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ACCUSTAT™ Pressure Differential Monitor / Negative Room Pressure Monitors Instructions & Service Manual

ON/OFF and Negative/Positive Key Switch

A top mounted ON/OFF key switch is positioned on the top of the ACCUSTAT™ case. This allows the unit to operate or be switched off only by authorized personnel. To the right of the ON/OFF switch is an optional key switch for changing the unit from positive to negative pressure (your unit was undoubtedly set up for negative pressure at the factory). If this optional key switch was not ordered originally with the unit, you will observe only the single ON/OFF key switch. (There is, however, a manual internal adjustment to make the negative/positive conversion, which is described later in this operation instruction).

The ACCUSTAT Room Pressure Monitor is inoperable when the key points to the OFF label position (rear), and is ON when pointing to the right ON label. When in the ON position, the lighted digital readout will appear in the window. The key can be removed when either position has been chosen, and operation will remain in that position.

NOTE: It is not advisable to constantly switch unit on and off, as it may require more frequent zero calibration adjustments.

INSTALLATION INSTRUCTIONS: ACCUSTAT ROOM PRESSURE MONITORS

1. Position rear support base on wall. Scribe position for mounting holes and air sampling tube which will go into room. Electrical transformer cord can be brought in through back rectangular opening (non-exposed wire) or run down the outside of wall (exposed) and brought in through small hole provided in top of case.

2. Use a 1/4" drill bit to drill holes for anchors. Attach and secure ACCUSTAT Pressure Monitor to wall using plastic anchors and screws (supplied).

3. Install the sample tube. If you are going to run the tube directly from the ACCUSTAT Pressure Monitor into the room, drill a hole to accommodate the 1/4" tubing provided. If you are running it through an anteroom, or over a ceiling or another, non-linear method, run tubing now. MAKE SURE THERE ARE NO KINKS, SHARP BENDS OR OBSTRUCTIONS. If the tubing is not continuously open, the readings will be dramatically affected. Also, BE SURE THAT NOTHING ENTERS THE TUBE. Again, if the tube is blocked, it will not give accurate readings. After the tube is installed, carefully seal around it to prevent air leakage. DO NOT CONNECT THE ACCUSTAT YET.

4. Connect power cord to ACCUSTAT and allow it to run for at least 15 minutes (up to an hour will be best if possible). DO NOT ATTACH SAMPLING TUBE. This will allow internal parts to warm up and become acclimated to the new environment and provide an accurate reading. If after 15 minutes, the ACCUSTAT is not reading .000, let it run longer; it should reach .000. The ACCUSTAT displays both positive and negative readings. Positive readings have no sign, but negative ones read with (-) sign. For calibration -.000 and .000 are the same. If it settles at a reading other than .000, you will need to calibrate it. Start calibration with slide switch in center position. There is a set screw in the front upper right corner. You will need to turn it slightly with a jeweler's screwdriver or other small instrument. A **clockwise** turn moves it more **positive**, **counterclockwise**, more **negative**. Disregard the alarm light until you are ready to set the alarm set point. DO NOT ADJUST ANY INTERNAL COMPONENTS.

5. After it is calibrated, attach the sample tube(s) to the back port(s). The ACCUSTAT is internally set up for the room sample tube in a negative pressure room to be attached to the P-2 port. Putting it on the wrong port will give erroneous readings, and can cause damage to the transducer. Be sure there are no kinks or sharp bends in the tubing. Also, do not allow

anything to enter the tube which will block and possibly damage the sensor. You should now have a differential reading in the display.

6. Fasten the ACCUSTAT to the wall mounted support base. Be sure not to kink the tube(s) or abrade the electrical cord.

7. You can now set your alarm point. The black switch in the lower left area should be moved to the left position. The set point reading will be displayed in the window. Take a small slot screwdriver and adjust to the set point you want. If the room is close to neutral (-.001 to -.004), you will need a set point at or very near neutral in order to avoid many false alarms. You might consider trying to get a better negative reading. (There are several suggestions under trouble shooting). A room with a reading of -.005 or better could have a set point negative enough to warn before a more serious situation would occur. Once the alarm point is set, the LED should be green, if the room is functioning as expected, and the ACCUSTAT Pressure Monitor is installed properly.

8. Move the black switch to the center. You should still have a green light. You are now in the visual alarm mode. If an alarm were to occur, the LED would flash red.

9. To activate the audible alarm, move the switch to the far right position. You will now have a visual and audible alarm when the set point is exceeded. In an alarm condition, the switch can be moved to the middle position to silence the audible alarm, but the visual alarm will remain until the condition is brought back to that required.

10. There is a one minute delay for the audible alarm. If an alarm occurs, the red light will flash for one minute (approx.) before the audible alarm is activated. This is to avoid nuisance alarms.

