



1022 R/T

Remote Monitor

INSTRUCTIONS

AMC-1022R/T WITH REMOTE SENSOR OR TRANSMITTER

**INSTALLATION AND OPERATING INSTRUCTIONS
FOR THE AMC-1022R/T 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-1022R/T 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.			

Low Alarm Test Point Voltage _____

High Alarm Test Point Voltage _____

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-1022R/T is a one sensor gas monitoring system designed to continuously monitor surrounding air 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 (Refer to Figures 1 to 4).

- | | |
|-------------------------------------|---|
| 1. REMOTE SENSOR OR TRANSMITTER: | Refer to the Remote Sensor or Transmitter manual for more detailed information. |
| 2. POWER ON INDICATOR: | Power is indicated by a GREEN LED. |
| 3. FAIL INDICATOR: | Sensor/transmitter signal fail is indicated by an amber LED (only when this option is installed). |
| 4. HIGH ALARM: | High levels of gas are indicated by a RED LED. |
| 5. LOW ALARM: | Low levels of gas are indicated by a YELLOW LED. |
| 6. TEST SWITCH: | The test switch is provided to electronically simulate alarms in order to test the low and high alarm indicators, relays and audio alarm indicator. |
| 7. HIGH ALARM ADJUST: | Sets the HIGH alarm trip point. |
| 8. LOW ALARM ADJUST: | Sets the LOW alarm trip point. |
| 9. SIGNAL ADJUST: | Sets the sensitivity of the sensor (not required for transmitter). |
| 10. 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. |
| 10. a) LEFT ACTUATOR: | Provides a TEN minute time delay, when the switch is ON, to eliminate unnecessary alarms caused by momentary exposure to high levels of gases. |
| 10. b) MIDDLE ACTUATOR: | Provides a FIVE minute time delay, when the switch is ON, to eliminate unnecessary alarms caused by momentary exposure to low levels of gases. |
| 10. c) RIGHT ACTUATOR: | Controls the audio alarm indicator. When ON, the buzzer will activate when a high alarm condition occurs. |
| 11. AUDIO ALARM INDICATOR: | When operational (see item 10), the buzzer will activate when a high alarm condition occurs. |
| 12. RELAYS: | There are two DPDT relays which work with high alarm and low alarm respectively. |

- 13. TRANSFORMER: Class II, step down transformer runs the internal circuitry at low voltages.

- 14. POWER TERMINAL BLOCK: For line voltage connections (120 VAC, 60 Hz). For other voltages contact The Armstrong Monitoring Corp.

- 15. CLAMPS: To secure the front panel. Restricting access to the internal controls.

- 16. SENSOR/TRANSMITTER TERMINAL BLOCK: For remote sensor or transmitter connections.

