grandMA - total control

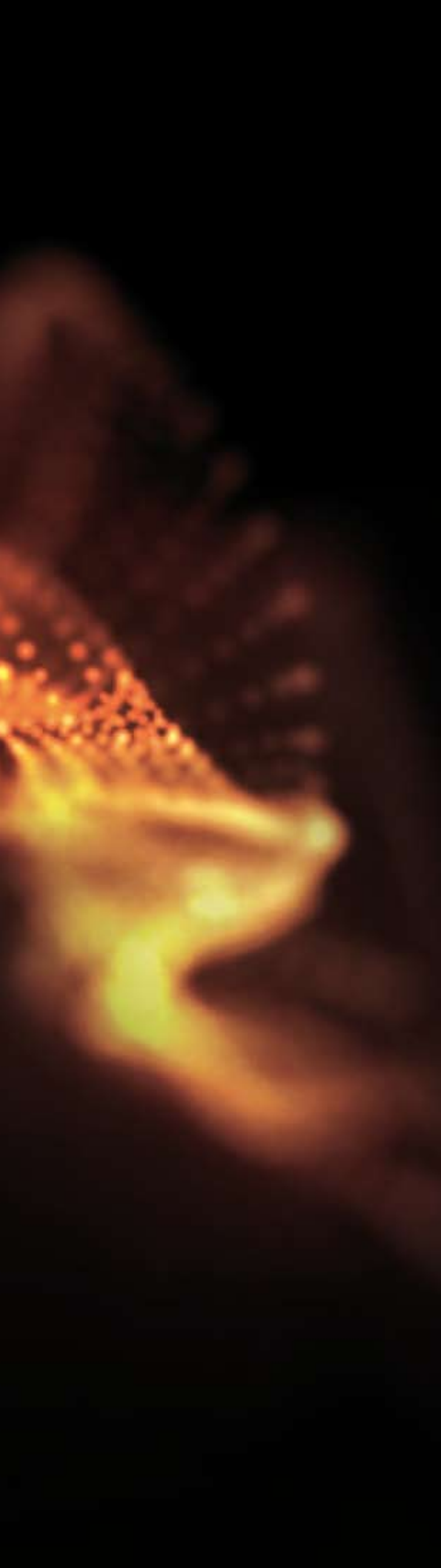
grandMA 2

MA LIGHTING®

grandMA – total control

Trust

Your grandma was always someone you could trust. And trust has to be earned. It comes from stability and proven reliability. In today's world of high technology lighting you need confidence in people as well as in the product. MA Lighting with its international offices and competence centres as well as with its highly skilled distributor network delivers a vital combination – products you can trust from people you can trust. Today and in the future...



Stories

The grandMA has had a long period of success, in which we have captured the imagination of the top designers and programmers. During the past several years, we have heard whispers on the market that the grandMA was getting too old. Sorry, she is not. She is getting "only" more experienced and smarter than ever. Software is always the well respected lifeblood of the grandMA control system and makes the difference. Now another standard will be set into the future, with the advanced hardware platform of the grandMA2 series. She is now both older and more beautiful.

Never change a winning Team

Just renew and refresh it. The market spoke and we listened. We kept the intuitive grandMA control philosophy including the same command line. However we have further improved the software and optimized the display for clarity. The new hardware has an enhanced networking architecture that is even more powerful but allows compatibility with the grandMAs that you have come to love.

This is grandMA2 series, where evolution meets revolution. Same same – but different.
There are no compromises. Your investment and knowledge are safe in the future.

Keep discovering

One world is not enough. Total control is at your fingertips. Gone are the days when many specialized consoles were required to run a single show. Now control dimmers, LEDs, moving lights and media servers, in the way they should be controlled, all from a single intuitive control surface. grandMA2 redefines "controlling multimedia filled lighting rigs". Control concerts, theatre, opera, events, television in the way each style dictates. The newly designed screens allow easy access to all commands. Feel at home as you link your current grandMA to the new grandMA2. Moreover system integrations are even more complete with new ways of architectural interconnection.

Yes, MA Lighting's first grandMA slogan from 1997 still fits best: like the German Autobahn, there are no limits.

