

ENMET Corporation
PO Box 979
Ann Arbor, MI 48106-0979

SE-5175
Sensor/Transmitter
Manual

Manual Part Number
80003-162
May 2007

Table of Contents

1.0 INTRODUCTION	1
1.1 UNPACK.....	1
1.2 CHECK ORDER	1
1.3 SERIAL NUMBERS.....	1
2.0 COMPONENTS OF THE SE-5175	2
2.1 SE-5175 ELEMENTS	2
2.2 SE-5175 OPERATIONAL FEATURES	2
2.3 CIRCUIT BOARD FEATURES.....	3
3.0 INSTALLATION	4
3.1 MOUNTING SE-5175	4
3.2 WIRING THE SE-5175.....	5
3.2.1 Power Supply.....	5
4.0 OPERATION	6
4.1 START UP SE-5175	6
4.1.1 Typical Start Up.....	6
4.2 NORMAL DISPLAY MODE	7
4.2.1 Alarm Conditions SE-5175.....	7
5.0 MAINTENANCE	8
5.1 MAINTENANCE MENUS.....	8
5.1.1 Exit Maintenance Menu	10
5.2 SE-5175 MAINTENANCE ADJUSTMENTS.....	10
5.2.1 Zero Adjust.....	11
5.2.2 Gas Span.....	12
5.2.3 Alarm Set Points.....	13
5.2.4 Span Set.....	13
5.4 SENSOR REPLACEMENT	14
6.0 REPLACEMENT PARTS	15
7.0 TECHNICAL DATA AND SPECIFICATIONS	15
8.0 WARRANTY	16

List of Tables

TABLE 2: FACTORY ALARM SET POINTS	7
TABLE 3: SE-5175 MAINTENANCE MENUS SEQUENCE	8

List of Illustrations

FIGURE 1: EXTERNAL SE-5175 FEATURES	2
FIGURE 2: SE-5175 CIRCUIT BOARD FEATURES	3
FIGURE 3: MOUNTING SE-5175	4
FIGURE 4: POWER TERMINAL CONNECTIONS SE-5175	5
FIGURE 6: SE-5175 MAINTENANCE MENU FLOW CHART	9
FIGURE 7: CALIBRATION ADAPTER	10
FIGURE 8: SE-5175 SENSOR REPLACEMENT	14

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.]



Earth Ground

1.0 Introduction

The **SE-5175** sensor/transmitter (S/T) instrument is a 3 wire, 24 VDC, 4-20mA S/T, that measures and detects various types of toxic gases utilizing an electrochemical sensor. The **SE-5175** is *NOT* in an enclosure rated for use in a Class I, Div 1, Groups B, C, D classified area and *CAN NOT* be installed in a hazardous location, as defined by the National Electric Code (NEC).

Features of the **SE-5175**:

- continuous monitoring of the sample air
- continuous LCD display of gas and vapor concentrations
- menu driven operational and maintenance controls
- menu driven calibration procedure
- mA outputs for target gas
- Sensor/Transmitter are three wire device, with two of the wires forming a 4-20mA loop

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

1.1 Unpack

Unpack the **SE-5175** 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 our company 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. 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 Corporation
680 Fairfield Court
Ann Arbor, MI 48108
734-761-1270 734-761-3220 Fax

1.2 Check Order

Check the contents of the shipment against the purchase order. Verify that the **SE-5175** is received as ordered. Each **SE-5175** is labeled with its target gas. 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 **SE-5175** is serialized. These numbers are on tags on the equipment and are on record in an **ENMET** database.

2.0 Components of the SE-5175

2.1 SE-5175 elements

See Figure 1 for location of elements:

Feature	Description
Enclosure	A fiberglass-reinforced polyester 5 x 4 x 3, with a detachable front cover. Four holes for mounting the enclosure to a vertical surface. Located at the corners of the bottom of the enclosure. See Figure 3
Front Cover	Detachable front cover of SE-5175 with Display Panel. See Section 2.2 and Figure 1 There are 4 Screws that hold the front cover in place.

2.2 SE-5175 Operational Features

The Display Panel is attached to the enclosure cover and is released by unscrewing the 4 screws located in the corners. After releasing the screws and lifting the cover and exposing the interior of the enclosure, see section 3.0 for installation and wiring instructions.

See **Figure 1** for location of features.

Feature	Description
Display	A single line, 8 character LCD with backlight. Indicates the level of gas detected by sensor. The numerical value of gas concentration and other information is displayed.
Visual Indicators and Alarms	LED indicators: Power / Fault Indicator LED, Green / Red Alarm (3) Indicator LED, Red
Membrane Switches	2 Pushbutton Switches on front panel control the instrument maintenance functions. The pushbutton switch locations are indicated by: MENU ↓: Advances the instrument display through operation information and maintenance menus SELECT →: Disables audio alarm temporarily and Selects the maintenance menu operations such as, Zero, Span, Exit menu or sets proper calibration values for Zero or Span See Section 4.0 and 5.0 for operational and maintenance flow charts.

Three alarm points are preprogrammed into the **SE-5175**. At each alarm point, an LED on the front panel is activated. These internal alarm settings are independent of the 4-20mA output alarm values that can be set at a controller.

