



1044-T

Gas Monitor

INSTALLATION AND OPERATING INSTRUCTIONS

AMC-1044-T NEMA 4X FOR SENSOR/TRANSMITTER

IMPORTANT:

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



TABLE OF CONTENTS

Section Title	Page
1 WARRANTY	ii
1.1 LIABILITY	ii
1.2 MODIFICATIONS AND SUBSTITUTIONS.....	ii
1.3 PRODUCT RETURN	ii
2 PRODUCT INFORMATION	iii
3 PRODUCT DESCRIPTION	1
4 INSTALLATION	5
4.1 LOCATION AND MOUNTING.....	5
4.2 WIRING OF THE MONITOR.....	5
4.3 CABLE SIZES.....	6
5 OPERATION AND CALIBRATION	10
5.1 OPERATION.....	10
5.2 CALIBRATION.....	10
5.2.1 CALIBRATION FOR REMOTE SENSOR/TRANSMITTER	10
5.2.2 ALARM ADJUSTMENTS FOR TRANSMITTER.....	10
6 PREVENTIVE MAINTENANCE	12
6.1 GENERAL	12



1 WARRANTY

The AMC-1044-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 a repair number issued by *AMC*. All products returned to the client will be freight collect.



2 PRODUCT INFORMATION

Monitor Part Number	_____
Monitor Serial Number	_____
Power Supply Requirements	120 VAC, 60 Hz, 20 W max.
Operating Temperature Range	0° C to 50° C
Relative Humidity	0-99% RH, non condensing
Contact Rating	1/3 hp @ 120 VAC/240 VAC, 10 Amps @ 28 VDC/120 VDC/240 VAC

Sensor/Transmitter		Type of Gas	Alarm Trip Points	
Part No.	Serial No.		Low	High

TORQUE SPECIFICATIONS:

POWER SUPPLY:

Neutral terminal screw	7 pound-inches.
Hot terminal screw	7 pound-inches.
Ground Lug screw	15 pound-inches.

RELAY:

Relay socket terminal screws	7 pound-inches.
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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-1044-T is a gas monitoring system designed to be used with AMC broad selection of Sensor/Transmitter types. It serves to continuously monitor the target gas (listed in Product Information Section). The monitor comes with the following features (see Figures 1, 2 and 3).

1. POWER ON INDICATOR: Power is indicated by a green LED.
2. FAIL INDICATOR: Sensor fail is indicated by an amber LED.
3. LOW ALARM INDICATOR: Low levels of gas are indicated by a yellow LED.
4. HIGH ALARM INDICATOR: High levels of gas are indicated by a red LED.
5. POWER TERMINAL BLOCK: For line voltage connections (120 VAC, 60 Hz.)
6. TEST SWITCH: The test switch is provided to electronically simulate alarms in order to test the low and high alarm indicators and relays.
7. LOW ALARM ADJUST: Sets the Low alarm trip point.
8. HIGH ALARM ADJUST: Sets the High alarm trip point.
9. 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.
 9. a) TOP ACTUATOR: Provides a TEN-minute time delay, when the switch is ON, to eliminate unnecessary alarms caused by momentary exposure to high alarm conditions.
 9. b) MIDDLE ACTUATOR: Provides a FIVE-minute time delay, when the switch is ON, to eliminate unnecessary alarms caused by momentary exposure to low alarm conditions.
 9. c) BOTTOM ACTUATOR: Controls the audio alarm indicator. When ON, the buzzer will activate when a high alarm condition occurs.
10. RELAYS: There are up to 3 DPDT relays, which work with high alarm, low alarm, and as an option fail.
11. TRANSFORMER: Class II, step down transformer runs the internal circuitry at low voltages.
12. NEMA 4X AUDIO ALARM: When enabled, the buzzer will activate when a high alarm condition occurs.

