AMC-RAM3

Remote Alarm Module

Application Note: 3219405A

IMPORTANT:

Please read these instructions completely and carefully before installing and operating of this equipment.

filename: 3219405A2 AMC RAM 3 Application Note.doc
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NOTE

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1 WARRANTY

The AMC-RAM3 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, EXPRESS OR IMPLIED, AND SPECIFICALLY THE WARRANTIES OF MERCHANTABLITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH 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.

2 Introduction

The AMC-RAM3 provides a remote alarm indication when employed with monitors, such as the AMC1400, AMC1800 and AMC Gas Monitor 1A, from the Armstrong Monitoring Corporation. The AMC-RAM3 is a remote audio/visual alarm module, and is to be mounted in a location where it is visible to anyone occupying the room. The mounting height for the AMC-RAM3 should be such that the beacon is at or slightly above eye level and the acknowledge switch is accessible.

An acknowledge switch is provided to silence the audio alarm of the AMC-RAM3.

A red strobe light is provided as a visual indicator. The strobe light remains active until the alarm is cleared.

The Audio alert is provided by a buzzer which emits a 2900hz tone at in excess of 90 dB(A) (at 24 inches). The audio alert is activated upon entry into alarm and is silenced by either pushing the acknowledge switch or clearing the alarm.

The AMC-RAM3 employs a water resistant (NEMA 4X) molded fibreglass enclosure.

A terminal block is provided for terminating the field wiring between the AMC-RAM3 and the monitor.

The AMC-RAM3 requires a power source which provides 13.5V to 35V, 225 mA.

3 References

Document Number	Document Name
---	Manual_amc1800_standard.doc
3093405A	AMC1400 Multi-Channel Monitor
3132405B	AMC1A1 Gas Monitor
3113405B	AMC1A2 Gas Monitor

4 Glossary

AMC	Armstrong Monitoring Corporation
AMC1800	A product manufactured by AMC, monitor with modular I/O cards that supports up to 64 sensors (in increments of 8)
RAM	Remote Alarm Module
AMC1400	A product manufactured by AMC, monitor that supports up to 4 sensors and up to 16 relays.
GAS Monitor 1A	A product manufactured by AMC, monitor that supports up to 2 transmitter interfaces and up to 5 relays.

5 Configuration

The AMC-RAM3 does not provide any user configurable items.

6 Applications

The AMC-RAM3 may be employed with any of Armstrong Monitoring Corporation's family of monitors.

6.1 Distance between Monitor/Power Supply and AMC-RAM3

The workable distance between the monitor and the AMC-RAM3 is a function of the following;

- ⇒ Power Supply voltage
- ⇒ Wire gauge
- ⇒ AMC-RAM3 load current

The Monitor power supply is generally fixed, based upon Monitor type;

- ⇒ 24V for AMC1400 or AMC1800
- ⇒ 19V to 22V for AMC Gas Monitor 1A

If/When and external power supply is employed to power the AMC-RAM3, then the power supply output must be between 13.5V and 35V, typically 24VDC. Use the Power supply voltage output and the wire gauge, with the graph below to determine the maximum distance between the AMC-RAM3 and the power supply.

		Power Supply (V)										
		13.5	**15.65**	**17.8**	**19.95**	**22.1**	**24.25**	**26.4**	**28.55**	**30.7**	**32.85**	**35**
Wire Gauge (AWG)	**12**	0	2,810	5,621	8,431	11,242	14,052	16,863	19,673	22,484	25,294	28,105
	14	0	1,838	3,675	5,513	7,350	9,188	11,026	12,863	14,701	16,538	18,376
	16	0	1,138	2,275	3,413	4,550	5,688	6,825	7,963	9,101	10,238	11,376
	18	0	724	1,448	2,172	2,896	3,620	4,343	5,067	5,791	6,515	7,239
	20	0	455	910	1,365	1,820	2,275	2,730	3,185	3,640	4,095	4,550
	22	0	284	569	853	1,138	1,422	1,706	1,991	2,275	2,560	2,844
	24	0	175	350	525	700	875	1,050	1,225	1,400	1,575	1,750

