MA Catalogue

MA LIGHTING®

Please

Index of Contents

Introduction

For more than three decades, MA Lighting has established a benchmark with its portfolio of solutions for control, video, dimming and networking, achieving a unique market status. Individually, each product is fully developed, powerful, extremely competitive and can be used in stand-alone environments.

However, as a complete system, the MA components build a synergy that is absolutely unparalleled. This is based on two sections – the grandMA2 lighting controls at the heart and the MA-Net2 as the internal system language.

Next to these products and system elements, MA Lighting offers a further variety of renowned products for control, video, dimming and DMX processing. These are all extremely reliable and many of them groundbreaking.

In the future, MA will continue to stay in close contact with its users and listen to their ideas. This provides the invaluable inspiration for our upcoming product lines.

"The whole is much greater than the sum of its parts."

| Control | Network | Video | Dimming |

MA System Integration

Video

Video integration –

MA VPU (Video Processing Unit)

Fader expansion – grandMA2 fader wing

grandMA2 full-size

Dimming

Dimmer integration with feedback function

(dimMA and dimMA compact)

Network

Parameter expansion –

MA NPU (Network Processing Unit) –

up to 65,536 parameters per session

Data distribution and signal conversion –

MA 8Port Node, MA 4Port Node,

MA 4Port Node WM, MA 2Port Node,

MA 2Port Node WM

6

At the heart and soul of the unrivalled MA system are the grandMA2 consoles. They form the central intelligence for lighting systems that can comprise up to 65,536 parameters per session. grandMA2 is the most powerful console and offers the control of conventional lights, moving lights, digital and LED fixtures as well as media – all from one platform. The grandMA2 lighting controls are a flexible multimedia platform, while the system's MA-Net2 with its enormous speed and capacity is responsible for the time synchronous and steady output of the widest data flow. Moreover, the MA-Net2 enables the complete integration of software tools like MA 3D and grandMA2 onPC as well as the powerful hardware of the MA VPU (Video Processing Unit), and can also be used for bi-directional communication with the digital installation dimmer, dimMA. Thus MA Lighting offers the only fully-integrated system on the market.

grandMA2 – Multi-User-Mode and backup solution (via 1GB/s MA-Net2)
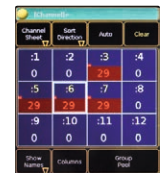
MA remote control

Preprogramming and visualisation – MA 3D

Live show controller, backup system and preprogramming Tool – grandMA2 onPC

MA onPC solutions – flexible extensions and smart stand-alone tools

MA 2Port Node onPC 1K, MA 2Port Node onPC 2K as parameter expansion

MA 8Port Node onPC, MA 4Port Node onPC as parameter expansion

grandMA2 onPC

MA onPC fader wing

MA onPC command wing

Control

Mark Knopfler "Privateering" – European Tour 2013

grandMA2 Unique Features

- Up to 8.192 parameter and 6 DMX outputs as well as 1 DMX input per console

- Robust and reliable solid-state-disc (flash-memory) – no HDD

- 2 x 1Gbit/s Ethercon

- Up to 5 USB 2.0 connectors (2 x on the back of the console, 2 x on the monitor wing, 1 x within the drawer)

- Powercon and Ethercon connectors, XLR 3-pin for LTC (Linear Timecode) and sound

- Connectivity: 2 x DVI-I, MIDI in/out, analog remote input, Ethernet, LTC, sound, USB, DMX in/out

- All grandMA2 consoles are optionally available as 'silent version' with optimised fan and cooling system for noise-sensitive environments

- More motorized executor faders (longlife conductive plastic faders, easily replaceable)

- More motorized executor keys (buttons are silent, i.e. without click, individually backlit and individually dimmable)

- 2 additional motorized A/B fader (100mm)

- All encoders are nonwearing due to magnetic click

- Motorized grandMA2 fader wing available (connected via MA-bus)

- Motorized monitor wing

- Keyboard and storage integrated on grandMA2 full-size and grandMA2 light consoles

- Touchscreens:
  15.4" WXGA (1,280 x 800)

- 2 external screens can be connected
  (touchscreens accepted, connected
  via USB, individual resolutions)

- Command monitor
  with multi-touch:
  9" SVGA (800 x 480)

grandMA2 full-size

grandMA2 Software

The grandMA2 software is the most powerful software on the market. It runs on grandMA2 hardware and is available for free as grandMA2 onPC for any Microsoft Windows computer. The core functionality of the software is a stable running system within a network.

Any of the hardware or software can therefore act as a mutual backup. So the grandMA2 software can be a powerful stand-alone lighting control (especially in combination with any grandMA2 hardware), but also a unique and unrivalled lighting control system with excellent backup. The overall system output as DMX or DMX over

Ethernet is in sync and in real-time (in terms of 30Hz).
The software is structured in three parts which are further structured if necessary. Setup is the most essential to prepare the technical communication of your lighting rig; Programming gets your show together and Playback is essential for running your show.

Setup

Setup prepares your show! At this point you put your system together. During setup you can easily patch over 256 DMX universes in any way you like to structure your show. Any fixture can be edited and/or self-created. Also setup allows you to create your own user profile with your preferences for the upcoming show. Up to 32 users with up to 32 different user profiles can participate, and multiple users can work simultaneously with the same rig if needed.
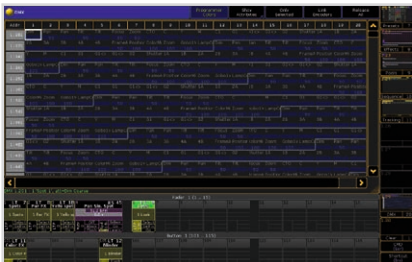
Also the system will be configured at setup: Just start a session and invite other MA products to easily connect and work as a combined lighting control system. The parts behave as if they were one huge single lighting control board and all showfile data is shared and saved on each device. Loss of data is nearly impossible.

Programming

A full command line based programming language is available for your programming convenience. A lot of functionality and short-cut button pushes can create the desired result in a very short time. Major functionality as values, timings and effects (dynamic values) inputs are available all the time via the encoder bar. Different views e.g. fixture sheets with programmer mask or channel sheets with different sorting orders are also available all the time and can be arranged per screen as you wish.
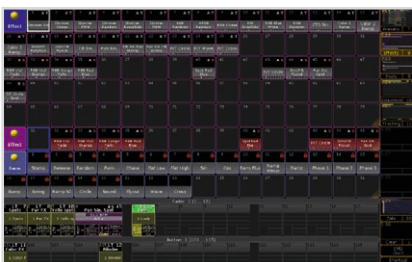
Ten views can be stored for direct access and another nine banks, each ten views are available with two button pushes. So as much information as is needed is right there all time or only a button push away.

A stage view that interacts with the system-wide available MA 3D for visualisation as well as a layout view optimizes the programming overview in a topographic way of your venue or stage if wanted. Of course, with the grandMA2 hardware there are touch screens available giving direct input.
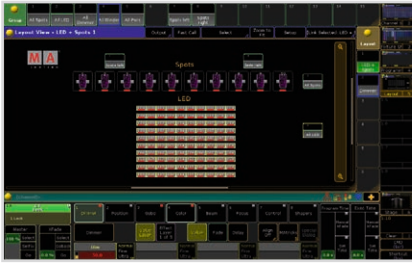
Playback

90 faders called Executors are available on 9999 pages as well as 90 extra button executors (button only). They all can be setup and assigned exactly as you would like to use them. You are free to choose of any values, presets, cues, playlists, macros, etc. and load them onto the executors (with or without faders) so you can create a playback scenario with endless possibilities. Additionally all single channels can be assigned to the faders on an extra page to have a live access and tactile feedback as from a multi-fader desk. For playback situations all screens/views can be rearranged and stored however you like. Especially the Layout view allows your own background pictures, your self-defined functionality and your self-created symbols to be used.
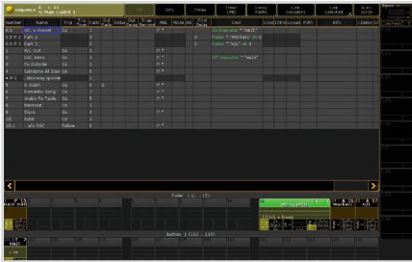
As you can see, there are multiple solutions to create a work environment for your convenience. You can customize the console or the system to your preferred working method. At the same time, pre-arranged showfiles for an instant start are available. There are many video tutorials available via YouTube **(www.youtube.com/user/MALightingInt)** and written tutorials/manuals via our webpage **(www.malighting.com)**.

grandMA2 full-size

13

grandMA2 full-size

- Real-time control for up to 65,536 parameters per session in connection with MA NPU (equivalent to 256 DMX universes)
- 8,192 HTP/LTP parameters
- 6 DMX outputs
- 3 internal TFT wide mode touchscreens (15.4" WXGA)
- 2 external TFT screens can be connected (UXGA, touchscreens accepted)
- 1 internal command screen – multi-touch (9" SVGA)
- 30 motorized executor faders
- Integrated keyboard drawer
- Built-in uninterruptible power supply (UPS)
- 2 etherCON connectors, 5 USB 2.0 connectors
- Motorized monitor wing
- 2 motorized A/B fader 100mm
- Individually backlit and dimmable silent (clickless) keys

The grandMA2 full-size represents MA Lighting's most powerful console and offers the control of conventional light, moving lights, LED fixtures and media from one platform.

Equipped with the most up-to-date technology and even some special features (e.g. keyboard drawer and multi-touch command screen), the grandMA2 is suitable for all lighting segments and supplies an intuitive and fast control of all connected fixtures and channels. Furthermore the grandMA2 fader wing provides up to 60 extra motorized executor faders for an almost unlimited number of pages.

Moreover grandMA 'series 1'-showfiles can be converted to be used with the grandMA2. And for yet easier operation, all command keys can be found in the same place on every console of the grandMA2 series. The grandMA2 offers extremely flexible and comfortable ways of programming, including nearly infinite numbers of presets, cues, pages, sequences and effects.

rearside of grandMA2 full-size

- Motorized grandMA2 fader wing available (connected via MA-bus)

- Smart accessories, e.g. magnetic labels

- 5 USB 2.0 connectors (2 x on the back of the console, 2 x on the monitor wing, 1 x within the drawer)

Article	
120111	**grandMA2 full-size**
120161	**grandMA2 full-size, SV, silent version**

Accessories	
120121	grandMA2 fader wing
130032	MA NPU (Network Processing Unit)
120142	MA remote control package, incl. Apple iPad® (16GB)
120141	MA remote control package, incl. Apple iPod® touch (8GB)
121030	MA Case grandMA2 full-size, without wheels (by Amptown)
121029	MA Case grandMA2 full-size, with wheels (by Amptown)
120122	MA LED desk lamp grandMA2
120131	Dust cover grandMA2 full-size

Technical Specifications

Operating voltage/ Supply voltage	120V/230V, 50/60Hz (automatic detection)
Net weight	54kg/119lbs
Power	350VA
Dimensions	1,284 x 204 x 661mm/50.6 x 8 x 26inch
Output connectors	6 x XLR 5pin (DMX), 2 x DVI (external Monitor), 2 x etherCON, 1 x MA-Link (grandMA2 fader wing), 2 x USB, 1 x DIN (Midi), 2 x XLR 4pin (Desklight)
Input connectors	1 x XLR 5pin (DMX), 1 x XLR 3pin (Sound), 1 x XLR 3pin (SMPTE), 1 x DIN (Midi), 1 x Sub-D 25pol (Analogue Remote), 1 x powerCON

Scope of delivery
Built-in keyboard, 2 x MA LED desk lamp grandMA2 (120122),
1 x Dust cover grandMA2 full-size (120131)

grandMA2 light

- **Real-time control for up to 65,536 parameters per session in connection with MA NPU (equivalent to 256 DMX universes)**
- **4,096 HTP/LTP parameters**
- **6 DMX outputs**
- **2 internal TFT wide mode touchscreens (15.4" WXGA)**
- **2 external TFT screens can be connected (UXGA, touchscreens accepted)**
- **1 internal command screen – multi-touch (9" SVGA)**
- **15 motorized executor faders**
- **Integrated keyboard drawer**
- **Built-in uninterruptible power supply (UPS)**
- **2 etherCON connectors, 5 USB 2.0 connectors**
- **Motorized monitor wing**
- **2 motorized A/B fader (100mm)**
- **Individually backlit and dimmable silent (clickless) keys**

rearside of grandMA2 light

The grandMA2 light has 4,096 parameters, 15 motorized executor faders and two touchscreens available. All further features and controls are identical to those on the grandMA2 full-size. The grandMA2 light is the perfect tool to control all kinds of lighting genres like conventionals, moving lights, LEDs, video and media and supplies an intuitive and fast control of all connected fixtures and channels. The grandMA2 light can handle an almost infinite number of presets, cues, pages, sequences and effects. It is ideally suited as a backup device for the grandMA2 full-size. Moreover grandMA 'series 1'-showfiles can be converted to be used with the grandMA2.

Article	
120112	**grandMA2 light**
120162	**grandMA2 light, SV, silent version**

Accessories	
120121	grandMA2 fader wing
130032	MA NPU (Network Processing Unit)
120142	MA remote control package, incl. Apple iPad® (16GB)
120141	MA remote control package, incl. Apple iPod® touch (8GB)
121038	MA Case for grandMA2 light and ultra-light, without wheels (by Amptown)
121037	MA Case grandMA2 light + ultra-light, with wheels (by Amptown)
120122	MA LED desk lamp grandMA2
120132	Dust cover grandMA2 light and ultra-light

Technical Specifications	
Operating voltage/ Supply voltage	120V/230V, 50/60Hz (automatic detection)
Net weight	44kg/97lbs
Power	350VA
Dimensions	935 x 204 x 661mm/36.8 x 8 x 26inch
Output connectors	6 x XLR 5pin (DMX), 2 x DVI (external Monitor), 2 x etherCON, 1 x MA-Link (grandMA2 fader wing), 2 x USB, 1 x DIN (Midi), 2 x XLR 4pin (Desklight)
Input connectors	1 x XLR 5pin (DMX), 1 x XLR 3pin (Sound), 1 x XLR 3pin (SMPTE), 1 x DIN (Midi), 1 x Sub-D 25pol (Analogue Remote), 1 x powerCON

Scope of delivery
Built-in keyboard, 2 x MA LED desk lamp grandMA2 (120122),
1 x Dust cover grandMA2 light and ultra-light (120132)

grandMA2 ultra-light

- Real-time control for up to 65,536 parameters per session in connection with MA NPU (equivalent to 256 DMX universes)
- 4,096 HTP/LTP parameters
- 6 DMX outputs
- 1 internal TFT wide mode touchscreens (15.4" WXGA)
- 2 external TFT screens can be connected (UXGA, touchscreens accepted)
- 1 internal command screen – multi-touch (9" SVGA)
- 15 executor faders
- 2 etherCON connectors, 4 USB 2.0 connectors
- Motorized monitor wing
- 2 motorized A/B fader 100mm
- Individually backlit and dimmable silent (clickless) keys

The grandMA2 ultra-light features the full network performance of the grandMA2 series. All controls are at the same place as on the on bigger consoles.

With its 4,096 parameters and 6 DMX outputs the grandMA2 ultra-light is the perfect backup solution too. It brings all the features of the 'series 2' consoles to smaller shows and budgets, including intuitive and fast control of all lighting genres and the handling of an almost infinite number of presets, cues, pages, sequences and effects.

rearside of grandMA2 ultra-light

Article	
120113	**grandMA2 ultra-light**
120163	**grandMA2 ultra-light, SV, silent version**

Accessories	
120121	grandMA2 fader wing
130032	MA NPU (Network Processing Unit)
120142	MA remote control package, incl. Apple iPad® (16GB)
120141	MA remote control package, incl. Apple iPod® touch (8GB)
121038	MA Case for grandMA2 light and ultra-light, without wheels (by Amptown)
121037	MA Case grandMA2 light + ultra-light, with wheels (by Amptown)
120122	MA LED desk lamp grandMA2
120132	Dust cover grandMA2 light and ultra-light

Technical Specifications	
Operating voltage/ Supply voltage	120V/230V, 50/60Hz (automatic detection)
Net weight	35kg/77lbs
Power	350VA
Dimensions	935 x 204 x 661mm/36.8 x 8 x 26inch
Output connectors	6 x XLR 5pin (DMX), 2 x DVI (external Monitor), 2 x etherCON, 1 x MA-Link (grandMA2 fader wing), 2 x USB, 1 x DIN (Midi), 2 x XLR 4pin (Desklight)
Input connectors	1 x XLR 5pin (DMX), 1 x XLR 3pin (Sound), 1 x XLR 3pin (SMPTE), 1 x DIN (Midi), 1 x Sub-D 25pol (Analogue Remote), 1 x powerCON

Scope of delivery
2 x MA LED desk lamp grandMA2 (120122),
1 x Dust cover grandMA2 light and ultra-light (120132)

grandMA2 replay unit

- **Real–time control for up to 65,536 parameters per session in connection with MA NPU (equivalent to 256 DMX universes)**
- **4,096 HTP/LTP parameters**
- **6 DMX outputs**
- **2 external TFT screens can be connected (UXGA, touchscreens accepted)**
- **1 internal command touchscreen (7")**
- **powerCON In and Out**
- **2 etherCON connectors**
- **4 USB2.0 connectors**
- **Neither faders nor keys – therefore easy protectable against faulty operation**
- **Various control interfaces**

The grandMA2 replay unit offers the same features and functions as the grandMA2 consoles in a 19" housing. It can be easily built into a rack and is therefore perfect for fixed installations as a archictetural lighting control or as a backup solution.

The grandMA2 replay unit is a very safe playback/master controller, because to avoid faulty operations there are no built-in faders or buttons. Instead, the unit is operated by using the integrated touch screen or a mouse and a keyboard connected via USB. A wide range of interfaces assures the most flexible use and the best performance within architectural systems.

Article	
120115	**grandMA2 replay unit**

Accessories	
120121	grandMA2 fader wing
130032	MA NPU (Network Processing Unit)
120142	MA remote control package, incl. Apple iPad® (16GB)
120141	MA remote control package, incl. Apple iPod® touch (8GB)

Technical Specifications	
Operating voltage/ Supply voltage	120V/230V, 50/60Hz (automatic detection)
Net weight	10kg/22lbs
Power	150VA
Dimensions	485 x 126 x 445mm/19 x 5 x 17.5inch
Output connectors	6 x XLR 5pin (DMX), 2 x DVI (external Monitor), 2 x etherCON, 1 x MA-Link (grandMA2 fader wing), 2 x USB, 1 x DIN (Midi), 2 x XLR 4pin (Desklight)
Input connectors	1 x XLR 5pin (DMX), 1 x XLR 3pin (Sound), 1 x XLR 3pin (SMPTE), 1 x DIN (Midi), 1 x Sub-D 25pol (Analogue Remote), 1 x powerCON

grandMA2 fader wing

- **15 motorized executor faders**
- **15 executor buttons**
- **MA-bus connectivity to any console of the grandMA2 series**
- **Up to 4 grandMA2 fader wing can be connected to a console**

The grandMA2 fader wing offers a comfortable way to increase the number of motorized executor faders and executor buttons. Up to four grandMA2 fader wing can be connected to a console – i.e. 60 extra motorized executor faders are available in total.

