

## 1.0 Installation Procedures

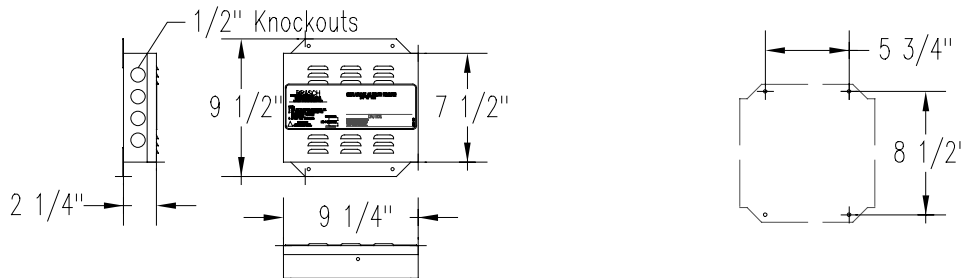
### 1.1 MOUNTING:

The Nitrogen Dioxide Carbon Monoxide Transmitter must be mounted indoors and kept dry at all times. This transmitter should be mounted in a well-populated area, and placed so the display can be easily seen. The unit should be mounted at breathing height that is generally between 5 to 7 feet above the floor. Figure #1 shows the mounting hole locations. Mount the transmitter to a rigid surface using #10 hardware.

#### **CAUTION:**

**Leave a minimum of 2" clearance to other surfaces, and under no circumstances should the ventilation louvers in the cover be blocked. Be sure that metal shavings and other contaminants are removed from inside the transmitter.**

**Figure #1 Mounting Hole Locations**

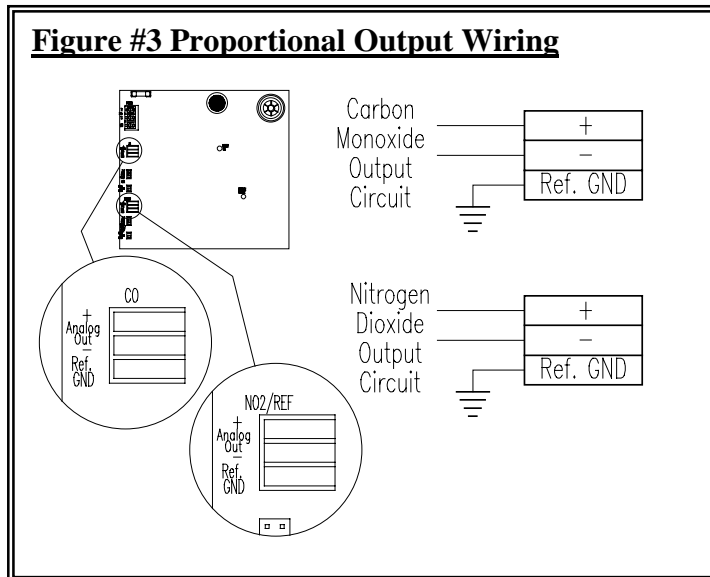
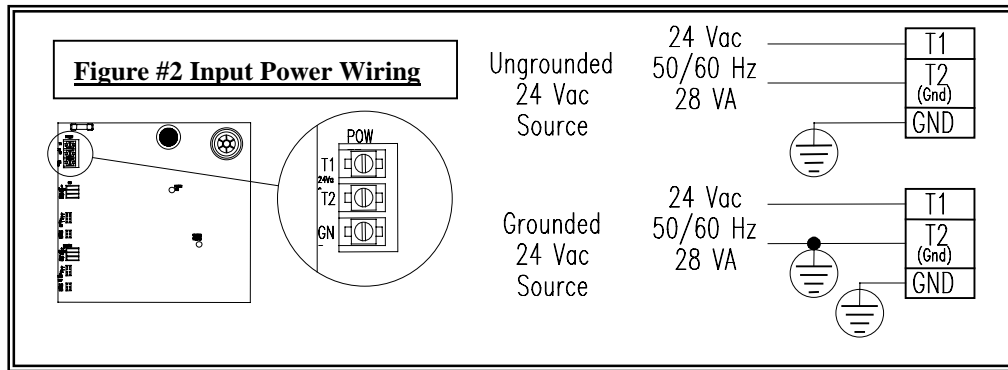


