SP510 HARDNESS MONITOR

Maximise your softener cycle time and minimise your regeneration cost.

The Hach SP510 Hardness Monitor is reliable, accurate, and virtually maintenance free. It can operate unattended for two months and still promptly and immediately signal hardness breakthrough to activate regeneration. Use it to make water softening systems more efficient and less costly.

Continuous hardness detection

The SP510 monitor detects hardness breakthrough when the capacity of a water softener is exhausted, immediately signaling the need for regeneration. Alarm points are 0.3, 1, 2, 5, 10, 20, 50, and 100 ppm (expressed as mg/L of $CaCO_3$) and are selected by choosing the appropriate model. Easy to read LED indicators show a simple "HARD" or "SOFT" sample status. You can also use SP510's built-in alarm relay to actuate an external annunciator.

Low maintenance requirements

The SP510 samples water every two minutes, operating automatically for up to 60 days. It is virtually maintenancefree, requiring only about 15 minutes every two months to replenish and standardise the reagents. Replace tubing in the pump system every six months.

Convenient, trouble-free operation

The SP510 monitor makes your water softening system more eBcient and less costly. It eliminates the guesswork so your softener is regenerated only when needed. Regeneration based on calculation or set times can be replaced with continuous monitoring and automatic control, lowering reagent consumption.

Rugged, lightweight, and self-contained

The SP510 case is made of ABS plastic which is lightweight, corrosion-resistant, and shatterproof. This sealed case is IP62-rated and has a hinged door for easy access to internal components.

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Technical Data*

Measuring range	Hardness levels: 0.3, 1, 2, 5, 10, 20, 50, 100 ppm (expressed as mg/L CaCO$_3$)		**Alarm**	2 consecutive cycles above set point activate alarm. 1 cycle below set point cancels alarm. Alarm type: LED indicators, Hard or Soft
Accuracy	±25% of set point value			
Repeatability	±10 % of set point value in 0.3 – 2 mg/L ranges; ± 4 % of set point value in 5 - 100 mg/L ranges		**Material**	ABS plastic, large plastic windows to view alarm and reagents level
			Enclosure waterproof rating	IP62
Operating humidity	5 - 95%, non-condensing		**Mounting**	Wall mount
Operating temperature range	5 - 40 °C		**Power requirements (Voltage)**	115/230 V AC
Storage conditions	-40 - 60 °C		**Power requirements (Hz)**	50/60 Hz
Measurement method	Colorimetric			
Light source	LED with peak wavelength of 610 nm		**Maintenance interval**	Standardise and replenish reagents every 2 months using EDTA or high-level sample Replace pump tubes every 6 months
Cycle time	1.9 minutes (60 Hz) or 2.3 minutes (50 Hz), selectable			
Flow rate	50 - 500 mL/min		**Certifications**	NRTL certified to UL and CSA standards, and CE approved
Sample pressure	0.07 - 0.34 bar (0.10 bar is optimum) Sample conditioning: 0.10 - 5.17 bar		**Dimensions (H x W x D)**	419 mm x 318 mm x 178 mm
Fitting	Inlet: ¼-in. OD tube quick-disconnect fitting Outlet: ½-in. ID flexible hose		**Weight**	11.3 kg
Reagent consumption	500 mL each indicator and buffer every two months			
Output	1 SPDT relay			

