

Ammonia (NH₃) RS-485 Digital Gas Transmitters

Specifications subject to change without notice. | USA 180530 | Page 1 of 3



DESCRIPTION

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

APPLICATION

To sense ammonia (NH₃) in a wide variety of commercial and industrial applications such as chiller equipment rooms, food storages, freezers, arenas, breweries and ventilation systems, etc. and transmit to the DGC5 or DGC3 central controller unit.

FEATURES

- RS-485 serial communication
- Continuous monitoring
- Easy plug-in sensor
- Electrochemical gas sensor, gas specific, long-life
- Temperature compensated
- 4-20 mA input from remote analog transmitter
- Polarity protected
- Overload & short circuit protected
- Modular plug-in technology
- High-impact polycarbonate enclosure, NEMA 4X standard
- Easy maintenance

SPECIFICATIONS

Electrical

Power supply	18-28 VAC/DC, polarity protected
Power consumption	22 mA (0.6 VA), max.
- w/heater option	322 mA (8.1 VA), max.

Sensor Performance

Gas detected	Ammonia (NH ₃)
Sensor element	Electrochemical, diffusion
Range	0-100, 0-300 or 0-1000 ppm, fixed
Accuracy	
- 300/1000 ppm range	± 30 ppm
- 100 ppm range	± 5 ppm
Repeatability	< 10% of reading
Zero-point drift	
- 300/1000 ppm range	< ± 50 ppm/yr
- 100 ppm range	< ± 10 ppm/yr
Long-term output drift	< 2% signal loss/mo.
Response time	
- 300/1000 ppm range	t ₉₀ < 120 sec.
- 100 ppm range	t ₉₀ < 90 sec.
Sensor life expectancy	> 2 yrs in normal operating environment
Sensor coverage	2,000 sq.ft., max. 3,000 sq.ft. (180 m ² , max. 280 m ²), under "ideal conditions"

Installation Location

Mounting height	1 foot (0.3 m) below ceiling
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Type of Control

General	Continuous proportional sensor signal
Output signal for serial communication	Digital, RS-485, proprietary protocol, 19200 baud
AT series remote gas transmitter input capability	
- analog input	(1) 4-20 mA, overload and short circuit protected
- power output	24 VDC, max. load 50 mA

Environmental

Permissible ambient	
- working temperature standard	14°F to 122°F (-10°C to 50°C)
- w/heater	-40°F to 122°F (-40°C to 50°C)
- storage temperature	32°F to 86°F (0°C to 30°C)
- humidity	15 to 90% RH, non-condensing
- working pressure	Atmospheric ± 15%

Physical

Enclosure "A", standard	
- material	Polycarbonate, UL 94 V2, fire-retardant
- conformity	UL 50
- color	Light gray
- protection	NEMA 4X (IP65)
- installation	Wall (surface) mounted, or single gang electrical box

PolyGard® DT5-1125 V1



- NRTL Performance Tested
- EMC Directives 2014/30/EU
- EN 61010-1:2010
- ANSI/UL 61010-1
- CAN/CSA-C22.2 No. 61010-1
- CE

SPECIFICATIONS

Physical (cont...)

Dimensions (H x W x D) 5.12 x 3.70 x 2.25 in. (130 x 94 x 57 mm)

Cable entry 1 hole for 1/2 in. conduit for wall (surface) mounting, and 1 hole on back side of base plate for single gang electrical box mounting

Wire connection Terminal blocks, screw type terminal

Wire size Min. 24 AWG (0.25 mm²), Max. 14 AWG (2.5 mm²); *each terminal connection can handle two 18 AWG wires*

Weight 0.6 lb (0.25 kg)

Calibration Digital Calibration Tool

Conforms to

NRTL Performance Tested
EMC Directives 2014/30/EU
EN 61010-1:2010
ANSI/UL 61010-1
CAN/CSA-C22.2 No. 61010-1
CE

Warranty Two years material and workmanship, 12 months normal exposure for sensor element

OPTION

Heater, built-in For low temperature environment, and using the standard sensor element

Ambient temperature -40°F to 122°F (-40°C to 50°C)

Power consumption 0.3 A (7.5 VA), max.

