



## Z-Gard<sup>®</sup> C 485 Controllers - Product Specifications

PHYSICAL CHARACTERISTICS	
Size	Single Zone Controllers: The Controller enclosure shall not exceed 10.0"W x 11.5"H x 3.75"D in total size.
	Two Zone Controllers: The Controller enclosure shall not exceed 15.0"W x 12.0"H x 3.75"D in total size.
Weight	Single Zone Controllers: The controller shall not exceed 10.4 lbs.
	Dual Zone Controllers: The controller shall not exceed 15 lbs.
Enclosure Type	Enclosure Type - The enclosure shall be a NEMA 1 General Purpose painted steel enclosure with welded-hinged door. The door is secured to the enclosure using industry standard nominal size 8-32 screws.
	Optional: The enclosure shall consist of a Fiberglass enclosure with hinged cover and door and be design rated as NEMA 4X.
Housing Entries	The General Purpose enclosure shall have 8 3/4" conduit knockouts and arranged with two openings per side.
Mounting Provisions	The General Purpose Controller enclosure shall have available 4 mounting holes located inside the enclosure for attaching the unit to a flat surface or panel.
ENVIRONMENTAL	
Temperature	The Operating Temperature range of the controller is -20° to +50°C (-4° to +122°F).
Humidity	Operating Humidity range 0-95% RH, non-condensing.
POWER REQUIREMENTS	
Input Power Requirement	The Controller shall operate at 110VAC 50/60 Hz ±10% @ 0.5 amps.
	Optional: The Controller shall operate at 220VAC 50/60 Hz @ 0.25 amps.
Power for Sensors	The controller shall power 8, 16 or 24 Z-Gard S Sensors via internal transformer rated at 12 VA for 8 Sensor Controllers and 48 VA for 16 and 24 Sensor Controllers.
CONTROLLER OPERATING REQUIREMENTS	
Sensor Transmitter Input Requirements	The Z-Gard C Controller connects to designated, remotely located Z-Gard S Sensors which are automatically recognized and establish the sensor range and gas type. The sensors are linked by a RS 485 network communication system. The Z-Gard C Controller and its associated Sensors shall continuously monitor for excessive levels of specific Target Gases and shall provide the necessary notification controls in the event that gas levels rise above preset limits.
WARNING and ALARM CONTROL REQUIREMENTS	
Warning and Alarm Relay Control	The Controllers shall manage a single zone or two zones of equal quantities (a 2-zone 16 point system can have 2- 8 point zones) on the RS 485 Communication Network. The controller shall provide a common Warning and Alarm Relay for each zone. Upon sensing the target gas at levels equivalent to the Warning and Alarm set points, the relay contact(s) shall activate signaling the event.
Delay Function	The Controller shall have an adjustable ON/OFF time-delay function adjustable from 0-10 minutes (factory setting is 0 minutes). A pre-programmed setting is

	available that controls a 5 minute OFF delay upon a Warning event and a 5 minute ON delay upon an Alarm event. The Warning relay shall deactivate (OFF) 5 minutes after the warning occurrence has abated and the Alarm relay shall activate (ON) 5 minutes after an alarm event has prolonged for 5 minutes. The Alarm LED and Audible Horn will activate after the 5 minute period. This feature is employed to minimize starting and stopping the ventilation control equipment.
Output Capability	The Controller shall provide a full scale, 2 wire 4 to 20mA sourcing analog output that is representative of the highest concentration level of any sensor on the network. This output shall be capable to communicate with a commercial BAS, DCS, or PLC or other analog input device.

### USER INTERFACES

Display Readout Requirements	The Controller shall have a local Readout display indicating the active Sensor Point number and the corresponding gas concentration level. The display will scan through all active channels in 2 second intervals. The readout display will be visible from a minimum of 5 feet and will always be present, and will not require being turned on or off.
Display Type	A four digit LED readout shall be provided for the purpose of displaying the Sensor Point Number and corresponding Gas Concentration.
Alarm Acknowledge Switch	This local Audible Alarm push-button reset switch shall silence the Audible Alarm when alarm points are exceeded. The LED visual alarms will remain on as long as alarm levels are exceeded. This push-button will reset latched alarms if normal gas conditions exist.

### RELAY SETPOINT and CONTACT RATINGS

Warning and Alarm Relay Set Point Levels	Warning and Alarm Set Point Levels - The Controller shall provide a Common Warning and Alarm Relay for each zone. The activation set point levels shall be independently adjustable for any value in the readout range (factory set @ 35% for Warning and 50% for Alarm). The set points shall provide drive signals to user interface relays. The Warning Relay is nonlatching and will return to the inactive state once the condition has cleared. The Alarm Relay can be selected to act as non-latching or latching.
Sensor Fail Relay	The Controller shall provide a Sensor Fail Relay for each zone. If a loss of communication occurs between the Controller and remote Sensor on the network within the associated zone, the Sensor Fail Relay will be activated and the Sensor Okay LED located on the Controller door will turn off.
Relay and Contact Rating	All Warning, Alarm and Sensor Fail Relays shall be Form C, single pole, double throw. Contacts shall be rated for 10 Amps 1/8 HP @ 125 VAC, 5 amps resistive at 250 VAC or 30 VDC.
Contact Selections	The Contacts shall be capable of being selected normally open or normally closed.

### APPROVALS

Approvals	CSA by ENTELA
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### WARRANTY

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

Maximum System Maintenance	The Controller shall not require periodic maintenance other than verifying the Sensor inputs are responding to the target gases.
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### MANUFACTURER

Instrument Supply	The manufacturer must be capable of supplying all equipment used to check or
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	calibrate the sensor 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, the enclosure need not be opened during the process of sensor set-up and start-up. Prior to commissioning verify the expected response logic per the project specification. To check a <i>Warning Event</i> verify the following:</p> <ol style="list-style-type: none"> <li>1. To begin, the Power and Sensor Okay LED located on the Controller door should be illuminated.</li> <li>2. Verify that the Controller is communicating with each Sensor by observing the Sensor Number and corresponding gas concentration reading on the Controller Display.</li> <li>3. There are up to 4 outputs to be verified upon introducing a known concentration of target gas to a Z-Gard S Sensors. Upon reaching the Warning level the Controller Display shall show the Sensor that is creating the Warning and value of the target gas; the Warning Relay Contact shall activate and the Warning LED on the door shall illuminate; the corresponding 4-20mA Hi-select output shall be representative of the target gas concentration; and if the 5 minute delay timer is active, the previous events occur after a 5 minute period.</li> </ol>
	<p>To Check an <i>Alarm Event</i>, verify the following:</p> <ol style="list-style-type: none"> <li>1. To begin, the Power and Sensor Okay LED located on the Controller door should be illuminated.</li> <li>2. Verify the Controller is communicating with each Sensor by observing the Sensor Number and corresponding gas concentration reading on the Controller Display.</li> <li>3. There are up to 5 outputs to be verified upon introducing a known concentration of target gas to any of the Z-Gard S Sensors. Upon reaching the Alarm level, the Controller Display shall show the Sensor that is creating the Alarm and the value of the target gas; the Alarm Relay contact shall activate, the Warning and Alarm LEDs on the door shall illuminate and the local audible horn shall sound; the corresponding 4-20mA Hi-select output shall be representative of the target gas concentration; and if the 5 minute delay timer is active, the previous events occur after a 5 minute period. Pressing the audible Alarm Reset button will silence the horn.</li> </ol>