Quick Start Guide
9-00200-954, Rev B
November 2019

Rosemount™ 370XA Enclosure

Natural Gas Chromatograph

ROSEMOUNT™

EMERSON™

Safety messages

Observe all environmental and personal safety messages described in this document, warning labels on the analyzer, and your company's operational safety requirements.

Rosemount 370XA Gas Chromatograph safety warnings

Observe these safety messages for the Rosemount 370XA Gas Chromatograph.

⚠ WARNING

EXPLOSION HAZARD

Failure to de-energize the analyzer may cause serious injury or death to personnel.

Do not open when energized or when an explosive atmosphere may be present.
Keep cover tight while circuits are live.

⚠ WARNING

EXPLOSION/FIRE HAZARD

Failure to observe this warning may cause serious injury or death to personnel.

Do not open when an explosive atmosphere may be present.
Do not open while energized.
Use supply cables or wires suitable for at least 176 °F (80 °C).

⚠ WARNING

Physical access

Unauthorized personnel may potentially cause significant damage to and/or misconfiguration of end users' equipment. This could be intentional or unintentional and needs to be protected against.

Physical security is an important part of any security program and fundamental to protecting your system. Restrict physical access by unauthorized personnel to protect end users' assets. This is true for all systems used within the facility.

Contents

1 Specifications

Minimum requirements

These are the minimum requirements for a typical installation. Please reference the Rosemount 370XA Reference Manual for more details or call the factory for additional support.

- 24 Vdc (21 Vdc to 30 Vdc)
- 55 Watts startup, < 25 Watts steady state

Environmental temperature

- -4 to 140 ºF (-20 ºC to 60 ºC)

Heater standard power

- 120 Vac or 230 Vac, 300 W

Junction box protection rating

- NEMA 4X

Carrier gas

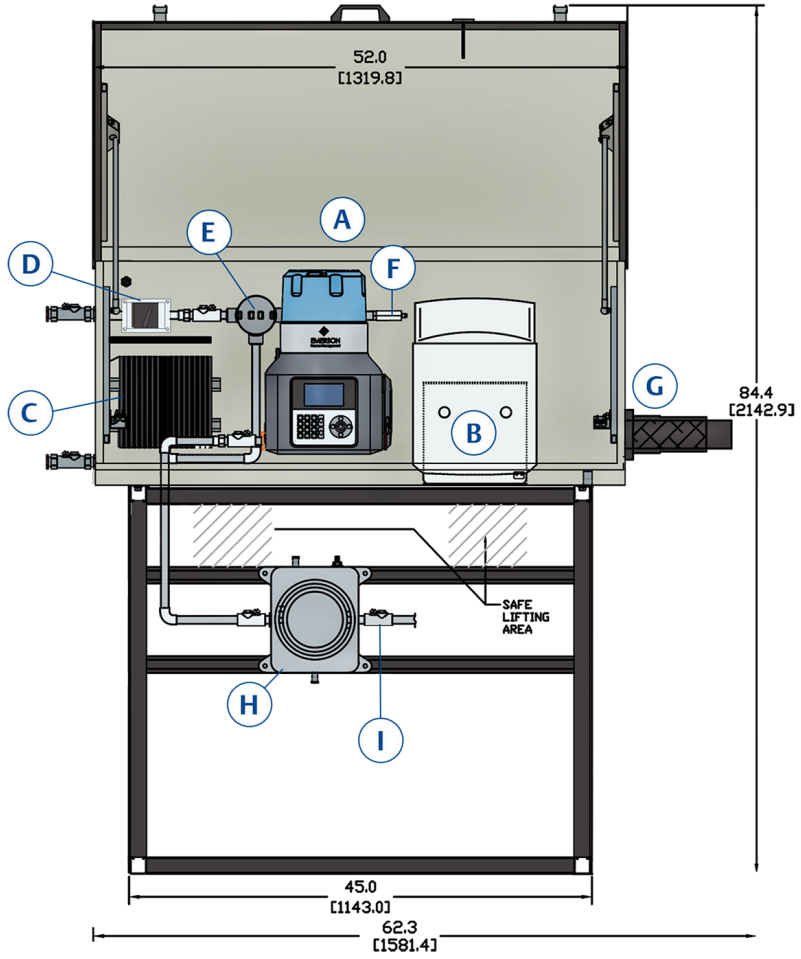
- Must be regulated to 90 psig (6.2 BarG)
- Zero-grade helium

Actuation gas

- Must be regulated to 90 psig (6.2 BarG)
- Helium
- Nitrogen
- Clean, dry air

2 Rosemount 370XA enclosure layout

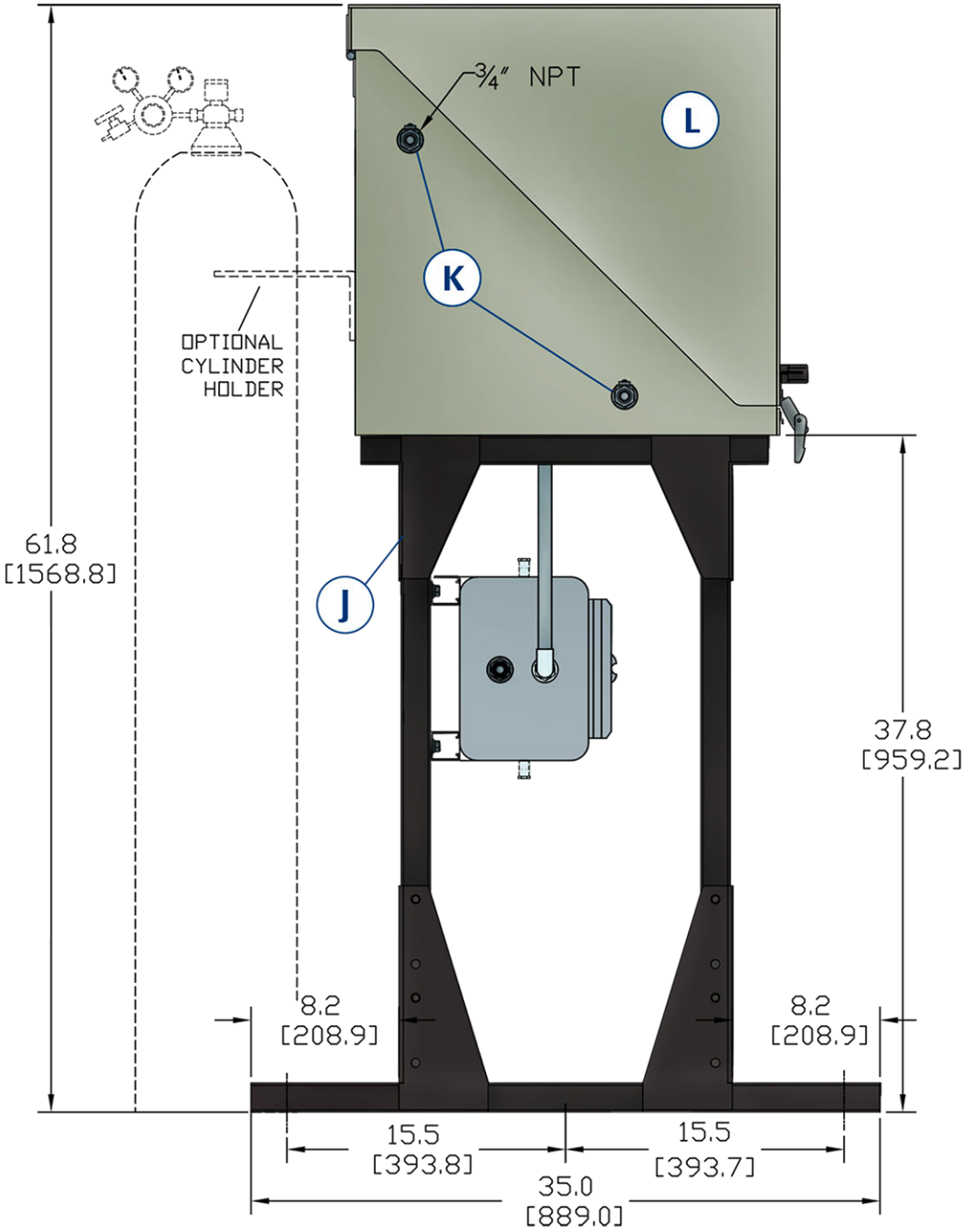
Figure 2-1: Rosemount 370XA Enclosure Layout Front



