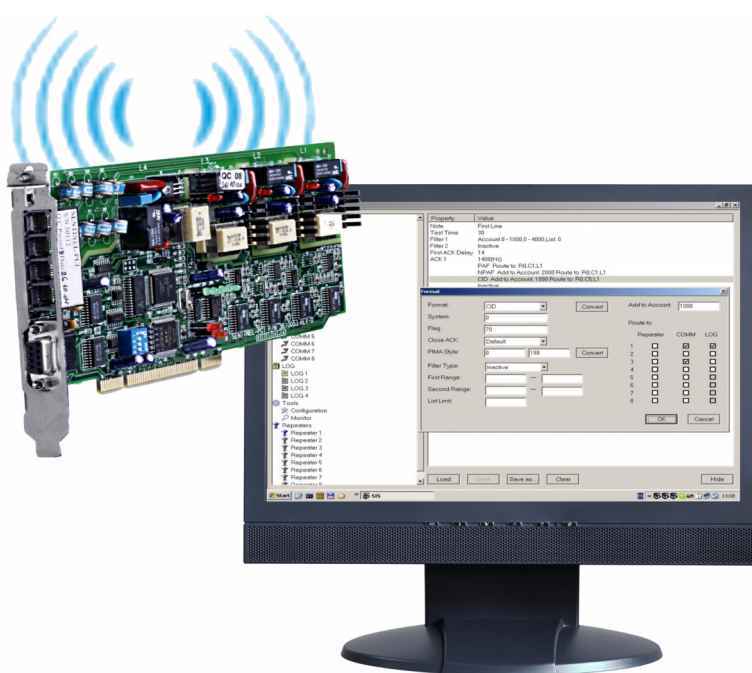


SENTINEL Receiver & Decoder PCI Card

PIMAGUARD Configuration Application



Installation and Operating Guide



PIMA Electronic Systems Ltd.
www.pima-alarms.com



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INTRODUCTION

PimaGuard is PIMA's configuration application for its Sentinel receiver. The Sentinel receiver solution combines both 4 PSTN lines with 2 radio channels per device; up to 4 devices can be mounted in one PC.

The application can be used as a receiver and as a repeater; the PimaGuard can handle all communication requirements for both functions.

PimaGuard is a sophisticated and multiple-function application that includes the following programmable variables:

- Channel formats configurations;
- Central Monitoring Station format modification;
- Logs management;
- Sophisticated programmable Repeater;
- Advanced debug mode and failure mechanism;
- Sophisticated event filters;

The Sentinel contains radio & telephone receiver. The receiver and the smart Repeater differ only in the PimaGuard settings.

Main Features

- Expandability: the PimaGuard is an expandable product, allowing customers to start with a single PSTN line or Radio channel and purchase more as business grows. A PC can have up to 4 Sentinel cards, enabling up to 16 PSTN lines and 8 Radio channels;
- Each Sentinel card is driven by PIMA's proprietary technology, that enables upgrading and expanding the number of inputs without any hardware changes;
- Supports multiple formats for each channel: PAF, CID, SIA, KP, DESK, ELL and more;
- Automatic testing of the card and the input channel. Failures and status are reported to the Central Monitoring Station management application;
- Up to 4 Sentinels;
- Each PSTN line supports up to 4 different ACKs and 8 formats per ACK;
- Eight communication channels with switching option upon failure;
- Sophisticated debugging mode for failure diagnostics;
- Password protection;
- Time flexible buffer;
- Optional Caller-ID (where supported);
- High Radio signal sensitivity;
- Built-in scope utility for easy tuning of Radio amplifier;

Benefits

- With PimaGuard technology, each card can be expanded to 4 telephone lines and 2 radio-receivers;
- Live monitor of the last 1024 events;
- Bi-directional channel (Repeater to CMS) saves more than 90% of transmission air-time occupancy;

Smart Repeater

The smart repeater utilizes bi-directional communication with the Central Monitoring Station, for sending events efficiently. The repeater requires no external software for its operation. It operates in dual-mode as a multi-channel repeater, i.e., it can receive the event in one channel (e.g. Radio) and transmit it via a various media (e.g. telephone) and vice versa. The most common application is Radio-to-Radio repeater with a telephone or the network as a backup.

The CMS acknowledges each event sent by the Repeater. Messages are re-sent if an '500 events or event timeout limit, until 'Acknowledge' is received from the CMS. This sequence guarantees the following:

- A. Transmission time is extremely fast as each transmission is consisted of one frame (contrary to transmission of 10 frames by customer's transmitter), thus saving air time. When confirmation is not received, the Repeater continues to transmit the event until it is acknowledged. While retransmitting an event, new incoming events are stored in the buffer.
- B. Continuous bi-directional monitoring identifies failures in communication and events to the monitoring station.

The Product Package

The Sentinel package contains the following:

- The Sentinel Card;
- The PimaGuard™ driver installation CD;
- A radio connection cable (P/N 3411055);
- 4 RJ-11 standard telephone cords (P/N 3411046);
- Cross link 9-pin D-type serial communication cable (P/N 3411041);
- This guide;

Hardware requirements

- CPU: Intel Pentium , 233MHz & up processor;
- RS-232 port (optional);
- LAN connection 10/100/1000Mb (optional);
- Hard Drive 1.5 GB;
- Memory card 64Mb & up;
- 4 available USB ports (optional);
- Standard PCI (33 MHz);
- Availabe I/O physical addresses 0C00-FCFF for the sentinel support;
- CD-DVD drive;
- UPS (Uninterrupted Power Supply) - recommended;

Bios configuration

- On AC Power - Turn On (recommended);

Software requirements

- Operating System: Windows XP Pro[©], XP Home[©], Win Server 2008[©], Vista[©], Win7[©] - All versions ;

SENTINEL INSTALLATION

Installation Package

The installation package includes the following files:

1. **Sentinel.sys**: a driver for Windows[®] XP;
2. **SIS.exe**: the application file;
3. ***.bs1**: configuration file;
4. **Sentinel7.sys**: Windows[®] 7 & Vista driver;
5. **CARD.S19**: Sentinel's firmware file;
6. **English.lng**: interface language file. The application's default language is English;
7. ***.inf**: Sentinel's hardware installation file;
8. **English.evm**: Structured protocols conversion tables for monitoring & logging;

Installing a Sentinel card

1. Turn off the PC and **unplug it from mains**. Any attempt to install the card otherwise would damage it and the PC.

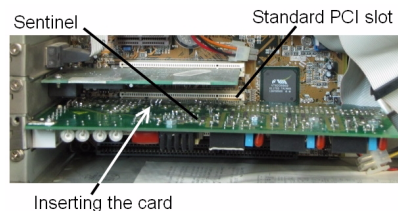


Figure 1. Installing a Sentinel card

2. Open the PC case and insert the Sentinel card to the first available standard PCI slot¹
3. If you install more than one Sentinel, insert the others too (max. 4 cards).
4. Close the PC case, plug it and turn it on.

Installing several Sentinels

When you install several Sentinels (up to 4), the procedure is as follows:

1. Insert the cards to the slots;
2. Reboot the PC;
3. Install the cards drivers via Windows 'Device Manager' or 'New Hardware Wizard'. This also automatically installs the PimaGuard files under 'C:\Program Files\Common Files\SIS';
4. Reboot the PC;

Connecting the cards inputs

The Sentinel has 4 PSTN and 2 radio inputs. The next figure shows how these inputs are connected.

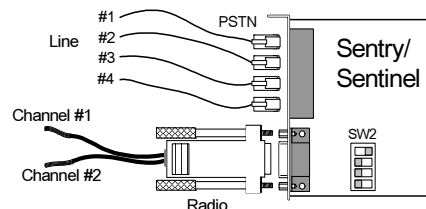


Figure 2. Connecting the radio channels and telephone lines

1. Connect the supplied telephone cords to the Sentinel in the order the PimaGuard will later be programmed;
2. Connect the supplied radio cable (P/N 3411055): connect one cable to transceiver #1 and the other to transceiver #2. The wiring should be done according to the following table:

1. See, for example: <http://video.about.com/pcsupport/PCICard-mov.htm>

Color	Description	Transceiver
Red	PTT	-
White	Sentinel DATA Out	Audio input
Green	Sentinel DATA In	Audio output
Black	Volume	Volume control
Yellow	Shield (GND)	Ground

- Adjust the transceiver's output, as described on page 27



The available I/O physical addresses for the sentinel support are: 0C00-FCFF

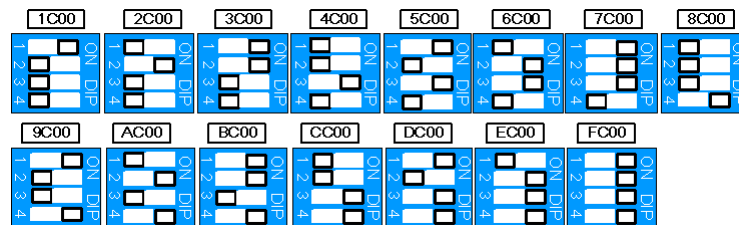
Setting the card's address

The Sentinel's address is set by a 4-pin dip-switch, located on the PCB.



Figure 3. The card's address setting dip-switch

The address options are as follows:



Two Sentinels cannot have the same address

Adjusting the transceiver's output

When connecting a transceiver to the Sentinel, the following should be adjusted:

- The receiver's output signal should not exceed 2 Vp-p (Peak-to-peak Voltage). When the 2 Vp-p limit cannot be met, contact your vendor for support;
- The receiver's squelch control should be turned off, i.e., reception signal is not interrupted by the squelch filter;

PIMAGUARD INSTALLATION

Under Windows XP®

After installing the Sentinel, when Windows boots up, the 'Add New Hardware Wizard' should start running automatically. If not, go to 'Start' -> 'Control Panel' and double-click the 'Add Hardware' icon, or open the 'Device Manager' ('Start' -> 'Control Panel' -> 'System' -> 'Device Manager'), right-click the device with the yellow question mark and click 'Update Driver...'.



Figure 4. The Sentinel as appears in the Device Manager before installing its driver

1. In the wizard's first screen, click 'Next'; Windows will now search for the newly installed Sentinel hardware.



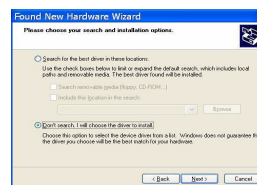
2. In the next screen, after the Sentinel was identified by Windows, select 'No, not this time' and click 'Next'.



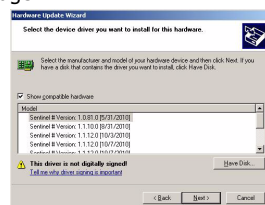
3. Select 'Install from a list or specific location' and click 'Next'.



4. Select 'Don't search. I will choose the driver to install' and click 'Next'.



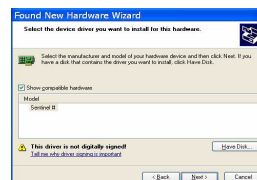
5. Press 'Have Disk'. If the PimaGuard was previously installed on the PC, disregard the driver installation history as seen in the image.



6. Browse to the folder where the PimaGuard installation files are located. Click the folder and click 'OK'.



7. The Sentinel will now appear on the window.



8. Press 'Next'. The PimaGuard driver will now be installed.

9. In the wizard's final screen; press 'Finish'.



10. When the installation is finished, you should see the installed Sentinel in the 'Device Manager' window, under 'CMS.'



11. Reboot the PC. The PimaGuard runs automatically after the reboot.

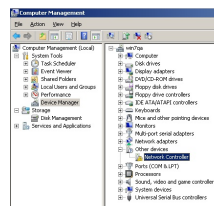


- **When installing several Sentinels, you might need to reboot the PC between each installation.**
- **If the newly installed sentinel doesn't appear in the 'Device Manager' window, contact PIMA support team.**

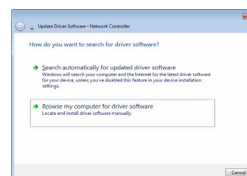
Under Windows 7[®]

To install the Sentinel under Windows 7[®] follow the next steps. See the note at the end of this section:

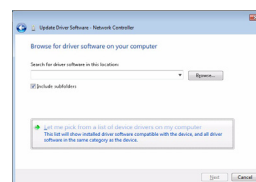
1. On the desktop, right-click the 'My Computer' icon and select 'Manage'. In the window that pops up, click 'Device Manager' on the left pane.



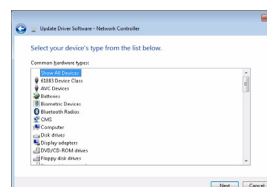
2. Right-click the first 'Network Controller' and select 'Update Driver Software...'



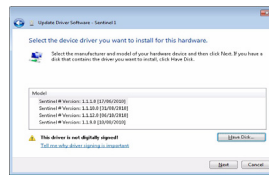
3. In the next window click the option "Browse for driver software on your computer".



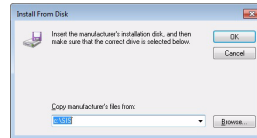
4. In the "Select your device's type from the list below" window click the option "show all devices" and click 'Next'.



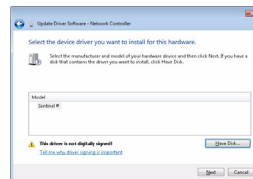
- In the device list window, click 'Have Disk'. If the PimaGuard was previously installed on the PC, disregard the driver installation history.



- Browse to the PimaGuard folder and select it.



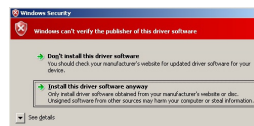
- The Sentinel will now appear in the Update driver software window. Click Next.



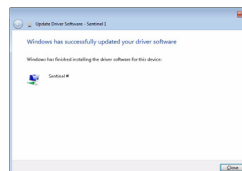
- If a warning pops up, click 'Yes'.



- In the Windows Security window click 'Install this driver software anyway'.



- Wait for the installation to end with the message "Windows has successfully updated your driver software" and click 'Close'.

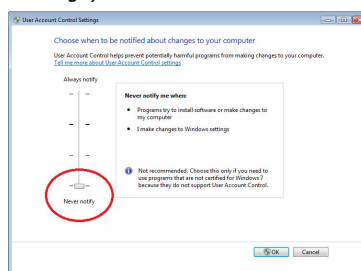


When Working under Windows 7, the UAC (User Account Control) notifications feature needs to be disabled. To do that:

- Go to 'Start' -> 'Control Panel', change the 'View by' (on the upper right) to large or small icons, and click the User Accounts icon



- Click 'Change User Account Control Settings' and place the bar down at "Never Notify" (see the next image).



- Press OK, then Yes in the warning message, and exit the 'Control Panel' menu.

GENERAL

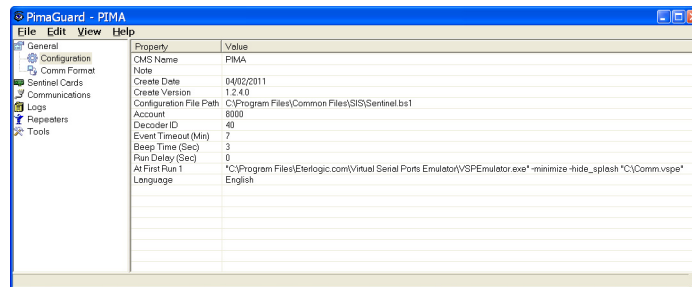


Figure 7. The PimaGuard interface

Configuration

1. On the left pane, double-click 'General', then double-click 'Configuration', or double-click any parameter on the right pane.
2. In the Configuration window that pops up, fill in the next CMS details:.

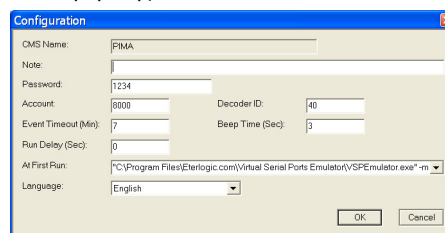


Figure 8. The configuration window

- A. CMS name: the Cental Monitoring Station or the customer's name.
- B. Note (here and everywhere else): free text for the customer's use.
- C. Password: protect the installation package and any future change by a password. If left blank, the PimaGuard will not be protected against fraud. The password can have up to 9 characters and is case sensitive.
- D. Create date: the date the PimaGuard was created. Read only field. Create version: the PimaGuard version file ('bs1') version. Read only field. if the PimaGuard is upgraded, the 'bs1' file and the PimaGuard might have different versions.
- E. Configuration file path: the location of the 'bs1' configuration file (automatic).
- F. Account: a fault account (8000 in most cases). This PimaGuard self account/fault event is sent to the Central Monitoring Station via all the modules, each in its own protocol. If you don't set any event, the PimaGuard will not report any fault.
The event transmission and reset are indicated by Windows 'Exclamation' tone, set in the Sounds Control Panel. See the Faults appendix on page 28.
- G. Event timeout: Set a time in minutes for the PimaGuard to keep events in a buffer, if transmission is delayed (unless incoming events fill up the buffer before).
- H. Run delay: set a timeout in seconds for the PimaGuard application to wait after reboot and before running.
- I. At first run: set commands to run when the PimaGuard application starts running. To insert a command: enter the command and press the Insert key; to erase a command: choose it and press Delete.



The 'Run delay' timeout, if set, precedes the execution of the 'At first run' file.

- J. Language: select the interface language.
- K. Beep time: set the error beep length in seconds. The beep can be temporarily stopped, by resetting the error or clicking anyway in the application window. If the error is not resetted, the beep will be sound hourly, even if it was temporarily stopped.

Communication formats

Figure 9. Communication formats window. The selected format is FBI External

The Communication formats window is made of the next parts:

1. The upper part is where the Format and its ACK and Idle patterns are selected. The format drop-list contains structured formats (see "Structured Communication Formats" on page 29 for the full format list) and is also used for defining new formats. All the fields of the structured formats are part of the format and cannot be modified. If you do change anything, the PimaGuard will not save it. The only way to change a parameter is to create a new format;
2. 'Structures' is where the incoming and outgoing Serial format transmissions are set. There are four optional structures.
3. 'Formats' refer to the incoming transmissions, i.e., in which format the incoming transmission is expected. There are four options: PAF/NPAF/EPAF, SIA, CID (Contact ID), PID and 4X2, which stands for all other formats: DTMF, pulses, etc..



The same incoming format can only be used once for each structure

4. Special: this feature enables you to utilize built-in conditions in the protocol's pattern, by using the character [S]. See Appendix D, page 29.
5. The Pattern refers to the format group that is selected in the Structure. If the selected formats are CID and SIA, the pattern should fit to information data received from both
6. The 'Event Conversion' enables you to convert events from within the transmission itself, from one format to another, to match the pattern. For example CID event 130 (Burglary) can be converted to 'Hex 2 digits' and be sent as '82'. The full event conversion table is in Appendix E, page 36.

A legend of the characters of the Formats page is located on page 29.

Creating a new format

There are two ways to create a new format:

- Create a modified format, by changing the name of one of the structured formats in the list;
- Create a new format from scratch;

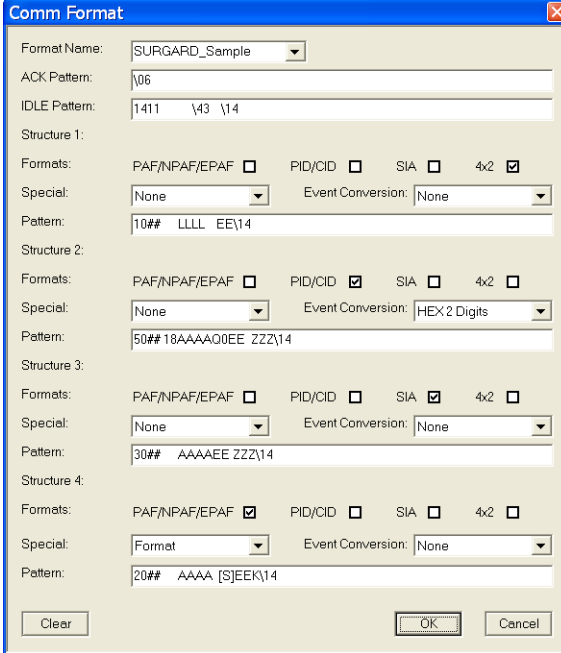
Create a new format based on existing one

To create a new format based on existing (structured) one, you only need to change the name of a format from the formats list. After saving the new format, it will be added on the end of the list. For example: to create a new format based on the SURGARD format, add "_sample" to the format name; a new format called 'SURGARD_sample' will be created. Now you can change any parameter: in the next example (see next screen capture), we've changed the 0 to 1 and \40 to \43 in refer to the Idle (special conditions and legends do not apply to ACK and Idle patterns).

The output account can be changed to Hexa. In this example, we switched 'A' with 'L' in 'Structure 1', i.e., only incoming accounts from 4x2 input transmissions will be converted or calculated as Hexa.

Groups of input transmissions can also be distinguished, by creating a new pattern for each group. In this example, PAF group & pattern were added to 'Structure 4'. In such a case, the PAF structure must be deselected from the first group; see the previous warning.

In 'Structure 4', the 'Special' is "Format"; this means that [S] in the incoming format group (PAF in this case) will be replaced by information received from the control panel's Siren and Key status, in PAF.



Comm Format

Format Name: SURGARD_Sample

ACK Pattern: \06

IDLE Pattern: 1411 \43 \14

Structure 1:

Formats: PAF/NPAF/EPAF ☐ PID/CID ☐ SIA ☐ 4x2 ☒

Special: None Event Conversion: None

Pattern: 10## LLLL EE\14

Structure 2:

Formats: PAF/NPAF/EPAF ☐ PID/CID ☒ SIA ☐ 4x2 ☐

Special: None Event Conversion: HEX 2 Digits

Pattern: 50## 18AAAA00EE ZZ\14

Structure 3:

Formats: PAF/NPAF/EPAF ☐ PID/CID ☐ SIA ☒ 4x2 ☐

Special: None Event Conversion: None

Pattern: 30## AAAAEE ZZ\14

Structure 4:

Formats: PAF/NPAF/EPAF ☒ PID/CID ☐ SIA ☐ 4x2 ☐

Special: Format Event Conversion: None

Pattern: 20## AAAA [S]EEK\14

Clear OK Cancel

Figure 10. Formats page with a new, manually set format

Another issue which is demonstrated here, is the 'Event Conversion', which can be implemented in any of the structure's patterns differently. In this example, CID/PID events will be converted to Hex 2-Digit format (see the conversion table on page 40). If, for example, event #130 (Burglary) is received, it will be converted to 82. The first 'E' in the ContactID event is to be replaced by '0'; this is optional only: 'E' or any other information can also be used.



After pressing OK, the format will be saved and appear at the end of the list; it will be available in the communication channels formats list.

PROGRAMMING

Sentinel 1

Sentinel configuration

1. IO Range: enter the physical address of the first card. For example: 1C00, 3C00, 5C00 (see page 8).



- **The Sentinel's faults are reported by a 2 byte number. See "Fault Codes" on page 28**

2. Click OK; to set other Sentinels, repeat the process from step #6, with each Sentinel.

Line 1 configuration

3. Double-click 'Line 1'. The Line configuration window pops up;

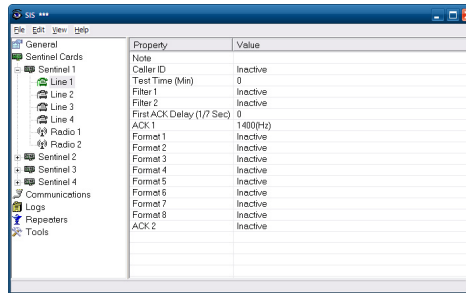


Figure 11. Line 1 configuration windows

4. Caller ID: is used mainly for repeating calls that contain no valid information, because of either a fault or a deliberate communication interference. When this happens, the PimaGuard sends a fault report in 4X2 format with the code '7D' and the caller ID. The caller ID number is written to the log, even if the line protocol does not support this feature.
5. Test time: set the line testing interval. The Sentinel will perform 3 tests during every interval, and only if the 3 fail, a report will be generated. See Appendix C, page 28.
6. Click OK. The pop-up window is shut down and the 'Line' settings are displayed in the PimaGuard window.
7. On the right pane, double-click 'ACK 1' and select the first opening ACK from the drop-down list.
8. Set a delay (in 1/7 of a second; 7=one second) if needed and Click OK.

Formats

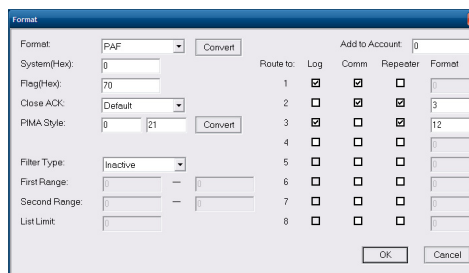


Figure 12. Line formats window

9. Double-click 'Format 1'.
10. Format: select the format from the drop-down list. Press 'Convert' if you need the PIMA format style in order to program a PIMA alarm system.
11. System: enter the system number as a Hexadecimal number. See Appendix F, page 60.
12. Flag: do not change the data in this field unless instructed otherwise by PIMA. See "Programming Line & Radio Formats" on page 60
13. Close ACK: change the default ACK only if the alarm system uses a non-default closing ACK itself.



We recommend to consult our support team, before changing the default ACK, Flag or System.

14. PIMA style: this part is only to help you configuring the protocol, if you don't know the format and the system number: enter the protocol as it programmed in the PIMA alarm system (in the Control Panel's 'Communication' menu, under 'CMS 1 Options') and press 'Convert'.