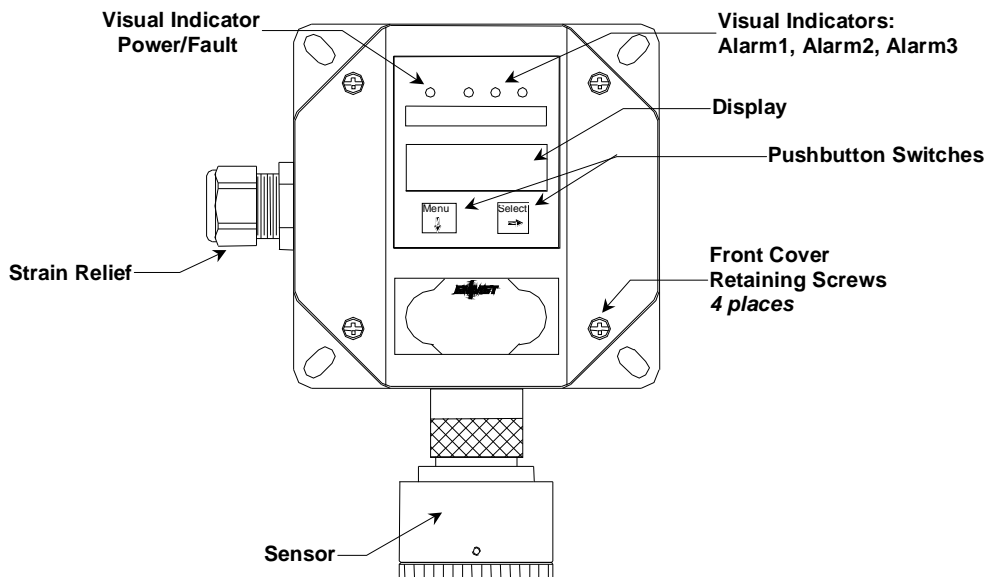


Figure 1: External SE-5175 Features

2.3 Circuit Board Features

The Display Panel is attached to the enclosure cover and is released by unscrewing the 4 screws located in the corners. After releasing the screws and lifting the cover and exposing the interior of the enclosure, see section 3.0 for installation and wiring instructions. The Circuit Board is mounted at the back surface of the enclosure Cover.

Circuit Board Features are shown in **Figure 2**.

Feature	Description
Output Terminals	J4 plug – Terminals to controller
Sensor Wiring	J8 plug – Terminals to sensor wiring

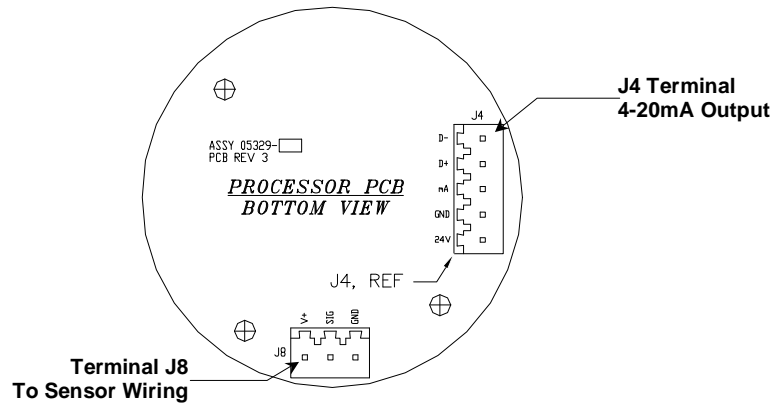


Figure 2: SE-5175 Circuit Board Features

3.0 Installation

The **SE-5175** sensor/transmitter detects gas only at the sensor location.

NOTE: Sensor Location

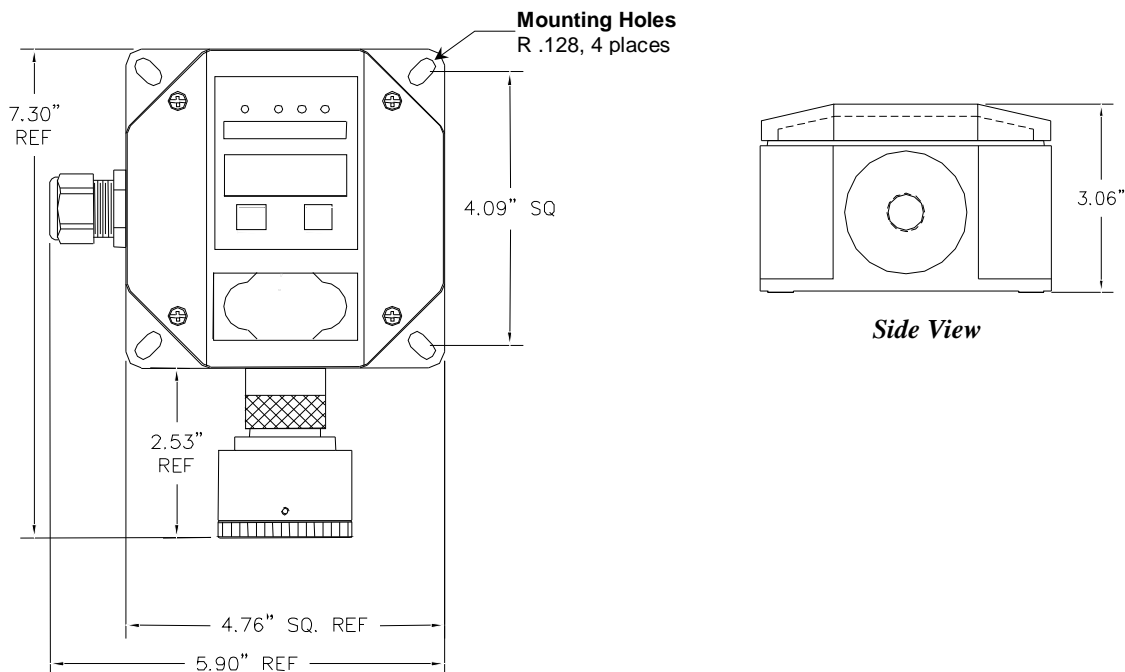
Gases have different densities. Some are heavier than air and concentrate at the bottom of a space. Some are lighter than air and gather at the top. Consider the density of the gas you want the sensor to detect when you install the sensor. Some examples are given below.

Heavier than Air Gas	Sensor Location
Hydrogen sulfide	Interior wall; 18-24" from floor. <ul style="list-style-type: none"> • DO NOT locate directly above or beside gas appliances (ovens, heaters). • Avoid locating anywhere near a vent or window or near an outside doorway.
Lighter than Air Gas	Sensor Location
Ammonia	Near ceiling. <ul style="list-style-type: none"> • DO NOT locate directly above appliances where it is subject to direct exposure to heat or steam.
Hydrogen	
Same Density as Air Gas	Sensor Location
Carbon Monoxide	4-6 feet above the (generally uniform) floor. <ul style="list-style-type: none"> • DO NOT locate in direct air currents of windows, doors, or vents.

