MSA FAQs

-Every time I calibrate my oxygen sensor, it puts my controller into alarm. None of the other sensors (H2S, LEL, CO, etc) do this.

***Oxygen is unique in that the normal reading is not zero, its is 20.8%. Most other gases have a normal concentration of 0. The Ultima X has a "Cal signal enable" option which will fix the output at 4mA or 20mA. However if you have both high and low oxygen alarm set points it will trip one of these.**

-My combustible sensor responds to bump checks and gas, but at an incorrect rate (much higher/lower than it should be)

***Check span values and curve number for IR sensors for your particular application. If you are sensing multiple combustible gases we must evaluate them all to determine which response curve to use.**

My MSA UltimaX with an XIR sensor will drift…..
MSA Ground Issue with Internal Power Supply

There is a chance that when you have an internal power supply (120VAC input power) with the Ultima X, you may see drifting problems and/or resetting issues. This is due to the lack of a ground wire from the power supply. It's caused by ground noise being picked up through the RF caps on the XIR sensor.
Solution: **There are 3 terminal on the 24VDC side of the power supply - 1 positive and 2 negative. The Positive and one of the Negatives go to the power terminal on the main board. The second Negative needs to be tied to the EARTH ground inside the UltimaX enclosure**

-I have an error message on the display

***See list below:**

C-3. Instructions for troubleshooting

Message	Meaning	Remedy
CHANGE SENSOR	Sensor life expired	◄ Replace sensor.
CAL FAULT	Instrument did not calibrate successfully	→ Repeat calibration. → Check if the correct calibration gas was used. → Check flow system for blockage.
SENSOR MISSING	Instrument has lost data communication with the sensor module	→ Connect sensor or replace sensor.
CHECK CAL	Check calibration	◄ Carry out bump test or calibration.
SENSOR WARNING	Sensor life has almost expired	→ Prepare to replace sensor.
SNSR FLASH FAULT	Sensor module program memory is invalid	→ Replace sensor module.
SNSR RAM FAULT	There is a RAM-memory segment defect in the sensor module	→ Replace sensor module.
SNSR DATA FAULT	Sensor module data sheet is invalid	→ Send the reset data sheet command from the controller or → If error persists replace sensor.
MN SUPPLY FAULT	Power supply of main printed circuit board is outside permissible range	→ Check sensor wiring or → Replace main printed circuit board.
MN EEPROM FAULT	Main printed circuit board EEPROM is invalid	→ Replace main printed circuit board.

Message	Meaning	Remedy
MN FLASH FAULT	Main printed circuit board program memory is invalid	➔ Replace main printed circuit board.
MN RAM FAULT	Main printer circuit board shows defective RAM memory segment	➔ Replace main printed circuit board.
INVALID SENSOR	The connected sensor module is not compatible with the instrument	➔ Replace it with the correct sensor type.
CONFIG RESET	Main EEPROM memory was reset	➔ Use Controller to reset all configurations (e.g. alarm levels, calibration signal on or off).
RELAY FAULT	An error has occurred in the internal relays	➔ Disconnect instrument from power supply and connect again or ➔ Replace printed board.
SNSR POWER FAULT	Power supply of sensor module outside permissible range	➔ Correct wiring fault ➔ Replace printed circuit board or sensor module.
und	Underrange condition - fast	➔ Calibrate or replace sensor.
Und	Underrange condition - slow	➔ Calibrate or replace sensor.
+LOC	Instrument is locked in overrange condition	➔ Calibrate or reset sensor.
OVER % LEL	Sensor is exposed to a gas concentration above the LEL	➔ The instrument will return to normal operation when the gas concentration drops below 100 % LEL.

Message	Meaning	Remedy
IR SOURCE FAULT	A fault has occurred in the IR source	→ Replace IR source or → Contact manufacturer.
REF SIG FAULT	A fault has occurred in the IR reference detector	→ Replace IR reference detector or → Contact manufacturer.
ANA SIG FAULT	A fault has occurred in the analytical IR detector	→ Replace IR detector, or → Contact manufacturer.
LOW SIGNAL	The IR signal is too low	→ Clean optics or → Replace sensor module.
-SUPPLY FAULT	The sensor module negative supply is outside the permissible range	→ Check wiring or → Replace sensor module.
PARAM FAULT	An operating parameter is outside the permissible range or the sensor has failed the internal test	→ Restart instrument or replace.

“SENSOR MISSING ERROR CODE”: This can occur with the Ultima-X3 or the TriGard. If ordered from the factory with 3 sensors and conditions no longer warrant the third sensor, you can disable / enable the third sensor with the Ultima Controller which is at least VER 3.03 and follow these directions:

Procedure 17.
Setting an Unused Sensor to the Disabled Mode

NOTE: This procedure is only applicable for Ultima X Gas Monitors with more than one sensor.

• The Ultima X Gas Monitor is shipped with the Sensors in the enabled mode. This means that a sensor missing error condition occurs if less than three sensors are attached to the instrument. The Sensor Disabled Mode allows the operator to attach less than three sensors to an Ultima X MODBUS unit without having an error condition for the uninstalled sensors. The Ultima X Gas Monitor still polls the uninstalled sensor for automatic sensor recognition should the sensor be installed at a later date. An installed sensor cannot be disabled without removing the sensor module from the Ultima X Gas Monitor.

To change it, use the **Controller** to perform the following steps:
1. Press the **SEND** button.
• The display prompts: **SEND?**.
2. Press the **CAL** button.
• The display prompts: **Sel Cal Action +** .
3. Press the **+** or **-** button until the display prompts: **Sensor Disable**.
4. Press the **ENTER** button.
• The display prompts: **Sensor Disable>#**
5. Select the sensor to disable (1 - 3).
6. Aim the controller at the sensor and **ENTER** button.
• The Ultima X Gas Monitor Sensor is now changed to disable the selected sensor. If the sensors module is attached to the Ultima X gas monitor, the sensor cannot be disabled.