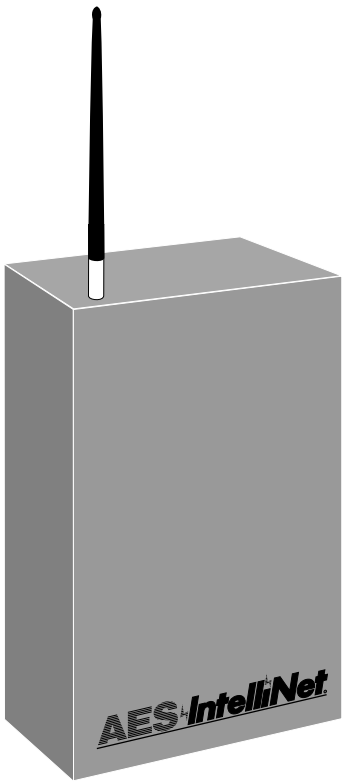
AES•7050, 7750

SUBSCRIBER UNIT
VERSION 1.62
INSTALLATION & OPERATION MANUAL



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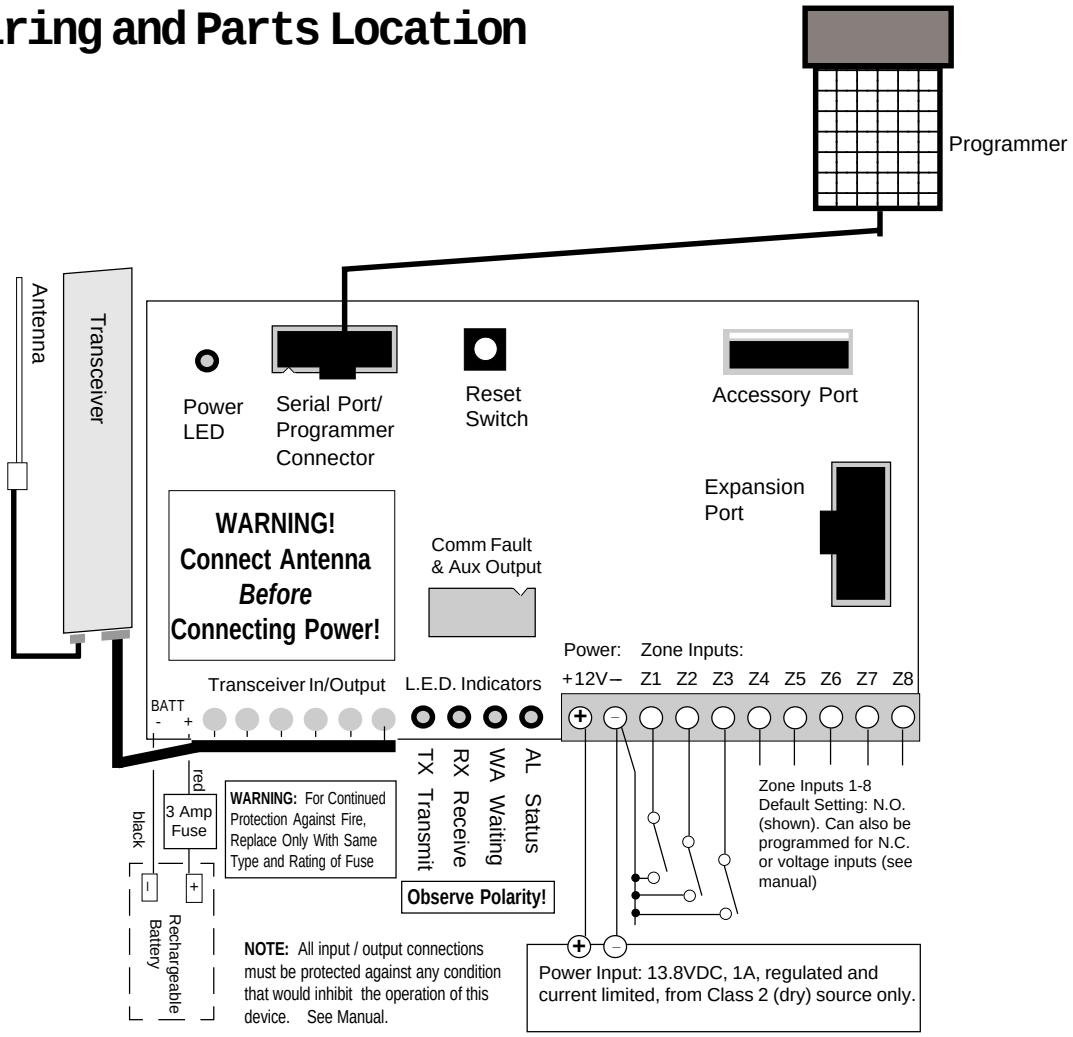
7050 Wiring and Parts Location



WARNING:
- It is unlawful to operate this equipment without a valid FCC radio station license.
- If the antenna or cables connected to this equipment come in contact with electrical power lines, DEATH or SERIOUS INJURY may result.
- Never install the antenna where people may come in contact with it as SERIOUS INJURY may result.
- Test this system periodically for proper operation. AES assumes no responsibility for this equipment's failure to operate. AES's sole responsibility is to repair or replace any AES device found to be defective during the warranty period.

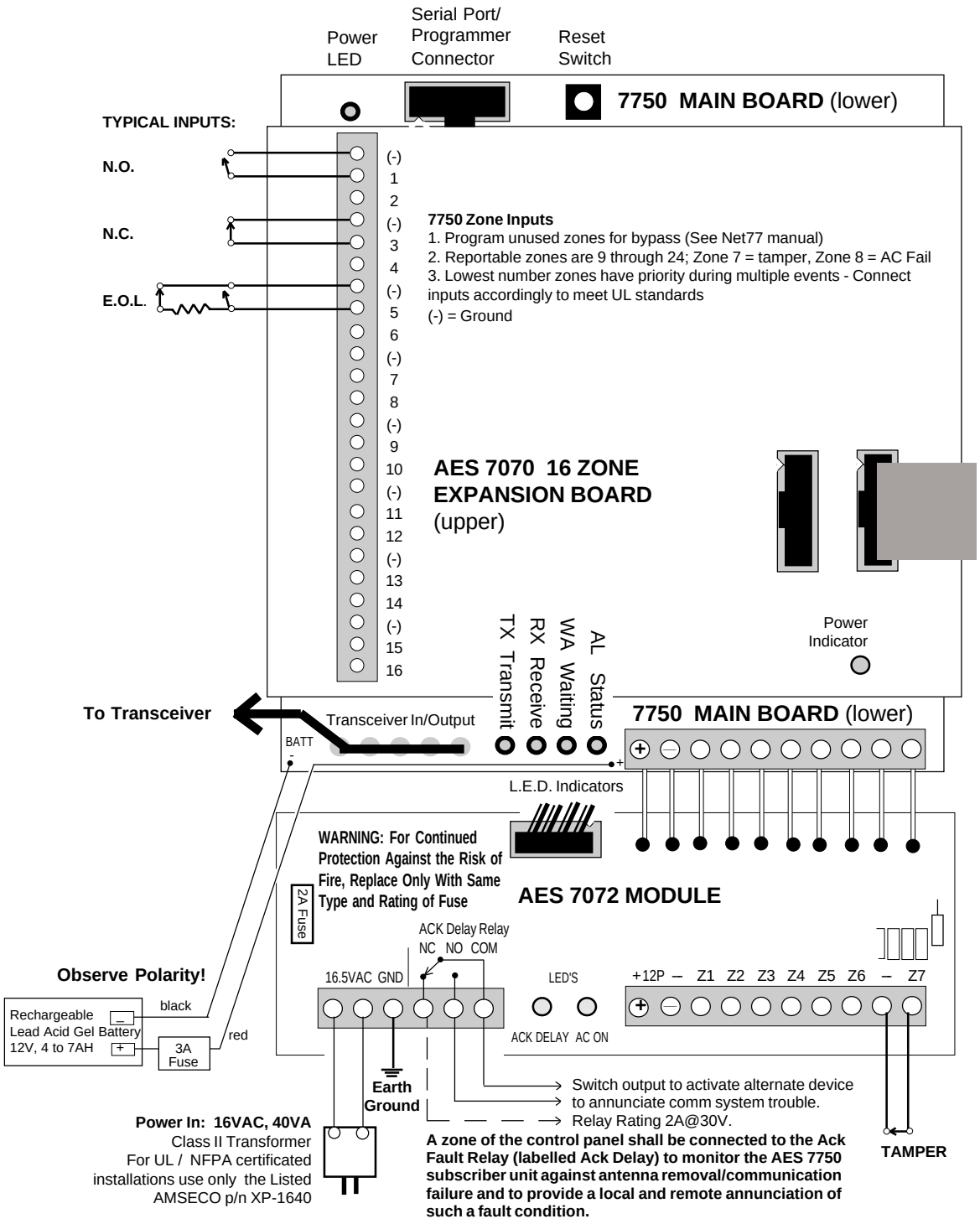
FCC COMPLIANCE:
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CANADIAN COMPLIANCE:
This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus", ICES-003 of Industry Canada.

Cet appareil numérique respects les limites de bruits radio électriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numeriques", NMB-003 édictés par l'Industrie Canada.

Electrical Rating: 12VDC, 80ma standby, 1000ma transmit
Fuse: Self Resetting / Not User Serviceable
Rechargeable Battery Req: 12V, 4 to 7 AH;
Low battery condition is reported to the central station.

