Lake monitoring using a Multi 3500i Multiparameter Meter to monitor pH, conductivity, and dissolved oxygen levels.

CHAPTER 4.

WATER QUALITY

Sensors, Meters, Test Kits, Controllers, Online Analyzers, and Metering Pumps

Water Quality Notes

WQMS Water Quality Monitoring System

System for Monitoring Multiple Water Quality Parameters

Introduction to Water Quality Monitoring

In environmental waters, water quality is degraded when pollutants in the water cause conditions to exceed the aquatic system's ability to balance the changes. Two major categories of water pollutants include: point source pollutants from specific sources such as industrial pipes; and diffuse land-based non-point source pollutants carried to water bodies by runoff.

In order to identify, control, and remediate pollutants, water quality monitoring can be conducted in a variety of ways to meet many purposes. Monitoring can occur: continually at fixed sites to characterize waters and identify changes over time; at select sites on an as-needed basis to identify specific conditions; on a temporary basis to identify emerging problems; at random sites to gather information for broad programs; or on an emergency basis to respond to spills. Increasingly, monitoring efforts are aimed at determining the condition of entire watersheds to address the impact of non-point source pollutants.

Data that is collected and shared helps to inform pollution control and remediation plans, especially in cases of watershed-wide decision making. The EPA's STORET (www.epa.gov/storet/) is one of the largest online systems for ambient water quality data. Various entities collect and enter data into the database, and raw data can be accessed and used for a variety of purposes. The EPA is currently updating STORET to address developing technologies and provide users with more flexibility in working with online data. The next generation site is tentatively called the Water Quality Exchange.

FIND OUT MORE AT WWW.GLOBALW.COM

Description

Global Water's WQMS Water Quality Monitoring System allows you to monitor multiple water quality parameters with a fully integrated, easy to use, economical system. The standard system includes our multichannel datalogger (featuring 7 analog channels and 2 digital channels for data recording) and four of our rugged 4-20 mA water quality sensors for measuring water temperature, pH, conductivity, and dissolved oxygen. To customize the WQMS for your application, you can select up to three more analog sensors and up to two digital sensors to monitor additional parameters such as turbidity, ORP, water level, wind speed/direction, rainfall, and more.

Smart Water Quality Data Recorder

The WQMS's water quality data recorder features 7 analog channels, 2 pulse channels, and USB and serial communication ports. The durable and powerful datalogger is enclosed within a sturdy weatherproof case. The unit will operate for several months before its internal 12VDC battery requires recharging. Please see the GL500-7-2 on page 122 for additional information.

Powerful PC and PDA Software

The WQMS includes Windows™-based Global Logger II software, which makes accessing stored data and setting options easy. The software provides many useful features, such as real time readout, measurement interval and engineering unit selection, station ID setting, and sensor calibration. The WQMS also includes Windows™ CE-based PDA software for simple data collection in the field. Data downloaded from the recorder can easily be opened in any PC spreadsheet program for analysis and graphic presentation.

Rugged Water Quality Sensors

The WQMS comes standard with four rugged and reliable 4-20 mA water quality sensors, including our water temperature sensor, pH sensor, conductivity sensor (with a 0 to 5000µS range standard), and dissolved oxygen sensor. Each sensor is mounted on 25 ft (7.6 m) of marine-grade cable, with lengths up to 500 ft (152.4 m) available by special order. The sensors' electronics are completely encapsulated in marine-grade epoxy within a stainless steel housing. Each sensor outputs a 4-20 mA signal. Please see the WQ101, WQ201, and WQ301 starting on page 60 and the WQ401 on page 63 for more detail about these sensors.

Remote Communication Options

To add remote communication capabilities, select the GL500-Mod Modem Package for telephone modem communications (see Ordering & Options) or the RM100 for radio communications (see page 126). We also offer solar panels and a battery charger to support your WQMS installation. See the Accessories table on the opposite page for additional information.

Customize for Your Application

To customize your WQMS, you can select up to three additional analog sensors and two digital sensors from Global Water's line of rugged water quality, weather, level, and flow sensors. Please see Ordering & Options on the next page and the sensors in this document for additional information.

If you require a unique water quality monitoring system to meet the needs of your specific application, Global Water can work with you to design a factory-integrated custom system. Please contact Global Water regarding this option.

Applications

Ideal for stream and lake monitoring, aquaculture studies, baseline analyses, mitigation monitoring, and other environmental applications.

Features

- Monitor temperature, DO, pH, conductivity, and 5 additional parameters at the same time
- High quality, rugged sensors
- Battery powered for remote locations
- User-friendly Windows™ and Windows™ CE-based PDA software included
- Four sample modes: timed, 10 times per second, logarithmic, and exception
- Both USB and serial communication ports
- Rugged, lockable, weather resistant enclosure

Specifications

Datalogger

Memory	Non-volatile flash memory
Power	Voltage: 7.2 VDC min. to 24.0 VDC absolute max. Standby Current: 70µA typical Logging Current: 5mA typical + sensor current
Analog Sensor Inputs	4-20 mA (0-5 VDC as factory option) Resolution: 12-bit, 4096 steps Channels: 7 input channels + battery voltage monitor Sensor Warm-up Time: Programmable, 0-60 sec
Digital Inputs	Two independent pulse counters Maximum Input Voltage: 24VDC Maximum Frequency: 100Hz Minimum Pulse Width: 2mS Maximum Count: 65,535 (16-bit)
Sample Now Input	Sample-on-demand input, software enabled Maximum Input Voltage: 24 VDC Minimum Pulse Width: 2 mS
Sample Modes	Fixed interval programmable from 1 sec to >1 yr High speed 10 samples per second Logarithmic sample rate (approximation) Exception (log only on deviation from previous reading)
Storage Capacity	40,879 recordings for all inputs plus time stamp
Data Overwrite	Select memory wrap or unwrap (unwrap will stop logging once memory is full)
Communication Ports	RS-232 DB9 or USB Type B
Selectable Baud Rates	9600, 19200, 28800, 38400, 57600, 115200
Clock	Synchronizes to user's computer
Operating Temperature	Industrial, -40 to +185°F (-40 to +85°C) (battery may not apply)
Enclosure	Expanded UV protected PVC 9 x 7.5 x 4.5 inch (23 x 19 x 11 cm)
Battery	12 Volt, 2.2 A/hr, rechargeable (gell cell)
Weight	3.5 lbs (1.6 kg)

Global Logger II Software

Compatibility	Microsoft's Windows™ 98, ME, 2000, NT, XP, and Vista
Features	Tabular Display/Printout; data in standard spreadsheet format (CSV); programmable alarm start and stop times; field calibration software included

Water Quality Sensors

Please see the WQ101 Temperature Sensor, WQ201 pH Sensor, and WQ301 Conductivity Sensor starting on page 60 and the WQ401 Dissolved Oxygen Sensor on page 63 for specifications.

"The stone in the water knows nothing of the hill which lies parched in the sun."

– African Proverb

Ordering & Options

Water Quality Monitoring System

Order No.	Description
WQMS[1]	Water Quality Monitoring System
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

1) The standard unit includes a datalogger, temperature sensor, pH sensor, conductivity sensor (with a 0-5000µS range unless otherwise specified), and DO sensor. For a custom system, please call us.

Accessories

Order No.	Description
GL500-Mod	Modem Package
RM100-CSK	Wireless Communication System Client/Server Kit, see page 126
WQ730	Turbidity Sensor, see page 64
WQ600	Redox/ORP Sensor
WL400	Water Level Sensor, see page 6
RG200	Rain Gauge 6 inch, see page 109
RG600	Rain Gauge 8 inch, see page 109
BC100	Smart Charger, see page 128
SP101	Solar Panel (2 watt), see page 128
SP102	Solar Panel (5 watt), see page 128
PDAWL16	PDA Package

You may also like . . .

RM100 Wireless Communication System
Industrial RF transmitters and receivers for remote data collection from your WQMS.
Page 126

SIT65 Satellite Internet Telemetry
Alternate datalogger to easily collect water quality data on the web via satellite Internet.
Page 127

WQ101 Temperature Sensor

Rugged Water Temperature Sensor

Features

- Fully encapsulated electronics
- 4-20 mA output
- Marine grade cable with strain relief

Description

Global Water's WQ101 Temperature Sensor is a rugged and reliable device for highly accurate submersible water temperature measurement. The sensor's probe is molded to 25 ft of marine grade cable, with lengths up to 500 ft available upon request. The WQ101 has a two-wire configuration for minimum current draw. The unit's electronics are completely encapsulated in marine grade epoxy within a stainless steel housing.

Applications

Ideal for stream and lake monitoring, aquaculture studies, baseline analyses, mitigation monitoring, and other environmental applications.

Specifications

Output	4-20 mA
Range	-58 to +122° F (-50 to +50°C)
Accuracy	±0.2°F or ±0.1°C
Maximum Pressure	Open Water: 0 to 200 psi Online: 50 psi
Operating Voltage	10 to 36 VDC
Current Draw	Same as sensor output
Warm-up Time	5 seconds minimum
Operating Temp	-58 to +212° F (-50 to +100°C)
Size of Probe	Open Water: ¾ inch dia. x 4½ in long (1.9 cm dia. x 11.4 cm long) Online: 1.7 inch dia. x 8 in long (4.3 cm dia. x 20.3 cm long)
Weight	Open Water: 8 oz (227 g) Online: 9.4 oz (272 g)

Ordering & Options

Order No.	Description
WQ101	Temperature Sensor for Open Water (includes 25 ft cable)
WQ101-O	Online Temperature Sensor (with 3/4 inch NPT thread and 25 ft cable)
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

WQ201 pH Sensor

Rugged Water pH Sensor

Description

Global Water's WQ201 pH Sensor is a rugged and reliable water pH measuring device. The pH transmitter is mounted on 25 ft of marine grade cable, with lengths up to 500 ft available upon request. The sensor's output is 4-20 mA with a three-wire configuration. The WQ201's electronics are completely encapsulated in marine grade epoxy within a stainless steel housing. The unit also uses a removable shield and replaceable pH sensor element for easy maintenance.

Record and Control

As with all of Global Water's 4-20 mA output sensors, you can add recording and control capabilities to the WQ201 with the GL500 Datalogger and the PC300 Controller. The GL500 (on page 122) connects to the pH sensor's 4-20 mA output to record data, and the PC300 Controller (on page 132) connects to the sensor's output to control pumps or alarms.

Specifications

Output	4-20 mA
Range	0 to 14 pH
Accuracy	2% full scale
Maximum Pressure	40 psi
Operating Voltage	10 to 30 VDC
Current Draw	5.5 mA plus sensor output
Operating Temperature	23 to +131°F (-5 to +55°C)
Warm-up Time	3 seconds minimum
Size of Probe	Open Water: 1¼ inch dia. x 10 in long (3.2cm dia. x 25.4cm long) Online: 2 inch dia. x 12 in long (5cm dia. x 30.5cm long)
Weight	1 lb (454 g)

Ordering & Options

Order No.	Description
WQ201	pH Sensor for Open Water (includes 25 ft cable)
WQ201-O	Online pH Sensor (with 1inch NPT thread and 25 ft cable)
00-449	pH Sensor Replacement
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

Please call us for calibration standards.

Features

- Submersible pH measurements
- Fully encapsulated electronics
- 4-20 mA output
- Marine grade cable with strain relief
- Stainless steel housing
- Replaceable pH element

Applications

Ideal for stream and lake monitoring, aquaculture studies, baseline analyses, mitigation monitoring, and other environmental applications.

You may also like . . .

695pH Industrial pH Transmitter
Durable pH transmitter with 4-20 mA output, LCD display, and a protective enclosure.
Page 91

pH-10 Handheld pH Meter
Handheld meter with LCD display for fast and easy pH measurements.
Page 84

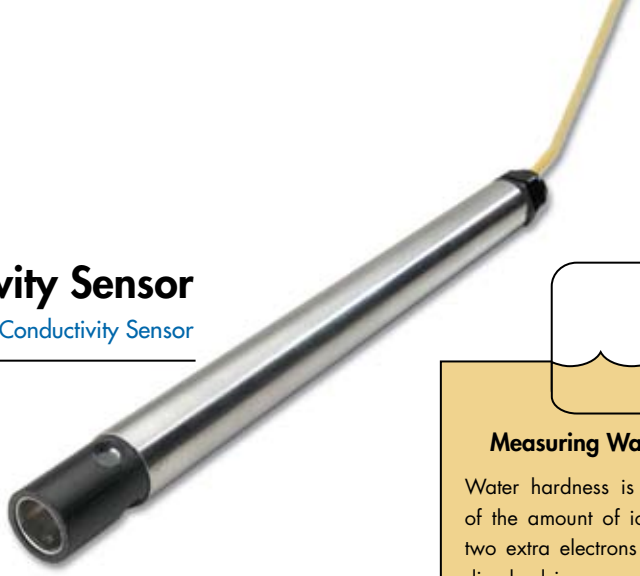
pH3110 Waterproof pH Meter
Meter with LCD screen that displays pH or mV and temperature.
Page 66

"Whiskey is for drinking; water is for fighting over."

– Mark Twain

WQ301 Conductivity Sensor

Rugged Water Conductivity Sensor



Description

Global Water's WQ301 Conductivity Sensor is a rugged and reliable water conductivity measuring device. The WQ301 offers a rapid and non-destructive way to measure the ion content in a solution. The conductivity sensor is molded to 25 ft of marine grade cable, with lengths up to 500 ft available upon request. The conductivity sensor's output is 4-20 mA with a three wire configuration. The unit's electronics are completely encapsulated in marine grade epoxy within a stainless steel housing.

Record and Control

As with all of Global Water's 4-20 mA output sensors, you can add recording and controlling capabilities to the WQ301 Conductivity Sensor with the GL500 Datalogger and PC300 Controller. The GL500 (on page 122) connects to the conductivity sensor's 4-20 mA output to record data. Global Water's PC300 Controller (on page 132) connects to the conductivity sensor's output to control pumps or alarms.

Specifications

Output	4-20 mA
Ranges	0 to 500, 0 to 2,000, 0 to 5,000, 0 to 10,000, 0 to 20,000, 0 to 40,000 µS
Accuracy	1% full scale
Maximum Pressure	50 psi
Operating Voltage	12 VDC (± 5%)
Current Draw	0.8 mA plus sensor output
Warm-up Time	3 seconds minimum
Operating Temp	-40 to +131°F (-40 to +55°C)
Temperature Compensation	2% per °C
Electrodes	316 stainless steel
Size of Probe	Open Water: 1 inch dia. x 12 in long (3.175cm dia. x 30.5cm) Online: 2.5 inch dia. x 15.5 in long (6.35cm dia. x 39.4cm)
Weight	Open Water: 8 oz (227 g) Online: 22 oz (624 g)

Features

- Fully encapsulated electronics
- 4-20 mA output
- Marine grade cable with strain relief
- Stainless steel housing

Applications

Ideal for stream and lake monitoring, aquaculture studies, baseline analyses, mitigation monitoring, and other environmental applications.

Ordering & Options

Conductivity Sensors for Open Water[1]

Order No.	Conductivity Range (µS)
WQ301A	0 to 5,000
WQ301B	0 to 10,000
WQ301C	0 to 20,000
WQ301D	0 to 2,000
WQ301E	0 to 40,000
WQ301F	0 to 500

1) Sensors include 25 ft of cable.

Online Conductivity Sensors[2]

Order No.	Conductivity Range (µS)
WQ301A-O	0 to 5,000
WQ301B-O	0 to 10,000
WQ301C-O	0 to 20,000
WQ301D-O	0 to 2,000
WQ301E-O	0 to 40,000
WQ301F-O	0 to 500

2) Online sensors include 1-1/4 inch NPT thread and 25 ft of cable.

Cable

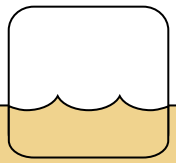
Order No.	Description
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

Please call us for calibration standards.

You may also like . . .

392 Industrial Conductivity Transmitter
Durable conductivity transmitter with 4-20 mA output and LCD display.
Page 91

EC400 Conductivity Testers
Handheld meter for fast and easy conductivity mesuarements.
Starting on Page 85



Measuring Water Hardness

Water hardness is the measurement of the amount of ions that have lost two extra electrons (divalent cations) dissolved in a sample. The more divalent cations dissolved in the water the "harder" the water. Generally, the most common divalent cations are calcium and magnesium, however other divalent cations may contribute to water hardness. Water hardness can be expressed in many different units, including ppm, mg/L CaCO3, Clark degrees, and French degrees.

Total dissolved solids (TDS) refers to a measure of all inorganic solids dissolved in the water, including ions that contribute to water hardness (like calcium) as well as those that do not (like sodium). Water hardness can be roughly calculated from TDS by dividing the ppm (parts per million) measurement of the TDS by 10. This gives a hardness value with an error of only 2-3 French degrees. TDS measurements can also be derived from a relative conductivity measurement.

Conductivity is a measure of the ability of a substance to conduct an electric current. Conductivity increases with increasing ion content, which means that it can provide a good approximation of TDS using the conversion factor of 1 ppm = 2 µS/cm. Conductivity is temperature sensitive and is typically standardized to 25°C. While conductivity is a convenient way to get an approximation of water hardness, it does have the drawback of combining all ions in the measurement, including those that do not contribute to the water's hardness. This hardness approximation gives an error similar to the TDS measurement of 2-3 French degrees of hardness.

FIND OUT MORE AT WWW.GLOBALW.COM

WQ-FDO shown with stainless steel armor

WQ-FDO Optical Dissolved Oxygen Sensor

Highly Accurate and Stable Optical Dissolved Oxygen Sensor

Features

- Extremely fast and precise optical DO sensor – outstanding for field and lab applications
- Proven green light technology for long operation life of sensor
- Beveled membrane repells interference that can be caused by air bubbles
- Universal protective armoring available
- Low power consumption and low maintenance
- Simple to integrate and operate
- One year sensor life

Applications

Long and short term monitoring for streams, rivers, lakes, aquaculture, thermocline profiling, industrial outfalls, wastewater, scientific research, homeland security, the food and wine industry, and more.

Specifications

Output	SDI-12 or 4-20 mA (with converter)
Accuracy	1% of reading or 0.02 ppm, whichever is greater
Resolution	0.01% saturation, 0.001 ppm
Range	0.00 to 25.0 ppm
Repeatability	0.01 ppm
Response Time	90% in less than 60 seconds
Temperature Compensation	Compensated 32 to 122°F (0 to 50°C)
Sensor Drift	Less than 1% per year
Temperature	Accuracy: ±0.2°F (±0.1°C) Resolution: 0.02°F (0.01°C) Range: 32 to 122°F (0 to 50°C)
Depth Rating	Maximum 30m water depth
Operating Voltage	9 to 15 VDC
Current Draw	10 mA during measurement, 0.5mA standby

Description

The WQ-FDO Optical DO Sensor is an instrument designed for measuring DO concentrations in liquids. The optical DO sensors were developed to meet the requirements ranging from surface water monitoring programs to harsh waste water applications. The WQ-FDO has been specifically designed to meet the demanding requirements of the environmental monitoring and scientific research sectors, providing long term, accurate and reliable dissolved oxygen measurement. The sensor has extremely low power requirements and a 4-20 mA output making it ideal for incorporation into remote environmental monitoring installations.

How it works

The WQ-FDO Optical DO Sensor's measuring technology is based on an attenuated fluorescent signal measured in a defined time frame. A fluorescent dye is stimulated in the sensor's membrane by a short wave length light source. By falling back into the passive state, long wave light is emitted, which is recorded as a measurement signal. If oxygen contacts the dye by diffusing through the membrane the period of back scattering light is shortened according to the oxygen concentration of the sample. The optical DO measurement is more or less a highly precision time measurement. In order to process this time measurement as precisely as possible, the sensor optics are calibrated to the speed of light.

Advantages

The WQ-FDO Optical DO Sensor has many advantages over traditional DO sensors. Unlike conventional Galvanic and Polargraphic DO sensors, WQ-FDO sensors have no consumable cathodes or anodes that require replacement, minimizing servicing requirments. Neither do the sensors consume oxygen. Consequently the measurement of DO by the sensor is unaffected by water flow. The WQ-FDO can even be deployed in stagnate groundwater bores. The sensors also have extremely stable electronics – a calibration interval of 1 year is typical.

The measuring and reference path optical components are identically designed inside the sensor. Natural aging processes of the sensor's optical components can therefore be compensated by the reference path and accordingly compensated in the measuring path. As a result, the sensor provides accurate DO measurements over long periods of time without the need for re-calibration. Additionally by stimulating the fluorescent reaction in the membrane with low energetic green-light, the fluorescent dye in the sensor membrane won't be bleached out.

The WQ-FDO can be used to monitor DO in almost any liquid, including wines, beer, and milk. The sensors are not affected by color of the liquid and with the beveled membrane design, bubbles or aeration do not affect the sensor's measurements either. The sensors can also be mounted in process lines for quality assurance.

Sensor Construction	Acetate, stainless steel, cast epoxy
Cable	4 core, 20 AWG, shielded, EPDM jacket
Size	1.89 inch dia. x 6.17 inch long (48mm dia. x 156mm long)
Weight	1 lb (453.5 g)

Ordering & Options

WQ-FDO Sensors

Order No.	Output Type
WQ-FDO	Includes 25 ft of cable. Does not include armoring.
201310	Replaceable Membrane
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

Accessories

Order No.	Description
903836	Plastic Armor Housing
903837	Stainless Steel Armor Housing

Please call us for calibration standards.

WQ401 Dissolved Oxygen Sensor

Rugged Dissolved Oxygen Sensor

Description

Global Water's WQ401 Dissolved Oxygen Sensor is a rugged and reliable water oxygen measuring device. The WQ401's sensor is attached to 25 ft of marine grade cable, with lengths up to 500 ft available upon request. The sensor's output is 4-20 mA with a three wire configuration. The sensor's electronics are completely encapsulated in marine grade epoxy within a stainless steel housing. The unit uses a removable shield and dissolved oxygen element for easy maintenance.

Record and Control

As with all of Global Water's 4-20 mA output sensors, you can add recording and controlling capabilities to the WQ401 with the GL500 Recorder and PC300 Controller. The GL500 (on page 122) connects to the dissolved oxygen sensor's 4-20 mA output to record data, and the PC300 Controller (on page 132) connects to the sensor's output to control pumps or alarms.

