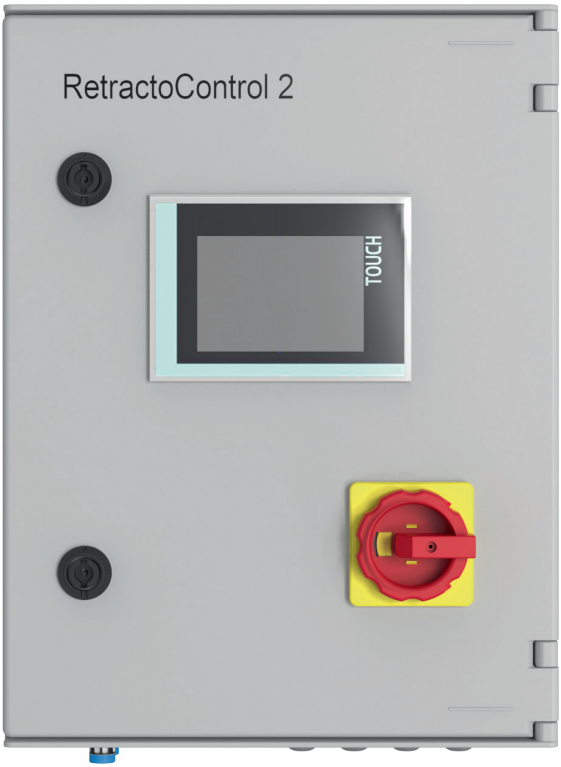
HAMILTON

RetractoControl 2

Control unit for retractable probe housings

Operating Instructions



Hamilton Warranty

Please refer to the General Terms of Sales (GTS).

Important note

Contents of this manual can be modified without previous announcement. Technical modifications reserved. The greatest possible care was used on the correctness of the information in this manual. If errors should be discovered nevertheless, Hamilton Bonaduz AG is pleased to be informed about it. Regardless of this, Hamilton Bonaduz AG cannot assume liability for any errors in this manual or for their consequences.

1 General Information

The operating instructions enable the safe and efficient handling of the control unit Retracto-Control 2.

The operating instructions belong to the product and must be stored in its direct vicinity and easily accessible to the staff at all times. Before starting any work, the staff must read these operating instructions carefully and understand them.

If these operating instructions incorporate documentation from suppliers (as an attachment), Hamilton Bonaduz assumes no guarantee for its contents, individual statements, technical data, etc.

1.1 Depiction of information

For simplified and safe work with these operating instructions, uniform safety instructions and symbols are used.

Safety instructions

Safety instructions protect against injury to persons and damage to property. The measures described for averting danger must be adhered to.

The safety instructions are structured as follows:

NOTE: Important instructions or interesting information.

⚠ ATTENTION! Essential information for avoiding personal injury or damage to the equipment.

2 Safety and protection measures

2.1 General safety instructions

The probe housing control unit RetractoControl 2 is designed in such a way that no hazards occur if the operating instructions of the product are observed.

- Read the operating instructions first.
- Install and operate the probe housing control unit only if you have read and understood all instructions on safe and proper use.
- Keep the operating instructions in a safe place in order to be able to consult them at all times.
- Use the probe housing control unit and accessories only in proper and faultless condition.
- Never carry out cleaning via the connected cleaning valves without an installed sensor.
- Do not operate the probe housing control unit and accessories in potentially explosive atmospheres.
- In addition, also observe the laws, ordinances, regulations and standards applicable in the country of use and at the place of use.

2.2 Intended use

The RetractoControl 2 probe housing control unit is used to control pneumatic retractable probe housings. The RetractoControl 2 controls the motion of the probe housing from “measuring” position to service position and the sequence of automatic sensor cleaning in the cleaning chamber of the probe housing.

The electro-pneumatic control unit must be adapted to the retractable probe housing in use.

The control unit requires regular maintenance.

- Prepare a maintenance schedule for the respective process.
- Only carry out the maintenance described in the operating instructions.
- Use the control unit only with pneumatically operated retractable probe housings with integrated mechanical retract protection.
- The housing of the RetractoControl 2 control unit may only be installed in weather-protected locations and the door must always remain closed.
- Before commissioning, check the cable screw connections at the housing for proper connection. Only this way, correct protection against dirt and humidity can be ensured.
- Any modifications of the control unit require prior approval by the Hamilton Bonaduz AG.

NOTE: Hamilton Bonaduz AG is not liable for damages arising from improper or unintended use.

2.3 Hazard zones and residual hazards

Probe housing control units serve for the control of retractable probe housing connected to pressurized tanks and pipelines. Process liquid can only leak in case of negligent action or incorrect operation.

- Before commissioning, ensure that the connected retractable probe housing and the cleaning valves used are suitable and functional.
- When selecting cleaning media, the media resistance of the components used must be checked.
- Carefully read the operating instructions for the used retractable probe housing and observe the safety instructions included.
- Take suitable protective measures before commissioning the probe housing control unit or connecting it to the retractable probe housing.

2.4 Equipment and accessories

Only use tested and approved accessories and equipment.

Supply voltage

Ensure correct supply voltage and observe the information in Chapter 3 “Technical data”.

Compressed air

Filter (40 µm), clean and de-oil the compressed air.

Ensure that the pressure is 6 bar.

Cleaning liquid /cleaning agent for the process connection

Choose compatible cleaning fluid and cleaning agents according to the process, probe housing and sealing material, and dispose of them in an environmentally sound manner.

2.5 Requirements of the Operator

Qualification

Operation and maintenance of the probe housing control unit may only be carried out by qualified personnel.

Personal protective equipment

During commissioning and maintenance work, the operating staff is always required to wear personal protective equipment (PPE).

Accident prevention regulations (UVV)

Please observe the valid rules and regulations concerning occupational safety in the country and place of use.

3 Technical data

3.1 Standards

The following standards were applied when manufacturing the retractable probe housing:

> Programmable controllers - Part 2: Equipment requirements and tests EN 61131-2

3.2 Pneumatics

Pneumatic hoses	Ø - external	Ø - internal
For compressed air supply	8 mm	6 mm
For control air	6 mm	4 mm
For position feedback	4 mm	2 mm

3.3 Dimensions

Dimensions	Plastic	Stainless steel
Width	300 mm	300 mm
Height	400 mm	400 mm
Depth	250 mm	250 mm

3.4 Environmental conditions

Temperature	Ambient temperature	0…55 °C / 32...131°F	
	Transport and storage temperature	-10…60 °C / 14...141°F	
Environment	Relative humidity	10… 95 %	Non-condensing
Protection class	Housing with display	IP 54	With guard door closed

3.5 Connection values

Electrical connection values		
Voltage supply	24 V DC (± 10%)	30 VA
Input for external contacts	24 V DC	Self-supply for floating contact
Maximum current consumption	1.6 A	
Output for external relay, Cleaning pump I, II and III	24 V DC	Max. 250 mA
Output for status and alarm contacts	24 V DC	Max. 100 mA

3.6 Cleaning valves (optional)

Compressed air
According to ISO8573-1:2010 [5:4:4]
Filtered, 40 µm, water and oil-free
6 bar
No continuous air consumption