Callout	Description	Callout	Description
A	Rosemount 370XA Gas Chromatograph	F	Thermostat(1)
B	LP5 calibration gas cylinder(1)	G	Sample boot
C	Heater(1)	H	Signal/power junction box
D	Power switch for heater(1)	I	¾-in. Conduit Nipple
E	Thermostat junction box(1)	Not shown	Single stream sample system

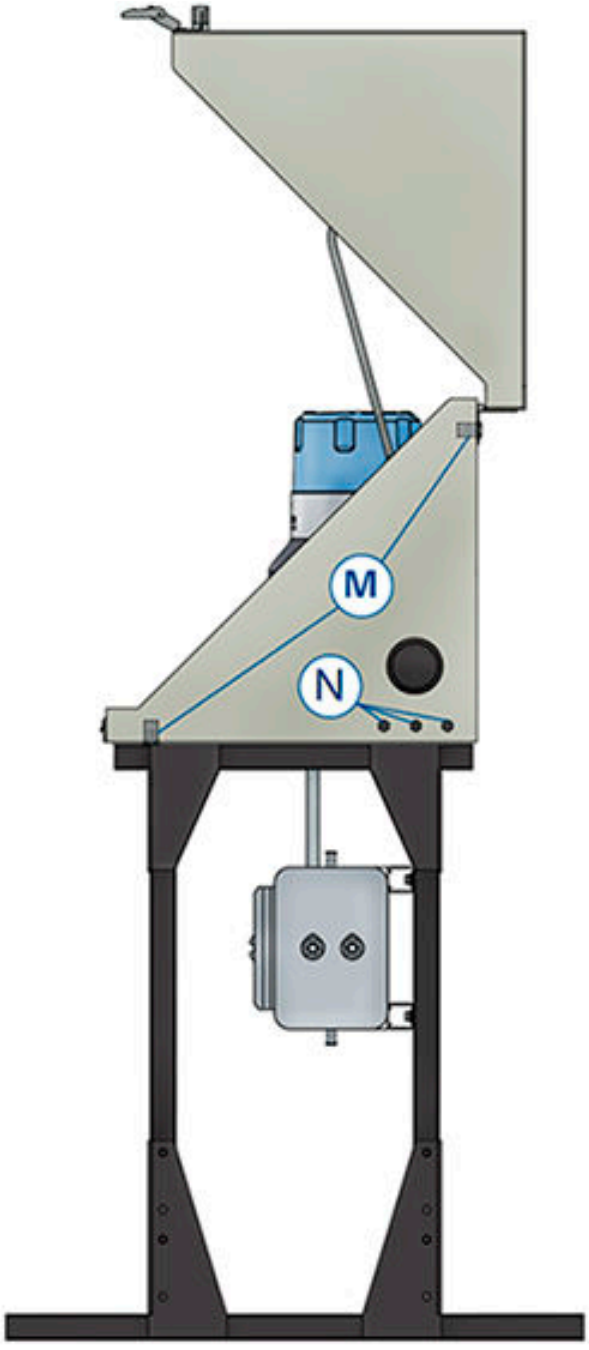
(1) Indicates optional equipment.

Figure 2-2: Rosemount 370XA Enclosure Layout - Left Side



Callout	Description
J	Frame
K	¾-in. national pipe thread (NPT) Myers hub bulkhead
L	Enclosure

Figure 2-3: Rosemount 370XA Enclosure Layout - Right Side



Callout	Description
M	Drains/vent
N	¼-in. stainless steel bulkheads

3 Mounting the enclosure

Enclosure refers to the system (Rosemount 370XA Gas Chromatograph, heater, tubing, junction boxes, box and the frame) and protects the system from the environment.

Prerequisites

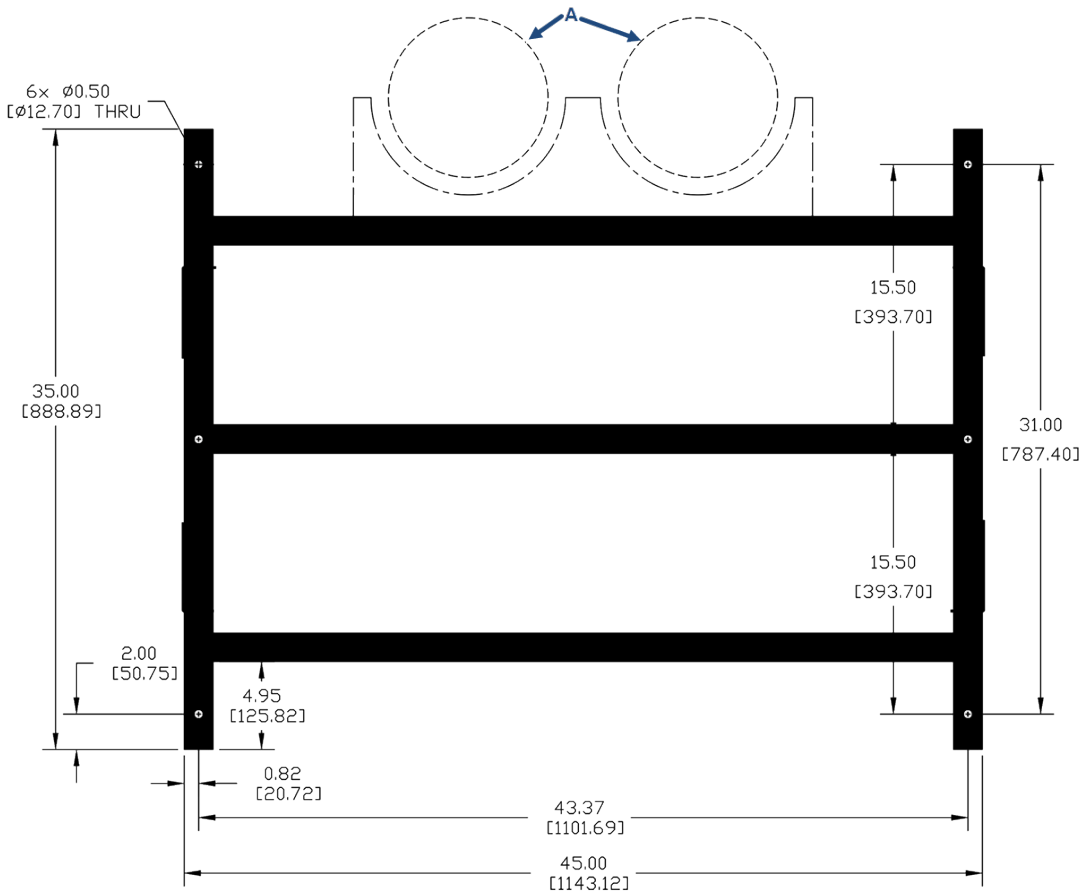
- Required tools
  - Forklift or slings
  - Six ½-in. (12.7 mm) cement anchors.
- You must have a flat stable mounting surface capable of holding 280 lb. (127 kg) plus the weight of any other equipment.