Table 6-1 Distance Chart (ft): Power Supply vs Wire Gauge

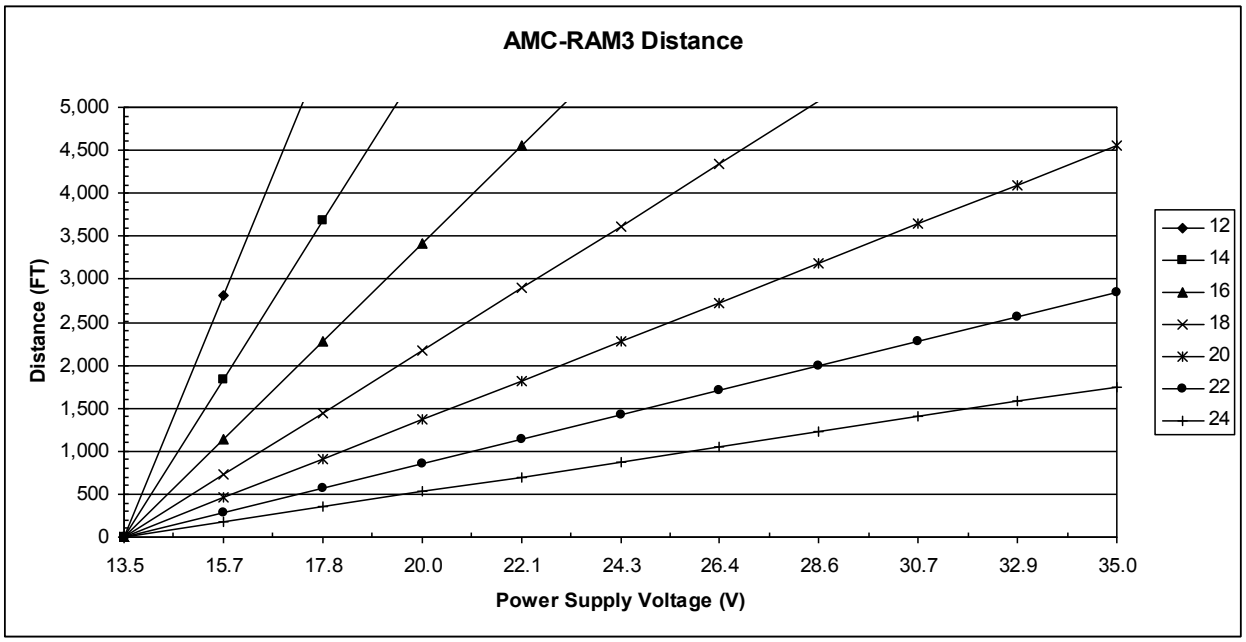

Figure 6-1 Distance Graph (ft): Power Supply vs Wire Gauge

6.2 AMC1400

When the AMC-RAM3 is connected to the AMC1400:

- ⇒ It is typically powered by the AMC1400.
- ⇒ Power to the AMC-RAM3 is switched through an alarm relay within the AMC1400.
- ⇒ The AMC1400 is configured to activate the relay upon detection of an Alarm condition.
- ⇒ The AMC-RAM3 can also be switched through individual channels or events by connecting to the desired relays.
- ⇒ Always consult your AMC1400 manual for proper configurations as the examples show are for standard configurations, which may or may not be applicable.

6.2.1 CONNECTING THROUGH ALARM RELAY

The AMC1400 is equipped with an onboard Alarm Relay, which is activated whenever any programmed alarm condition is met.

Note: if the audio disable DIP switch is selected the Alarm Relay will be inactive

Figure 6-2 shows the necessary wiring to connect the AMC-RAM3 to an AMC1400.

