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**ENGUARD MX42A CONTROL  
OPERATION & MAINTENANCE  
MANUAL**

**Manual Part Number  
80003-042  
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## 1.0 Introduction

The **MX 42A CONTROL** is an apparatus for the detection and measurement of various combustible, toxic and oxygen-carrying gases.

The **MX 42A CONTROL** has up to 4 independent measuring channels. Each channel is connected to a gas detector located in a place to be monitored. The measurement from the detector is displayed on the **MX 42A CONTROL** and compared to alarm thresholds. Should alarm thresholds be exceeded, the **MX 42A CONTROL** unit actuates relays which can be used for the control of outside devices (horn, telephone call, exhaust fans, etc.).

NOTE: This instrument is also available as a 2 channel control.

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

### 1.1 Unpack

Unpack the **MX 42A** 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 **MX 42A** 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.

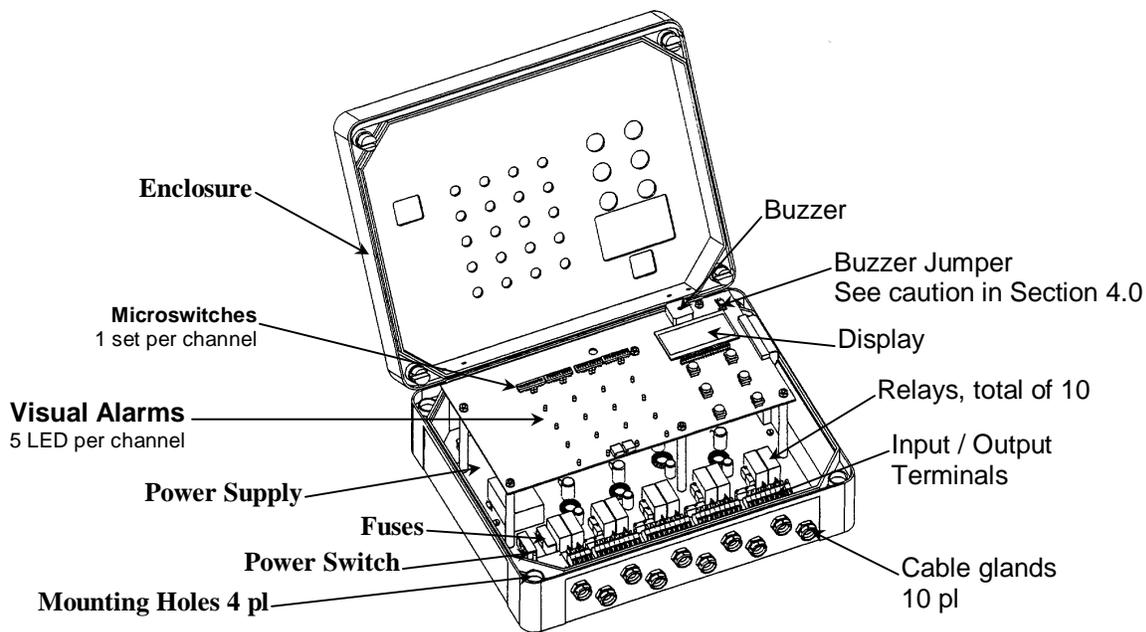
### 1.3 Serial Numbers

Each **MX 42A** is serialized. These numbers are on tags on the equipment and are on record in an **ENMET** database.

## 2.0 Features

See FIGURE 1

Feature	Description
Enclosure	For wall mounting made of PVC (length: 13.38, height: 11.81, depth: 4.21 inches) with internal coating for RFI protection.
Power Supply	AC or DC
Display	LCD display of the measurements
Inputs	4, for 4-20mA sensor/transmitters which may have combustible, toxic or oxygen sensors.
Output	4-20 mA output per channel (< 1 mA for fault, 2 mA for maintenance)
Audio Alarms	Resettable buzzer for alarms or a fault conditions, a total of 3: <ul style="list-style-type: none"> <li>• 2 increasing or decreasing thresholds, with manual or automatic clearance.</li> <li>• 1 increasing or decreasing threshold, automatic clearance.</li> </ul>
Visual Alarms	5 LED per channel
Relays	A total of 10 relays distributed as follows: <ul style="list-style-type: none"> <li>• 2 relays per channel (NO or NC) for the first two alarm thresholds</li> <li>• 1 relay common to the channels for the third alarm threshold (or the remote transmission of the alarm on programming)</li> <li>• 1 relay common to the channels for detector faults</li> </ul>



**Figure 1: Interior View of MX42A**

### 3.0 Installation and Connection

#### 3.1 Installation

##### 3.1.1 Placement of Control

The **MX 42A CONTROL** can be installed in any place with an unclassified atmosphere. It should be put in a well ventilated place where it can be watched, such as a guard house, control room or security service area.

To mount the Control see **FIGURE 2** mounting demotions:

