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Кемерово (3842)65-04-62
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Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
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Санкт-Петербург (812)309-46-40
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Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Челябинск (351)202-03-61
Череповец (8202)49-02-64
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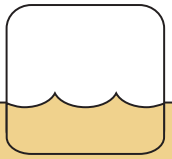
Метеорологические приборы Global Water

Технические характеристики

WE800-900 Weather Stations

Systems for Monitoring Multiple Weather Parameters



Weather Station Installation

Global Water's WE800 and WE900 Weather Stations include full assembly on a sturdy and durable 1inch diameter, 6 ft tall, and 3 ft wide stainless steel tube frame. The Weather Station frame is designed for durability and endurance in harsh conditions. The wind direction and wind speed sensors are coupled to the frame's T-mounting bar, and the temperature and humidity sensors are installed within a solar shield, which includes a stainless steel elbow coupler for easy mounting to the frame. You can mount the weather station frame onto an existing base, or you can select the optional WE830 Weather Station Tripod to set up an upright installation (see Ordering & Options).

The WE770 solar shield is included with the WE800 and WE900 Weather Stations to protect the temperature and humidity sensors. This shield is a ventilated sun shield with high reflectiveness, low heat retention, and low thermoconductivity. Global Water recommends using the shield to protect the temperature and humidity sensors from the sun, as these sensors will not read accurately if exposed to direct sunlight.

Proper siting for your weather station sensors is important to ensure accurate readings. For example, the wind speed and direction sensors should not be installed too close to a building, as turbulence created by the building can interfere with readings. The optional solar radiation sensor should be installed in direct sunlight on a level surface (bubble level and leveling screws are included).

Description

Global Water's WE800 and WE900 Weather Stations are fully assembled, easy to use, and economical systems for monitoring many weather conditions. The WE800 comes integrated with our multichannel datalogger for weather data recording and reporting. The WE900 is a 4-20 mA station that you can easily integrate with your existing data recording or control system. Both systems include four rugged 4-20 mA sensors for measuring wind speed, wind direction, temperature, and humidity. In addition, both systems include a protective solar shield for the temperature and humidity sensors, and a 1 inch stainless steel mounting frame to ensure a sturdy installation. To customize your Weather Station for your application, you can select additional sensors to monitor parameters such as barometric pressure, solar radiation, leaf wetness, evaporation, rainfall, and more.

Rugged Weather Sensors

The Weather Station comes standard with four rugged, 4-20 mA output weather sensors, including our wind speed sensor, wind direction sensor, temperature sensor, and humidity sensor. The sensors' electronics are completely encapsulated in marine-grade epoxy within stainless steel housings. Each precision sensor outputs a 4-20 mA signal. For more information about our sensors, please see the WE550 and WE570 on page 107, and the WE600 and WE700 on page 108.

Smart Datalogger & Software (WE800)

Global Water's WE800 Weather Station includes the GL500 Global Logger, Windows™-based Global Logger II software, Windows™ CE-based PDA software, and a RS-232 cable (for communication between the logger and your computer).

The WE800's datalogger offers state-of-the-art technology for continuous datalogging, storage, and retrieval of weather station information. The logger features 7 analog channels, 2 pulse channels, and both USB and serial communication ports. The durable and powerful datalogger is enclosed within a sturdy weatherproof case. You can view real-time data via the datalogger's screen, or you can download recorded data to your computer (programming and calibration are not required).

The WE800 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 WE800 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.

The WE800's datalogging unit includes a 12VDC 2A-H rechargeable battery for use in remote applications. The data logger will operate for several months before its internal 12VDC battery requires recharging. When used in conjunction with our solar panels and smart charger (see Ordering & Options), the Weather Station's datalogger can be powered continuously. Please see the GL500-7-2 on page 122 for additional information about the datalogger component.

Applications

Ideal for agriculture, education, environmental studies, landfills, reclamation, wastewater facilities, water conservation, and more.

Customize for your Application

To customize your Weather Station, you can select additional components from Global Water's rugged weather line. The WE800's datalogger can accept up to three additional analog sensors and two digital sensors. In addition, we offer solar panels, a smart charger, and a mounting tripod to customize your installation. See the Ordering & Options section below for additional information.

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

WE800

Features

- Monitor wind direction, wind speed, humidity, and temperature, and customize with additional sensors
- Fully assembled, easy-to-use, and economical
- High quality, rugged, industrial grade sensors
- Sensors are fully encapsulated in marine grade epoxy
- Powerful and durable datalogging (WE800)

WE800-900

Specifications

Weather Sensors (WE800 and WE900)

Please see specifications for the WE550 Wind Speed Sensor and the WE570 Wind Direction Sensor on page 107 and for the WE600 Humidity Sensor, WE700 Temperature Sensor, and WE770 Solar Shield on page 108.

Datalogger (WE800)

Please see specifications for the GL500-7-2 Global Logger on page 122.

Analog Sensor Inputs	4-20 mA (0-5VDC as factory option) Resolution: 12-bit, 4096 steps Channels: 7 input channels + battery voltage monitor Sensor Warm-up Time: Programmable, 0-60 sec

Mounting Frame (WE800 and WE900)

Material	Stainless steel tube, 1 inch dia.
Dimensions	6 ft tall x 3 ft wide (1.8x0.9 m)

"Sunshine is delicious, rain is refreshing, wind braces us up, snow is exhilarating; there is really no such thing as bad weather, only different kinds of good weather."

– John Ruskin

Ordering & Options

Weather Stations

Order No.	Description
WE800 [1]	Datalogging Weather Station
WE900 [2]	4-20 mA Weather Station

1) Includes wind speed sensor, wind direction sensor, temperature sensor, humidity sensor, solar shield, mounting frame, datalogger, software, USB cable, and RS-232 cable. Unless otherwise specified, sensors and datalogger will be mounted to mounting frame.

2) Includes wind speed sensor, wind direction sensor, temperature sensor, humidity sensor, solar shield, and mounting frame for integration with existing system. Unless otherwise specified, sensors will be mounted to mounting frame and wires will be terminated inside an included junction box.

Accessories

Order No.	Description
WE830	Mounting Tripod
WE100	Barometric Pressure Sensor, see page 106
WE300	Solar Radiation Sensor, see page 106
WE710	Surface Temperature Sensor, see page 112
LW100	Leaf Wetness Sensor, see page 110
AT210	Soil Moisture Sensor, see page 110
EP180	Evaporation Pan, see page 111
WL400-003-025	Water Level Sensor (3 ft range, 25 ft cable), 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
RM100	Wireless Communication System, see page 126
SIT65	Satellite Internet Telemetry, see page 127

Why Measure Weather?

Why Measure Barometric Pressure?

Barometric pressure sensors, such as Global Water's WE100, measure changes in barometric pressure, which indicate the movement of weather fronts. Low pressure areas have less atmospheric mass above their location, whereas high pressure areas have more atmospheric mass. Similarly, as elevation increases, there is less overlying atmospheric mass, so pressure decreases. Barometric pressure is typically reported in millibars (mbar) or inches of mercury (inHg).

