

Industrial Enclosure: For Model 106 Ozone Monitors



DRAWINGS AND INSTALLATION MANUAL

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IDENTIFICATION RECORDS

Record the following information for future reference:

Unit serial number: _____

Warranty start date: _____
(date of receipt)

PRINTING HISTORY

This manual covers the NEMA 4X Industrial enclosures offered for 2B Technologies Series 106 Ozone Monitors. New editions of this manual are complete revisions that reflect updates to the instrument itself, as well as clarifications, additions and other modifications of the text.

Revision A-1	August 2020
Revision A-2	November 2020
<i>Mentioned NEMA rating in descriptions and instructions.</i>	
Revision A-3	August 2022
<i>Clarification of DC/DC power configuration option in Section 2.2.</i>	
Revision A-4	December 2022
<i>Additional caution in Section 3, to leave unused inlets uncapped and unobstructed.</i>	
Revision A-5	December 2023
<i>Updated hyperlinks. Updated drawing on p. 1 and in Figure 4.</i>	
Revision A-6	January 2024
<i>Updated Section 3 with warning not to pressurize the inlet of the instrument.</i>	

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WARRANTY STATEMENT

2B Technologies warrants its products against defects in materials and workmanship. 2B Technologies will, at its option, repair or replace products that prove to be defective. The warranty set forth is exclusive and no other warranty, whether written or oral, is expressed or implied. 2B Technologies specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

Warranty Periods

The warranty period is one (1) year from date of receipt by the purchaser, but in no event more than thirteen (13) months from original invoice date from 2B Technologies.

Warranty Service

Warranty Service is provided to customers through phone support, Monday - Friday, from 9:00 a.m. to 5:00 p.m., Mountain Time USA, or by submission of a tech support ticket at <https://2btech.io/support/>. Phone support is for troubleshooting and determination of parts to be shipped from 2B Technologies to the customer in order to return the product to operation within stated specifications. If phone support is not efficient and effective, the product may be returned to 2B Technologies for repair or replacement. Prior to returning the product, a Repair Authorization Number (RA) must be obtained from the 2B Technologies Service Department.

Shipping

2B Technologies will pay freight charges for replacement or repaired products shipped to the customer site. Customers shall pay freight charges for all products returning to 2B Technologies.

Conditions

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance, adjustment, calibration, or operation by the customer. Usage of maintenance materials purchased from suppliers other than 2B Technologies will void this warranty.

Limitation of Remedies and Liability

The remedies provided herein are the Customer's sole and exclusive remedies. In no event shall 2B Technologies be liable for direct, indirect, special, incidental or consequential damages (including loss of profits) whether based on contract, tort or any other legal theory. The Industrial Enclosure Installation Manual is believed to be accurate at the time of publication and no responsibility is taken for any errors that may be present. In no event shall 2B Technologies be liable for incidental or consequential damages in connection with or arising from the use of the Industrial Enclosure Installation Manual and its accompanying related materials. Warranty is valid only for the country designated on the 2B Technologies quote or invoice.


WARNINGS

ENGLISH

**WARNING:**

Any operation requiring access to the inside of the equipment, could result in injury. To avoid potentially dangerous shock, disconnect from power supply before opening the equipment.

WARNING:

This symbol,  on the instrument indicates that the user should refer to the manual for operating instructions.

WARNING:


If this instrument is used in a manner not specified by 2B Technologies, USA, the protection provided by the instrument may be impaired.

ESPAÑOL

**ATENCIÓN:**

Cualquier operación que requiera acceso al interior del equipo, puede causar una lesión. Para evitar peligros potenciales, desconectarlo de la alimentación a red antes de abrir el equipo.

ATENCIÓN:

Este símbolo,  en el instrumento indica que el usuario debería referirse al manual para instrucciones de funcionamiento.

ATENCIÓN:


Si este instrumento se usa de una forma no especificada por 2B Technologies, USA, puede desactivarse la protección suministrada por el instrumento.

FRANÇAIS

**ATTENTION:**

Chaque opération à l'intérieur de l'appareil, peut causer du préjudice. Afin d'éviter un choc qui pourrait être dangereux, déconnectez l'appareil du réseau avant de l'ouvrir.

