



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
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Date: 2/4/2025

Return Request: 2/14/2025

Project: City Of Sherwood Public Works (Maintenance Building)

Supplier: Airetech

Manufacturer: Gas Detection Panels

Submittal: Intech Controls

Submittal Number: 23 00 00-01

Drawing # and Installation: Mechanical Drawings

ARCHITECT

Cromwell
1300 East 6th Street
Little Rock, AR 72202
501-372-2900

ENGINEER

Cromwell
1300 East 6th Street
Little Rock, AR 72202
501-372-2900

GENERAL CONTRACTOR

Baldwin & Shell
1000 W. Capitol Ave.
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501-374-8677

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc.
9924 Landers Rd.
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501-834-3320

Notes:

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CSUSA PROJECT NO.

24-6084

sean@comfortar.com

9924 Landers Rd.
No. Little Rock, AR 72117



SUBMITTAL DATA

EQUIPMENT: Intec Controls CO Gas Detection Control Panels

TAGS: Note 16 (Qty 3) - Sheet M-101-B
Maintenance and Operations Building

PROJECT: City of Sherwood Public Works Facilities

LOCATION: Sherwood, Arkansas

ENGINEER:



CONTRACTOR:



DATE: 12/10/2024

SUBMITTED BY: Forrest Moseley
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ENGINEER CONTACT: Nick Moore

DESCRIPTION

Wall-mounted, NEMA 4X standalone ventilation controller with one, two, or three high-performance SC2-Series gas sensor modules.

Intuitive, menu-driven setup allows on/off, multi-speed, and variable speed control of ventilation equipment in response to user-specified gas concentration levels.

Multi-color LCD and standard horn/light module for local annunciation of escalating alarm levels.

Conforming to Safety Integrity Level 2 (SIL 2) and rigorous international standards, PolyGard®2 monitoring and control systems utilize advanced self-diagnostics and flexible ventilation control functions to ensure maximum human safety without compromising energy efficiency.

Advanced, microprocessor-based X-Change sensor modules meet or exceed the EN 50545-1 self-diagnostic standards including notifying the controller when calibration is due. Although field calibration is possible, X-Change technology allows fast and cost-effective sensor module swaps minimizing field service time, eliminating system downtime and ensuring peak system performance for many years.

APPLICATION

To detect and control levels of toxic and combustible gases in various commercial applications. Although typically operating as a standalone controller directly activating ventilation equipment in response to rising gas levels, the SGC6 can also work with building management systems via Modbus serial communications, analog (gas value), or binary (threshold/relay) output signals.

FEATURES

- 1 or 2 on-board SC2-Series gas sensor modules
- Optional 3rd gas sensor input with DR6 Digital Remote sensor
- 2-Line, 16-character LCD display with dual color background
- Two (2) SPDT alarm relays, 30 VAC/VDC, 0.5 A
- One (1) 4-20 mA or 2-10 VDC analog output, jumper selectable
- One (1) 24 VDC digital input for relay override
- Audible / visual alarm annunciation
- RS-485 serial communications to DGC6-Series Digital Gas Controllers or other Modbus controllers
- 24 VAC/VDC or 100-240 VAC powered
- Menu-driven controller setup
- X-Change sensor technology for low-cost life cycle maintenance
- Digital measurement processing with temperature compensation
- Internal diagnostics including integrated hardware watchdog
- High-impact polycarbonate enclosure, NEMA 4X (IP65)
- Software conforms to SIL 2 standard

PolyGard®2 SGC6



- UL 2075 Listed
- EMC Directives 2014/30/EU
- LVD 2014/35/EU
- CE
- EN 61010-1:2010
- EN 50271
- ANSI/UL 61010-1
- CAN/CSA-C22.2 No. 61010-1

