# Licht Technik
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# Color changer Cyclight with cartridge system

## Functional description MagMax
## type Cyclight 02 V2.16

## Fabrication and Marketing
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Caution! Operate the device only after having read and <span style="color:red">understood</span> the operating instructions!

# Color changer MagMax, type cyclight

The color changer of the cyclight-series is a versatile, reliable and easy to use cartridge system color changer.

This device is designed for use in theatre- and opera houses, exhibitions, light shows and events like that. The built in 16-Bit Microcontroller enables a quick and safe processing, intuitive user interface and uncomplicated operation.

The color string is put into the cartridge. Therefore the the string can be changed very quick and safe.

After putting in the cartridge, the device automatically scans the frame positions. The positions of begin, end and (dark-) color frames are detected by the device because of the markers. No more manual programming is necessary. Begin, end and (dark-) colors are recognized by the device, because of the different length of the different types of markers.

The device is controlled by DMX512 (USITT 1990). The position of color tape, the speed, the fan intensity and the move mode of the color string can be controlled by DMX. In addition, the colors can be controlled by keyboard. In this case, no DMX signal is required. The supply line is a 4 pin datapower cable.

The Color string can be moved in linear, frame by frame and halfframe mode. Frame by frame mode means that only full color frames can be selected. In halfframe mode, two colors, each by a half can be moved into the light. Linear mode means that every position of the color string can be selected.

The built in potentiometer generates an absolute value of the tape position, thus no initalisation move must be performed.
The Marker and light sensor system provides an exact positioning of the color string.

The „dark color mode" moves the sensitive darker color frames from end to end in front of the light. The effect is a better heat distribution on the string. This requires a double length color frame. The device counts the dark colors as one frame.

For power supply we can offer the power supplies PS 104 and PS204 with integrated split box. An alternative are the *Licht-Technik* mixing panels with integrated power supply.

The lighted LCD display (light can be switched off) leads the user through the various program steps in plain language instructions. User instructions are available either in English or German language.

# Table of content

# Safety and operating instructions

The device must only be operated when being in the operating position for this purpose. Operating position is vertical with max. +/- 60 degree. But the motor unit must not be at the top position.

Admissible ambient temperature: 0 to +55 °C

The device is getting very hot because of the lamp. Let it cool down for at least one hour before touching.

The top and bottom vents must not be blocked or covered.

The equipment is designed to be used in dry and clean rooms.

The lamp must not shine outside the light hole. This means, the diameter of the light hole of the color changer must be the same or larger as the diameter of the lamp lens. For exmple: A 200mm color changer cannot be operated in front of a lamp with 300mm lens diameter.

"PAR" headlights without flood lense are not suitable for use with color changers.

The color changer must be kept dry. In case of water condensation, a waiting time of 2 hours is necessary until acclimatisation is reached.

Observe the maximum load of fastening spigots which will be increased by the additional weight of the color changer.

Make sure that the device is safe fixed at the lamp.

Use a safety belt.

Power supply via DATA Power input of the color changer must only be realized via power supplies authorized by us (electrical separation from the mains).

Change the cartridge only in power on state of the device. On the other hand, the device can not recognize the change. The result are incorrect stops and pulling out the string.

When it has to be assumed that a safe operation is no longer possible, the equipment must be switched off immediately and be secured against unintended operation.

This is the case when:

  - the device shows visible damages
  - the device is not functional
  - parts of the device are loose or slackened
  - connecting lines show visible damages

Prior to starting the equipment the user must check the usefulness of the device for its intended purpose. In particular, Licht-Technik shall decline any liability for damages of the equipment as well as for consequental damages resulting of the device being used inappropriately, of inexpert installation, incorrect starting, use and  noncompliance with the valid safety regulations.
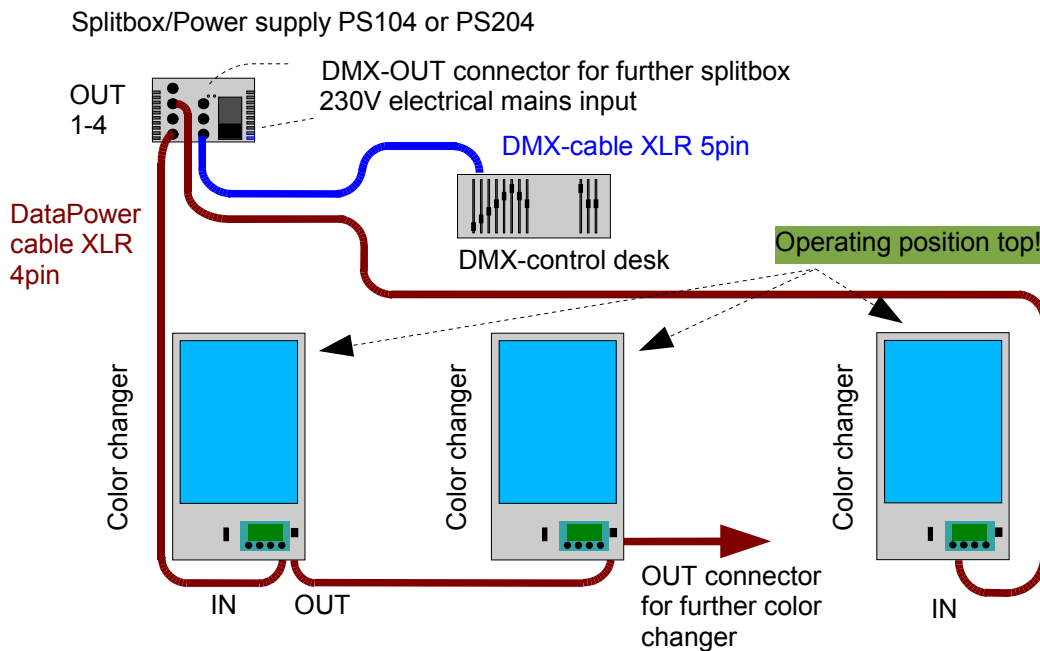
# Cabling

