RESMED PAP/GRASS TWin CALIBRATIONS

Audience: All personnel in the Sleep Disorder Center.

Purpose: To ascertain that the mask pressure, patient flow and leak channels on a GRASS recording is calibrated to ResMed's Easy Care Treatment software. The calibrations allow TWin to translate output values correctly.

Policy: Mask pressure, patient flow and leak calibrations should be done at the beginning of every month to ensure output values are correct. The outcome of the calibrations, pass or fail, will be documented for quality analysis.

Procedure: For naming purposes: The mask pressure cable is plugged into DC2 in the back of the GRASS amplifier. This cable in turn is plugged into ResMed's TxLink "A" port in the front of the device. The patient flow cable is plugged into DC1 in the back of the GRASS amplifier. This cable in turn is plugged into ResMed's TxLink "B" port in the front of the device. The leak cable is plugged into DC4 in the back of the GRASS amplifier. This cable in turn is plugged into ResMed's TxLink "C" port in the front of the device. (There is a diagram in the top drawer of each room's bedside table.)

- Bring up the ResMed TxLink software by double clicking its icon.
- Go into the ResMed software configuration menu and select the calibration option (DC output configuration). This brings up a pop up box listing outputs, their signal names, their known values and acceptable ranges.

Output	Signal	Low Value	High Value	Range
A-Red	Mask Pressure	0.0 cmH2O	30.0 cm H2O	0 to 1 V
B-Blue	Patient Flow	-100 L/min	100 L/min	-1 to 1 V
C-Green	Leak	0 L/m	120 L/min	0 to 1 V

- Bring up TWin monitoring mode by double clicking the AS40-PLUS RECORD icon.
- Click the "DC" icon on the top tool bar. (Do Not Start A Recording). This brings up the "Slow Variable Calibrate" pop up box. This window will show an index of channels from top to bottom. Selecting each channel will display its channel label, units of measure and minimum and maximum input and output values.

Channel 2	CPres	
Output	Low: 0.00	High: 30.0 (cmH2O)
Input	Low: -0.01	High: 0.99 (V)

Channel 1	**CFlow**	
Output	Low: -100	High: 100 (l/m)
Input	Low: -0.99	High: 0.99 (V)

Channel 4	**Leak**	
Output	Low: 0.00	High: 120 (L/min)
Input	Low: -0.01	High: 0.99 (V)

To Calibrate Mask Pressure:

- Be sure **channel 2** is selected/highlighted on the TWin Slow Variable Calibrate (SVC) pop up box.
- Select the "Calibration" tab on ResMed's DC output configuration pop up box. Another pop up box comes up.
- Choose "**A-Red**" from the Output drop down menu.
- Click the "Send High" tab on the ResMed Configuration box
- Click the "Set High" tab on the TWin SVC
- Toggle back to the ResMed configuration and click on "Send Low".
- Toggle back to the GRASS DC mask channel and select the "Set Low" tab.
- Go back to the ResMed box and click on "Stop" then click "Close".
- Go back to the TWin box and click "OK".
- Exit out of the GRASS DC channel popup box. (It may exit automatically)
- On the remaining ResMed pop up box click "Apply".

Continue the calibrations for the flow and leak by repeating this series of steps being careful to use the correct corresponding ResMed DC Output Configuration values to the TWin DC channels.

To Calibrate Patient Flow:

- Be sure **channel 1** is highlighted on the TWin SVC box.
- Select the "Calibration" tab on ResMed's DC output configuration pop up box. The other pop up box comes up.
- Choose "**B-Blue**" from the Output drop down menu.
- Click the "Send High" tab on the ResMed Configuration box
- Click the "Set High" tab on the TWin SVC
- Toggle back to the ResMed configuration and click on "Send Low".
- Toggle back to the GRASS DC mask channel and select the "Set Low" tab.
- Go back to the ResMed box and click on "Stop" then click "Close".
- Go back to the TWin box and click "OK".
- Exit out of the GRASS DC channel popup box. (It may exit automatically)
- On the remaining ResMed pop up box click "Apply".

To Calibrate Leak:

- Be sure **channel 4** is highlighted on the TWin SVC box.
- Select the "Calibration" tab on ResMed's DC output configuration pop up box. The other pop up box comes up.
- Choose "**C-Green**" from the Output drop down menu.
- Click the "Send High" tab on the ResMed Configuration box
- Click the "Set High" tab on the TWin SVC
- Toggle back to the ResMed configuration and click on "Send Low".
- Toggle back to the GRASS DC mask channel and select the "Set Low" tab.
- Go back to the ResMed box and click on "Stop" then click "Close".
- Go back to the TWin box and click "OK".
- Exit out of the GRASS DC channel popup box. (It may exit automatically)
- On the remaining ResMed pop up box click "Apply".

Once the calibrations are completed and they all pass:

- Click "Close" on the ResMed DC Output Calibration box
- You may then close out of the ResMed Easy Care Tx software.
- The calibration is complete.
- Document findings for QA.

References:

GRASS Technologies, An Astro-Med Inc., Technical Support. 1-877-472-7779.

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