







► **Power Up**

With the external power supply de-powered, connect the output of a 12VDC to the terminals labeled +12 and -12 of the 7350-10 board. Connect programmer to J3 on the 7350-10 interface board. (See note and diagram of 7350-10 on page 2) Connect the battery leads to the battery terminals while observing polarity. Energize power supply. Be certain that the power supply power source is connected to an outlet or circuit that is NOT controlled by a switch. After power is connected, push RESET button on the 7350 for a fresh reset. The controller runs a “self test”.

After a few seconds, a message will appear on the handheld programmer:

```
SELFTEST-PASS (or FAIL ###)
SUB [rev#] 7350
ID#: [4 digit ID number] (C)YYYY AES
```

If the message reads SELFTEST - PASS, you may proceed with programming the unit. Note that the current ID# for this unit is displayed, as well as the firmware version and date. If the message reads SELFTEST - FAIL [Error Code], retry the procedure by pushing the RESET button. If the Fail message persists, refer Status Error Codes listed below for explanation and resolution.

Note: 01 is low battery. If the message reads SELFTEST – FAIL 01, you may proceed with programming the unit if you expect that the battery is low and know it is charging or has sufficient capacity to complete programming. Also note that the current ID# for this unit is displayed, as well as the software version and date.

► **Self-Test/ Status Error Codes:**

An [Error Code] is listed when the unit fails the self-test. Push the reset switch to see if the problem clears. If not, check these procedures.

Message: **01 Battery power is low**

Procedure: Check battery; Push RESET button,

Message: **02 RAM Checksum failure**

Procedure: Push RESET button. If unit passes, it must now be reprogrammed (see next section). If unit fails service is required.

Message: **03 Problems 01 and 02 above.**

Message: **04, 06 EEPROM Failure**

Procedure: Push RESET button. If unit passes, it must now be reprogrammed (see next section). If unit fails service is required.

Message: **08 Analog Digital Converter / ADC Failure**

Procedure: Same as 04 / 06 failure, see above

Message: **80 Loopback Test Failure**

Procedure: Push RESET button, unit will likely pass self test; If the unit consistently reports the same message service is required

**Other Messages: Multiple errors are added.** For example a Fail message of 84 indicates Loopback Failure and EEPROM fail (80+04).

Except for the low battery fault, most other persistent fault messages may indicate that the unit requires AES authorized servicing. Report the error code to AES service rep.

► **Programming the Unit**

**Programming** is accomplished by attaching a compatible programmer to the J3 connector of the 7350-10 Interface board. Following are programming instructions using the AES 7041 Hand Held Programmer. Software at the AES central receiver can also be used to program some of the functions listed in this section. Refer to AES software documentation.

**A conversion chart for using a PC terminal program as a programmer can be found elsewhere in this manual.**

The order of programming in this manual is structured so that the first programming functions can be performed to program the Subscriber as configured to avoid sending alarm conditions on an active network. The last programming function is where the unit ID and cipher code is programmed. After performing this last function and resetting the unit, alarm conditions may be minimized, as the zones should be programmed to the normal condition as they were connected.

Another method to prevent transmission of undesired messages until the unit is completely programmed is to disconnect the transceiver until programming is complete.

► **Reset RAM**

Use the Reset RAM function to return the 7350 to the factory default settings. All parameters except the Unit ID (also referred to as the account number or code) and Cipher code (also known as the system ID) are returned to default values.

**This is a great first step to ensure that you are always starting from the same configuration. This should not be used as a starting point if you are simply modifying a few settings and most of the units programming is already configured.**

It is good practice to perform this function on a new factory unit to ensure that you are always starting from the same configuration. Also perform this function if you are unsure of the configuration or if you are having other problems with the unit.

Press <CTRL> + <F5> then Y then <ENTER> to complete this operation.

