YPOC CMY 700

Instruction Manual

from software version 1.53
(instruction version 1.33)

GERMAN LIGHT PRODUCTS

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Notes:

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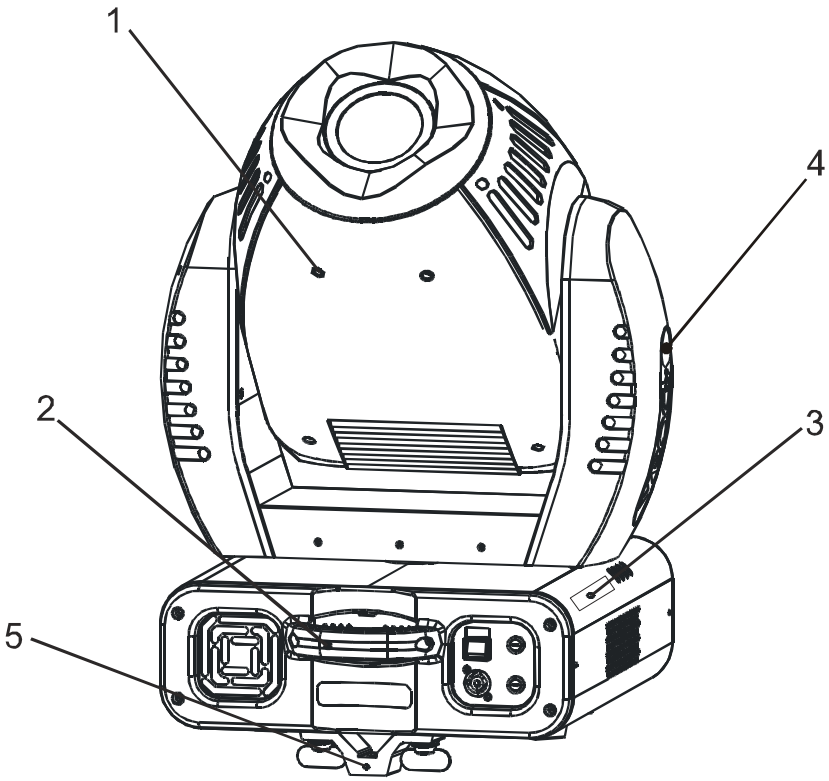

1. Moving Head
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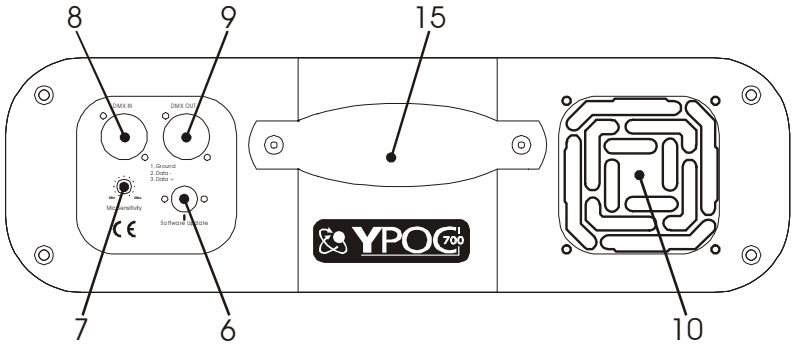
3. LED- Display (Data entry)
4. Head locking system (single-side n 45° steps)
5. Camlock mounting system



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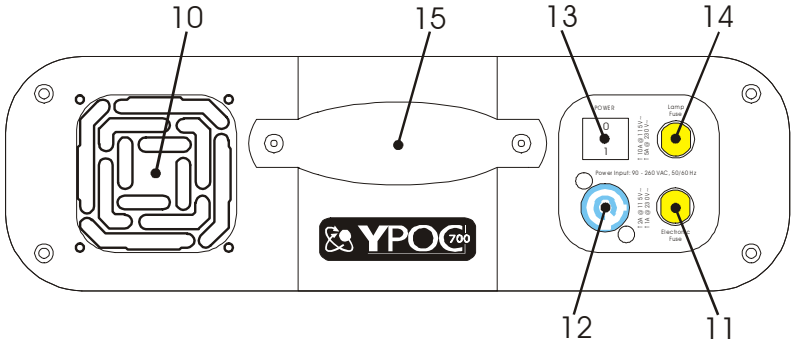


1.1 Safety Instructions

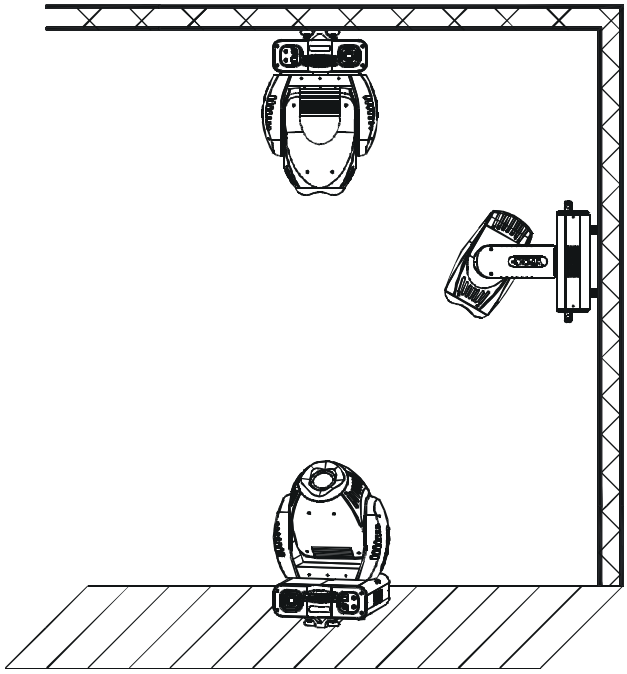
The **YPOC 700 CMY** is a High-Tech Product. To guarantee a smooth operation, it is necessary to respect the following rules.
The manufacturer of this device will not take responsibility of damages through disregard of the information in this manual. Warranty claims will be cancelled.

1. Make sure before putting into operation, that the fan and the air inlets are clean and not blocked by anything.
2. **Attention:** Don't touch the device during the operation. This can cause injuries or damages.
3. **Unplug the YPOC 700 CMY from the AC outlet before any service.**
4. It is necessary to wait at least 30 minutes after disconnecting the AC before you open the **YPOC 700 CMY**. Please do not touch the bulb of the lamp if you are not absolutely sure it is cold. **-- Danger of BURNING --**
5. Never look directly into the beam of the lamp. You risk injury of your retina and blindness.
6. Pay attention of the maximum lamp operation time. You have to change it if the lamp shows any deformations or damages. The same is with all glass components, color filters, lenses and mirrors.
7. To allow a secure operation, follow also the Installation guide described in chapter 2. Operating the **YPOC 700 CMY** without suited safety aids like Safety cables or clamps/hooks can increase the risk of an accident.
8. The installation should be done by qualified staff only. You need to pay attention to the common rules of technology that are not explicit mentioned in this manual.
9. Use only original spare parts. Any structural modification will cancel all warranty claims.
10. This device is equipped with a Head locking system. Make sure that before switching on the system is unlocked. Check also that the device can rotate and operate in its entire movement area.

2 Preparation and Installation

2.1 Mounting

The **YPOC 700 CMY** is fully operational whether it hangs or is mounted to the wall. It can also be operated while standing on the floor. Keep a safety distance of 0.5 m towards any easily inflammable materials (decoration etc.).



Pay attention to the regulations of: BGV C1 (former VBG 70) and DIN VDE 0711-217.
The installation should be done by qualified staff only.

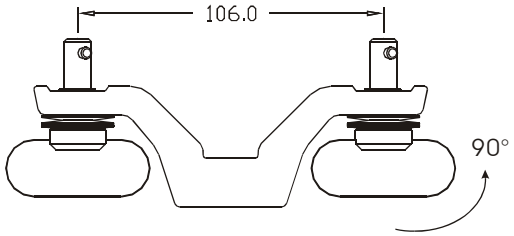
For mounting and service purposes this device is equipped with a Head locking system which allows you to lock the head in 45° steps. Push the lock button on the side of the arm to lock and unlock the system.

Attention: Make sure that before switching on the system is unlocked. Check also that the device can rotate and operate in his entire movement area.

2.1.1 Clamps

There are two major possibilities to mount the **YPOC 700 CMY** together with clamps. Camlock system or direct mounting of clamps. In both cases you have to regard a sufficient stability of the system. For installation instructions please see also printing on the bottom side of the case.

a) Camlock system: This system allows you a fast and efficient setup of clamps. Attach the two camlocks to designated position (C1 and C2) on the bottom side of the case and close the locks by turning them 90°. Verify the secure fit of the camlock system. The clamps themselves are directly attached permanently on the camlocks.



b) Use two clamps direct on the bottom side of the **YPOC 700 CMY** to mount the unit on a truss (each two opposite threads A1 -A4 or A2 - A3, use screws M10 max. length 50 mm). Distances, diameters and positions can also been seen on the printing on the bottom plate of the system.

2.2 Secure the YPOC 700 CMY

Regardless of the rigging of the **YPOC 700 CMY** you have to use a stipulated safety wire. Therefore you have to pull the safety wire through to two provided holes on the bottom side of the fixture and connect it with the truss-support. Pay attention to a safe and proper fastening. Install a safety wire that can hold at least 10 times the weight of the fixture. Never use the carrying handles for this purpose.

2.3 Connections

2.3.1 Power supply

Electronic ballast with:

~90 - 260 Volt, 50 - 60 Hz, earth contact type plug - Powercon

Connected load 1000W <=> 4.5 A (blind current compensation).

Please see printing on the case for the right electronic supply!

2.3.2 DMX

USITT DMX 512 Standard input/output, 3 pole connectors.

[+] = Pin 3 / [-] = Pin 2 / [Ground] = Pin 1

The DMX- Addressing starts at the DMX- Address [001].

See also printing on the case for the right pin assignment.

2.4 Fuses

The **YPOC 700 CMY** electronic system is protected by two 5x20 mm fine-wire fuses.

Lamp: 230V / T 5A

Electronic: 230V / T 1A

Lamp: 115V / T 10A

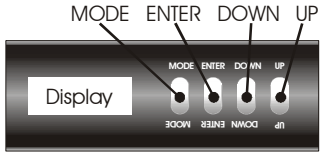
Electronic: 115V / T 2A

Attention:

- **Disconnect AC outlet before changing a fuse!**
- **Use only the original declared fuse type!**

3 The Menu Field

You'll find the control board on the side part of the base. It allows you to make all necessary adjustments of the **YPOC 700 CMY.** With the **Mode-**key you get into the main menu. Afterwards you can navigate through the menu with the **Up/Down-**keys. Push the **Enter-**key to get in the next menu level or to confirm your settings. Make them and set functions **ON/OFF** with the **Up/Down-**keys. Confirm and save it with the **Enter-**key (the display shows *OK*). Push the **Mode-**key to cancel the entry and go back to the main menu.



