Rosemount 370XA Enclosure Quick Start Guide
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Rosemount™ 370XA Enclosure

Quick Start Guide

ROSEMOUNT™

EMERSON™
Process Management

IMPORTANT INSTRUCTIONS

- Read all instructions prior to installing, operating, and servicing this product.
- Follow all warnings, cautions, and instructions marked on and supplied with this product.
- Inspect the equipment packing case and if damage exists, notify your local carrier for liability.
- Open the packing list and carefully remove equipment and spare or replacement parts from the case. Inspect all equipment for damage and missing parts.
- If items are damaged or missing, contact a Emerson Process Management representative for instructions about receiving replacement parts.
- Install equipment as specified per the installation instructions and per applicable local and national codes. All connections shall be made to proper electrical and pressure sources.
- Ensure that all equipment doors are closed and protective covers are in place, except when maintenance is being performed by qualified persons, to prevent personal injury.
- Use of this product for any purpose other than its intended purpose may result in property damage and/or serious injury or death.
- Repairs must be performed using only authorized replacement parts as specified by the manufacturer. Use of unauthorized parts can affect the product's performance and place the safe operation of the product at risk.

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SAFETY INFORMATION

This quick start guide is intended for traditional installations only. For more details, please reference the 370XA product manual or contact the factory.

⚠ WARNING!

Read the 370XA user manual before operating the gas chromatograph.

⚠ WARNING!

Use this unit in a well-ventilated area as required by government regulations.

⚠ WARNING!

Exit ports may discharge dangerous levels of toxic vapors; use proper protection and a suitable exhaust device.

⚠ WARNING!

Observe and comply with all precautionary signs posted on the enclosure, gas chromatograph, junction boxes, power switch, heater and thermostat.

NOTICE

Install and operate all equipment as designed and comply with all safety requirements. The "Seller" does not accept any responsibility for installations of the 370XA enclosure or any attached equipment in which the installation and operation thereof has been performed in a manner that is negligent and/or noncompliant with applicable safety standards.

NOTICE

The junction box and heater power connection are intended to be connected to a power source by qualified personnel in accordance with local and national codes. The heated sample line is a customer provided connection.

NOTICE

All gas connections must be properly leak tested at installation.

⚠ WARNING!

Do not open the gas chromatograph (GC) when energized or when an explosive atmosphere may be present.

⚠ WARNING!

Keep the gas chromatograph side cover closed while the circuits are alive.

⚠ WARNING!

All conduit seals must be poured and sealed using approved sealing material per local code by the end user.

⚠ WARNING!

All conduit holes must be sealed using a certified plug.

⚠ WARNING!

To prevent ignition of hazardous atmospheres, disconnect from the supply circuit before opening the junction box.

⚠ WARNING!

Keep the junction box tightly closed while the circuits are alive.

⚠ WARNING!

To prevent ignition of hazardous atmospheres, disconnect the power switch from the supply circuit before opening the power switch.

⚠ WARNING!

Keep the power switch assembly tightly closed while in operation.

⚠ WARNING!

Heater - Ends of the fins and hot surfaces can pose a risk of burns and injuries.

Contents

1 Specifications

1.1 Minimum requirements

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

370XA Gas Chromatograph standard power

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

Environmental temperature

- -20 ºC to 60 ºC (-4 ºF to 140 ºF)

Heater standard power

- 120 VAC or 230 VAC, 300 W

Junction box protection rating

- NEMA 4X

Carrier gas

- Must be regulated to 90 PSIG 9 (6.2 BarG)
- Zero-grade helium
- Zero-grade hydrogen available as an option

Actuation gas

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

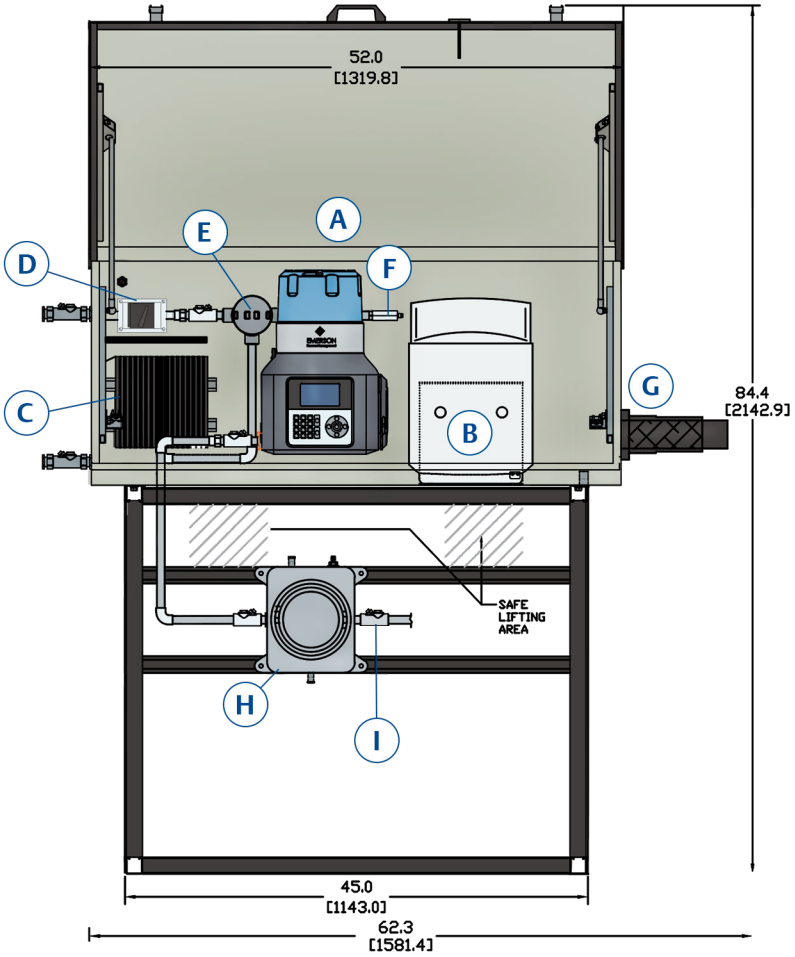
Sample input pressure range

- 10 to 25 PSIG (0.7 to 1.7 BarG)