SPECIFICATIONS

Electrical

Power supply	24 VDC/VAC or 100-240 VAC; 24 VDC $\pm 20\%$, reverse polarity protected; 24 VAC -10%/+15%; <i>VAC allowed for standalone configurations only</i>
Power consumption	
- 24 VAC/VDC Model	Max. 250 mA (6 VA)
- 100-240 VAC Model	Max. 625 mA (15 VA)
- base (with LCD)	80 mA
- sensors	See SC2 datasheet
- horn & multi-status LED	5 mA
- analog output	22 mA
Alarm relays	Two (2), 30 VAC/VDC, 0.5 A, potential-free, contacts (SPDT)
Digital input	One (1), 24 VDC for relay override
Analog input	One (1), 4-20 mA overload and short-circuit proof, input resistance 200 Ω
Analog output signal	One (1), selectable, proportional, overload and short-circuit proof, load $\leq 500 \Omega$
- measuring range	4-20 mA / 2-10 VDC
- tolerable under range	2.4-4 mA / 1.2-2.0 VDC
- tolerable over range	> 20-21.2 mA / > 10.0-10.6 VDC
- error over range	$\geq 21.2 \text{ mA} / \geq 10.6 \text{ VDC}$
- fault	$\leq 2.0 \text{ mA} / \leq 1.0 \text{ VDC}$
Output for local bus	5 VDC, 250 mA max. Overload, short-circuit and polarity protected
Output signal for serial communication	Digital, RS-485, Modbus-RTU and DGC6 protocol, 19200 baud
Sensors	SC2 Series
- performance	See SC2 datasheet for specific gases
- coverage	See SC2 datasheet for specific gases
- storage time	6 months (for sensor elements)
Environmental	
Permissible ambient	See SC2 datasheet for specific gases
Horn & Status LED	Configurable by local thresholds or remote DGC6 parameters
Horn	
- acoustic pressure	> 85 dB (A) (dist. 0.1 m / 0.3 ft)
- frequency	2300 Hz
- protection class	NEMA 4X (IP65)

Status LED

- color / mode

Red = Alarm;
Yellow = Fault;
Green = Power (Normal);
Green (flashing) = Service
NEMA 4X (IP65)

- protection class

Liquid Crystal Display LCD

Two lines, 16 characters each,
illuminated

Serial interface

- local bus
- field bus
- tool bus

plug connector / 19200 Baud
RS-485 / 19200 Baud
2-wire / 19200 Baud

Physical

Enclosure, standard

- material

Polycarbonate,
UL94 V-2, fire retardant

- color

Light gray

- protection

NEMA 4X (IP65)

- installation

Wall (surface) mounted,
or single gang electrical box

Dimensions (H x W x D)

- base unit "C"

5.12 x 5.12 x 2.95 in
(130 x 130 x 75 mm)

- base unit "E"

5.12 x 5.12 x 3.90 in
(130 x 130 x 99 mm)

Cable entry, knock outs

3 holes for 1/2 in. conduit,
closed with silver "plugs"

Wire connection

- local bus (SC2)
- remote sensor (DR6)
- analog output

3-pin removable connector
3-wire, max. length 16.4 ft (5 m)
Screw-type terminal;
24 AWG (0.25 mm²), min.
16 AWG (1.3 mm²), max.
Screw-type terminal;
24 AWG (0.25 mm²), min.
14 AWG (2.5 mm²), max.

- power supply, relays

Weight

Certified to

1.32 lb (0.6 kg)
UL 2075 Listed, NRTL
performance tested for models
SGC6-02-CO, SGC6-02-CO-CO,
SGC6-02-CO-NO₂
EMC Directive 2014/30/EU
LVD 2014/35/EU

Conforms to

CE
EN 50271
EN 61010-1:2010
ANSI/UL 61010-1
CAN/CSA-C22.2 No. 61010-1

Warranty

Two years material and
workmanship,
12 months normal exposure for
sensor element

DEFAULT SETTINGS

Trip/Setpoints

Carbon Monoxide (CO)

- stage 1 (R1) 25 ppm
- stage 2 (R2) 150 ppm
- stage 3 (R3) 150 ppm
- stage 4 150 ppm
- hysteresis 10 ppm

Nitrogen Dioxide (NO₂)

- stage 1 (R1) 2 ppm
- stage 2 (R2) 5 ppm
- stage 3 (R3) 5 ppm
- stage 4 5 ppm
- hysteresis 0.5 ppm

Refrigerants

- stage 1 (R1) 250 ppm / 10% LEL (LFL)
- stage 2 (R2) 500 ppm / 20% LEL (LFL)
- stage 3 (R3) 500 ppm / 20% LEL (LFL)
- stage 4 500 ppm / 20% LEL (LFL)
- hysteresis 100 ppm / 5% LEL (LFL)

