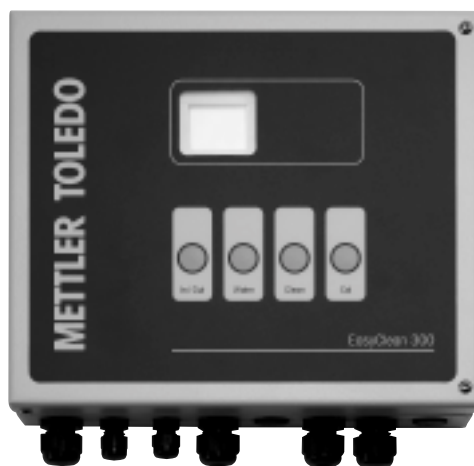


EasyClean 200 EasyClean 300

Instruction manual



English:

page 3

EasyClean 200 EasyClean 300

Instruction manual

How to use this instruction manual

This instruction manual is an integral part of the EasyClean200 and EasyClean300 and contains notes and instructions that are important for safety and operation.

All persons working on or with the EasyClean200 and/or EasyClean300 must have first read and understood the sections appropriate to the work in hand.

Please read this instruction manual carefully before using the EasyClean system. Keep this document close to the unit, so operating personnel may be easily refer to it at any time.



First read chapter 2 «Safety»!

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1 Product description

1.1 Introduction

Conformity

EasyClean200 and EasyClean300 correspond to the following guidelines:

- Low voltage guidelines:
 - EU guidelines 73/23/EU
 - Swiss guidelines SR734.26NEV
 - safety guidelines EN61010-1
 - IP-rating EN60529 IP65
- Guidelines EMC:
 - emission EN61326-1, class B
 - harmonics EN61000-3-2
 - voltage deviations EN61000-3-3
 - immunity EN61326-1

Certificates

CE, CSA c us, GS

Identification

The type plates are located on the left-hand exterior of the housings.

Mettler-Toledo GmbH Process Analytics EasyClean200 U/f/I prim: 100–230V 50/60Hz 0.18–0.3A U/I sec.: 24VDC 1.3A Part.No.: 52 402 321 SN : 1 32 1001	<div style="border: 1px solid black; padding: 2px;"> CE CSA c us, GS </div>
Mettler-Toledo GmbH Process Analytics EasyClean200 Part.No.: 52 402 323 SN : 1 32 1001	<div style="border: 1px solid black; padding: 2px;"> CE CSA c us, GS </div>
Mettler-Toledo GmbH Process Analytics EasyClean300 U/f/I prim: 100–230V 50/60Hz 0.18 - 0.3A U/I sec.: 24VDC 1.3A Part.No.: 52 402 322 SN : 1 32 1001	<div style="border: 1px solid black; padding: 2px;"> CE CSA c us, GS </div>
Mettler-Toledo GmbH Process Analytics EasyClean300 Part.No.: 52 402 324 SN : 1 32 1001	<div style="border: 1px solid black; padding: 2px;"> CE CSA c us, GS </div>

1.2 Fittings and deliverables

Deliverables

EasyClean200 and 300 are shipped without connecting cables. At the installation site, cables are connected to the appropriate terminals in the unit (please refer to **section 4.2 «Connections»**).

Packaging

The unit is packed in plain and padded cardboard.

We recommend that you retain the packing materials for subsequent storage or transportation of the unit. Should you choose to discard the packing materials, observe local regulations and **section 7.3 «Disposal»**.

Good inspection

Check the goods for damage while unpacking. Should you notice signs of damage, inform the shipper and your supplier without delay.

Check the delivery against your order and the delivery note.

1.3 Data and key characteristics EasyClean200/300

Housing	steel housing, powder-coated with polyester resin material: mild steel DIN 1.1203 Ck55 Attention: housing may not be cleaned with solvents containing acetone
Weight	control unit approx. 3.0 kg (6.6 lb) valve unit approx. 2.5 kg (5.5 lb)
Protection rating	IP65
Ambient conditions	temp. in operation: 0 – +55 °C (+32 – +131 °F) temp. storage/transportation: –10 to +70 °C (+14 – +158 °F) degree of pollution: 2 overvoltage category: III
Power supply	100 – 230V AC, 50/60 Hz, 0.18 – 0.3 A (± 15%)
System control	process initiation: via a wash contact in the associated transmitter sequence: controlled by the integrated programable PLC
Control input	1 control input for wash contact in transmitter 24V
Transmitter	METTLER TOLEDO transmitters: – pH2050e, O ₂ 4050e – pH2100e, O ₂ 4100e, Trb 8300 – alternatively via any standard transmitter with wash contact and «hold» function
Electrical connections	terminal strip 0.08 – 2.5 mm ²
Connection to valve unit	10-wire control cable length: 1.5 m (optional 20 m)
Connection transmitter	4-wire control cable, 4 x 1.5 mm ² length: 5 m (optional 10 m)
Cable ducts	Ø 3.5 – 10 mm => M 16 Ø 2.5 – 6.5 mm => M 12
Compressed air supply	4 – 8 bar (400 – 800 kPa, 58 – 116 psi) – air quality according to ISO 8573-1 – moisture class 4 (water dew point +3 °C) – particles class 5 (filter 40 µm) – max. oil content class 2 (0.1 mg/m ³) connection: thread G ¹ / ₈ "

Connection to retractable housing	LDPE hose Ø 6/4 mm (1/8"/1/4") optional: PTFE hose Ø 6/4 mm (1/8"/1/4")
Flushing water supply	pressure: 2 – 6 bar (200 – 600 kPa, 29 – 87 psi) connection: thread G ^{1/4} " female adapter: 1/4" NPT male (PP)
Pump	pump height: max. 8 m (26 ft) suction height: max. 3 m (9.8 ft) volume: 15 ml/cycle at max. pump and suction height material: pump body PP check valves 1.4105, 1.4303, 1.4310 1.4401 sealing: Viton® connection: thread G ^{1/8} " (PP)
Materials in contact with air, rinsing water, cleaning agents and/or buffers	PP, LDPE, Viton®, brass, stainless steel DIN 1.4105, 1.4303, 1.4310, 1.4401
Medias in connection with the LDPE hose	water: 0 – 60 °C (32 °F – 140 °F) cleaning solution: 0 – 50 °C (32 °F – 122 °F) buffer: 0 – 50 °C (32 °F – 122 °F)
Medias in connection with the PTFE hose	water: 0 – 90 °C (32 °F – 194 °F) cleaning solution: 0 – 50 °C (32 °F – 122 °F) buffer: 0 – 50 °C (32 °F – 122 °F)
Subject to technical changes	

2 Safety

2.1 Introduction

This instruction manual lists the main points of how to use the EasyClean200 and EasyClean300 efficiently, in the intended manner. For safe, trouble-free operation, operators must be aware of these safety instructions and comply with further warning notices in the instruction manual.

This instruction manual, and the safety requirements in particular, must be observed by the operator and all other persons working with the EasyClean200 and/or EasyClean300. Compliance with local regulations and statutory requirements is also essential.

The instruction manual must always be stored close at hand, in a place accessible to all people working with the EasyClean200 and/or EasyClean300.

2.2 Intended use

EasyClean200 is intended solely for automatically controlled or manual flushing and cleaning of sensors in retractable housings, as described in this instruction manual.

In addition to the functions of EasyClean200, the EasyClean300 fulfills a semi-automated 2-point calibration.

Other prerequisites for appropriate use include:

- observing the instructions, notes and requirements set out in this instruction manual
- observing the prescribed inspection and maintenance intervals
- correct care and maintenance of the unit, according to the instruction manual
- observing the prescribed environmental and operational conditions, and permitted installation positions
- compliance with local statutes.

2.3 Inappropriate use

Any other use, or use not mentioned here, that is incompatible with the technical specifications is deemed inappropriate. The operator is solely responsible for any damage arising from such use.

The following are deemed particularly inappropriate:

- use of hydraulic fluid in place of compressed air
- use of suspensions as cleaning media
- use of salt acid of > 10%.

2.4 Basic principles

The EasyClean system is a state-of-the-art construction and complies with engineering safety guidelines.

All the same, there can remain certain risks and hazards:

- if the units are operated by inadequately trained personnel.
- if the units are not used in the intended manner.
- if the units are not inspected periodically or the periodical inspection is not carried out properly.

EasyClean units must only be used while in perfect working order, for their intended purpose, with due awareness of associated safety and hazard issues and in compliance with the instruction manual.

Defects or damage that impact the unit's safety and functionality must be immediately repaired by the operator or a suitably qualified person, and reported in writing to the manufacturer.

2.5 Warning notices and symbols

This instruction manual identifies safety instructions by means of the following symbols:

**DANGER!**

Warns of a hazard that could lead to extensive material damage, death or grievous bodily injuries.

**CAUTION!**

Warns of a potentially hazardous situation that could lead to minor bodily injury and/or material damage.

**NOTICE!**

Information relating to technical requirements. Non-observance could lead to defects, inefficient operation and possible loss of production.

2.6 Responsibility, organizational measures

Operator's responsibilities

- The operator must only permit personnel to work with the EasyClean if they are acquainted with basic regulations concerning workplace safety and accident prevention, and familiar with operating the unit. This instruction manual serves as a basis.
- In addition to the instruction manual, the operator must provide instruction in general statutory and other binding regulations concerning workplace safety and accident prevention, as well as environmental protection.
- Personnel safety and hazard awareness must be monitored regularly.
- Steps must be taken to ensure that the EasyClean is operated only while in a safe, properly functional state.

Personnel responsibilities

- All persons working with the EasyClean must have read the section on safety and responsibilities the warning notices contained in this instruction manual.
- In addition to the instruction manual, generally applicable statutory and other binding regulations concerning workplace safety and accident protection must also be observed.
- Avoid any hazardous working practices that exceed the unit's intended purpose.