PIMA style is a format conversion tool only! The PimaGuard doesn't save its information.

15. Add to Account: enter a number that will be added to the account number. For example, if you enter 1500 and your account number is 7850, the updated account number will be 9350. This feature is for distinguishing between accounts from different stations/regions that have the same number.



The limit number is either 65535, or the outgoing format limit.

16. Route to: set where events in the selected protocol will be routed to. There are many possible routing combinations for the logs, the communication channels and the repeaters. The numbers below 'Route to' refers to the logs, the communication channels and the repeaters. The options are:

- **Log:** the events will be logged in the respective log file. Up to 4 log files can be set. (see "Logs" on page 21);
- **Comm:** the events will be routed to the respective communication channel (up to 8). The selected channel must be in 'Software' mode;
- **Repeater:** the events will be routed to the respective logical repeater and use the selected format, out of the 32 optional repeater's formats (the 'Format' field cannot be left blank). The selected repeater must be in 'Output' mode (see "Structured Communication Formats" on page 29)

Examples for the Format as displayed on the main window

If the format follows Pima control panel programming pattern, the letter 'P' will be displayed with its value. Else, the structured format will be displayed as followed: S=System, F=Flag, E=Extra.

Other information will follow: Filters, Add to Account, Structure (PLS and DTMF only), 'Route to' table. After saving the format it appears as a "short line view" under its channel.

Example 1

First ACK Delay (1/7 Sec)	0
ACK 1	1400(Hz)
Format 1	NPAF P=173 133 Route to: Comm 05 Log 01 Repeater 18 (8,12)
Format 2	Inactive

- NPAF - the format;
- P=137 133 - Pima programming style (low\high byte);
- Route to: Comm 05 Log 01 Repeater 18 (8,12) - all incoming events will be routed to communications channels #1 and #3 (0x05 h=101 bin), to log #1 and to repeaters #4 and #5 (0x18 h=11000 bin). The numbers 8,12 are the formats positions, as programmed in the repeaters. Repeater #4 format is #8 and repeater #5 format is #12.

Example 2

PLS P=1 193 4(3)x2 + 3x1 CS Route to: Log 01

- PLS - the format;
- P=1 193 - Pima programming style (low\high byte);
- 4(3)x2 + 3x1 CS - added structure

Example 3

SIA S=00 F=00 Account 100-500, 0-0, List 0 Add to Account 1000 Route to: Comm C2 Log 01

- SIA S=00 F=00 - the format. In this case SIA is programmed under a non-SIA open ACK. If PIMA control panel programming cannot be assigned, the System & Flag data will be displayed.
- Account 100-500 - an account number filter;
- Add to Account 1000 - a number arithmetically added to any account number, e.g. 1563=>2563;
- Route to: Comm C2 - the transmissions will be routed to communication channels #2, #7 and #8 (0xC2 h=11000010 bin);
- Log 01 - the log number (#1);

Example 4

DESK S=32 F=00 E=00 Route to: Repeater 02 (5)

- DESK - the format; 'E' serves as extra indicator;

Example 5

"SIA S=00 F=A8 Route to: Comm 01 (69) Log 01

- Decoder ID - (69) short view follows communication channels, if these exist.

Radio 1

1. Double-click 'Radio 1' under 'Sentinel 1'. In the 'Radio' popup window, select 'Active' from the drop-down list and click 'OK'.

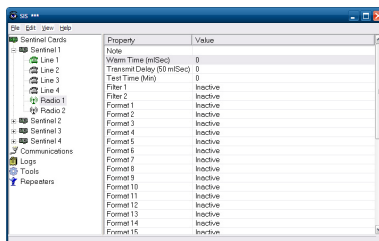


Figure 13. Radio 1 configuration window

2. Test time: set a period of time in minutes, that if no valid report has been received during it, a fault report is sent to the Central Monitoring Station. See Appendix C, page 28.
3. Transmit delay: 1-255; a delay added to the default delay (in 50 ms skips), to enable the de-synchronization of two synchronized output repeaters.
4. Warm time: set a period of time in milliseconds, to enable the full charging of the transmitter, after pushing PTT before transmitting a report. Empty=180 ms min: 80 max: 640.
5. Press OK.

Radio format

The Radio format window is the same as the Line format one, except the PIMA style and Extra parts. For the Filters, see page 25.

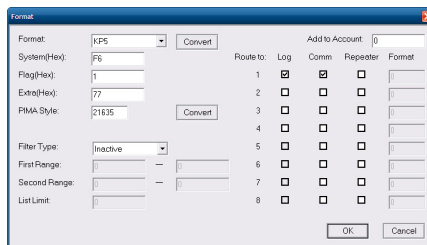


Figure 14. Radio formats window



- A. The options must be set consecutively, without skipping a format.
- B. When selecting the DESK format, no other format can be set on the same radio channel or the same line ACK.

COMMUNICATION

Set the PimaGuard optional communication channels. For each, set the type, the mode and the relating parameters and you also set where to route the transmissions.

1. On the left pane, double-click 'Communications'.
2. Double-click 'Comm 1'.

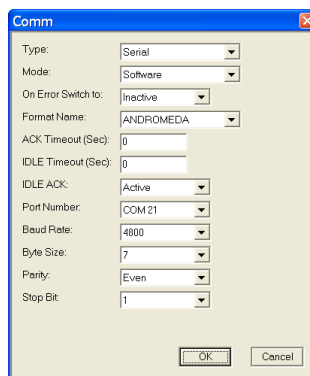


Figure 15. Comm. window

Type

3. In the 'Comm' popup window, select the (communication) Type. There are 3 options: SERIAL, TCP & UDP:
 - a. Serial: select this type when the PimaGuard communicates via one of the COM ports;
 - b. TCP: select this type when the PimaGuard communicates via Ethernet in TCP protocol;



Every TCP/UDP channel requires a separate port.

- c. UDP: select this protocol when the PimaGuard is communicating via the Ethernet, using the UDP protocol;



If the IP/URL field is left blank, the PimaGuard will accept transmissions from any IP that is directed to the PimaGuard's Port number.

Mode

4. Select the 'Mode' of the PimaGuard: Software, Repeater or External:
 - a. Software: the PimaGuard sends the events to the Central Monitoring Station management application, e.g. Andromeda, Computure, etc;
 - b. Repeater: the channel serves as a repeater; note that the same communication channel cannot be used for outgoing & incoming repeater together;
 - c. External: the PimaGuard receives events from other decoders. When selecting this option, the "route to" table is enabled in the Communication window. Double-click it and select the routing configuration. When routed to a repeater, it is required to fill all the optional formats routing numbers.



Do not leave any format blank or zero.

Route to	Log	Comm	Repeater	PID	PAF	NPAF	EPAF	CID	SIA	A2
1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	3	1	5	6	7	2	
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							

Figure 16. Comm. router

In this example, all the events are routed to 'Log 1', 'Comm. 1' and 'Repeater 3'. If the input event source is CID, the event will be sent by the 6th format number, configured in repeater #3. In these cases, it is recommended not to use a repeater in "DOS Compatible" mode (it supports all format types). See the repeaters on page 25.

On error switch to

Select the communication channel to which the output transmissions will be switched, when an error occurs in the Software type. This serves as a backup channel. Programming a loop is recommended. If the 'On error switch to' is inactive and the channel is not available, the PimaGuard tries to resend the report within the timeout.

For the switching to work, an ACK must be set.

If a report is routed to two channels on the same loop, it will be sent to both channels. If one channel is faulty, a duplicate event will be created.

Examples

Example 1: Loop, 2 channels

Comm. 1: Software mode, ACK & Idle are set, "On error switch to" is set to Comm. 2.

Comm. 2: Software mode, ACK is set, "On error switch to" is set to Comm. 1.

If Comm. 1 channel fails, events will be transmitted via Comm. 2 channel. If Comm. 1 is restored by Idle's ACK, the events will be transmitted back to Comm. 1. If both channels fail, the events will be transmitted between the two in a loop, until timeout is over or transmission successes.

Example 2: Error loop

Comm. 1: Software mode, ACK & Idle are set, "On error switch to" is set to Comm. 2.

Comm. 2: Software mode, ACK & Idle are set, "On error switch to" is set to Comm. 3.

Comm. 3: Repeater/External mode.

If Communication 1 fails, events will be sent via Communication 2 until timeout is over. If Communication 1 is restored by Idle's ACK, the events in Communication 2 will not be looped back to it; all the new events will be sent via Communication 1, but Communication 2 will still try to send the former events from the buffer until timeout is over.

Format

5. Select the format for the current configuration. The structured formats are listed in Appendix D, page 29; Constrains and limitations are listed in Appendix B, page 27.



'Software' and 'External' modes have the same formats for input and output, and the same ACK & Idle patterns.

ACK timeout

6. Set the ACK waiting timeout (in seconds). Each format has a default ACK and by setting the timeout the ACK is enabled.
 - In 'Software' mode, the PimaGuard requires the ACK from the Central Monitoring Station, in the protocol;
 - In 'External' mode, the Mcard generates the ACK if a value is set;
 - Three consecutive transmissions timeouts with no ACK, triggers a fault (see Appendix C, page 28);
 - When working in TCP type, ACK is not required, unless the Central Monitoring Station requires it. If no ACK is set, TCP errors will be reported as communication errors;
 - When working in UDP type, ACK is required for generating a communication fault
 - In External mode, if a filter is set and an ACK is requierd, the ACK is sent anyway, even if the event is not within the filter's range (except for time filters). This is to enable the external decoder to keep running in anyway.

Idle timeout

7. Set the Idle timeout in seconds. To view ACK & Idle patterns, see "Communication formats" on page 14.



- In 'Software' mode, Idle is reported if no transmission is received within the timeout.
- In 'External' mode, Idle is expected within the interval, if no transmission is received.

Idle ACK

8. If set to 'Active' in 'Software' mode, an ACK from the Central Monitoring Station is expected for the Idle. If set to 'Active' in 'External' mode, the PimaGuard will send an ACK for any received Idle frame.

Port number

9. There are two options: if the mode is Software or Repeater Out, the port is a destination port; if the mode is External or Repeater In, the port is a listening one.

IP/URL

10. Set the destination IP or URL. If the communication channel is set as Repeater Out or Software, the destination IP/URL must be set. If the channel is set as Repeater In or External, these does not have to be set. After setting the IP or URL, transmissions will be recived only from the specified destination address..



If the IP/URL field is left blank, the PimaGuard will accept transmissions from any IP with the specified Port number.

Add to account

11. See page 17.

Route to

12. See page 17.
13. Click 'OK'.

Filters

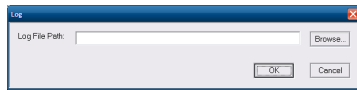
For the External mode only, see page 25.

The formats are listed in Appendix D, page 29.

LOGS

Set up the PimaGuard log files.

1. On the left pane, double-click 'Log'.
2. Double-click 'Log 1'.



3. Browse to the location where you want to save the log file #1.
4. Enter a filename for the log and click 'Open'.
5. In the Log window, click 'OK'.



Three failures to write to the log is reported as a fault. See Appendix C, page 28.

Log file size

The Log file size is about 200Mb, depending on the PC available disk size. When the Log file is full, a new Log file is created and the first file is saved with the suffix 'old'. When the second file becomes full, the first one is erased. For the filters list, see page 25.

TOOLS

Monitor

The Monitor feature has 2 modes: General & debug. To switch between the two, double-click the Mode line in the right pane. The Debug mode can be operated only with a Sentinel card installed.

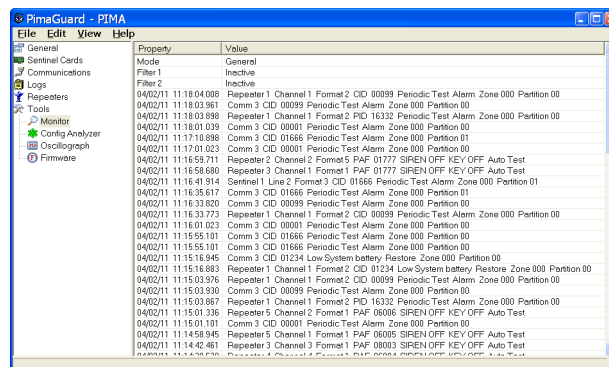


Figure 17. The monitor window

General

In this mode, the last 1024 events are displayed (in the right pane). The events are updated online.

Debug

Property	Value
09/06/10 12:21:04	Sentinel 1 IN A2 AA AA AA AA AA AA 00 00 00
09/06/10 12:21:00	Sentinel 1 IN A0 AA AA AA AA AA AA 00 00 00 00
09/06/10 12:20:58	Sentinel 1 IN A0 AA AA AA AA AA AA 0A 00 00 00 00
09/06/10 12:20:57	Sentinel 1 IN A0 AA AA AA AA AA AA 2A 00 00 00 00
09/06/10 12:20:54	Sentinel 1 IN 82 11 44 04 05 00 00 00 00 00
09/06/10 12:20:52	Sentinel 1 IN A0 AA AA AA AA AA AA 02 00 00 00 00
09/06/10 12:20:51	Sentinel 1 IN A0 AA AA AA AA AA AA 02 00 00 00 00

In the debug mode, the incoming & outgoing data are displayed both as raw Hexa frames and as in the General mode after some processing, to be able to compare the transmissions before and after processing.

Filters in this mode, are immediately activated when set, but are not saved when exiting the application. See the full Filter list on page 25.



The debugging log file size is set as in other logs. (see Logs on the previous section).

Config Analyzer

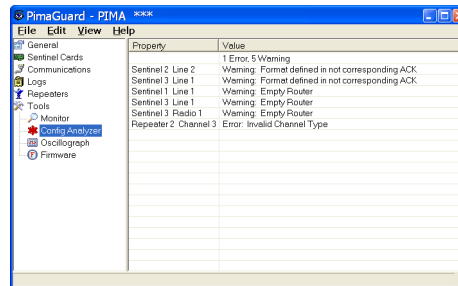


Figure 18. Config analyzer window

Config analyzer checks for programming errors on-the-fly. This is only a diagnostic tool and will not prevent the user from saving it as is, including the errors. The analyzer's icon has 3 colors:

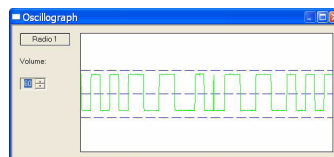
- Gray - "No Errors or Warnings".
- Yellow - "Warning": some features will not work properly. Potential loss of data.
- Red - "Error": some features will not work at all or not work properly. Potential loss of data.

Oscillograph

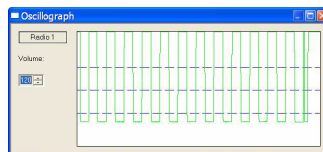
This mode enables you to set the volume level for each Radio amplifier. When you enter the mode, the PimaGuard stops from receiving events. A warning message precedes this action.

Switching between Radio1 and Radio 2 is done by pressing the radios button.

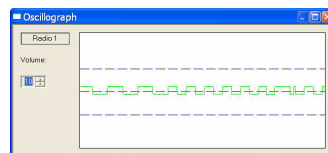
Normal volume



Abnormal high volume



Abnormal low volume



Volume setting buttons



FIRMWARE

In most cases the Firmware does not have to be cahnged. If you are instructed by PIMA to install a new version, follow the next steps.

Firmware upgrade

1. Double click 'Tools' on the left pane, than click 'Firmware'.
2. On the right pane, double click 'Sentinel X'.

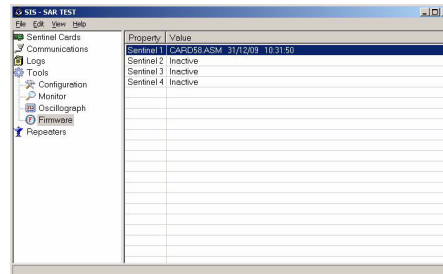
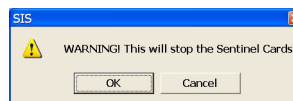
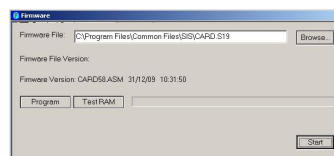


Figure 19. SAR test window

3. When upgrading the Firmware, the PimaGuard stops from receiving events. A warning message will be displayed. Press OK.



4. The Sentinel Firmware version is displayed in this window.



5. Press browse and locate the upgrade file. Press Open.
6. Press Program, than Start. If the upgrade version is the same as the PimaGuard's one, a warning message will be displayed.
7. Insert the (VFP) jumper on the Sentinel PCB. The PimaGuard will now erase the current Firmware and burn the upgraded one.

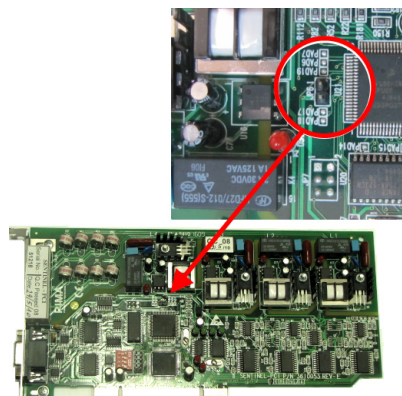


Figure 20. The Sentinel's jumper

8. After programming is complete, remove the jumper. The PimaGuard will now verify the installation. When the proccess is over the message Programming PASS will be displayed. If failed, a matching message will be displayed.

Test RAM

Press this button to test the Sentinel's RAM after programming it. To start the test, Press 'Start'.

REPEATERS



Programming the repeaters is enabled only by PIMA. This chapter is for your information only



- When programming the repeaters, make sure not to cause a collision between the system's PAF, NPAF & EPAF protocols and the physical channels, or an internal loop would be created.
- When a repeater (Out or In) is programmed via the radio channels, it must be enabled with the PAF format.
- When a repeater (Out or In) is programmed via the telephone, it must be enabled with the PAF format and first ACK of 1400.

The next two notes refer to version 1.2.4.0 and up:

- Only 'DOS compatible' repeater supports telephone channels.
- Programming a "Dos Compatible" Repeater Out together with a non "Dos Compatible" Repeater In, in the same Pima Guard, can cause loss of data.

1. Double-click 'Repeaters'.
2. Click 'Repeater 1'.

Repeater 1

Input

1. When the repeater is a repeater-in, it can receive transmissions from up to 4 channels simultaneously, each with different stations, protocols and 'keep alive' account and interval.

Channel 1

2. Double-click 'Channel 1'. The channel pop-up window is displayed.

3. From the 'Channel' drop-down list, select the repeater's channel: Sentinel 1-4, or Comm 1-8.
4. When selecting one of the Sentinels, another drop-down menu is displayed, from which you select a line or a radio as the physical communication channel.
5. Set the channel's 'Test time': for Input repeaters, the PimaGuard expects a test report from the Output repeaters, within the 'Test time' (in minutes); for Output repeaters, the PimaGuard generates a test report when no event is being handled.
6. Account: for Input repeaters, this is a 'keep alive' and fault account: if no report is received in this channel within the 'Test time', the PimaGuard generates a report (TN in PAF) with this account number; there is no reset report for this event.
7. Click OK.

Format

8. Double-click 'Format 1' on the right pane.

9. Select the incoming transmission's format from the drop-down list. From the list, PAF NPAF EPAF & DESK are Radio and PSTN formats; PID, SIA & CID are supported if a "non dos compatible" (PID) repeater type is selected (version 1.2.4.0 and up); 4X2 applies to any Radio and PSTN protocol that applies this structure or less.
10. Set the 'Repeater system'; it should be the same system as in the Output repeater.



When the repeater works in radio or PSTN channel, the system number must be different from the physical channel.

11. The 'Add to account' & 'Route to' features are disabled in the Input mode.
12. Flag: not in use.

13. Extra: not in use.
14. Filter type: see page 25.
15. Add to account: see page 20.
16. Route to: see page 20.

Output

When the Repeater is used as an output one, the channels are used to backup each other. Only one protocol list is used by all the channels. In this mode, if a fault account is defined in the PimaGuard, the event will be reported with the repeater's 'keep alive' account, if exists.

17. Double-click Repeater 1;
18. Filters: see page 25;
19. Double-click Format 1;

Route to	Log	Comm	Repeater	Format
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



When selecting a PSTN line as the outgoing repeater, chances for delays are high; therefore, it is recommended to use it as a backup channel only.

Channel

20. The PimaGuard uses the channels as a backup for outgoing Repeaters.
21. For each transmission there are three tries in each channel.
22. When selecting a Line, add the line number in the 'Destination address'. It should contain nothing but digits.
23. 'Test time': this event is sent when there no other events in the buffer.
24. 'Account': this is a test account. when the PimaGuard is faulty, a fault event is sent with this account (and the first system of the current channel), and not the PimaGuard's one (the one that is set in 'General'. See page 13).
25. Press OK.

FILTERS

A filter enables you to decide what information will be received by the PimaGuard and what will not. The filters are: Account, Event, Date, Days, Time, Format and Channel. The Filters window appears the same in every channel and module, but is set separately for each.



- A. If more than one filter is used, the different filters are added to each other (AND operator) and only events that are not filtered by any of the filters will be handled. The same applies if the communication is re-routed;
- B. In filters where there is more than one range, the events will only be handled if they are included in one of the ranges;
- C. A range includes both margins;

Account

Filter the events by the Account number. There are 2 filtering ranges and a limit list. In the next example, only the events from accounts 1-500 OR 600-999 will be accepted. Numbers outside these ranges will be ignored.

Limit List

Limit list is a list of either event codes or account ranges that serves as a limit filter in addition to all other filters. The number set in this field is the number of values out of the whole list. For example, if the list contains 1,000 account numbers, but the list limit is set to 400, only the first 400 numbers will be processed and all others will

be ignored.

The list itself is a text file and the values that are manually inserted into it, should be divided by any punctuation mark or a space. The text file must carry the name FLL (not case sensitive) and the extension tells the PimaGuard where to implement the limit list (see the next table).

The list can be changed at any time.

The blank filename is TSCFN.FLL where:

- T: filter type;
- S: source (the number of sentinels, repeaters or comm.s etc.);
- C: channel;
- F: format;
- N: filter number.

Replace the extension according to the next table. The type, Source and Filter no. must be used in every configuration. An empty table cell means do not use this channel/format.

Type	Source	Channel	Format	Filter No.
S: Sentinel card	0-8	Line: 0-3 ; Radio: 4-5	0-9; A-V	0-1
C: COM	0-8			0-1
L: Log	0-8			0-1
R: Repeater	0-8	0-7	0-9; A-V	0-1
M: Monitor	0-8			0-1

Examples:

S14B0.FLL

This filename tells the PimaGuard to receive transmissions only from Sentinel card #2 in Radio #1, and only when the format in use is format no. 12 in the formats list. After that, the PimaGuard reads the content of the file under the list limit no. and compares it to the transmission's content: only matching values are received.

C10.FLL

This filename tells the PimaGuard to receive transmissions only from Comm. #2. After that, the PimaGuard reads the content of the file under the list limit no. and compares it to the transmission's content: only matching values are received.

R201.FLL

This filename tells the PimaGuard to receive transmissions only from Repeater #3 in the repeaters list, channel #1, filter #2.

Event

Filter the communication by the Events numbers. There are 2 filtering ranges and a limit list (see the Account section before).

PAF, 4X2 and any other non-decimal events are converted to decimal numbers.

Date

Events outside a date range are filtered.

Days

The number of days from the day the 'bs1' file is created.

Time

Events outside a time range (in hours) are filtered.

Format

Filter the communication by the event format. For each Line/Radio/Channel there can be 2 filters, i.e. only the filtered formats will be handled.

Channel

Filter events by the physical channel - Sentinel or Communication, i.e., line X, Radio X, Repeater X, COM X, etc. For example, when viewing the monitor, you can filter events and see only those who are received through COM 1.

APPENDIX A RECOMMENDED TRANSCEIVER SPECIFICATIONS

The following table contains a list of recommended specifications for connecting a narrowband VHF or UHF transceiver to the PimaGuard:

Feature	Transceiver
Squelch	<ul style="list-style-type: none"> • Squelch switch should be manually adjustable; • Squelch switch status should be retained after transceiver powered off; • Internal Squelch switch should also be turned off;
Output Signal	<ul style="list-style-type: none"> • Speaker switch (optional); • Maximum output signal (ext. speaker) should not exceed 1Vp-p; • Output signal should remain constant at all time, i.e., is not volume and/or speaker switch dependent; • Output signal should not include data like start-up ID, pre-transmission message, etc. (this is usually a settable feature)
I/O Interface	<ul style="list-style-type: none"> • Wires length should support up to 1 meter; • PTT Control; • GND; • Audio IN (MIC input can be used instead); • Audio OUT (constant output signal);
Power source	<ul style="list-style-type: none"> • The technical specifications of the power source should comply with the transceiver's manufacturer specs. On top of that, it is important that the power source will be clean from ripple noise.
Antenna	<ul style="list-style-type: none"> • It is advisable to install the antenna on as high as possible location (e.g., communication antennas tower). • The antenna cable should be a Heliax, RG203, or RG19 cable. These cables are mechanically strong and minimize any signal attenuation. • A 5.25 dB antenna is usually sufficient for radio transmissions.

