rpb GX4 GAS MONITOR

INSTRUCTION MANUAL

Employers: Read this manual, the respirator and the flow control device Instruction Manual and carry out the Employer Responsibilities (page 7).

Product users: Read this manual, the respirator and the flow control device Instruction Manual and follow the Product User Safety Instructions (page 9).

Manuals are regularly updated. Make sure the most recent version of manual is available to all users for reference.

Current version of manual and other languages: www.rpbsafety.com/product/gx4-gas-monitor/

Protecting you for Life's best moments.

GX4® GAS MONITOR

CONTENTS

EXPLANATION OF SIGNAL WORDS AND SYMBOLS

The following signal word and safety symbols are used in this manual and product labeling:

⚠ WARNING **WARNING** indicates a hazardous situation that, if not avoided, could result in death or serious injury.

⚠ DANGER **DANGER** Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

Read the Instruction Manual.
Additional copies of RPB® manuals can be found at www.rpbsafety.com.

RPB® Safety LLC is an ISO9001 certified company.

INTRODUCTION

The RPB® GX4®, model 08-400, tests the quality of compressed breathing air for Carbon Monoxide and other gases* depending on which gas sensor cartridges are installed. Compressed Air is supplied to the unit through the sampling hose at a constant flow to the sensors for continuous analysis.

*Visit www.rpbsafety.com/product/gx4-gas-monitor/ for a list of available gas sensors. There are currently 3 different sensors available. More are in development for future release.

■ Current sensors available: Carbon Monoxide, Oxygen, Hydrogen Sulfide

This product must be inspected and maintained in accordance with this instruction manual at all times.

See PROTECTION PROVIDED AND LIMITATIONS (page 4) for details.

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For technical assistance contact our Customer Service Department at 1-866-494-4599 or email: customerservice@rpbsafety.com

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Rev: 4

rpb® GX4® GAS MONITOR

IMPORTANT SAFETY INFORMATION

⚠ WARNING Improper selection, use, or maintenance of respiratory protection products can result in injury; life threatening delayed lung, skin or eye disease; or death. This product is intended for occupational use in accordance with applicable standards or regulations for your location, industry, and activity (see Employer Responsibilities, page 7). Familiarity with standards and regulations related to the use of this protective equipment is recommended, even if they do not directly apply to you. If self-employed or if used in a non-occupational setting, refer to Employer Responsibilities and Product User Safety Instructions. Go to rpbsafety.com/importantsafetyinformation/ for helpful links to OSHA, EN and AS/NZS standards, and other content.

Employers: Read this manual, the respirator, and the flow control device Instruction Manuals and carry out the Employer Responsibilities (page 7).

Product users: Read this manual, the respirator, and the flow control device Instruction Manuals and follow the Product User Safety Instructions (page 9).

Check website for updates. Product manuals are regularly updated.
Visit www.rpbsafety.com/resources/for the most recent version of this manual before using the product.

PROTECTION PROVIDED AND LIMITATIONS

SUPPLIED AIR

The RPB® GX4® monitors the gas level in the breathing air. Cartridges are available to detect Carbon Monoxide (5 or 10ppm depending on the requirements of your region), Oxygen, and Hydrogen Sulfide. Visit www.rpbsafety.com/product/gx4-gas-monitor/ for a list of available gas sensors. The GX4® DOES NOT remove any gasses from the air.

HAZARD LIMITATIONS

The RPB® GX4® is **NOT FOR USE** if**:**

- The temperature is outside the range of 32°F to 113°F (0°C to +45°C).
- A flammable or explosive atmosphere is present; this product is NOT intrinsically safe.

STANDARDS AND REGULATIONS

The RPB® GX4® monitor supplied air to meet or exceed CGA Grade-D specifications for air quality as adopted by OSHA,. Refer to the following standards and regulations, depending on the location the GX4® is being used, for more information:

- ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989.
- Federal OSHA 29 CFR 1910.134 “Compressor Operations for Breathing Air”
- Army Corps of Engineers EM385-1-1, Section 30.F.04.
- EN 12021 :2014 Respiratory equipment. Compressed gases for breathing apparatus.
- AS/NZS 1715:2009 Selection, use and maintenance of respiratory protective equipment.

The GX4® can monitor the carbon monoxide and oxygen levels with the appropriate sensor cartridges installed, but additional air testing/sampling will be required to meet ANSI/

TYPICAL SUPPLIED AIR SETUP

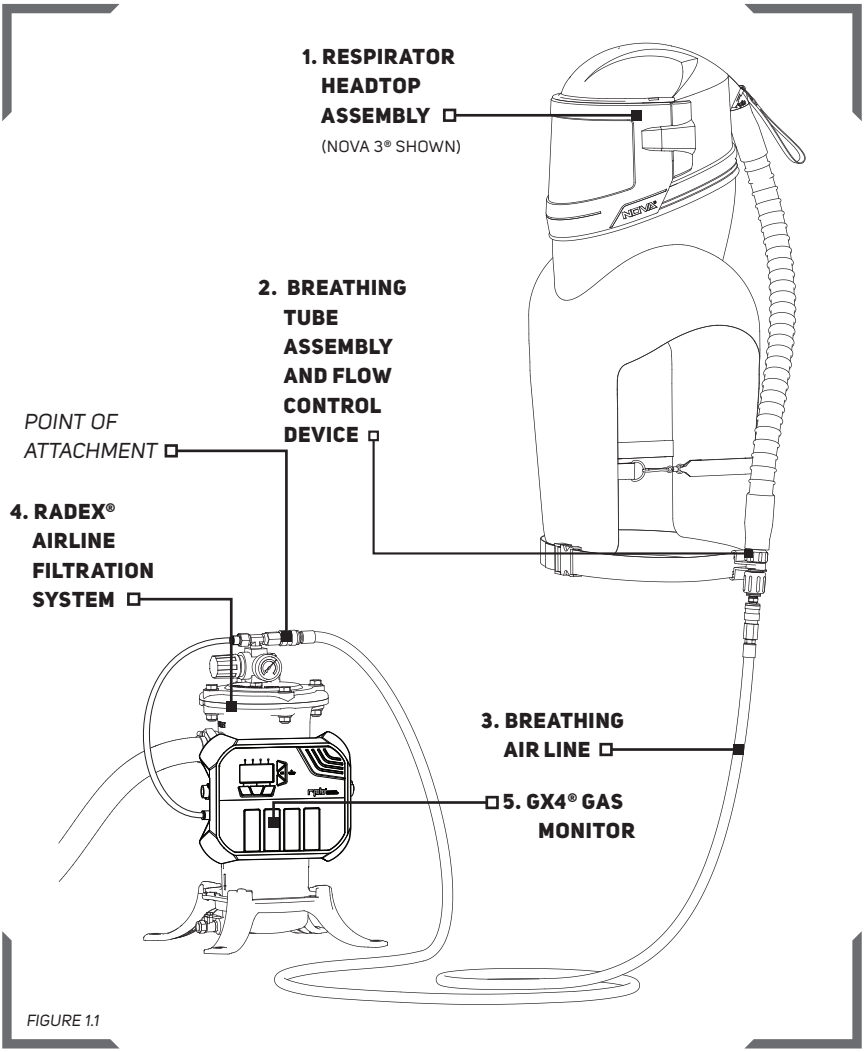


FIGURE 1.1

(Continued from page 4)

Compressed Gas Association Commodity Specification for Air, G-7.1-1989 Grade D or better air, EN 12021, or AS/NZS 1715 requirements. See Employer Responsibilities section for the other components that need to be sampled.

The RPB® GX4® when used with the Carbon Monoxide Sensor Cartridge 08-420-01 satisfies the requirements of OSHA rule 29 CFR 1910.134 for carbon monoxide monitoring.

AIR SOURCE, FITTINGS, AND PRESSURE

AIR SOURCE

Locate the air source being supplied to the respirator and being monitored by the GX4® in a clean air environment. Make sure the air source is somewhere that vehicles, forklifts, and other machinery are not running near the air inlet, as this will cause carbon monoxide to be drawn into your air supply.

⚠ DANGER Do not connect the respirator's air supply that is being monitored by the GX4® to nitrogen, toxic gases, inert gases or other non-breathable air sources. Check the air source before using the GX4® and the respirator. Connecting the supply hose to a non-breathable air source will result in serious injury or death.