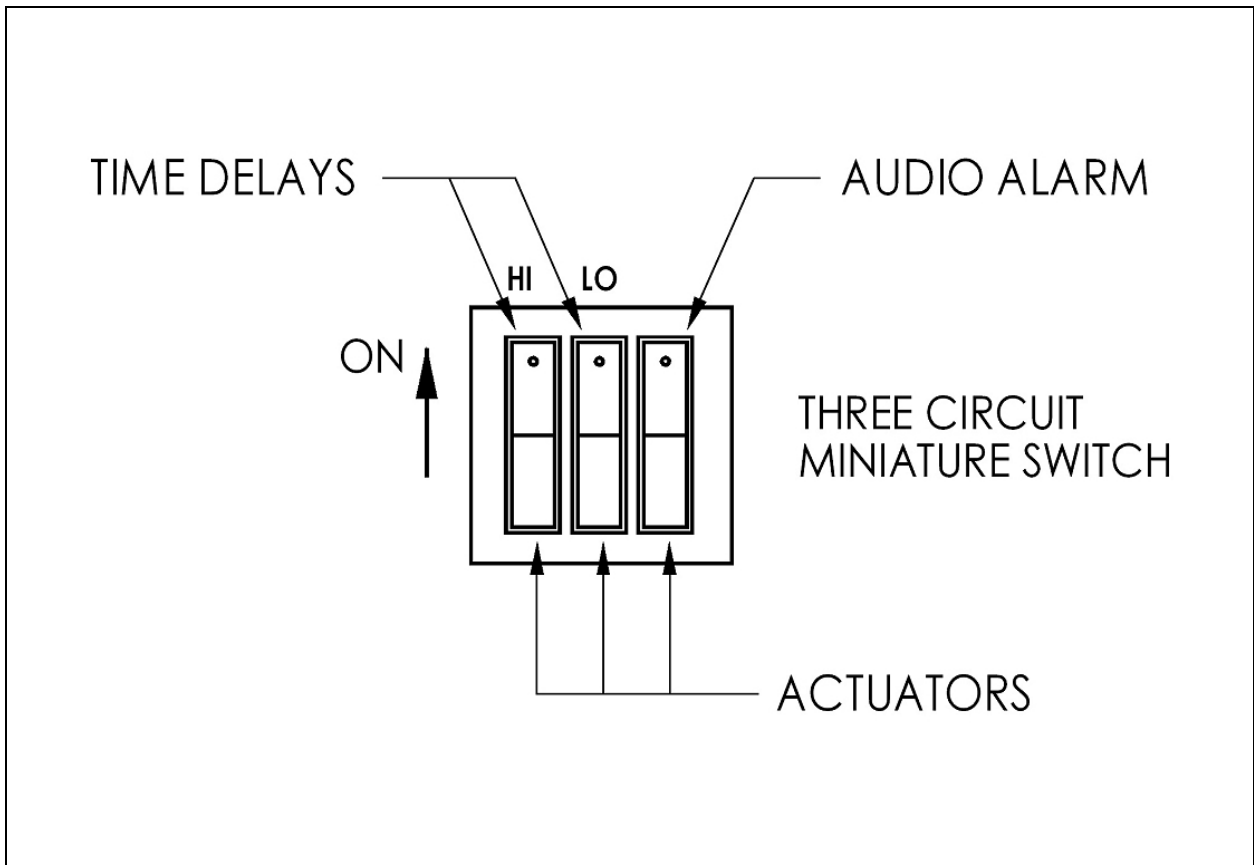


Figure 1: Three circuit miniature switch.

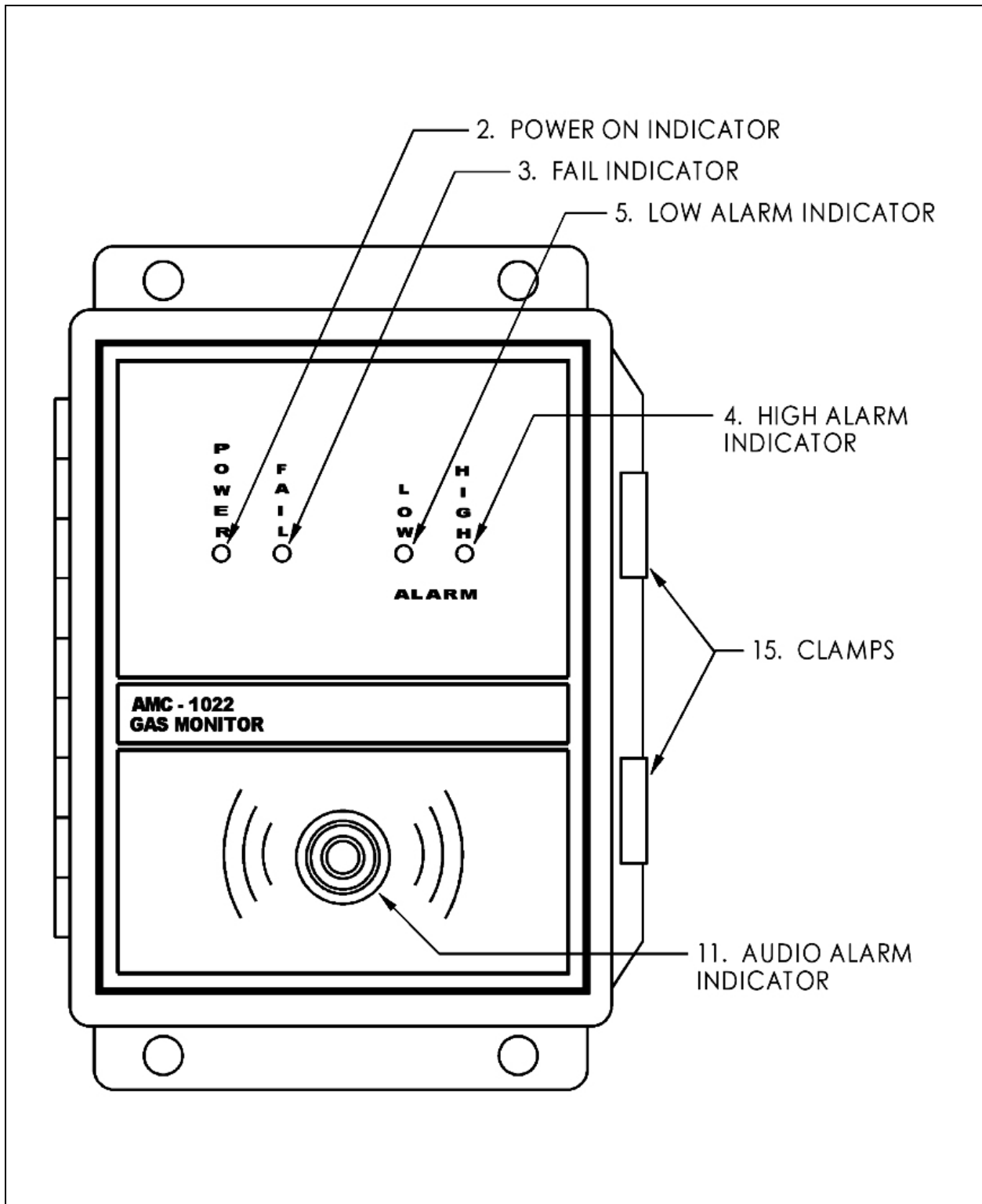


Figure 2: AMC-1022R/T monitor, front panel.

