



# ATI-1503-4L

## 4-Channel Annunciator Unit

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### INSTRUCTIONS

#### Installation and Operation of the 4-Channel ATI-1503-4L Annunciator Unit For Use With the 4-Level ATI-5020 Probe

(THIS UNIT FEATURES LATCH /RELEASE RELAY FUNCTIONS)



### IMPORTANT

Please read these installation and operating instructions completely and carefully before starting. Failure to do so will void warranty.

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## **1 - WARRANTY**

The ATI-1503-4L 4-Channel Annunciator Unit is warranted against defects in material and workmanship for a period of one (1) year from date of shipment. During the warranty period, *Armstrong Technologies Inc. (ATI)* will repair or replace components that prove to be defective in the opinion of ATI. ATI is not liable for auxiliary interfaced equipment, or 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 ATI representative, or when such failure is due to misuse or conditions of use.

### **1.1 - LIABILITY**

All ATI products must be installed and maintained according to instructions. Only qualified technicians should install and maintain the equipment. ATI shall have no liability arising from auxiliary interfaced equipment, for consequential damage, or the installation and operation of this equipment. ATI 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, ATI 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.G.A. number issued by ATI. All products returned to the client will be freight collect.

## **WARNING**

<p><b>USING ELECTRICALLY OPERATED EQUIPMENT NEAR GASOLINE OR OTHER 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.</b></p>
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## 2 - PRODUCT INFORMATION

**NOTE:** This page must be filled-in at site by client, contractor or installer and this manual returned to the owner or manager.

### 2.1 - ANNUNCIATOR UNIT

Annunciator Serial Number ..... \_\_\_\_\_

Annunciator Warranty Period ..... 1 year

Power Supply Requirement ..... 120 VAC

Operating Temperature ..... 0 to +40°C (32 to +104°F)

Operating Pressure ..... Ambient atmospheric pressure

Sensor(s) ..... One 4-level probe with N/O contacts

#### 2.1.1 - SYSTEM CONFIGURATION

Circle the appropriate items for this system's configuration (standard functions in **bold**).

Channel	Sensor Output (non-alarm)	Level Function	Relay Contacts	Latch or Release	Audio Alarm
1	N/O		<b>yes</b>	---- n/a ----	<b>yes</b> no
2	N/O		<b>yes</b>	L R	yes <b>no</b>
3	N/O		<b>yes</b>	L R	yes <b>no</b>
4	N/O		<b>yes</b> no	---- n/a ----	<b>yes</b> no

##### 2.1.1.1 - Special Non-standard Function

Description:

### WARNING

**THIS UNIT DOES NOT HAVE I.S. BARRIERS AND CAN ONLY BE USED IN NON-HAZARDOUS LOCATIONS. THIS UNIT IS DESIGNED TO WORK WITH THE 2-LEVEL ATI-5020 PROBE OR ATI-5010 SENSOR.**

### Note:

**All *Armstrong Technologies Inc.* products must be installed and maintained according to instructions, to ensure proper operation. Only qualified technicians should install and maintain the equipment.**



## 3 - PRODUCT DESCRIPTION

### 3.1 - GENERAL DESCRIPTION

The ATI-1503-4L 4-Channel Annunciator Unit is designed to interface with the 4-level ATI-5020 Liquid Level Probe with N/O (Normally Open) contacts. Provides four (4) points or levels of alarm indications for the sensor as shown in FIGUREs 1 and 2:

#### 3.1.1 - EXTERNAL FEATURES

Refer to FIGURE 1 for the following.

- |                             |  |
|-----------------------------|--|
| 1. POWER INDICATOR          | Power is indicated by a green LED.   |
| 2. ALARM INDICATORS         | Alarm points or levels are indicated by 2 Red, one Yellow and one Green LEDs.                |
| 3. AUDIO ALARM (BUZZER)     | The buzzer is activated by an alarm condition on the associated channel (see section 2.1.1). |
| 4. BUZZER DISABLE SWITCH    | A buzzer DISABLE switch is provided to silence the buzzer.                                   |
| 5. BUZZER DISABLE INDICATOR | An Amber LED lights when buzzer is disabled.   |
| 6. FRONT PANEL LATCH        | 1/4 turn cover latch allows easy internal access.  |

#### 3.1.2 - INTERNAL FEATURES

Refer to FIGURE 2 for the following.

