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Series99 Receivers Overview

There are 2 types of Series99 receivers: System99 and Monitor99. These receivers accept signals from up to 99 AES-IntelliNet Subscriber Units. If your system grows to more than 99 units, you can upgrade to either the 7000 or 7700 Series receivers which can receive from up to thousands of units.

IMPORTANT: The Series99 receivers recognize subscriber units ID numbers 9901 to 9999 only! No other ID numbers are recognized! Program the subscriber units with ID numbers between the numerals 9901 and 9999. (Note: units numbered outside of this range will be acknowledged by the receiver, but no data is transferred).

Compatibility of AES-IntelliNet components:

<table>
<thead>
<tr>
<th>Subscriber Units</th>
<th>System99</th>
<th>Monitor99</th>
<th>7000/2</th>
<th>7700/UL</th>
</tr>
</thead>
<tbody>
<tr>
<td>7050</td>
<td>Yes*</td>
<td>Yes*/8 zns</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>7050-E</td>
<td>Yes*</td>
<td>Yes*/8 zns</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>7050-E+IntelliTap</td>
<td>Yes*</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7750/UL</td>
<td>Yes*</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>7050-Napco</td>
<td>Yes*</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Receiver Software</th>
<th>System99</th>
<th>Monitor99</th>
<th>7000/2</th>
<th>7700/UL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net99</td>
<td>Yes</td>
<td>Limited ***</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>IntelliMonitor99</td>
<td>No**</td>
<td>Yes</td>
<td>No**</td>
<td>No</td>
</tr>
<tr>
<td>Net7K</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Net77/UL</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* Subscriber unit ID numbers 9901 to 9999 only.
** Available for special orders / proprietary systems
*** Part time software, used for initial programming of subscribers, limited troubleshooting)
System99 Key Components:
- RF Receiver, 7099-S, with Acknowledge Switch / Alarm Buzzer
- RF Network Interface and Net99 software disk. Minimum PC required: DOS 6.2, 486/50, 8M Ram, 10M disk space. (See Net7K manual for operation).
- Output for Alarm Automation choose Radionics 6500 or Ademco 685 emulation (automation software not supplied)
- Event Printer and Cable
- External Antenna, Cable, Connector, Lightning Suppressor (requires expert RF installation)
- (Option - Internal Antenna, Pre-Assembled Cable & Connectors, - may be user installed)

Monitor99 Key Components:
- RF Receiver, 7099-M,
- RF Network Interface - disks provided for both Monitor99 and Net99. Minimum PC required: DOS 6.2, 486/50, 8M Ram, 30M disk space. The Monitor99 program provides monitoring functions; the Net99 software is used only for initial programming of subscribers and limited operations.
- Event Printer and Cable
- External Antenna, Cable, Connector, Lightning Suppressor (requires expert RF installation)
- (Option - Internal Antenna, Pre-Assembled Cable & Connectors, - may be user installed)
7099 Series Central Station

Typical Antenna Configurations:

- **External Antenna - Recommended** - For best performance, the 7099 receiver includes a 9db antenna, lightning suppressor, 100 feet of low-loss RF cable and "N" connectors. This setup provides the best performance, particularly if you are planning to upgrade in the future. The system operator can install the cable, but a certified RF technician must install and test connectors and antenna.

- **Internal Antenna** - the receiver also includes a 5db antenna for indoor use and a pre-made cable. This antenna can be installed indoors - ideally as high in the building as possible for "good" performance for close range / proprietary systems. This setup can be installed by user without special RF tools. However, the radio range could be reduced.

**Power Requirements**

7099 Receiver
- AC Input: 90-250V, 50-60Hz
- Battery Backup: 12V, 4 AH*

Printer: 110V, 60 Hz.

*BackUp power for the 7099 receiver is provided by a gel battery (included). An uninterruptable power supply (UPS) is required for printers, computers and other elements. UPS must be provided by customer.
Installation

Guidelines for a Successful Installation

The central receiving site is a critical element of the AES•IntelliNet system. Every installation is unique, with consideration given for location, structure, geography and other factors. This section is intended as a guide only, to assist you in planning for your installation.

