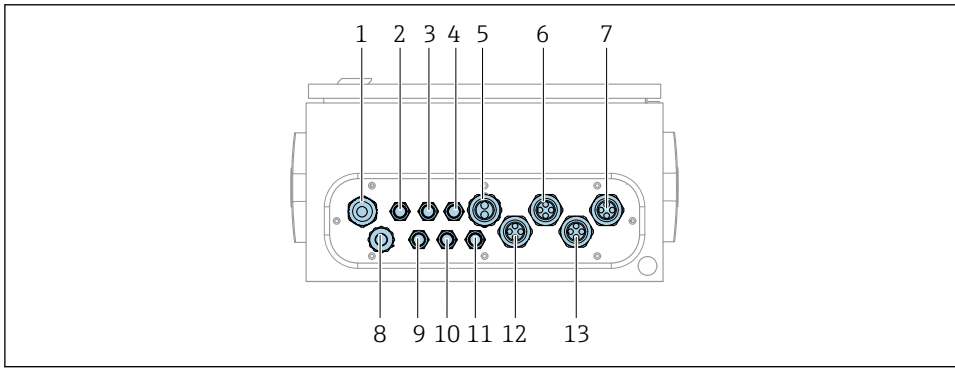
1 IPC
2 Connection on Ethernet switch

1. Open the CDC90 control unit.
2. Connect the W18 adapter cable in the CDC90 control unit to cable gland "8" from the inside.
3. In the CDC90 control unit, connect the W18 adapter cable to IPC (1).
4. Connect the W23 cable on the outside of the CDC90 control unit to cable gland "8".
   ↳ The W18 and W23 cables form a bridge.
5. Connect cable W23 at the Ethernet switch to the connection (2) provided.

6.6 Connecting the pneumatic control unit

6.6.1 Cable gland assignment

The hoses in the pneumatic control unit are already connected at the factory.



39 Cable gland of pneumatic control unit

Assignment	Wiring	Designation
1	Connecting cable to CDC90 control unit	W8
2	Power supply cable of pneumatic control unit	W11
3	Not assigned	
4	Ethernet cable of valve manifold	W20->W22
5	Hose number 8/black in valve manifold M1 1x hose 6/8 mm from M1 in valve manifold 1x hose 6/8 mm compressed air supply (at the installation location)	4
6	M3 hoses	8, 9, 10, 11
7	Cable of limit position switch from assembly CPA8xx	W2, W3
	Cable of limit position switch from assembly CPA4xx	W25, W26, W27, W28
8	Float switch/level switch cable	W4, W5, W6
9	PWR cable of Ethernet switch	W9
10	Not assigned	
11	Not assigned	
12	Pump hoses	5, 6, 7
13	M1 hoses	1, 2, 3

The multi-core signal cable between the CDC90 control unit and the pneumatic control unit is routed into the pneumatic control unit via the actuator terminals and is prewired. See .

6.6.2 Connecting float switches and compressed air switches

1. Guide the wires of cables W4, W5 and W6 through cable gland "8" provided.
2. Connect the cable wires to the actuator terminal in the pneumatic control unit as follows:

Terminal X2, top	Cable wire	Function
1	W4, BK W5, BK	Float switch, cleaner Float switch, buffer 1
2	W4, BN	Float switch, cleaner
3	W5, BN	Float switch, buffer 1
4	W6, BK	Float switch, buffer 2
5	W6, BN	Float switch, buffer 2
6	W7, BK	Pressure switch
7	W7, BN	Pressure switch

