



Drinking Water Monitoring

READY-TO-USE SYSTEMS FOR MONITORING OF QUALITY RELEVANT PARAMETERS IN DRINKING WATER



a xylem brand

Single-parameter - Systems

Single-parameter Systems

- Single-parameter systems for measurement of pH/ORP, D.O., conductivity, free and total chlorine
- Convenient pre-mounted panel for quick installation (chlorine only)
- Low cost of ownership with no reagent consumption
- Accuracy through integrated PID control function

Transmitter

- Integrated data logger
- 2 current outputs, 2 relays, Modbus
- Stable aluminium housing

Electrode with flow-through armature

- Specially designed flow-through vessel for each parameter guarantees reliable measurement results

Flow control monitoring (optional)

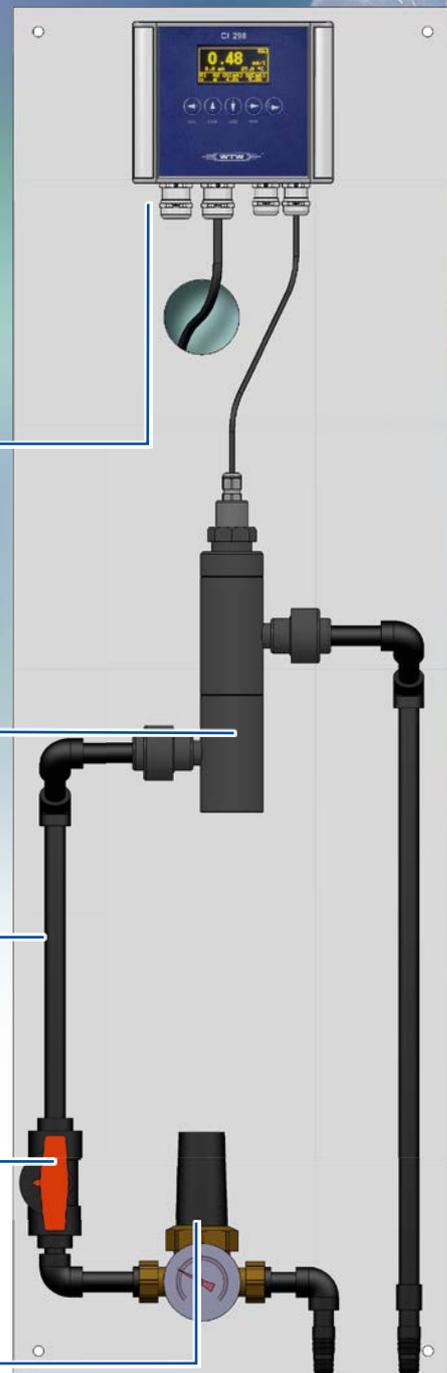
- Continuous flow monitoring
- Flow is shown on the display and can be transmitted via Modbus

Dosing valve

- Flow adjustment

Pressure reducer

- 0...16 bar





pH
ORP

pH 298

Analog transmitter to directly connect analog pH/ORP electrodes

- Available as NTC or PT1000 or Pt100 version
- With integrated PID control function
- For specific drinking water electrodes SenTix® ML 70 (ORP)



O₂

Oxi 298

Analog transmitter to directly connect analog oxygen sensors

- Available as NTC or Pt1000 version
- Wide measuring range (0 ... 20 mg/l)
- For drinking water sensor Oxi ML 41



Cond

LF 298

Analog transmitter to directly connect analog conductivity sensors

- Available as NTC or Pt1000 version
- Numerous measuring ranges (0 ... 500 mS/cm)
- For drinking water sensor LR ML