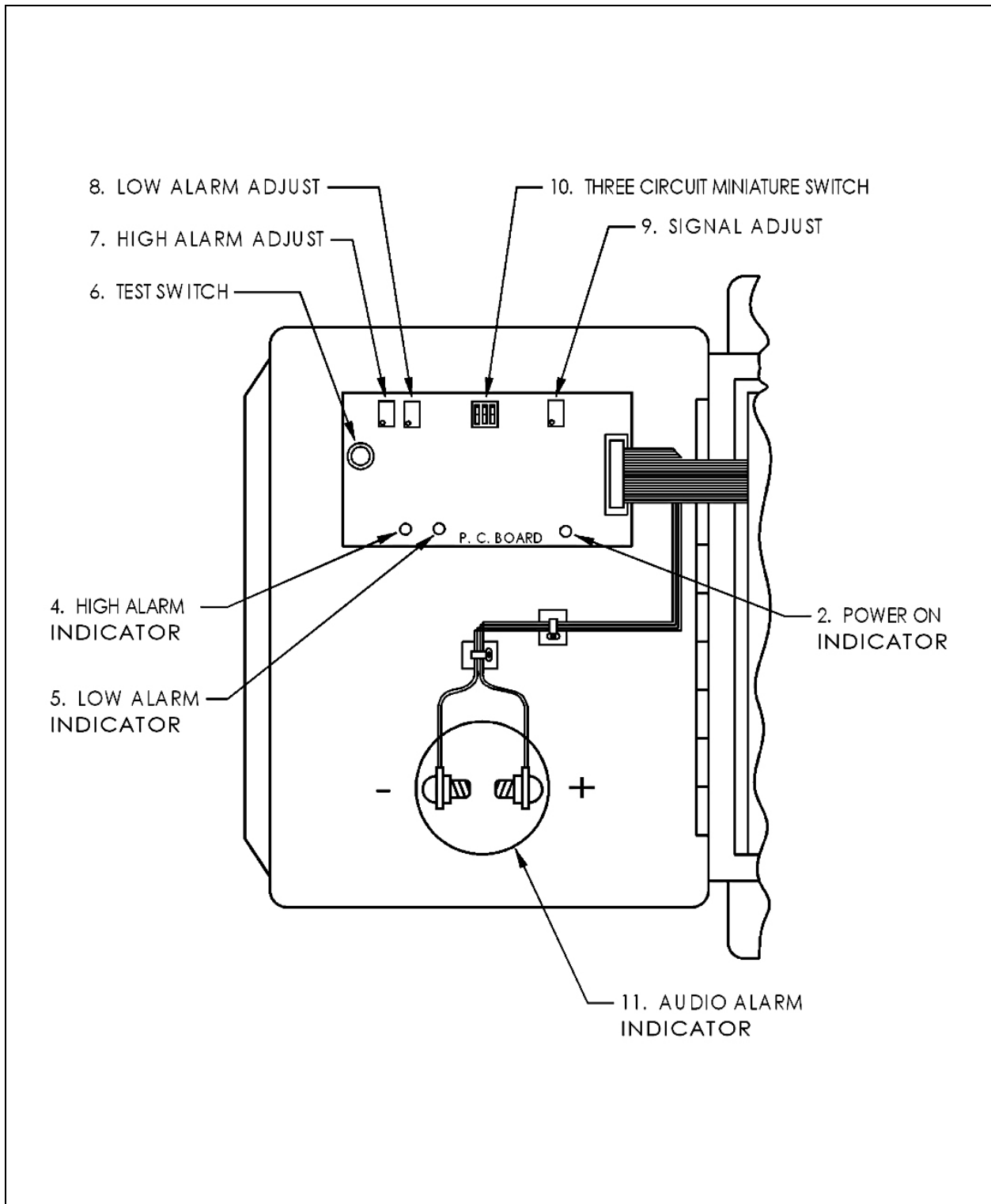


Figure 3: AMC-1022R/T monitor, inside front panel.