ACCESSORIES

Duct Mounting Kit

- flow rate
- air duct diameter
- length of sampling tube
- hose length

Calibration Kits

- carbon monoxide

- combustible gases

- nitrogen dioxide

- carbon monoxide
& nitrogen dioxide

- refrigerant

PG2-DUCTKIT

Min. 3.1 mph (5000 m/h),
max. 12.4 mph (20,000 m/h)
Min. 3.94 in. (0.1 m),
max. 39.37 in. (1.0 m)
9.84 in. (250 mm), adaptable
2 x 39.37 in. (1000 mm)

CALKIT-PG2-CO

Sensor calibration adapter
w/ tube and cup, 500 mL/min.
regulator, 17L 200 ppm carbon
monoxide, 17L 99.99% nitrogen,
carrying case

CALKIT-PG2-COMB

Sensor calibration adapter
w/ tube and cup, 150 mL/min.
regulator, 17L 2.5% methane,
17L 99.99% nitrogen,
carrying case

CALKIT-PG2-NO₂

Sensor calibration adapter
w/ tube and cup, 500 mL/min.
regulator (stainless steel),
70L 10 ppm nitrogen dioxide,
70L 99.99% nitrogen,
carrying case

CALKIT-PG2-CO-NO₂

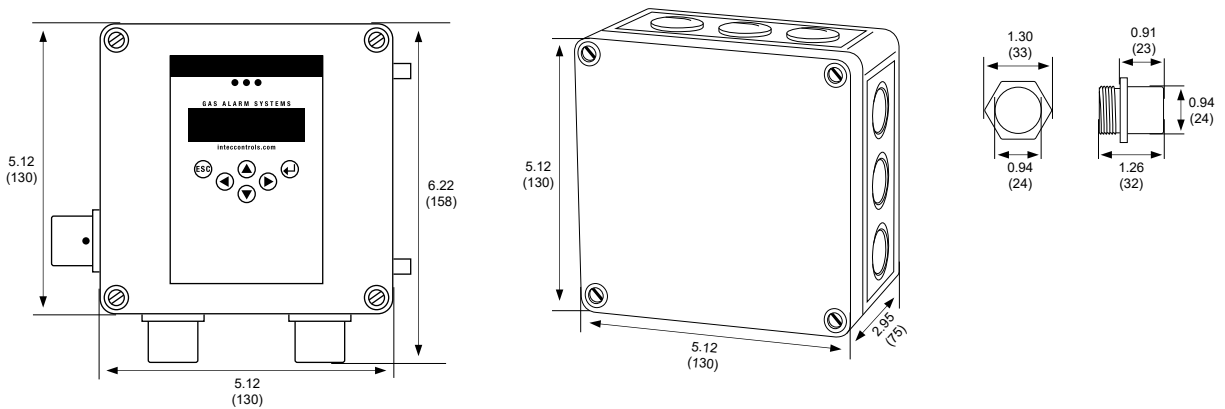
Sensor calibration adapter
w/ tube and cup, 500 mL/min.
regulator (for CO), 500 mL/
min. regulator (stainless steel,
for NO₂), 17L 200 ppm carbon
monoxide, 70L 99.99% nitrogen,
70L 10 ppm nitrogen dioxide,
and (2) carrying cases

CALKIT-PG2-REFRIG

Sensor calibration adapter
w/ tube and cup, 500 mL/min.
regulator (for CO), 500 mL/
min. regulator (stainless steel,
for NO₂), 17L 200 ppm carbon
monoxide, 70L 99.99% nitrogen,
70L 10 ppm nitrogen dioxide,
and (2) carrying cases

DIMENSIONS

"C" Enclosure, inches (mm)

