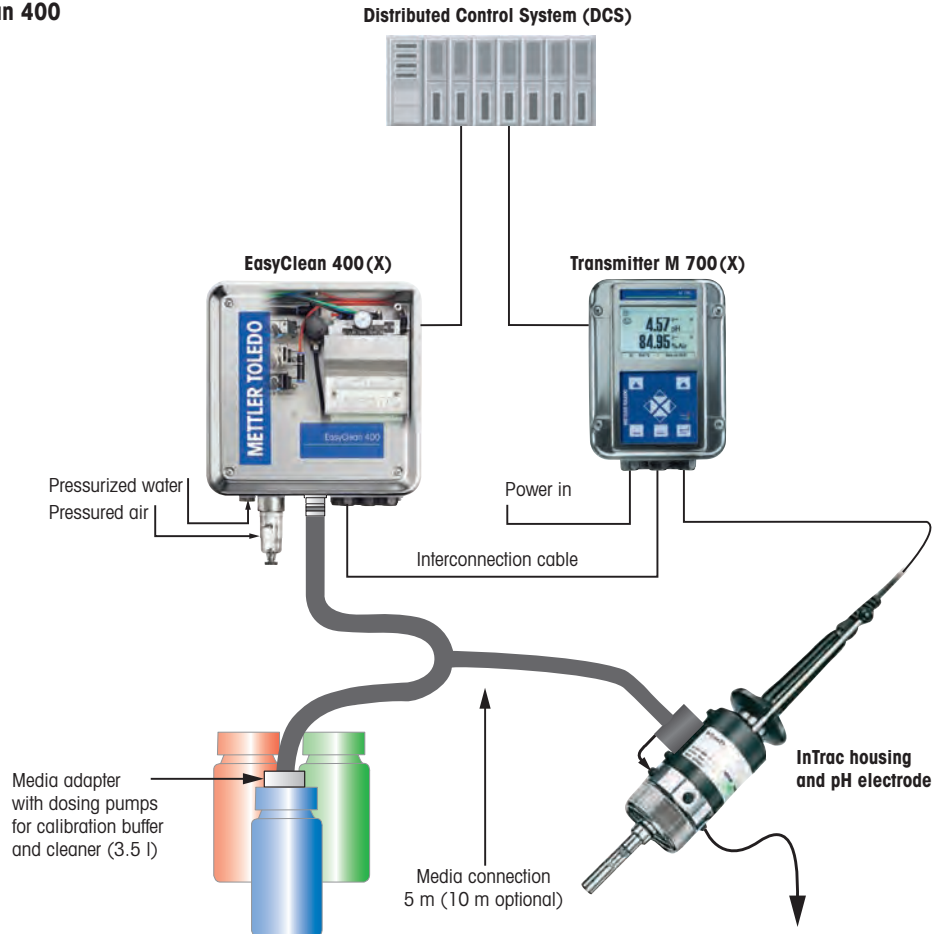Automation

EasyClean
Process Reliability Through Targeted Automation

EasyClean systems are feature-rich and compact. Chemical processing, food processing, bio-pharmaceutical processes, and other industrial applications all benefit from EasyClean's ability to automate routine maintenance. Just choose the most appropriate Ingold sensor, housing, and transmitter for your process, then add an EasyClean system to give you the exact amount of automation you need.

Flexibility of sensor maintenance
In conjunction with the METTLER TOLEDO Ingold transmitter line, sensor maintenance is fully automated. However, manual operation is also possible whenever required. An integrated controller identifies each ongoing working step, as well as any functional problems within the system.

Safety
EasyClean carries out continuous system diagnostics. In the event of any system anomaly the electrode remains inserted in the sample medium in order to ensure continued parameter measurement and prevent process interruption.

System overview EasyClean 400

Distributed Control System (DCS)

EasyClean 400 (X)

Transmitter M 700 (X)

Pressurized water
Pressured air

Power in

Interconnection cable

Media adapter with dosing pumps for calibration buffer and cleaner (3.5 l)

Media connection 5 m (10 m optional)

InTrac housing and pH electrode

EasyClean Configuration
Custom

	EC 400 (X)	EC 200e	EC 150	EC 100
Functionality				
Flushing	●	●	●	●
Cleaning	●	●		
Calibration	●	●		
System integration	●	●		
PROFIBUS® PA / FOUNDATION™ fieldbus	●			
Ex areas	●			
Housing				
InDip 550				●
InTrac 7XXe	●¹	●²	●	●
Transmitter				
M300		●	●	●
M400		●	●	●
M400 2-wire		●	●	●
M700 (X)	●			
M800		●		●
Sensor				
pH	●	●	●	●
O₂		●	●	●
CO₂		●		●
Turbidity		●	●	●
Conductivity		●	●	●