3.7 Identification plate

Figure 1: Identification plate

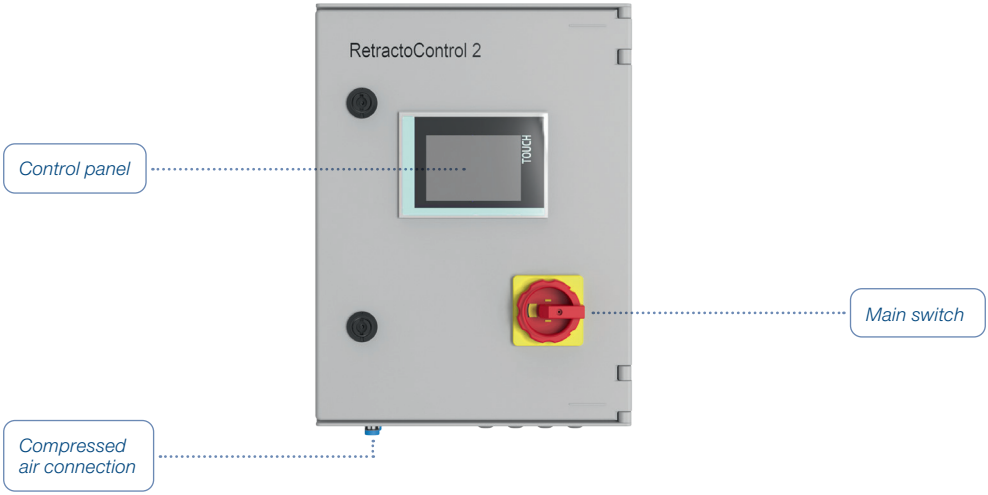
The identification plate is located on the inside of the cabinet door.

In case of queries, please contact Hamilton Technical Support.

4 Product description

4.1 RetractoControl 2 electro-pneumatic control unit

External view



Internal view

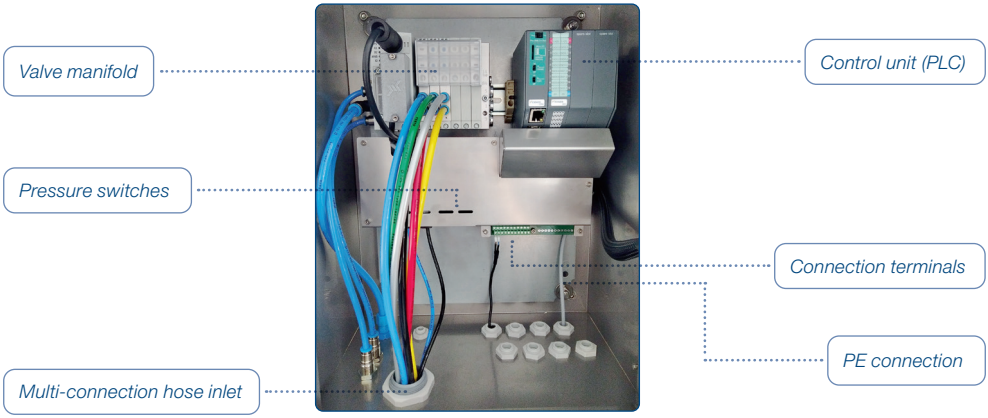


Figure 2: Control unit from the inside

Function

The probe housing control unit RetractoControl 2 enables fully automatic control and monitoring of measuring and cleaning cycles of pneumatic retractable probe housing. Cleaning times, measuring intervals and start times can be parameterized and adjusted to individual requirements.

Input

The control unit monitors the respective position feedback from the retractable probe housing via integrated inputs.

Automatic cleaning can be started via an additional input.

Output

The respective status of the retractable housing and the control unit can be transmitted to a superordinate process control system via four contact outputs.

Retractable probe housing

The retractable probe housing and cleaning valves for control of the cleaning solution are connected to the probe housing control system via pneumatic hoses. This shall be realized via the dedicated supplied connection hose.

4.2 Process integration

The RetractoControl 2 probe housing control unit is supplied with 24V DC and compressed air with a pressure of 6 bar. Connection to the retractable probe housing and the cleaning and drain valves is realized via pneumatic hoses which are bundled in a multi-connection hose.

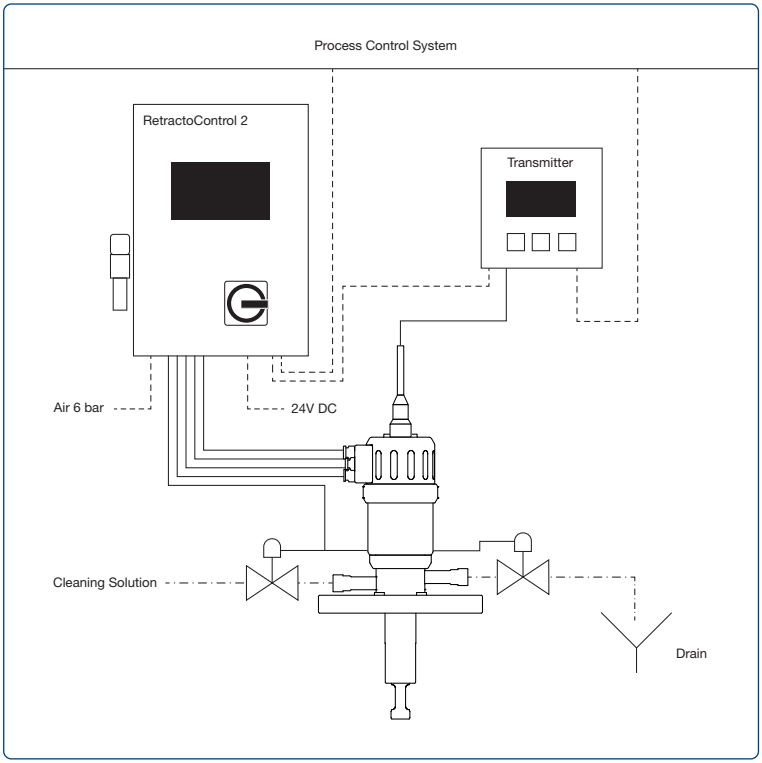


Figure 3: Process flow

The respective status of the measuring unit (alarm status, measuring status, cleaning status or position service) can be reported via contacts to a superordinate process control system.

Cleaning cycles can be started via an external contact, e.g. from the pH transmitter.

The RetractoControl 2 probe housing control unit is fully independent and can be operated from a transmitter or process control system without any connection.

The probe housing control unit features a manual as well as an automatic mode. In manual mode, motion of the retractable probe housing and the individual cleaning valves can be controlled manually.

In automatic mode, a parameterized cleaning process runs after a cleaning cycle is started. After its completion, the retractable probe housing moves to “Measuring” position.

5 Delivery

5.1 Scope of delivery

The probe housing control unit is inspected at the factory and delivered ready-for-installation in packaging which provides optimum protection of the control unit.

The delivery includes:

- RetractoControl 2 probe housing control unit
- Key for control cabinet
- Operating instructions

Depending on order fulfilment, you also receive:

- Connection hose (with mounting bracket)

Tip: Keep the control unit inside its packaging. This ensures optimum protection until installation.

5.2 Check the delivery

Before you release the probe housing control unit for assembly, ensure the following:

- The packaging and device are in perfect condition.
- The probe housing control unit identification plate (Chapter 3.8) complies with the order specifications.

