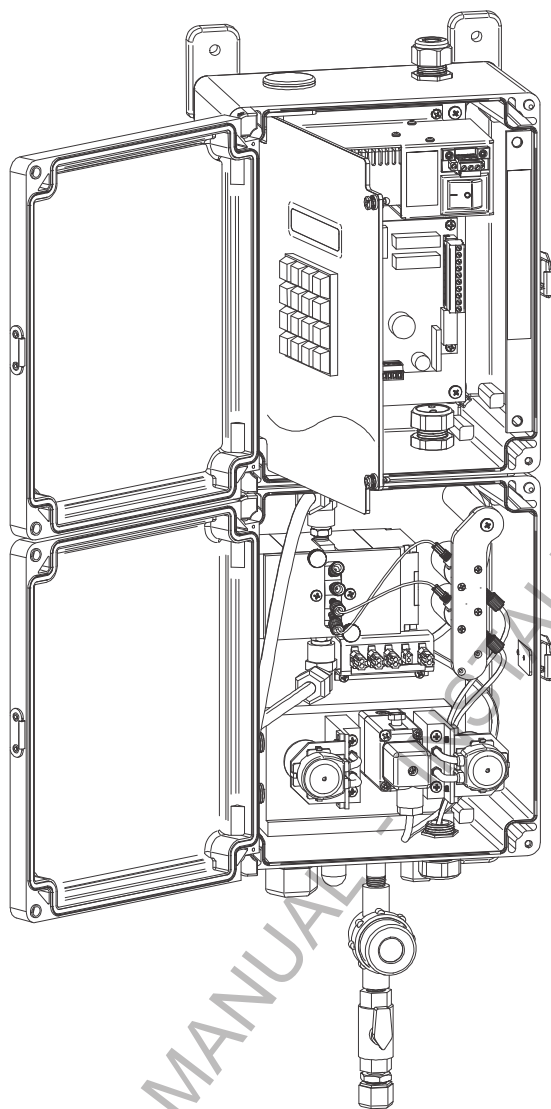


# ChemScan® mini Analyzer

## Parameter

Method #####

## Installation, Operation & Maintenance Manual



**ChemScan**  
An In-Situ Brand

Rev 06/17/2019

## Document Information

Customer Name: \_\_\_\_\_

Plant Name/Location: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Installation Date: \_\_\_\_\_

Analyzer Serial #: \_\_\_\_\_

## Contact Information

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ASAAanalytics.com

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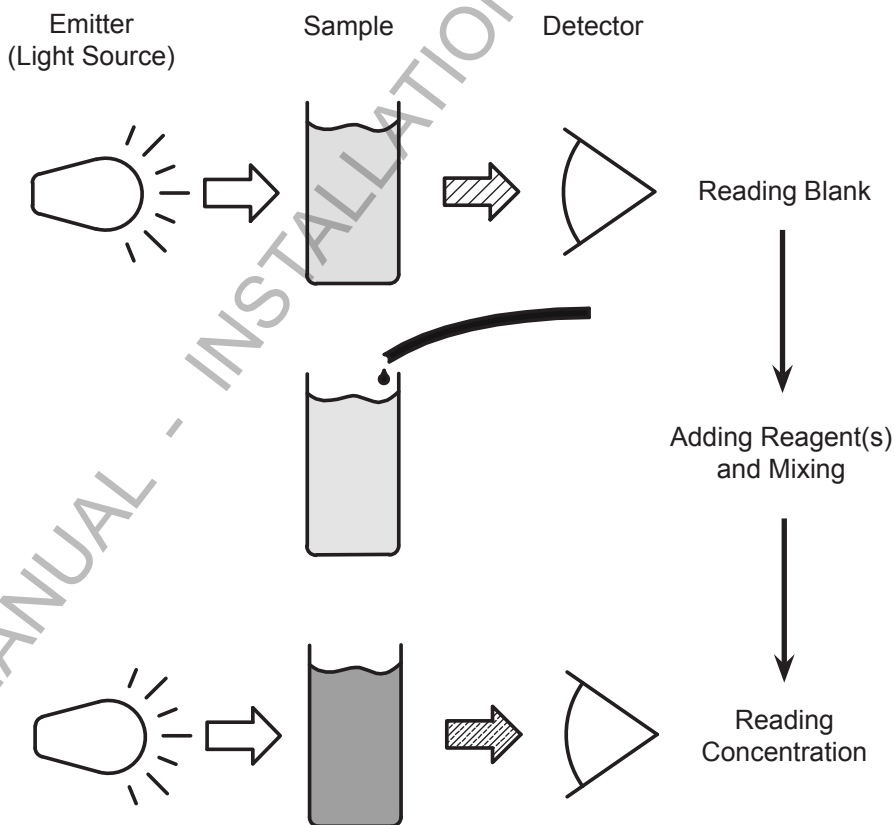
SAMPLE MANUAL - INSTALLATION - FOR REFERENCE ONLY

