

P 18 MK2 WASH

Operating instructions

Version 1.01

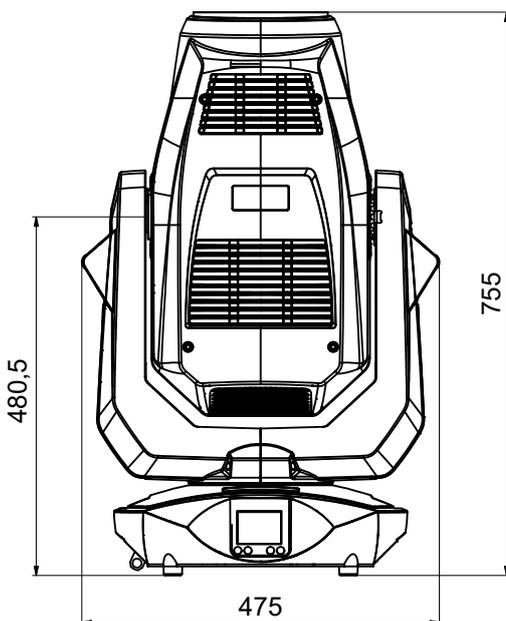
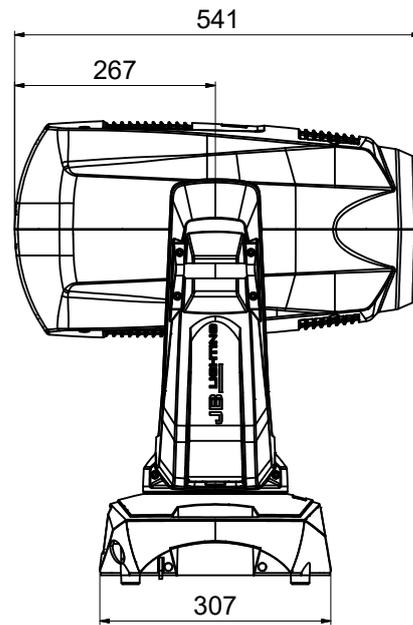
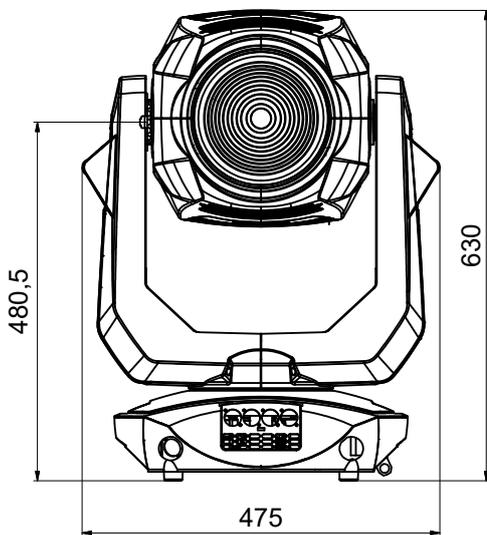
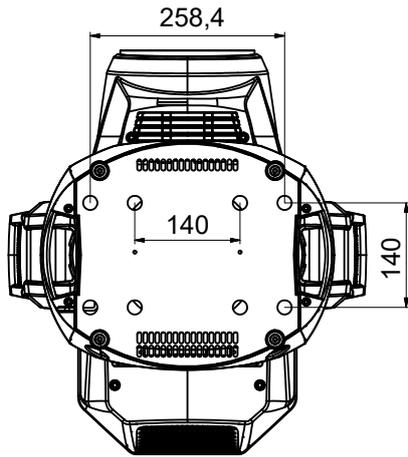
Software >= 1.1.0

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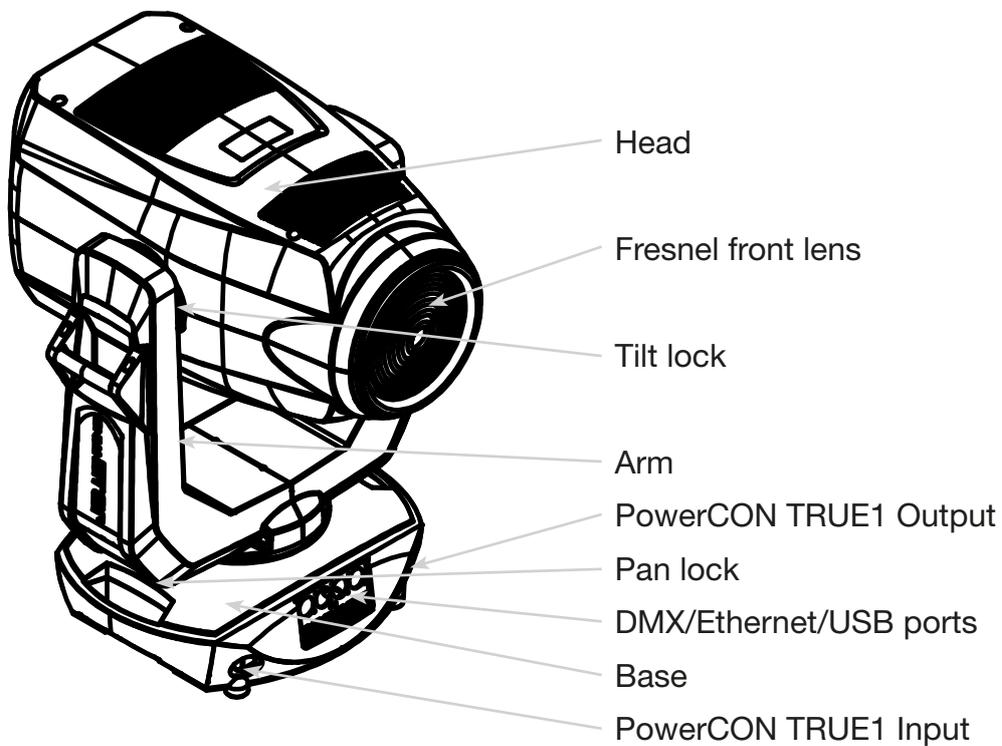
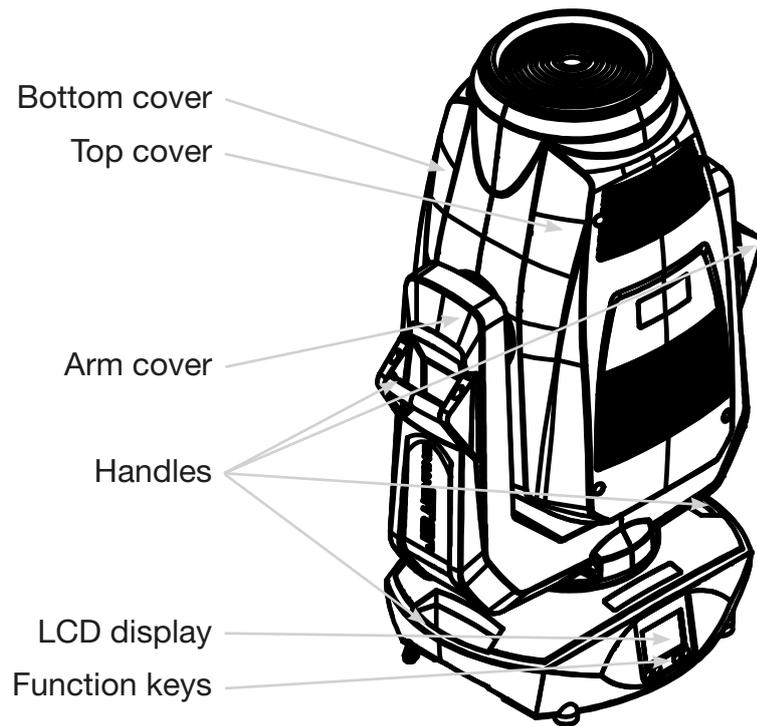
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1. Dimensions



2. Product overview



3. Introduction

3.1 P18 MK2 Wash models

The P18 MK2 Wash is available in 3 models. The models differ in the light module and partly in the color filters and in the CTC filters. The differences can be found in the DMX channel functions.

- P18 MK2 Wash HP (High Power)
- P18 MK2 Wash HC (High CRI)
- P18 MK2 Wash WW (Warm white)



ATTENTION: For your own safety, please read these operating instructions carefully before first use.

This spotlight has left our company in excellent condition. To maintain this condition and to ensure safe operation, it is absolutely essential to observe the following safety instructions and warnings which are described in this operating manual.

The manufacturer accepts no liability for damage caused to the device by disregard of these operating instructions or unauthorised modifications.

Please note that damage caused by manual modifications to this unit is not covered by the warranty.



ATTENTION: This device is only suitable for professional use! Protection class IP 20 - only for use in dry environments (indoors)!

ATTENTION: JB-Lighting Lichtenlagentechnik GmbH does not authorise the use of its devices in life support systems. Life-supporting systems are systems whose purpose is to maintain or stabilise life and whose defect or malfunction may result in death or injury to persons.

The product in this manual complies with the following EU directives:

- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU

3.2 Safety instructions



ATTENTION: Disconnect the device from the power supply before opening the device. You can suffer an electrical shock from touching live parts (high voltage).

Ensure that the mains voltage to be connected is not higher than that indicated on the type plate. This device should only be operated with the power source indicated on the type plate. If you are not sure what type of power supply you have, contact your dealer or power supplier.

Always disconnect the device from the power supply before carrying out cleaning work or before replacing fuses or parts.

The mains plug must always be accessible after the spotlight has been installed. Do not overload the sockets or extension cables as this could result in fire or electric shock. Do not place any objects on the power cable. Do not install the spotlight in such a way that people can trip over or step on the power cable. Make sure that the power cable can never be crushed or damaged by sharp edges. Check the unit and the power cable from time to time.

Leave maintenance work to a qualified technician!



ATTENTION: This fixture corresponds to protection class I. For this reason, this spotlight must be connected to a mains socket with earthing contact.