6.6.3 Assemblies

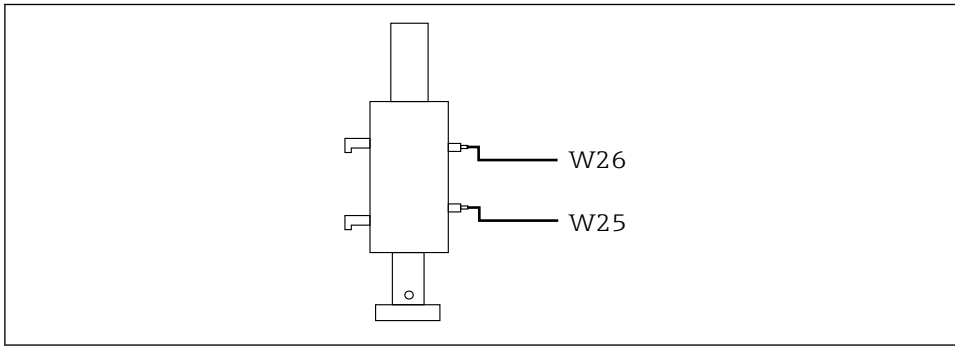
CDC90 is designed for the following assemblies:
- Cleanfit CPA47x
- Cleanfit CPA871/CPA875

Limit position switches

Cleanfit CPA471/472/472D/475

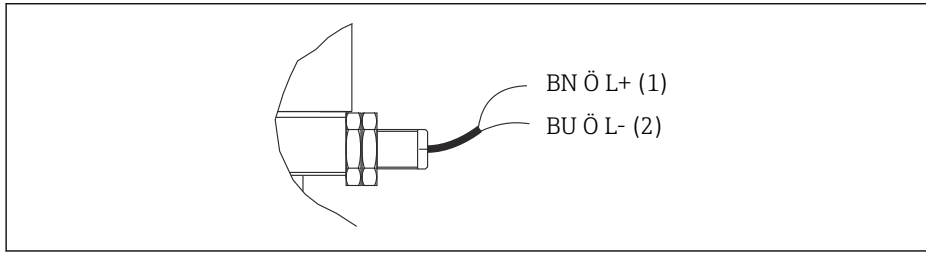
Assemblies with pneumatic limit position switches must be converted to electrical limit position switches.

Monitoring of assembly position



40 *Compressed air control CPA471/472/472D/475*

▶



Connect the connections for the position feedback signal in the pneumatic control unit as follows:

Connection at output interface terminal in the pneumatic control unit

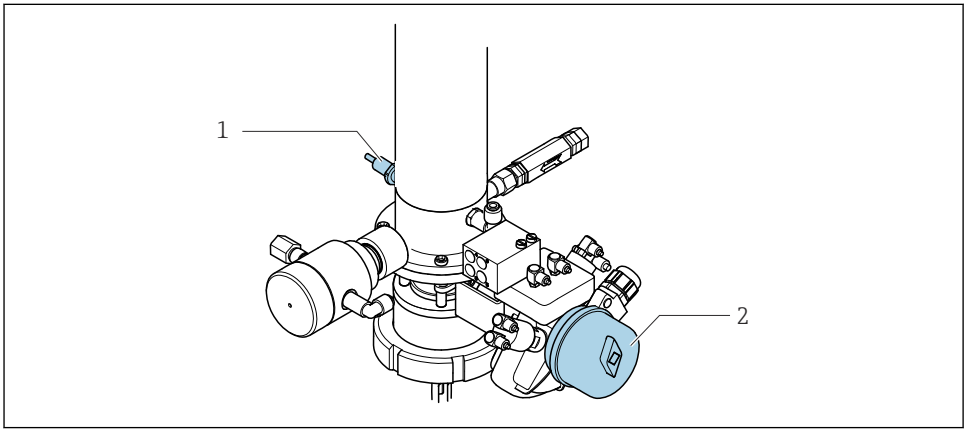
Output interface terminal T1, bottom	Cable wire	Function
Pin 1	W26, BN	Upper limit position switch
Pin 2	W26, BU	Upper limit position switch

Output interface terminal T2, bottom	Cable wire	Function
Pin 1	W25, BN	Lower limit position switch
Pin 2	W25, BU	Lower limit position switch

Cleanfit CPA473/474

Assemblies with pneumatic limit position switches must be converted to electrical limit position switches.

