



Installation and Maintenance Manual

GPL 750

Natural Gas Odorization System

Patented



GPL Odorizers

12450 W. Cedar Drive
Lakewood, CO 80228
303 927-7683
info@gplodorizers.com
www.GPLodorizers.com
www.LincEnergySystems.com (master distributor)



303-927-7683
GPL Odorizers LLC
12450 West Cedar Drive
Lakewood, CO 80228
info@GPLodorizers.com

Thank you for your purchase of the GPL 750 Natural Gas Odorization System. You will find the GPL 750 Installation and Maintenance manual in the pages that follow.

Please understand that failure to adhere to these instructions may void warranty, destruction of property, injury, or even death. Our service contracts are a convenient and cost-effective way to protect your warranty coverage as well as your property. If you are interested in learning more about our GPL Odorizers Maintenance Program to ensure that your unit remains functioning correctly, please call us today at (303) 927-7683.

Thank you for your trust in our products.

Garrett Cox
Director of Operations
GPL Odorizers LLC



Do not install, maintain, or operate this equipment without reading, understanding, and following the GPL Odorizers instructions. Otherwise, injury or damage or both may result.

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Note

The information contained in this document is subject to change without notice.

Contents

Safety Information.....	6
General Safety Precautions	6
Warning Labels	7
1.1 GPL 750 System Components.....	8
1.2 Odorant Filter	9
1.3 Pressure Regulator	9
1.4 Solenoid Valve	9
1.5 Metering Valve	9
1.6 Optical Comparator.....	10
1.7 HMI/PLC	10
1.8 Drip Chamber and Optical Array.....	11
2.0 Principles of Operation.....	12
3.0 Installation	13
3.1 Site Requirements	13
3.1.1 Unit Location	13
3.1.2 Blanket Gas.....	14
3.1.3 Electrical Power	14
3.2 Equipment and Tools.....	14
3.3 Tubing.....	14
3.4 Wiring.....	15
3.4.1 Electrical Connections	16
3.4.2 Terminal Block 2	22
3.5 Leak Testing.....	24
3.6 Purging the Odorant Line	25
3.7 Unit Configuration	25
3.7.1 Setting up the Modem	25
3.7.2 Configure Using Webpages.....	27
3.7.3 Configure Using the HMI	27
3.8 Optical Comparator	28

3.8.1 Calibrate Optical Comparator	28
4.0 Accessories.....	30
4.1 Included.....	30
4.1.1 Sonic Muffler.....	30
4.2 Optional	30
4.2.1 120VAC Hazardous Location Heater	30
4.2.2 120VAC to 24VDC Converter Power Package	30
4.2.3 GPL 100 Thermal Mass Flow Meter	30
5.0 Tanks	31
6.0 Standard Warranty	31
7.0 Factory Assistance	34
8.0 GPL 750 Maintenance Operations	35
8.1 Weekly	35
8.2 Monthly.....	35
8.3 Yearly.....	35

Safety Information

Please read the entire manual before attempting to unpack, set up, or operate this product. Failure to do so could result in serious personal injury and equipment damage. Pay careful attention to all Warnings, Cautions, and Notes.

Use of Hazard Information

If multiple hazards exist, the signal word corresponding to the greatest hazard shall be used.

Definitions



DANGER indicates a hazardous situation exists that may result in death or serious injury if not avoided.



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



CAUTION, used with the safety alert symbol, indicates a hazardous situation exists that could result in minor or moderate injury if not avoided.



NOTICE is used to address practices unrelated to personal injury, which could lead to property damage.

NOTE: Information that requires special emphasis.

SHALL: This word is understood to be mandatory.

SHOULD: This word is understood to be advisory.

General Safety Precautions

Selection, Installation, and Use



Improper selection, installation, or use can cause personal injury or property damage. It is solely the responsibility of the user, through its own analysis and testing, to select products suitable for their specific application requirements, ensure they are properly maintained, and limit their use to their intended purpose.

Follow proper local, state, and federal regulations for proper installation and operational requirements.

Always use caution and common sense when working with any chemical. Read the product label and MSDS carefully and follow the instructions exactly.

Potential Equipment Hazards



Hot surfaces! This equipment may have very hot surfaces. If an operator contacts a hot surface, an injury may occur. Use protective clothing to prevent injury. If other equipment comes in contact with a hot surface, damage to the equipment may occur. Ensure the area around this equipment is kept clear to prevent damage from occurring.

High pressures! This equipment may contain fluids at very high pressures. Before installing, removing, or maintaining this equipment, ensure that the equipment is isolated from all connecting piping, the equipment is depressurized, the contents have been drained, and the equipment is cool.



When changing any electrical or electronic parts, the power must be turned off, or the warranty is null and void.

Warning Labels

Location

Content

Power Strip

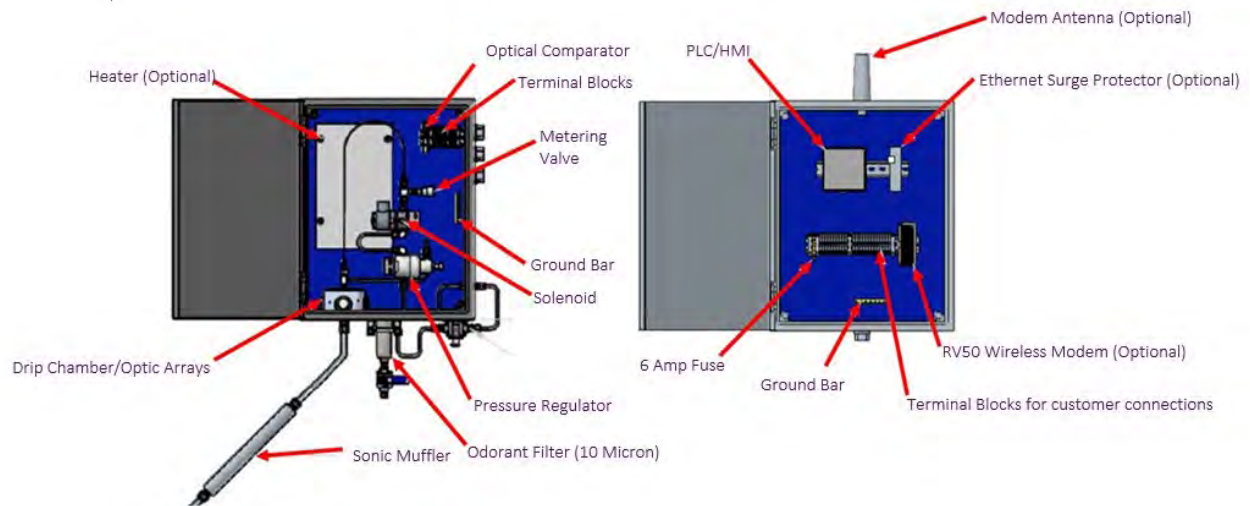
Before connecting power

1. Install an appropriately sized fuse per local electrical code.
2. Wire Sized for 24VDC@6A
3. Isolated from Pipeline
4. Proper power protection
5. Conduit per Hazardous Location Standards

1.0 Overview

The GPL 750 natural gas odorizer accurately doses the gas with odorant in individual droplets of 0.01 cc. The optical sensor counts each droplet and feeds the information back to the controller. The controller measures the flow and injects the next odorant dosage when sufficient gas has passed. The actual dose is calculated and optimized based on flow rate requirements and the configured injection rate. The measure can vary from one to multiple drops to provide optimal and consistent odorization and maximize the component life. The target period between doses is three minutes. The optimization algorithm creates some variation in the duration between doses to compensate for the effects of flow rate fluctuations.

1.1 GPL 750 System Components



Class I Div. 2 Featured in Illustration

1.2 Odorant Filter

The continuous mode provides a constant odorant flow into the stream at appropriate proportions. Use the continuous mode for gas flow rates higher than 100 MSCFH.



