

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 *Protector*HMI 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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C2 Protector SPECIFICATIONS	
Power Input	24VDC (12 Watt MAX) 85-240 VAC power supply included
Display	Backlit 128x64 pixel LCD shows trend, bargraph and engineering units; flashing alarm LEDs indicate alarm status
Input	Inputs available for dual catalytic bead LEL, dual toxic / O ₂ , one each catalytic bead & toxic / O ₂ , and dual 4-20mA
MODBUS I/O	Optional slave mode RS-232 or RS-485 MODBUS interface
Relay Output	Two common output relays configurable for A1, A2, FAIL & HORN ; 5A @ 30VDC / 240VAC resistive load
Analog Output	Optional dual channel 4-20mA current loop. Max loop R is 800 ohms with nominal 24VDC
Audible Output	Optional 100db alarm (NEMA 4X only)
Temp	-25°C to +50°C operating
Housing	NEMA 4X approved for C1 Div 2 Groups A, B, C, D NEMA 7 wall-mount approved for C1 Div 1 Groups B, C, D
Dimensions	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"
Approvals	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)
Warranty	2 years from date of purchase on electronics

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

C2 Protector Order Guide	
C2 A-B-C / D-E-F / G-H-I-J-K / L-M	
"A" & "D"	SENSOR HEAD (Ch1 and Ch2) 0 = None 1 = Local stainless 2 = Local stainless + Splash Guard 5 = Remote stainless 6 = Remote stainless + Splash Guard 9 = Local GDS-IR 10 = Remote GDS-IR 20 = Local EC sensor transmitter 21 = Local EC ST + splash guard 22 = Local EC / reactive gases 23 = Local EC / RG + SG 24 = Local EC sensor transmitter 25 = Local EC ST + splash guard 26 = Local EC / reactive gases 27 = Local EC / RG + SG 48 = Local Delrin Sensor 49 = Local Delrin Sensor + SG
"B" & "E"	SENSOR TYPE (Ch1 and Ch2) See GDS Corp Product Configurator for sensor selection options
"C" & "F"	DETECTION RANGE 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)
"G"	DISCRETE RELAYS (0 = None) 1 = Add discrete 6x relay board
"H"	ANALOG OUTPUT (0 = None) 1 = Add dual 4-20mA output
"I"	DIGITAL OUTPUT (0 = None) 1 = Add RS-485 / RS-232 MODBUS
"J"	AUDIBLE ALARM (0 = None) 1 = Add 100db piezo alarm 2 = Add 110db external horn 3 = Add 110db external horn C1D2
"K"	VISUAL ALARM (0 = None) 1 - 4 = Add C1D2 Strobe 5 - 8 = Add non-rated Strobe (Red, Yellow, Blue, Purple)
"L"	ENCLOSURE 0 = NEMA 4X Compact enclosure 1 = NEMA 4X Non-Metallic enclosure 2 = NEMA 4X Carbon Steel enclosure 3 = NEMA 4X Stainless Steel enclosure 4 = NEMA 7 Explosion Proof enclosure 5 = NEMA 4X NM enclosure + sunshade 6 = NEMA 4X CS enclosure + sunshade 7 = NEMA 4X SS enclosure + sunshade
"M"	POWER SUPPLY 0 = Standard 10W power supply 1 = Optional 30W power supply 2 = Optional 50W power supply



Gas and Flame Detection

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