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Deutsche Bank  
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BLZ 700 700 10

HRA-Nr. 88773  
Ust.-IdNr.: DE 129402596  
Amtsgericht München

Licht-Technik Vertriebs GmbH

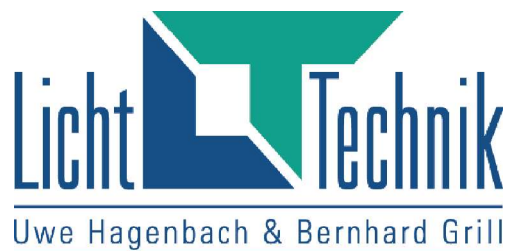
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## **Color changer / dimmer shutter combination type MagVader for automatic light coloring and dimming of headlights (Suggestion for tendering text)**

Color changer / dimmer shutter combination for lamps with lenses from 200mm up to 430mm diameter.



The device must be designed to control color and intensity of a headlight. The device must realize the following functions and specifications:

Power	24V DC max. 2,5A
Fuse	6,3 A slow blow
Max Temperature	0..40 °
Protection	IP20
Color	Black
Control	DMX512 1990 USITT standard
Internal control	32 Bit CPU, 2 PID controller
Speed color changer	< 4s, full length string
Speed dimmer shutter	< 0.2s open to close and backwards

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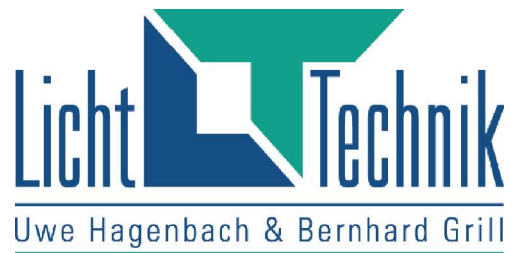
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Housings must be made of high density aluminium.

The surface must be powder coated, heat resistant, scratch resistant, not light reflectable. Preferable color is black.

All mechanical and electrical parts must be durable heat resistant or protected by an isolation.

The power circuits of the lamp and the device must be separated. They must not influence each other.

All drives must have position sensors to recognize the actual position and feedback this to the control electronic.

It must be CE-certified.

The motors and the gearboxes should be designed in low noise construction for operating possibility also during a production.

Fast dynamic movement as well as clean, smooth starts and stops without any jerking must be guaranteed.

The color changer unit must have a cartridge system to allow a quick and safe changing of the gel string.

There must be no color changer initialisation run after power up.

An automatic recalibration system for the frame positions must be supported. Realized via aluminium markers and light sensor.

Frame positions must be read and activated automatically.

A low noise cooling system for the gel string must be implemented (e.g. fan).

Complete control of all functions must be realized via DMX512-1990, USITT standard.

Speed control for the gel string and fan must be implemented.

Minimum scrolling time from end to end with maximum number of frames must be less than 4s.

Color changer controlling modes must be: Frame-by-frame, linear, speed mode, time drive mode, single channel mode with 8 Bit and 16 Bit.

Dimmer shutter controlling modes must be: speed mode, Time drive mode, single channel mode with 8 Bit and 16 Bit.

The firmware of the device must be able to detect any blockings or defects in the drive. In addition it must have an overcurrent protection, designed in the hardware of the electronics.

The drives must be driven in low-voltage implementation to avoid any danger to humans.

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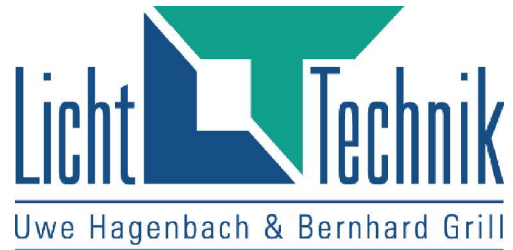
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The user interface must be lightened. In addition there should be the possibility to switch the light off.

The programming possibilities must be indicated in plain text.

Real time drive from 1 second to 2 hours must be possible for the color changer unit.

Real time drive from 0.2 second to 2 hours without visible steps must be possible for the dimmer shutter unit.

The user language must be available in German as well as in English language.

Special sizes and rectangular light-hole should be available.

manufacturer: Licht-Technik or equal  
type: MVxxx  
(xxx = size 200 to 430, depends on lamp)

## Technical data

### Dimensions and Weight (without lampholders):

Type	Weight	Height	Length	Depth
MV 200	7,7 kg	485 mm	405 mm	125 mm
MV 250	10,0 kg	510 mm	530 mm	130 mm
MV 300	10,5 kg	585 mm	535 mm	140 mm
MV 350	13,3 kg	636 mm	630 mm	170 mm
MV 430	16,0 kg	720 mm	720 mm	140 mm

**Connected loads:** 24V DC, max. 2,5 A

### Pin assignment:

<u>Data-Power-cable:</u>	4pin XLR Housing: shield PIN 1: 0 V PIN 2: Data – PIN 3: Data + PIN 4: +24 V DC	min. cross section 0,75mm <sup>2</sup> min. cross section 0,25mm <sup>2</sup> min. cross section 0,25mm <sup>2</sup> min. cross section 0,75mm <sup>2</sup>
<u>DMX-data cable:</u>	5pin XLR PIN 1: 0V PIN 2: Data – PIN 3: Data + PIN 4: not connected PIN 5: not connected	min. cross section 0,25mm <sup>2</sup> min. cross section 0,25mm <sup>2</sup> min. cross section 0,25mm <sup>2</sup> min. cross section 0,25mm <sup>2</sup> min. cross section 0,25mm <sup>2</sup>

**Caution:** To comply EMV rules our equipment has to be connected with shielded cables. This also for reliability of our equipment.

