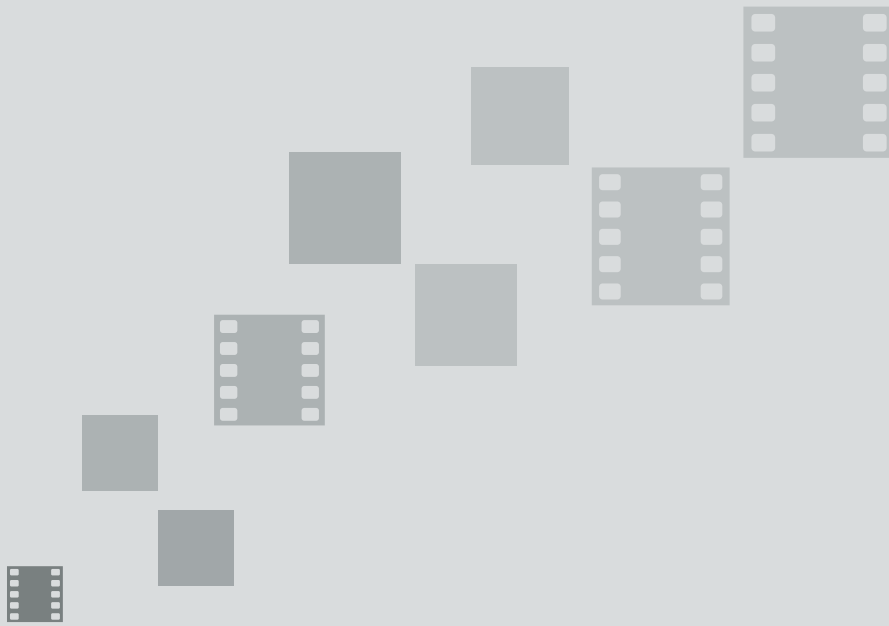


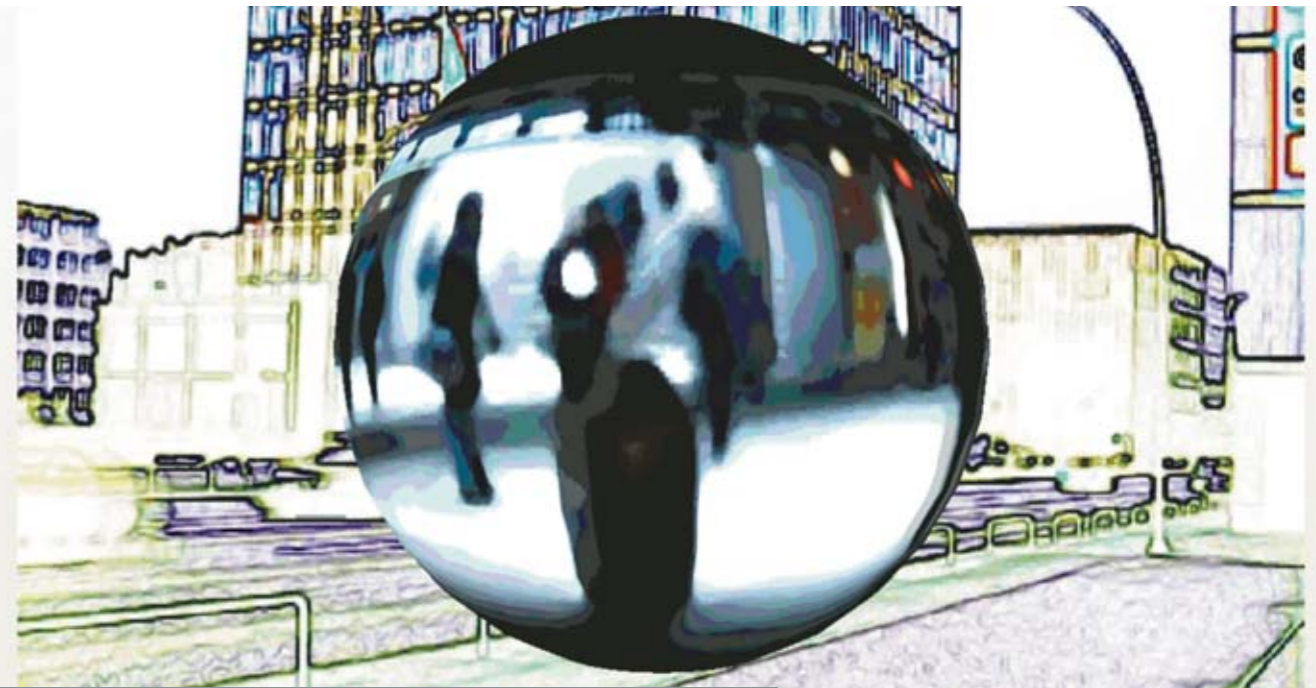
grand iMAge



- the complete video system –
- integrated into lighting control

grand iMAge

the system and its elements

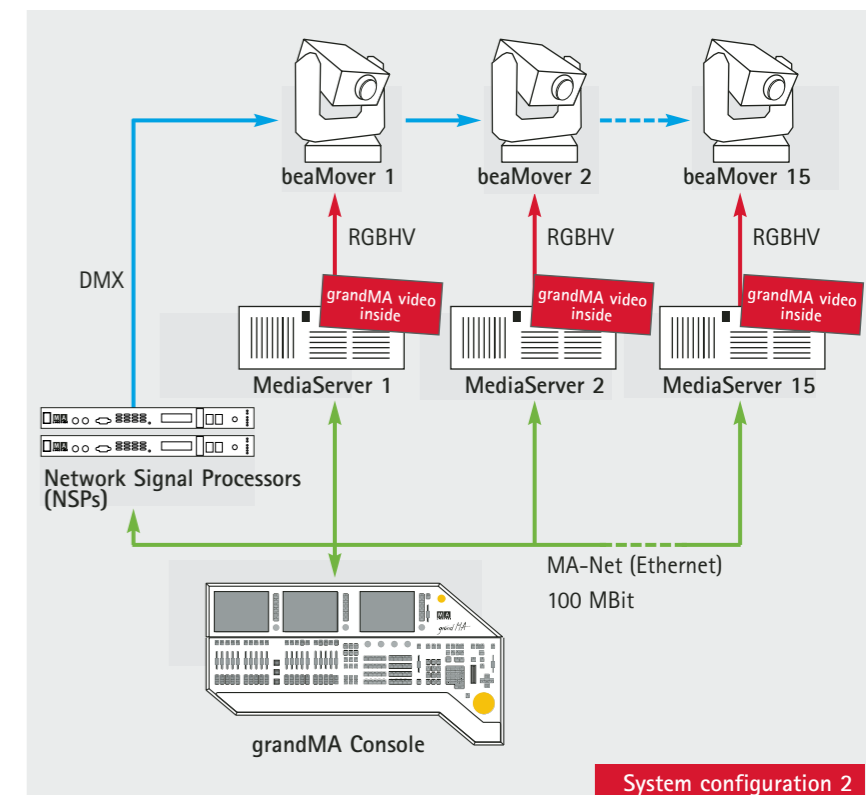
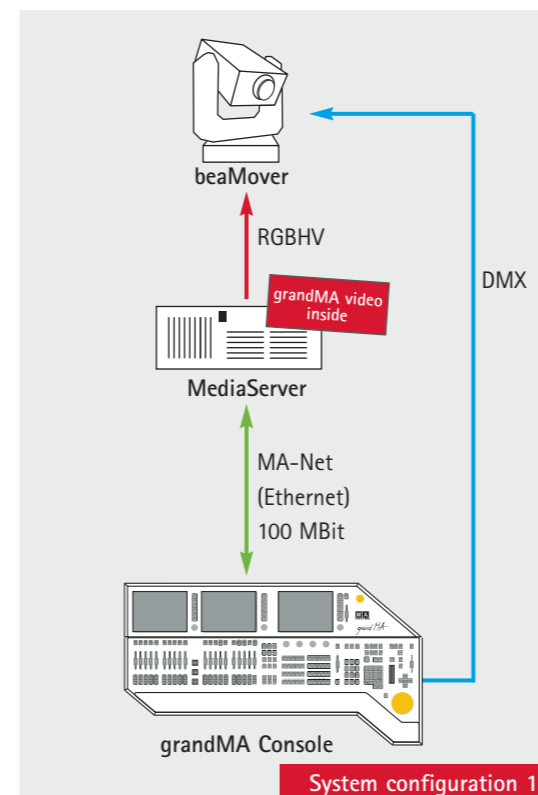
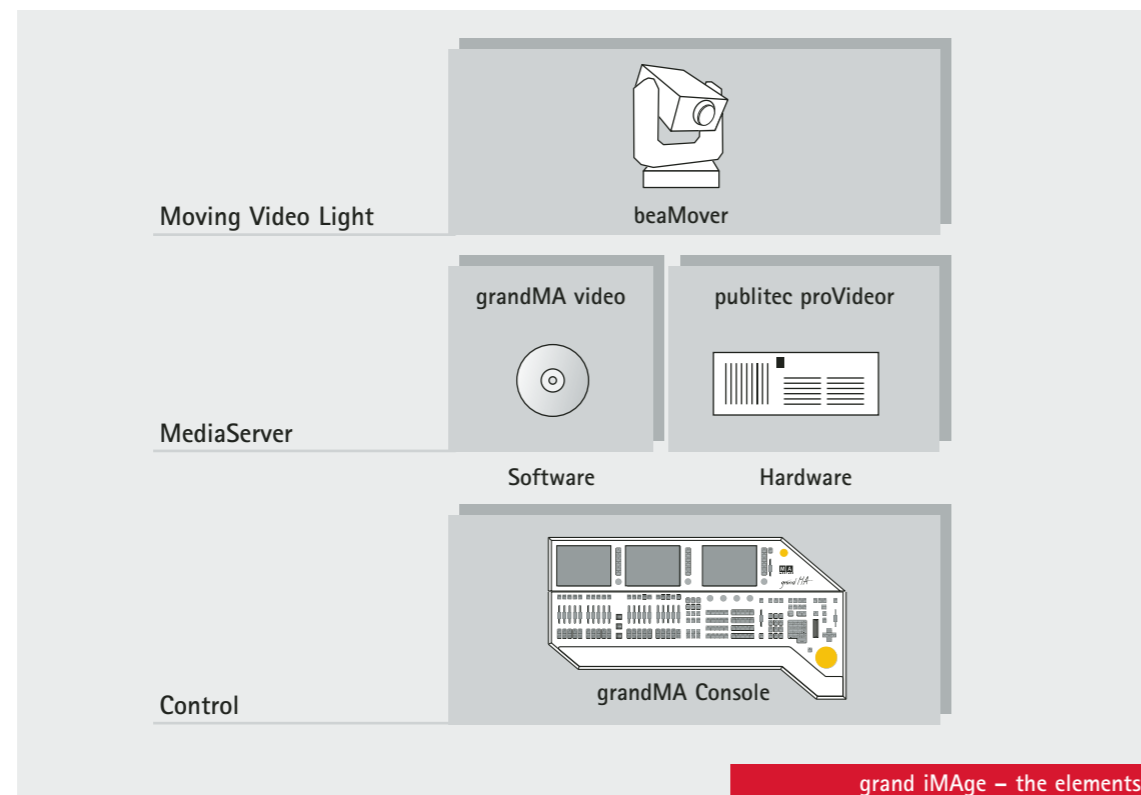


From an artistic point of view, the use of video and image manipulation become more and more the central element in a wide range of different productions; at the same time, "digital lighting" is also becoming increasingly widespread with the expanding number of inexpensive and significantly brighter LCD and DLP projectors available.

As a new and powerful software tool for lighting designers and programmers, **grandMA video** was designed to provide an optimal solution to meet these requirements. As a result, **grandMA video** is capable of controlling, by means of the grandMA consoles, any commercially available pc server hardware and the video projector plugged into this server.

