

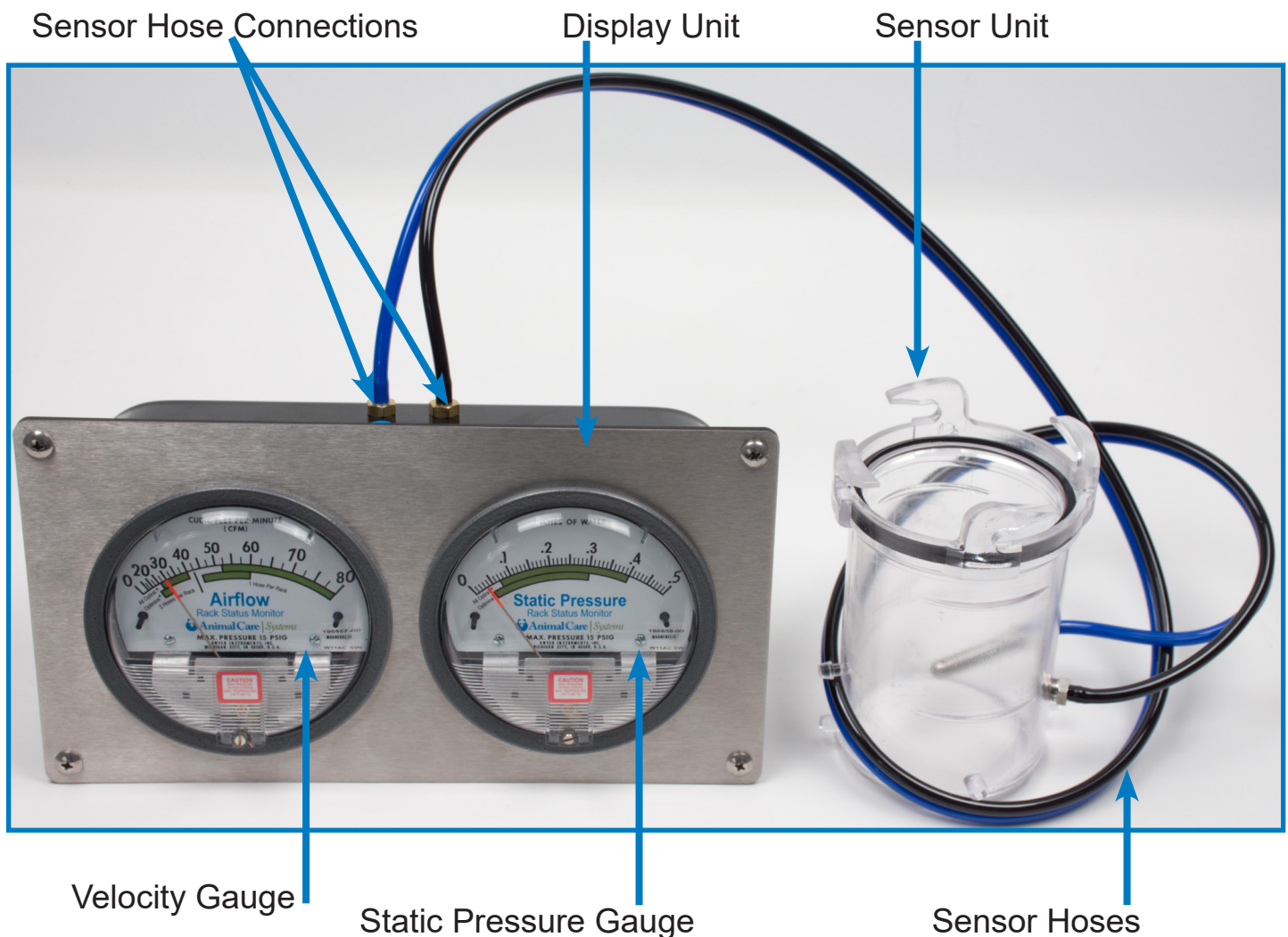
Opti Rack SOP - Airflow and Static Pressure Magnehelic Gauge for Racks



[Demonstration video](#)

Introduction

The airflow and static pressure magnehelic gauge for racks was formerly known as the rack status monitor kit (RSM). The RSM utilizes analog gauges to measure the exhaust flow rate as it passes through an Animal Care Systems rack. The system is comprised of two primary components: A sensor unit that installs in line with one of the exhaust hoses servicing each rack and a display unit that houses two pressure gauges. To ensure accurate readings, the sensor unit must be installed directly on one of the rack exhaust connectors. This unit includes a pair of small hoses that are coupled together and connect to the display unit.



