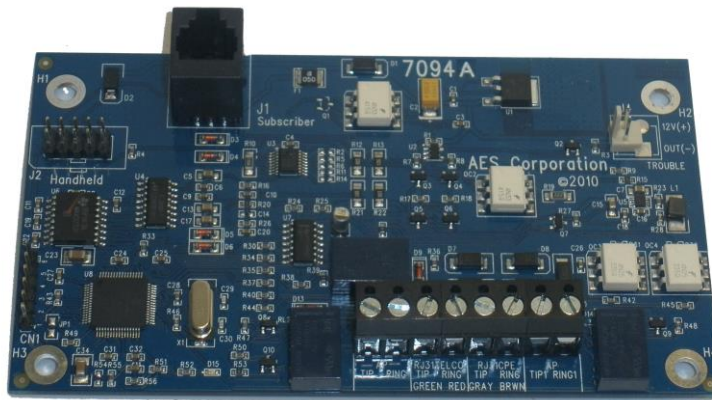# AES 7094A IntelliPro

Installation, Operation and Programming Manual

AES Corporation

285 Newbury Street

Peabody, MA 01960 USA

Tel (978) 535-7310 • Fax (978) 535-7313

www.aes-corp.com

Table of Contents

List of Tables

List of Figures

1. Summary

This document describes the installation procedure for the AES 7094A IntelliPro module used with the AES 7007 Subscriber in commercial Security Alarm Control Panel installations.

Installed between the alarm panel and the AES 7007 Subscriber, the 7094A intercepts alarm panel messages and sends them to the monitoring station via the AES 7007 Security Subscriber Unit.

Important! The 7094A IntelliPro and Subscriber must be connected to the panel within the same room and in no more than 30 feet of conduit.

1.1 Basic Functions

The 7094A is a dialer capture module with monitoring capabilities, as well as full emulation of the POTS telephone line for incoming data sent from the security panel. The 7094A can intercept the phone line connection at different states of the call if the intercept number matches the number being dialed.

1.2 User Interface

Programming is done using a web browser interface through the AES Model 7007 Security Subscriber. Refer to the 7007 Installation Manual, AES P/N 40-7007.

1.3 System Knowledge Requirements

This document assumes that the user knows how to set the AES subscriber unit account number, cipher, and other configuration settings as well as how to operate the AES MultiNet software environment including IPCtrl and automation.

Security Alarm Control Panel Telco Interface Requirements

With the 7094A IntelliPro used as the sole path communicator, only one telephone line connection to the alarm panel is required.

Note: The 7094A can provide voltage to the TIP and RING telephone line connections if they are connected as shown in **Figure 5 Alarm Panel Connections** on page 10.

1.4 Safety Considerations

As part of the 7094A installation, the following safety considerations should be kept in mind:

- Install all equipment in accordance with the National Electric Code, National Security Protection Association NFPA 70, NFPA 72, and local building codes.

- Test this system periodically for proper operation. AES assumes no responsibility for this equipment's failure to operate. AES's sole responsibility is to repair or replace any AES device found to be defective during the warranty period.

- Avoid dropping or other physical impact which could damage the card or card components.

Warning!   Do **NOT** install the 7094A unit during a lightning storm.

1.5   Technical Specifications

SIZE: 5 in. x 2 3/4 in. (12.7 cm x 6.9 cm)

WEIGHT: 0.3 pound (0.14 kilogram)

POWER INPUT: Power supplied from AES Model 7007

VOLTAGE: 12 VDC nominal

CURRENT: 350 mA nominal; 160 mA standby

FUSE: Onboard self-resetting. Not user serviceable

OPERATING TEMPERATURE RANGE: 0° to 49°C (32° to 120°F)

STORAGE TEMPERATURE RANGE: −10° to 60°C (14° to 140°F)

RELATIVE HUMIDITY RANGE: 0 to 93% RH, non-condensing

Important!   The 7094A IntelliPro and Subscriber must be connected to the alarm panel within the same room and in no more than 30 feet of conduit.