Never connect this device to a dimmer pack.

During first use, some smoke and odour may occur. This is normal and does not necessarily mean that the device is defective.

The device becomes hot during operation. Never touch the device with bare hands during operation!

When replacing fuses, only use the same types with identical values! Only have fuse replacement carried out by a qualified technician



ATTENTION: DAMAGE TO EYES! Do not look into the light source for long periods during operation. This can be harmful to the eyes. Attention: potentially hazardous radiation - Risk group 2 based on DIN EN 62471

If the device has been exposed to strong temperature fluctuations (e.g. after transport), the device must not be switched on immediately. The resulting condensation can damage your device. Leave the device switched off until it has reached room temperature.

If the P18 MK2 Wash is operated below 20°C, gobo/prism swapping and gobo/prism rotation are reduced in speed. This is a protective mechanism of the P18 MK2 Wash, as at low temperatures the lubricant is relatively viscous in the rotational mechanism and can therefore cause the effect to be slurred. From indoor temperatures of 21°C and upwards, the spotlight runs normally! This temperature is quickly reached under normal operation (LED engine on).

Do not shake or knock the device. Avoid brute force during installation or operation.

This light was designed for indoor use only. Do not expose this device to rain or moisture.

When choosing a mounting location, make sure that the device is not exposed to extreme heat, moisture or dust.

Ventilation openings and slots in the head and foot of the spotlight are used for ventilation to ensure reliable operation of the device and to protect it from overheating, these openings must not be covered.

Never cover the front lens when the spotlight is in use.

The openings should never be covered with substances or other objects so that the airways are blocked.

This device must not be operated in an environment without adequate ventilation.

The device may only be operated when the housing is closed and all screws/Camlocs are firmly tightened.

The device must always be secured with an additional safety device.

Ensure that the area below the spotlight is clear during installation, alteration and removal.

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ATTENTION: The distance between the light emission and the surface to be illuminated must be at least 2.0 metres.

The maximum ambient temperature of 45°C must not be exceeded.



ATTENTION: The front lens must be replaced if it is visibly damaged to the extent that its function is impaired, e.g. by cracks or deep scratches!

Do not operate the device until you have become familiar with its functions. Prevent operation by persons who are not qualified to use the device. Most damage is the result of improper operation!

Please use the original packaging or specially adapted flight cases if the device is to be transported. When using the original packaging, the locks must not be closed!



ATTENTION: To avoid damaging the internal parts of the light head, never let sunlight shine directly into the front lens.

3.3 Unpacking the device

Contents of the packaging: This spotlight, two Omega brackets with original Camloc fasteners, powerCON-TRUE1 cable and a safety note. These instructions are included in the shipment. Open the packaging at the top and remove the powerCON TRUE1 cable, the inlay and the safety instructions. The Omega brackets are located under the spotlight. Check the P18 MK2 Wash for possible transport damage. This should be communicated immediately to the transport company.

4. Installation

4.1 Fitting the plug to the connection cable



ATTENTION: Only have plugs installed by a specialist!

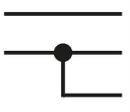
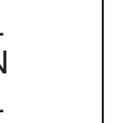
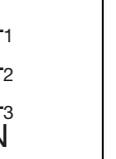
The P18 MK2 Wash spotlight is supplied with a partially assembled power cable with the powerCON-TRUE1 plug (only the powerCON-TRUE1 plug is included in the US version). The installation of the safety plug or the connection of the P18 MK2 Wash to the power supply (100-240 Volt, 50 - 60 Hertz) must be carried out by an authorised specialist.

Connection in Germany/Europe:

Wire colour	Function	Symbol
Brown	Phase	“L”
Blue	Neutral wire	“N”
Green/Yellow	Protective earth	“PE” 

Connection outside Europe:

The P18 MK2 Wash may only be operated on the following power supply systems:

	Mains		P18 MK2 Wash
2 wires, 1 phase	L N		L N PE
3 wires, 1 phase	L N L		L N
4 wires, 3 phases	L ₁ L ₂ L ₃ N		L N PE



ATTENTION:

In Canada, the P18 MK2 Wash may only be operated in a 2-wire, 1 phase network with a maximum voltage of 120V!

4.2 Mains connection

Connected loads: Voltage 100-240 V, frequency 50 - 60 Hz, power max. 1500 VA

The electrical safety and function of the device can only be guaranteed if it is connected to a properly installed protective conductor system. It is very important that this basic safety requirement is met. If in doubt, have the electrical installation checked by a specialist. The manufacturer cannot be held responsible for damage caused by a missing or interrupted protective conductor (e.g. electric shock)! Only use the device when it is completely assembled so that no electrical components can be touched. **(Danger 100-240 V)**

If you have observed the listed points, you can plug in the devices or have them connected to the mains by a specialist.



ATTENTION: The P18 MK2 Wash can light up immediately if standalone operation is activated or a DMX signal is present!

4.3 Wiring the power feed-through



ATTENTION: Only have it carried out by a specialist!

The P18 MK2 Wash has a powerCON-TRUE1 out power output. Depending on the local conditions several devices can be linked by powerCON-TRUE1 in and powerCON-TRUE1 out. Connect a maximum of two (when using 230V/16A) P18 MK2 Washes in a row.

Use an approved three-core cable with a cross-section of at least 1.5 mm². Cabling must be done with the original Neutrik coded plugs. The installation instructions of the manufacturer (www.neutrik.com) and the colour coding of the cable must be observed.

Wire colour	Function	Symbol
Brown	Phase	“L”
Blue	Neutral wire	“N”
Green/Yellow	Protective earth	“PE” 

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4.4 Signal connections

4.4.1 DMX cabling

The DMX cabling (signal lines) should be done with a 4-pin cable with shielding. We recommend a DMX cable (110 Ohm, 4x0.22mm²), alternatively a 2-pole micro cable can be used. The plugs and sockets are 5-pin XLR connectors, which can be purchased in specialist shops.

Pin assignment:

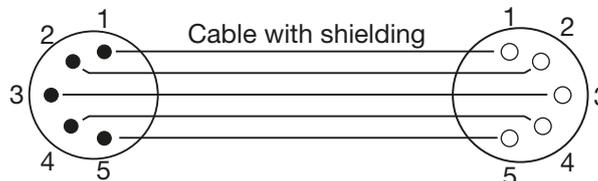
Pin1 = Ground/Shielding

Pin2 = DMX -

Pin3 = DMX +

Pin4 = not connected

Pin5 = not connected



The P18 MK2 Wash has a DMX-in and DMX-out connector. Now connect the DMX output of your controller to the 1st P18 MK2 Wash (Controller DMX-Out -> P18 MK2 Wash DMX-In). Then the 1st P18 MK2 Wash with the 2nd P18 MK2 Wash (P18 MK2 Wash DMX-Out -> P18 MK2 Wash DMX-In) and so on. In some cases it is advisable to insert a so-called end connector (XLR connector with a 120 Ohm resistor between pin 2 and pin 3). Whether an end connector is required depends on various factors, including the cable lengths used and the number of devices. However, as long as no problems occur in the DMX line, this is not necessary.

4.4.2 Ethernet cabling

Ethernet cabling can be done with standard network lines. The sockets on the device are Neutrik etherCON sockets. Special cables with etherCON connectors are recommended by Neutrik. The two sockets on the P18 MK2 Wash are connected to each other via a switch. Up to 10 devices can be connected in series without any delay. Of course, the spotlights can also be supplied in a star configuration via an external switch. The received signal can be output via DMX. To do this, set the DMX OUTPUT CONFIG setting to ON in the PERSONALITY menu. After confirming with ENTER, the spotlight emits the entire received universe.



ATTENTION: Make sure that there is no signal at the DMX input at the same time !!

4.4.3 Wireless reception

The P18 MK2 Wash is equipped as standard with a **LumenRadio** CRMX receiver for wireless DMX. The receiver can process both DMX and RDM. If a cable and wireless connection are connected to the P18 MK2 Wash, the cable connection has priority! The received signal can be output via DMX. To do this, set the DMX OUTPUT CONFIG setting to ON in the PERSONALITY menu. After confirming with ENTER, the spotlight emits the entire received universe.



ATTENTION: Make sure that there is no signal at the DMX input at the same time !!

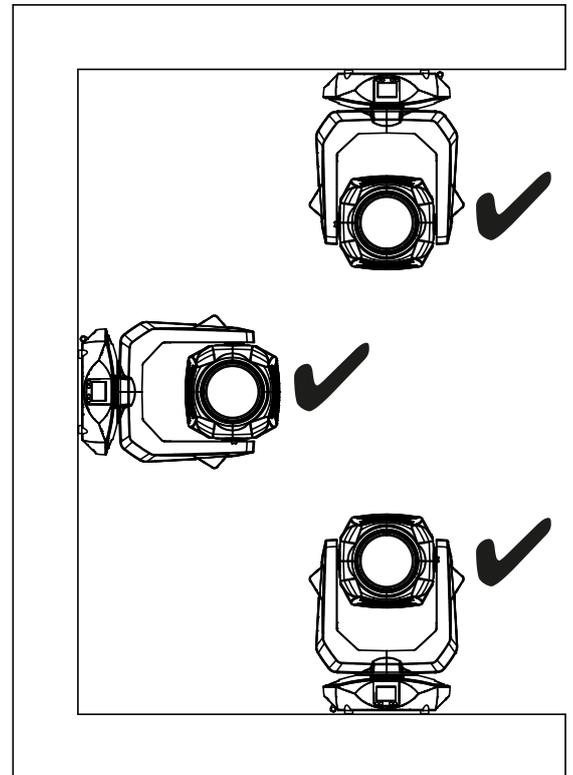
4.5 Mounting the devices



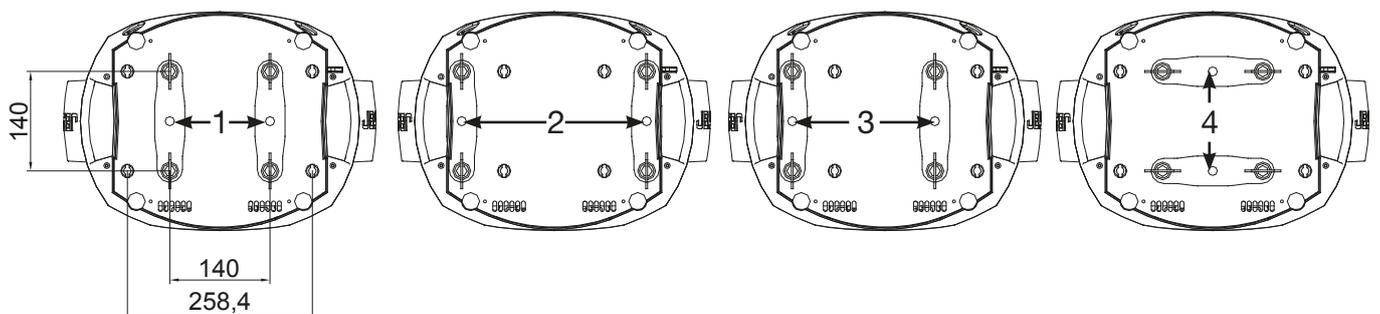
WARNING: Allow a distance of at least 0.5 metres from easily flammable material.