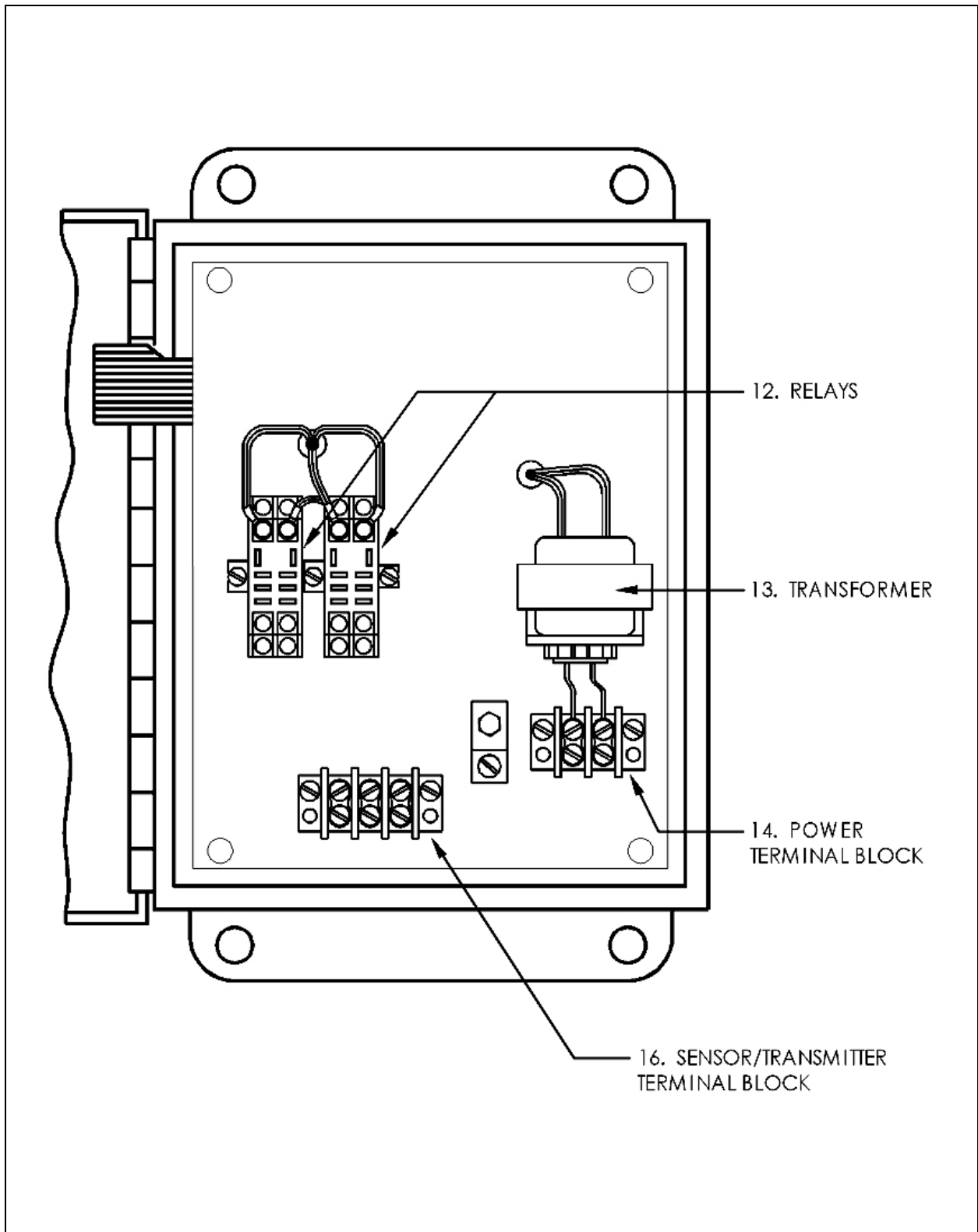


Figure 4: AMC-1022R/T monitor, inside power / relay panel.



4 INSTALLATION

4.1 LOCATION AND MOUNTING

Care should be taken to securely fasten the AMC-1022R/T monitor unit on a solid, non-vibrating surface or structure at eye level. Mount the monitor in a NON-HAZARDOUS area where the unit can be observed periodically. (See Figure 5 for mounting hole locations.)

Mount the monitor in a NON-HAZARDOUS area (i.e.: Control room, manager's office) where the unit can be observed periodically. Three knockouts are supplied at the bottom of the enclosure for connecting 1/2 inch conduit. One opening is used for AC power, one for sensor/transmitter wiring and the other may be used for relay contact circuits.

Mount the sensor/transmitter unit in an area where the local concentration of gas is unaffected by the presence of ventilation systems. Refer to the installation section of the remote sensor or transmitter manual for location and mounting of the sensor/transmitter unit.

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.

4.2 WIRING OF THE MONITOR

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

RELAYS: There are two DPDT relays which work with high alarm and low alarm respectively. Alarms energize the relays causing contact transfer. The relay contacts are available for activating a remote alarm, exhaust fan or other electrical device. Relays are rated 1/3 hp @ 120 VAC/240 VAC, 10 Amps @ 28 VDC/120 VAC/240 VAC resistive. (See Figures 4 and 7)

REMOTE SENSOR OR TRANSMITTER: The remote sensor or transmitter is wired to the sensor/transmitter (-,sig,+) terminal block located on the inner panel of the monitor (see Figure 6). Refer to section 6.3 and Figure 12 for the sensor replacement procedure.

Note:

For selection of cable sizes, refer to the "Cable Selection Chart" in the Installation And Wiring section of the remote sensor or transmitter manual.

