Appendix E
Alarm Output Codes Produced by the MultiNet receiver

Alarm Output Overview:

For many events that occur in the MultiNet system, alarm messages are created and communicated to an automation system. Communicators (Subscribers) in the MultiNet system, IP-Links (RF Receivers) and the MultiNet Receiver (Server) generate these events. This appendix is a list and description of those messages.

The MultiNet Receiver supports two different alarm output formats. The output formats available are the AES' Ademco 685 compatible format, and the AES' Radionics 6500 compatible format.

The communication parameters of the MultiNet Receiver can be configured to most available standards. Current suggested and new default parameters are 9600 BPS, 8 data bits, No parity, 1 stop bit, Software ACK/NAK and will use DSR/DTR connection hardware handshaking. The previous default parameters were 1200, 7, Odd, 2. The communication parameters for Alarm Automation are programmed during the creation or editing of a Business Unit.

In our emulated Ademco 685-output format, the raw signals received from a subscriber are translated into an appropriate Ademco 685 formatted message. *IntelliTap* messages are passed through as received only changing the receiver number and line card as discussed in this section.

In Radionics 6500-output format the signals received from a subscriber are translated into an appropriate Radionics 6500 message. This format attempts to translate Ademco Contact ID (CID) codes passed through an *IntelliTap,* to an appropriate Radionics 6500 message. Be advised, Radionics output emulation is not supported at this time.

AES' Ademco 685 compatible output format:

This mode will provide output using 3 line cards; line card 1 is for AES subscriber, IP-Link and receiver messages, line card 3 is for Contact ID messages received through *IntelliTap*, and line card 4 is for 4+2 messages received through *IntelliTap*.

Line Card # 1   AES signals from Subscribers and Receivers.
Signal format: <LF>RLsACCTs18sQEEEsGGsCNNNs<CR>

Key to codes used in signal format above:

<LF>	= Line feed code.
R	= Receiver number, user programmable. Between 1 - 9 and A - F. Receiver numbers are tied to and identify the Business Unit.
L	= Line card number, Line card is selected by software. 1 - 4
ACCT	= Unique four digit Receiver, IP-Link or subscriber ID.
18	= 18 for AES signals. As received for others. .18 means CID format follows.
Q	= Event qualifier, will be an E for new Event, R for Restore of event or a P for a Prior event not restored to normal, during a Status or Check-In
EEE	= Event code (See Event Codes on following pages)
GG	= 00 for AES signals. As received for IntelliTap. Group or partition
C	= C for AES signals. As received for others. U = user.
NNN	= Zone/contact ID, Status or Fault code
s	= Single <Blank space>
<CR>	= Carriage return code.

Event Code Usage for Ademco 685 Output Emulation

Event Code	Universal Description ①	AES Suggested Description	Notes and clarification
110 ②	Fire	Fire Alarm	from Subscriber Zone designated for Fire
130 ②	Burglary	Burglary Alarm	from Subscriber Zone designated for Burglary
200 ②	Fire Supervisory	Supervisory Alarm	from Subscriber Zone designated for Fire Supervisory
300 ②	System Trouble	System Trouble	Fire Trouble from Subscriber Zone designated for Fire Trouble
140	Alarm	General Alarm	from Subscriber– (Input Off-Normal when none of above enabled)
145	Expansion module tamper	Enclosure Tamper	7170 IP-Link Transceiver tamper Zone/contact = 906
300	System Trouble	System Trouble	MultiNet Receiver LCD offline Zone/contact = 902 MultiNet Receiver LED offline Zone/contact = 903
301	AC Loss	AC Trouble	AC input failure IP-Link Zone/contact = 912
302	Low system battery	Low Battery	IP-Link low battery condition Zone/contact = 911
305	System reset	System Reset "	Watchdog or Pushbutton Reset Zone/contact = 901 Power-on Reset Zone/contact = 902
307	Self Test Failure	Diagnostic Fault	(Zone/contact = Fault Code, See +2 pgs for codes 801-809) (R307 with Zone 800 = Restoral of ALL Prior Faults ④)
309	Battery test failure	Charger Voltage low	IP-Link Charger Voltage low Zone/contact = 910

① Notes on Event Code usage:
Universal Description is likely the default wording in automation for Ademco 685 Event codes

AES Suggested Description more closely describes our use of the Event Code. If possible, editing the default Event Code descriptions to Suggested Description, in your automation for the AES receiver will produce a clearer description for users.

