TI01705C/07/EN/01.22-00
71596677
2022-11-11

Technical Information
Liquiline Control CDC30

Automatic cleaning system for retractable assemblies based on Liquiline Control CYC25

Applications

Liquiline Control CDC30 automates the operation and cleaning of retractable assembly-based measuring points:
- Applications with media that tend to form buildup and fouling
- Automation of rinsing and cleaning tasks
- Activation of pneumatic retractable assemblies

Your benefits

- Longer measuring point service interval thanks to reduced wear on assembly and sensor
- Removal of fouling and/or buildup improves measurement quality
- Solution based on Liquiline CM448, Cleanfit Control CYC25 and CYR10B injector
- Preconfigured and pre-installed for fast and easy commissioning
- Web server function
- 24V DC or 115 ..x 230V AC version available

Endress+Hauser
People for Process Automation

Function and system design

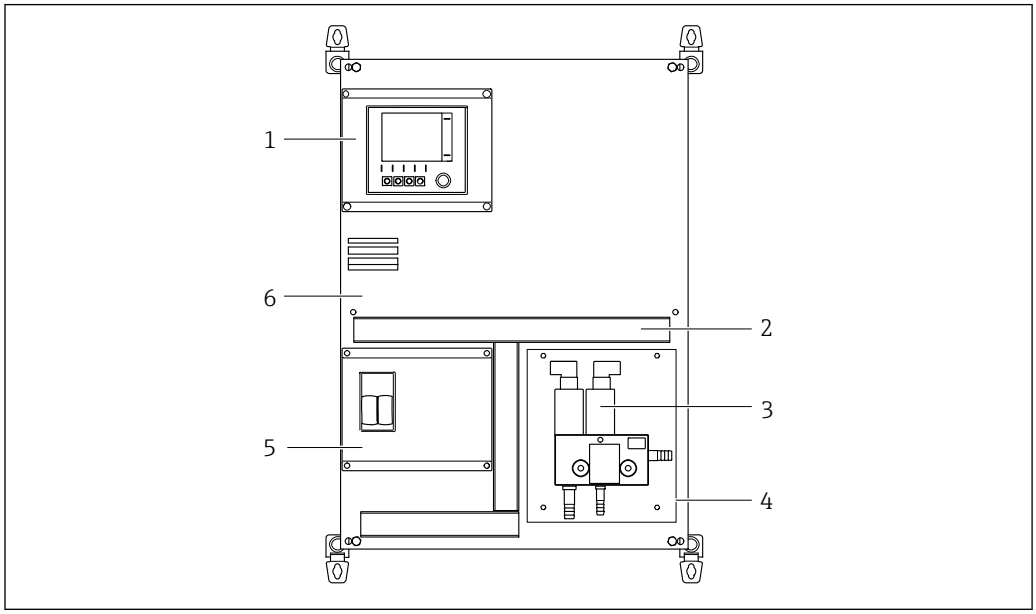
System design

The Liquiline Control CDC30 is a complete cleaning system for 12 mm sensors (0.47 in). It consists of the following components:

- Liquiline CM448
- Liquiline Control CYC25
- CYR10B cleaning injector

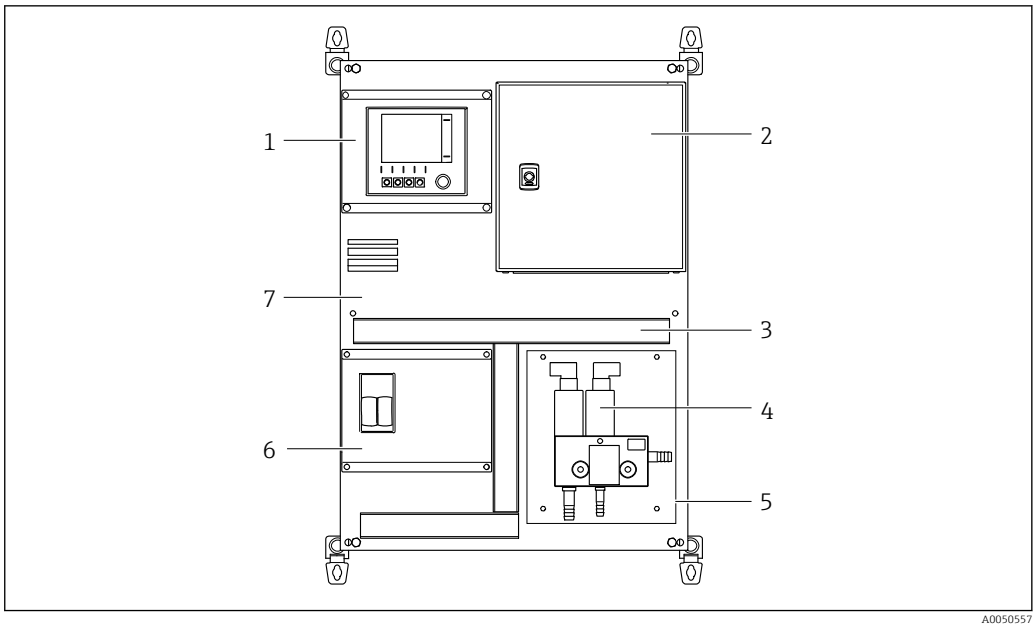
Versions

- 24V DC version for CM448, CYC25 and CYR10B
- 115 to 230V AC version with separate junction box for 115 to 230V AC mains voltage, generation of supply voltage for CM448, CYC25 and CYR10B 24V DC



1 24V DC version

1 Liquiline CM448 transmitter
2 Cable duct
3 Chemoclean CYR10B
4 Protective cover
5 Cleanfit Control CYC25
6 Mounting plate with protective covers and cable guides



2 *15 to 230V AC version with separate junction box*

1 Liquiline CM448
2 Junction box for 230V AC
3 Cable duct
4 Chemoclean CYR10B
4 Protective cover
6 Cleanfit Control CYC25
7 Mounting plate with protective covers and cable guides

System principle

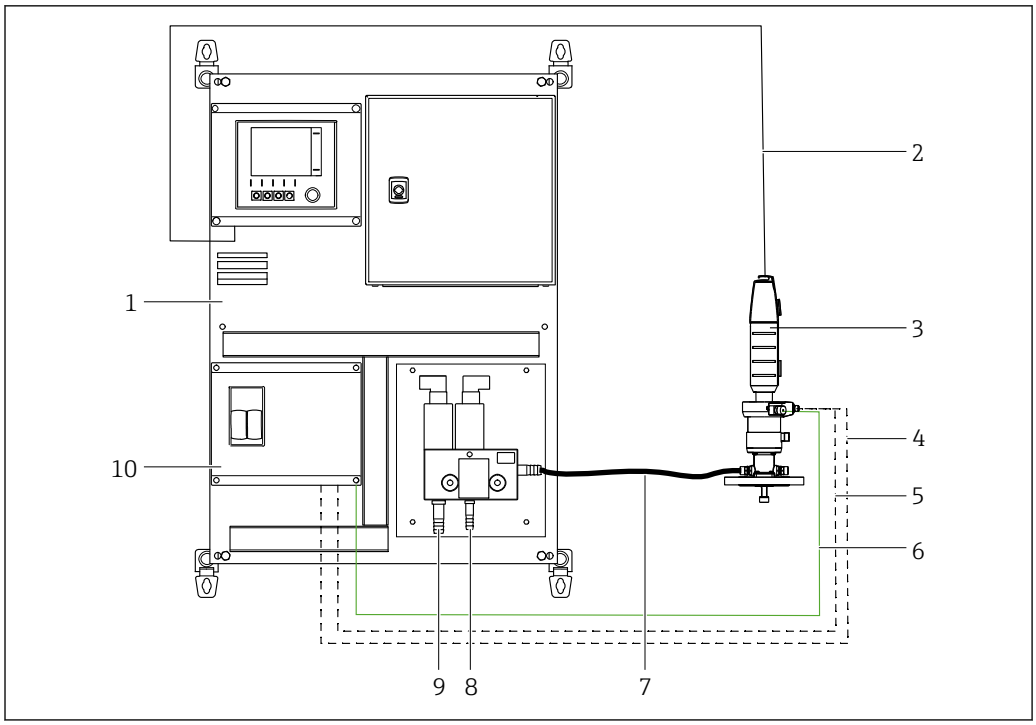
The cleaning injector uses the Venturi principle to mix motive water and cleaner to form a cleaning mixture. In the process, the motive water flows through a water jet pump (injector) to the spray head.

