

Installation, Operation & Maintenance Manual

Sentry Cobra M Sampler Low Emission Samplers

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Do not install, maintain, or operate this equipment without reading, understanding, and following the appropriate Sentry Equipment Corp instructions. Otherwise, injury, damage, or both may result.

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Note

The information contained in this document is subject to change without notice.

Safety Information

Please read the entire manual before attempting to unpack, set up, or operate this product. Pay careful attention to all Warnings, Cautions, and Notes. Failure to do so could result in serious personal injury and/or equipment damage.

Use of Hazard Information

If multiple hazards exist, the signal word corresponding to the greatest hazard shall be used.

Definitions

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

NOTE

Information that requires special emphasis.

TIP

Alternate techniques or clarifying information.

SHALL: This word is understood to be mandatory.

SHOULD: This word is understood to be advisory.

General Safety Precautions

Product Selection, Installation, and Use

WARNING

Improper selection, installation, or use can cause personal injury or property damage. It is solely the responsibility of users, through their own analysis and testing, to select products suitable for their specific application requirements, ensure they are properly maintained, and limit their use to their intended purpose.

Follow proper local, state, and federal regulations for proper installation and operational requirements.

Always use caution and common sense when working with any chemical. Read the product label and Material Safety Data Sheets (MSDS) carefully and follow the instructions exactly.

Potential Equipment Hazards

WARNING

Hot surfaces! This equipment may have very hot surfaces. If an operator contacts a hot surface, injury may occur. Use protective clothing to prevent injury. If other equipment comes in contact with a hot surface, damage to the equipment may occur. Ensure the area around this equipment is kept clear to prevent damage from occurring.

High pressures! This equipment may contain fluids at very high pressures. Prior to installing, removing or maintaining this equipment, ensure that the equipment is isolated from all connecting piping, the equipment is depressurized, the contents have been drained, and the equipment is cool.

Moving parts! This equipment may contain moving parts. All drive guards and doors must be secured in place when this machine is being operated.

General Description

WARNING

Read these instructions completely before proceeding to assemble, install or operate this machine. This machine should be installed, operated and serviced by qualified individuals. Follow proper local, state and federal regulations for proper installation and operational requirements.

Designed for longevity, the Sentry® Cobra M liquid sampler boasts a variety of unique features that makes it simpler to install and easier to operate. Made of stainless steel or other exotic materials, the sampler meets the highest standards of quality and reliability. All of our Cobra M units use the Cobra-designed sampling valve that allows throttling and control of sample flow. The Cobra needle design provides ample time for air and other gases to be expelled. Representative samples are assured by following step-by-step procedures printed on the system.

The Cobra M sampler includes a multi-turn handle that permits precise flow control, while a full bore flow path ensures that no pressure is lost while the sample is being taken. The standard units come with our special coaxial needle system, the risk of bent or broken needles is reduced dramatically. The Cobra sampling valve has been specifically designed for process sampling, and protects against contamination to ensure the safety of the operator while maintaining the integrity of every sample taken.

NOTE

Please refer to your job drawings for specific information on your system.

Specifications

wetted materials	body: stainless steel (other materials available upon request) Seals: FFKM, PTFE, PEEK (other materials available upon request)
bottle shroud	Acetal or stainless steel
process pressure range	0-150 psig (higher pressures available upon request)
process temperature	<140°F; cooler required for temps >140°F
sampler interface	1/2 in NPT (1/2 in compression fitting available upon request)
vent connection	1/4 in NPT (1/4 in compression fitting available upon request)
bottle size	2 oz Boston round 4 oz Boston round 8 oz Boston round 16 oz Boston round 32 oz Boston round
options	pipe stand (2 in); enclosure process isolation valves (inlet and/or return) secondary isolation valve needle purge emissions filter on vent

Installation

⚠ DANGER

Dangerous gas! Direct the vent line to a charcoal canister, flare, or other subatmospheric region for collection and treatment of sample vapors. The gases emitted from the vent line may be hazardous and toxic upon exposure.

