



S A-M2400

S E R I E S CO MONITORS

S E R I E S **OWNER'S**
MANUAL



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1 Safety Information

1.1 ELECTRICAL SHOCK HAZARD.

The unit must be installed, operated, maintained, and repaired only by authorized, trained, and qualified personnel.

1.2 RISK OF HEARING LOSS.

Long term exposure to Alarm Siren can cause damage to hearing.

1.3 General Warnings:

Any chemicals, cleaners, noxious fumes, or exhaust sources near the CO Monitor may trip the alarm, especially while the compressor is OFF. Sources other than filtered compressed air often have levels of CO much higher than the monitor's set threshold of 5 PPM. See Fig 9.2 for examples.

Do not power off the Arctic Compressor CO monitor. It is recommended that the sensor stabilize for 48 hours before calibration after any instance of power loss prior to calibration or use. For this reason the monitor should be powered on at all times.

Use of this equipment is not a substitute for Laboratory air testing. All required air testing must still be completed with a qualified Laboratory.

2 General Description

Arctic Compressor CO Monitors are an electronic accessory intended for use with Arctic Compressors to continuously monitor the levels of Carbon Monoxide in compressed breathing air. When dangerous levels of CO are detected, the monitor will not allow the compressor to continue running.

3 Setup

3.1 Unpacking

Unpack the Arctic Compressor CO Monitor and examine it for shipping damage. If any damage is observed, notify both your authorized Arctic Compressor Dealer and the commercial carrier involved immediately.

3.2 Check your order

Check that the shipment received matches the purchase order. Notify your authorized Arctic Compressor Dealer of any discrepancies with the shipment immediately.

3.3 Location

The Arctic Compressor CO Monitor should be installed near the air to be monitored. *Sampling must take place upstream of the end user to ensure air quality.*

3.4 Mounting

Mount the CO Monitor on an appropriate vertical surface away from excessive vibration and extreme temperatures, leaving enough room to open the front cover. The mounting holes built in to the unit are located directly behind the front cover retaining screws. These holes are spaced to form a 6.44" x 4.47" rectangle, sized 0.18" in diameter. To mount on a drywall/Sheetrock surface, use 8# drywall anchors and screws.

3.5 Power Requirements

The Arctic Compressor CO Monitor is powered via detachable MINI-CON-X power connector consisting of 5 pins powering the relay and the 85-264 Vac/ 120-375 VDC power supply. *Continuous gas monitors become inoperative upon loss of power. This unit is intended to be powered on at all times, even when the compressor is shut down.*

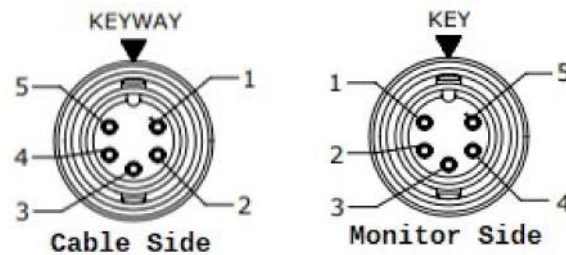


Figure 3.1: Electrical Pin Diagrams

Pin #	Wire Color	Destination
1	Black	Power Supply: Line
2	White	Power Supply: Neutral
3	Green	Relay: Normally Open
4	Red	Relay: Common
5	Blue	Relay: Normally Closed

Table 3.1: Electrical Pin Description

3.6 Air Supply

A small sample of compressed air is bled across the sensor cell. This sampling takes place via 1/8" polyurethane tubing connected through a Push to Connect (PTC) adapter. Tube length to the sample source should be as short as possible, connecting to the compressed air line prior to any user connections. The CO Monitor is intended for use with samples approximately 50 PSI, use appropriate regulator and connections to achieve this pressure.

4.1 Operation

Your new Arctic Compressor Electronic CO Monitor was Calibrated at the factory to streamline the installation process. **DO NOT RE-CALIBRATE** at initial installation.

The Arctic Compressor CO Monitor houses a continually monitoring sensor cell that requires an uninterrupted power source to maintain stability. While the compressor is ON a small amount of compressed air is bled across the sensor adjusted to at approximately 1.0 SCFH. When the compressor is OFF no airflow moves through the monitor, allowing the ambient air to seep into the monitor housing and sensor cell. For this reason, the area around the CO monitor should be free from any chemicals, cleaners, noxious fumes, or exhaust sources that can trip the alarm. Calibration of the unit should be done a minimum of once yearly to ensure accuracy.

