



RESPIRATORY SERVICES

DATE CREATED: March 2017

DATE REVIEWED/REVISED: **AUGUST 2017**

PROCEDURE

TITLE: Pulmonary Diagnostics:
Calibration of Jaeger Masterscreen
Body Box and APS System with
SentrySuite Software (Respiratory
Therapy)
NUMBER: B-00-12-12104

RELATED DOCUMENTS:

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SITE APPLICABILITY:

ST. PAUL'S HOSPITAL

GENERAL INFORMATION:

Equipment needs to be calibrated daily. Repeat calibrations may be necessary when barometric pressure or temperature has changed significantly from the time when equipment was last calibrated. (i.e. ± 2 degrees Celsius or $\pm 10\%$ relative humidity). When equipment parts and gas tanks are exchanged or when troubleshooting, calibrations must be repeated.

There are three sensors that require calibration:

- Volume
- Gas Analyzer
- Pressure

Each calibration may be completed independently.

EXHIBITS:

- A. [Ambient Conditions Record Sheet](#)

SPECIAL CONSIDERATIONS:

To access the manual, launch Sentry Suite software, select ? icon in the tool bar, **INSTRUCTIONS FOR USE**, then **MASTERSCREEN**.

REQUIRED SUPPLIES & EQUIPMENT:

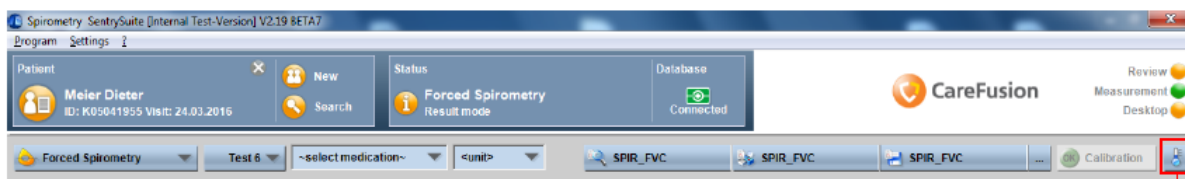
- Jaeger Masterscreen Body and APS Pro Pulmonary Function Testing Equipment
- 3L calibration syringe

PROCEDURE:

1. Log into the computer, launch **SENTRY SUITE** software from the shortcut link on the desktop.
2. In the **SYSTEM STARTUP** screen, select the **SKIP WARMUP** button if system box main switch has been on for greater than 45 minutes.



3. Calibrations can be started from either the **CALIBRATION TOOLS** icon on the desktop of the Sentry Suite software or the **CALIBRATION** button within the corresponding measurement application in Sentry Suite.
4. Select one type of sensor to calibrate. Stop the calibration process in order to enter the ambient conditions prior to running any calibration sequence.

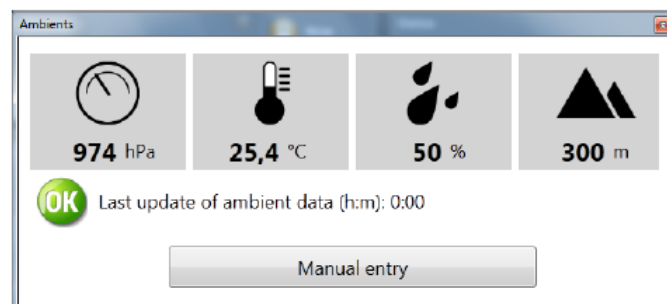


To enter the current ambient data manually or to check the data transferred into the system via the Ambient Unit, click on the **"Ambient Data"** symbol.



The ambient data program can be selected from each application (e.g. spirometry, Body...) and each calibration program.

Following window appears:

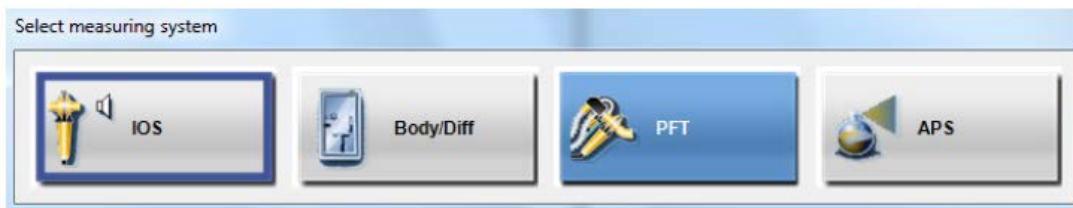


5. Ambient conditions are manually entered via the thermometer icon on the upper right corner of the screen. Select the **MANUAL ENTRY** button and enter values according to the current conditions per the barometer, external temperature and relative humidity meters. **SAVE** the adjustments.

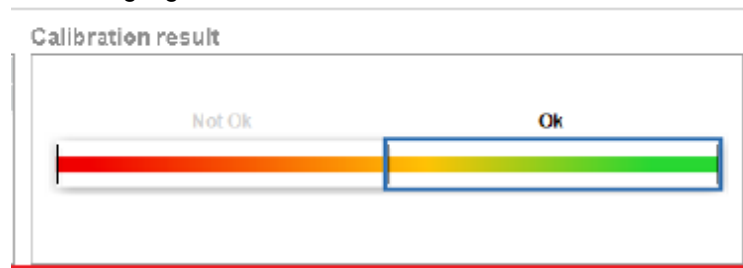
NOTE: Also record ambient conditions of the room on the *Ambient Conditions Record Sheet*.

