ELECTROSONIC WORLD

Electronic Images, Video, Lighting, AV & Motion Picture Control

No. 9

The Power behind the Screen

At Coastal Banc in Texas an Electrosonic videowall helps speed the decision making process. See 'Conference Wall' on page 10.

This dynamic 60 screen videowall used Electrosonic image processing - see Thrills at IAAPA on Page 3

Electrosonic is the "Image Control" company.

Wherever big images or multiple images are to be seen, Electrosonic is found behind the screen processing or controlling the show.

The early part of 1998 saw Electrosonic with a new, highly focused management structure, augmented development and engineering teams operating on both sides of the Atlantic, and an exciting range of new products ready for launch. We now offer our worldwide customers three things; outstanding image processing and control products, carefully engineered audio visual and display solutions, and long term support service.

Systems Worldwide

When Electrosonic provides a complete solution for a customer, we engineer a system to meet their needs using the most appropriate technologies.

We are independent of any particular display technology or display company, so if your need is CRT, DLP™, LCD, ILA™, LED, plasma or piezo electric shutter we will supply (and tell you what the letters mean!).

Our solutions businesses are based in Dartford (UK), Los Angeles CA, Minneapolis MN, and Toronto, Ontario; and our worldwide customers are those who need audio visual and display systems in museums, theme parks, retail operations, visitor centers, marketing suites, high level business presentation spaces and control rooms.

Electrosonic installed an integrated AV system for Zurich Insurance at their new building near Portsmouth, UK. The system included AV facilities for three training rooms, a conference room and a reception area videowall.

VECTOR™ to set new standard

A new performance standard in videowall image processing is being set by the VECTOR™ series of image processors for videowall from Electrosonic.

Since the early 1990s Electrosonic's PICBLOC-3™ has been the leading videowall processor, known for its reliability, image quality, flexibility and ease of programming.

VECTOR builds on our experience to provide a new performance standard. VECTOR allows the mixing of multiple graphics and video sources on the display without compromising the video motion quality. Images can be resized and placed anywhere on the overall display without reference to screen boundaries.

The VECTOR image processor is supplied in a robust rack housing. One unit can be configured for up to 36 screens and 8 video or SVGA inputs.

Convolving and interpolation techniques ensure a "pixel-less" look to large images. Over the past three years Electrosonic has been conducting an extensive development program.

...continued on page 2

ELECTROSONIC WORLD

Editorial

This is the ninth issue of our bi-annual publication ELECTROSONIC WORLD.

If you count yourself a "regular reader", then you will find some changes in the emphasis of both the content of this paper, and the business focus of the Electrosonic Group.

Since the beginning of 1998 Electrosonic's position within the Helvar Merca Group has changed to being that of a direct subsidiary of the parent company.

This means that all Electrosonic's former lighting control interests are now managed by Helvar, and that Electrosonic concentrates on "image control", as an equipment manufacturer, as a total systems provider and as a support service provider.

The changes within the group are described in more detail on Page 5.

The decision to make the changes reflects, amongst other factors, today's need for businesses to become more focused, and the influence of new technologies.

Since the last issue of ELECTROSONIC WORLD many new technical developments have either come to maturity or have appeared on the horizon.

These include major developments in video projection, a tenfold (at least) drop in memory chip costs, and the cost effective realization of digital video techniques such as MPEG-2 and IEE1394.

To use a well-worn cliché, we are working at the leading edge in applying these new technologies, but in doing so we are concerned to ensure that our customers use the appropriate technology, not necessarily the latest.

Our aim is that the viewer sees the best possible display, and that our technical solutions are cost effective and practical for the user.

ELECTROSONIC WORLD plays an important part in this process.

By showing world wide examples of diverse applications it is intended to help the whole industry; manufacturers, service providers, specifiers, designers, systems integrators and end users.

We hope you find it useful, and would appreciate your comments.

Big Show News

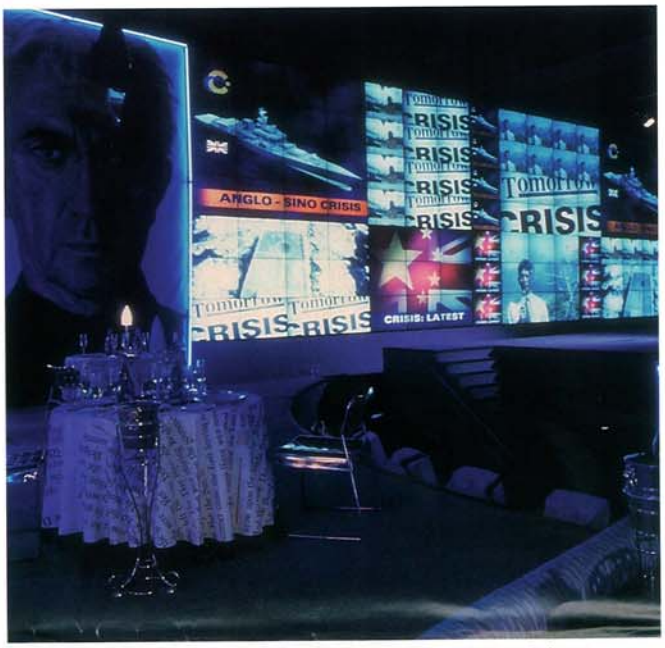
Not everyone needs a 100+ screen video display, but those who do appreciate Electrosonic's unrivalled experience in providing the means by which they can be achieved. These pages show some international examples and give more details of the new VECTOR™ processor.

Megalomaniac Videowall

"C-THROUGH+™ proved extremely flexible; many last minute changes were required and the quick reset times reduced delays. Although not the largest videowall Proquip has installed, the amount of control equipment and programming required made it one of the most complex."

The comments of Paul Sansom of Proquip Gearhouse, describing their work on the latest James Bond film.

Following the huge success of *Goldeneye*, Eon Productions once again used a giant videowall as a central feature of a film set. This time as a backdrop to scenes in *Tomorrow Never Dies* featuring Jonathan Pryce as a greedy media magnate whose intention is to manipulate the media to start World War III.



The 44ft wide videowall on the set of "Tomorrow Never Dies" used Electrosonic image processing and was installed by Proquip Gearhouse.

112 Cubes

The videowall was configured as a 16x7 array, measuring 13.5m x 4.4m (approx 44ft x 14ft) and used 112 Pioneer RMV2100 videowall cubes. Eight Electrosonic PICBLOC-3™ systems were used for image processing, and these were fed from a component matrix switcher to allow up to 32 separate sources to be programmed on to the wall.

The sources used include eight live cameras and eight hard disc video players. According to the film's director, Roger Spottiswoode, "The videowall proved much more dynamic than I had expected".

Although this example is fictional, the principle of using videowalls in decision spaces is now well established.

Vector

.....continued from Page 1

An early result was the completion of an exceptionally powerful image processor designated WORKSURFACE™. This is being used in prestige projects, usually where a limited number of high resolution displays (up to 1600x1200) are required.

The algorithms developed for WORKSURFACE have now been applied to the VECTOR™ range and other new products. The significant development is the perfection of an image convolver (or re-sizer) which allows the complete de-coupling of the "input" image from the "output" images without significant loss of temporal or spatial resolution.

The practical result is that VECTOR can be programmed to match the capabilities of all modular videowall display devices, from cost effective CRT projectors running at 15kHz up to the latest DLP™ digital projectors with 800x600 resolution.

At its input, VECTOR can process the equivalent of eight S-VGA images simultaneously, with any image appearing anywhere on the display at any required size.

In fact each input can range from 15kHz composite video up to S-VGA. Alternatively two S-VGA inputs can be "traded" for one HDTV or high resolution graphics input, using an alternative input card.

Inputs can be asynchronous, so for most applications no external timebase correction or synchronization equipment is needed to lock sources together. VECTOR's huge memory and sophisticated processing take care of the problem.

VECTOR is designed with the needs of professional staging, rental and systems integration companies in mind, combining exceptional image quality with the flexibility and ease of use associated with Electrosonic products.

VECTOR's stylish housing is designed for EMC and for practical installation. Each unit can accommodate one system manager card, four 2-channel input cards, nine 4-channel output cards. All external connectors are at the back.

A technical seminar at Electrosonic UK introducing key customers to the VECTOR concepts. The seminar demonstrated the use of many different display types, and the simultaneous presentation of HDTV, high resolution graphics and multiple video sources. A new version of C-THROUGH™ has been developed for VECTOR.

Electrosonic World

An occasional publication of:

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Electrosonic World is
© Electrosonic Ltd. 1998
Editor: Robert Simpson
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Yvonne Hegarty
Design: Carrington Caunter Ltd
Printed in England by Southernprint

website: www.electrosonic.com

169 Screens take the stage in Toronto

A composite photograph showing the opening session of the Nikken of North America Convention, October 1997. Electrosonic's Rental Support Division installed and operated the massive 169 screen video system. Photos by Martin Ranger.

When Nikken, a Japan based distributor of health and fitness products, held its first gathering of North American sales representatives, they wanted both to make a big splash and to ensure that participants walked away inspired.

Event producer Aidan Cosgrove of JST Productions decided that a HUGE multiscreen video system would be a great way to build up the necessary "wow" factor, and that Electrosonic's Rental Support Division were just the right people to make it happen.

The Nikken event took place in the ballroom of Toronto's Harbor Castle Westin Hotel.

When the "show" started there was only one single rear projection screen in the center of a very wide stage but after a brief preamble, black drapes were flown and the audience was stunned by an exciting video sequence presented on 118 videowall projection cubes, 40 28-inch video monitors and 11 large rear projection screens. The video display system had to achieve many things during the two day convention. Magnifying speakers' images during speeches and an awards ceremony; highlighting new products; playing motivational clips and providing set decor. It also served as interactive "wallpaper" for a gala Halloween Ball, where classic horror movies were intercut with live shots of costumed guests.

In Triplicate

The installation was extremely complex.

In theory it would have been possible to run the whole system from one computer. However, in the breakout sessions there was a requirement that the entire system worked as three independent systems because, for these sessions, the ballroom was divided into three.

This whole show required the use of six Electrosonic PICBLOC-3™ image processing racks and four control computers, one for each section of the ballroom and one master, running C-THROUGH™ software.

The Rental Support Division of Electrosonic Systems Inc is based in Toronto, Canada. Its goal is to help Electrosonic's professional customers, equipment rental houses, dealers, production companies and events planners serve their customers, and to provide an in-house facility where we can test out new display concepts and get hands-on experience of the "real world" requirements for our equipment.

While much of the videowall equipment for the Nikken event was provided from Electrosonic's own resources, it was necessary to co-ordinate the installation of a lot of other equipment, and to augment the division's staff. A crew of 22, working in two shifts, was needed to set up, operate and dismantle the system.

"It was incredible" said Nicholas Warden, who headed up the convention for Nikken. But Electrosonic likes doing incredible things.