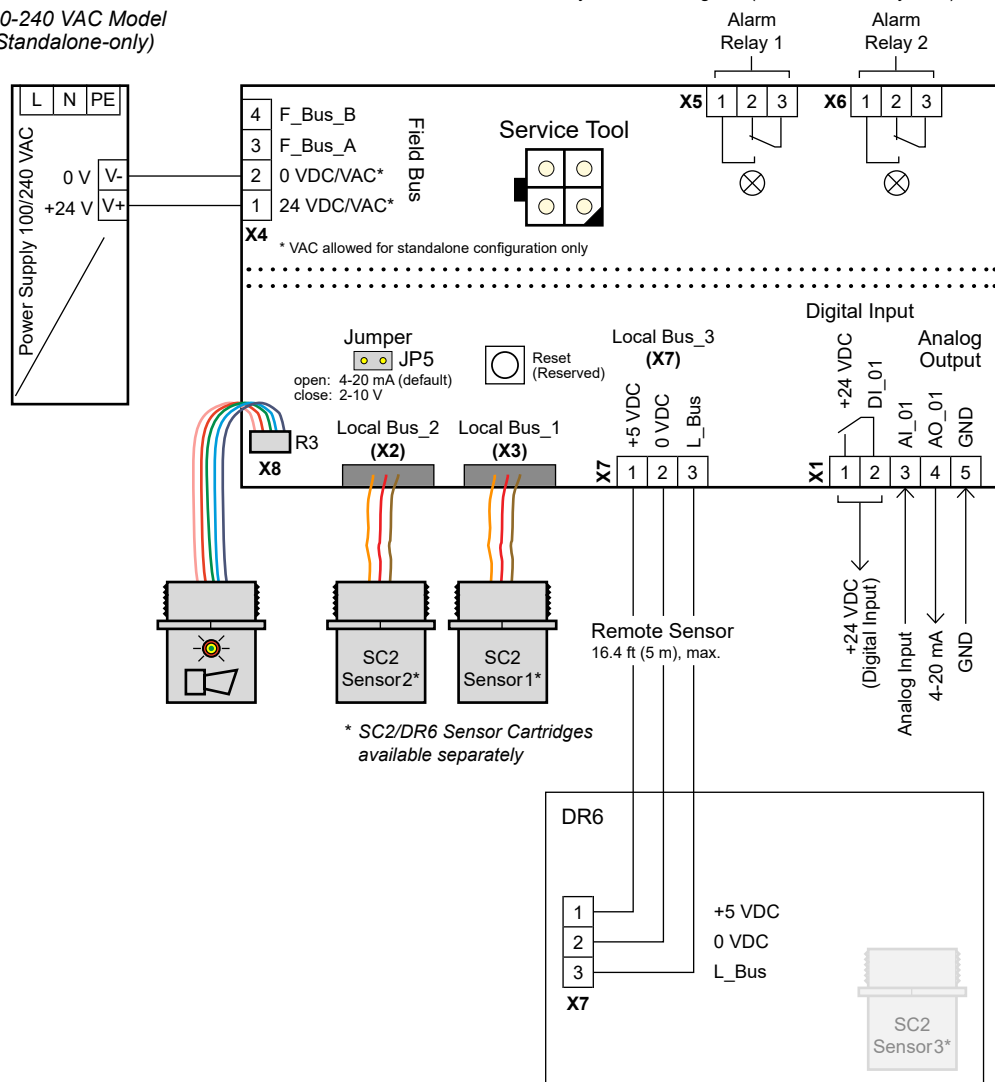


WIRING CONFIGURATION

SGC6 Connections

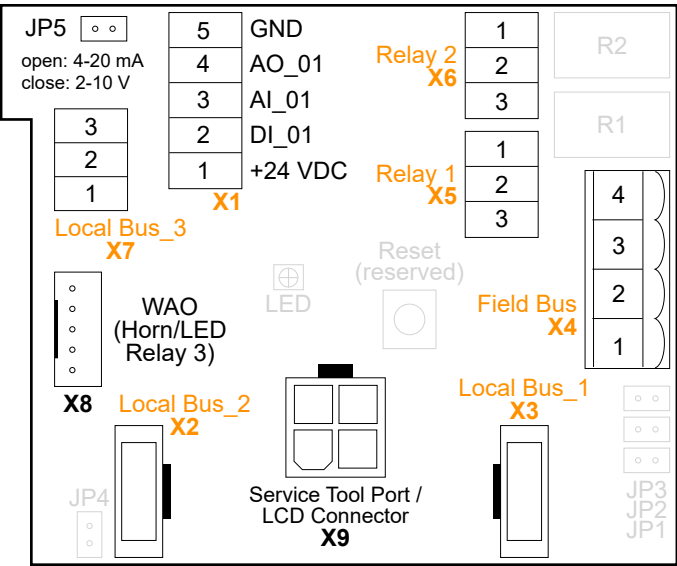
Relays drawn de-energized.
Relay Mode = Energized (Alarm ON = Relay OFF)

