PodFlow 3

User Guide
&
Reference manual

Software

Podules are programmed with Ikon AVS's **PodFlow** software application. A copy of this licence-free, Windows®-based program is available on CD-ROM for installation on the user's own PC. **PodFlow** is also available as freeware, and may be downloaded from www.ikonavs.com

PodFlow includes a transfer routine to enable a completed design to be transferred into a Podule. If the programmer is also the installer, the use of a laptop as the PodFlow platform is obviously desirable, for ease of on-site installation. If the completed design is to be loaded into a Podule by a non-programmer, then Ikon AVS's **Pod Download** utility may be used instead. **PodFlow** includes a companion routine that exports the completed project into a form that can be handled by **Pod Download**. **Pod Download** is a greatly simplified program that obviates the need for non-programmers to be adept with **PodFlow**.

Installing PodFlow on a PC

PodFlow must be installed on a Windows®-based PC. Any type of PC meeting the specification below may be used, though it is recommended that a laptop is used, for ease of on-site program loading and possible later modification during commissioning.

Minimum PC specification to run PodFlow:

Operating System:	Windows 98 SE, ME, 2000, NT4+ or XP
Processor:	Pentium I or higher, min. recommended speed 300MHz
Memory:	128MB
Hard Drive space:	3MB min. (for application), 20MB recommended (for projects)
Graphics: screen resolution, colours:	800 x 600, 16-bit colour min.
Comms Port:	RS232 serial or USB with adapter.
CD-ROM drive	Recommended

To install PodFlow on a PC from the supplied CD-ROM, insert the CD-ROM into the PC's CD drive. The CD-ROM should start automatically, and launch an introductory page on-screen. Select 'Install PodFlow', and the Install Wizard will then run. Follow the simple instructions on each page of the Wizard, and PodFlow will install itself, and all necessary associated files as required. Acceptance of the suggested default file locations and program group names is recommended.

If the CD-ROM does not start automatically, open 'My Computer' from the desktop, and navigate to the CD drive. Open the PODULES folder then the Podflow 3 folder, and double-click the file **Podflow3.msi**. The Install Wizard will launch, and the installation can be performed normally.

To obtain PodFlow 3 from the Ikon AVS website, go to www.ikonavs.com and navigate to **Downloads/Manuals** via the link in the sidebar on the home page. Scroll down the list of downloadable files to the section **Software updates**, and locate **PodFlow** in the first column. Click on **PodFlow**, and after an advisory window, downloading will commence. The file downloaded is a Zip file. Download the Zip file to a convenient directory, and then extract from it using WinZip (or WinRAR if using Windows XP). From this point, installation is as from a CD-ROM.

IR Library

At the time of installing PodFlow it is advisable to also load the IR Library from the CD.

From the CD either select 'Install Library' from the introductory page or using Windows Explorer locate the 'PodFlow 3' subdirectory, that by default will be in the 'Programs' Directory, and copy the 'IR Files' folder from the CD to it.

Manuals and Additional Software

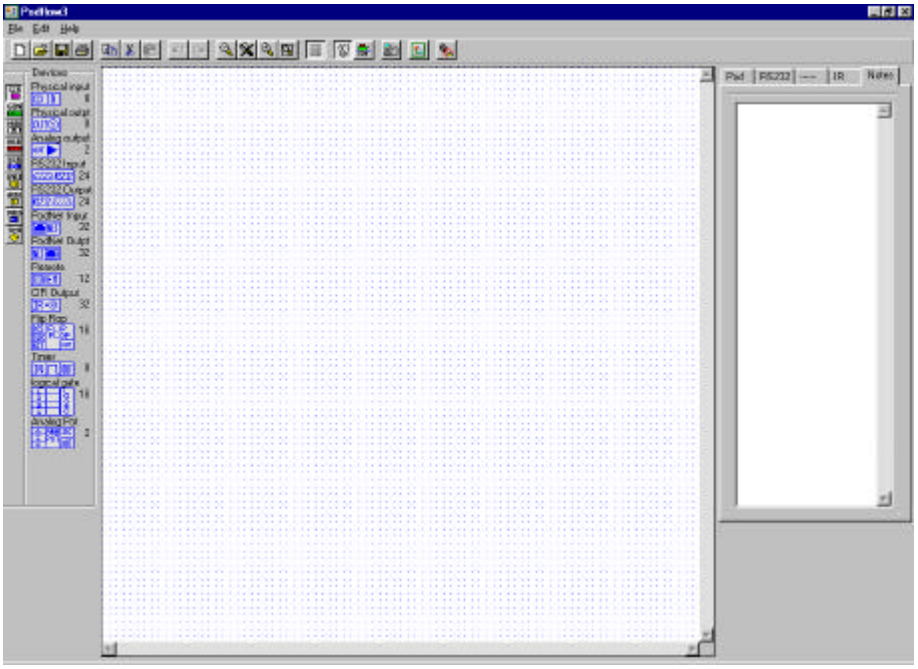
As with the IR Library, the Podule manuals along with additional support programs can be installed by either selecting from the CD's introductory page or manually using Windows Explorer.

For the manuals, these are copied into the PodFlow 3 directory. With the support programs these are as follows:-

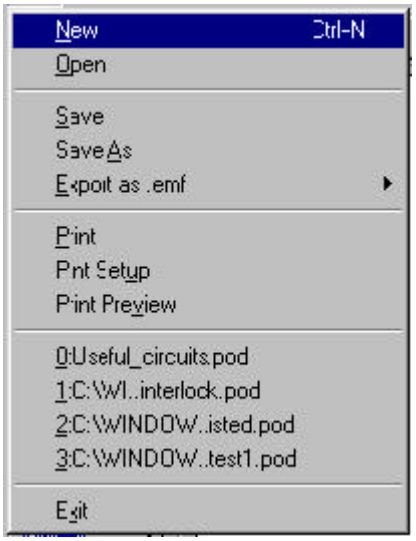
Program	Use	Location	Install
CommMonitor	Monitor RS232 strings	Comm Monitor directory on CD	Copy the .exe to the PC. No installation necessary.
PodDownload	Download Pod Export file to Podule	PodFlow 3 directory on CD	Run the .msi file and follow the instructions
PodController	Utility for setting the parameters of the Audi and Video Podules	PodFlow 3 directory on CD	Run the .msi file and follow the instructions
PodTime	Utility for setting the real time clock on Chrono-Pod	PodFlow 3 directory on CD	Run the .msi file and follow the instructions

PodFlow 3 Software

Main PodFlow screen.



Menu Bar

Under		
File		New creates a new project. Open opens an existing file. Save Saves project to Disk. Save As, this allows you to save the project under a new name. Export as .emf, you have a choice of all or selected (Enhanced Metafile). Print will print the project to the default windows printer. Print Setup. Allows you to change printer settings. Print Preview, Preview project before printing. The box below this will show the last 8 projects worked on you may access these from here.

Edit		Undo  will undo the last 10 operations. Redo  will redo the last 10 operations. Cut  will remove current selected items to the clipboard. Copy  will copy current selected items to the clipboard Paste  will paste contents from the clipboard into current project.
Help About		Information about revision number. Updates available on the Web site at www.ikonavs.com.
		Zoom Out  Normal View  Zoom In  Zoom to fit 
		Show and hide Grid (default) 
		Show and hide Tabs (default) 
		Program Podule.
		Run program emulation.
		Run Infra red capture program. (Requires Capture Podule)
		Create Podule export file (.PEX)

Left Tool Bar

Use the left hand tool bar to select the type of podule to be configured. You will be prompted to save the current program before changing Podule types.

Select CIR Podule.

Select General Podule.

Select Midi Podule.

Select Relay Podule (type B).

Select Screen Podule.

Select Wall Podule (8 button type B).

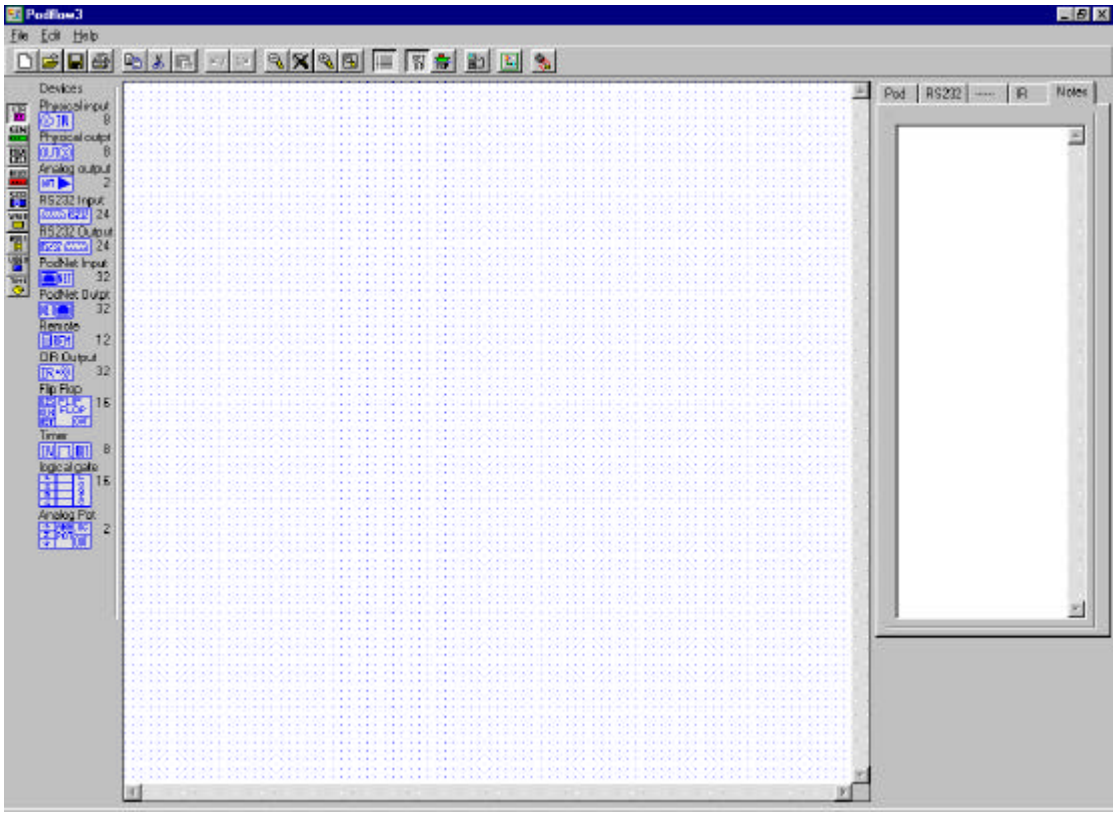
Select Audio Podule

Select Video Podule

Select Time Podule

Start & Select Podule

When you start PodFlow the opening screen shows the available Podules down the left hand side. Click on a Podule to open a screen showing the available 'Devices' on the left hand side, the main worksheet in the middle and set up features on the right with Tab selection. The 'Notes' field can be used for general program notes and is saved with the project. The example below is for a CIR Podule.



