



1022 D

Standard Monitor

INSTRUCTIONS

AMC-1022 D WITH STANDARD SENSOR

**INSTALLATION AND OPERATING INSTRUCTIONS
FOR THE AMC-1022 D SENSOR UNIT**

IMPORTANT:

Please read these installation and operating instructions completely and carefully before starting.

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NOTE

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1 WARRANTY

The AMC-1022D monitor is warranted against defects in material and workmanship for a period of two years from date of delivery. During the warranty period, we will repair or replace components that prove to be defective in the opinion of *The Armstrong Monitoring Corporation*. We are not liable for auxiliary interfaced equipment, nor consequential damage. This warranty shall not apply to any product which has been modified in any way, which has been repaired by any other party other than a qualified technician or authorized AMC representative, or when such failure is due to misuse or conditions of use.

1.1 LIABILITY

All AMC products must be installed and maintained according to instructions. Only qualified technicians should install and maintain the equipment.

AMC shall have no liability arising from auxiliary interfaced equipment, for consequential damage, or the installation and operation of this equipment. AMC shall have no liability for labour or freight costs, or any other costs or charges in excess of the amount of the invoice for the products.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND SPECIFICALLY THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE THEREOF.

1.2 MODIFICATIONS AND SUBSTITUTIONS

Due to an ongoing development program, AMC reserves the right to substitute components and change specifications at any time without incurring any obligations.

1.3 PRODUCT RETURN

All products returned for warranty service will be by prepaid freight and they will only be accepted with an R.M.A. number issued by AMC. All products returned to the client will be freight collect.

WARNING

USING ELECTRICALLY OPERATED EQUIPMENT NEAR GASOLINE OR COMBUSTIBLE VAPOURS MAY RESULT IN FIRE OR EXPLOSION, CAUSING PERSONAL INJURY AND PROPERTY DAMAGE. CHECK TO ASSURE THE WORKING AREA IS FREE FROM SUCH HAZARDS DURING INSTALLATION OR WHEN PERFORMING MAINTENANCE, AND USE PROPER PRECAUTIONS.



2 PRODUCT INFORMATION

Monitor Serial Number	_____
Power Supply Requirements	120 VAC, 60 Hz
Operating Temperature Range	0°C to 40°C
Relative Humidity	0 to 99% (non-condensing)
I/O Cards.....	_____

SENSOR or TRANSMITTER		Type of Gas	Low Alarm Trip Point	High Alarm Trip Point
Part No.	Serial No.			

Note:

Refer to sensor module manual for additional specifications.

Note:

All Armstrong Monitoring systems must be installed and maintained according to instructions, to ensure proper operation. Only qualified technicians should install and maintain the equipment.



3 PRODUCT DESCRIPTION

The AMC-1022D is a multi-sensor gas monitoring system designed to continuously monitor for traces of hazardous gases (listed in Product Information Section). It can be calibrated to detect a wide variety of toxic gases. The monitor comes with the following features.

1. POWER SWITCH: Main AC power switch for all channels.
2. FUSE HOLDER: Front panel mounted for easy access to the fuse.
3. AUDIO ALARM INDICATOR: When operational, the buzzer will activate when a high alarm condition occurs.
4. CLAMPS: To secure the front panel, restricting access to internal controls.
5. POWER TERMINAL BLOCK: For line voltage connections (120 VAC, 60 Hz.)
6. POWER ON INDICATOR: Power is indicated by a green LED.
7. FAIL INDICATOR: Sensor module signal fail is indicated by an amber LED. (only when this option is installed).
8. HIGH ALARM INDICATOR: High levels of gas are indicated by a red LED.
9. LOW ALARM INDICATOR: Low levels of gas are indicated by a yellow LED.
10. TEST SWITCH: The test switch is provided to electronically simulate alarms in order to test the low and high alarm indicators, relays, and the audio alarm indicator.
11. HIGH ALARM ADJUST: Sets the High alarm trip point.
12. LOW ALARM ADJUST: Sets the Low alarm trip point.
13. THREE CIRCUIT MINIATURE SWITCH: Each actuator on the miniature switch controls a different circuit as shown in Figure 1. If the actuator is set in the UP position, its corresponding circuit is ON. If the actuator is set in the DOWN position, the circuit is OFF.
 - 13.a) LEFT ACTUATOR: Provides a TEN minute time delay, when switch is ON, to eliminate unnecessary alarms caused by momentary exposure to high levels of gas.
 - 13.b) MIDDLE ACTUATOR: Provides a FIVE minute time delay, when switch is ON, to eliminate unnecessary alarms caused by momentary exposure to low levels of gas.

- 13.c) RIGHT ACTUATOR: Controls the audio alarm indicator. When ON, the buzzer will activate when a high alarm condition occurs.
- 14. RELAYS: There are two DPDT relays per channel which work with high alarm and low alarm respectively.
- 15. TRANSFORMER: Class II, step down transformers run the internal circuitry at low voltages.
- 16. SENSOR TERMINAL BLOCK: For remote sensor module connections.

