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Creative Gas Detection Solutions

LC-Series Controller
1-4 Channel
Operation and Maintenance Manual

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Reference Information:

NOTE: *[important information about use of instrument]*
CAUTION: *[affects equipment – if not followed may cause damage to instrument, sensor etc.…]*
WARNING: *[affects personnel safety – if not followed may cause bodily injury or death.]*

Attention / Warning


Earth Ground

1.0 Introduction

The LC Series Control Units that provide facilities to monitor a wide variety of industry standard environmental and other sensors.

- The LC1 provides 1 monitoring channel.
- The LC2 provides up to 2 monitoring channels.
- The LC4 provides up to 4 monitoring channels.

The **LC-Series Controller** has been designed to allow the use of any ENMET sensor transmitter and has been preprogrammed to match the sensor transmitters supplied at time of delivery. The **LC-Series** can also be used with any manufactures sensor transmitter that can produce a voltage or current output within a specified range; however, it is advisable that you contact ENMET for proper setup and programming instructions. Care has been taken with the design of the MCU housings and internal chassis to facilitate ease of connection and wire termination. All on-site wiring to the system is via screw terminal connectors. The terminal cover has an internal label giving details of the external connections.

NOTE: *All specifications stated in this manual may change without notice.*

1.1 Unpack

Unpack the **LC-Series Controller** and examine it for shipping damage. If such damage is observed, notify both ***ENMET*** customer service personnel and the commercial carrier involved immediately.

Regarding Damaged Shipments

NOTE: *It is your responsibility to follow these instructions. If they are not followed, the carrier will not honor any claims for damage.*

- This shipment was carefully inspected, verified and properly packaged at ***ENMET*** and delivered to the carrier in good condition.
- When it was picked up by the carrier at ***ENMET***, it legally became your company's property.
- If your shipment arrives damaged:
  - Keep the items, packing material, and carton "As Is." Within 5 days of receipt, notify the carrier's local office and request immediate inspection of the carton and the contents.
  - After the inspection and after you have received written acknowledgment of the damage from the carrier, contact ***ENMET*** Customer Service for return authorization and further instructions. Please have your Purchase Order and Sales Order numbers available.
- ***ENMET*** either repairs or replaces damaged equipment and invoices the carrier to the extent of the liability coverage, usually $100.00. Repair or replacement charges above that value are your company's responsibility.
- The shipping company may offer optional insurance coverage. ***ENMET*** only insures shipments with the shipping company when asked to do so in writing by our customer. If you need your shipments insured, please forward a written request to ***ENMET*** Customer Service.

Regarding Shortages

If there are any shortages or questions regarding this shipment, please notify ***ENMET*** Customer Service within 5 days of receipt at the following address:

ENMET
680 Fairfield Court
Ann Arbor, MI 48108
734-761-1270 Fax 734-761-3220
Toll Free: 800-521-2978

1.2 Check Order

Check, the contents of the shipment against the purchase order. Verify that the **LC-Series Controller** is received as ordered. If there are accessories on the order, ascertain that they are present. Check the contents of calibration kits. Notify ***ENMET*** customer service personnel of any discrepancy immediately.

1.3 Serial Numbers

Each **LC-Series Controller** is serialized. These numbers are on tags on the equipment and are on record in an ***ENMET*** database.

2.0 Features

The **LC-Series Controller** houses all of the components required to implement a sophisticated and reliable monitoring system (alarm relays etc.). See Figure 1 for location of features:

2.1 Front panel features

See Figure 1 for location of features.

LED	Description
Power	Green LED for Power
AL3	Red LED indication of Alarm Level 3
AL2	Red LED indication of Alarm Level 2
AL1	Red LED indication of Alarm Level 1
Fault	Yellow LED, Lower most, indication of Fault Condition
Keypad Buttons, 4 2 as indicated in figure 1 that are used during normal operation and 2 that are used during setup and programming	Menu – Main Select Switch Increase – Menu Option, used in setup & programming Decrease – Change Switch, used in setup & programming Alarm Acknowledgment – Horn Defect Switch
Display	Graphic display simultaneously showing reading for each channel and sensor type

An Audible signal is also provided by a sounder mounted within Microcontroller module. This provides a local audible tone during alarm or conditions.

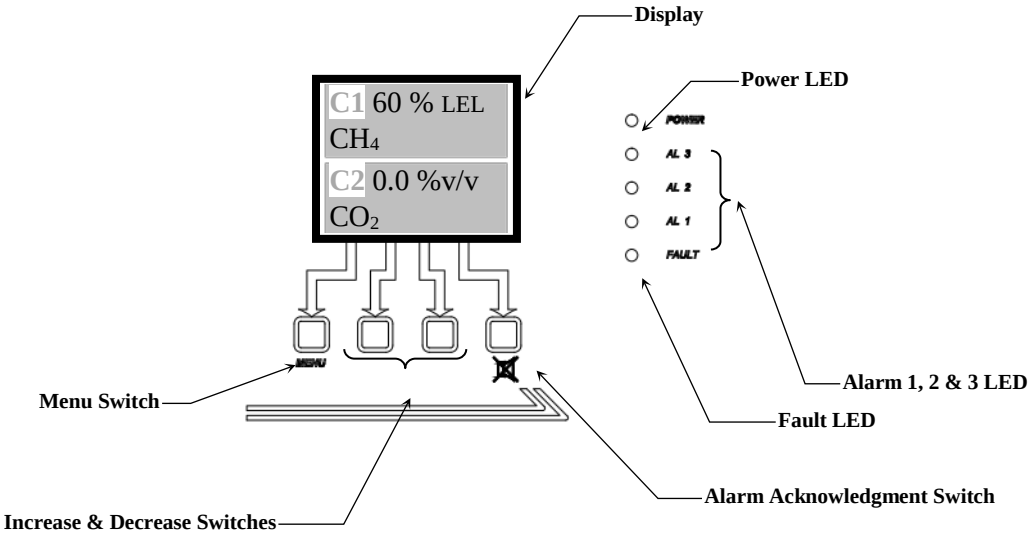


Figure 1: LC Series Front Panel Features

3.0 Installation

The **LC-Series Controller** is fully tested prior to delivery. However, it is recommended that the **LC-Series Controller** system be checked after installation is complete.