• Read the manual! Familiarize yourself with all elements of the installation.

• You have 2 choices for antennas installations:
  - An indoor 5db antenna for a "basic" installation, such as those used in a proprietary application (such as a campus) can use an easily installed 5 db antenna connected to the transceiver by a pre-assembled cable. The antenna should be located as high in the building as possible, ideally an attic location. In general, a person with good technical skills can install this antenna.
  - An outdoor 9 db antenna, "professionally" installed, is required for applications where the nearest subscriber units may be miles away. This is the "best" choice in terms of performance. It is a requirement for a commercial operator (such as an alarm dealer) who is growing a network to cover a large area. For a professional installation, you can install the major components and run the required cables, and then retain a qualified radio technician to perform the RF (radio freq) part of the installation:
    • Outdoor Antenna, Mounts and Connectors
    • All RF Connectors / Terminations
    • RF Lightning Suppressor / Grounding
    • Final Check to assure that your installation is getting maximum performance.

Contact the radio technician BEFORE you begin any part of the installation!
There is no substitute for experience in radio installation, which is a unique mix of science and art. The knowledge you gain from a solid central receiver installation will serve you well as you install the transceiver / repeaters that will become your network.
Installation of Antenna, Transceiver, Cables (See illustrations)

**Typical Tool Requirements:**
- SWR Meter
- Large Wire Cutters
- Soldering Iron
- Wire Strippers 18-22 AWG
- Weatherproof Tape
- 11/16" Wrench
- 5/8" Wrench
- Silicone Grease
- Silicone Sealant
- RG8/U Coax Strippers
- Adjustable Wrench

- Install antenna(s) on top of building, at a minimum of 10 feet away from any electrical lines and/or metal objects. Install the antenna as high as possible for maximum range. A extra few feet of antenna height at the central station can provide *miles* of added range.

- Install suitable grounding for lightning surge suppression in compliance with National Electric Code 810-20/57 and all applicable building codes.

- Install the Surge Arrestor at the point where the coax cable enters the building. Connect the ground lug of Surge Arrestor to ground using proper grounding strap or cable. If surge arrestor is located outside, it must be housed in a weathertight enclosure - select a box that allows minimal wire bends.

- If used, install optional Bandpass Cavity Filter as close to the 7099 receiver as possible. **NOTE:** Bandpass Cavity must be located in a climate controlled area, avoiding extremes of heat or cold.

- Mount the 7099 Receiver to a suitable, strong surface, using proper fasteners. It must be located in a climate controlled area, avoiding extremes of heat or cold. Position the unit near the computer(s) that will be connected for automation and running Net99 or IntelliMonitor99 software.

- Run the RG8/U cable from the antenna to the 7099 Receiver. Do not make bends of less than 6" in radius. Leave 5 to 10 feet of extra cable at each end. **NOTE:** **MAXIMUM ANTENNA CABLE LENGTH IS 100 FEET.** If cable is longer than 100 feet, use a low loss cable. Contact AES for more information.

- **ALL CABLES MUST BE RUN IN ACCORDANCE WITH UL REQUIREMENTS, NATIONAL ELECTRIC CODES AND LOCAL BUILDING CODES.**
COAX / RF Cable Installation and Test

IMPORTANT NOTE: Final connections should only be made by a qualified RF technician. Coaxial connectors and cable are CRITICAL to system performance, and should only be made by an experienced technician. The procedure and diagrams here is provided for reference.

- Terminate the RG-8/U N-type connectors at the COAX end that connects to the Antenna, the Surge Arrestor (check for correct direction if applicable), the Bandpass Cavity (if used) and the 7099 Receiver.
- Run ground cable from Surge Arrestor to good earth ground in accordance with local codes.
- Make a small patch cable (1-2’) from the RG8/U with a N-type connector on both ends.
- Connect the patch cable to the Antenna. Connect the power meter to the RG8/U coax, making sure that the orientation of the power meter is correct. Connect cables to the (optional) bandpass cavities and transmitter.