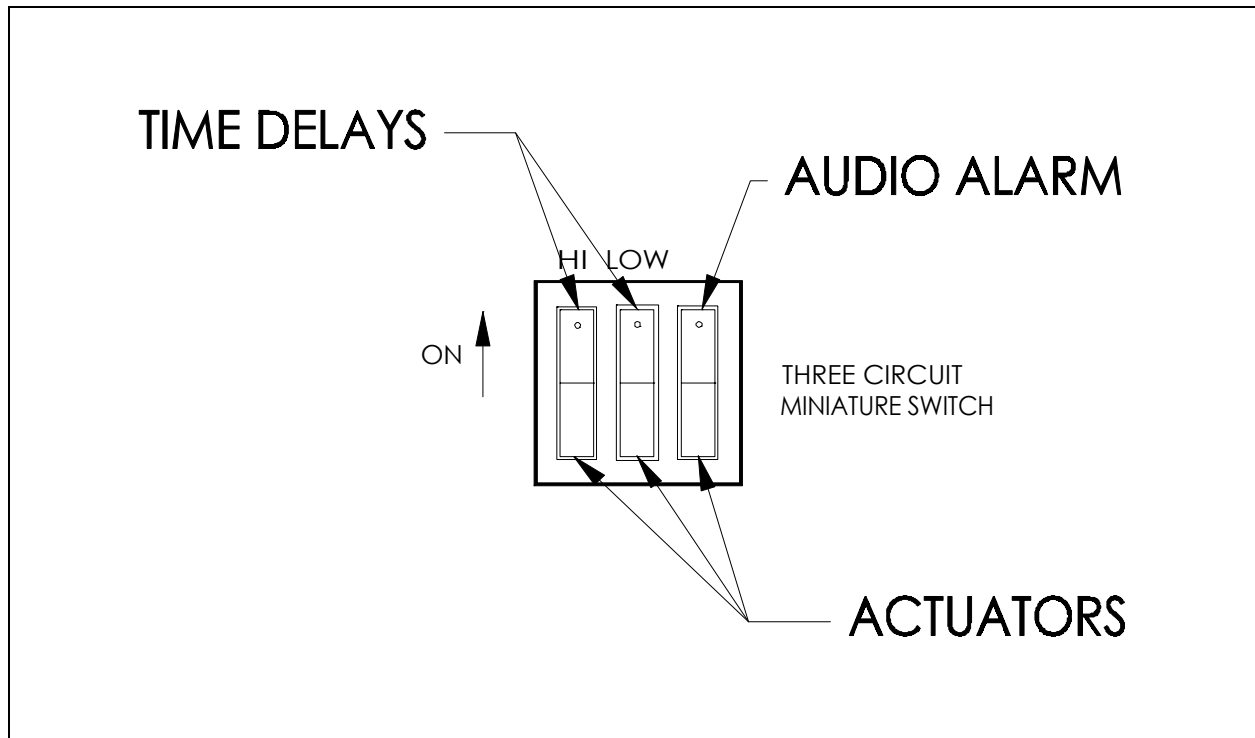


Figure 1: Three circuit miniature switch.

