# ROBIN Strobe

ROBE
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Technology

USER MANUAL

Version 1.5

ROBE® lighting s.r.o. • Czech Republic • www.robe.cz

Robin Strobe

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> **FOR YOUR OWN SAFETY, PLEASE READ THIS USER MANUAL CAREFULLY BEFORE POWERING OR INSTALLING YOUR ROBIN Strobe !**
>
> **Save it for future reference.**

This device has left our premises in absolutely perfect condition. In order to maintain this condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes written in this manual.

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual or any unauthorized modification to the device.

Please consider that damages caused by manual modifications to the device are not subject to warranty.

> **The Robin Strobe was designed mainly for indoor use and it is intended for professional applications only. It is not for household use.**

1. Safety instructions

> **DANGEROUS VOLTAGE CONSTITUTING A RISK OF ELECTRIC SHOCK IS PRESENT WITHIN THIS UNIT!**

Make sure that the available voltage is not higher than stated on the rear panel of the fixture.
This fixture should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied, consult your authorized distributor or local power company.

WARNING! This unit does not contain an ON/OFF switch. Always disconnect power input cable to completely remove power from unit when not in use or before cleaning or servicing the fixture.

The power plug has to be accessible after installing the fixture. Do not overload wall outlets and extension cords as this can result in fire or electric shock.

Do not allow anything to rest on the power cord. Do not locate this fixture where the cord may be damaged by persons walking on it.

Make sure that the power cord is never crimped or damaged by sharp edges. Check the fixture and the power cord from time to time.

Refer servicing to qualified service personnel.

> **This fixture falls under protection class I. Therefore this fixture has to be connected to a mains socket outlet with a protective earthing connection.**

Do not connect this fixture to a dimmer pack.

> **Warning!**
> **LED light emission. Risk of eye injury. Do not look into the beam at short distance of the of the product. Do not view the light output with optical instruments or any device that may conncentrate the beam**

> **To guard against epileptic seizure:**
> **Do not operate the fixture near stairways. Provide advance notice that strobe lighting is in use. Avoid extended periods of continuous flashing, particularly at frequencies of 10 to 20 flashes per second**

If the fixture has been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch it on

immediately. The arising condensation water might damage your device. Leave the device switched off until it has reached room temperature.

Do not shake the fixture. Avoid brute force when installing or operating the fixture.

When choosing the installation spot, please make sure that the fixture is not exposed to extreme heat, moisture or dust.

Air vents and slots in the fixture are provided for ventilation, to ensure reliable operation of the device and to protect it from overheating.The openings should never be covered with cloth or other materials, and never must be blocked.

This fixture should not be placed in a built-in installation unless proper ventilation is provided.

Never place filters or other materials over the front glass cover.

Only operate the fixture after having checked that the housing is firmly closed and all screws are tightly fastened.

To avoid damage of the internal optical system of the fixture, never let the sunlight lights directly to the lens array, even when the fixture is not working !

Keep flammable materials well away from the fixture.

Do not illuminate surfaces within 1 meter of the fixture.

Provide a minimum clearance of 0.3 meters around air vents

Always use a secondary safety cable when rigging this fixture.

Make sure that the area below the installation place is blocked when rigging, derigging or servicing the fixture.

The fixture becomes very hot during operation. Allow the fixture to cool approximately 20 minutes prior to manipulate with it.

Operate the fixture only after having familiarized with its functions. Do not permit operation by persons not qualified for operating the fixture. Most damages are the result of unprofessional operation!

Please use the original packaging if the fixture is to be transported.

Please consider that unauthorized modifications on the fixture are forbidden due to safety reasons!

If this device will be operated in any way different to the one described in this manual, the product may suffer damages and the guarantee becomes void. Furthermore, any other operation may lead to dangers like short-
-circuit, burns, electric shock, crash etc.

2. Fixture exterior view
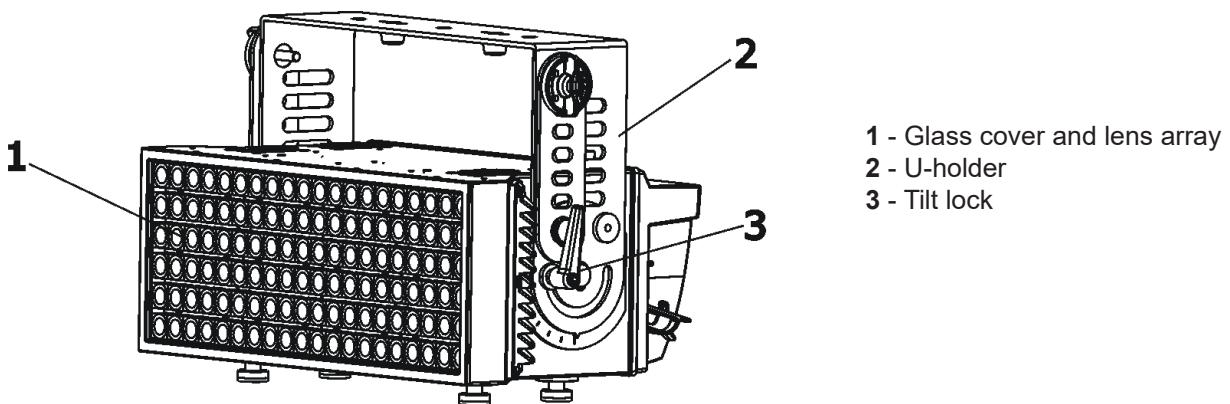
1 - Glass cover and lens array
2 - U-holder
3 - Tilt lock
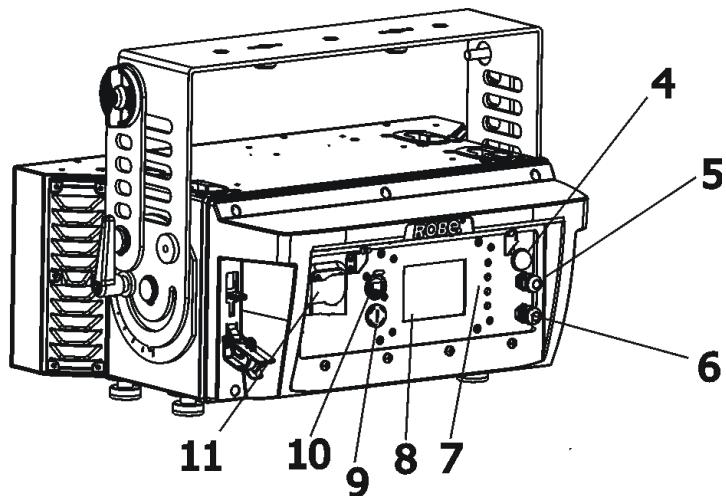
4 - Antenna
5 - DMX IN
6 - DMX OUT
7 - Control buttons
8 - QVGA touch screen
9 - Fuse holder
10 - RJ 45 Input
11 - Power In
12 - Safety screw
13 - Locking mechanism
14 - Safety lock
15 - Screen cover
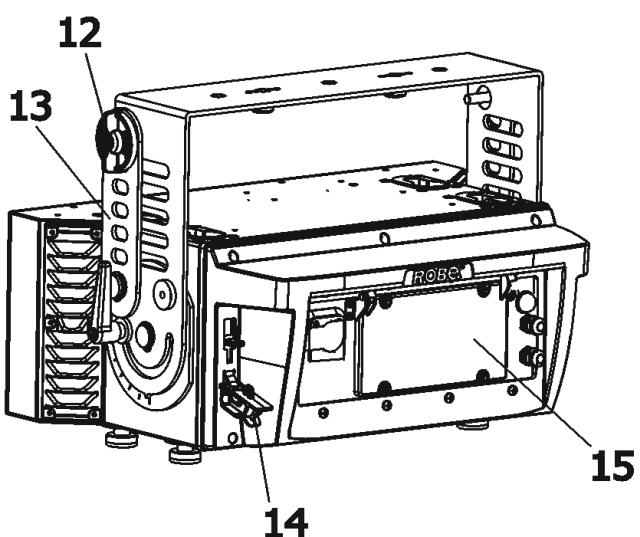
The ENTER/DISPLAY ON button also serves for switching the display on when the fixture is disconnected from mains.

3. Installation

Fixtures must be installed by a Qualified electrician in accordance with all national and local electrical and construction codes and regulations.

3.1 Connection to the mains

For protection from electric shock, the fixture must be earthed!

The Robin Strobe is equipped with auto-switching power supply that automatically adjusts to any 50-60Hz AC power source from 100-240 Volts.

Connect the fixture to the mains by means of the enclosed power cord
If you need to install other plug on the power cord, note that the cores in the power cord are coloured according to the following table. The earth has to be connected!
If you have any doubts about proper installation, consult a qualified electrician.

Core (EU)	Core (US)	Connection	Plug Terminal Marking
Brown	Black	Live	L
Light blue	White	Neutral	N
Yellow/Green	Green	Earth	⏚

Do not overload the supply line and the connecting leads.
Wiring and connection work must be carried out by qualified staff!

