

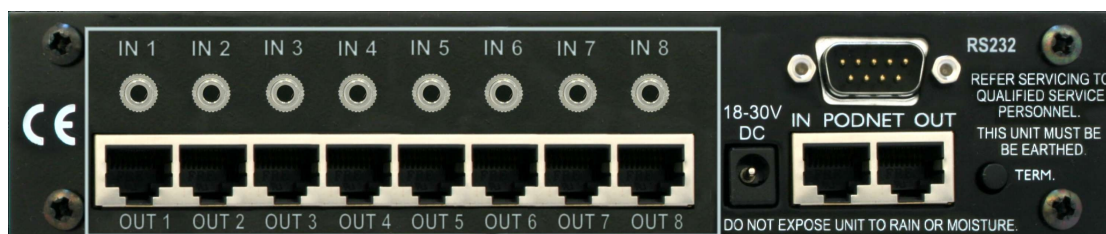


PRO SOLUTIONS

MATRIX 2 Podule

Description

Used as the heart of a distributed audio system, as the main router for a multi room system or as part of a complex boardroom system, the Ikon Matrix 2 Podule offers an easily controlled and configured central stereo audio processor with individual level per output.



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Introduction

Supplied ready configured for use, the Ikon MATRIX 2 audio processor can be used by just connecting the inputs and remote control panels. To obtain the best from the unit please study the following information on connecting and operation.

Details of how to connect alternative output configurations as well as how to create alternative system configurations using the M2 Configuration Editor software utility are included later as are instructions on integrating the Matrix 2 with Ikon and other control systems.

Connecting

Audio Inputs

The Matrix 2 is fitted with eight stereo unbalanced line level audio inputs on 3.5mm stereo jack sockets.

You can either make up you own leads or use pre-made leads available from multiple supplies or direct from Ikon AVS. The most common configuration uses a 3.5mm stereo jack at one end and two phono (RCA) plugs on the other, making it easy to connect to most AV equipments outputs. Refer to Appendix B for pin-out details for the 3.5mm jack.

The input is unbalanced line level with a maximum input level of +10dB.

Audio Outputs

Eight separate balanced stereo audio outputs are available with each stereo pair sharing a single RJ45 socket along with DC power and control.

For a distributed system you have a choice of active or passive remote panels although only the active panels allow direct control of input select and volume, the passive panels require either configuration using the software utility or external control via RS232 and/or PodNet. Connecting and using the remote panels is covered later.

Control Outputs

These share the same sockets as the Audio Outputs and provide 24V DC to power the remote panels as well as bi-directional control data.

Under most normal circumstances the remote panels with use pre-made or self assembled Cat 5 cables terminated in RJ45 connectors so the pin-out of the connector is irrelevant, however please refer to Appendix B for pin-out details if making your own break-out cables.

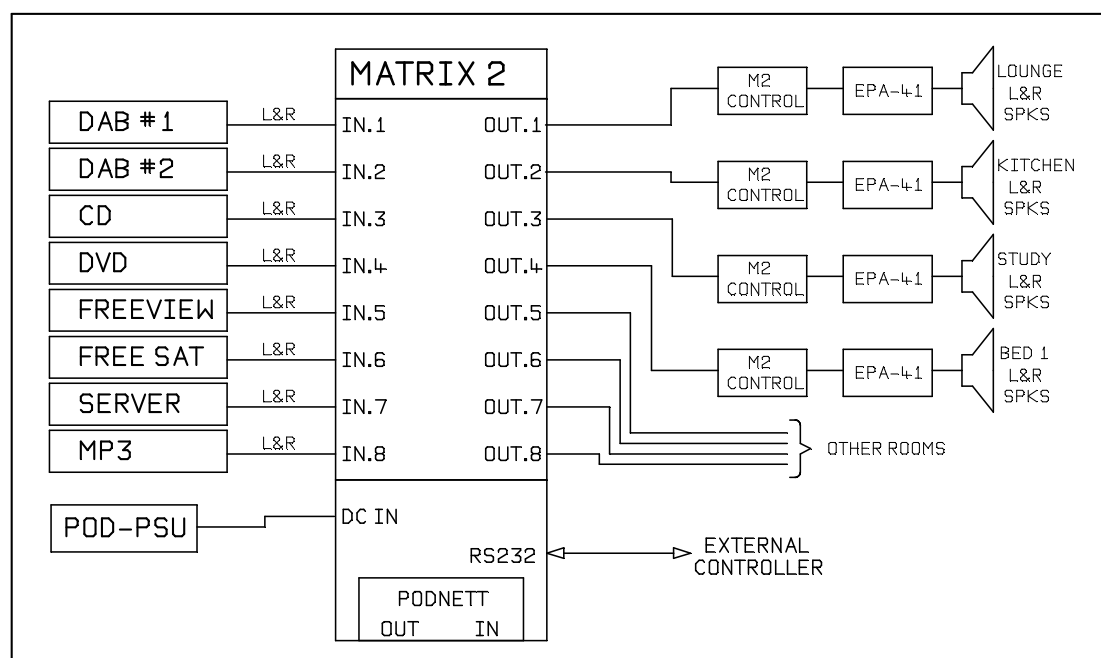
DC Power

Due to its potential current requirements if powering a number of remote panels, it is recommended that the Matrix 2 is directly powered from a POD-PSU.

It is permissible to power two units from a single power supply if adjacent to each other. In this case you would power one unit and link its PodNet OUT to the PodNet IN of the second unit.

Typically a single Matrix 2 with eight M2-Control panels consumes 600mA average current. With M2-HC (headphone amplifiers) this can raise to 1.5A at full load.

Typical Connections



The above is suitable for a home installation. Ikon EPA-41 amplifiers are used in each room but these could be replaced with an alternative amplifier either within the room or centrally located by the matrix.

Remote Panels

A range of active remote panels are available for use with the Matrix 2. All panels are the 50mm euro format and are connected to the matrix via a single cat 5 cable terminated in RJ45 connectors.

Active Panels

The Cat5 cable linking these panels carries both left and right balanced audio as well as DC power and bi-directional control.

Any control of the matrix from external sources via RS232 or Podnet is reflected onto the panel.



M2-Control

A 50mm Euromodule providing remote control, with indication, over the Matrix 2 for input source & volume. The audio connections are via rear mounted screw terminals.

When dormant all indicators are inactive.

Pressing a button 'wakes up' the panel and illuminated the two associated buttons in yellow whilst indicating either the Input or Volume level as appropriate on the led bargraph.

In the case of INPUT press Up or Down to change inputs with the led bargraph indicating the current inputs selection. For VOLume use + or – to increment or decrement the volume. Holding the button ramps the volume change.

Please note that the input selection options and volume range can be preset and fixed using the software utility.



M2-HC

For use in fitness centres etc. A 50mm Euromodule containing a local headphone amplifier with remote control over the Matrix 2 for input source & volume.

When active all four buttons are illuminated. In the case of INPUT press Up or Down to

change inputs whilst for VOLume use + or – to increment or decrement the volume. Holding the button ramps the volume change.

The headphone output is fixed at a maximum of 150mW and is designed to feed 16 Ohm or 32 Ohm headsets.

Default Configuration

When the Matrix 2 Podule leaves the factory it is pre-loaded with program M2-Default.PF3.

This program configures the Matrix 2 for use with the M2-Control and M2-HC panels only and allows each panel to access all eight inputs as well as OFF. It also allows full range control of the volume between an attenuation of -35dB and a Gain of +10dB. All panels are identical and only differ by the setting of the address links. If the Matrix 2 has been purchased as a kit complete with remotes these will be labelled as to which output they are for use with. Otherwise set as follows:-

0 = no link, 1 = link

Output	ADDRESS			
	A	B	C	D
1	0	0	0	0
2	1	0	0	0
3	0	1	0	0
4	1	1	0	0
5	0	0	1	0
6	1	0	1	0
7	0	1	1	0
8	1	1	1	0

For the other 8 addresses please refer to the advanced user options later in this manual. **Always turn off the matrix before connecting or disconnecting controllers or changing their address.**

RS232 Control

When shipped the Matrix is enabled for control via the default RS232 commands but PodNet messaging is disabled.

Communications is at a baud rate of 9600 with 8 data bits, 1 stop bit and no parity. The following commands are used to control the matrix:-

Matrix Control	1	2	3	4	5	6	7	8	Mode Recall
Volume Up	U1	U2	U3	U4	U5	U6	U7	U8	1 R0
Volume Down	D1	D2	D3	D4	D5	D6	D7	D8	2 R1
Vol (n = 0-9)	V1n	V2n	V3n	V4n	V5n	V6n	V7n	V8n	3 R2
Next Input	N1	N2	N3	N4	N5	N6	N7	N8	4 R3
Previous Input	P1	P2	P3	P4	P5	P6	P7	P8	5 R4
Input (n = 0-8)	I1n	I2n	I3n	I4n	I5n	I6n	I7n	I8n	6 R5
Mute On	M1	M2	M3	M4	M5	M6	M7	M8	7 R6
Mute Off	m1	m2	m3	m4	m5	m6	m7	m8	8 R7

All RS232 commands to and from the matrix are in ASCII. With the exception of Mode Recall, the second character of the command is a numeric value relating to the output to be controlled.

