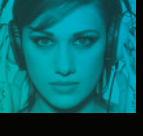
Crystal Vision

FRAMES

13 frames in four different sizes provide stylish and practical housing for the Crystal Vision modular product range



THE FRAMES – AN OVERVIEW

Crystal Vision's interface, keying and picture storage products are individual 100mm x 266mm modules that need to be housed in rack frames. Indigo is a state-of-the-art frames system, providing a range of 13 low-cost frames to suit all applications.

FRAME SIZES AND CONTROL OPTIONS

The Indigo frames are available in four sizes – 4U, 2U, 1U and desk top box – meaning you can choose an appropriate frame for your application whether you need to house 24 boards or two. These space-saving frames provide one of the highest packing densities available – with up to 12 boards fitting in just 2U of rack space.

The Indigo frames offer different levels of control to suit all preferences. Select either a passive front panel for board edge operation, an active front panel for remote or Statesman operation, or a passive front panel fitted with Statesman CPU for PC only control. One passive 4U frame or up to two passive 2U, 1U or desk top boxes can be controlled by a REMIND panel via RS422. An unlimited number of Statesman or active frames can be controlled by a REMIND-E panel over Ethernet. The 'AE' and 'SE' named frames allow full Ethernet connection to the Statesman PC software as well as SNMP.

WHAT CAN YOU PUT IN THEM?

You can put anything in them. Indigo is a fully compatible frames system, with every Crystal Vision board fitting in every frame. You can mix any boards from our range in the same frames – video, audio, analogue, digital, 3Gb/s, High Definition, Standard Definition and fibre optics.

Mix any boards in the frames

PRACTICAL FEATURES

The Indigo frames combine stylish looks with effortlessly easy access and maintenance. Everything about the frame has been devised to make daily operation easy. The front panel is attached to the frame by a carefully designed hinge, making it very easy to open and close. This has particular benefit for the frames with active front panels as it allows the panel to face forwards and be operated in the open position. Maintenance is easy too: boards, power supplies and fans can all be easily removed while the unit is still powered. Crystal Vision frame location cards are available for the 2U and 4U frames and can be attached to the outside of the front panel to help engineers identify which boards are inside the frame without opening it.

POWER SUPPLIES

The PSU-160i power supply

There are two plug-in power supplies available providing sufficient power for any combination of boards in the frame: the 160W PSU-160i for the Indigo 4, Indigo 2 and Indigo 1 frames and the 80W PS-80i for the Indigo 1-DP frames. The desk top boxes have a built-in 60W power supply. The plug-in power supplies fit neatly behind the PSU fan, and are easily accessed by removing this fan should they need to be changed. They feature an internal micro controller meaning they can be remotely monitored by Statesman and SNMP, with a readable serial number and alarms. Power supply redundancy is available and is popular with those working live for extra peace of mind. Redundancy is optional on the 2U frames and obligatory on both the Indigo 1-DP frames (designed for 1U redundancy applications) as well as on the Indigo 4 frames to protect the large number of boards within the frame.

KEEPING COOL

Indigo's exceptional cooling system means any boards can be combined in one frame. On the rack frames, fans are located on both the inside of the front panel and in front of the power supplies – with the number of fans depending on the frame size and type. The fans are easily accessible and very simple to change as they just pull out of position. There is a temperature sensor on the frame, and Statesman and SNMP users can remotely monitor the frame temperature and fan status.

As we move from SD to HD to 3Gb/s there's an increasing amount of processing that's being done by a single large FPGA – making it important to

