◆ BLACK BOX®
NETWORK SERVICES

DIGITAL SIGNAGE

Updated version featuring all new products
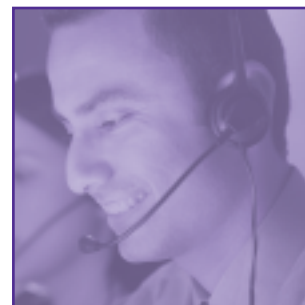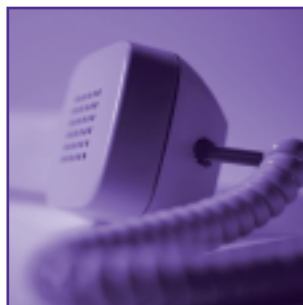
Reach your customers or staff with a simple

Envisioning a better way to reach customers in a commercial setting?
Trying to come up with an eye-catching way to provide information to the public?
Then consider **Digital Signage from Black Box**.

Replacing traditional billboards, point-of-sale displays, and other "static" signage, digital signage has emerged as a great new way to catch the attention of an audience constantly on the move.

In it's most basic setup, it means distributing content to a single strategically placed high-resolution video screen. But you can also build a fully integrated system for multiscreen, multimedia presentations that are both dazzling to the viewer and easy to manage.

Black Box offers the latest components for building a manageable digital signage system, including:

- Media Players
- Plasma and LCD screens
- Video and audio splitters and extenders
- High-resolution scalers and image controllers
- Wiring infrastructure products, including CAT5 copper or fibre optic cabling
- Complete end-to-end solutions designed, installed & maintained by Prince 2 trained project managers.

For help choosing components for a digital signage network, call our **FREE Tech Support**.
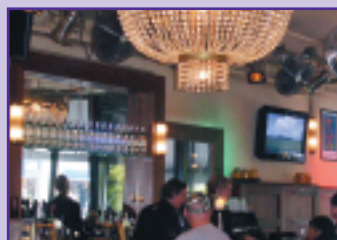
Retail
- Point-of-purchase or point-of-sale displays
- Colourful, inviting storefront displays that draw in passers-by and turn browsers into buyers
- In-store promotions for specials, sales, and new product launches

Hospitality
- Lobby displays that advertise hotel events and restaurant specials
- Panels broadcasting travel and weather information
- Screens that distribute content tailored to specific visitors, such as conference room information aimed at conventioneers

Restaurants & Bars
- Dynamic menus that update automatically from lunch to dinner
- Advertisements for promotions on food or drinks and entertainment
- Enormous, multipanel video walls that stream content—such as live sports events— and can be seen by all customers

Airports
- High-contrast screens that show flight and baggage information
- Panels that provide directions at security stations and inform travellers of wait times
- Welcome centre displays that promote local businesses and attractions

digital signage solution from Black Box!

Digital signage gives you:

- Real-time communication. Immediately stream the latest, most relevant information to the shopper—and instantly change content.
- Greater reach. You risk not being noticed if you depend on static displays—particularly if you're one of many advertisers trying to reach a prospective customer. Digital signage gives you the edge. With it, you can command a passing audience's attention and communicate a message more clearly.
- Reduced costs. Calculate the cost of constantly sourcing or producing newly designed and printed signage. Over time, an upfront investment in digital signage equipment will prove more cost effective.
- The image of innovation. If you say you're a technological leader, then speak loud and clear with the latest digital signage technology when addressing prospective customers. Don't just get their attention—wow them!
- Employee information. With the ability to integrate with many business systems you can keep employees updated easily and simply, and show corporate presentations at the touch of a button.
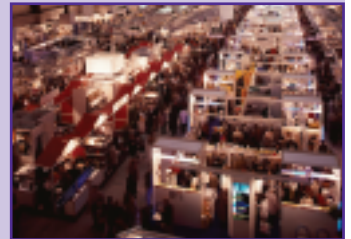
Schools & Universities
- Centralised messaging systems that alert students to changes in class schedules and campus events
- Video advertisements in bookstores, student unions, and other high-traffic campus areas

Corporate
- Dynamic reception area displays, welcoming guests and showing corporate information
- Live sales performance figures
- Corporate video presentations

Other Applications
- Government buildings
- Hospitals and other health care facilities
- Sports and entertainment venues
- Museums and Libraries
- Trade show booths and other temporary setups
- Casinos
- Health and fitness clubs
- Theme parks, and much more...

The Black Box Media Players are feature rich, hardened machines providing excellent reliability and functionality. Available in two versions, the players provide the ability to display and reproduce the following:

Images (.jpg)	Audio	Movies (.mpg)	Web page (.html)
RSS news feeds	Video Streaming	PowerPoint (.ppt)	Flash (.swf)

These files are used to make up the various zones of the screen and are referred to as "content".

Content may simply be a collection of pictures (jpeg's), or pictures with audio. The software allows full control of each zone of the screen separately or a more complex combination of live TV, moving pictures and ticker feeds.

Both players support scheduling enabling the content to be displayed when required, and both support communications with a touch screen. Touch screens enable people to interact with the content on the media players. This enables digital signage to be used for providing complex and varied content, clearly and easily. This is ideal for public areas and could be used to provide timetable information, product information, information on services, opening hours etc...

A web interface enables administrators to securely log into the players and remotely update screen layouts and schedules live.

DSi Media Player 2

Our second-generation Media Player now has every feature you need.

Product Updated

- Rugged construction for 24/7 operation in harsh environments.
- Designed exclusively for digital signage.
- Flexible and easily integrated.
- Certified to EN55022, EN60950, UL60950, EN55024 standards.
- VGA, DVI, HDMI and Component video outputs.
- 8-channel high definition sound with digital optical output.

The Black Box DSP2 Digital Signage player is designed specifically for Digital Signage and offers many subsequent benefits over other hardware in terms of its physical proportions - reliability, power, durability, flexibility and specifications. The player comes preloaded with ImageFlyer and remote management software. Two models are available, one as a standalone player with a full single Image Flyer and remote management oftware licence, and one with just a remote management software licence, to be used in conjuction with Image Flyer site licences.

For larger rollouts, custom requirements can be specified in the event of certain customer requests. (*Windows XP Embedded machines offer limited functionality and may require above average levels of configuration).

TECH SPECS

CPU — 2200MHz, AM2 Socket, 64-bit, 1MB L2 Cache
RAM — 1GB, DDR2, 667MHz
HDD — 80GB, 7200RPM, 2MB Cache
GPU — ATi Radeon Xpress 1250, 128MB shared
Operating System — MS XP Professional
Audio — 8-channel, high definition
LAN — Marvell Gigabit, 10/100/1000Mbps
Video Out — VGA 15-pin D-Sub, DVI-D, HDMI, Component
Video In — 3 x Composite, 1 x S-Video
Audio In/Out — 5 x 3.5mm Jack, 1 x SPDF
**Enhanced** — 4 x USB 2.0, 1 x 1394a

I/O — 1 x RS232 COM
Dimensions — 5.7(H) x 30(W) x 20(D) cm
Weight — 6.5 kg
Certifications — EN55022 Class A, EN60950, UL60950, EN55024, RoHS
Operating Temperature — 0 - 40°C
Storage Temperature — -20 - 70°C
Relative Humidity — 5 - 90% non-condensing
Power — 100-240VAC Auto-switched, EPA/APCI 2.0 Compliant, Auto on/off/resume supported, Wake-on-LAN, KB/m, Modem, Alarm supported

Item	Code	Price
DSi Media Player 2		
with Image Flyer and remote management software	DSP2-R2	£1,495.00
with remote management software	DSP2-HW-R2	£995.00
12 Month Extended Warranty (24 months total)	DSP2-R2-24	£99.00
24 Month Extended Warranty (36 months total)	DSP2-R2-36	£250.00

For a closer look…see the Web, request datasheet: **87000**
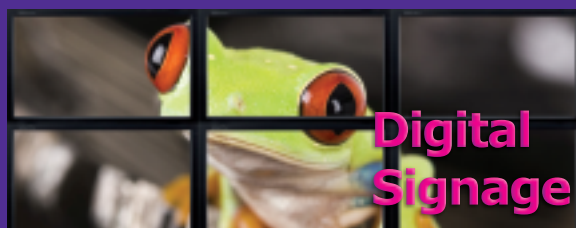
Digital Signage

Still confused about Digital Signage? Want to know how it can work for your business? Need more information? Want to see our entire range of Digital Signage products?

Visit our website at **www.blackbox.co.uk/digitalsignage** or give one of our technical experts a call on 0118 965 6000

Image Flyer
Bring your displays to life!

Image Flyer allows you to simultaneously entertain and communicate with your target audience using the most flexible easy-to-use digital signage player software available.

Image Flyer includes the ability to create eye-catching screen content by simultaneously playing any type of media elements from the list below.

Turn your screen into a true multimedia experience simply by adding new media elements to your screen. You can move them and resize them 'live' on screen whilst they are playing, then keep adding. The combinations are endless and you can see the results of your work instantly.

Image flyer also includes everything you need to give your screen impact as well as a host of features that let you maximise its effectiveness now and in the future; making Image Flyer a truly safe software investment. You can create landscape, portrait, widescreen and standard formats in any screen resolution including true HD.

The template software allows users to add many different types of content and display

them simultaneously on a screen without any hassle. It is intuitive and can be used to create effective advertising and content within minutes. Users are able to drag and drop files on the media player into a content play list from any of the file types listed.

The software will also allow users to preview the screen in either landscape or

Image Flyer supports the following file types

- Movies (.avi, .mpg, .wmv)
- Images (.jpg, .bmp, .gif)
- Live TV (up to four inputs)
- Audio
- Streaming (Video)
- Web (.html, .swf [flash])
- News Feeds (RSS)
- PowerPoint (.ppt)

portrait widescreen mode, and has an "always on top" assertion so users cannot lose their way when configuring the content. The features also include a "Time of day" scheduler, touch screen compatibility and "anti burn-in" for plasma screens.

The software will run on and is included with the Black Box DSi Media Players on page 4, but can also be run on a standard PC. If running the software on a PC, these are the recommended minimum specifications in order to see optimum performance.

Processor — Intel Pentium 4 Processor 3 GHz or equivalent
Memory — 512Mb RAM
Operating System — Windows XP
For Live Video — Video capture card supporting WDM drivers

Item	Code	Price
Image Flyer Software Only (1 User)		
	DSIF1	**£995.00**
Image Flyer Licence for 5 Users (1 Site)		
	DSIF5	**£1,500.00**
Image Flyer Licence for 10 Users (1 Site)		
	DSIF10	**£2,500.00**
Image Flyer Licence for 25 Users (1 Site)		
	DSIF25	**£3,500.00**
Image Flyer Software Updates (1 Year)		
	DSIF-SP	**£80.000**

Quick Project

With the Quick Project software you can create all your digital signage artwork yourself, by using our extensive library of professionally designed templates.

Create designer quality digital signage banners using web based RSS news feeds, set up room-booking digital displays using Excel spreadsheets or simply create a stunning background for your screen without the need for an external designer.

Quick Project creates images in standard formats (BMP, JPG, GIF) which can be used with almost any digital signage system.

Within seconds you will have professional artwork that perfectly matches your own brand.

- Create stunning graphics in seconds.
- Deliver your images directly to all your networked digital signage players.
- Link templates, letting you create 100's of images of different sizes and resolutions instantly.
- Automate content creation by linking templates to the following (NB. Plug in modules required):
  - News feeds
  - Databases
  - Excel spreadsheets
  - Microsoft Office Calendar

New options available

Item	Code	Price
QuickChange Project Content Creation Software		
	DSQP1	**£995.00**
QuickChange Project Content Creation Software Updates (1 Year)	DSQP1-SP	**£100.00**

◀ See page 4 for the Black Box DSi Media Players.

For multi screen, multi site, database integrated solutions, Black Box have a range of players that allow you to simply control and update your players locally, remotely via the web or over the 3G mobile network, allowing control from anywhere in the world.

Rich media is at the heart of the system with support for all the popular media formats in their native form without conversion, adding new levels of flexibility. With the vast amount of media storage space provided as standard, it's easy to build the system you need, without compromising media quality. Added to this is the ability to deliver up to eight different media outputs from one server, and provide a full range of logging and monitoring features making this a truly scalable and flexible system.

Black Box offer a complete Digital Signage service. As part of this service, Black Box will attend your site and carry out a FREE survey (subject to terms) including content type and structure, and all cabling, power and hardware requirements for the Digital Signage solution. Based upon the results of the survey, Black Box will prepare a quotation of the complete end-to-end solution including all installation, product and service costs. Maintenance services can also be provided as part of the solution.

DSi Media Player 3

DSMP3 supports the following file types

- Images (.jpg, .bmp, .gif)
- Audio
- Movies (.mpg)
- Web (HTML)
- News Feeds (RSS)
- Live Video Streaming
- Flash Animation

Item	Code	Price
Black Box DSi Media Player 3	DSP3	£2,650

The Black Box DSi Media Player 3 is an entry level solution for Digital Signage, Business Communications and Advertising Screens based on the existing reliable and robust framework of the more powerful DSMP4. Designed to be implemented where the power and flexibility of the DSMP4 is excessive, but a Digital Signage, Business Communication or Advertising Screen is still essential.

As an entry level solution, the DSMP3 still supports a wide range of industry standard formats for animation, video, still images and web pages. Updating the player is quick and easy; simply drag and drop new content (whether it's a movie or ticker tape message) into a hot folder and the player will automatically play the new content. The DSMP3 supports standard VGA display technologies from small shelf edge displays to large format LED screens. Using high resolution display adapters, messages appear crisp and clean, ensuring they always make an impact.

DSi MediaStudio

Management of any large player network requires a simple to use but powerful management system, capable of scaling to meet the demands of digital signage networks regardless of the number of players or sites. The Black Box MediaStudio allows you to control the content on all your media players from a single location. This means scheduling and content distribution can be updated quickly along with the preview function, allowing the right message to get to the right screen at the right time.

Item	Code	Price
Black Box DSi MediaStudio	DSMS	£8,075

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DSi Media Player 4

New models added

DSMP4 supports the following file types

- Images (.jpg, .bmp, .gif)
- Audio (.mp3)
- Movies (.mpg)
- Web (HTML)
- News Feeds (RSS)
- Live Video Streaming
- Flash Animation

The Black Box DSi Media Player 4 is a 2U high, 19" rack mountable digital signage player capable of running up to eight screens with each display showing entirely different content.

