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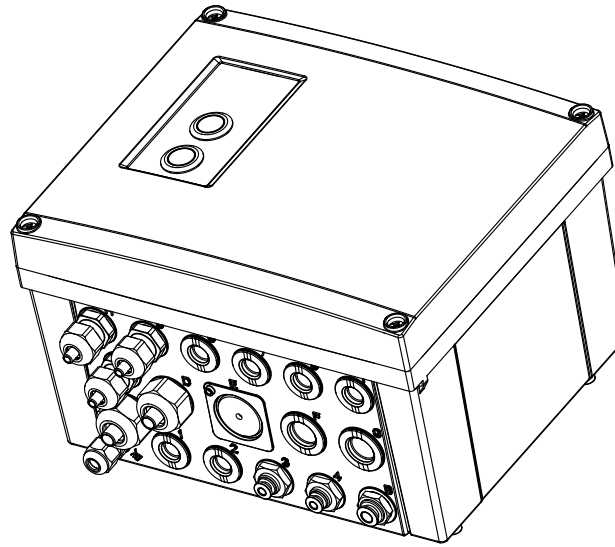
Operating Instructions
Cleanfit Control CYC25

Cleaning unit for retractable assemblies in conjunction with Chemoclean Plus



Endress+Hauser
People for Process Automation

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1 Document information

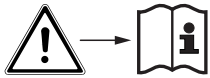
1.1 Warnings

Structure of information	Meaning
⚠ DANGER **Causes (/consequences)** 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)** 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)** 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** Consequences of non-compliance (if applicable) ▶ Action/note	This symbol alerts you to situations which may result in damage to property.

1.2 Symbols used

Symbol	Meaning
	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

1.3 Symbols at the device

Symbol	Meaning
	Reference to device documentation

2 Basic safety instructions

2.1 Requirements for 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.
- Measuring point faults may be repaired only by authorized and specially trained personnel.

Repairs not described in the Operating Instructions provided may only be carried out directly by the manufacturer or by the service organization.

2.2 Designated use

Cleanfit Control is a control system for automatic cleaning of sensors installed in retractable assemblies. It is particularly suitable for use in the following areas:

- Water and wastewater
- Paper
- Food and beverages
- Solids / Primaries
- Power stations
- Utilities

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 Occupational safety

As the user, you are responsible for complying with the following safety conditions:

- Installation guidelines
- Local standards and regulations

Electromagnetic compatibility

- The product has been tested for electromagnetic compatibility in accordance with the applicable European 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

1. Before commissioning the entire measuring point, verify that all connections are correct. Ensure that electrical cables and hose connections are undamaged.
2. Do not operate damaged products, and safeguard them to ensure that they are not operated inadvertently. Label the damaged product as defective.
3. If faults cannot be rectified:

   Take the products out of operation and safeguard them to ensure that they are not operated inadvertently.

2.5 Product safety

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 European standards have been observed.

3 Incoming acceptance and product identification

3.1 Incoming acceptance

1. Verify that the packaging is undamaged.
   ↳ Notify your supplier of any damage to the packaging.
   Keep the damaged packaging until the matter has been settled.
2. Verify that the contents are undamaged.
   ↳ Notify your supplier of any damage to the delivery contents.
   Keep the damaged products until the matter has been settled.
3. Check the delivery for completeness.
   ↳ Check it against the delivery papers and 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.
   The permitted ambient conditions must be observed (see "Technical data").

If you have any questions, please contact your supplier or your local sales center.

3.2 Product identification

3.2.1 Nameplate

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

► Compare the data on the nameplate with your order.

3.2.2 Product identification

Product page

www.endress.com/CYC25

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 the product page for your product on the Internet.
2. At the bottom of the page, click the link **Online Tools** and then select **Access device specific information**.
   ↳ An additional window opens.
3. Enter the order code from the nameplate into the search field and then select **Show details**.
   ↳ You will receive information on each feature (selected option) of the order code.

Manufacturer's address

Endress+Hauser Conducta GmbH+Co. KG
Dieselstraße 24
D-70839 Gerlingen

3.3 Scope of delivery

The scope of delivery comprises:
- 1 CYC25 in the version ordered
- 1 Operating Instructions
- 1 Mounting plate
- 1 Connecting cable CM44x to CYC25

3.4 Certificates and approvals

The product meets the requirements of the harmonized European standards. As such, it complies with the legal specifications of the EU directives. The manufacturer confirms successful testing of the product by affixing to it the CE mark.

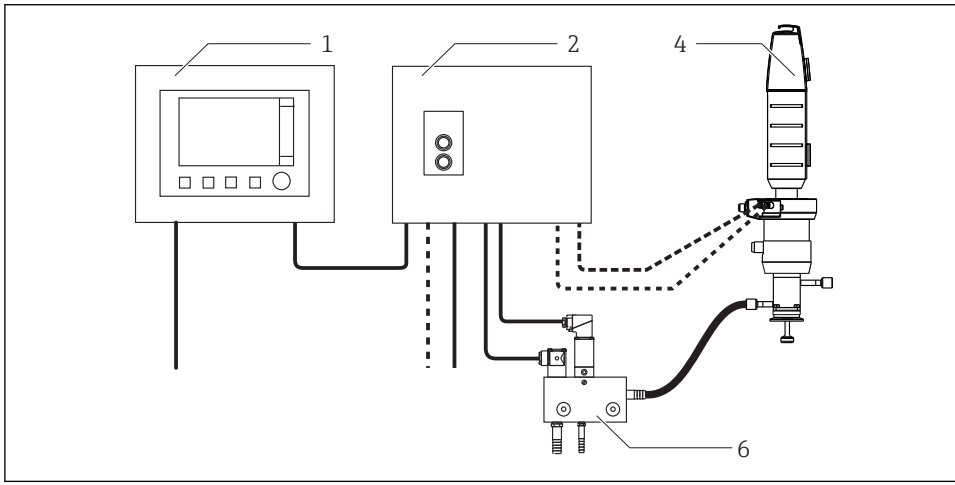
4 Installation

4.1 Installation at a glance

Proceed as described below for complete installation of the cleaning unit:
- Install the cleaning unit close to the assembly (see the section on "Installing the cleaning unit").
- Connect the cleaning unit in accordance with the diagram in the "Electrical connection" section.
- Put the cleaning unit into operation as described in the section "Commissioning".