← MODE - ENTER →

↓ DOWN - UP ↑

Level 1	Level 2	Level 3	Remark
D001			Define the DMX start address
TEST			Test program of all functions
AUDI	ASLW		Self-running audio program (slow)
	AFST		Self-running audio program (fast)
	MSTR		Master for the audio program
	SVPT		Basic position for the audio program
	SIZE		Size for the audio program (NORM-BIG-MIDL-SMAL)
LAMP			Switch on/of the lamp direct at the **YPOC 700 CMY**
RESE			Reset
TIME	POWR		Running time of the fixture (no destructible)
	LA1		Running time of the lamp (erasable)
	LA2		Running time of the lamp (no destructible)
RPAN			Reverse Pan-direction
RTLT			Reverse Tilt-direction
DMOD	NORM		DMX Mode: Defines the number of DMX channels
	EXT		DMX Mode *NORM* has to be selected at the moment.
SPEC	MANU		Manual drive of all device functions
	LAAU		Automatic lamp start at switching on the unit
	DLOF		Switch off lamp via DMX
	DMXI		Read out actual DMX-values
	DISP	D ON	Display On/Off
		REV	Twist the display (also pushing Up/Down keys at the same time)
	TEMP		Read out internal temperature

↓ DOWN - UP ↑

FANS	HIGH	Maximum cooling fan velocity
	REG	Automatic cooling fan control
	LOOF	Low cooling fan speed → lamp off
	LOHI	Low cooling fan speed → Automatic
VERS	VTIL	Software version Tilt-board
	VTR1	Software version driver board 1
	VTR2	Software version driver board 2
	VTR3	Software version driver board 3
	DBUG	Function not yet in use
ADJU	CODE XXXX	Use the code for entering the calibration menu (for authorized persons only)
	CL1C	Coarse calibration of color wheel 1
	CL1F	Fine calibration of color wheel 1
	GOB1	Calibration of gobo wheel 1
	GOB2	Calibration of gobo wheel 2
	SHSH	Shutter moves pair wise parallel left and right (Shift)
	SHOC	Shutter moves pair wise open and close
	FR T	Calibration of frost filter A (top)
	FR B	Calibration of frost filter b (bottom)
	PRIS	Calibration of prism wheel
	IRIS	Calibration of iris
	FOCU	Calibration of focus
	POFS	Calibration of Pan-Offsets
	TOFS	Calibration of Tilt-Offsets
	CLRE	Settings in the internal memory (super-user only)
	SPFS	Speed fast - limit the max. Pan velocity to 70%
	ARES	Adjust Reset (all wheels stand still after a reset)
DFSE		Call on the default function values
FEED		Pan/Tilt feedback (error correction) On/Off
EFLG		Correction of faults

3.1 Adjust the DMX- Address (D001)

A rest will be performed right after switching on the **YPOC 700 CMY** (the display shows the following information: GLP - Y700 - software version of the unit - *YSTD* for standard module/Spot setup or *YCMY* for CMY module/CMY setup). The reset can last up to 30 seconds. Afterwards the current DMX- Address is shown. If there is no DMX- Signal the display flashes.

For setting the address please follow this procedure:

1. Switch On the **YPOC 700 CMY** and wait until the fixture reset has finished ('*RESE*' is flashing in the display).
2. Press the **Mode**-key in order to access the main menu. Browse through the menu by pressing the **Up/Down**-keys until the display shows *D001*. Confirm by pressing the **Enter**-key (the decimal point is flashing)

3. Use the **Up/Down**-keys to select the desired address. Confirm the setting by pressing the **Enter**-key (the display shows *OK*) or press the **Mode**-key to cancel.

The DMX- Address is stored also while switching off the **YPOC 700 CMY!**

3.2 The Test Program (TEST)

The **Test**-Program allows you to run a complete self test procedure of all functions. Press **Enter** to confirm or **Mode** to cancel.

(* not runnig with old firmware)

3.3 The Audio Program (AUDI)

The **Audio**-menu allows you to run a stand alone audio program. This chaser can run either fast or slow. *AFST*: Every sound impulse one step of the chaser. *ASLW*: Every second sound impulse one step of the chaser.

Additionally you can choose a basic position for this audio chaser. Use either the internal manual mode or an external controller to set the desired Pan/Tilt position. Confirm this setting in the *SVPT* menu by pressing the **Enter**-key.

You can also define the size of the audio chaser in the *SIZE* menu. You have the choice between: *NORM* (no basic position has to bee chosen), *BIG*, *MIDL* and *SMAL*).

If you want to run the systems simultaneously, one of the **YPOCs** must be switched as the master. All others must be "Slave" Master = OFF. **Notice:** The Audio function is only working if **no** DMX signal is connected. This Audio program can work on small events or as an emergency program.

3.4 Lamp On/Off (LAMP)

Use the **Up/Down**-keys to select lamp *ON* or lamp *OFF* Press **Enter** to confirm or **Mode** to cancel and return to the main menu. (The lamp *OFF* command is only functioning if the shutter is closed at the same time. Use an external controller or the manual drive mode, see 3.9.1).

3.5 *Reset (RESE)*

Press the **Enter-**key to run a reset of all fixture functions (*RST* is shown in the display). **Performing a Reset will last approximately 30 seconds.**

3.6 *Running time of lamp and unit (TIME)*

With this function you can read out three different running times of the fixture.

POWR	Complete running time of the fixture (non-erasable).
LA 1	Running time of the lamp (erasable). Push the **Up/Down-**keys at one time to delete this running time.
LA 2	Running time of the unit with lamp on (non-erasable).

3.7 *Invert Pan Movement (RPAN)*

This function allows you to invert the Pan movement. Use the **Up/Down-**keys to select invert *ON* or *OFF*. Press **Enter** to confirm or **Mode** to cancel and return to the main menu.

3.8 *Invert Tilt Movement (RTLT)*

This function allows you to invert the Tilt movement. Use the **Up/Down-**keys to select invert *ON* or *OFF*. Press **Enter** to confirm or **Mode** to cancel.

3.9 *Special Functions (SPEC)*

This menu allows you to reach further special functions of the **YPOC 700 CMY.**

In detail they are:

3.9.1 *Manual Drive [MANU]*

This function allows you to drive all fixture functions manually. Select the desired function with the **Up/Down-**keys and confirm with **Enter**. Now choose the desired value with the **Up/Down-**keys and confirm again with **Enter** or cancel and return to the menu with the **Mode-**key.

Attention: The DMX cable must be disconnected during this operation.

Function	Value	Remark
PAN	000 - 255	Pan Position
TILT	000 - 255	Tilt Position
COL1	000 - 255	Color wheel 1 (fixed colors)
CYAN	000 - 255	Color wheel - Cyan
MAGE	000 - 255	Color wheel - Magenta
YELL	000 - 255	Color wheel - Gelb (Yellow)
GOB1	000 - 255	Gobo wheel 1
GRT1	000 - 255	Gobo wheel 1 rotation
GOB2	000 - 255	Gobo wheel 2
SHUT	000 - 255	Shutter / Strobe function (the lamp strikes at DMX 255 if dimmer is "open" = DMX 255)
DIMR	000 - 255	Dimmer
FOCU	000 - 255	Focus
ZOOM	000 - 255	Zoom
FRST	000 - 255	Frost
PRIS	000 - 255	Prism (000 – 127) / Stop / Prism- rotation
IRIS	000 - 255	Iris
CTO	000 - 255	CTO correction wheel
EFFB	000 - 255	Effect wheel
EFFR	000 - 255	Effect wheel, rotation
SPEC	000 - 255	Lamp Off, Reset, ...
MOVE	000 - 255	Movements
SPED	000 - 255	Speed for Pan/Tilt

3.9.2 *Lamp On automatically [LAAU]*

This function enables to strike the lamp automatically after switching on the fixture. Use the **Up/Down-**keys to select ON if you want to strike the lamp automatically after switching on the fixture or OFF if you don't want this function. Press **Enter** to confirm or **Mode** to cancel and return to the menu.

If you have chosen OFF you have the possibility to strike the lamp either via DMX or direct at the **YPOC 700 CMY** in the Lamp menu.

3.9.3 *Lamp Off via DMX [DLOF]*

This function enables to switch off the lamp via DMX or not. Use the **Up/Down-**keys to select *ON* if you want to switch off the lamp via DMX or *OFF* if you don't want this function. Press **Enter** to confirm or **Mode** to cancel and return to the menu.

If you have chosen *OFF* you have the possibility to switch off the lamp either direct at the **YPOC 700 CMY** in the Lamp menu or switch off the main switch.

3.9.4 *DMX Input [DMXI]*

Readout DMX values of each channel received by the fixture. Use the **Up/Down-**keys to select desired channel and press **Enter** to read its value.

Function	Value	Remark
PAN	000 - 255	Pan Position
TILT	000 - 255	Tilt Position
COL1	000 - 255	Color wheel 1 (fixed colors)
CYAN	000 - 255	Color wheel - Cyan
MAGE	000 - 255	Color wheel - Magenta
YELL	000 - 255	Color wheel - Gelb (Yellow)
GOB1	000 - 255	Gobo wheel 1
GRT1	000 - 255	Gobo wheel 1 rotation
GOB2	000 - 255	Gobo wheel 2
SHUT	000 - 255	Shutter / Strobe function
DIMR	000 - 255	Dimmer
FOCU	000 - 255	Focus
ZOOM	000 - 255	Zoom
FRST	000 - 255	Frost
PRIS	000 - 255	Prism wheel (000 - 127) / Stop / Prism- Rotation
IRIS	000 - 255	Iris
CTO	000 - 255	CTO correction wheel
EFFB	000 - 255	Effect wheel
EFFR	000 - 255	Effect wheel rotation
SPEC	000 - 255	Lamp Off, Reset, ...
MOVE	000 - 255	Movement
SPED	000 - 255	Speed for Pan/Tilt

3.9.5 *Display [DISP]*

Use this function to choose between different display indications. Use the **Up/Down-**keys to select desired function and press **Enter** to confirm or **Mode** to cancel and return to the menu.

D ON	Display On/Off (If you've chosen OFF, the display will go out within 15 seconds after the last menu input. The next key touch will reactivate the display).
REV	Turn around the display. **Note:** You can also do this by pushing the **Up/Down-**keys at the same time.

3.9.6 *Fixture Temperature (TEMP)*

This function allows you to read out the current temperature of the **YPOC 700 CMY**. Press **Enter** to confirm or **Mode** to cancel. Inside temperatures below 80°C are not critical. 80°C and more lead the lamp being switched off at a critical point. For a save operation the outside temperature should not exceed 45°C.

3.9.7 *Fan Control (FANS)*

By using this function you can choose between 4 types of fan speed operations. Use the **Up/Down-**keys to select desired function and press **Enter** to confirm or **Mode** to cancel and return to the menu.

HIGH	The cooling fan works continuously at max. speed.
REG	The fan automatically adapts its speed in order to control inside temperature of the fixture.
LOOF	The fan keeps the adjusted low speed until the temperature exceeds max. inside temperature, then the **YPOC 700 CMY** automatically **switch off** the lamp.
LOHI	The fan keeps the adjusted low speed until the temperature exceeds max. inside temperature, then the **YPOC 700 CMY** automatically **switch from low to high fan speed.**

In addition to these settings, you can set the fan speed to minimum via DMX (Special channel, DMX value 224..229). This will last until a temperature of 90° is reached → high speed fan will be activated.

3.9.8 *Adjustments and Calibrations [ADJU]*

By this function you can adjust and calibrate the positions of the different effects, wheels and other motors. This can be necessary after a service or a repair work.

For this function is secured by a fixture code. This work should be done by authorized persons only.

Use the **Up/Down-**keys to select desired function and press **Enter** to confirm or **Mode** to cancel and return to the menu. Use now the **Up/Down-**keys to set the adjustment values and confirm once more with the **Enter-**key or cancel with the **Mode-**key.