The DMX wires must be twisted pair and shielded separately.

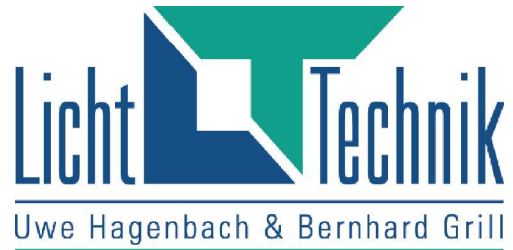
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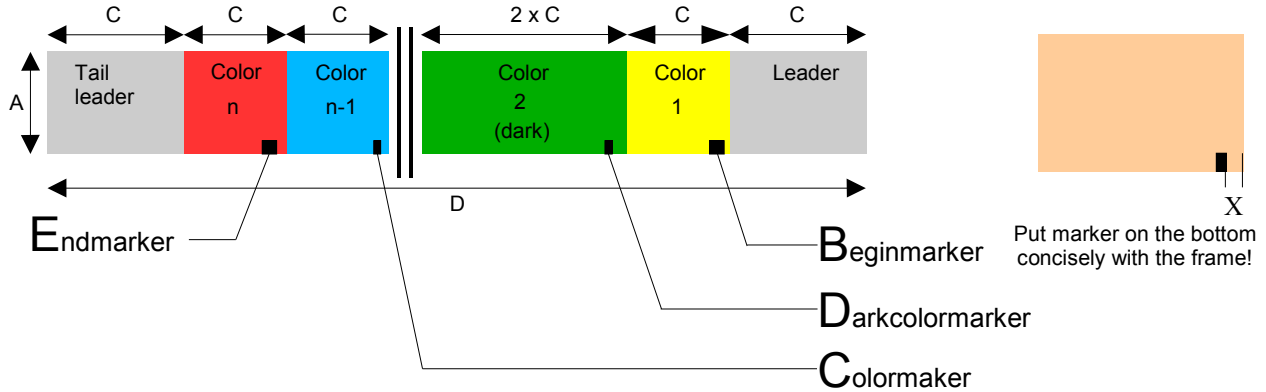
## Dimensions of strings of Licht-Technik color changers

(All dimensions in mm! )

Sizes of markers:

Begin- and Endmarker:  
Colormarker:  
Darkcolormarker:

25 x 25mm  
6,5 x 25mm vertical  
13 x 25mm vertical



MagMax™							Position x			Revolutions for foil tensioning
Type	Color-code Cartridge	Height A	Color Length C	String Length D	Max. Colors	Color marker	Begin marker	End marker		
MM200		216	280	6160	20	50	80	15		
MM250		275	380	7980	19	70	75	45		
MM300		318	450	9000	18	70	75	45		
MM350		358	480	8640	16	65	75	45		
MM430		450	530	8480	14	60	75	20		
MM500		520	640	8960	12	65	80	30		
MM500XL		700	640	8960	12	65	80	30		
MM8-Lite		700	530	8480	14	60	75	20		

MagMax™ Mk2		MagVader								
Type	Color-code Cartridge	Height A	Color Length C	String Length D	Max. Colors	Position x				
						Color marker	Begin marker	End marker		
MM200 Mk2	Green	225	305	6710	20	65	80	35	5-6	
MM200 Mk2-25	Green	225	305	8235	25	65	80	35	6-7	
MM250 Mk2	Red	276	370	8140	20	65	80	35	5-6	
MM300 Mk2	Black	320	440	9680	20	65	80	35	10-11	
MM300 Mk2-25	Black	320	440	11880	25	65	80	35	12-14	
MM350 Mk2	Yellow	370	490	9800	18	80	95	40	10-11	
MM430 Mk2	Blue	450	550	9900	16	80	95	40	12-14	
MM500 Mk2	Grey	530	630	10080	14	80	95	40	20-22	

CC-Serie							Position x		
Type	Color-code Cartridge	Height A	Color Length C	String Length D	Max. Colors	Color marker	Begin marker	End marker	
CC200		225	305	9760	30	50	50	50	
CC250		276	370	9990	25	55	50	50	
CC350		370	490	9800	18	75	60	50	

MagMax™ Cyclo Serie							Position x		
Typ	Color-code Cartridge	Height A	Color Length C	String Length D	Max. Colors	Color marker	Begin marker	End marker	
MM350 Cyclorama		212	480	6720	12	55	50	50	
MM500 Cyclorama		247	635	6720	12	55	50	50	

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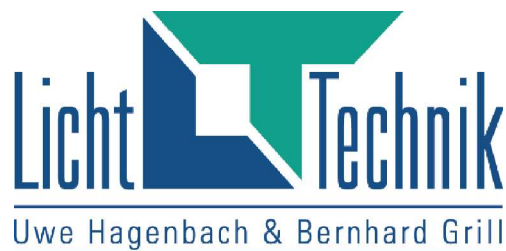
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## Declaration of conformity

**Manufacturer:** Licht-Technik Vertriebs GmbH  
**Address:** Osterwaldstraße 9-10  
80805 München

declares that the product:

**Name of product:** MagVader (Color changer / dimmer shutter combination)  
**Type of product:** MV200/MV250/MV300/MV350/MV430

corresponds to the following specifications under strict observance of the installation instructions and technical specifications:

**Standard 2004/108/EG of the European Parliament and the council from  
15. December 2004  
for law provision adaptation of the member states concerning the electrical  
compatibility and for  
abrogation of standard 89/336/EEC.**

The device passed the test. A testreport is available at company Licht-Technik Vertriebs GmbH.

Munich 19.9.2005

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Uwe Hagenbach / Bernhard Grill  
Managing directors