MSA PrimaX® IR Series Gas Monitor Specification
PRODUCT SPECIFICATION

1 This specification details the attributes and operating characteristics of the MSA PrimaX IR Gas Monitor. The following table can be used to identify and document gas sensing requirements:

Gas Type Range/Full Scale	No. Of Points	316SS (XP)
Combustible Gas	IR Methane	0-100% LEL
Combustible Gas	IR Propane	0-100% LEL

2 PrimaX IR Combustible Gas Monitor is contained in a 316 stainless Steel explosion-proof enclosure. All models have common electronics, software and optional features.

3 Infrared Combustible Sensor Requirements
   3.1. Infrared (IR) Combustible sensor must contain dual analytical source design capable of detecting 0-100% LEL of combustible gas. Sensor must be capable of continued operation within given specifications if one analytical source fails.
      3.1.1.   Infrared combustible sensor must be capable of accepting full calibration by zero adjustment only.
      3.1.2.   IR combustible sensor shall not contain flashback arrestor/frit.
      3.1.3.   Infrared Gas Monitor Operation Requirements
         3.1.3.1. Operating voltage – gas monitor must be capable of operating between 18-32 VDC.
   3.2. Gas monitor shall meet the following wiring/installation requirements:
   3.3. 3-wire cable for all combustible units (maximum 14 awg)Gas Monitor Operating Requirements
      3.3.1.   Gas monitor setup and startup shall not require opening or enclosure during this process.
      3.3.2.   Gas monitor shall be factory calibrated, ready for use out of the box. A gas check is all that is required to ensure proper operations.
      3.3.3.   Gas monitor shall contain no pots, jumpers or switches.
      3.3.4.   An environmental guard to be placed on monitor to protect infrared windows from dust, dirt and other environmental contaminants must be available.
      3.3.5.   Gas monitor output signal shall be 4 to 20 mA with HART (Highway Addressable Remote Transducer) standard. Combustible gas monitor output shall be sourcing type of signal capable of operating into 500-ohm load
   3.4. Infrared Sensor Technology
      3.4.1.   Sensor modules shall contain all relevant sensor information within module and be accessible via HART. This information shall include sensor manufacturer date, gas type, gas range, and calibration data.
      3.4.2.   Sensor module shall store all calibration data so that module may be calibrated off-site and field-installed without necessity of recalibration.
      3.4.3.   Sensor module shall not require battery or power source to store this date.
   3.5. Expected Life/Warranty
      3.5.1.   Complete product will have minimum useful life of three (3) years. IR source within infrared sensor will have minimum useful life of ten (10) years.
      3.5.2.   Supplier will provide replacement sensors at no charge for any sensor that does not meet minimum requirement.

4 Sensor Enclosure Parameters
   4.1 Sensor/transmitter will be contained within a 316 stainless steel enclosure suitable for location in Class I, Division 1 & 2, Groups A, B, C & D, Class II, Division 1, Groups E & F, Class III classified areas.
   4.2 Optional junction box enclosure shall have minimum of three entries, allowing for mounting options for sensor, power and signal, and should be constructed with 316 stainless steel.

5   Installation and Mounting Hardware
    5.1 A bracket shall be available for purchase which mounts gas monitor to a wall or similar structure.
    5.2 Mounting bracket shall attach to gas monitor via tapped and threaded holes on rear of gas monitor.

6   Approvals
    6.1 Explosion-proof monitor shall have Class I, Division 1 & 2, Groups B, C, and D; Class II, Division 1, Groups F & G; Class III approval certified via FM or another recognized NRTL.
        6.1.1   Gas monitor shall be approved for operation in temperatures ranging from -50°C to 80°C (-58°F to 176°F).
        6.1.2   Gas monitor must have minimum of IP 67 ingress rating.
    6.2 SIL 2 Certification
        6.2.1   IR gas monitors shall be certified to SIL requirements as per IEC 6 1508. Random Integrity SIL 2 @ HFT =0.

7   Non-intrusive Calibration Capability
    7.1 All gas monitors can be calibrated without opening monitor enclosures.
    7.2 Calibration can be achieved by means of non-intrusive calibration cap or HART hand-held communicator.
        7.2.1   Calibration cap display will instruct users as to when to apply zero and span gas.
        7.2.2   Calibration cap will automatically adjust internal settings to proper calibration values without further user intervention.
        7.2.3   Upon successful calibration completion, calibration cap will exit calibration mode. Date stamp of last successful calibration will be retained within gas monitor's internal memory, with capability to be displayed via HART.
        7.2.4   If calibration is unsuccessful for any reason, display must show unsuccessful calibration attempt and revert to previous calibration settings.
    7.3 Gas monitor must be capable of calibration via HART which is transmitted over 4-20mA output.
        7.3.1   Software program must be an available option to enable product calibration over HART output.
    7.4 Use of flashlight-type devices or magnets to achieve calibration is not acceptable.

8   Additional Product Options – as a minimum, gas monitor must have the following product options available.
    8.1 Sunsheild metal shield capable of protecting gas monitor from direct sunlight
    8.2 Duct-mounts kit – kit enabling gas monitor to be positioned inside of duct with means to calibrate monitor without removing it from duct.
    8.3 Flow cap – stainless steel housing enabling constant gas flow into and out of infrared monitor's optical path.
    8.4 Insect guard – steel mesh capable of keeping insects from entering infrared path.
    8.5 HART junction box – 316 Class I Division 1 Stainless Steel junction box enabling HART hand-held controllers to access HART information from gas monitor.
    8.6 Environmental guard tether – metal device attaching environmental guard to mounting plate.

9   Manufacturer Capability Requirements - as minimum, gas monitoring equipment manufacturer must meet the following requirements.
    9.1 Manufacturer must be capable of supplying all equipment used to check or calibrate units.
    9.2 Manufacturer must be capable of providing on-site service with factory trained personnel.
    9.3 Manufacturer must be capable of providing on-site training for owner/operator.

10 Sensor/transmitter shall be MSA PrimaX IR Gas Monitor or equal.