11. Calibration -- The ACCUSTAT Pressure Monitor should be calibrated at least every 6 months of continual use or after turning on and off four or more times. To calibrate, remove cover plate and sample tube from sensor port and now follow Section 4 of installation instructions.

Warning: Do not exceed over pressure of 5 psi which will damage the transducer
Do not operate in temperatures below -40º or above 185º Fahrenheit.
Damage may result from reversal of supply and ground connections.

NORMAL OPERATION – ACCUSTAT ROOM PRESSURE MONITOR

This instrument is designed to monitor pressure in two distinct air masses. Typically this will be a patient room and a corridor. Each individual port on the sensor measures air from one air mass. The reading on the front of the ACCUSTAT Room Pressure Monitor indicates actual air pressure difference between the air masses. This is given in inches of water. If the ACCUSTAT Room Pressure Monitor itself is in the one air mass being compared, no sample tube is required because there is an opening in the top for air to be sampled.

The readings seen on the ACCUSTAT Room Pressure Monitor will fluctuate. This is NORMAL. The air in any hospital is not static, but rather dynamic. It is in constant movement. This creates slight changes in pressures and air balances. These pressure changes are very slight, but detectable by the ACCUSTAT. Many changes are likely in the hallway. They can be cause by rooms opening or closing, elevator movements, stairway doors or fire doors opening and closing, changes in supply air to individual patient rooms for comfort or combinations. Since many different areas have pressure differentials, slight changes in one can affect others.

TROUBLE SHOOTING ACCUSTAT ROOM PRESSURE MONITOR

NOTE: ACCUSTATs are adjusted at factory to read .000" as the zero calibration setting and .000" (neutral reading) on alarm set point. The unit may need to be re-calibrated to zero (.000) when received, due to temperature, and pressure variances between factory and the user's location. Allow unit to reach room temperature before making adjustments.

PROBLEM	SOLUTION
1. ACCUSTAT has no readout.	Make sure power is connected. Is on/off switch connected to JP4.
2. Readout is neutral for negative pressure room.	Is room completely sealed; is exhaust greater than supply (check with velometer).
3. Alarm LCD remains green when alarm condition.	Check user alarm set point (push black slide switch to left). Check that air sampling tube is placed on correct port (P2).

4.	Readings are erratic and won't stabilize when setting zero setting.	Make sure probe tube isn't connected to port, unit cannot be zero calibrated when probe tube is attached. Check that power connection is secure.
5.	Readings are erratic and won't stabilize when probe tube is connected.	Make sure probe is properly attached to port, probe lines are not bent, chinked, pinched, cracked or obstructed. Inspect that power supply is constant and does not exceed or fall below required voltage requirements.
6.	Audio alarm does not sound when alarm set point is reached and LCD turns red.	Audio alarm is on a one-minute delay cycle

ACCUSTAT SPECIFICATIONS

ELECTRICAL DATA
Operating Power: 12V
Minimum / Maximum voltage: 12V to 16V
Current Draw: 100 mA
Maximum Draw: <2W
MONITORING DATA
Microswitch Pressure Transducer
Pressure Range: -0.100 to +0.100 in. Water
Display Update: 1.0 Second
Maximum Over Pressure: 5.0 PSI
Accuracy of Reading ± 1% F.S.
MECHANICAL DATA
LCD Display: 1 Line
LCD Character Height: 0.5"
Cabinet: Stainless Steel
Dimensions: 7.367" (W) x 3.25" (H) x 2.25" (D)
Weight: 22 oz.
Mounting: Surface/Wall Mount
Operating Temperatures: 55 - 105°F (13°C to 41°C)
Operating Humidity: 10% to 94% RH Non-condensing
Pressure Range: -0.001 to +0.999WG
Sampling Hole Requirement: 1/4 Inch Hole needed for Sampling Tube into Room, Ambient Sensed Directly from Monitor
OPERATION DATA
Bi-colored Visual Alarm LED: Green Normal / Red Alarm Mode
Visual Alarm: Immediate Upon Reaching Setpoint
Audible Alarm: One Minute Delay
Alarm Setpoint Storage: Non-Volatile Memory
Alarm Setpoint: User Determined Adjusted Form Front Panel
Alarm Calibration: From Front Panel
Accuracy of Alarm Output: ± 1% of Setpoint
Standard Range: ± 0.1 Inches of Water (or ± 25 Pascals)
Resolution: 0.001" of Water (or 0.1 Pascals)
Alarm Output: SPDT Relay. Contacts Rated at 1A at 30M VDC or 120 VAC Resistive
Analog Outputs: 0-5VDC, 2.5V at Zero Pressure 2mA max
0-10VDC, 5V at Zero Pressure 2mA max
Max Loop Resistance is 580 OHMS
Operating Medium: Air or Non-Corrosive, Non-Explosive Gas
Tamperproof Controls: On/Off Keypad Switch

