



Controlite

Moving Yoke

Operating Instructions

project 2

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Moving Yoke

with

- ◆ Sharp Beamer XG-NV6/XG-P10
- ◆ 16-bit Servo card
- ◆ DMX control
- ◆ Signal source switching
- ◆ Lamp on/off
- ◆ Focus
- ◆ Zoom
- ◆ Reset

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1 General Information

1.1 Product Description

The Moving Yoke was conceived to be fitted with Sharp projectors XG-NV6 or XG-P10. The yoke and the projector are controlled via the DMX-512 serial interface. The yoke's movement (pan/tilt) is controlled using a 16-bit servo card. The projector is equipped with signal source switching, zoom, focus, and projector on/off.

In order to meet the demands of very dynamic movements, the Moving Yoke employs extremely robust and powerful servo-motors.

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.

The housing comes with a black, extremely resistant, powder-coated finish.

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 Moving Yoke, and should be kept with it at all times:

- Before opening the unit, it must be completely disconnected from the power supply (pull out the plug)!
- Always allow the projector to cool before disconnect from the main power!
- Protective Class I: Insert unit's plug into socket with protective plug reception with nonfused earth conductor only!
The mains cross-sections must be capable of handling the required power input!

- Protective type IP 20 (NOT rain-, drip-, or splash-proof)! For outdoor use, a suitable dome is available.
- Unit's ventilation slits should never be covered or blocked, and must be cleaned when dirt / dust builds up!
- Never insert any body parts or other objects through the housing openings into the unit!
- In case of malfunction, the unit must be disconnected 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.
- There must be enough room for the lamp yoke'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:	120 VA max.
Mains Connection:	1 Meter H07RN-F 3G1,5 ² with plug
Signal (galvanic separated):	DMX 512/1990 - 12 channels
- Input ($R_{in} = 800 \text{ Ohm}$):	XLR 5-pin, male
- Output (active, 60mA):	XLR 5-pin, female

Never mix up input and output!

DMX pin configuration:

pin 1 = GND (shield)

pin 2 = data -

pin 3 = data +

Movement:	pan = 340° tilt = 270°
Max. working temperature:	$t_a = 40^\circ\text{C}$
Weight:	Yoke 16 kg + Beamer 7.3 Kg = 23.5 Kg

Design and technical detail subject to be changed.

2 Preparing to Operate the Moving Yoke

2.1 Power Supply

The Moving Yoke 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 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 yoke 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/GND).

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 yokes 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 Moving Yokes 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**

**Never mix up DMX inputs
and outputs.**

The Moving Yoke controls require 12 DMX channels per unit.
Please refer to section 4.6 DMX 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 cause the yoke to
change the position and wiggle around.**

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

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

2.3 DIP Switch Settings DMX Card

Switch (S2) in front on the DMX card:

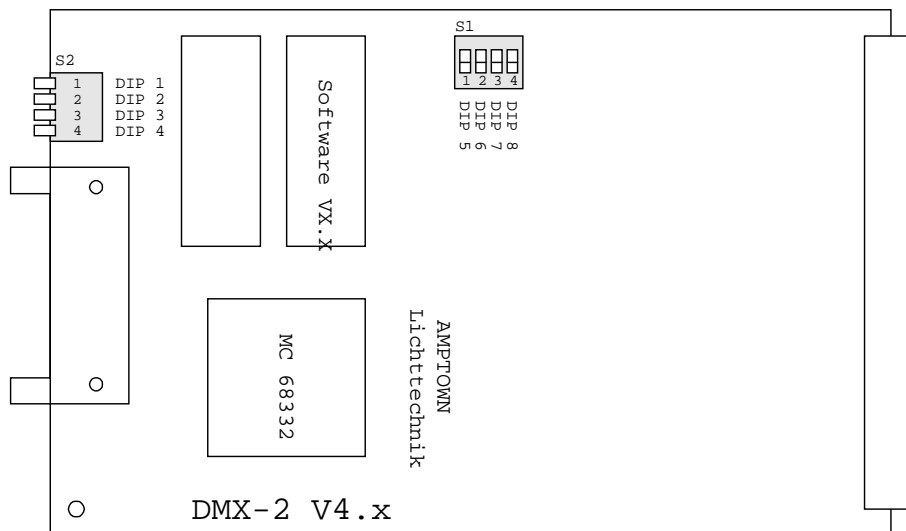
DIP	Function	on	off
1			
2	failure input	active	passive
3	DMX start address	blocks of 12 channels	1 ... 512 (individual)
4	no DMX signal	maintain current settings	basic position (default)