AIR FILTRATION

Always use a filter on the inlet of your air source as required by 29 CFR 1910.134(i). Refer to the compressor manufacturer's instruction manual for recommendations on setting up the compressor for breathing air and for suitable in-line air-purifying sorbent beds and filters. Always use suitable after coolers/dryers with filters.

Use the GX4® with an airline filter, such as the RPB® RADEX® Airline Filter 04-900. The monitor must be supplied with air free of oil and water to prevent contamination of the sensors. A micro-mist filter, such as the RPB® Micro Mist Filter 04-925, prior to the Radex air filtration system is recommended to protect the GX4® and the operator(s). Check with your local regulatory bodies for more information on local requirements.

REQUIRED AIR QUALITY MONITORING

Check your local standards for requirements (see page 4).

- Air quality must be tested at the time of initial setup from the point of attachment (the airline filter outlet to the respirator).
- Breathing air quality should be continuously monitored and/or periodically tested for at least the following air components (Check your local standards for requirements, see page 4):
    - O2 - Oxygen
    - CO2 - Carbon Dioxide
    - CO - Carbon Monoxide
    - H2O - Water (Moisture Content)
    - Hydrocarbons (Oil Mist)
    - Total Particulates
- The GX4® monitors Carbon Monoxide and Oxygen when equipped with the correct sensors. Other components will need to be monitored separately.
- Retesting the air quality is recommended If the compressor is moved or if the compressor location or environment significantly changes.

AIR PRESSURE

⚠ WARNING The air source supplied to the GX4® needs to be regulated between 7 to 80 PSI (50-550 kPa). Maximum air flow is achieved at 20 PSI. It is recommended to supply the GX4® with 15-20 PSI. **Max pressure is 80 PSI.**

The optional RPB® Regulator Assembly 08-470 can be used to regulate the air pressure going into the GX4®. If more than 80 PSI is supplied to the GX4® the low flow alarm will sound and there will not be enough air flow for the sensors to monitor the air.

EMPLOYER RESPONSIBILITIES

Your specific responsibilities may vary by location and industry, but in general RPB® expects that employers will:

- **Follow all applicable standards and regulations for your location, industry, and activity.** Depending on your location and industry, a number of standards and regulations may apply to your selection and use of respirators and other personal protective equipment. There also may be requirements specific to particular contaminants, e.g. silica (see rpbsafety.com/importantsafetyinformation/ for more information), asbestos, organic pathogens, etc. Know which requirements apply to your location and industry.
- **Have appropriate safety programs in place.**
  Have and follow:
  - A workplace safety program.
  - A written respiratory protection program in accordance with applicable standards and regulations.
- **In accordance with the above**,
  - **Perform a hazard analysis and select appropriate equipment for each activity.** A hazard analysis should be performed by a qualified person. Controls should be in place as appropriate and a qualified person should determine what kind of respiratory protection is appropriate for the intended activities and environments of use. (For example, select gas sensor cartridges appropriate to the specific airborne hazards, with consideration of workplace and user factors.)

    As applicable, check your workplace safety program, respiratory protection program, and standards and regulations for your activity or industry for related protection requirements, and see this manual (Protection Provided and Limitations, page 4) and the respirator Instruction Manual for product specifications.
  - **Be sure employees are medically qualified to use a respirator.**
    Have a qualified physician or other licensed health care professional (PLHCP) perform medical evaluations using a medical questionnaire or an initial medical examination per OSHA 29 CFR 1910.134 or local standards as required.

EMPLOYER RESPONSIBILITIES CONTINUED

- **Train employees in the GX4®'s use, maintenance, and limitations.**
  Appoint a qualified individual who is knowledgable about the RPB® GX4® to provide training:

  Ex.: ANSI/ASSE Z88.2 Section 8.1 Qualifications of the Respirator Trainer. Anyone providing training shall:
  a) be knowledgable in the application and use of the monitor(s);
  b) have practical knowledge in the selection and use of the monitor(s) and work practices at the site;
  c) have an understanding of the site's respirator program; and
  d) be knowledgable of applicable regulations.

  Train each GX4® user in the product's use, application, inspection, maintenance, storage, and limitations in accordance with the content of this Instruction Manual and the approved respirator Instruction Manual and standard or regulatory requirements. Ensure that each intended user reads each of these manuals.

- **Ensure that equipment is properly set up, used, and maintained.**
  Make sure that equipment is properly set up, inspected, fitted, used, and maintained, including selection of the appropriate gas sensor cartridge for the application.

- **Make sure the area is ventilated and monitored:**
  Ventilate and monitor the air in the work area as required by local standards and regulations.

- **If you have any questions, contact RPB®.**
  - Call Customer Service Department at:
    Tel: 1-866-494-4599
    Email: customerservice@rpbsafety.com
    Web: rpbsafety.com

PRODUCT USER SAFETY INSTRUCTIONS

BEFORE INITIAL USE - BE TRAINED

Do not use this gas monitor until you have read this manual and the respirator Instruction Manual (additional copies available at www.rpbsafety.com/resources/) and been trained in the monitor's use, maintenance, and limitations by a qualified individual (appointed by your employer) who is knowledgable about the RPB® GX4® Gas Monitor.

MAKE SURE THE SYSTEM IS READY FOR USE

Use only authentic RPB® brand parts and components. Using incomplete or inappropriate equipment, including the use of counterfeit or non-RPB® parts, can result in inadequate function. Do not modify or alter any part of this product.

Inspect all components daily for signs of damage or wear and tear that may reduce the level of function originally provided. Remove any damaged component or product from service until repaired or replaced.

Make sure that the monitor is correctly assembled in the configuration that suits your application.

BEFORE USING THE GX4®:

Make sure the area is ventilated and monitored:

Make sure that the area is well ventilated and that regular air samples are taken to confirm the atmosphere stays within the levels recommended by OSHA and other governing bodies.

If you have any questions, ask your employer.

DO NOT USE THE GX4® IN THE WORK AREA if any of the following conditions exist:

- The temperature is outside the range of 32°F to 113°F (0°C to +45°C).
- A flammable or explosive atmosphere is present; this product is NOT intrinsically safe.

LEAVE THE WORK AREA IMMEDIATELY IF:

- Any product component becomes damaged.
- Airflow stops or slows down.
- The alarm in the GX4® or other alarm, such as a strobe and alarm, connected to the GX4® sounds. Check air source and wait until alarm mode stops. If it continues, verify sensor calibration or change your air source.

PRODUCT CARE

- Never place the GX4® on hot surfaces. Do not apply paints, solvents, adhesives or self-adhesive labels except as instructed by RPB®. This product may be adversely affected by certain chemicals.
- Clean with mild detergent and a soft cloth or a cleaning wipe, being careful to avoid getting the monitor wet. See the "Maintenance" section for more specific cleaning instructions.
- Regular testing of the alarm and cartridges is required to detect system failures and calibration. Always wear hearing protection when testing the alarm.

PRODUCT USER SAFETY INSTRUCTIONS CONTINUED

- Do not open the monitor casing. The unit will not work as intended if opened.
- Only remove replaceable parts as listed in the parts and accessories. Do NOT remove any part of the GX4®, especially the air inlet fitting or the power and auxiliary receptacles under any circumstances. Removing any part will void all warranties.
- Do not cover or disconnect the warning alarm that is inside of the unit.
- The unit must be returned to RPB® Safety to perform any repairs.

⚠ WARNING Sensors cartridges may contain sulfuric acid or other hazardous chemicals which are poisonous and can cause burns or eyesight loss. Do not break open the sensor cartridge or crush it, as the chemicals inside may be released.

SETUP AND OPERATION

REGISTRATION

Go to: http://go.myrpb.com/GX4-reg to register your GX4® and be notified of software updates and important product information.

UPDATES

The GX4® firmware should be updated regularly to ensure you have access to the latest features and maintain compatibility with the latest cartridges. Check for updates every three months or when installing a new cartridge. Visit http://go.myrpb.com/GX4-Update for information on the latest software and how to upgrade your unit.

SENSOR CHECK

Checks should be performed when a new cartridge is installed and monthly thereafter. This will insure the cartridge is within calibration and providing adequate protection.

Follow the Sensor Check instructions on page 22 to check the calibration of the cartridges. If the cartridge is no longer within calibration, follow the instructions for removing it and replace it with a new cartridge.