WHICH FRAME DO YOU NEED?	Indigo 4	Indigo 4SE	Indigo 2	Indigo 2AE	Indigo 2SE	Indigo 1
Height and type	4U rack unit frame	4U rack unit frame	2U rack unit frame	2U rack unit frame	2U rack unit frame	1U rack unit frame
Width	19"	19"	19"	19"	19"	19"
Depth	425mm	425mm	425mm	425mm	425mm	425mm
Weight	6.9kg empty and 14.4kg max loaded	6.9kg empty and 14.4kg max loaded	3.63kg empty and 7.4kg max loaded	3.84kg empty and 7.6kg max loaded	3.63kg empty and 7.4kg max loaded	3.1kg empty and 5.0kg max loaded
Front panel type	Passive	Passive with Statesman CPU	Passive	Active	Passive with Statesman CPU	Passive
Maximum number of boards housed	24	24	12	12	12	6
Hot swappable boards	●	●	●	●	●	●
Power supplies used	PSU-160i	PSU-160i	PSU-160i	PSU-160i	PSU-160i	PSU-160i
Number of power supplies fitted	2 or 4	2 or 4	1 or 2	1 or 2	1 or 2	1
Provides power redundancy	Compulsory	Compulsory	Optional	Optional	Optional	
Hot swappable PSUs	●	●	Yes (if second PSU fitted)	Yes (if second PSU fitted)	Yes (if second PSU fitted)	
CoolFlow frame	●	●	●		●	
Number of fans	6 (4 front panel fans and 2 PSU fans)	6 (4 front panel fans and 2 PSU fans)	3 (2 front panel fans and 1 PSU fan)	2 (1 front panel fan and 1 PSU fan)	3 (2 front panel fans and 1 PSU fan)	3 (2 front panel fans and 1 PSU fan)
Hot swappable fans	●	●	●	●	●	●
Status monitoring LEDs	10 (Front fans x 2, PSU fans x 2, PSU 1, PSU 2, PSU 3, PSU 4, Upper temp and Lower temp)	10 (Front fans x 2, PSU fans x 2, PSU 1, PSU 2, PSU 3, PSU 4, Upper temp and Lower temp)	5 (Front fans, PSU fan, Upper PSU, Lower PSU and Temp)	5 (Front fan, PSU fan, Upper PSU, Lower PSU and Temp)	5 (Front fans, PSU fan, Upper PSU, Lower PSU and Temp)	4 (Front fans, PSU fan, PSU and Temp)
Rear modules able to be fitted	Single slot, double slot, quad slot	Single slot, double slot, quad slot	Single slot, double slot, quad slot	Single slot, double slot, quad slot	Single slot, double slot, quad slot	Single slot and double slot
Allows Ethernet connection		●		●	●	
Works with Statesman PC control software		●		●	●	
Works with SNMP		●		●	●	

ensure there is good airflow across the whole board. The four CoolFlow frames were developed with this in mind and offer the ultimate cooling system, with their extra fans and enhanced heat distribution perfect for housing the more functionality-packed modules. CoolFlow is available on the two 4U frames (Indigo 4 and Indigo 4SE) and on two of the 2U frames (Indigo 2 and Indigo 2SE) – chosen as they are frequently used for large systems which generally involve the boards fitted with the more power-hungry chips, such as up and down converters and audio embedders.

Plastic runners are fitted on all the 2U and 4U frames and help increase the overall ventilation as well as saving frame weight. A third fan has also been added to the 1U frames for increased cooling.

HOW THE COOLING WORKS

On the CoolFlow frames (Indigo 4, Indigo 4SE, Indigo 2 and Indigo 2SE)...
The 4U frames have six fully redundant fans (four on the front panel and two in front of the power supplies) while the CoolFlow 2U frames have three fully redundant fans – two on the front panel and one in front of the power supplies. When the front panel is closed, all the panel fans run and the PSU fan is switched off. There are two cooling modes: automatic and maximum. With automatic cooling all the panel fans run continuously, increasing in speed as the temperature inside the frame goes up, while maximum cooling mode sets these fans to maximum speed. The front panel fans are redundant: only one is essential in normal operation (or one in each of the upper and lower sections for the 4U frames) and should one fan fail or operate too slowly, the other front panel fan is automatically switched to full power and an alarm asserted. The frame can also be operated with the front panel open, with an optical sensor on the front panel switching the PSU fan on and the front panel fans off. The PSU fan only runs when the frame is open – meaning that it does not wear itself out during normal operation. It is also possible to run the frame for a short time with no fan, should you need to change a power supply or replace the fan assembly.