If you have a question involving the location of a unit or sensor, please contact your distributor or **ENMET** personnel. A technician will analyze the question and recommend a location.

3.1 Mounting SE-5175

Mount the **SE-5175** instrument on an appropriate vertical surface, using the mounting holes provided. Avoid areas with excessive vibration or temperature extremes. The holes in the bottom of the enclosure are 0.18 inch in diameter and form a 4.09" square. See **Figure 3**



Dimensions are in inches.

Figure 3: Mounting SE-5175

3.2 Wiring the SE-5175

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.

CAUTION: Area must be declassified during installation.

Run conduit and 16 AWG (1.5MM²) wires to the enclosure from the power supply and controller. Or use a 3 wire power cord of 0.20 to 0.35" in diameter.

After releasing the screws and lifting the cover and exposing the terminal strips on the bottom of the circuit board.

Connect the wires from the controller (power supply) to the supplied J4 plug then attach to J4 terminal.

3.2.1 Power Supply

Upon supplying power to the **SE-5175**:

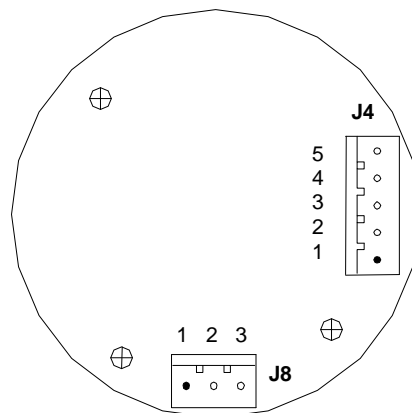
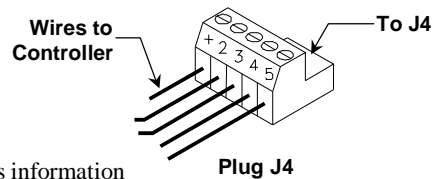
- The green power on LED is lit.
- The display backlight is lit, and instrument will step through a start-up sequence: unit serial number and software revision may be shown on the display.

The instrument may go into alarm briefly, but the sensors stabilize quickly. If the instrument persists in alarm, acknowledge the alarm by pressing the **SELECT** button. If alarm persists longer than 30 minutes, call **ENMET** customer service personnel.

J4 PLUG – TERMINAL TO CONTROLLER WIRING

Position	Function
1 +	24 VDC power
2	GND
3	4 - 20 mA out
4*	RS-485 D+
5*	RS-485 D-

*Contact **ENMET** for Modbus Address information



Circuit Board Bottom View

J8 PLUG – TERMINAL TO SENSOR WIRING

Position	Function	Sensor
1	V +	Red
2	Signal	White
3	GND	Black

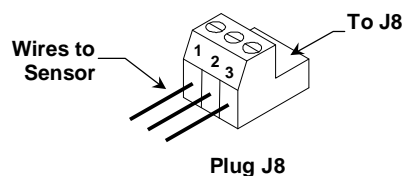


Figure 4: Power Terminal Connections SE-5175

4.0 Operation

4.1 Start Up SE-5175

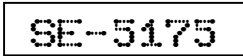
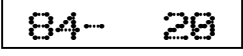
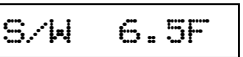



When the **SE-5175** is first powered up, it goes through a series of momentary screens, which identify the instrument model number, serial number and software revision. After all of the momentary screens have been displayed, the instrument arrives at the Main Gas Display showing the gas concentration and unit of measurement, the **POWER** green LED is on and the red alarm and fault LEDs are not lit.

Depending on transmitter configuration and calibration condition, the furthest right character in the display may flash a letter indicating the instrument status. See the Section 4.1.1 below.

4.1.1 Typical Start Up

When power is supplied to the **SE-5175**, the instrument will display the following sequence of information:
Typical start up sequence of information displayed.

Example of Typical Start Up Display

Display	Function
	The instrument: Model SE-5175
	The instrument: Serial Number
	The instrument: Software Revision
IF the right most character is a flashing W 	The instrument is in Warm-up mode <ul style="list-style-type: none"> ▪ This should last about 1 minute ▪ The Signal Output is held at 4mA during warm-up
IF the right most character is a flashing C 	The instrument has failed Calibration The last good calibration values are retained, but the sensor may not be responsive to gas A new Calibration should be performed <i>As Soon As Possible</i>
	The instrument: Normal Display Mode Measurement of the target gas

NOTE: Software revision may cause variations of display output.

4.2 Normal Display Mode

When the **SE-5175** is installed as described in section 3, and in clean air, the POWER green LED is on and the display is lit. The red alarm and fault LEDs are not lit.

To advance through displays of operational information press the **MENU** button.

See sequence of operational information below:

Example of Typical Operational Display

Display Measurement of the target gas

Press **MENU** button

0 ppm



Display indicates Alarm 1 Set point

Press **MENU** button

A1: 05



Display indicates Alarm 2 Set point

Press **MENU** button

A2: 10



Display indicates Alarm 3 Set point

Press **MENU** button

A3: 20



Display indicates mA Span range
(Full Scale)

Press **MENU** button

mA: 50



Display returns to operational measurement

Operational Display Flow Chart

4.2.1 Alarm Conditions SE-5175

There are three alarm set points. The factory settings of these alarm set points are shown in **Table 2**.