APPENDIX B CENTRAL STATION INSTALLATION CHECKLIST

Radio Transceiver

The transceiver should follow these guidelines:

1. It should be a narrowband receiver (12.5 KHz);
2. No data transmission (e.g. ID, pre-transmission message) is allowed within the transmission;
3. The squelch should always be turned OFF (i.e., signal and noise are fully transferred into the Sentinel). It can be set either manually or internally:
 - a. Manual adjustment squelch: turning the receiver OFF and ON does not change the squelch state;
 - b. Internal squelch: the squelch is turned OFF by the manufacturer or supplier of the Radio Transceiver.
4. The receiver signal output level should be constant and not to be effected by the volume control knob or the received signal strength (i.e., any Automatic Gain Control (AGC) must be turned OFF);
5. When a repeater is in use, the transceiver shouldl always transmit (i.e., unconditionally).



Some transmitters interrogate the network when the PTT is pressed and will not transmit if it is busy (i.e., when a signal is received by the receiver).

6. The transmitter wakeup time (i.e., how long it takes from the time the PTT is pushed until it starts transmitting) should be less than 150 mSec.

Antenna & Cable

1. The antenna should have at least a 4.7 dB attenuation;
2. For a length of less than 20 meters between the antenna base and the radio transceiver, an RG-213 antenna cable should be used. For a length of more than 20 meters a Helix antenna cable should be used;
3. All antenna connections should be sealed against wetness.



The antenna should be connected directly to the ground to minimize any damage caused by a direct hit from a lightning.

4. The antenna cable should not run in parallel to any electric wires to avoid RF interferences. If this is unavoidable, the cable should run at least 1 meter away from the electric wires.
5. When the transceiver is in use, the Voltage Standing Wave Ratio (VSWR) should be 1.5V max (i.e., the returning waves are less than 4%).

APPENDIX C FAULT CODES

All PimaGuard fault codes are sent in 4x2 format with the error account number or, if set, the repeater's supervision account number.

Code	Failure	Code	Restore
01	*Phone\Radio Fail 1	81	*Phone\Radio Restore 1
02	*Phone\Radio Fail 2	82	*Phone\Radio Restore 2
03	*Phone\Radio Fail 3	83	*Phone\Radio Restore 3
04	*Phone\Radio Fail 4	84	*Phone\Radio Restore 4
05	*Phone\Radio Fail 5	85	*Phone\Radio Restore 5
06	*Phone\Radio Fail 6	86	*Phone\Radio Restore 6
07	*Phone\Radio Fail 7	87	*Phone\Radio Restore 7
08	*Phone\Radio Fail 8	88	*Phone\Radio Restore 8
09	*Phone\Radio Fail 9	89	*Phone\Radio Restore 9
0A	*Phone\Radio Fail 10	8A	*Phone\Radio Restore 10
0B	*Phone\Radio Fail 11	8B	*Phone\Radio Restore 11
0C	*Phone\Radio Fail 12	8C	*Phone\Radio Restore 12
0D	*Phone\Radio Fail 13	8D	*Phone\Radio Restore 13
0E	*Phone\Radio Fail 14	8E	*Phone\Radio Restore 14
0F	*Phone\Radio Fail 15	8F	*Phone\Radio Restore 15
10	*Phone\Radio Fail 16	90	*Phone\Radio Restore 16
11	Phone Fail 17	91	Phone Restore 17
12	Phone Fail 18	92	Phone Restore 18
13	Phone Fail 19	93	Phone Restore 19
14	Phone Fail 20	94	Phone Restore 20
15	Phone Fail 21	95	Phone Restore 21
16	Phone Fail 22	96	Phone Restore 22
17	Phone Fail 23	97	Phone Restore 23
18	Phone Fail 24	98	Phone Restore 24
19	Phone Fail 25	99	Phone Restore 25
1A	Phone Fail 26	9A	Phone Restore 26
1B	Phone Fail 27	9B	Phone Restore 27
1C	Phone Fail 28	9C	Phone Restore 28
1D	Phone Fail 29	9D	Phone Restore 29
1E	Phone Fail 30	9E	Phone Restore 30
1F	Phone Fail 31	9F	Phone Restore 31
20	Phone Fail 32	A0	Phone Restore 32
21	Comm 1 Fail	A1	Comm 1 Restore
22	Comm 2 Fail	A2	Comm 2 Restore
23	Comm 3 Fail	A3	Comm 3 Restore
24	Comm 4 Fail	A4	Comm 4 Restore
25	Comm 5 Fail	A5	Comm 5 Restore
26	Comm 6 Fail	A6	Comm 6 Restore
27	Comm 7 Fail	A7	Comm 7 Restore
28	Comm 8 Fail	A8	Comm 8 Restore
29	Log 1 Fail	A9	Log 1 Restore
2A	Log 2 Fail	AA	Log 2 Restore
2B	Log 3 Fail	AB	Log 3 Restore
2C	Log 4 Fail	AC	Log 4 Restore

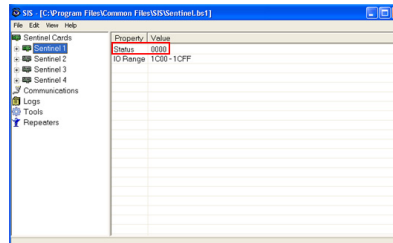
* The Radio and Line channels are distinguished by the protocol. Internal errors are sent with line distinguishers.

If a repeater test/fail account is set, the repeater faults are sent with TN; else, they are sent with the Central Monitoring Station's faults account

Code	Failure	Code	Restore
2D	Repeater 1 Channel 1 Fail	AD	Repeater 1 Channel 1 Restore
2E	Repeater 1 Channel 2 Fail	AE	Repeater 1 Channel 2 Restore
2F	Repeater 1 Channel 3 Fail	AF	Repeater 1 Channel 3 Restore
30	Repeater 1 Channel 4 Fail	B0	Repeater 1 Channel 4 Restore
31	Repeater 2 Channel 1 Fail	B1	Repeater 2 Channel 1 Restore
32	Repeater 2 Channel 2 Fail	B2	Repeater 2 Channel 2 Restore
33	Repeater 2 Channel 3 Fail	B3	Repeater 2 Channel 3 Restore
34	Repeater 2 Channel 4 Fail	B4	Repeater 2 Channel 4 Restore
35	Repeater 3 Channel 1 Fail	B5	Repeater 3 Channel 1 Restore
36	Repeater 3 Channel 2 Fail	B6	Repeater 3 Channel 2 Restore
37	Repeater 3 Channel 3 Fail	B7	Repeater 3 Channel 3 Restore
38	Repeater 3 Channel 4 Fail	B8	Repeater 3 Channel 4 Restore
39	Repeater 4 Channel 1 Fail	B9	Repeater 4 Channel 1 Restore
3A	Repeater 4 Channel 2 Fail	BA	Repeater 4 Channel 2 Restore
3B	Repeater 4 Channel 3 Fail	BB	Repeater 4 Channel 3 Restore
3C	Repeater 4 Channel 4 Fail	BC	Repeater 4 Channel 4 Restore
3D	Repeater 5 Channel 1 Fail	BD	Repeater 5 Channel 1 Restore
3E	Repeater 5 Channel 2 Fail	BE	Repeater 5 Channel 2 Restore
3F	Repeater 5 Channel 3 Fail	BF	Repeater 5 Channel 3 Restore
40	Repeater 5 Channel 4 Fail	C0	Repeater 5 Channel 4 Restore
41	Repeater 6 Channel 1 Fail	C1	Repeater 6 Channel 1 Restore
42	Repeater 6 Channel 2 Fail	C2	Repeater 6 Channel 2 Restore
43	Repeater 6 Channel 3 Fail	C3	Repeater 6 Channel 3 Restore
44	Repeater 6 Channel 4 Fail	C4	Repeater 6 Channel 4 Restore
45	Repeater 7 Channel 1 Fail	C5	Repeater 7 Channel 1 Restore
46	Repeater 7 Channel 2 Fail	C6	Repeater 7 Channel 2 Restore
47	Repeater 7 Channel 3 Fail	C7	Repeater 7 Channel 3 Restore
48	Repeater 7 Channel 4 Fail	C8	Repeater 7 Channel 4 Restore
49	Repeater 8 Channel 1 Fail	C9	Repeater 8 Channel 1 Restore
4A	Repeater 8 Channel 2 Fail	CA	Repeater 8 Channel 2 Restore
4B	Repeater 8 Channel 3 Fail	CB	Repeater 8 Channel 3 Restore
4C	Repeater 8 Channel 4 Fail	CC	Repeater 8 Channel 4 Restore

Code	Event
00	Test. The beep does not sound on this error.
No code	Invalid Answer: the input repeater answer is unexpected. It indicates errors in the physical channel (antenna, noises, etc.).
7D	Call Error (only if "Caller ID" is active). The beep does not sound on this error.
7E	Critical Temperature!
FE	Reset Temperature
7F	General Fault. An unidentified error. Can be any of the errors in this table, such as Sentinel errors, RAM memory error or Pattern Error. For Example: account #65056 or #8191 for repeaters route. This happens when the output frame to the CMS cannot support account or event size.
TN (PAF)	Repeater failure. The beep does not sound on this error.

Sentinel status events



The Sentinel's status is represented by 4 bits. The reports are sent as 7F events and indicate the following:

Bit	Event
0	Sentinel chip overflow
1	Sentinel is not responding
4	Configuration file error
7... 0 = 0xFF	General fatal error

SAR (Stand Alone Repeater) Events:

Hex Code	Event
60	Tamper open
61	Zone #1 open
62	Zone #2 open
63	AC fault
64	Low battery
E0	Tamper restore
E1	Zone #1 restore
E2	Zone #2 restore
E3	AC restore
E4	Low battery restore

APPENDIX D STRUCTURED COMMUNICATION FORMATS

Legend

All symbols are in ASCII; not case-sensitive.

A= Account (decimal, max. 10 digits)

L= Account (hexadecimal, max. 10 digits)

E= Event (max 4 digits, normal form as is; PAF/NPAF/EPAF in alphabetic order, upper case)

K= Key and Siren Status

T= Event type:

1 - Alarm/Disarming

3 - Reset/Arming

6 - Previous event

Q= Event type:

E - Alarm/Disarming

R - Reset/Arming

P - Previous event

U - Unknown event

Z= Zone (decimal)

P= Partition (decimal)

I= Caller ID number, digits

C= Checksum

HH:MM:SS = Time structure. The structure cannot be broken, nor changed

DD/MM/YY= Short date structure. The structure cannot be broken, nor changed

DD/MM/YYYY= Long date structure. The structure cannot be broken, nor changed

\= Next 2 digits value is in hexadecimal (must use 2 digits)

#= Media number, Repeater Channel/Line/Radio/COMM

*= Decoder ID, is taken from the user definitions of the input format (decimal, 0-default)

[]= Source options; every 2 characters represent a condition and its value, to be placed in the frame. See the next examples.

Source options examples

L - Line, R - Radio, T - Repeater, C - COMM, S - Special (see each build-in format for details); is defined by the format

Example 1

[L3R1] => if the frame was received via the phone line, '3' will be placed in the frame to the CMS; if the frame was received via the radio, '1' will be placed in the frame to the CMS. The first true condition is placed in the frame; if none of the conditions is true, the first one will be placed in anyway.

Example 2

[T5R\5A] => if the frame was received via a repeater, '5' will be placed in the frame to the CMS; if the frame was received via the radio, 'Z' will be placed in the frame to the CMS.

Example 3

[SS...] => if appears, it means "special". See the relevant format special conditions.

Structured Formats

This section applies to RS-232 protocols only. To diagnose the event's output by the incoming protocol, see Format Events & Converting Appendix on page 36.

Atia 13

Frame Structure: [L3R1]AAAA----EE\0A\0D

[L3R1] 3 - Input from Line (or other)

1 - Input from Radio

A - 4 digit account, decimal

E - 2 digit event

Atia 13 Expanded

Frame Structure - [R1L3]AAAA----EE\0A\0D

3 - Input from Line (or other)

1 - Input from Radio

A - 4 digit account, decimal

E - 2 digit event

In CID, when zone or user number are higher than 62, the protocol is represented in Hebrew characters.

Atia 13+CallID

Frame Structure - [L3R1]AAAA----EE \54:IIIIIIIIIIII\0A\0D

3 - Input from Line (or other)

1 - Input from Radio

A - 4 digit account, decimal

E - 2 digit event

\54 - 'T'

I - Account phone number

Atia 1389

Frame Structure - [S]AAAA----EE\0A\0D

S = options:

8 = Input from Line (PIMA format)

3 = Input from Line (non-PIMA format)

9 = Input from Radio (PIMA format)

1 = Input from Radio (non-PIMA format)

A = 4 digit account, decimal

E = 2 digit event

Atia 1389 A6

Frame Structure - [S]AAAAA----EE\0A\0D

S = options:

8 = Input from Line (PIMA format)

3 = Input from Line (non-PIMA)

9 = Input from Radio (PIMA format)

1 = Input from Radio (non-PIMA)

A = 6 digit account, decimal

E = 2 digit event

Atia 1389+CallID

Frame Structure - [S]AAAA----EE \54:IIIIIIIIIIII\0A\0D

S = options:

8 = Input from Line (PIMA format)

3 = Input from Line (non-PIMA)

9 = Input from Radio (PIMA format)

1 = Input from Radio (non-PIMA)

A = 6 digit account, decimal

E = 2 digit event

\54 - 'T'

I = Account phone number

Atia_13489

Frame Structure - [S]AAAA----EE\0A\0D

S = options:

- 8 = Input from Line (PIMA format)
- 3 = Input from Line (others format)
- 9 = Input from Radio (PIMA format)
- 1 = Input from Radio (others format)
- 4 = Radio ELL6 only
- A = 4 digit account, decimal
- E = 2 digit event

Atia_123459

Frame Structure - [S]AAAA----EE\0A\0D

S = options:

- 5 = Input from Line (PIMA format)
- 3 = Input from Line, DESK only
- 9 = Input from Line (non-PIMA)
- 4 = Input from Radio (PIMA format)
- 1 = Input from Radio, DESK only
- 2 = Input from Radio (non-PIMA)
- A = 4 digit account, decimal
- E = 2 digit event

FBI

Frame Structure – ##AAAAEE\0D (Applicable to PAF/NPAF/EPAF*/SIA/4x2)

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

E = 2 digit event

Frame Structure – \0A## AAAA 18 QEEE PP ZZZ \0D (Applicable to CID/PID)

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

18 – permanent

Q= Event type:

- E – Alarm/Disarming
- R – Reset/Arming
- P – Previous event
- U – Unknown event

E = 3 digit event

P= 2 digit partition, decimal

Z= 3 digit zone/user, decimal

- * When the input is External, the FBI protocol does not distinguish between PAF/NPAF/EPAF and 4x2.
- When the output is External, the 4x2 protocol is the default one. If required, use FBI External.

FBI PAF=>CID

Frame Structure – ##AAAAEE\0D (applicable to SIA/4x2)

Frame Structure – \0A## AAAA 18 QEEE PP ZZZ \0D (Applicable to PAF/NPAF/EPAF/CID)

Same as FBI, except PAF/NPAF/EPAF event is converted to CID. See "Events Conversion Table" on page 36.

FBI CR=>20

Frame Structure – ##AAAAEE\14 (Applicable to PAF/NPAF/EPAF/SIA/4x2)

Frame Structure – \0A## AAAA 18 QEEE PP ZZZ \14 (Applicable to CID)

It is used the same as FBI, except the frame-end: 0x14 instead of 0x0D.

GALAXY

Frame Structure – G[LOR1]**#0 AAAA-EE 00\0D\0A (applicable to all the formats)

[LOR1] - 0: Input from Line (or other)

1: Input from Radio

** - Decimal, 0-99 (00 is default) from Decoder ID in the received format

- Channel number (1...F, 0). The numbers start from 1 to F in Hexadecimal, 0 = the 16th number. If count restart, it restart from 0

A = 4 digit account, decimal

- = permanent

E = 2 digit event

00 = permanent

Idle frame - \50**\0D\0A.

- ** - Decimal, 0-99 from the Decoder ID on General->Configuration See "Configuration" on page 13. For each incoming format PAF/NPAF/EPAF/CID/PID/SIA/4x2 see "Events Conversion Table" on page 36.

FBI GALAXY 1

Frame Structure – ##AAAAEE\0D (Applicable to PAF/NPAF/EPAF*/SIA/4x2)

This format is the same as FBI, except the Idle frame - \50**\0D\0A

- ** - Decimal, 0-99 from Decoder ID on General->Configuration. See "Configuration" on page 13.

FBI GALAXY 2

Frame Structure - **AAAAEE\0D (Applicable to PAF/NPAF/EPAF*/SIA/4x2)

** - decimal 0-99 from Decoder ID in the received format (00 is default)

Frame Structure - \0A[SS] AAAA 18 QEEE PP ZZZ \0D (Applicable to CID/PID)

[S1S2] - Special Galaxy:

S1 = DecoderID -> Hex -> First Nibel

For example: 27 -> 1B -> B

S2 = If phone or comm = Channel* # -> Hex -> First Nibel

Example 1: (Sentinel 3 line 3) 12 -> C -> C

Example 2: (Comm 5) 5 -> 5 -> 5

* Phone channels are 1-16, Comm are 1-8

If radio = 61 + (Channel* # x 2) -> Hex -> First Nibel

For example: (Sentinel 3 Radio 1)

61 + (4*2) -> 69 dec -> 45 hex -> 5

* Radio channels are 0-7

If the repeater is Input one, check whether the physical channel is Line, Comm or Radio and calculate S2 by the physical channel number.

Example 1: event recived from repeater 3 channel 2, which is physical, Sentinel 1 radio 2-

61 + (1 * 2) = 63 -> 3F -> F

Example 2: event recived from repeater 1 channel 4, which is physical Sentinel 1 line 1 (or Comm 1) - 1 dec -> 1 hex -> 1
If the event is "internal" (failure/restore) - the decoder ID is taken from the configuration and physical channel number or default 1.

Idle frame - \50**\0D\0A

** - Decimal, 0-99, from the Decoder ID on General->Configuration See "Configuration" on page 13

FBI DESK

Frame Structure - ##AAAAEE\0D (Applicable to PAF/NPAF/EPAF/SIA/4x2)

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

E = 2 digit event

Frame Structure - \0A## AAAA 18 QEEE PP \43ZZZ \0D (Applicable to CID/PID)

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

18 - permanent.

Q= Event type:

E - Alarm/Disarming

R - Reset/Arming

P - Previous event

U - Unknown event

E = 3 digit event

P= 2 digit Partition, decimal

\43 = 'C'

Z= 3 digit Zone/User, decimal

FBI External

Frame Structure - ##AAAAEE\0D (Applicable to 4x2)

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account decimal

E = 2 digit event

Frame Structure - \0A## AAAA 18 QEEE PP ZZZ \0D (Applicable to CID/PID)

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

18 - permanent

Q= Event type:

E - Alarm/Disarming

R - Reset/Arming

P - Previous event

U - Unknown event

E = 3 digit event

P= 2 digit Partition, decimal

Z= 3 digit Zone/User, decimal

Frame Structure - ##AAAAEEZZZ\0D (Applicable to SIA)

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

E = 3 digit event

Frame Structure - ##AAAA[S]EEK\0D (Applicable to PAF/NPAF/EPAF)

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

S = Multiple Conditions:

1 = PAF

2 = NPAF

3 = EPAF
 E = 2 digit event
 K = Multiple Conditions:
 0 = SIREN OFF KEY OFF
 1 = SIREN OFF KEY ON
 2 = SIREN ON KEY OFF
 3 = SIREN ON KEY ON

SURGARD

Frame Structure - 10## AAAA EE\14 (Applicable to PAF/NPAF/EPAF*/4x2)

10 - 4x2 permanent

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

E = 2 digit event

* The protocol cannot distinguish between PAF/NPAF/EPAF and 4x2 when the input is External. When it is Output it will use 4x2 by default. If needed use SURGARD External.

Frame Structure - 50## 18AAAAQEEE ZZZ\14 (Applicable to CID/PID)

50 - CID permanent

- Incoming Sentinel/Communication/Repeater channel number

18 - Permanent.

A = 4 digit account decimal

Q= Event type:

E - Alarm/Disarming

R - Reset/Arming

P - Previous event

U - Unknown event

E = 3 digit event

Z= 3 digit Zone/User, decimal

Frame Structure - 30## AAAAEE ZZZ\14 (Applicable to SIA)

30 - SIA permanent

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

E = 2 digit event

Z= 3 digit Zone/User, decimal

SURGARD PAF=>HEX

Frame Structure - 10## AAAA EE\14 (Applicable to PAF/NPAF/EPAF*/4x2)

Frame Structure - 50## 18AAAAQEEE ZZZ\14 (Applicable to CID/PID)

Frame Structure - 30## AAAAEE ZZZ\14 (Applicable to SIA)

The structure is the same as the SURGARD, except PAF/NPAF/EPAF events, that are converted to Hexadecimal Digits. See "Events Conversion Table" on page 36.

* See SURGARD

SURGARD External

Frame Structure - 10## AAAA EE\14 (Applicable to 4x2)

10 - 4x2 permanent.

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

E = 2 digit event

Frame Structure - 50## 18AAAAQEEE ZZZ\14 (Applicable to CID/PID)

50 - CID permanent

- Incoming Sentinel/Communication/Repeater channel number

18 - Permanent

A = 4 digit account decimal

Q= Event type:

E - Alarm/Disarming

R - Reset/Arming

P - Previous event

U - Unknown event

E = 3 digit event

Z= 3 digit Zone/User, decimal

Frame Structure - 30## AAAAEE ZZZ\14 (Applicable to SIA)

30 - SIA permanent

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

E = 2 digit event

Z= 3 digit Zone/User, decimal

Frame Structure - 20## AAAA [S]EEK\14 (Applicable to PAF/NPAF/EPAF)

20 - PAF permanent

- Incoming Sentinel/Communication/Repeater channel number

A = 4 digit account, decimal

S = Multiple Conditions:

1 = PAF
 2 = NPAF
 3 = EPAF
 E = 2 digit event
 K = Multiple Conditions:
 0 = SIREN OFF KEY OFF
 1 = SIREN OFF KEY ON
 2 = SIREN ON KEY OFF
 3 = SIREN ON KEY ON

DESK WINDOWS

Frame Structure - G[LOR1]31#0 AAAA-EE 00\0D\0A

G = Permanent
 [LOR1] = Line (and other) – 0, Radio – 1
 31 = Permanent
 # = Input Line number (1-9)**
 0 = Permanent
 A = 4 digit account, decimal
 E = 2 digit event (converted to Hexa*)
 00 = Permanent

* For the incoming formats PAF/NPAF/EPAF/CID/SIA/4x2, see "Events Conversion Table" on page 36.

** If the number is over 9, counting restarts from 1.

ANDROMEDA

Frame Structure - \0A[SSSSSSSSSSSSSSSSSSSS]AAAAAAEE_____CC\0D (Applicable to 4x2)

[SSSSSSSSSSSSSSSSSSSS]*
 A = 6 digit account decimal
 E = 2 digit event
 CC = CRC

Frame Structure - \0A[SSSSSSSSSSSSSSSSSSSS]AAAAAAEEK_____CC\0D (Applicable to NPAF/EPAF/PAF)

[SSSSSSSSSSSSSSSSSSSS]*
 A = 6 digit account, decimal
 E = 2 digit event
 K = Multiple Conditions:
 0 = SIREN OFF KEY OFF
 1 = SIREN OFF KEY ON
 2 = SIREN ON KEY OFF
 3 = SIREN ON KEY ON
 CC = CRC

Frame Structure - \0A[SSSSSSSSSSSSSSSSSSSS]AAAAAAEEZZZ_____CC\0D (Applicable to SIA)

[SSSSSSSSSSSSSSSSSSSS]*
 A = 6 digit account decimal
 E = 2 digit event
 Z = 3 digit Zone/User, decimal
 CC = CRC

Frame Structure - \0A[SSSSSSSSSSSSSSSSSSSS]AAAAAATEEPPZZZCC\0D (Applicable to CID)

[SSSSSSSSSSSSSSSSSSSS]*
 A = 6 digit account, decimal
 E = 3 digit event
 CC = CRC

*[SSSSSSSSSSSSSSSSSSSS] stands for [CNPXXXXXXXXXXXXXXXXXX]

C = Input Channel Multiple options:

Radio = 1
 Phone = 2
 Network = 3
 GPRS = 4
 Repeater = 5
 Comm. = 9
 Other: TBD

N = Channel number (1...F, 0) **

P = Input protocol multiple conditions:

PAF=1
 NPAF=2
 4x2=3
 CID=4
 ELL=5
 KP=6
 DESK=7
 SIA=8

EPAF=9
 PID=A
 Other: TBD
 X = Channel extension
 Radio: FFVTTTTT
 F -Frame Number
 V -Volume
 T -The format in PIMA's panels
 Phone: Caller ID 16 Digits (if programmed)
 Other: TBD

** Numbers start from 1 to F in Hexadecimal, 0 = the 16th number. If count restarts, it restarts from 0.

ELL

Frame Structure - AAAA--E [L*R]HH:MM -01\0D
 A = 4 digit account decimal
 E = 1 digit event*
 [L*R] = Line (or other) - '*' , Radio - `` (space)
 HH:MM - The current time, hour and minute
 -01 = Permanent

* For the incoming formats PAF/NPAF/EPAF/CID/PID/SIA/4x2, see "Events Conversion Table" on page 36.

