

# Hach Sigma SD900 Indoor Refrigerated Sampler

## Features and Benefits

### Easy to Use

The simplified keypad with intuitive icons and scrolling menu on the Hach Sigma SD900 Indoor Refrigerated Sampler assures easy setup. Program set up, even for first time users, is typically less than two minutes. Large keys accommodate gloved hands. Color coded power/stop buttons are easy to identify. The large, 5-line, transreflective LED backlit display stays readable in bright or subdued lighting.

### Reduced Maintenance

The SD900 sampler also offers reduced maintenance. Extended pump tubing life reduces maintenance costs and pump downtime. The rugged, see-through pump cover stands up to daily use and makes visual inspection and troubleshooting quick and convenient. The desiccant tube—mounted on the side of the controller—and the pump tubing are readily accessible and can be changed in minutes (versus other desiccant chamber designs which require disassembly to reach the desiccant).

### Reliable Peristaltic Pump Technology

The strong pump draw and spring loaded rollers ensure that large particulates will not interfere with sample collection. The SD900 sampler uses a positive displacement peristaltic pump. Flow is induced by squeezing a flexible 3/8-inch tube. Spring mounted rollers reduce pump tubing wear and help prevent pump jams. The life time of the pump tubing is 20,000 cycles compared to only 1,000 cycles on other samplers.

### Maximize Data with Minimal Effort

Use Hach's SampleView™ software to remotely program the controller, view and download sample history to a computer, save templates, upgrade firmware in the field, and download event logs. Reduce time required for manual record-keeping.

### Wide Variety of Applications

The SD900 sampler can be programmed for time-based, flow-based, composite, and multiple bottle sampling set-ups. Up to three separate sampling programs can be stored simultaneously for optimal sampling flexibility. This sampler is versatile enough for deployment in these sampling locations and applications:

- Monitor influent and effluent waters from municipal and industrial NPDES facilities
- Monitor effluent waters from indirect industrial dischargers for compliance with pre-treatment regulations
- Environmental monitoring including CSO and SSO studies and storm water run-off. (Please contact Hach or your representative for outdoor applications.)



*The Hach Sigma SD900 Indoor Refrigerated Sampler is easy to set up and program, delivering reliable results and reduced maintenance.*

### Durable, Heavy Duty Construction Tolerates Harsh Environments

The molded ABS/PC exterior of the SD900 controller enclosure is tough. The controller is tightly sealed for maximum protection from the elements and corrosive environments. The NEMA 4X, 6, IP67 housing isolates all electro-mechanical components. The keypad, switches, and display are covered by a waterproof, corrosion-resistant polyester membrane. Sealed connectors and pump shaft further guarantee environmental integrity. Collected samples are protected and preserved inside the refrigerated base—choose from either vinyl or stainless steel.

### Accurate Temperatures

The custom-designed air-sensing thermostat controls temperature in accordance with USEPA and international guidelines. A high efficiency compressor/condenser assembly, wraparound evaporator, and rigid foam insulation ensure optimum 4°C (39°F) sample temperature.

### Advanced Liquid Detection Techniques

The ultrasonic liquid sensing system used in the Sigma SD900 Indoor Refrigerated Sampler delivers repeatable and accurate sample volumes.

### Rinse/Sample Retry

The intake line is thoroughly purged before and after every collection to obtain representative samples. Up to three optional line rinses precondition the intake tubing to reduce cross-contamination of the source liquid prior to sample collection. In the event that a plugged intake prevents collection, the sampler detects the failed attempt and can be optionally programmed to repeat the cycle up to three times, starting with a purge.

DW = drinking water WW = wastewater municipal PW = pure water / power  
IW = industrial water E = environmental C = collections FB = food and beverage



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## Specifications\*

### General

#### Housing

*Controller:* high impact injection molded ABS, submersible, watertight, dust tight, corrosion- and ice-resistant, NEMA 4X, 6, IP67

*Refrigerator:* 22 gauge steel (optional stainless steel) with vinyl laminate overcoat

#### Refrigeration Components and Copper Plumbing

Corrosion protected with conformal coating

#### Sample Cooling

1/10 HP, 75 Watt, 400 BTU/hr compressor

120 CFM condenser fan

Three-sided wrap-around plate type evaporator

Rigid foam insulation

Air sensing thermostat capable of maintaining sample liquid at 4°C (39°F) in ambient temperature to 49°C (120°F) maximum; accurate to ±0.8°C (±1.5°F)