- **To Test Cables and Connectors**, set the Power Meter to "Power".
- Connect power to the Series99 Central Receiver.
- To activate the transmitter: Connect the "Network Interface" serial cable to your PC/DOS computer (COM2 suggested).
  - Install "Utilities" per "Software Installation" section of this manual.
  - Run Telix. Enter the command "Netcom" to link up with the network board in the receiver.
  - Press the Reset button on the Network PC Board (see 7099 Series Central Station diagram):
    - on the 7099-S receiver, this is the middle PC board of the "stack", at the top edge;
    - on the 7099-M receiver, this is the top PC board of the "stack", at the top edge.
  - Activate the "Caps Lock" and type "TEST 7 <Enter>". This will cause the transmitter to operate for about 7 seconds. **WARNING:** DO NOT transmit longer than 10 seconds.
  - On the Power Meter watch for a reading of at least 1.6 watts of power (the transmitter produces 2 watts - expect lesser power depending on cable length.)
  - If Power is too low: check that power input is at 13.8VDC; check all cable terminations.
  - Change the Power Meter setting to "Reflected Power" and watch for a reading of 0 - .3 watts of reflected power.
  - If Reflected Power is too high: check the connectors and re-terminate if necessary.
  - After testing, press ALT-X to exit Telix. Disconnect power and meter, and reconnect antenna.
  - Apply silicone sealant on all "N" type threads to prevent water damage. Cover all coax connectors tightly with weatherproof tape.

---

**COAX Cable Run Diagram for External Antenna**

---
Installation of N-type Connectors

Step 1)
Place nut and gasket, with "V" groove toward clamp, over cable and cut off jacket dimension a.

Step 2)
Comb out braid and fold back. Cut off cable dielectric to dimension b.

Step 3)
Pull braid wires forward and taper toward center conductor. Place clamp over braid and push back against cable jacket.

Step 4)
Fold braid wires as shown, trim to proper length and form over clamp as shown. Solder pin to center conductor. Use adequate heat to flow solder. Defects in solder will adversely affect performance.

Step 5)
Insert cable and parts into connector body. Make sure sharp edge of clamp seats properly in gasket. Tighten nut.

Amphenol Number: 82-202
Connector Type: N Plug
Dimension a: .359" (9.1 mm)
Dimension b: .234" (6.0 mm)

Installation of Antennas with UHF-type Connectors

1) If you are using RG-58/U cable

2) If you are using Belden 9913 cable

Belden 9913
Approx. 1/2" Dia.
Belden 9913
Install Software

• Install the receiver and computer(s) as described in preceding sections.

NET99 Software
• Insert the Net99 disk into your PC/DOS computer.
• Type A:INSTALL and follow instructions on screen to install from correct drive.
• Net99 software will be installed on the computer
• REFER TO THE NET7K MANUAL - Net99 is actually a full featured version of Net7K, specially configured to work with the System99 or Monitor99 receiver. Its operation is the same - please refer to the Net7K manual provided for operation.

IntelliMonitor99 Software, with Part Time Net99 program (Monitor99 systems only)
• Insert the IntelliMonitor99 disk into your PC/DOS computer.
• Type A:INSTALL and follow instructions on screen to configure the correct serial ports.
• IntelliMonitor99 software will be installed on the computer
• REFER TO THE IntelliMonitor MANUAL supplied with this system.

NOTE TO IntelliMonitor99 Users:
IntelliMonitor is an alarm monitoring program that uses the data from the AES receiver's network interface and displays it in an easy to use format. It is expected that this software will run 24 hours per day for the purposes of security.

WARNING: Anytime you are not running IntelliMonitor - such as when you are running the Net99 program - alarms can only be received on the printer connected to the 7099 receiver.

You can exit the IntelliMonitor99 program to run Net99, the AES system software that makes programming the subscribers, but only on a part-time basis.

Configure Alarm Output for Automation (System99 Receivers only)
• You can choose between Radionics 6500 and Ademco 685. Refer to Appendix B for Configuring Alarm Automation.
Appendix A
Set System Cipher / Dealer Code

Version 1.72
Procedure for Changing System Cipher (Dealer Code) in the 7099 Receiver using the Net99 Software and 7100 Controller (or Equivalent Computer)

For your convenience, you may have the system cipher/dealer code programmed at the factory.