► **Handheld Programmer Commands; Quick Guide**

<b>CTRL+F1</b>	<b>SETUP UNIT - ID#; Cipher</b>
<b>CTRL+F2</b>	<b>SET TIMERS - Check-In Interval</b>
<b>CTRL+F3</b>	<b>SET ZONES - NO/NC/Supervised/Fire</b>
<b>CTRL+F4</b>	<b>SET MODES - Repeating; Line Cut;</b>
<b>CTRL+F5</b>	<b>RESET RAM - Y/N, resets factory defaults, except ID# and Cipher.</b>
<b>SHFT+F1</b>	<b>RX MONITOR ON / OFF (toggle)*</b>
<b>SHFT+F2</b>	<b>TX MONITOR ON / OFF (toggle)*</b>
<b>SHFT+F3</b>	<b>MONITOR ALL ON / OFF (toggle)*</b>
<b>SHFT+F4</b>	<b>TEST STATUS</b>
<b>SHFT+F5</b>	<b>KEY TRANSMITTER (5 seconds)</b>
<b>F2</b>	<b>SET TIME-TO-LIVE</b>
<b>F5</b>	<b>SEND TEXT MESSAGE</b>

*\* Turn off monitor functions when not in use*

### ► Set Check-In Time and Reporting Delay Period

The factory default is set to 24 Hour Check-In. If this is appropriate you can skip to the next section. All other timing parameters typically should remain at factory defaults.

**The Check-In Time** is the interval at which the subscriber unit sends its "Check-In" messages to the central station. The default is 24 hours (recommended). The range for this feature is 5 minutes to 24 hours.

**Important Note:** Short check-in times (less than 6 hours) can impede system performance by creating heavy radio traffic in larger AES IntelliNet network systems. The standard setting is between 12 and 24 hours.

Use shorter check-in times for highest security applications only. 00 hours, 00 minutes is an illegal entry and will not be accepted.

**The Reporting Delay** sets the rate at which a subscriber's own signals are transmitted. The default value is 10 seconds; transmissions are sent at least 10 seconds apart (this helps to meter traffic on the system). The range is 0 (no delay, not recommended) to 330 seconds. During this delay, Zone activations will be accumulated and included in one packet, reducing the amount of radio traffic.

**To start,** press programmer keys (**CTRL + F2**) (hold down the Control and then press the F2 key). The following message appears:

```
CHKIN TIME--OLD:NEW
ENTER HRS----HH:.. [0-24] (HH = existing data)
```

Enter a number of hours between 0 and 24 (default = 24) and push <ENTER>.

```
ENTER MINS--MM:.. [0-59] (MM = existing data)
```

Enter the number of minutes between 0 and 59, then push <ENTER>.

```
NTR RPT DLY-NNN:... [0-330] [seconds]
(Report Delay, NNN = existing programmed data)
```

Enter a number of seconds to allow between transmissions; the range is 0 to 330; the default is 10 seconds. If data has been entered correctly, the following message appears:

**OK**

Timing parameter programming complete

### ► Zone Programming

Factory default zone programming is set to EOL Supervision (**S**) without restore (**X**). If this is satisfactory skip to the next section.

**To start,** press programmer keys (**CTRL + F3**) (hold down the Control and then press the F3 key). The following message appears:

```
SUPERVISE-OLD:NEW
FIRE-----Y: . [Y/N] (Y = existing data)
```

The sequence first asks if any "Fire" programming is used. Answer Y/yes if you wish to have the subscriber report "Trouble" conditions. Also, **enter Y/yes if your using the line cut monitor\*\***. Otherwise answer N/no (refer to chart below). The existing programming is shown under the "OLD:". If you wish to change the setting, enter Y or N. To leave unchanged, simply push <ENTER>. Next appears:

```
INVERT-FIRE-N: . [Y/N] (N = existing data)
```

Here you can choose to reverse the logic for the fire input (refer to chart below). The existing setting is displayed. To change the setting enter Y or N. To leave unchanged, push <ENTER> alone.

The most versatile option is to select Y for Fire and N for Inverted Fire. This provides the best choice of zone programming options available (BOCSF).

After pressing <ENTER>, the following appears:

```
ZONE BANK 0 .
SET ZONE (BOCSFI)B0 (available options)
OLD SSSS LOW>HI (S = existing data)
NEW .... (Must enter exactly 4 values)
```

Having chosen the Fire parameters, each zone can now be programmed. The valid programming options are shown in parentheses. The options that appear are determined by your input to the Fire/ Inverted Fire Section above. The current programming is shown next to the word OLD, Zones 1-4 in order left to right. Your new entries will appear directly below next to the word NEW. You must enter a valid letter for each of the 4 zones. Zones Triggers 1-4 can be set for:

B - Bypassed  
O - Normally Open;  
C - Normally Closed;  
S - Supervised/E.O.L. (alarm on open or short);  
F - Fire Supervised E.O.L. (alarm on short, trouble on open) or  
I - Inverted Fire E.O.L. (alarm on open, trouble on short).