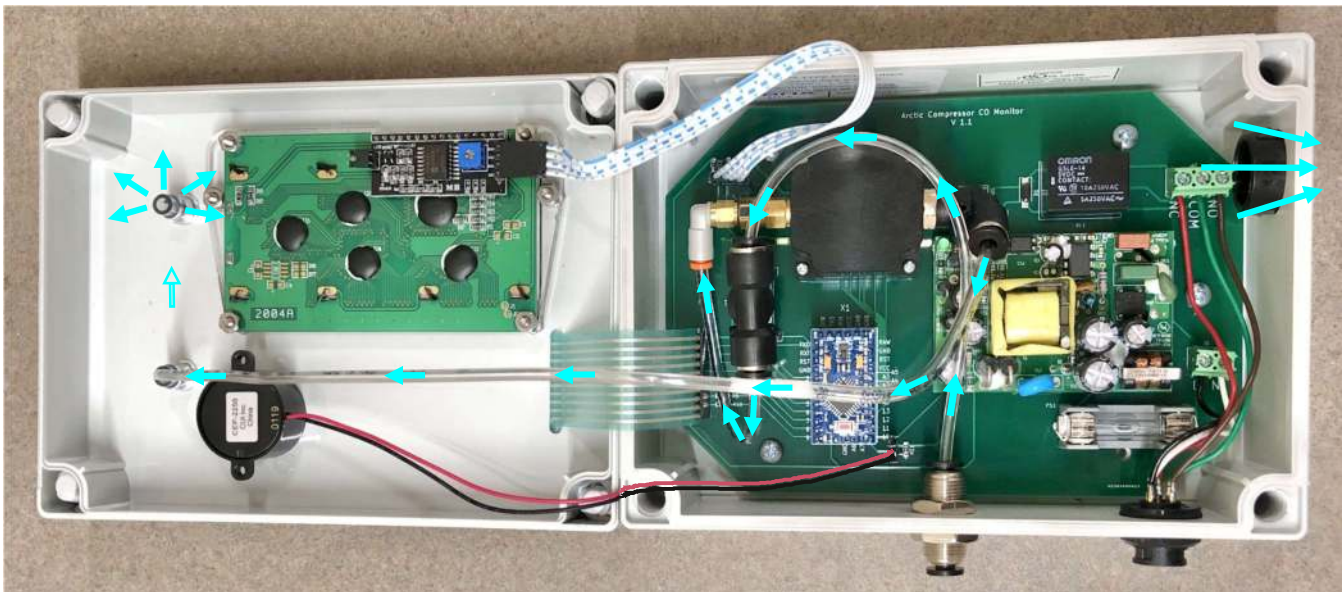


Figure 4.1: Operational Air Flow Diagram

4.2 Calibration

1. Disconnect the air supply line from the PTC fitting at the bottom of the CO monitor.
2. Connect the calibration regulator to the bottom of the CO monitor.
3. Connect zero air cylinder to the calibration regulator. Open the calibration regulator valve.
4. Press and hold the "Sel" button on the CO monitor until calibration starts (approx 10 seconds).
5. Wait for the monitor to complete the Zero portion of the calibration (1 – 5 minutes).
6. After zero portion of calibration is complete, close the calibration regulator valve.
7. Switch to the 20 PPM CO calibration gas and re-open the calibration regulator valve.
8. Press the "Sel" button once to proceed to the SPAN portion of the calibration procedure.
9. Wait for the SPAN calibration sequence to be completed (1 – 5 minutes).
10. Close the calibration regulator valve.
11. Once calibration is complete press the "Sel" button once to exit calibration mode.
12. Note: After calibration, the alarm will likely be triggered by residual calibration gas.
13. Press "Fn" button to silence the alarm. Reconnect zero air to flush residual calibration CO.
14. Be sure to reconnect the compressor supply line once the calibration procedure is complete.