Mounting

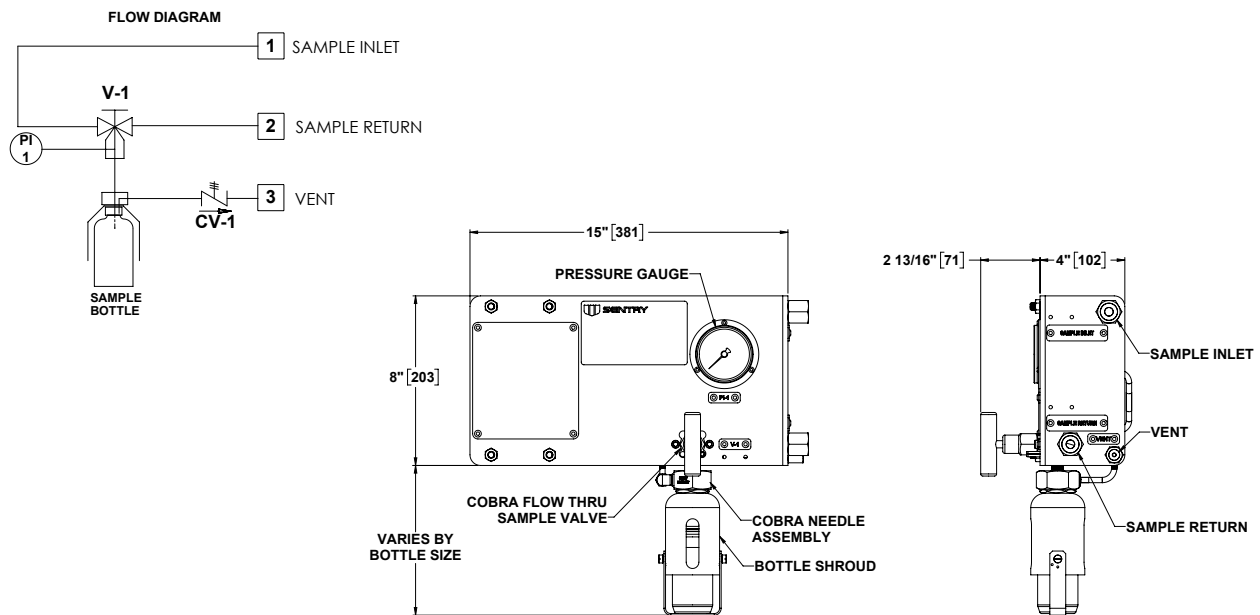
The Sentry Cobra M sampler is equipped with two (2) 2" NPS Pipe Mounting U-Bolts for mounting to a standard 2" NPS Instrument Pipe Stand. Refer to the accompanying drawing for mounting details.

Piping

Refer to the accompanying drawing for connection sizes, types and locations.

➡ NOTE

Figures in this manual may differ from actual purchased equipment. Please refer to your job drawings for specific connection information.



Operation

1. Verify sample valve is closed
2. Verify all upstream and downstream valves are open to allow representative sample to be taken
3. Verify vent line is open to allow for safe venting of bottle
4. Insert bottle carefully into shroud and allow Cobra needle to puncture septum
5. Close bottle strap
6. Turn sample valve counter-clockwise to open and verify liquid is flowing into bottle

⚠ CAUTION

Do not overfill bottle

7. Turn sample valve clockwise to close when 75% of bottle is full
8. When sample valve is closed remove bottle from shroud
9. Place new bottle in shroud

Maintenance

Routine Inspection

The sampler should be checked periodically for proper operation and to ensure that any wear is detected for preventive maintenance. A definite schedule of inspection should be established to ensure safe and accurate sampling operation. Such inspection should include:

- checking fittings for leaks
- checking for signs of corrosion
- performing a sample to ensure moving parts remain operable (this is particularly important in cases where the station is not used frequently)

Needle Valve

Any blockages normally can be cleared by fully opening the valve. Care must be taken to ensure that temperature and pressure limits are not exceeded during this process.

Valve Packing

Occasionally during initial startup or restart of the sample panel, the low pressure/high pressure inlet isolation valve packing may leak. If this occurs, tighten the packing nut. If the packing continues to leak or other valves or o-rings require maintenance, please see the Parts & Accessories list in this manual.

Sample Cooler

For installation and operating instructions for the sample cooler, please see the Installation, Operation & Maintenance manual for Sentry sample coolers.

Carbon Canister

An optional Sentry carbon canister is available. The carbon canister assembly is designed to absorb hydrocarbon gases vented from Sentry manual low-emission samplers.