Features

- Measure dissolved oxygen in situ
- Fully encapsulated electronics
- 4-20 mA output
- Marine grade cable with strain relief
- Stainless steel housing
- Replaceable dissolved oxygen element

Applications

Ideal for stream and lake monitoring, aquaculture studies, baseline analyses, mitigation monitoring, and other environmental applications.

Specifications

Output	4-20 mA
Range	0 to 100% saturation, 0 to 8 ppm, temperature compensated to 77°F (25°C)
Accuracy	±0.5% full scale
Maximum Pressure	40 psi
Operating Voltage	10 to 36 VDC
Current Draw	15.5 mA plus sensor output
Warm-up Time	10 seconds minimum
Operating Temp	-40 to +131°F (-40 to +55°C)
Membrane	0.001 FEP Teflon (standard)
Combined Error	2% full scale
Size of Probe	Open Water: 1 ¼ inch dia. x 11 in long (3.2cm dia. x 27.9 cm long) Online: 2 inch dia. x 12 in long (5cm dia. x 30.5cm long)
Weight	1 lb (454 g)

Ordering & Options

Order No.	Description
WQ401	Dissolved Oxygen Sensor for Open Water (includes 25 ft cable)
WQ401-O	Online Dissolved Oxygen Sensor (with 1 inch NPT thread and 25 ft cable)
00-740	DO Element Replacement
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

Please call us for calibration standards.

You may also like . . .

DO600 DO Portable Probe
Handheld meter with LCD screen for fast and easy DO and temperature measurements.
Page 85

OXI 3205 Handheld Dissolved Oxygen Meters
Meter with LCD screen that displays oxygen concentrations and temperature.
Page 70

Why Measure DO?

Dissolved oxygen (DO) is the amount of oxygen (O_2) dissolved in water. DO provides one of the best indicators of the health of a water ecosystem, as oxygen is a necessary element for all forms of life, including aquatic life.

Oxygen enters water at the water surface through direct exchanges with the atmosphere. It is also produced as a byproduct of plant and phytoplankton photosynthesis.

A decrease in DO levels is typically associated with an organic pollutant. DO is used by plants and animals for respiration, and by aerobic bacteria in the process of decomposition. When organic matter (such as animal waste or improperly treated wastewater) enters a body of water, algae growth increases. As the plant material dies off and decomposes, dissolved oxygen levels decrease. If the water at the surface is not mixed with deeper water layers, the water's DO levels can become stratified. Dissolved oxygen levels can also vary according to the time of day, weather, and temperature.

DO in water can range from 0-18 parts per million (ppm), but most natural water systems require 5-6 ppm to support a diverse population. As DO levels drop below 5.0 mg/l, aquatic life is put under stress. As dissolved oxygen levels decrease, pollution-intolerant organisms are replaced by pollution-tolerant worms and fly larvae. If oxygen levels fall below 1-2 mg/l for a few hours, large fish kills can result.

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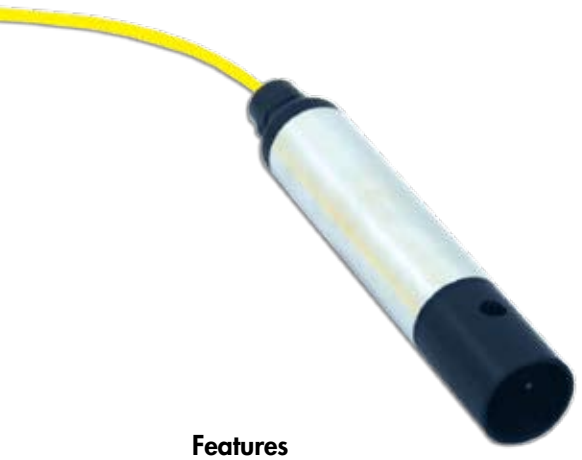


WQ730 Turbidity Sensor

Rugged Submersible Turbidity Sensor

Features

- In situ turbidity measurement
- Simple and convenient to use
- 4-20 mA output
- Marine grade polyurethane jacketed cable with strain relief
- Rugged stainless steel and Delrin® housing
- Removable light and debris shield
- Ideal for a variety of applications

Specifications

Range	0 to 50 NTU and 0 to 1000 NTU
Accuracy	±1% full scale
Output	4-20mA (Both ranges)
Method	Nephelometer with correction
Operating Voltage	10 to 36 VDC @ 40 MS
Current Draw	30 mA plus sensor output
Warm-up Time	5 seconds minimum
Operating Temperature	14 to 122°F (-10 to +50°C)
Materials	306 stainless steel, Delrin®, polyurethane jacketed cable
Maximum Pressure	30 psi
Light Source	Infrared LED, 880nm
Cable Length	25 ft (7.6 m) standard (optional up to 500 ft (152 m)
Size of Probe	1 ½ inch dia. x 8.5 in long (3.8 cm dia. x 21.6 cm long)
Weight	1 lb (454 g)

Description

Global Water's WQ730 Turbidity Sensor is a highly accurate submersible instrument for in situ environmental or process monitoring. The sensor is ideal for a variety of applications, including river monitoring, stream measurement, reservoir water quality testing, groundwater testing, water and wastewater treatment, effluent and industrial control, and more.

How it Works

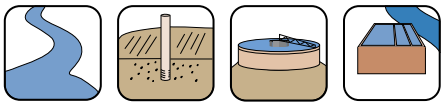
In accordance with USEPA Method 180.1 for turbidity measurement, the WQ730 is a 90 degree scatter nephelometer. The sensor directs a focused beam into the subject water. The light beam reflects off particles in the water, and the resultant light intensity is measured by a photodetector positioned at 90 degrees to the light beam. The detected light intensity is directly proportional to the turbidity of the water. The turbidity sensor uses a second light detector to correct for light intensity variations, color changes, and minor lens fouling.

For environmental monitoring, simply place the sensor directly in the water and position it where the turbidity is to be monitored. For process monitoring, you can place the sensor into a low-pressure pipe for online monitoring using a standard 1.5 inch compression coupler.

Record, Control, and Display

For handheld turbidity monitoring, the WQ770-B Turbidity Meter (page 72) combines the WQ730 with a digital display that reads in either NTU or ppm. You can add recording capabilities to the WQ730 with the GL500 Datalogger (page 122), and you can use the sensor to control external devices with the PC300 Controller (page 132).

Applications



Ideal for river monitoring, stream measurement, reservoir water quality testing, groundwater testing, water and wastewater treatment, effluent and industrial control, and more.

Ordering & Options

Order No.	Description
WQ730	Turbidity Sensor for Open Water (includes 25 ft (7.6 m) cable)
WQEXC	Extra Sensor Cable, per foot (up to 500 ft (152 m))

Please call us for calibration standards.

You may also like . . .

WQ770-B Turbidity Meter
Turbidity sensor and display for simple handheld monitoring.
Page 72

TURB 430 Portable Turbidity Meter
Portable water sample analyzer for accurate turbidity measurements.
Page 73

"The highest good is like water. Water gives life to the ten thousand things and does not strive. It flows in places men reject and so is like the Tao."

– Tao Te Ching

WQ750 Self-Cleaning Turbidity Sensor

Submersible Turbidity Sensor with Analog Output

Description

The WQ750 Self-Cleaning Turbidity Sensor is an excellent choice for turbidity measurements in applications involving surface water, wastewater effluent, raw source water, industrial discharge, and aquaculture.

The heavy-duty WQ750 is constructed of 316 stainless steel with scratch-resistant quartz optical lenses to provide a long, dependable service life. The unit ships complete with 42 feet (12.8 m) of cable and a wiper actuation board.

Reliable Sensing and Transmittal

The WQ750 uses a reliable optical sensing system, which produces an analog signal that is enhanced by on-board temperature and ambient light processing. This robust 4-20 mA analog signal is compatible with a host of monitoring and control systems including the PC300 process controller (see page 132) and GL500 dataloggers (starting on page 122).

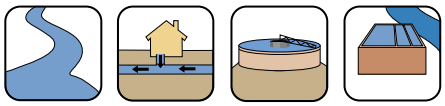
Innovative Self-Cleaning

The WQ750 maintains its accurate and reliable measurements via a mechanical cleaning device that prevents contamination of the measuring windows. The wiper cycle is controlled by an external contact and allows the WQ750 to match the cleaning cycle to the application. The control board is designed to work with our Global Water GL500 dataloggers (starting on page 122).

Features

- Reliable optical measuring process
- Built in wiper to keep sensing surfaces clean
- Directly submersible into basins, channels or open water
- Isolated 4-20 mA output
- Rugged stainless steel sensor body

Applications



Ideal for monitoring water quality in lakes, rivers, streams, plant effluent, wastewater recycling and discharge, and aquaculture applications.

Specifications

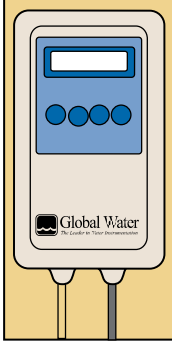
Measuring Principle	90° scattered light with pulsed infrared light
Wavelength	880 nm
Measuring Range	1 to 1000 FNU
Maximum Error	< 1% of measuring range
Repeatability	<1%
Analog Output	4–20 mA, isolated
Signal Filter	10 sec
Control Signal for Wiper	Pulse duration 5 sec / O V
Power Requirement	10 to 24 VDC, max 3W
Sensor Current	~220mA @ 12 VDC
Wiper Current	50 mA
Operating Temp	32 to 122 °F (0 to +50 °C)
Operating Pressure Maximum	87 psi (200 ft (61 m) of water)
Sensor Body	316 stainless steel
Wiper	Rubber
Optical Windows	Quartz glass
Cable	42.5 ft (13 m), submersible, 6-wire w/shield
Dimensions	1.5 inch dia. x 5.75 in long (38 mm dia. x 146 mm long)
Weight	2 lbs (0.9 kg)

Ordering & Options

Order No.	Description
WQ750	Turbidity Sensor (with 42 ft (12.8 m) cable & wiper control)

Please call us for calibration standards.

You may also like . . .



PC300 Controller
Use the WQ750 to control external devices.
Page 132

GL500 Datalogger
Add recording capabilities to the WQ750.
Page 122

WQ750 Installation Notes

When installing the WQ750, please note that reflections from stationary objects in the area of the probe (such as a wall or the ground) can affect measurements at low turbidity levels, causing the probe to falsely provide higher turbidity values.

It is particularly important to take account of this when performing control measurements in small vessels. The distance between the probe and the next wall should be large enough to avoid reflections.

FIND OUT MORE AT WWW.GLOBALW.COM

pH3110/3210 pH/mV Meter Kits

User-Friendly Waterproof Kits for Measuring pH or mV and Temperature

Features

- Rugged, waterproof and field-friendly
- Kit includes everything in a convenient carry case
- Built-in datalogger (pH 3210)

Applications

Ideal for environmental monitoring and water and wastewater applications.

Specifications

	3110	3210
Range	pH: –2.000 to 19.999 mV: ±2000.0 mV Temp: 23 to 221 °F(–5.0 to 105.0 °C)	pH: –2.000 to 19.999 mV: ±2500.0 mV Temp: 23 to 221 °F(–5.0 to 105.0 °C)
Resolution	All values +1 digit	
Accuracy	pH: ±0.005 mV: ±0.3 Temp: +0.2 °F (+0.1 °C)	
Calibration	1, 2, or 3 point	1, 2, 3, 4, or 5 point
Display	7-Segment LCD, customized	LCD backlit graphic
Memory	N/A	200 Manual Datasets
Battery Life	Up to 2500 hours	Up to 1000 hours w/o backlit, 150 hours w/backlight

Power	Four 1.5V AA batteries or four 1.2 V NiMH
Sensor/Temp input	DIN/4mm Banana
Weight	10.5 oz (300g)
Dimensions	7x3.15x2.17in (180x80x55mm)

Description

The user-friendly pH3110-3210 pH/mV Meter Kits are optimized for field use, but are accurate enough for the lab. The meters meet IP66/67 standards, so you don't need to worry about using it in the rain or accidentally dropping it into water. They have a sealed silicone keypad that offers real button response, yet allows for easy cleaning. The units feature simultaneous display of pH or mV with temperature, choice of automatic or manual temperature compensation, and multipoint calibration with automatic buffer recognition at eight buffer values. The pH3110 and pH3210 meters are ideal for environmental, water, and wastewater monitoring.

Flexible Models

The pH3110 is a great value for a robust and waterproof battery-operated pH/mV meter. It features an intuitive 6-key silicone keypad and a simplified calibration method with automatic buffer recognition and display for standard buffers. The meter's AutoRead function ensures stable and reproducible results. Typical applications for the pH 3110 include simple pH measurements or use in high schools and universities.

The pH 3210 includes a built-in datalogger, real-time clock, GLP-supporting functions and backlit display. It can be configured with the MultiCal® automatic calibration for buffer recognition, and automatic temperature compensation. It has a continuous measurement control (CMC) function that alerts you when your meter is reading outside of the calibrated range. It's large memory allows you to manually store 200 datasets.

Ordering & Options

pH/mV Meter Kits

Order No.	Description	Electrode
pH3110	Meter Kit	SenTix® 41
pH3210	Meter Kit with Datalogger	SenTix® 41

Replacement Electrodes

Order No.	Description
SenTix41	Plastic Body Electrode with Temperature Sensor
SenTix21	Plastic Body Electrode without Temperature Sensor

pH Solution

Order No.	Description
478554	Rainbow Buffer Pack: Includes one 500 ml bottle each of pH 4, 7, and 10

You may also like . . .

WQ201 pH Sensor
Rugged, reliable, and accurate pH sensor with 4-20 mA output.
Page 60

695pH Industrial pH Transmitter
Transmitter with display and 4-20 mA output for pH measurements.
Page 91

6309POT pH/ORP Analyzer and Controller
Instrument for Measuring and Controlling pH, ORP, and Temperature
Page 90

"Water is the most basic of all resources. Civilizations grew or withered depending on its availability."

– Dr. Nathan W. Snyder

pH 1970i Portable pH Meter

Portable pH Meter with Rubberized Housing

Description

The accurate and field-friendly pH 1970i Portable pH Meter features a shock absorbing housing that is not only waterproof (IP67) but will actually float. In addition, the meter's convenient carrying handle doubles as a meter stand for benchtop use. The pH 1970i displays pH/temperature or mV/temperature simultaneously, which makes taking your pH readings easy. With it's GLP memory functions, real-time clock, 800 data point memory capacity, and convenient carrying handle, the pH 1970i is a complete pH measuring system. The standard BNC electrode connector allows you to quickly connect one of the waterproof SenTix® electrodes listed below, or you can use your own existing pH probe.

Specifications

Range	pH: -2.00 to 19.99 mV: ±199.9 or ±1999 Temperature: 23.0 to 221°F (–5.0 to 105°C)
Resolution	pH: 0.01 mV: 0.1 or 1 Temperature: 0.2°F (0.1°C)
Accuracy (±1 digit)	pH: ±0.01 mV: ±0.5 or ±1 Temperature: ±0.1
Temperature Compensation	Automatic with ATC probe or Manual -4 to 266°F (-20 to +130°C) in 1° increments
Buffer Recognition	2.00, 4.01, 7.00,10.01; and pH 1.979, 4.008, 6.865, 9.18

Datalogging	50 data sets
Output	RS-232
Display	Multi-line LCD
Operating Temp	14 to 131°F (-10 to 55°C)
Storage Temp	-13 to 149°F (-25 to 65°C)
Power	NiMH rechargable battery or 110/220 VAC adapter
Battery Life	Up to 600 hrs
Dimensions	3-1/2 x 7-7/8 x 7-1/2 inches (90 x 200 x 190 mm)
Weight	3.3 lbs (1.5 kg)
IP rating	IP 67
Certifications	CE

Features

- Waterproof rubberized housing
- Record readings to the built-in memory
- Doubles as a bench top meter

Ordering & Options[1]

Order No.	Description
pH1970i	Portable, Waterproof pH Meter w/Universal Power Supply
SenTix® 41	Plastic Body Electrode with Temperature Sensor
SenTix® 21	Plastic Body Electrode without Temperature Sensor

1) Buffers with values of 2.00, 4.01, 7.00, 10.01 are standard US buffers. Buffers with values of 1.679, 4.008, 6.865, 9.18 are NIST buffer values. A pH probe must be ordered separately.

VARIO 2V00 pH Meter

Waterproof pH Meter for Simple Operation and Easy Handling

Description

The innovative VARIO 2V00 pH meter combines handheld convenience with benchtop features for easy pH monitoring.

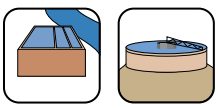
Simple Operation

Just a fingertip touch on the unit's display, and the VARIO is ready for use. Immersion in a solution starts the measurement automatically. Highly accurate pH, mV, and temperature measurements can be read from the VARIO's large display and can also be temporarily locked on the screen or stored to memory. The memory can store up to 50 measured values for later evaluation. When not in use as a pH meter, the VARIO doubles as a laboratory clock or timer.

Specifications

pH Range	-2.00 to 16.00
pH Accuracy	±0.01 pH
Temperature	23 to 212 °F (-5.0 to 100.0°C)
Auto Buffer Recognition	TEC/NIST
Calibration Points	3 (MultiCal®)
Operating Temp	14 to 131°F (-10 to 55°C)
Storage Temp	-13 to 149°F (-25 to 65°C)
Power Source	1 x 1.5 V, type Mignon/AA
Battery Life	Up to 1500 hrs
IP Rating	65
Weight	Approx. 4 oz (115 g)
Dimensions	5-1/2 x 3-1/8 x 1-1/4 inches (140 x 80 x 33 mm)

Applications



Ideal for water and wastewater treatment applications.

Features

- Compact, rugged, and easy to use
- Innovative touch screen display inverts 180 degrees
- Built in memory saves up to 50 readings

Ordering & Options

VARIO pH Meters

Order No.	Description	Electrode
2V00-001V	pH Meter	Short Standard
2V00-1011	pH Meter	SenTix® 21
2V00-1012	pH Meter	SenTix® 41

Replacement Electrodes

Order No.	Description
SenTix® 41	Plastic Body Electrode with Temperature Sensor
SenTix® 21	Plastic Body Electrode without Temperature Sensor

COND 3110/3210 Handheld Conductivity Meters

Handheld conductivity meter for field measurements

Features

- Robust shock and water resistant design
- Easy to use interface
- Wide range of applications
- Accurate and reliable TetraCon® probe

"Water helped ancient man learn those first lessons about the rights of others and responsibility to a larger society… It became part of the moral and mental legacy parents passed on to their children."

– M. Meyer,
Water in the Hispanic Southwest

Description

Useable anywhere, the Cond 3110 and Cond 3210 handheld conductivity meters are robust, easy to operate and provide assured accurate readings. From the monitoring of on-line process systems to field studies, handheld conductivity meters will meet all your water, wastewater and environmental measurement needs. Both meters meet IP66/67 standards – no worrying about using it in the rain and mud, or accidentally dropping it in the water. The meters have a sealed silicone keypad which offers real button response, yet allows for easy cleaning.

Cond 3110

This easy to use meter will meet all your day-to-day demands. With only 6 keys, the Cond 3110 provides easy error-free measurement with temperature measurement, automatic temperature compensation and 4-electrode measuring technology. Typical applications for the Cond 3110 include simple conductivity measurements or use in high schools and universities.

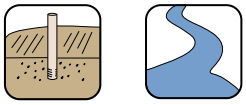
Cond 3210

Loaded with additional features, the Cond 3210 includes parallel temperature display, integrated datalogger, good laboratory practice (GLP) supporting functions, automatic and manual temperature compensation with linear temperature function and a non-linear function for ultrapure water and natural waters according to EN 27 888. The meter's temperature compensation can be switched off; either 68 °F or 77 °F (20 °C or 25 °C) can be selected as the reference temperature. The Cond 3210 has a continuous measurement control (CMC) function that alerts you when your meter is reading outside of the calibrated range.

Specifications

Range	Conductivity (both meters): 0.0 to 1000 mS/cm Conductivity (3210 only): 0.00 to 19.99 uS/cm (for K=0.1 cm-1), 0.000 uS/cm to 1.999 uS/cm (for K=0.01 cm-1) Temp (both meters): 23 to 221 °F (-5.0 to +105.0 °C) Salinity (both meters): 0.0 to 70.0 TDS (3210 only): 0 to1999 mg/l Specific Resistance (3210 only): 0.00 to 20 Mohm cm
Accuracy	Conductivity: ±0.5% of value Temperature: ±0.2 °F (+0.1 °C)
Reference temp	68 or 77 °F (20 or 25 °C), selectable
Cell constant	Both meters: Fixed 0.475 cm^{-1} , 0.1 cm^{-1} 0.450 to 0.500 cm^{-1}, 0.585 to 715 cm^{-1} 0.800 to 1.200 cm^{-1}, Standard: 0.01 mol/L KCl 3210 meter only: adjustable 0.090 to 0.110 cm^{-1}
Temperature compensation	3110: nLF 3210: none, nLF, 0.000 to 10.00 %/°K
Memory	3210 only: 200 manual datasets
Power	Four 1.5 V AA batteries or four 1.2 V NiMH
Battery Life	3110: Up to 1000 hours 3210: Up to 800 hours w/o backlight, 150 hours w/backlight
Dimensions (LxWxH)	7x3.15x2.17in (180x80x55mm)
Weight	0.88 lb (0.3kg)

Applications



Ideal for ground water, surface water, food industries, and pharmaceutics.

Ordering & Options

Order No.	Description
Cond 3110 Set	Handheld Conductivity Meter Kit Includes TetraCon 325
Cond 3210 Set	Handheld Conductivity Meter Kit Includes TetraCon 325
TetraCon® 325	Conductivity Meter Probe on 9.8 ft (3m) of cable

COND 1970i Portable Conductivity Meters

Portable conductivity and TDS meter for field measurements.

Description

The Cond 1970i conductivity meter combines everything you want in a portable conductivity meter for water, wastewater and environmental monitoring. The meter is nearly indestructible with both hose down proof (IP 66) and submersible (IP 67) ratings as well as being accurate, capable and easy to use. Along with an 800 data point datalogger, a real time clock and recorder output, the meter conforms to all GLP requirements.