1.2 Enclosure layout

The enclosure layout is shown in the following images.

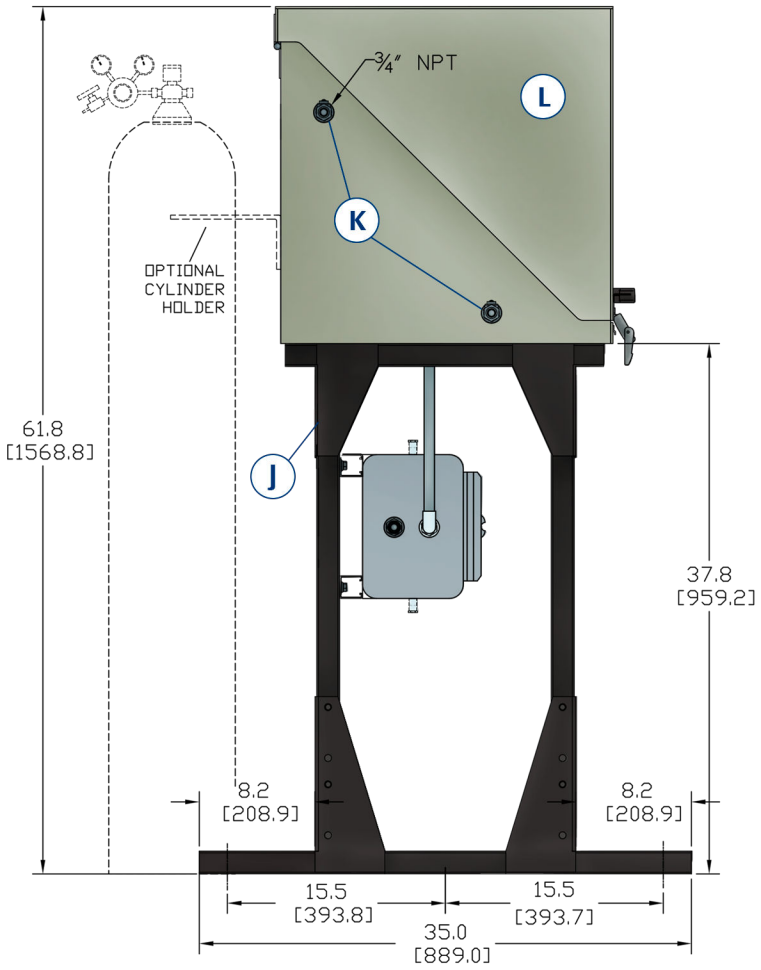
Figure 1-1: Rosemount 370XA enclosure layout front



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

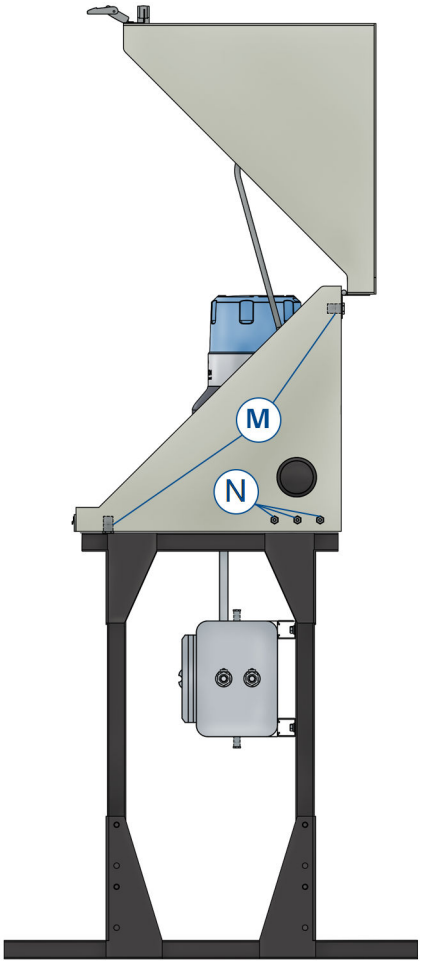
(1) ***Note:*** ** Indicates optional equipment.*

Figure 1-2: 370XA enclosure layout - left side



Callout	Description
J	Frame
K	¾ inch NPT Myers hub bulkhead
L	Enclosure

Figure 1-3: 370XA enclosure layout - right side



Callout	Description
M	Drains/vent
N	1/4 inch SS bulkheads

2 Mounting

2.1 Mount the enclosure

You must mount the enclosure in an appropriate location.