LOCATION

Place the GX4® in a location that protects it from water, impact, and harmful contaminants as well as away from carbon monoxide or other contaminants that could interfere with the readings from the sensor cartridges (e.g., away from vehicles, forklifts and other machinery).

Ensure that the alarm can be easily heard in the work area over any other noise that may be present. It may be necessary to use an external alarm (see p. 16 for setup instructions.)

See mounting instructions on p. 13.

WIFI CONNECTION

To utilize all of the features of the GX4®, it is recommended to connect it to the internet via the built-in wireless network transceiver. This connection allows easy firmware upgrades and the unit hosts a website available to devices on that network. Use the website to stream real-time gas levels, search through logs or print reports that can be used for safety records and meetings. This real-time monitoring does not replace the need for an audible of visual alarm the respirator wearer.

The GX4® can operate in two wireless modes. To select a mode in the Menu go to Network and then Mode. Use the arrow keys to switch between modes and press OK to select a mode. The unit will restart and resume operation in this network mode.

HOTSPOT MODE:

Use to connect directly to your GX4® when you do not have access to an existing network.

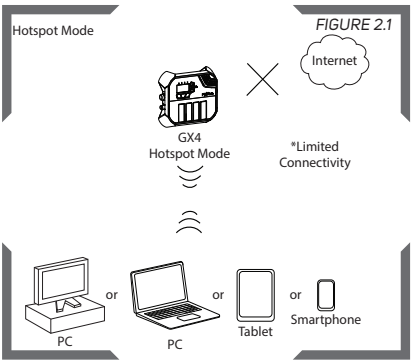
- The GX4® Hotspot Mode does not connect to the internet.
- Devices can only connect to one GX4® in Hotspot Mode at a time.
- For multiple GX4®s, disconnect from one before connecting to another.

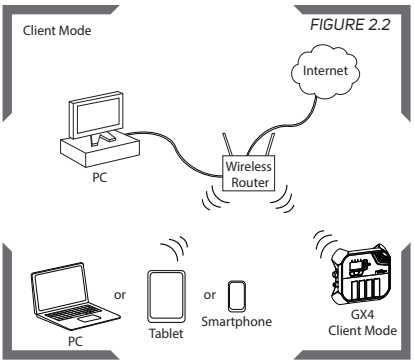
Note: Although multiple devices can connect, the GX4® is not a router. When in Hotspot Mode your device can only communicate to the host GX4®.

CLIENT MODE:

Use when you have access to a wireless network {IEEE 802.11 b/g/n}.

- The GX4® must be connected to the same network as your PC/Tablet/Smartphone
- Access the GX4® website through your internet browser.
- Multiple GX4®s can be connected in Client Mode to the same network and each individual GX4® website can be viewed on a separate web browser page.





To configure your network see page 12.

SETUP AND OPERATION CONTINUED

WEBSITE

The GX4® has an internal website that can be accessed by internet enabled devices. This allows the user to view information about the unit and change settings such as the network connection. This is your portal to access the full potential of the GX4®.

To access the website for your GX4® from your internet connected device:

IN HOTSPOT MODE:

- Browse to http://192.168.1.3/

IN CLIENT MODE:

- Locate the IP Address for your unit in the "About" menu.
- Make sure the GX4® and your internet enabled device are on the same network.
- Type the IP address into your internet browser, http://<IP Address>/

FEATURES

The internal GX4® website provides the following features:

Dashboard Page

- Status of the unit (Power, Alarm, Auxiliary...)
- Power
- Air Supply
- Network Connection
- Auxiliary connection
- Links to logs, certificates and more
- Status of each cartridge
- Type of gas being monitored
- Current reading
- Last validation date
- Expiration date, and more

FIGURE 2.3

Logs

- Select a date(s) to view logs from
- Logs show events such as alarms, sensor checks, warnings, etc.
- Export visible logs as a CSV file for all logs or main events

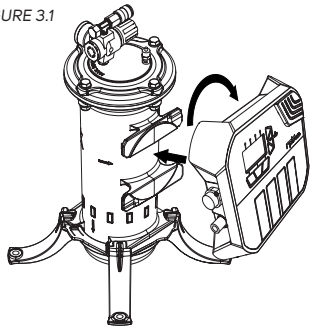
Certificate of Calibration

- Printable report of the last sensor checks for each cartridge.
- To save as a PDF, use a PDF printer driver or a browser with PDF functionality.

UNIT SETUP

MOUNTING TO A RADEX® FILTRATION UNIT

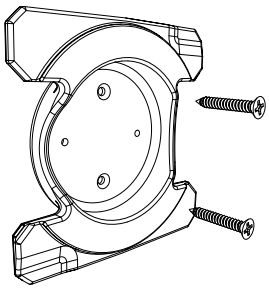
FIGURE 3.1



Position the monitor so that the green brackets on the back line up with the mounting bracket on the side of the RADEX®, turn clockwise until the monitor clicks into place.

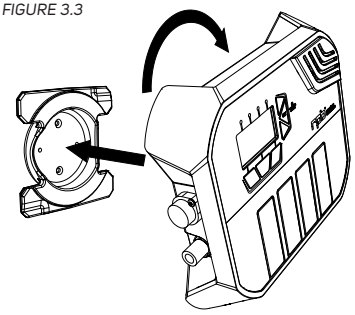
MOUNTING TO A WALL BRACKET

FIGURE 3.2



Use the wall bracket (P/N: 08-231) and appropriate screws to secure the wall mounting bracket to a suitable wall. The countersunk holes are 7/32" (5mm) and the smaller holes are 5/32" (4mm).

FIGURE 3.3

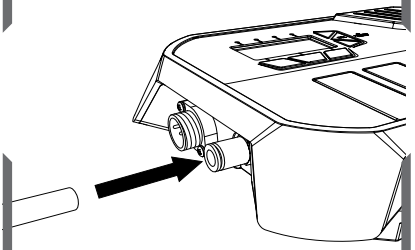


Position the monitor so that the green brackets on the back line up with the mounting bracket, turn clockwise until the monitor clicks into place.

SETUP AND OPERATION CONTINUED

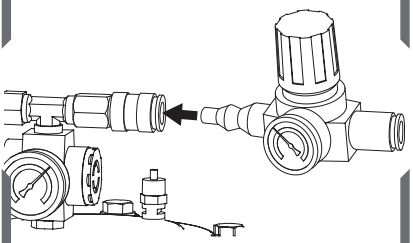
CONNECT THE AIR SUPPLY

FIGURE 4.1



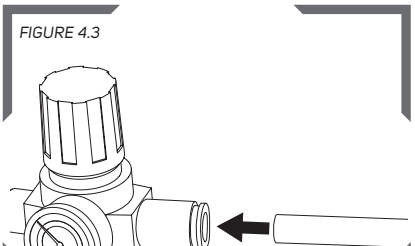
Insert the 3/8" O.D. Air Supply Hose 08-428 into the push-lock fitting on the left side of the monitor. To disconnect, press the outside ring of the push-lock and pull the hose out. Note: Hose can be trimmed to the desired length.

FIGURE 4.2



Connect the 08-470 regulator with Quick Disconnect fitting into one of the outlets on the Radex or other air source providing Grade D or better air. Regulate the air from the air source to between 7 to 80 PSI (50-550 kPa) with the 08-470 regulator. Maximum air flow is achieved at 20 PSI. It is recommended to supply the GX4® with 15-20 PSI. **Max pressure is 80 PSI.** Pressure above 80psi will close the regulator and there will be no airflow to the monitor.

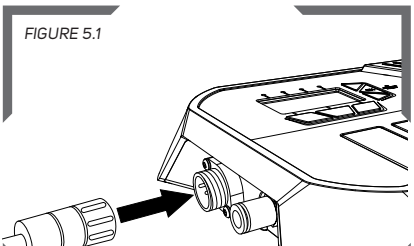
FIGURE 4.3



Connect the free end of the 3/8" O.D. Air Supply Hose 08-428 into the one-touch fitting on the 08-470 regulator.