4.1.1 Overview

A complete measuring system comprises:
- Cleanfit Control CYC25 with at least 1 pneumatic pilot valve to control the assembly, optionally 2 pneumatic pilot valves
- Liquiline CM44x (incl. sensor) with at least 4 relays and Chemoclean Plus (optionally 4 digital inputs)
- Pneumatically controlled retractable assembly, optionally with limit switches, e.g. Cleanfit CPA875 or CPA871
- 1 pneumatically controlled valve or pump for transporting medium and also max. 2 electrically controlled valves (24V DC)
  or max. 3 electrically controlled valves for cleaning agents
- Optional multi-inlet (rinsing block) to assembly



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1 Measuring system

1 Transmitter Liquiline CM44x
2 Cleanfit Control CYC25
4 Pneumatic retractable assembly
6 Cleaning injector Chemoclean CYR10

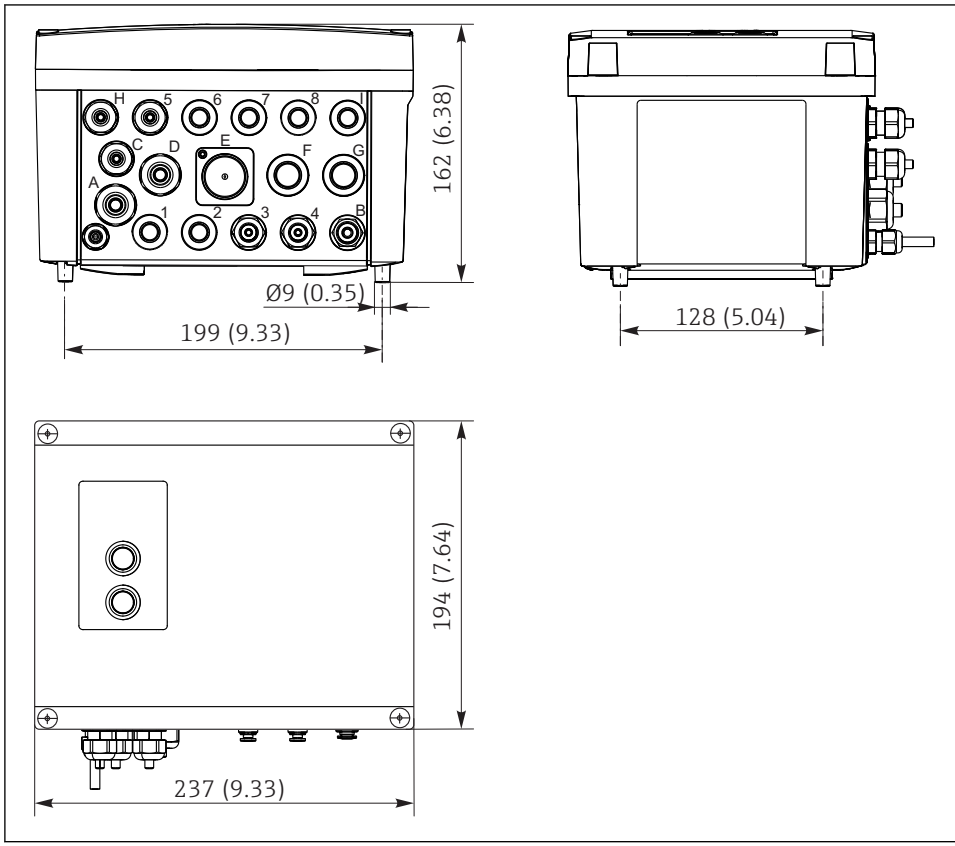
Cleanfit Control is the hardware used to control the actuators such as the assembly, as well as valves and pumps.
- 1 or 2 pilot valves to control the assembly and other pneumatic actuators (e.g. pumps)
- Connection possibility for 2 or 3 electrically controlled actuators (e.g. valves)
- Switch from automatic to manual mode as a safety stop
- In manual mode, the programming for automatic mode remains in place, and it is not possible to activate any actuators, apart from the assembly.
- Manual movement of assembly using switch

Chemoclean Plus is a function of the Liquiline CM44x for sequential, cyclical control of relays to enable automated cleaning.
- Time-independent control of up to 4 relays. The program sequence always ends with the initial situation (e.g. assembly is in the same position as at the start).
- Individual program start via local operation, digital I/O or fieldbus
- Interval program, weekly program
- Integration of digital I/O, e.g. limit position switches, to monitor the assembly function
- Customer-specific "failsafe" program in the event of program interruption or error

Liquiline CM44x is a multichannel transmitter for connecting digital sensors with Memosens technology
- Power supply 100 to 230 V AC, 24 V AC/DC
- Universally upgradeable
- SD card slot
- Up to 4 relays
- IP 66, IP 67, NEMA 4X

4.2 Installation conditions

4.2.1 Dimensions



2 *Dimensions in mm (inch)*

4.2.2 Pneumatic connections

Prerequisites:

- Air pressure 4 to 6 bar (58 to 87 psi)
- Compressed air quality in accordance with ISO 8573-1:2001
  Quality class 3.3.3 or 3.4.3
- Solids class 3 (max. 5 µm, max. 5 mg/m^3, contamination with particles)
- Water content for temperatures ≥ 15 °C: class 4 pressure condensation point 3 °C or lower
- Water content for temperatures of 5 to 15 °C: class 3 pressure condensation point -20 °C or lower
- Oil content class 3 (max. 1 mg/m^3)

- Air temperature: 5 °C or higher
- No continuous air consumption
- Minimum nominal diameter of air pipes: 2 mm (0.08 ")

Damage to seals due to excessive air pressure!