6 Assembly

6.1 Wall assembly

Requirements:

- Sufficient space is available for operation of the probe housing control unit
- Current-free switching of potential voltage providers (power is turned off)
- Use exclusively of approved tools

Procedure:

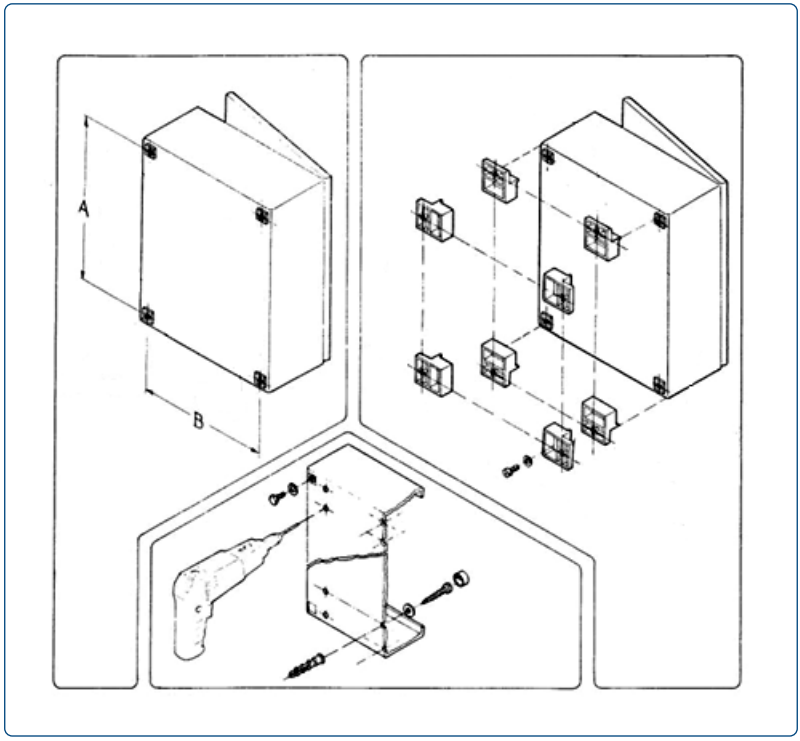


Figure 4: Wall assembly

	Dimensions
Stainless steel	A = 35 cm B = 25 cm
Plastic	A = 34.8 cm B = 27.3 cm

6.2 Electrical connections

NOTE: The probe housing control unit must be switched current-free (power turned off) and the compressed air connections depressurized!

⚠ ATTENTION! If the voltage supply and compressed air supply are not disconnected, there is a risk of life!

Connect the probe housing control unit according to the connection diagram:

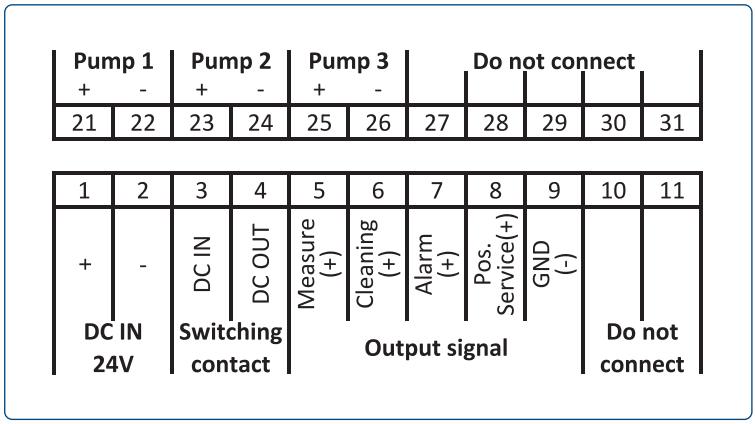


Figure 5: Connection diagram

Terminal pin assignment:

Contact	Description
1	Voltage supply 24VDC 30VA +
2	Voltage supply 24VDC 30VA -
3	Switching contact/trigger (24VDC IN - / self-sustaining)
4	Switching contact/trigger (24VDC OUT + / self-sustaining)
21	Output 24VDC max. 250mA pump I +
22	Output 24VDC max. 250mA pump I -
23	Output 24VDC max. 250mA pump II +
24	Output 24VDC max. 250mA pump II -
25	Output 24VDC max. 250mA pump III +
26	Output 24VDC - max. 250mA pump III
27 – 31	Do not connect
5	Output 24VDC max. 100mA measurement / holding +
6	Output 24VDC max. 100mA cleaning active +
7	Output 24VDC max. 100mA alarm / malfunction +
8	Output 24VDC max. 100mA service position +
9	GND -
10 & 11	Do not connect

6.3 Pneumatic ports

Ports not required at the valve manifold must be properly sealed before commissioning.

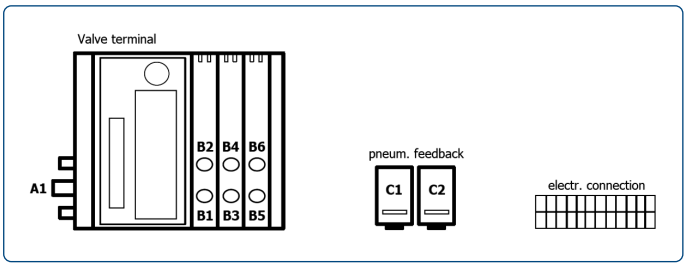


Figure 6: RetractoControl 2 connection

Figure 7: Probe housing connection

Multi-connection hose

RetractoControl 2 connection	Hose Size/colour	Probe housing connection	Comment
B1	6 mm black	1	Service
B2	6 mm blue	2	Measurement
B3	6 mm red	-	Drain valve
B4	6 mm yellow	-	Cleaning I
B5	6 mm green	-	Cleaning II
B6	6 mm grey	-	Cleaning III
C1	4 mm blue	4	Measure feedback
C2	4 mm black	3	Service feedback

Supply

Control unit port	Hose dimensions	Comment
A1	8 mm	Air filtered, 40 µm, water and oil-free 6 bar

6.4 Cleaning valve ports

Cleaning valves (optional)

Port	Dimension	Description
Compressed air	4/6 mm	A
Flushing medium inlet	Hose screw connection 4/6 mm or 3/8“	B
Flushing medium outlet	Hose screw connection 4/6 mm or thread 3/8“	C

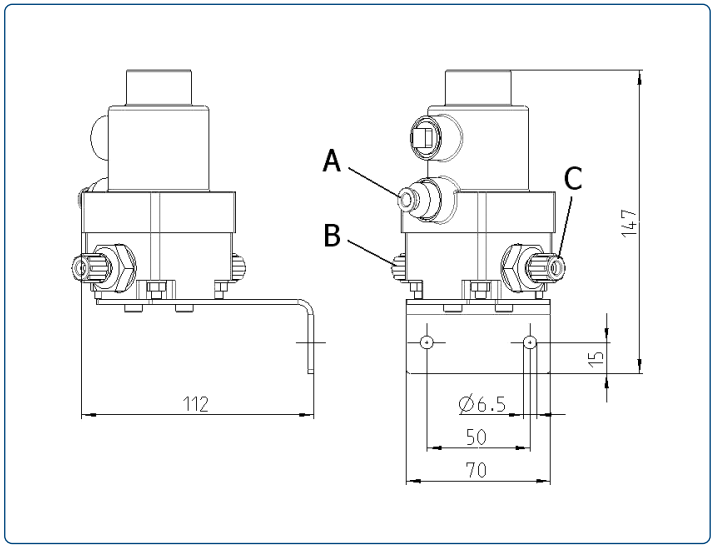


Figure 8: Cleaning valves

The valves shall be installed at a max. distance of 0.5 m from the probe housing.

7 Program functions

7.1 Automatic start of cleaning

There are 3 different ways to start an automatic cleaning cycle.

Loop

Based on the internal clock, a repeating parameterised cycle is run (loop). Cleaning is then automatically started after an adjustable measuring time; for example, every 4 hours. After completion of cleaning, the retractable probe housing is set to “Measuring” position and the cycle is restarted.