Changing Podules

You can change to a different Podule by clicking on and alternative unit, this will prompt you to save the current program. When an alternative podule is selected the available 'Devices' will change.

Selecting a Device

To use a device, click and drag it onto the worksheet. Click on the device to drag and reposition as required.

To the right of each device (on the device list) is a number indicating how many of the devices are available for your project.

Deleting a Device

Select it and use the "Delete" key to remove from your project.

Wiring Devices

Once devices have been placed in the worksheet they need wiring. If you single click on a device a series of nodes will appear with a central solid node (Fig B) indicating the point from where a connection should be made, if you get a picture like (Fig. A) then you have selected the whole device and you will need to deselect it by clicking on the Worksheet and then clicking on one of the connection points e.g. OUT. As you hold the mouse cursor over this central node the cursor changes to a vertical arrow. (Fig. C)

Fig. A

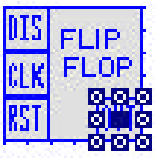
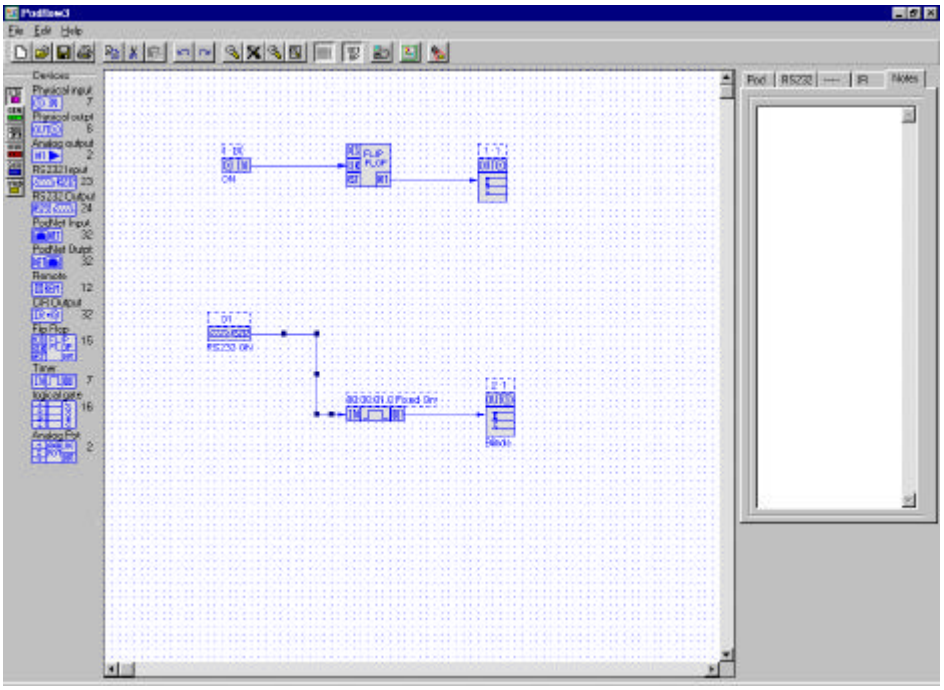


Fig. B

Fig. C

Click and hold the mouse button down, drag a connection to the next device. You must connect from the output of a device to the input of the next device. On multi I/O devices there is a separate central node per connection.

Note:- You cannot connect inputs together or outputs together.

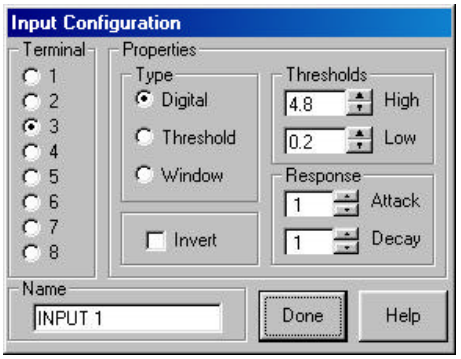


By clicking on a connecting line an additional node is created. Click and drag this node to route the line in other than a simple ‘point-to-point’ format.

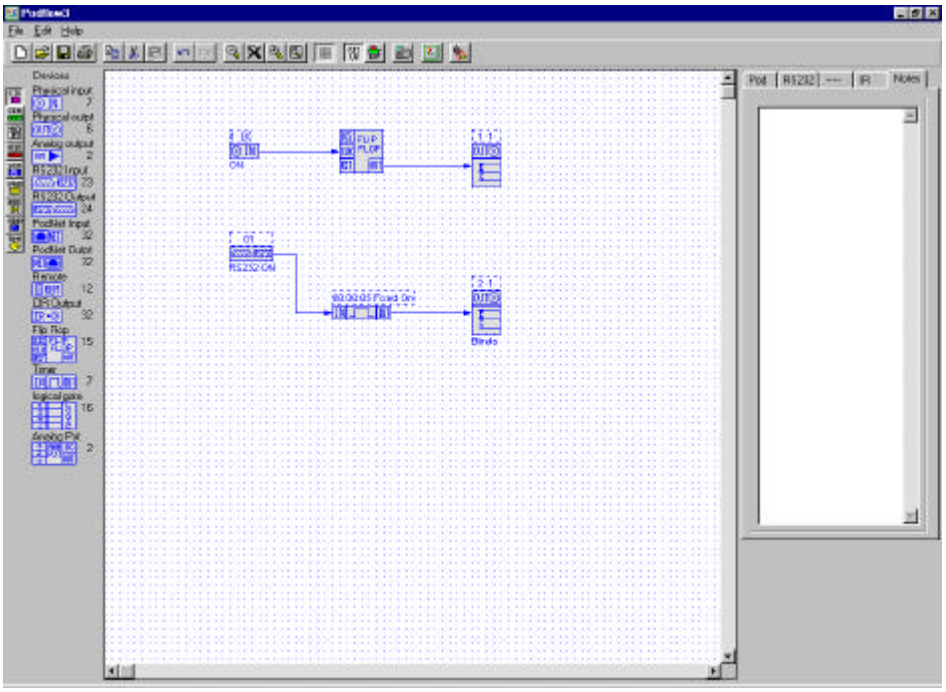
TIP:- If you right click on the connecting line you can change its colour.

Device Parameters & Names

Each device has a number of parameters that are available for configuration. Double click on the device to access the parameters. A window similar to the one below will appear. When configuration is complete click DONE to exit.



When configured the parameters are added to the device symbol on the diagram.



Take the above example for the physical input. The text fields state the input number 1 and the input type D for Digital. The optional text below is created in the Name field and can be user defined. E.g. “ON”

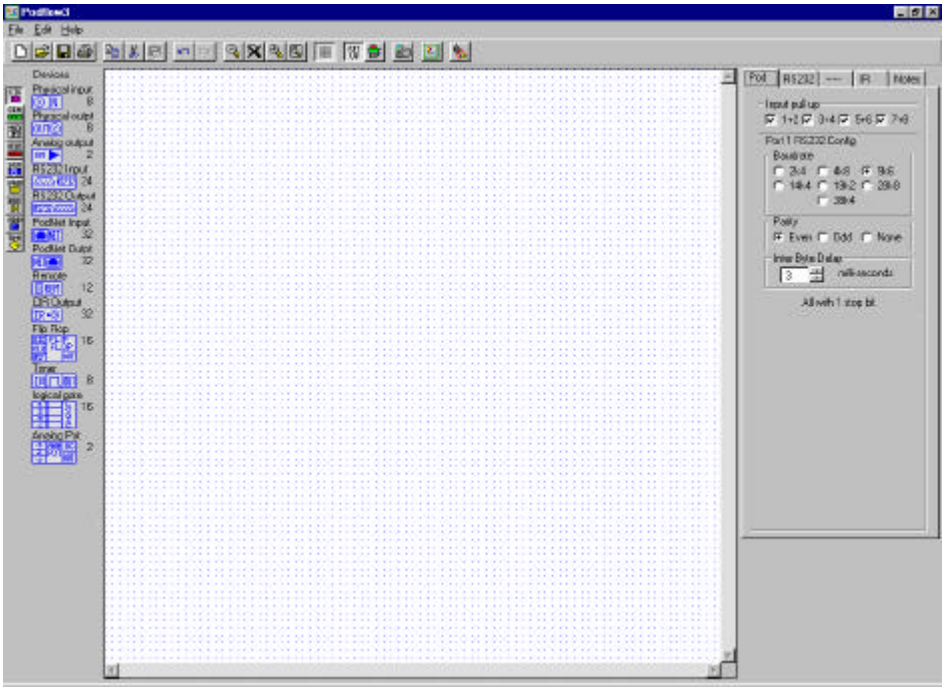
General Notes about devices
Some Devices trigger on a logic level (1 or 0) and others respond to a transition edge (1 to 0 or 0 to 1), Next to each device on the following pages you will see the following information:- Number of devices per POD: - e.g. 4 Input Trigger Level: - e.g. Edge, Level or Analog Output Type: - e.g. level, Analog, RS232 Connections per input: - e.g. 1 or >1 (if >1 all the i/ps are “ored” together) Connections per output: - e.g. 1 or >1

Pod Configuration

On the right hand window four tabs allow global configuration.

