

EasyClean systems

Technical data

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EasyClean 200e



Valve assembly

METTLER TOLEDO

What is EasyClean?

Automated in-line cleaning system for your sensors

Only a clean sensor can provide reliable and accurate measurement results. With our EasyClean® systems, cleaning and calibration of sensors can be fully automated. Both the cleaning interval and the duration of flushing can be individually programmed for specific applications.

The EasyClean range starts with two comparatively basic versions intended for straightforward sensor flushing, the EasyClean 100 and EasyClean 150. These two systems are primarily intended for applications where contamination occurs in the form of water-soluble substances.

The EasyClean 200e can, besides the use of water alone, also be employed for cleaning with the aid of chemical solutions. Concentrated cleaning agent of your choice is pumped directly to the tip of the sensor. Cleaning and rinsing times as well as the cleaning interval can be adjusted individually.

Type	Function
EasyClean 100	flush
EasyClean 150	flush
EasyClean 200e	flush, chemical cleaning

Advantages through the employment of EasyClean:

- replacement/maintenance cost savings due to an extended lifetime of sensors
- higher safety standard through not having to remove the sensor during maintenance work
- increased process safety due to accurate, reliable measurement
- greater reproducibility of measurements for better process control
- defined and consistent product quality
- wide flexibility of system installation
- user-selectable cleaning medium/wide choice of cleaning media
- regular maintenance of poorly accessible installations.

Some typical applications

Wastewater:	Detoxification and neutralization of industrial wastewater
Pulp & paper:	Spreading on paper machines Bleaching process
CPI:	Optimization of dye manufacture Production of agrochemicals Monitoring of chemical reactions

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EasyClean 100 – an ideal control unit for use with the InDip immersion housing



When taking measurements in open basins or channels, e.g., in wastewater neutralization plants, the sensor is mostly mounted in an immersion housing. This housing allows the sensor to be safely located in the basin or channel at a defined immersion depth. Conventional cleaning methods require removing the whole installation from the basin. Using EasyClean 100, this cleaning procedure can be fully automated, while the housing and sensor remain in the immersed position.

EasyClean 100 consists of a control unit and an additional spray head located at the submerged end of the InDip® 550 immersion housing. Air or water is sprayed directly at the tip of the sensor to ensure effective cleaning. It is therefore completely unnecessary to remove the installation from its mounted position. Cleaning is carried out automatically through activation of the “Wash” contact in the associated transmitter. Depending upon the degree of contamination or fouling of the sensor, the cleaning interval and/or duration can be set individually as required.



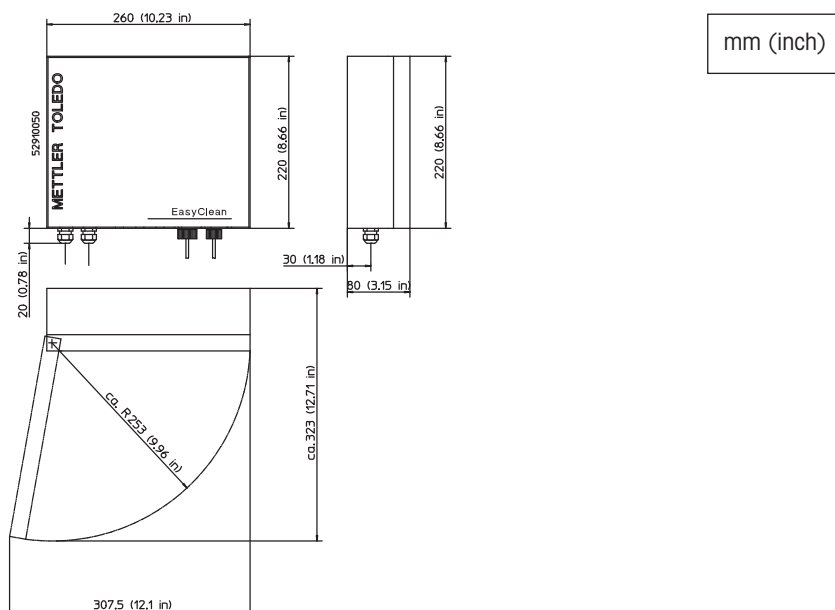
Sensor cleaning with air using the cavitation effect.

Cavitation:

A localized low-pressure vaporization condition (cavities or bubbles) within a liquid, is not always appreciated. In our particular case, the sound and/or vibration on the sensor surface caused by bubble collapse is welcomed to remove contamination.