Function	Value	Remark
ADJU	CODE XXXX	Adjustments in the internal setup are code protected (for authorized persons only).
CL1C	- 99 - + 99	Coarse adjustment of the Color wheel 1
CL1F	- 99 - + 99	Fine adjustment of the Color wheel 1
GOB1	- 99 - + 99	Adjustment of Gobo wheel 1
GOB2	- 99 - + 99	Adjustment of Gobo wheel 2
SHSH	- 99 - + 99	Shutter moves pair wise parallel left and right / Shift
SHOC	- 99 - + 99	Shutter moves pair wise open and close
FR T	- 99 - + 99	Adjustment of Frost filter A (top)
FR B	- 99 - + 99	Adjustment of Frost filter B (bottom)
PRIS	- 99 - + 99	Adjustment of the Prism wheel
IRIS	- 99 - + 99	Adjustment of the Iris
FOCU	- 99 - + 99	Adjustment of Focus
POFS	- 99 - + 99	Adjustment of the Pan-Offsets
TOFS	- 99 - + 99	Adjustment of the Tilt-Offsets
CLRE	Adjustments in the internal circuit.	
SPFS	- 99 - + 99	Speed fast - limits max. PAN speed to 70%
ARES	ON - OFF	Adjust Reset (wheels stand still after the reset)

3.9.9 *Default Settings [DFSE]*

Press **Enter** to reset all fixture personalities (not the adjusted/calibrated functions) to the factory default values. On the display OK will appear to indicate that the defaults are now set.

Function	Display	Default Settings	
DMX Address	D001	D001	
Pan reverse	RPAN	ON	OFF ✓
Tilt reverse	RTLT	ON	OFF ✓
Automatic lamp on	LAAU	ON	OFF ✓
Lamp on via DMX	DLOF	ON ✓	OFF
Display	DISP	D ON ✓	REV
Cooling fan	FANS	HIGH REG ✓	LOOF LOHI
Feedback	FEED	ON ✓	OFF

3.9.10 Automatic position control / Feedback (FEED)

FEED

The **YPOC 700 CMY** is equipped with a automatic position correction (feedback) for the Pan and Tilt movement. Use the **Up/Down-**keys to select ON if you want to enable the feedback function or OFF if you want to disable this function. Press **Enter** to confirm or **Mode** to cancel and return to the menu.

3.9.11 Correction of faults (EFLG)

EFLG (Function available for authorized persons only)

3.10 Error and Information Messages

HEAT	This message appears if you try to switch on the lamp within 5 minutes after having switched it off (lamp still too hot). The message will appear on the display if the lamp doesn't strikes within 20 seconds. The fixture will store this command and automatically strike the lamp after 5 minutes.
IG E	When striking the lamp, the electronic ballast will examine whether the lamp is on or not. If the lamp does not strike within 20 seconds, the igniting sequence is broken off. Now approx. 2 minutes are waited until a renewed ignition attempt is started automatically. After the 3rd unsuccessful ignition attempt the sequence is completely stopped and the display reads "IG E" (Ignition error).
LAER	As soon as the lamp ignited correctly, the lamp current is constantly supervised by the system. If an interruption steps on (covers opened or lamp damaged), the power is switched off immediately. The display reads "LAER" (lamps error). Please switch off the power supply and solve the possible problem.

After the error "IG E" respectively "LAER" it is not anymore possible the start the lamp via Shutter = 255. Nevertheless if a renewed ignition attempt is desired, first run a Reset (at the fixture or via DMX). Afterwards you can try again to strike the lamp.	
OTMP	This error message informs you that the fixture was overheating and that the relay switches off the lamp. Pleas look for possible reasons (fan faulty, air in/outlets blocked or very dirty, lamp broken or very old, too high ambient temperature). Switch off the power and solve the possible problem before switching on again.
RSER	This message informs you that one of the fixture function wasn't able to do its reset correct (magnetic sensor, stepping motor, driver on the PCB, cables, etc.). Repair the defect and start the fixture again.
MD E	The **YPOC 700 CMY** has an automatic detector for the optical module (from software version 1.28). It detects whether the **YPOC 700 CMY** is equipped with a standard Spot module (YSDT) or a CMY module (YSTD). In case the module is not correctly mounted or has a defect, the display will read MS E (Module Error)

4 DMX Channel Selection (DMX Protocol)

Normal Mode (24 DMX channels)

Channel	Function	Time and Value	DMX	HEX	%
1) PAN-coarse	0 .. 530°	min. 2.65 s	0..255	00..FF	0..100
2) PAN-fine	High- Pos ... High- Pos + 2.1° (16 Bit)		0..255	00..FF	0..100
3) Tilt-coarse	0 .. 285°	min. 1.8 s	0..255	00..FF	0..100
4) Tilt-fine	High- Pos … High- Pos + 1.1° (16 Bit)		0..255	00..FF	0..100
5) Color 1	Open (fast)	Chaser from color to color max. 140 BPM => 0,43 s	0..1	00..01	0.2
(fixed)	Open / Color 1 (fast)		2..3	02..03	1.0
	Color 1 Red 308 (fast)		4..5	04..05	1.8
	Color 1 / Color 2 (fast)		6..7	06..07	2.5
	Color 2 CTC 3200 - 4100 (fast)		8..9	08..09	3.3
	Color 2 / Color 3 (fast)		10..11	0A..0B	4.1
	Color 3 Yellow 601 (fast)		12..13	0C..0D	4.9
	Color 3 / Color 4 (fast)		14..15	0E..0F	5.7
	Color 4 Purple 502 (fast)		16..17	10..11	6.5
	Color 4 / Color 5 (fast)		18..19	12..13	7.3
	Color 5 Orange 306u (fast)		20..21	14..15	8.0
	Color 5 / Color 6 (fast)		22..23	16..17	8.8
	Color 6 Pink 312 (fast)		24..25	18..19	9.6

Channel	Function	Time and Value	DMX	HEX	%
	Color 6 / Color 7 (fast)		26..27	1A..1B	10.4
	Color 7 Green 206 (fast)		28..29	1C..1D	11.2
	Color 7 / Color 8 (fast)		30..31	1E..1F	12.0
	Color 8 Purple 509 (fast)		32..33	20..21	12.7
	Color 8 / Color 9 (fast)		34..35	22..23	13.5
	Open (fast)		36..63	24..3F	15..25
	Open (slow)	Chaser from color to color max. 70 BPM => 0,86 s	64..65	40..41	25.3
	Open / Color 1 (slow)		66..67	42..43	26.1
	Color 1 Red 308 (slow)		68..69	44..45	26.9
	Color 1 / Color 2 (slow)		70..71	46..47	27.6
	Color 2. CTC 3200 - 4100 (slow)		72..73	48..49	28.4
	Color 2 / Color 3 (slow)		74..75	4A..4B	29.2
	Color 3 Yellow 601 (slow)		76..77	4C..4D	30.0
	Color 3 / Color 4 (slow)		78..79	4E..4F	30.8
	Color 4 Purple 502 (slow)		80..81	50..51	31.6
	Color 4 / Color 5 (slow)		82..83	52..53	32.4
	Color 5 Orange 306u (slow)		84..85	54..55	33.1
	Color 5 / Color 6 (slow)		86..87	56..57	33.9
	Color 6. Pink 312 (slow)		88..89	58..59	34.7
	Color 6 / Color 7 (slow)		90..91	5A..5B	35.5
	Color 7 Green 206 (slow)		92..93	5C..5D	36.3
	Color 7 / Color 8 (slow)		94..95	5E..5F	37.1
	Color 8 Purple 509 (slow)		96..97	60..61	37.8
	Color 8 / Color 9 (slow)		98..99	62..63	38.6
	Open (slow)		100..127	64..7F	40..50
	Color Rotation STOP		128..129	80..81	50.1
	color rotation, slow-fast, CW	min. 1,4 turns/h	130..191	82..BF	51..75
	color rotation, fast-slow, CCW	max. 2,9 turns/sec.	192..253	C0..FD	76..98
	Audio color chaser slow	each 4th sound impulse → new color	254	FE	99
	Audio color chaser fast	each sound impulse → new color	255	FF	100
6) Cyan	Color mixing system - Cyan	0 - 100%	0..255	00..FF	0..100
7) Magenta	Color mixing system - Magenta	0 - 100%	0..255	00..FF	0..100
8) Yellow	Color mixing system - Yellow	0 - 100%	0..255	00..FF	0..100
9) Gobo 1	Gobo 1 (open, fast)	Chaser from gobo to gobo max. 100 BPM => 0,6 s	0..7	0..7	0..2.9
(indexed)	Gobo 2 (fast)		8..15	8..F	3..5.9
	Gobo 3 (fast)		16..23	10..17	6..8.9
	Gobo 4 (fast)		24..31	18..1F	9..11.9
	Gobo 5 (fast)		32..39	20..27	12..14.9
	Gobo 6 (fast)		40..47	28..2F	15..17.9
	Gobo 7 (fast)		48..55	30..37	18..20.9
	Gobo 8 (fast)		56..63	38..3F	21..23
	Gobo 1 (open, slow)	Chaser from gobo to gobo max. 40 BPM => 1,51 s	64..71	40..47	24..26.9
	Gobo 2 (slow)		72..79	48..4F	27..29.9
	Gobo 3 (slow)		80..87	50..57	30..33.9
	Gobo 4 (slow)		88..95	58..5F	34..36.9
	Gobo 5 (slow)		96..103	60..67	37..39.9
	Gobo 6 (slow)		104..111	68..6F	40..42.9
	Gobo 7 (slow)		112..119	70..77	43..45.9
	Gobo 8 (slow)		120..127	78..7F	46..49
	Gobo rotation STOP		128..129	80..81	50
	Gobo rotation, slow-fast, CW	min. 1,4 turns/h	130..191	82..BF	51..75
	Gobo rotation, fast-slow, CCW	max. 1.0 turns/sec.	192..253	C0..FD	76..98