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

DIP	Function	on	off
5	DMX channel 2 (aux.)	passive	active
6			
7			
8			

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

DIP	Function	in	open
7			
6			
5			
4			



Specific DIP switch and jumper functions:**DIP 3 – DMX start adress**

You can set the unit address using DIP3. Blocks of 12 channels each are formed, meaning all you have to set on the BCD switch is the unit number (1, 2, 3... instead of 1, 13, 25...).

DIP 4 – no DMX signal

Using DIP4, you can determine how the unit should act if there is no / a faulty DMX signal. If the switch is activated, all current settings are held as is; otherwise, all functions go to 0% and the head reverts to a default position.

DIP 5 - Auxiliary Channel

DIP5 turns off the auxiliary channel that is responsible for RESETZ, ON/OFF, etc. This prevents the projector being turned off by accident or a RESET being activated by mistake.

J4 - Analog channels

This jumper is of no interest to the user. It is used to test the DMX card only.

3.3 Zoom

As soon as the Moving Yoke is connected to the power supply, this card automatically executes an adjustment run (zoom reset). During this, the zoom motor drive to bounds and then to the DMX position that has been set.

channel 6 = Zoom (DMX 0 – 27)

As soon as the Moving Yoke is connected to the power supply, this card.

3.4 Signal source switching

There are two inputs available for signal source selection on the projector. Input Port 1 with sub-D/HD 15-pin VGA port /5x BNC (RGBHV) or input Port 3 with BNC input Video-In can be selected. here is a channel for this purpose.

channel 7 = Signal source switching (DMX 50 = VGA bzw. RGBHV) (DMX 100 = Video-In)

When the Moving Yoke is turned on and there is no DMX signal present, Input 1 (VGA / RGBHV) is the default setting.

3.5 Auxiliary Channel

DMX channel 12 controls three special functions: projector on/off, projector indication on/off, and Reset. the auxiliary channel has no function in the settings range between 0 to 39, 41 to 49, 51 to 99, 101 to 199, 201, 204, 206 to 255. The decimal value 40 turns the projector indication on, 50 turns the projector indication off. The projector is turned on with 100 and off with 200.

Once the projector has been switched off, it cannot be switched back on immediately. It must cool down for approx. 5 minutes.

Values 202, 203, 204 carry out servo-card- and/or zoom-/focus-resets (see section 4.6 DMX Channel Settings).

3.6 Test Mode

The DMX software contains a test mode which allows you to check the Moving Yoke's functions directly. Select the test mode via the BCD code switch (which is normally responsible for selecting the DMX start address). The DMX LED will blink if an invalid DMX address has been selected.

Individual test functions:

BCD Switch	DMX Channel	Functions
800	...	Beamer power On
801	1	Pan coarse 100%
802	2	Pan coarse+fine 100%
803	3	Tilt 100%
804	4	Tilt coarse+fine 100%
805	5	Focus 100%
806	6	Zoom 100%
807	7	signal source input 3 Video-In
900	...	Beamer power off
000	/	default setting, DMX LED blinks
500 bis 799	/	default setting, DMX LED blinks
817 bis 899	/	default setting, DMX LED blinks
901 bis 999	/	default setting, DMX LED blinks

