

Hach Sigma SD900 Portable Sampler

Features and Benefits

Easy to Use

The simplified keypad with intuitive icons and scrolling menu on the Hach Sigma SD900 Portable 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

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 that 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 uses a positive displacement peristaltic pump. Flow is induced by squeezing a flexible 3/8 in tube. A positive displacement peristaltic pump induces flow by squeezing a flexible 3/8-inch tube. The spring loaded 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— Including SDI-12 Communications

The SD900 sampler is ideal for NPDES stormwater compliance, stormwater runoff monitoring, pretreatment compliance, CSO studies and monitoring, industrial wastewater discharge, and WWTP process control. Program the sampler for time-based, flow-based, composite and multiple bottle sampling setups. Up to three separate sampling programs can be stored simultaneously for optimal sampling flexibility.

The optional SDI-12 communication interface can connect to devices such as Hydrolab MS5 and DS5 water quality sensors to collect data that can be used as triggers in setpoint sampling applications.

Modify in the Field for Composite or Discrete Sampling

Quickly switch between composite and discrete sampling right in the field using the interchangeable compact or standard sized base. The distributor arm and full bottle shut-off device can be changed in minutes by simply



The Hach Sigma SD900 Portable Sampler sets up easily and quickly in the field. Reduced maintenance and reliable results are assured.

loosening a thumbscrew—no tools are necessary. Program setup takes less than two minutes or recall a saved template using the SampleView program.

Durable, Heavy-Duty Construction Tolerates Harsh Environments

The molded ABS/PC exterior of the SD900 controller enclosure is tough. The controller is tightly sealed to withstand humidity and hostile, 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. The sealed connectors and pump shaft seal further ensure the unit's environmental integrity.

Protected Samples

Collected samples are protected from impact and extreme ambient conditions inside the double-walled insulated base. The compact and standard base holds 8.5 and 32 pounds of ice, respectively, with the sample bottles in place. Carrying the sampler is easy with the exterior, flip-up handles that nest flush to the base when not in use. The SD900 sampler is designed for use in 18-inch manholes.

Advanced Liquid Detection Techniques

The ultrasonic liquid sensing system used in the Sigma SD900 Portable 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.

Sampling

DW

WW

IW

E

C

FB

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



Be Right™

Specifications*

General

Controller Housing

High impact injection-molded, ABS/PC plastic
Submersible, watertight, dust-tight, corrosion- and ice-resistant
NEMA 4X, 6, IP67

Base Housing

Impact resistant ABS plastic
3-section construction
Double-walled base with 2.54-cm (1-in.) insulation
Direct ice contact with bottles

Temperature

General Use: 0 to 50°C (32 to 122°F)
Storage: -30 to 60°C (-22 to 140°F)

Certification

Controller: CE
Optional AC Power Supply: UL/CSA/CE
Optional Battery: CE

Power Requirements

12 Vdc supplied by optional a/c power supply or battery
Average current with pump running: 2 Vdc

Internal Battery

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

Internal Clock

Indicates real time and date

Graphics Display

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

User Interface

Self prompting/menu driven program
13-key embossed keypad including power key, 4 function keys, 8 navigation keys, and LED indication

Data Logging

Store up to 510 entries in Sample History log including 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, SDI-12 communication errors, set point high on/off, set point low on/off.

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 setpoint

Overload Protection

Internal software-protected 7 amp fuse

Diagnostics

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

Program Languages

English, Spanish, French, German, Italian, Czech, Turkish, Portuguese

Program Lock

Access code protection prevents tampering of program and system settings

Program Delay

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

Dimensions

Standard Base:
50.5 x 69.4 cm (19.9 x 27.3 in.)
Compact Base:
44.1 x 61 cm (17.4 x 24 in.)
Composite Base:
50.28 x 79.75 cm (19.8 x 31.4 in.)