With support for a variety of media - stills, animation and movies in industry standard formats - you can continue using your preferred media creation tools, such as Adobe Photoshop, Premier, After Effects, or Flash. Added to this the ability to integrate with live databases, and play live video feeds and display webpages, make the DSMP4 the ultimate in digital signage solutions.

Hardware:
Processor — 3.2 GHz Pentium 4
Storage — 512MB RAM, 80GB HDD (Optional 1GB RAM, 120GB HDD)
Power — *350 W, 240 V, 50Hz*
Interfaces — LAN 10/100BASE-T, RS-232, USB 2.0, PS/2 Keyboard/Mouse
Audio Out — 3.5mm socket stereo analogue
Optional Devices — DVD ROM
Size — 510 x 425 x 90 mm (2U 19" Lockable Rackmount)

Software Included:
Windows XP Professional
Event Management System 3.0

TECH SPECS

Layout Display Manager 3.0
Multi Format Player 3.0 (1 Channel)
Simple Text Ticker 3.0 (1 Channel),
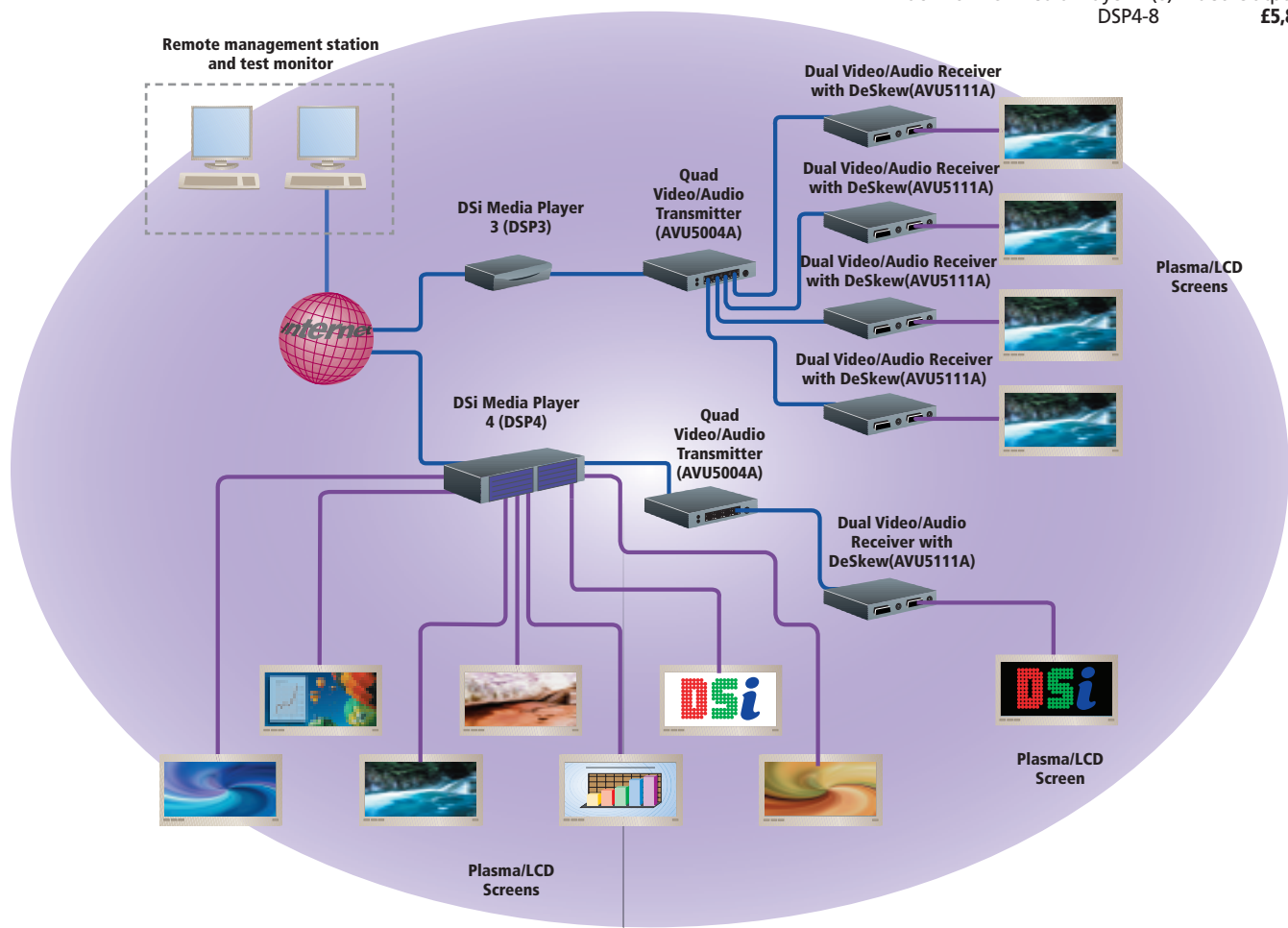Firewall, HTTP/FTP Server

Supported Media:
Video — MPEG 1, 2 and 4, DivX, AVI, WMV, HD (Windows Media Player Compatible Codecs)
Animation — SWF, DCR, DXR
Stills — BMP, JPG, GIF
Web — HTML, JSP, ASP, CFM, PHP, CSS, XHTML, XML (RSS), DHTML, ODBC (IE 6 compatible ActiveX controls)

Item	Code	Price
Black Box DSi Media Player 4 (1) Video Output	DSP4-1	**£3,300**
Black Box DSi Media Player 4 (4) Video Outputs	DSP4-4	**£4,300**
Black Box DSi Media Player 4 (8) Video Outputs	DSP4-8	**£5,800**

Remote management station and test monitor

Dual Video/Audio Receiver with DeSkew(AVU5111A)

Dual Video/Audio Receiver with DeSkew(AVU5111A)

Quad Video/Audio Transmitter (AVU5004A)

DSi Media Player 3 (DSP3)

Dual Video/Audio Receiver with DeSkew(AVU5111A)

Plasma/LCD Screens

Dual Video/Audio Receiver with DeSkew(AVU5111A)

internet

DSi Media Player 4 (DSP4)

Quad Video/Audio Transmitter (AVU5004A)

Dual Video/Audio Receiver with DeSkew(AVU5111A)

Plasma/LCD Screen

Plasma/LCD Screens

Black Box Explains

Skewing effect.

Within a CATx cable of a certain length, the individual pairs might have individual different lengths, caused by higher or lower twist ratios.

There are two common cable standards: one with a 2 + 2 structure (two pairs of approximately length A and two pairs of approximately length B) and one with a 3 + 1 structure (3 pairs of approximately length A and one other pair of a different length B).

Sending a signal across cable pairs that are different in length causes different runtimes.

This runtime-caused signal delay is called skew. Of course, the longer the cable, the higher the skew can be. This affects the video signal—the picture on the remote screen.

The colour signal arriving earlier (over a shorter, less twisted pair) is moved more to the left side of the screen, the colour signal arriving later (over a longer pair with higher twist ratio) is moved to the right.

All colours displayed on a screen are made of red, green and blue. If skew occurs, even a simple black character might appear blurred.

To avoid this impact on picture quality, there are three options:

The cheapest is to select an appropriate cable or change pairs within the cable to minimise runtime delays.

As this is often not allowed or possible, another option is to use external Delay Lines to adjust differences (call Tech Support about the ACU5100A).

Lastly, when starting from scratch, the most suitable solution is the new ServSwitch Wizard Multimedia Extender Plus (as shown on page 9). Available in 2, 4 and 8 video port versions, each including built in skew compensation allowing for variable cable lengths. A cascaded system can support up to 64 screens concurrently.
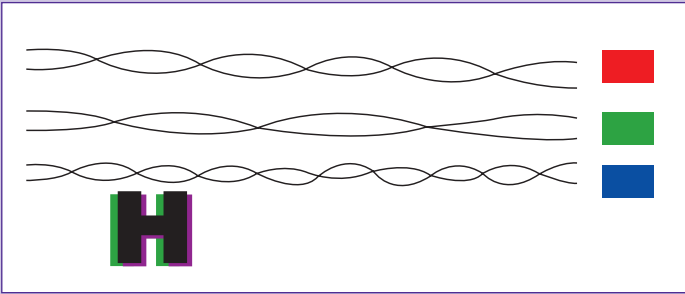
As described already, three pairs carry colour and synchronisation signals (one colour pair). Cables rated higher than CAT5 don't have equal pair lengths to fulfill their intended Ethernet specifications, so the colour signals arrive at a different time at the remote end.

Wizard Multimedia Extenders

The Black Box Wizard Multimedia system comprises of two parts - a transmitter and a receiver. The transmitter will take in a VGA signal and an analogue stereo audio feed from a media player and transmit the signals up to 300 metres on CAT5/5e/6 twisted pair cabling up to the receiver.

This receiver is available in two versions, one supporting Deskew. Deskew is required if the system is to be used on certain CAT5e cabling sytems and ALL CAT6 cabling systems. Deskew is not required for true CAT5 cabling.

TECH SPECS

Distance without Cascading (Maximum) — 300m
Distance with Cascading (Maximum) —
1 Cascade connections - 250m
2 Cascade connections - 200m
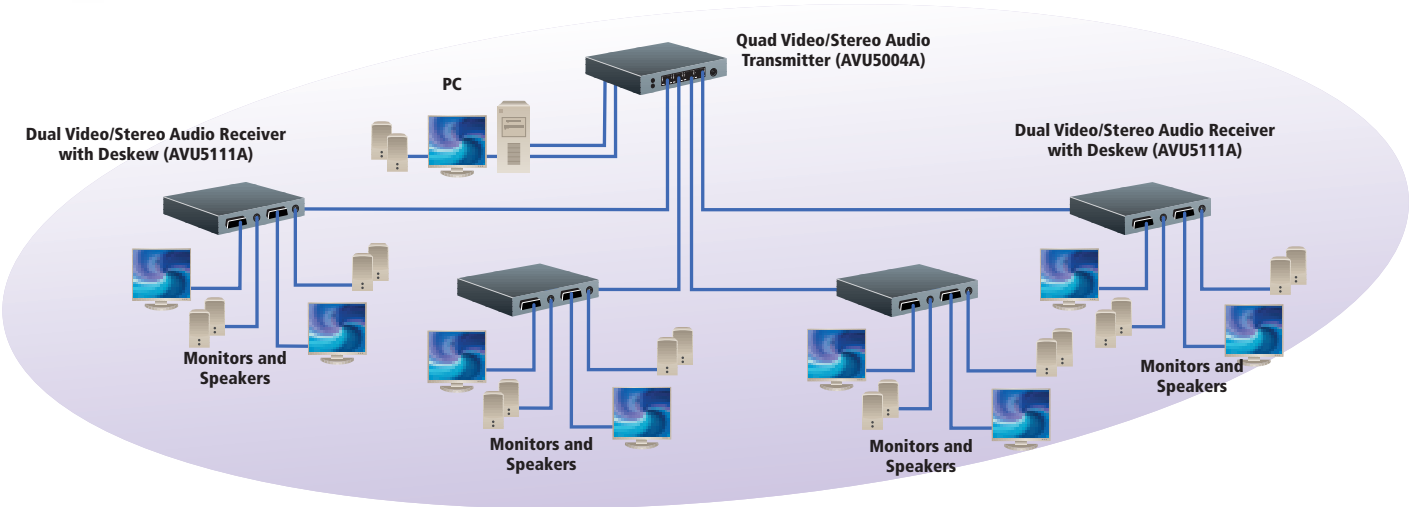3 Cascade connections - 175m
Resolution (Maximum) —
1600x1280 @ 60Hz @ 200m
1280x1024 @ 60Hz @ 300m
Connectors —
(2) VGA HD15 Female (1) Input and (1) Output, (2) 3.5 mm female audio jacks and (1) Input and (1) output, (1) 2.5 mm DC Power Input. AVU5001A, AVU5004A also have (1) RJ-45 female transmitter ports. AVU5011A and AVU5111A also have (1) RJ-45 female receiver ports.
Power — 100-240 VAC, 50-60Hz external
Size — 95 x 26 x 98 mm

Quad Video/Stereo Audio Transmitter (AVU5004A)

PC

Dual Video/Stereo Audio Receiver with Deskew (AVU5111A)

Dual Video/Stereo Audio Receiver with Deskew (AVU5111A)

Monitors and Speakers

Monitors and Speakers

Monitors and Speakers

Monitors and Speakers

Item	Code	Price
Quad-Video/Stereo Audio Transmitter		
	AVU5004A	**£185.00**
Single-Video/Stereo Audio Receiver		
	AVU5011A	**£145.00**
Dual-Video/Stereo Audio Receiver with DeSkew		
	AVU5111A	**£185.00**

BLACK BOX
NETWORK SERVICES

Wizard Multimedia Extender Plus

Distribute crisp, high impact video, CD quality audio and transparent RS-232 from a single PC to 64 displays up to 300m away.

- Ideal for digital signage applications in retail outlets, airports, corporate environments and more.
- Resolutions up to 1920 x 1200 supported.
- Image compensation for crystal clear video and audio to 300m.
- RS-232 connectivity enabling control of individual or multiple displays.
- Scalable up to 64 outputs.

Optimised for digital signage applications, our extenders will allow you to deliver your AV content to the most profitable locations without compromising on signal quality. These compact and robust units transmit VGA resolutions up to 1920 x 1200 along with stereo audio and RS-232 control up to 300m over CATx infrastructure cable.

Display management software is included with the transmitter units giving you total control of your displays via the RS-232 port. This allows for bi-directional and automated communications with individual displays or groups of displays at the same time.

With single, 4 and 8 port transmitter options and support for up to 64 screens, this extender family allows you to build a tailored solution to fit your application. Along with our effective video equalisation and skew compensation options, this ensures a crystal clear picture on every display.

Wizard AVU6010A, AVU6001A and AVU6011A

The Wizard AVU6010A kit provides a single transmitter (AVU6001A) and receiver (AVU6011A) capable of extending video, audio and RS-232 control over a single CATx cable to two remote displays.

Wizard AVU6004A, AVU6008A and AVU6111A

The Wizard AVU6004A and AVU6008A transmitters and AVU6111A receiver can be used to create solutions supporting 4 to 64 displays. The AVU6004A will drive up to 4 receivers and the AVU6008A will drive up to 8 receivers. Transmitters can be cascaded via their local VGA, Audio and RS-232 ports up to three levels supporting a total of 64 displays on 32 separate CatX branches. Each receiver supports two remote displays with audio and RS-232 control. In addition to brightness and sharpness adjustments, the AVU6111A also has skew compensation built in allowing you to optimise the displayed image to suit your cable type and length.

