

Elite-SX Serial interface protocol

Connecting and setting up the Serial Port

The ELITE SX has an on-board serial port which is accessed via a 10 way ribbon cable connector on the main ELITE SX PCB labelled "SERIAL".

The Serial port provides two way communications between the ELITE SX and a PC or OEM device via a serial connection.

The ELITE SX "SERIAL" port provides logic level serial communications so to fully utilise this port a suitable serial device must be plugged into the port to allow RS232 communication. The Arrowhead USB D-LINK or the dedicated SX RS232 BD can be used. Both can be plugged directly into the ELITE SX "SERIAL" connector.

The Baud rate is 115200, 8 data bits. The data is sent in ASCII format.

The interface must also be set to a keypad address using the DEVICE command.

The default DEVICE is 32, corresponding to keypad 32.

See the section labelled "DEVICE COMMAND" to find out how to change this keypad address.

The keypad address for the "SERIAL" port on the ELITE SX is only used to enable options such as assigned areas, arming functions, etc. It is acceptable to have a keypad connected to the ELITE SX panel with the same keypad ID number as the "SERIAL" port. The two devices would share common programming but there would be no adverse affects by the two devices sharing the same ID number.

If using the plug in SX RS232 BD to connect 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.

| SX RS232 V2 Board | DB9 Serial connector (Female) |
|-------------------|-------------------------------|
| Tx | Pin 2 |
| Rx | Pin 3 |
| GND | Pin 5 |

The Serial protocol messages and what they mean

The following list shows the signals sent out via the Serial port and the event type that triggered the signal. To view the signals below the "SERIAL" port can be connected to a standard PC serial port (using the USB D-LINK or the SX RS232 BD) and running a terminal program such as PuTTY or HyperTerminal (set to serial mode, 115200 Baud, 8 bit data). The signals will appear on the screen as they occur.

ZONE INDICATIONS

| <i>RS232 Message</i> | <i>Message Description</i> |
|----------------------|---|
| Z0x | ZO = zone open, x = zone number |
| ZCx | ZC = zone closed, x = zone number |
| ZAx | ZA = zone alarm, x = zone number |
| ZRx | ZR = zone alarm restore, x = zone number |
| ZTx | ZT = zone tamper, x = zone number |
| ZTRx | ZTR = zone tamper restore, x = zone number |
| ZBYx | ZBY = zone bypassed, x = zone number |
| ZBYRx | ZBYR = zone bypass restore, x = zone number |
| ZBLx | ZBL = RF zone battery low, x = zone number |
| ZBRx | ZBR = RF zone battery OK, x = zone number |
| ZSAx | ZSA = RF zone supervise fail, x = zone number |
| ZSRx | ZSR = RF zone supervise OK, x = zone number |
| ZIAx | ZIA = zone sensor-watch (inactivity) alarm, x = zone number |
| ZIRx | ZIR = zone sensor-watch (inactivity) OK, x = zone number |
| ZEx | ZE = zone is in entry delay, x = zone number |

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

ARM/DISARM INDICATION'S

| <i>RS232 Message</i> | <i>Message Trigger</i> |
|----------------------|--|
| Ax | A = Armed, x = area number |
| Sx | S = Stay Armed, x = area number |
| Dx | D = Disarmed, x = area number |
| EAx | EA = Exit delay active during Arming, x = area number |
| ESx | ES = Exit delay active during Stay Arming, x = area number |

SYSTEM INDICATION'S

| <i>RS232 Message</i> | <i>Message Trigger</i> |
|----------------------|---|
| MF | MF = Mains fail on panel |
| MF ZXx | MF ZX = Mains fail on zone expander x |
| MF OXx | MF OX = Mains fail on output expander x |
| MF PXx | MF PX = Mains fail on prox expander x |
| MR | MR = Mains OK (restore) on panel |
| MR ZXx | MR ZX = Mains OK (restore) on zone expander x |
| MR OXx | MR OX = Mains OK (restore) on output expander x |
| MR PXx | MR PX = Mains OK (restore) on prox expander x |