ATTENTION:

Le symbole,  indique que l'utilisateur doit consulter le manuel d'instructions.

ATTENTION:


Si l'instrument n'est pas utilisé suivant les instructions de 2B Technologies, USA, les dispositions de sécurité de l'appareil ne sont plus valables.

DEUTSCH

**WARNHINWEIS:**

Vor dem Öffnen des Gerätes Netzstecker ziehen!

WARNHINWEIS:

Dieses,  auf dem Gerät weist darauf hin, daß der Anwender zuerst das entsprechende Kapitel in der Bedienungsanleitung lesen sollte.

WARNHINWEIS:


Wenn das Gerät nicht wie durch die Firma 2B Technologies, USA, vorgeschrieben und im Handbuch beschrieben betrieben wird, können die im Gerät eingebauten Schutzvorrichtungen beeinträchtigt werden.

ITALIANO

**ATTENZIONE:**

Qualsiasi intervento debba essere effettuato sullo strumento può essere potenzialmente pericoloso a causa della corrente elettrica. Il cavo di alimentazione deve essere staccato dallo strumento prima della sua apertura.

ATTENZIONE:

Il simbolo,  sullo strumento avverte l'utilizzatore di consultare il Manuale di Istruzioni alla sezione specifica.

ATTENZIONE:


Se questo strumento viene utilizzato in maniera non conforme alle specifiche di 2B Technologies, USA, le protezioni di cui esso è dotato potrebbero essere alterate.

DUTCH

**OPGELET:**

Iedere handeling binnenin het toestel kan beschadiging veroorzaken. Om iedere mogelijk gevaarlijke shock te vermijden moet de aansluiting met het net verbroken worden, vóór het openen van het toestel.

OPGELET:

Het symbool,  geeft aan dat de gebruiker de instructies in de handleiding moet raadplegen.

OPGELET:


Indien het toestel niet gebruikt wordt volgens de richtlijnen van 2B Technologies, USA gelden de veiligheidsvoorzieningen niet meer.

CHINESE

**警告：**

任何需要接触设备内部的操作均可能造成人身伤害。为避免可能的触电危险，请在打开设备前切断电源。

警告：

这个符号  在仪器上表示用户应参考说明书上的操作指南。

警告：


如果仪器没有按照美国2B科技公司指定方式操作，仪器的保护性能会减弱。

JAPANESE

**警告：**

機器の内部で操作する時、怪我できます。危険な衝撃を回避するために、機器を開ける前に、電源を切断してください。

警告：

機器でこの記号  を見れば、マニュアルを読んでください。

警告：

この機器は2Bテクノロジー会社、USAの指定でなければ、機器の保護が損なえます。

1. INTRODUCTION

This manual covers the NEMA 4X Industrial enclosure offered for the 2B Technologies Series 106 Ozone Monitors. This polyester enclosure provides protection for the Ozone Monitor while permitting easy access for connections, maintenance, and repairs. This enclosure meets the universally accepted NEMA 4X specification for environmental protection, as well as Type 4, 12, and 13 NEMA ratings. The shatter-proof window provides for viewing the instrument display and status lights through the closed door. A 1/4" inch compression fitting is provided for the sample inlet and outlet on all the Series 106 Ozone Monitors. Multichannel inlets (3 or 6 channels) are offered as options. The Industrial enclosure is larger than the NEMA enclosure previously offered by 2B Technologies, enabling easier access for maintenance and repairs.

2. INSTALLATION

Please refer to the following information when installing the enclosure. For assistance, please call 2B Technologies at (303) 273-0559 or email techsupport@2btech.io

