

NES Series 200 Nitrogen Dioxide (NO₂) RS-485 Gas Transmitter

DESCRIPTION

Digital RS-485 communicating, addressable gas transmitters, for the detection of nitrogen dioxide (NO₂) in the ambient air for direct daisy-chain/multi-drop link to the NES digital controller.

APPLICATION

To sense nitrogen dioxide (NO₂) in a wide variety of commercial and industrial applications such as vehicle exhaust in parking structures, engine repair shops, tunnels, equipment rooms and ventilation systems, etc. and transmit to the NES 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
- Easy maintenance



NRTL Certification to STD
UL 61010-1

SPECIFICATIONS

Electrical

Power supply 17-28 VDC, polarity protected
Power consumption 28 mA (0.7 VA), max
RFI/EMI protection 5.0 W @ 1 ft. (0.31 m) radiated

Sensor Performance

Gas detected Nitrogen dioxide (NO₂)
Sensor element Electrochemical, diffusion
Range Span 0-10 or 0-20 ppm
factory calibrated,
0-10 standard

Stability & resolution ± 0.1 ppm of reading
Repeatability ± 2% of reading
Long term output drift < 2% signal loss/month
Response time t₉₀ < 60 sec.
Sensor life expectancy 2 years, normal operating environment

Sensor coverage 4,000 sq.ft., max. 7,500 sq.ft.
(372 m², max. 697 m²),
under "ideal conditions"

Installation Location

Mounting height 1 to 3 ft. (0.3 to 1.0 m) above floor

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 14°F to 104°F (-10°C to 40°C)
- storage temperature 23°F to 86°F (-5°C to 30°C)
- humidity, continuous 15 to 95% RH, non-condensing
- humidity, intermitted 0 to 99% RH, non-condensing
- working pressure Atmospheric ± 10%

Physical

Enclosure, standard
- material

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

- enclosure approval UL Listed, E208470
CSA Certified, E208470-
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 for lead wire
Wire size Min. 24 AWG (0.25 mm²),
Max. 14 AWG (2.5 mm²)
" Each terminal connection can handle two 18 AWG wires"

Weight 0.7 lbs. (0.3 kg)

NES Series 200 NO₂

SPECIFICATIONS

Approvals/Listings

- unit rating NRTL Certification to STD ANSI/UL 61010-1 CE
EMV-Compliance 2004/108/EWG, low voltage directives 73/23/EWG

Warranty

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

OPTIONS

Enclosures

Wall mounted "0"

- material NEMA 1 (IP42), general purpose Galvanized steel w/zinc coating, corrosion resistant
- color Light gray
- installation Wall (surface) mounted, or single gang electrical box
- dimensions (H x W x D) 5.59 x 5.59 x 2.48 in. (142 x 142 x 63 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

Duct mounted "1"

- w/probe NEMA 3 (IP45) 7/8 in. (22 mm) diameter and 7.16 in. (182 mm) length
- cable entry 1 hole for 1/2 in. conduit

Wall mounted "4"

- material NEMA 4X (IP65), w/splash guard ABS UL94 V0
- color Light gray
- installation Wall (surface) mount
- dimensions (H x W x D) 4.80 x 4.72 x 3.42 in. (122 x 120 x 87 mm)
- cable entry (1) PG 13.5 compression fitting, removable, hole fits 1/2 in. conduit conductor

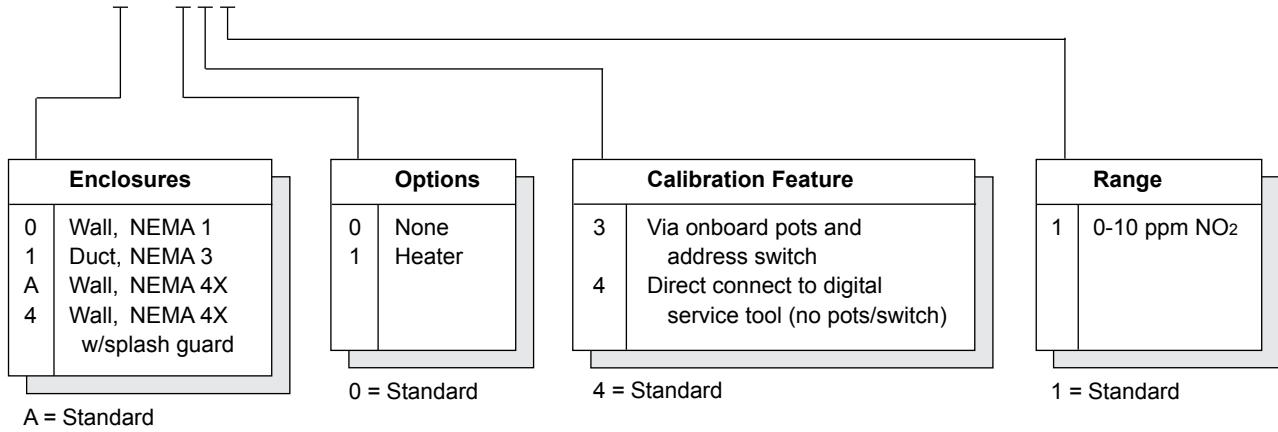
Heater, built-in

- Ambient temperature For low temperature environment -40°F (-40°C)
- Power consumption 0.2 A (5 VA), max.
- Thermostatic control 32°F (0°C) ± 5°F (3°C)