Gala Videowalls in Montreal

Gala Metrostar '97 in Montreal, Canada, used PROCUBE™ videowalls as an integral part of the set.

Videowalls make a useful component of TV sets, especially when there is a live audience, for example for game shows, awards ceremonies, and concerts. Electrosonic control is especially suitable for the live event.

Impact Audio Visuel provided an impressive array for the Quebec People's Choice Awards shown on the TVA Network.

The photo shows the set during rehearsal.

It features two 3x3, one 4x4 and one 2x2 videowall, plus eight standard 28in monitors.

The whole system was under PICBLOC™ and C-THROUGH™ control.

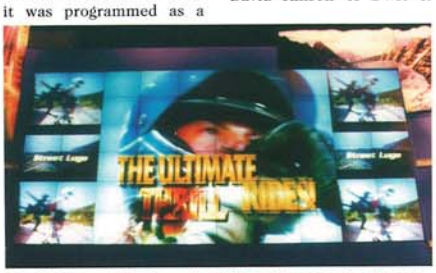
Thrills at IAAPA

Showscan Entertainment, of Culver City CA, used a 60 screen videowall as the centerpiece of their booth at the 1997 IAAPA (International Association of Amusement Parks and Attractions) Convention in Orlando FL.

The fast moving display was visible down the full length of the huge exhibit hall.

The show was notable for its spectacular footage (all from the film library of Showscan Entertainment) and the clever way in which it was programmed as a multiple image show (by David Allison of DWA & Associates of Virginia Beach, VA). Showscan consulted with DWA before deciding which equipment to use, and considered several major manufacturers. David Allison reports that "Electrosonic processing and control software was chosen because of its reliability and flexibility, and its ability to manipulate individual images and screens without restriction"

The 26ft (8m) wide 10x6 videowall on the Showscan booth at IAAPA '97. Here multiple "freezes" are used to show nearly 60 different images.



The display used Electrosonic PICBLOC™ processing, Pioneer "cubes", and Sony CRV players. The hardware providers were Total Audio Visual Services and Lorryimage.

Another important consideration was the fact that this was a four source show, and the Electrosonic system provides an easy tie-in to show control".

Actually David's programming was so good that many people seeing the show thought he must be using more like 24 sources!

The show, written by Michael Gray of MAGI, Baltimore MD, and produced by Jeanne Lucas of Showscan, really conveyed the excitement and quality of Showscan's range of films and entertainment products.

ELECTROSONIC WORLD

Visual Enhancement

Big screen and multiscreen video displays can be functional, informative, decorative and motivational. Here are some examples, ranging from churches to stock exchanges.

PICBLOC for MultiChoice

The lobby of MultiChoice in Johannesburg, South Africa, features a dramatic videowall.

Videowalls make dynamic lobby displays, so when MultiChoice, South Africa's satellite digital television broadcaster, moved into their new Johannesburg headquarters, it was natural they should choose the videowall medium.

It is especially suitable for them, because many of their customers come to the building, and the videowall can be used both as a "conventional" videowall and as a means of showing the great variety of programs on offer. The 9x4 monitor videowall can show up to eight simultaneous moving images selected from a total of 40 sources - the great majority of which are integrated satellite receiver decoders, but with the option of recorded programs. The videowall uses Electrosonic PICBLOC-3™ processing and runs automatically from C-THROUGH™ Scheduler.

The display was engineered and installed by Electrosonic SA Pty Ltd our distributor in South Africa (an independent company using our trademark under license). They recently completed a massive audio visual installation at the Durban International Convention Centre, and used PROCUBE™ displays for public information.

At the Durban International Convention Centre, an Electrosonic videowall is used for dynamic signage.

Lobby Video for Kvaerner

Not all entrance lobbies are big enough to accommodate a videowall or big screen display.

Nonetheless, in a small lobby a neatly installed multiple monitor display can create visitor interest and do a good public relations job.

The elegant UK headquarters of construction and shipbuilding giant Kvaerner in Mayfair, London, England have a neat three monitor system in their reception area.

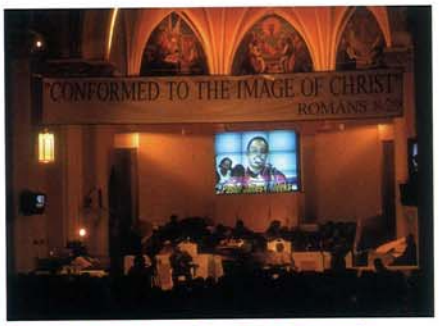
Three screen display at Kvaerner's London reception.

One monitor shows Kvaerner's www page, one shows TV, and the third shows the Kvaerner story.

The third of these is in the form of seven short programs which can be selected on demand.

To provide a reliable and easily updateable source, Electrosonic Ltd's Systems Division installed a Cadsoft® digital playback unit.

IMAGESTAR™ in Church



Progressive Communications installed an Electrosonic videowall at the Salem Baptist Church of Chicago.

A typical service at the Salem Baptist Church of Chicago is attended by 1600 patrons.

The problem of good visibility is solved by an Electrosonic videowall using IMAGESTAR™ processing.

The Rev James Meeks wanted a system which would bring the congregation closer to the service. His colleague at Salem Baptist Church, Steve Wheeler, worked with Joseph Niziolek of Progressive Communications Inc to provide a solution. They chose videowall for its high brightness and compact depth, and its ability to deal with the prevailing lighting conditions.

High video quality is assured by the use of IMAGESTAR processing.

The display is sourced by a fixed camera, a caption generator, and, on special occasions, by a full multi-camera production facility.

The system is used for image magnification of the pastor and principal participants, display of hymn words, and the display of important messages before, during, and after the service.

2xVIEW at the Stock Exchange

Design Workshop 2 Inc's concept for "Zone 9" of the TSE.

As this edition of Electrosonic World was being printed, Electrosonic's Toronto office was completing the installation of a customized 6x2 videowall display in Stock Market Place at the Toronto Stock Exchange (TSE).

Stock Market Place was designed and built by Design Workshop 2 Inc of Toronto for the TSE. It is a dynamic multimedia stock market learning center and shop window which appeals to retail investors, listed companies, member firms, school groups, foreign delegations, tourists, and the media. A multi-image videowall display, surmounted by an electronic tickertape, is sited at the core of Stock Market Place. It can show spectacular panoramic images, or up-to-the-minute newswire information.

To match the space six 2xVIEW™ modules are used for display, giving a 20ft (6.3m) wide image of high brightness. PICBLOC-3™ processing is used to give maximum show flexibility and quality; the system includes high resolution workstation inputs for the newswire information.

Spice Girls in Turkey

Videowalls based on projection "cubes" give a bright, high contrast image in high ambient light.

This is why they are favored by staging companies for special events where the control of ambient light is impossible or uncertain.

Our dealer in Turkey, Visions of Istanbul covers such events with a 5x4 videowall based on Sony RVP-411DM projection cubes.

This gives a display of pleasing format and exceptional quality.

Image processing is by PICBLOC-3™. The system used by Visions includes a workstation digitiser in order to give good results on computer images, and to retain the resolution of the original image.

When the Spice Girls visited Turkey for the first time there were a number of tie-in events. One of these was a promotional meeting at Istanbul's Conrad Hotel run by Pepsi-Cola.

This used the Visions Videowall to enhance the meeting and run promotional videos.

Pepsi Music were a sponsor of the Spice Girls Tour.

Pepsi Music's meeting in Istanbul with 5x4 videowall from Visions.

BIG SCREENS in Congress

One of the ornate chambers of the Venezuelan Congress.

The National Congress of Venezuela has recently installed a new voting and visual display system in their debating chambers.

Our dealer in Caracas, Corporación Video Carillo, installed a comprehensive video display system, including four 2xVIEW™ displays, to modernise the presentation of information, agendas and voting results to the congressmen. Important visitors to Congress are seen better on the big screens.

Corporación Video Carillo's design team were Architects José I. Cadavieco and José I. Cadavieco Jr. Their chief installation engineers were Eduardo Rojas and Gabriel Suarez

2xVIEW displays from Electrosonic provide visual support.

Company News

Change in Group Structure

A change in the structure of the group to which Electrosonic belongs has resulted in some changes in business focus.

Electrosonic was founded in the UK in 1964, and the USA operation was set up as long ago as 1972.

In 1990 Electrosonic became a subsidiary of Helvar, a Finnish company specializing in lighting components and lighting control. Helvar itself was a subsidiary of a privately owned trading group called Mercantile.

In 1996 the Mercantile name was reserved for the main group subsidiary involved in technical trade, and the group itself had a name change to The Helvar Merca Group. By this time the lighting control products of Electrosonic were under Helvar management.

At the beginning of 1998 Electrosonic became a direct subsidiary of the Helvar Merca Group, and, therefore, became a sister company of Helvar instead of being a subsidiary.

All Electrosonic's former lighting interests are now handled by Helvar, including products using the Celco and Helvar Electrosonic trademarks.

Electrosonic itself is now identified as the Image Control company, continuing nearly 35 years at the forefront of audio visual engineering. Products are primarily specialized image processors for video multi-image, and show control devices. Complete systems are offered as "solutions" to clients' systems needs – and quite often these solutions may include Helvar products.

Emphasis is being placed on developing the service side of the business to give lifetime support to Electrosonic installations.

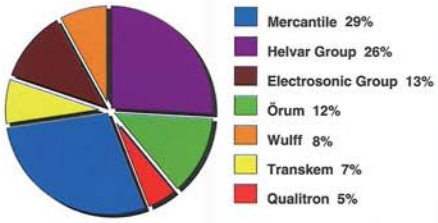
One result of the reorganization is that the Electrosonic "Image" business remaining after the transfer of the lighting interests is geographically different from that of the sister company.

Electrosonic now does over 50% of its business in The Americas, about 35% in Europe and the balance in the rest of the world.

Partly as a consequence of this the Chief Executive of the Electrosonic Group is now based at our USA Headquarters in Minneapolis.

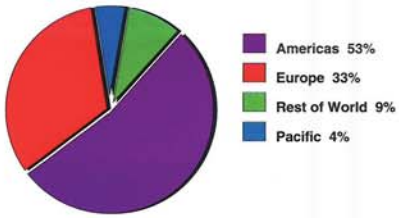
Helvar Merca Group Turnover 1997

Turnover 1997 $320Million (£200 Million)



This chart shows the breakdown of Helvar Merca Group's turnover. 1997 Group sales were approximately US $320 million (£200 million). 45% of this is represented by the combination of Helvar Group (Lighting) Electrosonic Group (Video image products and systems) and Qualitron (Broadcast video systems).

Geographical distribution of Electrosonic Group Turnover in 1997



This chart shows the geographical breakdown of Electrosonic's business.