The standardized DMX-Signal is based on industrie´s RS485 Interface. It is designed for maximum lengths up to 1200m. This length is under condition in theatre or studio normally not possible. As a result of internal tests we recommend a maximum length of 200m (only DMX, 5PIN).
The maximum length of a Output (Data Power, 4PIN) must not exceed 80m because of the voltage drop.

Connect the light mixer panel and the Splitbox PS104/PS204 with a 5PIN XLR-DMX-cable. The splitbox is provided with a DMX out jack for connecting additional splitboxes. At each of the four DATA Power outputs for the devices a maximum of 4 color changers can be connected. However, the total number of color changers per splitbox must not exceed 16 devices (PS204) or 8 devices (PS104) respectively.

The last device of a serie should be connected with a terminating impedance (470 Ohm). It is plugged into the OUT connector of the last device of a row.

Splitbox/Power supply PS104 or PS204

OUT 1-4

DMX-OUT connector for further splitbox
230V electrical mains input

DMX-cable XLR 5pin

DataPower cable XLR 4pin

DMX-control desk

Operating position top!

Color changer

Color changer

Color changer

IN    OUT

OUT connector for further color changer

IN

When operating with a *Licht-Technik* mixer panel it is not necessary to use a splitbox. These mixers come with a built in power supply.



IN

85 – 264V electrical mains input

LT

Licht-Technik mixer
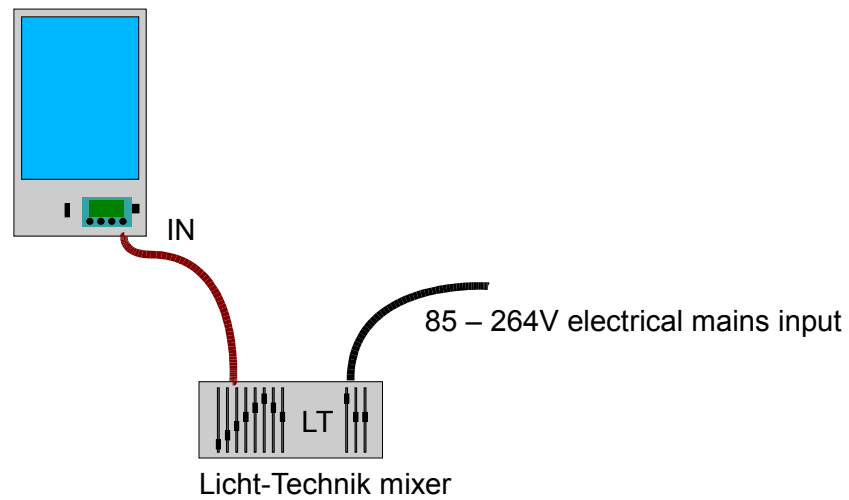
Maximum length of DATA Power cable is also 80m. The last device should be connected with a terminating impedance (470 Ohm). Total number of devices is 4.
If more devices should be connected, a PS104 (max. 8 color changer cyclight) or PS204 (max. 12 color changer cyclight) must be used. Cabling is like illustration on  page 7.

| | *Licht-Technik* mixer | PS104 | PS204 |
|---|---|---|---|
| | | | |
| Color changers per output (max) | 4 | 4 | 4 |
| Color changers total (max) | 4 | 8 | 16 |

# Dimensions of string and frames

We recommend filters of Rosco™ type Supergel©.

In addition, cut your gels to fit on the rolls in the same way like the gel is on original gel roll. You can avoid disturbing movement noise and a excessive wear of the foil.

## Normal length

Normal length is the described frame or dark color frame size below.
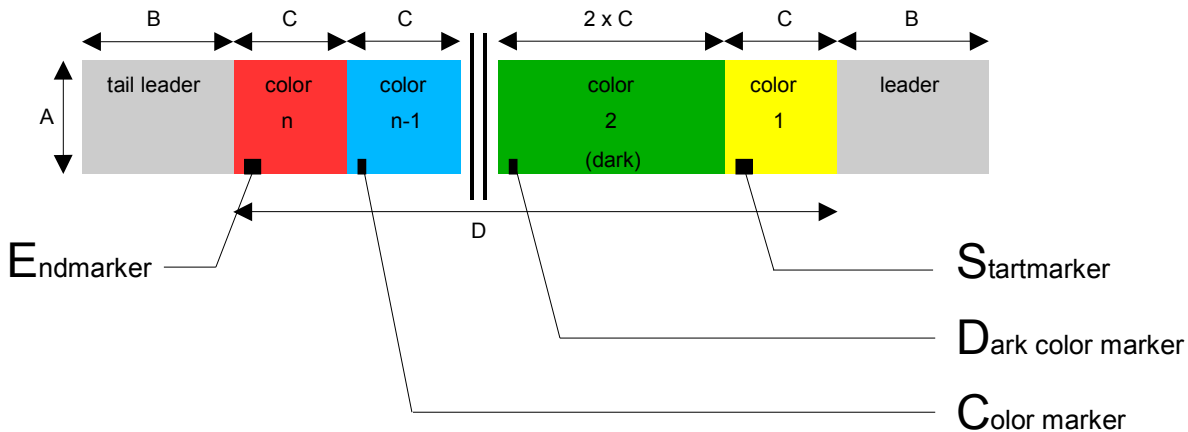