2. Installation of 7094A

2.1   Equipment List

The 7094A IntelliPro includes the following items:

- 7094A IntelliPro
- AES RJ11 cable   1 each   AES P/N 13-0395
- Hex standoffs hardware
- Hex nuts w/lock washer   4 each
- Plastic washers   2 each

2.2   Installation

1. Remove hex nuts from mainboard standoffs. Place hex standoffs on mainboard in four places shown in the photo below. Do not overtighten the standoffs.
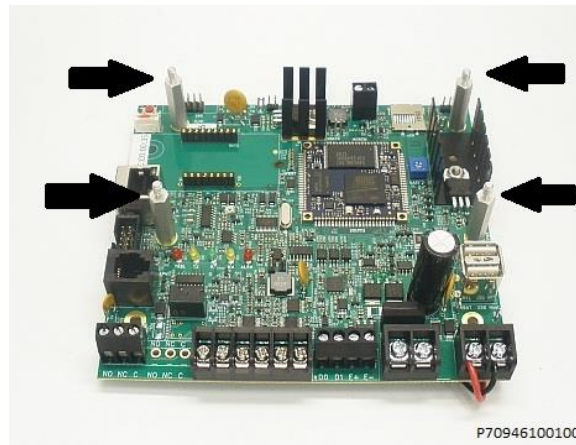
Figure 1.   Hex Standoff Placement Locations

2. Place the 7094A on top of the installed standoffs installed in Step 1. as shown in the photo below:
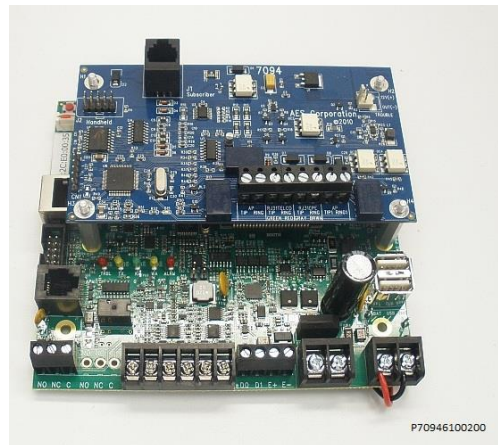
Figure 2.   7094A Placement on Hex Standoffs

3. Install plastic washers (P/N 09-7X94) over mounting holes H1 and H3 on the 7094A.

4. Place hex nuts over the washer on the standoffs to secure the board. Do not overtighten hex nuts.

Important!	The 7094A IntelliPro and Subscriber must be connected to the alarm panel within the same room and in no more than 30 feet of conduit.

3. Communication Interface

Figure 3 below shows connector and diagnostic LED location on the 7094A.
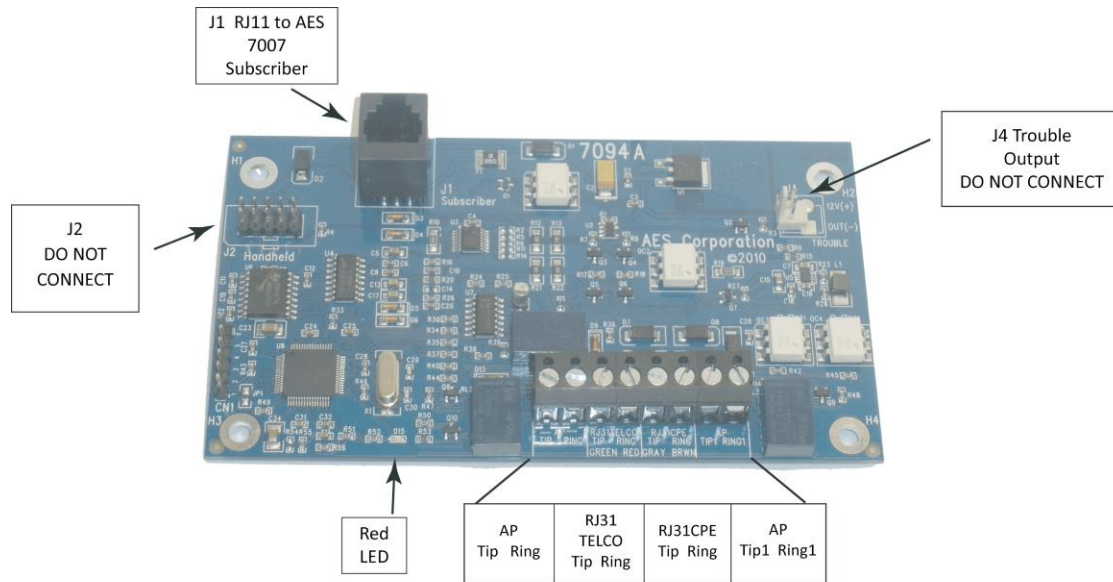
Figure 3.   Connector and LED Locations