If your cipher was already set at the factory, skip this section.

The System Cipher (also known as the Dealer Code) is a unique 4 digit hex number that must be coded into every radio data device in your network. Choose and record this number carefully: this is the security code for your network.

The dealer code is programmed and stored in the microprocessor chips that are part of every AES•IntelliNet radio, both the subscriber units and the central receiver. In the 7099-S central receiver there are two (2) circuit cards that must be programmed with the system cipher. In the 7099-M central receiver only one circuit card must be programmed.

After installing the 7099 and the Net99 software on a compatible computer, follow these steps to change the dealer codes for the central station:

1. Receiver should be powered and operational.

2. Insure cables from that side are connected to the Computer with Net99 running:
   - The 9 pin “Network Interface” cable from the 7099 is connected to COM2 of the computer
   - The 9 pin “Alarm Output” cable from the 7099 is connected to COM1 on the computer.

3. To change the dealer code for the Alarm Output Board (not on 7099-M), change to the TELIX directory at the DOS prompt. This is done by typing CD \TELIX. The type ALMCOM to use telix as configured for the alarm board. You may get some meaningless gibberish which you can ignore. Type ! (shift-1) twice quickly and there will be a prompt asking for a password, type PEABODY (note: the password must be in capital letters). If done correctly, there will be a prompt for dealer code, then automation receiver number, and then finally the automation output mode (refer to Procedure for Setting Automation Output Boards for detailed information). Press ALT-X to exit Telix.

4. To change the dealer code for the Network Controller Board (7099-S and 7099-M), note that there are two methods to change the dealer code for the network controller board.
   A. From the telix directory type NETCOM to use telix as configured for the network controller board. (Note: all commands will need to be in capital letters) There should be an AES prompt (AES>) on the terminal. If not, press ENTER to get an AES prompt. At the prompt type SET CODE XXXX, where the dealer code is substituted for XXXX. Press ALT-X to exit telix.
   B. From the AES directory (i.e. CD \net99) type NET99 to run Net99. Press CTRL-D and there will be a pop-up window with a prompt asking for a password. Type PEABODY, and there will be a prompt for the dealer code. Press ALT-X to exit Net7k.

(dealrco3.doc w/99 mod's)
Appendix A, continued

Procedure for Changing Dealer Code on 7099 Using Handheld Terminal

For your convenience, you may have the system cipher/dealer code programmed at the factory. 
If your cipher was already set at the factory, skip this section.

1. The handheld terminal can be attached to P2 on the automation output board (the top board on a 7099-S). P2 can be found near the reset button (see figure).

2. The baud rate of the handheld terminal must be changed to 1200. Press <CTRL - SHIFT - F1> keys simultaneously. BAUD = 4800 should appear at the top of the display. Press <F1> repeatedly until BAUD = 1200 is displayed. If you press <F4> then the setting will only last as long as the terminal has power. If you press <F5> then the setting is saved even if power is removed (remember to set the baud rate back to 4800 when you are done with this procedure).

3. Type ! (shift-G) twice quickly and there will be a prompt asking for a password, type PEABODY. If done correctly, there will be a prompt for dealer code, then automation receiver number, and then finally the automation output mode (refer to Procedure for Setting Automation Output Boards for detailed information).

4. The handheld terminal can be attached to P2 on the network controller board as well, but since the network controller board is below the automation board, it is much more difficult. It is important that the connector is oriented correctly because it can be forced the wrong way, causing damage to the hand held terminal and the board.

5. The baud rate of the hand held terminal must be 4800. Refer to step 2.

6. There should be an AES prompt ( AES>) on the terminal. If not, press ENTER to get an AES prompt. At the prompt type SET CODE XXXX, where the dealer code is substituted for XXXX.

7. Both boards must have the proper dealer code.

dealtcod.doc
Appendix B
Set Automation / Alarm Output (7099-S only)

Procedure for Setting Automation Output Boards
• System Cipher / Dealer Code
• Automation Output Type
• Receiver Number

For your convenience, you may have the system cipher/dealer code programmed at the factory.