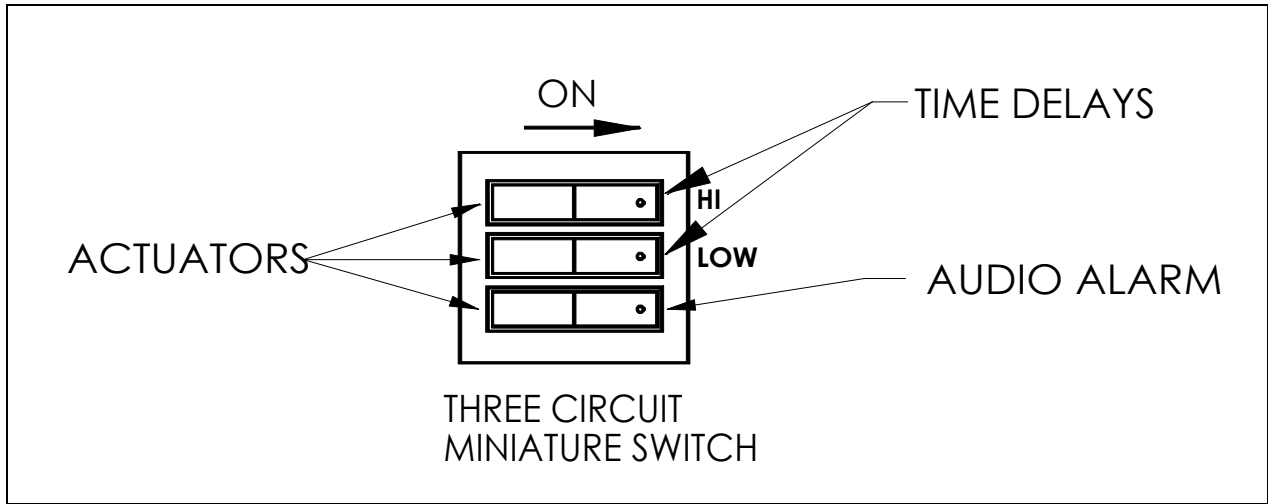


Figure 1: Three-circuit miniature switch.