TECH SPECS

Resolution — 1920 x 1200 @ 60Hz at 150m; 1600 x 1280 @ 60Hz at 200m; 1280 x 1024 @ 60Hz at 300m
Connectors:
Video In/Out — *AVU6001A, AVU6004A, AVU6008A:* HD15; *AVU6011A, AVU6111A:* 2 x HD15
Audio In/Out — *AVU6001A, AVU6004A, AVU6008A:* 3.5mm audio jack ; *AVU6011A, AVU6111A:* 2 x 3.5mm audio jack
RS-232 in — *AVU6001A, AVU6004A, AVU6008A:* DB9F; *AVU6011A, AVU6111A:* n/a
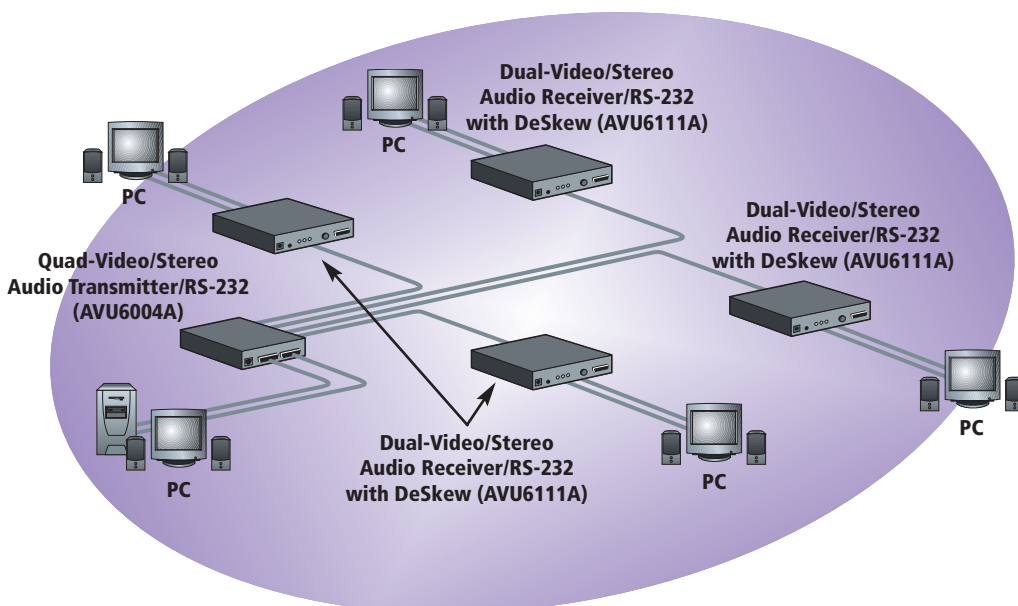**RS-232 out** — DB9M*
CatX — *AVU6001A, AVU6011A, AVU6111A:* 1 x RJ-45 connector; *AVU6004A:* 4 x RJ-45 connector, *AVU6008A:* 8 x RJ-45 connector
Power — 2.5mm DC jack
Size — *AVU6001A, AVU6011A, AVU6111A:* 98mm x 95mm x 25mm; *AVU6004A, AVU6008A:* 185mm x 95mm x 51mm
Power Supply — 100-240VAC, 50/60Hz

* AVU6011A and AVU6111A units only have single RS-232 interface but cable is supplied allowing connection to two screens

Dual-Video/Stereo Audio Receiver/RS-232 with DeSkew (AVU6111A)

Dual-Video/Stereo Audio Receiver/RS-232 with DeSkew (AVU6111A)

Quad-Video/Stereo Audio Transmitter/RS-232 (AVU6004A)

Dual-Video/Stereo Audio Receiver/RS-232 with DeSkew (AVU6111A)

Item	Code	Price
Wizard Multimedia Extender Plus		
Single Video and Stereo Audio Transmitter with RS-232	AVU6001A	**£145.00**
Dual Video and Stereo Audio Receiver with RS-232	AVU6011A	**£185.00**
Wizard Multimedia Extender Plus Kit	AVU6010A	**£330.00**
Quad-Video and Stereo Audio Transmitter with RS-232	AVU6004A	**£330.00**
8-Way Video and Stereo Audio Transmitter with RS-232	AVU6008A	**£390.00**
Dual-Video and Stereo Audio Receiver with RS-232 and DeSkew	AVU6111A	**£245.00**

Multi DVI Extenders over Fibre or CATx

Distance, control, and flexibility—these DVI extenders are perfect for video/audio/serial applications of any size.

Brand new product

from top: AC1080A, AC1081A, and AC1085A

from letf: AC1080A, AC1081A, and AC1085A

- Flexible distribution and configuration—fit almost all network footprints.
- Virtually unlimited extension capabilities in a daisychain configuration.
- Pollable RS-232 models enable management of groups and single units.
- Go the distance—6.2 miles (10 km) over fibre or 600 feet (182.8 m) over copper.
- Carry nearly all video formats over fibre or copper lines.
- Simple to install, configure, and use.
- Proprietary algorithms provide strong security over fibre and copper connections.
- Durable design is ideal for harsh environments such as factories, shops, and other in-dustrial settings.

If you're looking for an efficient, manageable way to extend high-resolution DVI signals and stereo audio over copper or fibre, you've found it with Black Box's Multi DVI Extenders over Fibre or CATx. These units provide distance, control, and flexibility—an excellent choice for a variety of video and audio broadcast applications.

Distance

Use fibre for long-haul applications—as far as 6.2 miles (10 km) over single-mode fibre—or use copper for short to medium distances—500 feet (152.4 m) over CAT5/5e and up to 600 feet (182.8 m) over CAT6. Best of all, if you're using the daisychainable models, the distance limitations for video, stereo audio, and serial
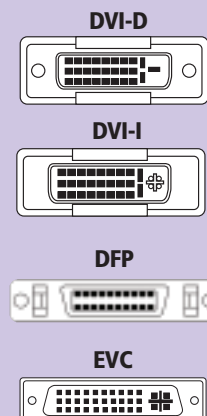
Black Box Explains
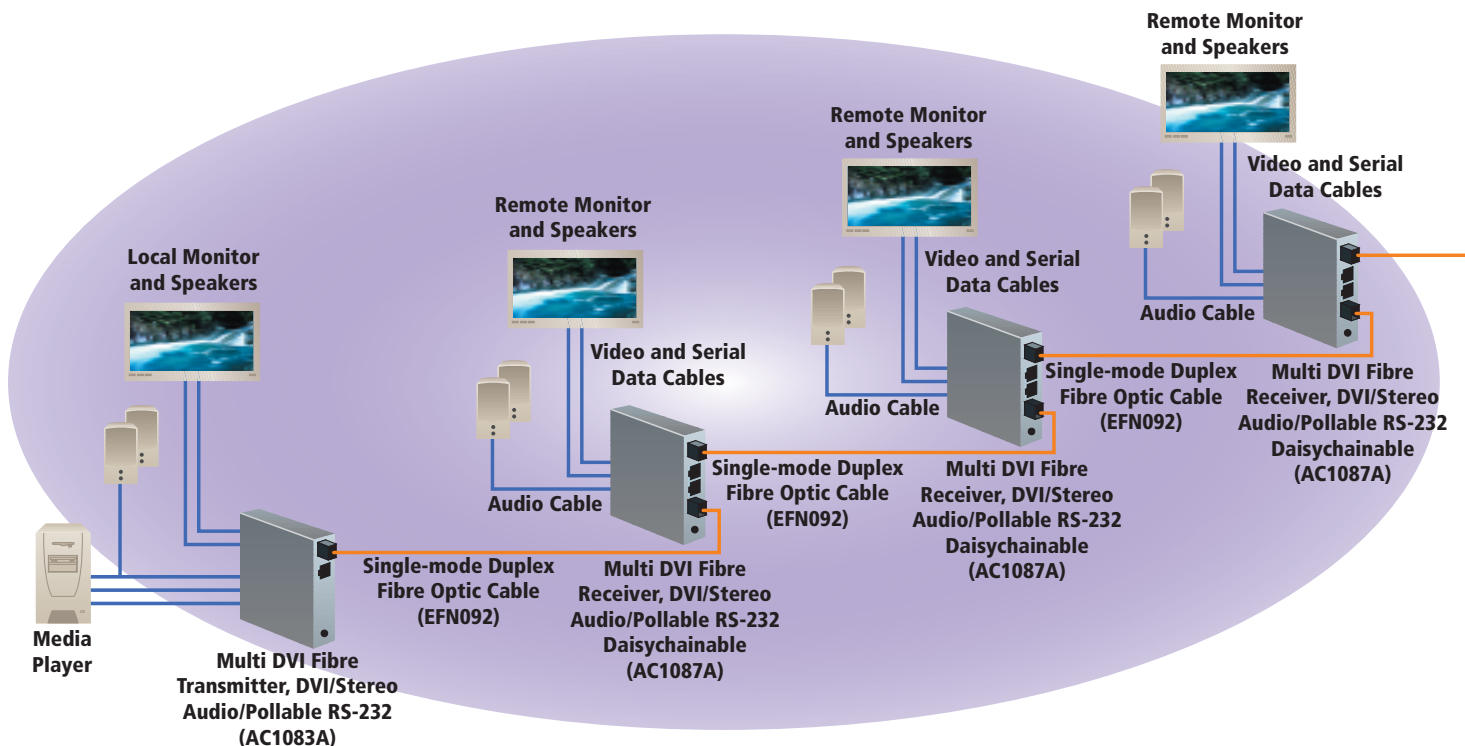
Digital Visual Interface (DVI) connectors.

The Digital Visual Interface (DVI) standard is based on transition-minimised differential signaling (TMDS). In a typical single-line digital signal, voltage is raised to a high level and decreased to a low level to create transitions that convey data. To minimise the number of transitions needed to transfer data, TMDS uses a pair of signal wires. When one wire goes to a high-voltage state, the other goes to a low-voltage state. This balance increases the data-transfer rate and improves accuracy.

There are four types of DVI connectors: DVI-D, DVI-I, DFP, and EVC.

DVI-D is a digital-only connector. DVI-I

supports both digital and analogue RGB connections. Some manufacturers of video displays and graphics accelerators are offering the DVI-I connector type on their products instead of separate analogue and digital connectors. DFP, like DVI-D, was an early digital-only connector used on some displays; it's being phased out. EVC (also known as P&D) is similar to DVI-I, only it's slightly larger in size. It also handles digital and analogue connections, and it's used primarily on projectors.

DVI-D

DVI-I

DFP

EVC

**Remote Monitor
and Speakers**

**Video and Serial
Data Cables**

**Remote Monitor
and Speakers**

**Video and Serial
Data Cables**

**Remote Monitor
and Speakers**

Audio Cable

**Multi DVI Fibre
Receiver, DVI/Stereo
Audio/Pollable RS-232
Daisychainable
(AC1087A)**

**Single-mode Duplex
Fibre Optic Cable
(EFN092)**

**Video and Serial
Data Cables**

**Local Monitor
and Speakers**

Audio Cable

**Single-mode Duplex
Fibre Optic Cable
(EFN092)**

**Multi DVI Fibre
Receiver, DVI/Stereo
Audio/Pollable RS-232
Daisychainable
(AC1087A)**

Audio Cable

**Single-mode Duplex
Fibre Optic Cable
(EFN092)**

**Multi DVI Fibre
Receiver, DVI/Stereo
Audio/Pollable RS-232
Daisychainable
(AC1087A)**

**Media
Player**

**Single-mode Duplex
Fibre Optic Cable
(EFN092)**

**Multi DVI Fibre
Transmitter, DVI/Stereo
Audio/Pollable RS-232
(AC1083A)**

data are erased because there's virtually no limit on how many of these units you can string together. This saves you money by enabling you to use a single, "building-block" system that can expand or contract based on your immediate needs—instead of spending money on incompatible systems simply to get distance.

Control

If you want to add control to your video and audio broadcasting application, choose models that feature pollable RS-232 ports. These models enable you to create addresses for either single receivers or groups of receivers in the daisychain and control them from a PC.

This way, you can manage which screens are active and save money by extending the screen life of your displays.

Flexibility

You can use the daisychainable models in a multitude of applications. Daisychain them in fibre, copper, or mixed domains. Because they use digital formatting, signal repetition is perfect, and there's no need to worry about skew compensation. If you're using the fibre models, the DVI (digital) format doesn't skew. The copper models mix the colours over all four pairs, and a series of complex algorithms self-compensate for cable skew on the receiver end in the decoding process.

Resolution isn't a problem either. This system supports video resolutions, distances, and formats over all VESA standards as high as UXGA (1600 x 1200) at 60 Hz, as well as HDTV formats up to 1080p. Additionally, this system handles all formats automatically and is not limited by a predefined list of formats.

This system is perfect for schools, trade shows, retail outlets such as malls and large stores, and any other application that requires you to send video and stereo audio over long distances or large areas.

TECH SPECS

DDC — Mock mode for standard formats; Non-standard format/display DDC taken from display and stored in transmitter

Distance — Fibre: Single-mode: 6.2 mi. (10 km); Daisychain: 6.2 mi. (10 km); Copper: CAT5/CAT5e: 500 ft. (152.4 m); CAT6: 600 ft. (182.8 m); Daisychain: CAT5/CAT5e/CAT6: 500 ft. (152.4 m)

Resolution — Standard @ 60 Hz: 640 x 480, 800 x 600, 1024 x 768, 1152 x 864, 1280 x 768, 1280 x 960, 1280 x 1024, 1360 x 760, 1366 x 768, 1600 x 1200, 1680 x 1050; HD: 480p, 720p, 1080p (graphics card must support reduced clock rate for LCD panel [5% blank] for 1080p)

Temperature — Storage: -20 to +60° C; Operating: 0 to +40° C; Humidity: Up to 80% noncondensing

Connectors — Audio: 4-pin Phoenix; Serial: 5-pin Phoenix; Video: DVI-D; Fibre: LC; UTP: RJ-45

Indicators — Power, Link status, Link type

Power — 5-V adapter, external

Dimensions — 3(H) x 10.4(W) x 14(D) cm

Weight — 0.5 kg

Item	Code	Price
Multi DVI Extenders		
Fibre Transmitters		
DVI Only	AC1080A	**£1,152.00**
DVI/Stereo Audio/Pollable RS-232	AC1083A	**£1,261.00**
Fibre Receivers		
DVI Only	AC1081A	**£1,152.00**
DVI Daisychainable	AC1082A	**£1,315.00**
DVI/Stereo Audio/RS-232	AC1084A	**£1,261.00**
DVI/Stereo Audio/RS-232 Daisychainable	AC1085A	**£1,424.00**
DVI/Stereo Audio/Pollable RS-232	AC1086A	**£1,371.00**
DVI/Stereo Audio/Pollable RS-232 Daisychainable		
	AC1087A	**£1,534.00**
CATx Transmitters		
DVI Only	AC1100A	**£715.00**
CATx Receivers		
DVI Only	AC1101A	**£715.00**
DVI Daisychainable	AC1102A	**£889.00**

NOTE: For single-strand, single-mode fibre, call our FREE Tech Support.

