

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.

WQMS Water Quality Monitoring System

System for Monitoring Multiple Water Quality Parameters

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 140 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 sen-

sors, 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' of marine-grade cable, with lengths up to 500' 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 64 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 122). 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.

WQMS Water Quality Monitoring System



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

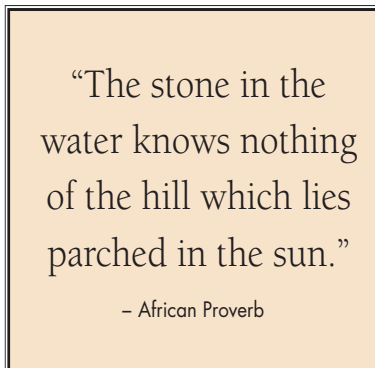
Clock	Synchronizes to user's computer
Operating Temperature	Industrial, -40°C to +85°C (battery may not apply)
Enclosure	Expanded UV protected PVC 9 x 7.5 x 4.5" (23 x 19 x 11 cm)
Battery	12 Volt, 2.2 A/hr, rechargeable (gell cell)
Weight	3.5 lbs (1.6 kg)

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 64 for specifications.



Ordering & Options

Water Quality Monitoring System

Order No.	Description	Price
WQMS *	Water Quality Monitoring System	
WQEXC	Extra Sensor Cable, per foot (up to 500')	

* 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	Price
GL500-Mod	Modem Package	
RM100-CSK	Wireless Communication System Client/Server Kit, see page 122	
WQ720	Turbidity Sensor, see page 66	
WQ600	Redox/ORP Sensor, see page 65	
WL400	Water Level Sensor, see page 6	
RG200	Rain Gauge 6", see page 107	
RG600	Rain Gauge 8", see page 107	
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 122**

SIT65 Satellite Internet Telemetry
Alternate datalogger to easily collect water quality data on the web via satellite Internet. **Page 123**

iRIS320 Remote Datalogger
Alternate datalogger with a GPRS data mode for transmitting data via wireless Internet. **Page 126**