3.1   Connecting the 7094A to Alarm Panel

The diagram below displays the Security Alarm Control Panel connected to the 7094A (AP TIP and AP RING).
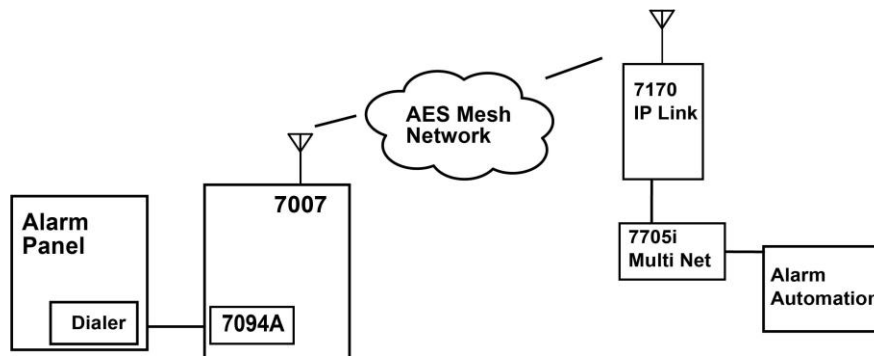
Figure 4.   7094A to Alarm Panel - Dialer

The Alarm Panel Dialer is connected to the 7094A. The 7094A intercepts and sends messages to the Central Station receiver.

3.2   Connection Details – 7094A to Alarm Panel Dialer

Connection from the alarm panel to the 7094A is provided in the instructions below:

1. Connect the alarm panel Dialer TIP and RING to the 7094A terminal block labeled **J5** AP TIP RING as shown in the figure below.
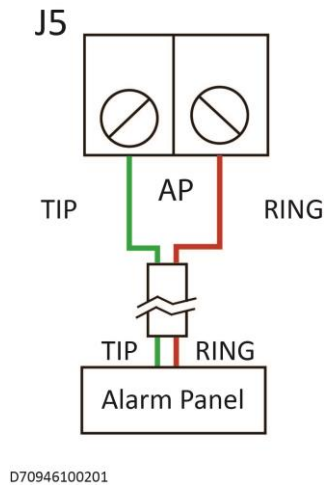
Figure 5.   Alarm Panel Connections

4. Configuring the 7094A

Configuring the 7094A IntelliPro installed in the 7007 subscriber requires a smartphone or another computer device with a web browser. The 7007 subscriber must be configured and powered on.

4.1   Configuration Interface

The 7094A is configured through a web browser interface provided by the 7007 subscriber. Refer to the AES Model 7007 Subscriber Installation Manual, AES P/N 40-7007, for details on accessing the configuration interface through the subscriber.

Reset to Defaults

The 7094A can be set to factory default configuration using the following steps:

1. Click on **System** tab.

2. Under **Reset to Default**, set **IntelliPro Config** to **Yes**. Click the **Reset Configuration** button.

   Next, the login page and the message that settings have been reset appears.

3. Login with the assigned username and password to continue with the 7094A configuration.

5. Programming

5.1   Programming Options

Phone Line

This option is set depending on whether a POTS (telephone company provided) line is connected.

Option settings: **Yes** or **No**

- **Yes** = Phone line is present
- **No** = Phone line is not present (default)

Intercept Number

This option sets the number programmed in the Security Alarm Control Panel for the 7094A to intercept when the panel dials. A minimum of three numbers must be entered. Default number is 5555.