Volume Up	When received the selected channel increases its volume setting by 1dB until the maximum output level is reached. (note 1).
Volume Down	When received the selected channel decreases its Volume setting by 1dB until the maximum output level is reached. (note 1).
Vol (n= 0-9)	This command uses three characters and allows the setting of a fixed volume. The available range is divided into 10 steps (0-9) with each selected by adding the appropriate numeric as the last character of the string. Example if you have the full 45dB range, 5 will set the level to -10dB whilst if the max value was set to 2dB and min to -25 a setting of 5 would give a level of 09dB.dB
Next Input	Increments the input to the next available highest input. By default these are all 8 inputs and OFF. Selection Wraps around from input 8 to off then input 1. (Note 2).
Previous Input	Decrements the input to the next available lower input. By default these are all 8 inputs and OFF. Selection wraps around from off to input 8. (Note 2).
Input (n= 0-8)	This command uses three characters and allows the Direct selection of a particular input or off with each selected by adding the appropriate numeric as the last character of the string. (Note 2.)
Mute On	Mutes the selected output.
Mute Off	Unmutes the selected output.
Mode Recall	The Matrix 2 has eight separate operating modes (scenes) that can be configured to combined different combinations of available inputs, level control range etc. These commands allow selection of the modes.

In all cases if a system change is made by RS232 it is reflect to any connected control panels, similarly if a change is made using the M2-control panels a RS232 command is sent to confirm this.

Note 1. The min and max range of volume as well as the step size can be adjusted using the configuration utility. The default is a max of +10dB and a min of -35dB in 1dB steps.

Note 2. By default all 8 inputs and off are available but this can be changed using the configuration utility.

MATRIX 2 Podule Software

The Matrix 2 Podule is supplied configured and ready to use (Pre-loaded with the program M2-Default.PF3).

For customisation M2 Configuration Editor available giving access to:-

1. Remote panel assignment,
2. Input level trims,
3. Output level trims,
4. Output level default and range,
5. RS232 message assignment, in and out,
6. PodNet message assignment, in and out.

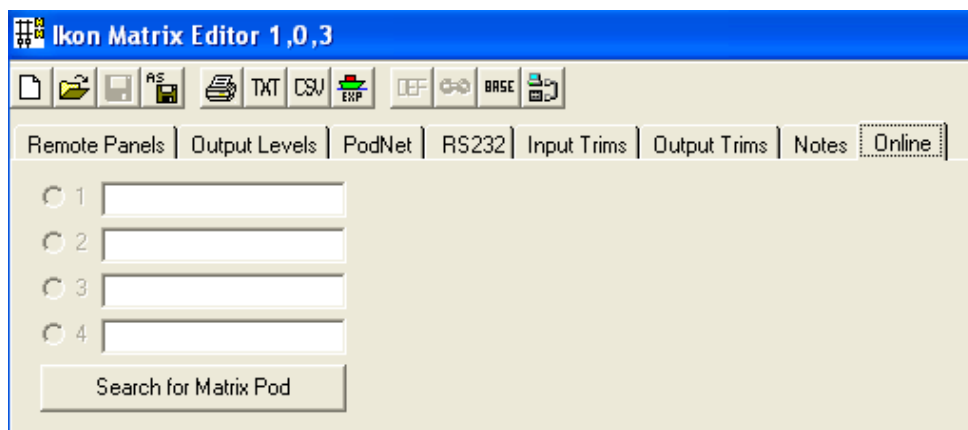
These can all be carried out either 'online' with the matrix for real time adjustment or pre-configured and downloaded to the matrix.

The software can be downloaded from the Ikon website at www.ikonavs.com

Basic Software Configuration

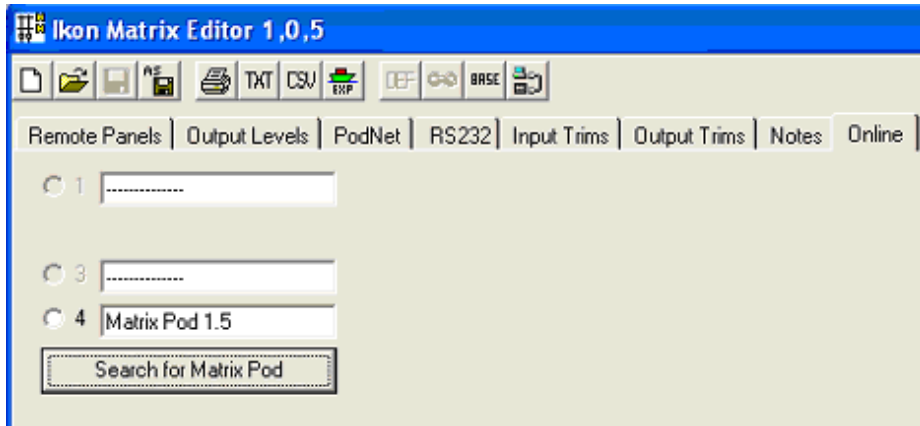
The following is a basic guide to using the configuration software. Some adjustments can be carried out on or off line whilst others require you to be online.

Going Online

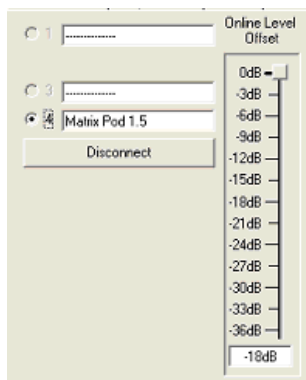


Connect the PC to the Matrix using a 'straight' RS232 lead. Only pins 2, 3 and 5 are used.

Select the 'Online' tab and then click on 'Search for Matrix Pod'. When the Podule is found the current firmware version is displayed in the window.



Click on the button to the left to select and go inline.



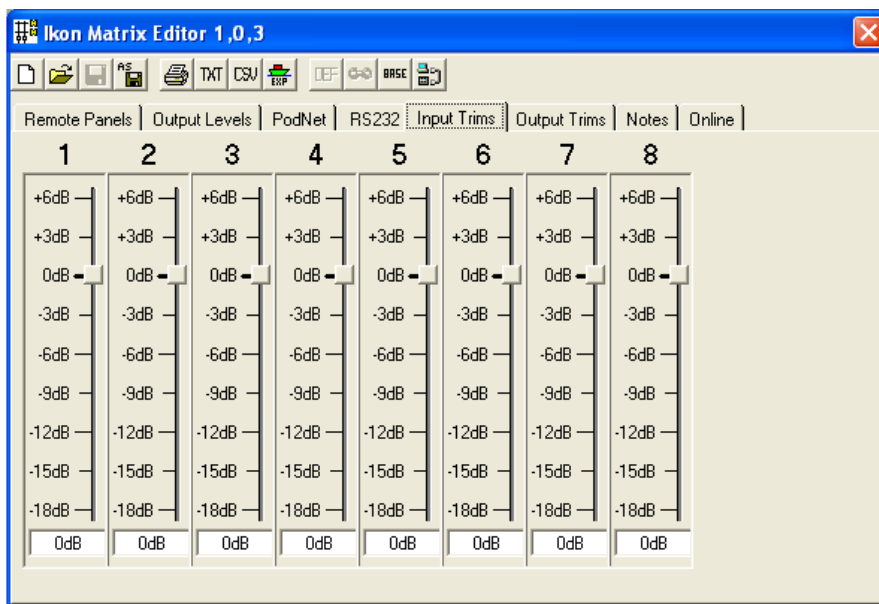
When online an additional level trim offset is available. This slider provides a single and quick reduction of all inputs and output level during online sessions to avoid excessive levels during set-up. This setting is not saved with the configuration file.

When online the 'Search for Matrix' button changes to 'Disconnect'. Don't forget to save you settings before disconnection.

Input Trims - Offline

The available controls depend upon if you are online or offline.

