



# **AES 7794**

## **IntelliPro Fire**

# **Installation Manual**

AES Corporation  
285 Newbury Street. Peabody, Massachusetts 01960-1315 USA  
Tel: USA (978) 535-7310. Fax: USA (978) 535-7313  
Copyright 2010, All rights Reserved

Rev. 3.3D

<b>1</b>	<b>Summary</b> .....	4
<b>1.1</b>	<b>Basic functions</b> .....	4
<b>1.2</b>	<b>User interface</b> .....	4
<b>1.3</b>	<b>System requirements</b> .....	4
<b>2</b>	<b>7794 connectors and LED</b> .....	5
<b>3</b>	<b>Physical installation of the 7794 in the subscriber unit</b> .....	5
<b>4</b>	<b>Connection of the 7794 to the alarm panel - US Installation</b> .....	6
<b>4.1</b>	<b>Connection details</b> .....	6
<b>5</b>	<b>Connection of the 7794 to the alarm panel – Dual Dialer Installation Optional</b> .....	7
<b>5.1</b>	<b>Connection details</b> .....	7
<b>6</b>	<b>Configuring the 7794</b> .....	8
<b>6.1</b>	<b>Connecting the handheld to the 7794</b> .....	8
<b>6.2</b>	<b>How to find which firmware version is on the 7794</b> .....	8
<b>6.3</b>	<b>Default configuration</b> .....	9
<b>6.4</b>	<b>Entering the configuration mode</b> .....	9
<b>6.5</b>	<b>Configuration options</b> .....	10
<b>6.5.1</b>	<b>Option # 1: Phone Line</b> .....	10
<b>6.5.2</b>	<b>Option # 2: Intercept number</b> .....	11
<b>6.5.3</b>	<b>Option #3: Alarm Panel report format</b> .....	11
<b>6.5.3.1</b>	<b>CID Alarm Format</b> .....	11
<b>6.5.3.2</b>	<b>Modem Alarm format</b> .....	11
<b>6.5.3.3</b>	<b>Settings for Modem</b> .....	12
<b>6.5.4</b>	<b>How do I know that I have an “unknown” panel type</b> .....	12
<b>6.5.5</b>	<b>How to associate a family with an unknown type?</b> .....	12
<b>6.5.5.1</b>	<b>Pulse Alarm format</b> .....	13
<b>6.5.6</b>	<b>Option # 4: AP Input gain</b> .....	13
<b>6.5.7</b>	<b>Option # 5: Intercept on blind dial</b> .....	13
<b>6.5.8</b>	<b>Option # 6: Line Cut Report</b> .....	14
<b>6.5.9</b>	<b>Option # 7: POTS cut report delay</b> .....	14
<b>6.5.10</b>	<b>Option # 8: POTS restoral delay</b> .....	14
<b>6.5.11</b>	<b>Option # 9: AP ACCT Override</b> .....	14
<b>6.5.12</b>	<b>Option # 10: POTS Input Gain</b> .....	14
<b>6.5.13</b>	<b>Option # 11: Advanced Options Display</b> .....	15
<b>6.5.14</b>	<b>Option # 12: AP Output Gain</b> .....	15
<b>6.5.15</b>	<b>Option # 13: AP Reset to defaults</b> .....	15
<b>6.5.16</b>	<b>Option # 14: Line-cut sensing Enabled</b> .....	15
<b>6.5.17</b>	<b>Option # 15:CID 4XX (Event Code) letter (default =U)</b> .....	15
<b>6.5.18</b>	<b>Option # 16: Modem III event code text to CID</b> .....	16
<b>6.5.19</b>	<b>Option # 17</b> .....	16
<b>6.5.20</b>	<b>Option # 18: Voltage Pump Enabled</b> .....	16
<b>7</b>	<b>Interpreting the LED blinking patterns</b> .....	16
<b>8</b>	<b>Trouble output</b> .....	17
<b>9</b>	<b>Formats: More Details on Pulse Firmat</b> .....	17
<b>9.1</b>	<b>Settings for common pulse formats</b> .....	17
<b>9.2</b>	<b>Settings for non-supported formats</b> .....	18
<b>9.3</b>	<b>Notes on pulse formats</b> .....	18
<b>9.3.1</b>	<b>Number of digits on Pulse format</b> .....	18

9.3.2	Double round .....	18
9.3.3	Translation of 3+1,4+1 to 4+2 .....	18
9.3.4	Expanded format .....	19
<b>10</b>	<b>How to test – IPCtrl and automation messages.....</b>	<b>19</b>
<b>10.1</b>	<b>Zone tripped on alarm panel .....</b>	<b>19</b>
<b>10.2</b>	<b>POTS Line cut detected.....</b>	<b>19</b>
<b>10.3</b>	<b>POTS Line restored .....</b>	<b>20</b>

## 1 Summary

The 7794 is a supplemental alarm reporting interface for an AES Subscriber Unit. It is used on Commercial Fire Installations with and/or without a phone line. This document describes the 7794 installation procedure combined with an AES subscriber and the interface to an Alarm Panel (AP) via the dialer interface to the phone line (POTS: Plain Old Telephone System or PSTN: Public Switching Telephone Network). The 7794 is installed between the AP and the POTS (POTS optional). When in operation, the 7794 decodes CID, PULSE, or Modem II and Modem III messages received on the AP phone interface and sends them via the AES subscriber radio. It also provides a full replacement to a POTS line, as well as POTS monitoring, when POTS is present.