ELL JRCN

Frame Structure - 1011 AAAA EEEEE\0D
 1011 = Permanent.
 A = 4 digit account decimal
 E = 5 digit event*

* For the incoming formats PAF/NPAF/EPAF/CID/PID/SIA/4x2, see "Events Conversion Table" on page 36.

STANDALONE (applied to SAR Only)

Frame Structure -\0AAAAA EE\0D
 A = 4 digit account, decimal. Note that it is \0A & AAAA and not 5 digit account number
 E = 2 digit event*

* Hexadecimal, 4x2 only

COMPUCHER

Frame Structure - \0A[SSSSSSSSSSSSSSSSSSSS]AAAAAAEE_____CC\0D (Applicable to 4x2)
 [SSSSSSSSSSSSSSSSSSSS]*
 A = 6 digit account, decimal
 E = 2 digit event
 CC = CRC

Frame Structure - \0A[SSSSSSSSSSSSSSSSSSSS]AAAAAAEEK_____CC\0D (Applicable to N/EPAF/PAF)
 [SSSSSSSSSSSSSSSSSSSS]*
 A = 6 digit account, decimal
 E = 2 digit event
 K = Multiple Conditions:
 0 = SIREN OFF KEY OFF
 1 = SIREN OFF KEY ON
 2 = SIREN ON KEY OFF
 3 = SIREN ON KEY ON
 CC = CRC

Frame Structure - \0A[SSSSSSSSSSSSSSSSSSSS]AAAAAAEEZZZ_____CC\0D (Applicable to SIA)
 [SSSSSSSSSSSSSSSSSSSS]*
 A = 6 digit account, decimal
 E = 2 digit event
 Z= 3 digit Zone/User, decimal
 CC = CRC

Frame Structure - \0A[SSSSSSSSSSSSSSSSSSSS]AAAAAATEEPPZZZCC\0D (Applicable to CID)
 [SSSSSSSSSSSSSSSSSSSS]*
 A = 6 digit account, decimal
 E = 3 digit event
 CC = CRC

* [SSSSSSSSSSSSSSSSSSSS] stands for [CNPXXXXXXXXXXXXXXXXXX]

C = Input channel, multiple options:

Radio = 1
 Phone\Comm**= 2
 Other: TBD

N = Chanel number (1...F, 0) ***

P = Input protocol, multiple conditions:

PAF= 1
 NPAF= 2
 4x2 = 3

CID= 4
 ELL= 5
 KP= 6
 DESK= 7
 SIA= 8
 EPAF= 9
 PID= A
 Other: TBD
 X = Chanel extension:
 Phone: Caller ID 16 Digits (if programmed)
 Other: TBD

** If the channel is Comm (C=2), N=0.

If the channel is Repeater (C=1), N=8+Repeater Number

*** Numbers are from 1 to F in Hexadecimal, 0 = the 16th number. If counting restarts, it will start from 0.

ADEMCO 685

Frame Structure - \0A*# AAAA EE\0D (Applicable to PAF/NPAF/EPAF*/SIA/4x2)

* => Decoder ID, right digit only

If 69 is entered => 9 (default = 0)

=> Channel #, right digit only

If Sentinel 3 line 4 => 12 => 2 (default = 0)

Internal line # = 1

For each incoming format PAF/NPAF/EPAF/CID/PID/SIA/4x2 see Format Events & Converting Appendix.

Frame Structure - \0A*# AAAA 18 QEEE PP [S]ZZZ \0D (Applicable to CID/PID)

* => Decoder ID right digit only

If entered 69 => 9 (default = 0)

=> Channel # right digit only

If Sentinel 3 line 4 => 12 => 2 (default = 0)

Internal line # = 1

A = 4 digit account decimal

18 - permanent.

Q= Event type:

E - Alarm/Disarming

R - Reset/Arming

P - Previous event

U- Unknown event

E = 3 digit event

P= 2 digit Partition (decimal)

[S] = Ademco 685 Special:

U - User Event

C - Contact Event

Z= 3 digit Zone\User (decimal)

APPENDIX E EVENTS CONVERSION TABLE

This appendix lists build-in formats and their events conversion to specific RS-232 structures.

If converting is irrelevant or not indicated, the "Code" column is the default.

PAF

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELLRCN
Alarm zone 9	AA	08	130	1	9	4	A 9
Alarm zone 10	AB	09	130	1	10	4	A 10
Alarm zone 11	AC	0A	130	1	11	4	A 11
Alarm zone 12	AD	0B	130	1	12	4	A 12
Alarm zone 13	AE	0C	130	1	13	4	A 13
Alarm zone 14	AF	0D	130	1	14	4	A 14
Alarm zone 15	AG	0E	130	1	15	4	A 15
Alarm zone 16	AH	0F	130	1	16	4	A 16
Alarm zone 1	AI	00	130	1	1	B	A 1
Alarm zone 2	AJ	01	130	1	2	4	A 2
Alarm zone 3	AK	02	130	1	3	9	A 3
Alarm zone 4	AL	03	130	1	4	9	A 4
Alarm zone 5	AM	04	130	1	5	E	A 5
Alarm zone 6	AN	05	130	1	6	6	A 6
Alarm zone 7	AO	06	130	1	7	5	A 7
Alarm zone 8	AP	07	130	1	8	4	A 8
Alarm zone 1	JO	00	130	1	1	B	A 1
Alarm zone 2	JP	01	130	1	2	4	A 2
Alarm zone 3	JQ	02	130	1	3	9	A 3
Alarm zone 4	JR	03	130	1	4	9	A 4
Alarm zone 5	JS	04	130	1	5	E	A 5
Alarm zone 6	JT	05	130	1	6	6	A 6

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELLRCN
Alarm zone 7	JU	06	130	1	7	5	A 7
Alarm zone 8	JV	07	130	1	8	4	A 8
Alarm zone 9	JW	08	130	1	9	4	A 9
Alarm zone 10	JX	09	130	1	10	4	A 10
Alarm zone 11	JY	0A	130	1	11	4	A 11
Alarm zone 12	JZ	0B	130	1	12	4	A 12
Alarm zone 13	KA	0C	130	1	13	4	A 13
Alarm zone 14	KB	0D	130	1	14	4	A 14
Alarm zone 15	KC	0E	130	1	15	4	A 15
Alarm zone 16	KD	0F	130	1	16	4	A 16
Alarm zone 17	KE	10	130	1	17	4	A 16
Alarm zone 18	KF	11	130	1	18	5	A 16
Alarm zone 19	KG	12	130	1	19	4	A 16
Alarm zone 20	KH	13	130	1	20	4	A 16
Alarm zone 21	KI	14	130	1	21	C	A 16
Alarm zone 22	KJ	15	130	1	22	0	A 16
Alarm zone 23	KK	16	130	1	23	F	A 16
Alarm zone 24	KL	17	130	1	24	F	A 16
Alarm zone 25	KM	18	130	1	25	F	A 16
Alarm zone 26	KN	19	130	1	26	0	A 16
Alarm zone 27	KO	1A	130	1	27	0	A 16
Alarm zone 28	KP	1B	130	1	28	0	A 16
Alarm zone 29	KQ	1C	130	1	29	0	A 16
Alarm zone 30	KR	1D	130	1	30	0	A 16
Alarm zone 31	KS	1E	130	1	31	0	A 16
Alarm zone 32	KT	1F	130	1	32	0	A 16
Alarm zone 33	KU	20	130	1	33	C	A 16
Alarm zone 34	KV	20	130	1	34	C	A 16
Alarm zone 35	KW	20	130	1	35	D	A 16
Alarm zone 36	KX	20	130	1	36	4	A 16
Alarm zone 37	KY	20	130	1	37	4	A 16
Alarm zone 38	KZ	20	130	1	38	7	A 16
Alarm zone 39	LA	20	130	1	39	7	A 16
Alarm zone 40	LB	20	130	1	40	7	A 16
Alarm zone 41	LC	20	130	1	41	7	A 16
Alarm zone 42	LD	20	130	1	42	7	A 16
Alarm zone 43	LE	20	130	1	43	B	A 16
Alarm zone 44	LF	20	130	1	44	F	A 16
Alarm zone 45	LG	20	130	1	45	A	A 16
Alarm zone 46	LH	20	130	1	46	8	A 16
Alarm zone 47	LI	20	130	1	47	4	A 16
Alarm zone 48	LJ	20	130	1	48	0	A 16
Alarm zone 49	LK	20	130	1	49	0	A 16
Alarm zone 50	LL	20	130	1	50	0	A 16
Alarm zone 51	LM	20	130	1	51	0	A 16
Alarm zone 52	LN	20	130	1	52	0	A 16
Alarm zone 53	LO	20	130	1	53	0	A 16
Alarm zone 54	LP	20	130	1	54	0	A 16
Alarm zone 55	LQ	20	130	1	55	4	A 16
Alarm zone 56	LR	20	130	1	56	4	A 16
Alarm zone 57	LS	20	130	1	57	4	A 16
Alarm zone 58	LT	20	130	1	58	4	A 16
Alarm zone 59	LU	20	130	1	59	4	A 16
Alarm zone 60	LV	20	130	1	60	0	A 16
Alarm zone 61	LW	20	130	1	61	0	A 16
Alarm zone 62	LX	20	130	1	62	0	A 16
Alarm zone 63	LY	20	130	1	63	0	A 16
Alarm zone 64	LZ	20	130	1	64	0	A 16
Alarm zone 65	MA	20	130	1	65	0	A 16
Alarm zone 66	MB	20	130	1	66	0	A 16
Alarm zone 67	MC	20	130	1	67	0	A 16
Alarm zone 68	MD	20	130	1	68	0	A 16
Alarm zone 69	ME	20	130	1	69	0	A 16
Alarm zone 70	MF	20	130	1	70	0	A 16
Alarm zone 71	MG	20	130	1	71	0	A 16
Alarm zone 72	MH	20	130	1	72	0	A 16
Alarm zone 73	MI	20	130	1	73	0	A 16
Alarm zone 74	MJ	20	130	1	74	0	A 16
Alarm zone 75	MK	20	130	1	75	0	A 16
Alarm zone 76	ML	20	130	1	76	0	A 16
Alarm zone 77	MM	20	130	1	77	0	A 16
Alarm zone 78	MN	20	130	1	78	0	A 16
Alarm zone 79	MO	20	130	1	79	0	A 16
Alarm zone 80	MP	20	130	1	80	0	A 16

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELLRCN
Alarm zone 81	MQ	20	130	1	81	0	A 16
Alarm zone 82	MR	20	130	1	82	0	A 16
Alarm zone 83	MS	20	130	1	83	0	A 16
Alarm zone 84	MT	20	130	1	84	0	A 16
Alarm zone 85	MU	20	130	1	85	0	A 16
Alarm zone 86	MV	20	130	1	86	0	A 16
Alarm zone 87	MW	20	130	1	87	0	A 16
Alarm zone 88	MX	20	130	1	88	0	A 16
Alarm zone 89	MY	20	130	1	89	0	A 16
Alarm zone 90	MZ	20	130	1	90	0	A 16
Alarm zone 91	NA	20	130	1	91	0	A 16
Alarm zone 92	NB	20	130	1	92	0	A 16
Alarm zone 93	NC	20	130	1	93	0	A 16
Alarm zone 94	ND	20	130	1	94	0	A 16
Alarm zone 95	NE	20	130	1	95	0	A 16
Alarm zone 96	NF	20	130	1	96	0	A 16
Arming User 13	NG	91	401	3	13	A	C
Arming User 14	NH	92	401	3	14	A	C
Arming User 15	NI	93	401	3	15	A	C
Arming User 16	NJ	93	401	3	16	A	C
Arming User 17	NK	93	401	3	17	A	C
Arming User 18	NL	93	401	3	18	A	C
Arming User 19	NM	93	401	3	19	A	C
Arming User 20	NN	93	401	3	20	A	C
Arming User 21	NO	93	401	3	21	A	C
Arming User 22	NP	93	401	3	22	A	C
Arming User 23	NQ	93	401	3	23	A	C
Arming User 24	NR	93	401	3	24	A	C
Arming User 25	NS	93	401	3	25	A	C
Arming User 26	NT	93	401	3	26	A	C
Arming User 27	NU	93	401	3	27	A	C
Arming User 28	NV	93	401	3	28	A	C
Disarming User 13	NW	BB	401	1	13	8	O
Disarming User 14	NX	BC	401	1	14	8	O
Disarming User 15	NY	BD	401	1	15	8	O
Disarming User 16	NZ	BD	401	1	16	8	O
Disarming User 17	OA	BD	401	1	17	8	O
Disarming User 18	OB	BD	401	1	18	8	O
Disarming User 19	OC	BD	401	1	19	8	O
Disarming User 20	OD	BD	401	1	20	8	O
Disarming User 21	OE	BD	401	1	21	8	O
Disarming User 22	OF	BD	401	1	22	8	O
Disarming User 23	OG	BD	401	1	23	8	O
Disarming User 24	OH	BD	401	1	24	8	O
Disarming User 25	OI	BD	401	1	25	8	O
Disarming User 26	OJ	BD	401	1	26	8	O
Disarming User 27	OK	BD	401	1	27	8	O
Disarming User 28	OL	BD	401	1	28	8	O
Home User 13	OM	A6	401	3	13	A	C
Home User 14	ON	A7	401	3	14	A	C
Home User 15	OO	A8	401	3	15	A	C
Home User 16	OP	A8	401	3	16	A	C
Home User 17	OQ	A8	401	3	17	A	C
Home User 18	OR	A8	401	3	18	A	C
Home User 19	OS	A8	401	3	19	A	C
Home User 20	OT	A8	401	3	20	A	C
Home User 21	OU	A8	401	3	21	A	C
Home User 22	OV	A8	401	3	22	A	C
Home User 23	OW	A8	401	3	23	A	C
Home User 24	OX	A8	401	3	24	A	C
Home User 25	OY	A8	401	3	25	A	C
Home User 26	OZ	A8	401	3	26	A	C
Home User 27	PA	A8	401	3	27	A	C
Home User 28	PB	A8	401	3	28	A	C
Arming Master	PC	84	400	3	0	A	C
Arming Short	PD	94	408	3	0	A	C
Arming Tempo	PE	95	400	3	0	A	C
Arming User 1	PG	85	401	3	1	A	C
Arming User 2	PH	86	401	3	2	A	C
Arming User 3	PI	87	401	3	3	A	C
Arming User 4	PJ	88	401	3	4	A	C
Arming User 5	PK	89	401	3	5	A	C
Arming User 6	PL	8A	401	3	6	A	C
Arming User 7	PM	8B	401	3	7	A	C

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELLRCN
Arming User 8	PN	8C	401	3	8	A	C
Arming User 9	PO	8D	401	3	9	A	C
Arming User 10	PP	8E	401	3	10	A	C
Arming User 11	PQ	8F	401	3	11	A	C
Arming User 12	PR	90	401	3	12	A	C
Disarming Master	PS	AE	400	1	0	8	O
Disarming Short	PT	BE	408	1	0	8	O
Disarming Tempo	PU	BF	400	1	0	8	O
Disarming Duress	PV	C2	400	1	0	8	O
Disarming User 1	PW	AF	401	1	1	8	O
Disarming User 2	PX	B0	401	1	2	8	O
Disarming User 3	PY	B1	401	1	3	8	O
Disarming User 4	PZ	B2	401	1	4	8	O
Disarming User 5	QA	B3	401	1	5	8	O
Disarming User 6	QB	B4	401	1	6	8	O
Disarming User 7	QC	B5	401	1	7	8	O
Disarming User 8	QD	B6	401	1	8	8	O
Disarming User 9	QE	B7	401	1	9	8	O
Disarming User 10	QF	B8	401	1	10	8	O
Disarming User 11	QG	B9	401	1	11	8	O
Disarming User 12	QH	BA	401	1	12	8	O
Home Master	QI	99	400	3	0	A	C
Home Short	QJ	A9	408	3	0	A	C
Home Tempo	QK	AA	400	3	0	A	C
QL	QL	FF	400	1	0	A	C
Home User 1	QM	9A	401	3	1	A	C
Home User 2	QN	9B	401	3	2	A	C
Home User 3	QO	9C	401	3	3	A	C
Home User 4	QP	9D	401	3	4	A	C
Home User 5	QQ	9E	401	3	5	A	C
Home User 6	QR	9F	401	3	6	A	C
Home User 7	QS	A0	401	3	7	A	C
Home User 8	QT	A1	401	3	8	A	C
Home User 9	QU	A2	401	3	9	A	C
Home User 10	QV	A3	401	3	10	A	C
Home User 11	QW	A4	401	3	11	A	C
Home User 12	QX	A5	401	3	12	A	C
Arming Auto	QY	EF	403	3	0	A	C
Disarming Auto	QZ	F0	403	1	0	A	C
Home Auto	RA	EF	403	3	0	A	C
Arming Switch	RB	97	409	3	0	A	C
Disarming Switch	RC	C1	409	1	0	A	C
System Inactivity	RD	DE	654	1	0	A	C
RE	RE	FF	616	1	0	A	C
Alarm Reset	RG	C4	130	3	0	z	X 25
System Tamper	RI	C5	137	1	0	z	A 12
Tamper Restore	RJ	C6	137	3	0	z	X 25
AC Failure	RK	C7	301	1	0	z	T 10
AC Restore	RL	C8	301	3	0	z	X 25
Low Battery	RM	C9	302	1	0	z	X 25
Battery Restore	RN	CA	302	3	0	z	R 4
Phone Line Failure	RO	CB	351	1	0	z	X 25
Phone Line Restore	RP	CC	351	3	0	z	C
Detectors Power Failure	RQ	CD	312	1	0	z	R 1
Detectors Power Restore	RR	CE	312	3	0	z	R 9
Siren 1 Failure	RS	CF	321	1	0	z	C E
Siren 1 Restore	RT	D0	321	3	0	z	C E
Siren 2 Failure	RU	D1	322	1	0	z	T 0
Siren 2 Restore	RV	D2	322	3	0	z	R 0
Detectors Line cut	RW	F9	380	1	0	z	T 9
Detectors Line Short	RX	FA	380	1	0	z	R 9
Detectors Line Restore	RY	FB	380	3	0	z	T B
Low Voltage	RZ	D4	308	1	0	z	R B
Low Voltage Restore	SA	FD	308	3	0	z	S B
Parameters Error	SB	FC	304	1	0	z	S B
Communication Failure	SC	D5	350	1	0	z	S B
SD	SD	FF	616	1	0	z	S B
Manual Test	SE	D9	601	1	0	z	S B
Auto Test	SF	DA	602	1	0	z	S B
Remote Test	SG	DB	601	1	0	z	X 25
GSM Problem	SH	DC	351	1	0	z	T 9
Wireless Unit Problem	SI	E0	143	1	0	z	S B
Pre-Alarm	SJ	DD	138	1	0	z	S B
Bypass Zone	SK	83	570	1	0	z	S B

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELLIRCN
False Code	SL	D8	421	1	0	z	A 102
Hold-Up	SM	E3	121	1	0	z	T B
Panic	SN	E4	120	1	0	z	T 9
Fire	SO	E5	110	1	0	z	T B
Temperature	SP	E6	159	1	0	z	S B
Humidity	SQ	E7	150	1	0	z	S B
SR	SR	EB	616	1	0	z	S B
Upload/Download	SS	E9	412	1	0	z	S B
ST	ST	EA	616	1	0	z	C E
Shock Detector	SU	E8	376	1	0	z	X 25
General Alarm	SV	EC	140	1	0	z	X 25
Reset	SW	ED	140	3	0	z	X 25
Test	SX	EE	600	1	0	z	A 100
Arming	SY	EF	400	3	0	z	D
Disarming	SZ	FO	400	1	0	z	A 102
Zone Fault(AntiMask)	TA	F1	616	1	0	z	X 25
Medical Alarm	TB	EC	616	1	0	z	X 25
Silent Panic	TC	E4	616	1	0	z	X 25
Special Fire	TD	E5	616	1	0	z	X 25
TE	TE	FF	616	1	0	z	X 25
TF	TF	FF	616	1	0	z	X 25
TG	TG	FF	616	1	0	z	X 25
TH	TH	FF	616	1	0	z	X 25
TI	TI	FF	616	1	0	z	X 25
TJ	TJ	FF	616	1	0	z	X 25
TK	TK	FF	616	1	0	z	X 25
TL	TL	FF	616	1	0	z	X 25
TM	TM	FF	616	1	0	z	X 25
Repeater Failure	TN	F3	616	1	0	z	X 25
TO	TO	FF	616	1	0	z	X 25
Tamper 2 Alarm	TP	C5	137	1	0	z	X 25
Tamper 2 Restore	TQ	C6	137	3	0	z	X 25
Listen In To Follow	TR	FF	606	1	0	z	X 25

*1 = E, 3 = R (CID depend of rs232 protocol)

NPAF/EPAF

NPAF & EPAF events are the same, until the event "Listen-In To Follow" (Code TR)

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELL IRCN
Alarm Zone 1	AA	00	130	1	1	B	A 1
Alarm Zone 2	AB	01	130	1	2	A	A 2
Alarm Zone 3	AC	02	130	1	3	9	A 3
Alarm Zone 4	AD	03	130	1	4	9	A 4
Alarm Zone 5	AE	04	130	1	5	E	A 5
Alarm Zone 6	AF	05	130	1	6	6	A 6
Alarm Zone 7	AG	06	130	1	7	5	A 7
Alarm Zone 8	AH	07	130	1	8	4	A 8
Alarm Zone 9	AI	08	130	1	9	4	A 9
Alarm Zone 10	AJ	09	130	1	10	4	A 10
Alarm Zone 11	AK	0A	130	1	11	4	A 11
Alarm Zone 12	AL	0B	130	1	12	4	A 12
Alarm Zone 13	AM	0C	130	1	13	4	A 13
Alarm Zone 14	AN	0D	130	1	14	4	A 14
Alarm Zone 15	AO	0E	130	1	15	4	A 15
Alarm Zone 16	AP	0F	130	1	16	4	A 16
Alarm Zone 17	AQ	10	130	1	17	4	A 16
Alarm Zone 18	AR	11	130	1	18	5	A 16
Alarm Zone 19	AS	12	130	1	19	4	A 16
Alarm Zone 20	AT	13	130	1	20	4	A 16
Alarm Zone 21	AU	14	130	1	21	C	A 16
Alarm Zone 22	AV	15	130	1	22	0	A 16
Alarm Zone 23	AW	16	130	1	23	F	A 16
Alarm Zone 24	AX	17	130	1	24	F	A 16
Alarm Zone 25	AY	18	130	1	25	F	A 16
Alarm Zone 26	AZ	19	130	1	26	0	A 16
Alarm Zone 27	BA	1A	130	1	27	0	A 16
Alarm Zone 28	BB	1B	130	1	28	0	A 16
Alarm Zone 29	BC	1C	130	1	29	0	A 16
Alarm Zone 30	BD	1D	130	1	30	0	A 16
Alarm Zone 31	BE	1E	130	1	31	0	A 16
Alarm Zone 32	BF	1F	130	1	32	0	A 16
Alarm Zone 33	BG	20	130	1	33	C	A 16
Alarm Zone 34	BH	20	130	1	34	C	A 16
Alarm Zone 35	BI	20	130	1	35	D	A 16
Alarm Zone 36	BJ	20	130	1	36	4	A 16
Alarm Zone 37	BK	20	130	1	37	4	A 16
Alarm Zone 38	BL	20	130	1	38	7	A 16
Alarm Zone 39	BM	20	130	1	39	7	A 16