4.2 Calibration (continued)

Instructional Video: https://www.youtube.com/watch?v=Ppfig_Vrgvk



5 Components

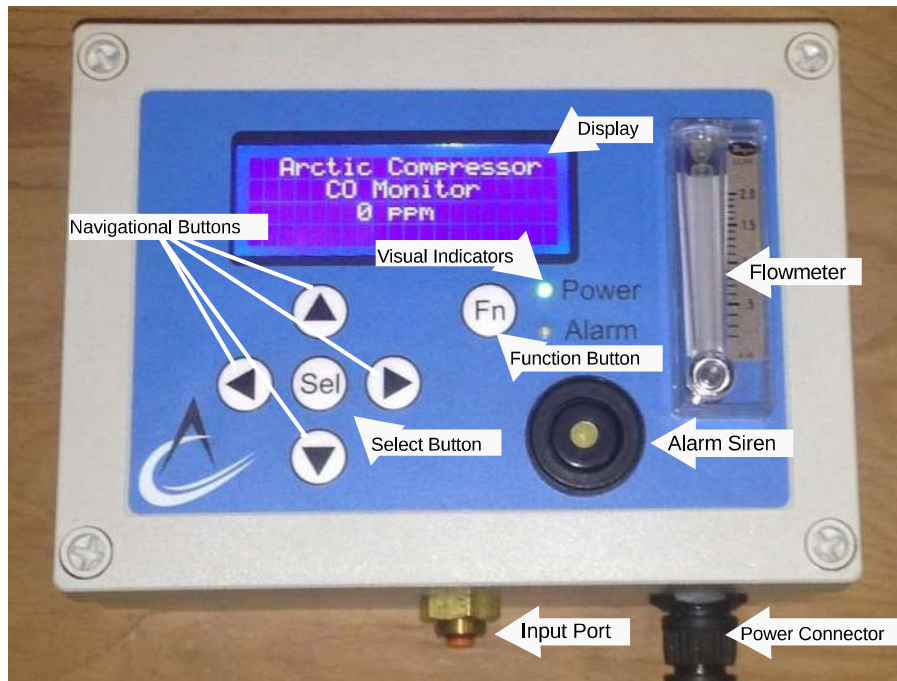


Figure 5.1: Labeled Monitor Exterior

Feature	Description
Enclosure	Poly-carbonate box sized approximately 7"x 5"x 3" with left swinging detachable front cover.
Mounting Holes	4 mounting holes located behind the front cover retaining screws in the corners of the enclosure.
Input Port	1/8" PTC port for air sampling and calibration gases. Sample pressure should be adjusted to approximately 1.0 SCFH.
Front Cover	Detachable left swinging front cover with LCD display, held in place by 4 corner-set screws.
Power Connector	Easily detachable MINI-CON-X power connector.
Power Supply	Power supply uses 85-264 Vac or 120-375 Vdc.