Welcome to the Family

Complete system solution

- Incl. motorized faderwing, dedicated software tools and powerful network components

Same system philosophy

- Different hardware solutions but one software, one showfile, one network environment per series

Compatibility

- grandMA2 can read 'series 1'-showfiles (upward compatibility)
- Special 'series 1'-mode to run grandMA2 consoles in 'series 1'-sessions (downward compatibility)
- 'Series 1' will still be available and further developed in the future

Same command line

- Absolutely identical syntax as in grandMA 'series 1'
- All commands / functions accessible via command line

grandMA2 faderwing

grandMA2 full-size

grandMA2 light

grandMA2 ultra-light

Distinctive characteristics and remarkable improvements

- Up to 65,536 parameters per session in connection with MA NPUs (Network Processing Unit) – up to 256 DMX universes
- Up to 32 sessions possible; 200 stations per session
- All command keys stay in the same place with the different consoles
- Enhanced multi-user mode; enhanced user-interface
- Additional command screen built-in; SVGA 9" multi-touch*
- Renowned but "cleaner" grandMA software, newly designed views
- Intuitive programming control
- Improved hardware, stylish finish
- Diagnostic tools / online help via F1
- Built-in keyboard drawer*/**

*US pat. pending
**Does not apply for grandMA2 ultra-light

grandMA2 replay unit

MA Network Processing Unit (NPU)

MA Video Processing Unit (VPU)

Console and System Improvements in Detail

- More parameters, more DMX outputs per console / Network Processing Unit (NPU)
- 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 3pin for LTC and sound
- Connectivity: 2 x DVI-I, Midi in / out, analog remote input, Ethernet, LTC, sound, USB, DMX in / out

- More motorized executor faders (conductive plastic, means: long-life, easy exchangeable)
- More executor buttons (all buttons are silent, individually backlit and dimmable)
- 2 additional motorized A/B fader (100mm)
- All encoders are nonwearing, with magnetic click and integrated pushbutton

- Motorized faderwing available (via internal MA-bus)

- Motorized monitor wing*

- Keyboard and storage integrated*/**

- Touchscreens:
  15,4" WXGA (1,280 x 800)

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

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

grandMA2 full-size

*US pat. pending
**Does not apply for grandMA2 ultra-light

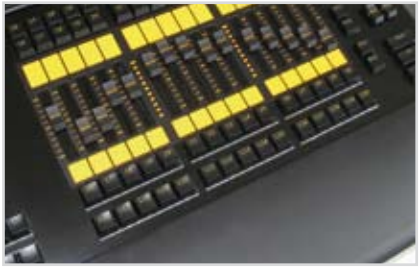
grandMA2 full-size

- **Real-time control for 65,536 parameters per session in connection with MA NPUs (Network Processing Unit) – up to 256 DMX universes**
- **8,192 HTP / LTP-parameters built-in (6 x DMX out)**
- **3 internal TFT wide mode touchscreens (15,4" WXGA)**
- **2 external TFT screens (UXGA, can be touchscreens)**
- **1 internal command screen – multi-touch (9" SVGA)***
- **30 motorized executor faders**
- **Built-in keyboard drawer***
- **Built-in UPS**
- **2 Ethercon connectors**
- **5 USB 2.0 connectors**
- **Motorized monitor wing***
- **2 motorized A/B fader 100mm**
- **Individually backlit and dimmable, silent keys**

The new signature console of MA Lighting is the grandMA2 full-size. It controls all kinds of lighting genres like conventionals, moving lights, LEDs, video and media. Equipped with the most up-to-date technology and even some special tools (e.g. keyboard drawer or multi-touch command screen) the grandMA2 full-size is at home in all lighting segments. Intuitive and fast control over all connected fixtures and channels in different styles is self-evident. Furthermore the newly developed faderwing provides in addition up to 60 executor faders over almost unlimited amount of pages.

Moreover the grandMA2 full-size can read 'series 1'-showfiles and is able to run in a special 'series 1'-mode. That means full compatibility with 'series 1'-sessions. All command keys within the new series can be found in the same place for easy operation. The grandMA2 offers a highly flexible and comfortable way of programming, including nearly infinite numbers of presets, cues, pages, sequences and effects.

- grandMA2 faderwing available (via internal MA-bus)



- Smart accessories, e.g. magnetic plate for easy labelling

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

*US pat. pending

Art. No	
120111	**MA grandMA2 full-size**
121031	MA flightcase for grandMA2 full-size (excl. wheels)
121033	MA flightcase for grandMA2 full-size (incl. wheels)
120131	MA dustcover for grandMA2 full-size (spare)
120122	MA LED desk lamp, 4-pin (spare)

Art. No	Dimensions (w x d x h)	weight (kg)
120111	1284 x 661 x 204 mm, 50.6 x 26 x 8 inch	54
121031	1360 x 912 x 315 mm, 53.5 x 36 x 12.4 inch	44

Scope of delivery:
Built-in keyboard, dustcover, desk lamp

External monitors are optionally available.