Most weather stations include barometric pressure sensors. Barometric pressure transmitters are also used for ocean buoys, ships, engines, airports, and more. In addition, barometric pressure sensors can be used to ensure accurate water level readings for non-vented water level sensors (for more information, see the sidebar article on page 6).

Why Measure Solar Radiation?

Solar radiation is radiant energy emitted by the sun. Solar radiation drives atmospheric circulation and accounts for almost all of the energy available to the earth. There are two ways solar radiation reaches the Earth: via direct radiation through the atmosphere, and via diffuse radiation that is scattered or reflected to the Earth's surface. Pyranometers like Global Water's WE300 measure the total of direct and diffuse solar radiation.

Solar radiation is monitored for many applications including climate analyses, energy cycle studies, solar energy, photobiological research, and more. Solar radiation is typically expressed

Continued on Next Page . . .

WE100 Barometric Sensor

Rugged Barometric Pressure Transmitter

Features

- Accurate 4-20 mA output
- Marine grade cable with strain relief

Description

Global Water's highly accurate WE100 Barometric Pressure Sensor covers a pressure range from 800 to 1100 mb (23.6 to 32.5 Hg). The transmitter is temperature compensated within an operating range of -40° to 149°F (-40° to 65°C). It 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 two wire configuration, which, like all of our 4-20 mA sensors, is compatible with Global Water's GL500 Global Logger (see page 122) and PC300 Process Controller (see page 132).

Specifications

Output	4-20 mA
Range	800 to 1100 mbar, 23.6 to 32.5 inHg
Accuracy	± 1% full scale
Linearity/Hysteresis	± 0.1%
Operating Voltage	10 to 36 VDC
Current Draw	Same as sensor output
Warm-up Time	3 seconds minimum
Operating Temp	-40 to +131°F (-40 to +55°C)
Sensor Size	3 x 2 x 1 inch (7.6 x 5.1 x 2.5 cm)
Weight	0.13 lb (59 g)

Ordering & Options

Order No.	Description
WE100	Barometric Pressure Sensor (includes 25 ft cable)
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

WE300 Solar Radiation Sensor

Rugged Solar Radiation Transmitter

Features

- Accurate 4-20 mA output
- Marine grade cable with strain relief
- Precision mounting equipment included

Description

Global Water's WE300 Solar Radiation Sensor is a precision pyranometer that uses a high stability silicon photovoltaic detector (blue enhanced) to obtain accurate readings. The WE300 includes a bubble level, leveling screws, and mounting hardware for a quality installation. The sensor is attached to electronics by 10 ft of cable, and the electronics are attached to 25 ft of marine grade cable, with lengths up to 500 ft available. To ensure moisture protection, you can enclose the sensor and electronics in a protective housing. The sensor's output is 4-20 mA with a two wire configuration.

Specifications

Detector	High-stability silicon photovoltaic detector (blue enhanced)
Output	4-20 mA
Range	0 to 1500W/m²
Spectral Response	400 to 1100 nm
Accuracy	± 1% full scale
Operating Voltage	10 to 36 VDC
Current Draw	Same as sensor output
Warm-up Time	3 seconds minimum
Operating Temp	-40 to +131°F (-40 to +55°C)
Sensor Size	3 inch dia. x 1½ in long (7.6 cm dia. x 3.8 cm long)
Weight	0.25 lb (114 g)

Ordering & Options

Order No.	Description
WE300	Solar Radiation Sensor (includes 25 ft cable)
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

WE550 Wind Speed Sensor

Rugged Wind Speed Transmitter

Features

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

Description

Global Water's highly accurate WE550 Wind Speed Sensor is constructed of high-impact materials, ensuring its durability and ruggedness even in severe weather conditions. The sensor has a very low threshold, so it responds accurately to subtle changes in wind speed. The sensor is molded 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 two wire configuration. The unit's electronics are completely encapsulated in marine grade epoxy within a rubber sleeve.

Specifications

Type	Three cup anemometer
Threshold	<=3 mph (1.35 m/s)
Output	4-20 mA
Range	0 to 110 mph (0 to 50 m/s)
Accuracy	0.2 mph over the range 11 to 55 mph (0.09 m/s from 4.9 to 24.6 m/s)
Operating Voltage	10 to 36 VDC
Current Draw	Same as sensor output
Warm-up Time	3 seconds minimum
Operating Temp	-40 to +131°F (-40 to +55°C)
Sensor Size	7 inch dia. x 8½ inch (18 cm dia. x 21.6 cm tall)
Weight	1 lb (0.5 kg)

Ordering & Options

Order No.	Description
WE550	Wind Speed Sensor (includes 25 ft cable)
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

WE570 Wind Direction Sensor

Rugged Wind Direction Transmitter

Features

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

Description

Global Water's highly accurate WE570 Wind Direction Sensor is designed to accurately measure wind direction even in the harshest environments. The WE570 is molded to 25 ft of marine grade cable, with lengths up to 500 ft available upon request. The unit's electronics are completely encapsulated in marine grade epoxy within a rubber sleeve. The output is 4-20 mA with a two wire configuration, which is compatible with Global Water's GL500 Global Logger (see page 122 and PC300 Process Controller (see page 132).

Specifications

Type	Wind vane with potentiometer
Output	4-20 mA
Range	0 to 360° (352° electrical, 8° open)
Sensitivity	1 m/s (2.2 mph)
Accuracy	1% full scale
Operating Voltage	10 to 36 VDC
Current Draw	Same as sensor output
Warm-up Time	3 seconds minimum
Operating Temp	-40 to +131°F (-40 to +55°C)
Sensor Size	8½ inch dia. x 10½ inch (21.5 cm dia. x 26.7 cm)
Weight	1 lb (0.5 kg)

Ordering & Options

Order No.	Description
WE570	Wind Direction Sensor (includes 25 ft cable)
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

. . . Continued from Previous Page

in watts per square meter (W/m^2) or joules per square meter (J/m^2).

Why Measure Wind Speed/Direction?

Wind speed and direction are determined by air pressure gradients, or the regions between weather fronts, as air moves in the direction of a low pressure system. The steeper the gradient, the stronger the wind. In addition, wind speed and direction are determined by many other factors including the Coriolis effect, friction, and land topography. In the US, wind speed is typically reported in meters per second or miles per hour. For shipping or boating, wind speed can be reported in knots (a knot equals one nautical mile per hour or approximately 1.15 miles per hour). Wind direction is always stated as the direction the wind is coming from. For example, a wind out of the east is given as an east wind, with a wind direction of 90 degrees.

Wind speed sensors, such as Global Water's WE550, and wind direction sensors, such as Global Water's WE570, are used for many applications, including: meteorology, aviation, shipping, industry, construction, and more. Specifically, wind speed and direction data are often used to predict weather forecasts, determine the safety of operating mechanical equipment like cranes and lifts, estimate the efficiency of wind power generation, safely operate ships and aircraft, and control odor from wastewater treatment and landfill sites.

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Why Measure Relative Humidity?

