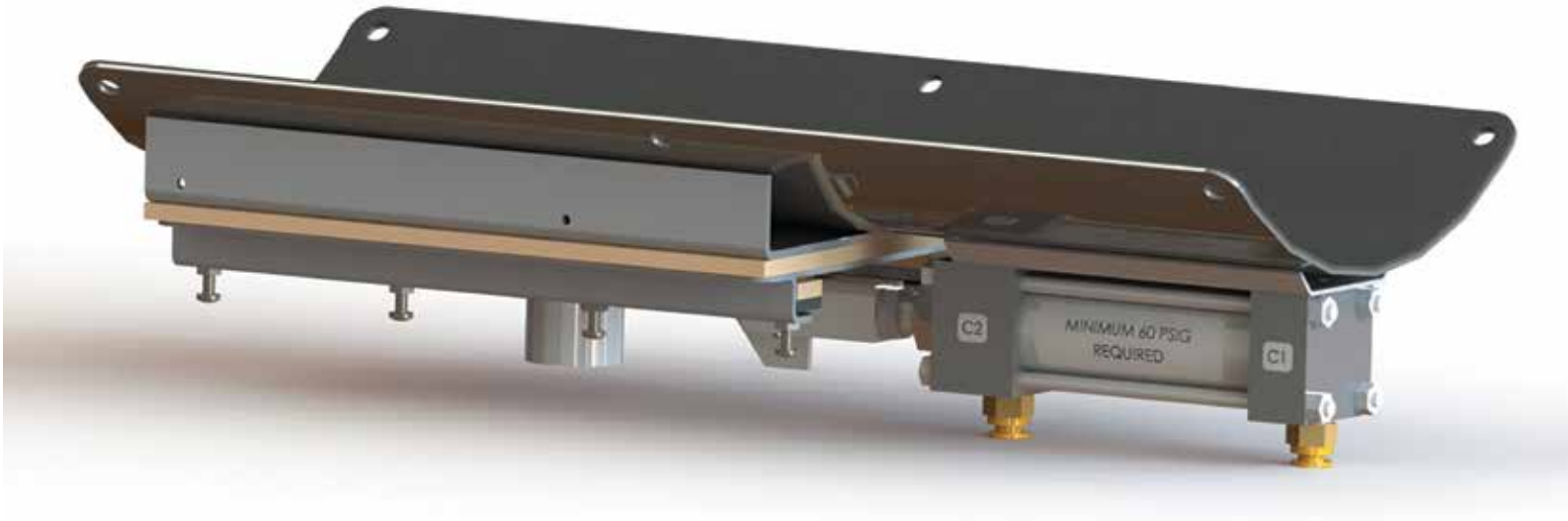
Original Instructions

Installation, Operation & Maintenance Manual

Sentry A Sampler
Point Samplers

S-SP-IOM-00281-4 11-17



COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
= ISO 9001 =

SENTRY

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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Limit of Liability

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Note

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

Table of Contents

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

The Sentry® A automatic point sampler samples free-flowing material from screw or drag conveyors. The product is sampled when a solenoid controlled air cylinder opens and closes a sliding gate on the sampler. The product sampled is discharged through a flexible hose to a collection point.

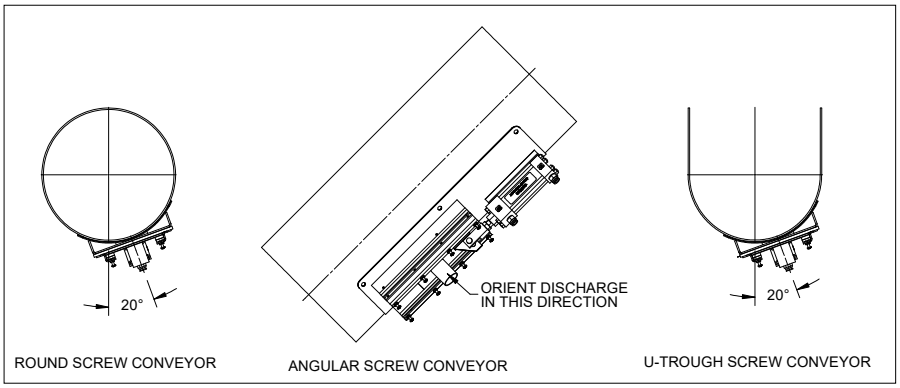
Product characteristics are not changed by the sampler because no moving parts convey the product to the sample container. Sample size can be changed at the sampler controller.

