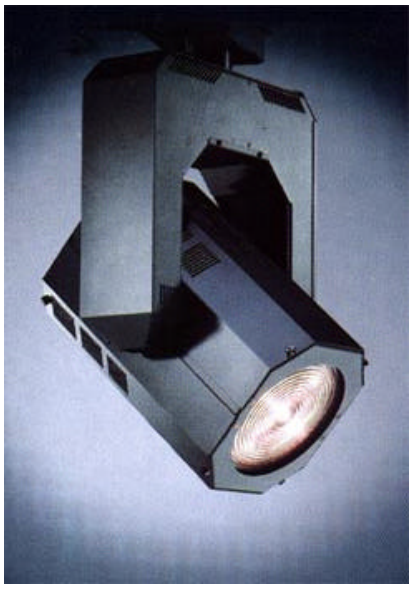

ControLite

Washlight HX squarcle

Operating Instructions

As of 09/03
DMX Software version HX16T4 V1.0 and above

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ControLite

Washlight HX squarcle

with:

- halogen lamp
- 16-bit servo card (TV)
- dipless colour mixing
- dipless focus (9°- 32°)
- barn door effect with 4 single doors

1 General Information

1.1 Product Description

The Washlight HX is a moving head, Fresnel- or PC-lens spotlight with variable colour mixing based on the colours yellow, magenta, and cyan. As its light source, a highly effective halogen lamp - surrounded by an elliptical cold-beam dicro-glass reflector - has been employed. A built-in electronic dimmer with MOS-FET technology allows for dipless fades and shutter functions. Various beam angles are made possible by a movement of the front lens. The barn door effect enables variable shaping of the cone of light. In order to meet the demands of very dynamic movements, the Washlight HX employs extremely robust and powerful servo motors.

The Washlight HX with halogen lamp is convection-cooled - there is no ventilator in the unit.

The Washlight is controlled internally by a 32-bit high-performance controller as well as a 16-bit DSP (digital signal processor), among others.

All functions can be remote-controlled with the DMX 512/1990 serial interface. For safety reasons, this interface is galvanically separated from the entire electronics.

Service and maintenance are greatly facilitated due to easy lamp replacement and plug-in electronic units.
The housing has a black, extremely resistant, powder-coated finished.

1.2 Safety Instructions

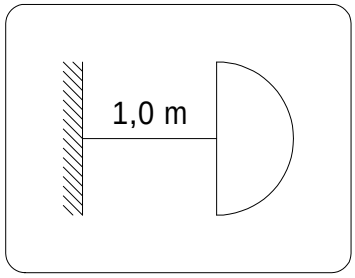
The following safety instructions and technical data are necessary for trouble-free functioning of the unit as well as for the prevention of injury / damage to people / objects. For this reason, all safety and technical requirements must be followed without exception. Failure to do so exempts Amptown Lichttechnik GmbH from any and all liability for both the unit's guarantee / warranty and any resulting injuries and / or damages.

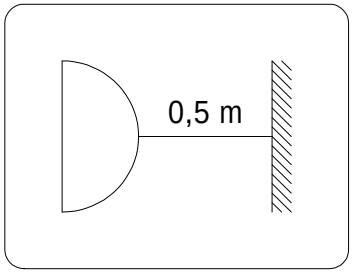
These instructions should be seen as an integral part of the Washlight HX, and should be kept with it at all times:

- Before opening the unit, it must be removed entirely from the power supply (pull out the plug)!

- Protective Class I: Only insert unit's plug into socket with protective plug reception with nonfused earth conductor!
  The mains cross-sections must be capable of handling the required power input!

- Allow the bulb to cool before replacing it!
- Follow installation instructions provided by the bulb's manufacturer!
- Protective type IP 20 (NOT rain-, drip-, or splash-proof)! For outdoor use, a suitable dome is available.
- Keep away from all flammable materials (see diagrams below for distances to be maintained)!





- Unit's ventilation slits should never be covered or blocked, and must be cleaned when dirt / dust builds up!
- Never insert any bodily parts or other objects through the housing openings into the unit!
- In case of malfunction, the unit must be removed immediately and entirely from the power supply, and may not be operated again until personnel described below has undertaken repairs!
- The unit may be operated from any position.
- It is of utmost importance that there be enough room for the lamp yoke's and head's pan and tilt movements!
- Required free space incl. unit: 500x500x750 mm (Width x Depth x Height, standing on ground)
- The unit may not be operated within reach of people and / or any accidental contact with the unit must be prevented via appropriate warning signs or barriers!
- When operating the unit from a hanging position, the unit must be secured via the mounting brackets designed for this purpose. To do so, two points with a load-carrying capacity of 250 Newtons each are necessary.
- Repair service and maintenance on and within the unit are to be carried out by qualified personnel only! These qualified personnel must either have well-founded technical knowledge or have received instructions from the manufacturer.

