S5000 Gas Monitor


Simple retrofits have identical footprint and wiring to S4000 Gas Monitor series.

Wide operating temperature for extreme environments (-55°C to +75°C).

Instrument status indicators illuminate power, fault, and alarm conditions.

Intuitive user experience with industry-first touch-button interface or familiar magnetic interface.

Dual sensor capability increases detection coverage without increasing CAPEX expense. Remote mount gas sensors up to 100 m away.

Bluetooth® wireless technology allows mobile device to act as HMI screen and controller via the X/S Connect App.

Reduce setup time by at least 50% with the X/S Connect App.

Advanced Sensor Technology

POWERED BY WITH

XCell Sensors

TruCal® TECHNOLOGY

- Patented XCell Sensors with TruCal technology* extend calibration cycles for as long as 18 months, actively monitor sensor integrity, and compensate for environmental factors and electrochemical sensor drift.
- **Diffusion Supervision** sends acoustic signal every 6 hours to check that sensor inlet isn’t obstructed so gas can reach the sensor.
- Worry-free operation; automatically self-checks four times per day.
- Three-year warranty and five-year expected life for XCell Sensors.
- **SafeSwap** enables safe and quick XCell Sensor replacement without powering off gas detector.

Applications

- Compressor stations
- CNG maintenance facilities
- Drilling and production platforms
- Fuel loading facilities
- LNG/LPG processing and storage
- Oil well logging
- Petrochemical
- Refineries

* Only CO & H₂S XCell Sensors
Specifications

**Product Specifications**

| COMBUSTIBLE GAS SENSOR TYPE | Catalytic bead (Passive comb., XCell comb.) Infrared (IR400) |
| TOXIC GAS & OXYGEN SENSOR TYPE | XCell Toxic: Ammonia (NH₃), Carbon Monoxide (CO), Carbon Monoxide (CO) H₂-resistant, Chlorine (Cl₂), Sulfur Dioxide (SO₂) |
| | Passive MOS, Echem, XCell Toxic: Hydrogen Sulfide (H₂S) |
| | XCell O₂: Oxygen (O₂) |
| | Infrared: Carbon Dioxide (CO₂) |
| | Electrochem: Ammonia (NH₃), Hydrogen (H₂), Nitrogen Dioxide (NO₂) |

**SENSOR MEASURING RANGES**

- **Combustible:** 0-100% LEL (CB, IR)
- **O₂:** 0-21%, 0-5% LEL
- **NO₂:** 0-10 ppm, 0-95% relative humidity
- **H₂:** 0-10, 0-20, 0-50, 0-100 ppm
- **CO:** 0-1000 ppm
- **H₂S:** 0-100 ppm, 0-1000 ppm
- **Cl₂:** 0-5, 0-10, 0-20 ppm
- **H₂-resistant:** 0-100 ppm
- **CO₂:** 0-2000, 0-5000, 0-10000, 0-30000, 0-50000 ppm
- **CO, H₂-resistant:** 0-100 ppm
- **NH₃:** 0-100 ppm, 0-1000 ppm
- **H₂S:** 0-20, 0-50, 0-100 ppm
- **H₂S Echem:** 0-500 ppm
- **SO₂:** 0-25% relative humidity
- **O₂:** 0-10 ppm

**SENSOR PERFORMANCE**

- **T90 (typical):**
  - Passive comb.: < 30 sec.
  - Passive MOS: < 60 sec.
  - IR400: < 3 sec.
  - IR700: < 8 sec.
  - XCell comb.: < 22 sec.
  - XCell H₂S: < 23 sec.
  - XCell CO: < 9 sec.
  - XCell NH₃: < 60 sec.
  - XCell O₂: < 11 sec.
  - XCell SO₂: < 6 sec.
  - XCell Cl₂: < 12 sec.
  - H₂: < 185 sec.
  - SO₂: < 60 sec.