The P18 MK2 Wash can be placed on the floor or hang on a trussing system. Also a mounting horizontally to a truss system like in the picture is allowed.

When placing the unit on the floor make sure that it stands on rigid ground, because the air inlets in the base must not be covered with anything!



To mount the unit on a trussing system use two of the original JB-Lighting omega brackets with original Camloc-connectors. You have following four possibilities to mount the omega brackets.



The Camlocs must snap in to be locked properly. Ensure that the structure (truss) to which you are attaching the fixture is secure. If you install the fixture to a truss always attach a safety cable, that can hold at least 10 times the weight of the fixture.

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5. Control panel

The P18 MK2 Wash has a graphic colour touch display that can be rotated 180° when installed in a suspended position. The display can be rotated in the PERSONALITY MENU or via short cut ENTER + UP in the main screen.

All parameters of the P18 MK2 Wash can be set on the control panel (see menu overview page 14).

Function and operation of the display

The main menu provides information regarding the set DMX mode and, when the wireless mode is switched on, the field strength of the associated transmitter module. "ENTER" calls up a sub-menu or confirms an input. "ESC" is used to exit a function or a menu item. "UP" and "DOWN" are used to navigate within the menu and to enter values.



Special areas can only be called up using a specific key combination. To do this, press and hold the "ENTER" key and then use the opposite "ESC" key to access the menu. To exit the function, proceed in reverse order.

This applies in the STANDALONE area for the MODIFY, RUN and REMOTE functions.

The main menu can also be locked to prevent unintentional access. It is also locked by pressing the "ENTER" key (keep it pressed) and then additionally locking it with the opposite "ESC" key.

From software 1.5 onwards, all functions can also be operated via the touch display.

Display illumination as function display

The display illumination remains switched off during the reset. Slowly flashing display illumination when "JB-Lighting" is displayed means no DMX signal is present.

A very rapidly flashing display illumination when "JB-Lighting" is displayed means that a new error has been stored in the "ERROR LIST", also an error message in the display (e.g. *PAN TIMEOUT) indicates this current error. This error occurs during this reset or in the operation before. This error is now automatically set to "read", but remains in the "ERROR LIST".

A rapidly flashing display illumination shows an error in the "ERROR LIST" is still in it but has already been confirmed or was automatically confirmed. Only when the error has been deleted from the ERROR LIST does the P18 MK2 Wash start again without error signalling.

If errors occur again and again contact the dealer / distributor or our service department.

If the P18 MK2 Wash receives a DMX signal, the display illumination goes out after 30 seconds.

DMX addressing

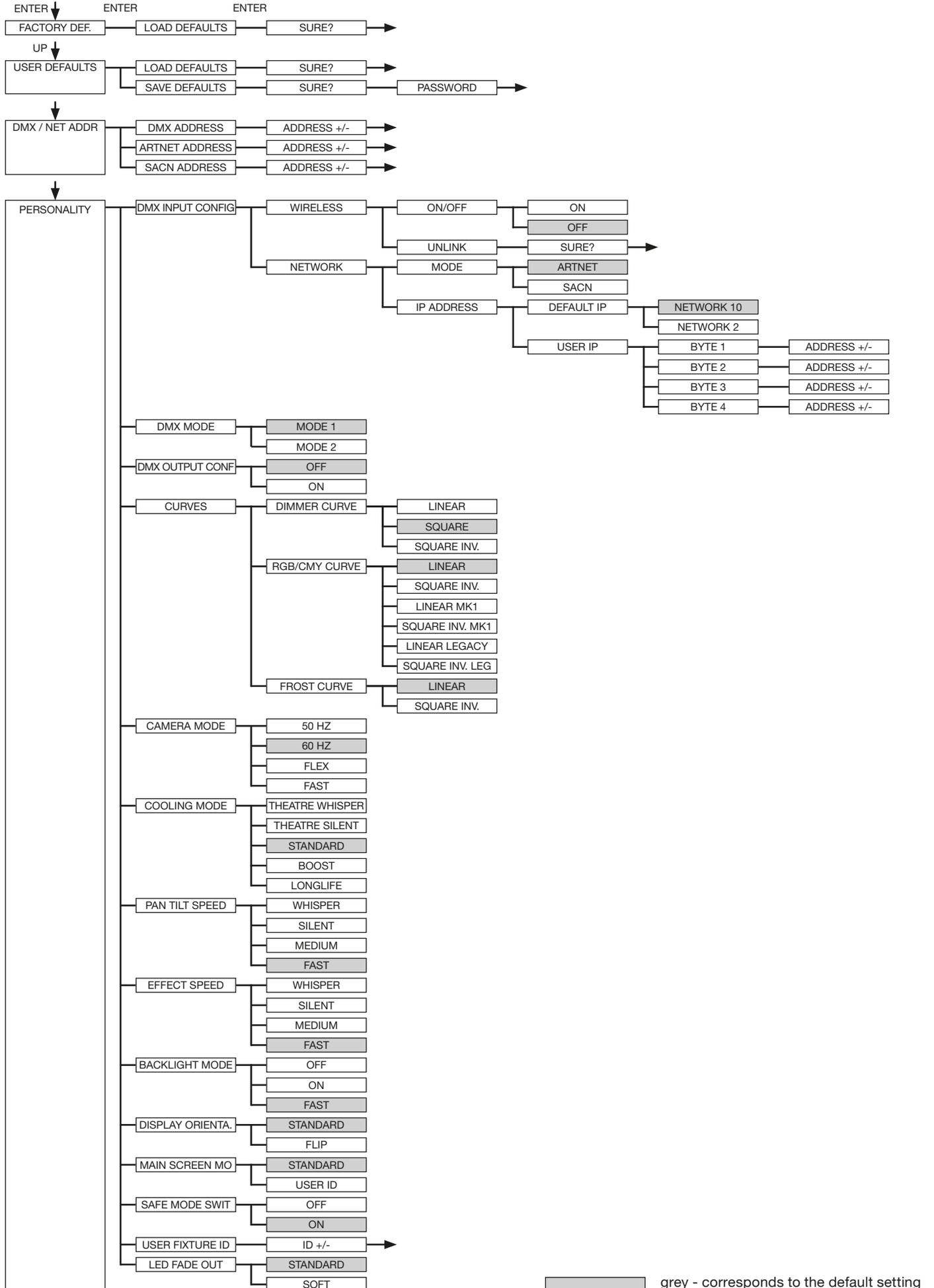
In the main menu, the DMX address can be set directly by pressing the up/down keys.