Intercept Number 5555

Alarm Panel Report Format

This option sets the format that the 7094A will interpret when data is sent by the over the dialer interface. The 7094A interprets the data and transfers it to the subscriber where it is sent to the MultiNet.

The 7094A currently supports the following formats:

- Contact ID (Ademco CID)
- Pulse formats at 10 and 20 pulses per second, with combinations of handshake, kiss-off, and center pulse frequencies, plus variable durations that cover most pulse formats
- Modem formats from Bosch, ranging from Modem II to Modem IIIa.

The options for the alarm panel report are **CID**, **MODEM** or **PULSE**.

CID Alarm Format

This option sets the Alarm Panel Report Format to Contact ID format.

Modem Alarm Format

This option sets the Alarm Panel Report Format to **MODEM**.

When **MODEM** is selected, the Alarm Panel Modem Format menu selection appears.

For details on selection, see "Bosch/Radionics Modem II and Modem III," on page 18.

Pulse Alarm format

This option sets the durations and frequencies for the Pulse Alarm format.

The following configuration options may be set when the format is **PULSE**.

- Handshake Duration
- Handshake/Kissoff Frequency
- Center Frequency
- Inter-Digit Time
- Inter-Round Time

Available Settings

AP Report Format	PULSE ▼	
Handshake Duration	0.8 ▼ Sec.	0.8, 0.4 sec
Handshake/Kissoff Freq	1400 ▼ Hz.	1400, 2300 Hz
Center Freq	1800 ▼ Hz.	1800, 1900 Hz
Inter Digit Time	0.7 ▼ Sec.	0.7, 0.9, 1.7 sec
Inter Round Time	3 ▼ Sec.	3, 5 sec

AP Input Gain

This option increases/decreases sensitivity of the 7094A to allow decoding of data from the alarm panel. Some alarm panels will adjust to this setting.

The options are:

- **10** dB
- **20** dB (default)

Intercept on Blind Dial

This option is used when the alarm panel does not wait for a dial tone after going off-hook to dial out. When set to **Yes**, the 7094A will expect to receive digits as soon as the AP goes off hook. The initial dial tone for off-hook will not occur.

Options are:

- **Yes**: Intercept on AP blind dial enabled
- **No**: Intercept on AP blind dial disabled (default)

Line Cut Report

To view this option **Phone Line** must be set to **Yes**.

By default, **Line Cut Report** is set to **Yes**.

POTS Cut Report Delay

POTS Cut Report Delay requires that **Phone Line** be set to **Yes**.

The default setting is 45 seconds and valid entries can be between 0-60 sec.

> **Note:** If the POTS line condition returns to a no fault condition before the POTS Cut Report Delay count reaches the time setting, then no signal will be sent.

POTS Restoral Delay

POTS Restoral Delay requires that the **Phone Line** setting be set to **Yes**.

POTS Restoral Delay specifies the delay time before a message is sent, indicating that the POTS phone line has changed from fault state to functional state. The restoral message transmission is delayed by the number of seconds set to ensure the phone line is stable. The default is 60 sec but any value from 0 to 60 can be entered.

AP Account Override

AP Account Override requires that **Phone Line** be set to **Yes**.

The purpose of this option is to allow bypassing the alarm panel account. When set to **Yes**, the account number of the AES subscriber is used in place of the account number in the control panel. This is useful for automation software packages without the capability of two distinct account numbers for one customer account.

Options are:

- **Yes**: AP ACCT Override enabled
- **No**: AP ACCT Override disabled (default)

POTS Input Gain

POTS Input Gain requires that **Phone Line** be set to **Yes**.

POTS Input Gain selects the 7094A sensitivity when the 7094A is listening to activity on the telephone line. The default value is 20 dB, and reducing this value will decrease the 7094A gain.

Options are:

- **0** dB
- **10** dB
- **20** dB (default)

Advanced Options Display

Advanced Options allows for display and configuration of the following when set to **Yes**:

<div align="center">

AP Output Gain

Line Cut Sensing

CID 4xx letter

Voltage Pump

Clock Freq. Shift

</div>

Options are:

- **Yes** to enable
- **No** to disable (default)

AP Output Gain

Advanced Options Display must be set to **Yes**.