7750 RF Subscriber Unit; Typical Wiring Diagram



Model Number 7750 RF Subscriber Unit
Electrical Rating: 12VDC, 100ma standby, 1000ma transmit
Fuse: 2 Ampere - located on 7072 board
also - Self Resetting (Not User Serviceable) on Main board
Rechargeable Battery Req: 12V, 7 - 14 AH (see requirements section)
Low battery condition is reported to the central station
Applicable Standards / Listings for UL and Commercial Fire
• NFPA 72; • UL 864, 827, 1610, 609, 365, 681

Overview

AES 7050 / 7750 SUBSCRIBER UNIT

Power Requirements:	**For 7050:** 12VDC, 0.5A continuous, 1.5A peak. A dedicated supply is recommended. **For 7750** and other units are equipped with AES 7072 multi-function board with power supply; 16VAC, 0.7A Class II Plug in transformer required (120VAC primary), **Input must be fused.**
Back Up Battery:	Sealed lead acid backup battery(s) required, 12V, 4 AH minimum. **• One (1) 7 AH battery is required for UL Burglar Alarm, Local Fire Alarm and Proprietary Fire Alarm Installations.** **• Two (2) 7 AH batteries are required for Remote Station Fire Alarm Installations.**
Inputs / Zones:	**7050:** 8 inputs, N.O., N.C. or voltage, individually programmable. When the input senses an alarm, the zone number and unit ID are reported to the central station. The default setting is N.O. inputs on all zones (see "Programming"). The zone trigger time is adjustable using the NET7000 central station software; default time is 100ms. **With 7072 Multi-Function Board:** 6 inputs plus tamper (zone 7) and AC fail (zone 8). Also, relay output for local output of Acknowledgment Delay. **7750:** 16 inputs (zones 9-16) using 7070 zone expansion board (included), may be EOL supervised type, individually programmable. Also includes 7072 board with tamper (zone 7) and AC Fail (zone 8). **Lowest zones are reported first.**
Zone Restorals:	Specific zones can be programmed to report "restorals" - when a zone in alarm is restored to a non-alarm state. The default program does <u>not</u> report zone restorals, but this function can be programmed for individual zones **Restorals are required for UL and Commercial Fire Installations.**

UL and Commercial Fire / NFPA Installation Requirements

AES 7750 SUBSCRIBER UNIT / RF SIGNALING DEVICE

Power Requirements:	**• For UL certificated installations, the 7750 radio subscriber unit must use the Listed AMSECO transformer p/n XP-1640, sec 16.5 VAC, 40VA; pri 120 VAC, 60 Hz, 47 W**
	• Do Not Connect To A Receptacle Controlled By A Switch
Back Up Battery:	**• A backup battery is required**
NFPA 72, UL 681 Requirements:	**• Central Station Fire Signalling (24hr): use a 12V, 7 AH battery**
	• Remote Station Fire Signalling (60hr): use a 12V, 14 AH battery pack
	• Replace battery(s) every 3 years
7750 Inputs / Zones:	**• DO NOT USE ZONES 1-6 (on 7072 multi-function board)**
	• Tamper, Zone 7 - A tamper switch must be installed on the subscriber unit
	• AC Fail, reports on Zone 8
	• Alarm Inputs, Zones 9 to 24, must be programmed for EOL/Supervised, and must be programmed from the central station using NET77 software

• Type of signaling service; manual fire alarm, automatic fire alarm, sprinkler supervisory and water flow alarm.

• Lowest zones are reported first - priority codes should be connected to the lowest zones (lowest available is zone 9). It is the installing company's responsibility to install this device in accordance with local standards and requirements for certification.

• For NFPA 72, Type 5 Two Way Radio Frequency (RF) Multiplex Commercial Fire Alarm Systems the AES radio subscriber unit must be used in conjunction with a control panel that is provided with a digital telephone communicator that is listed for equivalent fire alarm service.

• For UL certificated systems, the AES radio subscriber unit and the alarm panel must be located less than 3 feet apart. Interconnecting wires must be protected by conduit, and not be separated by any intervening walls or barriers.

• For a UL certificated system, maintenance contracts must be in force for all subscribers in the routing path. Subscriber units in routing path must be 7750 UL Listed units, although they need not be UL Certificated Installations.

• Path information for any subscriber unit is provided by Net77 operating system at the central receiving station. Refer to the Net77 / Central Station Manual for detailed information.

• When required for UL certification, the AES radio subscriber unit shall be connected to a UL listed control panel that provides central station ringback, bell test feature on arming, and opening and closing signals.

• For UL Burglar and Commercial Fire alarm systems requiring 2 paths, a NetCon of 5 or less assures that 2 paths are available to this unit (version sub1.62 required). See section on NetCon for complete details.

Installation and Programming Procedures

PHYSICAL INSTALLATION

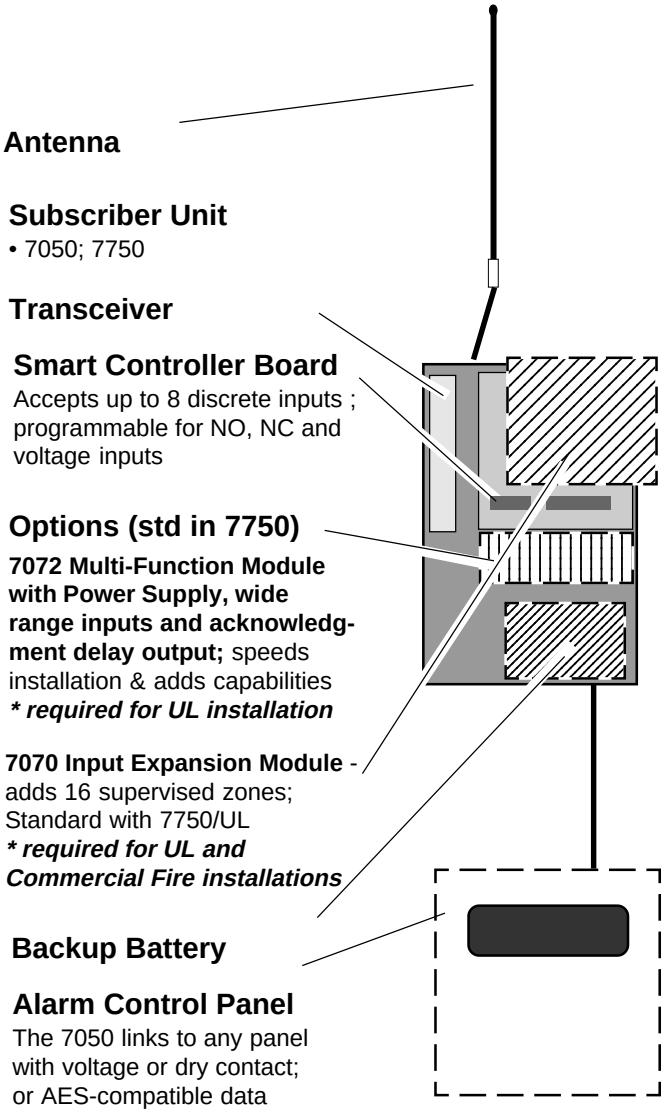
SUBSCRIBER UNIT

Choose a secure, dry location for the 7050 or 7750. The unit should be located away from the alarm control panel - hidden if possible - and must be within the protected area. If an intruder attacks the control panel, the 7050 will still be able to send a signal. The unit must be in a climate controlled area, avoiding extremes of heat or cold. Mounting orientation must be as shown. Attach to a suitable, strong surface using proper fasteners. Pre-cut "knockout" holes are provided on the back and sides of the case for wiring access. Once the subscriber unit is mounted, install the radio transceiver.

ANTENNA

The antenna must be mounted in a vertical position, in a location near the transceiver to minimize signal loss due to cable length. Also, it should be located as high as possible, on or in the structure, with attics and rooftops locations preferred (Subscriber Unit must not be located in the attic as extremes of temperature can affect performance.) The antenna must be grounded properly to prevent lightning damage in accordance with building codes. To protect against attack, the antenna and cable must be within the secured area. The antenna can be mounted on the case using a TNC bulkhead connector mounted in the knockout hole on the case top.

Antenna Location is Important - It provides maximum range and signal strength. Position the antenna as high as possible away from metal: some structures are insulated or sided with metal foil-backed materials, or may contain a lot of metal reinforcement inside the walls. This causes significant radio signal loss. In such cases, choose a location outdoors (but inaccessible to intruders), in the attic (assuming that the roof has no foil) or near a window. Position the antenna away from metallic surfaces of any kind.



7750 - UL REQUIREMENTS

UL installations must use UL-listed alarm control panel and must be installed to UL Specifications

Wire must be UL listed and installed in accordance with UL requirements and local building codes.

Power Up, Initial Programming

NOTE: When a subscriber unit is powered up, it immediately enrolls itself on the network, generating signals to the central station. Central station operators must be forewarned of activity on this account to avoid the chance of false alarm. (NOTE: To avoid "unknown" signals to be generated by a new or unprogrammed unit, use a non-matching Cypher (dealer) Code while performing the initial programming).

Connect handheld programmer to controller board at P2 (see diagrams, pages 3 and 4).

For 7050: Connect power to the unit: 12V, 4AH battery to battery terminals, and 12-14VDC power to main circuit board Power Zone Input Terminals (see page 3), terminals (-) and +12V. Observe polarity!

For 7750: Connect power to the unit: 12V, 4AH battery to battery terminals, and 16VAC power to 7072 power input (see page 4).

When power is connected (“power up”), the controller runs a “self test”.

Push the RESET button on the subscriber unit for a "clean" reset and self test.

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

```
SELFTEST-PASS
SUB [rev#] (c)[date] AES
ID#: [4 digit ID number] ->
```

If the message reads SELFTEST - PASS, you may proceed to the "Programming the Subscriber Unit" section. Note that the current ID# for this unit is displayed, as well as the software version and date.

If the messages reads SELFTEST - FAIL [Error Code], retry the procedure by pushing the controller RESET button (see diagram).

Errors reported during the self test may be the result of transient conditions caused during a cold power up or by power interruptions during a programming procedure. Pushing the RESET button clears many of these problems.

Repeat the procedure several times if necessary. If the unit consistently fails the self test, it must be serviced.

SELF TEST ERROR MESSAGES: An error code is listed when the unit fails the self test. Some may be correctable on site:

Message:	**01 Battery / power input is low.**
Procedure:	Push RESET button, see if unit will pass self test; If the unit fails and reports the same message, replace battery and/or check main power voltage.
Message:	**02 Random Access Memory (RAM) data corrupt;** may be caused by initial power up, or by power interruption during a programming procedure.
Procedure:	Push RESET button, check if unit will pass self test; If unit passes, please note that it must now be reprogrammed (see next section). If unit fails, memory may be damaged and require service.
Message:	**03 Self test detects both problems 01 and 02 above.**
Procedure:	Follow procedures described in 01 and 02 above.
Message:	**80 Loopback Test Failure,** common on initial power up.
Procedure:	Push RESET button, unit will likely pass self test; If the unit fails repeatedly and reports the same message, contact factory for service.
Other Messages:	Unit requires AES authorized servicing. Report error code to AES authorized service rep.

STATUS INDICATORS: another source of information.

