



## Arrowhead Alarm RS232-BD Elite-S Keypad Instructions

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### Arrowhead Alarm RS232-BD Elite-S Keypad



## Product Information

The Elite-S Keypad buss to RS232 version 2 interface protocol is a module designed to connect to the ELITE-S keypad buss and pass all buss activity on to a PC or OEM device via an RS232 connection. It has a communication Baud rate of 9600 and sends information in ASCII format. The RS232 V2 interface connects to the ELITE-S control panel via the standard keypad buss using the POS, NEG, CLK, and DAT connections. The module also has DIP switches for setting the keypad address. It is important to set the RS232 board to an unused keypad address to avoid buss conflicts.

## Product Usage Instructions

1. Connect the RS232 V2 board to the ELITE-S control panel using the POS, NEG, CLK, and DAT connections.
2. Set the keypad address using the DIP switches on the RS232 V2 board. Refer to the chart provided in the user manual for keypad addressing.
3. Make sure the RS232 board is set to an unused keypad address to prevent buss conflicts.
4. Once connected, the LED on the RS232 board will flash at approximately 1/2 second intervals to indicate it is working.
5. To connect the RS232 V2 board to a PC or OEM device, create a serial lead with the following wiring connections:
  - RS232 V2 Board Tx – DB9 Serial connector (Female) Pin 2
  - RS232 V2 Board Rx – DB9 Serial connector (Female) Pin 3
  - RS232 V2 Board GND – DB9 Serial connector (Female) Pin 5
6. Once the serial lead is connected to the PC or OEM device, use a terminal program like HyperTerminal set to 9600 Baud to view the signals sent out via the RS232 port.

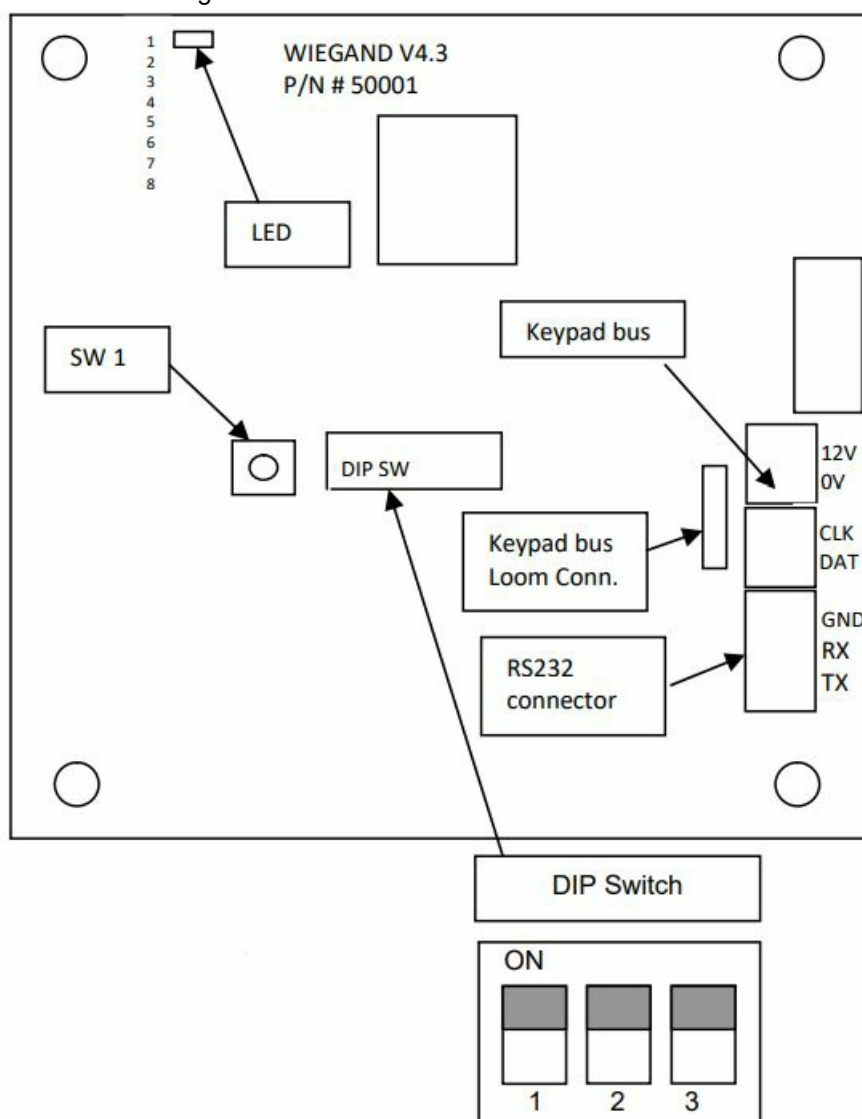
**Note:** The RS232 V2 messages are all sent in capital letters. The user manual provides a list of RS232 messages and their corresponding event types.