POD Tab – Used to set Internal pull up resistors and RS232 ports.

Note: - RS232 is always 8 Data bits and 1 stop bit



Input Pull-Up

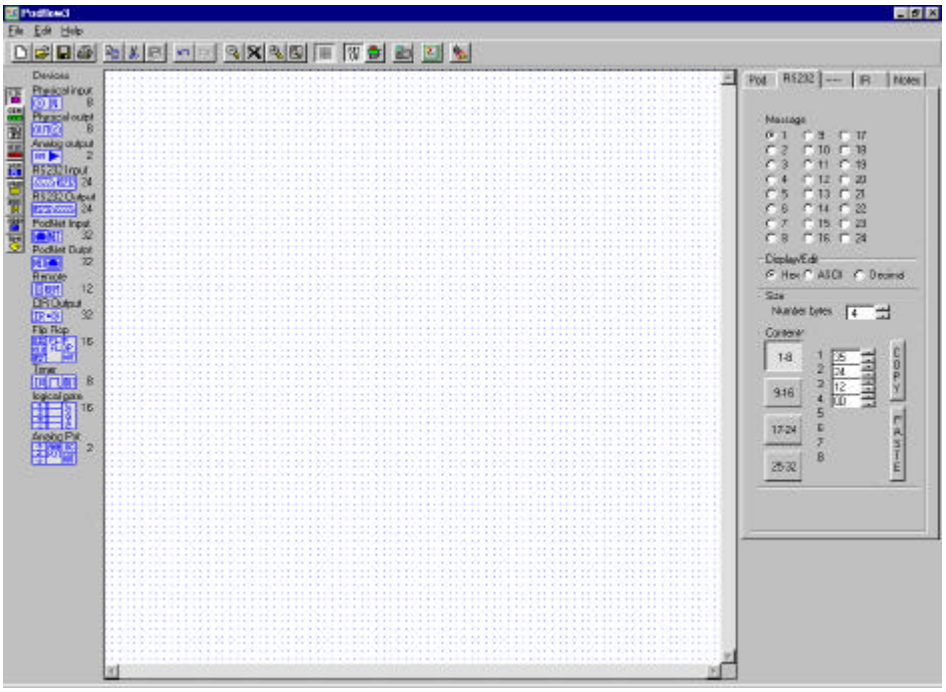
The default setting for these are Active pull-ups (47K), You can set the inputs to all pull up or all pull down.

Port 1 RS232 Config

This is where the Port 1 settings are configured.
Some equipment may have problems receiving data sent to fast so there is a setting called " inter byte delay" which enables you to send bytes with delays between them.

RS 232 Tab

Used to configure RS232 messages.
You can have up to 24 messages*; these are used for incoming and outgoing RS232 data. You can enter the RS232 messages here or directly into RS232 I/O Devices.

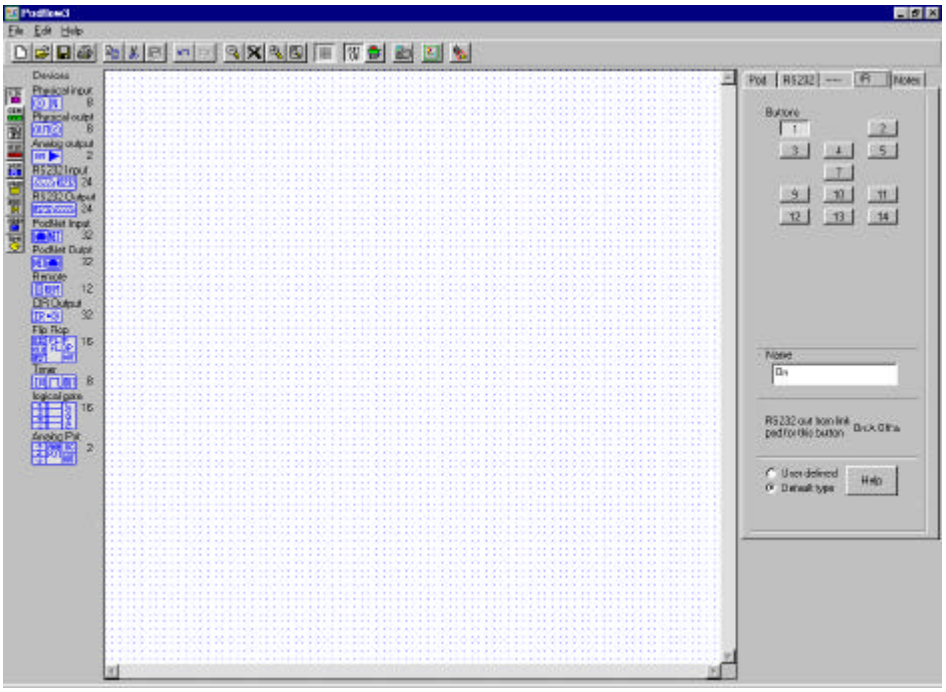


From the message panel select the message to be configured, from the lower panel select the message length in bytes (from 1 to 32 bytes). A number of panels will open corresponding to the number of bytes selected. Enter the individual bytes as either a single ASCII letter or a Decimal or Hex two-digit number. The buttons above allow swapping between the three formats and carry out conversions allowing mixed formats to be used. The above example is set as message number 1. Too send a 4 byte message of “35, 24,12, 0D” in Hex.

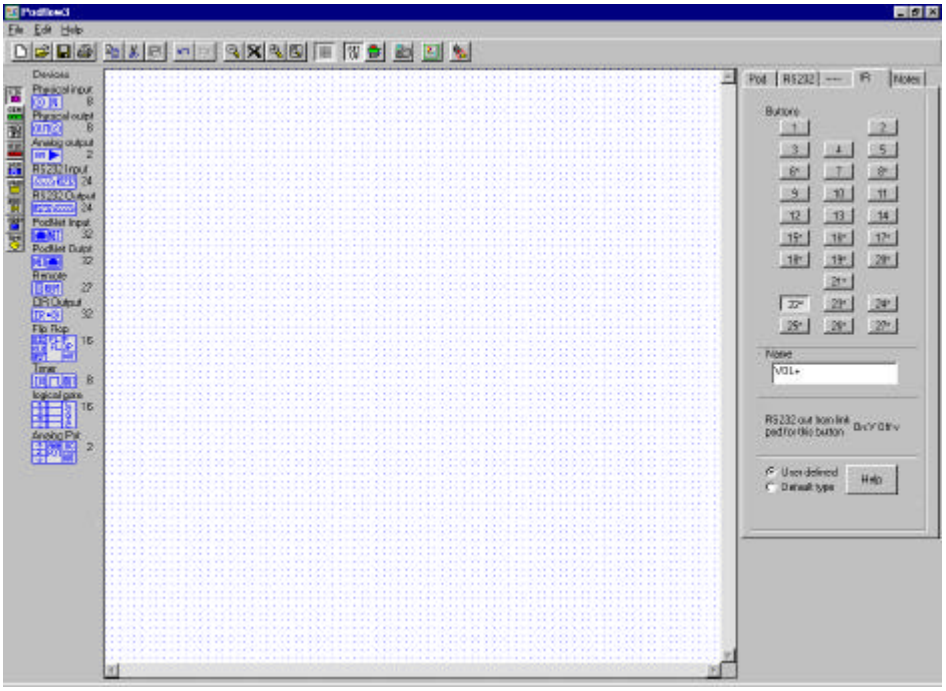
* The Chrono Podule supports 24 input strings and 64 output strings in two groups of 32.

IR Tab

When used with the IKON AVS PodLink, the user has the choice of a 12 button pre-defined handset or a 27 button user definable version. You can change between these until you assign an IR Remote input (see reference section later) at which time the handset configuration is frozen.



The default configuration above has defined names for each button. Select the button to reveal the name.



The above ‘User Defined’ configuration allows the programmer to name the buttons. In addition to the number, some buttons have a * indicating they are not available on the default format.

PodLink to Serial

It is possible to use the PodLink Receiver independent of a PodNet system by connecting to the serial output. When used in this mode each button will give an ASCII character on the press and release of a handset button as indicated in the RS232 out from link box on the configuration tool.

In the above example button 22 has been selected which gives a ‘V’ when pressed and a ‘v’ when released.

Please refer to the PodLink manual for additional information.

Device Reference

The number of each device varies between Podules. Please refer to the individual manuals for details.

Physical Input

Input Trigger Level:-	Digital or Analog
Output Type:-	Digital 1 or 0
Input connections:-	Screw terminal
Connections per output:-	>1

The maximum input voltage must not go below 0V or exceed +5V DC (See Appendix A).

Input Configuration

Inputs

Inputs can be digital or Analog. Select the input from the Terminal list and Name as required.

Selecting threshold or window will put the inputs into Analog mode.