Specifications

ProfiLine Cond 1970i	Range/Resolution: Conductivity: 0.0 uS/cm to 500 mS/cm in 5 measuring ranges or autorange, 0.00 uS/cm to 19.99 uS/cm (for K=0.1 cm^{-1}), 0.000 uS/cm to 1.999 uS/cm (for K=0.01 cm^{-1}) Temp: 23 to 221 °F (-5.0 to +105.0 °C) Salinity: 0.0 to 70.0 TDS: 0 to1999 mg/l
Accuracy	Conductivity: ± 0.5% of value Temperature: ± 0.1 K
Reference temp	68 to 77 °F (20 or 25 °C), selectable
Cell constant	Calibratable 0.450 to 0.500 and 0.800 to 1.200 cm^{-1}, fixed: 0.01 cm^{-1} freely adjustable 0.25 to 2.5 cm^{-1} and 0.09 to 0.11 cm^{-1}
Temperature comp	Automatic, can be switched off
Power	Rechargeable NiMH batteries (approx. 600 hrs per full charge)
AC power	Wide-range power supply 100-240 VAC 50/60 Hz (included)
Dimensions (LxWxH)	3.54x7.87x7.48 in (90x200x190 mm)
Weight	3.3 lb (1.5 kg) (without plug-in power supply)
Ingress Protection	IP 67
Electrical Safety	Protective class III
Ambient conditions	Operation: 14 to 131°F (-10 to 55°C) Storage: 13 to 149°F (- 25 to 65°C)
Test certificates	cETLus, CE

Features

- Nearly indestructible, water proof housing
- Large, easy to read display
- Long lasting rechargeable NiMH batteries
- Measurements up to 300 feet deep with submersible cell

Ordering & Options

Order No.	Description
Cond 1970i	Portable Conductivity Meter Conductivity probe not included
TetraCon® 325	4-electrode cond sensor with integrated temp sensor
TA 197 LF-25	Conductivity probe w/ 82 ft (25 m) of cable and field armor

NOTE: Other lengths availabel for TA 197 LF sensor.

VARIO 2X00 Cond Meter

Waterproof Conductivity Meter for Simple Operation and Easy Handling

Description

The VARIO Cond provides a powerful and robust conductivity meter in a package that will fit in your pocket. This easy to use meter is ideal for use in water and wastewater process control, environmental field monitoring or anywhere a small, accurate meter is needed. At home in harsh field conditions or in the demanding plant environment the meters are waterproof (IP65) and have firm-grip rubber armoring. With the meter and a suitable sensor module you can measure the conductivity, specific resistance, salinity or TDS (total dissolved solids) of a solution easily.

Specifications

Conductivity	µS/cm: 0.00 to 19.99 (when using module LR01 V), 0.0 to 199.9, 0 to 1999 mS/cm: 0.00 to 19.99, 0.0 to 199.9 Salinity: 0.0 to 70.0 (per IOT) TDS (mg/l): 0 to 1999 Temp: 41 to 221°F (5.0 to 105.0°C)
Reference temp	68 or 77 °F (20 or 25 °C), selectable
Power	One 1.5V AA (apprx. 500 hr operation)
Ambient conditions	Storage: 13 to 149°F (- 25 to 65°C) Operation: 14 to 131°F (-10 to 55°C)
Dimensions	5.5x3.15x1.3 in (140x80x33 mm) (without sensor module)
Weight	4 oz (115 g) (without sensor module & battery)

Features

- Accurate, easy to use and full of features
- Innovative touch screen interface
- Stands up to the harsh demands of field use

Ordering & Options

Order No.	Description
2X00-001A	VARIO Cond Meter TetraCon V Kit
2X00-001B	VARIO Cond Meter LR01 V ultrapure water cell
301990	TetraCon V 4-electrode cond sensor with integrated temp sensor
LR01 V	Ultrapure water cond cell with integrated temp sensor

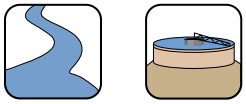
OXI 3205/3210
Handheld Dissolved Oxygen Meter

Handheld DO meter for field measurements

Features

- Robust shock and water resistant design
- Easy to use interface
- Extremely long battery life

Applications



Ideal for fish farming, surface water, control measurements, wastewater treatement plants.

Specifications

Measuring Range (both meters)	O_2 Concentration*: 0.00 to 19.99 mg/l or 0 to 90 mg/l O_2 Saturation*: 0 to 199.9% or 0 to 600% Temp*: 32 to 221 °F (0 to +105.0 °C) * Depending on sensor
Resolution (both meters):	O_2 Concentration: 0.01 or 0.1 mg/l (CellOx 325), 0.1 or 1 mg/l (DurOx 325) O_2 Saturation: 0.1 or 1 % (CellOx 325), 1 % (DurOx 325) Temp: 0.2 °F (0.1 °C)
Accuracy (both meters):	O_2 Concentration: ± 0.5 % of measured value at ambient temperature of 41 to 86 °F (5 to 30 °C) O_2 Saturation: ± 0.5 % of measured value when measuring in the range of ± 10 K around the calibration temperature Temperature: ±0.1
Temp Correction	Accuracy better than 2 % at 32 to 104 °F (0 to 40 °C)
Salinity Correction	35 SAL

Description

Useable anywhere, the Oxi 3205 and Oxi 3210 meters are robust, easy to operate and provide assured accurate readings. These meters have incorporated a sealed silicone keypad which offers real button response, yet allows for easy cleaning. In combination with galvanic oxygen meter probes DurOx® 325 or CellOx® 325 (no polarization time required) the meters are ready for immediate use anywhere, especially in fish farming applications.

Oxi 3205

This easy to use meter will meet all your day-to-day demands. It has a simplified keypad, with no memory function and no manual input facilities. When used in combination with the DurOx® 325 probe and its protective hood the handheld DO meter is particularly suitable for measurements in fish-farming applications.

Air Pressure Correction	Automatic through installation of pressure sensor in the range 500 to 1100 mbar
Operational Temp	14 to 131 °F (-10 to 55 °C)
Storage Temp	-13 to 149 °F (-25 to 65 °C)
Power	Four AA 1.5 V batteries or four 1.2 V NiMH
Battery Life	3205: Up to 1000 hours w/o backlight, 150 hours w/ backlight 3210: Up to 800 hours w/o backlight, 100 hours w/ backlight
Dimensions (LxWxH):	7x3.15x2.17in (180x80x55mm)
Weight	0.88lb (0.4kg)
IP Rating	IP 66/67
Certification	CE

DurOx 325-3

Measuring Range	0 to 50 mg/l O_2
Electrode Material	POM
Shaft Material	POM
Cable Length	9.8 ft (3 m)
Temp Range	32 to 104 °F (0 to 40 °C)
Min/Max Immersion Depth	1.6in to 65ft (6cm to 20m)
Shaft Length	4.33 in (110 mm) w/hood
Diameter	0.70 in (17.5 mm)
Weight	7.8 oz (220 g)

Oxi 3210

The compact precision Oxi 3210 enables you to carry out oxygen (DO) measurements rapidly and reliably. It provides the maximum degree of operating comfort, reliability and measuring certainty for all applications. Loaded with additional features, the DO meters include automatic temperature and air pressure compensation, salinity correction, GLP-supporting functions and built in datalogger. The meters also have auto ranging and auto read function, which checks the stability of the input signal, for ease of use and data reproducibility. The meters have a continuous measurement control (CMC) function that alerts you when your meter is reading outside of the calibrated range. The meter's large memory allows you to manually store 200 datasets.

Ordering & Options

Order No.	Description
Oxi 3205 Set	Handheld Dissolved Oxygen Meter DurOx 325 Set
Oxi 3210 Set	Handheld Dissolved Oxygen Meter CellOx 325 Set
CellOx 325-3	DO probe on 9.8 ft (3m) cable
DurOx 325-3	DO probe on 9.8 ft (3m) cable w/protective hood

"The wise man of Miletus thus declared the first of things is water."

– J.S. Blackie

OXI 1970i Portable Dissolved Oxygen Meter

DO meters that combine handheld convenience with laboratory benchtop features

Description

The Oxi 1970i Portable Dissolved Oxygen Meters combine everything you want in a portable dissolved oxygen meter for water, wastewater and environmental monitoring. The Oxi 1970i is nearly indestructible with both hose down proof (IP 66) and submersible (IP 67) ratings. But it is also very accurate, capable and easy to use. Along with an 800 data point datalogger, a real time clock and recorder output, the meter conforms to all GLP requirements. With its large, easy to read display, carrying/support handle and carrying strap the Oxi 1970i goes with you wherever you need to do dissolved oxygen measurements - even on your bench top.

The Oxi 1970i Portable Dissolved Oxygen Meters ship complete with NiMH rechargeable batteries, dual-voltage 110/220 VAC adapter, and neck strap. A DO probe is not included with the meter. Choose from one of the two waterproof DO probes listed below or call us if you need a special purpose electrode for your meter

Specifications

Portable Dissolved Oxygen Meter Range (w/CellOx 325)	O_2 Concentration: 0.00 to 19.99 mg/l, 0.00 to 90.0 mg/l O_2 Saturation: 0 to 199.9%, 0 to 600% Temperature: 32 to 122°F (0.0 to 50°C)
Portable Dissolved Oxygen Meter Resolution	O_2 Concentration: 0.01,0.1 O_2 Saturation: 0.1,1 Temperature: 0.1
Portable Dissolved Oxygen Meter Accuracy	O_2 Concentration: ± 0.5 % of measured value at ambient temperature of 41 to 86 °F (5 to 30 °C) O_2 Saturation: ± 0.5 % of measured value when measuring in the range of ± 10 K around the calibration temperature Temperature: ±0.1
Temp Comp	Accuracy better than 2 % at 32 to 104 °F (0 to 40 °C)
Salinity Compensation:	0 to 70.0 SAL
Air Pressure Compensation	Automatic through integrated pressure sensor in the range 500 to 1100 mbar
Datalogging	800 data sets
Output	RS-232 with adjustable baud rate
Display	Multi-line LCD
Power	Rechargeable NiMH battery or 110/220 VAC adapter
Battery Life	Up to 600 hrs
Dimensions	3.5x7.9x7.5in (90x200x190mm)
Weight	3.3 lb (1.5kg) (without plug-in power supply)
IP Rating	IP 67
Certifications	CE

CellOx 325

Electrode Material	Gold (Working), Lead (Counter)
Shaft Material	POM
Cable Length	4.9 ft (1.5 m)
Measuring Range	0 to 50 mg/l O_2, 0 to 600% O_2
Temp Range	32 to 122 °F (0 to 50 °C)
Min/Max Immersion Depth	2.4in to 65ft (6cm to 20m) depending on cable length
Shaft Length	7.38 in (187.5 mm)
Diameter	0.70 in (17.5 mm)
Weight	6 oz (170 g)

Features

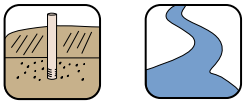
- Waterproof rubberized rugged housing
- Record readings to the built-in memory
- Doubles as a laboratory bench top DO meter

Ordering & Options

Order No.	Description
Oxi 1970i	Portable Dissolved Oxygen Meter DO electrode not included
CellOx® 325	DO electrode Includes 5 ft (1.5m) cable
TA 197 Oxi-25	Deep water DO sensor w/82ft (25m) cable

NOTE: Other cable lengths available, please call

Applications



Ideal for ground water, surface water, control measurements, laboratory measurements, pharmaceutics.

"Water is the most critical resource issue of our lifetime and our children's lifetime. The health of our waters is the principal measure of how we live on the land."

– Luna Leopold

WQ770-b Turbidity Meter

Portable Turbidity Meter with Sensor, LED Screen, and Control Panel

Features

- In situ turbidity measurement
- Portable unit with completely submersible sensor
- Simple and convenient to use
- Factory calibrated for immediate long-term use (recalibration not required for 6-12 months)
- Marine grade cable with strain relief
- Rugged stainless steel and Delrin® sensor housing
- Removable light and debris shield

"The cure for anything is salt water - sweat, tears, or the sea."

– Tagore, a Bengali poet and novelist

"Civilization has been a permanent dialogue between human beings and water."

– Paolo Lugari, Founder of the Gaviotas Community in Colombia

Description

Global Water's WQ770-b Turbidity Meter is a highly accurate instrument ideal for a variety of environmental or process applications without a permanent installation. The meter combines a highly accurate submersible turbidity sensor connected to a handheld display with 25 ft of marine-grade cable (optional cable lengths up to 100 ft are available).

Accurate Sensing

In accordance with USEPA Method 180.1 for turbidity measurement, the meter's turbidity sensor is a 90 degree scatter nephelometer. The sensor directs a focused beam into the subject water. The light beam reflects off particles in the water, and the resultant light intensity is measured by a photodetector positioned at 90 degrees to the light beam. The detected light intensity is directly proportional to the turbidity of the water. The turbidity sensor uses a second light detector to correct for light intensity variations, color changes, and minor lens fouling.

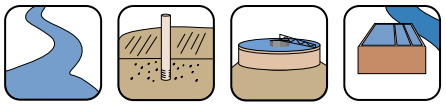
Capable Display and Control

The handheld meter features a six digit LED screen, a 4-button control panel, and an internal lithium battery. The screen will display readings directly in either nephelometric turbidity units (NTU) or parts per million (ppm). The meter also includes an automatic shutoff feature to conserve battery power.

Factory Calibrated

The WQ770-b is factory calibrated to the highest standards and should not require recalibration for six to twelve months. User calibration, when required, is very easy and involves a step-by-step process directed by the display unit.

Applications



Ideal for river monitoring, stream measurement, reservoir water quality testing, groundwater testing, water and wastewater treatment, effluent and industrial measurement, and more.

Specifications

Range	0 to 50 NTU or 0 to 1000 NTU, selectable
Accuracy	±1% full scale
Resolution	12 bit
Method	Nephelometer with correction
Power	9 VDC titanium battery (included)
Operating Temp	32 to 122°F (0 to +50°C)
Materials	306 stainless steel, Delrin, Polyether jacketed cable
Pressure	0 to 30 psi
Light Source	Infared LED, (880 nm)
Cable Length	25 ft standard (optional to 100 ft)
Size of Probe	1 ½ inch dia. x 8.5 inch long (3.8cm dia. x 21.6cm long)
Weight	2 lbs (907 g)

Ordering & Options

Order No.	Description
WQ770-b	Turbidity Meter (includes 25 ft cable)
WQEXC	Extra Sensor Cable, per foot (up to 100 ft)

Please call us for calibration standards.

You may also like . . .

WQ730 Turbidity Sensor
Turbidity sensor with 4-20 mA output.
Page 64

U-50 Multi-parameter Water Quality Meter
Meter for monitoring pH, conductivity, DO, turbidity, salinity, and temperature.
Page 81

Turb 430 Portable Turbidity Meter

Portable turbidity meter for accurate laboratory or field studies.

Description

With the new portable turbidity meters Turb 430 T and Turb 430 IR, the user now has the choice to perform nephelometric measurements at 90° scattered light according to the application and standard required. The Turb 430 IR meter meets the DIN 27027/ISO7027 requirements, the Turb 430 T those of US EPA 180.1. The meter's measuring range is from 0 to 1100 NTU/FNU and is identified automatically. Accurate measurements by the meters in the lower range, e.g. in drinking water are no problem!

The Turb 430 Meters have menu driven 3 point calibration and all measurement functions are easy for even the most inexperienced operator to perform accurate and precise measurements. The calibration is via an AMCO® standards set (0.02-10-1000 NTU). The quality of the measurement results are supported by adjustable calibration intervals with documentation.

The meters are not only a field measuring instruments (especially with the practical field case), but also a "small lab instrument" for applications up to 1100 NTU/FNU and with optimum data management.

Which Light Source Do You Need

An infrared light source minimizes the influence of coloration in a solution, because there is practically no absorption at a wavelength of 860 nm. The detection sensitivity for small particles, on the other hand, is somewhat lower at this wavelength because of the generally lower light scattering of small particles. White light has a higher sensitivity for small particles, however with this source the inherent coloration of the solution has a stronger disturbing effect on the measurement. The IR measurement source is required for portable turbidity meters to meet DIN ISO standards, while turbidity meters using a tungsten white light measuring source are required by the US EPA.

Specifications

	Turb 430 IR	Turb 430 T
Measuring Principle	Nephelometric measurement according to DIN EN ISO 7027	Nephelometric measurement according to US EPA 180.1
Light Source	Infrared LED	White light tungsten lamp
Measuring Range:	0.01 to 1100 FNU/NTU	0.01 to 1100 FNU/NTU
Resolution	0.01 from 0.01 to 9.99 NTU/FNU 0.1 from 10.0 to 99.9 NTU/FNU 1 from 100 to 1100 NTU/FNU	0.01 from 0.01 to 9.99 NTU/FNU 0.1 from 10.0 to 99.9 NTU/FNU 1 from 100 to 1100 NTU/FNU
Accuracy	±0.01 or ±2% of the measured value	±0.01 or ±2% of the measured value from 0 to 500 NTU, ±3% of the measured value from 500 to 1100 NTU
Reproducibility	0.5% of the measured value	1% of the measured value
Response Time	4 seconds	7 seconds

Calibration	Automatic 3-point calibration
Display	Graphic LCD
Languages	English, French, Spanish, and German
Operating Temp	32° to 122°F (0° to 50°C)
Storage Temp	13° to 149°F (-25° to 65°C)
Allowable Relative Humidity	Yearly mean 75%
Power Source	4 x 1.5 V AA batteries
Battery Life	~3000 measurements (Turb 430IR), ~2000 measurements (Turb 430T)
Size (LxWxH)	9.3x3.4x4.6 inches 236x86x117 mm
Weight	1.3 lb (0.6kg) (without batteries)
Ingress protection	IP 67
Test certificates	cETLus, CE, FCC

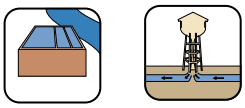
Ordering & Options

Order No.	Description
Turb 430T	Portable Turbidity Meter (EPA)
Turb 430IR	Portable Turbidity Meter (ISO)
600561	Turb 430T Calibration kit Includes 0.02, 10, and 1000 NTU solution
600560	Turb 430IR Calibration kit Includes 0.02, 10, and 1000 NTU solution

Features

- Meets ISO 7027/EPA 180.1 for Turbidity Meters
- Highly precise and accurate at low levels
- Lab accuracy & comfort in a portable field instrument
- Supports multiple languages

Applications



Drinking water, wine industry, process control, laboratory use

"In an age when man has forgotten his origins and is blind even to his most essential needs for survival, water along with other resources has become the victim of his indifference."

– Rachel Carson

pH/Ion 3400i Ion Selective Electrode Analyzer

Meter for measuring ISE/pH, temperature and ORP

Features

- Simultaneous display of pH and temperature
- Up to 1500 hours with "LoBat" warning
- Built-in datalogger
- IP67 waterproof rated

Specifications

Measuring Ranges	pH: -2.000 to +19.999, -2.00 to +19.99 mV: -999.9 to +999.9, -1999 to +1999 Temp: -23 to 221 °F (-5.0 to 105.0 °C) ISE: 0.000 to 9.999 mg/l, 0.00 to 99.9 mg/l, 0.0 to 999.9 mg/l, or 0 to 1999 mg/l
Measuring Resolution	pH: 0.001, 0.01 mV: 0.1, 1 Temp: 0.2°F (0.1°C) ISE: 0.001 mg/l, 0.01 mg/l, 0.1 mg/l, 1 mg/l
Precision	pH (± pH units from the calibration point): ±0.003 from 59 to 95 °F (15 to 35 °C), +0.01 mV: ±0.2 from 59 to 95 °F (15 to 35 °C) Temp: ±0.1 (NTC 30); ±0.5 from 32 to 59 °F (0 to 15 °C), ±0.1 from 59 to 95 °F (15 to 35 °C), ±0.2 from 95 to 131 °F (35 to 55 °C) (PT 1000)
pH correction function	Manual from -4 to 266 °F (-20 to 130 °C)

Description

The pH/mV and ion selective electrode analyzer pH/ION 3400i offers the highest degree of flexibility possible. For pH measurements the analyzer can be calibrated manually or automatically and offers simultaneous display of pH and temperature. For measurements with ion-selective electrodes the pH/ION 3400i offers concentration display in mg/l. The analyzer also displays directly in mV to ±999.9 mV in 0.1 mV steps; and to ±1999 mV in 1 mV steps.

Of course, even in these higher ranges the pH/ION 3400i calculates the concentration from a mV resolution of 0.1 mV. Calibration of the analyzer is carried out with up to three standards (selected from 16 standards in the range of 0.01 to 1000 mg/l).

Operating on either line power or rechargeable battery for up to 1500 hours with "LoBat" warning means that the analyzer can be used in the laboratory or in the field. Lightweight and compact, the rugged analyzers are IP 66 (hose proof) and IP 67 (submersible). The pH/ION 3400i has a built-in datalogger for up to 500 measurements together with GLP calibration protocol offers a comprehensive documentation of the results. The analyzer supports analog or digital data transfer (RS 232), automatic recognition of stable measurements (AutoRead), electrode evaluation and calibration interval monitoring functions to ensure reproducible and reliable measurements.

The ion-selective membrane of the electrode consists of a sparingly soluble salt of the ion to be measured (solid state electrodes), a PVC-membrane, modified by an ion exchanger or ion carrier (matrix electrodes), glass (glass electrode) or a gas-permeable plastic (gas-sensitive electrodes). The activity of the ions to be measured determines the electrode current. With increasing activity of the anions the voltage turns more negative, with increasing activity of cations, more positive. An ion selective electrode analyzer uses the electrode signal to calculate the concentration of the sample.

Usable ISE electrodes	Combination and single electrodes with connector according to DIN 19262
ISE calibration procedure	Two point calibration or three point calibration with standards suiting the sample
ISE slope ranges	± 25 to 35 mV and ± 50 to 70 mV
Ambient Conditions	Storage: -13 to +149 °F (-25 to +65 °C) Operation: 14 to 131 °F (-10 to +55 °C) Climatic Class: 2
Power	Batteries: 4 x 1.5 V alkali-manganese batteries, type AA Operational Life: approx. 3000 operating hours Mains: The following applies to all plug-in power supplies: Connection max. overvoltage category II Input: 100 to 240 V ~ / 50 to 60 Hz / 400 mA Output: 9 V = / 1.5 A
Weight	0.7 lbs (0.3 kg)
Size	6.8x3.1x1.5 in (172x80x37 mm)
IP Rating	IP-66 & 67
Certifications	cETLus, CE
Electrical Safety	Protective class III

Applications

Ideal for drinking water, wastewater, salt water, wine.