Monitoring of assembly position



41 Compressed air control CPA473/474

▶ Connect the connections for the position feedback signal in the pneumatic control unit as follows:

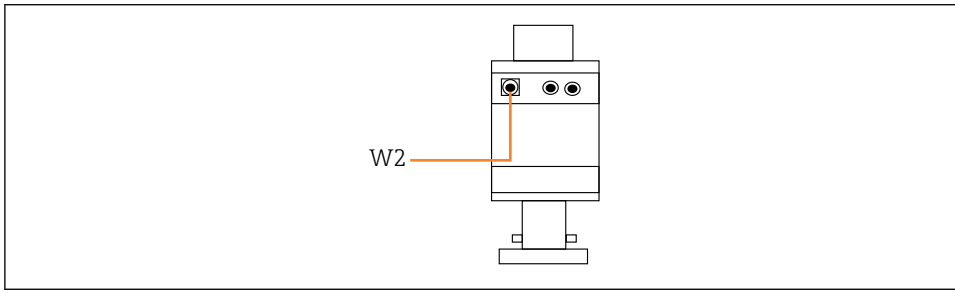
Connection at output interface terminal in the pneumatic control unit

Output interface terminal T1, bottom	Limit position switches	Function
Pin 1	Pos 2, BN limit position switch on ball valve	Limit position switch, service feedback signal
Pin 2	Pos 2, BU limit position switch on ball valve	Limit position switch, service feedback signal

Output interface terminal T2, bottom	Cable wire	Function
Pin 1	Pos 1, BN limit position switch on assembly	Limit position switch, measuring feedback signal
Pin 2	Pos 1, BU limit position switch on assembly	Limit position switch, measuring feedback signal

Cleanfit CPA8x

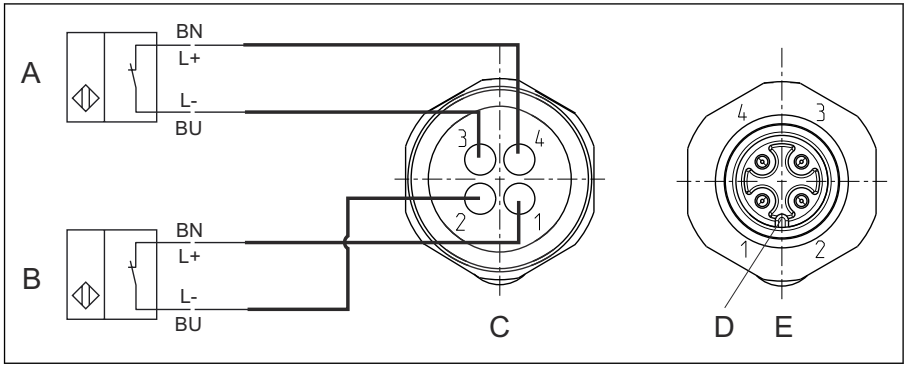
Assembly monitoring



42 *Position feedback signal, CPA87x*

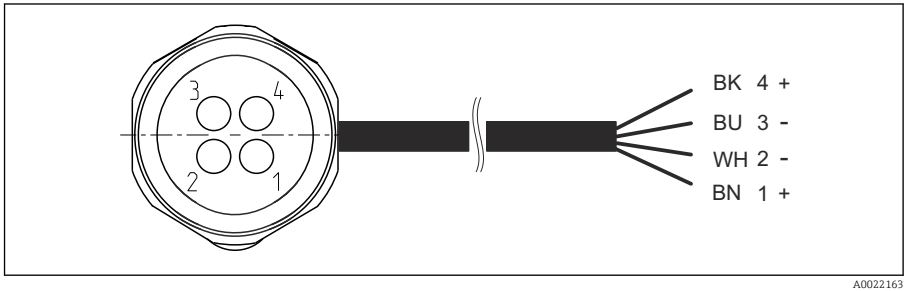
W2 Feedback cable

1.