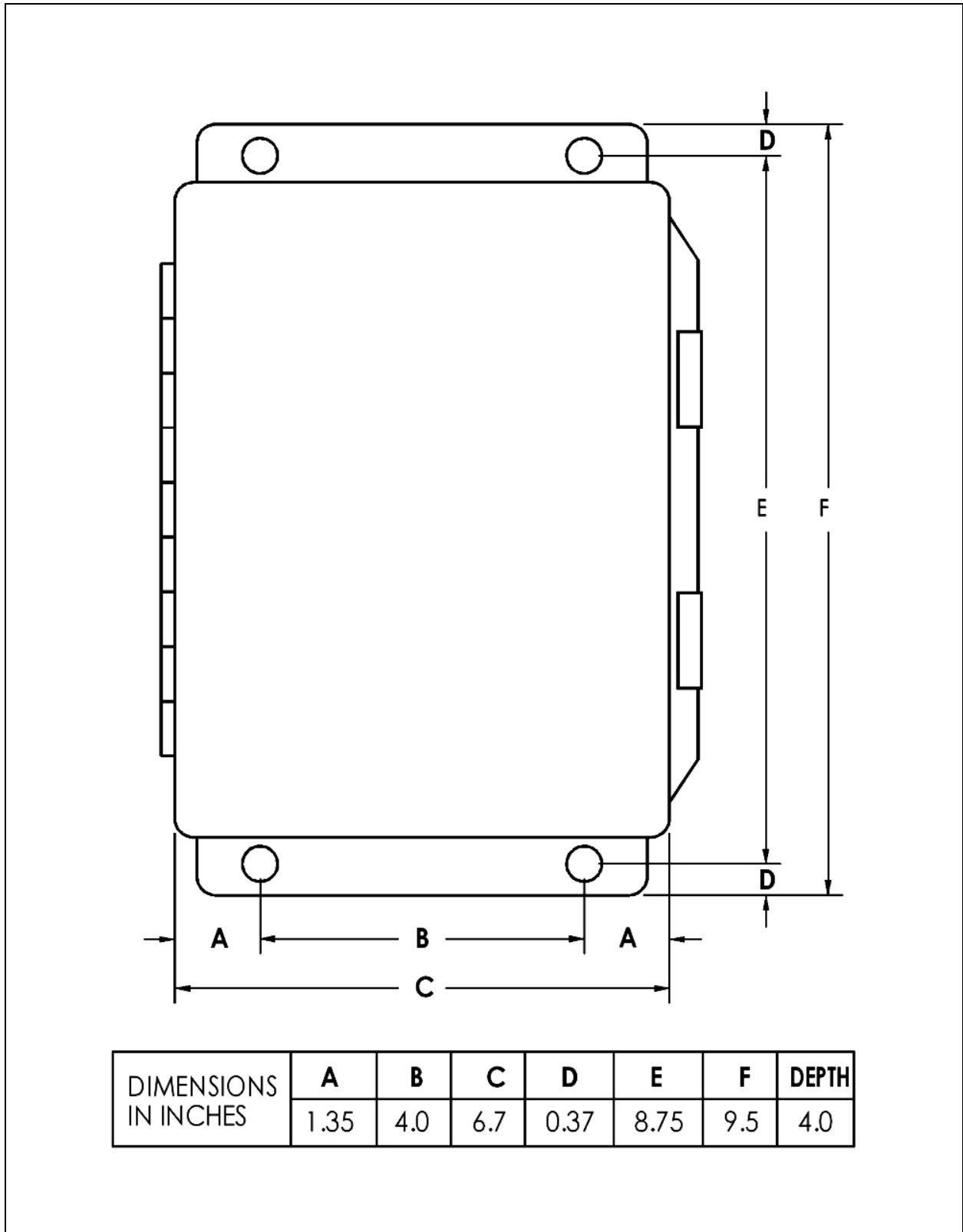


Figure 5: Monitor mounting dimensions.