LED indicators located at the bottom edge of the controller board (refer to diagram on page 3):

RX, TX - indicate radio receive (RX) or transmit (TX)

WA - Steady On = Waiting for acknowledgment of last transmission;
Blinking = Not on Network; Steady Off = Normal

AL - Alert / troubleshooting indicator, "blink" codes as follows:

· · ·	steady blink - system OK
·· ··	short-short blink - low battery
·— ·—	short-long blink - an input zone is in alarm
··— ··—	short-short-long blink, low battery and zone in alarm
Steady	no blink - Self Test failure (other than low batt)

PWR - indicates unit has power

LED indicators on 7072 MultiFunction board (option; standard on 7750/UL units)

ACK FAULT- ON Indicates an acknowledgment fault
AC - ON when AC power input is present
(refer to diagrams on pages 3, 4)

LED indicators on 7070 Zone Expander board (option; standard on 7750/UL units)

PWR - ON indicates power is present
(refer to diagrams on pages 3, 4)

PROGRAMMING THE SUBSCRIBER UNIT

Having passed the SELFTEST procedure, you are now ready to program the subscriber unit. Previously programmed information is stored in nonvolatile memory, so the settings are not lost when power is removed.

Overview of Programming Items:

• **THE ID NUMBER** selected for this subscriber unit must be unique, different from all other ID numbers in the system.

•**THE CYPHER (DEALER) CODE** used must be the same for all subscriber units and the central station on your network. The cypher code serves as a password for units monitored by a specific central station. Thus if more than one AES-IntelliNet network is operating on the same radio frequency, the networks are kept separate by this code.

•**ENABLE REPEATING** function is used to enable or disable the subscriber units ability to relay messages. In general, all subscriber units in fixed locations use the repeating capability.

•**CHECK-IN TIME*:** is the interval between supervisory signals to the central station. The allowable range is 1 minute to 24 hours.

•**THE REPORT DELAY*:** limits how often a unit can report an additional alarm, thus allowing data to be transmitted over the network in an orderly and efficient manner. The range is 0-330 seconds.

•**ZONE PROGRAMMING*:** allows flexibility to interface with any alarm control panel or other input. Choose from Normally Open or Normally Closed function for all or individual zones. Zones 9-24 on 7750 also offer Supervised mode with EOL resistors. Next choose to report Restorals (the resetting of an input to normal). Restorals are generally reserved for higher security users, and will create more "air traffic" on the network.

•**ESCAPE/ ABORT FEATURE:** press the ESC (escape) key on the programmer to abort an operation at any time. NOTE: If you started to enter data and then press Escape, you may lose the data that was stored there. In this event, repeat the programming procedure.

•**TIMEOUT/SAFEGUARD FEATURE:** During programming, you have one minute to complete a function procedure. If more than one minute passes, the procedure is aborted. The message appears: TIMEOUT.

> ***NOTE:** Functions noted by a * may be programmed using either the handheld programmer or the AES Net software supplied with the AES 7100 Central Station Processor. If the AES Net7K or Net77 software is used in the system, the functions MUST be programmed using the Net software to enable its powerful, centralized database capability. Further, it is much easier to use the Net7K software to program the subscriber units.

*** These functions MUST be programmed through Net77 software for 7750 subscriber units.**

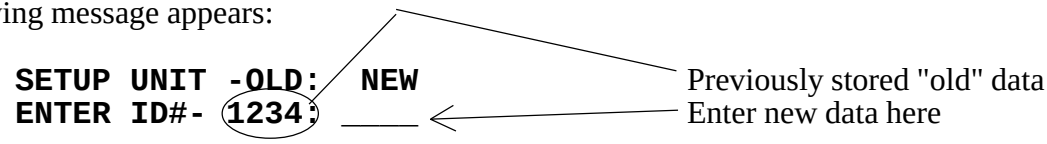
Procedure: Initial UNIT SETUP

The initial setup must be done with the handheld programmer.

NOTE: Entering new data with this function will overwrite (erase) any previously stored information on ID#, Cypher (Dealer) Code and Repeating Enable. Pushing the ENTER key without entering new data saves the previously stored information. The programmer should be connected to P2 and the power should be on (as in self test).

To start, push Programmer keys **(CTRL)+(F1)**

Press programmer keys CTRL + F1 (hold down the Control key and then press F1 key. The following message appears:



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, and then push ENTER. **The ID number must be unique, different from all other ID numbers in your system.**

After entering the ID number, the following message appears:

Unit must be programmed with the cypher (dealer) code chosen for your network. Enter the 4 digit dealer code as assigned by the system administrator, then push enter.

NOTE: The code must match that of the central station - If the wrong code is used, the unit cannot log on and will not work.

NOTE: DO NOT USE ZERO (0) AS A CYPHER (dealer) CODE. Zero is used at the factory for test and burn in purposes and should not be used in a live installation.

After entering the dealer code, the following message appears:

For most installations, enter a “Y” for YES, and then push ENTER.

NOTE: This enables the repeating function which is critical to the proper operation of the AES network. In general, repeating is disabled only for mobile units.

To disable this unit from forwarding or acknowledging any message that is not specifically addressed to it: enter “N” for NO, and then push ENTER. Mobile units such as the 7050MMP or the 7050VLS must not be used for repeater functions.

Upon completing the “UNIT SETUP” procedure, the following message appears:

OK

NOTE: The SETUP UNIT is the *only* function that must be performed using the handheld programmer. All other subscriber unit program functions (check in time, delays, zone programming) should be programmed using the AES Net software. Refer to the Net77/7K section of the manual to complete the programming procedure *(required for 7750 programming)*.

FOR 7750 SUBSCRIBERS: After programming "SETUP UNIT", go to Unit Initialization, then proceed to the AES Net software manual to set up the timing and zone parameters which MUST be programmed through the central station for UL listed systems.

Procedure: Set CHECK-IN TIME and REPORTING DELAY PERIOD

The Check-In Time is the interval at which the subscriber unit sends its "Check-in" messages to the central station. The range for this feature is 1 minute to 24 hours. For most applications, a check-in interval between 12 and 24 hours is used. More frequent check-ins are used for high security users.

The Reporting Delay period limits the rate at which alarms are reported from this unit. The default value is 10 seconds, the range is 0 to 330 seconds. This function ensures the orderly flow of radio traffic over the network.

The programmer should be connected to P2 and the power should be on.

To start, push Programmer keys **(CTRL)+(F2)**

Press programmer keys CTRL + F2 (hold down the Control and the F2 keys at the same time). The following message appears:

CHKIN TIME--OLD: NEW
ENTER HRS----HH: __ [0-24] (HH = Previously programmed hours)

Enter a number between 0 and 24, and push ENTER
When data is entered in HRS field, then minutes field appears (otherwise MINS does not appear)

ENTER MINS---MM: __ [1-59] (MM = Previously programmed hours)

Enter the number of minutes, a number between 0 and 59, and push ENTER

NTR RPT DLY-NNN: ___ [0-330] [seconds] (NNN= Previously programmed Delay)

Enter a number of seconds to allow between reporting of alarms; the allowed range is 0 to 330

If data has been entered correctly, the following message appears:

OK

NOTES ON SELECTING A CHECK IN TIME:
• The minimum check in interval is 00 hours, 01 minute;
•The maximum check in time is 24 hours, 00 minutes.
• DO NOT enter a time of 00 hours, 00 minutes.
• For residential and typical security uses, a check in time between 12 to 24 hours is adequate. The more frequent the check in times are set, the more traffic there is on the network. Excessive traffic can cause delays in communications, and thus frequent check in times should be used only for higher security applications.

• Set Check-In as Required for UL Listed installations; set automation software accordingly.

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

• For UL installations, program from AES Central Station Net software only.

• Whether operating with a Listed Automation system or in manual mode, a UL Burglar Alarm system with line security, a Grade A Police Connect system, and a Grade A Central Station burglar alarm system requires a missing check-in signal to be responded to as alarm condition.

ZONE INPUT PROGRAMMING - OVERVIEW

Versions 1.52 and later of the 7050/7750 subscriber unit support up to 72 zone inputs: the 8 inputs provided with the basic 7050 unit, and up to 64 more inputs added using model #7070 16-zone expansion boards. The "smart" 7050 or 7750 automatically senses the presence of the 7070 expansion boards on power up and adds them to the programming sequence. The zones are individually programmable. 7750 units are equipped with 7070 zone expansion boards.

For systems using AES Net software in the central station, zone inputs should be programmed using that software. Zones *can* be set up using the handheld programmer, but it is far easier to use the AES software for this task. Further, zone data programmed by a handheld unit is not automatically reflected in the AES central station database. (Only Net77 software allows remote programming of supervised zones.)

Zones in 7750 Units MUST be programmed using Net77 software at the central station.

INPUT TYPES: **N.O., N.C. or TTL(5V)**
Normally Open, Normally Closed, or Voltage Input
Supervised / EOL (7070 Zone expansion board, V1.62 or higher)

The zone inputs can be programmed for N.O., N.C. or E.O.L. operation, to match the output of the equipment being monitored by the 7050 subscriber unit. The default setting is N.O.

TTL / Voltage Input: The 7050/7750 has internal 10K ohm pull-ups to 5V on all zones. To use the 7050 with voltage inputs:

· For Open Collector, TTL/5V - Active High, program zone for N.C.

· For Open Collector, TTL/5V - Active Low, program zone for N.O.

NOTE: For TTL inputs, the 7050 and input device must share a common (-) ground.