Capacities

Standard Base Capacity
(24) 1-L polyethylene or 350-mL glass bottles
(8) 2.3-L polyethylene or 1.9-L glass bottles
(4) 3.8-L polyethylene or 3.8-L glass bottles
(2) 3.8-L polyethylene or 3.8-L glass bottles or (1) 15.1-L (4-gal.) polyethylene composite bottle or (1) 20.8-L (5.5-gal.) polyethylene bottle or (1) 9.5-L (2.5-gal.) polyethylene or glass bottle or (1) 9.5-L (2.5-gal.) glass bottle
Compact Base Capacity
(24) 575-mL (1.2-pint) polyethylene bottles
(8) 950-mL glass bottles
(1) 9.5-L (2.5-gal.) polyethylene or glass bottle

Weight		
Item	Kilograms	Pounds
Standard Base Configurations:		
with (24) 1-L polyethylene bottles	15	33.1
with (1) 2.5-gal. polyethylene container	14.8	32.6
Compact Base Configurations:		
with (24) 575-mL polyethylene bottles	12.2	26.9
with (1) 2.5-gal. polyethylene container	12.9	28.4
Composite Base Configurations:		
with (1) 5.5-gal polyethylene container	15	33.1
Top cover	1.29	2.85
Center section with controller	8.71	19.20
Distributor	0.75	1.65
Compact base	2.47	5.45
Standard base	3.88	8.55
20-L (5.5-gal.) polyethylene bottle without liquid	1.77	3.90
15-L (4-gal.) polyethylene bottle	1.45	3.20
10-L (2.5-gal.) polyethylene bottle	1.32	2.90
(24) 1-L polyethylene bottles with retainer	2.49	5.50
(24) 575-mL (1.2 pint) polyethylene bottles with retainer	1.45	3.20
(12) 950-mL (2 pint) glass bottles with retainer	4.58	10.10

Sampling Features

Multiple Programs

Stores up to 3 sampling programs

Cascade

For two 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 10 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 Modes

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

Manual Grab Sample

Deliver a grab sample to a specific bottle location

Timed Bottle Sets

Enables a single sampler to function like multiple samplers by segregating a bottle set

Continued on next page.

Specifications *continued*

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

SDI-12 Connectivity

Plug-and-play interface to Hydrolab DS5 and MS5 sondes to provide measurement data in setpoint sampling applications

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

Perform firmware upgrades in field

Sample Pump, Intake Tubing, and Intake Strainer

Sample Pump

High speed peristaltic

4 rollers with spring tension

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, 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

80 mL/s at 0.91 m (3 ft.) vertical lift in 0.95-cm (3/8-in.) ID intake line

Liquid Sensor

Ultrasonic

Intake Purge

Air purged automatically before and after each sample

Duration automatically compensates for varying intake line lengths

Intake Rinse

Intake line optionally rinsed with source liquid prior to each sample; from 1 to 3 rinses

Intake Retries or Fault

Sample collection cycle optionally repeated from 1 to 3 times if sample not obtained on initial attempt

Intake Tubing

9.5 mm (3/8 in.) ID vinyl Teflon® lined polyethylene

Intake Strainers

Choice of Teflon and 316 stainless steel construction or all 316 stainless steel in standard size, high velocity, or low profile for shallow depth applications

Solar Power Panel

12 Vdc regulated supply voltage, 5 watts minimum

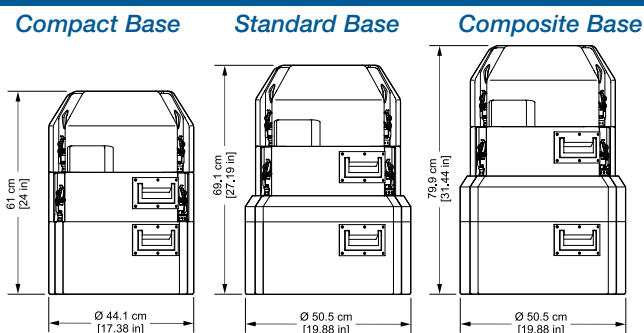
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**Specifications subject to change without notice.*