The resulting negative pressure causes the cleaner to be sucked in and mixed with the motive water. The flow rate of motive water and cleaner is controlled by the Liquiline CM448 via 2 solenoid valves in the injector.

The mixture ratio can be set using a metering screw. Hose lines are used to supply the motive water and cleaner and to route the cleaning mixture to the spray head.

Measuring system

A complete measuring point comprises the following components:
- 1 Liquiline Control CDC30 cleaning system
- Pneumatic retractable assembly, with inductive feedback devices (recommended).
- Sensor cable CYK10
- 12 mm sensors (0.47 in), e.g. Memosens pH sensor CPS11E
- Hoses for compressed air and rinsing media (customer-supplied)



3 Example of a measuring system with CPA871

1 Liquiline Control CDC30 cleaning system
2 Connection of sensor to CM448 via Memosens
3 Assembly, e.g. CPA871
4, 5 Control lines for compressed air
6 Connection of limit position switch, 2x Namur 8V DC
7 Cleaning medium to assembly
8 Cleaning medium
9 Motive water
10 Compressed air supply

Communication and data processing

The Liquiline CM448 has a web server. The server can be accessed via an Ethernet interface.

Digital inputs DI1 and DI2 are provided to process the signal of the inductive feedback devices of the pneumatic retractable assembly.

A remote command to start/stop a cleaning program can be executed using digital inputs (DI3, DI4). Position feedback signals can be sent to the controller via digital outputs (DO1, DO2). The measured value can be output via the analog outputs. The limit switch position or the device status can be transmitted via the other digital outputs.

See the Operating Instructions for CM448, CYC25 and CYR10B for the correct hose system connection and configuration.

Input

Measured variable

→ Documentation of the connected sensor

Measuring range

→ Documentation of the connected sensor

Type of input

- Digital sensor inputs for sensors with Memosens protocol
- Digital inputs

Inputs
- DI1 and DI2 for inductive feedback devices
- DI3 and DI4 for connecting a command, e.g. to start the cleaning programs.
- 2x Memosens

Input signal

- 2x binary sensor signal,
- 4x binary input signal, passive, galvanically isolated, (2x factory-assigned) 0 to 30 V

Output

Output and input variants

- Digital outputs
- Analog outputs

Output signal

- 4x binary output signal, passive, galvanically isolated
- 2x 0/4 to 20 mA, active, galvanically isolated from one another and from the circuits

Power supply

Supply voltage

There are 2 versions:
- Connection to 24V DC power supply
- Connection to 115 to 230V AC power supply; including separate junction box

In the 115 to 230V AC version, the mains voltage is applied exclusively at the junction box and the power unit installed at the box.

The Liquiline CM448 transmitter, the Liquiline Control CYC25 and the CYR10B injector are also powered with 24V DC in this version.

Other customized solutions are available on request.

Performance characteristics

Software

Programs
The functions available in the system include:
- Manual program start/stop
- Configurable interval-based cleaning
- Configuration of cleaning cycle
- Assembly monitoring
- Sensor hold function

Cleaning can be started either manually, via the digital input or by an interval-based cleaning program previously entered.

If necessary, automation can be interrupted manually and the assembly can be independently moved into the measuring position.

Mounting

Mounting location

- Panel for mounting on wall or in cabinet
- No direct sunshine or wet

Orientation

Vertical

Installation instructions

Prerequisites:
- Air pressure 4 to 7 bar (58 to 102 psi) absolute pressure
- Compressed air quality in accordance with ISO 8573-1:2001
  Quality class 3.3.3 or 3.4.3
- Motive water pressure: 2 to 10 bar (29 to 145 psi) (absolute)
- Solids class 3 (max. 5 µm, max. 5 mg/m^3, contamination with particles)

- Water content for temperatures ≥ 15 °C (59 °F): Class 4 pressure dew point 3 °C (37.4 °F) or lower
- Water content for temperatures 5 to 15 °C (41 to 59 °F): Class 3 pressure dew point -20 °C (-4 °F) or lower
- Oil content: Class 3 (max. 1 mg/m^3)
- Air temperature: 5 °C (41 °F) or higher
- No continuous air consumption
- Minimum nominal diameter of air pipes: 2 mm (0.08 in)

