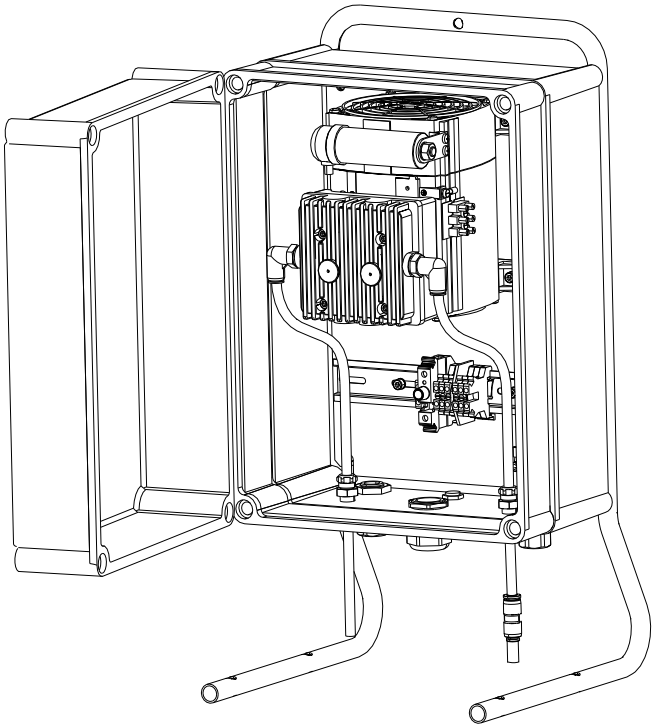
Level Pressure Flow Temperature Liquid Analysis Registration Systems Components Services Solutions