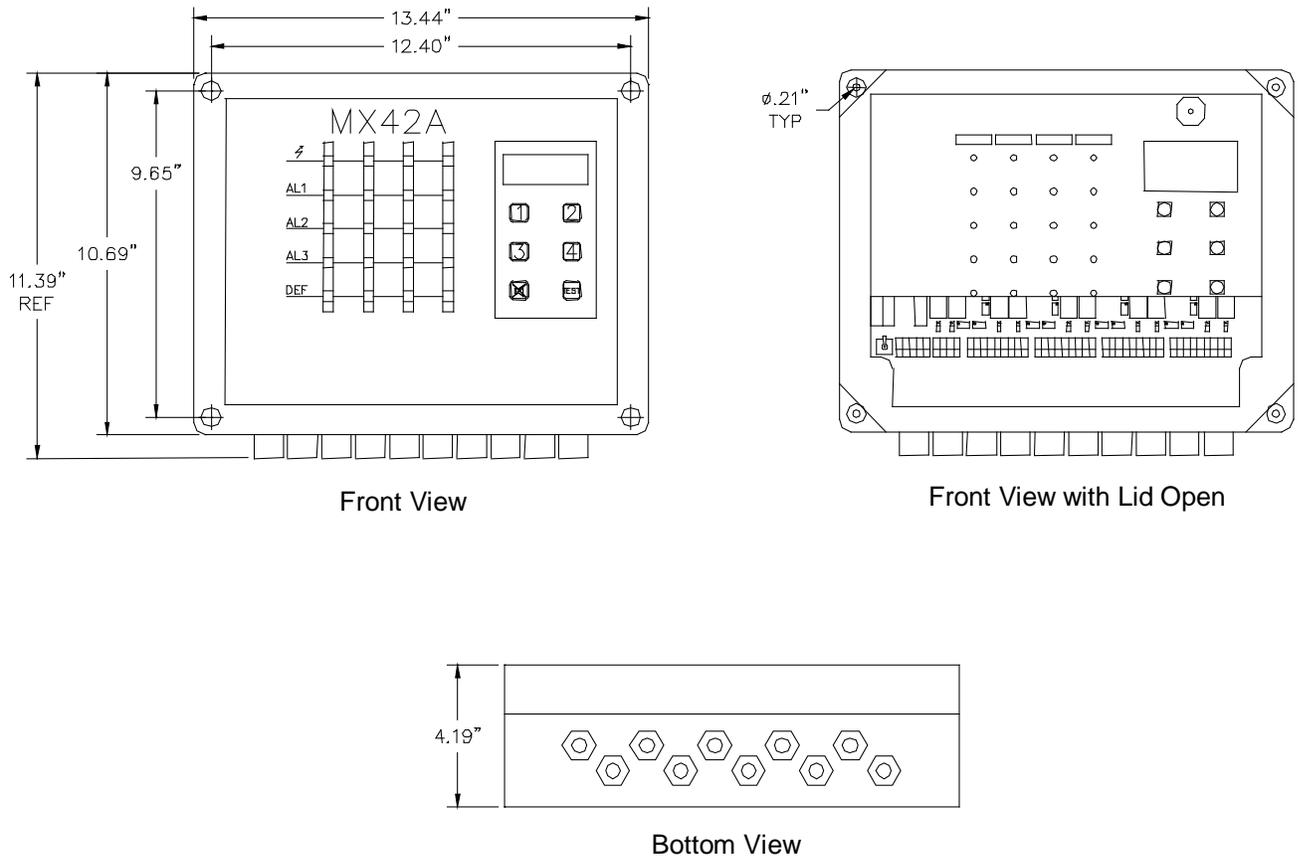
4 mounting holes, with centers of 12.40 x 9.65 inches, use #10 or 5 mm screws.

**CAUTION:** There must be 12 inches of clearance above the **MX 42A CONTROL** so the cover can be opened for maintenance.

##### 3.1.2 Placement of Sensor/Transmitters

Their location depends on three main factors:

- ◆ Density of gas to be detected: high for gases lighter than air and low for gases heavier than air
- ◆ Leak point: determination of the probable source of a leak
- ◆ In the flow of air in ventilated rooms.



**Figure 2: Mounting MX42A CONTROL**

### 3.2 Electrical Connection of the MX42A Control

Power supply: connect the power supply wires to the terminal blocks of the Control. Located on the PC Board at the bottom of the enclosure.

NOTE: Before installation, turn off the **MX 42A CONTROL** using the toggle switch, S2, located inside the unit in the bottom left corner.

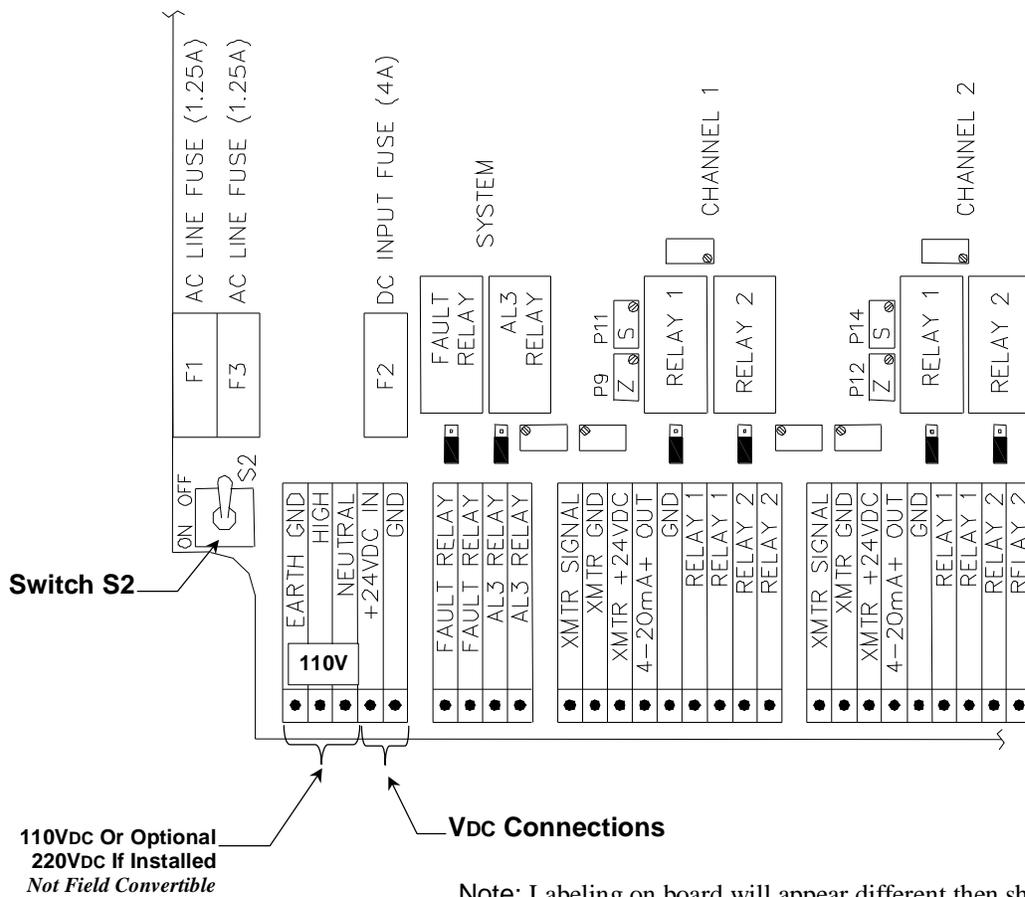
**WARNING: Continuous gas detection and alarm systems (110VAC/220VAC / 24VDC/12VDC powered) become inoperative upon loss of primary power. Contact factory for specifications and pricing of backup battery systems.**

See Figure 3 for the connection of the power terminals.