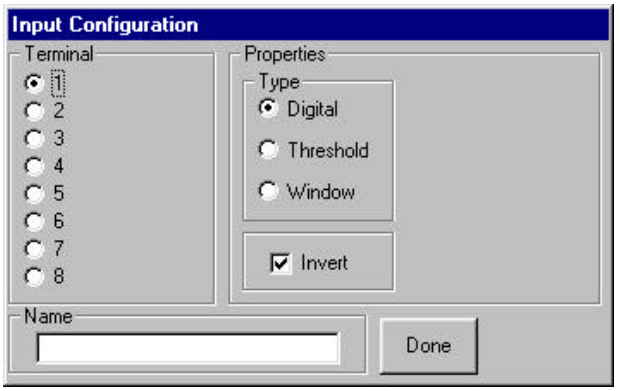
In DIGITAL mode logic thresholds are:-

Logic 1 > 2.0v
Logic 0 < 0.7V

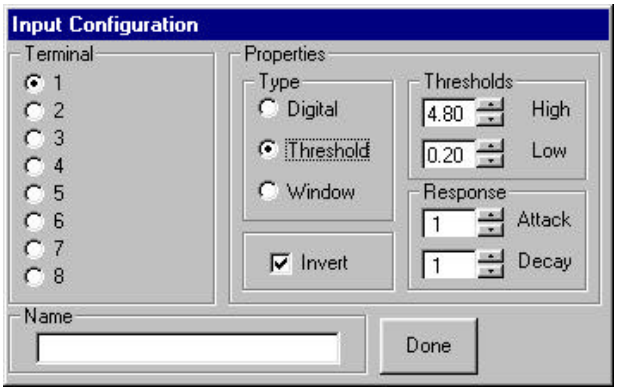
In THRESHOLD mode the output status will change when the DC input level exceeds the high threshold and only return low when it drops below the Low threshold.

In WINDOW mode the output is only high when between the high and low thresholds.

You can set the input to be active High or Low under the POD tab in the main window. Default is pull up.



Digital Input



Analog Input

Name

Each device can be given a “Name”, this is displayed below the device in the diagram.

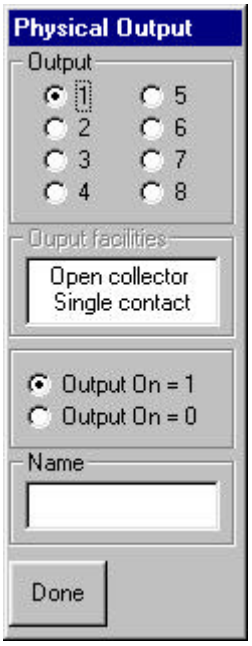
Invert

Inverts the state of the output. By default it is ON requiring the input to be grounded for activation.

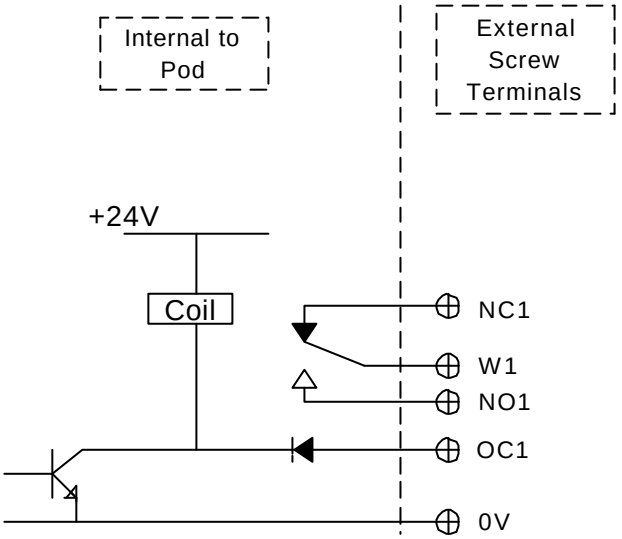
Physical Output

Input Trigger Level:-	Digital
Output Type:-	Level
Connections per input -	>1
Connections per output:-	>1 (See Appendix C for Current ratings)

These can control external relays, Indicators or opto-isolators. After dragging the device onto your worksheet double click on the device to open a configuration window like the one below.

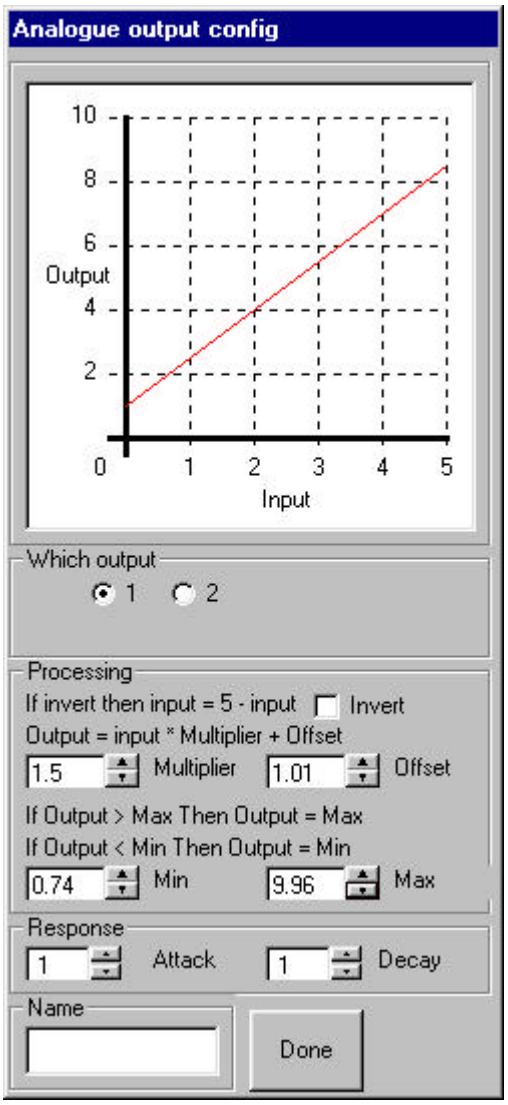


Outputs that control internal relays are rated at 30V DC 1A these are labelled on the POD as NO1 W1 and NC1 for output 1 and NO2 etc. for output 2. Relay outputs are also provided with open collectors, rated at 30V 100ma, these are labelled on the POD OC1, OC2 etc. Other outputs are provided with open collectors only again rated at 30@100mA DC and labelled OC3, OC4 etc.



Analog Output

Input Trigger Level-	Analog
Output Type:-	Analog output 0 to 10 V (see Multiplier)
Connections per input:-	1
Connections per output:-	1 Screw Terminal (See Appendix C for Current ratings)



Which Output

You can select the Analogue outputs using the radio buttons, they are marked on the Pod as AN1, AN2 etc.

Invert

Provides the option of inverting the input signal used – i.e. 5V-input 0V DC output.

Multiplier

This sets the gain of the Analog o/p, i.e. all Analog sources provide a voltage between 0 and 5V. If you require an output between 1 and 10V set the multiplier to 2.

Offset

-10V to +10 V

Min Max

The output voltage is clamped between the Maximum and Minimum voltage.

Attack / Decay – 1 to 8

These provide a slew rate similar to the inputs. Values can be set between 1 and 8, where; 1=200, 2=100, 3=50, 4=25, 5=12.5, 6=6.3, 7=3.1 8=1.6 V/Sec approximately

Name

Each Device can be given a name; this is displayed below the Device in diagram.

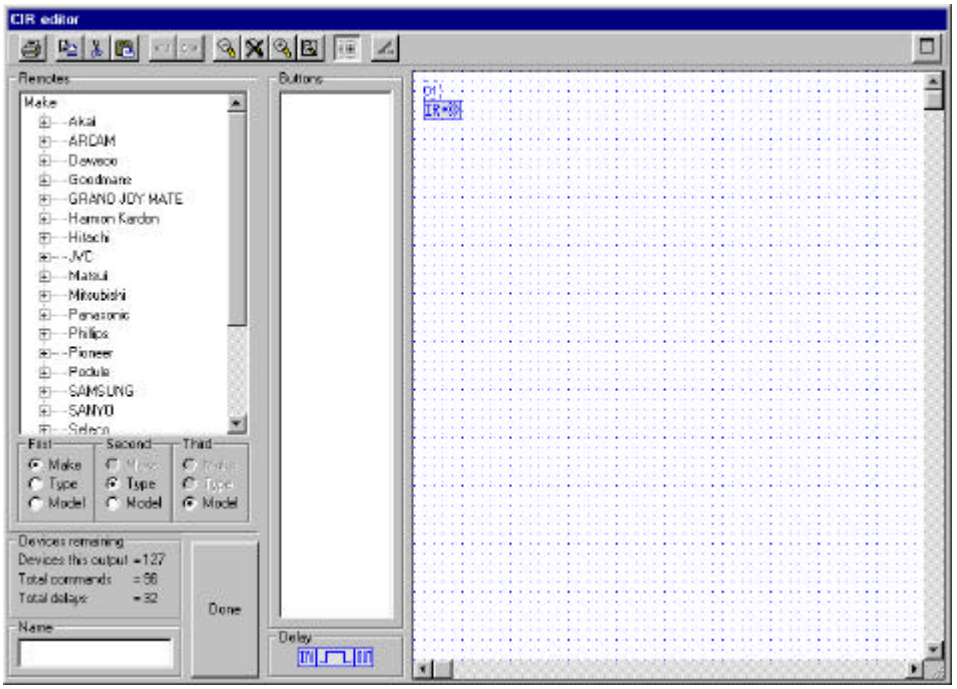
Cir Output

This output is only available on the CIR Podules.

01

Input Trigger Level:-	Edge triggered 0 to 1
Output Type:-	4 x Infra red via 3.5 mm jack sockets 1 x Blaster on screw terminals
Connections per input:-	1

When you drag an IR output on to the project grid and double click on the device, a window will open. See below.