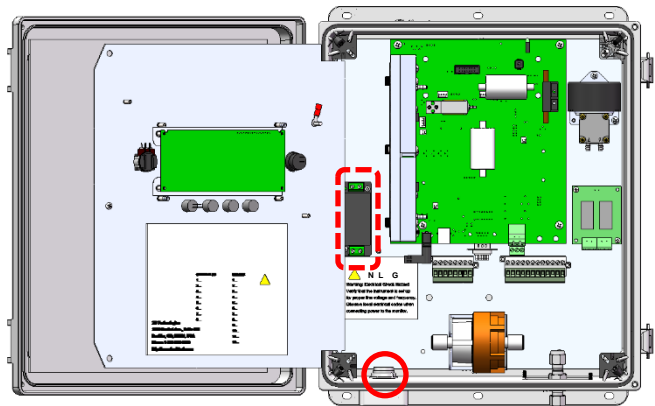
2B Technologies recommends that the NEMA 4X Industrial Enclosure be mounted on a wall or specially built stand. The enclosure weighs over 14 pounds with the ozone monitor installed and requires a substantial mounting structure. The floor of the box should be level when the box is mounted. The figures in this manual provide mechanical dimensions for the Industrial Enclosure.

2.1. Mounting

The back of the enclosure has three holes at the top and three holes at the bottom for mounting bolts (Figure 1). The holes are 1/4" in diameter and should be used with stainless steel bolts and washers.

2.2. Power

The Industrial units are set up for AC power via connection to an AC/DC converter mounted on the baseplate (red square in drawing). These units are intended to be installed by electricians using conduit to bring electrical power to the unit. A 1/2" conduit connector, supplied by the user, should be installed on the enclosure through the hole provided in the enclosure bottom (red circle in drawing). In order to maintain the NEMA 4X rating of the enclosure, an appropriate sealed conduit connector should be used. (In an alternative DC/DC power configuration of the Industrial units available at the time of purchase, the customer can use a 12VDC power supply and bring the power cable into the box through either a conduit fitting or a



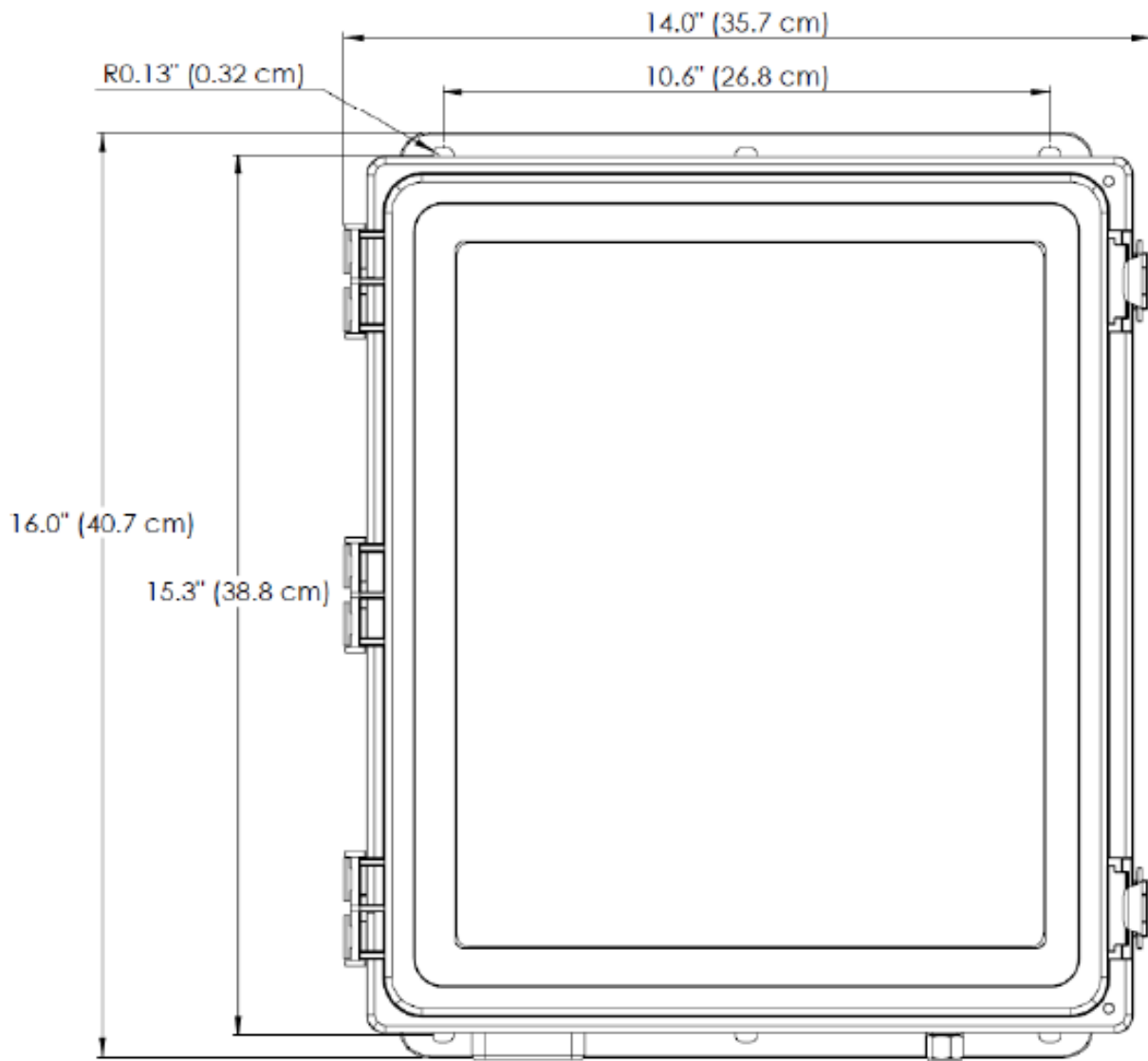
1/2" cable gland.) The power requirement is 100-240 VAC, 50/60 Hz, 11-28 V DC, nominally 500 mA at 12 V DC, 6 watt.