- AC, Ground labeled TERRE on the board  
AC, High labeled PHASE on the board  
AC, Neutral labeled NEUTRE on the board  
terminals, 115 VAC (103 V to 122 V), 50/60 Hz, are protected by **F1** and **F3** with 1.25A time-delay fuses.
- + DC labeled + CONTINU on the board  
– DC labeled – CONTINU on the board  
terminals, 24 V (19 V to 32 V), DC is protected by **F2** a 4A fuse.
- Optional: 230 VAC (207 V to 244 V), 50/60 Hz, is protected by **F1** and **F3** with 630mA time-delay fuses.

A label on the enclosure gives the power supply voltages.

- OFF is up
- ON is down



**Figure 3: Connection of Power Terminal**

### 3.3 Connection of the MX42A Control to the Sensor/Transmitter

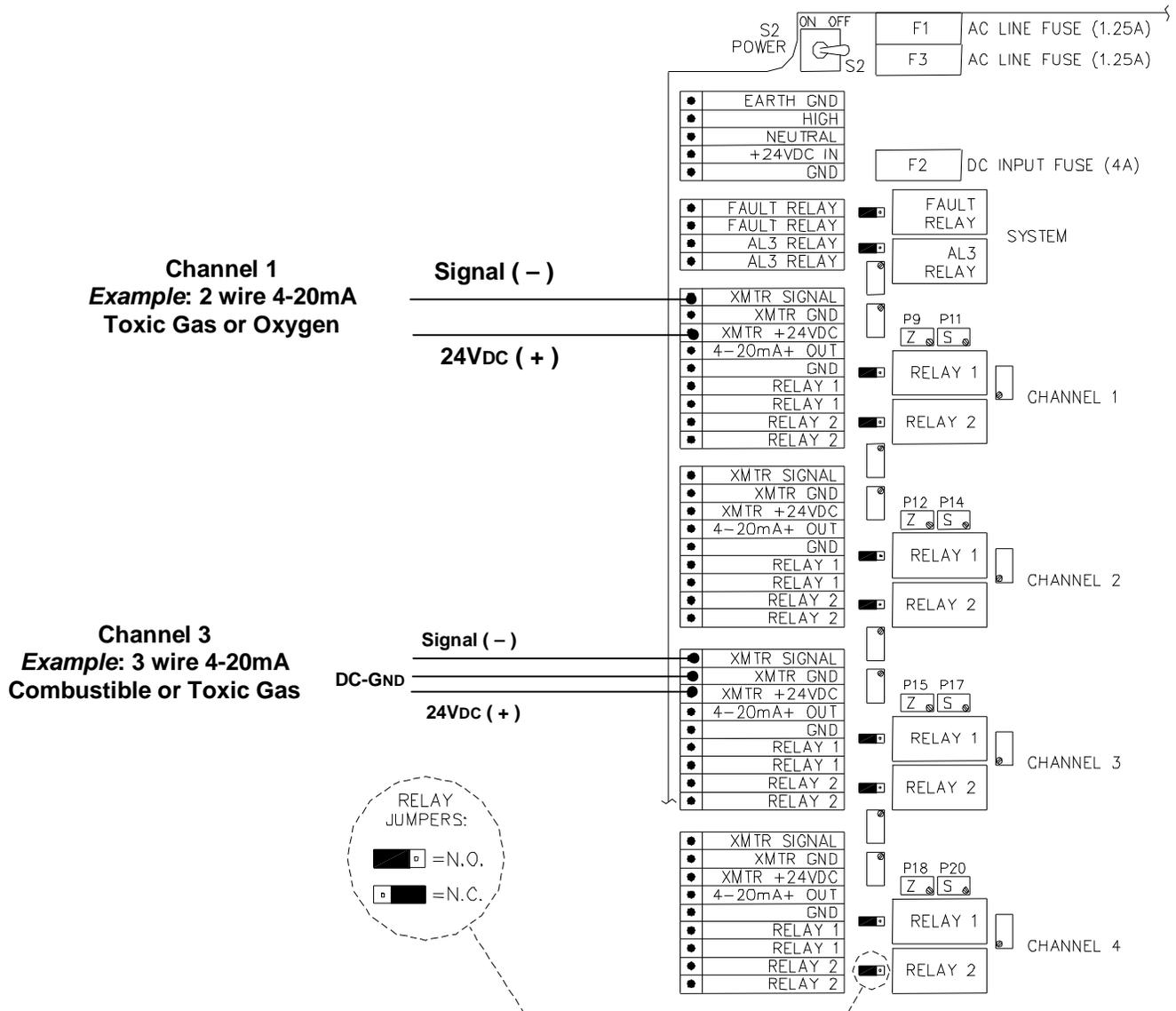
#### 3.3.1 Type and Connection of Sensor/Transmitters

Various types of sensor/transmitters can be connected.

- Two wire 4-20mA, toxic gas or oxygen detection sensor/transmitters. Such as, **ENMET SDS** and EN models. Negative in, Signal (wire 1) and Positive in +24 VDC (wire 3) of each channel. See figure 4
- Three wire 4-20mA combustible or toxic gas and oxygen sensor/transmitters. Such as, **ENMET SDS-97D** and EX5000 models. Signal (wire 1), DC-GND (wire 2) and +24 VDC (wire 3). See figure 4
- If used with other manufactures sensor/transmitters, follow installation instructions procedures supplied by the sensor/transmitter manufacturer, or contact your **ENMET** representative or **ENMET** Corporation.

Specifications of cable:

- Using shielded cables is necessary for RFI protection.
- The shield of the cable must be connected to wire #2 (DC ground) of the CONTROL.



Note: Labeling on board will appear different then shown in this figure.

**Figure 4: Connection of Sensor/Transmitter Terminal**

### 3.4 Connection of the Control to External Devices

Auxiliary alarms should be powered from an independent power source separate from the instrument power to avoid alarm failure due to controller malfunction.

#### 3.4.1 Connection to Auxiliary Alarms

The **MX 42A CONTROL** has 10 relays that can be used to control external devices such as: horns, solenoid valves, telephone callers, exhaust fans, etc.

The relays are assigned to functions as follows:

**For Each Channel:**

- one relay, RELAY 1, actuated by alarm 1
- one relay, RELAY 2, actuated by alarm 2

**For All Channels:**

- A common relay, CR RELAY, actuated by the high alarm of any channel
- One relay, FAULT RELAY, associated with faults detected on any channel such as: detector malfunctions, poor electrical connections, signal current is 0mA or signal current is greater than 25mA.

