Instruction Manual



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Instrument Model Number

Instrument Serial Number



PSU Pneumatic Sampler



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PSU SERIES SANITARY PNEUMATIC SAMPLER INSTALLATION INSTRUCTIONS

The PSU Series sampling system consists of a pneumatically driven sampling device, an electronic controller and an air solenoid assembly. Operation of the sampler is regulated by the electronic controller. The electronic controller receives pulses from a flowmeter, which activates the air solenoid assembly. When activated, the air solenoid assembly pneumatically drives the sampling device through one sample cycle.

THEORY OF OPERATION

The pneumatic sampler operates similar to a diaphragm pump. By alternating air pressure across the diaphragm air ports, the diaphragm acts as the inlet and outlet valves to control very precise and repeatable delivery of the sample quantity.

In position A, air pressure is applied to air port-2. The product pressure allows liquid to fill cavity B. Air pressure is applied to air port-1 causing the sample inlet to close and seal. After a slight time delay, air pressure is applied to air port-3 and released from air port-2. The precise sample quantity is then forced or "pumped" out into the sample bottle.



INSTALLATION OF PNEUMATIC SAMPLING DEVICE

- 1. Place sampler in product line any place after pump where product line pressure is between 6 and 60 psi during sampling operations.
- 2. Sampler can be installed in vertical or horizontal line.

NOTE:

- A. Make certain that the pressure in the product line is always above the minimum 6 psi during sampling operations.
- B. Sampler is supplied with standard sanitary clamp type fittings.
- C. Sampler can be ordered with 16 oz. (475 cc) Nalgene[™] bottle adapter option. Bottle adapter option must be specified for either horizontal or vertical product piping installation when placing order.

INSTALLATION OF ELECTRONIC CONTROLLER AND AIR SOLENOID ASSEMBLY

- 1. Mount the electronic controller in a convenient place as close to the pulse source as possible.
- 2. Mount the air solenoid assembly within six feet of the sampler.
- 3. Make the necessary AC power connections to the electronic control assembly. Wire the air solenoid assembly to the electronic controller. Connect supply air and three control air lines between the air solenoid assembly and the sampler (see Drawing 97-9500-01).

NOTE:

- A. Supply air must be clean, dry, and non-oiled.
- B. Set the control air pressure using the gauge and regular valve on the air solenoid assembly. Control air pressure must be held between 15 psi and 45 psi greater than the product line pressure.
- C. The electronic controller accepts input pulses from contact closures (reed switch) or voltage signals from 12 24 VDC. The voltage must drop below 0.7 VDC between pulses.
- D. The volume of one sample cycle is 1 CC which is approximately equal to 1/30 fluid ounce.
- E. The left selector switch on the front of electronic controller labeled Pulses Per Sample, selects the number of input pulses from an external source (meter) required to cycle the sampler one time. For example, if the left selector switch is set on 32, it will require 32 pulses from the meter to produce a single 1 CC sample.

- F. Switch position 1 will inhibit the sampler (no sampling).
- G. Switch position 10 will activate the CIP mode.

CLEAN-IN-PLACE (CIP) OPERATION

To automatically cycle the sampler during clean-in-place operations, place the left selector switch on the front of the electronic controller in the CIP position. With the left selector switch in the CIP position, the right control knob on the front of the electronic controller will regulate the sample cycle rate.

NOTE:

- 1. Sample cycle rate is adjustable between approximately 2 sample cycles per minute and 40 sample cycles per minute.
- 2. With the left selector switch in CIP position, the electronic controller will no longer respond to external pulses from a meter.
- 3. The CIP mode can be used for sampling when no external pulses are available (no flowmeter used).

ASSEMBLY OF SAMPLER

When reassembling the sampler, follow the procedure below (refer to Drawing 97-9500-02).

- 1. Check to see that locating pin (PSP-004) is in place.
- 2. Insert diaphragm (PSD-51).
- 3. Center top plate (PSP-002); locate hole in top plate over locating pin.
- 4. Carefully assemble clamp fitting (GH13LAH-2) over top and bottom plate and tighten clamp.

NOTES:

- A. Hand tighten clamp fitting only to the point sufficient to prevent leakage **do not over tighten.**
- B. When disassembling sampler, care should be taken to not damage any of the sealing surfaces. Lay parts on a soft surface.

B. Before assembling samplers, always check diaphragm PSD-51 for holes or wear. (Stretch wear points over finger). **Diaphragm should be changed at first sign of wear or at least once a month.** If sampler operates at maximum pressure, a more frequent change may become necessary.

TECHNICAL DATA:

Product Line Connections:	Sanitary Clamp, 1-1/2", 2", 3". Specify at time of order. 2-1/2" on request, consult with factory.
Product Line Insertion Length:	4.00"
Product Line Pressure:	6 – 60 psi
Product Temperature:	200°F Max
Sample Quantity/Pulse:	1 CC which is approximately equal to 1/30 fluid once
Sample Cycle Rate in CIP Mode:	Adjustable, 2 – 40 sample cycles per minute
Sampler Drive:	Pneumatic
Supply Air:	Dry, clean, non-oiled
Air Consumption:	0.1 CFM at 60 pls/min and 45 psi air pressure
Control Air Connections:	Quick connections for 1/4 O.D. by .040 wall polyethylene tubing. Tubing not to exceed 6' in length.
Installation Position:	Any position in product line. Specify horizontal or vertical installation when ordering sample bottle adapter.
Materials:	Sampler Body: Type 304, Stainless Steel. Diaphragm: Silicone or Viton
Sanitary Design:	3A listed according to 3A Sanitary Standard 08-17D Rev., Automatic Positive Displacement Samplers.

Drawing: 97-9500-01



Drawing: 97-9500-02



Warranty and Return Statement

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Warranty

These products are warranted to be free from functional defects in materials and workmanship at the time the products leave the Anderson factory and to conform at that time to the specifications set forth in the relevant Anderson instruction manual or manuals, sheet or sheets, for such products for a period of one year.

THERE ARE NO EXPRESSED OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTIES HEREIN AND ABOVE SET FORTH. ANDERSON MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCTS.

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Anderson shall not be liable for any incidental damages, consequential damages, special damages, or any other damages, costs or expenses excepting only the cost or expense of repairs ore replacement as described above.

Products must be installed and maintained in accordance with Anderson instructions. Users are responsible for the suitability of the products to their application. There is no warranty against damage resulting from corrosion, misapplication, improper specifications or other operating condition beyond our control. Claims against carriers for damage in transit must be filed by the buyer.

This warranty is void if the purchaser uses non-factory approved replacement parts and supplies or if the purchaser attempts to repair the product themselves or through a third party without Anderson authorization.

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Anderson is to be advised of return requests during normal business hours and such returns are to include a statement of the observed deficiency. The buyer shall pre-pay shipping charges for products returned and Anderson or its representative shall pay for the return of the products to the buyer.

An RMA (Return Merchandise Authorization) must be obtained from Anderson Customer Service before returning merchandise.

Approved returns should be sent to: Anderson Instrument Co., Inc. 156 Auriesville Rd. Fultonville, NY 12072 ATTN: Repairs Write RMA number on outside of package