



Badger Meter

PQ-200w Water Quality Tester

With PQ Monitor App

OVERVIEW

The PQ-200w water quality tester delivers water quality data in virtually any location or environment without the prep work typically needed to conduct water testing. This solution uses an all-inclusive cartridge that eliminates the need for cumbersome reagents and solutions and provides multiparameter testing of potable source water. See [“Compatible Test Fluids” on page 2](#). Using solid-state silicon sensors, PQ-200w water quality tester technology provides a low-cost solution that improves reliability, electronic read-out and overall data accuracy.

DESCRIPTION

PQ-200w Water Quality Tester and PQ Monitor App

The PQ-200w water quality tester is a compact, lightweight mobile device designed for automated water quality analysis. The tester requires a cartridge, a sample vial and a waste vial. Every cartridge ships with a new set of vials. See [“Cartridge” on page 2](#) for more information.

The device has a patented amperometric technology with ion-selective electrodes (ISE) using electrical properties for best accuracy and repeatability. Just fill the sample vial and insert it to receive fast, accurate, real-time water quality data at the push of a button.

All data is measured and recorded by the PQ-200w water quality tester and is available in the PQ Monitor app. On-device storage makes sure test data is retained until connected with the app, providing test accessibility in more locations.

Since fluctuations in water quality parameters affect multiple parameters simultaneously, the seamless data collection of the PQ-200w water quality tester provides a more informative snapshot of water quality with up to 23 parameters representing physical, disinfection, nitrification, hardness and corrosive properties. See [“Measured Chemical Parameters” on page 4](#).

You can manually run a test even when not connected to the PQ Monitor app or the internet using the button on the device.

NOTE: User and location data will not be saved for the test if not connected to the app or internet.

Hardware

The PQ-200w water quality tester consists of two parts that easily connect without tools.

- The tester instrument includes the microprocessors, electronics, pump, motors and battery.
- The replaceable sensor cartridge has fully automatic calibration and automatic handling. The cartridge includes the sample vial, waste vial, microfluidics, sensors, memory, calibrants and buffers. The microfluidics consist of a ten-port valve, mixing chamber, sensor die and reference electrode.



Software

App-driven smart phone interface pairs with Android or iOS for automatic data logging, transmission and storage of all measured data, including time and location.

The PQ Monitor mobile app requires
Android OS 13 and above or iOS 14 and above.

Features

- Control button with status indicating RGB LED.
- PQ-200w water quality tester auto-calibrates daily to make sure the device is ready to go for the next day's tests.
- UV-shielded sample bottle protects water samples from chloride degradation that quickly occurs when exposed to sunlight.
- Each cartridge has shelf life and capacity. See [“Cartridge” on page 2](#) for complete information.
- PQ-200w water quality tester provides the most accurate test possible. Each cartridge is factory calibrated and will not operate once it has reached the end of its shelf life unlike some other tests on the market.
- No maintenance, reagent handling or hazardous materials.
- USB charging port with LED indicator. 4 hour charging time.
Best Practice: Plug the device in each night to recharge.
- Bluetooth® 4.2 LE remote connectivity.
- Mobile app smart phone interface.

IMPORTANT

As with other electronic devices, avoid leaving the tester in a vehicle for extended periods of time as outside temperatures can be potentially damaging to electronics. Also take care not to drop the device or let it fall onto a hard surface.

APPLICATIONS

With the PQ-200w water quality tester, you can validate in situ water quality equipment or perform ad hoc testing in the field and test water without the prep work.

- Fill the sample vial, insert it into the tester, press a button and it will do the rest.
- Sync the tester with your mobile device's Bluetooth for instant data transmission.
- Conduct testing in virtually any location or environment.

Testing

Typically, each test takes 15...20 minutes and can easily be run in your vehicle as you travel between test sites. You can initiate testing via the on-device button or via the PQ Monitor app over Bluetooth. When initiated from the PQ Monitor app, the app GPS tags the location where testing was initiated. On-device storage makes sure that test data (up to 150 tests depending upon test cartridge capacity) is retained until connected with the app, providing test accessibility in more locations.

NOTE: The tester has no built-in display. The PQ Monitor app is required to retrieve and view data. The cartridge has onboard storage for holding the data.

Compatible Test Fluids

The PQ-200w water quality tester uses microfluidics (nanotechnology) to deliver best-in-class water quality testing. This technology is not compatible with fluids that could clog the sensor circuitry.