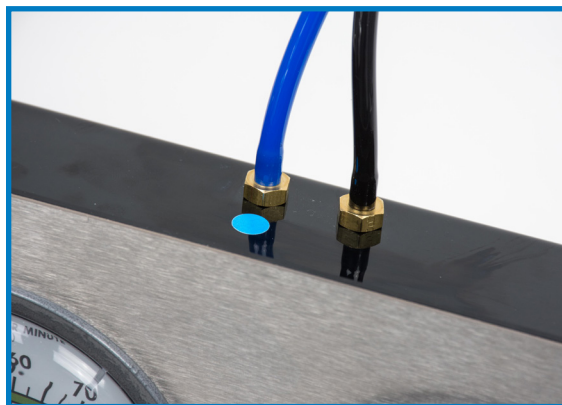
Do not heat-sterilize the rack status monitor.

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Installation

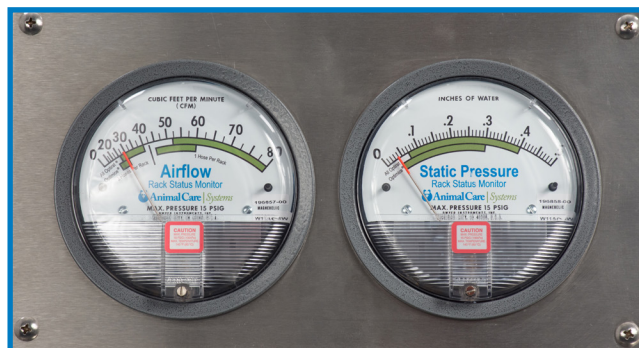
1. Mount the display unit on the rack using the two hooked hangers. Use a small flat-head screwdriver on the front screw to zero the gauges. The gauges **must be zeroed before** airflow is attached.
2. Disconnect one exhaust hose from the top of the rack, and attach the sensor unit where the hose was previously connected. The sensor unit will attach in only one direction, so it cannot be installed backward.
3. Connect the same exhaust hose to the other end of the sensor unit.
4. Connect the sensor hoses on the sensor unit to the display unit. Attach the blue hose to its corresponding barb fitting and the other hose to the other fitting.



Using the Monitor

Adjust airflow so that the gauge dial falls within the green band on each gauge. The green bands correspond to specific Opti racks or number of hoses in use.

Note that the green bands are indicators for **full racks only**. Removing cages from the rack will increase airflow to the remaining docked cages, but the rack total airflow will remain the same.



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Airflow and Pressure Troubleshooting

Ensure the sensor tubes are tightly coupled over the barb fittings.

If the airflow dial is **beyond** the green bands:

- Install an iris damper (M49D100, or M49D150) to each exhaust hose. Animal Care Systems recommends using one style of damper for each rack.
- Install the damper between the exhaust drop and the hose (see below images).

If the airflow dial is **below** the green bands and dampers are **not** in use:

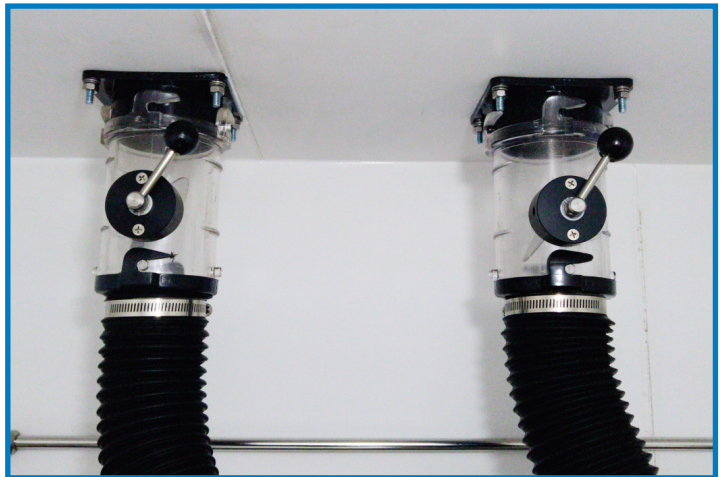
- Increase total exhaust airflow in the room. If there are open exhaust vents that draw air directly from the room, partially restrict these vents to increase airflow at the remaining exhaust drops connected directly to the rack.