Front view! (Not lamp side)

| Type | Height A (mm) | (tail-)leader B (mm) | Color C (mm) | Darkcolor 2 x C | Stringlength D (mm) | Max Colors |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
| MM350 Cyclo | 212 | 480 | 480 | 960 | 6720 | 12 |
| MM500 Cyclo | 253 | 635 | 635 | 1270 | 12700 | 18 |

Tapes with normal frame dimensions can have up to 25 colors (depends of the size of device). A dark color frame must be considered as two normal colors. For example: A string with the length of 20 colors and two dark colors has a maximum of 18 different color frames.

White diffusion proved itself extremely efficient as leader and tail-leader, since this type of material is fitting very closely and can compensate any inaccuracies resulting from the tape in procedure. We recommend to use a transparent adhesive tape with high temperature stability for this purpose.

## Other dimensions

Other dimensions are individually strings cut by the user. With these, the user can realize rainbow or sunrise effects for example.

The number of colors, the length of the frames and the position of the marker can be varied within the following restrictions:

- minimum number of markers: 2 (Begin and end).
- do not exceed the maximum number of markers (depends of the size of the device) inclusive  begin- and endmarker.
- do not exceed the maximum tape length (length D, see table page  9)
- do not vary the height of the tape (length A, see table page  9)
- do not vary the (tail-)leader of the tape (length B, see table page  9)


The positioning of aluminium markers is described in the next chapter.

# Positioning of aluminium markers

The color changer can recognize the individual color positions with the light sensor and attached aluminium markers. This allows an exact positioning even when the foil strips have expanded because of heat.

The markers can be attached either when the string is inserted or not. You can stick them at the rear or front side of the tape. They have to consist of a light impermeable material (aluminium). They can also be ordered from our company.

Dimensions of the markers:

| Type of marker | Dimensions (H x L) | |
|---|---|---|
| | | |
| Begin- and Endmarker | 25 x 25 | |
| Color marker | 6,5 x 25 | vertically |
| Dark color marker | 13 x 25 | vertically |

*Startmarker:*
It is attached at the beginning of the first color frame. The middle of the Marker should be in the light sensor when the color frame is in middle position.
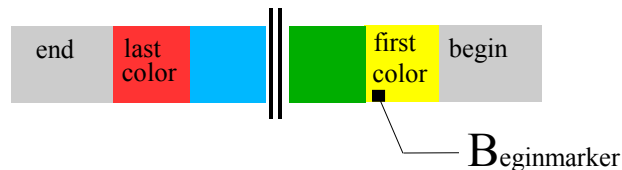


*Endmarker:*
It is placed at the beginning of the last color. The middle of the marker should be in the light sensor when the color frame is in middle position.



*Colormarker:*
It is placed upright at each color frame at the position shown below. It should be inside the light sensor when the color frame is in middle position.
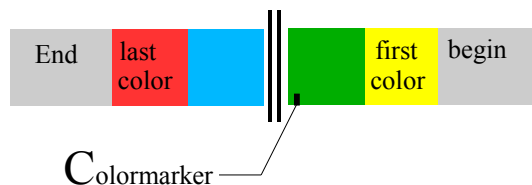
*Dark color marker:*

It is placed upright at each color frame at the position shown below. It should be inside the light sensor when the color frame is in middle position.

Note that the first and the last color must not be a dark color!
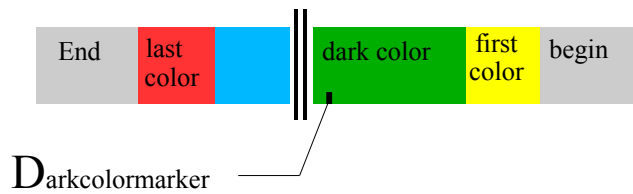


$D$arkcolormarker

The postion of the markers on the color frame:
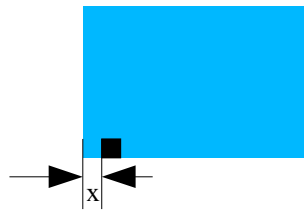


| | Position x in mm | |
|---|---|---|
| | MM350 Cycl. | MM500 Cycl. |
| | | |
| | | |
| Start marker | 50 | 50 |
| End marker | 50 | 50 |
| (Dark-)color marker | 55 | 55 |

Put the marker concisely to the bottom of the frame!