External Trigger

Cleaning is started via an external contact (external trigger). After completion of cleaning and opening of the external contact, the retractable probe housing is set to “Measuring” position and remains there until the external contact is closed again.

Loop + Trigger

As described, cleaning is executed in a fixed cycle (loop). Additionally, extra cleaning can be started via an external contact and the retractable probe housing can be held in the cleaning position. This is used to keep the probe watered during standstill periods for interruption of the fixed cycle of to retract the probe into the cleaning chamber for protection while a powerful agitator is running in the tank. It must be observed that the time for the loop is restarted after opening of the trigger

7.2 Sealing water

If the retractable probe housing is set from the “Measuring” position to “Cleaning” position or back to “Measuring” position, a connection between the measuring medium and the cleaning chamber is established for a short period in which the measuring window runs over the sealing elements. To reduce introduction of measuring medium into the cleaning chamber to a minimum and enable additional cleaning of sealing elements during this period, the sealing water function can be parameterized.

Function

If the sealing water function is activated, the “Cleaning I” valve is always opened before the retractable probe housing is moved. This means that the water (sealing water) runs through the cleaning chamber to the process while the retractable probe housing is moving, thus prevent-

ing that the measuring medium enters the cleaning chamber. At the same time, the sealing elements for the cleaning chamber are cleaned. It must be ensured that the water pressure connected to the “Cleaning I” valve is higher than the process pressure.

The sealing water function provides better cleaning of the probe, maintenance of the sealing elements and therefore increases the service life of the sensor and seals. If possible, the function should always be activated.

If ingress of sealing water into the measuring medium is not desired or admissible, the sealing water function can be deactivated. This exerts no influence on the basic function of the retractable probe housing and the control unit.

7.3 Cleaning program

If a cleaning program is started (see Chapter 7.1), the following functions or cleaning steps are executed in sequence:

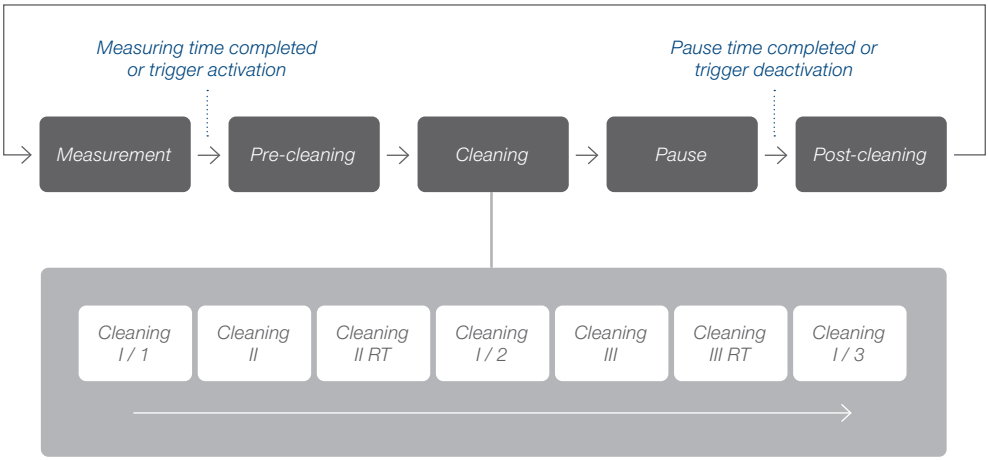


Figure 9: Program sequence

Cleaning I / 1

Cleaning with cleaning solution 1., e.g. water.

The “Cleaning I” valve and the drain valve are opened and then closed after the set time (10...300 sec.).

With opening of the “Cleaning I” valve, a feed pump can be triggered via an output contact (nos. 21 & 22).

Cleaning II

Cleaning with cleaning solution 2., e.g., acid.

The “Cleaning II” valve and the drain valve are opened and then closed after the set time (0...300 sec.). If the time is set to “0”, this program step is deactivated.

With opening of the “Cleaning II” valve, a feed pump can be triggered via an output contact (nos. 23 & 24).

Cleaning II RT

Reaction time for cleaning solution 2.

Cleaning II RT is a reaction time for cleaning solution 2 and intended to enable the reaction of, for example, cleaning acid introduced into the cleaning chamber.

All cleaning valves and the drain valve remain closed. After the set time (0…300 sec.), the next program step follows. If the time is set to “0”, this program step is deactivated.

Cleaning I/2

Cleaning with cleaning solution 1., e.g., water.

The “Cleaning I” valve and the drain valve are opened and then closed after the set time (0...300 sec.). If the time is set to “0”, this program step is deactivated.

With opening of the “Cleaning I” valve, a feed pump can be triggered via an output contact (nos. 21 & 22).

Cleaning III

Cleaning with cleaning solution 3., e.g., air

The “Cleaning II” valve and the drain valve are opened and then closed after the set time (0...300 sec.). If the time is set to “0”, this program step is deactivated.

With opening of the “Cleaning III” valve, a feed pump can be triggered via an output contact (nos. 25 & 26).

Cleaning III RT

Reaction time for cleaning solution 3.

All cleaning valves and the drain valve remain closed. After the set time (0…300 sec.), the next program step follows. If the time is set to “0”, this program step is deactivated

Cleaning I / 3

Cleaning with cleaning solution 1., e.g., water.

The “Cleaning I” valve and the drain valve are opened and then closed after the set time (0...300 sec.). If the time is set to “0”, this program step is deactivated. The value shall also be set to “0” if the cleaning solution III is air for drying.

With opening of the “Cleaning I” valve, a feed pump can be triggered via an output contact (nos. 21 & 22).

Pause

If the sensor shall **not** be driven back into the process directly, the pause time must be activated.

This is particularly appropriate for highly aggressive measuring media considerably which reduce the service life of the sensor. In this case, the immersion duration of the sensor can be reduced to a minimum by means of short measuring intervals and long pause times, thus increasing the service life of the sensor.

The sensor remains inside the cleaning chamber and all cleaning valves and the drain valve remain closed. After the set time (0…999 min.), the probe is driven to “Measuring” position. If the time is set to “0”, this program step is deactivated.

Measuring time delay

The “Measure / Hold” output signal is only issued after the time set here has elapsed (regardless of whether post-cleaning is activated). The aim of the delay in the signal output is to stabilize the measurement value in the process after the installed sensor has been cleaned. If the time is set to “0”, this program step is deactivated.

Measurement

Measuring interval for parameterization “Loop” or “Loop + Trigger”.

The sensor is set to Measurement position and remains there for the set time (10…999 min.). After this interval has elapsed, the next cleaning cycle is started. The measuring time can be interrupted by the external contact for “Loop + Trigger” parameterization. With this trigger, the measuring time is restarted.

7.4 Pre-cleaning and post-cleaning

The pre-cleaning and post-cleaning functions enable cleaning of the cleaning chamber of the retractable probe housing in addition to the normal cleaning cycles.

Pre-cleaning

The Pre-cleaning function is a flushing function for (pre-)cleaning of the cleaning chamber while the probe is still in “Measuring” position. For example, during hot water flushing, this ensures that the cleaning chamber is already heated before the actual cleaning and hot flushing medium is directly available. Another application is cleaning of the cleaning chamber section before direct contact between process medium and housing components by shifting of the probe housing. This is particularly desirable if the sealing water function cannot be used, e.g. for specific food and pharmaceuticals applications.

Post-cleaning

The Post-cleaning function is a flushing function for (post-) cleaning the cleaning chamber while the sensor is already back in “Measuring” position after normal cleaning.