grandMA2 light

- **Real-time control for 65,536 parameters per session in connection with MA NPUs (Network Processing Unit) – up to 256 DMX universes**
- **4,096 HTP / LTP-parameters built-in (6 x DMX out)**
- **2 internal TFT wide mode touchscreens (15,4" WXGA)**
- **2 external TFT screens (UXGA, can be touchscreens)**
- **1 internal command screen – multi-touch (9" SVGA)***
- **15 motorized executor faders**
- **Built-in keyboard drawer***
- **Built-in UPS**
- **2 Ethercon connectors**
- **5 USB 2.0 connectors**
- **Motorized monitor wing***
- **2 motorized A/B fader 100mm**
- **Individually backlit and dimmable, silent keys**

With the grandMA2 light, MA Lighting offers a compact version of the new grandMA2 full-size featuring 4,096 parameters, 15 motorized faders on board and two touchscreens. All additional features as well as all command keys are the same as with the grandMA2 full-size. The grandMA2 light is the optimal tool for control of all kinds of lighting genres like conventionals, moving lights, LEDs, video and media. Intuitive and fast control over all connected fixtures and channels in different styles is possible. The grandMA2 light can handle an nearly infinite number of presets, cues, pages, sequences and effects. It is also a perfect back-up solution for the grandMA2 full-size. The console features a full compatibility to the 'series 1'.

Built-in keyboard drawer*

Art. No	
120112	**MA grandMA2 light**
121032	MA flightcase for grandMA2 light and ultra-light (excl. wheels)
121034	MA flightcase for grandMA2 light and ultra-light (incl. wheels)
120132	MA dustcover for grandMA2 light and ultra-light (spare)
120122	MA LED desk lamp, 4-pin (spare)

Art. No	Dimensions (w x d x h)	weight (kg)
120112	935 x 652 x 204 mm, 36.8 x 25.7 x 8 inch	44
121032	1020 x 915 x 315 mm, 40.2 x 36 x 12.4 inch	35

Scope of delivery:
Built-in keyboard, dustcover, desk lamp

External monitors are optionally available.

*US pat. pending

grandMA2 ultra-light

The grandMA2 ultra-light is the little sister of the grandMA2 light. It features the full network performance of the MA Lighting family with the best price-performance ratio. Therefore it is missing the built-in UPS as well as the keyboard drawer and the level wheel, but still having all the command buttons in the same place as the bigger consoles. Although it offers 4,096 parameters it has got 6 DMX outputs and is for this reason a perfect backup solution. It brings all the features of the new 'series 2' consoles to smaller shows and budgets and allows intuitive and fast control over all lighting genres as well as nearly infinite number of presets, cues, pages, sequences and effects.

- **Real-time control for 65,536 parameters per session in connection with MA NPUs (Network Processing Unit) – up to 256 DMX universes**
- **4,096 HTP / LTP-parameters built-in (6 x DMX out)**
- **1 internal TFT wide mode touchscreen (15,4" WXGA)**
- **2 external TFT screens (UXGA, can be touchscreens)**
- **1 internal command screen – multi-touch (9" SVGA)***
- **15 executor faders**
- **2 Ethercon connectors**
- **4 USB 2.0 connectors**
- **Motorized monitor wing***
- **2 A/B fader 100mm**
- **Individually backlit and dimmable, silent keys**

Integrated clipboard

Art. No	
120113	**MA grandMA2 ultra-light**
121032	MA flightcase for grandMA2 light and ultra-light (excl. wheels)
121034	MA flightcase for grandMA2 light and ultra-light (incl. wheels)
121032	MA dustcover for grandMA2 light and ultra-light (spare)
120122	MA LED desk lamp, 4-pin (spare)

Art. No	Dimensions (w x d x h)	weight (kg)
120113	935 x 652 x 204 mm, 36.8 x 25.7 x 8 inch	35
121032	1020 x 915 x 315 mm, 40.2 x 36 x 12.4 inch	35

Scope of delivery:
Dustcover, desk lamp

External monitors are optionally available.

*US pat. pending

grandMA2 replay unit

- **Real-time control for 65,536 parameters per session in connection with MA NPUs (Network Processing Unit) – up to 256 DMX universes**
- **4,096 HTP / LTP-parameters built-in (6 x DMX out)**
- **2 external TFT screens can be connected (UXGA, can be touchscreens)**
- **1 internal command touchscreen (7")**
- **2 Ethercon connectors**
- **4 USB 2.0 connectors**
- **No internal faders or buttons – easy to protect**
- **Numerous remote interfaces**

Beside all three grandMA2 lighting consoles there is also a grandMA2 replay unit available. In its 19inch housing it is ready for integration into control room racks and also capable of all functions and features of the grandMA2 system. The grandMA2 replay unit is the ideal member of the grandMA family when it comes to architectural control or easy to mount backup solutions. It is a very safe playback / master controller because it has got no built-in faders or buttons to avoid operating errors. Access is possible via touchscreen control or via USB connected mouse and keyboard. A wide range of interfaces assures most flexible use and best performance within an architectural system or any other environment.