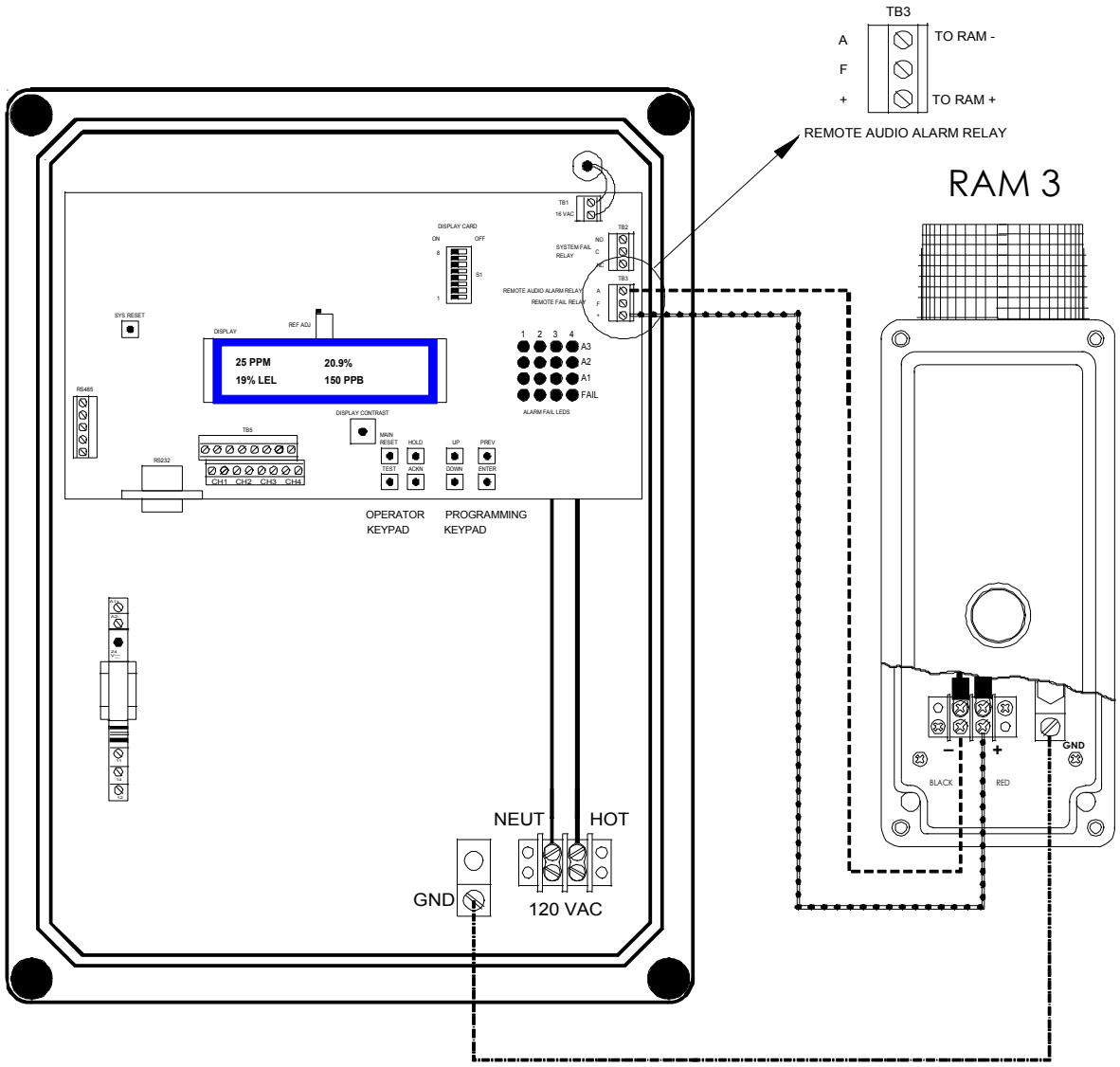

Figure 6-2 AMC1400 Alarm Relay wiring

6.2.2 CONNECTING THROUGH CHANNEL RELAYS

It might not always be convenient to have an AMC-RAM3 activate whenever any alarm for every channel is detected. Alternatively you can individually connect the AMC-RAM3 to whichever relay you desire. Figure 6-3 shows how to connect an AMC-RAM3 through a desired relay.

Note: If several AMC-RAM3's are employed check load requirements, as an external power source could be required.

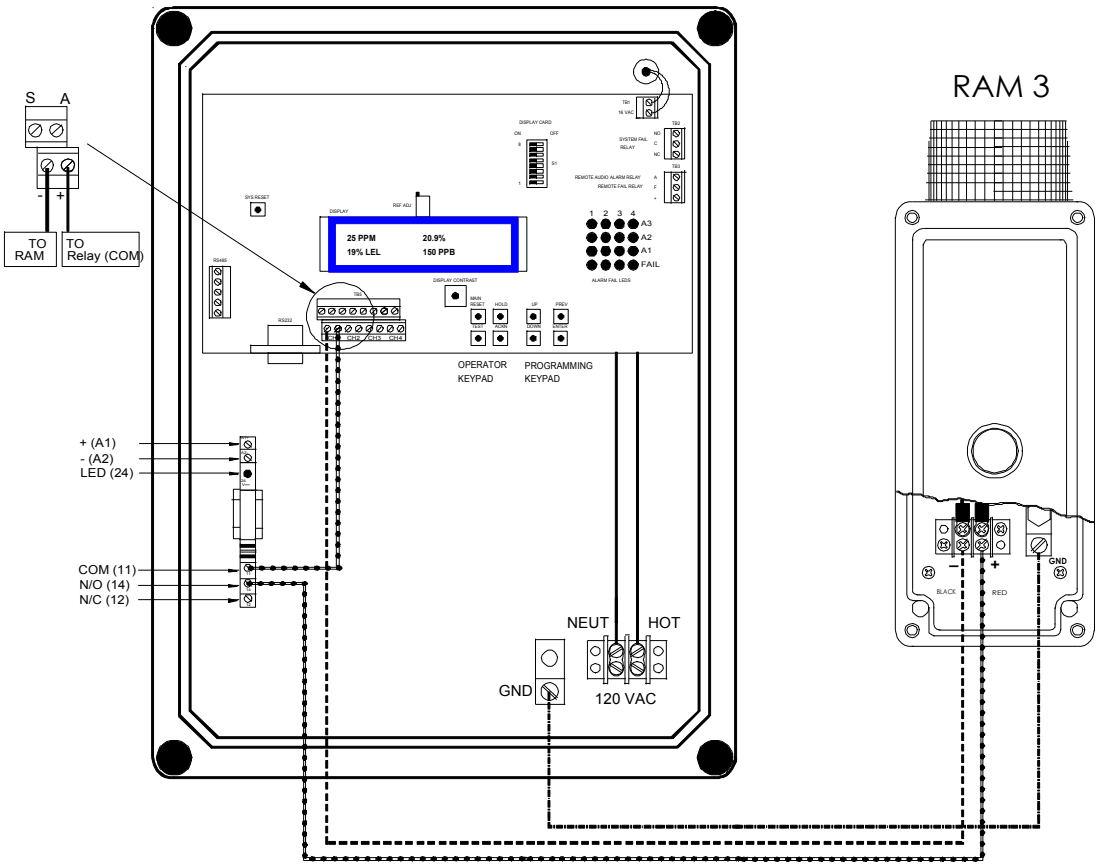

Figure 6-3 AMC1400 Channel Relay wiring

6.3 AMC1800

When the AMC-RAM3 is connected to the AMC1800:

- ⇒ It is typically powered by the AMC1800.
- ⇒ Power to the AMC-RAM3 is switched through an alarm relay within the AMC1800.
- ⇒ The AMC1800 is configured to activate the relay upon detection of an Alarm condition.
- ⇒ The AMC-RAM3 can also be switched through individual channels or events by connecting to the desired relays.
- ⇒ Always consult your AMC1800 manual for proper configurations as the examples show are for standard configurations, which may or may not be applicable.