Showrooms in London & Frankfurt

In Europe Electrosonic Ltd has extensive demonstration facilities at the Dartford HQ, but although this is only 40 minutes from Central London, there are customers who appreciate the fact that we also have a Central London showroom within the Business Design Centre in Islington, North London.

This showroom is used for meetings and demonstrations by appointment.

Helvar GmbH's office near Frankfurt acts as our demonstration and meeting base in Germany.

The Electrosonic Showroom at the Business Design Centre in Central London.

It is also invaluable as a base when, as frequently happens, industry related exhibitions take place at the Centre.

In Germany the Helvar Merca Group interests were combined during 1997.

This has resulted in the closure of our Langenfeld office, and the transfer of our showroom to Helvar GmbH's office in Rödermark, near Frankfurt in the center of Germany.

International Exhibitions

The joint Electrosonic-Celco stand at the 1997 PLASA Exhibition in London exhibited both Electrosonic video products and Celco entertainment lighting products, and featured a 12 monitor high video tower. Now Celco products are managed by Helvar Lighting Control Ltd.

Electrosonic supports an extensive program of exhibitions to promote products and to demonstrate complete display solutions.

Sometimes our presence is as a "guest" on another company or distributor's booth; more usually we exhibit in our own right.

The exhibitions are international. They currently include NAB, INFOCOMM and IAAPA in the USA; and Photokina, Leisure Industry Week, Euroshop and TiLE in Europe. Electrosonic, both as a corporation and as individual staff members, also supports relevant trade associations and learned societies. For example, as a corporation we are members or sponsor members of SMPTE and ICIA (USA) and BKSTS and CSF (UK). Senior Electrosonic staff are members of SMPTE, SID and SPIE (USA) and BKSTS, RTS and IEE (UK).

We presented papers on videowall processing technology at both SID 97 in Boston and SID 98 in Anaheim. SID (Society for Information Display) is the premier society for display technology and it is an honor for us to have been selected. (If you are a web surfer, you can find our SID papers on the Internet!).

Another Electrosonic stand, this time at Leisure Industry Week 97, Birmingham, UK. Notice the superb "Sports Bar" set with high quality videowall displays. To the left is a 42" Fujitsu plasma flat panel display.

Rugged Dimmers for Shows

Multi-channel dimmers from Helvar Lighting Control often complement Electrosonic show systems. IMAGINE (left), FUSION wall mounting (center) and FUSION rack mounting (right).

The Helvar Group, now a sister company to Electrosonic, manufactures a wide range of lighting control and energy management equipment.

Of interest to the "show" oriented customers of Electrosonic is a range of rugged digital dimmer systems designed for permanent installation.

The Helvar Electrosonic IMAGINE™ modular range is used for five star architectural installations, and is also suitable for museums and exhibitions.

A wide range of control options, including networked computer control and full status reporting, is available.

The Celco FUSION™ is a cost effective range for entertainment and show applications. It is suitable for both DMX and analog control, and is available either in a wall mounted 12 x 10A convection cooled enclosure, or as a compact rack mounted force cooled pack for 12 channels at 10, 16 or 20A. Dimmers are designed for a wide range of loads. In the IMAGINE range both transistor dimmers and dimmers suitable for unstable supply frequency are available. The Celco range includes matching control consoles for live entertainment.

Retail Display, Tradeshows & Promotions

These pages describe the use of Electrosonic videowall products in retail display, trade shows and special promotions.

Media, Sports and Fashion lead in Retail Video Display

Video displays are now an accepted part of the marketing mix within the retail environment.

Not surprisingly the biggest users of video are those promoting the sales of media products (for example videotapes, video discs, CD-ROMs, computer games etc) sports goods (especially footwear) and fashion (both clothes and accessories).

Besides lending themselves well to this kind of promotion, goods in these categories are marketed by those who either have good video software already available, or who realize the value of investing in new software. This is important, because the lack of good programming can be the downfall of public video display.

Edgars of South Africa installed 10 IMAGEMAG™ videowalls in their "Universal Shops". They report that the response has been excellent.

videowalls. However, it is important to choose the right display method, not necessarily the latest.

Projected videowalls are used where big images are needed and floor space is at a premium. CRT projection is still most widely used, because it gives excellent value, color rendering and motion images. But expect to see much greater use of LCD and DLP™ projection, especially for "digital signage" where full motion video is not required, and graphics performance is at a premium.

An impressive 2xVIEW projected videowall installed for music promotion in HMV Singapore by our dealer Tech-Men Communication Group.

Display trends

Retail designers are always looking for new ways to incorporate video.

All display methods are likely to be used, from simple monitors and single screen back projection units, through plasma flat panel displays and giant

Scottish fashion retailer The Jean Scene is using Electrosonic videowalls in nine stores throughout Scotland. The photo shows the IMAGEMAG™ system in their East Kilbride store.

Program delivery

Some of the biggest changes are coming in the way the video programs are sourced. Simple installations have used VHS tape, but this is unsatisfactory for continuous running, and videodisc has been the preferred medium.

However, the videodisc does not permit real time changing of program material, and anyway disc formats are changing.

Single site installations will continue to use disc sources, with a gradual change to DVD; but multiple sites and all those requiring frequent program update, are likely to use computer stored video.

New video compression methods make computers reasonably economic as program stores.

The Sports Division chain is making a major investment in in-store video in the UK. After a concept test lasting 18 months, they commissioned Electrosonic to instal 25 IMAGEMAG™ 3x3 monitor videowalls in the Boot Room area of stores throught the country.

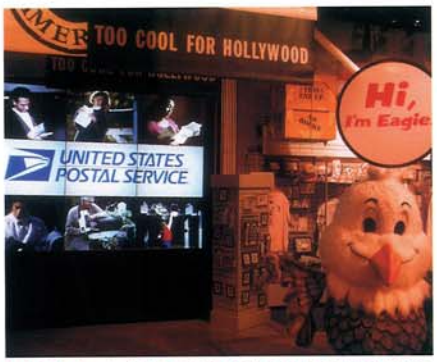
Either standard computers or special computer "black boxes", are used.

Many systems allow simple graphic displays, captions, promotion details etc to be produced on site to complement the video program. Most significant is the facility to have programs scheduled and updated remotely. Satellite program distribution has been the most favored for this, but as telephone line bandwidths go up, it will become increasingly practical to use the telephone line as the means of program distribution.

Pro-United, our Hong Kong dealer, installed this 9x3 videowall in the Mong Kok Computer Centre.

In-store video can be used to support a TV advertising campaign. In Summer 1997 Levi Strauss used a Chinese Laundry theme in their TV advertising.
The lobby of their Regent Street flagship store in London was transformed to the same theme, with the laundry window becoming a video display running the TV commercial. Video installation by Proquip Gearhouse, using Electrosonic PICBLOC-3™ image processing, four Toshiba videowall cubes and Sony CRV disc source.

Posted Images



PostMark America™, the United States Postal Service flagship store in the Mall of America, Minneapolis MN has an extensive Electrosonic video display system.

Both the United States Postal Service and Post Denmark are using video as a communications medium for their customers. In Denmark Electrosonic's distributors, Comtech, are supplying IMAGEMAG™ videowall equipment to post offices throughout the country.

Jan Rasmussen, Post Denmark's development manager, explains "The videowall is part of our new concept of the modern post office; the visuals on the monitors illustrate that the post office is developing at the leading edge of consumer trends".

Mall of America

The Mall of America in Minneapolis MN is home to PostMark America™, a United States Postal Service retail store. Here video is used to tell the postal service story and to emphasize its tradition of service.

It is also used to promote their services and their philatelic products.

The creative agency for the programs was Frankel & Associates of Chicago; but the video systems engineering was done by Electrosonic Systems Inc - not surprising since our main USA office is only a few miles away! The system is fed from five laserdisc players and a progammable router.

The videowalls used by Post Denmark are neatly integrated into the retail environment.

The visuals include details of products and services, both of Post Denmark and their prime partners. Jan Rasmussen continues "So far the systems are based on individual VHS players at each outlet, but in future we will distribute the signals as real time digitized signals, controlled and edited from a central location. Eventually the facility will be used as a communication channel from HQ, both for Post Denmark News and for employee training".

The main display is a 3x3 projected videowall using Electrosonic PROCUBE™ projectors with PICBLOC-3™ processing.

A second display consists of three custom built 38" LCD projection units arranged in a 3x1 configuration and using IMAGESTAR™ processing. In addition there are a number of single monitors with suspension brackets.

Advertising in China

A massive PROCUBE™ videowall installation consisting of one 5x5, three 4x4 and twelve 3x3 videowalls has been installed in the West and Central Railway Stations of the Beijing Railway Authority.

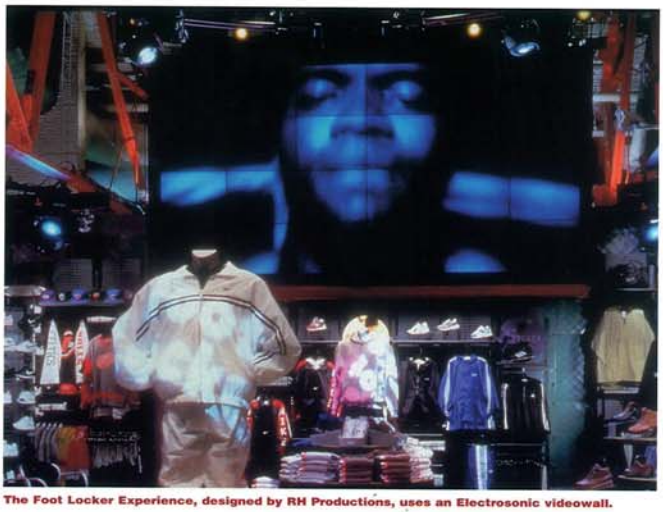
Installed by The Red Wall Group of Hong Kong, the videowalls provide entertainment and advertising for waiting passengers.

100 million people pass through Beijing Central Railway Station every year. A 5x5 videowall overlooks the central lobby.

One of many waiting halls with video entertainment and advertising by The Red Wall Group.

The concept is valid because the average waiting time is nearly three hours, passengers must wait in designated areas, and train travellers in China are those with disposable incomes - and, therefore, a good target for advertisers. High picture quality is assured by the use of Sony Betacam™ players playing 90 minute sequences, and PICBLOC™ processing. The Red Wall Group were supported by Electrosonic's regional office in Hong Kong, both during the three year negotiations and at installation time.

Foot Locker Presents



The Foot Locker Experience, designed by RH Productions, uses an Electrosonic videowall.

When Foot Locker, a division of the FWW Corporation, was looking for a way to enhance its image and raise brand awareness in its stores, RH Productions of New York presented a concept which is now being rolled out to Foot Locker's leading stores.

Taking its cue from an "urban playground" concept developed by architect David Manfredi, the in-store entertainment is an exciting show of multiple images choreographed onto a 20ft videowall and four banks of three monitors.