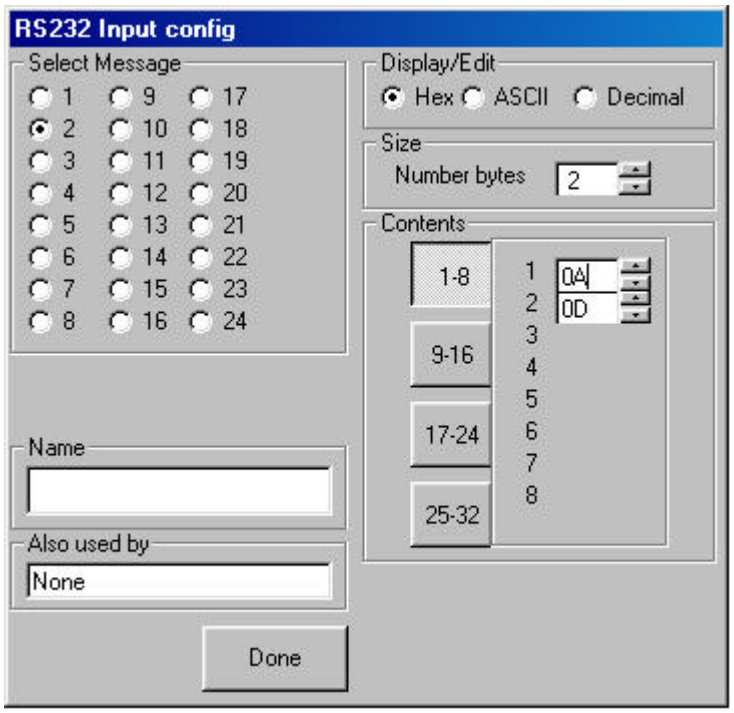


Select the make of device you want to control, then the type and then the model, (if not on list see capturing infra red codes.) Drag the command onto the grid then connect to the IR as normal, if you need to string more than one code to another just drag them on to the work grid and join them up from outs to ins up to a maximum of 96 codes.
Double clicking on to the IR command lets you select which IR output the signal uses. You can change the number of times that code is transmitted, some systems need to see a number of the same codes to change.

If you need a delay between each IR command drag a delay onto the grid double click delay, delay can be from 0.1 to 12.7 seconds

RS232 Input

Input Trigger Level:-	RS232 Via port1
Output Type:-	Edge triggered 0 to 1
Connections per input:-	1 (Port 1)
Connections per output:-	>1



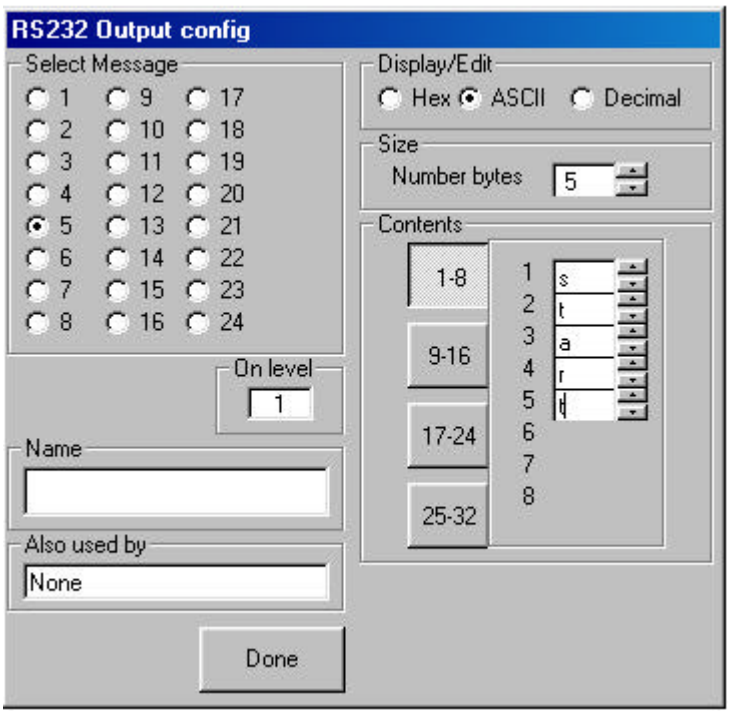
When the RS232 input Device symbol is double clicked it displays a 'Select Message' window allowing the assignment of the message it is to respond to.

When a message is selected a side window opens, this is a repeat of the RS232 Tab and allows the setting up, or verification of the message length and content. A warning is also given if the message is already assigned within the Podule.

RS232 Output

Input Trigger Level:-	Edge 0 to 1
Output Type:-	RS232
Connections per input:-	>1
Connections per output:-	1, RS232 port 1

Accessed from the 'D' connector the RS232 output is configured under the RS232 tab. Each required message output will need a new RS232 Output device and these require configuring as to which message they are to transmit. The device supports multiple inputs.



Double click on the RS232 Output Device to access the configuration screen.

Configuration is as per the inputs with the message transmitted when active. The On Level window configures transmission on a Low to High transition (1) or Hi to Low transition (0).

Multiple inputs can be connected to the device as it responds only to a level change and not a fixed level.

The above example has been set to transmit message 5 which is an ASCII code s,t,a,r,t, when the RS232 output receives a Logic Level 1 on its input.

PodNet Signals

The PodNet currently supports up to 255 simultaneous messages with these a combination of Digital and Analog. You should only have a single Podule originating the message but all Podules can receive it. On any Podule, if the status of a message is changed the Podule transmits this change immediately, or if the network is busy in the next available time slot, this is generally within 5mS.

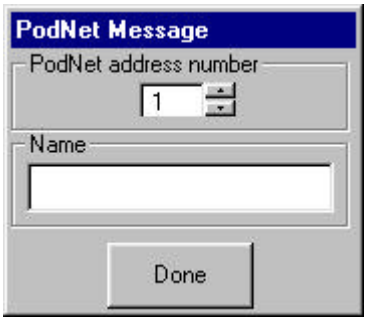
All Podules automatically retransmit their locally originated PodNet messages at an interval of approximately 35 seconds to ensure complete synchronisation between units.

PodNet input

Number of devices per POD:-	32 *
Input Trigger Level:-	PodNet Data
Output Type:-	Digital, Analog
Connections per input:-	1 (PodNet data)
Connections per output:-	>1

PodNet type

As soon as you drag a PodNet input onto the working area a box will open requiring you to select if this is to be a Digital or Analog PodNet message. Once you have made your choice this box is closed and a second box opens.



PodNet Message

Enter the message number to be used either by typing in the message number or using the buttons.
For convenience you can give the PodNet input a suitable name.

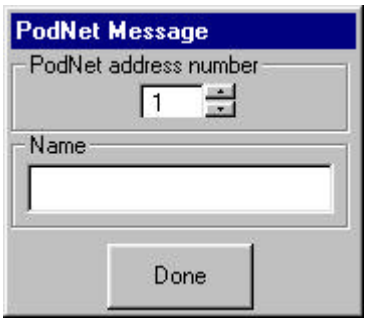
* The Chrono Podule supports 64 PodNet inputs in groups of 32.

PodNet Output

Number of devices per POD -	32 *
Input Trigger:-	Digital, Analog
Output Type:-	Digital, Analog
Connections per input:-	1
Connections per output:-	1 (PodNet OUT)

PodNet type

As soon as you drag a PodNet output onto the working area a box will open requiring you to select if this is to be a Digital or Analog PodNet message. Once you have made your choice this box is closed and a second box opens.



PodNet Message

Enter the message number to be used either by typing in the message number or using the buttons.
For convenience you can give the PodNet input a suitable name.

Podules will not ‘see’ on their input a transmitted message that uses the same message number as a PodNet output used on the same Podule. This is to eliminate the possibility of creating an infinite feedback loop.

* The Chrono Podule supports 64 PodNet outputs in groups of 32.

Note; PodNet outputs can take up to 30 seconds to settle after switch on.

Flip Flop

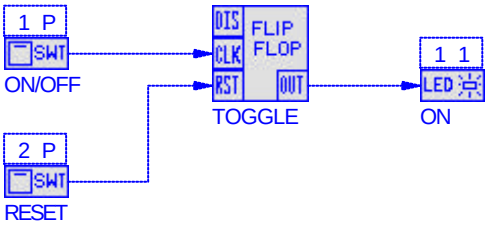
Number of devices per POD:-	16
Input Trigger Level:-	DIS = Level CLK & RST = Edge 0 to 1
Output Type:-	Digital
Connections per input:-	>1
Connections per output:-	>1

Whilst similar to a normal 'D' type in many respects the Podule version has a number of specialised attributes.

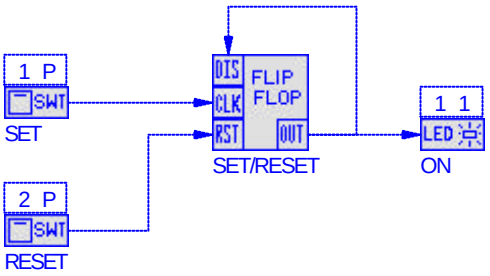
CLK The clock input, it will ignore static states and is only triggered by a Lo to Hi transition allowing multiple sources to be linked to it. On each transition the output will change state. This is unless DIS is tied to a Hi signal – see below.

RST The reset pin triggered by a Lo to Hi transition allowing multiple sources to be linked to it. When triggered it will force the output Lo.

DIS When High this disables the CLK input. This input is both transition and level sensitive and if connected to the Flip-Flop's output will change the operation to a Set and Reset type using CLK as set and RST as reset.