NES Series 200 NO₂

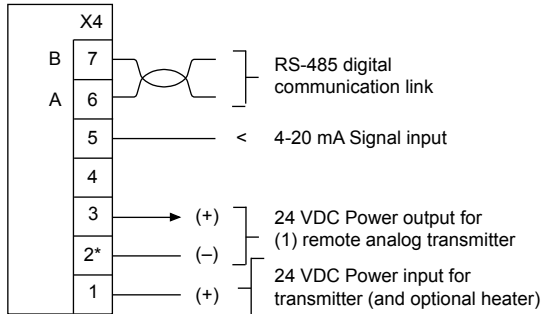
ORDERING INFORMATION

DT5 - 1130 - A - 1 0 4 1 (Product label "DT5-1130-x-1xx1 V3")



WIRING CONFIGURATION

DT5-1130



Notes:

- No wiring connection to terminal block X5

NES Series 200 NO₂

FIELD WIRING CONFIGURATION

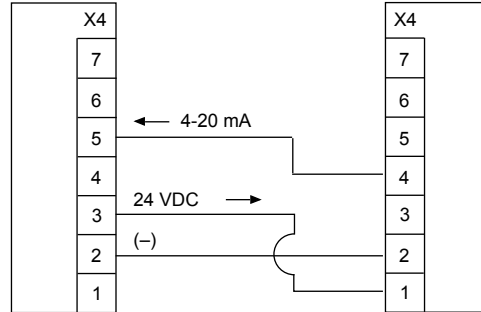
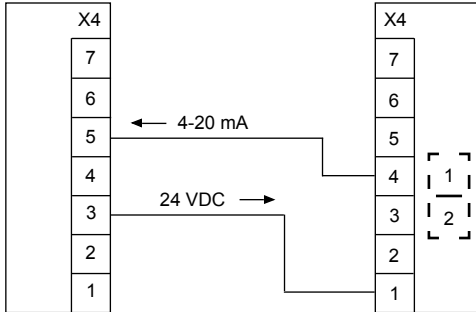
4-20 mA analog transmitter piggybacked via RS-485 digital transmitter

DT5-1130
RS-485

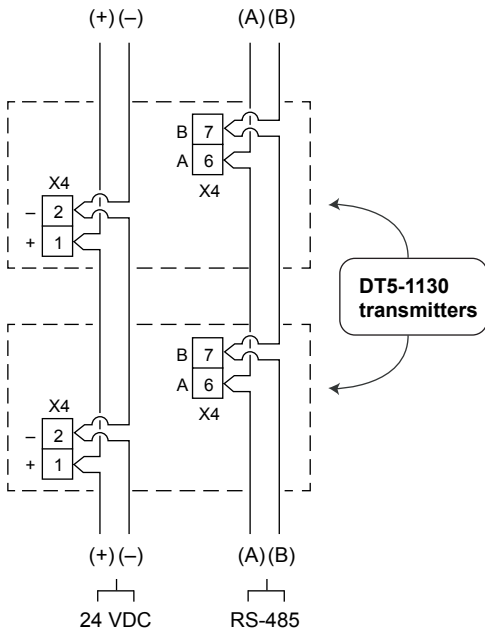
AT-11.. Version 3
4-20 mA loop powered

DT5-1130
RS-485

AT-33.. Version 3
4-20 mA, 3-wire



RS-485 digital communication and 24 VDC power supply, trunk/bus configuration



Notes:

- Use shielded twisted pair RS-485 cables with a minimum wire size of 18 AWG (0.75 mm²).
- Maximum daisy-chain trunk length is 2,900 ft. (900 m).
- Implement daisy-chain (multi-drop) communication and power supply between transmitter(s) and controller.
- Do not connect power to **A** and **B**; this may damage the transmitters and possibly the trunk protector "CON" 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.
- No ground connections required for shielded cable, transmitters, and controller enclosure.
- Do not use high voltage lines in the same RS-485 communication cable conduit.

With optional heater:

The wiring and DC power supply must be sized appropriately for a power of 0.3 A, 24 VDC!