This document describes the 7794 usage on US Commercial Fire Installations.

### 1.1 Basic functions

The 7794 is a dialer capture module with monitoring capabilities as well as full emulation of the POTS for incoming data (incoming to the 7794, dialed from the AP). It can operate with or without a phone line. It can also intercept the phone line connection at different states of the call, if the intercept number matches the number being dialed.

### 1.2 User interface

The 7794 is programmed using the handheld, and does not have any jumpers. The handheld connects to the RJ11 connector J2. **DO NOT CONNECT IT TO THE RJ11 J1** (that is used only for connecting the 7794 to the subscriber unit).

The handheld is also used for diagnostics and monitoring of the 7794 while in operation.

In addition to the handheld port, the 7794 has one LED, to indicate operation and heartbeat.

### 1.3 System requirements

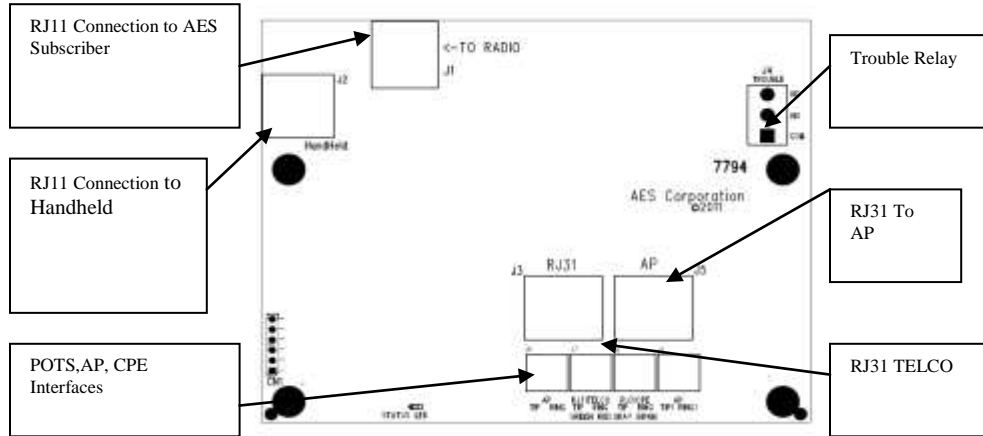
This document assumes that the user knows how to set the AES subscriber (account, cipher and other details), and how to operate a functional installation of the Multinet environment (IPctrl, automation)

Power Requirements: Voltage: 12 Volts DC Nominal  
Current: 350ma

Environment: Indoor / Dry

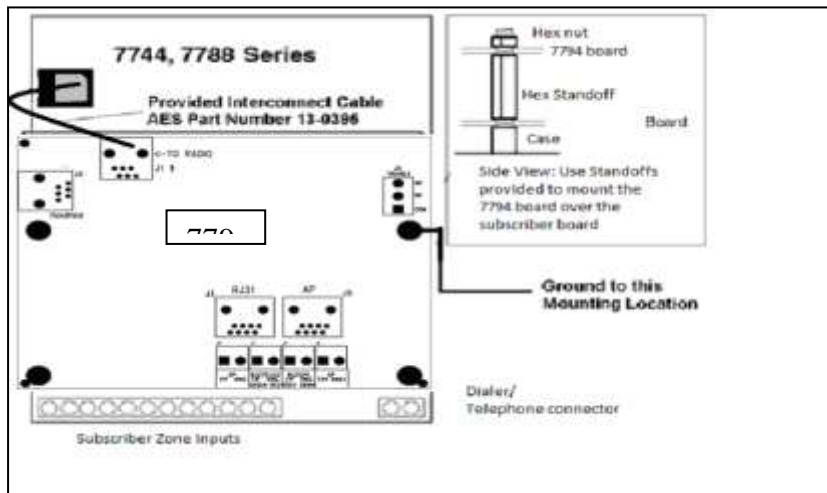
**Important Note: The 7794 must be installed in accordance with National Electrical Codes and UL 864**

## 2 7794 connectors and LED



Important Note: The 7794 MUST be installed in an indoor and dry location.