The grandMA2 fader wing resembles the grandMA2 consoles in regards to fader and button layout as well as its whole appearance and is therefore the perfect hardware addition for them.

Article	
120121	**grandMA2 fader wing**

Accessories	
120133	Dust cover grandMA2 fader wing

Technical Specifications	
Operating voltage/ Supply voltage	via grandMA2 console
Net weight	8kg/17.6lbs
Dimensions	425 x 162 x 367mm/16.7 x 6.4 x 14.5inch
Output connectors	1 x MA Link
Input connectors	1 x MA Link

Scope of delivery
Connecting cable MA-link

MA 3D

- **Real-time 3D visualisation of all important functions and effects of luminaires and moving lights**
- **Bi-directional data exchange with the grandMA2 consoles – using the same setups**
- **Live or blind programming and preview mode**
- **Follow mode for live-positioning of fixtures from the MA 3D program to the console**
- **Multiple cameras are available that can be selected and independently positioned during visualisation**
- **Preprogramming of entire shows just with grandMA2 onPC and MA 3D**
- **Precise and realistic reproduction of shadows & colour beams in realtime**
- **MA 3D is available free of charge. Further information can be found at www.malighting.com.**

MA Lighting's visualiser and preprogramming studio – the PC software MA 3D – is an extremely powerful tool to visualise and design three-dimensional stage layouts. In conjunction with any grandMA2 console or the grandMA2 onPC program conventional and moving light fixtures can be displayed.

MA 3D allows a straight forward design and set up of any custom stage or scenery layout with its 2D drawing facilities and a library of basic graphical elements. Multiple windows both in 2D or 3D view with any camera angle can be opened at the same time and will be updated in real-time. All the stage elements can be positioned in x/y/z directions and can also be rotated around the various axes. Textures to design these elements' surfaces can be chosen from the huge built-in library, or you may import your own graphic files and even video clips and use them as textures.

Position and rotation parameters of objects and cameras on the virtual stage can be controlled via DMX and the equipment can be moved freely in the 3D space via the connected grandMA2 console.

Another big advantage is that the 3D environment is stored in the same showfile in the grandMA2 system. No matter where you are and which type of grandMA2 console and other MA equipment is being used – you always have the complete showfile with you!

The MA 3D application runs on powerful Windows® PCs and communicates with the grandMA2 console via network.

Article	
MA3D	MA 3D

MA remote control
iPad®/iPod® touch and Lancom Access Point

In combination with an iPad® or iPod® touch the MA remote control software offers convenient remote control of all grandMA2 and grandMA "Series 1" consoles as well as the grandMA2 onPC software. This means it is possible to remote access all important functions like channel or fixture selection and the adjustment of intensity, position, colour etc.

Therefore MA remote control is a universal remote control or a remote focus unit for focusing on stage. Likewise it can be used as a rigger's remote for function checking. Via a WLAN access point the MA remote control stays connected to one console or the whole system.

MA remote control can be downloaded for free from the Apple® iTunes Store. The software is easy to install and runs on all iPhone® and iPod® touch devices from hardware generation 2 (a generation 1 version is also available at iTunes) and on all iPads®.

An optimised hardware set is also available. It consists of a preconfigured access point and either an 8Gb iPod® touch or a 16Gb iPad®. The MA remote software is pre-installed, so the MA remote control package is 'ready to go'.

- **Convenient remote control for all important functions of the grandMA2**
- **Bi-directional communication via WLAN**
- **Up to 6 remote control units can be used with a grandMA 'series 1' and up to 2 with grandMA2**
- **MA remote control can be downloaded for free from the Apple® iTunes Store**

Available on iTunes

Article	
MAremote	MA remote control
120141	MA remote control package, incl. Apple iPod® touch (8GB)
120142	MA remote control package, incl. Apple iPad® (16GB)
120155	Apple iPod® touch (8GB) for MA Remote Control Package
120156	Apple iPad® (16GB) for MA Remote Control Package

Control – Your benefits at a glance:

Hardware

* Quality and flexibility

grandMA2 is second to none if it comes to hardware quality. Carefully chosen parts create the most reliable hardware. The console delivers the perfect solution, no matter if needed for touring applications or as a silent version to be used in fixed installations in a control room.

* Connectivity

grandMA2 series comes with identical connectors on the backside and all necessary connections are available.

* Easy access

Silent buttons, dimmable backlit keys, long life motorized faders, adjustable touchscreens, keyboard drawer, USB connectors at the front and so on are designed to make your daily work life much more comfortable.

* Powerful

Built in uninterruptible power supply, loads of parameters and the possibility to expand your network make the grandMA2 the most powerful console on the market.

Software

* Multiple options

Thanks to the numerous features the MA software offers there are multiple ways to reach your goal. Just choose your preferred one.

* Size does matter

By working in multiuser sessions large scale events can easily be handled as you can program in parallel.

* Versatility

The MA software comes with lots of views, features, functions for all important market segments.

System

* Scalability

The MA system can be easily expanded if you are in need of more processing power by adding MA NPU (Network Processing Unit).

* Data distribution

It is easy to create more DMX outputs throughout a bigger area by adding MA 4Port Node or MA 8Port Node for local signal distribution.

* Powerful backup solution

The seamless backup solution between consoles (automatically) puts you on the safe side while running a show.

* Video integrated

With the MA VPU (Video Processing Unit) MA provides its own powerful media solution that is fully integrated into the MA System and thus benefits from all advantages of it.

* Previsualisation

With MA 3D MA has developed its own previsualisation software that is fully integrated into the MA System as well and makes visualizing and preprogramming shows a breeze.

Service & Support

* We are there for you

With our 24/7 support and an extensive distributor network we offer an unparalleled technical service – worldwide.

grandMA2 onPC

- Incorporates all functions of the grandMA2 console
- Suitable as live show controller or backup system in connection with the MA onPC command wing, MA onPC fader wing, MA 8Port Node onPC, MA 4Port Node onPC or MA 2Port Node onPC/PRO
- Communicates with grandMA2 consoles via MA–Net2 over Ethernet
- Preprogramming of complete shows with grandMA2 onPC and grandMA 3D
- grandMA2 onPC runs on Windows PCs and notebooks according to our specifications (Please check: www.malighting.com)
- grandMA2 onPC is available free of charge: www.malighting.com

The grandMA2 onPC software incorporates all functions of a grandMA2 console and offers you its full potential on your notebook or PC. You can use grandMA2 onPC for running, programming or offline preprogramming, as well as a smart backup solution within the grandMA2 system.

With the MA onPC command wing and MA onPC fader wing MA Lighting has developed a sophisticated hardware extension perfectly suited for the grandMA2 onPC software.

If you would like to use it as a lighting control, just connect an MA onPC command wing or MA onPC fader wing to your notebook or PC to run the show via this hardware. Alternatively you can connect an MA 8Port Node onPC, MA 4Port Node onPC, MA 2Port Node onPC or MA 2Port Node onPC PRO to your notebook or PC to be able to output DMX data.

Preprogramming is also easy with grandMA2 onPC. You can work on your notebook or PC anywhere then copy your showfile to any grandMA2 console. To apply the backup function, just integrate your grandMA2 onPC solution into your grandMA2 show session. If your main console should fail, grandMA2 onPC will take over seamlessly and you can still run your show with the same parameter count.

grandMA2 onPC communicates with grandMA2 consoles via MA-Net2 over Ethernet which allows it to be used as a user-friendly designer remote control for all grandMA2 consoles.

The grandMA2 onPC software is as flexible as the grandMA2 console software – in fact it is the same software but with some additional useful features that mirror the grandMA2 console hardware. This means you can chose each section of the console in the software via a simple button-press and then start working the same way as you would do when sitting in front of a grandMA2 console.

With its flexible screen arrangements and multiple views plus functions like shortcuts via any keyboard, the grandMA2 onPC software underlines its absolute flexible layout for any show-situation. Nearly any functionality can be displayed, modified or used as it occurs in the "real" hardware.

Visit our YouTube channel to watch our grandMA2 tutorials: **www.youtube.com/user/MALightingInt**

Article	
gMA2onPC	grandMA2 onPC

The world of
MA's onPC solutions

With the MA onPC command wing and the MA onPC fader wing MA presents sophisticated and flexible solutions for mobile use or to enter the MA world. The MA onPC command wing and the MA onPC fader wing offer in combination with the grandMA2 onPC software and your PC a mobile control that can be easily transported and be used in nearly any location. MA 4Port Node onPC, MA 8Port Node onPC and further variants complete this mobile control by providing additional parameters and DMX ports and giving it even more ease of use, power and possibilities.

All joined together these components will offer you MA's famous control solution for your daily life on the road, for smaller theatres, shows and clubs or for preprogramming. Get access to up to 4,096 parameters, DMX ports, Midi, Timecode, Analogue Remote ports and a comfortable command and fader section similar to the grandMA2 consoles. Work with MA's renown grandMA2 software and benefit from all its features as well as updates offered on a regular basis and rely on the rock-solid construction of the MA hardware.

If you are already familiar with the MA system you'll love the new possibilities! If you are a newcomer these products will offer you the perfect way to your first MA! Just combine our MA onPC solutions the way they suit you the best.

MA onPC command wing

- **Real-time control for 2,048 parameters in combination with grandMA2 onPC (up to 65,536 parameters as backup in the MA system)**
- **Expandable up to 4,096 parameter**
- **Command section similar to grandMA2 layout**
- **2 A/B faders (100mm)**
- **1 Level-Wheel**
- **Individually backlit and dimmable silent (clickless) keys**
- **Integrated universal power supply (90–240V, 50/60Hz)**
- **Light (just 6kg), handy & rock solid**
- **Ergonomic design**
- **Just connect via USB to any PC running grandMA2 onPC**

The MA onPC command wing paves the way for mobile use of the highly flexible and powerful grandMA2 control system. In combination with the free of charge grandMA2 onPC software, the MA onPC command wing is a portable 2,048 parameter control solution that can be used in nearly any location – and all for an affordable price. It offers two built-in DMX ports as well as the possibilty to send two additional DMX universes via Ethernet protocols with grandMA2 onPC.

Designed as the perfect hardware expansion to the grandMA2 onPC software, the MA onPC command wing enables the look and feel of the software to be as close to a real grandMA2 console as possible. Thanks to the MA onPC command wing – incorporating the command section of the grandMA2 consoles – it has never been easier to use the grandMA2 onPC software. With a simple USB connection between the MA onPC command wing and the computer running the grandMA2 onPC software, all inputs and outputs of a grandMA2 console are available to the user. DMX, Midi, Timecode and Analogue

Remote are all on hand directly at the MA onPC command wing. Wherever it is physically difficult to use a grandMA2 console, the MA onPC command wing, in conjunction with the grandMA2 onPC software, enables the customer to program or playback within the grandMA2 world. Therefore the MA onPC command wing is ideal to be used as a backup solution within the grandMA2 system, as powerful control solution on the road or for smaller theatres, shows and clubs or for preprogramming.

It is also possible to add more faders by connecting the MA onPC fader wing to the MA onPC command wing. Moreover the MA onPC fader wing provides additional 2,048 parameters and four DMX lines. The MA 8Port Node onPC and MA 4Port Node onPC will add 2,048 parameters and eight or four DMX lines respectively.

Please regard that it is possible to connect one MA onPC command wing and up to two MA onPC fader wing together to a computer running grandMA2 onPC.

Article	
120120	**MA onPC command wing**

Accessories	
130214	MA 8Port Node onPC
130212	MA 4Port Node onPC
130223	MA 2Port Node onPC 2K
130222	MA 2Port Node onPC 1K
120134	MA onPC wing bag
121045	MA Case for MA onPC command wing, black

Technical Specifications	
Operating voltage/ Supply voltage	120V/230V, 50/60Hz (automatic detection)
Net weight	6kg/13.2lbs
Power	40VA
Dimensions	536 x 395 x 70mm/21.1 x 15.6 x 2.8inch
Output connectors	2 x XLR 5pin (DMX), 1 x USB, 1 x DIN (Midi)
Input connectors	1 x XLR 5pin (DMX), 1 x XLR 3pin (SMPTE), 1 x DIN (Midi), 1 x Sub-D 15pol (Analogue Remote)

Scope of delivery
Dust cover, USB cable 1.9m, power cord 1.9m IECC Plug (lockable) open end

MA onPC fader wing

- **Real-time control for 2,048 parameters in combination with grandMA2 onPC (up to 65,536 parameters as backup in the MA system)**
- **Expandable up to 4,096 parameters**
- **4 DMX out (XLR5-pin)**
- **Fader/executor section similar to grandMA2 layout**
- **15 fader executors, 45 fader executor buttons, 15 button executors**
- **Individually backlit and dimmable silent (clickless) keys**
- **USB port for external desk lamp**
- **Integrated universal power supply (90–240V, 50–60Hz)**
- **Light (just 4.5kg), handy & rock solid**
- **Ergonomic design**
- **Just connect via USB to any PC running grandMA2 onPC**

With the MA onPC fader wing, MA Lighting meets the requests for a mobile control solution that supplies real faders and executors in connection with the free of charge grandMA2 onPC software. Furthermore the MA onPC fader wing offers 2,048 parameters in conjunction with the grandMA2 onPC software that can be sent via its four built-in DMX-ports as well as via Ethernet protocols.

To connect the MA onPC fader wing with the computer running the grandMA2 onPC software you just need a USB cable. Additionally, the MA onPC fader wing is designed to perfectly extend the MA onPC command wing and get the maximum out of the grandMA2 onPC software. To save USB connections the MA onPC fader wing daisy-chains the USB for the MA onPC command wing.

Whilst the MA onPC command wing is based on the command section of a grandMA2 console, the MA onPC fader wing resembles its fader section. In combination, the MA onPC fader wing and

MA onPC command wing enable the look and feel of the grandMA2 onPC software to be as close to a real grandMA2 console as possible – and all this for a reasonable price! Furthermore the MA onPC fader wing offers clever details like a slot for a Kensington lock and a USB port to connect an external desk lamp. Thanks to these details and the ergonomic design working with the MA onPC fader wing on a daily basis becomes a breeze.

The MA onPC fader wing comes with the option to expand the parameter count up to 4,096 parameters. Therefore MA offers a wide range of possibilities for all applications. The MA 4Port Node onPC and MA 8Port Node onPC for example will add 2,048 parameters and four or eight DMX lines respectively.

Please regard that it is possible to connect one MA onPC command wing and up to two MA onPC fader wing together to a computer running grandMA2 onPC.

Article	
120125	**MA onPC fader wing**

Accessories	
130214	MA 8Port Node onPC
130212	MA 4Port Node onPC
130223	MA 2Port Node onPC 2K
130222	MA 2Port Node onPC 1K
120134	MA onPC wing bag
121046	MA Case for MA onPC fader wing, black

Technical Specifications	
Operating voltage/ Supply voltage	120V/230V, 50/60Hz (automatic detection)
Net weight	4.5kg/9.9lbs
Power	40VA
Dimensions	365 x 395 x 70mm/14.4 x 15.6 x 2.8inch
Output connectors	4 x XLR 5pin (DMX), 2 x USB
Input connectors	1x USB

Scope of delivery
Dust cover, USB cable 1.9m, power cord IECC Plug (lockable) 1.9m open end

MA 8Port Node onPC
MA 4Port Node onPC

MA 8Port Node onPC or MA 4Port Node onPC in connection with grandMA2 onPC:

- Powerful show controller for smaller applications
- Handy backup solution
- 2,048 parameters (MA 8Port Node onPC and MA 4Port Node onPC)
- Can be combined with MA onPC command wing and MA onPC fader wing for parameter expansion
- Speaks MA–Net2 and Art–Net via 1Gbit/s connection
- Fully configurable via grandMA2 onPC
- 2" colour TFT display
- Rugged steel housing
- Integrated PSU

MA 8Port Node onPC

MA 4Port Node onPC

The MA 8Port Node onPC and MA 4Port Node onPC can be used in combination with the free-of-charge grandMA2 onPC software running on a computer to provide 2,048 parameters. Furthermore MA 8Port Node onPC and MA 4Port Node onPC can be combined with the MA onPC command wing and MA onPC fader wing for parameter expansion.

Optimised for touring and installations purposes, both have a rugged steel housing for a long life even under harsh conditions. The front panel offers a menu button, a USB connector and a 2" colour TFT as well as LEDs displaying the current status. All of these ensure a comfortable operation. The mains switch is located on the back, along with the powerCON and etherCON connectors, as well as the eight (MA 8Port Node onPC) and four (MA 4Port Node onPC) DMX ports. The MA 8Port Node and MA 4Port Node are fully configurable from grandMA2 onPC. Furthermore MA 8Port Node and MA 4Port Node are available as sophisticated networking tools for signal transportation and data distribution.

Article	
130214	MA 8Port Node onPC
130212	MA 4Port Node onPC

Accessories	
130281	MA 2Port Node/4Port Node 19" rack mounting kit – blank panel
130282	MA 4Port Node 19" rack mounting kit – XLR connectors
130283	MA 2Port Node/4Port Node 19" rack mounting kit – 2 Nodes
130284	MA 2Port Node/4Port Node rigging plate
210629	Adapter cable set MA 4Port Node, 4 x DMX/XLR5, 1 x etherCON RJ45

Technical Specifications	MA 8Port Node onPC	MA 4Port Node onPC
Operating voltage/ Supply voltage	100V–240V, 50/60Hz	100V–240V, 50/60Hz
Net weight	2.4kg/5.3lbs	1.25kg/2.8lbs
Power	30VA	20VA
Dimensions	482.5 x 43 x 189mm/ 19 x 1.7 x 7.4inch	207 x 43 x 184mm/ 8.2 x 1.7 x 7.2inch
Output connectors	8 x XLR 5pin (DMX), 1 x CTRL (future use), 1 x etherCON	4 x XLR 5pin (DMX), 1 x CTRL (future use), 1 x etherCON
Input connectors	1 x powerCON, 1 x USB	1 x powerCON

MA 2Port Node onPC 2K
MA 2Port Node onPC 1K

MA 2Port Node onPC 2K

MA 2Port Node onPC 1K

MA 2Port Node onPC 2K or MA 2Port Node onPC 1K in connection with grandMA2 onPC:

- Powerful show controller for smaller applications
- Handy backup solution
- 1,024 parameters (MA 2Port Node onPC 1K)
- 2,048 parameters (MA 2Port Node onPC 2K)
- Can be combined with MA onPC command wing and MA onPC fader wing for parameter expansion
- Speaks MA–Net2 and Art–Net via 1Gbit/s connection
- Fully configurable via grandMA2 onPC
- 2" colour TFT display
- Rugged steel housing
- Integrated PSU

The MA 2Port Node onPC can be used in combination with the free-of-charge grandMA2 onPC software running on a computer to provide parameters. Furthermore both MA 2Port Node onPC can be combined with the MA onPC command wing and MA onPC fader wing for parameter expansion.