1.3 Technical Data

Power supply:	90 - 255 V / 50 - 60 Hz
Power consumption:	800 VA max.
Mains Connection:	1 Meter H07RN-F 3G1,5² with plug
Signal (galvanically separated): - Input (R_{in} = 800 Ohm): - Output (activ, 60mA):	DMX 512/1990 - 15 channels XLR 5-pol, male XLR 5-pol, female

Input and Output must not be exchanged in function!

DMX pin configuration:

pin 1 = GND (shield)

pin 2 = data -

pin 3 = data +

Movement:	pan = 340° tilt = 270°
Dipless colour mixing:	cyan, magenta, yellow (CMY)
Variable focus/beam angle:	approx. 9° - 32° (with Fresnel lens)
Build-in electronical dimmer:	0 - 100%
Max. ambient temperature:	t_a = 40°C
Max. housing temperature:	t_{max} = 90°C (at head´s end)
Weight:	25 kg
Lamp:	**GE GKV 600 230V / 600W** GE GKV 600 240V / 600W GE HX 600 115V / 575W

Design and technical detail subject to change.

2 Preparing to Operate the Washlight

2.1 Power supply

The Washlight comes with a standard 1-metre power supply cable and shrouded contact plug. The power supply cable must be plugged into a socket with protective plug reception and nonfused earth conductor. The socket's fuse should be not less than 6 amps and not greater than 16 amps.

2.2 Lamp (Bulb)

There are currently three different bulbs available:

GE	**GKV600**	**230V**	**600W**
GE	GKV600	240V	600W
GE	HX600	115V	575W

Please follow bulb manufacturer's instructions!

2.3 DMX

DMX connection is done via a regular 5-pin XLR connector (e.g., Switchcraft, Neutrik).

Input (DMX in):	**male**	**Pin:**	**1 = Ground (GND)**
Output (DMX out):	**female**		**2 = Data -**
			3 = Data +

The DMX LED will light up green when the DMX data are valid; if not, it will be yellow. If there is no DMX signal, the unit's performance is adjusted on the DMX card with DIP switch 4: either maintain current settings or go to basic position.

If an invalid DMX address is entered, the DMX LED will blink green/yellow and the moving light will return to its basic position (default). For the addresses 800 and upward, a test mode is implemented; with this mode, it is possible to check the unit's individual functions - including without DMX.

For operational safety and conformity to European CE regulations, only shielded DMX cable may be used. The shield must be on Pin 1 (ground).

For safety reasons, the DMX inputs and outputs are galvanically separated from the entire electronics.

In order to increase operational reliability, each output is "active"; i.e., the DMX signal is boosted by each unit. This means that any number of ControLite moving lights can be connected to one DMX line. A terminating resistance is not necessary.

If a unit is not connected to the power supply, the DMX signal is automatically looped through.

If the DMX signal has to be manually split, a maximum of two Washlights can be directly connected to one output. Should you need to run more than two units parallelly, an active splitbox is required.

The DMX input within the unit has an impedance of 800 Ohm.

☹ **prohibited**

DMX in- and outputs must not be mixed-up.

The Washlight controls require 15 DMX channels per unit.
Please refer to section 4.6 DMX Channel Settings for channel distribution and their corresponding functions.

The start address for the first channel of the unit must be defined using the three-digit code switch located on the yoke.

☺ **TIP**

Setting a new start address may effect the yoke to change the position and whiggle around.

To avoid movement while setting a new start address press the "RESET" button the same time.

The Washlight does not have to be connected to the power supply in order to enter the unit's start address!

2.4 Settings DMX Card

DIP switches and jumper

(DMX-2 software version: WL-HX16T V 1.0 and above)

Switch (S2) in front on the DMX card:

DIP	Function	on	off
1			
2	failure input	**active**	passive
3	DMX start address	blocks of 15 channels	**1 ... 512 (individual)**
4	no DMX signal	**maintain current settings**	basic position (default)

