

Drinking water monitoring

Ready-to-use systems for monitoring of quality relevant parameters in drinking water



pH

Cond

ORP

Cl₂

Turb

O₂

- Pre-assembled
- Ready for use
- Flexible and multi-purpose

Single-parameter Systems

Single-parameter systems

- Single-parameter systems for measurement of pH, D.O., conductivity, free and total chlorine
- Completely pre-mounted on panel
- No reagent consumption
- Integrated PID control function

Transmitter

- High industrial WTW standard
- Protection class IP 66
- Galvanically isolated mA outputs

Electrode with flow-through armature

- Sensor and flow-through armature are perfectly matched according to the parameter

Flow control monitoring (optional)

- Monitoring of continuous flow
- Alarm signal handling via transmitter output

Dosing valve

- Adjustment of flow

Pressure reducer

- Pre-adjustment of pressure 0 ... 16 bar





pH

pH 5000

Ready-to-use system pre-mounted on a panel consisting of pH transmitter, pH electrode, flow-through cell and tubing

- Special electrode for drinking water
- Low maintenance
- Transmitter with PID control function



O₂

Oxi 4000

Ready-to-use system, pre-mounted on a panel, consisting of D.O. transmitter, D.O. electrode, flow-through cell and tubing

- Low maintenance
- Wide measuring range (0 ... 20 ppm)
- High resolution (± 0.01 ppm)



LF

LF 6000

Ready-to-use system pre-mounted on a panel consisting of conductivity transmitter, conductivity cell, flow-through armature and tubing

- 2-electrode graphite cell
- Integrated temperature measurement
- Wide measuring range: (0 ... 200 mS/cm)



Cl₂

Cl7010

Ready-to-use system pre-mounted on a panel consisting of Cl transmitter, special electrodes for free and total chlorine, flow-through cell and tubing

- Membrane covered sensors
- No reagent consumption

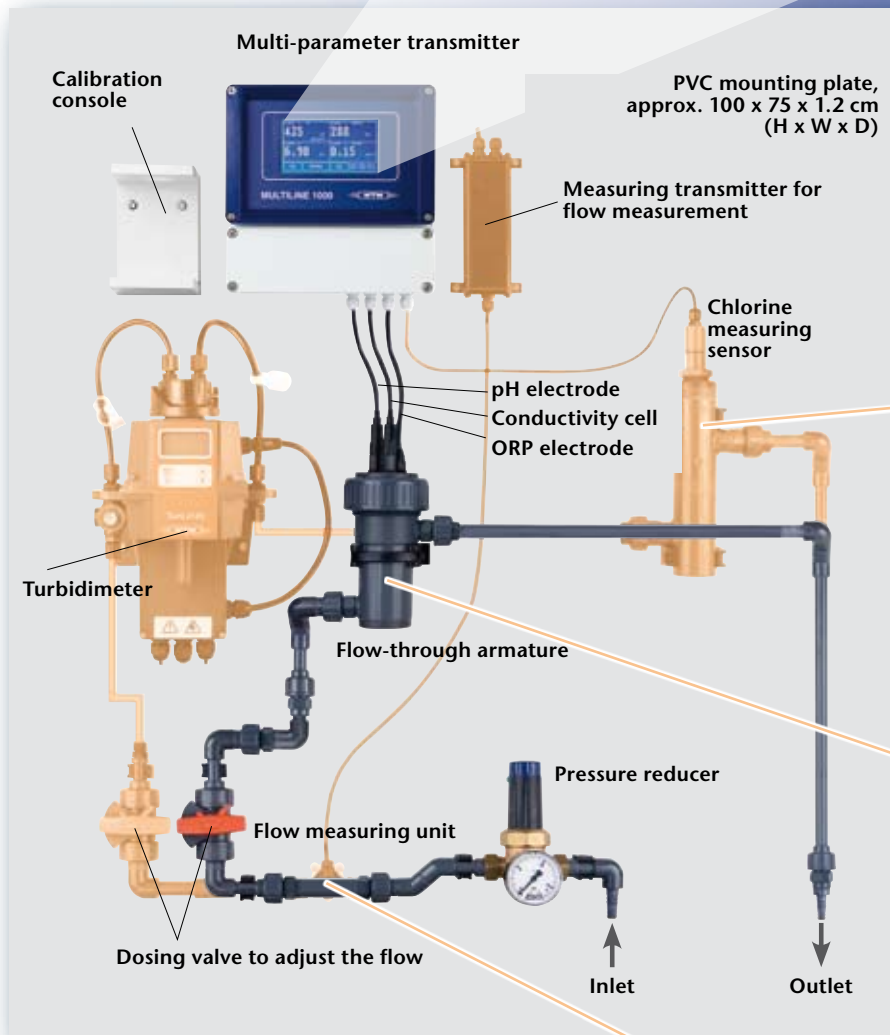
Pre-mounted systems

Ready-to-use systems mounted on a panel. All components are optimized for drinking water applications in order to get most accurate readings and guarantee low maintenance.

