



**Mineral Acids (HCl Group)**

**MIDAS-S-HCL**

**MIDAS-E-HCL**

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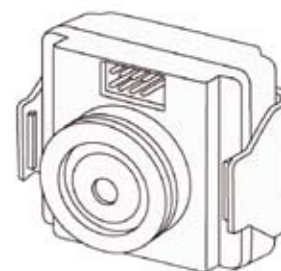
## MIDAS-S-HCL

## MIDAS-E-HCL



**Midas® sensor cartridges are intended for use only with Honeywell Analytics' Midas® gas detector system. Please refer to the Midas® Technical Manual for further details.**

**The Midas® Mineral Acid (HCl) electrochemical sensor is specifically designed to directly detect similar molecular species in the mineral acid group; namely Hydrogen Chloride (HCl), Dichlorosilane (H<sub>2</sub>SiCl<sub>2</sub>), Boron Trichloride (BCl<sub>3</sub>) and Hydrogen Bromide (HBr). See details below regarding other detectable gases. Consult the Technical Manual to configure the Midas® transmitter to read the desired gas type.**



| Gas Measured                            | Hydrogen Chloride (HCl)  |
|---|--|
| <b>Cartridge Part Number</b>            | MIDAS-S-HCL 1 year standard warranty<br>MIDAS-E-HCL 2 year extended warranty                           |
| <b>Sensor Technology</b>                | 3 electrode electrochemical cell   |
| <b>Measuring Range (ppm)</b>            | HCl 0 – 8ppm   |
| <b>Minimum Alarm 1 Set Point</b>        | 1.0ppm   |
| <b>Lower Detectable Limit (LDL)</b>     | 0.72ppm  |
| <b>Repeatability</b>                    | < ± 10% of measured value  |
| <b>Linearity</b>                        | < ± 10% of measured value  |
| <b>Response Time t<sub>62.5</sub></b>   | < 30 seconds   |
| <b>Sensor Cartridge Life Expectancy</b> | ≥ 24 months under typical application conditions   |
| <b>Operating Temperature</b>            | 0°C to +40°C (32°F to 104°F)   |
| <b>Effect of Temperature</b>            | < ± 0.001ppm / °C (0°C to 20°C)<br>< ± 0.005ppm / °C (20°C to 40°C)<br>< ± 0.4% of measured value / °C |
| <b>Operating Humidity (continuous)</b>  | 20 – 75% rH  |
| <b>Effect of Humidity</b>               | < ± 0.002ppm / % rH<br>< ± 0.4% of measured value / % rH   |
| <b>Operating Pressure</b>               | 90 – 110kPa  |
| <b>Effect of Position</b>               | No effect in typical application   |
| <b>Long Term Drift</b>                  |  |
| Zero Sensitivity                        | Negligible<br>< 15% of measured value / year   |
| <b>Calibration Gas</b>                  | Hydrogen Chloride (HCl)  |
| <b>Challenge Gas (Bump Test)</b>        | Chlorine (Cl <sub>2</sub> )  |
| <b>Warm Up Time</b>                     | < 20 minutes   |
| <b>Storage Temperature</b>              | +5°C to +25°C (+41°F to +77°F)   |

The sensor data listed is based on ideal test environment; observed performance may vary based on the actual monitoring system and the sampling conditions employed

# General Specification



Midas® is a registered trademark of Honeywell Analytics.

All data refers to representative electrochemical sensor as tested with HCl gas from an approved source.

As with all electrochemical sensor cells, dramatic output changes in reported concentrations can be expected under rapidly changing environmental conditions. Please ensure sensors are located in areas not prone to sudden changes in humidity and temperature.

Actual readings may be affected by flow rates (although Midas® automatically controls flow rates within specified ranges) and absorption on tubing and other gas path surfaces.

All sensors are shipped pre-calibrated to traceable national standards. Dependent on actual operating conditions and overall exposure to gases, each sensor may not require in-field calibration for up to 24 months subject to any requirements to calibrate from local regulations or site practices.