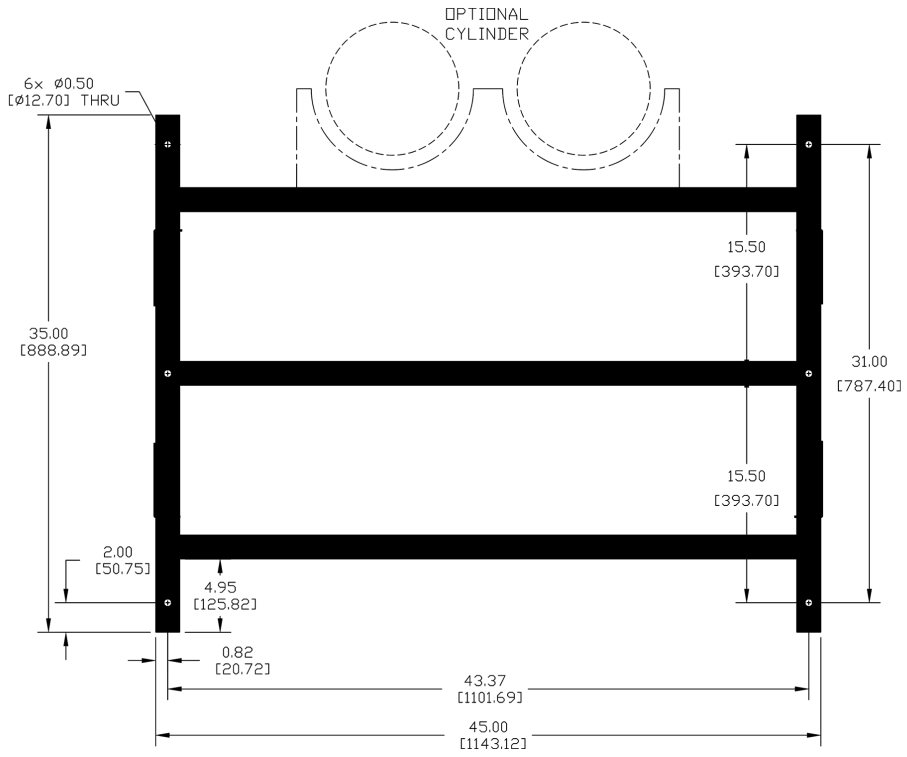
Enclosure refers to the system (370XA Gas Chromatograph, heater, tubing, junction boxes, box and the frame) and protects the system from the environment.

- Required tools
  - Forklift or slings
  - Six 12.7 mm (0.5 in.) cement anchors.
- You must have a flat stable mounting surface capable of holding 127 kg (280 lbs.) plus the weight of any other equipment.

Mounting hardware is provided by the user.

1. Drill holes in the mounting surface per the foundation layout (see *Figure 2-1*).

Figure 2-1: 370XA frame and foundation layout



Note

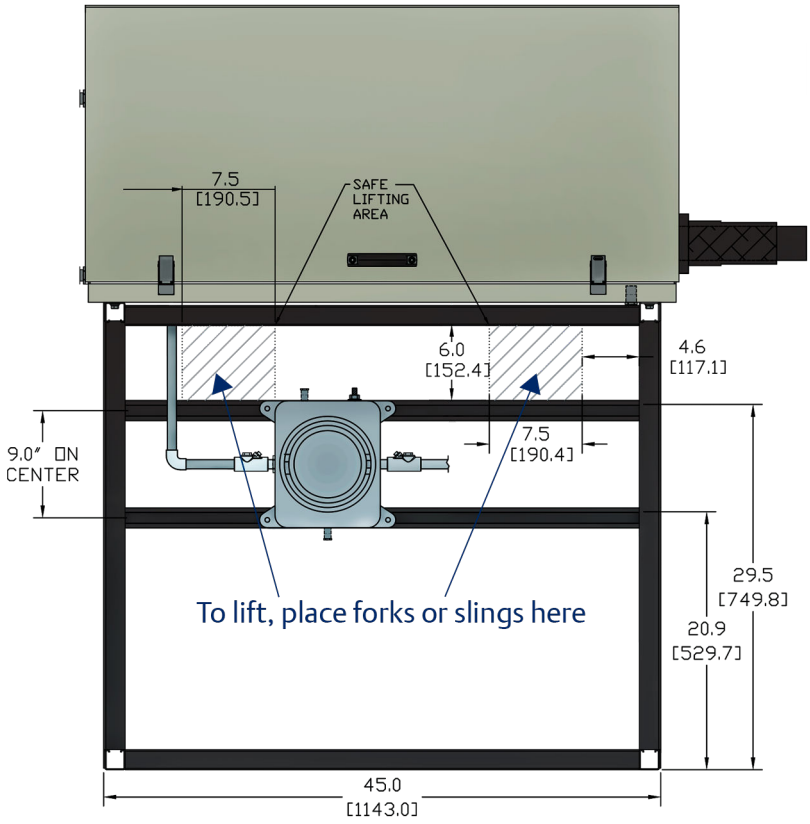
Minimum edge distance 18" (457.2 mm) (edge of concrete to edge of enclosure of all four sides).

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

⚠ CAUTION!