To select from the various alarm automation formats, start by initiating the procedure to change the dealer code on the alarm board.

1. Press “!” twice, rapidly in succession. The 7099 output board will respond with:
   ENTER PASSWORD :

2. Respond with “PEABODY”, and board will respond with:
   ENTER Cipher CODE :

3. Enter your dealer code, and the board will respond with “OK” and:
   FORMAT-RADIONICS_MIX (default)
   ENT FORMAT(0,1,2,cr)
   ADEMCO, RADIONICS,
   MIX,NO CHANGE :

4. Enter
   • 0 to change to Ademco 685 compatible format,
   • 1 to change to Radionics 6500 compatible format,
   • 2 to change to Radionics mode for AES inputs and Ademco mode for 4x2 and Contact ID inputs (this mode is the default factory preset).
   The board will respond with “OK” and:
   ENTER REC # :

5. Enter the receiver number of the AES receiver, and the board will respond with “OK” and if the alarm format has been changed to 1 or 2, the receiver will send the Radionics text message:
   301 AES 7000 Vxxx

Notes:
1. If the alarm board sends a response of “OK” then that feature has been programmed.
2. If the return or enter key is pressed without first typing in a number or illegal characters (non-hexadecimal characters) are typed then the board with interpret the entry as zero.
3. To avoid typing in an entry press the “ESC” key before typing any characters and that entry will be bypassed.
4. If the alarm board sends “TIMEOUT”, then that entry will not be programmed, but all previous responses of “OK” have been programmed.
5. If the receiver number is larger than two characters then only the last two characters will be accepted. If the board has been programmed for formats 0 or 2 and more than one character is typed then the board will respond with “REC # TOO LARGE” and only the last number typed will be used.
Appendix C
Automation Output Specification

Revision 6
In central station version V1.72 AES will support three different output formats. All three formats will be at 1200 bps, 7 data bits, Odd parity, 2 stop bits and will use DSR/DTR connection hardware handshaking. The types of output provided are a pure Ademco 685 compatible format, a Radionics 6500 only compatible format, and a mixed Radionics format with Ademco outputs.

Mode 0 - Ademco 685
This mode will provide the output of 3 line cards; AES (1), Contact ID (3), and 4x2 (4).

LineCard # 1 - AES:
<LF>11sACCTs18sEEEEs00sCNNNs<CR>
Subscriber Reporting Codes
E140 Alarm reported in NNN (decimal number)
P140 Alarm still active in check-in or status report
R140 Restoral of Alarm
E370 Zone Trouble reported in NNN (decimal number)
P370 Trouble still active in check-in or status report
R370 Trouble Restoral
E307 Diagnostic Fault in NNN (reported as 80N where fault code is shown below)
P307 Diagnostic fault reported during check-in
R307 Restoral of all diagnostic faults (NNN = 800)
E602 Automatic check-in
E305 Watchdog or Pushbutton Reset (NNN = 901)
E305 Power on Reset (NNN = 902)
R356 Acknowledge Delay (NNN = 903)
E351 IntelliTap phone line cut (NNN = 905 or 000, note: dependent on intellitap version)
R351 Restoral of phone line cut (NNN = 905 or 000, note: dependent on intellitap version)
Receiver Reporting Codes (0000 is in the ACCT field)
E307 Diagnostic Fault in NNN (reported as 80N where fault code is shown below)
E302 Low Battery
R302 Low Battery Restore
E301 AC Failure (not sent at this time)
R301 AC Restore (not sent at this time)
E308 Standby Mode
R308 Primary Mode
E336 Printer offline (not sent at this time)
R336 Printer Restore (not sent at this time)
E300 Net7k offline (not sent at this time)
E300 Net7k online (not sent at this time)
E333 Alarm board fault (not sent at this time)
R333 Alarm board restore (not sent at this time)
E353 Multiple central controllers active detected
E354 Unknown message revision (invalid report)
LineCard # 3 - Contact ID
<LF>13sACCTs18sEEEsGGsNNNs<CR>
This information is passed through, receiver and linecard number are set appropriately

LineCard #4 - 4x2
<LF>14sACCTsCC<CR>
This information is passed through, receiver and linecard number are set appropriately

Inputs:
In this mode the AES receiver will respond to three inputs
S  reply will be - <LF>00sOKAYs@<CR>
<0x06> receiver considers last message acknowledged
<0x15> receiver will re-send last message (if not acknowledged)

Mode 1 - Radionics 6500
This mode will provide the output of 4 line cards; AES (1), SIC (2), Contact ID (3), and 4x2 (4).