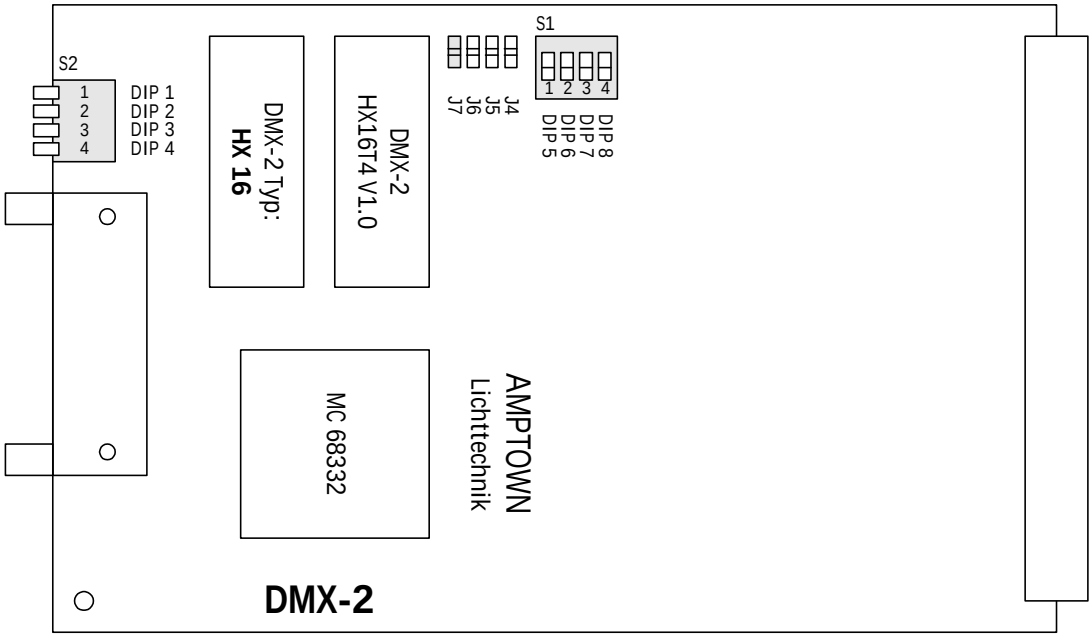
Switch (S1) in back on the DMX card (the card must be pulled out):

DIP	Function	on	off
5	DMX channel 10 (aux.)	passive	**active**
6			
7			
8			

Jumper in back on the DMX card (the card must be pulled out):

DIP	Function	in	open
7	Barn Door channels (11..15)	**on (15 channels)**	off (10 channels)
6			
5			
4			

boldface: adjustment on delivery



3 Functions

3.1 Dimmer

The electronic dimmer for the halogen bulb is built into the Washlight. You may control this function via the DMX 512 interface on **Channel 1** from 0 = "off" to 255 = "on".

3.2 Focus

The focus allows you to diplessly change the beam angle from 9° to 36°. Control of this function is via **DMX Channel 2**. Resolution is 8-bit. It takes approx. 2 seconds for the entire procedure (9° --> 36°).

3.3 Pan / Tilt

The unit's servo-card controls movement of both axes (head and yoke). For both axes, there is a corresponding channel for coarse and fine adjustment.

Channel 3 = yoke / pan coarse (DMX 0 - 255)
Channel 4 = yoke / pan fine (DMX 0 - 255)

Channel 5 = head / tilt coarse (DMX 0 - 255)
Channel 6 = head / tilt fine (DMX 0 - 255)

As soon as the light is connected to the power supply, the servo card executes a set-up movement (servo reset) on its own. During this procedure, all positions are carried out at slow speed. Also, the servo LED blinks during this time.

The card is equipped with overload protection for the gears. If one of these precautionary measures registers a malfunction, the red servo LED will come on immediately and the motors will disengage. If you are unable to solve the problem by pushing "RESET" or by briefly disconnecting from the power supply, there is a malfunction.

3.4 Colour Mixing

For infinitely variable colour mixing, there are three basic colours (yellow, magenta, and cyan) available. Their channel distribution via the DMX interface is as follows:

Channel 7 = yellow
Channel 8 = magenta
Channel 9 = cyan

The following control info applies to all three colours:

DMX 0 / 0% /00H = none of the corresponding colour
DMX 220 / 86% /DCH = saturated (full) colour

DMX values higher than the above-mentioned maximum setting (220 / 86% / DCH) correspond to the saturated colour as well.

TIP

yellow + magenta = red
magenta + cyan = blue
cyan + yellow= green

Get best results in colour mixing by using two colours the same time, only. Using all three colours does not effect your colour mixing in any positive way, but gives a fade-out effect.

Get a black-out effect by setting all colours on full intensity. The remaining light will be less than 5% then. Fade out the dimmer and you´ll reiceive a nice black-out.

3.5 Auxiliary Channel

The **DMX Channel 10** controls three reset functions :

With DMX setting 202, only a servo reset is carried out.
With DMX setting 203, both a servo and a stepper reset are carried out.
With DMX setting 204, only a stepper reset is carried out.

3.6 Barn Door Effect

The barn door effect allows the lighting designer to shape the spot's beam. To do so, there are 4 doors available: **DMX Channels 12 to 15** each control a straight door. The doors can be brought into the desired position via **DMX Channel 11** (door rotation).

Please keep in mind that the motors are meant to position the doors, but are NOT made for a constant movement effect!