⚠ 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. All drive guards and doors must be secured in place when this machine is being operated. Follow proper local, state and federal regulations for proper installation and operational requirements..

Installation

1. Choose a location for the sampler with accessibility to the slide in order to remove it for maintenance. In all installations, the Sentry A sampler should be mounted off center. Most product buildup is centered in the middle of the conveying line, so if the sampler is placed there, there will not be a representative sample.
2. On a round screw conveyor, mount the sampler 20 degrees from the bottom of the trough on the up side of the screw. See the figure on this page.
3. On a U trough conveyor with a round bottom, mount the sampler in the same position as a screw conveyor.
4. On a flat drag conveyor, mount the sampler to either side of the center.
5. If the sampler is is to be mounted on an angular spout or conveying line, the discharge must face down.

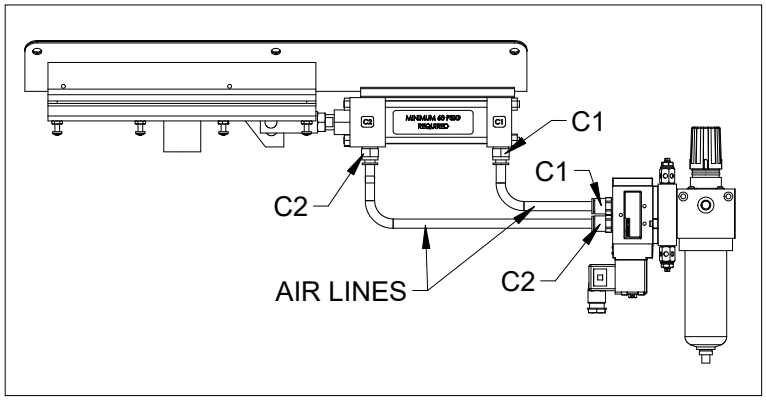


6. When it has been determined where the sampler will be located, hold it in place with the slide open to determine where to cut the discharge hole (1.5 in. or 3 in., depending on the sampler style) in the conveying line. The sampler may be bolted or welded to the conveying line. If welding, tack the weld unit into the proposed position and check for operation prior to final welding. If bolting, use the screw holes in the base as a guide and cut and drill holes.
7. If the inside of the conveying line is not accessible to check for bolt penetration, or the conveying line is made of material thinner than 14 gauge, a mounting plate may be welded to the exterior of the conveying line to provide a mounting pad for the sampler. This will assure no bolt penetration into the conveying line. Drill holes and tap to 5/16 in. A minimum depth of 5/16 in. is required. Use 5/16 in. bolts and lock washers to secure the sampler into position.
8. Mount the sample bottle assembly. It may be mounted in any convenient location below the sampler. Best results are obtained when, in the sampling position, the discharge of the sampler is in direct line with the intake of the sample bottle.
9. Connect a flexible hose from the sample discharge to the sample collection container. In certain applications, rigid metal tubing can be used following a short length of hose attached to the discharge.
10. Mount the filter-regulator and the solenoid-valve. The bowl should be in a vertical position as close as possible to the sampler. Air pressure of 60 to 80 psi normally is recommended (3.9 to 5.6 kilograms per square centimeter). The

regulator and the restrictors are preset at the factory. Air usage is 12.5 cubic inch per inch of stroke. CFM depends on how often the sampler is actuated.

11. Connect the lines from the solenoid-valve marked C1 and C2 to the corresponding C1 and C2 marks on the air cylinders with 3/8 in OD poly tube (see figure, right).