The programs for pre-cleaning and post-cleaning can be individually activated by the user. The applied times are identical to the cleaning programs for standard cleaning already configured.

NOTE: The individual cleaning steps are activated by entering a time period. If no time period is entered, the respective cleaning step remains deactivated.

Program contents:

- Program I: Cleaning I + Cleaning I/1
- Program II: Cleaning II + Cleaning II RT + Cleaning I/2
- Program III: Cleaning III + Cleaning III RT + Cleaning I/3

7.5 Output signals

The control unit features 4 output signals for transmission of status notifications to a superordinate process control system. The respective output signals can be assigned the following functions.

Output signal I

Measuring / Holding

Measuring: This contact signals that the current measuring value may be used. The signal is set (+24VDC, max. 100mA at contact terminal 5) if the probe housing is in “Measuring” position and a measuring process takes place.

The signal is activated if the probe housing has reached the Measuring position, the sealing water and post-cleaning functions and the measurement time delay are completed.

The signal is deactivated before the cleaning cycle is started, including sealing water and pre-cleaning function or if the probe housing is manually set out of the Measuring position.

Holding: This contact serves for freezing of the measuring value while the retractable probe housing is not in the “Measuring” position and the displayed measuring value is not up-to-date. The signal is set (+24VDC, max. 100mA at contact terminal 5) if the probe housing is not in “Measuring” position.

The signal is activated, before the cleaning cycle is started, including the sealing water and pre-cleaning functions or if the probe housing is manually driven to from the Measuring position.

The signal is deactivated, as soon as the probe housing has reached the Measuring position, the sealing water function and the measurement time delay are terminated.

The two functions cannot be used simultaneously!

Output signal II

Cleaning in progress

The signal indicates that a cleaning function is being executed by the unit.

Normal: The signal is activated (+24VDC, max. 100mA on contact terminal 6) if a cleaning function is being executed, also during pre-cleaning and/or post-cleaning.

Inverted: With the selection of this function, the signal is inverted, i.e., the signal is not set if a cleaning function is executed nor during pre-cleaning and/or post-cleaning. In all other cases, the signal is set.

Output signal III

Alarm / Malfunction

The signal indicates that an error has occurred.

Normal: The signal is activated (+24VDC, max. 100mA on contact terminal 7) if the probe housing has not reached its respective end position or the compressed air supply fails.

Inverted: With selection of this function, the signal is inverted, i.e., the signal is not set if an error occurs. In all other cases, the signal is set.

Output signal IV

Sensor position

The signal indicates whether the sensor is in “Measuring” or “Service” position. The signal is always **active** (+24VDC, max. 100mA on contact terminal 8) if the probe housing is in “Service” position. Inversion of the signal is not possible.

Active signals depending on the respective process step:

Process step	Outlet signals
Sensor cleaning	II & IV
Pause	IV
Sealing water	II
Post-cleaning	II
Measurement	I
Pre-cleaning	II

8 Commissioning, Quick setup

⚠ ATTENTION! Danger of scalding or chemical burn on the probe housing.

Process or cleaning liquid can escape through open pipes. Depending on the liquid's properties, you may incur scalding or chemical skin burns.

- **Wear personal protective equipment (eye protection and protective clothing).**
- **Read the operating instructions before commissioning the control unit**
- **Before starting the process, check all the probe housing seals and connections**

NOTE: Wear appropriate PPE (goggles and protective clothing etc.) when commissioning the system.

Quick setup serves for quick parameterization of the control unit during commissioning. The menu can only be run through once. All settings can be accessed and adjusted later in the main menu under Parameters and System (see Chapter 9.4 and Chapter 9.5).

8.1 Navigation buttons description

The following description of the navigation buttons applies for the versions with and without a display.


Open main menu


Next in menu


Previous in menu


One menu level up


Access the status screen for the program currently running


OK / Start


Cancel / Stop


Active / Activate

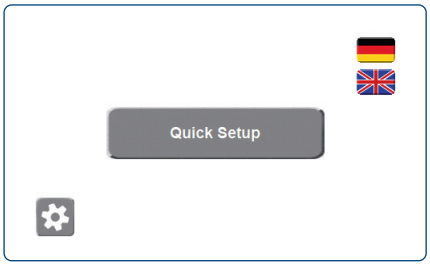

Inactive / Deactivate

8.2 Initial activation

The Quick setup menu opens when you initially activate the device.

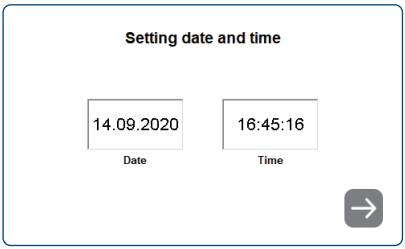
- With Quick setup, the required parameterization of the device can be carried out and the preferred menu language can be set.
- The menu can be accessed when the device is activated for the first time or reset to factory settings (Chapter 11.3).
- For information on operation and further setting options, refer to Chapter 9.

1) The following is displayed:



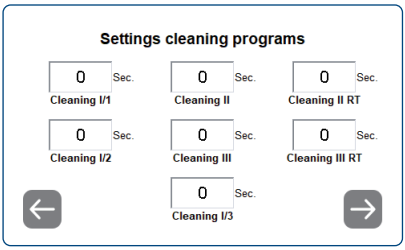
Select the desired language and tap the button Quick Setup.

2) The following is displayed:



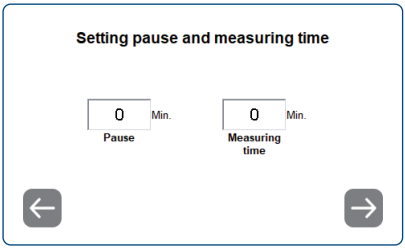
Set the date and time. To do this, key the desired changes into the window which is opened in the respective fields. Confirm them and exit the menu item with the right arrow key.

3) The following is displayed:



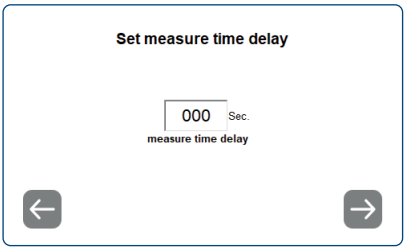
Set the cleaning and reaction time for the different cleaning media and leave the menu page using the right arrow key. The time is set identically to the date and time settings.

4) The following is displayed:



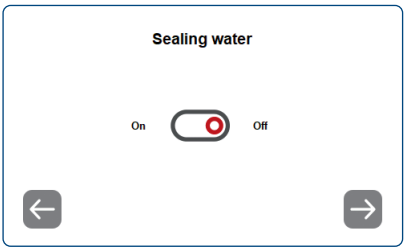
Set the pause and measuring time for the different cleaning media and leave the menu item using the right arrow key.

5) The following is displayed:



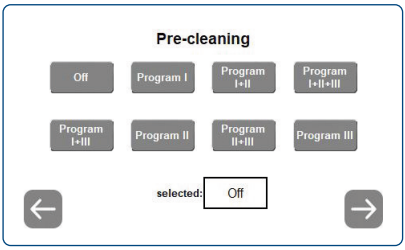
Set the measuring time delay and leave the menu item using the right arrow key.

6) The following is displayed:



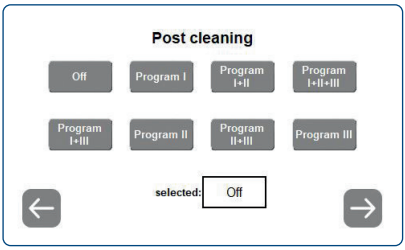
Activate/deactivate the sealing water function with the slider and leave the menu item with the right arrow.