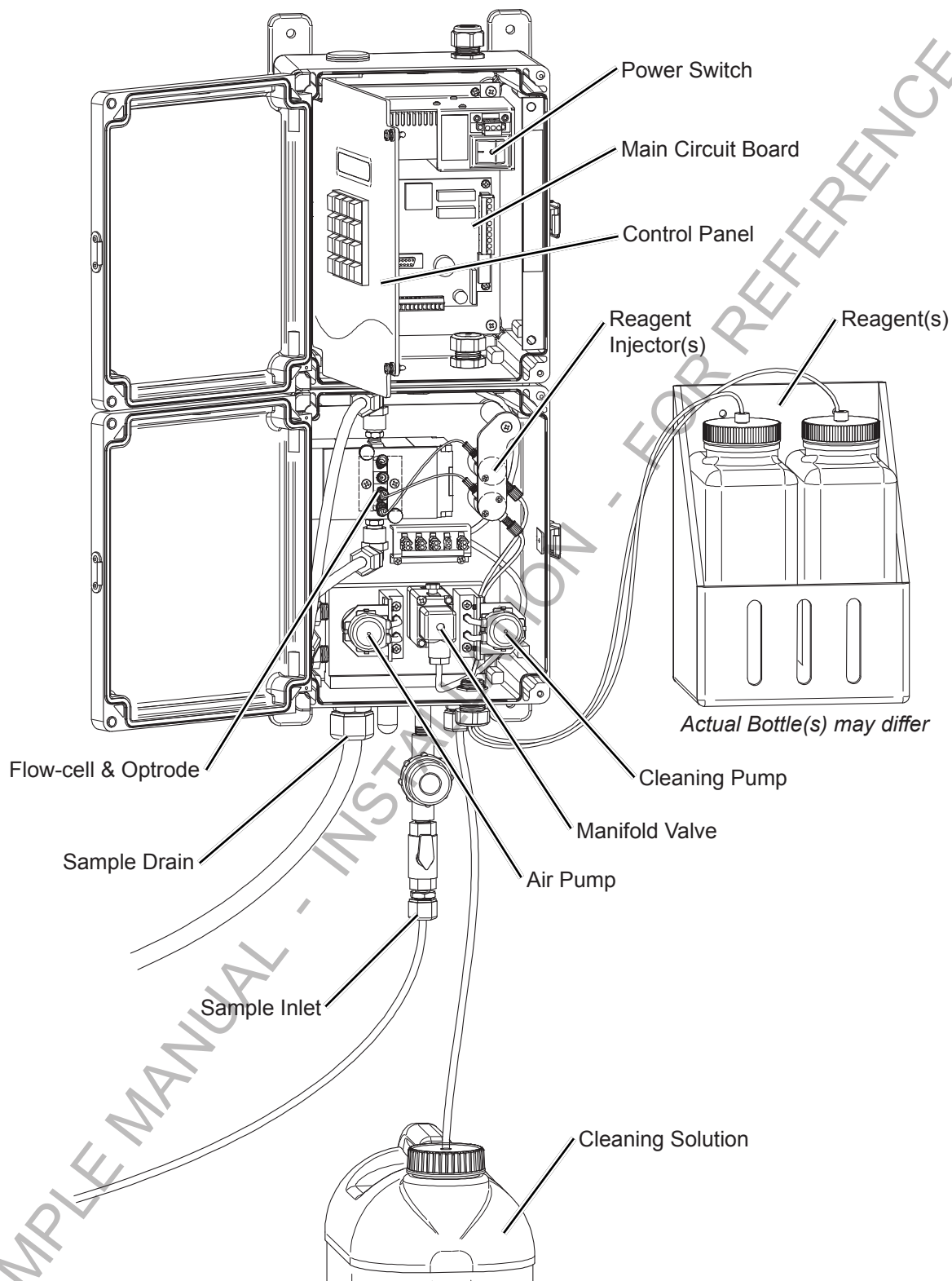
## Analyzer Description

The ChemScan mini Analyzer is a photometric instrument, designed to provide reliable and accurate analysis of water and wastewater. To reduce maintenance requirements, the sample path maintains an internal diameter of 1/8" (3mm) or greater.