Table 5.1: Physical Components

5 Components (continued)

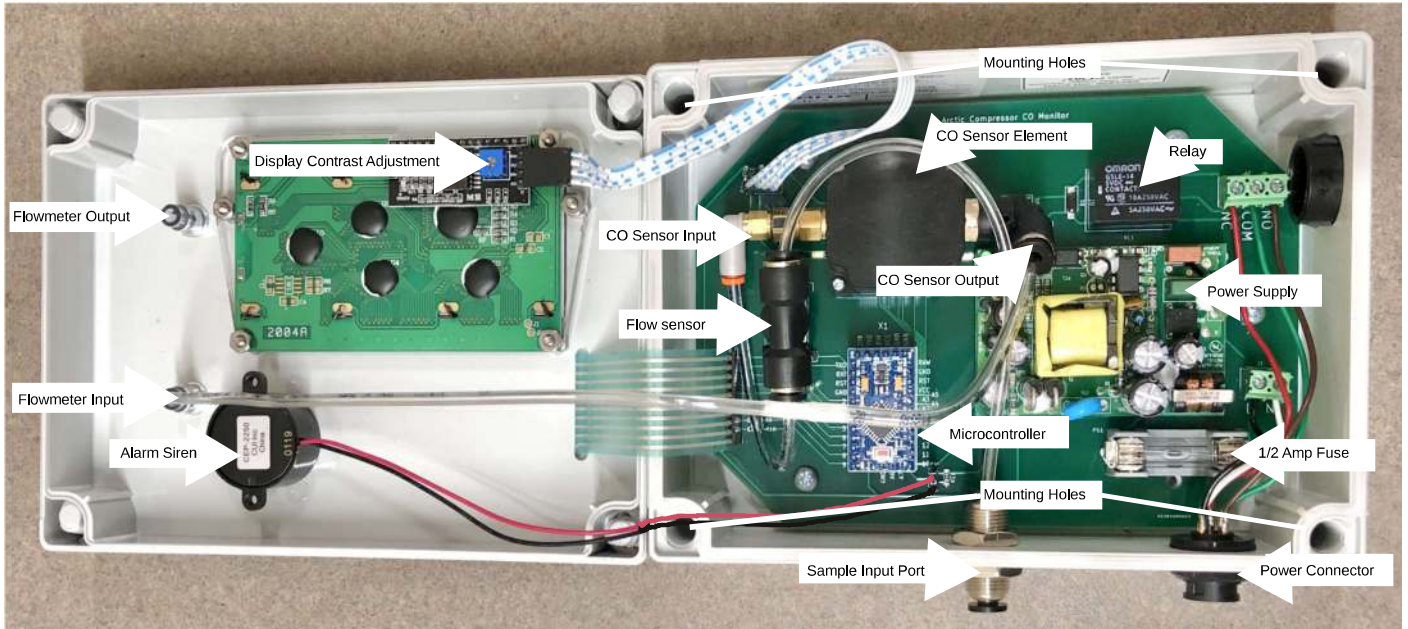


Figure 5.2: Internal Components

6 Operational Features

Feature	Description
Display	4 line, 20 character back lit LCD screen, displays gas concentration and selected mode.
Audio Alarm Siren	Audio Siren will sound when unit is outside of set parameters.
Visual Indicators	LED indicators show alarm and unit power status.
Flow Meter	Indicates the quantitative flow of sample air or calibration gases through the instrument. This should read approximately 1.0 SCFH.
Membrane Buttons	6 push buttons located on the front interface, control the instrument.
Relay	In an alarm event, relay will trip and shut the compressor down.
Filter Change Function	To avoid unnecessary shutdowns during filter changes use the filter change function of the monitor.

Table 6.1: Operational Features

7 Menus

7.1 Navigation

From the main screen press and hold either the right or left arrow button to cycle through the Settings and Raw data (diagnostic) screens. Use the up and down arrow buttons to navigate within the screens. The monitor will automatically return to the Main Screen after 1 minute of inactivity.



Figure 7.1: Map of Menu Screens.

7.2 Main Screen

The Main Screen displays the CO level in PPM as well as any notifications at the bottom of the screen.

		A	r	c	t	i	c		C	o	m	p	r	e	s	s	o	r	
					C	O			M	o	n	i	t	o	r				
							0		P	P	M								

Figure 7.2: Main Screen while in operation.

7.3 Settings Screen

This screen allows the user to change the CO monitor’s configuration options. To change settings: move the cursor to the desired setting, press select “Sel” button, use up and down navigational buttons to adjust parameters. Press Select again to accept changes.

Settings	Function	Default
PPM Set	PPM set point for Alarm. CGA, G-7.1 2011 Grade E	5 PPM
Filter Timeout	Time until Filter Change Mode times out	3 Minutes
Cal Days	Number of days before unit displays calibration warning	365 Days
Alarm On	Setting to control the audible siren	Checked
Force Cal	Setting to force re-calibration before allowing compressor to run	Checked
Grace Days	Days between calibration warning and force re-calibration	60 Days

Table 7.1: Settings Table

7.3 Settings Screen (continued)

S	e	t	t	i	n	g	s														
P	P	M		S	e	t	:							[5]					
F	i	l	t	e	r		T	i	m	e	o	u	t	:			[3]		
[O	K]											[C	a	n	c	e	l]

↓

S	e	t	t	i	n	g	s														
C	a	l		D	a	y	s	:						[3	6	5]			
A	l	a	r	m		O	n	:						[X]					
[O	K]											[C	a	n	c	e	l]

↓

S	e	t	t	i	n	g	s														
F	o	r	c	e		C	a	l	:					[X]					
G	r	a	c	e		D	a	y	s	:				[6	0]				
[O	K]											[C	a	n	c	e	l]

Figure 7.3: Settings Screen in Default Modes

7.4 Diagnostics Screen (Raw Data)

This screen provides diagnostic information to allow factory technicians to diagnose malfunctions.

