

Common-Sense



Artistic Licence Engineering Ltd.

Firmware Version V1.8 Manual Revision V1-8

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I N T R O D U C T I O N

QUICK START

Welcome to the Common-Sense manual. Common-Sense is a sophisticated sensor and protocol interface. It receives a multitude of input signals that can be converted to a range of serial output formats.

The product is configured using the PC software package Sense-Edit. Sense-Edit is supplied with a library of standard templates for triggering products such as Show-Control, Grand-Master Flash! and No-Worries TC.

Alternatively, Sense-Edit can be used to enter all parameters allowing total interface control.

Please remember to return your product registration card, so that we can keep you informed of new developments.

APPLICATIONS

Common-Sense is a valuable tool in a wide range of applications. The following list provides a brief overview of the key application areas:

1. Retail: Interface for beam break sensors, generating DMX512 as customers move through zoned areas. Lighting changes as customer browses.
 2. Museums: Interface to proximity sensors, generating RS485 commands to show control computer.
 3. Presentation: Receive infrared commands from handset and convert to RS232 in order to trigger a PowerPoint presentation.
 4. Show Control: Receive RS232 codes from a controller, convert to MIDI in order to trigger Grand-Master Flash!
 5. Show Control: Receive MIDI time code and trigger a DVD player by RS232 remote control.
 6. Architectural: Trigger output events at any date and time of day.
-

COMMON SENSE FEATURES

Common-Sense provides the following features:

- 16 opto-isolated inputs
- 36 matrix key inputs
- 2 analogue (0-5V) inputs
- Infrared handset input
- Real time clock with leap year correction

- Serial input selected from the following formats:
 - DMX512 input
 - RS485 input
 - RS232 input
 - MIDI input
 - MIDI time code input

- Four serial outputs:
 - DMX512 output
 - RS485 output
 - RS232 output
 - MIDI output

SENSE-EDIT FEATURES

Sense-Edit provides the following features:

- PC programming of all features
 - Intuitive graphic interface
 - Automatic synchronisation of real time clock
 - RS232 download of data to Common-Sense
 - Library of output trigger event files
 - Windows compatible
 - Hard disc storage of multiple shows
-

T H E P R O D U C T

OVERVIEW This section provides a detailed description of the electrical interface.

REMOVING THE COVER

Common-Sense is supplied in a two section case that can be wall or bench mounted.

Removing the front cover accesses all interface connections, with the exception of power, DMX512 and programming.

Four M3 screws retain the front cover. Before attempting to remove the cover, the power input connector must be removed.

The cover will then pull away from the base. A small cable attaches the front cover. This can be disconnected, in order to remove the front cover during wiring.

CABLE ENTRY

The left end of the base plate provides three 20mm cable entries. The plastic stops are simply released by pressing the retaining lugs together.

In wall mounting use, the cable entries will take standard 20mm conduit couplings. This allows a separate cable bay to be installed next to Common-Sense.

In bench or portable mounting use, three M20 cable glands can be fitted instead.

Additionally, the front cover contains a large unprinted area that can be custom machined for switches etc.

MOUNTING

The base plate provides two M4 mounting holes. These can be used for wall or panel attachment using either M4 bolts or No 8 screws. A drilling template is provided at the rear of this manual.

MAKING CONNECTIONS

All internal connections are made to the bay of quick fit connectors. The connector bay is numbered on the circuit board.

To attach a wire, first strip back approximately 3mm of insulation. Place a small flat bladed screwdriver into the small rectangular hole at the top of the terminal.

Gently put pressure on the screwdriver, thus opening the sprung cable clamp.

Place the stripped end of the wire into the metal jaws of the cable clamp and remove the screwdriver.

Confirm that the wire is firmly retained and that the clamp is attached to stripped wire and not the insulation.

OPTO INPUTS

The 16 opto-inputs are used to connect external voltage sources or contact closures. These inputs can be configured to provide either 16 independent switch input triggers, or operate as a binary word trigger.

Each input provides four terminals, these are:

A	9VDC
B	Positive input (+)
C	Negative input (-)
D	Ground

VOLTAGE INPUT

Only the B and C inputs are required for voltage input. The inputs can accept a DC voltage in the range 5V to 24V.

Common-Sense is shipped, configured to accept voltages in the range 5VDC to 10VDC. Each input requires approximately 5mA in order to switch. Higher voltages require that the input current limit resistors be changed.

The current limit resistors are 16 pin dual-in-line resistor packs. The resistor packs are socketed and can therefore be easily changed using a small screwdriver.

Correct values are shown below:

Input	Resistor Pack	Resistance for input 5VDC to 10VDC	Resistance for input voltage 10.1VDC to 24VDC
1-8	RP2	1K0	2K2
9-16	RP4	1K0	2K2

CONTACT CLOSURE INPUT

Contact closure inputs (sometimes called dry inputs) are used to connect switches or relays.

In this configuration, all four input terminals are used. Common-Sense provides the 5V supply via the A and D terminals. This mode should not be used for cable distances greater than 20m.

The A and D terminals for all 16 inputs are commoned to a single 9VDC supply. This supply is current limited at 500mA.

The following table shows the required wiring pattern:

Connection	Function	Connections
A	9VDC	Connect to B
B	Positive Input (+)	Connect to A
C	Negative Input (-)	Connect to external switch
D	Ground	Connect to external switch

WIRING PLAN

Opto-inputs connect to the terminal bay as follows:

Opto- Input	Bay Terminal	Connection	Function
1	13	A	9VDC
	14	B	Positive Input (+)
	15	C	Negative Input (-)
	16	D	Ground
2	17	A	9VDC
	18	B	Positive Input (+)
	19	C	Negative Input (-)
	20	D	Ground
3	21	A	9VDC
	22	B	Positive Input (+)
	23	C	Negative Input (-)
	24	D	Ground
4	25	A	9VDC
	26	B	Positive Input (+)
	27	C	Negative Input (-)
	28	D	Ground
5	29	A	9VDC
	30	B	Positive Input (+)
	31	C	Negative Input (-)
	32	D	Ground
6	33	A	9VDC
	34	B	Positive Input (+)
	35	C	Negative Input (-)
	36	D	Ground
7	37	A	9VDC
	38	B	Positive Input (+)
	39	C	Negative Input (-)
	40	D	Ground
8	41	A	9VDC
	42	B	Positive Input (+)
	43	C	Negative Input (-)
	44	D	Ground

Opto- Input	Bay Terminal	Connection	Function
9	45	A	9VDC
	46	B	Positive Input (+)
	47	C	Negative Input (-)
	48	D	Ground
10	49	A	9VDC
	50	B	Positive Input (+)
	51	C	Negative Input (-)
	52	D	Ground
11	53	A	9VDC
	54	B	Positive Input (+)
	55	C	Negative Input (-)
	56	D	Ground
12	57	A	9VDC
	58	B	Positive Input (+)
	59	C	Negative Input (-)
	60	D	Ground
13	61	A	9VDC
	62	B	Positive Input (+)
	63	C	Negative Input (-)
	64	D	Ground
14	65	A	9VDC
	66	B	Positive Input (+)
	67	C	Negative Input (-)
	68	D	Ground
15	69	A	9VDC
	70	B	Positive Input (+)
	71	C	Negative Input (-)
	72	D	Ground
16	73	A	9VDC
	74	B	Positive Input (+)
	75	C	Negative Input (-)
	76	D	Ground

MATRIX INPUTS

The 64 matrix inputs are used to connect 'scan matrix' switch inputs. No external voltage can be connected to this port.

A maximum distance of 5m is recommended. Installation requires screened cable, with the screen connected to chassis in Common-Sense. This is achieved by connecting the screen to a M3 eye and attaching to one of the M3 pcb mounting screws.

The matrix input detects switch closures when the switch shorts a row wire to a column wire. The switches must be of momentary operation as a switch locked down will inhibit all other switches.