| | |
|---------------|--|
| BF | BF = Battery fail on panel |
| BF ZXx | BF ZX = Battery fail on zone expander x |
| BF OXx | BF OX = Battery fail on output expander x |
| BF PXx | BF PX = Battery fail on prox expander x |
| BR | BR = Battery OK (restore) on panel |
| BR ZXx | BR ZX = Battery OK (restore) on zone expander x |
| BR OXx | BR OX = Battery OK (restore) on output expander x |
| BR PXx | BR PX = Battery OK (restore) on prox expander x |
| TA | TA = Panel Tamper Alarm |
| TA ZXx | TA ZX = Tamper Alarm on zone expander x |
| TA OXx | TA OX = Tamper Alarm on output expander x |
| TA PXx | TA PX = Tamper Alarm on prox expander x |
| TR | TR = Panel Tamper OK (restore) |
| TR ZXx | TR ZX = Tamper OK (restore) on zone expander x |
| TR OXx | TR OX = Tamper OK (restore) on output expander x |
| TR PXx | TR PX = Tamper OK (restore) on prox expander x |
| RO | RO = Ready On (all zones are sealed) |
| NR | NR = Not Ready (zones are unsealed) |
| LF | LF = Telephone Line Fail |
| LR | LR = Telephone Line OK (restore) |
| DF | DF = Dialler Fail |
| DR | DR = Dialler OK (restore) |
| FF | FF = Panel Fuse fail or Output fail |
| FF ZXx | FF ZX = Fuse fail on zone expander x |
| FF OXx | FF OX = Fuse fail on output expander x |
| FF PXx | FF PX = Fuse fail on prox expander x |
| FR | FR = Panel Fuse OK or Output OK (restore) |
| FR ZXx | FR ZX = Fuse OK on zone expander x |
| FR OXx | FR OX = Fuse OK on output expander x |
| FR PXx | FR PX = Fuse OK on prox expander x |
| PBFx | PBF = Pendant battery fail on pendant x |
| PBRx | PBR = Pendant battery OK (restore) on pendant x |
| RIF | RIF = Receiver fail |
| RIR | RIF = Receiver OK (restore) |
| CAL | CAL = Dialler is Active (making a call) |
| CLF | CLF = Dialler is Inactive (the call has finished) |

OUTPUTS

| <i>Serial Message</i> | <i>Message Trigger</i> |
|------------------------------|--|
| OOxx | OO = Output On, xx = Output number 1-32 |
| ORxx | OR = Output Off (restore), xx = Output number 1-32 |

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

Commands sent to the ELITE-SX panel

The commands listed below can be sent to the control panel via the Serial interface to enable external devices to initiate certain functions at the panel such as arm/disarm or turn outputs on or off.

The messages are generally not case sensitive except for the KEYS command so it is probably good practise to always use capitals. Each command should be on a line of its' own, terminated by the <ENTER> key. The panel will reply with either OK or ERROR followed by its' interpretation of the command sent.

OK indicates that the command was valid, it doesn't guarantee that the command will succeed, eg, an arming command may receive an OK reply but due to a violated zone, the arming will not actually happen – it is required that the status messages be monitored to verify the command succeeded.

ERROR indicates that either the command was invalid, or could not be entered using the current settings. If this happens, check the program options associated with the DEVICE number assigned to the "SERIAL" port, eg the device may not be assigned an area that is attempting to be armed by a serial command or a user number doesn't have the correct privileges for the assigned area, etc.

Note: Certain commands, such as arming, will not be accepted (return ERROR) if the panel is in program mode.

MEM COMMAND

MEM x – NOTE: there must be a space between MEM and the x character. When this command is sent to the ELITE SX the panel sends the most recent x events, eg if the command "MEM 100" is sent to the panel it will return the most recent 100 events from its' memory. The panel will send the number of events specified by "x" up to a maximum of 10,000 events. After the last MEM event is shown, a line with "MEM END" will mark the end of the memory recall session. To cancel a long memory recall sequence, send the "CANCEL" command.

Example of a memory request

```
MEM Wed 15-JUL-15 12:54:02 Zone Bypassed Area 1 Zone 2
MEM Wed 15-JUL-15 12:31:04 Area Armed Area 1 User 4
MEM END
```

MEM x y - NOTE: there must be a space between MEM and the x and the y characters. When this command is sent to the ELITE SX the panel sends x number of events starting at event y, eg if the command "MEM 100 200" is sent to the panel it will return the 100 events starting from event number 200 (eg it will show events 200 to 300). After the last MEM event is shown, a line with "MEM END" will mark the end of the memory recall session. To cancel a long memory recall sequence, send the "CANCEL" command.

