



Z-Gard® S Gas Sensor - Product Specifications

PHYSICAL CHARACTERISTICS	
Size	The standard sensor unit shall not exceed 5.5" H x 5.5" W x 2.2" D in total size including mounting tabs.
Weight	The standard sensor unit shall not exceed 2.0 lbs.
Enclosure Type	The enclosure shall be metal and consist of two pieces, a base and a cover.
Enclosure Entries	All transmitter enclosures shall provide a single entry to accept connection to 3/4" conduit.
Mounting Provisions	Sensor units will have available mounting holes for attaching the unit to a flat surface or panel.

ENVIRONMENTAL	
Temperature	MOS solid state CO and electrochemical NO2 models' operating temperature range shall be 0° to 40°C (4° to 104°F), Electrochemical CO and catalytic combustible models' operating temperature range shall be -20° to 40°C (-4° to 104°F)
Humidity	MOS solid state sensor's operating humidity range shall be 25-95% RH, non-condensing. Electrochemical and catalytic sensors' operating humidity range shall be 0-95% RH, non-condensing.

SENSOR LINEARITY RESPONSE AT STP		
Gas Type	Sensor Technology	Linearity
Carbon Monoxide (CO)	Electrochemical	± 5%, Full Scale
Carbon Monoxide (CO)	MOS Solid State	± 10%, Full Scale
Nitrogen Dioxide (NO ₂)	Electrochemical	± 10%, Full Scale
Combustible	Catalytic	± 5%, Full Scale

SENSOR REQUIREMENTS	
MOS Solid State	The MOS solid state sensor must have a linear response to the selected target gas with accuracy of ±5% full scale.
Electrochemical Sensor	The electrochemical sensor shall have a linear response to the selected target gas with accuracy of ±5% full scale. The electrochemical sensor shall not require the periodic addition of reagents.

GAS TYPES AND RANGES			
Gas Type	Sensor Technology	Range / Full Scale 1	Range / Full Scale 2
Carbon Monoxide (CO)	Electrochemical	0-100 PPM	0-200 PPM
Carbon Monoxide (CO)	MOS Solid State	0-100 PPM	0-200 PPM
Nitrogen Dioxide (NO ₂)	Electrochemical	0-10 PPM	
Combustible	Catalytic	0-100% LEL	

SENSOR OPERATION REQUIREMENTS	
Sensor Transmitter Operating Requirements	The sensor shall send an electrical signal proportional to the content of the target gas present to a Z-Gard C, C485 or CXII Controller or commercial BAS, DCS, or PLC.
Operating Voltage	The sensor operating voltage shall be 24VDC, 100mA (250mA for catalytic) when used with an MSA Z-Gard C Controller.

	The sensor operating voltage shall be 24VDC, 100mA (250mA for catalytic) or 24VAC when used with a commercial BAS, DCS, or PLC device.
Wiring Configurations and Sensor Transmitter Communication Output Signal	When used with Z-Gard C Controller: The RS 485 network communication wiring from the sensor to the Z-Gard C Controller shall be a shielded 2-wire cable of sufficient gage to meet distance requirements of the Z-Gard RS 485 network communication. The sensor transmitter terminal strips shall be removable for ease of wiring and accept up to 10 GA AWG wire.
	When used with a commercial BAS, DCS, or PLC: The interconnect wiring from the sensor to the building management system shall be a 3 wire 4-20mA analog point-to-point connection to an industry standard analog input control device. The sensor terminal strips shall be removable for ease of wiring and accept up to 10 GA AWG wire.
PCB	The sensor electronics shall consist of a single PCB that is microprocessor-based, computer-aided, and factory-calibrated for the target gas compound with compensation for ambient humidity and temperature and linearized signal output. The PCB includes all the components required to power and operate the sensor, perform a calibration and set the network address jumpers when used in the Z-Gard communication network. The single PCB shall be mounted to the enclosure using industry-standard hardware.
Sensor Replacement	The electrochemical, MOS semiconductor or catalytic sensor shall be field replaceable when reaching end-of-life.

USER INTERFACES

Visual Status	The sensor shall include a local LED indicating operational status. The LED shall be mounted so it can be observed without removing any part of the sensor.
---------------	---

CALIBRATION REQUIREMENTS

Calibration Protocol	The sensor will permit a zero and span calibration service to be performed in the field with an approved calibration kit and activation magnet. Calibration adjustments will be automatically made by the instrument.
----------------------	---

APPROVALS

Intertek (3118354)	ETL Listed to Conform to UL 61010-1. Certified to CAN/CSA C 22.2 No. 601010-1.
--------------------	---

WARRANTY

Full Replacement Warranty	Instrument shall have one year parts and labor standard warranty with extended one year warranty available.
---------------------------	---

MAINTENANCE REQUIREMENTS

Maximum System Maintenance	The system shall require no periodic maintenance other than periodic checking of sensor response to a known concentration of gas.
----------------------------	---

MANUFACTURER

Instrument Supply	The manufacturer must be capable of supplying all equipment used to check or calibrate the sensor/transmitter units.
Product Service	The manufacturer must be capable of providing on-site service with factory-trained personnel.
On-site Training	The manufacturer must be capable of providing on-site training for owner/operator.

COMMISSIONING

Commissioning	<p>After installation and wiring is complete, set-up and start-up of the sensor/transmitter will be so that the enclosure need not be opened during this process. The commissioning of the unit consists of 3 steps:</p> <ol style="list-style-type: none">1. Insure the Sensor local status LED is illuminated.2. Verify the sensor is communicating with the Z-Gard Controller by observing a reading on the Z-Gard Controller display, or verify the commercial BAS, DCS or PLC system is receiving the analog input signal.3. Verify gas response of each sensor, or a sample set of sensors, by delivering a known concentration of the target gas to the sensor and observing the corresponding output signal to ensure that they are in agreement. During this step, any relay activity or other output function of the system that initiates third party control equipment should also be activated.
---------------	--