Four front panel fans on the Indigo 4 CoolFlow give the ultimate cooling

On the Indigo 2AE...
There are two fans – one located on the front panel and the other just in front of the power supply – with one fan redundant which means that should a fan fail the closed frame can still operate indefinitely with an ambient temperature of 40 degrees. The three cooling modes are quiet, normal and maximum. In normal operation both fans operate at reduced power to keep the unit cool but quiet. If the front panel is opened an optical sensor switches the PSU fan to fast operation and the panel fan off. A wire on the fan gives a reliable indication of its speed and if it fails or operates too slowly the other fan is automatically switched to full power and an alarm raised. Quiet mode is used with a lightly loaded frame with a low ambient temperature: when the frame temperature is below 45°C the panel fan is switched off and the PSU fan runs at minimum speed.

On the 1U frames...
There are three fans – two on the front panel and one in front of the power supply – with one redundant. The three cooling modes are quiet, normal and maximum. The monitoring is switched from one fan to the other, every few seconds, and if one fan fails an alarm will be raised with the other fans forced to full speed while monitoring the failed fan. These repeated bursts of extra cooling will keep the frame operational until the faulty fan is replaced.

On the desk top boxes...
The desk top boxes have one fan located on the side of the box and have the same cooling modes (quiet, normal and maximum) as the other non-Coolflow frames.

STATUS MONITORING

The Indigo frames feature sophisticated status monitoring – with front panel LEDs that show you the status of the fans, power supplies and frame temperature so you know what's happening inside the frame at a glance. Yellow or green indicates a normal condition and red an abnormal condition. The fan indications will show green if the fans are working correctly and red if they are turning too slowly or have stopped, while the PSU fan LED will additionally flash green when this fan has stopped with the front panel open. The PSU indications will be off if a power supply is not fitted, green if okay and red if there is a fault or the output voltage is too low. The Temp LED is normally green but goes red if the frame temperature goes above the alarm threshold.

EXTERNAL CONNECTIONS

The frames have an excellent connection to control systems using CAT5 cabling. On the rear panel there is an RJ45 connector dedicated for direct Ethernet connection to the frame, while RS422 control can also be wired using RJ45 connectors. Individual connections are available at the frame remote sockets which are normally used for GPIs but may also be used for secondary serial control by dedicated remote control panels such as the Safire Controller.

Indigo 1AE	Indigo 1SE	Indigo 1-DP	Indigo 1AE-DP	Indigo 1SE-DP	Indigo DT	Indigo DTSE
1U rack unit frame	1U rack unit frame	1U rack unit frame	1U rack unit frame	1U rack unit frame	Desk top box (1U high)	Desk top box (1U high)
19"	19"	19"	19"	19"	223mm	223mm
425mm	425mm	425mm	425mm	425mm	365mm	365mm
3.1kg empty and 5.0kg max loaded	3.1kg empty and 5.0kg max loaded	3.1kg empty and 5.0kg max loaded	3.1kg empty and 5.0kg max loaded	3.1kg empty and 5.0kg max loaded	1.9kg empty and 2.4kg max loaded	1.9kg empty and 2.4kg max loaded
Active	Passive with Statesman CPU	Passive	Active	Passive with Statesman CPU	Passive	Passive with Statesman CPU
6	6	6	6	6	2	2
●	●	●	●	●	●	●
PSU-160i	PSU-160i	PS-80i	PS-80i	PS-80i	Internal	Internal
1	1	2	2	2	1	1
		Compulsory	Compulsory	Compulsory		
		●	●	●		
3 (2 front panel fans and 1 PSU fan)	3 (2 front panel fans and 1 PSU fan)	3 (2 front panel fans and 1 PSU fan)	3 (2 front panel fans and 1 PSU fan)	3 (2 front panel fans and 1 PSU fan)	1 (1 PSU fan)	1 (1 PSU fan)
●	●	●	●	●		
4 (Front fans, PSU fan, PSU and Temp)	4 (Front fans, PSU fan, PSU and Temp)	4 (Front fans, PSU fan, PSUs and Temp)	4 (Front fans, PSU fan, PSUs and Temp)	4 (Front fans, PSU fan, PSUs and Temp)	3 (Fan, PSU and Temp)	3 (Fan, PSU and Temp)
Single slot and double slot	Single slot and double slot	Single slot and double slot	Single slot and double slot	Single slot and double slot	Single slot and double slot	Single slot and double slot
●	●		●	●		●
●	●		●	●		●
●	●		●	●		●