Table 2: Factory Alarm Set Points

Gas	Alarm 1	Alarm 2	Alarm 3
Ammonia	25 ppm	50 ppm	75 ppm
Arsine	0.05 ppm	0.1 ppm	0.4 ppm
Carbon Monoxide	5 ppm	10 ppm	20 ppm
Chlorine	0.5 ppm	1 ppm	5 ppm
Ethylene Oxide	3 ppm	5 ppm	9 ppm
Hydrogen	200 ppm	500 ppm	1000 ppm
Hydrogen Chloride	5 ppm	10 ppm	20 ppm
Hydrogen Fluoride	3 ppm	6 ppm	9 ppm
Hydrogen Sulfide	10 ppm	20 ppm	50 ppm
Nitric Oxide	25ppm	50 ppm	75 ppm
Nitrogen Dioxide	3 ppm	5 ppm	10 ppm
Oxygen	17% V	19.5%V	23.5V
Ozone	0.1 ppm	0.5 ppm	0.75 ppm
Silane	5 ppm	10 ppm	20 ppm
Sulfur Dioxide	2 ppm	5 ppm	10 ppm

These alarm set points can be changed within limits; see the maintenance section of this manual for the procedure.

If the target gas concentration increases above that of the alarm set point, the associated red LED is lit, the associated relay changes state, and the audio alarm is activated. Oxygen is the exception with descending and rising alarm points.

5.0 Maintenance

The **SE-5175** maintenance menus that are accessed by pressing the **MENU** button and entering a valid access code. The access code is set at the factory and may be changed by following the access code menu explained in section 5.5.

5.1 Maintenance Menus

CAUTION: Do Not Attempt A Span Procedure Without Calibration Gas Applied to The Sensor; if this is done, the instrument is forced into a calibration fault mode.

Pushbutton switches control the **MENU** and **SELECT** functions. The **MENU** and **SELECT** button locations are indicated on the display panel, see **Figure 3**. The **MENU** button is used to display the various menu options and make incremental changes to numbers such as alarm points, calibrations gas, etc. The **SELECT** button is used to select that option, set zero or span digit.

To enter the maintenance menu press and hold the **MENU** button for 2 to 4 seconds

Table 3 indicates the maintenance menu sequence see **Figure 6** for a detailed maintenance menu flow chart.

Table 3: SE-5175 Maintenance Menus Sequence

Example of Display	Function
<div style="border: 1px solid black; padding: 5px; display: inline-block;">5ppm</div> Normal Display Mode	Measurement of CO
Press and <i>hold</i> the MENU button for 2 – 4 seconds to enter the Maintenance Menu The Power/Fault LED will flash Green – Red to indicate the SE-5175 is in Maintenance Mode	
<div style="border: 1px solid black; padding: 5px; display: inline-block;">Exit</div>	To exit the maintenance Menu and return to the Normal Display Mode: If intended function Press SELECT button
Press the MENU button to advance to the Zero procedure	
<div style="border: 1px solid black; padding: 5px; display: inline-block;">Zero</div> <i>Not Available for Oxygen units</i>	For adjusting Zero: If intended function Press SELECT button
Press the MENU button to advance to the Span procedure	
<div style="border: 1px solid black; padding: 5px; display: inline-block;">Span</div>	For adjusting the Span: If intended function Press SELECT button
Press the MENU button to advance to each Alarm set point procedures	
<div style="border: 1px solid black; padding: 5px; display: inline-block; margin-right: 20px;">Alarm1</div> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-right: 20px; margin-left: 100px;">Alarm2</div> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 100px;">Alarm3</div>	For adjusting the Alarm 1, 2 and 3 set points: If Intended function Press SELECT button
Press the MENU button to advance the mA Span set point procedure	
<div style="border: 1px solid black; padding: 5px; display: inline-block;">mA Span</div>	For adjusting the mA Span set point: If intended function Press SELECT button

Pressing the **MENU** button without pressing the **SELECT** button will allow you to cycle through the menu options. You must Press the **SELECT** button in order to initiate the desired operation.

Normal Gas Display

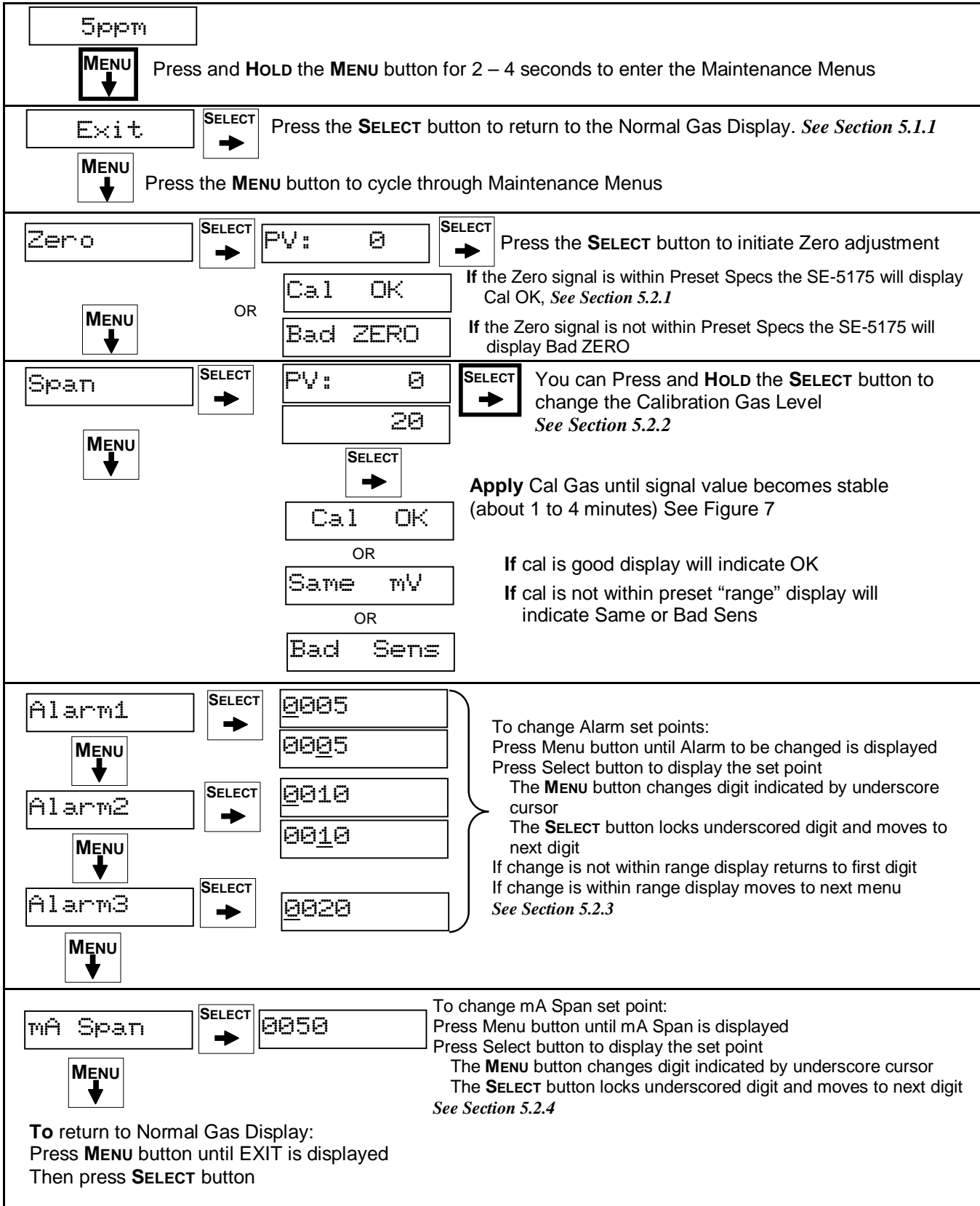
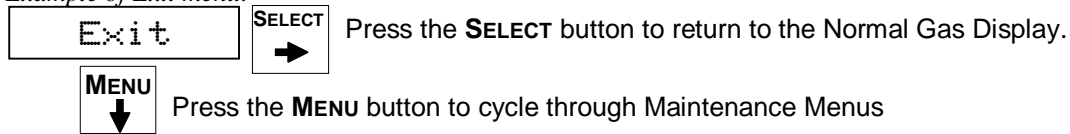