Operating Instructions

Compressed air cleaning unit – 115 VAC



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Endress+Hauser

People for Process Automation

Overview

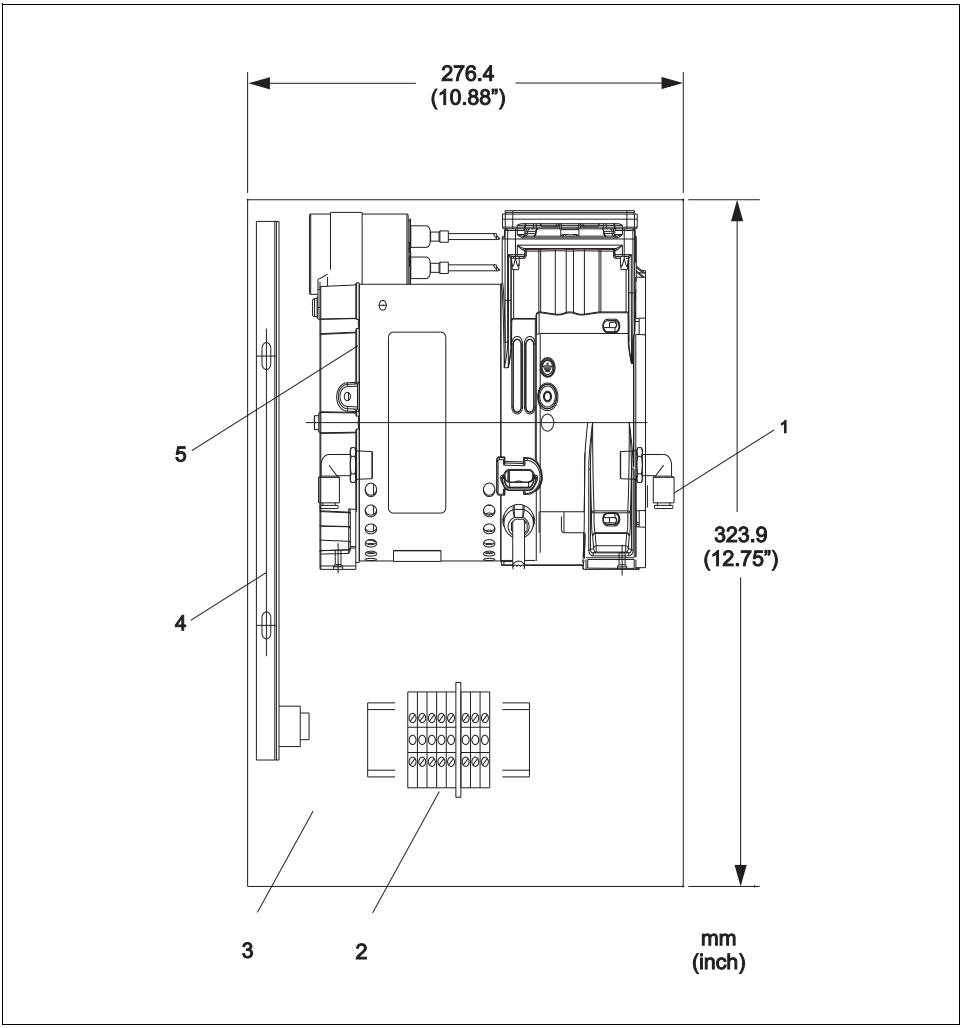

Fig. 1: Sensor installation - Front view

1 Fitting Bulkhead, 8 mm quick connect

2 Terminal strip

3 Sub panel

4 Heater

5 Air compressor

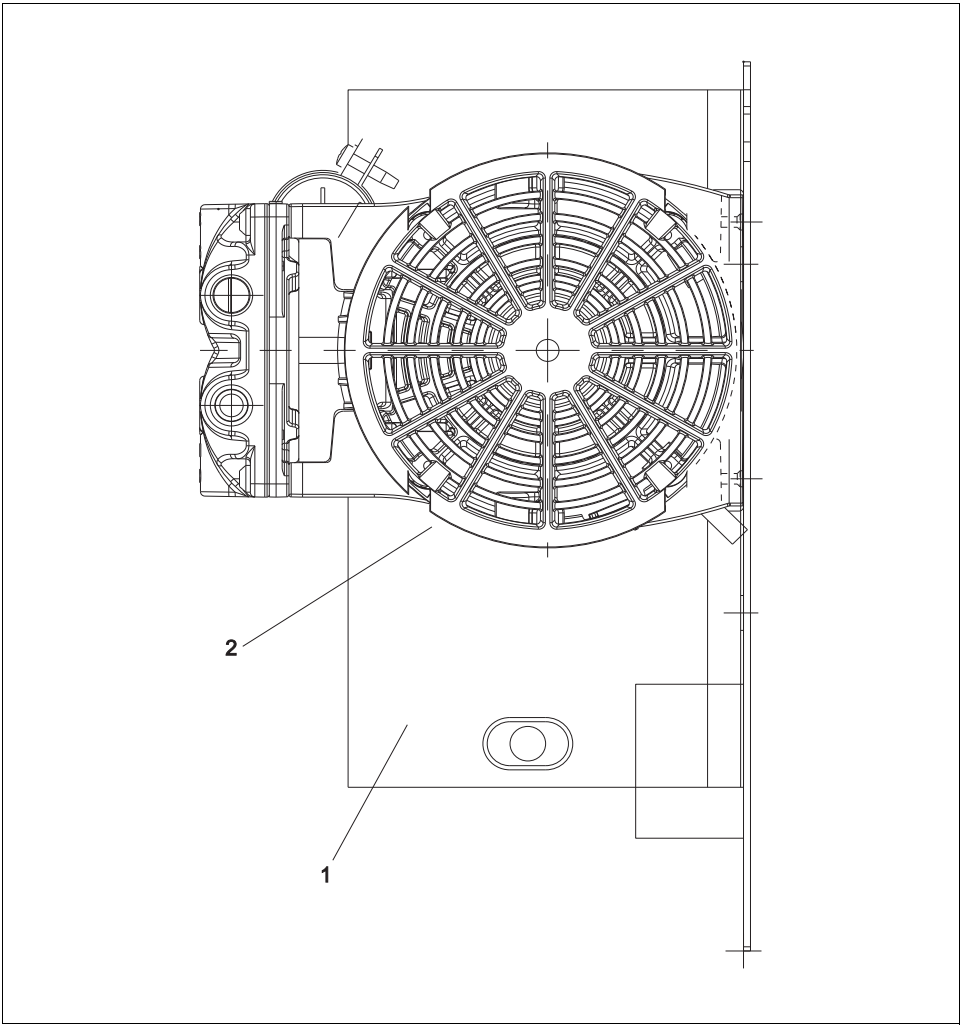

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Fig. 2: Sensor installation - Side view