Ordering & Options

Order No.	Description
pH/Ion 3400i	Ion Selective Electrode Analyzer
SenTix 21	pH Electrode w/ 3.3 ft (1 m) of cable and no temp comp
SenTix ORP	ORP Electrode w/ 3.3 ft (1 m) of cable
ISE Electrodes	See page 77

Ion Selective Electrodes

For use with pH/ION 3400i Ion Selective Electrode Analyzer

Description

The ion selective electrodes are available for a wide range of measurements. The combination electrodes have built-in reference electrodes, are excellent in handling, and offer the possibility of measuring small water volumes.

The ion-selective membrane of the electrode consists of a soluble salt of the ion to be measured (solid state electrodes) or a PVC-membrane, modified by an ion exchanger or ion carrier (matrix electrodes).

The activity of the ions to be measured determines the electrode current. With increasing activity of the anions the voltage turns more negative, with increasing activity of cations, more positive. A pH/ionmeter uses the electrode signal to calculate the concentration of the sample.

Features

- Measure small volumes
- Outstanding price to performance ratio
- Excellent in handling

Specifications

Electrode Type	Membrane	Determinable Ions	Measuring Range	Connector Type
Bromide (Br^-)	Solid State	Bromide	0.4 to 79000 mg/l 5×10^{-6} to 1 mol/l	DIN Plug
Cadmium (Cd^{2+})	Solid State	Cadmium	0.01 to 11000 mg/l 10^{-7} to 10^{-1} mol/l	DIN Plug
Calcium (Ca^{2+})	Matrix Electrode	Calcium, Magnesium	0.02 to 40000 mg/l 5×10^{-7} to 1 mol/l	DIN Plug
Chloride (Cl^-)	Solid State	Chloride	2 to 35000 mg/l 5×10^{-5} to 1 mol/l	DIN Plug
Copper (Cu^{2+})	Solid State	Copper, Nickel	0.0006 to 6400 mg/l 10^{-8} to 10^{-1} mol/l	DIN Plug
Cyanide (CN^-)	Solid State	Cyanide	0.2 to 260 mg/l 8×10^{-6} to 10^{-2} mol/l	DIN Plug
Fluoride (F^-)	Solid State	Fluoride, Aluminum phosphat, lithium	0.2 to Saturation mg/l 10^{-6} to Saturation mol/l	DIN Plug
Iodide (I^-)	Solid State	Iodide, Thiosulfate mercury	0.006 to 127000 mg/l 10×10^{-8} to 1 mol/l	DIN Plug
Nitrate (NO^{3-})	Matrix Electrode	Nitrate	0.4 to 62000 mg/l 7×10^{-6} to 1 mol/l	DIN Plug
Potassium (K^+)	Matrix Electrode	Potassium	0.04 to 39000 mg/l 10^{-6} to 1 mol/l	DIN Plug
Silver (Ag^+)	Solid State	Silver	0.01 to 108000 mg/l 10^{-7} to 1 mol/l	DIN Plug
Sulfide (S^{2-})	Solid State	Sulfide	0.003 to 32000 mg/l 10^{-7} to 1 mol/l	DIN Plug

Ordering & Options

Order No.	Description
106653	Bromide (Br^-)
106659	Cadmium (Cd^{2+})
106655	Calcium (Ca^{2+})
106661	Chloride (Cl^-)
106665	Copper (Cu^{2+})
106662	Cyanide (CN^-)
106667	Fluoride (F^-)
106669	Iodide (I^-)
106675	Nitrate (NO^{3-})
106671	Potassium (K^+)
106651	Silver (Ag^+)
106651	Sulfide (S^{2-})

Applications

Ideal for drinking water, wastewater, salt water, wine, dairy products, electroplating baths.

The wide range of possible applications include, the measurement of fluoride concentration according to DIN 38 405, chloride content determination in concrete samples, or nitrate concentration determination in fruit juices. There are many other examples in which ion-selective measurement technology can be applied.

"The stone in the water knows nothing of the hill which lies parched in the sun."

– African Proverb

WQL-pH pH Datalogger

Datalogger for long term pH field studies

Features

- Intelligent energy management for longer battery lifetime
- Up to 600,000 data records
- USB connection for fast data transfer to PC
- Replaceable pH electrode
- User-friendly software interface

Specifications

Measuring Ranges	pH: 0.000 to 20.000 mV: –1000.0 to +1000.0 Temp: -23 to 221°F (-5.0 to +105.0°C)
Measuring Resolution	pH: 0.001 mV: 0.1 Temp: 0.1°F (0.1°C)
Accuracy	pH: <0.005 +1 Digit mV: <0.2mV +1 Digit Temp: <0.1°F (0.1°C) +1 Digit
Temperature sensor	Auto recognition of temp sensor of electrode: NTC 30 (30 kOhm at 25 °C / 77 °F) or Pt1000
Temp Comp	Automatic
Calibration	Automatic buffer detection
Data Volume	up to 600,000 data records
Sampling Interval	adjustable: 1, 5, 10, 30 s/ 1, 5, 10, 15, 30 min/ 1, 2, 3, 6, 9, 12, 24 hr
USB Interface	Type USB 1.1, USB-B (Device)
Maximum Pressure/Depth	145 PSI (10 bar)/328 ft (100 m)
Storage Temp	-13 to 149°F (-25 to +65°C)
IP Rating	IP 68
Power Supply	Lithium ion battery (3.6V, AA size, 2600 mAh) Up to 16 months depending on the sample rate

Description

The WQL-pH, ph dataloggers meet the requirements of continuous long-term ph measurement and data logging. Applications for the WQL-pH are characterized by the need for a large quantity of reliable data measurements at multiple measuring positions which are difficult to access. With a diameter of only 1 inch (25 mm) the dataloggers are ideal for both ground and surface water monitoring projects.

The pH Datalogger's huge memory can record up to 600,000 data sets containing the pH measurement, temperature, date, and datalogger ID number. This massive amount of data storage is ideal for detailed pH monitoring studies. The data is recovered using a mini USB connection for fast data transfer directly to a PC. They have a status LED which provides information on memory and measurement operation and a quick start button located under the end cap allows you to have further control over your pH measurements.

Material	Metal parts (Stainless steel 1.4571), Battery Compartment (Brass, gold-plated)
Weight	1.9 lb. (860 g)
Size	0.98 inch Diameter x 15.83 inch L (25 mm dia. x 402 mm long), retaining hole 0.26 inch (6.5mm)
Certifications	CE

NOTE: The measuring ranges and accuracy exclusively refer to the measuring electronics of the logger without the electrode. For the measuring ranges and accuracy of the operable logger, the specifications of the electrode and buffer solutions have also to be taken into account.

SensoLyt WQL

pH Range	2.000 to 12.000
Referenece Electrolyte	Polymer, AgCl free
Junction	Single hole junction
Shunt Element	Ag/AgCl
Temp Range	32 to 140°F (0 to 60°C)
Connection	SMEK head, 6-pole
Maximum Pressure/Depth	145 PSI (10 bar)/328 ft (100 m)
Material	Shaft: Glass, O-rings: FPM (Viton), SMEK plug: PEEK with gold plated contacts
Dimensions	4.7 inch L x 1/2 inch Dia (120 mm L x 12 mm Dia)
Weight	1.6 oz (45 g)

Electrode

The pH dataloggers use the new SensoLyt pH electrode with integrated temperature sensor and extremely stable polymer reference electrolyte allowing for precise measurement over a long period of time. The WQL-pH and electrode have a robust design with an IP 68 rating which can withstand depths up to 328 ft (100m). The electrode is replaceable and has a SMEK plug for easy removal and installation. A robust stainless steel basket guard provides complete protection to the glass electrode shaft in the field.

Power

The Datalogger uses a high quality lithium battery as its power source. Special intelligent battery power management maximizes the battery's life. While the battery life is dependent upon the frequency of measurement, the battery can last up to 16 months with a sample rate of 10 minutes or more. Changing the battery is as easy as opening the conveniently located battery compartment on the pH datalogger's main body.

Applications

Ideal for watersheds, wells, rivers, lakes, dredging, mining, boreholes, landfill runoff, and pump stations.

Ordering & Options

Order No.	Description
WQL-pH	pH datalogger, Li battery, pH electrode, and accessories.
WQL-pH Kit	Case, pH datalogger, Li battery, pH electrode, and accessories.
103709	pH SensoLyt Electrode
109825	Lithium ion battery (3.6V, AA size, 2600 mAh)

Multi 3400i Multi-parameter Meter

Multi-parameter meter for monitoring pH, oxygen, and conductivity

Description

The compact precision Multi 3400i Multi-parameter Meters enable you to carry out pH measurements, dissolved oxygen (DO) measurements and conductivity measurements quickly and reliably. The Multi 3400i provides the maximum degree of operating comfort, reliability and measuring certainty for all applications. The meter is hose-proof with battery or optional AC adapter and is optimally suited for use in the field, in laboratories, or at production sites.

The Multi 3400i has several useful features including an energy saving feature to avoid unnecessary battery depletion. The energy saving feature switches the meter off if no key has been pressed for an hour. The Multi 3400i can perform pH measurements with or without a temperature sensor or by using the conductivity or oxygen probe's built in temperature sensor. The meters recognize which sensors are connected and automatically switch to the correct mode for the temperature measurement and the AutoRead function (drift control) checks the stability of the measurement signal.

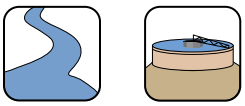
pH/Oxi or pH/Cond Multi-parameter Meters

The pH/Oxi 3400i meter and the pH/Cond 3400i meter are favorably-priced alternatives to single parameter instruments for applications which require the measurement of several parameters. The meters are hose-proof and also meet the requirements of IP 66.

Features

- Robust, water proof and field ready
- Up to three deep water probes can be used at once
- Long life and powerful NiMH rechargeable batteries

Applications



Surface water, control measurements, laboratory measurements, pharmaceutics, aquariums, wastewater, foods industry (juices).

Specifications

pH/ORP Range/ Resolution	pH: -2.00 to 19.99 / 0.01 mV: -1999 to +1999 / 1 Temp.: 23 to 221 °F (-5.0 to 105.0 °C) / 0.1 (0.1)
Oxygen Range/ Resolution	O_2 Concentration: 0.00 to 19.99 mg/l / 0.01 0.0 to 90.0 mg/l / 0.1 O_2 Saturation: 0.00 to 199.9% / 0.1 0.0 to 600% / 1 Temp: 32 to 122 °F (0.0 to 50.0 °C) / 0.1 (0.1)
Conductivity Range/Resolution	Conductivity: 0 to 1999 uS/cm / 1 0.00 to 19.99 mS/cm / 0.01 0.0 to 199.9 mS/cm / 0.1 0 to 500 mS/cm / 1 Salinity: 0.0 to 70.0 according to the IOT table / 0.1 Temp: 23 to 221 °F (-5.0 to 105.0 °C) / 0.1 (0.1)
Temperature Compensation	pH/ORP: Automatic: 23 to 221 °F (-5 to +105 °C) Manual: -4 to 266 °F (-20 to +130 °C) Oxygen: 32 to 122°F (0 to +40 °C), <2% from 32 to 104 °F (0 to +40 °C) Conductivity: Non-linear function for ultrapure and natural waters to EN 27 888

Reference Temp	Conductivity Only: 68 °F/77 °F (20 °C/25 °C) selectable
Ambient Conditions	Storage: -13 to +149°F (-25 to +65 °C) Operation: 14 to 131°F (-10 to +55 °C) Climatic Class: 2
Serial Interface	Baud Rate: Adjustable: 1200, 2400, 4800, 9600 Baud Type: RS232, data output Data Bits: 8 Stop Bits: 2 Parity: None Handshake: RTS/CTS + Xon/Xoff Cable Length: Max. 49 ft (15 m)
Power	Batteries: 4 x 1.5 V alkali-manganese, type AA Operational Life: approx. 3000 operating hours Plug-in Power Supply: Input: 100 to 240 V ~ / 50 to 60 Hz / 400 mA Output: 9 V = / 1.5 A
IP Rating	IP-66
Certifications	cETLus, CE
Electrical Safety	Protective class III
Dimensions	6.8x3.1x1.5 in (172 x 80 x 37 mm)
Weight	0.7 lbs (0.3 kg) (without plug-in power supply)

Ordering & Options

Order No.	Description
Multi 3400i Kit	Includes Multi 3400i, SenTix® 41-3 pH electrode, CellOx 325-3 oxygen electrode, and TetraCon 325-3 conductivity sensor
pH/Cond 3400i Set	Includes pH/Cond 3400i, SenTix® 41-3 pH electrode, and TetraCon 325-3 conductivity sensor
pH/Oxi 3400i Set	Includes pH/Oxi 3400i, SenTix® 41-3 pH electrode, CellOx 325-3 oxygen sensor

Multi 3410 Digital Multiparameter Meter

Digital multiparameter meters for monitoring pH, oxygen, and conductivity

Features

- Unique intelligent single parameter sensors
- Meters auto recognize sensors and show appropriate display
- High resolution color display
- Convenient data transfer via USB port

Applications

Ideal for ground water, surface water, fish farming, wastewater.

Specifications

pH/ORP Range	pH: -2.0 to 20.0 -2.00 to 20.00 -2.000 to 20.000 mV: ±2000; ±1250.0 Temp.: 23 to 221 °F (-5.0 to 105.0 °C)
Oxygen Range	O_2 Concentration: 0.00 to 20.00 mg/l O_2 Saturation: 0.0 to 200.0% Temp: 32 to 122 °F (0.0 to 50.0 °C)
Conductivity Range	Conductivity: 0.0 to 2000 mS/cm 0.00 to 19.99 uS/cm (K=0.1 cm^{-1}) Salinity: 0.0 to 70.0 according to the IOT table TDS: 0 to 1999 mg/l, 0 to 199.9 g/l Temp: 23 to 221 °F (-5.0 to 105.0 °C) / 0.1 (0.1)
Air Pressure Compensation	Oxygen: Automatic with built-in pressure sensor
Temperature Compensation	Conductivity: non, nlF, 0.000 to 10.000 %/K
Reference Temp	Conductivity: 68 °/77 °F (20 °/25 °C)
Cell Constants	Conductivity: Automatic
Autoread	Automatic or Manual
Calibration Memory	Up to 10 calibrations
Calibration	pH: 1, 2, 3, 4, or 5 point; WTW, technical, DIN/NIST, additionally 20 buffer sets
Memory	10000 data sets
Data Logger	Manual/time controlled
Interface	USB Host and Mini-USB
# of Channels	Model 3410 - 1 channel; Model 3420 - 2 channels; Model 3430 - 3 channels
Power	Rechargeable Batteries: 4 x 1.2 V nickel metal hydride (NiMH) Operational Life: up to 100 h with one battery charging
IP Rating	IP-67
Certifications	cETLus, CE
Weight	10.5 oz (300g) (without plug-in power supply)
Size	6.8x3.1x1.5 in (172 x 80 x 37 mm)

Description

The Multi 3410 Digital Multiparameter Meters are ideal for portable field measurements. You can choose between single, dual, or triple channel meters. The multi channel meters allow you to connect pH, DO, or conductivity electrodes to it in any combination, including multiple sensors of the same type. Each meter has a field proven waterproof housing and a robust waterproof keypad for easy cleaning. The digital meter's keypad has error free operation even if you are wearing gloves. The meters also feature a waterproof quick-lock sensor connector. All meters come with rubber armoring for field use.

The meters have a built in datalogger with 10,000 data sets available for storage. Convenient filter functions allow easy output of user defined data. The Multi 3410 meters support good laboratory practice (GLP) compliant data. A USB interface allows you to directly transfer data from the meter to a USB stick or selected printers. A mini USB interface is also available for direct data transfer to PCs or for firmware updates to the digital meters.

IDS Sensor Technology

The new intelligent digital sensors (IDS) combine proven technology with new advantages. Each IDS sensor has an individual serial number stored digitally in its memory. This code allows each IDS sensor to logon to the Multi 3410 meter when it is connected. You can then access the stored calibration history of the IDS sensor from the meter. The meters communicate with a fail-safe digital signal transfer method over several different cable lengths. The IDS sensor's direct signal processing contributes to extremely precise measurement readings by the meter.

Ordering & Options

Order No.	Description
2FD451	Includes Multi 3410, SenTix® 940 pH IDS sensor, and accessories.
2FD454	Includes Multi 3410, FDO 925 sensor, and accessories.
2FD457	Multi 3410, Tetracon 925, and accessories.
2FD45A	Multi 3410, LR 925/01 low cond. IDS sensor, and accessories.
2FD46B	Multi 3420, SenTix® 940-3, FDO 925-3 sensor, and accessories.
2FD46C	Multi 3420, SenTix® 940, Tetracon 925, and accessories.
2FD46E	Multi 3420, SenTix 980, LR 925/01, and accessories.
2FD46G	Multi 3420, SenTix 940-3, FDO 925-3, Tetracon 925-3, and accessories.
2FD47E	Multi 3430, SenTix 980, LR 925/01, and accessories.
2FD47F	Multi 3430, SenTix 940, FDO 925, Tetracon 925, and accessories.

IDS Sensors

Order No.	Description
103740	SenTix® 940 pH IDS electrode
103780	SenTix® 980 pH IDS electrode
201300	FDO® 925 Optical DO IDS electrode
301720	LR 925/01 low conductivity IDS sensor
301710	Tetracon 925 4-electrode conductivity IDS sensor

Multi 3500i Portable Multiparameter Meter

Multiparameter meter for monitoring pH, mV, oxygen, conductivity and ISE

Description

With its ability to measure pH, mV, oxygen, conductivity and ISE, the Multi 3500i, Portable Multiparameter Meters are the perfect choice for all of your water, wastewater and environmental field measurement needs. Like all WTW field instruments, the Mult 3500i is designed to stand up to the rigors of daily plant and field conditions while being accurate and easy to use. The meter's bright backlit screen can display pH, oxygen, conductivity and temperature simultaneously.

Easy to use, the Multi 3500i feature a high resolution, high precision, simple, menu-driven user interface. The meter has a datalogger, memory for 1,800 data sets and a real-time clock that support good laboratory practice (GLP) requirements. The Multi 3500i will not let you down with their built-in NiMH rechargeable battery for up to 500 hours of continuous measurements (AC adaptor included). Combined with the MPP 350 multiparameter probe the digital multiparameter meter is ideal for environmental field measurements. But the Multi 3500i are also at home in your lab when used with the ConOx conductivity/oxygen sensor. In addition, all the currently compatible WTW pH, combination ion specific, oxygen and conductivity sensors can be used to extend the usefulness of the portable multiparameter meter.

Specifications

pH/ORP Range/ Resolution	pH: -2.000 to 20.000 / 0.001 -2.00 to 20.00 / 0.01 mV: -999.9 to +999.9 / 0.1 -2000 to +2000 / 1 Temp.: 23 to 221 °F (-5.0 to 105.0 °C) / 0.1 (0.1)
Oxygen Range/ Resolution	O_2 Concentration: 0.00 to 19.99 mg/l / 0.01 0.0 to 90.0 mg/l / 0.1 O_2 Saturation: 0.00 to 199.9% / 0.1 0.0 to 600% / 1 Temp: 32 to 122 °F (0.0 to 50.0 °C) / 0.1 (0.1)
Conductivity Range/Resolution	Conductivity: 0 to 1999 uS/cm / 1 0.00 to 19.99 mS/cm / 0.01 0.0 to 199.9 mS/cm / 0.1 0 to 500 mS/cm / 1 Salinity: 0.0 to 70.0 according to the IOT table / 0.1 Temp: 23 to 221 °F (-5.0 to 105.0 °C) / 0.1 (0.1)
ISE Range/Resolution	ISE: 0.000 to 2000 mg/l in 4 ranges / 0.001 to 1 in 4 ranges
Serial Interface	Baud Rate: Adjustable: 1200, 2400, 4800, 9600, 19200 Type: RS232, data output Data Bits: 8 Stop Bits: 8 Parity: None Handshake: RTS/CTS Cable Length: Max. 49 ft (15 m)

Applications

Ideal for ground water, surface water, fish farming, wastewater.

Ambient Conditions	Storage: -13 to +149 °F (-25 to +65 °C) Operation: 14 to 131 °F (-10 to +55 °C) Climatic Class: 2
Power	Rechargeable Batteries: 4 x 1.2 V nickel metal hydride (NiMH), type AA Operational Life: up to 500 h with one battery charging Plug-in Power Supply (Charging Device): Input: 100 to 240 V ~ / 50 to 60 Hz / 400 mA Output: 9 V = / 1.5 A Connection max. overvoltage category II
IP Rating	IP-66
Certifications	cETLus, CE
Electrical Safety	Protective class III
Weight	0.7 lbs (0.3 kg) (without plug-in power supply)
Size	6.8x3.1x1.5 in (172 x 80 x 37 mm)

Features

- Accurate, rugged and easy to use
- Displays three parameters at once
- Works with the new MPP 350 multi-parameter probe

Ordering & Options

Order No.	Description
Multi 3500i Kit	Portable Multiparameter Meter
MPP 350-3	Combined pH-, oxygen-, conductivity probe, without pH sensor
ConOx-3	Cond/O_2 combination sensor

NOTE: Other cable lengths available, please call

"Don't you realize that the sea is the home of water? All water is off on a journey unless it's in the sea, and it's homesick, and bound to make its way home someday."

– Zora Neale Hurston

Multi 1970i Portable Multiparameter Meter

Portable multiparameter meters that combines handheld convenience with benchtop features

Features

- Robust, water proof and field ready
- Up to three deep water probes can be used at once
- Long life and powerful NiMH rechargeable batteries

Applications

Ideal for ground water, surface water, fish farming, wastewater.

