

EC-FX-NH3 Technical Specifications Ammonia Sensor/Transmitter



GENERAL SPECIFICATION	
USE	Ammonia sensor/transmitter designed for use in industrial refrigeration applications. The EC-FX-NH3 can provide a linear 4/20 mA or Modbus RS-485 signal input into PLC's or SCADA systems. Can also be used with Honeywell controllers to create a complete gas detection system that includes visual/audible notification and relay outputs to activate ventilation.
COMMON OPERATION	
OPERATION	In units without the optional LCD module, status is indicated by LEDs installed on the PCB. In units with the optional LCD, two external push buttons, "Accept" and "Scroll" are used to navigate test functions and operating modes.
LCD DISPLAY (OPTIONAL)	2 line by 8 alpha numeric characters and continuous backlight
OUTPUT	2 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.
ACCURACY	±5% full scale*
ENVIRONMENTAL IP RATING	Indoor use, IP 44 in accordance with EN60529:1992
OPERATIONAL	
HUMIDITY	5-100% RH (condensing)
TEMPERATURE	-50°F to +120°F (-45°C to +49°C), ATMOS equipped enviro-adaptive technology required for refrigerated areas or outdoors
SENSOR PRESSURE LIMIT	0-10 PSIG
STORAGE	40°F to +120°F (-40°C to +49°C), 20 to 80%RH (non condensing)
COMMON MODULE	
COMMUNICATION	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.
POWER SOURCE	24 VDC, 0.5 amp max.
ENCLOSURE	NEMA 1, gasketed, #16 gauge steel (standard). Stainless steel, including modified enclosures for low temperatures, ventilation ducts, etc. are available. Weight: 3 lbs.
SENSOR SPECIFICATIONS	
SENSOR PRESSURE LIMIT	Atmospheric ±10%
REPEATABILITY	<10% of full scale
RESPONSE TIME (T90)	<30 s Low Range; <75s High Range
RANGES	Low Range 0-100 ppm (standard), 0-200 ppm, 0-250 ppm, High Range 0-500 ppm, 0-1000 ppm
SENSOR WARRANTY	Three years from date of shipment
SENSOR VIABILITY TEST	SensorCheck: an internal microprocessor determines the sensor's electrical viability every 24 hours. If the viability test fails, a 0.5 mA signal will indicate a fault. An internal LED will indicate if the sensor is at the end of its operational life or disconnected.

CAUTION: EC-FX is designed for operation in a wide range of environments and harsh conditions. However, it is important that exposure to high concentrations of solvent vapors is avoided, both during storage, fitting into instruments, and operation. EC-FX is designed to be used in safety critical applications. To ensure that the sensor and/or instrument in which it is used, are operating properly, it is a requirement that the function of the device is confirmed by exposure to target gas (bump check). Failure to carry out such tests on a regular basis may jeopardize the safety of people and property.

PLEASE NOTE: While every effort has been made to ensure accuracy in this publication, no responsibility can be accepted for errors or omissions. Data may change, as well as legislation, and you are strongly advised to obtain copies of the most recently issued regulations, standards, and guidelines. This publication is not intended to form the basis of a contract.

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SS01162B | PS_01 | 01/16
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EC-FX High-Range Technical Specifications Ammonia Gas Sensor

MEASUREMENT	
OPERATING PRINCIPLE	3-electrode electrochemical
MEASUREMENT RANGE	0-500 and 0-1000 PPM NH ₃
MAXIMUM OVERLOAD	5000 PPM
LOWER DETECTION LIMIT	< 37.5 PPM
FILTER	None
SENSITIVITY	19 ± 3 nA/PPM
RESPONSE TIME (T90)	< 75 s
BASELINE OFFSET (CLEAN AIR)	-37.5 ppm ≤ I0/S ≤ 12.5 ppm
ZERO SHIFT (T = [-40°C; +20°C (OR) +20°C; +50°C])	-37.5 ppm ≤ I0/S ≤ 31.25 ppm
ACCURACY	± 5% full scale*
REPEATABILITY	< 10% of full scale
MECHANICAL	
HOUSING MATERIAL	Polyphenylene Oxide (PPO) Noryl
WEIGHT	4.5 g
ORIENTATION	Vertical only
ENVIRONMENTAL	
TYPICAL APPLICATIONS	Industrial refrigeration, cold storage, and engine rooms
OPERATING TEMPERATURE RANGE	Continuous: -4° to 122°F (sensor only) Storage: -58° to 122°F (sensor only)
OPERATING PRESSURE RANGE	Atmospheric ± 10%
OPERATING HUMIDITY RANGE	5% to 95% RH non-condensing
INTRINSIC SAFETY DATA	
MAXIMUM AT 1000 PPM	< 0.14 mA
MAXIMUM O/C VOLTAGE	< 1.2 V
MAXIMUM S/C CURRENT	< 100 mA
LIFETIME	
LONG TERM OUTPUT DRIFT	< 5% per 6 months
EXPECTED OPERATING LIFE	Cold Storage: 4-5 years in average conditions Engine Room: 3-4 years in average conditions
STORAGE LIFE	6 months in sealed container
STANDARD WARRANTY	Three years from date of shipment

* ±5% of full scale range at temperature of calibration. Contact HA for additional details.

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PLEASE NOTE: Connection should be made via PCB sockets only. Soldering to pins will render your warranty void.

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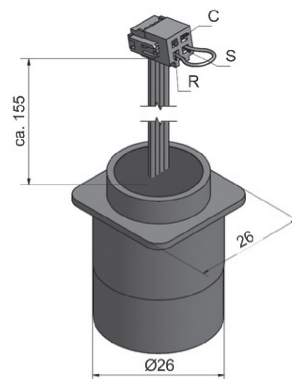
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SS01162_V4 03/16

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Product Dimensions

All dimension in mm, all tolerances ± 0.15 mm unless otherwise stated.



Cross-sensitivity Data

While Honeywell cells are designed to be highly specific to the gas they are intended to measure, they will still respond to some degree to certain gases. The table below is not exclusive and other gases not included in the table may still cause a sensor to react.

Gas	Concentration Used (PPM)	Reading (PPM)
Carbon Dioxide CO ₂	5000	0
Ethylene C ₂ H ₄	200	4
Carbon Monoxide CO	50	53
Hydrogen Sulfide H ₂ S	10	28
Sulfur Dioxide SO ₂	20	6
Iso-Propanol C ₃ H ₇ OH	11000	110
Hydrogen H ₂	3000	1343
Methane CH ₄	18500	0
Ozone O ₃	0.25	0
Chlorine Cl ₂	10	-4

The cross-sensitivity values quoted are based on tests conducted on a small number of sensors. They are intended to indicate sensor response to gases other than the target gas. Sensors may behave differently with changes in ambient conditions and may show some variation from the values quoted.