

Technical Information

Cleanfit Control CYC25

Cleaning unit for retractable assemblies in conjunction with Chemoclean Plus



Application

Cleanfit Control allows automatic cleaning of sensors installed in retractable assemblies. This means that sensor performance can be maintained at a high level without any interruption to the process. Cleanfit Control is excellently suited to the following sectors:

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

Your benefits

- Easy setup of automatic cleaning system with low maintenance
- Easy actuator control and operation
- Manual control and interruption possible at all times
- Possible to connect both electrical and pneumatic cleaning and pump units

Function and system design

Function

A combination of the Liquiline CM44x, the software package Chemoclean Plus and the Cleanfit Control CYC25 allows reliable cleaning of sensors installed in pneumatically controlled retractable assemblies.

Alternatively, interval measurement is also possible, i.e. the controlled sensor can be placed in the medium to be measured for short periods of time and, for the remainder of the time, be safely stowed away or regenerated in the service chamber of the assembly.

Liquiline CM44x allows a maximum of 2 Cleanfit Control systems to be connected. These are controlled independently of each other.

The cleaning sequence is programmed exclusively on the Liquiline CM44x. Two cleaning programs are available. The programs can be controlled as follows:

- in the form of an interval control system with fixed time intervals
- in the context of a defined weekly or daily program with up to 6 start times per day
- as a single event directly on site
- via a digital input or a bus signal

Safety-oriented events can be incorporated into the cleaning program sequence via the digital inputs. For example, the position of the retractable assembly's limit position switches can be incorporated as a precondition for the next step in the cleaning process. If the correct position is not reached within the specified time, the cleaning program is canceled and the system enters "failsafe" mode.

It is the function of the **Cleanfit Control CYC25** to integrate the actuators into the cleaning program in a safety-oriented manner. That is why the actuators, i.e. assembly, valves and pumps, are not connected directly via the relays to the Liquiline CM44x. Instead they are connected to the Cleanfit Control CYC25. The 24V DC power supply to these actuators, as well as the compressed air supply, are provided by the customer.

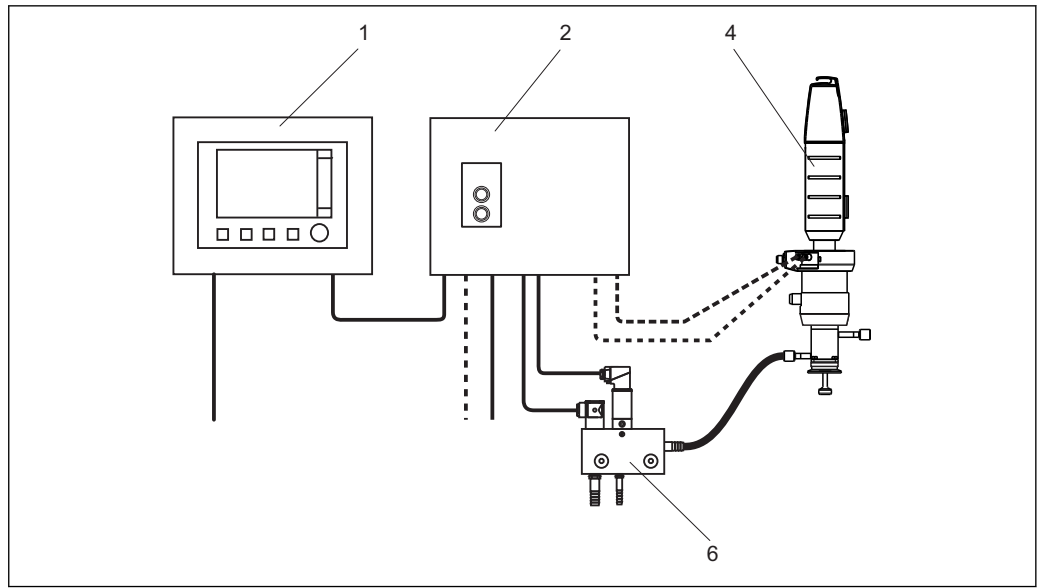
Every automated system requires a safety shutdown system. In the Cleanfit Control, this is achieved by switching from automatic to manual mode. This switch is also used for the purpose of sensor maintenance.

The effect of the switch is that the actuators (excluding the retractable assembly) can no longer activated either electrically or pneumatically. However, the cleaning program as such is not interrupted. In this way, the second switch can be used to move the assembly from measuring mode to service mode and vice versa. Any cleaning media that are connected will not be released until you have switched back to automatic mode. The advantage of this procedure is that the cleaning program does not need to be restarted separately after switching back to automatic mode.