Personnel selection and qualification – basic responsibilities

- Only dependable, trained or supervised personnel may work with the EasyClean. Operators must read this instruction manual beforehand.
- Responsibilities for operating, maintaining, installing, etc. the unit must be clearly defined.
- Appropriate steps must be taken to ensure that the unit is used by authorized personnel only.
- Personnel under instruction, supervision or general training may only work with the unit under constant supervision by an experienced person.
- Work on electrical parts of the unit may only be performed by a qualified electrician in compliance with electrical engineering regulations.

Constructional modifications on the unit

- The unit may not be modified, extended or rebuilt in a way that impacts its safety without written permission from Mettler-Toledo GmbH, Process Analytics.
- Any parts that are not in perfect working order must be replaced without delay.

2.7 Product-specific hazards



Electrical hazards!

Opening the unit for installation or repair work exposes live electrical parts.

Close the unit immediately after work is completed!



Compressed air/water hazards!

Pressurized pipes (compressed air, water) must be isolated and depressurized before commencing repair work!

2.8 Residual hazards



Despite all precautionary measures, there remain residual hazards such as:

- a pipe bursting
- hazards arising from a defect in a supervisory controller.

2.9 Emergency measures



Should fluid come into contact with the eyes, rinse thoroughly under running water for at least 15 minutes. A doctor must be consulted for subsequent diagnosis.

Fluid coming into contact with the skin must be immediately washed away with water.

Medical assistance is mandatory for symptoms that clearly arise from skin or eye contact with a medium. Inform the doctor about the type and specific identity of all materials used.

2.10 Safety measures

Always observe local statutes and regulations. They are not incorporated in this instruction manual.

Personal safety equipment like protective goggles and clothing must be worn.

The unit must only be operated while closed.

The operator is responsible for personnel instruction. By way of assistance, the instruction manual can also be ordered in other languages. Being an integral part of the unit, this instruction manual must always be available at the unit's location.

The operator should immediately inform the manufacturer about all safety-related events occurring during use of the unit.

2.11 Modifications

Modifications are permitted only after prior consultation and written approval from the manufacturer.

The conversion of the cleaning function to calibration function must only be carried out by qualified personnel.

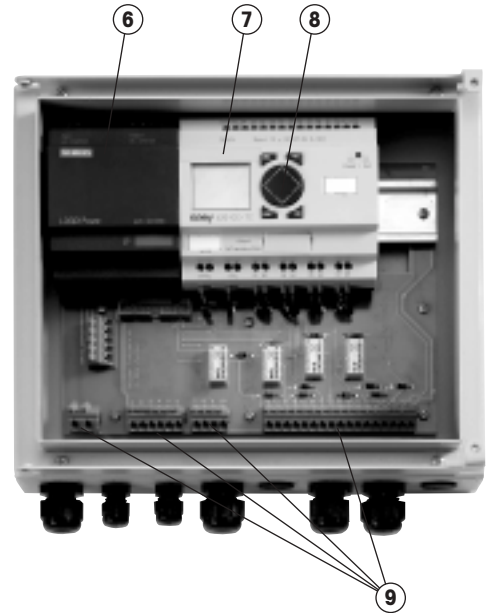
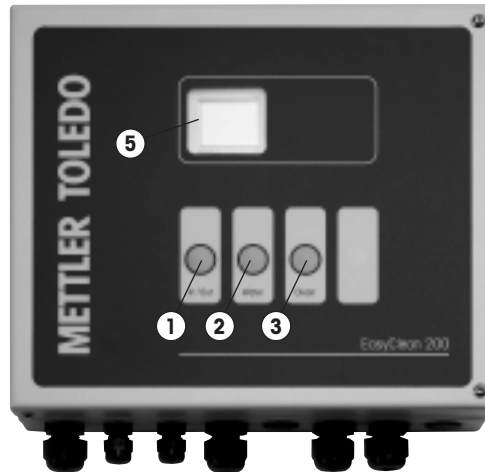
Only those parts of the unit essential to fulfilling its function may be removed and refitted. Except for authorized service personnel, it is forbidden to remove protective guards and covers using a regular tool. Touching live electrical parts represents a lethal hazard.

3 Your device

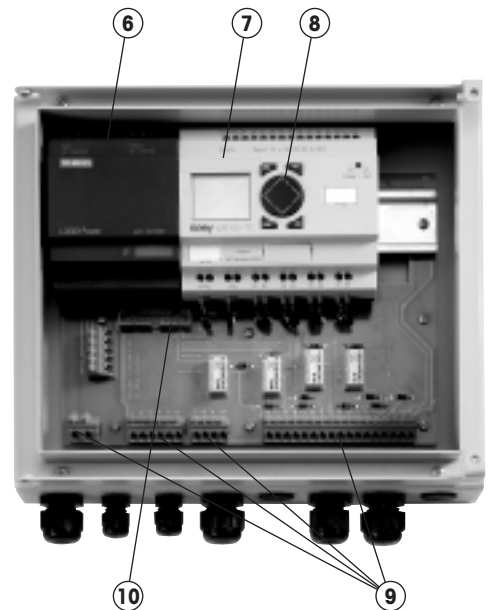
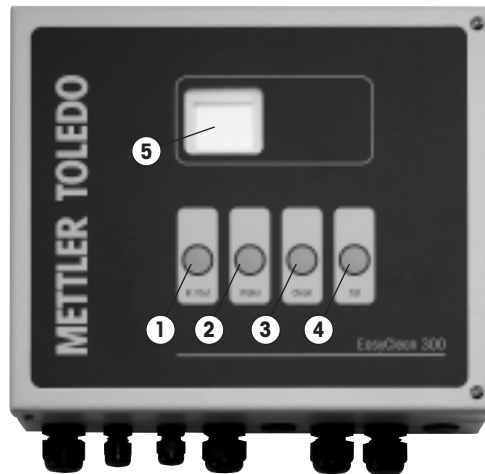
3.1 Layout

Control unit

EasyClean200

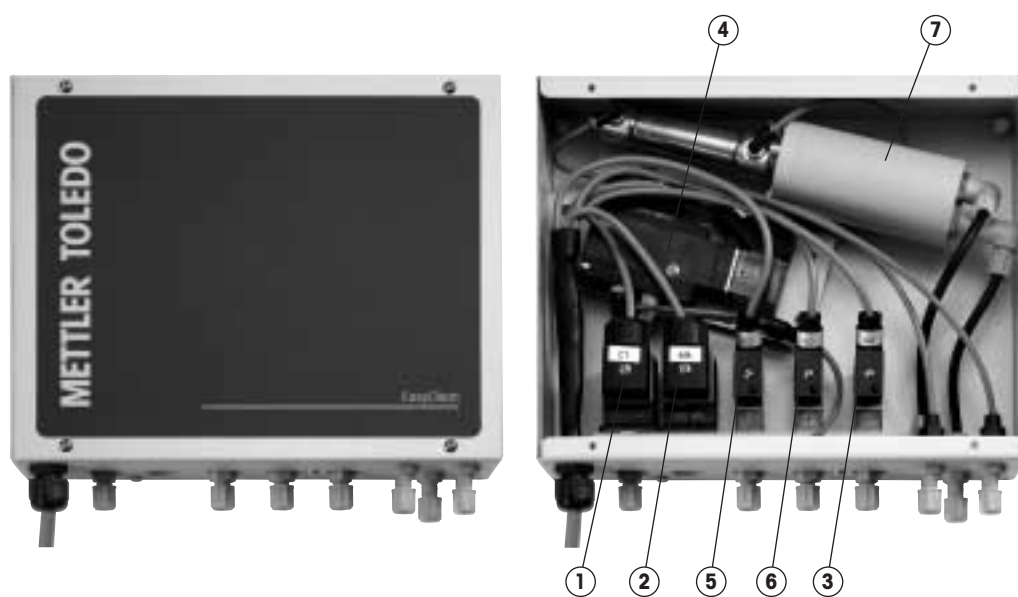


EasyClean300



- 1 «In/Out» button (housing control)
- 2 «Water» button
- 3 «Clean» button
- 4 «Cal» button
- 5 Information display

- 6 Power supply unit
- 7 Programmable logic controller
- 8 Operating section PLC
- 9 Connection clamps
- 10 Plug/PCB for options

Valve unit (figure shows valve unit EasyClean300)

- 1 Compressed air valve
- 2 Water valve
- 3 Detergent valve
- 4 Air control valve

- 5 Buffer 1 valve (only with EasyClean300)
- 6 Buffer 2 valve (only with EasyClean300)
- 7 Piston pump

3.2 Functions

General

The EasyClean200 is designed for the automatic rinsing and cleaning of electrodes in retractable housings. The EasyClean 300 model also takes on the functions of monitored calibration. The EasyClean200 can be upgraded to the EasyClean 300.

The EasyClean is supplied with a predefined rinsing and cleaning process. Both the rinsing and cleaning time can be adjusted by the operator to suit the individual local conditions.

The individual processes are instigated by switching on the washing contact on the connected transmitter.

An integrated programmable logic controller controls the whole rinsing and cleaning procedure.

Types of operation

The EasyClean has no main switch, and is always in active status.

Basic setting

When the EasyClean200 or 300 is switched off, the electrode is removed from the process medium.

If the EasyClean200 or 300 is connected to the mains, the housing and sensor move into the measuring position.

The message «RUN» appears on the display. The EasyClean is ready for operation

Hold function

The «HOLD» function is a function of the transmitter. This function suppresses the measured values of the sensor during a work cycle of the EasyClean.



Note

If the transmitter is usually used with exit points, a Hold function is absolutely necessary. Signals that can be measured through cleaning with acids or alkalis might otherwise activate the transmitter control.