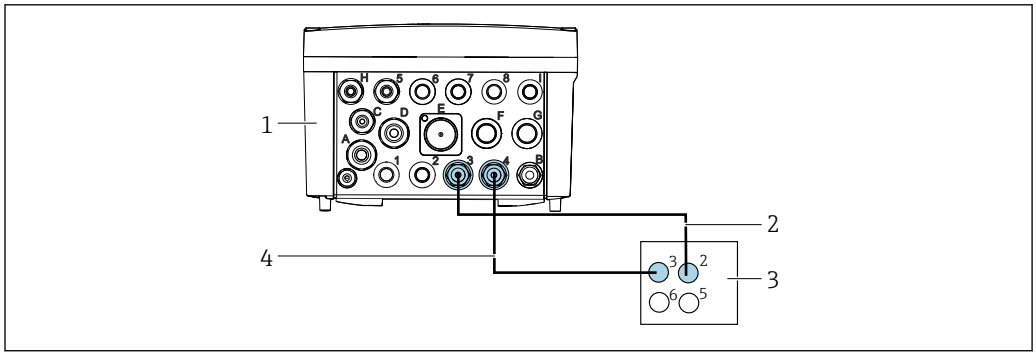
A dual-operating cylinder is used to operate the pneumatic drive.

An automatic limit position lock both in service and measuring position secures the assembly to prevent it from moving inadvertently in the event of a failure in the control air. The assembly remains in the relevant position.

Connection: plug-in connector M5, hose 4/2 mm (0.16/0.08 in) OD/ID (adapter for 6/4 (0.24/0.16 in) mm OD/ID enclosed)

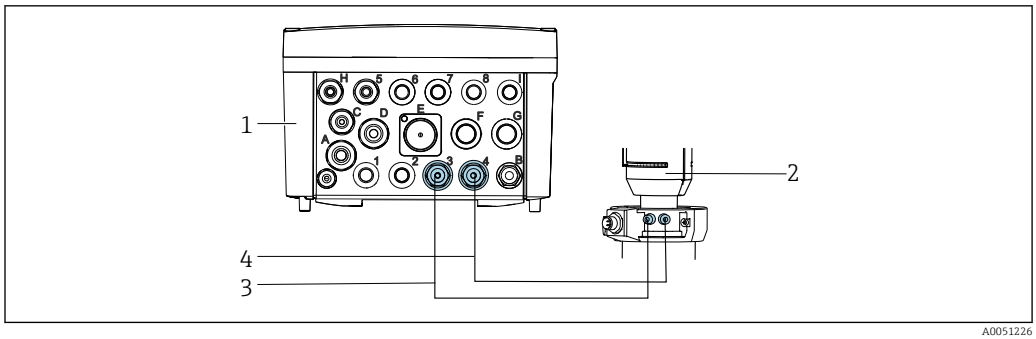
Assembly connections

Assembly compressed air supply



4 Connection of pneumatic limit position switch for CPA473/CPA474

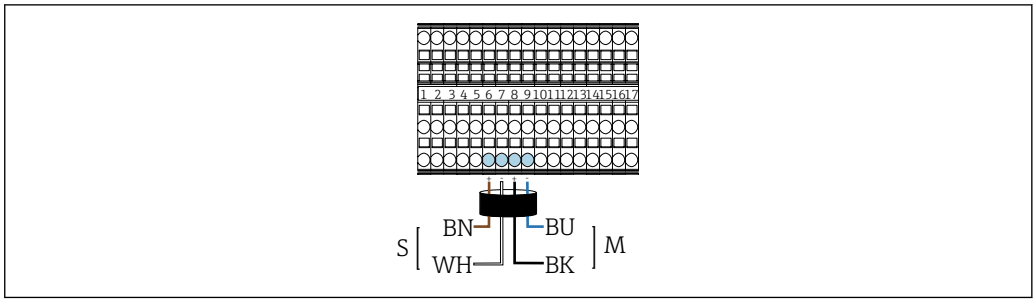
1 Cleanfit Control CYC25
2 CPA473/CPA474 compressed air inlet "Start measurement" (pneumatic "Open ball valve")
3 Pneumatic connection block
4 CPA473/CPA474 compressed air inlet "Start service" (pneumatic "Close ball valve")