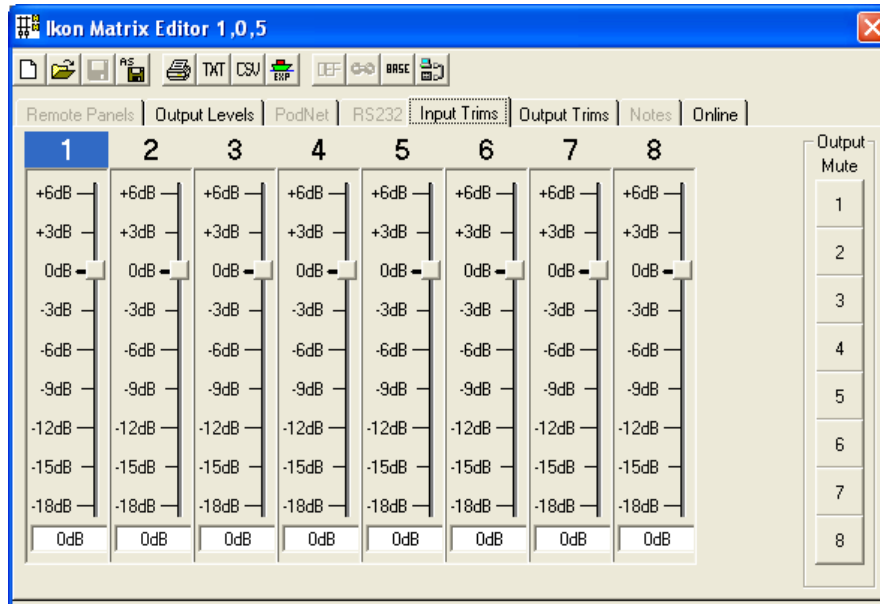
When offline:-



These are used to match the level of connected inputs to all be the same and avoid significant level changes between sources. Whilst available at all times, the input trims are usually adjusted online.

Input Trims - Online

It is often preferable to use a single output for monitoring and select the different inputs in turn whilst adjusting the input trims to match levels.

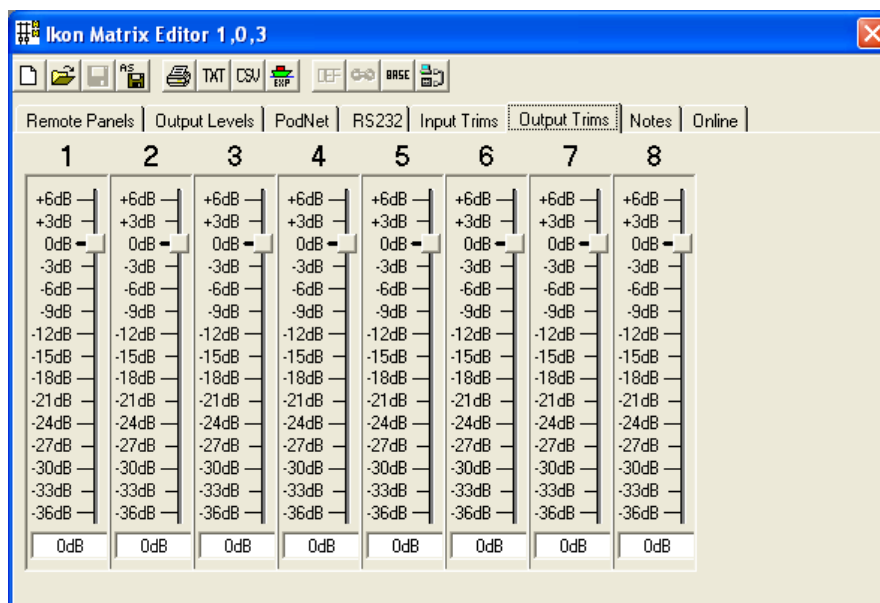


When you are online, and within this control page, all outputs are fed from the input highlighted. Use the 'Output Mute' buttons to enable and disable the individual outputs.

Output Trims - Offline

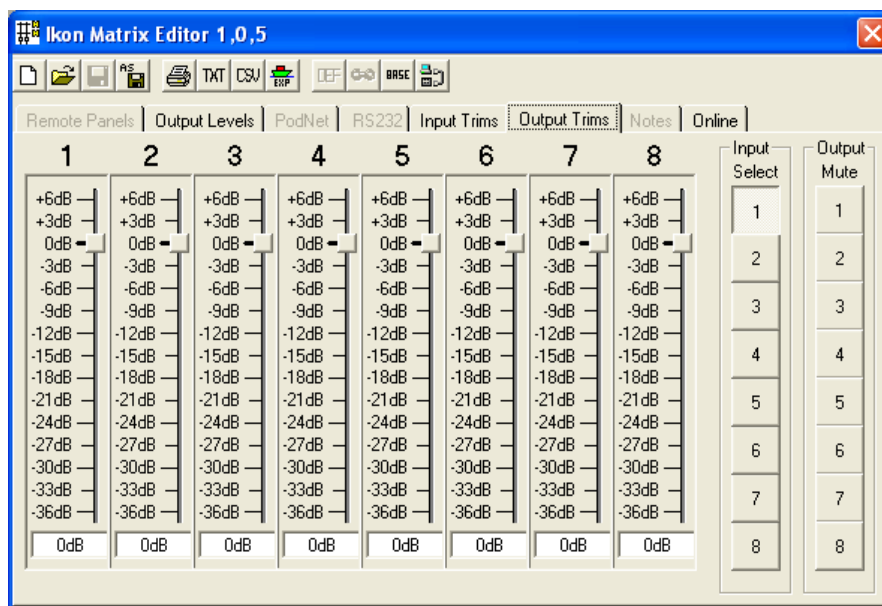
The available controls depend upon if you are online or offline.

When offline:-



Similar to the input trims on operation but intended to allow matching to the level required by the amplifier used on the output.

Output Trims - Online

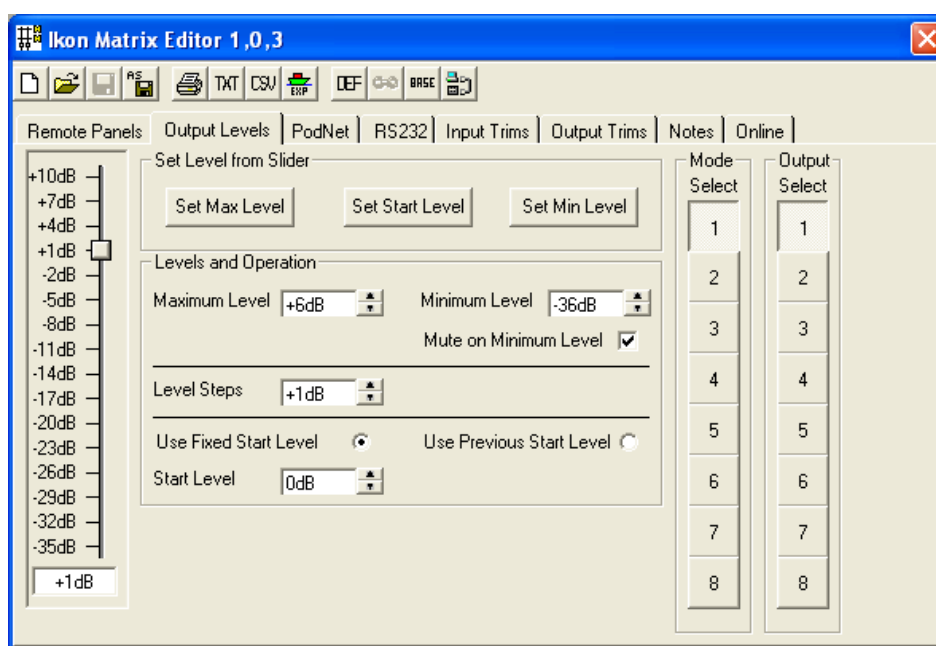


When you are online, and within this control page, you can select which input is to be routed to all outputs using the 'Input Select' buttons. Use the 'Output Mute' buttons to enable and disable the individual outputs.

Output Levels - Offline

The available controls depend upon if you are online or offline.

When offline:-



Whilst the Input Trims and Output Trims allow the absolute setting of input and output levels, the Output Levels tab allows setting of the volume parameters available to users either by using the dedicated control panels or via RS232 and / or PodNet control.

Output Select Use to select the matrix output to adjust.

Setting the Minimum, Maximum & Default levels.

These can be manually entered or 'captured' from the slider.

To set from the slider adjust the slider to the required level and press the appropriate button within the 'Set Level from Slider' group of controls. The values set are shown in the Min, Max and Start level boxes below.

Alternative enter the levels required within the 'Levels and Operation' group of controls by either entering the required value or using the nudge buttons for Min, Max and Start levels.

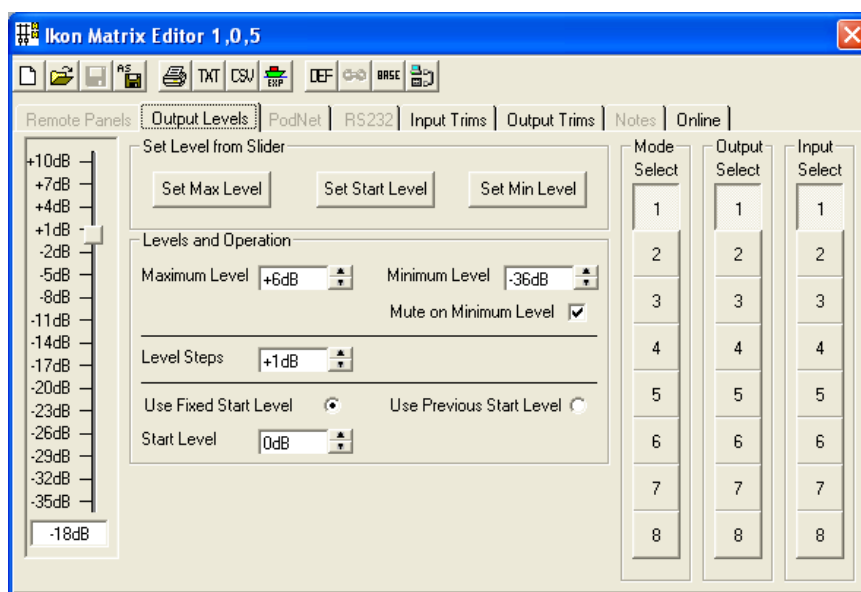
Within this group you can also set the level steps in 0.5dB increments from 0.5dB to 6dB. The start level, for when the matrix is re powered, can also be set to reset to the set level or retain the last operating level.