SOFTWARE – FROM SETTING UP THE FRAMES TO SNMP

The Ethernet-enabled frames can be set to act as a web server to access an internal web page which is then viewed on a computer web browser. The Indigo main status web page gives extensive status information about the frame and its power supplies, and can also be used to set the IP address (manually or automatically if DHCP is available), enter a frame serial number or give the frame a useful name to reflect its location. Any software upgrades giving additional functionality and available from Crystal Vision's customer support can also be downloaded to the frame via this web page.

The AE and SE frames run the uCLinux operating system which allows the use of standard software such as an SNMP Proxy Agent. These frames come with a pre-installed SNMP agent that can either report the status or generate traps and trigger alarms on a frame status change. To activate the SNMP manager a licence needs to be installed, which is obtained from Crystal Vision's customer support and downloaded to the frame using the board update tool.

THE REAR MODULES

To access the signals on the boards you need rear modules, which slot on to the back of the frames. Crystal Vision offers a wide choice of these rear modules which offer varying numbers of inputs, outputs and loop-through options along with the choice of BNC, D-Type, 'easywire' DIN 41612, RJ45 and optical connectors. The single and double slot rear modules can be used with all four frame sizes, while the quad slot just fit the 2U and 4U frames. Each rear module has a selection of labels suitable for different products.

Traditionally the rear modules were held on by retaining straps, whereas the current screw-in rear modules are individually held by two screws which makes it easier to change the rear module if required. The latest generation of frames have been designed with additional fixing holes to accommodate these screw-in rear modules, but even if you're still using the older frames and rear modules there's full compatibility: you can use the retaining-strap rear modules on the newer frames and you can use the screw-in rear modules on the older frames – you just take the screws out. Different issue numbers indicate which frames include the fixing holes for the screw-in rear modules – contact Crystal Vision's customer support for more information.

WHAT ARE THE BOARD POSITIONING RULES?

Two slot high rear modules: The board is always placed in the upper of the two slots. These rear modules must occupy either the upper or lower pair of frame slots.

Quad slot 'video' rear modules: The boards should be placed in the top slot, the next slot down and the bottom slot.

Quad slot 'routing switch' rear module (RM19): The board should be placed in the top slot.

Quad slot 'audio' rear modules: The boards are placed in the top three slots.

Fibre boards: A fibre board (or board fitted with a FIP or FOP fibre option) can be housed in any frame slot position but due to its extra height it is not possible to place Standard Definition or audio boards directly above it when the fibre board is in even numbered slot positions.

Single slot

Double slot

Quad slot

Rear modules are available in three sizes

THE 4U FRAMES

Crystal Vision offers two CoolFlow 4U frames – the Indigo 4 and Indigo 4SE – selected depending on the level of control required. The Indigo 4 frames can be used with all the standard boards, rear modules, power supplies and control cables.

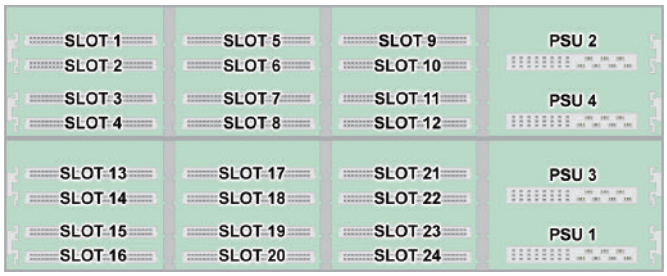
Housing up to 24 boards (depending on the rear modules fitted), these space-saving 4U frames are perfect for broadcasters who are planning large interface systems. They allow cost-savings for big installations – especially those which involve many of the low power boards such as distribution amplifiers – where frame slot cost is an important consideration. This is because 24 of the low power boards can share two redundant power supplies, compared to 12 boards in a 2U frame.