Art. No	replay unit
120115	MA grandMA2 replay unit, 3u, 19"

Art. No	Dimensions (w x d x h)	weight (kg)
120115	485 x 379 x 126 mm, 19 x 15 x 5 inch	10

grandMA2 faderwing

- **15 motorized faders**
- **15 executor button**
- **MA-bus link to any console of the grandMA2 series**
- **Up to 4 faderwings can be daisy-chained per console**

The new grandMA2 faderwing gives you the most possible executor faders and buttons that can be arranged with the showfile. Up to four faderwings can be connected to a console - that will be 60 additional motorized faders on each page for the actual show. The grandMA2 faderwing offers the same look and feel as the consoles fader arrangement.

Art. No	faderwing
120121	MA grandMA2 faderwing
121036	MA flightcase for grandMA2 faderwing
120133	MA dustcover for grandMA2 faderwing (spare)

Art. No	Dimensions (w x d x h)	weight (kg)
120121	425 x 367 x 162 mm, 16.7 x 14.4 x 6.4 inch	8
121036	519 x 510 x 270 mm, 20 x 20 x 10.6 inch	10

grandMA2 onPC

MA Lighting's newly developed grandMA2 onPC software is the perfect solution for offline programming and show editing - bringing the broad functionality of a grandMA2 console to every Windows® compatible computer. With its comprehensive possibilities grandMA2 onPC is ideally suited as backup solution in an MA network, can be used as offline pre-programming solution or can be further extended to a complete design studio by connecting to MA Lighting's additional software tools grandMA 3D and grandMA video.

Additionally grandMA2 onPC can be linked via Ethernet to any grandMA2 console or the grandMA2 replay unit in a multi-user network system. This means that grandMA2 onPC can read the shows of the consoles and enables the user to easily archive the files. As the software features the same user interface as the grandMA2 consoles, it can also be used as designer remote control. As well the easiest backup solution.

Finally grandMA2 onPC offers a convenient way to update your MA equipment. Thanks to the software update functionality every device within the MA network can be reached by grandMA2 onPC for a remote update and thus there is no need to walk around with software updates and access every single device.

The grandMA2 onPC software is available free of charge. Visit www.malighting.com to download the latest version.

- **Comprehensive and powerful software-tool for all standard computers**
- **Supports all functions of the grandMA2 consoles with authentic look and feel**
- **Ideally suitable as live show controller or backup system in connection with the NPU (Network Processing Unit), 2Port Node onPC/onPC PRO or the NSP**
- **Communicates via MA-Net2 over Ethernet with grandMA2 consoles in a multi-user system if required**
- **grandMA2 onPC can be used as user-friendly designer remote control for all grandMA2 consoles**
- **Expandable to a complete design studio by connecting to MA Lighting's further software tools grandMA 3D and grandMA video**

grandMA2 remote

All important functions of the grandMA2 including changes to the patching and the chat window can be controlled by grandMA2 remote. This powerful remote control can also be used in connection with a grandMA2 onPC. As an integrated part of the MA-Net grandMA2 remote can display intensities and positions or attributes of any fixture in real-time. All members of the grandMA2 family support the use of grandMA2 remote. It can be connected with every single console or a grandMA2 station in a multi-user system using the standard WLAN environment. When operated in a compatibility mode, grandMA2 remote can also control grandMA 'series1'. grandMA2 remote will run on a wide variety of customary mobile devices like mobile phones, pocket PCs and PDAs.

- **Convenient remote control for all important functions of the grandMA2 range**
- **High distances and safe use with all grandMA2 consoles**
- **Software is available free of charge from www.malighting.com**

grandMA 3D

- **Real-time 3D visualisation of all important functions and effects of luminaires, moving lights & LEDs**
- **Bi-directional exchange of data with the grandMA consoles of all series – using the same setup**
- **Live and blind programming**
- **Follow mode for live-positioning of fixtures from the 3D to the console or vice versa**
- **Import of 3ds-files**
- **Multiple cameras are available that can be selected re-angled or repositioned during visualisation**
- **Multiple windows for visualisation of same scenarios in different viewing angles at the same time**
- **Record the visualisation as a video clip**
- **Pre-programming of a show just with grandMA onPC and grandMA 3D**
- **Precise and realistic reproduction of shadows & colour beams in realtime**