3.2 Installing the gel frame and barndoors

**Disconnect the fixture from mains before the accessory installation.
Never operate the fixture with barndoors closed.**

1. Put the frame adaptor (1) on the fixture and
secure it with four screws (2).
2. Insert the gel frame (4) into slots (3) of
the frame adaptor (1). Use the slots closer to
the glass cover of the fixture.
3. Insert the barndoors (5) into second slots (3) of
the frame adaptor (1).
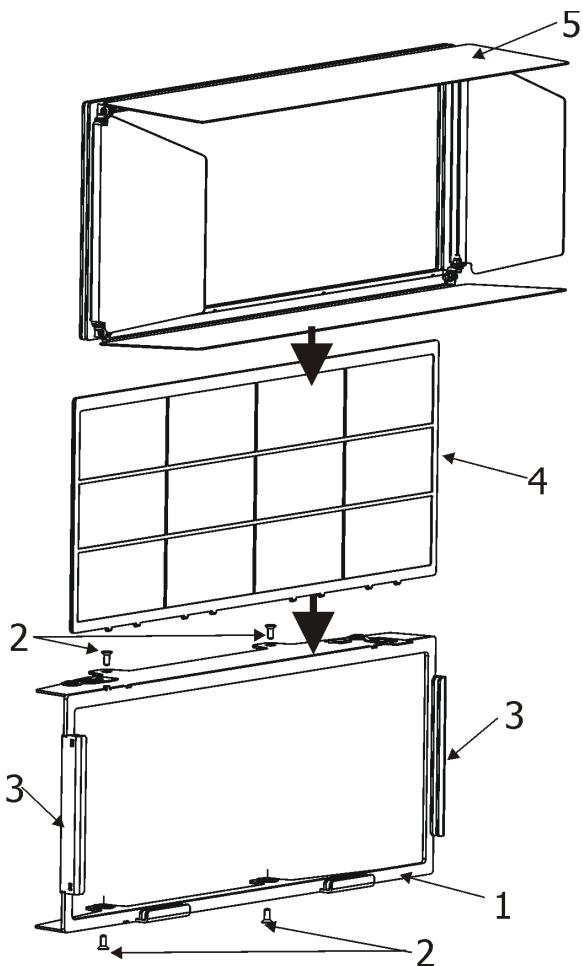
4. Secure inserted barndoors and (or) the gel
frame by means of the two locks (6).
Lift up a little the lock (6) to release it from
the projection (7) and move it to the position
as shown on the picture B until the projection (8)
snaps into lock (6).

**Do not operate the fixture with unsecured gel
frame or barndoors!**

A   B

Unlocked   Locked
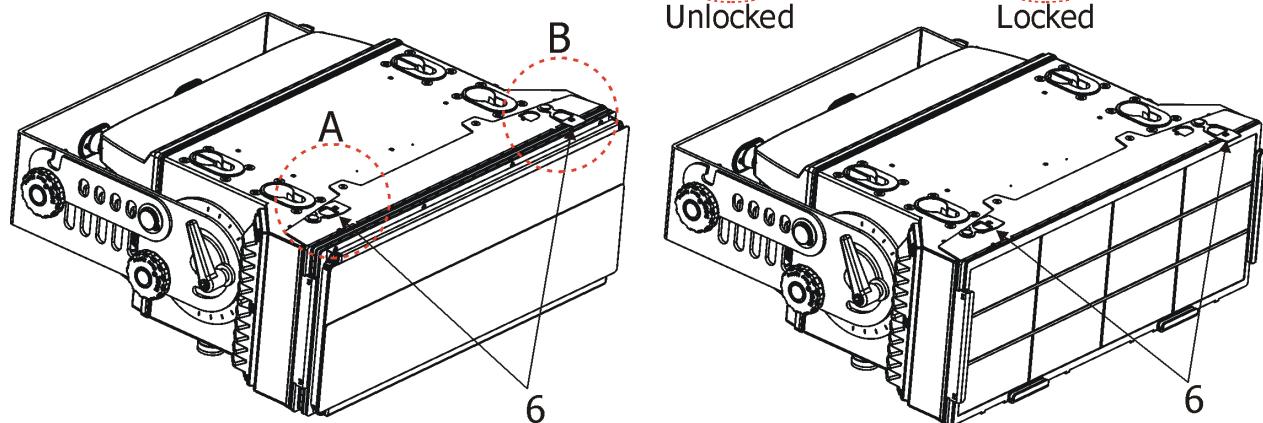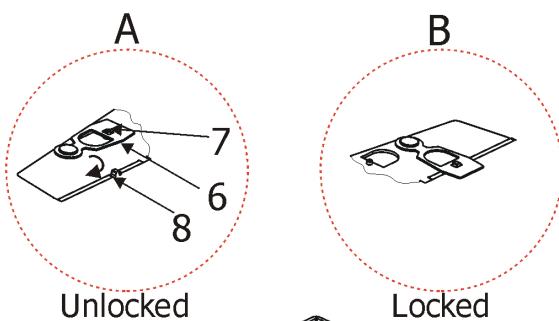
3.3 Rigging the fixture and floor installation of the fixture

A structure intended for installation of the fixture (s) must safely hold weight of the fixture(s) placed on it. The structure has to be certificated to the purpose.

The fixture (fixtures) must be installed in accordance with national and local electrical and construction codes and regulation..

> *For overhead installation, the fixture(s) must be always secured with a safety wire that can bear at least 10 times the weight of the fixture(s).*

When rigging, derigging or servicing the fixture staying in the area below the installation place, on bridges, under high working places and other endangered areas is forbidden.

The operator has to make sure that safety-relating and machine-technical installations are approved by an expert before taking into operation for the first time and after changes before taking into operation another time.

The operator has to make sure that safety-relating and machine-technical installations are approved by a skilled person once a year.

Allow the fixture to cool for ten minutes before handling.

The fixture should be installed outside areas where persons may walk by or be seated.

IMPORTANT! OVERHEAD RIGGING REQUIRES EXTENSIVE EXPERIENCE, including calculating working load limits, installation material being used, and periodic safety inspection of all installation material and the projector. If you lack these qualifications, do not attempt the installation yourself, but use a help of professional companies.

CAUTION: Fixtures may cause severe injuries when crashing down! If you have doubts concerning the safety of a possible installation, do not install the fixture!

The fixture has to be installed out of the reach of public.

The fixture must never be fixed swinging freely in the room.

> · **When installing the device, make sure there is no highly inflammable material (decoration articles, etc.) in a distance of min. 0.5 m.**

> **CAUTION!**
> **Use an appropriate clamp to rig the fixture on the truss.**
> **Follow the instructions mentioned at the bottom of the fixture base.**
> **Make sure that the device is fixed properly! Ensure that the structure (truss) to which you are attaching the fixture is secure.**

The fixture can be placed directly on the stage floor or rigged to the truss. The fixture can be rigged to the truss via Omega holder and one clamp (two holes with 140mm spacing serve for this method of mounting) or using stacker which allows 2-6 fixtures connected in the top-to-bottom method.
For floor installation use a floor stand if two or more fixtures are to be stacked
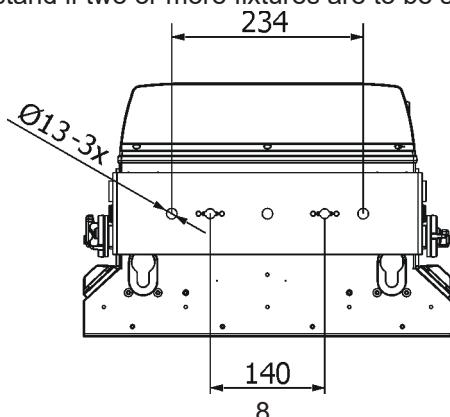
Single fixture installation via the omega holder

1. Bolt the clamp (1) to the omega holder (2) with M12 bolt and lock nut through the hole in the holder.

2. Fasten the omega holder to the U-holder (4) of the fixture by inserting both quick-lock fasteners (3) into holes in the U-holder and tighten fully clockwise.

3. Clamp the fixture on a truss (12) and tighten the rigging clamp (1).

4. For securing the fixture to the truss, install a safety wire that can hold at least 10 times the weight of the fixture. Use only a safety wire with a snap hook with screw lock gate. Pull the safety wire (11) through the U-holder (4) and around the truss (12) as shown on the picture below.

5. The tilt lock (7) allows to adjust the fixture to desired position. In case, that the tilt lock cannot be loosened (tightened) due to the housing of the fixture, pull this tilt lock in a direction from the fixture, turn it to desired position, release it and continue in loosening (tightening) this tilt lock (principle of a "ratcheting socket wrench").
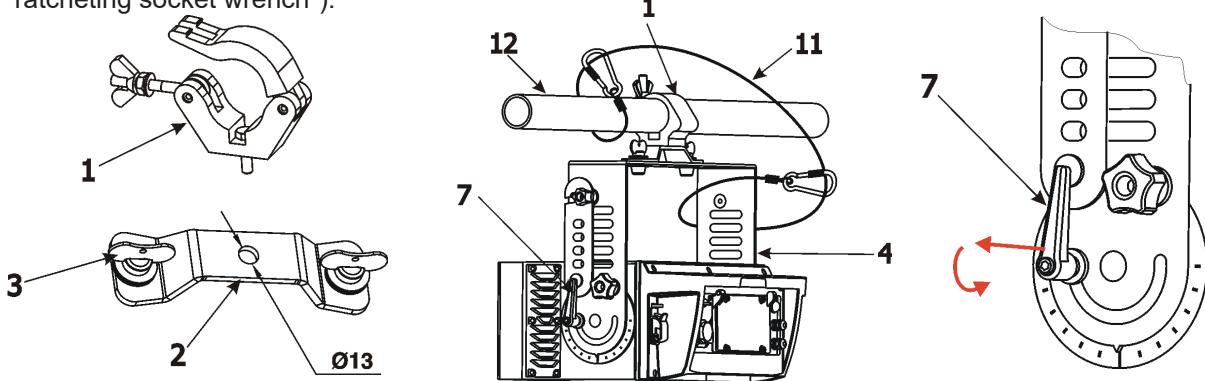
If two and more fixtures are to be connected in a top-to-bottom method, a stacker with two safety wires has to be used - see article below.

Multiply fixtures rigging

> · **Maximum 6 fixtures can be connected in the top-to-bottom method**

Always use a stacker for a hanging multiply fixtures installation . The position of the U-holder allows to tilt the whole "stack" of fixtures.

To change the position of the U-holder

1. In order to release the U-holder (4), press and hold the front part (1) of the pin (2) and pull it out from the stacker. Use the same way to remove the pin (2) on the opposite side of the U-holder.