NEC Screens
Great picture quality and low TCO (Total Cost of Ownership).

Black Box have partnered with NEC to offer the best commercial LCD screens available. Commercial LCD screens have hardened power supplies that are designed to be on up to 24 hours a day with continuous usage. They also benefit from the best quality LCD tablets ensuring up to 60,000 hours life time. If they are left on continuously, this equates to over 6 and half years. Commercial LCD panels have been designed with the digital signage industries' requirements in mind.

DSS32 and DSS57

DSS40 and DSS46

Item	Code	Price
NEC Screens		
32" NEC Screen	DSS32	**£949.00**
40" NEC Screen	DSS40	**£1,699.00**
46" NEC Screen	DSS46	**£2,449.00**
57" NEC Screen	DSS57	**£6,990.00**
Speakers for NEC Screens		
Speakers for 32" NEC Screen (DSS32)	DSS32SP	**£110.00**
Speakers for 40" NEC Screen (DSS40)	DSS40SP	**£299.00**
Speakers for 46" NEC Screen (DSS46)	DSS46SP	**£359.00**
Speakers for 57" NEC Screen (DSS57)	DSS57SP	**£459.00**

* All speakers are Dual, 7 Watts Per Channel, designed to compliment the NEC LCD range of screens. Supplied with all the brackets, screws and cables to attach the speakers to the screens.

TECH SPECS

Panel Technology — *DSS32*: S-IPS TFT; *DSS40*, *DSS46*: PVA TFT; *DSS57*: S-PVA LCD

Screen Size (inches/cm) — *DSS32*: 31.5/80; *DSS40*: 40/101.5; *DSS46*: 46/117; *DSS57*: 57/145

Active Screen Area (WxH) [mm] — *DSS32*: 700.7 x 395; *DSS40*: 885.2 x 497.6; *DSS46*: 1018.4 x 572.5; *DSS57*: 1252.8 x 704.7

Pixel Pitch (mm x mm) — *DSS32*: 0.511 x 0.511, *DSS40*: 0.648 x 0.648; *DSS46*: 0.7455 x 0.7455; *DSS57*: 0.6525 x 0.6525

Viewing Angle — 178° horizontal / 178° vertical (typ. at contrast ratio 10:1)

Screen Ratio Aspect — 16:9

Contrast Ratio (typ.) — *DSS32*: 600:1; *DSS40*: 1200:1; *DSS46*: 1200:1; *DSS57*: 900:1

Brightness (typ.) [cd/m²] — *DSS32*: 500; *DSS40*, *DSS46*: up to 750 (factory setting 500); *DSS57*: 450

Response Time (typ.) [ms] — *DSS32*: 18 (8 white/black; 10 black/white); *DSS40*, *DSS46*: 8 (grey-to-grey), 16 (6 white/black; 10 black/white), 8 (tr-tf); *DSS57*: 16 (8 white/black; 8 black/white)

Colours [Mio] — 16.77

Horizontal Frequency [kHz] — 31.5 - 91.1 (analogue and digital)

Vertical Frequency [Hz] — *DSS32*: 58.0 - 85.0; *DSS40*, *DSS46*, *DSS57*: 50.0 - 85.0

Optimum Resolution — *DSS32*, *DSS40*, *DSS46*: 1360 x 768 @ 60 Hz; *DSS57*: 1920 x 1080 @ 60 Hz

Native Resolution — *DSS32*, *DSS40*, *DSS46*: 1366 x 768 @ 60 Hz; *DSS57*: n/a

Other Resolutions — *DSS32*: 1600 x 1200, 1280 x 1024, 1280 x 768, 1024 x 768, 832 x 624, 800 x 600, 720 x 400, 640 x 480; *DSS40*, *DSS46*: 1920 x 1080, 1680 x 1050, 1600 x 1200, 1440 x 1050, 1366 x 768, 1280 x 1024, 1280 x 768, 1024 x 768, 832 x 634, 800 x 600, 720 x 400, 640 x 480, *DSS57*: 1600 x 1200, 1360 x 768, 1280 x 1024, 1280 x 768, 1024 x 768, 832 x 634, 800 x 600, 720 x 400, 640 x 480

Video Input — *DSS32*: - *Analogue*: 1 x D-sub 15-pin, 5 x BNC, Component, Composite (via BNC and Cinch), 1 x S-Video - *Digital*: 1 x DVI-D; *DSS40*, *DSS46*: *Analogue*: 1 x D-sub 15-pin, 5 x BNC, Component, Composite (via BNC and Phono), 1 x S-Video - *Digital*: 1 x DVI-D (with HDCP), 1 x HDMI; *DSS57*: *Analogue*: 1 x D-sub 15-pin, 5 x BNC, Component, Composite (via BNC and Cinch), 1 x S-Video - *Digital*: 1 x DVI-D (with HDCP)

Video Output — *DSS32*: - *Analogue*: 1 x D-sub 15-pin, Composite (via BNC); *DSS40*, *DSS46*, *DSS57*: *Analogue*: 5 x BNC, Composite (via BNC)

Audio Input — 2 x Phono; 1 x Head-jack 3.5 mm

Audio Output — 1 x Phono

Ambient Temperature [Operating] — +5 to +40°C

Ambient Humidity [Operating] — 20 to 80%

Dimensions — *DSS32*: 789W x 479H x 140D mm; *DSS40*: 919.7W x 532.2H x 140D mm; *DSS46*: 1055.4W x 608.6H x 140D mm; *DSS57*: 1357.8W x 792.8H x 164D mm

Power Requirements on Mode [W] — *DSS32*: 110 (typ.); *DSS40*: 300 (max.), 170; *DSS46*: 340 (max.), 200; *DSS57*: 350

Power Supply — *DSS32*: 110-120 V/220-240 V, 1.4 A/0.6 A, integrated power supply; *DSS40*, *DSS46*: 100-120 V/220-240V, 3.0 A/1.2 A, integrated power supply; *DSS57*: 100-120 V/220-240 V, 3.9 A/1.65 A, integrated power supply

Video ready (no tuner) — NTSC, PAL, SECAM

Video Modes — *DSS32*: 480i, 480p, 576i, 576p, 2 x 720p (50/60 Hz), 2 x 1080i (50/60 Hz); *DSS40*, *DSS46*, *DSS57*: 480i, 480p, 576i, 576p, 2 x 720p (50/60 Hz), 2 x 1080i (50/60 Hz), 2 x 1080p (50/60 Hz)

Option slot — *DSS32*: n/a; *DSS40*, *DSS46*, *DSS57*: CAT5 receiver, HD-SDI board, Single board computer, DVI daisy chain

Weight — *DSS32*: 15.2 kg; *DSS40*: 29.4 kg; *DSS46*: 36.1 kg; *DSS57*: 59 kg

NEC MULTEOS Screens
Reach your audience as never before

The new NEC MULTEOS 40 and 46 inch LCD public displays offer crystal clear pictures in 1080p high-definition as well as impressive design and the highest levels of quality and reliability. Developed specifically for business users, they can be found anywhere where standard CRT, LCD and Plasma TVs were once used, or where new digital signage systems have been installed.

Full HD 1080

TECH SPECS
Panel Technology — S-PVA LCD
Screen Size (inches/cm) — *DSS40HD*: 40/102; *DSS46HD*: 46/117
Active Screen Area (WxH) [mm] — *DSS40HD*: 885.6 x 498.15; *DSS46HD*: 1018.1 x 572.7
Pixel Pitch (mm x mm) — *DSS40HD*: 0.461 x 0.461, *DSS46HD*: 0.530 x 0.530
Viewing Angle — 178° horizontal / 178° vertical (typ. at contrast ratio 10:1)
Screen Ratio Aspect — 16:9
Contrast Ratio (typ.) — *DSS40HD*: 1000:1; *DSS46HD*: 1200:1
Brightness (typ.) [cd/m²] — 450
Response Time (typ.) [ms] — 8 (grey-to-grey)
Colours [Mio] — 16.77
Horizontal Frequency [kHz] — 31.5 - 91.1 (analogue and digital)
Vertical Frequency [Hz] — 50.0 - 85.0
Optimum Resolution — 1920 x 1080 @ 60 Hz
Native Resolution — 1920 x 1080 @ 60 Hz
Other Resolutions — 1600 x 1200, 1360 x 768, 1280 x 1024, 1280 x 768, 1024 x 768, 832 x 634, 800 x 600, 720 x 400, 640 x 480
Video Input — *Analogue*: 1 x D-sub 15-pin, 5 x BNC, Component, Composite (via BNC and Phono), 1 x S-Video - *Digital*: 1 x DVI-D (with HDCP), HDMI
Video Output — 5 x BNC, Composite (via BNC)
Audio Input — 2 x Phono; 1 x Head-jack 3.5 mm
Audio Output — 1 x Phono
Ambient Temperature [Operating] — +5 to +40°C
Ambient Humidity [Operating] — 10 to 80%
Dimensions — *DSS40HD*: 981.8W x 582.4H x 142.5D mm; *DSS46HD*: 1112.8W x 659.4H x 142.5D mm
Power Requirements on Mode [W] — *DSS40HD*: 230; *DSS46HD*: 250
Power Supply — 100-120 V/220-240 V, 3.9 A/1.65 A, integrated power supply
Supported TV Standards — NTSC, PAL, SECAM
Video Modes — 480i, 480p, 576i, 576p, 2 x 720p (50 /60 Hz), 2 x 1080i (50/60 Hz); 2 x 1080p (50/60 Hz)
Option slot — CAT5 receiver, HD-SDI board, Single board computer, DVI daisy chain board
Weight — *DSS40HD*: 28.5 kg, *DSS46HD*: 35.2 kg

Item	Code	Price
NEC MULTEOS Screens		
40" MULTEOS NEC Screen	DSS40HD	**£1,999.00**
46" MULTEOS NEC Screen	DSS46HD	**£2,599.00**
Speakers for MULTEOS NEC Screens		
Speakers for 40" MULTEOS NEC Screen (DSS40HD)	DSS40HDSP	**£99.00**
Speakers for 40" MULTEOS NEC Screen (DSS46HD)	DSS46HDSP	**£99.00**

* All speakers are Dual, 7 Watt Per Channel, designed to compliment the NEC LCD range of screens. Supplied with all the brackets, screws and cables to attach the speakers to the screens.

Black Box Explains

Plasma vs. LCD screens.

When deciding whether to use plasma or (LCD) displays for your applications, you need to consider many factors. Both provide brilliant colour, sharp text contrast, and crystal-clear images, but the way in which plasma and LCD screens process and display incoming video/computer signals is markedly different.

Compare and contrast.
Both plasmas and LCDs provide stark enough contrasts to make displays sharp and pleasing, but when it comes to contrast output, plasma technology outperforms LCD. Some plasma displays have a 15000:1 contrast ratio, which is the measure of the blackest black compared to the whitest white. LCDs use electric charges to untwist liquid crystals, thereby blocking light and emitting darker pixels. Despite this process, in general LCD displays don't display as high a contrast ratio as Plasma screens.

Clarity that's light waves ahead.
Pixels contain enough information to produce every colour in the spectrum. Because plasmas use each and every pixel on their screens, colour information is reproduced more accurately. Plasma screens display moving images with remarkable clarity, though burn-in can be an issue. For displays with lots of light and dark imagery, plasma panels provide excellent performance with their high-contrast levels, colour saturation, and overall brightness.

LCD displays, on the other hand, manipulate light waves and reproduce colours by subtracting colours from white light. Though this makes it more difficult to maintain colour accuracy and vibrancy compared to plasma screens, LCDs have an advantage with their higher-than-average number of pixels per square inch. These additional pixels make LCD technology better at displaying static images from computers or VGA sources in full-colour detail. Plus, there's no flicker and very little screen burn-in. Applications with large amounts of data—such as those found on spreadsheets—display particularly well on LCD monitors.

Brilliant displays that go on and on.
With LCD screens, there are essentially no parts to wear out. LCD screens last as long as their backlights do, with displays lasting, on average, 50,000–75,000 hours. That's why LCD screens are especially good for long-term applications, such as digital signage or displays that require around-the-clock use.

Plasma screens, however, use a combination of electric currents and noble gases (argon, neon, and xenon) to produce a glow, which in turn yields brilliant colour. The half-life of these gases, however, is only around 25,000 hours. The glow they produce grows dimmer over time.

Weather-Resistant LCD Screens

Weather-resistant screens, perfect for year-round use outdoors or in damp, dusty or humid environments.

- Ideal for a whole host of outdoor situations, including shopping centres, public transport, pub gardens, theme parks, spas, swimming pools and a whole lot more.
- IP56 weather-resistant certified.

- Supports S-video, Composite, VGA, Component and HDMI.
- Anti-reflective surface.
- Toughened glass.
- Wide viewing angle of 178°.

Brand new product

This state-of-the-art weather-resistant LCD outdoor screen has been specifically designed for use outdoors and in wet, humid or dusty environments. With its water-resistant casing conforming to strict IP56 standards, it's perfect for outdoor digital signage or as an entertainment solution for your event or premises.

Weather-resistant Television

Fully sealed with a lightweight aluminium frame, it has a toughened glass front, which is finished with an anti-reflective surface. The LCD screen is designed in either HD Ready or FUll HD resolutions, ensuring the television delivers superb brightness, contrast and colour quality - even in bright sunlight.

Secure Television

The lightweight aluminium frame and toughened glass, along with the security fixings bracket with a padlock system is placed behind the screen to ensure it cannot be reached without installation tools. This enables you to keep your screen outdoors in all weather, day and night.