The video images are enhanced by intense lighting and sound effects. The first installations are in Boston, Chicago, Stanford CT and Orlando. Each includes a 6x4 PROVIEW™ videowall with PICBLOC™ processing and C-THROUGH™ programming from Electrosonic. The overall show control, video systems engineering, and the provision of MPEG-2 servers as sources is by ITEC Inc of Orlando FL.

Tradeshows take to Videowall

As the technology gets easier to use, more and more tradeshow booths (exhibition stands to non-USA readers) feature large electronic images.

This can either be as a decorative feature, or as an essential part of the show, especially when demonstration is involved.

Because of the high level of ambient light in convention and exhibition halls it is necessary to use either emissive displays (like monitors or plasma panels) or back projected displays. It is becoming practical to get relatively big single images from the new generation of powerful projectors, but this does need space and the method does have limitations.

The hire and staging companies like videowalls for tradeshows.

Our videowall dealer in Stockholm, Centas AB, installed this attractive display (Electrosonic PICBLOC with Pioneer "cubes") on the Ericsson Mobile Telephone Systems stand at CEBIT 97. (CEBIT is the world's largest IT show with 7200 exhibitors. It occupies the entire Hanover Fair grounds).

Epson have used Electrosonic videowall for the last four COMDEX shows - installed by Impact Audio Visuel of Montreal and Las Vegas.

We have shown a photo like this before; but GM so liked the idea, they used it again at the 1998 Canadian Auto Shows. 10x2 PROCUBE display, installed by Electrosonic's rental support division from Toronto.

Proquip Gearhouse installed this neat display for Volkswagen at the 1997 London Motor Show. Toshiba cubes and Electrosonic PICBLOC processing.

Videowalls are easily shipped, occupy a minimum depth, give bright spectacular images, and allow complete flexibility in format and overall image size. Videowalls also allow the programming of spectacular videowall effects.

The new generation of videowall equipment is suitable for high resolution graphic images and multi-source video.

Biggest users of videowalls at tradeshows are the Automobile and Information Technology companies - the latter making extensive use of them for software demonstration.

In the Entertainment Zone at Grapevine Mills 40 customized 52in PROVIEW displays were installed by Electrosonic. Note the bright colors of the housings!

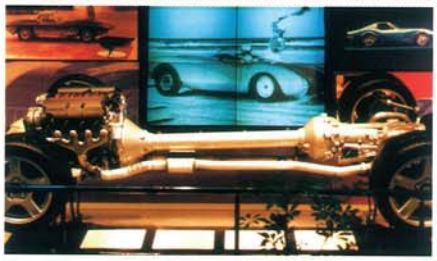
Mills Video

Mills Corporation are major owner-operators of shopping malls, and Electrosonic has a long association with them as providers of video display systems.

Mills regard video as an essential component in maximizing the time that customers spend in the mall.

In 1997 we completed two systems for Mills; one at Grapevine TX (near DFW), and the other at Tempe AZ (near Phoenix). A typical system includes around 70 big screen video displays (80in and 52in).

Distribution is by a mixture of fiber optic and coax; playout is from a 2-channel Avid Airplay® digital video system.



Visual support for a technical exhibit. Here an Electrosonic MOBILEVIEW display supports a GM Corvette exhibit at the Canadian Auto Shows.

Interactive Shows

**These pages describe successful examples of interactive shows and exhibits designed for groups. These are difficult to design, because most interactive program concepts work for individuals.
The solution to the problem is a mixture of real group interactivity, and treating all members of a group as individuals.**

Great Lakes Situation Room

The Situation Room at the Great Lakes Science Center was designed by Zalisk Martin Associates of Cambridge, MA and uses an Electrosonic videowall in an audience-interactive presentation. Photo by Alise O'Brien.

Electrosonic videowall technology is at the heart of an audience-interactive presentation at the Great Lakes Science Center.

One element of the Center is a Situation Room; designed to give audiences an insight into the importance of the Great Lakes, and to report on current factors affecting their state. A raked auditorium is fitted with a 6x6 videowall and 25 computers. Each of the computers is equipped with a heavy duty trackerball and push button, a color monitor, a video output card and a small color video camera. The computers are networked to a central server.

Individual Computers

The situation room is used in various ways. When no "show" is on, all the computers can be used individually, and for this purpose simple instructions are provided, and the nature of the material presented is similar to that in many museum interactive exhibits designed for one-to-one use. During this time the videowall can be used for giving short introductory shows, using standard laserdiscs as video sources.

At regular intervals the Situation Room is used for an audience-interactive "show", designed to be both entertaining and instructive.

It requires a presenter, who acts as "master of ceremonies", and controls what is seen on the videowall. For example a short clip of video might be run with information about the formation of the Great Lakes. The computers then ask the participants various questions, which they answer using the trackerball.

The Presenter has a touch screen which allows him a huge choice of routing possibilities:

- images on individual computer screens can be shown on individual cubes at video resolution.
- images of the participants (from the cameras) can be shown on individual cubes or magnified as required.
- high resolution computer images up to 1280 x1024 can be shown on the videowall at any size from 2x2 up to 6x6.
- laserdisc video sources can be shown on the videowall at any required magnification.

The system requires a complex arrangement of videowall processing and source switching. Each cube in the videowall can switch between a direct video feed and the RGBS videowall processed images. Switching requires a 28:4 RGBS switcher for computer images and a 64:40 switcher for composite video images. In practice a number of standard show routines have been written to simplify the presenter's task.

As the "game" progresses, the presenter can eliminate players; so, for example, at the beginning of the game there may be pictures of all the participants on the videowall, but as the game progresses, some are eliminated, and those remaining are magnified over a larger part of the display. The interactive system was installed by EDR of Cleveland, Ohio. The videowall system was engineered by Electrosonic Systems' Toronto office, and is based on PROCUBE™ displays with PICBLOC-3™ processing.

Trumbull Telecommunity

Schools, universities, businesses and communities are linked by smart presentation rooms dubbed "Telecommunity Centers" in Trumbull County, Ohio.

Each center can work stand-alone or linked to other sites.

Electrosonic 2xVIEW display in use in a TCTC.

The bigger sites use an Electrosonic 2xVIEW™ display with IMAGESTAR™ processing to show either one large image or four separate 52in images.

The images are derived from video-conferencing equipment, computers, videotape and a document visualizer. Jeffery Good, Supervisor of Broadcast Services at Trumbull County Educational Service Center, reports that the main center is being used for networked teleconferences using full motion video, compressed video over T1 lines, or full motion video over microwave or satellite link.

Applications include business training, staff development, teacher training and delivering program content to cable services.

BBC Interactive

"We can all have 15 minutes of fame at the new BBC Experience" - so wrote London's The Times newspaper reporting the opening of a major new visitor attraction which features some excellent interactive exhibits.

Electrosonic UK were the principal AV engineers.

The new attraction opened in the fall of 1997 to coincide with the British Broadcasting Corporation's 75th anniversary. It is both educational and entertaining, and is being run as a commercial venture with the aim of recovering the £5.5million (nearly $9million) investment.

The popular interactive radio studio, where visitors record a radio drama. In the foreground are sound effects control panels driving Electrosonic ESTA digital sound stores.

The EastEnders exhibit allows visitors to choose the shots.

Visitors tour the BBC Experience in groups of about 30, with tours starting at 15 minute intervals.

An early section of the tour is the radio studio.

Here the group is divided into "cast" who move into the studio proper, and "technical staff" who stay in the control room.

Working from precise scripts, the group record a radio drama.

There is a choice of stories, including a thriller, a western, and an episode of the popular agrisoap The Archers. The "cast" read from the script or work traditional sound effects like boots walking on a gravel path. The "techies" press buttons to bring in prerecorded voices and special sound effects.

The radio studio is justifiably one of the most popular parts of the BBC Experience, because everyone can join in. The results are remarkably good, while giving an insight into how radio programs are made.

The studio is followed by two mixed media shows which present the history of the BBC, both in sound and television. The shows draw heavily on the BBC archive, and are popular with the older visitors to the attraction.

But younger visitors get their turn in the "Radio Experience" and "Television Experience" exhibition section. Here the circulation is free flow and visitors can choose many things to try their hand at.

They can try sound mixing (of an orchestra or a pop group) or being a sports commentator. They can try directing an episode of the popular TV soap EastEnders or giving the TV weather forecast.

The interactive exhibits use digital recording techniques - for example the weather forecast blue-screen exhibit carries the prerecorded sections and records the visitor in motion-JPEG digital video.

The Creative Team

The BBC Experience was very much the brainchild of exhibition director MICHAEL BARTON, a long time member of the Corporation. Main exhibition design was by EVENT COMMUNICATIONS, show audio visual production was by JOHN POWELL, and Event. Lighting design was by DHA, and sound design by PETER KEY.

Some of the show hardware was sponsored by manufacturers, in particular SONY, KODAK, ICL and PIONEER. The control systems made extensive use of Electrosonic ESTA™ and ESLINX™ products, and all main lighting control was by HELVAR ELECTROSONIC dimmers.

The first show is "a day in the life of Broadcasting House". The multiscreen show includes both recorded and live images from the studios of the five national radio channels originating from Broadcasting House, the BBC's HQ.

The Point of View Diner at The Museum of Tolerance. A $1million exhibit exploring issues of social responsibility, based on the use of an Electrosonic video-on-demand system.

Interactive Diner in Los Angeles

An outstanding example of interactive display is to be seen at the Museum of Tolerance in Los Angeles. The "Point of View Diner" explores issues of social responsibility, and is based on the use of Electrosonic's latest video server technology.

The exhibit is a recreation of a 1950's diner, but instead of food it serves up a menu of controversial topics. For example:

Two 17-year old students drive home from their Junior prom; they have been drinking. Half an hour later the boy lies dead in the street, his girlfriend and a ten year old child cling to life in an operating room.

Who is responsible for this tragedy? What happens in a society when individuals refuse moral responsibility for events around them?

Another one: *A radio talk show host launches into a diatribe about race. A gun is drawn. Moments later an innocent person is dead, victim of free speech gone crazy.*

Who is responsible? Should hate speech be protected as free speech?

Video Jukebox

The scenarios are presented on big screens at the end of the diner.

Each "guest" has in front of them their own personal "jukebox" – a color LCD screen with selection buttons.

At the completion of the big screen presentation guests are invited to question the participants - the bigoted guard, the diner owner, the talkshow host for example.

They do this by choosing which participant to question, and then choosing from a list of questions. The participant is then seen in an individual video clip replying to the question. There is time to question several people, after which the jukeboxes become voting terminals, when all the guests are asked to express their opinion about the issues raised.

The big screens present the result in the form of a real time graphic display.

Video on demand

Electrosonic Systems' Burbank office was responsible for the complex video engineering and customized computer software needed to realize the exhibit. Key to its success is an efficient system of "video on demand".

