Zero calibration of pressure sensors

Incubators will usually only work properly if there is an air pressure gradient between the air inlet and the exhaust.

This means that the rooms and plenums supplying and exhausting air need to operate at the correct pressure differential. The incubator supplier will provide the specifications needed for their machines, and hatchery ventilation systems must then be designed to deliver the required room static pressures.

Once in service, air spaces will need to be monitored with suitable pressure sensors, so that the air pressure can be corrected as necessary on a continuous basis (left).

There are two ways to calibrate pressure sensors. The first one is to do a full range calibration (Span) which includes the zero and extremes of the range covered by the sensor. This method needs some special equipment and procedures and is therefore not always possible to apply under hatchery conditions. The second method is to apply only a zero calibration. By this method, the sensor can be calibrated at neutral pressure to zero.

There are many kinds of pressure sensors and most of them have a special button, jumper, screw or menu to allow zero calibration (examples shown right).

To perform a zero calibration, first remove all the tubes entering the sensor, leaving the hose connectors vented into the same air space. By doing this, the difference between low pressure and high pressure tubes will be zero.

Depending on the make of sensor, and following the manufacturer's directions either:

- **Press and hold the 'zero' switch for about 4-5 seconds.**
- **Or set the jumper for zero calibration option and hold for 4-5 seconds.**
- **Or turn the screw until the display shows zero.**
- **Or if the sensor has a setup menu, follow the menu instructions to make the reading zero.**

The zero point should now be set and, if a display is present, the display will read zero. A zero calibration should be performed at least once a month. The hatchery environment is potentially a very challenging one, with the possibility of water, chemicals and fluff particles around the sensor. This can affect sensor accuracy. Some sensors have an automated zero calibration option, but it is still wise to check the sensors regularly to see if they are working correctly. Accurate control of static pressure in the hatchery is critical if the incubators are to work properly. Regular zero calibration of the pressure sensors will help to make this possible.

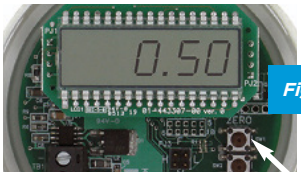

Figure 1 *Zero switch.*

Figure 2 *Menu driven zero calibration.*