## Connecting and setting up the RS232 V2 Board

The RS232 V2 keypad bus interface module is designed to connect to the ELITE-S keypad buss and pass all buss activity on to a PC or OEM device via an RS232 connection. The communication Baud rate is 9600. The information is sent in ASCII format. The RS232 V2 interface connects to the ELITE-S control panel via the standard keypad buss using the POS, NEG, CLK & DAT connections (see drawing below). The board must also be set to a keypad address using the DIP switches on-board. It is important to set the RS232 board to an unused keypad address otherwise buss conflicts will occur. The keypad addressing is done as per the chart below.

Keypad Address #	DIP Switch Number		
	1	2	3
KP # 1	OFF	OFF	OFF
KP # 2	ON	OFF	OFF
KP # 3	OFF	ON	OFF
KP # 4	ON	ON	OFF
KP # 5	OFF	OFF	ON
KP # 6	ON	OFF	ON
KP # 7	OFF	ON	ON
KP # 8	ON	ON	ON

When the RS232 board is connected to an ELITE-S control panel the LED on the board will flash at approximately 1/2 second intervals to show it is working.



In the drawing above the DIP switches are indicating that the RS232 board is set to keypad address number 8 (switches 1, 2 & 3 all ON). Switches 4-8 are unused. To connect the RS232 V2 board to a PC or OEM device you will need to make up a serial lead. The wiring connections for that lead are shown in the table below.

<b>RS232 V2 Board</b>	<b>DB9 Serial connector (Female)</b>
Tx	Pin 2
Rx	Pin 3
GND	Pin 5

## The RS232 V2 messages and what they mean

The following list shows the signals sent out via the RS232 port and the event type that triggered the signal. To view the signals below the RS232 port can be connected to a standard PC serial port and running HyperTerminal (set to 9600 Baud) the signals will appear on the screen as the occur.

**NOTE:** The messages are all sent in capital letters.

### ZONE INDICATION'S

<b>RS232 Message</b>	<b>Message Trigger</b>
<b>Z0xxx</b>	<b>ZO</b> = zone open, <b>xxx</b> = zone number 001-016
<b>ZCxxx</b>	<b>ZC</b> = zone closed, <b>xxx</b> = zone number 001-016
<b>ZAxxx</b>	<b>ZA</b> = zone alarm, <b>xxx</b> = zone number 001-016
<b>ZRxxx</b>	<b>ZR</b> = zone alarm restore, <b>xxx</b> = zone number 001-016
<b>ZTxxx</b>	<b>ZT</b> = zone trouble, <b>xxx</b> = zone number 001-016
<b>ZTRxxx</b>	<b>ZTR</b> = zone trouble restore, <b>xxx</b> =zone number 001-016
<b>ZBYxxx</b>	<b>ZBY</b> = zone bypassed, <b>xxx</b> =zone number 001-016
<b>ZBYRxxx</b>	<b>ZBYR</b> = zone bypass restore, <b>xxx</b> = zone number 001-016
<b>ZBL</b>	<b>ZBL</b> = RF zone battery low, No zone information is available
<b>ZBR</b>	<b>ZBR</b> = RF zone battery OK, No zone information is available
<b>ZSAxxx</b>	<b>ZSA</b> = RF zone supervise fail, <b>xxx</b> =zone number 001-016
<b>ZSRxxx</b>	<b>ZSR</b> = RF zone supervise OK, <b>xxx</b> =zone number 001-016
<b>ZIA</b>	<b>ZIA</b> = zone sensor-watch alarm, No zone information is available
<b>ZIR</b>	<b>ZIR</b> = zone sensor-watch OK, No zone information is available

**Note:** If multiple zones are activated simultaneously all zones will be shown singularly with a new line for each message.

