

Installation & Operation Manual

7000 SERIES

AES IntelliNet

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Introduction 1

**Central Station
7000 & 7003 2**

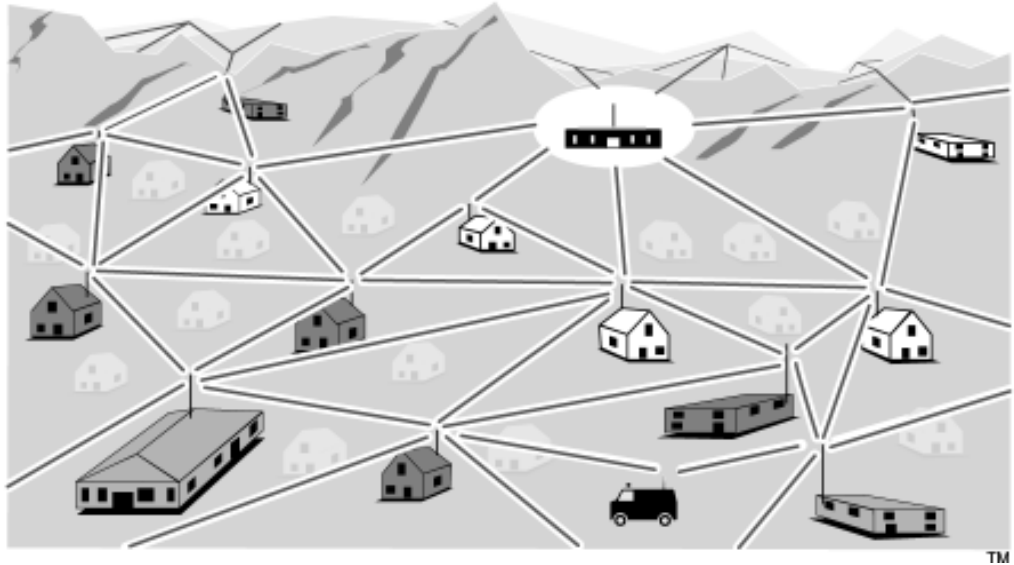
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**See Also: 7700 & 7000 Series
Subscriber Unit Manuals**

AES-IntelliNet Theory of Operation

The AES-IntelliNet is a radio alarm central monitoring system made up of two basic elements, the Central Receiver and the Subscriber Unit. The Subscriber Unit is connected to an alarm control panel at multiple remote sites. The Central Receiver is housed at a central station, monitoring for any radio alarm signals sent by the Subscriber Units.



A key feature of the AES-IntelliNet system is the ability of the Subscriber Unit to act as a store-and-forward message repeater for other Subscriber Units that are beyond direct radio reach of the Central Station. Each Subscriber Unit dynamically evaluates and stores information on all possible "routes" through which it can send messages to the Central Station.

When an alarm control panel detects an alarm condition, it activates the Subscriber Unit, which transmits the alarm signal by radio to the Central Station. The radio data message is received by the Central Station, where the operator on duty responds by dispatching the appropriate emergency team, police, fire or medical.

Radio communication of the alarm signal data is key to the AES-IntelliNet system, and is accomplished with components common to the Central Station and each remote Subscriber Unit. These include an FM Radio Transceiver, VHF or UHF, typically 2 watts, and a Communications Controller made up of a microprocessor and a modem.

In the Subscriber Unit, the Communications Controller is the wired interface between the local alarm control panel and the radio transceiver. In the Central Station, the Communications Controller is the wired interface between the base station radio transceiver and the computers which run the Central Station operations. All radio transceivers in the AES-IntelliNet system are identical and operate on the same, single fixed frequency.

Here follows a step by step explanation of:

- Enrolling A Subscriber Unit into an Existing System
- Transmission of an Alarm by a Subscriber Unit
- Retransmission of a Data Message by a Subscriber Unit

Theory of Operation

ENROLLING A SUBSCRIBER UNIT INTO AN EXISTING SYSTEM

1. Power is applied to Subscriber Unit after equipment has been mounted and antenna and coaxial cable has been installed.
2. Power-up reset is activated within the Subscriber Unit, or the installer physically presses the reset button.
3. The Subscriber Unit starts its self-test, displaying the results of the test on the installer's hand-held programmer.
4. If the self-test passes, the Subscriber Unit transmits a ready for reply signal. This signal will be heard by all other Subscriber Units in radio range.
5. Each existing Subscriber Unit within radio range reports that it can communicate with the new Subscriber Unit, and transmits it to their radio communicating proximity to the Central Station.
6. The new Subscriber Unit sets up a "routing" table. The table is prioritized so that the most direct and reliable route is used first. The less direct routes to be used as second, third, etc. Routes are added and sorted in a continuous, dynamic process.
7. Remain in standby state. In this state the Subscriber Unit is now part of the established system. It can originate alarm messages and act as a store and forward repeater for other messages within the system. It also listens to the radio channel to determine if it can further optimize its routing table by the addition of new Subscriber Units.

Theory of Operation

TRANSMISSION OF AN ALARM BY A SUBSCRIBER UNIT

1. Subscriber Unit is in standby state.
2. An alarm condition is presented to the Subscriber Unit by either a change in state of the switch inputs or via the RS 232 port.
3. The Subscriber Unit encodes the data into a “Data Message Unit” (DMU).
4. The radio channel is tested to ensure it is not busy. The Subscriber Unit uses active collision avoidance protocols to ensure the transmission is transmitted, without collision, with other Subscriber Units.
5. The DMU is addressed and sent to the Central Station if in direct communication range or, if not, to the first location on its internal routing table.
6. If routed through intermediate Subscriber Units, the message is transmitted to the next unit on the routing table.
7. Wait for an acknowledgment that the message was received and decoded correctly.
8. If no acknowledgment was received, send the DMU again and wait for the acknowledgment.
9. After “7” attempts and failure to receive an acknowledgment, use the next routing on the routing table.
10. Repeat step 4 to 8 until the message is received.
11. If no acknowledgment is received, repeat step 9.
12. When the new DMU is acknowledged, return to standby state.

Theory of Operation

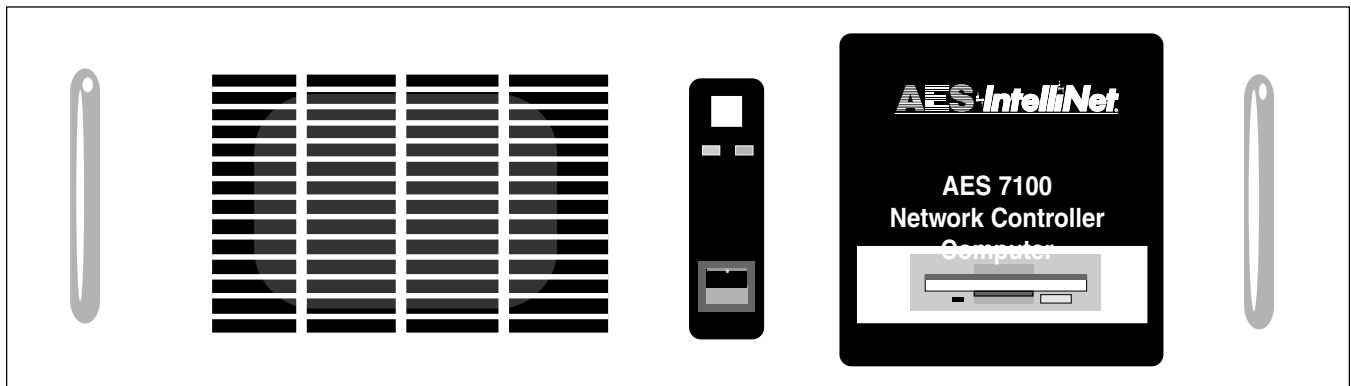
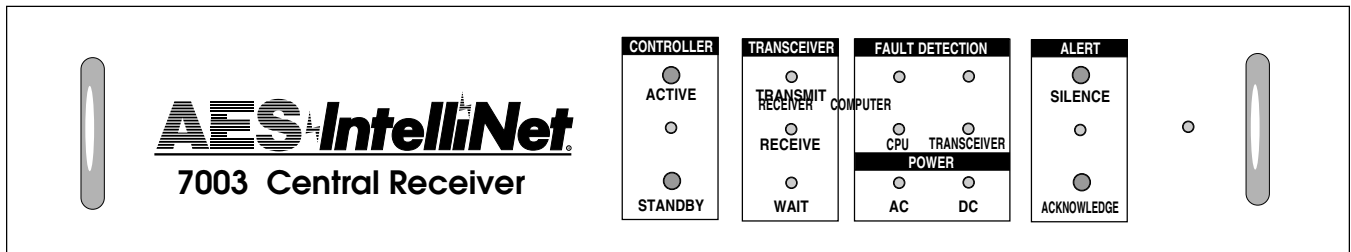
RETRANSMISSION OF A DATA MESSAGE BY A SUBSCRIBER UNIT

1. Subscriber Unit is in the standby state.
2. There is a Data Message Unit (DMU) addressed to this Subscriber Unit.
3. Receive the DMU, error check the DMU if necessary.
4. Acknowledge back to sending unit that the DMU has been received correctly.
5. Add the address of this Subscriber Unit onto the DMU's routing list.
6. The new DMU is addressed to the first location on this Subscriber Unit's internal routing table.
7. The radio channel is tested to ensure it is not busy. The Subscriber Unit uses active collision avoidance protocols to ensure the transmission is transmitted, without collision, with other Subscriber Units.
8. The message is transmitted to the next Subscriber Unit on the routing table.
9. Wait for an acknowledgment that the message was received and decoded correctly.
10. If no acknowledgment was received, send the DMU again and wait for the acknowledgment.
11. After "7" attempts and failure to receive an acknowledgment, use the next routing on the routing table.
12. Repeat step 7 to 10 until the message is received.
13. If no acknowledgment is received, repeat step 11.
14. When the new DMU is acknowledged, return to standby state.



AES • 7003 CENTRAL STATION

INSTALLATION & OPERATION MANUAL
Including AES 7003 Central Receiver
7100 Network Controller
7030-B Central Transceiver
Covers Single & Dual Installations



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AES Corporation

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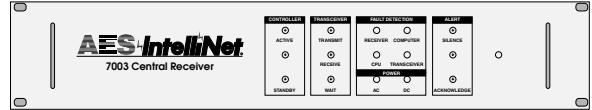
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The AES 7003 Receiver System

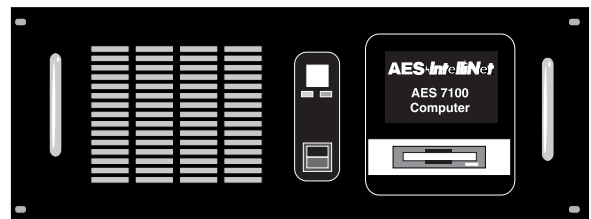
The AES 7003 Receiver System is available in single and dual configurations. In the dual system, the second receiver serves as a backup. The following is a list of key components

- **7003 Receiver(s)** - Rack mount receiver serves as the central radio controller for the network. Provides outputs for alarm automation and AES Net7K Network Manager Software. 12 Volt supply powers the radio portion of the system and charges the back up battery in the 7030-B transceiver. Receiver power requirements 16.5VAC, 40 VA. Plug in transformer (115V/60Hz primary) included. Dual system includes 2 receivers.

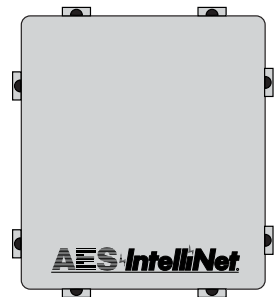


Size: 3.5"h x 19"w x 10"d.

- **7100 Computer / Net7K Network Manager Software** - Rack mount PC/DOS computer operates AES Net7K Network Manager Software for operation of the system. Key function include up/downloading of data, remote programming of subscriber units, extensive database and troubleshooting. Includes 14" monitor, 80 column printer. 7100 Size: 7"h x 19"w x 21"d.



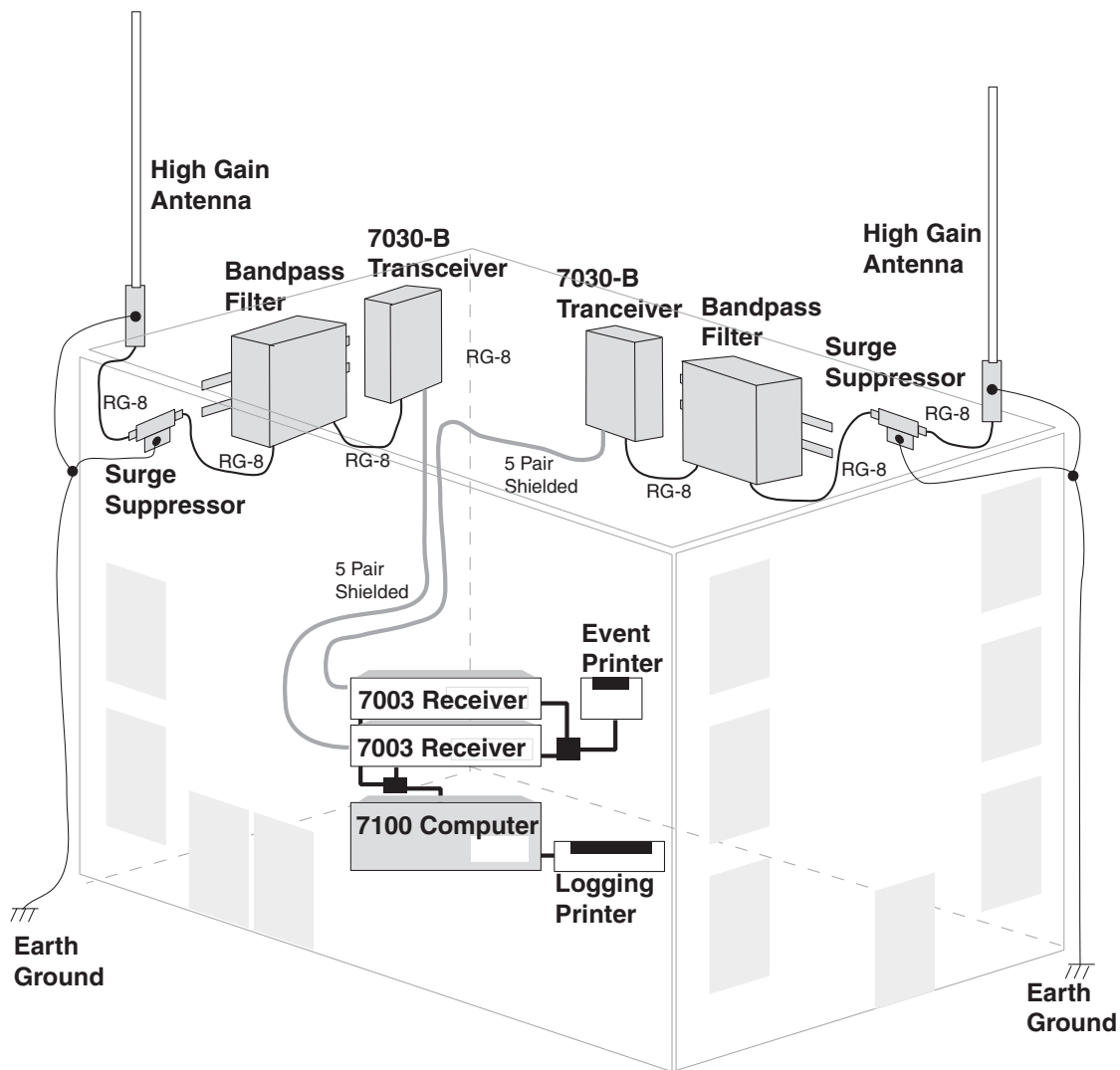
- **Event Printer** - Connects to 7003 receiver. 115V. Size: 7"h x 6.5"w x 11"d.
- **Logging Printer** - Connects to 7100 computer. 115V. Size: 8"h x 16"w x 11"d.
- **7030-B Transceiver(s)** - Radio transceiver is housed in its own rugged case for positioning near the antenna. The system backup battery is located in the same enclosure. This assures full power for the transceiver and minimal RF loss from coaxial cable. The battery powers the 7030-B and the 7003 in the event of a power failure. Flanges are provided for wall mounting. Dual system includes 2 transceivers. Size: 14"h x 11.5"w x 6"d.



- **Bandpass Cavity Filter(s)** - Heavy duty radio filter minimizes interference from other RF sources and maximizes the range of the system. Dual system includes 2 filters. Sizes vary according to radio frequency. Typical size for a 465 MHz (UHF) filter: 17"h x 10"w x 10"d.
- **High Gain Antenna(s)** - Rugged, large antenna to maximize the range of the base station. Size and gain vary according the installation requirements and radio frequency. Typical size for a UHF antenna is approximately 8 feet in height, with 9db gain.
- **Surge Suppressor(s)** - Protects components and structure against lightning damage.
- **Cables and Connectors** - Low-loss RG-8 coax cable is supplied with "N" type connectors for maximum performance. A special 5-pair shielded cable is used to link the 7003 receiver to the 7030-B transceiver. Connectors are included.

All sizes are approximate.

Typical Location of Key Components



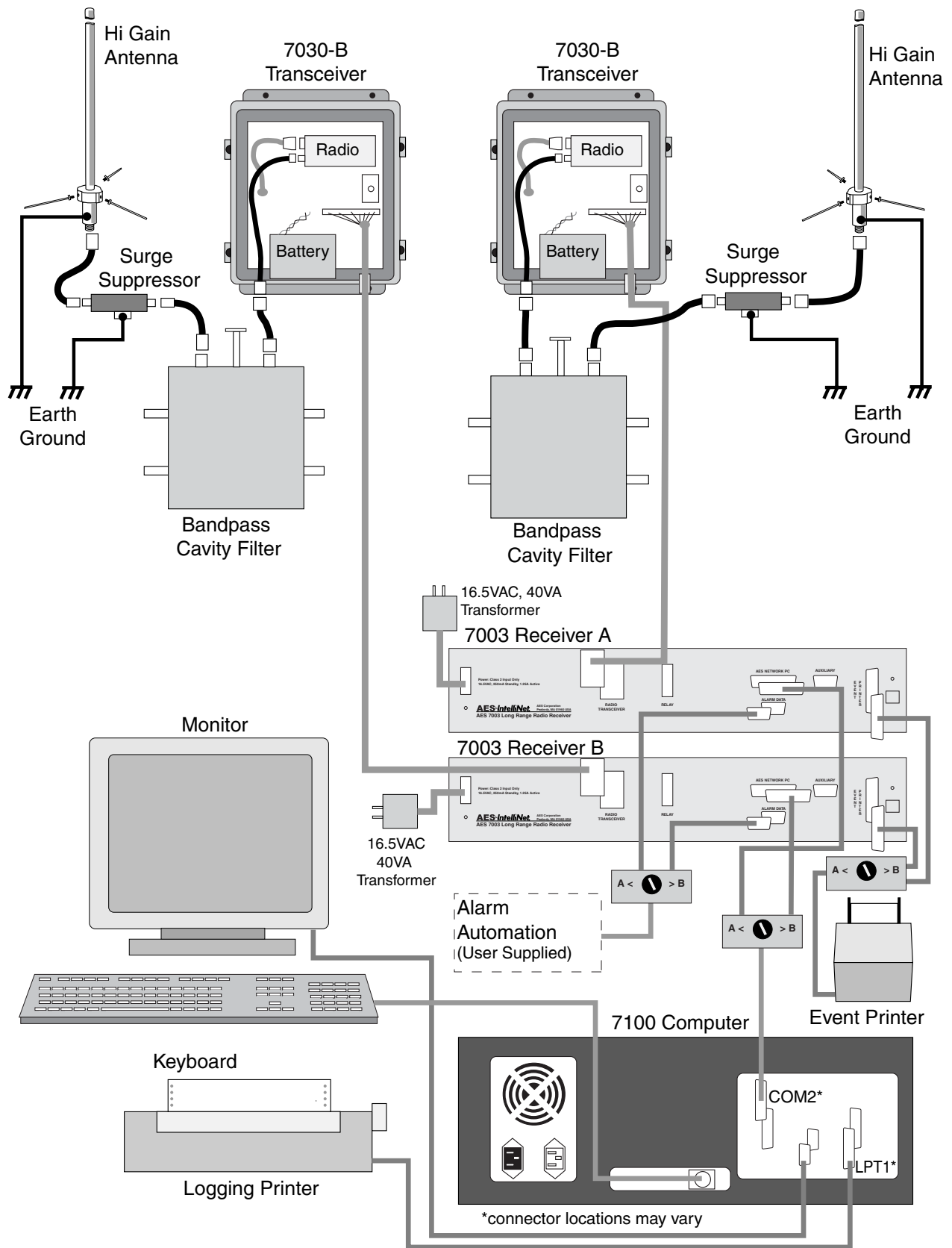
Shown: Typical 7003-Dual Installation

All wiring and installation must comply with relevant UL standards and local building codes.