6.3.1 CONNECTING THROUGH ALARM RELAY

The AMC1800 is equipped with an onboard Alarm Relay, which is activated whenever any programmed alarm condition is met.

Note: if the audio disable DIP switch is selected the Alarm Relay will be inactive

Figure 6-4 shows the necessary wiring to connect the AMC-RAM3 through the alarm relay on an AMC1800.

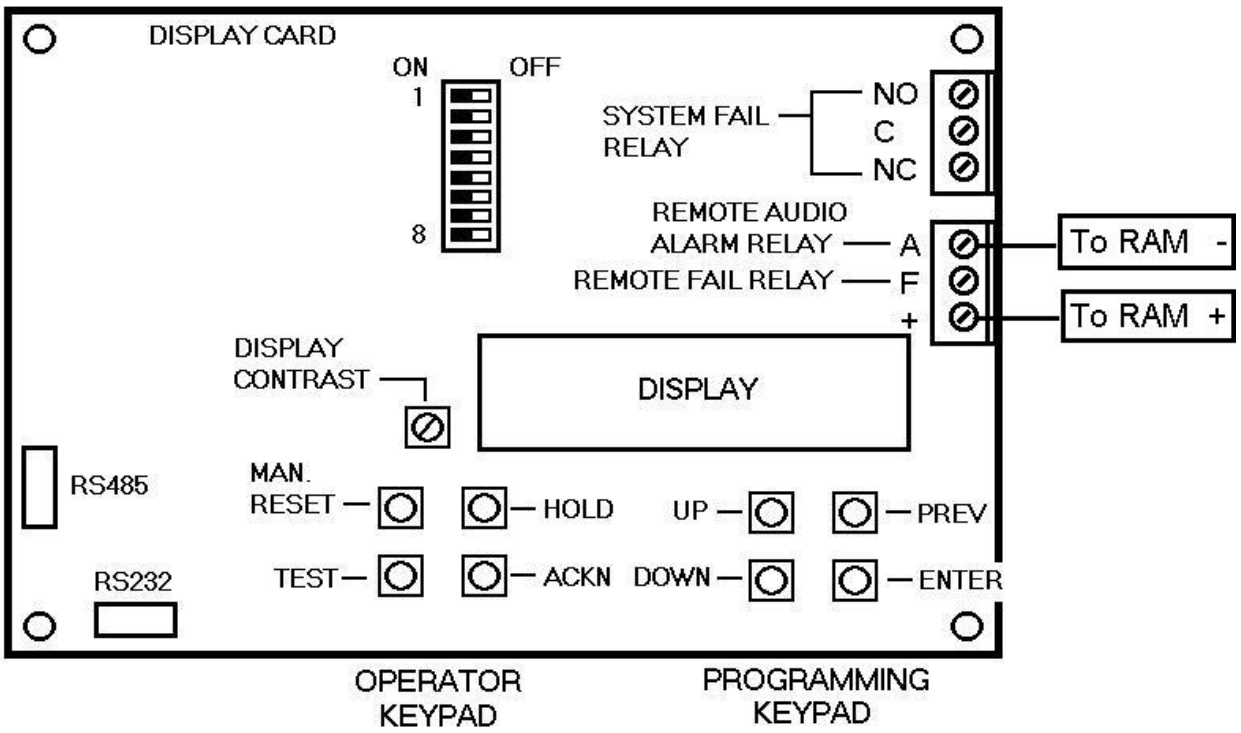

Figure 6-4 AMC1800 Alarm Relay wiring

6.3.2 CONNECTING THROUGH CHANNEL RELAYS

It might not always be convenient to have an AMC-RAM3 activate whenever any alarm for every channel is detected. Alternatively you can individually connect the AMC-RAM3 to whichever relay you desire. Figure 6-5 shows how to connect an AMC-RAM3 through a desired relay.