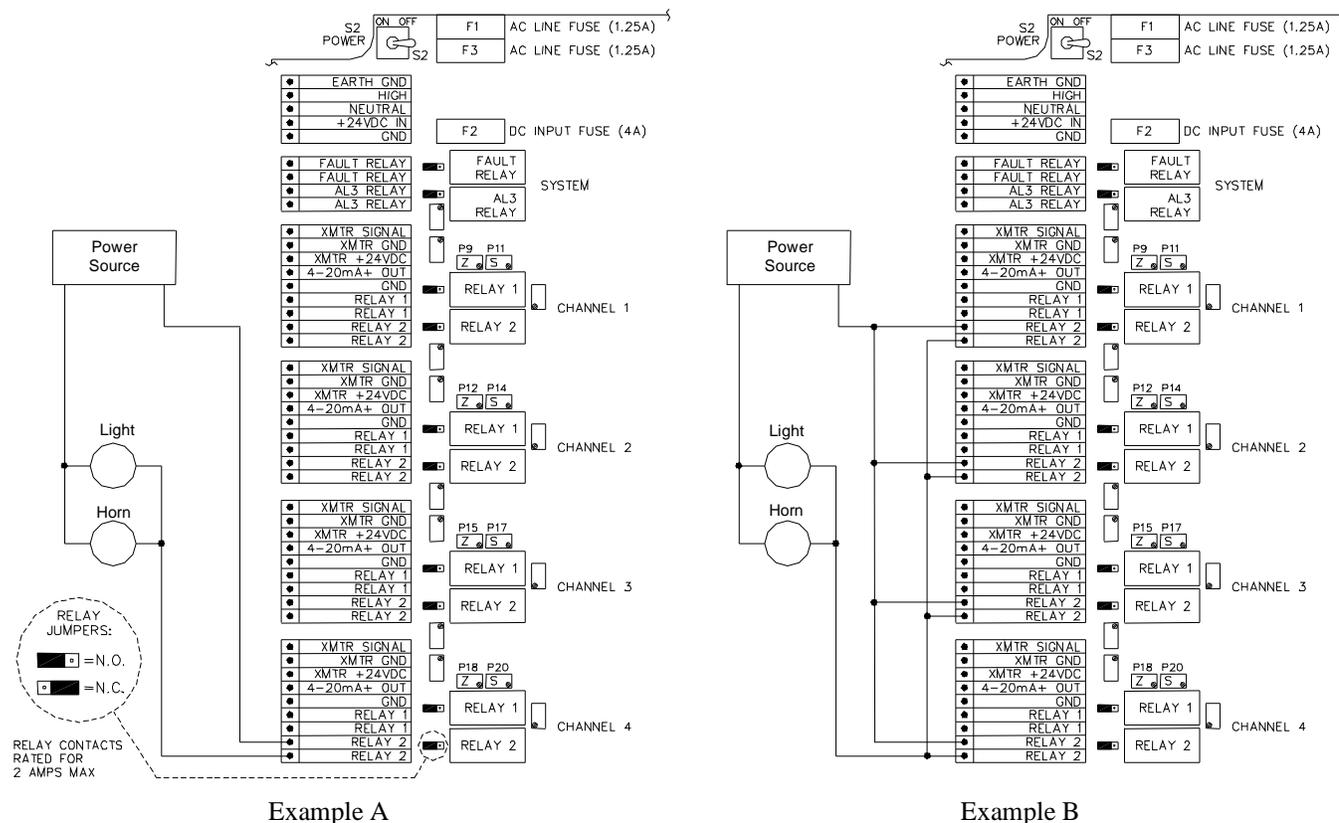
An example of a connection is shown in **Figure 5**

- Example A: a light and horn, connected to RELAY 2 of channel 4
- Example B: a light and horn, connected to RELAY 2, of channels 1 – 4

NOTE: Contact rating of the **MX42A CONTROL** relays is 2 A for 85 VAC to 240 VAC or up to 30 VDC. External relays must be added if the devices to be controlled require higher current requirements.

#### 3.4.2 4-20mA Current Output

For each channel, the **MX 42A CONTROL** has a 4-20 mA output which can be used for the transfer of measurements to a recorder or data logger. In a loop configuration, the maximum resistance is 600 ohms. The 4-20 mA outputs have common ground connections.



Example A Example B  
 Note: Labeling on board will appear different than shown in this figure.

**Figure 5: Connection to External Devices**

## 4.0 Start-up and Operation

Once the control has been installed and connected, turn it on with the toggle switch, S2, located on the inside bottom left corner.

- OFF is up
- ON is down

When the **MX42A CONTROL** is turned on it initiates a test mode, checking the proper operation of the LEDs, LCD and the buzzer for about a minute. All alarms are inhibited during this test mode. Then, the **MX 42A CONTROL** displays channel 1 for one minute before starting the normal display cycle of each channel.

### 2 cases can happen:

a)If: Channel 1 is in operation

The display indicates **INIT** and then displays the actual measurement value, and the green LED blinks indicating the channel is in operation, the yellow LED is on steady indicating the channel on display.

b)If: Channel 1 is off

The display indicates **STOP**, the yellow LED is on steady the channel on display and the green LED is off indicating the channel is *not* in operation.

During the normal display cycle of all channels, each channel is scanned by the **MX 42A CONTROL** every 9 seconds, and the measurement is displayed for 3 seconds.

On the front of the control **FIGURE 6**, the switches 1, 2, 3 and 4 are used to display the respective channel measurement for *one minute* on the display. After one minute, the display returns to normal display cycle.

The **TEST** switch triggers the lighting of all signal lamps, all segments of the LCD display and the functioning of the buzzer.

The **BUZZER** switch resets the alarms and clears the buzzer alarm.