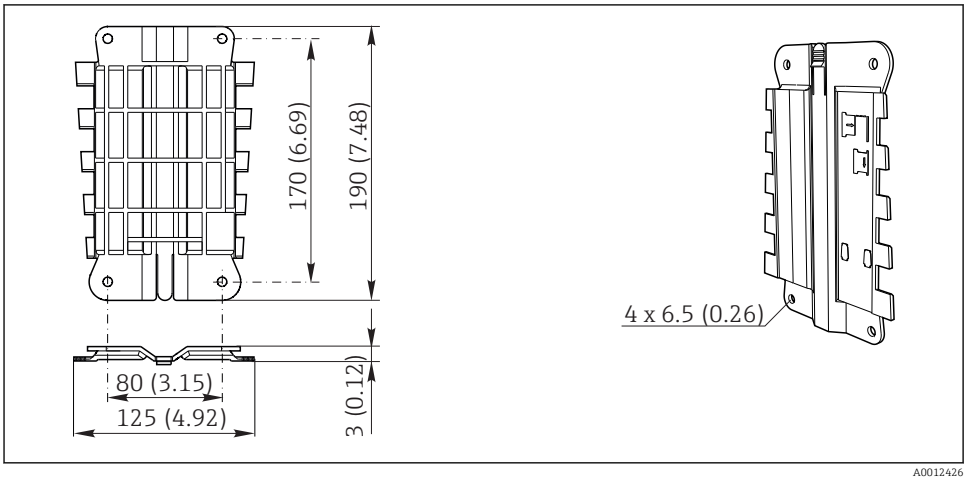
If the air pressure can increase to more than 6 bar (87 psi) (even short pressure surges), a pressure-reducing valve must be installed upstream.

4.2.3 Maximum cable lengths

Cable between	Maximum cable length
CYC25 and assembly	30 m (98 ft)
CYC25 and CYR10	30 m (98 ft)

4.3 Installing the cleaning unit

4.3.1 Mounting plate

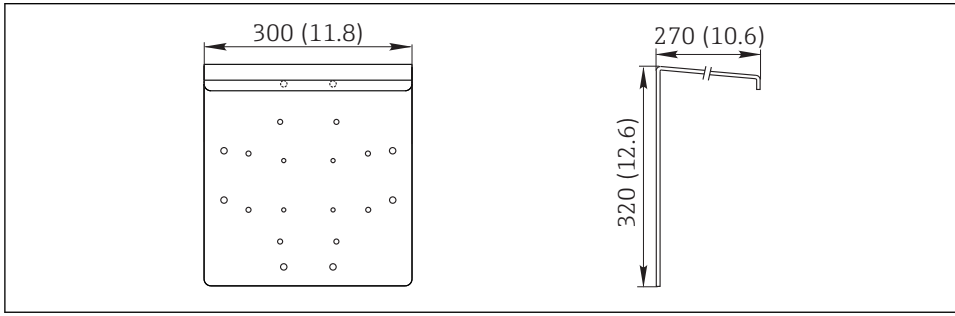


3 Mounting plate in mm (inch)

4.3.2 Weather protection cover (optional)

NOTICE

Effect of climatic conditions (rain, snow, direct sunlight etc.)
Malfunctions to the point of complete failure of the cleaning unit
► When installing outside, always use the weather protection cover (accessory).

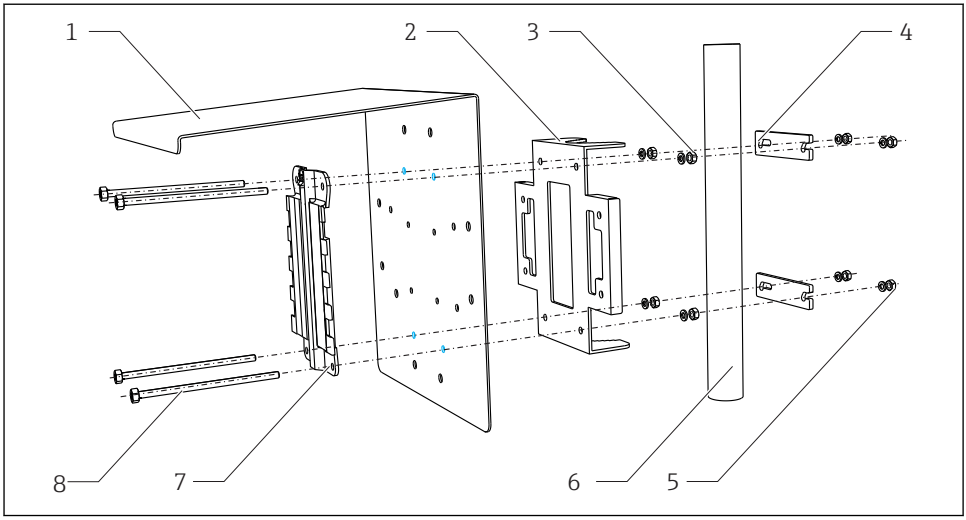


4 *Protective cover for cleaning unit*

4.3.3 Mounting the cleaning unit

Post mounting

You require the post mounting kit (optional) to mount the unit on a pipe, post or railing (square or circular, span range 20 to 61 mm (0.79 to 2.40")).