CONNECTING THE POWER SUPPLY

FIGURE 5.1

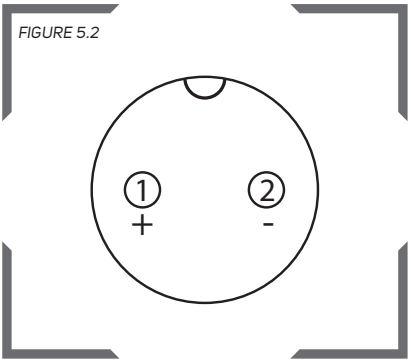


Connect the power supply by screwing it onto the receptacle on the left side of the unit (next to the air inlet fitting.) Plug the AC Adaptor into a power source.

⚠ WARNING **To reduce the risk of battery fire or explosion or of fire or electric shock with an external battery, follow the below electrical and battery precautions and procedures.**

WHEN USING A BATTERY:

FIGURE 5.2



Battery clips can be used on most 12V batteries, such as on a car or truck, or on a compressor. GX4® devices exposed to high voltages will be permanently damaged and will not be covered under the warranty. Surges on some equipment (particularly during startup/shutdown) can cause extremely high voltages. Do not connect the GX4® directly to 18V or 24V batteries. If you must connect to a battery higher than 12V, RPB® highly recommends using an appropriate DC-DC converter. A converter will also help protect against power surges and is recommended for use with 12V batteries as well. Consult your automotive or industrial electrician for help with convertor selection and setup.

To avoid startup power surges while using Battery Clips (08-431), only connect the battery clips when the vehicle or compressor is already running. Connect in the following order:

1. **Red** = +12V to the positive terminal of the battery.
2. **Black** =
   - If connecting to a vehicle or a compressor: connect the black clip to a bare metal ground location on the vehicle or compressor.
   - If connecting to a battery only: connect the black clip to the negative terminal of the battery.

Be sure to keep the GX4® as far away from the car, truck, or compressor exhaust as possible. Exhaust fumes can interfere with the measurements of the sensors, particularly when the air supply is not yet connected.

⚠ WARNING Refer to battery manufacturer and equipment manufacturer's instructions.

Explosion Hazard

- Batteries emit explosive gasses during normal operation.
- Keep sources of ignition away.
- Work in a well-ventilated area
- Avoid contacting/bridging terminals with metal objects - this can create sparks and ignite gasses.

SETUP AND OPERATION CONTINUED

Corrosive Chemicals can Injure Eyes and Skin

- Lead-Acid batteries contain sulfuric acid.
- Wear complete splash-proof eye protection, face shield and protective clothing such as apron and gloves when working near lead-acid batteries. Always have someone nearby for help.
- Have plenty of fresh water, soap and baking soda nearby for use, in case battery acid contacts your eyes, skin, or clothing. Wash immediately with soap and water and seek medical attention.
- If battery acid comes in contact with eyes, flush eyes immediately for a minimum 10 minutes and get medical attention.
- Neutralize any acid spills thoroughly with baking soda before attempting to clean up.

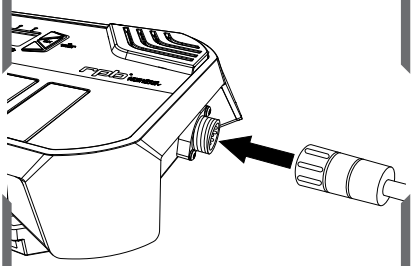
Shock and burn hazard

- Remove all personal metal items from your body, such as rings, bracelets, necklaces and watches. A battery can produce a short circuit current high enough to weld a ring to metal, causing a severe burn.

For more information, consult your automotive or industrial electrician.

CONNECT THE EXTERNAL ALARM

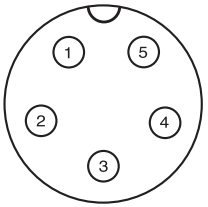
FIGURE 6.1



If using an external alarm device, connect the plug into the auxiliary outlet. The use of an external alarm is recommended when the GX4® cannot be seen or heard by the operator. The external alarm should be located near the work area to alert the operators of the status.

Alternatively, the auxiliary can control a shut-off valve to the blasting nozzle, or to an auxiliary strobe and alarm.

FIGURE 6.2



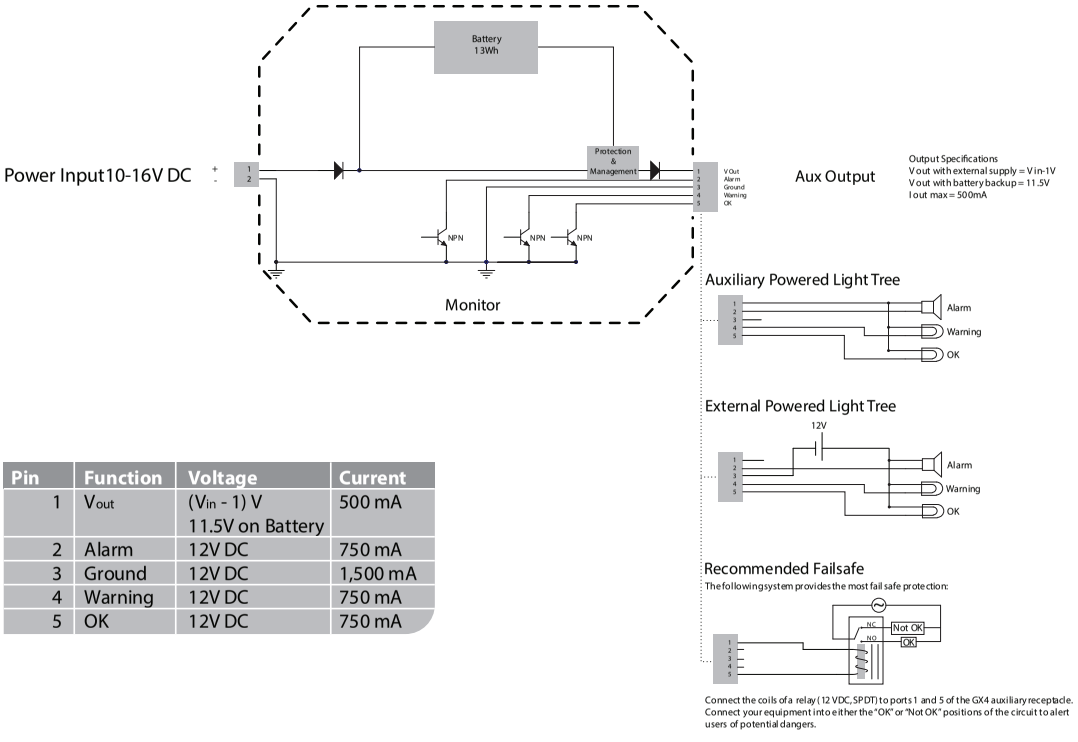
1. **Brown** - 12V DC
2. **Blue** - Alarm Out
3. **Black** - Ground
4. **White** - Warning Out*
5. **Green** - OK Out

To configure your own external device, use the bare end AUX cable (08-434). It is recommended to use a qualified electrician when wiring to ensure you do not damage the electrodes.

- Incorrectly wiring your auxiliary can permanently damage your unit.
- Always use a qualified electrician.
- Damage to the auxiliary is not covered under the manufacturer's warranty.

*The Warning Out signal is for a external light tree or other warning device.

FIGURE 6.3

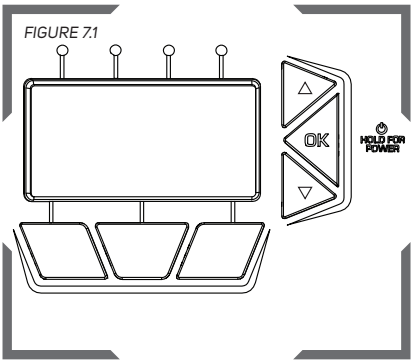


Pin	Function	Voltage	Current
1	V_{out}	(V_{in} - 1) V 11.5V on Battery	500 mA
2	Alarm	12V DC	750 mA
3	Ground	12V DC	1,500 mA
4	Warning	12V DC	750 mA
5	OK	12V DC	750 mA

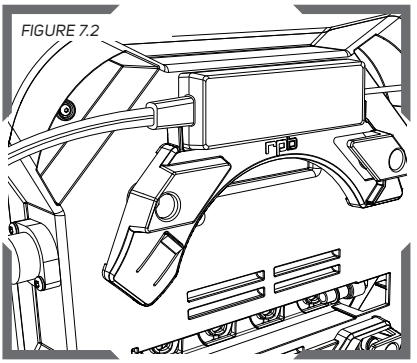
Note:
External ground must match that of the power supply. (08-430 has a floating ground, so will adjust to suit.)