- **Repeatability:** ± 3% LEL (per year)
- **Zero Drift (per year):**
  - Passive comb.: < 5% LEL
  - Passive MOS: < 0.1 ppm
  - IR400: < 2% LEL
  - IR700: N/A
  - XCell comb.: < 5% LEL
  - XCell H₂S: < 1% full scale
  - XCell CO: < 1% full scale
  - XCell NH₃: ≤ ±1% full scale
  - XCell O₂: ≤ ±1% full scale
  - XCell SO₂: ≤ ±1% full scale
  - XCell Cl₂: ≤ ±1% full scale
  - H₂: ≤ ±1% full scale
  - SO₂: ≤ ±1% full scale
  - O₂: ≤ ±1% full scale

**APPROVALS CLASSIFICATION DIVISIONS (US/CAN)**

- **US ZONES**: Class I, Div 1 & 2, Groups A, B, C & D; T3; T4; Class II, Div 1 & 2, Groups E, F, & G; T6; Class III Type 4X; IP66
- **CANADIAN ZONES/ATEX/IECEx**: Class I, Zone 1 AEx db IIC T5 Gb
- **CE MARKING DIRECTIVES**: Complies with EMC, RED, ATEX

**WARRANTY**

- **S5000 transmitter**: 2 years
- **XCell Sensors**: 3 years
- **Passive comb., MOS, IR400, IR700**: 2 years
- **Echem Sensors**: Varies by gas

**APPROVALS**


**Dimensions**

- **HOUSING (W x H x D)**:
  - With PASSIVE SENSOR:
    - 6.37” x 5.38” x 4.25” (162 x 137 x 108 mm)
  - With DIGITAL SENSOR:
    - 6.37” x 7.62” x 4.25” (162 x 193 x 108 mm)
  - 6.37” x 10.4” x 4.25” (162 x 265 x 108 mm)
- **WEIGHT**: 8 lb. (3.6 kg), 361 S5

**Environmental Specifications**

- **OPERATING TEMPERATURE RANGE**
  - Transmitter: -55°C to +75°C
  - CB (sintered, Zones): -40°C to +70°C
  - CB (screened, Div): -40°C to +70°C
  - MOS (sintered, Zones): -40°C to +75°C
  - MOS (screened, Div): -40°C to +75°C
  - IR (CSA): -40°C to +75°C
  - IR (ATEX/IECEx): -60°C to +75°C
  - XCell (Comb): -55°C to +60°C
  - XCell (Toxic/O₂): -40°C to +60°C
- **STORAGE TEMPERATURE RANGE**
  - XCell sensors, IR400, IR700: -50°C to +85°C
  - XCell sensors: -40°C to +60°C
- **RELATIVE HUMIDITY (NON-CONDENSING)**
  - XCell sensors: 10-95%
  - Passive combustible: 0-95%
  - Passive H₂S: 95-95%

**Mechanical Specifications**

- **INPUT POWER**: 24 VDC nominal, 12 to 30 VDC
- **SIGNAL OUTPUT**: Dual 4-20 mA current source or sink, HART, Modbus, Bluetooth. Optional: w/o Bluetooth
- **RELAY RATINGS**
  - Common, discrete, horn
  - Relay Modes: (3X) SPDT – fault, warn, alarm
- **NORMAL MAX POWER RELAYS**
  - Passive comb.: 6.0 W
  - Passive MOS: 10.8 W
  - IR400/IR700: 8.9 W
  - XCell comb.: 6.0 W
  - XCell toxic & O₂: 3.6 W
  - IR400/IR700 + XCell comb.: 11.8 W
  - IR400/IR700 + XCell toxic or O₂: 9.6 W
  - Dual XCell toxic or O₂: 4.3 W
  - Dual XCell comb.: 8.4 W
  - XCell comb. + XCell toxic or O₂: 6.7 W
- **STATUS INDICATORS**
  - 4-digit scrolling LED, icons depicting fault, warn, alarm, Bluetooth, 1 and 2 to indicate sensor reading displayed
- **RS-485 OUTPUT**
  - Modbus RTU, suitable for linking up to 128 units or up to 247 units with repeaters
- **BAUD RATE**
  - 2400, 4800, 9600, 19200, 38400, 115200
- **HART**
  - Hart 7, HART device description language available
- **FAULTS MONITORED**
  - Low supply voltage, RAM checksum error, flash checksum error, EEPROM error, internal circuit error, relay, invalid sensor configuration, sensor faults, calibration faults, analog output mismatch fault
- **CABLE REQUIREMENTS**
  - 3-wire shielded cable for single sensor
  - 4-wire shielded cable for dual sensor

*At ambient conditions

MSA operates in over 40 countries worldwide. To find an MSA office near you, please visit MSAsafety.com/offices.