## 3 Physical installation of the 7794 in the subscriber unit

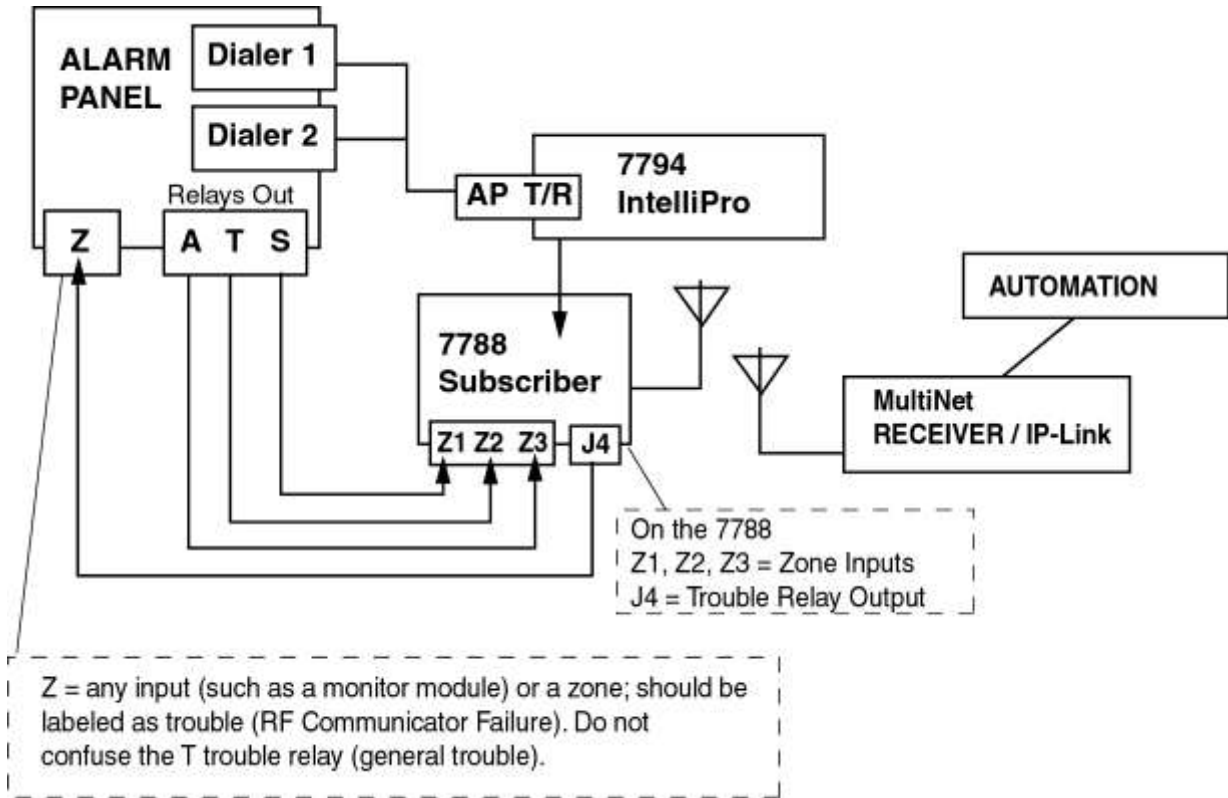


Installing the 7794 in the Subscriber Unit:

1. Remove the four (4) lower nuts holding the main board inside box. Save the nuts.
2. Install 4 standoffs (provided with 7794) in place of nuts, re-securing the subscriber unit circuit board and providing a mount for the 7794. Do not over-tighten.
3. Mount the 7794 board on standoffs. Secure the 7794 with the 4 nuts removed earlier.
4. Earth ground should be connected to the right center mounting screw identified with a green hex nut.
5. Install a 6 wire modular cord (provided) between 7794 J1 and subscriber main board. At this point if the subscriber is powered the 7794 will also be powered.
6. The J4 trouble relay must be wired to a zone on the subscriber unit programmed to report a trouble. The J4 trouble relay is rated 30vdc at 1 amp

**Note: Install this product in an indoor and dry location**

#### 4 Connection of the 7794 to the alarm panel - US Installation



FACP (Fire Alarm Control Panel) with both dialers connected to the 7794 (AP TIP and AP RING)

Method1: Dialer 1/2 into 7794

Method2: FACP relays into 7788 zones

Normal case: Alarm = Dialer1/2 into Multinet receiver via 7794

Method1: FAILS:

AP detects Dialer1 and Dialer2 in trouble

AP trips relat "T" into 7788

7788 reports into Multinet (DIALER FAILURE)

