

Ammonia (NH₃) Digital RS-485 Gas Transmitter



ITS-M5220-NET



DESCRIPTION

Digital RS-485 communicating gas transmitter, for the detection of ammonia (NH₃) in the ambient air for direct daisy-chain/multi-drop link to the IM digital controller.

APPLICATION

To sense ammonia (NH₃) in a wide variety of commercial and industrial applications such as chiller equipment rooms, food storages, arenas, breweries, and ventilation systems, etc. and transmit to the IM digital controller.

FEATURES

- RS-485 serial communication
- Continuous monitoring
- Electrochemical gas sensor, gas specific
- Liquid Crystal Display (LCD)
- Push button programming
- Easy maintenance

SPECIFICATIONS

Electric

Power supply	24 VAC (12-28 VAC), floating, 50/60 Hz, 24 VDC (15-40 VDC)
Protection	Two (2) 2.0 A, socketed pico fuses
Power consumption	< 2 VA (100 mA) 250 mA turn-on surge

Sensor Performance

Gas detected	Ammonia (NH ₃)
Sensor element	Electrochemical, diffusion
Range	Span field adjustable from 0-100 ppm via calibration, 0-50 ppm factory set
Accuracy	± 2.5% of reading
Repeatability	± 1% of reading
Output drift	Max. 5% of full scale/year
Response time	< 60 seconds to 90% of step change
Sensor life expectancy	2 years, normal operating environment
Sensor coverage	Up to max. 5,000 sq.ft. (465 m ²), "under ideal conditions"

Installation Location

Mounting height 1.0 ft. (0.3 m) below ceiling

Type of Control

General Continuous proportional sensor signal

Output signal for serial communication Digital, RS-485, proprietary protocol

Digital Display

LCD, two lines x 8 characters, 1-digit resolution, displays NH₃ ppm value

Programming

Range selectable, network address number assignment, etc. via three-push-buttons and LCD

Environmental

Permissible ambient	
- working temperature	-4°F to 104°F (-20°C to 40°C)
- storage temperature	32°F to 68°F (0°C to 20°C)
- humidity, continuous	15 to 95% RH, non-condensing
- humidity, intermitted	0 to 99% RH, non-condensing
- working pressure	Atmospheric ± 10%

Physical

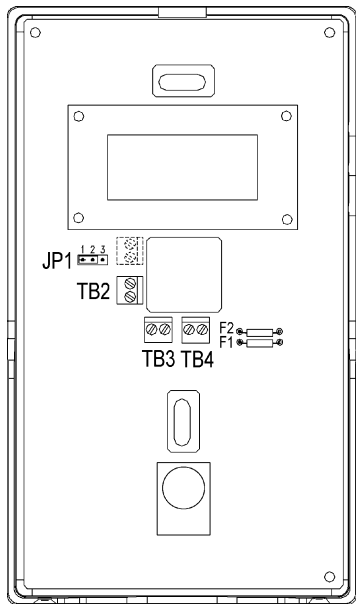
Enclosure	
- material	Polycarbonate, ABS blend, fire-retardant, UL-V0
- color	Cool gray, 2U pantone
- cover	Snap-on, secured by (2) screws
- protection	NEMA 1, general purpose
- installation	Wall (surface) mounted, or single gang electrical box
Dimensions (H x W x D)	6.0 x 3.5 x 1.09 in. (152 x 89 x 28 mm)
Cable entry	1 hole on back side of base plate for single gang electrical box mounting
Wire connection	Terminal blocks, screw type for lead wire
Wire size	Min. 26 AWG (0.4 mm ²), Max. 16 AWG (1.3 mm ²)
Weight	0.5 lbs. (0.3 kg)
Warranty	12 months material and workmanship

ORDERING INFORMATION

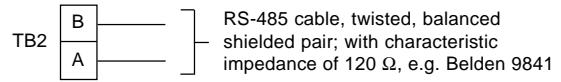
ITS-M5220-NET	NH ₃ Transmitter, 0-50 ppm, RS-485, LCD, wall-mount
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FIELD WIRING CONFIGURATION

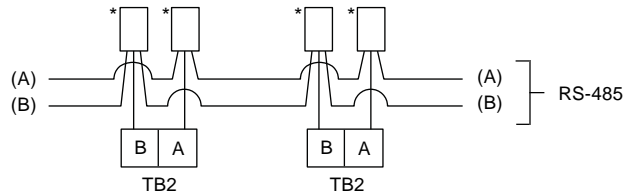
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TB2 RS-485 Digital Communication Link



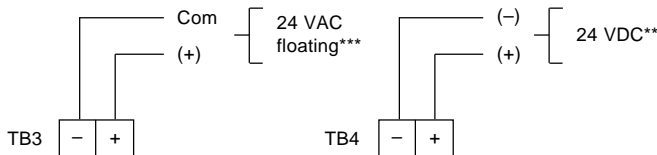
Suggested daisy-chain (multi-drop) communication between transmitters and controller w/ wire nuts*



* Max allowable distance between wire nut and RS-485 terminal connections is 9 inches (22.9 cm)

"Maximum of (32) transmitters can be linked to an IM controller"

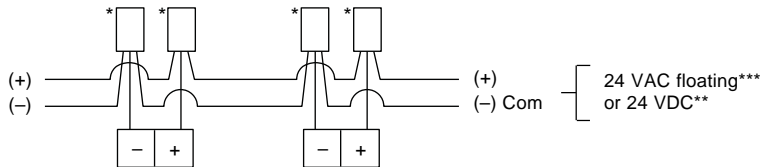
TB3 and TB4 Power Supply 24 VAC or 24 VDC



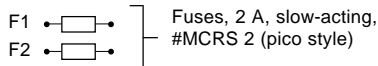
*** Do not connect 24 VAC to earth ground

** Do not use VDC power supply from the IM controller, use separate VDC power

Suggested daisy-chain powering w/ wire nuts*

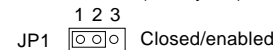
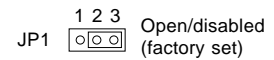


F1 and F2 Fuses



- Note:
- Do not connect power to **A** and **B**, this will damage all transmitters and controller linked on the same daisy-chain trunk.
 - Daisy-chain between transmitters and controller **A** to **A**, **B** to **B**. Do not cross **A** to **B**, this creates malfunction of communication.
 - Maximum daisy-chain trunk length is 3,200 ft. (1,000 m).
 - Do not use high voltage lines in the same RS-485 communication cable conduit.

JP1 Jumper Selector, RS-485 End-of-Line Terminator



Only the last transmitter, away from the IM controller, of the communication trunk should enable the End-of-Line Terminator