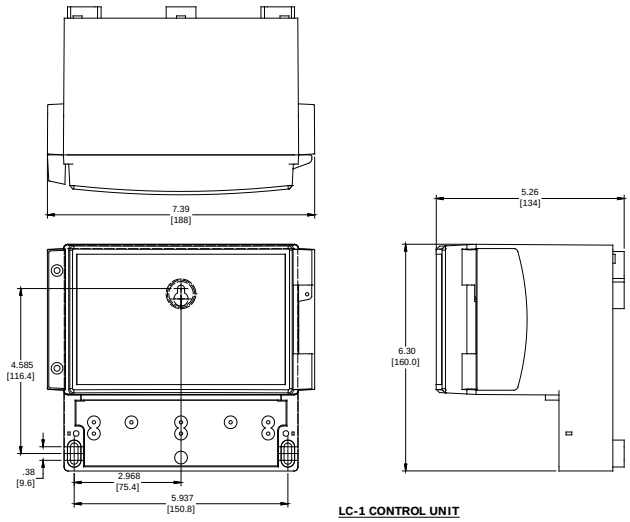
CAUTION: *The MCU Control Units and associated modules contain no user serviceable parts. Refer all servicing to qualified service personnel*

The LC series control units **must be mounted in a non-hazardous location** where there is no risk of the presence of potentially explosive gas

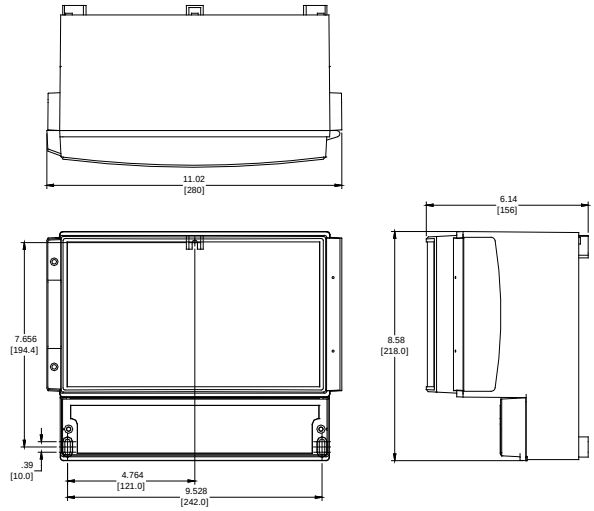
Either a 100-240VAC 50/60 Hz supply or a 24V DC supply can be used to power the control unit
The location of installation should be chosen with regard to the following:

- This equipment should not be located near to known sources of heat.
- Operating personnel should be within convenient reach of the equipment and within audible distance of alarms
- Maximum loop lengths of cable run and cable inductance to resistance ratios must not exceed limits shown in the relevant loop diagrams
- Avoid mounting this equipment near potential sources of electrical interference e.g. motors, switch gear, radio transmitters etc.

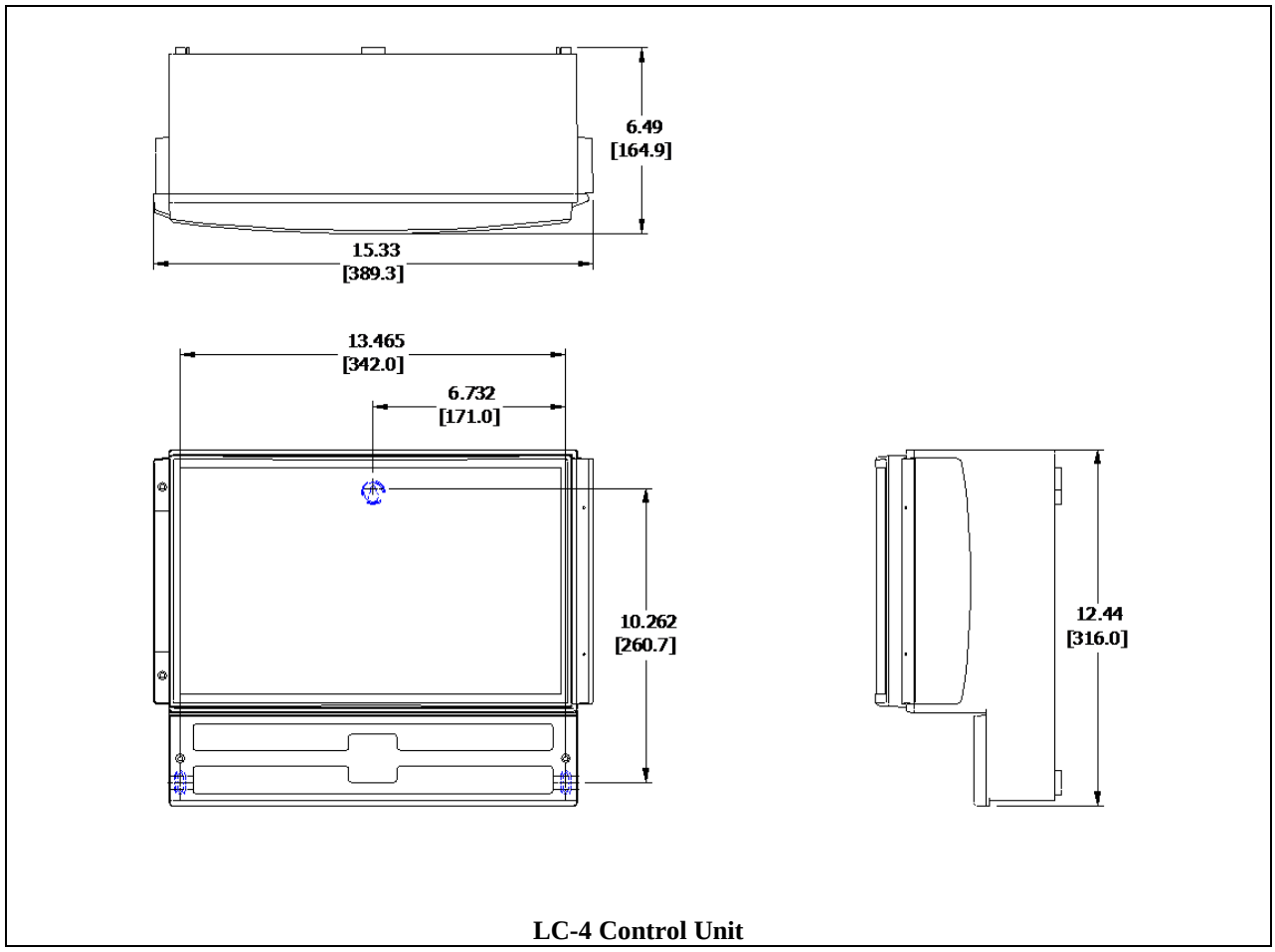
Mounting details for the LC Controller enclosures are located below:



LC-1 CONTROL UNIT



LC-2 Control Unit



LC-4 Control Unit

Figure 2: Mounting LC Series

4.0 Wiring the LC Series

The electrical installation should conform to appropriate electrical codes, such as the National Electrical Code in the United States.
***WARNING*: The compliance of the installation to appropriate codes is not *ENMET*'s responsibility.**

4.1 System Wiring

All connections should be made according to the appropriate sensor or loop diagram for the configuration required. It is advised that 'Bootlace Ferrules' or 'flat blade crimps' be used for tidy and reliable connections of wires into the Control Unit and Detector Head connectors