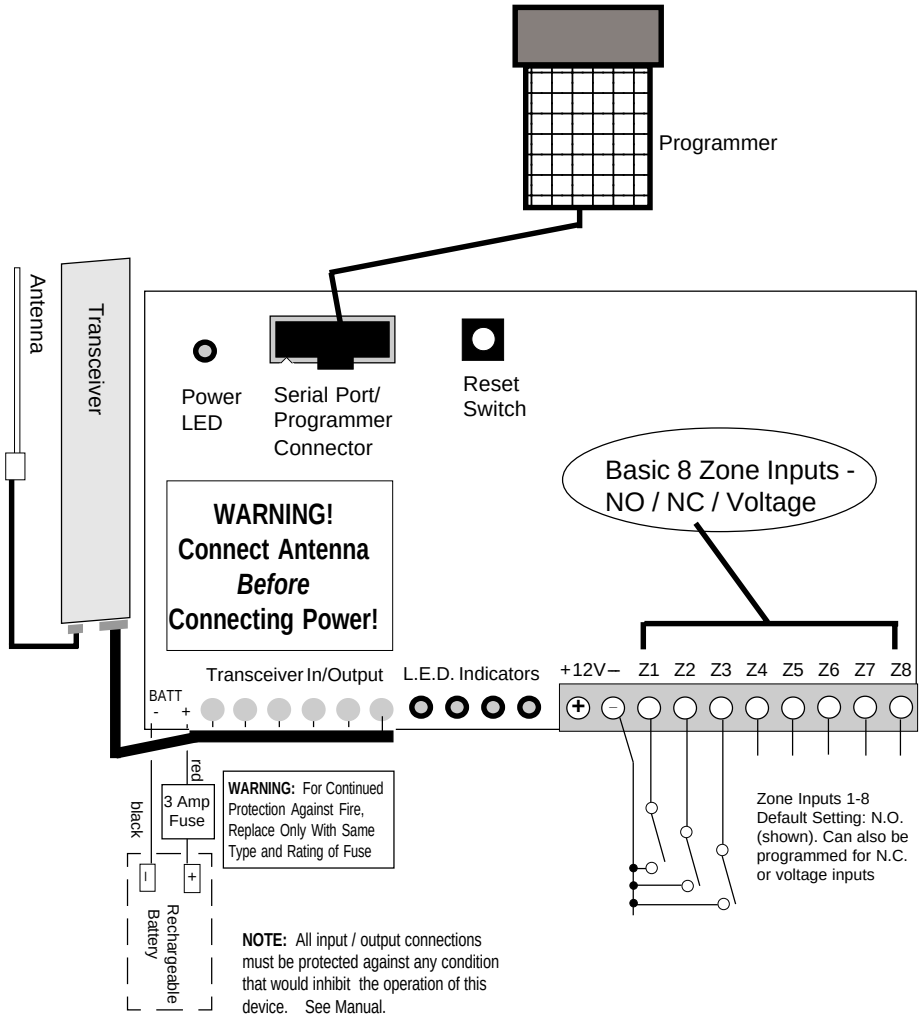
See diagrams in the next several pages for further details.

ZONE RESTORALS: Reported or Not Reported

Default = No Zone Restorals Reported

Each zone can be programmed to report "restoral" to a non-alarm status. Restoral reporting is usually reserved for higher security users, as it adds radio traffic to the system. Enable the zone restorals only when needed.

Wiring Inputs for Basic 7050 Subscriber Unit, Zones 1-8



Wiring Inputs for Basic Subscriber Unit, Zones 1-8, *continued*

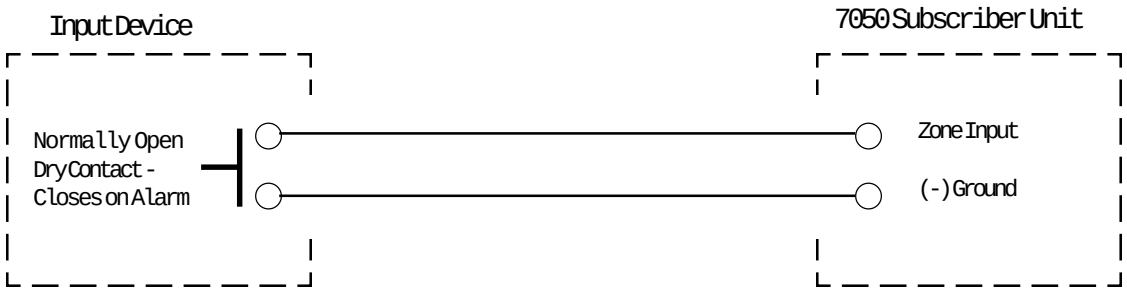
Each zone / channel in the 7050 basic subscriber unit may be individually programmed to take any one of a variety of inputs.

The types of inputs supported, depending on the capabilities of the control panel, include:

- Normally Open - closes on alarm (default program)
- Normally Closed - opens on alarm
- TTL - 0/5 V
- Open Collector - 0/5 V
- Voltage Input - no greater than 6 volts

TYPICAL WIRING DIAGRAMS:

INPUT TYPE: NORMALLY OPEN (default program)



INPUT TYPE: NORMALLY CLOSED (program unit for normally closed operation - see "zone programming" in this manual.

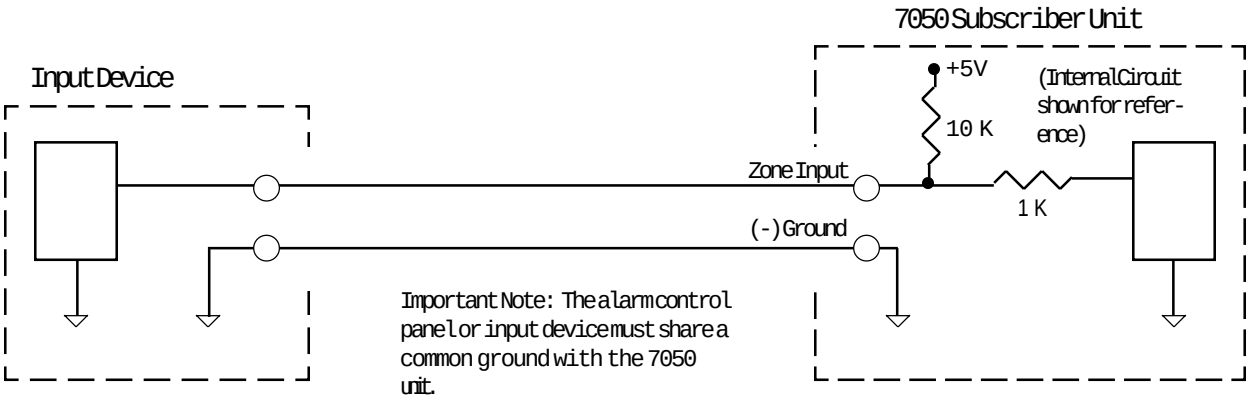
Wiring Inputs for Basic Subscriber Unit, Zones 1-8, *continued*

INPUT TYPE: TTL

Some devices go to 5 volts on alarm, others go to 0 volts on alarm. Program 7050 unit as follows:

If "5V = Alarm", program for N.C., or
If "0V = Alarm", program for N.O.

•See section on Zone Programming.



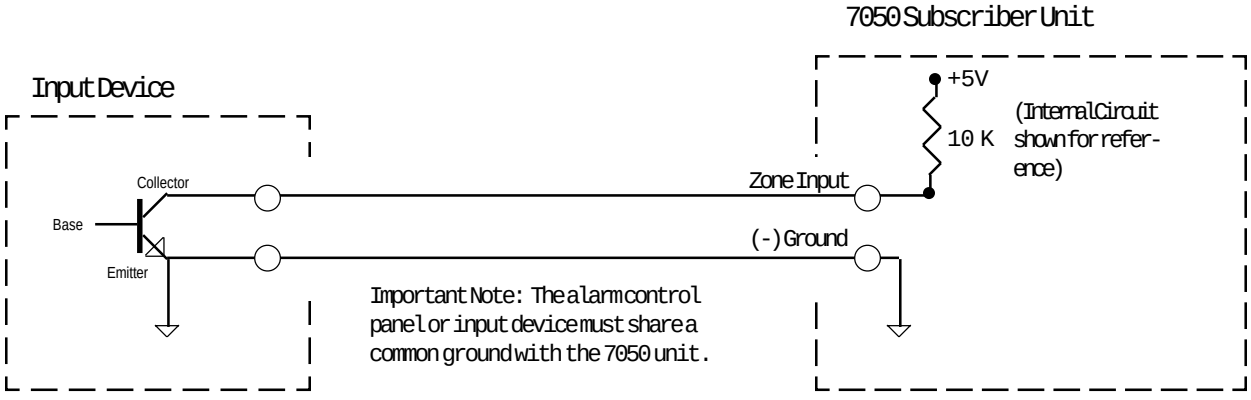
INPUT TYPE: OPEN COLLECTOR

Some devices go to "LOW" on alarm, others go to "HIGH" on alarm. Program 7050 unit follows:

If "Low = Alarm", program for N.O., or
If "High = Alarm", program for N.C.

Common Applications: Units with open collector outputs; program for N.O.

•See section on Zone Programming.



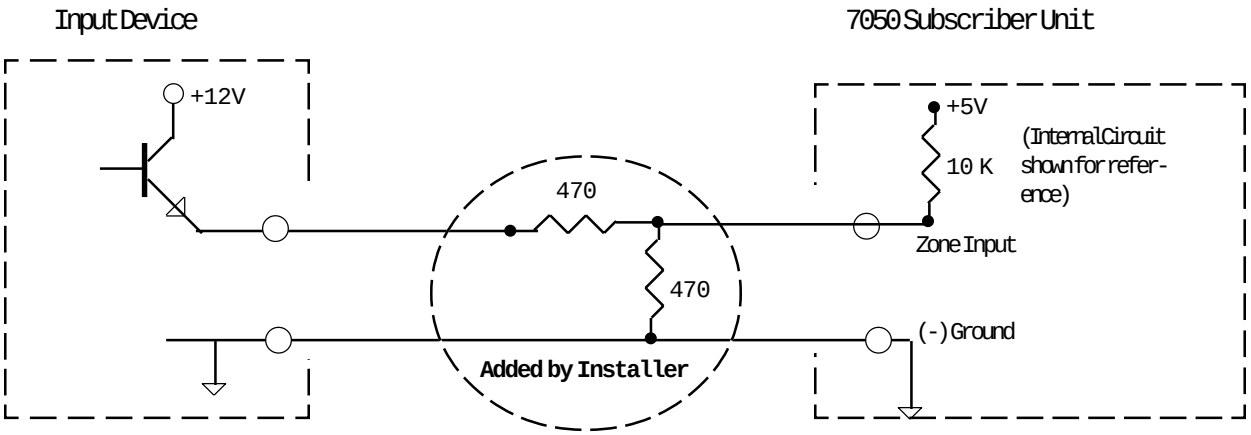
Wiring Inputs for Basic Subscriber Unit, Zones 1-8, *continued*

INPUT TYPE: VOLTAGE INPUT

Some devices put out a 12V signal on alarm. The 7050 can take these inputs, but an external resistor circuit must be added to drop the voltage below 6 volts.

IMPORTANT NOTE: VOLTAGE INPUTS GREATER THAN 6 VOLTS CAN DAMAGE THE 7050. PLEASE FOLLOW THIS WIRING DIAGRAM CAREFULLY.