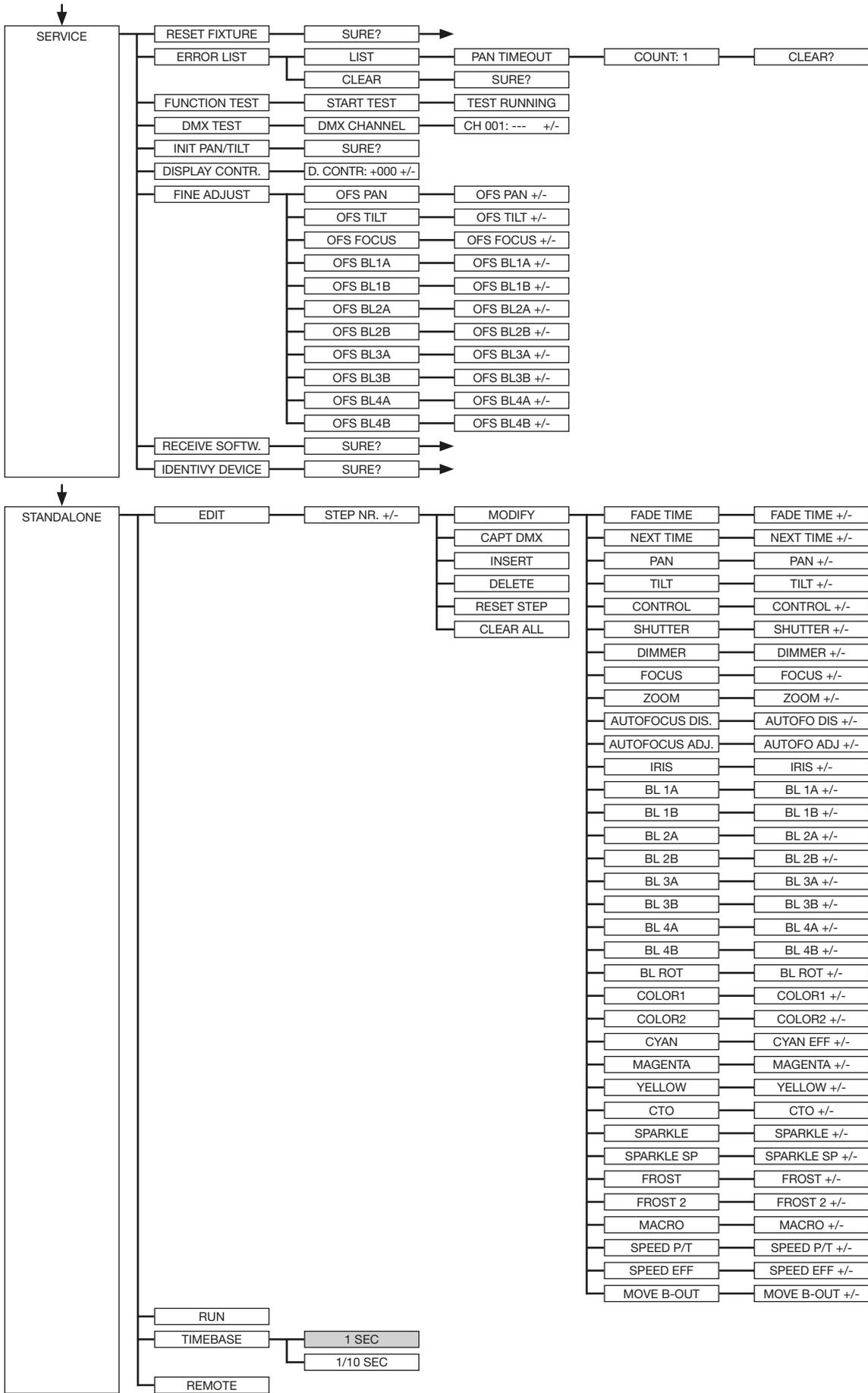
Display operation via battery backup

By pressing the left button below the display, the configuration battery operation of the headlamp is activated, so the headlamp can be configured without power. It is possible to configure all the settings displayed by the menu, for example the DMX address can be set.

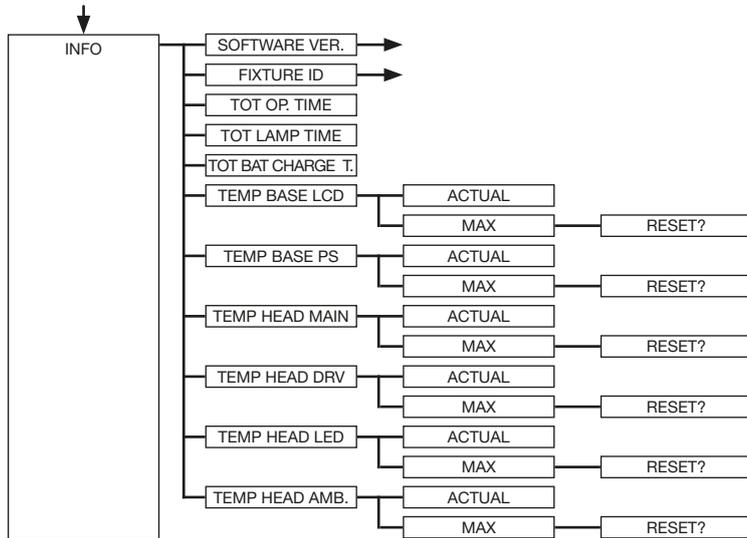
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5.1 Menu overview





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5.2 FACTORY DEFAULTS - Factory settings

To reset P18 MK2 Wash to the factory settings, go to the menu item FACTORY DEFAULTS, LOAD DEFAULTS. After confirming the security prompt SURE? with "ENTER", all parameters are reset to the factory settings.

5.3 USER DEFAULTS - User settings

If the user has set the P18 MK2 Wash in the PERSONALITY menu to their personal settings, these can be saved and loaded in the USER DEFAULTS menu. In order to prevent unintentional alteration of the data, you must enter the following password during the saving process: Buttons "ESC DOWN UP ENTER"

5.4 DMX / NET ADDRESS - DMX addressing / Artnet addressing / sACN addressing

The DMX addressing can be done either directly in the display. Press the "UP" or "DOWN" button to set the desired DMX address. The value is confirmed with the "ENTER" key. However, the DMX addressing can also be done within the menu item DMX / NET ADDR, and there under DMX ADDRESS.

To set the Artnet address, the menu item ARTNET ADDRESS must be selected in the DMX / NET ADDR menu. The Artnet address can now be set using the UP / DOWN buttons. The Artnet address is displayed in the form 000.00.00. This display corresponds to: Net.Subnet.Universum. The sACN address can then be selected in the DMX / NET ADDR -> sACN ADDRESS menu. The address can now be set using the UP / DOWN buttons. The sACN address is displayed in the form 00000.

5.5 PERSONALITY - Personal settings

DMX INPUT CONFIG

In this menu item the options WIRELESS and NETWORK are available.

Under WIRELESS -> ON / OFF the factory-installed radio DMX receiver module of Lumen-Radio can be activated or deactivated and via WIRELESS -> UNLINK the connection to the connected transmitter can be deleted. In order to connect the fixture to a transmitter, wireless must be set to ON on the fixture and the connection button must be pressed briefly on the transmitter. The transmitter is now looking for all fixtures where wireless is enabled and fixtures that are not connected to a transmitter. If the P18 MK2 Wash has successfully connected to the transmitter, the display shows a level indication of the current reception quality. If the P18 MK2 Wash is additionally connected via the DMX / etherCON connection sockets, these signals have priority over the radio link. Using the key shortcut ESC and DOWN, pressed in the main menu, the headlamp can be booked out of the booked transmitter (see page 20).

Under NETWORK -> MODE you can toggle between Artnet operation and sACN operation. For network operation, the IP address of the spotlight must be selected or set under NETWORK -> IP ADDRESS. Each headlight has a unique standard IP address.

Under IP ADDRESS -> DEFAULT IP this can be changed from the network 10.xxx.xxx.xxx to a network 2.xxx.xxx.xxx. For your own self-definable IP address, you can set your own desired IP address under IP ADDRESS -> USER-IP. This address is divided into BYTE1 to BYTE 4 and can be set one after the other.

DMX OUTPUT CONFIG - configuration of the DMX output

Under this menu item, the DMX output of the headlamp can be activated, that is a received Art-net, or wireless DMX signal can be output by activating this menu item -> ON via the DMX socket again. Make sure that there is no signal at the DMX input at the same time !!

DMX MODE - setting the operation mode

The P18 MK2 Wash has 2 operating modes (see channel assignment page 21). All parameters of P18 MK2 Wash can be operated via mode 1. However, all channels (except pan/tilt) are controlled with 8 bits. By selecting Mode 2 - 16 Bit the gobo, prism rotation, CMY/CTO, dimmer, focus, zoom, the complete shutter slide unit as well as pan/tilt are controlled via 16 Bit.

CURVES - setting dimmer, RGB/CMY, frost curve

Dimmer curve:

The dimmer curve can be changed from exponential (square) to linear. The “exponential” dimmer curve (factory setting) causes the dimmer to fade in and out more smoothly.

RGB/CMY curve:

6 different curves can be set for the RGB / CMY curve. LINEAR and SQUARE INV., The square-inv. curve causes a visually more even retraction. LINEAR MK1 and SQUARE INV. MK1, are the two adapted curves on the P18 MK1. LINEAR LEGACY and SQUARE INV. LEGACY are the two original curves of the P18 MK2 Wash, the square-inv.-legacy curve was measured for e.g. ETC consoles.

Frost curve:

The frost curves can be changed from invers exponential (square inv.) to linear. The “invers exponential” frost curve causes the frost to fade in and out more smoothly.

CAMERA MODE - setting the repetition frequency of the LEDs

To avoid flickering during TV recordings, the P18 MK2 Wash can be adjusted from 50 Hertz (PAL, Secam) to 60 Hertz (NTSC) for different camera systems. Flex mode is set when using different camera systems or when shooting with mobile phone cameras or similar non-professional cameras. A HighFlex mode is also available. In this mode, the repetition frequencies are set to 3 kHz, which is necessary to ensure smooth movements in dimmed lighting scenes. The factory setting of the P18 MK2 Wash is 60 Hertz. The changeover is also possible with the light mixing console via the control channel.

COOLING MODE - adjustment of brightness and fan volume

In the COOLING MODE menu item you can set the fan control and the brightness of the P18 MK2 Wash. The following settings are available.

THEATRE WHISPER: Brightness 30.000lm (model HP), volume 29dB(a). In this mode, the spot-light runs at the same brightness up to an ambient temperature of 40°C. It is not necessary to speed up the fans in this mode.

THEATRE SILENT: Brightness 33.500lm (model HP), from 40°C ambient temperature the spot-light regulates the fans a little up thus remains that the brightness is always the same level.

STANDARD: Brightness 38.000lm (model HP), from an ambient temperature of approx. 36°C the fans run to cool the LED accordingly. The brightness remains constant.

BOOST: Brightness 40000lm (model HP), the fans run a little stronger in this mode, from approx. 40° ambient temperature the fans run again accordingly.

LONGLIFE: Brightness 33.500lm (model HP), the fans run a little stronger in this mode, from approx. 40° ambient temperature the fans run again accordingly. We would recommend this mode for permanent installations, as the LED module runs cooler and thus more “stress-free”.

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There is no danger to the life of the device in any mode, as the P18 MK2 Wash has a temperature safety shutdown. In addition, the LED module is switched off from an ambient temperature of 60°C!

PAN TILT SPEED - setting pan/tilt speed

In the PAN TILT SPEED menu you can set the maximum speed, the acceleration and thus also the movement volume of the P18 MK2 Wash. The following setting options are available.

WHISPER: The speed of Pan / Tilt is reduced so much that a volume of 29dB (A) is not exceeded.