Magnetic door seal

#### Sample Containers

*Glass:* (1) 2-1/2 gal., (24) 350 mL

*Polyethylene:* (4) 2-1/2 gal.,

(1) 2-1/2 gal., (1) 5-1/2 gal., (24) 1 L

#### Temperature

*General Use:* 0 to 50°C (32 to 122°F)

*Storage:* -30 to 60°C (-22 to 140°F)

#### Power Requirements

115 Vac, 60 Hz (230 Vac optional)

*Compressor Current:* 1.5 to 2.0 A, running

*Locked Rotor Current:* 12 A

*Overload Protection:* 5 A dc line fuse to pump, 1 A dc line fuse (ac power converter)

*Compressor:* thermal overload relay opens at 110°C (230°F)

#### Certification

*Controller:* CE

*AC Power Supply:* UL/CSA/CE

#### Internal Battery

Lithium ion battery (maintains real time clock for five years)

#### Internal Clock

Indicates real time and date

#### Graphics Display

128 x 64 dot matrix backlit LCD, easily visible in direct sunlight

#### User Interface

Self prompting/menu driven program

13-key embossed keypad including 1 power key, 4 function keys, 8 navigation keys, and LED indication

#### Data Logging

Store up to 255 entries in Sample History—includes sample time stamp, bottle number, and status of sample (success, bottle full, rinse error, user abort, distributor error, pump fault, purge fail, sample timeout, power fail and low main battery)

#### Event Log

Includes: power on, power fail, firmware updated, pump fault, distributor arm error, low memory battery, low main battery, user on, user off, program started, program resumed, program halted, program completed, grab sample, pump tube change required

#### Sampling Pacing Modes

Composite and discrete multiple bottle time, multiple bottle flow, single bottle time, single bottle flow, flow with time over ride, variable interval, user start/stop and external set point

#### Diagnostics

Tests pump, distributor, keypad, display, and liquid detect calibration

#### Program Language

English

#### Program Lock

Access code protection prevents tampering of program and system settings

#### Program Delay

Programmable sample start time/date or programmable number of counts to expire before program can start

#### Dimensions

61 x 61 x 112 cm (24 x 24 x 44 in.)

#### Weight

63 kg (140 lbs.)

### Communications

#### EPROM Flash Memory

Via RS-232

Permits embedded software upgrades in the field

#### Serial Interface

RS-232 compatible

115 200 baud maximum

Allows on-site collection of stored data

#### SampleView Data Management Software

Download, analyze, and report data, save templates, download sample history and event logs, create graphs for reports and presentations

Link directly to PC using serial port and DB 9 cable

### Sampling Features

#### Multiple Programs

Stores up to 3 sampling programs

#### Cascade

For 2 samplers in combination—the first sampler, at the completion of the program, initiates the second

#### Program Status Display

Alerts operator to low main battery, low memory battery, plugged intake, jammed distributor arm, sample collected, and purge failure

#### Automatic Shutdown

*Multiple Bottle Mode:* After complete revolution of distributor arm (unless continuous mode is selected)

*Composite Mode:* After preset number of samples have been delivered to composite container, from 1 to 999 samples, or upon full container

#### Sample Volume

Programmed in 10 mL increments from 100 to 10,000 mL

#### Sample Volume Repeatability

± 5% of 200 mL sample volume using uncalibrated liquid detect under defined sampling conditions at 15-ft. vertical lift (16 ft. of 3/8-in. vinyl intake tube configured for single bottle using full bottle shut off at 70°F at 5000 ft. elevation)

#### Pacing Intervals

Selectable in single increments from 1 to 9,999 flow pulses or 1 to 999 hours in 1 minute increments

#### Sample Distribution Mode

Continuous and non-continuous  
Bottles per sample or samples per bottle

#### Manual Grab Sample

Deliver grab sample to a specific bottle location

*Continued on next page.*

## Specifications *continued*

### Sample Pump, Intake Tubing, and Strainers

#### Sample Pump

High speed peristaltic, spring-mounted Nylatron® rollers  
0.95 ID x 0.16 OD cm  
(3/8 ID x 5/8 in. OD) pump tube

#### Pump Enclosure

Rugged, corrosion-resistant polycarbonate door, high impact resistant  
Pump enclosure rated IP37;  
polyphenylene sulfide track

