RKI INSTRUMENTS 30-0965 SD-1 Sample Draw Aspirator Adapter User Manual

INSTRUMENTS
30-0965
SD-1 Sample
Draw Aspirator Adapter
Operator's Manual

WARNING
Read and understand this instruction manual before operating the detector.
Improper use of the detector could result in bodily harm or death.
Periodic calibration and maintenance of the detector are essential for proper operation and correct readings. Please calibrate and maintain this detector regularly! The frequency of calibration depends upon the type of use you have and the sensor types. Typical calibration frequencies for most applications are between 3 and 6 months but can be required more often or less often based on your usage.

Contents

Product Warranty

RKI Instruments, Inc. warrants gas alarm equipment sold by us to be free from defects in materials, workmanship, and performance for a period of one year from the date of shipment from RKI Instruments, Inc. Any parts found defective within that period will be repaired or replaced, at our option, free of charge. Parts must be returned to RKI Instruments, Inc. for repair or replacement. This warranty does not apply to those items which by their nature are subject to deterioration or consumption in normal service, and which must be cleaned, repaired, or replaced on a routine basis.
Examples of such items are:

a) Pump diaphragms and valves	c) Batteries
b) Fuses	d) Filter elements

Warranty is voided by abuse including mechanical damage, alteration, rough handling, or repair procedures not in accordance with an instruction manual. This warranty indicates the full extent of our liability, and we are not responsible for removal or replacement costs, local repair costs, transportation costs, or contingent expenses incurred without our prior approval.
THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL OTHER WARRANTIES AND REPRESENTATIONS, EXPRESSED OR IMPLIED, AND ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF RKI INSTRUMENTS, INC.
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This warranty covers instruments and parts sold to users only by authorized distributors, dealers, and representatives as appointed by RKI Instruments, Inc.
We do not assume indemnification for any accident or damage caused by the operation of this gas monitor and our warranty is limited to the replacement of parts or our complete goods. The warranty covers parts and labor performed at RKI Instruments, Inc. only, and does not cover field labor or shipment of parts back to RKI.

Overview

This manual describes the SD-1 sample draw aspirator adapter. It also describes how to install and use the adapter. A spare parts list at the end of this manual lists replacement parts.

Specifications

Table 1 lists specifications for the SD-1 Sample Draw Aspirator Adapter.

Table 1: Specifications

Applicable Sensors	SD-1 for acetylene, solvent gases, or corrosive gases
Maximum Inlet Pressure	300 psi
Outlet Pressure to Aspirator	5 – 50 psi adjustable (determined by required flow rate)
Recommended Flow Rate	3 SCFH (standard cubic feet per hour)

WARNING: When using the 30-0965, you must follow the instructions and warnings in this manual to assure proper and safe operation of the 30-0965 and to minimize the risk of personal injury. Be sure to maintain and calibrate the 30-0965 as described in this manual.

Description

The SD-1 Sample Draw Aspirator Adapter uses compressed air flowing through a venturi to draw air into a sensor adapter. The sensor adapter pushes directly onto the SD-1's sensor and gets secured with a thumb screw located at the bottom of the sensor adapter.