5 Connection of pneumatic limit position switch for CPA871

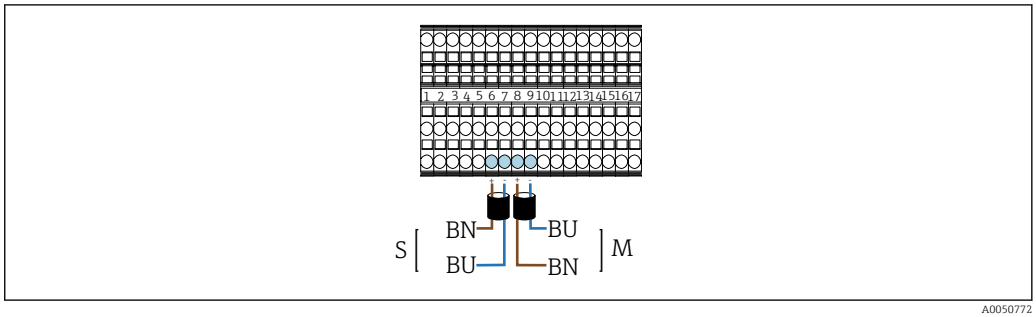
1 Cleanfit Control CYC25
2 CPA871 assembly
3 CPA871 compressed air inlet "IN", Measure (pneumatic "Open ball valve")
4 CPA871 compressed air inlet "OUT", Service (pneumatic "Close ball valve")

Electrical limit position switches



6 *Electrical connection, CYC25 terminals on CPA87x limit position switch*

S Service position
M Measuring position
BN Brown cable to terminal 6
WH White cable to terminal 7
BK Black cable to terminal 8
BU Blue cable to terminal 9



7 *Electrical connection, CYC25 terminals on CPA47x limit position switch*

S Service position (limit position switch at ball valve on CPA473/474) at terminal 6 and 7
M Measure position (limit position switch at pneumatic cylinder on CPA473/474) at terminal 8 and 9
BN Brown cable to terminals 6 and 8
BU Blue cable to terminals 7 and 9

Environment

Ambient temperature range	0 to 40 °C (32 to 104 °F)
Storage temperature	−40 to +60 °C (−40 to +140 °F)
Relative humidity	10 to 95 %, non-condensing
Degree of protection	IP64
Electromagnetic compatibility (EMC)	Interference emission and interference immunity as per EN 61326-1:2006, class A for industrial sectors

Process

→ Documentation of the connected assembly

Process temperature range

−5 to +60 °C (23 to 140 °F)

Process pressure range

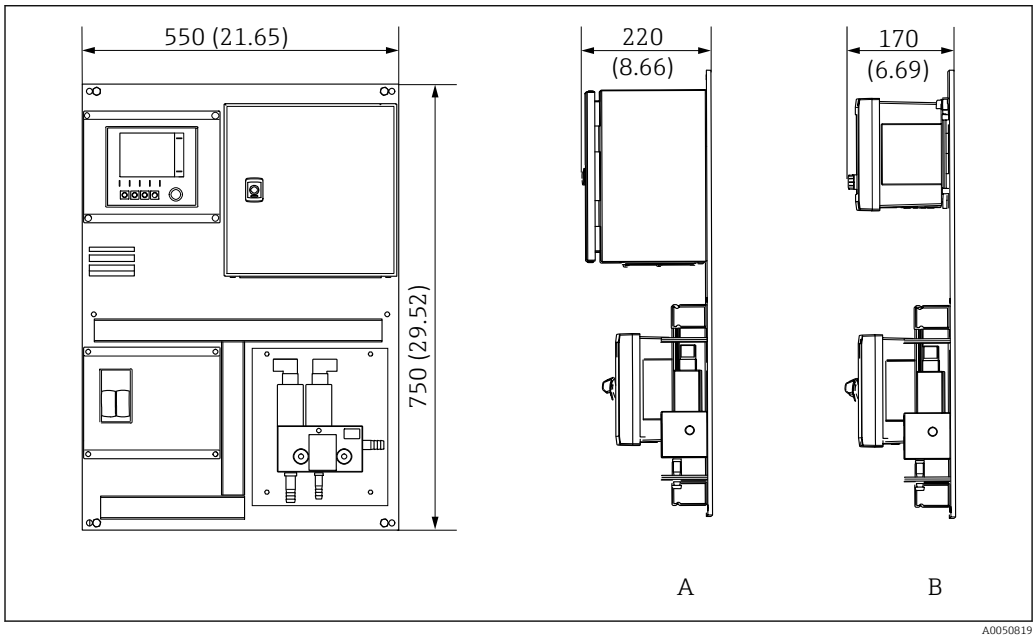
2 to 10 bar (29 to 145 psi)