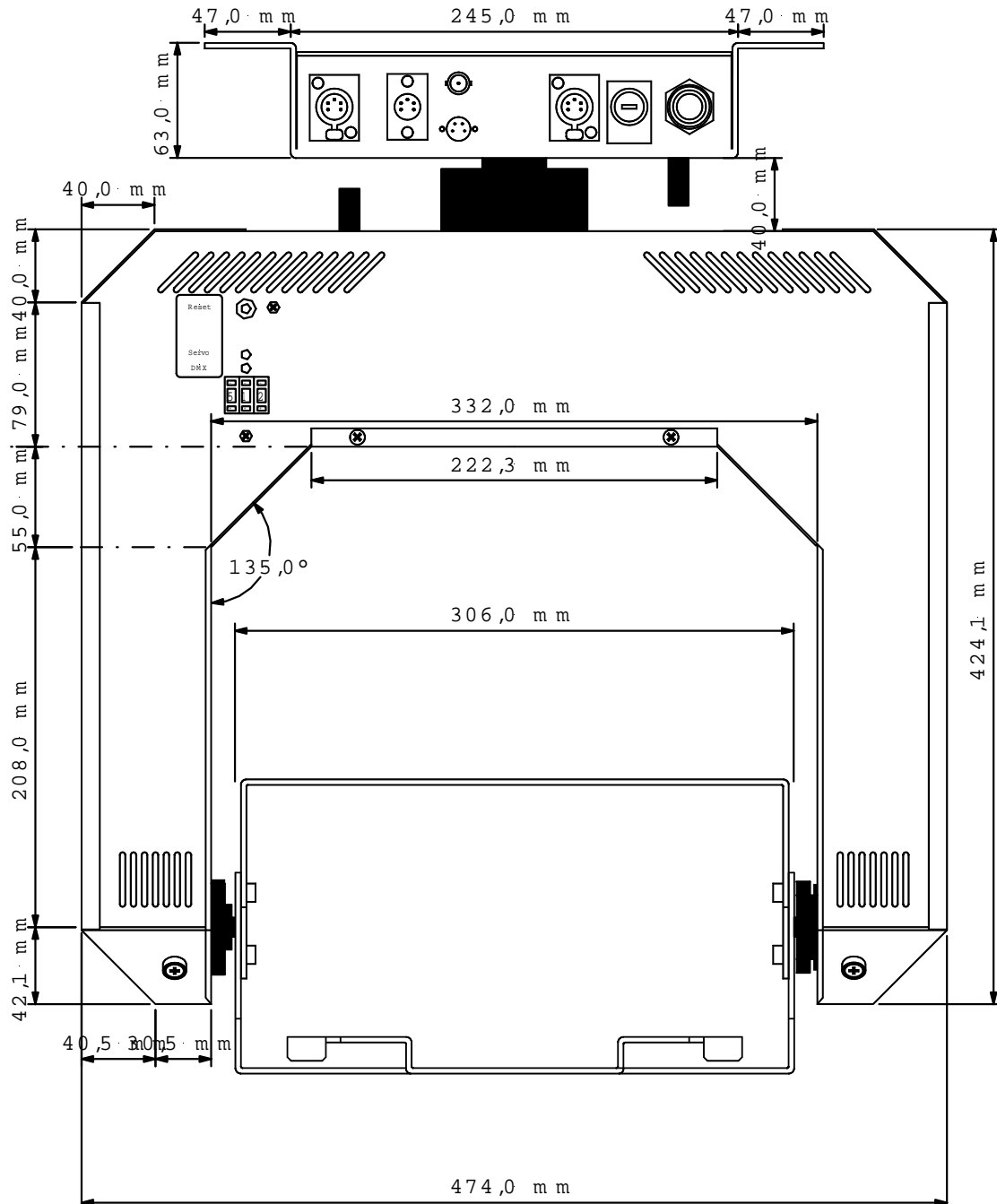
The projector can be turned on and off via the addresses 800 and 900.