With the increasing requirements of clients and designers in both fixed installations and events/concerts, the need for sophisticated solutions for signal transportation and data distribution is inevitable. Also, latest technical developments and requirements have to be met. The MA 2Port Node onPC 2k and MA 2Port Node onPC 1K set an additional benchmark in MA Lighting's networking product range as they feature the 1Gbit capability. They allow the conversion of Ethernet data into DMX or vice versa and fit perfectly into the MA system and its MA-Net2 protocol which is based on this high speed to ensure maximum performance. Optimised for touring and installations purposes, they have a rugged steel housing for a long life even under harsh conditions. The front panel offers a menu button, a USB connector and a 2" colour TFT as well as LEDs displaying the current status. All of these ensure a comfortable operation. The mains switch is located on the back, along with the powerCON and etherCON connectors, as well as the 2 DMX ports. All MA 2Port Nodes are fully configurable from the grandMA2 consoles or from grandMA2 onPC. To achieve the highest flexibility, each DMX port can be individually configured as DMX in or DMX out. The "onPC" versions can be used in combination with the free-of-charge grandMA2 onPC software running on a computer to provide 2,048 parameters. Furthermore the MA 2Port Node onPC 2k and MA 2Port Node onPC 1K can be combined with the MA onPC command wing and MA onPC fader wing for parameter expansion.

Article	
130223	**MA 2Port Node onPC 2K**
130222	**MA 2Port Node onPC 1K**

Accessories	
130281	MA 2Port Node/4Port Node 19" rack mounting kit – blank panel
130285	MA 2Port Node 19" rack mounting kit – XLR connectors
130283	MA 2Port Node/4Port Node 19" rack mounting kit – 2 Nodes
130284	MA 2Port Node/4Port Node rigging plate
210650	Adapter cable set MA 2Port Node, 2 x DMX/XLR5, 1 x etherCON RJ45

Technical Specifications	MA 2Port Node onPC 2K	MA 2Port Node onPC 1K
Operating voltage/ Supply voltage	100V-240V, 50/60Hz	100V-240V, 50/60Hz
Net weight	1.25kg/2.8lbs	1.25kg/2.8lbs
Power	20VA	20VA
Dimensions	207 x 43 x 184mm/ 8.2 x 1.7 x 7.2inch	207 x 43 x 184mm/ 8.2 x 1.7 x 7.2inch
Output connectors	2 x XLR 5pin (DMX), 1 x CTRL (future use), 1 x etherCON	2 x XLR 5pin (DMX), 1 x CTRL (future use), 1 x etherCON
Input connectors	1 x powerCON	1 x powerCON

Parameter Count

MA Lighting offers a bunch of possibilities to expand your parameter count for grandMA2 onPC. All products in the MA onPC range are capable of adding parameters. It depends on you, which products you would like to combine and how many parameters you need. There are just two simple rules that need to be followed:

First rule: The maximum parameter count with grandMA2 onPC is 4,096 parameters.

Second rule: In any combination MA 8Port Node onPC, MA 4Port Node onPC, MA 2Port Node onPC 2K, MA 2Port Node onPC 1K as well as MA onPC command wing and MA onPC fader wing will add parameters up to this maximum.

For example: *grandMA2 onPC + MA onPC command wing (2,048 parameters) + MA onPC fader wing (2,048 parameters) + MA 2Port Node onPC 1K (1,024 parameters) = 4,096* *parameters*

MA onPC solutions –
Your benefits at a glance:

Hardware

* **Travel friendly**
Our hardware is rock solid and designed for daily use on the road.

* **Connectivity**
All MA onPC solutions come with all the needed connectors.

* **Extension**
Two powerful MA onPC solutions are available (MA onPC command wing and MA onPC fader wing).

* **Years of experience**
All MA onPC hardware is based on the proven grandMA2 consoles.

Software

* **Same software**
All MA System components run with the same software. Means you can apply your knowledge about it to any MA product you are using.

System

* **Full backup solution**
Because all parts of the MA System contain your current showfile, they can serve as a backup for it as well as the consoles backup each other.

* **Easy integration**
Software tools like MA 3D and products like the MA VPU can easily be integrated into the system. Control from the grandMA2 is not only possible but also very comfortable and sophisticated.

Service & Support

* **We are there for you.**
With our 24/7 support and an extensive distributor network we offer an unparalleled technical service – worldwide.

Accessories

Desk lamp

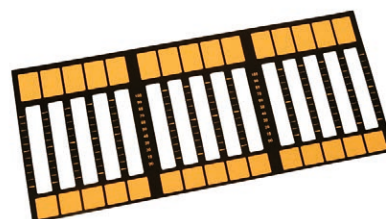| Article	
120122	MA LED desk lamp grandMA2

Dust cover

Article	
120131	Dust cover grandMA2 full-size
120132	Dust cover grandMA2 light and ultra-light
120133	Dust cover grandMA2 fader wing
120135	Dust cover MA onPC command wing
120136	Dust cover MA onPC fader wing

Cases and bags

Article	
120134	MA onPC wing bag
121045	MA Case for MA onPC command wing, black
121046	MA Case for MA onPC fader wing, black
121029	MA Case grandMA2 full-size, with wheels (by Amptown)
121030	MA Case grandMA2 full-size, without wheels (by Amptown)
121037	MA Case grandMA2 light + ultra-light, with wheels (by Amptown)
121038	MA Case for grandMA2 light and ultra-light, without wheels (by Amptown)
121036	MA Case for grandMA2 fader wing

Magnetic plate

Article	
120123	MA Magnetic plate for easy labeling of 15 faders, incl. Edding OHP pen
120126	MA Magnetic plate for easy labeling of 6 faders, incl. Edding OHP pen

A State of Trance 650 – Utrecht, The Netherlands

Network

Eurovision Song Contest 2014 – Copenhagen, Denmark

Networking Inside

MA Lighting´s grandMA2 series of lighting control products provides a variety of protocols and possibilities for technical communication via Ethernet. It is key to MA that the products are compliant with most of the existing Ethernet standards to achieve a reliable real-time communication via its own MA-Net2 protocol. The MA-Net2 protocol is designed for 1,000MBit/s networks to perform best. Of course it can coexist event with grandMA series "1" sessions and run additional protocols like PSN – Posi stage net protocol.

Additional features of the MA–Net2

- 1,000 Base-T Ethernet (1 Gbit/s – Gigabit Ethernet)
- With up to 65,536 parameters (up to 256 DMX universes, all parameters in up to 24bit each)
- 32 sessions with max. 65,536 parameters in one network are possible
- Expanded remote control functions via Telnet
- Expanded feedback information for MA VPU software and dimMA
- Backup functionality by swapping Master console if origin failed/disconnected

Enhanced parameter expansion

Another new feature of both the MA-Net2 and grandMA2 series is the simplification of the parameter expansion. There won't be any separate parameter expansion mode any longer. Due to an enhanced networking architecture grandMA2 consoles automatically share calculation power within the network. Parameters only need to be expanded by adding one or more MA NPU (Networking Processor Unit) to the system.

The rule for parameter expansion in MA–Net2 is simple: Always one console (the one with the most parameters) counts and additional every added MA NPU!

grandMA2 full-size
(8,192 parameters)

+

grandMA2 light
(backup console)

14 x MA NPU (4,096 parameters)

= 65,536 parameters

1 x grandMA2 full-size = 8,192 parameters **+** 14 x MA NPU = 57,344 parameters **= 65,536 parameters**

*Does not apply for grandMA2 replay unit.

Network Protocols and Standards

Taking the fast development of our industry and constantly increasing requirements in terms of control performance and network design into consideration, new forms of technical communications are needed. The 'Architecture for Control Networks' (ACN) shall offer a structure to create network protocols for specific use in the lighting entertainment industry. Since an open standard like ACN takes a while to be developed and agreed on – most of the leading manufacturers in lighting control have already created their own network protocols.

Nowadays, there are two main different protocols on the market. We distinguish between "Transport Protocols" (e.g. Art-Net) and "Real-time Protocols" (e.g. MA-Net). ACN shall cover both ideas, but due to too many different philosophies of the manufacturers, we believe it will take a while to work in the ideal way. However the first part of these protocol suites will be the DMX Streaming protocol sACN (streaming ACN). Practically it works like the Art-Net protocol which just transports DMX data over Ethernet. Therefore and as long as ACN does not provide further performances the MA-Net protocol is more sophisticated. It combines real-time and frame synchronous control of up to 256 DMX universes (MA-Net2), dimMA feedback, video control and feedback integration as well as any in- and output via Ethernet.

MA-Net2 will stay the reliable backbone of the grandMA2 system including all integrated MA Lighting products! Additionally the grandMA2 lighting control units offer several other Ethernet protocols to communicate with the outside lighting world or to integrate into any lighting environment without harming the reliability of the core communication of the grandMA2 system. ACN and RDM will be helpful protocols to achieve a higher integration but cannot replace the core functionality of the MA-Net2.

grandMA2 light
(4,096 parameters)

grandMA2 ultra-light
(backup console)

+

15 x MA NPU (4,096 parameters)

= 65,536 parameters

1 x grandMA2 light =
4,096 parameters

+

15 x MA NPU =
61,440 parameters

= 65,536 parameters

MA-Net2

MA System stress test

© Jan Braun

The MA-Net2 is the powerful backbone of the MA System and the common language of all MA System components.

However, the MA-Net2 is far more than just a protocol. It is an integral part of the MA System architecture. All consoles, MA NPU (Network Processing Unit), MA VPU (Video Processing Unit) and MA dimMA Dimmers are connected via the MA-Net2 as if they were one device. All of these components contain all system data that is needed to control the processes and to synchronise the outputs in real-time.

After the information is distributed to all the MA System components (show upload), the showfile containing all data is available in all of them. The MA-Net2 is designed to synchronise all components without creating unnecessary data traffic. This is true for all existing data as well as for outputting control data (DMX etc.). Because of the MA-Net2 architecture, the MA System is scalable from the tiniest backup solution to the largest, all-encompassing multi-user/multi-console setup. MA guarantees the completely synchronous control of fixtures with up-to 256 DMX-universes per session. This includes continuous backup solutions and minimum configuration work whilst giving a full view of the system from the console.

To ensure the best possible performance, the MA System is regularly stress tested to prove reliability and optimized system performance. This is how we can guarantee, that the MA system is capable of withstanding several external disturbance issues as well as simple occurrences like losing network connections.

MA NPU (Network Processing Unit)

- **Real-time calculation for up to 65,536 parameters with a grandMA2 system (up to 256 DMX universes)**
- **4,096 HTP/LTP parameters**
- **8 DMX out**
- **1 internal command screen (7")**
- **1 powerCON in and out**
- **1 etherCON connector**
- **4 USB 2.0 connectors**

The MA NPU (Network Processing Unit) unites the calculation power in the network and offers the same performance as the grandMA2 consoles. The MA NPU can handle 4,096 parameters. With an easy to read touchscreen the MA NPU allows intuitive use and easy access to all the important information. 8 x DMX XLR 5-pin connectors on the back the MA NPU allow a most flexible use within the network environment.

The MA NPU (Network Processing Unit) is the link between the Ethernet and DMX controlled devices. It's also possible to use the MA NPU for additional control applications; its full capabilities become visible when operated in the MA-Net2. For decentralised DMX networks, the MA NPU converts the incoming Ethernet data into DMX512-A data. The data conversion supports MA-Net and MA-Net2. The converted data are transmitted via 8 independent DMX connectors, which can also be configured as DMX inputs.

In a network, several consoles share the available MA NPUs. This allows DMX devices being used by several consoles together and provides a redundant mode of operation without additional components such as DMX mergers.

Article	
130032	MA NPU (Network Processing Unit)

MA Nodes

- **Speaks MA–Net2 and Art–Net via 1Gbit/s connection**
- **Fully configurable from a grandMA2 console/grandMA2 onPC**
- **2" colour TFT display**
- **Rugged steel housing for flexible use or mobile applications**
- **Fittings for MA 2Port Node and MA 4Port Node available (see accessories)**

With the increasing requirements of clients and designers in both fixed installations and events/concerts, the need for sophisticated solutions for signal transportation and data distribution is inevitable. Also, latest technical developments and requirements have to be met.

The MA 8Port Node, MA 4Port Node, MA 4Port Node WM (Wall Mount), MA 2Port Node, MA 2Port Node WM (Wall Mount) set an additional benchmark in MA Lighting's networking product range as they feature the 1Gbit/s bandwidth capability. They allow the conversion of Ethernet data into DMX or vice versa and fit perfectly into the grandMA2 system and its MA-Net2 protocol which is based on this high speed to ensure maximum performance. Optimised for touring and installations purposes, all have a rugged steel housing for a long life even under harsh conditions. The Nodes offer a menu button, a USB connector and a 2" colour TFT as well as LEDs displaying the current status. All of these ensure a comfortable operation. The MA xPort Nodes are fully configurable from the grandMA2 consoles or from grandMA2 onPC. To achieve the highest flexibility, each DMX port can be individually configured as DMX in or DMX out. Also all MA xPort Nodes are available as an onPC version, more details at MA onPC solutions.

MA 8Port Node

The MA 8Port Node is the perfect solution for converting a large amount of DMX universes at the same location. The MA 8Port Node offers the same amount of DMX universes like a MA NPU (Network Procesing Unit). All eight DMX outputs as well as the main switch, one powerCON and one etherCON connector are located at the rear side of the node. The MA 8Port Node comes as a 19"/1HU version for rack use.

Article	
130213	MA 8Port Node

Technical Specifications	
Operating voltage/ Supply voltage	100V-240V, 50/60Hz
Net weight	2.4kg/5.3lbs
Power	30VA
Dimensions	482.5 x 43 x 189mm/19 x 1.7 x 7.4inch
Output connectors	8 x XLR 5pin (DMX), 1 x CTRL (future use), 1 x etherCON
Input connectors	1 x powerCON, 1 x USB

MA 4Port Node

The MA 4Port Node is the perfect solution for converting a midsized amount of DMX universes at the same location. The MA 4Port Node is available in different fittings for adapting to multiple applications. First there is the basic version based on a 9"/1HU housing, where all connectors are located on the back. Additionally an add-on fitting is available to mount this basic version into a 19" rack. Second a special fitting can be used where all connectors on the back of the MA 4Port Node are mirrored on an additional front panel for an easier access when rackmounted. Third possibility is to combine two MA 4Port Node for rack use by adding rack mounting brackets and a special threaded fastener between the two single MA 4Port Node units. Fourth option is the additionally available rigging plate for mounting couplers or clamps on the MA 4Port Node. The four DMX outputs as well as the main switch, one powerCON and one etherCON connector are located at the rear side of the node.

Article	
130211	MA 4Port Node

Accessories	
130281	MA 2Port Node/4Port Node 19" rack mounting kit – blank panel
130282	MA 4Port Node 19" rack mounting kit – XLR connectors
130283	MA 2Port Node/4Port Node 19" rack mounting kit – 2 Nodes
130284	MA 2Port Node/4Port Node rigging plate
210629	Adapter cable set MA 4Port Node, 4 x DMX/XLR5, 1 x etherCON RJ45
210632	Adapter cable set MA 4Port Node

Technical Specifications	
Operating voltage/ Supply voltage	100V–240V, 50/60Hz
Net weight	1.25kg/2.8lbs
Power	20VA
Dimensions	207 x 43 x 184mm/8.2 x 1.7 x 7.2inch
Output connectors	4 x XLR 5pin (DMX), 1 x CTRL (future use), 1 x etherCON
Input connectors	1 x powerCON

MA 4Port Node WM

The MA 4Port Node WM (Wall Mount) is the perfect solution for converting a midsized amount of DMX universes at the same location where no additional power supply is available. The MA 4Port Node WM is powered via PoE (Power over Ethernet) and therefore does not need additional power supply. As a standard the MA 4Port Node WM (Wall Mount) will be delivered with a wall-mount plate with inside screws. Also available as accessory will be a wall-mount plate with outside screw-mounts and a rigging-adapter plate. The four DMX outputs are located at the bottom of the unit and the RJ45 connector inside the unit. This Ethernet connector can be re-located for the rigging-version to the outside.

Article	
130210	MA 4Port Node WM

Accessories	
130287	MA 2/4 Port Node WM wall-mount plate large
130288	MA 2/4 Port Node WM rigging plate for coupler mounting
130286	MA 2/4 Port Node WM RJ45 etherCON adapter set

Technical Specifications	
Operating voltage/ Supply voltage	PoE (IEEE802.3af/350mA)
Net weight	1.1kg/2.2lbs
Power	PoE (IEEE802.3af/350mA)
Dimensions	147 x 42 x 157mm/5.8 x 1.7 x 6.2inch
Output connectors	4 x XLR 5pin (DMX), 1 x etherCON

Scope of delivery
1 x MA 2/4 Port Node WM wall-mount plate small (130289)

MA 2Port Node

The MA 2Port Node is the perfect solution for converting a small amount of DMX universes at the same location. The MA 2Port Node is available in different fittings for adapting to multiple applications. First there is the basic version based on a 9"/1HU housing, where all connectors are located on the back. Additionally an add-on fitting is available to mount this basic version into a 19" rack. Second a special fitting can be used where all connectors on the back of the MA 2Port Node are mirrored on an additional front panel for an easier access when rackmounted. Third possibility is to combine two MA 2Port Node for rack use by adding rack mounting brackets and a special threaded fastener between the two single MA 2Port Node units. Fourth option is the additionally available rigging plate for mounting couplers or clamps on the MA 2Port Node. The two DMX outputs as well as the main switch, one powerCON and one etherCON connector are located at the rearside of the Node.

Article	
130221	MA 2Port Node

Accessories	
130281	MA 2Port Node/4Port Node 19" rack mounting kit – blank panel
130285	MA 2Port Node 19" rack mounting kit – XLR connectors
130283	MA 2Port Node/4Port Node 19" rack mounting kit – 2 Nodes
130284	MA 2Port Node/4Port Node rigging plate
210650	Adapter cable set MA 2Port Node, 2 x DMX/XLR5, 1 x etherCON RJ45

Technical Specifications	
Operating voltage/ Supply voltage	100V–240V, 50/60Hz
Net weight	1.25kg/2.8lbs
Power	20VA
Dimensions	207 x 43 x 184mm/8.2 x 1.7 x 7.2inch
Output connectors	2 x XLR 5pin (DMX), 1 x CTRL (future use), 1 x etherCON
Input connectors	1 x powerCON

MA 2Port Node WM

The MA 2Port Node WM (Wall Mount) is the perfect solution for converting a small amount of DMX universes at the same location where no additional power supply is available. The MA 2Port Node WM is powered via PoE (Power over Ethernet) and therefore does not need additional power supply. As a standard the MA 2Port Node WM (Wall Mount) will be delivered with a wall-mount plate with inside screws. Also available as accessory will be a wall-mount plate with outside screw-mounts and a rigging-adapter plate. The two DMX outputs are located at the bottom of the unit and the RJ45 connector inside the unit. This Ethernet connector can be re-located for the rigging-version to the outside.