A0017831

A Limit position switch, service position
B Limit position switch, measuring position
C Connector, M12, solder side (inside of assembly)
D Coding
E Connector, pin side (outside of assembly)



A0022163

43 Connecting cable for limit position switch on transmitter, switching amplifier, output interface terminal etc.

1 "Measuring" position
2 "Measuring" position
3 "Service" position
4 "Service" position

Attach the cables to the pins provided, as described in the graphic.

2. Connect the connections for the position feedback signal as follows:

Connection at output interface terminal in the pneumatic control unit

Output interface terminal T1, bottom	Cable wire	Function
Pin 1	W2, BK	Limit position switch, position feedback signal
Pin 2	W2, BU	Limit position switch, position feedback signal

Output interface terminal T2, bottom	Cable wire	Function
Pin 1	W2, BN	Limit position switch, position feedback signal
Pin 2	W2, WH	Limit position switch, position feedback signal

6.7 Remote IO assignment

DI	Description	Assignment
1, 2	Assembly 1	Position feedback signal, internal
3, 4	Assembly 2	Position feedback signal, internal
13-16	Soft keys	Signal to start programs that are assigned to the 4 soft keys

DO	Description	Assignment
11	Operating mode	Setting, if DO11 = 0 and DO12 = 0 Manual, if DO11= 0 and DO12 = 1 Automatic, if DO11 = 1 and DO12 = 0 Remote access, if DO11 = 1 and DO12 = 1
12		
13	Assembly 1	Service = 0 Measure = 1
14	Assembly 2	Service = 0 Measure = 1
15	Program	No program = 0 Program running = 1
16	Error status	Alarm = 0 No alarm = 1

6.8 Connecting the main supply voltage

The cable for the supply voltage must be provided by the customer onsite and is not included in the scope of delivery.

NOTICE

The device does not have a power switch

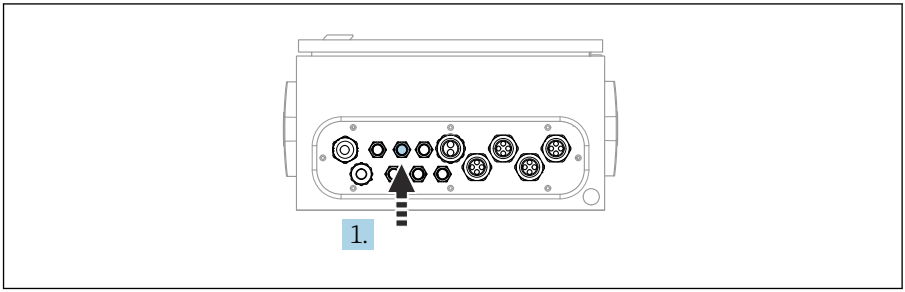
- A fuse with a maximum rating of 16 A must be provided by the customer. Observe the local regulations for installation.
- The circuit breaker must be a switch or power switch, and must be labeled as the circuit breaker for the device.
- The protective ground connection must be made before all other connections. If the protective ground is disconnected, this can be a source of danger.
- A circuit breaker must be located near the device.

Preparing the main supply voltage

1. Ensure an adequate connection to the protective grounding system of the building.
2. Use a ground cable with min. 0.75 mm^2 (corresponding to 18 AWG), not included in the scope of delivery.

Connecting the main supply voltage

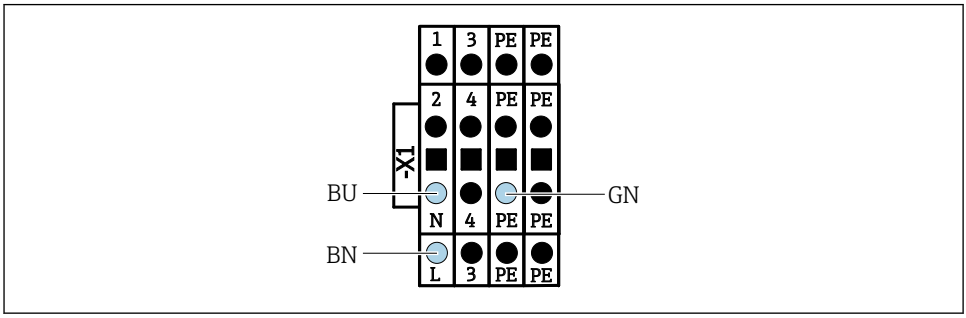
1.