Engineering Specifications

- The sampler shall be suitable for the representative collection of toxic and conventional pollutants.
- The sampler shall incorporate a high-speed peristaltic pump for collection of the sample liquid.
- 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.
- All electromechanical components shall be protected within a totally sealed housing conforming to NEMA 4X, 6 and IP 67 standards for submersible, watertight, dust-tight, and corrosion resistant operation.
- The sampler shall have interchangeable compact and standard bases.
- The sampler base shall be double wall insulated constructed of ABS plastic.
- The sampler shall be convertible to discrete operation by installing a modular distribution assembly and bottle set.
- The sampler shall be convertible to composite operation by installing a composite container and full bottle shut off.
- 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 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 shall have the capability of retaining up to three complete sampling programs in memory and be equipped with data management software (SampleView™).
- The sampler shall be capable of operation in a times or flow proportional mode.
- 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.
- 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 12 start/stop interval pairs.
- The sampler base shall be of high impact vacuum-formed ABS plastic, 3-section construction.
- The base shall hold (select) standard base; 32 pounds of ice with the 350-mL glass bottles in place, compact base; 8.5 pounds of ice with the 575-mL polyethylene bottles in place.
- The sampler shall be provided with a 4-20mA interface allowing flow proportional sampling from an external flow meter analog output.
- The sampler shall be available with optional SDI-12 plug and play interface to Hydrolab DS5 and MS5 sondes to provide measurement data in setpoint sampling applications.
- An optional AC power supply shall be UL, CE and CSA certified.
- The sampler shall be the Sigma Model SD900 Portable Sampler, manufactured by Hach Company.

Dimensions



The Hach Sigma SD900 Portable Sampler is designed for indoor and outdoor use. No secondary enclosure is required when operated within the specified temperature range. The sampler consists of three main sections—the top cover, the center control system, and the bottle/base section—held together by stainless steel latches which serve as the connection point for the optional suspension harness. The lockable top cover protects the controller from extreme weather and unauthorized use.

Ordering Information

SD900 Portable Sampler Bundles

Bundles include; 6 amp-hour 12 Vdc battery, 115 Vac power converter/battery charger, sample bottle(s), vinyl intake tubing (25 ft.), and Teflon/stainless steel strainer. To order components separately, please contact Hach.

- 900SDPC1** Compact Portable Sampler with SD900 Controller; includes 10 L (2.5 gal) PE container and full-bottle shut off
- 900SDPC24** Compact Portable Sampler with SD900 Controller; includes 24 575-mL PE bottles with retainer and distributor
- 900SDPS1** Standard Portable Sampler with SD900 Controller; includes 10 L (2.5 gal) PE container and full-bottle shut off
- 900SDPS24** Standard Portable Sampler with SD900 Controller; includes 24 1-L PE bottles with retainer and distributor

Intake Tubing and Strainers

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

Pump Tubing

- 4600-15** Pump Tubing, 15 ft., bulk
- 8753800** Pump Tube Insert, pre-cut length

Power

- 8754400** Lead Acid Battery, with 3-pin connector
- 8753500US** Lead Acid Battery Universal Smart Charger, 3-pin
- 8754500US** U.S. Power Supply, 100-120 Vac, 3 pin

Cables and Interfaces

- 8739400** Power Adaptor Cable; SD900, 2- to 3-pin
- 8757100** Multi-purpose Full Cable, 10 ft., 7-pin, connects SD900 sampler to Hach flow meter
- 8756900** Multi-purpose Half Cable, 10 ft., 7-pin
- 8758200** Sampler or Flow Meter to PC DB9 Cable, 3 m, 7-pin
- 8757500** SampleView CD with PC DB9 cable, 3 m, 7-pin
- 87390SD** SDI-12 Receptacle (factory-installed option)
- 8762400** SDI-12 Cable, for Hydrolab DS5/MS5 to SD900 connection, 50 ft.
- 8762500** SDI-12 Cable, for Hydrolab SD5/MS5 to SD900 connection, 100 ft.
- 8760600** Universal Junction Box, 4-20 mA input

Accessories

- 1355** Suspension Harness, to suspend the sampler
- 9542** Manhole Support Bracket/Spanner, 18- to 28-in.
- 9557** Manhole Support Bracket/Spanner, 28- to 48-in.
- 5713000** Manhole Support Bracket, 18- to 27-in.

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In the interest of improving and updating its equipment, Hach Company reserves the right to alter specifications to equipment at any time.

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.

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