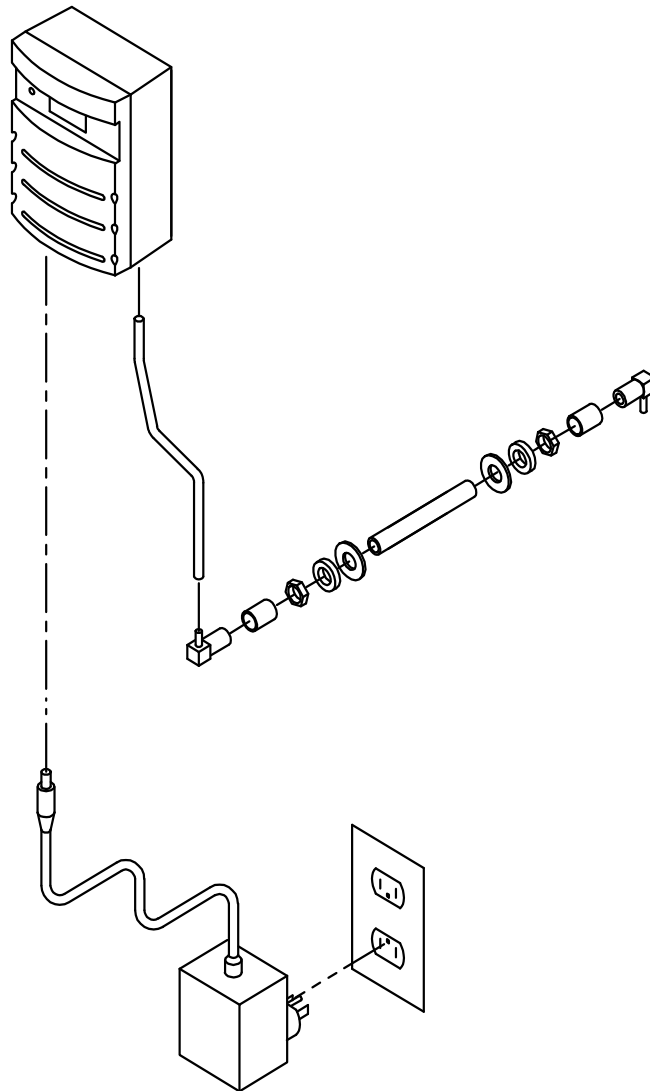


American Safe Room, Inc.

Installation Kit and Set-Up Differential Pressure Monitoring System for Hospital Infectious Isolation Rooms



**Drawing: ASR-DPMA
Revision (D)
April 25, 2007**

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General Description

The ASR-Infectious Isolation Room Safety Monitor Kit is a high-quality, low cost solution for infectious isolation room monitoring. It constantly measures the difference in pressure between two rooms and indicates when the **pressure differential** is less than acceptable and contamination may occur.

If you are setting up a positive-pressure safe room or a negative pressure isolation room, this instrument will indicate that you maintain the prescribed pressure differential in the protected space.

It can be mounted either inside or outside the protected space, depending upon where you would like to be notified of a potential **pressure differential** problem. In a negative-pressure isolation room in a hospital, the unit may be mounted outside the room in the hallway where hospital staff can easily see it.

In an overpressure safe room, the preferred mounting location is inside the protected space where the occupants can be notified if their protected space has been compromised by too small of a differential pressure.

The kit includes all necessary parts and components to be quickly installed and setup by personnel without HVAC experience. The unit has a through-the-wall probe that enables it to sample the air pressure in the adjacent area to the protected space and compare it to the pressure inside the protected space.

The ASR-Infectious Isolation Room Safety Monitor Kit includes

1. One each wall mounted low-range digital pressure monitor
2. One each D/C voltage adaptor
3. One each bulkhead connection kit for easy installation and connection inside or outside the protected space.

The Safety Monitor system is electromechanical system having a digital read out capable of resolving low range differential air pressures from 0.1 to 0.25 inches of water column with an accuracy of +/- 1% of full scale or 0.01 inches of water column.