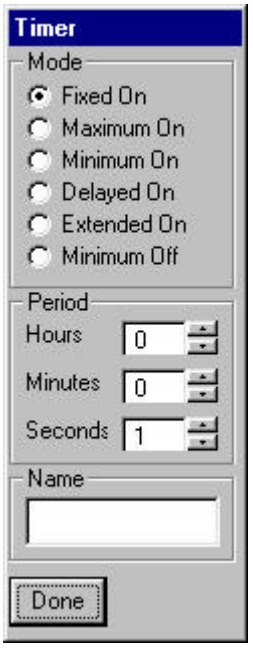
Flip-Flop connected for toggle action with reset.



Flip-Flop connected for Set - Reset operation.

Timer Device

Number of devices per POD:-	8
Input Trigger Level:-	Edge 0 to 1or 1 to 0 (see below)
Output Type:-	Digital
Connections per input:-	1
Connections per output:-	>1



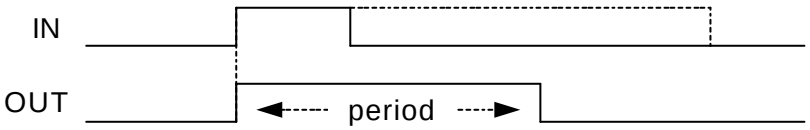
The device will only accept a single input for triggering and can be used in multiple timing modes. The time period can be set from 1 second to 18 hours.

The time period set along with the type of timer selected is displayed above the device.

Any name is shown below the device.

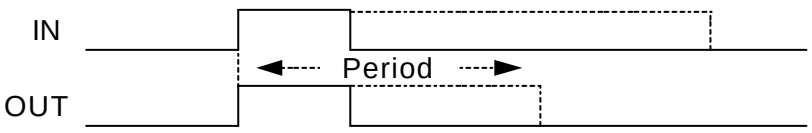
Fixed On

The output will follow the input state. It will remain High for the on timer period, independent of any other input changes.



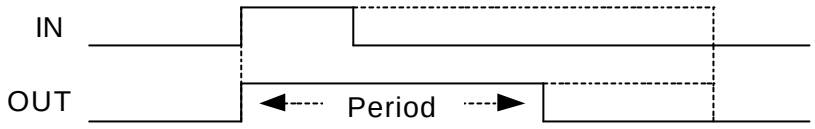
Maximum on

The output will follow the input state up to a maximum time set by the on timer.



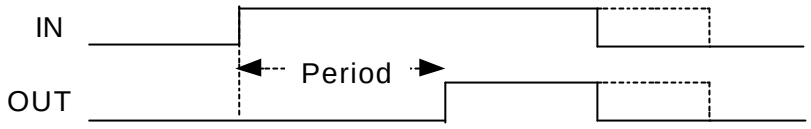
Minimum On

On for a set time even if the trigger is removed. The output remains high whilst the input remains high, even if the time period has expired.



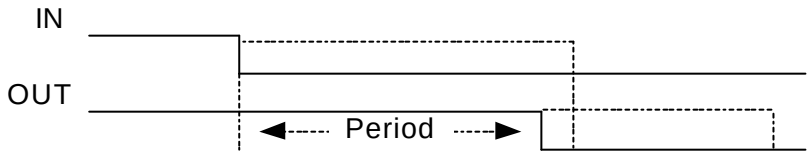
Delayed On

Output remains low for the set period after a Lo to Hi transition and then goes high whilst the input remains Hi.



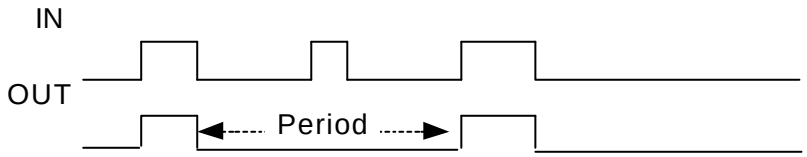
Extended On

Output remains High for the set period after a Hi to low trigger.



Min Off

Output will remain low for the set period, even if the input is re-triggered.

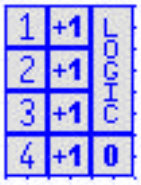


Period

Adjustable time in Seconds, Minutes or Hours
1 to 59 Seconds
1 to 59 Minutes
1 to 17 Hours

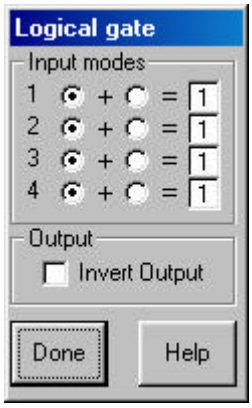
If no time is set it defaults to 1 second.

Logical Gate Device



Number of devices per POD:-	16
Input Trigger Level:-	Level
Output Type:-	Digital
Connections per input:-	1
Connections per output:-	>1

Double click on the Logic Gate to configure as:-

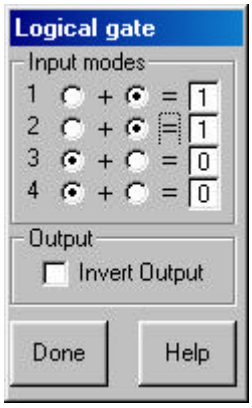


Each input can be set as an AND gate or an OR gate.

If, as shown, the + button is selected it is part of the OR gate.

As part of the OR gate the input will be active if the signal is equal to the number on the right. The example as shown, if any of the four inputs are Hi (1) for the gate output will be high.

The Invert Output box will change the status of the output from Hi to Lo when all inputs are Hi.



Inputs 3 & 4 are still part of the OR gate but looking for a low (0) to be valid - if unconnected effectively not used.

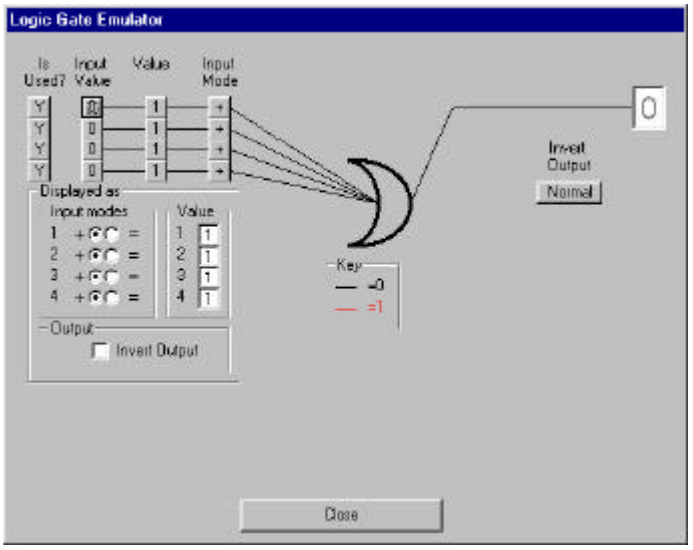
Inputs 1 & 2 have the = button selected and are part of the AND gate.

As part of the AND gate if either input goes high the output will be high.

The Invert Output box will change the status of the output from Hi to Lo when either input 1 or 2 are Hi.

Logical Gate Emulator

Under ‘Help’ an emulator allows a simulation of operation.



Is Used?

Select if the gate input is to be used or not.

Input Value

Set the logic level at the input, either 1 or 0.

Value

Set the level the input is to respond to.

Input Mode

This toggles between + for an ‘OR’ input and = for an ‘AND’ input. Changing these will alter the logic diagram to suit the required logic.

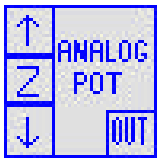
Invert Output

Lets you invert the output if required.

Displayed As

This group of radio buttons change to reflect the emulation settings and directly correlate to how the device itself needs to be set to achieve the emulated logic.

Analog Pot Device



Input Trigger Level:-	Edge 0 to 1
Output Type:-	Analog 0 to 5V
Connections per input:-	1
Connections per output:-	>1

Connections

Level UP. Each time the input pulses high the Analog output increments by the Step value.

Level DOWN. Each time the input pulses high the Analog output decrements by the Step value.

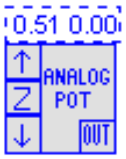
Set Analog output to default.

Double click on the Analog Pot symbol to configure as:-

'Step' is used to set the Analog step size for both Level Up and Level Down. The range is from 0.02 to 5.00. With a setting of 0.02 it takes 250 pulses to change the output from 0 to +5V. If set to 5.00 it only takes one pulse.

'Zero' allows the default setting selected by the Z input to be set. The range is from 0.00 to 5.00.

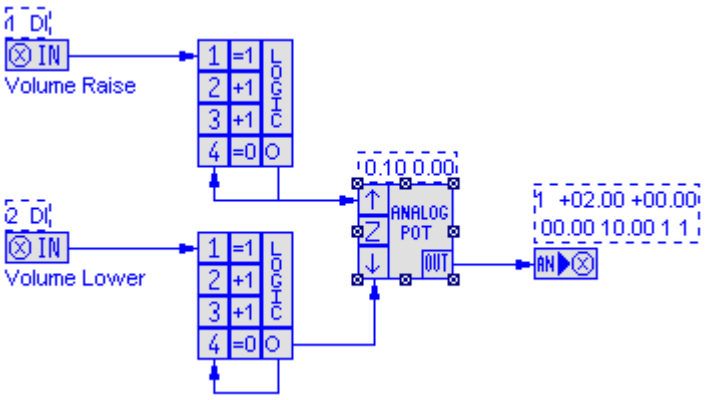
'Name' allows the device to be assigned a name.



The digits above the device show the step size to the left and the Zero value to the right.

Typically the Analog Pot is used to allow digital signals to alter an Analog value for either direct output from the Podule or linking via an analog PodNet message to other Podules.