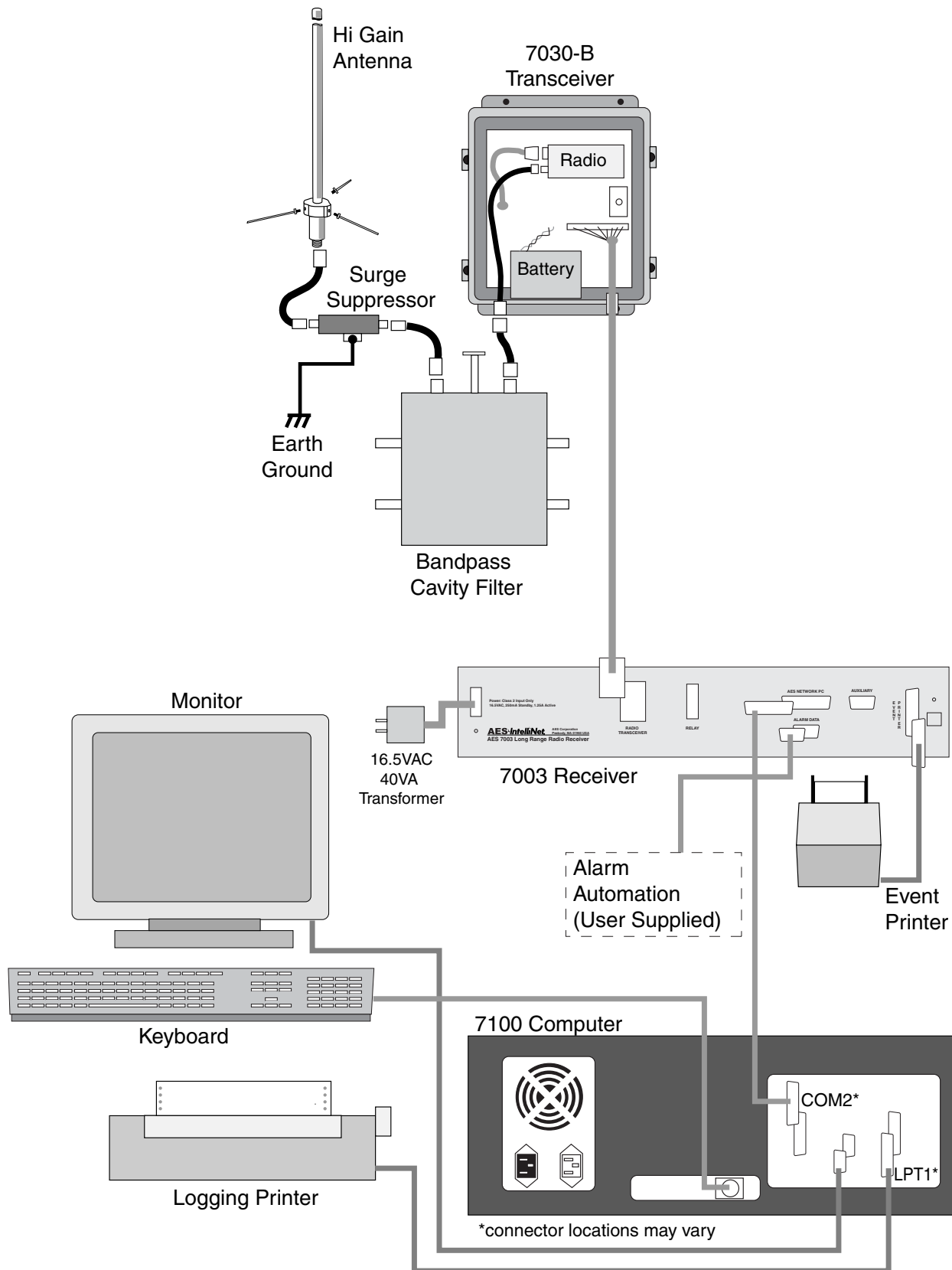
Typical Tool Requirements:

- SWR Meter
- Large Wire Cutters
- Soldering Iron
- RG-8/U Coax Strippers
- AMP Service Tool II
- 11/16" Wrench
- 5/8" Wrench
- Wire Strippers 18-22 AWG
- Weatherproof Tape
- Silicone Sealant
- Silicone Grease

Dual System Configuration



Single System Configuration



Installation

Overview

The central receiving site is a critical element of the AES•*IntelliNet* system. Every installation is unique, taking into account structure, geography and other factors. This manual covers all elements of the system installation and operation. The manual sequence is somewhat arbitrary - you should read the entire document and then decide how to proceed.

- **Read the manual! Familiarize yourself with all elements of the installation.**
- Decide how each component will be installed in your facility,
- Proceed with installation in a manner that serves your needs best.
- **!• IMPORTANT: Retain an experienced, commercial radio technician to install connectors on cables and to perform transceiver tests.**

Installation: Transceiver(s) and Antenna(s)

An outdoor high-gain antenna, professionally installed, 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, 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 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.

Cable Components

To speed installation and assure top performance, AES supplies pre-assembled RF coax cable. See diagrams in next section. For *each* antenna in the system, AES typically includes:

- 100 feet of RG/8U coax cable, with 1 - N Connector terminated; cut to length needed and terminate with N connector supplied. Any other cabling needed may be cut from this length.
- 6 foot RG/8U coax cable, pre-assembled with N connectors (connects suppressor to filter)*
- 3 foot RG/8U coax cable, pre-assembled with N connectors (connects filter to transceiver)*

* If these cables don't fit with your installation, cut from the 100 foot cable and use the additional N connectors provided.

All equipment must be installed in accordance with National Electric Code, applicable UL Standards and local building codes.

Installation: Transceiver(s) and Antenna(s), *continued*

• **Transceiver equipment.** The transceiver equipment includes the 7030-B transceiver(s), bandpass cavity(s) and surge suppressor(s). The transceiver and cavity are installed inside the building as they are not rated for outdoor use. The most common location is an equipment room near the control room and as close to the antenna as possible.

To minimize signal loss and maximize performance, design your installation to use no more than 100 feet of coaxial cable (per antenna). Allow enough space for coax cable bends of no less than a radius of 6 inches. **Do not make right angle or tight bends in the coax.**

The surge suppressor should be located outside, in a weather resistant housing, to prevent surges from lightning entering the building. This device is directional - connect it in the right direction. The suppressor must be connected to an earth grounding system. Consult your electrician for proper grounding.

The transceivers and bandpass cavities are usually mounted on a wall. Using a plywood mounting board is also a good idea. The orientation of these items depends on the cable routing. Some common arrangements for the 7030-B, bandpass filter and suppressor are shown in this manual. The cavity can be mounted above, below or to the side of the transceiver. A common arrangement is to mount the cavity to the side of the transceiver and inverted with the connectors on the bottom. The cavity should be installed to protect the threaded rod -

DO NOT move the threaded rod - it is pre-tuned at the factory.

Another efficient set-up that limits the number of bends in the coax is to mount the transceiver inverted and below the inverted cavity with the N-connector lined up below its mating connector on the cavity.

• **Antenna mounting and location.** Radio signal distance is directly related to the height of the antenna. Select an antenna height that clears all or as many obstructions as possible. The length of the cable is also important: the longer the coax the greater the signal loss.

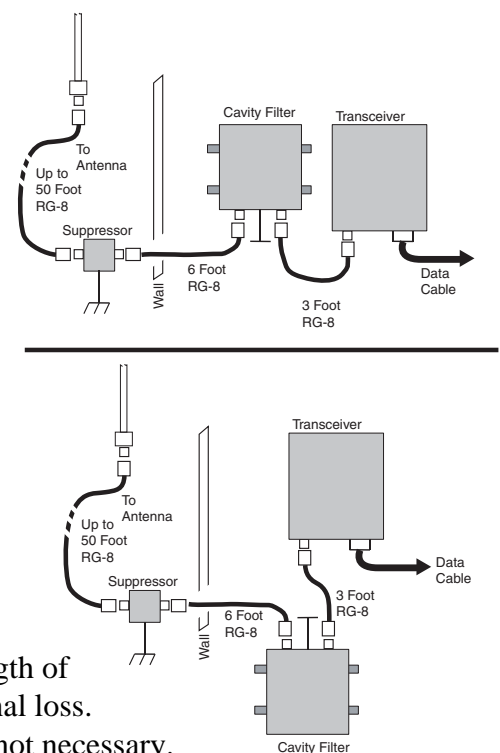
You do not want to sacrifice signal loss for antenna height that is not necessary.

Select an antenna height and transceiver location that will use less than 100 feet of

coax. If you must exceed 100 feet you must use a lower loss cable than provided with the standard system. AES provides a Belden 9913 or equivalent which is lower loss cable than standard RG-8/U. 9913 is specified as 3 dB per 100 feet, which means a loss of 50% of power in 100 feet of coax.

Separate the antennas by at least 5 to 10 feet - the further the better. If mounting on the side of a metal tower, place the antenna at least 5 feet off the tower if possible. 2.5 feet off the tower is the absolute minimum.

Attach a good earth ground to the antenna mounting bracket(s). The grounding of the antenna and surge suppressor are for your safety and the safety of your equipment and should not be neglected.



Installation: Transceiver(s) and Antenna(s), *continued***• Coaxial RF Cable Installation**

Final connections and test must be performed by a qualified Radio Technician.

- Use the pre-made cable/connector assemblies wherever possible. These pre-tested cables save time and assure good connections. Install / terminate the RG-8/U cable and N-type connectors as shown to the antenna, the bandpass cavity, the surge arrestor (make sure it faces the correct direction) and from the bandpass cavity to the 7030-B.

- To install the N connector(s), use the following procedures:

Step 1 Strip cable jacket, braid, and dielectric to dimensions shown. All cuts are to be sharp and square.

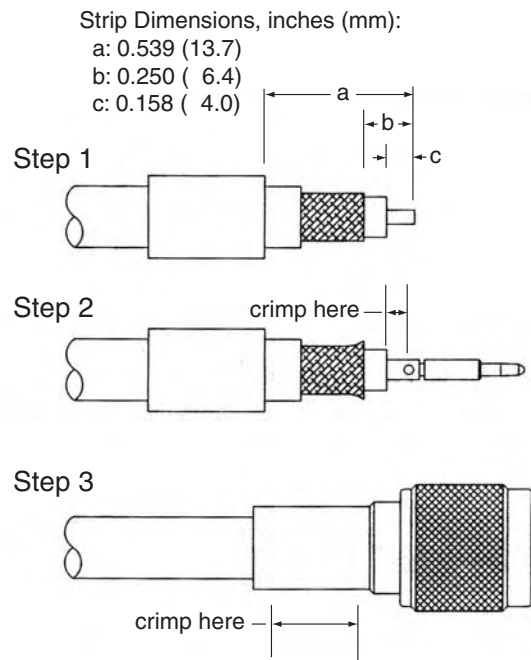
Important: Do not nick braid, dielectric, and center conductor. Tinning of center conductor is not necessary if contact is to be crimped. For solder method, tin center conductor avoiding excessive heat.

Step 2 Slide outer ferrule onto cable as shown. Flare slightly end of cable braid as shown to facilitate insertion of inner ferrule. **Important:** Do not comb out braid. Place contact on cable center conductor so it butts against cable dielectric. Center conductor should be visible through inspection hole in contact. Crimp or solder contact in place as follows:

Crimp Method: Use Die Set Cavity for contact indicated in table above.

Solder Method: Soft solder contact to cable center conductor. Do not get any solder on outside surface of contact. Avoid excessive heat to prevent swelling of dielectric.

Step 3 Install cable assembly into body assembly so inner ferrule portion slides under braid, Push cable assembly forward until contact snaps into place in insulator. Slide outer ferrule over braid and up against connector body. Crimp outer ferrule using Die Set Cavity specified in table above.

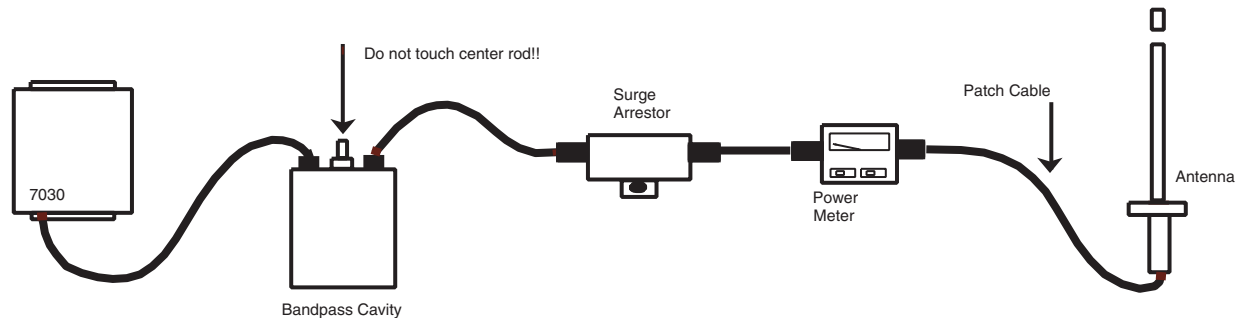


Installation: Transceiver(s) and Antenna(s), *continued*

• Coaxial RF Cable Test

NOTE: *This section is out of sequence, but is intentionally kept in this section on antennas and cabling.*

IMPORTANT: The 7003 central receiver must be powered up and connected to the 7030 transceiver so that full power is provided for testing. Refer to that section before this test.



Test Procedure for the RF cables and connectors:

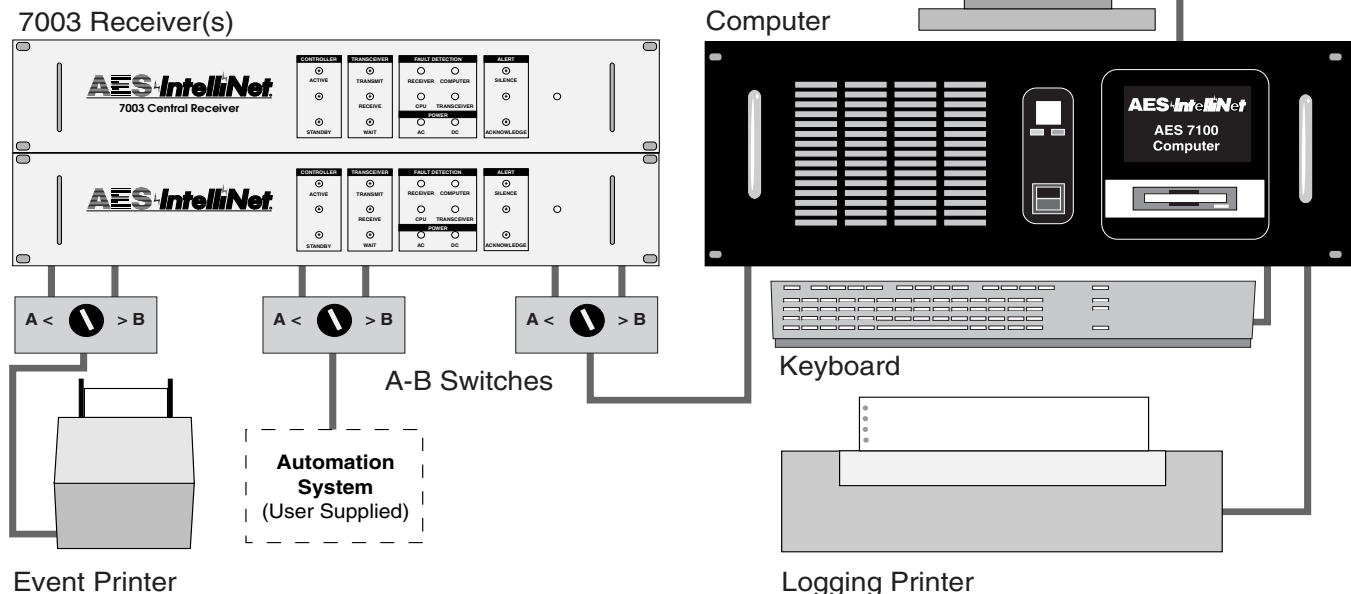
- Use one of the 3-foot coax cables or make a "patch" cable with the RG-8/U and N-type connectors on both ends.
- Power the 7030-B transceiver with a freshly charged 12V battery and DC power from the 7003. Note that this battery serves as backup power for the 7030-B and the 7003. Main power is provided by the 7003.
- Connect the patch cable to the antenna. Connect the power meter to the RG-8/U coax, making sure that the orientation of the power meter is correct (see diagram).
- Set the power meter to "Power". Have an assistant activate the transmitter by connecting test clip leads across terminals 3 and 5 on the 7030-B. **WARNING:** DO NOT transmit longer than 10 seconds.
- Watch for a reading of 2 watts of power on the power meter. Depending on the length of the coax cable and the quality of the connections, the power may read lower. 1.5 watts is the preferred minimum allowed power.
- 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. Also, check that the antenna is tuned to the correct frequency.
- Use the meter and patch cable to check other sections of your cable run.
- Disconnect jumper, power and meter, and reconnect antenna.
- Use weatherproof tape to seal all coax connectors tightly and apply silicone sealant on all "N" type threads to prevent water damage.
- For dual systems, repeat steps for second antenna and cable set.

Installation: Control Room Equipment

The AES 7003 Receiver(s), the AES 7100 computer, computer keyboard, computer monitor, printers and data switches are usually located in the control room. The computer and receiver are designed for installation into industry standard 19-inch equipment racks. You may wish to fabricate their own custom cabinets or place the equipment on desks and shelves. The 7003 is 3.5 inches in height. The 7100 computer is 7 inches high. If you want to install the monitor in the rack you will need a shelf or other monitor mounting hardware. The keyboard could also be placed on a shelf in the rack. Some users have mounted the keyboard directly to a blank plate in the rack. The data switches (used in dual installations) can be shelf mounted or custom mounted to blank plates with the knob shaft through the plate.

Your automation system is where the control room personnel perform most of their monitoring functions. The AES equipment should be handy in the event you go to a manual mode but, with everything functioning normally, including the connection to your automation, the monitoring personnel should not routinely need to access the AES equipment to monitor signals.

Install the control room equipment to enable connection to the transceiver and your automation, and in a manner that meets your operational needs.



Each installation is different. Install the control room equipment to suit your needs. Some sizes are listed here for planning:

- 7003 Receiver(s) - Size: 3.5"h x 19"w x 10"d.
- 7100 Computer - Size: 7"h x 19"w x 21"d.
- Event Printer - Size: 7"h x 6.5"w x 11"d.
- Logging Printer - Size: 8"h x 16"w x 11"d.
- Monitor - Typical Size: 16"h x 14"w x 15"d
- Keyboard - Typical Size: 2"h x 18"w x 7"d
- A-B Switches (three for dual system) - Size: 2.3"h x 6"w x 6"d

Sizes may vary slightly. When planning, allow room for cables and connectors

Connect the 7030-B Transceiver -to- 7003 Receiver Cable

Run the Cable from transceiver to receiver

A custom-made, shielded, 5-pair cable is supplied. It connects the 7003 receiver(s) in the control room to the 7030-B transceiver(s) located near the antenna. The cable provides signal, control, power between the 7003(s) and the 7030-B(s). Run and mount that cable through the facility (refer to illustration on page 4) and then proceed to connect the cable to the components.

At the 7030-B Transceiver:

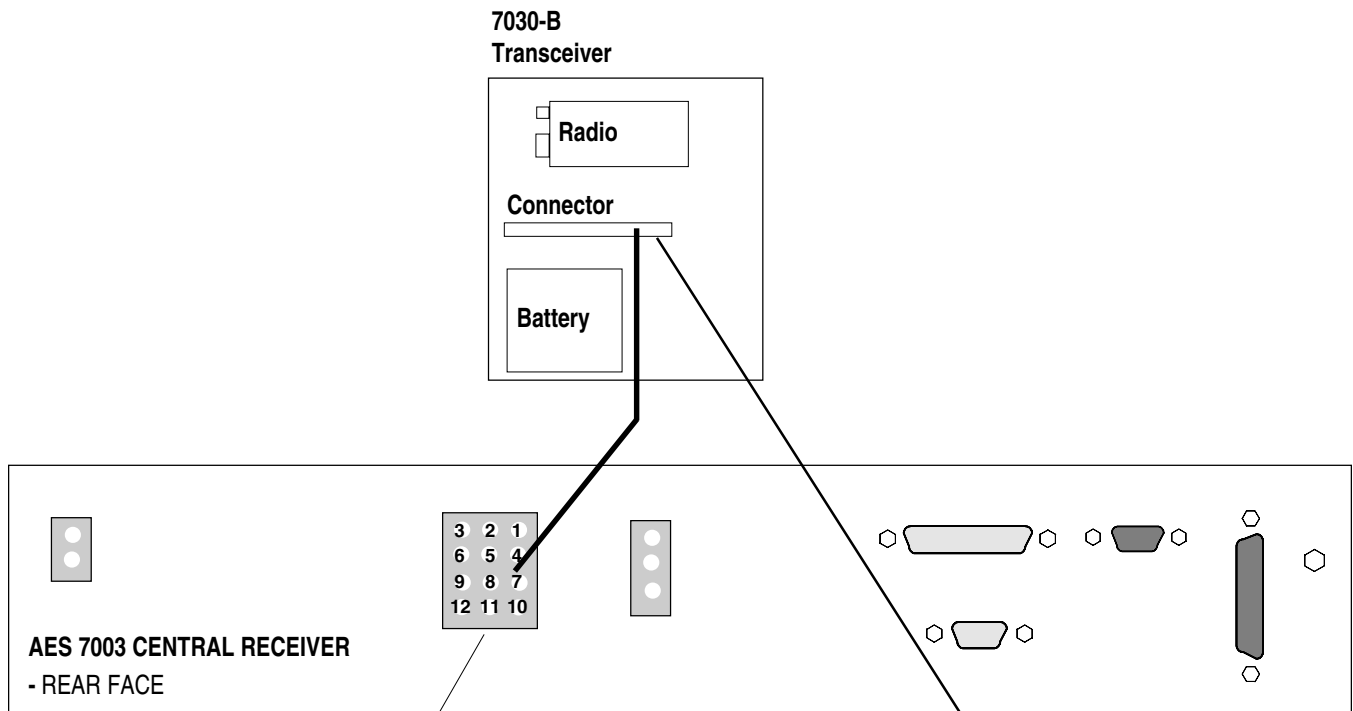
- Pull about one foot of 10-conductor cable through the watertight connector on the 7030-B and strip off about 6" of insulating jacket. Remove plastic and foil coverings from the wires and remove the filler.
- **NOTE:** Drain wires are un-insulated and are found in every shielded jacket.
- Strip all wires to expose 1/4" of conductor.
- Refer to next pages for pin configuration. Tighten the cable clamp.