VERSION COMMAND

VERSION ? = NOTE: there must be a space between VERSION and the ? character. Returns the serial command software revision eg, Version 0 "Elite-SX" (where 0 is the serial command processor revision level).

DEVICE COMMAND

DEVICE ? = NOTE: there must be a space between DEVICE and the ? character. Returns the current device ID (or keypad number) which is being used (the panel is set to Device 32 by default).

DEVICE x = NOTE: there must be a space between DEVICE and the x character. Changes the current device number to x, x = 1-32

BYPASS and UNBYPASS COMMANDS

BYPASS x = NOTE: there must be a space between BYPASS and the x character. Request to Bypass zone x, x = 1-64

UNBYPASS x = NOTE: there must be a space between UNBYPASS and the x character. Request to Unbypass zone x, x = 1-64

UNBYPASS = Request to Unbypass all currently bypassed zones (this will only unbypass zones linked to the areas assigned to the device number)

ARMING COMMANDS

ARMAWAY = This is the same as pressing the "Arm" key on the keypad

ARMAWAY x pin = NOTE: there must be a space between ARMAWAY, the x and the pin characters. Arm alarm using user x, x = user 1-2000 with pin number. Eg ARMAWAY 1 123 where 1=user 1 and 123 equals the user 1 pin code. If a user number is specified the PIN must be correct for the user number. If the user number is set to 0 the PIN can be any valid PIN code.

ARMSTAY = This is the same as pressing the "Stay" key on the keypad

DISARM x pin = NOTE: there must be a space between DISARM, the x and the pin characters. Disarm alarm using user x, x = user 1-2000 with pin number. Eg DISARM 1 123 where 1=user 1 and 123 equals the user 1 pin code. If a user number is specified the PIN must be correct for the user number. If the user number is set to 0 the PIN can be any valid PIN code.

OUTPUT CONTROL COMMANDS

OUTPUTON x = NOTE: there must be a space between OUTPUTON and the x character. Request to turn on output x, x = 1-32. For this function to work the device number (keypad address) must have the output enabled at program options P82E & P83E.

OUTPUTOFF x = NOTE: there must be a space between OUTPUTOFF and the x character. Request to turn off output x, x = 1-32. For this function to work the device number (keypad address) must have the output enabled at program options P82E & P83E.

OUTPUT x = NOTE: there must be a space between OUTPUT and the x character. Return the current state, ie on or off, of output x, x = 1-32.

KEYS COMMAND

KEYS X = NOTE: there must be a space between KEYS and the data X. This command must be in capital letters.

The KEYS command allows entry of data into a virtual keypad. The DEVICE command should be used to set the virtual keypad to use. Note this command can affect the operation of a normal keypad if the keypad is set to the same address as the device address so it is best to ensure the device address is not the same as any keypad connected to the alarm.

Valid data characters are any of the following.

No spaces should be inserted between the data fields:

| | |
|----------------------------|---|
| 0,1,2,3,4,5,6,7,8,9 | Numeric entry |
| A, B | Relating to the A & B buttons on an LCD keypad |
| C | Relating to the C ontrol button on an LCD keypad |
| E | Relating to the E nter button on an LCD keypad |
| H | Relating to the C Hime button on an LCD keypad |
| N | Relating to the Pa N ic button on an LCD keypad |
| P | Relating to the P rogram button on an LCD keypad |
| R | Relating to the A R m button on an LCD keypad |
| S | Relating to the S tay button on an LCD keypad |
| X | Relating to the Bypass (e X clude) button on an LCD keypad |

Example usage:

KEYS X0102E

The above example will bypass (exclude) zones 1 and 2. Note if the zone was already bypassed this action will unbypass the zone.

Example usage:

KEYS C10E

The above example will toggle output 10. Note if the output 10 was already on this action will turn it off and vice versa.

CANCEL COMMAND

CANCEL = Will cancel any ongoing RS232 activity such as MEM command output.

STATUS COMMAND

STATUS = Will send the current system status.