1 Heater

2 Air compressor

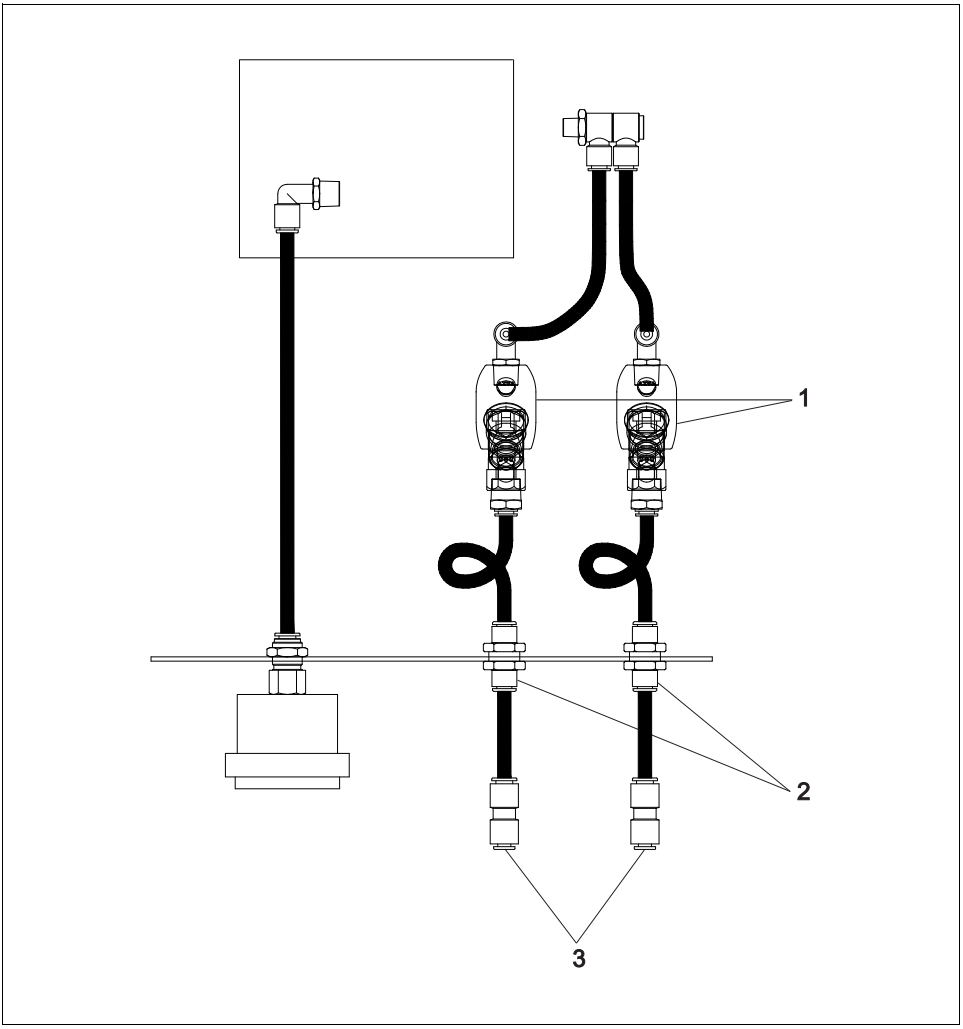


Fig. 3: Sensor installation - Connections

1 Solenoid valves

2 8 mm tube connection

3 8 mm to 6 mm tube connection

Table of contents

1 Safety instructions

1.1 Designated use

The product is designed for the cyclic cleaning of all sensors with compressed air. The cleaning intervals are controlled by the connected transmitter. This compressor unit has a flexible heater installed for freeze protection and condensation prevention.

Any other use than the one described here compromises the safety of persons and the entire measuring system and is not permitted.
The manufacturer is not liable for damage caused by improper or non-designated use.

1.2 Installation, commissioning and operation

Please note the following items:
- Installation, commissioning, operation and maintenance of the measuring system must only be carried out by trained technical personnel.
  Trained personnel must be authorized for the specified activities by the system operator.
- Electrical connection must only be carried out by a certified electrician.
- Technical personnel must have read and understood these Operating Instructions and must adhere to them.
- Before commissioning the entire measuring point, check all the connections. Ensure that electrical cables and hose connections are not damaged.
- Do not operate damaged products and secure them against unintentional commissioning. Mark the damaged product as being defective.
- Measuring point faults may only be rectified by authorized and specially trained personnel.
- If faults cannot be rectified, the products must be taken out of service and secured against unintentional commissioning.

1.3 Operational 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. Relevant regulations and standards have been observed.

As the user, you are responsible for complying with the following safety conditions:
- Installation instructions
- Local prevailing standards and regulations.