FIGURE 6: SE-5175 Maintenance Menu Flow Chart

5.1.1 Exit Maintenance Menu

Exit maintenance, when the Exit appears on the display. Press the **SELECT** button to return to the instrument Normal Gas Display.

Example of Exit menu:



5.2 SE-5175 Maintenance Adjustments

Calibration of the SE-5175

Calibration is the process of setting the instrument up to read accurately when exposed to the target gas. The Zero function sets the clean air reference point and the Span function sets the sensitivity of the instrument.

Initial Calibration: Wait 3 – 4 hours after initially supplying power to the **SE-5175** instrument before initial calibration. The **SE-5175** has been precalibrated at the factory, and initial field calibration should result in only fine tuning to circuit, as well as a way to check that installation is successful. It is not necessary to open the enclosure to make adjustment. The calibration functions are operated with pushbuttons from outside the enclosure through the **MENU** and **SELECT** switches.

Calibration Zero and Span functions are two separate procedures. They operate independently of each other. It is recommended that the Zero procedure be done prior to the Span procedure.

NOTE: Zero function is not used for Oxygen transmitters.

ENMET Corporation recommends at least quarterly calibration of the SE-5175 instrument.

Calibration equipment is available from **ENMET Corporation** to calibrate the **SE-5175** instrument.

- Calibration adapter, a length of tubing with a regulator for the gas cylinder on one end, and a fitting to connect to the **SE-5175** sensor/transmitter on the other.

- Gas cylinder, Zero gas 20.9% oxygen or Span gas, typical 50% of instrument full scale.

Generally, a cylinder of 20.9% Oxygen is used to provide a Zero point or fresh air reference for the calibration.

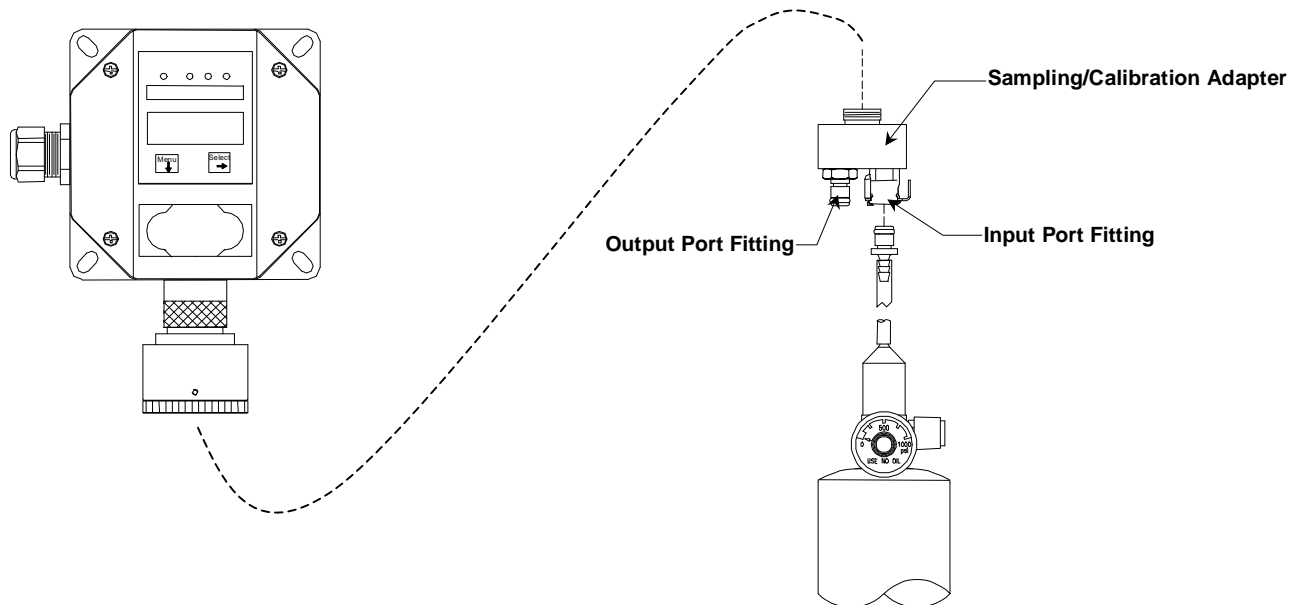


Figure 7: Calibration Adapter

5.2.1 Zero Adjust

NOTE: Zero function is not used for Oxygen transmitters, proceed to Gas Span.