Method2 FAILS: antenna cut, etc

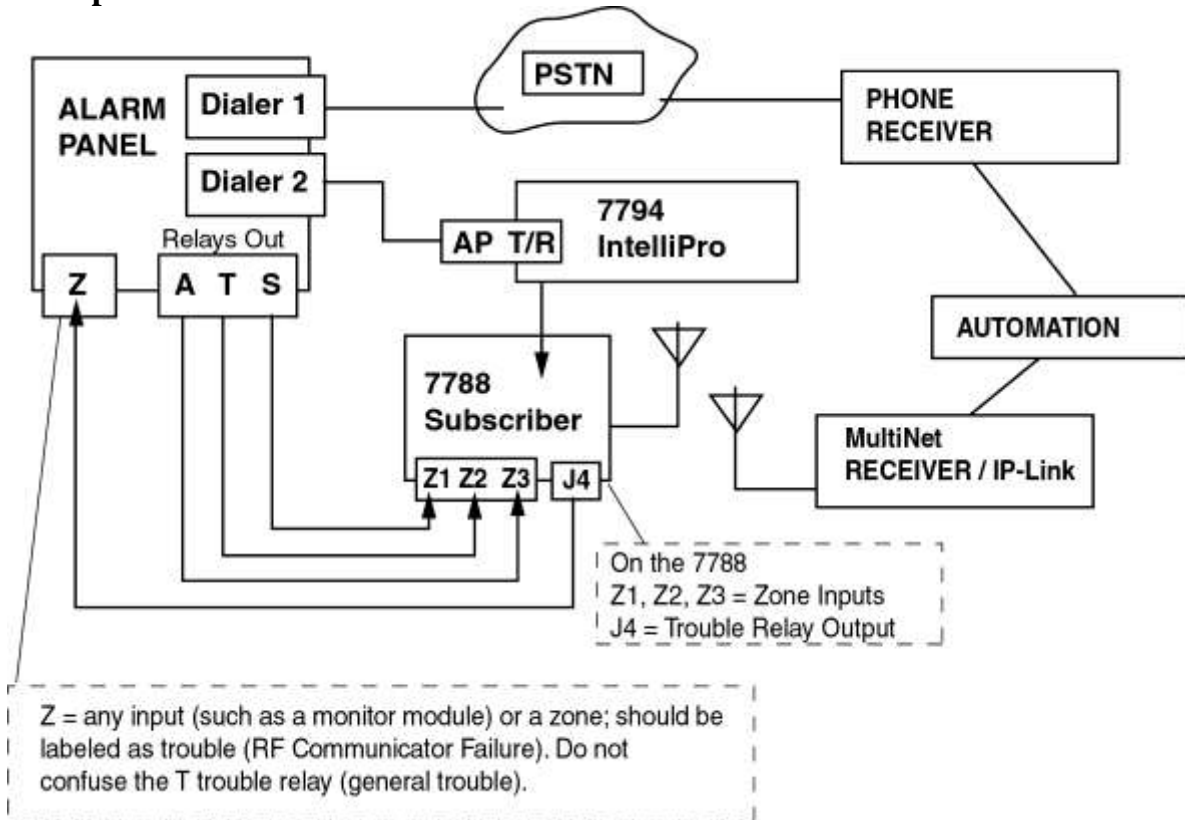
7788 engages J4 trouble relays

J4 relays trips zone Z of the AP

##### 4.1 Connection details

- Connect the FACP Dialer1 and Dialer 2 TIP and RING to the 7794 terminal block labeled AP TIP RING
- Wire the Zones of the FACP into the 7788 as depicted above
- Connect the J4 terminal of the 7794 into a monitor zone of the FACP.

## 5 Connection of the 7794 to the alarm panel – Dual Dialer Installation Optional



FACP with PSTN and 7794

Method1: PSTN via Dialer1

Method2: RF (7794) via Dialer2 and RF (7788) via Relays

Normal case: Alarm = Dialer1 dials into Phone Receiver or via Dialer2 into Multinet receiver

Method1 FAILS: PSTN fails (line cut, failure to connect, etc)

Reports with 2 messages:

AP detects it (AP is capable of monitoring PSTN), and trip relay "T" on 7788

7788 sends ZONE alarm (DIALER FAILURE).

AP reports via Dialer 2 into 7794. 7788 sends TAP alarm

7788 reports into Multinet (DIALER FAILURE) .

Method2 FAILS: antenna cut, etc

7788 engages J4 trouble relays. J4 relays trips zone Z of the AP

AP sends message via Dialer1 indicating that 7788 is in trouble.

AP reports via Dialer into Phone Receiver (RF COMMUNICATOR FAILURE)

### 5.1 Connection details

- Connect the FACP Dialer 1 TIP and RING to the 7794 terminal block labeled AP TIP RING
- Connect the FACP Dialer 2 TIP and RING to the PSTN (Public Switching Telephone Network).
- Wire the Zones of the FACP into the 7788 as depicted above
- Connect the J4 terminal of the 7794 into a monitor zone of the FACP
- Connect the FACP

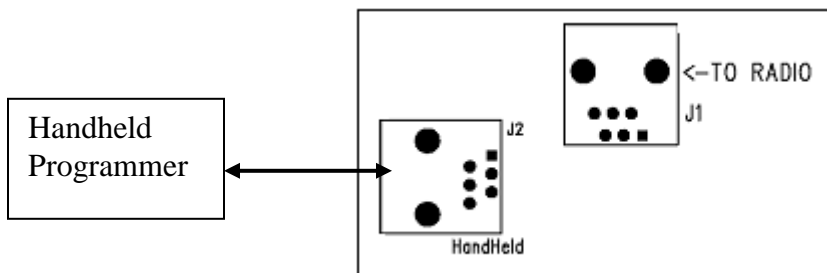
## 6 Configuring the 7794

### 6.1 Connecting the handheld to the 7794

The 7794 can be configured via the AES Handheld programmer (or PC terminal). Once configured, the configuration information is stored on the 7794 non-volatile memory (i.e. it will remain configured even when power cycled).