Screen sizes and options available

The screens are currently available in two sizes, with either HD Ready or Full HD technology resolution. The DSS42WR 42" HD Ready screen has a native resolution of 1366 x 768, the DSS42WRHD and DSS47WRHD have full high definition standard 1920 x 1080p screens.

Item	Code	Price
Weather-Resistant LCD Screens		
42" (HD Ready)	DSS42WR	**£2,499.00**
42" (Full HD)	DSS42WRHD	**£2,850.00**
47" (Full HD)	DSS47WRHD	**£4,199.00**
Weather-Resistant Speakers		
for 42" Screen	DSS42WRSP	**£199.00**
for 47" Screen	DSS47WRSP	**£229.00**
Security Wall Bracket for Weather-Resistant		
Screen	DSSWRWB	**£199.00**

Black Box Explains

Definition Standards.

Several standards of display definition exist, from standard through to full high definition. There are three major broadcast techniques used across Europe as well as a myriad of displays available with many differing resolutions. Most digital displays have all been based upon broadcast standards. Here we look at these standards and how they relate to display technologies.

Scaling is a function of display screens that tries to match the content coming into the display with the actual native resolution of the display itself. For instance, a Plasma (or LCD) display with a resolution of 720 x 480 can display 480 horizontal lines, with each line able to show 720 individual pixels. However, if the content coming into the screen is only 360 x 240, then each line of content will need to be used twice on the display, and each line will need to have each horizontal pixel repli-cated to ensure a full size display. If this replication process did not occur, the 320 x 240 content would take up only a quarter of the screen. This process of increasing the content is called "upscaling". If the content coming into the display was 1440 x 960, and the display only had 720 x 480 pixels, then the display will need to extract (or dump) half the lines and horizontal pixels to make the content fit to the screen. This process of losing lines and pixels is called "downscaling".

Traditionally, all broadcasts have been interlaced, which means each line of the display is refreshed in an alternating pattern. On the first pass, all odd numbered lines are refreshed, and on the second pass, all even lines are refreshed. This means it take two passes to get a complete screen refresh. A more modern technique is called Progressive Scan, where each line appears in order, and a complete screen refresh happens in only one pass.

Standard Definition

There are three main TV broadcast standards available within Europe and these are NTSC, PAL and SECAM. The American based NTSC standard defines a resolution of 720 x 480 and runs at 60Hz. This means there are 60 screen refreshes a second. Both PAL and SECAM have a native resolution of 720 x 576 with a 50Hz refresh rate. A typical standard definition Plasma display will have a resolution of 852 x 480.

This resolution of screen will upscale NTSC content slightly and produce a good quality image. However, if used with a PAL or SECAM signal, it will need to downscale 720 x 576 content because the display itself only has 480 horizontal lines instead of 576. So this resolution will have to strip out lines of original content and effectively, throw them away.

New semi standards have emerged to increase the quality of the content such as PAL-60, which keeps the 720 x 576 resolution, but employs a refresh rate of 60Hz instead of the traditional 50Hz, which increases the sharpness of the picture and eliminates flicker on fast moving content.

High Definition

This is where confusion can often enter. There are a lot of displays stating that they are "HD Ready". Whilst this means they can attain a higher resolution than standard, it does not mean they can display a full high definition signal. The medium standard definition is defined as 1280 x 720 pixels, and this is the resolution of medium HD content. There are many screens of this format available, but there are a lot more that increase the number of pixels available to 1366 x 768. It is easy to display 1280 x 720 content across a 1366 x 768 display, however, these screens cannot attain the full high definition resolution of 1920 x 1080.

On a 1280 x 720 display, medium definition content will be displayed pixel for pixel. On a 1366 x 768 display, medium definition content will be upscaled slightly to increase the original pixel count. Other screen resolutions such as 1024 x 768, 1024 x 1024 are used by screen manufacturers, purely to reduce costs on producing the display itself.

Full High Definition

This is the latest top of the range standard, defining resolution of 1920 x 1080 pixels, typically using Progressive Scan. This standard is often referred to as 1080p. Original content created using 1920 x 1080 resolution, will be displayed on a pixel by pixel basis requiring no scaling hardware or software to be used.

A full high definition display (1080p) can also display all the standard and medium high definition modes by utilising built in scaling hardware and software. Future standards have been discussed up to 7680 x 4320, and some have been physically demonstrated, however, it will be some time before these systems become available in any form.

Panasonic High Definition Plasma Screens

New, environmentally friendly Plasma Displays featuring outstanding picture quality.

HD ready

- Perfect for digital signage applications.
- High definition with 1024 x 768 resolution for 42" and 1366 x 768 for 50 and 58" models.
- 29 billion displayable colours and 3,072 shades of grey.
- Ideal for schools, retail, corporate and much more.

Panasonic Professional Plasma Displays are the first choice for commercial applications. Thanks to their adaptibility and versatility, they can be configured with absolute precision. The new displays are manufactured without lead to make them environmentally friendly too!

Portrait or Landscape.
All of the Panasonic Plasma Displays can be rotated through 90° to give a poster style image. The screens have fans at strategic positions within the back that will operate to reduce internal temperature, whether the screen is in a landscape or portrait position. After correctly selecting the right position within the menu system, the display will adapt to its rotation.

Automatic Gain Control.
Each Plasma Display has an AGC (Automatic Gain Control) setting, which improves the brightness of the picture whilst not increasing the digital noise level. This function will not brighten images that are naturally dark, instead focusing on increasing brightness on lighter objects, thereby increasing contrast.

New Real Black Creation Technology.
This helps to increase the richness of black and dark colours in dark environments, giving contrast ratios of up to 10,000:1. This helps prevent black areas of the screen from appearing grey and helps minimise pre-loading flashing by 30%.

Daylight Contrast.
This has been improved by adding a deep black filter which restricts the transparency and dramatically reduces the reflections from environmental lights, producing a contrast ratio of 400:1 in daylight conditions.

Screen Saver.
To increase the lifetime of the plasma displays, Panasonic has employed various screen saving techniques such as operating and shut-off times, a white scroll bar, colour inversion, wobbling and peak value correction. The scroll bar utilises a white vertical bar which moves from left to right across the screen at set intervals. This setting is ideal for long term static images and can be timed to activate out of hours.

Colour Inversion.
Users can specify out of hours times for the screen to invert the colours, negating the effects of burn in and increasing the life cycle of the product.

Wobbling.
Static images can be automatically moved in a clockwise direction, pixel by pixel, so that an image does not stay in exactly the same position for long periods. There are two values for this setting.

Peak Value Correction.
For lighter images, this setting will reduce the peak brightness of the screen by up to 30%, ideal for light text on a dark background.

MPD Noise Reduction.
The Panasonic MPD Noise Reduction setting is a facility to reduce noise from fast moving images such as sports events etc... The noise and distortion created by fast moving images is drastically reduced creating crisp and sharp images at all times.

A weekly timer is included which allows the user to confirm switch on time and switch off time at specific times for each individual day of the week.

This requires no additional hardware or communications from the media players, however remote communications with players is also achievable using the built in serial port on each screen. The Black Box range of distribution systems can also support serial communication between the player and the screen.

The Panasonic range of Plasma screens have three option slots in the bottom. These option slots allow interface modules to be added as required. Option Slot 1 comes with a Composite Video and S-Video plus Audio board already pre installed. Each screen also contains a VGA interface, ideal for Digital Signage solutions. Option Slots 2 and 3 come with a blanking plate.

There are a range of options available including further VGA Input Interfaces, further Composite and S-Video Interfaces, Component Video, HDMI, DVI, a SCART Interface, a TV Tuner board which takes up slots 2 and 3 only, and a Wireless Presentation Board supporting IEEE 802.11 b/g which also includes a Component Video and Audio Interface which can be mounted into either Slots 1 and 2 or into Slots 2 and 3. All the other boards can be mounted into any spare slots.

TECH SPECS

Screen Diagonal — DSSP42: 42" (1,055mm); DSSP50: 50" (1,269mm); DSSP58: 58" (1,476mm)
Effective (W x H) — DSSP42: 920 x 518mm; DSSP50: 1,106 x 622mm; DSSP58: 1,287 x 723mm
Aspect Ratio — 16:9
Resolution — DSSP42: 1,024 x 768; DSSP50, DSSP58: 1,366 x 768
Contrast Ratio — 10,000:1
Contrast Ratio (Daylight) — 400:1
Viewing Angle — Horizontal: 160 degrees; vertical 160 degrees
Video Compatibility — NTSC, PAL, SECAM, PAL 60Hz, M-NTSC
Audio Output — 16 W (8W x 2)
RGB/component — 1 x D-sub HD 15-pin (fH: 15kHz-110 kHz; fV: 48-120 Hz): Plug and Play (VESA DDC 2B)
Audio L/R IN (PC) — 1 x 3.5mm mini-jack (L/R)
Serial RS-232C — 1 x D-Sub 9-pin
Slot One (Standard) — 1 x BNC (Composite)/1 x Mini-DIN 4-pin (S-Video), 2 x RCA (L/R)
Slot Two & Three — Optional - see page 16
Power Supply — 220/240 V AC, 50/60Hz
Power Consumption — DSSP42: 365W; DSSP50: 485W, DSSP58: 630W
Weight — DSSP42: 26kg; DSSP50: 36kg, DSSP58: 54kg
Dimensions — DSSP42: 1,020(W) x 610(H) x 89(D)mm; DSSP50: 1,210(W) x 724(H) x 95(D)mm; DSSP58: 1,399(W) x 843(H) x 99(D)mm
Ambient Temperature — 0 to 40°C
Humidity — 20 - 80 percent (non-condensing)
Accesories Included — Infrared remote control including batteries, 2 x cable connectors, mains cable, operating manual

Item	Code	Price
Panasonic Screens		
42" Panasonic HD Screen	DSSP42	£899.00
50" Panasonic HD Screen	DSSP50	£1,499.00
58" Panasonic HD Screen	DSSP58	£3,199.00
Speakers for Panasonic Screens		
Speakers for 42" Panasonic HD Screen (DSSP42)	DSSP42SP	£235.00
Speakers for 50" Panasonic HD Screen (DSSP50)	DSSP50SP	CALL
Speakers for 58" Panasonic HD Screen (DSSP58)	DSSP58SP	CALL

* All speakers are Dual, 8 Watts per channel, designed to compliment the Panasonic Plasma range of screens. Supplied with all the brackets, screws and cables to attach the speakers to the screens.

Envisioning a better way to reach customers or an audience?

Replacing traditional billboards, point-of-sale displays, scoreboards, and other "static" signage, LED screens are fast become the norm for out-of-doors advertising and information boards.

Whether it is at an airport or rock concert, shopping centre or sports stadium, we will all have seen LED screens at some stage or another. Their impact and potential for attracting attention cannot go unnoticed. In places like Times Square or Piccadilly Circus they've even become tourist attractions.

At present there are two types of LED screens — discrete and SMD (Surface Mounted Devices). In both types the screens are made up of thousands of tiny LEDs (Light-emitting Diodes) although SMDs are usually set closer together than discrete displays, giving a sharper image, making them more suitable for indoor use. These screens can take on almost any size or shape, from a stock exchange wallboard to outdoor film festivals. They've even been known to form concave or convex shapes giving an almost 3-Dimensional feel to the content they are displaying; or move around and break apart to create stunning and eye-catching visual effects. In fact you are only really limited by your imagination and the space you have available!

The famous LED screens of New York's Times Square.

What are the advantages of LED screens?

The use of screens to display public information, advertising, live sports/music events etc. continues to grow and LED screens are just an extension of this. However they do have significant advantages over other types of screens (such as LCDs or Plasma), particularly for outdoor use.

- Brighter displays — LEDs emit more light than conventional screens making them ideal for outdoor use — they can even be seen in direct sunlight.
- Energy efficient — LEDs produce more light per watt than traditonal screeens making them cheaper to run and more environmentally friendly.
- Longer life — LEDs can last for up to 50,000 hours, compared to up to 25,000 hours for Plasma screens, making them ideal for use in digital signage applications where screens can be on 24 hours a day.
- Cost Effective — LED screens are often used in place of billboards or other advertising space, and can all be managed from one single location. No need to visit every site to change adverts, they can now be changed remotely using our digital signage and remote management software. The higher cost of the initial outlay is soon recovered with the vast reduction of management costs.
- Flexible — As LEDs come in various shapes and sizes they can be pieced together to form different effects, such as curves or strips, creating stunning visual effects.
- Lightweight — LED displays are surprisingly light and are often made up of smaller panels combined to make one big screen. This means they can be moved about with relative ease.
- Manageable — LED screens also give advertisers far greater flexibility than tradtional billboards etc. They can run individual campaigns, on individual screens, in different places, at different times of day, making it easier to target your adverts or information to specific audiences. Displaying different adverts can also increase revenue as now hundreds of adverts can replace just one! This makes them absolutely ideal for narrowcasting. *See our Digital Signage guide and/or website for more information on management and extension*.
- Size — The sheer size of LED screens means that you can achieve maximum impact from huge distances. These LED screens can be scaled to fit almost any size of display required.
- Hard wearing and durable — perfect for outdoor use in all weathers, they've even been used for ceilings and floors!

BLACK BOX
NETWORK SERVICES

What is an LED screen?

An LED screen is a display for showing visual information, similar to an LCD or Plasma screen, although usually on a much larger scale and often outdoors. However, where they differ to LCD or Plasma screens is that each pixel on the screen is made up of a cluster of tiny red, green and blue (RGB) LEDs which light up to make the correct colour. These LEDs shine much brighter than a conventional display meaning they can be seen from further away and are ideal for use outdoors as they can still be seen in direct sunlight.

What does an LED screen cost?

The cost of an LED screen will depend on it's size and application as it's a project based modular system. However as the technology advances and becomes more common, not only does it increase in quality but also reduces in price. As these screens can become a great revenue generater in themselves, the initial outlay can be recouped quite quickly. *Contact us for a quote today!*

What can an LED screen display?

Providing you have the right inputs, an LED screen can display any static or moving content that you would be able to show on an LCD or Plasma display, such as digital signage, live video broadcasts or just basic static images. However becasue of the unique way the screens can be configured, they are even more flexible than traditional displays in the shapes and effects they can produce — the only limitation is on your imagination!

Who can install it?