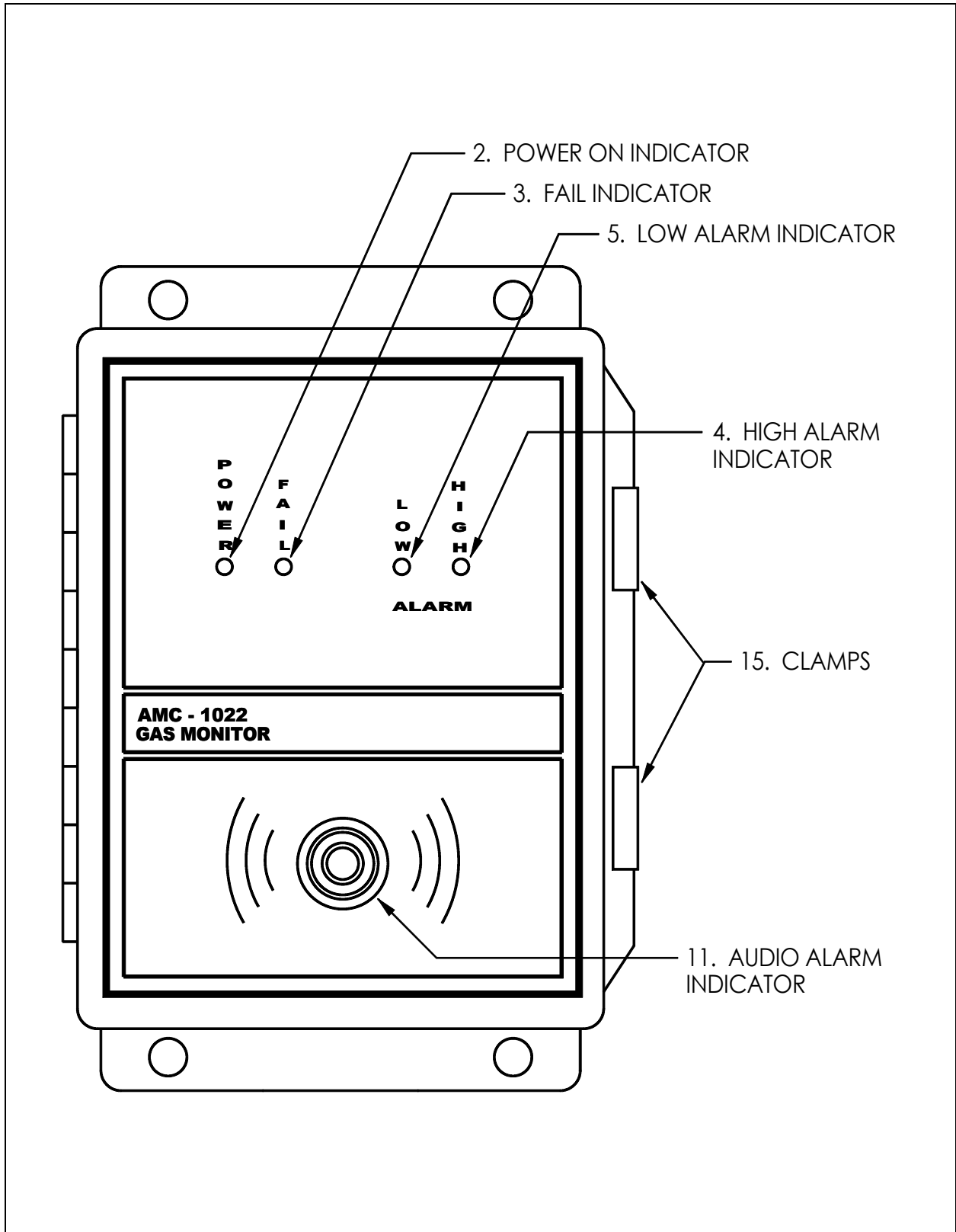


Figure 2: AMC-1022D monitor, front panel.