1.4 Return

Before returning, check the following: Talk to your Endress+Hauser Sales Center about the different modes of return.

1.5 Notes on safety icons and symbols

1.5.1 Embedded safety symbols according to ANSI

The structure, signal words and safety colors of the signs comply with the specifications of ANSI Z535.6 ("Product safety information in product manuals, instructions and other collateral materials").

Safety message structure	Meaning
⚠ DANGER **Cause (/consequences)** Consequences if safety message is not heeded ► Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the situation **will** result in a fatal or serious injury.
⚠ WARNING **Cause (/consequences)** Consequences if safety message is not heeded ► Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the situation **can** result in a fatal or serious injury.
⚠ CAUTION **Cause (/consequences)** Consequences if safety message is not heeded ► Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
NOTICE **Cause/situation** Consequences if safety message is not heeded ► Action/note	This symbol alerts you to situations that can result in damage to property and equipment.

1.5.2 Document symbols

→ 1 This symbol stands for a cross-reference to a certain page (e.g. Page 1).

→ 2 This symbol stands for a cross-reference to a certain graphic (e.g. Fig. 2).

Additional information, tips

Permitted or recommended

Forbidden or not recommended

2 Identification

2.1 Device designation

2.1.1 Nameplate

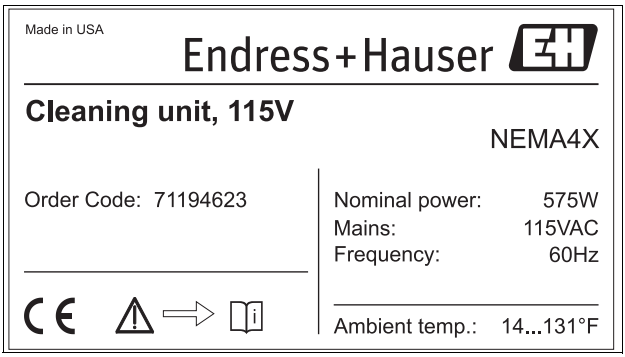


Fig. 4: Example of a nameplate

2.1.2 Material number

Cleaning unit in housing
- Material number: 71194623

2.2 Scope of delivery

The scope of delivery comprises:
- 1 complete cleaning unit
- 1 set of Mounting Struts and Clamps
- 1 set of Operating Instructions
- 1 set of 8 mm to 6 mm quick disconnect adapters
- 1 set of 6 mm OD tubing 6" long
- (2) 10 meter length of 8 mm (5/16") tubing

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

3 Installation

3.1 Incoming acceptance, transport, storage

- Make sure the packaging is undamaged!
  Inform the supplier about any damage to the packaging.
  Keep the damaged packaging until the matter has been settled.
- Make sure the contents are undamaged!
  Inform the supplier about damage to the contents. Keep the damaged products until the matter has been settled.
- Check that the order is complete and agrees with your shipping documents.
- The packaging material used to store or to transport the product must provide shock protection and humidity protection. The original packaging offers the best protection. Also, keep to the approved ambient conditions (see "Technical data").
- If you have any questions, please contact your supplier or your local sales center.

