

MULTILINE 1000 Drinking water panel



Modular multiparameter measuring system

**Accuracy when
going to press**

The use of advanced technology and the high quality standard of our instruments are the result of continuous development. Consequently, this may result in some differences between this operating manual and your instrument. Also, we cannot guarantee that there are absolutely no errors in this manual. Therefore, we are sure you will understand that we cannot accept any legal claims resulting from the data, figures or descriptions.



Note

The latest version of the present operating manual can be found on the Internet under www.WTW.com.

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1 Overview

1.1 How to use this system operating manual

Structure of the operating manual MULTILINE 1000

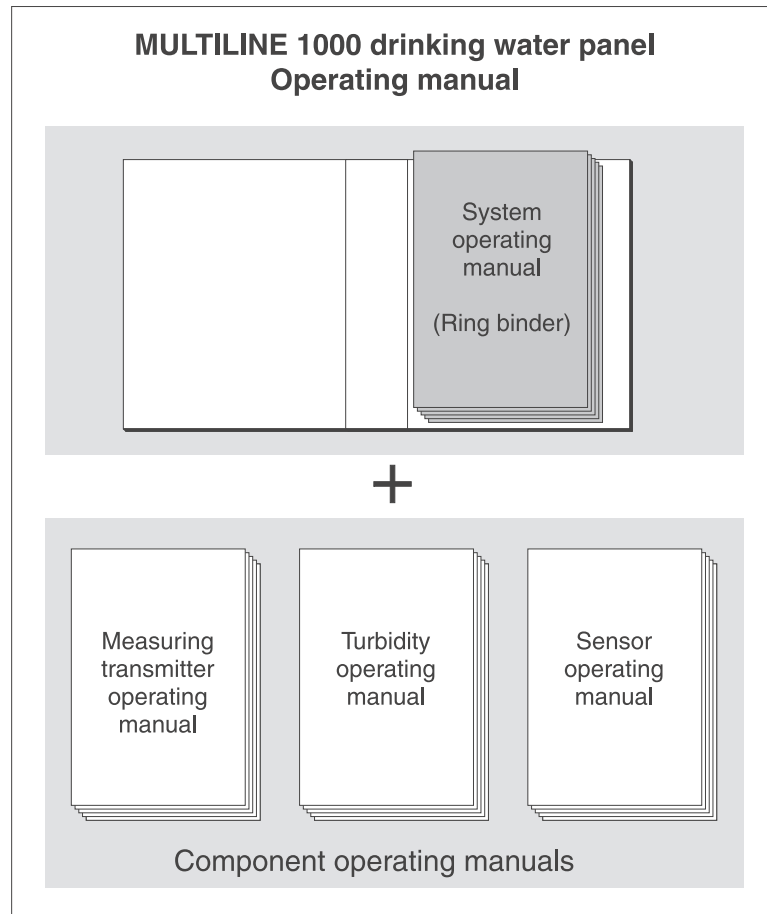


Fig. 1-1 Structure of the operating manual MULTILINE 1000

The MULTILINE 1000 operating manual has a modular structure like the MULTILINE 1000 system itself. It consists of this system operating manual and the operating manuals of all the components used.

The space in the ring binder behind the system operating manual is intended for filing the component operating manuals. Please file all component operating manuals here so that all information is quickly available in one location.

1.2 The MULTILINE 1000 drinking water panel

1.2.1 Structure of the system

The MULTILINE 1000 drinking water panel is a modular, preassembled and preconfigured measuring system for online analysis. Modular means that the essential functional units of the measuring system are distributed in components individually compiled for special applications.

The basic functional units of the MULTILINE 1000 drinking water panel:

Basic equipment:

- Wall mounting panel
- Multiparameter measuring transmitter MULTILINE 1000
- Flow through armature D222/3 with receptacle for three sensors (pH, ORP, conductivity incl. temperature, freely selectable)
- Calibration console Cal/C
- Manually adjustable pressure regulator Pr-DN15
- Dosage ball valve Do-DN10
- Inlet and outlet

Plus optional extensions (depending on order):

- pH combination electrode SenTix® ML 70
- Conductivity measuring cell LR ML
- ORP combination electrode SenTix® ML ORP
- Flow meter DFL-G1/4
- Chlorine electrodes (FCML 412 or FCML 68 for free chlorine, TCML for total chlorine, each with flow through armature D-Cl)
- Flow through turbidity meter (Turb 2000 series)

Additions extensions on request (if ordered):

Different combinations of measured parameters and measuring locations can be realized on request. Available for this are, for example, the chlorine analyzer Chlorine 3000 or dissolved oxygen as a measured parameter.