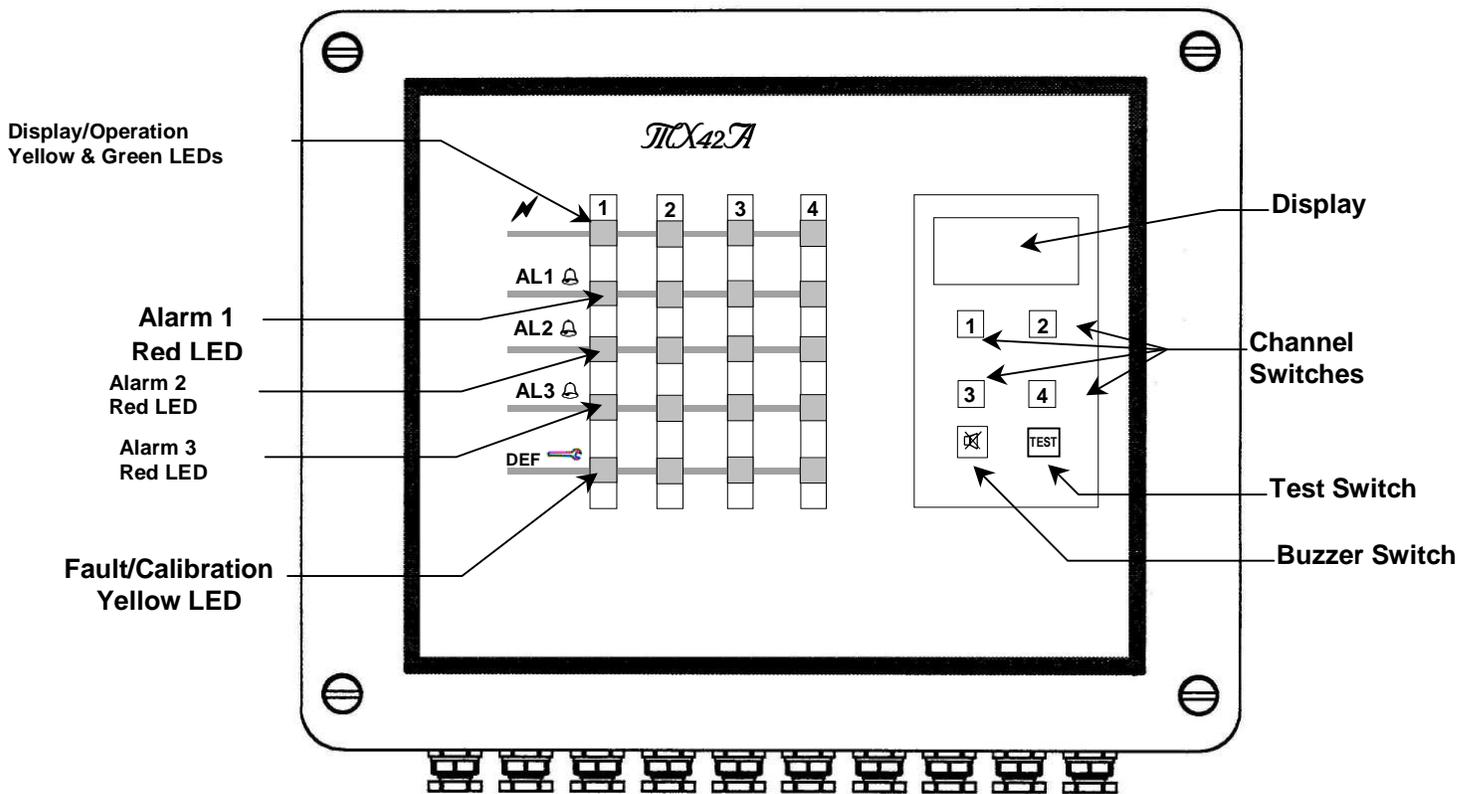
For each channel, there are 5 LEDs to indicate the status of the channel.

LED	Description
<b>Display/Operation</b> [ Lighting bolt on front panel ]	Paired yellow LED to the left and green LED to the right: <ul style="list-style-type: none"> <li>▪ When the green LED is blinking the channel is in test mode.</li> <li>▪ When the green LED is on steady the channel is in operation.</li> <li>▪ When the yellow LED is on steady the channel is being displayed.</li> </ul>
<b>AL1</b> [ Bell on front panel ]	Alarm 1 red LED when in alarm
<b>AL2</b> [ Bell on front panel ]	Alarm 2 red LED when in alarm
<b>AL3</b> [ Bell on front panel ]	Alarm 3 red LED when in alarm
<b>Fault signal / Calibration signal</b> [ Wrench on front panel ]	Lower most yellow LED <ul style="list-style-type: none"> <li>▪ When the yellow LED is on steady it indicates a malfunction on the line.</li> <li>▪ When the yellow LED is blinking the channel is in calibration mode.</li> </ul>

In case of an alarm or fault, the audio alarm on the control panel latches, to clear press the **BUZZER** switch. The LEDs will clear when the channel is no longer in alarm condition.

**NOTE:** The buzzer can be inhibited by moving the jumper on the top right corner of the display board to the **OFF** position. See figure 1 for location of jumper.

**CAUTION:** There is no visual indication that the buzzer is in inhibited. Return jumper to **ON** position before normal operation.



**Figure 6: Front View of MX42A Control**

**NOTE:** In some applications, slight electronic noise between the Sensor/Transmitter and the Control can cause fluctuations in the display reading. These minor fluctuations are considered to be insignificant in terms of the range, detection limit and alarm values of the gas being monitored.

## 4.1 Configuration of Alarms and Servocontrol

**CAUTION:** The procedures and adjustments described in the following sections must be performed by authorized personal. Failure to follow instructions may jeopardize accurate measurements.

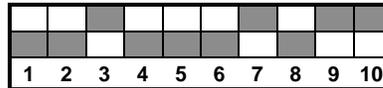
## 4.2 Characteristics of alarm triggering

There are three alarm thresholds associated with each channel:

- Threshold 1 controls Alarm 1 LED and relay 1.
- Threshold 2 controls Alarm 2 LED and relay 2.
- Threshold 3 controls Alarm 3 LED and the CR relay (common relay).

NOTE: The CR relay is common to all channels.

For each channel, a block of microswitches is located on the display board and is used to program the characteristics of alarm thresholds and operation of each channel. See **FIGURE 7** and Table 1.



*Example of Microswitch in normal operation mode, grayed areas indicated position of each switch*

- **Microswitch position 1:** Sets the triggering of alarms 2 & 3 by increasing or decreasing values. DOWN is for increasing value and UP if for decreasing value. Down is normal
- **Microswitch position 2:** Is used to set alarm 3 on either delay time or averaging. DOWN is delay time: See microswitches 9 & 10 for setting time delay UP is averaging: Is set to time delay at the factory.
- **Microswitch position 3:** Is used to set clearance of audio Alarms 1 and 2 to latching or non-latching:
  - DOWN is latching/manual clearance: When a threshold is reached, the LED and relay are activated. When a threshold decreases, the signals are deactivated by manually pressing BUZZER button.
  - UP is non-latching/automatic clearance: When a threshold is reached, the associated LED and relay are activated. When the threshold decreases, the signals are automatically deactivated. This is the factory set position.