A0033429

Guide the cable of the main supply voltage through cable gland "3" of the pneumatic control unit.

2. Connect the wires to the actuator terminal as follows:



A0035338

44 *Terminal diagram of main supply voltage of actuator terminal X1 in the pneumatic control unit*

Terminal X1, bottom	Cable wire
L	L1, BN
PE	PE, GN-YE
N	N, BU

6.9 Ensuring the degree of protection

Only the mechanical and electrical connections which are described in these instructions and which are necessary for the required, designated use, may be carried out on the device delivered.

► Exercise care when carrying out the work.

Individual types of protection permitted for this product (impermeability (IP), electrical safety, EMC interference immunity, Ex protection) can no longer be guaranteed if, for example :

- Covers are left off
- Different power units to the ones supplied are used
- Cable glands are not sufficiently tightened (must be tightened with 2 Nm (1.5 lbf ft) for the permitted level of IP protection)
- Unsuitable cable diameters are used for the cable glands
- Modules are not fully secured
- The display is not fully secured (risk of moisture entering due to inadequate sealing)
- Loose or insufficiently tightened cables/cable ends
- Conductive cable strands are left in the device

6.10 Post-connection check

⚠ WARNING

Connection errors

The safety of people and of the measuring point is at risk! The manufacturer does not accept any responsibility for errors that result from failure to comply with the instructions in this manual.

▶ Put the device into operation only if you can answer **yes** to **all** the following questions.

Device condition and specifications

▶ Are the device and all the cables free from damage on the outside?

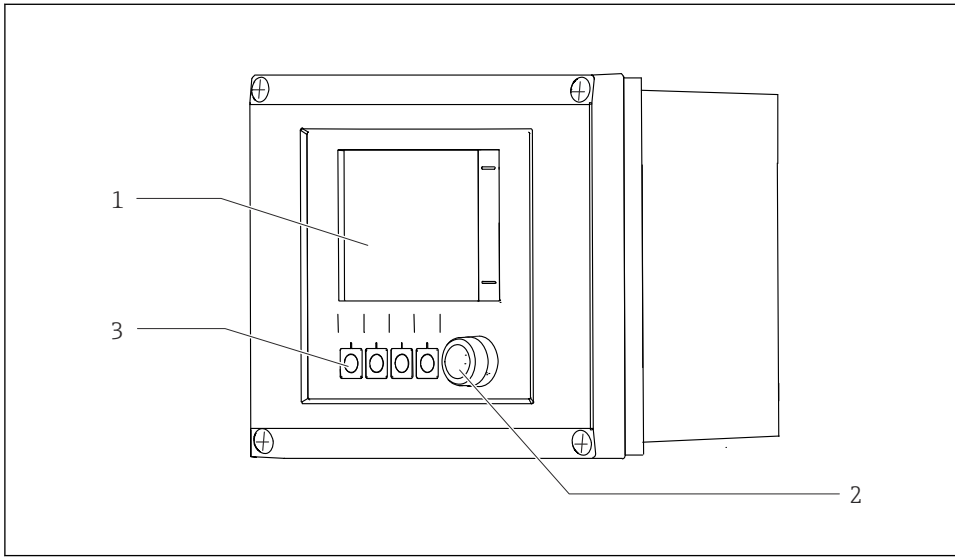
Electrical connection

▶ Are the mounted cables strain relieved?
▶ Are the cables routed without loops and cross-overs?
▶ Are the signal cables correctly connected as per the wiring diagram?
▶ Have all the other connections been established correctly?
▶ Are unused connection wires connected to the protective ground connection?
▶ Are all plug-in terminals securely engaged?
▶ Are all the connection wires securely positioned in the cable terminals?
▶ Are all cable entries mounted, tightened and leak-tight?
▶ Does the supply voltage match the voltage indicated on the nameplate?