The customer must provide the mounting hardware.

Procedure

1. Drill holes in the mounting surface per the foundation layout (seeFigure 3-1).

Figure 3-1: Rosemount 370XA Frame and Foundation Layout



A. Optional cylinder

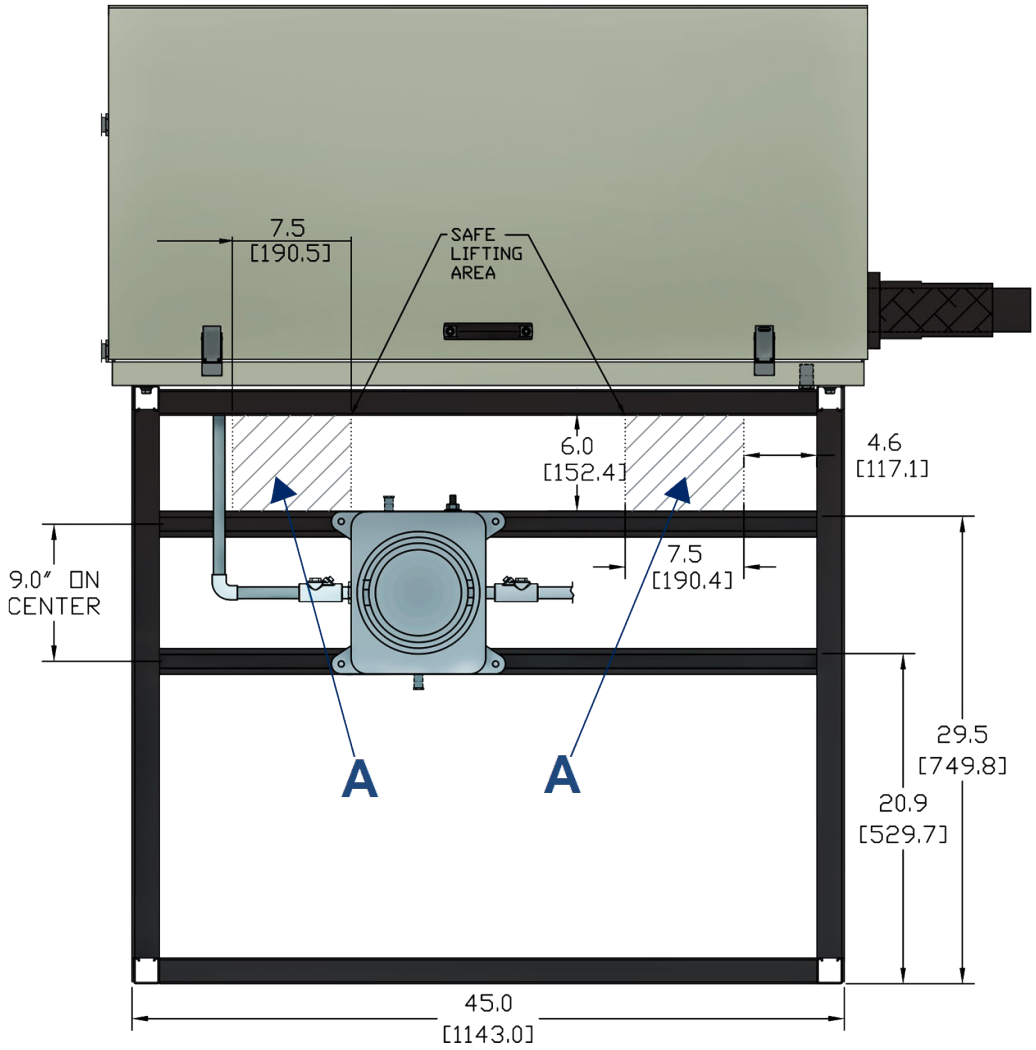
Note
Minimum edge distance 18 in. (457.2 mm) (edge of concrete to edge of enclosure of all four sides).

2. Use a forklift or slings to place the enclosure on the mounting surface.
   See Figure 3-2 for proper positioning of forklift tines or slings.

⚠ CAUTION

Lift the enclosure by the metal frame, not the glass fiber reinforced polyester box.

Figure 3-2: Proper Positioning of Forklift Tines or Slings



A. To lift, place forks or slings here.

3. Ensure that the enclosure's foot plate pre-drilled holes align with holes in the mounting surface.
4. Secure the enclosure to the mounting surface with the cement anchors.

4 Electrical connections

Use Figure 4-1 and Figure 4-2 to make electrical connections.

⚠ DANGER

ELECTRICAL SHOCK

Power consumption is 220 volts. Electrical shock may occur if power is not shut off.

Use proper personal protective equipment (PPE) when making electrical connections. Observe all safety signs posted on the equipment and have a certified electrician present.

⚠ WARNING

POWER SHUT OFF

Failure to connect the unit to the power supply may cause serious injury to personnel.

Power to the unit must be supplied by an approved power-rated circuit breaker.