- |                             |   |
|-----------------------------|---|
| 7. MOUNTING HOLES           | For the convenience of mounting the monitor on any flat surface.  |
| 8. POWER TERMINALS          | For connection of 120VAC external power & Ground.   |
| 9. TRANSFORMER              | A Class-2 transformer supplies power to the unit.   |
| 10. SENSOR TERMINAL BLOCK   | For connecting one 4-level sensor with N/O contacts.  |
| 11. RELAYS                  | There are 4 off-board relays for level indication and/or alarms (one per channel). Channels 2 & 3 relays are configured as Latch/Release and activate a 5th relay to operate external equipment (i.e.: pump). |
| 12. RELAY CONTACT TERMINALS | For connection of external alarm or electrical devices to the relay contacts.   |

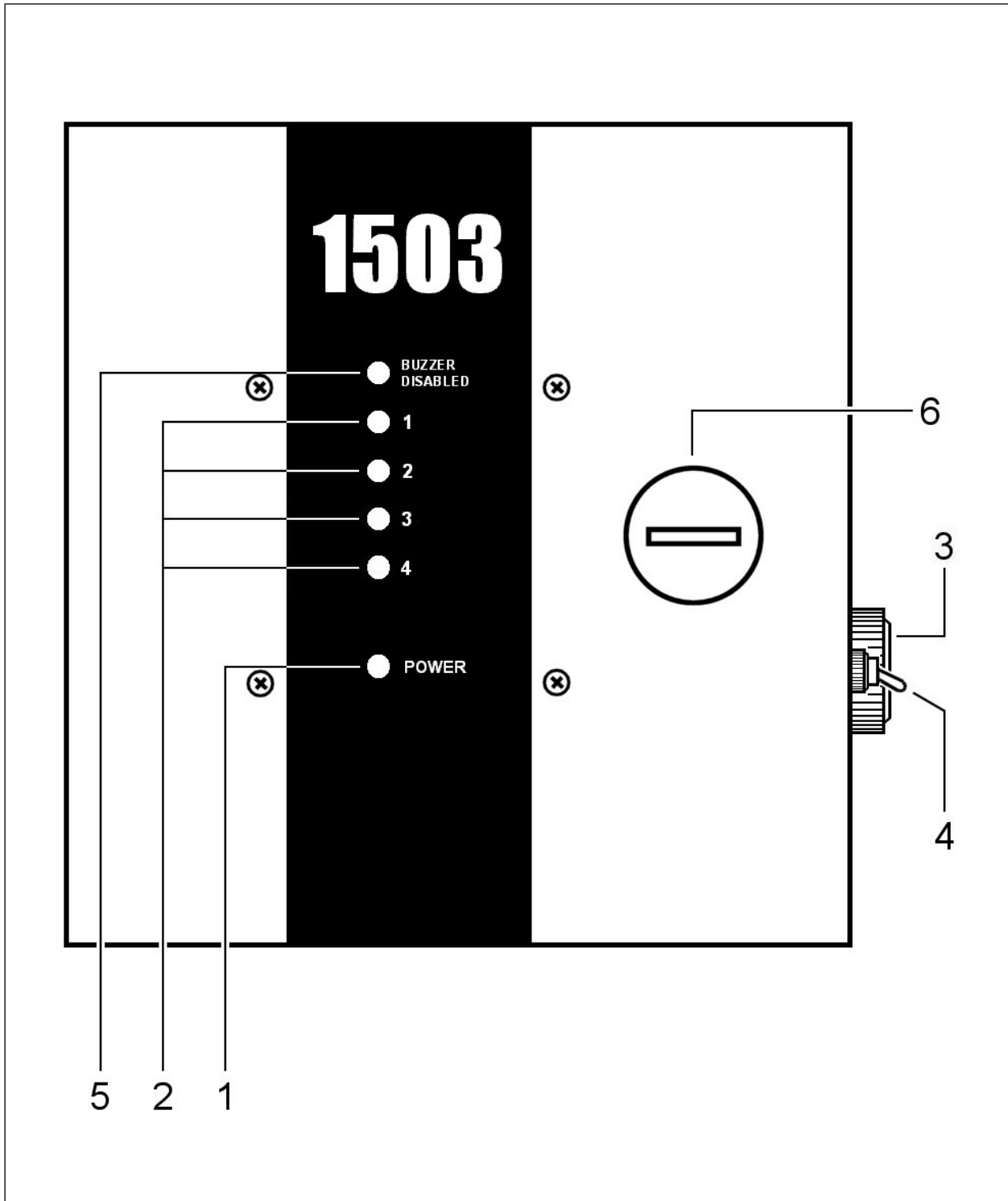


FIGURE 1: External features of the ATI-1503-4L annunciator unit.

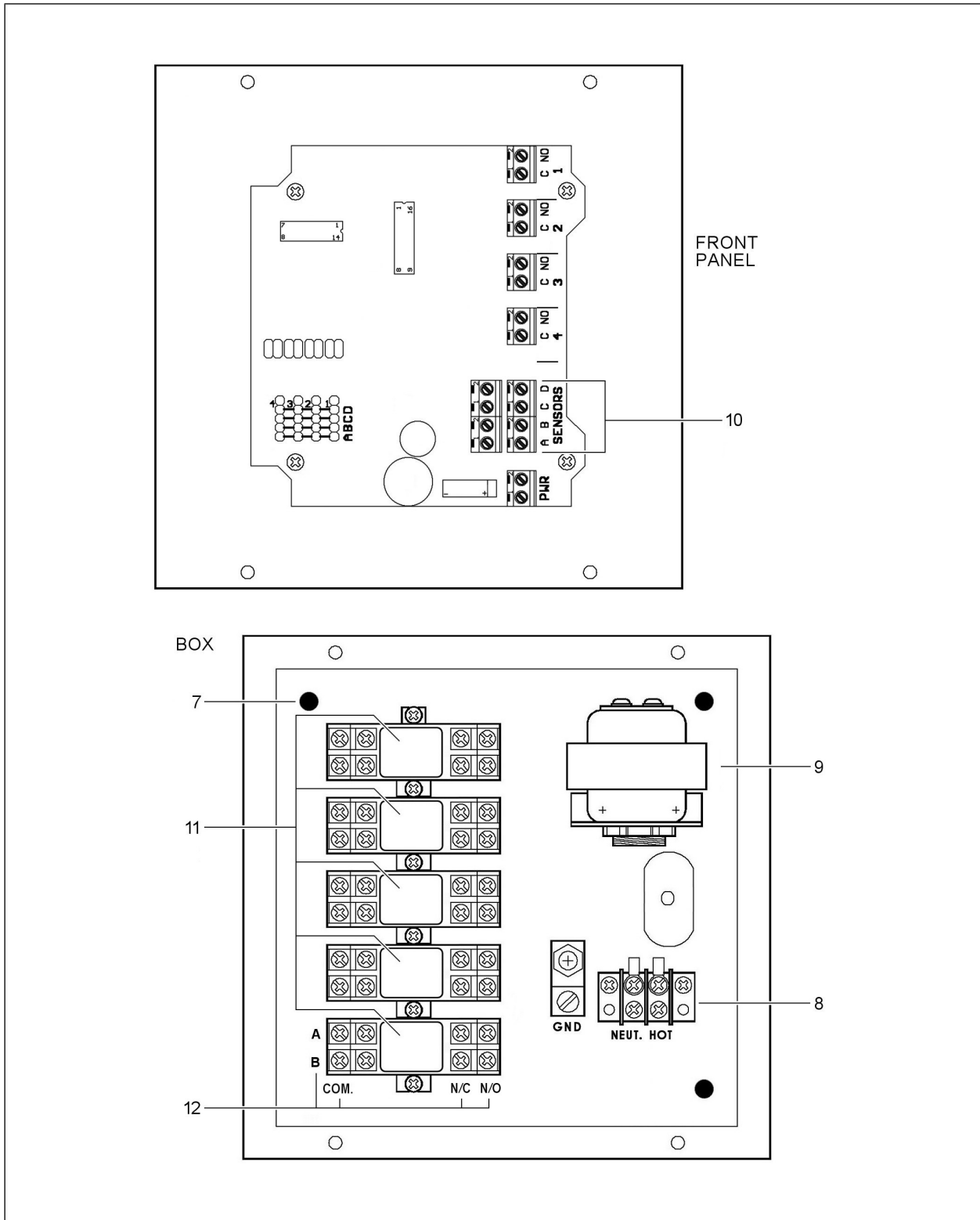


FIGURE 2: Internal features and relay contacts of the ATI-1503-4L annunciator.