1.2.2 Typical configurations of the drinking water panel
MULTILINE 1000

Basic equipment

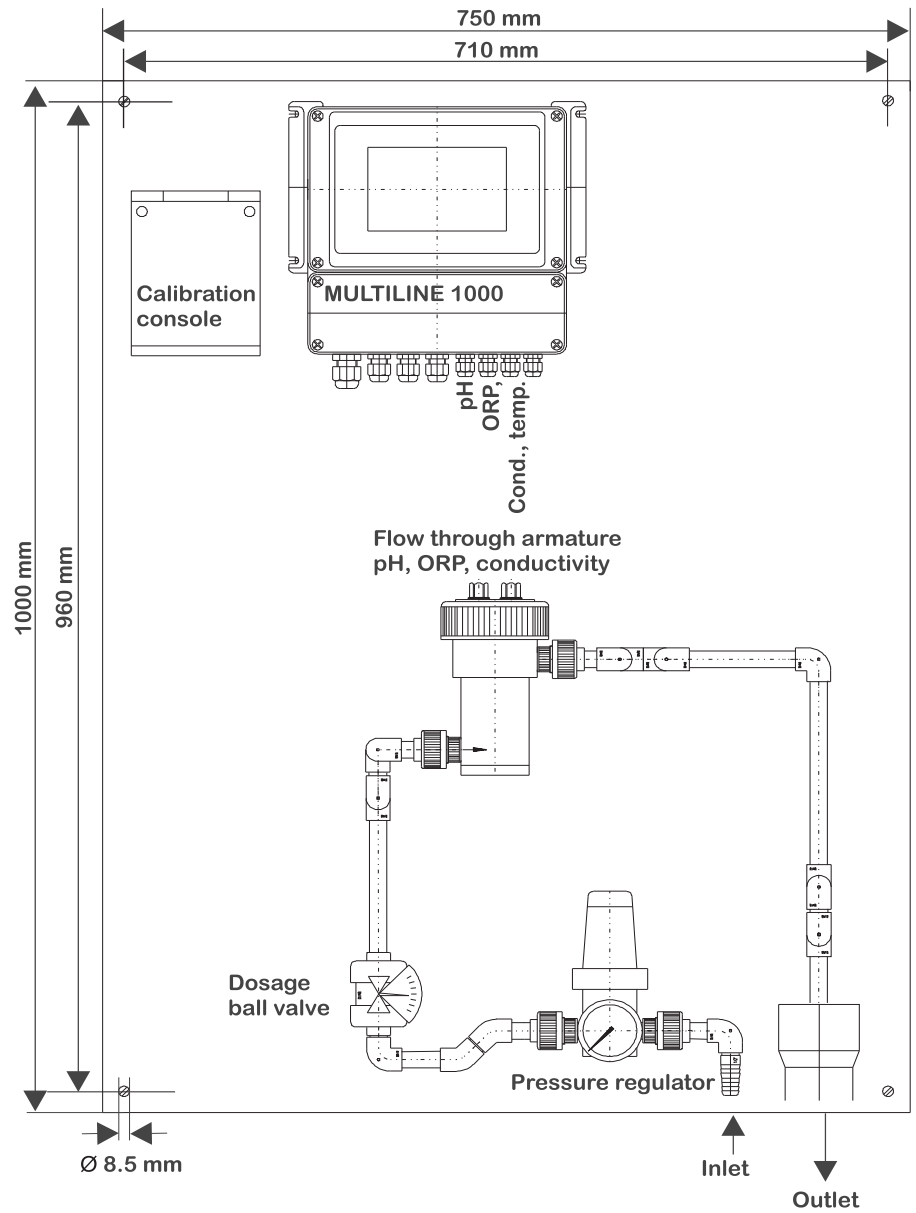


Fig. 1-2 Basic equipment of the drinking water panel MULTILINE 1000