1 with pneumatic position indicators
2 with inductive position indicators

This section will assist you with configuration based upon your specific requirements. The following example creates a fully automated EasyClean system for a "typical" industrial processing application. For harsh chemical environments, choose a compatible industrial sensor housing combination and an EasyClean system to give you the level of automation desired. The ordering information provided on p. 131 will help you choose the appropriate system components. Please make sure you choose one item from each of the sections marked with a ▲.
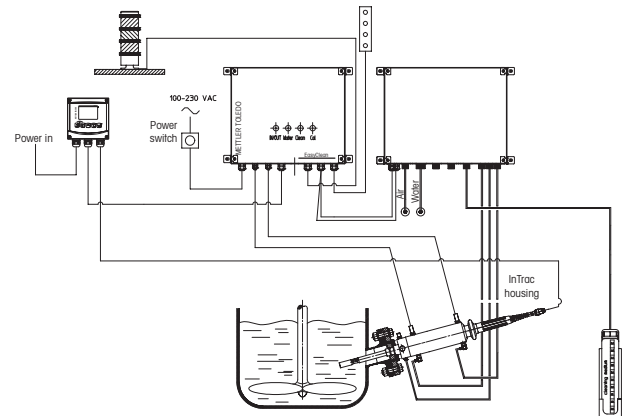
Schematic of a typical EasyClean custom installation

Configuring your EasyClean system (example)

	Product Description	Order Number	P.
* EasyClean system	EasyClean 200e	52 403 776	129
Option:	Empty canister (5000 ml)	52 118 063	–
Option:	Connection cable: control unit ❯ transmitter (5 m / 16.4 ft)	52 300 265	131
Option:	Wall mounting kit, complete	52 402 306	131
* Transmitter	M400 Type 1	30 374 111	84
* Sensor cable	VP cable 3 m (9.8 ft)	52 300 108	131
* Sensor	InPro 3250 SG / 225 mm	52 002 560	22
* Housing	InTrac 777 e-l	52 403 216	119

* Required system component for operation

Note: For full functionality, housings must have position sensors when used with an EasyClean 200e or 400 system.

Automation

EasyClean 400
Flexible, for the Highest Demands

EasyClean 400 is used for fully automatic cleaning and calibration of pH measuring points. In combination with the transmitter M700 and the InTrac 7XXe retractable housing it provides a flexible system solution which can be implemented into either continuous or batch measurements. EasyClean 400 is versatile in its application. It offers multiple control possibilities and can be programmed extensively. Furthermore, a version for applications in explosion hazardous areas is available. The connection to a supervisory process control system can easily be realized in a conventional way, via PROFIBUS PA or via FOUNDATION fieldbus.

Specifications

Protection	IP 65 / NEMA 4X
Power	Power supply via M700 Module EC 700 6.8 V (± 10 %) / 15 mA
Compressed air supply	4 – 10 bar (58 – 145 psi)
Flushing supply	2 – 6 bar (29 – 87 psi)
Pump	Delivery distance: 5 m / 16.4 ft (10 m (32.8 ft) optional) Suction height: 1.5 m / 4.9 ft

- **Completely unattended maintenance operation**
- **Allows maintenance teams to focus on more important and skill-intensive tasks**
- **Expanded operations without adding staff**
- **Ensured system performance and process control**

Features Overview
– Minimizes maintenance costs by fully automatic cleaning and calibration of the sensor
– Optimal adaptation to the process conditions thanks to diverse program runs with freely programmable sequences
– High flexibility thanks to free choice of individually programmable intervals or weekly programs
– EasyClean 400 ensures a safe application in explosion hazardous areas

▶ **www.mt.com/EC400**

EasyClean 200 e
Fully Automated Rinsing and Cleaning

The EasyClean 200 e systems fully automate rinsing and cleaning procedures for the parameters pH, ORP, dissolved oxygen, CO_2, conductivity, and turbidity.
EasyClean 200 e does not feature a calibration option, but it greatly reduces maintenance requirements and improves performance.