At the 7003 Central Receiver:

- Pull enough of the 10-conductor cable to reach the 7003 and still have adequate slack for servicing, usually 3 feet. Strip off about 6" of insulating jacket. Remove plastic and foil coverings from the wire pairs and remove the inner filler.
- **Refer to table on next page.**
- Strip off about 1/8" from all wires. Using the AMP crimper, crimp wires into the female connector pins provided by AES. Insert pins into the 12-pin AMP connector as described in the table on the next page.
- **Do not connect power at this time. Connect antenna first!**

Powering the transceiver with no antenna attached may result in permanent damage.

Cable: 7030-B Transceiver to 7003 Receiver



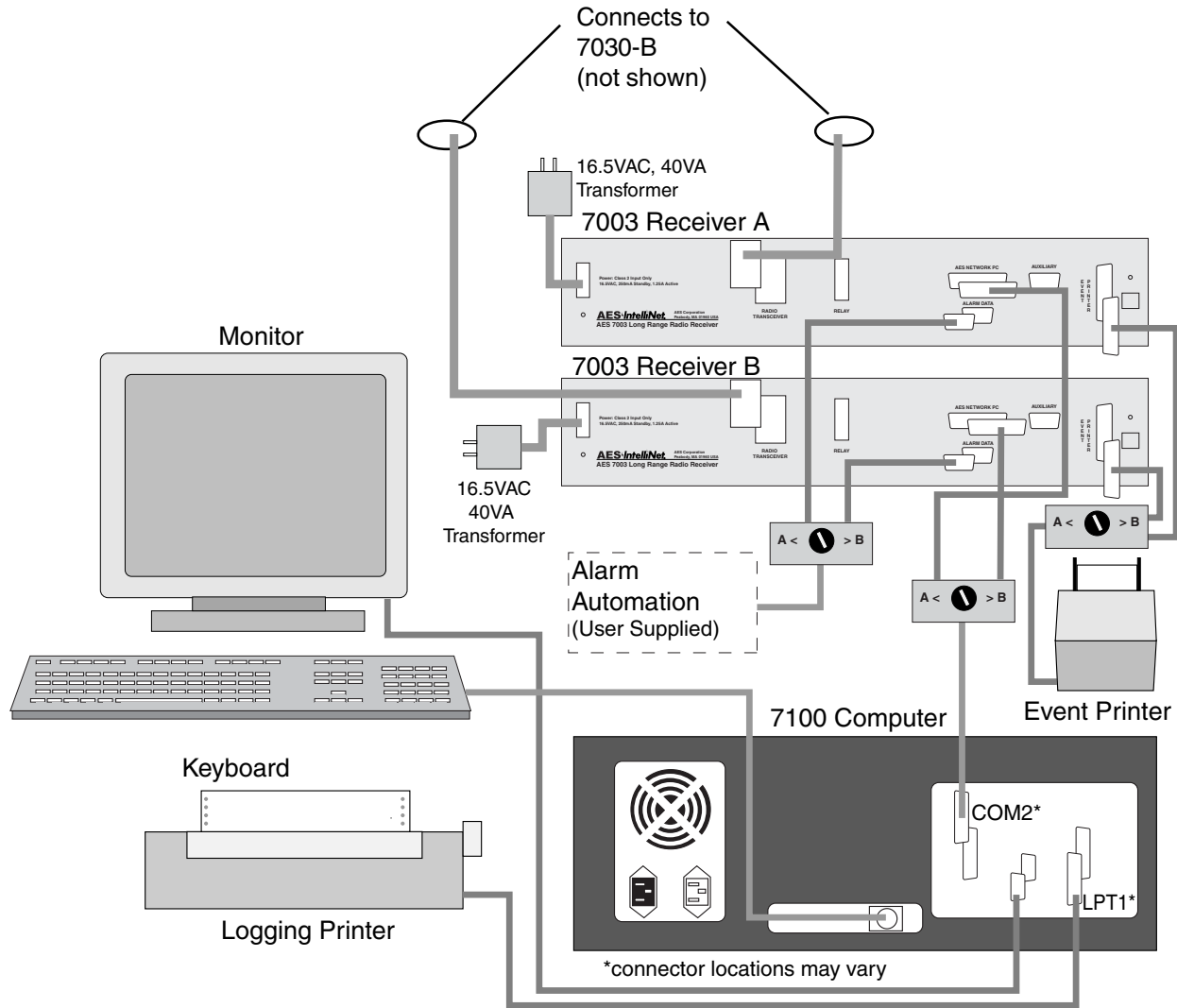
7030-to-7030-B Cable Connector

Function	7003	Wire Color	Wire Color	7030-B	Function
TX Audio	1	Brown	Brown	1	TX Audio
RX Audio	2	Red	Red	2	RX Audio
GND Ref	3	Drain	Drain	3	GND Ref
Sense -	4	Black	Black	4	Sense -
PTT\	5	Orange	Orange	5	PTT\
CD\	6	Blue	Blue	6	CD\
VDROP\	7	Purple	Purple	7	VDROP\
Sense +	8	White	White	8	Sense +
TAMPER IN	9	Grey	Grey	9	TAMPER IN
+Raw DC	10	Yellow	Yellow	10	+Raw DC
-Raw DC	11	Green	Green	11	-Raw DC
Shield	12	Drain	Drain	12	Shield

NOTE: All shields are isolated in cable. Use only cable supplied by AES Corporation.

Connect the 7003 Central Receiver, 7100 Network Controller & Accessories

Cables are supplied to connect the elements of the control room equipment. Refer to the diagram for hookup. For single systems, ignore the second receiver and the A-B switches shown.



Actual computer connector locations may vary from the illustration.

Install AES Net7K and Related Software

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

To Load Net7K Software

- If a computer is supplied with your system, the software may already be loaded. If not, continue here:
- Install and configure DOS 6.22 on your computer.
- Insert the Net7K disk into your PC/DOS computer.
- Type A:INSTALL and follow instructions on screen to install from correct drive.
- Net7K software will be installed on the computer.
- It is recommended that you copy the AUTOEXEC.BAT and CONFIG.SYS files from the installation diskette (A:) to the hard drive (C:).
- **REFER TO THE Net7K MANUAL**
- **IntelliMonitor Users: Refer to Appendix B, and the IntelliMonitor manual, supplied separately.**

Set System Cipher

The System Cipher, sometimes called the Dealer Code, is a four digit hex number that is unique to your wireless data network. The central receiver and all subscriber units must have matching cipher in order to communicate with each other. Signals received from any source with a non-matching cipher are ignored by the subscriber unit and the central station. The cipher provides protection from unwanted signals and any attempt to "fool" the system.

The Cipher must be programmed into the 7003 firmware. **Some customers prefer to have this code set at the factory.** If your receiver has been set at the factory, move on to the next section. Otherwise, choose and set the cipher code now before installing subscriber units.

- From the 7100 or other computer, run the Net7K software (see Net7K manual for operating details).
- Once in the program, press **Control-D**
- Enter Password **P E A B O D Y** in capital letters
- Enter 4 digit cipher code in hex (legal characters are 0-9, A-F). Example: F D 9 9
- Record and carefully store the cipher code for later reference. Treat this code as you would any other sensitive, proprietary information. It is literally a key to your AES•IntelliNet system.

Set Alarm Output Parameters

The 7003 Receiver output to automation, marked "alarm data" on the rear of the 7003, is programmed using Net7K (similar to cipher procedure above).

- Format: Choose either a Radionics 6500 or an Ademco 685 (contact ID) receiver. AES also offers a "mixed" mode, which sends both formats. Consult your alarm automation provider for their recommendations. *For more details, refer to website, tech bulletin ALMCODx.pdf or .doc.*
- Receiver Number: Select a receiver number for this receiver.
- Select Optional Header Characters (Radionics Format). The default is blank.
- From the 7100 or other computer, run the Net7K software (see Net7K manual for operating details).
- Once in the program, press **Alt - U**
- Enter data as shown on the screen.

Alarm Automation Output

• **Connection to your automation system.** (Alarm monitoring system.) The connection to your automation system may need a special cable, adapters and possibly direct support from your automation system provider. AES provides a dB 9 Female connector for connection to your automation. It is designed to be connected to a device that is wired as “Data Terminal Equipment (DTE)”, or “computer equipment”. If your automation connection requires anything different you may need an adapter or a special cable. If you are connecting directly to a COM port of a PC that has 9 pins that mate with the provided cable, you are probably OK with the provided cable. You also should contact your automation system provider for information on configuring the system to communicate with the AES receiver.

The AES 7003 emulates Radionics 6500 & Ademco 685 (contact ID) alarm output formats. See section on "Setting Alarm Output Parameters" in for further information.

Connector Pin-Out:

AES Network PC Interface

Pin # at 7003 25-pin	Signal Description*	I/O	Pin # at DTE 9-pin	Pin # at DTE 25-pin
2	Transmit Data from Terminal/Computer	← I	3	2
3	Receiver Data from AES Receiver	→ O	2	3
6	Data Set Ready (DSR) from AES Receiver	→ O	6	6
7	Signal Ground	↔	5	7
20	Data Terminal Ready (DTR) from Computer	← I	4	20
<u>Unused Signals by AES Receiver</u>				
4	Request To Send (RTS)	← X	7	4
5	Clear To Send (CTS)	→ X	8	5
8	Carrier Detect (CD)	→ X	1	8
22	Ring Indicator (RI)	→ X	9	22

* Signal names are as viewed from Terminal or Computer 's connectors.

Alarm Data / Output to Automation

Pin # at 7003 9-pin	Signal Description*	I/O	Pin # at DTE 9-pin	Pin # at DTE 25-pin
3	Transmit Data from Terminal/Computer	← I	3	2
2	Receiver Data from AES Receiver	→ O	2	3
6	Data Set Ready (DSR) from AES Recvr	→ O	6 **	6 **
5	Signal Ground	↔	5	7
4	Data Terminal Ready (DTR) from Comptr	← I 4 **	20 **	
<u>Unused Signals by AES Receiver**</u>				
7	Request To Send (RTS)	← X	7	4
8	Clear To Send (CTS)	→ X	8	5
1	Carrier Detect (CD)	→ X	1	8
9	Ring Indicator (RI)	→ X	9	22

* Signal names are as viewed from Terminal or Computer's connectors.

** RTS/CTS signals may be required by the automation system connected at DTE end.

If required then connect 7 – 8 of a 9-pin or 4 – 5 of a 25-pin at automation computer end.

** Some systems may not provide these signals. Connect 4 – 6 of a 9-pin or 6 – 20 of a 25-pin at AES Receiver end. Contact AES for automation adapter cable part number 13-0375.

The AES automation adapter cable (13-0375) connects DTR to DSR and RTS to CTS at both ends of the adapter cable. When using this cable the AES receiver cannot detect via hardware that the automation system is disconnected.

Operation

AES 7003 Receiver

Front Panel and Function Identification

CONTROLLER SWITCH

- ACTIVE: Unit is "live"
- STANDBY: Unit is "off-line"; transmitter is disabled

FAULT DETECTION INDICATORS

Lights ON indicates a problem:

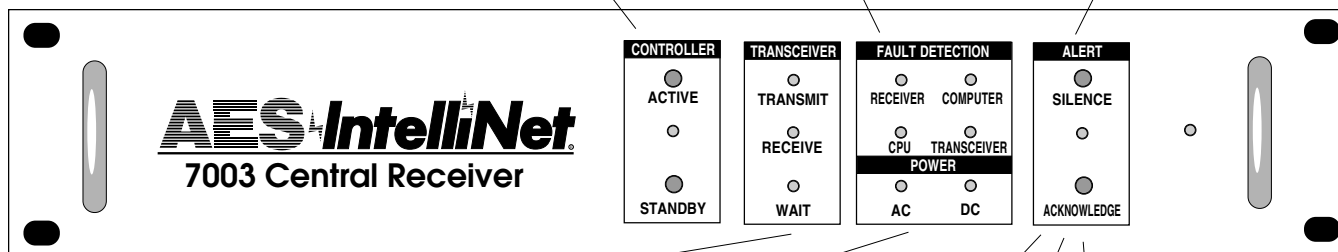
- RECEIVER: printer problem or internal problem with 7003;
- COMPUTER: Automation computer is off or disconnected.
- CPU: CPU has reset; indicates firmware problem during power up
- TRANSCEIVER: Tamper in 7030-B Transceiver; power problem; cable or connector problem.

SILENCE SWITCH

Silences buzzer when alert LED is steady (buzzer silences only when LED is steady). Also acknowledge CPU faults.

ACKNOWLEDGE SWITCH

Manually acknowledges messages when Alert LED is flashing; switch push is recorded on printer.



TRANSCEIVER INDICATIONS

- TRANSMIT: Transmitting
- RECEIVE: Signal Detected on Receiver Frequency
- WAIT: Waiting for Acknowledgment of last transmission

POWER

- "AC" ON = AC Power Input OK
- "DC" ON = DC Power (internal) and Battery (in 7030-B) OK

ALERT LIGHT

LIGHT ON / STEADY:

Indicates one or more of the following: Central Receiver CPU has reset; Internal Hardware Fault; External Hardware Fault - loss of link to Net77 software or transceiver problem. Check Print Out for report of specific event.

LIGHT ON / FLASHING: Indicates condition of non-response from Net77. Central Receiver now goes to manual mode for acknowledgment for all alarm events. Under this condition, operator must press the acknowledge button for every alarm event received. Press the silence button after all alarms acknowledged to silence buzzer.

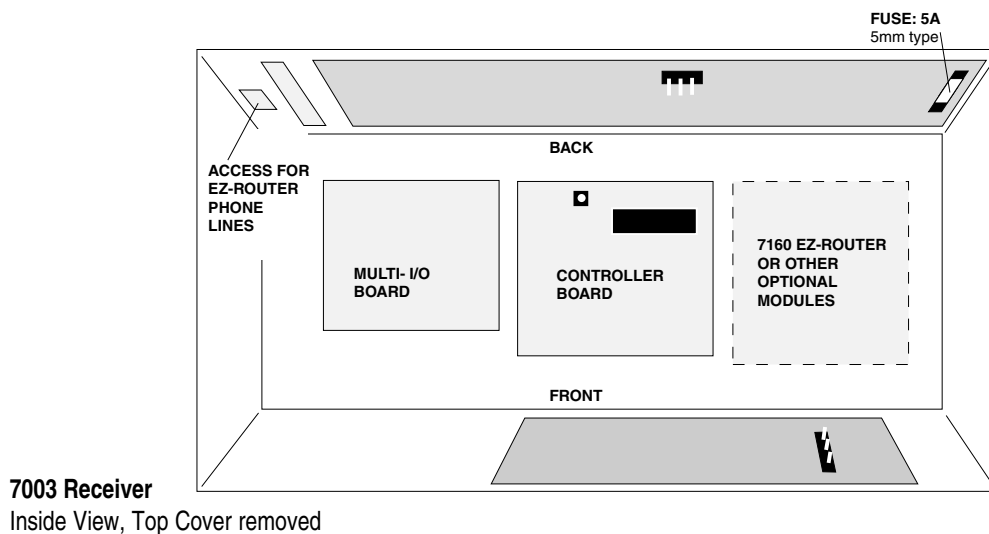
Operation of AES 7003 Receiver, continued

Faults that require operator attention:

<u>Event Type</u>	<u>Indicator</u>	<u>Action/Remedy</u>
7003 Receiver Internal Problem	Receiver LED	Reset main board in 7003 using internal reset button, or momentarily remove power
Loss of contact With Net7K	Computer LED; Beep	Check Cables Check that Net7K is running
CPU Fault	CPU LED; Beep	Reset main board in 7003 using internal reset button. If power up OK, acknowledge signal, otherwise check event printer for possible problems
Transceiver Tamper/ Fault	Transceiver LED; Beep	Check cable to transceiver; Check transceiver for tamper
Un-Acknowledged Radio Packet	Flashing Alert LED	Check Interface to 7100/computer and that Net77 is running; Acknowledge packet (message) manually by pressing Acknowledge button.

Event Printer Messages - See Appendix A

7003 Receiver - Internal Parts Location



AES 7100 Network Computer (Controller)

Parts List

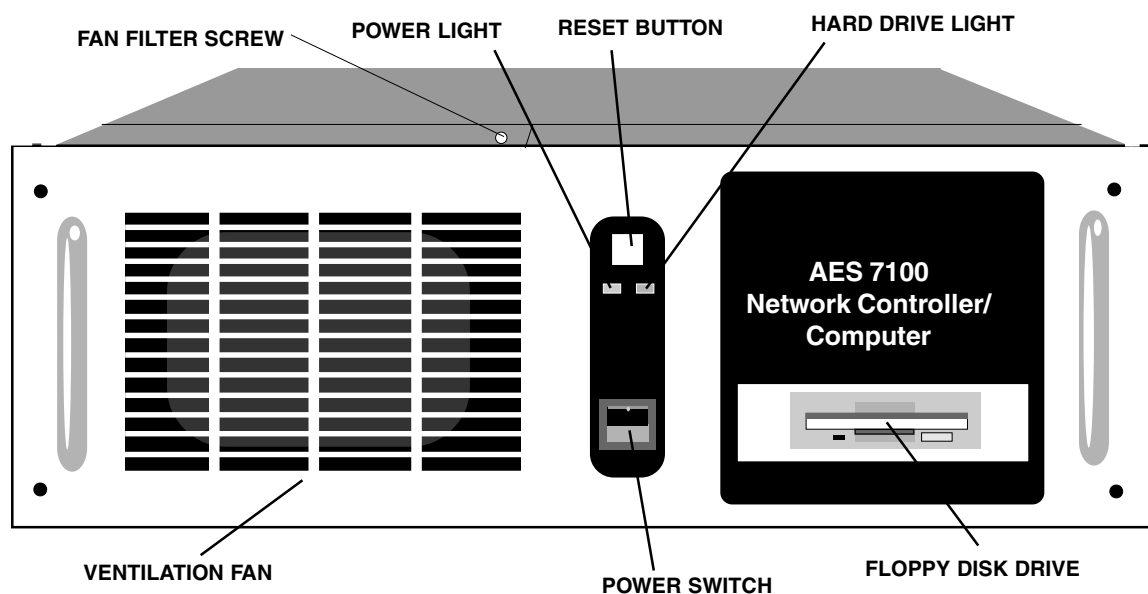
- AES 7100 Network Computer
- Monitor
- Keyboard
- Keyboard Extension Cable
- Monitor Extension Cable
- Computer Manual Package
- Includes disks for DOS, assorted drivers, and manuals for all computer boards
- Logging Printer
- AES IntelliNet Manual Package

NOTE: Due to occasional improvements in manufacturing procedure, board and connector location within your AES 7100 may vary.

Cleaning Fan Filter

Clean the fan filter once every month. If debris appears excessive, clear the filter more often.

- The computer may continue running during this procedure.
- Unfasten and slide the 7100 approximately two inches out of its cabinet. Be careful not to pull out any of the cables connected to the rear panel.
- Unscrew the filter fan screw located on the top of the 7100 case
- Lift out the filter assembly and remove the filter.
- Clean the filter of accumulated debris and replace in filter holder.
- Fasten filter holder down, replace the cabinet and refasten with screws.



Location of switches and indicators may vary

Appendices

Appendix A - Event Printer Output

Event Printer and Printout Explanation 7003

Overview: The Event Printer connected to the 7003/7703 receiver is used to print all events that are received as well as status and trouble messages from the receiver. The Event Printer acts as the display for the receiver. When your monitoring system is off-line or down and you are in a manual mode, this printer is the only display for your receiver. It is where you read and interpret received signals. Refer to the manual provided with the printer for printer specific instructions.

Manual Mode Operation: The receiver's internal audio indicator will sound when a received signal is not acknowledged by an attached monitoring system. Press the ACKNOWLEDGE button on the front of the receiver to acknowledge the signal. An unacknowledged signal exists if the ALERT Light is flickering. Silence the buzzer by pressing SILENCE when the Alert Light is on steady or off. Read the messages printed on the Event printer to determine if the events require action. You may have to advance the paper to read the complete message. If filtering of Check-in messages is active, the buzzer will sound and there will be no printed message. The buzzer is indicating that the Check-in message was not acknowledged by the monitoring system.

Filter Check-in: The Event Printer output of the 7003 can be configured to filter printing of Check-in messages. Filter Check-in messages is the default mode of the receiver when shipped. Every hour a two-line message is printed indicating the mode of the print filter. This also acts as an hourly test of the printer.

One of the following messages will print every hour:

```
<Date Time> PRINT CONT 00  
FILTER - CHECK IN           = Check-in messages are not printed.
```

```
<Date Time> PRINT CONT 01  
FILTER - NONE               = All messages including Check-in's are printed.
```

Changing Filter Mode, Net7K: Refer to the Net7000 software section of your manual for complete instruction on changing the mode of the print filter using Net7K software. Press <Alt> F at the main screen of Net7K. A window will pop up. Type ON<Enter> to turn filter on or to disable Check-in printing. Type OFF<Enter> to turn filter off or to enable Check-in printing.

Changing Filter Mode, HH Terminal: You will have to use a Hand Held Terminal to change the mode if you do not have Net7K. Plug the terminal into the P2 port of the Network Controller Board. Press the reset button on the board. At the AES> prompt type in "SET CHN OFF" to disable Check-in printing, or type in "SET CHN ON" to enable Check-in printing. Do not confuse AES> prompt with the C:\AES> seen on a computer monitor screen. The AES> prompt is displayed on the Hand Held Terminal's display when connected properly to the Network Controller board.