Power Supply Input
An isolating switch should be provided between the power source and the MCU control units to allow the supply to be easily disconnected. This should incorporate over current protection or a circuit breaker. Alternatively, a fused supply would suffice

AC Mains Connection
The power supply board has three screw terminals connector assigned for the connection of an AC supply.
Pin 1 = Earth
Pin 2 = Live input
Pin 3 = Neutral input
Recommendation for mains input cable. 3-Core – 16 AWG Conductors having cross sectional area of 0.75mm^2 minimum (24/0.2)

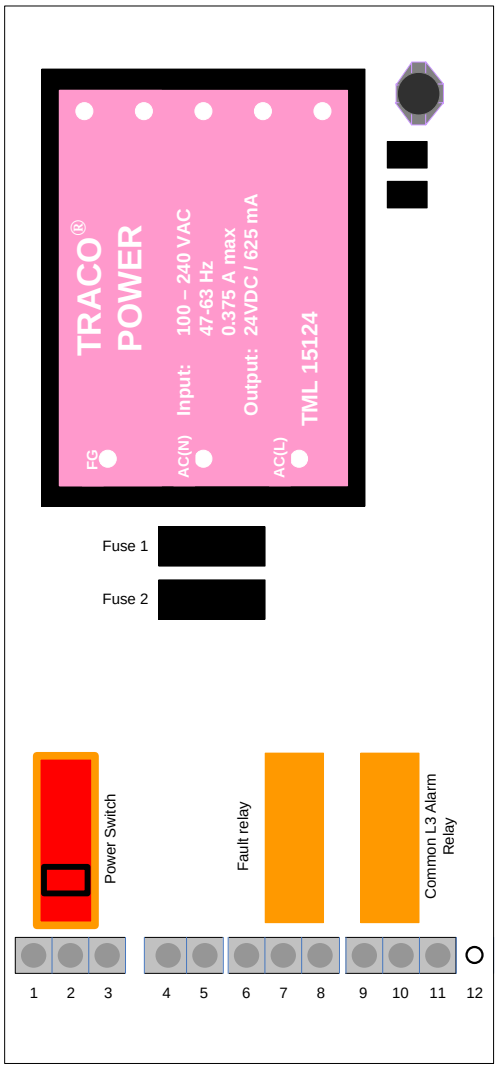
DC Voltage Connection
The power supply board has two screw terminals assigned for the connection of a DC supply
Pin 4 = +24V DC input
Pin 5 = 0V DC input

Cable Routing
Due to the low signal levels generated by gas detectors it is recommended that all wiring to the sensors by segregated away from AC mains or other high voltage/power lines to avoid interference.
Cable Screening

The use of a screened cable is recommended for the installation of all detector heads. The screening is used to minimize the effects of electrical interference generated by external equipment e.g. motors, switchgear etc. The correct strategy for connecting the screens depends upon the area in which the detector head is to be used (i.e. hazardous/ non-hazardous). In all cases the screen should not be connected at the detector head

4.1.1 Power Supply Module

The Power Supply is situated on the LHS of the main PCB within the enclosure and provides the power for the whole system. The power supply is a standard item and does not require any modifications regardless of the type and quantity of detector heads being used.



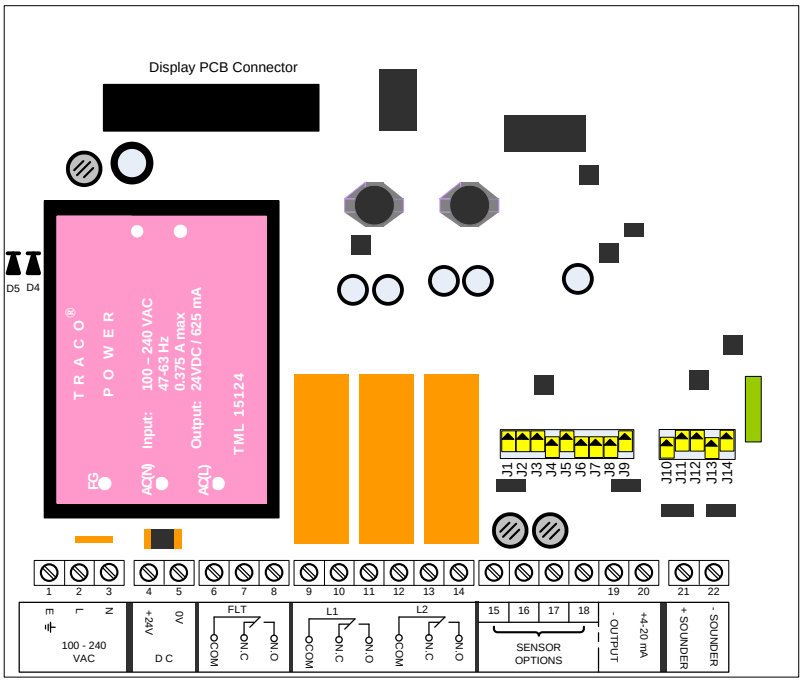
There are two power source options available to the system
100-240V AC Mains Supply, connectors 1, 2 and 3
18 to 28V DC Supply, connectors 4 and 5
There are two fuses situated on the main PCB. These are:
FS1 (T1.0A) AC supply Fuse
FS2 (T500mA) DC Supply Fuse

The LC Series Control Units are single PCB design. Each Control Unit has a power supply section and 1, 2 or 4 I/O interface sections.

Located on the bottom edge of the main PCB is a number of screw connectors. This is used to provide connections for inputs, outputs and external buttons:

4.1.3 Connections LC1

LC1



Channel 1
Pins 1, 2 and 3
AC power input

Pins 4 and 5
24VDC power input

Pins 6, 7 and 8
Common Fault relay contacts

Pins 9, 10 and 11
Common Alarm level1 relay contacts

Pins 12, 13 and 14
Common Alarm level1 relay contacts

Pins 15 to 18
I/O connection to sensors

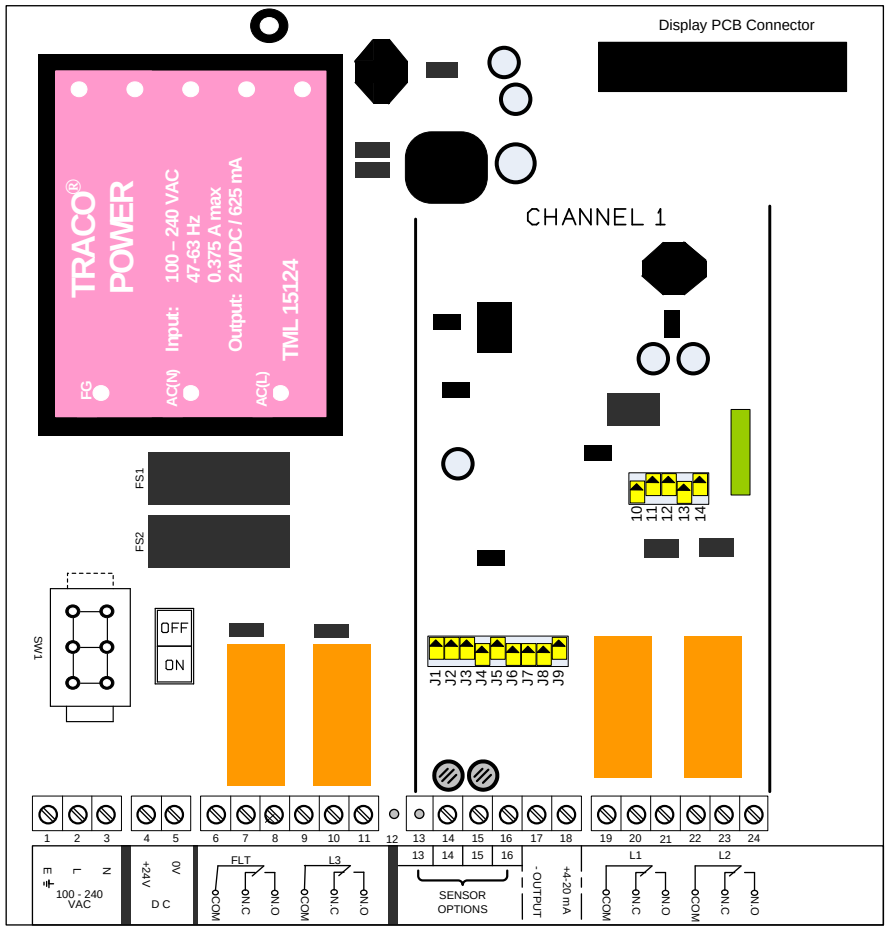
Pins 19 to 20
4-20 mA output

NOTE: *D5 orientation is be selected for 24Vdc supply as follows*

Input Output

4.1.4 Connections LC2

LC2



Power supply section I/O interface section Channel

Note: connections 12 & 13 may not be fitted on some variants

Channel 1
Pins 1, 2 and 3
AC power input

Pins 4 and 5
24VDC power input

Pins 6, 7 and 8
Common Fault relay contacts

Pins 9, 10 and 11
Common Alarm level 3 relay contacts

Pins 13 to 16
I/O connection to sensors

Pins 17 to 18
4-20 mA output

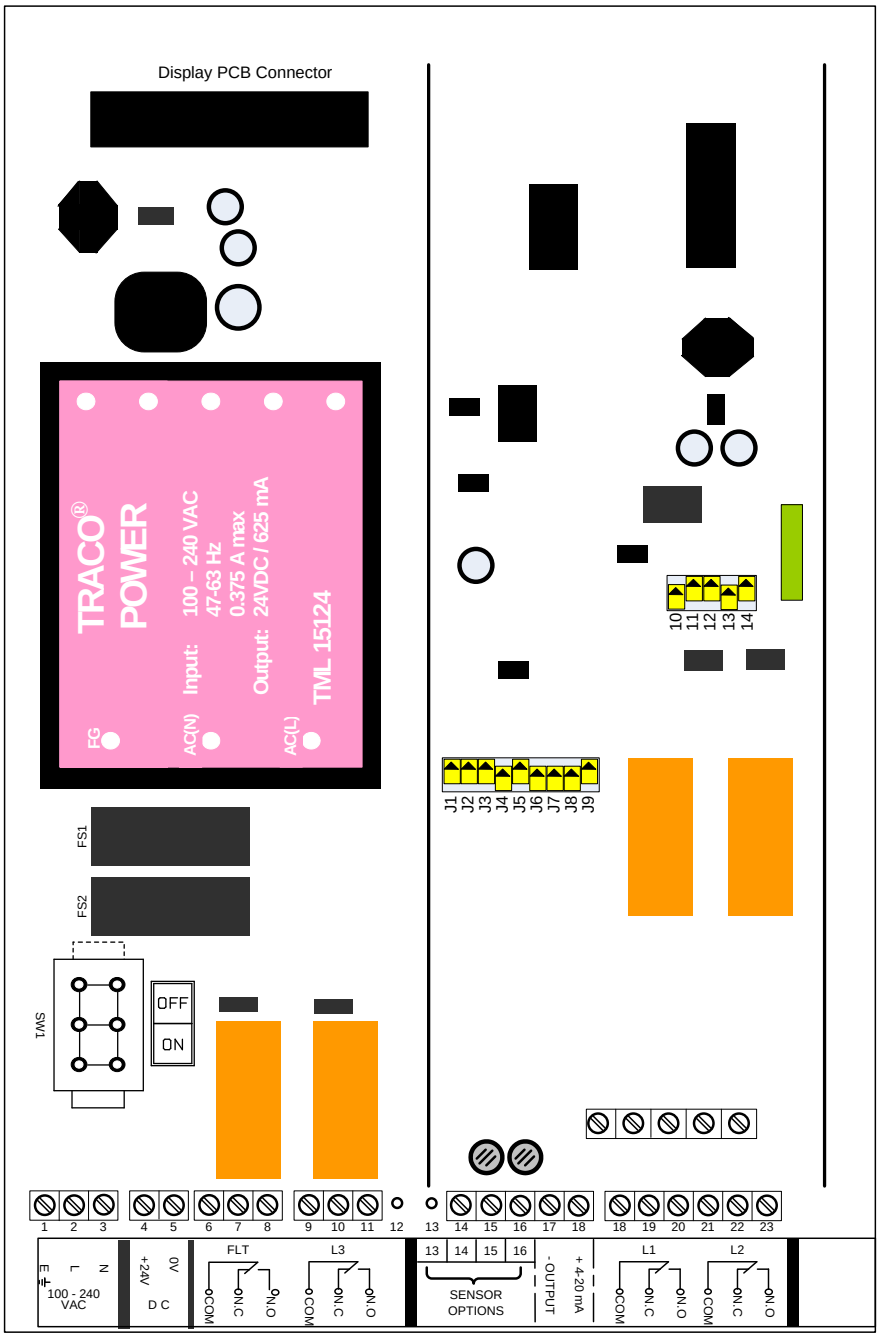
Pins 19 to 21
Alarm Level 1 relay contacts

Pins 22 to 24
Alarm Level 2 relay contacts

Chanel 2
Pins 25 to 36
The same functions as 13 to 24

4.1.5 Connections LC4

LC4



Chanel 1
Connections
Sensor Options:
Pin 13: Signal In (1 – 5 Vdc)
Pin 14: Signal In (4-20mA)
Pin 15: Voltage Out to S/T
Pin 16: Ground to S/T