12. Connect a clean air supply to the inlet of the filter-regulator. Oil and moisture filters should be used before the filter-regulator, if necessary. If an air lubricant is added to the system, it should be placed immediately
after the filter-regulator. Air lines should not be so long that sharp bends or kinks develop in the lines. If an air purge is supplied, connect a purge gas source to the solenoid valve mounted on the sampler purge connection.



Operation

Sample Bottle Assembly

The valve on the sample bottle assembly is used to release pressure in the container (see figure, below). The valve may be opened a one quarter turn to allow pressure to bleed slowly between sampling cycles. The valve must be closed when sampling on a
vacuum line.

⚠ WARNING

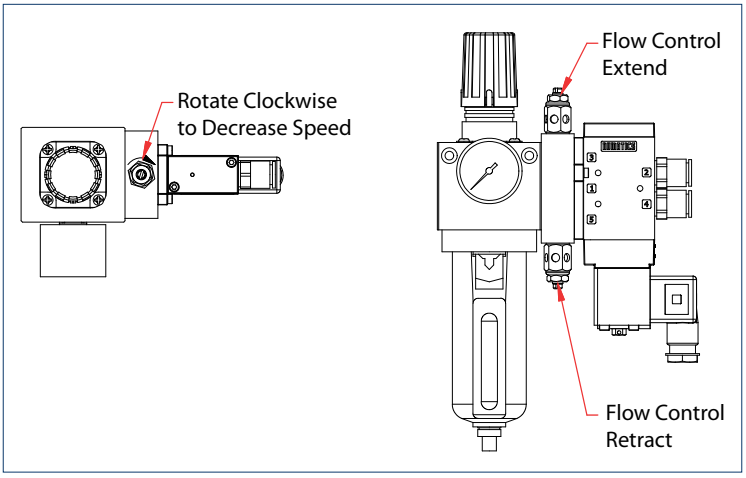
Open the valve on the sample bottle assembly to release the container pressure before removing the container. DO NOT open the valve by more than a quarter turn during sampling. Fine material may escape, biasing the sample and possibly causing personal injury.

Sample Probe Speed

The speed with which the sample probe extends and retracts can be increased or decreased by turning the flow controls on the four-way valve (see figure, below right). Each screw regulates the air exhausting from the cylinder. Turn the screw clockwise to decrease cylinder speed. When shipped from the factory, the advancing and retracting speeds are equal.

➲ NOTE

If you make an adjustment to the four-way valve, you may need to adjust the timers in the controller.Retract lock pins.

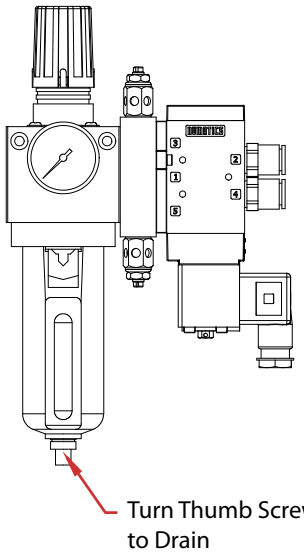


Maintenance

Plunger Seal Replacement

Filter Regulator

1. Drain the filter/regulator at least once a week by turning the thumb screw on the bottom of the bowl (see figure, below). Draining frequency depends upon the quality of the air supply and may be required daily.



NOTE

If an air lubricant is added to the system, it should be placed immediately after the filter regulator.

2. Excessive pressure drops or a visible coating on the filter element indicate cleaning of the filter regulator is necessary.
   a. Shut off the air supply and remove the bowl.
   b. Unscrew the lower gasket, allowing the filter element to fall out.
   c. Wash the filter element with denatured alcohol.