MA Lighting's 'free' visualiser and pre-programming studio – the PC software grandMA 3D – is a unique user interface for the visualisation as well as the design of three-dimensional stage layouts in conjunction with any grandMA console or grandMA onPC. grandMA 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 live. All the stage elements can be positioned in x/y/z directions and can also be rotated around the various axes. Custom textures for the surface of these elements can be imported from any bitmap file or may be chosen from the built-in library. Also video files in AVI format can be used as a texture and be controlled from any grandMA console. Via DMX controlled position and rotational parameters for objects and cameras within 3D, any stage equipment can be moved within the scenery by the connected grandMA.

The grandMA 3D application runs as an independent station on an external PC in any grandMA multi-user network.

Most of the functions of the installed lights are remotely controlled by grandMA and can be programmed in live and blind. The follow mode can be used in grandMA 3D or in the grandMA stage view, a built-in wireframe visualiser. This can save a lot of time and work within the pre-programming of complex shows or even when using moving lights as real follow spots.

With grandMA 3D MA Lighting sets a new standard in pre-programming and visualisation and adds another unmatched advantage to its complete system solutions. The software automatically takes over all relevant showfile information from the setup and displays what is needed. Even better the 3D environment is stored in the same showfile. It does not matter where you are and what type of console you are using or what equipment is there – you always have the full showfile with you!

MA Video Processing Unit (VPU)

The flagship: MA VPU pro

If you already know the grandMA system there is nearly nothing you have to learn new. The whole operation relies on the well established MA philosophy and is as intuitive as it can be. Even if you have never before used video you will instantly feel at home with the MA VPU.

Via four DVI-out (MA VPU pro) you can control four individual outputs with only one MA VPU. Thanks to the power of the MA VPU you can display all your videos also in Full-HD (1,080p) or HD (720p in case of the MA VPU basic). Furthermore the internal output synchronisation by the MA-Net ensures highest frame and DMX synchronicity.

To scale your video to a size designed by your own imagination just use the valuable horizontal and vertical softedge blending, the keystone correction and enjoy expressive show designs you have never seen before. Size doesn't matter anymore. More than that the MA VPU offers a convenient 3D Keystoning functionality and enables you to bring your content to any 3D objects irrespective of size and shape.

Beyond that there is a myriad of functions, features and effects available like frame blending, colour booster, dynamic colour key, contrast, brightness, hue, saturation as well as blur, sepia, black/white, waves and invert. All of them can be easily accessed and are self-explanatory in their use. Videos and still images can be combined, mixed and controlled also. Of course JPEG images and standard windows bitmap images such as *.bmp as well as *.gif are supported.

- **Timesaving – thanks to familiar operation and easy access**
- **Plug & play for instant show start**
- **Best hardware components for outstanding performance and rock-solid reliability**
- **Efficient backup solution**
- **Fast and simple programming via any grandMA2 and grandMA 'series 1' console**
- **3 versions to suit all needs: MA VPU pro, plus and basic**
- **Up to 4 individual Full-HD (1,080p) outputs**
- **Professional effects + write your own effects and import them easily**
- **Content library pre-installed (>17GB)**
- **Advanced pixelmapping functionality**
- **Live Video-In**
- **Sound play back**
- **Convenient 3D keystoning & softedge**
- **Up to 32 3D-video-layers**

Art. No	
120145	**MA VPU pro, 4xDVI-out, 2xHD-SDI-in, 2xHD-SDI-out**
120146	**MA VPU plus, 2xDVI-out**
120147	**MA VPU basic, 2xDVI-out**
12014x	Optional HD-SDI-in for MA VPU / MA VPU basic
120374	MA Content Package, SD + HD Video Clips

Art. No	Dimensions (w x d x h)	weight (kg)
120145	485 x 627 x 211 mm, 19 x 24.6 x 8.3 inch	15
120146	485 x 627 x 211 mm, 19 x 24.6 x 8.3 inch	15
120147	485 x 627 x 211 mm, 19 x 24.6 x 8.3 inch	15

Networking inside

MA-Net is the powerful backbone of the MA System. This well-proven internal system language enables real-time bidirectional communication with all hard- and software components of the MA System in an Ethernet based network.

Based on years of experience with sophisticated projects and complex networks MA Lighting has significantly improved the capability of its internal system language. First of all this means additional performance for today's requirements but moreover this marks an effective step to meet future demands. Consequently we call it MA-Net2.