LineCard # 1 - AES:
1011ssssscCCTEsNNNs<0x14>

note: the value of NNN (or N2 N1 N0 as used for this example) is computed as follows:

value = N2 * 16 + ( N1 * 10 + N0 )  (example: A 101 means zone 17 is in alarm)

Subscriber Reporting Codes
A nnn Alarm reported in zone nnn (computed as above)
SA nnn Alarm still active in check-in or status report
T nnn Zone Trouble in zone nnn (computed as above)
ST nnn Zone Trouble still active in check-in or status report
R nnn Restoral of Alarm or Trouble
Y 80n Diagnostic Fault in n (reported fault code is shown below)
SY 80n Diagnostic fault reported during check-in
Y 800 Restoral of all diagnostic faults (n = 0)
A 000 Automatic check-in
T 901 Watchdog or pushbutton reset
T 902 Power on Reset
R 903 Acknowledge Delay
T 905 IntelliTap phone line cut
R 905 Restoral of phone line cut

Receiver Reporting Codes (spaces, ssss in ACCT field)
Y 80n Diagnostic Fault in n (reported fault code is shown below)
X 11 Low Battery
X 12 Low Battery Restore
X 13 AC Failure (not sent at this time)
X 14 AC Restore (not sent at this time)
X 810 Standby Mode
X 811 Primary Mode
X 20 Printer offline (not sent at this time)
X 19 Printer Restore (not sent at this time)
X 812 Multiple central controllers active detected
X 26 Unknown message revision (invalid report)

LineCard # 2 - SIC:
1012ssssscCCTEsNNNs<0x14>

note: the value of NNN (or N2 N1 N0 as used for this example) is computed as follows:

value = N2 * 16 + ( N1 * 10 + N0 )  (example: A 101 means zone 17 is in alarm)

The explanation of SIC messages (used in Optex Morse Genesys 824 Alpha) will be described in a later publication.
LineCard # 3 - Contact ID:
1013ssssssACCTEEsNNN<0x14>
Contact ID Event Codes with numbers E1XX and E2XX will be reported as:
A NNN where NNN is the Contact ID zone number (number is a direct copy from Contact ID)
Contact ID Event Codes with numbers P1XX and P2XX will be reported as:
SA NNN where NNN is the Contact ID zone number (number is a direct copy from Contact ID)
Contact ID Event Codes with numbers R1XX and R2XX will be reported as:
R NNN where NNN is the Contact ID zone number (number is a direct copy from Contact ID)
Contact ID Event Codes with numbers E3XX, and R3XX with non-zero zone information will be reported as:
T NNN where NNN is the Contact ID zone number (number is a direct copy from Contact ID)
Contact ID Event Codes with numbers P3XX with non-zero zone information will be reported as:
ST NNN where NNN is the Contact ID zone number (number is a direct copy from Contact ID)
Contact ID Event Codes with numbers E3XX, and R3XX with zone information with a value of zero will be reported as:
Y 3XX where 3XX is a copy of the event code
Contact ID Event Codes with numbers P3XX with zone information with a value of zero will be reported as:
SY 3XX where 3XX is a copy of the event code
Contact ID Event Codes with numbers E4XX will be reported as:
O NNN where NNN is the Contact ID user number (number is a direct copy from Contact ID)
Contact ID Event Codes with numbers R4XX will be reported as:
C NNN where NNN is the Contact ID user number (number is a direct copy from Contact ID)
All other Contact ID Event Codes will be reported as:
Y XXX where XXX is a copy of the event code.
SY XXX when PXXX is the event and where XXX is a copy of the event code
Note: AES does not recommend using 6500 mode messages to report Contact ID.