Measuring system

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

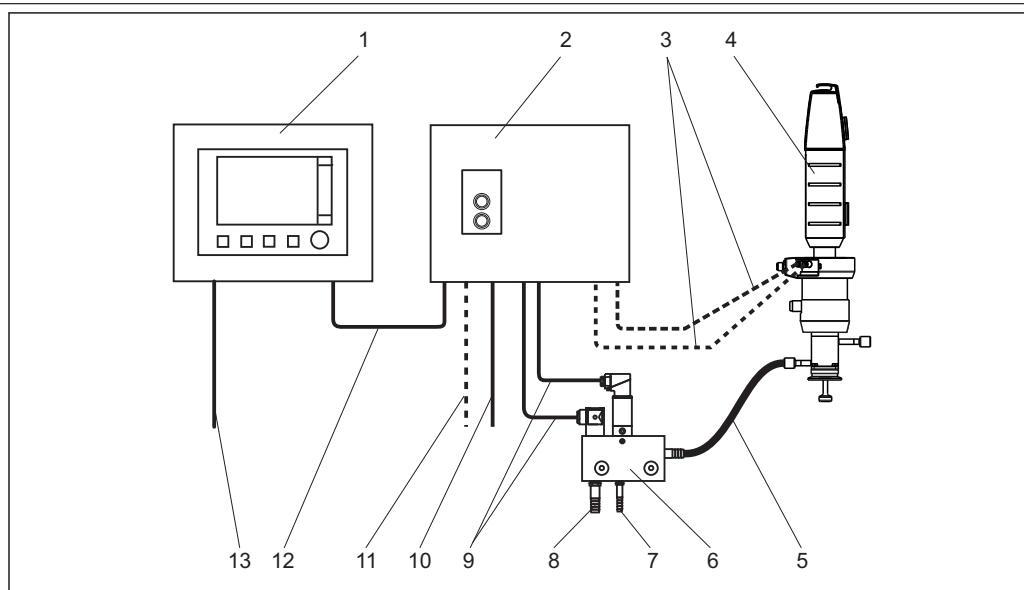
Chemoclean Plus is a function of the Liquiline CM44x for sequential, cyclical control of relays to enable automated cleaning.

- 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

Configuration options

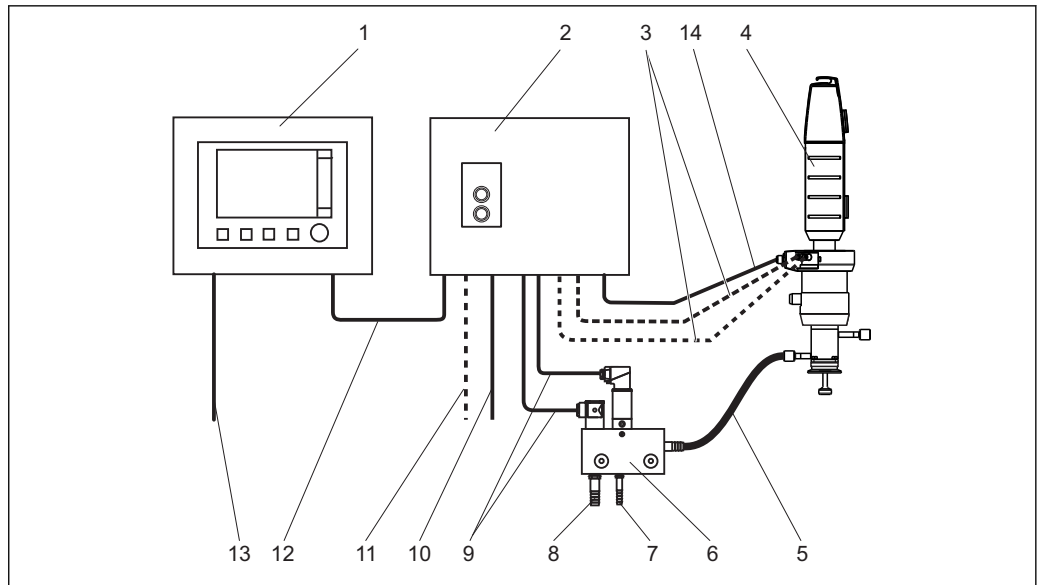


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 2 Cleanfit Control with cleaning injector

Item	Description	Order code / accessories
1	Transmitter Liquiline CM44x	CM442-AA**F4***+*H7*
2	Cleanfit Control CYC25	CYC25-AA+PA
3	Control lines for compressed air	To be provided by the customer (OD = 4 mm, ID = 2 mm)
4	Pneumatic retractable assembly	For example: CPA875 or CPA871
5	Hose for cleaning agent	To be provided by the customer (OD = 16 mm)
6	Cleaning injector Chemoclean CYR10	CYR10-A8
7	Inlet for cleaning agent	Hose connection nipple DN12
8	Inlet for motive water	Hose connection nipple DN16
9	24 V - supply for valves	Connecting cables must be provided by the customer
10	24 V - supply for Cleanfit Control	Power supply must be provided by the customer
11	Compressed air supply for Cleanfit Control	Compressed air hose (OD = 6 mm, ID = 4 mm) must be provided by the customer
12	Signal line, transmitter - Cleanfit Control	Supplied with CYC25
13	Power supply for transmitter	Power supply must be provided by the customer

