

# Crowcon Technical Note

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**Document Reference:** GEN118  
**Document applies to:** All Portable Instruments  
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**Subject:** Biased Sensors in Portable Instruments



The technology of some electrochemical sensors is different to the regular electrochemical sensors. These are known as “biased” sensors, because they require constant power to maintain accurate readings, and draw power, even when the instrument in which it is fitted is turned off.

It is therefore vital that instruments containing biased sensors are charged regularly so that they do not lose battery power.

Once a Crowcon portable instrument turns off due to a low battery, there will be approximately 3-4 days of remaining power before a biased sensor loses power, and its “Bias”.

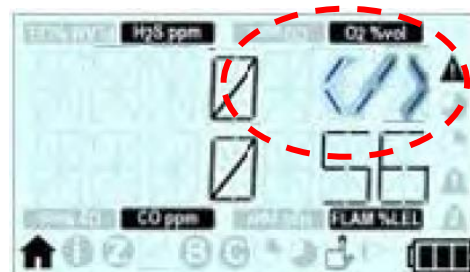
If a sensor loses its bias, when the battery has been re-charged, it will require a recovery or “soak” period before it can provide correct readings again. This “soak” period will vary, depending on the particular sensor type.

A loss of ‘bias’ does not damage the sensor, it will just take a while to recover.

**An example of this** is the Long-Life Oxygen sensor in a T4x instrument, where the sensor requires around 3 hours soak before the stabilizes and the sensor becomes re-biased and useable again.

If the T4x is switched on after the sensor has lost its bias, but before the 3-hour ‘soak’ period allowing the sensor to fully settle, the device will enter a 1-hour period to ensure that the sensor has re-biased enough to function safely.

This will be displayed as “</>” under the gas name for the O2 channel.



When a sensor has lost its bias, some instruments will display the issue differently, and some will just show an incorrect reading.

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