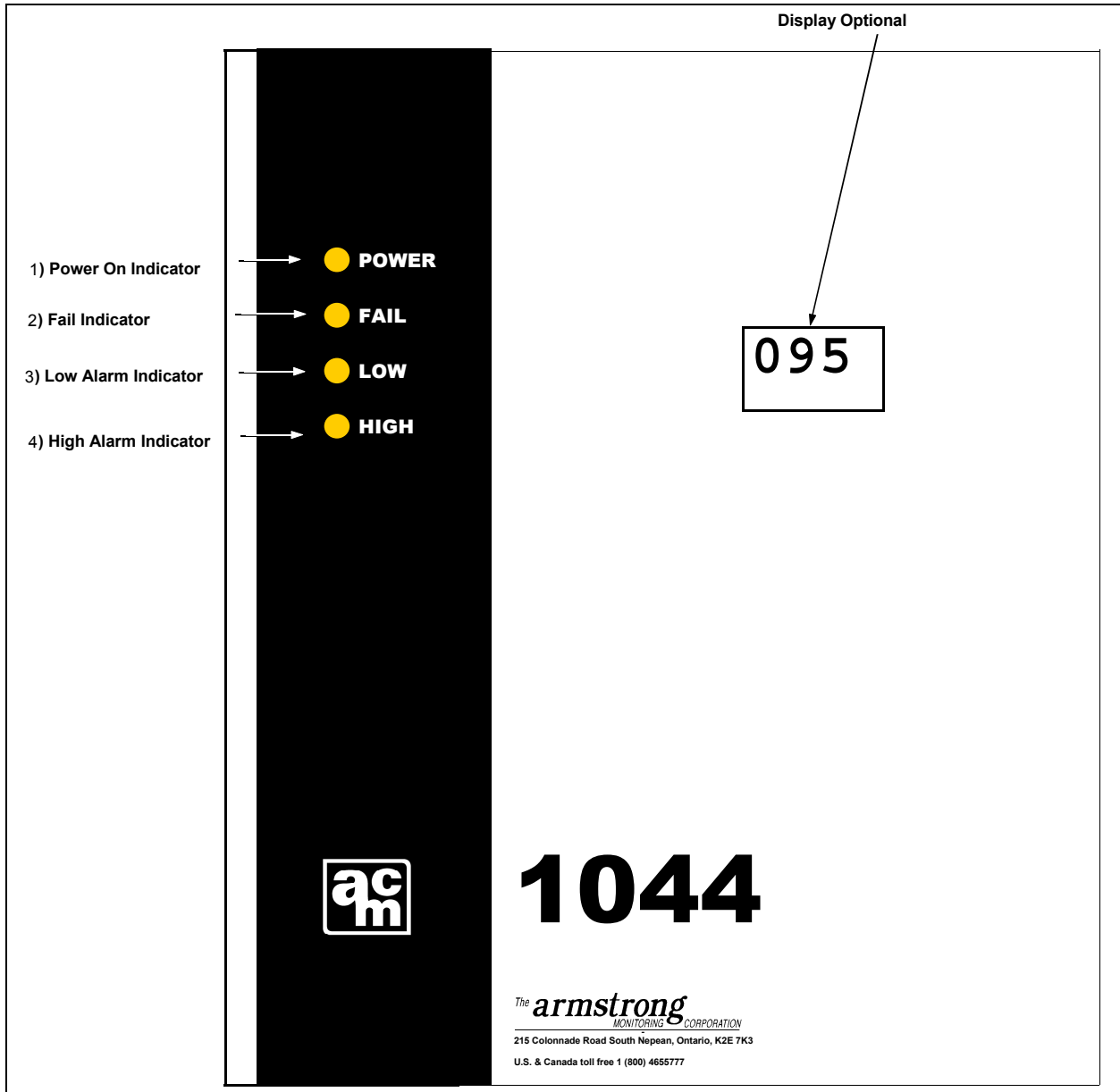


Figure 2: AMC-1044-T monitor, front panel.