AP Output Gain sets the output gain when the 7094A is in POTS emulation mode. It is used to increase the gain of the dial tone as well as the handshake and KISS-OFF tones sent by the 7094A to the AP. Increasing this value will increase the AP output gain.

Options are:

- **0** dB
- **3** dB (default)
- **6** dB

Line Cut Sensing

This setting enables or disables POTS line cut sensing. When set to **Yes**, the line is monitored for cut interruption.

This setting requires that **Phone Line** and **Advanced Options** be set to **Yes**.

CID 4xx Letter

Advanced Options must be set to **Yes** to access this setting.

For reporting, open and close reports with either **U** or **C**:

- **U**: Reports open and close reports with "U" (default)
- **C**: Reports open and close reports with "C"

M3 EC TEXT to CID Enabled

Note: **M3 EC TEXT to CID** is MODEM III Event Code Text to Contact ID. Refer to Section 6.1 Programming Options ─ UL NOTICE TO USERS Table 1.

This setting enables the 7094A to scan the Modem III description field for text specific to events that are typically silent at the local site and that the dealer *does not* want to have sent through as a general alarm message (E140/R140). Setting to **Yes** allows Modem III alarm messages to be translated not only based on Event Code (EC) from the Modem III packet, but also from contents of the text used to describe the event.

AP Report Format must be set to **MODEM**, and **AP Modem Format** must be set to **MODEM3**.

Advanced Options and **M3 EC Text to CID** must be set to **Yes** to access this setting.

Voltage Pump

This setting requires that **Advanced Options** be set to **Yes**.

Setting **Voltage Pump** from **Yes** to **No** is required only for alarm panel interfaces that have marginal communication quality working with the 7094A.

Options are:

- **Yes**: Enables the voltage pump (default)
- **No**: Disables the voltage pump

Clock Frequency Shift

Clock Frequency Shift requires that **Advanced Options** be set to **Yes**.

Clock Frequency Shift is for advanced diagnostic purposes and is generally not used.

- **Yes**: Enable
- **No**: Disable (default)

Keep set at **No**.

Status LED Blink Patterns

An LED indicator on the Model 7094A shows system status. The red status LED is located near the bottom left edge of the circuit board (see Figure 3 on Pg. 9 for location). The following table displays the blink patterns that are associated with the operating status of the 7094A IntelliPro.

Table 1.	Blink Patterns	
Blink Type	**Pattern**	**Possible Meaning(s)**
Long blink	■ ■ ■ ...	Normal operation
Short blink	■ ■ ■ ...	7094A cannot communicate with the subscriber
No blink	⊘	7094A not operating properly – return to AES for repair

6. Supported Formats/Protocols

6.1   Format: Contact ID

The 7094A is fully compliant with the Contact ID (CID) protocol. To configure the 7094A to process CID, select **CID** as the **AP Report Format** type (see Alarm Panel Report Format on page 12 for more details).

6.2   Format: Bosch/Radionics Modem II and Modem III

To configure the 7094A to process modem formats, select **MODEM** as the **AP Report Format** type (see Alarm Panel Report Format on page 12 for more details).

The following table displays the modem format and speed (baud rate) settings for the Modem format.

Table 2. Modem Format and Speed		
Modem Format	**Speed**	**Family Supported**
Modem II	110	D8112G2
		D6112
Modem IIe	300	D2212B
Modem III	300	D7412GV2
		D7412GV3
		D4412
		D9412G

Note: This feature is needed and available for the Modem II AP format only. For details on the translation between Modem format and Contact ID format refer to the AES Corporate website.

6.3   Format: Modem II – Unknown Panel Type Family Assignment

The 7094A implements a way to associate a "never seen before" panel with one of the Bosch panel family types. This type of configuration is needed only when an unknown panel supporting Modem II is connected to the 7094A. When the "new" panel type code is detected, the 7094A saves it to its non-volatile memory and offers the option to allow the user to associate the panel type with the proper panel family.