Specifications

Protection	IP 65
Power	100 – 230 VAC
	50 / 60 Hz
	0.18 – 0.3 A
Compressed air supply	4 – 8 bar (58 – 116 psi)
Flushing supply	2 – 8 bar (29 – 116 psi)
Pump	Delivery distance: 10 m (32.8 ft)
	Suction height: 3 m (9.8 ft)

Features Overview

– Modular configuration provides many installation options
– Many accessories available for customized installation and operational requirements

Other Highlights

– Configured for immediate operation
– Easily customized for special requirements
– Manual operation override if desired
– Fully automated operation for pH, ORP, dissolved oxygen, CO_2, conductivity, and turbidity
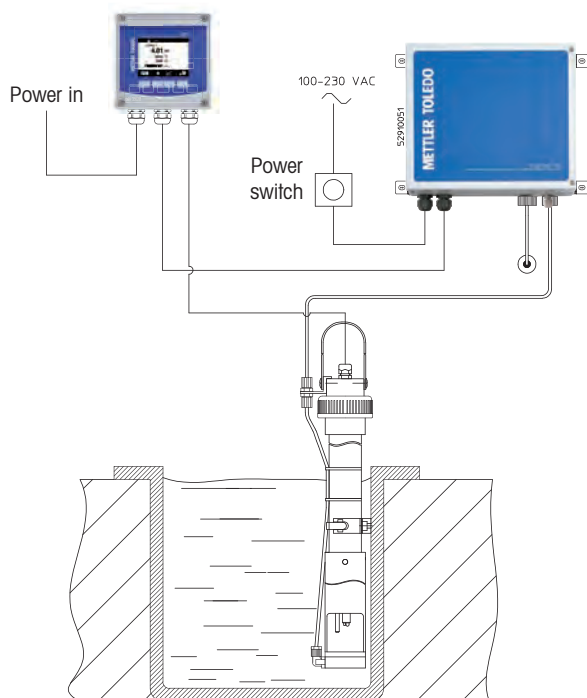– Optimal cleaning effect due to the adjustable residence time
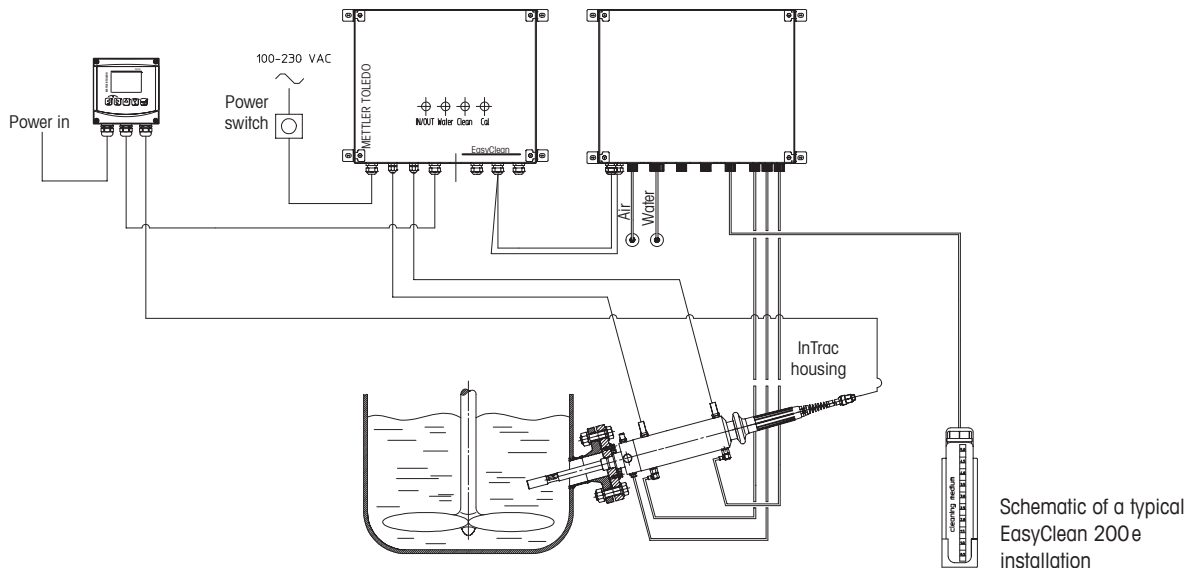
Schematic of a typical EasyClean 200 e installation

www.mt.com/EC200

Automation

EasyClean 150 / 100
Automated Rinsing
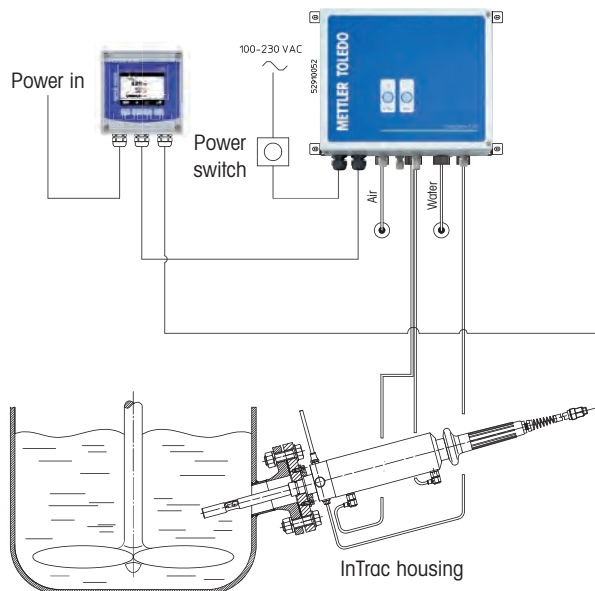
Schematic of a typical EasyClean 150 installation