7) The following is displayed:



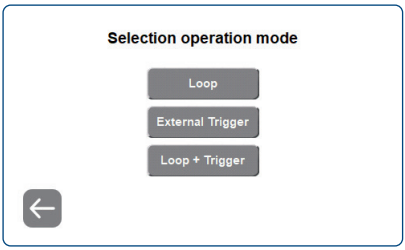
Select the desired program for the “Pre-cleaning” function, also refer to Chapter 7.4 and leave the menu item with the right arrow key.

8) The following is displayed:



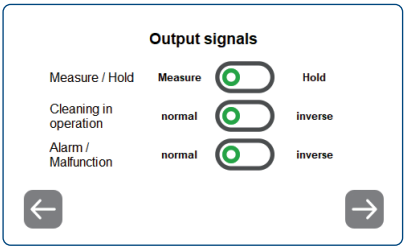
Select the desired program for the “Post-cleaning” function, also refer to Chapter 7.4, and leave the menu page with the right arrow.

9) The following is displayed:



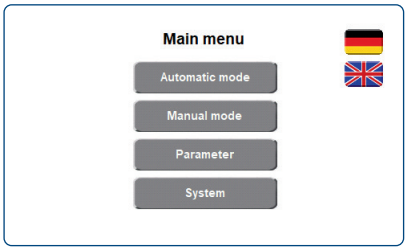
Select the desired operation mode. The selection menu for the output signals is then opened.

10) The following is displayed:



Set the output signals and leave the menu item with the right arrow key.

11) The following is displayed:



In the main menu, the automatic or manual mode can now be started with the newly set parameters.

Quick setup has now been completed.

- Individual settings can be changed in the main menu under Parameters and System (see Chapter 9).
- To repeat Quick setup, the device must be reset to its factory settings (see Chapter 11.3). In this case, all previous settings are lost.
- The current settings can be checked in automatic mode under Info or via the main menu under System and Parameters.

NOTE: In case of a power loss, the parameters set previously are not lost.

9 Setting parameters

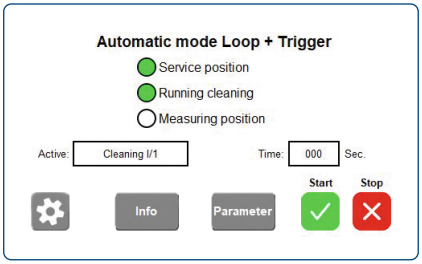
⚠ **ATTENTION! Danger of scalding or chemical burn on the probe housing.**

Process or cleaning liquid can escape through open pipes. Depending on the liquid's properties, you may incur scalding or chemical skin burns.

- **Wear personal protective equipment (eye protection and protective clothing)**
- **Only have the system parameterized by qualified personnel**
- **Before starting the process, check all the probe housing seals and connections**

NOTE: Wear safety googles and protective clothing when commissioning the system.

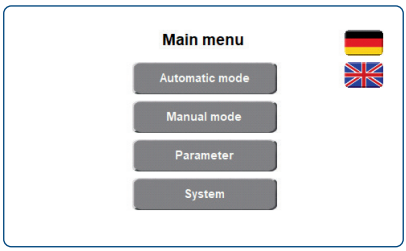
The functions of the probe housing control unit are generally structured as follows:



- The current menu or the selected mode is displayed in the upper row.
- The navigation buttons are in the lower row.
- The main menu can be accessed with the button.

9.1 Main menu

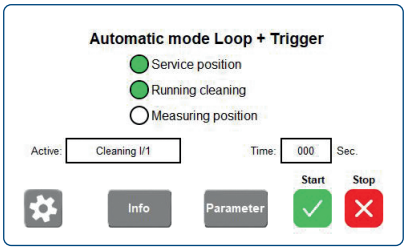
In the main menu, the following options are available.



- With selection of Automatic mode, the parameterized automatic sequence is started at the control unit (see Chapter 9.2).
- With selection of Manual mode, the manual control functions are accessed (see Chapter 9.3).
- With selection of Parameters, the parameter options are accessed (see Chapter 9.4).
- With selection of System, the system control functions are accessed (see Chapter 9.5).

9.2 Automatic mode

In automatic mode, the parameterized sequence is executed. The following is displayed:



- The first row displays the active operation mode.
- The positions of the retractable probe housing and cleaning activities are displayed magnified in the center.
- The currently active process step and the time until the next function or action are displayed beneath this. Please note: In “Trigger” operating mode, only “0” is displayed in the “Time” field during an active measurement.

- The soft keys have the following parameters:
  Info / Parameters / Start/ Stop

Info

Here, information is provided about the control unit regarding set times, total time of a cleaning cycle and additional cleaning options.

Parameters

Here, the parameterization of the cleaning and interval times can be accessed (Chapter 9.4).

Start

The automatic sequence is started here.

Stop

The automatic sequence can be stopped here.

After pressing the stop button, either an **immediate stop** or a **“soft” stop** can be selected.

If an **immediate stop** is selected, the retractable probe housing is immediately driven to service position without sealing water, remains there and is not cleaned.

If a soft **stop** is selected, the probe housing is driven to service position and finishes with parameterised cleaning.

NOTE: Before any set parameters can be changed, the running automatic sequence must first be completed.

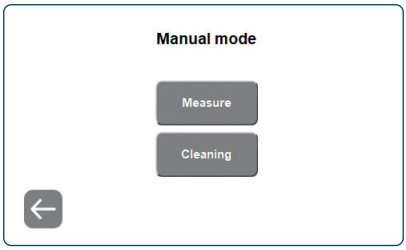
9.3 Manual mode

In manual mode, individual functions can be selected manually. Any running automatic mode already running must first be terminated.

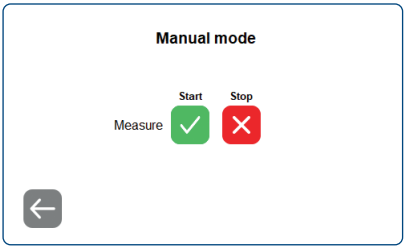
After manual mode is selected, the PIN (user level) must be entered:

- Enter and confirm the PIN.
- If the PIN code was entered correctly, the manual mode menu is displayed. Afterwards, the mode must be started with the “Start” button. Then, the manual mode selection menu is displayed.

The following is displayed:

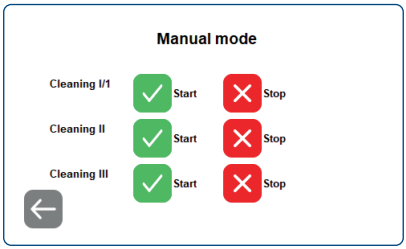


- Select the desired function with the respective button.



- With the “Start” and “Stop” buttons, the respective functions can be activated and deactivated.
- To return to the selection menu, press the arrow keys.

For the functions Clean I/1, Clean II and Clean III, press the respective buttons! For a detailed description of the functions, refer to Chapter 7.3.

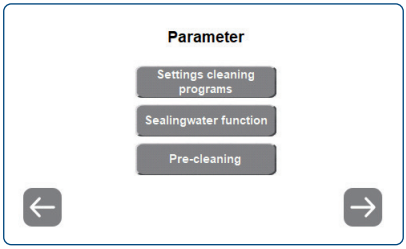


NOTE: It must be observed that before leaving the respective menu using the left arrow key, the currently active function or function taking place is stopped or completed.