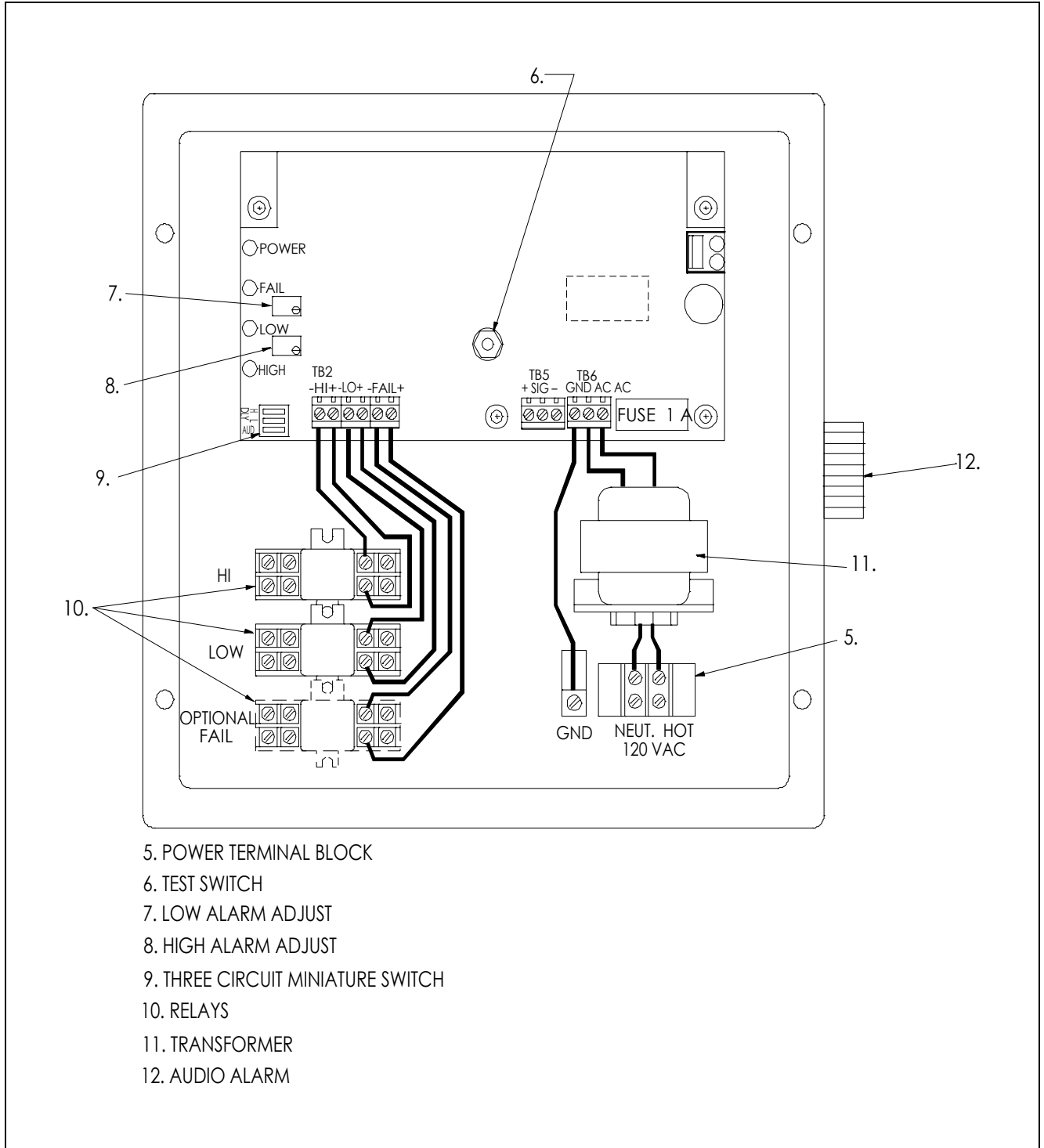


Figure 3: AMC-1044-T monitor, internal wiring.



4 INSTALLATION

4.1 LOCATION AND MOUNTING

Care should be taken to securely fasten the AMC-1044-T monitor unit (via four mounting holes provided) to a solid, vertical, non-vibrating surface or structure. Mounting height is dependent on gas type. (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 1044-T NEMA-4x monitor in a NON-HAZARDOUS area where local concentrations of gases are unaffected by the presence of ventilation systems and where the unit can be observed periodically.

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 3)

RELAYS: There are up to 3 DPDT relays, which activate with high alarm, low alarm and optional fail respectively causing contact transfer. The contacts are available for activating a remote alarm and/or, blower motors where moving parts are fully guarded, pumps or lighting circuits. 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 6. The high and low alarms relay coils are normally de-energized and the optional fail relay coil is normally energized.

TRANSMITTER Each transmitter connects to a terminal block labeled Sensor (-SENS+) located on the PC board. All Connections should be made using shielded 2 or 3-conductor cable, depending on which sensor or transmitter is used. See schedule of cable sizes (Section 4.3) to select the appropriate cable.



4.3 CABLE SIZES

For maximum noise rejection, each cable shield and metal conduit should be grounded at the monitor. The following is a listing of maximum distances the transmitter may be located from the monitor for various cable sizes.

WIRE GAUGE AWG	CABLE LENGTH in FEET (meters)	
	3-Wire Transmitter	2-Wire Transmitter
22	185 (56)	1000 (305)
20	290 (88)	1500 (457)
18	460 (141)	2500 (762)
16	700 (214)	3800 (1158)
14	1110 (338)	5600 (1706)