Note: If several AMC-RAM3's are employed it's recommended to use an external power supply

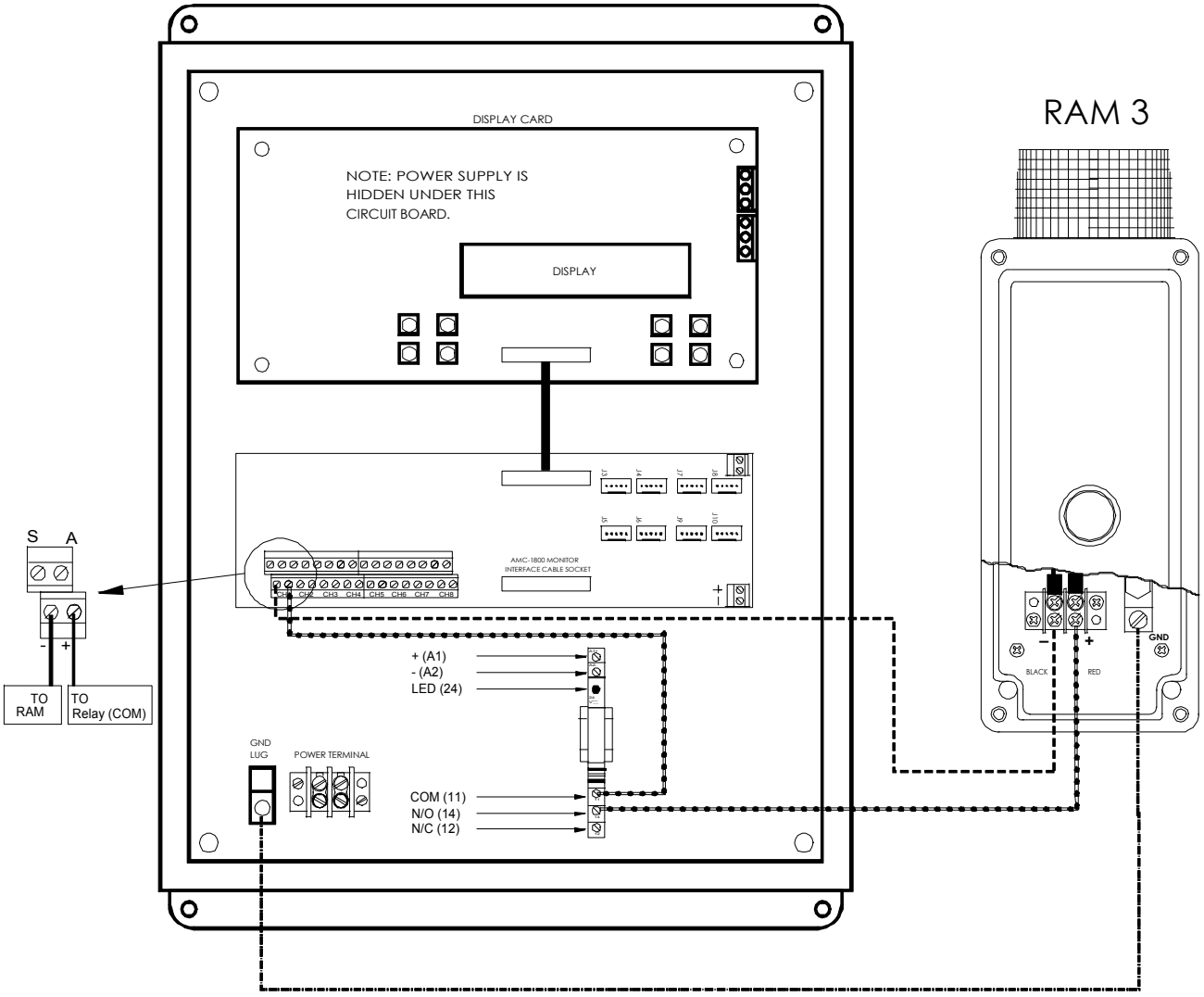

Figure 6-5 AMC1800 Channel Relay wiring

6.4 AMC Gas Monitor 1A

When the AMC-RAM3 is connected to the AMC Gas Monitor 1A;

- ⇒ It is typically powered by the AMC Gas Monitor 1A.
- ⇒ Power to the AMC-RAM3 is switched through an alarm relay within the AMC Gas Monitor 1A.
- ⇒ The AMC Gas Monitor 1A is configured to activate the relay upon detection of an Alarm condition.
- ⇒ Wiring assembly AMC-RAM-1A-WH is required to interconnect the AMC-RAM3 to the Gas Monitor 1A assembly.