Chanel 2
Pins 25 to 36
The same functions as 13 to 24

Chanel 3
Pins 37 to 48
The same functions as 13 to 24

Chanel 4
Pins 49 to 60
The same functions as 13 to 24

An Earth ground is also provided on the main PCB

The diagrams above show a pictorial representation of the various module positions within the LCU Series Control Units
The power supply is situated on the LHS of the main PCB with the channel I/Os to the right of the PCB.
The microcontroller module and LCD display are mounted on the top of the front panel. This connects to the main PCB via a single flat ribbon cable

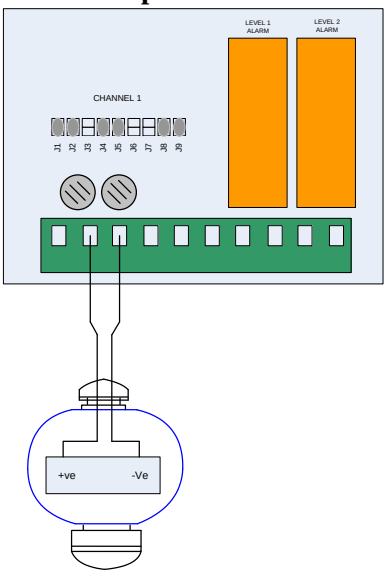
NOTE: *connections 12 & 13 may not be fitted on some variants.*

4.2 Sensor Transmitter Installation

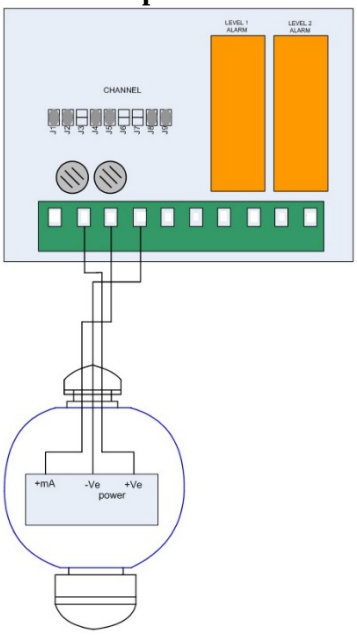
Mounting location for the gas detectors need to be considered individually, initial points for consideration are:

- Ensure all gas detectors are mounted to allow routine calibration and maintenance to be carried out as required.
- Ensure the proposed site will not interfere with movement of existing equipment, e.g. cranes, doors etc
- Install all cables neatly and securely.
- Detectors for gases that are lighter than air should be positioned at, or below, a high level.
- Detectors for gases that are heavier than air should be located at below head height.
- Avoid location the gas detectors adjacent to potential sources of radio frequency interference, e.g. radio transmitters, control switchgear, motors etc.
- Ensure the detectors are mounted with sufficient space to allow air movement around the sensor section.

4.2.1 Example 2 Wire Sensor Transmitter



4.2.2 Example 3 Wire Sensor Transmitter



5.0 Operation

When a preset alarm point is reached, visual and/or audio alarms are activated. The backlit graphics display automatically displays the channel in alarm and an alarm level Led(s) are activated on the control panel. The LC-8 is factory set to maintain these alarms until they are acknowledged.

5.1 LC-Series Microcontroller Module

Situated within the LC Control Unit front panel is the Microcontroller Module. This module communicates with all Input channels connected to the system PCB.
The Microcontroller Module provides a user interface in the form of a back lit graphics display and a four-button multifunction keypad.
Three LED indications are provided directly by the Microcontroller Module and these are visible via MCU front panel:

- Green LED for power.
- Red LED indication of Alarm level 1.
- Red LED indication of Alarm level 2
- Red LED indication of alarm level 3.
- Yellow LED indication of fault condition.

An Audible signal is also provided by a sounder mounted within Microcontroller module. This provides a local audible tone during alarm or conditions.

The Microcontroller Module also provides the user with many configuration and interrogation facilities via the LCD and keypad. These facilities include:
Sensor Configuration.
Allows adjustment of Sensor type and range (e.g. Flammable 100%LEL).

Calibration of the system.

- This allows each channel to be calibrated independently. The sensor zero point and span can both be set via this function.
- Calibration of the retransmitted output for each channel.
- Calibration of the channel power supply.

Input Module Relay Configuration.

- Each Input Module contains two relays for alarm levels 1 and 2. The alarm levels can be individually set to be either rising or falling.
- Fault relay.
- All relays can be configured normally energized or de-energized as required. Latching and non-latching functions can also be selected.

The microcontroller module contains all of the software required to communicate with up to four detecting channels. The software is common to all LC Series Control Units.

Connection Procedure

- Disconnect power from the system.
- Remove the terminal cover to gain access to the wiring.
- Remove the terminal cover and display module to gain access to the configuration link settings.
- Configure the jumper switches as shown below (i.e. J1, J2, J4, J5, J8 and J9 switched ON, all others OFF)

- Connect the wires from the detector head to connector on the input module observing the following:

Detector Head Label 4-20mA Loop	**Channel 1 Pin Number**	**Channel 2 Pin Number**	**Channel 3 Pin Number**	**Channel 4 Pin Number**
–	14	26	38	50
+	15	27	39	51

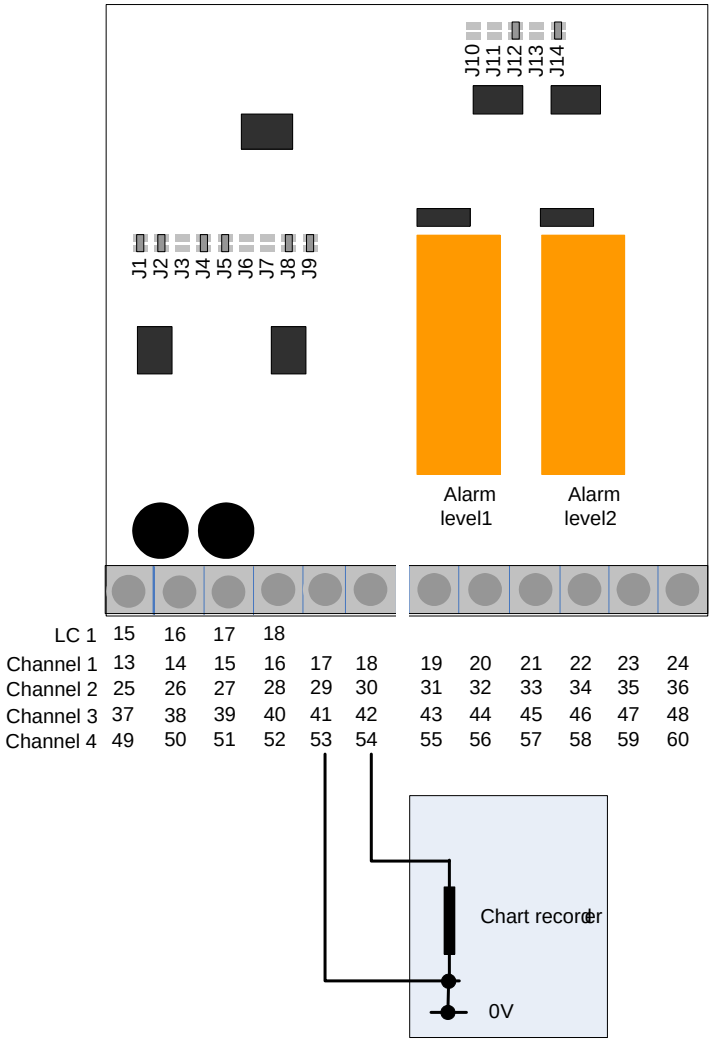
- Connect power to the system and ensure the detector head operates (text on LCD display, LED will flash once every six seconds approximately).
- Perform software configuration (refer to 'LC Software Configuration and System Calibration Manual').
- Perform system calibration (refer to 'LC Software Configuration and System Calibration Manual').