Multi-parameter System

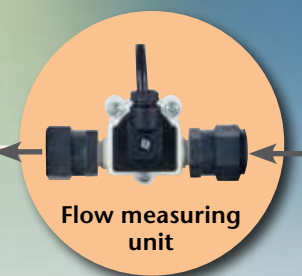
MULTILINE 1000

- Multi-parameter system for measurement of pH, D.O. conductivity, turbidity, free and total chlorine
- Intuitive menu navigation
- Excellent cost/performance ratio
- No chemical consumables needed



Constant flow: flow measurement

The flow measurement is used to control the optimal incident flow for a continuous operation.



Everything at a glance: MULTILINE 1000

With up to 16 individually configurable measuring channels, plus 4 virtual channels, the MULTILINE 1000 terminal is a very flexible measuring system for drinking water analysis.

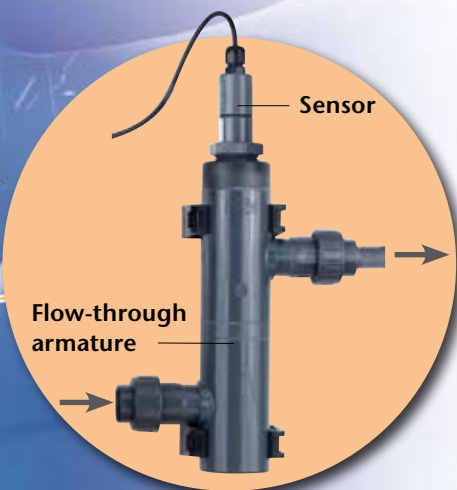
The system is pre-assembled on a wall mounting panel for immediate use. Just connect the power and sample flow – ready.

- Digital interface (RS 232/RS 422/RS 485)
- 4 x 0/4 ... 20mA outputs
- 4 x potential-free relays for limit value/alarm function (timer function programmable)
- Metal housing, protection class IP 65
- Large backlit display with touch screen

Pre-mounted

The MULTILINE1000 is the only complete system to offer convenient measuring and display of up to six parameters with one single terminal. It is very easy to operate thanks to a touchscreen and a intuitive menu.

The monitoring system comes pre-mounted on a panel and is ready to use.



Cl₂

Correctly dosed: chlorine measurement

For disinfection monitoring, three amperometric types of chlorine electrodes are available.

- **Free chlorine:** The FCML 412 is suitable for measurements with changing pH values (pH 4 ... 12, pH compensation integrated in the sensor).
- **Free chlorine:** The FCML 68 is suitable for measurements with a relatively constant pH value of approx. pH 7.)*
- For **total chlorine**, the TCML is available.

All measuring cells are supplied with the D-Cl flow-through armature.

*) If the pH value is measured simultaneously, the measured value can be pH-compensated via the MULTILINE 1000.

pH

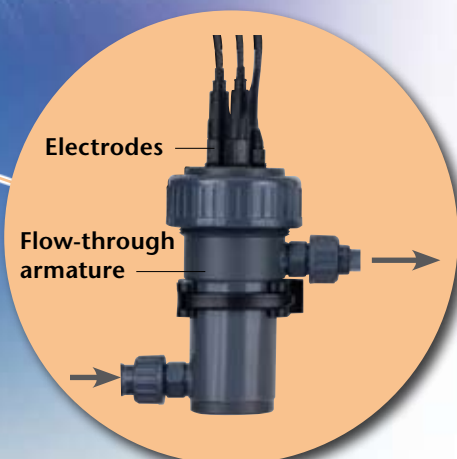
Cond

ORP

High precision measurement: pH, Cond, ORP

The flow-through armature has three slots for 13.5 screw threads. Integrated in the screw coupling, all three built-in sensors can be removed together and thus be rapidly and easily calibrated or serviced with the aid of the calibration console.

- **SenTix® ML 70 combination electrode**
pH combination electrode optimized for drinking water, with gel electrolyte and S7 plug connector
- **LR ML conductivity cell**
Very robust synthetic two electrode cell with a large measuring range of 0.1 to 20 mS
- **SenTix® ML ORP combination electrode**
ORP combination electrode for exact ORP measurement



Turbidity Measurement

Turb



Turb 2000 – Turb 2120

- Simple calibration
- Integrated bubble trap
- Ultrasonic cleaning of cuvette

The nephelometric measurement is offered with or without ultrasonic cleaning of the flow-through cuvette. The user can also select between infrared light measurement according to DIN 7027 and white light measurement according to US EPA 180.1.