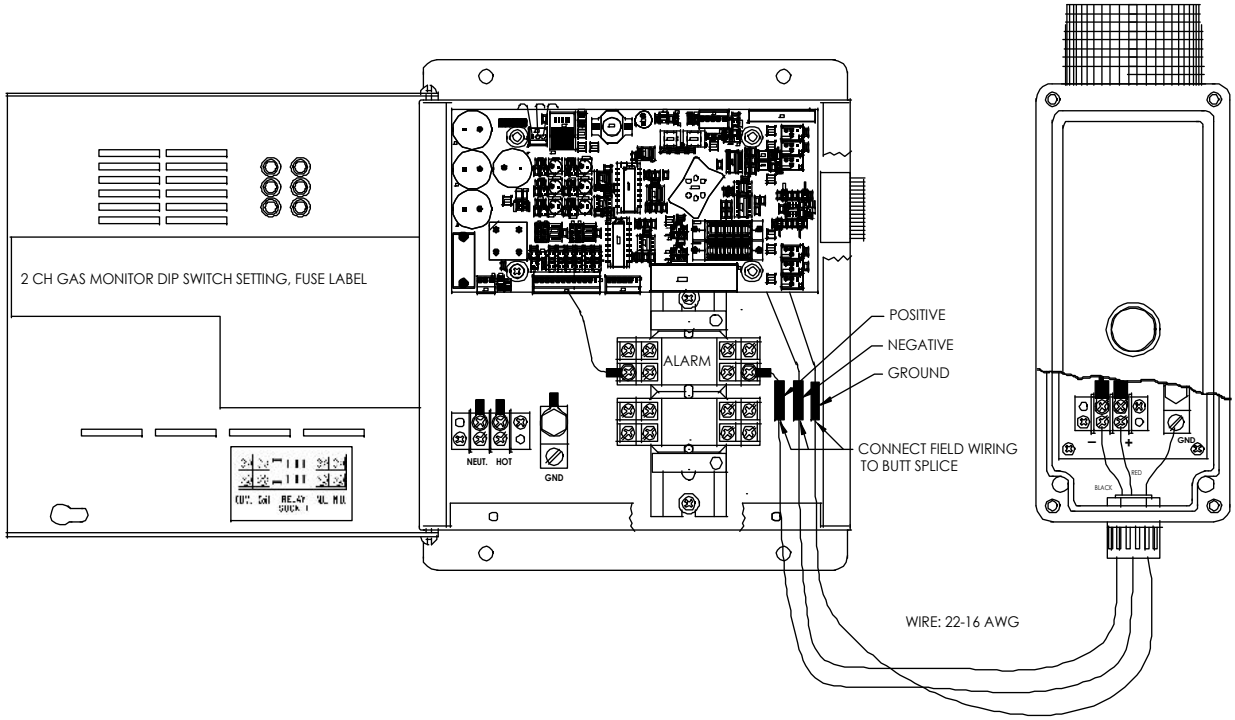

Figure 6-6 RAM3 to Gas Monitor 1A wiring

6.5 VersaTox with Relay

Some transmitters offer the feature of an onboard output relay which closes upon an alarm condition, such as gas concentration exceeding alarm thresholds. VersaTox with relay is one such transmitter. This transmitter, with an appropriate power source (such as an external power supply or monitor) can switch power on to the AMC-RAM3 when the alarm conditions exist. The drawing below provides the wiring for this example.

Notes:

⇒ The VersaTox relay must be strapped for "normally Open"

⇒ Observe that the POSITIVE connects to both TB1 and TB2 in the diagram.