Process counter-pressure

0 to 3 bar (0 to 43.5 psi)

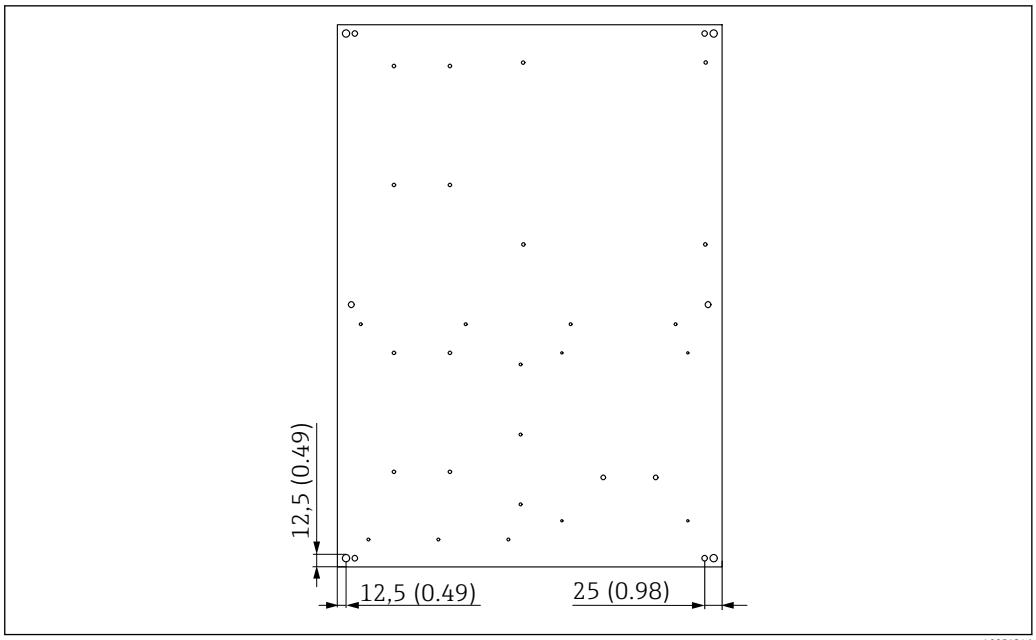
Mechanical construction

Dimensions



8 CDC30 dimensions. Unit of measurement mm (in)

A 230V version
B 24V version



9 *CDC30 dimensions of drill pattern. Unit of measurement mm (in)*

Weight

230V version

23 kg (50.71 lb)

24V version

17 kg (37.48 lb)

Hose specifications

→ Documentation of the connected assembly

Process connections

→ Documentation of the connected assembly

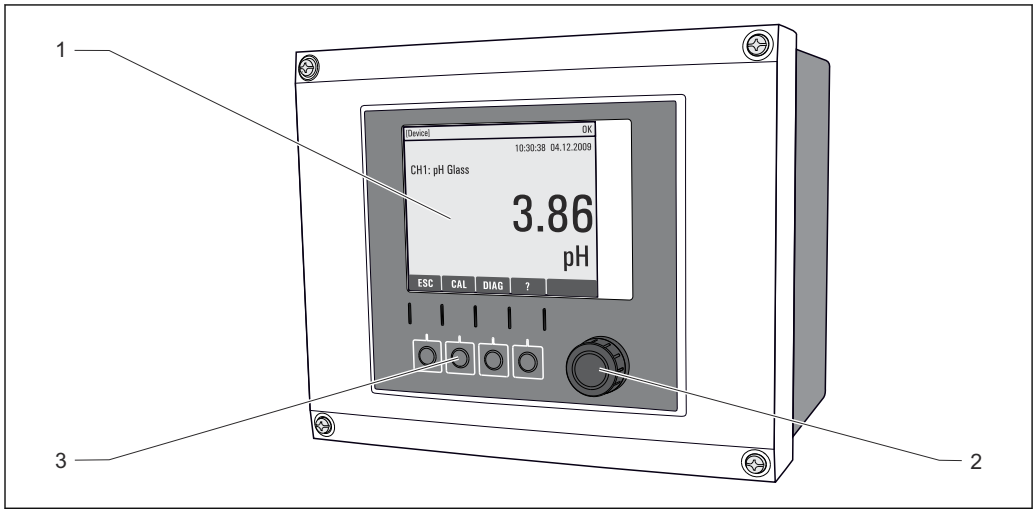
Operability

Operating concept

In automatic mode, the cleaning sequence is controlled exclusively by transmitter CM44x.