Volume Calibration:

1. When calibrating units with combined measuring systems, an additional screen will appear. Select the desired system to be calibrated (i.e. box, arm or APS) then proceed.



2. Press **F1** to start calibration. Follow the prompts on the screen to complete the calibration process.
3. Calibration is required for three different flow rates, slow, medium and fast, except for the Aerosol Provocation System (APS). Acceptable flow rate zones for each flow rate are separated by dotted lines. Once the required loops are completed at each flow rate, a green check mark will appear to the right of the flow-volume graph.
4. Specifically for volume calibration of the APS unit, keep flow rate less than 2 L/s in order to complete calibration.
5. At the end of calibration, ensure calibration has passed, as indicated in the bottom of the screen. **OK** zone of the box should be highlighted.



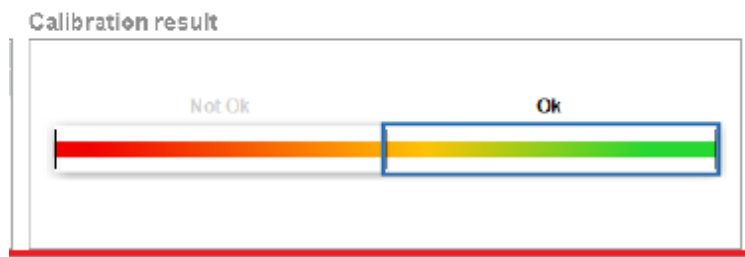
6. Repeat calibration as necessary.
7. Navigate to the **Calibration** button to select another category of calibration until all sensors are calibrated.

Gas Calibration:

1. Open cylinder valves.
2. The software may prompt for a Filling Sensor calibration, which does not apply to our units. Click **EXIT PROGRAM** to proceed and continue the calibration.
3. For the Masterscreen Body (RT) unit (Room C), connect the drying tube to the port on the side of the analyzer module.
4. Press **F1** to start calibration, ensure **ALL GASES** is selected to the drop down menu button at the upper left corner of the screen. Follow the prompts on the screen to complete the calibration process.



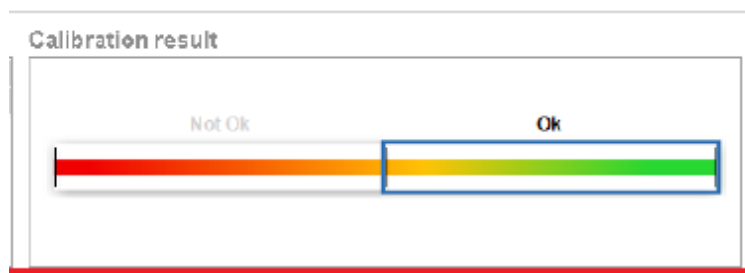
5. When gas tanks are changed, gas concentrations must be adjusted. Select **SETTINGS**, then **PROGRAM SETTINGS**, from the top of the toolbar.
6. In the **CALIBRATION GAS 2** section of the screen, enter the gas concentrations into the corresponding fields per the tag on the tank. Recalibrate all gases prior to patient testing.
7. At the end of calibration, check marks will appear for each of the respective gases that has passed calibration. Additionally, the **OK** zone of the box should be highlighted in the calibration result box at the bottom right of the screen.



8. Repeat calibration for each individual gas as necessary, by selecting the desired gas to be calibrated through the drop down menu button at the upper left corner of the screen.
9. Ensure drying tube is reconnected to the pneumotach after gas calibration is completed in the Masterscreen Body (RT) unit. (*Room C*)
10. Navigate to the **CALIBRATION** button to select another category of calibration until all sensors are calibrated.

Box Calibration:

1. Press **F1** to start calibration. Follow the prompts on the screen to complete the calibration process.
2. At the end of calibration, ensure calibration has passed, as indicated in the bottom of the screen. **OK** zone of the box should be highlighted.



3. Repeat calibration for the part(s) of the test that did not pass by navigating to the drop down menu button at the upper left corner of the screen.
4. During calibration, external sources of pressure fluctuations should be avoided (i.e. slamming doors or vibrations); room doors may be closed to limit this. Direct sunlight should also be avoided during calibration.
5. Navigate to the **CALIBRATION** button to select another category of calibration until all sensors are calibrated.

Compressed Air Check:

1. Ensure a patient is selected.
2. In the **BRONCHIAL CHALLENGE** application of Sentry Suite software, select **CHECKS, COMPRESSED AIR CHECK** from the toolbar.
3. A pop up window will appear, follow the instructions on the screen to complete calibration.
4. Upon completion of compressed air check, a pop up window will appear indicating the status of the check.
5. Repeat the check when a new nebulizer is installed, and as necessary. Troubleshoot the system for leaks if the check fails.

REFERENCES:

1. Care Fusion (2016) *Instructions for Use MasterScreen Body, Body/Diff, Diff, PFT IOS*. Version 01.00 for Sentry Suite software >2.19.

DEVELOPED and REVIEWED BY:

RRT, Respiratory Services, PHC

Room: _____

[illegible]

If temperature changes by 2 degrees, relative humidity changes by 10 %, or BP changes by 5mmHg, please recalibrate the machines