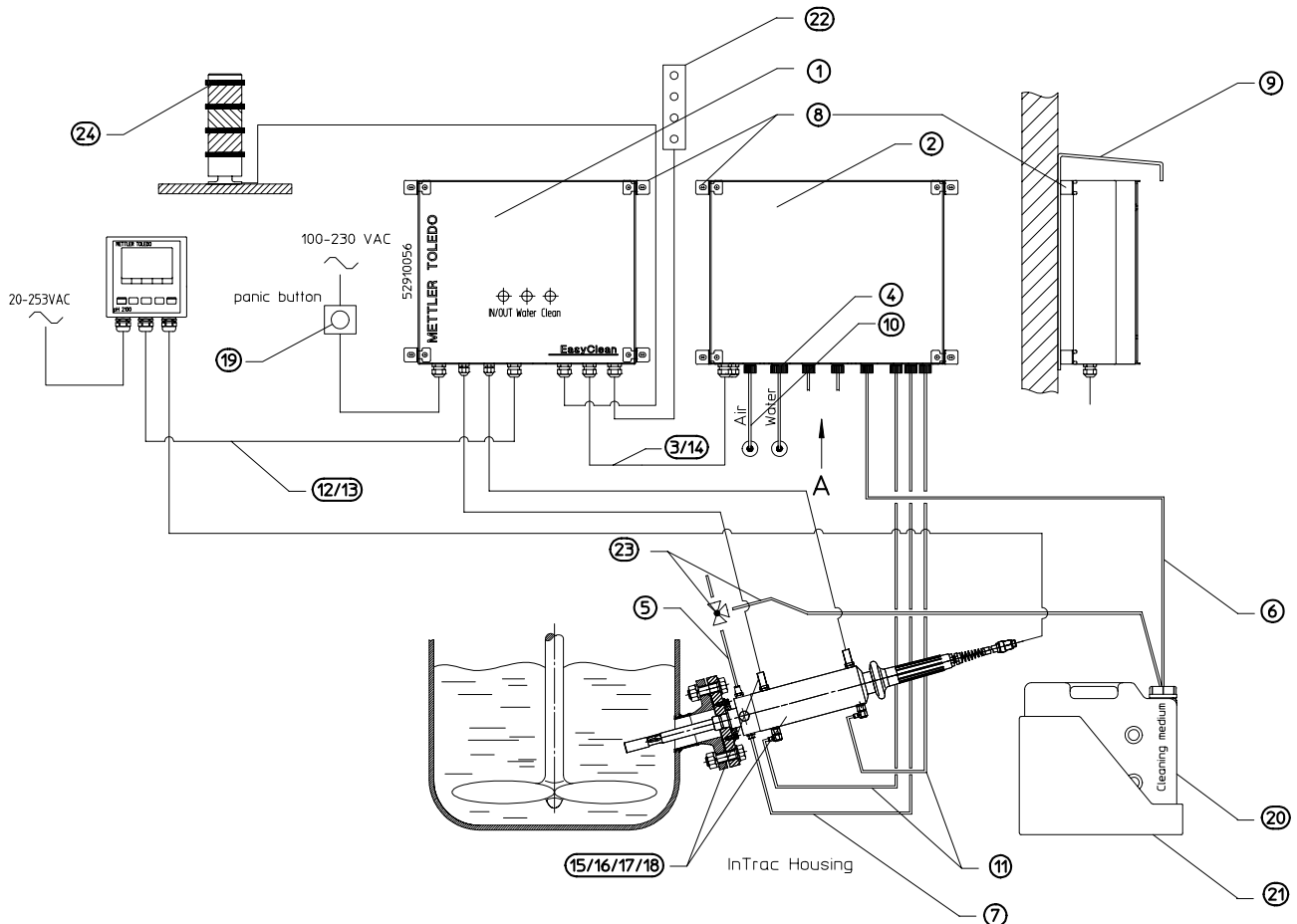
Messages

The integrated control is equipped with a display. This displays the current function status of the control.

3.3 Integration into a measurement system

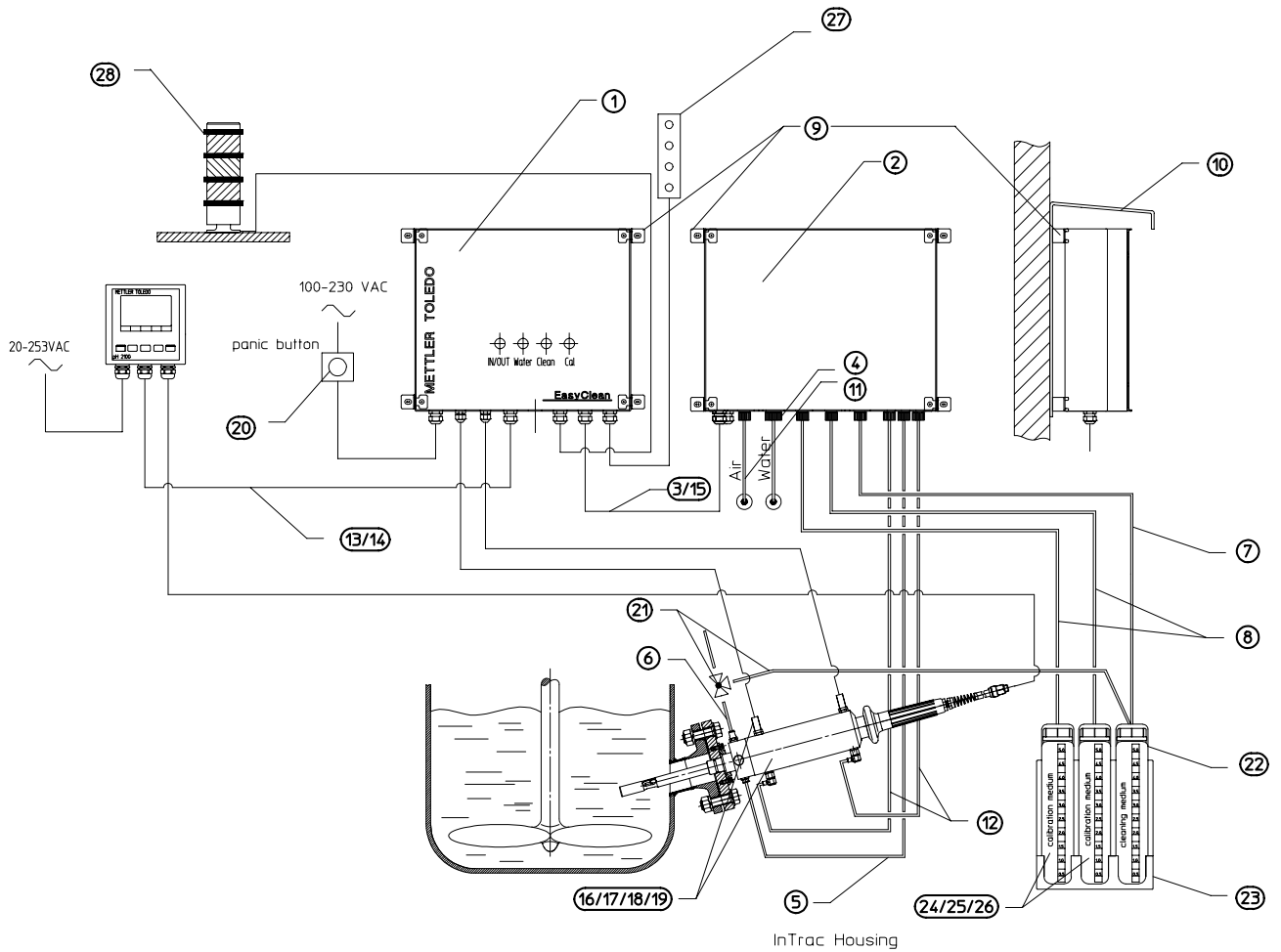
The following diagrams show typical examples of the integration of the EasyClean200 or the EasyClean300 respectively into a measurement system.

EasyClean 200



- | | |
|-------------|--|
| 1 | Control unit |
| 2 | Valve unit |
| 3/14 | Connection cable control unit > valve unit |
| 4 | Water connection |
| 5 | Drainwater hose |
| 6 | Connecting hose valve unit > cleaning medium |
| 7 | Connecting hose valve unit > retractable housing |
| 8 | Wall mounting kit |
| 9 | Protective hood (optional) |
| 10 | Compressed air hose inlet |
| 11 | Compressed air hoses |
| 12/13 | Control cable transmitter > control unit |
| 15/16/17/18 | Pneumatic set retractable housing |
| 19 | Panic button (optional) |
| 20 | Canister for cleaning medium |
| 21 | Canister rack (for 3 canister) |
| 22 | Remote control |
| 23 | Return flow valve set |
| 24 | Alarm light |

EasyClean 300



- 1 Control unit
- 2 Valve unit
- 3/15 Connection cable control unit > valve unit
- 4 Water connection
- 5 Connecting hose valve unit > retractable housing
- 6 Drainwater hose
- 7 Connecting hose valve unit > cleaning medium
- 8 Connecting hoses valve unit > buffer reservoir(s)
- 9 Wall mounting kit
- 10 Protective hood (optional)
- 11 Compressed air hose inlet
- 12 Compressed air hoses
- 13/14 Control cable transmitter > control unit
- 16/17/18/19 Pneumatic set retractable housing
- 20 Panic button (optional)
- 21 Return flow valve set
- 22 Canister for cleaning medium
- 23 Canister rack (for 3 canister)
- 24/25/26 Buffer solutions
- 27 Remote control
- 28 Alarm light

4 Commissioning



DANGER

Please refer to chapter 2 «Safety».

All work on the system's electrical components may only be performed by authorized, specialist staff.



NOTICE

During commissioning, please proceed according to section 4.3 «Checklist for installation and commissioning». Note the references to more detailed information.