<	R	A	W	,		P	P	M	:		1	1	7			0		
T	e	m	p	:		1	4	3										
R	L	Y	:		O	N				S	R	N	:		O	F	F	
O	f	f	,		S	P	n	:		1	3	2		6	0	0		

Figure 7.4: Diagnostic Screen

8 Functions

8.1 No Flow Mode

Arctic Compressor Electronic CO monitors produced 2020 and later are outfitted with a flow sensing element designed to disable the alarm and relay when there is no airflow across the sensor. This was implemented to eliminate nuisance alarms caused by ambient fumes, chemicals, cleaners, or exhaust sources seeping into the system while not running. This setting will allow the compressor to run for up to 3 minutes upon startup before an alarm condition will trigger a shutdown, allowing ambient gases to be flushed from the system.

		A	r	c	t	i	c		C	o	m	p	r	e	s	s	o	r	
					C	O			M	o	n	i	t	o	r				
							N	o		F	l	o	w						

Figure 8.1: Main Screen under No Flow Conditions.

8.2 Filter Change Mode

Pressing and holding the “FN” button for 10 seconds will place the CO monitor into “FILTER CHANGE MODE” This mode is intended to be used when replacing the purification filter in the compressor. The replacement of purification filters may trigger a false positive reading for the first few minutes of operation on the new filter cartridge. Placing the monitor in this mode allows the compressor to continue to operate until the CO readings return to normal. The length of time the Filter Change Mode persists can be set in the Setting Screen.

		A	r	c	t	i	c		C	o	m	p	r	e	s	s	o	r	
					C	O			M	o	n	i	t	o	r				
							0		F	F	N								
F	i	l	t	e	r		C	h	a	n	g	e		M	o	d	e	!	

Figure 8.2: Main screen in Filter Change Mode

9 Technical Data

Operating Temperature	45°F MIN-105°F MAX
Operating Pressure	Approximately 1.0 SCFH
CO Detection Range	0-99 PPM
Calibration Period	365 Days
Operating Voltage	85-264 VAC or 120-375 VDC
Alarm Siren Volume	80 dB at 1 meter