7 Operation options

7.1 Overview of operation options

7.1.1 Display and operating elements



45 *Overview of operation*

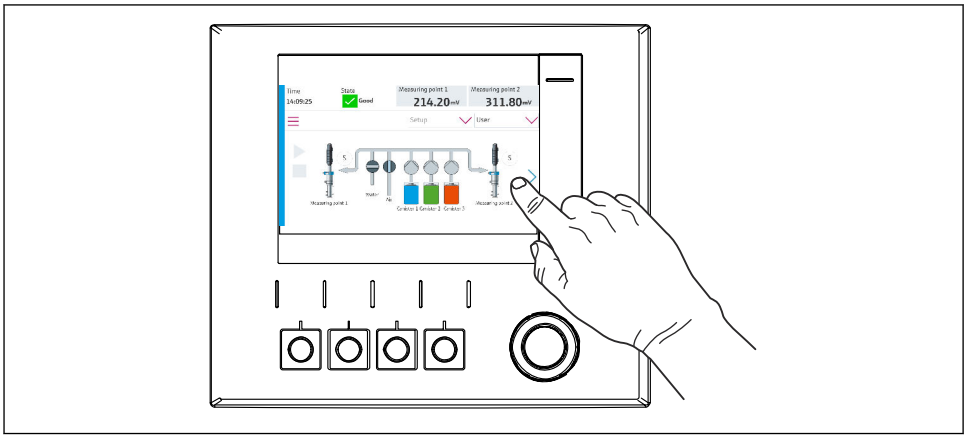
1 Touchscreen display
2 LED light
3 Soft keys (function selectable)

LED

Green	A program is active
Red	System error. Programs (e.g. cleaning or calibration programs) do not start.
Flashing red	The system has a Function Check (e.g. Hold), an Out of Spec or a maintenance message. The system can still be operated to a limited extent.
No light	No program is active and no errors are pending.

7.2 Access to the operating menu via the local display

7.2.1 Operating concept



A0033711

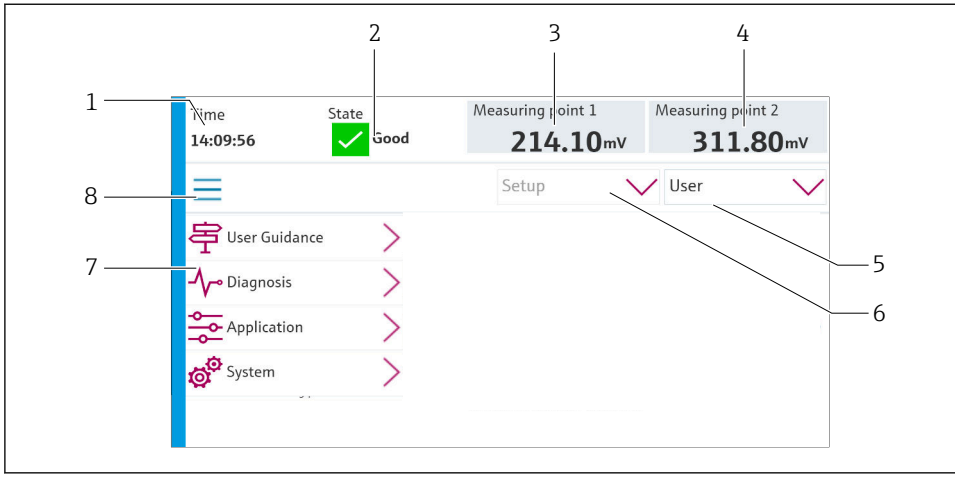
46 Touchscreen display

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

7.2.2 Soft keys

You can start programs with the soft keys. The keys are preset and can be configured. Soft keys only work in the "Manual" operating mode.

7.2.3 Menu overview



A0033714

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

Operation is via four main menus:

Menu	Function
Guidance	▪ Guided operation to schedule and execute programs. ▪ Import and export files and settings.
Diagnostics	Contains information about device operation, diagnostics, troubleshooting and simulation.