Odorant Filter

1.3 Pressure Regulator

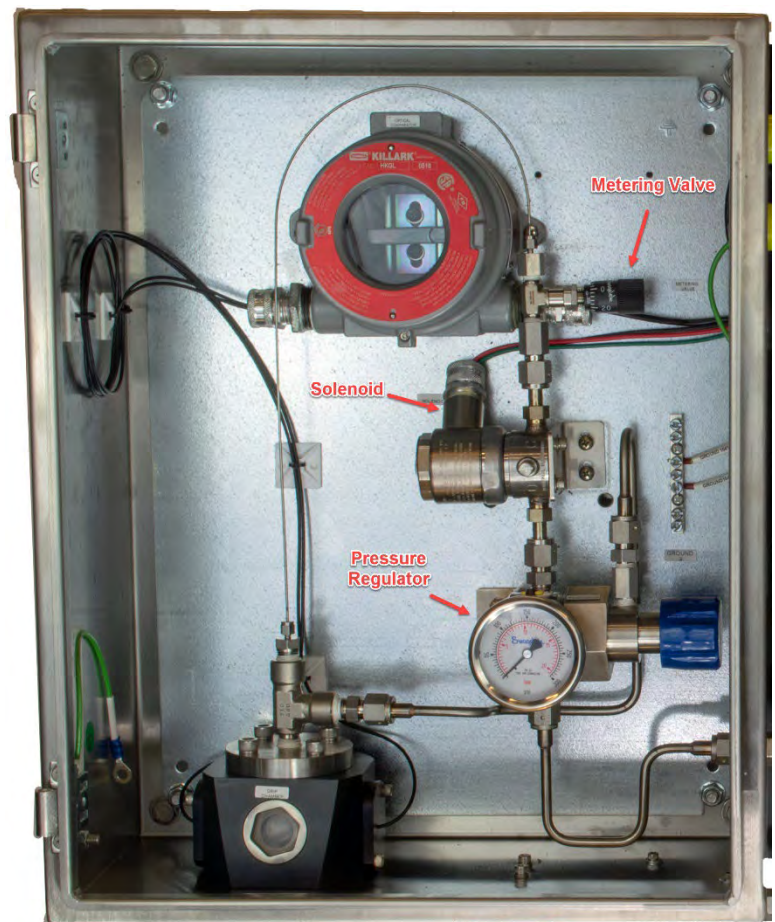
The pressure regulator allows the customer to adjust odorant pressure. A sensing line is connected to the gas pipeline so the regulator can react to fluctuating pipeline pressures and keep the differential constant (similar to a dome-loaded regulator). The pressure gauge reflects the odorant outlet pressure.

1.4 Solenoid Valve

The solenoid valve controls the flow of odorant to the pipeline. When the unit injects a batch of odorant into the pipeline, the solenoid opens; the valve closes when the desired amount of odorant is injected. Normally, the valve is closed for safety. In the event of power loss or solenoid failure, the valve can be opened manually. Per GPL Warranty, this valve must be replaced after 1,000,000 cycles. The PLC triggers an alarm when the cycle limit is reached.

1.5 Metering Valve

The metering valve regulates the drip rate of the odorant into the pipeline. To decrease the drip rate, turn the valve clockwise. To increase the drip rate, turn the valve counterclockwise. This valve has a hex key that allows the technician to lock the valve into place



1.6 Optical Comparator

The optical comparator and arrays use fiber optics to count drops as they fall through the drip chamber and into the line. Even with tiny doses, the reliable counting of drops drives the injection system’s accuracy.

The optical array on one side of the drip chamber transmits a beam that is picked up by the array on the opposite side. When the beam intensity suddenly changes, the comparator registers a drop. When the comparator “sees” a drop, it transmits a signal to the PLC.

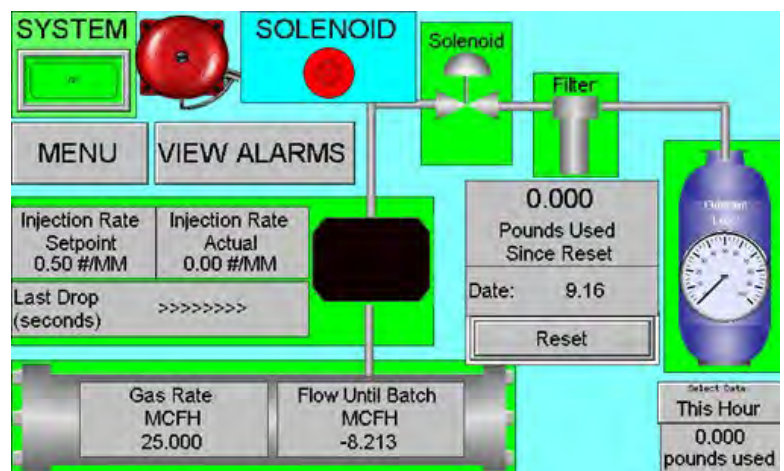
- Green light - Comparator is powered (always on)
- Red light - The arrays are locked onto each other (always on)
- Yellow light - A drop has fallen. If there is more or less than one flash per drop, the comparator must be calibrated.

Optical Comparator



1.7 HMI/PLC

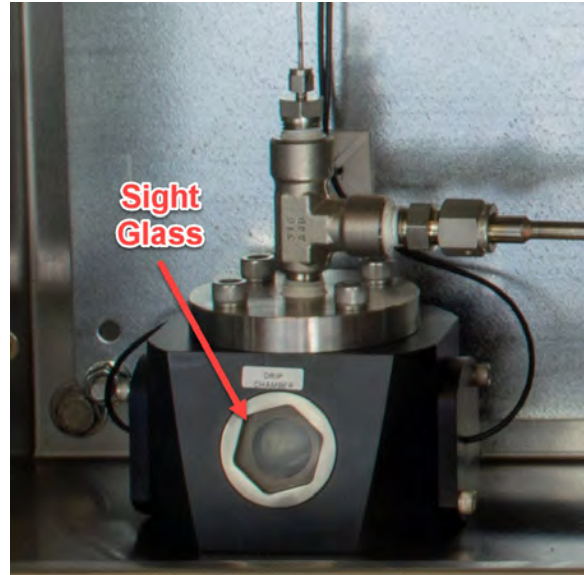
The HMI/PLC controls all operations of the odorizer. All inputs/outputs are connected to the PLC (Solenoid actuation, flow signal, odorant drip count, etc.). The bright LCD and touchscreen allow the technician to control and configure all settings of the odorizer. This PLC is available with a heated display for cold weather applications.



Controller

1.8 Drip Chamber and Optical Array

The drip chamber incorporates the use of (2) optical arrays on either side of the chamber to count the odorant drops. There is a total of (3) sight glasses, (2) for the optical arrays, and (1) for the technician to observe odorant droplets.



2.0 Principles of Operation

- The GPL 750 uses batch mode operation to odorize natural gas; the unit waits for a predetermined amount of gas to flow through the pipeline meter before opening the solenoid valve and injecting the odorant.
- When a batch is called for, the PLC actuates the solenoid opening up the pathway for odorant to drip into the pipeline.
- The controller registers each drop that passes the optical sensor, and a flow rate is determined. The optical sensor can accurately record drops as fast as 6/sec, which is well beyond the maximum dosing rate range.
- If an additional drop falls after the valve is shut, the system recognizes the incident, and an appropriate additional amount of gas is calculated and permitted to flow before the next dose.
- Spring- and dome-loaded regulators automatically control the pressure of the odorant to the injector based on pipeline pressure to ensure consistent dosing.
- The controller calculates the odorant injection rate and determines the total odorant usage. A pulse is generated when a configurable mass of odorant has flowed.
- Additionally, measured gas flow rate and mass of odorant injected are stored hourly in non-volatile memory for regulatory documentation.
- The system monitors itself and generates an external alarm signal if it cannot odorize within the configured alarm range. Alarm conditions are stored and time-stamped in non-volatile memory.
- In a power failure, the solenoid may be manually opened and the pressure regulator adjusted to provide an acceptable injection rate in a mechanical mode. In this case, if the flow computer is down because there is no power on site, gas can still be safely odorized and delivered.
- With only one moving part contacting the odorant, this is a highly reliable and easily maintained system.
- The controller combines the speed and programming power of a PLC with a low current draw and flexible communications of an RTU and the modern features of an internet server.