Basic equipment with flow measurement

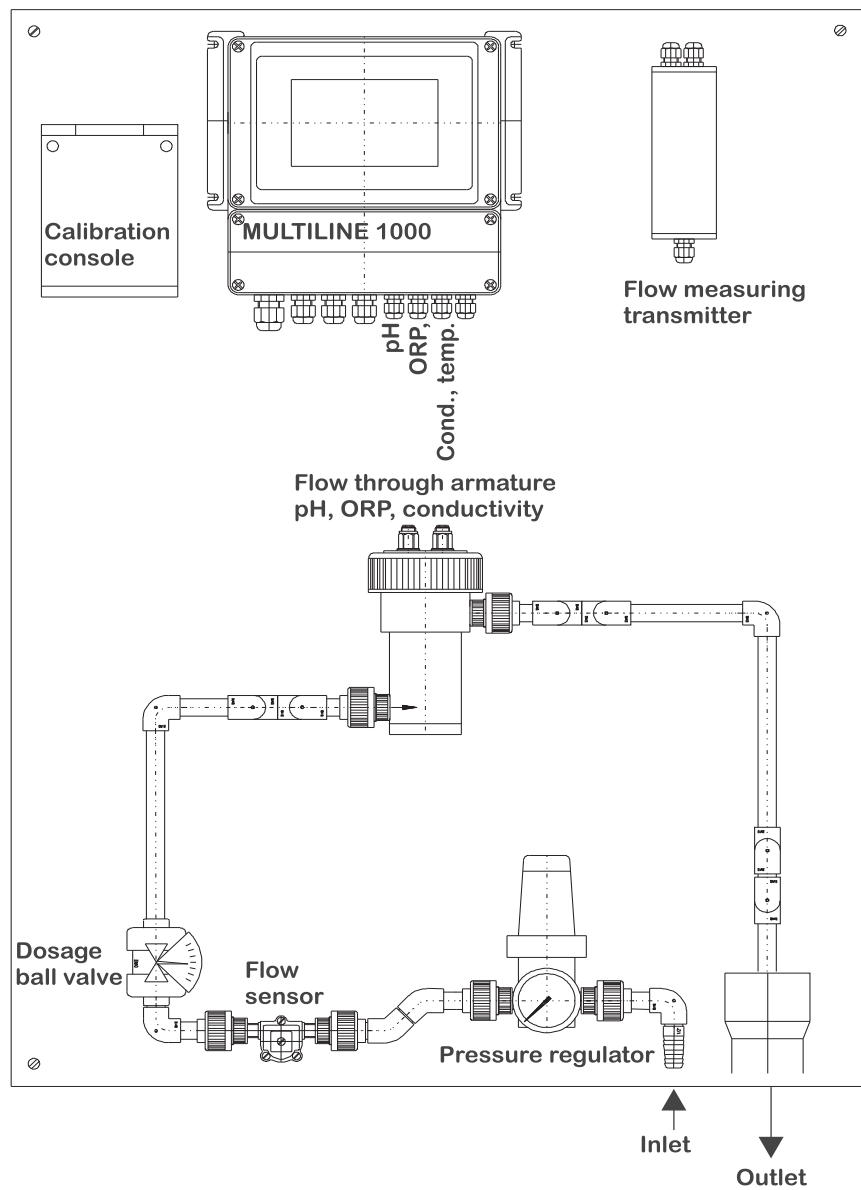


Fig. 1-3 Basic equipment of the drinking water panel MULTILINE 1000 with flow measurement