Specifications

Range	pH: -2 to 19.99 mV: -1999 to 1999 O_2 conc.: 0.00 to 19.99 mg/l, 0.0 to 90.0 mg/l O_2 saturation.: 0.00 to 19.99 %, 0.0 to 600 % Conductivity: 0.0 µS/cm to 500 mS/cm in 4 ranges Salinity: 0.0 to 70.0
Accuracy (±1 digit)	pH: ±0.01 pH mV: ±1.0 mV O_2 conc.: ±0.5% of value Conductivity: ±1.0% of value
Temp Comp	pH: Automatic: 23 to 221 °F(–5 to 105.0 °C) Manual: -4 to 266 °F(–20 to 130 °C) Oxygen: Automatic: via IMT compensation 32 to 104 °F(0 to 40 °C) Conductivity: Non-linear function for ultra-pure and natural waters to EN 27 888
Air Pressure Comp	Automatic with built-in pressure sensor for dissolved oxygen measurements
Salinity Correction	Automatic or manual for dissolved oxygen measurements
Ref. Temperature	68 °F/77 °F (20 °C/25 °C) selectable for conductivity measurements
Ambient Conditions	Storage: -13 to 149 °F (-25 to 65 °C) Operation: 14 to 131 °F (-10 to 55 °C) Climatic Class: 2
Output	RS-232
Display	Multi-line LCD
Electrical Safety	Protective class III
Ingress Protection	IP 67
Power	Rechargeable NiMH battery
Battery life	Apprx. 600 hr per charge with power pack/charger
Dimensions	3.54x7.87x7.48 in (90x200x190 mm)
Weight	3.3 lb (1.5kg) (without plug-in power supply)
Certifications	CE

Description

The robust and user friendly WTW ProfiLine Multi 1970i Portable Multiparameter Meters are both hose down-proof (IP 66) and submersible (IP 67). With its recorder output, real-time clock and 500 data file data logger standard, the rugged meters conform to all GLP requirements. Designed for multitasking to make your job quicker and easier, the Multi 1970i allows the simultaneous connection of pH, conductivity and oxygen sensors. An intuitive user interface makes it easy for the meter to measure a parameter and store in memory. Field ready, the Multi 1970i features powerful NiMH rechargeable batteries (up to 600 hours or operation per charge) and is equipped with a carrying/support handle and carrying strap as standard.

Deep Water Measurement of Oxygen, pH and Conductivity

The Multi 1970i Portable Multiparameter Meters have a convenient built-in preamplifier to work with the WTW deep water sensors for single-parameter operation at depths down to 330 ft (100 m). Up to three deep water sensors can be simultaneously connected to the meters using the adapter ADA/TA 197 pH. The WTW deep water sensor assemblies are pressure resistant up to 145 psi (10 bar), have an integrated temperature measurement, steel armoring, a screw-on protective hood and are available with up to 330 ft (100 m) of cable with a waterproof plug (IP 67). These compact sensors will even fit small monitoring wells down to 2 inch (50 mm). Choose one or all three: TA 197 Oxi oxygen probe, TA 197 pH pH probe or TA 197 LF 4-electrode conductivity probe.

Ordering & Options

Order No.	Description
Multi 1970i	Portable Multiparameter Meter
TA 197 Oxi-25	Deep water oxygen sensor w/82ft (25m) cable
TA 197 pH-25	Deep water pH sensor w/82ft (25m) cable
TA 197 LF-25	Deep water cond sensor w/82ft (25m) cable
ADA/TA 197 pH	Connection accessory for up to three sensors

"Rain is a blessing when it falls gently on parched fields, turning the earth green, causing the birds to sing."

– Donald Worster,
Meeting the Expectations of the Land

U-50 Multiparameter Water Quality Meter

Meter for Monitoring pH, Conductivity, DO, Turbidity, Salinity, and Temperature

Description

The U-50 brings laboratory accuracy and the ease of push-button operation to water quality measurement in the field. Eleven parameters can be measured: pH, pH(mV), ORP, temperature, dissolved oxygen, electrolytic conductivity, turbidity, total dissolved solids, salinity, seawater specific gravity, and depth. Featuring a powerful sensor probe and state-of-the-art functions, the meter makes it easy to get highly reliable water quality data simply and quickly just by submersing the sensor in the water. The meter's control unit has a waterproof design that allows you to work without concern of splashing or accidentally dropping the instrument in the water. The U-50 is flexible enough to use for checking the quality of a broad range of water samples, from factory effluent to urban drainage, river water, lake and marsh water, aquatic culture tanks, agricultural water supplies, and sea water. NOTE: Seawater or high salinity water may errode metallic parts. After use, promptly wash the sensor probe thoroughly with tap water.

Control Unit

The U-50's control unit allows for convenient operation with one hand. The easy to read LCD screen can display all 11 measurement parameters as the same time. You can change the text size on the LCD for easier reading. The meters have a patented auto-calibration feature that provides hassle free calibration. Their shock resistant cover was designed for rough treatment in the field and easy cleaning. The U-50 allows the cable to be quickly connected and disconnected to the meter's control unit. The backlit display allows you to even take measurements in the dark.

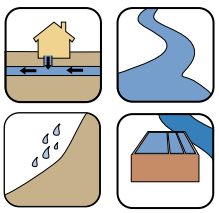
Limited Datalogger

The U-50 can store up to 10,000 data sets in memory. Data can be stored manually or automatically for later display and print out from the meter. There is no need to manually record measured values on site with the U-50. Once the meter has recorded data you can recall data for a specific site, a specified date/time, or all of the data depending on your needs. You can check the meter's data capacity at any time by using the data memory check feature. With the optional USB cable the meter's data can be transferred to a computer for further analysis.

Features

- Measure and display up to 11 items simultaneously
- Ideal for applications without a permanent installation
- Rugged, water resistant meter
- Fully submersible sensor probe

Applications



Ideal for monitoring factory effluent, urban drainage, river water, lake and marsh water, aquaculture tanks, agricultural water supplies, sea water, and more.

Specifications

Parameters	pH	ORP	Conductivity	DO	Temperature	Salinity	TDS
Principle	Glass electrode	Platinum electrode	4 AC electrode	Polarographic	Thermister	Conductivity Conversion	Conductivity Conversion
Range	0-14 pH	±2000 mV	0-100 mS/cm	0 to 50.0 mg/L	23 to 131 °F (-5 to 55 °C)	0 to 70 PPT	0 to 100 g/L
Resolution	0.1pH	1 mV	(mS/cm) 0-1 : 0.001 1-10 : 0.01 10-100 : 0.1	0.01 mg/L	0.02°F (0.01°C)	0.1 PPT	0.1% F.S.
Repeatability	±0.05 pH	±5 mV	±0.05% fs	±0.1 mg/l	±0.18°F (±0.10°C) (at cal point)	±1 PPT	+2 g/L
Accuracy	±0.1 pH	±15 mV	±1 fs	0 to 20 mg/L: ±0.2 mg/L, 20 to 50 mg/L: ±0.5 mg/L	(±0.3+0.005 |t|)	±3 PPT	+5 g/L
Calibration	Auto one-point calibration						
Display	320x240 liquid crystal with backlight (black and white)						
Power	C batteries x4, U-51 and 52: Approx. 70 hrs (without backlight), U-53: ~500 measurements						
Weight	Main Unit: ~1.76 lbs (800g) Sensor Assembly (6.6 ft (2 m) cable): ~3.9 lbs (1.8 kg)						

NOTE: More specifications available on website, including seawater specific gravity, turbidity and water depth.

Ordering & Options

Multiparameter Meters

Order No.	Cable Length
U-51-2	Water Quality Meter w/2m of Cable
U-52-2	Water Quality Meter w/2m of Cable
U-53-2	Water Quality Meter w/2m of Cable

NOTE: Other cable lengths available, please call

Replacement Sensors

Order No.	Description
7112	pH Sensor
7543	DO Sensor
7210	Reference Sensor
7800	U-52 Turbidity Sensor
7801	U-53 Turbidity Sensor

Please call us for calibration standards.

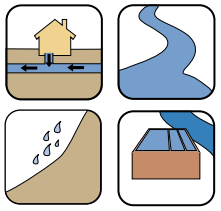
W-22XD Water Quality Analyzer

Analyzer for 10 Parameters Including pH, Conductivity, Turbidity, DO, and Depth

Features

- Continuous datalogging for up to one month
- Measures 10 parameters simultaneously
- Ideal for applications without a permanent installation
- Rugged, water resistant meter
- Fully submersible sensor probe
- Dry cell battery operated

Applications



Ideal for monitoring factory effluent, urban drainage, river water, lake and marsh water, aquaculture tanks, agricultural water supplies, sea water, and more.

Description

The W-22XD brings laboratory accuracy and the ease of push-button operation to water quality measurement in the field. Years of water quality analyzer technology development have resulted in the form of a 47-mm diameter probe: a compact water quality monitoring system offering high pressure tolerance, long-term continuous measurement capability and highly accurate, simultaneous analysis of 10 parameters. The analyzer can simultaneously measure: pH, temperature, dissolved oxygen, conductivity, salinity, turbidity, total dissolved solids (TDS), water depth, oxidation reduction potential (ORP), and seawater specific gravity. Featuring a powerful water quality analyzer and state-of-the-art functions, the W-22XD makes it easy to get highly reliable water quality data simply and quickly just by submersing the sensor in the water. The analyzer is flexible enough to use for checking the quality of a broad range of water samples, from factory effluent to urban drainage, river water, lake and marsh water, aquatic culture tanks, agricultural water supplies, and sea water. The main unit is water resistant, so it can be used safely even in the rain.

Automatic Calibration

The W-22XD has an automatic calibration function that allows you to perform easy calibrations, ensuring highly reliable data. What used to be a complicated process is now easy: just fill the supplied beaker with the standard solution, immerse the sensor, and press a button once for one-point calibration for each of the five main parameters (pH, conductivity, turbidity, DO, and depth). Two-point calibration is also possible should more precise data be required.

Deep Water Quality Measurements

With its superior durability and high pressure resistance, the W-22XD allows you to measure at depths 328 ft (100 m) below the water surface. In addition to rivers, lakes, and other shallow bodies, you can now take high-precision water quality measurements at dams and even in the open sea.

Capable Datalogger

The W-22XD's built-in memory function enables continuous measurement for up to one month. Personnel need not to be present during the measurement process, the data can even be captured by personal computers in remote locations. Data can be viewed using the W-2000S control unit. NOTE: Either the DIF040 or DIF050 must be purchased to export data to a computer.

Specifications

Parameters	pH	Dissolved Oxygen	Conductivity	Salinity	Total Dissolved Solids	Seawater Specific Gravity	Temperature	Turbidity	Water Depth	Oxidation Reduction Potential
Principle	Glass electrode	Diaphragm galvanic battery	4 AC electrode	Conductivity conversion	Conductivity conversion	Conductivity conversion	Thermister	Penetration and scattering	Pressure method	Platinum electrode
Range	0-14 pH	0-19.9 mg/l	0-9.99 S/m	0-4%	0-100 g/l	0-50σt	0-55° C	0-800 NTU	0-100 m	±1999 mV
Resolution	0.1pH	0.01 mg/l	0.1% full scale	0.01%	0.1% full scale	0.1σt	0.01° C	0.1 NTU	0.1 m	1 mV
Repeatability	±0.05 pH	±0.1 mg/l	±1%	±0.1 %	±2 g/l	±2σt	±0.3° C	±3%	±3%	±5 mV
Accuracy	±0.1 pH	±0.2 mg/l	±3%	±0.3%	±5 g/l	±5σt	±1.0° C	±5%	±5%	±15 mV
Construction	Meter has IP-67 waterproof construction									
Operating Conditions	Measurement Temperature: 32-131°F (0-55°C); Storage temperature: 23-140°F (-5-60°C); Measurement depth: 0-328 ft (0-100m)									
Data Sets	2880									
Size	Meter: 7x4x2 inch (169x98x56 mm) Probe: 1.9 inch dia. x 16 in long (47 mm dia. x 390 mm long)									
Weight	Meter Weight: 1.1 lb (500 g) Probe Weight: 3 lbs (1400 g)									

Ordering & Options

Multiparameter Meters

Order No.	Cable Length
W-22XD-2	Analyzer w/6.6ft (2m) of cable
W-22XD-10	Analyzer w/32.8ft (10m) of cable
W-22XD-30	Analyzer w/98.4ft (30m) of cable
W-22XD-60	Analyzer w/197ft (60m) of cable
W-22XD-100	Analyzer w/328ft (100m) of cable

Accessories and Replacement Parts

Order No.	Description
DIF050	PC Download Package, 110 VAC
DIF040	PC Download Package, 220 VAC
W-2000S	Control Unit
6280	Replacement pH/ORP Sensor
5460	Replacement DO Sensor

Please call us for calibration standards.

W-23XD Water Quality Sonde

Instrument for Measuring 13 Parameters Simultaneously

Description

Global Water's W-23XD Water Quality Sonde is a compact water quality monitoring system offering high pressure tolerance, long-term continuous measurement capabilities, and highly accurate, simultaneous analysis of 13 parameters, including: pH, temperature, dissolved oxygen, conductivity, salinity, turbidity, total dissolved solids (TDS), water depth, oxidation reduction potential (ORP), seawater specific gravity, and up to three specific ions. The unit features a powerful 3.8 inch (97 mm) diameter fully submersible sensor probe, a water-resistant meter with simple push-button operation, deep measurements possible up to 328 ft (100 m) below the water surface, and state-of-the-art functions.

Automatic Calibration

The W-23XD has an automatic calibration function that allows you to perform easy calibrations, ensuring highly reliable data. One-point calibration is possible for each of the five main parameters (pH, conductivity, turbidity, DO, and depth) and for three ion parameters (Cl^-, NO_3^-, and Ca^{2+}). Two-point calibration is possible should more precise data be required.

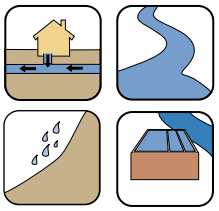
Capable Datalogger

The W-23XD's built-in memory function enables continuous measurement for up to one month. Data can be viewed using the optional W-2000S control unit. NOTE: Either the DIF040 or DIF050 must be purchased to export data to a computer.

What's in the Box

The standard W-23XD unit includes: the handheld meter with detachable multiparameter probe and specified length of cable, carrying case, pH and DO sensors, pH 4 buffer, pH internal solution, DO installation tool, calibration beaker, dry cell batteries, and instruction manual. Ion sensors and replacement sensors and solutions are also available (see Ordering & Options).

Applications



Ideal for monitoring factory effluent, urban drainage, river water, lake and marsh water, aquaculture tanks, agricultural water supplies, sea water, and more.

Specifications

Ions

Ion	Range
Nitric Acid	0.62~62,000 mg/l (pH 3-7)
Chloride	0.4~35,000 mg/l (pH 3-11)
Calcium	0.4~40,080 mg/l (pH 5-11)
Fluoride	0.02~19,000 mg/l (pH 4-10:20 mg/l)
Potassium	0.04~39,000 mg/l (pH 5-11:3.9 mg/l)
Ammonia	0.1~1,000 mg/l (pH 12 or more)

General

Parameters	pH	DO	Conductivity	Salinity	Total Dissolved Solids	Seawater Specific Gravity	Temperature	Turbidity	Water Depth	ORP	Ions
Principle	Glass electrode	Diaphragm galvanic battery	4 AC electrode	Conductivity conversion	Conductivity conversion	Conductivity conversion	Thermister	Penetration and scattering	Pressure method	Platinum electrode	Ion electrode
Range	0-14 pH	0-19.9 mg/l	0-9.99 S/m	0-4%	0-100 g/l	0-50 σt	0-55° C	0-800 NTU	0-100 m	±1999 mV	See above
Resolution	0.01pH	0.01 mg/l	0.1% full scale	0.01%	0.1% full scale	0.1 σt	0.01° C	0.1 NTU	0.1 m	1 mV	0.1% full scale
Repeatability	±0.05 pH	±0.1 mg/l	±1%	±0.1 %	±2 g/l	±2 σt	±0.3° C	±3%	±3%	±5 mV	±5%
Accuracy	±0.1 pH	±0.2 mg/l	±3%	±0.3%	±5 g/l	±5 σt	±1.0° C	±5%	±5%	±15 mV	±10%
Construction	Meter has IP-67 waterproof construction										
Operating Conditions	Measurement temperature: 32-131°F (0-55°C); Storage temperature: 23-140°F (-5-60°C; Measurement depth: 0 to 328 ft (100 m)										
Size	Meter: 7 x 4 x 2 inches (169 x 98 x 56mm) Probe: 3.9" dia. x 17.3" long (97 mm dia. x 440 mm long)										
Weight	Meter Weight: 1.1 lbs (500 g) Probe Weight: 4 lbs (1800 g)										

Features

- Handheld water quality monitoring system
- Rugged, fully submersible sonde
- Monitor up to 13 different parameters simultaneously
- Dry cell batteries
- Built in datalogger records for up to one month
- Ideal for applications without a permanent installation

Ordering & Options

Multiparameter Sondes

Order No.	Cable Length
W-23XD-2	Sonde w/6.6ft (2m) of cable
W-23XD-10	Sonde w/32.8ft (10m) of cable
W-23XD-30	Analyzer w/98.4ft (30m) of cable
W-23XD-60	Analyzer w/197ft (60m) of cable
W-23XD-100	Analyzer w/328ft (100m) of cable

Ion Sensors, Accessories & Replacements

Order No.	Description
6531	Nitrate Ion Sensor
6522	Chloride Ion Sensor
6533	Calcium Ion Sensor
6530	Fluoride Ion Sensor
6532	Potassium Ion Sensor
5012	Ammonia Ion Sensor
W-2000S	Control Unit
DIF050	PC Download Package, 110 VAC
DIF040	PC Download Package, 220 VAC
6280	Replacement pH/ORP Sensor
5460	Replacement DO Sensor

Please call us for calibration standards.

Pocket pH Testers

Handheld meters for field measurements

Description

The pocket pH testers provide a whole new level of performance in hand-held instruments. Featuring advanced microprocessor technology the testers offer automatic calibration and options such as automatic temperature compensation (ATC), automatic endpoint, and BNC electrode connection. Sealed components and casing are waterproof, and enable the tester to float when dropped in water. The pocket pH meters offer replaceable electrode sensors.

Chek-Mite pH-10

This tester offers value and performance for pH measurement. This tester automatically recognizes buffer solutions 4, 7, and 10.01, and then calibrates on that value—no manual adjustments to make.

Chek-Mite pH-15

This tester measures pH with automatic calibration. Manual endpoint also provides the capability to freeze the display once a reading has stabilized.

Chek-Mite pH-20

Similar to the Chek-Mite pH-15, this tester offers the added convenience of automatic temperature compensation (ATC) and automatic endpoint.

PHT-810

The PHT-810 offers a BNC electrode connector which allows several different electrode options. It has an automatic shutoff after two hours of operation to conserve the battery and a small battery symbol showing the remaining battery charge. The testers have the ability to store and display the current pH reading on the screen as well as displaying the temperature value in °Celsius or °Fahrenheit. The sampling time can be changed from 1 to 15 seconds.

PHT-810

Specifications

Model	pH-10	pH-15	pH-20	PHT-810
Range	0 to 14	0 to 14	0 to 14	0 to 14
Resolution	0.01	0.01	0.01	0.01
Accuracy	±0.2 pH	±0.04 pH	±0.04 pH	±0.03 pH
Temp. Comp	Set	Set	0 to 50°C	32 to 248 °F (0 to 120 °C)
Manual or Automatic	@ 25°C	@ 25°C	Auto	Manual
Calibration Auto/Man	Auto or Man	Auto or Man	Auto or Man	Auto
# of CAL Points	1 or 2	1 or 2	1 or 2	1, 2, or 3
Features				
Sensor Type	Combo	Combo	3 in 1	Electrode Dependent
Replaceable	Yes	Yes	Yes	Yes
Power Supply	2 x 3volt Lithium Cells. (CR-2032)			Lithium 3V/1Ah
Battery Life	Based upon Intermittent Daily Usage >100 hrs. Batteries are replaceable			Up to 5 years
Auto OFF	After 8 Minutes, if No Key Is Pressed			After 2 hours, can be deactivated
IP Rating	IP-66+ (Waterproof to Depth of 2 Inches (50 mm).			IP-67
Certifications	CE Directives EN-55011 & EN-50082-1			CE Directive 2004/108/EG
Warranty	6 Months	6 Months	6 Months	1 Year
Dimensions				
Size:	9.0x1.75x1.25 inches (230x44x30 mm) (H x W x D)			4.5x2.1x0.9 inches (115x54x22 mm) (L x W x H)
Weight:	Approximately 5 oz. (115 gms)			2.9 oz (90 g) (Not including electrode)

Ordering & Options

Chek-Mite pH Meter Ordering Information

Order No.	Description
pH-10	Auto buffer recognition & 1-button cal.
pH-15	Auto cal & display hold
pH-20	Auto cal, display hold & ATC
PHT-810	Pocket pH meter Electrode not included

Replacement Electrodes

Order No.	Description
473040	pH electrode for pH-10
473051	pH electrode for pH-15
473049	pH electrode for pH-20

Electrodes for PHT-810

Order No.	Description
476326	General Purpose pH Electrode
476286	Flat Surface pH Electrode
476086	Refillable General Purpose pH Electrode

pH Buffer

Order No.	Description
478551	pH 4 buffer
478552	pH 7 buffer
478553	pH 8 buffer

Pocket Water Quality Meters

Handheld meters for field measurements

EC400 Conductivity Meter

Specifications

Cond Range	0 to 19.99 mS, 3 ranges
TDS/Salinity Range	0 to 9.99ppt (g/L), 3 ranges
Temp Range	32° to 149°F (0° to 65°C)
Resolution	±1 digit, 0.1°F/ °C
Accuracy	±2%FS, , ±1.8°F/1°C

Ordering & Options

Order No.	Description
EC400	Includes meter and conductivity cell, protective sensor cap, sample cup with cap, four SR44W button batteries, and 48in (1.2m) neckstrap.

FL700 Fluoride Meter

Specifications

Range	0.1 to 9.99 ppm (mg/L)
Resolution	0.1 ppm
Accuracy	0.01ppm; 0.1°F/°C
Temperature Range	±10% of reading ±0.01ppm; ±1.8°F/±1°C
Temp. Resolution	0.1°F/ °C
Temp. Accuracy	+1.8°F/1°C

Ordering & Options

Order No.	Description
FL700	Includes Fluoride electrode, TISAB reagent tablets, sensor cap, four 3V batteries, and a 48in (1.2m) neckstrap

DO600 Dissolved Oxygen Meter

Specifications

DO Range	0 to 200.0% / 0 to 20.00ppm (mg/L)
Temp Range	32° to 122°F (0° to 50°C)
Max. Resolution	0.1%, 0.01ppm (mg/L), 0.1°F/ °C
Accuracy	+2.0%FS, 0.4 ppm (mg/L), +1.8°F/1°C

Ordering & Options

Order No.	Description
DO600	Includes DO electrode, protective sensor cap, spare membrane cap, electrolyte, four 1.5V SR44W batteries, and a 48in (1.2m) neckstrap

EC500 Conductivity/ pH Meter

Specifications

Cond Range	0 to 19.99 mS, 3 ranges
TDS/Salinity Range	0 to 9.99ppt (g/L), 3 ranges
pH Range	0.00 to 14.00pH
Temp Range	32° to 149°F (0° to 65°C)
Resolution	±1 digit, 0.1°F/ °C
Accuracy	±2%FS, ±0.01pH, ±1.8°F/1°C

Ordering & Options

Order No.	Description
EC500	Includes electrode, protective sensor cap, sample cup with cap, four 1.5V SR44W batteries, and a 48in (1.2m) neckstrap.