Technical Data Turb 2000

Measuring range	0 ... 1000 NTU
Resolution	selectable up to 0.0001
Accuracy	± 2% of the measured value or ± 0.02 NTU below 40 NTU (the higher value), ± 5% of the measured value above 40 NTU
Outputs	RS 485 or 4 ... 20 mA
Power supply	100 ... 240 VAC, 47 ... 63 Hz

Analyzer for Free and Total Chlorine

Cl₂



Chlorine 3000

- Low consumption of reagents
- 30 days maintenance-free operation
- Excellent cost/performance ratio

The analyzer operates photometrical with the DPD method according to US EPA. The reagents are supplied in dry state. For an operation of 30 days it is only necessary to fill them up with water.

Technical Data Chlorine 3000

Measuring range	0 ... 10 mg/l
Resolution	0,01 mg/l
Accuracy	± 0,03 mg/l or 5% (up to 6 mg/l; the higher value)
Outputs	RS 485 and 4 ... 20 mA
Power supply	100 ... 240 VAC, 47 ... 63 Hz

	Single-parameter systems – mounting panels	Multi-parameter systems – mounting panels
Dimensions (H x W x D):	approx. 1100 x 350 x 13 mm	approx. 1000 x 750 x 13 mm
Temperature	operation 0 °C ... + 40 °C, storage 0 °C ... + 40 °C	operation 0 °C ... + 40 °C, storage 0 °C ... + 40 °C
Allowable overpressure	before dosing valve (inlet): 0 ... 10 bar, after dosing valve 0 ... 6 bar, according to sensor	before dosing valve (inlet): 0 ... 10 bar, after dosing valve 0 ... 6 bar, according to sensor
Flow control	flow-through measurement (optional), threshold: approx. 30 l/h (0.5 l/min)	flow-through measurement (optional),
Outlet	fixed pipe joint (DN10), pressureless.	gravity flow to spout, Ø 40 mm PVC pipe

Single-parameter systems (pH 5000, Oxi 4000, LF 6000 and CI 7010)				
Designation, parameter	pH 5000 (pH)	Oxi 4000 (D.O.)	LF 6000 (conductivity)	CI 7010 (chlorine)
Measuring range	0.00 ... 14.00	0.00 ... 20.00 mg/l 0.0 ... 200.0 % O ₂	0 ... 199.9 mS/cm, automatic range selection, adjustable	0.00 ... 2.00 or 0.0 ... 20.0 mg/l, adjustable
Resolution	0.01	0.01 mg/l / 0.1%	dependig on range 0.1 µS/cm ... 0.1 mS/cm	0.01 or 0.1 mg/l, dependig on range
Accuracy	± 0.01 ±1digit	± 0.01 ±1digit	0.5% of value ± 1 digit	± 0.5% of value
Temperature measurement	TFK 5000 (Pt1000), –20 ... +130°C	Pt 1000 (integrated), –20 ... +130°C	Pt 1000 (integrated), –20 ... +130°C	TFK 5000 (Pt1000), –20 ... +30°C
Temperature compensation	automatic via connected temperature sensor or by manual input	automatic	linear with adjustable temperature coefficient or non-linear	automatic, integrated in sensor
Contact outputs ^{*)}	2 programmable relays (threshold, hysteresis), 250V, switching current 5A, Ohm resistive load 150W			
Analogue outputs ^{*)}	2 programmable current outputs, 0/4 ... 20mA, galvanically separated, recorder range and recorder attenuation settable via software, PID controller			
Digital interface ^{*)}	RS485 interface, Bus operation with up to 31 units possible			
Temperature limitations	operation –25 ... +55°C (–13 ... +131°F), storage –25 ... +65°C (–13 ... +149°F)			
Dimensions, weights	222 x 202 x 105 mm (W x H x D), approx. 2.2 kg (terminal only)			
Warranty	3 years according to § 10 AGB			
Protection class	IP 66			