In cooperation with Publitec, MA Lighting also offer an integrated system solution consisting of special 19" server hardware (publitec proVideor) and moving video lights (beaMovers) which are based on a modular design. The grandMA consoles are at the heart of such a system and can be network-linked to a maximum of 15 **grandMA video** applications using MA-Net.

While the product description of the individual system components will be dealt with in more detail later, the examples shown here should provide an initial overview of the fundamental structure of single-unit and complex grand iMAge systems, while showing image signals (e.g. RGBHV) and other functions (DMX).



System Element 1: Control

grandMA Consoles

The grandMA consoles are the core of the grand iMAge system. This product family offers six different hardware platforms. The grandMA family offers immediate solutions ready for all kinds of applications – including theatre, musical events, concert touring, television, clubs, amusement parks or cruise ships.

The grandMA consoles are able to control – in the most elegant manner – moving lights, conventional lights, and effects, as well as LEDs and video – even when working in real time with maximum channel count. What makes them real multi-media consoles. Add to all these capabilities real-time rendering visualization via grandMA 3D. The reliable and proven operational philosophy allows a direct, flexible and intuitive way of working.

MAIN FEATURES:

- Direct and fast access; real-time control for up to 64 DMX universes (16,384 parameters)
- Completely configurable for every application: Theatre, TV, Concert Touring, Entertainment, etc.
- Elegant programming and control of moving lights, dimmers, LEDs, effects and media servers
- Extensive networking functionality including Multi-User, Backup, Parameter Expansion, Remote Control
- Comprehensive Freeware available; system-integrated – with bi-directional communication
- Mature software and hardware – extensively field tested over five years – provide unmatched stability and reliability

THE CONSOLES:



grandMA full-size

- 2,048 HTP- or LTP-parameters (4,096 with expansion chip)
- Controls up to 15 grandMA video stations
- Full networking performance and expansion for up to 16,384 parameters
- 3 internal, high-resolution TFT color touch screens
- 2 external SVGA connectors
- 20 motorized faders, 40 executor buttons
- Keyboard and mouse included
- Uninterruptable Power Supply (UPS) built-in



grandMA light

- 2,048 HTP- or LTP-parameters (4,096 with expansion chip)
- Full networking performance and expansion for up to 16,384 parameters
- Controls up to 15 grandMA video stations
- 1 internal, high-resolution TFT color touch screen
- 2 external SVGA connectors
- 10 motorized faders, 20 executor buttons
- Uninterruptable Power Supply (UPS) built-in



grandMA replay unit

- 2,048 HTP- or LTP-parameters (4,096 with expansion chip)
- Full networking performance and expansion for up to 16,384 parameters
- Controls up to 15 grandMA video stations
- 5 faders, 5 executor buttons
- 1 external SVGA connector
- 19" rack-mount
- Uninterruptable Power Supply (UPS) built-in



grandMA ultra-light

- 1,024 HTP- or LTP-parameters
- Full network performance and expansion for up to 16,384 parameters
- Controls up to 15 grandMA video stations
- 1 internal, high-resolution TFT color touch screen
- 1 external SVGA connector
- 10 faders, 20 executor buttons



grandMA micro

- 1,024 HTP- or LTP-parameters
- Basic network performance – w/o parameter expansion
- Controls one grandMA video station
- 1 internal, high-resolution TFT color touch screen
- 10 faders, 20 executor buttons



grandMA onPC with NSP

- 2,048 HTP- or LTP-parameters
- Extensive network performance and expansion for up to 4,096 parameters
- DMX Output using 1 or 2 NSPs
- Controls up to 15 grandMA video stations – scaled mode



NSPs

grandMA Parameter Expansion

The highly developed networking capability is one important element of the grandMA system* and allows, among other things, channel expansion for up to 64 DMX universes. Different protocols are available. Using the MA-Net – exclusively ensures stability and synchronous DMX operation without any delay, even at maximum capacity.