NOTICE

Use an alkaline solution (soapy water) and not a solvent for cleaning the polycarbonate bowl

   d. Clean the polycarbonate bowl with soapy water.
   e. Reassemble the regulator and turn on the air supply.
3. Wash and blow out restrictors once a month or more frequently if necessary.
4. Replaceable items for the filter-regulator are the filter, bowl and gauge (see drawing(s) in the Appendix of this manual for part numbers).

Troubleshooting

The following information is a synopsis of the problems you may encounter prior to troubleshooting your equipment. Divide the unit into three sections and try solving the problem before you continue on.

Potential Problems

Electrical

- Controller
- Connections
- Circuit breaker
- Solenoid

Pneumatic

- Air pressure
- Filter-regulator
- Restrictors
- Four-way valves
- Air cylinder
- Air lines

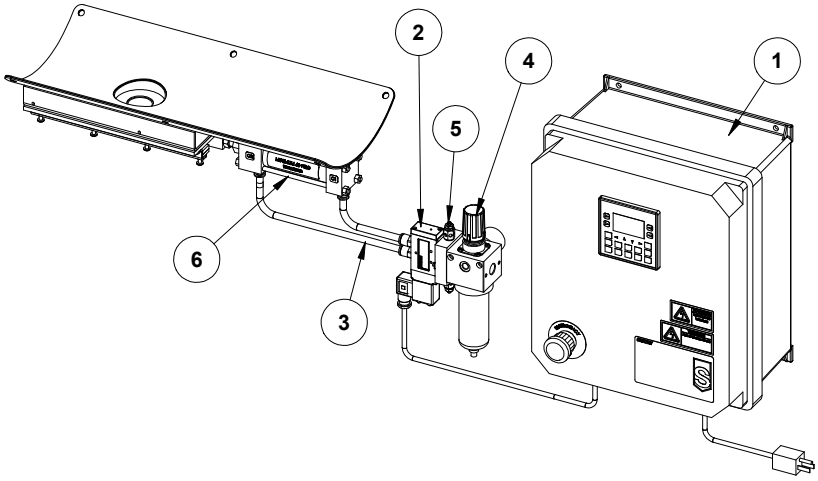
Mechanical

- Alignment (binding of slide gate)
- Tension on slide gate
- Damage on installation

⚠ WARNING

Disconnect main power to controller before attempting any adjustments or disassembly.

Troubleshooting Sequence



1. Controller
2. Solenoid
3. Tubing kinks
4. Air pressure
5. Restrictors
6. Air cylinder

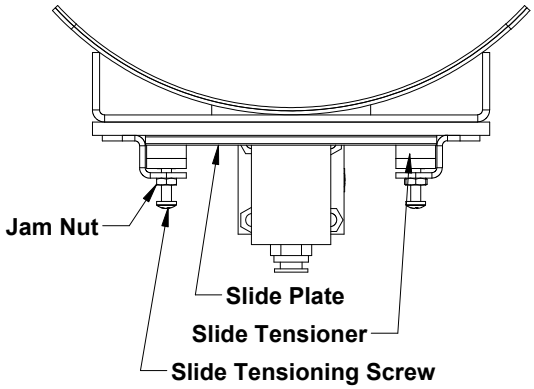
Electrical

See controller manual.

Pneumatic

2., 3., 4., 5. Check air lines for kinks, breaks, etc. Air pressure to the filter/regulator should be 60-80 psi. If higher air pressure is required to activate the cylinder, then there is a possibility that the slide gate is bound or the four-way valve needs cleaning. Look at the air restrictors and make sure they are open and not clogged.

6. If the slide gate slows up or stops when entering or retracting from the material line, the air cylinder seals may need replacing. If the main seal is worn, you may be able to hear air escaping around it.



Mechanical

7. Material between slide plates could cause the slide to bind. Clean out the material between the slide plates and reset the tension of the slide guides by tightening the slide tensioner screws finger tight and locking them in place with the jam nuts. (See figure above.)

   If there is no material obstruction but binding continues, check to see if the sampler was installed improperly.

   The sampler may be warped, requiring the need to shim one side or the other or purchase a new adapter assembly.

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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