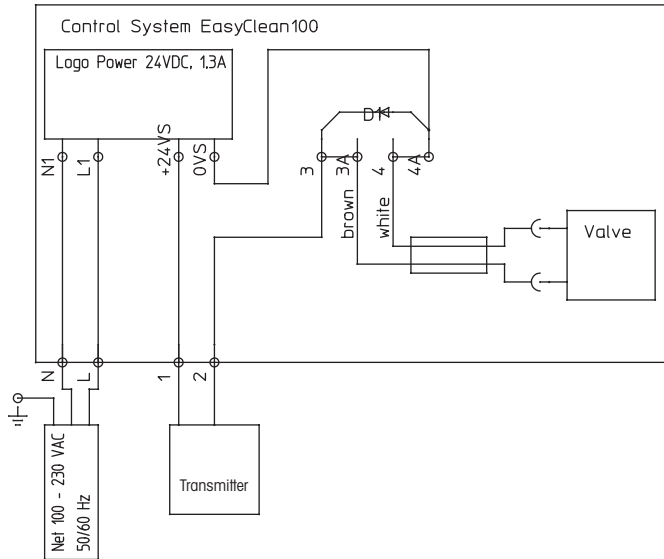
Dimensions EasyClean 100

For the exact dimensions relative to wall mounting, please refer to the specifications section on page 15 of this documentation.



Electrical connections EasyClean 100

Electrical connections of EasyClean 100 and a transmitter.

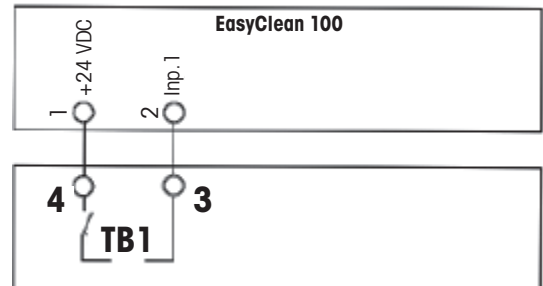


Electrical connections

Transmitter M300 G2

Set relay #2 for example on the transmitter to rinse contact.

Define rinse interval and rinse time according to the process requirements on the transmitter M300.



EasyClean 150 – the ideal control unit for use with the InDip immersion housing



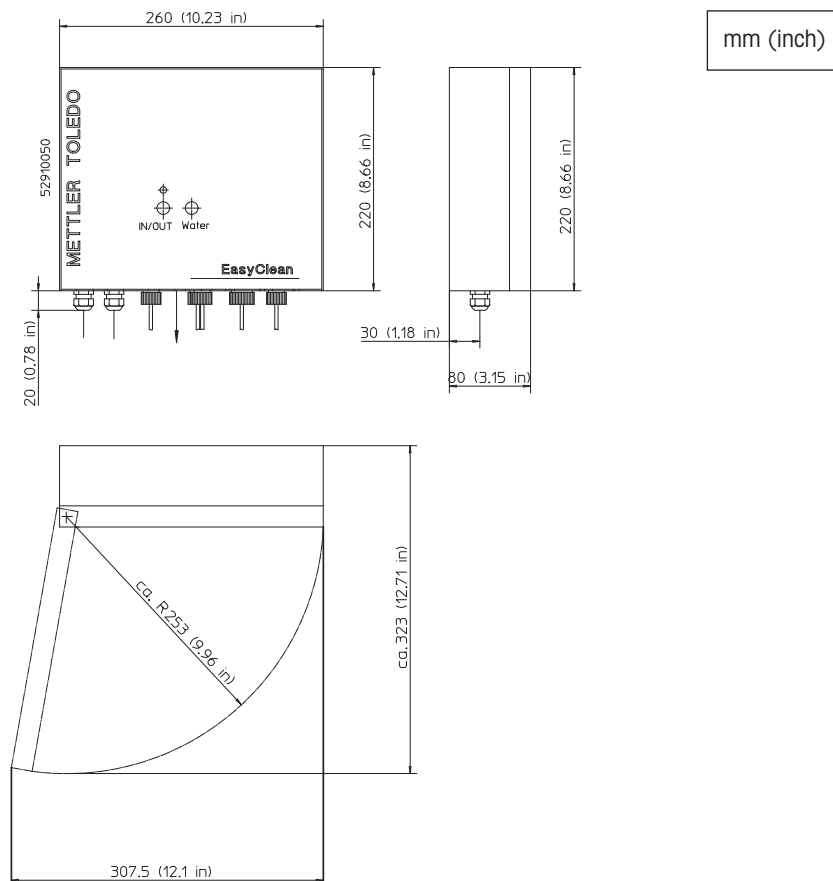
Sensors installed in a pipe or reaction vessel must be withdrawn from the process periodically for maintenance. The InTrac retractable housing features a flushing chamber that is safely sealed off from the process. Using an InTrac retractable housing, sensors can easily be removed from the medium for cleaning, maintenance, or replacement without process interruption.

The EasyClean 150 is the simplest, safest, and most cost-effective way to automate sensor flushing. The flushing cycle and its duration can be triggered automatically through the "Wash" contact in the transmitter, or performed manually by pressing the appropriate keys on the EasyClean control unit. The position of the retractable housing will be indicated through the EasyClean 150.

EasyClean 150 will work optimally with all pneumatic operated retractable housings such as the InTrac® 777 e.