3.0 Installation



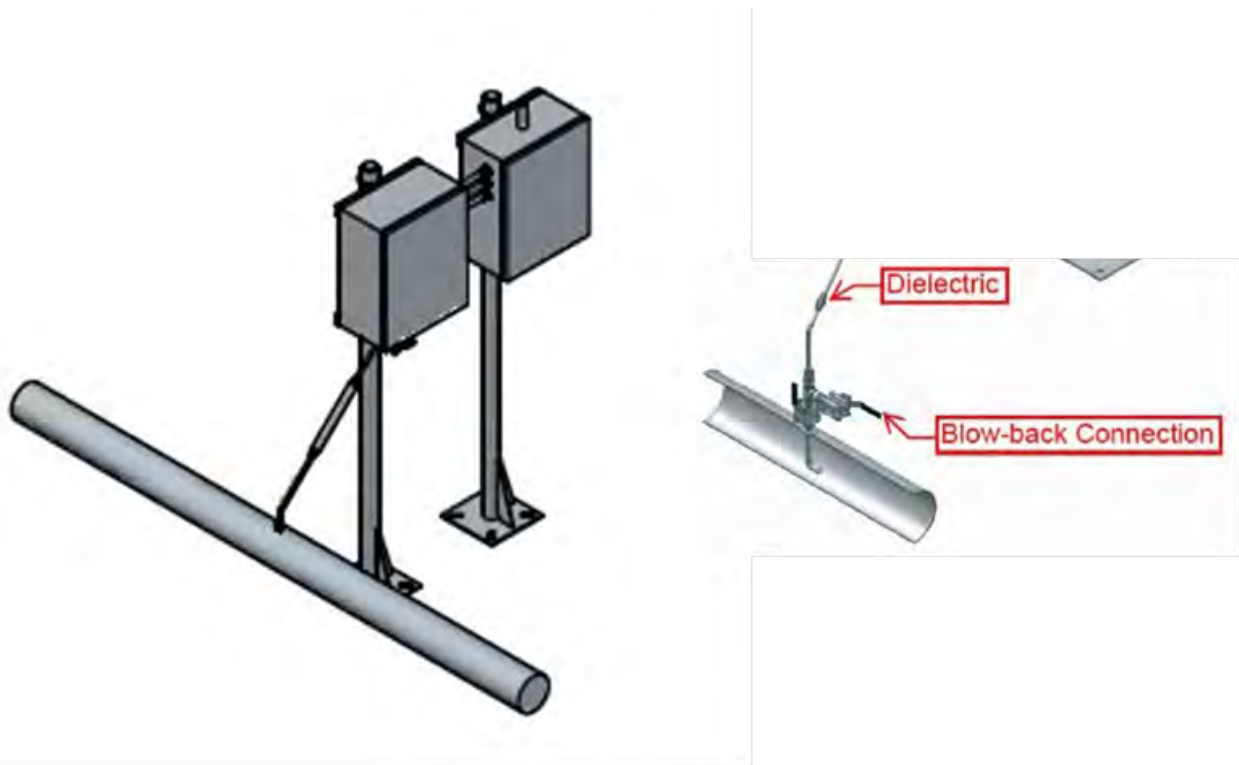
Qualified personnel should perform the installation by applicable state/provincial and local codes and procedures.

3.1 Site Requirements

3.1.1 Unit Location

The GPL 750 must be mounted high enough to run 1/2" stainless steel tubing from the outlet on the bottom of the unit to the injection point on the pipeline. Allow room for the sonic muffler (P/N 6-05081A, shipped loose), dielectric union, a ball valve to isolate the odorizer from the pipeline, and a "blow-back" tee and ball valve. The tubing exiting the bottom of the GPL 750 shall be no less than 45 degrees from the horizontal, and there should be no horizontal portions of tubing between the unit and the injection point. This positioning allows the drops to fall by gravity into the pipeline. Because the electrical and mechanical components are in separate enclosures, the electrical enclosure does not need to be mounted above the pipeline. GPL Odorizers recommends that the electrical enclosure be installed so that the odorizer technician can easily access it.

Mounting methods include wall, pole, stand, skid, or custom package.



Class I Div. 2 Featured in Illustration

3.1.2 Blanket Gas

Blanket pressure on the odorant tank provides the differential pressure necessary to drive the odorant into the line.

- Blanket gas pressure must be 15 PSI over the pipeline gas
- Nitrogen or pipeline gas

3.1.3 Electrical Power

- 24 VDC
- 6 Amp

3.2 Equipment and Tools

Tools needed for installation of the GPL 750 include:

- Allen wrenches
- Open-end wrenches
- Precision flathead (jeweler's) screwdriver

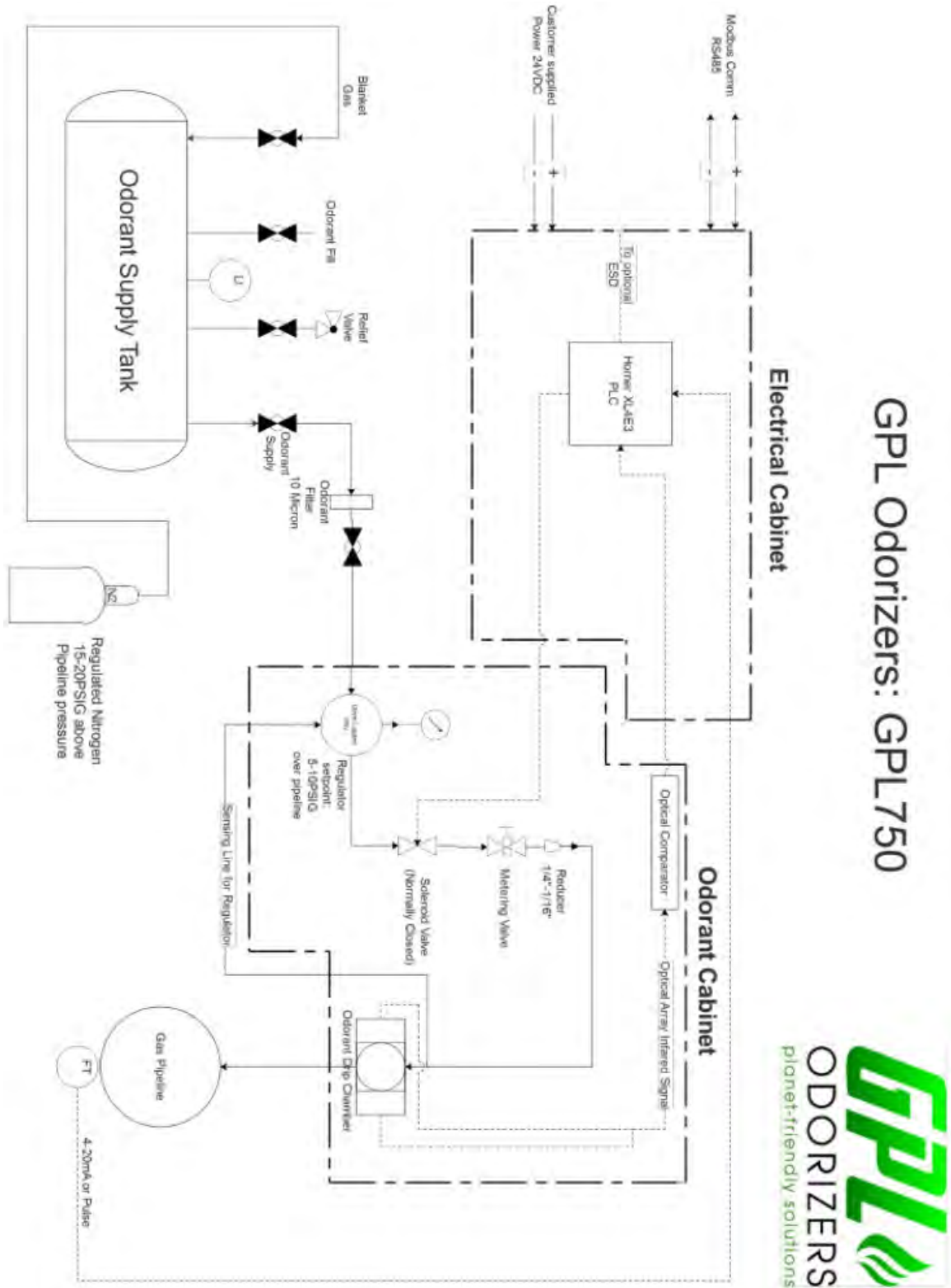
3.3 Tubing

Once an appropriate location has been determined for the GPL 750 and the unit has been properly mounted, use Tubing Illustration on the following page to install the tubing per your company's procedures and applicable code.