*except grandMA micro

- Control for up to 16,384 parameters (64 DMX universes) via a stand-alone grandMA or a Multi-User environment
- No compromise in performance through external channel processing of all nodes
- Up to 16 network signal processors (NSPs) to use as nodes
- Parallel usage of grandMA remote, grandMA 3D, grandMA onPC/offline, grandMA video

The New Way of Counting: Channels or Parameters

The grandMA calculates internally all functions (para-meters) in 16bit resolution and processes those – depending on the application – as single DMX channel in 8bit resolution (e.g. brightness) or as two DMX channels per function in 16bit resolution (e.g. pan and tilt). A maximum of

16,384 parameters can be distributed in one multi-user-environment, while up to 32,768 DMX channels (64 DMX lines, 16 NSPs) may be required for their processing.

System Element 2: MediaServer Software

grandMA video

grandMA video is a software based media server, for both still and moving images, fully integrated into the grandMA lighting control system.



- An affordable software solution for controlling, live-accessing and altering video, still images and 3D-objects – in real-time via any grandMA console
- Fully optimized for "off-the-shelf" PC hardware, but also complete solutions including server-hardware and moving video lights available.
- Six layers with full effects capabilities for high-resolution projections (e.g. XGA / 1,024 x 768 pixels) plus one master layer with keystone-effect

- Straightforward set-up and configuration that utilizes bi-directional communication with the grandMA console – says the PC can be placed directly at the projector; grandMA video is an integrated part of the grandMA network session
- Instant live-access via the grandMA console to any kind of image, 3D-object or video – including content-preview in your presets
- Extensive media library included

Key Features

grandMA video is a fully integrated part of the grandMA network system, grandMA video is not just triggered via DMX. This has many advantages. On the one hand a minimum of setup and configuration is required due to bi-directional communication between the console and the grandMA video software. On the other hand the grandMA console allows for direct access to the server (content browser) and previews the content as thumbnails in the preset. Therefore the PC can be placed directly at the projector / the moving video light – no need for long video cables. This saves costs, rises the performance and eliminates quality problems.

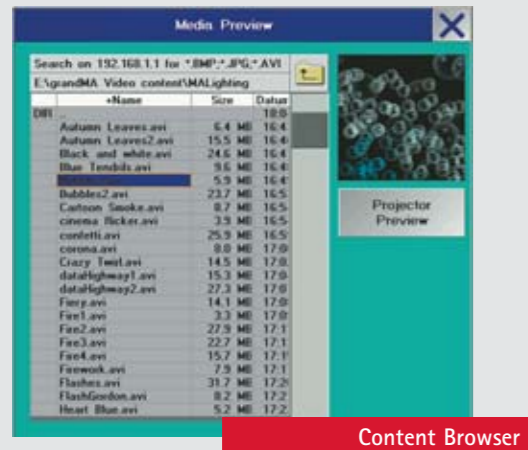
The grandMA video software enables a console operator to control and alter videos, still images and three-dimensional objects in real-time from a grandMA lighting console. Three-dimensional objects can be textured with video clips or animated images. Videos, still images and three-dimensional objects can be manipulated in multiple ways and in the same intuitive manner as a lighting fixture is manipulated from the grandMA console.

Functions and Features

At its most basic level, grandMA video allows for the control of several moving images and high-resolution images simultaneously. Videos and still images can be combined, mixed and controlled using any grandMA console like a regular multi-parameter fixture. For this, six layers are available plus one master layer with keystone effect.

In addition, grandMA video offers the possibility of choosing any three dimensional object as a surface for video or still images. Cubes, cylinders, spheres, extruded logos or any other three-dimensional shape can be "textured" with complimentary images or videos. The position and orientation of these three dimensional objects are fully controllable from the grandMA console. You could start with a cube rotating and progress to a three-dimensional logo flying around, but from then on, you are only limited by your imagination.

Each image or video that is used at the same time requires a layer. Since the transparency of each layer is controllable, it is possible to cross fade from one video image to another by cross fading from one layer to another. By controlling and mixing the output of the grandMA video software, your grandMA console has become a video mixer.