# Dimensions of the string at a look

(All dimensions in mm! )

**Sizes of markers:**   Begin- and Endmarker:  25 x 25mm
Colormarker:          6,5 x 25mm vertical
Darkcolormarker:       13 x 25mm vertical (**V2.1 or higher**)

**At the bottom end, the marker has to be placed consicely with the bottom end of the gel!**
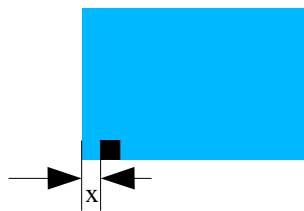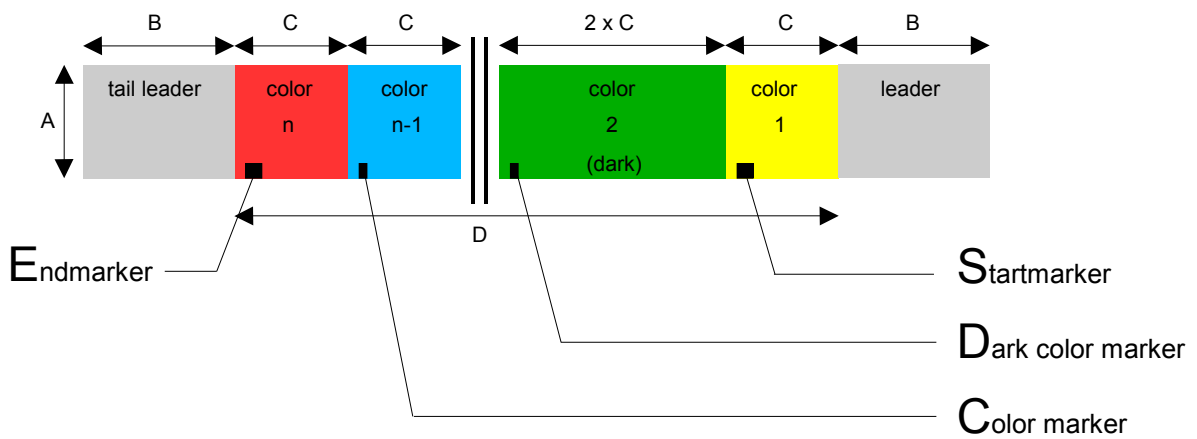


| MagMax™ Cyclo Serie | | | Use dark color markers only with Version 2.1 or higher | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Position x | | |
| Typ | | | Height A | Color Length C | String Length D | Max. Colors | | Color marker | Begin marker | End marker |
| MM350 Cyclight | | | 212 | 480 | 6720 | 12 | | 55 | 50 | 50 |
| MM500 Cyclight | | | 253 | 635 | 12700 | 18 | | 55 | 50 | 50 |

# Getting started

Please read the safety and operating instructions on page 5 **before** setting into operation. After that, cable the olor changer like illustrated on page 7 or page 8.

After switching on, the LCD-display shows the *Licht-Technik* moving text in the first line. The second line shows the programmed DMX address and the corresponding DMX value (8 Bit real DMX value, 0..255). For example: A001:128. This is the normal operation mode.

If the cartridge is not inserted, the device will show "insert cassette". Now you can insert the cartridge with color string.

If a cartridge is inserted and scanned, the device is ready to be controlled by the light panel after programming the DMX adresses (menu P01 - P04. Refer to page 18,continuing).

Insert the cartridge only in power on state of the device. On the other hand, the device can not recognize the change. The result are incorrect stops and pulling out the string.

In normal operation mode it is possible to switch the LCD backlight with the UP key on or off respectively.

If you press the DOWN key the number of colorframes will be shown in the second line of the display.

With the OK key you can force the scrolling text to start new at the beginning to read the software version quickley.

The MENU-key allows the user to reach the programming mode. Please refer to page 18 for further programming possibilities.

The factory pressettings (refer to page 35) can be resetted by pressing the keys Up and Ok <u>during switching on</u> the device.

Please refer to the Description of programming on page 18 (continuing) for further programming possibilities.

**Please note that the tape can not be moved during programming!**

# Inserting the foil strip into the cartridge

Left hand foil drum (Motor side)

Right hand foil drum

Spring

Wound up string roll

Adhesive tape

Adhesive tape

Tense knob
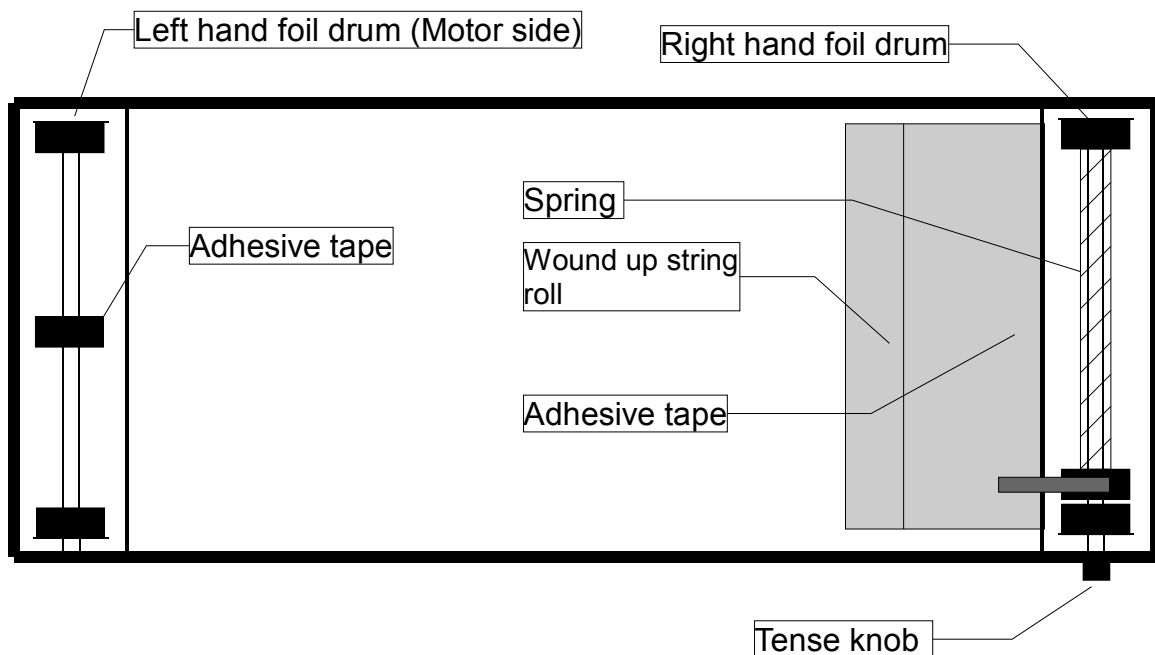
**Important!**
**Always fix the string only on the middle drum. Never on the bottom or top drums!!**