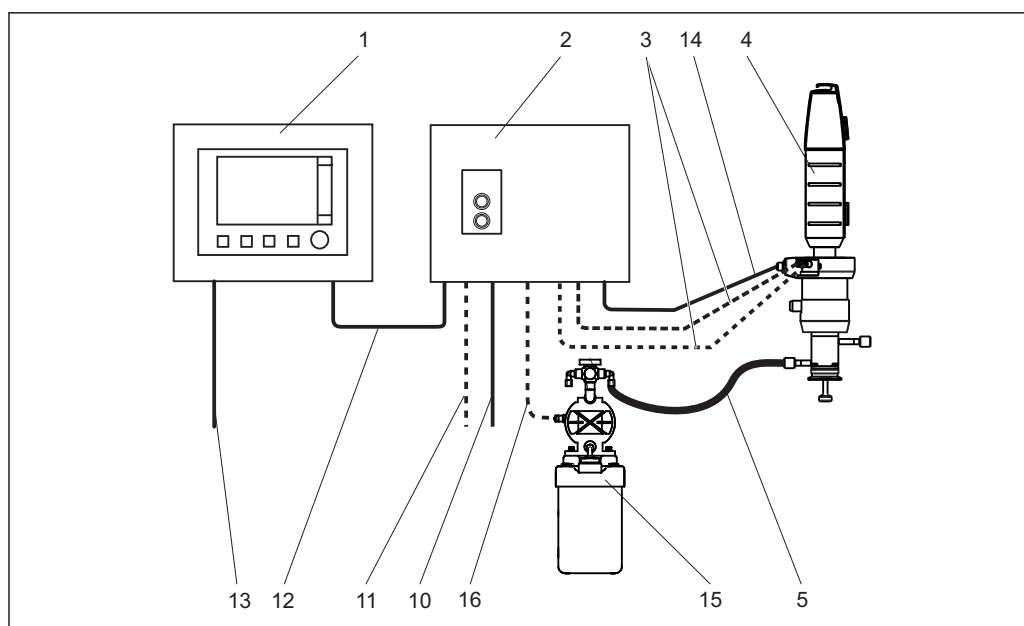
 No digital inputs are provided in this configuration.



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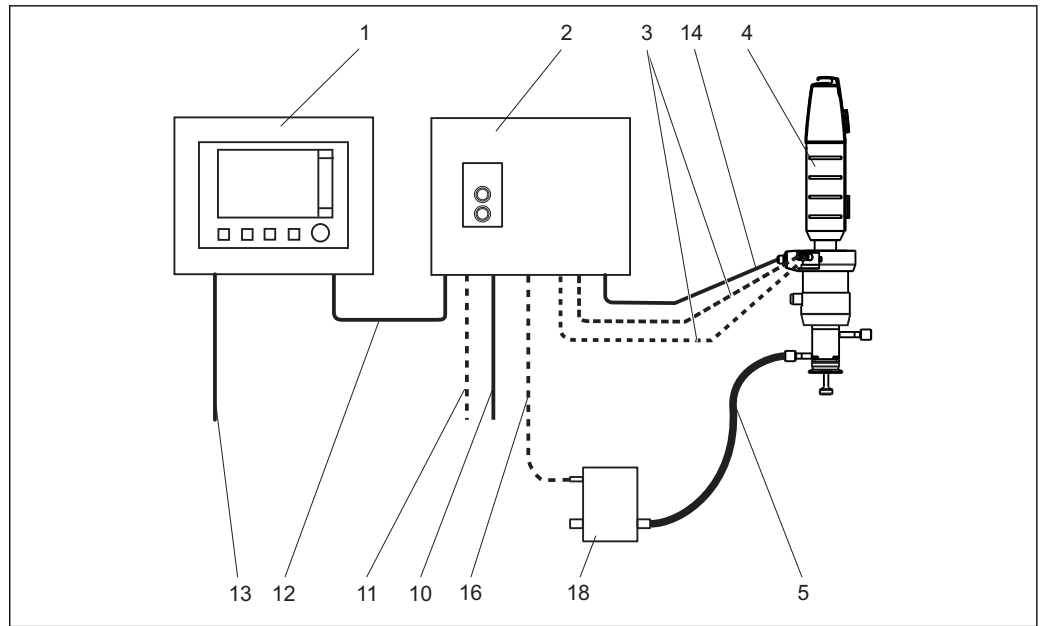
3 Cleanfit Control with cleaning injector and limit position detection

Item	Description	Order code / accessories
1	Transmitter Liquiline CM44x	CM444-AA***FK***+*EF*
2	Cleanfit Control CYC25	CYC25-AA+NAPA
3	Control lines for compressed air	To be provided by the customer (OD = 4 mm, ID = 2 mm)
4	Pneumatic retractable assembly	For example: CPA875-*F* or CPA871-*F*
5	Hose for cleaning agent	To be provided by the customer (DN16)
6	Cleaning injector Chemoclean CYR10	CYR10-A8
7	Inlet for cleaning agent	Hose connection nipple DN12
8	Inlet for motive water	Hose connection nipple DN16
9	24 V - supply for valves	Connecting cables must be provided by the customer
10	24 V - supply for Cleanfit Control	Power supply must be provided by the customer
11	Compressed air supply for Cleanfit Control	Compressed air hose (OD = 6 mm, ID = 4 mm) must be provided by the customer
12	Signal line, transmitter - Cleanfit Control	Supplied with CYC25
13	Power supply for transmitter	Power supply must be provided by the customer
14	Cable for electrical limit position detection	For example: CPA875-*+*RA/RB* or CPA871-*+*RA/RB*