After successfully entering data, the following appears:

```
SET RESTORAL (XR)B0 (available options)
OLD RRRR LOW>HI (R = existing data)
NEW .... (Must enter exactly 4 values)
```

You can program individual zones to report restorals - i.e. send a report that the zone has returned to normal status.

X = No Restorals Reported  
R = Restorals Reported.

The existing or OLD programming is shown for each zone. Your new entries will appear directly below next to the word NEW. You must enter a valid letter X or R for each zone.

When restore data entry is complete, Press <ENTER>. If data has been entered correctly, the following message appears:

**OK**

Zones programming complete

Programming (Continued)

► **Set Packet “Time-To-Live” Function**

In most cases the default settings will be appropriate. If so skip to the next section.

**The Time to Live Function** aborts old messages to ensure the efficient flow of data through the network. The old messages have typically been buffered, due to a network problem, but not yet sent.

**The default setting is recommended.** In the default setting, test timer packets are assigned a 30-minute time to live. Any TTL aware subscriber, in possession of the packet that includes time to live data will be decrementing the timer. Any timer that reaches 0 will cause that packet to be removed from the transmit queue effectively aborting it. (Note: any 30-minute-old test timer message has already served its purpose. The central station should have recognized a missed Check-In by then and flagged the event as a “failure to test”). For more information, contact AES technical support.

Adding STATUS can also help because there could be a large number of Acknowledge Delay messages created if a significant network communication issue exists. This way the packets can be aborted after the programmed period freeing up the airwaves for other more critical packet communication.

**To start**, press programmer key (F2). The following appears:

**PACKET TIME TO LIVE**

**CHECK IN----OLD:NEW**

**ENTER HRS----HH:..** [0-24] (HH = existing data)

Enter new data and or press <ENTER> then the following appears:

**ENTER MINS---MM:..**

Pressing Enter at each screen will move through all available packet types programming hours then minutes.

The remaining packet types are:

**STATUS           ALARM           TROUBLE/RST**  
**RESTORAL       INTELLITAP       SPECIAL**

If data has been entered correctly for all packet types, the following message appears:

**OK**

Time-to-Live programming complete

► **Set Modes – Line Cut Monitor and Enable Repeating**

There are several functions that can be programmed in the Set Modes programming area. Repeating can be disabled, Telephone Line Cut can be enabled and AC reporting can be disabled.

**To start**, press programmer keys (CTRL + F4). The following message appears:

**SET MODES--OLD: NEW**

**ENABLE RPTNG-Y: .**

Enter Y/yes to enable the 7450 repeating capability.

Default is Y.

Press <ENTER>, the following appears:

**TEST LINECUT-N: .**

To monitor the phone line connected to terminals at J4, you must enable LINECUT. Refer to diagram on page 2 for connection detail.

Enter Y/yes to enable the phone line cut monitor, enter N/no to disable the feature.

Default is N.

(Set Modes, continued at top of next column)

Press <ENTER>. If data has been entered correctly, the following message appears:

**OK**

Set Mode programming complete

► **Zone Reporting Chart**

Zone Program:	Normally Open	Normally Closed	Supervised E.O.L.	Fire E.O.L.**	Inverted Fire E.O.L.	Bypassed
	O	C	S	F	I	B
<b>Input State/Condition:</b>	<i>Zone Status:</i>					
<b>Open</b>	N	A	A	T	A	B
<b>EOL Resistor - 2.2K</b>	X	X	N	N	N	B
<b>Closed/Short</b>	A	N	A	A	T	B

B=Bypassed

N=Normal

A=Alarm

T=Trouble\*\*

X=Don't Use

► **Program ID# and System Cipher Code**

The unit ID# and the system cipher can only be entered with a programmer, directly attached to J3.