Menu	Function
Application	Device data for detailed measuring point adjustment. Setting for communication with the distributed control system.
System	These menus contain parameters for configuring and managing the overall system.

7.3 Access to the operating menu via the Web browser

The same menu options are available via the Web server as for the onsite display.

▶ Enter the following path: **192.168.0.1:8080/cdc90.htm**

If the IP address of the IPC has changed:

The correct IP address of the IPC followed by *:8080/cdc90.htm*

8 System integration

8.1 Integrating the measuring device in the system

8.1.1 Web server

Establishing the data connection

NOTICE

Depending on the load on the network, EtherCat can cause failures in the CDC90 IPCs if several CDC 90 devices are integrated.

▶ In the case of Modbus without a gateway, a physical separation must be established at the installation location with a VLAN-capable switch, e.g. Layer 2 Managed Switch (VLAN Capable).

The Ethernet settings of the **DHCP** parameter must be switched off for the device to have a valid IP address. (**Menu/Setup/General settings/Extended setup/Ethernet/Settings**)
The IP address can be assigned manually in the same menu (for point-to-point connections).

1. Start the PC.
2. First, configure a manual IP address in the network connection settings of the operating system.
3. Start the browser.
4. If you use a proxy server to connect to the Internet:
   Disable the proxy (browser settings under "Connections/LAN settings").
5. Enter the IP address of the device (192.168.0.1:8080/cdc90.htm) in the address line.
   ↳ The system takes a few moments to establish the connection and then the Web server starts.

Example: Microsoft Windows 10

6. Open Network and Sharing Center.
   ↳ Apart from your standard network, it should also be possible to see an additional Ethernet connection (e.g. as "Unidentified network").
7. Select the link to this Ethernet connection.
8. In the pop-up window select the "Properties" button.
9. Double-click "Internet Protocol Version 4 (TCP/IPv4)".
10. Select "Use the following IP Address".
11. Enter the desired IP address. This address must be in the same subnet as the IP address of the device, e.g.:
    ↳ IP address CDC90: 192.168.0.1
    IP address for the PC: 192.168.0.99.
12. Start the Internet browser.
13. If you use a proxy server to connect to the Internet:
    Disable the proxy (browser settings under "Connections/LAN settings").
14. Enter the IP address of your device in the address line.
    ↳ The system takes a few moments to establish the connection and then the Web server starts.

Operation

The menu structure of the web server corresponds to the onsite operation.

8.1.2 Fieldbus systems

NOTICE

The device uses an EtherCat connection for internal communication. Depending on the load on the network, EtherCat can cause failures in the CDC90 IPCs if several CDC90 devices are integrated in the same network.

► To reduce the network load in the event of a Modbus TCP connection, the networks must be separated. A physical separation with a VLAN-capable switch, e.g. Layer 2 Managed Switch (VLAN Capable), or a software-based separation are possible.

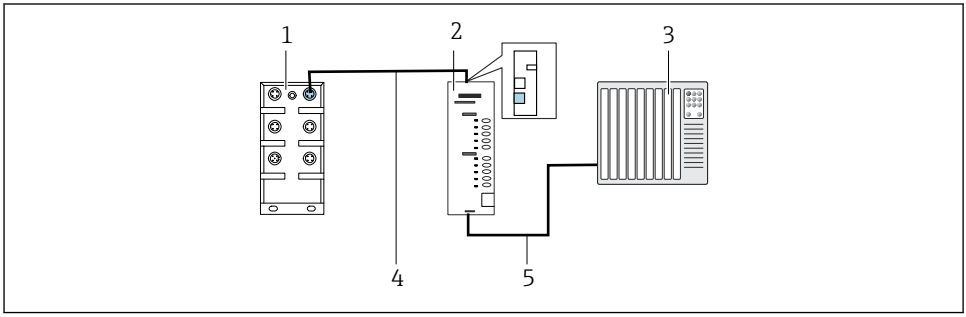
Connection

The following communication options are available in the CDC90 control unit:

- Analog current inputs and outputs
  - Activation is via the analog current input (AI).
  - Feedback is via the analog current output (AO).
  - The settings must be implemented via the Web server or the local display.
- EtherNet/IP (adapter)
- PROFIBUS DP (slave)
- Modbus TCP (server)
- PROFINET (device)

Connection of PROFINET and PROFIBUS DP via gateway

The gateway must be installed externally. A 3 m (3.28 ft) Ethernet cable is provided. The cable to the distributed control system must be provided by the customer.