#### Vertical Lift

Minimum 8.5 m (28 ft.) suction head using 29 ft. of 3/8-in. vinyl intake tube at sea level at 20 to 25°C

#### Sample Transport Velocity

0.9 m/s (2.9 ft./s) at 4.6 m (15 ft.) vertical lift (16 ft. of 3/8-in. vinyl intake tubing at 70°F, at 5000 ft. elevation)

#### Pump Flow Rate

4.8 L/min (80 mL/s) at 3 ft. vertical lift in a 3/8-in. ID intake tube

#### Liquid Sensor

Ultrasonic

#### Intake

*Purge:* air purged automatically before and after each sample; duration automatically compensates for varying intake line lengths

*Rinse:* intake line optionally rinsed with source liquid prior to each sample; from 1 to 3 rinses

*Retries or Fault:* sample collection cycle optionally repeated from 1 to 3 times if sample not obtained on initial attempt

*Tubing:* 9.5 mm (3/8 in.) ID vinyl or Teflon® lined polyethylene

*Strainers:* choice of Teflon® and 316 stainless steel construction or all 316 stainless steel in standard size, high velocity, and low profile for shallow depth applications

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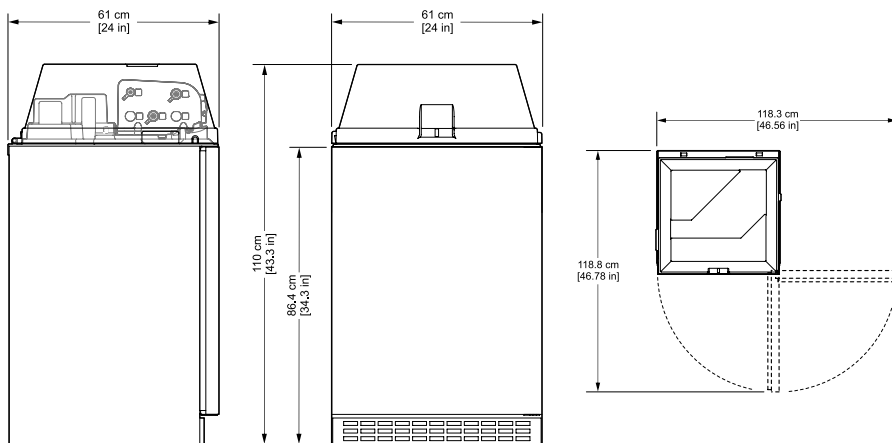
*Nylatron® is a registered trademark of Quadrant Engineering Plastic Products, Inc.*

*\*Specifications subject to change without notice.*

## Engineering Specifications

- The sampler shall be suitable for the representative collection of toxic and conventional pollutants in a single composite bottle or multiple bottles.
- The sampler shall be a refrigerated wastewater sampler which will operate on AC power.
- The sampler container(s) shall be located in a refrigerated compartment.
- The sampler refrigerator compartment shall be insulated with 1.5-inch rigid foam insulation.
- The sampler refrigeration system shall have a 120 CFM condenser fan and shall be controlled by an air sensing thermostat maintaining samples at 4°C (39°F) in ambient temperature to 49°C (120°F).
- All electromechanical components shall be protected within a totally sealed housing conforming to NEMA 4X, 6 and IP67 standards for submersible, watertight, dust-tight, and corrosion resistant operation.
- The sampler shall incorporate a high-speed peristaltic pump for collection of the sample liquid.
- The sampler pump body shall be constructed of corrosion resistant materials.
- The sample liquid shall be under pumped flow and shall not pass through a metering chamber, valves or distribution plate.
- The sample pump shall produce a minimum intake velocity of 2 feet per second at 25 feet vertical lift in a 3/8-inch ID intake line.
- The sampler controller shall have a hermetically sealed 13-key, multiple function keypad and self-prompting 5-line, 128 x 64 dot matrix backlit liquid crystal graphics display.
- The sampler pump shall purge the intake line before and after each sample. The duration of the purge shall be automatically adjusted for varying intake line lengths.
- The sampler pump tubing shall be 3/8-inch ID and 5/8-inch OD medical grade silicone.
- The sampler shall be provided with (select: 10 ft, 25 ft., or 100 ft.) of 3/8-inch ID (select: Teflon lined polyethylene or vinyl) intake tubing and a weighted strainer constructed of 316 stainless steel and Teflon.
- The sampler controller shall be programmable for single bottle and multiple bottle operation. For multiple bottle operation, the controller shall be programmable for 2-, 4-, 8-, and 24-bottle configurations.
- The sampler shall be convertible to composite operation by removing the modular distribution assembly and replacing the discrete bottle set with a composite container.
- For composite bottle operation, the sampler shall be furnished with (1) 2.5-gallon polyethylene, (1) 2.5-gallon glass, or (1) 5.5-gallon polyethylene container.
- The sampler shall have the capability of retaining up to three complete sampling programs in memory.
- The sampler shall be capable of operation in a timed or flow proportional mode.
- The sampler shall be capable of optionally rinsing the intake line with the source liquid immediately prior to sample collection.
- In the event that sample liquid is not obtained on the initial attempt, the sampler shall optionally purge and repeat the collection cycle.
- To permit sampling during work shifts or other specific periods, the sampler shall be programmable for up to twelve start/stop interval pairs.
- The sampler shall be the Sigma Model SD900 Indoor Refrigerated Sampler, manufactured by Hach Company.