The key matrix can be a standard scanning keypad or wired from discrete switches.

The following table shows the standard keypads available from Artistic Licence: Order via our website: www.ArtisticLicence.com

KEYPADS

Number of keys	Order Code for keypad	Order Code for optional back box
8	Com-Keypad8	Com-Keypad8-back
12	Com-Keypad12	Com-Keypad12-back
16	Com-Keypad16	Com-Keypad16-back

MATRIX LAYOUT

The following table shows the matrix wiring.

Bay Terminal	1	2	3	4	5	6
7	1	2	3	4	5	6
8	7	8	9	10	11	12
9	13	14	15	16	17	18
10	19	20	21	22	23	24
11	25	26	27	28	29	30
12	31	32	33	34	35	36

ANALOGUE INPUTS

Common-Sense provides two analogue sensor inputs. The input voltage range is 0VDC to +5VDC.

Connection is as follows:

Analogue Input	Bay Terminal	Function
---	77	5VDC current limited at 500mA
1	78	Analogue Input 1
2	79	Analogue Input 2
---	80	Common Ground

DMX512 INPUT

The DMX512 input is connected via the 5 pin male XLR connector located on the right end panel of Common-Sense.

The DMX512 input is not optically isolated, but is terminated.

Connection is as follows:

MALE XLR

Pin	Function
1	Signal common and screen
2	Receive Data minus
3	Receive Data plus
4	Programming interface – do not connect
5	Programming interface – do not connect

DMX512 OUTPUT

The DMX512 output is connected via the 5 pin female XLR connector located on the right end panel of Common-Sense.

Connection is as follows:

FEMALE XLR

Pin	Function
1	Signal common and screen
2	Transmit Data minus
3	Transmit Data plus
4	No Connection
5	No Connection

DMX512 INTERNAL CONNECT

The DMX512 input and output can also be accessed from the main wiring bay. The user must ensure that both connections are not made at the same time.

Connection is as follows:

Bay Terminal	Function
81	Common Ground (XLR pin 1)
82	DMX512 output data minus (XLR pin 2)
83	DMX512 output data plus (XLR pin 3)
84	Common Ground (XLR pin 1)
85	DMX512 input data minus (XLR pin 2)
86	DMX512 input data plus (XLR pin 3)

RS232 INPUT OUTPUT

The RS232 input and output are connected via the main wiring bay.

Connection is as follows:

Bay Terminal	Function
93	Common Ground
94	RS232 Transmit (output)
95	RS232 Receive (input)
96	5VDC current limited at 500mA

RS232 CABLE

To connect the RS232 port to a PC, use the following cable wiring:

Bay Terminal	Function on Common-Sense	Function on PC	PC DB9 Pin
94	Tx	Rx	2
95	Rx	Tx	3
93	Ground	Ground	5
NC	N/A	RTS	7
NC	N/A	CTS Connect to RTS	8

RS485 INPUT OUTPUT

The RS485 input and output share connections with the DMX512 port.

See previous section for details.

MIDI INPUT OUTPUT

The MIDI input and output are accessed from the main wiring bay.

Connection is as follows:

Bay Terminal	Function	MIDI Connector pin
87	Common Ground	2
88	MIDI O/P positive	4
89	MIDI O/P signal	5
90	Common Ground	-
91	MIDI I/P positive	4
92	MIDI I/P signal	5

INFRARED INPUT

Common-Sense provides an infrared receiver mounted on the front face. If an installation requires addition receivers, they can be connected to the main wiring bay.

The power indicator flickers on and off to show that valid infrared codes have been received.

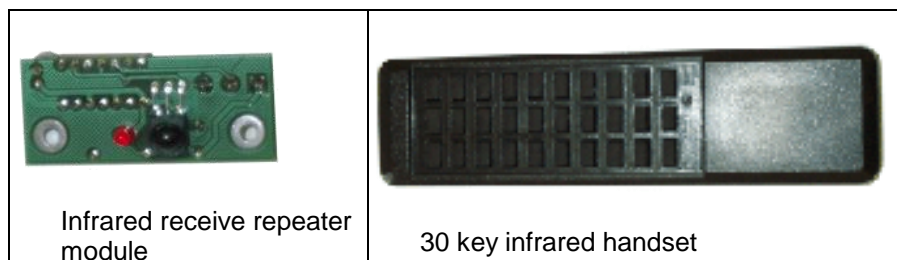
REPEATERS

Artistic Licence can supply a 30 key handset (Com-Remote) and a receive repeater module (Com-Repeat).

Multiple receivers can be connected, however the installer must ensure that they are installed such that only one can be activated at a time.

The repeater module connections are as follows:

PCB Screw Terminal	Function	Main Bay
1	5VDC power	96
2	Open collector infrared data	97
3	Common Ground	98



DALI OUTPUT

Common-Sense contains the required hardware to provide a DALI protocol output. This feature is not currently implemented in software.

Connection is as follows:

Bay Terminal	Function
99	DALI Signal
100	DALI Common

POWER INPUT

Common-Sense is powered by the supplied, universal input power supply.

An auxiliary power outlet is provided in order that a secondary product such as Show-Control can be connected.

Connection is as follows:

Terminal	Function
Pin	9VDC @ 300mA
Skirt	Common

POWER INDICATOR

The power indicator operates as follows:

State	Function
On	Power connected
Off	Power is off or ...
	Program download not received correctly
Pulsing	Good infrared code received or ...
	Program download in progress

ASTRO- NOMICAL CLOCK

Common-Sense can be connected to an atomic clock receiver which provides absolute timebase accuracy coupled with independence of daylight saving.

The atomic clock receiver connects to Common-Sense via the RS232 port as shown below. Common-Sense will synchronise to the atomic clock when programmed to do so in the setup menu of Sense-Edit.

The RS232 receive port of Common-Sense is not available for trigger operations in this mode.

Synchronisation occurs on power on and then once per hour.

The atomic clock receiver interface requires a 9 pin female D connector on the cable.

Connection is as follows:

Atomic Clock DB9	Common-Sense Terminal	Function
2	95	Rx
3	61	9 VDC
4	61	9 VDC
5	93	Gnd
7	94	Tx (-12VDC)

S E N S E - E D I T

OVERVIEW Sense-Edit is a Windows application that is used to program Common-Sense. It is compatible with Windows 95 / 98 / ME / NT3 / 2000 & XP

Sense-Edit, including the serial download cable is included with Common-Sense.

INSTALL

Sense-Edit is installed as follows:

1. Insert the disc in the floppy disc drive.
2. Select the **[Start]** Menu and then the **[Run]** Command.
3. Press the Browse button.
4. Locate the program SETUP.EXE on the floppy drive (normally A:).
5. Execute the program.
6. The Install Shield program will start and guide you through the remaining steps of the installation procedure.