2. Move the U-holder to desired position.

3. Press and hold the top part (1) of the pin (2) and push it throw the U-holder into the hole in the stacker. Secure the second side of the U-holder (4) by inserting the pin (2) into the stacker. Check, that both sides of the U-holder are securely fastened.
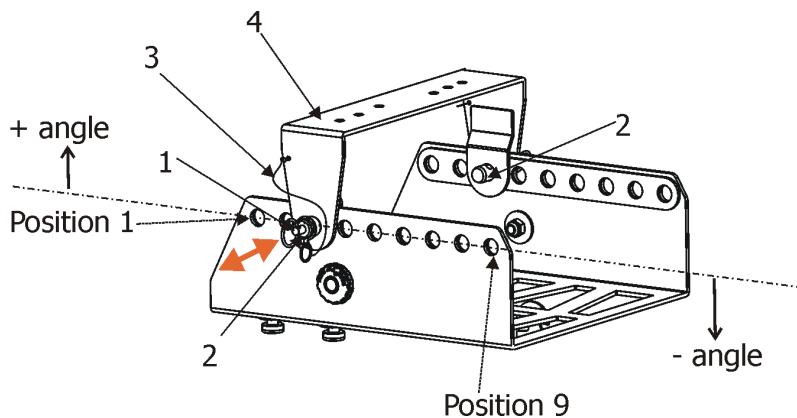
Table of tilt angles for different loads of the stacker

Hole position	1	2	3	4	5	6	7	8	9
2 fixtures	-22	-10°	0°	10°	20°	30°	37°	45°	-
4 fixtures	-10°	-5°	0°	8°	15°	20°	25°	30°	35°
6 fixtures	-7.5°	-3°	0°	5°	10°	15°	20°	22°	26°

To install multiple fixtures in a top-to-bottom method

1. Rig the stacker to the truss (4) by means of two omega holders (2) on the U-holder (5) and two clamps (1) and secure it with two safety wires (15). Use only safety wires with snap hook with screw lock gate. The snap hooks have to go throw holes in the stacker.

2. Check if the locking mechanism of the first fixture is in an "unlock position" - the lever (18) is in the bottom position and the red mark (16) is visible.

3. Connect the first fixture with the stacker in a way that feet (8) of the stacker will be inserted into top openings (14) of the first fixture and move the first fixture in a direction as show red arrows on the picture below until you feel a stop.

4. Secure the first fixture with the stacker by means of its locking mechanism: move both levers (18) to the top position until the green mark (17) is visible and move the plastic levers (19) into position under locking levers (18) until they snap. Now levers (18) cannot be moved to unlock position.

5. Make the secondary securing of the installed fixture. Loosen both tilt locks (9) and move the U-holder (13) to the horizontal position. Loosen the nuts (12) and move the segments (11) towards the stacker nuts (7). Loosen the nuts (7) and fasten the segments (11) under them. Tighten the nuts (7) and the tilt locks (9).

Always check that locking mechanisms are locked before connecting next fixture!
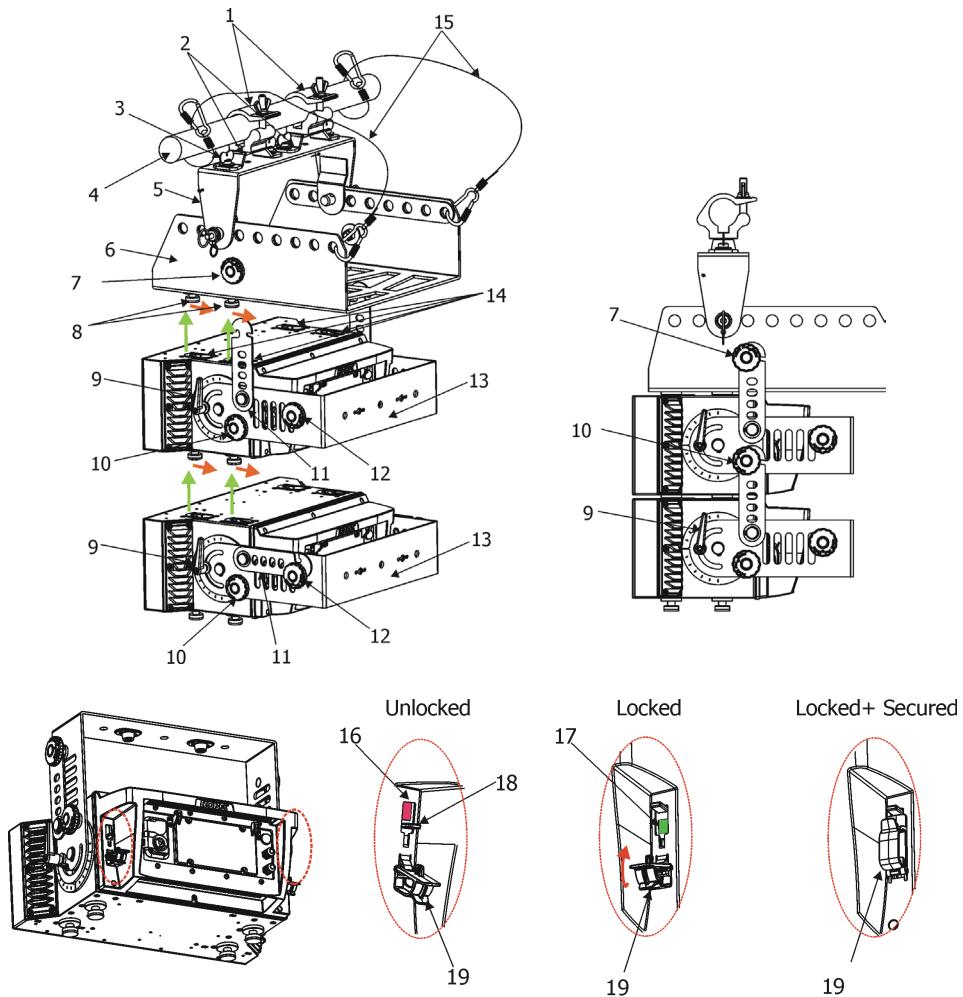
6. Check if the locking mechanism of the second fixture is in the "unlock position" - the lever (18) is in the bottom position and the red mark (16) is visible.

7. Connect the second fixture with the first one in a way that feet (8) of the first fixture will be inserted into top openings (14) of the second fixture and move the second fixture in a direction as show red arrows on the picture above until you feel a stop.

8. Secure the second fixture with the first one by means of its locking mechanism: move both levers (18) to the top position until the green mark (17) is visible and move the plastic levers (19) into position under locking levers (18) until they snap. Now levers (18) cannot be moved to unlock position.

9. Make the secondary securing of this fixture. Loosen both tilt locks (9) and move the U-holder (13) to the horizontal position. Loosen the nuts (12) and move the segments (11) towards the nuts (10). Loosen the nuts (10) and fasten the parts (11) under them. Tighten the nuts (10) and the tilt locks (9).

10. Repeat steps 6-9 for the next fixture. In this way, up to six fixtures can be connected each other.

11. Check, that all nuts (7), (10) and tilt locks (9) are fully tightened.

Always keep correct orientation of fixtures towards the stacker.
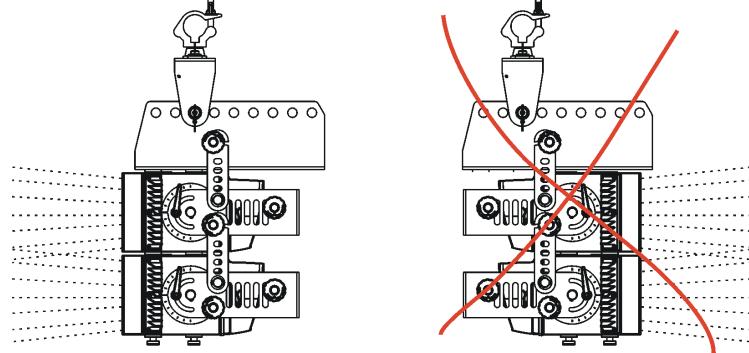
Warning for outdoor operation!
To ensure declared IP rating, the fixture must be in the following positions only (towards ground).
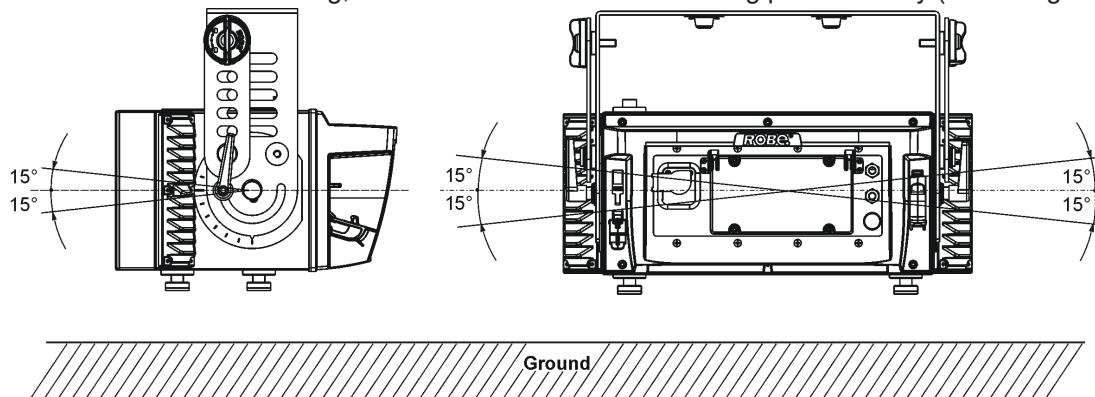
Allowed tilt must not be higher than +/-15° from a horizontal axis of the fixture.
The display covering transparent cover must be closed and its four screws fully tightened.

Fixture´s XLR connectors are dust and water protected according to IP 65 by mating with related X-HD cable connectors.
They cannot stay disconnected outdoor. DMX output connector (XLR female) at the last fixture in a DMX line has to be covered with the rubber cap before inserting a terminator. The rubber cap does not supply the terminator. The XLR terminator (male) has to be dust and water protected.

If the fixture is to be outdoor without connecting to DMX line, always interconnect its DMX input with DMX output to keep declared IP rating of XLR connectors.

Ethernet connection is not suitable for outdoor environment, especially in rain!

Multiply fixtures installation via floor stand

Maximum 6 fixtures can be connected in the top-to-bottom method

Always use a floor stand for multiply fixture installation in the top-to-bottom method on the floor.