The analyzer consists of two enclosures. The upper enclosure contains a power supply, main circuit board, control panel and electrical connections. The lower enclosure contains the sample control manifold, reagent injector(s), flow-cell and optical components. Voltage in the lower enclosure is 24 volts. A water-tight cord-grip provides a seal between the two enclosures.

To measure the parameter, the analyzer uses an automated process similar to a typical test kit. It performs an initial measurement of the sample water and stores it as a "blank". Then a reagent is added to the sample and mixed. This mixture is allowed to react for a period of time. A second optical measurement is made and the previous blank measurement is subtracted. The parameter concentration is calculated and displayed on the LCD screen, and the 4-20mA communication signal is updated.





## Safety

To safely operate or maintain this analyzer, all instructions in this manual must be read and fully understood by a trained/qualified technician.

Failure to follow safety procedures could result in serious injury or equipment damage.

The following symbols will be observed throughout this manual.



Protective Eye wear



Safety Gloves



Electrical Shock Hazard



Corrosive Hazard



UV Radiation Inside  
Rayonnement ultraviolet à l'intérieur

## 1. Installation

For safety guidance, refer to the safety section at the beginning of this manual.

### 1.1 Shipping

This ChemScan mini Analyzer is shipped in a double-wall, corrugated carton suitable for protecting the analyzer from damage during normal shipping and handling. We recommend retaining this carton to provide optimum protection for return shipping if needed.

### 1.2 Storage

If the analyzer will not be installed immediately, store the analyzer, reagents, and accessories in their original cartons, in a temperature controlled environment, protected from physical and moisture damage.

### 1.3 Unpacking

When unpacking the analyzer, inspect the equipment for any damage that may have occurred in the shipping process. If damage is found, document and report to ASA Analytics.

## 1.4 Location

### 1.4.1 Sampling

For best instrument performance, select a sampling point representative of the process.

- The sample location should be a sufficient distance away from chemical additions to ensure the process is well mixed and chemical reactions are complete.
- Sample line should draw from center of process stream to minimize sediment and air bubbles.

### 1.4.2 Analyzer

Install the analyzer indoors on a vertical surface near a 120 VAC outlet. The environment should be non-hazardous with moderate temperature cycles.

NOTE: Extreme temperatures may cause degradation of the reagents and cleaning solution. (See *Technical Specification*)

## 1.5 Sample Delivery

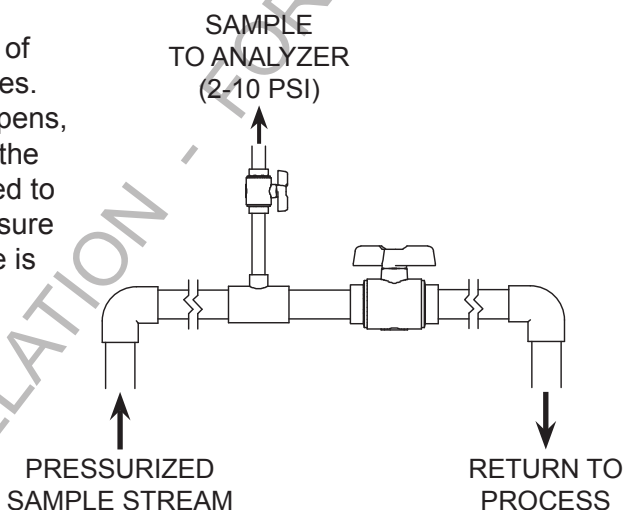
The analyzer requires a pressurized sample between 2 and 10 psi (13.8-69 kPa). Continuous bypass flow is recommended to ensure a fresh and representative sample.

NOTE: The analyzer only draws sample during an internal flush cycle. Install a bypass tee near the analyzer to minimize dead volume.

If an external pump is required to pressurize the sample, refer to [Section 3.3.7 External Pump Control](#).