To enter configuration mode, from the main screen, press F1. This will place the 7794 in the configuration mode. The 7794 will still process AP events even while in configuration mode, and because some of the operations display information on the LCD, you may see AP data while changing the configuration. It is a good practice to configure it w/o the panel connected to it.

Use F3 to change a particular value, F4 and F5 to browse on the list of configurable features. To exit the configuration mode press ESC.



MAKE SURE TO USE THE RJ11 LABELED “HANDHELD”

### 6.2 How to find which firmware version is on the 7794

When you power up the 7794 with the handheld connected, the LCD will display

```
7794v2.197 F1=config
POTS: NO, 7794=POTS
```

The version is the set of numbers after the letter “v”

(IN CASE YOU SEE DIFFERENT DATA DISPLAYED, PRESS F1, THEN “E”, TO UPDATE THE DISPLAY. SOME HANDHELDS HAVE A SLOW RESPONSE TIME.)



### 6.3 Default configuration

The default settings are:

Option No. on CONFIG Menu	Parameter	Default value
1	Phone line	No
2	Intercept Number	555
3	AP Report Format	CID
4	AP input gain	10
5	Intercept on blind dial	No
6	Line Cut Report	Yes
7	POTS Cut Report Delay	45 sec
8	POTS Restoral Delay	60 sec
9	AP ACCT Override	No
10	POTS Input Gain	20
11	Advanced Options Display	No
12	AP Output gain	3
13	Reset to defaults	-
14	Line-cut sensing Enabled	Yes
15	CID 4xx Letter	U
16	M3 EC TEXT to CID	Yes
18	Voltage Pump Enabled	Yes

**Note 1: Options 12-15 and 18 will only be displayed if you set Option 11 to YES**

**Note 2: Option 16 will be displayed only if you set Option 11 to Yes AND AP report format=MODEM3**

### 6.4 Entering the configuration mode

From the main screen, press F1 to enter the configuration mode. The 7794 will still process incoming AP events even while in configuring mode, and because some of the operations display information on the LCD, you may see different data while configuring the 7794. It is a good practice to configure the 7794 w/o the panel connected to it. At any time you can exit from the configuration mode by pressing the ESC or the E keys.

## 6.5 Configuration options

The table below shows the different configuration options and the corresponding settings available for each.

Configuration options	Available settings
Phone line	Y/N
Intercept Number	Any phone number, from 3 to 20 digits
AP report format	CID/MODEM/PULSE MODEM options: MODEM2/MODEM3 PULSE options HSD =08/04 sec HSF=1.4/2.3 kHz CF=1.4/1.9 kHz IDT=0.7/0.9/1.7 sec IRT=3.0/5.0 sec
AP Input gain	10/20
Intercept on Blind dial	Y/N
Line cut Report	Y/N
POTS cut report delay	Any value between 0-9999 (seconds)
POTS restoral delay	Any value between 0-9999 (seconds)
AP ACCT override	Y/N
POTS Input Gain	0/10/20
Advanced Options Display	Y/N
AP Output Gain	0/3/6
Reset to defaults	-
Line-cut sensing Enabled	Y/N
CID 4xx Letter	C/U
M3 EC TEXT to CID	Y/N
Voltage Pump Enabled	Y/N

### 6.5.1 Option # 1: Phone Line

Options are: YES or NO.

- YES = Phone line is present
- NO = Phone line is not present (DEFAULT)

Press F3 to change the value.

Press F4 and F5 to browse on the list of configurable features

When you press F3, select the new value or

OR press E for Exit or ESC in order to exit without making a change.

If you press the new value, it will return to the CONFIG screen, at the same position.

### 6.5.2 Option # 2: Intercept number

Press F3 to enter a phone number, for instance, “555”, and press ENTER to save the number. Exit with E (for exit) or ESC

The intercept number can be one of the following:

- <none>: will not intercept any dialed number
- \*\*\* (3 asterisks = any number with 3 digits or more)
- Any sequence of up to 20 digits

Note: If POTS=N, or if the line is cut, the 7794 will emulate the phone line to the Central Office and will respond to any number dialed regardless of the setting for the Intercept Number.

### 6.5.3 Option #3: Alarm Panel report format

This setting allows you to modify the way the 7794 interprets the data sent by the AP over the phone dialer interface. The 7794 interprets the data and sends it to the Multinet.

The 7794 currently supports the following formats:

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

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

C=CID, M=MODEM, P=PULSE

Press F3 to change the value.