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

Figure 2-2: Proper positioning of forklift tines or slings



3. Make sure 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.

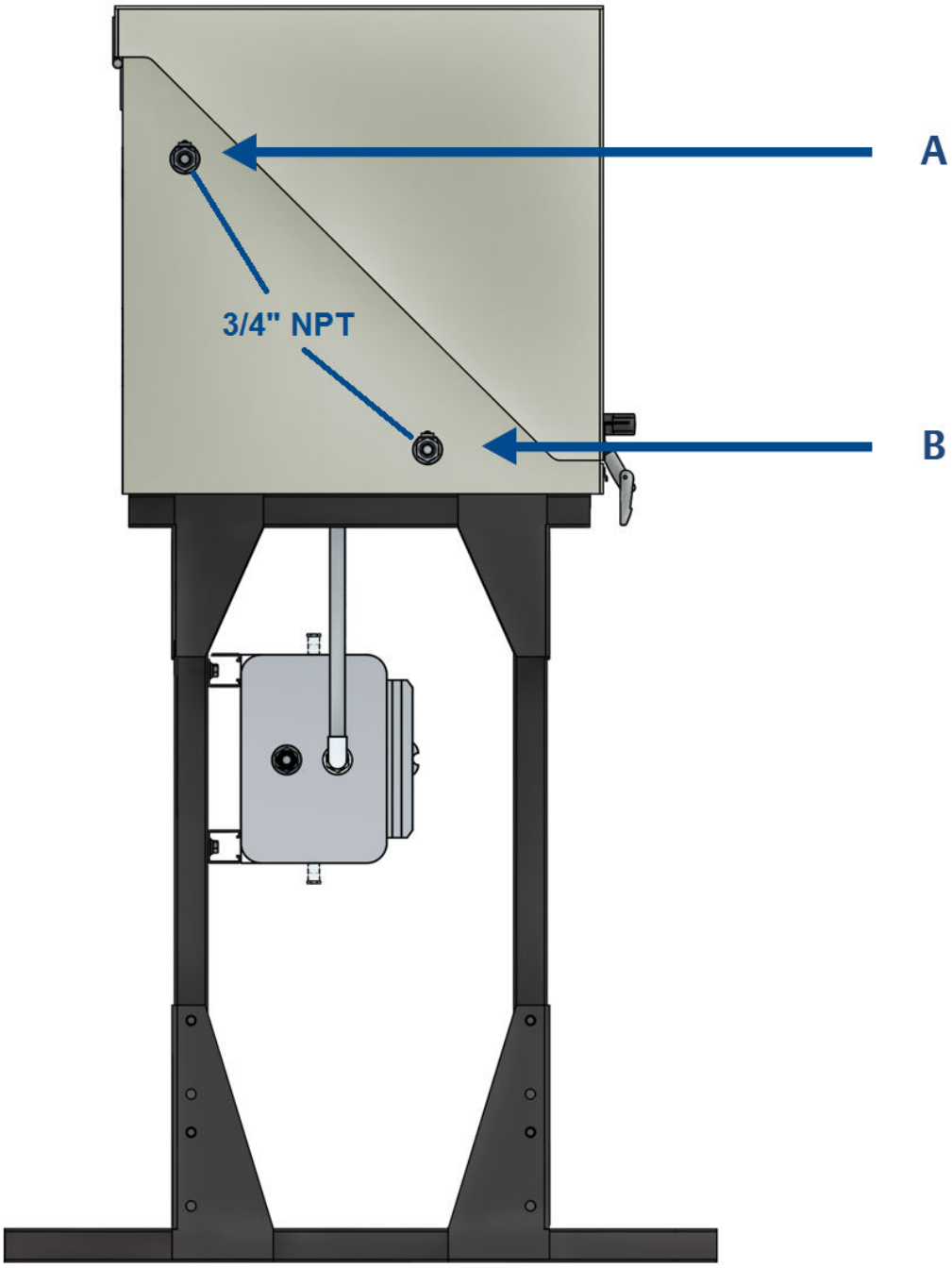
3 Wiring

3.1 Electrical connections

Use the following figures to make electrical connections.

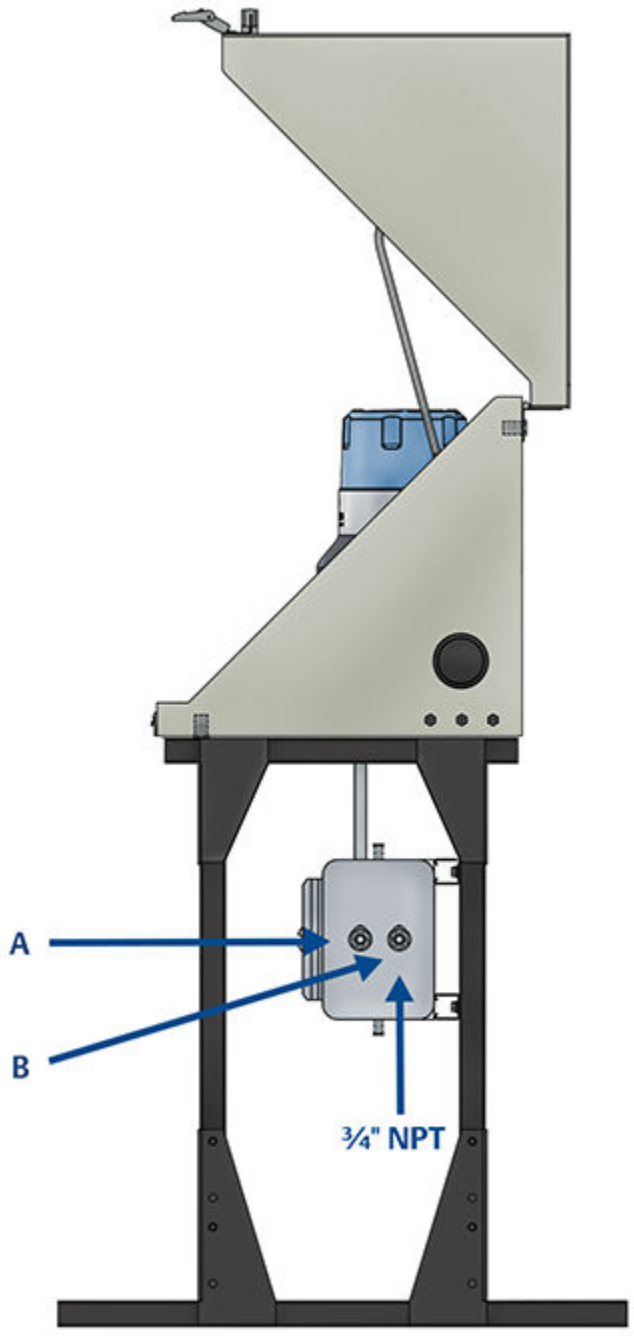
- AC power
- Heat trace
- DC power
- Signal entry