Calibration and challenge gases should be from a certified and reliable source.

## Other Detectable Gases

The following additional gases can be detected with this sensor cartridge. Sensor performance and characteristics will be representative of the data as tabulated above. Consult the Technical Manual to set up the Midas® transmitter with the designated identification code for each of the following gas types.

| Detectable Gas    | Chemical Formula                 | Measuring Range |
|-------------------|----------------------------------|-----------------|
| Dichlorosilane    | H <sub>2</sub> SiCl <sub>2</sub> | 0 – 8ppm        |
| Boron Trichloride | BCl <sub>3</sub>                 | 0 – 8ppm        |
| Hydrogen Bromide  | HBr                              | 0 – 8ppm        |

## Cross Sensitivities

Each Midas® sensor is potentially cross sensitive to other gases and this may cause a gas reading when exposed to other gases than those originally designated. The table below presents typical readings that will be observed when a new sensor cartridge is exposed to the cross sensitive gas (or a mixture of gases containing the cross sensitive species).

| Gas / Vapor       | Chemical Formula                 | Concentration applied (ppm) | Reading (ppm HCl) |
|-------------------|----------------------------------|-----------------------------|-------------------|
| Arsine            | AsH <sub>3</sub>                 | 1                           | 0                 |
| Carbon Monoxide   | CO                               | 2000                        | 0                 |
| Chlorine          | Cl <sub>2</sub>                  | 5                           | 5.6               |
| Diborane          | B <sub>2</sub> H <sub>6</sub>    | 1                           | -1.3              |
| Hydrogen          | H <sub>2</sub>                   | 20000                       | 0                 |
| Hydrogen Fluoride | HF                               | 5                           | 6.7               |
| Hydrogen Sulphide | H <sub>2</sub> S                 | 25                          | -3.6              |
| Iso Propanol      | C <sub>3</sub> H <sub>7</sub> OH | 500                         | 0                 |
| Methanol          | CH <sub>3</sub> OH               | 500                         | 0                 |
| Nitrogen Dioxide  | NO <sub>2</sub>                  | 5                           | 0.9               |
| Phosphine         | PH <sub>3</sub>                  | 1                           | -0.14             |
| Sulphur Dioxide   | SO <sub>2</sub>                  | 10                          | 4.5               |

# Our Product Range



## Fixed Gas Monitoring

Honeywell Analytics offers a wide range of fixed gas detection solutions for a diverse array of industries and applications including: Commercial properties, industrial applications, semiconductor manufacturers, energy plants and petrochemical sites.

- » Detection of flammable, oxygen and toxic gases (including exotics)
- » Innovative use of 4 core sensing technologies – paper tape, electrochemical cell, catalytic bead and infrared
- » Capability to detect down to Parts Per Billion (ppb) or Percent by Volume (%v/v)
- » Cost effective regulatory compliance solutions

## Portable Gas Monitoring

When it comes to personal protection from gas hazards, Honeywell Analytics has a wide range of reliable solutions ideally suited for use in confined or enclosed spaces.

These include:

- » Detection of flammable, oxygen and toxic gases
- » Single gas personal monitors – worn by the individual
- » Multi-gas portable gas monitors – used for confined space entry and regulatory compliance
- » Multi-gas transportable monitors – used for temporary protection of area during site construction and maintenance activities

## Technical Services

At Honeywell Analytics, we believe in the value of great service and customer care. Our key commitment is providing complete and total customer satisfaction. Here are just a few of the services we can offer:

- » Full technical support
- » Expert team on hand to answer questions and queries
- » Fully equipped workshops to ensure quick turnaround on repairs
- » Comprehensive service engineer network
- » Training on product use and maintenance
- » Mobile calibration service
- » Customised programmes of preventative/corrective maintenance
- » Extended warranties on products

### Find out more

[www.honeywellanalytics.com](http://www.honeywellanalytics.com)

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