Program the 7050 unit as follows:
If "High/Active = Alarm", program for N.C., or
If "Low/Off = Alarm", program for N.O.
•See section on Zone Programming.



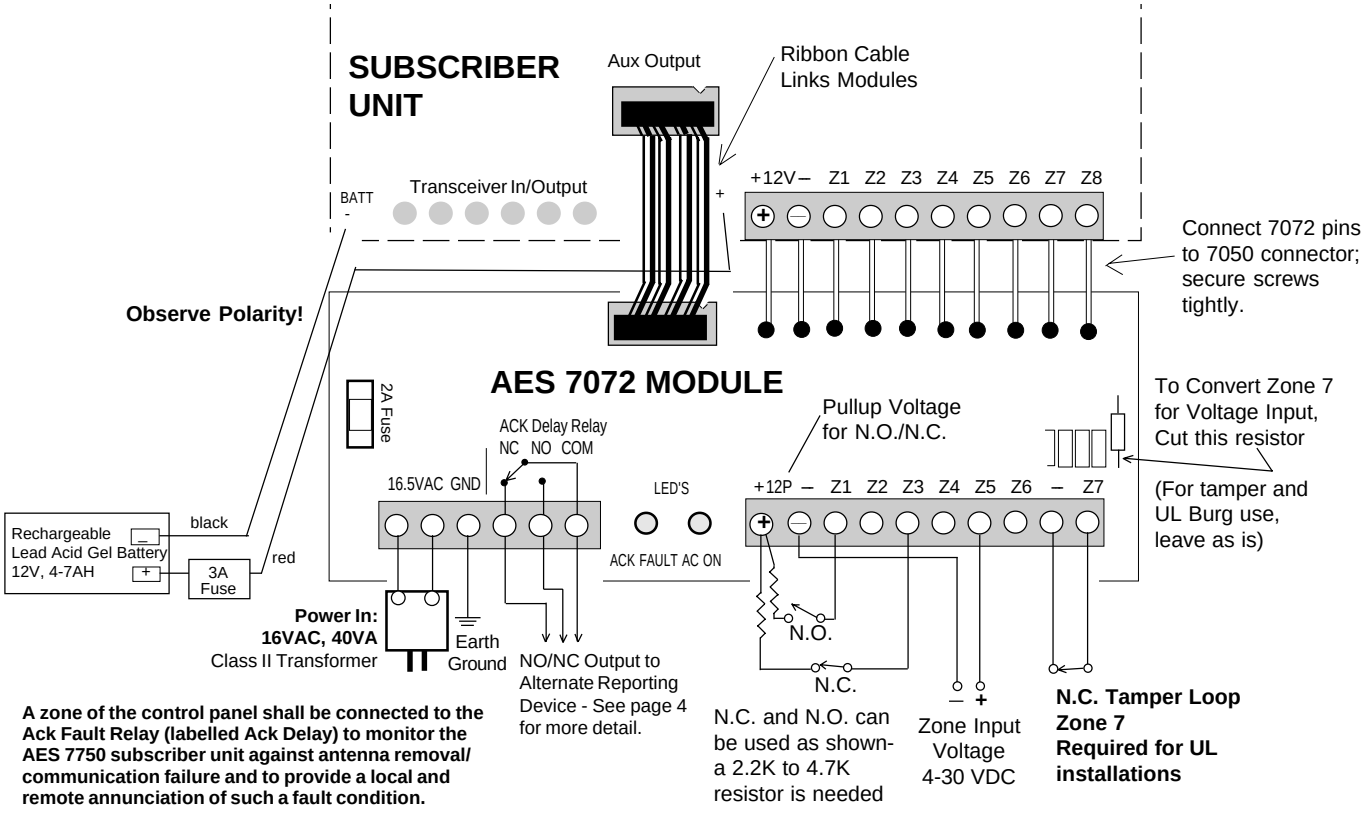
Important Note: The alarm control panel or input device must share a common ground with the 7050 unit.

NOTE: FOR WIDER VOLTAGE RANGE INPUTS, 4 - 30 VOLTS, THE MODEL 7072 MULTI FUNCTION MODULE CAN BE USED.
The 7072 provides several functions: Power Supply, Wide Range Voltage Inputs, Dedicated Tamper Zone Communication Failure Output and more.
CONTACT YOUR AES DISTRIBUTOR FOR MORE INFORMATION.

WIRING INPUTS-MULTI-FUNCTION BOARD - #7072

The 7072 Multi-Function Board provides for a wider range of voltage input (4-30 Volts). It also has a built-in power supply and an Acknowledgment Delay output relay which activates if the unit is unable to get an acknowledgment from any other unit in the network. Also, it provides AC Fail reporting on zone 8, and has a dedicated subscriber box tamper input on zone 7.

The 7750 includes the 7072 module - see diagram for 7750 wiring for further reference.



INSTALLATION NOTES

(7750 units have 7072 already installed)

1. De-power Subscriber Unit; disconnect battery
2. Remove any existing cables from 7050 zone input block. Loosen screws in connector block.
3. Insert 7072 header pins into corresponding connector block of the 7050. Tighten all screws securely.
4. Install ribbon cable as shown. Note keyed connector slots.
5. Connect AC power from 16VAC, 20VA class II transformer (not included).
   DO NOT CONNECT TO 110VAC directly to board!
6. Connect Ground ("GND") terminal to a good earth ground.
7. Connect Acknowledgment Fault output to an alternate reporting device.
8. Control panel and 7050 must share a common ground.
9. Re-connect power.

ZONE PROGRAMMING of 7050 when using the 7072 (use 7041 programmer or Net7K software; see 7050 manual):

ZONE INPUT	PROGRAM 7050 ZONE FOR:	NOTES
Zone 1-6, Voltage Input	N.O. (default)	accepts voltages of 4 to 30 VDC
Zone 1-6, N.C.	N.C.	wire as shown, requires 2.2K to 4.7K resistor
Zone 1-6, N.O.	N.O. (default)	wire as shown, requires 2.2K to 4.7K resistor
Zone 7, N.C. tamper	N.O. (default)	tamper loop is N.C., but 7050 program is for N.O.
Zone 8, AC Failure	N.O. (default)	dedicated function, no wiring required

WIRING INPUTS: ZONE EXPANSION BOARD - #7070/ SUPERVISED INPUTS

The 7070 zone expansion board provides 16 additional input zones for the subscriber unit. It is standard on the 7750 product.

Expansion zones can be individually programmed for N.O., N.C., or SUPERVISED operation, or they can be BYPASSED. Supervision is accomplished using a 3.01K ohm end-of-line resistor. Subscriber version 1.62 or higher is required to activate the supervised zones; AES Net central station software is required to activate the zone bypass feature.

> **UL and COMMERCIAL FIRE INSTALLATIONS:** All inputs must be connected to the 7070 zone expansion board supplied with the 7750 subscriber unit.

Installation of Board:

For 7750 Subscriber Units: A 7070 board is standard, and is factory installed.

For 7050 Subscriber Units: The 7070 zone expansion board mounts directly above the main subscriber unit circuit board. Remove the 6 nuts securing the main board, and re-install the 6 threaded stand-offs supplied with the 7070. Use the supplied jumper cable to connect 7070 connector P1 to subscriber board connector P1. Re-use the nuts from the main board to secure the 7070 expansion board.

NOTE: To program the subscriber unit, the programmer must be connected to P2 on the main board. This will be difficult - but possible - to reach when the 7070 is installed. However, you may not wish to tighten the 7070 in place until initial programming (Unit ID#, Dealer Code, and Repeater Enablement) is completed with the handheld programmer. Other programming (Zone and Timing functions) can be done through Net7K central station software after the 7070 is installed. Also note that the 7070 jumper cable MUST be connected when the unit is powered up (not just by reset) so that the expansion zones will be "recognized" for programming.

Up to four (4) additional 7070 boards may be added, although it may have to be housed in a larger case. Connect them using ribbon cables between connector P2 on 7070 board X and P1 on 7070 board X+1.