**100-240 VAC Model
(Standalone-only)**



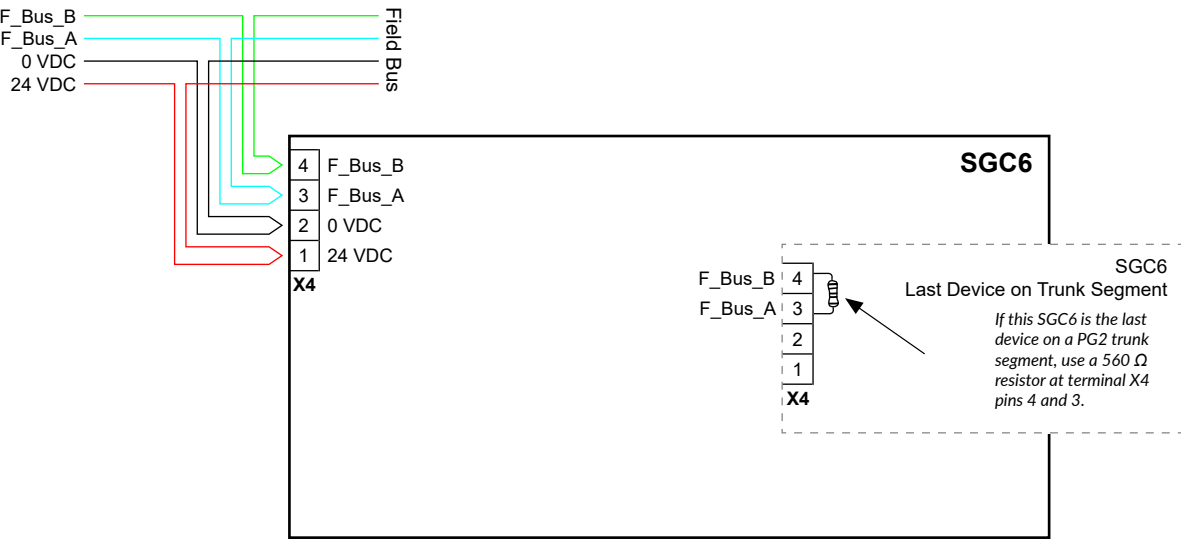
SENSOR BOARD COMPONENTS

SGC6



FIELD WIRING CONFIGURATION

The SGC6 is a fully capable standalone controller. In specific applications where interfacing to the DGC6 (PG2 Gas Detection System) is required, observe the following wiring connections.



ORDERING INFORMATION

PART NUMBER	DESCRIPTION
BUNDLED SENSORS AND CONTROLS	
SGC6-02-CO	SGC6, DGC6 Protocol, (1) 0-250 ppm CO sensor
SGC6-02-CO-CO	SGC6, DGC6 Protocol, (2) 0-250 ppm CO sensors
SGC6-02-CO-NO2	SGC6, DGC6 Protocol, (1) 0-250 ppm CO sensor, (1) 0-20 ppm NO ₂ sensor
SGC6-02-E1195-A	SGC6, DGC6 Protocol, (1) 0-25% v/v O ₂ sensor (2-Year Est. Life)
SGC6-03-CO-NO2	SGC6, DGC6 Protocol, (1) 0-250 ppm CO sensor, (1) 0-20 ppm NO ₂ sensor, 100-240 VAC / 24 VDC power
SENSOR PLATFORM	
SGC6-02	Standalone gas controller, remote relay and AO module, DGC6 Protocol; up to (3) sensor inputs capable; 2-line, 16-char LCD display; (2) SPDT relays; (1) 4-20 mA analog output; horn & status LED; includes "C" enclosure; sensor cartridges ordered separately
SGC6-03	Standalone gas controller, remote relay and AO module, DGC6 Protocol; up to (3) sensor inputs capable; 2-line, 16-char LCD display; (2) SPDT relays; (1) 4-20 mA analog output; horn & status LED; includes "E" enclosure; 100-240 VAC / 24 VDC power; sensor cartridges ordered separately

SC2 Sensor Cartridges available separately.
See SC2 datasheet for specifications.