SETUP AND OPERATION CONTINUED

POWER ON

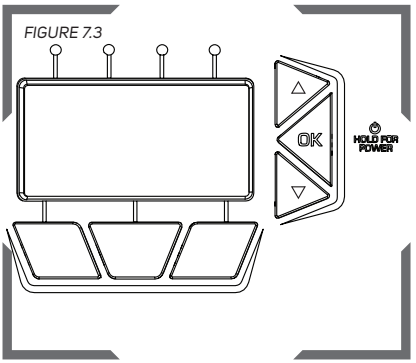


To turn the unit on, press and hold the "OK" button until the "rpb" logo appears on the screen.



Tip: you can store the AC Adaptor between the tabs on top of the mounting bracket.

POWER OFF



Press and hold the "OK" button and the unit powers down.

GAS DETECTION CARTRIDGES

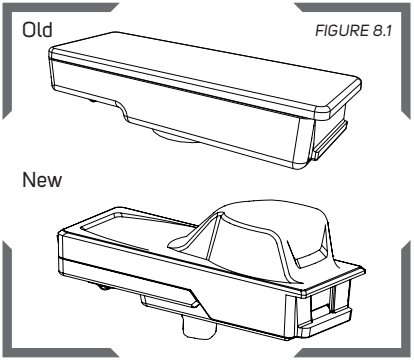


FIGURE 8.1

The gas detection sensors are supplied in individual cartridges. Select the cartridge for each gas you wish to detect at the correct alarm threshold for your region. (Some cartridges may look different than others, but will work the same.)

Visit rpbsafety.com/product/gx4-gas-monitor/ for a list of available sensors.

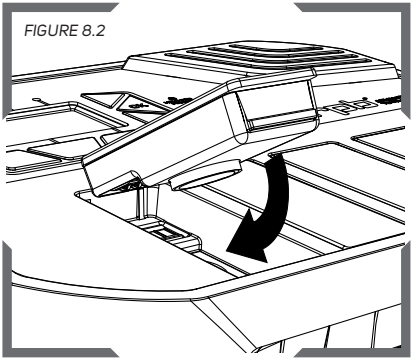


FIGURE 8.2

The unit can be on or off when inserting a cartridge. Make sure the contacts are clean before inserting a new cartridge. Rub the contacts in the monitor with your finger or a pencil eraser to make sure they are clean.

Insert the cartridge into any of the 4 slots in the monitor. First locate the top end so the tabs line up, then push the bottom until it clicks.

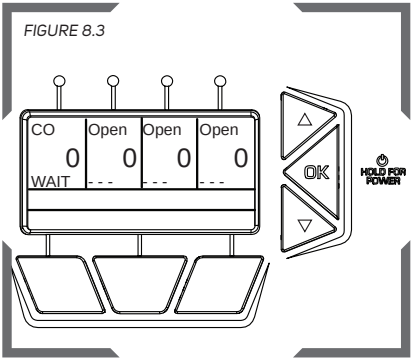


FIGURE 8.3

The cartridge will appear on the screen in the box that correlates to the slot it was placed in. The corresponding light above the screen will glow red or green to indicate the status. Instead of PPM, it will say "WAIT" until the cartridge is recognized.

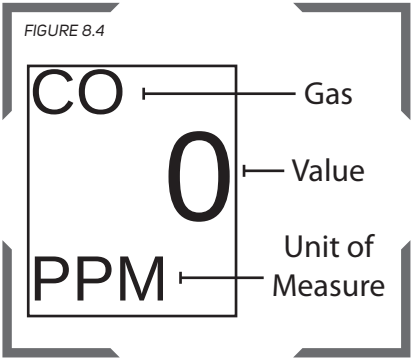


FIGURE 8.4

Each cartridge is represented by a box on the home screen. Each box shows the gas type, units of measure and the current reading.

SETUP AND OPERATION CONTINUED

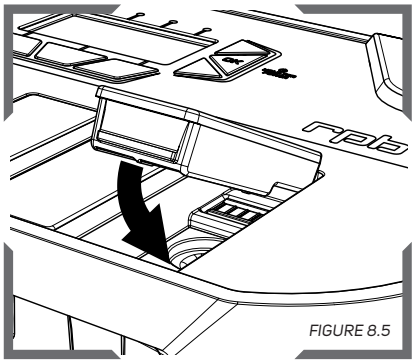


FIGURE 8.5

Each monitor comes with 3 blank cartridges. These should be placed into slots that are not currently being used to protect the contacts and air supply manifold.

REMOVE CARTRIDGE

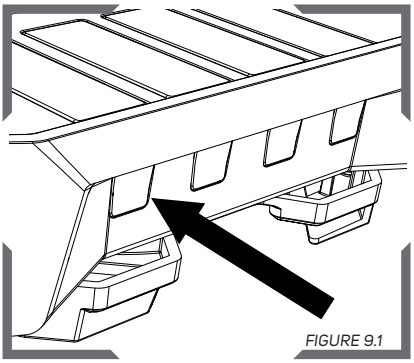


FIGURE 9.1

To remove a cartridge, press the corresponding release button and the cartridge will "pop up".

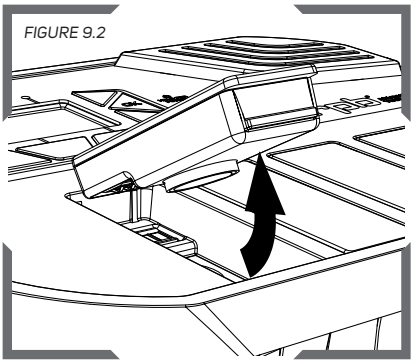


FIGURE 9.2

Lift the edge of the cartridge to remove it fully from the monitor. Replace with a new cartridge or a blank sensor cartridge.

When the cartridge is removed, a Warning will display on the screen. It will alarm after a countdown if the warning is not cleared before the countdown ends. Press the button below the word "REMOVE" and then confirm that the cartridge has been removed on the next screen by pressing the button below the word "OK" on the screen. Turning the unit off will not clear this Warning. The Warning will reappear when the unit is turned back on and it can be cleared at that time.

MENUS

About

Unit Status, Owner Information, Network, Power, and Device information. Owner information can be entered via the web interface.

Device Information

Displays information such as:

- Serial Number
- Firmware Version
- UUID/MAC address

Sensors

Sensor cartridge information on each.
Browse each cartridge for:

- Last date checked
- Expiration Date
- Type of gas sensor
- Safe/alarm range
- Date of Manufacture
- Total run time

More information about each cartridge can be found in the web interface.

Sensor Check Wizard

Follow the on-screen prompts to check the calibration of your sensor cartridges.

Network Settings

Configure a WiFi connection or change advanced IP settings.

When connecting the GX4® to a network you may be prompted to enter the network name (SSID) and the wireless password. If you do not know these, contact your network administrator or the documentation that came with your wireless router.

The IP settings are set automatically by default. To manually change the settings go to the network settings menu and enter the desired settings:

- IP Address
- Subnet Mask
- Default Gateway
- DNS Address

Date

To ensure continuity of the logs, the date is automatically set by the server. The clock has a dedicated 10 year battery.

Time

The time can be changed to display the current time zone and day light savings time. The logs are recorded in UTC/GMT and display according to your settings.

Synchronize the Internal Clock

To correct the Time/Date of your GX4®:

- Connect your GX4® to the internet. It must be connected in "Client Mode". See p. 12 or contact RPB® for instructions.
- Navigate to Menu → System → Time & Units → Sync Time. Press "OK" to sync the time.

Common errors:

- Unit offline: Your unit is not connected to a wireless network. Configure you unit into Client Mode.
- Unreachable: The GX4 was unable to contact the time service over your network.
- Time error: The time received was substantially different from the time on your unit. Contact RPB®.

Note: After synchronizing the time, your logs may appear out of order, but are still recorded in the order the events have actually occurred.

Units

The units of measure can be changed between Metric and Imperial.

SETUP AND OPERATION CONTINUED

Alarm and Auxiliary
Test the alarm and check the status of the auxiliary.