Table 3 lists the Bosch/Radionics panels that are supported:

Table 3.	Supported Bosch/Radionics Panels	
Panel Model	**Revision Number**	**Format Tested**
D7412GV2	7.08	Modem III
D7412GV3	8.03	Modem III
D8112E1/G1	22	Pulse Only
D8112G2	31.31	Modem II
D6112	4.0	Modem II
D2212B	3.03	Modem IIe
D4412	1.12	Modem III
D9412G	6.6	Modem III

Note: Even if the panel you are connecting to does not show on the list, it doesn't mean that it's not supported.

6.4   Format: Pulse

To configure the 7094A to process pulse formats, select **PULSE** as the **AP Report Format** type (see Alarm Panel Report Format on page 12 for more details).

The supported pulse formats include:

- HSD – Handshake Duration
- HSF – Handshake Frequency
- CF – Center Frequency
- IDT – Inter-Digit time
- IRT – Inter-Round time

Table 4 shows the corresponding values for the different parameters associated with each pulse format.

Table 4. Supported Pulse Formats					
	HSD	**HSF**	**CF**	**IDT**	**IRT**
Pulse Format	*** sec**	**kHz**	**KHz**	**sec**	**sec**
Ademco LS (10 pps) (4+2)	0.8	1.4	1.9	0.9	3
Ademco LS (10 pps) (3+1)	0.8	1.4	1.9	0.9	5
Ademco LS (10 pps) (4+1)	0.8	1.4	1.9	0.9	5
Ademco LS Double Round (3+1 Expanded)	0.8	2.3	1.9	1.7	5
Ademco HS Double Round (3+1 Expanded)	0.8	2.3	1.9	0.9	5
Ademco Slow Silent Knight Slow, HS 1400 Hz	0.8	1.4	1.8	1.7	5
Ademco Slow Silent Knight Slow, HS 2300 Hz	0.8	2.3	1.8	1.7	5
Radionics Fast (20 pps) (4+2)	0.4	2.3	1.8	0.7	3
Radionics Fast (20 pps) (4+1)	0.8	2.3	1.8	0.7	3
Radionics Fast (20 pps) (3+1)	0.8	2.3	1.8	0.7	3
Radionics (20 pps) (4+2)	0.8	2.3	1.9	0.7	3
Silent Knight LS Double Round (3+1 Expanded)	0.8	2.3	1.9	1.7	5
Silent Knight HS Double Round (3+1 Expanded)	0.8	2.3	1.9	0.9	5
Silent Knight Fast	0.8	2.3	1.9	0.9	5
Silent Knight (4 + 2)	0.8	1.4	1.9	1.7	5
Universal High Speed, hand shake 1400 Hz	0.8	1.4	1.8	0.7	5
Universal High Speed, hand shake 2300 Hz	0.8	2.3	1.8	0.7	5

* sec = seconds

6.5   Notes on Pulse Formats

Number of Digits on Pulse Format

Pulse format has no selection for the number of digits, since the number is determined when the 7094A interprets the pulse train.

- If six digits are received, it translates into 4+2.
- If five digits are received, it translates in 4+1.
- If four digits are received, it translates in 3+1.

Double Round

Double round sends the same message twice and is automatically detected. This is a method used by some pulse protocols to allow a receiver, the 7094A in this case, to validate the data received.

Translation of 3+1 and 4+1 to 4+2

```
1234 56     arrives at MultiNet as:       1234 56

1234 5      arrives at MultiNet as:       1234 05

123 5       arrives at MultiNet as :      0123 05
```

Expanded Format

We do not recommend using expanded format due to how the messages will reach MultiNet.

When the alarm panel is programmed for expanded format (not to be confused with double round), it sends two trains of pulses (four total, because of the double round), and the 7094A sends the two messages received. This has to be handled carefully with the automation software because the two messages will appear as having two "different" accounts. An expanded format configuration will produce a total of four pulse trains.

$$1^{st}: \texttt{5879 6 (4+1)} \rightarrow \texttt{6879 06 (4+2)}$$

$$2^{nd}: \texttt{6666 3 (4+1)} \rightarrow \texttt{6666 03 (4+2)}$$

For instance, with the expanded format, it would send the following two messages, and each one would produce a message with automation software:

```
1234 6 1234 6 → 1234 06 ACCT 1234 RF 5555 RL=14

6666 8 6666 8 → 6666 08 ACCT 6666 RF 5555 RL=14
```

6.6   Settings for Non-Supported Formats

Some high-speed formats will not work since the 7094A supports only 10 pps and 20 pps formats. However, most alarm panels will "gear down" and lower pulse speed after trying and failing to send data to the 7094A.

