



PVS5120C and PVS5120D

DC-Powered, Portable Automatic Liquid Samplers



PVS5120D



PVS5120C

Sampler Optimized for Datalogger or RTU Control

Vacuum technology for better samples

Overview

The PVS5120 portable samplers use our new vacuum sampler controller, the VSC100, to allow a Modbus RTU master, SDI-12 master device, simple pulse input, or Campbell Scientific PakBus datalogger to control and communicate with the water sampler.

They are lightweight, portable, battery-powered water samplers. The PVS5120C is a composite sampler that deposits its water

samples into a 9 L container; the PVS5120D is a discrete sampler that deposits its water samples into 1 to 24 containers.

The PVS5120 series can have a standard or large pump. At sea level, the standard pump takes samples at 1.6 m/s (5.1 ft/s) for horizontal draws of 7.6 m (25 ft), and the large pump takes samples at 2.2 m/s (7.1 ft/s) at 7.6 m (25 ft).

Benefits and Features

- › Diagnostic feedback provided to the master device.
- › For discrete sampling, bottle position encoder verifies arm position before sampling, then returns (or goes) to, the correct bottle if out of position
- › Auto deploy that automatically sets the purge and vacuum times based on hose length (25 to 100 ft)
- › Our standard configuration comes with 24 sample bottles, with custom configurations of 2, 3, 4, 6, 8, and 12 bottles
- › Repeatable volume collection via metering chamber
- › Selectable internal or external power via three-way power switch
- › One control cable for all control types

Options^a

- › Quick connect terminals
- › Charger options: 110 Vac, 100 to 240 Vac, or solar panel charger
- › Battery options: 7 Ah, 17 Ah, external deep cycle battery, or no battery
- › Water Detection Probe
- › Warranty options: three or five year
- › Sample container options: no bottles, 9 L bottle (PVS5120C only), 24 0.5 L bottles (PVS5120D only), 24 1 L bottles (PVS5120D only), or 2, 3, 4, 6, 8, and 12 bottles (PVS5120D only)
- › Pump options: standard or large

^aFor a complete list of options and accessories, refer to: www.campbellsci.com/pvs5120c-ordering or www.campbellsci.com/pvs5120d-ordering



Technical Details

Vacuum Pump

The PVS5120C and PVS5120D samplers use an external vacuum pump to draw water through the intake tubing, instead of the traditional peristaltic pump that induce flow by squeezing flexible tubing. Because the vacuum method disturbs the water samples less, they better represent the original water solution, especially if the solution has high concentrations of suspended solids. To prevent cross contamination, the samplers use air pressure (up to 28 psi) to purge the tubing of excess water.

The small pump can lift as high as the large pump, and should be used for most applications, especially when power usage is a concern. The large pump will provide higher pumping velocity for long intake hoses and high vertical lifts.

Controller/Interfacing with a Datalogger

The sampler can interface with our dataloggers or RTUs from other manufacturers. Our dataloggers can interface and communicate with nearly any turbidity, water level, or hydrometeorologic sensor, as well as control the sampler based on time, event, or measured conditions.

Specifications

- Enclosure: LLDPE, linear low-density polyethylene, three piece construction and stainless-steel fittings
- Cooling System: Insulated container wall cavity space for ice
- Height: 80.9 cm (31.875 in)
- Height with extended base: 96.2 cm (37.875 in)
- Body Case Diameter: 42.8 cm (16.85 in)

Weight

- Sampler w/standard pump and no battery: 10.4 kg (23 lb)
- Sampler w/large pump and no battery: 11.8 kg (26 lb)
- 7 Ah battery: 1.8 kg (4 lb)
- 17 Ah battery: 6.3 kg (14 lb)

Controller

- Sampler triggering methods:
 - SDI-12 Master Device
 - Modbus RTU Master
 - Campbell Scientific PakBus® datalogger
 - Pulse trigger (1 to 10,000 pulses)
 - Time-based sampling (stand alone)
- RS-485 communication: Can return sampler status when triggering samples via pulse or time-based control
- Backup Power Source: Internal lithium battery to maintain program settings and information in case of power failure

- Bottle position encoder: verifies arm position and moves to correct bottle if it is out of position.
- Multi-purpose button: Service sampler, collect manual sample, and auto deploy
- Auto deploy: automatically sets the purge and vacuum times based on hose length (between 25 to 100 ft)
- Sampler status/feedback (available after every sample): bottle number, sample number, response code, sampler battery voltage

Vacuum System

- Pinch Valve: Fixed – normally open
- Purge Cycle: Adjustable from 1 to 800 s; 280 s for SDI-12.
- Suction Cycle: Variable (until liquid contacts level electrode in metering chamber or adjusts automatically to two times the purge time)
- Metering Chamber Cover: Nylon (standard) Teflon (option)
- Volume Control Tube: 316 stainless steel
- Metering Chamber Level Electrode: 316 stainless steel
- Intake Hose: ordered as a common accessory. Campbell Scientific offers PVC hose with 25 ft and user-specified lengths. Intake end can have a lead sinker or stainless-steel strainer. Sampler end can have a clamp or quick connect termination.
- Discharge Hose Material: Latex (standard) Options: Teflon lined, silicone

Horizontal Velocity^b

Pump Size	Distance						
	7.6 m (25 ft)	15.2 m (50 ft)	22.9 m (75 ft)	30.5 m (100 ft)	53.3 m (175 ft)	61 m (200 ft)	76.2 m (250 ft)
Standard Pump	1.6 m/s (5.1 ft/s)	1.4 m/s (4.7 ft/s)	1.28 m/s (4.2 ft/s)	1.25 m/s (4.1 ft/s)	1 m/s (3.4 ft/s)	0.9 m/s (3.1 ft/s)	0.7 m/s (2.3 ft/s)
Large Pump	2.2 m/s (7.1 ft/s)	1.9 m/s (6.2 ft/s)	1.7 m/s (5.6 ft/s)	1.5 m/s (5 ft/s)	1.2 m/s (4 ft/s)	1.1 m/s (3.7 ft/s)	0.8 m/s (2.6 ft/s)

^bVelocities are measured at sea level. Intake velocities will decrease as altitude increases.