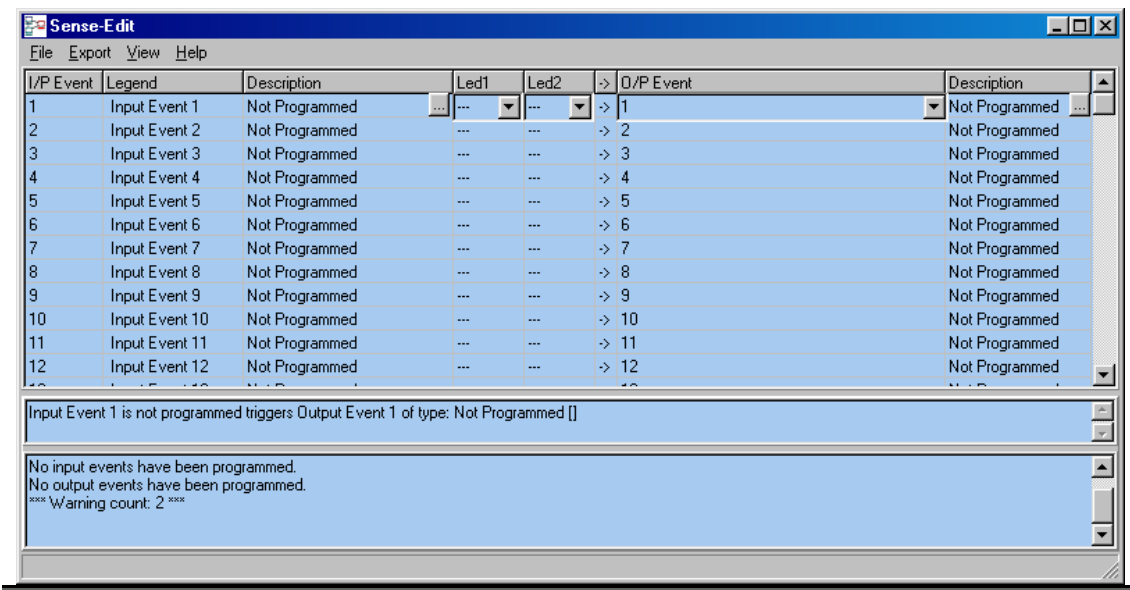
HARDWARE

Sense-Edit requires the following minimum specification to run:

1. Pentium at 133mhz or higher PC Compatible.
2. Windows operating system.
3. Serial port.
4. VGA 800 x 600 or better.
5. 2 MByte Hard disc space.
6. 32 MByte ram.

COMMS

Sense-Edit communicates with the Common-Sense via the RS232 interface of the PC. Sense-Edit can access either COM1 or COM2. An XLR5F to 9 pin DB cable is provided. The cable contains the RS232 to RS485 conversion electronics required for communications between the PC and Sense-Edit.



OPERATION

The opening screen is shown below.

The screen is divided into three horizontal panes. The panes can be resized as required.

1. The top pane is the main **matrix display**. This area shows the relationship between all possible inputs and outputs.
2. The centre pane displays additional **details** about the selected input event (the cursor position in the matrix pane).
3. The bottom pane displays **warnings**, this is information to help you avoid programming errors.

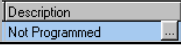
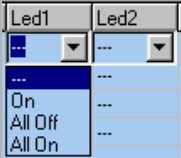
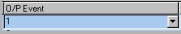
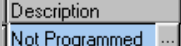
MATRIX PANE

The Matrix Pane contains seven columns of data. These have the following meaning:

Column	Description
Input Event	Common-Sense can respond to a total of 300 inputs. Sense-Edit uses the term 'Input Event' to refer to one of the 300 programmed inputs. The entire spreadsheet is indexed by the Input Event number.
Legend	This column contains the user's name for the input. It should be set to something meaningful, such as 'Stage Right Proximity Sensor'.
Description	This field contains an abridged description of the type of input and it's settings.
Led1	Shows whether the internal indicator marked Led1 will flash when this input event is triggered. This function is extremely useful when testing an installation.
Led2	Shows whether the internal indicator marked Led2 will flash when this input event is triggered.
Output Event	This column shows the number and user description of the output event that is assigned to this input event. A total of 300 output events can be programmed. A single input event can be set to trigger multiple output events and multiple input events can be set to trigger single or multiple output events.
Description	This field contains an abridged description of the type of output and it's settings.

EDITING THE MATRIX

Editing is achieved using the small buttons displayed in selected row:

Button	Description
Input Event Edit 	The small button to the right of the description column is used to edit the input event. See Editing Input Events below.
Assigning Led1 Led2 	The pull down list allows the relevant LED indicator to be assigned to an input event. The menu also allows the indicators to either all be disabled or to be assigned to all input events. This function is intended for installation testing.
Output Event Selection 	The pull down list displays all possible output events and their user description. This is used to assign output events to input events.
Output Event Edit 	The small button to the right of the description column is used to edit the output event. See Editing Output Events below. Output Events can also be edited by selecting View Output Events from the main menu.

EDITING INPUT EVENTS

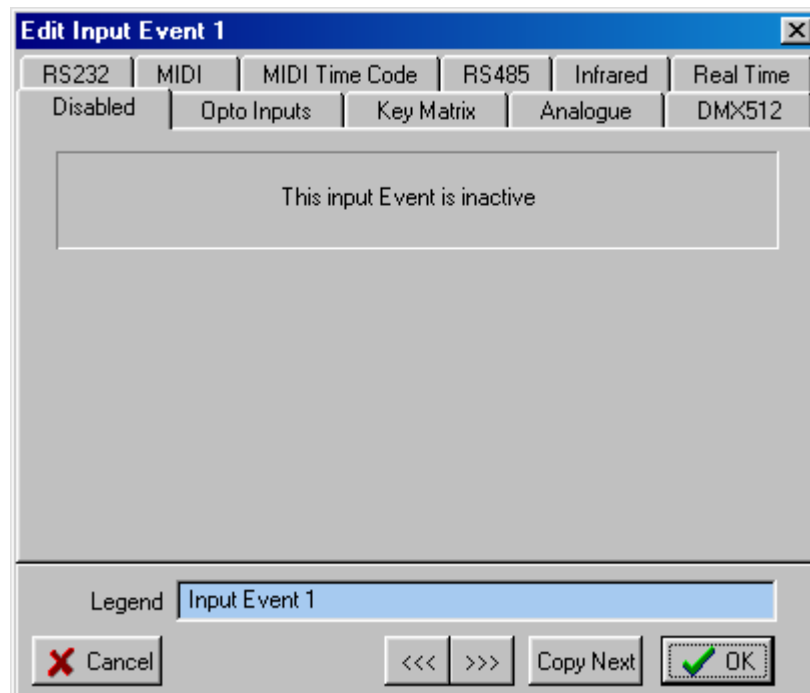
In order to edit an input event, click on the [...] button in the input event description column.

A dialogue is displayed showing all possible input types.



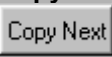
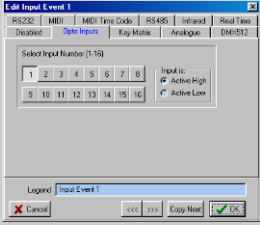
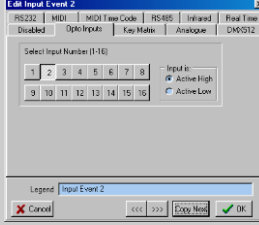

The tab buttons at the top of the dialogue are used to select the input options.

The text window at the bottom is used to enter a description of the input event.

All other controls in the dialogue will change dependent upon the type of input selected. The non-programmed dialogue is shown below:



The control buttons function as follows:

Button	Description
Cancel 	The Cancel button discards any changes and closes the dialogue.
Previous Next 	The Previous and Next buttons select the previous or next input event. The current input event is saved prior to making the new selection.
Copy Next 	The Copy Next button saves the current input event and then copies it into the next event. In addition, this function makes an educated guess at what is required in the next event. Opto, Matrix and Infrared events are automatically incremented as is shown in the following dialogue sequence. <div style="display: flex; justify-content: space-around; margin-top: 10px;">   </div>
OK 	The OK button saves the current event and closes the dialogue.

EDITING OPTO INPUT EVENTS

When the **Opto Inputs** tab is selected, one of two dialogues are displayed:

- Switch Input Mode or ...
- Binary Trigger Mode

In Switch Input Mode, each opto-input is treated as an independent entity. There are 16 events that can be programmed.

Binary Trigger Mode treats all opto-inputs as part of a 16 bit word. Opto-input 1 forms the least significant bit of the word.

In addition to programming any combination of binary triggers, any combination of bits can be set to 'don't care'.