② These event codes are for use with the 7750-F series, 7744 and 7788 Subscribers when Zone usage is selected in the Zone Programming Menu for the Subscriber. They are selected on a Subscriber-by-Subscriber basis for each ID (Account). The default event code if no specific usage is available or selected will be 140. This means a Subscriber's zone one alarm, if no usage is selected will be E140 C001. If Fire is selected, it becomes an E110 C001. If Burglary is selected, it becomes an E130 C001.

(Zone/contact) Is programmed at the ID or Account level. Using a template for the Zone/contact codes listed here should simplify adding new subscriber accounts into the alarm automation system.

④ There are no individual restore messages for code 801-809 Faults. A restored Fault is reported by reporting all prior faults with the restored Fault excluded from the list. Example: If an AC Fault and Low Battery exist, and a report comes in with only the Prior low battery, AC has restored. R800 00 C800 is reported when all faults have restored or in response to a Status request when no Faults exist.

Event Code	Universal Description ①	AES Suggested Description	Notes and clarification
336	Local printer failure	Printer off-line	MultiNet Receiver, Zone/contact = 904
350	Communications trouble	RF Interference	IP-Link Carrier Detect > 20 seconds, Zone/contact = 906
351	Telco 1 Fault	Telco Fault	IntelliTap detected phone line cut, Zone/contact = 905
353	Long range radio xmitter fault	Multiple IP-Links same ID	Zone/contact = 906
354	Failure to communicate event	Com Trouble	TCP/IP Supervision Failure, Zone/contact = 906
		"	MultiNet Modem Failure, Zone/contact = 907
		"	IP-Link Modem Failure, Zone/contact = 908
		"	Subscriber's NetCon is 6 or 7, Zone/contact = 915
		"	Unit failed to Check-In, Zone/contact = 906, Generated by Receiver on failure to receive message within specified period ⑤
355	Loss of Radio Supervision	IP-Link RF Ping Failure	Zone/contact = 906
356	Loss of central polling	Acknowledge Delay	Communication timeout, Zone/contact = 903
370	Protection Loop	Zone Trouble	(Zone/contact ID = 001 to 008)
		"	7744F/88F Battery Charger Trouble, Zone/contact ID = 009 ③
		"	7744F/88F Ground Fault, Zone/contact ID = 010 ③
602	Periodic test report	Supervisory Check-In	

Notes: ①②④ on previous page

③ Several new trouble messages reported by Subscribers use zone trouble to report the fault.
This was done for backward compatibility to use an existing packet type rather than create a new code for an existing packet type.
Examples:
The AES 7744F and 7788F report charger fail as a Zone 009 Trouble   E370 00 C009
The AES 7744F and 7788F report Ground Fault as a Zone 010 Trouble   E370 00 C010

⑤ These are only generated when the MultiNet Receiver is configured to Supervise Check-In messages. This is configured on a Subscriber-by-Subscriber basis through IPCtrl under Programming / Automatic Supervision.

*Zone, Fault, Status and Trouble Code Usage (Zone information): AES **Subscribers**:*

001-008 Subscriber Zone inputs – usage will be installation specific, standardization allows use of templates

009 = Battery Charger Trouble – 7744F or 7788F with Event Code E370

010 = Ground Fault – 7744F or 7788F with Event Code E370

800 = No Faults, Unit OK or Restoral of all Prior Faults.

801 = Low Battery – Voltage less than 11.0V

802 = RAM Data error or RAM corrupted – Zone activation will not be reported (Sub. V1.71 &+). Reprogram Unit

803 = EEPROM corrupted or not present – 7050-E Family ⑦
      U11 RAM Chip Internal Battery Bad – 7050 Family ⑧

804 = A to D Converter Faulted – 7050-E Family ⑦, Zone activation will not be reported (Sub. V1.71 &+).
      External Device failed – 7050 Family ⑧