Use stainless steel tubing for proper strength, support, and leak prevention.

Tubeing Illustration



3.4 Wiring



Always disconnect power before servicing connections.

Use the guidelines below to wire any necessary connections. Please note that not every connection described in this section is used for every site. If you have any questions, please contact GPL Odorizers.

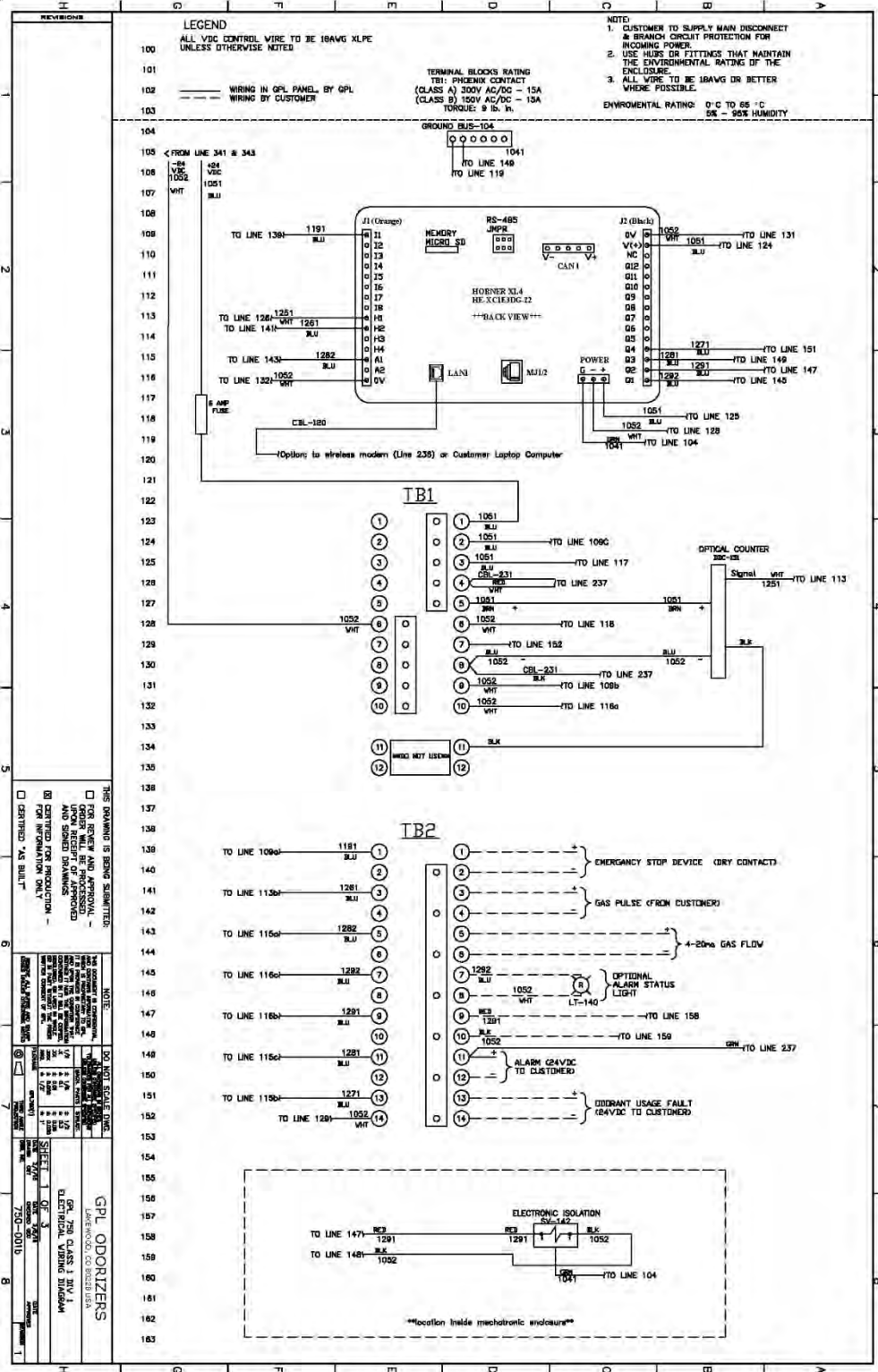
3.4.1 Electrical Connections

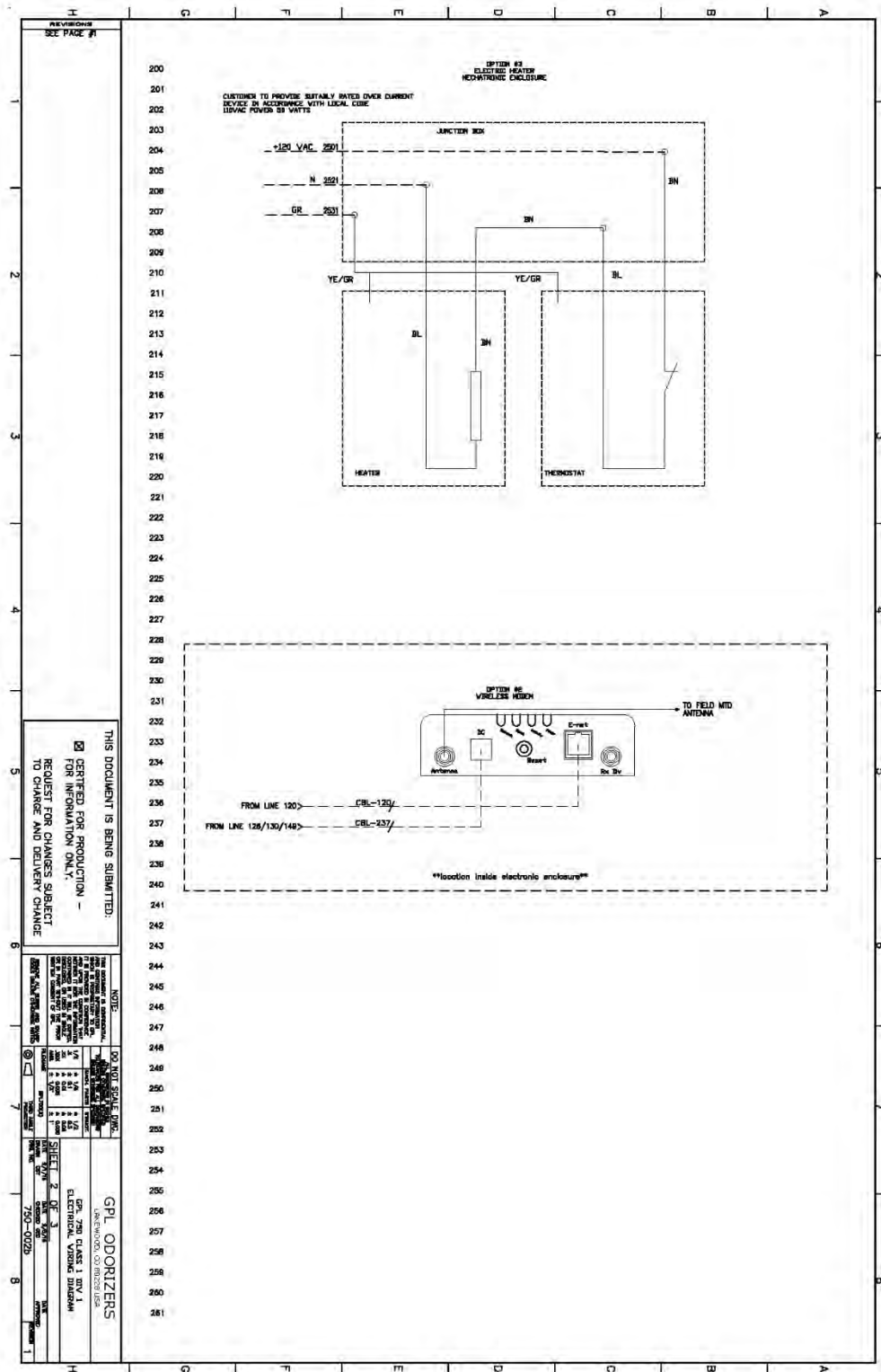
Refer to electrical diagrams on the following pages.