It goes without saying, that grandMA 'series1' and grandMA2 are absolutely compatible. Both can run on the same network without any interference.

MA-Net2 is running on up to 1,000 Mbit/s. This significantly increases the network's performance by ensuring highest compatibility with most existing network switches.

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 grandMA video and dimMA

Enhanced parameter expansion

Another new feature of both the MA-Net2 and grandMA 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 multiple Networking Processor Units (NPU) 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 NPU!

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 (DSP). 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-Net/MA-Net2 will stay the reliable backbone of the grandMA system including all integrated MA Lighting products! Anyway we will support ACN on its way into our lighting entertainment industry to develop it to a full frame of protocols that will help all of us to interconnect in a better way.

The Remote Device Management (RDM) is also future orientated. It is an advanced protocol that offers feedback via standard DMX cabling. In smaller systems, or already existing systems that do not provide any Ethernet cabling, this protocol will be the ideal way to have feedback to the control system. In new environments we already see a step into Ethernet technology that enables the control systems to get hold of much more information in a faster and easier way. Therefore RDM will be a part of the overall puzzle and we value and support this as an additional tool to provide existing installations or smaller systems with feedback information.

MA Network Processing Unit (NPU)

- **Real-time calculation for up to 65,536 parameters (up to 256 DMX universes)**
- **4,096 HTP / LTP-parameters (8 x DMX in / out)**
- **1 internal command touchscreen (7")**
- **1 Ethercon connector**
- **4 USB 2.0 connectors**

This is the new MA NSP! The Network Processing Unit (NPU) unites the calculation power in the network and offers the same CPU power as the consoles. In addition it can handle twice as many parameters as its predecessor the MA NSP.

In total every MA NPU can deal with 4,096 parameters. With an easy to read touchscreen the MA NPU allows intuitive use and easy access to all the important information. Available with 8 DMX XLR 5pin connectors on the back the MA NPU offers a most flexible use within the network environment.

The Network Processing Unit (NPU) is the link between the Ethernet and DMX controlled devices. It's also possible to use the NPU for additional control applications; its full capabilities are visible when it is operated in MA-Net. For decentralised DMX networks, the Network Processing Unit (NPU) converts the incoming Ethernet data into DMX 512 data. To convert DMX data, three different Ethernet protocols are supported, MA-Net, MA-Net2 and Art-Net. Data is transmitted by 8 independent DMX connectors, which can also be configured as DMX inputs.

In a network, several consoles share the NPUs available. This allows shared use of DMX enabled devices as well as providing a redundant mode of operation without additional components such as DMX mergers.

Any NPU connected to grandMA2 onPC allows the offline software to send "real" DMX data. A total of two NPUs can be connected to a grandMA2 onPC. This possibility turns grandMA2 onPC into a full-featured lighting control system for up to 16 DMX lines.

Art. No	NPU
130032	MA Network Processing Unit 3u, 19"