Content Browser



Preview of Media Objects

Video and Image Library

grandMA video comes with an extensive library containing images, gobos and video clips.

This library contains over 100 video loops and over 1,000 licensed high-resolution gobos from renowned designers. Over 300 seamless textures and a number of special AVI files complete your new design tool box.

Content from other providers, and videos and images you have created yourself can easily be added to the system. grandMA video supports AVI files, JPEG images and standard Windows bitmap images.

Fully integrated and scaleable

grandMA video is the only media server on the market that can be fully integrated into the network protocol of a lighting console. Bidirectional communication between the grandMA console and grandMA video with all its advantages is possible using MA-Net (via Ethernet). grandMA video provides complete scalability of its range of functions. The programme can be set up in such a way that only those function and layer parameters actually used take up available parameter capacity. While this improves the overview, it also increases the system's performance and ease of operation. At a maximum, each grandMA video application will use up to 201 parameters when working with six layers and the master layer.

Effects

To explain the effect engine it is illustrative to imagine grandMA video as a model of a several movable cameras where every camera looks at a layer object like a screen or a 3D cube.

Layer Effects

Example with 8bit values 0...255 or in %

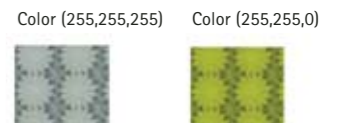
Dim
Dimmer function.
To facilitate fading between different layers the dimmer controls the transparency of an object.
If the dimmer is 0 the object is transparent and the projection is invisible.



Layer Effects

Example with 8bit values 0...255 or in %

ColorMix
(CM1; CM2; CM3)
Tint the output with the CMY (Cyan; Magenta; Yellow) color mixer



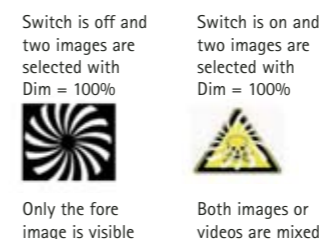
VObj Type
Select an 2D or 3D object on which surface the to image or video is shown



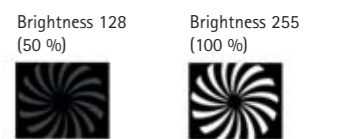
VObj Image
Select the image or video



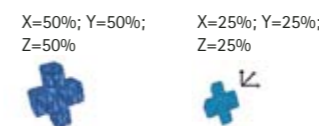
VObj Dark is Transparent
This switch causes that the black values of the image will be switched to transparent.
For example a grey plane will be half transparent if the switch is set.



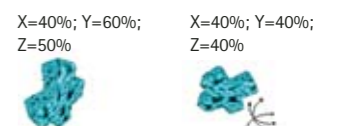
VObj Brightness
Control the Brightness of an image or video.
In opposite to the "Dim" channel that works on the transparency of the object type this channel works on the brightness of the image or video that is shown on the surface.



VPos (X; Y; Z)
Positioning of the projection object in X; Y; Z - direction



VRot (X; Y; Z)
Rotate the projection object around the X; Y; and Z-axis



Layer Effects	Example with 8bit values 0...255 or in %		Layer Effects	Example with 8bit values 0...255 or in %	
VPos<> (X; Y; Z) Animate continuous moving of the projection object in X; Y and Z - direction	X=50%; Y=50%; Z=50%	X= 60%; Y=60%; Z=50%	VRot<> (X; Y; Z) Animate continuous rotation of the object around the X; Y and Z - axis	X=50%; Y=50%; Z=50%	X= 50%; Y=50%; Z=60%
VScale (X; Y; Z) Scale the dimensions of the object in X; Y ;Z direction	X=50%; Y=50%; Z=50%	X= 50%; Y=30%; Z=50%	VImage (Split X; Split Y) Split the image or video in X and Y	Split X 0; Split Y 0	Split X 1; Split Y 1
VImage (Offset X; Offset Y) Split offset of the image or video	Offset X=0; Offset Y=0	Offset X=50%; Offset Y=0%	VImage<> (X; Y) Animate continuous scrolling of the image or video	X=50%; Y=50%; Z=50%	X= 60%; Y=50%; Z=50%
Clip Index (0...254) Run (255) (Only for videos) Select a single-picture or control the video (forward, back, speed)	Index 100	Index 200			