OK For Testing	NOT OK for Testing
✓ Potable drinking water	✗ Wastewater process
✓ Raw water / well water	✗ Carbonated or soapy solutions
✓ Reclaimed water	✗ Juices or other sugar-based solutions
✓ Water from hydronic cooling / heating loops	✗ Any water solutions with suspended particulates (unless filtered with a 50-micron filter)
✓ Runoff water if filtered with a 50-micron filter (example: agriculture, storm)	

CARTRIDGE

Three cartridge options are available.

- 23-parameter cartridge
- 13-parameter cartridge
- 8-parameter cartridge

As described in the table on the right, each tester cartridge will operate in accordance with the product specifications until one of the conditions has been met:

	23 parameter	13 parameter	8 parameter
Number of Tests	100	100	150
Number of Cartridge Calibrations¹⁻²	30	30	45
Shelf Life	up to 45 days	up to 45 days	up to 60 days

¹ Cartridge activation starts after the device's first calibration, which is initiated by the Customer on the PQ Monitor app or by manually pressing the tester button as described in the procedure on the tester status card that is included with the product in the shipping box.

² Assumes one calibration is performed each day (default product setting). Multiple calibrations per day will reduce cartridge life.

NOTE: To have the full 30 or 45 days of use, you must start using the cartridge within 2 weeks of shipment from the factory.

Cartridge Includes:

- Sample vial
- Waste vial
- Microfluidics
- Sensors
- Memory
- Calibrants
- Buffers



The test data (up to 150 tests) is stored in the cartridge memory before it is transferred to the PQ Monitor app.

The replaceable sensor cartridge requires no maintenance. Each cartridge ships with a return label for easy recycling.

CALIBRATION

Each cartridge is factory calibrated and will not operate once it has reached the end of its shelf life, unlike competitive color key systems that will function past expiration with less accurate results.

There are no subjective color wheels to interpret or errors due to transcribing data. All data is measured and recorded by the PQ-200w water quality tester and is available in the PQ Monitor app.

After initial calibration, the device will auto-calibrate daily at a time you set in the PQ Monitor app. Default calibration time in the app is set to 6 a.m.* to make sure the device is ready to go each day.

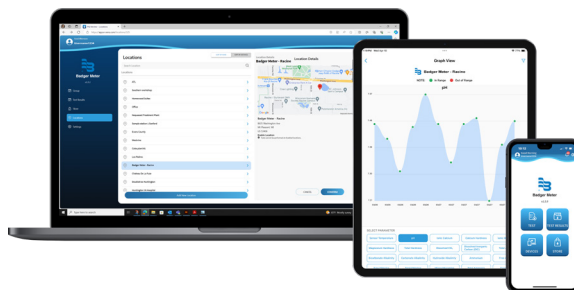
* Local time based on the last sync with mobile device.

DATA-DRIVEN MANAGEMENT

Results are transmitted to any mobile device and uploaded to your servers for consistent, long-term analytics. Instant alerts and notifications are provided in real time with the PQ Monitor app.

Collected data integrates with the user's Lab Information System and provides

- historical data record
- full-featured analytics
- compliance alerts



The PQ-200w cloud-based data system is accessed through a standard web browser. The tester delivers secure data uploads, data integrity and privacy with automatic data logging and encryption.

User logins provide secure access privilege levels (administrator, manager, tester).

PART NUMBERS

Part Number	Description
54-0059	PQ-200w replacement protective case
59-0001	PQ-200w cartridge only - 8 parameters
59-0003	PQ-200w cartridge only - 13 parameters
59-0002	PQ-200w cartridge only - 23 parameters
60-0079	Tester only
60-0080	Testing device + 8-parameter cartridge
60-0082	Testing device + 13-parameter cartridge
60-0081	Testing device + 23-parameter cartridge
90-0038	PQ-200w carrying case

SPECIFICATIONS

PQ-200w Water Quality Tester	Specifications
Operating & Storage Temperature	35.6...104 °F (2... 40 °C)
Accuracy	±10% or a specific value (parameter dependent)
Materials	Aluminum base with plastic cartridge
IP Rating	IP66 dust and water resistant
Power	USB charging port with LED indicator
Battery	Rechargeable 24.4Wh (6600mAh) Li-ion battery (standard USB-C charging cable)