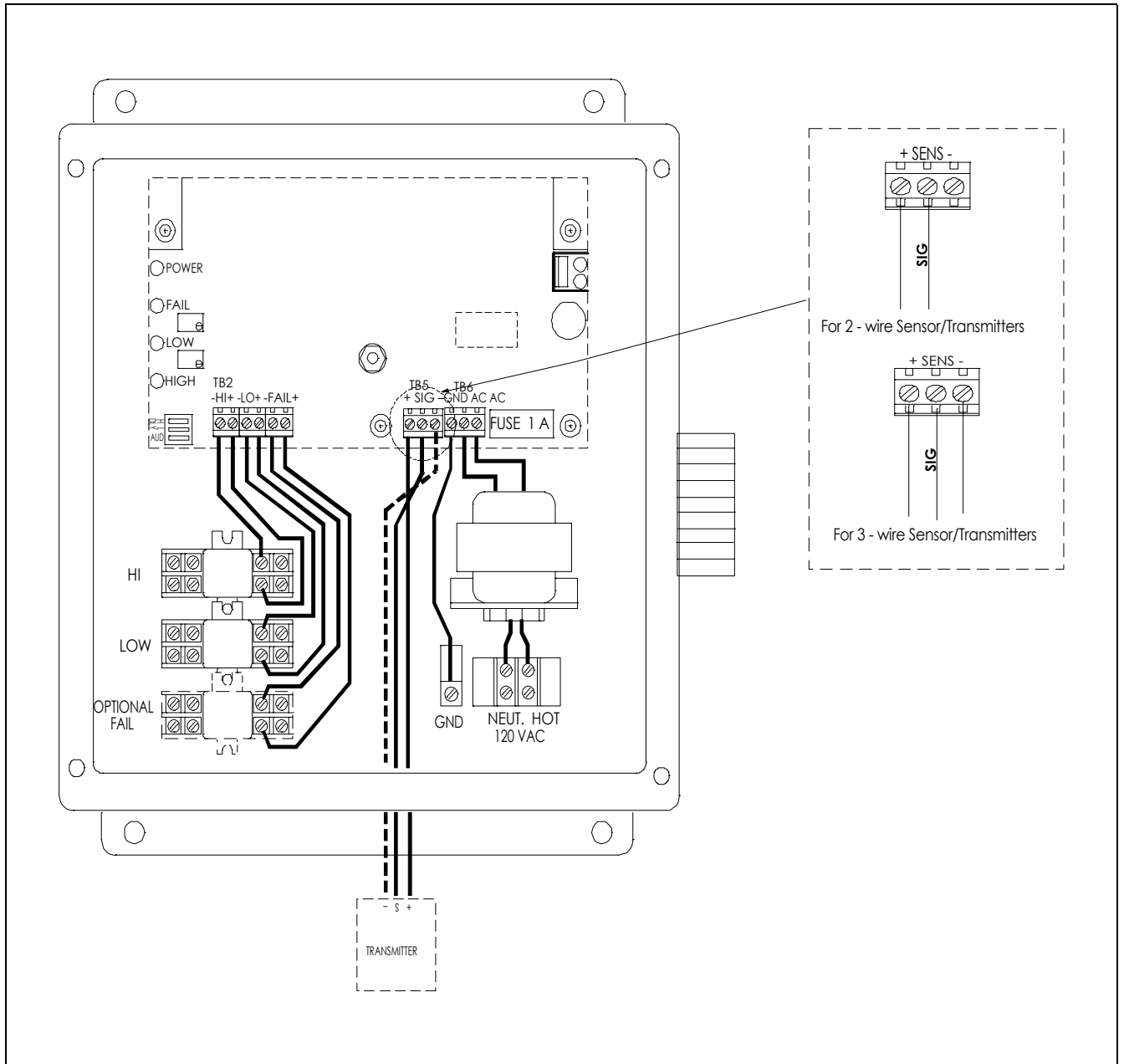


FIGURE 4: Transmitter wiring connection