#### 6.5.3.1 CID Alarm Format

Press “C” (after pressing F3) to select the report format as Contact ID.

#### 6.5.3.2 Modem Alarm format

To select MODEM as the AP format type “M” from the “AP report format” screen. Press F5 to change the modem format, type either “A” or “B” to set MODEM format to MODEM3 or MODEM2. If you select the format as MODEM 3, option 16 on the menu will be available. The table below shows the different alarm panels tested & the MODEM format supported.

Panel Model	Revision Number	Format Tested
D7412GV2	7.08	Modem III
D7412GV3	8.03	Modem III
D8112E1/G1	22	Pulse Only
D8112G2	31.31	Modem II
D6112	4.0	Modem II
D2212B	3.03 (Ile = III)	Modem III
D4412	1.12	Modem III
D9412G	6.6	Modem III

### 6.5.3.3 Settings for Modem

Modem Format	Speed	Panel Family Supported
Modem II	110	6112
Modem II	110	8112
Modem IIe	300	2212
Modem III	300	7412/9412

For details on the translation between Modem formats and contact ID, please contact AES.

#### **Modem 2 format-Unknown family type assignment:**

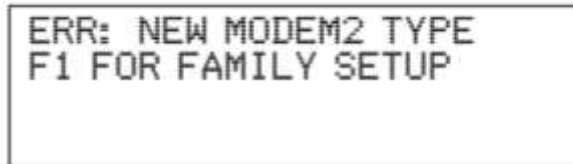
Because there are multiple variations on the panel type for the Modem 2 format, the 7794 implements a way to associate a never seen panel type with one of the Bosch panel families that was known to have Modem II such as 6112, 7112, and 8112. This type of configuration is only needed when an unknown panel supporting Modem II is connected to the 7794.

When the “new” panel type code is detected, the 7794 saves it to its non-volatile memory and offers the option to allow the user to associate with the proper panel family. From the CONFIG menu, press F5 to go down until you see the sub menu for the MODEM2: FAMILY SETUP

**NOTE:** This sub menu is only available if the report format is MODEM, AND its format is MODEM2, AND an “unknown” panel type has been detected.

### 6.5.4 How do I know that I have an “unknown” panel type

If an AP with a panel type not currently present on the 7794 internal database tries to communicate with the 7794, the following message will be displayed on the handheld programmer connected to 7794.



```
ERR: NEW MODEM2 TYPE
F1 FOR FAMILY SETUP
```

### 6.5.5 How to associate a family with an unknown type?

Once you enter in the CONFIG mode, navigate using F5.

From the CONFIG menu, press F5 to go down until you see the sub menu for the MODEM2: FAMILY SETUP

#### **NOTE:**

This sub menu is only available if the report format is MODEM, AND its format is MODEM2, AND an “unknown panel type” has been detected

On this sub menu the default family type will be displayed as NONE.

Press F3 to change the type of MODEM2 family. The options are:

- A=6112
- B=7112
- C=8112

Select the appropriate family type by pressing either “A”, “B” or “C”. Once the panel family is selected, the 7794 will associate the panel type with the panel family, and will be able to process the AP messages for this new panel type code. This association is stored into the 7794 non-volatile memory.

### 6.5.5.1 Pulse Alarm format

To select PULSE as the AP format type P from the “AP report format” screen. The next configuration option (reached by pressing F5) will allow you to select durations and frequencies for the pulse format. This configuration option is only available when the format is PULSE.

Parameter	Default value	Options
D=HSD (Handshaking duration)	0.8 sec	A=0.8, B=0.4
F=HSF (Handshaking frequency)	1.4Khz	A=1.4, B=2.3
C=CF (Center frequency)	1.8Khz	A=1.8 B=1.9
I=IDT (Inter digit time)	0.7 sec	A=0.7,B=0.9,C=1.7
R=IRT (Inter round time)	3.0 sec	A=3.0,B=5.0

Press the letter corresponding to a particular parameter, for instance press “F” for HSF and then type either “A” or “B” or “C” to set the desired value. See Section 9 for additional details on the Pulse alarm format.

### 6.5.6 Option # 4: AP Input gain

AP input gain increases the 7794 sensitivity when listening to the AP. Some panels will require further settings.

The options are:

- A=10 (DEFAULT)
- B=20

If the 7794 cannot decode the dialing digits, for instance, it can be changed to 20, making the 7794 capable of hearing the digits dialed by the AP.

### 6.5.7 Option # 5: Intercept on blind dial

Intercept on AP blind dial should be used when the panel does not wait for a dial tone (the AP goes off hook and starts dialing immediately). When this option is turned to YES, as soon as the AP goes off hook, the 7794 expects the digits, skipping the initial dial tone.

The options are: YES or NO.

- YES: Intercept on AP blind dial enabled
- NO: Intercept on AP blind dial disabled (DEFAULT)

### **6.5.8 Option # 6: Line Cut Report**

This setting is only effective when POTS=YES (Option # 1). By default, the Line Cut Report is YES.