If the airflow dial is **below** the green bands and dampers **are** in use:

- Open the iris until the dial returns to the green bands.



M49D100 iris damper connected to a V-box



Legacy dampers connected to direct-to-ceiling drops

If the static pressure dial is **below** the green bands:

1. Check that both exhaust hoses are properly connected to the rack and monitor sensor unit.
2. Ensure the bottom drain door on the rack is closed ([Section 4.2](#), Page 15).
3. Disconnect the sensor unit from the rack and exhaust hose, and place the unit away from airflow, and ensure both gauges read zero.

If the static pressure dial is **beyond** the green bands:

1. If using M79190 dampers, ensure their handles are synchronized.
2. Verify that airflow through the rack is within the green band on the airflow gauge.
3. Adjust the airflow to the **low end** of the green bands if rack cage capacity is less than 50 percent.

Opti Rack Airflow Tables

Airflow Requirements for Optimice®, Ergomice®, Optirat®, Optirat GenII, and Optirat Plus Racks and Cages				
Rack Type	Functional Exhaust Airflow Range, CFM	Air Changes Per Hour (ACH)	Anemometer Measurement Range, Per Hose, m/s	
			Two Hoses	One Hose
Optimice	45 - 60	20 - 30	4.0 - 5.25	8.0 - 10.5
Ergomice-80	38 - 50	20 - 30	3.4 - 4.5	6.8 - 9.0
Ergomice-70	34 - 45	20 - 30	3.0 - 3.9	6.0 - 7.8
Ergomice-50	25 - 33	20 - 30	2.2 - 2.9*	4.3 - 5.7
Optirat/GenII/Plus	55 - 82	20 - 30	4.8 - 7.2	11 - 14.4

*A single hose is standard for Ergomice 50

Airflow Requirements for Single-use Cages Within Optimice and Ergomice Racks				
Rack Type	Functional Exhaust Airflow Range, CFM	Air Changes Per Hour	Anemometer Measurement Range, Per Hose, m/s	
			Two Hoses	One Hose
Optimice	60 - 75	20 - 30	5.3 - 6.6	10.6 - 13.2
Ergomice-80	51 - 64	20 - 30	4.5 - 5.6	9.0 - 11.2
Ergomice-70	45 - 56	20 - 30	3.9 - 4.9	7.8 - 9.8
Ergomice-50	33 - 41	20 - 30	5.7 - 7.1*	11.4 - 14.2

*A single hose is standard for Ergomice 50

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Cleaning Sensor Unit and Pitot Tube

1. Disconnect the hose from the sensor unit, and remove sensor unit from rack (Figure 1).
2. Use a dry, electro static wipe or duster to remove dust and debris from sensor unit's interior walls and the pitot tube (Figure 2). Ensure that dust and debris is wiped away from air intakes of pitot tube.
3. Connect sensor unit onto rack and reconnect the hose (Figure 3).



Figure 1

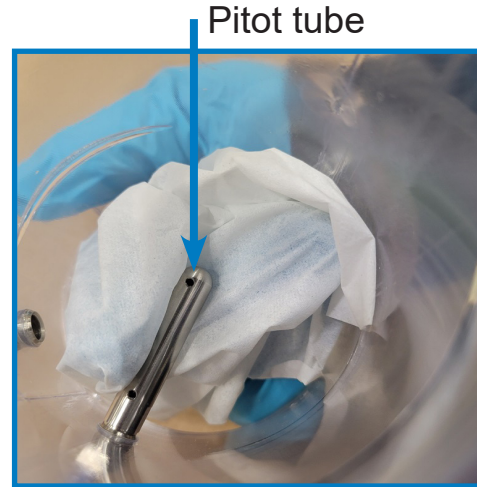


Figure 2



Figure 3