1. Ensure that power is disconnected
2. Connect 24VDC (+) to the top side of the black fuse next to TB1, the wire on the other side of the fuse should be connected to TB1 1(factory wired).
3. Connect 24VDC (-) to TB1 6. Connect 24VDC (-) to TB1 5 for Class 1 Division 1 electronics.
4. Connect conduit per applicable code.
5. Always refer to current wiring diagrams shipped with your odorizer. The wiring instructions in this manual are for reference purposes only, and wiring is subject to change without notice.

Note:

*If 24 VDC is not available, use a 120 VAC to 24 VDC Converter (available from factory).
Electrical Connection
Illustration on next page.*





REVISIONS
 SEE PAGE #

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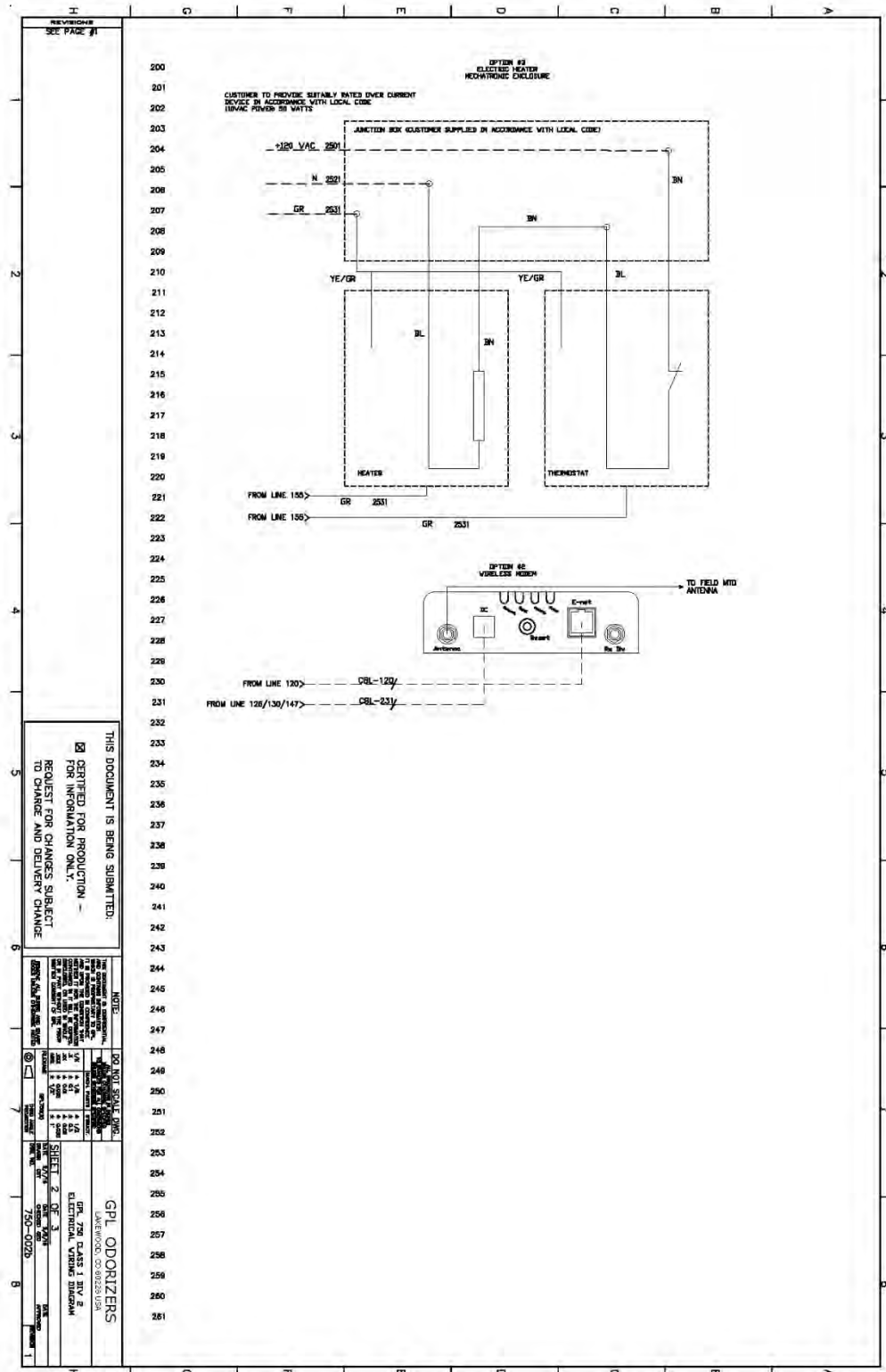
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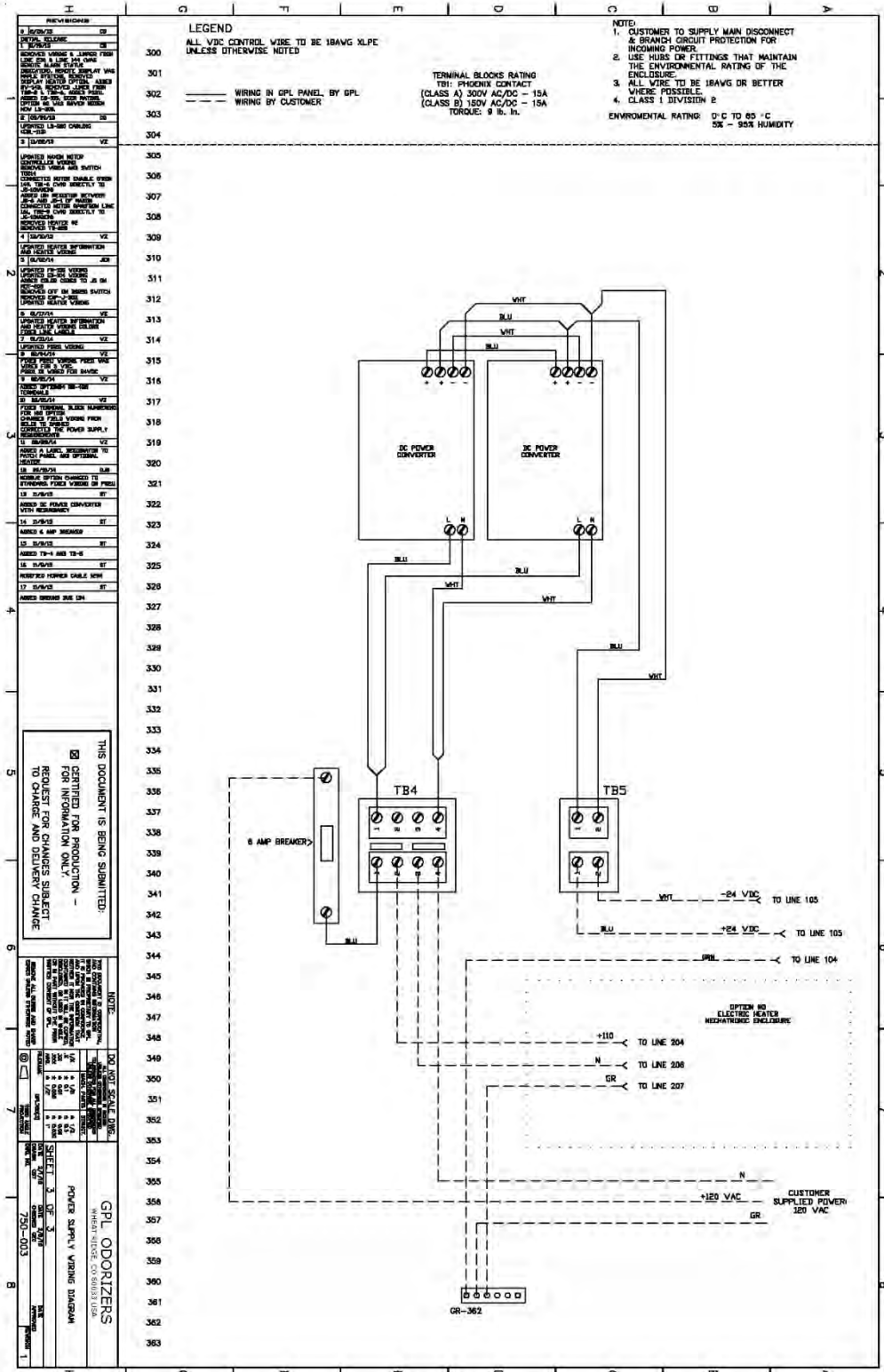
GPL ODOORIZERS
 LINE 750 CLASS I DIV 1
 ELECTRICAL WIRING DIAGRAM