Device Software
Factory reset of firmware settings.
Note: Logs are not erased during a factory reset.

LOW FLOW SET POINT ADJUSTMENT

When the system detects that the air flow rate to the sensors is too low, a warning is triggered on the monitor and a warning signal is sent through the auxiliary outlet's "Warning Out" connection, which can be used to trigger an external light tree or other device.

The detected flow rate's accuracy is affected by temperature and ambient air pressure (for example, due to elevation changes). To ensure that the low flow warning is triggered at the proper flow rate, the low flow set point should be adjusted according to the below procedures monthly, and whenever there is a temperature change of more that 30 F (15 C) or an elevation change of more than 1000ft (300m).

⚠ WARNING An incorrect low flow set point can result in no warning if adequate air flow is lost, increasing the risk of inadequate protection.

To adjust the low flow set point:

1. Turn on air flow and adjust the inlet pressure to 15-20psi.
   a. Check that the flow reading is at least 50. If not, replace the manifold tube.
2. Turn off/disconnect all air flow to the GX4® and record the flow reading shown.
3. Turn on/connect the air flow to normal operating pressure, with all equipment attached and record the flow reading shown.
4. If these normal flow and no flow readings are less than 40 points apart, adjust the inlet pressure closer to 20psi and retest.
5. Once the readings are at least 40 points apart, change the low flow set point to be halfway between the two readings. The low flow set point can be adjusted in the menu at: System →Alarms →AUX Flow Threshold.

CHANGE GAS CONCENTRATION

The expected gas concentration can now be altered to match the certificate of your gas bottle. When selecting the gas calibration wizard, select "Edit" then scroll up/down to adjust the concentration.

The monitor will alter the calibration of the cartridge to meet the expected value. Note, this will only make minor changes from the original setting.

When starting the calibration validation wizard, you will be prompted, "Re-calibrate sensors to match gas specification."

- If you select "Yes", the cartridge will be adjusted upon completion of each gas test.
- If you select "No", the wizard functions normally and only checks the sensors.

Sensors cannot be changed too far from their initial factory calibration and the amount varies by

sensor type. For example:

- CO sensor can be changed by -5% to +12.5%
- CO cannot adjust the "Zero" point
- O2 can be adjusted by +/- 0.2% O2 on the reading

This feature is only compatible with sensors of Version 2.0 or greater. You can find the version of the sensor in the sensor details menu.

ALARMS

The alarm will sound in the following scenarios:

- Concentration of any gas being monitored exceeds the allowable limits set by the cartridge
- Software becomes unresponsive
- Air supply is lost or "low air flow" is detected
- Cartridge is missing
- Battery is low

The screen will display which gas and cartridge is detecting the alarm. Also, the light above the affected slot on the screen will turn red.

The alarm can be silenced by pressing the "Silence" hot key button under the screen. This will silence the alarm for 30 seconds. If the gas concentration is still above the allowable limit the alarm will sound again.

All alarms and silence events are recorded in the event logs.

It is recommended that an external alarm system be wired to the Auxiliary outlet.

BATTERY

The GX4® is designed to be run on external power. It does have a built in Lithium Polymer battery that is intended for backup purposes in the event of a power failure.

The monitor can run for up to 10-12 hours on battery power. It is not recommended to run the GX4® on battery power regularly or for extended periods of time.

The status of the battery is shown on the home screen as per Fig. 11.1

SETUP AND OPERATION CONTINUED

⚠ WARNING **To reduce the risk of battery fire or explosion or of fire or electric shock with the charger, follow the below electrical and battery precautions and procedures:**

FIGURE 11.1

Note:
The unit requires 10 seconds to read the battery level after the unit is turned on.

Before plugging in:

■ Inspect the charger and power cords before use. Replace if any parts are damaged. Do not substitute, modify or add parts to the chargers. Do not attempt to service the chargers. There are no user-serviceable parts inside.

■ Use only the provided charger and cord.

Where to plug in:

Plug in only:

■ indoors,

■ in a dry area,

■ away from sources of heat,

■ away from anything that can burn if exposed to heat or flame,

■ in a well-ventilated place,

■ where the unit can be monitored and easily observed.

Charging

The Power Supply is a universal 110-240 volt adaptor. The batteries are manufactured to last 350 charge cycles for peak performance. Full charging cycles take 4 hours.

Battery Care

■ Do not **USE** the unit outside the recommended temperature limits 14° F to 140° F (-10° C to 60° C).

■ Do not **CHARGE** the unit outside the recommended temperature limits 32° F to 113° F (0° C to 45° C).

■ Do not **STORE** the unit outside the recommended temperature limits 14° F to 113° F (-10° C to 45° C).

■ Do not disassemble. Do not immerse in water or other liquids.

Battery and Charger Care

■ Use only the 08-430 Power Supply with correct region specific plug.

■ If the unit or power supply gets excessively hot, discontinue use and allow them to cool.

Disposal

This unit contains a battery pack. Dispose of battery packs according to local regulations. Do not crush, disassemble, dispose of in standard waste bins, in a fire, or send for incineration. Failure to properly dispose of battery packs may lead to environmental contamination, fire or explosion. If you have any questions, ask your employer.

MAINTENANCE

MANIFOLD CHECK AND REPLACE

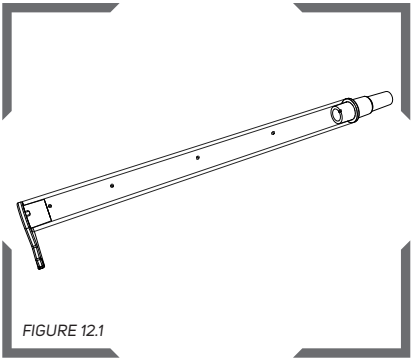


FIGURE 12.1

In the back of the GX4®, there is a manifold (to distribute the air to the sensors) comprised of a clear tube with end caps. This needs to be checked weekly to ensure it is clear of oil and debris. Note: Evidence of oil indicates an air supply issue that needs to be resolved.

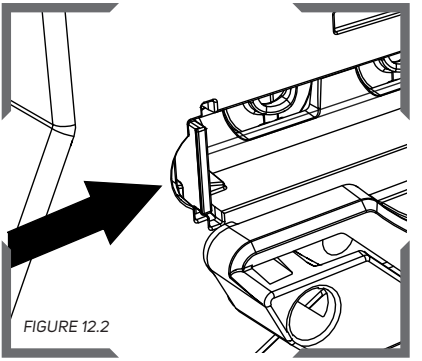


FIGURE 12.2

To remove the manifold for inspection, press in the green clip so it can be pulled out through the notches of the monitor case.

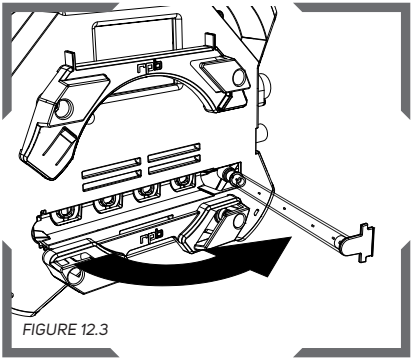


FIGURE 12.3

Rotate the manifold so it is sticking straight out from the back of the monitor.

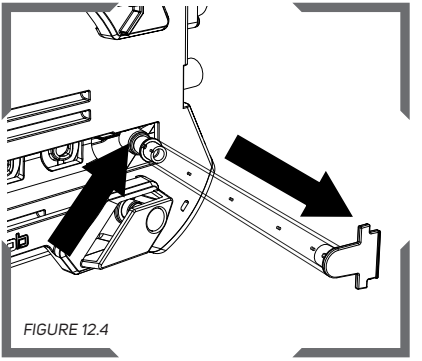


FIGURE 12.4

At the base of the manifold is a push-lock fitting with a green ring. Pull out the manifold while pushing on the ring.

MAINTENANCE CONTINUED

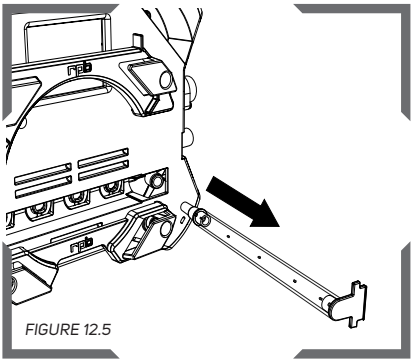


FIGURE 12.5

After removing the manifold, inspect it from all sides to make sure all of the holes are clear and that there is no oil or debris inside of the tube. DO NOT DISASSEMBLE THE MANIFOLD. If there is oil or debris inside of the manifold a replacement manifold (P/N: 08-422) must be used.