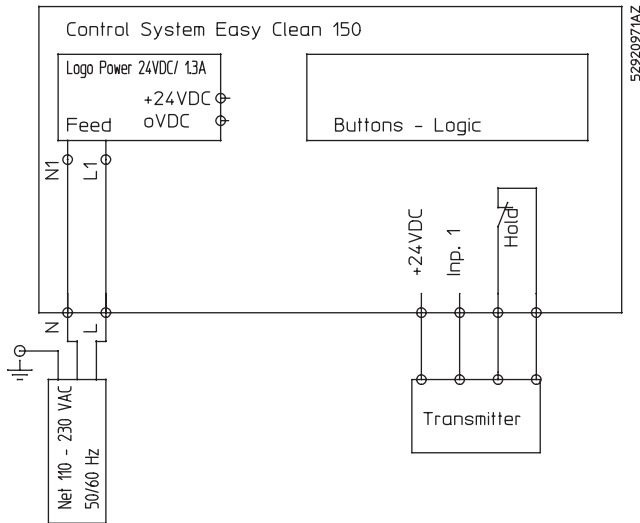
Dimensions EasyClean 150

For the exact dimensions relative to wall mounting, please refer to the specifications section on page 15 of this documentation.



Electrical connections EasyClean 150

Electrical connections of EasyClean 150 and a transmitter.

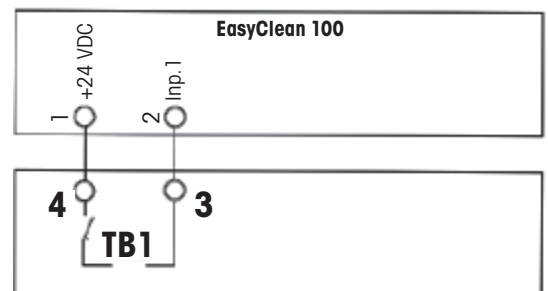


Electrical connections

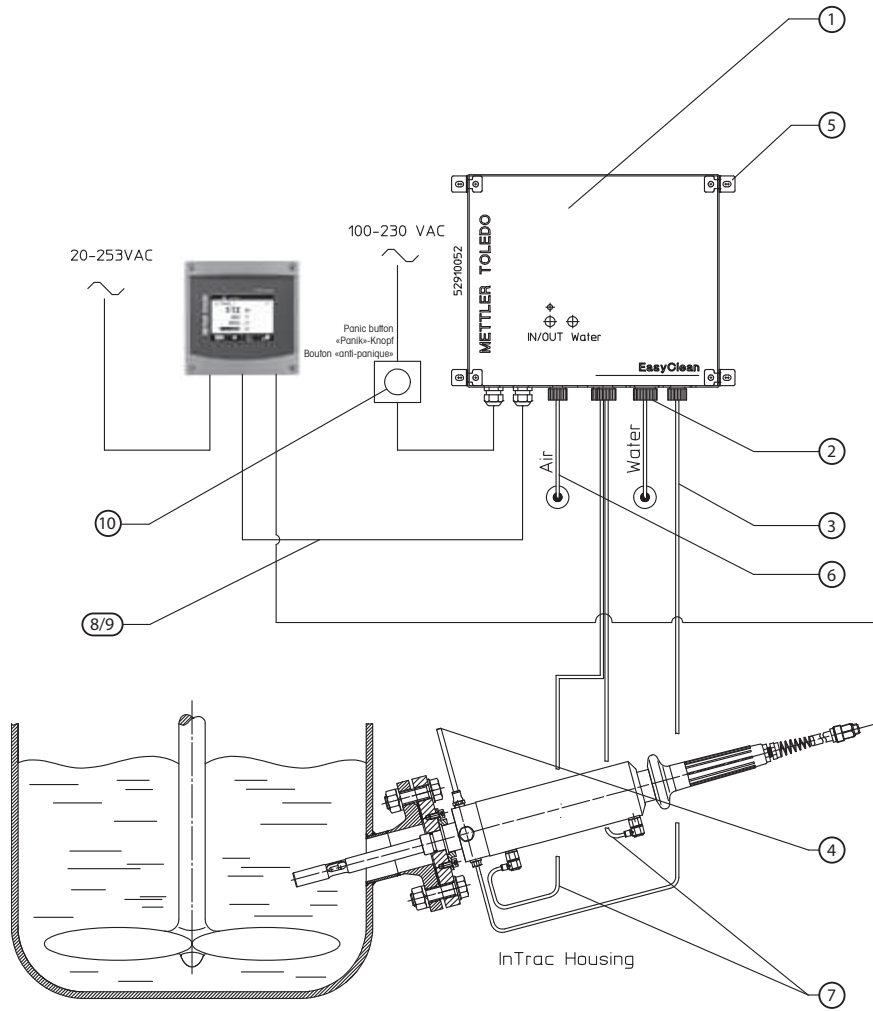
Transmitter M300 G2

Set relay #2 for example on the transmitter to rinse contact.

Define rinse interval and rinse time according to the process requirements on the transmitter M300.



EasyClean 100 and 150 are designed to work together with METTLER TOLEDO transmitters. Please consult relevant instruction manuals of third party transmitters for proper installation.