**Basic equipment with
flow measurement and
chlorine measurement**

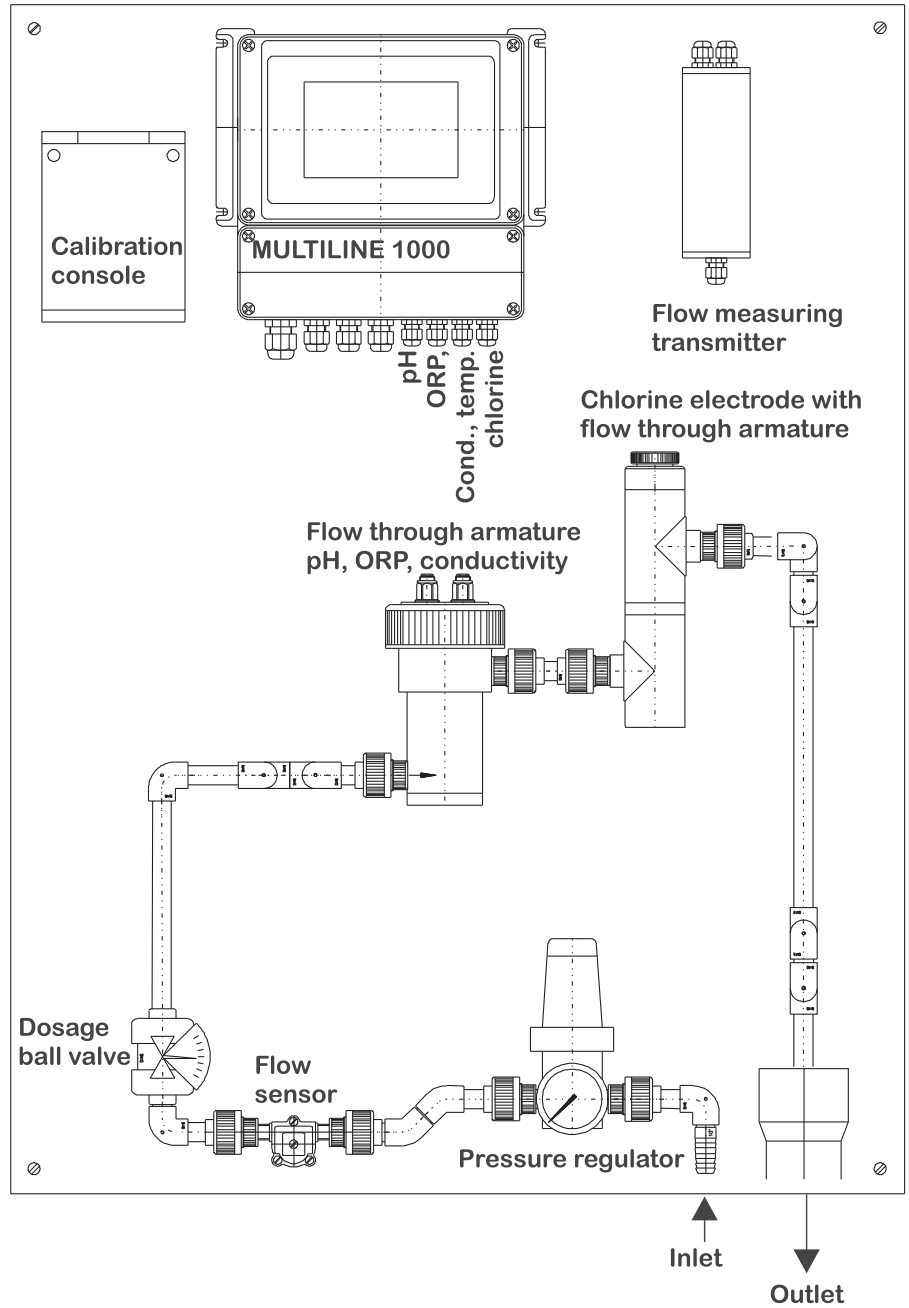


Fig. 1-4 Basic equipment of the drinking water panel MULTILINE 1000 with flow measurement and chlorine measurement (amperometric)

Basic equipment with
flow measurement,
chlorine measurement
and turbidity
measurement