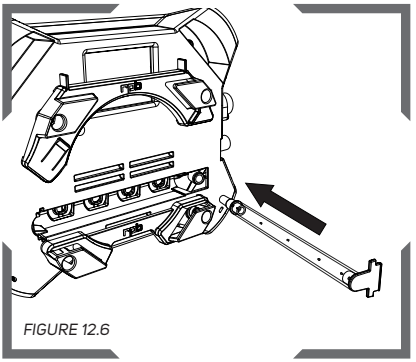


FIGURE 12.6

To replace the manifold, insert the tapered end into the green ring of the push-lock fitting inside the back of the monitor. Orient the holes in the manifold towards the sensors.

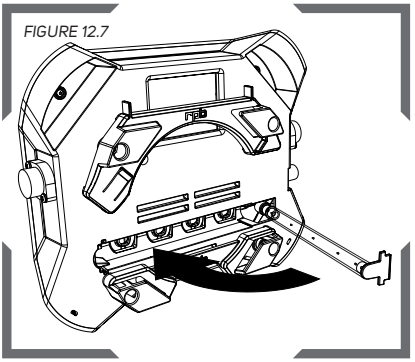


FIGURE 12.7

Rotate the manifold into the back of the monitor so the clip goes into the notches on the back of the monitor making sure it is securely clipped in with an audible "click".

REPLACE MOUNTING BRACKETS

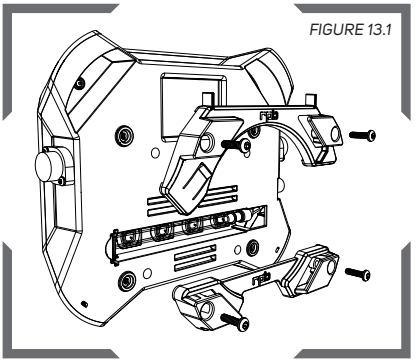


FIGURE 13.1

If the Mounting Brackets (P/N: 08-425) break, you can replace them by removing the two screws securing each bracket. Remove the broken bracket and replace with a new bracket. Secure the new bracket with the provided (UNC 10-24 x ¾") screws.

CLEANING INSTRUCTIONS

The GX4® should be kept clean to insure optimal performance. Different parts of the GX4® should be cleaned using these instructions:

Sensor Cartridge Contacts:
The contacts on the unit and on the cartridges need to be kept clean. Clean dust and dirt off of the contacts with a dry paper towel or cloth. Occasionally clean the contacts with cotton swabs dipped in isopropyl alcohol. For black streaks from contacts rubbing, use a pencil eraser or a finger tip. If the cartridge is not registering when put into the GX4®, it is most likely the contacts need to be rubbed with a finger tip.

Keypad:
Clean the keypad with mild household cleaner. For paint on the keypad, carefully clean with MEK or other paint cleaning agents. Be sure not to get MEK or other agents on the cartridge contacts or the cartridge sensors.

Sensors:
If the white sensor in the cartridge is dirty, replace the cartridge with a new one. This should be checked monthly.

Sintered Brass Filters:
If the inlet filter is dirty or clogged, replace it with a new one (08-429). (Do not remove the sintered brass filter from the Manifold Tube. If it is dirty or clogged replace the Manifold Tube (08-422). These should be checked weekly.

Power/AUX Receptacles:
Spray with compressed air, clean the contacts following the contact cleaning instructions.

Alarm Siren:
Spray with compressed air.

GX4® Housing/Cartridge Housing:
Clean with mild household cleaner. For paint, wipe off with MEK or other paint cleaning agents.

SENSOR CHECK

The gas sensor cartridges come pre-calibrated, but they should be checked monthly to ensure they are still calibrated within government regulations. Select "Menu" → "Sensors" → "Check Sensors", then follow the prompts on the display menu to run a Sensor Check on each cartridge.

You will need:

- Zero Air Bottle (08-460) containing 20.9% Oxygen in Nitrogen.
- Control Air Bottle(s) specific to the gas of the cartridge(s) being checked.
- Calibration Kit (08-451) to connect the bottles to the GX4®.

MAINTENANCE CONTINUED

⚠ WARNING Alarms will be disabled. You must confirm the monitor is not in use. Always store and use in a well ventilated area when working with compressed air and hazardous gases. Avoid contact with eyes, skin and clothing by wearing proper PPE, such as safety glasses and gloves. Refer to warnings and instructions on the gas bottles.

Calibration Gas should be supplied between 1 and 4slpm or via a pressure regulator. Using the 08-451 Regulator with 08-460, 08-461 and 08-462 Gas, up to 40 calibration checks can be performed.

The unit will confirm if the cartridge(s) are still in calibration or not. If the cartridge(s) pass, you may proceed to checking the next cartridge(s) or using the monitor. If the cartridge(s) are no longer in calibration, replace the cartridge(s) with a new one(s).

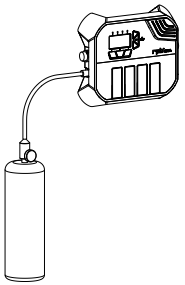
Sensor Checks are recorded into the Logs and Certificates can be generated using the web interface.

SENSOR CHECK OPERATION - CALIBRATION VALIDATION WIZARD

DO NOT REMOVE THE CARTRIDGES DURING A SENSOR CHECK.

1. Disconnect air supply.
2. Press the "Menu" button.
3. Select "Sensors".
4. You will need: Zero Air: 08-460, Control Air (select depending on type of sensor being checked). Calibration Kit: 08-451
5. Ensure you are wearing proper P.P.E., such as safety glasses and gloves, and are in a well ventilated area.
6. Agree to disable the alarms.
7. Firmware V2.0.0 allows you to Auto-Adjust the cartridge. Follow prompts in the wizard and select Auto-Adjust or Validate Only. To proceed, select the appropriate touchpad.
8. Firmware V2.0.0 allows you to edit the concentration of the Gas. To proceed, follow prompts in the wizard and Select the appropriate touchpad and select the ppm.
9. Select Control Gas type.
10. Connect gas and open the valve.
11. Start the test.
12. Test pass or fail.
13. Close the valve and disconnect the Air.
14. Connect Zero Air and open the valve.
15. Close the valve and disconnect the Zero Air.
16. If the sensor failed, remove it from the unit and replace it with a new cartridge.
17. Reconnect to the air supply to resume regular operation.

FIGURE 10.1



Connect the test air bottles to the air inlet.

FIGURE 10.2

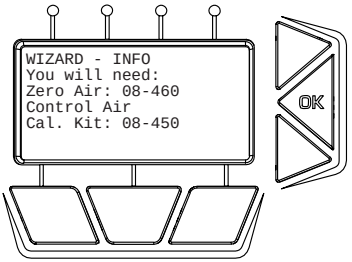


Figure 10.2 is an example of the on-screen display during a sensor check.

CARTRIDGE REPLACEMENT

The Sensor Cartridges have a two year lifespan from their date of manufacture. After the expiration date their readings may be unreliable. A warning will pop-up on the GX4® when the cartridge is going to expire in 30 days and will reset every day until it expires. Once the cartridge expires a message will pop every 6 hours and the AUX will not output the OK signal.

Upon removal of a cartridge, a warning message will appear on the screen. If a response to this warning is not made within 30 seconds, the alarm will sound. This is a safety feature to detect a cartridge coming out of the unit unintentionally.