The SGC6 accepts up to (2) SC2 Sensor Cartridges simultaneously.

In a 2-sensor configuration, both sensor modules must have the same mounting height requirements.

A 3-sensor configuration is possible with a remote DR6 but 3 sensors of the same type is not permitted. The max. distance allowed between the SGC6 and DR6 is 16.4 ft (5 m).

Gas Sensor & Range

#	TOXIC GASES AND OXYGEN			Mounting Height (ft)
E1110-E	Carbon Monoxide	CO	0-250 ppm	5-6
E1110-F	Carbon Monoxide	CO	0-300 ppm	5-6
E1130-A	Nitrogen Dioxide	NO ₂	0-10 ppm	5-6
E1130-B	Nitrogen Dioxide	NO ₂	0-20 ppm	5-6
E1130-C	Nitrogen Dioxide	NO ₂	0-30 ppm	5-6
E1130-D	Nitrogen Dioxide	NO ₂	0-500 ppm	5-6
E1125-A	Ammonia	NH ₃	0-100 ppm	Ceiling
E1125-B	Ammonia	NH ₃	0-300 ppm	Ceiling
E1125-C	Ammonia	NH ₃	0-500 ppm	Ceiling
E1125-D	Ammonia	NH ₃	0-1000 ppm	Ceiling
E1193-C	Chlorine	Cl ₂	0-10 ppm	Floor
E1189-C	Ethylene	C ₂ H ₄	0-200 ppm	5-6
E1185-B	Formaldehyde	CH ₂ O	0-10 ppm	Floor
E1183-C	Hydrogen Cyanide	HCN	0-100 ppm	Ceiling
E1197-A	Hydrogen Sulfide	H ₂ S	0-50 ppm	Floor
E1195-A	Oxygen	O ₂	0-25 Vol%	5-6
E1190-A	Ozone	O ₃	0-5 ppm	Floor
E1196-B	Sulfur Dioxide	SO ₂	0-20 ppm	Floor
#	INFRARED SENSORS (Incompatible with DR6 module)			Mounting Height (ft)
I1164-B	Carbon Dioxide	CO ₂	0-5 Vol%	5-6
I1164-C	Carbon Dioxide	CO ₂	0-2 Vol%	5-6
#	COMBUSTIBLE GASES			Mounting Height (ft)
P3485-A	Acetone	C ₃ H ₆ O	0-100% LEL	Floor
P3408-A	Ammonia	NH ₃	0-100% LEL	Ceiling
P3460-A	Butane	C ₄ H ₁₀	0-100% LEL	Floor
P3472-A	Cyclopentane	C ₅ H ₁₀	0-100% LEL	Floor
P3427-A	Ethyl Acetate	C ₄ H ₈ O ₂	0-100% LEL	Floor
P3425-A	Ethyl Alcohol	C ₂ H ₅ OH	0-100% LEL	Floor
P3410-A	Ethylene	C ₂ H ₄	0-100% LEL	Ceiling
P3496-A	Gasoline Vapors	-	0-100% LEL	-
P3491-A	Heptane	C ₇ H ₁₆	0-100% LEL	Floor
P3435-A	Hexane	C ₆ H ₁₄	0-100% LEL	Floor
P3440-A	Hydrogen	H ₂	0-100% LEL	Ceiling
P3476-A	Isopentane	C ₅ H ₁₂	0-100% LEL	Floor
P3482-A	Isopropyl Alcohol	C ₃ H ₈ O	0-100% LEL	Floor
P3402-A	LPG	-	0-100% LEL	-
P3400-A	Methane	CH ₄	0-100% LEL	Ceiling
P3450-A	Methanol	CH ₃ OH	0-100% LEL	Floor
P3458-A	Methyl Ethyl Ketone	C ₄ H ₈ O	0-100% LEL	Floor
P3475-A	Pentane	C ₅ H ₁₂	0-100% LEL	Floor
P3480-A	Propane	C ₃ H ₈	0-100% LEL	Floor
P3480-C	Propane	C ₃ H ₈	0-5000 ppm	Floor
P3484-A	Propyl Alcohol	C ₃ H ₈ O	0-100% LEL	Floor
P3490-A	Toluene	C ₇ H ₈	0-100% LEL	Floor