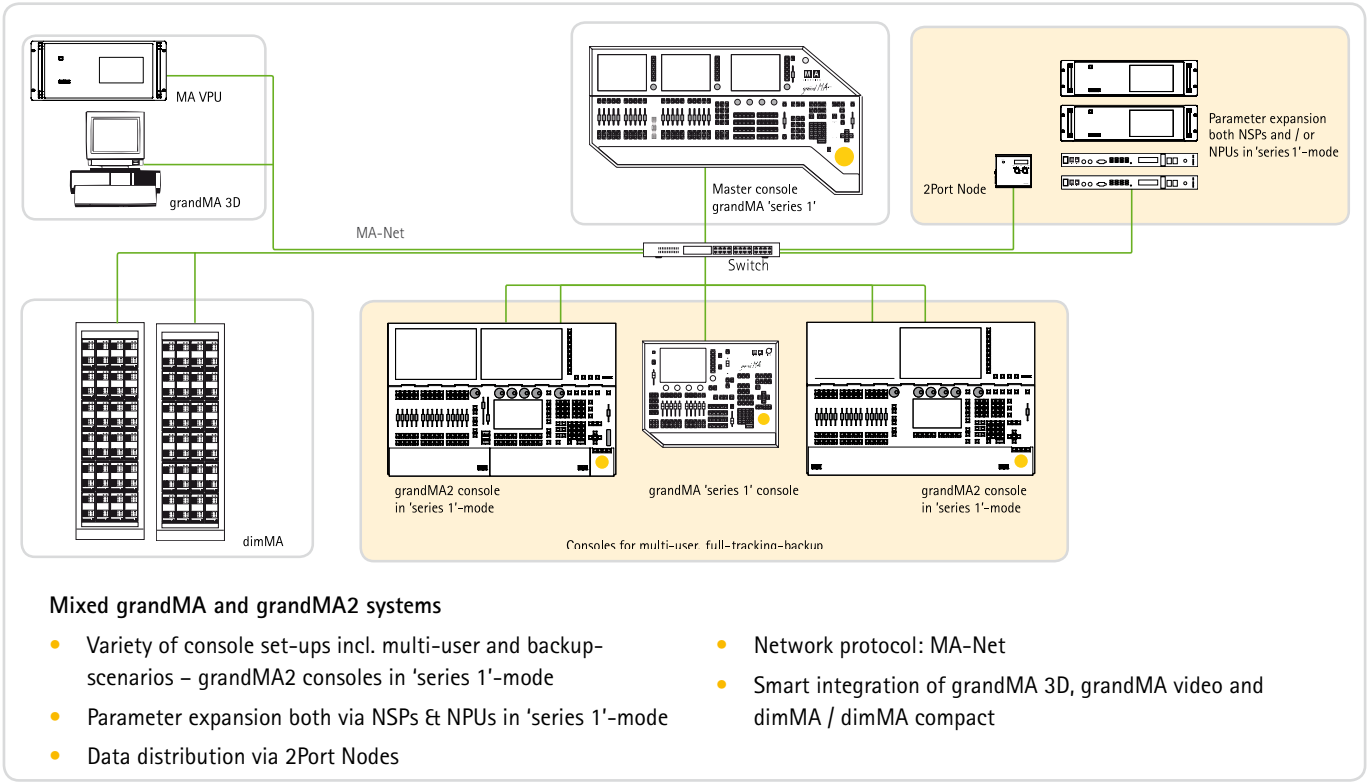
Art. No	Dimensions (w x d x h)	weight (kg)
130032	485 x 332 x 126 mm, 19 x 13 x 5 inch	9

System Integration

Same same – but different:

Two series with dedicated software and showfile, however compatible and all inter connectable

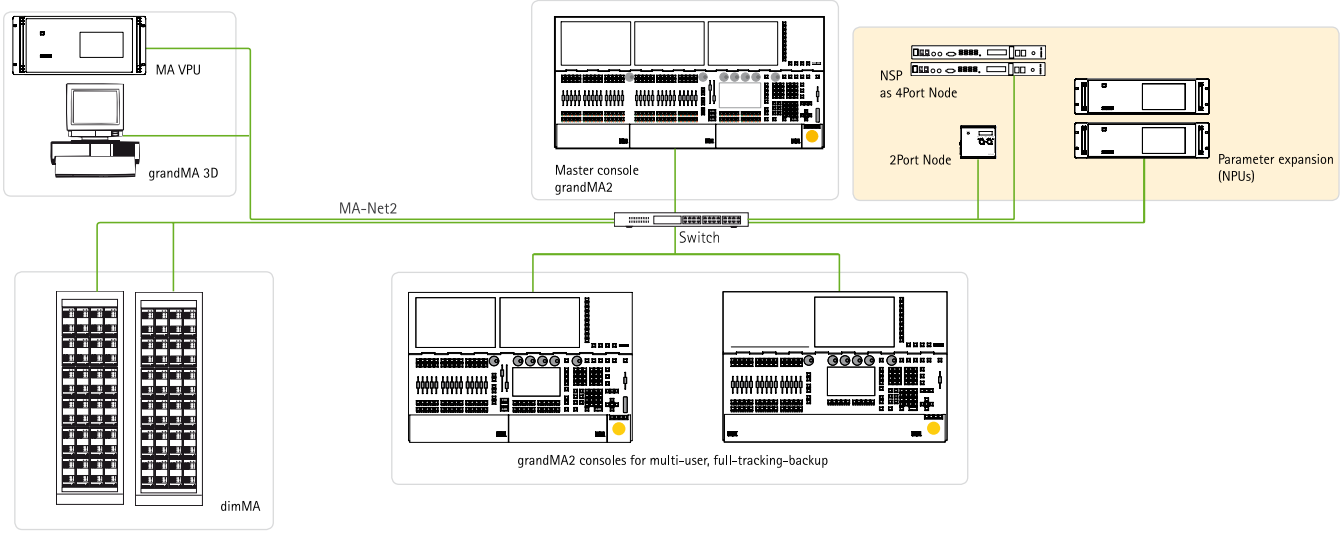
System Overview - grandMA 'series 1' and grandMA2 in one system.