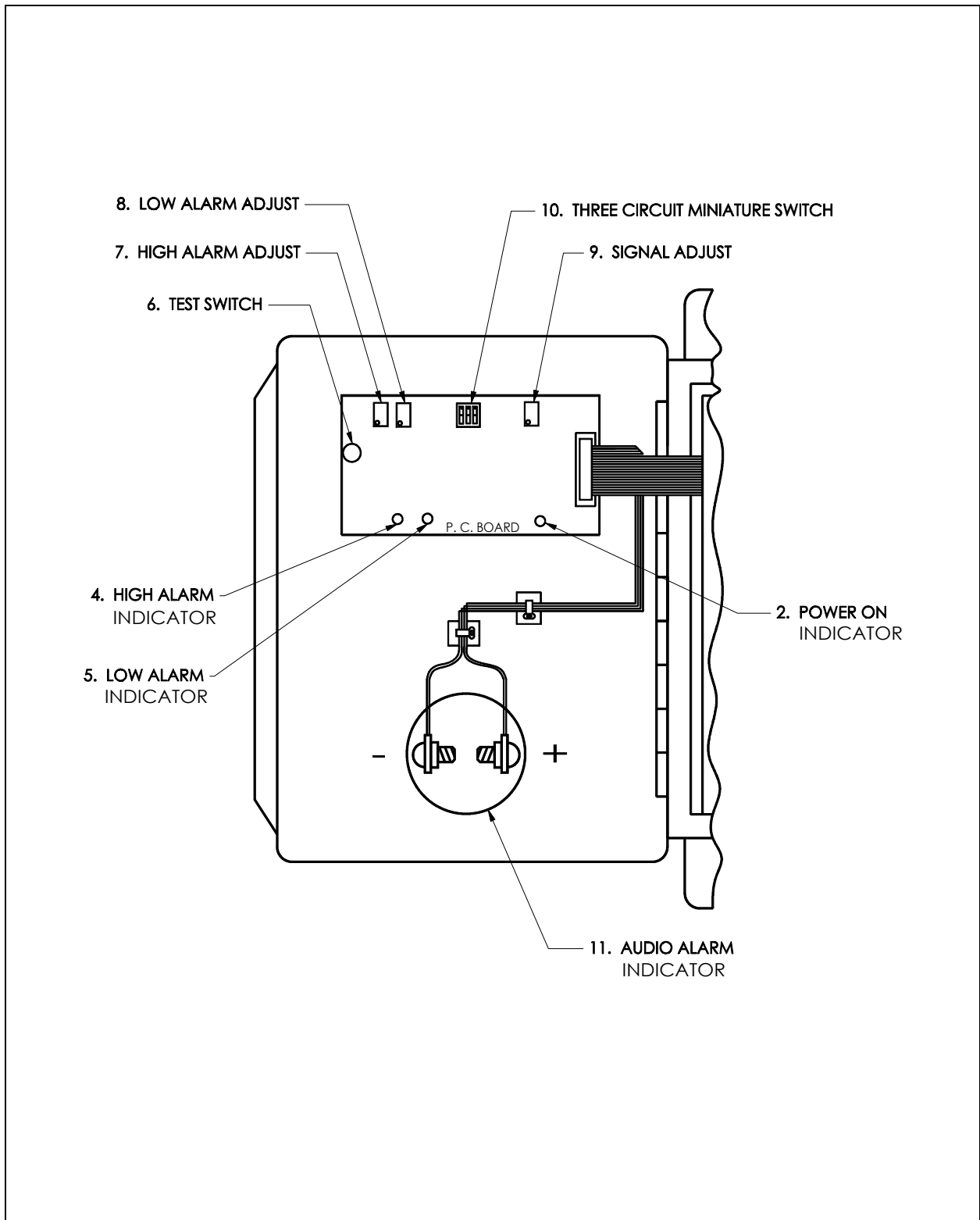


Figure 3: AMC-1022D monitor, inside front panel.

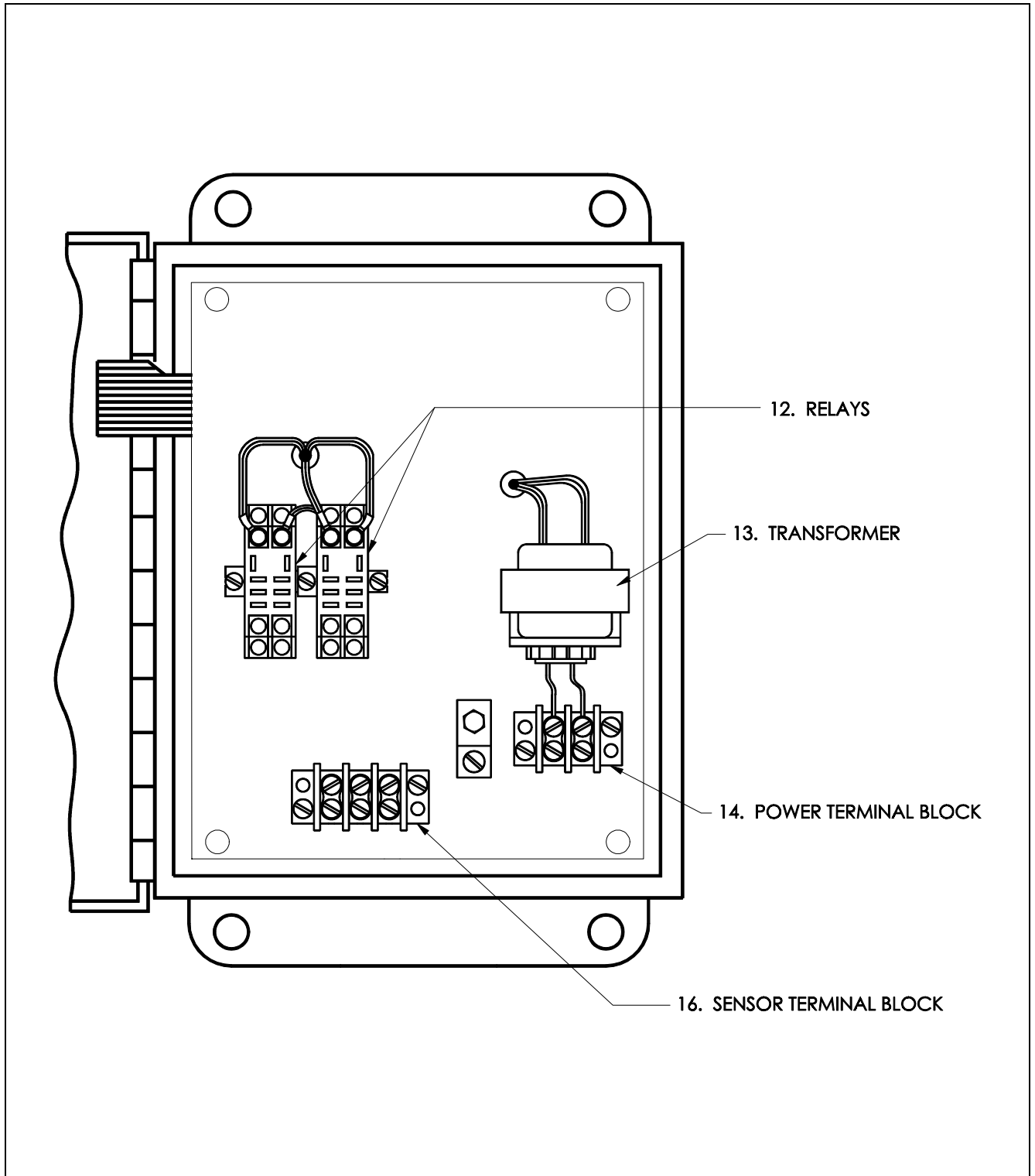


Figure 4: AMC-1022D monitor, inside power / relay panel.