Wind up the foil strip in so that the open end shows the leader. Insert the color tape into the cartridge as indicated. Fix the end with an adhesive, temperature stable tape. Wind the complete color tape onto the right-hand foil drum. Now center and tape the tail-leader on the left-hand foil drum. Tense the foil strip by retaining the left-hand drum and turning the right-hand knob in clockwise direction.

Note: Too much tension is the reason for failure and broken springs.

**Important:** Check if all of the individual aluminium markers are moving through the sensor.

# User interface

Moving text with type of device, software version and service telephone number

1. DMX-address

Value of 1. DMX-Address

Button UP

Button OK

Button DOWN

Button MENU
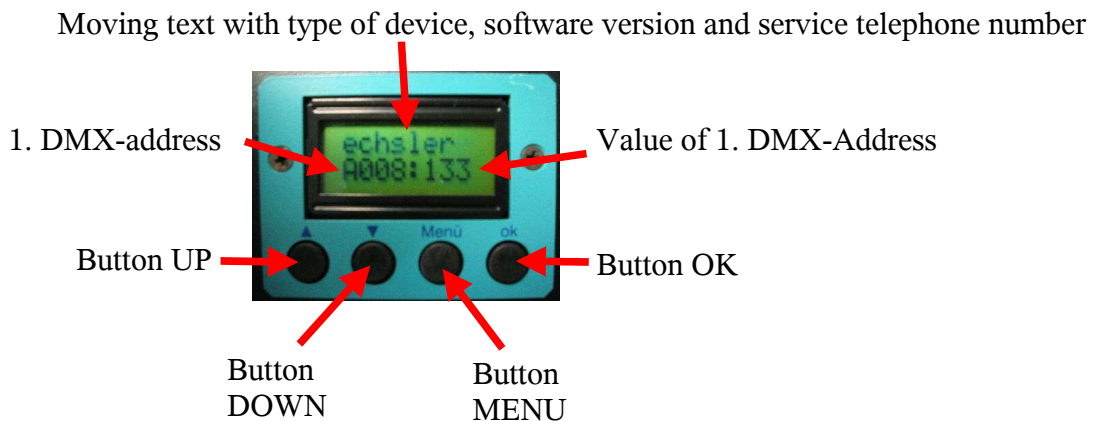
The **LCD-Display** indicates several information in normal operation mode. The first line shows a moving text with service telephone number. The second line shows the current DMX address and the incoming value (0..255).
The four buttons enables the user to program the device. That is described in the next chapters.

# General programming hint

Do not forget to bring back the device in normal operating mode after programming (Press **two times OK**). Otherwise the device will not move.

Some menus are not accessible in some modes. For example if the DMX-address mode is set to 1 (only first address programming), the menu P02 (DMX-address speed) and P03 (DMX-address fan) is not accessible and necessary.

# Display lighting ON/OFF

During normal operation mode the LCD backlight is switched off to avoid a disturbing light. Only if an error occurs or during programming the light will be switched on automaticly. The user can also switch it on manually to see what is indicated.

**Condition:** Color changer is on working level (default state)

**Operation:**

depress. Display light **ON**

depress. **Display light OFF**

# Reset to factory presettings

The following explains how to reset the device to factory presettings (refer to page 35).

**Operation:**

Power down color changer.

Menü + ▲     depress.

Power up device and wait until

reinit okay is indicated.

Release all buttons.
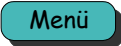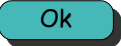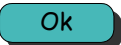
Wait until initialisation run is done.

# P01 DMX address color changer position

At this point the **DMX address of the color changer position** can be adapted to the address of the light mixer panel.

**Range of values:** Address 1..512

**Operation:**

| | | |
|---|---|---|
| **Menü** | depress | Now you are at the menu level. The last adjusted menu point is displayed, e.g.:<br>P02: DMX-Address string speed |
| ▲ ▼ | depress | ...until  P01: DMX-Adress string Position is displayed. |
| **Menü** | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust the desired address. |
| **Ok** | depress | You are back on menu level. |
| **Ok** | depress | The equipment is ready for operation. |
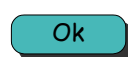
# P02 DMX address color changer speed

At this point the **DMX address for string speed control** of the color changer can be adapted to the address of the light mixer panel.

If the value is set to 0, the internal adjusted speed of P20, page 26, will be used. In this case it is possible to operate the color changer without a seperate speed channel.

**Range of values:** Address 0..512
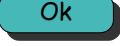
**Operation:**

| | | |
|---|---|---|
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |
| ▲ ▼ | depress | until P02: DMX address string speed is displayed. |
| Menü | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust the desired DMX address. |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |

**Caution!**

If the speed channel is set to 0 the value that is adjusted at menu P20 color changer internal speed, if P02=0 (refer to page 26) will be used as speed value. In this case it is possible to operate the color changer without a seperate speed channel. This means, there is no speed control by the light mixing panel!
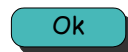
# P03 DMX address fan intensity

At this point the **DMX address for fan intensity** can be adapted to the address of the light mixer panel.