Stored Events: The controller board in the receiver will store up to the last 100 events if the printer is not attached or is off-line. When the printer is put back on-line the messages will begin to print.

Specific Printers: The printer port of the 7003 is designed to operate with Centronics parallel printers.

Appendix A, continued

This document provides explanations of the messages printed on the Event Printer attached to a 7003, 7703, 7000/2 or 7701. Not all of these messages are reported by all versions of Subscribers and Receivers. The messages you see will be dependent on the hardware, software and firmware versions you are using.

Message Structure: First line, All versions,

```
yy-mm-dd hh:mm:ss <message type> <message source> cc *
```

Where: yy = Year, mm = month, dd = date,
 hh = hour, m-m = minutes, ss = seconds,
 cc = hexadecimal message or zone number
 * = New event flag. Not being reported during Status or Check-in.

Message types:

ALARM	Subscriber reporting zone input in alarm.
RESTOR	Subscriber reporting zone input restored.
FAULT	Subscriber or CONTroller reporting a fault.
SUPVIS	Subscriber is reporting a supervisory message.
*MESSAG	Subscriber sending a text message (message structure is altered)
STATUS	CONTroller reporting a status message.
PRINT	CONTroller reporting a printer mode. (CEN Ver. 1.64 and later)
TAP	IntelliTap in a Subscriber, reporting a message or a status. (CEN Ver 1.65 and later)
Z TRBL	Supervised zone of subscriber (SUB Ver 1.72) in trouble condition. (CEN Ver. 1.xx and later)
TRBL R	Supervised zone of subscriber (SUB Ver 1.72) trouble restored. (CEN Ver. 1.xx and later)

Message source:

CONT	Central Controller (the Receiver)
xxxx	Four digit hexadecimal Subscriber ID number.

Message Structure: Additional line(s),

Additional lines are generated, if the first line's code "cc" requires further explanation. These messages are model and version dependent.

CONTROLLER - AC RESTORE	Restoral of AC power in Controller.
CONTROLLER - AC TROUBLE	Loss of AC power in Controller.
CONTROLLER - ACTIVE MODE	(UL) Controller switched to Active mode.
CONTROLLER - ALARM RESTORE	Alarm automation board restored.
CONTROLLER - ALARM TROUBLE	Alarm automation board trouble.
CONTROLLER - BATTERY RESTORED	Battery voltage no longer Low.
CONTROLLER - COMM TIMEOUT	(UL) Using an Unauthorized Net7000.
STATUS MESSAGE NOT ACKNOWLEDGED BY COMPUTER.	

Appendix A, continued

CONTROLLER - COMPUTER TROUBLE	Automation computer trouble.
CONTROLLER - COMPUTER RESTORE	Automation computer restored.
CONTROLLER - LOW_BATTERY	Low Battery detected by Controller.
CONTROLLER - MANUAL ACKNOWLEDGE RECEIVED	(UL) Operator pushed Silence/Acknowledge button.
<hr/>	
CONTROLLER - NET 7000 OFFLINE	Net 7000 not detected. Off-line.
CONTROLLER - NET 7000 ONLINE	Net 7000 detected. On-line.
CONTROLLER - PRIMARY MODE	Controller switched to Primary mode.
CONTROLLER - PRINTER OFFLINE	Event Printer not detected. Off-line.
CONTROLLER - PRINTER ONLINE	Event Printer detected. On-line.
CONTROLLER - STANDBY MODE	Controller switched to Stand-By mode.
CONTROLLER - TRANSCEIVER RESTORE	(UL) Voltage sense in 7730 restored.
CONTROLLER - TRANSCEIVER TROUBLE	(UL) Voltage sense trouble in 7730.
CONTROLLER - *** WARNING *** MULTIPLE CENTRAL CONTROLLERS ONLINE!	Multiple active Central Station Controllers detected on-line - with same cipher code.
CONTROLLER - *** WARNING *** TAMPER DETECTED ON TRANSCEIVER	(UL) The cover tamper switch in a 7730 has activated. Cover opened.
FAULT - AC MAINS	Loss of AC input voltage 7050-E.
FAULT - ADC/EXT EQUIP	Zone input fault by 7050-E Subscriber.
FAULT - CPU TIMING	Timing between CPU & Modem different.
FAULT - LOW BATTERY	Low battery detected at Subscriber Unit.
FAULT - MODEM LOOPBACK	Problem with modem chip.
FAULT - NO MODEM	Modem Chip fault.
FAULT - NONE	Fault Restoral or Reply by Subscriber to Status Request - All is OK, No Faults.
FAULT - NV MEMORY FAULT	NV Memory Fault.
FAULT - RAM BATTERY	Failed RAM Battery Check.
FAULT - RAM CHIP	Failed RAM Chip.
FAULT - RAM DATA	Failed RAM Check.
FILTER - CHECK IN	Printing of Supervisory Check-In is filtered. No printing of Check- In signals. This message prints once every hour while filtering is active.
FILTER - NONE	Printing of Supervisory Check-In is active. Print filtering not active. Prints once every hour.

Appendix A, continued

MESSAGE - (IntelliTap message)	IntelliTap (Actual message data).
STATUS - AUTOMATIC CHECK-IN	Automatic Supervisory Check-In. V1.65+
STATUS - ACKNOWLEDGE DELAY	Subscriber failed to receive <ACK> within time limit. CEN Ver 1.65 & later
STATUS - COMMUNICATION FAILURE	Subscriber failed to receive <ACK> within time limit. Pre CEN Ver 1.65
STATUS - PANEL CONNECT TROUBLE	IntelliTap Connection Trouble.
STATUS - POWER-ON RESET	1st Check-in, after power up.
STATUS - UNIT RESET	1st Check-in, after watchdog or PB Reset.

(UL) = These messages are printed, only on (UL) systems.

Example printouts:

97-04-15 11:55:18 SUPVIS 6839 00 *

On April 15, 1997 at 11:55:18 AM, Subscriber with ID 6839 performed an automatic supervisory Check-In. This single line format is pre CEN Version 1.65

97-04-15 11:25:20 SUPVIS 6839 00 *

STATUS - AUTOMATIC CHECK-IN

On April 15, 1997 at 11:25:20 AM, Subscriber with ID 6839 performed an automatic supervisory Check-In. This two-line format is CEN Version 1.65 and later.

97-04-16 08:00:00 ALARM 1971 01 *

On April 16, 1997 at 8:00 AM, Subscriber ID 1971 reported a zone activation on zone 1.

97-04-16 08:05:00 RESTOR 1971 01 *

On April 16, 1997 at 8:05 AM, Subscriber ID 1971 reported a zone Restoral on zone 1.

96-12-05 13:45:00 FAULT 2500 01 *

FAULT - LOW BATTERY

On December 5, 1996 at 1:45 PM, Subscriber with ID 2500 reported a low battery.

97-02-11 10:26:35 PRINT CONT 01 *

FILTER - CHECK IN

On February 11, 1997 at 10:26:35 AM, The AES Central Station Receiver is reminding or reporting that automatic supervisory Check-In signals from Subscribers will not be printed.

97-04-23 12:00:00 TAP 0003 - *

MESSAGE - 4321 18 E140 00 C001

On April 23, 1997 at 12:00:00 PM a Subscriber, ID 0003 with an **IntelliTap** is reporting an **IntelliTap** message.

SELFTEST-PASS

CEN 1.71 (C)1997 AES

The central station receiver was powered up or reset. It passed it's internal self tests and you have CENTral firmware version 1.71 created in 1997.

Contact AES Technical Support if you receive a printout not listed in this document.

OWNER WARRANTY - AES CORPORATION LIMITED PRODUCT WARRANTY AND TECHNOLOGY LICENSE

LIMITED PRODUCT WARRANTY:

AES Corporation ("AES") warrants to the original purchaser that each AES Subscriber Product will be free from defects in material and workmanship for three (3) years from date of purchase and all other products purchased from AES including central station receivers and accessories will be warranted for one (1) year from the date of purchase. At no cost to the original purchaser for parts or labor, AES will repair or replace any AES Product or any, part or parts thereof which are judged defective under the terms of this Warranty.

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Ship items freight-prepaid to:

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

(Contact AES for Return Material Authorization number)



June 2007

AES • Net7K

Wireless Network Management Software

INSTALLATION & OPERATION MANUAL

Including Net7K & Net99 Versions 3.6 - 3.9

Net77 Versions 1.48.6 - 1.48.9

<< AES•IntelliNet Radio Network Management System Ver. ____>>
Message ControlSite Programming Database sYstem (c) AES Corp.
Sep 15 12:57:01 [#6B, 9876..0000 1234->0000 (LNRT) Unit Check In] (Data 015: Unit 9876 is OK
Local Monitoring Off(On) Print Mode Off(on) VLS [] Events Pending __ FdM Time



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Tel 978-535-7310 Fax 978-535-7313

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1 1 0 2 0 0

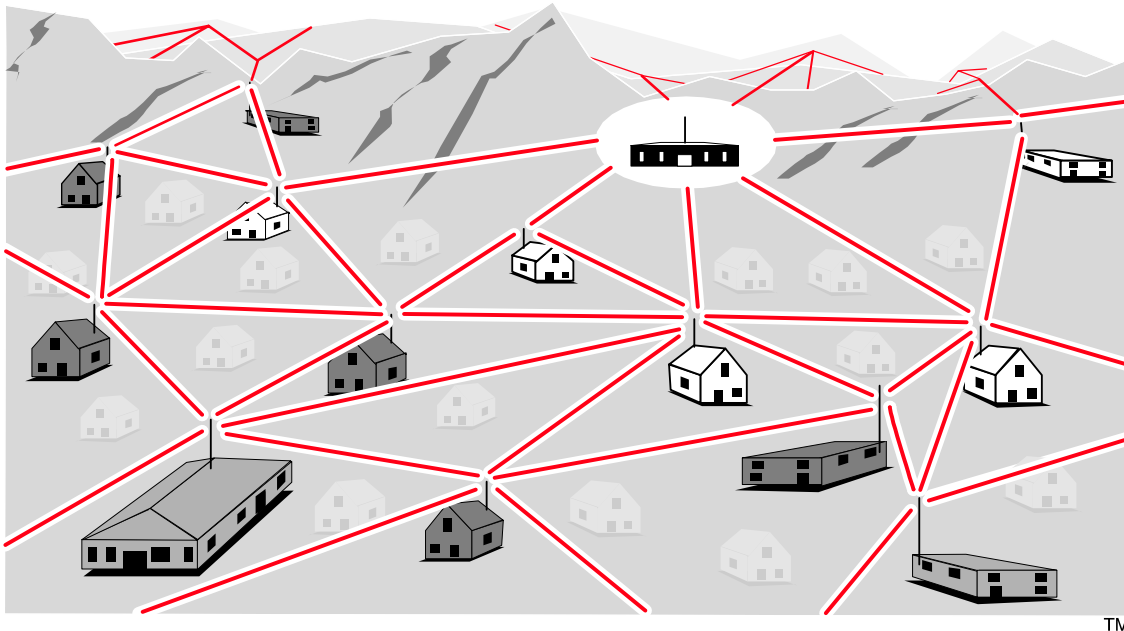
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System Overview



About AES•IntelliNet

AES•IntelliNet is a two-way data radio network for the monitoring of alarms. It is faster and more reliable than telephone and cellular systems which are subject to both tampering and general failure. Phone lines may still be used for backup.

What makes the patented AES system unique are its "smart" radio communicators, called subscriber units. Each subscriber unit is connected to an alarm panel. Alarm information is transmitted by radio to the central receiver. If a subscriber unit is too far away to reach the central station directly, its message is relayed by another subscriber unit closer to the central station. This unique, built-in "repeater" capability creates a highly rugged, adaptive security network. The system adjusts itself to forward messages by the shortest and best available route. The "smart routing" capability is completely automated, with no special programming needed. Also, by eliminating the need for dedicated repeaters and towers, the AES system dramatically reduces the cost of setting up and operating a wireless monitoring system.

"Net" Program Software

The "Net" program is the network management software that serves as the hub of the central reporting network. This manual covers 3 versions of this software:

- Net7K, used with 7000 series and 7003 receivers;
- Net77 used with 7701 receivers and 7703 receivers;
- Net99 used with 7099/System99 receivers.

The software includes powerful tools for programming of subscriber units and maintaining databases for network operations. It also serves as a "window" for observing data traffic on the network.

continued >

"Net" Program Functions

- Query/Retrieve data from remote subscriber units:
 - updates "Net" program database with all parameters
 - tests subscriber unit
 - records message routing
- Query and Poll remote subscriber units for status and routing tables
- Remote programming of
 - check-in time / test timer intervals
 - zone configuration
- Send and receive text messages to and from subscriber units equipped with data terminals or printers
- Remote reset, deactivation and reactivation of subscriber units
- Remote control of relay-switched functions (7050)
- Output to automation software in Radionics 6500 or Contact ID/Ademco 685 formats
(used on all Net77 installations, optional on Net7K and Net99)

NOTE: It is assumed that a Central Receiver and the Computer(Controller) are up and running. The receiver and computer/controller must be linked by an RS-232 cable, connecting the chosen controller/computer COM port (usually COM 2) to the "Network" output of an "active" Central Receiver. See manual sections on setting up central station hardware.

Loading the Program

To load the software, follow the instructions provided with the diskette. An installation program automatically loads the software onto the hard drive.

- **AES Net77** software operates **only** with the AES 7700 controller/computer, and can **only** be linked to a 7700 Series Central Receiver. Net77 does not work with other AES receivers. 7701 or 7703 after 4/14/2004.
- **AES Net7K** software operates on the AES 7100 controller/computer, linked to a 7003, 7000/2 or 7000/1 receiver. In some cases Net7K software can be loaded on 486+ PC computer operating under MS DOS 6.22.
- **AES Net99** software operates on a user supplied 486+ PC computer operating under MS DOS 6.22, linked to a 7099 receiver (System99).

If you are loading a newer version of Net software to replace an earlier version, the install program stores your old software and database files under a separate directory. Should you need to reactivate the old version, a "revert" program is included with the software disk.

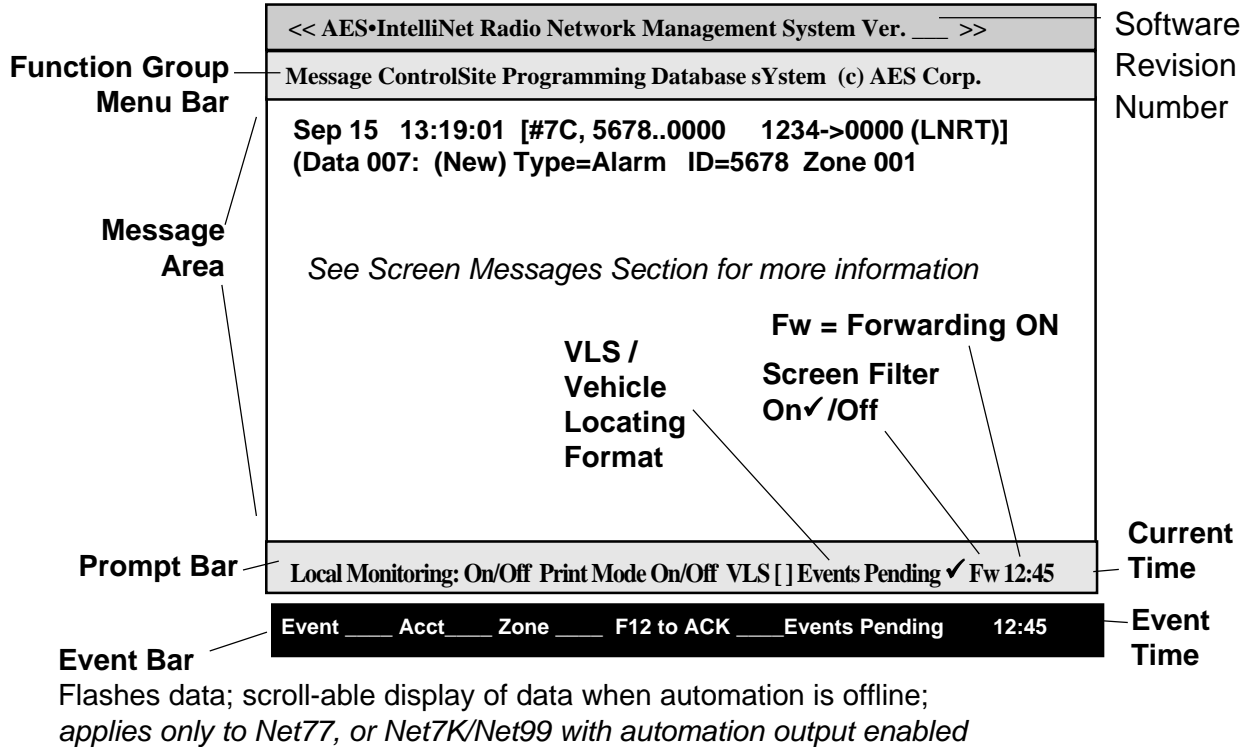
Starting the Program

To start the program, type `NET7000` from the C: prompt. This runs a batch file that starts the program.

Typing "NET7000" in any directory starts the program. Note that the "Net" program will start automatically after a system re-boot, assuming that the autoexec.bat and config.sys files included with the system are in place.

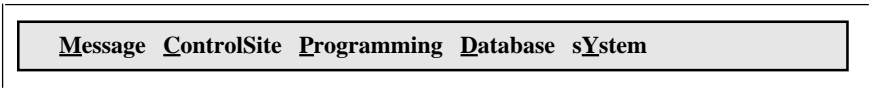
Operations Overview

Monitoring Screen



The basic AES•IntelliNet monitoring screen is illustrated above. Most of the screen displays network activity. Network information scrolls up the screen. In normal communication monitoring mode, all radio data "traffic" in range of the central station is displayed. This is a valuable tool for monitoring network activity. This data can be logged on the printer on LPT1 (or the DOS device PRN), which is toggled on or off by the <F9> key. Use this feature for troubleshooting or documenting specific activity - Do not use this function for "full time" print logging.

Function Groups

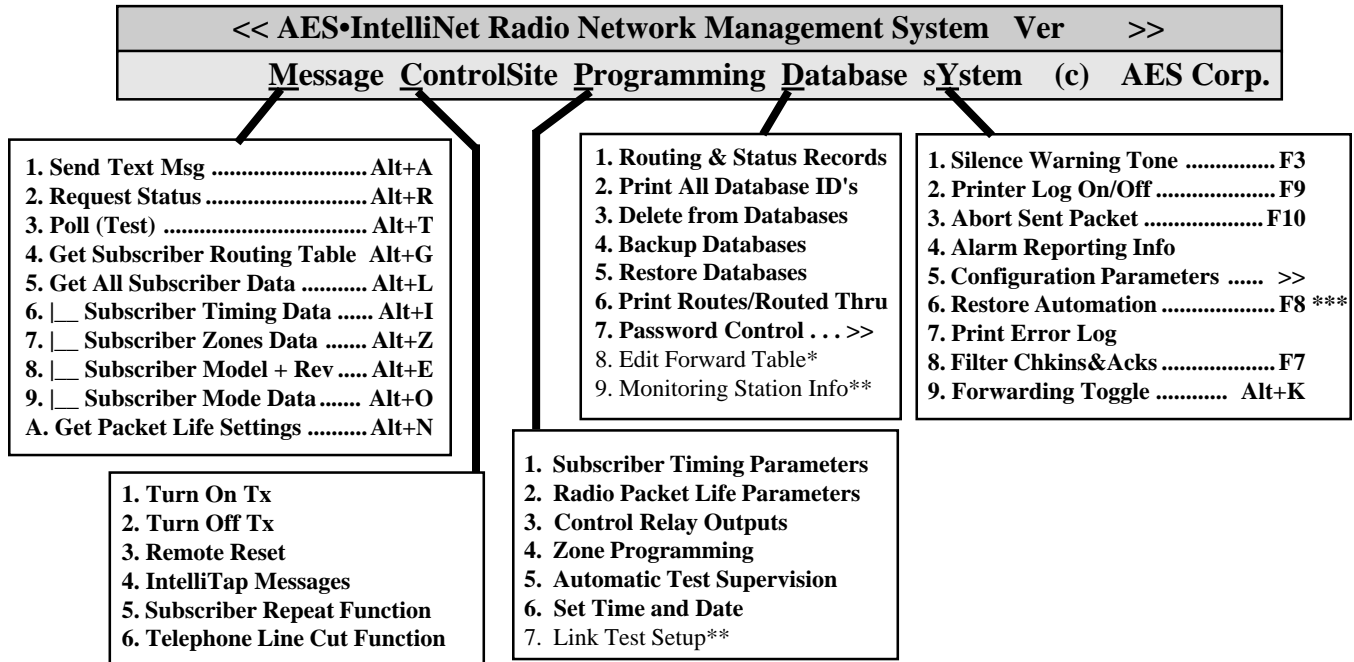


There are five function groups, including "Message," "ControlSite," "Programming," "Database" and "sYstem." They are accessed from the menu bar in the upper part of the screen. Each of the menu bar function groups has a highlighted (red) letter. Menu function groups are selected by holding down the <ALT> key and pressing the function group's highlighted letter on your keyboard. Pressing F1 accesses the group bar and highlights the Message group. Use the << >> arrow keys to select a group.