The EasyClean 100 and 150 series are designed to provide completely automatic sensor rinsing. The EasyClean 100 system is designed to be used with a stationary InDip housing with a spray-head for open tank and basin applications. The EasyClean 100 can use either water rinsing or compressed air to create turbulence to prevent stubborn build-up. The EasyClean 150 works in conjunction with a retractable housing to withdraw the electrode from the process prior to automatic water rinsing.

Specifications

Protection	IP 65
Power	100 – 230 VAC
	50 / 60 Hz
	0.18 – 0.3 A
Compressed air supply	4 – 8 bar (58 – 116 psig) (EasyClean 150)
Flushing supply	2 – 6 bar (29 – 87 psig)

Features Overview

– Modular design allows complete flexibility
– Universal components for easy serviceability
– Entry-level – moderate fouling environments

Other Highlights

– Simple design and fast setup
– Standard program for immediate operation
– Manual operation override if desired

EasyClean 100 cleaning action. The bubble formation centered beneath the sensor guarantees gentle cleaning.

Schematic of a typical EasyClean 100 installation

▶ **www.mt.com/EC150**
▶ **www.mt.com/EC100**

▲ EasyClean Systems

Product	100	150	200 e	400 (X)	Order Number
EasyClean 100	•	–	–	–	52 402 304
EasyClean 150	–	•	–	–	52 402 319
EasyClean 200 e	–	–	•	–	52 403 776
EasyClean 400 C	–	–	–	•	52 403 596
EasyClean 400 S	–	–	–	•	52 403 598
EasyClean 400 XC	–	–	–	•	52 403 597
EasyClean 400 XS	–	–	–	•	52 403 599

▲ Transmitters

Product	100	150	200 e	400 (X)	Order Number
M300 Process transmitter	•	•	•	–	See transmitter section
M400 transmitter	•	•	•	–	See transmitter section
M400 2-wire transmitter	•	•	•	–	See transmitter section
M700 (X) transmitter	–	–	–	•	See transmitter section
EC 700 module (to control EC 400)	–	–	–	•	See transmitter section
M800 transmitter	•	•	•	–	See transmitter section

▲ Sensor

Product	100	150	200 e	400 (X)	Order Number
pH	•	•	•	•	See all sensors
Dissolved oxygen, turbidity, conductivity, CO_2	•	•	•	–	See all sensors

▲ Sensor Cable

Product	100	150	200 e	400 (X)	Order Number
VP cable – ST / 3 m (9.8 ft) (pH, DO and CO_2)	•	•	•	•	52 300 108
VP cable – ST / 1.5 m (4.9 ft) (conductivity)	•	•	•	–	58 080 201
Extended length VP cable – (pH, DO and CO_2)	•	•	•	•	See p. 134
Extended length VP cable – (conductivity)	•	•	•	–	See p. 134

▲ Sensor Housings

Product	100	150	200 e	400 (X)	Order Number
InTrac 7XX e	–	•	•❷	•❸	See housings section
InDip 550	•	–	–	–	See housings section
Spray head for InDip 550 (PVC)	•	–	–	–	52 402 291
Spray head for InDip 550 (PVDF)	•	–	–	–	52 402 290

Calibration Supplies

Product	100	150	200 e	400 (X)	Order Number
Buffer pH 4.01, 5000 ml	–	–	–	•	51 319 012
Buffer pH 7.00, 5000 ml	–	–	–	•	51 319 016
Buffer pH 9.21, 5000 ml	–	–	–	•	51 319 017

Options

Product	100	150	200 e	400 (X)	Order Number
Transmitter cable 5 m (16.4 ft)	•	•	•	–	52 300 265
Transmitter cable 10 m (32.8 ft)	•	•	•	–	52 300 266
Compressed air hose LDPE 20 m (65.6 ft)	•	•	•	–	52 402 314
Pneumatic hose PU 6 / 4 mm	–	•	•	–	52 401 322
Fittings pneumatic / hydraulic	–	•	•	–	52 402 337
Wall-mount kit	•	•	•	–	52 402 306
Post-mount kit	•	•	•	–	52 402 308
Weatherproof hood	•	•	•	–	52 402 316
Power switch button	•	•	•	•	52 402 317

▲ One item required for system operation
Position indicators not required
❷ Inductive position indicators required
❸ Pneumatic position indicators required