3.7 Test Mode

A test mode has been implemented in the DMX software, version HX16T V1.0 and above; this mode allows you to check the Washlight functions directly (including without DMX). Select the test mode via the BCD code switch (which is normally responsible for selecting the DMX start address).

The individual test functions:

BCD Switch	DMX Channel	Function
801	1	Lamp on, pan & tilt 50%
802	2	Lamp on, pan & tilt 50%, focus 100%
803	3	Lamp off, Pan coarse 100%, tilt 0%
804	4	Lamp off, Pan coarse + fine 100%, Tilt 0%
805	5	Lamp off, Pan 0%, Tilt coarse 100%
806	6	Lamp off, Pan 0%, Tilt coarse + fine 100%
807	7	Lamp on, pan & tilt 50%, yellow 100%
808	8	Lamp on, pan & tilt 50%, magenta 100%
809	9	Lamp on, pan & tilt 50%, cyan 100%
810	10	Lamp on, pan & tilt 50%, no reset
811	11	Lamp on, pan & tilt 50%, door rotation 100%
812	12	Lamp on, pan & tilt 50%, door 1 100%
813	13	Lamp on, pan & tilt 50%, door 2 100%
814	14	Lamp on, pan & tilt 50%, door 3 100%
815	15	Lamp on, pan & tilt 50%, door 4 100%
000	/	default settings, DMX-LED blinks
497 to 800	/	default settings, DMX-LED blinks
816 to 999	/	default settings, DMX-LED blinks

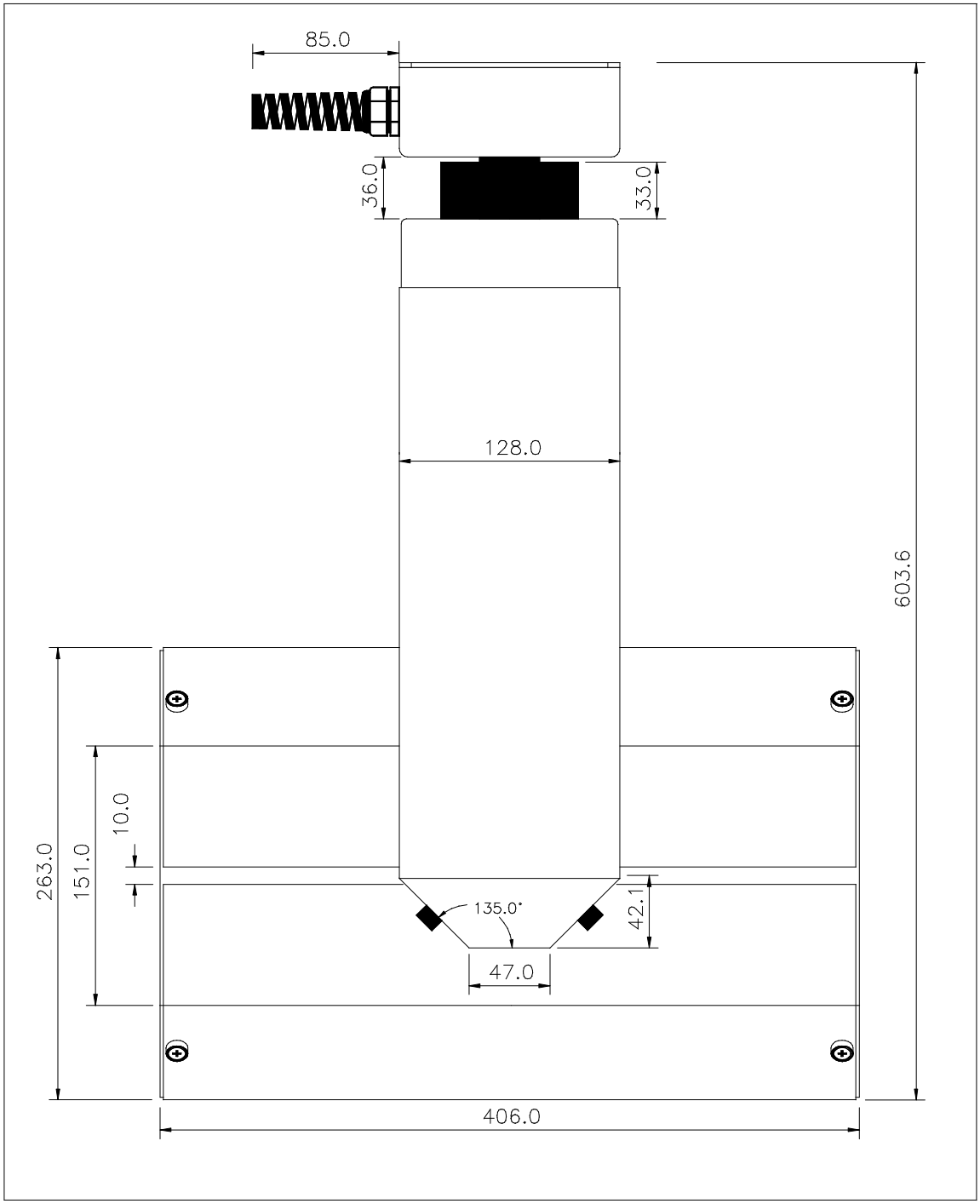
Codes 801 to 815 correspond to DMX channels 1 to 15.