LIMITED WARRANTY ACCUSTAT ROOM PRESSURE MONITORS

Biological Controls (BC) warrants to its purchasers that all products sold by it will be free of manufacturing and material defects. Any defective product will be replaced, free of any charge if a claim is brought to BC's attention in writing, within ONE year following the date of shipment by BC. BC will not be responsible for any installation costs involved in such replacement. Replacement will include shipment cost within the continental United States. This warranty is IN LIEU OF any other warranty, express or implied, including, but not limited to, any implied WARRANTY OF MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. BC's liability under this warranty is limited to replacement and does not include any responsibility for incidental or consequential damages of any nature.

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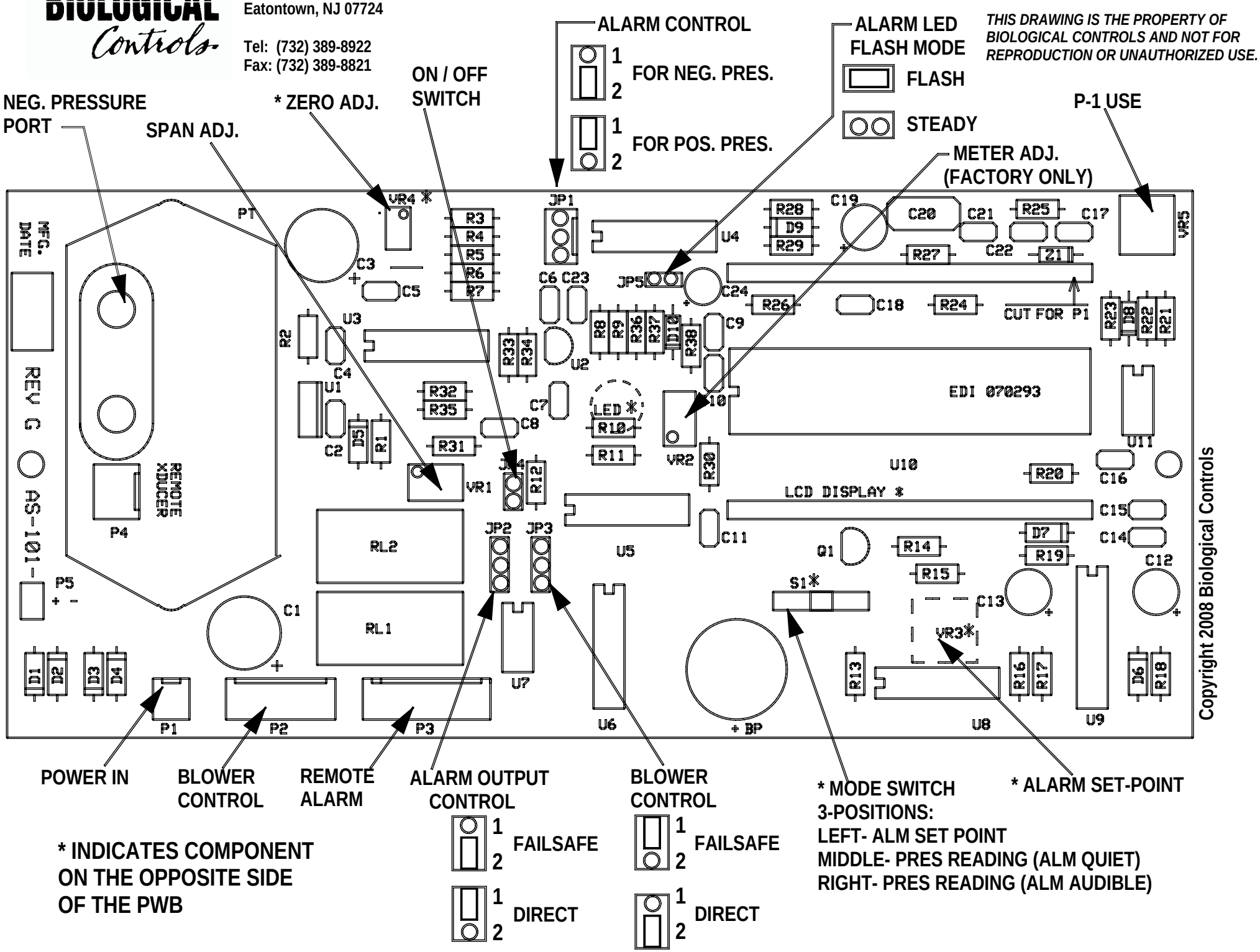

*** INDICATES COMPONENT ON THE OPPOSITE SIDE OF THE PWB**