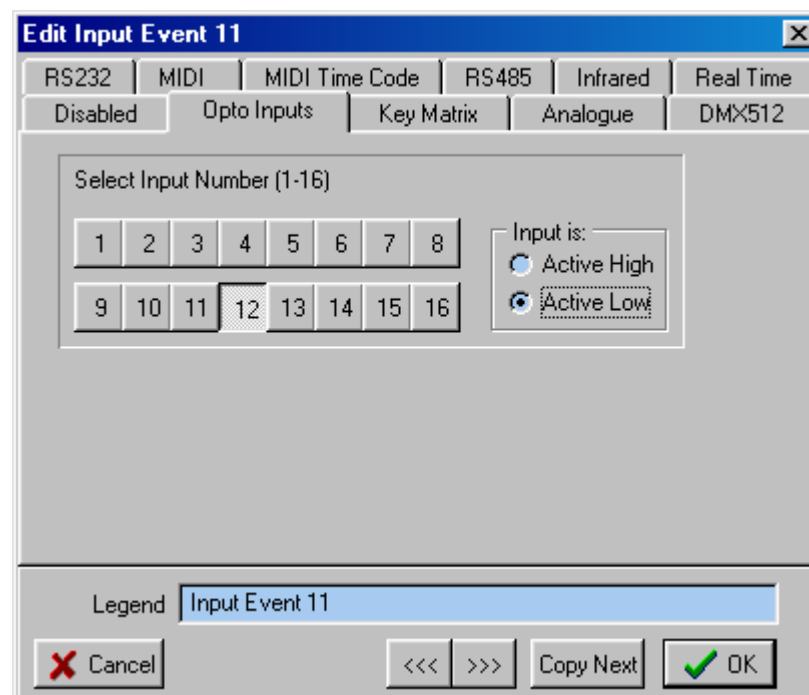
The two modes are selected in the Configuration menu.

OPTO INPUT SWITCH MODE

Select the required opto-input and define whether the event triggers active high or low.

When Active High, the event will trigger when a voltage is applied to the input (or the switch is pressed).

The example below will trigger when opto-input 12 switch is released.



OPTO INPUT BINARY TRIGGER

Tick the 'Match Word' check boxes where a binary '1' is required.

Any ticks in the 'Don't Care' field will cause that bit to be ignored in the comparison.

The example below will trigger when hexadecimal 0x9dc0 is matched, although inputs 10 and 15 will be ignored.

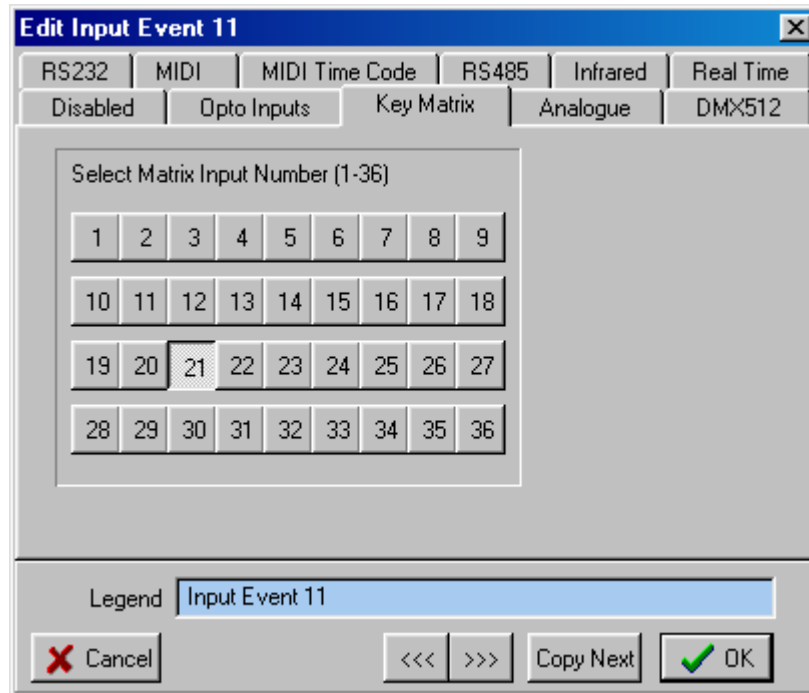
The screenshot shows a dialog box titled "Edit Input Event 4" with a close button (X) in the top right corner. The dialog has a tabbed interface with the following tabs: RS232, MIDI, MIDI Time Code, RS485, Infrared, Real Time, Disabled, Opto Inputs (selected), Key Matrix, Analogue, and DMX512. Below the tabs is a section titled "Select Trigger Word" containing two rows of 16 checkboxes each, numbered 16 down to 1. The "Match Word" row has checkboxes for bits 16, 14, 12, 9, 8, 5, 4, and 1 checked, with the values 9, D, C, and 0 displayed below bits 14, 12, 8, and 4 respectively. The "Don't Care" row has checkboxes for bits 15, 13, 11, 10, 7, 6, 3, and 2 checked, with the values 2, 2, 0, and 0 displayed below bits 13, 11, 7, and 6 respectively. Below the checkboxes is a tip: "Tip: The config menu is used to select between two modes of operation for the opto Inputs. Word Match Trigger mode is currently selected." At the bottom of the dialog is a "Legend" field containing "Input Event 4" and a set of control buttons: "Cancel" (with a red X), a left arrow button (dashed border), a right arrow button (dashed border), "Copy Next", and "OK" (with a green checkmark).

EDITING KEY MATRIX INPUT EVENTS

When the **Key Matrix** tab is selected, the dialogue is displayed as shown.

Select the required key matrix input.

The example below will trigger when key matrix 21 is pressed.



EDITING ANALOGUE INPUT EVENTS

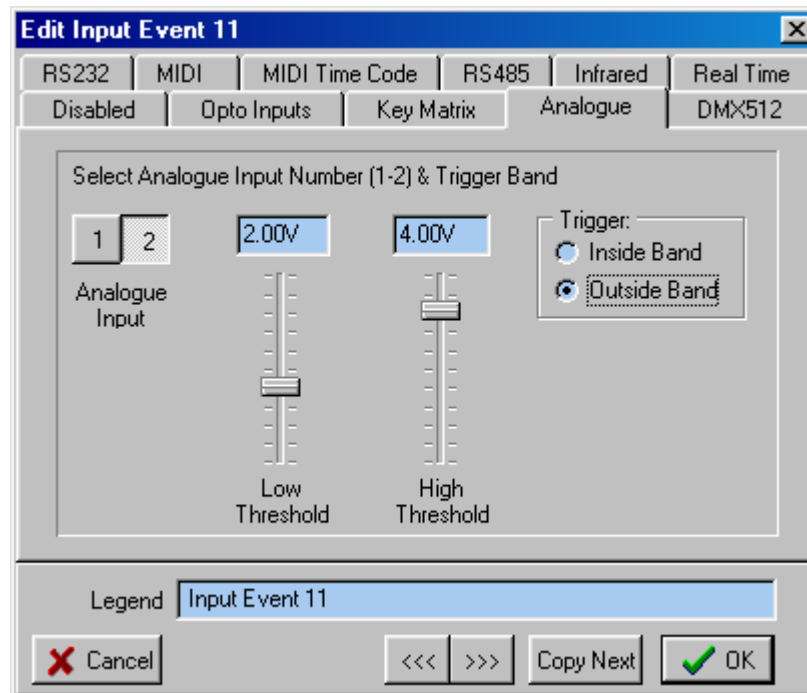
When the **Analogue** tab is selected, the dialogue is displayed as shown.

Select the required analogue input channel (1 or 2).

Use the faders to set the range of voltage that will cause a trigger.

Use the tick boxes to define whether the trigger occurs when the voltage goes into or out of the voltage band.

The example below will trigger when the voltage at input 2 changes to less than 2VDC or more than 4VDC.