DIMENSIONS

PQ-200w Water Quality Tester	Length	Width	Height	Weight
Tester Instrument	6-1/2 in. (15.2 cm)	3-3/4 in. (7.6 cm)	1-7/8 in. (2.5 cm)	1 lb 10 oz (0.74 kg)
Sensor Cartridge	5-1/2 in. (12.7 cm)	3-3/4 in. (7.6 cm)	2-5/8 in. (5.1 cm)	12 oz (0.34 kg)
Complete Unit (Tester & Cartridge)	10 in. (25.4 cm)	3-3/4 in. (7.6 cm)	2-5/8 in. (5.1 cm)	2 lb 6 oz (1.08 kg)

MEASURED CHEMICAL PARAMETERS

Parameters		Cartridge options			Units	Operating Range	Accuracy (greater of the two)		MDL*
		23	13	8					
Physical	Sample Temperature	■	■	■	°C	2.0 ... 45.0	± 1 °C	n/a	2.0 °C
	pH	■	■	■	—	5.00...11.00	± 0.1 pH	n/a	n/a
	ORP	■	■	■	mV	-1000...2000 mV	± 10%	n/a	n/a
	Conductivity	■	■	■	µS/cm	50...2500 µS/cm	± 10%	± 20 µS/cm	50 µS/cm
	Total Dissolved Solids (TDS)	■	■	■	mg/L	25...1250 mg/L	± 10%	± 10 mg/L	25 mg/L
Disinfectants/Nitrification	Free Chlorine	■	■	■	mg/L Cl ₂	0.07...5.00 mg/L	± 10%	± 0.10 mg/L	0.07 mg/L
	Monochloramine	■	■	■	mg/L Cl ₂	0.07...5.00 mg/L	± 10%	± 0.10 mg/L	0.07 mg/L
	Total Chlorine	■	■	■	mg/L Cl ₂	0.07...5.00 mg/L	± 10%	± 0.10 mg/L	0.07 mg/L
	Ammonium	■	■		mg/L N-NH ₃	0.07...5.00 mg/L	± 10%	± 0.20 mg/L	0.07 mg/L
	Free Ammonia	■	■		mg/L N-NH ₃	0.07...5.00 mg/L	± 10%	± 0.20 mg/L	0.07 mg/L
	Total Ammonia	■	■		mg/L N-NH ₃	0.07...5.00 mg/L	± 10%	± 0.20 mg/L	0.07 mg/L
	Chlorine to Ammonia Ratio	■	■		—	0.01...100.00	± 10%	± 0.5	n/a
	Nitrification Capacity	■	■		mg/L N-NO ₃	0.05...10.0 mg/L	± 10%	± 0.20 mg/L	0.05 mg/L
Hardness	Calcium Hardness	■			mg/L CaCO ₃	5...1000 mg/L	± 10%	± 10 mg/L	5 mg/L
	Total Hardness	■			mg/L CaCO ₃	5...1000 mg/L	± 10%	± 10 mg/L	5 mg/L
	Ionic Calcium	■			mg/L Ca	3...400 mg/L	± 10%	± 5 mg/L	3 mg/L
	Dissolved Carbon Dioxide	■			mg/L CO ₂	0.05...50 mg/L	± 10%	± 1 mg/L	0.05 mg/L
	Total Alkalinity	■			mg/L CaCO ₃	10...325 mg/L	± 10%	± 10 mg/L	10 mg/L
	Bicarbonate Alkalinity	■			mg/L CaCO ₃	10...325 mg/L	± 10%	± 10 mg/L	10 mg/L
Corrosion	Langelier Saturation Index	■			—	-10...10.00	0.20	n/a	n/a
	Ryznar Stability Index	■			—	0...12.00	0.20	n/a	n/a
	Dissolved Inorganic Carbon	■			mg/L CO ₂	1...200 mg/L	± 10%	± 1 mg/L	1 mg/L
	Aggressive Index	■			—	7.00...15.00	± 0.20	n/a	7.00

* Method Detection Limit (lowest readable value)

CARTRIDGE DISPOSAL

Mailing labels are provided for the return of cartridges to the product manufacturer for proper disposal. Customer is responsible for proper disposal of the cartridge in accordance with all Federal, State and Local regulations. Safety data sheet ships with the product and is available from the product manufacturer upon request.

ADDITIONAL RESOURCES

Go to badgermeter.com to find these related documents:

PQ-200w Water Quality Tester Quick Start Guide

PQ-200w Water Quality Tester Status Quick Reference Guide

PQ-200w Water Quality Tester Warranty

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