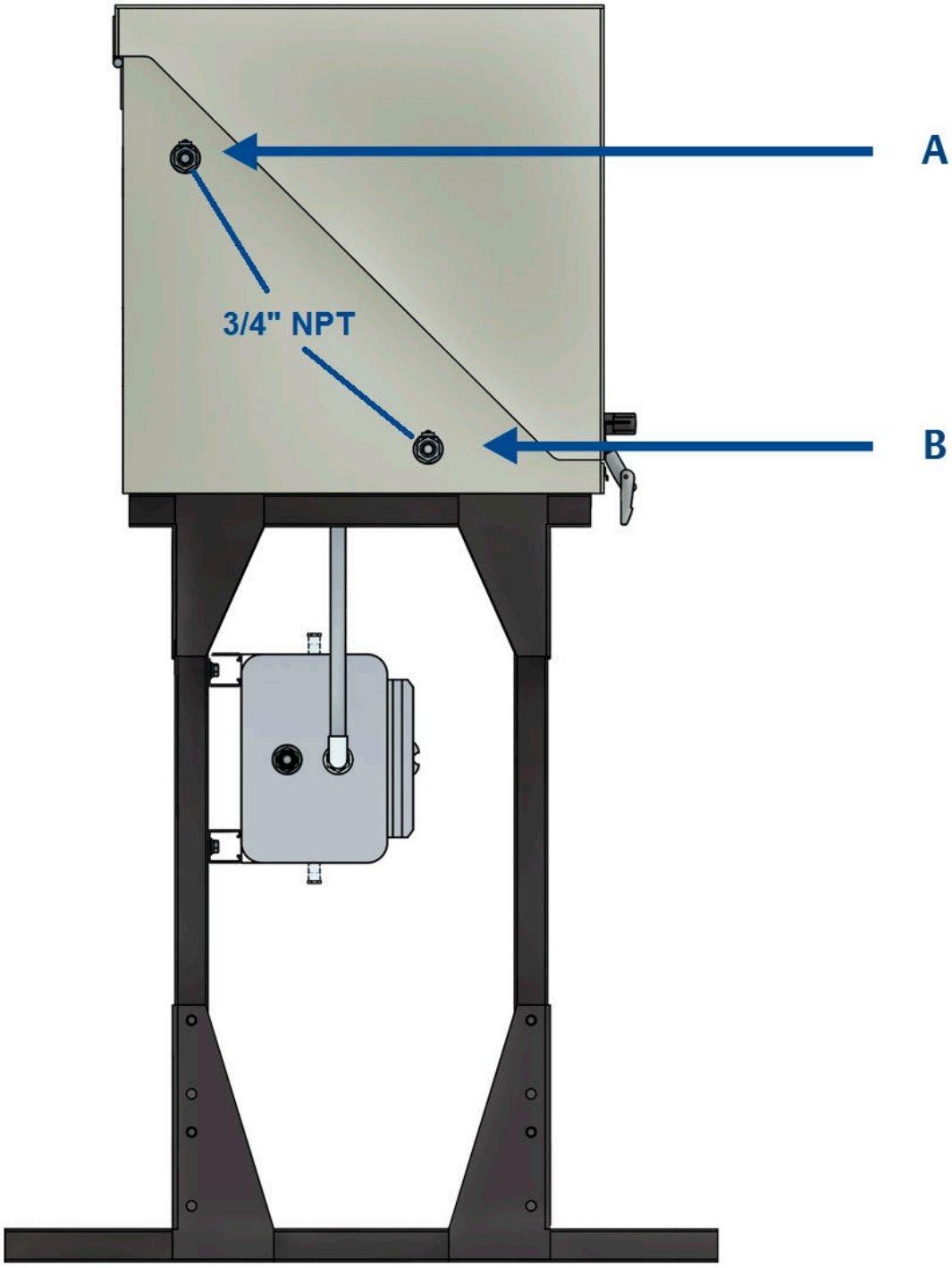
⚠ WARNING

CRUSHING HAZARD

The enclosure lid is heavy. Failure to keep hands and fingers away from the openning may cause injury.

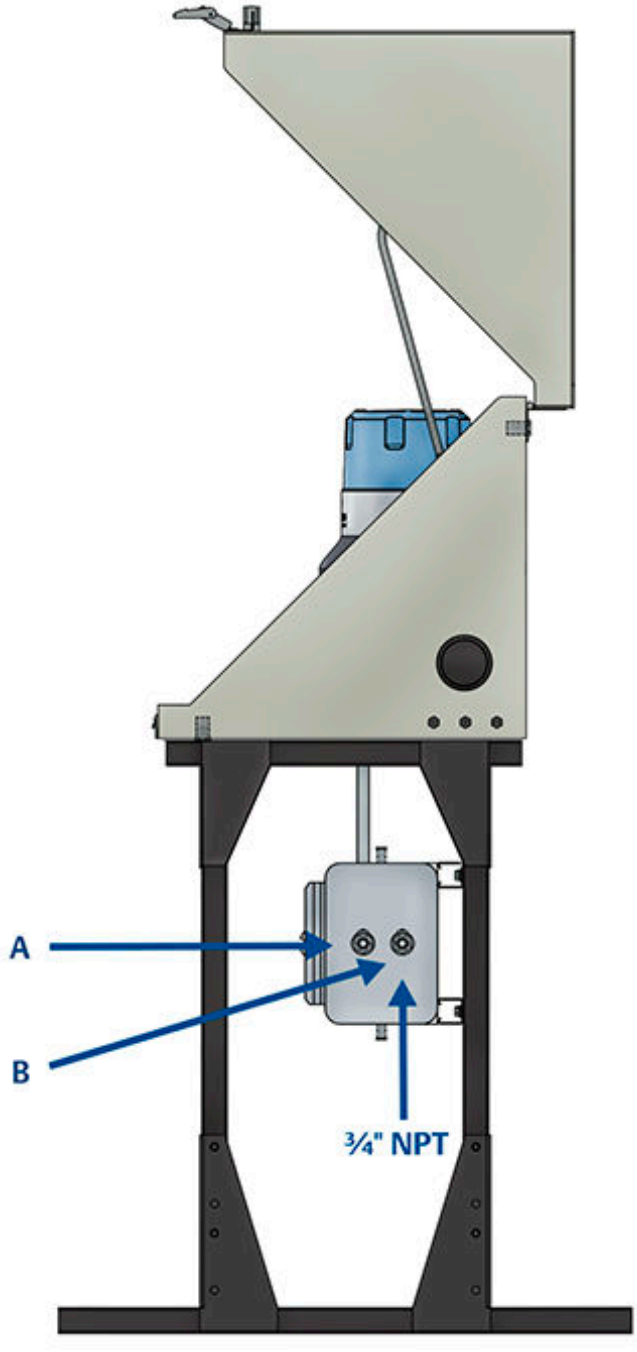
Keep hands away from the enclosure opening when raising or lowering the lid.