Figure 9.1: Technical Data

10 Troubleshooting Alarms

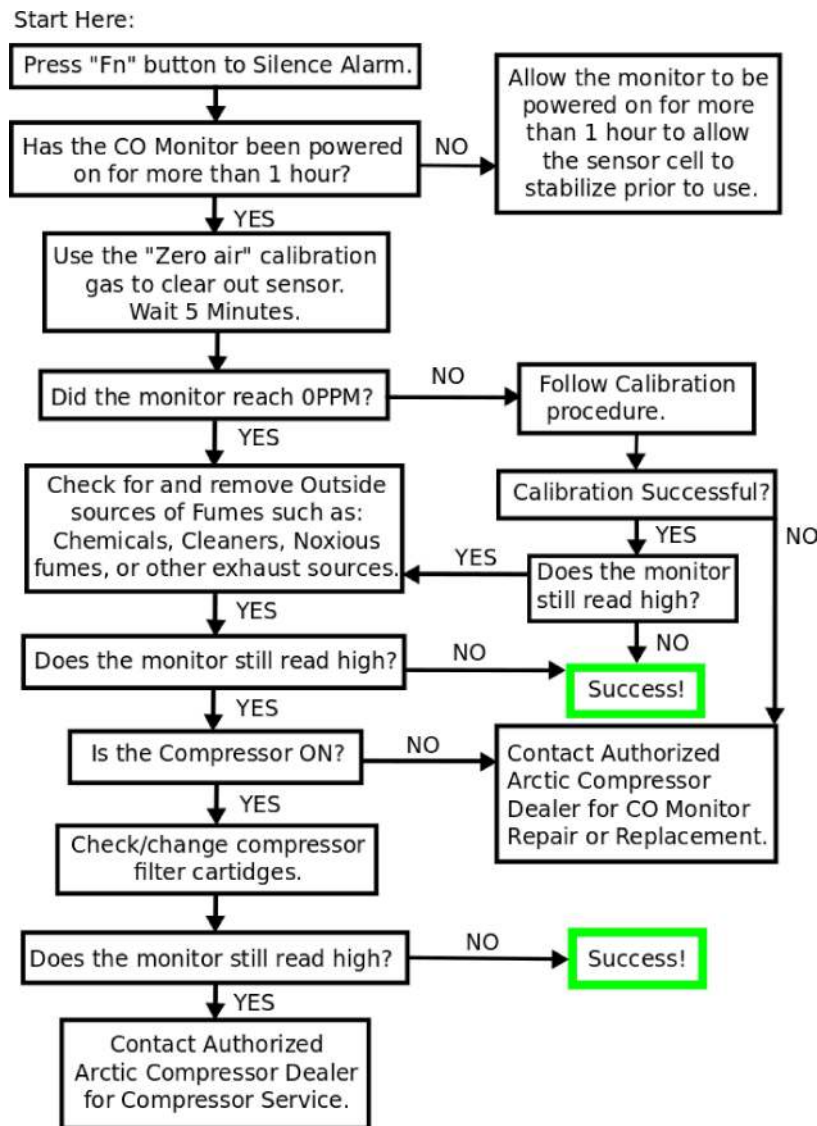


Figure 10.1: Troubleshooting Alarms Flow Chart

10 Troubleshooting Alarms (continued)

The Arctic Compressor CO Monitor is a continually reading sensor. While the compressor is ON the positive pressure pushes the compressed filtered air through the CO Monitor in a unidirectional flow. While the Compressor is OFF no such positive pressure exists. This allows ambient air from the surroundings to seep into the CO Monitor via the housing seal as well as the reverse path of normal air flow (Figure 4.1). Any chemicals, cleaners, noxious fumes, or exhaust sources near the CO Monitor may trip the alarm, especially while the compressor is OFF. Sources other than filtered compressed air often have levels of CO much higher than the monitor's set threshold of 5 PPM. See Fig. 10.2 for examples.