The EasyClean 150 delivery consists of the following:

N°	Designation	Order no.
1	EasyClean 150	52 402 319
2	Water connection: G 1/4" female or 1/4" NPT male	
3	Connecting hose: Ø 6/4 mm, length 5 m (16.4 ft), material LDPE → connection control unit → retractable housing	
4	Drainwater hose: Ø 6/4 mm, length 5 m (16.4 ft), material LDPE → connection retractable housing → drain	

Accessories and spare parts (to be ordered separately)		
3/4	Tubing PTFE 6/4 mm (5 m/16.4 ft)	52 402 283
5	Wall mounting kit, complete	52 402 306
6	Tubing LDPE for compressed air connection (20 m/65.6 ft)	52 402 314
7	Pneumatics hose PU 6/4 mm, (10 m/32.8 ft)	52 401 322
8	Connecting cable: control unit → transmitter (5 m/16.4 ft)	52 300 265
9	Connecting cable: control unit → transmitter (10 m/32.8 ft)	52 300 266
10	Panic button (emergency shutdown)	52 402 317

EasyClean 200e – chemical sensor cleaning system for use with InTrac retractable housings



Heavy contamination of sensors has a direct impact on their performance and serviceable life. Only a clean sensor can guarantee optimum performance and accuracy in a process. EasyClean 200e has been developed specially for the regular cleaning of sensors in processes where there is a latent risk of fouling. To avoid any changes in the potential of the sensor due to fouling, EasyClean 200e first flushes the sensor with water and then cleans it with an individual cleaning agent according to the degree of contamination. The cleaning cycle is activated by the "Wash" contact of the transmitter. EasyClean controls the entire cleaning sequence for a sensor fitted in an InTrac retractable housing.

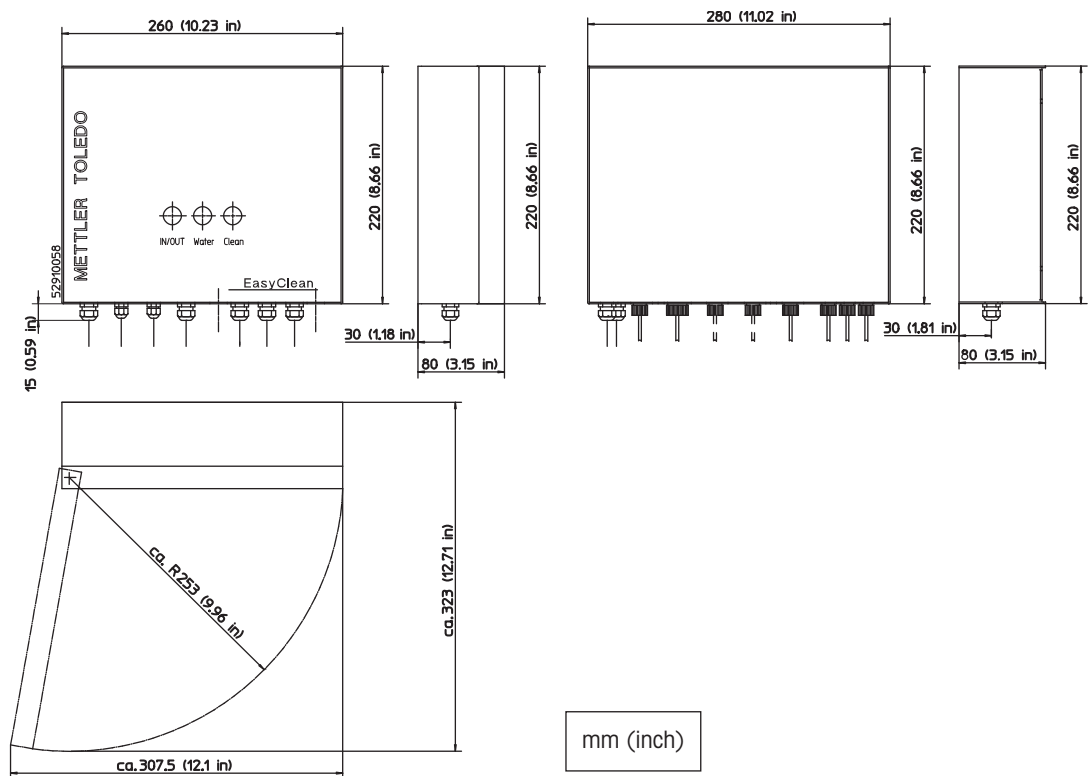
The position of the retractable housing can be continuously monitored by an inductive position indicator. In the event of faulty operation of the system or of the retractable housing, the control unit of the EasyClean activates an alarm contact. Triggering of the cleaning cycle can be automated through the "Wash" contact in the transmitter, or manually by pressing the appropriate key on the EasyClean control unit.

Strict isolation of the electronics from the wet areas allows safe operation using appropriate cleaning solutions. The diaphragm pump installed in the valve assembly guarantees optimal cleaning at a predefined cleaning solution concentration.