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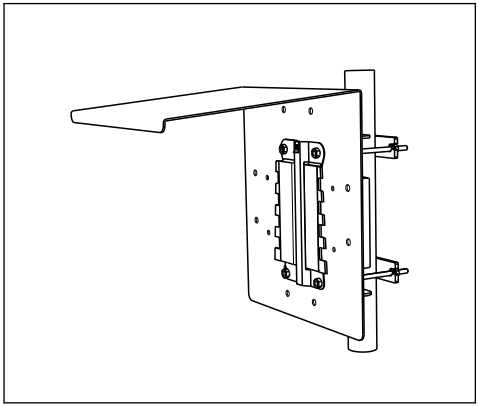
5 *Post mounting*

1	*Weather protection cover (optional)*	5	*Spring washers, nuts (post mounting kit)*
2	*Post mounting plate (post mounting kit)*	6	*Pipe or railing (circular/square)*
3	*Spring washers, nuts (post mounting kit)*	7	*Mounting plate*
4	*Pipe clamps (post mounting kit)*	8	*Threaded rods (post mounting kit)*



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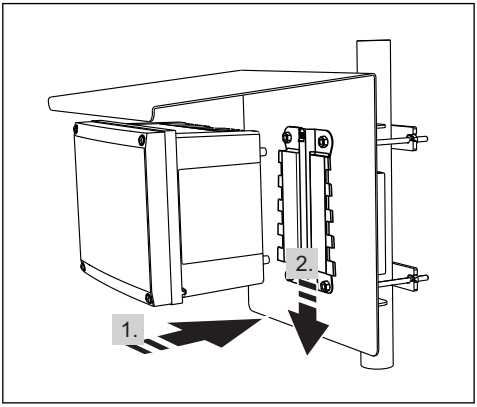
6 *Post mounting*



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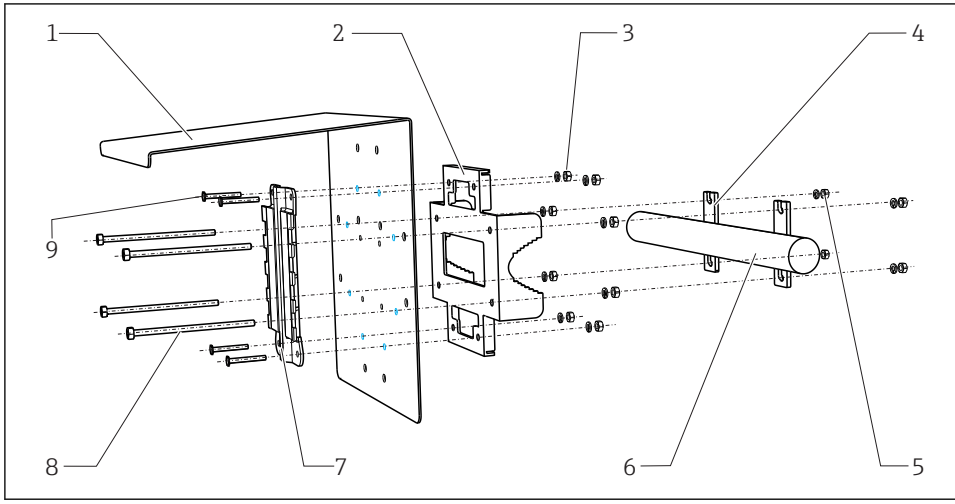
7 *Attach the device and click it into place*

Rail mounting



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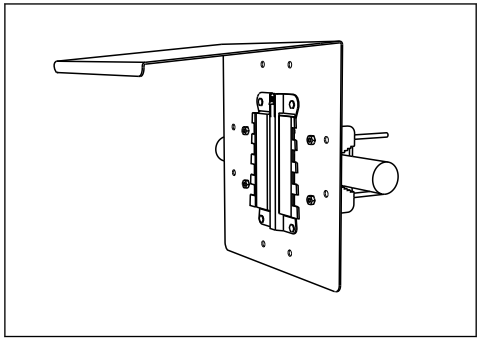
8 Rail mounting

1 *Weather protection cover (optional)*
2 *Post mounting plate (post mounting kit)*
3 *Spring washers, nuts (post mounting kit)*
4 *Pipe clamps (post mounting kit)*
5 *Spring washers, nuts (post mounting kit)*
6 *Pipe or railing (circular/square)*
7 *Mounting plate*
8 *Threaded rods (post mounting kit)*
9 *Screws (post mounting kit)*



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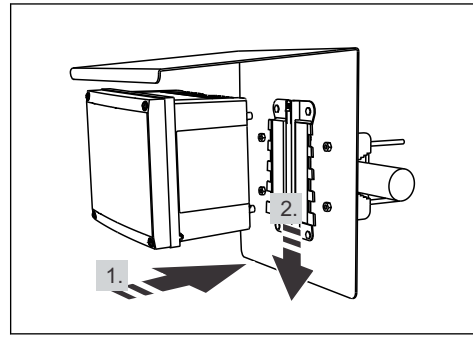
9 Rail mounting



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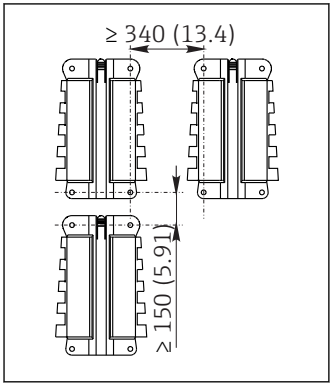
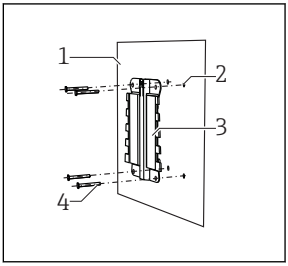
10 Attach the device and click it into place

Wall mounting

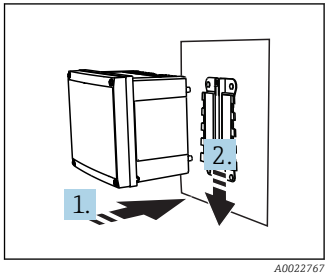


11 *Mounting distance in mm (inch)*



12 *Wall mounting*

1 *Wall*
2 *4 drill holes* [1]
3 *Mounting plate*
4 *Screws Ø 6 mm (not part of scope of supply)*



13 *Attach the device and click it into place*

[1] *The size of the drill holes depends on the wall plugs used. The wall plugs and screws must be provided by the customer.*

4.4 Post-installation check

- Are the sensor and cable undamaged?
- Is the sensor installed in an assembly and is not suspended from the cable?