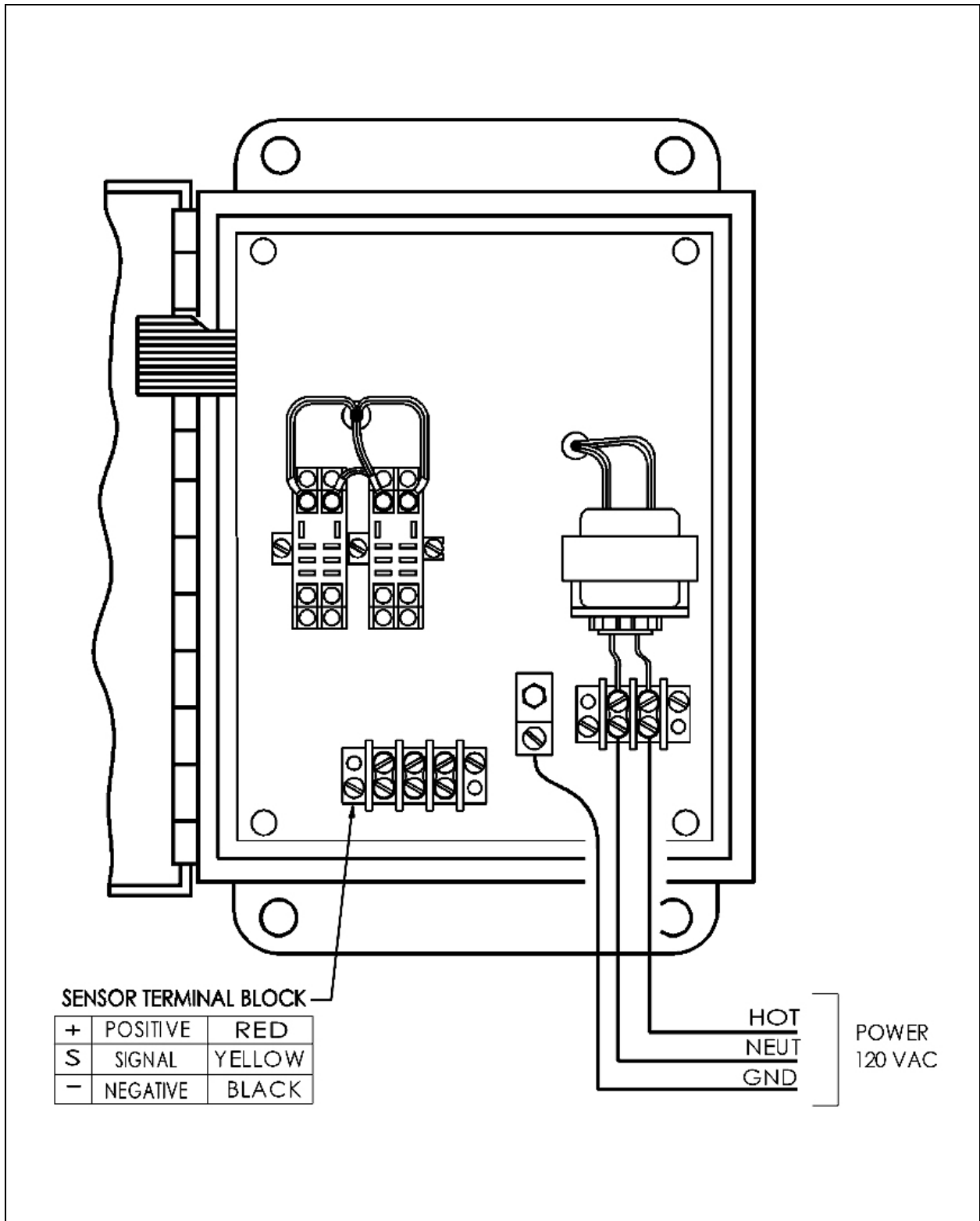


Figure 6: Monitor power connections and sensor/transmitter wiring.