To install multiple fixtures in the top-to-bottom method on the floor stand

1. Move both levers (23) to unlock position (red mark is visible) on the floor stand (21).
2. Put the first fixture with its feet (8) into the slots (22) in the floor stand (21) and move the fixture in
   a direction as show red arrows on the picture below until you feel a stop.
3. Secure the fixture in the floor stand by means of its locking mechanism: move both levers (23)
   to the position until the green mark is fully visible.
4. Put the second fixture with its feet (8) into the slots (14) in the first fixture and move the fixture in
   a direction as show red arrows on the picture below until you feel a stop.
5. Secure the first fixture with the second one by means of its locking mechanism: move both levers (18)
   to the top position until the green mark (17) is visible and move the plastic levers (19) into position under
   locking levers (18) until they snap. Now levers (18) cannot be moved to unlock position.
6. Make the secondary securing of this fixture. Loosen both tilt locks (9) and move the U-holder (13)
   to the horizontal position. Loosen the nuts (12) and move the segments (11) towards the nuts (10).
   Loosen the nuts (10) and fasten the parts (11) under them. Tighten the nuts (10) and the tilt locks (9).
7. Repeat steps 4-6 for next fixture. In this way, up to six fixtures can be connected each other.
8. Check, that all nuts (10) and tilt locks (9) are fully tightened.

Always check that locking mechanisms are locked before connecting next fixture!

Unlocked
Locked

Unlocked   Locked   Locked+ Secured
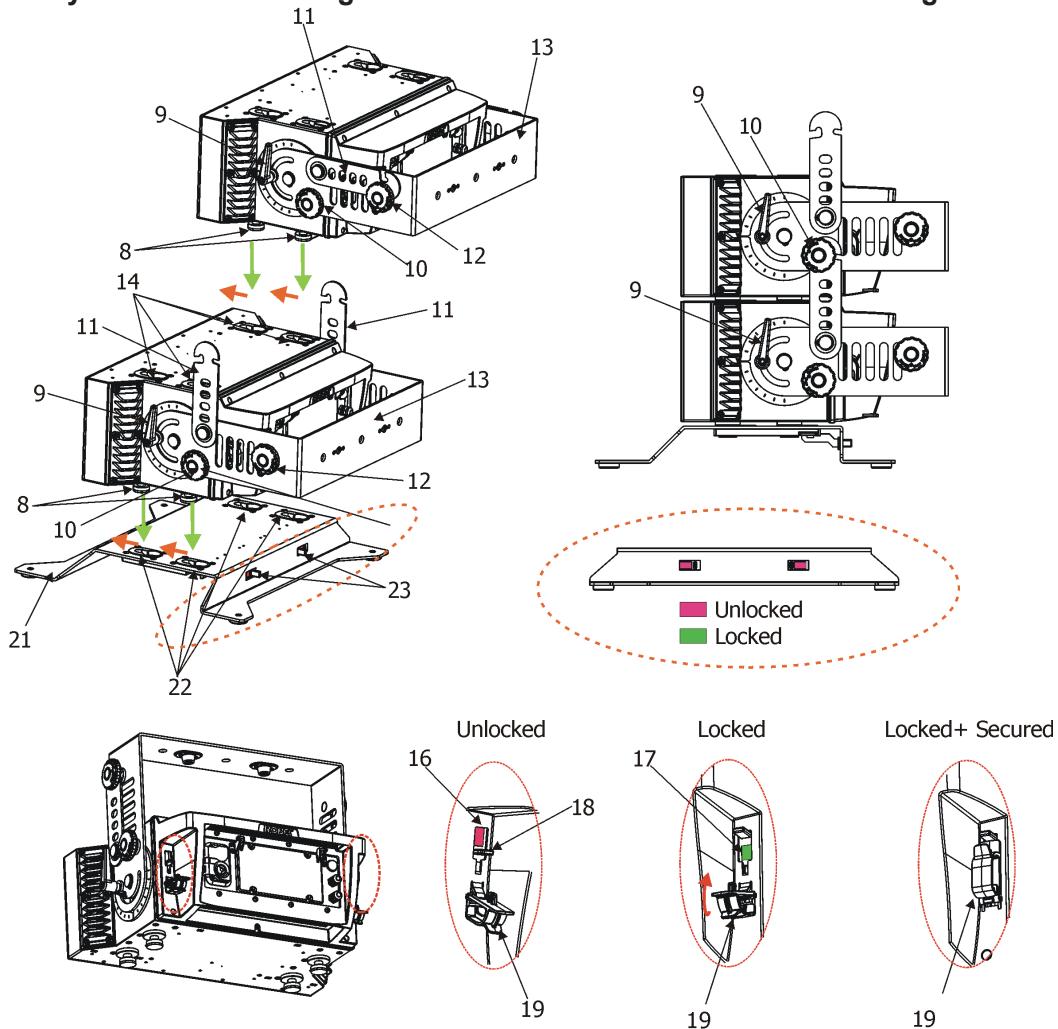
3.4 DMX-512 connection

The fixture is equipped with 5-pin XLR sockets for DMX input and output.The sockets are wired in parallel.
Only use a shielded twisted-pair cable designed for RS-485 and 5-pin XLR-plugs and connectors in order to
connect the controller with the fixture or one fixture with another.

DMX - output

1 - Shield
2 - Signal (-)
3 - Signal (+)
4 - Used for wireless DMX
5 - Used for wireless DMX

DMX-input

1 - Shield
2 - Signal (-)
3 - Signal (+)
4 - Used for wireless DMX
5 - Used for wireless DMX
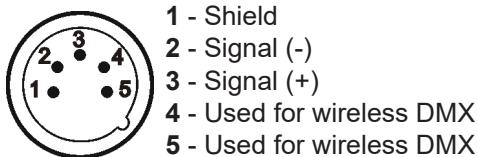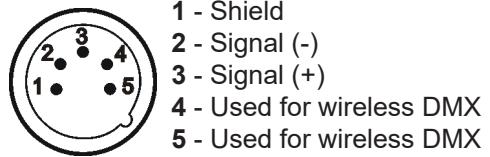
 If you are using the standard DMX controllers, you can connect the DMX output of the controller directly with
the DMX input of the first fixture in the DMX-chain. If you wish to connect DMX controllers with other
 XLR-outputs, you need to use adapter cables.

Building a serial DMX-chain:

Connect the DMX output of the first fixture in the DMX-chain with the DMX input of the next fixture. Always connect
one output with the input of the next fixture until all fixtures are connected. Up to 32 fixtures can be connected.
Caution: At the last fixture, the DMX cable should be terminated with a terminator. Solder a 120 Ω resistor
between Signal (−) and Signal (+) into a 5-pin XLR-plug and plug it in the DMX output of the last fixture.

13
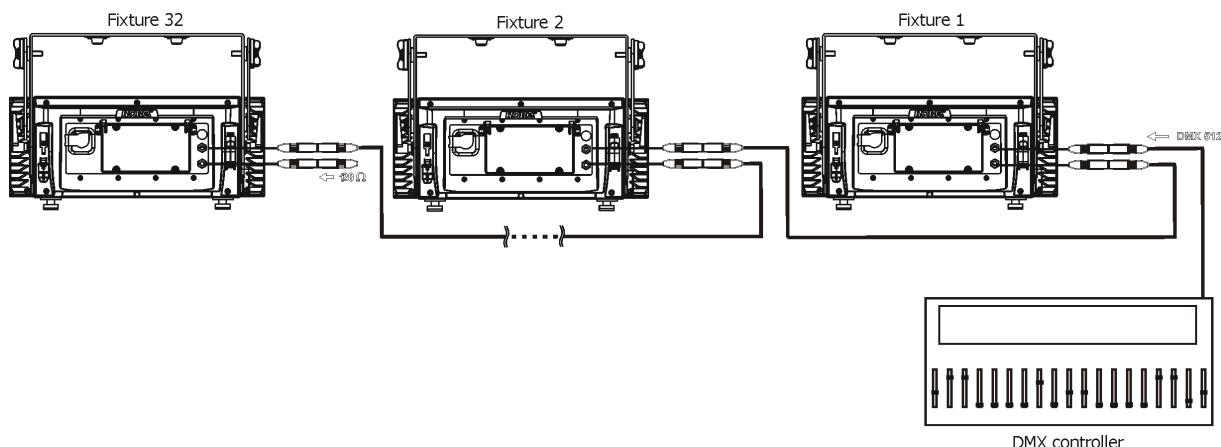
3.5 Ethernet connection

The fixtures on a data link are connected to the Ethernet with ArtNet communication protocol.The control software running on your PC (or light console) has to support Art-Net protocol.
Art-Net communication protocol is a 10 Base T Ethernet protocol based on the TCP/IP.Its purpose is to allow transfer of large amounts of DMX 512 data over a wide area using standard network technology.

IP address is the Internet protocol address.The IP uniquely identifies any node (fixture) on a network.
The Universe is a single DMX 512 frame of 512 channels.

The Robin 300E Wash is equipped with 8-pin RJ- 45 socket for Ethernet input.Use a network cable category 5 (with four "twisted" wire pairs) and standard RJ-45 plugs in order to connect the fixture to the network.

RJ-45 socket (front view):

1 2 3 4 5 6 7 8
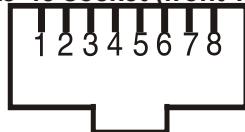
1- TD+	5- Not connected
2- TD-	6- RX-
3- RX+	7- Not connected
4- Not connected	8- Not connected

RJ-45 plug (front view):

8 7 6 5 4 3 2 1
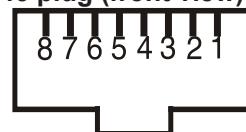
Patch cables that connect fixtures to the hubs or LAN sockets are wired 1:1,that is,pins with the same numbers are connected together:

| 1-1 | 2-2 | 3-3 | 4-4 | 5-5 | 6-6 | 7-7 | 8-8 |

If only the fixture and the computer are to be interconnected,no hubs or other active components are needed.A cross-cable has to be used:

| 1-3 | 2-6 | 3-1 | 4-8 | 5-7 | 6-2 | 7-5 | 8-4 |

If the fixture is connected with active Ethernet socket (e.g. switch) the network icon will appear at the bottom right corner of the screen:

DMX: 001   IP: 2.242.8.0
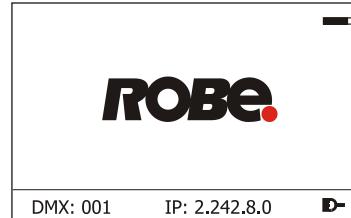
Direct Ethernet operation

Connect the Ethernet inputs of all fixtures with the Ethernet network.
Option " Artnet (gMaI or gMA2)" has to be selected from "Ethernet Mode" menu on the fixture.
Set IP address (002.xxx.xxx.xxx / 010.xxx.xxx.xxx) and the Universe.