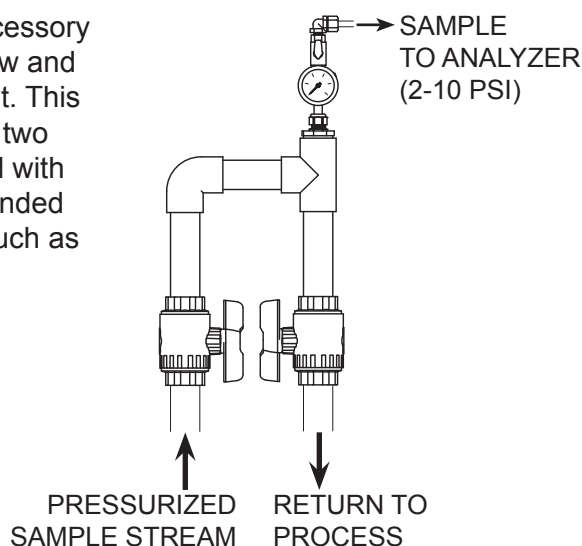
### Option 1:

A basic bypass flow system consists of a tee fitting and two manual ball valves. When the analyzer's sample valve opens, the tee will allow sample to flow into the analyzer. The two ball valves are used to control the sample flow rates. A pressure regulator may be required if pressure is too high.



### Option 2:

ASA offers a Sample Extraction Accessory that provides continuous bypass flow and coarse filtering all in one component. This "fast loop" assembly is mounted on two SS U-Channel rails and is equipped with a pressure gauge. This is recommended if large stringy solids are present, such as algae (<150 mg/L TSS).



## 1.6 Mounting

### 1.6.1 Analyzer

The analyzer should be mounted securely to an indoor wall using appropriate fasteners.

NOTE: Provide a minimum clearance of 30" [762mm] in front of analyzer for operator access.

### 1.6.2 Reagent Shelf

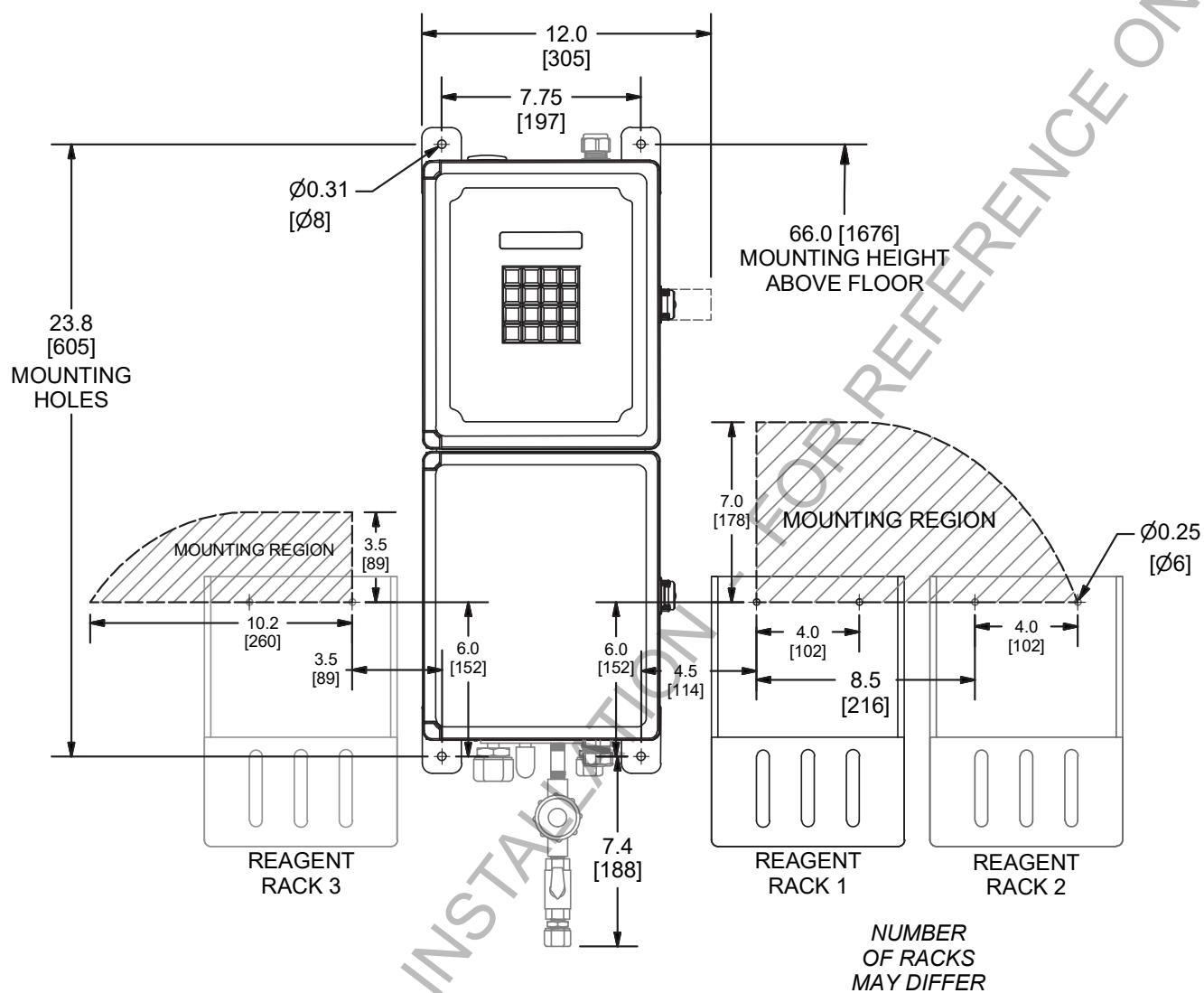
Mount the reagent shelf on the vertical surface adjacent to the analyzer. Keep the reagent shelf mounting holes inside the mounting region shown on the following page.