5.2 Analogue Output Configuration

In addition to providing the connections for various connector types, the Input Module can also provide an analogue output. This output mimics the signal detected so that it may be used by external equipment (e.g. chart recorders, data loggers) for a variety of purposes.

NOTE: *It is important to ensure that the Analogue Output is calibrated if in use (refer to 'MCU Software Configuration and System Calibration Manual').*

5.2.1 4-20mA Current Source

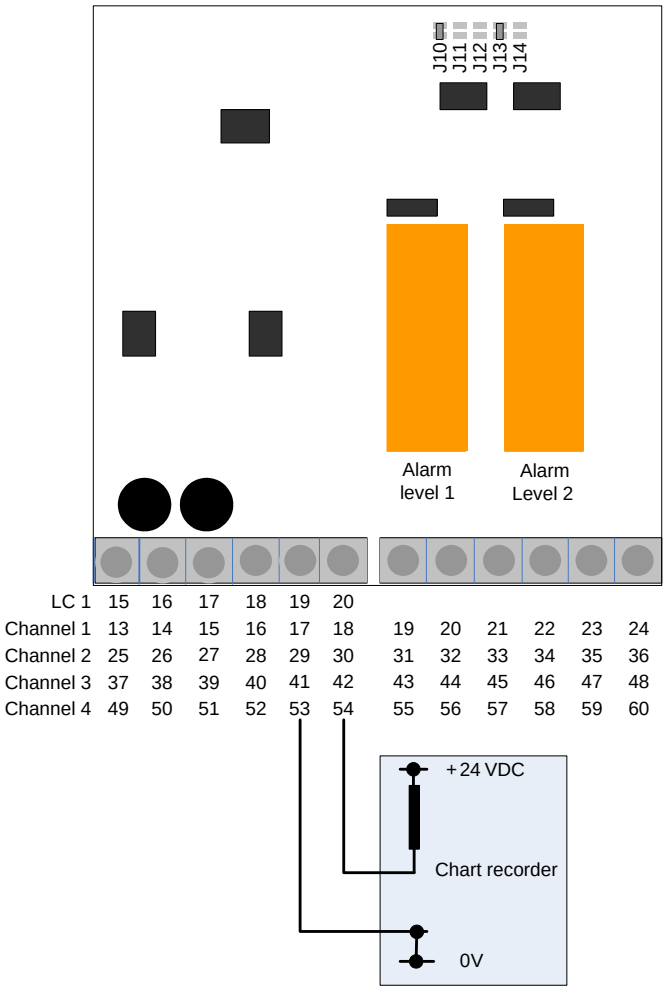


The Input Module sources current proportional to the detected gas level.
i.e. zero gas = 4mA
full scale = 20mA

The supply is taken from the internal PSU. Switch ON J12 and J14

NOTE: *Incorrect jumper switch configuration can cause damage to the system.*

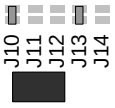
5.2.2 4-20mA Current Sink



The Input Module can also sink current proportional to the detected gas level.
i.e. zero gas = 4mA
full scale = 20mA

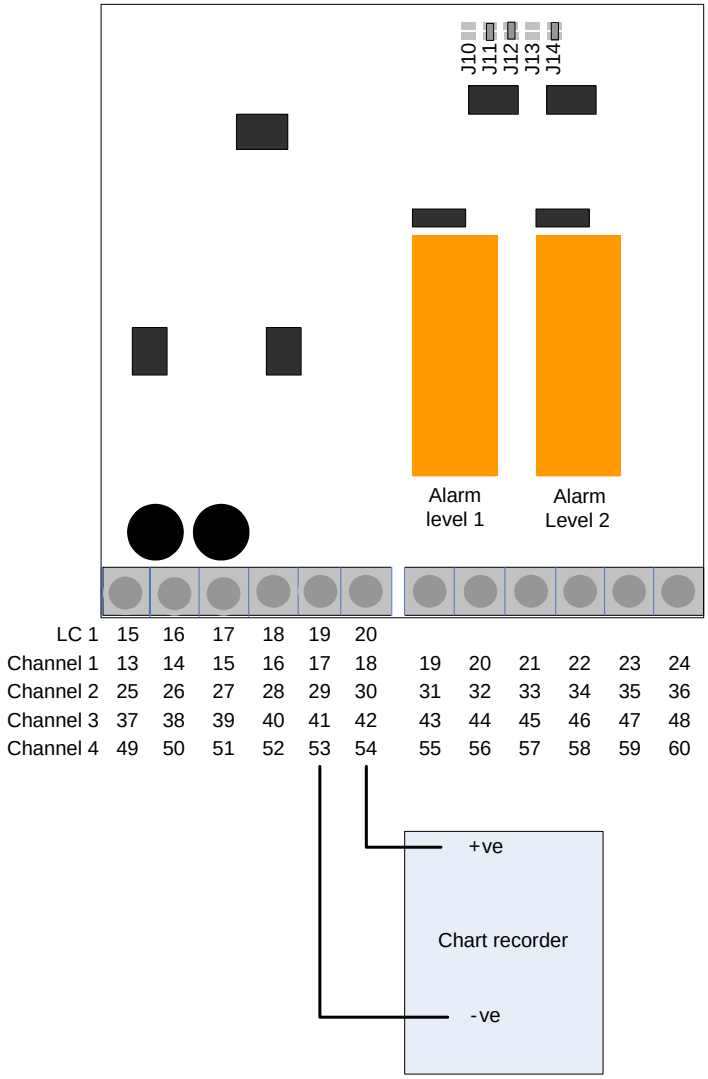
The supply is derived from the external equipment.

NOTES
Switch ON J10 and J13



NOTE: *Incorrect jumper switch configuration can cause damage to the system.*

5.2.3 1-5V Voltage Output



The LC Control Unit can provide a voltage output.
i.e. zero gas = 1V
full scale = 5V

This output is not ideal when transmitting a signal over a large distance. The resistance of a cable attached will cause a voltage drop to occur.

Switch ON J11, J12 and J14.