Article	
130224	MA 2Port Node WM

Accessories	
130287	MA 2/4 Port Node WM wall-mount plate large
130288	MA 2/4 Port Node WM rigging plate for coupler mounting
130286	MA 2/4 Port Node WM RJ45 etherCON adapter set

Technical Specifications	
Operating voltage/ Supply voltage	PoE (IEEE802.3af/350mA)
Net weight	1.1kg/2.2lbs
Power	PoE (IEEE802.3af/350mA)
Dimensions	147 x 42 x 157mm 5.8 x 1.7 x 6.2inch
Output connectors	2 x XLR 5pin (DMX), 1 x etherCON

Scope of delivery
1 x MA 2/4 Port Node WM wall-mount plate small (130289)

Network – Your benefits at a glance:

* Synchronous DMX

Independent of the size of your system, your DMX output will stay fully synchronous with all MA network devices.

* Full backup solution

Because all parts of the MA System contain your current showfile, they can serve as a backup for it as well as the consoles backup each other.

* Shared power

System components like the consoles, MA VPU and MA NPU share their processing power to seamlessly playback even the biggest shows.

* Standard protocols

The MA System is compliant with most Ethernet standards.

* Training

MA offers a system specialist training including a full network guide. Just get in touch with your local distributor to know more.

Video

The Viña del Mar International Song Festival – Viña del Mar, Chile

MA VPU (Video Processing Unit)

- **Configuration, programming, operation, content distribution and software updates via any grandMA2**
- **Easy to connect for instant start**
- **Supports blind-mode and preview programming (switchable from the console)**
- **Built-in EDID manager to avoid wrong output configuration**
- **Advanced pixel mapping functionality – DVI out and Pixelmapper can be used simultaneously**
- **Frame and DMX synchronicity**
- **Very low latency live video input (VPU plus MK2 and VPU basic MK2)**
- **3D keystoning and softedging**
- **Efficient backup solution – one additional MA VPU is capable of backing up any MA VPU**
- **Implemented text ticker and test-pattern generator**
- **Layer reference option: this allows any layer as input for another**
- **Professional balanced sound playback (with or without ground lift)**
- **Best hardware components encapsulated and decoupled for outstanding performance and rock-solid reliability**

MA VPU plus MK2

MA Lighting has developed the MA VPU (Video Processing Unit) as a powerful range of solutions for controlling, live accessing and altering videos, still images and 3D objects in real time.

All videos, still images and 3D objects can be scaled, positioned, tiled, coloured and manipulated directly from any grandMA2 console. It is as simple as controlling any other fixture – the MA VPU just has to be added to the network session. There are no additional parameters needed to control an MA VPU. The whole operation relies on the highly intuitive well-established MA philosophy. So if you know grandMA2, you know the MA VPU. Additionally the free to download VPU software has a teaser mode built-in which gives you two layers of free playback with limited resolution to just test the functionality at your Windows computer.

Thanks to the power of the MA VPU all videos can be displayed in up-to Full-HD. Furthermore, the internal output synchronization of the MA-Net2 ensures the highest frame and DMX synchronicity.

Horizontal and vertical softedge blending as well as keystone correction help to scale videos to any size desired. Size doesn't matter! More than that, the MA VPU offers a convenient 3D keystoning functionality and enables the user to fit content to any 3D objects, regardless of size

Built-in teaser mode with two layers of free playback

MA VPU basic MK2

MA VPU light

and shape. Furthermore improvements to frame interpolation and smooth speed control can be used to adjust the playback speed.

Beyond that there is a myriad of functions, features and effects available like frame blending, colour boost, dynamic colour key, contrast, brightness, hue, saturation as well as blur, sepia, black/white, ocean and invert and many more. All can be easily accessed and are self-explanatory in their use. Combinations of videos and still images can be mixed and controlled, and JPEG images and standard windows bitmap images such as *.bmp and *.gif as well as *.png with alpha channel are supported. Up to 32 x 3D-video-layers are possible for content.

The MA VPU can be programmed via the grandMA2 console in blind and preview modes. This means that the MA VPU follows the console to blind and preview which simplifies programming considerably. Also the VPU has a new Single-Layer-Crossfade mode which allows the user to programm all content on the same layer and even take the cuelist timing instead.

All three versions of the MA VPU are optimised for transportation, longevity and on-the-road use. Each MA VPU comes with a pre-installed content library comprising more than 17GB of professional content.

Article
120146–1   MA VPU plus MK2 (Video Processing Unit)
120148–1   MA VPU plus MK2 (Video Processing Unit) with 2x SDI IN
120147–1   MA VPU basic MK2 (Video Processing Unit)
120149–1   MA VPU basic MK2 (Video Processing Unit) with 2x SDI IN
120144   MA VPU light (Video Processing Unit)

MA VPU Series

Three sophisticated solutions

	MA VPU plus MK2	MA VPU basic MK2	MA VPU light
DVI–Output with switchable EDID Manager (back panel)	3 (1 x DVI–D dual link, 1 x DVI–D single link, 1 x DVI–I dual link)	3 (1 x DVI–D dual link, 1 x DVI–D single link, 1 x DVI–I dual link)	3 (1 x DVI–D dual link, 1 x DVI–D single link, 1 x VGA)
Full–HD resolution (1080p/60Hz)	6*	4*	2*
SD resolution (576p/60Hz)	12*	8*	6*
19"–Rugged housing made for touring	5HU	5HU	2HU
Internal 7" Touch Screen (800 x 480 Pixel)	•		
2"–Colour–TFT–Display providing status information			•
Power switch (front panel)	•	•	•
SDI IN	2**	2**	
powerCON IN (back panel)	•	•	•
powerCON OUT (back panel)	•	•	
Menu button (front panel)			•
RJ45 etherCON Gigabit network connector (back panel)	2	2	2
XLR–male balanced transformer isolated audio outputs at studio level (back panel)	2	2	2
S/PDIF–Cinch Connector – Digital Audio OUT			1
USB ports (front panel)	2 x USB2.0	2 x USB2.0	2 x USB2.0
USB ports (back panel)	2 x USB3.0 1 x USB2.0	2 x USB3.0 1 x USB2.0	2 x USB3.0
Connection for external hard drives, etc. (back panel)	1 x eSATA 6G	1 x eSATA 6G	1 x eSATA V3.0
Processor	I7-Quad-Core-Processor	I5-Quad-Core-Processor	Quad-Core-Processor
Dual channel RAM	8GB@2.4GHz	8GB@1.65GHz	8GB@2.1GHz
Fast SATA – Solid State Drive	240GB	120GB	120GB

*layers simultaneously   **Option

Codecs

The MA VPU uses the MPEG-1/2 (ISO/IEC 13818-part x) standard. As MA Lighting uses Microsoft®'s DirectShow to render the textures (pictures) it will need a codec to be able to read in these pictures. This codec is MPEG2 from MainConcept.
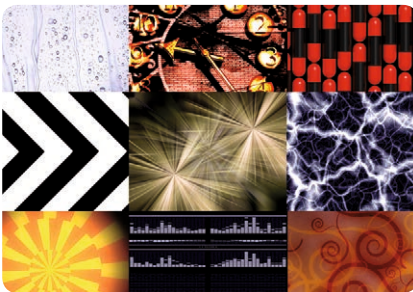
MA VPU plus MK2 and MA VPU basic MK2

1	3 x EDID-Manager	**6**	2 x USB3.0
2	3 x DVI	**7**	2 x XLR 3pin
3	2 x SDI in	**8**	1 x USB2.0
4	powerCON in and out	**9**	1 x eSATA
5	2 x etherCON		

MA VPU light

1	3 x EDID-Manager	**6**	1 x SPDIF
2	2 x DVI	**7**	2 x XLR 3pin
3	1 x VGA	**8**	1 x eSATA
4	2 x etherCON	**9**	powerCON in
5	2 x USB3.0		

MA Content Package

With the MA Content Package you'll get more than 40 percent discount compared to buying the clips individually. When ordering, you will receive a voucher code that enables you to download your selection of Showfootage's clips and pics from their website www.showfootage.com.

How it works: enter your voucher-code – after your registration under "Ihr Konto" (on the upper side right) – into the designated field. Then you can choose your clips and start downloading them in the desired format.

The voucher is valid for one year, and you'll be constantly updated on theremaining credit! As a special offer, you can download six video clips for free from **www.showfootage.com**.

- **The exclusive MA Content Package from www.showfootage.com – the online contentshop – offers you a variety of more than 500 free selectable clips. You can download 320 SD clips, 120 HD720 clips and 100 HD1080 clips within a year from a huge content library with video material of renowned designers.**

| Article	
120374	MA Content Package, incl. SD and HD video clips

MA VPU Features
Simplicity meets performance

Basic functionality

The MA VPU was created to be as simple to use as any lighting fixture and deals with video content like moving or still images, so the lighting/visuals operators can easily create effects and pictures on stage the way they are used to.

The MA VPU offers some basic functionality with which all lighting operators are familiar.

The "gobo" or "projection" that the operator is using is called 'content'. To make life as easy as possible a simple rule applies: Content needs to be added to a layer. A layer with content needs to be assigned to a camera which reflects the picture the camera is taking to an output. The user can change the content on the layer with timing and all applicable video effects ... and the show is ready.

(Virtual) camera

Content on layer, layer to output
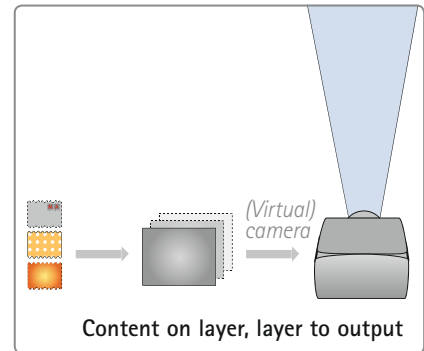
Video effects

The MA VPU offers a generous number of video effects which are categorized in sections for easier access. Numerous combinations are possible with 3D positioning on a layer to create many 3D effects. Simple image manipulations as well as splitting an image and animation of an image are on hand. Scaling in XYZ or all axes is possible. Also there are complete ranges of colour effects available to create either subtractive or additive colour effects. Also colour-keying and single colour channel manipulation is available.

Additionally numerous real video effects are implemented, of which up to four can be applied on a single layer. e.g.: Outlines, Sepia, Blur, Ambos, Black and White, Negative, Shapens, Sobel, Ocean, Water, Bloomhard, Tile, Colour-Shifting, Frost, Ghost, Pixel, Scratch, Halftone, Mirror, Posterize, Cartoon, Fresnel, Kaleidoscope, Threshold and many more.

Choose from myriads of options to alter your images and videos – here is a small extract:
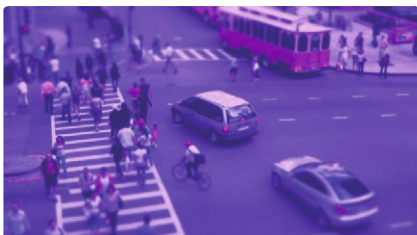
Brightness

Saturation

Colour Key

Colour Boost

Iris Image
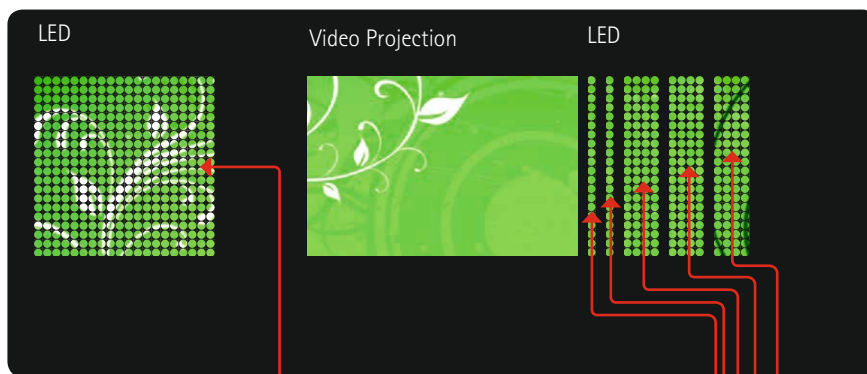

Transparent

Pixel Mapper

Because of the Pixel Mapper there are no limits to using LED elements in your design in any creative way imaginable. With the Pixel Mapper it is possible to display video content on any DMX-Matrix – so you can put your LED-screens, LED-panels, LED-strips/battens/luminaires etc. everywhere on stage and control them easily.

While video on plasma screens or video walls is caught in a defined ratio, LED fixtures can use all kinds of measurements. The picture can also be aligned on pixels which don't have fixed aspect ratios.

Beside the arrangements of LEDs, the output of standard fixtures can be pixel-mapped and sent back to the console (or to the fixture directly) as DMX over Ethernet data. In this way your whole stage can become a giant screen for defined content.

Similar to the desk fixture types, the attributes of the LED panels are defined in text files located in a folder of the MA VPU. LED fixtures can be easily created. The intensity and colour

Example of output

information of each video pixel is translated into DMX values and directly sent from the MA VPU to the LED fixture via Ethernet using Art-Net and sACN. The capacity of each Pixel Mapper on the MA VPU is 256 DMX universes. With multiple MA VPU in session, the number of universes is multiplied.
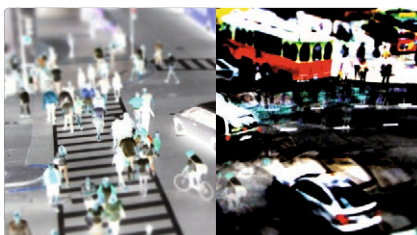

Screenshot of Pixel Mapper

Blur
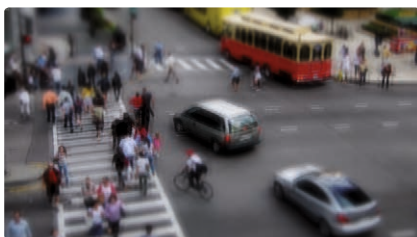
Black/White; Sepia

Outlines

Invert; Shapens


Ambos

Ocean

More MA VPU Features
Image projection done right

**3D Keystone Correction, Softedge, Warping**

With any media content/output, the problem often arises of how to twist and tweak the picture into the right position on stage. If an LED wall or any type of monitor is used the setup is quite simple and the MA VPU supports this with easy ways of setting up split-screens.

If projection is used it can be challenging if the screen surface does not fit the projection output. In these cases, the MA VPU offers 3D Keystone capabilities as well as Softedging to align two or more projectors. If the image still does not fit the screen surface because the screen itself is a 3D object, the Warping capabilities will help to easily map the projection output to the screen surface producing great image projection.

3D Keystone Correction/Warping

Softedge
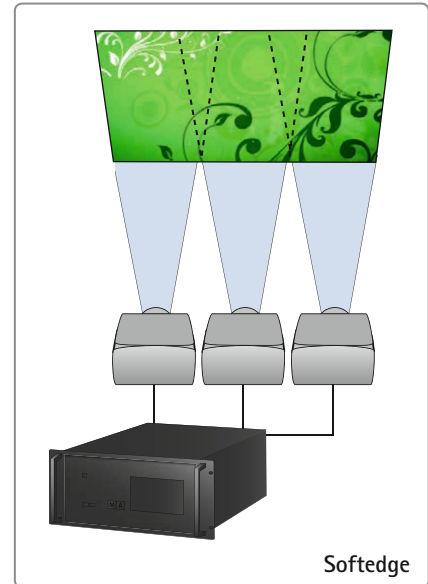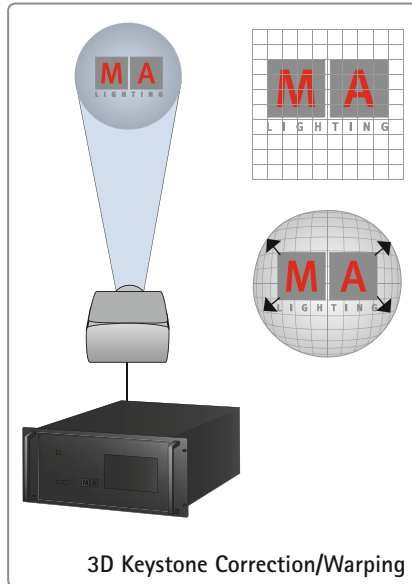
The best things are free!

The MA VPU software is available for free and can be used as an "overview tool" at the FoH to show all layers of all MA VPU in the session. Not only the layers but also Content distribution and Blind programming or Preview are available via the grandMA2 console. While the MA VPU hardware keeps outputting the programmed show on the main screens, the MA VPU software at the console can show the next cues in Blind or Preview. Also the VPU software contains a teaser-mode which enables two layers of limited resolution as free output for testing and teasing purposes.
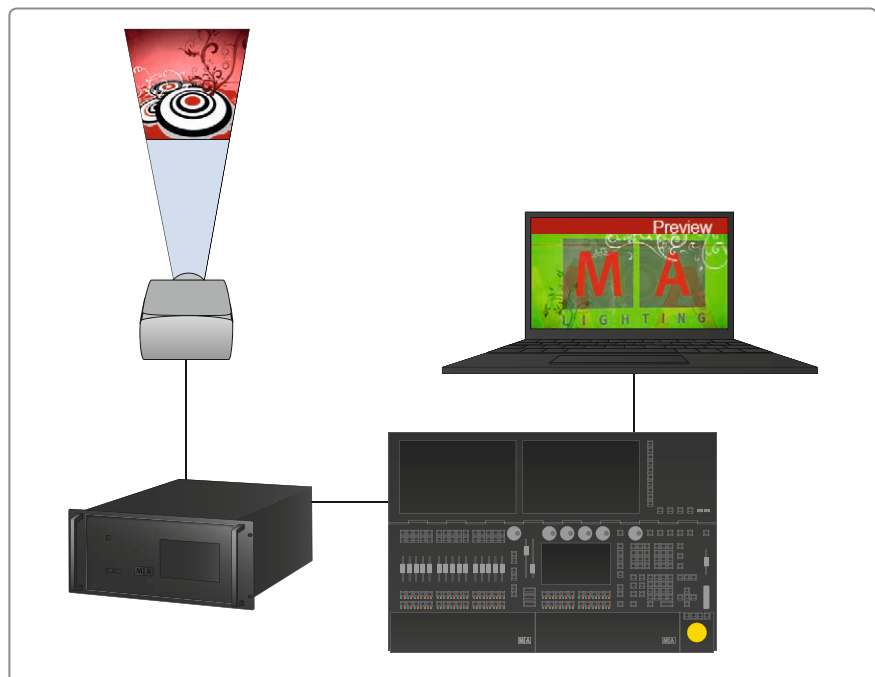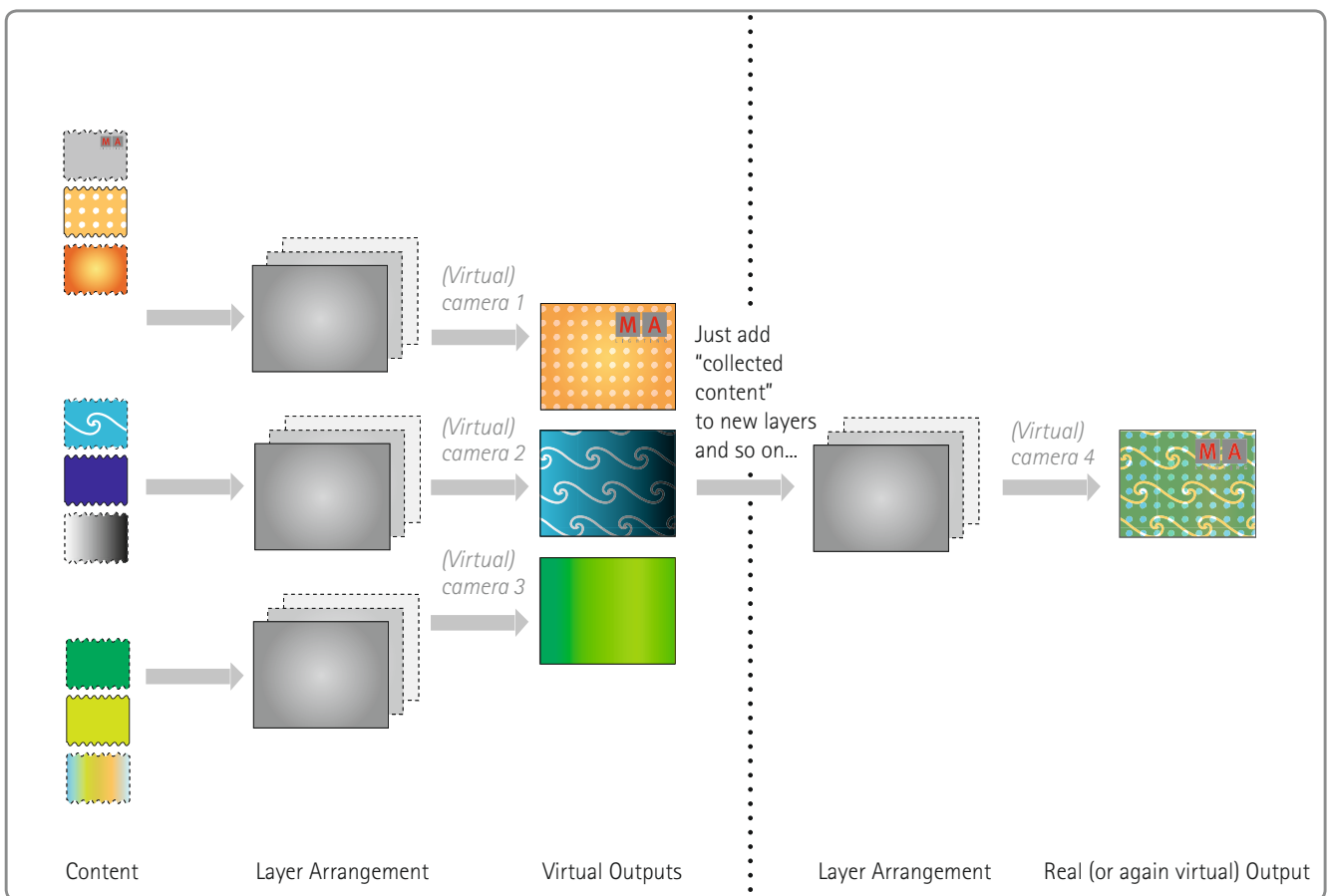
Virtual outputs multiply your possibilities

If the standard method of projection does not fit the needs of the real output being created, the MA VPU offers more sophisticated ways to solve it.