## 4 - INSTALLATION

### 4.1 - LOCATION AND MOUNTING

Care should be taken to securely fasten the monitor (via the mounting brackets provided) to a solid, vertical, non-vibrating surface or structure. Position the monitor right side up in the desired location, mark the four (4) holes, then remove the monitor to drill the mounting holes.

**CAUTION: All cable entry MUST BE through the BOTTOM of the monitor enclosure only. Other entry locations will allow foreign materials to enter the enclosure, causing possible damage to the internal components. The proper method of installation and use of approved mounting hardware and sealing fittings is highly recommended to ensure sound and durable installation.**

Mount the monitor in a NON-HAZARDOUS area (e.g. manager's office, control room) where the unit can be observed periodically. Mount the sensors in the appropriate locations for the detection of water according to the local municipal, provincial, state and/or federal regulations. Refer to the suggested application drawing(s) supplied with the sensors.

### WARNING

- ALL cables MUST pass through conduit seals installed between the hazardous (Class I, Division 1 or 2) and non-hazardous areas, for safety reasons and to comply with the local municipal, provincial, state, or federal electrical regulations.
- For ULI only (U.S.) follow the National Electrical Code (NFPA 70) and the automotive & Marine Service Station Code (NFPA 30A).

### 4.2 - WIRING THE SYSTEM

For maximum noise rejection, cable shields and metal conduits should be grounded at the annunciator unit. A cable size of 20 or 22 AWG is recommended for wiring the sensors.

**POWER SUPPLY**            The monitor operates on a 120 VAC supply. Connections are made to the power terminal block located on the control card inside the unit (see FIGUREs 2 and 3).

**RELAYS**                    There are 5 internal DPDT relays (one per channel + one for user's equipment). The relay contacts are rated up to 15 Amps @ 120VAC/30VDC or 10 Amps @ 250VAC resistive. External alarms or devices can be connected to the relay contact terminals (see FIGURE 2). See FIGURE 4 for field wiring of the latching relay for external equipment.

Refer to Section 2 for system configuration.

**SENSOR**                    The sensor probe connects to terminal blocks on the circuit board, using an 8-conductor shielded cable (see FIGURE 3).