(DMX address=186)
IP addres=002.168.002.004
Universe=1

(DMX address=38)
IP addres=002.168.002.003
Universe=1

(DMX address=1)
IP addres=002.168.002.002
Universe=1

Art-Net

Art-Net

Art-Net

Ethernet Switch
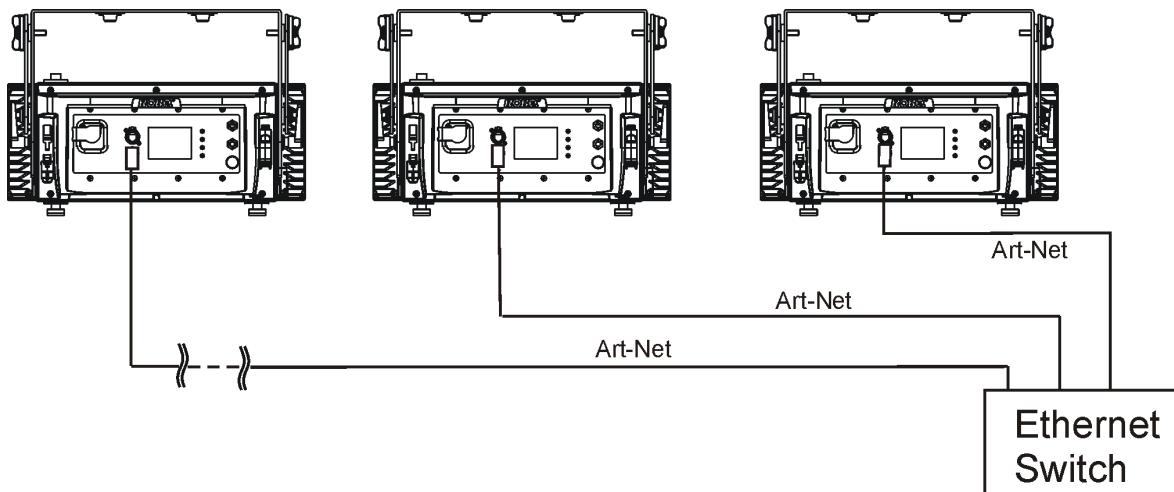
An advised PC setting: IP address: 002.xxx.xxx.xxx / 010.xxx.xxx.xxx (Different from fixture IP addresses)
NET mask: 255.0.0.0

Ethernet / DMX operation

Option " Artnet" (gMaI or gMA2 or sACN) has to be selected from "Ethernet Mode" menu at first fixture.
Option "Ethernet To DMX" has to be selected from the "Ethernet Mode" menu at the first fixture (connected to the Ethernet) in the fixture chain, next fixtures have standard DMX setting.
Connect the Ethernet-input of the first fixture in the data chain with the network. Connect the DMX output of this fixture with the input of the next fixture until all fixtures are connected to the DMX chain.
Caution: At the last fixture, the DMX chain has to be terminated with a terminator. Solder a 120 Ω resistor between Signal (–) and Signal (+) into a XLR-plug and connect it in the DMX-output of the last fixture.

DMX address=41

DMX address=9

DMX address=1
IP address=002.168.002.002
Universe=0   DMX 512

Art-Net

Ethernet
Switch

Art-Net

DMX 512

Art-Net

DMX address=41

DMX address=9

DMX address=1
IP address=002.168.002.003
Universe=1

15
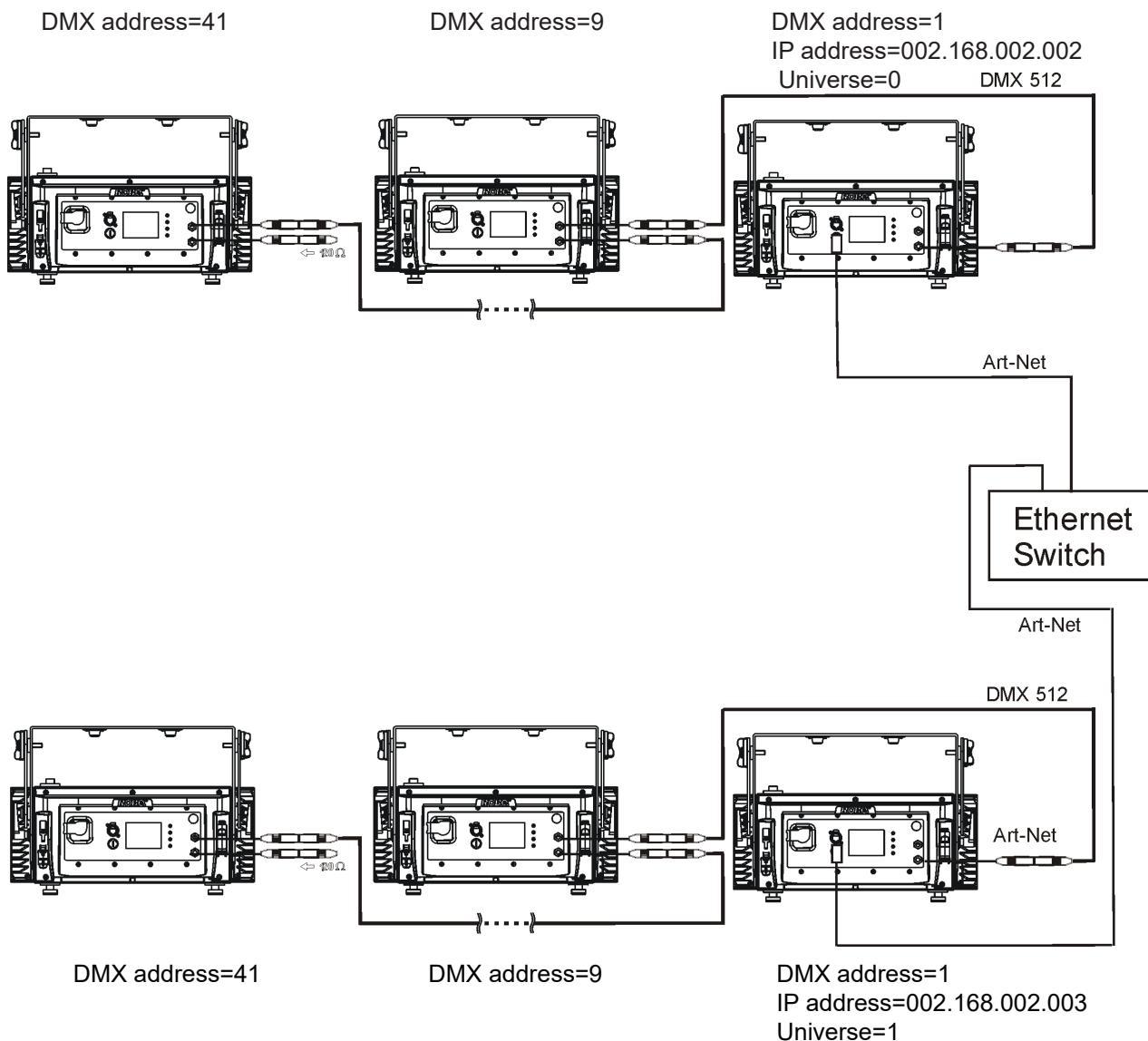
4. Control menu map

Default settings=Bold print

Tab	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Addressing	Settings	DMX Address	001-512			
		DMX Presets	**Mode 1**			
			:			
			Mode 4			
		Ethernet Settings	Ethernet Mode	Disable		
				ArtNet		
				gMAI		
				gMA2		
				sACN		
			Ethernet To DMX	On		
				Off		
			IP Address/NetMask	Default IP Address		
				Custom IP Address		
				Net Mask		
			ArtNet Universe	0-255		
			MANet settings	MANet I/IIUniverse	1-256	
				MANet Session ID	1-32	
			sACN Settings	sACN Universe		
				sACN Priority		
Information	Fixture Times	Power On Time	Total Hours			
			Resetable Hours			
	Fixture Temperatures	LEDs Temperature	Current			
			Maximum NonRes.			
			Maximum Res.			
		Leds Board tempe-rature	Current			
			Maximum NonRes.			
			Maximum Res.			
		Base Temperature	Current			
			Maximum NonRes.			
			Maximum Res.			
	DMX Values	Int. All Zones				
		:				
		Zone 12 Intensity				
	Wireless State	Signal Quality				
		Unlink Wireless Adapter				
	Power Channel State					
	Software Versions	Display System				
		Module L				
	Product IDs	Mac Address				
		RDM UID				
		RDM Label				
	View Logs	Fixture Errors				
		Fixture Status	Power On			
			Power Off			
		Fixture Position				
		Fixture Temperatures	LEDs Temperature			
			Base Temperature			
Personality	User Mode	User A Settings				
		User B Settings				
		User C Settings				

Tab	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
	DMX Presets	**Mode 1**				
		:				
		Mode 4				
		View Selected Preset				
	DMX Input	**Wired Input**				
		Wireless Input				
		Wireless In/XLR Out				
	DMX Hold	Off, **On**				
	Microphone Sensitivity	1-**10**-20				
	Douse Settings	Off, **On**				
	Dimmer Curve	Linear				
		Square Law				
	Init Effect Positions	Int. All Zones	0-255			
		:				
		Zone 12 Intensity	0-255			
	Screen Settings	Display Intensity	1-**10**			
		Screen Saver Delay	**Off**-10min.			
		Touchscreen Lock	**Off**-10min.			
		Recalibrate Touchscreen				
		Display Orientation	Normal			
			Inverted			
			Auto			
	Temperature Unit	**°C**,°F				
	Fan Mode	**Auto,** high				
	Date & Time Settings					
	Default Settings					
Manual Control	Manual Effect Control	Int. All Zones	0-255			
		:				
		Zone 12 Intensity	0-255			
Stand -Alone	Test Sequences					
	MusicTrigger	**Off**, On				
	Preset Playback	**None**				
		Test				
		:				
		Prog. 3				
	Play Program	Play Program 1				
		Play Program 2				
		Play Program 3				
	Edit Program	Edit Program 1	Start Step	1-100		
			End Step	1-100		
			Edit Program Steps	Step 1	Int. All Zones	0-255
				:	:	
				:	Step Time	0-25.5s
				:	Fade Time	0-25,5s
				Step 100	Int. All Zones	0-255
					:	
					Step Time	0-25.5s
					Fade Time	0-25,5s
Service	Update Software					