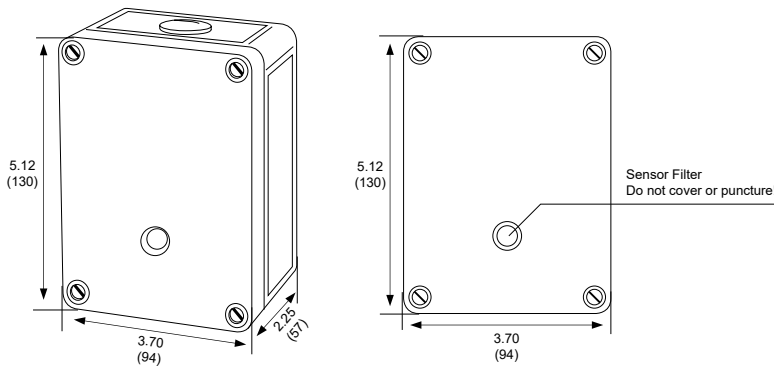
Thermostatic control 37°F (3°C) ± 4°F (2°C)

ACCESSORY

ADT-ENCL-DKIT-A Duct Kit for Type "A" Enclosure: replacement enclosure, 10 in. probe, 6 ft. of tubing

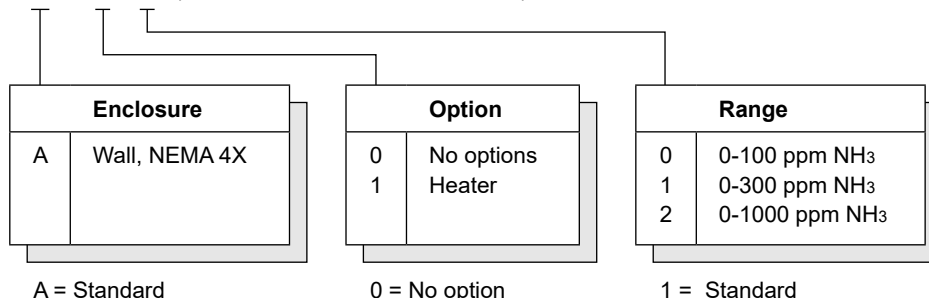
DIMENSIONS

inches (mm)



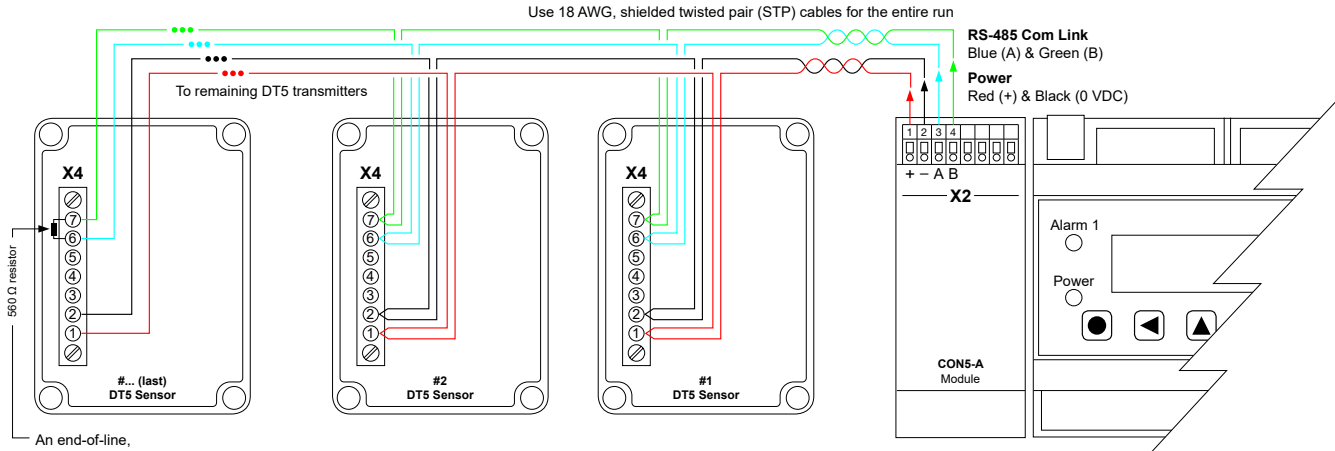
ORDERING INFORMATION

DT5-1125 - A - 1 0 4 1 (Product label "DT5-1125-x-1x4x V1")