4.1 Fitting

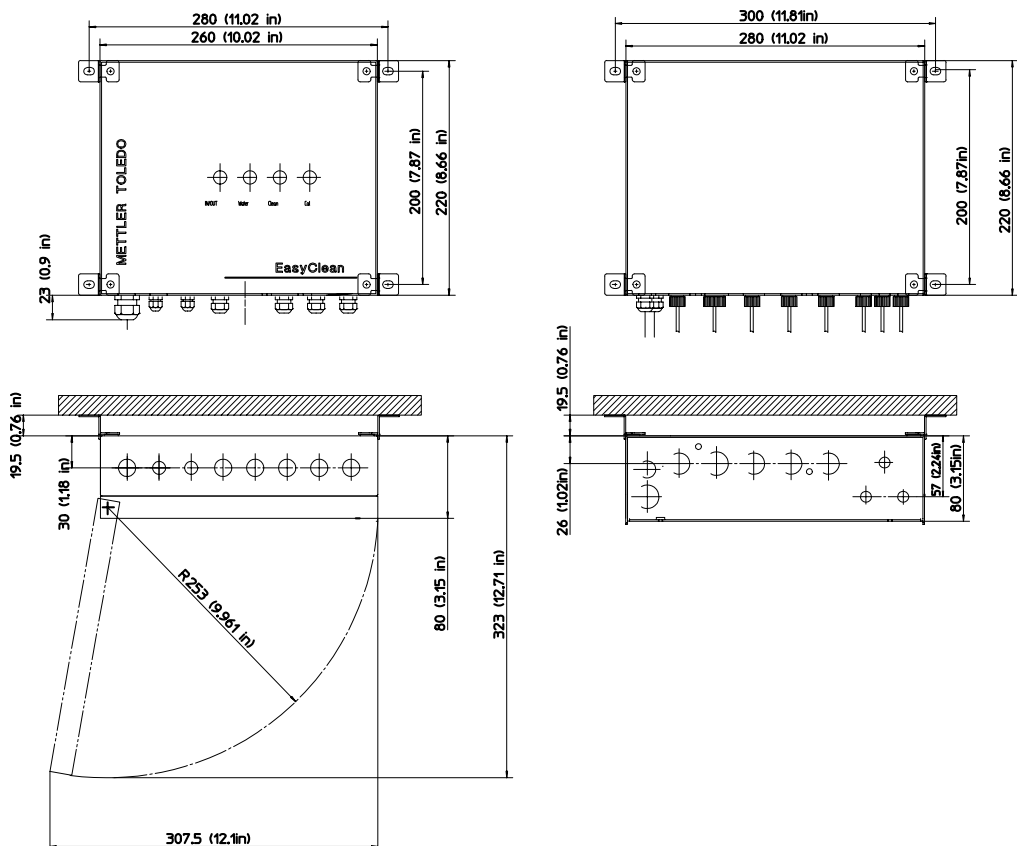
The EasyClean200 and 300 are designed to be fitted directly (c-rails), on to walls or posts/pipes.

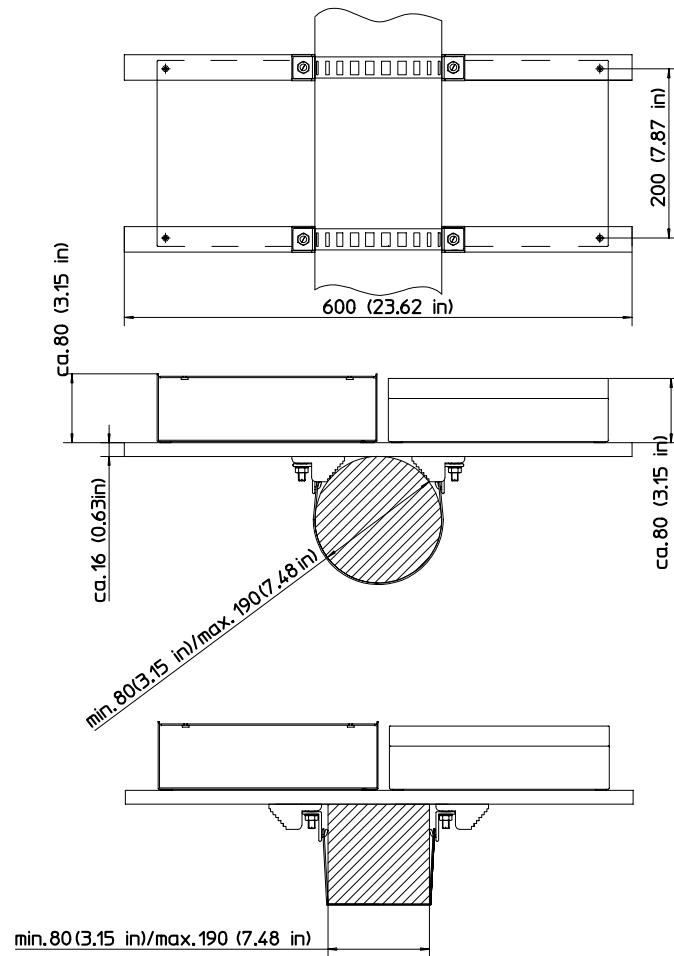
The EasyClean200 and 300 are built into the same type of housing and therefore have the same dimensions.

The fitting location must have sufficient stability and must as far as possible be free of vibration.

Please make sure that the lengths of the leads are as short as possible.

Wall mounting



Post/pipe mounting**NOTICE**

For the detailed procedure when fitting the suspended item, please refer to the installation manual supplied separately.

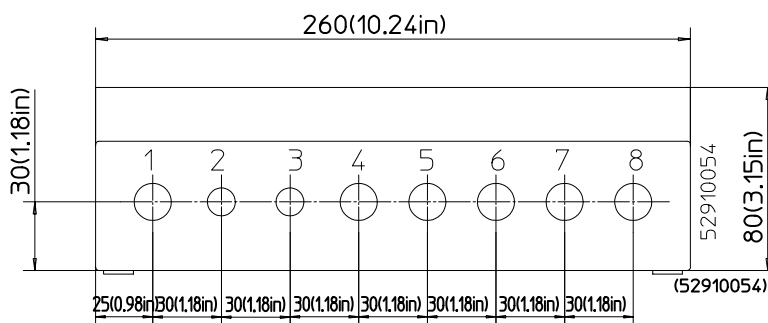
4.2 Connections



CAUTION

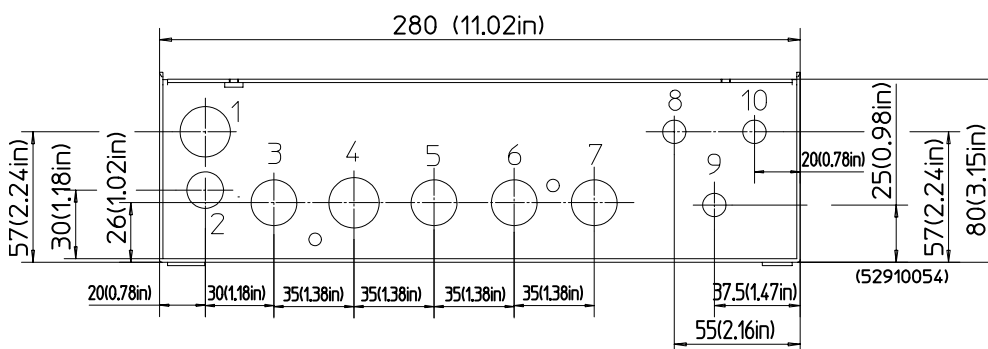
Before making connections, check that the connection values as described in section 1.3 «Data and key characteristics» are observed.

Connections to the housing floor control unit



- 1 Main cable sleeve M16 (main cable by customer)
- 2 Check-back position indicator, housing «forward»
- 3 Check-back position indicator, housing «back»
- 4 Sleeve control cable transmitter M16
- 5 Reserve
- 6 Sleeve alarm light M16
- 7 Sleeve control cable valve unit M16
- 8 Reserve

Connections to the housing floor valve unit



- 1 Control cable, control M16
- 2 Flow sensor duct M12
- 3 Compressed air input (Ø 6/4 mm hose)
- 4 Water input G1/4" female (adapter for «NPT & male»)
- 5 Input buffer 1 (Ø 6/4 mm hose) (only EasyClean300)
- 6 Input buffer 2 (Ø 6/4 mm hose) (only EasyClean300)
- 7 Detergent solution input (Ø 6/4 mm hose)
- 8 Compressed air housing «BACK» output (Ø 6/4 mm hose)
- 9 Medium output (Ø 6/4 mm hose)
- 10 Compressed air housing «FORWARD» output (Ø 6/4 mm hose)

**NOTICE**

For purposes of efficiency, a valve is installed for water and compressed air from the building close to the EasyClean200/300. This facilitates maintenance work and increases working safety during fitting and dismantling of the device.

The **compressed air feed must be at least 4 bar**. The control air must be **filtered and free of water and oil**.

Please observe the local regulations for pneumatic and water installations.

Connections to the immersion housing

For the installation of the retractable housing, please refer to the corresponding instruction manual for the housing.

Electrical connections

The EasyClean200 and 300 are designed for the Mettler-Toledo transmitter as described in section 1.3. For the correct installation to other transmitters, please refer to the relevant manual.