Figure 3-1: Electrical connections - left side view



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

Figure 3-2: Electrical connections - right side view



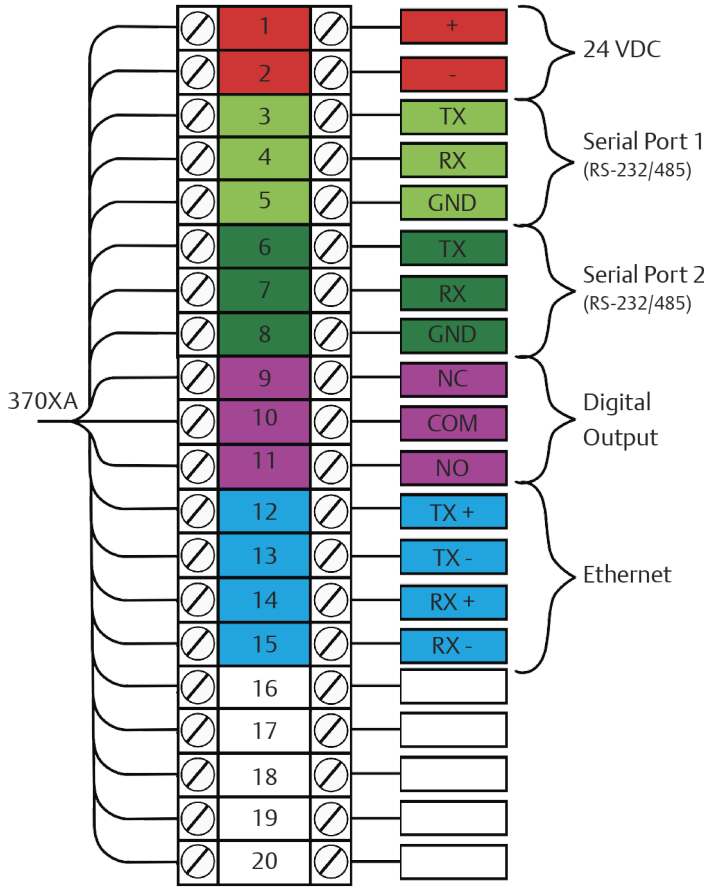
A. DC power entry
B. Signal entry

3.2 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 370XA local operator interface or the MON2020 software. Refer to the 370XA manual for complete details.

DC power and signal connections for the 370XA gas chromatograph are made in the junction box mounted under the enclosure housing (# L in the Enclosure Layout section) .

Figure 3-3: Wiring to the Signal/Power junction box



Note

Wiring to be 18 AWG.

Note

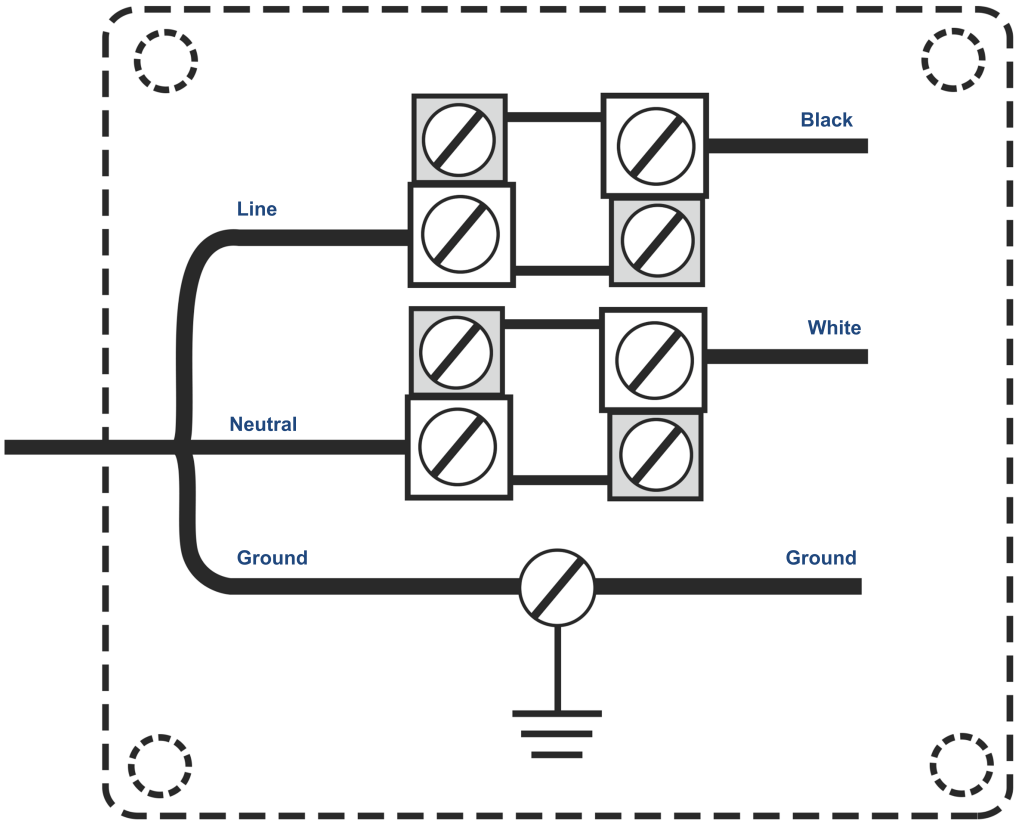
Readily accessible main power to be provided by user.

