

# C2 Protector Controller

## Two Channel Alarm & Display Controller for Critical Monitoring Applications

- \* Accepts one or two direct-connect local or remote sensors or 4-20mA
- \* Large LCD display shows values, bar-graph and trend data
- \* Two programmable 5A SPDT common relays for Alarm 1, Alarm 2, Horn or FAULT
- \* Optional 6x relay board for per-channel SPDT contacts
- \* Optional dual channel 4-20mA board for current loop output
- \* Operates on either +24VDC or 117/240VAC 50/60Hz
- \* ACK button silences HORN without affecting alarm relays
- \* Relay voting logic reduces need for external hardware
- \* Touch and magnetic keys for non-intrusive operation in XP areas
- \* Pushbutton zero and span calibration for directly connected sensors
- \* NEMA 4x approved for Class 1 Div 2 area without purge
- \* MODBUS® slave port for easy interface from master devices
- \* CSA certified to C22.2 No 152 for combustible gas detection and approved for Class 1, Div 2 Groups A, B, C, D
- \* Manufactured in USA



Available in NEMA 4X non-metallic, painted or stainless steel or NEMA 7 explosion proof wall mount

The C2 Protector Display & Alarm Controller provides signal conditioning, display and alarm functions for one or two critical input variables.

### Versatile

Designed to provide low-cost direct monitoring for one or two gas sensors or flame detectors, the C2 Protector controller offers a highly-integrated, complete solution for detection of hazardous conditions. Versatile input signal conditioning options allow direct connection of any GDS Corp electrochemical sensor, and local or remote support for any GDS Corp combustible, PID or infrared sensor. Both channels can be configured to accept analog inputs from sources such as the GDS-49 Sensor Transmitter, GDS-IR Point Infrared Gas Detector or any standard 4-20mA source.

Additional C2 options include 5A SPDT discrete relays, 4-20mA outputs, light stacks and audible annunciators.

One popular application for the C2 is as a dual gas detector equipped with one local



combustible sensor and one local toxic sensor. Alternatively, two combustible locations may be monitored with one sensor local and another remote.

### Real-Time Display

A large graphic LCD screen displays input data as calibrated engineering units, bar-graphs or 30-minute trends. Three adjustable alarm levels per channel, combined with programmable relays with voting logic allows flexible control of beacons, horns and other warning devices. Highly visible red and yellow LEDs visually indicate alarm status at all times.

### Digitally Connected

An optional RS-485 MODBUS® slave port allows multiple C2 controllers to be multi-dropped on a single data highway. The C2 Protector controller is also 100% compatible with the ProtectorHMI Visualization and Historian software that can monitor, display and record data from up to ten C1 Protector or C2 Protector controllers.

### Reliability

The C2 Protector controller is CSA certified to CSA C22.2 No. 152 for combustibles and Class I, Division 2, Groups A, B, C, D for use in hazardous areas. An optional NEMA 7 enclosure allows use in Class I Div 1 areas. Up to twelve watts of 24 VDC power is available for auxiliary devices or transmitters.

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<b>C2 Protector SPECIFICATIONS</b>	
<b>Power Input</b>	24VDC (12 Watt MAX) 85-240 VAC power supply included
<b>Display</b>	Backlit 128x64 pixel LCD shows trend, bargraph and engineering units; flashing alarm LEDs indicate alarm status
<b>Input</b>	Inputs available for dual catalytic bead LEL, dual toxic / O <sub>2</sub> , one each catalytic bead & toxic / O <sub>2</sub> , and dual 4-20mA
<b>MODBUS I/O</b>	Optional slave mode RS-232 or RS-485 MODBUS interface
<b>Relay Output</b>	Two common output relays configurable for A1, A2, FAIL & HORN ; 5A @ 30VDC / 240VAC resistive load
<b>Analog Output</b>	Optional dual channel 4-20mA current loop. Max loop R is 800 ohms with nominal 24VDC
<b>Audible Output</b>	Optional 100db alarm (NEMA 4X only)
<b>Temp</b>	-25°C to +50°C operating
<b>Housing</b>	NEMA 4X approved for Class 1 Div 2 Groups A, B, C, D NEMA 7 wall-mount approved for Cls 1 Div 1 Groups B, C, D
<b>Dimensions</b>	NEMA 4X Non-metallic: 11.25" x 13.31" x 7.25" (w-h-d) NEMA 4X Painted or stainless: 9.84" x 13.65" x 6.2" NEMA 7: 13" x 14.25" x 6.25"
<b>Approvals</b>	CSA C22.2 No. 1010.1 & 152 for combustibles & ISA S82.02; UL 1604 / C22.2 No 213 (NEMA 4X = Div 2 Groups A, B, C, D; NEMA 7 = Div 1 Groups B, C, D) EN55011 & EN61000 (CE Mark)
<b>Warranty</b>	2 years from date of purchase on electronics

