

Criteria for Evaluating Compact Multigas Detectors



With the addition of MSA's new Solaris™ Multigas Detector to the marketplace, MSA felt there was a need to educate the industry about the choices available in multigas detectors.

This class of portable instruments is extremely compact and lightweight, making it ideal for individual worker safety. The low cost of these instruments makes it possible to protect every worker in potentially dangerous areas.

These compact multigas detectors are used in environments where harmful gases are present or where oxygen depletion can take place, such as in confined spaces. Sensor options include O₂, H₂S, CO and combustible gas.

This literature will compare the features and benefits of the Solaris Multigas Detector with that of the competition so that you can make an educated, informed purchasing decision.



CALIBRATION

MSA Solaris Multigas Detector

- The Solaris Multigas Detector uses an advanced auto calibration feature that makes the unit extremely easy to calibrate. The Solaris unit features a scrolling alphanumeric message bar using easily understood commands helping to prompt a user through the automated calibration procedure.
- The Solaris unit offers users the option of performing a fresh-air setup on the unit after the unit is turned on and the user has had an opportunity to evaluate the default zero readings for all sensors.
- For greater flexibility, the instrument allows the user to easily change the expected calibration gas values using the password-protected instrument set-up mode. This added flexibility enables the user to calibrate the Solaris unit with a wide range of calibration gas concentrations supplied by various sources.

The Competition

- Some competitive offerings ALWAYS zero the oxygen sensors upon instrument turn-on. If the user is unaware that the instrument performs this function and is not in a fresh air environment when they turn on the instrument, it could result in an erroneous, and potentially dangerous, miscalibration of the gas detector.
- Many other manufacturers also require the use of only calibration gas supplied by the instrument manufacturer. They sell users an attractively priced instrument that can use only expensive calibration gas cylinders and other accessories. MSA does not require users to buy only MSA-supplied calibration gas cylinders with the Solaris instrument.

CASE & RATINGS

MSA Solaris Multigas Detector

- The Solaris unit features a rubberized armor-coated case to provide superior protection against liquid and dust ingress. It has been tested to an ingress protection rating of IP65, demonstrating its ability to continually perform in the harshest environmental conditions.
- The rubberized armor also helps to absorb impact if the unit is accidentally dropped. The Solaris unit is assembled using metal screws and metal inserts. This increases the overall durability of the instrument and helps to ensure the instrument can be easily disassembled and re-assembled without sacrificing the integrity of the housing.

The Competition

- Although some competitive offerings do feature a rubberized armor case, most do not possess an IP rating or have any other independent testing results to substantiate the durability claims made by the manufacturer.
- Those same instrument manufacturers also rely on less expensive self-tapping screws for assembly of their instruments. This assembly technique inherently allows the screws to more easily strip out the plastic housing they are screwed into, compared to their molded-in, metal counterparts. When the proper torque is not applied to self-tapping screws, the plastic case material will not hold up to repeated use. These screws then need to be removed and reinserted during routine instrument maintenance procedures such as sensors and filter replacement.

SENSORS

MSA Solaris Multigas Detector

- The combustible gas sensor in the Solaris Multigas Detector is the MSA Series 20L sensor. The 20L sensor provides up to 50 times the silicone poison tolerance of competitive sensors.
- Patented MSA button sensors are used to detect CO and H₂S and are easy to maintain and replace.
- The Solaris unit uses a single-gas-specific sensor for each gas that it is configured to detect. The Solaris unit does not use a "combination sensor" to detect multiple gases with a single sensor.

The Competition

- Many of the competitors use all third-party sensors.
- Some other gas detectors include only three sensors for four-gas detection, using one sensor for both CO and H₂S detection. This "shared" sensor can be subject to significant cross sensitivities in certain environmental conditions. Often, when one of the two sensing elements fail, the other also fails, leaving users without detection capabilities for either gas.

MSA Solaris Multigas Detector

- The triple-alarm system used in the Solaris detector is outstanding.
- Super-bright LED alarms are visible from all angles, and a user-selectable green LED flashes once every 15 seconds to let workers know that the instrument is working properly.
- The audible alarm is typically measured in excess of 100 dB at a distance of one foot and is distinct so that it will not be confused with other workplace sounds.
- A strong vibrating alarm is a standard feature as well.

The Competition

- Other gas detectors also have visual LED alarm lights, but no "safe LED" feature, as is found in the Solaris unit.
- Competitive audible alarms are typically advertised as being only 90-95 dB, at an unspecified distance.
- Some manufacturers do not isolate the vibrating alarm motor from sensitive electrical components. One manufacturer actually attaches the vibrating motor directly to a sensitive integrated circuit (IC) chip. This design could potentially increase the occurrence of circuitry failures as the vibrating motor is used.

DISPLAY/USER INTERFACE

MSA Solaris Multigas Detector

- Even with the compact size of the Solaris Multigas Detector, this instrument offers a superior, largest-in-class display.
- The alphanumeric scrolling message bar on the Solaris unit display easily provides "status at a glance" information for the user.
- The backlighting of the Solaris unit provides exceptional contrast, making it easy to read in bright sunlight, low-light conditions and from a wide range of angles.
- The membrane switch buttons possess a strong tactile feel to provide positive feedback to users. All buttons feature integrated English words and internationally recognized icons to help users to easily understand the various button functions.

The Competition

- Some competitive units only display one gas at a time.
- Display labels that indicate sensor types and basic instrument commands use much smaller characters that are more difficult to read.
- Most competitive gas detectors are backlit, however they are not nearly as bright and do not offer as much contrast as the Solaris unit.
- Some competitive units have integral buttons that are harder to press, and feature characters painted on the buttons that tend to wear off relatively easily over time.

BATTERY

MSA Solaris Multigas Detector

- Using Lithium Ion battery technology, the Solaris unit provides more than 14 hours of continuous instrument operation.
- The batteries chosen for the Solaris detector also outperform other battery technologies in extreme environmental conditions, such as low temperatures.
- A full battery charge using MSA's cell-phone cradle charger takes less than four hours to complete.
- The Solaris unit's rechargeable battery maintains over 80 percent of its original capacity after 500 recharge cycles.
- The Solaris detector can also be kept on its charging stand for extended periods of time to ensure that a fully charged instrument is always available.

The Competition

- Alkaline batteries need to be replaced frequently, significantly increasing ownership costs.
- Some manufacturers offer rechargeable batteries that can only be recharged outside of the instrument.
- Constantly removing and replacing batteries will also increase the amount of wear on some instrument components. For example, battery pack release tabs can fail prematurely.

MSA Solaris Multigas Detector

- MSA's optional powered sampling pump probe is designed to the same exacting standards as the Solaris instrument.
- The MSA sampling pump probe has an extensive filter system that prevents water, dirt or dust from entering the instrument.
- The Solaris unit's pump uses the same proven pump technology as other MSA portable instruments.

The Competition

- Optional rotary-vane pump probes are available.
- The designs utilized for these pump housings are not resistant to contamination by liquids directly into the housing.

MSA Solaris Multigas Detector

The Solaris Multigas Detector comes with a two-year, all-inclusive warranty. MSA does not prorate any of the components covered by the Solaris unit warranty.

The Competition

Usually comes with a two-year warranty, but often components such as sensors and batteries are prorated upon replacement.