5 Electrical connection

⚠ 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.

5.1 Power supply

The power supply for the CYC25 unit must be provided by the customer and meet the following requirements:

- Separate power supply 24 VDC ±10 %
- The power supply must be limited to a maximum of 70 VDC in the event of an error.
- Conductor cross-section: 0.5 mm^2 min.

5.2 Wiring

⚠ WARNING

Risk of electric shock!

- ▶ At the supply point, the power supply must be isolated from dangerous live cables by double or reinforced insulation in the case of devices with a 24 V power supply.

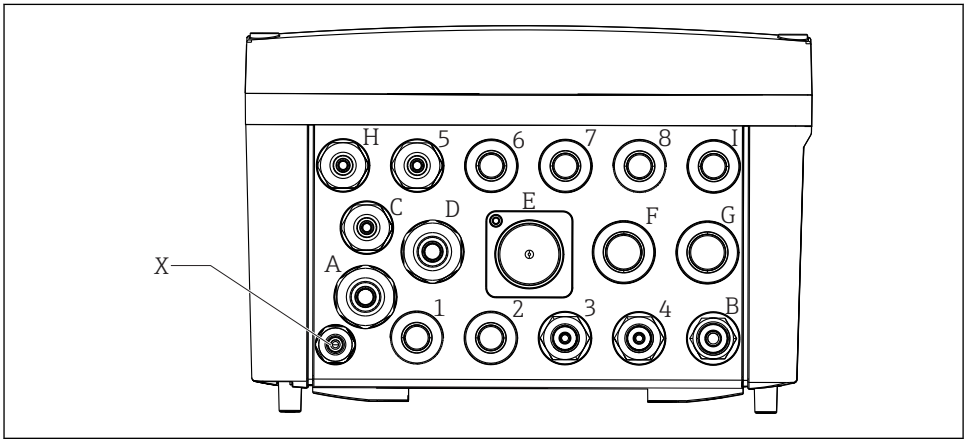
NOTICE

The device does not have a power switch

- ▶ The customer must provide a protected circuit breaker in the vicinity of the device.
- ▶ The circuit breaker must be a switch or power switch, and you must label it as the circuit breaker for the device.

5.2.1 Cable entries

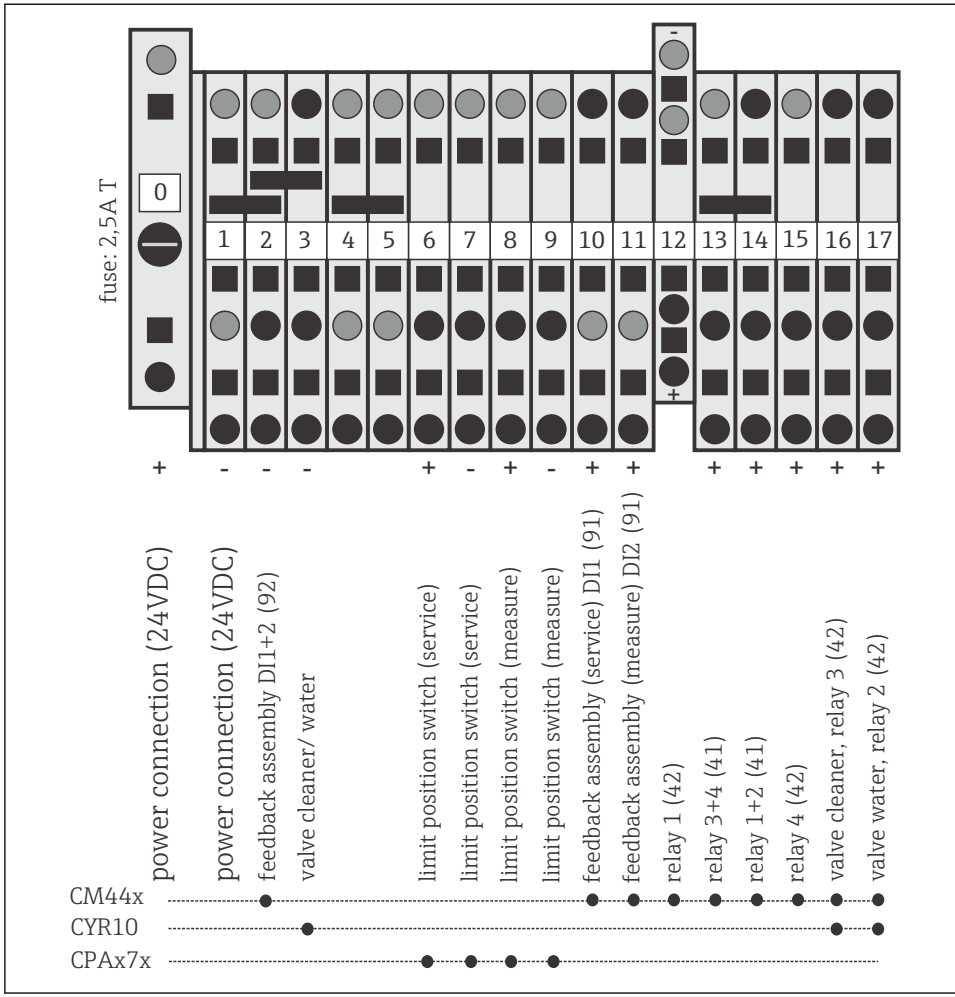
Position of cable entries



14 Cable entries

A Cable entry (optional)
B Compressed air inlet
C Cable entry CYR10 water
D Cable entry signal line CM44x
H Cable entry CYR10 cleaning agent
2 Compressed air outlet for additional actuator (optional)
3 Compressed air outlet "Assembly, measure"
4 Compressed air outlet "Assembly, service"
5 Cable entry power supply 24 V
X Ventilation