Figure 4-1: Electrical Connections - Left Side View



A. AC power entry for heater power
B. Conduit entry provided for heat trace power connections

Figure 4-2: Electrical Connections - Right Side View



A. DC power entry
B. Signal entry

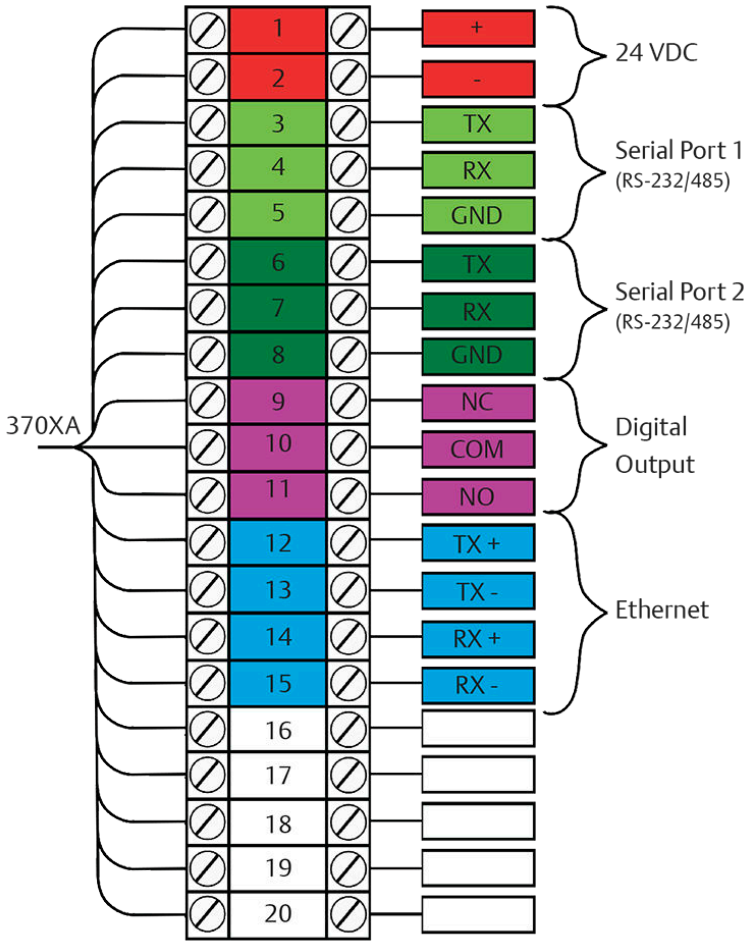
5 Signal/power wiring to the junction box

Customer connections are through the right side of the junction box. To select between RS-232 or RS-485 communication protocols, use the Rosemount 370XA local operator interface or the MON2020 software.

Refer to the Rosemount 370XA Reference Manual (PN 7P00370-H01) for complete details.

DC power and signal connections for the Rosemount 370XA gas chromatograph are made in the junction box mounted under the enclosure housing (see Figure 2-2, Item L) .

Figure 5-1: Wiring to the Signal/Power junction box



Note
Wiring to be 18 AWG.

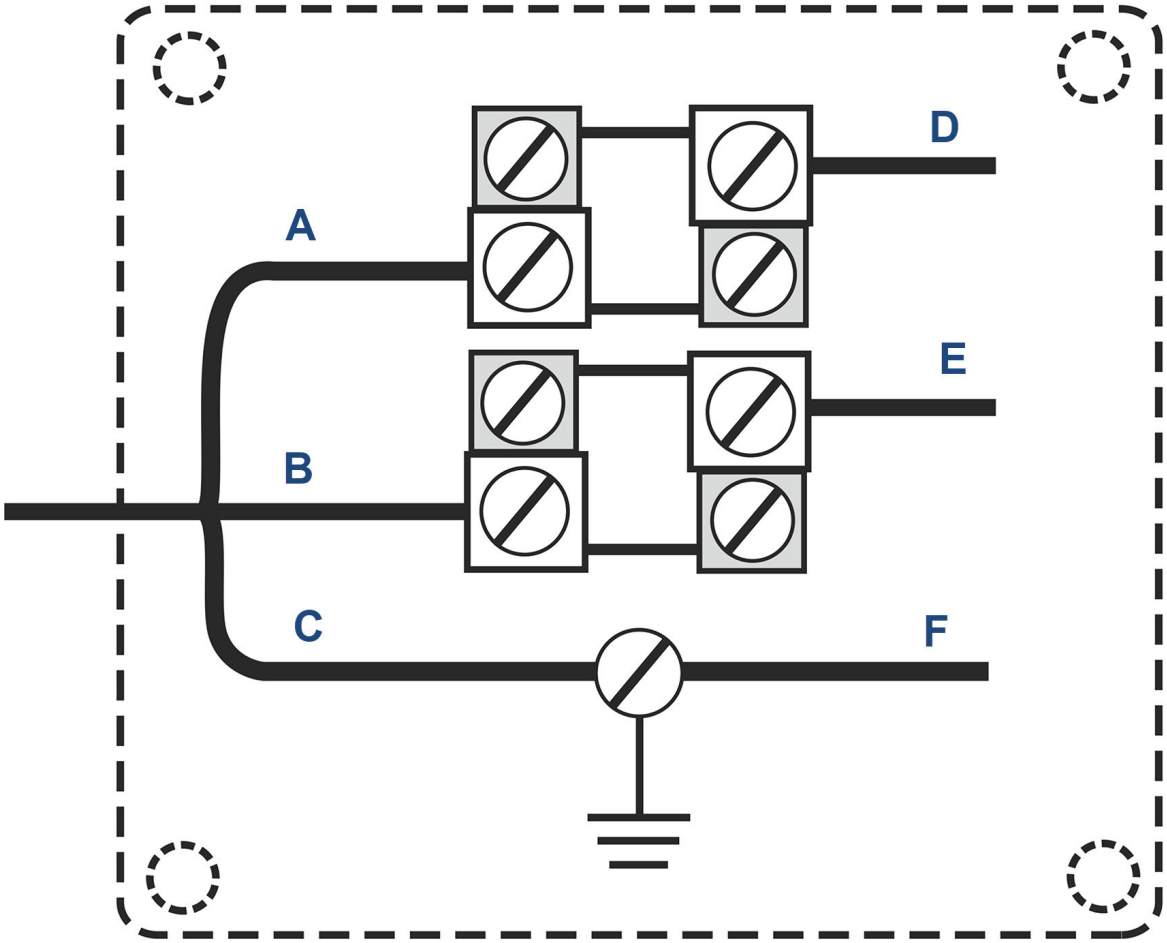
Customer must provide readily accessible main power.

6 Power the heater

Note
The heater is optional.

Connect the AC power for the heater to the switch located at the top left of the enclosure (see Figure 2-1, Item D). Refer to Figure 6-1 to wire the heater.