If the value is set to 0, the internal adjusted speed of P22, page 27 will be used. In this case it is possible to operate the color changer without a seperate fan intensity channel.

**Range of values:** Address 0..512

**Operation:**

| | | |
|---|---|---|
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |
| ▲ ▼ | depress | until P03: DMX address fan intensity is displayed. |
| Menü | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust the desired DMX address. |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |

## Caution!

If the fan intensity channel is set to 0 the value that is adjusted at menu P22 internal Fan intensity (refer to page 27) will be used as fan intensity value. In this case it is possible to operate the color changer without a seperate fan channel. This means, there is no fan control by the light mixing panel!

# P04 DMX-adress color changer move mode

At this point the **DMX address for color changer move mode** can be adapted to the address of the light mixer panel. With this value, the value of P11 (move mode color changer, page 25) can be set.

If this value is set to 0, this function is switched off.

This DMX-address is not automatically set whith P08 (page 22) function. This is to avoid unintended programming of P11.

DMX-range of value for setting P11:

| | | |
|---|---|---|
| 10 - 20: | Frame-by-Frame - Mode | (P11=1) |
| 21 - 30: | Halbframe - Mode | (P11=2) |
| 31 - 40: | Linear - Mode | (P11=0) |
| all others: | no modification of P11 | |

A new move mode for P11 is set, when DMX value is 5 seconds in the corresponding range of value.

**Range of value:** Adress 0..512

**Operation:**

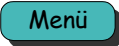| | | |
|---|---|---|
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |
| ▲ ▼ | depress | until P04: DMX address color changer move mode is displayed. |
| Menü | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust the desired DMX address. |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |

# P08 One address mode DMX-address

At this point you can decide if the **DMX addresses** should be programmed **individual** or **only the first address** is set and the others follow. At Licht-Technik equipment you can go both ways: Adjust only one address (except P04) or all 6 addresses.
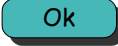
An exception is P04. This is to avoid unintended programming of P11.

**Range of values:**
P08 =  1      set only the first address (P01) the others will follow to this.
P08 =  0      you can adjust all 6 addresses individually.

**Operation:**

| | | |
|---|---|---|
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |
| ▲ ▼ | depress | until P08: DMX addresses 0:individual 1: only first address is displayed. |
| Menü | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust the desired addressing mode. |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |
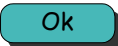
**Note:**
If a 1 is programmed at this menu, you can not set the DMX-addresses in P02, P03, P04, P05, P06. Only the address for color changer position (Menu P01) can be set. For exampe, the color changer speed address ist automatically one higher than the address for color changer position . The fan intensity address is automatically two higher than the address for color changer position and so on.

# P09 Dark color mode speed

At this menu you can program the **moving speed for dark colors**.

**Range of values:** 0..255

**Operation:**

| | | |
|---|---|---|
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |
| ▲ ▼ | depress | until P09: Dark color mode speed is displayed. |
| Menü | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust the desired speed. |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |

# P10 Dark colors

At this point the dark colors can be **checked** and, if necessary, **corrected**. It is not necessary that the corresponding marker is a dark color marker. Please note that the first and the last color cannot be set as a dark color, since these frames are marked with a begin- or an endmarker, therefore they can´t be marked with a dark color marker.

**Range of values:** 1 to number of colors

**Operation:**

[Menü] depress   Now you are at the menu level, the last adjusted menu point is displayed, e.g.:
P01: DMX-address string position

[▲] [▼] depress   until P10: dark colors is displayed.

[Menü] depress   The second line indicates either:
C02:----     if color 2 is a dark color.
or
C02:dark  if color 2 is a dark color.

Now you can choose a color number with the keys [▲] [▼] The color changer is moving to the selected color. By depressing [Menü] you can toggle the current color to be a dark color or not. The display indicates accordingly to your settings.

[▲] [▼] depress   You are back at menu level.

[Ok] depress   The equipment is ready for operation.

# P11 Color changer move mode

At this point you can switch between **linear**, **frame-by-frame** and **halfframe** mode. In linear mode, every position of the color tape is responsive to the light mixer panel.
In frame-by-frame mode only full colors are responsive to the panel – under the condition that each full color is marked with an aluminium marker (refer to section *Positioning of aluminium markers,* page 11).
In halfframe mode the device positions at the middle position between two markers. So there are two colors, each by 50%, are in the light.

**Range of values:**   0 = Linear mode
                        1 = Frame-by-frame mode
                        2 = Halfframe mode

**Operation:**

| | | |
|---|---|---|
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |
| ▲ ▼ | depress | until P11: move-mode: 0: linear 1:frame by frame 2:halfframe is displayed. |
| Menü | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust the desired move mode. |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |

# P20 Color changer internal speed

At this point you can define at which **speed** the color changer shall carry out positioning process when **no DMX channel** for speed control is  programmed (P02, page 19 is set to 0).