2.3. Inlet Manifold

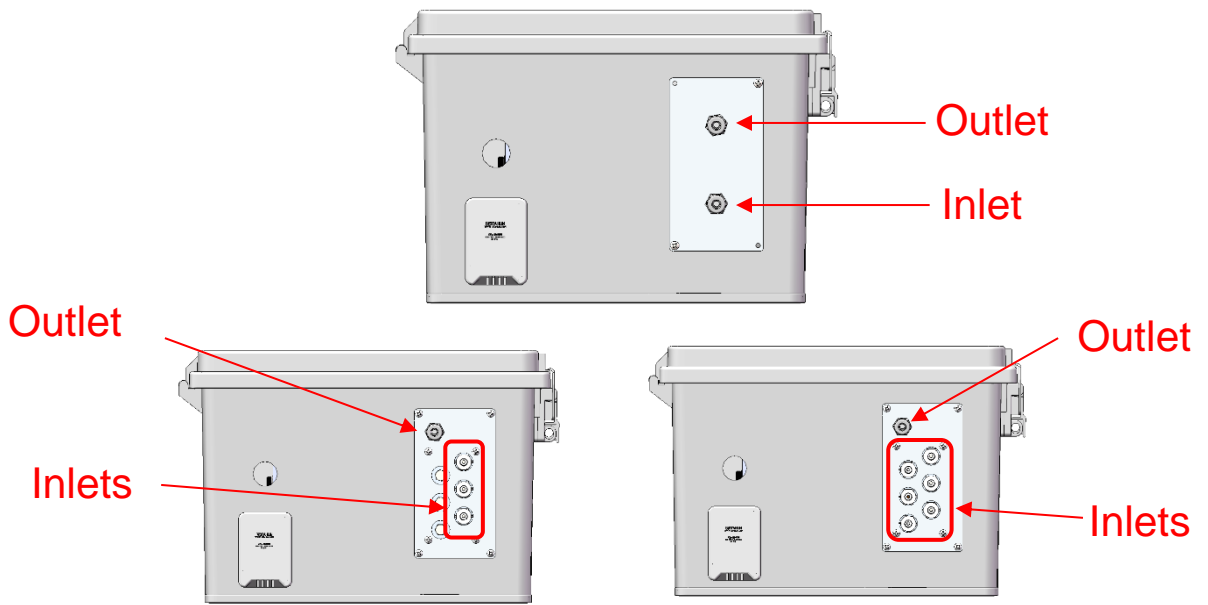
The Industrial Enclosure is available in 3 configurations:

- Standard: A single gas inlet
- Multichannel 3-port: Three gas inlets (option, available when ordering)
- Multichannel 6-port: Six gas inlets (option, available when ordering)