NOTE: Alarms 1 and 2 are set together to the same condition, alarm 3 has automatic clearance

- **Microswitch position 4:** Sets the triggering of alarms 1 by increasing or decreasing values. DOWN is for increasing value and UP is for decreasing value. Down is normal
- **Microswitch position 5:** Is used for European parking garage regulations. DOWN is normal operation and UP parking garage mode.
- **Microswitch position 6:** Is used to set control in adjustment or calibration mode. DOWN is for adjustment of display settings and UP is for calibration of sensor/transmitter.

NOTE: microswitch 6 is disabled when microswitch 7 is in normal operation mode.

- **Microswitch position 7:** Is used to place the channel in normal operation or maintenance mode. DOWN is maintenance mode and UP is normal operation.
- **Microswitch position 8:** Is used to place channel in operation or take it out of operation. DOWN is in operation and UP is out of operation.
- **Microswitch position 9 & 10:** Are used to set the time delay of alarm 3rd relay common to the channels.

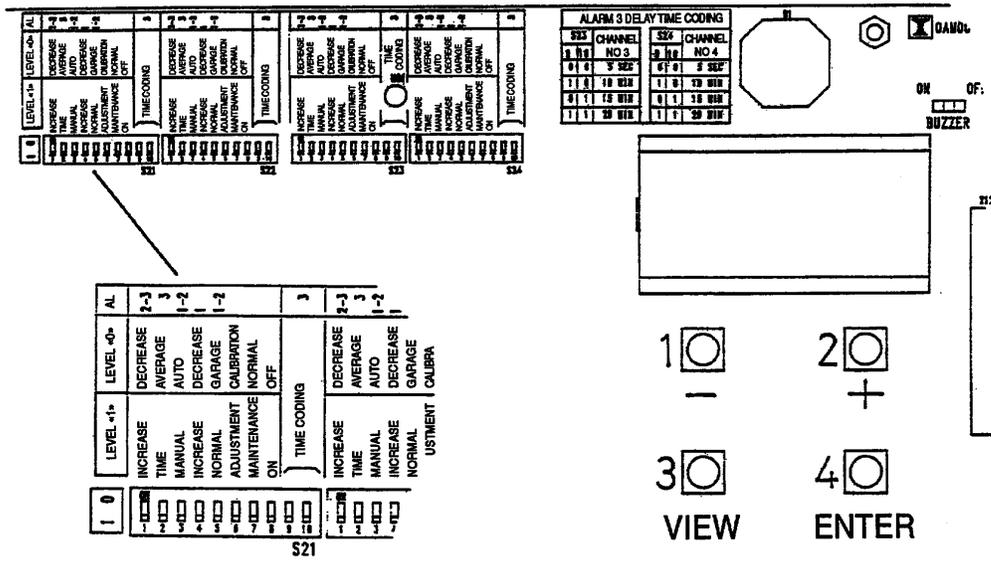


Figure 7: Location of Microswitches

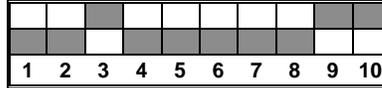
### 4.3 Adjustment of alarm thresholds and averaging times of alarm 3

The alarms are adjusted at the factory. However, these adjustments can be changed.

NOTE: The fault lamp blinks to signal the channel is in maintenance mode. The maintenance mode lasts for 30 minutes. After which, the channel automatically changes over to fault.

Only one channel can be programmed at a time.

When a channel is in the maintenance mode, the 4-20 mA current output is set to 2 mA.



*Example* of Microswitch in Maintenance mode gray areas indicate position of each switch

For the selected channel, set the microswitches as follows:

- Microswitch 8: in operation
- Microswitch 7: maintenance
- Microswitch 6: adjustment

In this mode, the pushbutton switches 1, 2, 3 and 4 have the following functions:

- pushbutton switch 4 = to cycle through functions and ENTER
- pushbutton switch 3 = to view setting of function
- pushbutton switch 2 = to increase setting of function
- pushbutton switch 1 = to decrease setting of function

The following is the cycle of functions:

- AL1: alarm 1 threshold
- AL2: alarm 2 threshold
- AL3: alarm 3 threshold
- T1: averaging time of alarm set at factory to 15 minutes.
- PT: sets the position of the decimal point according to the sensor/transmitter measuring range. See S/T manual for correct setting.

*Example:* To positioning alarm 3 at 150 for channel 2:

- On the microswitch block of channel 2, position microswitch 7 to MAINTENANCE, 6 to ADJUSTMENT. The LCD displays AL1.
- Press pushbutton switch 4 twice. The LCD displays AL3.
- Press pushbutton switch 3. The LCD displays the present value of the alarm 3 threshold.
- Using pushbutton switches 1 and 2, to decrease or increase the setting, set the desired threshold.
- Press the pushbutton switch 4 to ENTER. The threshold is now set.
- Return Microswitch 7 to normal operation position.
- Leave Microswitches 6 and 8 as above.

## 4.4 Outputs

### 4.4.1 Relays

With the position of jumpers S3 through S12, the contacts of the relays for each channel can be selected. The contacts can be either open or closed during the alarm condition. see **FIGURE 8**. The factory set position is normally closed.

This selection is made by moving the corresponding jumper. The standard factory setting, relays (except for the fault relay) are energized in the non-alarm condition.