4 Cleanfit Control with pump and limit position detection

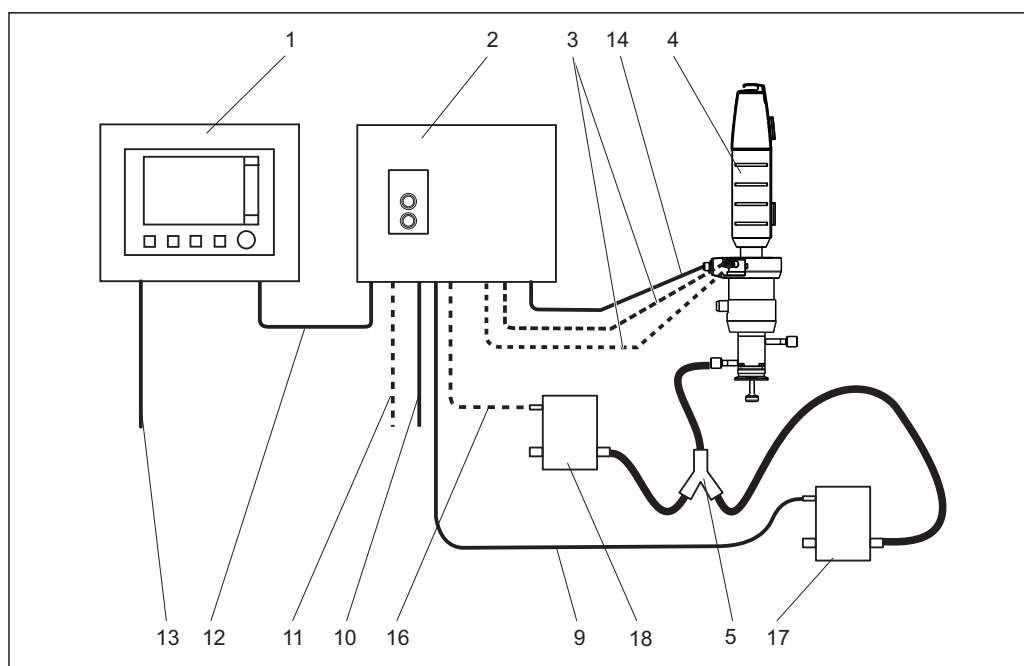
Item	Description	Order code / accessories
1	Transmitter Liquiline CM44x	CM444-AA***FK*
2	Cleanfit Control CYC25	CYC25-AB+NA
3	Control lines for compressed air	To be provided by the customer (OD = 4 mm, ID = 2 mm)
4	Pneumatic retractable assembly	For example: CPA875-*F* or CPA871-*F*
5	Hose for cleaning agent	To be provided by the customer (DN16)
10	24 V - supply for Cleanfit Control	Power supply must be provided by the customer
11	Compressed air supply for Cleanfit Control	Compressed air hose (OD = 6 mm, ID = 4 mm) must be provided by the customer
12	Signal line, transmitter - Cleanfit Control	Supplied with CYC25
13	Power supply for transmitter	Power supply must be provided by the customer
14	Cable for electrical limit position detection	For example: CPA875-*+*RA/RB* or CPA871-*+*RA/RB*
15	Canister for cleaning agent with pneumatically operated pump	Canister with double diaphragm pump
16	Pneumatic control line	To be provided by the customer



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 5 Cleanfit Control with pneumatic valve and limit position detection

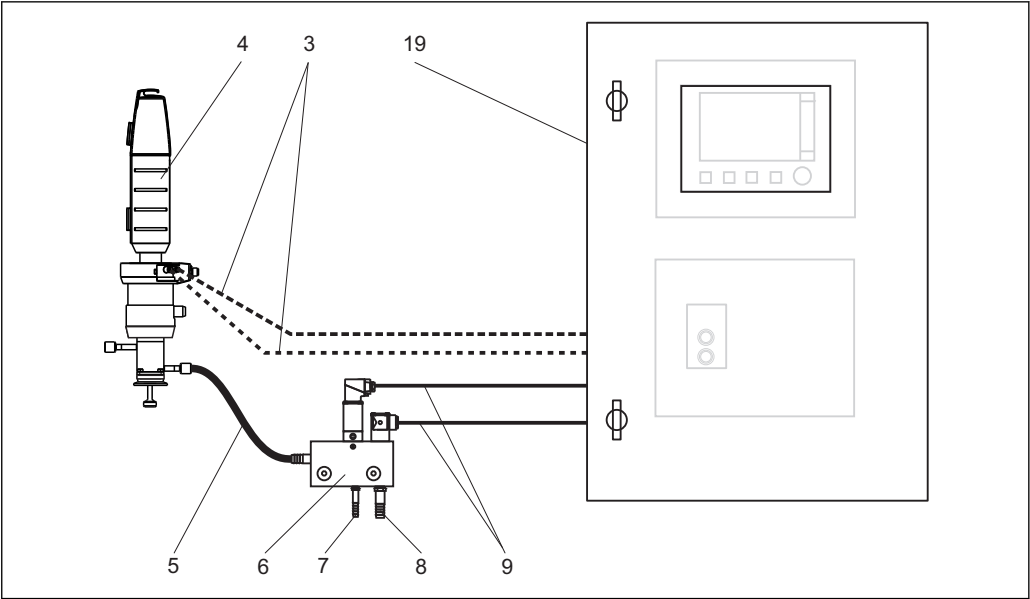
Item	Description	Order code / accessories
1	Transmitter Liquiline CM44x	CM444-AA***FK*
2	Cleanfit Control CYC25	CYC25-AB+NA
3	Control lines for compressed air	To be provided by the customer (OD = 4 mm, ID = 2 mm)
4	Pneumatic retractable assembly	For example: CPA875-*F* or CPA871-*F*
5	Hose for cleaning agent	To be provided by the customer (DN16)
10	24 V - supply for Cleanfit Control	Power supply must be provided by the customer
11	Compressed air supply for Cleanfit Control	Compressed air hose (OD = 6 mm, ID = 4 mm) must be provided by the customer
12	Signal line, transmitter - Cleanfit Control	Supplied with CYC25
13	Power supply for transmitter	Power supply must be provided by the customer
14	Cable for electrical limit position detection	For example: CPA875-*+*RA/RB* or CPA871-*+*RA/RB*
16	Pneumatic control line	To be provided by the customer
18	Pneumatic valve	TSP 71181130