Air moisture content is typically described by a relative humidity measurement. Relative humidity is the ratio of the water vapor content in the air to the highest possible concentration of water vapor that the air can hold. A reading of 100 percent relative humidity means that the air is totally saturated with water vapor and cannot hold any more, creating the possibility of rain. The amount of water vapor that the air can hold increases with temperature, therefore relative humidity will decrease with increasing temperature if the actual amount of water vapor stays the same.

Relative humidity can cause effects such as discomfort in people and animals, damage of materials in storage facilities, reduced production capacity, impact on quality of construction materials, and more. Relative humidity readings made by instruments such as Global Water's WE600 allow people to prepare for and control these effects.

Why Measure Temperature?

Air temperature is measured for numerous applications. Temperature is affected by solar radiation, latitude, the movement of air masses, solar radiation, and nearby bodies of water or land. Temperature is measured in degrees Celsius or Fahrenheit. To accurately measure temperature, a temperature sensor like Global Water's WE700 should be shielded from direct sunlight and precipitation and should be adequately ventilated.

WE600-700 Humidity & Temperature Sensors

Rugged Humidity and Temperature Transmitters with Solar Shield

Features

- Accurate 4-20 mA output
- Marine grade cable with strain relief
- Fully encapsulated electronics
- Protective solar shield optional (WE770)

Specifications

WE600 Humidity Sensor

Type	Capacitance
Output	4-20 mA
Range	0 to 100% RH
Accuracy	± 2% RH
Operating Voltage	10 to 36 VDC
Current Draw	3mA plus sensor output
Warm-up Time	3 seconds minimum
Operating Temp	-40 to +131°F (-40 to +55°C)
Sensor Size	1-1/8 inch dia. x 7 in long (2.9 cm dia. x 18 cm)
Weight	0.5 lb (227 g)

WE700 Temperature Sensor

Type	Precision RTD
Output	4-20 mA
Range	-58 to +212°F (-50 to +100°C)
Accuracy	±0.2°F (±0.1°C)
Operating Voltage	10 to 36 VDC
Current Draw	Same as sensor output
Warm-up Time	5 seconds minimum
Sensor Size	3/4 inch diameter x 4-1/2 inch (2 cm diameter x 11.4 cm)
Weight	0.5 lb (227 g)

WE770 Solar Shield

Size	4 inch diameter x 8-1/2 inch (10 cm diameter x 21.6 cm)
Weight	1 lb (454 g)

Description

Global Water's WE600 Humidity Sensor and WE700 Temperature Sensor are precise, durable instruments. The electronics for both sensors are completely encapsulated in marine grade epoxy and enclosed within stainless steel housings. The WE600 Humidity Sensor is composed of a solid state capacitive element with a linear amplifier. The WE700 Temperature Sensor is precision RTD calibrated to US National Standards. Both sensors have a 4-20 mA output, the humidity sensor with a three wire configuration, and the temperature sensor with a two wire configuration. Each sensor is mounted on 25 ft of marine grade cable, with lengths up to 500 ft available upon request.

Our WE770 Solar Shield is a ventilated sun shield with high reflectiveness, low heat retention, and low thermoconductivity. The unit is designed to protect the humidity and temperature sensors from direct sunlight, which may affect the accuracy of the sensor output.

Ordering & Options

Order No.	Description
WE600	Humidity Sensor (includes 25 ft cable)
WE700	Temperature Sensor (includes 25 ft cable)
WE770*	Solar Shield
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

* We recommend the purchase of a Solar Shield with purchase of a humidity and/or temperature sensor.

RG200 Tipping Bucket Rain Gauge

Rugged 6 inch Plastic Rain Gauge for Monitoring Rainfall

Description

Global Water's RG200 Tipping Bucket Rain Gauge is a durable, accurate instrument constructed of high impact UV-protected plastic. With minimal care, the reliable, low-cost RG200 will provide many years of service. The RG200 is simple to use, ensuring trouble-free operation. For each 0.01 inch or 0.25 mm of rainfall through the RG200's 6 inch orifice, the rain gauge's sensor mechanism activates a sealed reed switch that produces a contact closure. The RG200 is shipped complete with mounting brackets and 50 ft of two-conductor cable.

To add recording capabilities to the RG200, select Global Water's GL500-2-1 (see page 123). The GL500-2-1 datalogger connects to the rain gauge's pulse output to record data. We also offer the RG700 Pulse to Current Converter Module (see Ordering & Options) so that you can convert the rain gauge's pulse output to a current output for use with your 4-20 mA recording system. This module converts 32 pulses per minute to 20mA. For an industrial heavy-duty rain gauge, see the RG600 below.

Features

- Constructed of high impact UV-protected plastic
- Reliable and highly accurate
- Simple to operate
- Durable and low-cost

Specifications

Capacity	Unlimited
Accuracy	3% up to 4 in/hr
Dimensions	6 x 15 inches (15 x 38 cm)
Weight	3 lbs (1.4 kg)

Ordering & Options

Order No.	Description
RG200	Tipping Bucket Rain Gauge, 6 inch
RG700	Pulse to Current Converter Module (4-20 mA Output)
GL500U-2-1	USB Global Logger, see page 123
GL500S-2-1	RS-232 Serial Global Logger, see page 123

RG600 Heavy Duty Rain Gauge

Rugged 8 inch Aluminum Tipping Bucket Rain Gauge for Monitoring Rainfall

Features

- Constructed of anodized aluminum
- Reliable, highly accurate, and simple to operate
- Rugged and long lasting

Specifications

Capacity	Unlimited
Accuracy	±1% at 1 inch per hour
Average Switch Closure Time	135 ms
Maximum Bounce Settling Time	0.75 ms
Maximum Switch Rating	30 VDC @ 2A, 115 VAC @ 1 A
Operating Temperature	32 to +123.8°F (0 to +51°C)
Dimensions	10-1/8 x 8 inches (26 x 20 cm)
Weight	8 lbs (3.6 kg)

Description

Global Water's RG600 Heavy Duty Tipping Bucket Rain Gauge was designed by the National Weather Service to provide a low-investment, reliable, industrial tipping bucket rain gauge. This durable instrument will provide many years of service with minimal care. The RG600's design ensures a trouble-free operation and accurate rainfall measurements. For each 0.01 in or 0.25 mm of rainfall through the RG600's 8 inch orifice, the rain gauge's sensor mechanism activates a sealed reed switch that produces a contact closure. The unit is shipped complete with mounting brackets and 60 ft of two-conductor cable. It can be pole mounted or bolted to a level plate.

For a heated rain gauge, select the AC powered RG650 (see Ordering & Options). To add recording capabilities to the RG600, select Global Water's GL500-2-1 Global Logger (see page 123). The GL500-2-1 datalogger connects to the rain gauge's pulse output to record data. We also offer the RG700 Pulse to Current Converter Module (see Ordering & Options) so that you can convert the rain gauge's pulse output to a current output for use with your 4-20 mA recording system. This module converts 32 pulses per minute to 20mA.

