

## End-Tidal pCO<sub>2</sub> Calibration

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### PURPOSE

To ensure PCO<sub>2</sub> measurements are consistently accurate.

### POLICY

Nonin/RespSense LS1R-9R has a built in zero-point calibration function for CO<sub>2</sub>. Perform the calibration procedure at least every 6 months or if the baseline of the CO<sub>2</sub> graph is elevated. The calibration apparatus is reusable for approximately 100 times. When the pellets start to turn purple they cannot absorb any core CO<sub>2</sub> and the calibration apparatus must be replaced.

Document all calibration procedures, pass or fail, for quality analysis.

### PROCEDURE

#### 1.0 Calibration Items

##### 1.1 Gas Valve for verification gas

- Reusable gas valve and tubing for controlling the flow from the verification gas

1.2 Verification gas and tubing. Contains 5 Vol% of CO<sub>2</sub> (equals 38 mmHg or 5.3 kPa). To be used with gas valve.

##### 1.3 Calibration Apparatus

- Used for 0-point calibration

#### 2.0 Calibration Procedure

2.1 Attach a calibration apparatus to the moisture trap.

2.2 Turn the monitor on by pressing the On/Off button.

2.3 While the Nonin logo displays, press and hold the Audible alarm Pause/Resume button. After approximately 15 seconds, the message HOLD ALARM PAUSE BUTTON AND PRESS POWER TO CALIBRATE displays on the monitor. Do not release the Audible Alarm Pause/Resume button.

2.4 While continuing to press the Audible Alarm Pause/Resume button, press the On/Off button.

2.5 RespSense starts the calibration procedure and displays the following message: CALIBRATING.

2.6 Release both buttons.

2.7 Calibration takes 15 minutes to complete. When calibration is finished, RespSense returns to normal operating mode.

2.8 Disconnect the calibration apparatus.

2.9 Verify calibration:

- Connect the gas valve, which is already equipped with a T-connector, to a gas bottle containing 5 Vol% of CO<sub>2</sub> (verifying gas) and RespSense. Note: Older versions of the gas valve do not have a pre-

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attached T-connector. For this configuration, connect a T-connector and gas sampling tube before connection the gas valve to the gas bottle and RespSense. The T-connector allows excess flow to exit into the room.

- Verify that the gas valve needle is in the green zone of the dial indicator. If the gas valve needle is in the red zone, the CO<sub>2</sub> tank is empty and should be replaced.
- Release gas for 4-5 seconds (until the ball rises to the top of the column) and then turn off the gas valve. This equals one exhale. The ball should return to the bottom of the column when the gas valve is turned off. Repeat 2-3 times.
- Verify the reading of EtCO<sub>2</sub> on the touch panel display. A reading of 33-43 mmHg (4.4-5.7 kPa) is considered normal. This should agree with the device accuracy claims found in the “Capnography Specifications” section of the Nonin RespSense LS1R-9R Operator’s Manual.