<b>SENSOR TYPES</b>					
<b>10</b>	Oxygen (0-25%)	-30 to +55C	<b>99</b>	GDS-IR Specify Gas	-40 to +65C
<b>11</b>	Carbon Monoxide (0-300)	-30 to +50C	<b>110</b>	Methane 0-100% LEL	-40 to +65C
<b>12</b>	Chlorine (0-5) <sup>6</sup>	-20 to +50C	<b>111</b>	Propane 0-100% LEL	-40 to +65C
<b>14</b>	Hydrogen (0-2000)	-20 to +50C	<b>112</b>	Isobutane 0-100% LEL	-40 to +65C
<b>15</b>	Hydrogen Sulfide (0-100)	-30 to +50C	<b>113</b>	Pentane 0-100% LEL	-40 to +65C
<b>19</b>	Sulfur Dioxide (0-25)	-30 to +50C	<b>114</b>	Cyclopentane 0-100% LEL	-40 to +65C
<b>20</b>	Ammonia (0-100) <sup>6</sup>	-20 to +40C	<b>115</b>	n-Butane 0-100% LEL	-40 to +65C
<b>22</b>	Ethylene Oxide (0-20)	-20 to +50C	<b>116</b>	Ethanol 0-100% LEL	-40 to +65C
			<b>117</b>	Methanol 0-100% LEL	-40 to +65C
<b>50</b>	SmartIR 0-100% LEL (Methane)	-20 to +50C	<b>118</b>	Propylene 0-100% LEL	-40 to +65C
<b>51</b>	SmartIR 0-100% LEL (Propane)	-20 to +50C	<b>119</b>	Ethylene 0-100% LEL	-40 to +65C
<b>52</b>	SmartIR 0-100% v/v (Methane)	-20 to +50C	<b>120</b>	Hexane 0-100% LEL	-40 to +65C
<b>53</b>	SmartIR Carbon Dioxide	-20 to +50C	<b>121</b>	Jet-A 0-100% LEL	-40 to +65C
<b>61</b>	PID Low (0-50 ppm) 10.6eV	-40 to +60C	<b>122</b>	Diesel 0-100% LEL	-40 to +65C
<b>62</b>	PID High (0-50 ppm) 10.6eV	-40 to +60C	<b>123</b>	Gasoline 0-100% LEL	-40 to +65C
<b>63</b>	PID Low (0-50 ppm) 9.6eV	-40 to +60C	<b>124</b>	Alcohol 0-100% LEL	-40 to +65C
<b>64</b>	PID High (0-50 ppm) 9.6eV	-40 to +60C			
			<b>130</b>	Methane 0-100% v/v	-40 to +65C
<b>70</b>	Catalytic Bead 0-100% LEL	-25 to +50C	<b>131</b>	Propane 0-100% v/v	-40 to +65C
<b>90</b>	4-20mA input	-25 to +50C	<b>132</b>	Carbon Dioxide 0-5% v/v	-40 to +65C

<b>C2 Protector Order Guide</b>	
<b>C2 A-B-C / D-E-F / G-H-I-J-K / L</b>	
<b>“A” &amp; “D”</b>	SENSOR HEAD 1 = Local DELRIN sensor head 2 = Remote Stainless Steel sensor head 3 = Remote SS sensor head with splash guard 4 = Local SS sensor head 5 = Local SS sensor head with splash guard 6 = Local SS sensor head with splash guard for reactive gases 10 = Remote mount for GDS-IR
<b>“B” &amp; “E”</b>	SENSOR TYPE (see chart) <sup>4</sup> Any combination can be chosen for “B” and “E”
<b>“C” &amp; “F”</b>	DETECTION RANGE <sup>3</sup> 1 = 0 - 1      5 = 0 - 50 2 = 0 - 5      6 = 0 - 100 3 = 0 - 10     7 = 0 - 500 4 = 0 - 25     8 = 0 - 1000 Custom RXXXX (0-9999)
<b>“G”</b>	1 = Add discrete 6x relay board
<b>“H”</b>	1 = Add dual 4-20mA output
<b>“I”</b>	1 = Add RS-485 / RS-232 MOD-BUS serial interface
<b>“J”</b>	1 = Add 100db piezo alarm 2 = Add 110db external horn
<b>“K”</b>	1 - 4 = Add C1D2 Strobe 5 - 8 = Add non-rated Strobe (Red, Yellow, Blue, Green)
<b>“L”</b>	0 = NEMA 4X compact 1 = NEMA 4X non-metallic 2 = NEMA 4X carbon steel 3 = NEMA 4X stainless steel 4 = NEMA 7 Explosion Proof

<b>NOTES</b>	
Note 1: Remote electrochemical sensors are not supported. Use GDS-49 sensor transmitter	
Note 3: Standard ranges are shown; contact factory for additional options	
Note 4: If electrochemical and catalytic bead sensors are combined, then echem must be channel 1 and cat bead must be channel 2	
Note 6: Some highly reactive gases require type 1 or type 6 sensor head without flame arrestor	



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