NOTE: If you have the following setting combinations:

POTS=YES and Line Cut Report=NO  
and then you change to  
POTS=NO,  
and then change again to  
POTS=YES,  
the Line Cut Report setting will return to YES (i.e., your previous setting will be overwritten)

The options are: YES or NO.

- YES: Line Cut Report enabled (DEFAULT)
- NO: Line Cut Report disabled

### **6.5.9 Option # 7: POTS cut report delay**

The default setting is 45 seconds. The maximum setting is 9999 seconds.

Note: if the line condition is restored before the set time elapses then no signal will be sent.

Press F3 to change the value and then enter any value from 0 to 9999 seconds.

### **6.5.10 Option # 8: POTS restoral delay**

This option is to set a value to wait before issuing a restoral on the telephone line. It will assure the line is stable before restoring. The default value is 60 sec and the maximum value is 9999 sec.

Press F3 to change the value and then enter any value from 0 to 9999 seconds.

### **6.5.11 Option # 9: AP ACCT Override**

The purpose of this option is to allow the bypassing of the AP account number. When set to YES, the account number of the AES subscriber is used in place of the account number in the control panel. This is a useful feature for automation software packages that does not allow two distinct account numbers for one customer account.

Options are YES or NO

- YES: AP ACCT Override enabled
- No: AP ACCT Override disabled (DEFAULT)

### **6.5.12 Option # 10: POTS Input Gain**

POTS Input gain increases the 7794 sensitivity when listening to the activity on the phone line (if connected and if POTS=YES). The default value is 20 and reducing this value will decrease 7794 POTS Input gain.

Options are:

- A=0
- B=10
- C=20 (DEFAULT)

### **6.5.13 Option # 11: Advanced Options Display**

There are 7 configuration options classified as Advanced Options which are listed below and described in detail in subsequent sections. This option (#11) allows a user to suppress or display the Advanced Options on the Hand held programmer.

Option # 11: Advanced Options Display (default = NO)

NOTE – In order to view and program the following new options on the Hand Held Programmer, Option # 11 must be changed to =YES.

Option # 12: AP Output Gain - (7094 default = 0, 7794 default = 3)

Option # 13: Reset to (Factory) Defaults (default N/A)

Option # 14: Line cut sensing enabled - (default = YES)

Option # 15: CID 4XX (Event Code) letter (default = U)

Option # 16: Modem3 EC Text (Description) to CID Enabled (default = YES)

Option # 18: Voltage pump Enabled (default = YES)

NOTE: There is no Option # 17.

### **6.5.14 Option # 12: AP Output Gain**

AP output gain sets the output gain when the 7794 is in POTS mode (POTS=NO) or when it intercepts the line. It is used to increase the gain on the dial tone (for POTS=NO), handshake and kiss-off tones sent by the 7794 to the AP. The default value is 3, increasing this value will increase the AP output gain.

Options are:

- A=0
- B=3 (DEFAULT)
- C=6

### **6.5.15 Option # 13: AP Reset to defaults**

This configuration option allows the 7794 configuration w to be reset to original factory condition.

### **6.5.16 Option # 14: Line-cut sensing Enabled**

Options are either “Y” or “N” to enable or disable line cut sensing respectively. When disabled, the phone line cut monitoring does not occur. Please contact AES on the proper usage of this feature.

### **6.5.17 Option # 15: CID 4XX (Event Code) letter (default =U)**

Options are either “U” or “C” for reporting open and close reports with “U” or “C”. This does not apply to fire panels.

### 6.5.18 Option # 16: Modem III event code text to CID

This configuration option enables the 7794 to scan the Modem III description field for text specific to events that are typically silent at the local site and that the dealer may not want to have sent through as a general alarm message (E140 / R140). When this option is = YES, Modem III alarm messages will be translated not only based on the Event Code (EC) from the Modem III packet but also from the contents of the text used to describe the event.

If the following EXACT text is present anywhere in the description, the corresponding CID alarm message will be transmitted – rather than a general alarm message.

PANIC	E120
PANIC	R120
DURESS	E121
DURESS	R121
SILENT	E122
SILENT	R122
AUDIBLE	E123
AUDIBLE	R123
FIRE	E110
FIRE	R110
HOLDUP	E122
HOLDUP	R122

For fire panels, the only applicable case is for the “FIRE” descriptor.

### 6.5.19 Option # 17

Not available, not in use.

### 6.5.20 Option # 18: Voltage Pump Enabled

Options are either “Y” or “N” to enable or disable the voltage pump respectively. This is not applicable to fire panels, and should be left at its default setting.

## 7 Interpreting the LED blinking patterns

The 7794 has one single RED LED that indicates the status of the 7794. It can have any one of the following patterns:

- Slow blinking (1 pulse per second): normal operation
- Fast blinking (2 pulses per second): 7794 cannot communicate with the subscriber
- Solid (no blinking, always on): 7794 is not operating properly, and should be sent to AES for repair

Note: When the Fast Blinking (2 pulses per second) is in effect, the 7794 also trips the trouble output.