The ZERO function must be performed by exposing the **SE-5175** instrument to clean fresh air. If the air at the sensor is in question, use a cylinder of 20.9% oxygen to provide a clean air reference. See **Figure 7**

Enter the maintenance menu by pressing and holding **MENU** button for 2 to 4 seconds. See **Figure 6, SE-5175 Maintenance Menu flow chart.**

After entering the maintenance menu, Press the **MENU** button until the Zero menu is displayed.

Press the **SELECT** button to perform a Zero.

The display will alternate between Zero and PV: To abort Zero function press and hold **MENU** button for 3 – 4 seconds, Abort? will appear, press **SELECT** button to return to Zero.

Press the **SELECT** button to initiate a Zero adjustment.

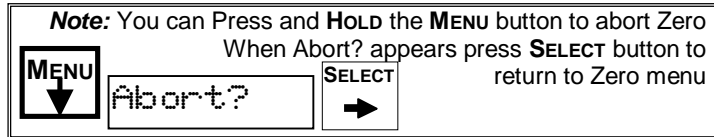
An auto detect sequence is initiated. After 15 seconds, the **SE-5175** will monitor the zero reading for stability.

- *If the reading stabilizes*, within the pre-programmed perimeters, an automatic zero adjustment will be made. Cal OK appears on the display and in 1 – 2 seconds, display will change to Span.

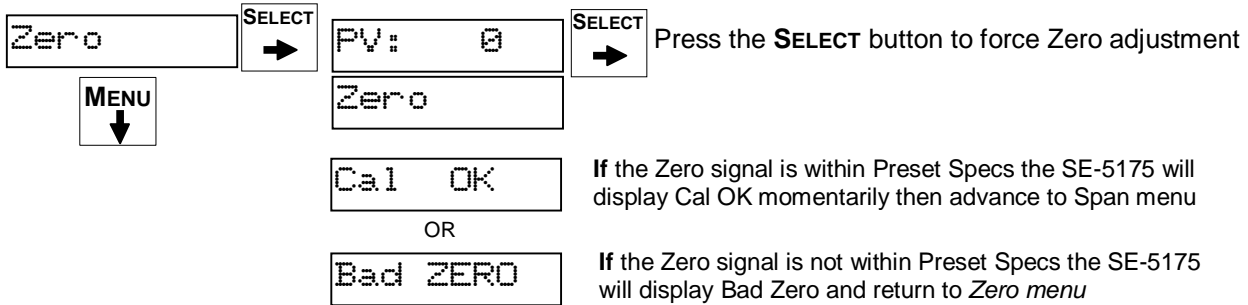
If you wish to Span the sensor press the **SELECT** button you are now ready to apply gas. **Proceed to gas span step 2**

If you wish to Exit the maintenance menu, press **MENU** button until Exit is displayed, then press **SELECT** button to return to the instrument Normal Gas Display

- *If the reading does not stabilize*, within 255 seconds, the procedure will be aborted. Sensor is outside of safe parameters to be zeroed, the display will read Bad Zero. Repeat Section 5.2.2 Zero Adjust making sure to use a Zero gas of 20.9% Oxygen. **ENMET** part number 03296-209.



Example of Zero adjustment display:



5.2.2 Gas Span

It is recommended that the Zero Function be performed first.

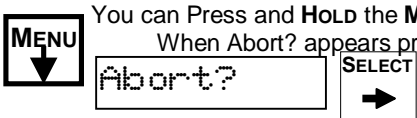
Do not perform a calibration unless span gas is applied to sensor. Calibration can be aborted by pressing and holding the **MENU** button for 3 – 4 seconds.

Enter the maintenance menu. See **Figure 6, SE-5175 Maintenance Menu** flow chart.

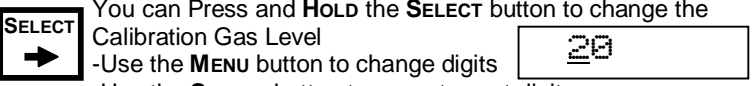
1. Press the **MENU** button until Span display.
2. Press the **SELECT** button to perform a Span procedure.
 The display will alternate between the calibration gas concentration: example (Cal 20) and a signal level (PV).
 To Abort calibration press and Hold **MENU** button for 3 – 4 seconds, Abort? will appear, press **SELECT** button to return to Span.
 To change calibration gas level to be used, press and Hold **SELECT** button for 3 – 4 seconds, use menu button to change digit and select button to move to next digit.
3. Attach the associated calibration gas cylinder to the calibration adapter. See **Figure 7** on calibration adapter.
4. Open the valve to apply the calibration gas to the sensor.
 An auto detect sequence is initiated after 30 seconds, the **SE-5175** will monitor the cal reading for stability.
5. Watch for the signal level to stabilize. 1 – 4 minutes.
6. Once the signal level has stabilized,
 - If the Span is successful, “Cal OK” appears momentarily, then will advance to Alarm1 menu.
 - If the sensor is outside of acceptable parameters, “Bad Span” is displayed.
 - If the sensor did not respond, an incompatible span gas was applied and the sensor did not respond at all, “Same mV” is displayed then will return to Span.
 - ➔ If calibration is not successful, it is suggested that calibration be attempted again in 30-60 minutes.
 - If the sensor will not calibrate See Section 5.4.
7. Remove the calibration gas.
8. Calibration is complete.
 Note: The instrument will return to operation mode in 3 – 5 seconds.
9. Press the **MENU** button to advance to next desired menu

NOTE: To abort calibration or change calibration gas level.