NOTE: *Incorrect jumper switch configuration can cause damage to the system.*

6.0 Maintenance

Routine Servicing

The MCU Control Unit will provide a reliable and fault free service but they rely upon sensible housekeeping and regular calibrations.

It is recommended that the system be calibrated **at least** once every six months. This can be arranged with Status Scientific Controls as part of a maintenance contract.

Routine Inspection

It is advisable to periodically inspect the LC Control Unit Installation:

- Check cables to ensure no damage has occurred.
- Clean control unit casing using a clean cloth.
- Clean detector heads using a clean DAMP cloth.
  NOTE: *Use of a dry cloth would constitute a static hazard.*
- Inspect detector heads and ensure the sensor housings aperture is not obstructed.

NOTE: Do not use solvents to clean the LCD display window on the control units or the detector heads

The time interval between routine inspections will depend upon the area in which the equipment is installed. A clean laboratory installation may only require inspection at the time of calibration, whereas an installation in a particularly dirty environment may require weekly inspections. It is the responsibility of the system engineer to assess the installation environment and determine the frequency of routine inspections

7.0 Technical Data and Specifications

LC1

Type	LC1
Size (nominal) 'mm'	188 x 160 x 106
Weight (approx.)	
Operating Temp	-10ºC to +50ºC
Storage Temp	-20ºC to +50ºC
Humidity Range	0 to 95% R.H. Non-condensing
Input Voltage	18-28V DC, or 100-240V AC 50/60 Hz
Environmental Rating	IP65

User Interface	
Display	Backlit 122 x 32 dot Liquid Crystal Display (LCD)
Keyboard	4 button multifunction keypad
LED Indications Option 1	Red Indicates alarm condition. Yellow Indicates fault condition. Green Indicates power ON
LED Indications Option 2	Red Indicates alarm level 1 condition. Red Indicates alarm level 2 condition. Yellow Indicates fault condition.

Input Modules	
Number of channels	1 max
Signal Input	4-20mA Current Loop from 24V source. 4-20mA Current Loop sink to 0V. 3-Wire Pellistor Systems.
Analogue Output	4-20mA Current source proportional to detected signal. 4-20mA Current sink proportional to detected signal. 1-5V Voltage output proportional to detected signal.
3 – Relays Contacts Rating	1 relay assigned to alarm level 1. 1 relay assigned to alarm level 2. 1 relay assigned to fault condition. Single Pole Changeover Contacts (voltage free). 5A 240V AC.

Power Supply	
Fuse 1 (AC Input)	T1.0A
Fuse 2 (24VDC input)	T500mA

NOTE: *All specifications stated in this manual may change without notice.*

LC2

Type	LC2
Size (nominal) 'mm'	280 x 219 x 156
Weight (approx.)	1.9Kg
Operating Temp	-10ºC to +50ºC
Storage Temp	-20ºC to +50ºC
Humidity Range	0 to 95% R.H. Non-condensing
Input Voltage	18-28V DC, or 100-240V AC 50/60
Environmental Rating	IP65

User Interface	
Display	Backlit 122 x 32 dot Liquid Crystal Display (LCD)
Keyboard	4 button multifunction keypad
LED Indications Option 1	Red Indicates alarm condition. Yellow Indicates fault condition. Green Indicates power ON
LED Indications Option 2	Green Indicates power ON Red Indicates alarm level 3 condition. Red Indicates alarm level 2 condition. Red Indicates alarm level 1 condition. Yellow Indicates fault condition.

Input Modules	
Number of channels	2 max
Signal Inputs x 2	4-20mA Current Loop from 24V source. 4-20mA Current Loop sink to 0V. 3-Wire Pellistor Systems.
Analogue Output x 2	4-20mA Current source proportional to detected signal. 4-20mA Current sink proportional to detected signal. 1-5V Voltage output proportional to detected signal.
6 – Relays Contacts Rating	1 relay assigned to alarm level 1, channel 1 & 2. 1 relay assigned to alarm level 2, channel 1 & 2. 1 relay assigned to common alarm level 3. 1 relay assigned to fault condition. Single Pole Changeover Contacts (voltage free). 5A 240V AC.

Power Supply	
Fuse 1 (AC Input)	T1.0A
Fuse 2 (24VDC input)	T500mA

NOTE: *All specifications stated in this manual may change without notice.*

LC4

Type	LC4
Size (nominal) 'mm'	390 x 316 x 167
Weight (approx.)	3.8Kg
Operating Temp	-10ºC to +50ºC
Storage Temp	-20ºC to +50ºC
Humidity Range	0 to 95% R.H. Non-condensing
Input Voltage	18-28V DC, or 100-240V AC 50/60 Hz
Environmental Rating	IP65

User Interface	
Display Option 1	LED Backlit 122 x 32 dot Liquid Crystal Display (LCD)
Display Option 2	LED Backlit 240 x 128 dot Liquid Crystal Display (LCD)
Keyboard	4 button multifunction keypad
LED Indications Option 1	Red Indicates alarm condition. Yellow Indicates fault condition. Green Indicates power ON
LED Indications Option 2	Green Indicates power ON Red Indicates alarm level 3 condition. Red Indicates alarm level 2 condition. Red Indicates alarm level 1 condition. Yellow Indicates fault condition.

Input Modules	
Number of channels	4 max
Signal Inputs x 4	4-20mA Current Loop from 24V source. 4-20mA Current Loop sink to 0V. 3-Wire Pellistor Systems.
Analogue Output x 4	4-20mA Current source proportional to detected signal. 4-20mA Current sink proportional to detected signal. 1-5V Voltage output proportional to detected signal.
10 – Relays Contacts Rating	1 relay assigned to alarm level 1, channel 1, 2, 3 & 4. 1 relay assigned to alarm level 2, channel 1, 2, 3 & 4. 1 relay assigned to common alarm level 3. 1 relay assigned to fault condition. Single Pole Changeover Contacts (voltage free). 5A 240V AC.

Power Supply	
Fuse 1 (AC Input)	T1.0A
Fuse 2 (24VDC input)	T500mA

NOTE: *All specifications stated in this manual may change without notice.*

8.0 Terms and Conditions

8.1 Ordering Information

Address orders to:

ENMET
Attention: Customer Service Department
680 Fairfield Court
Ann Arbor, MI 48108

Email Orders: orderentry@enmet.com
Phone: 734-761-1270
Fax: 734-761-3220
You may also contact our customer service department by email info@enmet.com. MINIMUM ORDER IS $50.00.