### 1.2 WIRING:

#### 1.2.1 Input Power Wiring

**Use only qualified personnel for the installation of this transmitter. All wiring should be done in accordance with local codes and the latest edition of the National Electrical Code (ANSI/NFPA 70).**

This transmitter requires an input voltage of 24 VAC, 50/60 Hz at a load rating of 28 VA. If a grounded 24 VAC supply voltage is supplied, then the hot line should be wired to terminal T1 and the grounded line should be wired to T2. Brasch Manufacturing Co., Inc. can provide a step-down transformer for changing 208-240 VAC or 120 VAC at 50/60 Hz to 24 VAC at 50/60 Hz. See the 6.0 Accessories Section (Page 5) for the transformer part numbers. The supply circuit must include a disconnect device or switch located close to the transmitter and marked as the disconnect device for the transmitter. This will assure continued operation without interruption from remote failures. To provide noise suppression the input power must be wired, as shown in Figure #2 (Page 2), with the ground connected. Use copper conductors only, rated for a minimum of 250 volts, 14 AWG.



### 1.22 Proportional Output Wiring

The BGS-NCM-TRNS has two proportional output signals. The Carbon monoxide and Nitrogen Dioxide each have their own maDC or VDC output signal. See the 4.0 Specification Section (Page 4) for minimum/maximum loads for the proportional outputs. The wiring of the proportional output signals is done by lifting the white lever, inserting the signal wire and pressing the white lever flat. Use copper conductors only, rated for a minimum of 250 volts, with a minimum wire size of 26 AWG (22 AWG maximum). Figure #3, Proportional Output Wiring shows the wiring to a remote Brasch Gas Detector Control

Panel, DDCS or BMS.

## 2.0 Unit Operation

When power is applied to the Nitrogen Dioxide Carbon Monoxide Gas Transmitter the internal green power LED will illuminate. This LED will stay ON as long as power is supplied to the transmitter. If the power ON LED should go out, see the 5.0 Troubleshooting Section (Page 4) for help.

This Nitrogen Dioxide Carbon Monoxide Gas Transmitter has three modes of operation (Normal, Sensor Failure and Purge). Upon the application of power the unit will enter the Purge mode and remain in this mode for 5 minutes.

In the Purge mode the internal green power LED illuminates and the internal yellow sensor LED will flash on and off. In this mode the gas transmitter cleans and prepares the carbon monoxide sensor for operation. Upon the completion of this mode the transmitter will turn off the yellow sensor indicator entering the Normal mode.

In the Normal mode the transmitter monitors the concentration of nitrogen dioxide (NO<sub>2</sub>) and carbon monoxide (CO) and generates the proportional output signals.

An additional safety feature of the transmitter is a continual CO internal sensor test. Should something cause the CO sensor to malfunction the transmitter will enter the Sensor Failure mode. Upon entering

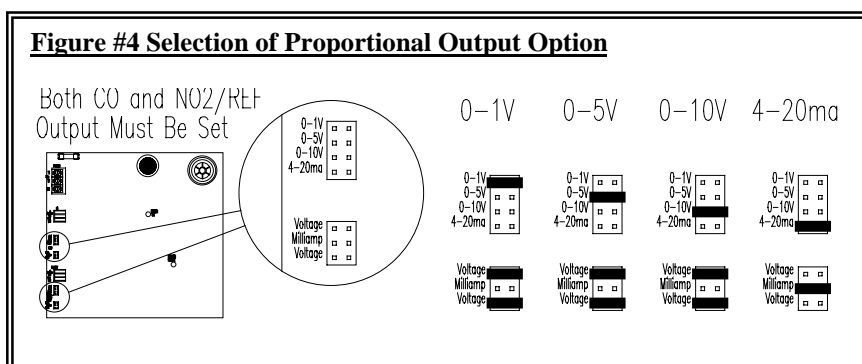
this mode the transmitter will turn on the internal yellow sensor LED and generate a 0 proportional output signal at the CO output.

### 3.0 Operational Settings

#### **3.1 PROPORTIONAL OUTPUT OPTIONS**

The gas transmitter has four different proportional output options that are selectable on the transmitter board. The four options are 4 – 20 maDC current loop, 0 – 1 VDC voltage output, 0 – 5 VDC voltage output and 0 – 10 VDC voltage output. The 4 – 20 maDC current loop is used with the Brasch Gas Detector Control Panel. Any of the four options can be connected to a Direct Digital Control System (DDCS) or Building Management System (BMS). See 4.0 the Specification Section (Page 4) for the input impedance for each of the proportional outputs.