The settings in Table 5 are recommended for common high-speed formats when the low-speed fallback is implemented. The 7094A will successfully interpret the data sent by the alarm panel over the phone dialer interface when speed is reduced.

Note: These settings are only for the "fail safe" speed. These settings are not for the actual 33 or 40 pps, which are not supported by the 7094A.

Table 5. Recommend Fail Safe Settings					
	HSD	**HSF**	**CF**	**IDT**	**IRT**
Pulse Format	**sec**	**kHz**	**KHz**	**sec**	**sec**
Radionics Fast Double Round (33 pps)	0.8	2.3	1.9	0.7	5
Radionics Fast (40 pps Double Round)	0.8	1.4	1.8	0.7	5

7. Testing

Perform the following tests to confirm that the 7094A is properly installed and is functional.

7.1   Installation Checks

Some of the tests to be performed at the installation site require a response from a Central Station person.

- Trigger alarm conditions and confirm that the proper message is received at the Central Station.
- Cause fault conditions and confirm that the proper message is received at the Central Station.

8. Maintenance, Warranty and Repair

Once installed and normal operation is confirmed no maintenance of the 7094A is required.

8.1   Troubleshooting

Problems with the 7094A require the board to be sent to AES for service.

8.2   Contact Information

AES Corporation

285 Newbury Street

Peabody, Massachusetts 01960 USA

Website: **http://www.aes-corp.com**

AES corporate Phone: (800) 237-6387 (800) AES-NETS
                          USA (978) 535-7310

Fax: USA (978) 535-7313

Email: Check Website for latest email addresses

9. Revision History

Revision	Date	Notes
1	10/24/2016	Initial document
1A	3/28/2017	Warranty updated
1B	6/20/2017	Updated Alarm Panel connections

10.   Warranty

LIMITED PRODUCT WARRANTY:

AES warrants to the original purchaser that the AES Subscriber Unit will be free from defects in material and workmanship under normal use and service for three (3) years from the date of original purchaser's purchase. Except as required by law, this Limited Warranty is only made to the original purchaser and may not be transferred to any third party.

This Limited Product Warranty is made in lieu of any other warranties, expressed or implied, it being understood that all other warranties, expressed or implied, including of merchantability or fitness for a particular purpose, are hereby expressly excluded.

AES assumes no liability for any personal injury, property damage, consequential damages, or any other loss or damage due, among other things, to this product's failure to operate or provide adequate warning. AES's sole responsibility is to repair or replace, at AES's sole option, the AES product that is judged defected by AES during the limited warranty period under the terms of its Limited Warranty.

TECHNOLOGY LICENSE:

Certain AES Products include software, protocols and other proprietary and confidential technology and trade secrets of AES which are incorporated in or provided with AES Products solely for use in conjunction with and in order to operate AES Products ("Licensed Technology").   AES grants the original purchaser a non-exclusive license to use such Licensed Technology solely in connection with the use and operation of AES Products and for no other purpose or use whatsoever. No title or ownership in or to any such Licensed Technology is conveyed by the sale or delivery of any AES Products; all such rights are retained by AES.

AES SERVICE PROCEDURE: Contact AES by Phone (978) 535-7310, Fax (978) 535-7313 or Email service@aes-intellinet.com, to receive a Return Material Authorization Number. Have the AES part number and serial number ready. Repack equipment in original or equivalent packaging. Inside the box, please include a contact name, telephone number, address and a brief description of the reason for return.

Ship items freight-prepaid to:

    Repair Services, RMA#_____
    AES Corporation,
    285 Newbury Street
    Peabody, MA 01960 USA

(Contact AES for Return Material Authorization number)