**DANGER**

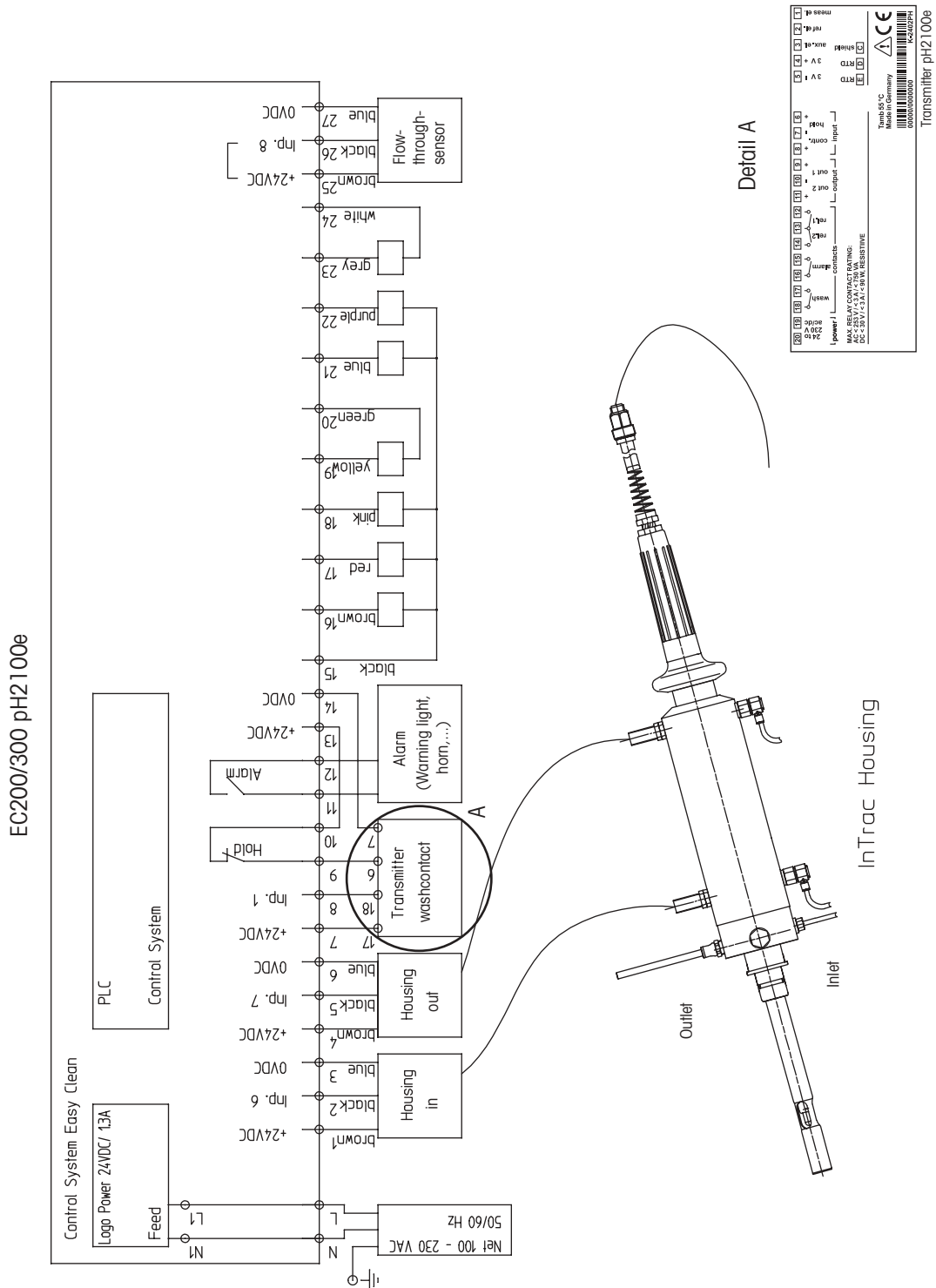
The main connection may only be performed by authorized specialist staff in accordance with electrical engineering rules.

Please also observe local regulations for the mains connection to the building.

**NOTICE**

The protective power switch has to be installed from the building installation and must be placed near the EasyClean system.

Electrical connections of EasyClean 200/300 and Mettler-Toledo transmitter model pH2100e



**Terminal loading
control PCB**

Connection no.	Function	Designation	Color of cable	Connected to
1	Housing pos. indicator, forward	+24VDC	brown	—
2	Housing pos. indicator, forward	inp. 6	black	—
3	Housing pos. indicator, forward	0VDC	blue	—
4	Housing pos. indicator, back	+24VDC	brown	—
5	Housing pos. indicator, back	inp. 7	black	—
6	Housing pos. indicator, back	0VDC	blue	—
7	Washing contact transmitter	+24VDC	—	2050 no. 07 2100 no. 17
8	Washing contact transmitter	inp. 1	—	2050 no. 08 2100 no. 18
9	Transmitter	hold	—	2050 no. 13
10	Transmitter	hold	—	2050 no. 14
11	Alarm			
12	Alarm	alarm		
13	Alarm	+24VDC		
14	Alarm	DVDC		
15	Valve unit/return valve	—	black	valve R7
16	Valve unit/housing	—	brown	valve A8
17	Valve unit/air	—	red	valve L3
18	Valve unit/water	—	pink	valve W4
19	Valve unit/buffer 1 (300)	—	yellow	valve C5
20	Valve unit/buffer 1 (300)	—	green	valve C5
21	Valve unit/pump	—	blue	valve P9
22	Valve unit/cleaning/return valve	—	purple	valve R7
23	Valve unit/buffer 2 (300)	—	grey	valve C6
24	Valve unit/buffer 2 (300)	—	white	valve C6
25	Level	+24 VDC	brown	
26	Level	inp. 8	black	
27	Level	DVDC	blue	
SL	Protective lead	grounding	customer	housing
N	Neutral	power supply	customer	logo power
L	Power	power supply	customer	logo power

NOTE

The EasyClean can be operated without the check-back position indicator or flow sensor. In this case the following terminals must be bridged, so that no fault messages are generated.

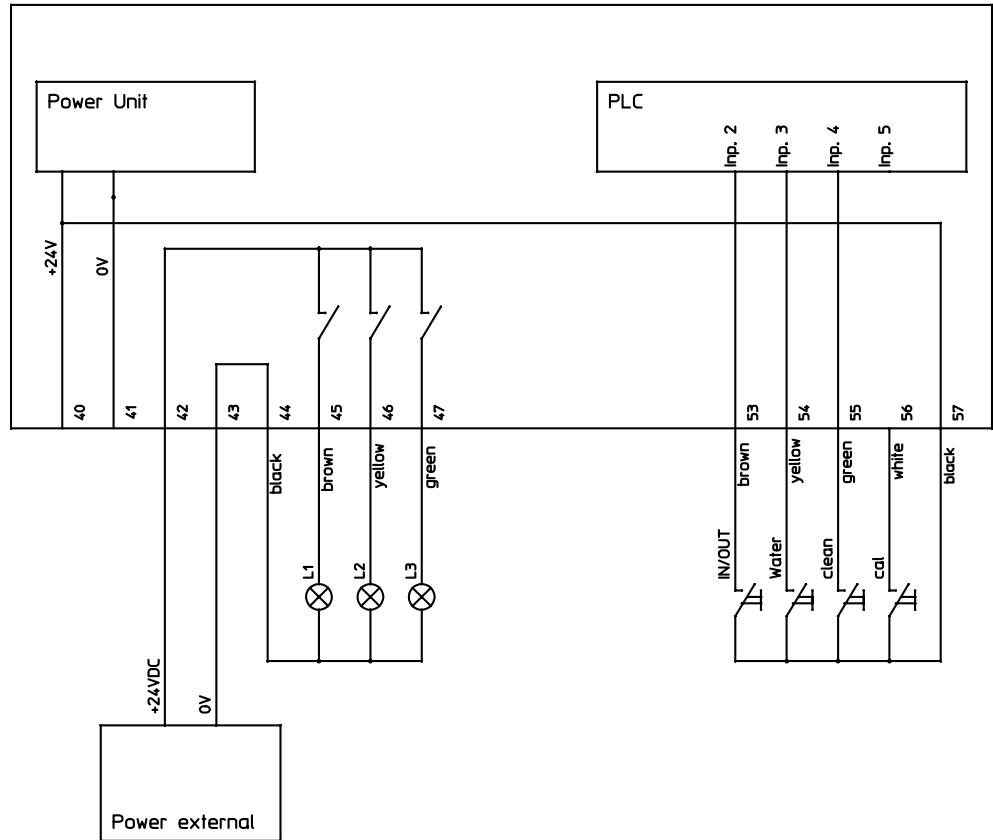
- Terminal nos. 1 and 2 connected (check-back position indicator forward)
- Terminal nos. 4 and 5 connected (check-back position indicator back)
- Terminal nos. 25 and 26 connected (flow sensor)

**NOTE**

For remote indication of EasyClean alarms (e.g. warning light, horn or other external signaling equipment) the 24V alarm signal is available at terminals 13 and 14. Bridge over terminals 12 and 13. An alarm device can be connected between terminal 11 and 14.



Electrical connections of the additional PCB for options



Terminal loading, additional PCB

Connection no.	Function	Designation	Color of cable	Connected to
40	EasyClean 200/300 feed	+24V int.		
41	EasyClean 200/300 feed	0V internal		
42	Feed external	+24V		
43	Feed external	0V		
44	Triple alarm light	Common	black	43 (bridge)
45	Triple alarm light «operation»	L1	brown	1 (light)
46	Triple alarm light «service»	L2	yellow	2 (light)
47	Triple alarm light «alarm»	L3	green	3 (light)
53	Remote control	B	brown	
54	Remote control	S	yellow	
55	Remote control	R	green	
56	Remote control	K	white	
57	Remote control	+24V	black	



NOTE

If an alarm lamp is to be feed by the EasyClean power bloc the terminals no. 40 and 42 must be connected to each other as well as no. 41 and 43.

4.3 Installation of the «Cleaning – Calibration» upgrade kit



DANGER

Before the upgrade, the device must be disconnected from all energy sources (power, compressed air and detergent container).

The upgrade kit consists of:

Qty.	Designation
1	EasyClean300 top plate for control unit
1	Connection cable, control unit – valve unit 1.5 m (5 ft)
2	2/2-way valves for calibration liquids
1	EasyClean300 valve block with the required fittings and hoses
1	Installation instructions

Procedure:

1. Replace the top plate of the EasyClean200 with the top plate of the EasyClean300
2. Replace the connection cable control unit / valve unit. Connect cable as described in section 4.2 «Electrical connections – connection cable control unit/valve unit».
3. Remove the valve unit incl. the valves.
4. Fit the valves (air, water and detergent valve) to the EasyClean300 distributor block.

4.4 Installing the additional PCB for options (triple warning light; remote control)



DANGER

Before the upgrade, the device must be disconnected from all energy sources (power, compressed air and detergent container).

Procedure:

1. Open the control device
2. Replace the mounting screws of the control PCB (x 6) with the spacers provided.
Important! Do not remove the cable connection from the control PCB to the keyboard PCB.
3. Insert the flat cable plug from the additional PCB into the plug on the control PCB.
4. Secure the additional PCB to the spacers using the control PCB's screws.
5. Select the required option (see section 4.2 «Connections»).
6. Close the control device and start operation (see section 4.5 «Commissioning»).

4.5 Installation of the flow sensor

The flow sensor is to be installed in the valve unit, parallel to the the pump.
Refer to the enclosed installation instructions for detailed information.