For example:



Quick Reference Menu Chart



- Function Keys - Shortcuts**
- F1 - Message Pull Down Menu (also Alt+M)
 - F2 - Block Mode for Outbound Messages
 - F3 - Silence Warning/Error Tone
 - F6 - Toggle Local / Remote Automation (Concentrator)
 - F7 - Screen Filter Check-Ins and Ack's
 - F8 - Restore Automation
 - F9 - Printer Log - On/Off
 - F10 - Abort Sent Packet / Flush Packet
 - F12 - Acknowledge Key

* Net7K only
 ** Concentrator only
 *** Except Concentrator ("Toggle" Automation)

- Short Cut Keys**
- ALT+A Send Text Message
 - ALT+B Screen Saver (toggle) (not on Net77)
 - ALT+C ControlSite Menu Pulldown
 - ALT+D Database Menu Pulldown
 - ALT+E Get Subscriber Model and Rev
 - ALT+F Print Filter, Check-Ins, On/Off (not on Net77)
 - ALT+G Get Subscriber Routing Table
 - ALT+H Memory Check / Debug
 - ALT+I Get Subscriber Timing Data
 - ALT+K Toggle Global Forwarding, Flag (not on Net77)
 - ALT+L Get All Subscriber Data
 - ALT+M Message Menu Pulldown
 - ALT+N Get Subscriber Packet Life Settings
 - ALT+O Get Subscriber Mode Data
 - ALT+P Programming Menu Pulldown
 - ALT+Q Overrides Auto Selection on Zone Programming
 - ALT+R Request Status of Subscriber Unit
 - ALT+S Saves/Sends Data Entered/Completes Function
 - ALT+T Poll Test
 - ALT+U Configure 7003 Automation Output Format
 - ALT+X Exits Program
 - ALT+Y System Menu Pulldown
 - ALT+Z Get Subscriber Zone Data
 - CTR+ALT+F10 Change Screen Color
 - CTR+D Set Security Cipher (Dealer) Code

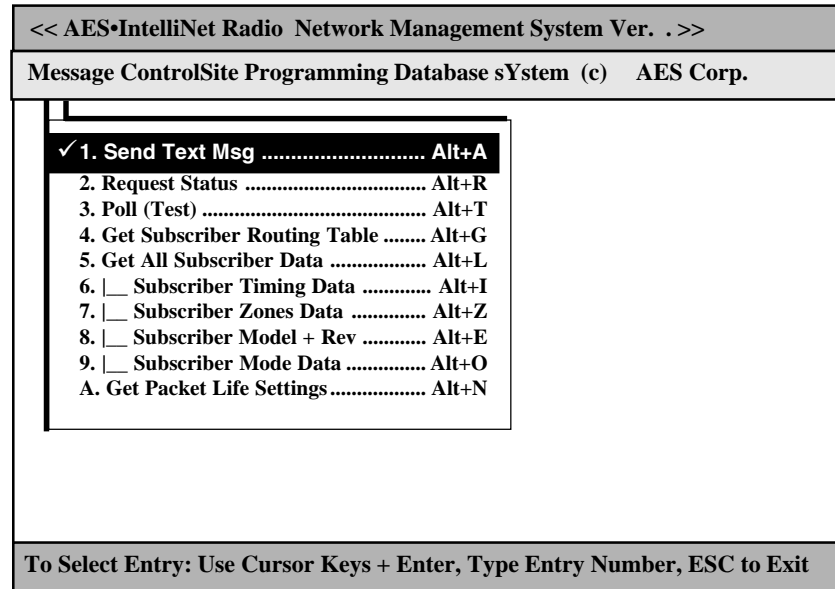
Prompt Bar Local Monitoring: On/Off Print Mode On/Off VLS [] Events Pending ✓ Fw 12:45

Event Bar Event ___ Acct ___ Zone ___ F12 to ACK ___ Events Pending 12:45

Flashes data; displays data when automation is offline.
 Applies only to Net77, or to Net7K/Net99 with automation output enabled

Access to Program Functions / Shortcuts

EXAMPLE - Select the "Message" function group: The word "Message" on the menu bar has the first letter "M" highlighted in the color red. This group is selected by pressing the <ALT> key plus the <M> key. The Message Group pulldown menu will now appear under the word "Message" on the menu bar.



The first of the pulldown functions, "Send Text," will be highlighted as shown above. Other functions within the pulldowns are selected using the up/down arrow keys. The highlight bar follows the cursor. The pulldown functions are executed when the user presses <ENTER>. Alternately, pulldown functions can be executed by pressing the line number of the desired function.

Alternate menu bar function pulldowns can be selected by using the left and right arrow keys. Pressing the <ESC> key will close the pulldown menu and return you to normal communication monitoring mode. Pressing the <ESC> key within a function block also will return you to the normal mode.

NOTE: When a pulldown, or function block pop-up is displayed, incoming network messages are temporarily stored in a buffer. When the buffer is full, or if an important message must be displayed on the screen, the program automatically returns itself to normal monitoring operation, thereby ensuring that no messages are missed.

Note also that many of the functions can be accessed directly by "hot key" combinations like "<ALT>+<T>, <ALT>+<A>, etc." Hot key notations appear on the same line as the function descriptions. Note the "SHORTCUTS" called out through this manual for the quickest ways of executing commands.

Using the Picklist Pop Up to Select a Subscriber

When a function is chosen from a function group, a "picklist pop-up" appears. You can type in the ID number of the subscriber unit you wish to contact, or use the arrow keys to highlight the appropriate ID number. Press <ENTER> to select it. (New subscriber units are automatically added to the Picklist when a signal is received.)

NOTE: The last ID# selected remains at the top of the list for easy access.

<< AES•IntelliNet Radio Network Management System Ver. >>	
Message ControlSite Programming Database sYstem (c) AES Corp.	
Enter Origin ID, or Use arrow keys, PGUP, PGDN to Scroll Thru List. Home Moves to Start End Moves to End Hit <ENTER> to Complete Selection	<div style="border: 1px solid black; padding: 5px;"> ■ 0001 1002 2003 3004 4005 5006 6007 7008 8009 </div>
There are 9 IDs	
To Select Entry: Use Cursor Keys + Enter, Type Entry Number, ESC to Exit	

Selecting a Route for Communications with a Subscriber Unit

Since each subscriber unit in your AES•IntelliNet system acts as a radio repeater, there are a many routes for messages to travel from its source to the central station. Each time a message is received from a unit, the software extracts the subscriber unit ID number of the origin, and the ID number of repeaters in the message's route. That route information is stored in a database and is used whenever an operator sends data to a subscriber unit from the central station.

continued >

Automation Output

• **Net77 users:** Net77 software provides an output to automation from the controller computer. It is always enabled - move on to next section, Manual Mode/Automation Offline.

• **For systems using Net7K and Net99 software, the output to automation is typically provided by the receiver (7000/1, /2, 7003 or 7099). If you wish, Net7K or Net 99 can provide an output to automation.** To activate this feature, exit the program (Alt-X). At the prompt type:

```
Net7KP /AON (or Net7KF /AON)
```

To disable the feature type:

```
Net7KP /AOFF (or Net7KF /AOFF)
```

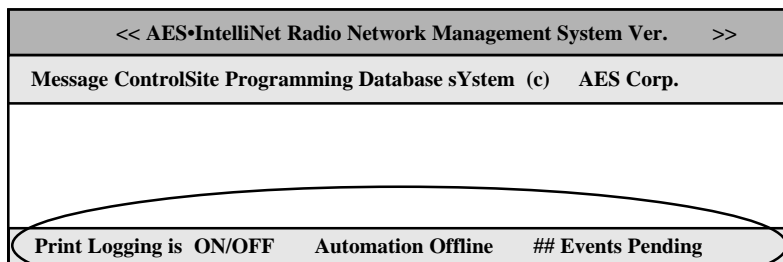
To display current settings type:

```
Net7KP /? (or Net7KF /?)
```

Manual Mode / Automation Offline -

Used on all Net77; Optional on Net7K/Net99 with Automation enabled

For Net77, or Net7K/Net99 systems with automation enabled: If the link is lost between the AES controller/computer and the automation software, the AES Net software activates a "manual acknowledge" mode. At the bottom of the screen, the prompt bar turns purple, and the message "Automation Offline" bar appears.



A beep sound is also generated, which is acknowledged and silenced using the F12 key.

IMPORTANT: When automation is disconnected, this on-screen display and the printer connected to the controller/computer are the only readout devices for all events received by the AES•IntelliNet system. Non-alarm events such as check-ins are also printed to the printer.

When an "alarm", "status", "trouble" or "restoral" message is received during an "Automation Offline" period, the following procedure is followed:

- The prompt bar at the bottom of the screen turns RED, and details of the event are displayed:

```
Account ##### [Event Type] Zone ## Press F12 to Acknowledge ## Events Pending [time]
```

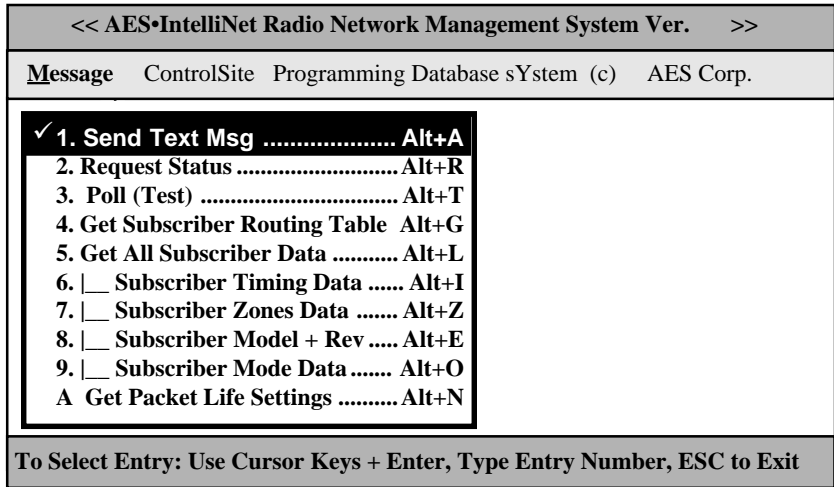
- An audible beeper is sounded.
- The alarm data is printed on the printer connected to the controller/computer
- The operator silences the tone by pushing the F3 key
- The operator acknowledges the event by pressing the F12 key
- The acknowledgment is printed on the printer connected to the controller/computer
- The "Events Pending" counter decrements by 1.
- The operator acknowledges one event each time the F12 key is pushed.

To return to normal operating mode, correct the problem that caused a loss of communication with automation. When the link to automation is reestablished :

- Acknowledge all pending events
- Reestablish link to automation by pressing F8
(The Net software-to-receiver link restores automatically when the connection is restored)
- Normal operation resumes

The Message Function Group

To access the Message function menu group, hold down the <ALT> key and press <M>. The pop-up illustrated at right will appear. Use the arrow keys to highlight a message function and press <ENTER> to select it. Proceed by selecting your target unit and choosing a route of communication.



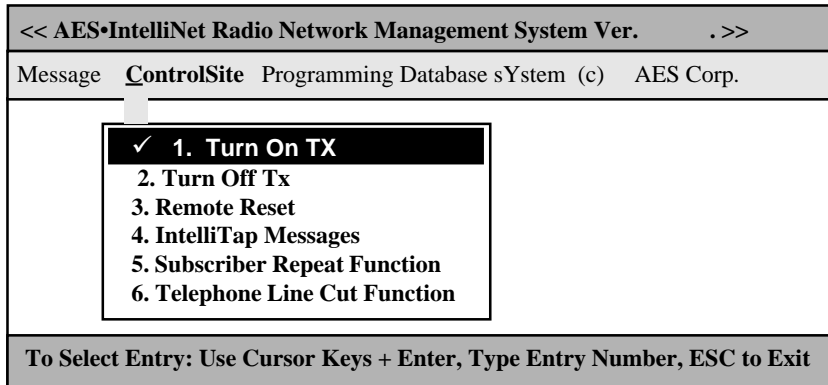
Function	Explanation
<p>1. SEND TEXT MESSAGE</p> <ul style="list-style-type: none"> • Press <ALT>+<A> or <ALT>+<M>, then <1> • Select Target Unit • Select Route • Type text message • Press <ALT>+<S> to send 	<ul style="list-style-type: none"> • Sends text messages to a remote subscriber unit. To receive the data, the remote unit must have a 7041 programmer attached or be equipped with a terminal. The most common use for this function is to test the communications link by sending data packets.
<p>2. REQUEST STATUS</p> <ul style="list-style-type: none"> • Press <ALT>+<R> or <ALT>+<M>, then <2> • Select Target Unit • Press <ENTER> for route 	<ul style="list-style-type: none"> • Queries a remote unit for its current status, requiring a "check-in" report back to the central station. The resulting return message provides the current status of the remote unit <i>and</i> sends a status (check-in) message to the alarm automation port. (See the manual section on messages types and interpretations).
<p>3. POLL (TEST)</p> <ul style="list-style-type: none"> • Press <ALT>+<T> or <ALT>+<M>, then <3> • Select Target Unit • Press <ENTER> for route 	<ul style="list-style-type: none"> • Performs a quick test of a remote unit. No message is returned to the command center except in the case of a failure to communicate with the designated unit. Also, no message is sent to the alarm automation port.
<p>4. GET SUBSCRIBER ROUTE TABLE</p> <ul style="list-style-type: none"> • Press <ALT>+<G> or <ALT>+<M>, then <4> • Select Target Unit • Select Route 	<ul style="list-style-type: none"> • Queries a remote unit for its current routing table. It prints the routing table for this subscriber, and displays the routing table from top (best) to bottom. For each unit on the list, the following items are displayed: <ul style="list-style-type: none"> • ID # • LINK LAYER # • NETCON • SIGNAL QUALITY between this unit and queried unit, listed as Good, Fair or Poor

The Message Function Group, continued

Function	Explanation
<p>5. GET ALL SUBSCRIBER DATA</p> <ul style="list-style-type: none"> • Press <ALT>+<M>, then <5> or Press <ALT>+<L> • Select Target Unit • Select Route 	<ul style="list-style-type: none"> • Queries a remote unit for ALL of its currently programmed parameters. The function automatically performs functions 6, 7, 8 and 9, retrieving Timing, Zones, Model #/Rev and Mode data for the unit you specify. (See specifics below).
<p>6. (GET) SUBSCRIBER TIMING DATA</p> <ul style="list-style-type: none"> • Press <ALT>+<M>, then <6> or Press <ALT>+<I> • Select Target Unit • Select Route 	<ul style="list-style-type: none"> • Queries a remote unit for its current timing parameters. The received data updates the timing parameters database. Timing parameters are part of the Programming Function Group described in the following pages.
<p>7. (GET) SUBSCRIBER ZONES DATA</p> <ul style="list-style-type: none"> • Press <ALT>+<M>, then <7> or Press <ALT>+<Z> • Select Target Unit • Select Route 	<ul style="list-style-type: none"> • Queries a remote unit for its current zone configurations. The received data updates the Zone Configuration database. The Zone Configuration is part of the Programming Function Group described in the following pages. <p>NOTE: 7050 can be equipped with up to 9 banks of 8 zones each. When queried with this function, un-installed zones show as Normally Open, No Restoral, the default condition.</p>
<p>8. (GET) SUBSCRIBER MODEL & REV</p> <ul style="list-style-type: none"> • Press <ALT>+<M>, then <8> or Press <ALT>+<E> • Select Target Unit • Select Route 	<ul style="list-style-type: none"> • Queries a remote unit for its model number (e.g. 7750F, 7450, 7050E, etc.) and its firmware revision number. This information is stored in the Net software database.
<p>9. (GET) SUBSCRIBER MODE DATA</p> <ul style="list-style-type: none"> • Press <ALT>+<M>, then <9> or Press <ALT>+<O> • Select Target Unit • Select Route 	<ul style="list-style-type: none"> • Queries a remote unit for the current "mode" settings (enable/disable) for 3 different parameters: <ul style="list-style-type: none"> • IntelliTap Message, default = enabled (works with 7050-E (Ver 2+), 7750-F, 7450, 7440 only) • Subscriber Repeater Function, default = enabled (works with all units <i>except</i> 7440, which do not repeat) • Telephone Line Cut Function, default = disabled (works with 7450, 7440 only)
<p>A. (GET) SUBSCRIBER PACKET LIFE SETTINGS</p> <ul style="list-style-type: none"> • Press <ALT>+<M>, then <A> or Press <ALT>+<N> • Select Target Unit • Select Route 	<ul style="list-style-type: none"> • Queries a remote unit for its Packet Life Settings (aka Time-to-Live or TTL). This function can only be used with Version 2+ subscribers with TTL capability. Other are not supported. This information is stored in the Net software database. <p><i>See also - Radio Packet Life Parameters, Programming Menu.</i></p>

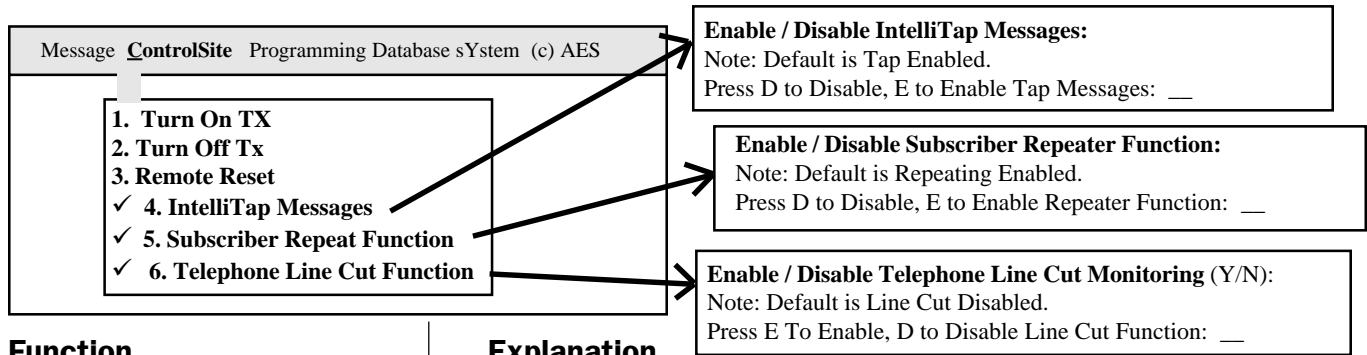
The ControlSite Function Group

To access the ControlSite function menu group, hold down the <ALT> key and press <C>. The pop-up illustrated at right will appear. Use the arrow keys to highlight a control function and press <ENTER> to select it. Proceed by selecting your target unit and choosing a route of communication.



Function	Explanation
<p>1. TURN ON TX</p> <ul style="list-style-type: none"> • Press <ALT> + <C> • Press <1> • Select Target Unit • Select Route 	<ul style="list-style-type: none"> • Re-enables transmitting on a remote subscriber unit that has been turned off (see Turn Off TX, next).
<p>2. TURN OFF TX</p> <ul style="list-style-type: none"> • Press <ALT> + <C> • Press <2> • Select Target Unit • Select Route 	<ul style="list-style-type: none"> • Disables a remote subscriber unit should the need arise, such as when an alarm system fails and causes the transmitter to activate repeatedly. NOTE: The unit is not literally turned off, but is prevented from transmitting until it receives the "Turn On" signal (above). Note that a transceiver in the Off Mode will create route failed message when including in an outbound route. WARNING: This function disables the subscriber - use it only when absolutely necessary. • This function may be used on UL Burglar Alarm and Fire Alarm systems only with strict adherence to the requirements of UL Standard 611, Central Station Burglar Alarm Units and the National Fire Alarm Code, NFPA 72.
<p>3. REMOTE RESET</p> <ul style="list-style-type: none"> • Press <ALT> + <C> • Press <3> • Select Target Unit • Select Route 	<ul style="list-style-type: none"> • Resets the remote subscriber unit - the same as physically pushing the reset button on the unit itself. This causes the subscriber unit to re-enroll on the network and build a new routing table. A reset may be used to restart the check-in interval timer. The new interval will commence at the time of reset (see also: subscriber unit manuals).

The ControlSite Function Group, continued



Function	Explanation
<p>4. INTELLITAP MESSAGES</p> <ul style="list-style-type: none"> • Press <ALT> + <C> • Press <4> • Select Target Unit • Select Route • Enter D to Disable, E to Enable Tap Messages 	<ul style="list-style-type: none"> • Enables / Disables the subscriber unit's ability to send IntelliTap Messages. CAUTION: Once disabled, the subscriber will ignore IntelliTap or FDX data presented to its port. • This function works with 7750-F, 7050-E (Ver 2+), 7450 and 7440 models. • To confirm the function, perform a "Get Subscriber Mode Data" to retrieve the current status of this mode (<u>M</u>essage group, # 9) and to update the database. • Refer to subscriber unit and IntelliTap manuals for more information.
<p>5. SUBSCRIBER REPEATER FUNCTION</p> <ul style="list-style-type: none"> • Press <ALT> + <C> • Press <5> • Select Target Unit • Select Route • Enter D to Disable, E to Enable Repeating 	<ul style="list-style-type: none"> • Enables / Disables the subscriber units ability to be a repeater. • Works with Version 2 or higher subscriber units. CAUTION: Disabling the repeater capability may cause problems with the network. Disable repeating for testing purposes only, or for mobile units, which are never to be used as repeaters. • To confirm the function and update the database, perform a "Get Subscriber Mode Data" to retrieve the current status of this mode (<u>M</u>essage group, # 9) • Refer to subscriber unit manuals for more information.
<p>6. TELEPHONE LINE CUT FUNCTION</p> <ul style="list-style-type: none"> • Press <ALT> + <C> • Press <6> • Select Target Unit • Select Route • Enter D to Disable, E to Enable Line Cut Monitoring 	<ul style="list-style-type: none"> • Enables / Disables the Phone Line Cut Monitoring function in 7450 or 7440 subscriber units. • To confirm the function and update the database, perform a "Get Subscriber Mode Data" to retrieve the current status of this mode (<u>M</u>essage group, # 9) • Refer to 7450 or 7440 subscriber unit manuals for more information.