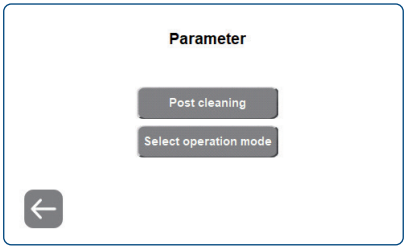
9.4 Parameters

The control unit times, and control unit functions are set in the Parameters menu.

The following is displayed:



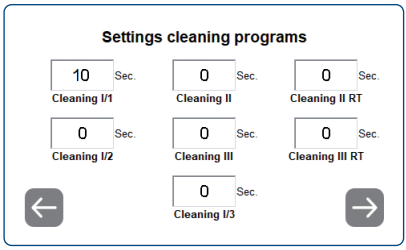
- Select the desired function with the respective button. Further functions for selection can be accessed with the right arrow key.



Settings / Cleaning

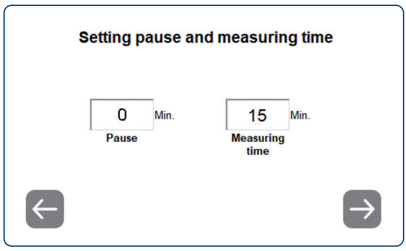
In the settings of the cleaning programs, the respective times and functions can be set. Programs are only activated if a time >0 is set.

1) The following is displayed:

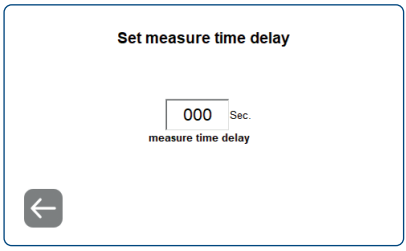


- The currently set times are displayed in the individual fields. To change the settings, press on the respective field and enter and confirm the desired time.
- The pause and measuring time settings are opened using the right arrow key.

2) The following is displayed:



- Use the right arrow key to access measuring time delay settings.



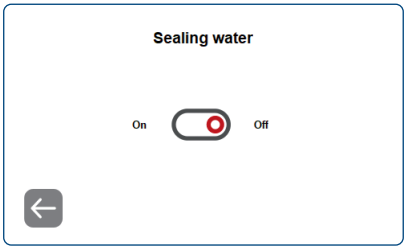
- Press ← several times to return to the Parameters menu.

NOTE: Proceed accordingly for the other time settings. For a detailed description of the functions of the individual cleaning programs and steps, refer to Chapter 7.3.

Sealing water

The sealing water function can be activated and deactivated in the Sealing water menu.

The following is displayed when it is selected:



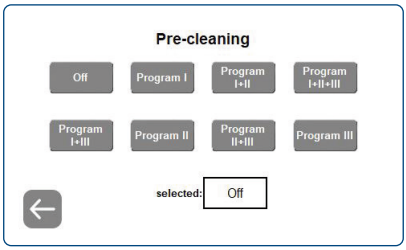
- Activate or deactivate the sealing water function with the slider.
- Press the left arrow key to return to the Parameters menu

NOTE: For a detailed description of the functions, refer to Chapter 7.2.

Pre-cleaning

This function can be activated or deactivated in the Pre-cleaning menu (see Chapter 7.4).

The following is displayed when it is selected:

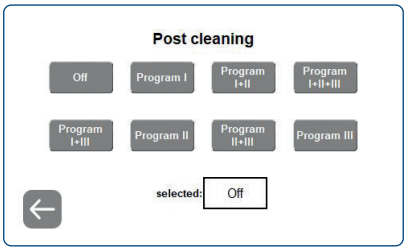


- If a cleaning program or a combination of cleaning programs (see Chapter 7.4) is selected, the pre-cleaning function for the cleaning chamber is activated. Select "Off" to deactivate the function.
- Press the left arrow key to return to the Parameters menu.

Post-cleaning

In the Post-cleaning menu, the function can be activated or deactivated.

The following is displayed when it is selected:



If a cleaning program or a combination of cleaning programs (see Chapter 7.4) is selected, the post-cleaning function for the cleaning chamber is activated. Select "Off" to deactivate the function. Press the left arrow key to return to the Parameters menu.

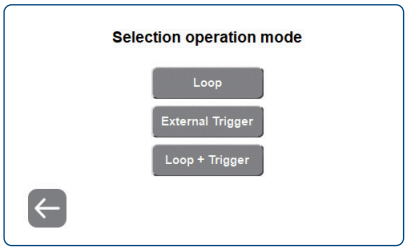
Operation mode

The control unit operation mode is set in the Operation mode menu item (see Chapter 7.1).

1) The following is displayed:

- Enter the PIN code (service level).
- If the PIN code is complete and correct, confirm it.

2) The following is then displayed:



- After an operation mode is selected, the respective status screen is directly displayed. The control unit can be started directly there.

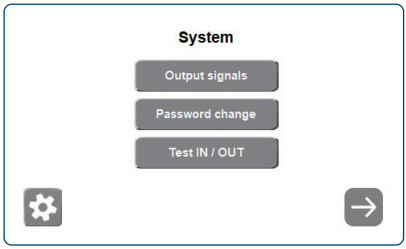
9.5 System

The system parameters can be set in the System menu item.

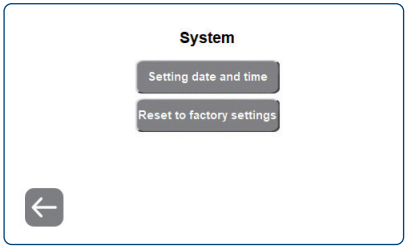
1) After System is selected in the main menu, the PIN code (service level) must be entered:

- Enter and confirm the respective PIN code on the number pad.
- If the PIN code is complete and entered correctly, the system selection menu is opened.

2) The following is displayed:



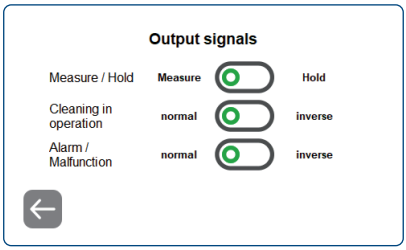
- Select the desired function by touching the respective button. Further functions for selection can be accessed with the right arrow key.



Output signal I

The output signal type is set in the menu item Measure/Hold (see Chapter 7.5).

The following is displayed:



The position of the respective slider indicates the currently set operation mode.

- The operation mode can be set with the slider.

Measuring: The signal is activated as soon as the probe housing has reached the Measuring position, the sealing water and measurement time delay functions are completed.

Holding: The signal is activated before the cleaning cycle is started, including sealing water and pre-cleaning function or if the probe housing is manually moved out of the Measuring position.

Output signal II

In the menu item Cleaning in operation, the slider is used to set the output signal type (see Chapter 7.5).

Normal: The signal is activated as soon as a cleaning function is executed, also during pre-cleaning and/or post-cleaning.

Inverted: The normal signal is inverted and set.

Output signal III

In the menu item Alarm/Malfunction, the slider is used to set the output signal type (see Chapter 7.5).

Normal: The signal is activated if the probe housing has not reached its respective end position, or the compressed air supply fails.

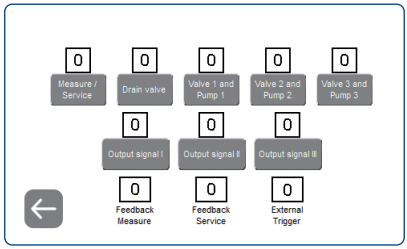
Inverted: The normal signal is inverted and set.

Test IN / OUT

In the menu ribbon Test IN / OUT, the control unit inputs and outputs can be tested.