This is achieved by using Electrosonic video servers which carry the video programs on high capacity computer hard disc drives.

The system requires no less then 40 channels of video, all of which can access any part of the stored programs. Image quality is excellent because the programs are stored using MPEG-2 compression at a high bit rate.

The server system has a high degree of redundancy. The failure of an individual drive does not stop the system working, or make any part of the show unavailable.

Audio for the big screen sequences is heard through loudspeakers, but that for the individual jukeboxes is heard through robust individual "listening sticks".

The films in the POV diner were written, produced and directed by Scott Goldstein.

The POV diner provides each guest with an individual "jukebox" in true 1950's style. The diner set was designed by 3D Concepts of London, England.

"Savage . animals", "Barbarians at the gates of the greatest nation on earth". The words echo in a diner where an equally bigoted and paranoid black security guard lashes out at fans of the host.

At The White House with MPEG

Electrosonic engineered a computer based video system for four participatory exhibits at The Newseum in Arlington VA. (See Page 12 for more about The Newseum).

Here visitors take part in news, sports or current events programs. They are introduced by a celebrity announcer, and then say their piece to camera using a prompting system. In order to ensure orderly use of the system, there are guides who show participants what to do. Each station uses an AMX controller to control the exhibit and to allow the entering of the participant's name.

Any false starts can be instantly cancelled, without any of the delays caused by the use of tape.

Once a participant has said his or her piece, in front of a blue screen or in front of a blow-up of, for example, The White House, they can immediately see the playback, without any delay and even while someone else is being recorded. If they like what they see, they can report to a pay station in another part of the exhibition, where, on entering the participant's name, an attendant can prepare a VHS copy of their recording. The whole system is run on a single LAN, with the computers sited remotely in the plant room. The play-in and background sequences, featuring the celebrity newscasters or commentators, are stored on a single video server able to play out four MPEG-2 high quality video streams simultaneously. All participant recordings are made in MPEG-1. The remote dubbing system can handle several recordings simultaneously, and has a friendly user interface.

The four participatory exhibits at The Newseum. Two use blue screen, and two use scenic backdrops. All use professional prompting equipment and semi-professional cameras. Electrosonic engineered the interactive system, based on MPEG video compression and a computer local area network (LAN).

Zapping in Italy

The Zapping Bar in Riccione uses Electrosonic videowall products to show 150 TV channels.

"Zapping", the frequent use of the remote control to change TV channels, might be called "negative interactivity" - but it is also the name of a new bar in the Adriatic Coastal resort of Riccione in Italy.

150 different TV channels can be seen there. Electrosonic videowall equipment, supplied by Helvar S.r.l., is used to display the 100 analog and 50 digital channels.

Up to 22 can be seen simultaneously, but normally the central 2xVIEW™ display shows a main picture, and the two flanking 3x3 monitor videowalls show multiple images.

In the first two months of opening more than 20,000 people enjoyed good food and video at Zapping.

It has become the most popular pub in Riccione, and is envied by other pub owners in the area

Control, Decision & Presentation Rooms

Electrosonic specializes in engineering complete big screen and multi-screen presentation systems for control rooms, decision spaces and presentation rooms. In addition Electrosonic's image processing products are supplied to value added resellers and systems integrators for incorporation in their own systems.

Multiscreen Overview

Multiscreen and videowall displays are widely used in utility, telecommunications, transport and service organizations for providing an overview of system or network activity.

We engineer complete systems to meet client requirements; some of these use Electrosonic image processing products, but many do not because the customer requirement does not call for them.

Recently we have installed display systems for a wide range of prestige customers. For example, in the telecommunications field these have included those for Orange Personal Communications in Darlington, England, and Worldcom's operations room in Frankfurt, Germany.

The main picture shows a typical installation.

This one is for Reuters in London, where Reuters Technical Centre provides network management for their data network.

Electrosonic engineered the overview wall display at Reuters Technical Centre in London, England.

The display at Midlands Electricity's Network Management Centre provides a virtual screen of resolution 8960x2048. Many operators can open windows on the display at the same time. The photograph was taken prior to the Centre becoming operational.

The requirement here was for a display which could show eight separate computer screen images from a choice of 30 inputs - which themselves could range between VGA 640x480 up to SXGA 1280x1024.

The display can be controlled by touch screen either from within the control room, or from a visitors' gallery separated from the control room by a glass wall with PDLC "electronic blinds".

For visitor use it is possible to use the center four screens to make one big image, and to select video sources in addition to the computer sources.

Projection is by Barco Graphics 2100 LCD projectors.

At Midlands Electricity's new Birmingham, England, Network Management Centre we worked under subcontract to M3i Systems to provide a 9.3m x 2m (30.5ft x 6.5ft) display using 14 Barco 801s CRT graphics projectors.

The screens are on a slight curve to ensure that all the operators see a uniformly bright picture.

M3i's software treats the display as an X-terminal within a UNIX® network.

Traffic Flow

Many control room installations show static graphics displays, with image movement only arising when there is a change of state or an alarm condition.

However, there are some control rooms which depend on full motion images.

An example is the traffic control room. We have supplied several display systems for this application and two recent examples are shown here.

This photo is courtesy the Texas Department of Transportation Laredo District.

The top picture shows the Traffic Operations Center of the Road Commission for Oakland County, Waterford Township, MI. Multiple CCTV monitors flank a 3x3 PROCUBE™ videowall which can show both live video and computer images through PICBLOC-3™ processing equipped with a Workstation digitizer.

Electrosonic worked on this project with the Intelligent Traffic Systems Integration Division at Odetics (a former division of Rockwell).

A version of our C-THROUGH™ software was supplied which allows the videowall to be remotely controlled over a local area network (LAN).

Each operator station has the ability to control the videowall over the LAN from the same graphical user interface used to control other intelligent traffic elements such as video switchers, cameras and variable message signs.

The lower picture shows a similar installation for the Laredo District of the Texas Department of Transportation.

Here two 2x2 PROCUBE displays, showing video only, flank a center 3x3 display which can show both video and graphics.

Electrosonic supplied the videowall system for the Traffic Control Center of the Road Commission of Oakland County, Troy, MI.

Conference Wall

An Electrosonic videowall helps speed up the decision making process at Coastal Banc, a Texas based bank offering a full line of personal and business products in the Southeast Texas region.

Coastal Banc wanted to use modern communications equipment to help them shorten the negotiating time for high value business transactions, some of which could take weeks as documents were shuttled between various departments of the bank and their client.

They decided to invest in a decision room fitted with a multiscreen display which could simultaneously show computer documents and multiple live video conference images.

Joiner Consulting Group worked with Coastal Banc on the concept and went on to develop the complete system specification.

Audio Visual Technologies of Houston, TX was chosen as audio visual contractor, and Electrosonic as videowall subcontractor. Our contribution is a 4x3 PROCUBE™ wall fed by a PICBLOC-3™ processor equipped to show two live video images and two computer workstation images simultaneously.

The room has an excellent layout. About 8ft (2.5m) in front of the display there is a meeting room table and, to one side, a lectern for presentations. In an arc round the table is a large console with 12 seating positions for conference participants. Each position is equipped with a microphone for conferencing, and four of them have computers whose displays can be switched to the videowall.

The reception area videowall at Zurich Insurance, Portsmouth, England.

Corporate Image

As reported on Page 1, we recently installed a comprehensive audio-visual system at Zurich Insurance's new building near Portsmouth.

We were contracted to Mellersh & Harding, fit-out contractors for the project. Our scope of work included the latest in video conferencing, room control and projection equipment within the training rooms, conference rooms and executive suite.

For the ground floor reception area we supplied a 2xVIEW™ display which shows text messages, live camera images, video and TV. On the other side of the world, our dealer in Karachi, Pakistan, Wavetech Private Ltd, has installed attractive IMAGEMAG™ videowalls in the entrance lobbies of ABN Amro Bank branches.

ABN Amro Bank's Karachi, Pakistan branch has a welcoming reception with IMAGEMAG™ videowall.

Showrooms & Offices

Showrooms are livened up by video displays; but, less obviously, videowalls also have a place in the office environment.

Motor Show comes to Town

Car manufacturers want to impress you when you are buying, and increasingly they are bringing the glitz of the Motor Show to a showroom near you.

Daewoo sell directly to the public, and many of their showrooms use videowall displays.

In Fall 1997 they had a display at the London Motor Show which was then simply moved to one of their new showrooms.

Our dealers in Hong Kong, Pro-United Engineering Ltd, are supplying many retail video displays.

Recent installations include an Electrosonic videowall for the Mercedes Benz showroom in Causeway Bay, and an IMAGEMAG™ monitor videowall for the Porsche showroom – also in Causeway Bay.

One of Daewoo's "Motor Show" outlets in the UK (above) and Hong Kong car showrooms (below).

The videowall display enhances Freemans new Call Centre in Sheffield, England.

Open Plan Videowall

"Thanks to the Electrosonic team for the brilliant job you did at Freemans new Call Centre in Sheffield" wrote Keith Basnett, Customer Services Director of Freemans after we completed a major audio-visual installation in the £20 million new facility.

Centerpiece of the installation is a 5m (16ft) wide 6x4 projection videowall in the ground floor Call Centre area.

The display shows TV, videocassette, and up to date business information. The content is also relayed to 16 video monitors distributed throughout the ground floor area.The videowall is ideal for visitors, training and for overview in the call center. It also enhances the interior appearance of the building.

Entertainment

Casinos, cinemas, pubs, clubs, restaurants, arenas, ferries and cruise liners are all users of video displays.

Pubs & Clubs

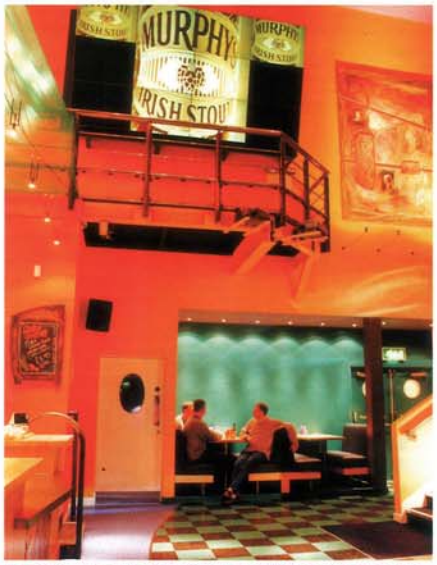
Big screen video displays are now an integral part of entertainment venues. Their function varies; they can be part of the entertainment itself, especially in sports bars, clubs and dance venues, or they can be part of the decor.

For some venues they are part of the marketing effort; for example in casinos or themed restaurants.