When there is a Sensor-watch alarm "ZIA" a "ZT" (zone trouble) alarm is generated at the same time (on a new line) and the zone number is shown as part of the "ZT" message.

### ARM/DISARM INDICATION'S



<b><i>RS232 Message</i></b>	<b><i>Message Trigger</i></b>
<b>AA</b>	<b>AA</b> = Armed Area A
<b>AB</b>	<b>AB</b> = Armed Area B
<b>SA</b>	<b>SA</b> = Stay Armed Area A
<b>SB</b>	<b>SB</b> = Stay Armed Area B
<b>DA</b>	<b>DA</b> = Disarmed Area A
<b>DB</b>	<b>DB</b> = Disarmed Area B
<b>EAA</b>	<b>EAA</b> = Area A Arming, exit delay active
<b>EAB</b>	<b>EAB</b> = Area B Arming, exit delay active
<b>ESA</b>	<b>ESA</b> = Area A Stay Mode Arming, exit delay active
<b>ESB</b>	<b>ESB</b> = Area A Stay Mode Arming, exit delay active

When just one area is armed the status of the other area is shown as well, eg arming area A will send the message EAA (area A arming and exit delay active) followed by the message DB to indicate that area B is disarmed.

#### SYSTEM INDICATION'S

<b><i>RS232 Message</i></b>	<b><i>Message Trigger</i></b>
<b>MF</b>	<b>MF</b> = Mains fail
<b>MR</b>	<b>MR</b> = Mains OK (restore)
<b>BF</b>	<b>BF</b> = Battery fail
<b>BR</b>	<b>BR</b> = Battery OK (restore)
<b>TA</b>	<b>TA</b> = Panel Tamper Alarm
<b>TR</b>	<b>TR</b> = Panel Tamper OK (restore)
<b>LF</b>	<b>LF</b> = Telephone Line Fail
<b>LR</b>	<b>LR</b> = Telephone Line OK (restore)
<b>DF</b>	<b>DF</b> = Dialler Fail
<b>DR</b>	<b>DR</b> = Dialler OK (restore)
<b>RO</b>	<b>RO</b> = Ready On (all zones are sealed)
<b>NR</b>	<b>NR</b> = Not Ready (zones are unsealed)
<b>FF</b>	<b>FF</b> = Fuse fail or Output fail
<b>FR</b>	<b>FR</b> = Fuse OK or Output OK (restore)
<b>PBF</b>	<b>PBF</b> = Pendant battery fail
<b>PBR</b>	<b>PBR</b> = Pendant battery OK (restore)
<b>CTF</b>	<b>CTF</b> = Code tamper fail
<b>CTR</b>	<b>CTR</b> = Code tamper OK (restore)
<b>RIF</b>	<b>RIF</b> = Receiver fail
<b>RIR</b>	<b>RIF</b> = Receiver OK (restore)
<b>CAL</b>	<b>CAL</b> = Dialler is Active (making a call)
<b>CLF</b>	<b>CLF</b> = Dialler is Inactive (the call has finished)

#### OUTPUTS

**RS232 Message****OOxxx****ORxxx****Message Trigger****OO** = Output On, **xxx** = Output number 001-008**OR** = Output Off (restore), **xxx** = Output number 001-008

**Note:** If multiple outputs are activated simultaneously all outputs will be shown singularly with a new line for each message.

**RECEIVER SIGNALS****RS232 Message****RSO.xx. xx. xx. xx. xx.****RSR.xx. xx. xx. xx. xx.****Message Trigger****RSO** = Received Code On, **xx** = 2 digit hex number**RSR** = Received Code Off, **xx** = 2 digit hex number

**Note:** The received code consists of 5 two bit hex numbers separated by a ".". Valid characters for xx are 0-9, A, B, C, D, E, F.