Master Layer Effects

To achieve a trapezoid effect the sum of all layers can be manipulated on a master layer:

Master Layer Effects	Example with 8bit values 0...255 or in %	
Camera (Distance; Latitude; Longitude) All layer views are mixed up to one view for the main camera. This imaginary camera can be moved to achieve a keystone effect for equalizing projection errors.	Dist=128; Lat=128; Lon=128	Dist=140; Lat=128; Lon= 200

Color keying

This technique makes it possible to draw images with transparent colors – like the re-known blue-box effect

The following example shows a typical result of a Color key mixture:

Image 1 (guitar.bmp)	Image 2 with Color key (porthole@ck.bmp)	Resulting output
		

System Element 3: MediaServer Hardware

proVideor

the PC hardware



The publitec proVideor is a high-performanced media Server for sophisticated video applications. This hardware is especially made for the grandMA video software.

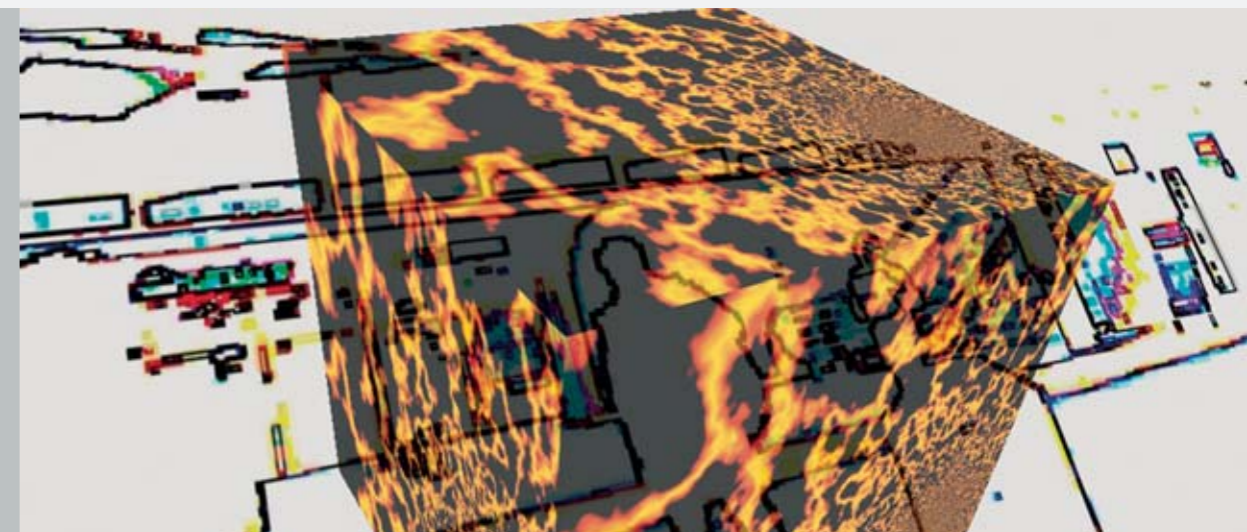
An ATX board with an intel Pentium-4 CPU, high-performance Intel chipset and hyper-threading-technology within a robust 19" housing serve as the base for high-quality, safe and high performance within media-streaming.

An 800 MHz bus-structure and 1 GB memory offer an excellent structure for use as media-server. The graphic card including an ATI Radeon chipset and 256 MB DDR-Ram supports the complex performance in grandMA video (mulilayer, real-time animations, 3D-effects)

The internal RAID-system (2 x 80 GB HDD with S-ATA RAID-Controller) provides the user a fast and safe access to all contents and guarantees a processing request of media files without delay. The integrated Gigabit-LAN-interface generates the connectivity to the grandMA-light control host – including the complete grandMA network and allows a quick upload of new video material to the media server, too.