SHEET 3 OF 3
 750-0025

Class I Div. 2 Page 2

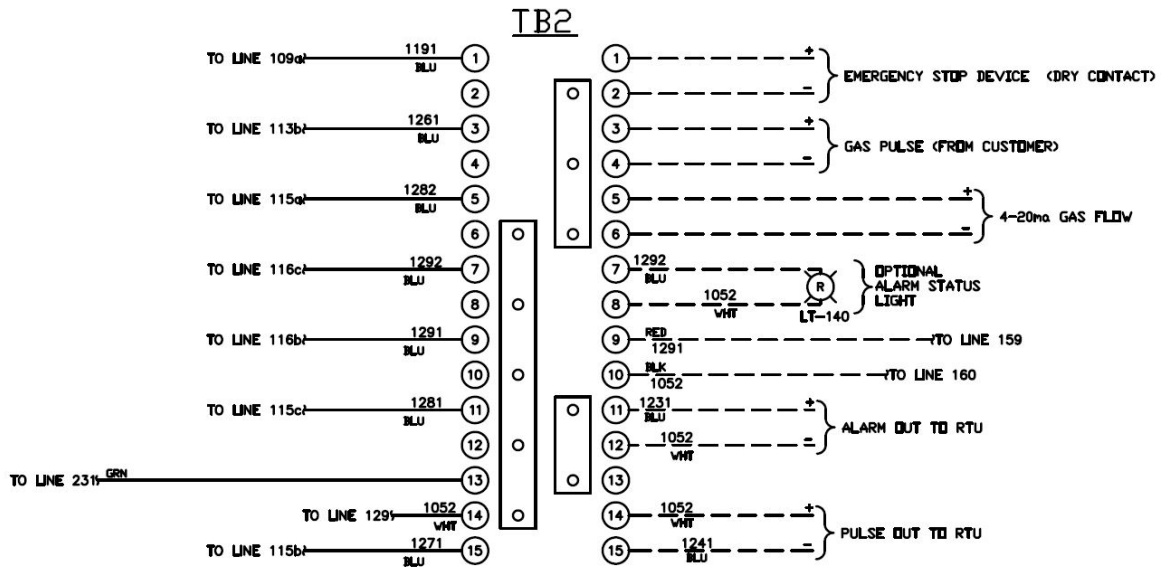


Power Supply



3.4.2 Terminal Block 2

Terminal Block 2 is the physical attachment point for discrete IO.



Emergency Stop Device

This is for the remote kill switch. By activating this relay, the unit is locked out. Until the switch is deactivated, no one can start the unit.

TB2 1: + 10-32 VDC

TB2 2: - 10-32 VDC

Gas Pulse (From Customer)

High-speed counter for pulsed flow signal from pipeline meter

TB2 3: +

TB2 4: -

4-20mA Gas Flow

Input for 4-20mA flow signal from pipeline meter. TB2 5: + 10-32VDC

TB2 6: - 10-32VDC

Alarm (24VDC to Customer)

Alarm output to customer

TB2 11: + TB2 12: -

Odorant Usage Fault (24VDC to Customer)

Odorant usage output to customer
TB2 14: + TB2 15: -

3.5 Leak Testing

After installing the tubing and wiring, all the tubing and fittings connected to the system need to be leak tested. Pipeline pressure is slowly brought back to the bulk tank during leak testing.

1. Close all the valves between the odorant tank and the pipeline.
2. Open the root valve at the injection point, allowing the pipeline pressure up to the (closed) solenoid valve inside the odorizer enclosure. Check for leaks using a soapy water solution or Snoop[®], starting at the injection point and moving up to the solenoid valve inside the odorizer enclosure.
3. Use the HMI to manually override the solenoid (Menu- Maint- Solenoid override (toggle on)). This step moves pressure to the pressure regulator.
Note: The gauge on the outlet side of the pressure regulator should reflect pipeline pressure at this point.
4. Use a leak detection solution to test the remainder of the connections ahead of the regulator.

Note:

Before beginning leak/pressure testing, make sure that all connections in the odorant line from the tank through the odorizer enclosure and to the pipeline are tight.



Do not open the odorant supply valve.

5. Open the valve(s) between the odorant filter and the odorant supply valve on the tank.
6. Resolve any leaks discovered in previous steps before continuing.
7. Slowly advance the blanket gas to the tank by adjusting the regulator until the regulator engages and you see the pressure on the regulator gauge decrease and begin to build again.
8. Slowly open the blanket gas valve on the tank and allow the pressure to equalize. Check the tank valves for leaks. Set blanket gas pressure to 15-20 PSIG over pipeline injection pressure.
9. Double-check the entire system for leaks.
10. Return the solenoid override to "OFF," which closes the solenoid.
11. Leave the odorant supply valve closed until the system is ready for operation. When the system is ready, open the odorant supply line valve, and purge the odorant line (see section 3.6).

3.6 Purging the Odorant Line

1. Configure odorant and gas flow settings (See GPL 750 User's Manual for further information).
2. Ensure that gas flow on the main screen of HMI reflects actual flow in the pipeline.
3. Ensure that all valves on the odorant supply line are open and the odorant regulator inside of the cabinet is set to 5-10 PSIG over pipeline pressure.
4. Toggle unit "ON" from the HMI. This opens the solenoid and creates an open pathway for odorant to flow from the bulk tank, through the odorizer, and into the pipeline.
5. Observe front sight glass on drip chamber for odorant drops ***Please note that depending on the length of the odorant supply tubing, it may take up to 10 minutes for odorant to move into the pipeline***
6. Once odorant drops are present, observe the yellow output light on the optical comparator. The flashing of the output light should match the rate at which the odorant drops are falling into the pipeline.
7. Once confirmed that odorant is dropping into the pipeline and the comparator is counting the drops, observe the "Seconds Since Last Drop" on the home page of the HMI. This value should reset to "0" each time a drop falls.
8. Once all the above information is confirmed, check HMI for any alarms. If alarms are present, acknowledge them and put the unit back into operation.
9. Odorizer should be primed and ready for normal operation. Ensure that unit is toggled "ON" and meeting desired injection rate (This information is on the home page). Confirm gas flow matches site RTU.