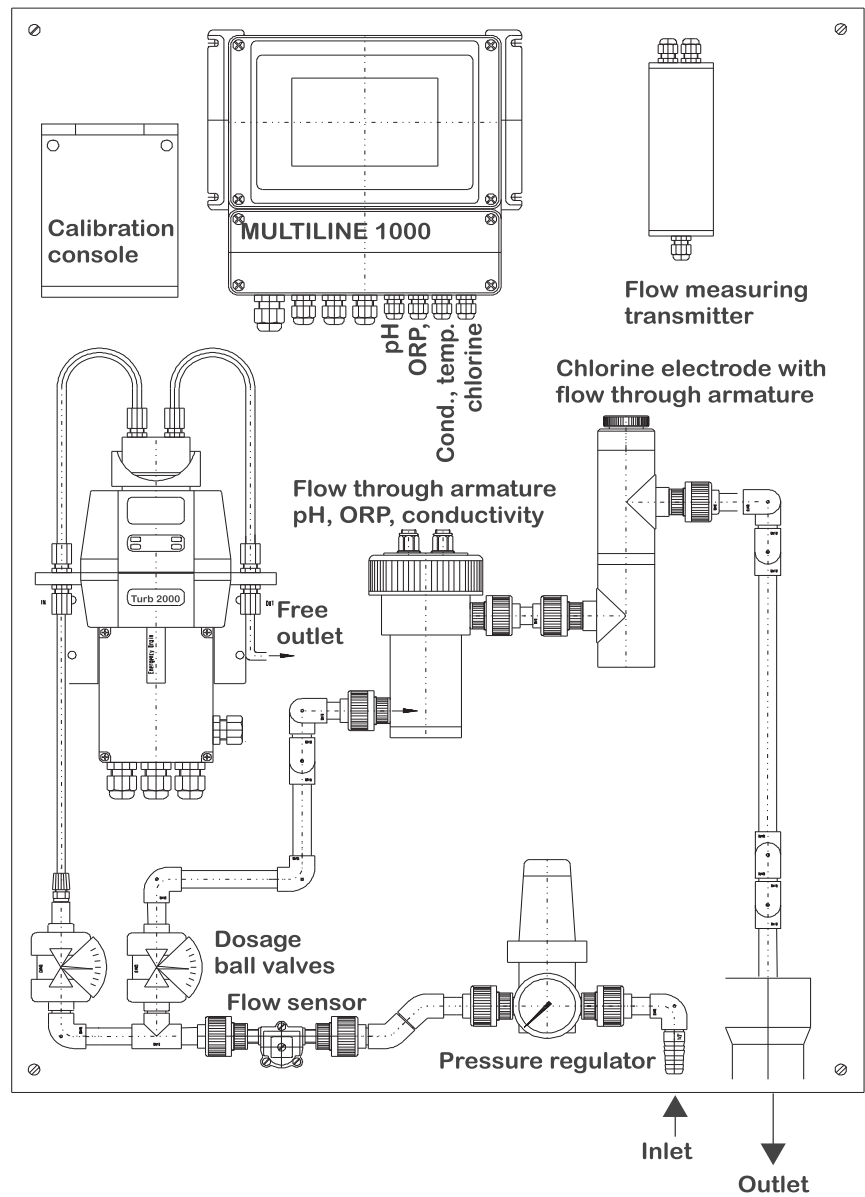


Fig. 1-5 Basic equipment of the drinking water panel MULTILINE 1000 with flow measurement, chlorine measurement (amperometric) and turbidity measurement

2 Safety instructions

This operating manual contains essential instructions that must be followed during the commissioning, operation and maintenance of the MULTILINE 1000 drinking water panel. Thus, it is essential for the operator to read this component operating manual before carrying out any work with the system.

Some components are delivered with their own component operating manual. It is also important to read the SAFETY chapter in this manual. Keep the system and all component operating manuals in the vicinity of the MULTILINE 1000 drinking water panel.

General safety instructions

Safety instructions in this operating manual are indicated by the warning symbol (triangle) in the left column. The signal word (e.g. "Caution") indicates the danger level:



Warning

indicates instructions that must be followed precisely in order to prevent serious dangers to personnel.



Caution

indicates instructions that must be followed precisely in order to avoid slight injuries to personnel or damage to the instrument or the environment.

Other labels



Note

indicates notes that draw your attention to special features.



Note

indicates cross-references to other documents, e.g. component operating manuals.

Target group

2.1 User qualification

The MULTILINE 1000 drinking water panel was developed for online analysis. Some maintenance activities, e.g. changing the electrolyte of the chlorine combination electrode, require the safe handling of chemicals. Thus, we assume that the maintenance personnel is familiar with the necessary precautions to take when dealing with chemicals as a result of their professional training and experience.

Special user qualifications

The following installation activities may only be performed by a qualified electrician:

- Connection of the drinking water panel MULTILINE 1000 to the power line.
- Connection of external, line voltage-carrying circuits to relay contacts (see operating manual of the measuring transmitter MULTILINE 1000).

2.2 Authorized use

The authorized use of the drinking water panel MULTILINE 1000 consists exclusively of its use for drinking water and swimming pool water.

Please observe the technical specifications according to chapter 5 TECHNICAL DATA. Only operation and running according to the instructions in this component operating manual is authorized.

Any other use is considered to be **unauthorized**. Unauthorized use invalidates any claims with regard to the guarantee.

2.3 General safety instructions

All components of the MULTILINE 1000 system are constructed and inspected in accordance with the relevant guidelines and standards for electronic instruments (see chapter 5 TECHNICAL DATA). They left the factory in a safe and secure technical condition.

Function and operational safety

The failure-free function and operational safety of the MULTILINE 1000 components are only guaranteed if the generally applicable safety measures and the special safety instructions in this operating manual are followed during their use.