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELL IRCN
Alarm Zone 40	BN	20	130	1	40	7	A 16
Alarm Zone 41	BO	20	130	1	41	7	A 16
Alarm Zone 42	BP	20	130	1	42	7	A 16
Alarm Zone 43	BQ	20	130	1	43	B	A 16
Alarm Zone 44	BR	20	130	1	44	F	A 16
Alarm Zone 45	BS	20	130	1	45	A	A 16
Alarm Zone 46	BT	20	130	1	46	8	A 16
Alarm Zone 47	BU	20	130	1	47	4	A 16
Alarm Zone 48	BV	20	130	1	48	0	A 16
Alarm Zone 49	BW	20	130	1	49	0	A 16
Alarm Zone 50	BX	20	130	1	50	0	A 16
Alarm Zone 51	BY	20	130	1	51	0	A 16
Alarm Zone 52	BZ	20	130	1	52	0	A 16
Alarm Zone 53	CA	20	130	1	53	0	A 16
Alarm Zone 54	CB	20	130	1	54	0	A 16
Alarm Zone 55	CC	20	130	1	55	4	A 16
Alarm Zone 56	CD	20	130	1	56	4	A 16
Alarm Zone 57	CE	20	130	1	57	4	A 16
Alarm Zone 58	CF	20	130	1	58	4	A 16
Alarm Zone 59	CG	20	130	1	59	4	A 16
Alarm Zone 60	CH	20	130	1	60	0	A 16
Alarm Zone 61	CI	20	130	1	61	0	A 16
Alarm Zone 62	CJ	20	130	1	62	0	A 16
Alarm Zone 63	CK	20	130	1	63	0	A 16
Alarm Zone 64	CL	20	130	1	64	0	A 16
Alarm Zone 65	CM	20	130	1	65	0	A 16
Alarm Zone 66	CN	20	130	1	66	0	A 16
Alarm Zone 67	CO	20	130	1	67	0	A 16
Alarm Zone 68	CP	20	130	1	68	0	A 16
Alarm Zone 69	CQ	20	130	1	69	0	A 16
Alarm Zone 70	CR	20	130	1	70	0	A 16
Alarm Zone 71	CS	20	130	1	71	0	A 16
Alarm Zone 72	CT	20	130	1	72	0	A 16
Alarm Zone 73	CU	20	130	1	73	0	A 16
Alarm Zone 74	CV	20	130	1	74	0	A 16
Alarm Zone 75	CW	20	130	1	75	0	A 16
Alarm Zone 76	CX	20	130	1	76	0	A 16
Alarm Zone 77	CY	20	130	1	77	0	A 16
Alarm Zone 78	CZ	20	130	1	78	0	A 16
Alarm Zone 79	DA	20	130	1	79	0	A 16
Alarm Zone 80	DB	20	130	1	80	0	A 16
Alarm Zone 81	DC	20	130	1	81	0	A 16
Alarm Zone 82	DD	20	130	1	82	0	A 16
Alarm Zone 83	DE	20	130	1	83	0	A 16
Alarm Zone 84	DF	20	130	1	84	0	A 16
Alarm Zone 85	DG	20	130	1	85	0	A 16
Alarm Zone 86	DH	20	130	1	86	0	A 16
Alarm Zone 87	DI	20	130	1	87	0	A 16
Alarm Zone 88	DJ	20	130	1	88	0	A 16
Alarm Zone 89	DK	20	130	1	89	0	A 16
Alarm Zone 90	DL	20	130	1	90	0	A 16
Alarm Zone 91	DM	20	130	1	91	0	A 16
Alarm Zone 92	DN	20	130	1	92	0	A 16
Alarm Zone 93	DO	20	130	1	93	0	A 16
Alarm Zone 94	DP	20	130	1	94	0	A 16
Alarm Zone 95	DQ	20	130	1	95	0	A 16
Alarm Zone 96	DR	20	130	1	96	0	A 16
Zone Reset 1	DS	21	130	3	1	B	R 1
Zone Reset 2	DT	22	130	3	2	4	R 2
Zone Reset 3	DU	23	130	3	3	9	R 3
Zone Reset 4	DV	24	130	3	4	9	R 4
Zone Reset 5	DW	25	130	3	5	E	R 5
Zone Reset 6	DX	26	130	3	6	6	R 6
Zone Reset 7	DY	27	130	3	7	5	R 7
Zone Reset 8	DZ	28	130	3	8	4	R 8
Zone Reset 9	EA	29	130	3	9	4	R 9
Zone Reset 10	EB	2A	130	3	10	4	R 10
Zone Reset 11	EC	2B	130	3	11	4	R 11
Zone Reset 12	ED	2C	130	3	12	4	R 12
Zone Reset 13	EE	2D	130	3	13	4	R 13
Zone Reset 14	EF	2E	130	3	14	4	R 14
Zone Reset 15	EG	2F	130	3	15	4	R 15
Zone Reset 16	EH	30	130	3	16	4	R 16
Zone Reset 17	EI	31	130	3	17	4	R 16
Zone Reset 18	EJ	32	130	3	18	5	R 16
Zone Reset 19	EK	33	130	3	19	4	R 16
Zone Reset 20	EL	34	130	3	20	4	R 16
Zone Reset 21	EM	35	130	3	21	C	R 16
Zone Reset 22	EN	36	130	3	22	0	R 16
Zone Reset 23	EO	37	130	3	23	F	R 16
Zone Reset 24	EP	38	130	3	24	F	R 16
Zone Reset 25	EQ	39	130	3	25	F	R 16
Zone Reset 26	ER	3A	130	3	26	0	R 16
Zone Reset 27	ES	3B	130	3	27	0	R 16
Zone Reset 28	ET	3C	130	3	28	0	R 16
Zone Reset 29	EU	3D	130	3	29	0	R 16

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELL IRCN
Zone Reset 30	EV	3E	130	3	30	0	R 16
Zone Reset 31	EW	3F	130	3	31	0	R 16
Zone Reset 32	EX	40	130	3	32	0	R 16
Zone Reset 33	EY	41	130	3	33	C	R 16
Zone Reset 34	EZ	41	130	3	34	C	R 16
Zone Reset 35	FA	41	130	3	35	D	R 16
Zone Reset 36	FB	41	130	3	36	4	R 16
Zone Reset 37	FC	41	130	3	37	4	R 16
Zone Reset 38	FD	41	130	3	38	7	R 16
Zone Reset 39	FE	41	130	3	39	7	R 16
Zone Reset 40	FF	41	130	3	40	7	R 16
Zone Reset 41	FG	41	130	3	41	7	R 16
Zone Reset 42	FH	41	130	3	42	7	R 16
Zone Reset 43	FI	41	130	3	43	B	R 16
Zone Reset 44	FJ	41	130	3	44	F	R 16
Zone Reset 45	FK	41	130	3	45	A	R 16
Zone Reset 46	FL	41	130	3	46	8	R 16
Zone Reset 47	FM	41	130	3	47	4	R 16
Zone Reset 48	FN	41	130	3	48	0	R 16
Zone Reset 49	FO	41	130	3	49	0	R 16
Zone Reset 50	FP	41	130	3	50	0	R 16
Zone Reset 51	FQ	41	130	3	51	0	R 16
Zone Reset 52	FR	41	130	3	52	0	R 16
Zone Reset 53	FS	41	130	3	53	0	R 16
Zone Reset 54	FT	41	130	3	54	0	R 16
Zone Reset 55	FU	41	130	3	55	4	R 16
Zone Reset 56	FV	41	130	3	56	4	R 16
Zone Reset 57	FW	41	130	3	57	4	R 16
Zone Reset 58	FX	41	130	3	58	4	R 16
Zone Reset 59	FY	41	130	3	59	4	R 16
Zone Reset 60	FZ	41	130	3	60	0	R 16
Zone Reset 61	GA	41	130	3	61	0	R 16
Zone Reset 62	GB	41	130	3	62	0	R 16
Zone Reset 63	GC	41	130	3	63	0	R 16
Zone Reset 64	GD	41	130	3	64	0	R 16
Zone Reset 65	GE	41	130	3	65	0	R 16
Zone Reset 66	GF	41	130	3	66	0	R 16
Zone Reset 67	GG	41	130	3	67	0	R 16
Zone Reset 68	GH	41	130	3	68	0	R 16
Zone Reset 69	GI	41	130	3	69	0	R 16
Zone Reset 70	GJ	41	130	3	70	0	R 16
Zone Reset 71	GK	41	130	3	71	0	R 16
Zone Reset 72	GL	41	130	3	72	0	R 16
Zone Reset 73	GM	41	130	3	73	0	R 16
Zone Reset 74	GN	41	130	3	74	0	R 16
Zone Reset 75	GO	41	130	3	75	0	R 16
Zone Reset 76	GP	41	130	3	76	0	R 16
Zone Reset 77	GQ	41	130	3	77	0	R 16
Zone Reset 78	GR	41	130	3	78	0	R 16
Zone Reset 79	GS	41	130	3	79	0	R 16
Zone Reset 80	GT	41	130	3	80	0	R 16
Zone Reset 81	GU	41	130	3	81	0	R 16
Zone Reset 82	GV	41	130	3	82	0	R 16
Zone Reset 83	GW	41	130	3	83	0	R 16
Zone Reset 84	GX	41	130	3	84	0	R 16
Zone Reset 85	GY	41	130	3	85	0	R 16
Zone Reset 86	GZ	41	130	3	86	0	R 16
Zone Reset 87	HA	41	130	3	87	0	R 16
Zone Reset 88	HB	41	130	3	88	0	R 16
Zone Reset 89	HC	41	130	3	89	0	R 16
Zone Reset 90	HD	41	130	3	90	0	R 16
Zone Reset 91	HE	41	130	3	91	0	R 16
Zone Reset 92	HF	41	130	3	92	0	R 16
Zone Reset 93	HG	41	130	3	93	0	R 16
Zone Reset 94	HH	41	130	3	94	0	R 16
Zone Reset 95	HI	41	130	3	95	0	R 16
Zone Reset 96	HJ	41	130	3	96	0	R 16
Zone Failure 1	HK	42	380	1	1	B	T 1
Zone Failure 2	HL	43	380	1	2	4	T 2
Zone Failure 3	HM	44	380	1	3	9	T 3
Zone Failure 4	HN	45	380	1	4	9	T 4
Zone Failure 5	HO	46	380	1	5	E	T 5
Zone Failure 6	HP	47	380	1	6	6	T 6
Zone Failure 7	HQ	48	380	1	7	5	T 7
Zone Failure 8	HR	49	380	1	8	4	T 8
Zone Failure 9	HS	4A	380	1	9	4	T 9
Zone Failure 10	HT	4B	380	1	10	4	T 10
Zone Failure 11	HU	4C	380	1	11	4	T 11
Zone Failure 12	HV	4D	380	1	12	4	T 12
Zone Failure 13	HW	4E	380	1	13	4	T 13
Zone Failure 14	HX	4F	380	1	14	4	T 14
Zone Failure 15	HY	50	380	1	15	4	T 15
Zone Failure 16	HZ	51	380	1	16	4	T 16
Zone Failure 17	IA	52	380	1	17	4	T 16
Zone Failure 18	IB	53	380	1	18	5	T 16
Zone Failure 19	IC	54	380	1	19	4	T 16

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELL IRCN
Zone Failure 20	ID	55	380	1	20	4	T 16
Zone Failure 21	IE	56	380	1	21	C	T 16
Zone Failure 22	IF	57	380	1	22	0	T 16
Zone Failure 23	IG	58	380	1	23	F	T 16
Zone Failure 24	IH	59	380	1	24	F	T 16
Zone Failure 25	II	5A	380	1	25	F	T 16
Zone Failure 26	IJ	5B	380	1	26	0	T 16
Zone Failure 27	IK	5C	380	1	27	0	T 16
Zone Failure 28	IL	5D	380	1	28	0	T 16
Zone Failure 29	IM	5E	380	1	29	0	T 16
Zone Failure 30	IN	5F	380	1	30	0	T 16
Zone Failure 31	IO	60	380	1	31	0	T 16
Zone Failure 32	IP	61	380	1	32	0	T 16
Zone Failure 33	IQ	62	380	1	33	C	T 16
Zone Failure 34	IR	62	380	1	34	C	T 16
Zone Failure 35	IS	62	380	1	35	D	T 16
Zone Failure 36	IT	62	380	1	36	4	T 16
Zone Failure 37	IU	62	380	1	37	4	T 16
Zone Failure 38	IV	62	380	1	38	7	T 16
Zone Failure 39	IW	62	380	1	39	7	T 16
Zone Failure 40	IX	62	380	1	40	7	T 16
Zone Failure 41	IY	62	380	1	41	7	T 16
Zone Failure 42	IZ	62	380	1	42	7	T 16
Zone Failure 43	JA	62	380	1	43	B	T 16
Zone Failure 44	JB	62	380	1	44	F	T 16
Zone Failure 45	JC	62	380	1	45	A	T 16
Zone Failure 46	JD	62	380	1	46	8	T 16
Zone Failure 47	JE	62	380	1	47	4	T 16
Zone Failure 48	JF	62	380	1	48	0	T 16
Zone Failure 49	JG	62	380	1	49	0	T 16
Zone Failure 50	JH	62	380	1	50	0	T 16
Zone Failure 51	JI	62	380	1	51	0	T 16
Zone Failure 52	JJ	62	380	1	52	0	T 16
Zone Failure 53	JK	62	380	1	53	0	T 16
Zone Failure 54	JL	62	380	1	54	0	T 16
Zone Failure 55	JM	62	380	1	55	4	T 16
Zone Failure 56	JN	62	380	1	56	4	T 16
Zone Failure 57	JO	62	380	1	57	4	T 16
Zone Failure 58	JP	62	380	1	58	4	T 16
Zone Failure 59	JQ	62	380	1	59	4	T 16
Zone Failure 60	JR	62	380	1	60	0	T 16
Zone Failure 61	JS	62	380	1	61	0	T 16
Zone Failure 62	JT	62	380	1	62	0	T 16
Zone Failure 63	JU	62	380	1	63	0	T 16
Zone Failure 64	JV	62	380	1	64	0	T 16
Zone Failure 65	JW	62	380	1	65	0	T 16
Zone Failure 66	JX	62	380	1	66	0	T 16
Zone Failure 67	JY	62	380	1	67	0	T 16
Zone Failure 68	JZ	62	380	1	68	0	T 16
Zone Failure 69	KA	62	380	1	69	0	T 16
Zone Failure 70	KB	62	380	1	70	0	T 16
Zone Failure 71	KC	62	380	1	71	0	T 16
Zone Failure 72	KD	62	380	1	72	0	T 16
Zone Failure 73	KE	62	380	1	73	0	T 16
Zone Failure 74	KF	62	380	1	74	0	T 16
Zone Failure 75	KG	62	380	1	75	0	T 16
Zone Failure 76	KH	62	380	1	76	0	T 16
Zone Failure 77	KI	62	380	1	77	0	T 16
Zone Failure 78	KJ	62	380	1	78	0	T 16
Zone Failure 79	KK	62	380	1	79	0	T 16
Zone Failure 80	KL	62	380	1	80	0	T 16
Zone Failure 81	KM	62	380	1	81	0	T 16
Zone Failure 82	KN	62	380	1	82	0	T 16
Zone Failure 83	KO	62	380	1	83	0	T 16
Zone Failure 84	KP	62	380	1	84	0	T 16
Zone Failure 85	KQ	62	380	1	85	0	T 16
Zone Failure 86	KR	62	380	1	86	0	T 16
Zone Failure 87	KS	62	380	1	87	0	T 16
Zone Failure 88	KT	62	380	1	88	0	T 16
Zone Failure 89	KU	62	380	1	89	0	T 16
Zone Failure 90	KV	62	380	1	90	0	T 16
Zone Failure 91	KW	62	380	1	91	0	T 16
Zone Failure 92	KX	62	380	1	92	0	T 16
Zone Failure 93	KY	62	380	1	93	0	T 16
Zone Failure 94	KZ	62	380	1	94	0	T 16
Zone Failure 95	LA	62	380	1	95	0	T 16
Zone Failure 96	LB	62	380	1	96	0	T 16
Zone Bypass 1	LC	63	570	1	1	B	X 25
Zone Bypass 2	LD	64	570	1	2	4	X 25
Zone Bypass 3	LE	65	570	1	3	9	X 25
Zone Bypass 4	LF	66	570	1	4	9	X 25
Zone Bypass 5	LG	67	570	1	5	E	X 25
Zone Bypass 6	LH	68	570	1	6	6	X 25
Zone Bypass 7	LI	69	570	1	7	5	X 25
Zone Bypass 8	LJ	6A	570	1	8	4	X 25
Zone Bypass 9	LK	6B	570	1	9	4	X 25

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELL IRCN
Zone Bypass 10	LL	6C	570	1	10	4	X 25
Zone Bypass 11	LM	6D	570	1	11	4	X 25
Zone Bypass 12	LN	6E	570	1	12	4	X 25
Zone Bypass 13	LO	6F	570	1	13	4	X 25
Zone Bypass 14	LP	70	570	1	14	4	X 25
Zone Bypass 15	LQ	71	570	1	15	4	X 25
Zone Bypass 16	LR	72	570	1	16	4	X 25
Zone Bypass 17	LS	73	570	1	17	4	X 25
Zone Bypass 18	LT	74	570	1	18	5	X 25
Zone Bypass 19	LU	75	570	1	19	4	X 25
Zone Bypass 20	LV	76	570	1	20	4	X 25
Zone Bypass 21	LW	77	570	1	21	C	X 25
Zone Bypass 22	LX	78	570	1	22	0	X 25
Zone Bypass 23	LY	79	570	1	23	F	X 25
Zone Bypass 24	LZ	7A	570	1	24	F	X 25
Zone Bypass 25	MA	7B	570	1	25	F	X 25
Zone Bypass 26	MB	7C	570	1	26	0	X 25
Zone Bypass 27	MC	7D	570	1	27	0	X 25
Zone Bypass 28	MD	7E	570	1	28	0	X 25
Zone Bypass 29	ME	7F	570	1	29	0	X 25
Zone Bypass 30	MF	80	570	1	30	0	X 25
Zone Bypass 31	MG	81	570	1	31	0	X 25
Zone Bypass 32	MH	82	570	1	32	0	X 25
Zone Bypass 33	MI	83	570	1	33	C	X 25
Zone Bypass 34	MJ	83	570	1	34	C	X 25
Zone Bypass 35	MK	83	570	1	35	D	X 25
Zone Bypass 36	ML	83	570	1	36	4	X 25
Zone Bypass 37	MM	83	570	1	37	4	X 25
Zone Bypass 38	MN	83	570	1	38	7	X 25
Zone Bypass 39	MO	83	570	1	39	7	X 25
Zone Bypass 40	MP	83	570	1	40	7	X 25
Zone Bypass 41	MQ	83	570	1	41	7	X 25
Zone Bypass 42	MR	83	570	1	42	7	X 25
Zone Bypass 43	MS	83	570	1	43	B	X 25
Zone Bypass 44	MT	83	570	1	44	F	X 25
Zone Bypass 45	MU	83	570	1	45	A	X 25
Zone Bypass 46	MV	83	570	1	46	8	X 25
Zone Bypass 47	MW	83	570	1	47	4	X 25
Zone Bypass 48	MX	83	570	1	48	0	X 25
Zone Bypass 49	MY	83	570	1	49	0	X 25
Zone Bypass 50	MZ	83	570	1	50	0	X 25
Zone Bypass 51	NA	83	570	1	51	0	X 25
Zone Bypass 52	NB	83	570	1	52	0	X 25
Zone Bypass 53	NC	83	570	1	53	0	X 25
Zone Bypass 54	ND	83	570	1	54	0	X 25
Zone Bypass 55	NE	83	570	1	55	4	X 25
Zone Bypass 56	NF	83	570	1	56	4	X 25
Zone Bypass 57	NG	83	570	1	57	4	X 25
Zone Bypass 58	NH	83	570	1	58	4	X 25
Zone Bypass 59	NI	83	570	1	59	4	X 25
Zone Bypass 60	NJ	83	570	1	60	0	X 25
Zone Bypass 61	NK	83	570	1	61	0	X 25
Zone Bypass 62	NL	83	570	1	62	0	X 25
Zone Bypass 63	NM	83	570	1	63	0	X 25
Zone Bypass 64	NN	83	570	1	64	0	X 25
Zone Bypass 65	NO	83	570	1	65	0	X 25
Zone Bypass 66	NP	83	570	1	66	0	X 25
Zone Bypass 67	NQ	83	570	1	67	0	X 25
Zone Bypass 68	NR	83	570	1	68	0	X 25
Zone Bypass 69	NS	83	570	1	69	0	X 25
Zone Bypass 70	NT	83	570	1	70	0	X 25
Zone Bypass 71	NU	83	570	1	71	0	X 25
Zone Bypass 72	NV	83	570	1	72	0	X 25
Zone Bypass 73	NW	83	570	1	73	0	X 25
Zone Bypass 74	NX	83	570	1	74	0	X 25
Zone Bypass 75	NY	83	570	1	75	0	X 25
Zone Bypass 76	NZ	83	570	1	76	0	X 25
Zone Bypass 77	OA	83	570	1	77	0	X 25
Zone Bypass 78	OB	83	570	1	78	0	X 25
Zone Bypass 79	OC	83	570	1	79	0	X 25
Zone Bypass 80	OD	83	570	1	80	0	X 25
Zone Bypass 81	OE	83	570	1	81	0	X 25
Zone Bypass 82	OF	83	570	1	82	0	X 25
Zone Bypass 83	OG	83	570	1	83	0	X 25
Zone Bypass 84	OH	83	570	1	84	0	X 25
Zone Bypass 85	OI	83	570	1	85	0	X 25
Zone Bypass 86	OJ	83	570	1	86	0	X 25
Zone Bypass 87	OK	83	570	1	87	0	X 25
Zone Bypass 88	OL	83	570	1	88	0	X 25
Zone Bypass 89	OM	83	570	1	89	0	X 25
Zone Bypass 90	ON	83	570	1	90	0	X 25
Zone Bypass 91	OO	83	570	1	91	0	X 25
Zone Bypass 92	OP	83	570	1	92	0	X 25
Zone Bypass 93	OQ	83	570	1	93	0	X 25
Zone Bypass 94	OR	83	570	1	94	0	X 25
Zone Bypass 95	OS	83	570	1	95	0	X 25

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELL IRCN
Zone Bypass 96	OT	83	570	1	96	0	X 25
Arming Master Code	OU	84	400	3	0	A	C
Arming User 1	OV	85	401	3	1	A	C
Arming User 2	OW	86	401	3	2	A	C
Arming User 3	OX	87	401	3	3	A	C
Arming User 4	OY	88	401	3	4	A	C
Arming User 5	OZ	89	401	3	5	A	C
Arming User 6	PA	8A	401	3	6	A	C
Arming User 7	PB	8B	401	3	7	A	C
Arming User 8	PC	8C	401	3	8	A	C
Arming User 9	PD	8D	401	3	9	A	C
Arming User 10	PE	8E	401	3	10	A	C
Arming User 11	PF	8F	401	3	11	A	C
Arming User 12	PG	90	401	3	12	A	C
Arming User 13	PH	91	401	3	13	A	C
Arming User 14	PI	92	401	3	14	A	C
Arming User 15	PJ	93	401	3	15	A	C
Arming User 16	PK	93	401	3	16	A	C
Arming User 17	PL	93	401	3	17	A	C
Arming User 18	PM	93	401	3	18	A	C
Arming User 19	PN	93	401	3	19	A	C
Arming User 20	PO	93	401	3	20	A	C
Arming Short Code	PP	94	408	3	0	A	X 25
Arming Temporary Code	PQ	95	400	3	0	A	X 25
Auto Arming	PR	EF	403	3	0	A	X 25
Key Switch Arming	PS	97	409	3	0	A	X 25
Home Master Code	PT	99	400	3	0	A	X 25
Home User 1	PU	9A	401	3	1	A	C
Home User 2	PV	9B	401	3	2	A	C
Home User 3	PW	9C	401	3	3	A	C
Home User 4	PX	9D	401	3	4	A	C
Home User 5	PY	9E	401	3	5	A	C
Home User 6	PZ	9F	401	3	6	A	C
Home User 7	QA	A0	401	3	7	A	C
Home User 8	QB	A1	401	3	8	A	C
Home User 9	QC	A2	401	3	9	A	C
Home User 10	QD	A3	401	3	10	A	C
Home User 11	QE	A4	401	3	11	A	C
Home User 12	QF	A5	401	3	12	A	C
Home User 13	QG	A6	401	3	13	A	C
Home User 14	QH	A7	401	3	14	A	C
Home User 15	QI	A8	401	3	15	A	C
Home User 16	QJ	A8	401	3	16	A	C
Home User 17	QK	A8	401	3	17	A	C
Home User 18	QL	A8	401	3	18	A	C
Home User 19	QM	A8	401	3	19	A	C
Home User 20	QN	A8	401	3	20	A	C
Home Short Code	QO	A9	408	3	0	A	X 25
Home Temporary Code	QP	AA	400	3	0	A	X 25
Auto Home	QQ	EF	403	3	0	A	X 25
Key Switch Home	QR	AC	409	3	0	A	X 25
Disarming Master Code	QS	AE	400	1	0	8	C
Disarming User 1	QT	AF	401	1	1	8	C
Disarming User 2	QU	B0	401	1	2	8	C
Disarming User 3	QV	B1	401	1	3	8	C
Disarming User 4	QW	B2	401	1	4	8	C
Disarming User 5	QX	B3	401	1	5	8	C
Disarming User 6	QY	B4	401	1	6	8	C
Disarming User 7	QZ	B5	401	1	7	8	C
Disarming User 8	RA	B6	401	1	8	8	C
Disarming User 9	RB	B7	401	1	9	8	C
Disarming User 10	RC	B8	401	1	10	8	C
Disarming User 11	RD	B9	401	1	11	8	C
Disarming User 12	RE	BA	401	1	12	8	C
Disarming User 13	RF	BB	401	1	13	8	C
Disarming User 14	RG	BC	401	1	14	8	C
Disarming User 15	RH	BD	401	1	15	8	C
Disarming User 16	RI	BD	401	1	16	8	C
Disarming User 17	RJ	BD	401	1	17	8	C
Disarming User 18	RK	BD	401	1	18	8	C
Disarming User 19	RL	BD	401	1	19	8	C
Disarming User 20	RM	BD	401	1	20	8	C
Disarming Tempo Code	RN	BF	400	1	0	8	X 25
Keyswitch Disarming	RO	C1	409	1	0	8	X 25
Disarming Hold-Up	RP	C2	400	1	0	8	X 25
Siren Reset	RQ	C3	130	3	0	z	R 1
System Start-Up	RR	C4	625	1	0	z	R 9
Tamper Open	RS	C5	137	1	0	z	C E
Tamper Close	RT	C6	137	3	0	z	C E
AC Fail	RU	C7	301	1	0	z	T 0
AC Restore	RV	C8	301	3	0	z	R 0
Low Battery	RW	C9	302	1	0	z	T 9
Battery Restore	RX	CA	302	3	0	z	R 9
Telephone Line Fail	RY	CB	351	1	0	z	T B
Telephone Line Restore	RZ	CC	351	3	0	z	R B
Detector Voltage Fail	SA	CD	312	1	0	z	S B