Specifications

| | |
|----------------------------|--|
| Input power: | 12-24 volt DC provide by the included power supply |
| Pressure range: | Bi-directional 0.1/0.25/0.5/1.0-inches of water column at full scale |
| Display: | Signed 3.1/2 digit LCD, indicates press in inches of water column |
| Proof pressure: | 3 pounds per square inch |
| Burst pressure: | 5 pounds per square inch |
| Accuracy: | plus or minus 1% of full scale |
| Temperature effect: | 0.05% of Celcius |
| Annual zero : | 2.0% maximum |
| Zero adjust: | Push button auto zero |
| Fittings: | Barbed brass 1/8-inch internal diameter fitting |
| Housing: | High impact ABS plastic |
| Color: | White |

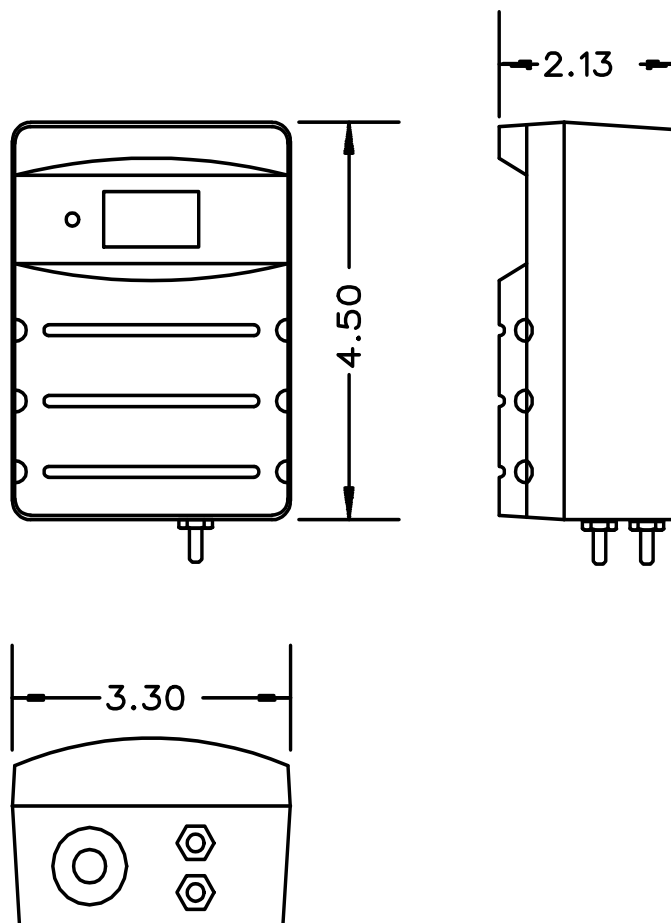


Figure 1
Dimensions of ASR-DPMA

Installation instructions

Bulkhead connection

The ASR-Differential Pressure Monitor Kit was designed for easy installation and includes all of the required components for operation and may be installed inside or outside of the protected space.

The ASR-Differential Pressure Monitor Kit may be easily configured to monitor either positive or negative pressures from 0.1 to 0.25 inches of water column.

Installation

1. Choose a mounting location with smooth flat surfaces to insure proper sealing of the bulkhead compression seals.
2. Drill a 13/32-inch diameter hole through the bulkhead wall.
3. Insert the hollow threaded rod through the hole and assemble the seals and threaded fasteners as shown in figure 2.

The monitor must be connected so it can to sample the air pressure both inside and outside the isolation room simultaneously.

If the monitor resides inside the negative pressure room, connect the hose from the HI pressure port of the monitor to the bulkhead fitting leading to the outside high pressure corridor.

If the monitor resides outside the negative pressure room, connect the hose from the LO pressure port of the monitor to the bulkhead fitting leading to the inside of the low pressure room.

CAUTION

DO NOT BLOW INTO THE HOSE OR MONITOR
The pressure monitor is a highly sensitive instrument designed for very low air pressures only. Blowing into the monitor will permanently damage the device and void all warranties.