4.6 Commissioning procedure

1. Fit the EasyClean200 or 300 to a wall or a pipe/post, so that the connections are facing downwards (see section 4.1 «Fitting»).
2. Install the connections (see section 4.2 «Connections»)
 - Compressed air supply
 - Rinsing water connection from the building
 - Pneumatic and rinsing connections between the EasyClean and the retractable housing (pneumatic hoses are optional accessories)
 - Connect the container for detergent
 - Connect the containers for buffer 1 and 2 (EasyClean300 only)
 - Signal lead to transmitter



NOTE

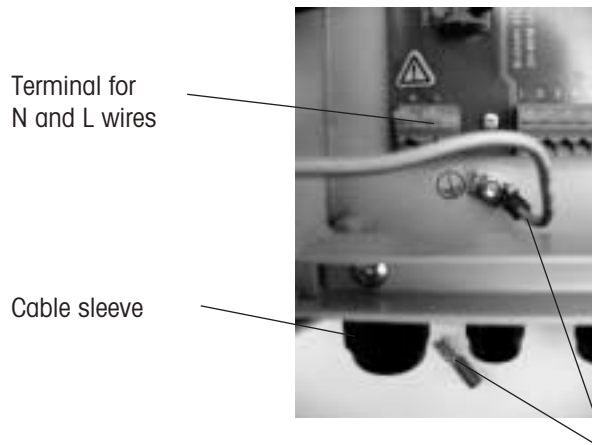
The leads are rinsed with compressed air and in the event of instability must be secured, e.g. using cable binders.

3. Check before commissioning:
 - Are compressed air, rinsing water and waste water correctly connected?
 - Are the retractable housing and transmitter installed and connected in accordance with the relevant instruction manual?
 - Are all unused screw threads sealed with rubber stoppers?
 - Have the containers been filled with detergent/buffer solution?
 - Have all hose connections been put carefully into place?

4. First commissioning

Once the transmitter, water, compressed air, detergent and, if available, buffer have been correctly connected, the EasyClean can be connected to the mains.

Connect the main cable:



When connecting the grounding wire use the supplied blade terminals.
Crimp the terminals from both sides.

When the EasyClean is connected to the mains, the housing and the sensor move into the process «measuring position».

4.7 Function test



NOTE

In de-energized state the sensor moves out of the process.

The **rinsing, cleaning** and, if available, **calibration functions**, as well as the **monitoring sensor functions**, can be tested without the transmitter.

If the processes are in order as described in section 5.3, the system is ready for operation. In the event of operational faults, consult section 6.2 «Corrective action».

Testing the response of the housing

1. For the test, separate all response cables from the connection terminals.
Nos. 1, 2, 3 (forward)
Nos. 4, 5, 6 (back)
2. Approx. 12 seconds after separation of the position indicators, an alarm message appears in the display: «**Armatür, Housing, Armature**».
3. When this message has appeared, the cables can once more be fitted to the relevant terminal position.

Testing the «Flow sensor» option (only if present)

1. For the test, separate all connections from the connection terminals.
Nos. 25, 26, 27 (level)
2. Start a manual rinsing procedure by pressing the «**Water**» key.
3. After 12 seconds the message «**Füllstand, Check Levels, Niveau**» appears on the control display.
 - The «**Füllstand, Check Levels, Niveau**» message can be reset by simultaneously pressing the «**In/Out**» and «**Water**» keys.



NOTE

All processes can be interrupted by means of Reset (simultaneously pressing the «**In/Out**» and «**Water**» keys). After reset the EasyClean performs a rinse cycle. Finally, the housing always moves into the service position.



NOTE

During the function test, check that all hose connections are sealed and securely attached.

You can check that the housing is working by pressing the «**In/Out**» key.

Check the rinsing, cleaning and calibration processes in the program sequence by pressing the relevant button («**Water**», «**Clean**» or «**Cal**»).

4.8 Program sequence

The EasyClean is supplied with standard program sequences. Between the individual functions and always at the end of a process, the whole system is rinsed with water and air.

The following rinsing and cleaning times are preset as standard:

Rinsing:	60 seconds	TT3 (Timer)
Cleaning:	120 seconds	TT2 (Timer)
Water/air rinsing:	approx. 25 seconds	
Total cycle time:	approx. 3 minutes 50 seconds	

In order to match the rinsing and cleaning effect of the EasyClean to the amount of dirt on the sensor, the times of the rinse and clean functions can be individually adjusted (see section 5.4 «User interface of the programmable control/changing parameters»).

5 Operation

5.1 Checks by the operator

When switching the device on, every day and when a new shift starts, check whether the supply of: **compressed air**, **rinsing water** and **electrical power** is guaranteed, that the **containers are full of cleaning/buffer solution**.



CAUTION

The retractable housing **may only be moved into the measuring position when the electrode has been installed**, as otherwise process medium might leak from the retractable housing.

5.2 Refilling with cleaning fluid and buffer solution



CAUTION

Wear the prescribed protective clothing (protective glasses, gloves, etc.).

The flow meter (optional accessory) indicates whether a liquid is being delivered. If no liquid can be detected during a delivery process, the EasyClean generates a «Level» alarm. In this event the following possibilities arise:

- no water flow
- detergent or buffer cannot be drawn in (the containers are not necessarily empty! see section 6.2 «Corrective action»).

5.3 Operating the EasyClean200/300



NOTE

In the Service position the Hold contact in the EasyClean is always closed.



CAUTION

Do not remove the sensor from the retractable housing unless the «Service» message appears in the display of the PLC. Additionally check the position of the housing visually.



NOTE

During a process, signals from the transmitter are ignored.

Signals emitted during a process are not stored.

Only one process may be performed at a time.

The position of the housing before a process is identical to its position after a process.

This cycle runs for as long as the button is pressed down. No timer is activated.

Description of keys

Key	Function/process	Message/display on the prog. control display	Comments
«In/Out»	Key to switch from the service to the measuring position.	Run (Measure) or Service	When the housing moves into the measure position, the hold contact of the transmitter is lifted after 12 seconds. The sensor is rinsed with air and water (25 sec.).
Press «In/Out» and «WATER» simultaneously	Reset or interrupt cycles in progress. Transmitter goes into hold mode. Brief rinsing with water and air (25 sec.). End of process.	Rinsing H2O Run or Service	The housing remains in the service position. Depending on housing position.
«WATER»	The housing moves into the service position. Transmitter goes into hold mode. Rinsing. End of process.	Rinsing H2O	
«Clean»	The housing moves into the service position. Transmitter goes into hold mode. Rinsing. Cleaning. Rinsing. End of process.	Rinsing H2O Cleaning Rinsing H2O	

Calibrating a sensor



NOTE

While the sensor is prepared by the EasyClean for calibration (rinsing, cleaning), the transmitter must be set to «Calibration» mode. Please refer to the relevant instruction manual.

Key	Function/process	Message/display on the prog. control display	Comments
«Cal»	The housing moves into the service position. Transmitter goes into hold mode. Rinsing. Cleaning. Rinsing. Cal. buffer 1.	Rinsing H2O Cleaning Rinsing H2O Cal. buffer 1	Rinsing. Cleaning. Buffer 1 is pumped into the rinsing chamber. When the message cal. buffer 1 appears on the control display, the calibration can be done through the transmitter. When calibration point 1 on the transmitter has been done successfully, press «Cal» key once more.
«Cal»	Rinsing. Cal. buffer 2.	Rinsing H2O Cal. buffer 2	Rinsing. Buffer 2 is pumped into the rinsing chamber. When the message cal. buffer 2 appears on the control display, the calibration can be done through the transmitter. When calibration point 2 on the transmitter has been done successfully, press «Cal» key once more.
«Cal»	Rinsing. End of process.	Rinsing H2O Service or Run	



NOTE

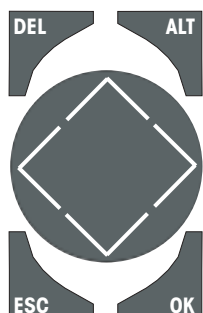
If the «Cal» key is pressed once, the sensor can be stored in buffer solution, for example in longer process or measuring interruptions.

5.4 User interface of the programmable control



DANGER
To access the control user interface, the housing top plate must be opened.
The housing top plate may only be opened by authorized, trained specialist staff.

Key functions

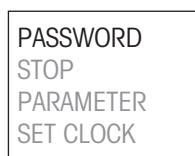


- «DEL»: No function in normal status
- «Alt»: No function in normal status
- «OK»: Change to next menu level
Call up menu item
Save entries
- «ESC»: Change to previous menu level
- «▲», «▼»: Select and change menu items or set values
- «◀», «▶»: Change figures

Call up menu / menu items

Press «OK». Current selection flashes in the information display.

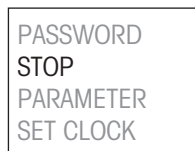
PASSWORD menu item



For safety reasons the EasyClean program is password-protected. There is no access to this menu.

Do not attempt to access this menu. After four unsuccessful attempts the entire program of the programmable control is deleted.

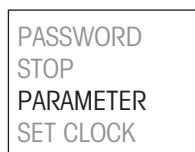
STOP menu item



STOP displayed: The **programmable control is ready** for operation. The program is active.

RUN displayed: The **programmable control is inactive**. No process can be controlled.

PARAMETER menu item

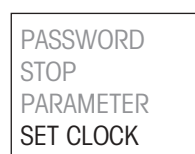


In this submenu it is possible to adjust the rinsing and cleaning times. Using the «▲» or «▼» key (center) it is possible to locate and set the times for rinsing and cleaning.

- T2 = Cleaning time
- T3 = Rinsing time

Set the rinsing/cleaning time in MM:SS (min.: sec.) and confirm time by pressing «OK».

SET CLOCK menu item



Under this menu item you can set the current time. The time set here has no effect on the function of the EasyClean.

5.5 Procedure in the event of a failure in the power or fuel supply

Failure of compressed air

Measuring position

- If the housing is in the Measure position, the sensor can be moved by process pressure in the direction of the Service position.
- As soon as the check-back position indicator (optional accessory) can no longer detect the end position, after 12 seconds an alarm is generated.
- The transmitter goes on Hold.