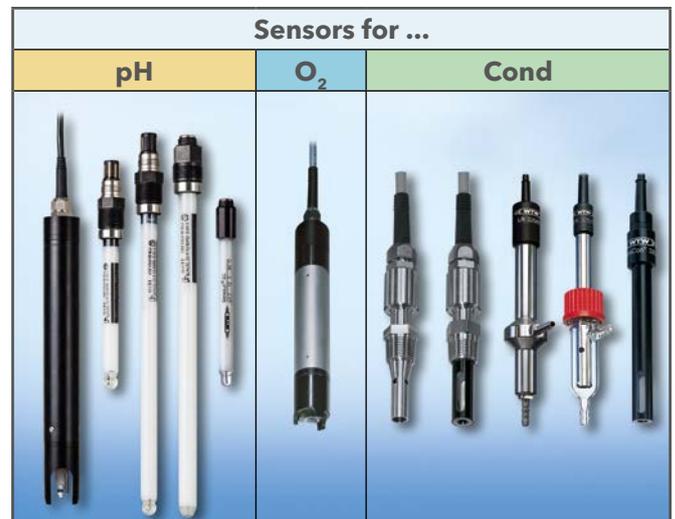
Cl₂

CI 298

Analog transmitter to directly connect analog chlorine electrodes

- For free and total chlorine
- No reagent consumption
- For drinking water electrodes FMCL (N) and TCML N

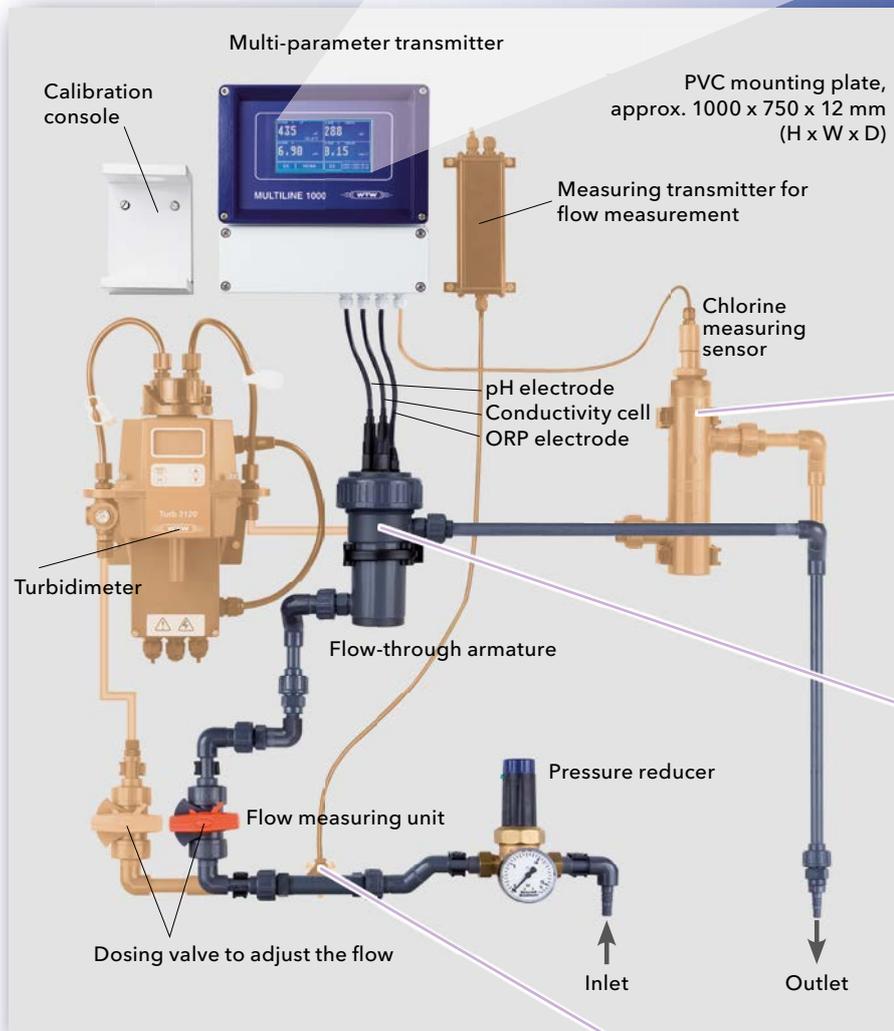
Further applications			
Application	pH	O ₂	Cond
Research & Development (technical center)	●	●	●
Electroplating	●		●
Pure & Ultrapure Water			●
Textile production & Dyeing processes	●		●
Paper & Cellulose industry	●	●	
Landfill & Seepage Waters	●		●
Wastewater Treatment	●	●	●
Aquaculture	●	●	
Swimming Pools & Thermal Baths	●		●