Mode Select

The matrix can store up to 8 alternative level configurations for simple recall. Typically in a home installation for maybe a child's bedroom you may have one volume setting for daytime (stores as mode 1) and call an alternative mode after 8pm with the maximum volume set lower.


In a conference room situation where rooms can be combined you might use Mode 0 when all rooms are separate changing to alternative modes as different combinations of room are linked.

Output Levels - Online



When online an additional set of buttons is available for input select. These allow you to directly select an input for routing to the current output to test the relative levels.

All other functions are as offline.

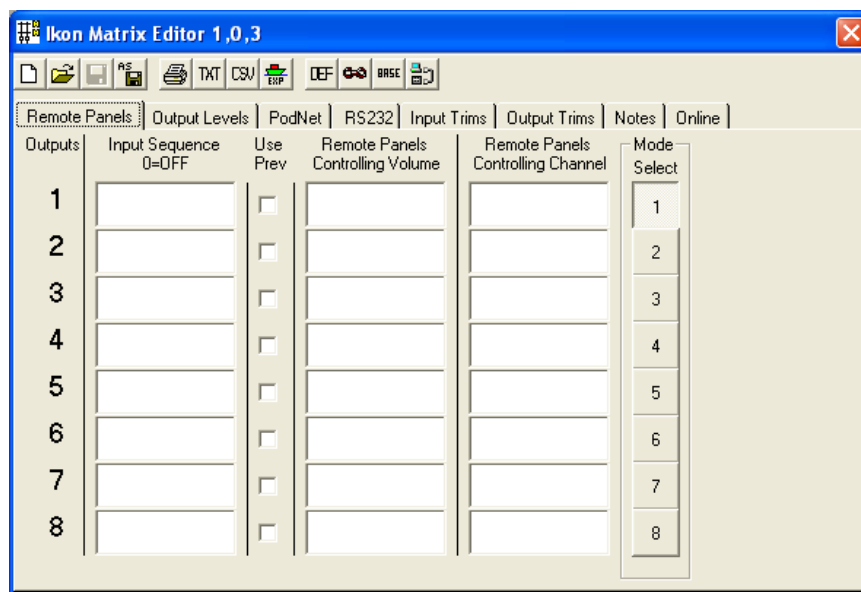
IMPORTANT. When you have finished carrying out adjustments, this IS NOT automatically saved so you need to carry out a 'Save' or 'Save As' command and then select the  icon to download the configuration to the matrix.

RS232

As described earlier.

The following sections of the configuration utility all support the eight alternative modes.

Remote Panels

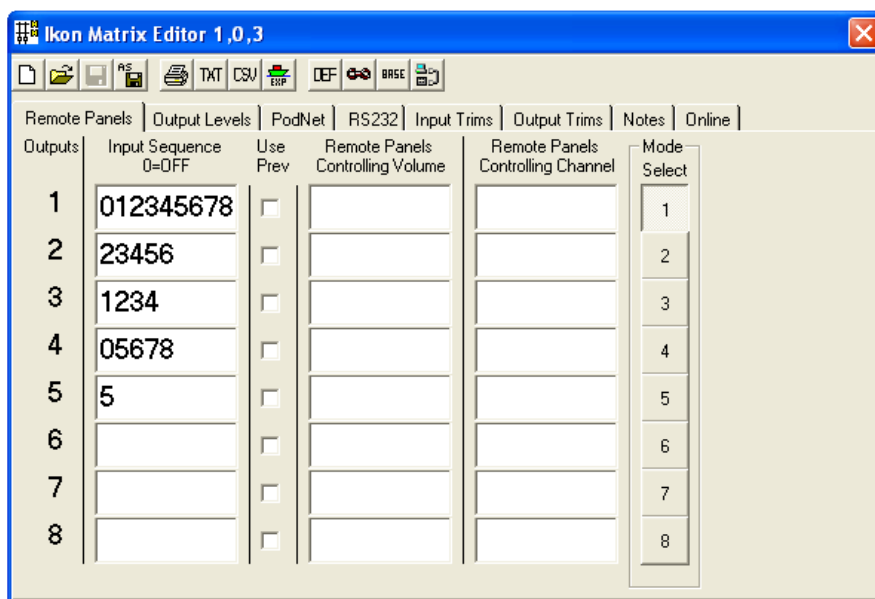


For each of the operating modes, this screen allows you to decide:-

1. Which inputs are available for routing to a particular output,
2. Which panels can select these inputs,
3. Which panels can control the channels output volume.

These can be different for each of the 8 operating modes.

Input Sequence

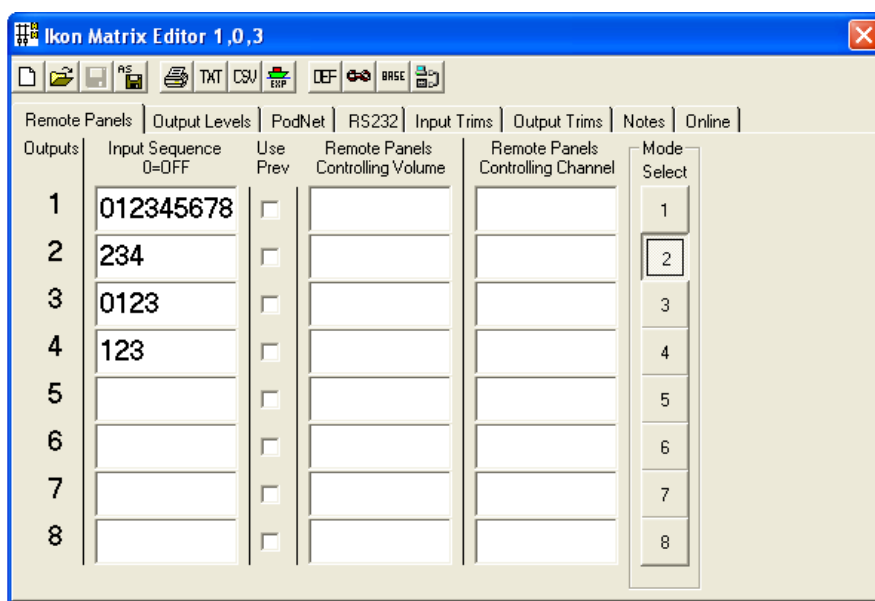


In the above example, for Mode 1 inputs 1,2,3 & 4 have been set with inputs that can be selected by control panels connected to the output or via RS232 (we haven't enabled Podnet control yet – it comes later).

In the case of Output 1, the Input up and down buttons on the remote panel will cycle between all inputs and off whilst for output 2 the panel only cycles between inputs 2, 3 and 4.

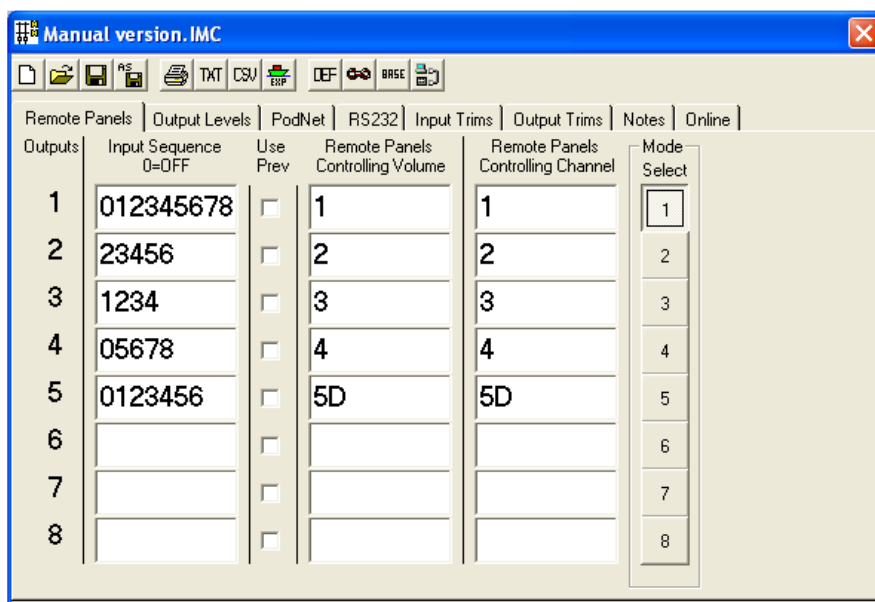
Output 5 is set to only receive input 5 and outputs 6 to 8 have no inputs entered so they will be inactive.