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5. DMX chart

Version: 1.2						
Mode 1 – Zone effects mode , Mode 2 –Zone mode , Mode 3 –Three channel mode , Mode 4 – Four channel mode						

Mode/channel				DMX value	Function	Type of control
1	2	3	4			
1	**1**	**1**	**1**		**Intensity (8bit)-all zones**	
				0-5	Closed (mode 3,4 only)	step
				6-255	Coarse intensity from min. to max. (Mode 3,4 only)	proportional
				0-255	Coarse intensity from min. to max. (Mode 1,2 only)	proportional
2	**2**	*****	*****		**Intensity (16bit)-all zones**	
				0-255	Fine intensity from min. to max.	proportional
3	**3**	**2**	**2**		**Duration**	
				0-255	Light time duration from min. —>max.	step
4	**4**	**3**	**3**		**Rate**	
				0-5	No flash	step
				6-255	Flash frequency from min. —>max	step
					Note: Duration time<Rate: flashing	
					Duration time>= Rate: Light continuously On	
5	**5**	*****	**4**		**Special effects**	
				0-5	No function (Mode 3,4 only)	step
				0-1	No function (Mode 1,2 only)	step
				2-5	Permanent lightening (Mode 1,2 only)	step
				6-42	Ramp up (use channels Duration and Rate for control)	step
				43-85	Ramp down (use channels Duration and Rate for control)	step
				86-128	Ramp up/down (use channels Duration and Rate for control)	step
				129-171	Random strobe (use channel Rate for control)	step
				172-214	Lightning (use channel Rate for control)	step
				215-255	Spikes (use channels Duration and Rate for control)	step
6	**6**	*****	*****		**Special Functions**	
				0 -19	Reserved	
					To activate following functions , stop in DMX value for at least 3 sec. Corresponding menu items are temporarily overrided.	
				20-24	Graphic display On	step
				25-29	Graphic display Off	step
				30-59	Reserved	
				60-64	Fans mode: Auto	step
				65-69	Fans mode: high	step
				70-79	Douse On*	step
				80-89	Douse Off*	step
				90-99	Dimmer curve: linear	step
				100-109	Dimmer curve: square law	step
				110-255	Reserved	
7	**7**	*****	*****		**Zone Effects**	
				0-2	No function	step
				3-4	Effect 1	step
				5-6	Effect 2	step
				7-8	Effect 3	step
				9-10	Effect 4	step
				11-12	Effect 5	step

Mode/channel				DMX value	Function	Type of control
1	2	3	4			
				13-14	Effect 6	step
				15-16	Effect 7	step
				17-18	Effect 8	step
				19-20	Effect 9	step
				21-22	Effect 10	step
				23-24	Effect 11	step
				25-26	Effect 12	step
				27-28	Effect 13	step
				29-30	Effect 14	step
				31-32	Effect 15	step
				33-34	Effect 16	step
				35-36	Effect 17	step
				37-38	Effect 18	step
				39-40	Effect 19	step
				41-42	Effect 20	step
				43-44	Effect 21	step
				45-46	Effect 22	step
				47-48	Effect 23	step
				49-50	Effect 24	step
				51-52	Effect 25	step
				53-255	Reserved	step
8	8	*	*		**Zone Effects Speed**	
				0-63	Speed from min. —>max. without fade time	proportional
				64-127	Speed from max. —>min. without fade time (op. direction)	proportional
				128-191	Speed from min. —>max. with fade time	proportional
				192-255	Speed from max. —>min. with fade time (op. direction)	proportional
*	9	*	*		**Zone 1-intensity (8bit)**	
				0-255	Coarse intensity from 0% to 100%	proportional
*	10	*	*		**Zone 2-intensity (8bit)**	
				0-255	Coarse intensity from 0% to 100%	proportional
*	11	*	*		**Zone 3-intensity (8bit)**	
				0-255	Coarse intensity from 0% to 100%	proportional
*	12	*	*		**Zone 4-intensity (8bit)**	
				0-255	Coarse intensity from 0% to 100%	proportional
*	13	*	*		**Zone 5-intensity (8bit)**	
				0-255	Coarse intensity from 0% to 100%	proportional
*	14	*	*		**Zone 6-intensity (8bit)**	
				0-255	Coarse intensity from 0% to 100%	proportional
*	15	*	*		**Zone 7-intensity (8bit)**	
				0-255	Coarse intensity from 0% to 100%	proportional
*	16	*	*		**Zone 8-intensity (8bit)**	
				0-255	Coarse intensity from 0% to 100%	proportional
*	17	*	*		**Zone 9-intensity (8bit)**	
				0-255	Coarse intensity from 0% to 100%	proportional
*	18	*	*		**Zone 10-intensity (8bit)**	
				0-255	Coarse intensity from 0% to 100%	proportional
*	19	*	*		**Zone 11-intensity (8bit)**	
				0-255	Coarse intensity from 0% to 100%	proportional
*	20	*	*		**Zone 12-intensity (8bit)**	

* The function does not influence channels Special Effects, Zone Effects and Zone 1 Intensity- Zone 12 Intensity

LED zones order

Zone 1	Zone 2	Zone 3	Zone 4
Zone 5	Zone 6	Zone 7	Zone 8
Zone 9	Zone 10	Zone 11	Zone 12
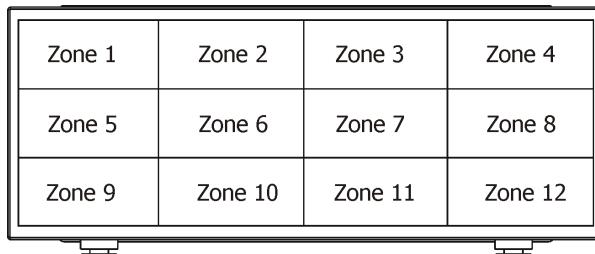
Note. Set the same dimmer curve on all fixtures in order to ensure the same effect running.

6. Strobe and Special effects running

6.1 Strobe

Mode 3 and 4
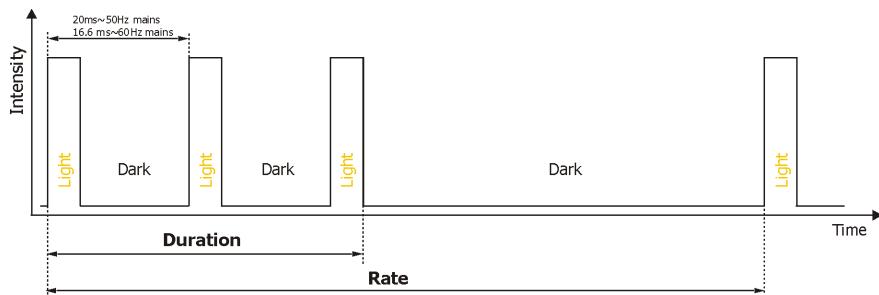
Mode 1 and 2
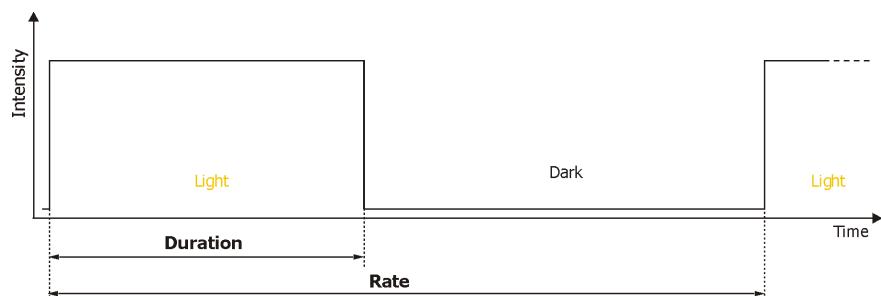
6.2 Special effects

Rumping
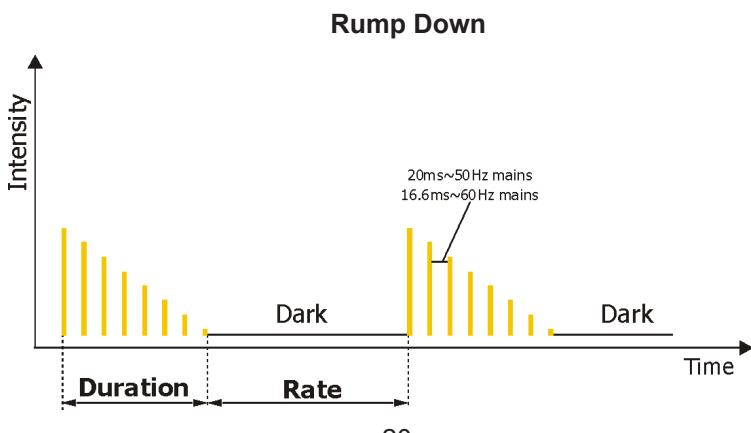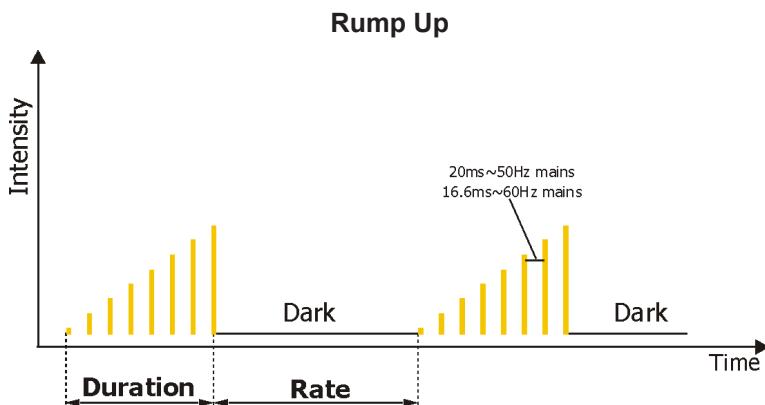
Rump Up