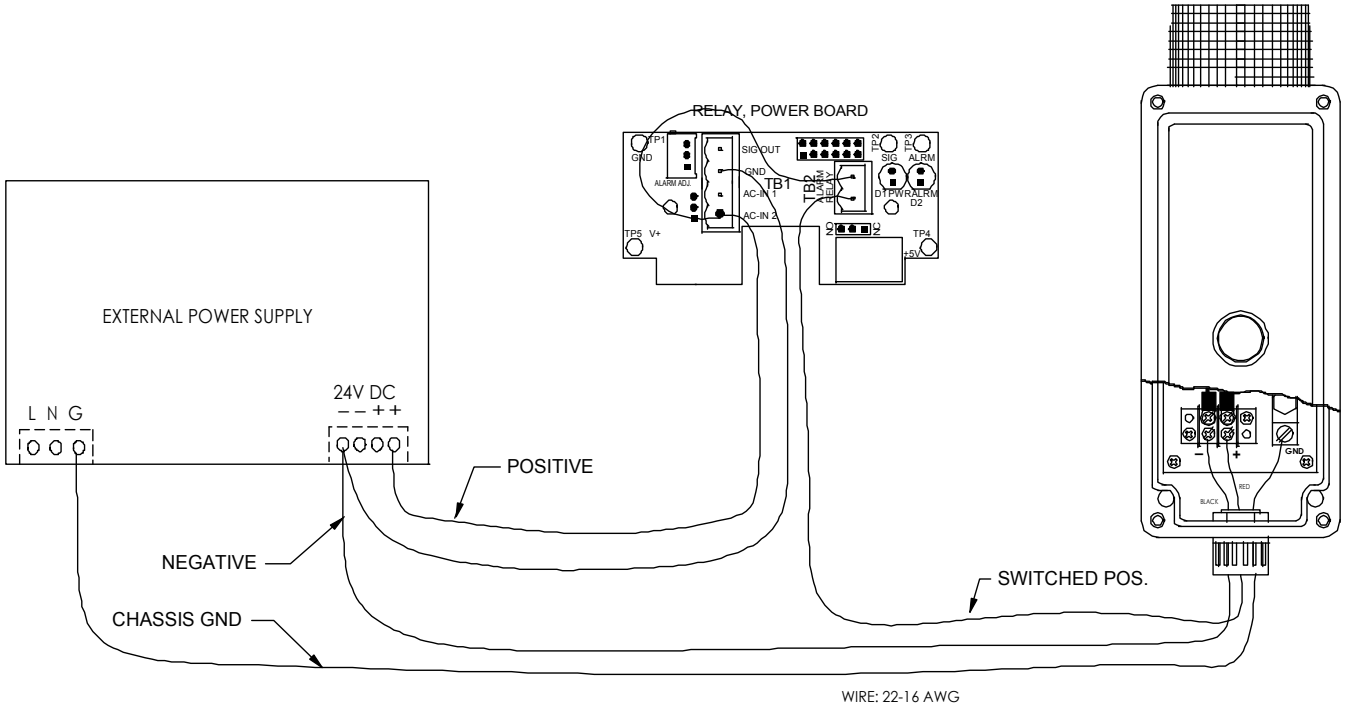

Figure 6-7 RAM3 to VersaTox wiring

6.6 External Power Supply

External power supplies may be employed to supplement the power supplies built into the Armstrong Monitoring Corp.'s monitors. External power supplies are used when the total current required by the system (monitor, transmitters, AMC-RAM3, etc.) exceeds the capability of the power supply which is integral to the monitor.

When the AMC-RAM3 is connected to an external power supply;

⇒ Power to the AMC-RAM3 is switched through an alarm relay within the monitor.

⇒ The monitor is configured to activate the relay upon detection of an Alarm condition.

⇒ Consult your User Manual for proper relay wiring.

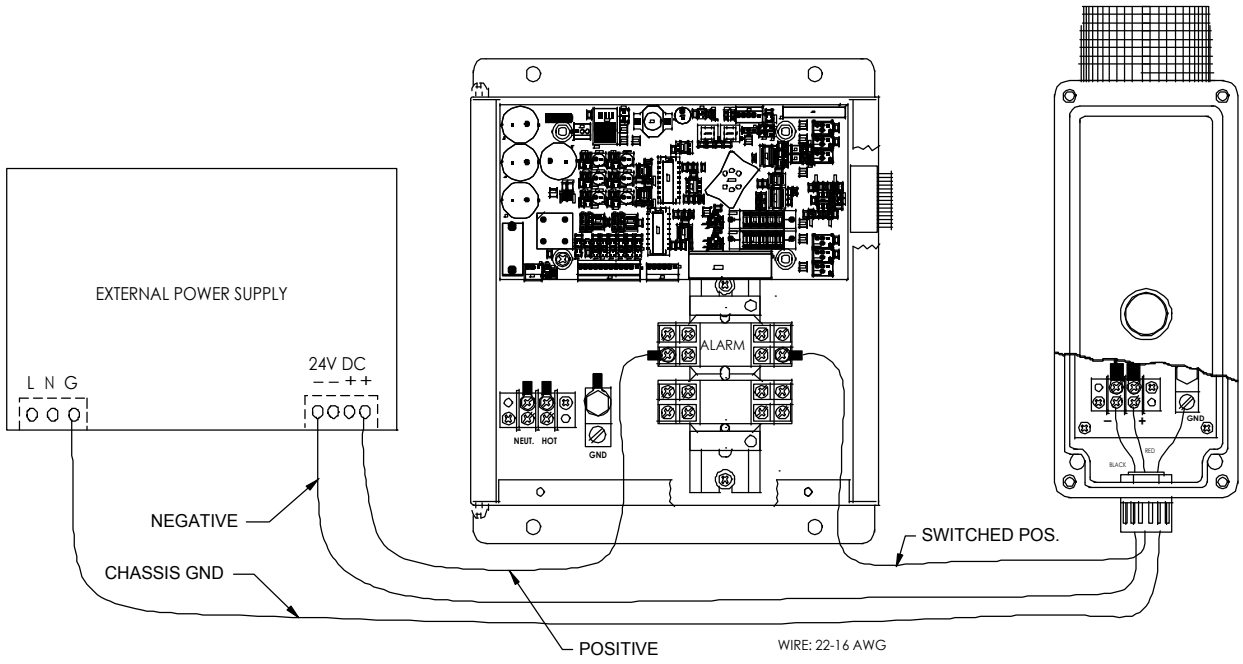

Figure 6-8 RAM3 wiring for external power supply

6.7 Multiple RAM3 Modules

When more than one AMC-RAM3 is required, they may be connected in parallel with each other.
Caution: Ensure that the power supply is large enough to power all devices!
Note: The Acknowledge switch will only silence the local AMC-RAM3, not all AMC-RAM3s