**Range of values:**  0..255

**Operation:**

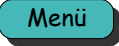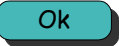| | | |
|---|---|---|
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |
| ▲ ▼ | depress | until P20: color changer internal Speed, if P02-Value 0 is displayed. |
| Menü | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust the desired value. |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |

## Caution!
This value is only the speed value if P02, page 19 is set to 0!

# P22 Internal fan intensity

At this point you can adjust **internal fan intensity** if no DMX channel for the fan is programmed (P03, page 20 is 0).

**Range of values:** 0..255

**Operation:**

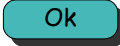| | | |
|---|---|---|
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |
| ▲ ▼ | depress | until P22: internal fan intensity, if p03 = 0 is displayed. |
| Menü | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust the desired value. |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |

## Caution!
This value is only the fan intensity value if P03, page 20 is set to 0!

# P24 Number of color frames

At this point you can check the **number of colors** of the tape. If there is the value 0 the color string is not scanned or the cartridge is not inserted. In this case the color changer doesn´t move. At this menu nothing is programmable. It´s just for information.

**Range of values:** 0 .. number of color frames

**Operation:**

| | | |
|---|---|---|
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.:<br>P01: DMX-address string position |
| ▲ ▼ | depress | until P24: number of color frames  is displayed. |
| Menü | depress | The second line indicates the number of frames. |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |

# P28 Color changer handmode

At this point it is possible to move the color frames by **hand**. Only full color frames can be selected (like in frame-by-frame modus). A DMX signal is not necessary.

**Range of values:**  1 .. number of color frames

**Operation:**

Menü  depress  Now you are at the menu level, the last adjusted menu
point is displayed, e.g.:
P01: DMX-address string position

▲  ▼  depress   until P28: color changer handmode is displayed.

Menü  depress   The second line indicates the current frame number. e.g.:
Color:01

Now you can choose a color with the keys ▲  ▼ The color changer moves to the current color number.

Ok  depress   You are back at menu level.

Ok  depress   The equipment is ready for operation.

# P30 Show DMX

This feature helps to **check** the incomming **DMX** values. In addition at this point it is possible to set the DMX channel which value should be indicated in normal mode. The value of this address will be displayed in normal mode as long as the position-address is not changed (in P01) or the device is disconnected from power supply.
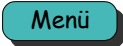
**Range of values:** Address 1..512

**Operation:**

| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |
| ▲ ▼ | depress | until P30: show dmx is displayed. |
| Menü | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust and/or check the desired DMX address. |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |

# P32 User language

Here you can select German or English **language**.

**Range of values:**  0: German
                      1: English

**Operation:**
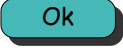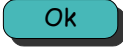
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |

▲ ▼   depress  until P32: Language 0:German 1:English is displayed.

Menü  depress  The second line indicates the currently adjusted value.

▲ ▼   depress  Adjust 0 for German or 1 for English.

Ok  depress  You are back at menu level.

Ok  depress  The equipment is ready for operation.

# P35 Unit number (Netspider only)

Here you can set the **unit number** for netspider systems. This number is only necessary in Netspider systems. In normal DMX systems, this number has absolutely no effect.

**Range of values:** 0..9999

**Operation:**

| | | |
|---|---|---|
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |
| ▲ ▼ | depress | until P35: unit number (netspider only) is displayed. |
| Menü | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust the desired unti number |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |
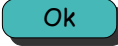
# P51 Auto move (Demomode)

This mode is for **auto moving the string**. This means the string is moved automatically from one end to the other. A DMX signal is not necessary. The speed of moving is the internal color changer speed, set in P20, page 26. The fan can be controlled with the internal mode, set in P22, page 27.

Range of values:  0     Auto move off
                  1     Auto move on

**Operation:**
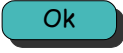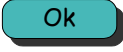
| | | |
|---|---|---|
| Menü | depress | Now you are at the menu level, the last adjusted menu point is displayed, e.g.: P01: DMX-address string position |
| ▲ ▼ | depress | until P51: Auto move (demomode) 0:off 1:on is displayed. |
| Menü | depress | The second line indicates the currently adjusted value. |
| ▲ ▼ | depress | Adjust the desired value. |
| Ok | depress | You are back at menu level. |
| Ok | depress | The equipment is ready for operation. |

# Technical data

Weight and dimensions:

| | | |
|---|---|---|
| MM-350-Cyclight: | (Width x Height x Depth) 250mm x 625mm x 180mm | 5 kg |
| MM-500-Cyclight: | (Width x Height x Depth) 305mm x 800mm x 110mm | 5 kg |

Connected loads:   24 V DC,  max 1,2A, 30W

PIN assignment:

Data-Power-cable:     4pin XLR connector
Housing: shield

| PIN1 | 0V | cross-section min. 0,75 mm$^2$ |
|---|---|---|
| PIN2 | Data- | cross-section min. 0,25 mm$^2$ |
| PIN3 | Data+ | cross-section min. 0,25 mm$^2$ |
| PIN4 | +24V DC | cross-section min. 0,75 mm$^2$ |

Data cable:     5pin XLR connector

| PIN1 | Shield | cross-section min. 0,25 mm$^2$ |
|---|---|---|
| PIN2 | Data- | cross-section min. 0,25 mm$^2$ |
| PIN3 | Data+ | cross-section min. 0,25 mm$^2$ |
| PIN4 | not connected | cross-section min. 0,25 mm$^2$ |
| PIN5 | not connected | cross-section min. 0,25 mm$^2$ |

**Please note:**  To avoid electrical and magnetical radio interferences, please use only screened cables. This improves also a safe operation of the devices.

The DMX wires must be twisted pair and shielded seperately.