With all other invalid DMX start addresses, the Washlight will go to its default position: head horizontal, yoke 50%, focus forward, door rotation 100%, the rest 0%.

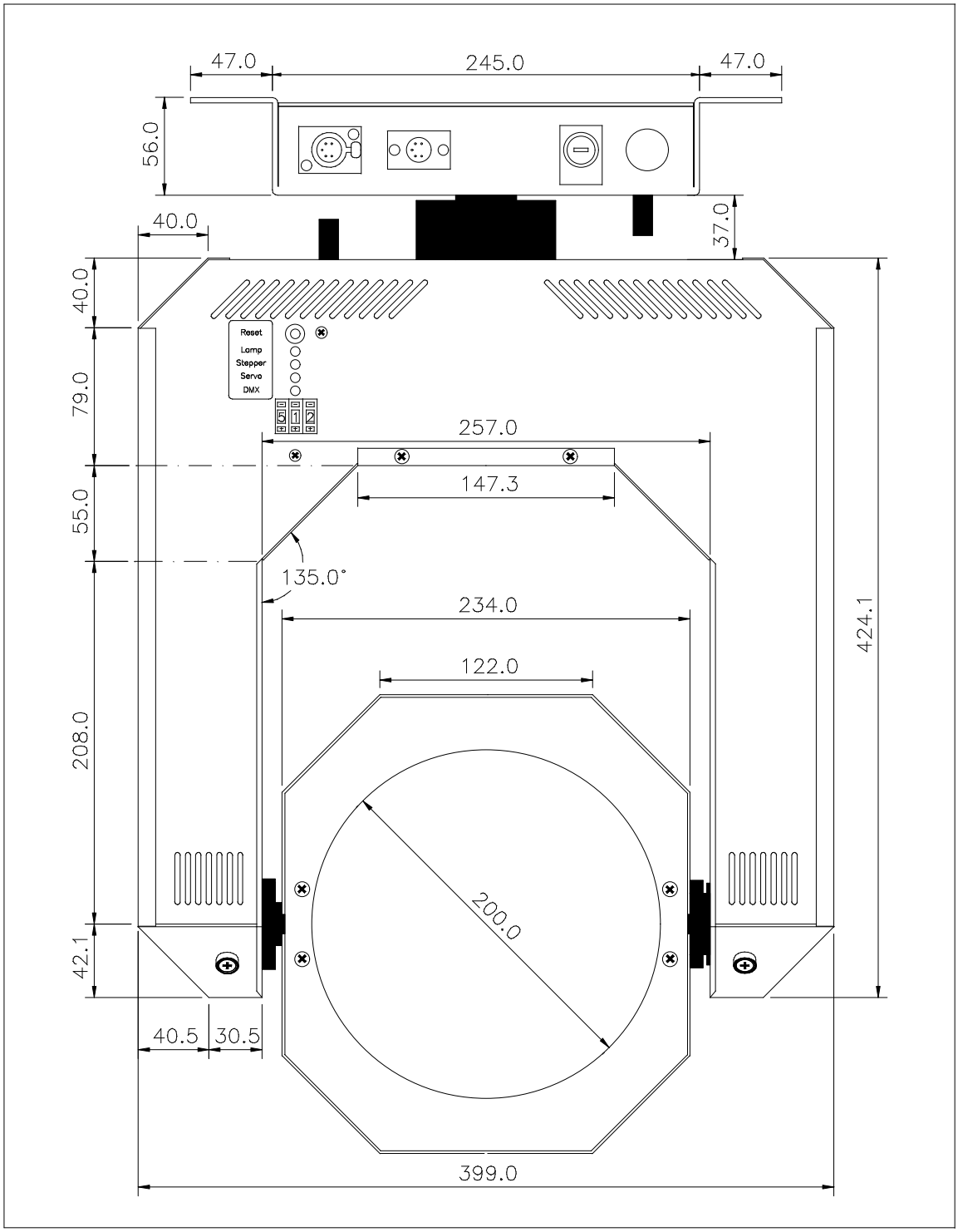
4 Appendix

4.1 Dimensioned Drawings (in mm)

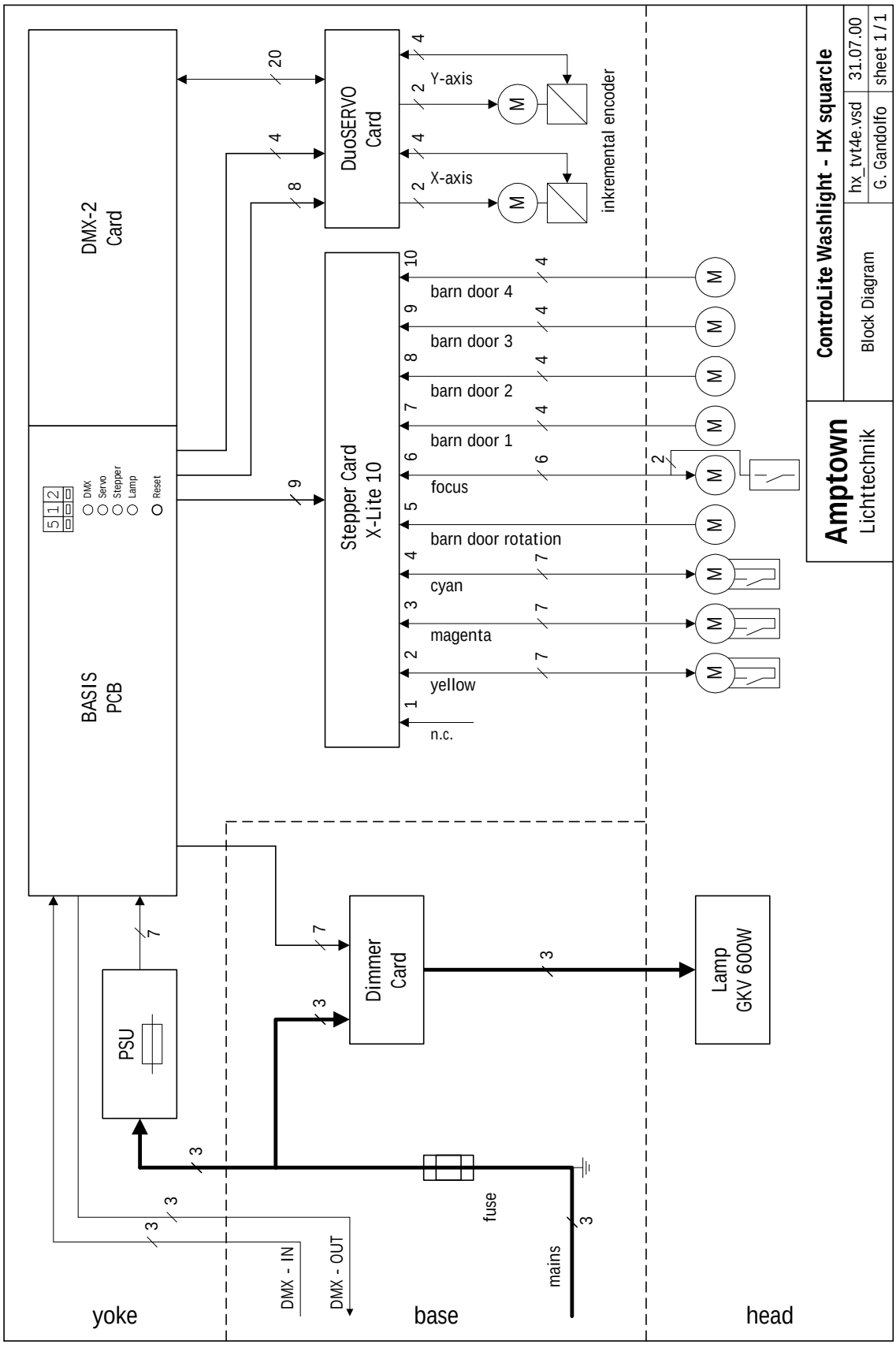
Side View



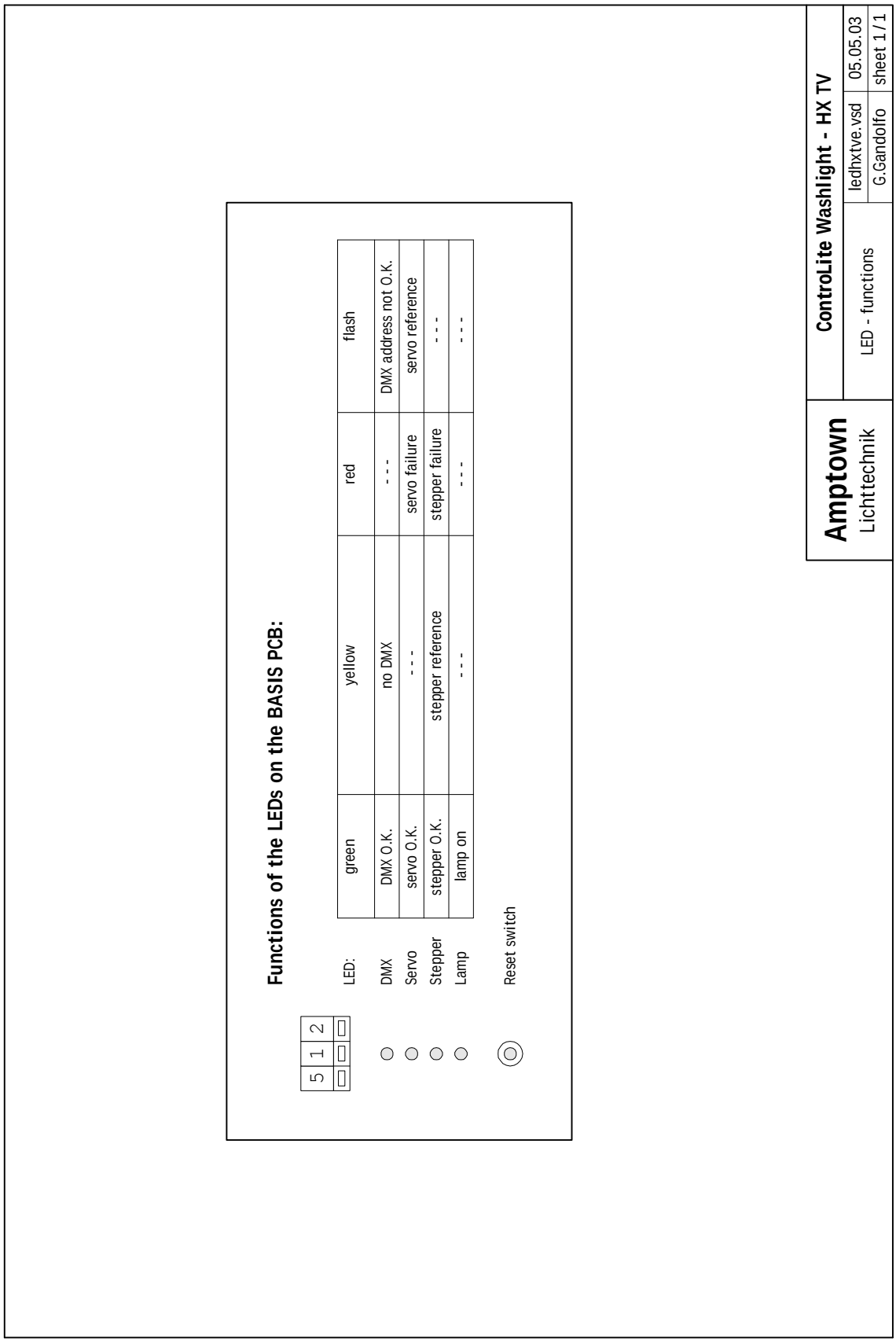
Front View


47.0
245.0
47.0
56.0
40.0
37.0
40.0
79.0
55.0
208.0
42.1
Reset
Lamp
Stepper
Servo
DMX
257.0
147.3
135.0°
234.0
122.0
200.0
424.1
40.5
30.5
399.0