Added accessories also allow the system to be adapted individually to suit local requirements.

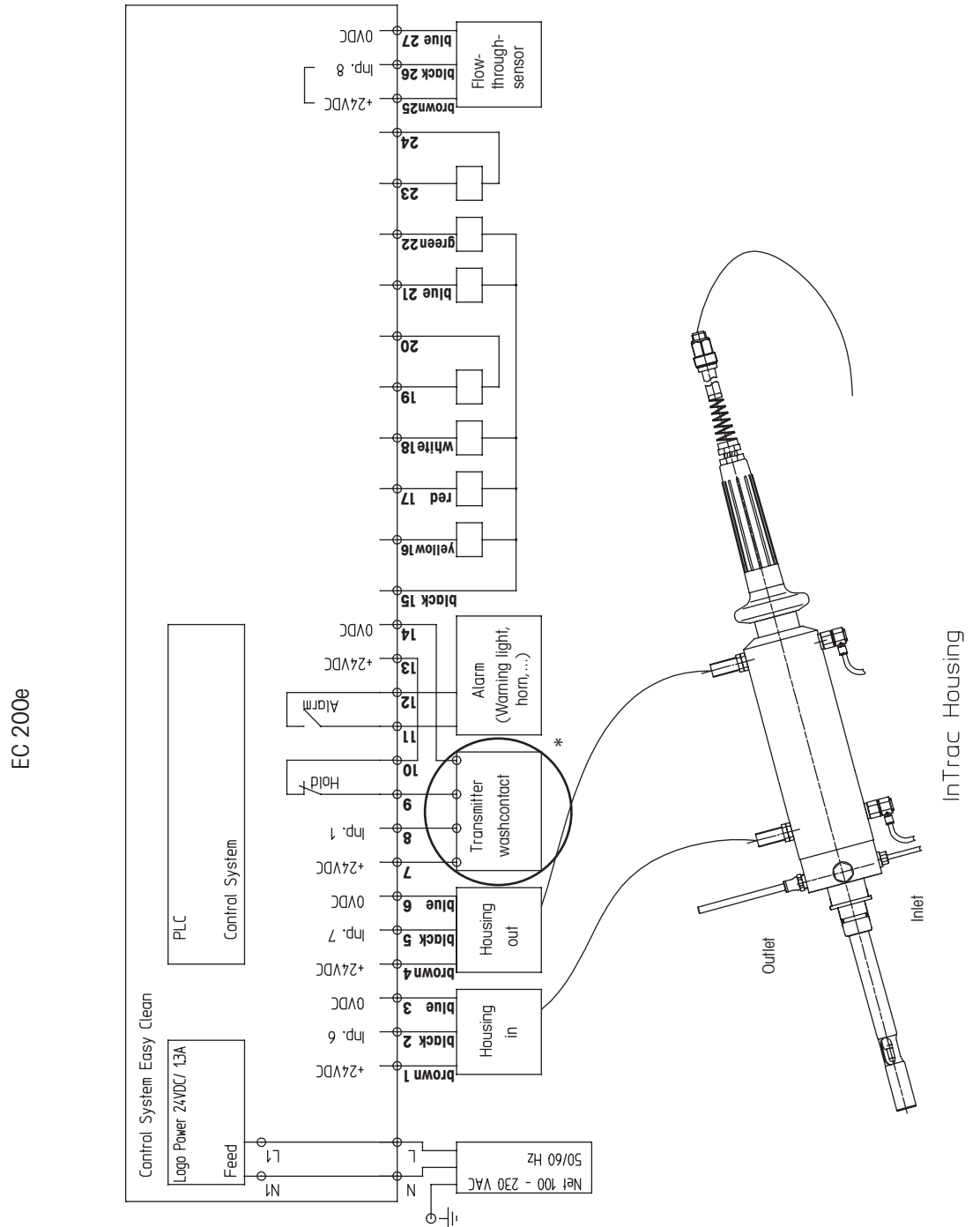
Dimensions EasyClean 200e

For the exact dimensions relative to wall mounting, please refer to the specifications on page 15 of this documentation.



Electrical connections EasyClean 200e

Electrical connections of EasyClean 200e and a transmitter.



System configuration and ordering information EasyClean 200e

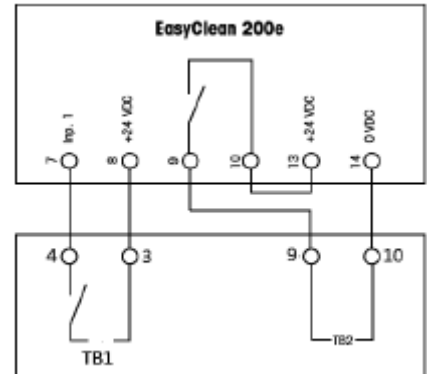
Transmitter connection

Transmitter M300 G2 Process

NOTICE
Bridge terminal 10 and 13 in the EasyClean 200e.

Set relay #2 for example on the transmitter to rinse contact.