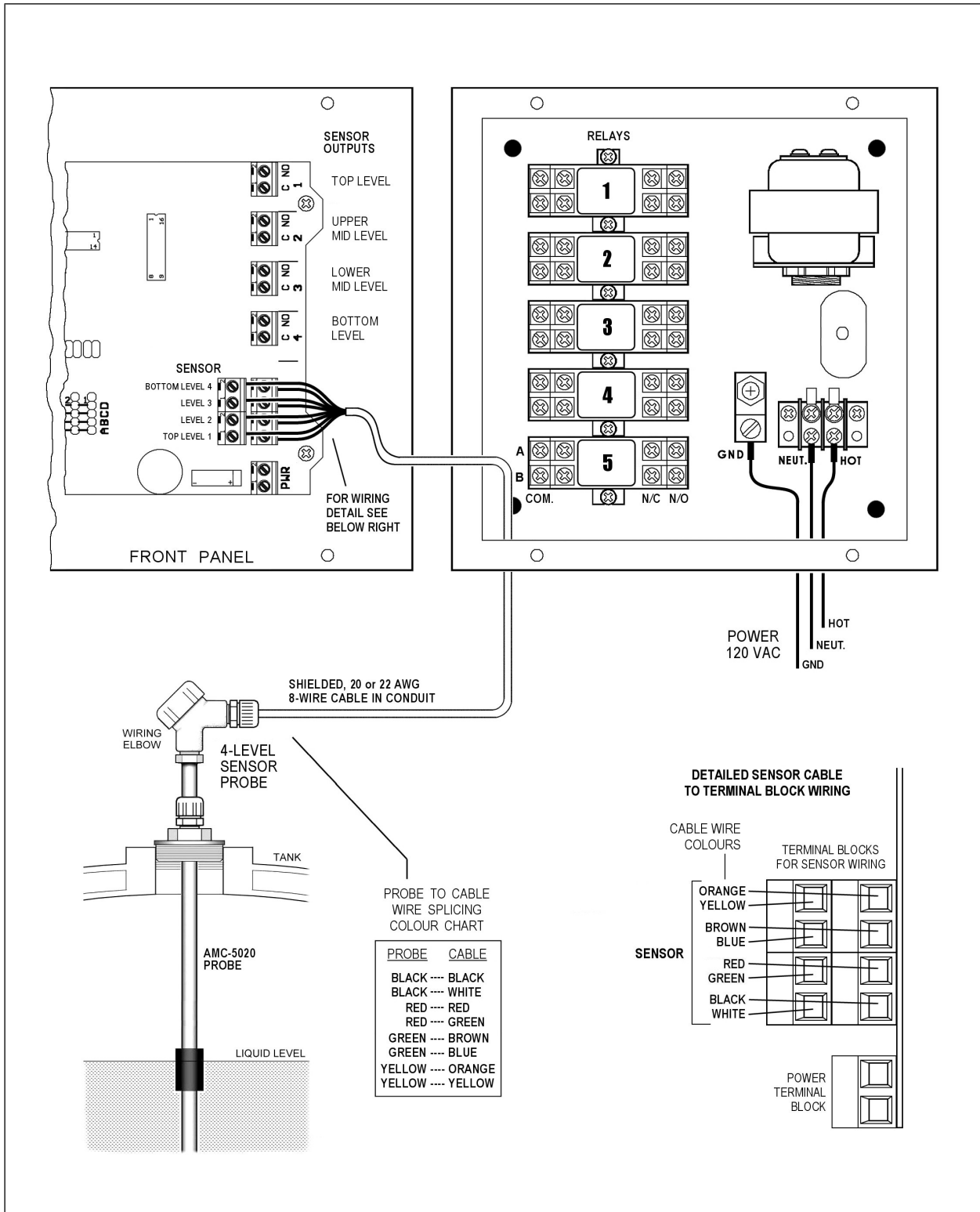
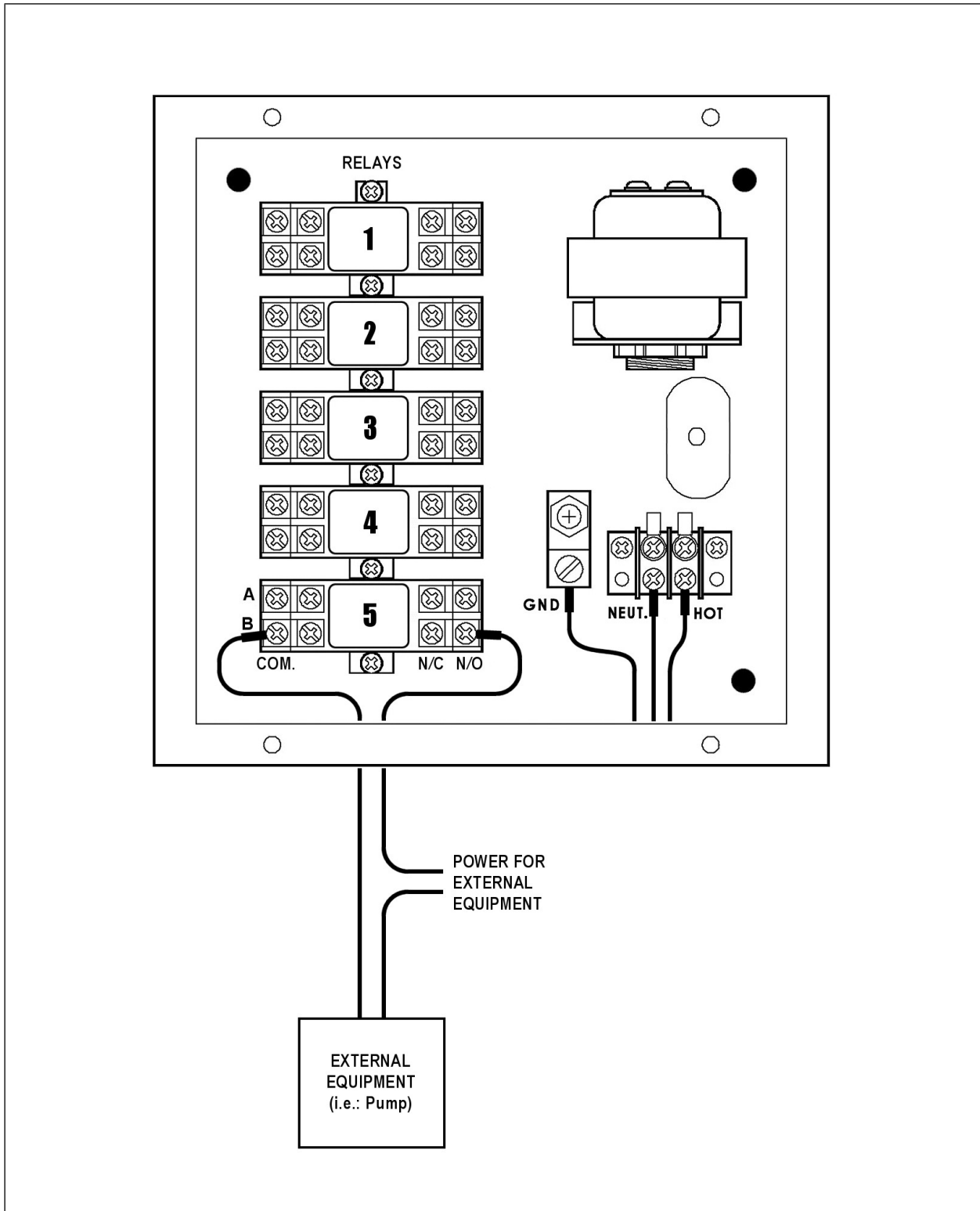