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELL IRCN
Detector Voltage Restore	SB	CE	312	3	0	z	S B
Siren 1 Fail	SC	CF	321	1	0	z	S B
Siren 1 Restore	SD	D0	321	3	0	z	S B
Siren 2 Fail	SE	D1	322	1	0	z	S B
Siren 2 Restore	SF	D2	322	3	0	z	S B
Phone Report Fail	SG	D3	350	1	0	z	X 25
Low Voltage Failure	SH	D4	308	1	0	z	T 9
Expansion Cards Fail	SI	D5	143	1	0	z	S B
Expansion Cards Restore	SJ	D6	143	3	0	z	S B
Keypad Panic	SK	D7	120	1	0	z	S B
False Code	SL	D8	461	1	0	z	A 102
Manual Test	SM	D9	601	1	0	z	T B
Auto Test	SN	DA	602	1	0	z	T 9
Triggered Test	SO	DB	601	1	0	z	T B
GSM Problem	SP	DC	351	1	0	z	S B
Pre-Alarm	SQ	DD	138	1	0	z	S B
System Inactivity	SR	DE	654	1	0	z	S B
Upload/Download	SS	DF	412	1	0	z	S B
Wireless Receiver Fail	ST	E0	143	1	0	z	C E
Wireless Receiver Tamper	SU	E1	341	1	0	z	X 25
Wireless Receiver Jamming	SV	E2	344	1	0	z	X 25
Hold-Up	SW	E3	121	1	0	z	X 25
Panic	SX	E4	120	1	0	z	A 100
Fire	SY	E5	110	1	0	z	D
Temperature	SZ	E6	159	1	0	z	A 102
TA	TA	E7	616	1	0	z	A 102
TB	TB	E8	616	1	0	z	C E
TC	TC	E9	616	1	0	z	C E
TD	TD	EA	616	1	0	z	C E
TE	TE	EB	616	1	0	z	C E
Alarm	TF	EC	140	1	0	z	C E
Reset	TG	ED	140	3	0	z	R 1
Test	TH	EE	600	1	0	z	R E
Arming	TI	EF	400	3	0	A	C
Disarming	TJ	FO	400	1	0	8	O
Zone Fail(Anti-Mask)	TK	F1	380	1	0	z	S B
Medical Alarm	TL	F2	616	1	0	z	X 25
Silent Panic	TM	F3	616	1	0	z	X 25
Repeater Failure	TN	F4	616	1	0	z	X 25
General Zone Bypass	TO	F5	616	1	0	z	X 25
Tamper 2 Alarm	TP	C5	137	1	0	z	X 25
Tamper 2 Restore	TQ	C6	137	3	0	z	X 25
Listen-In To Follow	TR	FF	606	1	0	z	X 25
TS	TS	FF	616	1	0	z	X 25
TT	TT	FF	616	1	0	z	X 25
TU	TU	FF	616	1	0	z	X 25
TV	TV	FF	616	1	0	z	X 25
TW	TW	FF	616	1	0	z	X 25
TX	TX	FF	616	1	0	z	X 25
TY	TY	FF	616	1	0	z	X 25
TZ	TZ	FF	616	1	0	z	X 25
Arming User 21	UA	93	401	3	21	A	C
Arming User 22	UB	93	401	3	22	A	C
Arming User 23	UC	93	401	3	23	A	C
Arming User 24	UD	93	401	3	24	A	C
Arming User 25	UE	93	401	3	25	A	C
Arming User 26	UF	93	401	3	26	A	C
Arming User 27	UG	93	401	3	27	A	C
Arming User 28	UH	93	401	3	28	A	C
Arming User 29	UI	93	401	3	29	A	C
Arming User 30	UJ	93	401	3	30	A	C
Arming User 31	UK	93	401	3	31	A	C
Arming User 32	UL	93	401	3	32	A	C
Arming User 33	UM	93	401	3	33	A	C
Arming User 34	UN	93	401	3	34	A	C
Arming User 35	UO	93	401	3	35	A	C
Arming User 36	UP	93	401	3	36	A	C
Arming User 37	UQ	93	401	3	37	A	C
Arming User 38	UR	93	401	3	38	A	C
Arming User 39	US	93	401	3	39	A	C
Arming User 40	UT	93	401	3	40	A	C
Arming User 41	UU	93	401	3	41	A	C
Arming User 42	UV	93	401	3	42	A	C
Arming User 43	UW	93	401	3	43	A	C
Arming User 44	UX	93	401	3	44	A	C
Arming User 45	UY	93	401	3	45	A	C
Arming User 46	UZ	93	401	3	46	A	C
Arming User 47	VA	93	401	3	47	A	C
Arming User 48	VB	93	401	3	48	A	C
Arming User 49	VC	93	401	3	49	A	C
Arming User 50	VD	93	401	3	50	A	C
Arming User 51	VE	93	401	3	51	A	C
Arming User 52	VF	93	401	3	52	A	C
Arming User 53	VG	93	401	3	53	A	C
Arming User 54	VH	93	401	3	54	A	C

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELL IRCN
Arming User 55	VI	93	401	3	55	A	C
Arming User 56	VJ	93	401	3	56	A	C
Arming User 57	VK	93	401	3	57	A	C
Arming User 58	VL	93	401	3	58	A	C
Arming User 59	VM	93	401	3	59	A	C
Arming User 60	VN	93	401	3	60	A	C
Arming User 61	VO	93	401	3	61	A	C
Arming User 62	VP	93	401	3	62	A	C
Arming User 63	VQ	93	401	3	63	A	C
Arming User 64	VR	93	401	3	64	A	C
Arming User 65	VS	93	401	3	65	A	C
Arming User 66	VT	93	401	3	66	A	C
Arming User 67	VU	93	401	3	67	A	C
Arming User 68	VV	93	401	3	68	A	C
Arming User 69	VW	93	401	3	69	A	C
Arming User 70	VX	93	401	3	70	A	C
Arming User 71	VY	93	401	3	71	A	C
Arming User 72	VZ	93	401	3	72	A	C
Arming User 73	WA	93	401	3	73	A	C
Arming User 74	WB	93	401	3	74	A	C
Arming User 75	WC	93	401	3	75	A	C
Arming User 76	WD	93	401	3	76	A	C
Arming User 77	WE	93	401	3	77	A	C
Arming User 78	WF	93	401	3	78	A	C
Arming User 79	WG	93	401	3	79	A	C
Arming User 80	WH	93	401	3	80	A	C
Arming User 81	WI	93	401	3	81	A	C
Arming User 82	WJ	93	401	3	82	A	C
Arming User 83	WK	93	401	3	83	A	C
Arming User 84	WL	93	401	3	84	A	C
Arming User 85	WM	93	401	3	85	A	C
Arming User 86	WN	93	401	3	86	A	C
Arming User 87	WO	93	401	3	87	A	C
Arming User 88	WP	93	401	3	88	A	C
Arming User 89	WQ	93	401	3	89	A	C
Arming User 90	WR	93	401	3	90	A	C
Arming User 91	WS	93	401	3	91	A	C
Arming User 92	WT	93	401	3	92	A	C
Arming User 93	WU	93	401	3	93	A	C
Arming User 94	WV	93	401	3	94	A	C
Arming User 95	WW	93	401	3	95	A	C
Arming User 96	WX	93	401	3	96	A	C
Spare	WY	FF	616	1	0	z	X 25
Spare	WZ	FF	616	1	0	z	X 25
Disarming User 21	YA	BD	401	1	21	8	C
Disarming User 22	YB	BD	401	1	22	8	C
Disarming User 23	YC	BD	401	1	23	8	C
Disarming User 24	YD	BD	401	1	24	8	C
Disarming User 25	YE	BD	401	1	25	8	C
Disarming User 26	YF	BD	401	1	26	8	C
Disarming User 27	YG	BD	401	1	27	8	C
Disarming User 28	YH	BD	401	1	28	8	C
Disarming User 29	YI	BD	401	1	29	8	C
Disarming User 30	YJ	BD	401	1	30	8	C
Disarming User 31	YK	BD	401	1	31	8	C
Disarming User 32	YL	BD	401	1	32	8	C
Disarming User 33	YM	BD	401	1	33	8	C
Disarming User 34	YN	BD	401	1	34	8	C
Disarming User 35	YO	BD	401	1	35	8	C
Disarming User 36	YP	BD	401	1	36	8	C
Disarming User 37	YQ	BD	401	1	37	8	C
Disarming User 38	YR	BD	401	1	38	8	C
Disarming User 39	YS	BD	401	1	39	8	C
Disarming User 40	YT	BD	401	1	40	8	C
Disarming User 41	YU	BD	401	1	41	8	C
Disarming User 42	YV	BD	401	1	42	8	C
Disarming User 43	YW	BD	401	1	43	8	C
Disarming User 44	YX	BD	401	1	44	8	C
Disarming User 45	YY	BD	401	1	45	8	C
Disarming User 46	YZ	BD	401	1	46	8	C
Disarming User 47	ZA	BD	401	1	47	8	C
Disarming User 48	ZB	BD	401	1	48	8	C
Disarming User 49	ZC	BD	401	1	49	8	C
Disarming User 50	YD	BD	401	1	50	8	C
Disarming User 51	ZE	BD	401	1	51	8	C
Disarming User 52	ZF	BD	401	1	52	8	C
Disarming User 53	ZG	BD	401	1	53	8	C
Disarming User 54	ZH	BD	401	1	54	8	C
Disarming User 55	ZI	BD	401	1	55	8	C
Disarming User 56	ZJ	BD	401	1	56	8	C
Disarming User 57	ZK	BD	401	1	57	8	C
Disarming User 58	ZL	BD	401	1	58	8	C
Disarming User 59	ZM	BD	401	1	59	8	C
Disarming User 60	ZN	BD	401	1	60	8	C
Disarming User 61	ZO	BD	401	1	61	8	C
Disarming User 62	ZP	BD	401	1	62	8	C

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELL IRCN
Disarming User 63	ZQ	BD	401	1	63	8	C
Disarming User 64	ZR	BD	401	1	64	8	C
Disarming User 65	ZS	BD	401	1	65	8	C
Disarming User 66	ZT	BD	401	1	66	8	C
Disarming User 67	ZU	BD	401	1	67	8	C
Disarming User 68	ZV	BD	401	1	68	8	C
Disarming User 69	ZW	BD	401	1	69	8	C
Disarming User 70	ZX	BD	401	1	70	8	C
Disarming User 71	ZY	BD	401	1	71	8	C
Disarming User 72	ZZ	BD	401	1	72	8	C
Disarming User 73	0	BD	401	1	73	8	C
Disarming User 74	1	BD	401	1	74	8	C
Disarming User 75	2	BD	401	1	75	8	C
Disarming User 76	3	BD	401	1	76	8	C
Disarming User 77	4	BD	401	1	77	8	C
Disarming User 78	5	BD	401	1	78	8	C
Disarming User 79	6	BD	401	1	79	8	C
Disarming User 80	7	BD	401	1	80	8	C
Disarming User 81	8	BD	401	1	81	8	C
Disarming User 82	9	BD	401	1	82	8	C
Disarming User 83	10	BD	401	1	83	8	C
Disarming User 84	11	BD	401	1	84	8	C
Disarming User 85	12	BD	401	1	85	8	C
Disarming User 86	13	BD	401	1	86	8	C
Disarming User 87	14	BD	401	1	87	8	C
Disarming User 88	15	BD	401	1	88	8	C
Disarming User 89	16	BD	401	1	89	8	C
Disarming User 90	17	BD	401	1	90	8	C
Disarming User 91	18	BD	401	1	91	8	C
Disarming User 92	19	BD	401	1	92	8	C
Disarming User 93	20	BD	401	1	93	8	C
Disarming User 94	21	BD	401	1	94	8	C
Disarming User 95	22	BD	401	1	95	8	C
Disarming User 96	23	BD	401	1	96	8	C
Zone Expander Fault 1	24	FE	333	1	1	z	X 25
Zone Expander Fault 2	25	FE	333	1	2	z	X 25
Zone Expander Fault 3	26	FE	333	1	3	z	X 25
Zone Expander Fault 4	27	FE	333	1	4	z	X 25
Zone Expander Fault 5	28	FE	333	1	5	z	X 25
Zone Expander Fault 6	29	FE	333	1	6	z	X 25
Zone Expander Fault 7	30	FE	333	1	7	z	X 25
Zone Expander Fault 8	31	FE	333	1	8	z	X 25
Zone Expander Fault 9	32	FE	333	1	9	z	X 25
Zone Expander Fault 10	33	FE	333	1	10	z	X 25
Zone Expander Fault 11	34	FE	333	1	11	z	X 25
Zone Expander Fault 12	35	FE	333	1	12	z	X 25
Zone Expander Fault 13	36	FE	333	1	13	z	X 25
Zone Expander Fault 14	37	FE	333	1	14	z	X 25
Zone Expander Fault 15	38	FE	333	1	15	z	X 25
Zone Expander Fault 16	39	FE	333	1	16	z	X 25
Zone Expander Restore 1	40	FE	333	3	1	z	X 25
Zone Expander Restore 2	41	FE	333	3	2	z	X 25
Zone Expander Restore 3	42	FE	333	3	3	z	X 25
Zone Expander Restore 4	43	FE	333	3	4	z	X 25
Zone Expander Restore 5	44	FE	333	3	5	z	X 25
Zone Expander Restore 6	45	FE	333	3	6	z	X 25
Zone Expander Restore 7	46	FE	333	3	7	z	X 25
Zone Expander Restore 8	47	FE	333	3	8	z	X 25
Zone Expander Restore 9	48	FE	333	3	9	z	X 25
Zone Expander Restore 10	49	FE	333	3	10	z	X 25
Zone Expander Restore 11	50	FE	333	3	11	z	X 25
Zone Expander Restore 12	51	FE	333	3	12	z	X 25
Zone Expander Restore 13	52	FE	333	3	13	z	X 25
Zone Expander Restore 14	53	FE	333	3	14	z	X 25
Zone Expander Restore 15	54	FE	333	3	15	z	X 25
Zone Expander Restore 16	55	FE	333	3	16	z	X 25
Keypad Fault 1	56	FE	330	1	1	z	X 25
Keypad Fault 2	57	FE	330	1	2	z	X 25
Keypad Fault 3	58	FE	330	1	3	z	X 25
Keypad Fault 4	59	FE	330	1	4	z	X 25
Keypad Fault 5	60	FE	330	1	5	z	X 25
Keypad Fault 6	61	FE	330	1	6	z	X 25
Keypad Fault 7	62	FE	330	1	7	z	X 25
Keypad Fault 8	63	FE	330	1	8	z	X 25
Keypad Restore 1	64	FE	330	3	1	z	X 25
Keypad Restore 2	65	FE	330	3	2	z	X 25
Keypad Restore 3	66	FE	330	3	3	z	X 25
Keypad Restore 4	67	FE	330	3	4	z	X 25
Keypad Restore 5	68	FE	330	3	5	z	X 25
Keypad Restore 6	69	FE	330	3	6	z	X 25
Keypad Restore 7	70	FE	330	3	7	z	X 25
Keypad Restore 8	71	FE	330	3	8	z	X 25
Wireless Receiver Restore	72	FF	616	3	0	z	X 25
GSM Transmitter Restore	73	FF	616	3	0	z	X 25
Network Communication Fault	74	FF	616	1	0	z	X 25

Description	Code	HEX2DGT	CID event	CID alarm*	CID zone\user	ELL	ELL IRCN
Network Communication Restore	75	FF	616	3	0	z	X 25
Installer On Site	76	FF	616	1	0	z	X 25
77	77	FF	616	1	0	z	X 25
78	78	FF	616	1	0	z	X 25
79	79	FF	616	1	0	z	X 25
80	80	FF	616	1	0	z	X 25
81	81	FF	616	1	0	z	X 25
82	82	FF	616	1	0	z	X 25
83	83	FF	616	1	0	z	X 25
84	84	FF	616	1	0	z	X 25
85	85	FF	616	1	0	z	X 25
86	86	FF	616	1	0	z	X 25
87	87	FF	616	1	0	z	X 25
88	88	FF	616	1	0	z	X 25
89	89	FF	616	1	0	z	X 25
90	90	FF	616	1	0	z	X 25
91	91	FF	616	1	0	z	X 25
92	92	FF	616	1	0	z	X 25
93	93	FF	616	1	0	z	X 25
94	94	FF	616	1	0	z	X 25
95	95	FF	616	1	0	z	X 25
96	96	FF	616	1	0	z	X 25
97	97	FF	616	1	0	z	X 25
98	98	FF	616	1	0	z	X 25
Unknown Event	99	FF	616	1	0	z	X 25

*1 = E, 3 = R (CID depends on RS-232 protocol)

ELL6

Description	Code	HEX2DGT	ELL	ELL IRCN	Atia	Atia ext.	Atia 13489
ALARM ZONE 1	31	31	1	A 1	01	01	A1
ALARM ZONE 2	B5	B5	5	A 2	02	02	A2
ALARM ZONE 3	65	65	5	A 3	03	03	A3
ALARM ZONE 4	E3	E3	3	A 4	04	04	A4
ALARM ZONE 5	73	73	3	A 5	05	05	A5
ALARM ZONE 6	6A	6A	A	A 6	06	06	A6
ALARM ZONE 7	E9	E9	9	A 7	07	07	A7
ALARM ZONE 8	1C	1C	C	A 8	08	08	A8
ALARM ZONE 9	F1	F1	1	A 9	09	09	A9
ALARM ZONE 10	D8	D8	8	A 10	10	10	AA
ALARM ZONE 11	D7	D7	7	A 11	11	11	AB
ALARM ZONE 12	F8	F8	8	A 12	12	12	AC
ALARM ZONE 13	E5	E5	5	A 13	13	13	AD
ALARM ZONE 14	4	4	4	A 14	14	14	AE
ALARM ZONE 15	53	53	3	A 15	15	15	AF
ALARM ZONE 16	EE	EE	E	A 16	16	16	AG
RESTORAL ZONE 1	77	77	7	R 1	17	17	R1
RESTORAL ZONE 2	35	35	5	R 2	18	18	R2
RESTORAL ZONE 3	50	50	0	R 3	19	19	R3
RESTORAL ZONE 4	FD	FD	D	R 4	20	20	R4
RESTORAL ZONE 5	86	86	6	R 5	21	21	R5
RESTORAL ZONE 6	4D	4D	D	R 6	22	22	R6
RESTORAL ZONE 7	3B	3B	B	R 7	23	23	R7
RESTORAL ZONE 8	A7	A7	7	R 8	24	24	R8
RESTORAL ZONE 9	55	55	5	R 9	25	25	R9
RESTORAL ZONE 10	4B	4B	B	R 10	26	26	RA
RESTORAL ZONE 11	41	41	1	R 11	27	27	RB
RESTORAL ZONE 12	29	29	9	R 12	28	28	RC
RESTORAL ZONE 13	DE	DE	E	R 13	29	29	RD
RESTORAL ZONE 14	63	63	3	R 14	30	30	RE
RESTORAL ZONE 15	E2	E2	2	R 15	31	31	RF
RESTORAL ZONE 16	D3	D3	3	R 16	32	32	RG
TROUBLE ZONE 1	9A	9A	A	T 1	33	33	T1
TROUBLE ZONE 2	CD	CD	D	T 3	34	34	T2
TROUBLE ZONE 3	E8	E8	8	T 3	35	35	T3
TROUBLE ZONE 4	60	60	0	T 4	36	36	T4
TROUBLE ZONE 5	19	19	9	T 5	37	37	T5
TROUBLE ZONE 6	91	91	1	T 6	38	38	T6
TROUBLE ZONE 7	9D	9D	D	T 7	39	39	T7
TROUBLE ZONE 8	5A	5A	A	T 8	40	40	T8
TROUBLE ZONE 9	5B	5B	B	T 9	41	41	T9
TROUBLE ZONE 10	FA	FA	A	T 10	42	42	TA
TROUBLE ZONE 11	4E	4E	E	T 11	43	43	TB
TROUBLE ZONE 12	DA	DA	A	T 12	44	44	TC
TROUBLE ZONE 13	F4	F4	4	T 13	45	45	TD
TROUBLE ZONE 14	26	26	6	T 14	46	46	TE
TROUBLE ZONE 16	49	49	9	T 16	48	48	TG
AC TROUBLE	40	40	0	T 0	51	51	CT
LOW BATTERY	80	80	0	T 9	52	52	BL
PHONE #1 TROUBLE	59	59	9	T B	53	53	TP
STARTING	7B	7B	B	R 9	55	55	ST
PERIODIC TEST	6E	6E	E	R D	56	56	PT

Description	Code	HEX2DGT	ELL	ELL IRCN	Atia	Atia ext.	Atia 13489
TEST	DC	DC	C	R E	57	57	TS
PENING	EB	EB	B	O	58	58	OP
AC RESTORED	DF	DF	F	R 0	59	59	RN
BATTERY NORMAL	28	28	8	R 9	60	60	BN
EMERGENCY	BD	BD	D	A 101	63	63	EM
FIRE EMERGENCY	3A	3A	A	A 102	64	64	FE
POLICE EMERGENCY	B3	B3	3	A 100	65	65	PE
CLOSING	FF	FF	F	C	66	66	CL
DURESS	43	43	3	D	67	67	DR
CLOCK CHANGE/RP	1E	1E	E	S C	69	69	CH
BELL CUTOFF	0F	0F	F	S B	70	70	BC
FORCE CLOSING	81	81	1	C F	71	71	FC
PERIMETR CLOSING	CE	CE	E	C E	72	72	PC

CID/PID

Description	CID/PID Code			HEX2DGT	ELL	ELL IRCN	Atia*	Atia Ext.*
	Event	Alarm**	Zone\User					
Medical	100	1	*	64	4	C E	a*	a*
Personal Emergency	101	1	*	65	5	C E	b*	b*
Fail to report in	102	1	*	66	6	C E	c*	c*
Fire	110	1	*	6E	E	C E	d*	d*
Smoke	111	1	*	6F	F	C E	d*	d*
Combustion	112	1	*	70	0	C E	d*	d*
Water flow	113	1	*	71	1	C E	e*	e*
Heat	114	1	*	72	2	C E	f*	f*
Pull Station	115	1	*	73	3	C E	g*	g*
Duct	116	1	*	74	4	C E	h*	h*
Flame	117	1	*	75	5	C E	d*	d*
Near Alarm	118	1	*	76	6	C E	i*	i*
Panic	120	1	*	78	8	C E	j*	j*
Duress	121	1	*	79	9	C E	k*	k*
Silent	122	1	*	7A	A	C E	j*	j*
Audible	123	1	*	7B	B	C E	j*	j*
Medical	100	3	*	64	4	C E	A*	A*
Personal Emergency	101	3	*	65	5	C E	B*	B*
Fail to report in	102	3	*	66	6	C E	C*	C*
Fire	110	3	*	6E	E	C E	D*	D*
Smoke	111	3	*	6F	F	C E	D*	D*
Combustion	112	3	*	70	0	C E	D*	D*
Water flow	113	3	*	71	1	C E	E*	E*
Heat	114	3	*	72	2	C E	F*	F*
Pull Station	115	3	*	73	3	C E	G*	G*
Duct	116	3	*	74	4	C E	H*	H*
Flame	117	3	*	75	5	C E	D*	D*
Near Alarm	118	3	*	76	6	C E	I*	I*
Panic	120	3	*	78	8	C E	J*	J*
Duress	121	3	*	79	9	C E	K*	K*
Silent	122	3	*	7A	A	C E	J*	J*
Audible	123	3	*	7B	B	C E	J*	J*
Duress – Access granted	124	*	0	7C	C	C E	00	00
Duress – Egress granted	125	*	0	7D	D	C E	00	00
Burglary	130	1	*	82	2	C E	I*	I*
Perimeter	131	1	*	83	3	C E	I*	I*
Interior	132	1	*	84	4	C E	I*	I*
24 Hour (Safe)	133	1	*	85	5	C E	I*	I*
Entry/Exit	134	1	*	86	6	C E	I*	I*
Day/night	135	1	*	87	7	C E	I*	I*
Outdoor	136	1	*	88	8	C E	I*	I*
Tamper Zone Digital Communication Stand	137	1	*	89	9	C E	m*	m*
Near alarm	138	1	*	8A	A	C E	n*	n*
Burglary	130	3	*	82	2	C E	L*	L*
Perimeter	131	3	*	83	3	C E	L*	L*
Interior	132	3	*	84	4	C E	L*	L*
24 Hour (Safe)	133	3	*	85	5	C E	L*	L*
Entry/Exit	134	3	*	86	6	C E	L*	L*
Day/night	135	3	*	87	7	C E	L*	L*
Outdoor	136	3	*	88	8	C E	L*	L*
Tamper Zone Digital Communication Stand	137	3	*	89	9	C E	M*	M*
Near alarm	138	3	*	8A	A	C E	N*	N*
Intrusion Verifier	139	*	0	8B	B	C E	00	00
General Alarm	140	1	0	8C	C	C E	0a	0a
Polling loop open	141	1	0	8D	D	C E	0b	0b
Polling loop short	142	1	0	8E	E	C E	0c	0c
Expansion module failure	143	1	0	8F	F	C E	0d	0d
General Alarm	140	3	0	8C	C	C E	0A	0A
Polling loop open	141	3	0	8D	D	C E	0B	0B
Polling loop short	142	3	0	8E	E	C E	0C	0C
Expansion module failure	143	3	0	8F	F	C E	0D	0D
Sensor tamper	144	1	*	90	0	C E	o*	o*
Expansion module tamper	145	1	*	91	1	C E	p*	p*
Sensor tamper	144	3	*	90	0	C E	O*	O*