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6 Cleanfit Control with electrical and pneumatic valve and limit position detection

Item	Description	Order code / accessories
1	Transmitter Liquiline CM44x	CM444-AA***FK****+*EF*
2	Cleanfit Control CYC25	CYC25-AB+NA
3	Control lines for compressed air	To be provided by the customer (OD = 4 mm, ID = 2 mm)
4	Pneumatic retractable assembly	For example: CPA875-*F* or CPA871-*F*
5	Y - connector	To be provided by the customer
9	24 V - supply for valves	Connecting cables must be provided by the customer
10	24 V - supply for Cleanfit Control	Power supply must be provided by the customer
11	Compressed air supply for Cleanfit Control	Compressed air hose (OD = 6 mm, ID = 4 mm) must be provided by the customer
12	Signal line, transmitter - Cleanfit Control	Supplied with CYC25
13	Power supply for transmitter	Power supply must be provided by the customer
14	Cable for electrical limit position detection	For example: CPA875-*+*RA/RB* or CPA871-*+*RA/RB*
16	Pneumatic control line	To be provided by the customer
17	Electrical valve	To be provided by the customer
18	Pneumatic valve	TSP 71181130



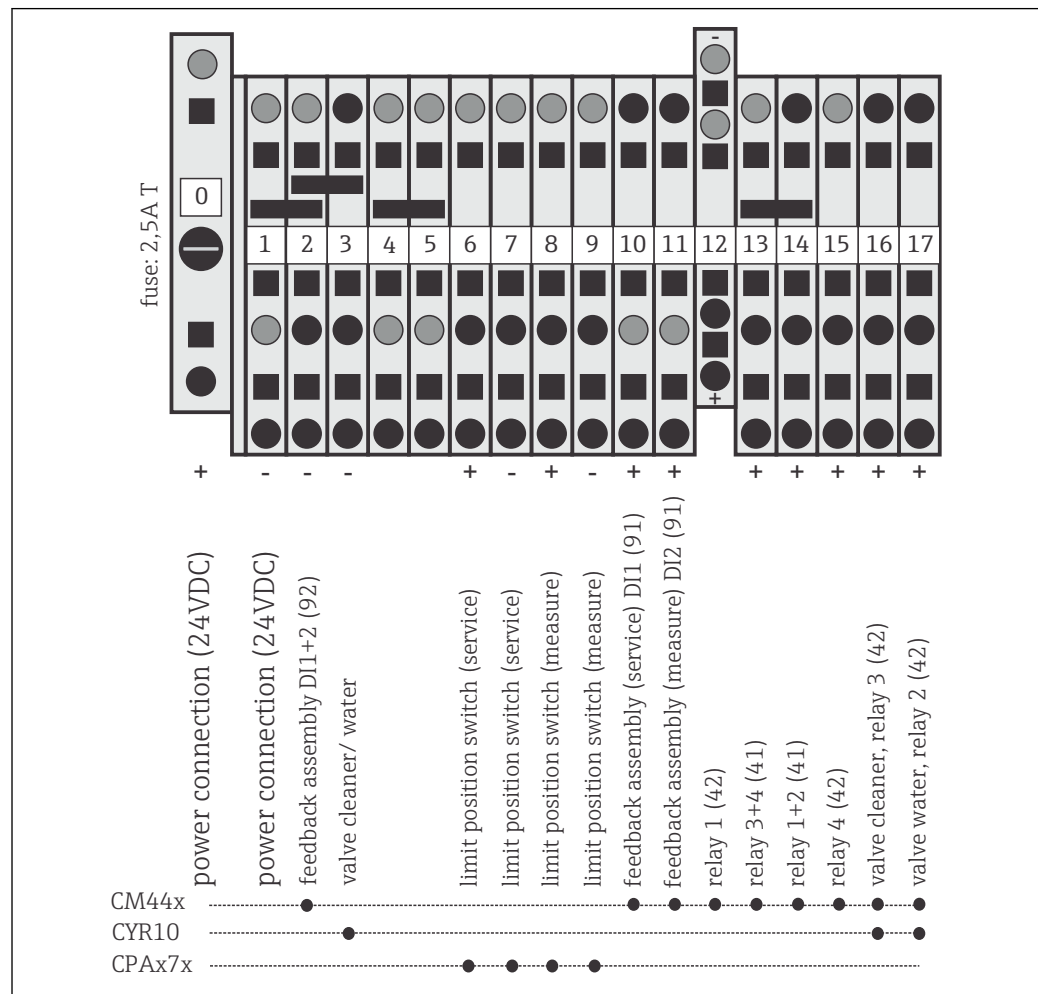
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7 Cabinet with Cleanfit Control and Liquiline CM44x transmitter

Item	Description	Order code / accessories
3	Control lines for compressed air	To be provided by the customer (OD = 4 mm, ID = 2 mm)
4	Assembly Cleanfit CPA875	Individually selectable
5	Hose for cleaning agent	To be provided by the customer (DN16)
6	Cleaning injector Chemoclean CYR10	CYR10-A8
7	Inlet for cleaning agent	Hose connection nipple DN12
8	Inlet for motive water	Hose connection nipple DN16
9	24 V - supply for valves	Connecting cables must be provided by the customer
19	Cabinet for Liquiline CM44x and Cleanfit Control CYC25	Installation housing (accessory)

Power supply

Wiring diagram



8 Wiring diagram

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

Supply voltage

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

- Separate power supply 24 VDC $\pm 10\%$
- The power supply must be limited to a maximum of 70 VDC in the event of an error.
- Conductor cross-section: 0.5 mm² min.