Rump Down

Rump Up/Down
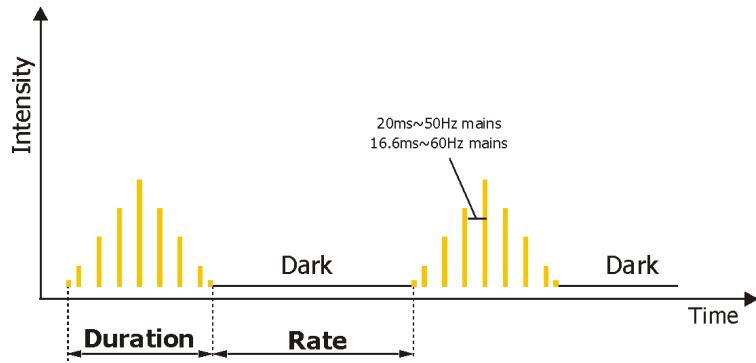
Lightning
Mode 1, 2, 4
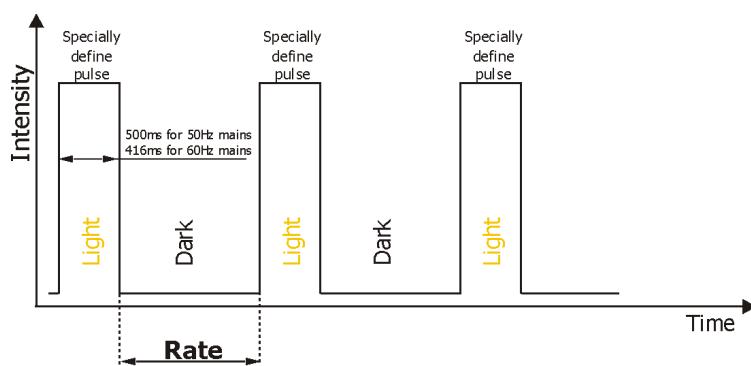
Spikes
For Duration and Rate timing serves the same values as for strobe
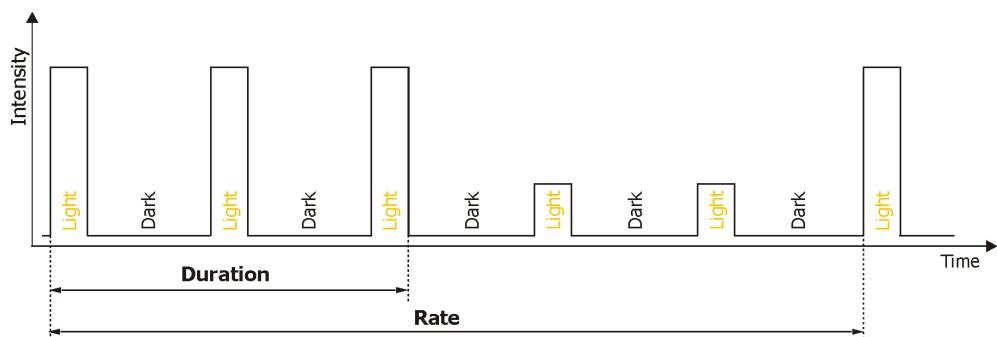
7. Control menu

The Robin Strobe Light is equipped with the QVGA Robe touch screen with battery backup which
 allows to set the fixture´s behaviour according to your needs, obtain information on its operation, test its
various parts and lastly program it, if it has to be used in a stand-alone mode.
The fixture´s menu can be controlled either by the control buttons or directly by touching the icon.

Control buttons on the front panel:
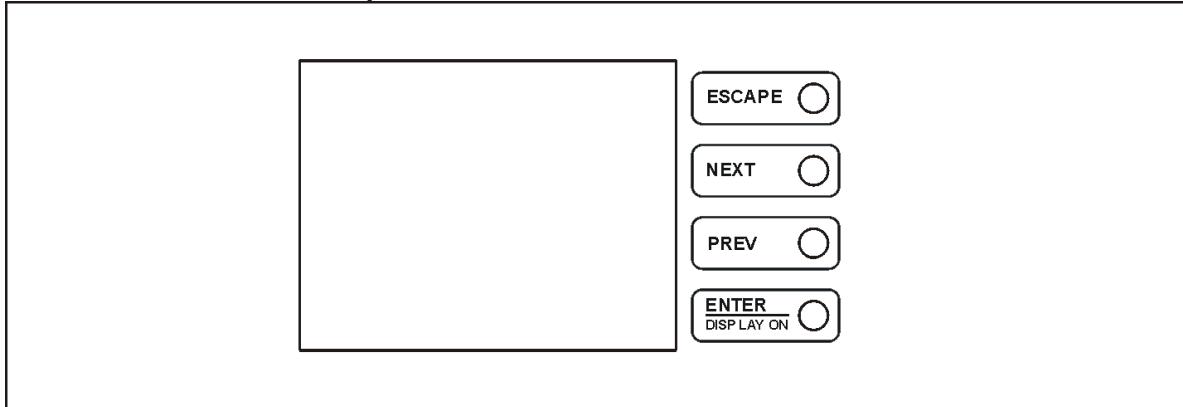
[ESCAPE] button used to leave the menu without saving changes.
[NEXT] , [PREV] buttons for moving between menu items and symbols, adjusting values.
[ENTER/Display On] button used to enter the selected menu (menu item) and to confirm adjusted value.
If the fixture is disconnected from mains, the button switches the touch screen on.

Icons used in the touch screen menu:

 - [back arrow] used to move back to the previous screen (menu).

 - [up arrow] used to move up on the previous page.

 - [down arrow] used to move down on the next page.

 - [confirm] used to save adjusted values, to leave menu or to perform desired action.

 - [cancel] used to leave menu item without saving changes.

 - [confirm+copy] used to save adjusted values and copy them to the next prog. step.

 - [warning icon] used to indicate some error which has occurred in the fixture.

 - [Ethernet] used to indicate Ethernet connected.

 - [display turn] used to turn the display by 180°.

 - [slider control] used to recall slider system for setting desired value.

 - [keyboard control] used to recall keyboard system for setting desired value.
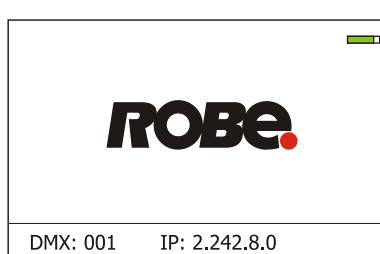
The green icon at the top right corner of the screen indicates the level of the display battery charging. If the whole icon is green, the battery is fully charged while the red icon indicates exhausted battery. The battery charges during fixture operation, its charging lasts cca 6 hours.
We recommend that the fixture should be in operation at least 7 hours per week to keep the battery fully charged.
If you switch the fixture on and this screen will not appear till 1 minute, switch the fixture off and on again. If the screen lights, the battery is exhausted. In case the screen still does not light, the battery is faulty.

DMX: 001   IP: 2.242.8.0

The menu page displays icons for each function that you can perform from the touch screen.

After switching the fixture on, the touch screen shows the screen with the ROBE logo:
Touch any part of the screen or press the [ENTER/Display On] button to display the initial screen with the current stored DMX address:
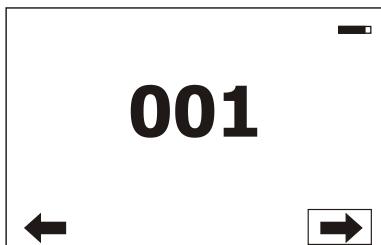
Touch the green arrow at the bottom right corner of the screen or press the [ENTER/Display On] button to enter the " Address" menu.
An item (such as a Tab, menu item, text box, icon) may be selected from a screen by simply touching the item in the list or by pressing the [NEXT] or [PREV] buttons to scroll through list items. With each press, the next item is highlighted. Press [ENTER/Display On] to select the highlighted item.

Before first fixture operation, set current date and time in the menu "Date &Time Setings" (menu path: Personality--> Date &Time Setings).

7.1 Tab " Address"

Settings - Select the menu to set desired fixture address setting.

   DMX Address - Select the menu to set the DMX start address**.**
   DMX Preset - Use the menu to select desired DMX mode.
               Mode 1 - 8 control channels (default)
               Mode 2 - 20 control channels
               Mode 3 - 3 control channels
               Mode 4 - 4 control channels
               View Selected Preset - Use the menu to display channels included in the selected mode.

   Ethernet Settings - The menu allows all needed settings for the Ethernet operation

       Ethernet Mode
               Disable - The option disables Ethernet operation.
               Artnet - Fixture receives Artnet protocol
               gMAI - Fixture receives MANet I protocol
               gMA2 - Fixture receives MANet 2 protocol
               sACN - Fixture receives sACN protocol

       Ethernet To DMX - Fixture receives protocol from the Ethernet input and sends DMX
       data to its DMX output (fixture works as an "Ethernet/DMX converter", next fixture can be connected
       to its DMX output and you can build a standard DMX chain by connecting another fixtures.
       Only one fixture has to be connected to the Ethernet.

        IP Address/Net Mask - Select this menu to set IP address. IP address is the Internet protocol
       address.The IP uniquely identifies any node (fixture) on a network.
       There cannot be 2 fixtures with the same IP address on the network!
               Default IP Address -Preset IP address, you can set up only first byte of IP address
                (2 or 10) e.g. **002**.019.052.086.
               Custom IP Address - The option enables to set up all bytes of IP address.

Net Mask - The option enables to set up all bytes of Net Mask.

 ArtNet Universe - Use this item to set a Universe (0-255). The Universe is a single DMX 512 frame of 512 channels.

 MANet Settings - Use this menu to set parameters for MANet operation.
MANet Universe I/II - The value of this item can be set in range 1-256.
MANet Session ID - The value of this item can be set in range 1-32.

 sACN Settings - Use this menu to set parameters for sACN operation.
sACN Universe - The value of this item can be set in range 1-32000.
sACN Priority - The value of this item can be set in range 0-255.