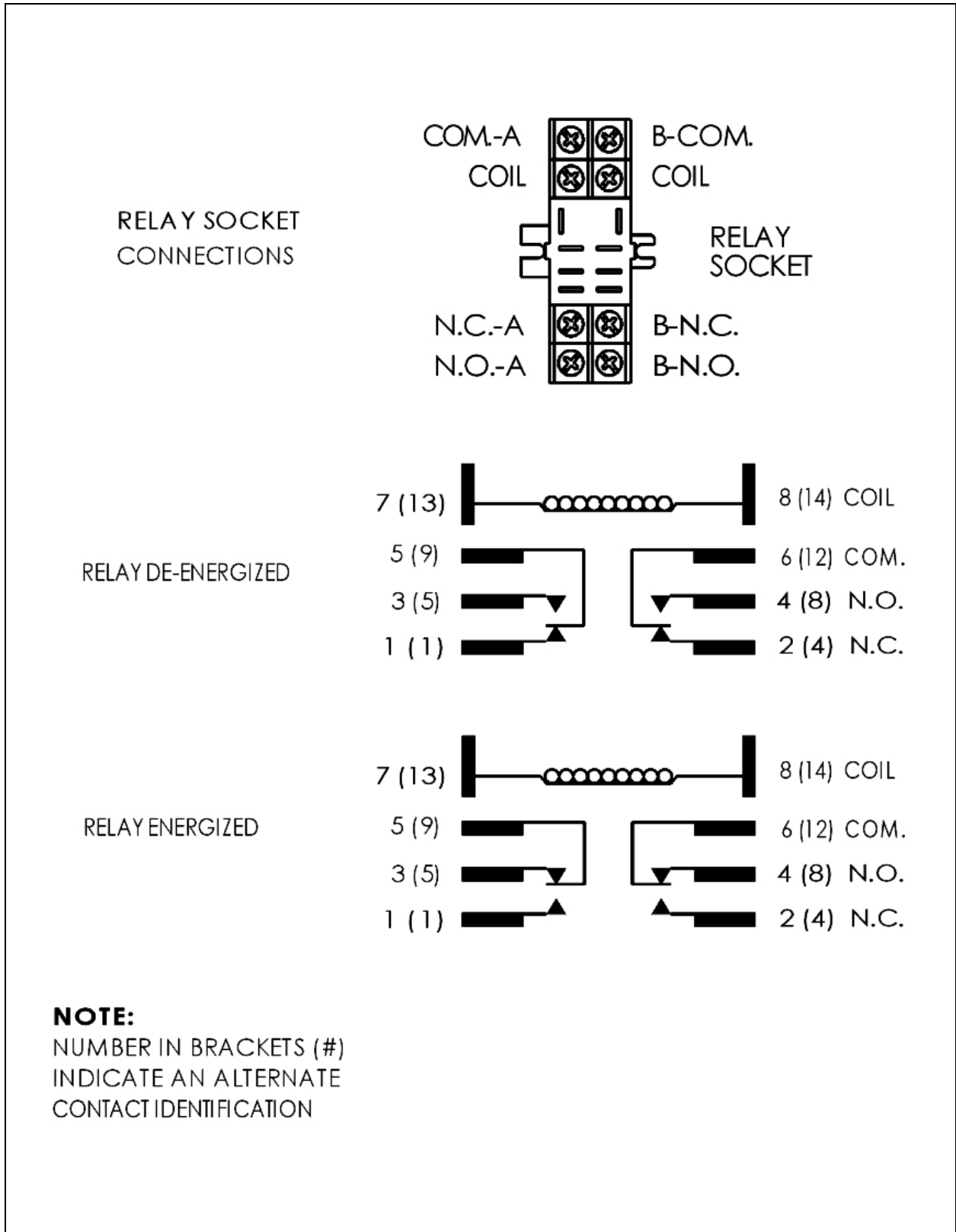


Figure 7: Relay contacts wiring diagram.



5 OPERATION AND CALIBRATION

5.1 OPERATION

Note:

BEFORE turning on the main power to the monitor, MAKE SURE that 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 or transmitter'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 9 and Figure 1.

If any gas 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 AMC-1022R monitor operates with a remote sensor unit and on-site adjustment are made at the **monitor** location.

The AMC-1022T monitor operates with a remote sensor/transmitter unit and on-site adjustments are made at the **transmitter** location.

The AMC-1022R/T gas monitor is factory calibrated at levels based on set standards. Calibration of the monitor should be performed every 6 months unless the alarm trip point settings need to be changed. Recalibration is necessary when either replacing the sensor or changing the alarm trip point settings. Refer to the remote sensor or transmitter manual for calibration kit requirements and calibration procedure.

Note:

BEFORE MAKING ANY CHANGES TO ALARM LEVEL SETTINGS WE RECOMMEND CONSULTING AMC FOR ADVICE ON SETTING THE PROPER TRIP POINT VOLTAGE FOR A SPECIFIC GAS ALARM CHANGE. IF A GAS SAMPLE IS TAKEN FROM VOLATILE LIQUID VAPOURS ONLY THE CALIBRATION CHAMBER IS REQUIRED.

5.2.1 APPLYING CALIBRATION GAS SAMPLE

Note:

For this procedure, refer to the Calibration section in the Remote Sensor or the Transmitter manual.



5.2.2 ADJUSTMENTS

To observe immediate reaction during calibration, the low and high alarm time delays should be disabled. All calibration is made using the three trimmers along the top edge of the circuit board as shown in Figure 3.

Note:

The following procedure is for REMOTE SENSOR ONLY. If a transmitter is used, refer to the adjustments in the Calibration section in the transmitter manual.

The low alarm adjust is used to establish the low alarm trip point. This is done by exposing the sensor to the low alarm gas concentration and adjusting the LOW trimmer clockwise until the YELLOW LED just lights.

The high alarm adjust is used to establish the high alarm trip point. This is done by exposing the sensor to the high alarm gas concentration and adjusting the HI trimmer clockwise until the RED LED just lights.

Note:

IF THE SENSOR HAS BEEN REPLACED, ADJUST THE SIGNAL FIRST THEN PROCEED WITH LOW ALARM AND HIGH ALARM ADJUSTMENTS. SIGNAL CALIBRATION IS PERFORMED USING A DIGITAL MULTIMETER SET TO MEASURE DC VOLTAGES TO TWO (2) DECIMAL PLACES (i.e.: 0.00 V).

The SIGNAL adjust is used to set the sensitivity of the sensor. This is done by exposing the sensor to the LOW alarm concentration of gas. The voltage associated with the signal can be measured at the test point immediately above and to the left of the SIG trimmer as shown in Figure 8. The voltage measured at the signal test point should be approximately 3.0 Volts.