The failure-free function and operational safety of the MULTILINE 1000 components are only guaranteed under the environmental conditions that are specified in chapter 5 TECHNICAL DATA.

Safe operation

If safe operation is no longer possible, the MULTILINE 1000 drinking water panel must be taken out of operation and secured against inadvertent operation. Safe operation is no longer possible if components:

- have been damaged in transport
- have been stored under adverse conditions for a lengthy period of time
- are visibly damaged
- no longer operate as described in this manual.

If you are in any doubt, contact the supplier of your MULTILINE 1000 drinking water panel.

Obligations of the operator

The operator of the MULTILINE 1000 drinking water panel must ensure that the following rules and regulations are followed when dealing with hazardous substances:

- EEC directives for protective labor legislation
- National protective labor legislation
- Accident prevention regulations
- Safety datasheets of the chemicals manufacturers (are available on the Internet under www.WTW.com).

3 Installation

3.1 Scope of delivery

The following parts are included in the scope of delivery of the MULTILINE 1000 drinking water panel:

Basic equipment:

- Wall mounting panel
- Multiparameter measuring transmitter MULTILINE 1000
- Flow through armature D222/3 with receptacle for three sensors (pH, ORP, conductivity incl. temperature, freely selectable)
- Calibration console Cal/C
- Manually adjustable pressure regulator Pr-DN15
- Dosage ball valve Do-DN10
- Inlet and outlet
- All components mounted and tubed with PVC tubes and screw joints depending on order
- Operating manual of the supplied panel and components

Plus optional extensions (if ordered):

- pH combination electrode SenTix[®] ML 70
- Conductivity measuring cell LR ML
- ORP combination electrode SenTix[®] ML ORP
- Flow meter DFL-G1/4
- Chlorine electrodes (FCML 412 or FCML 68 for free chlorine, TCML for total chlorine, each with flow through armature D-Cl)
- Flow through turbidity meter (Turb 2000 series)
- The relevant operating manuals



Note

Illustrations of the MULTILINE 1000 drinking water panel with some typical equipment variants are given in chapter 1 OVERVIEW.

3.2 Basics for installation

3.2.1 Mounting the drinking water panel MULTILINE 1000

The preassembled drinking water panel with the dimensions 1000 x 750 x 13 mm is designed for wall mounting. On the corners of the panel there are four fixing holes with a cross section of 8.5 mm (clearances see Fig. 1-2).



Caution

The MULTILINE 1000 drinking water panel may only be mounted in closed, frost free rooms.

For the mounting of the drinking water panel proceed as follows:

1	Select an easily accessible mounting location for the drinking water panel.
2	Drill holes with the correct clearances (see Fig. 1-2) in the wall intended for mounting.
3	Fix the drinking water panel securely. When doing so make sure the panel does not bend.

3.2.2 Power supply

The MULTILINE 1000 drinking water panel is supplied with power (230 V AC/50 Hz or 110 V AC/60 Hz) by connecting the terminal box of the measuring transmitter MULTILINE 1000 to the power supply.



Warning

Only qualified electricians are allowed to perform the installation of the instrument as it involves a line voltage that could endanger life.



Note

How to connect the MULTILINE 1000 drinking water panel to the power supply is described in the operating manual of the measuring transmitter MULTILINE 1000.



Note

The scope of delivery of the MULTILINE 1000 drinking water panel does not include a separate power cable as the drinking water panel is designed for permanent installation.

3.2.3 Connecting the inlet and outlet

To connect the drinking water panel proceed as follows:

- | | |
|---|---|
| 1 | Connect the sample line to the hose nozzle R1/2" of the inlet. We recommend to fix the sample line securely with a hose clip or similar to prevent the hose from sliding off in the case of pressure changes. |
| 2 | Connect the outlet to an open channel flow such as a Ø 40 mm PVC pipe funnel. |



Caution

The outlet of the drinking water panel MULTILINE 1000 may only be connected to an open channel flow, virtually pressureless. A water column of max. 0.5 m relating to the lid of the pH flow through armature may be applied.

- | | |
|---|---|
| 3 | Discharge the outlet of the turbidity meter (if present) into the funnel of the outlet as well. |
|---|---|

3.2.4 Connecting the sensors

- | | |
|---|--|
| 1 | Commission the sensors and install them in the relevant flow through armature. |
| 2 | Connect the sensors (if required) to the measuring transmitter. |



Note

How to commission the sensors of the MULTILINE 1000 drinking water panel is described in the operating manuals of the respective sensors.