Channel	Function	Time and Value	DMX	HEX	%
	Audio gobo chase, slow	each 4th sound impulse → new gobo	254	FE	99
	Audio gobo chase, fast	each sound impulse → new gobo	255	FF	100
10) Gobo 1	Gobo Position 0 ... 540°		0..127	00..7F	0..49
Posi./Rot	Gobo Rotation STOP		128..129	80..81	50
	Gobo Rotation, slow-fast, CW	min. 2,0 turns/h	130..191	82..BF	51..75
	Gobo Rotation, fast-slow, CCW	max. 3,8 turns/sec.	192..253	C0..FD	76..100
	Audio Gobo Rotation, slow	each 4th sound impulse → new position	254	FE	99
	Audio Gobo Rotation, fast	each sound impulse → new gobo	255	FF	100
11) Gobo 2	Gobo 1 (open, fast)	Chaser from gobo to gobo max. 100 BPM => 0,6 s	0..3	00..03	0..1
(fixed)	Gobo 2 (fast)		4..7	04..07	2..3
	Gobo 3 (fast)		8..11	08..0B	3..4
	Gobo 4 (fast)		12..15	0C..0F	5..6
	Gobo 5 (fast)		16..19	10..13	6..7
	Gobo 6 (fast)		20..23	14..17	8..9
	Gobo 7 (fast)		24..27	18..1B	9..10
	Gobo 8 (fast)		28..31	1C..1F	11..12
	Gobo 9 (fast)		32..35	20..23	13..14
	Gobo 10 (fast)		36..39	24..27	14..15
	Gobo 1 (open, slow)	Chaser from gobo to gobo max. 40 BPM => 1,51 s	64..67	41..43	25..26
	Gobo 2 (slow)		68..71	44..47	27..28
	Gobo 3 (slow)		72..75	48..4B	28..29
	Gobo 4 (slow)		76..79	4C..50	30..31
	Gobo 5 (slow)		80..83	51..53	32..33
	Gobo 6 (slow)		84..87	54..57	33..34
	Gobo 7 (slow)		88..91	58..5B	35..36
	Gobo 8 (slow)		92..95	5C..5F	36..37
	Gobo 9 (slow)		96..99	60..63	38..39
	Gobo 10 (slow)		100..103	64..67	39..40
	Gobo rotation STOP		128..129	80..81	50
	Gobo rotation, slow-fast, CW	min. 1,4 turns/h	130..191	82..BF	51..75
	Gobo rotation, fast-slow, CCW	max. 1.0 turns/sec.	192..253	C0..FD	76..98
	Audio gobo chase, slow	each 4th sound impulse → new gobo	254	FE	99
	Audio gobo chase, fast	each sound impulse → new gobo	255	FF	100
12) Shutter	Shutter closed		0..15	00..0F	0..6
	Random Strobe (different patterns)		16..31	10..1F	7..11.9
	Strobe Pulse effect, slow - fast	min. frequent 0,7 Hz	32..47	20..2F	12..12.9
	Audio Shutter		48..63	30..3F	13..25
	Strobe effect, slow - fast	max. frequent 10 Hz	64..239	40..EF	26..93
	Shutter open		240..253	F0..FD	94..98
	Shutter open (lamp start)		254..255	FE..FF	99..100
13) Dimmer	Dimmer closed (0%)		0..3	0..3	0..1
	Dimmer 1%...99%	movement time 0,3 sec.	4..251	4..FB	2..98
	Dimmer open (100%)		252..255	FC..FF	99..100
14) Focus	In (near) - out (far)	full distance 1,5 sec.	0..255	0..FF	0..100
15) Zoom	Inside (near) - outside (far)	full distance 1,5 sec.	0..255	0..FF	0..100
16) Frost	Open (0%) - retracted (100%)	full distance 1,5 sec.	0..255	0..FF	0..100
17) Prism	Prism swing out		0..5	00..05	0..2

Channel	Function	Time and Value	DMX	HEX	%
	Prism position 0 ... 540°		6..129	06..7F	0..50
	Prism rotation stop		130..191	80..BF	51..75
	Prism rotation, slow-fast, CW	min. 1,6 turns/h	192..253	C0..FD	76..100
	Prism rotation, fast-slow, CCW	max. 4,4 turns/sec.	254	FE	99
	Audio prism rotation, slow	each 4th sound impulse → new prism	255	FF	100
18) Iris	Iris open – closed		0..127	00..7F	00..49
	Ascend with Shutter, random		128..143	80..8F	50..56
	Descend with Shutter, random		144..159	90..9F	56..62
	Ascend with Shutter, audio		160..175	A0..AF	63..68
	Descend with Shutter, audio		176..191	B0..BF	69..74
	Ascend with Shutter	slow - fast	192..207	C0..CF	75..81
	Descend with Shutter	slow - fast	208..223	D0..DF	82..87
	Pulse - effect	slow - fast	224..239	E0..EF	88..93
	Ascend - descend effect	slow - fast	240..253	F0..FD	94..99
	Iris open		254..255	FE..FF	100
19) CTO	Color correction filter 3200K	0 - 100%	0..255	00..FF	0..100
20) Effect wheel-swing	Step less swing of the "Motion Wheel"	0 - 100%	0..255	00..FF	0..100
21) Effect wheel	Rotating slow - fast CW		0..127	00..7F	0..49
Posi./Rot	Rotating fast - slow CCW		128...255	80..FF	50..100
22) Special	No Function		0..15	00..0F	0..6
	Gobo1-shake +/- 10° slow – fast	3,5 moves / min. up to 60 moves / max.	16..31	10..1F	7..12
	Gobo1-shake +/- 20° slow – fast	3,5 moves / min. up to 60 moves / max.	32..47	20..2F	13..18
	Gobo1-shake +/- 30° slow – fast	3,5 moves / min. up to 60 moves / max.	48..63	30..3F	19..24
	No function		64..111	40..6F	23..43
	Color1-Chaser C / C+1 slow – fast	0.7 BPS ... 2.3 BPS => 1.43 s ... 0.43 s	112..127	70..7F	44..50
	Color1-Chaser C / C+2 slow – fast	0.7 BPS ... 2.0 BPS => 1.43 s ... 0.5 s	128..143	80..8F	51..56
	No function		144..175	90..AF	57..68
	Audio Pan / Tilt slow	each 4th sound impulse → new position	176..191	B0..BF	69..74
	Audio Pan / Tilt fast	each sound impulse → new position	192..207	C0..CF	75..81
	No function		208..223	D0..DF	82..87
	Fan min. as long as temp. < 90°C		224..229	E0..E5	88..90
	Lamp OFF 1	if Shutter channel = closed DMX ´000` (min. 3 sec.)	230..249	E6..F9	92..97
	Lamp OFF 2	if Shutter channel = DMX ´240..253` (min. 3 sec.)	249	F9	97
	Reset 1	Head only (PAN/TILT)	250..253	FA..FC	98..99
	Reset 2	All functions	254..255	FD..FF	100

Channel	Function			Time and Value	DMX	HEX	%
23) Move-	**No movement**				0	00	0
ment	**Movement**	**Size**	**Phase**				
	PAN	1	0°		01..01	01..01	0.5
		1	90°		02..03	02..03	1.0
		1	180°		04..05	04..05	1.7
		1	270°		06..07	06..07	2.5
	PAN	2	0°		08..09	08..09	3.3
		2	90°		10..11	0A..0B	4.1
		2	180°		12..13	0C..0D	4.9
		2	270°		14..15	0E..0F	5.7
	PAN	3	0°		16..17	11..11	6.5
		3	90°		18..19	12..13	7.3
		3	180°		20..21	14..15	8.0
		3	270°		22..23	16..17	8.8
	PAN	4	0°		24..25	18..19	9.6
		4	90°		26..27	1A..1B	10.4
		4	180°		28..29	1C..1D	11.2
		4	270°		30..31	1E..1F	12
	TILT		size / phase see also PAN		32..63	20..3F	13..25
	PAN / TILT		size / phase see also PAN		64..95	40..5F	26..37
	PAN / TILT (inverse)		size / phase see also PAN		96..127	60..7F	38..50
	Circle		size / phase see also PAN		128..159	80..9F	51..62
	Circle (inverse)		size / phase see also PAN		160..191	A0..BF	63..75
	Lying eight		size / phase see also PAN		192..223	C0..DF	76..87
	Random movement		size see also PAN		224..255	E0..FF	88..100
24) Speed	Pan/Tilt relative movement				0..15	00..0F	0..6
Pan/Tilt	Pan/Tilt slow – fast Use this channel also for the SPEED of the movements above.			Pan Min. 530° = 200 s Pan Max. 530° = 2.65 s Tilt Min. 285° = 110 s Tilt Max. 285° = 1.8 s	16..255	10..FF	7..100

Lamp ON	Shutter open	Channel 12	240..255	F0..FF	94..100
Lamp OFF 1	Special channel Lamp OFF 1 if Shutter channel = closed DMX ´000` (min. 3 sec.)	Channel 22 and Channel 12	230..249 000	6E..9F 00	92..97 000
Lamp OFF 2	Special channel Lamp OFF 2 if Shutter channel = DMX ´240..253` (min. 3 sec.)	Channel 22 and Channel 12	249 240..253	9F F0..FD	97 94..98
Reset 1	Head only (PAN/TILT)	Channel 22	250..253	FA..FC	98..99
Reset 2	All functions	Channel 22	254..255	FD..FF	100

Extended Mode (33 DMX channels / 16 bit)

Several function do have a 16 bit precision which uses 2 consecutive DMX channels for the control. The first one is used "as usual" to control functions like Colors, Gobos etc. (see also Normal Mode above). The second one is then used to fine-tune to function in 256 additional steps. How exactly the programming is executed depends now on the DMX controller used. Please refer to its own manual for details.

Channel	Function	Time and Value	DMX	HEX	%
1) PAN-coarse	0 .. 530°	min. 2.65 s	0..255	00..FF	0..100
2) PAN-fine	High- Pos ... High- Pos + 2.1° (16 Bit)		0..255	00..FF	0..100
3) Tilt-coarse	0 .. 285°	min. 1.8 s	0..255	00..FF	0..100
4) Tilt-fine	High- Pos … High- Pos + 1.1° (16 Bit)		0..255	00..FF	0..100
5/6) Color 1	Open (fast)	Chaser from color to color max. 140 BPM => 0,43 s	0..1	00..01	0.2
(fixed)	Open / Color 1 (fast)		2..3	02..03	1.0
16 Bit	Color 1 Red 308 (fast)		4..5	04..05	1.8
	Color 1 / Color 2 (fast)		6..7	06..07	2.5
	Color 2 CTC 3200 - 4100 (fast)		8..9	08..09	3.3
	Color 2 / Color 3 (fast)		10..11	0A..0B	4.1
	Color 3 Yellow 601 (fast)		12..13	0C..0D	4.9
	Color 3 / Color 4 (fast)		14..15	0E..0F	5.7
	Color 4 Purple 502 (fast)		16..17	10..11	6.5
	Color 4 / Color 5 (fast)		18..19	12..13	7.3
	Color 5 Orange 306u (fast)		20..21	14..15	8.0
	Color 5 / Color 6 (fast)		22..23	16..17	8.8
	Color 6 Pink 312 (fast)		24..25	18..19	9.6
	Color 6 / Color 7 (fast)		26..27	1A..1B	10.4
	Color 7 Green 206 (fast)		28..29	1C..1D	11.2
	Color 7 / Color 8 (fast)		30..31	1E..1F	12.0
	Color 8 Purple 509 (fast)		32..33	20..21	12.7
	Color 8 / Color 9 (fast)		34..35	22..23	13.5
	Open (fast)		36..63	24..3F	15..25
	Open (slow)	Chaser from color to color max. 70 BPM => 0,86 s	64..65	40..41	25.3
	Open / Color 1 (slow)		66..67	42..43	26.1
	Color 1 Red 308 (slow)		68..69	44..45	26.9
	Color 1 / Color 2 (slow)		70..71	46..47	27.6
	Color 2 CTC 3200 - 4100 (slow)		72..73	48..49	28.4
	Color 2 / Color 3 (slow)		74..75	4A..4B	29.2
	Color 3 Yellow 601 (slow)		76..77	4C..4D	30.0
	Color 3 / Color 4 (slow)		78..79	4E..4F	30.8
	Color 4 Purple 502 (slow)		80..81	50..51	31.6
	Color 4 / Color 5 (slow)		82..83	52..53	32.4
	Color 5 Orange 306u (slow)		84..85	54..55	33.1
	Color 5 / Color 6 (slow)		86..87	56..57	33.9
	Color 6 Pink 312 (slow)		88..89	58..59	34.7
	Color 6 / Color 7 (slow)		90..91	5A..5B	35.5
	Color 7 Green 206 (slow)		92..93	5C..5D	36.3
	Color 7 / Color 8 (slow)		94..95	5E..5F	37.1
	Color 8 Purple 509 (slow)		96..97	60..61	37.8
	Color 8 / Color 9 (slow)		98..99	62..63	38.6
	Open (slow)		100..127	64..7F	40..50
	Color Rotation STOP		128..129	80..81	50.1
	color rotation, slow-fast, CW	min. 1,4 turns/h	130..191	82..BF	51..75
	color rotation, fast-slow, CCW	max. 2,9 turns/sec.	192..253	C0..FD	76..98
	Audio color chaser slow	each 4th sound impulse → new color	254	FE	99
	Audio color chaser fast	each sound impulse → new color	255	FF	100
7/8) Cyan ***16 Bit***	Color mixing system - Cyan	0 - 100%	0..255	00..FF	0..100
9/10) Magenta ***16 Bit***	Color mixing system - Magenta	0 - 100%	0..255	00..FF	0..100