NOTE: Entering new data overwrites (erases) any previously stored ID# and the Cipher Code. Pushing the <ENTER> key without entering new data saves the previously stored information. The programmer should be connected and the power should be on.

**To start**, press programmer keys (CTRL+F1). The following message appears:

**SETUP UNIT--OLD: NEW** (Existing stored "old" data.)

**ENTER ID#-1234:....** (New data shown here.)

To keep previously stored ID#, simply push <ENTER>. To change the ID#, enter the 4 digit identification number for this unit using any of the 16 hex numerals (0-9, A-F), and then push <ENTER>. **The ID number must be unique, different from all other ID numbers in your system.** After successfully entering the ID number, the following message appears:

**CPHR CODE-XXXX:....**(Old data is not shown)

Enter the 4-digit cipher as assigned by the system administrator, and then press <ENTER>. The code must match that of the central station receiver - If the wrong code is used, the unit cannot log on and will not communicate. After entering the cipher code, or pressing <Enter> alone the following message appears:

**OK**

ID and Cipher programming complete

► **Reconnect Cables after Programming**

After programming is complete, reconnect any cable (such as the cable to the AES IntelliTap), disconnected from J3 of the 7350-10 Interface Board.

► **Initializing the Subscriber Unit**

Having programmed the unit, you are now ready for a final check. Plug in the handheld programmer if available. Push the Reset button on the controller board (See Diagram on Page 1). At this point, the message on the programmer should read:

**SELFTEST - PASS**  
**SUB [rev#] 7350**  
**ID#:NNNN (C) [date] AES**

If a "Fail" error message other than 01 is displayed, push the reset button. If the error persists, refer to page 4, which contains a list of error codes.

The status lights indicate the progression as the subscriber unit goes on the air and attempts to enroll into the network, Network log on process after a reset:

- STATUS INDICATOR LED's RX, TX and WA lights come on briefly, testing the LED's.
- RX comes on during loop back test (a self test).
- TX comes on sending a "Receiver Not in Service" message - AL + WA blink at different but steady rates.
- TX comes on as unit transmits a "Request for Reply".
- WA stops flashing after about 15-30 seconds if one or more other subscriber units reply to the "Request", (otherwise the WA continues to flash, indicating the unit is not on the network).
- TX comes on again (if WA stops flashing) to send first "Check-In".
- AL blinks at a steady rate, indicating a normal condition.
- When the unit receives a valid acknowledgment, the WA light turns off. This indicates that the reset subscriber unit is now on the network.

**IMPORTANT NOTE: A flashing WA light (blinking at a steady rate) indicates that the subscriber has NOT linked itself into the network.**

If enrollment fails, check antenna and all cables; be sure that correct system cipher has been programmed in to the unit.

**Once enrolled you can continue with Local Status Check and then Additional Testing.**

► **Local Status Check**

This function performs a quick diagnostic check at any time. Use the handheld programmer: press SHIFT+F4. The following message appears:

**SUB [rev#] 7350**  
**ID#:[NNNN] (C)YYYY AES**  
**RT1:NNNN LEVEL: NNN**  
**STAT: NN NETCON: N**

EXPLANATION OF STATUS CHECK TERMS

**Top Line:** Indicates Subscriber model and firmware revision information.

**ID#:** 4 digit ID number programmed into this unit.

**YYYY:** Indicates Copyright year.

**RT1:** Route #1, the ID of the next subscriber in the "best" route to the central station. If RT1 is 0000, the unit is communicating directly with the central station. If XXXX appears, the unit is not on the network. Any other 4 digit ID indicates the unit at the top of the routing table.

**LEVEL:** Subscriber unit "level" or "link layer", which indicates how many expected "hops" to the central station. A unit level = 255 indicates that unit is not on network.

**(Local Status Check, continued at top of next column)**

**STAT:** Status shows the self-test data (Refer to page 4 for explanation of codes and resolution.)

**NETCON:** Internal rating used in the automatic positioning of this unit in the network. The normal range is from 0-7, 0 being best. Note that while a low number is better, any NetCon from 0 to 6 is OK. 7 may indicate a problem with this unit or a unit in its path to the central receiver.

A NetCon of 5 guarantees at least 2 unique paths to the central.