CL200 Chlorine Meter

Specifications

ppm Range	0.01 to 10.00ppm (10 to 50ppm using dilution method)
Temperature	23° to 194°F (-5° to +90°C)
Max. Resolution	0.01ppm; 0.1°F/°C
Accuracy	±10% of reading ±0.01ppm; ±1.8°F/±1°C

Ordering & Options

Order No.	Description
RE300	Includes ORP electrode, sample cup with cap, batteries, and 48in (1.2m) neckstrap

RE300 Handheld ORP Meter

Specifications

Range	-999 to 999mV
Max. Resolution	1mV
Accuracy	+4mV

Ordering & Options

Order No.	Description
RE300	Includes ORP electrode, sample cup with cap, batteries, and 48in (1.2m) neckstrap

Visit www.globalw.com for more information on these meters

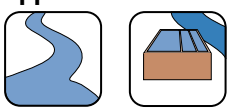
TC-3000 Portable Chlorine Meter

Portable Meter for Measuring Chlorine, Turbidity, and Color

Features

- Meets ISO 7027 or EPA 180.1 for turbidity meters
- Low level detection of turbidity, chlorine, and color
- Programmable auto-shut off
- Log up to 4000 time and date stamped recordings
- Supports six languages

Applications



Ideal for measuring chlorine, turbidity, and color in drinking water and environmental applications.

Specifications

Turbidity

Units	NTU, FNU, FAU, ASBC, EBC
Range	0 to 4000
Resolution	0.01 NTU/FNU (0.00 to 10.99) 0.1 NTU/FNU (110 to 4000) 1 NTU/FNU (110 to 4000)
Reproducibility	0.02 NTU/FNU, 0.5 FAU

Chlorine

Range	0 to 10 ppm
Resolution	0.01 ppm (0 to 5) 0.1 ppm (5 to 10)

Color

Range	0-500 CU (color units)
Resolution	0.1 CU (0 to 100 CU) 1 CU (100 to 500 CU)

Description

The TC-3000 Portable Chlorine Meter uses a unique detector arrangement to measure chlorine, turbidity, and color. It is ideally suited for both high and low level monitoring in drinking water and environmental applications. The meter is available in two designs: one with a tungsten lamp to meet EPA 180.1 turbidity specifications (TC-3000e), and the other with an IR LED emitter to meet the ISO 7027 turbidity standard (TC-3000i). Each meter comes complete with 0, 1, and 10 NTU standards; a sample bottle; four sample tubes; DPD tablets; an extra battery; and a carrying case. Windows™-based software and an AC adapter are optional.

Highly Accurate Readings

The TC-3000 meter has a six-detector design with special focusing optics that allow for long-term stability over a wide range of operating conditions. The meter also uses a tube-positioning ring to limit tube variability and ensure maximum sensitivity and accuracy.

Advanced Micro Controller

The TC-3000 uses an advanced micro controller that allows for advanced calibration algorithms and supports up to six languages (including English, French, Spanish, Japanese, Portuguese, and Italian). The meter can record up to 4,000 time and date stamped data points, which can be viewed directly on the meter's easy-to-read LCD display or downloaded to a computer via a RS-232 cable. The meter is compatible with the optional Windows™-based SMARTLink 2 Software, which can be used to download stored data; identify, organize, view, manipulate, and store data as a database on a PC; and export data to other applications.

Meter

Light Source	860nm LED (TC-3000i ISO) Tungsten (TC-3000e EPA) 525 nm LED , UV LED 375
Accuracy	+ 2%, 0.02 or + 2%, ±0.5 CU or 2%
Detection Limit	0.05 NTU/FNU, 0.02 ppm, 0.2 CU
Signal Averaging	Disabled, 2, 5 ,10
Power Source	9 Volt battery or optional AC adapter
Datalogging	4000 points
Auto Shutdown	5, 10, 30 minutes, or disabled
Response Time	<5 sec
Languages	English, French, Spanish, Japanese, Portuguese, and Italian
Size	8-7/8 x 4-5/8 x 1-7/16 inches (226 x 117 x 36mm)
Weight	3 lbs (1250 g)

Ordering & Options

Portable Chlorine Meters

Order No.	Standards Compliance
TC-3000e	EPA 180.1
TC-3000i	ISO 7027

Accessories

Order No.	Description
1754	AC Adapter
SMARTLink	SMARTLink 2 Software on CD

Reagents

Order No.	Description
P-6740-H [1]	DPD 1A (60ml)
P-6741-H [1]	DPD 1B (60ml)
P-6743-H [2]	DPD 3 (60ml)

1) Required to test both free and total residual chlorine.

2) Required to test for total residual chlorine.

Please call us for calibration standards.

PHOTOFLEX Portable Photometers

Portable photometers for measuring a wide variety of samples in the field

Description

The pHotoFlex portable photometers offer decisive advantages for water, wastewater and environmental monitoring. The portable photometers have a bright, easy to read backlit display with auto-off that displays user-friendly on screen guidance for easy operation. The pHotoFlex offers a large selection of test sets to meet most requirements. The portable photometers can have their software and methods updated via the Internet. Integrated pH measurement with automatic temperature compensation makes the pHotoFlex portable photometer much more versatile than standard photometers. The portable photometers can store 100 user-defined routine measurements. The pHotoFlex portable photometers use 4 AA batteries to make approximately 3000 measurements.

The pHotoFlex portable photometers are capable of performing a variety tasks in water, wastewater, and environmental monitoring. The portable photometers feature a highly robust optical system, which is optimally suited for mobile applications under changing conditions. The portable photometer's LEDs plus filters for 6 wavelengths have remarkably low power consumption and deliver accurate measuring results. The intuitive menu guidance of the pHotoFlex allows for smooth operation, even without studying the manual. Dilution functions and timer, ease work in special cases.

The pHotoFlex smart adapter solution

The pHotoFlex portable photometers feature an ingenious integrated cuvette adapter. Just slide the magnetic lid up on the portable photometers and insert the included 28mm cuvette, or simply flip up the adapter to use any 16mm round cuvette with a height of 91 to 104 mm. This allows the portable photometers the flexibility of several different test sets.

Specifications

Light source	LED
Wavelengths nm	436, 517, 557, 594, 610, 690
User-defined methods	100
Timer	3
Data storage	1000 data sets
pH range	0-16
Turbidity (pHoto Flex Turb)	0-1100 NTU/FNU
Accuracy	Photometry: < 2nm wavelength accuracy, 0.005 abs. reproducibility pH: ±0.01 pH Turbidity (pHotoFlex Turb): 0.01 NTU/FNU or ±2% of the measured value
Auto-zero adjustment/calibration	Photometry: With start of new method pH & turbidity: 3 point
Interface	RS 232, USB via adapter (optional)
Measuring parameters	Photometry, pH Photometry, pH, Turbidity
Power	AA batteries 4x1.5 V, for approx. 3000 measurements
Certifications	cETLus
Warranty	2 years

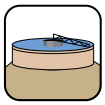
Features

- Bright, easy to read backlit display
- Large selection of test sets
- Stores 100 user-defined routine measurements
- User-friendly on screen guidance for easy operation

pH function

The pHotoFlex portable photometers include an integrated pH function with automatic buffer recognition (TEC/NIST) and auto temperature compensation. WTW's MultiCal® provides automatic calibration with up to 3 calibration points. The low-maintenance SenTix® 41 pH electrode is perfect for field use with the pHotoFlex portable photometer.

Applications



Ideal for wastewater, drinking water, and environmental analysis.

Ordering & Options

Order No.	Description
pHotoFlex/SET Portable photometer with pH	Includes field case with table insert to hold instrument, stand and cuvettes; pH electrode SenTix® 41 and Pipette KK/VAR5000 with tips, adjustable, 5 ml. Accessories: empty cuvettes 16+28 mm, cleaning tissues, stand, buffer solutions pH 4.01 + 7.00, beaker, screw driver, and PC cable.
pHotoFlex Turb/SET Portable Photometer with pH and Turbidity	Includes field case with table insert to hold instrument, stand and cuvettes; pH electrode SenTix® 41 and Pipette KK/VAR5000 with tips, adjustable, 5 ml. Accessories: empty cuvettes 16+28 mm, calibration kit for turbidity, cleaning tissues, stand, buffer solutions pH 4.01 + 7.00, beaker, screw driver, PC cable.
pHotoFlex Portable Photometer	LED filter photometer with integrated pH functions for field use. Meter only, no electrodes.
pHotoFlex Turb Portable Photometer with Turbidity	LED filter photometer with integrated turbidity measurement and pH functions for field use. Meter only, no electrodes.
FC pHotoFlex Portable Photometer Case	Field case with table insert to hold pHotoFlex®, stand and cuvettes for easy field handling. Additional space to hold accessories and pipette.
SenTix 41 Field pH Meter Electrode	Replacement plastic body electrode w/auto temp, waterproof connector, and 3.3ft (1m) cable

> "If we could ever competitively, at a cheap rate, get fresh water from saltwater, … (this) would be in the long-range interests of humanity which could really dwarf any other scientific accomplishments."
>
> – John F. Kennedy

pHotoFlex Reagents

Reagents for the pHotoFlex Portable Photometer

Description

Many different tests are available for routine analysis in a wide variety of different applications. Depending on the optical system and the wavelength employed, photometer and test set make up a matched system with different specific advantages.

For use with the pHotoFlex portable photometers, test sets were designed to be straightforward. The low consumption LED optics allow the use of easy-to-use and cost-effective test sets, e.g. powder tests.

WTW continues to expand their reagent offering. Not only are new tests developed, but the usability of tests with different instruments is being continuously expanded. Due to the different photometer optics, the same test may yield different measuring ranges for different instruments. LED photometers usually have smaller measuring ranges for the same test.

Taking Measurements Correctly

Each concentration test is only accurate to within the linear absorption range of the instrument. At the limits of the measuring range deviations should be expected within the given tolerance. Therefore it is often important to repeat the measurement using a test set with a better suited measuring range.

Specifications & Prices

Test Factor	pHotoFlex Measuring Range	Cuvette (mm)	# of Tests	Order Code
Al Aluminum	0.020-1.20 mg/l	10,20,50,28	300	250425
Au Gold	0.5-12.0 mg/l	10,16	80	250436
Ca Calcium	5-160 mg/l	l 10,20,16,28	100	250428
Cd Cadmium	0.025-1.000 mg/l	round	25	250314
Cl Chloride	5-125 mg/l	round	25	250353
Cl2 Chlorine	0.03-6.00 mg/l	round	200	250419
Cr Chromate (Chromium VI and Total Chromium)	0.05-2.00 mg/l	round	25	250341
Cu Copper	0.05-8.00 mg/l	round	25	250408
F Fluoride	0.10-1.5 mg/l	round	25	250365
Fe Iron	0.005-5.00 mg/l	10,20,50,16,28	1000	250435
K Potassium	5.0-50.0 mg/l	round	25	250407
Mn Maganese	0.01-10.0 mg/l	10,20,50	500	250442
NH4 Ammonium	0.5-16.0 mg/l NH4-N 0.6-20.6 mg/l NH4	round	25	250329
NO2 Nitrite	0.005-1.000 mg/l NO2-N 0.016-3.29 mg/l NO2	10,20,50	1000	250445
NO3 Nitrate	0.10-3.00 mg/l NO3-N 0.4-13.3 mg/l NO3	round	25	250411
NTotal Total Nitrogen *	0.5-15.0 mg/l NTotal (120 °C, 1 hr)	round	25	250358
O2 COD Chemical Oxygen Demand *	25-1500 mg/l COD (148 °C, 2hr)	round	25	250308
PO4 Phosphate	0.05-5.00 mg/l PO4-P 0.05-5.00 mg/l PTotal 0.2-15.3 mg/l PO4	round	25	250324
PO4 Phosphate	0.5-25.00 mg/l PO4-P 1.5-76.7 mg/l PO4	round	25	250413
Si Silicate/Silicic Acid	0.005-5.00 mg/l	10,20,50	300	250438
SO4 Sulfate	5-250 mg/l SO4	round	25	250414

Reagent-free Tests

FAU turbidity

(EN ISO 7027)

Turbidity is caused in liquids by the presence of undissolved substances. For undissolved finely dispersed substances the turbidity can be measured by measuring the reduction in the intensity of a beam of light when passed through the liquid, or by measuring the intensity of the scattered radiation.

A formazin solution, which must be freshly prepared and is not commercially available, is used as a reference solution. According to EN ISO 7027, all instruments may be used which satisfy the following requirements: Incoming radiation at 860 nm. The results are given in FAU units (Formazin Attenuation Units) when the radiation passing through is measured.

Coloration

(EN ISO 7887: 1994)

If a layer of several meters of pure water is observed in transmitted light it appears to have a weakly blue coloration. This coloration can alter in the presence of contaminants to form a wide range of colorations. Natural waters are usually colored yellow-brown by contamination with iron or clay particles or humic matter. (A green coloration can be produced by algae.) The "true" color of water is determined after filtration through a 0.45 um filter.

Normally most yellow-brown colored waters and the outflows of municipal sewage treatment plants can be measured at 436 nm. The outflows of industrial wastewater treatment plants show no sharp and distinctive extinction maxima. For the investigation of such water it is obligatory to measure at 436 nm (mercury line); the two other measuring wavelengths 525 nm and 620 nm can, depending on the filter used, vary slightly from these wavelengths. For discontinuous measurements the standard permits the use of filter photometers with a spectral bandwidth of < 20 nm for measurements at 436 nm, 525 nm and 620 nm. Thus, for example, instruments with 445 nm and 520 nm interference filters with a bandwidth of 10 nm are also suitable. For comparability with the standard, however, a spectrophotometer is required. The results are presented in m^{-1} together with the measuring wavelength, spectral bandwidth, water temperature and pH.

In some publications the result is given in DFZ (translucent coloration number); which is identical with the m^{-1} result.

(DIN ISO 6271: 19988)

Clear liquids, determination of the color number with the platinum-cobalt scale (Hazen color number, APHA color number). Spectrophotometers are mentioned as being suitable for measuring the stock solutions at 430 nm, 455 nm, 480 nm and 510 nm. According to the standard the measurement itself is carried out with a color comparator which allows a visual comparison.

Chrome-plating bath

Reagent-free measurement of the selfcoloration of an electroplating bath. 5 ml of the sample are pipetted into a 100 ml volumetric flask, filled up to the mark with distilled water and well mixed. 4 ml of the diluted sample are pipetted into a 100 ml volumetric flask, filled up to the mark with distilled water and well mixed. 5 ml of the 1:500 dilution are placed in a screw-cap glass and 5 ml 40% sulfuric acid are added. The glass is sealed and the contents well mixed. The solution is filled into a rectangular cuvette for the measurement.

Nickel-plating bath

Reagent-free measurement of the selfcoloration of an electroplating bath. 5 ml of the sample are pipetted into a round cuvette and 5 ml 40% sulfuric acid are added. The cuvette is sealed and the contents mixed. The solution is filled into a rectangular cuvette for the measurement.

Copper-plating bath

Reagent-free measurement of the selfcoloration of an electroplating bath. 25 ml of the sample are pipetted into a 100 ml volumetric flask, filled up to the mark with distilled water and well mixed. 5 ml of the diluted sample are place in a screw-cap glass and 5 ml 40% sulfuric acid are added. The glass is sealed and the contents well mixed. The solution is filled into a rectangular cuvette for the measurement.

Ordering & Options

Order No.	Description
1P21-2	Thermoreactor for COD and thermal digestions for up to 12 reaction cuvettes, with 3 reactor temperatures, 7 fixed programs.

Related Products

pHotoFlex/SET Portable photometer with pH

Includes field case with table insert to hold instrument, stand and cuvettes; pH electrode SenTix® 41 and Pipette KK/VAR5000 with tips, adjustable, 5 ml. Accessories: empty cuvettes 16+28 mm, cleaning tissues, stand, buffer solutions pH 4.01 + 7.00, beaker, screw driver, and PC cable.

Visit www.globalw.com for more information on these products

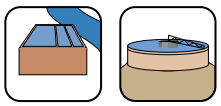
6309POT pH/ORP Analyzer and Controller

Instrument for Measuring and Controlling pH, ORP, and Temperature

Features

- Measures and controls pH, ORP, and temperature
- Easy to set up and calibrate
- User-friendly menu with password protection to ensure security
- Five programmable relays: 2 for pH, 2 for ORP, and 1 for temperature
- Isolated and reversible 4-20 mA output for a single parameter

Applications



Ideal for water and wastewater pH monitoring and control.

Specifications

Range	pH: -2.00 to 16.00 pH ORP (absolute/relative): -2500 to 2500 mV / -3999 to 3999 mV Temp: 14 to 248°F (-10.0 to 120.0 °C)
Resolution	pH: 0.01 pH ORP (absolute/relative): 1 mV/1 mV Temp: 32.18°F (0.1 °C)
Accuracy	pH: ± 0.01 pH ± 1 LSD ORP (absolute/relative): ± 0.2 % of span / ± 0.2 % of span Temp: ± 32.18 °F (0.1 °C)
pH Temperature Compensation	Auto 14.0 to 248.0 °F (-10.0 to 120.0 °C)
pH Buffer Recognition	4.00, 4.01, 6.86, 7.00, 9.18, 10.01
pH Buffer Temperature Range	32 to 140 °F (0 to 60 °C)
pH Electrode Offset Recognition	± 100 mV at pH 7.00 to 91.7 to +108.3 at pH 6.86
pH Electrode Slope Recognition	± 30% at pH 4.00, 4.01, 9.18, or 10.01
Input Impedance	>1013 ohms
Relays	Control Type: 5 ON/OFF controls Relay Output: 5A at 115 VAC or 2.5 A at 220 VAC, resistive load only
4-20 mA Analog Output	Input Select: User selectable pH or ORP Current Output Range: 4 to 20 mA (isolated), programmable span Current Output Scale: User programmable, linear or log Maximum Load: 500 ohm Accuracy: ± 0.02 mA Isolation Voltage: 500 VDC
Calibration End Point Sensing	Yes
Temperature Sensor	Thermistor, 10.00 k ohm at 77°F (25 °C)
Power Supply	115 V AC or 230 V AC at 50/60 HZ
Communication	RS-485
Display	128 x 64 graphical LCD with backlight
Ambient Temperature Range	0 to 122°F (0 to 50°C)
Case	IP65, 1/4 DIN, 148 mm depth
Dimensions	3-5/8 x 3-5/8 x 5-7/8 inches (96 x 96 x 148 mm)
Weight	2.1 lbs (950 g)
Certifications	CE, ISO 9001:2000

Description

The 6309POT pH/ORP Analyzer and Controller is an easy to use instrument that measures, analyzes, and controls pH, ORP, and temperature.

Easy Set Up, Calibrations, and Display

You can set up the instrument and make calibrations via the 6309POT's user-friendly menu, which you can password protect to ensure security. You can also perform calibrations quickly and accurately with automatic buffer recognition of US or European buffer sets. The calibration values are stored in a nonvolatile memory. A large backlit screen displays pH, ORP, and temperature values or pH, DO, and temperature measurements, in addition to the current mA output and relay status.

Accurate Control and Recording

The 6309POT provides accurate on/off control via its five programmable relays. You can also use the instrument's 4-20 mA output for proportional control. A standard RS-485 output allows for access via a compatible PC computer and allows you to link multiple units to a common control system.

Capable Operation

The 6309POT's built-in temperature and automatic temperature compensation (ATC) functions may be used with an ATC-type sensor or with a 10K ohm thermistor. At power up, the 6309POT performs self-diagnostics to ensure proper operation. You can display electrode efficiency to indicate when electrode maintenance is necessary. The 6309POT is housed in a watertight (IP65), DIN case and includes a terminal block that accommodates the tinned leads and spade lugs on industrial type pH and ORP electrodes.

Ordering & Options

pH/ORP Analyzer and Controller

Order No.	Description
6309POT	pH/ORP Analyzer and Controller

pH and ORP Electrodes[1]

Order No.	Type
WQ220-020	pH/ATC
WQ620-020	ORP

1) Electrodes are flat surface and self-cleaning and include 20 ft of cable with spade and tinned leads. A signal amplifier is required for sensor cable runs over 40 feet.

Accessories

Order No.	Description
600B-Y [2]	Adapter, BNC Connector to Spade Lugs and Tinned Leads
WQ-T-010	1 inch FNPT PVC Flow Through T-Fitting

2) Please note that a BNC to Y adapter is required to maintain the IP65 rating when using sensors with a BNC connector.

Please call us for calibration standards and enclosure options.

695pH pH Transmitter

Transmitter with Display

Features

- Accurate online pH measurements
- Isolated 4-20 mA output
- NEMA 4 enclosure
- Temperature compensation

Description

The 695pH Industrial pH Transmitter is a 2-wire 4-20 mA pH transmitter enclosed in a sealed NEMA-4 enclosure. The unit has a large LCD screen powered by 11 to 80 VDC. The transmitter's span has selectable pH values from 1 to 14 pH units via an internal dip switch. The unit uses BNC connections to link to a separately sold pH sensor (Order No. 600P). The unit also has tinned leads for a 3-K Balco ATC temperature probe (Order No. 693-3K) or simulation resistor. The 695pH is compatible with Global Water's GL500 Global Logger (see page 122) and PC300 Process Controller (see page 132).