Channel	Function	Time and Value	DMX	HEX	%
11/12) Yellow ***16 Bit***	Color mixing system - Yellow	0 - 100%	0..255	00..FF	0..100
13) Gobo 1	Gobo 1 (open, fast)	Chaser from gobo to gobo max. 100 BPM => 0,6 s	0..7	0..7	0..2.9
(indexed)	Gobo 2 (fast)		8..15	8..F	3..5.9
	Gobo 3 (fast)		16..23	10..17	6..8.9
	Gobo 4 (fast)		24..31	18..1F	9..11.9
	Gobo 5 (fast)		32..39	20..27	12..14.9
	Gobo 6 (fast)		40..47	28..2F	15..17.9
	Gobo 7 (fast)		48..55	30..37	18..20.9
	Gobo 8 (fast)		56..63	38..3F	21..23
	Gobo 1 (open, slow)	Chaser from gobo to gobo max. 40 BPM => 1,51 s	64..71	40..47	24..26.9
	Gobo 2 (slow)		72..79	48..4F	27..29.9
	Gobo 3 (slow)		80..87	50..57	30..33.9
	Gobo 4 (slow)		88..95	58..5F	34..36.9
	Gobo 5 (slow)		96..103	60..67	37..39.9
	Gobo 6 (slow)		104..111	68..6F	40..42.9
	Gobo 7 (slow)		112..119	70..77	43..45.9
	Gobo 8 (slow)		120..127	78..7F	46..49
	Gobo rotation STOP		128..129	80..81	50
	Gobo rotation, slow-fast, CW	min. 1,4 turns/h	130..191	82..BF	51..75
	Gobo rotation, fast-slow, CCW	max. 1.0 turns/sec.	192..253	C0..FD	76..98
	Audio gobo chase, slow	each 4th sound impulse → new gobo	254	FE	99
	Audio gobo chase, fast	each sound impulse → new gobo	255	FF	100
14/15) Gobo 1	Gobo Position 0 ... 540°		0..127	00..7F	0..49
Posi./Rot	Gobo Rotation STOP		128..129	80..81	50
16 Bit	Gobo Rotation, slow-fast, CW	min. 2,0 turns/h	130..191	82..BF	51..75
	Gobo Rotation, fast-slow, CCW	max. 3,8 turns/sec.	192..253	C0..FD	76..100
	Audio Gobo Rotation, slow	each 4th sound impulse → new position	254	FE	99
	Audio Gobo Rotation, fast	each sound impulse → new gobo	255	FF	100
16) Gobo 2	Gobo 1 (open, fast)	Chaser from gobo to gobo max. 100 BPM => 0,6 s	0..3	00..03	0..1
(fixed)	Gobo 2 (fast)		4..7	04..07	2..3
	Gobo 3 (fast)		8..11	08..0B	3..4
	Gobo 4 (fast)		12..15	0C..0F	5..6
	Gobo 5 (fast)		16..19	10..13	6..7
	Gobo 6 (fast)		20..23	14..17	8..9
	Gobo 7 (fast)		24..27	18..1B	9..10
	Gobo 8 (fast)		28..31	1C..1F	11..12
	Gobo 9 (fast)		32..35	20..23	13..14
	Gobo 10 (fast)		36..39	24..27	14..15
	Gobo 1 (open, slow)	Chaser from gobo to gobo max. 40 BPM => 1,51 s	64..67	41..43	25..26
	Gobo 2 (slow)		68..71	44..47	27..28
	Gobo 3 (slow)		72..75	48..4B	28..29
	Gobo 4 (slow)		76..79	4C..50	30..31
	Gobo 5 (slow)		80..83	51..53	32..33
	Gobo 6 (slow)		84..87	54..57	33..34
	Gobo 7 (slow)		88..91	58..5B	35..36
	Gobo 8 (slow)		92..95	5C..5F	36..37
	Gobo 9 (slow)		96..99	60..63	38..39
	Gobo 10 (slow)		100..103	64..67	39..40
	Gobo rotation STOP		128..129	80..81	50

Channel	Function	Time and Value	DMX	HEX	%
	Gobo rotation, slow-fast, CW	min. 1,4 turns/h	130..191	82..BF	51..75
	Gobo rotation, fast-slow, CCW	max. 1.0 turns/sec.	192..253	C0..FD	76..98
	Audio gobo chase, slow	each 4th sound impulse → new gobo	254	FE	99
	Audio gobo chase, fast	each sound impulse → new gobo	255	FF	100
17) Shutter	Shutter closed		0..15	00..0F	0..6
	Random Strobe (different patterns)		16..31	10..1F	7..11.9
	Strobe Pulse effect, slow - fast	min. frequent 0,7 Hz	32..47	20..2F	12..12.9
	Audio Shutter		48..63	30..3F	13..25
	Strobe effect, slow - fast	max. frequent 10 Hz	64..239	40..EF	26..93
	Shutter open		240..253	F0..FD	94..98
	Shutter open (lamp start)		254..255	FE..FF	99..100
18/19) Dimmer	Dimmer closed (0%)		0..3	0..3	0..1
16 Bit	Dimmer 1%...99%	movement time 0,3 sec.	4..251	4..FB	2..98
	Dimmer open (100%)		252..255	FC..FF	99..100
20) Focus	In (near) - out (far)	full distance 1,5 sec.	0..255	0..FF	0..100
21) Zoom	Inside (near) - outside (far)	full distance 1,5 sec.	0..255	0..FF	0..100
22) Frost	Open (0%) - retracted (100%)	full distance 1,5 sec.	0..255	0..FF	0..100
23/24) Prism	Prism swing out		0..5	00..05	0..2
16 Bit	Prism position 0 ... 540°		6..129	06..7F	0..50
	Prism rotation stop		130..191	80..BF	51..75
	Prism rotation, slow-fast, CW	min. 1,6 turns/h	192..253	C0..FD	76..100
	Prism rotation, fast-slow, CCW	max. 4,4 turns/sec.	254	FE	99
	Audio prism rotation, slow	each 4th sound impulse → new prism	255	FF	100
25/26) Iris	Iris open – closed		0..127	00..7F	00..49
16 Bit	Ascend with Shutter, random		128..143	80..8F	50..56
	Descend with Shutter, random		144..159	90..9F	56..62
	Ascend with Shutter, audio		160..175	A0..AF	63..68
	Descend with Shutter, audio		176..191	B0..BF	69..74
	Ascend with Shutter	slow - fast	192..207	C0..CF	75..81
	Descend with Shutter	slow - fast	208..223	D0..DF	82..87
	Pulse - effect	slow - fast	224..239	E0..EF	88..93
	Ascend - descend effect	slow - fast	240..253	F0..FD	94..99
	Iris open		254..255	FE..FF	100
27/28) CTO ***16 Bit***	Color correction filter 3200K	0 - 100%	0..255	00..FF	0..100
29) Effect wheel/swing	Step less swing of the "Motion Wheel"	0 - 100%	0..255	00..FF	0..100
30) Effect wheel	Rotating slow - fast CW		0..127	00..7F	0..49
Posi./Rot	Rotating fast - slow CCW		128...255	80..FF	50..100
31) Special	No Function		0..15	00..0F	0..6
	Gobo1-shake +/- 10° slow – fast	3,5 moves / min. up to 60 moves / max.	16..31	10..1F	7..12
	Gobo1-shake +/- 20° slow – fast	3,5 moves / min. up to 60 moves / max.	32..47	20..2F	13..18
	Gobo1-shake +/- 30° slow – fast	3,5 moves / min. up to 60 moves / max.	48..63	30..3F	19..24
	No function		64..111	40..6F	23..43

Channel	Function			Time and Value	DMX	HEX	%
	Color1-Chaser C / C+1 slow – fast			0.7 BPS ... 2.3 BPS => 1.43 s ... 0.43 s	112..127	70..7F	44..50
	Color1-Chaser C / C+2 slow – fast			0.7 BPS ... 2.0 BPS => 1.43 s ... 0.5 s	128..143	80..8F	51..56
	No function				144..175	90..AF	57..68
	Audio Pan / Tilt slow			each 4th sound impulse → new position	176..191	B0..BF	69..74
	Audio Pan / Tilt fast			each sound impulse → new position	192..207	C0..CF	75..81
	No function				208..223	D0..DF	82..87
	Fan min. as long as temp. < 90°C				224..229	E0..E5	88..90
	Lamp OFF 1			if Shutter channel = closed DMX ´000` (min. 3 sec.)	230..249	E6..F9	92..97
	Lamp OFF 2			if Shutter channel = DMX ´240..253` (min. 3 sec.)	249	F9	97
	Reset 1			Head only (PAN/TILT)	250..253	FA..FC	98..99
	Reset 2			All functions	254..255	FD..FF	100
32) Move-	**No movement**				0	00	0
ment	**Movement**	**Size**	**Phase**				
	PAN	1	0°		01..01	01..01	0.5
		1	90°		02..03	02..03	1.0
		1	180°		04..05	04..05	1.7
		1	270°		06..07	06..07	2.5
	PAN	2	0°		08..09	08..09	3.3
		2	90°		10..11	0A..0B	4.1
		2	180°		12..13	0C..0D	4.9
		2	270°		14..15	0E..0F	5.7
	PAN	3	0°		16..17	11..11	6.5
		3	90°		18..19	12..13	7.3
		3	180°		20..21	14..15	8.0
		3	270°		22..23	16..17	8.8
	PAN	4	0°		24..25	18..19	9.6
		4	90°		26..27	1A..1B	10.4
		4	180°		28..29	1C..1D	11.2
		4	270°		30..31	1E..1F	12
	TILT		size / phase see also PAN		32..63	20..3F	13..25
	PAN / TILT		size / phase see also PAN		64..95	40..5F	26..37
	PAN / TILT (inverse)		size / phase see also PAN		96..127	60..7F	38..50
	Circle		size / phase see also PAN		128..159	80..9F	51..62
	Circle (inverse)		size / phase see also PAN		160..191	A0..BF	63..75
	Lying eight		size / phase see also PAN		192..223	C0..DF	76..87
	Random movement		size see also PAN		224..255	E0..FF	88..100
33) Speed	Pan/Tilt relative movement				0..15	00..0F	0..6
Pan/Tilt	Pan/Tilt slow – fast Use this channel also for the SPEED of the movements above			Pan Min. 530° = 200 s Pan Max. 530° = 2.65 s Tilt Min. 285° = 110 s Tilt Max. 285° = 1.8 s	16..255	10..FF	7..100

Lamp ON	Shutter open	Channel 17	240..255	F0..FF	94..100
Lamp OFF 1	Special channel Lamp OFF 1 if Shutter channel = closed DMX ´000` (min. 3 sec.)	Channel 31 and Channel 17	230..249 000	6E..9F 00	92..97 000
Lamp OFF 2	Special channel Lamp OFF 2 if Shutter channel = DMX ´240..253` (min. 3 sec.)	Channel 31 and Channel 17	249 240..253	9F F0..FD	97 94..98
Reset 1	Head only (PAN/TILT)	Channel 31	250..253	FA..FC	98..99
Reset 2	All functions	Channel 31	254..255	FD..FF	100

5 Changing the Lamp

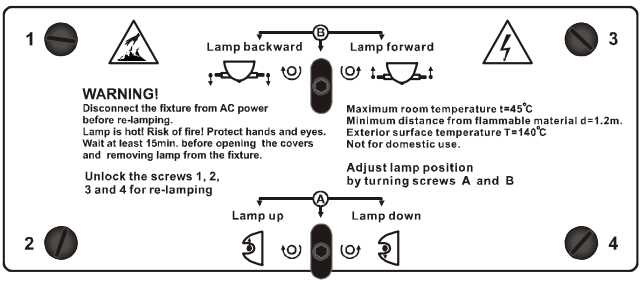
For a frictionless operation pleas read this chapter carefully and follow all instructions.