Following the basic rules: content on layer, layer to camera, camera to output – the output can be virtual and therefore be re-routed back into the MA VPU to be used again. This way the dynamic grouping of layers to one output can be realised as well as single layers via multiple virtual outputs to support multi-output-cards per physical connector.

Many variations are possible all due to the modular and simple re-routing of virtual outputs inside the MA VPU. Additionally, layer references are available to minimise the rendering performance and reduce any possible latency as well as frame blending and anti-aliasing.

| Content | Layer Arrangement | Virtual Outputs | Layer Arrangement | Real (or again virtual) Output |

Multiply your possibilities via grouping of layers

The real MA VPU benefit
Part of the MA System

Developed to extend the powerful MA System by integrating innovative video control, the MA VPU offers simple control from grandMA2 consoles – all synchronised in real time. For example, select the MA VPU content (pictures, videos) that you want to use, adjust colour, hue, saturation etc., by tapping on the touch-screen of your grandMA2. Everything you need for video control is displayed there. It's as easy as controlling a lighting fixture!

Furthermore the MA VPU is fast and easy to install: Just connect it to your network and start working. No need for time consuming setups, let the MA VPU handle your video parameters!

What about safety? As all components share the same showfile, just one additional MA VPU can backup your complete system. Even better: The showfile is exactly the same as in the console – you read the showfile into every grandMA2 and proceed from there. This will save huge amounts of time!

Heaps of preinstalled content
Just start programming

Multiple preinstalled content and easy import of own content

Your system is ready, your MA VPU is setup and running – what about your content to be used? The MA VPU first of all delivers a lot of content to immediately start programming your show. Also for easy change overs or just some creative testing, multiple content is pre-installed.

Importing your own content is as easy as using the standard content delivered with your MA VPU. The definition of MA VPU content is to use standardized MPEG2-files.* The manual describes in detail how to create or transform to this format. Also there is a description of how to use the given tools to bring any other content to the needed format.

After transferring all content to the MPEG-2 format you can easily distribute it to all MA VPU in the network. Just use your grandMA2 or grandMA2 onPC on your notebook to initialize content distribution. This will be handled in the background so that you can keep programming. Also, the availability of the MA VPU software as a free "overview tool" on any hardware device gives you additional capacity to transfer and organise content whilst all other MA VPU are still being used to program the show. Nothing interrupts your workflow and all content is organised in your hands.
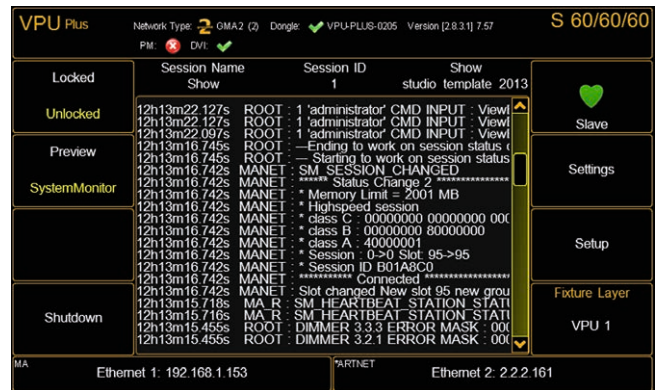
* For more details to codec see also page 40.

Stay on top of things
## Simple setup and monitoring via the 7" touchscreen display

Video Output Control

The preview screen of the MA VPU plus MK2 lets you perfectly supervise the content which is currently being sent to any of the three outputs.

System Monitoring & Diagnosis

The MA VPU plus MK2 features a screen for real-time monitoring of the System Monitor. In this way the user is always up to date about the current situation of showfile and network.
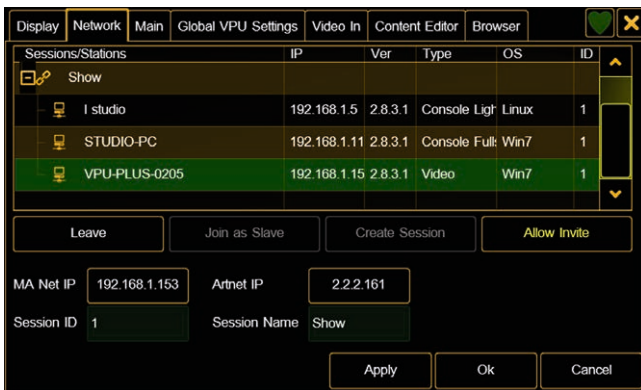
Network Overview

Whenever needed, the network screen gives a quick overview of all MA components in the network and their current status. This allows you to check the installed software versions or monitor whether all components are up and working.

Priorising Fixtures

Thanks to the smart MA-Net2/MA-Net you can assign each of the connected MA VPU to output to your screens. If an MA VPU fails, it is possible to easily select your backup MA VPU via the MA VPU touchscreen and use it instead. If you have no backup MA VPU, you can select a less important MA VPU from your system and assign it to a more relevant screen. The video output must of course be re-routed as well. This can be easily done via a crossbar.

MA VPU – Your benefits at a glance:

Hardware

* MA VPU – Rock solid

Renowned MA quality with all inputs and outputs clearly arranged and accessible on the back. Rock'n'Roll proven 19" housing. The complete motherboard, solid state drive and all other parts of the MA VPU are enclosed within a shock mounted frame for optimal protection.

* Connectivity

Built-in EDID-Manager (Extended Display Identification Data) gives information about the manufacturer, display size, pixel mapping data etc. of the screens and the ability to manage the output correctly. Due to the high qualitative HD SDI-Inputs, there is virtually no latency. A USB flash drive for restoring the delivery status guarantees being able to reset a MA VPU back to its original conditions at each point in time. This also means that any performance lost through wrong adjustments can be restored again.

* Easy access

The display at the front of the MA VPU plus is a big advantage as the whole setup can be completed here. The MA VPU light display also informs about all relevant data.

* Sound

The MA VPU plays back the sound of video clips and can be controlled by an individual sound master per 3D video layer.

Software

* Easy backup solution

Intelligent backup solution, within the network. Any MA VPU can backup any other MA VPU.

* Comfortable setup

The whole MA VPU setup and all functions can be accessed directly from the grandMA2 console, a separate management computer is not required.

* Sophisticated content distribution

The complete content distribution is carried out via the grandMA2 console. Video-input-settings, as well as other adjustments are also possible via the grandMA2.

Service and Support

* 24/7

24 hour support, accessible worldwide: www.malighting.com/support

System

* Blind programming

Blind and preview cues including MA VPU state are possible.

* Free software

All software for the MA VPU is available for download free from the internet and usable as a preprogramming tool.

* Standard codec application

Only the MainConcept MPEG2 codec is applied. This way high performance and quality are ensured. Required conversion tools are available on the MA Lighting website.

* No additional parameters needed

If used in a network, the MA VPU does not need any further parameters. This means, if all 4,096 parameters of a grandMA2 light are occupied (e.g. by moving lights), you can still add numerous MA VPUs to the network.

* Intuitive interface

The complete interface of the MA VPU is arranged very intuitively to allow users to orientate themselves fast. A standard show can be played out quickly.

* 256 DMX universes

Refreshrate DMX 30Hz are possible via the MA VPU (pixel mapping, output of pixel RGB to DMX).

* Integrated warper

The MA VPU features an integrated warper, which can be used for placing all warped objects into the output as well as on each individual layer. Amongst others, warping means the output of clips on three-dimensional objects. Live warping over the complete network is also possible, all objects are available directly on each MA VPU within the network.

* Advanced networking

Advanced networking features over MA-Net2 allow content distribution between the MA VPU.

* Shutdown via console

You can create a master fixture, which can shut down the MA VPU via the console. Also a restart, changing to windowed mode or to the full screen mode is possible via the console.

Dimming

La Bohème – St. Margarethen, Austria

Dimming Concepts

MA Lighting's dimMA dimming systems can be mixed within an installation as they all have the same dimming curves and rise times. All dimmers can be controlled by any DMX source. Due to the idea of networking the dimMA System for fixed installations will be equipped with an MA NDP (Network Dimmer Processor) that is able to send and receive different Ethernet protocols as well as DMX. Therefore a new level of control and system integration is reached and provided by the MA NDP. As soon as the grandMA console or any other control system is switched off the MA NDP can take over control and works as the "heart" of the complete network. This intelligent functionality in combination with all provided feed back and fault information will give a perfect overview and control of the entire system. Everything can be centrally organised while the entire control of all parts of the network remains.

dimMA   *dimMA compact*   *dimMA compact RCBO*

Overview dimmer rise times

| Dimmer	Ampere	Module rise time	Dimmer	Ampere	Module rise time
dimMA compact 12 x 3kVA dimMA compact/RCBO	13	280µs	Touring 12 x 2.3kVA	10	280µs
			Touring 12 x 3.7kVA	16	280µs
dimMA compact 6 x 5.7kVA dimMA compact/RCBO	13	280µs	Touring 6 x 5.7kVA 400µs	13	400µs
			Touring 12 x 3.7kVA 300µs	16	300µs
dimMA 3kVA	13	280µs	Touring 12 x 2.3kVA TV3	10	360µs
dimMA 3kVA HR	13	400µs (720µs)	Wall Mount 3kVA	13	280µs
dimMA 5.7kVA	25	400µs (720µs)	Wall Mount 3kVA HR	13	400µs
dimMA 11.5kVA	50	400µs	Wall Mount 5.7kVA	25	400µs

MA dimming technologies and how they are built...

Nowadays thyristor technology is the standard dimming technology. The important argument for any dimmer and any customer will be the rise time with the thyristor technology. It provides an idea of how fast the "jump" from zero to the actual voltage will be. This voltage jump can cause "lamp noise" – better filters will reduce that noise. The rise time for TV and theatre applications should be at least 280µs. The MA solution gives you the same rise time across different MA Digital Dimmer modules, so various combinations of different MA Digital Dimmer modules can be used together. Please refer to the tables above for more information about the rise times.

Just as important as the build quality is the quality of the filters. The better the filters, the more quiet the entire dimmer. It is especially important to avoid a permanent whir caused by interacting filter elements. MA Lighting has set many quality standards and proven in multiple dimMA installations, how silent thyristor dimmers can work.

What's the best dimming solution?

The best dimming solution will be the one that fits the customer's requirements as well as his technical needs. In most cases the thyristor technology will be more than sufficient. The best result for any standard dimming system will be the thyristor technology because of its field tested reliability. On the following pages all the dimming solutions MA can offer will be given. All dimming products can be combined becauseof the dimmers for permanent installations and those for touring application work in the same range of rise time. All dimmers have the same high quality filtering and a user friendly interface, starting at the touring dimmers with a built-in display and ending at the dimMA System with its unique configuration and feedback functionality right on the screens of the grandMA consoles.
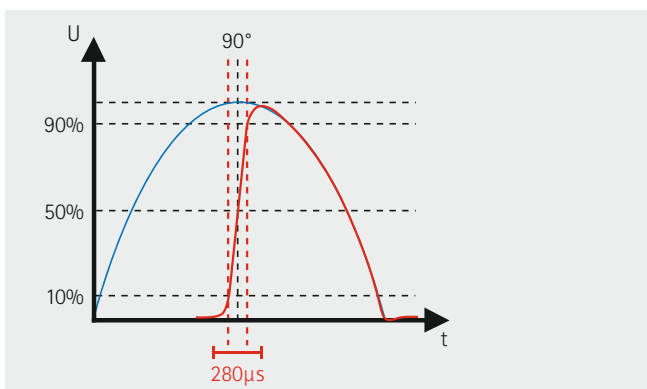
Forward phase control with rise time of 280 µs

Digital Dimmer Wall Mount (WM)

Digital Dimmer Touring

dimMA

Digital dimming system for permanent installations

- Key features (mechanical and electrical)
- Sturdy dimmer cabinet with a footprint of only 600 x 600mm for 72 dimmer modules
- Easy installation and access to the connectors from the front using a 19" swivel frame
- Plug-in dimmer modules with three power ratings of 3,000VA, 5,700VA or 11,500VA
- Cabinets can be populated with a variety of modules of different types and loads
- A mains switch and a residual current device for each dimmer crate are fitted as standard
- Key features (control)
- All dimmers are fitted with current sensing and fault feedback functions via Ethernet as standard
- Load check, control checking and fault indication with LEDs for each dimmer circuit
- Two independent signal inputs via Ethernet and/or DMX with individual patch
- LTP-, HTP- and backup link of the control input possible
- Two separate DMX inputs A + B with Thru output for additional cabinets
- Conversion and output of two DMX lines when controlled via Ethernet
- Second processor as a synchronous backup system available as an option

With the new and innovative digital dimming system dimMA, the well-known reliability of the MA touring dimmers is now also available for permanent installations. The new MA installation dimming system uses 19" rack cabinets that are made by the renowned manufacturer Rittal and have a foot print of only 0.36m² so that they can be packed tightly. All connections and outgoing lines are located on the inside of the cabinet. A swivel frame which operates similar to a huge front door provides easy and convenient access from the front and makes unnecessary any additional load terminals or patch fields. Power feed and outgoing cables can either be routed from the top or the bottom of the cabinet.

Rugged cabinet construction

The swivel-frame cabinet with its 18 plug-in slots (a maximum of 72 x 3,000VA) can be fitted with modules of 4 x 3,000VA, 2 x 5,700VA or 1 x 11,500VA loads. Each rack can be populated with modules of different types.
All modules are available with different rise times for their specific needs. All modules of the same power rating will fit into the slot and therewith all modules in the same power rating are exchangeable without any additional installations e.g. as sinewave or relay modules. Many options can be chosen to create a dimming installation on customers request and to fullfill the needs of the installation.

For feeding (TN-S net), there is an integrated three-phase bus-bar system with a load capacity of 400A per phase, which also allows easy cross wiring, if the cabinets are installed next to each other. Upon request, the cabinets can be equipped with special components such as mains switches, auxiliary contactors, additional, parallel output terminals, RCD per channel or DMX and network distributors.

Dimmer modules

The plug-in modules for the dimMA digital dimming system are available with load ratings of 4 x 3,000VA, 2 x 5,700VA or 1 x 11,500VA. The dimmer modules are available with rise times from 280µs up to 400µs depending on the load rating. This allows us to offer the optimal solution for every kind of application while also taking economic aspects into consideration. Each dimmer module features a separate single-PCB computer with power supply and communicates with the Network Dimmer Processor of the cabinet via a CAN-bus interface. Dimmer modules of the same rating may be freely exchanged; any assigned settings such as dimmer number, dimming curve, non-dimming operation, and special and/or panic functions remain linked

to plug-in slot and apply to any new module inser ted. Each module is cooled with a temperature-controlled fan activated only, if the module is actually in use. This reduces drastically the amount of noise produced by the dimming system because only those components are cooled that need it. Via the NDP, each dimmer circuit provides the lighting control system with detailed information about current and voltage, the status of the load connected, and about any faults occurring.

Module racks – known as dimmer crates

All dimmer modules are designed as plug-ins, separate by phase, and mounted in 19" crates with separate feeds for three modules at a time. Each crate (when fully fitted, a maximum of six crates per cabinet is possible) are equipped with a combined mains fuse and switch and a residual current device (RCD) as standard. In order to comply with DIN 15565-8, the RCDs per rack are configured so that they are all shut off when tripped, if multicore is used.

Replacing dimmer modules during operation or switching off individual groups of dimmers is therefore possible and permitted without shutting off the entire cabinet.