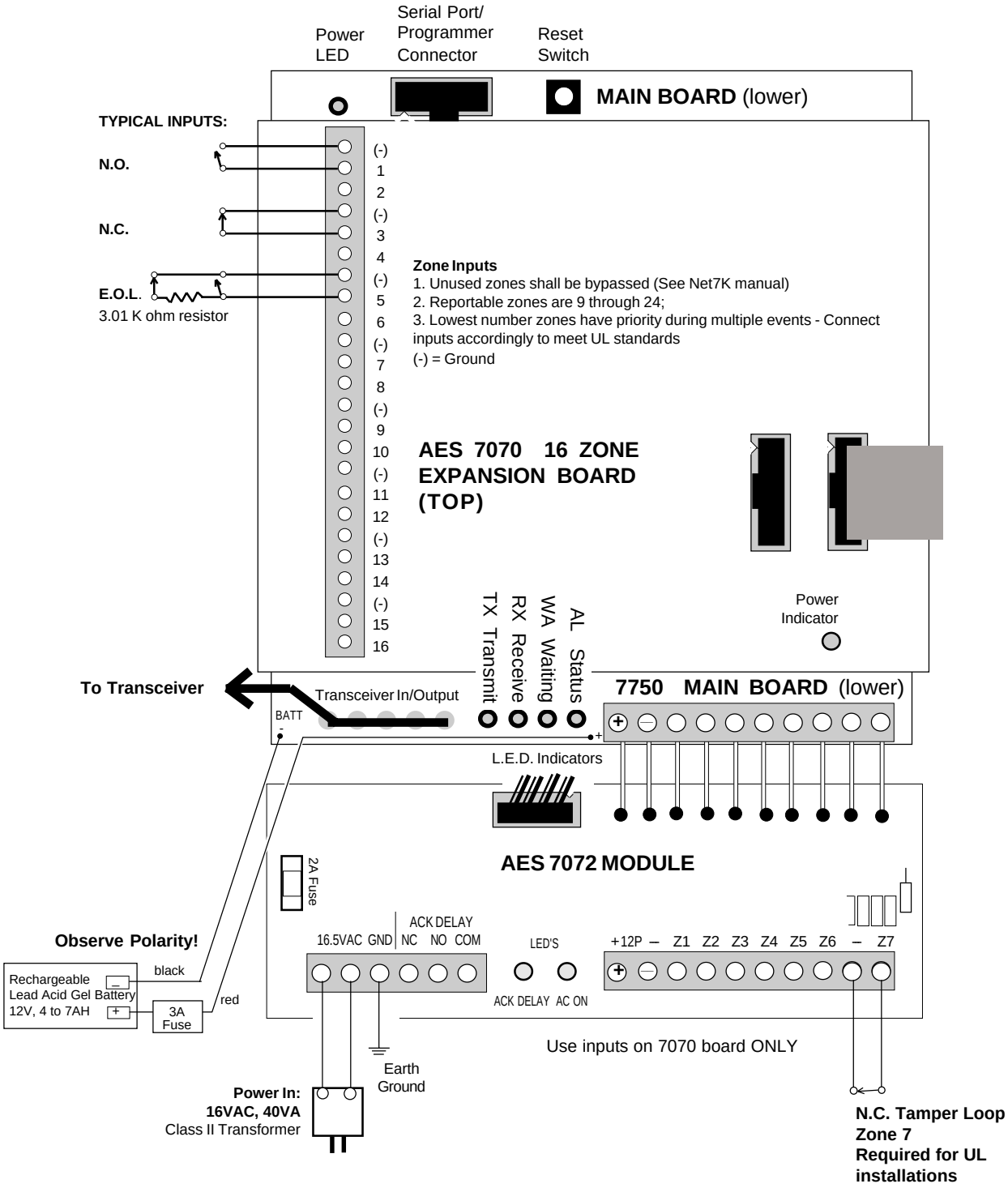
Zone / Banks Numbering

Programming for zones in the 7050 and 7750 is accomplished in banks (groups) of 8 (see Zone Programming). The basic 8 zones on the main board comprise Bank 0 (zero). The first 7070 expansion board added to the 7050/7750 uses zones 9 through 24, comprising banks 1 and 2. The second 7070 board uses zones 25 through 40, comprising banks 3 and 4, and so on. Set jumper on the 7070 board accordingly.

NOTE: Lowest number zones are reported first.

- **7070 Zone Expansion Board (Shown on 7750 Subscriber Unit) Typical Wiring Diagram**

- **Configuration of 7750 Unit**



Setting Up Zones with Programmer (use AES Net software if possible)

To start, push Programmer keys **(CTRL) + (F3)**

ZONE BANK N Zone Bank 0 = Basic 8 Zones
Zone Banks 1-8 require use of 7070 zone expansion

The programming cycles through banks of 8 zones at a time, beginning with Bank 0 (zero) and then sequentially through each added bank. On power-up, the 7050 or 7750 automatically detects the presence of zone expansion boards. Bank 0 applies to the 8 zones on the main 7050 board; banks 1 and 2 apply to the 16 zones on the first 7070 expansion board; banks 3 and 4 to the second 7070 board - and so on. The 7750 has not been evaluated by UL for additional expansion boards.

SET ZONE NC/NO
ENTER CODE-NNN: ___ NNN= Existing "old" code

To program ALL zones in this bank to be N.O., enter 0 (zero)
To program ALL zones in this bank to be N.C., enter 255
For a mix of N.O. and N.C. zones, a value must be computed and entered at the code prompt. Use this chart: (Supervised zones are programmed at next prompt).

Write the corresponding value for each N.C. zone in the Add Up Column. Add all numbers in that column to get the Total Code Value. Enter this number at the "ENTER CODE: __" prompt (see example below).

ZONE #	VALUE FOR NC	ADD UP COLUMN
1	1	
2	2	
3	4	
4	8	
5	16	
6	32	
7	64	
8	128	
TOTAL CODE VALUE:		

EXAMPLE: Program zones 4, 5, and 6 for N.C. operation; all other zones will use N.O. inputs

ZONE #	VALUE FOR NC	ADD UP COLUMN
1	1	0
2	2	0
3	4	0
4	8 >>>>>>	8
5	16 >>>>>>	16
6	32 >>>>>>	32
7	64	0
8	128	0
TOTAL	**CODE VALUE:**	**56**

Enter the number 56: SET ZONE NC/NO
ENTER CODE: **56**

After entering a value, the **SET RESTORAL** prompt appears.

continued...

Zone Programming, continued (CTRL)-(F3)

SET RESTORALS

ENTER CODE-NNN: ____ NNN= Existing "old" code

- To have ALL zones in this bank NOT TO REPORT RESTORALS, enter zero
- To program ALL zones in this bank TO REPORT RESTORALS, enter 255 (only recommended for high security applications)
- To program specific zones TO REPORT RESTORALS, a value must be computed and entered at the code prompt. Use this chart:

Write the corresponding value for each zone that will report restorals in the Add Up Column. Add all numbers in that column to get the Total Code Value. Enter this number at the "Enter Code: __" prompt (see example below).

ZONE #	VALUE FOR RESTORAL	ADD UP COLUMN
1	1	
2	2	
3	4	
4	8	
5	16	
6	32	
7	64	
8	128	
TOTALCODE VALUE:		

EXAMPLE: Program zones 1, 2, and 8 to report restorals. All other zones will not report restorals.

ZONE #	VALUE FOR RESTORAL		ADD UP COLUMN
1	1	>>>>>	1
2	2	>>>>>	2
3	4		0
4	8		0
5	16		0
6	32		0
7	64		0
8	128	>>>>>	128
TOTALCODE VALUE:			**131**

Enter the Code Value:

SET RESTORALS
ENTER CODE: **131**

- After entering a value for Bank 0 basic zones group, the program cycles to the next **BANK #** (see previous page) - **or** - an **OK** message appears, indicating that all installed banks have been programmed, and the zone programming procedure has been completed.

- OR, when programming bank 1 or higher, the **SET SUPERVISED ZONE** prompt appears.

continued...

Zone Programming, continued (CTRL)-(F3)

SET SUPERVISED ZONE
ENTER CODE-NNN: ____

Appears on zone banks 1 - 8, but **not** on bank 0
Supervision avail only on 7070 expansion zones

- Supervised zones are available only on expansion banks 1 through 8 (zones 9 through 72)
- To have ALL zones in this bank UNSUPERVISED, enter zero
- To program ALL zones in this bank SUPERVISED, enter 255
- To program specific zones to be SUPERVISED, a value must be computed and entered at the code prompt. Use this chart:

Write the corresponding value for each zone that will report restorals in the Add Up Column. Add all numbers in that column to get the Total Code Value. Enter this number at the "Enter Code: __" prompt (see example below).

ZONE #	VALUE FOR SUPERVISION	ADD UP COLUMN
1	1	
2	2	
3	4	
4	8	
5	16	
6	32	
7	64	
8	128	
TOTAL CODE VALUE:		

EXAMPLE: Program zones 1, 2, and 8 to report restorals. All other zones will not report restorals.

ZONE #	VALUE FOR SUPERVISION		ADD UP COLUMN
1	1	>>>>>	1
2	2	>>>>>	2
3	4		0
4	8		0
5	16		0
6	32		0
7	64		0
8	128	>>>>>	128
TOTAL CODE VALUE:			**131**

Enter the Code Value:

SET SUPERVISED ZONE
ENTER CODE - **131**

- After entering a value for Bank 0 basic zones group, the program cycles to the next **BANK #** (see previous page) **- or -** an **OK** message appears, indicating that all installed banks have been programmed, and the zone programming procedure has been completed.

CONFIRM PROGRAMMING - RESET

To confirm this procedure, press the RESET button on the controller to check the program. The reset function runs the Selftest, which prints out the ID number:

```
SELFTEST - PASS
SUB [rev#] (C)[date] AES
ID# : [4 digit ID number you entered]
```

(If "FAIL" messages appears, push RESET again; If Fail persists, go to page 8 to troubleshoot.)

Proceed to "Initializing the Subscriber Unit", next page.

OTHER PROGRAMMING FUNCTIONS

DEFAULT RESET Push Programmer keys **(CTRL)+(F5)**

The Default (Master) Reset function can be used to reset programmed values to their default settings. **The ID# and Cypher (dealer) code are not changed. Use this function only if you wish to reset all parameters.** Power must be on, connect the programmer to P2.

Press programmer keys CTRL-F5 (hold down the Control and the F5 keys at the same time). The following message appears:

```
RESET RAM?  <Your Response:>
          (Y) (Enter) for YES, or
          (N) (Enter) for NO
```

If you answer (Y) Yes, the 7050 will restore all program parameters to their default values, and then goes through its normal "reset" routine. The following message appears:

```
SELFTEST - PASS
SUB [rev#] (C)[date] AES
ID# : [4 digit ID number]
```

The default reset restores program parameters to their default values:

CHECK IN TIME:	24 Hours 00 Minutes
ZONE INPUT PROGRAMMING:	Normally Open, All Zones;
	NO Restorals Reported, All Zones;
	NO Supervision, All Zones
REPORT DELAY:	10 Seconds
UNIT ID #:	NOT Changed by Default Reset
CYPHER (dealer) CODE:	NOT Changed by Default Reset

INITIALIZING THE SUBSCRIBER UNIT

Having passed the self test and programmed the unit, you are now ready to introduce it to the radio network. It is assumed that an AES 7000/7700 central station is actively monitoring the network and can respond to the new subscriber unit as it comes on line.

Power down the unit by disconnecting both the battery and power inputs used during initial programming.

Connect the antenna to the transceiver (if you have not already done so). Do not operate transceiver without the antenna connected!

Connect the controller-to-transceiver cable.

Connect both battery and primary power. The controller power indicator should be on. The Programmer should be connected to P2 as described earlier.

Push the Reset button on the controller board (see diagram).

At this point, the message on the programmer should read:

```
SELFTEST - PASS
SUB [rev#] (C)[date] AES
ID# : [4 digit ID number]
```

(If a "Fail" error message is displayed, push the reset button. If an error message continues to appear, see page 8 for possible solutions.)

When the 7050 subscriber unit goes on the air, it queries the surrounding subscriber units to establish the best route(s) to link with the central station. The status lights indicate the network log on process:

- RX, TX and WA lights will all 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 - a standard power up event;
- AL + WA will blink at different but steady rates
- TX comes on again as unit transmits a "Request for Reply" from other units
- WA stops flashing after about 30 seconds **IF** one or more other 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 will turn off. This indicates that the new subscriber unit is now connected to the network.

A flashing WA light (blinking at a steady rate) indicates that the subscriber has not established itself into the network. Check antenna and all cables; be sure that correct Cypher (dealer) code has been programmed into the unit.