Subject to change without notice.
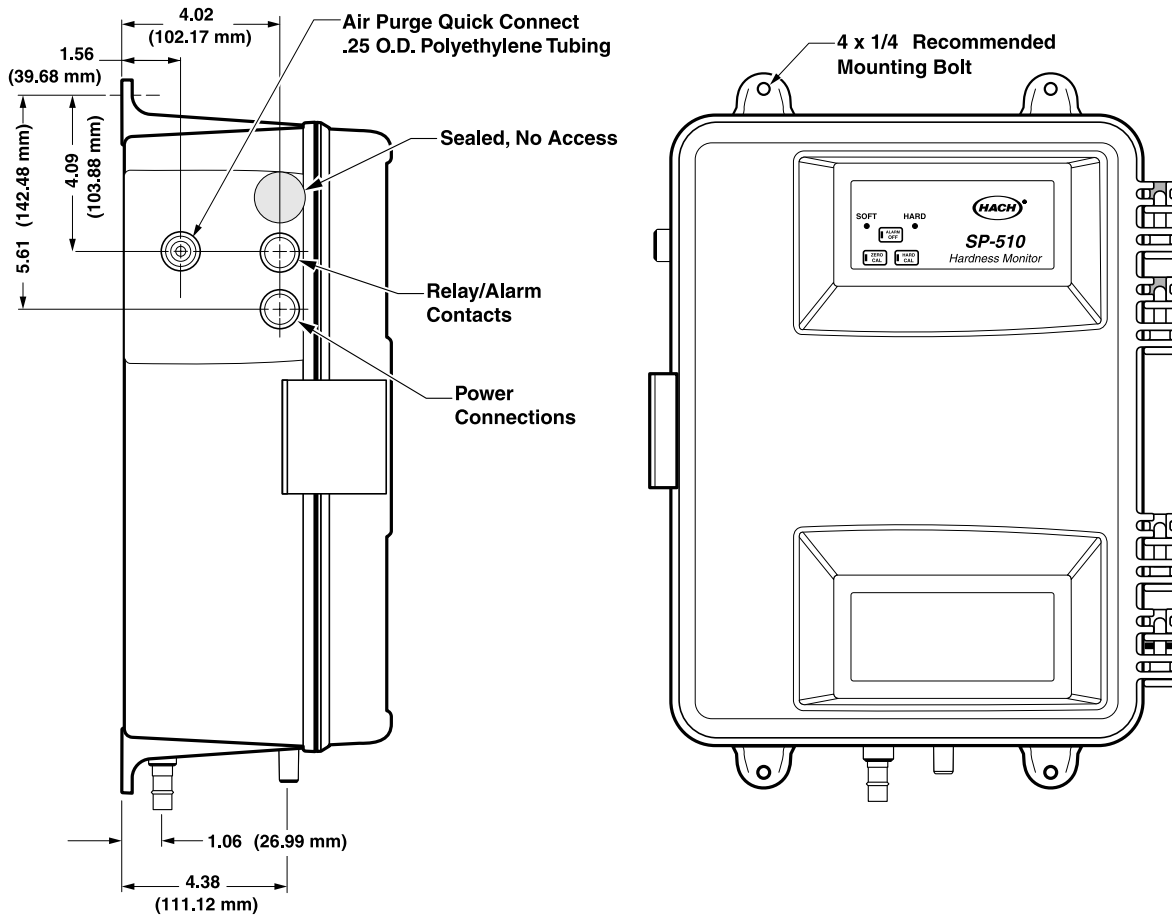
Principle of Operation

The SP510 Hardness Monitor consists of five main components - a linear peristaltic pump, an electronic control panel, a colorimeter with a solid-state mixing system, a two month supply of Hach reagents, and a corrosion-resistant case.

- *A linear peristaltic pump/valve module is the heart of the SP510 monitor. This module precisely controls flow of the incoming sample, meters reagents and sample, and injects them into the sample cell.*

- *Following injection, a magnetic stirrer mixes the sample and reagents in the cell, causing colour development to take place.*

- *Light transmittance through the sample is then measured photometrically.*

- *A new sample is introduced and an analysis performed every two minutes. A hard water condition is indicated by the "HARD" LED display. Two consecutive "HARD" readings are required (over a span of approximately four minutes) before the alarm circuit is activated - eliminating alarms caused by momentary fluctuations. One "SOFT" indication is required before an alarm is canceled.*