3.2 Installation conditions

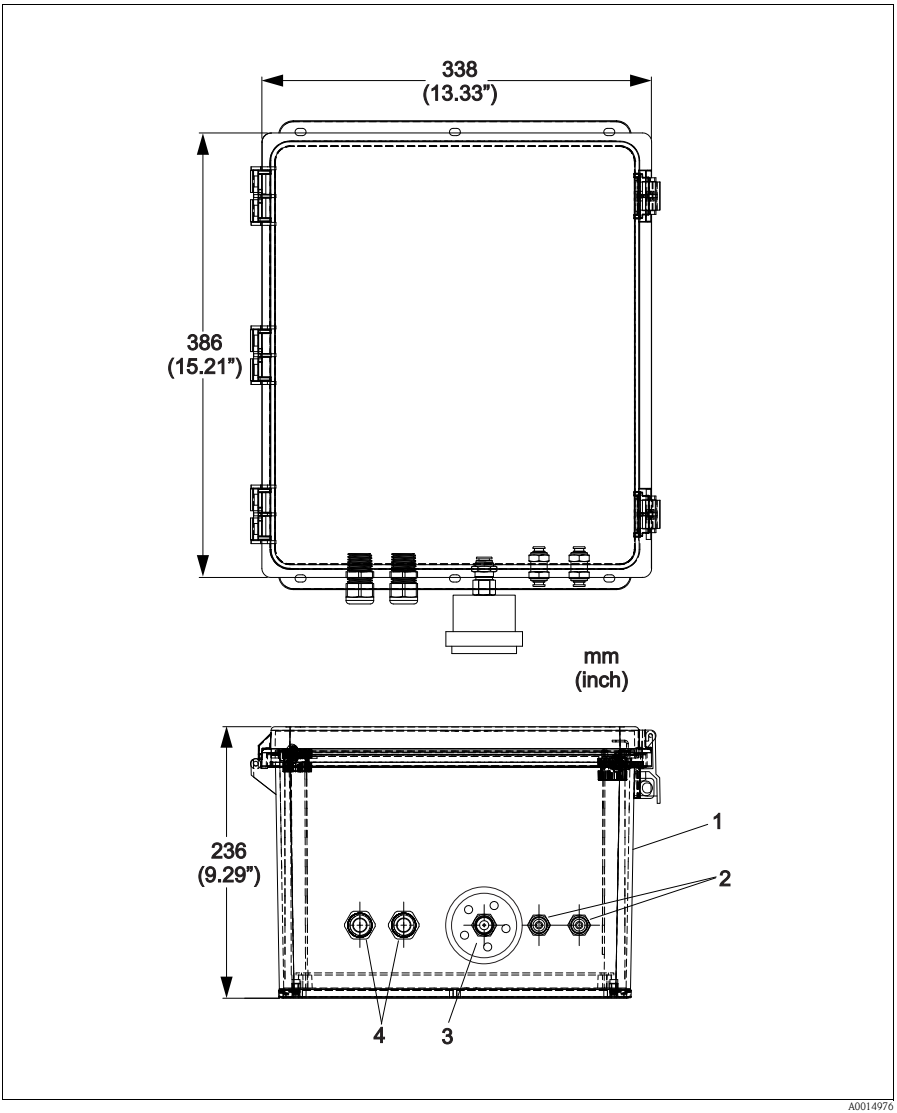


Fig. 5: Enclosure Detail

1 Enclosure, NEMA4X, Polycarbonate
2 (2) 8 mm quick connect
3 Filter silencer
4 Cable glands (2)

3.3 Installation instructions

Preferably mount the cleaning unit close to the measuring point.

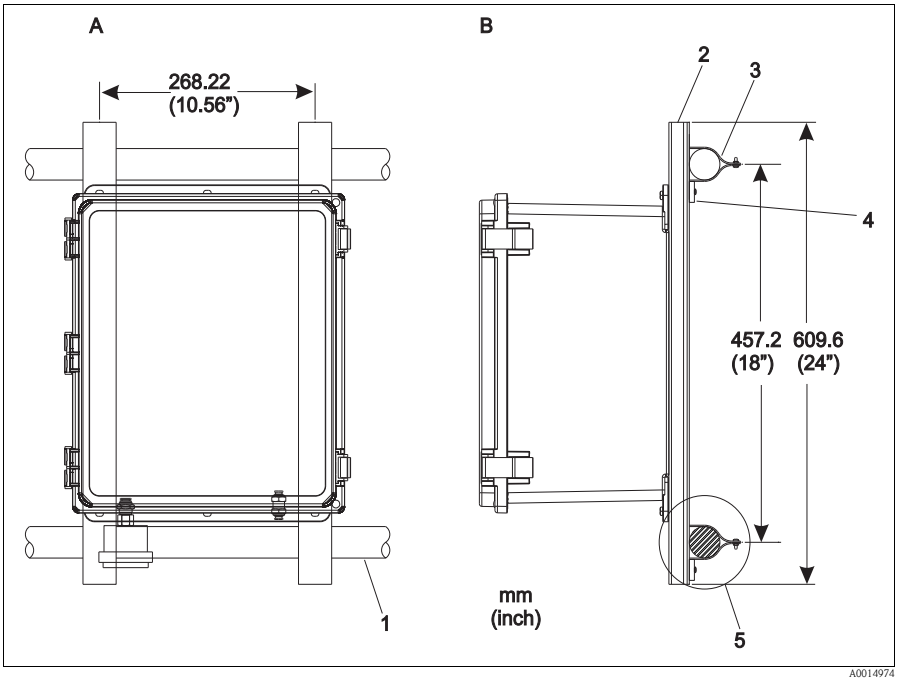


Fig. 6: Compressor Field Mounting Kit

A Rear view
1 Existing 1-1/2" diameter handrail

B Side view
2 Strut
3 Pipe clamp
4 Stock lock
5 Strut/clamp detail

Quantity	Item	Description
4	3	Pipe clamp, B-line, non-metallic, 38.1 mm (1.50") pipe diameter
2	2	Strut, B-line, fiberglass, 41.40 mm x 25.4 mm (1.63" x 1.00") solid black
2	4	Stop lock, non-metallic
4	-	Assembly hardware (4) nuts/bolts ss