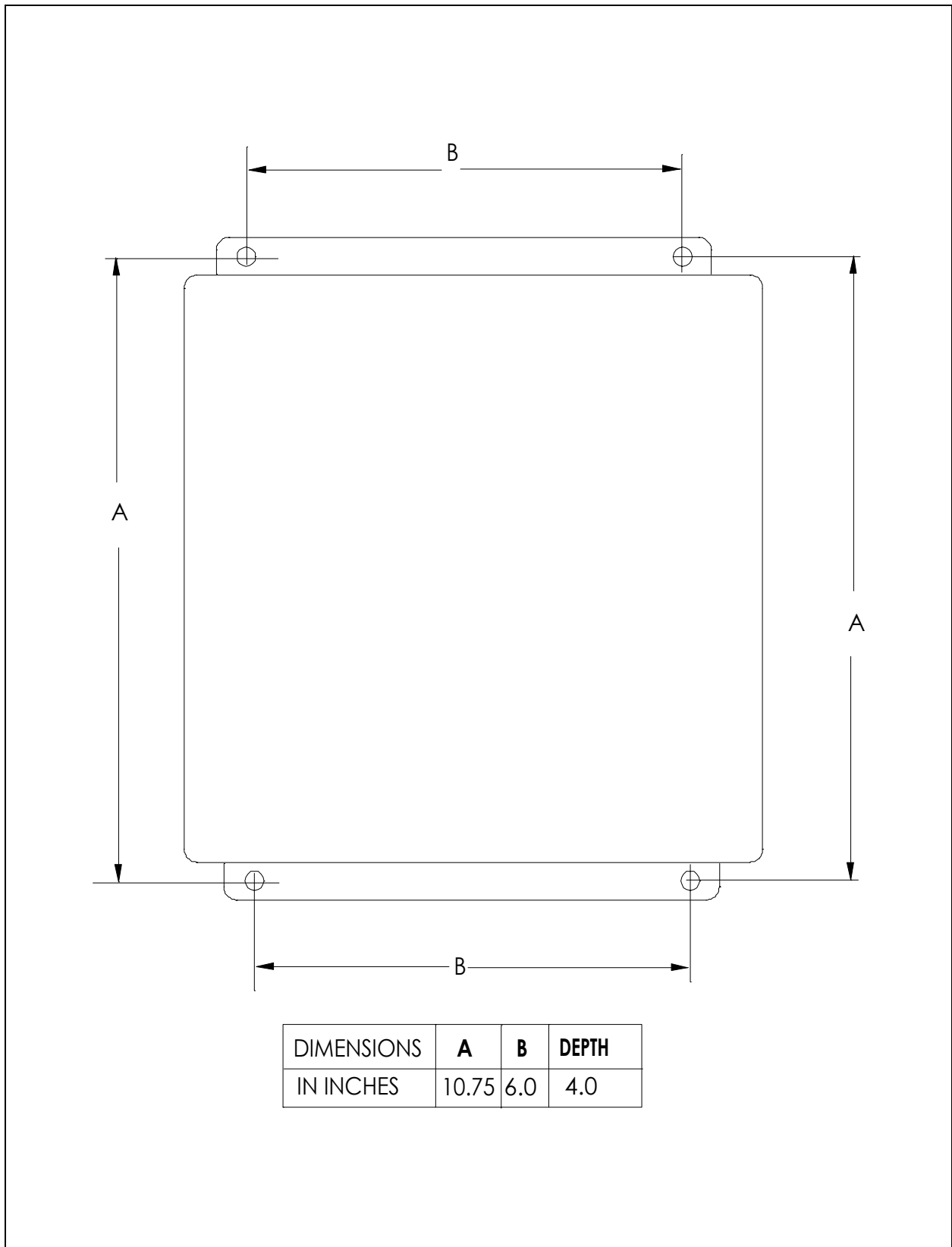


Figure 5: Monitor mounting dimensions.