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Gas Sensor & Range			
#	REFRIGERANTS		Mounting Height (ft)
S2064-01-A	R123	- 0-2000 ppm	Floor
S2063-08-A	R1233zd	- 0-2000 ppm	Floor
S2063-01-A	R1234yf	- 0-2000 ppm	Floor
S2063-07-A2	R1234ze	- 0-2000 ppm	Floor
S2080-01-A	R125	- 0-2000 ppm	Floor
S2077-01-A	R134a	- 0-2000 ppm	Floor
S2080-10-A	R143a	- 0-2000 ppm	Floor
S2070-01-A	R22	- 0-2000 ppm	Floor
S2061-01-A	R23	- 0-2000 ppm	Floor
S2080-02-A	R32	- 0-2000 ppm	Floor
S2070-02-A	R401a	- 0-2000 ppm	Floor
S2070-03-A	R401b	- 0-2000 ppm	Floor
S2070-04-A	R402a	- 0-2000 ppm	Floor
S2070-05-A	R402b	- 0-2000 ppm	Floor
S2070-06-A	R403a	- 0-2000 ppm	Floor
S2080-03-A	R404a	- 0-2000 ppm	Floor
S2077-02-A	R407a	- 0-2000 ppm	Floor
S2080-04-A	R407c	- 0-2000 ppm	Floor
S2077-11-A	R407f	- 0-2000 ppm	Floor
S2070-07-A	R408a	- 0-2000 ppm	Floor
S2070-08-A	R409a	- 0-2000 ppm	Floor
S2080-05-A	R410a	- 0-2000 ppm	Floor
S2070-09-A	R411a	- 0-2000 ppm	Floor
S2077-03-A	R416a	- 0-2000 ppm	Floor
S2077-04-A	R417a	- 0-2000 ppm	Floor
S2077-05-A	R422a	- 0-2000 ppm	Floor
S2077-06-A	R422d	- 0-2000 ppm	Floor
S2077-07-A	R427a	- 0-2000 ppm	Floor
S2080-06-A	R434a	- 0-2000 ppm	Floor
S2077-08-A	R437a	- 0-2000 ppm	Floor
S2077-09-A	R438a	- 0-2000 ppm	Floor
S2080-08-A	R448a	- 0-2000 ppm	Floor
S2077-10-A	R449a	- 0-2000 ppm	Floor
S2077-12-A	R450a	- 0-2000 ppm	Floor
S2063-02-A	R452a	- 0-2000 ppm	Floor
S2080-09-A	R452b	- 0-2000 ppm	Floor
S2063-06-A	R454b	- 0-2000 ppm	Floor
S2063-04-A	R454c	- 0-2000 ppm	Floor
S2063-05-A	R455a	- 0-2000 ppm	Floor
S2080-07-A	R507a	- 0-2000 ppm	Floor
S2061-02-A	R508b	- 0-2000 ppm	Floor
S2063-03-A	R513a	- 0-2000 ppm	Floor
S2020-04-A	R1234yf	- 0-50 % LEL (LFL)	Floor
S2020-05-A2	R1234ze	- 0-50 % LEL (LFL)	Floor
S2020-01-A	R32	- 0-50 % LEL (LFL)	Floor
S2020-03-A	R454b	- 0-50 % LEL (LFL)	Floor
S2020-02-A	R455a	- 0-50 % LEL (LFL)	Floor

ACCESSORIES

PG2-DUCTKIT	(1) Duct mounting kit for SC2 / AT6 sensor
CALKIT-PG2-CO	Carbon monoxide calibration kit for SC2 / AT6 sensors
CALKIT-PG2-COMB	Combustible calibration kit for SC2 / AT6 sensors
CALKIT-PG2-NO2	Nitrogen dioxide calibration kit for SC2 / AT6 sensors
CALKIT-PG2-CO-NO2	CO & NO2 calibration kit for SC2 / AT6 sensors

MPST™ Sensors

For PolyGuard®2 and PolyXeta®2

- 15+ years service life
- Low power consumption
- High accuracy, linearity, repeatability and stability
- Integrated environmental compensation (pressure, humidity and temperature)
- Integrated self-testing and fault management
- Highly resistant to poisoning

Available Gases:

R-32 | R-1234ze | Methane | Propane | Acetylene

Ask your account executive to learn more!