Note

How to connect the sensors of the MULTILINE 1000 drinking water panel to the MULTILINE 1000 measuring transmitter is described in the operating manual of the measuring transmitter.

3.2.5 Commissioning the system

To commission the system proceed as follows:

1	Wait for the system to be powered up.
2	Make the necessary settings on the touch screen of the MULTILINE 1000 measuring transmitter (see relevant operating manual).
3	Provide the sample flow (sample flow, see chapter 5 TECHNICAL DATA).

4 Maintenance and cleaning

4.1 Maintenance

Maintenance activities	Component	Maintenance
	Measuring cells / combination electrodes / sensors	Depending on the type of sensor (see the component operating manual of the sensor)
	Other components	see component operating manual

4.2 Cleaning

Panel and components

Clean the wall mounting panel, tubes and component surfaces by wiping them with a moist cloth.

Tubes, inside cleaning

Basically, it is not required to clean the insides of the tubes. You can, however, pump diluted acetic acid (max. 10%) through the tubes.

The insides of the flow through armatures can be wiped with a moist cloth.

5 Technical data

5.1 Total system

Wall mounting panel	Dimensions (H x W x D)	approx. 1000 x 750 x 13 mm
	Material	PVC rigid foam, spumed, white
Mounting	Through four drillings in the panel, diameter 8.5 mm, clearings see Fig. 1-2.	
Ambient conditions	Temperature	
	Operation	0 °C ... + 40 °C
	Storage	0 °C ... + 40 °C
Allowed overpressure	Before pressure regulator (inlet)	0 ... 10 bar
	After pressure regulator	0 ... 6 bar
Medium overflow	Into open channel flow, virtually pressureless. A water column of max. 0.5 m relating to the lid of the pH flow through armature may be applied.	
Sample flow	30 L/h minimum	
Power supply	230 V AC/50 Hz or 110 V AC/60 Hz, depending on ordered model	
Application range	Drinking water and swimming pool water	
Inlet and outlet	Inlet	Hose nozzle R1/2, fixed permanently
	Course	Outlet into funnel, Ø 40 mm PVC tube

5.2 Components of the basic equipment

**Measuring transmitter
MULTILINE 1000**

see separate operating manual

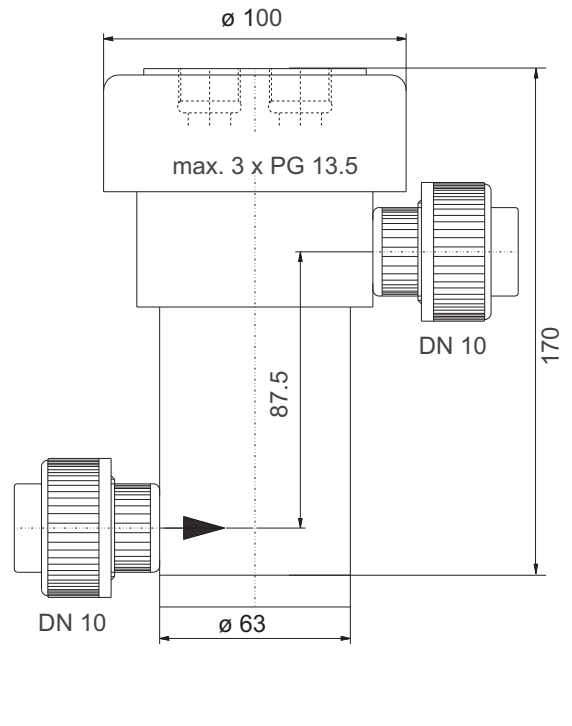
**Calibration console
Cal/C**

Dimensions (H x W)	160 x 120 mm
Material	PVC, white

**Flow through armature
D 222/3
for pH, ORP, Cond**

Material	PVC
Sealing material	NBR
Working temperature	max. 60 °C
Flow through amount	max. 350 L/h
Pressure load	max. 6 bar
Process connection	Screw tube connection DN 10 Vertical installation
Sensor receptacle	3 installation locations for electrodes / sensors with PG 13.5 screw-in thread and 120 mm installation length