EDITING DMX512 INPUT EVENTS

When the **DMX512** tab is selected, the dialogue is displayed as shown.

The trigger can be programmed to occur when the level on a specific channel changes. A window of 64 channels can be monitored at any given time. The start number of this window is selected in the configuration menu by selecting: **View** **Configuration**

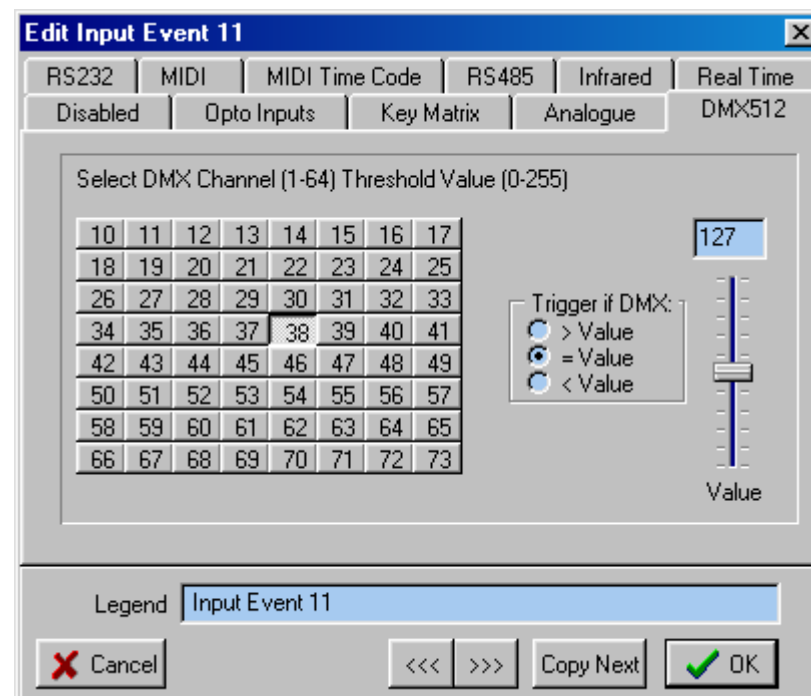
The start code of received DMX512 can also be programmed in this menu.

Select the required DMX512 channel using the number buttons.

Use the faders to set the channel level trigger value.

Use the tick boxes to define whether the trigger occurs when the channel level is less than, equal to or greater than the value.

The example below will trigger when the level of channel 38 is equal to 127.

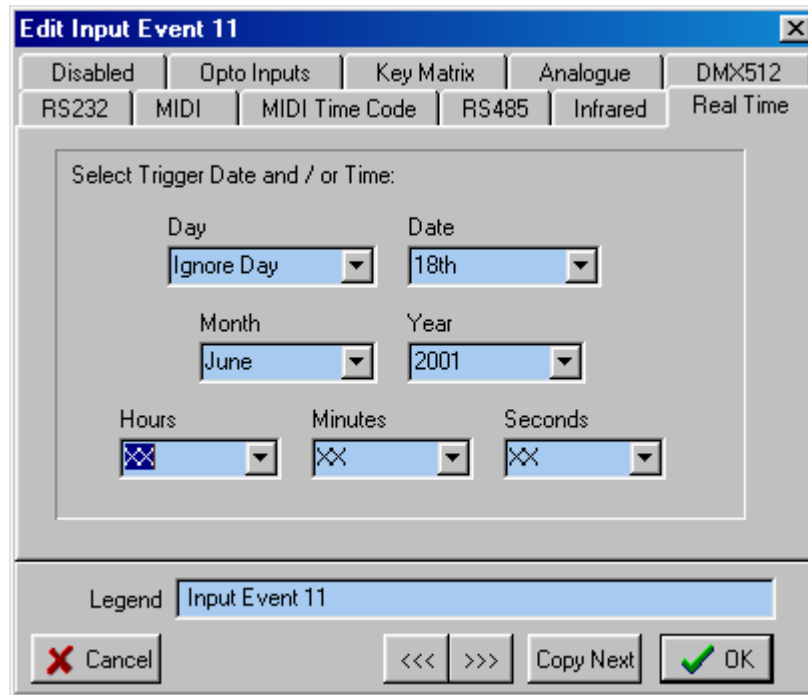


**EDITING
REAL TIME
CLOCK
INPUT
EVENTS**

When the **Real Time** tab is selected, the dialogue is displayed as shown.

The trigger can be programmed to occur at any date or time up to 2099. Every field contains a 'Don't Care' option.

The example below will trigger one second into the 18th June in 2001.



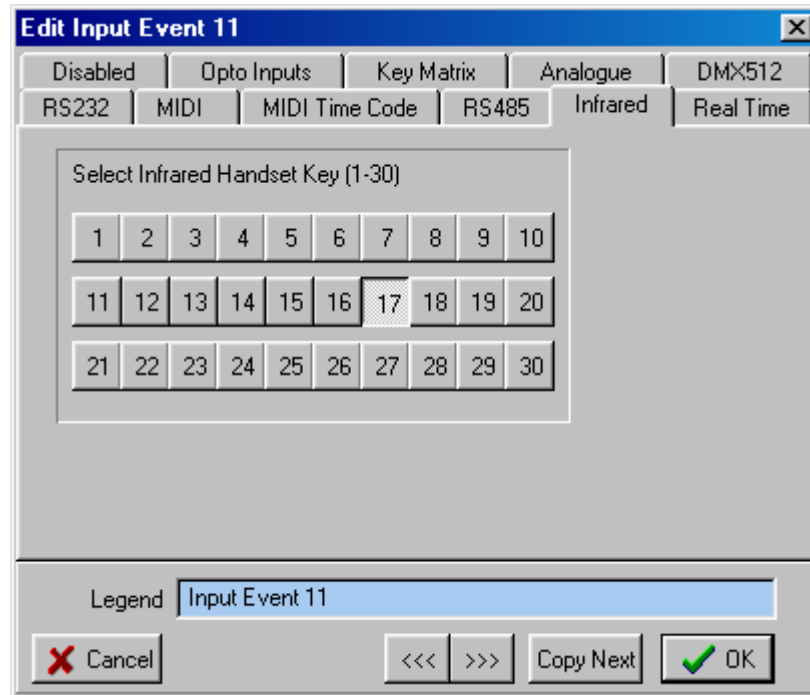
EDITING INFRARED INPUT EVENTS

When the **Infrared** tab is selected, the dialogue is displayed as shown.

The trigger can be programmed to occur when any of the infrared handset keys are pressed.

Please note that the handset keys are numbered in columns (i.e. the first ten keys are the first column of the handset).

The example below will trigger when button 17 (seventh down on the centre column) is pressed.



EDITING RS485 INPUT EVENTS

When the **RS485** tab is selected, the dialogue is displayed as shown.

The trigger can be programmed to occur when received RS485 data matches a sequence of up to 64 bytes. The user can therefore enter remote control protocol command strings directly, allowing Common-Sense to emulate almost any product.