Set rinse time to 5 sec. at the transmitter M300 and define the rinse interval according to the process requirements. Furthermore define rinse time (T2) and residence time for cleaning agent (T3) on the EasyClean 200e.

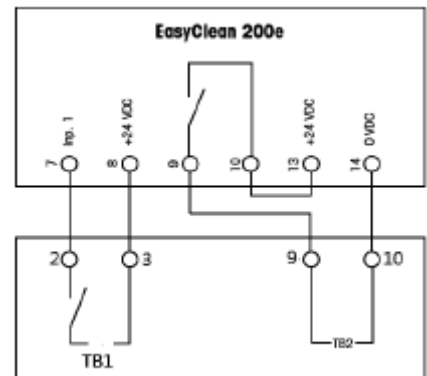


Transmitter M400 G2

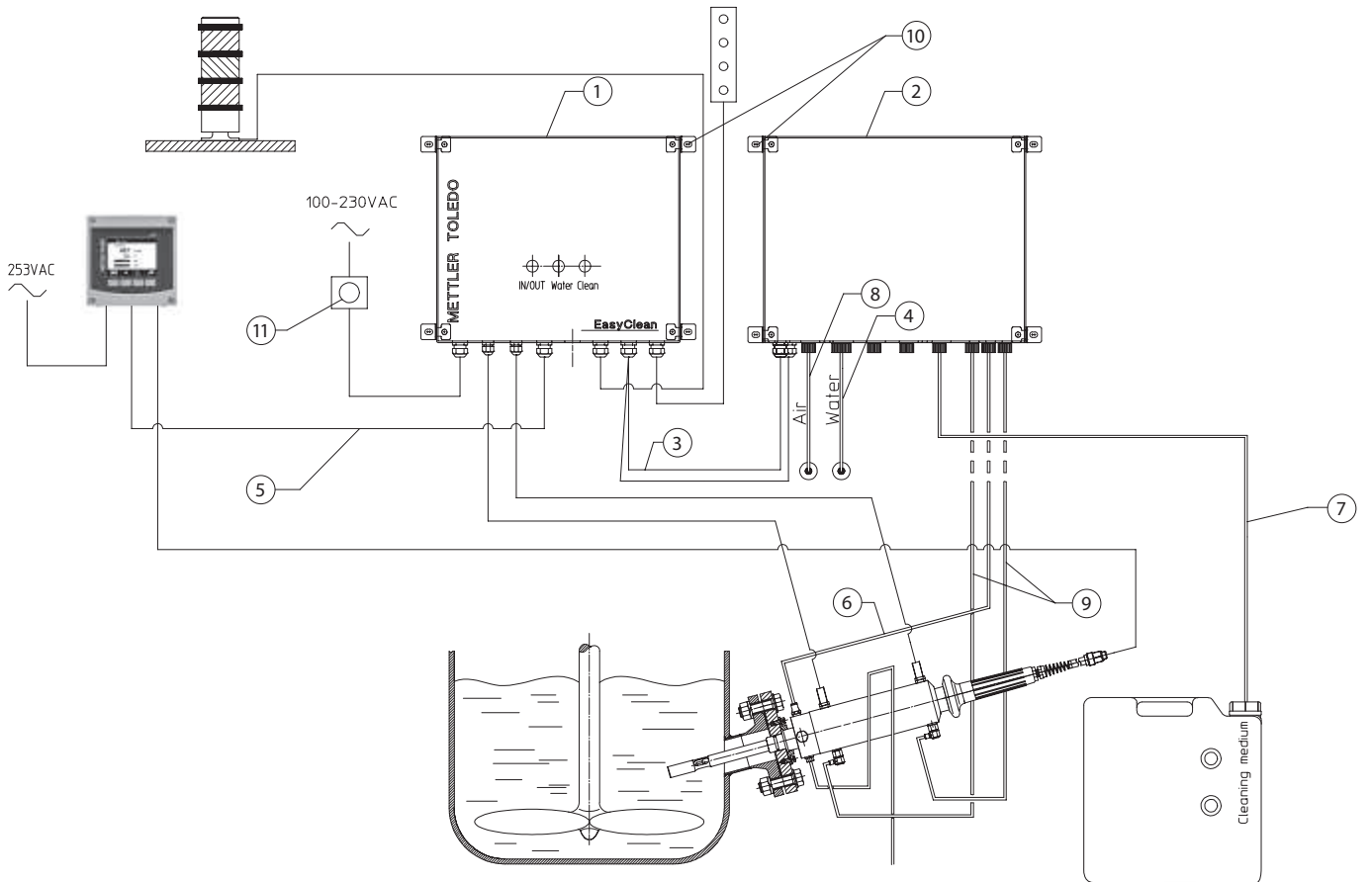
NOTICE
Bridge terminal 10 and 13 in the EasyClean 200e.

Set relay #1 for example on the transmitter to rinse contact.