Full power supply redundancy is crucial for such a large number of boards and is therefore compulsory on the 4U frames. To provide this redundancy these frames take either two 160W PSU-160i power supplies for when the total power consumption of the modules housed in the frame is less than 150 Watts, or four PSU-160i when total consumption is over 150 Watts.

The 4U frames come with the sophisticated CoolFlow cooling system, with six fully redundant fans which plug in easily from the front (making them simple to change) and a two zone temperature warning. Two of these fans are located in front of the upper and lower PSU bays, while the other four can be found on the inside of the front panel. Front panel LEDs constantly report the status of the six fans, four power supplies and two temperature zones.

Rear view of Indigo 4

Internal view of Indigo 4, which holds up to 24 boards



The slot numbering in a 4U frame

Indigo 4

Indigo 4 is a CoolFlow 4U frame with a passive front panel and compulsory power redundancy which holds any mixture of up to 24 boards.

Indigo 4 control options		REMIND-E Ethernet remote control panel	
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame		Statesman PC software	
REMIND remote control panel	●	SNMP	

Indigo 4SE

Indigo 4SE is a CoolFlow 4U frame with a passive front panel fitted with a Statesman CPU which allows it to be connected to the Statesman PC software via Ethernet using standard CAT5 cables. It has compulsory power redundancy and holds any mixture of up to 24 boards.

Indigo 4SE control options		REMIND-E Ethernet remote control panel	●
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame		Statesman PC software	●
REMIND remote control panel		SNMP	●

THE 2U FRAMES

Crystal Vision offers three versatile 2U frames – Indigo 2, Indigo 2AE and Indigo 2SE – which between them provide different levels of control. The Indigo 2 frames can be used with all the standard boards, rear modules, power supplies and control cables.

Traditionally Crystal Vision's most popular size of frame, the 2U frames have Indigo's usual extremely high-packing density and can house up to 12 boards, depending on the rear module fitted. The frames are used with the 160 Watts PSU-160i power supply, and give the option of a second redundant power supply.

Indigo 2 and Indigo 2SE are available as CoolFlow frames, and have three fully redundant and easily accessible fans – one is fitted on a detachable plate in front of the power supplies while the other two are attached to the inside of the front panel. Indigo 2AE has two fans – one located on the front panel and the other just in front of the power supply – with one of the fans redundant. Front panel LEDs report the status of the front fans, PSU fan, upper power supply, lower power supply and frame temperature.

Rear view of Indigo 2

Internal view of Indigo 2, which holds up to 12 boards

The Indigo 2AE active panel can be easily operated in the open position, thanks to the substantial hinge

The slot numbering in a 2U frame

Indigo 2

Indigo 2 is a CoolFlow 2U frame with a passive front panel and optional power redundancy which holds any mixture of up to 12 boards.

Indigo 2 control options		REMIND-E Ethernet remote control panel	
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame		Statesman PC software	
REMIND remote control panel	●	SNMP	

Indigo 2AE

Indigo 2AE is a 2U frame with an active front panel which allows easy menu-driven control of all remote-enabled boards as well as Statesman and SNMP control via Ethernet. It has optional power redundancy and holds any mixture of up to 12 boards.

Indigo 2AE control options		REMIND-E Ethernet remote control panel	●
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame	●	Statesman PC software	●
REMIND remote control panel		SNMP	●

Indigo 2SE

Indigo 2SE is a CoolFlow 2U frame with a passive front panel fitted with a Statesman CPU which allows it to be connected to the Statesman PC software via Ethernet using standard CAT5 cables. It has optional power redundancy and holds any mixture of up to 12 boards.

Indigo 2SE control options		REMIND-E Ethernet remote control panel	●
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame		Statesman PC software	●
REMIND remote control panel		SNMP	●

THE 1U FRAMES

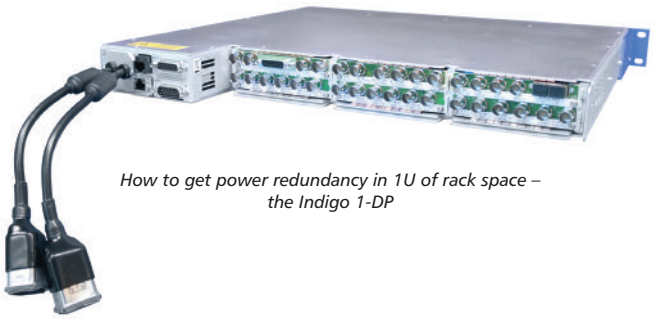
Where space and cost are at a premium, the Indigo 1 frames are ideal, taking up a mere 1U of rack space for up to six boards.