The publitec proVideor is the dedicated comination of optimised performance, operational safety and efficiency for all applications with the grandMA video.

Article	Dimensions	Weight
proVideor	483 (19") x 176 (4 U) x 535 mm	17 kg



System Element 4: Moving Video Light

beaMover

With 5.200, 4.600 respectively 4.000 ANSI and an incredible contrast of 1.000:1 the beaMover guarantees bright and brilliant images, even under enlightened or daylight conditions. With 16,7 million colours and a resolution of 1.024 x 768 pixels your creativity will not be kept in bounds.



Control

All beaMover functions can be controlled remotely using the international DMX-standard and occupying 12 DMX-channels.

Pan & Tilt

For a smoother motion, the new beaMover generation uses a new advanced motor control. For achieving highest position accuracy and smoothest motion – even at low speed – the pan and tilt functions are controlled by 2 DMX-channels. You will receive a freedom of movement in 340° PAN (vertical) and 270° TILT (horizontal), achieving an exact positioning of < 0,01° in each axis.

Zoom & focus

Zoom and focus functionality are controlled by a specially developed lens-control-system. A custom designed micro controller circuit, combined with an opto-coupled feed-back mechanism guarantees highest possible resolution and precise positioning.

This control is supposed for all 4 motorised lenses. With a kind of quick-action-function, the user can change the lenses on his own to apply the beaMover in a wide range of projection distances.

Keystone

The new beaMover generation has a faster response on keystone control. Two additional DMX channels allows programmable horizontal and vertical keystone corrections using absolute values.

The projected image can also be flipped when the beaMover is used in over-head projection environments via DMX (1 channel).

Blackout

The electronic projector blackout function is controlled with the 11th DMX-channel.

When using the shutter (optional), a "real" blackout (mechanical shut) is also controlled with this channel.

Signal sources

3 signal sources can be connected simultaneously and switched via DMX channel. A combination of RGBHV, YUV, HD 15-po. D-Sub (VGA), F-BAS, S-Video connectors can be chosen individually on order. Input switching is executed via DMX that enables the user to manage different image signals

Reset

A number of reset functions are available using the 12th DMX channel, such as switching the projector's head power on and off.

Shutter

The specially developed shutter for the beaMover, that is easily mounted at the face of the beaMover. The shutter can be activated with the 11th DMX channel (No-Show-function).

For flexible and varied applications, the projector unit of the beaMover can also be used without the motorized yoke, thus saving storage space and costs.



technical details

- beaMover 40: 4.000 ANSI-Lumens
- beaMover 50: 4.600 ANSI-Lumens
- beaMover 55: 5.200 ANSI-Lumens
- Motion: 340° pan, 270° tilt
- Colours: 16,77 Mio.
- Contrast: 1.000:1
- Resolution: 1.024 x 768
- Control: 12 DMX-channels (2 x pan, 2 x tilt, 1 x focus, 1 x zoom, 1 x picture flip, 1 x blackout, 1 x image source selection, 2 x keystone, 1 x reset)
- Video input: 3 inputs:
 - XGA = RGBHV or YUV
 - Video = F-BAS
 - S-Video = YC
 - additional digital video input (DVI)

Article	Dimensions	Weight
beaMover – Yoke	503 mm x 670 mm (max., w/o lens)	
beaMover – Base	440 mm x 350 mm	27,6 kg

Optionen:

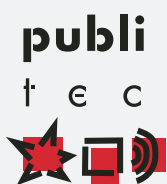
- motorised standard lens BM-S31 A: 1:1,7 - 2,3
- motorised vario wide angle lens BM-W31 A: 1:1,3 - 1,8
- motorised semi tele zoom lens BM-T31 A: 1:2,4 - 4,3
- motorised tele zoom lens BM-T32: 1:4,2 - 6,0
- mechanical shutter

grandMA – the DVD



grandMA DVD – your guide to grandMA

- Join the First League of Lighting Consoles and get your free grandMA DVD.
- Provides the best training introduction and more valuable information about the world's leading lighting consoles.
- Order your DVD online: www.malighting.de



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