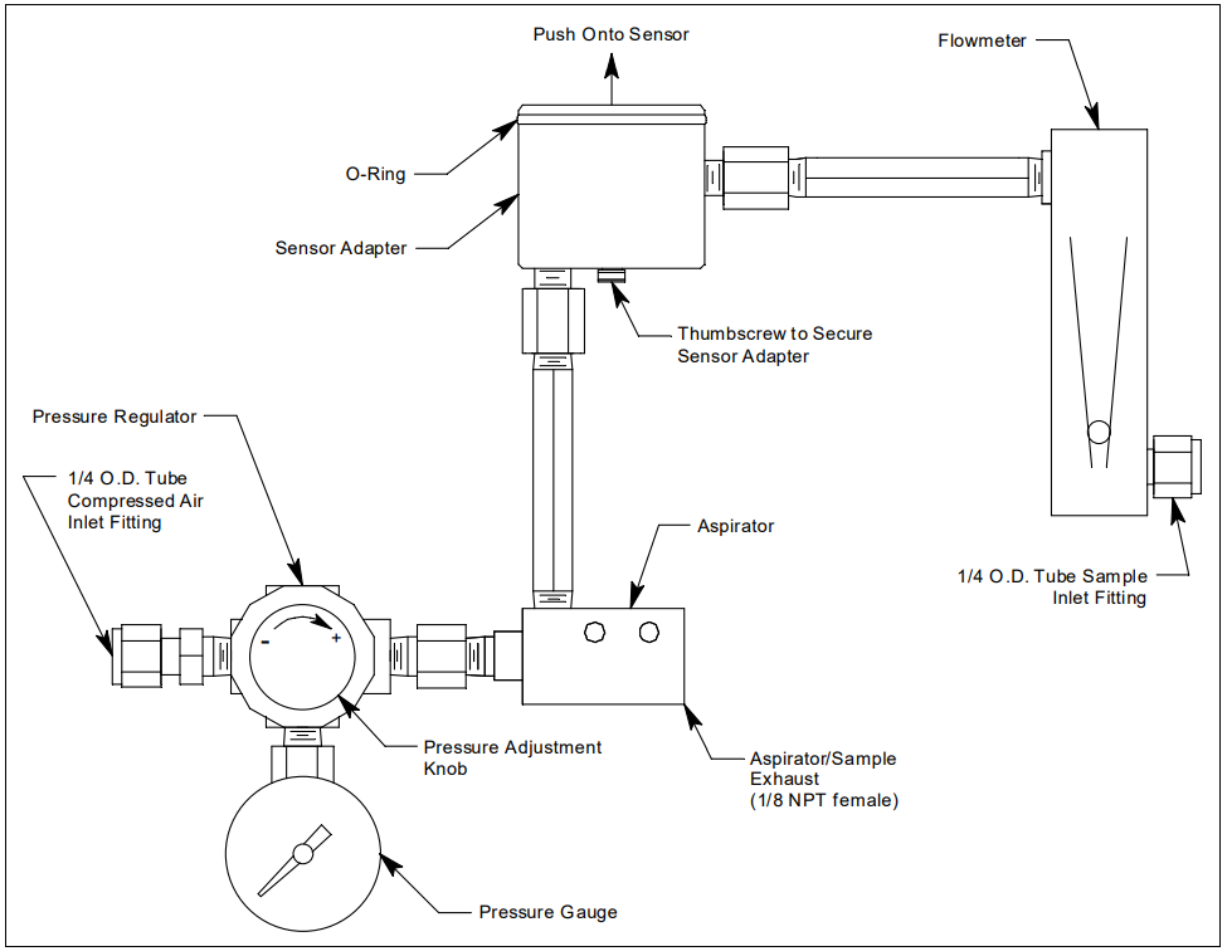

Figure 1: Component Location

The sample draw adapter consists of four major components (see Figure 1): the regulator, aspirator, sensor adapter, and flowmeter.

Regulator

The regulator has an inlet port on its left side with a 1/4" tube fitting. The maximum allowable inlet pressure is 300 psi. A gauge at the top of the regulator indicates the output pressure. The output pressure, and sensor flow, can be adjusted using the knob on the front of the regulator. The sensor flow rises or falls as the output pressure is increased or decreased.

Aspirator

The aspirator inlet is connected to the output port on the right side of the regulator and the vacuum port on top is connected to the sensor adapter. It has a venturi tube inside it which generates a vacuum at its top port when compressed air flows through it. The compressed air and the air drawn from the sensor chamber into the top port of the aspirator are both exhausts on the right side of the aspirator. Sensor Adapter

The sensor adapter pushes onto the SD-1 and is secured with a thumb screw on the bottom. It is installed hand-tight. It has an O-ring on the outside that seals against the SD-1.

Flowmeter

The flowmeter indicates the flow to the detector. It has a 1/4" tube fitting at its inlet port and its exhaust port is connected to the sensor adapter. The flowmeter's indication range is 1 – 10 SCFH. It has no flow adjustment valve because the flow rate is controlled by the regulator.