Installation drawing

Legend

- A — Fitting, 90 degree
- B — Collar
- C — Nut
- D — T-washer
- E — Seal
- F — Threaded pipe
- G — Hose

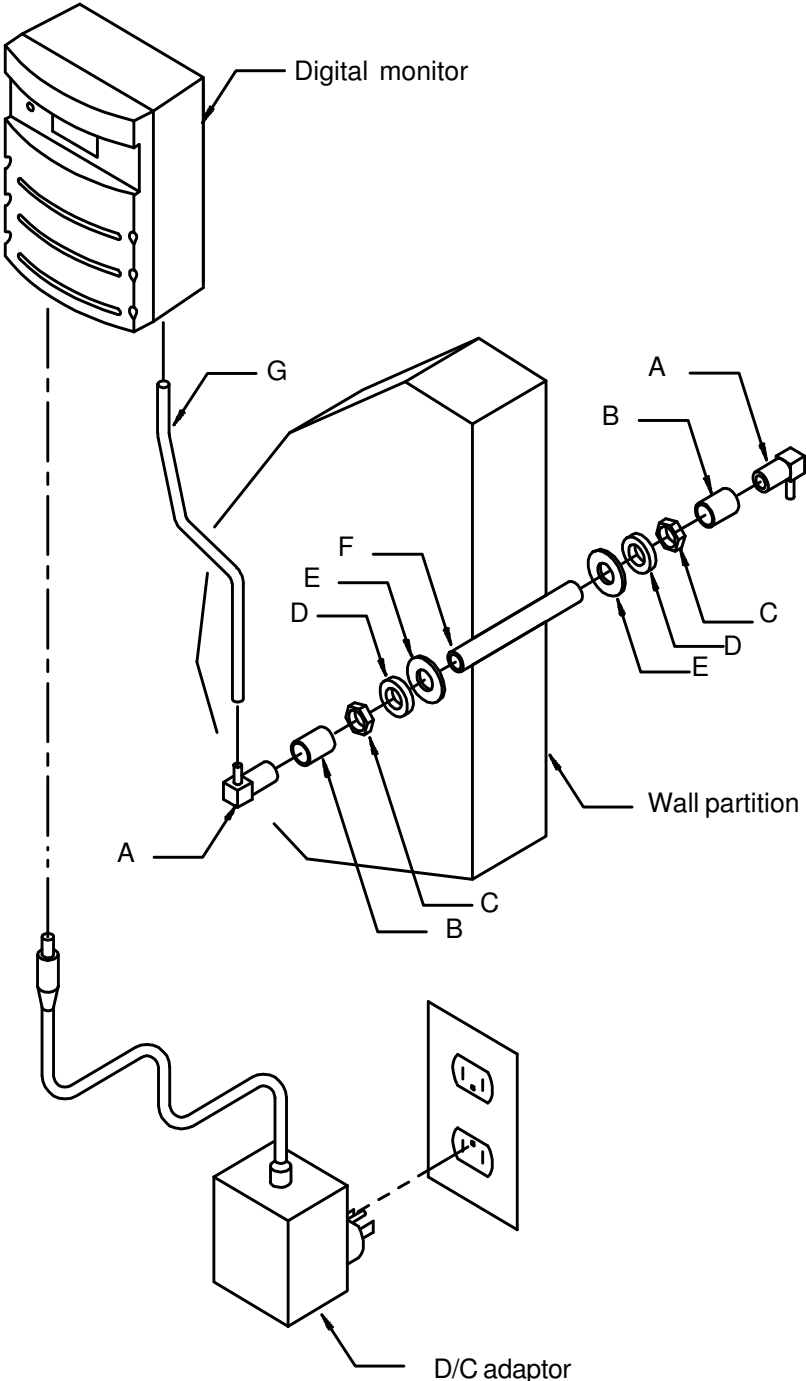
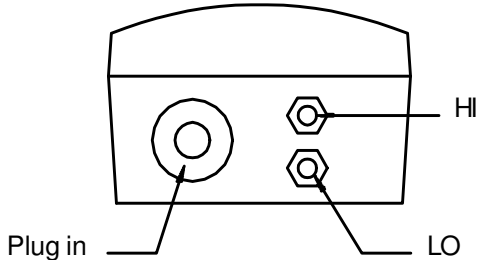