Perfect for applications involving only a few boards in a frame, Crystal Vision offers six versatile 1U frames: three without power supply redundancy (Indigo 1, Indigo 1AE and Indigo 1SE) and three *with* power redundancy (Indigo 1-DP, Indigo 1AE-DP and Indigo 1SE-DP). The 1U frames are used with all the standard boards and control cables, and with the single slot and double slot rear modules only.

While the Indigo 1 frames are used with the standard PSU-160i power supply, the Indigo 1-DP have their own special power supply: the PS-80i. The Indigo 1-DP range has been designed for any application that does not need 2U of rack space but does need redundancy to provide protection in the event of power failure. The Indigo 1-DP frames are sold with two PS-80i power supplies already fitted to provide this compulsory power redundancy, with these two small 80W PSUs sitting in the same area where one single PSU-160i would sit in the normal 1U frames, and having two flying leads in place of the single mains inlet.

For sophisticated cooling there are three easily accessible front fans – two located on the front panel and the other just in front of the power supply – with one of the fans redundant. Front panel LEDs report the status of the front fans, PSU fan, power supplies and frame temperature.

Rear view of Indigo 1



How to get power redundancy in 1U of rack space – the Indigo 1-DP

Internal view of Indigo 1, which holds up to six boards

The Indigo 1AE active panel can be easily operated in the open position, thanks to the substantial hinge

The slot numbering in a 1U frame

Indigo 1

Indigo 1 is a 1U frame with a passive front panel which holds any mixture of up to six boards. It has no power redundancy.

Indigo 1 control options		REMIND-E Ethernet remote control panel	
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame		Statesman PC software	
REMIND remote control panel	●	SNMP	

Indigo 1AE

Indigo 1AE is a 1U frame with an active front panel which allows easy menu-driven control of all remote-enabled boards as well as Statesman and SNMP control via Ethernet. It holds any mixture of up to six boards. It has no power redundancy.

Indigo 1AE control options		REMIND-E Ethernet remote control panel	●
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame	●	Statesman PC software	●
REMIND remote control panel		SNMP	●

Indigo 1SE

Indigo 1SE is a 1U frame with a passive front panel fitted with a Statesman CPU which allows it to be connected to the Statesman PC software via Ethernet using standard CAT5 cables. It holds any mixture of up to six boards. It has no power redundancy.

Indigo 1SE control options		REMIND-E Ethernet remote control panel	●
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame		Statesman PC software	●
REMIND remote control panel		SNMP	●

Indigo 1-DP

Indigo 1-DP is a 1U frame with a passive front panel and compulsory power redundancy which holds any mixture of up to six boards.

Indigo 1-DP control options		REMIND-E Ethernet remote control panel	
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame		Statesman PC software	
REMIND remote control panel	●	SNMP	

Indigo 1AE-DP

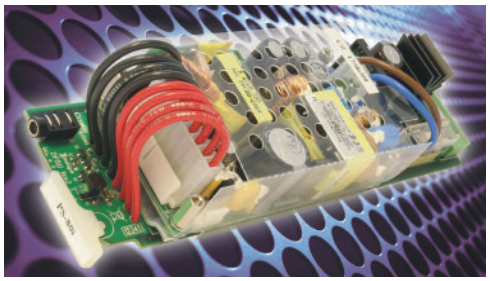
Indigo 1AE-DP is a 1U frame with an active front panel which allows easy menu-driven control of all remote-enabled boards as well as Statesman and SNMP control via Ethernet. It has compulsory power redundancy and holds any mixture of up to six boards.

