Honeywell

# Midas® Sensor Cartridge Specifications

## Halogen Group ($Cl_2$, $F_2$)
## MIDAS-E-HAL, MIDAS-S-HAL

| Gas Measured | Chlorine ($Cl_2$) |
|---|---|
| **Cartridge Part Number** | MIDAS-S-HAL 1 year standard warranty<br>MIDAS-E-HAL 2 year extended warranty |
| **Sensor Technology** | 3 electrode electrochemical cell |
| **Measuring Range** | $Cl_2$ 0 - 2ppm |
| **Minimum Alarm 1 Set Point** | 0.25ppm |
| **Lower Detection Limit** | 0.22ppm |
| **Linearity** | < ± 3% of measured value |
| **Repeatability** | < ± 5% of measured value |
| **Resolution** | 0.01ppm |
| **Response Time $t_{62.5}$** | ≤ 5 seconds |
| **Sensor Cartridge Life Expectancy** | ≥ 24 months under typical application conditions |
| **Operating Temperature** | 0°C to +40°C (32°F to 104°F) |
| **Effect of Temperature** | |
| Zero | < ± 0.005ppm / °C |
| Sensitivity | < ± 1.8% of measured value / °C |
| **Operating Humidity** | 10 to 90% RH |
| **Effect of Humidity** | |
| Zero | < ± 0.003ppm / % RH |
| Sensitivity | < ± 0.3% of measured value / % RH |
| **Operating Pressure** | 90 – 110kPa |
| **Effect of Position** | No effect in typical application |
| **Long Term Drift** | |
| Zero | < ± 2ppm / year |
| Sensitivity | < 10% of measured value / year |
| **Calibration Gas** | Chlorine ($Cl_2$) |
| **Bump Test Gas** | Chlorine ($Cl_2$) |
| **Warm Up Time** | < 20 minutes |
| **Storage Temperature** | +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.

### 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 |
|---|---|---|
| Chlorine | $F_2$ | 0 - 4ppm |

### 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 Measured | Chemical Formula | Concentration Applied(ppm) | Reading (ppm $Cl_2$) |
|---|---|---|---|
| Ammonia | $NH_3$ | 50 | -1.9 |
| Carbon Monoxide | CO | 20000 | 0 |
| Hydrogen Chloride | HCl | 9 | 1.25 |
| Hydrogen Sulfide | $H_2S$ | 25 | -16.3 |
| Nitrogen Dioxide | $NO_2$ | 50 | 1.25(transient) |
| Sulfur Dioxide | $SO_2$ | 50 | 9.1 |

Interference differs from cartridge to cartridge and over cell life. It is not recommended to calibrate with cross sensitivity factors. The target gas should be used for calibration.


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www.honeywellanalytics.com
Korea Tel: +82 (0)2 6909 0300
Singapore Tel: +65-65803776
Australia Tel: +61-3-94642770
Japan Tel: +81-3-6730-7320
India Tel: +91-124 4752700





H_MIDAS-E-HAL_v3 06/22