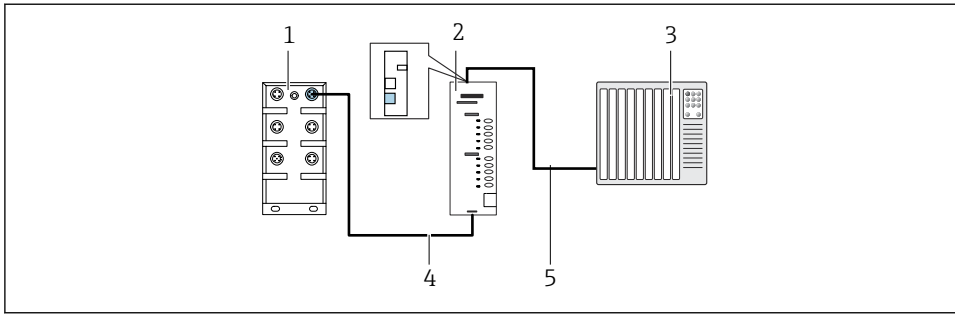
47 *PROFINET and PROFIBUS DP communication connection*

1 Ethernet switch on CDC90
2 Gateway
3 Distributed control system DCS
4 Ethernet cable, CDC90/gateway communication
5 Communication connection, gateway/distributed control system DCS

1. For connection to the CDC90, connect the Ethernet cable (4) at the top of the gateway.
2. Connect the end piece to the Ethernet switch (1).
3. For connection to the DCS, connect the cable for communication (5) at the bottom of the gateway.
4. Connect the end piece to the DCS (3).

Connection of EtherNet/IP via gateway

The gateway must be installed externally. A 3 m (3.28 ft) Ethernet cable is provided. The cable to the distributed control system must be provided by the customer.



48 *EtherNet/IP communication connection*

1 *Ethernet switch on CDC90*
2 *Gateway*
3 *Distributed control system DCS*
4 *Ethernet cable, CDC90/gateway communication*
5 *Communication connection, gateway/distributed control system DCS*

1. For connection to the CDC90, connect the Ethernet cable (4) at the bottom of the gateway.
2. Connect the end piece to the Ethernet switch (1).
3. For connection to the DCS, connect the cable for communication (5) at the top of the gateway.
4. Connect the end piece to the DCS (3).

Modbus TCP connection to Ethernet switch

1. For connection to the CDC90, connect the Ethernet cable to the Ethernet switch.
2. Connect the end piece to the DCS.

Ethernet cable assignment

RJ45	Stand. cable		Ind. cable	M12
1	Amber	TxD-	Amber	3
2	Amber/White	TxD+	Yellow	1
3	Green	RxD-	Blue	4
4	Green/White	RxD+	White	2

Assignment of M12 connection

M12		M12
1	Yellow	1
2	White	2

3	Amber	3
4	Blue	4

RJ45 assignment to M12 connection

RJ45		M12
1	Yellow	1
3	White	2
2	Amber	3
6	Blue	4

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

- EtherNet/IP (adapter) via gateway Modbus TCP - EtherNet/IP: BA02241C
- Modbus TCP (server): BA02238C
- PROFIBUS DP (slave) via gateway Modbus TCP - PROFIBUS DP. BA02239C
- PROFINET (device) via gateway Modbus TCP - PROFINET: BA02240C

9 Commissioning

9.1 Starting commissioning

Initial commissioning is performed by Endress+Hauser specialists.

www.addresses.endress.com

Endress+Hauser

People for Process Automation