Figure 6-1: Enclosure Heater Power Connection Wiring Diagram



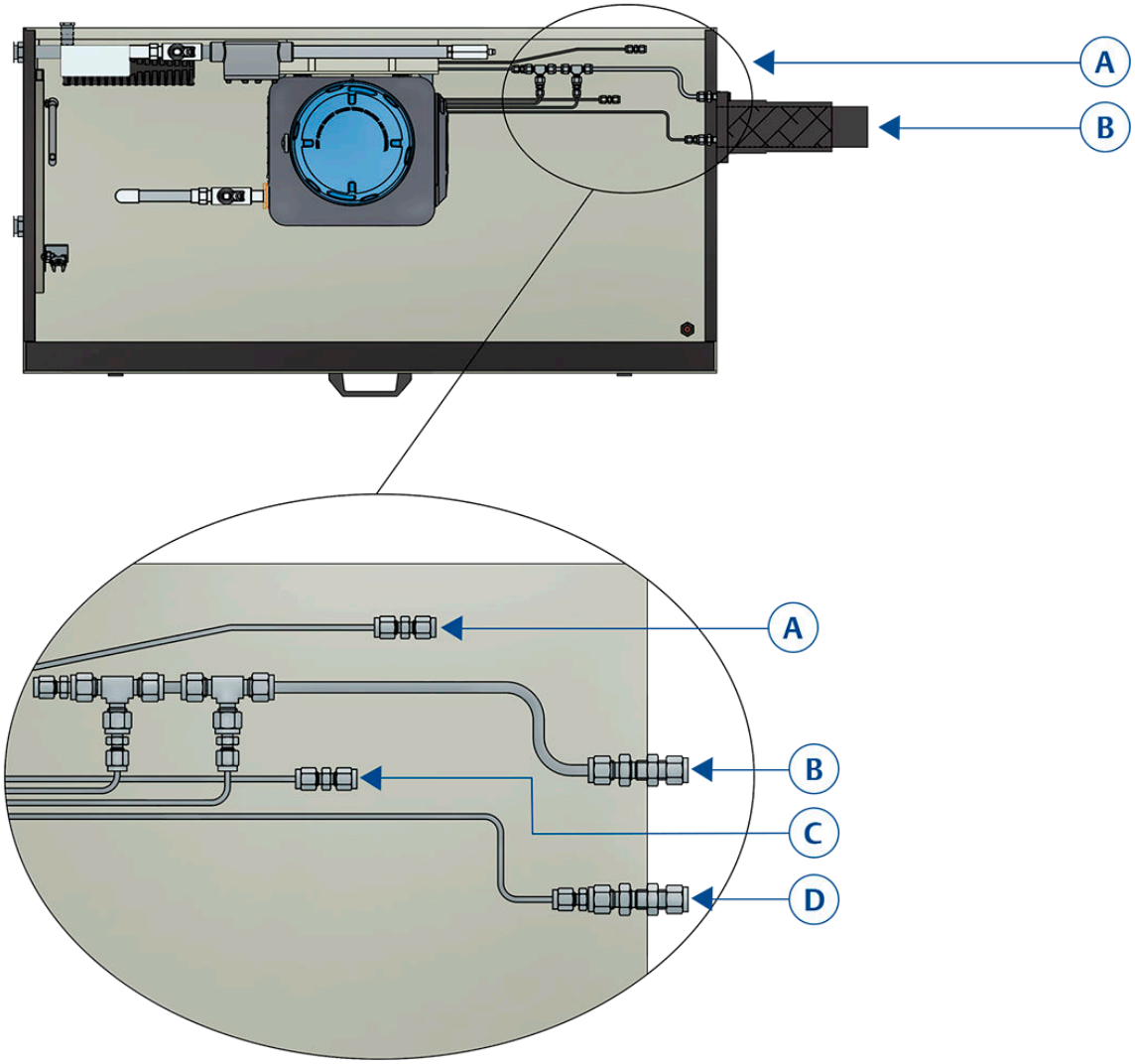
A. Line
B. Neutral
C. Ground
D. Black
E. White
F. Ground

Note
The heater may be 120 Vac or 230 Vac (300 Watts) depending on the option purchased. Ensure that the correct voltage is applied.

Note
AC power wiring to be 12 AWG.

7 Tubing connections - internal

Figure 7-1: Internal tubing connections



Top image

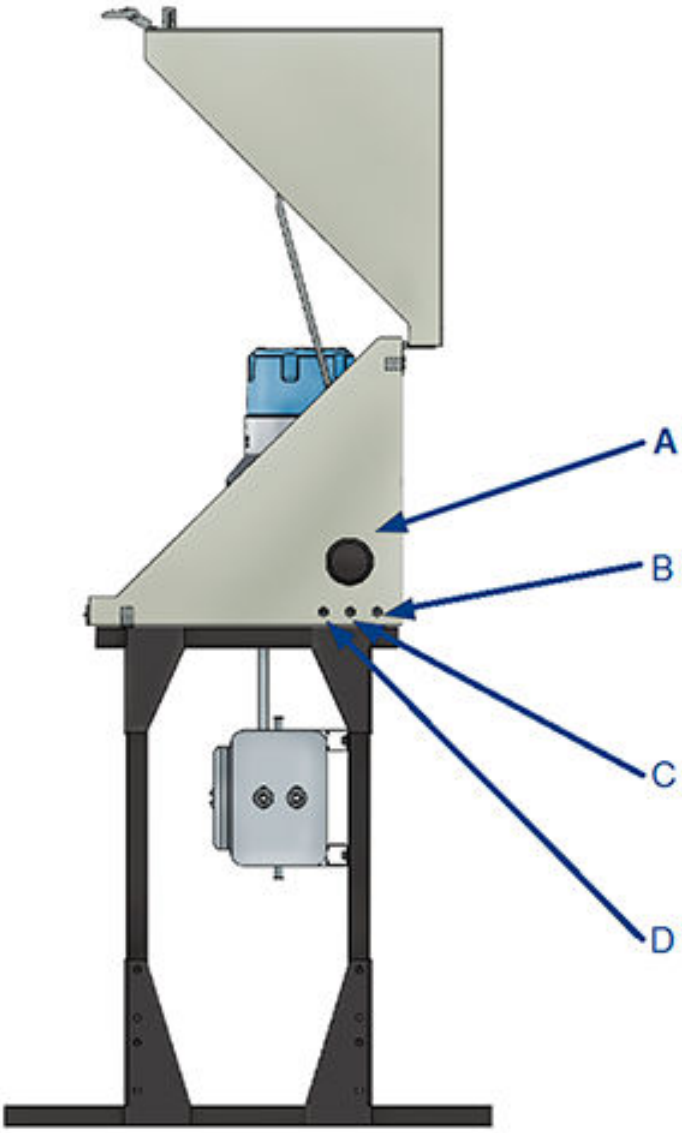
A. Tubing details
B. Sample in - sample gas connection

Bottom image

A. Sample in - customer provided connections (⅛-in. union fitting)
B. Vent out (¼-in. fitting)
C. Calibration (⅛-in Union fitting)
D. Carrier In (¼-in. fitting)