SILENT: The speed of Pan / Tilt is slightly faster and thus louder as compared to the Whisper setting.

MEDIUM: The acceleration and deceleration ramps are set very soft so that the headlamp brakes softly and starts.

FAST: The acceleration and deceleration ramps are set very hard so that the headlamp moves very fast and directly at maximum speed.

EFFECT SPEED - setting effect speed

In the menu item EFFECT SPEED you can set the maximum speed, the effects and thus also the volume of the effects of the P18 MK2 Wash. The following setting options are available.

WHISPER: The speed of the effects is reduced so much that a volume of 29dB (A) is not exceeded.

SILENT: The speed of the effects is slightly faster and thus a bit louder than with the Whisper setting.

MEDIUM: The acceleration and deceleration ramps of the effects are set very soft, so that the effects are very soft and thus cause little noise.

FAST: The acceleration and deceleration ramp effects are set to maximum speed. Very fast gobo and color changes are possible!

BACKLIGHT MODE - setting the display backlight

This menu item controls the backlight of the display.

OFF: The backlight of the display is always off. The lighting only switches on when a button is pressed. Errors that are indicated by flashing are not displayed in this mode.

ON: The backlight of the display is always on.

AUTO: The backlight is switched on / off due to the action.

DISPLAY ORIENTATION - setting the display orientation

This menu item turns the display orientation. The display can also be rotated when the shortcut ENTER and UP is pressed in the main screen.

MAIN SCREEN MODE - view of the main screen

With this menu item the display of the main screen can be changed. Either the standard (STANDARD) screen is displayed with DMX address and DMX mode or the USER FIXTURE ID. This ID is used to number the headlights and to display this number in the display.

SAFE MODE SWITCH - setting of the safe mode switch

This setting can be used to decide whether switching the menu item COOLING MODE can be done directly "OFF" or whether for safety the dimmer and the shutter of the fixture must be closed before switching. -> "ON"

USER FIXTURE ID - adjustment of the user fixture ID

Used to set the USER FIXTURE ID (0-65535). This can be displayed via MAIN SCREEN MODE and serves as an info display of the headlight number.

LED FADE OUT - type of dimming

Used to set how to dim the lower range from 0-5%.

STANDARD: When dimming the headlamp, all LED's dim out at the same time.

SOFT: When the headlamp is dimmed, the LED's are dimmed out in groups (in a row) one row after the other.

5.6 STANDALONE operation

In standalone operation, up to 20 program steps can be stored in the P18 MK2 Wash, which can then run in an endless loop. The images can be saved in two ways. Either you program the desired DMX values directly on P18 MK2 Wash and save them, or you set the DMX values via a connected DMX console and then store them in the P18 MK2 Wash.

The menu items MODIFY, RUN and REMOTE can only be called up using a specific key combination. To do this, press and hold "ENTER", and also press "ESC". Before activating these menu items, remove all other devices in the DMX line that send DMX, e.g. consoles or other spotlights that are not configured as slave devices, as otherwise damage to the DMX drivers may occur.

Programming the standalone programme on the spotlight display:

Call up the STANDALONE, EDIT menu item. In the STEP NR+/- menu item, select the desired step and you can change it and its channel parameters in the following menu items: In the MODIFY menu item, set the desired lighting scene and position and determine the individual sequence times of the steps with FADE TIME and NEXT TIME (time for the complete step).

Use INSERT to insert an additional programming step. The DMX values of the previous step are copied to the new step.

Use DELETE to delete a step. The display shows STEP NR: 1/X. Use the selection keys to move to the desired step.

With RESET STEP you reset one step to its default values (DMX 000). The display shows STEP NR: 1/X. Use the selection keys to select your step. CLEAR ALL resets the complete standalone programming steps. Under MODIFY you will find STEP1/1 again. In the STANDALONE, TIMEBASE menu item you have the possibility to change the Fade Time and Next Time from 1 second to 1/10 second.

Accept the DMX values from an external console:

To accept the DMX values of a connected console, you must first enable the Capture DMX input. To do this, go to the CAPT DMX menu item. The display now shows CAPTURE DMX 01/01, press the Enter key to switch to START CAPTURE. Now the P18 MK2 Wash reacts to the signals from the external console.

Launch the standalone program:

Call up the STANDALONE menu and navigate to the RUN submenu. Confirm the selection by pressing the key combination "ENTER" (press and hold) and simultaneously "ESC". The display then shows: S-ALONE: 01/XX and the program runs in an endless loop.

Deactivation: Press and hold the "ESC" key and then also press "ENTER". The menu jumps back one level and RUN appears in the display.

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Operation via master-slave function:

Connect the P18 MK2 Wash via DMX lines and activate the REMOTE menu item for all slave devices. To do this, navigate in the STANDALONE menu to the REMOTE sub-menu. Activate the REMOTE function by pressing and holding "ENTER", and also pressing "ESC". The spotlight is in slave mode when the display shows the status REMOTE INACTIVE or REMOTE ACTIVE.

REMOTE INACTIVE: The P18 MK2 Wash is in slave mode but does not receive a DMX signal.

REMOTE ACTIVE: The P18 MK2 Wash is in slave mode and receives a DMX signal.

The master device is programmed via the MODIFY menu item and started via RUN (press and hold "ENTER" and also press "ESC").

From Spotlight Software 1.5 the standalone operation can also be programmed via the App we offer.

5.7 INFO-menu

The Info menu informs you about the respective software and firmware status, about the total operating time and the different temperatures of the spotlight. The first two menu items in the Info area are the software version and the firmware version, whereby the software version is an important source of information for our service requests, the firmware version is less important source of internal information. Under the menu item TOT OPERATE TIME the complete operating time of the headlight is displayed. The menu item TOT LAMP TIME provides information about the pure operating time of the LED module. TOT BAT CHARGE TIME shows the complete charging time of the battery (battery backup). The TOT OPERATE TIME and the TOT BAT CHARGE TIME can not be deleted! The following temperatures are also displayed:

TEMP BASE LCD, the temperature on the display board

TEMP BASE PS, the temperature of the power supply unit

TEMP HEAD MAIN, the temperature of the head board

TEMP HEAD DRV, the temperature of the LED driver board

TEMP HEAD LED, the temperature of the LED module

TEMP HEAD AMBIENT, the temperature in the head next to the air inlet (ambient temperature)

Both the current temperature and the maximum temperature are displayed. The maximum temperatures can be individually deleted.

5.8 Shortcuts - quick access

ESC + DOWN

Pressing the ESC and DOWN buttons in the main menu will log the fixture off the programmed Lumen Radio Wireless transmitter. The fixture is now ready to be logged in another transmitter.

ENTER + UP

If ENTER + UP is pressed in the main screen, the screen orientation is rotated by 180 °.

ENTER + ESC

By pressing the ENTER and ESC key, the headlight is locked for user input -> LOCKED. ESC and ENTER release the lock again!

6. Control options

6.1 DMX

6.1.1 Operating modes

The P18 MK2 Wash has 2 different DMX modes. The respective mode can be set in the PERSONALITY- DMX MODE menu item. The set mode is displayed in the main menu.

	Mode 1(M1)	Mode 2 (M2)
Channel 1	Pan	Pan
Channel 2	Pan fine	Pan fine
Channel 3	Tilt	Tilt
Channel 4	Tilt fine	Tilt fine
Channel 5	Control channel	Control channel
Channel 6	Shutter	Shutter
Channel 7	Dimmer	Dimmer
Channel 8	Focus	Dimmer fine
Channel 9	Zoom	Focus
Channel 10	Focus distance	Fine focus
Channel 11	Focus adjust	Zoom
Channel 12	Iris	Fine zoom
Channel 13	Gobo 1	Focus distance
Channel 14	Gobo Rotation 1	Focus adjust
Channel 15	Aperture 1a	Iris
Channel 16	Aperture 1b	Fine iris
Channel 17	Aperture 2a	Gobo 1
Channel 18	Aperture 2b	Gobo rotation 1
Channel 19	Aperture 3a	Gobo rotation 1 fine
Channel 20	Aperture 3b	Aperture 1a
Channel 21	Aperture 4a	Aperture 1a fine
Channel 22	Aperture 4b	Aperture 1b
Channel 23	Aperture rotation	Aperture 1b fine
Channel 24	Colour wheel 1	Aperture 2a
Channel 25	Colour wheel 2	Aperture 2a fine
Channel 26	Cyan	Aperture 2b
Channel 27	Magenta	Aperture 2b fine
Channel 28	Yellow	Aperture 3a
Channel 29	CTO (CTB model WW)	Aperture 3a fine
Channel 30	Sparkle	Aperture 3b
Channel 31	Sparkle speed	Aperture 3b fine
Channel 32	Frost 1	Aperture 4a
Channel 33	Frost 2	Aperture 4a fine
Channel 34	Pan/tilt speed	Aperture 4b
Channel 35	Effect speed	Aperture 4b fine
Channel 36	Blackout Move	Aperture rotation
Channel 37		Fine aperture rotation
Channel 38		Colour wheel
Channel 39		Colour wheel
Channel 40		Cyan
Channel 41		Fine cyan

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Channel 42	Magenta
Channel 43	Fine magenta
Channel 44	Yellow
Channel 45	Fine yellow
Channel 46	CTO (CTB model WW)
Channel 47	CTO fine (CTB fine model WW)
Channel 48	Sparkle
Channel 49	Sparkle speed
Channel 50	Frost 1
Channel 51	Frost 2
Channel 52	Pan/tilt speed
Channel 53	Effect speed
Channel 54	Blackout Move