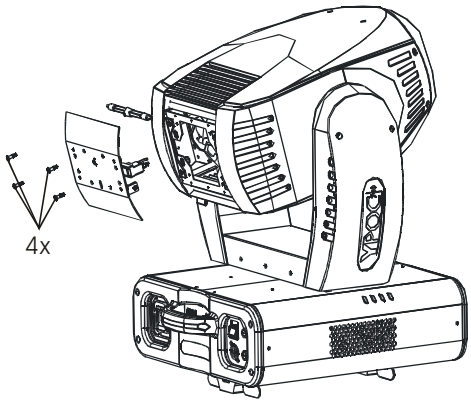
5.1 Safety Regulations

- **Pull out the main plug!**
- Wait min. 20 minutes after the last operation to cool down the fixture.
- For a safe and convenient operation the head can be locked in various positions. Please unlock the head before switching on again.
- Don't touch the bulb of the lamp with bare fingers (this can cause damages).
- Before you put the **YPOC 700 CMY** into operation close the casing, otherwise your retina can be hurt!

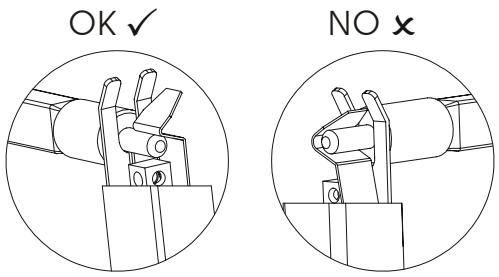
5.2 Realize the Lamp Change

1. **Pull out the main plug!**
2. The lamp can be changed in a very comfortable way directly from the backside of the case without opening the head.





3. Open the four quick release fasteners (1, 2, 3 and 4) of the backside lamp sheet and remove it carefully.
4. Remove the old or broken lamp from the two sidewise lamp clip fasteners. **Attention:** The glass bulb of the lamp can splinter. For that reason remove the lamp with safety gloves or some cloth.
5. Put in the new lamp securely with a tight fit into the socket (2x clip fasteners). The lamp filler neck must be towards the backside of the reflector. **Attention:** Use only original lamp types!



6. Pull the lamp holder sheet safely back in the shaft and close the four quick release fasteners.
7. The running time of the lamp LA1 can be reseed in the TIME Menu.

5.3 Adjusting the lamp position (Hotspot)

You should adjust the lamp position after each lamp exchange. This is necessary because each lamp has small fabrication variations and the illumination and imaging of the fixture can be not optimal. For this purpose the YPOC is equipped with an adjustment system of the lamp, consisting of two set screws on the backside lamp sheet (set screw A and B). The lamp adjustment is a matter of the users taste but will best be done as follows:

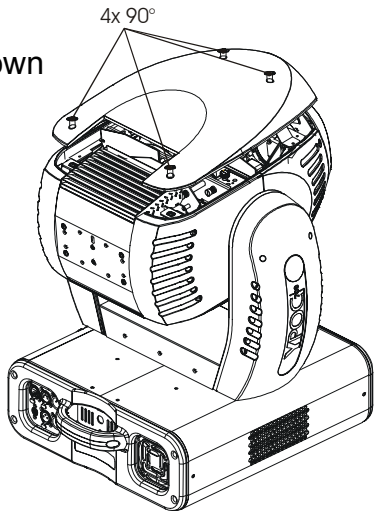
1) Move lamp with set screw B forewords/backwards until a very bright luminous spot (hotspot) can been seen best.
2) Move lamp with set screw A upward/downwards until this hotspot is in the center of the illumination.
3) Use again set screw B to move lamp forewords/backwards until you've reached the most even illumination. Note: A slide hotspot will always remain and is conditional to the optical system.

6 Optical plug-in module (inside the fixture)

The **YPOC 700 CMY** is equipped with an optical plug-in which can removed completely. This allows you a very comfortable and fast way to do all types of services inside the fixture like as changing gobos and colors, cleaning or maintenance. Please apply for this the following procedure:

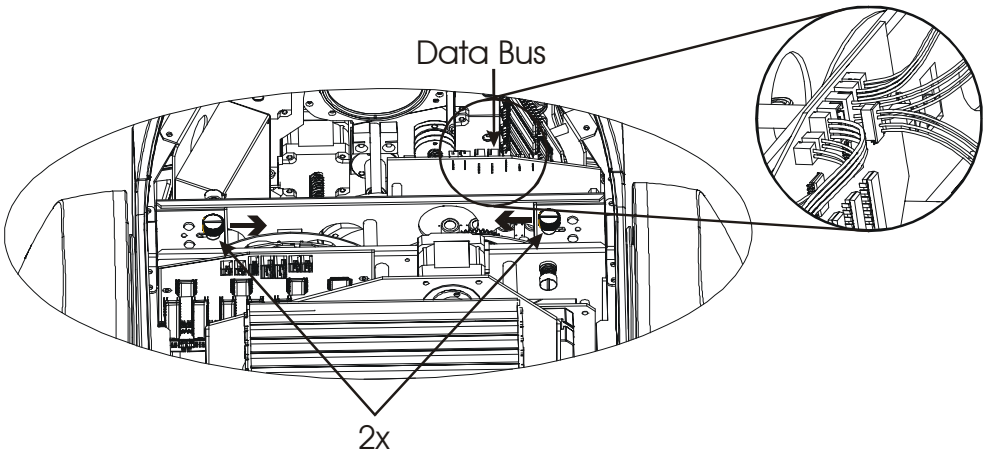
6.1 Safety regulations

- **Pull out the main plug!**
- Wait min. 20 minutes after the last operation to cool down the fixture.
- For a safe and convenient operation the head can be locked in various positions. Please unlock the head before switching on again.
- Don't touch the bulb of the lamp with bare fingers (this can cause damages).
- Before you put the **YPOC 700 CMY** into operation close the casing, otherwise your retina can be hurt!

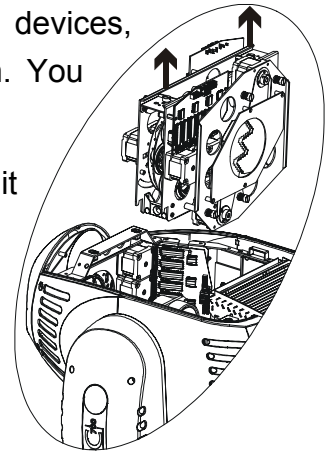


6.2 Taking out and opening optical plug-in

1) Please lock the head for a safe and convenient operation.
2) Open the upper shell of the head casing by loosening the 4 quick release fasteners. Two on the front side and 2 on the back side of the head. Hang out the head safety.
3) Disconnect the right "Data Bus" cable from the circuit board of the plug-in. This is the only connection which needs to be removed.



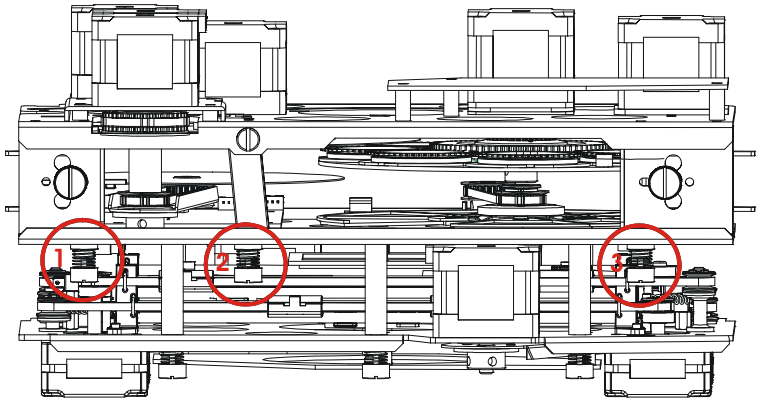
4) Open the two locking screws one on the left and one on the right side by 1-2 turns (it is not necessary to remove them completely). Press them inwards to open the lateral locking and pull out the plug-in carefully. The plug-in is lead by two lateral tracks. A moderate effort is normal when pulling out.



Attention: Don't use sensitive components like optical devices, Gobo- and Color wheels or cables to remove the plug-in. You can use the metal plates or the stepping motors instead.

5) Please remove the optical plug-in now completely and put it carefully down.

6) Open the three knurled screws lying on the central axis of the plug-in. There are further knurled screws on the module which do not have to be open for changing Gobos or Color filters.

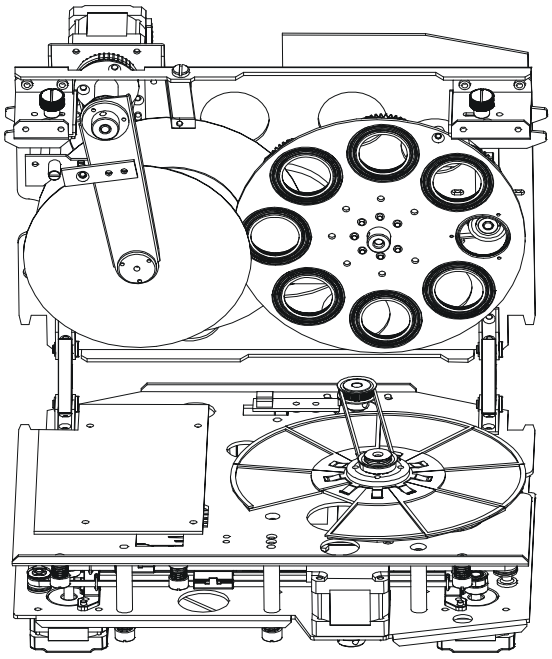


7) Open the module and put it on the backside down. You can now reach all Gobo- or Color wheels.

8) Realize the exchange or service as desired → see following chapters below.

9) Fold up the module again and screw up the three knurled screws by hand.

10) Insert the plug-in back to the fixture and the two lateral tracks. Push it carefully down until the two locking screws snap in. Close them hand-screwed.



