PolyGard®2 SGC6

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.

- 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

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*

SPECIFICATIONS

Electrical	
Power supply	24 VDC/VAC or 100-240 VAC; 24 VDC ±20%, reverse polarity protected; 24 VAC -10%/+15%; *VAC allowed for standalone configurations only*
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 ≤ 500 Ω
- 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	≥ 21.2 mA / ≥ 10.6 VDC
- fault	≤ 2.0 mA / ≤ 1.0 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
- protection class	NEMA 4X (IP65)
Liquid Crystal Display	
LCD	Two lines, 16 characters each, illuminated
Serial interface	
- local bus	plug connector / 19200 Baud
- field bus	RS-485 / 19200 Baud
- tool bus	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)	3-pin removable connector
- remote sensor (DR6)	3-wire, max. length 16.4 ft (5 m)
- analog output	Screw-type terminal; 24 AWG (0.25 mm^2), min. 16 AWG (1.3 mm^2), max.
- power supply, relays	Screw-type terminal; 24 AWG (0.25 mm^2), min. 14 AWG (2.5 mm^2), max.
Weight	1.32 lb (0.6 kg)
Certified to	UL 2075 Listed, NRTL performance tested for models SGC6-02-CO, SGC6-02-CO-CO, SGC6-02-CO-NO_2
Conforms to	EMC Directive 2014/30/EU LVD 2014/35/EU 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

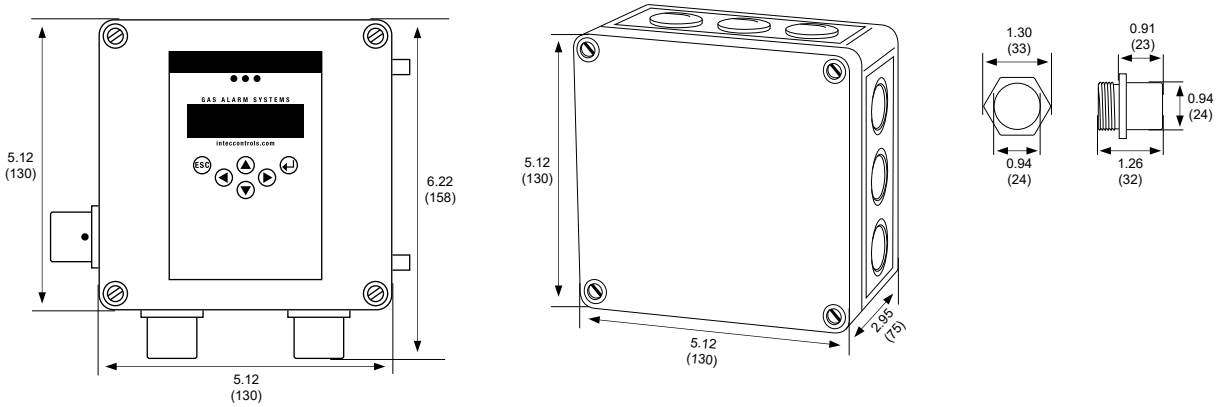
Carbon Monoxide (CO)	
- stage 1 (R1)	25 ppm
- stage 2 (R2)	150 ppm
- stage 3 (R3)	150 ppm
- stage 4	150 ppm
- hysteresis	10 ppm
Nitrogen Dioxide (NO_2)	
- stage 1 (R1)	2 ppm
- stage 2 (R2)	5 ppm
- stage 3 (R3)	5 ppm
- stage 4	5 ppm
- hysteresis	0.5 ppm
Refrigerants	
- stage 1 (R1)	250 ppm / 10% LEL (LFL)
- 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	**PG2-DUCTKIT**
- flow rate	Min. 3.1 mph (5000 m/h), max. 12.4 mph (20,000 m/h)
- air duct diameter	Min. 3.94 in. (0.1 m), max. 39.37 in. (1.0 m)
- length of sampling tube	9.84 in. (250 mm), adaptable
- hose length	2 x 39.37 in. (1000 mm)
Calibration Kits	
- carbon monoxide	**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
- combustible gases	**CALKIT-PG2-COMB** Sensor calibration adapter w/ tube and cup, 150 mL/min. regulator, 17L 2.5% methane, 17L 99.99% nitrogen, carrying case
- nitrogen dioxide	**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
- carbon monoxide & nitrogen dioxide	**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
- refrigerant	**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