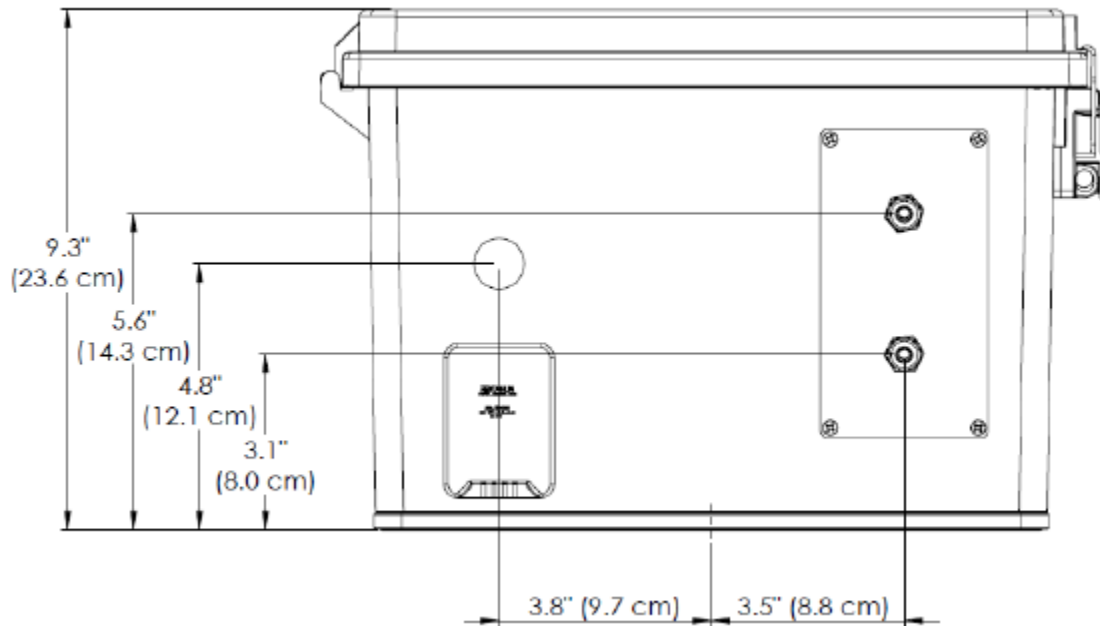
The size of the Industrial Enclosure is the same for all three configurations. Figure 2a in this manual shows each configuration.



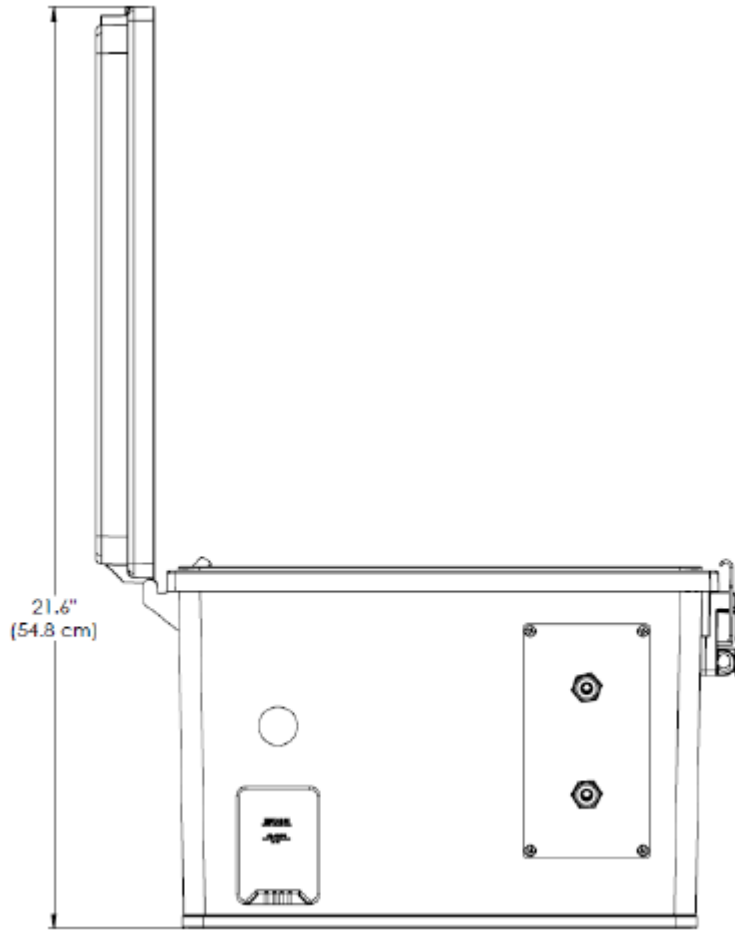
**Figure 1. Industrial Enclosure Dimensions
(Front View of standard single-port configuration).**