The Programming Function Group

To access the Programming function menu group, hold down the <ALT> key and press <P>. The pop-up illustrated at right will appear. Use the arrow keys to highlight a function and press <ENTER> to select it. Proceed by selecting your target unit and choosing a route of communication.

<< AES•IntelliNet Radio Network Management System Ver. .>>	
Message ControlSite	<u>P</u> rogramming Database sYstem (c) AES Corp.
<div style="border: 1px solid black; padding: 5px;"> <p>✓ 1. Subscriber Timing Parameters</p> <p>2. Radio Packet Life Parameters</p> <p>3. Control Relay Outputs</p> <p>4. Zone Programming . . . >></p> <p>5. Automatic Test Supervision</p> <p>6. Set Time and Date</p> <p>7. Link Test Setup (concentrator only)</p> </div>	
To Select Entry: Use Cursor Keys + Enter, Type Entry Number, ESC to Exit	

The screen illustrated at right enables an operator to change the timing parameters of a subscriber unit from the central station. Check-in intervals and the timing for secondary alarm accumulation, debounce delay and communication timeout time limits can be programmed using this screen.

<div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">ID # Subscriber Timing Parameters [XX]=Default</p> <p>Automatic Test Interval [24 Hrs]: <u>24</u> (Hrs) <u>00</u> (Mins)</p> <p>Additional Event Report Delay (0 to 80 Sec) [10]: <u>10</u></p> <p>7050/7750-UL Loop Response (.05 to 2.5 Sec) [0.12]: <u>0.12</u></p> <p>Acknowledgment Delay (60 to 300 Sec) [90]: <u>89</u></p> <p>Last Updated On: Wed Oct 18 09:30:23 YYYY</p> <p>Press ALT-I to Get Update from Unit</p> </div>
Press Alt S to Send/Save, Press Delete to erase Fields, else <ESC> to Exit

1. SET TIMING PARAMETERS for REMOTE SUBSCRIBER UNITS

• **TO BEGIN: PRESS <ALT>+<P>, then 1** -- Select ID and routing. When the above screen appears, press <ALT>+<I> This queries the remote subscriber unit to report all its current timing parameters for your review. It also updates the Net software database.

• **SET AUTOMATIC TEST INTERVAL (Check-In's): PRESS <ALT>+<P>, then 1** -- Select ID and routing. When the above screen appears, a cursor will be flashing at the check-in interval area. The intervals can be programmed between one minute and 24 hours (the default setting is at 24 hours). To minimize radio air traffic, an interval of 24 hours is recommended except in high security applications. The ability to change this timing feature by remote is a key advantage of the two-way AES•IntelliNet system. When you have entered a check-in time interval, press <ENTER> to move on to the next field. When done, press <ALT>+<S> to send.

Net77 / UL and COMMERCIAL FIRE INSTALLATION REQUIREMENTS:

- **Check In Interval: Set to required amount according to UL codes -see subscriber manual.**
- **Enable Test Time Supervision: NO**

Supervision must be monitored by a UL Listed Automation System.

- **The maximum allowable interval between check in signals on a UL Burglary Alarm system with line security is 5 minutes.**

Note: Whether operating with a Listed Automation System or in manual mode, a UL Burglar Alarm System with line security and a Grade A Central Station Burglar Alarm System requires a missing check in signal to be responded to as an alarm condition.

Programming Function Group / 1. Timing Parameters, continued

• **ADDITIONAL EVENT REPORT DELAY:** This feature allows a subscriber unit to accumulate alarms, after its initial alarm report, for a programmed time period. When an alarm has occurred at a remote subscriber site, the central receiver is notified immediately. The event report delay allows a remote unit to compile subsequent alarms for a period of time, so that a comprehensive packet of alarm data is sent to the Net77 system all at once, thereby reducing network air time. The default setting for this feature is 10 seconds. To change the event report delay, enter the new value and press <ENTER> to move to the next field. **An event report delay of 10 seconds is the maximum time limit allowed for UL Burglar Alarm Systems and Commercial Fire Alarm Systems.**

• **7050 & 7750/UL LOOP RESPONSE:** Programs a debounce delay for the zone inputs of 7050 and 7750/UL subscriber units to prevent input switches or relays from causing nuisance alarms and repeated reports of the same alarm. The default setting is 0.12 seconds. If you choose to change this setting, simply enter the new value and press <ENTER> to move to the next field. **A control unit (panel) output(s) to the 7750 RF subscriber unit shall be programmed to latch in when it triggers a zone input on the 7750. For UL & Commercial Fire Systems, contact debounce delay may be not longer than 0.12 seconds.**

Note: The loop response in the 7050-E, 7440, 7450 and 7750-F units are preset at 0.12 seconds and cannot be changed.

• **ACKNOWLEDGMENT DELAY:** If a subscriber unit does not receive an acknowledgment within the time parameters set by the Acknowledgment Delay function, it activates an output to annunciate the problem locally. The next successful communication to the central station will include an Ack Delay fault code. The default setting for this feature is 89 seconds. If you choose to change the ACKnowledgment DELAY period, simply type in the new value, hold <ALT> and press <S> to complete and send your timing parameter data.

For 7750/UL and 7750-F Subscriber Units: A zone of the control panel shall be connected to the relay labeled "ACK DELAY", to monitor the subscriber unit against antenna removal, communication failure and to provide a local and remote annunciation of such a fault condition. (Refer to subscriber manuals.)

• **LAST UPDATED ON:** This feature displays the last time that Timing Parameters were sent to or received from the subscriber unit selected. All information of this kind is constantly updated by the Net databasing system. If no date appears, or if the date seems to be out of range, the timing parameters have not been set or downloaded through Net software.

To update the database with current Timing information, press <ALT> and <I> to access the "Get Data" functions.

NOTE: For all remote program functions, watch to make sure that a data confirmation packet is received from the target subscriber (watch scrolling message screen area).

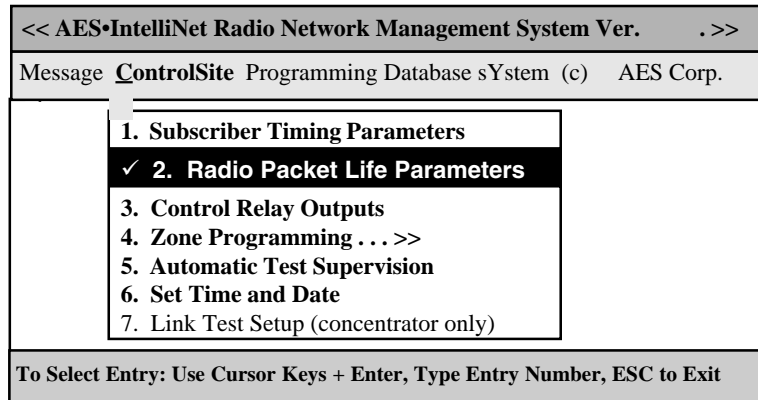
Programming Function Group, continued

2. RADIO PACKET LIFE PARAMETERS TTL/Time-to-Live

Version 2 subscribers include the new “Time-To-Live” or “TTL” function.

Like the Internet, AES-IntelliNet is a packet-based technology. The Time-to-Live concept in the Internet is based on the fact that all data has a useful life.

The benefits of TTL are best exhibited when the central station receiver goes off line due to a lightning hit or some other unlikely, catastrophic event. While the receiver is off line, messages traveling through the system are stored in the individual subscriber units for later delivery. Under the default TTL settings, unimportant test timer messages (typically 95+% of the traffic) are deleted from the subscriber unit memory after 30 minutes of being delayed in the network. Thus, the system will not have to handle the message when the central receiver comes back on line. All other messages, such as alarms, etc. speed there way to the central station as they normally do.



ID # Packet Life Parameters [XX]=Default		
Check in Packet Life:	<u> 30</u>	[30 Min Timeout]
Status Packet Life:	<u> 0</u>	[0 = No Timeout]
Alarm Packet Life:	<u> 0</u>	[0 = No Timeout]
Trouble Packet Life:	<u> 0</u>	[0 = No Timeout]
Restoral Packet Life:	<u> 0</u>	[0 = No Timeout]
IntelliTap Packet Life:	<u> 0</u>	[0 = No Timeout]
Specials Packet Life:	<u> 0</u>	[0 = No Timeout]
Note: Packet Timeout Times Range from 10 to 1440 Minutes. A Value of 0 Minutes = No Timeout of Packet		
Press Alt-N to Get Current Packet Lives from #####		

Press Alt S to Send/Save, Press Delete to erase Field, else <ESC> to Exit

- Note that even when a check-in packet is deleted due to a delay, the objective of that message has already served its purpose: the late or missing signal has been flagged at the central station (see Automatic Test Supervision section).
- Under the default (factory) settings, only test timer messages are subject to the TTL function. If you want TTL for other message types, YOU must activate it when you program the subscriber unit.
- The TTL time is included in packets generated by TTL (Ver 2+) subscribers. The timeout function works when a packet is stored for forwarding in any subscriber with TTL (Ver 2+) capability, which will decrement the TTL time for any packet it is storing. When TTL time has expired, the packet is aborted. This function does not work with non-TTL (pre-Ver 2) subscribers.
- The TTL feature works best when the majority of subscribers, or the subscribers that are most heavily used, have the feature in the firmware. Call your AES representative for upgrade information.

Default time for Check-In Packets is 00 hours, 30 minutes. DO NOT enter a greater than 24 hrs 00 mins. Entering a time of 00 hours and 00 minutes deactivates the time-to-live function for that packet type. The shortest allowed TTL time is 00 hours, 10 minutes.

TTL can also be set for other packet types:

- Status Packets
- Alarm Packets
- Trouble / Trouble-Restoral Packets
- Zone Restoral Packets
- AES-IntelliTAP Packets
- Special Packets (Vending, etc.)

The default time for the 6 packet types above is 00, i.e. the time-to-live function is deactivated for these packets. Entering anything greater than 00 HRS and 10 MINS will enable the Time-to-Live function.

Enter the data for each type, press <ALT>+<S> to send.

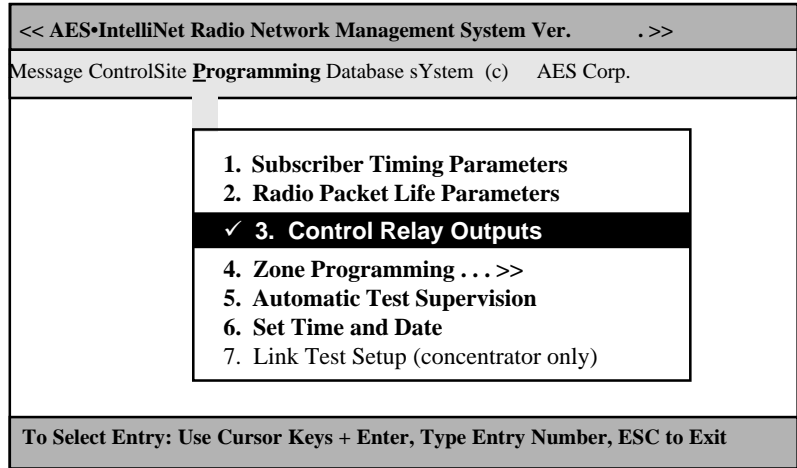
To confirm the data, press <ALT>+<N> to query the subscriber. When the TTL parameters packet has been received back, check this screen again.

See also - *Get Packet Life Settings, Message Functions Group*

Programming Function Group, continued

3. CONTROL RELAY OUTPUT

This feature controls **optional** relay outputs (part number 7065) for model 7050 subscriber units. Using this remote control capability, an operator may open gates, activate cameras or control any device at a remote location. The basic relay output uses eight relays, but as many as 64 may be controlled. This feature has not been evaluated for UL Listing.



Each relay can be individually addressed from the central station. Access the above screen by highlighting the "Control Relay Outputs" function on the Programming menu and press <ENTER>, or by pulling down the Programming menu as shown above and pressing the number <2> key. A control form appears.

Using the control block illustrated at right, the operator can turn on, turn off or toggle any switch connected to the subscriber unit relay board from the central station. Each box represents a relay.

If a box is left blank, the "OFF" command (default) will be sent.

ID # Control Relay Outputs															
Function Keys															
<+>				<->				<T>				Depends on Ver			
<input type="checkbox"/> =ON				<input type="checkbox"/> =OFF				<input type="checkbox"/>				<input type="checkbox"/> =Toggle or Mom			
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• USING THE CONTROL RELAY OUTPUT BLOCK - Using the arrow keys, place the cursor on the box representing the relay you wish to activate or deactivate. To activate a relay, press the <+> key. To deactivate a relay, press the <-> key. To toggle a relay, press the <T> key. Boxes with no data entered are set to OFF mode, the default setting. Move through the control relay output boxes by using the arrow keys. To send the command and save it in the database, hold down the <ALT> key and press the <S> key. The relays are latching (except as noted below); when a function has been turned on, a separate command must be sent to turn it off.

NOTES:

- For pre-version 2 model 7050 units, the toggle function may cause the relay to toggle multiple times because multiple receptions may occur. The final state cannot be predicted. It is not recommended.
- For Version 2 and new model 7050 units, the toggle function is a Momentary - i.e. the relay will pull in for approximately 1 second, then release.

Programming Function Group, continued

4. ZONE PROGRAMMING for Subscriber Units

Note: Set Timing Parameters First.

This function configures alarm zone inputs at a remote unit. **It is important to know which type of unit is being programmed.** There are five separate sub-menus to handle the different subscriber units, including:

- 7050/7750-UL
- 7050-E (pre-version 1.9)
- 7050-E (version 2.0+)
- 7450 / 7440.
- 7750-F

Use the cursor to select "Zone Programming" or type <ALT>+<P>, then <4>. Select the subscriber unit # from the pick list. If the unit already has zone information stored in the database, the function automatically goes to the correct sub-menu. Those submenus are listed in the following pages.

If the target unit is not in the database, a menu pops up:

Unknown Subscriber Type. Download Data from Subscriber.

To Override. Enter: 1. 7050/7750-UL, 2. 7050E,
 3. 7050E Rev 2.0+ 4. 7450, 5. 7750F:

It is recommended that you enter <ALT>+<L> to perform a "Get-All" data from this subscriber, including it's type. The retrieved data is stored in the database for future reference. (See more details under the Message Group pulldown.) Wait a few moments while the subscriber unit responds, then retry the Zone Programming function.

Or, you can skip the "Get Data" function if you are certain of the unit type and revision. Enter a digit 1 to 5 the for the type of unit listed on the screen pop-up.

CAUTION: Sending zone programming data to the wrong type of subscriber may cause unpredictable results.

Another warning screen pops up to remind you to be certain of which type of unit is being programmed:

Warning! No Trouble Signals* unless Central Firmware 1.70+
First put [unit #] on Test Before Programming.
The Remote Programming of Zones Can be Dangerous
Correct Wiring, and Subscriber Model can be unknown.
Changing Programming can create New Alarms.
Use at your own risk.

Note: Always Reset Subscriber after Zone Programming.
This is to Prevent Zone Conflicts.
Type Any Key to Continue.

* If you program the subscriber zones to report "trouble" (such as in "Fire" zone mode), the trouble messages can only be received by a version 1.70 or newer receiver. (This is the version of the chip in the receiver- not the software you are using here.) Upgrades are available, contact AES for details.

<< AES•IntelliNet Radio Network Management System Ver. . >>	
Message ControlSite Programming Database sYstem (c) AES Corp.	
	<ol style="list-style-type: none"> 1. Subscriber Timing Parameters 2. Radio Packet Life Parameters 3. Control Relay Outputs <li style="background-color: black; color: white;">✓ 4. Zone Programming 5. Automatic Test Supervision 6. Set Time and Date 7. Link Test Setup (concentrator only)
To Select Entry: Use Cursor Keys + Enter, Type Entry Number, ESC to Exit	

Programming Function Group, Zone Programming, continued

ZONE PROGRAMMING for 7750/UL & 7050 Subscribers

Refer to 7750/UL or 7050 Subscriber Unit Manual for details on zone wiring and programming.

This screen appears if the unit zone information is in the database, or if you selected 1 from the "Override" box choices (see preceding page).

Up to 72 separate zones on each remote subscriber unit can be addressed from the central station. Complete the Zone Configuration control block as instructed below.

The zone configuration control block offers five options for the programming of each alarm zone. The underlined letters below designate the state of the circuit.

1. Normally Open
2. Normally Open + Restoral
3. Normally Closed
4. Normally Closed + Restoral
5. Bypassed
6. Supervised
7. Supervised + Restoral

ID # Zone Configuration																							
<ALT> S When Done												-- Zones 1 thru 8--											
<ALT>Z To Update												N <u>O</u> , N <u>C</u> + <u>R</u> estorals											
												-- Zones 9 thru 72 --											
												Also Supervised <u>S</u> , <u>S</u> <u>R</u>											
												Any Zone Bypassed <u>B</u>											
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• **USING THE ZONE CONFIGURATION CONTROL BLOCK:** Use the arrow keys to place the cursor on the box of the zone you wish to program. Each zone has two sections. The left side of the box indicates the normal state of the circuit (Open, Closed, Supervised or Bypassed). The right side of the box indicates the Restoral setting. If you would like the subscriber unit to communicate a Restoral after an event, type an "R" in the right side. UL and NFPA require all zones of the 7750/UL Subscriber Unit to be programmed for Restoral signals. However, the control unit outputs to the 7750/UL unit must latch until manually reset. To make no change in a zone, simply pass over the filled in box using the arrows on your keyboard. To send and save the zone configuration command, hold down the <ALT> and <S> keys. Zones that are not programmed will return to a default setting of Normally Open.

UL and COMMERCIAL FIRE INSTALLATION REQUIREMENTS for 7750/UL Subscriber Units:

- **Zones 1-6:** Bypassed
- **Zone 7:** N.O. w/Restoral - Tamper (creates a N.C. loop through zone 7 of 7072 module)
- **Zone 8:** N.O. w/Restoral - AC Fail (from 7072 multi-board)
- **Zones 9-24, depending on the output of the control unit:**
 Normally open with Restoral, or Normally Closed with Restoral, or Supervised with Restoral, or if zone not used, Bypass

Next, perform a reset (press <ALT>+<C>, then 3, then select the unit from the pick list and choose a route.

To verify the information actually stored by the subscriber unit, press <ALT>+<Z>. This downloads the data from the subscriber unit into the "Net" software database. (Upper zones not installed will show a default "O").

Programming Function Group, Zone Programming, continued

ZONE PROGRAMMING for Pre-Version 2.0 7050-E Subscriber Units

Refer to 7050-E Subscriber Unit Manual for details on zone wiring and programming.

This screen appears if the unit zone information is in the database, or if you selected 1 from the "Override" box choices (see page 19).

The zone configuration control block offers five options for the programming of each alarm zone. The underlined letters below designate the state of the circuit.

- 1. Normally Open
- 2. Normally Open + Restoral
- 3. Normally Closed
- 4. Normally Closed + Restoral
- 5. Bypassed
- 6. Supervised
- 7. Supervised + Restoral

NOTE: The Fire and Inverted Fire options are not available on Pre-Version 2.0 subscriber units.

Unit [ID #] 7050E Zone Configuration

Fire: Disabled, Inverted Fire, Disabled

Press "B" to Bypass any Zone

Add an "R" for Zone Restorals

Press "O" Norm Open, "C" Norm Closed

Press "F" for Fire, "I" for Inverted Fire

Press "S" for Supervision (No Troubles) Alarms

01	02	03	04	05	06	07	08
□□	□□	□□	□□	□□	□□	□□	□□

ALT-Z to Get/Download Current Zone Info.
ALT-S to Save/Send When Done.
Note: Red Character Means N/A

•USING THE ZONE CONFIGURATION CONTROL BLOCK: Use the arrow keys to place the cursor on the box of the zone you wish to program. Each zone has two sections. The left side of the box indicates the normal state of the circuit (Open, Closed, Supervised or Bypassed). The right side of the box indicates the Restoral setting. If you would like the subscriber unit to communicate a Restoral after an event, type an "R" in the right side. To make no change in a zone, simply pass over the filled in box using the arrows on your keyboard. To send and save the zone configuration command, hold down the <ALT> and <S> keys. Zones that are not programmed will return to a default setting of Normally Open. To verify the information actually stored by the subscriber unit, press <ALT>+<Z> This downloads the data from the subscriber unit into the "Net" database.

Programming Function Group, Zone Programming, continued
ZONE CONFIGURATION for Version 2.0+ 7050-E Subscriber Units

Refer to 7050-E Subscriber Unit Manual for details on zone wiring and programming.

These screens appear if the unit zone information is in the database, or if you selected 3 from the "Override" box choices (see page 19). The following questions appear:

Will You be using Fire Zones Y/N? Currently (N): __

The programming sequence first asks if any "Fire" inputs are used (refer to subscriber manual). Answer Y/yes if you wish to use the "Fire" configuration, which includes reporting of "Trouble" conditions. Otherwise answer N/no. The default or current programming is shown in (). If you wish to change the setting, enter Y or N. To leave unchanged, simply push ENTER. Next appears:

Will You be using Inverted Fire Zones Y/N? Currently (N): __

Here you can choose to reverse the logic for the fire input (refer to subscriber manual). The current programming is displayed. To change the setting enter Y or N. To leave unchanged, push ENTER.

IMPORTANT NOTES:

- The zone programming options are limited. Of the 3 EOL zone types - Supervised, Fire and Inverted Fire, you can choose any 2 for an individual subscriber unit. You can always choose Bypass and Restoral .
- The "Trouble" signals from Fire inputs can only be received by receivers version 1.70 or higher. Contact AES for details. Upgrades are available.