Installation

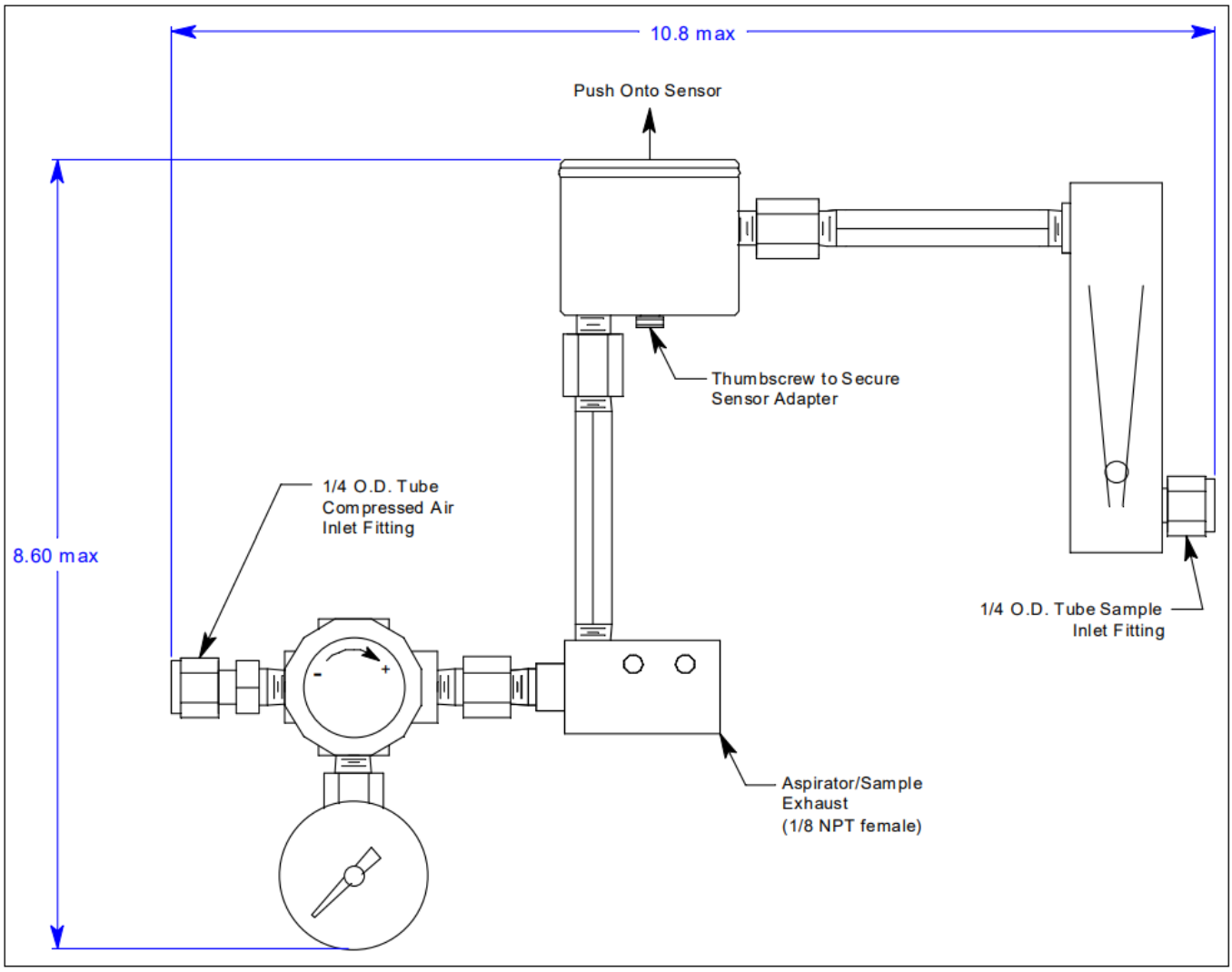

Figure 2: Outline & Mounting Dimensions

1. Install and startup the detector as described in the SD-1 Operator's Manual.
2. If necessary, push the sensor adapter onto the detector and tighten the thumbscrew on the bottom of the sensor adapter.
3. Connect a sample line from the area to be sampled to the inlet fitting on the flowmeter. The fitting accepts 1/4" OD rigid metal tubing such as copper, aluminum, or stainless steel tubing.