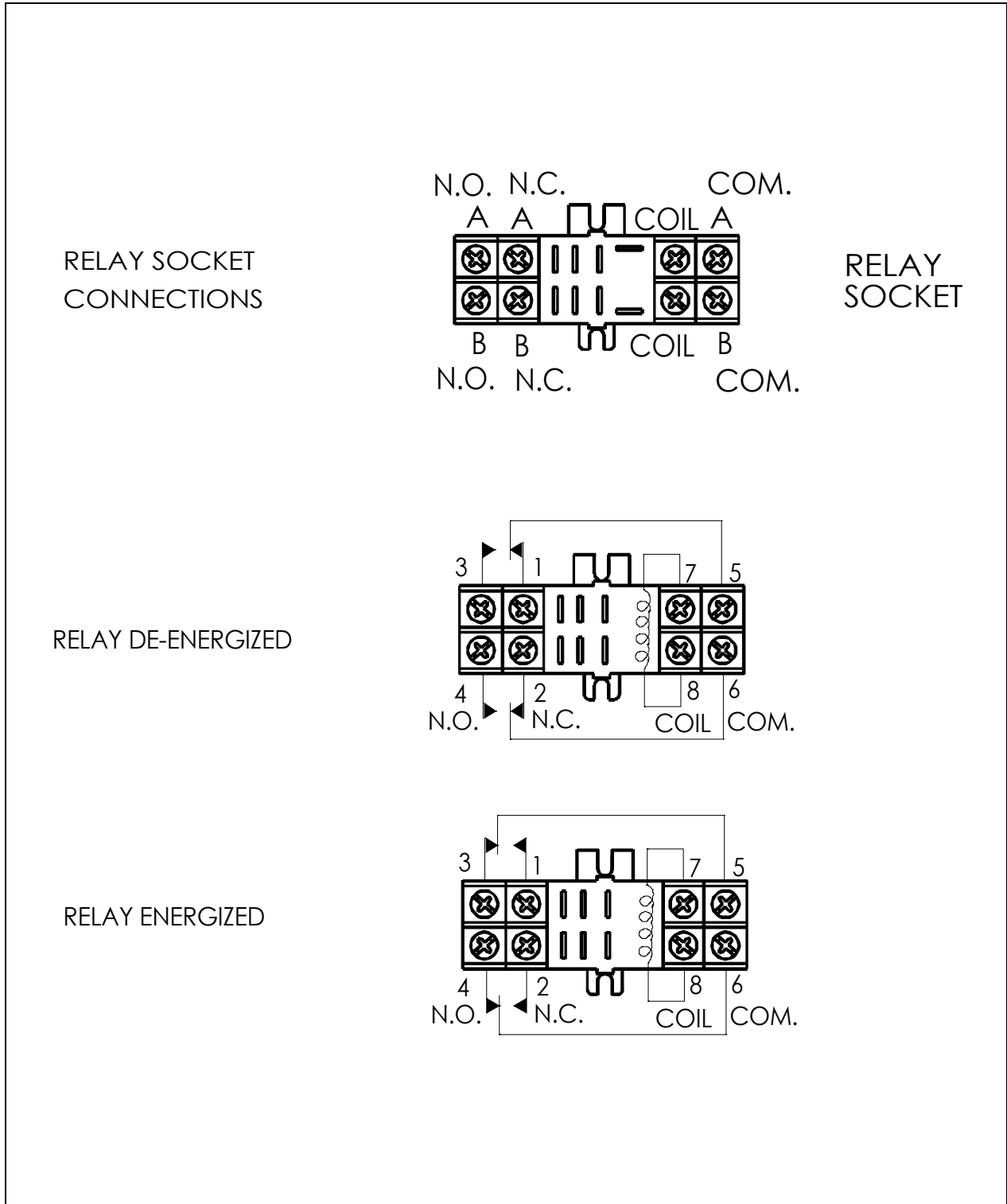


Figure 6: Relay contacts wiring diagram.



5 OPERATION AND CALIBRATION

5.1 OPERATION

Note:

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

Once power has been turned on, 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 9 and Figure 1.

If any gas surrounding the 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 audio alarm will be activated. An open sensor/transmitter circuit is indicated by the amber fail LED.

5.2 CALIBRATION

The AMC-1044-T series monitor is factory calibrated at levels based on set standards.

As the calibration procedure may cause the monitoring equipment to give a false alarm, appropriate precautions should be taken. Instructions on introducing the gas sample are included with the sensor/transmitter manual. Refer to the transmitter manual for calibration and required equipment.

NOTE

BEFORE MAKING ANY CHANGES TO ALARM LEVEL SETTINGS WE RECOMMEND CONSULTING THE ARMSTRONG MONITORING CORPORATION FOR ADVICE ON SETTING THE PROPER TRIP POINT VOLTAGE FOR A SPECIFIC ALARM CHANGE.

5.2.1 CALIBRATION FOR REMOTE SENSOR/TRANSMITTER

Please refer to applicable Sensor/Transmitter manual for calibration instructions.

5.2.2 ALARM ADJUSTMENTS FOR TRANSMITTER

Alarms are set at the factory and do not need to be adjusted unless a change in alarms is required.

Low alarm adjust is used to establish the low alarm trip point. This is done by adjusting the voltage to the appropriate fraction of full scale at test points COM and LOW TP (see Figure 7).