Next appears the zone configuration box:

The zone configuration control block offers the options for the programming of each alarm zone. The underlined letters below designate the state of the circuit.

- Bypass
- Normally Open
- Normally Closed
- Fire
- Inverted Fire
- Supervised
- Restoral (on right size of zone box)

Unit [ID #] 7050E Zone Configuration

Fire: Disabled, Inverted Fire, Disabled
 Press "B" to Bypass any Zone
 Add an "R" for Zone Restorals
 Press "O" Norm Open, "C" Norm Closed
 Press "F" for Fire, "I" for Inverted Fire
 Press "S" for Supervision (No Troubles) Alarms

01	02	03	04	05	06	07	08
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ALT-Z to Get/Download Current Zone Info.
 ALT-S to Save/Send When Done.
 Note: Red Character Means N/A

NOTE: The Fire and Inverted Fire options are not available on Pre-Version 2.0 subscriber units.

•USING THE ZONE CONFIGURATION CONTROL BLOCK: Use the arrow keys to place the cursor on the box of the zone you wish to program. Each zone has two sections. The left side of the box indicates the normal state of the circuit (Open, Closed, Supervised, Fire, Inverted Fire or Bypassed). The right side of the box indicates the Restoral setting. If you would like the subscriber unit to communicate a Restoral after an event, type an "R" in the right side. To make no change in a zone, simply pass over the filled in box using the arrows on your keyboard. To send and save the zone configuration command, hold down the <ALT> and <S> keys. Zones that are not programmed will return to a default setting of Normally Open.

To verify the information actually stored by the subscriber unit, press <ALT>+<Z> This downloads the data from the subscriber unit into the "Net" database.

Programming Function Group, Zone Programming, continued

ZONE CONFIGURATION for Rev 7450 & 7440 Subscriber Units

Refer to Subscriber Unit Manual for details on zone wiring and programming.

These screens appear if the unit zone information is in the database, or if you selected 4 from the "Override" box choices (see page 19). The following questions appear:

Will You be using Fire Zones Y/N? Currently (N):__

The programming sequence first asks if any "Fire" inputs are used. Answer Y/yes if you wish to have the zone report "Trouble" conditions. Otherwise answer N/no. The default or current programming is shown in (). If you wish to change the setting, enter Y or N. To leave unchanged, simply push ENTER. Next appears:

Will You be using Inverted Fire Zones Y/N? Currently (N): __

Here you can choose to reverse the logic for the fire input (refer to subscriber manual). The current programming is displayed. To change the setting enter Y or N. To leave unchanged, push ENTER.

IMPORTANT NOTES:

- The zone programming options are limited. Of the 3 EOL zone types - Supervised, Fire and Inverted Fire, you can choose any 2. (You can always choose Bypass and Restoral for any zone.)
- The "Trouble" signals from Fire inputs can only be received by receivers version 1.70 or higher. Contact AES for details. Upgrades are available.

Next appears the zone configuration box, which displays the available options in :

The zone configuration control block offers the options for the programming of each alarm zone. The underlined letters below designate the state of the circuit.

Bypass
 Normally Open
 Normally Closed
Fire
Inverted Fire
Supervised
Restoral (on right size of zone box)

<p>Unit [ID #] 7450(40) Zone Configuration Fire: Disabled, Inverted Fire: Disabled Press "B" to Bypass any Zone Add an "R" for Zone Restorals Press "O" Norm Open, "C" Norm Closed Press "F" for Fire, "I" for Inverted Fire Press "S" for Supervision (No Troubles) Alarms</p> <table style="margin: auto;"> <tr> <td>Z1</td> <td>Z2</td> <td>Z3</td> <td>Z4</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table> <p>ALT-Z to Get/Download Current Zone Info. ALT-S to Save/Send When Done. Note: Red Character Means N/A</p>	Z1	Z2	Z3	Z4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Z1	Z2	Z3	Z4					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

•**USING THE ZONE CONFIGURATION CONTROL BLOCK:** Use the arrow keys to place the cursor on the box of the zone you wish to program. Each zone has two sections. The left side of the box indicates the normal state of the circuit (Open, Closed, Supervised, Fire, Inverted Fire or Bypassed). The right side of the box indicates the Restoral setting. If you would like the subscriber unit to communicate a Restoral after an event, type an "R" in the right side. To make no change in a zone, simply pass over the filled in box using the arrows on your keyboard. To send and save the zone configuration command, hold down the <ALT> and <S> keys. Zones that are not programmed will return to a default setting of Normally Open.

To verify the information actually stored by the subscriber unit, press <ALT>+<Z> This downloads the data from the subscriber unit into the "Net" database.

Programming Function Group, Zone Programming, continued

ZONE CONFIGURATION for Rev 7750-F Subscriber Units

Refer to 7750-F Subscriber Unit Manual for details on zone wiring and programming.

This screen appears if the unit zone information is in the database, or if you selected 5 from the "Override" box choices (see page 19).

After a warning note pops up, the following menu appears:

The zone configuration control block offers the options for the programming of each alarm zone. The underlined letters below designate the state of the circuit.

Bypass

Fire

Supervised

Restoral (on right side of zone box)

Unit [ID #] 7750-F Zone Configuration

Press "F" for Fire, "S" Supervised
or Press "B" to Bypass any Zone.
Add an "R" for Zone Restorals.

Fire Zones				Reversing Relay			
Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ALT-Z to Get/Download Current Zone Info.

ALT-S to Save/Send When Done.

Note: Red Character Means N/A

IMPORTANT NOTE:

- The "Trouble" signals from Fire inputs can only be received by receivers version 1.70 or higher. Contact AES for details. Upgrades are available.

- **USING THE ZONE CONFIGURATION CONTROL BLOCK:** Use the arrow keys to place the cursor on the box of the zone you wish to program. Each zone box has two sections. The left side of the box is the zone programming, as described above. The right side of the box indicates the Restoral setting. If you would like the subscriber unit to communicate a Restoral after an event, type an "R" in the right side. To make no change in a zone, simply pass over the filled in box using the arrows on your keyboard. To send and save the zone configuration command, hold down the <ALT> and <S> keys.

To verify the information actually stored by the subscriber unit, press <ALT>+<Z> This downloads the data from the subscriber unit into the "Net" database.

Programming Function Group, continued

AUTOMATIC TEST TIME SUPERVISION

This feature enables the Net software to monitor test timer check-ins. When enabled, it alerts an operator if a subscriber unit fails to report in at its scheduled time as programmed in the Subscriber Timing Parameters function. A missed check-in is reported as a "T906" trouble signal to automation (see document on alarm codes).

To access the function, highlight the Programming menu and use the arrow keys to select the Automatic Test Supervision on the Programming pulldown, then <ENTER>.

Or, press <ALT>+<P>, then 5, then <ENTER>. Select the Unit to be supervised. The following menu appears:

<< AES•IntelliNet Radio Network Management System Ver. .>>	
Message ControlSite Programming Database sYstem (c) AES Corp.	
	<ol style="list-style-type: none"> 1. Subscriber Timing Parameters 2. Radio Packet Life Parameters 3. Control Relay Outputs 4. Zone Programming . . . ✓ 5. Automatic Test Supervision 6. Set Time and Date 7. Link Test Timer **
To Select Entry: Use Cursor Keys + Enter, Type Entry Number, ESC to Exit	

Automatic Test Supervision for [Unit ID#] is On/Off. Turn it On/Off?
Y/N: __ else ESC to Exit without Change.

Answer the query by entering Y/yes or N/no.

IMPORTANT NOTE: This applies only to Net software with the automation output enabled. The default setting for this feature is "N" for no. If you would like to enable the test time supervision feature, change the setting to "Y" for yes and press <ENTER> to move to the next field.

NOTE: Enabling supervision function **BLOCKS** check-in signals from being sent to automation.

NET77 / UL and COMMERCIAL FIRE INSTALLATION REQUIREMENTS:

- **Enable Test Time Supervision: NO**
Supervision Must be monitored by UL Listed Automation Software.
- **When operating in Manual Mode, missing check in signals must be responded to as alarms.**

SET SYSTEM TIME AND DATE

This feature updates the controller computer's internal clock. To access the Set Date and Time function, highlight the Programming menu and use the arrow keys to select the Set Time and Date, then <ENTER>.

Or, press <ALT>+<P>, then 6, then <ENTER>.

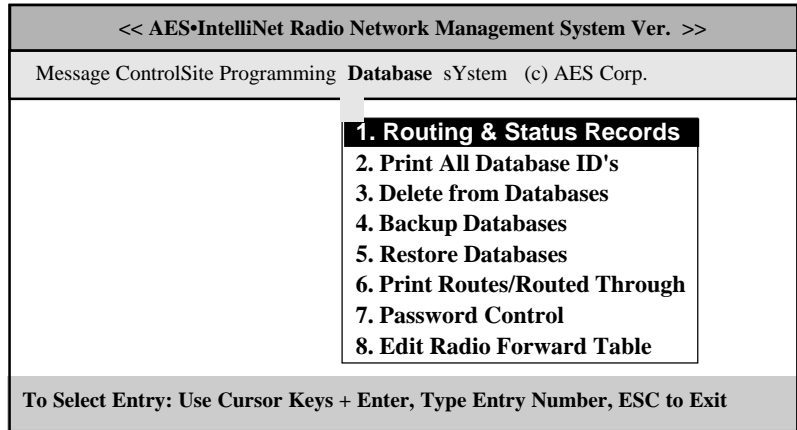
Complete the block as shown.

Press <ALT>+<S> when done.

<< AES•IntelliNet Radio Network Management System Ver. .>>	
Message ControlSite Programming Database sYstem (c) AES Corp.	
	<ol style="list-style-type: none"> 1. Subscriber Timing Parameters 2. Radio Packet Life Parameters 3. Control Relay Outputs 4. Zone Programming . . . >> 5. Test Time Supervision ✓ 6. Set Time and Date 7. Link Test Timer **
To Select Entry: Use Cursor Keys + Enter, Type Entry Number, ESC to Exit	
System Date and Time ENTER TIME: [] Hours [] Minutes [] Seconds ENTER DATE: [] Day [] Month [] Year	

The Database Function Group

To access the Database function group, hold down the <ALT> key and press <D>. The pop-up screen illustrated at right will appear. Use the directional arrows on your keyboard to highlight your choice and then press <ENTER> or press the line number.



NOTE: The AES•IntelliNet database automatically stores routing data on all subscriber units registered in the system. The data is stored on the computer hard drive in the subdirectory c:\aes\db. The Database function group allows the computer to retrieve information on specific subscriber units and to perform basic data "housekeeping".

Function	Explanation
<p>1. ROUTING & STATUS RECORDS</p> <ul style="list-style-type: none"> • Press <ALT>+<D> • Press <1> • Select Target Unit 	<ul style="list-style-type: none"> • Displays the routing records of any given subscriber unit and the current status of the subscriber unit, including NETCON rating. Routing records are automatically updated by the program. Routes shown are "outbound", i.e. ID#1 is closest to the central. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <pre> Route Record on 1234 ID1 ID2 ID3 ID4 ID5 ID6 ID7 ID8 Date/Time Freq - - - -DIRECT- - - - - Tues Sep 08 14:53 1998 Last - - - -DIRECT- - - - - Tues Sep 08 14:53 1998 Next Most Frequent Route - - - -DIRECT- - - - - Tues Sep 08 14:53 1998 1824 1800 Wed Aug 19 02:00 1998 13 7003 Tue Sep 01 08:40 1998 10 << Latest Status and Last Known Position >> ID Number: 1234 Link Layer: 1, VLS Time: Unknown NetCon: 0 Fault Code: No Fault Detected, Latitude Unknown Last Received on: Tue Sep 08 14:55:33 1998, Longitude Unknown </pre> </div> <p>Certain UL Burglar Alarm Systems and Commercial Fire Alarm Systems requiring a minimum of 2 paths. Multiple paths can be proven using the Print Routes / Routed Through function.</p> <p>Note: A NETCON of 5 or less ensures that at least 2 paths are open to the central station. A NETCON of 6 or more may also have multiple paths - use the Print Routes/ Routed Through functions to show this.</p>

Database Function Group, continued

2. PRINT ALL DATABASE ID'S

- Press <ALT> + <D>
- Press <2>

• Prints all the ID numbers in the current database. This list is the same as the ID number "Pop-up" pick list. Have the printer ready with plenty of paper. (Press <ESC> to abort printing.)

3. DELETE FROM DATABASES

- Hold <ALT> + <D>
- Press <3>
- Select Target Unit

• Deletes the current records of any given subscriber unit. Should that unit check in at a later date, it will be automatically entered into the routing database.

NOTE: All specific programming information stored in the database for the deleted unit will revert to default settings if the deleted unit checks in again.

4. BACKUP DATABASES

- Hold <ALT> + <D>
- Press <4>
- Insert disk in drive A
- Press <ENTER>

• Backs up the current Net77 database on a floppy disk in drive A. NOTE: While the program is backing up its database, all communications are temporarily stored in a buffer.

UL Note: Database backup may only be done during "Open Periods" and only on one alternate receiving systems at a time, so that there will be no loss or delay in receiving and processing alarm signals.

5. RESTORE DATABASE

- Hold <ALT> + <D>
- Press <5>

• Restores a database previously backed up using the BACKUP function above. CAUTION: Restoral function overwrites any database file existing on the hard drive. NOTE: While the Net77 is backing up its database, all communications are temporarily stored in a buffer.

UL Note: Use this function only under extreme emergency conditions and, if possible, only on one receiving system at a time to allow alternate unit to receive and process signals.

6. PRINT ROUTES / ROUTED THROUGH

- Hold <ALT> + <D>
- Press <6>

• Prints out all routes used by a subscriber unit.
• Also, a list of units that are "routed through" a given unit can be generated. This is important for demonstrating that a unit has multiple paths available.

Certain UL Burglar Alarm Systems and Commercial Fire Alarm Systems requiring a minimum of 2 paths, a NETCON of 5 ensures that at least 2 paths of communication are open to the central station. Or, multiple paths can be proven using the Print Routes / Routed Through function.

Note: Be sure that the printer is on. Have the printer ready with plenty of paper. (Press <ESC> to abort printing.)

Database Function Group, continued

7. PASSWORD CONTROL

- Hold <ALT> + <D>
- Press <7>

• Enables the Password Protection function. **IMPORTANT: Once this function is enabled, starting or exiting the program will require a password. Carefully note the password(s) used.** The password function can be disabled by deleting the existing passwords

- | |
|--|
| <ul style="list-style-type: none"> 1. Add 2. Change 3. Delete |
|--|

1. Add a New Password

• To add a new password enter a 1-3 character ID code, and then an 1-8 character password. Type the password again to assure its accuracy. This function is NOT case sensitive.

<< Add a New Password >>	
ID: []	Password: []
	Confirm: []

2. Change a Password

• To change a password enter the 3 character ID code that you wish to change. Enter the old password, and then type the new password.

<< Change Password >>	
ID: []	Old Pwd: []
	New Pwd: []

3. Delete a Password

• To delete a password enter the 3 character ID code that you wish to delete. Enter the old password, and then type Y to confirm.

<< Delete Password >>	
ID: []	Old Pwd: []
To Confirm Delete: [] Type (Y)es	

Database Function Group, continued

8. EDIT RADIO FORWARD TABLE

- Hold <ALT> + <D>
- Press <8>

Limits and Availability:

- This function is limited to 3 units in the Net7K and Net99 software. It is not available on Net77 software.
- Net7KF software offers unlimited forwarding.
- Forwarding increases air traffic on the network, which may lead to slowdowns on busy systems. **Use forwarding only when required. Forward only essential data.**
- There is no guarantee the forwarded data will be received; the remote site that receives the data is *not* a substitute for a central receiver.
- Net software must be running for this function to perform.

- Select the ID for the unit whose data will be forwarded.

Send [Unit ID] Message to : []

```

<< Edit Forward Table >>
Origin ID : Unit #      Forward to : Unit #
Memo : Address etc.

-----
Forward Filter Flags: Type Y/N
ALARM: [ ] -> Zones :  #1 #2 #3 #4 #5 #6 #7 #8
                        [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
Z REST: [ ] -> Zones :  #1 #2 #3 #4 #5 #6 #7 #8
                        [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
STAT: [ ] CHKIN: [ ] DATA: [ ] HPBU: [ ]
Relay Following: [ ]
TEST: [ ] ZDATA: [ ] VLS: [ ] TEXT: [ ]
Alarm Automation Message: [ ]
    
```

AES Net software can forward the activity data of a subscriber unit to another subscriber unit. The data is sent to the RS-232 port of the receiving unit, where a handheld programmer (terminal), a printer or a computer may be connected. This allows a secondary site to monitor alarms, restorals check-ins, etc. at a secondary location. **This function is for secondary reporting only - the central receiver is always the primary monitoring site.**

- Enter Origin ID, and then the ID of the unit data is to be forwarded to.
- Add a memo (such as name/address) of up to 40 characters. This memo is sent with all forwarded data.
- Enter <Y> for each type of data that you want forwarded. You can forward the following data types:

Zone Alarms and Restorals; Status; Check-Ins; Data; HPBU / Programming Uploads; Test; Zone Data; VLS/Vehicle Location Data; Text Messages.

Other Options

Alarm Automation Message: Alarm activity can be transmitted to the remote unit in Alarm Automation Format. The RS-232 output of a special "FA" or "FAA" 7050 receiving unit can feed alarm data directly to a computer running automation software.

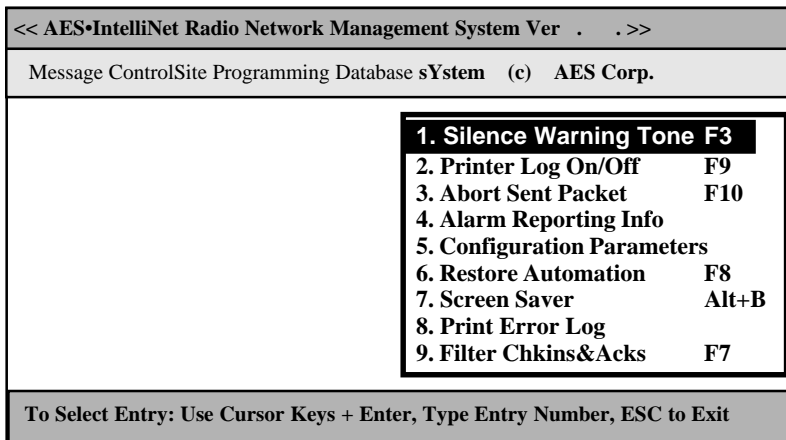
Relay Following: This special functions requires a 7050 subscriber unit with a 7065 Relay Output board installed. When a zone in alarm message is received from the origin unit, a relay on the forward-to unit will be activated. If zone goes into alarm on the origin unit, the message is received at the central station. When programmed for forwarding with relay following, a relay control command is sent to the receiving unit (which must be a 7050 unit with 7065 relay board). Zone 1 in the origin unit trips relay 1 in the forward-to unit, zone 2 trips relay 2, and so on.

For 7050 version 2 and later, the relay is activated in Momentary mode.

The Systems Function Group

The Systems Function group menu is accessed by holding <ALT> and pressing <Y>.

Note that many of the functions are reached using the "F" function keys



Function	Explanation
<p>1. SILENCE WARNING TONE • Press <F3></p>	<ul style="list-style-type: none"> • Silences the warning tone that sounds whenever an error has occurred. For Net77/UL, a "chirp" continues to sound until the problem is resolved. The chirp cannot be silenced.
<p>2. PRINTER LOG ON/OFF • Press <F9></p>	<ul style="list-style-type: none"> • Enables printing of all data shown on the video monitor. Intended for short duration printouts for troubleshooting. Captures data that scrolls off the screen too quickly. NOTE: Keep the printer power turned on, even though the logging is off. Exceptions and error messages continue to be printed even when printer log is off.
<p>3. ABORT SENT PACKET • Press <F10></p>	<ul style="list-style-type: none"> • Quickly cancels an unacknowledged packet sent to a subscriber unit by the receiver. This includes "Get" query functions.
<p>4. ALARM REPORTING INFO (Alias) • Press <4> • Enter Data as Prompted • Hold <ALT>, press <S></p>	<ul style="list-style-type: none"> • Applies <i>only</i> to Net77, or Net7K/Net99 with automation is enabled, where alarm reporting info is sent to automation through the program (i.e. not direct from the receiver). • This function does NOT change automation data sent by a 7000/2, 7000/1 or 7099-S receiver. • Allows the operator to program a different account number for alarm reporting to automation software. For example, subscriber unit "1234" can be reported to automation as "5678". - Pull down System Menu, press 5 - Enter or select original ID number of subscriber unit you wish to have changed for reporting to automation. <div data-bbox="704 1759 1367 1864" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">XXXX Automation Reporting Information Automation Reporting Identifier []</p> </div> <ul style="list-style-type: none"> - Enter the Account Number you want reported to automation for this subscriber unit.

SYSTEM FUNCTION GROUP, *continued*

5. CONFIGURATION PARAMETERS

Configures the computer/controller serial output to match the automation software computer. This output is always active for Net77; it is optional for Net7K or Net99. See bottom of page for how to enable this function.

Important Note: This function does NOT set the parameters for the automation/alarm output from the 7000/1, 7000/2 or 7099-S receiver. A separate procedure is required for that output - see the receiver manual for details.