# Factory presettings

| Menu | Description | Value | Remark |
|:---:|---|:---:|---|
| | | | |
| P01 | DMX address color changer position | 1 | 0%:  Color 1      100%: last color |
| P02 | DMX address color changer speed | 2 | 0%:   no speed 100%: full speed |
| P03 | DMX address fan intensity | 3 | 0%:   no intensity 100%: full intensity |
| P04 | DMX adress color changer move mode | 0 | off |
| P08 | One adress mode DMX-address | 0 | seperated |
| P09 | Dark color speed | 50 | |
| P10 | Dark colors | none | |
| P11 | Color changer move mode | 1 | Frame by frame |
| P20 | Internal speed color changer | 255 | |
| P22 | Internal fan intensity | 255 | |
| P24 | Number of color frames | none | |
| P28 | Color changer handmode | 1 | |
| P30 | Show DMX | 1 | |
| P32 | Language | 0 | German |
| P35 | Unit number Netspider | 0 | |
| P51 | Color changer automove | 0 | off |

**Note:**
The factory pressettings can be resetted by pressing the keys Up and Ok during switching on the device.

# Error messages / Failures

### No display after Power up:
- Check cable connections to the device
- The Equipment houses a slow-blow fuse for currents of 2A protecting the Color changer from wrong polarities in the supply line. When fuse is blown, it is absolu tely necessary to check cable and polarity (PIN1 = 0V, PIN4 = 24V).

### Error 30: Color changer motor/potentiometer blocked
- Check, if there is any foreign object inside the device
- Check, if the drive can move easily
- Check cable connections to motor and potentiometer connections are reversed, if motor or potentiometer was changed

### Error 28: EEPROM
- Please contact *Licht-Technik*

### Error 21: DMX signal reversed
- Check input line if Pin 2 and Pin 3 are interchanged.
- Check DMX supply cable to the Power supply unit (splitbox) if Pin 2 and Pin3 are interchanged

### Error 20: DMX signal missing
- Check if one or more pins of the input cable to the device are broken.
- Check DMX supply cable to the Power supplay unit (splitbox) if used, DMX OK LED must light.
- The light mixer panel is not operative.

### Error 41: Too many frames
- Make sure that there are not more than the given number of markers used. Re fer to page 10.

### Error 43: Color string too long
- Make sure that the tape is not longer than dimension D (total length of tape). Refer to page 9.

### Error during putting in/scanning the foil
- Check if the markers are moving through the light sensor. Make sure that the markers are not inclined. They have to be exactly vertical.
- Wrong markers and strong front light can lead to a malfunctioning of the sensor
- Settings for dark and normal colors can be corrected at P10 dark colors (page 24)

If the error cannot be recovered, please contact company Licht-Technik

# Warranty

The warranty for this Color changer is 2 years. It comprises any repair of failures – free of charge – which can be proved to result from defects of fabrication.

Warranty expires when:

- the device was modified or attempted to be repaired
- damages were caused by the intervention of foreign persons
- damages are due to noncompliance with the operating instructions
- the device was connected to an incorrect voltage or incorrect type of current
- the device was incorrectly operated or when damages were caused by negligent handling or misusage

# Further information

This document and the information contained therein are subject to copyright and neither the whole nor any part of it may, and this is also valid for the described product, be reproduced, copied or recorded in any form without the prior written authorization of *Licht-Technik Vertriebs GmbH*.

The products of *Licht-Technik GmbH* are subject to constant development. Therefore *Licht-Technik* reserves the right to modify components, motors and also technical specifications any time and without prior notice.

All maintenance and servicing works related to the product  must be carried out by the company *Licht-Technik. Licht-Technik* shall not assume any liability for losses or damages of any kind being the results of inexpert servicing.

# EC Declaration of Conformity

1.     **Type of device/product**                                   MagMax type Cyclight

2.     **Name and address of manufacturer**                Licht-Technik Vertriebs GmbH
                                                                                  Osterwaldstraße 9-10
                                                                                  80805 München

3.     **The manufacturer is responsible for this declaration**

4.     **Item of declaration**                                      MM-350-Cycllight 02, MM-500-Cyclight 02

5.     **The described item is conform to the following guidelines/regulations**

       RICHTLINIE 2014/30/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES  vom
       26. Februar 2014  zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die
       elektromagnetische Verträglichkeit

       RICHTLINIE 2011/65/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 8. Juni 2011
       zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten

6.     **Applied and conform to harmonized standards in particular**

       DIN EN 55015; VDE 0875-15-1:2016-04 - Grenzwerte und Messverfahren für Funkstörungen von
       elektrischen Beleuchtungseinrichtungen und ähnlichen Elektrogeräten
       (CISPR 15:2013 + IS1:2013 + IS2:2013 + A1:2015); Deutsche Fassung EN 55015:2013 + A1:2015

       DIN EN 61547; VDE 0875-15-2:2010-03 Einrichtungen für allgemeine Beleuchtungszwecke –
       EMV-Störfestigkeitsanforderungen (IEC 61547:2009); Deutsche Fassung EN 61547:2009

7.     **Not applicable**

8.     **This declaration is invalid if the device is changed techically and/or unintended use.**


**Signed for**                                                      Licht-Technik Vertriebs GmbH

**Place and date of description**                        München 6.9.2017


--------------------------------------------                      --------------------------------------------
Uwe Hagenbach (Geschäftsführer)                      Bernhard Grill (Geschäftsführer)