Multi-parameter system MULTILINE 1000				
Parameter	pH	D.O.	Conductivity	Chlorine
Measuring range	0.00 ... 14.00	0.00 ... 20.00 mg/l 0.0 ... 200.0 % O ₂	0 ... 100 mS/cm, automatic range selection, adjustable	0.00 ... 2.00 mg/L
Resolution	0.01	0.01 mg/l / 0.1%	dependig on range 0.1 µS/cm ... 0.1 mS/cm	0.01 mg/l
Accuracy	± 0.01 ±1 digit	± 0.01 ±1 digit	0.5 % of measured value ± 1 digit	± 0.5 % of measured value
Temperature measurement	TFK 5000 (Pt1000), –20 ... +130°C	Pt 1000 (integrated), –20 ... +130°C	Pt 1000 (integrated), –20 ... +130°C	via another channel, depending on sensor
Temperature compensation	automatic via connected temperature sensor or by manual input	automatic	linear with adjustable temperature coefficient or non-linear	automatic, integrated in sensor
Contact outputs ^{*)}	4 programmable relays (threshold, hysteresis), 250V, switching current 5A, Ohm resistive load 150W			
Analogue outputs ^{*)}	4 programmable current outputs, 0/4 ... 20mA, galvanically separated, recorder range and recorder attenuation settable via software, optional PID controller			
Digital interface ^{*)}	RS485/232 or 422 (Modbus)			
Temperature limitations	operation –25 ... +55°C (–13 ... +131°F), storage –25 ... +65°C (–13 ... +149°F)			
Protection class	IP 65			
Dimensions, weights	139 x 240 x 125 mm, approx. 1.5 kg (terminal only)			
Warranty	2 years according to § 10 AGB			

*) According to the ordered model: Standard with 1 current and 1 relay output and PID controller, RT with 2 current and 2 relay outputs, RS additionally with RS485 output. Further details are given in the instruction manuals and on our homepage.

Ordering information

Single-parameter systems				
Parameter	Flow Control (FC)	Outputs	Voltage	
pH/ORP (pH 5000)				1
D.O. (Oxi 4000)				2
Cond (LF6000)				3
Chlorine (Cl 7010)				5
	with FC switch			0
	without FC switch			1
		1 current output (0/4...20mA), 1 relay		1
		2 current outputs (0/4...20mA), 2 relays		2
		2 current outputs (0/4...20mA), 2 relays, RS485 interface		3
			115 VAC	1
			230 VAC	2

Your order no.:^{*)}

8S-	x	x	x	x
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*) If an option is required, please enter the relevant number in the cell. If the option is not required, enter "0".
Please order electrodes separately (except chlorine electrode with mit PG13.5 thread), cf. price list drinking water 2008.

Controller/Terminal MULTILINE 1000 drinking water monitoring system with flow measurement, pressure controller, dosing valve, pre-mounted on water repellent panel. DN 10 joints with:				
MULTILINE 1000 controller/terminal, 240 VAC				8T
MULTILINE 1000 controller/terminal, 115 VAC				8E
MULTILINE 1000 controller/terminal, additionally with flow measurement, 240 VAC				8F
MULTILINE 1000 controller/terminal, additionally with flow measurement, 115 VAC				8U
Configurable parameters/inputs				
Conductivity measurement with integrated temperature sensor (LR ML) (input module, Two electrodes conductivity cell (0.1 ... 20 mS/cm), connection cable)				1
pH measurement (SenTix® ML 70) (input module, pH electrode for drinking water (pH 0 ... 14), connection cable)				1
ORP measurement (SenTix® ML ORP) (input module, Redox-Messkette, connection cable)				1
Chlorine measurement (amperometric)				
Option 1.) Free chlorine amperometric, little pH dependent (pH 4 ... 9) (FCML 412) input module, sensor (0 ... 2 mg/l), flow-through armature, cable				1
Option 2.) Free chlorine (pH 6 ... 8), compensable via pH measurement (FCML 68) input module, sensor (0 ... 2 mg/l), flow-through armature, cable				2
Option 3.) Chlor total amperometric (TC ML) input module, sensor (0 ... 2 mg/l), flow-through armature, cable				3
Independent measured parameter, turbidity (4 options) with own display				
Option 1.) Turb 2000, white light, no ultrasonic cleaning				1
Option 2.) Turb 2020 white light, with ultrasonic cleaning				2
Option 3.) Turb 2100 infrared light, no ultrasonic cleaning				3
Option 4.) Turb 2120 infrared light, with ultrasonic cleaning				4

Your order no.:^{*)}

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*) If an option is required, please enter the relevant number in the cell. If the option is not required, enter "0".

Chlorine analyzer and turbidimeter		
Model	Designation	Order no.
Chlorine 3000	Chlorine analyzer for determination of free and total chlorine	860150
Turb 2120	Turbidity measuring instrument for online determination of turbidity in flow-through, with nephelometric infrared measurement and ultrasonic cuvette cleaning. More variants on request.	600035