The baud rate and data format of the RS485 menu is selected in the configuration menu: **View** **Configuration**

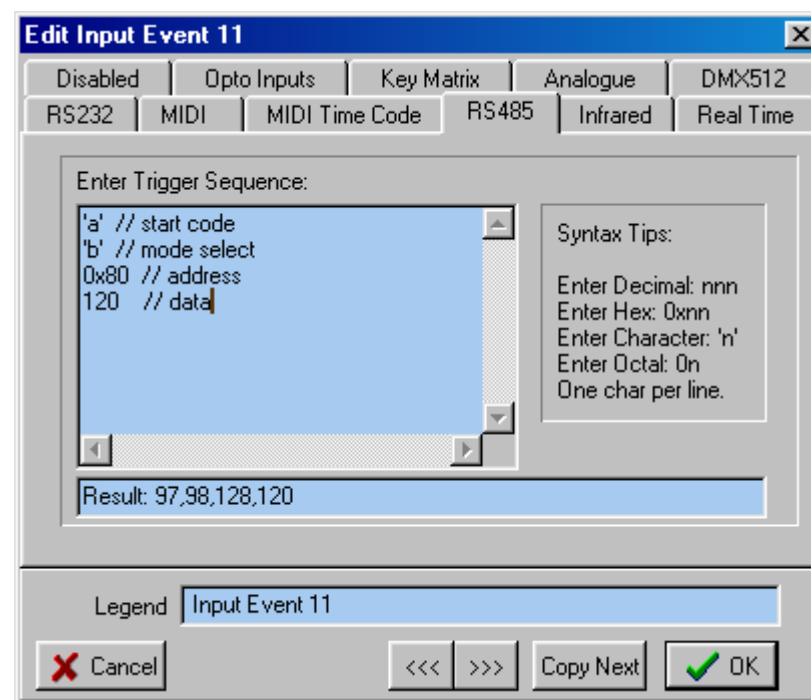
The data can be entered in:

- ASCII by surrounding the character in single quotes. EG 'a'
- Hexadecimal by pre-pending 0x. EG 0x80
- Decimal by any number not starting with zero. EG 128
- Octal by any number starting with zero. EG 05

Remarks can be added to any line and will not be transmitted.

See the Config Menu section for calculating the maximum number of RS485 input events.

The example below will trigger when four consecutive bytes matching decimal 97 98 128 120 are received.



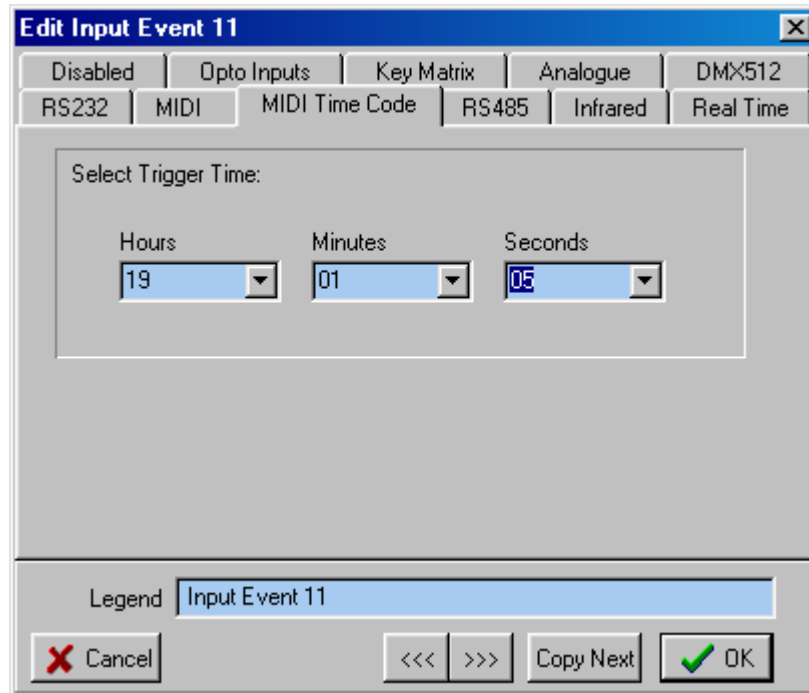
EDITING MIDI TIME CODE INPUT EVENTS

When the **MIDI Time Code** tab is selected, the dialogue is displayed as shown.

The trigger can be programmed to occur at time code number in a 24 hour cycle.

Common-Sense is able to read all flavours of Quarter Frame MIDI Time Code.

The example below will trigger at 19:01:05. Frame values are ignored.



EDITING MIDI INPUT EVENTS

When the **MIDI** tab is selected, the dialogue is displayed as shown.

The trigger can be programmed to occur when any standard MIDI sequence or MIDI show control sequence is received.

The MIDI input port is enabled using the configuration menu: **View Configuration**

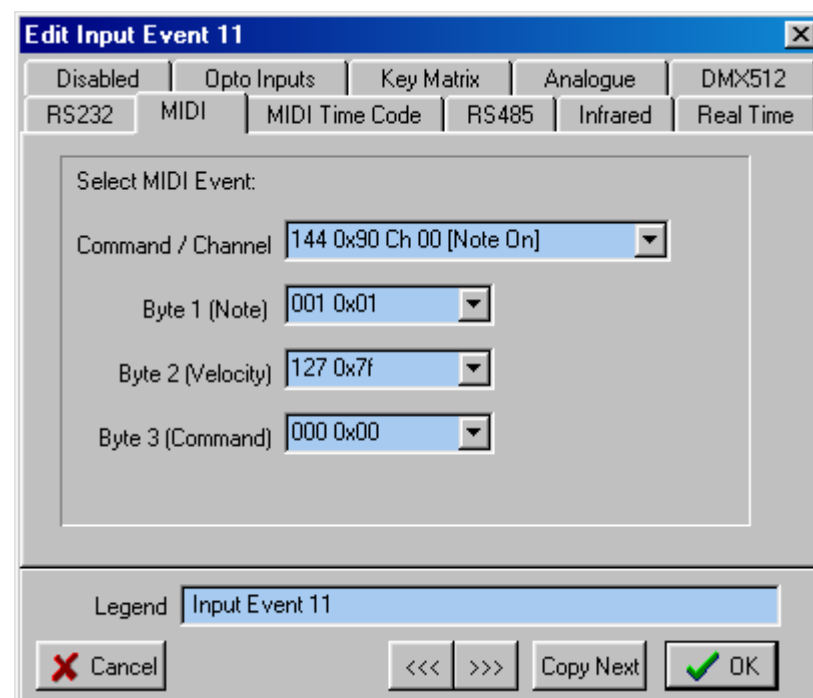
The sequence of drop down lists represent the consecutive of MIDI bytes that will cause the trigger.

Common-Sense knows the number of bytes required for each MIDI message. This means that data programmed into unused byte locations will be ignored.

When a MSC command is programmed, Common-Sense will not trigger unless the ending 0xf7 byte is detected.

The example below will trigger when a Note On is received on MIDI channel 0, with note set to 1 and a velocity of 127 (maximum). In this example, Byte 3 is ignored, as a Note On command is defined as having only three bytes.

A total of 64 MIDI input events can be programmed.



EDITING RS232 INPUT EVENTS

When the **RS232** tab is selected, the dialogue is displayed as shown.

The trigger can be programmed to occur when received RS232 data matches a sequence of up to 64 bytes. The user can therefore enter remote control protocol command strings directly, allowing Common-Sense to emulate almost any product.

The baud rate and data format of the RS232 menu is selected in the configuration menu: **View** **Configuration**

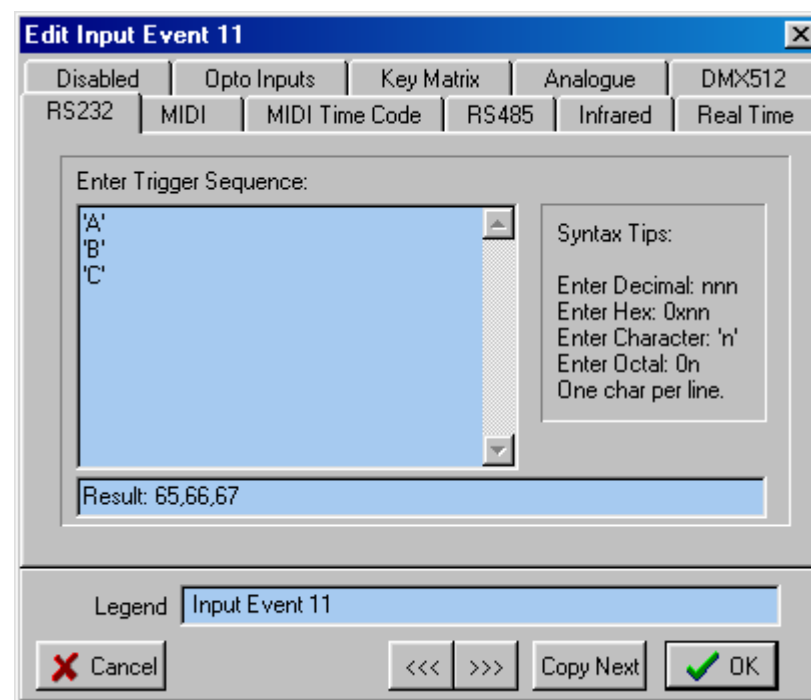
The data can be entered in:

- ASCII by surrounding the character in single quotes. EG 'a'
- Hexadecimal by pre-pending 0x. EG 0x80
- Decimal by any number not starting zero. EG 128
- Octal by any number starting zero. EG 05

Remarks can be added to any line and will not be transmitted.