NOTE: The function Test IN/OUT can only be carried out with the standard output signals. If the signals have been inverted in advance, the setting is reset when the test function is used. If inverted output signals are required, this must then be corrected accordingly again in the settings.

The following is displayed:



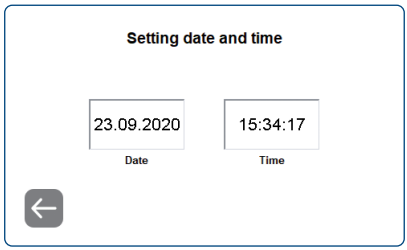
> With the individual buttons, the outputs can be activated (1) or deactivated (0). The current state of the inputs is displayed in the bottom row.

Press the **left arrow key** to leave the menu and reset the outputs.

Date and time settings

In the Setting date and time menu, the date and the time can be set.

The following is displayed:



- The pre-set values can be changed by pressing the respective input field. The displayed operating field is navigated by pressing the arrow buttons in the bottom.
- By confirming the entered values, they are saved.

Password change

In the Password change menu, the PIN code can be set.

- The code "0000" is the default setting for the "User" level.
- The code "1111" is the default setting for the "Service" level. Only this PIN code can be changed).

NOTE: If the PIN code is changed and forgotten, access to the system will not be possible. Note the set values at a secure location.

The following is displayed:

- Enter the currently valid PIN code.
- After entering and confirming the PIN code, an input field for assigning a new four-digit numerical code is opened:

Access rights

Depending on the PIN code entered, different settings are available.

- **User:** no access to "Operation mode" and "System"
- **Service:** full access

10 Servicing

10.1 Important service notes

- Service the probe housing control unit regularly. Prepare a servicing plan coordinated with your process.
- Only trained operators are allowed to perform maintenance work.
- Always wear appropriate personal protective equipment like goggles, clothing etc. when performing maintenance work.
- Only perform maintenance work or repairs described in the operating instructions.
- Changes to the design may only be carried out after consulting with the manufacturer.
- During maintenance of the sensor installed in the retractable probe housing, ensure that the probe housing is always in a secured servicing position.

10.2 Maintenance

Annual inspections

- Check the compressed air connections for tightness.
- Check the connections of the multi-connection hose for tightness and secure connection to the retractable probe housing and control valves.
- Tighten the terminals in the control cabinet.

Regular visual inspection

- Check media ports and sealing elements for leakage.
- If the optional maintenance unit is used, condensation water must be drained as required.

10.3 Reset to factory settings

NOTE: By resetting to factory settings, all previous settings (exception: password changes) and parameterization are lost!

- After selecting System in the main menu and entering the correct PIN code, press "Reset

to factory settings" to delete all values stored in the control unit and restore them to their factory settings.

The following is displayed:

- Press the respective button to reset the control unit to its factory settings.
- The Quick setup menu is then displayed automatically.

10.4 Recommissioning after power loss

After a power loss or deactivation at the main switch, stored values are not lost. After reactivation, the last active status screen is automatically displayed. Press “Parameters" to check and adjust the stored values as necessary. The values can also be checked by pressing "Info".

To check the system settings or change the operation mode, press the gear icon to directly access the required main menu.

11 Troubleshooting in case of problems

The PLC used in the control unit features a sliding switch, which is normally in "ON" position. Deactivation is not necessary and should be avoided.

In case of a potential error in the program sequence or a program standstill, the unit can be easily reset at the main switch. Pre-set parameters are not lost.

In case of error (e.g., pressure loss), an error message is returned by the probe housing control unit. Correction of the error must be acknowledged at the probe housing control unit before restarting it.

11.1 Probe housing does not move

Possible cause	Remedy
No operation mode selected	Select and start operation mode
No compressed air supply	Check pneumatic hoses and pilot control valves
Pressure too low	Increase pressure (must be 6 bar)
Sensor missing	Install sensor in probe housing
The sensor is loose	Tighten sensor installed in the probe housing
Probe housing immersion tube/ protective cage is blocked	Disassemble cleaning chamber with process port and remove foreign matter Replace immersion tube as required
No trigger signal (depending on selected operation mode)	Check connection to system control unit
Data connection between valve manifold and control unit interrupted	Check connection line Check valve manifold bus node LED status, replace bus node as necessary

11.2 Cleaning valves do not open

Possible cause	Remedy
No compressed air supply	Check pneumatic hoses and pilot control valves

11.3 No position feedback

Possible cause	Remedy
No compressed air supply	Check pneumatic hoses and pilot control valves
Pressure is too low	Increase pressure to specification
The drive unit is defective	Replace drive unit
Pressure switch defective	Replace pressure switch

11.4 Frequent contamination of the sensor

Possible cause	Remedy
Cleaning lines incorrectly connected	Check cleaning lines
Cleaning liquid pressure too low The cleaning chamber is blocked	Increase the cleaning pressure The pressure must be between 1 and 4 bar Remove and clean the cleaning chamber
The cleaning fluid is not suitable	Choose suitable cleaning fluid
The cleaning time is too short	Increase the cleaning time
The cleaning interval is too long	Reduce the cleaning interval

12 RetractoControl 2 order structure

Automatic Control Unit for Retractables

Code	Housing
3	Plastic housing (with display)
4	Stainless steel housing (with display)
0	Special

Code	Cleaning
1	For one cleaning solution
2	For two cleaning solutions
3	For three cleaning solutions
0	Special

Code	Conneting hose
1	Without
2	3m length
3	5m length
4	10m length
0	Special

Code	Maintenance unit
1	Without
2	With Maintenance unit
0	Special

Code	Interface
1	Without
0	Special

10110474 –						**Order code**

13 Accessories and spare parts

Ref	Spare parts
10110475-1	Wall mounting set (for plastic housing)
10110475-2	Wall mounting set (for stainless steel housing)
10143875	Membrane-valve PTFE/EPDM (single) G3/8"; Air Ø6; DN12 PN6 NC for cleaning solution or drain
242210	Cleaning valve set PTFE/EPDM with 2 membrane-valves for one cleaning solution and one drain; connectors, PTFE-tubing and mounting brackets included
242211	Cleaning valve set PTFE/EPDM with 3 membrane-valves for two cleaning solutions and one drain; connectors, PTFE-tubing and mounting brackets included
10143876	Cleaning valve set PTFE/EPDM with 4 membrane-valves for three cleaning solutions and one drain; connectors, PTFE-tubing and mounting brackets included
242698	Dosing pump with vessel (75L) for automated acid cleaning

NOTE: When ordering spare parts and accessories, please specify the serial number of your unit.

14 Disposal

Control unit for probe housing

Ensure that the probe housing control unit is free from hazardous and toxic substances. The individual components must be disposed of separately in accordance with their material components.

Please observe the valid rules and regulations concerning disposal in the country and place of application.

Packaging

The packaging material is cardboard and shall be recycled as cardboard.

15 Certificates and compliance

EU-directive	Applied standards
EMC-Directive 2014/30/EU Module A	DIN EN 61326-1:2013 IEC 61326-1:2020
General Product Safety Directive 2001/95/EC	DIN EN 61010-1:2020-03
RoHS 2 Directive 2011/65/EU + Delegated Directive 2015/863/EU	EN IEC 63000:2018

UK-regulation	Applied standards
Electromagnetic Compatibility Regulations 2016	BS EN 61326-1:2021
General Product Safety Regulations 2005	BS EN 61010-1:2010+A1:2017
The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012	BS IEC 63000:2018

NOTES

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