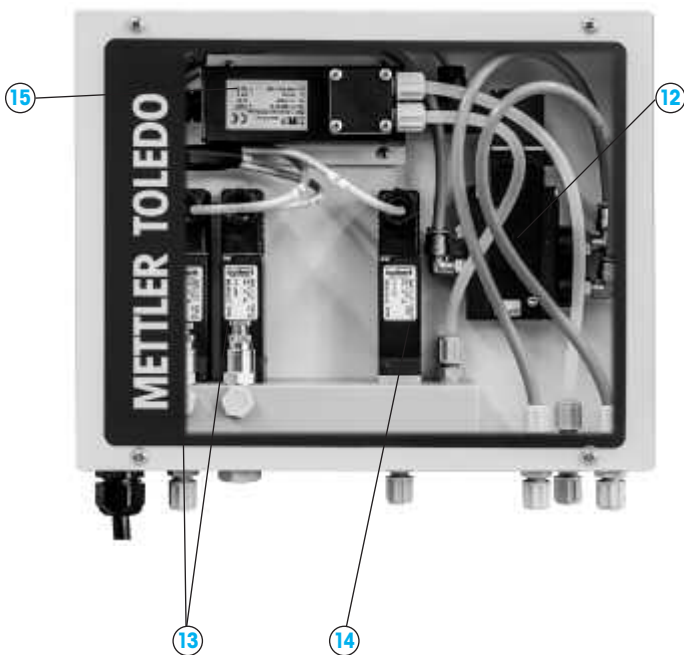
Set rinse time to 5 sec. at the transmitter M300 and define the rinse interval according to the process requirements. Furthermore define rinse time (T2) and residence time for cleaning agent (T3) on the EasyClean 200e.



System configuration and ordering information EasyClean 200e



Valve unit



System configuration and ordering information

The EasyClean 200e delivery consists of the following:

Pos.	Description	Order no.
1	EasyClean 200e control unit with PLC (programmable logic controller)	52 403 776
2	Valve assembly with valves for hydraulics and control air	
3	Connecting cable: control unit → valve assembly, 1.5 m (5 ft)	
4	Water connection: G 1/4" female or 1/4" NPT male	
5	Connecting cable: control unit → transmitter, 5 m (16.4 ft)	
6/7	Tubing Ø 6/4 mm, length 10 m (32,8 ft), material PTFE	
8/9	Tubing Ø 6/4 mm, length 10 m (32,8 ft), material LDPE	

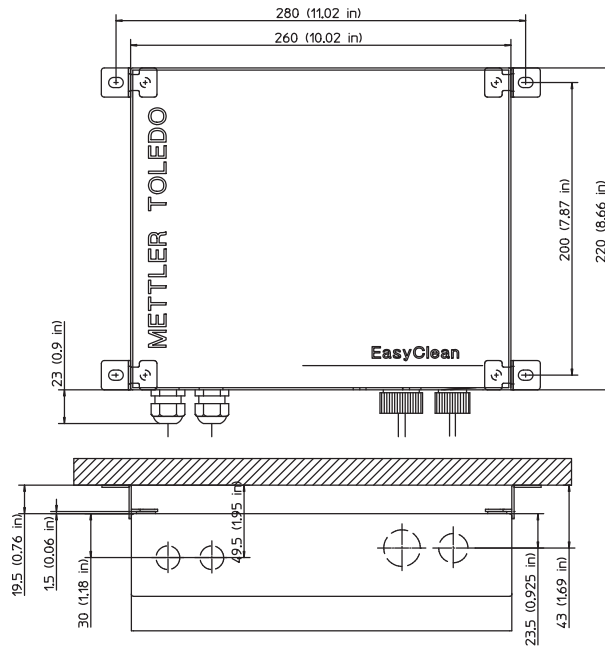
Optional accessories

Pos.	Description	Order no.
5	Connecting cable: control unit → transmitter (5 m/16.4 ft)	52 300 265
5	Connecting cable: control unit → transmitter (10 m/32.8 ft)	52 300 266
6/7	Tubing PTFE, Ø 6/4 mm, 5 m (16.4 ft)	52 402 283
8/9	Tubing LDPE for compressed air connection, 20 m/65.6 ft	52 402 314
10	Wall mounting kit, complete	52 402 306
11	Panic button (emergency shutdown)	52 402 317

Spare parts

Pos.	Description	Order no.
12	Air control valve for EasyClean 200	30 414 592
13	Water and air valve for EasyClean 200e	30 414 593
14	Cleaning medium valve for EasyClean 200e	30 414 594
15	Diaphragm pump for EasyClean 200e	30 414 595

Wall mounting EasyClean 100/150/200e



mm (inch)