If we now select mode 2:-



Here, whilst Output 1 is unchanged, we have alternative or reduced inputs available for outputs 2, 3 & 4 whilst outputs 5 to 8 are inactive.

Remote Panel Controlling Channel & Volume



IMPORTANT. Up to 16 remote panels are possible with these numbered with address 1 to G. Programming is via the jumpers on the rear of the panel as per 'Default Configuration' above. The complete range of available addresses and links is:-

0 = no link, 1 = link

ADDRESS

Remote Panel	A	B	C	D	Panel Number
1	0	0	0	0	1
2	1	0	0	0	2
3	0	1	0	0	3
4	1	1	0	0	4
5	0	0	1	0	5
6	1	0	1	0	6
7	0	1	1	0	7
8	1	1	1	0	8
9	1	0	0	1	9
10	1	0	0	0	A
11	1	0	0	1	B
12	1	0	1	0	C
13	1	1	0	0	D
14	1	1	0	1	E
15	1	1	1	0	F
16	1	1	1	1	G

Always turn of the matrix before connecting or disconnecting controllers or changing their address.

Remote Panels Controlling Channel

This is used to configure which panels can control the selection of the inputs to be assigned to the output. You can enter a single panel or multiple panels but you can only use a panel once.

Take the above example. Panel 1 is used for selecting the inputs for output 1 (as per the input sequence entered). Similarly for outputs 2, 3 and 4 from panels 2, 3 and 4. However both panels 5 and D control output 5. This way you can use two panels at different ends of a room with each providing control and feedback to the other. You can only link a maximum of four panels to control a single output.


See 'output linking' below.

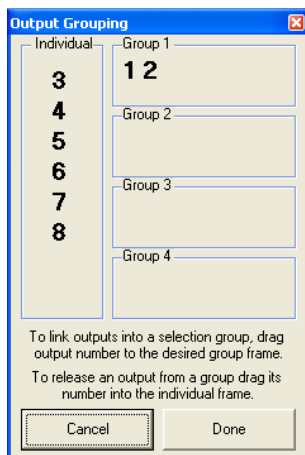
Remote Panels Controlling Volume

Enter here the number of the panel(s) you wish to use to control the volume of Output 1. You can only use a panel number once but you can have more than one panel controlling the output. For example, as above, panel 1 is used to control the level of output 1, panel 2 for output 2 etc whilst both panels 5 and D control output 5.

Output Linking

This provides the ability to link two or more outputs for control from a single panel or group of panels. When panels are linked it is for control only, volume is still via individual panels.

To link outputs use the link icon on the tool bar . Or with the cursor in the 'remote panel controlling channel' select box right click the mouse and select 'Link Outputs'. A configuration box appears allowing you to create up to four link groups

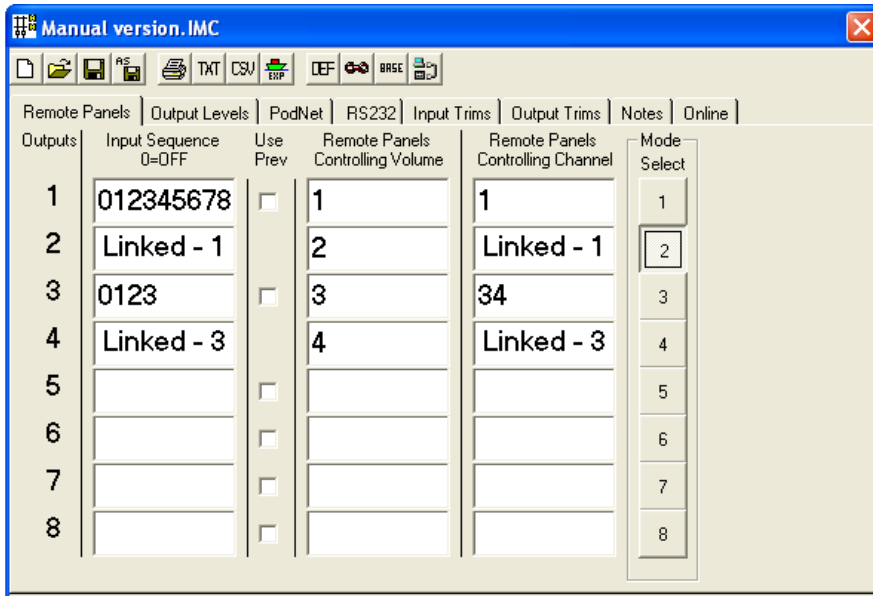


To group outputs drag and drop the individual outputs into the required group. Drag back to remove.

The example shows outputs 1 and 2 assigned to group 1.

Each mode can have its own groups.

In the example below outputs 1 and 2 have been linked for input select from panel 1 only whilst still retaining separate level control.



Outputs 3 and 4 have also been linked but now controlled from panels 3 and 4, again with separate level controls.

Please refer to the applications section for examples of using this facility.

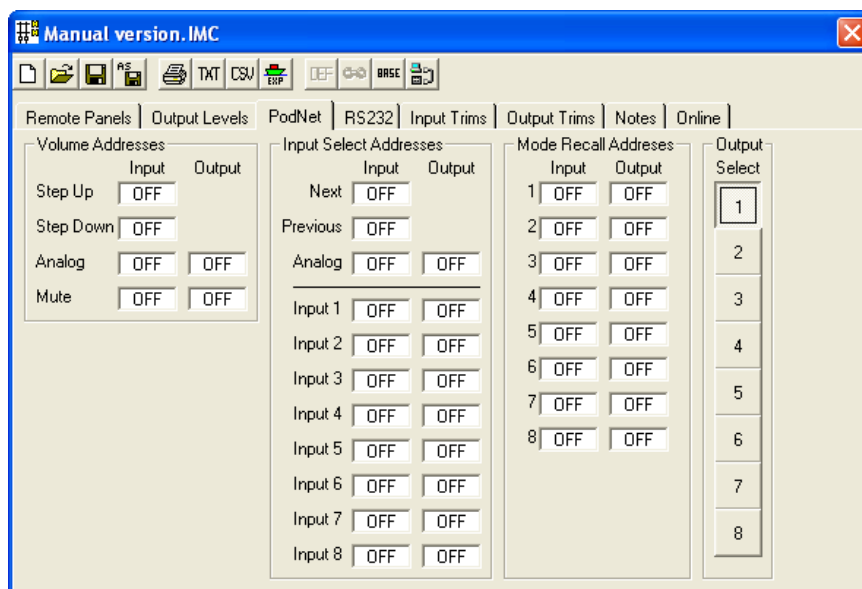
PodNet

The matrix 2 Podule can be used as part of a Podule system linked to other Podules using PodNet.

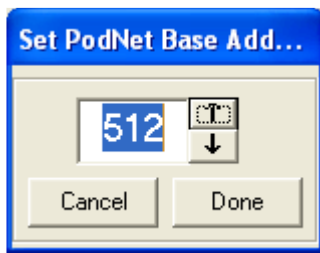
Once configured, with all except Step up and down functions, if a valid PodNet command is received the matrix both carries out the required internal change and also sends the corresponding RS232 string. Similarly if a RS 232 command is received, the matrix carried out the change and sends any associated PodNet message.

There are however 26 possible messages associated with each of the eight outputs as well as 16 mode messages.

Select the Podnet tab to reveal:-



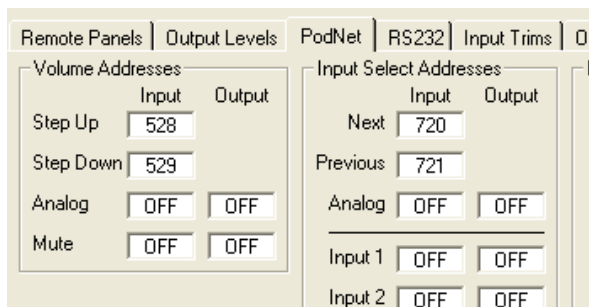
Before starting you need to set a base address, that is the start address for the 224 possible addresses. Select BASE from the toolbar.



The base address defaults to start at 512 but you can change this up or down as required. When you select DONE the next 224 addresses are assigned and now available without having to enter each one separately.

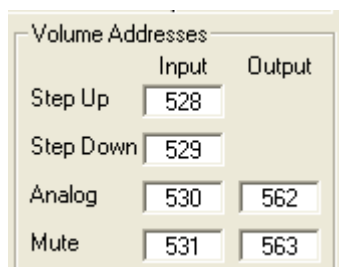
To use an address you just need to click in the appropriate box and the pre-defined address is shown. If it says OFF it is not assigned and the Matrix will not send or respond to changes relating to this address.