You have the following installation options:
1. Secure the unit mounted on the strut frame. Material for floor mounting is not included.
2. Position the unit mounted on the frame on the railing or an upright post and secure to the railing/post with a pipe clamp.
3. Secure rails to backside of enclosure.
4. Bolt pipe clamp around handrail.

3.4 Post-installation check

- After mounting, check all the connections to ensure they are secure and leak-tight.
- Check all cables and hoses for damage.
- Check whether the cables are routed such that they are free from electromagnetic interference influences.

4 Wiring

⚠ WARNING

Device is energized

Inappropriate connection can cause serious injuries or death

► The electrical connection must only be carried out by a certified electrician.
► Technical personnel must have read and understood the instructions in this manual and must adhere to them.
► Ensure that there is no voltage at the power cable before beginning the connection work.

4.1 Supply voltage

115 VAC @ 60 Hz

⚠ CAUTION

The device does not have a main switch

► The customer must provide a fused power outlet near the cleaning unit.

4.2 Electrical connection to the transmitter

1. Connect the cleaning unit to the CM44X transmitter by using wiring diagram below.

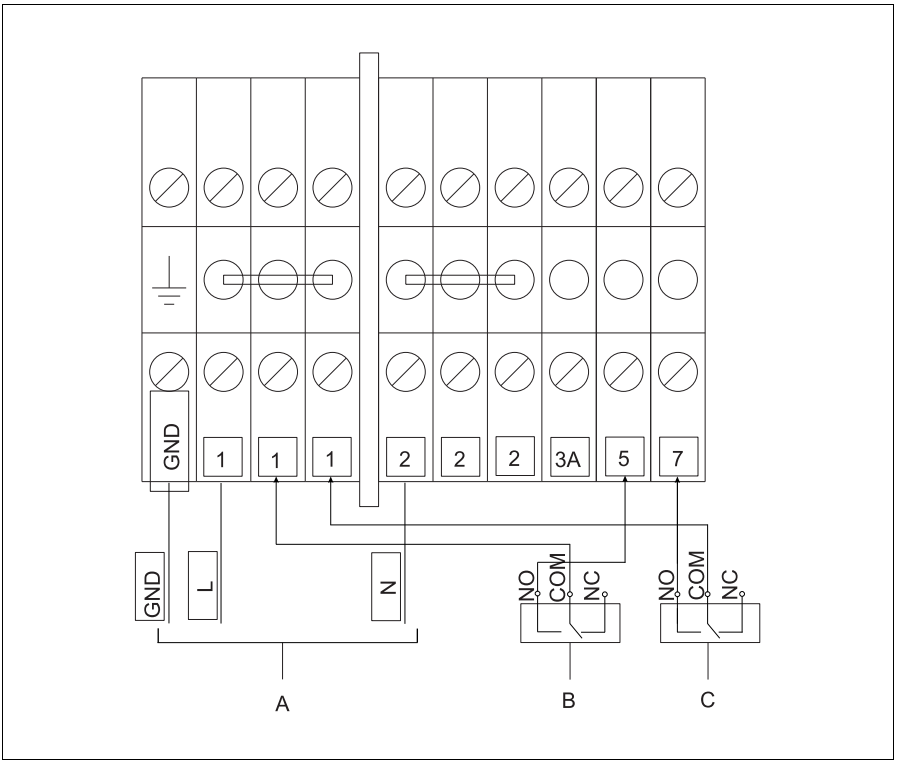


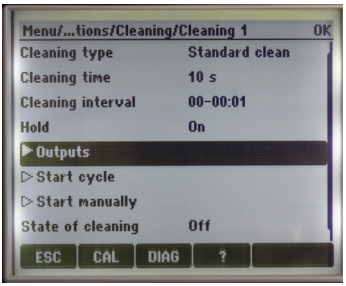
Fig. 7: Compressor point to point wiring diagram

A	*115 VAC Input*	*NO = normally open*	*GND = Ground*
B	*Relay 1 Liquiline CM44x*	*NC = normally closed*	*L = Line*
C	*Relay 2*	*COM = common*	*N = Neutral*

4.3 Post-connection check

Checks	Notes
Is the supply voltage correct?	115 VAC
Are the installed cables strain-relieved and not twisted?	
Are all the cable entries installed, tightened and sealed?	