Specifications

EasyClean 100/150/200e

Product type	EasyClean 100/150	EasyClean 200e
Housing	Steel housing, powder-coated with polyester resin material: Mild steel DIN 1.1203 Ck 55 Attention: housing may not be cleaned with solvents containing acetone	Stainless steel housing, powder-coated with polyester resin material: Mild steel DIN 1.1203 Ck 55 Attention: housing may not be cleaned with solvents containing acetone
Weight of control unit	Approx. 3 kg (6.6 lbs)	Approx. 3 kg (6.6 lbs)
Weight of valve assembly	–	Approx. 2.5 kg (5.5 lbs)
Protection rating	IP 65	IP 65
Ambient conditions	Temperature in operation: 0 ... 55 °C (32 ... 131 °F) Transport/storage temperature: –10 ... +70 °C (+14 ... 158 °F) Degree of pollution: 2 Overvoltage category: III	Temperature in operation: 0 ... 55 °C (32 ... 131 °F) Transport/storage temperature: –10 ... +70 °C (+14 ... 158 °F) Degree of pollution: 2 Overvoltage category: III
Power supply	100 ... 230 V AC, 50/60 Hz, 0.18 ... 0.3 A (±15%)	100 ... 230 V AC, 50/60 Hz, 0.18 ... 0.3 A (±15%)
System control	Process initiation: via a "Wash" contact in the associated transmitter Sequence: cannot be set on unit	Process initiation: via a "Wash" contact in the associated transmitter Sequence: controlled by the integrated programmable PLC
Control input	1 control input for "Wash" contact in transmitter 24 V	1 control input for "Wash" contact in transmitter 24 V
Transmitter	METTLER TOLEDO transmitters: – M300 Process – alternatively through any standard transmitter with "Wash" contact and "Hold" function	METTLER TOLEDO transmitters: – M300 Process – M400 4-wire – alternatively through any standard transmitter with "Wash" contact and "Hold" function
Electr. connections	Terminal strip 0.08 ... 2.5 mm ²	Terminal strip 0.08 ... 2.5 mm ²
Connection to valve unit	–	10-wire control cable Length: standard 1.5 m (5 ft) optional 20 m (65.6 ft)
Connection to transmitter	4-wire control cable, 4 x 0.5 mm ² Length: 5 m (16.4 ft), optional 10 m (32.8 ft)	4-wire control cable, 4 x 0.5 mm ² Length: 5 m (16.4 ft), optional 10 m (32.8 ft)
Cable ducts	∅ 3.5 ... 10 mm → M 16	∅ 3.5 ... 10 mm → M 16 ∅ 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 (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 "	4 ... 8 bar (400 ... 800 kPa, 58 ... 116 psi) Air quality according to ISO 8573-1 Moisture class 4 (dew point +3 °C) Particles class 5 (filter 40 µm) Max. oil content class 2 (0.1 g/m ³) Connection: thread G ¹ / ₈ "

Specifications

EasyClean 100/150/200e

Product type	EasyClean 100/150	EasyClean 200e
Connection to InDip housing	Hose LDPE Tubing PTFE (optional) Ø 6/4 mm (1/8"/1/4")	–
Connection to retractable housing	Hose LDPE Tubing PTFE (optional) Ø 6/4 mm (1/8"/1/4")	Pneumatics: LDPE hose Ø 6/4 mm (1/8"/1/4"), control air Medium: PTFE hose Ø 6/4 mm (1/8"/1/4") Hose length typ. 5 m (16.4 ft) Hose length max. 10 m (32.8 ft)
Flushing water supply	Pressure: 2 ... 6 bar (200 ... 600 kPa, 29 ... 87 psi) Connection: thread G1/4" female Adapter: 1/4" NPT male (PP)	Pressure: 2 ... 8 bar (200 ... 800 kPa, 29 ... 116 psi) Connection: thread G1/4" female Adapter: 1/4" NPT male (PP) Particle filter: 50 µm Volume: ≥ 4 l/min.
Pump	–	Pump height: max. 5 m (16.5 ft.) Suction height: max. 3 m (9.8 ft.) Feed rate: 3 ... 5 ml/s (depending on hose length and viscosity) Materials: PPS (pump body) EPDM (membrane and sealings) Connection: thread G1/8" female, polymer (PP)
Viscosity	–	All liquids 25 mPa s/25 °C (77 °F)
Spray head material	PVC or PVDF	–
Wetted materials, in contact with	Flushing water, compressed air or cleaning medium: 1.4105, 1.4303, 1.4310 PP, LDPE, Viton®, brass,	Rinsing water: PP, EPDM, PTFE, PPS, Ni Compressed air: PP, EPDM, PTFE, PPS, LDPU, Ni Cleaning agents: PP, FFKM, PTFE, EPDM, PEEK
Liquid temperatures	–	Water: 0 ... 80 °C, max. 10 min/h at 95 °C (32 ... 176 °F, 203 °F) Cleaning agents: 0 ... 50 °C (32 ... 122 °F)

For addresses of METTLER TOLEDO
Market Organizations please go to:
www.mt.com/pro-MOs



Management System
certified according to
ISO 9001 / ISO 14001



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Mettler-Toledo GmbH, Process Analytics
Im Hackacker 15, CH-8902 Urdorf, Switzerland
Tel. + 41 44 729 62 11, Fax +41 44 729 66 36

www.mt.com/pro