The following examples relate to Output 1, but are valid for all outputs but using different Podnet addresses.



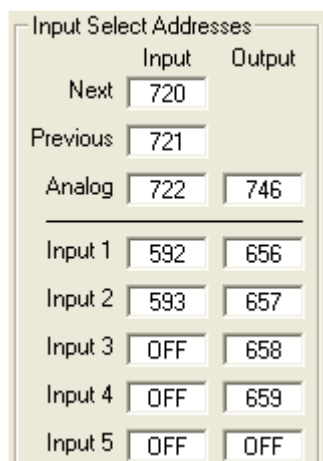
In this example when the matrix receives a Off to On (Lo to Hi) change for PodNet message 528 it steps UP in volume one increment (as set under the level control tab). When receiving 529 it steps down.

Similarly for input select using 720 and 721.



Mute has two messages; the **Input** message sets the Mute status. If the message is On / Hi, the channel is muted if Off / Lo it is unmuted. The **Output** message follows the mute status and is generally used to signal that the output has been muted via another method.

Analog is used to directly control a channel level with an embedded level command from a Touch Podule or similar. The matrix also can send an embedded level command to a remote display (Touch Podule meter).



For input selection a Lo to Hi (Off to On) transition of the message will trigger the selection. The related Output message is only active when that is the active input.

Analog is used to allow a single Podnet message to select inputs via use of different embedded levels. It is mainly used for linking Ikon Matrix routers for tracking. (Typically Video follow Audio).

In the example to the left, Inputs 3 and 4

cannot be selected by PodNet but PodNet can be used to indicate their status if selected by other methods.

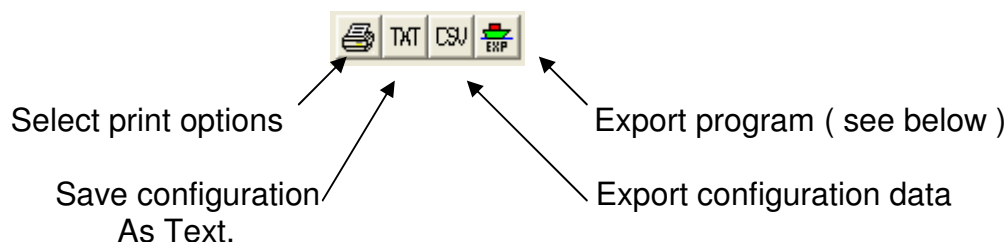
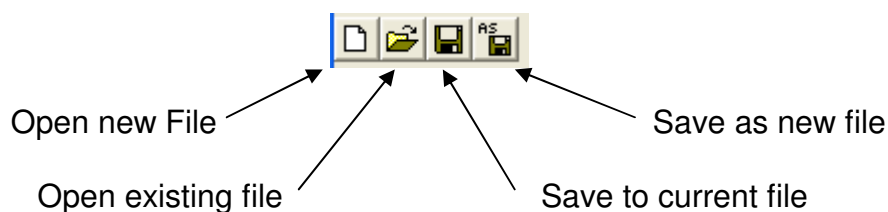
Mode Recall Addresses		
	Input	Output
1	512	520
2	513	521
3	OFF	522
4	OFF	523
5	OFF	OFF

Mode Recall is common to all outputs and allows the modes to be selected by PodNet using a Lo to Hi (Off to On) transition.

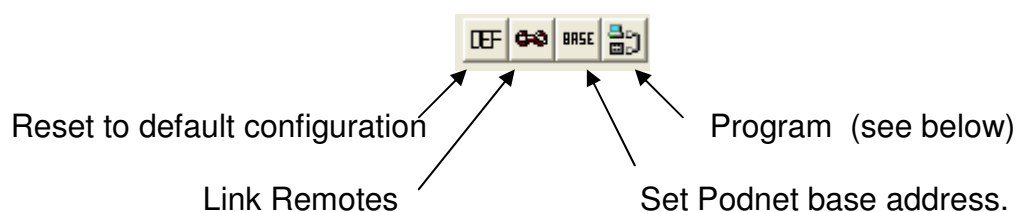
In all cases if the Input message is OFF the function cannot be controlled externally by Podnet.

Other Functions


The toolbar offers access to additional functions.



The Print, Text and Export Data option each offer you a choice of parameters for print or export.



Programming the Podule

Connect a serial cable between the PC and the Matrix 2 Podule. Open the Matrix Editor and click on the  icon.

A window will appear as it searches for pods, Fig 1, if none are found you will get a window like Fig 2, check cable connection and power to the Podule. Once communications has been established a window like Fig 3 will appear. This shows that there is a Matrix Podule connected to com port 4. Click the radio button next to the Pod you wish to program.

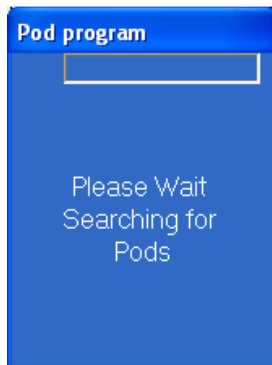


Fig 1

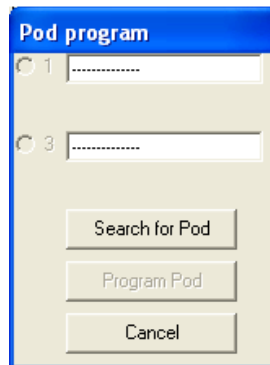


Fig 2

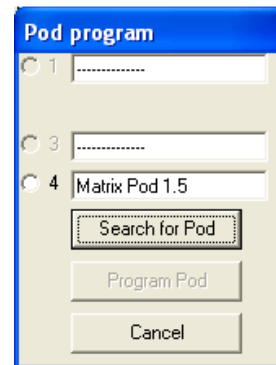


Fig 3

Note:- Fig 3, also shows the revision of the firmware within the POD.

Click on 'Program Pod' to commence the download of data to the Matrix 2 Podule. Whilst the PodFlow data is being sent the progress display as per Fig 4 is displayed. When programming is complete Fig 5 appears allowing programming of a second Podule or exit.

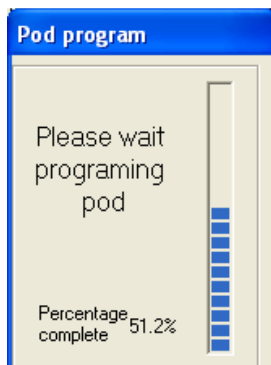


Fig 4

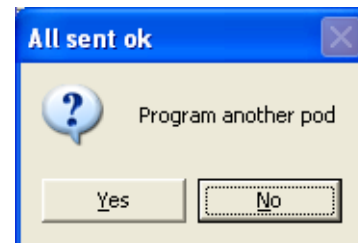



Fig 5

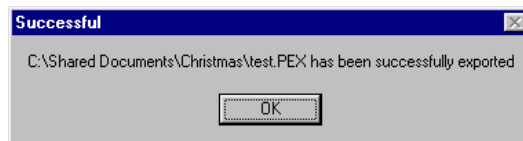
Pod Export

Pod Export allows a configured file to be exported for download to a Podule without having to install the Matrix2 Editor on the PC being used. This is intended for system designers to allow customers to update configurations without access to the configuration.



To create an export file select . A 'Save As' box will open allowing the user to specify where the file is to be saved and also to specify a name. The suffix .PEX will be added.

Click on 'Save' to export. When exported the following conformation will be given. Click on 'OK' to continue.



Pod Download

To utilise a .PEX file it is necessary to install 'Pod Download' on the PC to be used. This is available on the Ikon CD and also from the website at www.ikonavs.com. Once installed it is only necessary to double click on the .PEX file to be downloaded to automatically start the configuration.

Once started the program searches for a compatible Podule on the serial ports in an identical manner to the normal programming method.

A window will appear as it searches for pods, Fig 1, if none are found you will get a window like Fig 2, check cable connection and power to the Pod. Once communications has been established a window like Fig 3 will appear. This shows that there is a Matrix Podule connected to com port 4. Click the radio button next to the Pod you wish to program.

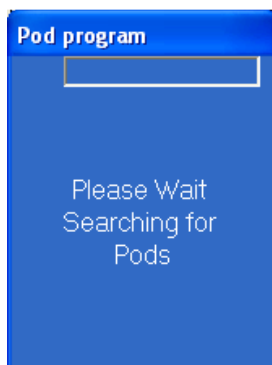


Fig 1

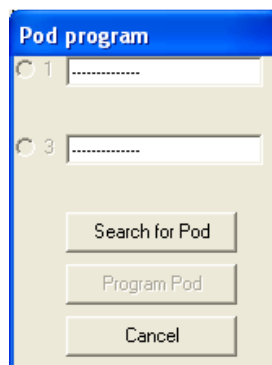


Fig 2

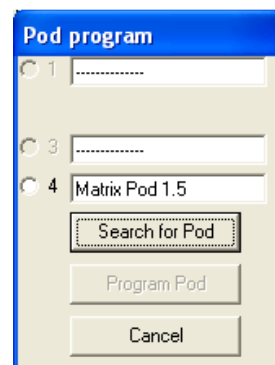


Fig 3

Note:- Fig 3, also shows the revision of the firmware within the POD, New versions, along with PodBootstrap to load them are available on our web site at www.ikonavs.com.