► **Additional Testing**

Before leaving the installation site, you want to test that the expected signals are properly getting to the monitoring system. Perform at least the tests below and confirm that the monitoring system and their personnel properly received the correct messages and understand what they mean.

**Installation Site Checks**

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

- Have a knowledgeable person Request Status and other test functions available in the AES Net7000 or IPCtrl program to confirm that they are satisfied the 7350 is communicating properly.
- Trigger alarm conditions and confirm that the proper message is received at the Central Station.
- Cause fault conditions and confirm that the proper message is received at the Central Station.

**Central Receiver Status Checks**

Perform testing from the central station using the AES Net7000 or IPCtrl software to determine adequate signal strength, quick reception of messages and acceptable routing. Refer to separate Net7000 or MultiNet software manuals for use of testing functions.

► **Notes on Central Receiver Compatibility**

The 7350 Subscriber Unit is fully compatible with AES Version 1.70 Central Receiver and up. **A receiver manufactured or updated after July 1997 usually complies with this requirement.** Contact AES if your receiver is pre-1.70 for upgrade options. When "Fire" or "Inverted Fire" is enabled, the unit generates a specific packet type for reporting "Trouble ". "Trouble" data within this packet can only be received on version 1.70 and newer receivers. Line cuts are reported as a Trouble on Zone 5. You must answer Y to Fire or Inverted Fire under Zone Programming for "Trouble" messages to be properly processed.

► **Parts List**

The standard 7350 Integrated Transceiver Kit includes the following items.

- 7350 Integrated Transceiver
- 7350-10 Interface board
- Set of adhesive Velcro strips.
- Antenna Assembly
- 40-7350-S Instruction manual

► **Maintenance**

Once installed and normal operation is confirmed, there is typically little maintenance required. Monitoring the automatic test messages will confirm proper RF operation. Batteries should be periodically tested to be certain they have sufficient capacity to operate the system as needed.

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LIMITED PRODUCT WARRANTY AND  
TECHNOLOGY LICENSE**

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Warranty Rev date June 2007

**► Programming the Subscriber Unit from a PC**

In place of a handheld terminal, a cable adapter kit #7043 may be ordered from AES to link the 7350 to your computer’s serial port. Use a terminal program like Hyper-Terminal or Telix to send keystrokes to and display output from the programming port of the 7350.

**Communications Parameters:** 4800 baud, NO parity, 8 data bits, 1 stop bit, RTS/CTS Flow control OFF

Key output on a PC differs from that of a 7041 Hand-Held Programmer. See chart below

**Handheld HH Programmer Key equivalents to PC Keyboard:**

HH - PC	HH - PC	HH - PC
F1 = CTRL-Q	SHIFT F1 = a	CTRL-F1 = f
F2 = CTRL-R	SHIFT F2 = b	CTRL-F2 = g
F3 = CTRL-S	SHIFT F3 = c	CTRL-F3 = h
F4 = CTRL-T	SHIFT F4 = d	CTRL-F4 = i
F5 = CTRL-U	SHIFT F5 = e	CTRL-F5 = j

- When entering Hex numbers, use uppercase, i.e., "9A" not "9a"
- If possible, set terminal program for destructive backspace" so that backspace will erase the deleted character from the screen.
- If nothing is sent or received by the subscriber, make sure the program is set to the correct COM port.
- If the subscriber receives characters, but nothing can be sent, make sure the CTS/RTS flow control is OFF, and that the cable is OK.

**► Troubleshooting**

The most common causes of an RF failure or trouble are due to issues with the transmission line including but not limited to the antenna type, antenna location, coax, connectors, and transceiver. Antennas in close proximity to metal or with conductive material blocking or reflecting the transmitted signal would be at the top of the list. Observe the RX light on the 7350. If it is on steady or most of the time you may be receiving some RF or electrical interference. Try different locations for the antenna or use a remote long range RF antenna. Try replacing transmission line components such as a new transceiver, the coaxial connectors, coax and antenna. Problems on the circuit boards usually require returning the defective unit to AES for service.

**► AES SERVICE PROCEDURE:**

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

Ship items freight-prepaid to:

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

(Contact AES for Return Material Authorization number)