Service position

- A loss of compressed air has no direct effect in the Service position.
- As soon as the EasyClean attempts to move the housing into the Measure position, the check-back position indicators (optional accessory) indicate an error and after 12 seconds they generate an alarm.
- The transmitter remains on Hold.

Failure of power supply

- The housing moves out of the process and the transmitter goes on Hold.
- As soon as power is once more available, the housing always moves into the measuring position («Run» appears on the display) and the transmitter moves to Measure.

No water, detergent or buffer

- Not detectable without flow sensor (optional accessory)
- As an option the EasyClean generates an alarm if no liquid can be detected after 12 seconds.
- This message remains until the EasyClean is reset (press «In/Out» and «Water» buttons simultaneously). At the end of the process the housing is in the starting position.
- A relevant measurement is continued.

6 Maintenance and fault elimination

If you have any questions about faults or repairs, please contact your local METTLER TOLEDO customer service. The addresses may be found at the end of this instruction manual.

6.1 Maintenance

The EasyClean200/300 is service reduced, but not maintenance-free.

To remove dust, dirt and stains, the external surfaces of the device can be wiped with a soft, damp cloth. If necessary a mild detergent can also be used.



CAUTION

The housing may **not be cleaned with any solvent containing acetone**.

For further cleaning (e.g. blowing out the housing), you may use filtered compressed air that is free of oil and water (pressure < 6 bar).



CAUTION

The inside of the housing may **not be cleaned using a liquid or a damp cloth**.

In addition to general cleaning, the piston pump should be dismantled once a year, thoroughly cleaned, and the seals (O-rings) and coiled springs in the check valves replaced. This period should be shortened depending on the type of cleaning agent employed and the degree of use of the equipment.

CAUTION

When cleaning the pump piston and the cylinder, please take care that the surfaces do not become scratched or damaged.

6.2 Fault elimination and repairs



DANGER

Please refer to chapter 2 «Safety»!

Repair work may only be performed by specialists. Before the device is opened, it must be disconnected from the power supply!

Failure	Cause	Remedy
Sensor does not move out of the process, InTrac housing does not move	Compressed air not switched on. Air pressure is too low. Control air valve jams. Air hoses incorrectly fitted or defective. The valve is not receiving any power. Poor contact in control valve plug.	Switch on compressed air. Increase pressure. Clean, poss. replace valve.. Check hoses for leaks, bends or any kinks. Check the wiring as described in section 4.2 «Connections» (EasyClean terminal 16, brown). Check plug 16.

Failure	Cause	Remedy
Sensor does not move out of the process, InTrac housing does not move	<p>No power supply.</p> <p>The housing does not reach the required end position (housing jams).</p> <p>The transmitter goes on hold and no further processes are performed.</p> <p>Programmable control fault function.</p>	<p>Check the wiring as described in section 4.2 «Connections» (EasyClean terminal 15, black).</p> <p>Check position indicator, control pressure and power supply.</p> <p>Note: If the cause is rectified, the command started is completed.</p> <p>Check programmable control.</p>
Insufficient rinsing of the electrode	<p>Insufficient water flow.</p> <p>Rinse interval too long and/or rinse times too short.</p> <p>Rinsing chamber blocked.</p> <p>Water valve jammed in the valve unit.</p>	<p>Increase water flow or clean the pipe.</p> <p>Shorten the interval on the transmitter, increase rinse times on the EasyClean.</p> <p>Take out the electrode and housing and clean the rinsing chamber.</p> <p>Clean, poss. replace valve.</p>
Automatic cleaning does not start	<p>The cleaning interval from the transmitter is not recognized by the device.</p> <p>Wash contact not activated on the transmitter.</p>	<p>Check the wiring with reference to section 4.2 «Connections».</p> <p>Activate the wash contact in accordance with the transmitter manual.</p>
The keys are not active	<p>Process performed by EasyClean.</p> <p>No power to the EasyClean.</p> <p>Poor contact connection to the keys.</p>	<p>Wait until message RUN or SERVICE appears in the display.</p> <p>Check power supply.</p> <p>Check contacts to the keys.</p>
The pipes are not rinsed with air	<p>Compressed air not switched on..</p> <p>Air pressure is too low.</p> <p>Air valve jammed.</p> <p>Air hoses incorrectly fitted or defective.</p> <p>The air valve is not receiving any power.</p>	<p>The air valve is not receiving any power.</p> <p>Switch on compressed air (min. 4 bar).</p> <p>Clean or replace valve.</p> <p>Check correct fitting and installation of tubes.</p> <p>Check the wiring with reference to section 4.2 «Connections» (EasyClean terminal 17, red).</p>
The piston pump does not start	<p>Compressed air not switched on.</p> <p>Air pressure too low.</p> <p>Air hoses incorrectly fitted or defective.</p> <p>The control air valve is not receiving any power.</p> <p>Control air valve jammed.</p> <p>The pump is defective.</p>	<p>Switch on compressed air.</p> <p>Increase pressure (4 to 8 bar).</p> <p>Check hoses for leaks, bends or any kinks.</p> <p>Check the wiring with reference to section 4.2 «Connections» (EasyClean terminal 21, blue).</p> <p>Clean, poss. replace valve.</p> <p>Replace pump.</p>
The piston pump is delivering little or no liquid	<p>The spring in the return valve is defective.</p> <p>The pump is not sealed.</p>	<p>Replace return valves and spring (see chapter 8.1 «Spare parts list»).</p> <p>Replace pistons. Replace return valves and spring (see chapter 8.1 «Spare parts list»).</p>

Failure	Cause	Remedy
Liquid is not delivered by the piston pump (detergent or buffer)	Cleaning, buffer or water valve not supplied with power. Cleaning, buffer or water valve are blocked. Cleaning, buffer or water valve are defective.	Check the wiring with reference to section 4.2 «Connections». Remove valve and clean, poss. replace. Replace.
Transmitter does not go into Hold mode	Hold contact on the EasyClean does not close. Terminal contact dry.	Check the wiring with reference to section 4.2 «Connections». Check the wiring on the transmitter.
Check-back position indicator not recognized by EasyClean	Check-back position indicator defective. Terminal contact dry.	Replace check-back position indicator. Check the wiring with reference to the circuit diagram. Check cable.
Screen is blank	LCD screen defective. Power supply interrupted.	Replace the print unit with the PLC. Check the power supply.
Alarm message «Check Levels» appears on the display	The flow sensor cannot identify any media flow during a rinse, clean or calibration cycle.	Check flow sensor. Check water, detergent or buffer valve. Check pipe. Check pump funktion.

Error messages (ERROR) on the programmable control

Error message	Cause	Remedy
TEST EEPROM TEST DISPLAY TEST CLOCK	Self-test interrupted	Replace the print unit with the PLC.
ERROR 12C	Control defective	Replace the print unit with the PLC.
ERROR: EEPROM	Control circuit diagram storage is defective	Replace the print unit with the PLC.
ERROR : CLOCK	Clock error	Replace the print unit with the PLC.
ERROR: LCD	LCD defective	Replace the print unit with the PLC.
ERROR: ACLOW	Control defective	Replace the print unit with the PLC.

7 Decommissioning, storage, disposal

**DANGER**

Please refer to chapter 2 «Safety».

Decommissioning may only be performed by trained staff or specialists.

7.1 Decommissioning

Procedure

1. Switch off the power supply, the compressed air supply and the water supply to the device.
2. Disconnect the device from the main switch.
3. Disconnect any signal leads used.
4. Disconnect leads for compressed air.
5. Remove the EasyClean from its mounting.
6. Rinse the hoses and valves with fresh water.
7. Clean the device with a damp cloth.
8. Allow the device to dry.

7.2 Storage

Store the EasyClean in a dry place, as described in section 1.3.

7.3 Disposal

It is recommended that the operator dispose of the device in accordance with local regulations. The operator must deliver the device to either a licensed private or a public disposal company or dispose of it himself in accordance with prevailing regulations. Waste is to be recycled or disposed of without causing any risk to human health and without using procedures or methods that might damage the environment.

EC guideline 75/442/EEC
91/156/EEC

Sorting

Sorting takes place by placing the device into waste groups as listed in the current European Waste Catalogue (EWC). This catalogue is valid for all waste, whether it is intended for disposal or recycling.

The packaging contains the following materials:

- cardboard
- foam plastic.

The device contains the following materials:

- steel
- electronic materials (cables, components, programmable control)
- various components as described in the printed description.

8 Spare parts and accessories

When ordering spare parts, please state the following details:

- article number of the device
- serial number of the device
- ordering number from the following list of spare parts
- quantity required.