11) Connect the "Data Bus" cable with the corresponding socket again.

12) Close the **YPOC 700 CMY** in reverse order.

6.3 Changing Gobos and Color filters

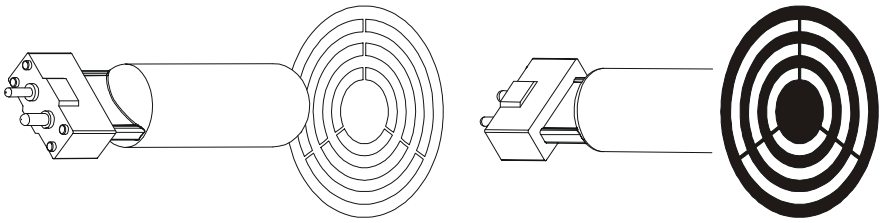
The is **YPOC 700 CMY** equipped both with Aluminum- and Glass gobos (outside diameter 27 mm, image size 23 mm). When using customized Gobos like company logos and writing the recommended image size is 20 mm. You can use either Aluminum (thickness = 0.3 mm) or glass gobos (thickness = 1.1 - 3.0 mm).

There is one Gobo wheel with rotating Gobos and one with fixed Gobos. Gobos from the rotating wheel can be exchanged as desired.

6.3.1 General remarks for changing Gobos and Colors

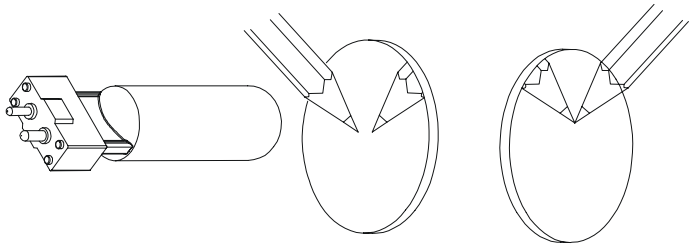
All Gobos, Color filters or other optical effects do have a dedicated mounting direction. To prevent undesired damages and to optimize the optical illustration, all effect should be mounted with their reflecting side in the direction of the lamp. This means for:

a) Aluminum Gobos must be mounted with their unpainted side toward the lamp. The black painted side in the direction of the front lens.

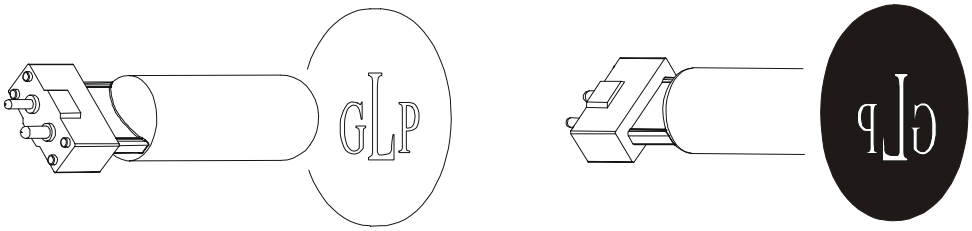


b) Glass Gobos must be mounted with their reflecting side toward the lamp. For Gobo holder this is already set in advance. In case you would like to exchange also them (e.g. to use customized Gobos with company logos etc.) you should make sure that also here the reflecting side is in the direction of the lamp. But this is not always very simple so please apply the following test.

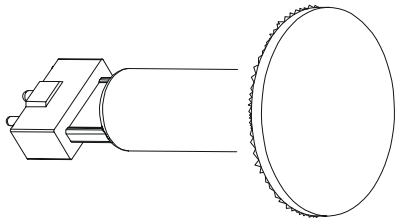
Hold for example a pencil directly in front of the Gobo. If this is the uncoated side of the Gobo you will see a small distance (thickness of the Glass Gobo) between the mirror image and the pencil → This is the reflecting side which should be mounted towards the lamp.



Attention: Customized Gobos like company logos and writing do also have a right reading assembly direction so that they are not right-left-reversed. The readably side must in any case mounted towards the lamp. To have here also the reflecting side at the same moment the Gobos must be fabricated accordingly. Please instruct your Gobo supplier accordingly.



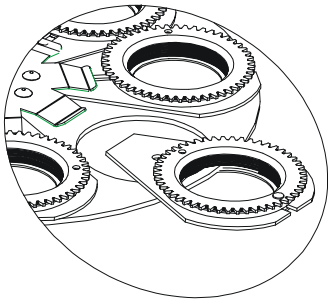
c) Glass Gobos with a structured surface must be mounted with the structured surface towards the lamp and the flat side towards the front lens.

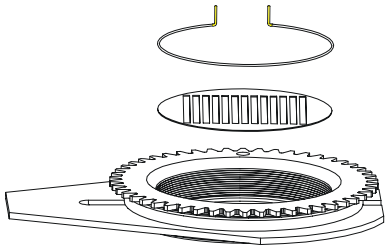


d) Color filter are already pre-mounted on the color filter holder which guarantees the correct assembly. No further measures are necessary.

6.3.2 Changing rotating Gobos

1) **The fixture is open as described above. The optical plug-in module is taken out and opened as well.**
2) Press the Gobo holder at the outer part of the wheel carefully out of the hub. Pull it softly out of the central spring-holder jig.
3) Now the Gobo itself can be exchanged inside the Gobo holder if desired. Remove the centric spring with a small screwdriver or a gripping pliers. Change the Gobo and put the spring in again. But, it is much more comfortable if the complete Gobo holder is exchanged. Gobo holder are available as accessories.



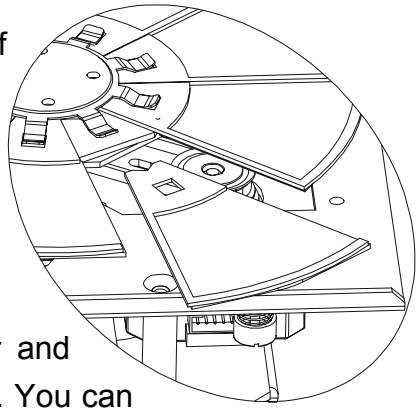


4) Pull the Gobo holder back into the central spring-holder jig in the middle of the Gobo wheel and snap it in. You can open the central spring-holder with a bent screwdriver through a hole from the opposite side of the wheel.
5) Push the Gobo holder in the dedicated hub.

   Attention: There must be no gap between the Gobo holder and the wheel afterwards. Check for a tight fit.

6.3.3 Changing Color filters

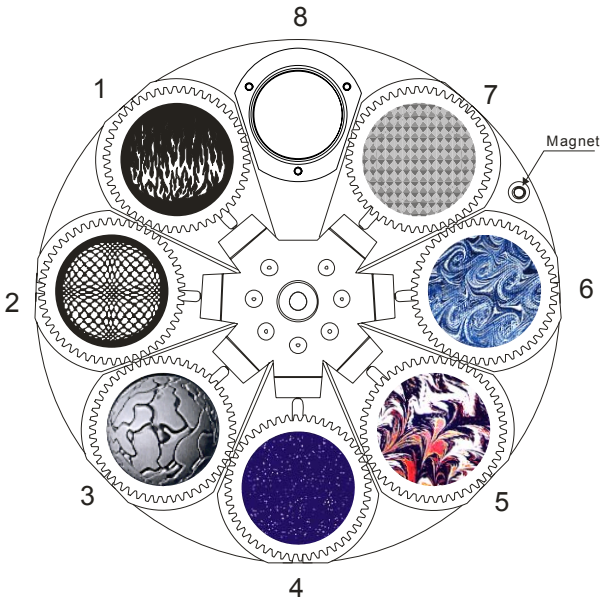
1) The fixture is open as described above. The optical plug-in module is taken out and opened as well.



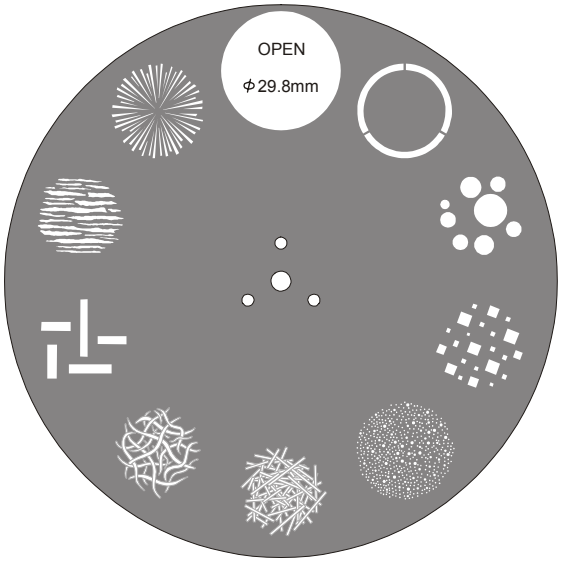
2) Pull the Color filter holder carefully out of the central spring-holder jig. Use for example a small flat-noses pliers or do it by hand.

   Note: This will work best if the two "open" positions are overlapping.
3) Exchange the complete Color filter holder and pull it back into the central spring-holder jig. You can also use a small screwdriver to lift the spring carefully.

   Attention: Please make sure that the Color filter holder is snapped in and fits tight.



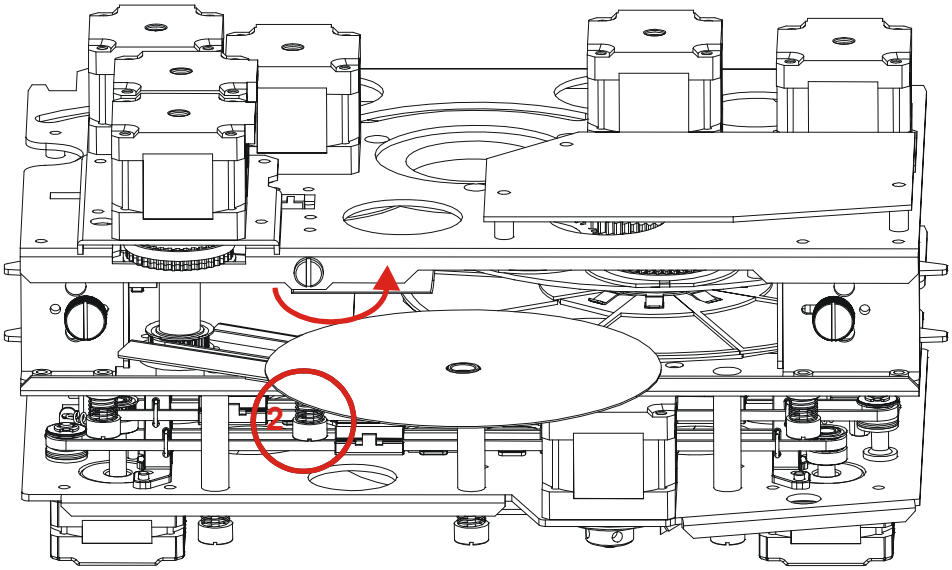
Gobo wheel 1 with rotating Gobos



Gobo wheel 2 with fixed Gobos

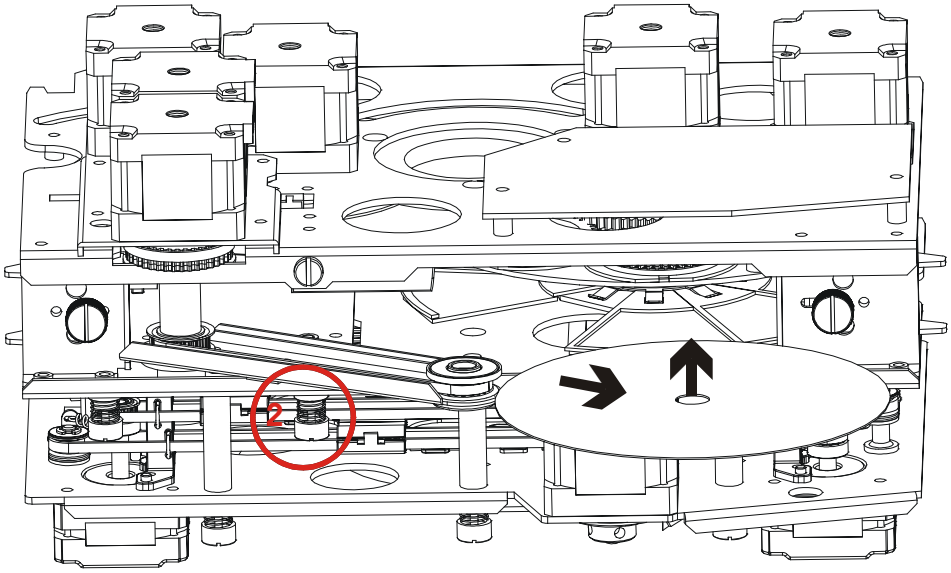
6.3.4 Changing the Effect wheel

1) **The fixture is open as described above. <u>It is now not necessary to take out the optical plug-in module.</u>**
2) Open the knurled screw in the middle of the module which is screwed in the inclined aluminum bar.