Because Black Box offer a complete service from design and planing right through to installation and maintenance we are able to offer the complete solution — all from one single point of contact. Not only that, but as part of the service, we will come to site to replace any parts of your screen, in the unlikely event they go wrong, within 24 hours. Combine your displays with our digital signage and extension products, and control all of your advertising or information displays from one single location — anywhere in the world!

Where can I put an LED screen?

Whilst there are no real limitations, most LED displays are sited out-of-doors, primarily due to their sheer size. However they are also becoming more commonly sited indoors too, particularly as the quality of SMD displays increases. Factors such as local planning requirments, site access, space, power and data availability, and suitability of site may all have to be taken into account when choosing your location. Black Box will carry out a full FREE site survey* to help determine your requirements and find a suitable solution. Some example uses include:

- Sports stadia & events
- Concert venues
- Exhibition & conference halls
- Road Signs & directions
- Train & bus stations
- Petrol & service stations
- Shopping centres
- Hospitals & health centres
- Bars & restaurants
- Amusement parks

- Outdoor advertising
- Stock exchanges
- Office signs
- Aiports
- Taxi ranks
- Health clubs & gyms
- Leisure complexes
- Casinos
- City Centres

For more information on LED screens or any other digital signage products, please contact us.

* FREE site survey, subject to terms and conditions. Speak to us for more information.

Panasonic Plasma Screens with built-in PCs

The invisible hardened PC, in the display.

Brand new product

- High-performance processors for demanding applications.
- Designed for 24/7 operation.
- Powered from the display.
- Optimal signal quality through direct digital connection.
- Wide variety of interfaces (LAN, USB, Audio & RS-232).
- Operating systems can be installed individually.
- Space-saving with a whisper-quiet fan.

The high-performance internal PCs can be easily installed in the displays and offer the advantage of an all-in-one solution. The PC insert reduces the cabling and is integrated into the display to save space. Without the need to connect external PCs, and with the software installed, it enables you to have a complete digital signage solution in one; and using our SWEP remote management software, control all of your content from a single location. The PCs are sold separately so can be inserted into an existing Panasonic display, or can be ordered at the same time as a screen and arrive pre-installed (if specified).

These Panasonic screens and built-in PCs have been designed for 24/7 use in a commercial environment, making them ideal for digital signage.

TECH SPECS

Processor — Intel ULV Pentium Celeron Processor 1000 MHz
Size Function Board — 2-Slot
RAM — DDR SO-DIMM 512Mb
Storage Drive — 2.5" 40GB IDE HDD & Compact Flash Interface
Network — 10/100 BASE-T LAN x 1 w/status LED
Graphics Chipset — Max. 15W power consumption Intel 82855 GME/ICH4 Chipset

COM Ports — Built-in
USB Ports — (2) USB 2.0
Dimensions - 3.2 (H) x 20.3 (W) x 12.5 (D) cm
Fans — (2) Low-speed fans - Low noise
Status LEDs — Power & HDD Status LEDs
Reset Button — Available
Audio Interface — (3) 3.5mm Jack connectors: Line In, Line Out & Mic
Operating System — Windows XP

Item	Code	Price
First choose your display from page 15...		
...then order your built-in PC...		
Panasonic built-in PC		
	DSP6	£1,295.00

Use these built-in PCs with our Digital Signage software (pg 5) for a complete all-in-one solution.

NEC Screens with Built-in PCs

A complete PC solution, compatible with all our NEC screens that have an option slot.

Brand new product

- 1.66 GHz Core Duo.
- Fully integrated solution — no cabling.
- Additional DVI-I output slot to drive a second display.
- ExpressCard slot for the use of WLAN, UMTS, DVB-T etc.
- Compatible with DSS40, DSS46, DSS40HD and DSS46HD.
- 3 year warranty.

The new DSP5 media player from Black Box provides an incredibly easy to use system for digital signage by plugging directly into any NEC screen that has an options slot.

Tried and tested with our software solutions, these internal PCs provide all the power you need to run attractive and media rich content wherever a screen can be hung.

By utilising the internal PCs, a single mains lead into the screen is all that is required to power up and use a screen for digital signage. Content can be uploaded by either Ethernet, USB or Express Card so regularly updating content is not an issue.

This enables screens to be located anywhere in the building as long as power is available.

Each Internal PC has an Ethernet port (RJ-45 – 10 / 100 Mbps), 3 x USB 2.0 ports, an Express Card slot, and a DVI-I connector for external screen connections.

The Internal Pc's feature a 1.66 MHz dual core processor with 512 MB of RAM and a built-in 40 GB hard drive. The graphics chip is an integrated 3D Intel processor, with up to 224MB of VRAM.

The units come complete with Microsoft Windows XP embedded onto the device, and also support analogue stereo audio via a 3.5mm jack socket.

The Internal PCs are compatible with the following NEC screens: DSS40, DSS46, DSS40HD and DSS46HD.

TECH SPECS

Processor — 1.66GHz Core Duo
RAM — 512MB
HDD — 40GB, 2.5"
Graphics (board) — Intel, up to 224 VRAM, integrated 3D
Interfaces — (3) USB 2.0, (1) ExpressCard Slot 54mm, (1) DVI-I Output, (1) RJ-45 10/100 Mbps
Operating System — Windows XP
Operating Temperature — 5 to 35°C

Optimum Resolution — 1920 x 1080 @ 60 Hz, 1360 x 768 @ 60 Hz
Other resolutions — 1280 x 720 @ 60 Hz, 1024 x 768 @ 60 Hz, 800 x 600 @ 60 Hz
Power Consumption (CPU 100%) — 36W
Audio — Analogue stereo, output via 3.5-mm jack on screen
RS-232 — via internal connector to public display
Weight — 1.5 kg

Item	Code	Price
First choose your compatible display...		
NEC 40" HD Ready display		
	DSS40	£1,699.00
NEC 46" HD Ready display		
	DSS46	£2,449.00
NEC 40" MULTEOS Full HD display		
	DSS40HD	£1,999.00
NEC 46" MULTEOS Full HD display		
	DSS46HD	£2,599.00
...then order your built-in PC		
NEC built-in PC	DSP5	£1,495.00

Park High School

Requirement

Black Box Network Services were asked to provide assistance to Park High School in Greater London who required a digital signage solution. The school requested a way of broadcasting useful information to key areas on campus. Black Box attended site and carried out a full survey to ascertain the requirements, to determine the physical structure of the building, the provision of power and CAT5e cable points.

Solution

The building required power and a CAT5e cabling infrastructure to be installed at each desired screen location. This included all containment, back boxes, patch panels and mains outlets.

The Black Box Media Player 2 was chosen for its ability to mix media types and its ease of use. It allowed internal staff to manage the players from any location around the school and to remotely update and change the content each user had individual access rights for. One unit was placed in the comms room to provide content to all the screens in the main building, and another was placed in the 6th form area, allowing separate content to be displayed if required, including terrestrial and satellite TV. Both players were networked to enable management to take place from anywhere in the building. This enabled the receptionist to be able to update welcome messages for visitors, whilst the canteen staff could update information for the menu. Various other members of staff could also change individual sections of content.

An eight port Video Distribution System (AC156A-8 Local Unit with 7 x AC158A-REM Remote units) was chosen for its reliability and proven track record within the signage market place. This made full use of the CAT5e cabling installed and required only a single power socket in the comms room.

Each of the remote units placed at the rear of the screens was powered from the local distribution unit itself. This minimised the number of mains sockets required at each screen location, and also helped to minimise installation costs.

The remote units were small enough to be mounted easily onto the rear panel of each screen and included the ability to adjust the picture.

The screens chosen were NEC LCD screens for the smaller sizes and Panasonic Plasma screens for the larger sizes required.

Three 32" NEC LCD panels were mounted in reception and in the canteen corridor, chosen for their brightly lit displays and their convenient size for narrow corridors.

Two 40" NEC LCD panels were mounted in the 6th form common room and also in the foyer area, providing a larger display for the slightly larger areas.

A 50" and a 58" Panasonic Plasma screen were installed into the main hall area, and chosen for their ability to reach the wider audience and also for their cost effective sizes.

The solution was chosen above all other by Park High School for two reasons:

Ease of use - The staff are able to manage the unit without the need for external consultancy.

Price - The equipment chosen for this requirement gave a high quality display, but minimised the costs required for installation and therefore reduced overall costs for this project.

> **"** *Black Box provided an exemplary service, visiting the school when required and recommending the appropriate system for the school, not necessarily the most expensive. Their staff were very knowledgeable, helpful and answered all of my questions thoroughly. Staff and students at the school are very impressed with the digital signage system and I have already recommended Black Box to colleagues in other schools.* **"**
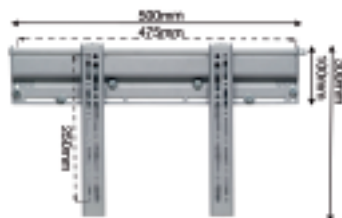>
> Nick Simper - Network Manager, Park High School

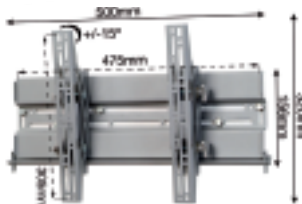## Flat Screen Wall Mount

35kg
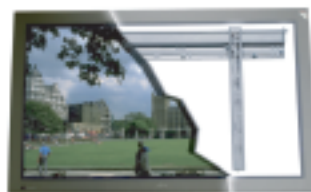*Maximum Weight*

37"
94cm
Maximum Screen Size

*Suitable for use with DSS32

- Suitable for screens between 22" and 37".
- Simple 'hook-on' installation.
- Mounts screen only 30mm from wall.
- Maximum distance between mounting holes: Vertical 250mm/ Horizontal 475mm.
- Compatible with VESA 200mm x 200mm, 200mm x 100mm, 100 x 100mm and 75mm x 75mm.
- Universal mounting kit included.
- Suitable for concrete/brick or stud walls up to 16".
- Includes locking bar for secure installation.
- Simple installation with all mounting hardware included.

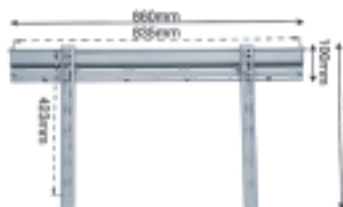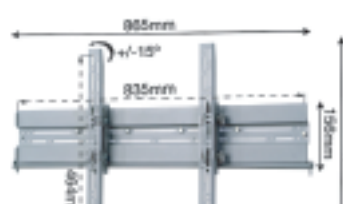| Item	Code	Price
Flat Screen Wall Mount	DSBT8421	**£30.00**

Large Flat Screen Wall Mount

70kg
Maximum Weight

61"
155cm
Maximum Screen Size

* Suitable for use with DSS40, DSS40HD, DSS46, DSS46HD, DSSP50, DSS57 & DSSP58

- Suitable for screens between 37" and 61".
- Simple 'hook-on' installation.
- Mounts screen only 30mm from wall.
- Maximum distance between mounting holes: Vertical 250mm/ Horizontal 475mm.
- Compatible with VESA 200mm x 200mm, 200mm x 100mm, 100 x 100mm and 75mm x 75mm.
- Universal mounting kit included.
- Suitable for concrete/brick or stud walls up to 16".
- Includes locking bar for secure installation.
- Simple installation with all mounting hardware included.

Item	Code	Price
Large Flat Screen Wall Mount	DSBT8422	**£45.00**

Flat Screen Wall Mount With Tilt

15°
15°
Tilt Range

35kg
Maximum Weight

37"
94cm
Maximum Screen Size

*Suitable for use with DSS32

- Suitable for screens between 22" and 37".
- Simple 'hook-on' installation.
- Mounts screen only 80mm from wall.
- Tilts +/-15º up or down.
- Maximum distance between mounting holes: Vertical 305mm/ Horizontal 475mm.
- Compatible with VESA 200mm x 200mm, 200mm x 100mm, 100 x 100mm and 75mm x 75mm.
- Universal mounting kit included.
- Suitable for concrete/brick or stud walls up to 16".
- Includes locking bar for secure installation.
- Simple installation with all mounting hardware included.

Item	Code	Price
Flat Screen Wall Mount With Tilt	DSBT8431	**£55.00**

Large Flat Screen Wall Mount With Tilt

15°
15°
Tilt Range

70kg
Maximum Weight

61"
155cm
Maximum Screen Size

*Suitable for use with DSS40, DSS40HD, DSS46, DSS46HD, DSSP50, DSS57 & DSSP58

- Suitable for screens between 37" and 61".
- Simple 'hook-on' installation.
- Mounts screen only 80mm from wall.
- Tilts +/-15º up or down.
- Maximum distance between mounting holes: Vertical 305mm/ Horizontal 475mm.
- Compatible with VESA 200mm x 200mm, 200mm x 100mm, 100 x 100mm and 75mm x 75mm.
- Universal mounting kit included.
- Suitable for concrete/brick or stud walls up to 16".
- Includes locking bar for secure installation.
- Simple installation with all mounting hardware included.

Item	Code	Price
Large Flat Screen Wall Mount With Tilt	DSBT8432	**£70.00**

Medium Flat Screen Wall Mount With Double Arm Extension

15°/15° Tilt Range

25kg Maximum Weight

Compatible with Collars

180° Swivel Range

32" 81cm Maximum Screen Size

*Suitable for use with DSS32

- Double arm for maximum swivel.
- Tilts +/-15º up or down.
- Mounts screen from 110mm - 525mm from wall.
- Fits 75mm x 75mm, 100mm x 100mm and 100mm x 200mm VESA mounting patterns.
- Allows 360º rotation of screen in any direction to display screen in landscape or portrait style.
- Simple installation with all mounting hardware included.

Item	Code	Price
Medium Flat Screen Wall Mount With Double Arm Extension	DSBT7515	**£75.00**

Heavy Duty Large Flat Screen Wall Mount Dual Arm - Package

15°/15° Tilt Range

70kg Maximum Weight

180° Swivel Range

60" 153cm Maximum Screen Size

* Suitable for use with DSS40, DSS40HD, DSS46, DSS46HD, DSSP50, DSS57 & DSSP58

- Can be folded flat to the wall.
- Tilts +/-15º up or down.
- Mounts screen from 160mm - 800mm from wall.
- Double arm for maximum swivel.
- Allows screen to be mounted in landscape or portrait style.
- Designed for concrete, brick and 16" (410mm) stud walls.
- Choice of 5 arm mounting positions on wall plate.
- Locking security screws included.

