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MSA Z GARD S Sensor Calibration Procedure



Calibration Procedure for a Z GARD S Sensor

- The following is a step-by-step procedure for calibrating a Z-Gard S sensor produced after December 2013
- You can distinguish this circa of sensor by locating the calibration target on the front label of the sensor.



Equipment Needed



Calibration Gas



Calibration Cover
MSA P/N 10128624



Regulator 0.25 LPM
MSA PN 478359



Calibration Magnet
MSA PN 30060-2

Polyurethane Tubing 12"
MSA PN 604067

Humidifying Tubing Assembly
MSA PN 813628

“Status OK” LED

- The “Status OK” LED is located on the front of the instrument and will be used as feedback from the sensor to indicate successful completion of the calibrations steps presented in this document.



Normal Operation
Successful Calibration

Solid



Zero Calibration
in progress

1 Hz
Slow Flash



Calibration Fault

1 Hz
Slow Flash



Span Calibration
in progress

5 Hz
Fast Flash

Step-by-Step Procedure

■ STEP 1

Verify the sensor type to be calibrated



Options:

- Carbon Monoxide
- Nitrogen Dioxide
- Combustible

Step-by-Step Procedure

■ STEP 2

Select the appropriate calibration gas

Gas Type	Span Value	MSA Gas Cylinder P/N
Zero Air	20.8% O ₂ in Nitrogen	10028042
Carbon Monoxide	60 ppm CO	710882
Nitrogen Dioxide	5 ppm NO ₂	710332
Combustible	2.5% CH ₄	10028032

Step-by-Step Procedure

■ STEP 3

Prepare the calibration cylinder.

Assemble the regulator to the cylinder



Attach the tubing from the regulator to the calibration cover



NOTE:
Tubing PN 813628 (Humidifying Tubing) should be used when calibrating solid state CO sensors
Tubing PN 604067 can be used for all other sensors.

Step-by-Step Procedure

■ STEP 4

- Turn on gas supply
- Align the calibration magnet to the target.



- “Status OK” Green LED will begin to flash at a slow rate of 1 Hz. This slow flashing rate indicates **zero calibration** has stated.



■ STEP 5

- **Remove** magnet and place to the side.



- If magnet is left on for more than 16 seconds, calibration aborts (with no change to calibration).

Step-by-Step Procedure

■ STEP 6

- Quickly apply the calibration cover to begin the supply of zero air.



- During this process the “Status OK” Green LED will continue to flash at the slow 1 Hz. Rate.

■ STEP 7

- After approximately 2 minutes calibration will complete. The “Status OK” LED will indicate if zero calibration completed successfully.



Calibration successful



Calibration *not* successful

- If calibration was not successful, see trouble guide at the end of this document.
- If successful move on to step 8.

Step-by-Step Procedure

■ STEP 8

- Turn on gas supply
- Align the calibration magnet to the target.



- “Status OK” Green LED will begin to flash at a slow rate of 1 Hz. and then at a fast rate of 5 Hz. This rate indicates **span calibration** has started.



■ STEP 9

- Remove magnet and place to the side.



- If magnet is left on for more than 16 seconds, calibration aborts (with no change to calibration).

Step-by-Step Procedure

■ STEP 10

- Quickly apply the calibration cover and begin the supply of span gas.



- During this process the “Status OK” Green LED will continue to flash at the fast 5 Hz. Rate.

■ STEP 11

- After approximately 2 minutes calibration will complete. The “Status OK” LED will indicate if zero calibration completed successfully.



Calibration successful



Calibration *not* successful

- If calibration was not successful, see trouble guide at the end of this document.
- **If successful, calibration is completed.**
- **Remove Calibration Cover**

■ Calibration Fault Trouble Shooting Guide

Problem	What to check?	What to do?
Calibration is aborted before completion	Check that you are removing the magnet after LED begins to flash	Re-initiate calibration
Calibration Fault	Is the appropriate calibration gas being applied?	Re-initiate calibration
Calibration Fault	Is there a high concentration of background gas?	Ensure Zero Gas is used for zero calibration
Calibration Fault	Calibration fault continues after each calibration	Cycle Power and/or call MSA Technical Service