4 INSTALLATION

4.1 LOCATION AND MOUNTING

Care should be taken to securely fasten the AMC-1022D monitor unit (via four mounting holes provided) to a solid, vertical, non-vibrating surface or structure at eye level. (See Figure 5 for mounting dimensions.)

Note:

All cable entry MUST be through the BOTTOM of the monitor enclosure only. Other entry locations will allow foreign materials to enter the enclosure, possibly causing damage to internal components. Mounting hardware and conduit connections are NOT supplied.

Mount the monitor in a NON-HAZARDOUS area (e.g. control room, manager's office) where the unit can be observed periodically.

Mount the sensor modules in areas where local concentrations of gases are unaffected by the presence of ventilation systems.

4.2 WIRING OF THE MONITOR

POWER SUPPLY: The monitor operates on 120 VAC, 60 Hz. A class II step down transformer runs the internal circuitry at low voltages. The power supply connections are made at the power terminal block located inside the monitor. (See Figure 6)

RELAYS: There are two DPDT relays which activate with high alarm and low alarm respectively causing contact transfer. The contacts are available for activating a remote alarm or an exhaust fan. Relays are rated 1/3 hp @ 120 VAC/240 VAC, 10 Amps @ 28 VDC/120 VAC/240 VAC resistive. For relay contact arrangement. (See Figure 7)

SENSOR: The remote sensor is wired to a sensor (-,sig,+) terminal block located on the inner panel of the monitor (see Figure 6). All connections should be made using shielded 3-conductor cable. Refer to Cable Selection (Section 4.3) to select appropriate cable.

4.3 CABLE SELECTION AND WIRING

Connection should be made using 3-conductor shielded cable. For best signal transmission and maximum noise rejection, run cable through steel conduit (cable shield must be grounded at the monitor or power supply).



For proper selection of cable sizes and lengths for monitor-to-sensor and sensor-to-sensor wiring, refer to the Cable Selection And Wiring section in the AMC-122X series module manual(s).