Figure 2
Installation drawing

Addendum

Excerpt from: OSHA Enforcement Procedures and Scheduling for Occupational Exposure to Tuberculosis

This complete document can be found at:

www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=1586

5. Engineering Controls. The use of each control measure must be based on its ability to abate the hazard.

a. Individuals with suspected or confirmed infectious TB disease must be placed in a respiratory acid-fast bacilli (AFB) isolation room. High hazard procedures on individuals with suspected or confirmed infectious TB disease must be performed in AFB treatment rooms, AFB isolation rooms, booths, and/or hoods. AFB isolation refers to a negative pressure room or an area that exhausts room air directly outside or through HEPA filters if recirculation is unavoidable.

b. Isolation and treatment rooms in use by individuals with suspected or confirmed infectious TB disease shall be kept under negative pressure to induce airflow into the room from all surrounding areas (e.g., corridors, ceiling plenums, plumbing chases, etc.). (See Appendix A, Supplement No. 3, page 76)

Note: The employer must assure that AFB isolation rooms are maintained under negative pressure. At a minimum, the employer must use nonirritating smoke trails or some other indicator to demonstrate that direction of airflow is from the corridor into the isolation/treatment room with the door closed. If an anteroom exists, direction of airflow must be demonstrated at the inner door between the isolation/treatment room and the anteroom. (See Appendix B)

c. Air exhausted from AFB isolation or treatment rooms must be safely exhausted directly outside and not recirculated into the general ventilation system. (See Appendix A, Supplement No. 3, page 87).

In circumstances where recirculation is unavoidable, HEPA filters must be installed in the duct system from the room to the general ventilation system. (See Appendix A, Supplement No. 3, page 82). For these HEPA filters, a regularly scheduled monitoring program to demonstrate as-installed effectiveness should include; 1) recognized field test method, 2) acceptance criteria, and 3) testing frequencies (see Appendix A, Supplement No. 3, page 85). The air handling system should be appropriately marked with a TB warning where maintenance personnel would have access to the duct work, fans, or filters for maintenance or repair activities.

- d. In order to avoid leakage, all potentially contaminated air which is ducted through the facility must be kept under negative pressure until it is discharged safely outside (i.e., away from occupied areas and air intakes), or
- e. The air from isolation and treatment rooms must be decontaminated by a recognized process (e.g., HEPA filter) before being recirculated back to the isolation/treatment room. The use of UV radiation as the sole means of decontamination shall not be used. The CDC Guidelines allow the use of UV in waiting rooms, emergency rooms, corridors, and the like where patients with undiagnosed TB could potentially contaminate the air. (See appendix A, pg. 90)
- Note:** The opening and closing of doors in an isolation or treatment room which is not equipped with an anteroom compromises the ability to maintain negative pressure in the room. For these rooms, the employer should utilize a combination of controls and practices to minimize spillage of contaminated air into the corridor. Recognized controls and practices include, but are not limited to: minimizing entry to the room; adjusting the hydraulic closer to slow the door movement and reduce displacement effects; adjusting doors to swing into the room where fire codes permit; avoiding placement of room exhaust intake near the door; etc.
- f. If high-hazard procedures are performed within AFB isolation or treatment rooms without benefit of source control ventilation or local exhaust ventilation (e.g., hood, booth, tent, etc.), and droplets are released into the environment (e.g., coughing), then a purge time interval must be imposed during which personnel must use a respirator when entering the room. (See Appendix A, pg. 35 and Suppl. 3, Table S3-1)
- g. Interim or supplemental ventilation units equipped with HEPA filters as described in Appendix A pgs. 70-73 are acceptable.