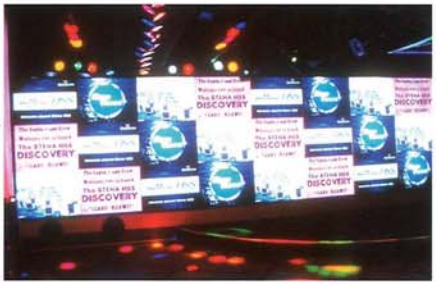
A mixture of big monitors, single projector units and videowalls is used, with videowalls being favored for their small footprint and for large bright images unaffected by ambient light.

We have supplied many videowalls, or videowall processing systems, to casinos, themed restaurants, bars, clubs, cruise liners and luxury ferries.

The Race Rock Café in Orlando FL features Electrosonic compact video displays only 33in (85cm) deep, but giving 126in x 63in (3.2m x 1.6m) pictures.



AEI Rediffusion Music installed an integrated audio, video and lighting system in the Baraka café bar in Liverpool, England. It features an Electrosonic IMAGESTAR™ videowall display arranged in a "T" shape.



Proquip installed this 6x4 videowall, based on Electrosonic PICBLOC™ processing and Toshiba "cubes" on the StenaLine HSS Discovery luxury ferry which operates between Harwich and the Hook of Holland.

The entrance to the casino at Harvey's Resort, Council Bluffs, Iowa, features an Electrosonic PROCUBE™ videowall.

Movies & Arenas

Video images are often used to augment a main entertainment.

For example, at theme parks Electrosonic video displays are used as the basis of "Pre-Show" entertainment.

A typical installation is at CoreStates Center in Philadelphia, PA. Here two PROCUBE™ videowalls are linked to Comcast's main broadcast system. A 4x4 monitor videowall is used by CoreStates Financial Corp as a corporate image display, and a 2x2 2xVIEW display is sited in the Philadelphia 76ers NBA Team's Hall of Fame area. All four systems are supported by an Electrosonic service contract which provides preventative maintenance and on-call service.

One of four videowall displays installed by Electrosonic at the CoreStates Center, Philadelphia, PA.

Many installations have also been completed for cinemas. Here the displays are used for a mixture of trailers and paid advertising. Another example is the sports arena. Apart from having video displays in the main arena, there is often a case for having additional displays on the concourses. These support special events, and provide pre-match entertainment and information.

Electrosonic dealer Medex Trade Ltd installed two 4x4 IMAGEMAG™ videowalls in the Village Road Show multiplex, Athens, Greece. In Thessaloniki they installed a 4x5 cube wall with Sony projectors and IMAGESTAR™ processing.

Corr Systems Ltd installed this 2xVIEW™ display at the Hoyt's 8/Science Alive complex in Christchurch, New Zealand.

Museums & Tourism

Electrosonic manufactures many products which have applications in museums and tourist visitor centers. Our Systems Division can also provide a complete audio visual project engineering service. These pages describe typical product applications and complete projects.

126ft News Wall at The Newseum

The News Wall at The Newseum is 126ft long. It can show up to 36 simultaneous images, each of which can be programmed to be any size and at any position in the display. Overall display resolution is 14400 x 1200.

The Newseum in Arlington Va, just across the river from Washington DC, is a museum on the subject of "news".

It is funded and operated by The Freedom Forum, a non partisan international foundation dedicated to the freedom of the press.

A News History Gallery traces the origins of news, and is based on "conventional" museum display, combining artifacts, graphics and audio visual elements.

This is quite appropriate for the news as represented by the printed word, but not for television. So television is dealt with by all-electronic techniques, most spectacularly by a 126ft x 10½ft (38.4m x 3.2m) news wall.

ILA Projectors

The wall is served by nine Hughes-JVC ILA M335 projectors each projecting a high resolution 1600x1200 image of 14ft x 10½ft (4.3m x 3.2m) butted together to create one long panorama. At any time up to 36 separate images can appear on the wall.

The majority of the images are full motion video derived from live satellite and broadcast feeds.

However, in order to have a properly choreographed show, the system also uses 21 videocassette recorders (Betacam SP) and 12 Pioneer Laserdisc players. This is a rare example of where tape is an appropriate source because it is being used to record huge quantities of material which changes on a daily basis.

There is also provision for accepting up to nine high resolution graphics images - these might be, for example, the front pages of the day's main newspapers.

The image processing equipment being used allows any source to appear anywhere on the display to any required size.

Each source appears in a window which can be as little as 1% of its original format up to 1600x1200. Windows can be prioritized, and can be made to move or "fly" along the display.

The 36 video sources can themselves be derived from several hundred sources within the Freedom Forum building. Because all the inputs are asynchronous, the processing equipment includes timebase correction on each input channel.

The display can run formal "programs", but the main emphasis is on comparative live programming. A full time production staff creates the formal programs and the templates for the live programming.

The system requires sophisticated computer control to format the images, run the dynamic effects and to control the source equipment.

It must also control a dynamic audio system which ensures that the audio heard at any position in the viewing gallery relates to the image in front of that position. Clearly, when "flying windows" are used, "flying audio" is required as well!

The production suite for the News Wall. There is a big monitor corresponding to each projector. Above each big monitor there are four small monitors corresponding to the four sources at present being used for that screen section. At the sides there are additional source monitors. In front there are two programming positions, allowing both on-line and off-line programming. In order to facilitate programming, there are two computer monitors for each programming computer.

Worksurface

Engineering of the News Wall was by Electrosonic Systems Inc out of the Burbank office, strongly supported by the development team at Hawley Mill.

The whole project is probably the most advanced single project we have ever undertaken because it depended on the successful completion of new image processing hardware - the new WORKSURFACE™ high resolution image processing equipment.

Nine units are used, all synchronized together and operating on an Ethernet LAN. Overall control is by a new program, WINWALL, which operates on a timeline basis and which can update the status of the display 60 times a second.

The News Wall has two overall control computers, one off line and one on line. They control the nine projectors, the nine WORKSURFACE™ units, the source equipment, a 96:36 Philips BTS broadcast router, an 18:9 PESA graphics router, nine computers used as graphics image stores, and the Peavey Media Matrix DSP based audio equipment.

In this picture of the News Wall high resolution graphics images form the backdrop to the live action video. Here the graphics images are the front pages of newspapers, and at The Newseum these are updated daily.

Teamwork at the Newseum

The Newseum project as a whole required a huge amount of video, show and interactive engineering. Jim Updike, in charge of video at The Newseum sensibly decided to split the work between various expert companies.

NATIONAL TELECONSULTANTS of Los Angeles were the main video contractors for all broadcast systems. These included a full TV studio, edit suites, head end systems, signal routing and an auditorium.

BLAIR, DUBILIER & ASSOCIATES of Washington DC provided a turnkey hardware/ software package for all the standard interactive systems based on touchscreens.

Their proximity to The Newseum greatly facilitates the continuous updating of these exhibits, which, by their nature, are highly topical.

ELECTROSONIC SYSTEMS INC were the main "show" video and systems contractors. In addition to the News Wall, they engineered all the show audio visual within the exhibits. They also supplied two additional ILA projectors to the auditorium under sub-contract to National Teleconsultants.

The exhibits at The Newseum were designed by RALPH APPELBAUM ASSOCIATES of New York, and mainly built by MALTBIE ASSOCIATES of Mount Laurel NJ. CORTINA PRODUCTIONS of Mclean VA were the main video producers.

STEWART FILMSCREEN CORPORATION provided the screen assembly for the News Wall.

Sound and Light on the Ride to Beanville

Cadbury World has recently opened Cadabra a "magical Cadbury journey". It uses Electrosonic's ESTA™ digital audio system and Helvar Electrosonic AMBIENCE™ lighting control.

Cadbury World first opened in 1990 as an exhibition display to take the pressure off factory visits at Cadbury's "Chocolate HQ" in Bournville, near Birmingham, England.

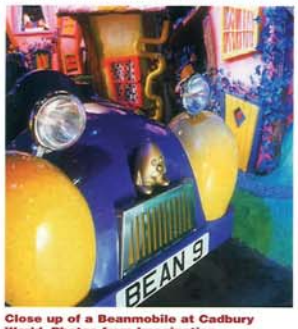
It is now a huge success as a visitor attraction in its own right, and recently the London based design company Imagination has been responsible for adding first Fantasy Factory and now Cadabra.

Cadabra is a car based ride where visitors travel in four-seater Beanmobiles through the enchanted lands of Cadbury Magic.

The ride passes through Beanville and visitors see over 300 individually crafted and costumed beans accompanied by 80 animated special effects, from dancing milk bottles to a cauldron of molten chocolate.

ESTA

Imagination was responsible for the overall engineering of the effects, and chose Electrosonic ESTA™ for sound effects on the ride. ESTA provides CD quality audio in a solid state package with no moving parts.

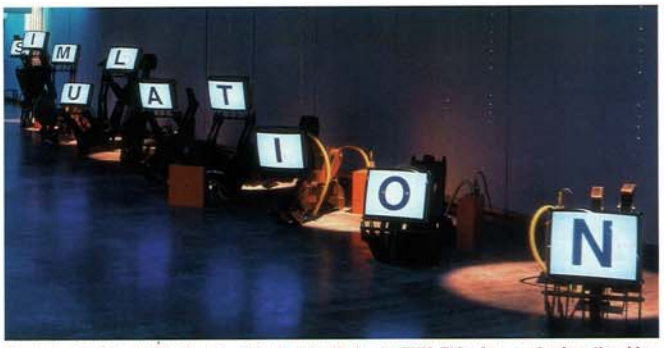


Close up of a Beanmobile at Cadbury World. Photos from Imagination.

The ride uses 40 channels of audio, provided by 10 four-channel ESTA units. 18 channels run continuous sound effects, and 22 are triggered from Imagination's overall PLC ride control system.

ESTA is particularly suitable for this kind of application. Besides providing reliable high quality sound, it has many features essential for programmed shows, including the ability to control other devices in sync with the sound.

Video art at the ZKM



Frank den Oudsten's "Floating Identities" at the Karlsruhe ZKM. This view emphasises the video images. Both photos by Dieter Leistner of Architekton.

An imaginative and unusual application of Electrosonic image processing equipment is to be seen at the recently opened Medien Museum (October 1997) within the Zentrum für Kunst und Medientechnologie, or ZKM for short, in Karlsruhe, Germany.

The ZKM, which translates as "Center for Art and Media", houses a contemporary art museum, a design academy and a media museum. The media museum is home to many avant garde installations based on video, computer and mixed media techniques.

Frank den Oudsten of Amsterdam was appointed art director, reporting to the Medien Museum's Director, Hans-Peter Schwarz. Within the exhibition is one of den Oudsten's own pieces called "Floating Identities". This consists of ten sculptured human figures, each one striking a different attitude, and each carrying a bare cathode ray tube (CRT). The images on the CRTs are a collage of film and photographs on the theme of overcoming gravity. The connections to each CRT are protected by a glass sleeve, and the requisite scanning electronics and power supply are housed in orange steel boxes, which look like stylized life-support units, sited next to each figure.

