

Nitrogen Dioxide (NO₂) Single-Point Gas Detection System



**PolyGard
SPC3-1130**

DESCRIPTION

Wall-mounted gas monitor with built-in nitrogen dioxide (NO₂)/diesel fume gas sensor, accepts one analog remote device such as a secondary gas sensor, temperature or humidity sensor.

APPLICATION

To detect and control levels of nitrogen dioxide (NO₂) and other gases in a wide variety of commercial and industrial applications such as vehicle diesel exhaust in parking structures, engine repair shops, equipment rooms and ventilation systems, etc. The controller can communicate with any compatible electronic analog control, DDC/PLC control or automation system via binary and/or analog output signal.



NRTL Certification to STD
UL 61010-1
"Pending"

FEATURES

- Continuous monitoring
- One (1) built-in NO₂ electrochemical sensor
- Easy plug-in sensor
- One (1) remote analog input, 4-20 mA
- One (1) digital input
- Two (2) relay outputs:
 - Four stage control
 - Fail-safe assignable
- One (1) analog output, (0)4-20 mA / (0)2-10 VDC
 - Selectable for low, high, or averaging
- One (1) 24 VDC switched output
- Liquid Crystal Display (LCD)
- LED status indicators
- Accepts toxic or combustible gas, refrigerant, temperature or humidity secondary remote sensor input
- Built-in horn
- Keypad user interface
- Simple menu-driven programming
- Modular technology
- Overload & short-circuit protected
- NEMA 12 enclosure
- Easy maintenance

SPECIFICATIONS

Electric			
Power Supply	24 VAC/VDC, -20%/+15% 50/60 Hz, reverse polarity protected		for standard garage applications, consult with factory for other applications
Power Consumption	5 VA (0.2 A) w/ (1) remote sensor connected	Type of Control General	
Sensor Performance			
Gas detected	Nitrogen Dioxide (NO ₂)		
Sensor element	Electrochemical, diffusion		
Range	Span field adjustable from 0-10 to 0-20 ppm via calibration, 0-10 ppm factory set	Analog input	Four-stage (S1 to S4) control, assignable up to two (2) binary/relay, horn/audible alarm, and 24 VDC / 50 mA switched outputs, i.e. low-high stage for relay output, horn / audible alarm and switched 24 VDC at any stage for remote alarming
Stability & Resolution	± 0.1 ppm of reading	Analog reading	One (1) 4-20 mA, for additional remote sensor, load < 55 mA / 200 Ω, reverse polarity protected
Repeatability	± 2.0 % of reading	Stage level / setpoint	Current and mean (average) value
Long term output drift	< 2% signal loss/month		Field adjustable over full range, four (4) stages (S1 to S4) per analog input, assignable to current or mean (average) value
Response time	t ₉₀ < 60 sec.		
Sensor life expectancy	2 years, normal operating environment		
Sensor coverage	4,000 sq. ft., max 6,000 sq. ft. (372 m ² , max 558 m ²), under "ideal conditions"	- hysteresis/ switching differential	Selectable for each sensor point
Installation Location			
Mounting height	1 to 3 ft. (0.3 to 1.0 m) above floor		

SPECIFICATION

Type of Control (Cont...)

Digital input	One (1); can be assigned to any relay (R1, R2).
- application	Remote audio/visual alarm reset or override function
Relay outputs (R1, R2) w/ status LEDs	(1) SPDT (R1), and (1) SPST-NC or SPST-NO (R2), jumper selectable
Contact rating	30 VAC/VDC, 0.5 A, max.
- each stage level (S1-S4)	Assignable to any relay
- sensor fail-safe	Assignable to any stage level
Time delay switching	Selectable for make and brake of each sensor point (SP1 to SP2) 0-9,999 seconds
Analog output	One (1), (0)4-20 mA, load < 500 Ω; (0)2-10 VDC, load > 50K Ω; jumper selectable; polarity protected, assignable to low, high or averaging of sensor inputs
VDC switched output	One (1) 24 VDC, 50 mA max
Audible alarm	83 db @ unit, enabled or disabled, selectable; assignable to stage level S1, S2, S3 or S4
Alarm acknowledgement	Menu-driven and system reset function for latched relays

User Interface

Keypad type	Refer to "illustration keypad user interface"
Touch buttons	Four (4)
Status LED's	Four (4), for system on, stage status, and failure
Digital display	Liquid Crystal Display (LCD), two lines, 16 characters per line, 1 digit resolution
- unit display	Menu selectable, per sensor; ppm, %v/v, %LEL, °F or % RH