Standard/cabinet versions

Number of Crates	Number of Modules	Dimmer Circuits	Backup MA NDP	Nominal Load	Mains Feed
6	18 (3 per crate)	72 x 13A (4 per module)	optional	72 x 3kVA	230/400V 400A/Phase
6	18 (3 per crate)	36 x 25A (2 per module)	optional	36 x 5.7kVA	230/400V 400A/Phase
6	18 (3 per crate)	18 x 50A (1 per module)	optional	18 x 11.5kVA	230/400V 400A/Phase

Dimmer module

Dimmer Circuits	Load	Module rise time	Module Processor
4 x 13A	3kVA	280µs/400µs	16Bit, CAN-bus Interface, independent power supply
2 x 13A	3kVA	720µs	16Bit, CAN-bus Interface, independent power supply
2 x 25A	5.7kVA	400µs	16Bit, CAN-bus Interface, independent power supply
1 x 25A	5.7kVA	720µs	16Bit, CAN-bus Interface, independent power supply
1 x 50A	11.5kVA	400µs	16Bit, CAN-bus Interface, independent power supply

Article	
140101	dimMA
140143	dimMA module, 4 x 3kVA, 280µs
140144	dimMA module, 4 x 3kVA, 400µs
140146	dimMA module, 2 x 5.7kVA, 400µs
140148	dimMA module, 1 x 11.5kVA, 400µs

dimMA compact
Compact dimmer for permant installations

Key features (mechanical and electrical)

- Sturdy dimmer cabinet with a footprint of only 600 x 600mm for 9 dimmer modules

- Screwed-in dimmer modules with two power ratings of 3,000VA or 5,700VA

- Cabinets can be populated with a variety of modules of different types and loads

- A mains switch and a residual current device for each dimmer module are fitted as standard

Key features (control)

- All dimmers are fitted with current sensing and fault feedback functions via Ethernet as standard

- Load check, control checking and fault indication with LEDs for each dimmer circuit

- Two independent signal inputs via Ethernet and/or DMX with individual patch

- LTP-, HTP- and backup link of the control input possible

- Two separate DMX inputs A + B with Thru output for additional cabinets

- Conversion and output of two additional DMX lines when controlled via Ethernet

- Second processor as a synchronous back-up system available as an option

With the new and innovative digital dimming system dimMA compact, the well-known reliability of the MA touring dimmers in combination with the outstanding features of the dimMA system is now available for permanent installations. All features of the dimMA system are the same as for the dimMA compact. It is just called compact due to the fact that it is only 4 units high and offers a 12 channel fitting.

This allows 108 channels in a dimMA cabinet, which is a Rittal rack, and have a foot print of only 0.36m² so that they can be packed tightly. All connections and outgoing lines are located on the inside of the cabinet. A modular connection system of the back side of the modules makes it easy to change modules or get access to the inside terminals and makes unnecessary any additional load terminals or patch fields. Power feed and outgoing cables can either be routed from the top or the bottom of the cabinet.

Rugged cabinet construction

The cabinet can be fitted with 9 modules of 12 channels (a maximum of 108 x 3,000VA) or 9 modules of 6 channels (a maximum of 54 x 5,700VA). Each cabinet can be populated with modules of different types.

In addition switch modules (with relay) that are compatible with phase-cut modules are also available. Thus the digital dimming system for installations is ready for the future and based on proven and rugged technology.

For power input (TN-S net), there is an integrated three-phase bus-bar system with a load capacity of 400A per phase, which also allows easy cross wiring, if the cabinets are installed next to each other.

Upon request, the cabinets can be equipped with special components such as mains switches, auxiliary contactors, additional, parallel output terminals, RCD per channel or DMX and network distributors.

Dimmer modules

The plug-in modules for the dimMA digital dimming system are available with load ratings of 12 x 3,000VA or 6 x 5,700VA with a rise time of 280µs. Each dimmer circuit has high quality thyristors and filter suppression.

This allows us to offer the optimal solution for every kind of application while also taking economic aspects into consideration. Each dimmer module features a separate single-PCB computer with power supply and communicates with the MA NDP (Network Dimmer Processor) of the cabinet via a CAN-bus interface. Dimmer modules of the same rating may be freely exchanged; any assigned settings such as dimmer number, dimming curve, non-dimming operation, and special and/or panic functions remain linked to the plug-in slot location and apply to any new module inserted.

Each module is cooled with two temperature-controlled fans activated only if the module is actually in use. This reduces drastically the amount of noise produced by the dimming system because only those components are cooled that need it. Via the MA NDP, each dimmer circuit provides the lighting control system with detailed information about current and voltage, the status of the load connected, and about any faults occurring.

Standard/cabinet versions

Number of Crates	Number of Modules	Backup MA NDP	Nominal Load	Mains Feed
9	108 x 13A	optional	108 x 3kVA	230/400V 400A/Phase
9	54 x 25A	optional	54 x 5.7kVA	230/400V 400A/Phase

Dimmer module

Dimmer Circuits	Loads	Module rise time	Module Processor
12 x 13A	3kVA	280µs	16Bit, CAN-bus-Interface, independent power supply
6 x 25A	5.7kVA	280µs	16Bit, CAN-bus-Interface, independent power supply

Article	
140103	dimMA compact
140161–1	dimMA compact module, 12 x 3kVA, 280µs, 4HE
140162–1	dimMA compact module, 6 x 5.7kVA, 280µs, 4HE

dimMA compact RCBO

Compact digital dimming system with single RCBO per channel

Key features (mechanical and electrical)

- Sturdy dimmer cabinet with a footprint of only 600 x 600mm for 96 dimmer channels
- Screwed-in dimmer modules with two power ratings of 3,000VA or 5,700VA
- Single RCBO per channel
- Cabinets can be populated with a variety of modules of different types and loads
- A mains switch for each dimmer module is fitted in an additional power distribution module
- Power distribution with D-02-switch-disconnector for each module

Key features (control)

- All dimmers are fitted with current sensing and fault feedback functions
- Load check, control checking and fault indication with LEDs for each dimmer circuit
- Two independent signal inputs via Ethernet and/or DMX with individual patch
- LTP-, HTP- and backup link of the control input possible
- Two separate DMX inputs A + B with Thru output for additional cabinets
- Conversion and output of two DMX lines when controlled via Ethernet
- Second processor as a synchronous backup system available

With the new and innovative digital dimming systems dimMA and dimMA compact MA Lighting combined the well-known reliability of their touring dimmers with both the MA-Net2/MA-Net network architecture and outstanding features for permanent installations. As the last years of development of MA Lighting showed that cost intensive single channel-modules are no longer necessary due to highest reliability and packing density, MA focuses on the attractive dimMA compact solution and consequently develops this further – also taking into consideration the variety of international regulations and requirements. With the dimMA compact RCBO, every channel is protected with single RCBO (combination of RCD and MCB), to reach a new level of safety and to ensure the operation of the remaining channels even if a single channel causes an earth leakage or over-current.

Every dimMA compact RCBO module comes in a solid 4 units housing and single RCBO per channel. This allows up to 96 channels in a cabinet, which is a Rittal rack, and have a foot print of only 0.36 m² so that they can be packed tightly. dimMA compact RCBO offers the same features as the well known dimMA/dimMA compact system and provides the same easy accessibility of all load terminals and connections from the front side of the cabinet. Due to this it is easy to install.

The modular connection system on the back side of the modules makes it easy to change modules and makes any additional load terminals or patch fields unnecessary. All connections and outgoing lines are located on the inside of the cabinet. Power feed and outgoing cables can either be routed from the top or the bottom of the cabinet.

Rugged cabinet construction

The cabinet can be fitted with 8 modules of 12 channels (a maximum of 96 x 3,000VA) or 8 modules of 6 channels (a maximum of 48 x 5,700VA). Each module is equipped with single RCBO (C13/30mA) per channel. Every cabinet is equipped with one centralised power distribution module which contains the mains switches for each dimmer module. In addition switch modules (without semiconductors) that are compatible with phase-cut modules are available. Thus the digital dimming system for installations is ready for the future and based on proven and rugged technology.

For power input (TN-S net), there is an integrated three-phase screw type terminal with a load capacity of 230A per phase. Upon request, the cabinets can be equipped with special components such as main contactor, auxiliary contactors, additional, parallel output terminals, or DMX and network distributors.

Dimmer modules

The plug-in modules for the dimMA compact RCBO digital dimming system are available with load ratings of 12 x 3,000VA or 6 x 5,700VA with a rise time of 280µs. Each dimmer circuit has high quality thyristors and filter suppression.

This allows us to offer the optimal solution for every kind of application while also taking economic aspects into consideration. Each dimmer module features a separate single-PCB computer with power supply and communicates with the MA NDP (Network Dimmer Processor) of the cabinet via a CAN-bus interface. Dimmer modules of the same rating may be freely exchanged; any assigned settings such as dimmer number, dimming curve, non-dimming operation and special and/or panic functions remain linked to the plug-in slot location and apply to any new module inserted.

Each module is cooled with two temperature-controlled fans activated only if the module is actually in use. This reduces drastically the amount of noise produced by the dimming system because only those components are cooled that need it. Via the NDP, each dimmer circuit provides the lighting control system with detailed information about current and voltage, the status of the load connected, and about any faults occurring.

Standard/cabinet versions

Number of Crates	Number of Modules	Backup MA NDP	Nominal Load	Mains Feed
8	96 x 13A	optional	96 x 3kVA	230/400V 230A/Phase
8	48 x 25A	optional	48 x 5.7kVA	230/400V 230A/Phase

Dimmer module

Dimmer Circuits	Load	Module rise time	Module Processor
12 x 13A	3kVA	280µs	16Bit, CAN-bus Interface, independent power supply
6 x 25A	5.7kVA	280µs	16Bit, CAN-bus Interface, independent power supply

Article	
140104	dimMA compact RCBO
140163–1	dimMA compact RCBO module, 12 x 3kVA, 280µs
140164–1	dimMA compact RCBO, 6 x 5.7kW, 280µs

MA NDP (Network Dimmer Processor)

- **Control via DMX and/or Ethernet (MA–Net2/MA–Net, Art–Net or sACN–protocol)**
- **8 or 16–bit dimming curve resolution**
- **Automatic patch for the entire cabinet**
- **Individual patch for each of the two control inputs per individual dimmer**
- **Setting of minimum and maximum voltage for each dimmer (in volts)**
- **Automatic preheat feature adjustable for each dimmer (switches off, if control signal is >0%)**
- **Response time adjustable for each dimmer (in milliseconds)**
- **Two lighting cues (Panic and Control) can be activated independently from the dimmer processor**
- **Six isolated contact inputs for activating backup cues, straight through or binary coded for 64 cues**
- **Cue memory for 1,000 cues (backup cues), numbered by sequence and cue number**
- **Eight pre–defined dimmer curves, selectable per dimmer**

The MA NDP (Network Dimmer Processor) is the heart of the MA dimMA dimming system. The MA NDP is the active link between the different Ethernet signal standards, the dimMA digital dimming system and the DMX world. In addition to controlling and supervising up to144 dimmer circuits, up to 1,024 channels can also be converted from the respective Ethernet protocol and outputted to two electrically isolated DMX universes. Two separate DMX lines are also available as inputs in order to integrate those control systems into the MA network which were previously not included in Ethernet networks. Thus the number of cables can be reduced and greater distances can be bridged. Just like the consoles of the grandMA range, the MA NDP supports various protocols for transmitting DMX data via Ethernet as a standard feature and therefore does not depend on the consoles of any manufacturer in particular.

The MA NDP uses a CAN-bus interface to communicate with the individual dimmer modules. This interface is also used to synchronise the MA NDP with an optional MA NDP backup system. For configuring and operating the MA NDP "on site", each unit has a two-line, backlit LC-display, four menu keys and an encoder wheel. When connected to an external keyboard, a mouse and a VGA monitor, configuring the MA NDP is especially easy and convenient to accomplish. Eight dry input contacts make it possible to activate functions such as backup/emergency cues by means of any external buttons or switches. Two of these analogue inputs are used as a panic function to activate two cues directly in the dimmer modules, i.e. independent from the MA NDP. The housing which is constructed from sheet metal is one unit high and designed for rack mounting; it comes complete with a built-in, three-phase power supply. All signal connectors are pluggable and routed within the dimmer cabinet.

Article	
140131	MA NDP (Network Dimmer Processor), main processor
140132	MA NDP (Network Dimmer Processor), backup processor

Isolated input

MA-Net
MA-Net2
Art-Net
sACN

CAN-Bus

DMX512-A Line 1
DMX512-A Line 2

DMX512-A Line 1 thru
DMX512-A Line 2 thru
DMX512-A Line 1 out
DMX512-A Line 2 out
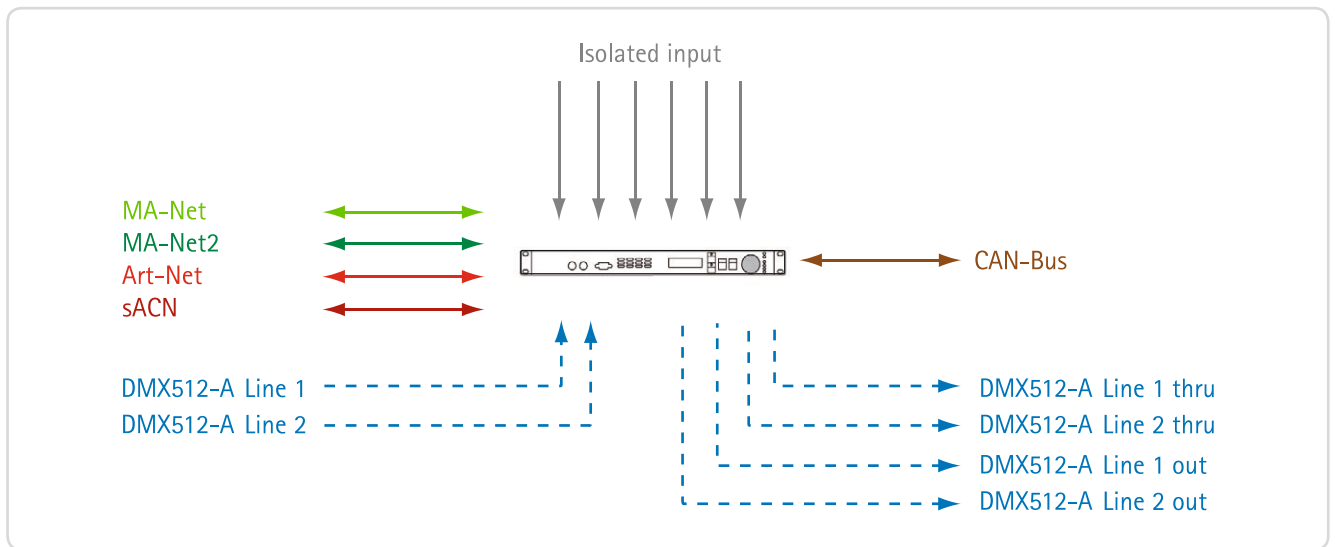
Fault messages and feedback signals (extract):

The dimMA digital dimming system is equipped with a comprehensive monitoring and diagnostic system which detects the operational status of each individual dimmer. Detected faults and messages show up in plain language on the MA NDP display and fault memory. The following faults are detected and reported:

- **Excessive temperature of each module (average temperature of cabinet will be displayed in console)**
- **Overload of the dimmer (nominal load rating of the dimmer exceeded)**
- **Loss of phase on power feed**
- **Over-current on neutral conductor (with optional sensor)**
- **Excessive amount of direct current on dimmer output**
- **Load failure (no load connected)**
- **Failure of one or both control signals (DMX or Ethernet)**
- **RCD trip per rack**
- **Trip of the dimmer's circuit breaker**
- **Failure of a dimmer module (module feed or electronics defective)**

All faults are recorded and – provided with the date and time of the fault's incidence – entered into the fault list, which can be retrieved on the MA NDP itself, on a grandMA console or with a PC using Telnet or grandMA onPC. All dimmer cabinets can also be remotely configured via a grandMA console or a PC.
A PC can be used to update the MA NDP software. Such an update is also possible by replacing the CF-memory card of the MA NDP. The software of the individual dimmer modules is updated via the MA NDP. There is no need to remove or open the modules.

MA Digital Dimmer
Touring and Wall Mount

With their digital dimmers touring MA Lighting have a strong history especially in the touring business. This is mainly based on the proven reliability of these "busy workhorses" in 19"/3 HU housings.

MA Lighting is also offering this first-class dimmer technology in a robust wall-mountable housing (WM) for fixed installations. With special rails these MA digital dimmers WM can also be mounted in a 19" rack.

The MA Digital Dimmers with their high power microcontrollers with "time-processing-units" do not only provide digital adjusting of the ignition timing of the phase control. All data and stored cues are filed in the EPROM. The operating system can be updated by the simply changing this EPROM. DMX control with single channel or sequence patch, value hold or memory function of dimmer outputs in case of DMX loss and Master/Slave ganging of additional dimmerpacks are only a few more highlights of these remarkable products.

- Robust, powder coated 19" sheet steel housing with interior chassis
- Special versions with single or two-pole breaker, optionally also available with RCD protection switch
- Two temperature controlled fans
- Automatic turn off and over-temperature acoustic warning signal
- Phase control by thyristors and wide spectrum filter suppression
- All inputs and outputs have high frequency interference suppression
- Full load and short-circuit safe dimmer with magnetic circuit breaker (C-profile)
- All operating functions via menu and graphic LC-display
- Preheat and output limit fully adjustable for each channel
- 3 flexible and fully editable dimming curves, plus one switched function
- Internal memory of 12 scenes and one chaser with separate fade times
- Block or single channel patch for DMX512
- Individual versions according to customers' specifications available on request, e.g. with neutral wire disconnecting circuit breakers

Display

The large graphic display on the MA Digital Dimmer lists all important status values and allows access to numerous special functions. Problems like overvoltage or overheating are additionally displayed by the LEDs and trigger a buzzer.

Fault clearance and safety

Phase control

MA Lighting dimmers use thyristors running under phase control. The dimmers' power components and circuit breakers are tuned so that the internal electronics are safe from short circuits. On the other hand, the power spike associated with turning on halogen lamps will not trigger the dimmers' circuit breakers.

Monitoring

Digital monitoring throughout the entire dimmer ensures error-free operation. Internal temperature changes caused by varying loads, will not influence the dimming characteristics. The dimmer will notify the operator before it overheats, e.g. when a fan is blocked, and will shut down if the notification is ignored. The input voltage is closely monitored and the dimmer will automatically shut down in case of the wrong polarity or a missing neutral conductor – protecting the lighting equipment against excessive voltage.

Dimmer noise

Special filtering ring-core chokes and the cleverly designed housing of the new "WM" digital dimmer with interior chassis, ensures that "dimmer buzz" is kept to an absolute minimum. From a distance of one meter, sound from the dimmer measures only 46dB(A), meaning that it can be installed virtually anywhere.

Heat loss

At a power density of 12 x 2.3kVA inside a three unit housing, even a heat loss of only 1.5% corresponds to a medium-sized heating coil. In the MA Digital Dimmer, the production of heat has been considerably reduced by using special coil core materials.
The remaining heat is dissipated by using a powerful temperature-controlled fan (2 pcs. in 'WM').
The MA Digital Dimmer is rated for a 100% duty cycle.