The images are sourced from two laserdisc players.

The display uses an Electrosonic PICBLOC™ videowall image processor to allow the display of multiple still images, part images, image transition effects and other effects. "Floating Identities" is a most unusual application for PICBLOC, but the reason for using it was its great flexibility and ease of programming.

Here the 120% life-size figures constructed from bare steel can be clearly seen. The electronics for the CRTs are housed in the orange boxes. Behind the scenes is a PICBLOC image processor.

Sydney Olympics

Electrosonic Systems, a division of Evans Deakin Engineering Pty Ltd of Australia (and user of our trademark under license) has installed a 2xVIEW™ display and Helvar Electrosonic SOLO™ dimmers at the Homebush Information Centre (below) on the site of the Sydney 2000 Olympic Games. The display shows real time images of the construction site, information videos, and CAD "fly throughs" of the completed venue.

Electrosonic installed the audio visual displays on the new HMS Belfast floating exhibition in London.

HMS Belfast

HMS Belfast in War & Peace is a new exhibition on No 2 Deck of the famous warship, Europe's last big gun warship of World war II, permanently moored on the Thames in London.

The exhibition was designed by TBV Dangerfield, and tells the story of HMS Belfast from her inception in the 1930's to the decision to save her for the British nation in 1971.

Electrosonic engineered two dome projection systems for Star Trek: The Experience attraction in Las Vegas. Picture courtesy Landmark Entertainment Group.

Star Trek: The Experience

"We look to Electrosonic for their expertise with projection systems. They're some of the best engineers we know".

Chris Conte, Landmark Entertainment Group's producer commenting on Electrosonic's contribution to the new $70million Star Trek: The Experience, recently opened in Las Vegas.

The attraction, designed and produced by Landmark Entertainment Group, adjoins the Las Vegas Hilton's Space Quest Casino and is a joint venture between Hilton Hotels and Paramount Parks who operate the attraction.

Our mission (as opposed to the Star Trek mission taking passengers on a shuttle craft into the 24th Century) is "image control", and while most of it is in the electronic domain, our background is in photographic projection; so if electronic projection does not pack the required punch we recommend 35mm or 70mm movie projection to get 30000 - 100000 lumens or more on the screen.

8/70mm film format

For Star Trek we designed and installed two fully automatic dome theater projection systems operating in the 8perf/70mm format. The systems use custom built projection lenses and Christie projector heads with electronic transport control.

In fact the "passengers" in the space shuttle craft are completely unaware that a movie system is being used; the illusion of flying through space is excellent because there are no screen boundaries, other than those formed by the big windows of the "spacecraft" itself. The Electrosonic Burbank-based team was involved with the project from the design phase, when they created a layout of the theater geometry using a computer model. "It's a real advantage; one that few vendors offer" says Conte.

Racing in Hong Kong

Electrosonic designed and installed a complex audio visual system for the recently opened Hong Kong Jockey Club Museum of Horse Racing.

While all the main construction was by Chinese contractors, the design and fit-out of the museum itself was by a UK based team lead by museum design specialists Ivor Heal Design, and including Electrosonic Ltd as audio-visual systems engineers.

It features computer interactive displays, video based presentations and Pepper's Ghost displays.

The biggest AV display is a specially commissioned multi-screen film on racing.

It uses a widescreen 35mm film projected onto a 8m x 3m (26ft x 10ft) screen. This is flanked by four video screens, two each side, arranged at right angles to the main screen to provide peripheral images. The arrangement is particularly effective when horses run towards the audience and appear to wrap round them as the horses image transfers from the main screen to the side screens. The combined video/film system uses synchronized laserdiscs and a 35mm film projector running at 25 fps to match the PAL video. The 16 minute film is carried in an endless loop cabinet.

Memorabilia cabinet with explanatory video and listening points.

Interactive learning stations at the Hong Kong Museum of Horse racing.

Mixed Media

This page describes some applications using Electrosonic equipment and computer programs for large scale mixed media control.

Multi-image at the Hanover Fair

The Preussen Elektra show at the Hanover Fair used a rear projection screen 8.4m x 2.1m (28ft x 7ft). Show control was by Electrosonic ES4003/5003 equipment and EASY+ software.

Preussen Elektra use the giant Hanover Fair as an important public relations platform. A big multi-image show, using Electrosonic's EASY+™ control program, formed the centerpiece of their 1997 exhibit.

Professional audio visual producers strive to achieve the best overall show quality within the framework of their communication objective and the available budget. It is often the case that for big images a higher image quality can be achieved using slides.

Hüneburg AV of Düsseldorf decided that their show for Preussen Elektra, a major electricity supplier, would make its point best using a mixed media format.

Therefore, while part of the show depended on moving images, which were presented using a Barco 8000 projector, most of it depended on the choreographed presentation of high quality photographic images. The "multi-image" part of the show was presented using 30 Kodak Carousel™ projectors with perspective control lenses, all controlled by Electrosonic ES4003 multi-image controllers in turn programmed by a computer running Electrosonic's EASY+ program.

Other elements of the show included multi-channel digital sound, laser, smoke and lighting effects. The show itself dealt with both the positive and negative effects of the increased use of energy with the implication that Preussen would be contributing to the positive and helping to eliminate the negative. Over 30,000 people saw the show during the seven day exhibition.

Projection in Paris

Electrosonic Systèmes (an independent company using our trademark under license) is our dealer in Paris, France. They are involved with many mixed media events and permanent installations, and use the EASY+™ program extensively.

A recent event for which they supplied mixed media control was a European meeting of Philips, held at Carousel du Loûvre.

The meeting room and dining room projection systems used a total of 69 Kodak Ektapro™ projectors.

EASY at L'Hemisfèric

Planetarium shows can use a wide range of media and equipment in a single performance.

Electrosonic's EASY+™ program and associated ESLINX™ interfaces were chosen for master show control at the newly opened L'Hemisfèric Planetarium in València, Spain.

Architect's impression of the exterior of the completed L'Hemisfèric.

The Ciudad de las Artes y de las Ciencias is a huge cultural complex currently under construction. Within the complex L'Hemisfèric is already open and running its first shows. It combines in one 24m (79ft) diameter tilted dome auditorium a Zeiss Universarium VIITD planetarium projector, IMAX® dome projection, Omniscan® full dome full color laser graphics, and mixed optical and video projection from 48 Kodak Carousel™ projectors, two Barco 1609 video projectors and many special effects.

Electrosonic's EASY+ program is used to give initiation commands to major subsystems, and control directly the slide projectors, the lighting system using DMX protocol, the special effects such as slew mirrors, and the video system, including seven Pioneer LDV4300 laserdisc players.

International

It is intended that most presentations in L'Hemisfèric will exploit all the available hardware. This meant that we had to co-operate closely with Zeiss, IMAX, Sonics Associates (Audio) and AVI (Omniscan) to ensure that when appropriate the EASY master computer could issue commands to the individual sub-systems.

The realization of the new show at L'Hemisfèric demonstrates how international the special show business is. Of course in this case the main credit must go to Spain, and Sr Quintin Ruiz, co-ordinator of L'Hemisfèric, and his colleagues for having the commitment to the show.

But then contributions come from all over the world, including Germany (Zeiss and Kodak AG) Canada (IMAX) USA (Sonics and AVI) UK (Electrosonic Ltd) France (Electrosonic Systèmes) Belgium (Barco) and Japan (Pioneer) among many others. The first mixed media show for L'Hemisfèric was produced by William Gutsch Jr, from New Jersey in the USA, with music by Mark Mercury of Los Angeles CA.

The slide projection format was designed to match that used at the Charlotte VA Planetarium, and this allowed William Gutsch to prepare the specially shot and masked slides in the USA, without any need to "tweak" them on site. You can read more about L'Hemisfèric on www.cac.es

The 30° inclined seating. The Zeiss projector is in the center, directly behind it is the housing for the IMAX projector, and at top right of the picture the control desk embodying the video projection. Behind it is the slide and effects projection gallery.

High Definition in Holland

Holland Experience is a mixed media tourist attraction in Amsterdam. They chose our dealer VHS Systems BV to engineer the mixed media control for their exciting show.

VHS used an extensive array of Electrosonic ESLINX™ show control and ESTA™ sound store products to realize the show.

The production features many special effects including a moving auditorium. Main video images are presented on a 6m (20ft) wide screen using High Definition TeleVision in 16:9 format. Video playback is from a Sony HDVS laserdisc player. This format gives excellent quality for permanent tourist, museum and exhibition shows which must run continuously. Audio-visual production for The Holland Experience was by Reco Productions International BV of Amsterdam.

The HDTV screen is just one element of The Holland Experience mixed media show in Amsterdam.

Technology

Electrosonic uses the latest technology in its products and projects. This page describes some of the techniques being used or investigated.

New Projection Technology

Texas Instruments' DLP™ technology is set to capture a significant part of the video and graphics projection market.

Electrosonic's videowall knowhow is being applied to the DLP™ technology to provide exciting new products, and new solutions for high resolution displays.

The Cathode Ray Tube (CRT) has been the basis of videowall projectors since videowall "cubes" first appeared. It provides excellent color and motion video performance, and will continue to have a significant market share.

However, it does have some disadvantages. The tendency to "image burn" on maintained still images means that it is not ideal for some graphics displays.

The convergence procedures to align the red, green and blue images are tedious and require expert attention. Tube life and energy consumption are cost of ownership issues in permanent installations.

Digital projectors

As soon as LCD projectors came on the market there was a demand for their use in videowalls. At first they were only suitable for simple graphics displays, because their color, contrast and motion video performance were inadequate. Recently LCD performance has improved to the extent that motion video performance is acceptable, and Electrosonic has completed a number of significant videowall installations using LCD projection.

We have completed several important installations using compact PROLITE videowall cubes based on LCD. Here a 2x2 PROLITE display is showing a live camera image on the Cadillac booth at the Canadian Autoshows.

However, we have been tracking the DLP™ development since its announcement in the technical journals in the early 90's.

It seemed to us then, and we are sure of it now, that this technology could in due course overcome the disadvantages of both CRT and LCD in the videowall application. There are, however, practical problems with all types of digital projectors based on a fixed array size.

More often than not the image to be displayed does not match the display array, and sometimes fine adjustment of image size is needed. "Overscan" adjustments, which are taken for granted in CRT cubes, are difficult to provide in fixed array projectors without losing part of the image.

Image Re-sizing

Electrosonic's first DLP™ offerings combine TI's technology with the sophisticated image resizing developed over several years in Electrosonic's WORKSURFACE™ program.