Example: Full scale = 100 ppm
 Low alarm trip = 35 ppm
 $(35/100 \times 4 \text{ VDC}) + 1$
 = 2.4 VDC

High alarm adjustment is done in the same manner as above, using the high alarm adjust and measuring between COM and HIGH TP.

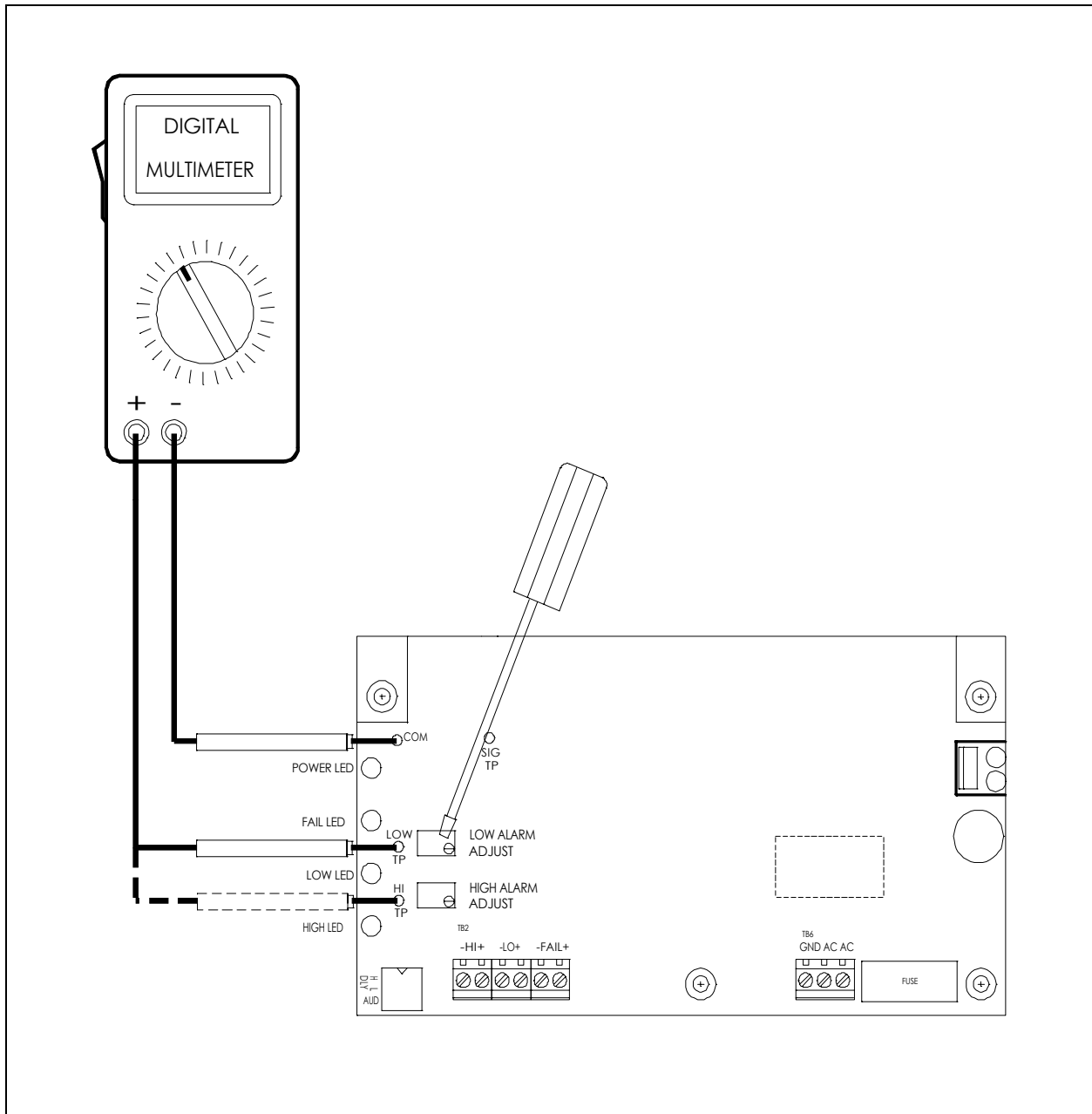


Figure 7: Alarm adjustments



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.