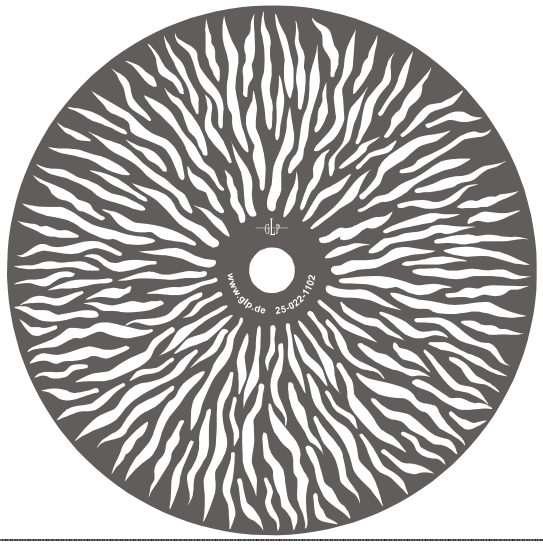
3) The Effect wheel can now be tilt out by hand.
4) The wheel itself is only magnetically mounted on the wheel axis.
5) To remove it please place a second effect wheel with the magnet facing to the bottom concentrically over the still mounted one.

6) Both wheels can now gently be removed. **Attention:** Don't strip the wheels off sideways as the magnet could get detached and could get stuck in the arm!

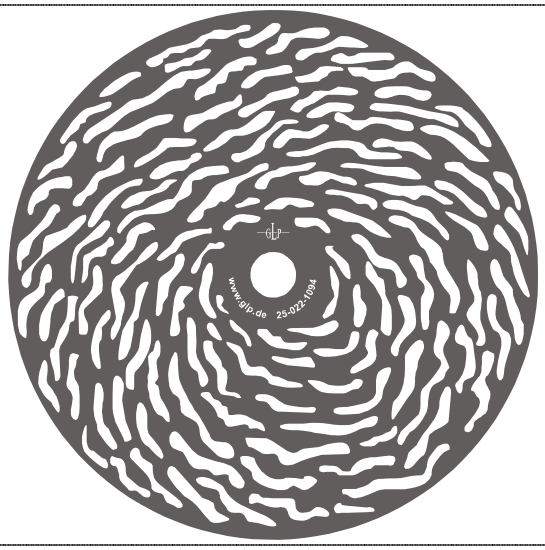


7) Change Effect wheel as desired and close the module in reverse order again.

Effect wheel insertion and spares:

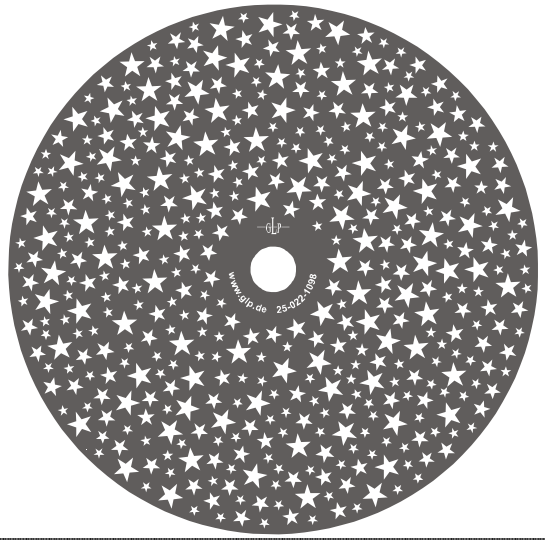


25-022-1102 STANDARD

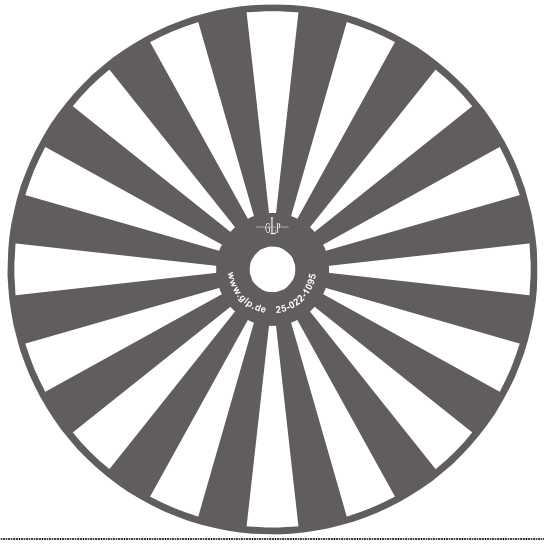


25-022-1094 SPARE

25-022-1096 SPARE



25-022-1098 SPARE



25-022-1095 SPARE

7 Maintaining and Cleaning the YPOC 700 CMY

It is absolutely essential that the fixture is kept clean and that dust, dirt and smoke-fluid residues must not built up on or within the fixture. Otherwise the fixture's light-output will be significantly reduced or damages can occur. Regular cleaning will not only ensure the maximum light-output, but will also allow the fixture to function reliable throughout its life.

A soft lint-free cloth moistened with any good glass cleaning fluid is recommended, under no circumstances should alcohol or solvents be used!

The inside optical system should be maintained only by authorized persons. Please contact your local dealer.

7.1 Safety Regulations

- **Pull out the main plug!**
- Wait min. 20 minutes after the last operation to cool down the fixture.
- Before you put the **YPOC 700 CMY** into operation close the casing, otherwise your retina can be hurt!

7.2 Circumference and Interval (rule-of-thumb)

The contamination of the fixture depends on the environment details. Therefore no general guidelines can be given. Therefore the intervals given are only suggestions from our practice experience.

Position	Interval	In this way
Outside optic	weekly	soft cloth and glass cleaning fluid
Color filter/Frost filter	monthly	soft cloth and glass cleaning fluid
Gobos	yearly	vacuum cleaner, airbrush, etc.
Glass gobos	monthly	soft cloth and glass cleaning fluid
Prism	monthly	soft cloth and glass cleaning fluid
Dimmer/Shutter/Iris	yearly	vacuum cleaner, airbrush, etc.
Inside lens	monthly	soft cloth **no** glass cleaning fluid
Fan and air channel	monthly	vacuum cleaner, airbrush, etc.
Reflector	**never**	
Lamp	**never**	
Moveable parts	yearly	suitable fatty oil

Attention:

- **Never let optical parts come into contact with oil or fat.**
- **Before running the fixture wait until all parts are dried up.**
- **Clean lenses only with dry clothes. Never use water or other cleaners.**
- **Change lenses if they look milky. For that please contact your local dealer.**

7.3 Cleaning the Optical System

1. **Pull out the main plug!**
2. Wait min. 20 minutes after the last operation to cool down the fixture.
3. Open the upper shell of the head casing by loosening the 4 quick look fasteners. Two on the front side and two on the back side of the head.
4. Do the work as explained in the list above.
5. Before you put the **YPOC 700 CMY** into operation close the casing, otherwise your retina can be hurt!

8 Technical Specification

Power supply	
Power consumption	~90 - 260V, 50 - 60 Hz 1000 Watt, 4.5 A, electronic ballast, (blind current compensated)
Fuse protection	For 230 V / 115 V: Lamp: T 5A / T 10A, 5x20 mm (fine-wire fuse) Electronic: T 1A / T 2A, 5x20 mm (fine-wire fuse)
Lamp	
Type	HTI 700-DE (OSRAM, SharXS)
Live time	750h
Color temperature	7500k
Luminous flux	59.000 lm
Optical system	
Dichroic coated glass reflector	
Beam angel 14° - 32°	
Lenses hardened and tempered, anti-reflex coated	
Colors (8/16 Bit)	
Color wheel 1: 8 dichroic filters plus white, 9 half colors	
Gobos (8/16 Bit)	
Gobo wheel 1: 7 exchangeable rotating and indexed Gobos plus "open" (5x Glass Gobos, 2x Aluminum Gobos)	
All rotating Gobos exchangeable, 11 spare Gobos, Gobo thickness glass = 1.1 - 3.0 mm	

Gobos outside diameter 27 mm, picture size max. 23 mm. For customized Gobos like company logos and writing the recommended image size is 20 mm.	
Gobo wheel 2: 9 fixed aluminum Gobos plus "open" (not exchangeable)	
CMY Color mixing unit (8/16 Bit)	
Cyan color filter 0 - 100%	
Magenta color filter 0 - 100%	
Yellow color filter 0 - 100%	
Shutter / Strobe / Dimmer (8/16 Bit)	
Strobe- effect with variable speed 1 - 10 flashes per second	
Continuously mechanical dimmer 0 - 100%	
Prism (8/16 Bit)	
Rotating 3-face prism, rotating and variable in speed	
Focus (8/16 Bit)	
Motor driven focus from near (2 m) to far away	
Iris (8/16 Bit)	
High-Speed Iris 100% - 4% (0,2 Sec. opening time)	
Frost (8/16 Bit)	
Variable frost filter 0% - 100%	
Zoom (8/16 Bit)	
Zoom range 14° - 32°	
CTO Filter (8/16 Bit)	
Variable CTO color correction filter 0 - 100% (3200K)	
Effect wheel (8 Bit)	
Rotating and indexed Effect wheel , different patterns, exchangeable	
Drive	
Standard USITT DMX-512, 3 pole XLR; [+] = Pin 3 [-] = Pin 2 [Ground] = Pin 1. The DMX- addressing starts at the DMX- address [001]. Normal Mode = 24 DMX channels / Extended Mode = 33 DMX channels	
Pan / Tilt	
Pan- movement	**530° in max. 2.65 seconds, 16 bit resolution**
Tilt- movement	**280° in max. 1.68 seconds, 16 bit resolution**
Weights and measures	
Width of the base	**490 mm**
Length of the base	**380 mm**
height (head vertical)	**646 mm**
Weight (net)	**28.5 kg**

9 Index