8 Tubing connections - external

Figure 8-1: External Tubing Connections



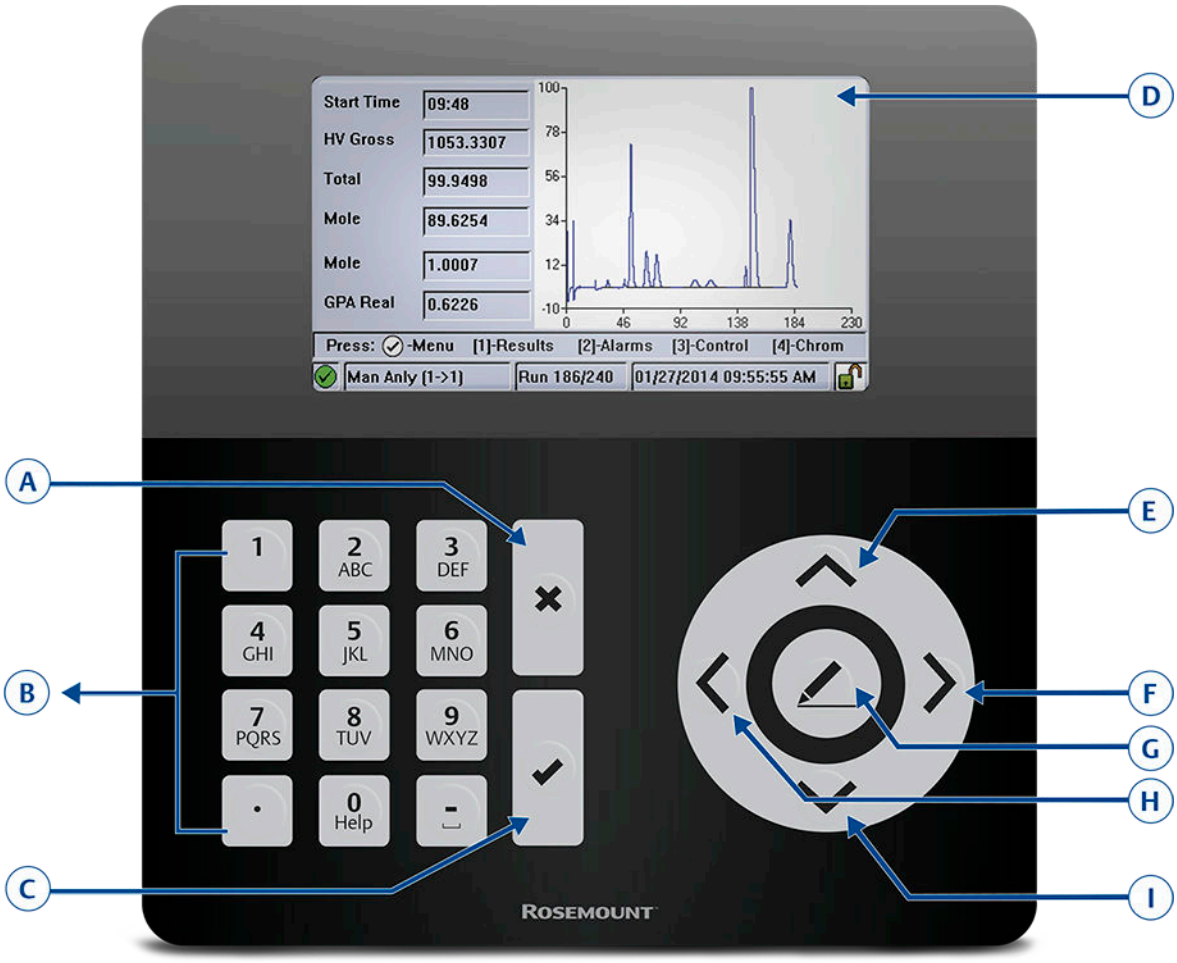
A. *Heat shrink boot*
B. *Vent out, ¼-in. stainless steel bulkhead*
C. *Carrier in, ¼-in. stainless steel bulkhead*
D. *Calibration in, ¼-in. stainless steel bulkhead (only used if the internal calibration cylinder option is not selected)*

9 Start up the Rosemount 370XA gas chromatograph

Procedure

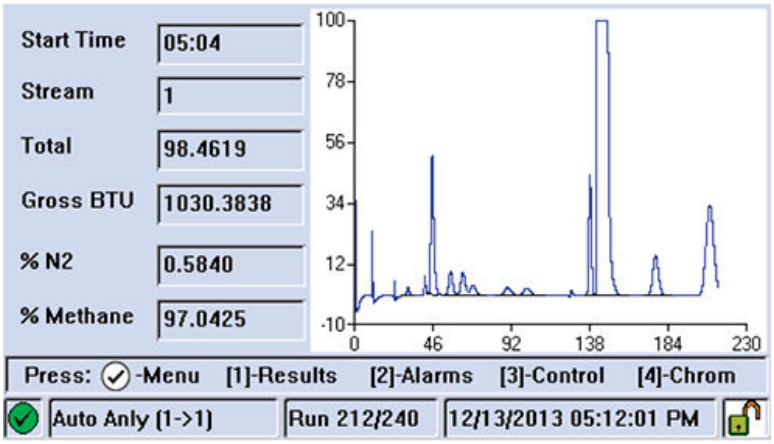
1. Turn on the power to start up and configure the Rosemount 370XA gas chromatograph.
   The local operator interface (LOI) shows the Emerson logo while the software starts up, and it shows the ***Home*** screen after it has completed the startup.

Figure 9-1: Local Operator Interface



A. Exit/cancel
B. Alphanumerical keypad
C. Enter
D. Full color screen: 480 x 272 pixels
E. Up
F. Right
G. Select/edit
H. Left
I. Down

Figure 9-2: LOI Home Screen



Main menu display options

- View
- Hardware
- Application
- Logs
- GC controls
- Tools

Table 9-1: LOI Main menu display icons

Icon	Meaning
	No alarms
	Unacknowledged alarm(s)
	Active alarm(s)
	Security switch unlocked
	Security switch locked

2. To display a desired letter, repeatedly press the appropriate key until the letter displays. For example, to display the letter `H`, press the **4** key three times.

10 Configure and calibrate the Rosemount 370XA gas chromatograph

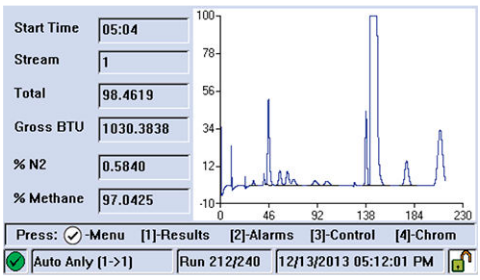
Prerequisites

As the GC warms up to operating temperature and purges the carrier gas through the system, configure the GC's site-specific settings, such as the calibration gas values and communication settings.

Procedure

1. If the GC is not in Idle mode, do the following:

Figure 10-1: Home Screen



a) Press **3** on the keypad to go to the ***GC Control*** menu.

b) Press the **Down** arrow to highlight the `Halt` command.

c) Press ✓ on the keypad and then follow the prompts.
The ***Login*** screen appears if you are not logged in.

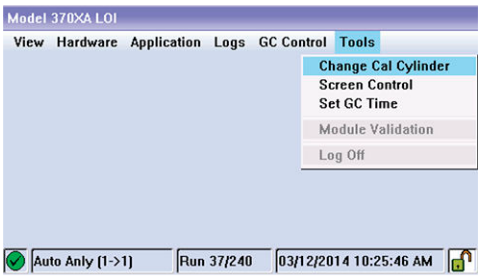
d) Enter your username and password.
The default values for the Rosemount 370XA gas chromatograph are:

User: `EMERSON`

Password: (blank)

2. Configure the time and date.

Figure 10-2: Main Menu, Showing Set GC Time



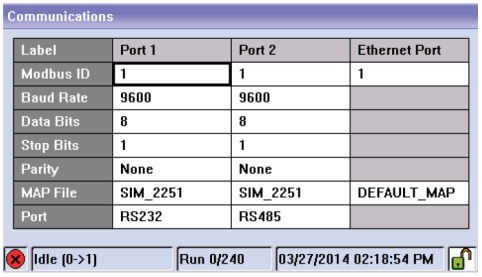
a) From the ***Main Menu***, select Set GC Time from the ***Tools*** menu.

b) Confirm the time and date are correct. To change the time or date, use the arrow keys to navigate to the field you want to change and press the **Select/Edit** key to edit.

c) Press ✔ to save changes or ✖ to discard the changes and return to the ***Main Menu***.