805 = Modem Chip Failed or missing – U9 in 7050 Family ⑧

806 = Timing Error between CPU and Modem

807 = Ram Chip Read/Write test Failure – U11 in 7050 Family ⑧

808 = Modem Loop back Failed – U9 in 7050 Family ⑧

809 = AC Fail – DC voltage supplied by AC has dropped below 12V, 7050-E Family ⑦

901 = Watchdog, Remote or Pushbutton Reset

902 = Power-on Reset

903 = Acknowledge Delay with Event Code E356

905 = IntelliTap detected phone line cut with Event Code E351

906 = Unit failed to Check-In, Generated by MultiNet Receiver on failure to receive message within specified period (⑤ previous page)

915 = NetCon > 5, MultiNet Receiver detected Subscriber's NetCon reported as > 5 (6 or 7) with Event Code E354

⑦ 7050-E Family includes but is not limited to the following AES Subscriber models:
   7050-E, 7750-F-4x4, 7750-F-8, 7744F, 7788F, 7450-XL

⑧ 7050 Family includes but is not limited to the following AES Subscriber models:
   7050, 7050-DLR, 7750-UL, 7050-FA

*Zone, Fault, Status and Trouble Code Usage (Zone information): **IP-Links**:*

906 =   Refer to Event code Description
        E145 Enclosure Tamper – E350 RF Interference, CD > 20 Sec. – E353 Multiple IP-Links with same ID
        E354 TCP/IP Supervision Failure – E355 RF Ping Failure
908 =   Modem Failure with Event Code E354
910 =   Charger Voltage Low with Event Code E309
911 =   Low Battery with Event Code E302
912 =   AC input failure with Event Code E301

*Zone, Fault, Status and Trouble Code Usage (Zone information): **MultiNet Receiver**:*

902 =   LCD offline - Loss of communication with LCD board
903 =   LED offline - Loss of communication with LED board
904 =   Printer offline
906 =   TCP/IP Supervision Failure with Event Code E354
907 =   Modem Failure with Event Code E354

Example Message Strings	*Description of Event Produced by an AES Subscribers*
R1 ACCT 18 E602 00 C000	Subscriber Automatic Supervisory Check-In. Zone/contact ID = 000
R1 ACCT 18 E140 00 C0nn	Alarm Signal or Subscriber's input went off normal. nn replaced with Zone Number
R1 ACCT 18 P140 00 C0nn	Prior Alarm. Subscriber's Input still active. nn replaced with Zone Number Reported during Status or Automatic Supervisory Check-In
R1 ACCT 18 R140 00 C0nn	Alarm Restoral or input returned to normal. nn replaced with Zone Number restored
R1 ACCT 18 E305 00 C901	Subscriber Watchdog, or Push-button Reset. Zone/contact ID = 901
R1 ACCT 18 E305 00 C902	Subscriber Power-On Reset. Zone/contact ID = 902
R1 ACCT 18 E307 00 C8nn	Diagnostic Fault. – Zone/contact ID = Fault Code. See Fault code list on Prior page.
R1 ACCT 18 R307 00 C800	No Faults, Unit OK or Restoral of all Prior Faults. Zone/contact ID = 800
R1 ACCT 18 P307 00 C8nn	Prior Diagnostic Fault still active. Reported during Check-In. Zone/contact ID = Fault Code. See Fault code list on Prior page.
⑥ R1 ACCT 18 E351 00 C905	IntelliTap phone line cut. Zone/contact ID = 905
⑥ R1 ACCT 18 R351 00 C905	Restoral of IntelliTap phone line cut. Zone/contact ID = 905
R1 ACCT 18 E354 00 C906	Com Trouble – Unit or Subscriber Failed to Check-In. Zone/contact ID = 906 Generated by MultiNet Receiver on failure to receive test message within specified time frame.
R1 ACCT 18 E354 00 C915	Com Trouble – Subscriber NetCon is 6 or 7. Zone/contact ID = 915 Generated by MultiNet Receiver when a 7744 or 7788 reports a NetCon of 6 or 7 in a packet.
R1 ACCT 18 R354 00 C906	Com Trouble Restoral – Subscriber back on Line. Zone/contact ID = 906
R1 ACCT 18 R354 00 C915	Com Trouble Restoral – Subscriber NetCon is 5 or lower. Zone/contact ID = 915
R1 ACCT 18 E356 00 C903	Acknowledge Delay – or Communication time-out. Zone/contact ID = 903
R1 ACCT 18 E370 00 C0nn	Zone Trouble. – Zone/contact ID = Zone Number
R1 ACCT 18 P370 00 C0nn	Zone Trouble still active. – Zone/contact ID = Zone Number Reported during Status Request or Automatic Supervisory Check-In
R1 ACCT 18 R370 00 C0nn	Zone Trouble Restoral. – Zone/contact ID = Zone Number

⑥ Due to a code bug the line card used for this message may be 3 instead of 1.