Description	CID/PID Code			HEX2DGT	ELL	ELL IRCN	Atia*	Atia Ext.*
Expansion module tamper	145	3	*	91	1	C E	p*	p*
Silent Burglary	146	*	0	92	2	C E	00	00
Sensor Supervision Failure	147	*	0	93	3	C E	00	00
24 Hour Non-Burglary	150	1	*	96	6	C E	q*	q*
24 Hour Non-Burglary	150	3	*	96	6	C E	Q*	Q*
Gas detected	151	1	0	97	7	C E	0e	0e
Refrigeration	152	1	0	98	8	C E	0f	0f
Loss of heat	153	1	0	99	9	C E	0g	0g
Water Leakage	154	1	0	9A	A	C E	0h	0h
Foil Break	155	1	0	9B	B	C E	0i	0i
Day Trouble	156	1	0	9C	C	C E	0j	0j
Low bottled gas level	157	1	0	9D	D	C E	0k	0k
High temp	158	1	0	9E	E	C E	0l	0l
Low temp	159	1	0	9F	F	C E	0m	0m
Loss of air flow	161	1	0	A1	1	C E	0n	0n
Gas detected	151	3	0	97	7	C E	0E	0E
Refrigeration	152	3	0	98	8	C E	0F	0F
Loss of heat	153	3	0	99	9	C E	0G	0G
Water Leakage	154	3	0	9A	A	C E	0H	0H
Foil Break	155	3	0	9B	B	C E	0I	0I
Day Trouble	156	3	0	9C	C	C E	0J	0J
Low bottled gas level	157	3	0	9D	D	C E	0K	0K
High temp	158	3	0	9E	E	C E	0L	0L
Low temp	159	3	0	9F	F	C E	0M	0M
Loss of air flow	161	3	0	A1	1	C E	0N	0N
Carbon Monoxide detected	162	*	0	A2	2	C E	00	00
Tank level	163	*	0	A3	3	C E	00	00
Fire Supervisory	200	1	*	C8	8	C E	r*	r*
Fire Supervisory	200	3	*	C8	8	C E	R*	R*
Low water pressure	201	1	0	C9	9	C E	0o	0o
Low CO2	202	1	0	CA	A	C E	0p	0p
Gate valve sensor	203	1	0	CB	B	C E	0q	0q
Low water level Zone Digital Comm.	204	1	0	CC	C	C E	0r	0r
Pump activated	205	1	0	CD	D	C E	0s	0s
Pump failure	206	1	0	CE	E	C E	0t	0t
System Trouble	300	1	0	2C	C	C E	0u	0u
AC Loss	301	1	0	2D	D	C E	0v	0v
Low system battery	302	1	0	2E	E	C E	0w	0w
RAM Checksum bad	303	1	0	2F	F	C E	0x	0x
ROM checksum bad	304	1	0	30	0	C E	0y	0y
System reset	305	1	0	31	1	C E	0z	0z
Panel programming changed	306	1	0	32	2	C E	1a	1a
Self- test failure	307	1	0	33	3	C E	1b	1b
System shutdown	308	1	0	34	4	C E	1c	1c
Battery test failure	309	1	0	35	5	C E	1d	1d
Ground fault	310	1	0	36	6	C E	1e	1e
Battery Missing/Dead	311	1	0	37	7	C E	1f	1f
Power Supply Over current	312	1	0	38	8	C E	4q	4q
Engineer Reset	313	1	0	39	9	C E	00	00
Sounder/Relay	320	1	0	40	0	C E	1g	1g
Bell 1	321	1	0	41	1	C E	1h	1h
Bell 2	322	1	0	42	2	C E	1i	1i
Alarm relay	323	1	0	43	3	C E	1j	1j
Trouble relay	324	1	0	44	4	C E	1k	1k
Reversing relay	325	1	0	45	5	C E	1l	1l
Notification Appliance Ckt. # 3	326	1	0	46	6	C E	00	00
Notification Appliance Ckt. # 4	327	1	0	47	7	C E	00	00
System Peripheral trouble	330	1	0	4A	A	C E	1m	1m
Polling loop open	331	1	0	4B	B	C E	1n	1n
Polling loop short	332	1	0	4C	C	C E	1o	1o
Expansion module failure	333	1	0	4D	D	C E	1p	1p
Repeater failure	334	1	0	4E	E	C E	1q	1q
Local printer out of paper	335	1	0	4F	F	C E	1r	1r
Local printer failure Zone Digital Comm.	336	1	0	50	0	C E	1s	1s
Low water pressure	201	3	0	C9	9	C E	00	00
Low CO2	202	3	0	CA	A	C E	0P	0P
Gate valve sensor	203	3	0	CB	B	C E	0Q	0Q
Low water level Zone Digital Comm.	204	3	0	CC	C	C E	0R	0R
Pump activated	205	3	0	CD	D	C E	0S	0S
Pump failure	206	3	0	CE	E	C E	0T	0T
System Trouble	300	3	0	2C	C	C E	0U	0U
AC Loss	301	3	0	2D	D	C E	0V	0V
Low system battery	302	3	0	2E	E	C E	0W	0W
RAM Checksum bad	303	3	0	2F	F	C E	0X	0X
ROM checksum bad	304	3	0	30	0	C E	0Y	0Y
System reset	305	3	0	31	1	C E	0Z	0Z
Panel programming changed	306	3	0	32	2	C E	1A	1A
Self- test failure	307	3	0	33	3	C E	1B	1B
System shutdown	308	3	0	34	4	C E	1C	1C
Battery test failure	309	3	0	35	5	C E	1D	1D
Ground fault	310	3	0	36	6	C E	1E	1E
Battery Missing/Dead	311	3	0	37	7	C E	1F	1F
Power Supply Over current	312	3	0	38	8	C E	4Q	4Q
Engineer Reset	313	3	0	39	9	C E	00	00
Sounder/Relay	320	3	0	40	0	C E	1G	1G
Bell 1	321	3	0	41	1	C E	1H	1H

Description	CID/PID Code			HEX2DGT	ELL	ELL IRCN	Atia*	Atia Ext.*
Bell 2	322	3	0	42	2	C E	1I	1I
Alarm relay	323	3	0	43	3	C E	1J	1J
Trouble relay	324	3	0	44	4	C E	1K	1K
Reversing relay	325	3	0	45	5	C E	1L	1L
Notification Appliance Ckt. # 3	326	3	0	46	6	C E	00	00
Notification Appliance Ckt. #4	327	3	0	47	7	C E	00	00
System Peripheral trouble	330	3	0	4A	A	C E	1M	1M
Polling loop open	331	3	0	4B	B	C E	1N	1N
Polling loop short	332	3	0	4C	C	C E	1O	1O
Expansion module failure	333	3	0	4D	D	C E	1P	1P
Repeater failure	334	3	0	4E	E	C E	1Q	1Q
Local printer out of paper	335	3	0	4F	F	C E	1R	1R
Local printer failure Zone Digital Comm.	336	3	0	50	0	C E	1S	1S
Exp. Module DC Loss	337	*	0	51	1	C E	00	00
Exp. Module Low Bat.	338	*	0	52	2	C E	00	00
Exp. Module Reset	339	*	0	53	3	C E	00	00
Exp. Module Tamper	341	*	0	55	5	C E	00	00
Exp. Module AC Loss	342	*	0	56	6	C E	00	00
Exp. Module self-test fail	343	*	0	57	7	C E	00	00
RF Receiver Jam Detect	344	*	0	58	8	C E	00	00
Communication trouble	350	1	0	5E	E	C E	1t	1t
Telco 1 fault	351	1	0	5F	F	C E	1u	1u
Telco 2 fault	352	1	0	60	0	C E	1v	1v
Long Range Radio xmitter fault	353	1	0	61	1	C E	1w	1w
Failure to communicate event	354	1	0	62	2	C E	1x	1x
Loss of Radio supervision	355	1	0	63	3	C E	1y	1y
Loss of central polling	356	1	0	64	4	C E	1z	1z
Communication trouble	350	3	0	5E	E	C E	1T	1T
Telco 1 fault	351	3	0	5F	F	C E	1U	1U
Telco 2 fault	352	3	0	60	0	C E	1V	1V
Long Range Radio xmitter fault	353	3	0	61	1	C E	1W	1W
Failure to communicate event	354	3	0	62	2	C E	1X	1X
Loss of Radio supervision	355	3	0	63	3	C E	1Y	1Y
Loss of central polling	356	3	0	64	4	C E	1Z	1Z
Long Range Radio VSWR problem	357	*	0	65	5	C E	00	00
Protection loop	370	1	0	72	2	C E	2a	2a
Protection loop open	371	1	0	73	3	C E	2b	2b
Protection loop short	372	1	0	74	4	C E	2c	2c
Fire trouble	373	1	0	75	5	C E	2d	2d
Protection loop	370	3	0	72	2	C E	2A	2A
Protection loop open	371	3	0	73	3	C E	2B	2B
Protection loop short	372	3	0	74	4	C E	2C	2C
Fire trouble	373	3	0	75	5	C E	2D	2D
Exit error alarm (zone)	374	1	*	76	6	C E	s*	s*
Exit error alarm (zone)	374	3	*	76	6	C E	S*	S*
Panic zone trouble	375	*	0	77	7	C E	00	00
Hold-up zone trouble	376	*	0	78	8	C E	00	00
Swinger Trouble	377	*	0	79	9	C E	00	00
Cross-zone Trouble	378	*	0	7A	A	C E	00	00
Sensor trouble	380	1	0	7C	C	C E	2e	2e
Loss of supervision - RF	381	1	0	7D	D	C E	2f	2f
Loss of supervision - RPM	382	1	0	7E	E	C E	2g	2g
Sensor tamper	383	1	0	7F	F	C E	2h	2h
RF low battery	384	1	0	80	0	C E	2i	2i
Sensor trouble	380	3	0	7C	C	C E	2E	2E
Loss of supervision - RF	381	3	0	7D	D	C E	2F	2F
Loss of supervision - RPM	382	3	0	7E	E	C E	2G	2G
Sensor tamper	383	3	0	7F	F	C E	2H	2H
RF low battery	384	3	0	80	0	C E	2I	2I
Smoke detector Hi sensitivity	385	*	0	81	1	C E	00	00
Smoke detector Low sensitivity	386	*	0	82	2	C E	00	00
Intrusion detector Hi sensitivity	387	*	0	83	3	C E	00	00
Intrusion detector Low sensitivity Zone	388	*	0	84	4	C E	00	00
Sensor self-test failure	389	*	0	85	5	C E	00	00
Sensor Watch trouble	391	*	0	87	7	C E	00	00
Drift Compensation Error	392	*	0	88	8	C E	00	00
Maintenance Alert	393	*	0	89	9	C E	00	00
Open/Close	400	1	*	90	0	C E	t*	t*
O/C by user	401	1	*	91	1	C E	u*	u*
Group O/C	402	1	*	92	2	C E	v*	v*
Open/Close	400	3	*	90	0	C E	T*	T*
O/C by user	401	3	*	91	1	C E	U*	U*
Group O/C	402	3	*	92	2	C E	V*	V*
Automatic O/C	403	1	0	93	3	C E	2j	2j
Late to O/C (Note: use 453, 454 instead)	404	1	0	94	4	C E	2k	2k
Deferred O/C (Obsolete- do not use)	405	1	0	95	5	C E	2l	2l
Automatic O/C	403	3	0	93	3	C E	2J	2J
Late to O/C (Note: use 453, 454 instead)	404	3	0	94	4	C E	2K	2K
Deferred O/C (Obsolete- do not use)	405	3	0	95	5	C E	2L	2L
Cancel	406	1	*	96	6	C E	w	w
Cancel	406	3	*	96	6	C E	W	W
Remote arm/disarm	407	1	0	97	7	C E	2m	2m
Quick arm	408	1	0	98	8	C E	2n	2n
Key switch O/C	409	1	0	99	9	C E	2o	2o
Callback request made	411	1	0	9B	B	C E	2p	2p
Successful download/access	412	1	0	9C	C	C E	2q	2q

Description	CID/PID Code			HEX2DGT	ELL	ELL IRCN	Atia*	Atia Ext.*
Unsuccessful access	413	1	0	9D	D	C E	2r	2r
System shutdown command received	414	1	0	9E	E	C E	2s	2s
Dialer shutdown command received	415	1	0	9F	F	C E	2t	2t
Access denied	421	1	0	A5	5	C E	2u	2u
Remote arm/disarm	407	3	0	97	7	C E	2M	2M
Quick arm	408	3	0	98	8	C E	2N	2N
Key switch O/C	409	3	0	99	9	C E	2O	2O
Callback request made	411	3	0	9B	B	C E	2P	2P
Successful download/access	412	3	0	9C	C	C E	2Q	2Q
Unsuccessful access	413	3	0	9D	D	C E	2R	2R
System shutdown command received	414	3	0	9E	E	C E	2S	2S
Dialer shutdown command received	415	3	0	9F	F	C E	2T	2T
Access denied	421	3	0	A5	5	C E	2U	2U
Access report by user	422	1	*	A6	6	C E	x*	x*
Access report by user	422	3	*	A6	6	C E	X*	X*
Armed STAY	441	1	0	B9	9	C E	2w	2w
Key switch Armed STAY	442	1	0	BA	A	C E	2x	2x
Exception O/C	450	1	0	C2	2	C E	2y	2y
Early O/C	451	1	0	C3	3	C E	2z	2z
Late O/C	452	1	0	C4	4	C E	3a	3a
Failed to Open	453	1	0	C5	5	C E	3b	3b
Failed to Close	454	1	0	C6	6	C E	3c	3c
Auto-arm Failed	455	1	0	C7	7	C E	3d	3d
Armed STAY	441	3	0	B9	9	C E	2W	2W
Key switch Armed STAY	442	3	0	BA	A	C E	2X	2X
Exception O/C	450	3	0	C2	2	C E	2Y	2Y
Early O/C	451	3	0	C3	3	C E	2Z	2Z
Late O/C	452	3	0	C4	4	C E	3A	3A
Failed to Open	453	3	0	C5	5	C E	3B	3B
Failed to Close	454	3	0	C6	6	C E	3C	3C
Auto-arm Failed	455	3	0	C7	7	C E	3D	3D
Partial Arm	456	*	0	C8	8	C E	00	00
Exit Error (user)	457	1	*	C9	9	C E	y*	y*
Exit Error (user)	457	3	*	C9	9	C E	Y*	Y*
User on Premises	458	*	0	CA	A	C E	00	00
Recent Close	459	1	0	CB	B	C E	3e	3e
Wrong Code Entry	461	1	0	CD	D	C E	3f	3f
Legal Code Entry	462	1	0	CE	E	C E	3g	3g
Re-arm after Alarm	463	1	0	CF	F	C E	3h	3h
Auto-arm Time Extended	464	1	0	D0	0	C E	3i	3i
Panic Alarm Reset	465	1	0	D1	1	C E	3j	3j
Recent Close	459	3	0	CB	B	C E	3E	3E
Wrong Code Entry	461	3	0	CD	D	C E	3F	3F
Legal Code Entry	462	3	0	CE	E	C E	3G	3G
Re-arm after Alarm	463	3	0	CF	F	C E	3H	3H
Auto-arm Time Extended	464	3	0	D0	0	C E	3I	3I
Panic Alarm Reset	465	3	0	D1	1	C E	3J	3J
Service On/Off Premises	466	*	0	D2	2	C E	00	00
Successful Upload	416	*	0	A0	0	C E	00	00
Forced Access	423	1	0	A7	7	C E	2v	2v
Forced Access	423	3	0	A7	7	C E	2V	2V
Egress Denied	424	*	0	A8	8	C E	00	00
Egress Granted	425	*	0	A9	9	C E	00	00
Access Door propped open	426	*	0	AA	A	C E	00	00
Access point Door Status Monitor trouble	427	*	0	AB	B	C E	00	00
Access point Request To Exit trouble	428	*	0	AC	C	C E	00	00
Access program mode entry	429	*	0	AD	D	C E	00	00
Access program mode exit	430	*	0	AE	E	C E	00	00
Access threat level change	431	*	0	AF	F	C E	00	00
Access relay/trigger fail	432	*	0	B0	0	C E	00	00
Access RTE shunt	433	*	0	B1	1	C E	00	00
Access DSM shunt	434	*	0	B2	2	C E	00	00
Access reader disable	501	*	0	F5	5	C E	00	00
Sounder/Relay Disable	520	1	0	8	8	C E	3k	3k
Bell 1 disable	521	1	0	9	9	C E	3l	3l
Bell 2 disable	522	1	0	0A	A	C E	3m	3m
Alarm relay disable	523	1	0	0B	B	C E	3n	3n
Trouble relay disable	524	1	0	0C	C	C E	3o	3o
Reversing relay disable	525	1	0	0D	D	C E	3p	3p
Sounder/Relay Disable	520	3	0	8	8	C E	3K	3K
Bell 1 disable	521	3	0	9	9	C E	3L	3L
Bell 2 disable	522	3	0	0A	A	C E	3M	3M
Alarm relay disable	523	3	0	0B	B	C E	3N	3N
Trouble relay disable	524	3	0	0C	C	C E	3O	3O
Reversing relay disable	525	3	0	0D	D	C E	3P	3P
Notification Appliance Ckt. # 3 disable	526	*	0	0E	E	C E	00	00
Notification Appliance Ckt. # 4 disable	527	*	0	0F	F	C E	00	00
Module Added	531	1	0	13	3	C E	3q	3q
Module Removed	532	1	0	14	4	C E	3r	3r
Dialer disabled	551	1	0	27	7	C E	3s	3s
Radio transmitter disabled	552	1	0	28	8	C E	3t	3t
Remote Upload/Download disabled	553	1	0	29	9	C E	3u	3u
Module Added	531	3	0	13	3	C E	3Q	3Q
Module Removed	532	3	0	14	4	C E	3R	3R
Dialer disabled	551	3	0	27	7	C E	3S	3S
Radio transmitter disabled	552	3	0	28	8	C E	3T	3T

Description	CID/PID Code			HEX2DGT	ELL	ELL IRCN	Atia*	Atia Ext.*
Remote Upload/Download disabled	553	3	0	29	9	C E	3U	3U
Zone/Sensor bypass	570	1	*	3A	A	C E	z*	z*
Fire bypass	571	1	*	3B	B	C E	z*	z*
24 Hour zone bypass	572	1	*	3C	C	C E	z*	z*
Burg. Bypass	573	1	*	3D	D	C E	z*	z*
Group bypass	574	1	*	3E	E	C E	z*	z*
Zone/Sensor bypass	570	3	*	3A	A	C E	Z*	Z*
Fire bypass	571	3	*	3B	B	C E	Z*	Z*
24 Hour zone bypass	572	3	*	3C	C	C E	Z*	Z*
Burg. Bypass	573	3	*	3D	D	C E	Z*	Z*
Group bypass	574	3	*	3E	E	C E	Z*	Z*
Swinger bypass	575	*	0	3F	F	C E	00	00
Access zone shunt	576	*	0	40	0	C E	00	00
Access point bypass	577	*	0	41	1	C E	00	00
Manual trigger test report	601	1	0	59	9	C E	3v	3v
Periodic test report	602	1	0	5A	A	C E	3w	3w
Periodic RF transmission	603	1	0	5B	B	C E	3x	3x
Fire test	604	1	0	5C	C	C E	3y	3y
Status report to follow	605	1	0	5D	D	C E	3z	3z
Listen- in to follow	606	1	0	5E	E	C E	4a	4a
Walk test mode	607	1	0	5F	F	C E	4b	4b
Manual trigger test report	601	3	0	59	9	C E	3V	3V
Periodic test report	602	3	0	5A	A	C E	3W	3W
Periodic RF transmission	603	3	0	5B	B	C E	3X	3X
Fire test	604	3	0	5C	C	C E	3Y	3Y
Status report to follow	605	3	0	5D	D	C E	3Z	3Z
Listen- in to follow	606	3	0	5E	E	C E	4A	4A
Walk test mode	607	3	0	5F	F	C E	4B	4B
Periodic test - System Trouble Present	608	*	0	60	0	C E	00	00
Video Xmitter active	609	1	0	61	1	C E	4c	4c
Video Xmitter active	609	3	0	61	1	C E	4C	4C
Point tested OK	611	*	0	63	3	C E	00	00
Point not tested	612	*	0	64	4	C E	00	00
Intrusion Zone Walk Tested	613	*	0	65	5	C E	00	00
Fire Zone Walk Tested Zone Digital Comm.	614	*	0	66	6	C E	00	00
Panic Zone Walk Tested	615	*	0	67	7	C E	00	00
Service Request	616	*	0	68	8	C E	00	00
Event Log reset	621	1	0	6D	D	C E	4d	4d
Event Log 50% full	622	1	0	6E	E	C E	4e	4e
Event Log 90% full	623	1	0	6F	F	C E	4f	4f
Event Log overflow	624	1	0	70	0	C E	4g	4g
Time/Date reset	625	1	0	71	1	C E	4h	4h
Time/Date inaccurate	626	1	0	72	2	C E	4i	4i
Program mode entry	627	1	0	73	3	C E	4j	4j
Program mode exit	628	1	0	74	4	C E	4k	4k
Event Log reset	621	3	0	6D	D	C E	4D	4D
Event Log 50% full	622	3	0	6E	E	C E	4E	4E
Event Log 90% full	623	3	0	6F	F	C E	4F	4F
Event Log overflow	624	3	0	70	0	C E	4G	4G
Time/Date reset	625	3	0	71	1	C E	4H	4H
Time/Date inaccurate	626	3	0	72	2	C E	4I	4I
Program mode entry	627	3	0	73	3	C E	4J	4J
Program mode exit	628	3	0	74	4	C E	4K	4K
32 Hour Event log marker	629	*	0	75	5	C E	00	00
Schedule change	630	1	0	76	6	C E	4l	4l
Exception schedule change	631	1	0	77	7	C E	4m	4m
Access schedule change	632	1	0	78	8	C E	4n	4n
Schedule change	630	3	0	76	6	C E	4L	4L
Exception schedule change	631	3	0	77	7	C E	4M	4M
Access schedule change	632	3	0	78	8	C E	4N	4N
Senior Watch Trouble	641	*	0	81	1	C E	00	00
Latch-key Supervision	642	*	0	82	2	C E	00	00
Reserved for Ademco Use	651	*	0	8B	B	C E	00	00
Reserved for Ademco Use	652	*	0	8C	C	C E	00	00
Reserved for Ademco Use	653	*	0	8D	D	C E	00	00
System Inactivity	654	*	0	8E	E	C E	00	00
PIMA - Life signal	790	*	0	16	6	C E	00	00
PIMA - Reg.	791	*	0	17	7	C E	00	00
PIMA - Counter lost	792	*	0	18	8	C E	00	00
PIMA - Sys Disconnect	793	*	0	19	9	C E	00	00

* Zone/User wildcard number; applicable only to Atia and Atia ext.

Zone/User numbers are added to the Atia protocol by the following order: (Ascii as decimal)

Zone\User	Order
0-9	48, 49, 50, 51, 52, 53, 54, 55, 56, 57
10-19	97, 98, 99, 100, 101, 102, 103, 104, 105, 106
20-29	107, 108, 109, 110, 111, 112, 113, 114, 115, 116
30-39	117, 118, 119, 120, 121, 122, 65, 66, 67, 68
40-49	69, 70, 71, 72, 73, 74, 75, 76, 77, 78
50-59	79, 80, 81, 82, 83, 84, 85, 86, 87, 88
60-61	89, 90

In Atia, zones/users higher than 62 are represented as space character (32 in Ascii as decimal).

In Atia External, the numbers continue as following:

Zone\User	Order
62-69	48, 49, 50, 51, 52, 53, 54, 55, 56, 57
70-79	97, 98, 99, 100, 101, 102, 103, 104, 105, 106
80-89	107, 108, 109, 110, 111, 112, 113, 114, 115, 116
90-96	117, 118, 119, 120, 121, 122, 65, 66, 67, 68

In Atia External, zones/users higher than 97 are represented as space character (32 in Ascii as decimal).

* Alarm/Reset wildcard number means, that there is no difference in converting the values 1 or 3.