5.2.2 Wiring diagram

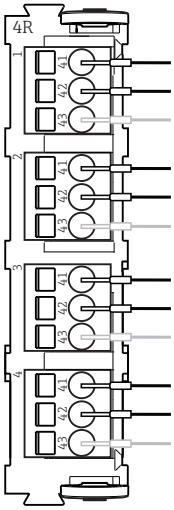


15 *Wiring diagram*

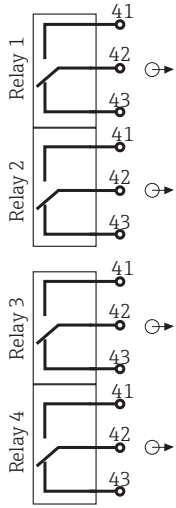
The terminals on the gray background are intended for internal wiring.

5.2.3 Connecting CM44x modules

Module 4R

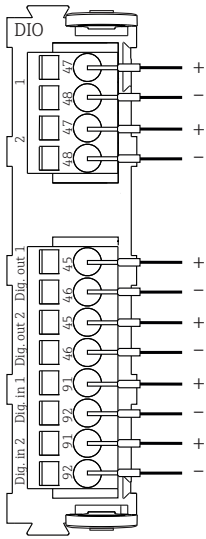


16 *Front of module*

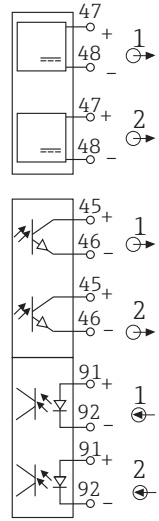


17 *Wiring diagram*

DIO module



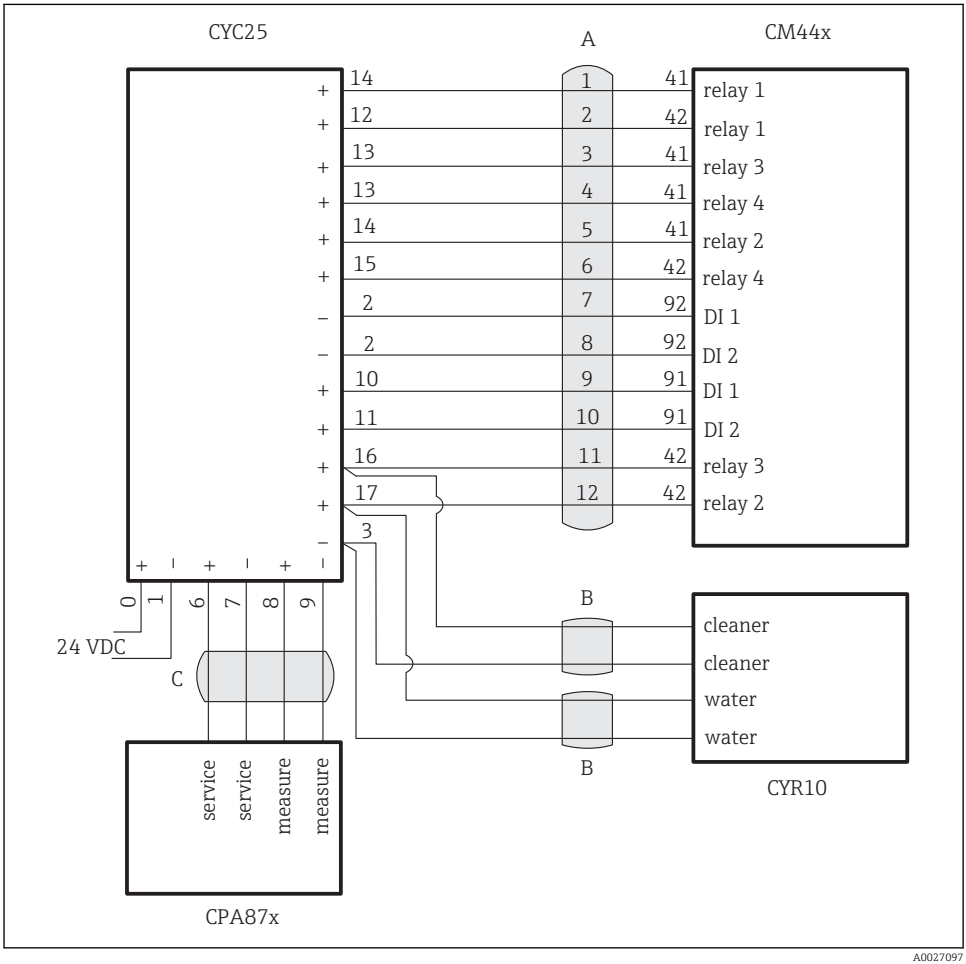
18 *Front of module*



19 *Wiring diagram*

5.2.4 Example of wiring

Example of wiring with CPA87x and CYR10



20 *Example of wiring*

A Connecting cable CM44x to CYC25 (included in scope of delivery with CYC25)
B Connecting cable CYR10 to CYC25 (to be provided by customer, 0.5 mm², max. length: 30 m (98 ft))
C Connecting cable CPA87x to CYC25 (can be ordered via CPA87x, max. length: 30 m (98 ft))

If you use connecting cables other than those supplied, please ensure they have a minimum cross-section of 0.5 mm²

5.3 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.

Otherwise, the individual types of protection (Ingress Protection (IP), electrical safety, EMC interference immunity) agreed for this product can no longer be guaranteed due, for example, to covers being left off or cable (ends) which are loose or insufficiently secured.