Ordering & Options

Order No.	Description
RG600	Tipping Bucket Rain Gauge, 8 inch
RG650	Heated Tipping Bucket Rain Gauge, 8 inch
RG700	Pulse to Current Converter Module (4-20 mA Output)

LW100 Leaf Wetness Sensor

Transmitter for Leaf Moisture and Rainfall

Features

- Monitor leaf wetness and detect rainfall
- Easy to install within plants
- Durable and reliable

Description

The LW100 Leaf Wetness/Rainfall Sensor can be used to monitor leaf moisture and detect rainfall. The sensor is easy to install directly within a plant: simply hang the sensor within the plant from its cable at the location where leaf wetness needs to be monitored. The angle of the sensor should be set to approximately the same angle as that of the leaves that are being monitored. The sensor has 25 ft of cable and a 0-5 VDC output that is compatible with our WE800-900 Weather Stations (see page 104) and the GL500-2-1 Global Logger (see page 123).

Specifications

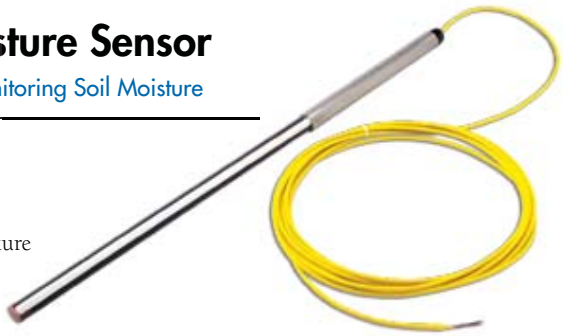
Power Requirements	12 VDC @1.0 mA
Output	0 to 5 VDC
Instrument Connections	Black: Ground Red: +12VDC Brown: Signal Out 0 to 5 VDC
Size	3 x 5.5 inches (7.6 x 14.0 cm)
Shipping Weight	2 lbs (907 g)

Ordering & Options

Order No.	Description
LW100	Leaf Wetness/Rain Sensor (includes 25 ft cable)
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

AT210 Soil Moisture Sensor

Accurate Transmitter for Monitoring Soil Moisture



Description

Global Water's AT210 Soil Moisture Sensor provides reliable and accurate soil moisture monitoring for applications including bioremediation, wastewater reclamation, landfill management, and agriculture. The AT210 sensor measures the dielectric constant of the soil, which is directly related to the water content of the soil. The sensor uses time domain reflectometry (TDR) for direct soil moisture measurement.

Flexible Installation and Measurements

When installed vertically, the sensor can be used to obtain average moisture readings throughout a soil column. When installed horizontally, the sensor can be used to measure moisture at a specific soil depth.

Datalogging and Control

The soil moisture sensor has a high-level 4-20 mA output signal for direct interface with a variety of control, datalogging, and telemetry systems. Global Water offers remote monitoring and control products with exceptional capabilities, such as the GL500 Global Logger for data recording (see page 122) and the PC300 Process Controller for controlling external devices (see page 132). In addition, Global Water's WQ101 Temperature Sensor (see page 60) can be used in conjunction with the Soil Moisture Sensor to enhance systems monitoring plant growth and controlling bioremediation.

Specifications

Output	4-20 mA
Range	0 to 100% saturation
Accuracy	± 2%
Power Requirements	12 VDC ± 20% @ 40 mA
Operating Temperature	-40 to +131°F (-40 to +55°C)
Sensor Size	3/4 inch diameter x 30-1/2 inch long (2 cm dia. x 77.5 cm)
Weight	2.5 lbs (1.1 kg)

Features

- Reliable and accurate
- High-level output signal to connect to datalogging and control instruments
- Install vertically for average moisture of soil column
- Install horizontally to monitor moisture at a specific soil depth

Applications

Ideal for bioremediation, wastewater reclamation, landfill management, agriculture, and more.

Ordering & Options

Order No.	Description
AT210	Soil Moisture Sensor (includes 25 ft cable)
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

You may also like . . .

GL500-2-1 Datalogger
Add recording capabilities to the AT210.
Page 122

EP180 Evaporation Pan

Stainless Steel Class A Evaporation Pan with Drain Plug and Stilling Well

Description

Global Water's EP180 Evaporation Pan is a rugged stainless steel pan for measuring daily evaporation. The EP180 is built to be compatible with all standard National Weather Service evaporation pan measurements: it is 10 inch deep and has an inside diameter of 47½ inch. It is a Class A pan that features a drain plug and an attached stilling well. The EP180's stilling well supports easy installation of a low-range water level sensor, such as Global Water's 3 ft WL400 (see page 6) or 3 ft WL16 (see page 2).

Global Water offers a range of water level sensors, water temperature sensors, weather sensors, and datalogging capabilities to complete your evaporation monitoring system (see the Ordering & Options section on this page).

Features

- Rugged stainless steel pan
- Compatible with standard National Weather Service measurements
- Use with our sensors and dataloggers to establish a complete monitoring system

Applications

Ideal for daily evaporation monitoring, water spills, tank failures, pump failures, rising water, floods, and more.

Specifications

Construction	Low carbon stainless steel passivated after welding, heliarc welded
Size	47.5 inch dia. x 10 in deep (121 cm dia. x 24 cm deep)
Weight	48 lbs (22 kg)

You may also like . . .

WL16 Water Level Logger
Monitor the level of water in your EP180.
Page 2

Rain Gauges
Account for precipitation in your evaporation measurements.
Page 109

Ordering & Options

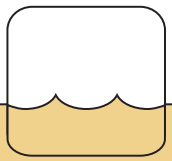
Evaporation Pan*

Order No.	Description
EP180	Evaporation Pan

* Price does not include motor freight shipping charges. Please call Global Water for additional information.

Accessories

Order No.	Description
WL400-003-025	Water Level Sensor (3 ft range, 25 ft cable), see page 6
WL16U-003-025	USB Water Level Logger (3 ft range), see page 2
WL16S-003-025	Serial Water Level Logger (3 ft range), see page 2
RG200	Tipping Bucket Rain Gauge, 6 inch, see page 109
RG600	Tipping Bucket Rain Gauge, 8 inch, see page 109
GL500-7-2	9 Channel Global Logger, see page 122
GL500U-2-1	3 Channel USB Global Logger, see page 123
GL500S-2-1	3 Channel Serial Global Logger, see page 123
WE800	Datalogging Weather Station, see page 104
WE900	4-20 mA Weather Station, see page 104



Measuring Evaporation

Pan evaporation is a measurement that combines or integrates the effects of several climate elements: temperature, humidity, solar radiation, and wind. Evaporation is greatest on hot, windy, dry days; and is greatly reduced when air is cool, calm, and humid.

Evaporation can be measured with several different devices, but evaporation amounts measured with one device are not usually comparable with measurements from other devices. The National Weather Service measures evaporation using a standard evaporation pan called a Class A pan.

A Class A evaporation pan, like Global Water's EP180, is a cylindrical pan with a depth of 10 inches and an inside diameter of 47½ inches. The pan is typically installed on a carefully leveled, wooden base and is often enclosed by a chain link fence to prevent animals from drinking the pan's water.

Evaporation is measured daily as the depth of water evaporates from the pan. The measurement day begins with the pan filled to exactly two inches from the top. After 24 hours, the pan is again filled to exactly two inches from its top.

If precipitation occurs in the 24-hour period, this is taken into account in calculating evaporation. Sometimes precipitation is greater than evaporation, and measured increments of water must be dipped from the pan.