Whilst the main PodFlow data is being sent the progress display as per Fig 4 is displayed with this changing to Fig 5 when complete allowing programming of a second Podule or exit.

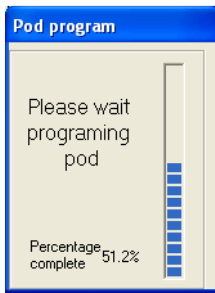


Fig 4

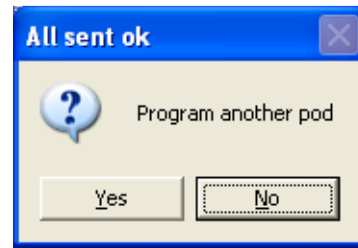
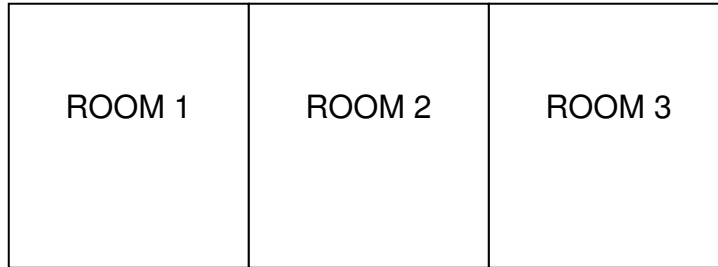


Fig 5

Applications

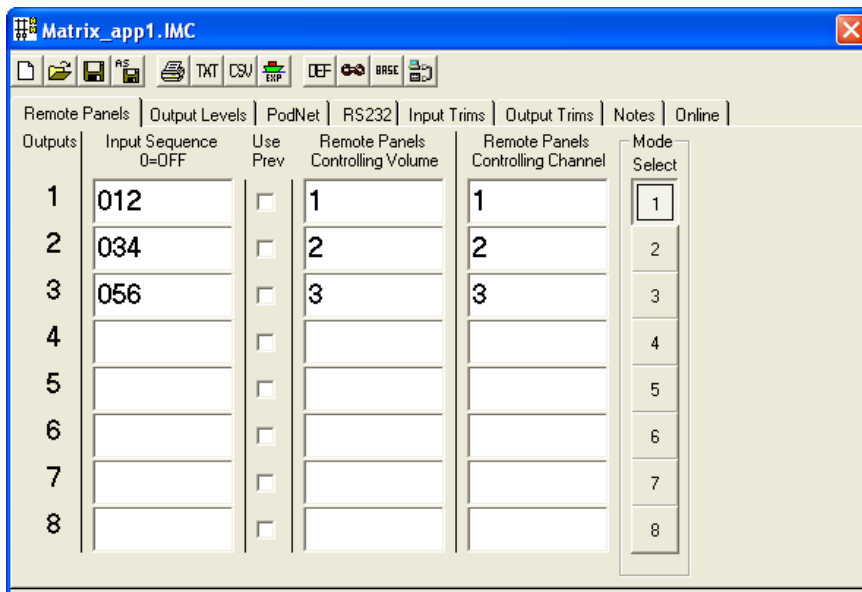
Hotel Function Rooms

This application is a hotel with three separate function rooms that can be used independently or combined.



We are using Output 1 for Room 1, Output 2 for room 2 and Output 3 for room 3. Each room has two local inputs with these fed to inputs 1, 2, 3, 4, 5 and 6 of the matrix.

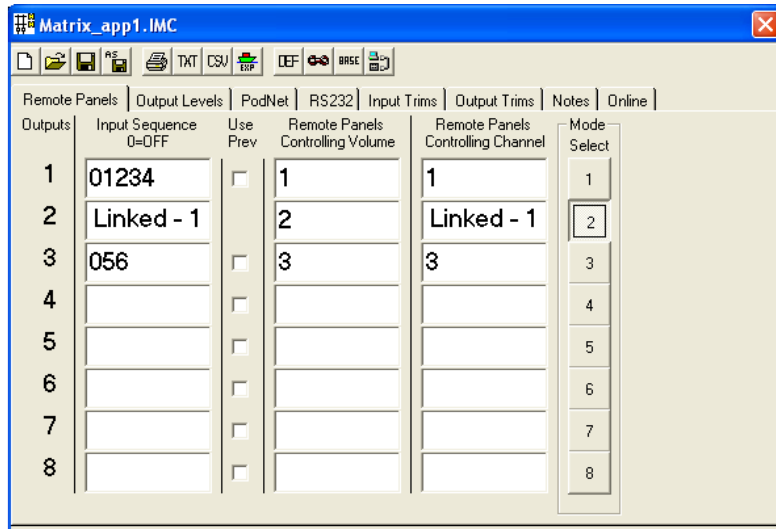
If we first set-up Mode 1 for use when all rooms are independent.



For Room 1 (Output 1) we have allowed a sequence of OFF and inputs 1 & 2, as these are the two local room inputs. Control of input and volume is from panel 1. Similarly we have assigned inputs 3 &4 along with panel 2 to room 2 (Output 2) and inputs 4 &5 along with panel 3 for room 3 (Output 3).

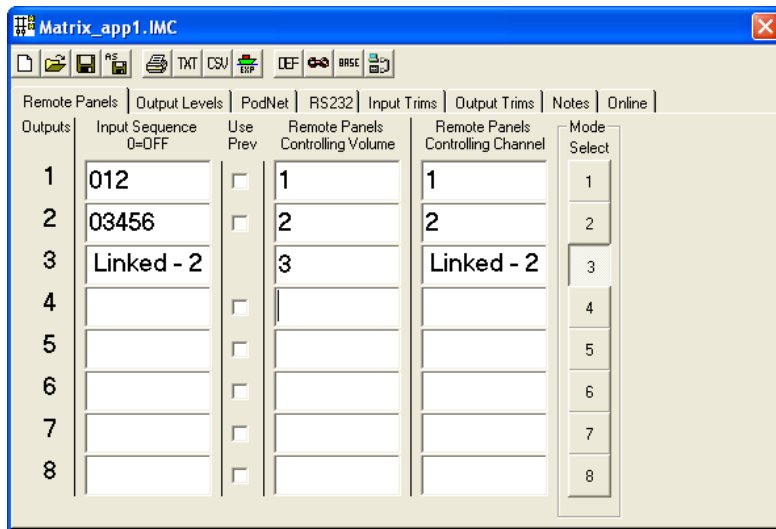
In Mode one each room is independent and only has access to its own inputs and OFF.

If we swap to Mode 2, here the system is configured to link rooms 1 and 2 whilst leaving room 3 independent.

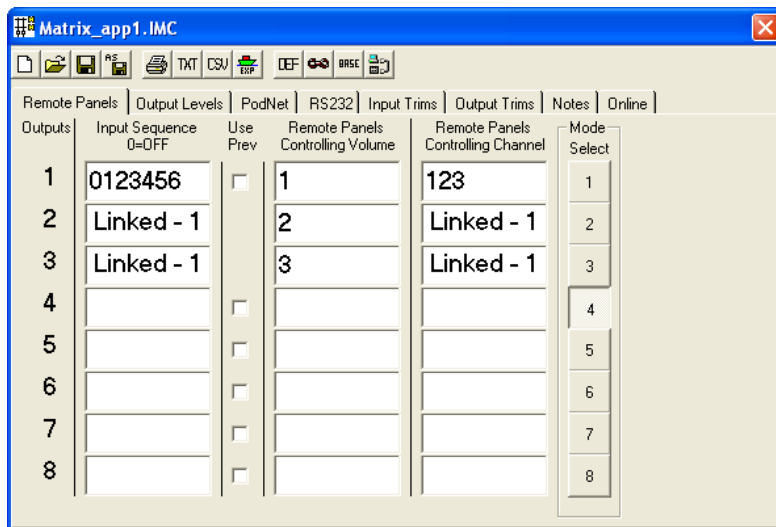


Room 1 and 2 now have access to inputs 1, 2, 3 and 4 as well as off with the input selection only from panel 1. Each room retains its own volume control.

Mode 3 leaves Room 1 independent whilst combining rooms 2 and 3.