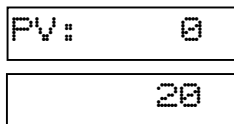
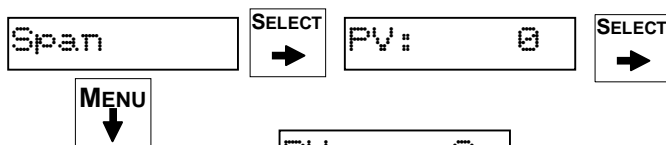
You can Press and **HOLD** the **MENU** button to abort Calibration
 When Abort? appears press **SELECT** button to advance to Alarm1 menu



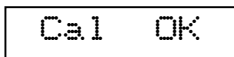
You can Press and **HOLD** the **SELECT** button to change the Calibration Gas Level
 -Use the **MENU** button to change digits
 -Use the **SELECT** button to move to next digit



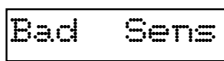
Example of Calibration Display:



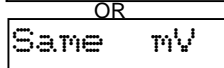
Apply Cal Gas until signal value becomes stable (about 1 to 4 minutes) See **Figure 7**



When cal signal is stable **SE-5175** will automatically update:
If cal is good display will indicate OK or Same and advance to Alarm1



If cal is not within preset “range” display will indicate Bad Sens or Same mV The **SE-5175** will return to the Span Menu



To exit press **MENU** button until Exit appears and press **SELECT**

5.2.3 Alarm Set Points

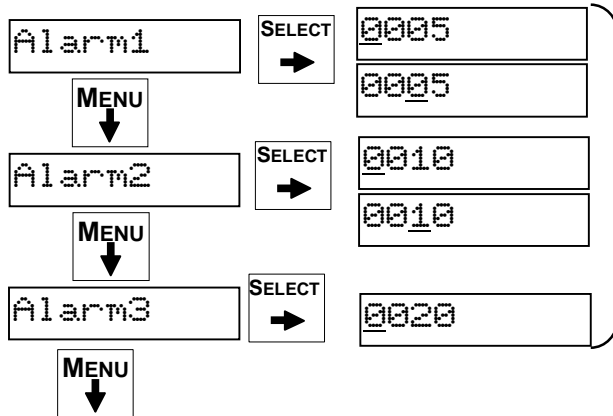
The **SE-5175** alarm set points can be changed within limits. See **Table 4** for factory set alarm points.

To change any of the three alarm points:

Enter the maintenance menu as shown in **Figure 6 SE-5175** Maintenance Menu flow chart.

1. Press the **MENU** button until to display Alarm1 is displayed.
2. Press the **SELECT** button to initiate alarm set point change
3. Press the **MENU** button to change the digit indicated by the underscore cursor
4. Press the **SELECT** button to move the cursor to the next digit
When last digit is entered the **SE-5175** will advance to the next menu
5. Press the **MENU** button to advance to the next menu

Example of Alarm Set Point menus:



To change Alarm set points:
 Press Menu button until Alarm to be changed is displayed
 Press Select button to display the set point
 The **MENU** button changes digit indicated by underscore cursor
 The **SELECT** button locks underscored digit and moves to next digit
If change is not within range display returns to first digit
If change is within range display moves to next menu

5.2.4 Span Set

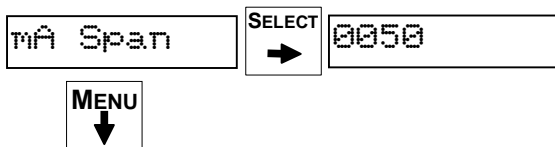
The **SE-5175** 4-20mA span range can be changed within limits. See **Table 4** for factory set range.

To change the span range:

Enter the maintenance menu as shown in **Figure 6 SE-5175** Maintenance Menu flow chart.

1. Press the **MENU** button until to display Span is displayed.
2. Press the **SELECT** button to initiate the mA Span menu
3. Press the **MENU** button to change the digit indicated by the underscore cursor
4. Press the **SELECT** button to move the cursor to the next digit
When last digit is entered the **SE-5175** will advance to the next menu
5. Press the **MENU** button to advance to the next menu

Example of mA Span menu:



To change mA Span set points:
 Press Menu button until mA Span is displayed
 Press Select button to display the set point
 The **MENU** button changes digit indicated by underscore cursor
 The **SELECT** button locks underscored digit and moves to next digit

Default mA Span

4mA	20mA
0 ppm	50 ppm

5.4 Sensor Replacement

WARNING: Power must be removed from the SE-5175 before this or any internal procedure. Failure to do so may cause damage to equipment, bodily injury or death.

Sensors should be replaced when they can no longer be calibrated. Replacement sensor part numbers are listed in **Section 6.0** of this manual. If you do not know the proper part number for your sensor, have the **SE-5175** serial number available when contacting your Distributor or **ENMET** Corporation Technical Support.

1. Remove, the set screw from **SE-5175** sensor head, and remove sensor cap. See Figure 8
NOTE: Set screw *must* be loosened before attempting to rotate or remove the sensor housing cap.
2. Remove, the sensor assembly, see **Figure 8**.
Sensor assembly is made up of the sensor attached to the sensor PCB with spring loaded contact pins.
3. Insert, the new sensor assembly.
4. Replace, sensor cap and replace the set screw.
5. Re-supply power to the **SE-5175**