**Commands that can be sent to the ELITE-S panel**

The following lists of "Commands" are signals that can be sent to the control panel via the RS232 interface. They allow external devices to initiate certain functions at the panel such as sending a code to disarm the panel or turn outputs on or off. NOTE: The messages are case sensitive and all letters sent must be capital letters. Also if sending the messages manually via HyperTerminal the message must be sent as one complete string, you cannot edit the string if you make a mistake. If a mistake is made the complete message should be sent again. After entering in the command string you must press the <ENTER> key on the computer keyboard to send the command to the panel (sending an "E" for ENTER as part of our command buss message does not replace the computer keyboard <ENTER>).

**KEYS COMMAND**

It is possible to mimic many of the functions available on the ELITE-S keypad by sending characters to the panel via the RS232 interface board. The "KEYS" command allows single keys or a group of keys to be sent to the control panel.

**KEYS\_xx E**

- **KEYS\_** = Signals to the control panel that a single key or a string of keys from the list below are to be sent,
- **x** = Key value/s from the list below (letters MUST be in capitals).
- **E** = Computer keyboard Enter.

There should be NO spaces between any of the characters. If the entry was accepted the board should send an OK!! message. If the OK!! message is not received the message should be re-sent.

An example of a "KEYS" command would be the command string "KEYS\_123E". The panel will receive the code 123 ENTER and respond accordingly. Another example is if the command string "KEYS\_R" was sent via the RS232 board the panel will receive an ARM button pressed signal. It should be noted that any commands sent by the RS232 V2 board are conditional on the programmed options for the keypad address assigned to the board (typically P71-P93E). Also, the panel stores any commands sent from the RS232 V2 board for a period of 40 seconds so if an incorrect string was sent to the panel it is advisable to send "KEYS\_E" to the panel which will clear the keypad buffer at the panel by sending an ENTER button, ie if the command string "KEYS\_123" was sent to the panel without the E command the panel will not action the code because the enter button was not sent. If you now sent the command again within 40 seconds of sending the first command string expecting it to work ie "KEYS\_123E" the panel will actually receive 123123E because the first 123 will not have been cleared and it will also not work. After that, if the correct command string was sent again including the E it will work because the previous command that included the E would have cleared the keypad buffer at the panel.

## KEY VALUE LIST

<b>0</b>	<b>=</b>	<b>KEY '0'</b>	<b>C</b>	<b>=</b>	<b>KEY 'CONTROL'</b>
<b>1</b>	<b>=</b>	<b>KEY '1'</b>	<b>N</b>	<b>=</b>	<b>KEY 'PANIC'</b>
<b>2</b>	<b>=</b>	<b>KEY '2'</b>	<b>R</b>	<b>=</b>	<b>KEY 'ARM'</b>
<b>3</b>	<b>=</b>	<b>KEY '3'</b>	<b>S</b>	<b>=</b>	<b>KEY 'STAY'</b>
<b>4</b>	<b>=</b>	<b>KEY '4'</b>	<b>X</b>	<b>=</b>	<b>KEY 'EXCL'</b>
<b>5</b>	<b>=</b>	<b>KEY '5'</b>	<b>P</b>	<b>=</b>	<b>KEY 'PROG'</b>
<b>6</b>	<b>=</b>	<b>KEY '6'</b>	<b>E</b>	<b>=</b>	<b>KEY 'ENTER'</b>
<b>7</b>	<b>=</b>	<b>KEY '7'</b>	<b>A</b>	<b>=</b>	<b>KEY 'A'</b>
<b>8</b>	<b>=</b>	<b>KEY '8'</b>	<b>B</b>	<b>=</b>	<b>KEY 'B'</b>
<b>9</b>	<b>=</b>	<b>KEY '9'</b>	<b>H</b>	<b>=</b>	<b>KEY 'CHIME'</b>

**NOTE:** If sending a zone bypass to the ELITE S the zones must be entered as a two digit entry, eg to bypass zone 6 send KEYS\_X06E E.