Interference suppression

Phase control produces harmonic waves which can cause distortion in other electronic equipment and are highly undesirable especially in audio equipment. The specially-developed filters of the MA Digital Dimmer not only suppress these frequencies in the range required by law, but also suppress frequencies in the audio range up to 20 kHz. Although rise time is not the only way to measure interference suppression, the MA Digital Dimmer with its 280µs rise time (10-90% at full load) qualifies as one of the market leaders.
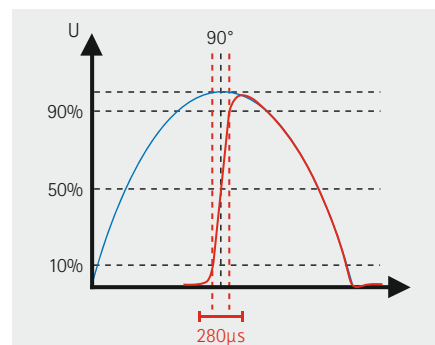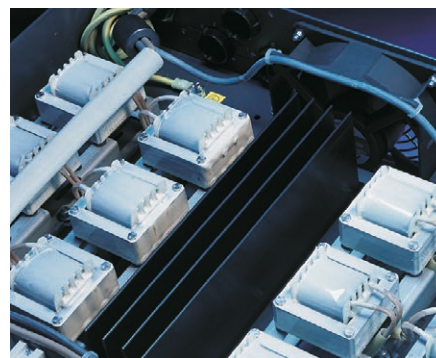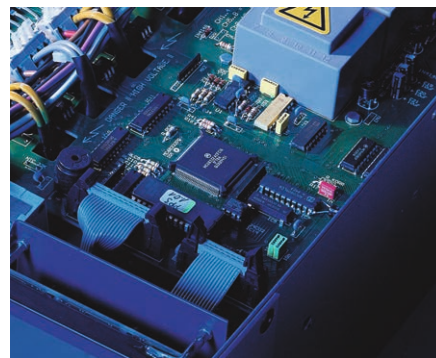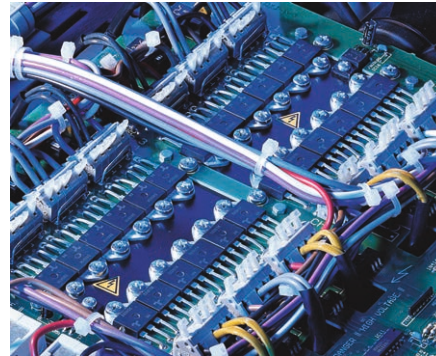
MA Digital Dimmer WM

- Two different versions with permanent load of 3,000VA or 5,700VA
- A partially casted split–ring choke make it even more light weight for the "touring" version
- 280μs rise time (3kVA), 400 μs rise time (5.7kVA)
- Phase control display for glow lamps
- Special versions with two–way breaker and special wiring for use with delta network (without RCD) – e.g. on cruise ships
- 8 contact inputs for the recall of internal stored looks; 8 outputs with LED feedback
- Robust coated 19" steel housing for mounting on walls
- With special rails the dimmer can be built–in a 19" rack
- Optional cable input access, either on top and/or bottom

A wall-mountable digital dimmer with large graphic display listing status values and special functions as well as phase control display. Further versions with RCD (63A/30mA), breaker with neutral conductor disconnect or real two-way breaker and special wiring for cruise ships (delta-network) also available.

The MA Digital Dimmer WM (Wall Mount) are provided with a robust housing for wall mounting. With special rails they can also be mounted in a 19" rack. The large graphic display lists all important status values and allows access to numerous special functions. Problems like overvoltage or overheating are additionally displayed by the LEDs and trigger a buzzer.

MA Digital Dimmer WM, 12 x 3kVA

The MA Digital Dimmer WM 12 x 3kVA comes with 12 single dimmers 3kVA and 280µs rise time between 10% and 90% at a phase angle of 90° as well as a ring core suppression.

Article	
140521	MA Digital Dimmer WM, 12 x 3kVA
140522	MA Digital Dimmer WM, 12 x 3kVA with RCD
140525	MA Digital Dimmer WM, 12 x 3kVA Delta
140528	MA Digital Dimmer WM, 12 x 3kVA neutral-disconnect
140529	MA Digital Dimmer WM, 12 x 3kVA double-clamp
140530	MA Digital Dimmer WM, 12 x 3kVA with 6mm² clamps
140532	MA Digital Dimmer WM, 12 x 3kVA, RCD per channel

Technical Specifications	
Dimensions	440 x 610 x 154mm/17.3 x 24 x 6inch

MA Digital Dimmer WM, 12 x 3kVA TV3

The MA Digital Dimmer WM 12 x 3kVA TV3 comes with 12 single dimmers 3kVA and 400µs rise time between 10% and 90% at a phase angle of 90° as well as a ring core suppression. Designed especially for TV studios, excellent interference suppression can be guaranteed.

Article	
140527	MA Digital Dimmer WM, 12 x 3kVA TV3

Technical Specifications	
Dimensions	440 x 610 x 154mm/17.3 x 24 x 6inch

MA Digital Dimmer WM, 6 x 5.7kVA

The MA Digital Dimmer WM 6 x 5.7kVA comes with 6 single dimmers 3kVA and 400µs rise time between 10% and 90% at a phase angle of 90° as well as a ring core suppression.

Article	
140523	MA Digital Dimmer WM, 6 x 5.7kVA
140524	MA Digital Dimmer WM, 6 x 5.7kVA with RCD
140526	MA Digital Dimmer WM, 6 x 5.7kVA Delta
140581	MA Digital Dimmer WM, 6 x 5.7kVA with RCD per channel
140582	MA Digital Dimmer WM, 6 x 5.7kVA neutral-disconnect
140583	MA Digital Dimmer WM, 6 x 5.7kVA double-clamp

Technical Specifications	
Dimensions	440 x 610 x 154mm/17.3 x 24 x 6inch

MA Digital Dimmer Touring Packs

- **Rock solid 19" steel housing with internal frame**
- **Three available power ranges with 2.3kVA 3.7kVA and 5.7kVA**
- **Master/Slave mode for simultaneous program recalls via MIDI**

With their digital dimmers touring MA Lighting have a strong history. This is mainly based on the proven reliability of these "busy workhorses".

The MA Digital Dimmers with their high power microcontrollers with "time-processing-units" do not only provide digital adjusting of the ignition timing of the phase control. All data and stored cues are filed in the EPROM. The operating system can be updated by the simply changing this EPROM. DMX control with single channel or sequence patch, value hold or memory function of dimmer outputs in case of DMX loss and Master/Slave ganging of additional dimmerpacks are only a few more highlights of these remarkable products.

MA Digital Dimmer 12 x 3.7kVA

Article	
140504	MA Digital Dimmer, 12 x 3.7kVA (Harting Han 16E)
140505	MA Digital Dimmer, 12 x 3.7kVA (Socapex EF 419)

Technical Specifications	
Net weight	28kg/61.8lbs
Dimensions	483 x 132 x 410mm/19 x 5.2 x 16.1inch

Scope of delivery
Dimmer is delivered with mounted power cable H07RN-F 5G 10mm²

A rack-mountable digital dimmer unit in a 19"/3HU housing with 12 single dimmers 3.7kVA for higher loads. Further functions and equipment as the MA Digital Dimmer Touring 12 x 2.3kVA.

MA Digital Dimmer 12 x 3.7kVA RCD

Article	
140604	MA Digital Dimmer, 12 x 3.7kVA RCD (Harting Han 16E)
140605	MA Digital Dimmer, 12 x 3.7kVA RCD (Socapex EF 419)

Technical Specifications	
Net weight	34kg/75.0lbs
Dimensions	483 x 132 x 410mm/19 x 5.2 x 16.1inch

Scope of delivery
Dimmer is delivered with mounted power cable H07RN-F 5G 10mm²

A rack-mountable digital dimmer unit in a 19"/3HU housing with 12 single dimmers 3.7kVA for higher loads and with integrated RCD breaker rated at 30mA. Further functions and equipment as the MA Digital Dimmer Touring 12 x 2.3kVA.

MA Digital Dimmer 12 x 2.3kVA

Article	
140501	MA Digital Dimmer, 12 x 2.3kVA (Harting Han 16E)
140502	MA Digital Dimmer, 12 x 2.3kVA (Socapex EF 419)
140503	MA Digital Dimmer, 12 x 2.3kVA (Wieland Hotpatch 12/2)

Technical Specifications	
Net weight	23kg/50.7lbs
Dimensions	483 x 132 x 410mm/19 x 5.2 x 16.1inch

Scope of delivery
Dimmer is delivered with mounted power cable H07RN-F 5G 6mm²

A rack-mountable digital dimmer unit in a 19"/3HU housing with 12 single dimmers 2.3kVA. Controlled by a high power microcontroller with "time-processing-unit", digital adjusting of the ignition timing of the phase control. All data and stored cues are filed in the EPROM. The operating system can be updated by the simply changing this EPROM. DMX control with single channel or sequence patch, value hold or memory function of dimmer outputs in case of DMX loss and Master/Slave ganging of additional dimmerpacks (e.g. in a rack) is possible.

MA Digital Dimmer 12 x 2.3kVA TV3

Article	
140512	MA Digital Dimmer, 12 x 2.3kVA TV3 (Harting Han 16E)
140612	MA Digital Dimmer, 12 x 2.3kVA TV3, RCD (Harting HAN 16E)

Technical Specifications	
Net weight	23kg/50.7lbs
Dimensions	483 x 132 x 410mm/19 x 5.2 x 16.1inch

Scope of delivery
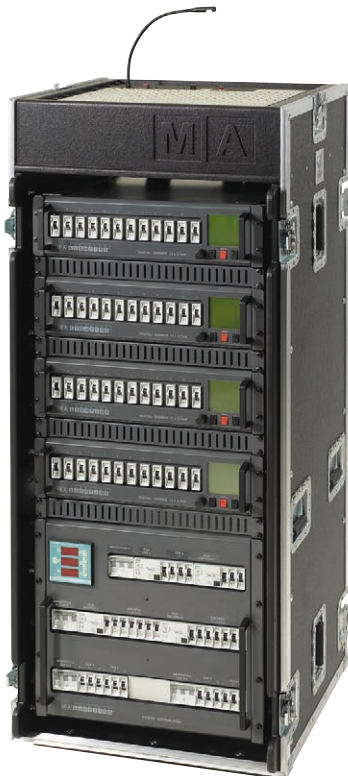Dimmer is delivered with mounted power cable H07RN-F 5G 6mm²

A rack-mountable digital dimmer unit in a 19"/3HU housing with 12 single dimmers 2.3kVA with special filter technology and a rise time of 360µs between 10% and 90% at a phase angle of 90°. Designed especially for TV studios, excellent interference suppression can be guaranteed. Further functions and equipment as the MA Digital Dimmer Touring 12 x 2.3kVA.

MA Digital Dimmer 12 x 2.3kVA RCD

Article	
140601	MA Digital Dimmer, 12 x 2.3kVA RCD (Harting Han 16E)
140602	MA Digital Dimmer, 12 x 2.3kVA RCD (Socapex EF 419)
140603	MA Digital Dimmer, 12 x 2.3kVA RCD (Wieland Hotpatch 12/2)

Technical Specifications	
Net weight	23kg/50.7lbs
Dimensions	483 x 132 x 410mm/19 x 5.2 x 16.1inch

Scope of delivery
Dimmer is delivered with mounted power cable H07RN-F 5G 6mm²

A rack-mountable digital dimmer unit in a 19"/3HU housing with 12 single dimmers 2.3kVA and built-in RCD breaker rated at 30mA mounted on the front. Further functions and equipment as the MA Digital Dimmer Touring 12 x 2.3kVA.

MA Digital Dimmer 6 x 5.7kVA

Article	
140507	MA Digital Dimmer, 6 x 5.7kVA (Harting HsB6)
140508	MA Digital Dimmer, 6 x 5.7kVA

Technical Specifications	
Net weight	34kg/75.0lbs
Dimensions	483 x 132 x 410mm/19 x 5.2 x 16.1inch

Scope of delivery
Dimmer is delivered with mounted power cable H07RN-F 5G 10mm²

A rack-mountable digital dimmer unit in a 19"/3HU housing with 6 single dimmers 5.7kVA for very high loads. Protection by single or double breakers. Further functions and equipment as the MA Digital Dimmer Touring 12 x 2.3kVA.

MA Digital Dimmer 6 x 5.7kVA RCD

Article	
140607	MA Digital Dimmer, 6 x 5.7kVA RCD (Harting HsB6) with 2-way Breakers
140608	MA Digital Dimmer, 6 x 5.7kVA RCD

Technical Specifications	
Net weight	34kg/75.0lbs
Dimensions	483 x 132 x 410mm/19 x 5.2 x 16.1inch

Scope of delivery
Dimmer is delivered with mounted power cable H07RN-F 5G 10mm²

A rack-mountable Digital Dimmer unit in a 19"/3U housing with 6 single dimmers 5.7kVA for very high loads. Protection by one or two breakers, also with built-in RCD breaker rated at 30mA mounted on the front. Further functions and equipment as the MA Digital Dimmer 12 x 2.3kVA.

MA Digital Dimmer Touring Racks

The special sturdy MA Digital Dimmer Touring racks with Amptown ABS-case are delivered with two, three or four MA Digital Dimmer units of different capacities and are all equipped with an integrated power distribution (CEE or Powerlock) including all required RCD and circuit breakers.

For the touring version a hotpatch panel is integrated as a standard feature. The dimmer racks are available in different sizes from 24 x 2.3kVA up to 48 x 3.7kVA with hotpatch panel. A 12 x 5.7kVA variant without hotpatch unit is also available. Special dimmer racks custom-made by our master workshop will be delivered on request. Customers may also specify power outputs equipped with Harting HAN16E, ICP/Socapex, CEE17 or Schuko connectors. The system is completed by the excellent Amptown ABS cases for optimum safety during transport and with additional heavy duty wheels on the back for ease of manoeuvrability. All touring versions are equipped with Major hotpatch units with test plug and goose neck lamps; the output panel can also be equipped with constant current outputs.

- Equipped with power distribution 63A or 125A by CEE 3P+N+PE connector and 2m cable
- Every single dimmer protected by RCD and fuses
- Four additional direct power out
- Powerlock distribution 250A with powerlock connectors for the 48 x 3.7kVA rack
- Output via 16 Harting HAN 16E connectors at the back side
- 30mA RCD protection for each dimmer
- Case with built in ABS chassis for optimal safety during transport
- Major Hotpatch unit with LED desk lamp
- Drawer for accessories and hotpatch cable

MA Digital Dimmer Rack 48 x 3.7kVA

Article	
140851	MA Digital Dimmer Rack 48 x 3.7kVA, with 24/4 + 24/2 hotpatch units, in Amptown ABS–Case

Technical Specifications	
Net weight	280kg/617lbs
Dimensions	1,540 x 600 x 950mm/60.6 x 23.6 x 37.4inch

Scope of delivery
250A power distribution with Powerlock connectors, incl. 6 x permanent power lines with circuit breaker, hotpatch cable not included, 4 x MA Digital Dimmer, 12 x 3.7kVA (Harting Han 16E) (140504)

The MA 48 channel dimmer contains four MA Digital-Dimmer Touring with 12 x 3.7kVA each. This rack is equipped with a 250A powerlock distribution panel, RCD protection, a 24/4 and a 24/2 hotpatch panel, as well as 24 x Harting HAN 16E outputs. The rack is delivered completely wired and in full working order.

MA Digital Dimmer Rack 48 x 2.3kVA

Article	
140804	MA Digital Dimmer Rack 48 x 2.3kVA, with 48/2 hotpatch unit, in Amptown ABS case 24HU
140855	MA Digital Dimmer Rack 48 x 2.3kVA, compact version with 48/2 hotpatch unit in Amptown ABS case 18HU

Technical Specifications for 140804*	
Net weight	260kg/573lbs
Dimensions	1,540 x 600 x 950mm/60.6 x 23.6 x 37.4inch

Scope of delivery

125A power distribution, hotpatch cable not included,
4 x MA Digital Dimmer, 12 x 2.3kVA (Harting Han 16E) (140501)

* More information about the additional versions can be found at:
  www.malighting.com

The 48-channel dimmer rack is equipped with four MA Digital Dimmer Touring, each with 12 x 2.3kVA. This rack is equipped with a 125A Major power distribution with all required RCDs and mains breakers, a 48/2 Major hotpatch panel and 16 x Harting HAN 16E outputs and is delivered completely wired and in full working order.

MA Digital Dimmer Rack 36 x 2.3kVA

Article	
140852	MA Digital Dimmer Rack 36 x 2.3kVA, Compact version with 36/4 hotpatch unit, in Amptown ABS case

Technical Specifications	
Net weight	205kg/451lbs
Dimensions	1,070 x 600 x 950mm/42.1 x 23.6 x 37.4inch

Scope of delivery

125A power distribution incl. 6 x permanent power lines with circuit breaker, hotpatch cable not included, 3 x MA Digital Dimmer, 12 x 2.3kVA RCD (Harting Han 16E) (140601)

A space-saving, compact dimmer rack. The MA 36 channel dimmer rack contains three MA Digital Dimmer Touring with 12 x 2.3kVA RCD each. This rack is equipped with a power distribution panel with the required RCDs, a 36/4 hotpatch panel and 24 x Harting HAN 16E output sockets. The rack is delivered completely wired and in full working order.

MA Digital Dimmer Rack 24 x 3.7kVA

Article	
140850	**MA Digital Dimmer Rack 24 x 3.7kVA, a space-saving, compact dimmer with a 24/4 hotpatch unit, in Amptown ABS case.**

Technical Specifications	
Net weight	168kg/370lbs
Dimensions	890 x 600 x 950mm/35 x 23.6 x 37.4inch

Scope of delivery
125A power distribution, hotpatch cable not included,
2 x MA Digital Dimmer, 12 x 3.7kVA (Harting Han 16E) (140504)

The compact 24 channel dimmer rack contains two MA Digital Dimmer Touring 12 x 3.7kVA RCD. It is equipped with a power distribution panel with mains breaker and circuit breakers, a 24/4 hotpatch panel and 16 x Harting HAN 16E outputs. The rack is delivered completely wired and in full working order.

MA Digital Dimmer Rack 24 x 2.3kVA

Article	
140803	**MA Digital Dimmer Rack 24 x 2.3kVA, with 24/2 hotpatch unit, in Amptown ABS case**
140853	**MA Digital Dimmer Rack 24 x 2.3kVA, TV, in Amptown ABS-Case**

Technical Specifications for 140803*	
Net weight	163kg/360lbs
Dimensions	1,200 x 600 x 820mm/47.2 x 23.6 x 32.3inch

Scope of delivery
140803 │ 63A power distribution, hotpatch cable not included,
2 x MA Digital Dimmer, 12 x 2.3kVA (Harting Han 16E) (140501)
140853 │ 63A power distribution,
2 x MA Digital Dimmer, 12 x 2.3kVA TV3 (Harting Han 16E) (140512)

* More information about the additional versions can be found at:
  www.malighting.com

The MA 24 channel dimmer rack contains two MA Digital Dimmer Touring with 12 x 2.3kVA each. The rack is equipped with 63A power distribution including all required RCD breakers, a 24/4 hotpatch panel and 16 x Harting HAN16E sockets. It is delivered completely wired and in full working order.

MA Digital Dimmer Rack 12 x 5.7kVA

The 12 channel dimmer rack contains two MA Digital Dimmer Touring 6 x 5.7kVA. This rack is equipped with 125A power distribution and 4 Harting HsB6 output connectors in parallel with CEE 32A L+N+PE outputs. The rack is delivered completely wired and in full working order.