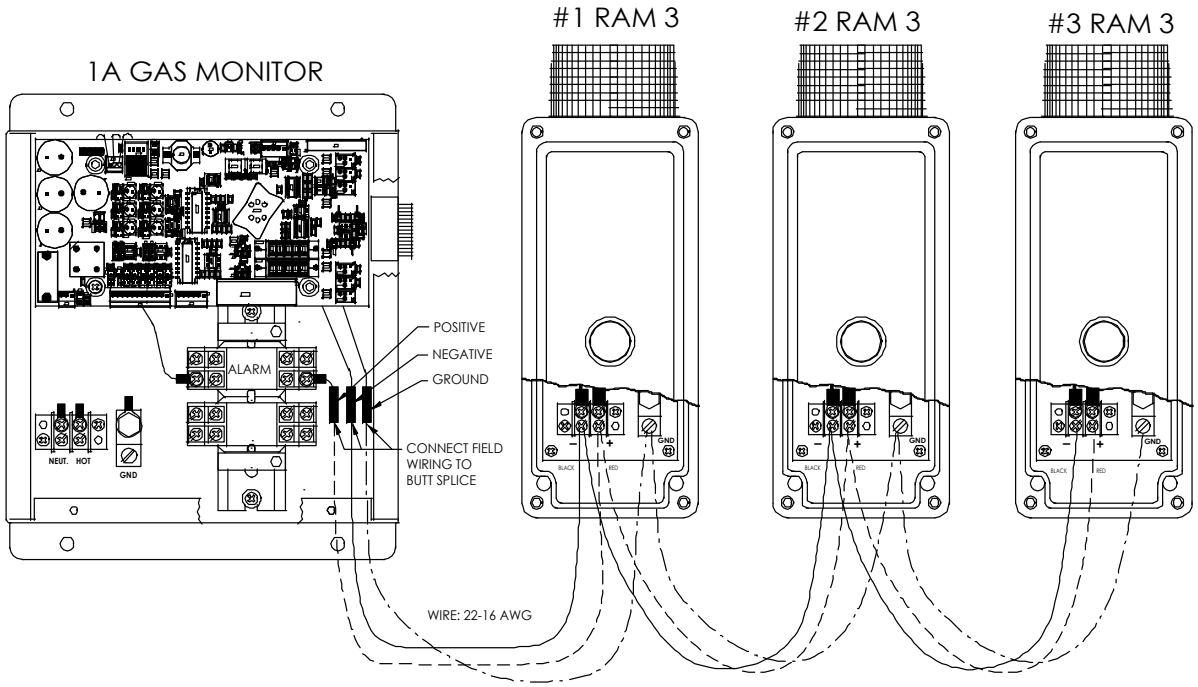

Figure 6-9 Multiple RAM3 wiring

6.8 Multiple Monitors

Circumstances may dictate that theAMC-RAM3 may be activated from one of several sources, as shown in the diagram below;

- ⇒ Only one power supply is to power the AMC-RAM3.
- ⇒ The alarm relays on the additional monitors are wired in parallel with the alarm relay on the primary monitor.
- ⇒ Consult your User Manual for proper relay wiring.

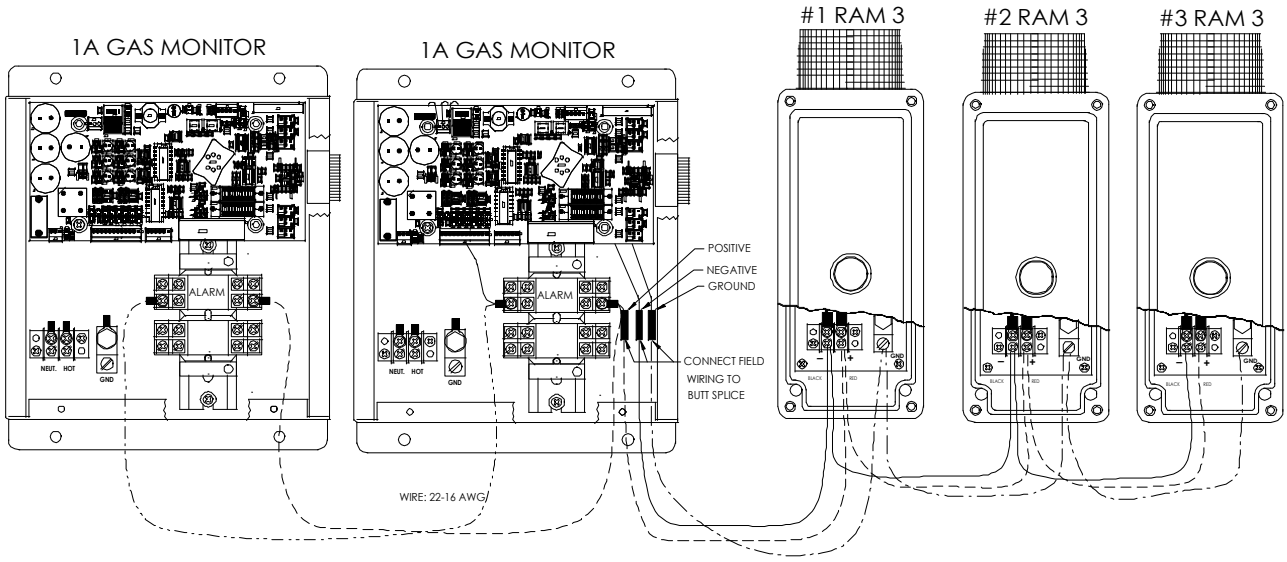

Figure 6-10 RAM3 wiring for multiple monitors