Typical application using the Analog Pot



In the above simple application Volume Raise and Volume Lower inputs are used to ramp up or ramp down a DC voltage for control over volume on a power amplifier. These inputs can just as easily be for raise and lower of lights via a 0-10V dimmer.

The Volume Raise input is fed into a logic gate configured as a 2 input AND. The second input is inverted (=0) and is fed from the output of the gate using the inherent 100mS delay between processing cycles to create an oscillator that is only operating when ‘Volume Raise’ is active.

The oscillators output feeds the  input of the ‘Analog Pot’ that has its step size set to 0.10. This ramps the devices output from 0V to 5V in 5 seconds. For a 10 second ramp you would set the step size to 0.05.

Similarly ‘Volume Lower’ ramps the level down.

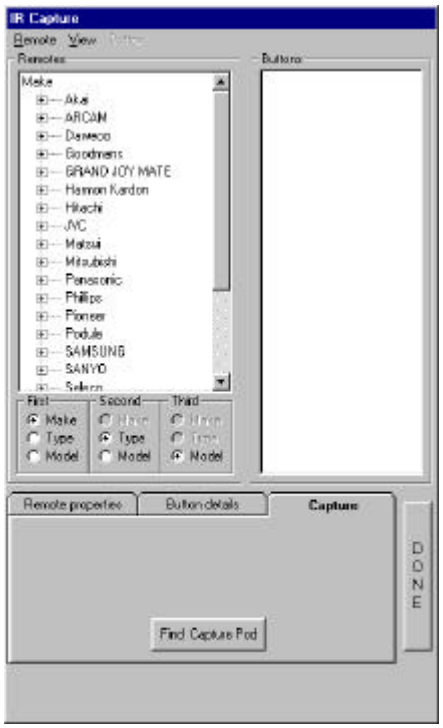
The output of the Analog Pot is fed to Analog output 1. This has a multiplier value of 2 converting the incoming 0-5V range to 0-10V.

Infra Red Capture 

For a complete step-by-step guide to using the IR Capture Podule refer to it's dedicated manual or the separate data sheet 'Connecting & Using the CAPTURE PODULE' contained in the manuals section of the CD or available from our website at www.ikonavs.com .

The following is a brief summary of operation.

Opening screen:-



To capture infrared codes (IR) for a TV, VCR, DVD etc. you will need to connect a capture pod to a serial port. Once connected click on 'Find Capture Pod' and the software will then interrogate the serial ports to find the Capture Podule.

Initially you will then get a message "Please wait searching for pods " once found it will report the Podule type and the firm ware version number.

If no pod is found check the connections and battery.

Capturing IR Code

Procedure for capturing codes:-

1. From the 'Remote' menu click on 'New'.
2. Type in manufactures name.
3. Type in model name or number.
4. Click on a radio button to select type of equipment.
5. Click on 'DONE' when the above is complete.
6. From the 'Button' menu click on 'New'. An input box will appear enter button name e.g. 'ON' then click 'OK'.
6. You will then get an instruction to press the button, then release it, you may get other messages follow these.
7. When the code has been capture you will get an "ok" or fail.

You have the choice when you have captured the codes to play back the code to check it (max distance 1.5M), recapture the code or delete it. Just click on the IR command and select the option, (Playback, Delete or Re-capture).

Programming the Pod

Use a serial lead as described in Appendix D to program any of the Podules.

When you click on this icon  you may get a message

This is because some of the devices have not been set up properly.
You may have an input device on you project that has no terminal selected.

Once all the devices have been corrected and you then press 
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 CIR Pod connected to com port 1. Click the radio button next to the Pod you wish to program.

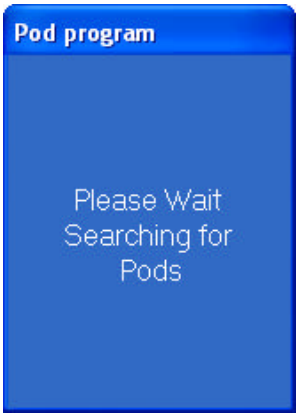


Fig 1

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 .

Data is sent to the CIR Podule as two programs, one for the main PodFlow program and a second containing the IR data. All other Podules only use the main data. Whilst the main PodFlow data is being sent the progress display as per Fig 4 is displayed with this changing to Fig 5 when the IR data is being sent. When programming is complete Fig 6 appears allowing programming of a second Podule or exit.

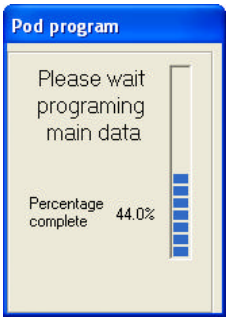


Fig 4

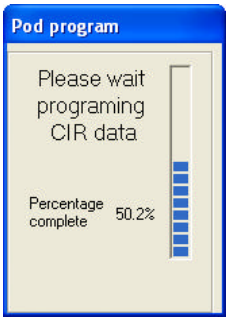


Fig 5

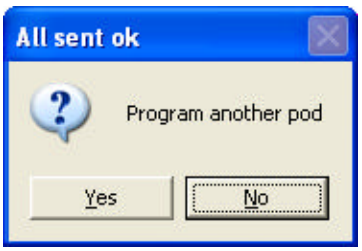


Fig 6

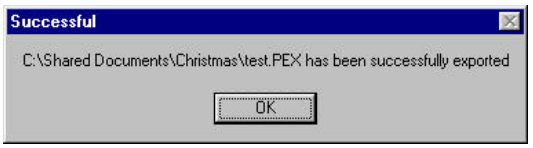
Pod Export

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

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 CIR Pod connected to com port 1. Click the radio button next to the Pod you wish to program.

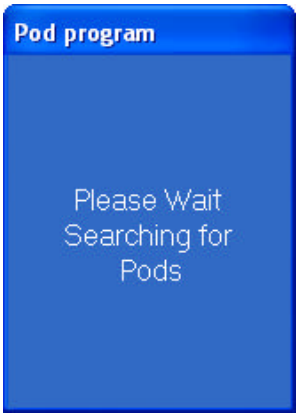


Fig 1

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 .

Data is sent to the CIR Podule as two programs, one for the main PodFlow program and a second containing the IR data. All other Podules only use the main data. Whilst the main PodFlow data is being sent the progress display as per Fig 4 is displayed with this changing to Fig 5 when the IR data is being sent. When programming is complete Fig 6 appears allowing programming of a second Podule or exit.

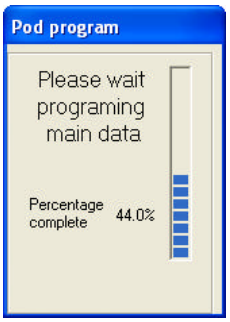


Fig 4

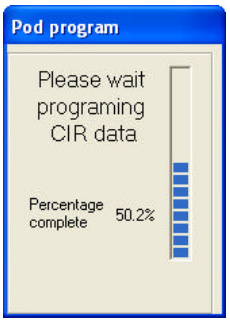
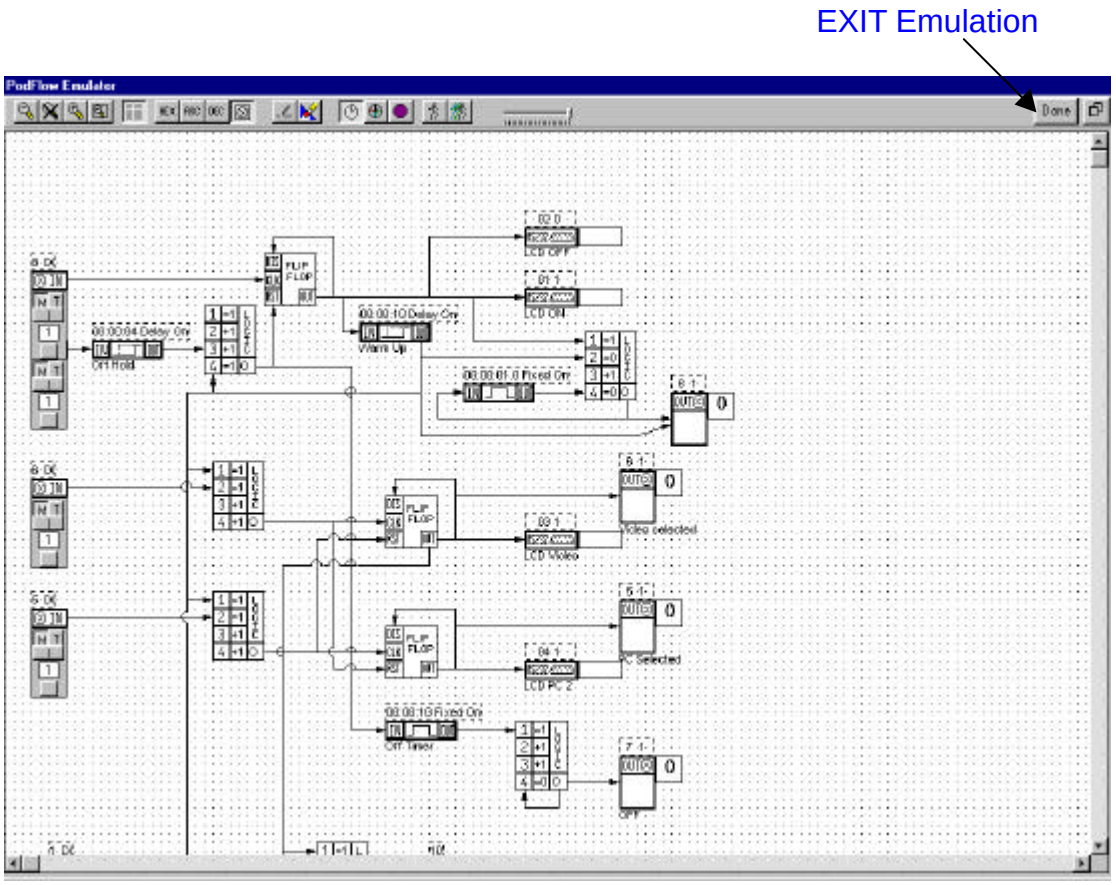


Fig 5

Fig 6

Emulation

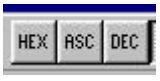
The Emulation mode allows you to test your PodFlow configuration prior to loading into a Podule. Click on the Emulate icon on the toolbar to open the emulation.