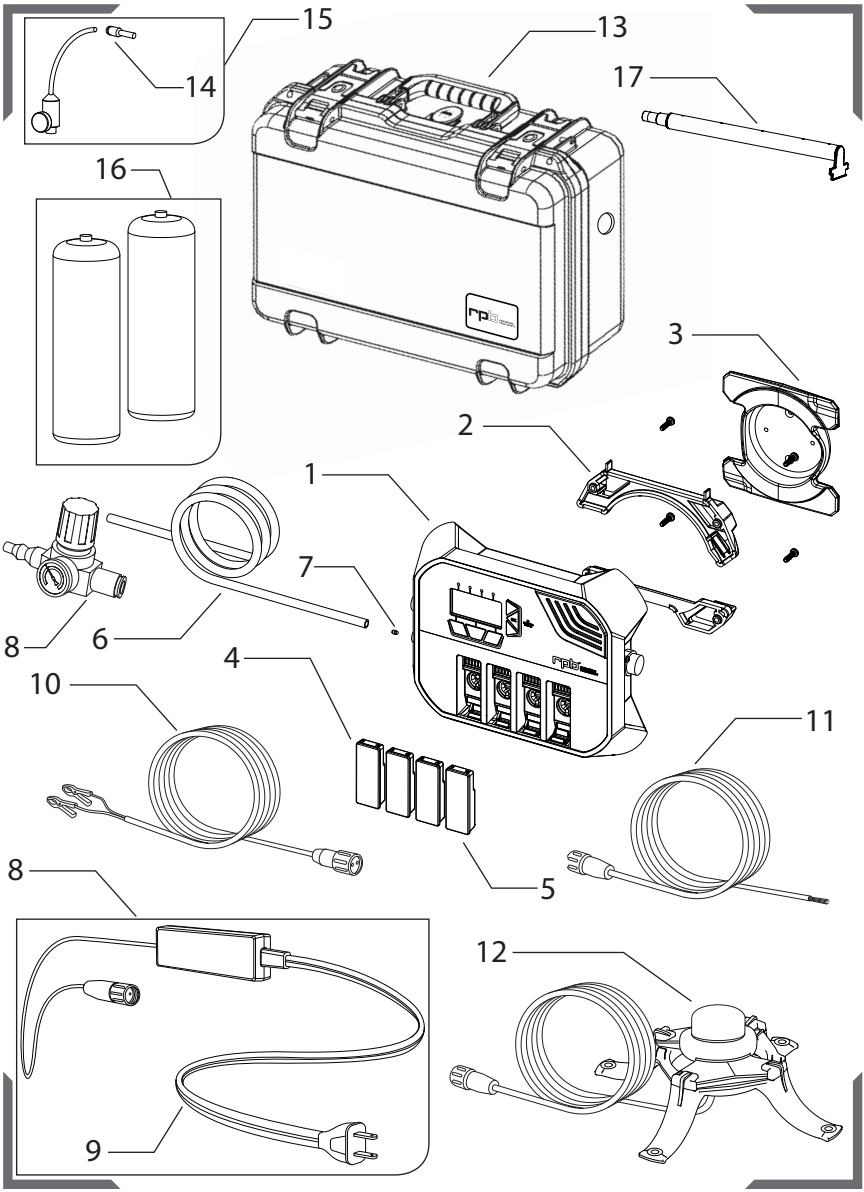
MAINTENANCE SCHEDULE:

Weekly: Check the manifold tube, sintered bronze inlet filter

Monthly: Sensor Cartridges - clean contacts, calibration check

Every 3 months: Check for firmware updates (and when a new cartridge is installed)

PARTS AND ACCESSORIES *FIGURE 14.1*



PARTS LIST

ITEM NUMBER	DESCRIPTION	PART NUMBER
1	GX4® Gas Monitor with mounting brackets	08-410
2	Mounting Brackets (Pair)	08-425
3	Wall Mounting Bracket	08-231
4	Carbon Monoxide Sensor (CO) 10ppm	08-420-01
	Carbon Monoxide Sensor (CO) 5ppm	08-420-02
	Hydrogen Sulfide Sensor (H_2S) 10PPM	08-420-03
	Oxygen Sensor (O_2) 19.5-23.5%	08-420-04
5	Blank Cartridge	08-420
6	Air Supply Hose	08-428
7	M5 Inlet Filter, Sintered Brass	08-429
8	AC Adaptor and Power Cord - USA	08-430
	AC Adaptor and Power Cord- UK	08-430-UK
	AC Adaptor and Power Cord - AU/NZ	08-430-AU
	AC Adaptor and Power Cord- EU	08-430-EU
9	Power Cord - US	09-021
	Power Cord - UK	09-021-UK
	Power Cord - AU/NZ	09-021-AU
	Power Cord - EU	09-021-EU
10	Battery Clips	08-431
11	AUX Cable, Bare Ends w/50ft. Cable	08-434
12	AUX Strobe Light w/50ft. Cable	08-435
	AUX Strobe Light w/Alarm w/50ft. Cable	08-436
	AUX Field Install Jack	08-437
	Power Field Install Jack	08-438
13	Heavy Duty Field Case	08-424
14	Calibration Adaptor	08-450
15	Calibration Regulator Kit 1.5slpm, includes 08-450	08-451
16	34L Zero Air Cylinder	08-460
	Carbon Monoxide (CO) 20PPM Cylinder	08-461
	Hydrogen Sulfide (H_2S) 20PPM Cylinder	08-462
17	Manifold Tube	08-422
18	Regulator Assembly	08-470
	Regulator Assembly with RZ fitting	08-470-RZ

⚠ WARNING **Use only exact, authentic RPB® replacement parts (marked with the RPB® logo and part number), and only in the specified configuration. Using incomplete or inappropriate equipment, including the use of counterfeit or non-RPB® parts, can result in inadequate protection.**

LIMITED WARRANTY

RPB® warrants that its Products will be free from defects in materials and workmanship for one (1) year, subject to the terms of this limited warranty. The Products are sold only for commercial use, and no consumer warranties apply to the Products. This limited warranty is for the benefit of the original Product purchaser, and cannot be transferred or assigned. This is the sole and exclusive warranty provided by RPB®, and ALL CONDITIONS AND IMPLIED WARRANTIES (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE) ARE EXCLUDED AND DISCLAIMED FROM WARRANTY COVERAGE. RPB's® limited warranty coverage does not apply to damage resulting from accident, improper use or misuse of the Products, wear and tear resulting from the normal use of the Products, or the failure to properly maintain the Products.

RPB's® limited warranty coverage runs from the original date of purchase of the Products, and applies only to warranted defects which first manifest themselves and are reported to RPB® within the warranty period. RPB® retains the right to determine to its reasonable satisfaction whether any claimed defect is covered by this limited warranty.

If a warranted defect occurs, RPB® will repair or replace the defective Product (or a component of the Product), in its sole discretion. This "repair or replacement" remedy is the sole and exclusive remedy under this limited warranty, and under no circumstances shall RPB's® liability under this limited warranty exceed the original purchase price for the Products (or the applicable component). RPB® has no responsibility for incidental or consequential damages, including loss of use, maintenance and other costs, and ALL INCIDENTAL AND CONSEQUENTIAL DAMAGES ARE EXCLUDED AND DISCLAIMED from this limited warranty. Contact RPB® to obtain warranty service. Proof of purchase must be provided to obtain warranty service. All costs of returning the Products to RPB® for warranty service must be paid by the purchaser.

RPB® reserves the right to improve its Products through changes in design or materials without being obligated to purchasers of previously manufactured Products.

LIABILITY

RPB® Safety cannot accept any liability of whatsoever nature arising directly or indirectly from the use or misuse of RPB® Safety products, including purposes that the products are not designed for. RPB® Safety is not liable for damage, loss or expense resulting from the failure to give advice or information or the giving of incorrect advice or information, whether or not due to RPB® Safety's negligence or that of its employees, agents or subcontractors.

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OTHER PRODUCTS

ISO9001 CERTIFIED COMPANY

AIRLINE FILTRATION

The RPB® RADEX AIRLINE FILTER™ offers increased capacity, versatility and filtration. This optional equipment combines the versatility of either floor or wall mounting with increased filtration capacity, enabling customization to meet worker's needs and working environments.

RPB® C40™ CLIMATE CONTROL

Looking for an advanced climate control device that can heat and cool your supplied air just by the slide of a lever? Look no further than the RPB® C40™. From the searing heat of an Arizona summer to a severe Scandinavian winter the RPB® C40™ will keep you comfortable.

RPB® NOVA 3® RESPIRATOR

The RPB® NOVA 3® combines breakthrough protection technology with advanced comfort and functionality, surpassing even the most rigorous industry standards and the demands of the most quality-conscious companies. Designed to optimize safety and productivity, and to minimize worker downtime, the helmet has a host of features that maximize its lifetime value.

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