**NOTE:** If controlling an output on the ELITE S the output numbers must be entered as a single digit entry, eg to turn on/off output 7 send KEYS\_C7E E.

It is also possible to enter program mode via the RS232 board but this is not recommended because there is no feedback provided from the panel. If you forget to enter in "KEYS\_PE" (to exit program mode from the RS232 board) when finished the panel will remain in program mode at that keypad which will stop any other normal keypads from being able to enter program mode. It will also inhibit tamper and 24 hour alarms plus stop the panel from being able to be armed until the RS232 V2 board is out of program mode.

## NEWCODE COMMAND

It is possible to save up to 10 1-6 digit codes at the RS232 V2 board itself. These codes can be used to arm/disarm the control panel or operate outputs (the same code must already be programmed in the ELITE-S control panel for this to work). Once the code or codes have been saved at the RS232 V2 board you can then use the "CODE" command (see below) to send the pre-programmed code to the control panel.

## NEWCODE#\_xE E

- **NEWCODE** = Indicates we wish to save a local code at the RS232 V2 board There are 10 memory locations for codes and each can be 1-6 digits in length.
- **#** = A value from 0-9 to show which of the 10 local code slots we wish to save the new code.
- **\_** = Acts as a separator between the storage location 0-9 and the actual code data.
- **x..** = Numeric code number to be saved. Code can be 1-6 digits long.
- **E** = The "E" represents the panel keypad <ENTER> button. If the "E" is not programmed as part of a User code it will do nothing when sent to the ELITE-S. Some commands such as "R" for the ARM button may not need the E to be saved as part of the code.
- **E** = Computer keyboard Enter.

There should be NO spaces between any of the characters. If the entry was accepted the board should send an OK!! Message. If the OK!! Message is not received the message should be re-sent.

## CODE COMMAND

Once a code has been pre-programmed at one of the NEWCODE locations it can be sent to the control panel with the CODE command. For the code to work it must match an existing code already programmed into the control panel and the code must have the "E" command programmed as part of the code to ensure it will work properly (see NEWCODE programming information above).

## **CODE# E**

- **CODE** = Indicates to the RS232 board that we wish to send one of the 10 pre-programmed code numbers down the buss to the ELITE-S control panel,
- **#** = A value from 0-9 to select one of the 10 local codes to be sent to the ELITE-S control panel.
- **E** = Computer keyboard Enter.

## **MEM COMMAND**

It is possible to request the memory events from the control. The events are displayed with the time and date that they occurred plus a brief description of what the event was.

## **MEM E**

- **MEM** = Enter memory display mode.
- **E** = Computer keyboard Enter.

Entering MEM E again will show the next memory event. Every time a new MEM E is sent the next event will be displayed. If using HyperTerminal, each event is displayed on a new line until either the full 255 events have been retrieved or the memory request is terminated by sending an E E as shown below.

## **E E**

- **E** = When in memory display mode sending the “E” command (ENTER button) will terminate the memory mode.
- **E** = Computer keyboard Enter

**NOTE:** If the ELITE S is armed the events can only be retrieved if the RS232 V2 board is set to KP# 8.

## **? COMMAND**

If the PC or OEM device would like to get the latest panel information you can send the “?” command. This will get all of the current information from the panel and send it out on the RS232 port. For example if the control panel was disarmed but the AC (mains) was currently off the following reports would be sent

- **DA** (Area A currently disarmed)
- **DB** (Area b currently disarmed)
- **MF** (Mains Failure)

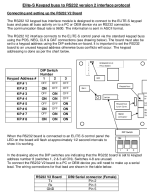
Also any currently unsealed zones and/or outputs that are currently turned on would be indicated in response to the “?” command as well.

## **? E**

- **?=** Display the current control panel status
- **E=** Computer keyboard Enter

## **Documents / Resources**





## [Arrowhead Alarm RS232-BD Elite-S Keypad](#) [pdf] Instructions RS232-BD Elite-S Keypad, RS232-BD, Elite-S Keypad, Keypad