WE710 Surface Temperature Sensor

Flat Surface Temperature Sensors for Remote Monitoring

Features

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

Applications

Ideal for many applications including, pipe temperature monitoring, solar panel temperature, water tanks, control panels, battery monitoring, and many others.

Specifications

WE710 Surface Temperature Sensor

Type	100ohm Platinum Class A RTD
Output	4-20 mA
Range	-58 to +185°F (-50 to +85°C)
Accuracy	±0.5°F (±0.25°C)
Sensing Surface	0.75x1.5 inch (19x38 mm) Aluminum
Adhesive	3M #4910 Acrylic
Operating Voltage	10 to 36 VDC
Current Draw	Same as sensor output current
Warm-up Time	3 seconds minimum
Storage Temp	-67 to +195°F (-55 to +90°C)
Housing	2.0x1.1x3.8 inch (5x2.8x9.7 cm)(WxHxL) ABS
Weight	13 oz (368 g) with 25 ft of cable

Description

The Global Water Surface Temperature Sensors are high quality, rugged instruments with a precision RTD calibrated to US National Standards. The sensor's output is 4-20 mA with a two wire configuration. Each of the sensors is mounted on 25 ft of marine grade cable, with lengths up to 500 ft available upon request. The surface temperature sensor's electronics are completely encapsulated in marine grade epoxy within an ABS plastic housing.

Ordering & Options

Order No.	Description
WE710	Surface Temperature Sensor (includes 25 ft cable)
WQEXC	Extra Sensor Cable, per foot (up to 500 ft)

"The frog does not drink up the pond in which he lives."

– American Indian Saying

Why Measure Solar Panel Temperature?

Solar panels are made up of solar cells which convert light into electricity that can be used to power many items ranging from handheld devices to supplementing the main power grid. Power is measured in watts or kilowatts. To generate kilowatts single solar panels are set up in large arrays. In most cases it is important to monitor and estimate the amount of power being provided by the solar panels, especially when connected to a main power grid.

Solar panels operate over a wide range of voltages and currents which determine the power output. As a panel's temperature increases, its output current increases exponentially while the voltage output is reduced linearly. This property means that the warmer the panel the less power is output. The power loss is dependent on the type of panel being used. For example, many common crystalline silicon solar panels can lose power at a rate of 0.50%/°C, while high efficiency solar cells lose power at a rate of 0.35%/°C. In an industry that focuses on cost per amount of generated power it is important to know when a solar panel is performing poorly.

Solar panel temperature can be monitored with flat surface temperature sensors like the WE710. These sensors are mounted on each panel or on selected representative panels to provide temperature profiles of a solar panel array. Each sensor provides data to the overall monitoring system allowing staff to be notified in advance of potential power output issues caused by changes in a solar panel's temperature.

TLC 730 Handheld Infrared Thermometers

Handheld Digital Infrared Thermometer for Field Measurements

Description

The The TLC 730, Handheld Infrared Thermometers function as non-contact infrared and contact thermometers. The user can always toggle between the thermometer's two operating modes. Additionally the instrument has a dual laser pointer that helps the user aim the temperature sensor at the target when they are making measurements.

Non-contact Measurements

The ideal distance in most applications for the digital infrared thermometers is from 2 to 4 inches (5 to 10 cm), measuring a 0.8-2.5 inch (2 to 6.3 cm) diameter circle. As the distance from the object increases, the spot size of the area measured by the thermometer becomes larger. Make sure that the target is larger than the spot size. The smaller the target, the closer you should hold the instrument to it. When accuracy is critical, make sure the target is at least twice as large as the spot size.

Infrared thermometer emissivity

Inaccurate readings will result from using the handheld digital infrared thermometers to measure shiny or polished metal surfaces like stainless steel or aluminum. To compensate, cover the surface to be measured with masking tape or flat black paint. Allow time for the tape to reach the same temperature as the material underneath it. Use the infrared thermometer to measure the temperature of the tape or painted surface. When measuring a grill, for example, aim the instrument at a portion of the grill that has been blackened by the high temperatures. The thermometers cannot measure through transparent surfaces such as glass or plastic. It will measure the surface temperature of the transparent surface instead. Steam, dust, smoke, etc., can prevent accurate measurement by obstructing the unit's optics. Hold the unit back and at an angle to ensure the most accurate measurements.

NOTE: When measuring liquid products, be sure to stir the product vigorously while using the thermometer to measure the surface of the liquid. Note: DO NOT submerge instrument in water.

Applications

Ideal for fast, simple temperature measurements of liquids, motors, pipes, food, storage containers, received goods, supermarket areas, kitchens, and refrigerated rooms..

Specifications

Measuring Range	-58 to +662°F (-50 to +350°C)
Infrared Accuracy	-58 to -22.2°F (-50 to -30.1°C): ±7.2°F (±4.0°C) -22 to -0.58°F (-30 to -18.1°C): ±4.5°F (±2.5°C) -0.4 to +31.8°F (-18 to -0.1°C): ±2.7°F (±1.5°C) 32 to 148.8°F (0 to 64.9°C): ±1.8°F (±1.0°C) 149 to +662°F (65 to 350°C): ±3.6°F (±2.0°C) or 2% of reading whichever is greater
Contact Probe Accuracy	±1.4°F over the range -0.4°F to +248°F (±0.8°C over the range -18°C to +120°C) and 1% for the rest of the measuring range
Resolution	0.1°F (0.1°C)
Operating temp	-13 to +122°F (-25 to +50°C)
Storage temp	-40 to +158°F (-40 to +70°C)
Measuring cycle	Infrared: 0.7s, Probe: 1s
Emissivity	0.1 to 1.0 adjustable
Alarm settings	Yes, optical and accoustic
Battery	2 x AAA
Battery life	approx. 15 hrs continuous use (automatic shutoff after 15 sec)
Optics	8:1
Laser Pointer	2 lasers equal the measured area
IP Rating	IP 55
Sensor Size	6.5x1.8x0.78 in (165 x 45.4 x 19.7 mm)
Weight	3.1 oz. (97 g)

Features

- Non-contact surface temperature measurement with infrared
- Dual laser pointer for measuring spot
- Core temperature measurement with fold-back probe
- C°/F° switchable
- Fast, easy measuring

Ordering & Options

Handheld Infrared Thermometer

Order No.	Description
TLC 730	Handheld Infrared Thermometer

"A lake is the landscape's most beautiful and expressive feature. It is Earth's eye; looking into which the beholder measures the depth of his own nature."

– Henry David Thoreau

RG333 Rain Gauge

Auto-Drain Rain Gauge

Features

- Easy to operate
- Automatically empties every 24 hours
- Minimal maintenance
- Manual mode

Description

Global Water's RG333 Portable Auto-Drain Rain Gauge is a durable weather instrument for monitoring total rainfall. The rain gauge is appropriate for a variety of applications, including stormwater runoff monitoring, rainfall monitoring studies, and soil moisture studies. With minimal care, the RG333 will provide many years of service. The unit's simple and precise design assures trouble-free operation and accurate rainfall measurements. The rain gauge can be pole mounted using its included mounting hardware. Our larger rain gauges are presented on page 109.