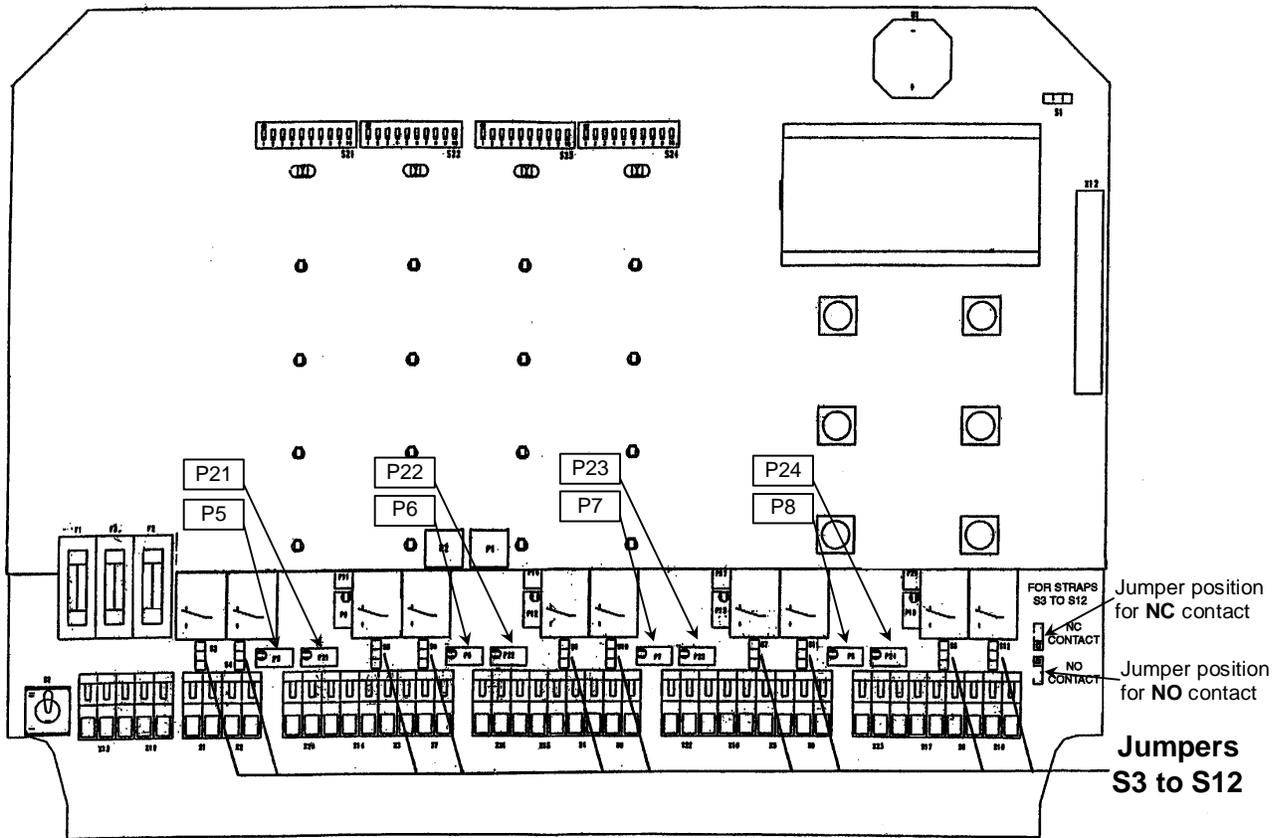
### 4.4.2 4-20 mA Current Output

A 4-20 mA output is available on the terminal block for each channel. It serves to connect the **MX 42A CONTROL** to a chart recorder or to any other data acquisition system (maximum load resistance is 600 ohms).

NOTE: The 4-20 mA output is preset in the factory: 4 mA corresponds to a display of 0 and 20 mA corresponds to a full-scale value.

Potentiometers P5, P6, P7 and P8 (for channels 1, 2, 3 and 4 respectively) adjust the 4 mA.

Potentiometers P21, P22, P23 and P24 (for channels 1, 2, 3 and 4 respectively) adjust the 20 mA



**Figure 8: Relay Jumper and 4-20mA POT Location**

## 5.0 Maintenance

The **MX 42A CONTROL** requires practically no servicing at all. Nevertheless, since it is a safety device, it is still necessary to calibrate the detectors periodically.

**CAUTION:** The procedures and adjustments described in the following sections must be performed by authorized personal. Failure to follow instructions may jeopardize accurate measurements.

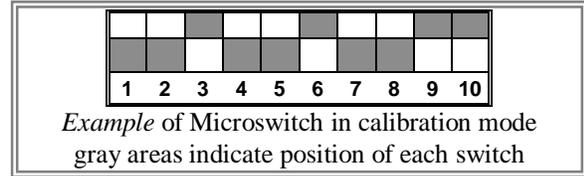
### 5.1 Adjustment of sensor/transmitter and the MX 42A CONTROL unit

adjustment consists of calibrating the zero of the sensor/transmitter in clean air and the gain of the sensor/transmitter to the reference gas.

For each channel, set the microswitches as follows

- Microswitch 8 = in operation
- Microswitch 7 = maintenance
- Microswitch 6 = calibration

In the maintenance mode, the Control current output is set to 2 mA.



NOTE: If left in calibration mode, the channel automatically changes over to fault after 30 minutes.

Voltmeter readings are taken at test points of sensor/transmitter refer to S/T manual for location and across OUTPUT+, 4-20mA- terminal for each channel of the MX42A CONTROL. See **FIGURE 4, 9.**

#### Adjustment of MX42A CONTROL zero

With the sensor/transmitter in clean air, set the output of the sensor/transmitter to zero (4mA). Then use MX42A potentiometer: **FIGURE 9, Zero Adjust**

- P9 for channel 1
- P12 for channel 2
- P15 for channel 3
- P18 for channel 4

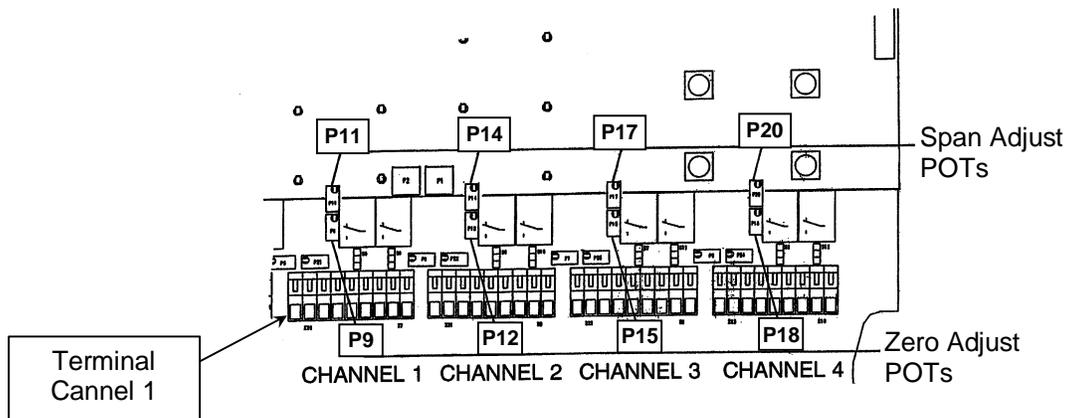
to display 0000 on the channel in question. If the ambient air at S/T is not free of contamination, use air from a cylinder.