6.1.2 DMX channel assignment Mode 1 and Mode 2

M1	M2	Function	DMX
1	1	Pan (X) movement 546.74°	000-255
2	2	Pan (X) fine (16 Bit)	000-255
3	3	Tilt (Y) movement 281.16°	000-255
4	4	Tilt (Y) fine (16 Bit)	000-255
5	5	<p>Control channel To enable uniform dimming manually via faders for all light mixing consoles, 5 different settings for the DMX smoothing are available. If the DMX signal is interrupted or too few packets are sent on some DMX consoles, the response of the Sparx 18/30 can be adjusted with this channel. The Minimum DMX Smoothing setting should work on most popular consoles. The values for DMX smoothing must be permanent. For the other values, such as cooling mode, color temperature, zoom modes, camera mode, reset, the values must be applied for 2 seconds, then the device will be permanently switched (Same setting as in the PERSONALITY menu).</p> <p>Setting for minimal DMX smoothing (A dimmed shutter sequence is possible) Dimmer fade out via fader (fast - slow) not used</p> <p>Setting for minimum / medium DMX smoothing Dimmer fade out via fader (fast - slow) not used</p> <p>Setting for medium DMX smoothing Dimmer fade out via fader (fast - slow) not used</p> <p>Setting for medium / maximum DMX smoothing Dimmer fade out via fader (fast - slow)</p> <p>BACKLIGHT MODE - Display backlight configuration AUTO - the fixture controls the backlight automatically ON - the backlight is always on OFF - the backlight is always off until a key is pressed</p> <p>DISPLAY ORIENTATION - display flip or not STANDARD - the display can be read when the headlamp is on a surface FLIP - the display orientation is rotated by 180 °, hanging readable not used</p> <p>MAIN SCREEN MODE - view of the main screen STANDARD - the main screen displays the DMX address, the DMX mode, and when wireless is enabled, the field strength. USER FIXTURE ID - the main screen displays the user definable fixture ID / head-light number not used</p> <p>USER FIXTURE ID SET - Scheinwerfernummer setzen SET - the USER ID can be set. The headlamp takes the 16-bit value of Pan for the USER ID not used</p>	<p>000-007 008-031</p> <p>032-039 040-063</p> <p>064-071 072-095</p> <p>096-103</p> <p>104-104 105-105 106-106</p> <p>107-107 108-108 109-109</p> <p>110-110 111-111 112-112</p> <p>113-113 114-127</p>

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	<p>Setting for maximum DMX smoothing Dimmer fade out via fader (fast - slow)</p>	128-135
	<p>DIMMER CURVE - selection of dimmer curve LINEAR - linear dimmer curve SQUARE - exponential dimmer curve SQUARE INVERSE - exponential inverse dimmer curve not used</p>	136-136 137-137 138-138 139-139
	<p>RGB/CMY CURVE - selection of RGB/CMY curve LINEAR - linear RGB/CMY curve SQUARE INVERSE - Exponential inverse RGB/CMY curve LINEAR MK1 - linear RGB/CMY curve adapted to P18 MK1</p>	140-140 141-141 142-142
	<p>FROST CURVE - selection of frost curve LINEAR - linear frost curve SQUARE INVERSE - Exponential inverse frost curve not used</p>	143-143 144-144 145-145
	<p>PAN/TILT SPEED - selection of PAN/TILT speed WHISPER SILENT MEDIUM FAST</p>	146-146 147-147 148-148 149-149
	<p>EFFECT SPEED - selection of effect speed WHISPER SILENT MEDIUM FAST</p>	150-150 151-151 152-152 153-153
	<p>LED FADE OUT MODE - selection of dimming out STANDARD SOFT not used</p>	154-154 155-155 156-159
	<p>COOLING MODE - Adjust the fan volume and brightness This takes place with dimmer / shutter set to closed (DMX 000) then after 2 seconds the fixture will switch this option, except the switch "SAFE MODE SWITCH" in the PERSONALITY menu is set to OFF, then the changeover can take place directly without dimmer and shutter having to be closed. THEATRE WHISPER THEATRE SILENT STANDARD BOOST LONGLIFE not used</p>	160-160 161-161 162-162 163-163 164-164 165-207
	<p>CAMERA MODE - Setting the LED refresh rate 50Hz 60Hz FLEX - 600Hz High FLEX - 3kHz not used</p>	208-215 216-223 224-227 228-231 232-239
	<p>RESET - a basic reset of the fixture is carried out Reset nicht belegt</p>	240-247 248-255

6	6	<p>Shutter Shutter closed Shutter open Open pulsing shutter >20Hz (rapid - slow) Shutter open Fade effect with dimmer (slow - rapid) Shutter open Shutter closed Open pulsing shutter <20Hz (rapid - slow) Shutter open Close pulsing shutter >20Hz (rapid - slow) Shutter closed Shutter fade, 0% (rapid - slow) Shutter open Shutter fade, 100% (rapid - slow) Shutter closed Random shutter 100% (rapid - slow) Shutter open Random shutter 0% (rapid - slow) Shutter closed Random shutter fade, 0% (rapid- slow) Shutter open Random shutter fade, 100% (rapid- slow) Shutter open</p>	<p>000-015 016-095 096-110 111-111 112-125 126-126 127-126 128-142 143-143 144-158 159-159 160-174 175-175 176-190 191-191 192-206 207-207 208-222 223-223 224-238 239-239 240-254 255-255</p>
7	7	Dimmer 0 - 100%	000-255
	8	Fine dimmer (16Bit)	000-255
8	9	Focus 0-100%	000-255
	10	Fine focus (16 Bit)	000-255
9	11	Zoom 0 -100% (near 13° - far 65°)	000-255
	12	Fine zoom (16 Bit)	000-255
10	13	<p>Auto focus distance works from version 1.5 Auto focus off Auto focus 0 m - 25,5 m (0=off, DMX / 10 = distance)</p>	<p>000-001 002-255</p>
11	14	<p>Auto focus adjust (no function, not needed) Auto focus adjust - DMX 128 center</p>	000-255
12	15	Iris 0-100% (open -> closed)	000-255
	16	Fine iris (16Bit)	000-255
13	17	<p>Gobo wheel 1 - rotating gobos Gobo 0 Gobo 1</p>	<p>000-007 008-015</p>



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		Gobo 2		016-023
		Gobo 3		024-031
		Gobo 4		032-039
		Gobo 5		040-047
		Gobo 6		048-127
		Gobo 0 (open)		128-135
		Gobo 1 shake (fast - slow)		136-143
		Gobo 2 shake (fast - slow)		144-151
		Gobo 3 shake (fast - slow)		152-159
		Gobo 4 shake (fast - slow)		160-167
		Gobo 5 shake (fast - slow)		168-175
		Gobo 6 shake (fast - slow)		176-191
		Gobo wheel rotation (fast - slow)		192-223
		Gobo wheel rotation (slow - fast)		224-255
14	18	Gobo positioning/rotation 1 Gobo positioning 0° - 540° Gobo rotation, right (rapid - slow) Stop gobo rotation Gobo rotation, left (slow - rapid)		000-191 192-222 223-224 225-255
	19	Fine gobo positioning/rotation 1 (16 Bit)		000-255
15	20	Aperture 1a 0-100%		000-255
	21	Aperture 1a fine (16 Bit)		000-255
16	22	Aperture 1b 0-100%		000-255
	23	Aperture 1b fine (16 Bit)		000-255
17	24	Aperture 2a 0-100%		000-255
	25	Aperture 2a fine (16 Bit)		000-255
18	26	Aperture 2b 0-100%		000-255
	27	Aperture 2b fine (16 Bit)		000-255
19	28	Aperture 3a 0-100%		000-255
	29	Aperture 3a fine (16 Bit)		000-255

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	42		Fine yellow (16 Bit)	000-255
27	43		CTO (8 Bit) 0-100% (CTB model WW (8 Bit) 0-100%)	000-255
	44		Fine CTO (16 Bit) (Fine CTB model WW (16 Bit))	000-255
28	45		Sparkle - Glitter effect Sparkle effect inactive Sparkle effect intensity (minimum - maximum)	000-000 001-255
29	46		Sparkle speed Faded sparkle effect (slow -> rapid) Switched sparkle effect (slow -> rapid) Repetition of the fading and switching blocks	000-031 032-063 064-255
30	47		Frost 1 Frost 0-100%	000-255
31	48		Frost 2 Frost 0-100%	000-255
32	49		Pan/tilt speed Real-time motion Delayed motion (rapid - slow)	000-003 004-255
33	50		Effects speed Real-time effects Delayed effects (rapid - slow)	000-003 004-255
34	51		Blackout Move Not assigned Blackout during pan/tilt Blackout during Colour, CMY, Iris, Frost Blackout during Colour, CMY, Iris, Frost, Zoom, Focus Blackout during Colour, CMY, Iris, Frost, Pan/Tilt Blackout during Colour, CMY, Iris, Frost, Zoom, Focus, Pan/Tilt	000-095 096-127 128-159 160-191 192-223 224-255

6.1.3 Control channel

Via the control channel different functions of the fixture can be permanently switched. The following functions can be switched via the control channel.

Response of the headlamp when dimming via faders

BACKLIGHT MODE - display backlight

DISPLAY ORIENTATION - display orientation

MAIN SCREEN MODE - main screen view

USER FIXTURE ID SET - set headlight number

DIMMER CURVE - dimmer curve adjustment

RGB / CMY CURVE - adjust the RGB / CMY curve

FROST CURVE - setting the frost curve

PAN / TILT SPEED - pan / tilt speed

EFFECT SPEED - effect speed

LED FADE OUT MODE - type of dimming

COOLING MODE - adjust the fan volume and brightness

CAMERA MODE - sets the LED refresh rate

RESET - a basic reset of the headlight is performed

For details, see DMX Channel assignment for the P18 MK2 Wash on page 23.

6.1.4 Sparkle effect, sparkle speed

Animation effects can be created via this channel in connection with the focus. Depending on the intensity, the projection can be made to shake more or less. This effect can be dimmed or switched.