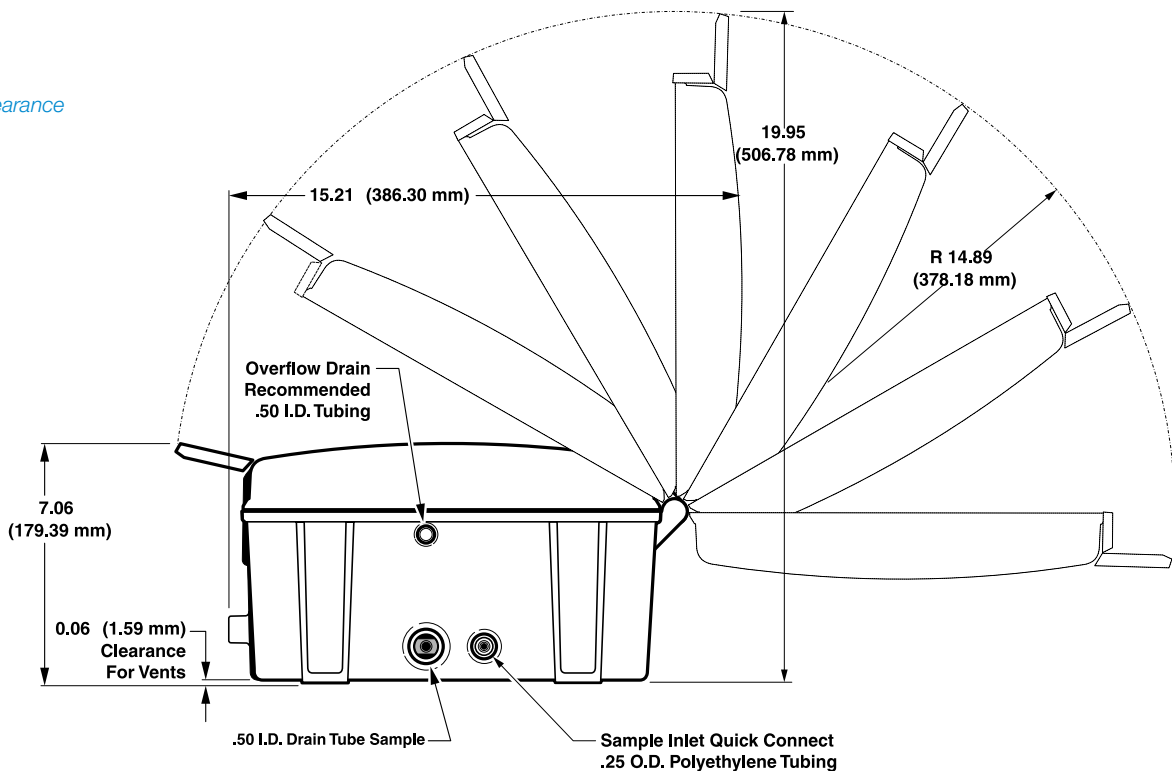- *A SPDT relay in the instrument can be configured to trigger remote alarms or drive regeneration controls.*

Dimensions

The Hach SP510 Hardness Monitor is designed to be wall-mounted with four ¼-inch screws. Adequate clearance must be leftat the sides and bottom of the case for plumbing and electrical connections. The sample inlet connection is ¼-inch quick-disconnect fitting and the drain connection is ½-inch flexible hose. Electrical connections are made inside the instrument case. Holes for two ½-inch conduit fittings are provided.

Side and Front

Bottom and Clearance

Order Information

Instrument

5410003	SP510 Hardness Monitor with 0.3 mg/L trip point
5410001	SP510 Hardness Monitor with 1 mg/L trip point
5410002	SP510 Hardness Monitor with 2 mg/L trip point
5410005	SP510 Hardness Monitor with 5 mg/L trip point
5410010	SP510 Hardness Monitor with 10 mg/L trip point
5410020	SP510 Hardness Monitor with 20 mg/L trip point
5410050	SP510 Hardness Monitor with 50 mg/L trip point
5410099	SP510 Hardness Monitor with 100 mg/L trip point

The Hach SP510 Hardness Monitor includes: installation kit, maintenance kit (stirring bar, strainer, spare tube assemblies, shut-off valve) and two-month supply of reagents.

NOTE: When choosing the appropriate model/trip point, the alarm trip point selected should be 40 to 50% higher than the normal effluent hardness. Please contact Hach for assistance in ordering the SP510 Hardness Monitor that is appropriate for your application.

Accessories and Replacement Parts

4630800	Power cord, 220 V AC
5516500	Maintenance kit
5411900	Pump motor assembly
5516200	Colorimeter flow cell assembly
6865600	Stir bar

Buffer and Indicator Reagents

Buffer	Indicator	Trip Point
2768549	**2794649**	0.3 mg/L
2768549	**2769049**	1 mg/L
2768549	**2769149**	2 mg/L
2768549	**2769249**	5 mg/L
2768649	**2769249**	10 mg/L
2768749	**2769249**	20 mg/L
2768849	**2769249**	50 mg/L
2768949	**2769249**	100 mg/L

Buffer and Indicator are sold separately. All orders are for 2-month supply.

Be certain in your measurements with a first class Service Partner. Be confident with Hach Service.

By having regular on-site preventative maintenance and calibration, you maximise your measurement reliability and instrument uptime. Hach Service Programs give you full assurance that your instruments stay in compliance, and you stay within your budget.

Start-Up:
Commissioning will ensure you get the best performance from your instrumentation from the first day you use it.

Service Agreements:
Hach offers a wide range of service agreements that can be tailored to you to help maximise your measurement reliability and instrument uptime.

Contact us to get a service offering designed for you.

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