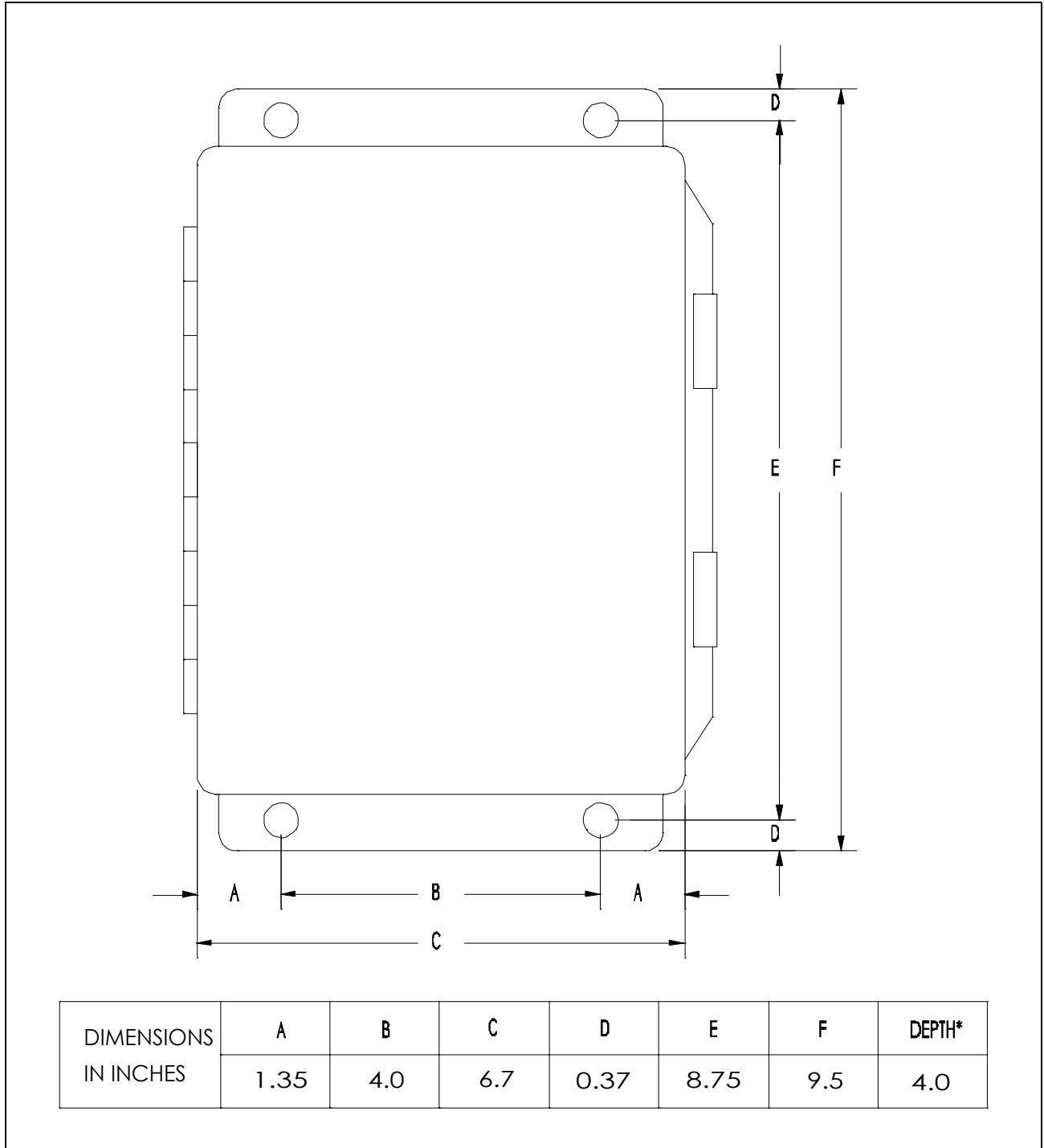


Figure 5: Monitor mounting dimensions.

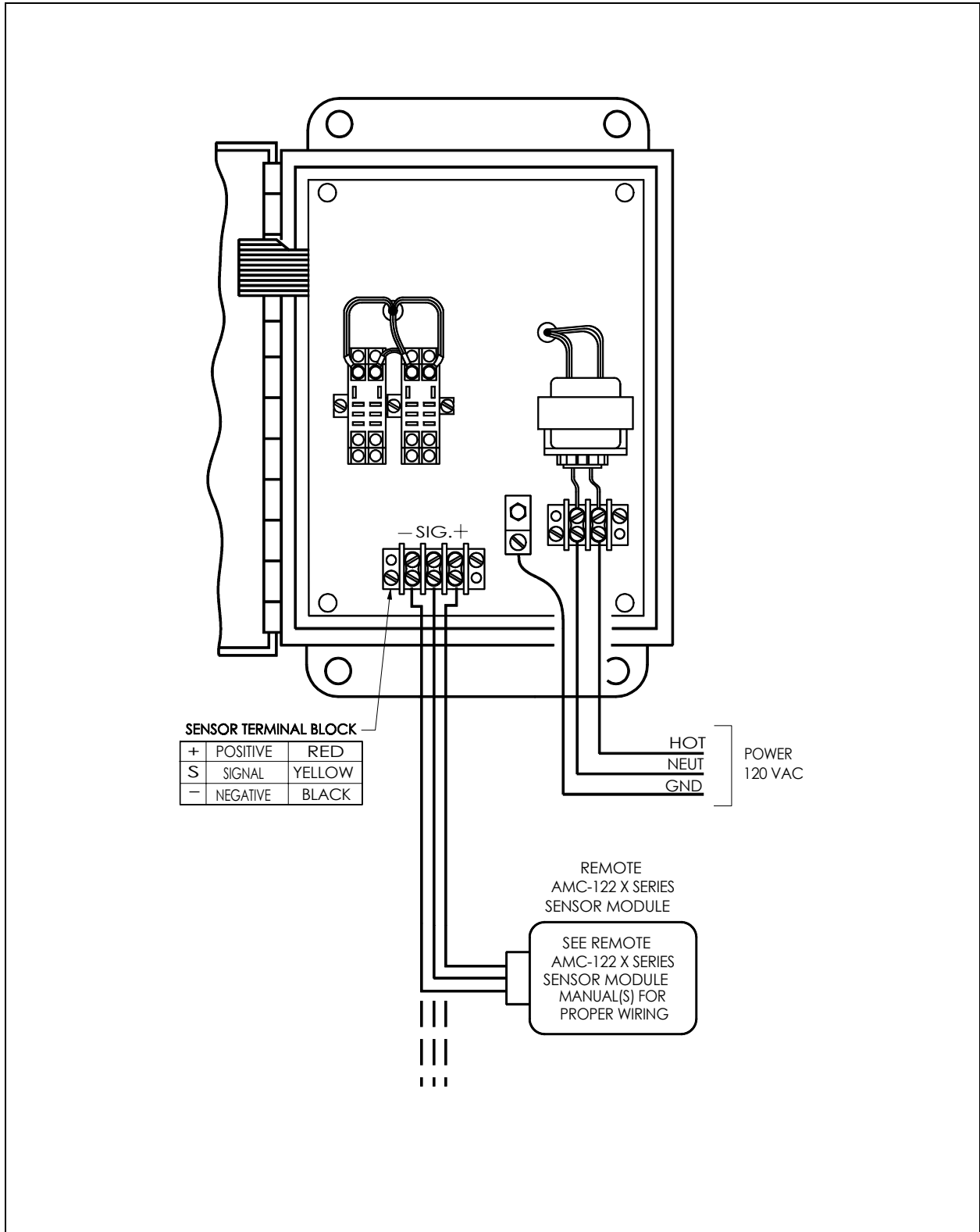


Figure 6: Monitor power connections and remote sensor wiring.