Indigo 1AE-DP control options		REMIND-E Ethernet remote control panel	●
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame	●	Statesman PC software	●
REMIND remote control panel		SNMP	●

Indigo 1SE-DP

Indigo 1SE-DP is a 1U frame with a passive front panel fitted with a Statesman CPU which allows it to be connected to the Statesman PC software via Ethernet using standard CAT5 cables. It has compulsory power redundancy and holds any mixture of up to six boards.

Indigo 1SE-DP control options		REMIND-E Ethernet remote control panel	●
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame		Statesman PC software	●
REMIND remote control panel		SNMP	●



The PS-80i power supply – designed for the Indigo 1-DP frames

THE DESK TOP BOXES

Crystal Vision offers two desk top boxes – Indigo DT and Indigo DTSE – selected depending on the level of control required.

These compact boxes are suitable for non-rack mounted installations requiring a maximum of two modules and are the best value solution when buying only one or two boards. 1U ears can be fitted to facilitate mounting in a control desk, while the IDT-RK rack mounting kit allows them to be fitted in a 19" rack if required. The desk top box front panels do not have a hinge but are simply removed.

The Indigo DT are used with all the standard boards and control cables, and with the single slot and double slot rear modules only. The desk top boxes are fitted with a 60W fixed power supply to handle any two boards. The single fan – located on the side of the box – features the sophisticated cooling system found in the larger frames. Front panel LEDs monitor the fan, power supply and frame temperature.

Rear view of Indigo DT

Internal view of Indigo DT, holding up to two boards

The slot numbering in a desk top box

SPECIFICATION

MECHANICAL DIMENSIONS

Indigo 4/4SE

4U 19" rack unit. Height 176mm, width 482mm, depth 425mm. Empty weight 6.9kg. Maximum loaded weight 14.4kg

Indigo 2/2AE/2SE

2U 19" rack unit. Height 89mm, width 482mm, depth 425mm. Indigo 2 and 2SE: Empty weight 3.63kg. Maximum loaded weight 7.4kg. Indigo 2AE: Empty weight 3.84kg. Maximum loaded weight 7.6kg

Indigo 1/1AE/1SE/1-DP/1AE-DP/1SE-DP

1U 19" rack unit. Height 44.5mm, width 482mm, depth 425mm. Empty weight 3.1kg. Maximum loaded weight 5.0kg

Indigo DT/DTSE

Desk top box. Height 44.5mm, width 223mm, depth 365mm. Empty weight 1.9kg. Maximum loaded weight 2.4kg

POWER REQUIREMENT OF ALL FRAMES

90-264VAC, 47-63Hz

POWER SUPPLIES

Rack mounted frames have plug-in power supplies fitted which are ordered separately:

- Indigo 4/4SE take two or four 160W PSU-160i power supplies
- Indigo 2/2AE/2SE take one or two 160W PSU-160i power supplies
- Indigo 1/1AE/1SE take one 160W PSU-160i power supply
- Indigo 1-DP/1AE-DP/1SE-DP take two 80W PSU-80i power supplies. PS-80i is available in left and right hand versions

Indigo DT/DTSE have one built-in 60W power supply

Compulsory power redundancy is available on Indigo 4, 4SE, 1-DP, 1AE-DP and 1SE-DP

Optional power redundancy is available on Indigo 2, 2AE and 2SE

The PSU-160i and PSU-80i have on-board processors to report to the frame both PSU status and PSU fan status

FRAME REAR MODULES

Crystal Vision offers a wide choice of rear modules which slot on to the back of the frames

Available with BNC, D-Type, 'easywire' DIN 41612, RJ45 and optical connectors

Single slot rear modules: used in 4U, 2U, 1U and desk top box

Double slot rear modules: used in 4U, 2U, 1U and desk top box

Quad slot rear modules: used in 4U and 2U

Rear modules are individually retained by two screws

OPERATING CONDITIONS

0 to 40°C non-condensing

CoolFlow 4U and 2U frames: Ventilation front to sides/rear, without air filters

Indigo 2AE frame: Ventilation front to front, without air filters

1U frames: Ventilation front to rear, without filters

Desk top boxes: Ventilation side to side, without filters

FRAME OPERATING SOFTWARE

The AE and SE frames run uCLinux which allows the use of standard software such as an SNMP Proxy Agent