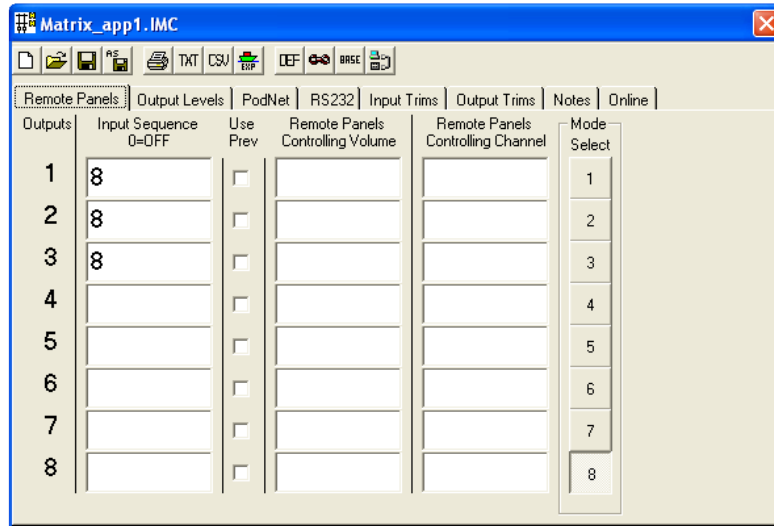
With Mode 4 we combine all rooms but allow input selection from all three panels.



Priority Paging

A variation on the above is to add an 'All Call' paging facility.

Here we add a microphone (with line level pre-amp) to input 8 and configure Mode 8 as a priority override.



Within Mode 8 we have set the only Input sequence option to be input 8 so that when Mode 8 is selected outputs 1, 2 and 3 switch to input 8.

No remote panels are specified, so the priority selection cannot be overridden. Also no volume panel is specified so the output levels revert to those saved under the Output Levels tab as Mode 8.

When the mode changes back from Mode 8 to the previous the previous inputs and levels are restored.

Appendix A

Installing Podules

Mechanical installation and connecting of the Podule should be carried out before any power is applied. Podules should not be used in areas of extreme heat or moisture.

R Series Podules

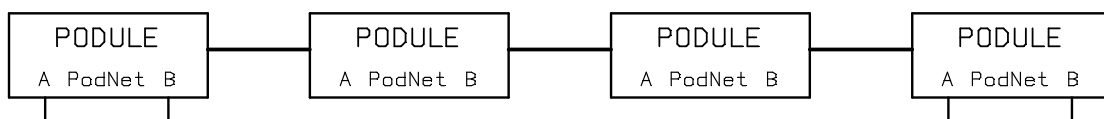
The R series Podules can be used free standing, wall mounted or rack mounted.

- Free Standing:- Fit the rubber feed supplied to the underside of the Podule to prevent scratching the supporting structure.
- Wall Mounting:- Use the optional brackets part No. WB-1. Follow the instructions supplied with the brackets for fitting and wall mounting.
- Rack Mounting:- Use rack kit part No. Rack-1 for mounting one or two 'R' series Podules in a 1U rack space. Use rack kit part No. Rack-6 for up to 9 'R' series Podules in 6U of rack space.

Powering Multiple Pods

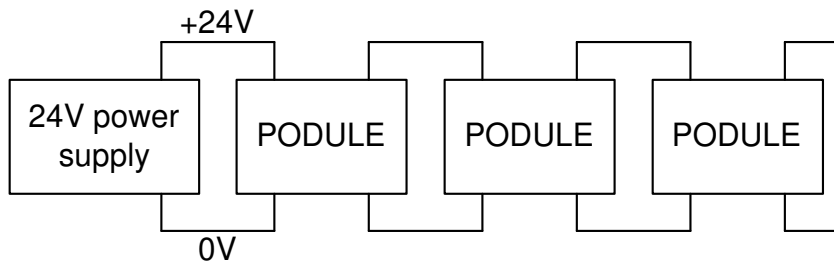
PodNet Buss

The PodNet bus uses RJ45 connectors and Cat 5 cables. Each Podule is provided with two RJ45 connectors so that a simple daisy chain up to the maximum of 32 Podules can be created. The Podules at the extreme ends of the network must have their PodNet A and PodNet B terminals linked as shown below. On the 'R' series Podules this link is a push button.

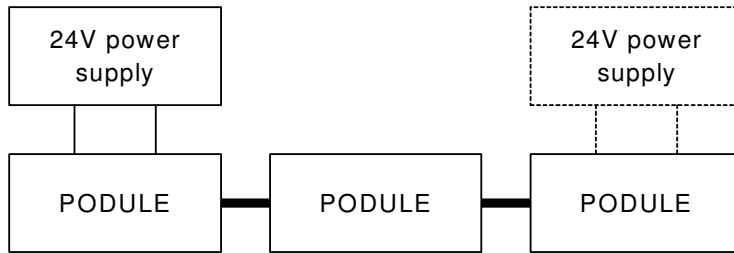


Power supply

All Podules operate from a 24V D.C. supply. Screw terminals, and / or a DC connector are provided on each Podule to allow easy daisy chaining, as shown below up to a maximum of 6, then another power supply needs to be added.



The 24V supply is also feed through the cat 5 PodNet network so only one Podule on the network needs to be connected to a power supply.



When using a Matrix 2 Podule, due to its higher current requirements, it is recommended that this is fed from the Pod-PSU and where required other Podules are fed from the Podnet OUT socket.

Appendix B

Pin out of DC Plug, RS232 & PodNet

Programming Lead, PC to PODULE
Connection Details of “D” Type connectors

PC End

Female 9 way D

Pin 2
Pin 3
Pin 5

POD End

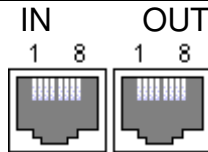
Female 9 way D

Pin 2
Pin 3
Pin 5

Podule RS 232 Pin OUT

Pin 2 Tx, Data O/P
Pin 3 Rx, Data I/P
Pin 5 Ground (0V)

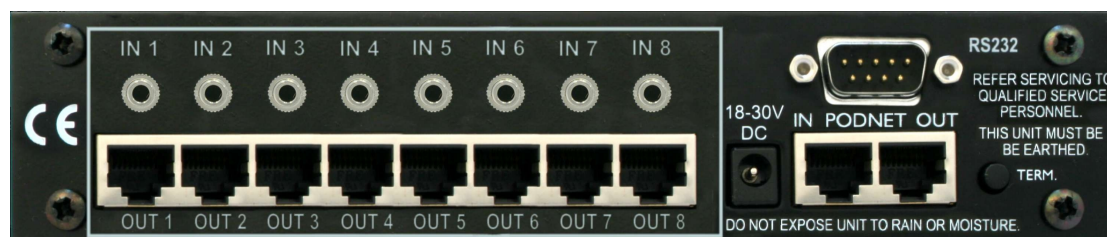
PodNet Connector



IN		OUT		RJ 45 Patch
Pin 1	24V In	Pin 1	24VOut	Orange
Pin 2	24V in	Pin 2	24V Out	Orange/white
Pin 3	N/C	Pin 3	N/C	Green/White
Pin 4	PodNet H	Pin 4	PodNet H	Blue
Pin 5	PodNet L	Pin 5	PodNet L	Blue/White
Pin 6	N/C	Pin 6	N/C	Green
Pin 7	0V	Pin 7	0V	Brown/White
Pin 8	0V	Pin 8	0V	Brown

**CAUTION DO NOT INTERCONNECT TO ETHERNET OR PERMANENT
DAMAGE MAY OCCUR TO THE ETHERNET DEVICES.**

Matrix 2 Podule – Rear Connectors



3.5mm Jacks

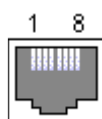
Stereo jacks are used for the unbalanced audio inputs.

Ring	Right channel audio
Tip	Left channel audio
Sleeve	Audio ground / common

Matrix Channel Outputs

Normally pre-made Cat 5 cables with RJ45 connectors are used for linking the Matrix 2 outputs to panels.

It is possible to make up your own break out leads as the Audio out is a normal balanced line signal suitable for feeding into a conventional balanced line input.



	Use	Cat 5 Colour *
Pin 1	Left Channel Audio – Phase	Orange
Pin 2	Left Channel Audio – A/Phase	Orange/white
Pin 3	DC Power, +24V	Green/White
Pin 4	Data 'A'	Blue
Pin 5	Data 'B'	Blue/White
Pin 6	Common 0V, Ground	Green
Pin 7	Right Channel Audio – A/Phase	Brown/White
Pin 8	Right Channel Audio – Phase	Brown

* Recommended. If using different colours it is important to keep the pairs as shown.

Electromagnetic Compatibility

This equipment has been designed, manufactured and tested to conform to the European EMC directives EN55103-1 & EN55103-2 for classifications E2 and E4.

Limitations as to use: The specified equipment is not to be mounted adjacent to RF transmitting or receiving equipment.

Manufacturers Information

The Matrix 2 PODULE is manufactured in England by Nebula Audio Ltd.

For service or warranty advice please initially contact your supplier.
Alternatively contact the manufactures at:-

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Worcester
WR5 2AJ

Telephone: +44 (0) 1299 250991

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