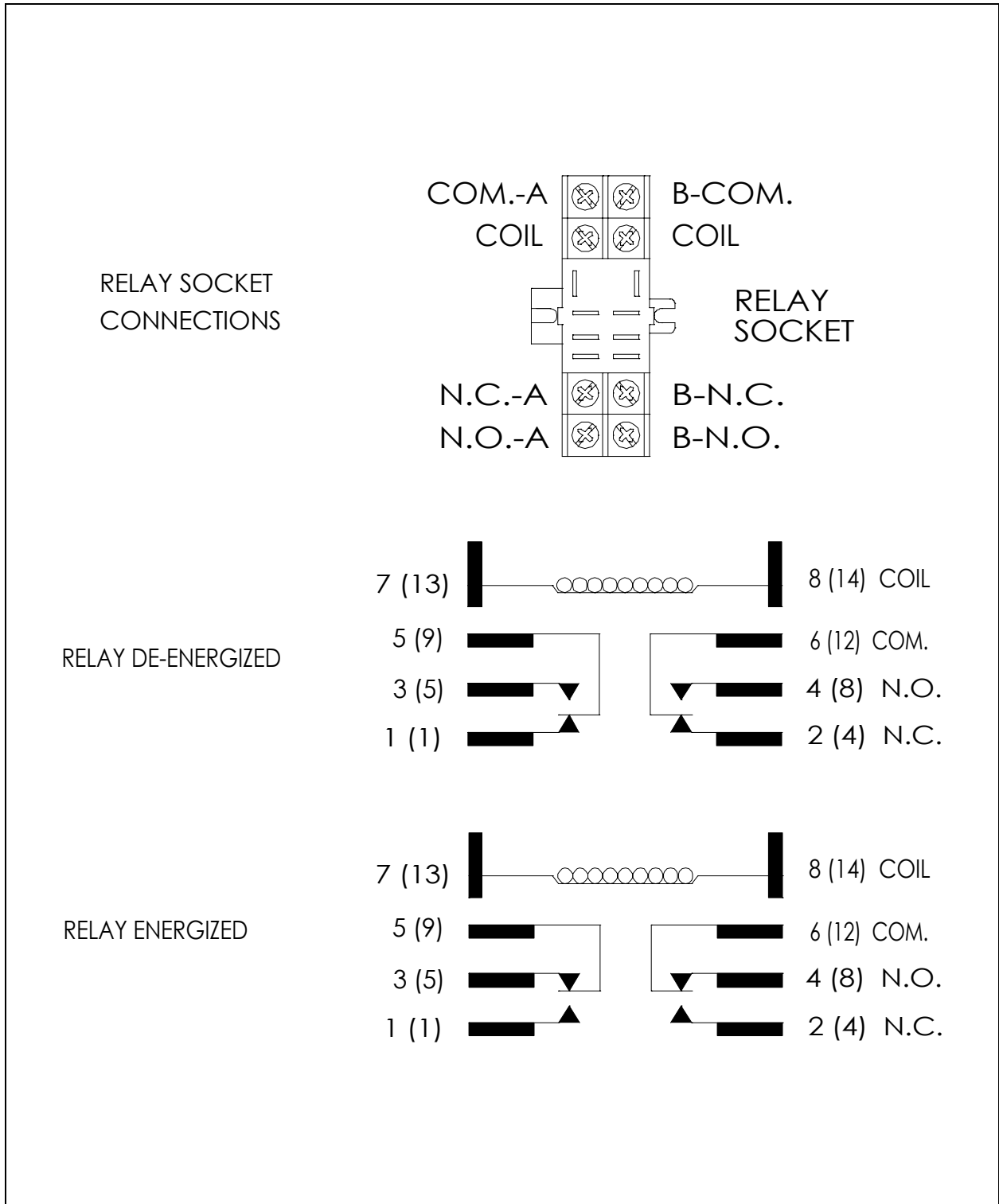


Figure 7: Relay contacts wiring diagram.



5 OPERATION AND CALIBRATION

5.1 OPERATION

Note:

BEFORE turning on the main power to the monitor, MAKE SURE all connections are properly made.

When power is applied, the GREEN power LED will light. A one minute time delay eliminates false alarms from occurring during the sensor's warm up period. After this time delay, the unit becomes fully operational. If time delays are required or the audio alarm indicator is not needed, the three circuit miniature switch can be set accordingly. Refer to Section 3, Item 14 and Figure 1.