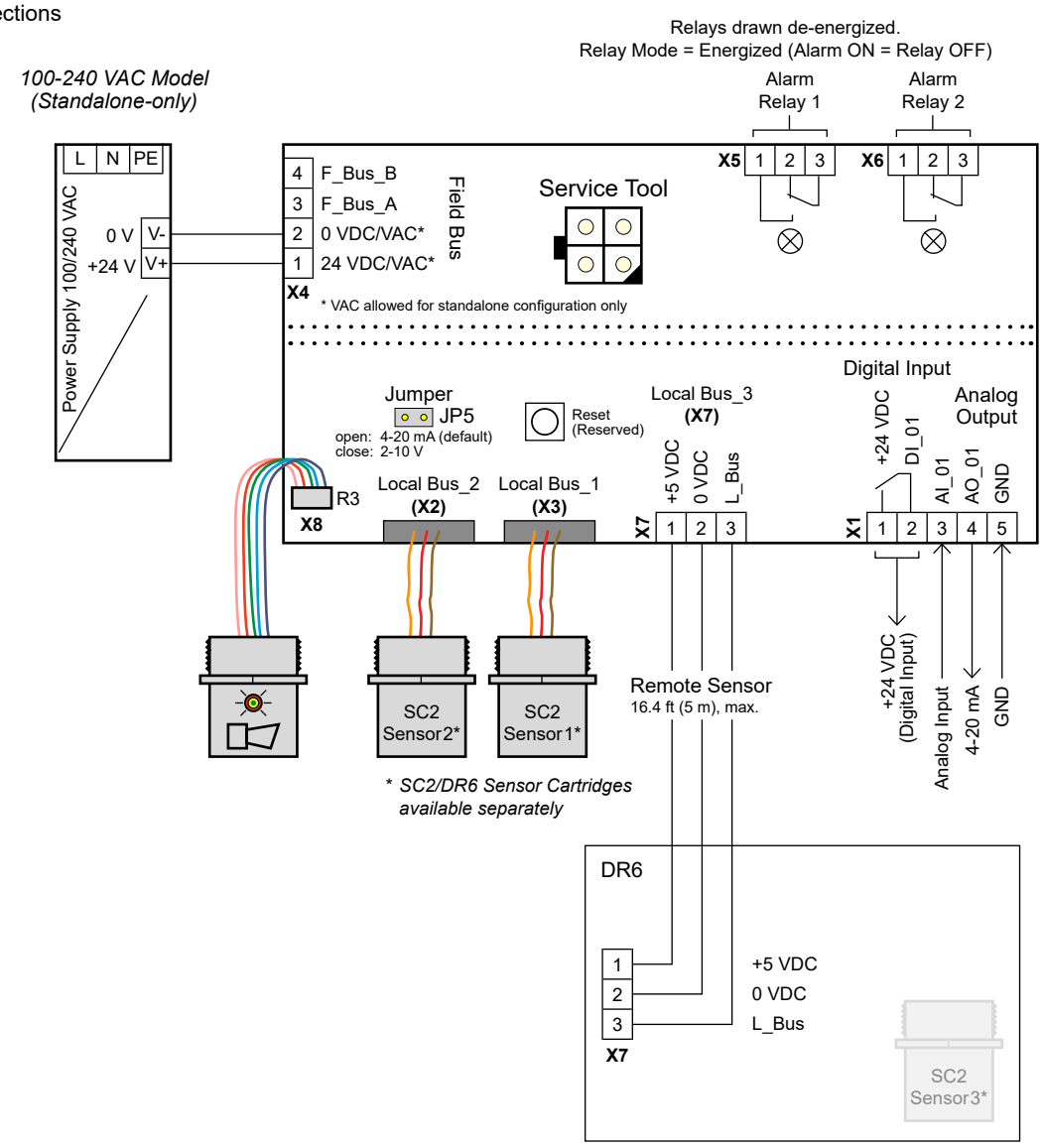
DIMENSIONS

"C" Enclosure, inches (mm)