3.3 Power the heater

The heater is optional.

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

Figure 3-4: Enclosure heater power connection wiring diagram



Note

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

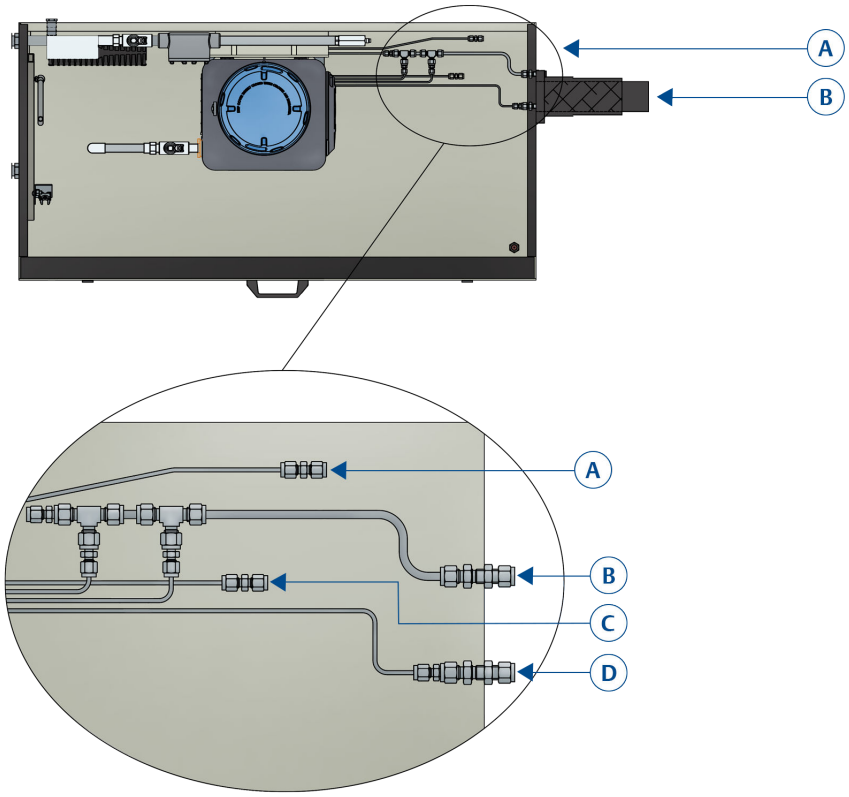
Note

AC power wiring to be 12 AWG.

4 Tubing

4.1 Tubing connections - internal

Figure 4-1: Internal tubing connections

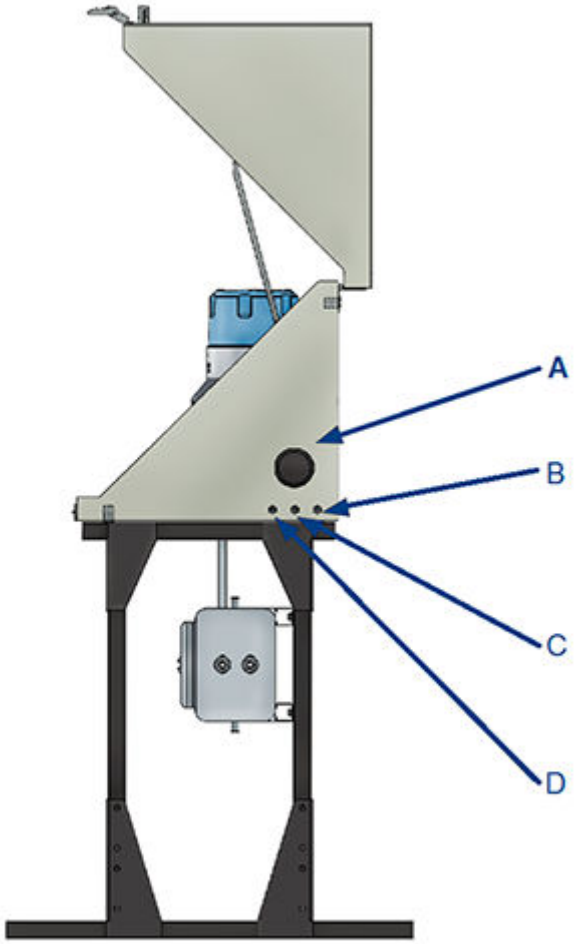


A. ***Top image*** *- Tubing details*
B. *Sample In*
A. ***Bottom image*** *- Sample in by customer (1/8" Union fitting)*
B. *Vent Out (¼" fitting)*
C. *CAL In (1/8" Union fitting)*
D. *Carrier In (¼" fitting)*

4.2 Tubing connections - external

Use the following diagram to make the external connections.

