

## Analog Transmitter with Electrochemical Chlorine (Cl<sub>2</sub>) Sensor (7 Series)

|                                        |               |                                                                                                                                                                                                                                           |
|----------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dimensions:</b>                     | <b>Size</b>   | 5.0 x 5.0 x 3.0 in (127 x 127 x 76 mm) without optional splash guard (Option -S)                                                                                                                                                          |
|                                        | <b>Weight</b> | 14 oz / 400 g                                                                                                                                                                                                                             |
| <b>Construction:</b>                   |               | Black ABS / Polycarbonate blend, water/dust tight, corrosion resistant                                                                                                                                                                    |
| <b>Sensor: Type</b>                    |               | Electrochemical                                                                                                                                                                                                                           |
| <b>Life Span</b>                       |               | Approximately 5 years (application dependent)                                                                                                                                                                                             |
| <b>Gases Detected:</b>                 |               | Chlorine (Cl <sub>2</sub> )                                                                                                                                                                                                               |
| <b>Sensor Range:</b>                   |               | 0 – 10.0 ppm                                                                                                                                                                                                                              |
| <b>System Power:</b>                   |               | 3-wire: VDC: 16-30 VDC, 3-Watts, Class 2<br>4-wire: VAC: 12-27 VAC, 3-VA, Class 2                                                                                                                                                         |
| <b>Operating Temperature:</b>          |               | 0°C to +40°C (32°F to 104°F), -40°C (-40°F) with low temperature Option -LT                                                                                                                                                               |
| <b>Operating Humidity:</b>             |               | 15 to 90% non-condensing                                                                                                                                                                                                                  |
| <b>Indicators:</b>                     |               | LCD digital display, 2 line x 16 character, backlit                                                                                                                                                                                       |
| <b>Signal:</b>                         |               | Current: Linear 4-20 mA (maximum 216 ohm load, wiring plus termination resistor @ 12VDC) Maximum 316 ohm load, wiring plus termination resistor @ 12VAC                                                                                   |
| <b>Relay:</b>                          |               | Internal 1 SPDT relay rated 30 volts, 2 amp max                                                                                                                                                                                           |
| <b>Audible:</b>                        |               | Internal buzzer rated 90 dB @ 10 cm / 4 in, enable/disable                                                                                                                                                                                |
| <b>Minimum Detection:</b>              |               | ±0.1 ppm (with regular calibration maintenance of sensor)                                                                                                                                                                                 |
| <b>Accuracy:</b>                       |               | ±0.1 ppm @ STP, across measurement range at time of calibration and at calibration concentration + calibration gas concentration error                                                                                                    |
| <b>Repeatability:</b>                  |               | ±2% (with regular calibration maintenance of sensor)                                                                                                                                                                                      |
| <b>Drift:</b>                          |               | Zero: 0.03 ppm change/year in lab air<br>Sensitivity: <6% change/year in lab air, monthly test (with regular calibration maintenance of sensor)                                                                                           |
| <b>Response Time (T<sub>90</sub>):</b> |               | <60 seconds                                                                                                                                                                                                                               |
| <b>Resolution:</b>                     |               | Display resolution 0.1 ppm, sensor resolution: ± 0.1 ppm                                                                                                                                                                                  |
| <b>Warm Up Time:</b>                   |               | 5-minutes after power up (to full operation)                                                                                                                                                                                              |
| <b>Cross Sensitivity:</b>              |               | H <sub>2</sub> S 20 ppm = -300, NO <sub>2</sub> 10 ppm = 120, NO 50 ppm = <1, SO <sub>2</sub> 20 ppm = <-1, CO 400 ppm = <0.1, H <sub>2</sub> 400 ppm = <0.1, C <sub>2</sub> H <sub>4</sub> 400 ppm = <0.1, NH <sub>3</sub> 20 ppm = <0.1 |
| <b>Safety:</b>                         |               | Automatic resetting thermal overload fuse (reset capabilities to 500 times)                                                                                                                                                               |
| <b>Wiring:</b>                         |               | VDC or ground referenced VAC, 3-conductor shielded 18 awg stranded<br>VAC 4-conductor shielded 18 awg stranded                                                                                                                            |
| <b>Sensor Mounting:</b>                |               | Heavier than air, mount 6 in / 15 cm from floor                                                                                                                                                                                           |
| <b>Monitoring Area:</b>                |               | 3000 ft <sup>2</sup> / 279 m <sup>2</sup>                                                                                                                                                                                                 |
| <b>Suggested Alarm Setpoints</b>       |               | Low Alarm: 0.5 ppm / Mid Alarm: 0.7 ppm / High Alarm: 1.0 ppm                                                                                                                                                                             |
| <b>Certifications:</b>                 |               | CSA-C22.2 No. 205-12, UL508 (Edition 18):2018<br>EMC Directive 2014/30/EU, EN 50270:2015, Type 1, EN61010<br>RoHS compliant circuit boards<br>This device complies with part 15 of the FCC Rules                                          |
| <b>Notes:</b>                          |               | Never install gas detectors in the direct path of moving air.                                                                                                                                                                             |

**Conditions Affecting Electrochemical Sensors:**

- Typically designed to operate between -10°C and +50°C, do not exposed to extreme temperatures for prolonged periods of time. Repeated or prolonged exposure to temperatures like 60-65°C / 140-149 can lead to evaporation of the electrolyte and shifts in baselines readings.
- Do not expose to high moisture for extended periods of time.
- Prolonged exposure to extremely high gas concentrations can compromise sensor performance.
- Paint fumes, cleaning products, dust, sand, water, insects can reduce lifespan and compromise performance. Avoid exposure to high concentrations of solvent vapours both during storage and operation.
- Before initial use after production may be stored at room temperature ideally at 20°C / 68°F and 60%RH or preferably in the fridge for up to 6 months. Beyond this period, the sensor performance is likely to deteriorate, such as with longer response time and lower sensitivity regardless of whether sensor has been used or not.
- The more exotic gases (chlorine, ozone etc.) tend to have shorter life spans than the more common gases (CO, nitrogen dioxide).
- Chlorine reacts with water or moisture in the air to form highly corrosive hydrochloric and hypochlorous acids. Precautions should be taken to keep the chlorine gas and chlorine equipment as dry possible.
- When calibrating a chlorine sensor, it is best to use a chlorine gas generator instead of a cylinder of chlorine. Chlorine cylinder gas can be unstable and it is difficult to get an accurate reading from that source. The quality of the chlorine gas is much higher from a generator, making calibration easier and accurate.
- Install gas detector vertically so the display is over top of the sensor vent and device is flat against a wall or column. Never install gas detectors in the direct path of moving air.

In addition to the factors listed above, most sensors will suffer general wear and tear and it may not always be easy to detect the damage caused, making regular maintenance important to help keep the sensors in good working order. Regular maintenance includes inspecting, cleaning if necessary, bump testing and calibration.