Note that this is a restore signal and may not cause an alert. Look in log files.

REC# = MultiNet Receiver ID IPL# = IP-Link ID ACCT = Subscriber ID
n or nn = variable number, rang as specified

Example Message Strings	Description of Event Produced by a MultiNet Receiver or IP-Link Transceiver
R1 IPL# 18 E145 00 C906	Enclosure Tamper, 7170 IP-Link Transceiver ID = 906
R1 IPL# 18 R145 00 C906	Enclosure Tamper, Restore 7170 IP-Link Transceiver ID = 906
R1 REC# 18 E300 00 C902	System Trouble LCD offline, MultiNet receiver, Zone/contact ID = 902
R1 REC# 18 E300 00 C903	Loss of LED, MultiNet receiver, Zone/contact ID = 903
R1 IPL# 18 E301 00 C912	AC Failure at IP-Link. Zone/contact ID = 912
R1 IPL# 18 E302 00 C911	Battery Trouble at IP-Link. Zone/contact ID = 911
R1 IPL# 18 E307 00 C80n	Diagnostic Fault. Zone/contact ID = Fault Code. See Fault code list on a following page.
R1 REC# 18 E354 00 C907	Com Trouble – Modem Interface Test Failed at MultiNet Receiver. Zone/contact ID = 907
R1 IPL# 18 E309 00 C910	Charger Trouble at IP-Link. Zone/contact ID = 910
R1 IPL# 18 R309 00 C910	Charger Trouble Restore at IP-Link. Zone/contact ID = 910
R1 REC# 18 E336 00 C904	Printer off-line, MultiNet Receiver. Zone/contact ID = 904
R1 IPL# 18 E350 00 C906	RF Interference at IP-Link. Zone/contact ID = 906
R1 IPL# 18 E353 00 C906	Multiple IP-Links detected with same ID. Zone/contact ID = 906
R1 IPL# 18 E354 00 C905	Com Trouble – Phone Line/Modem Fail at IP-Link. Zone/contact ID = 905
R1 REC# 18 E354 00 C906	Com Trouble – IP-Link Supervision Failure. Zone/contact ID = 906
R1 IPL# 18 E354 00 C907	Com Trouble IP-Link RF Offline. Zone/contact ID = 907
R1 REC# 18 E354 00 C907	Com Trouble MultiNet Local Modem failure. Zone/contact ID = 907
R1 IPL# 18 E354 00 C908	Com Trouble IP-Link Modem failure. Zone/contact ID = 908
R1 IPL# 18 E355 00 C906	IP-Link RF Ping Failure. Zone/contact ID = 906

```
REC# = MultiNet Receiver ID       IPL# = IP-Link ID       ACCT = Subscriber ID
n or nn = variable number, rang as specified
```

Line Card # 3
Signal format: Contact ID received through ***IntelliTap***.
                                                                     <LF>RLsACCTs18sEEEEsGGsNNNNs<CR>

See "Line card #1", "Signal format" in " Ademco 685 compatible output" for Key to codes used in signal format for Line Card #3 above.

This Information is passed through. Receiver number is set as programmed in the MultiNet setup. Line card is set to 3.

Line Card # 4
Signal format: 4+2 received through ***IntelliTap***
                                                                 <LF>RLsACCTsCC<CR>
                                                                 CC   = two digit zone code.

See "Line card #1", "Signal format" in " Ademco 685 compatible output" for Key to codes used in signal format for Line Card #4 above.

This Information is passed through. Receiver number is set as programmed in the MultiNet setup. Line card is set to 4.

Input Signals:

In Ademco mode the receiver will respond to 3 inputs or signals from the monitoring system.

S   receiver reply will be - <LF>00sOKAYs@<CR>

<0x06> or ASCII code 6   receiver considers last message acknowledged

<0x15> or ASCII code 21   receiver will re-send last message (if not acknowledged)