NOTE: The recommended position of reagent racks ensures the tubes will reach the reagents.

### 1.6.3 Cleaning Solution

Provide space for the cleaning solution container on the floor below the analyzer.

| Component            | WxHxD                      |
|----------------------|----------------------------|
| Analyzer (Enclosure) | 9x22.5x6 [229x572x152]     |
| Reagent Rack         | 7.5x10.5x6.8 [190x267x173] |
| Cleaning Container   | 7x12.5x11.5 [178x318x292]  |



UNITS: Inch [mm]

## 1.7 Electrical



### 1.7.1 Power

Power Requirements: 100 to 240 VAC, 50/60 Hz, 70 VA Maximum

NOTE: Power switch also serves as a circuit breaker.

#### Option 1: AC Outlet

The analyzer is equipped with a 6 foot 120 VAC power cord. Plug the power cord into an appropriate outlet. Provide access to unplug the analyzer. The plug serves as the primary disconnect.

NOTE: DO NOT use an extension cord.

#### Option 2: Conduit

The power cord can be replaced by approved watertight conduit.

Conduit and wiring must be installed by a qualified person according to local and national codes.

The primary disconnect must be provided by others. A switch or circuit breaker clearly marked for this purpose should be located adjacent to the analyzer.

WARNING: Conduit connected to the fiberglass enclosure will not serve as an electrical ground. Bonding must be provided between the labeled ground terminal and electrical ground.