LineCard # 4 - 4x2:
1014ssssssACCTsAssNN<0x14>
All 4x2 messages will be reported as follows:
A NN where NN is a direct copy of the 4x2 report code

Inputs:
In this mode the AES receiver will respond to two inputs
<0x06> receiver considers last message acknowledged
<0x15> receiver will resend last message (if not acknowledged)

Other Messages:
301ssAESs7000sVX.XXs<0x14>
X.XX this reports the version number of the firmware
Mode 2 - Radionics 6500 mixed with Ademco 685 outputs
This mode will provide the output of 4 line cards; AES (1), SIC (2), Contact ID (3), and 4x2 (4).

LineCard # 1 - AES:
1011ssssssACCTEEsNNN<0x14>
(Codes are the same as in mode 1)

LineCard # 2 - SIC:
1012ssssssACCTEEsNNN<0x14>
(Codes are the same as in mode 1)

LineCard # 3 - Contact ID
<LF>13sACCTs18sEEEsGGsNNNN<0x14>
(Codes are the same as in mode 0, note the different termination character)

LineCard #4 - 4x2
<LF>14sACCTsCC<0x14>
(Codes are the same as in mode 0, note the different termination character)

Inputs and Other Messages are the same as Mode 1

Fault Codes in Y 80N and E307 Events (Zone information = 80N)
0 None (R307 in Mode 0), Restoral of all faults
1 Low Battery - Voltage is less than 11.0V
2 Ram Data
3 NV Memory Fault (SGS Memory 7050, 7050E)
4 ADC/Ext Equip (7050E only)
5 No Modem
6 CPU Timing
7 Ram Chip
8 Modem Loopback Failed
9 AC Mains Fault (7050E)

Explanation of Fault Codes (7050 and Receiver)
0 Restoral of all previous fault or a manual request of status
1 DC voltage has dropped below 11.0V
2 Programmed Parameters and Critical Parameters in memory have been found corrupted
3 Ram battery bad (SGS Thompson part only)
4 Reserved
5 Modem Chip Failed
6 Timing Error between CPU and Modem
7 Ram Read/Write test failed
8 Message Looped back through Modem Failed (Initialization only)
9 Reserved

Explanation of Fault Codes (7050E)
0 Restoral of all previous fault or a manual request of status
1 DC voltage has dropped below 11.0V
2 Programmed Parameters and Critical Parameters in memory have been found corrupted
3 EEPROM not present or EEPROM memory corrupted
4 Analog to Digital Converter Faulted, No Further Reporting of Zone information
5 Modem Chip Failed
6 Timing Error between CPU and Modem
7 Ram Read/Write test failed
8 Message Looped back through Modem Failed (Initialization only)
9 DC voltage Supplied by AC has dropped below 12.0V
Appendix D:
7099-S/-M Connectors Pin-out:

"Network Interface"
Function: RS-232 serial link to the COM port of the PC computer operating the Net99 software.
Location: 9-pin connector on cable from 7099 -

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Signal</th>
<th>I/O</th>
<th>at 9-pin</th>
<th>at 25-pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Receive Data</td>
<td>I</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Transmit Data</td>
<td>O</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Data Set Ready</td>
<td>O</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Signal Ground</td>
<td>-</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>20</td>
<td>Data Term Ready</td>
<td>I</td>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>

"Alarm Output" (option for 7099-S only)
Description: RS-232 serial link to the COM port of the PC computer operating Alarm Automation Software.
(See separate section on data format).
Location: 9 pin connector on cable from 7099-S -

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Signal</th>
<th>I/O</th>
<th>at 9-pin</th>
<th>at 25-pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Transmit Data</td>
<td>O</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Receive Data</td>
<td>I</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Data Term Ready</td>
<td>I</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>Signal Ground</td>
<td>-</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Data Set Ready</td>
<td>O</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

NOTE: A custom cable may be required for Alarm Automation. Consult with AES technicians and Automation Software provider for details.
### Appendix E

**Event Printer Messages, from 7099 Receiver**

Message Structure:

```
<Date - YY-MM-DD> <Time - HH-MM-SS> <Message Type>  <Source of Message; Error Code>
<Text Message of Error Type>
```