Item	Code	Price
Heavy Duty Large Flat Screen Wall Mount Dual Arm - Package	DSBT8412	**£250.00**

Freestanding Display Mount Kit
Ideal for areas where screens can't be wall mounted.

- Large floorstand for use with large flat screens up to 50".
- Can be used floorstanding or bolted to the floor.
- Ideal for areas where screens can't be wall mounted.
- Maximum recommended screen size and weight when used freestanding at maximum height: 50" / 70kg.
- Screen size and weight may be larger if bolted to the floor.

Kit consists of

(1) Large Floor Base, (2) Collars and (1) Mounting Plate

(1) Flat Screen Mount

(2) 1.5m Pole Supports

70kg Maximum Weight

50" 127cm Maximum Screen Size

* Suitable for use with DSS40, DSS40HD, DSS46, DSS46HD &DSSP50

Item	Code	Price
Freestanding Display Mount Kit	DSBT4002	**£395.00**

HDMI Extender
Place your HDMI display up to 130 feet away!

- Extend your HDMI LCD or plasma display connection up to 130 feet (39.6 m) or 65 feet (19.8 m) on each side of this digital signal booster.
- Corrects the signal degradation that occurs in long HDMI cable runs.
- Eliminates pixelation, sparkles, and the loss of video and audio that happens with HDMI cable connections longer than 15 feet (4.6 m).
- Offers high-quality resolutions of 720p or 1366 x 768.
- Provides up to 2.5 times the gain on the input to compensate for cable loss.
- Backward compatible with DVI (with adapter).
- HDCP compliant.

TECH SPECS

Bandwidth (Maximum) — 1.65 Gbps
Compliance — Passthrough with HDCP 1.1 and 1.0
Distance — 130 feet total (39.6 m), 65 feet (19.8 m) on each side with HDMI cables
Resolution — PC: VGA to S-XGA 1280 x 1024; HDTV: 480i to 720p
Indicators — (1) Power LED
Power — 100–240 VAC, 50–60 Hz external adapter
Size — 2.8"H x 3"W x 1.3"D (7.1 x 7.6 x 3.3 cm)
Weight — 0.5 kg

Item	Code	Price
HDMI Extender	AC550A	**£91.00**

3-to-1 HDMI Switch with Remote
Connect three high-definition devices to your HDTV.

- Send HDMI signals from three different HDMI devices to your HDTV.
- Use with digital HD receivers, HD DVD players, and even legacy analogue DVD players with the PC Video/Component Video to HDMI Converter with Audio (AC551A) on the facing page.
- Push the front-banel booster button to drive signals up to 10 m over HDMI cable.
- Built-in automatic equalisers compensate for losses in long cable runs.
- Switch via a front-panel button or a remote control.
- LEDs indicate device selection.
- 1.65-Gbps bandwidth provides sharp digital images.

- Supports HD resolutions to 1080p and PC resolutions to 1600 x 1200.
- Easy plug-and-play installation.

TECH SPECS

Bandwidth (Maximum) — 1.65 Gbps
Compliance — HDMI 1.1, HDCP 1.1, DVI 1.0
Component Video (Y-Pb-Pr) Resolution — 480i, 576i, 576p, 720p, 1080i, 1080p
Supported PC Resolutions — VGA, SVGA, XGA, SXGA, UXGA to 1600 x 1200
Power — 100–240 VAC, 50–60 Hz external adapter
Size — 1"H x 7.9"W x 4.1"D (2.5 x 20.1 x 10.4 cm)
Weight — 0.6 kg

Item	Code	Price
3-to-1 HDMI Switch with Remote	SW214A	**£180.00**

HDMI Splitters
Stream HDMI video and audio signals for display on two, four, or more HDTV screens!

TECH SPECS

Bandwidth (Maximum) — 1.65 Gbps
Component Video (Y-Pb-Pr) Resolution — 480i, 480p, 720p, 1080i
Compliance — HDMI 1.2, HDCP 1.1, DVI 1.0
Supported PC Resolutions — VGA, SVGA, XGA, SXGA
Connectors — Input: (1) HDMI F; Output: (2) or (4) HDMI F
Indicators — (1) Power LED
Power — Input: 100–240 VAC, 50–60 Hz, autosensing
Size — 0.9"H x 7.5"W x 3.75"D (2.3 x 19.1 x 9.5 cm)
Weight — 0.5 kg

NOTE: An adapter is required for DVI connections.

- Split HDMI audio and video signals for display on more than one HD LCD, plasma, or other High-Def screen.
- Drive signals as far as 40 feet (12.1 m).
- Send video from a DVD player, satellite receiver, digital recorder, or even a PC.
- Cascade up to three units for more outputs.
- The digital signals are buffered so uncompressed HD video and multichannel audio are reproduced without loss.

- The 1.65-Gbps bandwidth provides clear amplification of HDMI signals.
- Support HDTV resolutions up to 1080i and 720p.
- Compact design for use in crowded equipment rooms and A/V cabinets.
- Ideal for trade shows, conferences, training, and retail applications.
- Easy to set up with plug-and-play connections.

Item	Code	Price
HDMI Splitters		
2-Channel	AC552A-2	**£194.00**
4-Channel	AC552A-4	**£297.00**
For DVI connections, order…		
HDMI Male to DVI Male Adapter		
	FA790	**£10.99**

For a closer look…
see the Web, request datasheet: **26558**

PC Video/Component Video to HDMI Converter with Audio
View your PC or DVD video on a high-definition display.

- Use with HDMI plasma or LCD screens.
- Works with Component video and VGA video.
- Converts analogue VGA signals so you can display your PC's video on a HDMI screen.
- Also converts Component video Y-Pb-Pr signals from a legacy DVD player for a high-definition display.
- Simply flip a switch to choose between VGA or Component video conversion.
- Compliant with HDMI 1.0 specifications.
- Supports input resolutions of 1600 x 1200 @ 60 Hz for VGA or up to 1080p for Component video.

TECH SPECS

Audio Input — Stereo analogue line level Component Video (Y-Pb-Pr) Resolution — 480i @ 60 Hz; 576i @ 50 Hz; 576p @ 60 Hz; 720p @ 50, 60 Hz; 1080i @ 50, 60 Hz; 1080p @ 30, 50, 60 Hz
Supported PC Resolutions — PC resolutions: VGA, SVGA @ 60, 72, 75, 85 Hz; XGA @ 60, 70, 75, 85 Hz; SXGA @ 60, 75, 85 Hz; UXGA @ 60 Hz; 1152 @ 70, 75, 85 Hz; XGAi @ 87 Hz
Video Input — RGB @ 7.0 Vp-p; HV @ 5 Vp-p; Y@1 Vp-p; Pb-Pr @ 0.7 Vp-p
Power — External adapter, 100 –240 VAC, 50–60 Hz, 0.6 A, autosensing
Size — 1.2"H x 3"W x 4.2"D (3 x 7.6 x 10.6 cm)
Weight — 0.5 lb. (0.2 kg)

Item	Code	List Price
PC Video/Component Video to HDMI Converter with Audio	AC551A	**£204.00**

2-to-1 HDMI™ Switch
Switch between two HDMI™ sources for display on a single screen.

Brand new product

Use this easy-to-install, economically priced device for switching between more than one HDMI™ source (including DVD, HD-DVD, or Blu-ray players, your AV receiver, games console or satellite set-top box) for output to a single LCD or plasma screen, or an LCD projector.

- Supports 30-/36-/48-bit colour depth displays.
- Enables two High-Definition Multimedia Interface (HDMI™) sources to share one High-definition display.
- To select the desired source for display, just press a button.
- HDMI™ 1.3, HDCP 1.1, and DVI 1.0 compliant.
- Ideal for home cinema integration.
- For true multimedia, also supports high-end audio, including lossless Dolby® Digital TrueHD and DTS-HD surround sound, through the video/audio HDMI™ interface.
- Auto signal enhancement feature for improving the signal quality of long-distance transmissions.

TECH SPECS

Frequency Bandwidth — 2.25 Gbps (Single-link)
Resolution — PC: VGA, SVGA, XGA, SXGA, UXGA (1600 x 1200), 1920 x 1200; HDTV: 480i, 480p, 576i, 576p, 720p, 1080i, 1080p
User Control — (1) Input button
Connectors — Input: (2) HDMI™ Type A F; Output: (1) HDMI™ F (Single-link)
Indicators — (2) LEDs: (1) Power: On/Off; (1) Input: 1=Red, 2=Green
Power — 5 VDC, universal
Dimensions — 1.9(H) x 10(W) x 6.4(D) cm
Weight — 0.3 kg

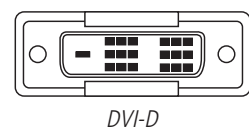| Item	Code	Price
2-to-1 HDMI Switch	SW215A	**£44.99**

DVI Extender Kit
Extend high-definition digital video up to 15 metres over shielded CAT5e cable.

- Great for digital signage applications where you need to economically link a server storing digital images to a remote flat-panel display.
- DVI-D interface ensures quality signaling between your high-performance video graphics card and your high-definition screen.
- Uses standard, shielded CAT5e cable for signal extension, so you can save on cabling costs.
- Transmits signals for 1080i or 720p HDTV video up to 10 metres at 1280 x 1024 resolution.
- Extends 480p video as far as 15 metres at 1024 x 768 resolution.
- Includes a transmitter and receiver.
- The transmitter connects to a PC or DVI output device.

TECH SPECS

Cable Requirements — 25 AWG CAT5e STP cable
Distance (Maximum) — 15 m
Connectors — Transmitter and receiver: (1) RJ-45, (1) DVI-D M
Indicators — LEDs: (1) orange indicates power; (1) green indicates active DVI-D M
Power — From the interface
Size — Transmitter: 0.75"H x 1.6"W x 2.6"D (1.9 x 4.1 x 6.6 cm); Receiver: 0.75"H x 1.6"W x 2"D (1.9 x 4.1 x 5.1 cm)

- The receiver connects to your DVI display, LCD or plasma screen, or projector.
- Compact design for connections in tight spaces, such as kiosk displays and A/V cabinets.
- LEDs show that power and active video signal are detected.
- No power supply is required.

Transmitter

Receiver

DVI-D

Item	Code	List Price
DVI Extender Kit	AC1035A	**£81.00**
*Includes (1) transmitter and (1) receiver		

VGA-RGBHV Cables
Our VGA-RGBHV cable is the definition of quality video.

- Attach a monitor with red, green, blue and horizontal and vertical sync inputs to a VGA port.

BNC

HD 15-Pin Male—VGA

Connect a high-definition graphics monitor to your CPU - and do it for a lot less than you would spend on a cable from anywhere else.

With VGA-RGBHV Cable, you'll get a high-quality cable for your high-resolution workstation. It's specially designed to match RGBHV impedance standards. The cable has
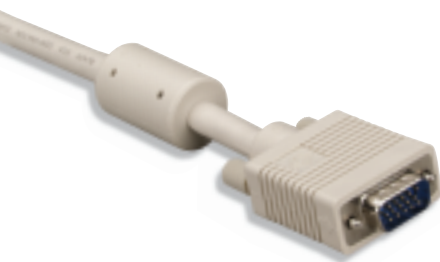
moulded BNC leads for strain relief plus woven shielding to block EMI/RFI for clear, noise-free video.

This cable also enables each horizontal and vertical sync signal to each be carried on a separate coax line.

Item	Code	Price
VGA-RGBHV Cables, (1) HD15 Male/(5) BNC, PVC		
0.9-m	EYRGBS4-0003	**£31.00**
1.5-m	EYRGBS4-0005	**£38.00**
3.0-m	EYRGBS4-0010	**£45.00**
4.5-m	EYRGBS4-0015	**£54.00**
6.0-m	EYRGBS4-0020	**£62.00**

VGA Video Cables with Ferrite Core
Premium cables for superior video transmissions.

- Pins 9 and 15 are enabled for compliance with Display Data Channel (DDC) standard.
- Double shielded to extend monitor signals.
- Connect your monitors to other video equipment for professional PC-based presentations.

Item	Female/Female	Male/Female	Male/Male	Price
VGA Video Cables with Ferrite Core				
0.9-m	EVNPS06-0003-FF	EVNPS06-0003-MF	EVNPS06-0003-MM	**£26.95**
1.5-m	EVNPS06-0005-FF	EVNPS06-0005-MF	EVNPS06-0005-MM	**£28.95**
3.0-m	EVNPS06-0010-FF	EVNPS06-0010-MF	EVNPS06-0010-MM	**£33.95**
6.0-m	EVNPS06-0020-FF	EVNPS06-0020-MF	EVNPS06-0020-MM	**£41.95**
7.6-m	EVNPS06-0025-FF	EVNPS06-0025-MF	EVNPS06-0025-MM	**£44.95**
15.2-m	EVNPS06-0050-FF	EVNPS06-0050-MF	EVNPS06-0050-MM	**£91.00**
22.8-m	EVNPS06-0075-FF	EVNPS06-0075-MF	EVNPS06-0075-MM	**£120.00**
30.4-m	EVNPS06-0100-FF	EVNPS06-0100-MF	EVNPS06-0100-MM	**£147.00**
Custom Lengths	EVNPS06-FF	EVNPS06-MF	EVNPS06-MM	**£40.00 + £4.00/m**

HD 15-Pin Male—VGA

Premium VGA Cables with Audio
The right cable for great audio and video performance.

HD 15-Pin Male — VGA
(Pins 9 and 15 have
been removed.)

- Now you can listen to great sound while viewing clear, high-resolution video.
- Colour coding makes connections easy.
- Features HD15 connectors with Pins 9 and 15 removed for video compatibility, and 3.5-mm audio connectors.

TECH SPECS
Cable Construction — Coax: 28 AWG tinned copper; Audio: 24 stranded copper
Distance (Maximum) — 30.4 m
Hood — Moulded with strain relief
Impedance — Coax: 75 ohms
Jacket — PVC
Shield — Inner: Aluminium foil/Mylar®; Outer: 93% coverage copper braid
Connectors — (2) HD15 M (13 pins); (2) 3.5-mm M stereo plug

Item	Code	Price
Premium VGA Cables with Audio,		
(2) HD15 Male/(2) 3.5-mm Male, PVC		
0.9-m	EVNPS09-0003	**£22.00**
1.5-m	EVNPS09-0005	**£24.00**
3.0-m	EVNPS09-0010	**£27.00**
4.5-m	EVNPS09-0015	**£30.00**
6.0-m	EVNPS09-0020	**£33.00**
7.6-m	EVNPS09-0025	**£36.00**
10.6-m	EVNPS09-0035	**£41.00**
15.2-m	EVNPS09-0050	**£52.00**
22.8-m	EVNPS09-0075	**£68.00**
30.4-m	EVNPS09-0100	**£82.00**

Don't forget... ... Black Box offers the complete solution from the design and estimation process right through to the installation, which will be project managed by Prince 2 trained project managers.