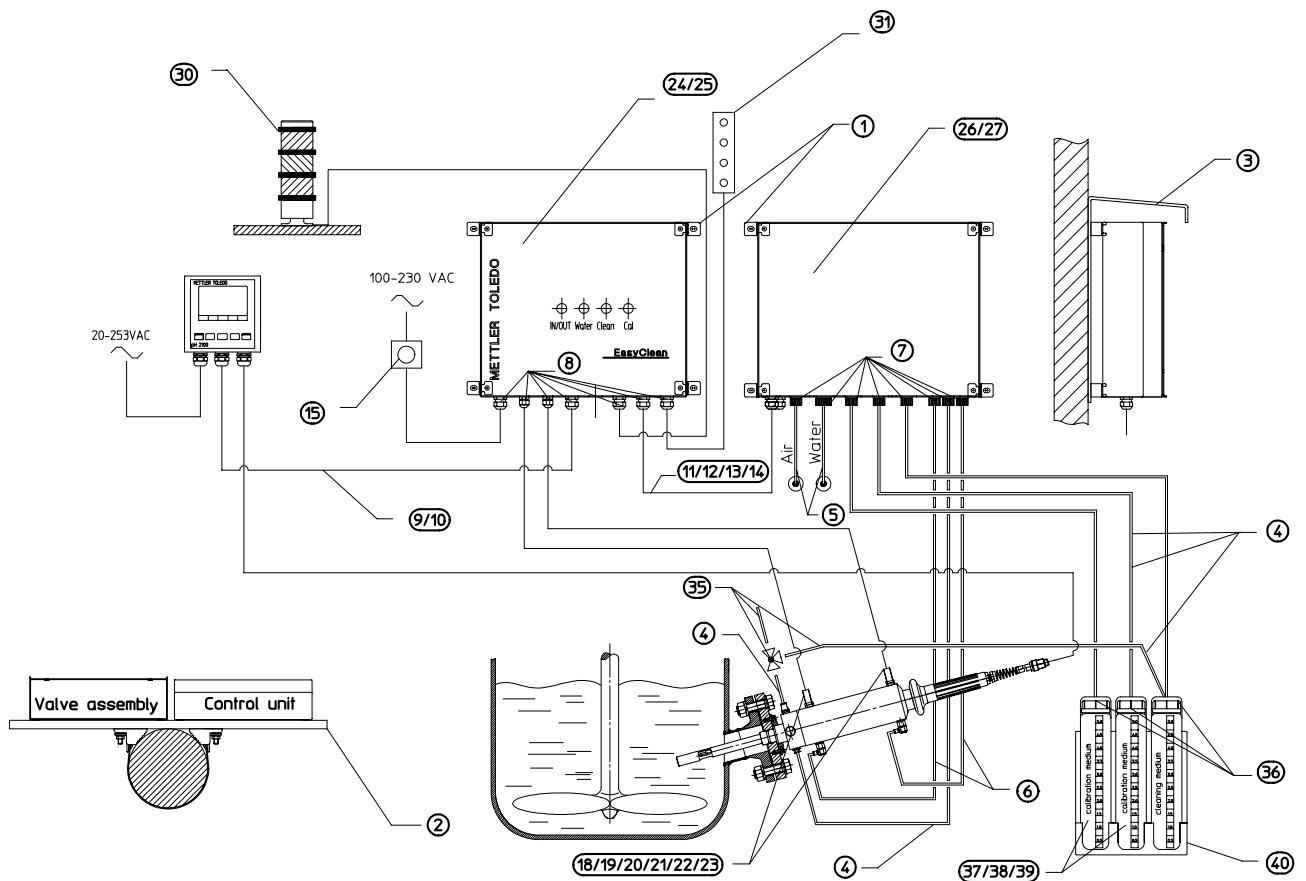
The addresses of manufacturers and customer service may be found at the end of this instruction manual.

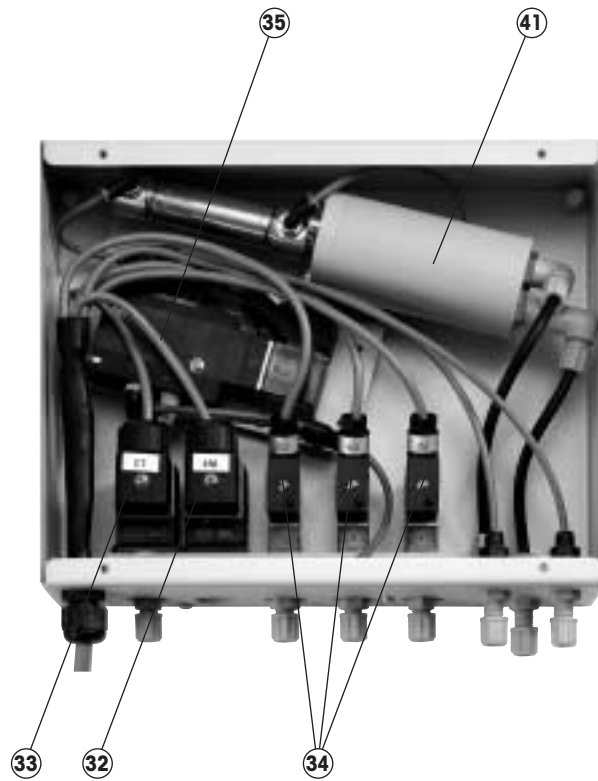


NOTICE

Spare parts must correspond to the technical requirements of the manufacturer of the device!
Only use original spare parts.

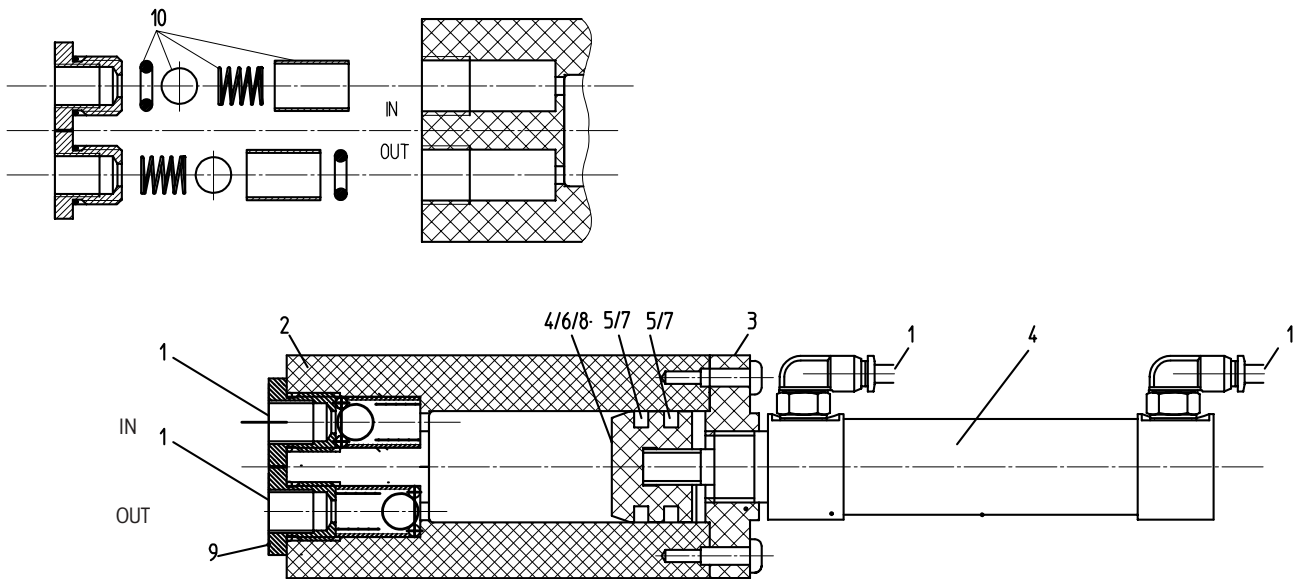
8.1 List of spare parts and accessories for EasyClean200/300





Pos.	Art. no.	Description
1	52 402 306	Wall mounting kit, complete
2	52 402 308	Pipe/post mounting kit, complete
3	52 402316	Weatherproof hood
4	52 402 283	Tubing PTFE, 6/4 mm, 5 m/15 ft.
5	52 402 314	Hose LDPE/20 m, for compressed air connection
6	52 401 322	Pneumatics hose PU, 6/4 mm, 10 m
7	52 402 337	Fittingset pneum./hydr.
8	52 402 336	Grommet set for cable
9	52 300 265	Connecting cable: control unit > transmitter (5 m)
10	52 300 266	Connecting cable: control unit > transmitter (10 m)
11	52 300 267	Connecting cable: EasyClean200 > valve unit (1.5 m/5 ft.)
12	52 300 273	Connecting cable: EasyClean300 > valve unit (1.5 m/5 ft.)
13	52 402 350	Connecting cable: EasyClean200 > valve unit (20 m/60 ft.)
14	52 402 363	Connecting cable: EasyClean300 > valve unit (20 m/60 ft.)
15	52 402 317	Panic button (emergency shutdown)
16	52 402 305	Power unit
17	52 402 400	Print with PLC EasyClean200/300
18	52 402 396	Kit pneum./ind. Non-Ex H-70/100
19	52 402 371	Kit pneum./ind. Ex H-70/100
20	52 402 372	Kit pneum./ind. Non-Ex H-200
21	52 402 373	Kit pneum./ind. Ex H-200
22	52 402 398	Conversion kit ind. pos. ind. Non-Ex
23	52 402 399	Conversion kit ind. pos. ind. EEx
24	52 402 321	Control unit EasyClean200
25	52 402 322	Control unit EasyClean300
26	52 402 323	Valve assembly EasyClean200
27	52 402 324	Valve assembly EasyClean300
	52402346	Upgrade-Kit EasyClean200 to EasyClean300
	52 402 349	Flow sensor (into valve assembly)
	52 402 347	Additional board for remote control/warning light
30	52 402 351	Warning light (works with 52 402 347 only)
31	52 402 355	Remote control (works with 52 402 347 only)
32	52 402 309	Valve - water
33	52 402 320	Valve - air
34	52 402 375	Valve - clean/cal
35	52 402 352	Return flow valve set
36	52 118 063	Compact canister, 5000 ml/empty
37	51 340 237	Buffer pH 4.01 red, 5000 ml
38	51 340 238	Buffer pH 7.00 green, 5000 ml
39	51 340 239	Buffer pH 9.21 blue, 5000 ml
40	52 402 348	Canister rack for 3 compact canister
41	52 402 376	Pump pneumatic
42	52 402 353	Set of spare parts for pump
43	52 402 377	Set of checkvalves for pump
	52 500 179	Instruction manual EasyClean200/300 (e/g/f)

8.2 Fitting spare parts for the piston pump



Fitting the seal set

1. Remove the hoses from the piston pump.
2. Remove the piston pump.
3. Release the top plate from the piston pump (4 screws).
4. Pull piston incl. drive from the cylinder.
5. Remove the O-ring.
6. Clean the piston with a clean cloth.
7. Fit a new O-ring into the groove provided in the piston. (Do not grease!)
8. Re-fit piston.

Removing the return valves

9. Remove the return valve using a screwdriver.
10. Replace the O-ring, ball, spring and guide pins.
11. Install with reference to the figure above (above = IN, below = OUT).

METTLER TOLEDO Market Organizations

Sales and Service:

Australia

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Port Melbourne
AUS-3207 Victoria
Phone +61 39 644 57 00
Fax +61 39 645 39 35
e-mail mtausprocess@mt.com

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Mettler-Toledo GmbH
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Phone +43 1 604 19 80
Fax +43 1 604 28 80
e-mail infoprocess.mtat@mt.com

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