The next step is to perform a status check.

STATUS CHECK: Push Programmer keys **(SHIFT) + (F4)**

Performs a quick diagnostic check at any time.

Connect the programmer to P2. Be sure that radio and antenna are connected, and power is on.

Press programmer keys SHIFT-F4 (hold down the Shift and the F4 keys at the same time). The following message appears:

```
SUB [rev#] (C)[date] AES
ID#: [NNNN]  LEVEL: [ NNN]
RT1: [NNNN]  NETCON: [ N ]
```

EXPLANATION OF STATUS CHECK TERMS

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

LEVEL: refers to the subscriber unit "layer level", which tells you how many "hops" the message packet must make to get to the central station. In general, if the number is 1, then this unit is communicating directly with the central station. If the number is 2, the unit relays its message through one other subscriber unit to reach the central station. If the number is 3, the message goes through 2 other subscribers ... and so on. Also, the level number of a subscriber with a weak signal link to the unit on the top of its routing list will be incremented by 1. A unit level = 255 indicates that unit is not on network.

RT1: refers to the "first route" or primary route in the routing table. The 4 digit number is the subscriber unit ID of the next hop to the central station. If the unit is communicating directly with the central station , the 1ST RT is 0000 - the central station ID number. If the subscriber is using intermediate units to communicate, the RT1 number is the ID number of first subscriber on the message route.

Dynamic Routing Table: Each 7050/7750 subscriber unit maintains a list of up to 7 alternate routes. Routes are prioritized according to signal strength and NETCON ratings. This function is dynamic, and is updated constantly.

NetCon: is a rating number that indicates the "NETwork CONnectivity" quality of a particular unit on a scale of 0 to 7, 0 being best. The number is dynamically calculated based on the routing list for that unit. For each available 7050/7750 repeater unit that meets minimum criteria, that number is decremented by 1. If the central station (unit 0000) is first on the list, and meets the criteria, a NetCon of 0 is generated (unless there is a weak signal).

Minimum criteria for 7050 repeater are as follows:

1. RF signal exceeds marginal threshold
2. No faults indicated in status (such as low battery)
3. Link Layer of repeater is less than or equal to this unit's
4. Signal received from unit at least once every 6 hours
5. NetCon of repeater is less than 7

For UL Burglar and Commercial Fire alarm systems requiring 2 paths, a NetCon of 5 or less assures that 2 paths are available to this unit (version sub1.62 required).

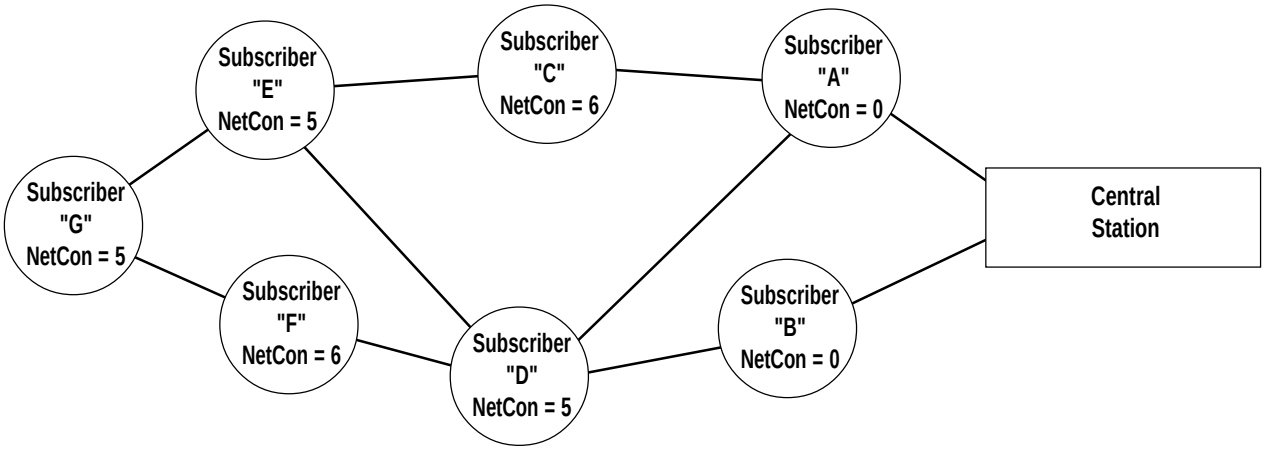
continued...

NetCon Rating (continued)

"NetCon" is a rating of "Network Connectivity" for a subscriber unit in an AES-IntelliNet wireless data network. The rating is established by considering many factors: number of paths available; NetCon ratings of other units in each path; link layer (number of hops to the central station); signal strength; low battery conditions and other factors. NetCon indicates how strong the link is between the subscriber unit and the central station, assigning a number between 0 and 7, 0 being best.

Explanation:

• If a subscriber unit is in direct communication with the central station (link layer = 1), with a good quality signal, then the unit's NetCon is 0 (zero).
• For subscriber units in link layers greater than 1, NetCon is calculated by adding up the number of subscribers in the routing table with a link layer lower than the calculating unit, and subtracting that number from 7.
• Note that if signal quality to all units in the routing table is poor, then a NetCon of 7 is assigned.
• Also note that a subscriber cannot have a better NetCon than that of the member on the top of its routing list.



Proving Multiple Paths: A NetCon rating of 5 or less guarantees that a subscriber unit has at least 2 valid paths available, or communicates directly with the central station.

Examples: Refer to illustration above

• Subscribers A and B communicates directly with the central station; their NetCon is 0 (zero).
• Subscriber D has subscribers A and B in its routing table, so its NetCon is [7-(1+1)] = 5.
Note that even if subscriber C is in D's routing table, it has the same link layer number as D, and thus C does not improve D's NetCon.
• Subscriber C has a NetCon of 6 since the only lower link layer unit it can communicate with is subscriber A; [7-1] = 6.
• Subscriber E has a NetCon of 5; subscriber D is at the top of its routing table, next is C; [7-(1+1)]=5.
• Subscriber F has a NetCon of 6; subscriber D is the only unit on its routing list with a link layer less than itself; [7-1]=6.
• Subscriber G has a NetCon of 5; subscriber E is at the top of its routing table, next is F; [7-(1+1)]=5.

The algorithm that generates and maintains the NETCON and Link Layer is AES proprietary: this information is disclosed in confidence to AES customers. This and all algorithms in the AES IntelliNet system are subject to change and improvements.

OTHER FUNCTIONS

MONITOR FUNCTIONS

Installers can view network data "traffic" on the handheld programmer at a remote site. It is not a practical way to "read" data (it scrolls off the screen quickly), but it can be useful to see that data is being sent or received. Three monitor functions can be enabled:

RECEIVE MONITOR ON/OFF

PROCEDURE: Push programmer keys **(SHFT)+(F1)**

MESSAGE: **RX MONITOR ON (OFF)**

Pressing Shift+F1 keys together enables or disables (toggle) the display of data addressed to this unit.

TRANSMIT MONITOR ON/OFF

PROCEDURE: Push programmer keys **(SHFT)+(F2)**

MESSAGE: **TX MONITOR ON (OFF)**

Pressing Shift+F2 keys together enables or disables (toggle) the display of messages transmitted by this unit.

MONITOR ALL ON/OFF

NOTE: Requires that Receive Monitor must be on - Enter (SHFT)+(F1)

PROCEDURE: Push programmer keys **(SHFT)+(F3)**

MESSAGE: **MONITOR ALL ON (OFF)**

Pressing Shift+F3 keys together enables or disables (toggle) the display of all network messages within range of this unit.

The monitor functions should be disabled when installation and testing is complete.

NOTE: Text messages cannot be received when a monitor function is in use.

KEY TRANSMITTER Push programmer keys **(SHFT)+(F5)**

Using the handheld programmer an installer can key the transmitter to test output power, frequency and other radio parameters. It is assumed that the programmer is connected to P2, the transceiver is connected to the 7050 circuit board, power is on and the antenna/load is connected.

PROCEDURE: Push programmer keys **(SHFT)+(F5)**

MESSAGE: **MONITOR ALL ON (OFF)**

Activating this function causes the transmitter to go on the air for 6 seconds, and then shut off automatically. Push the ENTER key to cancel the transmit test.

SENDING ASCII TEXT MESSAGE **Push programmer key (F5)**

Text messages can be sent from the subscriber unit to the central station.

PROCEDURE: Push programmer key **(F5)**

MESSAGE: **ENTER MSG:**
_ [Enter your text message, up to 200 characters. Push ENTER to send.]

RECEIVING ASCII TEXT MESSAGES

Messages can be sent from the central station to any subscriber unit. If the handheld programmer is connected to the unit, the message will be displayed on the screen and a beep will sound. This is a handy feature for communications between installers and central stations.

NOTE: Text messages cannot be received when a monitor function is in use.

ERROR MESSAGES

An error code is listed when the unit fails the self test.
Some may be correctable on site:

Message: **01 Battery / power input is low.**
Procedure: Push RESET button, see if unit will pass self test; If the unit fails and reports the same message, replace battery and/or check main power voltage.

Message: **02 Random Access Memory (RAM) data corrupt;** may be caused by initial power up, or by power interruption during a programming procedure.
Procedure: Push RESET button, check if unit will pass self test; If unit passes, please note that it must now be reprogrammed (see next section). If unit fails, memory may be damaged and require service.

Message: **03 Self test detects both problems 01 and 02 above.**
Procedure: Follow procedures described in 01 and 02 above.

Message: **80 Loopback Test Failure,** common on initial power up
Procedure: Push RESET button, unit will likely pass self test; If the unit fails and reports the same message, contact factory for service.

Message: **Timeout**
Procedure:: More than one minute (approx) elapsed during a programmer procedure. Re-enter procedure and complete input in less than one minute.

Other Messages: Unit requires AES authorized servicing.
Report error code to AES authorized service rep.

7050 SUBSCRIBER UNIT FEATURES *Refer to Drawings, pages 3 and 32*

INDICATORS

RX, TX - indicate radio receive (RX) or transmit (TX)

WA - Steady On = Waiting for acknowledgment of last transmission;
Blinking = Not on Network; Steady Off = Normal

AL - Alert / troubleshooting indicator, "blink" codes as follows:

· · ·	steady blink - system OK;
·· ··	short-short blink - low battery;
·— ·—	short-long blink - an input zone is in alarm;
·—— ·——	short-short-long blink, low battery and zone in alarm;
Steady	no blink - Self Test failure (other than low batt)

PWR - indicates unit has power

INPUT/OUTPUT CONNECTIONS

P1 Expansion Port - for relay outputs; zone expanders, etc.