8.2 Shipping Terms

All shipments are F.O.B. ENMET's facility in Ann Arbor, MI, USA or Bowling Green, KY, USA. Shipping and handling charges are prepaid and added, and must be paid by the customer. Shipping and handling charges may be billed to VISA, MasterCard, American Express, or to the customer's preferred carrier account number. Delivery to the carrier constitutes delivery to the customer, and risk of loss passes to the customer at that time, however, title shall remain with ENMET until payment is received in full. Claims for shortages and damage must be made by the customer to the carrier within 5 days of receipt. **Refer to section "1.1 Unpack" for more information on this matter.**
A special service of $50.00, or more, may be assessed on expedited shipments.
NOTE: Calibration gases are classified as Dangerous Goods for transportation purposes, and shipping companies charge a hazardous material fee for processing the documentation required for handling such items. Also, other restrictions apply to shipment of Danger Goods by air. Check with ***ENMET*** for clarification and additional information.

8.3 Payment

Open accounts must be established in advance with ENMET's Accounting department.
Address Payments to:

ENMET
680 Fairfield Court
Ann Arbor, MI 48108

Phone: 734-761-1270
We accept payments by VISA, MasterCard, and American Express. Payment by credit card must be specified at time of order placement. Your credit card will be charged on the date of shipment.
ENMET invoices for products that are shipped on open account are due and payable 30 days from the date of shipment from the ***ENMET*** site. ***ENMET*** may institute collection services should any bona fide invoice remain unpaid with no payment schedule negotiated by the customer with the ***ENMET*** Accounting Department. Any cost incurred by ***ENMET*** for professional collection services or legal fees to collect on a customer invoice will be added to any future business conducted between ***ENMET*** and that customer.

8.4 Warranty Information and Guidelines

Equipment must be returned prepaid to the point of origin, and ENMET will prepay the return transportation charges. Transportation prepaid by ENMET will be by most economical means (e.g. FedEx Ground). If an expedient means of transportation is requested during the warranty period, the customer must pay the difference between the most economical means and the expedient mode. ENMET warrants new instruments to be free from defects in workmanship and material under normal use for a calibration and expendable parts such as filters, detector tubes, batteries, etc. In addition, some oxygen cells and other sensors are limited to a warranty period of six months from date of shipment. Refer to the instrument manual for specific warranty details. If the inspection by ENMET confirms that the product is defective, it will be repaired or replaced at no charge, within the stated limitations, and returned prepaid by FedEx Ground to any location in the United States. ENMET shall not be liable for any loss or damage caused by the improper use or installation of the product. The purchaser indemnifies and holds harmless the company with respect to any loss or damagers that may arise through the use by the purchaser or others of this equipment. This warranty is expressly given in lieu of all other warranties, either expressed or implied, including that of merchantability, and all other obligations, or liabilities of ENMET which may arise in connection with this equipment. ENMET neither assumes nor authorizes any representatives or other persons to assume for it any obligation or liability other than that which is set forth herein.

If a component is purchased and installed in the field, and fails within the warranty term, it can be returned to ENMET and will be replaced, free of charge. If the entire instrument is returned to ENMET with the defective item installed, it will be replaced at no cost, but the instrument will be subject to labor charges at half of the standard rate.
NOTE: When returning an instrument to the ENMET for service:

- Be sure to include all paperwork (the "Request for Service" form).
- Include any specific instructions.
- For warranty service, include the date of purchase.
- If you require an Estimate, please contact ENMET.

The "Request for Service" form is on the final page of this manual. This form can be copied or used as needed. For service requests, outside of the warranty period, please refer to the "Returning an Instrument for Service Instruction" found later in this section.

8.5 Return Policy

All returns for credit must be approved by ENMET and identified with a "Return Material Goods" number. Such returns are subject to a minimum of a $50.00 or 20% restocking fee, whichever is greater. **Approval of equipment for return is fully at the discretion of ENMET.** All requests for return/exchange must be made no later than 30 days of the original shipping date from ***ENMET***. The actual amount of any resulting credit will not be determined prior to a complete inspection of the equipment by ***ENMET***. Calibration gas cylinders cannot be returned or restocked due to the Department of Transportation refill restrictions. Air Filtration Systems (AFS series & parts) cannot be returned or restocked because their internal surfaces and filters are not amenable to re-inspection.
Certain products, such as stationary systems, or instruments with custom sensor configuration (non-standard) are built to order, and cannot be returned. Cancellation of orders for custom-built products, prior to shipment, will result in the assessment of a cancellation fee. The amount of the cancellation fee will be based upon the size and complexity of the order, and the percentage of total cost expended prior to cancellation.

8.6 Returning an Instrument for Service Instructions

Contact the ENMET Service Department for all service requests.
Phone: 734-761-1270
Email: repair@enmet.com
Fill out the "Service Request Form" found at the end of this manual and return with your instrument for all needs. Please send your instrument for service to the site in which the product was purchased. A new "Service Request Form" may be requested if the one found in the manual is not available. All instruments should be shipped prepaid to ENMET.
Address for Service:

Michigan Location:

ENMET
Attention: Service Department
680 Fairfield Court
Ann Arbor, MI 48108

Kentucky Location:

ENMET
62 Corporate Court
Bowling Green, KY 42103

Providing the "Service Request Form" assists in the expedient service and return of your unit and failure to provide this information can result in processing delays. ***ENMET*** charges a one hour minimum billing for all approved repairs with additional time billed to the closest tenth of an hour. All instruments sent to ***ENMET*** are subject to a minimum evaluation fee, even if returned unrepaired. Unclaimed instruments that ***ENMET*** has received without appropriate paperwork or attempts to advise repair costs that have been unanswered after a period of 60 days may, be disposed of or returned unrepaired COD and the customer will be expected to pay the evaluation fee. Serviced instruments are returned by UPS/FedEx Ground and are not insured unless otherwise specified. If expedited shipping methods or insurance is required, it must be stated in your paperwork.

NOTE: Warranty of customer installed components.
For Warranty Repairs, please reference ***ENMET's*** "Warranty Information and Guidelines" (found earlier in this section).

Mailing/Shipping Address:
ENMET
680 Fairfield Court
Ann Arbor, MI 48108
repair@enmet.com

Phone: 734.761.1270
Fax: 734.761.3220

Service Request Form

Product Name or Number:
Product Serial Number:

Describe Problem or Needed Service:

Warranty Claim? ☐ Yes ☐ No

CUSTOMER INFORMATION

Billing Address:

Shipping Address:

Contact Name: _____ **Phone #:** _____
Email: _____ **Fax #:** _____
PO/Reference #: _____

PAYMENT METHOD

☐ COD ☐ VISA/MasterCard ☐ American Express

_____ _____ _____
Card Number Exp. Date Security Code:

Name as it Appears on Card: _____

RETURN SHIPPING METHOD

☐ UPS Ground ☐ UPS 3 Day Select ☐ UPS Next Day Air ☐ UPS ND Air Saver ☐ UPS 2 Day Air

UPS Account #: _____

☐ FedEx Ground ☐ FedEx Air Express Saver ☐ FedEx Air Overnight Std. ☐ FedEx Air 2 Day ☐ FedEx Air Overnight P-1

FedEx Account #: _____

Insure Shipment: ☐ Yes ☐ No

Insurance Amount: $ _____