   NOTE: If the sample draw aspirator adapter is installed in a cold area, the sample line will need to be heated in order to prevent condensation and possible freezing of the moisture in the gas sample line or sample draw aspirator adapter.

4. The aspirator exhaust includes the sample air. It may be routed to a different area where it can be exhausted safely by installing a tube fitting in the exhaust port of the aspirator and running tubing to the “safe” area from this port. The port has 1/8 NPT female threads.
5. Turn the regulator adjustment knob completely counterclockwise and then turn it one turn clockwise so that the flow will start out at a low level when the compressed air is connected and turned on.
6. Connect a compressed air source up to a maximum of 300 psi to the inlet of the regulator. The regulator is only rated up to 300 PSI inlet pressure.

   NOTE: The compressed air used for the sample draw aspirator adapter must be dry (free from humidity). If wet air is used, at low temperatures, the moisture in the air may freeze in the aspirator and cause the sample draw aspirator adapter to function improperly.
7. Adjust the regulator adjustment knob so that the flowmeter indicates 3 SCFH. The regulator exhaust pressure indicated by the regulator gauge will vary for a particular flow depending on the length of the sample line and other restrictions such as filters. Typically the pressure will be between 5 and 10 psi for short sample runs. It will be higher for longer sample runs and if filters are used.
8. Calibrate the detector head as described below.

   NOTE: Calibrate the detector head with the sample draw adapter installed to ensure an accurate reading.

Calibration Frequency

Although there is no particular calibration frequency that is correct for all applications, a calibration frequency of every 3 to 6 months is adequate for most SD-1 transmitter applications. Unless experience in a particular application dictates otherwise, RKI Instruments, Inc. recommends a calibration frequency of every 3 months.
If an application is not very demanding, for example, detection in a clean, temperature-controlled environment where the target gas is not normally present and calibration adjustments are minimal at calibration, then a calibration frequency of every 6 months is adequate.
If an application is very demanding, for example, if the target gas is present often and in significant concentrations or the environment is not well controlled, then more frequent calibration than every 3 months may be necessary.

Calibration

1. Follow the instructions in the SD-1 Operator’s Manual for setting the zero reading and making span adjustments.
2. When introducing gas to the detector, fill a gas sample bag with a regulator or dispensing valve. See “Parts List” on page 8 for available parts.

   NOTE: A gas bag is recommended for calibration instead of a demand flow regulator because a demand flow regulator introduces enough flow restriction to significantly reduce the flow. If a demand flow regulator is used, the flow will have to be adjusted up to 3 SCFH while the regulator is connected during calibration and down to 3 SCFH after calibration.
3. Connect the sample bag tubing to the inlet of the flowmeter.
4. Allow the sample draw adapter to draw gas to flow for 1 minute and then make any calibration adjustments necessary.
5. Disconnect the sample bag from the flowmeter inlet.

Parts List
Table 2 lists replacement parts and accessories for the sample draw adapter.

Table 2: Parts List

Part Number	Description
06-1248RK	Tubing, 3/16 x 5/16, polyurethane, for calibration kit
81-1051RK-60	Regulator, with gauge and knob, 6 LPM, for 34-liter aluminum and 58- and 103-liter steel cylinders
81-1127RK	Gas bag with fittings and hose barb, 12 inches x 12 inches, 5 liters, tedlar

Part Number: 71-0575
Revision: P1
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Documents / Resources

	RKI INSTRUMENTS 30-0965 SD-1 Sample Draw Aspirator Adapter [pdf] User Manual 30-0965 SD-1 Sample Draw Aspirator Adapter, 30-0965, SD-1, Sample Draw Aspirator Adapter

References

- RKI Gas Detectors - Portable Gas Monitors - LEL, PID, H2S, CO, O2 Sensors