5.4 Post-connection check

Carry out the following checks once you have made the electrical connection:

Instrument status and specifications	Comments
Are the devices and cables free from damage on the outside?	Visual inspection

Electrical connection	Comments
Does the supply voltage correspond to that specified on the nameplate?	24 V DC
Are the connected cables provided with strain relief?	
Is the cable run correct, without loops and cross-overs?	
Are the power cable and signal cables connected correctly and in accordance with the wiring diagram?	
Are all the screw terminals tightened?	
Are all the cable entries fitted, tightened and leak-proof?	

6 Commissioning

6.1 Function check

⚠ WARNING

Process medium or cleaning medium escaping

Risk of injury from high pressure, high temperatures or chemical hazards

- ▶ Before applying compressed air to the assembly, make sure the connections are correctly fitted.
- ▶ Do not install the assembly in the process if you cannot make the correct connection reliably.

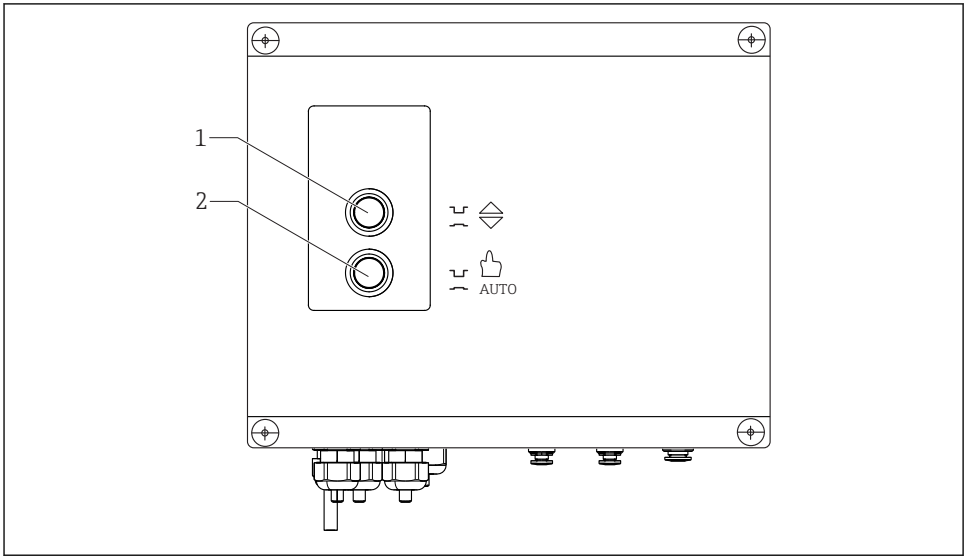
⚠ WARNING

Incorrect connection, incorrect supply voltage

Safety risks for staff and device malfunctions

- ▶ Check that all connections have been established correctly in accordance with the wiring diagram.
- ▶ Ensure that the supply voltage matches the voltage indicated on the nameplate.

6.2 Operating elements



21 Operating elements

1 Manual control for moving the assembly
2 Changeover switch for automatic mode/manual mode

6.3 Configuration of automatic mode

Automatic cleaning is configured using the "Chemoclean Plus" function at the Liquiline CM44x transmitter. Please refer to the Operating Instructions for the transmitter for further information.

Please note that the "Automatic/manual" toggle switch must be set to the "Automatic" position.

6.4 Manual mode

Never switch to manual mode while a cleaning program is underway. This will ensure that no cleaning medium (e.g. acid) remains in the service chamber which could get into the medium when measuring restarts. Before you switch to manual mode, please ensure that the manual control for moving the assembly is in the "Service" position.

The control signals from "Chemoclean Plus" to the assembly and all actuators are interrupted when you switch to manual mode. The assembly moves to the position specified by the manual control for moving the assembly. Chemoclean Plus continues to run but does not affect the actuators.

When you return to automatic mode, Chemoclean Plus does not need to be restarted.

▲ = "Service" position

▼ = "Measure" position

7 Maintenance

⚠ WARNING

Risk of injury if medium escapes!

- ▶ During maintenance work, ensure that the assembly cannot be moved into the process (see Operating Instructions for the assembly).
- ▶ Please ensure that no cleaning media run when the sensor is disassembled.

Clean the front of the housing using commercially available cleaning agents only.

The front of the housing is resistant to the following in accordance with DIN 42 115:

- Ethanol (for a short time)
- Diluted acids (max. 2% HCl)
- Diluted alkaline solutions (max. 3% NaOH)
- Soap-based household cleaning agents

NOTICE

Cleaning agents not permitted

Damage to the housing surface or housing seal

- ▶ Never use concentrated mineral acids or alkaline solutions for cleaning.
- ▶ Never use organic cleaners such as acetone, benzyl alcohol, methanol, methylene chloride, xylene or concentrated glycerol cleaner.
- ▶ Never use high-pressure steam for cleaning.

Regularly check hoses and connectors for signs of aging.

8 Repairs

8.1 Spare parts kit

Order number	Description of spare parts kit
71292494	Valve block, 1 x pneumatic pilot valve, 24 Volt
71292484	Pneumatic pilot valve, individual
71292496	Plug-in hose connector set
71292485	Cover with seal and switch set
71107454	Set 10 x hinges

For more detailed information on spare parts kits, please refer to the "Spare Part Finding Tool" on the Internet:

www.endress.com/spareparts_consumables

8.2 Return

The product must be returned if repairs or a factory calibration are required, or if the wrong product was ordered or delivered. As an ISO-certified company and also due to legal regulations, Endress+Hauser is obliged to follow certain procedures when handling any returned products that have been in contact with medium.

To ensure swift, safe and professional device returns, please read the return procedures and conditions at www.endress.com/support/return-material.

8.3 Disposal

The device contains electronic components and must therefore be disposed of in accordance with regulations on the disposal of electronic waste.

Observe the local regulations.

9 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 office.