FIGURE 3: Wiring & connections for 120VAC power and one 4-level probe.



**FIGURE 4: Field wiring of latching relay for external equipment.**

## 5 - OPERATION

**BEFORE switching on the main power, MAKE SURE that all connections are secure.**

When the 120 VAC supply is switched on, the green power LED will light.

### 5.1 - ALARM ACTIVATION

If an alarm condition occurs when the liquid reaches a preset level, it will activate the LED and relay for that channel or level. For a channel or level configured with audio alarm, it will activate the LED, relay and also the audio alarm.

#### Note:

**Channels 2 and 3 work in conjunction to provide the Latch and Release functions which operate the fifth relay.**

### 5.2 - AUDIO ALARM DISABLE

When an alarm condition occurs, the audio alarm can be shut off by toggling the switch, located directly beside the buzzer. This will activate the buzzer disable LED, which will remain ON until the switch is toggled again to enable the buzzer.

#### Note:

**If an alarm condition occurs while the buzzer is disabled, the buzzer will not sound, only the alarm LED (for the active channel or level) will light.**

## 6 - PREVENTIVE MAINTENANCE

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

### 6.1 - VERIFY OPERATION

To verify the operation of the monitor and sensors, make sure that they are responding to the liquid leaks and/or levels. This test should be performed regularly.

### 6.2 - TROUBLESHOOTING

#### BEFORE POWER-UP:

Check all connections.

#### WHAT TO DO:

Verify that all the sensor and relay connections are properly made and power supply polarity is correct.

#### ON POWER-UP:

Nothing happens.

#### WHAT TO DO:

Verify that the power supply is properly connected.  
Verify that the main AC power has been switched on.

Some Alarm LEDs remain ON.

Check sensor location for possible alarm condition.

Check continuity of sensor wiring. (Refer to SYSTEM CONFIGURATION, section 2.1.1)

All the LEDs are OFF.

No AC power, check connections and verify for correct voltage at the power terminals.

Relays operate auxilliary equipment incorrectly.

Verify that the auxilliary equipment is connected to the correct relay contact (N/O, N/C) for the application. (See section 4.2)

IF YOU HAVE ANY OTHER UNEXPLAINED PROBLEMS, PLEASE CONTACT THE CUSTOMER SERVICE DEPARTMENT AT ARMSTRONG TECHNOLOGIES INC.