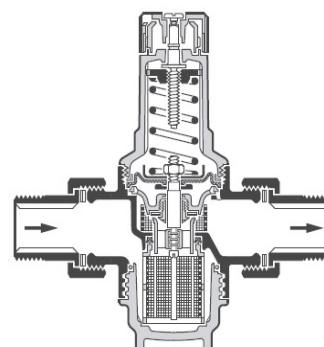
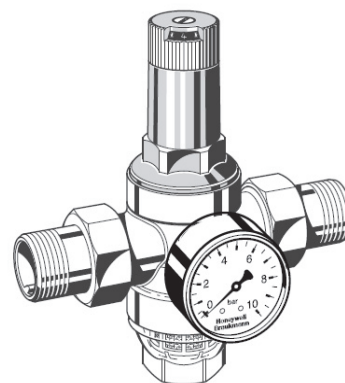
Figure with dimensions



**Pressure regulator
Pr-DN15**

Material	Brass, plastic, stainless steel
Sealing and membrane material	NBR
Working temperature	max. 40 °C
Primary pressure	max. 25 bar
Back pressure	max. 6 bar
Minimum drop of pressure	1 bar

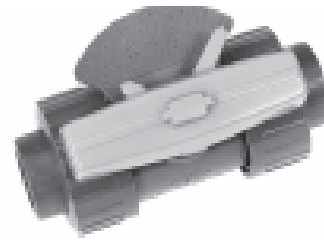
Figure



**Dosage ball valve
Do-DN10**

Housing material	PVC-U
Ball sealing material	PTFE
Pressure	max. 10 bar

Figure



6 Accessories, maintenance equipment and replacement parts

Description	Model	Order no.
Conductivity measuring cell, graphite/epoxy	LR ML	301 150
pH combination electrode, drinking water	SenTix® ML 70	104 100
ORP combination electrode, drinking water	SenTix® ML ORP	104 150
Chlorine measuring cell, free chlorine, pH 4...12, pH-compensated	FCML 412	201 185
Chlorine measuring cell, free chlorine, pH 6...8, pH-sensitive	FCML 68	201 195
Chlorine measuring cell, total chlorine, pH 4...12, pH-compensated	TCML	201 190
KCL standard solution 0.01 M KCl, 6x 50 mL	E-SET	300 572
Buffer pH 4.006 (DIN/NIST), 250 mL	PL 4	109 110
Buffer pH 6.865 (DIN/NIST), 250 mL	PL 7	109 120
Buffer pH 9.180 (DIN/NIST), 250 mL	PL 9	109 130
Technical buffer, pH 4.01, 250 mL	TPL 4	108 800
Technical buffer, pH 7.0, 250 mL	TPL 7	108 802
Technical buffer, pH 10.01, 250 mL	TPL 10 Trace	108 105
ORP buffer solution, pH 7, UH=427mV (CH), 250 mL	RH 28	109 740
(Buffer solutions in larger trading units are listed in the WTW catalog or on the Internet)		
Accessory kit for chlorine measuring cell FCML 412, including 1 spare membrane cap and 100 mL electrolyte	ZBK-FCML 412	205 247

Description	Model	Order no.
Accessory kit for chlorine measuring cell FCML 68, including 1 spare membrane cap and 100 mL electrolyte	ZBK-FCML 68	205 248
Accessory kit for chlorine measuring cell TCML, including 1 spare membrane cap and 100 mL electrolyte	ZBK-TCML	205 249
Small parts set: 3 RV sealings, 4 screw terminals (2x no. 2, 2x no. 4) for transmitter, 1 blind plug D222/3, 4x dummy disks Pg7, 4x dummy disks Pg9	Zubehörset TW-Panel	860100
Pressure regulator R1/2"	Pr-DN15	904 000
Dosage ball valve	Do-DN10	904 005
Calibration console	Cal-C	904 010
Flow through armature pH, ORP, Cond	D222/3	401 995
Flow through armature Chlorine	D-Cl	201 150
Flow meter (sensor and measuring transmitter)	DFL-G1/4	480265

**Note**

More accessories and meters for the referencing of the measured values provided by the drinking water panel MULTILINE 1000 are given in the WTW catalog or on the Internet under www.WTW.com. Laboratory and portable photometers are also listed there and the photometric test sets suitable for your application and photometer.

**Note**

If you have any questions concerning application or suitable accessories please contact the WTW service center.

What can Xylem do for you?

We're a global team unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

For more information on how Xylem can help you, go to xyleminc.com.



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