## Dimensions



The Hach Sigma SD900 Indoor Refrigerated Sampler is designed for indoor use. Allow complete drainage of the intake line to prevent cross-contamination between samples. Install the sampler as close to the sample source as site conditions permit to increase pump tube life and optimize overall sampler performance. Install the sampler above the sample source, with the intake tubing sloping downward to the sample as vertical as possible. (This sampler is not designed for hazardous locations where combustible environments may exist.)

*At Hach, it's about learning from our customers and providing the right answers. It's more than ensuring the quality of water—it's about ensuring the quality of life. When it comes to the things that touch our lives...*

*Keep it pure.*

*Make it simple.*

*Be right.*

*For current price information, technical support, and ordering assistance, contact the Hach office or distributor serving your area.*

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## Ordering Information

### Sigma SD900 Indoor Refrigerated Sampler/Controller

*Controllers include pre-cut section of pump tube insert (Prod. No. 8753800)*

<b>8927SD</b>	SD900 Sampler with Controller; vinyl, 115 V
<b>8950SD</b>	SD900 Sampler with Controller; vinyl, 230 V
<b>98927SD</b>	SD900 Sampler with Controller; stainless steel, 115 V
<b>98950SD</b>	SD900 Sampler with Controller; stainless steel, 230 V
<b>8971SD</b>	SD900 Sampler, Controller Only

### Bottle Kits

*Single bottle kits include container, cap, full bottle shut off, and tubing extension for 2.5-gal. containers*

<b>RF010025</b>	(1) 2.5-gal. Glass
<b>RF010030</b>	(1) 2.5-gal. Polyethylene
<b>RF010060</b>	(1) 5.5-gal. Polyethylene

*Multiple bottle kits include containers, caps, retainer, and distributor arm*

<b>RF040030</b>	(4) 2.5-gal. Polyethylene
<b>RF240350</b>	(24) 350-mL Glass
<b>RF241000</b>	(24) 1-L Polyethylene

### Intake Tubing and Strainers

<b>922</b>	Teflon-lined Polyethylene Tubing, 25 ft., 3/8 in. ID (requires Prod. No. 2186 Connection Kit)
<b>2186</b>	Connector Kit, for Teflon-lined polyethylene tubing
<b>920</b>	Vinyl Intake Tubing, 25 ft., 3/8 in. ID
<b>2070</b>	Strainer, all 316 Stainless Steel
<b>2071</b>	Strainer, for shallow depth applications, all 316 Stainless Steel
<b>4652</b>	Strainer, for high velocity and shallow depth applications

### Tubing

<b>4600-15</b>	Silicone Pump Tubing, 15 ft.
<b>4600-50</b>	Silicone Pump Tubing, 50 ft.
<b>8753800</b>	Pump Tube Insert

### Cables and Accessories

<b>8754500US</b>	Power Supply, 3 pin, US
<b>8757500</b>	SampleView CD, with PC cable
<b>8758200</b>	Sampler to PC Cable, 10 ft., 7 pin
<b>8757300</b>	Cascade, 7 pin
<b>8758000</b>	Auxilliary adaptor cable, 6 to 7 pin
<b>8757100</b>	Multipurpose, full cable, 10 ft., 7 pin
<b>8963</b>	Controller Cover

Lit. No. 2590

G73 Printed in U.S.A.

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