Premium HDMI™ Cables

Transmit your digital video and audio signals over one cable!

- Use to connect HDTV set-top boxes, digital TVs, DVD and Blu-Ray players, and other equipment with HDMI™ interfaces.
- Premium support for high-bandwidth compressed video and multichannel digital audio.
- Double shielding provides maximum performance and ensures clear video.
- All have matched impedance.

above: EVWHDMI01-001M

Item	Code	Price
Premium HDMI™ to HMDI™ Cable, PVC, Male/Male		
1-m	EVWHDMI01-001M	**£14.55**
2-m	EVWHDMI01-002M	**£16.85**
5-m	EVWHDMI01-005M	**£28.00**
7-m	EVWHDMI01-007M	**£34.00**
10-m	EVWHDMI01-010M	**£40.00**
15-m	EVWHDMI01-015M	**£60.00**
Premium HDMI™ to DVI Cable, PVC, Male/Male		
2-m	EVWHDMI02-002M	**£15.75**
3-m	EVWHDMI02-003M	**£19.75**
5-m	EVWHDMI02-005M	**£26.85**
7-m	EVWHDMI02-007M	**£34.00**
10-m	EVWHDMI02-010M	**£40.00**
15-m	EVWHDMI02-015M	**£60.00**

DisplayPort™ Cables

Tomorrow's high-definition connection standard — today!

Brand New Technology

- Carry video, audio and data over a single cable!
- Simple plug-and-play.
- Supports resolutions of up to 2560 x 1600 over a 3m cable, or 1920 x 1080 over 15m!
- Reduced RFI.

Item	Code	Price
DisplayPort™ Cable, PVC, Male/Male		
1-m	EVDP01-001M	**£30.00**
2-m	EVDP01-002M	**£35.00**
3-m	EVDP01-003M	**£40.00**

Black Box Explains

DisplayPort™.

DisplayPort™ is a new digital interface standard whose primary use is to connect a computer with a display. It consists of uni-directional Main Link for transporting A/V streams, a half-duplex bi-directional AUX CH for plug-and-play, and Hot Plug Detect (HPD). It is expected to replace DVI and eventually analogue VGA.

Although much smaller than a DVI connector, the initial revision of DisplayPort™ v1.1a doubles the capability of a single channel DVI and can deliver up to 10.8Gbps of data.

Around the same size as a USB connector, DisplayPort™uses the same number of connections as a single channel DVI connector,

but firmly locks into position. A quick release button is positioned on the top of the connector allowing easy removal of the cable when required.

DisplayPort™ replaces the connections between the PC and any associated monitor, but it also does more than that. It can be used to replace the low voltage differential signalling (LVDS) that is common inside laptops, displays and TV's. This eases and simplifies the design of such devices.

All types of displays are supported by DisplayPort™ including legacy CRT monitors, TFT LCD panels, Plasma and LCD displays and by using DisplayPort™adaptors, connection is possible directly to DVI, VGA and HDMI.

Physical

Physically the compact DisplayPort™ connector is fairly similar to HDMI in both size and appearance. It only has one angled corner as opposed to HDMI's two. It contains 20 pins for external connectors and 32 pins for internal connections.

Performance

DisplayPort™ cables can be used up to a maximum of 15m (supporting video up to 1080p at 24bpp, 50/60 Hz). At 3m, cables will support a maximum of 10.8 Gbit/s data rate, video resolutions of 2560 x 1600 and 8-channel uncompressed audio.

Video formats and interfaces.

Today's video formats fall into two broad categories: those designed for broadcast video/television systems and those designed for computer graphics.

The design requirements for these categories differ. Broadcast and television video formats must limit the transmission bandwidth required for the signal. Computer graphics formats, in contrast, are far less restricted in bandwidth, but they must deliver a picture suitable for viewing from very short distances.

We'll explain many of today's different video formats that fall into these two categories.

Broadcast/television video formats

Composite video is very familiar to most of us. It's the analogue television signal before modulation onto an RF carrier and is the standard that connects most consumer video equipment, including VCRs, camcorders, security cameras and DVD players.

RCA cable

As its name suggests, Composite video has the luminance (black and white), chrominance (colour) and sync pulses combined in one signal. When developed, Composite video was designed to work with both colour and black-and-white TV signals. This backwards compatibility ensured a smooth transition between the two formats in the 1950s. Black-and-white TV sets were able to ignore the colour component while newer sets separated it out and displayed it with the luminance information.

Although this format solved the problem of backward compatibility at the time, by today's standards, Composite video doesn't project a very sharp picture. Because all the video

4
C Signal
2
C Ground
3
Y Signal
1
Y Ground

S-Video (Y/C) (4-Pin mini DIN)

components are transmitted together, they can interact with each other and cause picture defects like dot crawl and colour smear.

Y/C video (also often called **S-Video**) was introduced in the 1980s to overcome some of the shortfalls associated with Composite video. It's a less encoded video format. Colour (C) and luminance (Y) information are transmitted separately to produce a sharper picture image on the display device.
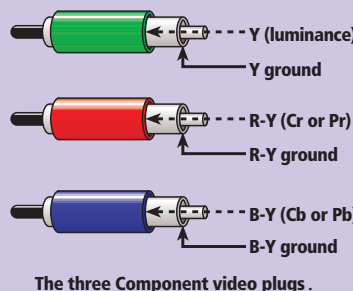
Most video equipment with an S-Video connector also has a Composite video connector. When connecting devices together that support both interfaces, it's best to use the S-Video connector because it will generally give you a sharper picture.

Component video (YCbCr) separates the signal to an even greater extent than S-Video, further reducing the chance of interference and, as a result, improving picture quality. Component video separates colour information into two colour difference signals: B-Y (Blue minus luminance, also called Cb or Pb) and R-Y (Red minus luminance, also called Cr or Pr). These along with Y (luminance) result in a total of three signals.

Y (luminance)
Y ground
R-Y (Cr or Pr)
R-Y ground
B-Y (Cb or Pb)
B-Y ground
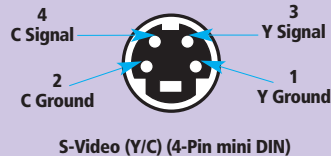
The three Component video plugs.

You can find Component video on some DVD players and TV receivers, displaying the very high quality images permitted by DVDs to their best advantage.

Broadcast video signal standards

In addition to the video formats discussed above, there have also been more than a dozen different broadcast standards in use at different times throughout the world. Today, most countries use one of three standards. These standards aren't compatible, which means that when connecting video equipment, you not only need them to support the same video format but also the same broadcast signal standard.

Here's a brief summary of the standards:

NTSC (National Television Systems Committee) standard systems are used primarily in North and Central American countries, most South America countries and Japan.

The technical format of NTSC is 480 viewable lines per frame with a 30 frames per second refresh rate. The 30 frames consist of 60 fields, the timing of which is based on the 60-Hz electrical system used in these countries. One field is one-half (every other line) of the interlaced frame. Other countries use a 50-Hz electrical system, which means their television systems are based on 50 fields per second rates.

PAL (Phase Alternation Line), developed in Germany, is the European equivalent of NTSC and offers 576 viewable lines per frame. The refresh rate is 25 frames per second based on 50 fields per second because it uses the European 50-Hz electrical system. Compared to NTSC, PAL has a greater number of lines. This adds detail to the picture, but PAL's 50 fields per second rate (when compared with NTSC's 60 fields per second rate), means a greater chance of noticeable flicker.

SECAM (Séquential Couleur à Mémoire) is very similar to PAL with the same number of lines and same frame rate. It was developed in France and is also used in Russia, parts of Africa and Eastern Europe. Despite the similarities of the two standards, SECAM is not compatible with PAL because, unlike PAL, the chrominance is FM modulated.

HDTV (High-Definition Television), a very high quality digital broadcast television standard, is the long-awaited, next-generation solution to replace analogue TV formats like NTSC and PAL.

HDTV delivers much clearer, sharper images with 720 or 1080 lines of resolution compared to the 625 lines of PAL, but requires the use of HD compatible television sets and receivers.

Computer graphics video formats

Television video signals, as we have seen, are typically combined together into a lower-bandwidth encoded signal like Composite video. In contrast, computer graphics signals don't have the same bandwidth restrictions and, therefore, keep the red, green and blue colour signals separate to allow higher-resolution pictures that are suitable for viewing from short distances.

There are many different analogue graphics video formats, all based on separate RGB signals but differing in the connector style used, how the sync information is transmitted, and what resolutions and refresh rates are supported. Care must be taken to select the correct display hardware for a particular video interface because differing formats are often incompatible and need active converters if they are to be interconnected. Some display technologies, such as DVI, provide digital video connectivity. This enables enhanced video quality but requires the use of digital display devices to realise this.

Here's an overview of computer graphic video formats, both old and new:

VGA based formats

The **VGA** (Video Graphics Array) graphics card from IBM, introduced in 1987, represented a huge improvement over EGA. With a horizontal scan rate of 31.5 KHz (from 24.1 KHz), VGA supports resolutions up to 640 x 480 with 256 colours. The video signal is analogue RGB with separate horizontal and vertical sync signals presented on an HD15 connector.

SVGA (Super Video Graphics Array), XGA (Extended Graphics Array) and later formats have continued the drive to provide ever sharper

images and greater colour depth. Meanwhile, VESA (Video Electronics Standards Association) standards have brought structure and interoperability to a market that was becoming a mixture of competing and often incompatible SVGA graphics cards.

VGA female

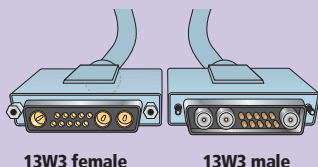Here's a comparison of maximum resolutions with the various VGA formats:

Format	Max. Resolution
VGA (Video Graphics Array)	640 x 480
SVGA (Super Video Graphics Array)	800 x 600
XGA (Extended Graphics Array)	1024 x 768
W-XGA (Wide Extended Graphics Array)	1366 x 768
SXGA (Super Extended Graphics Array)	1280 x 1024
UXGA (Ultra Extended Graphics Array)	1600 x 1200
W-UXGA, WUXGA (Wide Ultra Extended Graphics Array)	1920 x 1200

VESA also developed the **DDC** (Data Display Channel) standard, which has made VGA plug-and-play by defining a physical communication channel between the graphics card and monitor. This allows the graphics card to automatically select appropriate display settings using information from the display device.

Graphics cards supporting the SVGA standard and higher are usually capable of supporting a range of resolutions, allowing backwards compatibility with lower-resolution display technologies.

Connectors for Sun® systems

New Sun computers often have VGA graphics adaptors for interoperability with PC hardware, but older Sun machines have 13W3 video connectors that carry analogue red, green and blue signals with

13W3 female   13W3 male

composite sync (unlike VGA which uses separate sync signals). Multiple resolutions are supported and the resolution used is determined by ID bits that signal the monitor's capabilities to the interface.

Several other computer types also use 13W3 video connectors including IBM Power PCs and Silicon Graphics® computers, but the pinning of these connectors and the way the sync signals are transmitted differs between manufacturers.

DVI

DVI was created by the DDWG (Digital Display Working Group), with DVI 1.0 being realised in April 1999. DVI was created to accommodate both analogue and digital interfaces with a single connector. A single DVI link operates at up to 165 MHz, so the image can be displayed at 1920 x 1080 at 60 Hz on a digital flat-panel display. And with a dual-link channel, resolutions of 2560 x 1600 can be achieved.
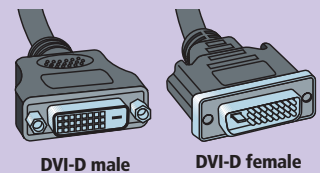
There are three DVI standards, and it's important to understand each when selecting DVI equipment and cables:

DVI-D—This digital-only interface provides a high-quality image and fast transfer rates. All signals from PCs are digital, so a purely digital video channel means no signal degradation is introduced though digital-to-analogue/analogue-to-digital conversions. This connector type is still relatively unusual because of the lack of backwards compatibility with analogue displays.

DVI-A—This high-resolution, analogue-only standard provides improvements over standard VGA formats, but because of the digital-to-analogue conversion process, does not deliver the picture quality of

Digital DVI. This connector type is very rarely found on equipment.

DVI-I—DVI-I supports either an analogue-to-analogue connection or a digital-to-digital connection and is the most common DVI connector currently in use. It can be used with adaptors to enable analogue connectivity to a VGA or DVI-I display or digital connectivity to a DVI-D display. You can achieve

DVI-D male   DVI-D female

the best picture quality by using a digital DVI display with a Digital DVI video source.

HDMI—High-Definition Multimedia Interface (HDMI) is the first digital interface to combine uncompressed high-definition video, multichannel audio, and intelligent format and command data in a single cable.

The HDMI standard was introduced in December 2002, and HDMI 1.2 was released in August 2005. HDMI is supported by many leading consumer electronics manufacturers, motion picture studios, cable providers and satellite services.

The HDMI connector is compact and is somewhat similar to a USB connector.

Use this serial interface to connect audio/video equipment, such as DVD players, a set-top box and A/V receivers with an audio and/or video monitor, such as digital TV over a single cable. HDMI works with standard, enhanced, and high-definition video. It has a bandwidth of up to 5 Gigabytes per second so it supports all HDTV standards and has bandwidth to spare for future applications.

What's more, HDMI is backward compatible with DVI equipment, such as PC's, TV's and other electronic devices using the DVI standard. The DVI device simply ignores the extra data.

HDMI offers significant benefits over older analogue AV connections. It provides superior video and audio clarity because there's no signal loss from digital-to-analogue conversions. It supports resolutions of 1920 x 1080 and multiple audio formats from standard stereo to multichannel surround sound. Plus, it provides two-way communication between the video source and the digital TV, enabling simple, remote, point-and-click configurations.

HDMI connector

HDMI is emerging as the connection standard for HDTV and the consumer electronics market. Because HDMI transmits all signals over one cable, it's quite desirable for home cinema electronics and systems. It greatly simplifies the installation of home entertainment systems by eliminating the tangle of cables running behind the system. It's also very cost effective because only one cable is needed.