

## Introducing the Calyx solution for ammonia industrial applications

Ammonia is highly toxic and poses a health risk, but it is a very effective refrigerant, and is often a byproduct in the agriculture/animal industry. While ammonia has a distinctive smell (which is prone to fatigue), it is typically a difficult task to accurately measure the gas in the complex and challenging environment in which this chemical is typically present.



Manufacturing



Cold Storage



Animal Farms

### Typical Applications

- Leakage Detection
- Cold Storage/Refrigeration Plants
- Poultry and Animal Farms

## One smart sensor, made to the challenge

The Calyx N100 is an all-new smart ammonia sensor module, made possible using technology developed after over a decade of engineering research effort at the University of California, Berkeley (UCB), and Lawrence Berkeley National Laboratory (LBNL).

## Versatile, robust, and smart

The N100 offers the barebones module version of our ammonia sensor. It has the proprietary ammonia sensor, as well as an on-board MCU to provide digital output. No calibration is required. The N100 comes in industry standard 4R form factor, and is available for developers to integrate into embedded systems.

### Long Lifetime

The sensor operates normally in the continuous presence of ammonia, and long-term exposure does not decrease sensitivity.

### High Selectivity

The sensor is highly selective to ammonia, and is unaffected by other environmental contaminants such as  $\text{NO}_x$ ,  $\text{SO}_x$ ,  $\text{CO}_2$ ,  $\text{O}_2$ , EtOH, and hydrocarbons.

### Fast Response

The sensor responds rapidly to changes in ammonia concentration, with a  $T_{90}$  of under 60 seconds.



**calyx**

**N100 Smart Ammonia Sensor**

© 2019 Calyx, Inc.  
calyxtechs.com  
info@calyxtechs.com

### United States

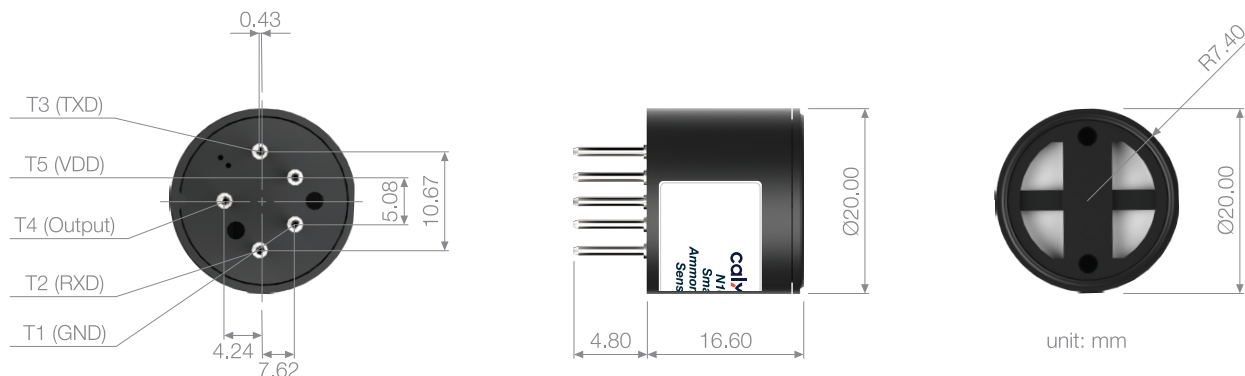
T: +1.510.502.4560  
261 Donner Lab  
Berkeley, CA 94720, USA

### Taiwan

T: +886.2.2365.8520  
Rm. B302, No.18, Siyuan St.  
Zhongzheng Dist., Taipei City 100  
Taiwan (R.O.C)



# N100 Smart Ammonia Sensor



NOTE: The above pin configuration is shown for the NEGATIVE version of the sensor.

## Technical Specifications<sup>1)</sup>

Performance Characteristics	
Measurement Range	• 0~50ppm
Response Time (T <sub>90</sub> )	≤ 60sec
Resolution	0.1ppm
System Data	
Operation Voltage	5V
Analog Output Voltage Ranges	• 0.4~2Vd.c. (optional) • 0~2.5Vd.c. (optional)
Output Data Format	
Digital Output	UART
Standard Baud Rate	115200

Lifetime	
Recommended Storage Temperature	-20~50°C
Expected Operating Life	5 years (ambient)
Storage Life	5 years in original packaging
Environmental	
Temperature Range	-20~50°C
Pressure Range	1atm ± 10%
Humidity Range (non-condensing)	• 25~95%RH (-20~40°C) • 40~95%RH (40~50°C) <sup>2)</sup>
Physical Characteristics	
Weight (Nominal)	8g

## Cross Sensitivities at 20°C

Gas	Concentration <sup>3)</sup>	Reading [ppm]
NO <sub>2</sub>	50ppm	0
SO <sub>2</sub>	50ppm	0
CO <sub>2</sub>	1,000ppm	0
O <sub>2</sub>	50%	0
EtOH	100ppm	0
CH <sub>4</sub>	5,000ppm	0
C <sub>2</sub> H <sub>6</sub>	1,000ppm	0

NOTES: 1) The specification is subject to change pending industry and manufacturing needs. 2) Valid for current generation only; will be extended for next generation. 3) The “up to” concentration of any particular gas is the concentration level that has been tested. In reality, the zero interference value may be even higher.