Power consumption

Max. 40 W

Circuit breaker

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.
- ▶ 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 supply voltage.

Fuse

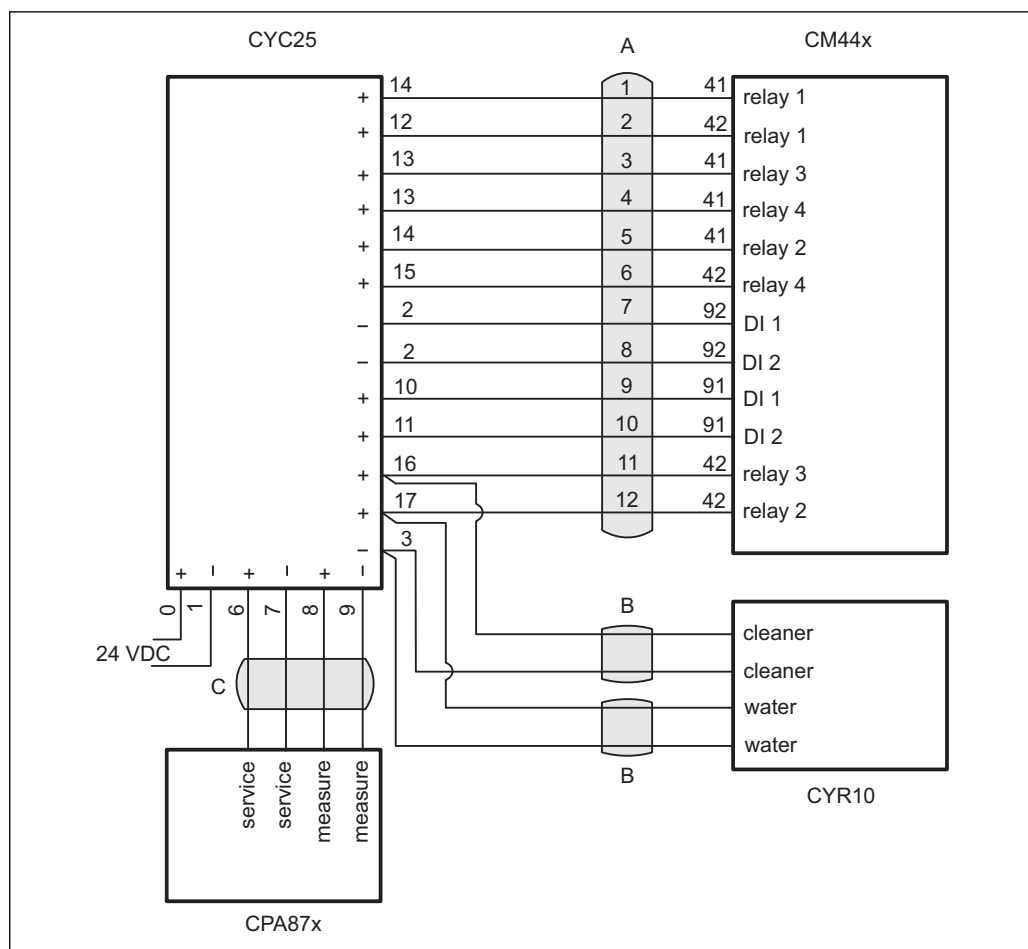
Fine-wire fuse, slow-blow 250 V/2.5 A

Electrically controlled actuators/valves

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

Example of wiring

Example of wiring with CPA87x and CYR10



9 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

Installation

Pneumatic connections

Prerequisites:

- Air pressure of 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/m³, 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/m³)
- 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.

Maximum cable length

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

Environment

Ambient temperature range -10 to +45 °C (+10 to +113 °F)

Storage temperature -40 to +80 °C (-40 to 175 °F)

Humidity 10 to 95%, not condensing

Degree of protection IP64

Electromagnetic compatibility Interference emission and interference immunity as per EN 61326-1:2006, class A for industrial sectors