Applications

Ideal for stormwater runoff monitoring, rainfall monitoring studies, soil moisture studies, and more.

Specifications

Accuracy	1/20th of an inch
Capacity	5 in (12.7 cm) of rainfall
Power	2 AA batteries
Dimensions	Mounting Plate: 11 x 5 inch (28 x 13 cm) Tube Depth: 10 inch (25.4 cm) Funnel Diameter: 1-3/4 inch (4.5 cm)
Weight	1 lb (454 g)

Ordering & Options

Order No.	Description
RG333	Portable Auto-Drain Rain Gauge

TFH 610 Handheld Hygrothermometers

Digital handheld hygrothermometer pen for rapid humidity and temperature measurements.

Description

The TFH 610, handheld hygrothermometer, is a robust and impact resistant field meter that will allow you to measure relative humidity and temperature simultaneously. The unit is highly accurate and comes with a factory calibration certificate. The instrument's large LCD shows both humidity and temperature readings at the same time. You can choose to have it display either °C or °F. In addition to having a battery charge indicator, the hygrothermometers have an automatic shutoff feature to preserve battery power.

Alarm function

The TFH 610, handheld digital hygrothermometer is able to send a visible alarm when the humidity value is outside a desired range specified by you. In this case an alarm bell symbol blinks on the hygrothermometer's screen. The symbol continues to blink until you acknowledge the instrument's alarm.

Applications

The TFH 610, handheld digital hygrothermometer has many applications including field measurements, manufacturing, computer rooms, laboratory, storage, and environmental control.

Applications

Ideal for portable humidity and temperature measurements in music rooms, record storage facilities, libraries, book stores, freezers, and more.

"A rainy day is the perfect time for a walk in the woods."

– Rachel Carson

Features

- Robust and impact resistant
- Factory calibration certificate
- Battery charge indicator
- High accuracy
- Switchable between °C/°F
- Automatic shutoff

Specifications

Humidity	Range: 0 to 100% rH Resolution: 0.1% Accuracy: ± 2.5% rH (from 10 to 90%)
Temperature	Range: 32 to 122°F (0 to 50°C) Resolution: 0.1°F or °C Accuracy: ±0.9°F or ±0.5°C
Sensor Type	Capacitive (Humidity), Thermistor(Temperature)
Operating Temp	32 to 122°F (0 to 50°C)
Storage Temp	-13 to 140°F (-25 to 60°C)
Number of Measuring Channels	2
Measuring Rate	1-15 sec
Power	Lithium button cells, 3.0 V, 1000 mAh
Battery Life	up to 5 years
Housing Material	ABS
Dimensions	4.5x 2.1 x 0.9 inch (115 x 54 x 22mm)
Weight	2.9oz (90g)
IP rating	IP 40
Certifications	CE

Ordering & Options

Order No.	Description
TFH 610	Handheld Hygrothermometer
AH 600	Calibration Kit: Includes 11.1% rH, 52.7% rH, 75.4% rH calibration standards, complete with case.

RH520A Paperless Chart Recorder

Humidity and Temperature Chart Recorder with Graphical and Digital Display

Description

The RH520A Paperless Humidity/Temperature Chart Recorder provides a cost effective recording method that eliminates the need for replacement chart paper and pens. The chart recorder can simultaneously display humidity with temperature or dew point, date/time, min/max, alarm status, and percentage of memory remaining. You can set the vertical and horizontal graphical resolution of the display.

Capable Data Recording

The paperless chart recorder can store up to 49,000 temperature and humidity readings with date/time stamps for later transfer to a PC. This means that you can monitor for over 30 days at 1 minute intervals. You can also easily program the RH520A to monitor at the recording interval of your choice. The chart recorder includes software that allows you to download, analyze, and store data using a Windows™ platform PC.

Convenient Alarming

The RH520A has user programmable high and low alarm limits that trigger a built in audible alarm. The unit will display alarm status, and you can easily jump to previous alarm events.

What's in the Box

The RH520A comes complete with chart recorder, stand, detachable humidity/temperature probe with 3 ft (1m) cable, software, RS-232 cable, 110VAC adaptor, and 3 AA batteries. You can easily mount the chart recorder to either the wall or onto a desk. We offer a replacement Humidity/Temperature Probe (Order No. RH522), which does not require recalibration. In addition, you can select an optional relay module (Order No. SL123 or SL124) to trigger external alarms. See Ordering & Options below for additional information.

Specifications

Relative Humidity Range	10.0 to 95.0%
Temperature Range	-20.0 to 140.0°F (-28.0 to 60.0°C)
Accuracy	±3% Relative Humidity ±1.8°F/±1°C
Power	Three AA batteries (included)
Dimensions	5 x 7.7 x 0.9 inch (129 x 195 x 22mm)
Weight	12.6 oz (357g)

Features

- Paperless datalogging
- Graphical and digital display
- 49,000 reading internal memory
- Total monitoring and alarm system
- RS-232 PC interface

Applications

Ideal for monitoring in laboratories, clean rooms, process conditions, freezers, storage areas, and other critical environments.

Ordering & Options

Paperless Chart Recorder

Order No.	Description
RH520A	Paperless Humidity/Temperature Chart Recorder

Accessories

Order No.	Description
RH522	Replacement Humidity/Temperature Probe
SL123	AC Alarm Relay Module, 9 ft (3m) cable
SL124	DC Alarm Relay Module, 9 ft (3m) cable

WALARM Wind Alarm

Wind Alarm Controller

Features

- Rugged
- Dual set point alarms
- Dual warning lights

Description

The WALARM is a dual set point controller enclosed in a weathertight polycarbonate case. It includes a wind speed sensor, a sensor stubmast, and mounting hardware and can be used to alert you of high or low wind speeds. The WALARM is accurate to ± 2 mph (0.89 m/s) and operates on 12 volts DC, with an AC adaptor optional.

You can easily set the controller's two wind alarm levels with the front panel thumbwheels. When wind speed achieves the first alarm setting, a yellow warning light illuminates and one internal SPDT relay activates. When the wind speed achieves the second setting, a red light illuminates, a 90dB piezo buzzer sounds, and the second internal SPDT relay is activated.

Applications

Ideal for monitoring wind conditions for cranes, water fountains, and other wind sensitive applications.

Specifications

Accuracy	± 2 mph
LED Window	2 digits, 1 x 1 inch window
Cup Type	3 cup generator type
Cable	22 AWG, 2-conductor, Non-PVC jacketed, 60 ft included (NOTE: Sensor will operate on up to 500ft of 22 AWG wire.)
Input Voltage	12VDC, AC adaptor available as an option
Alarm Output	2 SPDT Outputs, Yellow LED, 90dB Piezo Buzzer, Red LED
Dimensions	6.3 x 4.72 x 3.29 inch (16 x 12 x 8.4 cm)
Weight	4.3 lbs (2 kg)

Ordering & Options

Order No.	Description
WALARM*	Wind Alarm Controller
EC0500	AC Power Option

* Specify units when placing order: mph, km/h, or knots.