Figure 4-2: External tubing connections



A. Heat Shrink Boot
B. Vent Out, ¼" SS Bulkhead
C. Carrier In, ¼" SS Bulkhead
D. Calibration In, ¼" SS Bulkhead (Only used if the internal calibration cylinder option is not selected).

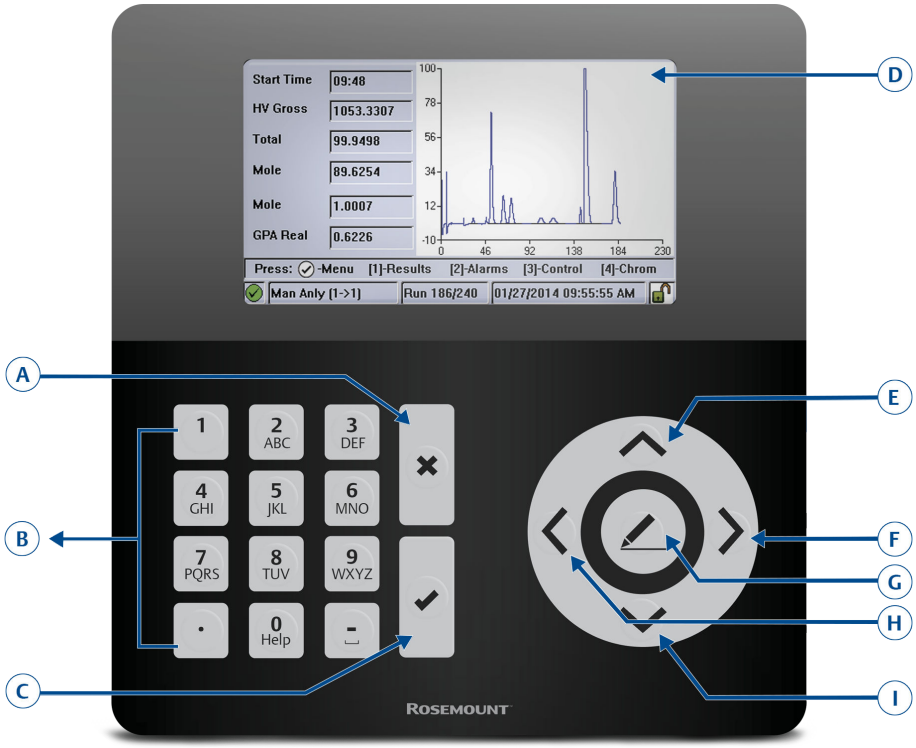
5 Startup and configuration

5.1 Start up the 370XA gas chromatograph

1. Turn on the power to start up and configure the 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 5-1: 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

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

Main menu display options

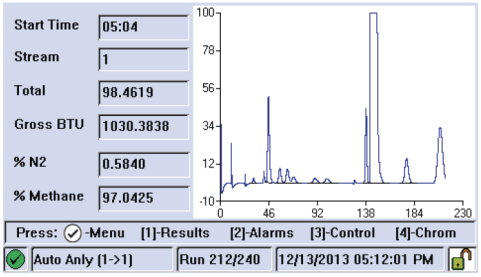
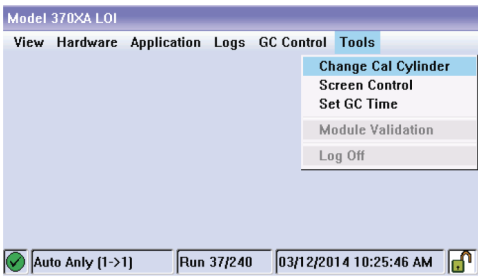
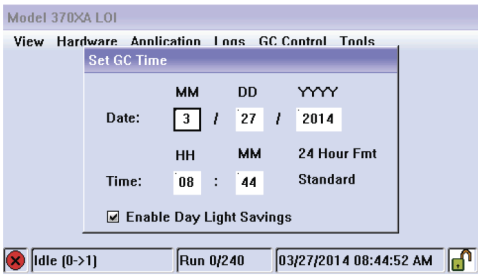
- View
- Hardware
- Application
- Logs
- GC controls
- Tools

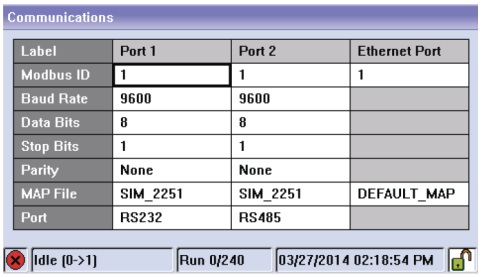
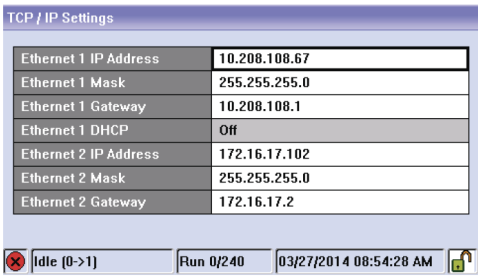
2. To display a desired letter, repeatedly press the appropriate key until the letter displays. For example, to display the letter *H*, press the *4* key three times.

