



**Industry leading performance in ammonia detection technology**

# Manning EC-F9-NH3 sensor / transmitter



## Technical summary



### Ammonia Specific

- Rapid response to ammonia
- Internal monitoring of 4/20 mA loop circuitry continuity

### Versatility

- Can be used with any Honeywell Analytics readout
- Standard range of 100 ppm can be rescaled for higher ranges
- Provides a linear output of 4/20 mA as a function of refrigerant concentration

### Easy Maintenance

- Quick and easy calibration
- Realtime calibration eliminates maintenance downtime

### Long sensor life

- Quick and easy calibration

### ATMOS™ Technology

- Allows for operation down to -50 F and in condensing humidity environments or during washdown
- Automatically adapts to its environment and provides accurate and reliable performance under the harshest conditions

### SensorCheck™ Technology

- Checks operating parameters of sensors and sends a notification output signal if an anomaly is identified
- Tests the sensor every 24 hours for electrical viability
- Indication can be detected by a Manning gas monitor or PLC

### Housing

- NEMA 1 #16 gauge heavy-duty steel enclosure
- Explosion-proof design available

## The Manning EC-F9-NH3 with SensorCheck™ features industry-leading performance gas detection technology and adds a built-in system to monitor and predict the sensor's electrical viability.

Available with an optional LCD that allows real time display of gas concentration. The easy to read display allows for quick visual error events upon startup and troubleshooting and can be calibrated without a voltmeter. The EC-F9-NH3 with LCD is designed to work in the harshest environments including chemical washdown.

### General Description

The Manning EC-F9-NH3 sensor consists of a pair of polarized electrodes isolated from the ambient air by a gas permeable membrane. As ammonia diffuses into the sensor, a redox reaction occurs, generating a current linearly proportional to ammonia gas concentration. Unlike many other ammonia sensors, this gas diffusion detector exhibits excellent zero and calibration stability over long periods of time. EC cells often last 3-4 years in the refrigerated environments of food processing and storage warehouses. This sensor can provide direct input into PLC's and computer control systems that accept a linear 4/20 mA signal either directly from the sensor or from any Manning multi-channel stand alone alarm consoles with relay or analog output.

### Applications

- Bakeries
- Beverage, Bottling Plants
- Blast, Spiral Freezers
- Chemical Manufacturing
- Gas Bottling Plants
- Coolers
- Duct-Mounted Sensors
- Equipment Rooms
- Food Processing
- Fruit, Vegetable Processing
- Ice Cream Storage
- Penthouses
- Perimeter Monitoring
- Potable Water Plants
- Poultry, Meat, Fish Processing
- NOx Reduction (power plants)
- Refrigeration Systems
- Storage Freezers
- Turbine Inlet Cooling
- Wineries



EC-F9-NH<sub>3</sub> with LCD option

General Specification	
<b>Use</b>	Electrochemical (diffusion) type sensor that works in conjunction with any Honeywell Analytics readout or alarm unit. Readouts have built in visual and audible alarms, as well as relay output for ventilation fan activation, central alarm tie-in, etc. The Manning EC-F9-NH3 can provide a linear 4/20 mA signal input into PLC's.
Common Operation	
<b>Operation</b>	In units without the optional LCD module, a group of LED's are installed to the PCB. In units with the optional LCD, two external push buttons, "Accept" and "Scroll" are used to navigate test functions and operating modes.
<b>LCD display (optional)</b>	2 line by 8 alpha numeric characters and continuous backlight
<b>Output</b>	Isolated 4/20 mA, 700 ohms max. at 24 VDC. Signal output reduces to 0.5 mA to indicate a fault condition. RS-485, Modbus RTU protocol
<b>Accuracy</b>	+/- 5% generally, but limited by available calibration gas accuracy. Enclosure contains no moving parts, contributing to accuracy levels.
<b>Environmental IP rating</b>	Indoor use, IP 44 in accordance with EN60529:1992
Operational	
<b>Humidity</b>	5-100% RH (condensing)
<b>Temperature</b>	-45°C to +49°C / -50°F to +120°F, ATMOS equipped enviro-adaptive technology required for refrigerated areas or outdoors
<b>Sensor Pressure Limit</b>	0-10 PSIG
<b>Storage</b>	-40°C to +80°C / -40°F to +176°F, 20 to 80%RH (non condensing)
Common Module	
<b>Communication</b>	4/20 mA output: #18/3 shielded cable (Belden 8770 or equal), cable runs < 1,500 ft. RS-485: for communication cable, use 24 AWG twisted pair, shielded (Belden #9841 or equal), cable runs up to 2,000 ft. For power cable use 14 AWG (Belden #5100UE or equal), cable runs up to 1,000 feet.
<b>Power Source</b>	24 VDC, 0.5 amp max.
<b>Repeatability</b>	+/- 2% full scale
Sensor Specifications	
<b>Sensor Pressure</b>	Limits 0-10 PSIG
<b>Response Time</b>	T50 = 10 seconds T100 < 1 second for concentration > 1% NH3
<b>Ranges</b>	0-100 ppm (standard) 0-250 ppm 0-500 ppm 0-1000 ppm
<b>Sensor Viability Test</b>	SensorCheck, an internal microprocessor determines the sensor's electrical viability every 24 hours. If the viability test fails, an 0.5 mA signal will indicate a fault. An internal light will show if a sensor is dried up or disconnected.
<b>Enclosure</b>	NEMA 1, gasketed, #16 gauge steel (standard). Stainless steel or explosion-proof designs, including modified enclosures for low temperatures, ventilation ducts, etc. are available.
<b>Weight</b>	3 lbs.



# Honeywell Analytics Lines of Business



## Commercial

Vulcain-brand gas detection from stand-alone units to fully engineered, multi-point systems, all offering cost-effective regulatory compliance

- » Applications: parking structures, chillers, mechanical rooms, office towers, commercial buildings, shopping centers, swimming pools, golf courses, schools and universities, laboratories

## Industrial

Renowned Sieger and Manning gas detection systems with advanced electrochemical, infrared and open path sensing technologies

- » Applications: oil and gas, cold storage, water/wastewater treatment, chemicals, engine rooms, plastics and fibers, agriculture, printing and light industrial



## Portables

Single or multi-gas Lumidor and other premium detectors with compact, lightweight designs ranging from simple alarm only units to advanced, fully configurable and serviceable instruments

- » Applications: underground utility and electricity ducts, boiler rooms, post-fire sites, sewers, industrial plants, industrial hygiene, first responder teams, remote fleets



## High Tech/Government

A complete portfolio of gas and chemical detection instrumentation including infrared spectroscopy (MST) with no cross interference, to Chemcassette paper-based solutions (MDA Scientific) offering detection down to parts per billion

- » Applications: semiconductor manufacturing and nanotechnology, aerospace propulsion and safety, specialty chemicals industry, research laboratories, emergency response

## Technical Services

24/7 global network includes post-sales service and Systems Integration teams

- » Emergency call out, service contracts, on/off-site repair, training and commissioning
- » Complete range of spares, consumables and accessories

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