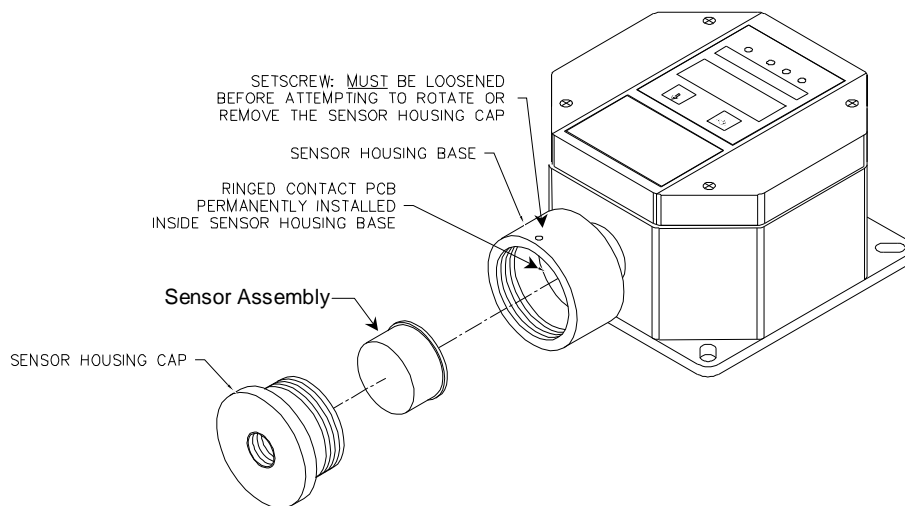


Figure 8: SE-5175 Sensor Replacement

After the new sensor assembly has been installed, it is suggested to allow the sensor to stabilize for 3 – 4 hours.

A Factory calibration must be performed.

When entering the Maintenance menu EXIT will be displayed. Press and *hold* the **MENU** button for 2-4 seconds. Press the **MENU** switch to change display to Zero or Span.

An F will appear on the far right hand side of the display. The F indicates that the instrument is in Factory mode.

Perform the calibration Zero and Span procedures as outlined in **Section 5.2**. Be sure that the F is present when selecting the Zero and Span functions.

The Factory calibration sets a calibration window for future standard instrument calibrations.

6.0 Replacement Parts

ENMET replacement part numbers:

Description of Part	Part Number
Sensor – Contact ENMET	67027-xxxx
Calibration Adapter	03700-034
Calibration Regulator, 58/103 liter	02506-002
Calibration Regulator, 17/34 liter	02506-004
Zero Gas, 20.9% O ₂ , 17 liter	03296-209
Calibration gas – Contact ENMET	

7.0 Technical Data and Specifications

Electrical Power	24 Vdc	
	0.6A, 24VDC	
Storage and Transport	Temperature:	-20° to +60°C (-4° to +140°F)
	<i>preferred</i>	0° to +20°C (32° to 68°F)
	Relative Humidity	10-99% RH, non-condensing
	Atmospheric Pressure	20 to 36 inHg (68 to 133 kPa)
Operation	Temperature:	0° to +40°C (32° to +104°F)
	Relative Humidity	10-99% RH, non-condensing
	Atmospheric Pressure	20 to 36 inHg (68 to 133 kPa)
Mechanical	Dimensions:	
	Weight:	
	Material:	
	Strain relief:	3-6.5mm OD, 1 supplied
Outputs		

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

8.0 WARRANTY

ENMET warrants new instruments to be free from defects in workmanship and material under normal use for a period of one year from date of shipment from **ENMET**. The warranty covers both parts and labor excluding instrument calibration and expendable parts such as calibration gas, filters, batteries, etc... Equipment believed to be defective should be returned to **ENMET** within the warranty period (transportation prepaid) for inspection. If the evaluation by **ENMET** confirms that the product is defective, it will be repaired or replaced at no charge, within the stated limitations, and returned prepaid to any location in the United States by the most economical means, e.g. Surface UPS/RPS. If an expedient means of transportation is requested during the warranty period, the customer is responsible for the difference between the most economical means and the expedient mode. **ENMET** shall not be liable for any loss or damage caused by the improper use of the product. The purchaser indemnifies and saves harmless the company with respect to any loss or damages 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 representative or other person to assume for it any obligation or liability other than that which is set forth herein.

NOTE: When returning an instrument to the factory for service:

- Be sure to include paperwork.
- A purchase order, return address and telephone number will assist in the expedient repair and return of your unit.
- Include any specific instructions.
- For warranty service, include date of purchase
- If you require an estimate, please contact **ENMET** Corporation.

There are Return for Repair Instructions and Form on the last pages of this manual. This Form can be copied or used as needed.

Manual Part Number
80003-162
May 2007

Notes:



PO Box 979
680 Fairfield Court
Ann Arbor, Michigan 48106-0979
734.761.1270 Fax 734.761.3220

Returning an Instrument for Repair

ENMET instruments may be returned to the factory or any one of our Field Service Centers for regular repair service or calibration. The **ENMET** Repair Department and Field Service Centers also perform warranty service work.

When returning an instrument to the factory or service center for service, paperwork must be included which contains the following information:

- A purchase order number or reference number.
- A contact name with return address, telephone and fax numbers
- Specific instructions regarding desired service or description of the problems being encountered.
- Date of original purchase and copy of packing slip or invoice for warranty consideration.
- If a price estimate is required, please note it accordingly *and be sure to include a fax number.*

Providing the above information assists in the expedient repair and return of your unit.

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 \$30 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 with the evaluation fee.

Service centers may have different rates or terms. Be sure to contact them for this information.

Repaired 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.

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, per **ENMET's** returned goods procedure.

If the entire instrument is returned to **ENMET** Corporation with the defective item installed, the item will be replaced at no cost, but the instrument will be subject to labor charges at half of the standard rate.



Repair Return Form

Mailing Address:

ENMET Corporation
PO Box 979
Ann Arbor, Michigan 48106

Shipping Address:

ENMET Corporation
Attn: Repair Department
680 Fairfield Court
Ann Arbor, Michigan 48108

Phone Number: 734.761.1270

FAX Number: 734.761.3220

Your Mailing Address:

Your Shipping Address:

Contact Name: _____ **Your Phone:** _____

Your PO/Reference Number: _____ **Your FAX:** _____

Payment Terms: **COD**

(Check one)

VISA / MasterCard

Card number

Expiration

Return Shipping Method:

UPS: Ground 3 Day Select Next Day Air ND Air Saver 2-Day Air

Federal Express: Ground Express Saver P-1 Standard 2-Day Air

FedEx Account number: _____

Would you like ENMET to insure the return shipment?

No

Yes **Insurance Amount:** \$ _____