With all other invalid DMX start addresses, the Moving Yoke will go to its default position: head horizontal, yoke 50%, focus 0%, zoom 0%, signal input 1.

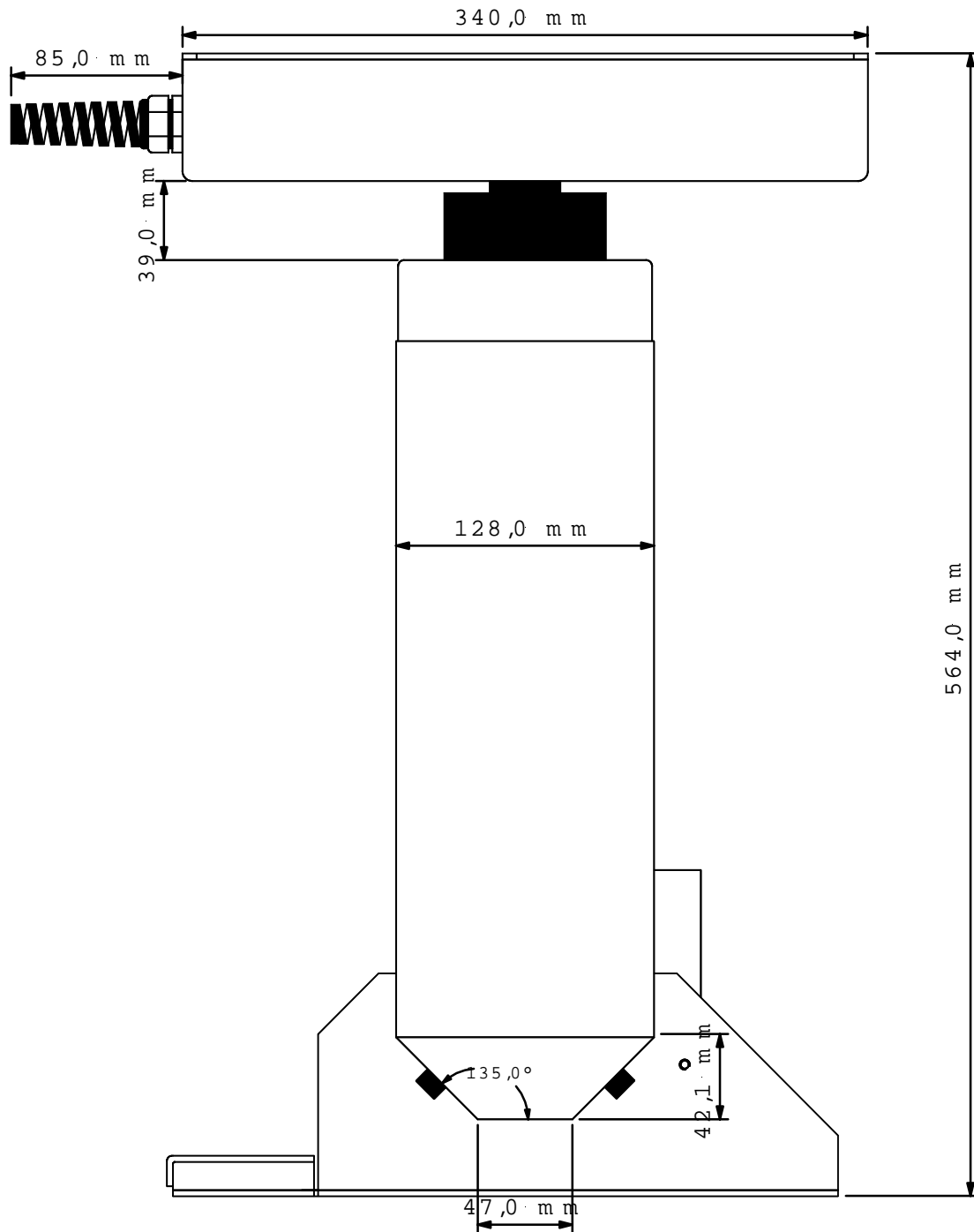
4 Appendix

4.1 Dimensioned Drawings (in mm)

Side View



Front View



4.2 LED Function

LED functions on the BASIS PCB:

5	1	2	□	□	□
---	---	---	---	---	---

○

○

◎

LED:

green	yellow	red	blink
DMX ok	no DMX	-- --	DMX address not O.K.
Servo O.K.	-- --	Servo failure	Servo reference

Reset switch

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led_e.vsd

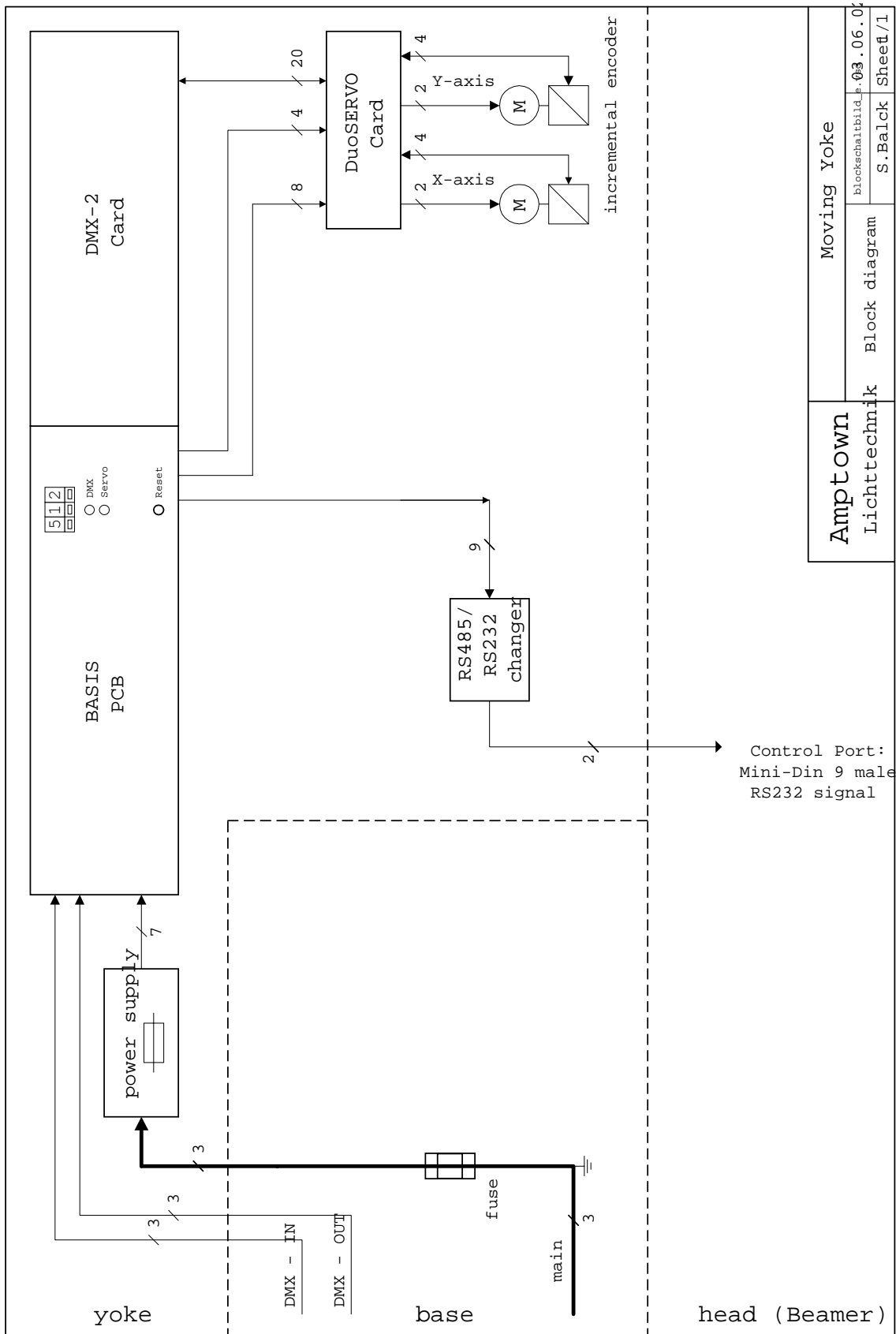
03.06.01

LED - Functions

S.Balck

Sheet/1

4.3 Block Diagram



Amptown Lichttechnik	Block diagram	blockschaltbild_03.06.02
	Moving Yoke	S.Balck Sheet/1

4.4 Declaration of Conformity

Manufacturer: Amptown Lichttechnik GmbH
Wandsbeker Str. 26
22179 Hamburg

Germany

Product Name: ControLite

Type of Product: Moving Yoke

We declare that the product 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

4.5 DMX Channels

Channel	Function
1	Pan - coarse stepless
2	Pan - fine stepless
3	Tilt - coarse stepless
4	Tilt- fine stepless
5	Focus 43 steps
6	Zoom 27 steps
7	Signal Input 2 channels
8	---
9	---
10	---
11	---
12	Auxiliary Channel: Power ON Auxiliary Channel: Power OFF Auxiliary Channel: RESET

4.6 DMX Channel Settings
**Amptown Controlite Yoke for Sharp XG-P10 Beamer
(DP_ALT01) Project 2**

04/02

Channel	Name	DMX	%	hex	Function
1	Movement horizontal (coarse) pan (X)	0	0%	00 h	Horizontal -170°
		127	50%	7F h	Horizontal 0°
		255	100%	FF h	Horizontal +170°
2	Movement horizontal (fine) pan (X)	0	0%	00 h	
		127	50%	7F h	
		255	100%	FF h	