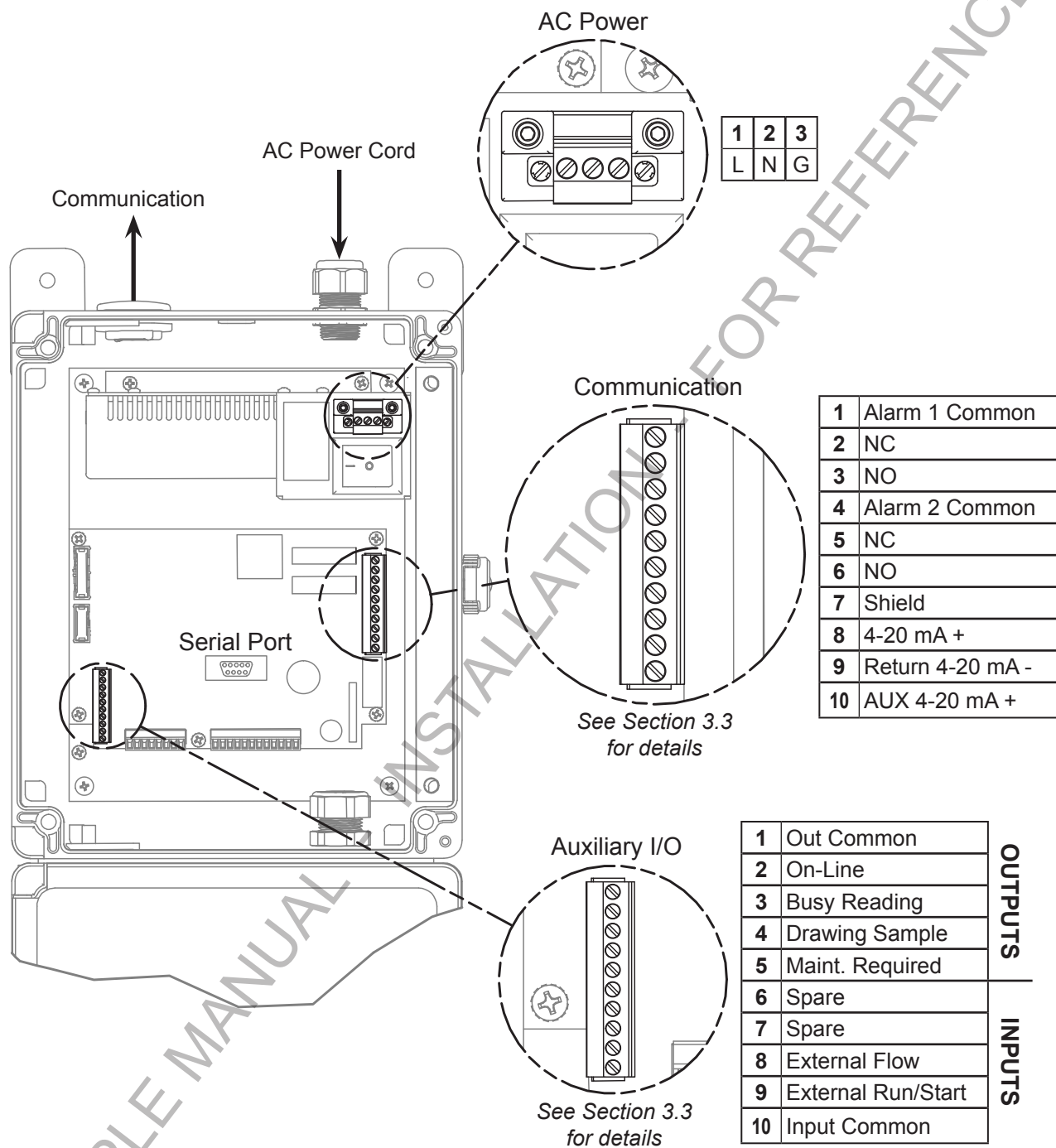
AVERTISSEMENT: Le conducteur branché au boîtier en fibre de verre ne sert pas de mise à la terre- mise de masse. Il faut connecter un fil entre la borne de mise à la terre et la borne électrique.

### 1.7.2 Communication

Remove the hole plug and install the 4-20 mA output wires using watertight conduit. Connect the wires according to the diagram on the following page. The analyzer sources current into the fully isolated analog loop.

NOTE: A secondary 4-20 mA Auxiliary Channel (AUX) is unused.

The dry-contact alarm relays are fused at 5 amps. Usage is limited to 24 VAC.



## 1.8 Analyzer Connections



NOTE: Do not over-tighten the plumbing connections. Excessive tightening can result in damage to the fittings or other components.

NOTE: Ensure connections are firm and vacuum-tight.



### 1.8.1 Cleaning Solution

For mixing instructions, refer to *Section 4.5 Cleaning Solution*.

1. Screw the tube-fitted cap onto the cleaning solution bottle.
2. Attach the red tube to analyzer.
3. Verify the tube is at the bottom of the bottle.