5.2 Configure and calibrate the 370XA gas chromatograph

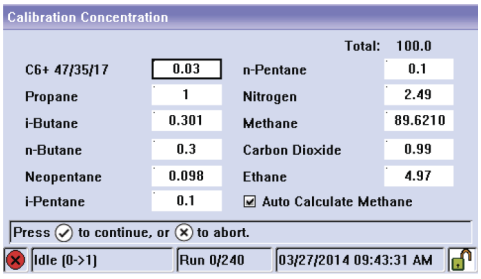
As the GC warms up to operating temperature and purges the carrier gas through the system, configure the GC's site-specific settings, such as the calibration gas values and communication settings.

Complete the following steps to configure the 370XA Gas Chromatograph.

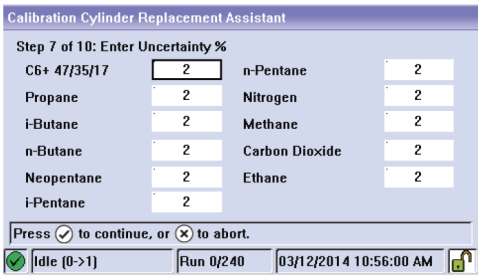
Home screen 	If the unit is not in *Idle* mode, then do the following: a. Press *3* on the keypad to go to the *GC Control* menu. b. Press the *down* arrow to highlight the *Halt* command. c. Press ✓ on the keypad, and then follow the prompts. The *Login* screen appears if you are not logged in. Enter your username and password. The default value for the 370XA Gas Chromatograph is: User: *EMERSON* Password: (blank)
Main Menu, showing the Set GC Time  **Set GC Time screen** 	**Configure the time and date.** 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 the changes or ✗ to discard the changes and return to the main menu.

Communication screen for the Serial Ports  	**Configure the serial port settings.** 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 370XA on that port. c. When all the changes have been made, press to save changes and close the screen.
TCP/IP Settings screen  	**Configure the ethernet port.** 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 370XA on that port. c. When all the changes have been made, press to save changes and close the screen. **Note:** If required, the *Analog Input*, *Analog Output*, *Digital Input*, and *Digital Outputs* settings can be accessed from the *Hardware* menu. Refer to the manual for further information.

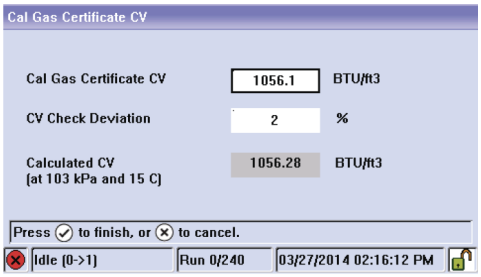
Calibration Concentration screen



Calibration Gas Uncertainty screen



Calibration Gas Energy Content screen



Enter the calibration gas values.

a. From the main menu, navigate to the *Application* menu and select *Calibration Gas Info*.

b. Press *Select/Edit* and enter the calibration gas concentration values for each component. Note that the *Methane* value is calculated automatically. This can be used 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.

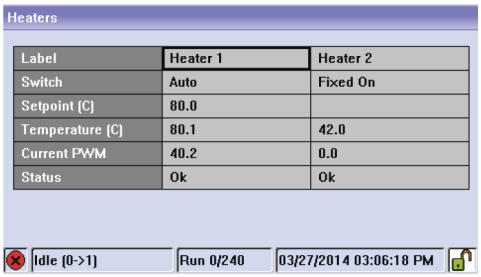
   If the calibration certificate does not include uncertainty values, use the default *2%* setting.

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

   The calculated 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.

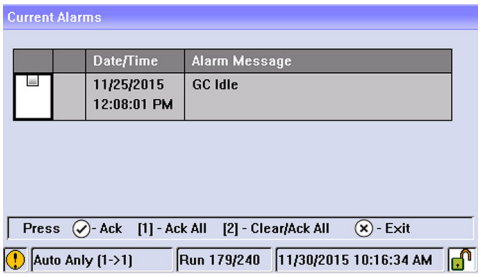
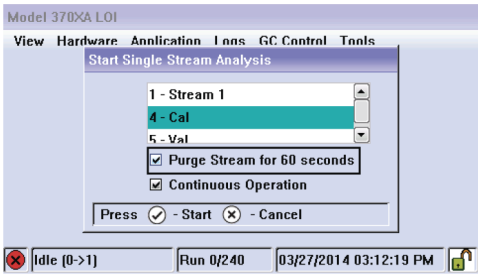
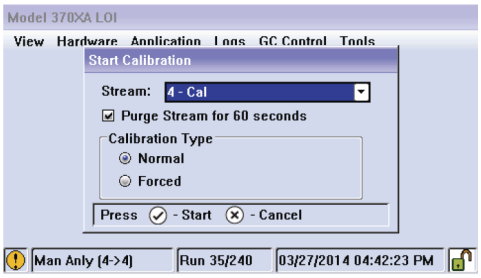
Heater screen showing current PWM



Wait for the oven to reach the operating temperature.

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.

Current Alarms screen 	**Clear alarms.** 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.
Select Cal. Gas for a Single Stream Analysis 	**Purge calibration gas.** a. From the main menu, navigate to the *GC Control* menu and select *Single Stream*. b. Select the *4-Cal* stream and check the *Purge Stream for 60 seconds* option. c. Let the GC run for at least thirty minutes.
Starting the first communication cycle 	**Calibrate the GC.** 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 Steam 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 activated, refer to the manual that is included in the MON2020 CD-ROM that is shipped with the GC.
	Put 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.

For more configuration and operating instructions, refer to the manual that is included on the MON2020 CD or USB that is shipped with the GC and is also available online at *EmersonProcess.com/GasAnalysis*.

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