Local operation

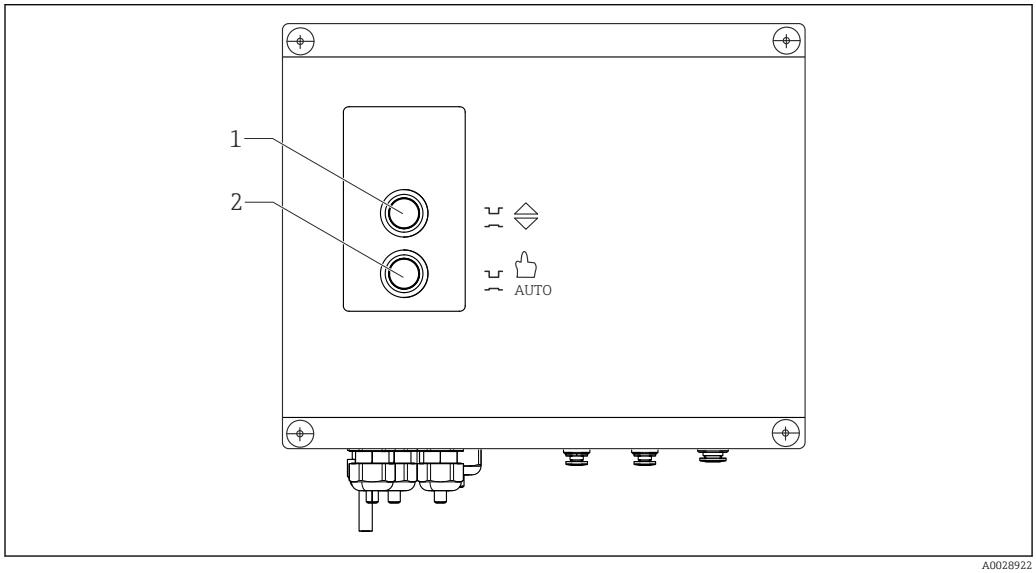
Liquiline CM448



10 Overview of operation CM448

1 Display (with red display background in alarm condition)
2 Navigator (jog/shuttle and press/hold function)
3 Soft keys (function depends on menu)

Liquiline Control CYC25



11 Operating elements

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

Remote operation

The operator can execute a remote command via digital inputs (DI3, DI4) to start/stop a cleaning program.

The digital outputs (DO1, DO2) send position feedback signals to the controller.

The measured value can be output via the analog outputs. The limit switch position or the device status can be transmitted via the other digital outputs.

System integration

Communication with the device is via the web server. The web server is connected via the Ethernet interface.

Certificates and approvals

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

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

Ordering information

Product page

www.endress.com/CDC30 - 24 V

www.endress.com/CDC30

www.endress.com/CYC25

Product Configurator

The configuration is coordinated with the Endress+Hauser contact partner. The first configuration is performed by Endress+Hauser staff.

Scope of delivery

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

Accessories

The following are the most important accessories available at the time this documentation was issued.

Listed accessories are technically compatible with the product in the instructions.

1. Application-specific restrictions of the product combination are possible.
   Ensure conformity of the measuring point to the application. This is the responsibility of the operator of the measuring point.
2. Pay attention to the information in the instructions for all products, particularly the technical data.
3. For accessories not listed here, please contact your Service or Sales Center.

You can find the order codes on the website: https://www.endress.com/device-viewer.

1. Indicate the serial number of the device.
2. Search.
   ↳ Device information is displayed.
3. Select the "Spare parts" tab.
4. Click the product root.
   ↳ The complete product structure is displayed.

Cleanfit CPA472D

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

Technical Information TI00403C

Cleanfit CPA473

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

Technical Information TI00344C

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

Technical Information TI00345C

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

Technical Information TI01191C

Only standard version possible.

Not compatible with immersion chamber version.

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

Technical Information TI01168C

71596677

www.addresses.endress.com

Endress+Hauser
People for Process Automation