3.7 Unit Configuration

There are two (2) different options available for configuring the GPL 750:

- Configuration using the web pages (remotely via a modem or locally via laptop)
- Configuration using the local display

If you plan to connect to the unit remotely via modem, you need to make sure the modem has cell coverage.

3.7.1 Setting up the Modem

1. Install the modem and power it on.
2. Contact your cellular provider and tell them you need to set up a new wireless modem with a static IP address.
3. They need the IMEI number to assign the IP address. This information is on the sticker on the modem.
4. Once the IP address is assigned, your provider should verify that the modem is on the network.
5. Visually verify that the modem has proper cell coverage by checking the following status lights:
 - Activity light flashes green

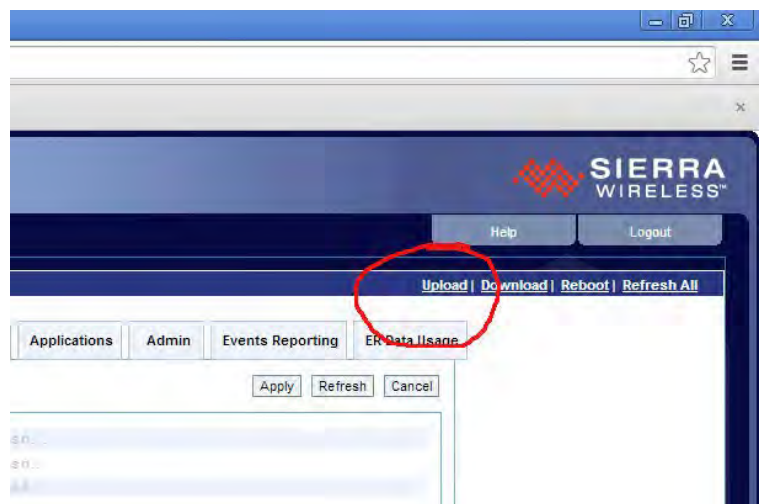
- The signal light is solid green
- Network light is solid green

Once the wireless modem has cell coverage, use ACEmanager to configure the modem to communicate with the odorizer.

1. Connect to the modem locally with an Ethernet cable or remotely over the Internet.
2. Open a web browser and enter the IP address: <http://192.168.13.31:9191> (Local connection) or <http://<Modem Static IP Address>:9191> (Wireless Connection). The ACEmanager login screen appears.
3. Enter your username and password. The administrator username is user, and the password is 12345.

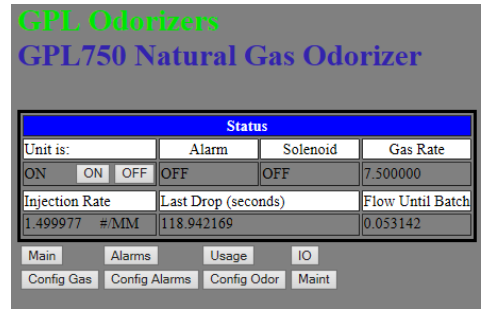


4. Ensure that you have obtained the correct template from the factory. On the ACEmanager homepage, click Upload in the upper right-hand corner and select "LS300Template.XML" or "RV50Template.XML."



5. Once uploaded, click "apply"; this saves the template to the device.
6. Ensure that the provided Ethernet cable is connected from the ethernet port on the modem to the Ethernet port (LAN 1) on the odorizer PLC.
7. Open your web browser and enter [HTTP://<Modem Static IP Address>/index.htm](http://<Modem Static IP Address>/index.htm).

8. The default username is GPL, and the default password is 262560.
9. Once username and password have been entered, the main navigation page for the odorizer should appear.
10. If you cannot connect to your odorizer, please contact GPL Odorizers for technical assistance.



3.7.2 Configure Using Webpages

Please see the GPL 750 User's Manual for instructions on configuring the odorizer using the web pages.

3.7.3 Configure Using the HMI

Please refer to the GPL 750 User's Manual for instructions on configuring the odorizer using the HMI.

3.8 Optical Comparator

Several common operations may need to be performed on an occasional basis. These operations are detailed below.

3.8.1 Calibrate Optical Comparator

As drops fall through the drip chamber past the optical arrays, a signal is sent to the optical comparator, and the yellow light on the comparator flashes.

To calibrate the optical comparator, the technician must manually turn the gain adjustment screw on the optical comparator (a jeweler's flathead screwdriver is recommended) and visually verify that the yellow light flashes each time a drop falls.

If the optical comparator is not sensitive enough, increase the gain by turning the gain adjustment screw clockwise.

If the optical comparator is too sensitive, decrease the gain by turning the gain adjustment screw counterclockwise.

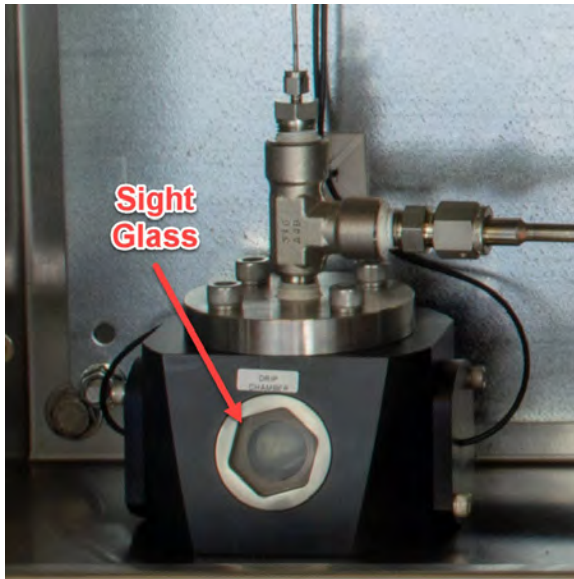
Note:

The best way to make these adjustments is to manually get the drops to fall at a constant rate and then see how the yellow light flashes: it should flash at the same rate that drops are falling. If it is not flashing, gain needs to be increased; if it is flickering, gain needs to be decreased.

3.8.2 Calibration Procedure

The optical comparator is calibrated at the factory. If it is not operating as programmed, follow the calibration procedure below.

1. Watch the odorant drops through the sight glass below the metering valve.
2. As each drop falls, observe the yellow light on the optical comparator. If the yellow light:
 - Does not blink—turn the gain clockwise until it does.
 - Blinks once (solid)—it is calibrated correctly.
 - Blinks multiple times (flickers)—turn the gain counterclockwise until it stops blinking, then turn clockwise twice.
3. Continue observing and adjusting the gain on the optical comparator until the yellow light blinks once per drop.

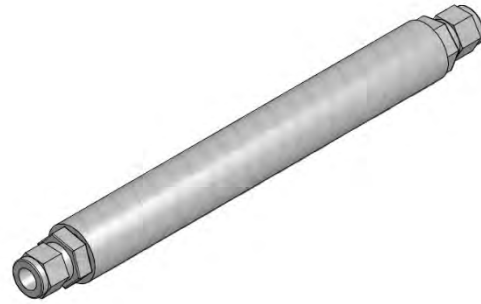


4.0 Accessories

4.1 Included

4.1.1 Sonic Muffler

The sonic muffler reduces noise from the pipeline, so the vibrations do not interfere with the operation of the optical comparator.



Muffler

4.2 Optional

4.2.1 120VAC Hazardous Location Heater

For applications under 0°F ambient temperature, this XP heater is used in the mechanical cabinet to keep the solenoid and optical comparator functioning properly.

4.2.2 120VAC to 24VDC Converter Power Package

For customers that do not have 24VDC readily available, GPL offers a 120VAC to 24VDC Power Package. This package includes (2) 4.6A Power Supplies wired in series for redundancy.



Power Package

The enclosure pictured is for the Class I Div. 2 unit. The enclosure is different for Class I Div. 1.

4.2.3 GPL 100 Thermal Mass Flow Meter

Use the GPL 100 insertion style thermal mass flow meter for low flow applications that do not have a reliable 4-20mA signal. The low-end accuracy of this meter is critical for accurate odorant injection in low and intermittent flows.