3	Movement vertical (coarse) tilt (Y)	0	0%	00 h	Vertical -135°
		127	50%	7F h	Vertical 0°
		255	100%	FF h	Vertical +135°
4	Movement vertical (fine) tilt (Y)	0	0%	00 h	
		127	50%	7F h	
		255	100%	FF h	
5	Focus	0	0%	00 h	0%
		1...42	0.3...16.5%	01...2A h	42 steps
		43	16.9%	2B h	100%
		44...255	17.3...100%	3B...FF h	no change
6	Zoom	0	0%	00 h	0%
		1...26	0.3...10.2%	01...1A h	26 steps
		27	10.6%	1B h	100%
		28...255	11...100%	1C...FF h	no change
7	Signal input	0...49	0...19.2%	00..31 h	no change
		50	19.6%	32 h	Input 1 VGA/RGB
		51...99	20...38.8%	33...63 h	no change
		100	39.2%	64 h	Input 3 Video
		101...255	39.6...100%	65...FF h	no change

**Amptown ControLite Yoke for Sharp XG-P10 Beamer
(DP_ALT01) Project 2**

04/02

Channel	Name	DMX	%	hex	Function
8	no function				
9	no function				
10	no function				
11	no function				
12	Auxiliary Channel:	0...39	0...15.3%	00...27 h	no change
	RESET	40	15.7%	28 h	Display Beamer ON
		41...49	16.1%	29...31 h	no change
		50	19.6%	32 h	Display Beamer Off
		51...99	20...38.8%	33...63 h	no change
		100	39.2%	64 h	POWER ON
		101...199	39.6...78%	65...C7 h	no change
		200	78.4	C8 h	POWER OFF
		201	78.8%	C9 h	no change
		202	79.2	CA h	SERVO RESET (Pan / Tilt)
		203	79.6	CB h	ALL RESET
		204	80%	CC h	no change
		205	80.4%	CD h	ZOOM + FOCUS RESET
206...255	80.4...100%	CE...FF h	no change		