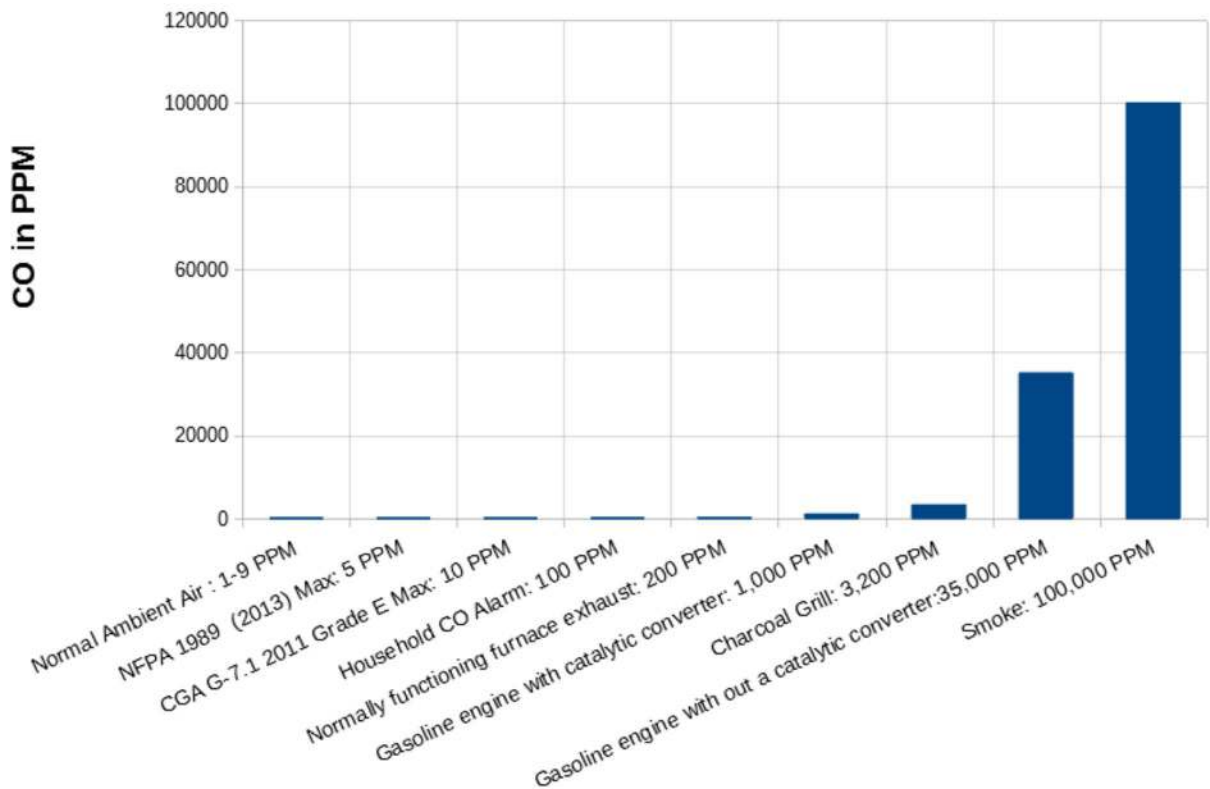


Figure 10.2 CO Levels

11 Repairs or Returns

Notify your authorized Arctic Compressor Dealer to arrange for any necessary repairs or returns.

Find your nearest dealer at: <http://www.arcticcompressor.com/dealers/>

Limited Warranty
Arctic Compressor, LLC

1 Warranty Coverage

Arctic Compressor, LLC (“Seller”) warrants to the original purchaser (“Buyer”) that all new equipment manufactured and delivered by Seller (“Product”) shall be free from defects in material or workmanship for a period of two (2) year from the date of delivery or for up to 500 hours of Product operation, whichever occurs first (“Warranty Period”). During the Warranty Period, Seller will at its option provide suitable repair or replacement of a defective Product. In the event Seller opts to repair the Product, Seller may use new or refurbished replacement parts. In the event Seller opts to replace the Product, Seller reserves the right to provide an equivalent product when unable to provide an exact replacement.

2 Limitations

This warranty is valid to the Buyer only and is non-transferable. This warranty is contingent upon Buyer’s proper storage, installation, maintenance, and operation of the Product in accordance with standard industry practices, and Buyer’s compliance with any and all specific recommendations of Seller. Buyer’s failure to comply with any maintenance schedules provided in Product manuals shall void all coverage for defects under this warranty.

This limited warranty shall not apply to and Seller shall not be liable for:

- The effects of corrosion, erosion and normal wear and tear; or
- Damage due to fire, floods, acts of God, accidents, improper installation, abnormal or unattended operation, neglect or damage incurred in transit; or
- Repairs, replacements or adjustments to the Product performed by the Buyer or others without prior written approval from Seller; or
- Expendable materials, including but not limited to, filter cartridges, oil, and oil filters; or
- Products purchased or used outside of the United.

3 Warranty Service Claims

Notice of any known defect shall be provided to Seller in writing by mail within thirty (30) days of discovery during the warranty period. Buyer’s written notification shall be mailed to the following address: Arctic Compressor, LLC, 431 Tower Avenue, Superior, WI 54880. Buyer’s written notification shall identify the known defect, as well as identify the serial number, model number, and delivery date of the Product requiring warranty services. If requested by the Seller, the defective Product or portion thereof must be promptly delivered to Seller for inspection at Buyer’s sole cost and expense. Buyer assumes all risk and liability that may arise from the use of the defective Product following the discovery of any alleged defect, and such use shall void this warranty.

4 Disclaimer

This warranty is Seller’s sole warranty and any and all other warranties, expressed or implied, including any warranties of merchantability and fitness for particular purpose, are hereby specifically excluded, provided however, that Seller at its sole discretion may offer an extended warranty program, which the Buyer may purchase for additional warranty protection. Seller’s liability for any loss or damage arising out of, or resulting from, or in any way connected with the Product shall not exceed Buyer’s purchase price for the particular Product upon which such liability is based, regardless of whether such liability arises in contract, tort or otherwise. In no event shall the Seller be liable for incidental, consequential, indirect, special or punitive damages resulting from the use of the Product. Correction of any defect, in the manner and for the time period stated above, shall constitute fulfillment of all liabilities of Seller.



Arctic Compressor, LLC.

431 Tower Avenue, Superior, WI 54880



(715) 718-3065



info@arcticcompressor.com