Specifications

Range	0 to 14.00 pH
Resolution	0.01 pH
Accuracy	0.02 pH ± 1 digit
Span	Any 1 to 14 pH unit, selectable with internal DIP switch
Temperature Compensation	Auto 32 to 212°F (0 to 100.0°C) or manual using fixed resistor
Input Impedance	$>10^{12}$ ohms
Output	4 to 20 mA
Operating Temperature	-14 to 140 °F (-10 to 60 °C)
Connector	BNC
Power Source	11 to 80 VDC
Case Dimensions	4.92 x 2.95 x 3.94 inches (37.9 x 7.5 x 10.0 cm)

Ordering & Options

Order No.	Description
695pH	Industrial pH Transmitter (sensor not included)
600P	Industrial pH Transmitter Sensor (3 ft cable)
693-3K	ATC Temperature Probe (6 ft cable, SS probe)

392-392SBC Conductivity Transmitters

Industrial Conductivity Transmitters Available in Multiple Ranges

Description

The 392 Industrial Conductivity Transmitter and the 392SBC High Range Conductivity Transmitter are 4-wire 4-20 mA transmitters enclosed in 1/8 DIN aluminum panel mounted enclosures. Each unit has an isolated 4-20 mA output and a large LCD screen that is powered by 115/230 VAC. The instruments use 10k thermistors for automatic temperature compensation of values from 41 to 131°F (5 to 55°C). The transmitter connections are made with terminal blocks via spade lug connectors.

The 392 transmitter has a selectable conductivity value from 19.99 µS/cm to 199.9 mS/cm via an internal dip switch and jumper settings. The 392SBC high range version displays up to 15.0mS and will only output up to 8.1mS or 30mA.

The 392 and 392SBC are compatible with Global Water's GL500 Global Logger (page 122) and PC300 (page 132).

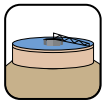
Specifications

Accuracy	±1% of span ± 1 digit
Temperature Compensation	41 to 131°F (5 to 55°C) ±2% per °C, 10k thermistor
Output	392: 4-20 mA (isolated); 4.0 mA = 0.00 mS/cm, 20 mA = 5.00 mS/cm 392SBC: 4-20mA / 4-30mA (isolated); 4.0 mA = 0.00 mS/cm (each 5/16 mS/cm thereafter = 1.0 mA up to 30 mA)
Load	450 ohms
Isolation to Ground	500 VDC
Input Impedance	$>10^{12}$ ohms
Operating Temp	41 to 113°F (5 to 45°C)
Power Source	115 to 230 VAC ±15%, 50/60Hz
Mounting	1/8 DIN aluminum case
Dimensions	3.75 x 2 x 6.75 inches (96 x 48 x 172 mm)
Weight	1.5 lbs (0.69 kg)

Features

- Online conductivity measurements
- Multiple measurement ranges
- Isolated 4-20 mA output
- Automatic temperature compensation
- 1/8 DIN mounting
- Adjustable zero
- High 50/60 Hz noise rejection

Applications



Ideal for industrial and commercial water and wastewater sites.

Ordering & Options

Industrial Conductivity Transmitters

Order No.	Description
392	Standard Range Transmitter (sensor not included)
392SBC	High Range Transmitter (sensor not included)

Industrial Conductivity Sensor

Order No.	Description
392-123	392 Conductivity Sensor (0 to 300 mS, 5m cable, 1 inch NPT mounting)
392-CC	392SBC Industrial Conductivity Sensor

Please call us for calibration standards and enclosure options.

Order No.	Range	Resolution	Cell Constant
392	0 to 19.99 µS/cm	0.01 µS/cm	K=0.01
	0 to 199.9 µS/cm	0.1 µS/cm	K=1.0
	0 to 1999 µS/cm	1.0 µS/cm	K=1.0
	0 to 19.99 mS/cm	0.01 mS/cm	K=1.0
	0 to 199.9 mS/cm	0.1 mS/cm	K=10
392SBC High Range	0 to 5.0 mS/cm	0.01 mS/cm	K=1.0
	0 to 15.0 mS/cm	0.01 mS/cm	K=1.0

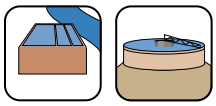
6308DT Industrial DO Transmitter

Dissolved Oxygen and Temperature Transmitter and Controller

Features

- Simultaneous DO and temperature measurement and analysis
- Reversible and isolated 4 to 20mA output with adjustable bandwidth
- Membrane keypad with audio feedback
- Automatic temperature compensation
- 4-digit password security protection
- 1/4 DIN watertight, IP65 rated

Applications



Ideal for industrial and commercial water and wastewater sites.

Specifications

DO	Salinity Compensation: Manual 0.0 to 40.0 ppt Pressure Compensation: Manual 640 to 1100 mbar Temperature Compensation: Auto. 14.0 to 122.0 °F (-10.0 to 50.0 °C)
Temperature	Thermistor, 10.00 k ohm at 77°F (25°C)
4-20 mA Analog Output	Current Output Range: 4 to 20 mA (isolated), programmable span Current Output Scale: User programmable, linear or log Maximum Load: 500 ohm Accuracy: ± 0.02 mA Isolation Voltage: 500 VDC
Power Supply	115 VAC or 230 VAC at 50/60 HZ
Relays	Control Type: 5 ON/OFF controls Relay Output: 5 A at 115 VAC or 2.5 A at 220 VAC, resistive load only

Description

The 6308DT Industrial Dissolved Oxygen Transmitter is a rugged microprocessor- based instrument assembled in a watertight, IP65, ¼ DIN panel mount case. The DO transmitter is designed to provide accurate and stable readings for both laboratory and process control applications.

Capable Display and Functions

The unit simultaneously displays DO, temperature, relay status, and current output on a large backlit LCD graphic screen. The unit includes a variety of useful functions, including: 5 programmable relays, an isolated and reversible 4-20 mA analog output, and programmable offsets and spans. The transmitter's microprocessor also performs a self-diagnostic routine every time you turn on the unit, providing you with basic information about the unit's stability.

Easy Setup and Calibration

You can easily perform setup and calibration functions using the transmitter's user-friendly guided menu. The unit has a membrane keypad with tactile and audio feedback to improve durability and usability. The transmitter also provides password-protection to ensure that only the right people have access to settings. The unit's microprocessor allows you to easily recalibrate the DO probe's parameters, and the transmitter only requires a single calibration, regardless of which dissolved oxygen units you use. The transmitter provides a one-point calibration in air, and the calibration data is then stored in the unit's memory for use on power up.

Accurate Measurements

The unit's sensor connections are standard terminal blocks for tinned leads. The unit uses a "polygraphic clark" membrane for its DO measurements and a precise thermistor for temperature, providing you with accurate readings. DO sensors and membrane kits are sold separately. You can select a DO sensor with a stainless steel body (LD-900-6-DO) or one with an epoxy body (ID-900-5-DO).

Datalogging and Control Capabilities

The transmitter includes a RS-485 interface, which will let you log all data with an IBM© PC/AT compatible computer. Multiple DO transmitters can be connected together so that you can gather data quickly and efficiently. The 6308DT is compatible with Global Water's GL500 Global Logger for data recording (page 122) and PC300 for controlling external devices (page 132).

Security	4-digit password
Audio Feedback	All touch keys
Communication	RS-485
Fuse	0.315 A/250 VAC at 50/60 Hz
Display	128 x 64 graphical LCD with backlight
Ambient Temp. Range	32 to 122 °F (0 to 50 °C)
Case	IP65, 1/4 DIN case, 148 mm depth
Weight	2lbs (950 g)

Parameter	Range	Resolution	Accuracy
DO (ppm)	0.00 to 40.00 ppm	0.01 ppm	± 0.2 % of span
DO (air saturated)	0.0 to 500.0%	0.1%	± 0.2 % of span
Temperature	- 10.0 to 120.0°C	0.1 °C	± 0.1 °C

Ordering & Options

Order No.	Power Requirements
6308DT	DO Transmitter (sensor not included)
LD-900-6-DO	Sensor with Stainless Steel Body (¾ NPT mount on front, 10 ft cable, membrane sold separately)
ID-900-5-DO	Sensor with Epoxy Body (¾ NPT mount on front and back, 10 ft cable, membrane sold separately)
LD-900-3-DO	Membrane Kit

Please call us for calibration standards and enclosure options.

3671 ORP Controller

Controller for Monitoring and Controlling ORP

Description

Global Water's 3671 ORP Controller is a high performance instrument for measuring and controlling ORP. The 3671KB is a complete ORP Controller Kit, including a controller, pH/reference electrode, and a Pt-100 ATC probe. We also offer the stand-alone controller (Order No. 3671), with the reference electrode and ATC probe sold separately.

Capable Features

The 3671 ORP Controller features dual SPDT Hi/Lo relays, manual set points, and calibration potentiometers set into the front of the panel. In addition, the 3671 includes an internal ORP select switch, automatic temperature compensation from 32.0 to 212.0 °F (0.0 to 100.0 °C), and set points that cover the entire ORP sensor span.

Solid Design

The controller uses an all solid design to achieve low power consumption and reduced internal heating. The unit is heat cycled 100 hours before shipment.

Accurate Output and Display

The ORP controller features a voltage output for use with a data recorder such as Global Water's GL500 Global Logger. The controller also has a large, 0.56 inch display that uses a high efficiency bright red LED for easy reading.

Easy Installation

The 3671 is housed in a 1/8 DIN panel mount controller box that fits into standard panel cutouts. The controller requires a Pt-100 ATC probe or a simulation resistor for temperature compensation. The 3671KB Kit includes the ATC sensor and a pH/Ref electrode. Other sensors are sold separately (see Ordering & Options below). The sensor can easily be connected to the controller's BNC input and spade lug screw type connector block.

Specifications

Controller Range	pH: 0 to 14.0 Temp: 32.0 to 212.0 °F (0.0 to 100.0 °C) mV: -1990 to +1990
Controller Resolution	pH: 0.1 Temp: 1 °C mV: 10
Controller Accuracy	pH (± digit): 0.1 (relative) when standardized within 2 pH Temp (± digit): 1 mV (± digit): +0.1 %
Input Impedance	>1012 ohms
Temperature Compensation	Auto 32.0 to 212.0 °F (0.0 to 100.0 °C)
Recorder Output (Full Range)	pH: 1400 mV Temp: 1000 mV mV: + 1990mV
Dual Point ON/OFF Control	pH or ORP with internal select switch
Dead Band	± 0.1 pH for each set point
Relay Output	8 Amp at 115 VAC, 4 Amp at 230 VAC
Readout	0 .56 inch high efficiency red LED display
Power Source	115 VAC, 230 VAC + 15% 50/60 Hz
Dimensions	3.75 x 2 x 6.75 inch (96 x 48 x 172 mm)
Weight	1.5 lbs (0.69 kg)

Ordering & Options

ORP Controller and Kit

Order No.	Description
3671KB[1]	ORP Controller Kit
3671[2]	ORP Controller

1) Kit includes ORP controller, pH/Ref Electrode, and ATC probe.

2) pH/reference electrode and ATC probe sold separately.

Accessories

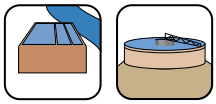
Order No.	Description
600E-ORP	ORP Electrode (epoxy with BNC connector)
600P	pH/Ref Electrode (epoxy with BNC connector)
3671A	ATC Phono Plug
WQ620-020 Series	ORP Electrodes, 20 ft cable

Please call us for calibration standards and enclosure options.

Features

- High performance ORP control
- Automatic temperature compensation 32-212° F (0-100° C)
- Set points on front panel
- Large bright red LED screen
- Easy to install

Applications



Ideal for controlling ORP in process water and wastewater applications.

"Water is sometimes sharp and sometimes strong, sometimes acid and sometimes bitter, sometimes sweet and sometimes thick or thin, sometimes it is seen bringing hurt or pestilence, sometime health-giving, sometimes poisonous."

– Leonardo da Vinci

TB500 Series Online Turbidimeters

Online Meters for Continuously Measuring Turbidity

Features

- Meets USEPA method 180.1 and ISO 7027
- Range of 0 - 1000 NTU
- Simple, one-piece design
- Ultrasonic auto cleaning system, EPA accepted
- Easy to clean and calibrate
- Convenient reusable primary calibration standards

Specifications

Range	0 to 1000 NTU
Measurement Principle	Nephelometry (90 degrees)
Accuracy	2% of reading or ± 0.02 below 40 NTU, 5% of reading above 40 NTU
Resolution	0.0001 selectable
Response Time	Adjustable (5 to 500 seconds) (0 to 1000 NTU)
Input Pressure	1 to 200 psi (built in regulator set at 15 psi)
Standard Outputs	4-20 mA galvanic isolated or RS-485
RS-485 Protocols	Modbus
Light Source	White Light: 7 year life Infrared Light (850nm LED): 10 year life
User Alarms	2 high/low alarms
Alarm Contacts	Form C 250 VAC 2A
Display	Multiline Custom Backlight LCD
Built-In Diagnostics	Yes
Storage Temp	-4°F to 140°F (-20°C to 60°C)
Operating Temp	32° to 122°F (0° to 50°C)
Wetted Surfaces	Nylon, Borosilicate Glass, Silicon, Polypropylene, Stainless Steel
Enclosure	Designed to meet NEMA 4X, IP66
Outdoor Installation	32°F to 122°F (0°C to 50°C)
Certifications	USEPA, ISO 7027, CE Approved, ETL Listed to UL 3111-1 and ETL Certified to CSA 22.2 No. 1010-1-92
Shipping Weight	5.5 lbs (2.5 kg)
Dimensions	14 x 12 x 12 inch (35 x 30 x 30 cm)

Description

The TB500 Series Online Turbidimeters are specifically designed for the continuous measurement of turbidity in filtered water, raw water, final wastewater effluent, and many industrial applications. Two models are available: the TB502, which provides reliable and economical turbidity monitoring with a range of 0 to 1,000 NTUs; and the TB504 model, which feature an EPA accepted ultrasonic cleaning system that keeps the optical chamber clean in raw and finished water applications. The TB504 has a versatile range of 0 to 1,000 NTUs.

Choice of Light Sources

We offer the TB500 tubidimeters in two different light source versions to meet the needs of different measuring standards. The White Light (WL) versions are recommended for use in reporting results under US EPA (US standard) jurisdiction. These versions use an advanced krypton-filled white light technology that has a lamp life expectancy up to 7 years. The Infared (IR) versions feature a long life infrared light source, which is recommended for use in reporting results under ISO 7027 (European standard) jurisdiction. Infrared light is also recommended for monitoring final wastewater effluent and industrial solutions where color is present in the sample stream.

Easy Calibration

You can calibrate the TB500 series meters with primary standards using sealed glass cuvettes, in a method similar to laboratory procedures. This dry method of calibration is fast and clean, and the sealed primary standards are reusable. An on-screen menu guides you through the calibration procedure quickly and easily: simply place the cuvette into the measuring chamber and verify the reading– just like a laboratory meter.

Advanced Design

The TB500's advanced optical design provides consistent readings. The optical chamber has been designed to eliminate air in the sample while simultaneously creating a vortex cleaning action throughout the chamber. The low-volume sample chamber (30 ml) reduces calibration costs and provides quick response times.

A compact, one-piece, NEMA 4X enclosure is suitable for outdoor installation (within temperature limitations) and allows for simple mounting. The TB500's

Ordering & Options

Turbidimeters

Order No.	Range (NTU)	Light	Method	Autoclean
TB502-WL	0 to 1,000	White	USEPA	No
TB502-IR	0 to 1,000	Infrared	ISO 7027	No
TB504-WL	0 to 1,000	White	USEPA	Yes
TB504-IR	0 to 1,000	Infrared	ISO 7027	Yes

Calibration Kits

Order No.	Description
TB500-CAL	Primary Calibration Kit for TB502 & 504

Replacement Parts

Order No.	Description
TB502-CUV	Flow Thru Cuvette for TB502
TB500-UCUV	Flow Thru Cuvette for TB504
TB500-DR	Desiccant Refill, all models
CS100	4-20 mA Current Signal Splitter, see page 128

intuitive user interface features security code settings to prevent unauthorized tampering. A built-in diagnostic menu assists in troubleshooting.

Versatile Outputs

The TB500 includes an isolated 4-20 mA current output that may be used for chart or data recording, remote monitoring, PLCs, or SCADA systems. Two user-settable alarm relays may be connected to an autodialer or local alarm to notify you before dangerously high turbidity levels occur. Also included is an RS-485 digital output that may be interfaced with a Modbus system to link multiple units or to integrate the TB500 into your existing network.

What's in the Box

Each TB500 turbidimeter is shipped fully calibrated and includes desiccant, an in-line pressure regulator, a universal 100-250 volt power supply, and an operator's manual. The TB502 models also include a spare measuring cuvette with a light shield.

Applications

Ideal for continuous measurement of turbidity in filtered water, raw water, final wastewater effluent, and industrial applications.

You may also like . . .

GL500 Datalogger
Add recording capabilities to the TB500.
Page 122

AD200 Voice Alarm Autodialer
Receive turbidity alarm notifications.
Page 138

CL500 Chlorine Analyzer

Online Meter for Free or Total Chlorine Measurements

Description

The CL500 Free/Total Chlorine Analyzer is an accurate and reliable instrument for continuous online free or total chlorine residual measurement. The CL500 uses the reliable and economical, colorimetric DPD (N,N-diethyl-p-phenylenediamine) chemistry, proven to be the most accurate method for measuring free or total residual chlorine. With no troublesome mixing or pump components to wear out, the CL500 provides reliable operations with minimal maintenance.

The CL500's user selectable sample settings conserves reagents by allowing you to set the cycle time from 90 seconds up to 10 minutes. The low volume reagent and sample chamber saves on reagent costs and decreases water consumption. A removable sample cuvette allows for simple cleaning and maintenance, and the viewable sample chamber provides a clear view of the sample cuvette while the instrument is sampling.

The CL500 provides a programmable 4-20 mA output signal that may be used with one of our chart recorders for reporting purposes or to control a chemical feed system. There are also two user-selectable Hi/Low limit relays that can trigger one of our AD200 autodialers (page 138) or a local alarm system. The unit's compact and corrosion-resistant NEMA 4X (IP66) enclosure allows for a simple installation.

The CL500 comes with an inline pressure regulator, replacement tubing/cuvette kit (one year supply), a power supply, and an owners manual. Please note that reagents must be purchased separately.

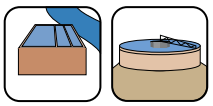
Specifications

Range	0 to 10 mg/l
Cycle Time	User selectable, 90 seconds to 10 minutes
Resolution	0.01 mg/l
Accuracy	± 5% or 0.03 mg/l of Cl^2, whichever is greater
Method	USEPA accepted DPD method of analysis
Standard outputs	4-20 mA and RS-485 with Modbus
User Alarms	2 user selectable alarms (form C 240VAC 2A)
Operating Temp	41° to 104°F (5° to 40°C)
Input Pressure	1 to 200psi
Display	Backlit LCD
Enclosure	ABS Plastic, NEMA 4X, IP66
Power	100 to 240 Volt auto switchable 47 to 63hz
Certifications	CE, UL, CSA, (ETL, ETLc)
Weight	8 lbs (3.6 kg)
Dimensions	16x16x10 inches (41x41x26 cm)

Features

- Proven colorimetric DPD chemistry
- Reliable, low maintenance design
- Range of 0 to 10 ppm
- EPA accepted method

Applications



Ideal for monitoring and controlling the residual in water and wastewater treatment plants.

Ordering & Options

Chlorine Analyzer

Order No.	Description
CL500	Free/Total Chlorine Analyzer

Reagents & Replacement Parts

Order No.	Description
09951GW	Reagent Set for Free Chlorine (30 Day)
09952GW	Reagent Set for Total Chlorine (30 Day)
09953GW	Reagent Set for Free Chlorine (60 Day)
09954GW	Reagent Set for Total Chlorine (60 Day)
09939-G	Replacement Tubing/Cell Kit
CL500-ZCK-120	Zero Calibration Kit, 120 V
CL500-ZCK-240	Zero Calibration Kit, 240 V

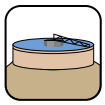
CHEM-PRO™ C3 Series Pumps

Digital Chemical Diaphragm Metering Pumps

Features

- High capacity chemical metering to 833 gpd (131.4 lph)
- Output pressures to 175 PSI
- Precise digital control system with LCD display
- Built-in Diaphragm Failure Detection (DFD) system
- Compatible with an exclusive Flow Verification System
- Rugged and reliable design

Applications



Ideal for applications including water and wastewater treatment, agriculture, plating and metal finishing, larger HVAC systems, and more.

Specifications

Max. Working Pressure	175 psig (12.1 bar)
Max. Fluid Temperature	130°F (54°C)
Max. Ambient Temperature	14 to 115°F (-10 to 46.1°C)
Output Adjustment Range	5 to 100% in 1% increments
Duty Cycle	Continuous
Maximum Viscosity	1,000 Centipoise
Maximum Suction Lift	15 ft water, 0 psig (4.5 m, 0 bar)
Enclosure	NEMA 4X, (IP66)
Shipping Weight (Approx.)	29 lbs (13 kg)
Dimensions	13-18 x 9 x 8 inch (32.3x22.8x20.3 cm)

Materials

Enclosure	413 aluminum (powder coated)
Pump Head Cover	413 aluminum (powder coated)
Cover Screws	300 stainless steel
DFD System Sensor Pins	Hastelloy C-276
Power Cord	3 conductor, SJTW-A Water-resistant
Mounting Brackets	Stainless steel
Diaphragm	Teflon (teflon coated hypalon)
Pump Head & Adapters	PVDF (natural)
Injection/Check Valve	Body & insert: PVDF (natural) Check Ball: Ceramic Spring: Hastelloy C-276 Elastomers (O-ring): Viton
Footvalve/Strainer	PVDF/Polypropylene (natural)
Suction Tubing	PVC (clear)
Warranty	2 year

Description

CHEM-PRO™ C3 Series pumps are designed for accurate and reliable high capacity chemical metering. The C3 pumps are well suited for many applications, including water and wastewater treatment, agriculture, plating and metal finishing, and larger HVAC systems.

The C3 features precise digital control and a user friendly digital touch pad with a large backlit LCD display. Built to be rugged and reliable, the C3 pumps have oversized PVDF double ball valves, a priming/degassing valve built into the PVDF pump head, and a weather-resistant housing made of durable, powder coated aluminum.

Chemical Spill Alarming

The C3 pumps feature a built in Diaphragm Failure Detection (DFD) system, which senses chemical leakage in the pump head and shuts off the pump before you have a troublesome chemical spill. The DFD system triggers a relay that may be connected to an external alarm or autodialer, such as Global Water's AD200 Voice Alarm Autodialer (see page 138).