#### Adjustment MX42A CONTROL gain

- Apply the correct calibration gas to the sensor/transmitter, and set the sensor/transmitter output to appropriate output see S/T manual for proper setting.
- Adjust the CONTROL display to the value of the calibration gas using potentiometer: **FIGURE 9, Span Adjust**
  - P11 for channel 1
  - P14 for channel 2
  - P17 for channel 3
  - P20 for channel 4

Remove Calibration Gas and return to the microswitch configuration to normal operation:

- Microswitch 8 = in operation
- Microswitch 7 = normal
- Microswitch 6 = calibration



**Figure 9: Potentiometer Location**

## 6.0 Troubleshooting

Fault message	Possible Cause	Corrective action
Display off or no LED lighted	<ul style="list-style-type: none"> <li>▪ fuse blown</li> <li>▪ power switch set to OFF</li> </ul>	<ul style="list-style-type: none"> <li>▪ check power supply voltages and change the fuses if necessary</li> <li>▪ set the power switch to ON</li> </ul>
STOP displayed	channel out of service	put the channel microswitch 8 to ON
INIT displayed	<ul style="list-style-type: none"> <li>▪ bad detector electrical connections</li> <li>▪ defective detector</li> <li>▪ the type of detector does not correspond to the configuration of the channel</li> <li>▪ channel very badly adjusted</li> </ul>	<ul style="list-style-type: none"> <li>▪ check the connections</li> <li>▪ change the detector</li> <li>▪ change the type of detector Caution: The channel could have been damaged</li> <li>▪ adjust the channel</li> </ul>
Fault signal lamp lighted and DEF displayed  Fault signal lamp blinking	channel in maintenance mode for more than 30 minutes  channel in maintenance position	reset the channel microswitch 7 to NORMAL  reset the channel microswitch 7 to NORMAL
External alarm controlled in opposite direction, in relation to the tripping of the alarm	bad choice of relay contact	move the jumper to use the correct contact

## 7.0 Specifications

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

### 7.1 Physical

Enclosure	PVC (polyvinyl chloride), completely shielded inside
Operating temperature	-10°C to +40°C
Storage temperature	-20°C to +55°C
Relative humidity	0 to 95%, noncondensing
Tightness	IP54
Dimensions	13.38x11.81x4.22 (340 x 300 x 107 mm, length x height x depth)
Weight	10.5 lb (4.75 kg)
Positioning	wall-mounted
Warranty	1 year
Function	Control unit for gas detection
Capacity	4 channels (2 optional)
Measurement	continuous
Manufacturer	OLDHAM FRANCE

### 7.2 Display

Display	Digital LCD
Measuring scale	0 to 100, 0 to 300, 0 to 1000, 0 to 2000; <b>preset at factory, not field convertible</b>
Signal lamps	24 LEDs, see details in Section «ALARM»

### 7.3 Power supply

Electrical supply accessible in enclosure:

- 103 V to 122 V<sub>AC</sub>, 50/60 Hz
- 207 V to 244 V<sub>AC</sub>, 50/60 Hz (option) **Not field convertible**
- 19 V to 32 V<sub>DC</sub>
- 43 to 60 V<sub>AC</sub> (option)

Fuses:

- 0.63 A, time-delayed, for 230 V and 110 V
- 4 A for 24 V
- 2 A, time-delayed, for 48 V

Power consumption: 85 V<sub>AC</sub> or 67 W

On/off switch inside enclosure

Earth terminal: yes

Cable outlet through 10 metallic cable glands, connected earth ground.

Maximum shielded cable diameter: 0.37 in. (10 mm)

### 7.4 Measurement inputs

Line resistances (loop) in ohms between detector and Control

Sensor/transmitter detector of 4-20 mA type, 3 wires or 2 wires: 32 ohms (1 km long, cable 3 x 1.5mm<sup>2</sup>)

## 7.5 Alarm

Visual alarms provided: for each channel

- fault signal lamp:
  - channel in service: green color
  - channel off or malfunction of microprocessor: off
  - disturbance on line: steady yellow color
  - calibration/adjustment mode: blinking yellow color
- alarm 1 signal lamp: red color when in alarm
- alarm 2 signal lamp: red color when in alarm
- alarm 3 signal lamp: red color when in alarm

Alarms 1 and 2

- activation after 5 seconds
- by increasing or decreasing value
- manual or automatic clearance

Alarm 3

- activation after elapsed delay time or on basis of average value
- automatic clearance
- by increasing or decreasing value

Disturbance

- complete check of short circuit or cut out of at least one wire (with just one detector)
- display per channel with yellow signal lamp

Buzzer

Triggered if:

- microprocessor malfunction
- anomaly of connecting cable or sensor/transmitter
- alarm threshold level exceeded
- maintenance time longer than 30 minutes

## 7.6 Control functions

Accessible after removal of front panel

For each channel:

A set of 10 microswitches

- Microswitch no. 8: on/off
- Microswitch no. 7: maintenance/normal
- Microswitch no. 6: “adjustment/calibration”  
displays                      displays  
alarm settings / loop signal
- Microswitch no. 5: normal/parking garage (alarm 1 and 2) used for European regulations
- Microswitch no. 4: increase/decrease (alarm 1)
- Microswitch no. 3: “manual/auto” (alarm 1 and 2)  
latching / non-latching
- Microswitch no. 2: time delay/average (alarm 3)
- Microswitch no. 1: increase/decrease (alarm 2 and 3)
- Microswitch no. 9: time delay coding (alarm 3)
- Microswitch no. 10: time delay coding (alarm 3)

Potentiometers for the adjustment of zero and sensitivity of detector

Programming by pushbutton switches of alarms thresholds, averaging time (alarm 2)

## 7.7 Relays

Relay contacts

- 2 relays per channel for alarm 1 and alarm 2 (positive safety)
- 1 common relay for alarm 3 (or on option for remote transmission of alarm) (positive safety)
- 1 common relay for fault (negative safety)
- for each relay, choice of common closed contact or common open contact (by positioning jumpers S3 to S12)
- characteristics of contact: 2A-250 VAC or 30 VDC

## 7.8 Output

- 4-20 mA current outputs per channel (common ground)
- Load resistance (loop): maximum 600 ohms
- In case of fault: output < 1 mA
- In maintenance position: output = 2 mA

## 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/FedEx Ground. 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

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MCN 229, 02/08/00

MCN-286, 11/25/02

MCN-296, 11/12/03

MCN-358, 12/06/06



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## 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.