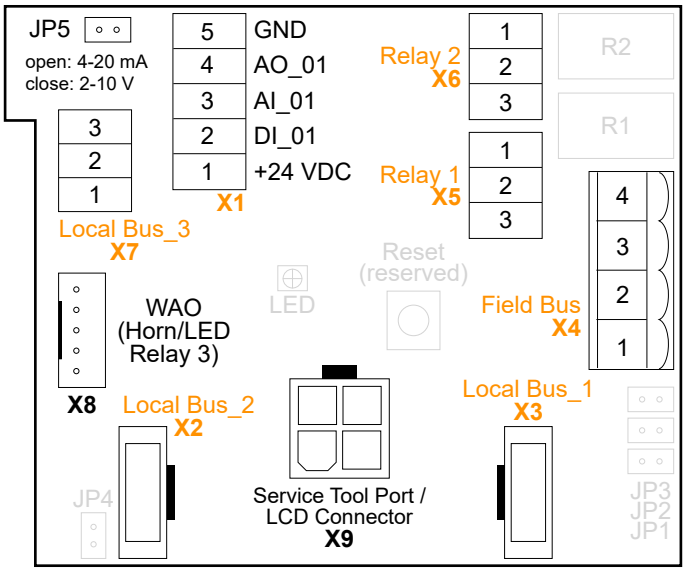
WIRING CONFIGURATION

SGC6 Connections



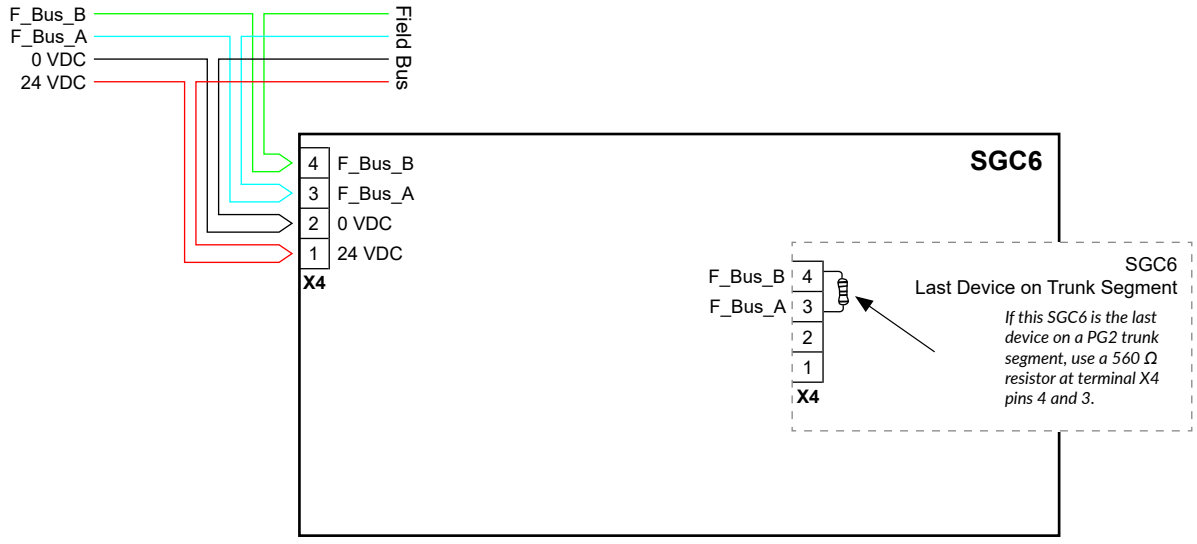
SENSOR BOARD COMPONENTS

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_2H_4	0-200 ppm	5-6
E1185-B	Formaldehyde	CH_2O	0-10 ppm	Floor
E1183-C	Hydrogen Cyanide	HCN	0-100 ppm	Ceiling
E1197-A	Hydrogen Sulfide	H_2S	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	CO2	0-5 Vol%	5-6
I1164-C	Carbon Dioxide	CO2	0-2 Vol%	5-6
#	COMBUSTIBLE GASES			Mounting Height (ft)
P3485-A	Acetone	C_3H_6O	0-100% LEL	Floor
P3408-A	Ammonia	NH_3	0-100% LEL	Ceiling
P3460-A	Butane	C_4H_{10}	0-100% LEL	Floor
P3472-A	Cyclopentane	C_5H_{10}	0-100% LEL	Floor
P3427-A	Ethyl Acetate	$C_4H_8O_2$	0-100% LEL	Floor
P3425-A	Ethyl Alcohol	C_2H_5OH	0-100% LEL	Floor
P3410-A	Ethylene	C_2H_4	0-100% LEL	Ceiling
P3496-A	Gasoline Vapors	-	0-100% LEL	-
P3491-A	Heptane	C_7H_{16}	0-100% LEL	Floor
P3435-A	Hexane	C_6H_{14}	0-100% LEL	Floor
P3440-A	Hydrogen	H_2	0-100% LEL	Ceiling
P3476-A	Isopentane	C_5H_{12}	0-100% LEL	Floor
P3482-A	Isopropyl Alcohol	C_3H_8O	0-100% LEL	Floor
P3402-A	LPG	-	0-100% LEL	-
P3400-A	Methane	CH_4	0-100% LEL	Ceiling
P3450-A	Methanol	CH_3OH	0-100% LEL	Floor
P3458-A	Methyl Ethyl Ketone	C_4H_8O	0-100% LEL	Floor
P3475-A	Pentane	C_5H_{12}	0-100% LEL	Floor
P3480-A	Propane	C_3H_8	0-100% LEL	Floor
P3480-C	Propane	C_3H_8	0-5000 ppm	Floor
P3484-A	Propyl Alcohol	C_3H_8O	0-100% LEL	Floor
P3490-A	Toluene	C_7H_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

MPS™ Sensors
For PolyGard®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!