MA DIGITAL DIMMER and MA DIGITAL DIMMER with RCD – Touring / WALL MOUNT

Article	140501	140512 TV3	140502	140511	140503	140504	140505	140507	140508	140521	140523
Description	12 x 2.3kVA (Harting) [140601 RCD]	12 x 2.3kVA TV3 (Harting) [140612 RCD]	12 x 2.3kVA (Socapex) [140602 RCD]	12 x 2.3kVA 120V (Socapex)	12 x 2.3kVA (Hotpatch) [140603 RCD]	12 x 3.7kVA (Harting) [140604 RCD]	12 x 3.7kVA (Socapex) [140605 RCD]	6 x5.7kVA (Wieland) with 2-pole breakers [140607 RCD]	6 x 5.7kVA (Wieland) [140608 RCD]	6 x 3.0kVA [140522 RCD]	6 x 3.0kVA [140524 RCD]
Power											
Power per Channel (kVA)	2.3	2.3	2.3	2.3	2.3	3.7	3.7	5.7	5.7	3.0	5.7
Dimmer Channel	12	12	12	12	12	12	12	6	6	12	6
Supply											
Cable (mm²)	6	6	6	10	6	10	10	10	10		
No. of phases	3	3	3	3	3	3	3	3	3		
Control											
DMX	•	•	•	•	•	•	•	•	•	•	•
Analogue	•	•	•	•	•	•	•	•	•		
MIDI	•	•	•	•	•	•	•	•	•		
Cues	12	12	12	12	12	12	12	12	12	12	12
Non-dim	•	•	•	•	•	•	•	•	•	•	•
Curves	3	3	3	3	3	3	3	3	3	3	3
Outputs											
Harting	2	2				2					
Socapex			2	2			2				
Hotpatch					2 x 12						
Harting HsB6								2	2		
Rating	C10A	C10A	C10A	C20A	C10A	C16A	C16A	C25A	C25A	C13A	C25A
RCD (30mA)	[40]	[40]	[40]		[40]	[63]	[63]	[63]	[63]	[63]	[63]

MA Digital Dimmer Racks

Article	140803	140853	140852	140804	140850	140851	140854
Description	24 x 2.3kVA	24 x 2.3kVA »TV«	36 x 2.3kVA	48 x 2.3kVA	24 x 3.7kVA	48 x 3.7kVA	12 x 5.7kVA
Power							
Power per Channel (kVA)	2.3	2.3	2.3	2.3	3.7	3.7	5.7
Dimmer Channel	24	24	36	48	24	48	12
Inputs							
Powerlock (in/out)						250	
CEE 17	63	63	125	125	125		125
Outputs							
Hotpatch	4 x		4 x	2 x	4 x	4 x**	
Han 16E	16	4	24	16	16	24	
HsB6							4
Schuko		24					
CEE 32A L+N+PE							12
Permanent Power (Schuko)	2	2		3	2	5	
RCD* (30mA)	40	40	40	40	63	63	63
Rack (U)	13	11	15	24	11	26	11
Accessories (drawer)	•			•			
Special		interference suppression 360µs	including six individual permanent power outlets			including six individual permanent power outlets CEE 16A output	

*RCD of Type 40/0,03   **24/2 +24/4 Hotpatch
        63/0,03

MA – The Company

MTV Video Music Awards (VMA) – Brooklyn – New York City, USA

MA Lighting

The international standard for control, video, dimming and network

MA Lighting Technology, Waldbuettelbrunn

Products that set the standard

Since its foundation in 1983, MA Lighting has expanded to become an international leader for computer-controlled lighting consoles, networking components and digital dimming systems. This success is based on solid reasons: With its commitment and power to innovate, MA Lighting meets the growing demands of a constantly changing industry and develops product solutions for tomorrow. With integrated system solutions and the grandMA/grandMA2 product family, international standards were set. These Award winning products offer convenience of use and excellent quality, meeting the highest demands of professional users worldwide.

With the convergence of video, LED, digital lighting and the associated media implementation in shows and set-designs, new fields of entertainment technologies have evolved. The heart of such systems are the grandMA2 consoles with their scaleable and flexible control approach. The innovative MA VPU (Video Processing Unit) follows the demands of lighting and visual designers and programmers to bridge the lighting and video worlds. Designed as the perfect hardware expansion to the grandMA2 onPC software, the MA onPC command wing and MA onPC fader wing enable the look and feel of the software to be as close to a real grandMA2 console as possible.

MA Lighting International, Paderborn

Two strong partners for your success

The leading international position of MA Lighting rests on two columns – MA Lighting Technology in Waldbuettelbrunn, the centre for production, research and development and MA Lighting International in Paderborn – the marketing, distribution and technical support hub. We are faithful to our motto "The whole is much bigger than the sum of its parts". Our products are fully and individually developed, powerful and extremely competitive, but as a complete MA system, the aggregate MA components built a synergy that is absolutely unequalled on the market.

Support and Service

MA Lighting does more than producing and selling products. The dedicated, Paderborn-based service team also offers excellent support for complex solutions on projects and networked lighting systems. A global service network enables fast customer service and professional sales partners who are ready to help users with advice and hands-on support at all times.

In order to round up its service and support activities, constantly updated technical information such as operating manuals, datasheets, texts for invitations to tender and further information about the products are available on the website.

Thus, you are always kept up to date – simply visit us at **www.malighting.com**

MA Lighting University
Training worldwide

MA LIGHTING
UNIVERSITY _certified_

By providing comprehensive training programmes, MA Lighting aims to offer its customers the best possible qualifications. This is particularly important when it comes to grandMA2 console and MA onPC command wing training, however it is equally relevant when using an MA VPU (Video Processing Unit) or setting up a network via MA-Net2/MA-Net utilising the corresponding MA hardware solutions.

Our trainers are the best in their fields and teach with first-hand knowledge and experience. The topics are presented comprehensively and are illustrated in detail. To provide you with the best tutorial environments, the courses contain real equipment and products. The ratio of students to teachers is limited to make the process as comfortable and effective as possible. Trainings within the MA Lighting University are industry recognised, and attendees completing these successfully will receive a certificate.

About the training programme:

MA University Training Programme

grandMA2 Advanced User Training with focus on

| Concert Touring/ Live Event | **or** | Theatre/Musicals TV/Studios | | MA VPU | | MA System Specialist |

grandMA2 User Training
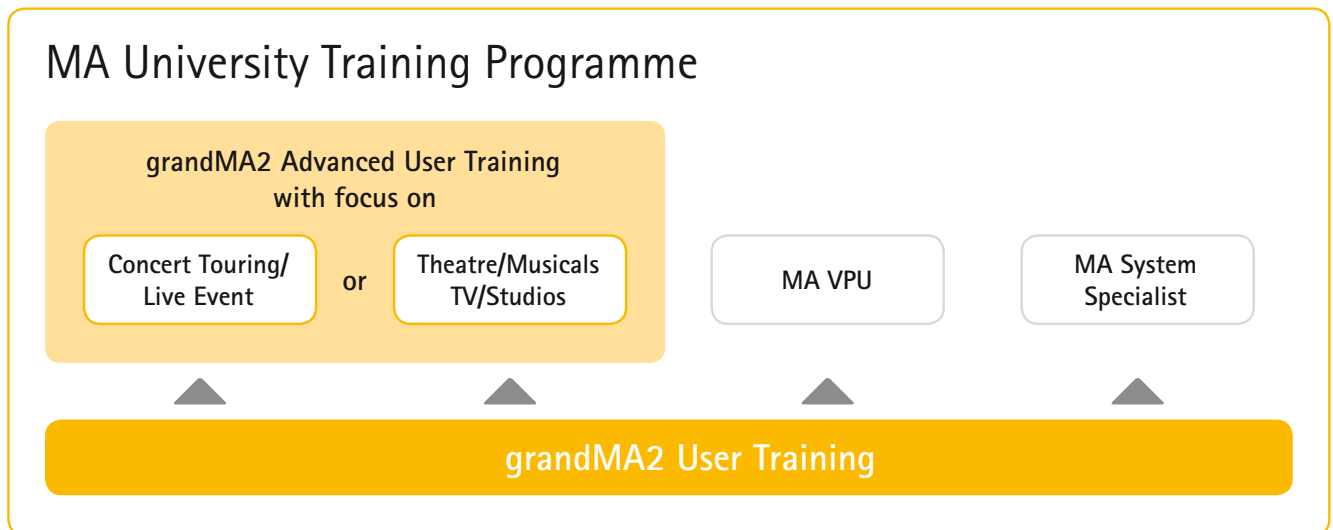
The training programme consists of modular units. Working through the grandMA2 Online Tutorials on our YouTube channel is highly recommended. The knowledge gained in graduation from the grandMA2 User Training is the premise for all further training. To suit your specific needs the training programme offers two Advanced User Trainings with a special focus on Concert Touring/Live Event or Theatre/Musicals/TV/Film.

Part of the MA University training programme is also the MA VPU Training, for those wanting to delve into video programming with the powerful MA Video Processing Unit.

The MA System Specialist Training covers system configurations, network layouts and topology.

The training programme of the MA University is certified worldwide by MA Lighting, so we can guarantee continuity of knowledge independent of the training location. Please get in touch with your local MA distributor/office for trainings in your country.

First Class Information and Tools

MA Case Study

We regularly receive inquiries for further information about our products, as well as questions about other projects, productions and installations where MA equipment is in use. Lighting Designers, architects, planners and professional end-users often want to know more about our technical solutions, details, designs and configurations. To share this information, we prepare selected projects and publish them as "Case Studies". Visit **www.malighting.com/case_studies.html** to see all our last issues.

grandMAgazine

The grandMAgazine informs you on latest product news, software-updates as well as outstanding installations and productions around the word. Twice a year, our grandMAgazine will also be available in PDF format. Visit **www.malighting.com/grandmagazine.html** to see all our last issues.

MA Lighting newsletter

newsMAil
Our newsletter newsMAil informs you on latest product news as well as outstanding installations and productions around the world at regular intervals.

techMAil
Our newsletter techMAil informs you on latest technical developments, software releases and hardware improvements at regular intervals.

To register, please visit: **www.malighting.com/newsletter.html**
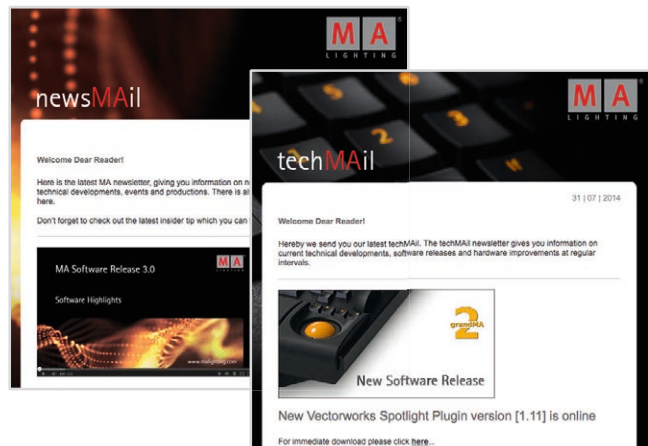
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You can find us in the web also on YouTube, Twitter and Facebook. Have a look at:
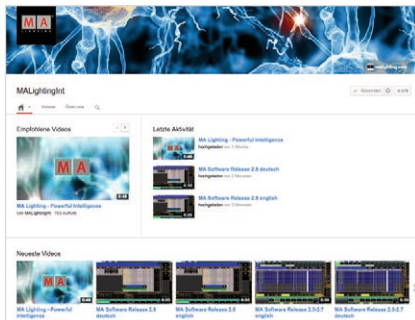
www.youtube.com/user/MALightingInt

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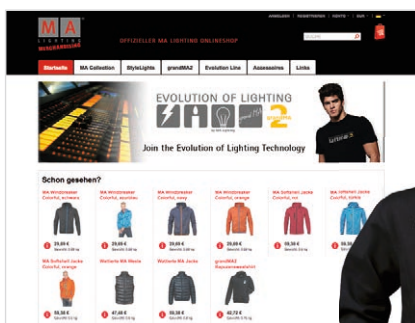
MA Merchandising

MA Lighting is proud to present its online MA Merchandising webshop. The shop offers you a whole bunch of MA Lighting merchandise items, like caps, polo shirts, jackets and a selection of professional workwear etc. – all branded with the famous MA logo. All articles are made to the highest quality standards and offer all the comfort and durability you would expect.

Have a look at: **www.ma-merchandising.com**

Check our website for further details:
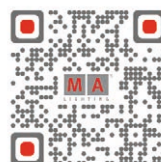
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Technical Service and Support

MA Lighting and its extensive distributor network offer an unparalleled technical service. Call on our expertise for help with any problem, no matter if it is regarding operation, software features, software installations or trouble shooting.

Please send an e-mail to tech.support(at)malighting.com with your contact details and subject information. This e-mail service is monitored during MA Lighting's regular business hours in Germany from 8.30 a.m. until 5 p.m., Monday through Friday.

For emergency services please contact your local MA distributor or the MA Lighting Service Hotline. **Call: +49.5251.688865–99.**

Please note, this 24/7 hotline is strictly for emergency cases – for people being in trouble out in the field.
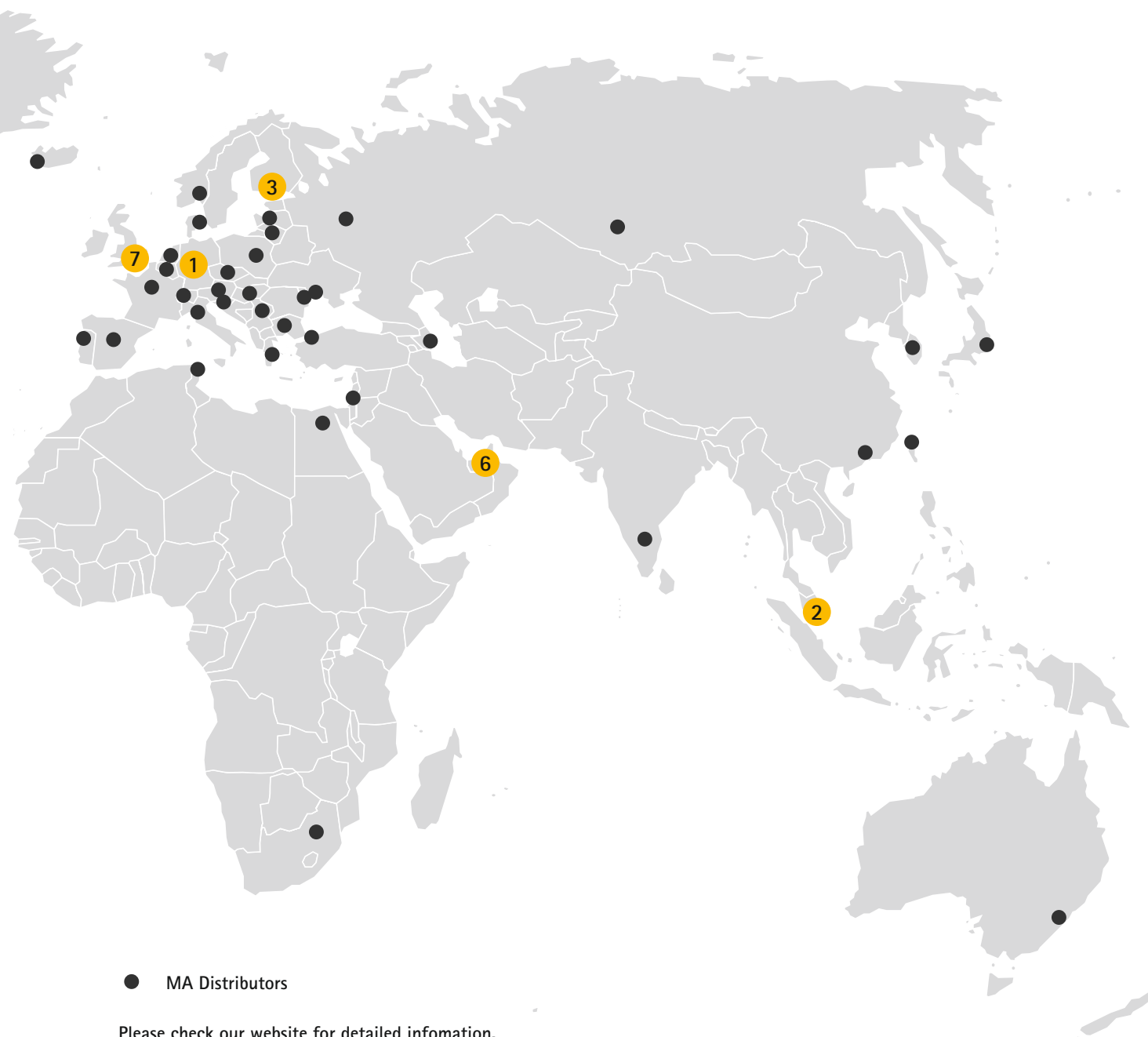
●   **MA Distributors**

Please check our website for detailed infomation.

Extract of Worldwide
MA Lighting References

Concert Touring/Live Event

- Bon Jovi "Because we can: The Tour" – World Tour
- Justin Timberlake "20/20 Experience" – World Tour
- The Rolling Stones "50 & Counting" – US Tour
- Nine Inch Nails "Tension" – World Tour
- Black Sabbath "Reunion" – World Tour
- Kings of Leon – World Tour
- Michael Bublé "To be loved" – World Tour
- Bruno Mars "Moonshine Jungle" World Tour
- Katy Perry "Prismatic" – World Tour
- Cirque du Soleil: Dralion
- Eurovision Song Contest
- MAYDAY
- Central American Games
- Super Bowl XLVIII Halftime Show
- Rock in Rio Lissabon

and many more ...

TV/Studios

- MTV Video Music Awards (VMA)
- Rising Star
- Idols
- Keep Your Light Shining
- X Factor Arabia
- Let's Dance
- German Pop Idol
- 12th Latin Grammy Awards
- X Factor
- 63rd Primetime Emmy Awards
- German Comedy Award
- Channel 9

and many more ...

Store

Theatre/Musicals

- Royal Shakespeare Company – Stratford-on-Avon
- Tobin Center for the Performing Arts – San Antonio
- Metropolitan Opera – New York
- Deutsches Theater – Munich
- Baxter Theater Complex – Cape Town
- The Star Performing Arts Center – Singapore
- Brisbane Convention and Exhibition Centre
- Adrienne Arsht Center for the Performing Arts – Miami
- Hedwig and the Angry Inch – New York
- The 27 Club – Hamburg
- La Bohéme – St. Margarethen
- The Wizard of Oz – Toronto
- Rocky – Hamburg

and many more …

Architainment

- Royal Australian Navy International Fleet Review – Sydney
- Emaar Properties News Years Eve Celebration – Dubai
- Gardens By The Bay – Singapore
- 8th World Islamic Economic Forum (WIEF) – Johor Bahru
- "Fourth of July" Empire State Building – New York
- Blue Planet Aquarium – Oresund
- Panorama Koncert – Copenhagen
- MusicHall – Dubai
- "Merlion & I: An Inspiring Journey" – Merlion's 40th Birthday – Singapore
- "The Big O" – Yeosu Expo 2012
- Tree Rings – Paris
- Providence Maitreya Buddha Missionary Institute – Hsin-Chu
- AIDA Cruise Ships
- Season of Light – Helsinki

and many more …

References online

Please check our website for an excerpt of installations and projects with MA Lighting products, we did in co-operation with our international MA distributors, renown designers and/or installation companies.