#### Messages Regarding Central Station Equipment Status:

<table>
<thead>
<tr>
<th>Printed Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROLLER - AC TROUBLE</td>
<td>AC Power Fault - Serious Problem if system relies on Uninterruptable AC source (user supplied)</td>
</tr>
<tr>
<td>CONTROLLER - AC RESTORE</td>
<td>End of AC Power Fault</td>
</tr>
<tr>
<td>CONTROLLER - NET7000 OFFLINE</td>
<td>Connection lost between receiver and Computer/ Net99; check cable, check that computer and Net7K program are running</td>
</tr>
<tr>
<td>CONTROLLER - NET7000 ONLINE</td>
<td>Connection initiated / restored between receiver and Net99</td>
</tr>
<tr>
<td>CONTROLLER - COMM TIMEOUT</td>
<td>Comm link lost between receiver and Net99 software; check that Net99 software is running; check that proper Net99 version is running;</td>
</tr>
<tr>
<td>STATUS MESSAGE NOT ACKNOWLEDGED BY COMPUTER</td>
<td>Operator pushed Silence / Acknowledge buttons RECEIVED</td>
</tr>
</tbody>
</table>

#### Messages Regarding Subscriber Units:

<table>
<thead>
<tr>
<th>Printed Message</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPVIS nnnn 00</td>
<td>Subscriber Unit #nnnn Check-In, No Faults</td>
</tr>
<tr>
<td>&lt;date&gt;&lt;time&gt; SUPVIS nnnn 01</td>
<td>Subscriber Unit check-in after reset switch is pushed</td>
</tr>
<tr>
<td>STATUS - UNIT RESET</td>
<td>Subscriber Unit Reset</td>
</tr>
<tr>
<td>&lt;date&gt;&lt;time&gt; SUPVIS nnnn 02</td>
<td>Subscriber Unit check-in after power restoral</td>
</tr>
<tr>
<td>STATUS - POWER-ON RESET</td>
<td></td>
</tr>
<tr>
<td>&lt;date&gt;&lt;time&gt; FAULT nnnn 00</td>
<td>Reply by Subscriber to Status Request by Operator - All is OK</td>
</tr>
<tr>
<td>FAULT - NONE</td>
<td></td>
</tr>
<tr>
<td>FAULT - LOW BATTERY</td>
<td>Low Battery Detected at Subscriber Unit</td>
</tr>
<tr>
<td>FAULT - MODEM LOOPBACK switch</td>
<td>Problem with modem chip, power down &amp; power up, or push RESET</td>
</tr>
<tr>
<td>FAULT - RAM DATA</td>
<td>Failed RAM Check in Subscriber</td>
</tr>
<tr>
<td>FAULT - RAM BATTERY</td>
<td>Failed RAM Battery Check by Subscriber</td>
</tr>
</tbody>
</table>
AES ONE YEAR OWNER WARRANTY

We warrant AES products to be free from defects in material and workmanship for one (1) full year from date of purchase.

At no cost to the original purchaser for parts or labor, AES will repair or replace any part or parts which are judged defective under the terms of this Warranty.

Defective products must be returned to AES directly, provided they are properly packed, postage prepaid. Or exchange may be made through any authorized direct factory representative for any products which are judged defective under the terms of this Warranty.

This Warranty is in lieu of all other Warranties expressed or implied and of all other obligations or liabilities on the part of AES. This Warranty does not apply to any product or any part thereof which has been repaired or altered outside our factory in any way to affect its stability or reliability, or which has been subjected to misuse, negligence or accident, or which has had the serial number effaced or removed. Neither shall this Warranty apply to any product which has not been installed, applied or used in strict accordance with our instructions.

AES Corporation cannot be aware of, or responsible, for the differing values of property to be protected by its alarm reporting systems. The above Warranty is given in lieu of all other Warranties, either expressed or implied, including a Warranty of fitness for a particular purpose, and manufacturer shall not be liable for any defect, incidental or consequential, loss or damage arising out of the failure of the product to operate.

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This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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