**Figure 2a. Industrial Enclosure
(Bottom View of standard single-, 3-, and 6-port configurations)**



**Figure 2b. Industrial Enclosure Dimensions
(Bottom View of standard single-port configuration).**



**Figure 3. Industrial Enclosure Dimensions
(Bottom View with Door Clearance).**

2.4. Analog Output, Serial Communication, and Relays

Access to the analog output, serial communication and relays is on the inside of the enclosure (Figure 4). The connections are made to the 8-position and 12-position terminal blocks according to Figure 4 and Tables 1 and 2 below. Photos of the connections are shown in Figure 5.

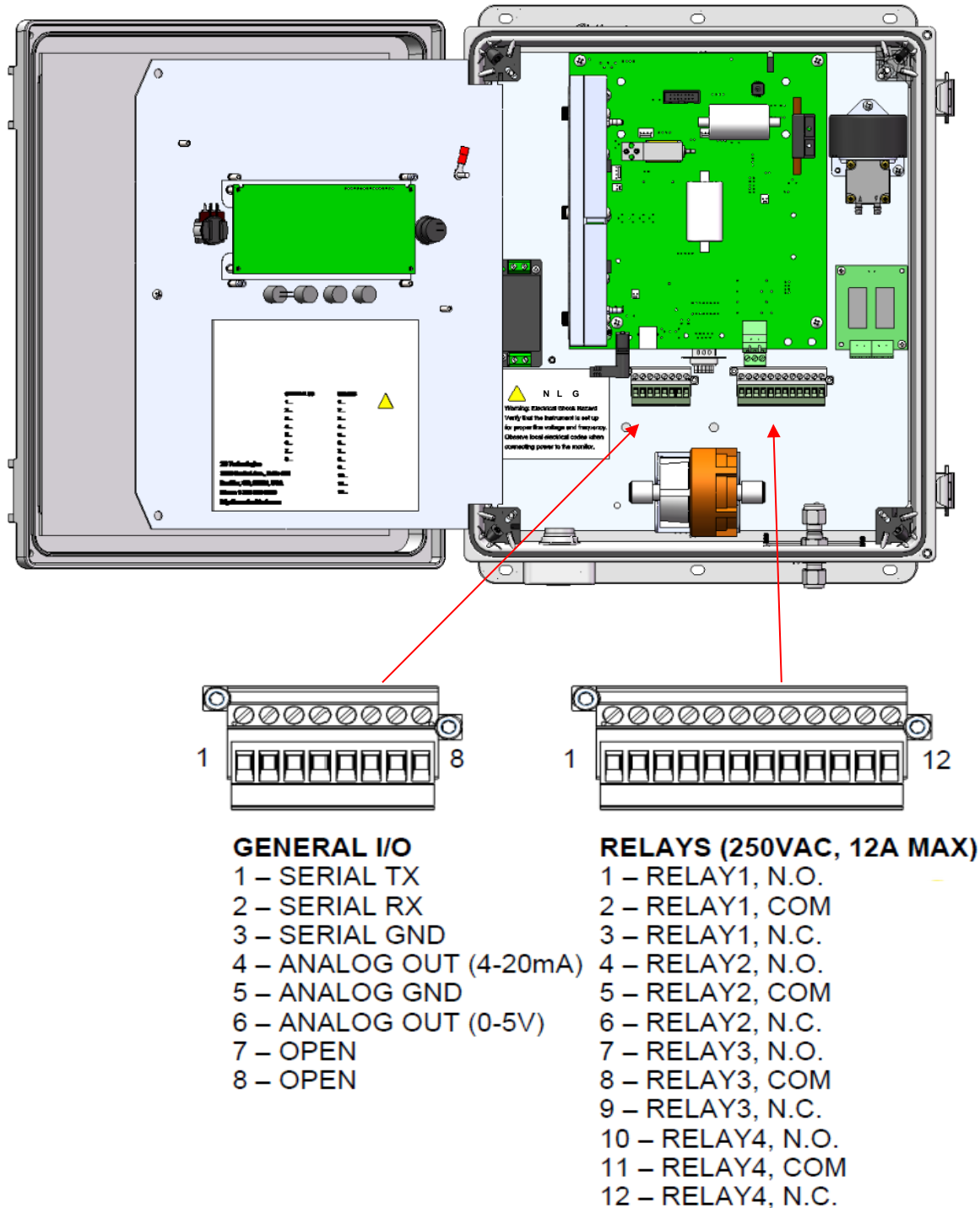


Figure 4. Connections to the Industrial Enclosure.

Table 1. 8-Position Terminal Block Connections: General I/O.

Pin #	Description	Wire Color
1	RS-232 transmitted Data (TXD)	Yellow
2	RS-232 received Data (RXD)	Brown
3	RS-232 signal ground (GND)	Black
4	Analog output, 4-20 mA DC	Green
5	Analog output ground	Black
6	Analog output, 0-5 VDC	White
7	open	
8	open	

Table 2. 12-Position Terminal Block Connections: Relays.

Pin #	Description	Wire Color
1	Relay 1, open on alarm condition	Red
2	Relay 1, ground	Black
3	Relay 1, closed on alarm condition	Green
4	Relay 2, open on alarm condition	Red
5	Relay 2, ground	Black
6	Relay 2, closed on alarm condition	Blue
7	Relay 3, open on alarm condition	Red
8	Relay 3, ground	Black
9	Relay 3, closed on alarm condition	White
10	Relay 4, open on alarm condition	Red
11	Relay 4, ground	Black
12	Relay 4, closed on alarm condition	Brown