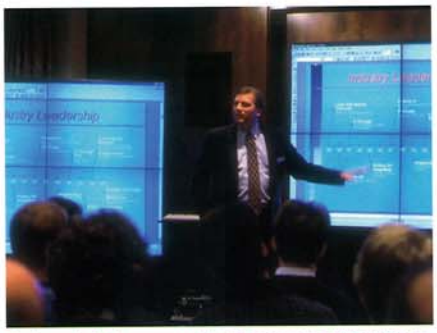
We receive the TI "engine" in a form which expects a 24-bit parallel digital input at 800x600.

We add to the basic engine an interface which can accept any input from 15kHz interlaced video (PAL or NTSC) up to 1280x1024 graphics.

The interface is based on Electrosonic convolving technology which recalculates all pixel values to match the input to the display. It has an outstanding performance on full motion material, especially that derived from interlaced sources which are usually badly treated by computer graphic accelerators.

The resulting "engine" and "cube" products are suitable for use with any videowall, computer or video system.

Overscan and fine color adjustments are provided; and for simple videowall systems only requiring one big image to be displayed no additional image processing is required, because the interfaces can be programmed to "split" the image.



Electrosonic first announced their involvement with DLP™ in a series of Technology Previews given to influential end-users and professionals in Minneapolis, Los Angeles, New York, London and Hong Kong in December 1997 through February 1998. Here Electrosonic Chief Executive Kyle Carpenter introduces the London session standing in front of a DLP™ demonstration videowall.

The projection "engine" used in Electrosonic's first DLP™ products. The Electrosonic interface is on the right.

What is DLP™?

DLP™ is Texas Instruments' trade name for a series of products based on the Digital Micromirror Device (DMD). This is a reflective light modulator made up of hundreds of thousands of small mirrors, one for each pixel.

Each 18µm square mirror is mounted on a hinge structure and can be electrically actuated to deflect light.

"Wanted" light is deflected through an objective lens onto the screen, unwanted light is deflected away from the lens.

Gray scale is achieved by varying the time that a mirror is deflected towards the lens within the time of a video frame.

The entire DMD is fabricated using semiconductor chip manufacturing techniques; the drive electronics under the mirrors being very similar to a standard memory chip.

Color is achieved either by multiple chips or by field sequential technique using a color wheel.

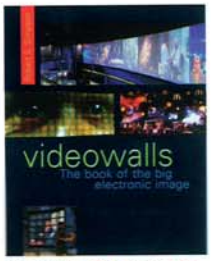
The first Electrosonic products use a "2-chip" engine, where blue and green are achieved by a single chip and color wheel, and red has its own chip. This arrangement allows the use of an exceptionally long life lamp (6000 hours) and gives excellent color rendering.

VIDEOWALLS
The Book of the Big Electronic Image

Do you want to know more about big electronic images?

A new book with the above title has been published by Focal Press (an imprint of Butterworth Heinemann of Oxford, UK, and Boston MA in the USA).

The book covers all the main methods of displaying electronic images, both as single and multi-screen displays.Everything from CRT monitors to electroluminescent displays, ILA™ projectors to outdoor LED videoscreens, is included, in addition to comprehensive information on "standard" videowalls. The treatment is non-mathematical, and includes many "case studies"



Videowalls - The Book of the Big Electronic Image is published by Focal Press. ISBN No. is 0-240-51505-6.

and practical application examples - it is very much for the user rather than the academic! Over 75 companies and organizations are credited with providing information and pictures (of which there are over 500, all in full color). The biggest contributor was, however, Electrosonic, if only because the book was written by Electrosonic's co-founder, Robert Simpson.

Sources go digital

A large proportion of Electrosonic's work requires video images to be stored on media that provide reliable continuous running, and instantaneous random access to any part of the stored program material. This rules out the use of any tape based source.

Since the early 1980's the preferred source, especially for permanent installation, has been the analog laserdisc. The pressed laserdisc, and higher quality alternatives like the Sony CRV system have given sterling service for 15 years, but now their reign may be coming to an end. After a number of "false dawns" digital sources are becoming the practical alternative with the promise of higher quality and greater flexibility. For our work practical digital sources are based on compression, in order to ensure a manageable storage size and data rate.

The standardization of compression methods is what has really opened up the market.

Digital discs

First contender was the video CD; but we have made little use of this because in its standard form it can only play MPEG-1 compressed images at approximately VHS quality, which is simply not good enough for big screen displays and videowalls. The DVD (Digital Versatile Disc) which is just coming onto the consumer market will be a suitable source because it stores video at MPEG-2. Potentially it could even be used for high definition video, and its standard video is excellent.

Digital sources are ideal for videowall displays provided a high bit rate is used. At the 1997 London Motor Show Proquip Gearhouse installed this neat 5x3 videowall (Toshiba cubes, Electrosonic PICBLOC™ processing) on the Peugot stand. They used their own MPEG-2 playback system to provide four simultaneous sources.

However, its practical use in show systems is currently awaiting the arrival of industrial players and easier methods of getting the discs made.

The MPEG-2 compression system is not limited to being used on plastic discs. It can also be carried on computer hard disc drives. However, drives used for the continuous playout of video are of a different construction to those used for normal computer use.

It is now possible to get hard disc drive systems which have sufficient capacity to carry long programs, have a very long mean time between failures, and which are configured so that the failure of any single drive does not lose the show, the technique of "redundant array". Drives in such systems can be "hot swapped" in emergency.

We are currently installing many show systems based on using video servers. These are specialized computer units in industrial housings optimized for the video replay task. A typical server system replays four or eight channels of video.

Crucial to the success of this approach has been the development of special software to provide the required "controllability" of the sources.

Facilities we have come to take for granted with laserdiscs, like fast frame accurate location, synchronized playback of multiple sources, genlocked playback etc have required a lot of work to achieve in the new digital domain.

At the five years old Museum of Tolerance in Los Angeles all the original exhibits use laserdisc players, and a few can be seen in the racks on the left. The black racks to the right of the picture contain Electrosonic video servers for the new 1998 POV Diner exhibit (see story on Page 9)

The Firing Room Theater at the Apollo/Saturn V Center. The consoles are originals from the 1960s. The big rear projection screens are each 14ft x 10½ft.

Apollo/Saturn V Center

"Electrosonic engineered exactly what we needed for the job and delivered it on time and on budget". Nice words from BRC's Kurt Haunfelner about our contribution to the recently opened Apollo/Saturn V exhibit hall at Kennedy Space Center.

The new attraction solves a practical problem - how to store the one remaining complete Saturn V rocket which was deteriorating out of doors, and provides a moving visitor experience by presenting the human story behind the amazing endeavors of 30 years ago.

NASA selected a team which included Morris Architects as the managing architects and BRC Imagination Arts as show producer.

BRC, in turn, selected Electrosonic as their partner for show systems control and image projection.

The centerpiece of the attraction is the giant Saturn V rocket, but this is supported by exhibit areas, interactive displays and two theater shows. The Firing Room Theater has a pre-show which gives the early history of the race to the moon; it is based on a 3-screen presentation using slides and video showing contemporary film and photographs.

The Saturn V Plaza is dominated by the 363ft rocket.

LCD Projectors

The theater itself is a reconstruction of the original firing room.

It is dominated by three large rear projection screens, each 14ft x 10½ft.

These are used to tell the main launch story and are each served by Barco 8100 big screen LCD projectors. *30 years ago* similar screens were used to show mission status and some live imagery - but then Eidophor monochrome projectors were used on a special 945 line TV system.

The firing room theater is furnished with 90 of the original consoles. These were rewired by Electrosonic so that the 3,400 indicator lights could be used during the show, similarly 32 old monochrome monitors within the consoles were replaced with new monitors.

While the main show audio system was installed by Electrosonic, working to a specification by BRC's project engineer, Clyde McKinney, the finale was augmented by a special theatrical effect devised by Technifex Inc. The "original" firing room was three miles from the launch platform, but nonetheless the windows really shook on launch. Technifex recreated this by building an 18ft x 120ft polycarbonate window which was "shaken" by a combination of directly coupled bass drivers and pneumatic actuators.

The pre-show to the Lunar Theater is based on contemporary media coverage, and countdown clocks until the opening of the theater doors.

The theater itself is of traditional proscenium design, and tells the story of the moon landing as if from the moon surface. The show includes the appearance of a two thirds scale model Lunar Excursion Module (LEM), and an "earthrise", achieved by a travelling slide projector.

The Lunar Theater. The model LEM and Neil Armstrong are two thirds full size.

EASY+

Electrosonic's contribution to the Apollo/SaturnV Center was not limited to competent project management and good teamwork.

The key to quick programming and cost effectiveness was the use of the EASY+™ mixed media show control program, and its associated ESLINX™ hardware. For this installation a special extension to EASY+ was written to allow it to communicate with standard programmable logic controllers (PLCs) which were used for interfacing with the console lighting and moving scenic effects. Electrosonic PICBLOC™ image processing was also used, not for its usual videowall application, but to provide multiple still images from a small number of laser disc sources to feed the console monitors in the Firing Theater.

Kurt Haunfelner went on to say "Electrosonic are great problem solvers. This was a complex installation and the budget was relatively small.

We counted on them for a range of things, from simple video and slide projection systems for the pre-shows, to large-scale custom engineered solutions for the main theaters. We were extremely pleased with the results".

Electronic Images on Stage

The set of 'God's Heart' presented at New York's Lincoln Center in Spring 1997. Electrosonic PICBLOC image processing and C-THROUGH programming supported the show.

Scharff Weisberg of New York are experts in providing video display systems for live theater. When multiple imagery and real time programming are required, they turn to Electrosonic.

In Electrosonic World No 8 we reported Scharff Weisberg's outstanding work on the Broadway Stage supporting Batwin + Robin Productions, responsible for video in such shows as *"How to succeed in business without really trying"* and *"Tommy"*.

In Spring 1997 the same team worked together on a production at the Lincoln Center. In this case the use of electronic images was essential to the idea of the play - it was not a case of using them solely as decor.

'God's Heart'

The new play *'God's Heart'* by Craig Lucas was described by the theater magazine TCI as "about God, the community of humankind and the information superhighway", and as a "potential designer's nightmare; scenes unfold in three places simultaneously, the action slips from reality to nightmare in nano-seconds".

The set designer, Robert Brill and director Joe Mantello integrated video imagery into the production, using both live and recorded material.

The principal images, derived from laserdisc and live cameras, appeared on a 5x4 videowall (Toshiba projectors and Electrosonic PICBLOC-3™ processing).

Other images were projected onto the stage itself using Barco 5100 projectors. Meryl Moskowitz, Batwin + Robin's producer commented "A lot of this show had to do with technology, computers and the like.

The trick was to make the technological components work without overpowering what was on stage.

Scarff Weisberg was a great help in allowing us to strike that balance.

Their programmer, Ben Saltzman, was an amazing programmer."

This photo shows the use of the floor projection, supporting the videowall.

Ben used Electrosonic's C-THROUGH™ program, ideal for the live control of videowalls, video switchers and multiple video sources.