** 1 = E, 3 = R (CID, depending on the RS-232 protocol)

SIA

(Currently, event conversion is not available)

Data Code	Short Description	Long Description	Address Field
AA	Alarm – Panel Substitution	An attempt to substitute an alternate alarm panel for a secure panel has been made	Condition number
AB	Abort	An event message was not sent due to User action	Zone or point
AN	Analog Restoral	An analog fire sensor has been restored to normal operation	Zone or point
AR	AC Restoral	AC power has been restored	Unused
AS	Analog Service	An analog fire sensor needs to be cleaned or calibrated	Zone or point
AT	AC Trouble	AC power has been failed	Unused
BA	Burglary Alarm	Burglary zone has been violated while armed	Zone or point
BB	Burglary Bypass	Burglary zone has been bypassed	Zone or point
BC	Burglary Cancel	Alarm has been cancelled by authorized user	User number
BD	Swinger Trouble	A non-fire zone has been violated after a Swinger Shutdown on the zone	Zone or point
BE	Swinger Trouble Restore	A non-fire zone restores to normal from a Swinger Trouble state	Zone or point
BG	Unverified Event - Burglary	A point assigned to a Cross Point group has gone into alarm but the Cross Point remained normal	Zone or point
BH	Burglary Alarm Restore	Alarm condition eliminated	Zone or point
BJ	Burglary Trouble Restore	Trouble condition eliminated	Zone or point
BM	Burglary Alarm - Cross Point	Burglary alarm w/cross point also in alarm - alarm verified	Zone or point
BR	Burglary Restoral	Alarm/trouble condition has been eliminated	Zone or point
BS	Burglary Supervisory	Unsafe intrusion detection system condition	Zone or point
BT	Burglary Trouble	Burglary zone disabled by fault	Zone or point
BU	Burglary Unbypass	Zone bypass has been removed	Zone or point
BV	Burglary Verified	A burglary alarm has occurred and been verified within programmed conditions. (zone or point not sent)	Area number
BX	Burglary Test	Burglary zone activated during testing	Zone or point
BZ	Missing Supervision	A non-fire Supervisory point has gone missing	Zone or point
CA	Automatic Closing	System armed automatically	Area number
CD	Closing Delinquent	The system has not been armed for a programmed amount of time	Area number
CE	Closing Extend	Extend closing time	User number
CF	Forced Closing	System armed, some zones not ready	User number
CG	Close Area	System has been partially armed	Area number
CI	Fail to Close	An area has not been armed at the end of the closing window	Area number
CJ	Late Close	An area was armed after the closing window	User number
CK	Early Close	An area was armed before the closing window	User number
CL	Closing Report	System armed, normal	User number
CM	Missing Alarm-Recent Closing	A point has gone missing within 2 minutes of closing	Zone or point
CO	Command Sent	A command has been sent to an expansion/peripheral device	Condition number
CP	Automatic Closing	System armed automatically	User number
CQ	Remote Closing	The system was armed from a remote location	User number
CR	Recent Closing	An alarm occurred within five minutes after the system was closed	User number
CS	Closing Keyswitch	Account has been armed by keyswitch	Zone or point
CT	Late to Open	System was not disarmed on time	Area number
CW	Was Force Armed	Header for a force armed session, forced point msgs may follow	Area number
CX	Custom Function Executed	The panel has executed a preprogrammed set of instructions	Custom Function number
CZ	Point Closing	A point, as opposed to a whole area or account, has closed	Zone or point
DA	Card Assigned	An access ID has been added to the controller	User number
DB	Card Deleted	An access ID has been deleted from the controller	User number
DC	Access Closed	Access to all users prohibited	Door number
DD	Access Denied	Access denied, unknown code	Door number
DE	Request to Enter	An access point was opened via a Request to Enter device	Door number
DF	Door Forced	Door opened without access request	Door number
DG	Access Granted	Door access granted	Door number
DH	Door Left Open - Restoral	An access point in a Door Left Open state has restored	Door number

Data Code	Short Description	Long Description	Address Field
DI	Access Denied - Passback	Access denied because credential has not exited area before attempting to re-enter same area	Door number
DJ	Door Forced - Trouble	An access point has been forced open in an unarmed area	Door number
DK	Access Lockout	Access denied, known code	Door number
DL	Door Left Open - Alarm	An open access point when open time expired in an armed area	Door number
DM	Door Left Open - Trouble	An open access point when open time expired in an unarmed area	Door number
DN	Door Left Open (non-alarm, non-trouble)	An access point was open when the door cycle time expired	Door number
DO	Access Open	Access to authorized users allowed	Door number
DP	Access Denied - Unauthorized Time	An access request was denied because the request is occurring outside the user's authorized time window(s)	Door number
DQ	Access Denied Unauthorized Arming State	An access request was denied because the user was not authorized in this area when the area was armed	Door number
DR	Door Restoral	Access alarm/trouble condition eliminated	Door number
DS	Door Station	Identifies door for next report	Door number
DT	Access Trouble	Access system trouble	Unused
DU	Dealer ID	Dealer ID number	Dealer ID
DV	Access Denied Unauthorized Entry Level	An access request was denied because the user is not authorized in this area	Door number
DW	Access Denied - Interlock	An access request was denied because the doors associated Interlock point is open	Door number
DX	Request to Exit	An access point was opened via a Request to Exit device	Door number
DY	Door Locked	The door's lock has been engaged	Door number
DZ	Access Denied - Door Secured	An access request was denied because the door has been placed in an Access Closed state	Door number
EA	Exit Alarm	An exit zone remained violated at the end of the exit delay period	Zone or point
EE	Exit Error	An exit zone remained violated at the end of the exit delay period	User number
EJ	Expansion Tamper Restore	Expansion device tamper restoral	Expansion device number
EM	Expansion Device Missing	Expansion device missing	Expansion device number
EN	Expansion Missing Restore	Expansion device communications re-established	Expansion device number
ER	Expansion Restoral	Expansion device trouble eliminated	Expander number
ES	Expansion Device Tamper	Expansion device enclosure tamper	Expansion device number
ET	Expansion Trouble	Expansion device trouble	Expander number
EX	External Device Condition	A specific reportable condition is detected on an external device	Device number
EZ	Missing Alarm - Exit Error	A point remained missing at the end of the exit delay period	Point number
FA	Fire Alarm	Fire condition detected	Zone or point
FB	Fire Bypass	Zone has been bypassed	Zone or point
FC	Fire Cancel	A Fire Alarm has been cancelled by an authorized person	Zone or point
FG	Unverified Event - Fire	A point assigned to a Cross Point group has gone into alarm but the Cross Point remained normal	Zone or point
FH	Fire Alarm Restore	Alarm condition eliminated	Zone or point
FI	Fire Test Begin	The transmitter area's fire test has begun	Area number
FJ	Fire Trouble Restore	Trouble condition eliminated	Zone or point
FK	Fire Test End	The transmitter area's fire test has ended	Area number
FL	Fire Alarm Silenced	The fire panel's sounder was silenced by command	Zone or point
FM	Fire Alarm - Cross Point	Fire Alarm with Cross Point also in alarm verifying the Fire Alarm	Point number
FQ	Fire Supervisory Trouble Restore	A fire supervisory zone that was in trouble condition has now restored to normal	Zone or point
FR	Fire Restoral	Alarm/trouble condition has been eliminated	Zone or point
FS	Fire Supervisory	Unsafe fire detection system condition	Zone or point
FT	Fire Trouble	Zone disabled by fault	Zone or point
FU	Fire Unbypass	Bypass has been removed	Zone or point
FV	Fire Supervision Restore	A fire supervision zone that was in alarm has restored to normal	Zone or point
FW	Fire Supervisory Trouble	A fire supervisory zone is now in a trouble condition	Zone or point
FX	Fire Test	Fire zone activated during test	Zone or point
FY	Missing Fire Trouble	A fire point is now logically missing	Zone or point
FZ	Missing Fire Supervision	A Fire Supervisory point has gone missing	Zone or point
GA	Gas Alarm	Gas alarm condition detected	Zone or point
GB	Gas Bypass	Zone has been bypassed	Zone or point
GH	Gas Alarm Restore	Alarm condition eliminated	Zone or point
GJ	Gas Trouble Restore	Trouble condition eliminated	Zone or point
GR	Gas Restoral	Alarm/trouble condition has been eliminated	Zone or point
GS	Gas Supervisory	Unsafe gas detection system condition	Zone or point

Data Code	Short Description	Long Description	Address Field
GT	Gas Trouble	Zone disabled by fault	Zone or point
GU	Gas Unbypass	Bypass has been removed	Zone or point
GX	Gas Test	Zone activated during test	Zone or point
HA	Holdup Alarm	Silent alarm, user under duress	Zone or point
HB	Holdup Bypass	Zone has been bypassed	Zone or point
HH	Holdup Alarm Restore	Alarm condition eliminated	Zone or point
HJ	Holdup Trouble Restore	Trouble condition eliminated	Zone or point
HR	Holdup Restoral	Alarm/trouble condition has been eliminated	Zone or point
HS	Holdup Supervisory	Unsafe holdup system condition	Zone or point
HT	Holdup Trouble	Zone disabled by fault	Zone or point
HU	Holdup Unbypass	Bypass has been removed	Zone or point
IA	Equipment Failure Condition	A specific, reportable condition is detected on a device	Point number
IR	Equipment Fail - Restoral	The equipment condition has been restored to normal	Point number
JA	User Code Tamper	Too many unsuccessful attempts have been made to enter a user ID	Area number
JD	Date Changed	The date was changed in the transmitter/receiver	User number
JH	Holiday Changed	The transmitter's holiday schedule has been changed	User number
JK	Latchkey Alert	A designated user passcode has not been entered during a scheduled time window	User number
JL	Log Threshold	The transmitter's log memory has reached its threshold level	Unused
JO	Log Overflow	The transmitter's log memory has overflowed	Unused
JP	User On Premises	A designated user passcode has been used to gain access to the premises.	User number
JR	Schedule Executed	An automatic scheduled event was executed	Area number
JS	Schedule Changed	An automatic schedule was changed	User number
JT	Time Changed	The time was changed in the transmitter/receiver	User number
JV	User Code Changed	A user's code has been changed	User number
JX	User Code Deleted	A user's code has been removed	User number
JY	User Code Added	A user's code has been added	User number
JZ	User Level Set	A user's authority level has been set	User number
KA	Heat Alarm	High temperature detected on premise	Zone or point
KB	Heat Bypass	Zone has been bypassed	Zone or point
KH	Heat Alarm Restore	Alarm condition eliminated	Zone or point
KJ	Heat Trouble Restore	Trouble condition eliminated	Zone or point
KR	Heat Restoral	Alarm/trouble condition has been eliminated	Zone or point
KS	Heat Supervisory	Unsafe heat detection system condition	Zone or point
KT	Heat Trouble	Zone disabled by fault	Zone or point
KU	Heat Unbypass	Bypass has been removed	Zone or point
LB	Local Program	Begin local programming	Unused
LD	Local Program Denied	Access code incorrect	Unused
LE	Listen-in Ended	The listen-in session has been terminated	Unused
LF	Listen-in Begin	The listen-in session with the RECEIVER has begun	Unused
LR	Phone Line Restoral	Phone line restored to service	Line number
LS	Local Program Success	Local programming successful	Unused
LT	Phone Line Trouble	Phone line trouble report	Line number
LU	Local Program Fail	Local programming unsuccessful	Unused
LX	Local Programming Ended	A local programming session has been terminated	Unused
MA	Medical Alarm	Emergency assistance request	Zone or point
MB	Medical Bypass	Zone has been bypassed	Zone or point
MH	Medical Alarm Restore	Alarm condition eliminated	Zone or point
MI	Message	A canned message is being sent	Message number
MJ	Medical Trouble Restore	Trouble condition eliminated	Zone or point
MR	Medical Restoral	Alarm/trouble condition has been eliminated	Zone or point
MS	Medical Supervisory	Unsafe system condition exists	Zone or point
MT	Medical Trouble	Zone disabled by fault	Zone or point
MU	Medical Unbypass	Bypass has been removed	Zone or point
NA	No Activity	There has been no zone activity for a programmed amount of time	Zone number
NC	Network Condition	A communications network has a specific reportable condition	Network number
NF	Forced Perimeter Arm	Some zones/points not ready	Area number
NL	Perimeter Armed	An area has been perimeter armed	Area number
NM	Perimeter Armed, User Defined	A user defined area has been perimeter armed	Area number
NR	Network Restoral	A communications network has returned to normal operation	Network number
NS	Activity Resumed	A zone has detected activity after an alert	Zone number
NT	Network Failure	A communications network has failed	Network number
OA	Automatic Opening	System has disarmed automatically	Area number
OC	Cancel Report	Untyped zone cancel	User number
OG	Open Area	System has been partially disarmed	Area number

Data Code	Short Description	Long Description	Address Field
OH	Early to Open from Alarm	An area in alarm was disarmed before the opening window	User number
OI	Fail to Open	An area has not been armed at the end of the opening window	Area number
OJ	Late Open	An area was disarmed after the opening window	User number
OK	Early Open	An area was disarmed before the opening window	User number
OL	Late to Open from Alarm	An area in alarm was disarmed after the opening window	User number
OP	Opening Report	Account was disarmed	User number
OQ	Remote Opening	The system was disarmed from a remote location	User number
OR	Disarm From Alarm	Account in alarm was reset/disarmed	User number
OS	Opening Keyswitch	Account has been disarmed by keyswitch	Zone or point
OT	Late To Close	System was not armed on time	User number
OU	Output State – Trouble	An output on a peripheral device or NAC is not functioning	Output number
OV	Output State – Restore	An output on a peripheral device or NAC is back to normal operation	Output number
OZ	Point Opening	A point, rather than a full area or account, disarmed	Zone or point
PA	Panic Alarm	Emergency assistance request, manually activated	Zone or point
PB	Panic Bypass	Panic zone has been bypassed	Zone or point
PH	Panic Alarm Restore	Alarm condition eliminated	Zone or point
PJ	Panic Trouble Restore	Trouble condition eliminated	Zone or point
PR	Panic Restoral	Alarm/trouble condition has been eliminated	Zone or point
PS	Panic Supervisory	Unsafe system condition exists	Zone or point
PT	Panic Trouble	Zone disabled by fault	Zone or point
PU	Panic Unbypass	Panic zone bypass has been removed	Zone or point
QA	Emergency Alarm	Emergency assistance request	Zone or point
QB	Emergency Bypass	Zone has been bypassed	Zone or point
QH	Emergency Alarm Restore	Alarm condition has been eliminated	Zone or point
QJ	Emergency Trouble Restore	Trouble condition has been eliminated	Zone or point
QR	Emergency Restoral	Alarm/trouble condition has been eliminated	Zone or point
QS	Emergency Supervisory	Unsafe system condition exists	Zone or point
QT	Emergency Trouble	Zone disabled by fault	Zone or point
QU	Emergency Unbypass	Bypass has been removed	Zone or point
RA	Remote Programmer Call Failed	Transmitter failed to communicate with the remote programmer	Unused
RB	Remote Program Begin	Remote programming session initiated	Unused
RC	Relay Close	A relay has energized	Relay number
RD	Remote Program Denied	Access passcode incorrect	Unused
RN	Remote Reset	A TRANSMITTER was reset via a remote programmer	Unused
RO	Relay Open	A relay has de-energized	Relay number
RP	Automatic Test	Automatic communication test report	Unused
RR	Power Up	System lost power, is now restored	Unused
RS	Remote Program Success	Remote programming successful	Unused
RT	Data Lost	Dialer data lost, transmission error	Line number
RU	Remote Program Fail	Remote programming unsuccessful	Unused
RX	Manual Test	Manual communication test report	User number
RY	Test Off Normal	Test signal(s) indicates abnormal condition(s) exist	Zone or point
SA	Sprinkler Alarm	Sprinkler flow condition exists	Zone or point
SB	Sprinkler Bypass	Sprinkler zone has been bypassed	Zone or point
SC	Change of State	An expansion/peripheral device is reporting a new condition or state change	Condition number
SH	Sprinkler Alarm Restore	Alarm condition eliminated	Zone or point
SJ	Sprinkler Trouble Restore	Trouble condition eliminated	Zone or point
SR	Sprinkler Restoral	Alarm/trouble condition has been eliminated	Zone or point
SS	Sprinkler Supervisory	Unsafe sprinkler system condition	Zone or point
ST	Sprinkler Trouble	Zone disabled by fault	Zone or point
SU	Sprinkler Unbypass	Sprinkler zone bypass has been removed	Zone or point
TA	Tamper Alarm	Alarm equipment enclosure opened	Zone or point
TB	Tamper Bypass	Tamper detection has been bypassed	Zone or point
TC	All Points Tested	All point tested	Unused
TE	Test End	Communicator restored to operation	Unused
TH	Tamper Alarm Restore	An Expansion Device's tamper switch restores to normal from an Alarm state	Unused
TJ	Tamper Trouble Restore	An Expansion Device's tamper switch restores to normal from a Trouble state	Unused
TP	Walk Test Point	This point was tested during a Walk Test	Point number
TR	Tamper Restoral	Alarm equipment enclosure has been closed	Zone or point
TS	Test Start	Communicator taken out of operation	Unused

Data Code	Short Description	Long Description	Address Field
TT	Tamper Trouble	Equipment enclosure opened in disarmed state	Zone or point
TU	Tamper Unbypass	Tamper detection bypass has been removed	Zone or point
TW	Area Watch Start	Area watch feature has been activated	Unused
TX	Test Report	An unspecified (manual or automatic) communicator test	Unused
TZ	Area Watch End	Area watch feature has been deactivated	Unused
UA	Untyped Zone Alarm	Alarm condition from zone of unknown type	Zone or point
UB	Untyped Zone Bypass	Zone of unknown type has been bypassed	Zone or point
UG	Unverified Event – Untyped	A point assigned to a Cross Point group has gone into alarm but the Cross Point remained normal	Zone or point
UH	Untyped Alarm Restore	Alarm condition eliminated	Zone or point
UJ	Untyped Trouble Restore	Trouble condition eliminated	Zone or point
UR	Untyped Zone Restoral	Alarm/trouble condition eliminated from zone of unknown type	Zone or point
US	Untyped Zone Supervisory	Unsafe condition from zone of unknown type	Zone or point
UT	Untyped Zone Trouble	Trouble condition from zone of unknown type	Zone or point
UU	Untyped Zone Unbypass	Bypass on zone of unknown type has been removed	Zone or point
UX	Undefined	An undefined alarm condition has occurred	Unused
UY	Untyped Missing Trouble	A point or device which was not armed is now logically missing	Zone or point
UZ	Untyped Missing Alarm	A point or device which was armed is now logically missing	Zone or point
VI	Printer Paper In	TRANSMITTER or RECEIVER paper in	Printer number
VO	Printer Paper Out	TRANSMITTER or RECEIVER paper out	Printer number
VR	Printer Restore	TRANSMITTER or RECEIVER trouble restored	Printer number
VT	Printer Trouble	TRANSMITTER or RECEIVER trouble	Printer number
VX	Printer Test	TRANSMITTER or RECEIVER test	Printer number
VY	Printer Online	RECEIVER'S printer is now online	Unused
VZ	Printer Offline	RECEIVER'S printer is now offline	Unused
WA	Water Alarm	Water detected at protected premises	Zone or point
WB	Water Bypass	Water detection has been bypassed	Zone or point
WH	Water Alarm Restore	Water alarm condition eliminated	Zone or point
WJ	Water Trouble Restore	Water trouble condition eliminated	Zone or point
WR	Water Restoral	Water alarm/trouble condition has been eliminated	Zone or point
WS	Water Supervisory	Water unsafe water detection system condition	Zone or point
WT	Water Trouble	Water zone disabled by fault	Zone or point
WU	Water Unbypass	Water detection bypass has been removed	Zone or point
XA	Extra Account Report	CS RECEIVER has received an event from a non-existent account	Unused
XE	Extra Point	Panel has sensed an extra point not specified for this site	Point number
XF	Extra RF Point	Panel has sensed an extra RF point not specified for this site	Point number
XH	RF Interference Restoral	A radio device is no longer detecting RF Interference	Receiver number
XI	Sensor Reset	A user has reset a sensor	Zone or point
XJ	RF Receiver Tamper Restoral	A Tamper condition at a premises RF Receiver has been restored	Receiver number
XL	Low Received Signal Strength	The RF signal strength of a reported event is below minimum level	Receiver number
XM	Missing Alarm - Cross Point	Missing Alarm verified by Cross Point in Alarm (or missing)	Zone or point
XQ	RF Interference	A radio device is detecting RF Interference	Receiver number
XR	Transmitter Battery Restoral	Low battery has been corrected	Zone or point
XS	RF Receiver Tamper	A Tamper condition at a premises receiver is detected	Receiver number
XT	Transmitter Battery Trouble	Low battery in wireless transmitter	Zone or point
XW	Forced Point	A point was forced out of the system at arm time	Zone or point
XX	Fail to Test	A specific test from a panel was not received	Unused
YA	Bell Fault	A trouble condition has been detected on a Local Bell, Siren, or Annunciator	Unused
YB	Busy Seconds	Percent of time receiver's line card is on-line	Line card number
YC	Communications Fail	RECEIVER and TRANSMITTER	Unused
YD	Receiver Line Card Trouble	A line card identified by the passed address is in trouble	Line card number
YE	Receiver Line Card Restored	A line card identified by the passed address is restored	Line card number
YF	Parameter Checksum Fail	System data corrupted	Unused
YG	Parameter Changed	A TRANSMITTER'S parameters have been changed	Unused
YH	Bell Restored	A trouble condition has been restored on a Local Bell, Siren, or Annunciator	Unused
YI	Overcurrent Trouble	An Expansion Device has detected an overcurrent condition	Unused
YJ	Overcurrent Restore	An Expansion Device has restored from an overcurrent condition	Unused

Data Code	Short Description	Long Description	Address Field
YK	Communications Restoral	TRANSMITTER has resumed communication with a RECEIVER	Unused
YM	System Battery Missing	TRANSMITTER/RECEIVER battery is missing	Unused
YN	Invalid Report	TRANSMITTER has sent a packet with invalid data	Unused
YO	Unknown Message	An unknown message was received from automation or the printer	Unused
YP	Power Supply Trouble	TRANSMITTER/RECEIVER has a problem with the power supply	Unused
YQ	Power Supply Restored	TRANSMITTER'S/RECEIVER'S power supply has been restored	Unused
YR	System Battery Restoral	Low battery has been corrected	Unused
YS	Communications Trouble	RECEIVER and TRANSMITTER	Unused
YT	System Battery Trouble	Low battery in control/communicator	Unused
YU	Diagnostic Error	An expansion/peripheral device is reporting a diagnostic error	Condition number
YW	Watchdog Reset	The TRANSMITTER created an internal reset	Unused
YX	Service Required	A TRANSMITTER/RECEIVER needs service	Unused
YY	Status Report	This is a header for an account status report transmission	Unused
YZ	Service Completed	Required TRANSMITTER / RECEIVER service completed	Mfr defined
ZA	Freeze Alarm	Low temperature detected at premises	Zone or point
ZB	Freeze Bypass	Low temperature detection has been bypassed	Zone or point
ZH	Freeze Alarm Restore	Alarm condition eliminated	Zone or point
ZJ	Freeze Trouble Restore	Trouble condition eliminated	Zone or point
ZR	Freeze Restoral	Alarm/trouble condition has been eliminated	Zone or point
ZS	Freeze Supervisory	Unsafe freeze detection system condition	Zone or point
ZT	Freeze Trouble	Zone disabled by fault	Zone or point
ZU	Freeze Unbypass	Low temperature detection bypass removed	Zone or point

APPENDIX F PROGRAMMING LINE & RADIO FORMATS

Line Formats

System

PAF/NPAF/EPAF/PID, DESK . If the system's ContactID=1, the account is in Hex.

Flags

Additional 35.8 mSec, for pulse protocol in 143mSec

Radio Formats

System

KP5 bit7...bit2 -5-th byte, b2...b1 – system (b11...b10)

All other system formats are as is

Flags

bit0 - Account BIN

bit1 - Account MSB BIN

bit2 - Account MSB to LSB

bit3 - bit15 is part of Account

bit4 - INTRAC2000 Event Unary/VISONIC2000 bit16 part of Event

bit5 - Parity invert (ODD)

bit6 - Enable bit0 in PAF System

bit7 - SYNC OFF required

Extra

bit0 - bit0 value

bit1 - bit24 (INTRAC2000)/bit10 (MILCOLD) value

bit2 - bit25 (INTRAC2000)/bit11 (MILCOLD, DESK) value

bit3 - spare value

bit4 - bit0 mask

bit5 - bit24 (INTRAC2000)/bit10 (MILCOLD) mask

bit6 - bit25 (INTRAC2000)/bit11 (MILCOLD, DESK) mask

bit7 - spare mask

Repeater Formats

The supported are PAF/NPAF/EPAF and all 4x2 compatibles

Format: Source format

Flags & Extra N/A

PIMA Electronic Systems Ltd. shall have no liability for any death, personal and/or bodily injury and/or damage to property or other loss whether direct, indirect, incidental, consequential or otherwise, based on a claim that the Product failed to function.

Please refer to a separate warranty statement found on PIMA website at:

<http://www.pima-alarms.com/site/Content/t1.asp?pid=472&sid=57>

Warning: The user should follow the installation and operation instructions and among other things test the Product and the whole system at least once a week. For various reasons, including, but not limited to, changes in environment conditions, electric or electronic disruptions and tampering, the Product may not perform as expected. The user is advised to take all necessary precautions for his/her safety and the protection of his/her property.

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All efforts have been made to ensure that the content of this manual is accurate. Pima retains the right to modify this manual or any part thereof, from time to time, without serving any prior notice of such modification.

Please read this manual in its entirety before attempting to program or operate your system. Should you misunderstand any part of this manual, please contact the supplier or installer of this system.

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Contact us:

PIMA Electronic Systems Ltd.

5 Hatzoref Street, Holon 58856, Israel

Tel: +972.3.6506414 Fax: +972.3.5500442

Email: support@pima-alarms.com

Web: <http://www.pima-alarms.com>

Partner's website: <http://www.pima-alarms.com/site/modules/login.asp>