GPL 100 Flow Meter

5.0 Tanks

Tanks are pressure tested at the factory.

A necessary procedure to follow before filling the tank with an odorant: **Evacuate air and pressure test before filling the tank with the odorant.**

6.0 Standard Warranty

GPL Odorizers (“Seller”) warrants products manufactured by it and supplied hereunder to be free from defects in workmanship and, to the extent materials are selected by Seller, to be free from defects in materials, in each case for a period as defined in the table below:

Product Line	Warranty Period
GPL 750	Eighteen months from date of shipment or twelve months from startup (whichever occurs first)

If within such period any such products shall be proved to Seller’s satisfaction to be defective, such products shall be repaired or replaced at Seller’s option. Seller’s sole obligation and Buyer’s exclusive remedy hereunder shall be such repair and replacement and shall be conditioned upon Seller’s receiving written notice of any alleged defect within 10 days after its discovery and, at Seller’s option, return of such product to Seller, FOB GPL Odorizers’ factory or provision of evidence (e.g., photographs) of such defect satisfactory to Seller.

Warranty Conditions & Limitations

This Warranty shall not apply to any GPL Odorizers entry product which, in the opinion of GPL Odorizers, has been (a) altered or repaired in a manner affecting the efficiency or performance of the unit or (b) incorrectly installed or operated or (c) damaged in shipment or (d) damaged by flood or fire or (e) if the serial number is missing, altered or defaced.

Any materials required to be used by Seller as provided in customer specifications or instructions are excluded from the foregoing warranty, and the customer assumes sole responsibility for the selection of such materials. Customer further acknowledges and agrees that to the extent Customer requests that GPL Odorizers make any recommendations with respect to materials to be used in connection with products, Seller may rely on published reference literature, that any references based on third-party studies may not correlate directly with the end user’s intended usage or process (i.e., chemical composition, concentrations, temperatures, etc.), and that Customer is solely responsible for the final determination with respect to which materials are to be used in connection with the products.

EXCEPT FOR THE LIMITED WARRANTIES SET FORTH HEREIN, SELLER HEREBY DISCLAIMS ANY AND

ALL WARRANTIES AND REPRESENTATIONS (EXPRESS OR IMPLIED, ORAL OR WRITTEN), INCLUDING ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE WHETHER OR NOT SELLER KNOWS, OR HAS REASON TO KNOW, HAS BEEN ADVISED OR IS OTHERWISE, IN FACT, AWARE OF ANY SUCH PURPOSE, WHETHER ALLEGED TO ARISE BY LAW, BY REASON OF CUSTOM OR USAGE IN THE TRADE OR BY COURSE OF DEALING OR PERFORMANCE. Without limiting the generality of the foregoing, Seller makes no warranty regarding the ability of products sold hereunder to withstand erosion or corrosion or regarding material compatibility of elastomers in specific services, and no warranty made hereunder shall apply to products which have been subjected to adverse storage.

The owner shall be responsible for the maintenance of his equipment. Wear or damage caused by lack of normal maintenance or misuse of equipment shall not be considered as defective workmanship and material.

If a part requires replacement during the warranty period, the part must be returned to GPL Odorizers for credit or the customer will be responsible for paying for the replacement part(s).

GPL Odorizers and its subsidiaries reserve the right to make product design changes or improvements without notice and without imposing any obligation upon itself to install these changes or improvements on its products previously manufactured.

This warranty is for the sole benefit of the original purchaser and is not transferable unless agreed to in writing by GPL Odorizers.

Receiving Shipments (including loss or damage by transportation)

It is the customer's responsibility to check for missing cartons and/or sign of damage to cartons. If found, the customer should note missing and/or damaged boxes on the delivery receipt and have a delivery receipt signed by the representative of the transportation company. If unpacking discloses concealed damage from rough handling, the customer should request a concealed damage inspection from the transportation company.

The GPL Odorizers Customer Service Department will aid your organization in any claim proceeding for shortages or damages in shipment, but it is the receiver's responsibility to file a claim with the carrier for damage or loss.

Liability Limitation

IN NO EVENT, WHETHER FOR BREACH OF WARRANTY OR OTHER CONTRACT BREACH, NEGLIGENCE OR OTHER TORT, OR ON ANY STRICT LIABILITY THEORY, SHALL GPL ODORIZERS., ITS SUBSIDIARIES, OR ITS SUPPLIERS BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING BUT NOT LIMITED TO DAMAGES FOR LOSS OF PROFITS, BUSINESS INTERRUPTION, LOSS OF INFORMATION, OR OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF, OR INABILITY TO USE,

THE PRODUCTS, EVEN IF GPL ODORIZERS. OR ANY OF ITS SUBSIDIARIES HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Customer Actions for Claims on Products during the Warranty Period

1. Contact the Customer Service Department, GPL Odorizers, Lakewood, CO, at 303-927-7683 to obtain a Return Material Authorization (RMA) number.
2. You will be sent an “RMA” and a “Decontamination Statement” that is required to be filled out and returned with the equipment.
3. The following information must appear on the outside of the package:
 - RMA number is marked on the outside of the box.
 - Decontamination Statement filled out and attached to the outside of the box.
4. Return defective equipment FREIGHT PREPAID. Collect shipments are refused.
5. The factory will not process warranty claims until the customer has properly accomplished the above items.
6. The GPL Odorizers factory may accept the entire claim, a part of the claim, or none of the claim if our inspection of returned parts proves the failure was for reasons other than defective material or factory work-person-ship.

Important Notes:

1. *GPL Odorizers is not responsible for damage incurred during the return shipment.*
2. *All returns are subject to inspection, and a minimum \$100.00 evaluation fee for any products found not to be defective.*
3. *This RMA is not authorization for credit. Credits and/or replacements are issued upon evaluation of returned goods.*
4. *RMA is valid for thirty (30) days from the issue date.*

7.0 Factory Assistance

GPL Odorizers manufactures environmentally-friendly odorant injection systems for natural gas and other gases.

Please do not return any equipment before discussing your application problem with a GPL Odorizers representative and obtaining a Return Authorization.

GPL Odorizers has a dedicated staff of trained Service Department associates to assist customers with any problems. Please call GPL Odorizers at 303.927.7683 and request a service representative.

Your GPL Odorizers representative is eager to help you with other sampling applications. Please feel free to call your representative or contact GPL Odorizers to discuss your application.

GPL Odorizers LLC
12450 W. Cedar Drive
Lakewood, CO 80228
Phone: 303.927.7683
E-mail: info@gplodorizers.com

8.0 GPL 750 Maintenance Operations

8.1 Weekly

- Check Odorizer Alarms
- Check the number of Auto Clears used
- **** If 1/2 of the odorizer ACs have been used, identify and troubleshoot the issue using the troubleshooting guide in this manual. ****
- Verify that all settings are correct (Gas input, alarm levels, injection rate, etc.) and that the unit is odorizing to the desired level.
- Verify that all system pressures are at desired setpoints (odorant storage vessel blanket pressure 15-20 PSIG above pipeline pressure, odorizer regulator 5-10PSIG above pipeline pressure).

8.2 Monthly

- Download odorant injection logs and audit trail information to ensure that the odorizer operates correctly. Note: It is the sole responsibility of the customer to determine when odorization logs are collected and forwarded to regulatory authorities.
- Check odorant tank level to ensure that odorant volume is sufficient, the tank does not need to be refilled, and that the odorant float gauge is functioning properly.
- Check the number of solenoid cycles on the maintenance PLC/HMI screen or web page. If the value exceeds alarm limits (1,000,000 for solenoid), make a plan to change the odorizer solenoid.

8.3 Yearly

- Flush and inspect odorant and blanket gas filter (Replace if necessary).
- Replace nitrogen blanket gas bottle.
- Refill odorant tank if below 30%.
- Replace solenoid if cycles at or near 1,000,000.