

Bid Specifications: Z Gard™ C 8 Point CONTROLLER

PHYSICAL CHARACTERISTICS

Size	The Controller enclosure shall not exceed 12.0"W x 15.00"H x 3.75"D in total size.
Weight	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 4.
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% @ 1.00 amps. Optional: The Controller shall operate at 220Vac 50/60 Hz @ 0.50 amps.
Power for Sensors	The Controller shall power up to 8 Z Gard S Sensors or 8 analog input Sensors via internal power supply that is rated at 24 VDC@ 500mA per sensor.

CONTROLLER OPERATING REQUIREMENTS

Sensor Input Requirements	Analog Input Sensors. The Controller shall connect to designated, remotely located Sensors via a 2 or 3 wire 4-20mA analog input. The Controller and its associated Sensors shall continuously monitor for excessive levels of specific Target Gases and provide the necessary notification control in the event that gas levels rise above preset limits. The Z Gard C Controller connects to remotely located Z Gard S Sensors that are automatically recognized and establish the sensor range and gas type. The sensors are linked by a RS 485 4 wire (2 wire for power, 2 wires for data) network communication system. The Z Gard C Controller and its associated Sensors shall continuously monitor for excessive levels of specific target gases and provide the necessary notification controls in the event that gas levels rise above preset limits.
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WARNING and ALARM CONTROL REQUIREMENTS

Warning and Alarm Relay Control	The Controller shall manage up to 8 inputs on the RS 485 Communication Network or 8 individual 4-20mA analog inputs. The Controller shall provide 8 user programmable relays that can be used to tie a a zone or group of sensors to a specific relay or set of relays. Warning and Alarm levels set points can be selected from a value of zero and the full scale range of a sensor or group of sensors. Upon sensing the concentration of 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 a programmable OFF time delay function that is adjustable from 0-60 minutes in 1 minute increments (factory setting is 0 minutes). The Warning relay shall deactivate from 0-60 minutes after the warning occurrence has abated. The Alarm relay shall deactivate 0-60 minutes after an alarm event has abated.
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 visible from a minimum of 5 feet and will be always present, and will not require being turned on or off.
Display Type	A 5 digit LED readout shall be provided for the purpose of displaying the Sensor Point Number and corresponding Gas Concentration reading.

User Keypad	The Controller shall include a User Interface Keypad of 16 items, with an LED for each program function located inside the front door of the enclosure. All setup parameters shall be accessed using the keypad.
Sensor Status LEDs Indicators	The Controller shall include discreet Sensor LED indicating Sensor OK, Warning and Alarm.
Alarm Acknowledge Switch	This Controller shall include a local mounted Audible Alarm rated @ 90 dB with push-button reset switch. The pushbutton reset switch shall silence and reset the Audible Alarm when alarm points are exceeded. The audible alarm can be programmed for each channel to operate either in a solid <i>on</i> tone or a variable <i>on</i> tone. 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. A horn relay shall be included to facilitate control a remote alarm reset pushbutton.

RELAY SET POINT and CONTACT RATINGS

Warning and Alarm Relay Set Point Levels	Warning and Alarm Set Point Levels - The controller shall provide 8 user programmable Warning and Alarm Relays. The activation set point levels shall be independently adjustable for any value in the readout range. The set points and relay assignments shall provide drive signals to user interface relays. All Warning and Alarm relays shall have the ability to be programmed as Latching or Non-Latching, normally energized or deenergized, increasing or decreasing.
Sensor Fail Relay	The Controller shall provide a normally energized Sensor Fail Relay. If a loss of communication occurs between the Controller and remote Sensor, 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 shall be Form C, single pole, double throw. Contacts shall be rated for 10 Amps 1/8 HP @ 125VAC, 5 amps resistive at 250VAC or 30VDC.
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 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

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. Prior to commissioning verify the expected response logic per the project specification. To check a *Warning Event* verify the following. 1. To begin, the Power and Sensor Okay LED located on the Controller door should be illuminated. 2. Verify the Controller is communicating with each Sensor by observing the Sensor Number and corresponding gas concentration reading on the Controller Display. 3. There are up to four 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; if any time delay functions are active the previous events occur after the established time has elapsed.

To Check an *Alarm Event* verify the following: 1. To begin, the Power and Sensor Okay LED located on the Controller door should be illuminated. 2. Verify the Controller is communicating with each Sensor by observing the Sensor Number and corresponding gas concentration reading on the Controller Display. 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 and 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; if any time delay functions are active, the previous events occur after the established time has elapsed. Pressing the audible Alarm Reset button will silence the horn.