## 8 Trouble output

The trouble relay is activated when the subscriber does not reply to a message sent by the 7794. That usually indicates that the subscriber is “off” the network. The 7794 detects this condition, and activates the relay. At the same time, it removes itself from operation and will no longer accept messages from the alarm panel dialer attempts until the subscriber resumes normal operation. When the subscriber resumes normal operation, the 7794 will go back into operation as well and will deactivate the trouble relay.

The “TROUBLE” Output is activated if:

- There is an unsuccessful attempt to communicate with the AES Radio Subscriber Unit
- The subscriber is off the network or the subscriber buffer is full

The “TROUBLE” Output is De-Activated when:

- Reset of 7794 module, OR
- The subscriber returns to the network, or the subscriber buffer is cleared

The LED blinks fast when the TROUBLE is activated.

The trouble output has 3 connections, available via the terminal block J4.

- Common
- Normally open
- Normally closed

## 9 Formats: More Details on Pulse Firmat

### 9.1 Settings for common pulse formats

Table below shows the different pulse formats supported and the corresponding values of the different parameters for each of these formats.

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

HSD – Handshake duration	CF – Center frequency	sec = seconds
HSF – Handshake frequency	IRT – Inter Round time	
IDT – Inter digit time		

## 9.2 Settings for non-supported formats

Some high speed formats will not work with the 7794 since the 7794 currently supports only 10 and 20pps formats. However, most panels will “gear down” to a lower pulse speed after trying and failing to send data to the 7794.

Based on that, we recommended the settings listed next, for common high speed formats (when the low speed fall-back is implemented). When the alarm panel reduces the speed, the 7794 will be able to successfully interpret the data sent by the AP over the phone dialer interface.

NOTE: These settings are only for the “fail safe” drop speed. These are not the settings for the actual 33 or 40 pps that are not supported by the 7794.

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

## 9.3 Notes on pulse formats

### 9.3.1 Number of digits on Pulse format

For the pulse format, there is no selection for the number of digits, as this is easily extracted by interpreting the pulse train.

- If 6 digits are received, it translates into 4+2
- If 5 digits are received, it translates in 4+1
- If 4 digits are received, it translates in 3+1

### 9.3.2 Double round

The detection of double round is automatic. Double round sends the same message twice. This is a method used by some pulse protocols to allow the receiver (in this case the 7794) to validate the data received.

### 9.3.3 Translation of 3+1,4+1 to 4+2

1234 56 arrives at Multinet as 1234 56

1234 5 arrives at Multinet as 1234 05

123 5 arrives at Multinet as 0123 05

### 9.3.4 Expanded format

We do not recommend using expand format, because of the way the messages will reach Multinet.

When the AP is programmed for Expanded format (not to be confused with double round), it sends 2 trains of pulses (4 total, because of the double round), and the 7794 sends the 2 messages received. This has to be handled carefully at the automation side, because the two messages will appear as having two “different” accounts. An expanded format configuration will produce a total of 4 pulse trains.

1<sup>st</sup>: 5879 6 (4+1) → 6879 06 (4+2)  
 2<sup>nd</sup> 6666 3 (4+1) → 6666 03 (4+2)

For instance, on the expanded, it would send the following two messages, and each one would produce a message at automation.

1234 6 1234 6 → 1234 06 ACCT 1234 RF 5555 RL=14  
 6666 8 6666 8 → 6666 08 ACCT 6666 RF 5555 RL=14

## 10 How to test – IPCtrl and automation messages

### 10.1 Zone tripped on alarm panel

Panel ID is 1234 (subscriber ID is 0054), alarm tripped on Zone 3

Note the Receiver = 1 (defined by business unit configuration), but the line card as 3, indicating that it is a tap message (a message from the 7794, not from the subscriber), so the AP ID is preserved. If you want to use the subscriber account, please refer to account override.

```
(New) Type = Supervisory ID = 0054 ;
Mon Dec 21 15:33:42 2009 Pkt # 1F, Server(00000001), IPLink(4444)
orig(0054), Dest(0000), From(0054), To(0000) (LNRT; IntelliTap
< Foutc 4444 < 0054 >
;Data 030: (New) Type = Restore ID = 0054 Zone 000
13 1234 18 E131 01 C003
)
```

### 10.2 POTS Line cut detected

Subscriber ID is 0054, receiver = 1 (Business Unit related) and Line Card = 1 (subscriber zones). Event is E351 C905 = line cut detected)

Remove the phone line

It may take up to 45 seconds for the 7794 to detect it.

As soon as the handheld (if connected) LCD displays Line Cut, the 7794 will engage its line emulation, to avoid that the panel complains about a missing phone line. At the same time, a timer is started. Upon expiration (60 seconds, programmable via HyperTerminal), the E351 will be sent.