407119 Hot Wire Anemometer

Portable Air Flow Meter for Air Velocity and Temperature Measurements

Features

- Measure air velocities as low as 40 feet per minute
- Telescoping probe is ideal for use in ducts and ventilating systems
- Measure air flow plus temperature simultaneously
- Instantaneous or average readings
- Data hold with automatic power off
- Optional datalogger and software
- CE compliant

Ordering & Options

Hot Wire Anemometer

Order No.	Description
407119	Hot Wire Anemometer

Accessories

Order No.	Description
140001	Hard Vinyl Carrying Case
156119	AC Adapter, 117VAC
156221	AC Adapter, 220VAC
380340	Datalogger
407001	Data Acquisition Software

Description

The 407119 Hot Wire Anemometer accurately measures air flow and temperature, and displays these measurements on a large LCD screen. The meter has a telescoping probe that extends up to 3 ft (940 mm) and is ideal for measuring air flow in ducts and ventilating systems.

Advanced Features

The 407119 anemometer can measure air velocity in either cubic feet per minute or cubic meters per minute. It can accurately measure air velocities as low as 40 feet per minute. The meter has a 20 point averaging feature, and it can record and recall both minimum and maximum readings. It also has a data hold feature and automatically shuts off after 15 minutes of inactivity.

Datalogging Capabilities

The meter has a built-in RS-232 PC serial connection so that you can interface with an optional datalogger using optional data acquisition software.

The optional datalogger (Order No. 380340) can record up to 8,000 readings with a selectable sampling rate from 1 second to 99 hours.

Using the optional data acquisition software (Order No. 407001), you can capture, display, and store the datalogger's readings onto a PC. The software will also allow you to set the anemometer's sampling time from 1 second to 60 minutes and export data to a standard spreadsheet program. Please see the optional datalogger and data acquisition software in Ordering & Options.

Applications

Ideal for measuring air flow in ducts and ventilating systems.

Specifications

Air Flow	Range: 0 to 1,271,200 ft³/min (0 to 36,000 m³/min) Resolution: 0.01 to 100 cfm (0.001 to 1 cmm) Area: 0.01 to 322.91ft² (0.001 to 30.0 m²)
Air Velocity	Range: 40 to 3346 ft/min (0.2 to 17.0 m/s) Resolution: 1 ft/min (0.1 m/s) Accuracy: ±(5% + 100 digits) ft/min [±(5% + 5 digits) m/s]
Air Temperature	Range: 32° to 122°F (0° to 50°C) Resolution: 0.1°F (0.1°C) Accuracy: ± 1.5°F (0.8°C)
Display	Dual function 5-digit LCD
Measurement Units	Air Velocity: m/s, km/h, ft/min, knots, mph Air Flow: cmm (m³/min) and cfm (ft³/min) Temperature: °C and °F
Data Hold	Freezes displayed reading
Sampling Rate	Display update rate,1 second (approx.)
Sensors	Air velocity and temperature sensors: thermistor type
Max/Min Memory	Record and view Maximum and Minimum readings
Average Feature	Averages up to 20 readings
Auto Power Off	After 15 minutes
Data Output	RS-232 PC serial interface with 16-bit data stream output
Operating Temp	32° to 122°F (0° to 50°C)
Operating Humidity	Max. 80% RH
Power Supply	Four (4) 'AA' 1.5V batteries or optional AC adaptor
Power Current	70mA DC (approx.)
Weight	1.15 lbs (521g) meter only with batteries installed
Dimensions	Main instrument: 7.9 x 3.0 x 1.5 inch (200.0 x 76.2 x 36.8mm) Telescoping Sensor: 0.5 inch dia. (12.7mm dia.); 8 inch (260mm) min. length; 37 inch (0.94m) max. length; with 5.5 ft (1.7m) cable

45158 Handheld Anemometer

Water Resistant Pocket Air Velocity Meter

Description

The 45158 Handheld Anemometer is reliable and accurate instrument for measuring air velocity, temperature, and humidity. It has a low-powered LCD that displays air velocity and either relative humidity, dew point, temperature, or wind chill. The meter measures temperature and windchill from 0 to 122°F (-18 to 50°C). You can select from a variety of air velocity measurement units, including: ft/min, mph, m/s, km/h, Knots, and Beaufort Force.

Durable Fold-Up Housing

The meter has a fold-up housing for protective storage that extends to 9 inches (23 cm) for better reach. The housing is water resistant, floats, and is drop tested from 6 ft (1.8 m).

Powerful Features

The 45158 Handheld Anemometer lets you select between 5 or 10 second averaging intervals. It also has a maximum recall function that recalls the highest reading and a data hold feature that freezes the most recent display. In addition, the 45158 has an auto shutoff function that powers the device off 20 minutes after the last key is pressed.

Options to Meet Your Needs

The 45158 Handheld Anemometer allows you to measure both temperature and humidity, in addition to air velocity. For only temperature and air velocity measurements, we offer the 45118 Handheld Anemometer. Both meters use replaceable non-corrosive plastic impellers to measure air velocity. Spare impeller assemblies are available (Order No. 45116). For convenient carrying, select the small anemometer case (Order No. 409992). For additional information, see Ordering & Options below.

Specifications

Wind Speed	Range: 1.1 to 62.5 mph (1.8 to 100.6km/h) Resolution: 0.2 mph (0.7km/h) Accuracy: ± (3% + 0.4 mph) [± (3%+1.4km/hr)]
Temperature	Range: 0 to 122°F (-18 to 50°C) Resolution: 0.1°F/C Accuracy: ±1.8°F (± 1°C)
Relative Humidity	Range: 10 to 95% Resolution: 1% Accuracy: ± 5% RH
Dew Point	Range: 32 to 122°F (0 to 50°C) Resolution: 0.1°F/C Accuracy: ± 3.6°F (2°C)
Display	Dual LCD with low battery and multifunction indicators
Sensors	Sapphire bearing, non-corrosive vane for air velocity Precision thermistor for temperature measurements
Average Mode	Choice of 5 or 10 reading averaging (2 second factory default)
Max and Data Hold Displays	Max recalls the highest reading; Data Hold freezes the display
Sample Time	1 reading per second for air velocity and temperature (1 reading per 15 seconds for humidity with 2 second updates)
Water-Resistant	To 3 ft (1m)
Operating Conditions	5 to 122°F (-15 to 50°C) / < 80% RH
Power Supply	Lithium battery (CR-2032 or equivalent)/400 hr life
Dimensions	Handheld Anemometer: 5.25 x 2.75 x 0.75 inch (133 x 70 x 19mm) Anemometer Impeller: 1 inch dia. (24mm dia.)
Weight	3 oz. (95 g)

Features

- Display air velocity and either relative humidity, dew point, temperature, or windchill
- Selectable averaging functions of 5 or 10 seconds
- Replaceable plastic anemometer
- Water resistant housing that floats
- Data hold with automatic power off
- CE compliant

Applications

Ideal for handheld storm monitoring, wind tunnel calibration, cross-checking permanent weather stations, and more.