The gas vent of the sampler panel is connected to the inlet of the carbon canister assembly. The gases then pass through a volume of activated carbon, where hydrocarbons, such as benzene, are absorbed. Often, there are specific gases, such as H₂S – hydrogen sulfide – that also are carried in the vented gas. To remove these, specially designed products such as impregnated activated carbon are used. In these instances, the carbon canister assembly is filled with impregnated activated carbon.

Both activated carbon and impregnated activated carbon have a finite ability to remove hydrocarbons and other gases. The life of the product is dependent on concentrations and volumetric flow of the gas. An optional “tell tale” assembly can be provided with the carbon canister assembly to provide a visual indication of when the carbon canister assembly requires recharging. The carbon canister assembly is designed for easy recharging. Instructions are below.

Troubleshooting

symptom	possible problem(s)	remedy
Elevated sample temperature (For cooler option)	<ul style="list-style-type: none"> ▪ Loss of cooling water flow ▪ Increase in cooling water inlet temperature ▪ Scaled cooler ▪ Increased sample flow 	<ul style="list-style-type: none"> ▪ Check cooling water supply ▪ Reduce cooling water temperature or increase flow ▪ Chemically clean (see cooler maintenance) ▪ Adjust sample flow rate
Reduced sample flow	<ul style="list-style-type: none"> ▪ Plugged line 	<ul style="list-style-type: none"> ▪ Blow down line and exercise flow control valve ▪ Inspect and/or replace needle assembly
Leaking valve stems	<ul style="list-style-type: none"> ▪ Loose or worn packing 	<ul style="list-style-type: none"> ▪ Tighten packing nut or replace packing
Leaking cooler (For cooler option)	<ul style="list-style-type: none"> ▪ Loose housing from thermal shock or worn gasket 	<ul style="list-style-type: none"> ▪ Tighten bolts on head assembly or replace gasket if cut or worn

Parts & Accessories

The following parts are recommended spares for the Sentry Cobra M sampler. Please consult the accompanying job-specific drawings for exact part numbers and descriptions.

- Flow-through sample valve
- Isolation valve
- Check valve

Standard Warranty

Sentry Equipment Corp (“Seller”) warrants products manufactured by it and supplied hereunder (“Products”) to be free from defects in workmanship and, to the extent materials are selected by Seller, to be free from defects in materials, in each case for a period as defined in the table below:

Product Line	Product Category	Warranty Period
Sentry®	1. Automatic Sampling 2. Corrosion Monitoring 3. Manual Sampling 4. Sample Conditioning 5. Sampling & Analysis Systems 6. Replacement Parts (without expiration dates)	Eighteen months from date of shipment or twelve months from startup, whichever occurs first
Waters Equipment	1. Sampling & Analysis Systems 2. Replacement Parts (without expiration dates)	Twelve months from date of shipment

To view the full warranty, go to www.sentry-equip.com/warranty.

Customer Support

With proven sampling expertise since 1924, Sentry products and services provide business operations the critical insights to optimize process control and product quality. We deliver true representative sampling and analysis techniques to customers around the globe, empowering them to accurately monitor and measure processes for improved production efficiency, output, and safety. Standing behind our commitments, we are determined to tackle any application, anywhere.

We know that running an efficient operation isn’t easy. It requires thorough, careful analysis of controlled, real-time data achieved through reliable, accurate, and repeatable process monitoring, and measuring. By effectively conditioning, sampling, and measuring gas, liquid, slurry, powder, solids, steam, or water within their production environments, our customers obtain the critical insights they need to control and optimize their processes.

Yet, controlling your processes also means reliable customer support throughout the life cycle of your equipment.

- Customer Service—General information, warranty claims, order management.
- Installation Service—For systems that require specialized expertise upon installation.
- Technical Support—Troubleshooting, training, and technical manuals.
- Field Service & Retrofits—When a problem needs immediate attention.
- Replacements Parts & Consumables—Order your replacement parts and consumables.
- Sentry ProShield Services – select from four ProShield Guardian service plans providing different levels of support to protect your large system investments with regularly scheduled maintenance.

To learn more, go to www.sentry-equip.com/support.

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966 Blue Ribbon Circle North, Oconomowoc, WI 53066 U.S.A. | +1-262-567-7256 | support@sentry-equip.com