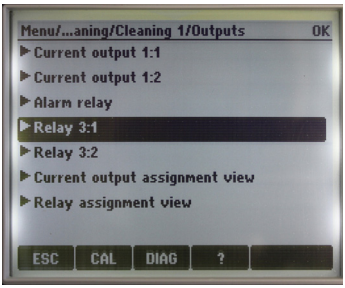
4.4 CM44X cleaning program setup

Function	Display
■ Press the menu button, go to 'Setup' and press the navigator to enter. ■ Toggle down to 'Additional functions' and press enter. ■ Toggle down to 'Cleaning' and press enter. ■ Choose one of the four cleaning functions available. The 'Cleaning 1' mode for a Dissolved Oxygen sensor will be used in this example. Press enter on 'Cleaning 1'. ■ Set up cleaning type as 'Standard clean'. ■ Set up 'Cleaning time' to '15 s' (seconds). ℹ 15 seconds is long enough for most applications. ■ Set up 'Cleaning interval' to every or every hour. Enter 00-01:00. ℹ Set 'Hold' to 'On'!	 A0019495

Function

- Select 'Outputs'. In this mode a relay can be programmed which can be used to start the cleaning device (e.g. a compressor).
- Toggle down to the relay that will be used to control the air compressor and press enter. 'Relay 3:1' will be used in this example.
- Set 'Function' to 'Cleaning'.
- Set 'Assignment' to 'Cleaning 1 – Water'. The setting here must match the 'Cleaning 1' (or the cleaning function you previously set up).
- Use 'ESC' (Escape) to back out to the 'Cleaning 1' menu (this puts you back to the cleaning functions).

Display



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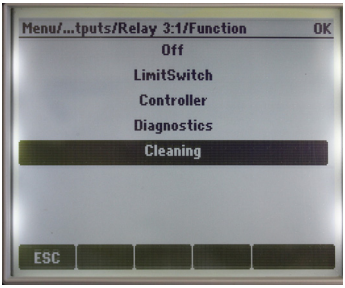

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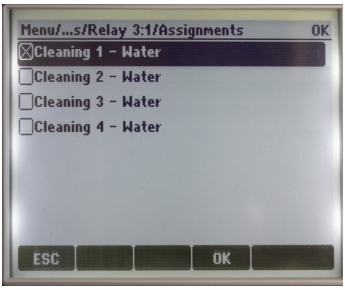