Ordering & Options

Handheld Anemometers

Order No.	Description
45158	Handheld Anemometer for Wind Speed, Temperature, and Humidity Measurements
45118	Handheld Anemometer for Wind Speed and Temperature Measurements

Accessories

Order No.	Description
45116	Spare Anemometer Impeller Assembly
409992	Small Anemometer Carrying Case

"Weather forecast for tonight: dark."

– George Carlin

EBI 20 Temperature/Humidity Dataloggers

Compact, powerful and easy to use temperature and humidity dataloggers.

Features

- Programmable sampling rate from 1sec to 24 hrs plus Hi/Lo limits with alarm indication
- 8,000 readings with time and date stamp
- Min/Max values on display
- Waterproof (EBI 20 T only)
- CE compliant

Applications

Ideal for monitoring in clean rooms, refrigerators, freezers, shipping crates, cargo vessels, warehouses, storage areas, and other critical environments.

"We let a river shower its banks with a spirit that invades the people living there, and we protect that river, knowing that without its blessings the people have no source of soul."

– Thomas Moore

Description

The EBI 20 temperature\humidity dataloggers are convenient measuring and recording instruments for temperature and relative humidity. The dataloggers have a large display panel (LCD), are operated with a lithium battery and are programmed by using a PC. A datalogger interface is required, along with the Winlog basic software, to program the dataloggers. The interface is connected to the PC by a Universal Serial Bus (USB) cable for convenience.

Optical alarm

The EBI 20 temperature\humidity dataloggers can be programmed so that they signal an optical alarm when the measured value for the temperature or relative humidity deviates from the range (upper and lower limit value) set during programming. In this case the word "Alarm" appears at the top of the datalogger's display panel and a red LED will flash if it was programmed to.

Specifications

Temperature measuring range	-22 to 140°F (-30 to +60°C)
Humidity measuring range (EBI 20 TH only)	0% to 100% rH
Temperature accuracy:	±0.9°F (-4 to +104°F) (±0.5°C (-20 to +40°C)) ± 1.5°F (± 0.8°C) for remaining measuring range
Humidity accuracy (EBI 20 TH only)	+ 3% rH (10 to 90% rH)
Memory	8,000 values
Sensor	NTC for temperature/capacitive humidity sensor (EBI 20 TH only)
Operating temperature	-22 to +140°F (-30 to +60°C)
Storage temperature	-40 to +158°F (-40 to +70°C)
Measuring rate	1 min to 24 h
Measuring mode	Immediate loop measurement, measurement from starting point, start immediately until memory full, start/stop measuring, start when button pressed
Battery	3V lithium (CR2450), replacable
Battery life	At least 2 years (at 15min measuring rate @ 77° F (25°C))
Protection class	IP 67/52 (EBI 20 TH)
Housing	ABS
Dimensions	2.7x1.9x0.9in (69x48x22mm)
Weight	1.5oz (45g)

Ordering & Options

Datalogger Kits

Order No.	Description
EBI-20-T-Set	Temperature Datalogger Kit. Includes EBI-20-T datalogger, Winlog.basic software, EBI-20 interface, and USB cable.
EBI-20-TH-Set	Temperature/Humidity Datalogger Kit. Includes EBI-20-TH datalogger, Winlog.basic software, EBI-20 interface, and USB cable.
EBI-20-T	Temperature Datalogger NOTE: The Temperature Datalogger cannot function without software and interface station.
EBI-20-TH	Temperature/Humidity Datalogger NOTE: The Temperature/Humidity Datalogger cannot function without software and interface station.
EBI-20-IF	Temperature/Humidity Datalogger Interface Station Required to program EBI-20 Temperature/Humidity Dataloggers.

"Rainbows apologize for angry skies."

– Sylvia Voirol

EBI 85 and EBI 125 Temperature Data Loggers

Waterproof temperature data loggers for remote monitoring.

Description

The programmable EBI-85 and EBI-125, temperature data loggers are easy to handle and have many applications. With the temperature data logger you can measure and store up to 18,000 temperature values with a sample setting from one second to 8 hours per reading. The sampling rate (interval) and ambient temperature have influence on the life span of the battery. For example at 77 °F (25 °C) if the temperature data logger is set to sample once every second the internal batteries will last about one year, however if the temperature data logger is set to sample once an hour the batteries will last eight year. The EBI-85 temperature data logger measures up to 185°F (85°C), while the EBI-125 measures up to 257°F (125°C). To program the temperature data loggers the user needs the WINLOG 2000 software and the EBIAE-S temperature data logger interface.

Specifications

Sensor	Pt 1000
Measuring range with internal temperature sensor	EBI-85 A: -40 to +185°F (-40 to +85°C) EBI-125 A: -40 to +257°F (-40 to +125°C) Continuous operation: -40 to +257°F (-40 to +125°C) Up to 3 hours: at 266°F (130°C) Up to 1 hour: at 284°F (140°C)
Operating temperature	EBI-85 A: -40 to +185°F (-40 to +85°C) EBI-125 A: -40 to +257°F (-40 to +125°C)
Storage temperature	EBI-85 A: -40 to +185°F (-40 to +85°C) EBI-125 A: -40 to +257°F (-40 to +125°C)
Sampling rate	1 s to 8 h
Resolution	0.1°F (0.1°C)
Accuracy	+0.5°F (+ 0.3°C)
Channels	1
Storage memory	approx. 18,000 values
Data output	M-BUS
Battery	lithium 3.6 V
Life span of battery	5 to 8 years depending on sample interval
Casing	Stainless-steel with PEEK ring
Max pressure abs	20 mbar to 20 bar
Protection class	IP 68
Dimensions	Height 1.1 in (28 mm), Diameter 1.9 in (48 mm)
Weight	approx. 3.5 oz (100 g)

Applications

The EBI-85 and EBI-125, temperature data loggers, have many applications including stream, river, or lake temperature measurements, temperature recording for process monitoring, monitoring autoclaves and temperature chambers, process validation, temperature monitoring during transport, temperature monitoring in laboratories with explosion hazards, and many more.

Ordering & Options

Datalogger Kits

Order No.	Description
EBI-85 A-OE-Set	Temperature Data Logger Kit. Includes EBI-85 A-OE data logger, Winlog.standard software, EBI-85 interface, and USB cable.
EBI-125 A-OE-Set	Temperature Data Logger Kit . Includes EBI-85 A-OE data logger, Winlog.standard software, EBI-85 interface, and USB cable.
EBI-85 A-OE	Temperature Data Logger
EBI-125 A-OE	Temperature Data Logger
EBI-AE-S	Temperature Data Logger Interface Station Interface-Set includes USB for EBI-85 and 125 (without Software).
EBI-WINLOG 2000-S	Temperature Data Logger Software Software (Standard Version).

Features

- Completely waterproof
- Temperature resistant up to +284°F (+140°C)
- Stainless steel housing
- Standard logger with eyelet for mounting

Applications

Ideal for monitoring in clean rooms, refrigerators, freezers, shipping crates, cargo vessels, warehouses, storage areas, and other critical environments.

"Water is the one substance from which the earth can conceal nothing; it sucks out its innermost secrets and brings them to our very lips."

– Jean Giraudoux

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