Canister with double diaphragm pump
- Canister 5 l (1.32 US gal), material: PE
- Double diaphragm pump, material: PP
- Order No. 71029969

Hose connection set G¼, DN 12
- PVDF (2 x)
- Order No. 50090491

Hose connection set G¼, DN 12
- 1.4404 (AISI 316L) 2 x
- Order No. 51502808

Hose connection set G¼, DN 16
- PVDF (2 x)
- Order No. 51511591

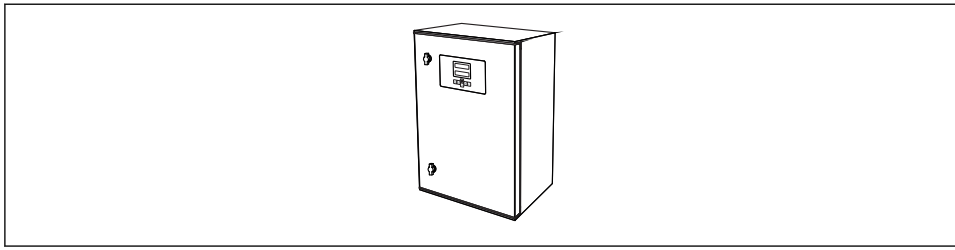
Hose connection set G¼, DN 16
- 1.4404 (AISI 316L) 2 x
- Order No. 51511590

Compressed air tube
- 4 mm ID, 6 mm OD, length: 5 m (approx. 16 ft.)
- Material: PU
- Order No. 71235288

Pneumatic rinsing valve
- Material on inlet side: PVDF
- Power supply for air: 5 to 7 bar (73 to 100 psi)
- Order no. TSP 71181130

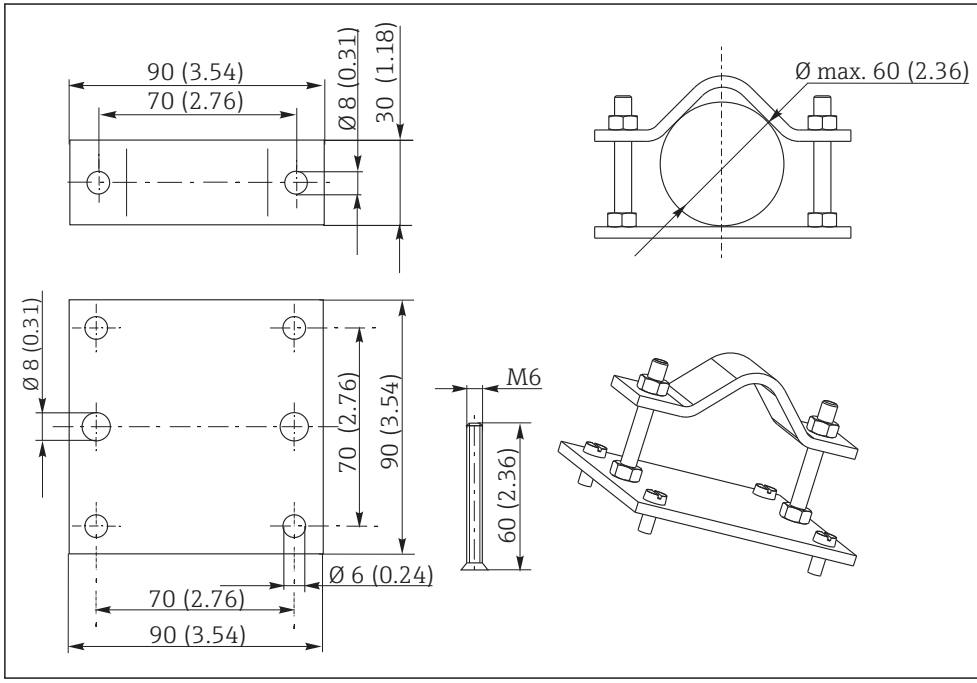
Rinse connection adapter CPR40
- For use with retractable assemblies.
- Wetted parts PVDF, alloy and glass
- Seal: Viton
- Hose connection: 1 x D12 and 3 x ID4/AD6
- Assembly connection G¼ external
- Order no. TSP 71224979

Installation housing
- For the installation of CM44x and CYC25 (both not included) with viewing window
- Mounting plate with threaded holes for installing the device at the customer site
- 8 cable entries in left side panel
- Material: GFR or 1.4301 (AISI 304)
- Dimensions: height x width x depth: 648 mm x 436 mm x 250 mm (25.5" x 17.2" x 9.84")
- Order no. TSP 71286806 (GFR version)
- Order no. TSP 71286807 (SS 304 version)



22 Installation housing

Post mounting kit
- For securing the field housing to horizontal and vertical posts and pipes
- Material: stainless steel 1.4301 (AISI 304)
- Order No. 50086842



23 Dimensions in mm (inch)

CYY101
- Weather protection cover for field devices
- Absolutely essential for field installation
- Material: stainless steel 1.4301 (AISI 304)
- Order No. CYY101-A

10 Technical data

10.1 Power supply

10.1.1 Supply voltage

24 V DC ±10 %

10.1.2 Power consumption

Max. 40 W

10.1.3 Fuse

Fine-wire fuse, slow-blow 250 V/2.5 A

10.1.4 Actuators

24 V DC, max. 8 W per actuator/valve

10.2 Environment

10.2.1 Ambient temperature range

-10 to +45 °C (+10 to +113 °F)

10.2.2 Storage temperature

-25 to +80 °C (-10 to +180 °F)

10.2.3 Humidity

0 to 95 %, non-condensating

10.2.4 Degree of protection

IP66/67

10.2.5 Altitude

<2000 m (6500 ft)

10.3 Mechanical construction

10.3.1 Dimensions

→ Section "Installation"

10.3.2 Weight

2.44 kg (5.38 lbs)

10.3.3 Materials

Housing material

Bottom part of housing	PC-FR
Cover	PC-FR
Housing seal	EPDM

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