Multi-parameter System

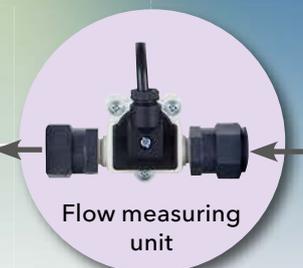
MULTILINE 1000

- Multi-parameter system for measurement of pH/ORP, 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 continuous operation.



Everything at a glance: MULTILINE 1000

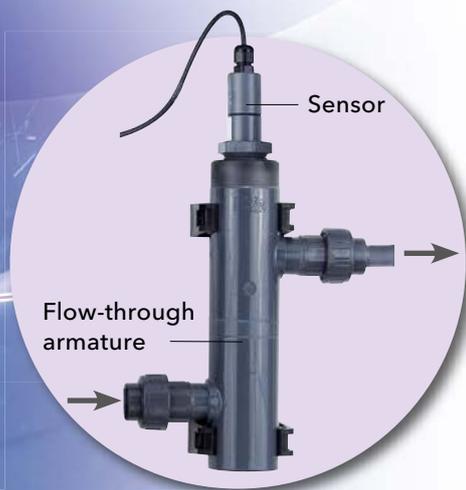
With up to 6 individually configurable measuring channels, the MULTILINE 1000 terminal is a very flexible measuring system for drinking water analysis.

The system is pre-assembled on a wall mounting panel for immediate use. Just connect the power and sample flow - and it's ready to go.

- 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 MULTILINE 1000 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.



Correctly dosed: chlorine measurements

Cl₂

For disinfection monitoring, three amperometric type chlorine electrodes are available.

- **Free chlorine:** The FCML 412 N is suitable for measurements with changing pH values (pH 4 ... 9, pH compensation integrated in the sensor)
- **Free chlorine:** The FCML 68 is suitable for measurements with a relatively constant pH value of approximately pH 7*).
- For **total chlorine**, the TCML N 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 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 (Turb 2110: 0 ... 10 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

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

Technical Data

	Single-parameter system - panel (chlorine only)	Pre-assembled multi-parameter panel
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), minimum 30 l/h (0.5 l/min)	flow-through measurement (optional), minimum 30 l/h (0.5 l/min)
Outlet	fixed pipe joint (DN 10), pressureless.	gravity flow to spout, Ø 40 mm PVC pipe

Analog transmitters (pH 298, Oxi 298, LF 298, Cl 298)				
Model, Parameter	pH 298 (pH/ORP)	Oxi 298 (D.O.)	LF 298 (Conductivity)	Cl 298 (Chlorine, electro-chemically)
Measuring range	-2 ... 16 pH -2000 ... +2000 mV	0 ... 20 mg/l 0 ... 200 %	0 ... 500 mS/cm, different ranges can be set	0 ... 2 mg/l
Temperature measurement ^{*)}	-10 ... 130 °C NTC or Pt1000 or Pt100	-10 ... 130 °C NTC or Pt1000	-10 ... 130 °C NTC or Pt1000	-10 ... 130 °C Pt1000
Temperature compensation	automatically via temperature measurement of the sensor or manual input			
Relay outputs	2 x changeover contact, max. 250 VAC / 5 A			
Analog outputs	2 x 0(4) ... 20 mA			
Digital interface	Modbus / RS485			
Display	OLED (128 x 64 pixel)			
Data logger	Integrated with real-time clock for 4000 records			
Ambient temperature	-10 ... 55 °C			
Dimensions, housing, weight	160 x 130 x 70 mm (W x H x D), aluminium housing for wall mounting, 2 kg			
Warranty	2 years			
Protection class	IP 65			