3. Configure the serial port settings.

Figure 10-3: Communication Screen for the Serial Ports



a) From the ***Main Menu***, use the arrow keys to navigate to the ***Application*** menu and select the Communications option.

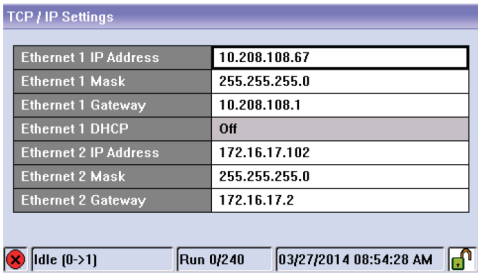
b) Use the arrow keys to navigate through the various settings and press **Select/Edit** to edit the appropriate values.

The settings must match the settings of the host device communicating to the Rosemount 370XA on that port.

c) When you have finished making changes, press ✔ to save changes and close the screen.

4. Configure the Ethernet port.

Figure 10-4: TCP/IP Settings Screen



a) From the ***Main Menu***, use the arrow keys to navigate to the ***Application*** menu and select the TCP/IP Settings option.

b) Use the arrow keys to navigate through the various settings and press the **Select/Edit** key to edit the appropriate values.

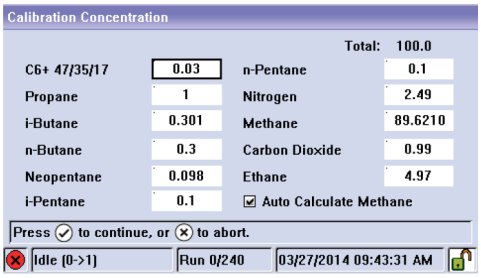
The settings must match the settings of the host device communicating to the Rosemount 370XA on that port.

c) When you have finished making changes, press ✔ to save changes and close the screen.

5. Enter the calibration gas values.

a) From the ***Main Menu***, navigate to the ***Application*** menu and select Calibration Gas Info.

Figure 10-5: Calibration Concentration Screen

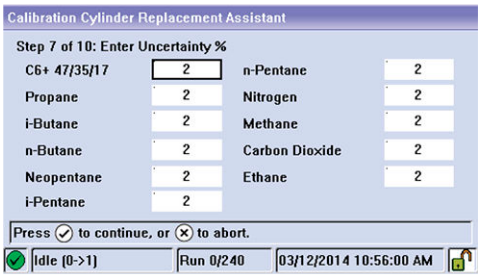


b) Press **Select/Edit** to enter the calibration gas concentration values for each component.

Note
The Methane value is calculated automatically. You can use this value as a check against the value on the certificate to ensure all the values have been entered correctly.

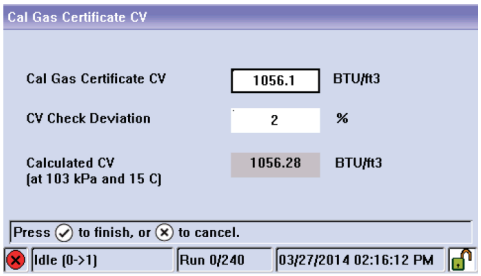
c) Press ✓ to continue and enter the uncertainty values from the certificate. If the calibration certificate does not include uncertainty values, use the default 2 percent setting.

Figure 10-6: Calibration Gas Uncertainty Screen



d) Press ✓ to continue and enter the energy value for the calibration blend.

Figure 10-7: Calibration Gas Energy Content Screen

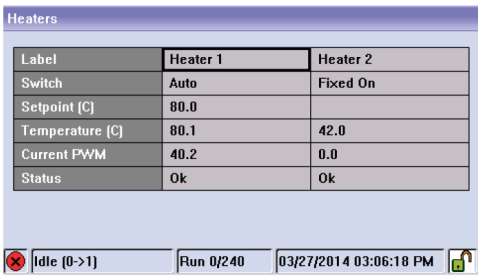


The value shown on the display is calculated using the same C6+ ratio of C6/C7/C8 as is used in the stream calculations. The value may differ from the value on the certificate, which may use a hexane only energy content. Use the calculated value from the screen to avoid nuisance alarms during calibration.

e) Press ✓ to save and close the screen.

6. Wait for the oven to reach the operating temperature.

Figure 10-8: Heater Screen Showing Current PWM



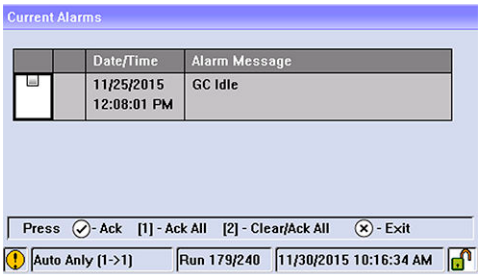
a) From the ***Main Menu***, navigate to the ***Hardware*** menu and select Heaters.

b) Wait for the `Heater Out of Range` alarm to clear.

This should take approximately two hours from when power is applied.

7. Clear alarms.

Figure 10-9: Current Alarms Screen



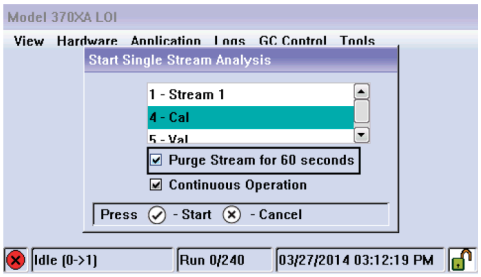
a) From the ***Main Menu***, navigate to the ***View*** menu and select Current Alarms.

b) Press **2** to acknowledge and clear all alarms.

c) Press to return to the ***Main Menu***.

8. Purge calibration gas.

Figure 10-10: Select Cal Gas for a Single Stream Analysis



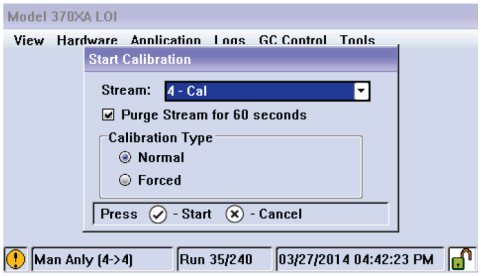
a) From the ***Main Menu***, navigate to the ***GC Control*** menu and select Single Stream.

b) Select 4-Cal stream and the `Purge Stream for 60 seconds` option.

c) Let the GC run for at least 30 minutes.

9. Calibrate the GC.

Figure 10-11: Starting the First Communication Cycle



a) From the ***Main Menu***, navigate to the ***GC Control*** menu and select `Halt` to stop the current analysis.

b) When the analysis cycle finishes, select Calibration from the ***GC Control*** menu.

c) Select `Purge Stream for 60 seconds` and a Normal Calibration Type and press ✔ to start the calibration cycle.

d) Confirm at the end of the calibration cycle that no alarms were generated.
If alarms were generated, refer to the MON2020 Manual.

10. Put the GC into service.
    a) From the ***Main Menu***, navigate to the ***GC Control*** menu and select Auto Sequence.
    b) Select `Purge Stream for 60 seconds` and press ✔ to start the analysis cycle.

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