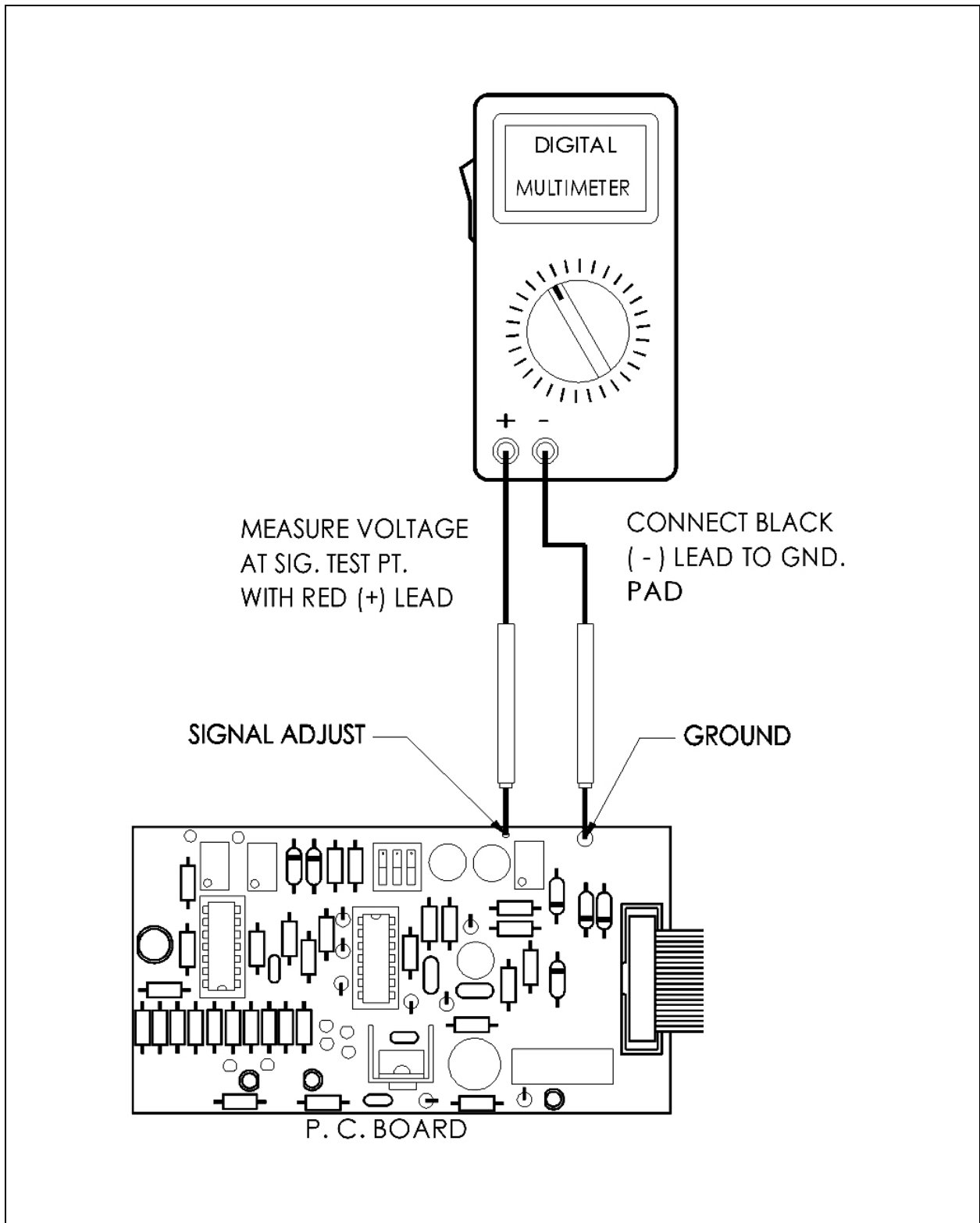


Figure 8: Trimmer adjustment and test point locations



6 PREVENTIVE MAINTENANCE

6.1 GENERAL

The monitor and sensor unit should be brushed or wiped clean once a year or more of any dust or dirt which settles on it depending on the accumulation.

The unit SHOULD NOT be submerged in water or other liquids. Also, hosing and other conditions that could cause a liquid to enter the enclosure should be avoided.

6.2 VERIFICATION OF OPERATION

A function test should be performed to ensure that the monitor and sensor are functioning properly. This test should be performed every 2 months, but for more demanding applications, verification should be performed on a weekly basis.

6.3 SENSOR REPLACEMENT

Caution:

TURN OFF THE POWER SUPPLY BEFORE ATTEMPTING THE FOLLOWING.

Refer to the sensor replacement section of the Remote Sensor or Transmitter manual for detailed information on sensor replacement.

Note:

**For REMOTE SENSOR, allow 24 hours for the new sensor element to stabilize (burn-in) before recalibration. Apply the calibration gas sample, then follow the instructions in the Adjustments (section 5.2.2) in this manual.
For TRANSMITTERS, refer to the calibration section of the Transmitter manual.**