Multi-parameter transmitter MULTILINE 1000				
Parameter	pH/ORP	D.O.	Conductivity	Chlorine
Measuring range	0.00 ... 14.00 pH -2000 ... +2000 mV	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%	depending on range 0.1 µS/cm ... 0.1 mS/cm	0.01 mg/l
Temperature measurement ^{*)}	additional TFK 5000 (Pt1000), -10 ... +100 °C	integrated (Pt 1000), 0 ... +80 °C	integrated (Pt 1000), -5 ... +80 °C	integrated (Pt 1000), 0 ... +45 °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	4 programmable relays (threshold, hysteresis), 250V, switching current 5A, Ohm resistive load 150W			
Analog outputs	4 programmable current outputs, 0/4 ... 20mA, galvanically separated, recorder range and recorder adjustable via software, optional PID controller			
Digital interface	RS 485/232 or 422 (Modbus)			
Temperature range	transmitter only: operation -10 ... +55 °C (-13 ... +131 °F), storage -25 ... +65 °C (-13 ... +149 °F)			
Protection class	IP 65			
Dimensions, weights	transmitter only: 139x240x125 mm, approx. 1.5 kg			
Warranty	2 years			

*) Please note: Tolerated sensor operation temperature may vary significantly.

Order Information Drinking Water Systems

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, additionally with flow measurement, 240 VAC	8F
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, ORP electrode, connection cable)	1
Chlorine measurement (amperometric)	
Option 1.) Free chlorine amperometric, little pH dependent (pH 4 ... 9) (FCML 412 N) input module, sensor (0 ... 2 mg/l), flow-through armature, cable	1
Option 2.) Chlorine total amperometric (TC ML N) 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".

Order Information Single-parameter Systems

Single-parameter systems: Analog transmitters		
Model	Description	Order No.
pH 298 NTC	Analog transmitter to measure pH/ORP, 230V and NTC	191230
pH 298 Pt100	Analog transmitter to measure pH/ORP, 230V and Pt100	191232
pH 298 Pt1000	Analog transmitter to measure pH/ORP, 230V and Pt1000	191234
Oxi 298 NTC	Analog transmitter to measure dissolved oxygen, 230V and NTC	291230
Oxi 298 Pt1000	Analog transmitter to measure dissolved oxygen, 230V and Pt1000	291234
LF 298 NTC	Analog transmitter to measure conductivity, 230V and NTC	391230
LF 298 Pt1000	Analog transmitter to measure conductivity, 230V and Pt1000	391234
Cl 298 Pt1000	Analog transmitter to measure chlorine, 230V and Pt1000	801254
Cl 298/P - 230 VAC	Single-parameter panel to measure free or total chlorine	801260
Cl 298/P Flow - 230 VAC	Single-parameter panel to measure free or total chlorine, with FlowControl	801261
Chlorine analyzer and turbidity meter		
Model	Description	Order No.
Chlorine 3000	Chlorine analyzer for determination of free and total chlorine	860150
Turb 2000	Turbidity meter, white light, nephelometric	600020
Turb 2020	Turbidity meter, white light, nephelometric, incl. ultrasonic cleaning	600025
Turb 2100	Turbidity meter, infrared light, nephelometric	600030
Turb 2110 Set	Turbidity meter, infrared light, nephelometric, measuring range 0 ... 10 NTU, with additional bubble rejection system (600041) and calibration kit (600056)	600032
Turb 2110	Turbidity meter, infrared light, nephelometric, measuring range 0 ... 10 NTU	600033
Turb 2120	Turbidity meter, infrared light, nephelometric, incl. ultrasonic cleaning	600035



Xylem Analytics Germany Sales GmbH & Co. KG, WTW · Dr.-Karl-Slevogt-Straße 1 · 82362 Weilheim · Germany
Tel +49 881 183-0 · Fax +49 881 183-420 · Info.WTW@Xylem.com · www.WTW.com

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