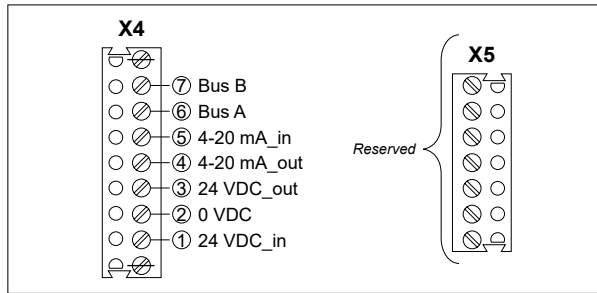
FIELD WIRING CONFIGURATION

Typical DGC5 Setup with daisy-chained DT5 transmitters



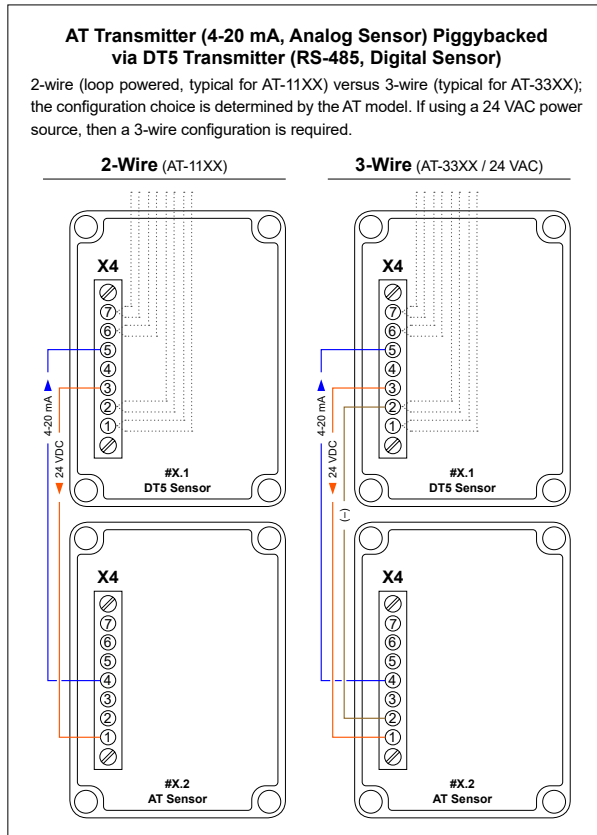
An end-of-line, terminating 560 Ω resistor must be manually installed between terminal X4 pins 6 and 7 on the last digital device of every trunk

DT5-Series Wiring Connections



Installation Notes:

- Connect-Air #W184C-2059B cable or equivalent (18 AWG, 4-conductor, 4-color, two shielded twisted pairs)
- Cable must be "daisy-chained" through transmitter/relay module. "T" drops wire-splitting and "star" configurations are not permitted
- Bus/trunk cable should not be installed in same conduit with high voltage lines
- Conduit should be "sealed" to prevent condensation from dripping into transmitter enclosure
- The polarity **A** to **A** and **B** to **B** must be maintained throughout the system
- Do not connect power to RS-485 communication pair A and B; this **may damage** sensors/relay modules or controller
- Shields should be continuous but not connected or shorted to ground anywhere in the system
- An end-of-line 560 Ω resistor must be installed between terminal X4 pins 6 and 7 on the last device of every trunk
- See controller data sheet for maximum number of sensors and trunk length
- Sensor address numbers should be assigned sequentially and increasing numerically as the transmitters branches away from the controller
- In a DT5-AT piggybacked configuration, the sensor address number changes from #1, #2, etc to #1.1, #1.2, #2.1, #2.2, etc; where #X.1 is the DT5 digital sensor and #X.2 is the AT analog sensor



ALERT! With Optional Heater:

- The wiring and DC power supply must be sized appropriately for a power of 0.3 A, 24 VDC
- AT transmitters with heater must use 3-wire configuration; see special wiring connections below