FRAMES MONITORING

The frames monitor and report frame fan status and temperature

If any parameter should fall outside its range, the frame status will indicate a fail condition on both the front panel indicators and by the change over relay contacts accessible from the rear interface connectors. The fail condition will also be diagnosable via Statesman or SNMP on suitably equipped frames

REMOTE CONTROL

Six control lines per module. Assigned on module (eg. GPI or RS422/RS232)

Contact open/closure for any power supply or frame fault condition (supply out of range or failure, fan too slow or fail, over-heat)

RS484 loop system from front panel to all modules and rear connection (rear connection by way of 26-pin high density D-Type connector and RJ45 connector)

Second serial port via 26-pin high density D-Type connector and RJ45 connector

Allows Ethernet connection to a PC running Statesman

One passive 4U frame or up to two passive 2U/1U/DTB can be controlled by a REMIND active panel via RS422

An unlimited number of Statesman or active frames can be controlled by a REMIND-E panel over Ethernet

SNMP monitoring and control available as a frame option. 'AE' and 'SE' frames are pre-installed with an SNMP manager which will require a licence to be downloaded and installed

Indigo DT

Indigo DT is a desk top box with a passive front panel which holds any mixture of up to two boards. It has no power redundancy.

Indigo DT control options		REMIND-E Ethernet remote control panel	
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame		Statesman PC software	
REMIND remote control panel	●	SNMP	

Indigo DTSE

Indigo DTSE is a desk top box with a passive front panel fitted with a Statesman CPU which allows it to be connected to the Statesman PC software via Ethernet using standard CAT5 cables. It holds any mixture of up to two boards. It has no power redundancy.

Indigo DTSE control options		REMIND-E Ethernet remote control panel	●
Board edge switches	●	Dedicated control panels	●
Active front panel on the frame		Statesman PC software	●
REMIND remote control panel		SNMP	●

ORDERING INFORMATION

Indigo 4	CoolFlow 4U frame with passive front panel and power supply redundancy for up to 24 Crystal Vision modules
Indigo 4SE	CoolFlow 4U frame with passive front panel fitted with Statesman CPU and power supply redundancy for up to 24 Crystal Vision modules
Indigo 2	CoolFlow 2U frame with passive front panel and optional power supply redundancy for up to 12 Crystal Vision modules
Indigo 2AE	2U frame with active front panel and optional power supply redundancy for up to 12 Crystal Vision modules
Indigo 2SE	CoolFlow 2U frame with passive front panel fitted with Statesman CPU and optional power supply redundancy for up to 12 Crystal Vision modules
Indigo 1	1U frame with passive front panel for up to six Crystal Vision modules
Indigo 1-DP	1U frame with passive front panel and power supply redundancy for up to six Crystal Vision modules
Indigo 1AE	1U frame with active front panel for up to six Crystal Vision modules
Indigo 1AE-DP	1U frame with active front panel and power supply redundancy for up to six Crystal Vision modules
Indigo 1SE	1U frame with passive front panel fitted with Statesman CPU for up to six Crystal Vision modules
Indigo 1SE-DP	1U frame with passive front panel fitted with Statesman CPU and power supply redundancy for up to six Crystal Vision modules
Indigo DT	Desk top box with passive front panel for up to two Crystal Vision modules
Indigo DTSE	Desk top box with passive front panel fitted with Statesman CPU for up to two Crystal Vision modules
IDT-RK	Rack mounting kit allowing desk top box to be mounted in a 19" rack
PSU-160i	160 Watts power supply for Indigo 4, 4SE, 2, 2AE, 2SE, 1, 1AE and 1SE
PS-80i	80 Watts power supply for Indigo 1-DP, 1AE-DP and 1SE-DP. Available in left and right hand versions
RMxx	Selection of frame rear modules, available in single slot, double slot and quad slot sizes
Statesman	PC Control System
SNMP	SNMP monitoring and control available as a frame option
REMIND	19" remote control panel
REMIND-E	19" Ethernet remote control panel

Performance and features are subject to change. Figures given are typical measured values. FRAMES0211

Crystal Vision

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