See the Config Menu section for calculating the maximum number of RS232 input events.

The example below will trigger when three consecutive bytes matching decimal the upper case characters A B C are received.



EDITING OUTPUT EVENTS

In order to edit an output event, click on the [...] button in the output event description column.

A dialogue is displayed showing all possible output types.


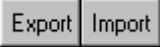

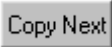

The tab buttons at the top of the dialogue are used to select the output options.

The text window at the bottom is used to enter a description of the output event.

All other controls in the dialogue will change depending upon the type of output selected. The non-programmed dialogue is shown below:



The control buttons function as follows:

Button	Description
Cancel 	The Cancel button discards any changes and closes the dialogue.
Export Import 	The Export button is used to save the current output event to disc allowing it to be re-used later. The Import button is used to set the current output event as defined in the selected library file.
Previous Next 	The Previous and Next buttons select the previous or next output event. The current output event is saved prior to making the new selection.
Copy Next 	The Copy Next button saves the current output event and then copies it into the next event.
OK 	The OK button saves the current event and closes the dialogue.

EDITING DMX512 OUTPUT EVENTS

When the **DMX512** tab is selected, the dialogue is displayed as shown.

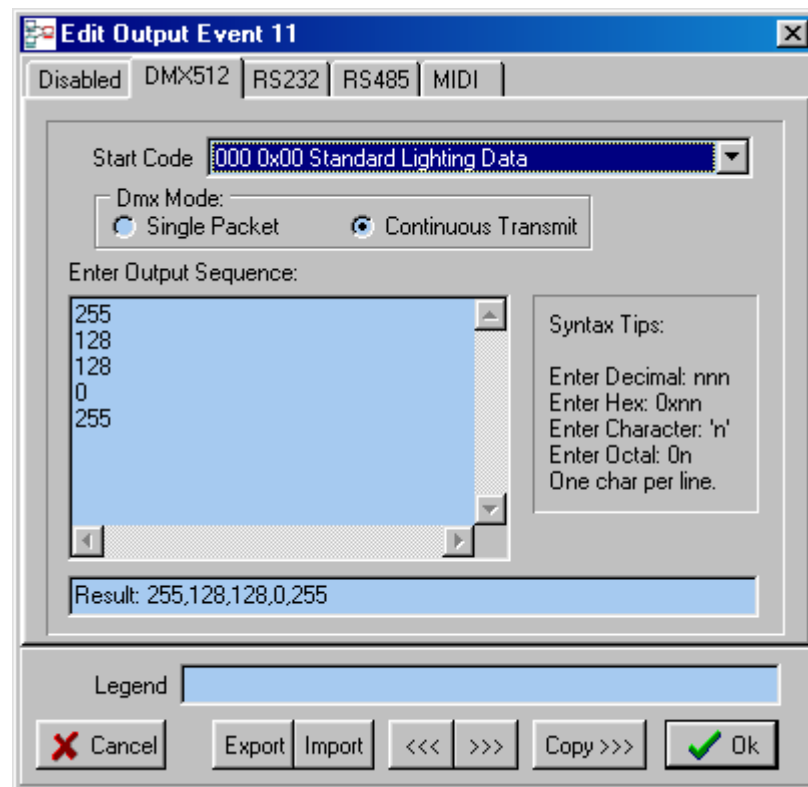
A total of 64 channels of DMX512 can be transmitted. The start code can be selected to any value.

The frame of DMX can be transmitted once or continuously. This allows output events to be programmed that transmit a non zero start code frame once before reverting to transmission of 'standard' DMX. An example would be to insert a text DMX frame or a system information packet (SIP) into a stream of standard DMX.

The example below will cause the DMX512 output to continuously transmit zero start code frames with the first five channels set to 255, 128, 128, 0 255.

This could be a trigger event to another product or it could be 'raw' data to position a moving lamp.

The DMX512 output shares resources with the RS485 output. The selection is set in the configuration menu: **View** **Configuration**



EDITING RS232 OUTPUT EVENTS

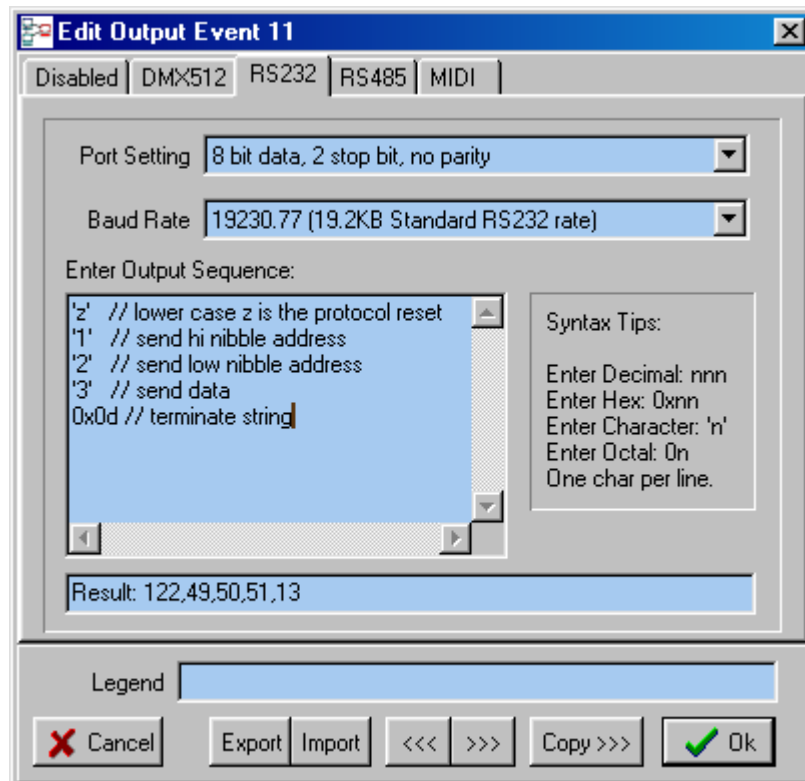
When the **RS232** tab is selected, the dialogue is displayed as shown.

A total of 64 bytes of RS232 can be transmitted.

Two drop down lists allow all possible data formats and baud rates to be selected.

The example below will transmit z 1 2 3 ↵ at 19.2KB.

The RS232 output is available in all modes.



