Selection of Ammonia (NH3) Sensors

SemeaTech manufactures a number of ammonia (NH3) sensors using different electrochemical (EC) technologies. This document highlights the different sensors and provides recommendations for the selection of these sensors in accordance with user applications.

- Distinctive performances

NH3 Sensor Family	Expected **Capacity** ppm-hrs	Expected **Lifetime** years	Typical **T90** seconds	Typical **Resolution** ppm	**Notes**
Standard 4-series NH3 sensors	>10,000	2	<45	>0.10	The actual lifetime varies based on the ammonia concentration the sensor has exposure to
Standard 7-series NH3 sensors	>10,000	2	<45	>0.30	The actual lifetime varies based on the ammonia concentration the sensor has exposure to
Long-life 4-series NH3 sensors	Non-depleting	5	4NH3-100L <45	>0.20	
			4NH3-200L <75	>1.00	
			4NH3-500L <85	>2.00	
			4NH3-1000L <110	>2.00	
			4NH3-2000L <120	>5.00	
			4NH3-5000L <120	>50.00	
Long-life 7-series NH3 sensors	Non-depleting	5	<90 7NH3-1000L <120	>0.30	
4-electrode NH3 sensors	Non-depleting	5	<120	>0.06	It is designed specifically for air quality monitoring (AQM)
Mini NH3 sensors	Non-depleting	2	<60	>0.08	It is designed mainly for handheld and compact instruments

- The response time (T90) of an NH3 sensor for less than 45 seconds is essential to meet a variety of regional ammonia safety standards.

- The long-life NH3 sensors are non-depleting, regardless of how much ammonia they have been exposed to. The long-life NH3 sensors are ideal to be used in places where ammonia could be present 24/7, such as refrigeration facilities or livestock farms.

- The 4-electrode NH3 sensor is designed on a 7-series platform with an additional electrode, the auxiliary electrode. It provides the highest resolution at 60 ppb and outstanding long-term stability.

- The mini-NH3 sensors are miniature, non-depleting, and long-life for miniaturized handheld and low-cost ammonia monitors.

- SemeaTech offers Smart Modules to pair with 4 and 7 series sensors. The Smart Modules provide UART and I2C outputs with a compensation mechanism for environmental parameter fluctuations.