6.1.5 Zoom, auto focus distance, auto focus balancing

With the aid of the two channels Autofocus Distance and Autofocus Adjustment, the focus can be automatically readjusted over the entire zoom range from software version 1.5

6.2 Artnet

The spotlight can be controlled via Artnet - ArtNET 4. To do this, set the Artnet address via the menu item DMX / NET ADDR -> ARTNET ADDRESS and also select it via the menu item PERSONALITY -> DMX INPUT CONFIG -> NETWORK -> MODE -> ARTNET. In addition, define the IP address of the spotlight via PERSONALITY -> DMX INPUT CONFIG -> NETWORK -> IP ADDRESS. Further details and setting options can be found on page 16.

6.3 Streaming ACN

The headlight can be controlled via sACN - Streaming ACN. To do this, set the sACN address via the menu item DMX / NET ADDR -> SACN ADDRESS and also select it via the menu item PERSONALITY -> DMX INPUT CONFIG -> NETWORK -> MODE -> SACN. In addition, define the IP address of the spotlight via PERSONALITY -> DMX INPUT CONFIG -> NETWORK -> IP ADDRESS. Further details and setting options can be found on page 16.

6.4 Wireless-DMX

The P18 MK2 Wash is equipped with a Lumen Radio CRMX receiver for wireless DMX. The receiver can process both DMX and RDM. If there is a cable and wireless connection to the P18 MK2 Wash, the cable connection has priority! The received signal can be output via the DMX connection. To do this, set the DMX OUTPUT CONFIG setting to ON in the PERSONALITY menu. After confirming with ENTER, the spotlight will output the entire universe received via wireless DMX.

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6.5 RDM

The P18 MK2 Wash can communicate via RDM (Remote Device Management) in accordance with ESTA American National Standard E1.20-2006. RDM is a bidirectional communication protocol for use in DMX512 control systems. It is the open standard for the configuration and status monitoring of DMX-512 devices. The RDM protocol enables data packets to be inserted into a DMX-512 data stream without affecting existing non-RDM devices. It enables a console or dedicated RDM controller to send commands to specific devices and receive messages. The P18 can send and receive RDM via DMX and Artnet 4. The spotlight is also designed to send RDM via sACN and receive it via Artnet. The RDM functionality depends on the lighting control desk used, the operating instructions of the respective desk manufacturer must also be observed.

6.5.1 RDM-UID

Every P18 MK2 Wash has a factory-set RDM-UID (unique identification number), which makes it addressable and identifiable in RDM systems.

6.5.2 RDM-PIDs

The P18 MK2 Wash supports the RDM PIDs (parameter IDs) required by ESTA as well as manufacturer-specific PIDs.

6.5.3 Standard RDM parameter IDs

RDM parameter ID	GET	SET	DISCOVERY	Note
RDM identification				
DISC_UNIQUE_BRANCH			✓	is used for fixture identification
DISC_MUTE			✓	is used for fixture identification
DISC_UN_MUTE			✓	is used for fixture identification
RDM status determination				
QUEUED_MESSAGE	✓			
STATUS_MESSAGES	✓			
STATUS_ID_DESCRIPTION	✓			
CLEAR_STATUS_ID		✓		
RDM information				
SUPPORTED_PARAMETERS	✓			
RDM configuration				
DEVICE_MODEL_DESCRIPTION	✓			
MANUFACTURER_LABEL	✓			
FACTORY_DEFAULTS		✓		
SOFTWARE_VERSION_LABEL	✓			
DMX_PERSONALITY		✓		
DMX_PERSONALITY_DESCRIPTION	✓			
DMX_START_ADDRESS		✓		
SENSOR_DEFINITION	✓			
DEVICE_HOURS	✓			
LAMP_HOURS	✓			
IDENTIFY_DEVICE		✓		
RESET_DEVICE		✓		
PERFORM_SELFTEST		✓		
SELFTEST_DESCRIPTION	✓			

6.5.4 Manufacturer specific RDM parameter IDs

RDM parameter ID	GET	SET	DISCO- VERY	Note
RDM configuration				
Battery Charge Hours	✓			
Error Number	✓			
Error	✓			
Select Next Error		✓		
Remove Error		✓		
Remove New Error Flag		✓		
User Defaults		✓		
User Fixture ID		✓		
Fixture Lock On/Off	✓	✓		
Dimmer Curve	✓	✓		
RGB Curve	✓	✓		
Frost Curve	✓	✓		
Camera Mode	✓	✓		
Cooling Mode	✓	✓		
Pan Tilt Speed	✓	✓		
Effect Speed	✓	✓		
Backlight Mode	✓	✓		
Disp Orientation	✓	✓		
Main Screen Mode	✓	✓		
Safe Mode Switch	✓	✓		
LED Fade Out Mode	✓	✓		

6.5.5 RDM sensor IDs

RDM sensor ID	GET	SET	DISCO- VERY	Note
RDM sensors				
Temp Sens Base LCD	✓	✓		
Temp Sens Base PS	✓	✓		
Temp Sens Head PCB	✓	✓		
Temp Sens Head Drv	✓	✓		
Temp Sens Head LED	✓	✓		
Temp Sens Head Air	✓	✓		

7. Service

7.1 Service menu

RESET FIXTURE

Upon the “Reset” command, P18 MK2 Wash will initialise to its initial values. It is the same procedure as after switching on the P18 MK2 Wash. If an error message appears in the display, this could be the first step to correct it.

ERROR LIST

The P18 MK2 Wash stores all occurring errors internally. An error message can have a harmless cause. If you experience frequent error messages, please contact your dealer or the JB-Lighting service department. All error messages are displayed with the respective frequency and can be deleted.

FUNCTION TEST

This function allows you to test all functions of the P18 MK2 Wash without using a light mixer. The pan/tilt reset is deactivated in the process.

DMX TEST

This menu item is used to test the DMX input. Use the function keys to select the DMX channel to be tested. The display shows the incoming value, at the same time the P18 MK2 Wash reacts accordingly.

INIT PAN TILT

The P18 MK2 Wash is calibrated in the pan/tilt position at the factory. If it loses this calibration, i.e. it strikes against the stop or no longer finds its position, it can be re-initialised using this function. This process takes about 3-4 minutes and ends with a reset of the spotlight.

DISPLAY CONTRAST

The contrast of the LCD display may change when the temperature is too high. In this menu item the contrast can be adjusted.

FINE ADJUST

The FINE ADJUST area is protected by a key combination. Focus, shapers, shaper rotation, pan and tilt are calibrated at the factory. If there are large deviations in the calibration between the individual headlights, this can be corrected in the FINE ADJUST menu. For more information please contact our service.

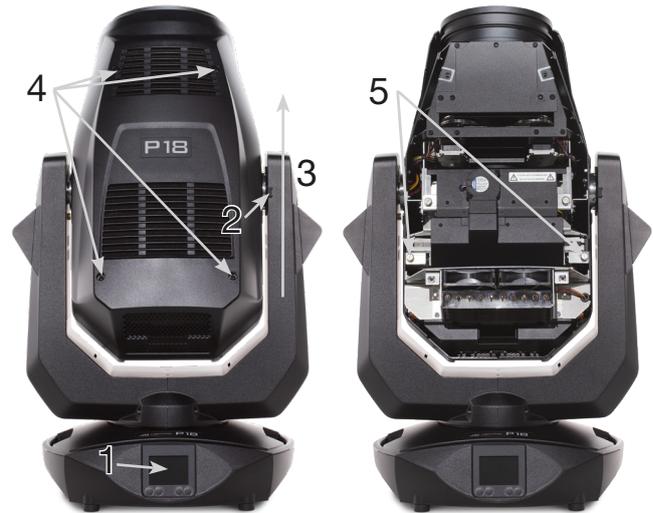
IDENTIFY DEVICE

The RDM command IDENTIFY DEVICE can be called up or deactivated via this menu item.

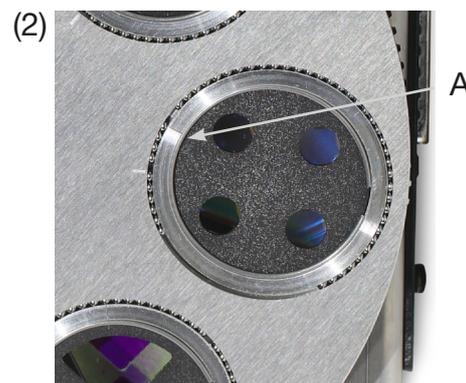
7.2 Changing gobos

To open the device (from the right side) place the spotlight on a firm base as shown in the picture, the display (1) facing you, the tilt lock (2) is on the right side and the spotlight head facing away from you (3) (Or look through the grille into the spotlight from behind and look at the arrow showing the cover to be opened).

To lift off the cover, open the four camlocks (4) by half a turn, lift off the cover and unhook the safety lanyard. Now open the two knurled screws (5) and remove the gobo insert. The following figure (1) shows the gobo insert of the P18 MK2 Wash.



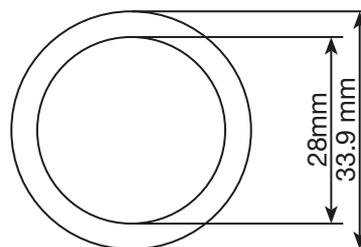
To change the gobos, remove the clamping ring A (Figure (2) - rotating gobos. Then you can replace the gobo and replace the ring. When inserting glass gobos, make sure that the coated side is facing the lens.