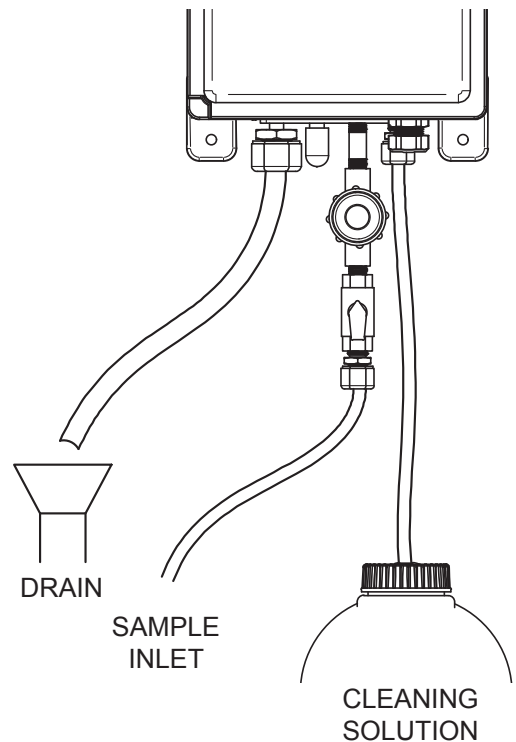
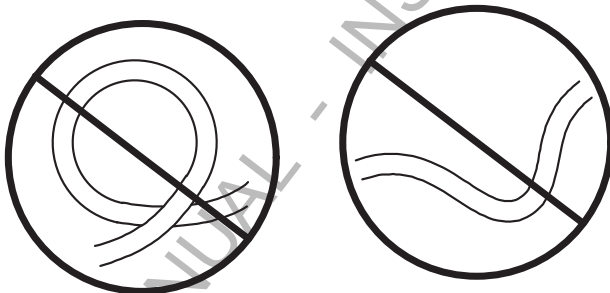
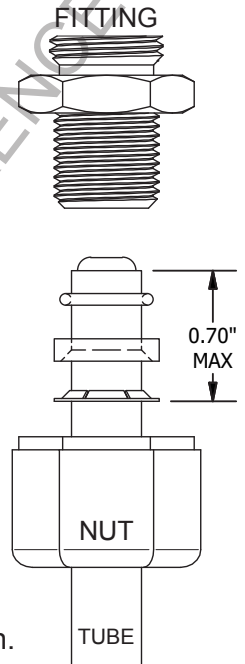
### 1.8.2 Sample Inlet

1. Mount the tube fitting nut onto 3/8" sample tube.
2. Screw the nut onto the sample inlet assembly

### 1.8.3 Sample Drain

Run drain tube so it drains completely empty following a sample flush.

The drain tubing must have a free fall to an open drain. Low spots in drain tubing where liquid completely fills the tubing may cause erroneous readings.



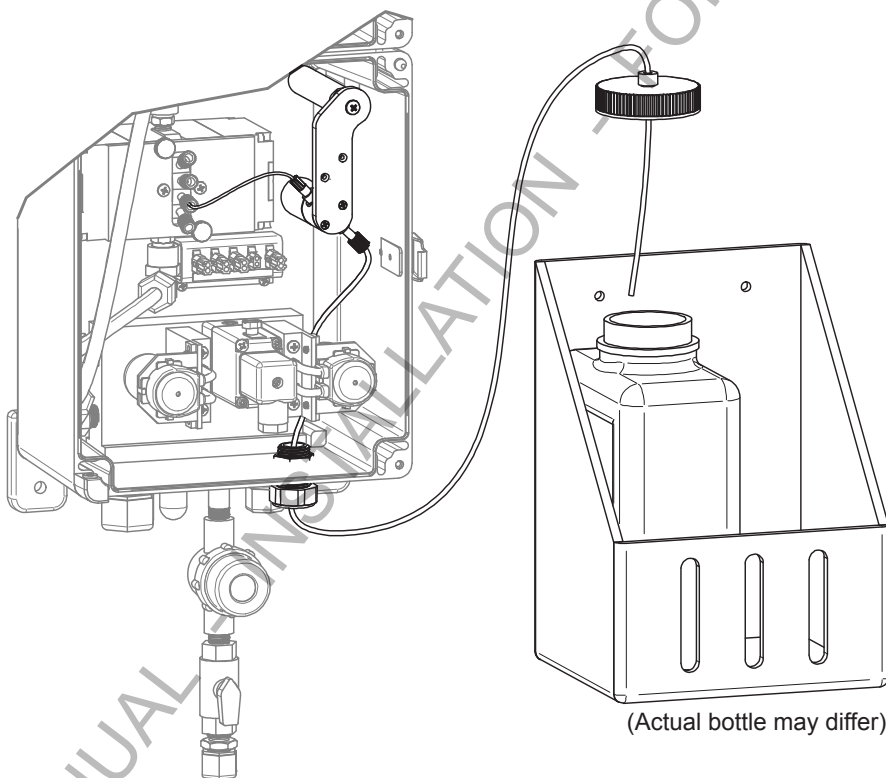
### 1.8.4 Reagent(s)



For reagent mixing instructions, refer to *Section 4.4 Reagents*.

1. Place reagent container(s) in the reagent rack.
2. Screw the tube-fitted cap onto the bottle.
3. Verify the reagent tube(s) reaches the bottom of the bottle(s).
4. Verify all of the reagent tube fittings are finger tight in the analyzer's lower enclosure.

Note: Refer to the MSDS for safe handling of the reagents.



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