The C3 pumps also accept an exclusive Flow Verification System (FVS). The optional FVS Micro-Flo sensor (see page 99) will shut down the pump and trigger an alarm if the chemical flow stops because of an empty tank, clogged valve, or anything that might prevent the flow of liquid through the pump system.

What's in the Box

Each CHEM-PRO C3 pump ships complete with a priming valve/pressure relief valve (located on pump head), pump head adapters, foot valve/strainer with ½ inch ceramic ball and ½ inch barbed adapter, injection/check valve fitting with ½ inch ceramic ball and one ½ inch barbed adapter, 10 feet of ½ inch clear PVC suction tubing, and mounting brackets with screws.

Please note that you should always check for chemical compatibility with the wet end materials before ordering a pump.

Ordering & Options

C3F 115 VAC/60 Hz Models

Order No.	Max gpd [1]	Max psi [2]
C3F141XVA	118	175
C3F241XVA	270	150
C3F142XVA	350	150
C3F242XVA	833	80

C3F 220 VAC/50 Hz Models

Order No.	Max lph [1]	Max bar [2]
C3F161XVA	18.6	12
C3F261XVA	42.6	10.3
C3F162XVA	55.2	10.3
C3F262XVA	131.4	5.5

1) Maximum liquid output at zero backpressure.

2) Maximum pressure output.

Replacement Parts & Accessories

Please call us for parts and accessories.

C-1100V Series Metering Pumps

Digital Diaphragm Metering Pumps for Chemical Injection

Description

The C-1100V Series Metering Pumps are state of the art, digitally controlled diaphragm pumps designed for precise chemical metering. The C-1100 pumps are loaded with advanced features including: a user friendly touch pad and LCD display, external control inputs, stroke length and speed control, ±1% full scale repeatability, and injection into piping systems against pressures up to 150 psi (10.3 bar).

Reliable Operation

The C-1100V is designed for reliable and consistent operation with oversize PVDF double-stage check valves, a built in priming/degassing valve, and a durable powder coated aluminum housing.

Pump Control and Alarm Relay

The C-1100V includes a front-mounted mechanical flow rate adjustment, and is also equipped with an external input control circuitry that allows the pump to be controlled externally by either a 4-20 mA input signal or a pulsed input signal. The C-1100V includes a diaphragm failure detection system that with shut down the pump and trigger an alarm long before you get a troublesome chemical spill. In addition, the C-1100V is compatible with an exclusive Flow Verification System (FVS). The FVS Micro-Flow device (see page 99) will shut down the pump and trigger an alarm if the flow of chemical stops because of an empty tank, clogged valve, or anything that might prevent the flow of liquid through the pump system.

What's in the Box

Each C-1100V pump ships complete with 10 ft (3 m) of suction and discharge tubing, a suction strainer/foot valve with ceramic weight, and an injection/check valve assembly. Please note that you should always check for chemical compatibility with the wet end materials before ordering a pump.

Specifications

Max. Working Pressure	175 psig (12.1 bar)
Max. Fluid Temperature	130°F (54°C)
Max. Ambient Temperature	14 to 115°F (-10 to 46.1°C)
Output Adjustment Range	5 to 100% in 1% increments
Duty Cycle	Continuous
Maximum Viscosity	1,000 Centipoise
Maximum Suction Lift	15 ft water, 0 psig (4.5 m, 0 bar)
Enclosure	NEMA 4X, (IP66)
Shipping Weight	29 lbs (13 kg)
Dimensions	10-1/2 x 6-1/4 x 10 inch (26.7 x 15.9 x 25.4 cm)

Materials

Diaphragm	Teflon® (Teflon coated hypalon)
Pump Head & Adapters	PVDF (natural)
Injection/Check Valve	Body & insert: PVDF (natural) Check Ball: Ceramic Spring: Hastelloy C-276
Elastomers (O-ring)	Viton® (optional EP)
Footvalve/Strainer	PVDF/Polypropylene (natural)
Suction Tubing	PVC (clear)
Enclosure & Pump Head Cover	413 aluminum (powder coated)
Cover Screws	300 stainless steel
DFD System Sensor Pins	Hastelloy C-276
Power Cord	3 conductor, SJTW-A Water-resistant
Mounting Brackets	Stainless steel

Ordering & Options

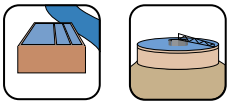
C1100V 115 VAC/60 Hz Models

Order No.	Max gpd [1]	Max psi [2]
C-11V141X000V00	38.0	150
C-11V344X000V00	57.7	150
C-11V341X000V00	73.0	150
C-11V444X000V00	119.7	150
C-11V441X000V00	155.9	150
C-11V544X000V00	260.8	100

Features

- User friendly touch pad controls and LCD display
- Built in diaphragm failure detection system
- Highly accurate and repeatable chemical dosing
- Can be externally paced by a flowmeter, analyzer, or other device
- Works with a Flow Verification System

Applications



Ideal for water treatment and conditioning, wastewater treatment, rural water systems, and cooling tower and boiler treatment.

C1100V 220 VAC/50 Hz Models

Order No.	Max lph [1]	Max bar [2]
C-11V151X000V00	6.0	10.34
C-11V354X000V00	9.1	10.34
C-11V351X000V00	11.5	10.34
C-11V454X000V00	18.9	10.34
C-11V451X000V00	24.6	10.34
C-11V554X000V00	41.1	6.9

1) Maximum liquid output at zero backpressure.
2) Maximum pressure output.

Replacement Parts

Order No.	Description
C-406VT-15N	Diaphragm, Teflon Coated EP
C-535A6-6	Pump Head Kit w/Valves & Diaphragm
C-535	Pump Head
K-568A-6A	Inlet & Outlet Valve Kit
C-340A	Foot Valve/Suction Strainer
A-014N-6A	Injection/Anti-siphon Valve Assembly
K-568A-4	4-pack of Check Balls for Inlet/Outlet Valves
700000-638	5 ft Suction Tubing w/Flow Indicator

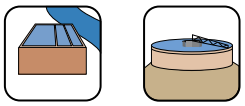
FLEXFLO® A-100NV Series Pumps

Digital Peristaltic Pumps for Chemical Metering

Features

- Low maintenance peristaltic design
- Handles liquids with higher viscosities and solids content
- Precise variable speed control
- Automatically detects a tube failure and disables pump

Applications



Ideal for a variety of water, wastewater, and industrial chemical metering applications.

Specifications

Max. Working Pressure	100 psig (6.9 bar)
Max. Fluid Temperature	130°F (54°C)
Max. Ambient Temperature	14 to 110°F (-10 to 43°C)
Output Adjustment Range	5 to 100% in 1% increments
Duty Cycle	Continuous
Maximum Viscosity	5,000 Centipoise
Maximum Suction Lift	30 ft water, 0 psig
Maximum Solids	50% by volume
Enclosure	NEMA type 2, (IP21)
Shipping Weight (Approx.)	12 lbs (5.4 kg)
Dimensions	6-1/8 x 10-1/8 x 9 inch (15.6 x 25.7 x 22.9cm)

Materials

Pump Head & Enclosure	Valox (PBT) thermoplastic
Pump Head Cover	Clear PVC
Cover Screws	300 stainless steel w/polypropylene cap
Roller Assembly	Rotor: Valox (PBT) Rollers: Nylon Roller Bearings: Bronze Motor Shaft: Nickel plated steel
TFD System Sensor Pins	Hastelloy C-276
Pump Tubing	Norprene
Tube Connection Fittings	PVDF
Suction Tubing	Clear PVC
Suction Strainer	Natural Polypropylene
Discharge Tubing	Natural Polyethylene (LLDPE)
Injection/Check Valve Assembly	Body & insert: Polypropylene (optional PVDF) Check Ball: Ceramic Spring: Hastelloy C-276 Ball Seat O-ring: TFE/P Static Seal O-ring: Viton

Description

FLEXFLO® A-100NV Series Peristaltic Pumps are loaded with features that make them the ideal choice for a variety of water, wastewater, and industrial chemical metering applications. The pumps can easily handle higher viscosity liquids up to 5,000 cps, as well as liquids with up to a 50% solids content.

Low Maintenance Design

The A-100NV's low maintenance peristaltic pump is designed to be naturally clog resistant and self priming– even against the maximum rated line pressure. The pump also cannot vapor lock or lose prime, so no bypass system is required. Built to last, each A-100NV pump is housed in a weatherproof NEMA 2 housing and has a continuous duty motor with advanced cooling to ensure a long service life.

User Friendly Touch Pad and Display

The A-100NV has a user friendly touch pad and a bright LCD display, which make the pump easy to operate. The pump has service and alarm indicator icons, motor speed or input signal values, and a prime mode for quick priming without program changes.

Pump Control and Alarm Relays

The pump's precise, variable speed feed rate may be externally controlled by a 4-20 mA or pulse/frequency signal from a flowmeter, PLC, or process control device.

The A-100NV pumps include exclusive Tube Failure Detection system (TFD), which senses chemical in the pump head and shuts off the pump, and activates an alarm relay (dry contact closure). The pumps are also compatible with an output Flow Verification Sensor system (such as the Micro-Flo on page 99), which can shut down the pump and alert you if the chemical stops flowing for any reason.

What's in the Box

The A-100NV pumps ship with 2 pump tubes, 10 ft of suction and discharge tubing, a suction strainer/foot valve with a ceramic weight, and an injection/check valve assembly.

Ordering & Options

A-100NV 115 VAC/60 Hz Models

Order No.	Max GPD [1]	Max PSI [2]	Tube OD (inch)
A1N10V-4T	4.9	100	1/4
A1N20V-4T	8.0	100	1/4
A1N10V-6T	16.0	100	3/8
A1N20V-6T	24.0	100	3/8
A1N10V-7T	52.5	50	7/16
A1N30V-7T	95.1	50	7/16

A-100NV 220 VAC/50 Hz Models

Order No.	Max [1] ml/min	Max BAR [2]	Tube OD (cm)
A1N11V-4T	13	6.9	0.635
A1N21V-4T	21	6.9	0.635
A1N11V-6T	42	6.9	0.953
A1N21V-6T	63	6.9	0.953
A1N11V-7T	138	3.4	1.11
A1N31V-7T	250	3.4	1.11

1) Maximum liquid output at zero backpressure.
2) Maximum pressure output.

Replacement Pump Tubes

Order No.	Pump Suffix	Tube OD
A-002N-4T	-4T	1/4 inch (0.635 cm)
A-002N-6T	-6T	3/8 inch (0.953 cm)
A-002N-7T	-7T	7/16 inch (1.11 cm)

Replacement Parts

Order No.	Description
A-014N-6A	Injection/Check Valve Assembly for 3/8 in (0.953 cm) OD tubing
C-340A	Strainer/Foot Valve Assembly for 1/4 in (0.635 cm) or 3/8 in (0.953 cm) OD tubing

A-100NE Pumps

Fixed Speed Digital Persitaltic Pumps

Description

A-100NE Series Peristaltic Pumps are loaded with features that make them the ideal choice for a variety of water, wastewater, and industrial chemical metering applications. Most features are shared with the A-100NV, the main difference being that the A-100NE is a fixed speed metering pump with digital timer control.

Digital Timer Control

The A-100NE has four operationg modes including manual on time per cycle adjustment, pulse input batching, 4-20mA on time per cycle adjustment, and 0-10VDC on time per cycle adjustment. The repeating interval on time cycle timer is programmable in seconds, minutes, hours, and days resulting in a near infinite turndown ratio. The 4-20mA on time per cycle adjustment mode allows you to control the cycle adjustment via 4-20mA input signal. The digital interval timer allows you to set up a high frequency of small injections per minute.

Specifications

Max. Working Pressure	100 psig (6.9 bar)
Max. Fluid Temperature	130°F (54°C)
Max. Ambient Temperature	14 to 110°F (-10 to 43°C)
Output Adjustment Range	Adjustable 0.1 to 99 seconds
Duty Cycle	Continuous
Maximum Viscosity	5,000 Centipoise
Maximum Suction Lift	30 ft water, 0 psig
Maximum Solids	50% by volume
Enclosure	NEMA type 3R, (IP23)
Shipping Weight (Approx.)	10 lbs (4.5 kg)
Dimensions	6-1/8 x 10-1/8 x 9 inch (15.6 x 25.7 x 22.9cm)

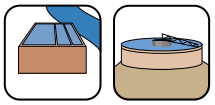
Materials

Same as A-100NV.

Features

- Auto-detects tube failure
- Self priming
- Programmable repeating interval on-time cycle timer
- Digital interval timer for high frequency of small injections per minute

Applications



Ideal for a variety of water, wastewater, and industrial chemical treatment applications.

Ordering & Options

A-100NE 115 VAC/60 Hz Models

Order No.	Max GPD [1]	Max PSI [2]	Tube OD (inch)
A1N10E-4T	4.9	100	1/4
A1N20E-4T	8.0	100	1/4
A1N10E-6T	16.0	100	3/8
A1N20E-6T	24.0	100	3/8
A1N10E-7T	52.5	50	7/16
A1N30E-7T	95.1	50	7/16

A-100NE 220 VAC/50 Hz Models

Order No.	Max [1] ml/min	Max BAR [2]	Tube OD (cm)
A1N11E-4T	13	6.9	0.635
A1N21E-4T	21	6.9	0.635
A1N11E-6T	42	6.9	0.953
A1N21E-6T	63	6.9	0.953
A1N11E-7T	138	3.4	1.11
A1N31E-7T	250	3.4	1.11

1) Maximum liquid output at zero backpressure.

2) Maximum pressure output.

Replacement Pump Tubes

Order No.	Pump Suffix	Tube OD
A-002N-4T	-4T	1/4 inch (0.635 cm)
A-002N-6T	-6T	3/8 inch (0.953 cm)
A-002N-7T	-7T	7/16 inch (1.11 cm)

Replacement Parts

Order No.	Description
A-014N-6A	Injection/Check Valve Assembly for 3/8 in (0.953 cm) OD tubing
C-340A	Strainer/Foot Valve Assembly for 1/4 in (0.635 cm) or 3/8 in (0.953 cm) OD tubing

Flow Verification System

Sensor for Monitoring Chemical Flows

Features

- Detects loss of chemical flow
- Installs directly on A-100NE, A-100NV, and C-1100V metering pumps
- Easy, three-wire connection made in the pump's junction box
- No special connectors to buy and no calibration required

Description

The Micro-Flow Flow Verification System (FVS) can be connected directly to A-100NE, A-100NV, C-1100V, and C3 (pages 96-99) metering pumps to verify that a chemical is actually flowing. The FVS works with the pump's sophisticated electronics to constantly monitor chemical flow. If the chemical should fail to inject, the pump will stop and an alarm relay will close allowing for remote alarm indication or initiation of a back-up injector pump.

Specifications

Max. Working Pressure	150 psig (10.3 bar) @ 70°F (21°C)
Max. Fluid Temp	200°F (93°C) @ 0 PSI
Material	PVDF (Body, Paddle, Axle, Connector)
O-Ring Seals	Viton
Compression Seal to Pump	PVC
Weight	1 lb (0.45 kg) (Approx. Shipping)

Ordering & Options

Order No.	gpd	ml/min
FV-100-6V	11.4 to 114	30 to 300
FV-200-6V	38.0 to 380	100 to 1000
FV-300-6V	76.0 to 760	200 to 2000
FV-400-6V	114 to 1140	300 to 3000
FV-500-6V	190 to 1900	500 to 5000
FV-600-6V	266 to 2660	700 to 7000

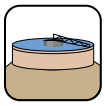
OxiTop-C Advanced BOD Instrumentation

Pressure sensors for BOD testing and measurements.

Features

- Simple operation
- Non-Toxic
- Stores 100 user-defined routine measurements
- User-friendly on screen guidance for easy operation

Applications



Ideal for applications requiring wastewater and water resource management.

Specifications

Measuring principle	Respirometric (manometric)
Measured of	BODn (oxygen drift according to DIN 38409 T 52)
Pressure range	7.25 to 19.5 psi (500 to 1350 hPa(mbar)
Accuracy	± 1% of measured value, ± 7% of measuring range
Resolution	0.015 psi (1 hPa)
Display	LED pilot lamps
Power supply	Lithium batteries (260 mAh), 2 x type CR 2430 (3V)
Battery run time	~ 2 years with normal use
Protection class	3 IEC 1010, EN61010 part 1
Protection type	IP 54 DIN 40050
Admissible measuring temperature	68°F ± 1.8 F (20°C ± 1 C)
Admissible sample temperature (when being filled	59 to 68°F (15 to 20°C)
EMC	Emissions: EN 50081-1, FCC Class A Immunity: EN 50082-2
Climate class	2, VDI/VDE 3540

Description

OxiTop® Control Biological Oxygen Demand (BOD) Instrumentation is an advanced version of the successful OxiTop® BOD Instrumentation system that uses software-controlled functions and an infrared interface to communicate with a handy controller, the OC 100. This BOD instrumentation system enables the simultaneous and grouped start, management, storage and tracking of 100 BOD measuring heads via the controller and allows them to be tracked on a large display with graphic evaluation. BOD measurement data can be transferred to the PC for evaluation and documentation via the AK-540/B cable (order no. 902842) and the communication program Achat OC (order no. 208990).

The Biological Oxygen Demand (BOD) data can be called up at any time, even during sampling, thus enabling checking of the samples for errors. The display of the progress curve allows immediate detection of irregularities and interferences, such as having the BOD value set too high for the volume used or undesired nitrification. BOD measurement corrections can thus be made at an early stage. OxiTop® Control BOD instrumentation offers you simple operation, improved controllability, non-toxicity, and measuring ranges of up to 4,000 mg/l BOD.

Biological oxygen demand (BOD) determination is still one of the most important parameters in water resource management. BOD measurements can be used to evaluate the impact of biodegradable substances in waters and wastewater by measureing the quality of water and treatment results in wastewater. In addition, BOD measurments are used in the planning and design of wastewater treatment facilities. The OxiTop® BOD measurement system offers a unique, modular and mercury-free way to make BOD measurements. It is not only suitable for BOD determination, but also for measuring biodegradability and depletion.

Ambient temperature	Storage: -13 to +149°F (-25 to +65°C) Operation: 41 to 122°F (5 to +50°C)
Test mark	CE, UL, CUL(UL/CSA)
Dimensions	H: 2.8in, dia. 2.8in (70 mm, dia. 70 mm)
Weight	3.4 oz. (95 g)

BOD Instrumentation Controller

Data sets per measurement	180 to 360 (depending on duration)
Measurement period	0.5 hr to 99 days
Power supply	3 AA batteries; alkaline 1.5V
Interface	IR (infrared); RS 232 for communications with PC
Storage Temp	-13 to +149°F (-25 to +65°C)
Operating Temp	41°F to 104°F (5°C to +40°C)
Dimensions (HxWxD)	1.7x3.9x7.9 in (45x100x200 mm)
Weight	Approx. 13.8 oz. (390 g)

Ordering & Options

Order No.	Description
208202 OxiTop® Control 6	BOD Measurement, 6 bottles
208205 OxiTop® Control 12	BOD Measurement, 12 bottles
208990 Achat OC	PC communication program
902842 AK 540/B	Interface Cable

"Whiskey is for drinking; water is for fighting over."

– Mark Twain

OxiTop-IS BOD Measurement Instrumentation

Pressure sensors for BOD testing and measurements.

Description

OxiTop IS 6, IS 12

Measurement using OxiTop® Biological Oxygen Demand (BOD) Instrumentation is based on pressure measurement in a closed system: microorganisms in the sample consume the oxygen and form CO2. This is absorbed by NaOH, creating a vacuum, which can be read directly as a measured value in mg/l BOD.

The sample volume being tested regulates the amount of oxygen available for a complete BOD measurement. BOD measurement ranges of up to 4,000 mg/l can be measured using different sample volumes.

The OxiTop® BOD instrumentation heads (green and yellow for differentiation of inflow/outflow) have an AutoTemp function: if the sample temperature is too cold, the start of BOD measurement is automatically delayed (by at least 1 hour) until a constant temperature has been reached.

Apart from the automatic storage of 5 measured values (1 value per day), further measured BOD values can be read at all times during or after the period of 5 days, which permits the tracking of check values or measurements over longer periods. The OxiTop BOD Instrumentation measurement system also offers simple operation, improved controllability, and non-toxicity.

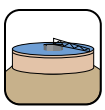
Specifications

Measuring principle	Respirometric (manometric)
Display	2-digit 7-segment LED, 10 mm
Measured parameter	Digits
Measuring range	0 to 40 digits (+10 digits for overranging)
Accuracy	± 0.03 psi (± 2 hPa) or ± 1 digit
Admissible measuring temperature	68°F ± 1.8°F (20°C ± 1°C)
Admissible sample temperature (when being filled	59 to 68°F (15 to 20°C)
Power supply	Lithium batteries (260 mAh), 2 x type CR 2430 (3V)
Power consumption	Max. 25 mA (during measurement)
Battery run time	~ 3 years with normal use
Protection class	3 IEC 1010
Protection system	IP 54 IEC 529
EMC	Emissions: EN 50081-1, FCC Class A Immunity: EN 50082-2, NAMUR recommendation
Climate class	2, VDI/VDE 3540
Ambient temperature	Storage: -13 to +149°F (-25 to +65°C) Operation: 68 ± 1.8 F (20 ± 1 C)
Test mark	CE
Dimensions	H: 2.7in, dia. 2.8in (69 mm, dia. 70 mm)
Weight	Approx. 3 oz. (85 g)

Thermostat Box

Temperature control	68°F ±0.9°F (20°C ±0.5°C)
Ambient temperature	Storage: -13°F to +122°F (-25°C to +50°C) Operation: 50 to 89.6°F (10 to 32°C)
Power consumption	200W
Dimensions	14.76x16.73x23.62 in (375x425x600 mm) (HxWxD)
Weight	Approx. 66.1 lbs. (30 kg)

Applications



Ideal for applications requiring wastewater and water resource management.

Features

- Simple operation
- Non-Toxic
- Stores 100 user-defined routine measurements
- User-friendly on screen guidance for easy operation

Ordering & Options

Order No.	Description
208214 Oxi-Top® IS 6	BOD Measurement, 6 bottles
208215 Oxi-Top® IS 12	BOD Measurement 12 bottles
208433	Thermostat Box

"Man– despite his artistic pretensions, his sophistication, and his many accomplishments– owes his existence to a six inch layer of topsoil and the fact that it rains."

– Unknown