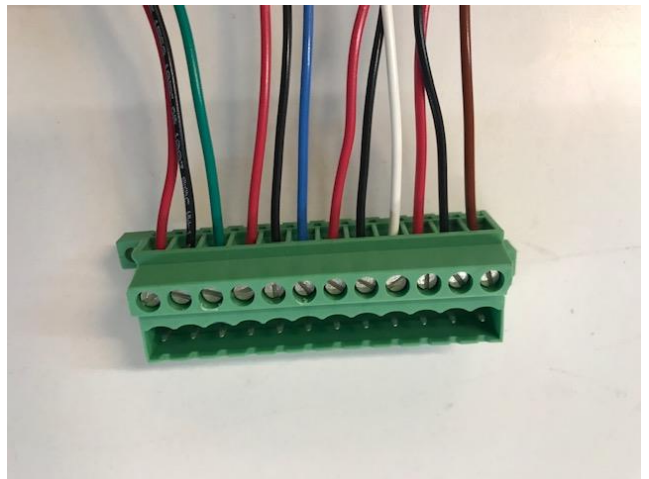
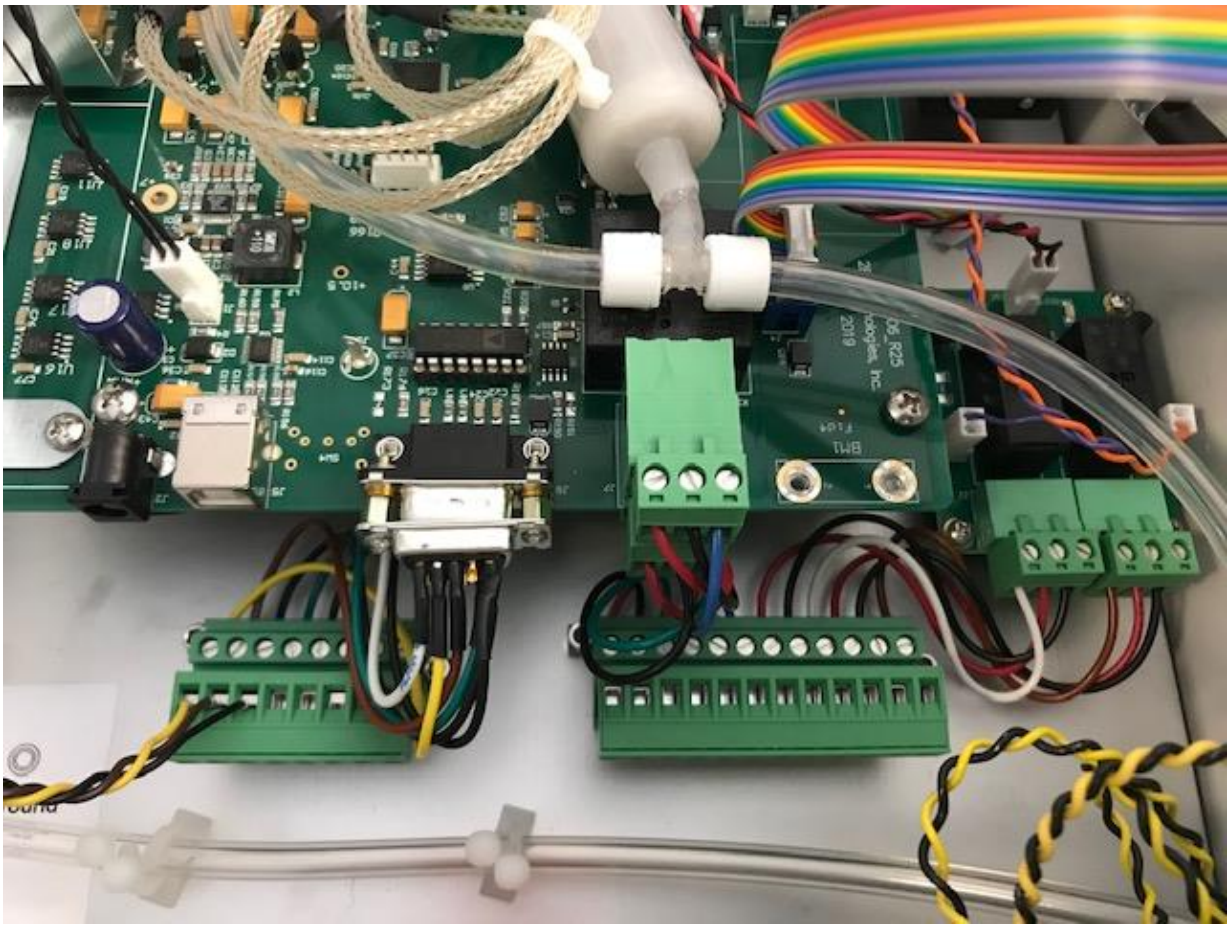


Figure 5. Photos of Terminal Connections.

3. GAS CONNECTIONS

The port(s) labeled INLET and OUTLET are for connecting ¼" O.D. tubing. Be sure that the sampling point is in a location where only the gas sample is directed to the instrument and not any liquid or particulate matter.

CAUTION: USE ONLY MATERIALS SUITABLE FOR OZONE SERVICE. CONSULT WITH 2B TECHNOLOGIES FOR ADVICE ON MATERIALS.

CAUTION: EXPOSURE TO OZONE IS HAZARDOUS. ENSURE THAT ALL GAS CONNECTIONS ARE TIGHT AND THAT NO LEAKS EXIST.

CAUTION: DO NOT PRESSURIZE THE INLET. IT WILL DAMAGE THE INSTRUMENT. USE A TEE TO VENT AT THE INLET IF A FLOW IS BEING PUSHED TO THE INSTRUMENT.

TO PREVENT DAMAGE TO THE INSTRUMENT'S INTERNAL PUMP, WE RECOMMEND THAT UNUSED INLETS REMAIN UNOBSTRUCTED/ UNCAPPED. That way, the user cannot inadvertently begin sampling from a port that is obstructed.

4. MAINTENANCE

The NEMA 4X Industrial enclosure requires minimum maintenance. Inspect the enclosure for signs of leaks or damage. Clean the polyester surface with an appropriate cleaner. **CAUTION:** Do not use abrasive cleaners on the window.

For the Model 106 instrument itself, refer to the Ozone Monitor user manual for the recommended maintenance and service procedures.