The output option is selected using a jumper and pin combination. See Figure #4 for location on the transmitter board. To change the setting, **turn off the power to the unit** and remove the cover. Place jumpers in the proper locations for the desired proportional output. Replace the cover and restore power to the transmitter.



Each proportional output is controlled by the concentration of nitrogen dioxide or carbon monoxide (See Table #1). If at any time a value of 0 maDC or 0 VDC is measured at the output, the gas detector has had a power or sensor failure (See 5.0 Troubleshooting, Page 4).

**TABLE #1 Proportional Output Values**

<b>Nitrogen Dioxide PPM</b>	<b>Carbon Monoxide PPM</b>	<b>4 – 20 maDC Output Level</b>	<b>0 – 1 VDC Output Level</b>	<b>0 – 5 VDC Output Level</b>	<b>0 – 10 VDC Output Level</b>
0	0	4.0	0.20	1.0	2.0
0.2	20	5.6	0.28	1.4	2.8
0.4	40	7.2	0.36	1.8	3.6
0.6	60	8.8	0.44	2.2	4.4
0.8	80	10.4	0.52	2.6	5.2
1.0	100	12.0	0.60	3.0	6.0
1.2	120	13.6	0.68	3.4	6.8
1.4	140	15.2	0.76	3.8	7.6
1.6	160	16.8	0.84	4.2	8.4
1.8	180	18.4	0.92	4.6	9.2
2.0	200	20.0	1.00	5.0	10.0

## 4.0 Specifications

Proportional Outputs:	4 – 20 maDC	250Ω Maximum
	0 – 1 VDC	1000Ω Minimum
	0 – 5 VDC	1000Ω Minimum
	0 – 10 VDC	1000Ω Minimum

Proportional outputs are field selectable.

Calibration: The main transmitter module should be re-calibrated every two years. Contact the factory for re-calibration information and pricing.

Ratings:	Input Power:	24 VAC, 50/60 Hz, 28 VA
	Humidity:	10% to 90% (Non-Condensing)
Temperature:	Storage:	-50°C to 120°C (-58°F to 248°F)
	Operating:	-15°C to 40°C (5°F to 104°F)

Installation Category: II (local level, over-voltage transients less than 500 volts)

Indicators(LED Type):	Green LED:	Power ON
	Yellow LED:	Sensor Failure

Dimensions: 7 5/8”H x 9 1/8”W x 2 1/4”D

Weight: 4 pounds

Fuse Rating: Main Supply: 5x20MM, Time-Lag, 1.25 Amps

## 5.0 Troubleshooting

### **CAUTION:**

**Only qualified personnel should attempt to service this equipment. All power sources must be disconnected before removing the cover of this transmitter.**

1. Power LED not on:
  - A. Check for 20.4-26.4 VAC at terminals T1 & T2 (see Figure #2, Page 2).
  - B. Check circuit board fuse for continuity. If the fuse needs to be replaced use only the rated fuse listed in the 4.0 Specifications Section.
  - C. Consult the factory.
2. Sensor failure light is on:
  - A. Remove CO sensor and reinstall noting correct terminal markings.
  - B. Replace transmitter board (includes sensor and calibration).
  - C. Consult the factory.
3. For any other situation please consult the factory.

## 6.0 Accessories

Transformers: \*

120 VAC to 24 VAC @ 36VA	36T120N1
120 VAC to 24 VAC @ 75VA	75T120N1
208-240 VAC to 24 VAC @ 36VA	36T240N1
208-240 VAC to 24 VAC @ 75VA	75T240N1

Other voltage levels are available upon request.

\* Transformers supplied in a NEMA 1 enclosure intended for indoor use.

**Sensor Re-calibration:** Factory re-calibration of transmitter board including new sensor. Contact the factory for complete information and pricing.

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### Limited Warranty

Brasch Manufacturing Co., Inc warrants gas transmitters, gas detectors, gas detector control panels and accessories for a period of one year from the date of shipment against defects in material or workmanship. Should any evidence of defects in material or workmanship occur during the warranty period, Brasch Manufacturing Co., Inc will repair or replace at its own discretion, without charge. The company shall not be held responsible for any charges in connection with removal or replacement of allegedly defective equipment, nor for incidental or consequential damages.