Function	Explanation
<p>5. CONFIGURATION PARAMETERS</p> <ul style="list-style-type: none"> • Press <ALT> + <Y> Keys • Press <5> 	<div style="border: 1px solid black; padding: 5px; display: inline-block; width: 150px;"> <p>1. Central Port 2. Local Comm Port 3. I/O Parameters</p> </div> <ul style="list-style-type: none"> • Sets up the parameters for integration of the AES Net Software and Computer / Controller with the central station functions.
<p>Central Port</p> <ul style="list-style-type: none"> • Press <ALT> + <Y> • Press <5> • Press <1> 	<div style="border: 1px solid black; padding: 5px; display: inline-block; width: 200px;"> <p style="text-align: center;">Central Receiver Port Central Receiver Port Com [2] : (1,2)</p> </div> <ul style="list-style-type: none"> • Selects which port of the Controller/Computer to output alarm information for automation. Default is Comm 2.
<p>Local Comm Port</p> <ul style="list-style-type: none"> • Press <ALT> + <Y> • Press <5> • Press <2> 	<div style="border: 1px solid black; padding: 5px; display: inline-block; width: 250px;"> <p>Local Port (Com 1:) Configuration Baud Rate [1200] (1200....19200) Parity [O] (O)dd, (E)ven, (N)one Data Bits [7] (7,8) Stop Bits [2] (1,2)</p> </div> <ul style="list-style-type: none"> • Sets the parameters for the Comm port used for the Automation output for the Net77/UL central station. Defaults are shown.

Enabling the Automation Output for Net7K and Net99

Option: You can use Net7K or Net99 to link to automation output in place of the alarm output from the receiver. The Net software must be in use full time for this function to work. (This function is always on for Net77.)

To enable this output in Net software

- Exit program (Alt-X). Type at the prompt:
Net7KP /AON (or Net7KF /AON).
- To disable the feature, type:
Net7KP /AOFF (or Net7KF /AOFF).
- To display the current setting , type
Net7KP /? (or Net7KF /?)

SYSTEM FUNCTION GROUP, Configuration Parameters, *continued*

Function	Explanation
<p>I/O Parameters</p> <ul style="list-style-type: none"> • Press <ALT> + <Y> • Press <5> • Press <3> 	<ul style="list-style-type: none"> • This function sets up the output to alarm automation <u>from the Computer / Controller operating Net77.</u> (Special versions of this software, including the Concentrator, also use these automation parameters. <p>NOTE: For Net7K and Net99, the automation output is provided by the receiver, and this function is typically not used. Thus, most options below are not accessible. If you wish to use this output from the Net7K, see preceding page - "Enable Automation Output for Net7K".</p>

I/O Parameters

Retries without Acknowledgment [3] (3)

Wait for [3] Seconds for Ack (3)

Concentrator Skips to Next Modem after 3 Try (3)

Acknowledgment Character [06] in Hex (06)

Report Old Alarms [Y] Y/N

Automation Output [1] (1=Radionics 6500, 2=Ademco 685)

Optional Radionics Header Character [00] (0 for none)

Automation Receiver Number [1] (1)

Send Delayed Acknowledgments [Y] (Y/N (R903))

Free Comm Port:

Automation = 0, USDI = 1, LoJack = 2 [1] (0,1,2)

Units: [0] (0=English, 1=Metric)

Make Routed Thru/RcrRdy Automation Message N Y/N (R 907)

I/O File Path

[c:\aes\streets.gps]

Parameters for Link between Net software and automation.

Report Old Alarms (Y/N) - the AES subscriber units report zones that remain in alarm whenever they check in. They are flagged as "Old Alarms" and are reported to automation as such. Since the alarms were sent to automation when they were "new", you may wish to prevent the "old" alarms from being sent to automation.

Automation Output - IMPORTANT - One of the key decisions you will make during setup of your radio receiver is the choice of automation format. The Net77 / 7700 controller/computer can emulate the output of *either* Radionics 6500 *or* Ademco 685. You should configure the output to match your automation. In general, the Ademco 685 is a more capable format, and is recommended. The Radionics is a proven but simpler format. If you are using some of the new interfaces for NAPCO, CADDX, AES-IntelliTAP, choose the Ademco 685 emulation mode. For Radionics 6500 mode, enter the digit **1**; for Ademco 685 mode enter the digit **2**. Default setting is Radionics 6500. See Appendices for complete description of codes

Automation Receiver Number - IMPORTANT - The output will assign a receiver number to the output. Default is **1**.

Send Delayed Acknowledgments - IMPORTANT - The AES subscriber units will report any delays found in waiting for an acknowledgment in their routine communications. This is an indicator that an acknowledgment delay has occurred, but has been restored in the R903 message in Radionics 6500, or R356 zone 903 in Ademco 685. You have the choice to **NOT** send these messages to your automation (**select N**), or to send it to automation and handle the data there (**select Y**).

Make Routed Thru/RcrRdy Automation Message N Y/N (R 907) - Set to N.

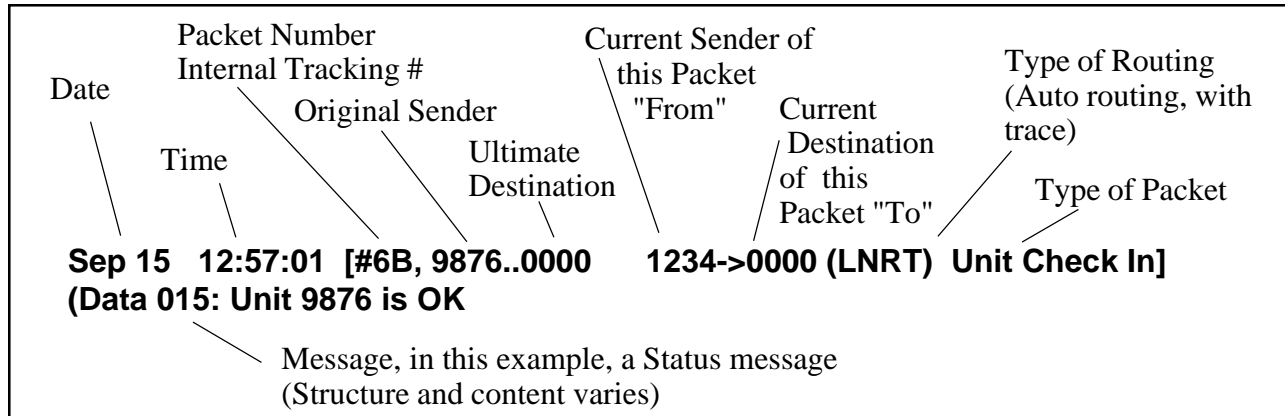
SYSTEM FUNCTION GROUP, *continued*

Function	Explanation
6. RESTORE AUTOMATION • Press <F8>	<ul style="list-style-type: none"> • For Concentrators Only: If the link between this software and automation has been taken off line for any reason, this reestablishes the link to automation. <p>Note: In Net77, "Restore" is automatic.</p> <p>Note: This function does not apply to the link between an AES 7000 or 7003 Series receiver and automation.</p>
7. PRINT ERROR LOG • Hold <ALT>, press <Y> • Press <8>	<ul style="list-style-type: none"> • This is a diagnostic function. A log of system status problems (such as disconnected cables, lost links to automation, etc.) is stored in a file. This function prints out that file. Have the printer ready with plenty of paper - this file may print many pages. Press <ESC> during printing to abort.
8. FILTER CHKINS & ACKS • Press <F7>	<ul style="list-style-type: none"> • To filter out screen "clutter", this function prevents noncritical check-in and acknowledgment messages from appearing on the screen. This is "toggle" function: to turn on the filter, press F7; a "checkmark" figure will appear on the lower message bar of the screen with the filter is on. To turn off the filter, press F7 again.
9. FORWARDING TOGGLE • Press <ALT>+<K>	<ul style="list-style-type: none"> • This one command allows you to globally enable or disable the forwarding function. It affects only those units that have been programmed for forwarding. (For more information, see the section on Database Group / Edit Radio Forward Table.) A pop up window shows you the current status global forwarding (On or Off). Enter Y/yes or N/no to change the status.

Interpreting Screen Messages

The network communications which appear on the monitoring screen are unscrambled data packets as sent and received by this receiver.

SAMPLE CHECK IN MESSAGE:



WHO, WHAT, WHEN, WHERE...

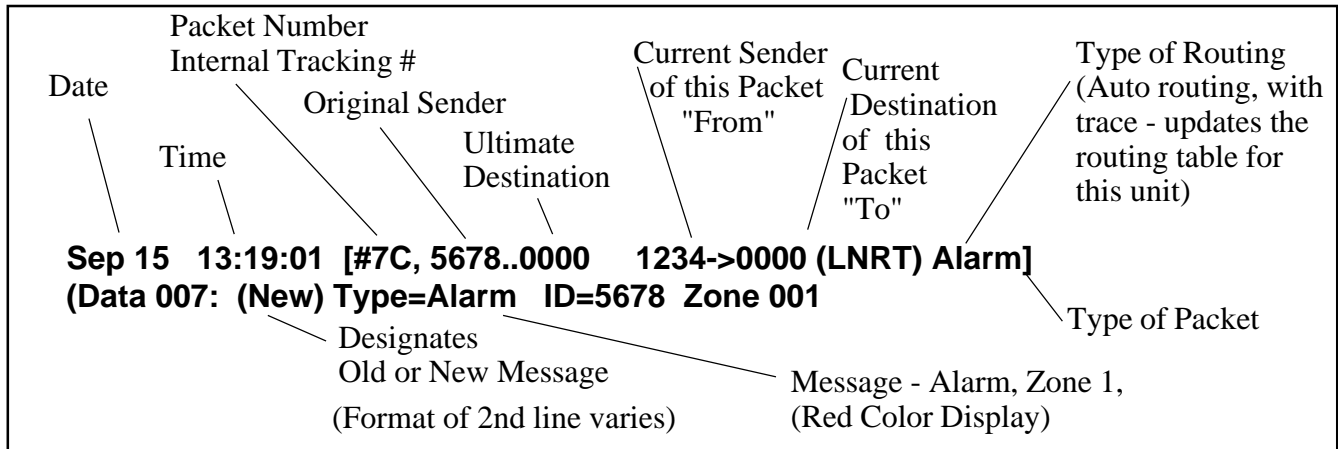
The following information can be extracted from the sample message above:

- The message was sent on September 15th at 12:57:01.
- The message originated at subscriber unit #9876, and is addressed to Unit #0000 (the central station).
- This specific message is being sent by subscriber #1234 - a "repeater" in the message path
- This specific message is being sent to Unit #0000 (the designation for the central station).
- This is a Unit Check In / Automatic Test Timer Message. It says that all is well.
- The type of routing used by the unit in its communication.
 - (LNR): automatic routing was used.
 - (LNRT): automatic routing was used, but a trace was placed on the route (each ID that assisted in forwarding the message is added to the packet).
 - (EXR): an explicit route was specified by an operator or computer.
- "Data" refers to all the data attached or included with this communication. In this case, the data indicates that the unit is OK.
- The direction of data flow has also been established. The unit ID before the "->" is the originating unit and the one after the "->" is the destination unit.

continued ->

Interpreting Screen Messages, *continued*

SAMPLE ALARM MESSAGE:



WHO, WHAT, WHEN, WHERE...

The above example shows an alarm message being sent by a subscriber unit to the central station via another unit.

- The message originated from the unit #5678 - this is where the alarm occurred.
- The screen displays the message in red.
- The message was relayed through subscriber unit #1234 using the automatic routing (LNRT). Subscriber unit #1234 is acting as a repeater, forwarding a message from unit 5678 to the central station.
- The data in the packet is a New Alarm.
- The data in the packet is an Alarm on Zone 001 of the subscriber unit. (IntelliTap or FDX data from an alarm control panel may not be displayed here.)
- Sometimes the data is shown in its raw hex format.

ON- SCREEN WARNING MESSAGES

The following are messages that may appear on the screen while Net77 is running. They are displayed at the base of the screen and are typically highlighted in red.

A Warning Tone usually accompanies a Warning Message. To SILENCE WARNING TONE that accompanies an error condition, PUSH F3 key. For Net77/UL, a "Chirp" tone will continue to sound approximately every 30 seconds until condition clears.

<u>Screen Message</u>	<u>Description</u>
Radio Transceiver Tamper Fault	Cover of 7730 was removed, cable cut / tamper (Net77 only)
Error No Target ID	No ID was entered, cannot execute function
Central Receiver in Standby	Receiver connected to 7700 is in Standby / NOT Active (Net77)
Radio Transceiver Fault	7730 radio transceiver problem (Net77 only)
ERROR-Check Central Receiver --- Comm Watchdog Timeout	Central Receiver has a problem; may have already restored
Timed Out Writing to Port (DSR False)	Central Receiver not responding, cable may be disconnected
Timed Out Reading Port (no Chars)	Central Receiver not responding, cable may be disconnected
Error-Check Central Receiver-Serial Cable	Check Cable

PRINTED WARNING MESSAGES:

Refers to printer connected to the AES 7100 or 7700 controller, output by "Net" program.

Structure: <Day/Date> <Time> <year>, <Event Type> <Description>

Error Messages:

ERROR -- Event not Reported to Automation -- nnnua nnnn A 000

This message appears if Net software is unable to send an alarm event to the automation software; digits at end of message is the data that could not be sent (applies only to Net77, or to Net7K/Net99 with automation output activated).

Radio Transceiver Fault

Indicates a problem with the transceiver.

Radio Transceiver Tamper Fault

Indicates a tamper problem with the transceiver or cables between receiver and transceiver.

Central Receiver in Standby Mode

Indicates that Receiver has been set to Standby mode, is NOT Active and cannot respond to network traffic.

Multiple Central Stations Detected

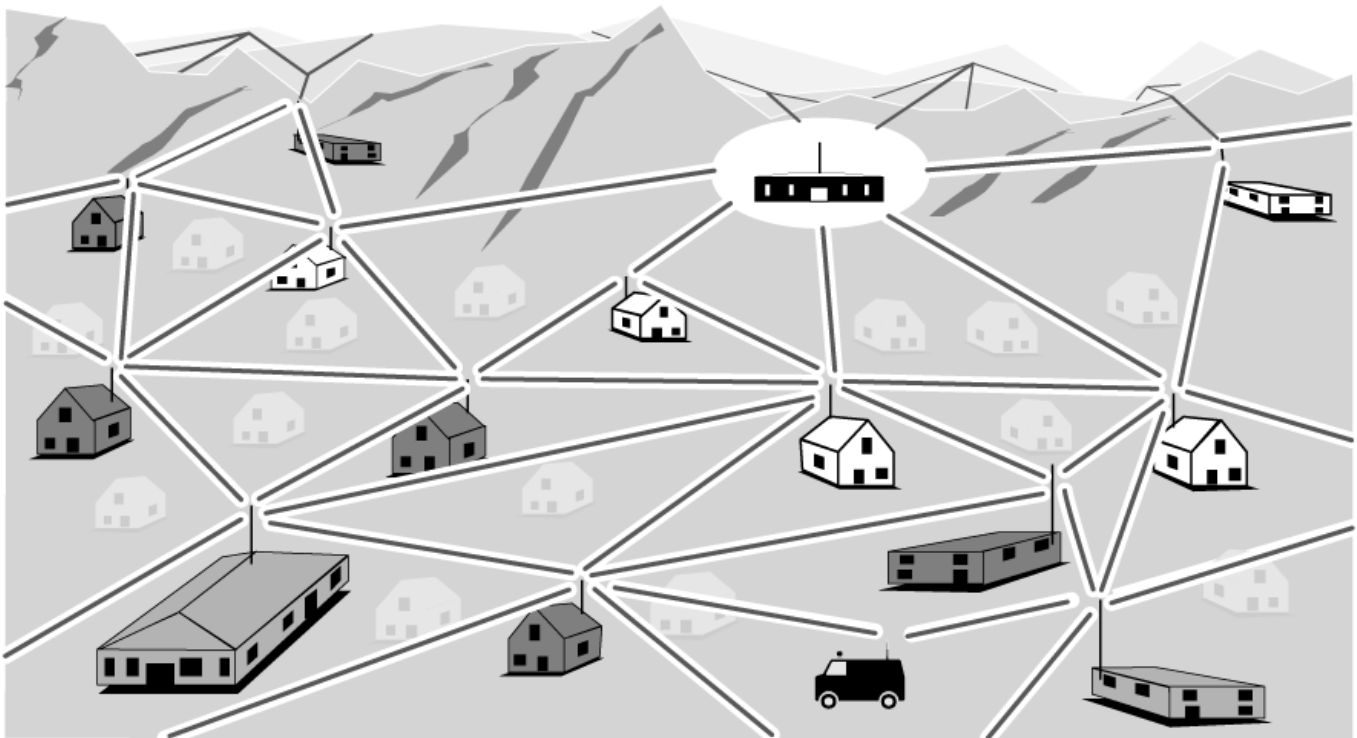
Indicates that more than one central station is operating on the same network (i.e. same frequency, same cipher / dealer code). This is SERIOUS fault - Be sure that ONLY ONE Receiver is ACTIVE.

ERROR - No Acknowledge from Automation Computer

Indicates problem with automation software, or trouble with the link between the controller/computer and the automation computer and software (applies only to Net77, or to Net7K/Net99 with automation output activated)

AES • *IntelliNet*

WIRELESS NETWORK GLOSSARY OF TERMS



TM



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0 4 0 4 2 0 0 4

+++

GLOSSARY OF TERMS

ACKNOWLEDGE - Message acceptance from receiving unit to transmitting unit

ACTIVE (/STANDBY) - For Central Receiver, indicates unit is actively receiving and acknowledging messages from the network; Standby mode prevents the Central Receiver from transmitting.

AUTOMATION SOFTWARE - Alarm Monitoring software, separate from AES-IntelliNet network/communications system; receives alarm data from AES system.

BANDPASS FILTER CAVITY - High grade radio signal filter, enhances performance of transceivers and communications network. Standard for central station transceiver(s), option for subscriber units.

CAVITY - See Bandpass Filter Cavity, above

CENTRAL RECEIVER - Central network node, receives and acknowledges messages, interfaces with AES Net Software / Central Transceiver

CENTRAL STATION - The entire equipment group that makes up the AES Central Station - Transceiver, Central Receiver, Network Controller / Computer; also refers to location / operation area

COM1, COM2 - Serial communications ports on 7700/7100 Network Controller / Computer

COMM / COMMUNICATION - Generally data communication on the AES network.

CONTROLLER - 1. Network Controller / Computer, model 7700/7100. 2. "Controller board", part of each subscriber and the central receiver, from it's generic function as "terminal node controller".

CONTROLLER - NETWORK COMPUTER - Computer in the AES Central Station; operates AES Net Software (Net77, Net7K, Net7000), serves as hub of computer network, providing programming, databasing and operator input for the AES system.

CPU - 1. Microcontroller on terminal node controllers found in subscriber units and the central receiver; 2. Microprocessor in Network Controller (computer).

CIPHER (DEALER) CODE - Code that is unique to each AES-IntelliNet system, prevents other systems operating on the same radio frequency from receiving or transmitting data or otherwise interfering with the system.

DEALER CODE - See Cipher Code, above.

DB - Decibel, measure of signal strength; measure of antenna capability.

DMU - Data Message Unit

GLOSSARY, *continued*

FAULT - A problem; word appears in printouts and on indicators adjacent to the source of the "fault".

FREQUENCY - Radio frequency. Operators of the system must be licensed. AES•*IntelliNet* operates on a single frequency.

ID # - Unique identification number assigned to a subscriber unit

LINK LAYER - The number of "hops" a subscriber unit is from the central receiver: a subscriber that communicates directly with central has a Link Layer 1; a subscriber that does not communicate directly with the central receiver, but can communicate with subscriber units in layer 1, has a Link Layer 2.

LPT1 - Printer port on 7700/7100 Network Controller / Computer

NET77 / NET7K / NET7000 - AES Network Management Software operating on 7700/7100 computer

NETCON - Rating of communication link between a subscriber unit and the central station, with a range of 0 to 7, 0 being best.

NETWORK CONTROLLER - 7700/7100 Computer, operating platform for AES Net software.

NODE - A data transceiver in the network, including subscriber units and the central receiver.

PATH - The route a message takes from one location in the network to another; also called "route".

PROGRAMMER - The handheld terminal used to program subscriber units (p/n 7041).

RESTORAL - The return of an input to "normal", or its non-alarm state; subscriber units can be programmed to report "restorals".

ROUTE - The path a message takes from one location in the network to another; also called "path".

ROUTING RECORDS - At the central station / Net77/7K software - a list of routes that messages from a subscriber have used to reach the central station; The records are stored in the Net77/7K database, and are constantly updated.

ROUTING TABLE - In the subscriber unit - a list of units that a subscriber can communicate with directly is stored in a table in the subscriber memory. The table can be retrieved and viewed at the central station using the <ALT><G> "Get Route" function in Net77/7K software.

GLOSSARY, *continued*

STANDBY (/ACTIVE) - For Central Receiver, indicates unit is deactivated, and is **NOT** actively receiving and acknowledging messages from the network.

SUBSCRIBER UNIT - "Remote" units that 1. report data from the remote site; 2. act as repeaters (nodes) on the AES network.

SUPERVISED ZONE - Subscriber units have zone inputs with line supervision (tamper protection), provided by end-of-line "EOL" resistors. Supervision capability must be programmed. (Option on some units.)

SUPERVISION (ACCOUNT) - AES Net software provides "supervision", annunciating any subscriber unit that has failed to check in. For UL systems, account supervision is provided by automation software connected to the AES system.

TAMPER - An alarm condition resulting from opening a component in the system, or by a cable cut or failure.

TIMEOUT - Indicates a condition where an attempted transfer of data has failed, as detected by an unusually long time waiting for an acknowledgment or other input.

TRANSCEIVER - Generally, the "radio transceiver" that is part of every subscriber unit and the central station.

ZONE - Discrete input into a subscriber unit, reported to the central station.