P2 Serial Port - connects to programmer, optional serial printer and other accessories

P3 Auxiliary Port

P4 Auxiliary Output
Includes "Acknowledgment Fault" output - should the unit not receive an acknowledgment to any message for a time longer than programmed period, the output activates a relay to signal a problem locally or to notify the central station via an alternate communicator. Use the 7072 Multi-function module which includes an output relay to access this capability.

TB1 Terminal Block 1 - Inputs:
Power +12V
Ground (-)
8 zone inputs (N.O. = default)

TB2 Cable/Connector - Transceiver In/Output
1 Transmit Audio
2 Receive Audio
3 Push to Transmit
4 Ground
5 +12VDC Out (to power radio)
6 Carrier Detect

CONTROLS

SW1 Reset Switch - initializes controller

7050, 7750 SUBSCRIBER UNIT SPECIFICATIONS

See Also - UL Requirements Page

SIZE: 13.25"h x 8.5"w x 4.3"d
34 cm x 21.5 cm x 11 cm

WEIGHT: 6.4 pounds (2.9 kilograms) (exc battery)

RADIO: Standard Frequency Ranges (others available)
150-174 Mhz.
450-470 MHz.

Standard Radio Output Power:
2 Watts (others available)

All radio systems require FCC licensing;

VOLTAGE: 12VDC nominal; 7050 requires power supply, use AES #7072 or equiv
7750 (with 7072 module), use 16VAC, UL listed Class II transformer required

CURRENT: 7050: 80ma standby; 1.0A transmit (2W transmitter)
7750: 100ma standby; 1.0A transmit (2W transmitter)

OPERATING TEMPERATURE RANGE: 0° to 50° C

STORAGE TEMPERATURE RANGE: -10° to 60° C

RELATIVE HUMIDITY RANGE: 0 to 85% RHC, Non Condensing

BACK-UP BATTERY: 12V, 4 AH (min), lead acid gel type; required for 7750/UL installations

For 7750 and 7050 equipped with 7072 Multi-Function Board:

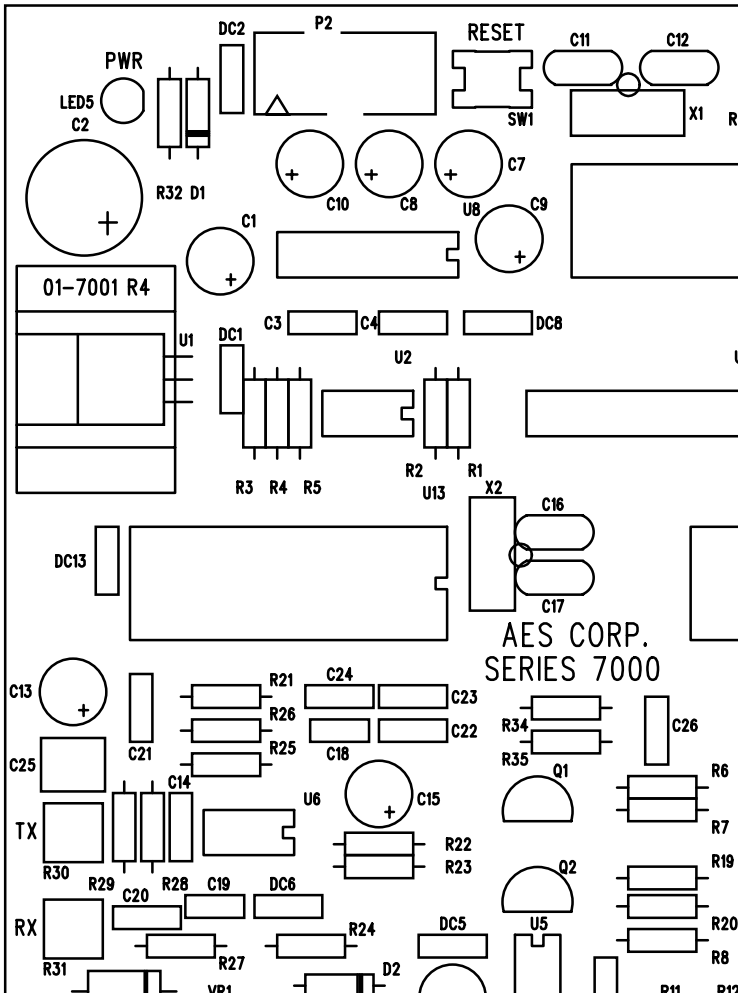
LOW BATTERY REPORTING: 22.5 Minute Test Cycle

AC FAILURE REPORTING: Reports on Zone 8 (units with 7072 board only); reports after approximately 2 minutes without AC power; reports AC power restoral approximately after 1.5 minutes.

UPGRADABLE INTEGRATED CIRCUIT: BOARD LAYOUT

U9 Microprocessor / PROM, 40 Pin DIP; this chip is mounted in a socket, and may be replaced or upgraded for repairs or special applications.

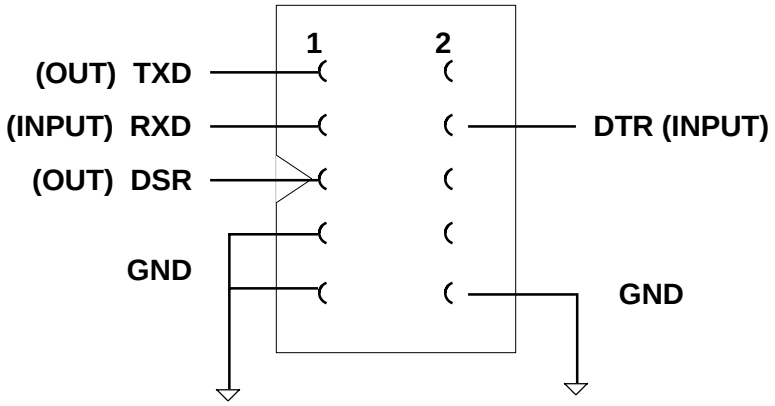
NOTE: DO NOT operate 7050 unit without this microprocessor installed.



RS-232 CONNECTOR - P2 - PINOUT DIAGRAM

NOTE: Control panel or input device must share common ground with the AES 7050 for the RS-232 link to work. Contact AES before attempting to use the RS-232 port as an input on the 7050.

The RS-232 port is located on the upper left edge of the PC board in the 7050 subscriber unit (see board layout diagram in the 7050 manual). The connector is marked "P2".



NOTE: Do NOT connect anything to unmarked pins

Note: The RS-232 link has not been evaluated by UL as an input device.

PROGRAMMING THE 7050 UNIT FROM A PC (in place of a handheld terminal)

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

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

Control (CTRL) keys on the programmer remain the same on the PC.

REMARKS:

- When entering Hex numbers, use upper case, 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 7050, make sure the program is set to the correct COM port.
- If characters are received by the 7050, but nothing can be sent, make sure the CTS/RTS flow control is OFF.

AES ONE YEAR OWNER WARRANTY

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

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

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

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

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

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

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

AES IntelliNet®

SERVICE PROCEDURE: Contact AES Corporation at 508-535-7310 (fax 508-535-7313) to receive a Return Authorization Number. Have the AES part number and serial number ready. Items should be shipped freight prepaid c/o Repair Services, AES Corp, 285 Newbury Street, Peabody, Massachusetts 01960 USA. Authorized repair service is furnished only by AES Corporation.

• FCC COMPLIANCE

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.
Increase the separation between the equipment and the receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications to this equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

• CANADIAN COMPLIANCE

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus", ICES-003 of Industry Canada.

Cet appareil numérique respects les limites de bruits radio électriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numeriques", NMB-003 édictés par l'Industrie Canada.

Programming Codes / *Quick* Reference

Complete details of these procedures are provided in the manual.

This page provides a handy reference sheet for technicians familiar with the AES•*IntelliNet* system who are using a handheld programmer to install or update the parameters of a 7050 or 7750 subscriber unit.

NOTE: With the exception of the initial "Setup Unit" section, it is recommended that all programming be done from the AES Net central station software listed in a separate section of this manual.

FUNCTION	PROGRAMMER SCREEN	NOTES
SETUP UNIT		
(CTRL)+(F1)	**SETUP UNIT -OLD: NEW** **ENTER ID#- 1234: ____** **DLR CODE-- XXXX: ____** **ENABLE RPTNG-Y: _**	Show existing ("old") programming data, **except** dealer code Enter new data, or push enter to keep old data ID# and Dealer Code may use Hex numerals, i.e. 1-F
CHECK IN TIME		
(CTRL)+(F2)	**CHKIN TIME--OLD: NEW** **ENTER HRS----HH: __ [0-24]** **ENTER MINS---MM: __ [1-59]**	Range = 00 Hrs, 01 Min to 24 Hrs, 00Mins (minutes field appears if digits are entered in hours field)
REPORT DELAY	**NTR RPT DLY-NNN: ___ [0-330]**	[seconds]
ZONE SETUP		
(CTRL)+(F3)	**ZONE BANK N** **SET ZONE NC/NO** **ENTER CODE-NNN: ___**	Zone Bank 0 = Basic 8 Zones Zone Banks 1-8 require use of 7070 zone expansion
	SET RESTORALS **ENTER CODE-NNN: ___**	
	SET SUPERVISED ZONE **ENTER CODE-NNN: ___**	Appears only on zone banks 1 - 8 Supervised zones available only on 7070 expansion [Repeats for each zone bank installed]
MASTER RESET		
(CTRL)+(F5)	**RESET RAM? [Y/N]**	
DISPLAY STATUS		
(SHIFT)+(F4)	**SUB 1.62 (C)1996 AES** **ID#: NNNN LEVEL: 255** **RT1: NNNN NETCON: 7**	
KEY TRANSMITTER		
(SHIFT)+(F5)	**KEYING TX..**	(6 second test)
SEND TEXT MESSAGE		
(F5)	**ENTER MSG:**	
(SHIFT)+(F1)	RECEIVE MONITOR ON/OFF	(toggle)
(SHIFT)+(F2)	TRANSMIT MONITOR ON/OFF	(toggle)
(SHIFT)+(F3)	MONITOR ALL ON/OFF	(toggle)