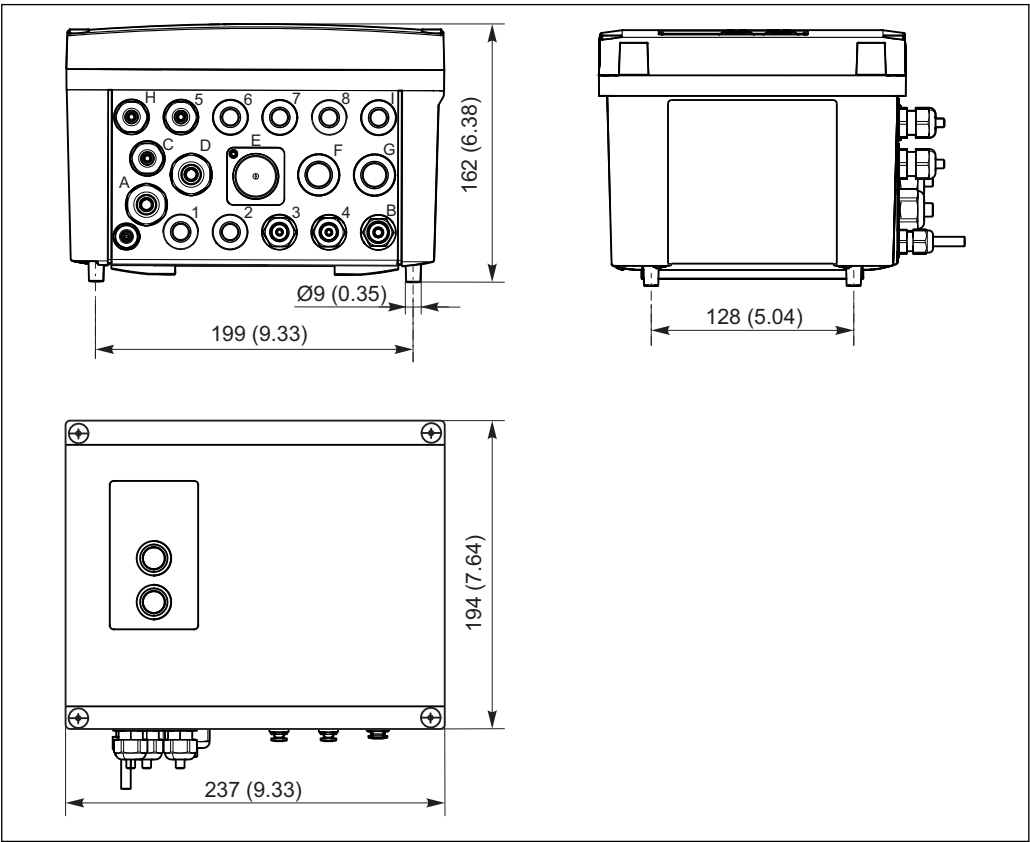
Electrical safety IEC 61010-1, protection class III (electrical safety due to safety extra low voltage)

Low voltage: overvoltage category II

Environment < 2000 m (< 6562 ft) above MSL

Mechanical construction

Dimensions



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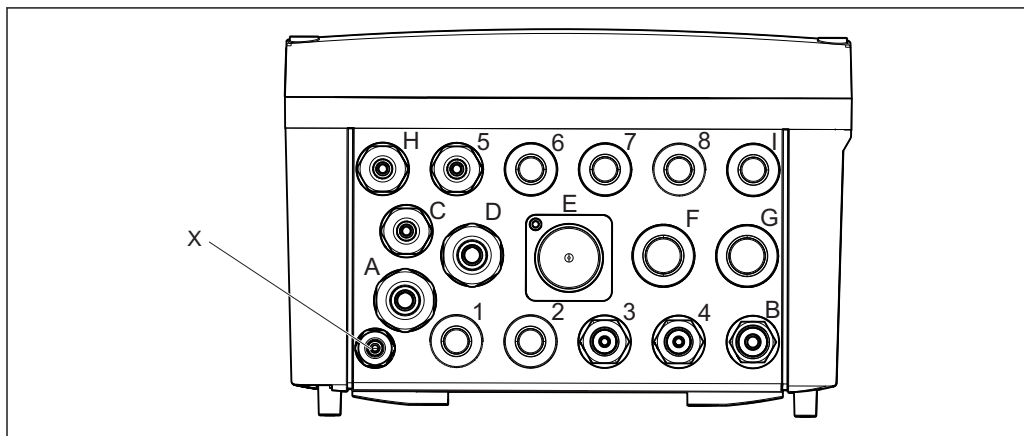
10 Dimensions in mm (inch)

Cable glands

Qualified cable glands

Cable gland	Clamping area, permitted cable diameter
M16 x 1.5 mm	3 to 6 mm (0.12 to 0.24")
M20 x 1.5 mm	6 to 12 mm (0.20 to 0.35")

Electrical and pneumatic connections



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11 Cable entries and pneumatic connections

- A Cable entry (optional)
- B Compressed air supply AD 6 mm (supplied by customer)
- C Cable entry CYR10 water
- D Cable entry signal line CM44x
- H Cable entry CYR10 cleaning agent
- 2 Compressed air outlet AD 4 mm (optional)
- 3 Compressed air outlet, assembly moves to measuring position AD 4 mm
- 4 Compressed air outlet, assembly moves to service position AD 4 mm
- 5 Cable entry power supply 24 V
- X Housing vent (connection remains open)

Materials

Housing material

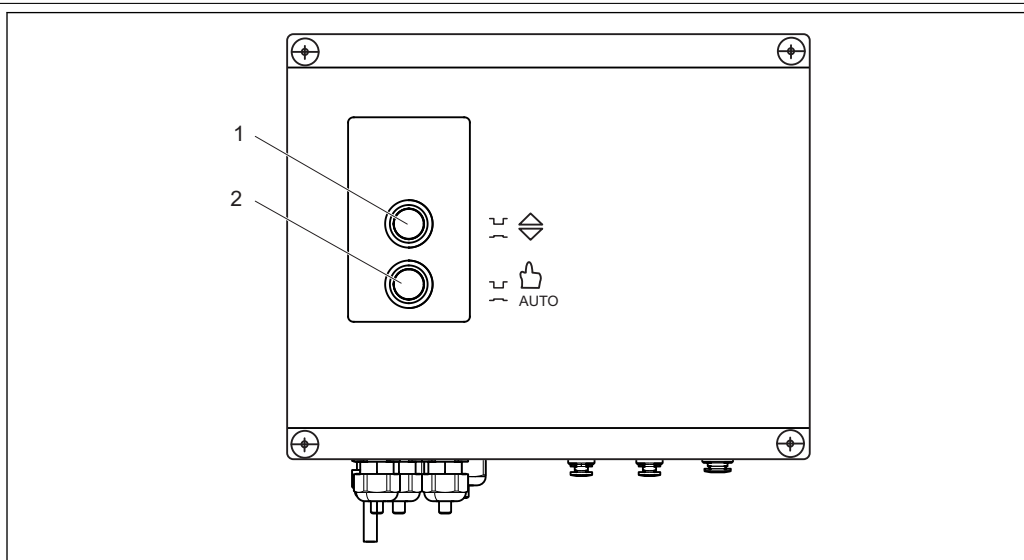
Bottom part of housing	PC-FR
Cover	PC-FR
Housing seal	EPDM