EDITING RS485 OUTPUT EVENTS

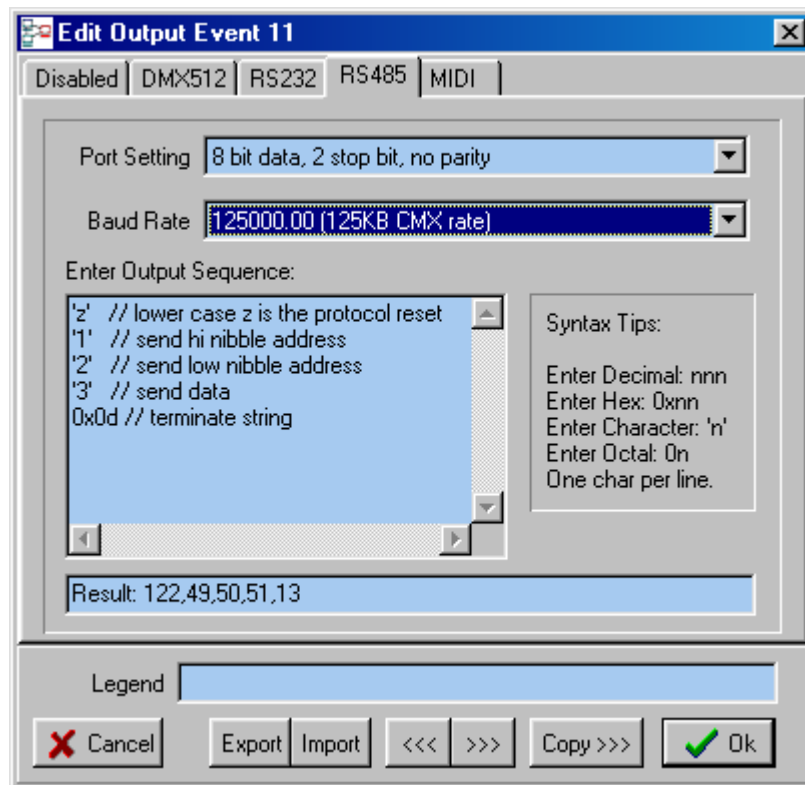
When the **RS485** tab is selected, the dialogue is displayed as shown.

A total of 64 bytes of RS485 can be transmitted.

Two drop down lists allow all possible data formats and baud rates to be selected.

The example below will transmit z 1 2 3 ↵ at 125KB.

The RS485 output shares resources with the DMX512 output. The selection is set in the configuration menu: **View** **Configuration**



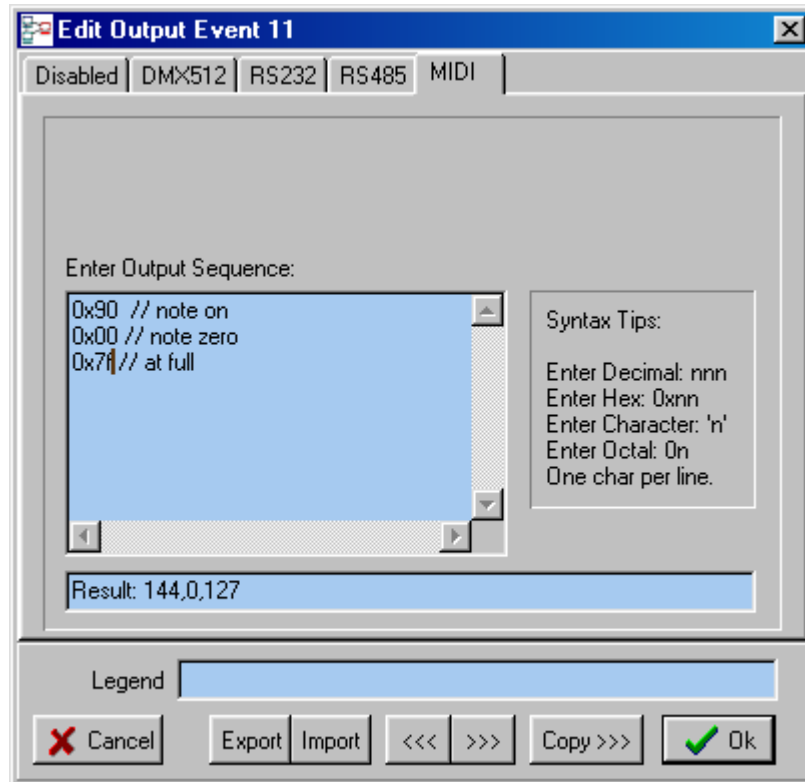
EDITING MIDI OUTPUT EVENTS

When the **MIDI** tab is selected, the dialogue is displayed as shown.

A total of 64 bytes of MIDI can be transmitted.

The example below will transmit a Note On command on MIDI channel zero with note set to zero and velocity set to full.

The MIDI output is always active.



CONFIG MENU

In configuration menu is used to set all of the global data parameters for Common-Sense. It is accessed by: **View** **Configuration**

The control areas function as follows:

Function	Description												
Serial Input Type	Select which of the four possible serial input types is active.												
Serial Input Port Setup	Select the receive data format for RS232 and RS485.												
Serial Input Baud Rate	Select the receive data baud rate for RS232 and RS485. The number of serial input events is limited by the selected baud rate: NB The number of RS232 & RS485 input events is also limited by the maximum total number of characters of 256.												
	<table border="1"> <thead> <tr> <th>Baud Rate</th> <th>Maximum Events</th> </tr> </thead> <tbody> <tr> <td>62.5 KB</td> <td>2</td> </tr> <tr> <td>38.4KB</td> <td>17</td> </tr> <tr> <td>29.4KB</td> <td>27</td> </tr> <tr> <td>19.2KB</td> <td>50</td> </tr> <tr> <td><15.6KB</td> <td>64</td> </tr> </tbody> </table>	Baud Rate	Maximum Events	62.5 KB	2	38.4KB	17	29.4KB	27	19.2KB	50	<15.6KB	64
Baud Rate	Maximum Events												
62.5 KB	2												
38.4KB	17												
29.4KB	27												
19.2KB	50												
<15.6KB	64												

Function	Description
DMX512 Input Start Address	Selects the first channel number for the window of DMX512 channels to be monitored.
DMX512 Start Code	Selects the Start Code for received DMX512.
Balanced Output Type	Selects whether DMX512 or RS485 is output.
DMX512 Text Output	Selects whether Common-Sense inserts text status information within the DMX512 output stream. The text information is useful for testing an installation.
Daylight Saving	Common-Sense can be set to correct for daylight saving. This feature adds one hour to the current time between the specified dates. Please be aware that the start and end dates of daylight saving change from year to year. This setting should therefore be checked during annual equipment service.
Enable Rugby MSF	Products with firmware versions V1.4 or later support RS232 communication with the Galleon Atomic Rugby MSF or Frankfurt DCF time clock receiver. This will provide an astronomical clock reference that automatically updates the Common-Sense clock every hour.
Current Time Date	These parameters are used to set the Common-Sense date and time. Press the button to download the new settings. Please note that the time is always set assuming that daylight saving is not active.
Opto-Input Word Trigger	Tick to box to treat all opto-inputs as a binary word. (Requires V1.8 firmware or higher).

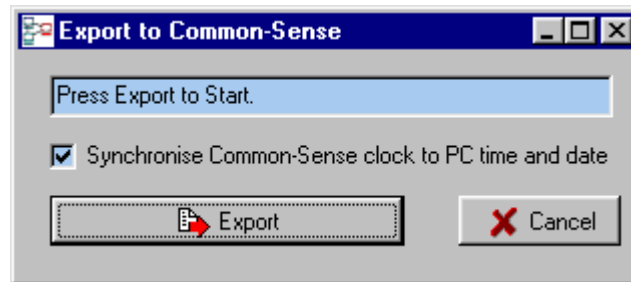
EXPORT DATA

The export menu is used to transfer the matrix information to Common-Sense.

The red cable must be connected between serial port 1 or 2 of the PC and the DMX512 input connector of Common-Sense.

The Export dialogue is accessed by:

Export | Export to Common-Sense



The tick box must be selected in order to set the real time clock in Common-Sense.

The download process takes approximately two minutes.

Whilst testing, single input – output event pairs can be downloaded by double clicking on the main matrix display.

It is important to execute a complete download when testing is complete.

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