Mixed grandMA and grandMA2 systems

- Variety of console set-ups incl. multi-user and backup-scenarios – grandMA2 consoles in 'series 1'-mode
- Parameter expansion both via NSPs & NPUs in 'series 1'-mode
- Data distribution via 2Port Nodes
- Network protocol: MA-Net
- Smart integration of grandMA 3D, grandMA video and dimMA / dimMA compact

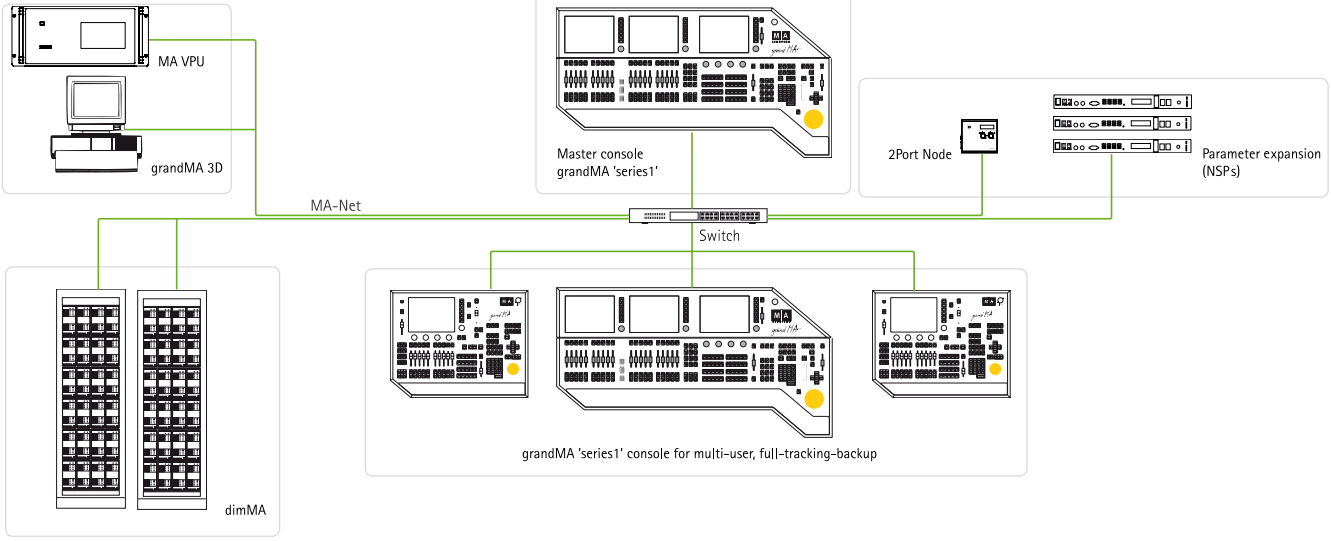
System Overview – grandMA2



New grandMA2 network architecture

- Variety of console set-ups incl. multi-user and backup-scenarios
- Parameter expansion via Network Processing Units (NPUs)
- Data distribution via 2Port Nodes and NSPs as 4Port Nodes in sniffer mode
- Network protocol: MA-Net2, for further details please see page 16
- Smart and full compatibility of grandMA 3D, grandMA video and dimMA / dimMA compact

System Overview – grandMA 'series 1'



Renown grandMA network architecture

- Variety of console set-ups incl. multi-user and backup-scenarios
- Parameter expansion via Network Signal Processors (NSPs)
- Data distribution via 2Port Nodes
- Network protocol: MA-Net
- Smart integration of grandMA 3D, grandMA video and dimMA / dimMA compact

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MA Lighting International GmbH
An der Talle 24 - 28
33102 Paderborn / Germany

Phone: +49 5251 688865 -10
Fax: +49 5251 688865 -88

info@malighting.com
http://www.malighting.com

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grandMA 2

MA LIGHTING

MA Lighting UK Ltd. · 55 Lonsdale Road · London NW6 6RA · United Kingdom · Phone: +44-20-7625-4371 · infoUK@malighting.com

MA Lighting North America · managed by A.C.T Lighting, Inc. · 5308 Derry Ave. Unit R · Agoura Hills CA 91301 · USA · Phone: +1-818-707-0884 · sales@actlighting.com

MA Lighting Latin America · Phone: +55-11-9465-2604 · Nextel 55*30*73441 · infoLATINOAMERICA@malighting.com

MA Lighting Middle East / India · P.O. Box 6491 · Dubai · Phone: +971-4351-3207 · infoARABIA@malighting.com

MA Lighting Asia Pacific Pte Ltd. · Block 10 Ubi Crescent · #06-28 Ubi Techpark (Lobby B) · Singapore 408564 · Phone: +65-6513-1897 · infoASIA@malighting.com