Weight

2.44 kg (5.38 lbs)

Operability

Operating elements



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12 Operating elements

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

Operating concept

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

Certificates and approvals

CE mark

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

Ordering information

Product page

www.endress.com/CYC25

Product Configurator

On the product page there is a "Configuration" button to the right of the product image.

1. Click this button.
 - ↳ The Configurator opens in a separate window.
2. Select all the options to configure the device in line with your requirements.
 - ↳ In this way, you receive a valid and complete order code for the device.
3. Export the order code as a PDF or Excel file. To do so, click the appropriate button on the right above the selection window.



For many products you also have the option of downloading CAD or 2D drawings of the selected product version. To do so, click the "CAD" tab and select the desired file type using drop-down lists.

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

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 G $\frac{1}{4}$, DN 12

- PVDF (2 x)
- Order No. 50090491

Hose connection set G $\frac{1}{4}$, DN 12

- 1.4404 (AISI 316L) 2 x
- Order No. 51502808

Hose connection set G $\frac{1}{4}$, DN 16

- PVDF (2 x)
- Order No. 51511591

Hose connection set G $\frac{1}{4}$, DN 16

- 1.4404 (AISI 316L) 2 x
- Order No. 51511590

Compressed air tube

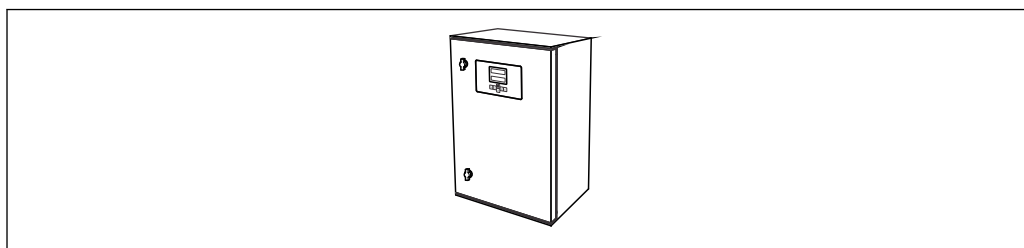
- 6 mm AD, length: 10 m (approx. 33 ft.)
- Material: PE
- Order No. 71114631

Pneumatic rinsing valve

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

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)

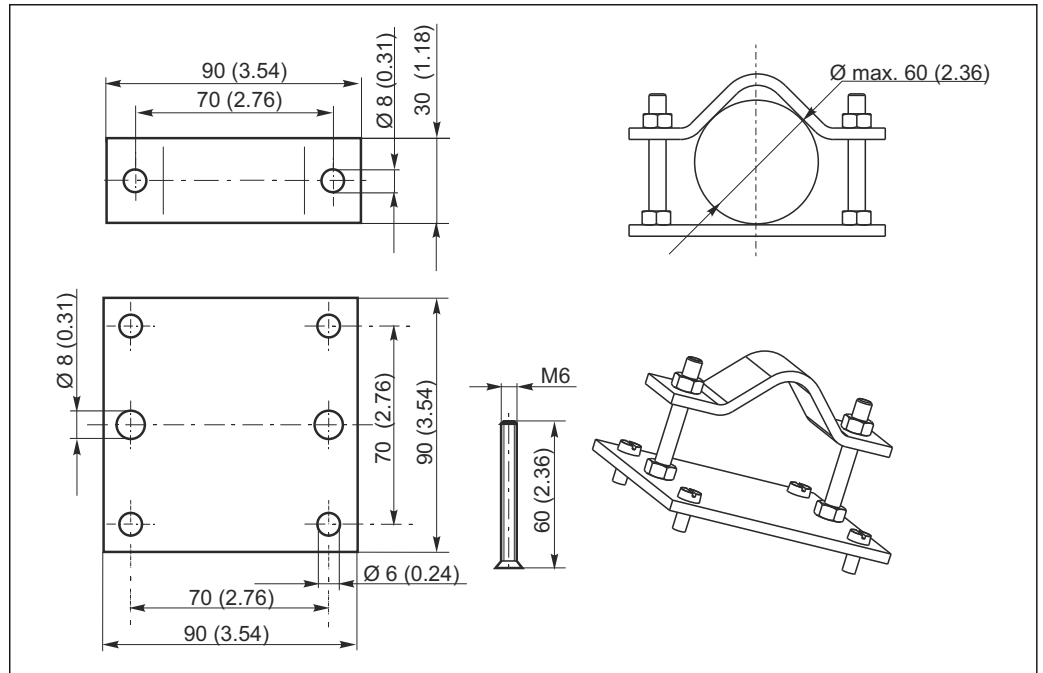


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13 Installation housing

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



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14 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

www.addresses.endress.com