If any gas surrounding a sensor exceeds the low alarm trip point setting, the yellow LED and low alarm relay will be activated. If any gas exceeds the high alarm trip point setting, the red LED, high alarm relay and buzzer will be activated.

5.2 CALIBRATION

The monitor operates with remote sensor modules and on-site adjustments are made at the sensor location. Refer to the AMC-122X series sensor module manual(s) for calibration procedures.

5.2.1 ADJUSTMENTS

Adjustments are made using the two trimmers located along the top edge of each circuit board as shown in Figure 8.

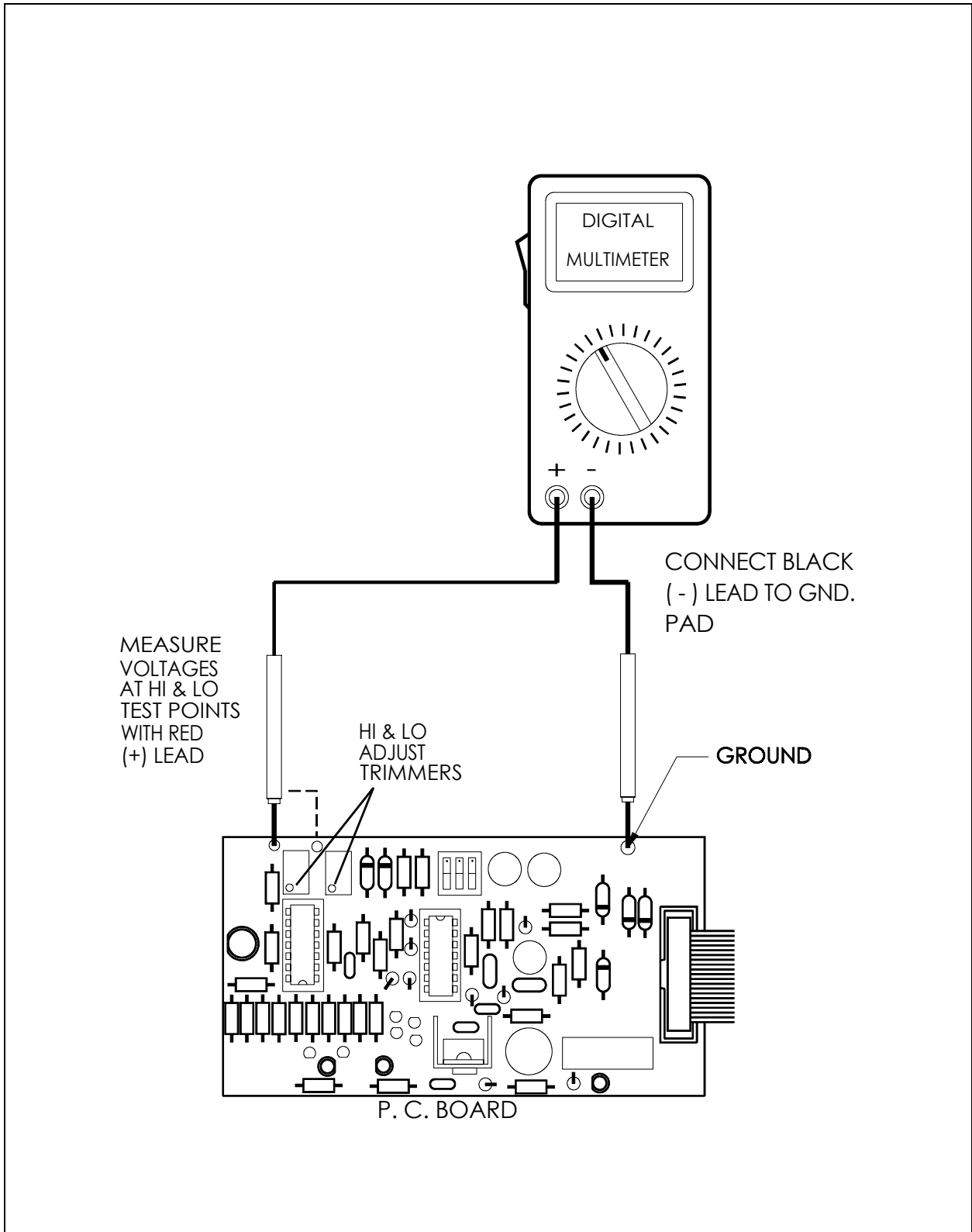


Figure 8: Trimmer adjustments and test point locations



6 PREVENTIVE MAINTENANCE

6.1 GENERAL

The monitor should be wiped clean with a damp cloth following a regular maintenance program. Avoid spraying, submersion and other conditions that could cause a liquid to enter the monitor and cause possible intrinsic damage to internal components.

6.2 VERIFICATION OF OPERATION

To verify the operation of the monitor and sensor module units, make sure that they are responding to gas. This test should be performed regularly, every 3 months, but for more demanding applications, verification should be performed on a weekly basis.