7.3 Gobo size

If you want to have your own gobos produced, please note the following dimensions:

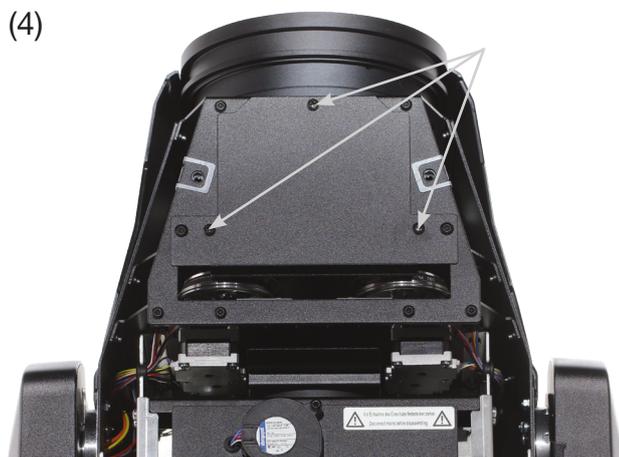
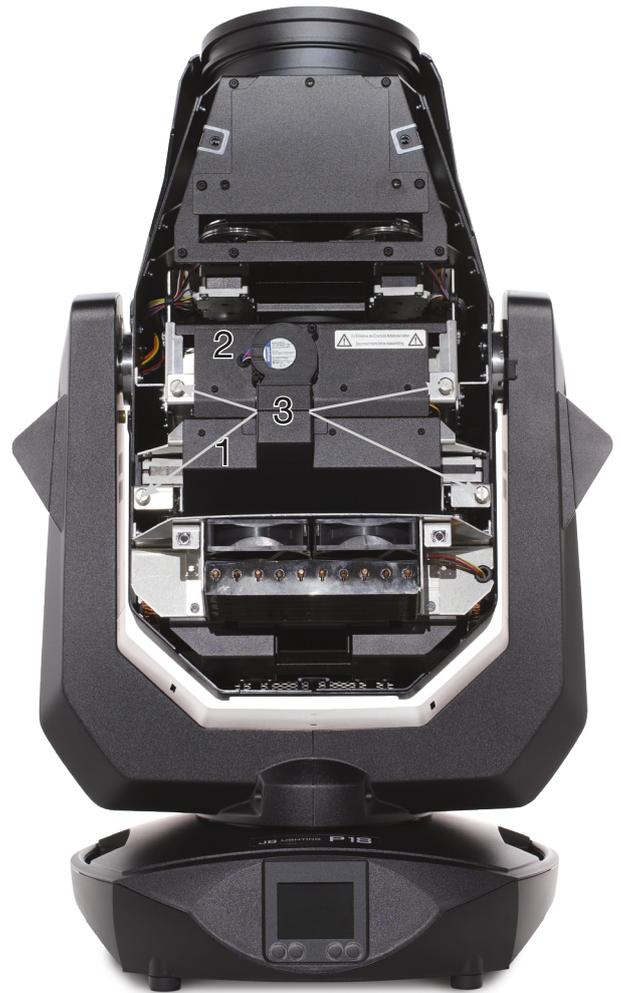
Usable diameter, rotating. Gobos: 28.00 mm
 Outer diameter: 33.90 mm (+0/-0.2 mm)
 Maximum thickness: 1.1 mm



7.4 Cleaning the device

You should check the function of the fans in the head and foot at regular intervals. Above all, make sure that the air intakes and the interior of the P18 MK2 Wash are free of fluff and dust.

To do this, open the head cover (4x camlocks (4) with half a turn) and the base plate on the foot. You can clean the P18 MK2 Wash with a brush and a vacuum cleaner. In addition, you can remove the gobo insert (1) and the shutter slide insert (2) by loosening the knurled screws (3) and sliding the focus carriage towards the lens. Then you can clean the colour filters, glass gobos and CMY panes with a soft cloth and a little window cleaner. To clean the frost flaps, prisms and zoom/focus unit, remove the three Phillips screws (Fig. 4) and then the zoom cover (see Fig. 5). Ensure that you do not bend or damage any parts during cleaning. When cleaning is complete, reconnect the flap, replace the Phillips screws (4) and return the inserts to the unit.



7.5 Service and maintenance

On the P18 MK2 Wash, the zoom / focus guide rails and the rotating gobos should be checked for sufficient lubrication at regular intervals - once a year. To do this, open the head cover (4x camlocks with half a turn), the zoom cover (3 Phillips screws) see picture (4) and picture (5) and remove the gobo insert (2 knurled screws).

Please note that the rotating gobos and the guide rails do not run dry; if necessary, the rotating gobos must be oiled with a special syringe and the guide rails with a brush with our special silicone oil.

After the gobos and the rails have been checked or oiled, reinsert the slot and close the zoom cover again. After completing the work, replace the head cover on the headlight and test all the functions of the headlight.

7.6 Software update

The P18 MK2 Wash can be updated via a USB stick with micro-USB connection. To do this, copy the file directly into the root directory of the USB stick. Then press and hold the right key below the display, switch on the power of the P18 MK2 Wash, as soon as the message "Insert USB stick" appears on the display release the key. Now plug in the USB stick on the back of the device below the signal connections and follow the instructions on the display. The P18 MK2 Wash completes the software update with a reset. You will find the latest software on our homepage.

7.7 Testing of electrical equipment

According to the German Social Accident Insurance (DGUV) Regulation 3 / Regulation 4, electrical systems and equipment must be subjected to regular inspections. The fixing screw of the DMX 5-pin socket can be used as measuring point for insulation and residual current measurement. The screw is connected to all sheet metal parts via a contact washer.



8. Specifications

Dimensions and weight

Length	307 mm
Width	435 mm
Height	754 mm
Net weight	31 kg

Electronic system

Mains connection	100-240 V AC, 50-60Hz
Maximum power consumption	1500 VA
Power consumption in standby	200 VA

Temperature

Maximum ambient temperature	45 °C
Minimum ambient temperature	5 °C

Optics, Photometric Data

Light source	White light LED module 1100W
Luminous intensity HP	40000 Lumen @ 20°C
Luminous intensity HC	31000 Lumen @ 20°C
Luminous intensity WW	28000 Lumen @ 20°C

Effects

Pan	546.74°
Tilt	281.16°
Zoom	13° - 65°

Construction

Colour	black
Housing	PC ABS
Protection class	IP 20
Plug-in technology	yes

Installation

Installation site	indoors
Holder	2x Omega brackets
Position	any
Minimum distance to flammable objects	0.5 m

Connections

Power input	Neutrik powerCON TRUE1
Power feed-through	Neutrik powerCON TRUE1
DMX/RDM in/out USITT DMX512	5-pin, in/out XLR
Ethernet in/out	Neutrik etherCON
Micro-USB	Software update

9. Declaration of Conformity



Declaration of Conformity

in the sense of the Directive: 2014/35/EU Low Voltage Directive,
(Directive 2014/35/EU of the European Parliament and of the Council of 26/02/2014 to approximate
the laws of the Member States relating to electrical equipment designed
for use within certain voltage limits)

in the sense of the Directive: 2014/30/EU Electromagnetic compatibility
(Directive 2014/30/EU of the European Parliament and of the Council of 26/02/2014 to approximate the
laws of the Member States relating to electromagnetic compatibility)

The manufacturer, **JB-Lighting Lichtenlagentechnik GmbH**
Sallersteigweg 15
89134 Blaustein-Wippingen

declares that the product: **P18 MK2 Wash**

complies with the essential protection requirements of the directives. The following standards were used for conformity assessment:

Emissions requirements per EN 55022:2010

Conducted interference emission
EN 55022:2010

Radiation
EN 55022:2010

Harmonic currents
EN 61000-3-2:2015

Flicker
EN 61000-3-3:2013

Information technology equipment, radio interference characteristics - Limit values and measuring methods - Limit value class A

requirements for information technology equipment, radio interference characteristics -
Limit values and measuring methods - Limit value class A
Information technology equipment, radio interference characteristics -
Limit values and measuring methods - Limit value class A
Electromagnetic compatibility
Part 3-2: Limits, testing of harmonic currents
(for devices with an input current < 16A per phase)
Electromagnetic compatibility (EMC)
Part 3-3: Limits, limitation of voltage changes,
Voltage fluctuations and flicker in low-voltage networks
(for devices with an input current < 16A per phase)

Immunity - requirements per EN 61000-6-2:2005

EN 61000-4-2:2009
EN 61000-4-3:2006 +A1:2008 +A2:2010
EN 61000-4-4:2012

EN 61000-4-5:2006
EN 61000-4-6:2014

EN 61000-4-8:2010

EN 61000-4-11:2004

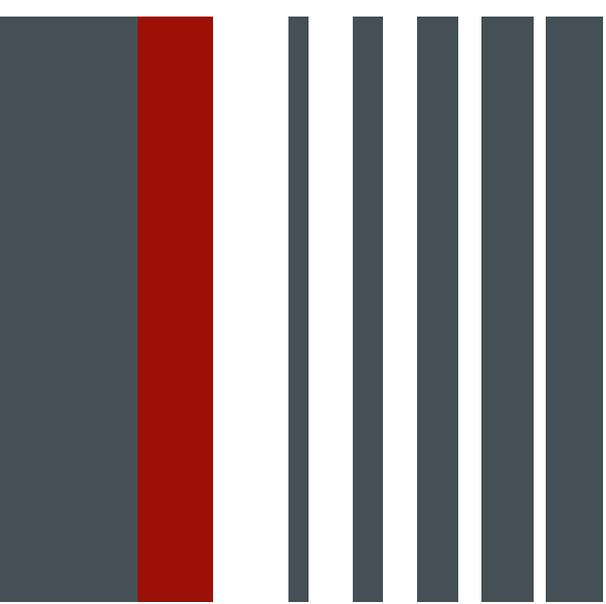
Electromagnetic compatibility (EMC) - Part 6-2: Generic standard - Immunity in industrial areas

Part 4-2: Immunity to static electricity discharge
Part 4-3: Immunity to high-frequency electromagnetic fields
Part 4-4: Immunity against fast transient electrical disturbances (burst)
Part 4-5: Interference voltages against surge voltages
Part 4-6: Immunity to conducted disturbances, induced by HF
Part 4-8: Immunity to magnetic fields with power technology frequencies
Part 4-11: Immunity against voltage dips, short-term interruptions and voltage fluctuations

Blaustein, 31.07.2020



Jürgen Braungardt
CEO



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