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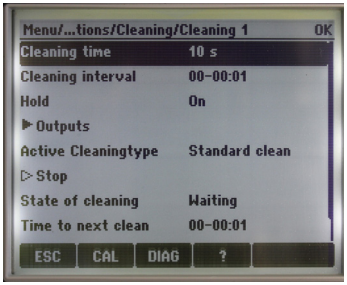
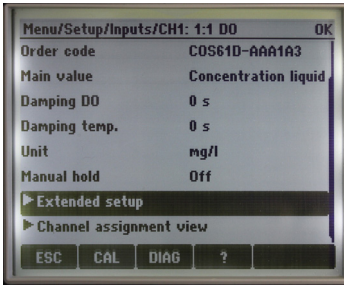
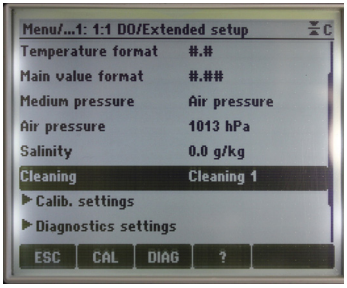
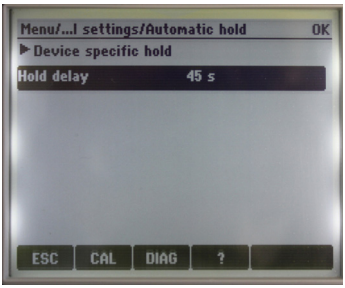
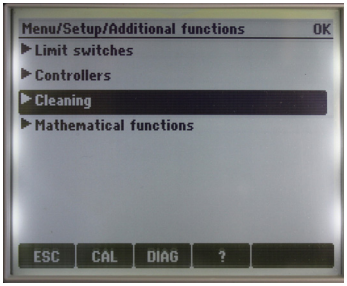
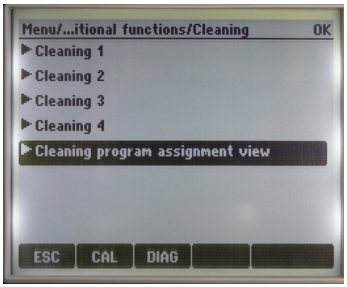
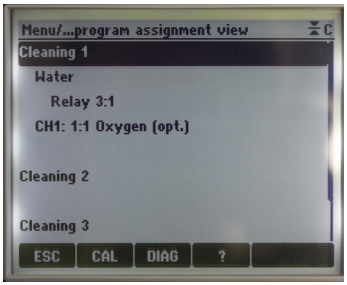
Function	Display
■ Toggle down and select 'Start cycle' if you want to start cleaning. It is usually done after commissioning is completed and the instrument is put into operation. ■ You can use this part of the setup menu to force a cleaning to begin. When the 'Start cycling' is activated, this display will show 'Stop' and 'State of cleaning – Waiting or on'. If you click on 'Stop', 'Start cycling' and 'Start manual' will appear. Choosing either one will start a cleaning cycle (manual will start only one cleaning cycle). ■ Use 'ESC' to back out of the cleaning functions – additional functions and go back to the 'Menu/Setup menu'.	 A0019505
■ Enter 'Inputs'. ■ Choose the DO input that will be cleaned by the 'Cleaning 1' function (e.g. CH1: 1:1 Oxygen). 'Cleaning 1' could be used on multiple measurement channels. ■ Toggle down to 'Extended setup', press enter. Then toggle down to 'Cleaning', press enter and set it to 'Cleaning 1' (or the cleaning function you previously set up). ■ Use 'ESC' to back out of the Setup functions and go back to the Menu/Setup menu.	 A0019506  A0019507

Function	Display
■ Enter 'General settings'! ■ Toggle down to 'Automatic hold' and press enter. ■ Toggle down to 'Hold delay' and press enter in the desired hold delay, e.g. 120 seconds.	 A0019508

Function	Display
■ Go back to 'Setup/Additional functions' and select 'Cleaning'. Toggle down to 'Cleaning program assignment view' and select it. ■ Select the cleaning program you have setup and make sure all functions which need to be held are indicated under the appropriate cleaning program.	 A0019509  A0019510  A0019511

When selecting cleaning time and cleaning interval for (2) channels, the (2) channels must have different cleaning intervals.

5 Commissioning

5.1 Function check

⚠ WARNING

Leaks may occur if hose connections are not secure.

► Check that all connections are secure.

► Ensure that the power supply voltage corresponds to the voltage specified on the nameplate!

5.2 Switching on the unit

⚠ WARNING

Risk of electric shock

► Before you open the housing, disconnect the device from the line voltage and secure it against being switched on unintentionally.

⚠ WARNING

Danger! Hot surface!

► The surface of the compressor can become very hot. Wear protective gloves when touching the housing.

⚠ CAUTION

► Use the unit to transport air only. The cleaning unit should never be used to transport liquids or aggressive and/or toxic media.

► Protect the device against splash water and excessive dust.

6 Technical data

6.1 Electrical connection

6.1.1 Power consumption

Electrical	Compressor	Heater
Motor voltage/Frequency	115 VAC/60 Hz	115 VAC/60 Hz
Motor type	Permanent split	
Current at rated load	3.6 A	2.9 A
Power at rated load	325 W	250 W

465 VA (compressor only)
820 VA (compressor with heater)
Preset heater close/open settings 5°C (40°F) heat on, 10°C (50°F) heat off

6.2 Performance characteristics

6.2.1 Delivery rate

PSI	CFM	LPM
00	1.6	45.3
10	1.48	42.8
20	1.37	40.5
30	1.29	38.4
40	1.21	36.8
50	1.13	33.5
60	1.05	27.3
70	0.98	21.1

Max. continuous pressure 100 PSI

6.2.2 Utilization interval

Max. 3 minutes cleaning, break of at least six times the cleaning time

6.3 Environment

6.3.1 Ambient temperature range

-10 to +55 °C (+14 to +131 °F)

6.3.2 Overheat control

Automatic switch-off at T > 130 °C (266 °F) in the motor (winding sensor)

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