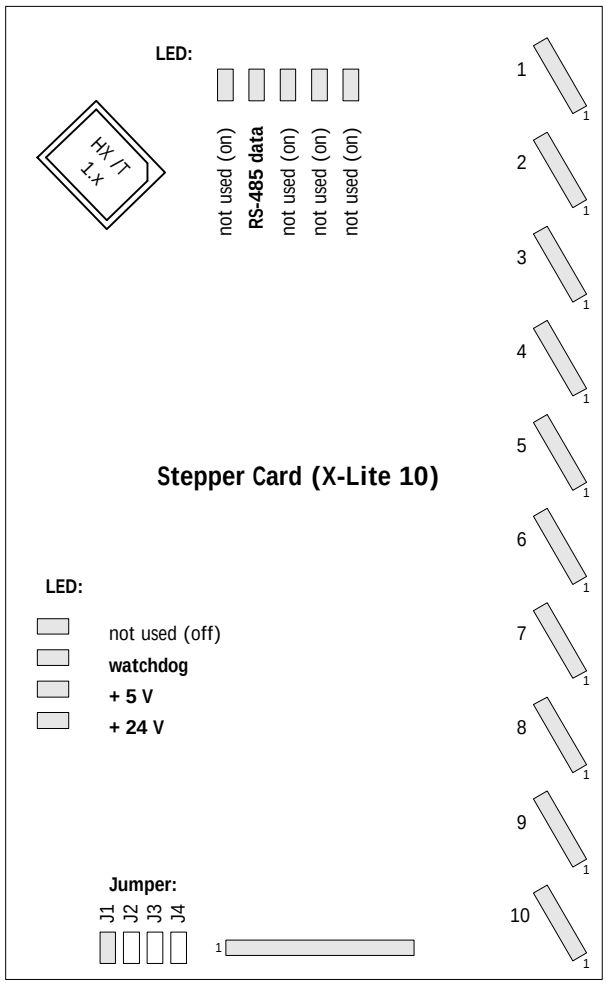
4.2 Block Diagram



4.3 LED Functions



4.4 Stepper Card (X-Lite 10)



ControLite Washlight HX squarcle | 05.05.03 | 1/1
x_hxt4e.vsd | G. Gandolfo
X-Lite 10
Amptown Lichttechnik

Supply connection:

Pin	Colour	Signal
1	yellow	RS 485 + data
2	green	RS 485 - data
3...5	n.c.	
6	orange	signal stepper
7	brown	GND
8	violet	+ 5V
9,10	black	GND - motor
11,12	red	+ 24V - motor

Stepper connection:

Pin	Colour	Signal
1	black	stepper winding 1
2	brown	stepper winding 1
3	red	stepper winding 2
4	orange	stepper winding 2
5	yellow	GND
6	green	+ 5V - Vcc
7	blue	output: zero signal

Jumper:

No.	Function
1	auto correction off
2	res.
3	res.
4	res.

LED:

Function	Description
RS 485 data	flashes receiving new data
watchdog	flashes with software failure or after reset
+ 5 V	always on
+ 24 V	always on

4.5 Declaration of Conformity

Manufacturer:

Amptown Lichttechnik GmbH
Wandsbeker Str. 26
D-22179 Hamburg

Germany

Product Name: ControLite

Type of Product: Washlight HX (Halogen) and Washlight HP (High Power)

We declare that the products listed above meet the electromagnetic compatibility requirements of the European Commission Directive and comply with the requirements of the Directive by meeting the following standards:

Safety:
EN 60598-1
EN 60598-2-17
VGB 70

EMC:
EN 55103-1
EN 55103-2
EN 50081-1
EN 50082-1

Hamburg, July 10th 1997

_____

Dipl.-Ing. Michael Knappe

4.6 DMX Channel Settings

channel	function	
1	dimmer	electronic, dipless fades
2	focus	dipless
3	pan - coarse	
4	pan - fine	
5	tilt - coarse	
6	tilt - fine	
7	colour wheel: yellow	dipless
8	colour wheel: magenta	dipless
9	colour wheel: cyan	dipless
10	auxiliary channel: RESET	
11	barn door rotation	dipless
12	barn door 1	dipless
13	barn door 2	dipless
14	barn door 3	dipless
15	barn door 4	

channel	name	DMX	%	hex	function
1	dimmer	0	0%	00 h	brightness 0%
		255	100%	FF h	brightness 100%
2	focus	0	0%	00 h	flood - beam angle 36°
		255	100%	FF h	spot - beam angle 9°
3	movement	0	0%	00 h	horizontal -170°
	pan (X)	127	50%	7F h	horizontal 0°
	coarse	255	100%	FF h	horizontal +170°
4	movement	0	0%	00 h	
	pan (X)	127	50%	7F h	
	fine	255	100%	FF h	
5	movement	0	0%	00 h	vertical -135°
	tilt (Y)	127	50%	7F h	vertical 0°
	coarse	255	100%	FF h	vertical +135°
6	movement	0	0%	00 h	
	tilt (Y)	127	50%	7F h	
	fine	255	100%	FF h	
7	yellow	0	0,0%	00 h	no yellow (white)
	dipless	220	86,3%	DC h	full yellow
8	magenta	0	0,0%	00 h	no magenta (white)
	dipless	220	86,3%	DC h	full magenta
9	cyan	0	0,0%	00 h	no cyan (white)
	dipless	220	86,3%	DC h	full cyan

channel	name	DMX	%	hex	function
10	auxillary channel:	0…201	0…79%	00…C9 h	standard
		202	79,2%	CA h	RESET - Servo
	RESET	203	79,6%	CB h	RESET - Servo+Stepper
		204	80,0%	CC h	RESET - Stepper
		205…255	81…100 %	CD…FF h	standard
11	barn door rotation	0	0%	00 h	
		255	100%	FF h	
12	barn door 1	0	0%	00 h	barn door open
		255	100%	FF h	barn door closed
13	barn door 2	0	0%	00 h	barn door open
		255	100%	FF h	barn door closed
14	barn door 3	0	0%	00 h	barn door open
		255	100%	FF h	barn door closed
15	barn door 4	0	0%	00 h	barn door open
		255	100%	FF h	barn door closed