Environmental

Permissible ambient	
- working temperature	14°F to 122°F (-10°C to 50°C)
- storage temperature	23°F to 86°F (-5°C to 30°C)
- humidity	15 to 95% RH, non-condensing
- working pressure	Atmospheric ± 10%

Physical

Enclosure (panel)	
- material	Polycarbonate, UL 94-HB, fire-retardant
- conformity	UL 50 standards
- color	Light gray
- protection	NEMA 12 (IP55)
- installation	Wall (surface) mounted, or single gang electrical box
Dimensions (H x W x D)	5.12 x 5.12 x 2.95 in. (130 x 130 x 75 mm)

Cable entry	3 holes for 1/2 in. conduit for wall (surface) mounting and 1 hole on back side of base plate for single gang electrical box mounting
Wire connection	Terminal blocks, screw type for lead wire
Wire size	Min. 24 AWG (0.25 mm ²) Max 14 AWG (2.5 mm ²)
Wire distance	Max. loop resistance 450 Ω (= wire distance plus controller input resistance)
Weight	0.6 lbs (0.3 kg)

Approvals / Listings

- unit rating	NRTL Certification to STD ANSI/UL 61010-1 – "Pending" CE EMV-Compliance 2004/108/EWG Low voltage directive 73/23/EWG
- relays (R1-R2)	UL Recognized, E41515 CSA, C22.2 No. 0, No. 14 (File No. LR31928)
- enclosure	UL Listed, E208470 CSA Certified, E208470
Warranty	One year material and workmanship

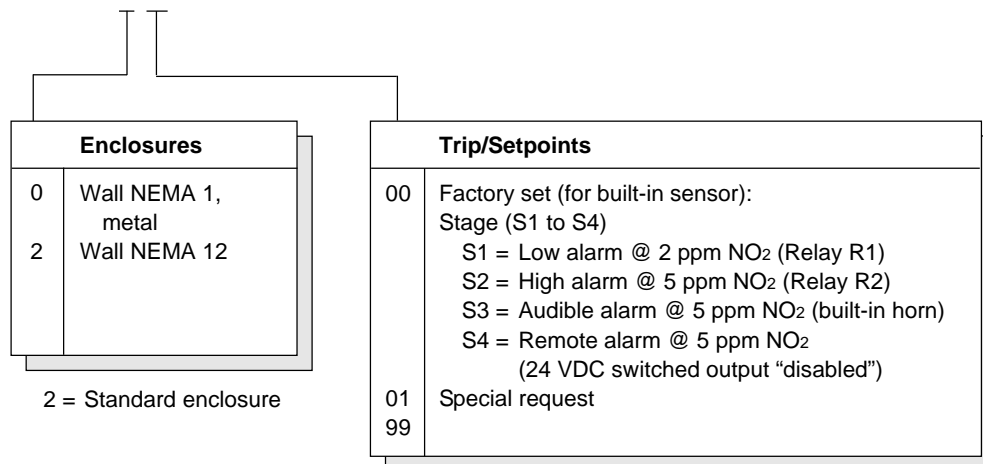
OPTIONS

Enclosure Metal, wall-mount

- material	Galvanized steel w/zinc coating, corrosion resistant
- color	Light gray
- protection	NEMA 1, general purpose
- installation	Wall (surface) mounted, or single gang electrical box
Dimensions (H x W x D)	5.59 x 5.59 x 2.48 in. (142 x 142 x 63 mm)
Cable entry	3 holes for 1/2 in. conduit for wall (surface) mounting and 1 hole on back side of base plate for single gang electrical box mounting

ORDERING INFORMATION

SPC3-1130 - 2 00 US



Standard control system, ordering part number:

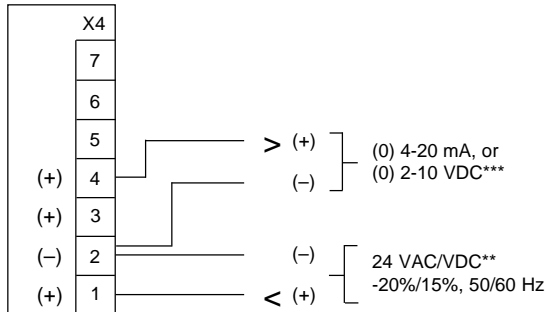
SPC3 - 1130 - 200 US,
configuration includes:

Digital, programmable controller with
menu-driven keypad user interface,
LCD & LEDs, 24 VAC/VDC, 50/60 Hz
NEMA 12 enclosure

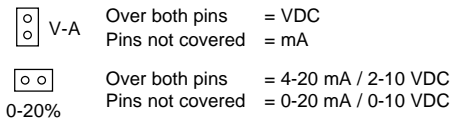
- Built-in: (1) NO₂ sensor/transmitter
(1) Horn, audible alarm
- Input: (1) 4-20 mA, for remote sensor
- Outputs: (2) Relays, 30 VAC/VDC 0.5 A;
1-SPDT (R1) and
1-SPST-NO/NC (R2),
jumper selectable
(1) Switched 24 VDC, 50 mA
(1) (0)4-20 mA or (0)2-10 VDC,
selectable

WIRING CONFIGURATION

24 VAC/VDC Input Power Supply, and Analog Output "AO01"

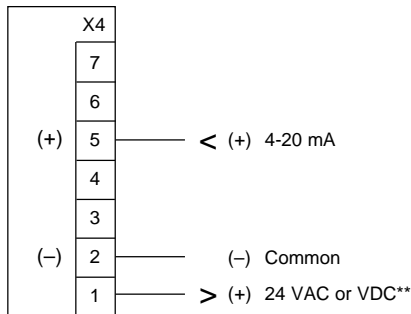


***Jumper output signal "AO01" range selectors:

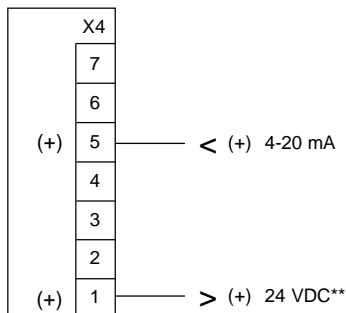


Optional 4-20 Remote AT-...V3 Series Sensor/Transmitter Input "SP02",

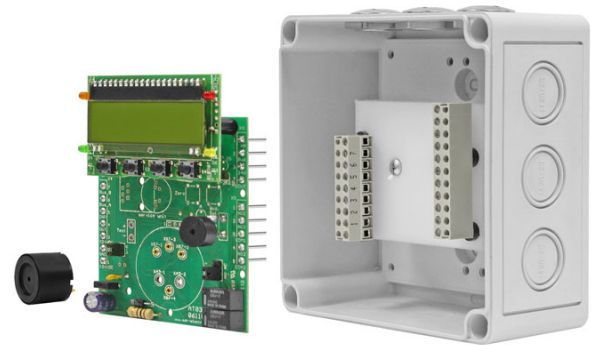
4-20 mA, 3-wire sensor/transmitter



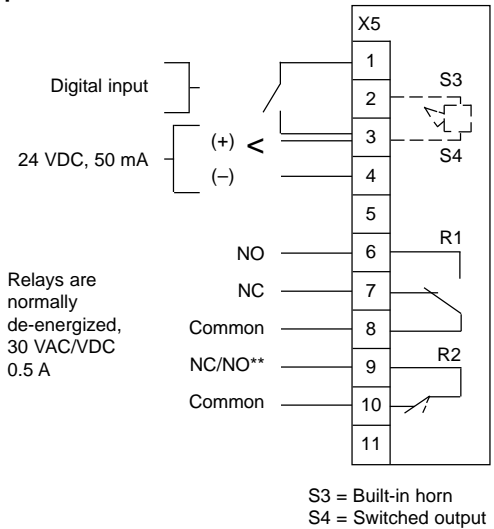
4-20 mA, 2-wire loop-powered sensor/transmitter



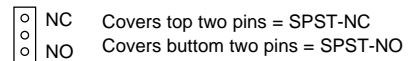
Twisted, shielded wire is recommended for 2- or 3-wire configurations.



Binary-Relay Outputs "R01 and R02", 24 VDC switched Output "S4", and Digital Input



**Jumper SPST relay (R2) NC/NO selector:



****/** Be Alert:**

- Only the same type of power, VAC or VDC, as supplied to the unit, is available for the remote transmitter. I. E. When 24 VDC transmitter power is required, the unit must be powered with 24 VDC.
- 2-wire loop powered transmitter transmitter can use the internal power.
- 3-wire transmitters that allow power common to DC common can use the same power supply to power the SPC3 and the transmitter.
- 3-wire transmitters that require separate power common from DC common must use a separate power source.