Emulation Toolbar

Zoom & Grid | RS232 | Log | Timer Speed | Run | Emulation Speed

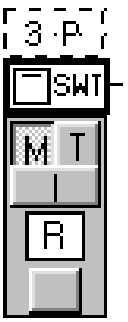
These operate as per the main PodFlow program.

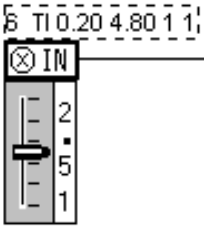
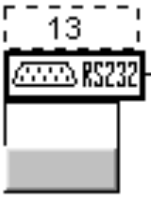
RS232	
	Select the format for RS232 messages.
	Shows devices as device image.

LOG  	RS 232 output events are logged during the emulation. Use to view and hide the log. Clear the log.
Timer Speed   	Use to speed up timer operation during emulation. Run timers in real time, (default setting). Run timers at x10. Run timers at x60, i.e. 1 min in 1 second.
RUN  	Start the emulation. Start the emulation running. Step through each operation manually.
Emulation Speed 	Allows the emulation to be slowed down. As shown emulation is at 100% speed. Slide to left to slow to 5% minimum.

Input Emulation

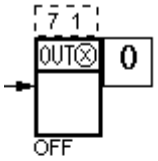
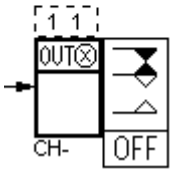
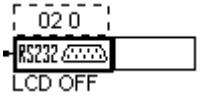
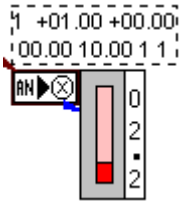
Each input has a set of controls to set the input state. These change between different types of inputs.

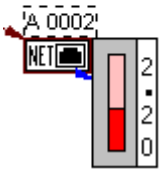
Digital Input & Digital PodNet Input 	When set for **M**omentary operation the **I**nvert button is available. The devices output is only high when the lower button is operated. If **I**nvert has been changed then the output is high until the lower button is operated. When set for **T**oddle the **I**nvert button is hidden and each operation of the lower button toddles the output status.

Analog Input & Analog Input 	If the Podule input is set for Analog, the push buttons are changed for a slider to emulate an input voltage between 0V and +5V. The numbers to the right of the slider show the current voltage, in this case 2.51V.
RS232 Input 	RS232 inputs are emulated by operation of the button below the symbol. When operated PULSE is displayed in the window above the button and the devices output pulses high.

Emulation Outputs

Each type of output device has it's own method of displaying the current status.

OC and Relay Outputs  	OC (Open Collector) outputs display their current status as a flag showing 0 for off and 1 for on. Outputs 1 also 2 also operate relays. For these outputs the status of the relay contacts is shown.
RS232 Outputs 	When an RS232 output is activated the message will be displayed to the right of the symbol. It is also logged.
Analog Outputs 	The Analog output emulation is displayed as a bargraph. The Red graph depicts the relative Analog level whilst the numbers reflect the actual level having accounted for any offsets and multipliers.

PodNet Outputs	
	Digital PodNet messages are shown with a ‘0’ or ‘1’ flag dependent upon their status.
	Analog PodNet messages are displayed as a bargraph and numeric value between 0V and 5.00V

Running the Emulation

1. Zoom, maximise, turn on/off the grid etc. as per personal preference.
2. Set all inputs to the start condition, by default this is Momentary & Inverted.
3. Select RUN  .
4. Manipulate inputs as appropriate.
5. Change the emulation speed, timer speed etc if required.

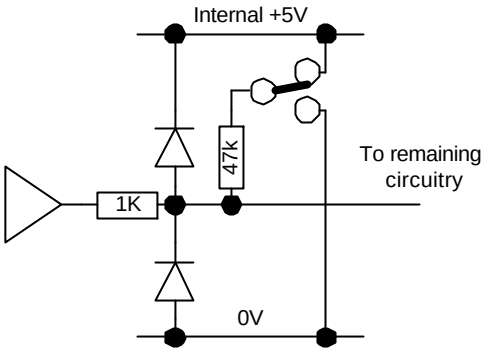
Appendix A

Input Configuration

Inputs

To protect the inputs from excessive voltages each input has 1k ohm input resistor and diode clamps to 0V and +5V. This clamp allows input levels to be between a max +/-10V. For digital inputs

1. Logic high is any voltage greater than +2.0V
2. Logic low is any voltage less than +0.7V



Analog inputs of between 0V and +5V, voltages outside this are effectively clamped to either 0 or +5V.

Each input is provided with a 47k ohm resistor; this can be configured as either a pull up (to +5V) or as a pull down (0V). (Default pull up)

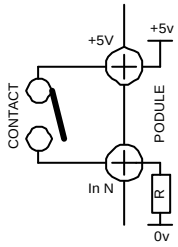
Debounce

Each input has a built in debounce of min 50ms to a max of 150ms depending on how complex the Podule project.

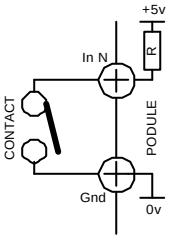
Input connection details

Typical connection details for digital inputs are

Active High

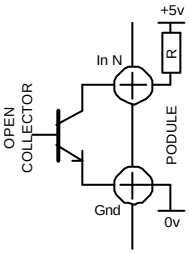


Active Low



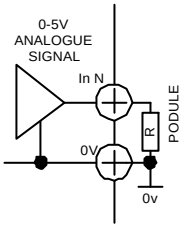
Pull up active

Open Collector

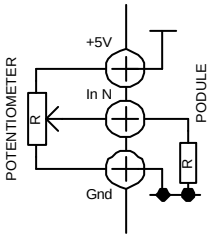


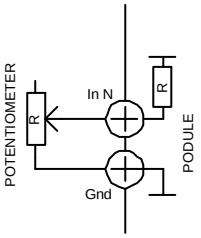
Pull up active

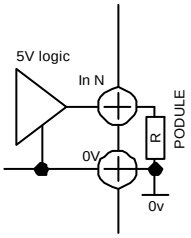
Analog Signal



Typical connection details for threshold/Analog inputs are







Pull up Active

Appendix B

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.

Din Rail Mounted Models

Podules are designed for mounting onto standard 35mm ‘top hat section’ din rails. The rail can be within a rack or control cubical or fitted to any suitable surface.

The use of bootlace ferrules on cables and finger trunking or similar for cable management is highly recommended.

R Series Podules

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

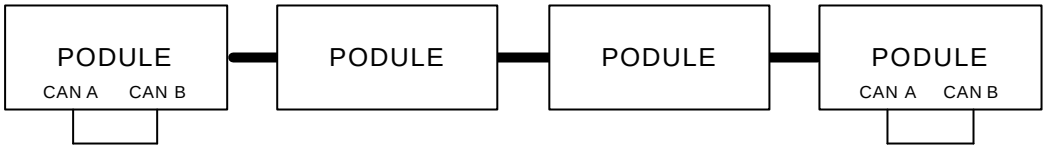
Free Standing:-	Fit the rubber feed supplied to the underside of the Podule to prevent scratching the supporting structure.
Wall Mounting:-	Use the optional brackets part No. WB-1. Follow the instructions supplied with the brackets for fitting and wall mounting.
Rack Mounting:-	Use rack kit part No. 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.

The use of bootlace ferrules on cables and finger trunking or similar for cable management is highly recommended.

Powering Multiple Pods

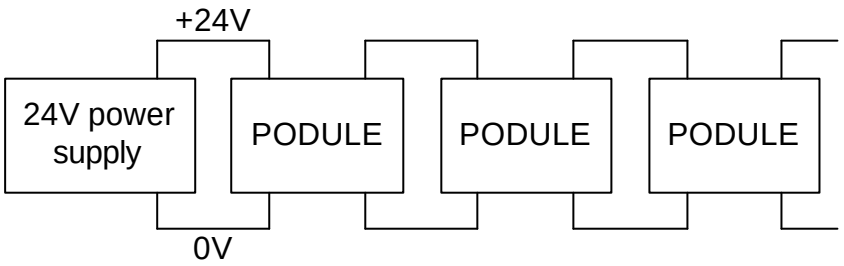
PodNet Buss

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 CAN A and CAN B terminals linked as shown below. On the 'R' series Podules this link is a push button.

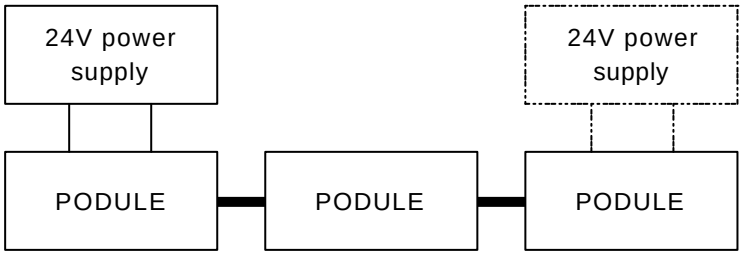


Power supply

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 (See appendix C for current Consumptions.)



Manufacturers Information

The PODULES are manufactured in England by IKON AVS Ltd.

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

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