7.2 Tab "Information"

Fixture Times - The menu provides readouts of fixture operation hours.
   Power On Time Hours - Select this menu to read the number of fixture operation hours.
Total Hours - The item shows the total number of the operation hours since the Robin Strobe has been fabricated.
Resetable Hours - The item shows the number of the operation hours that the Robin Strobe has been powered on since the counter was last reset.
In order to reset this counter to 0, touch the text box next to the item "Resetable Hours:"

Fixture Temperatures - The menu is used to view temperatures of the fixture´s inside.
   LEDs Temperature - The menu shows temperatures in the LED module.
Current - A current temperature of the LED module.
Maximum NonRes. - A maximum temperature of the LED module since the fixture has been fabricated.
Maximum Res. - A maximum temperature of the LED module since the counter was last reset.
In order to reset this counter to 0, touch the text box next to the item "Maximum Res."
   Leds Board Temperature - The menu shows temperatures on the LED control PCB.
Current - A current temperature of the LED control PCB.
Maximum NonRes. - A maximum temperature of the LED control PCB since the fixture has been fabricated.
Maximum Res. - A maximum temperature of the LED control PCB since the counter was last reset.
In order to reset this counter to 0, touch the text box next to the item "Maximum Res."
   Base Temperature - The menu shows temperature at the touch screen control module.
Current - A current temperature at the touch screen control module.
Maximum NonRes. - A maximum temperature at the touch screen control module base since the fixture has been fabricated.
Maximum Res. - A maximum temperature at the touch screen control module since the counter was last reset.
In order to reset this counter to 0, touch the text box next to the item "Maximum Res."

DMX Values - The menu is used to read DMX values of each channel received by the fixture.

Wireless State - The menu serves for reading of the wireless operation status (only for Wireless DMX version of the fixture).
   Unlink Wireless Adapter - The item serves for unlinking the fixture from the transmitter.

Power Channel State - The menu item shows state of the Special functions channel switches.

Product IDs - The menu is used to read the MAC Address ,RDM UID and RDM Label.

Software Version - Select this item to read the software version of the fixture modules:
Display System - a display processor.
Module L - a LED module processor.

View Logs - Use this menu to read fixture´s data which have been recorded during fixture operation. This colected data allows easier troubleshooting.

Fixture Errors - Use this menu to read fixture errors which have occured during fixture operation.

Fixture Status - Recorded following actions: Power On, Power Off.

Fixture Position - Recorded installation positions of the fixture:
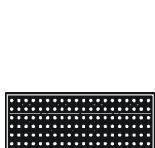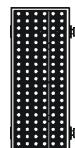
| Disp-FN | Disp-FI | Disp-ST | Disp-SB | Disp-T | Disp-B |
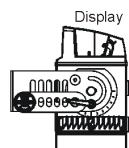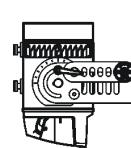
Fixture Temperatures - Recorded temperatures which have exceeded defined levels.

7.3 Tab "Personality"

User mode - The Robin Strobe allows you to recall up to 3 user settings. After switching the fixture on for the first time, the User A settings is active. Now all changes made in the "Personality" menu , "Addressing" menu and the "Music Trigger" and " Preset Playback" items from the "Stand-alone" menu are saved to the User A settings. If you now select the User B settings, from this moment the changes made in these menus will be saved to the User B settings. After switching the fixture off and on, the User B setting is active. In this way you may use the 3 fixture operating behaviours.

User A Settings - the function recalls the user A settings.
User B Settings - the function recalls the user B settings.
User C Settings - the function recalls the user C settings.

DMX Preset - Use the menu to select desired DMX mode.
Mode 1 - 8 control channels (default)
Mode 2 - 20 control channels
Mode 3 - 3 control channels
Mode 4 - 4 control channels
View Selected Preset - Use the menu to display channels included in the selected mode.

DMX Input- Use the menu to select mode of receiving DMX signal.
Wired Input - DMX signal is received by means of the standard DMX cable.
Wireless - DMX signal is received by means of the inbuilt wireless module.
Wireless In/XLR Out- the fixture receives wireless DMX and sends the signal to its wired DMX output.
The fixture behaves as " Wireless/Wired" adapter.

DMX Hold - If the function is on, the last received DMX values are held in case, that DMX data receiving was interrupted (e.g. disconnected DMX controller).

Microphone Sensitivity - Enter the menu if you want to adjust the microphone sensitivity from 1 (max.) to 20 (min.).

Douse setting - If this function is on, the light intensity slightly falls down after some few seconds at achievement of desired dimmer level .The function does not influence channels Special Effects, Zone Effects and Zone 1 Intensity- Zone 12 Intensity.

Dimmer Curve - Use this menu item to select linear or square law dimmer curve.

Init Effect Positions - Use the menu to set all effects to the desired positions at which they will stay after switching the fixture on without DMX signal connected.

Screen Settings - Use this menu to change the touch screen settings.
Display Intensity - The item allows to control the intensity of the screen (1-min., 10-max.).

Screen saver Delay - The item allows you to keep the screen on or to turn it off automatically after 1-10 minutes after last touch (or pressing any button on the control panel).

Touchscreen Lock - The item allows you to lock the screen after last touch (or pressing any button on the control panel). The time delay can be set in range of 1-10 minutes.To unlock the screen, press the [ENTER/Display On] button.

Recalibrate Touchscreen - The item starts calibration of the touchscreen. Follow the instructions on the screen.

Display Orientation - The menu allows to change display orientation.

     Normal - Standard display orientation if the fixture is placed horizontally (e.g. on the ground).

     Inverted - Inverted orientation (needed if the fixture is hanging on the truss).

     Auto - The option activates a gravitation sensor for automatic screen orientation.

Note: **Auto** option is set as default. You change the display orientation by touching the icon 🔄 on the display, an the option set in the "Display Orientation" menu is temporarily overriden.

Temperature unit - Use the menu item to change temperature unit from °C to °F.

Fan Mode - Use the menu to set the fixture fans to max. fan power mode ("**High**") or to auto- control mode ("**Auto**").

Date & Time Settings - Use this menu to set current date and time for the fixture log system (menu "**View Logs**"). Set this menu item before first fixture operation.

Default Settings - The menu item allows to set all fixture parameters to the default (factory) values.

7.4 Tab "Manual Control"

Manual Effect control - Use the menu to control all fixture channels by means of the control panel.

7.5 Tab "Stand-alone"

Test Sequences -Use the menu item to run a test/demo sequences without an external controller, which will show you some possibilities of using Robin Strobe.

Music Trigger - Use the item to activate the sound control of the running program via the built-in microphone.

Preset Playback - This menu allows you to select the program which will be played in a loop after switching the fixture on (the option is commonly used in a stand-alone operation without an external controller).

   None - The option disables "Presetting playback" function.

   Test - The option starts the test sequences.

   Prog. 1 - The option starts user program No. 1.

   Prog. 2 - The option starts user program No. 2.

   Prog. 3 - The option starts user program No. 3.

Play program - Use the menu to run desired program in a loop.

   Play Program 1 - The option starts user program No.1.

   Play Program 2 - The option starts user program No. 2.

   Play Program 3 - The option starts user program No. 3.

Edit Program - Use the menu to create or to edit desired program. The Robin Strobe offers 3 free programs, each up to 88 steps.

   Edit Program 1 - The option allows to edit user program No.1.

   Edit Program 2 - The option allows to edit user program No.2.

   Edit Program 3 - The option allows to edit user program No.3

To edit program:
1. Touch the item which you want to edit ("Edit Program 1" - "Edit Program 3").
2. Touch the item "Edit Program Steps".
3. Touch the item "Step 1".
4 From the list of effects touch desired effect and set its value. Browse throw the list by touching the [up arrow] and [down arrow] and set all desired effects.
An item "Step Time" (value of 0-25.5 sec.) is the time during which effects last in the current step
5. Save adjusted effects to the current step by touching the [confirm] or save and copy them to the following step by touching the [confirm+copy]. By touching the text box "Preview" next to the current program step you can view created scene.
6. Repeat the steps 4 and 5 for next program steps.
7. After editing desired program steps, adjust the length of the program by touching the text boxes "Start Step" and "End Step".

Meaning of the icons used in the "Edit Program" menu:
⬇ - moves down on the next page   ✔ - saves adjusted values and leaves menu
⬆ - moves up on the previous page   ✔ - saves values to the current step and copy them to the
                                                              following prog. step
✘ - leaves menu without saving values

7.6 Tab "Service"

Updating software - The menu item allows you to update software in the fixture via either serial or USB port of PC.
The following are required in order to update software:
- PC running Windows 95/98/2000/XP/7/8 or Linux
- DMX Software Uploader
- Flash cable RS232/DMX No.13050624 (if you want to use a serial port of PC)
- Robe Universal Interface (if you want to use an USB port of PC)
Note: Software update should execute a qualified person. If you lack qualification, do not attempt the update yourself and ask for help your ROBE distributor.
DMX address, IP address, programs 1-3 and all items in the menu "Personality" will be set to their default (factory) values.
To update software in the fixture:
I. Installation of the DMX Software Uploader.
      1. DMX Software Uploader program is available from the ROBE web site at WWW.robe.cz.
      2. Make a new directory (e.g. Robe_Uploader) on your hard disk and download the software to it.
      3. Unpack the seftware.
II.Fixture software updating.
      1.Determine which of your ports is available on your PC and connect it:
      - with the DMX input of the fixture if you using the flash cable RS232/DMX
      - with the DMX output of the Robe Universal Interface if you using the USB cable.
      Disconnect the fixture from the other fixtures in a DMX chain. Turn both the computer and
      the fixture on. Make sure the lamp is switched off (only if the fixture involves a lamp).
      2. Switch the fixture to the updating mode by touching the "Updating Software " item
      Note: If you do not want to continue in software update, you have to switch off and on the fixture
      to escape from this menu.
      We recommend to cancel all running programs before starting the Software Uploader.
      3. Run the Software Uploader program. Select desired COM and then click on the Connect button.
      (Select COM if the serial port is used or Robe Universal Interface if the USB port is used).
      If the connection is OK, click on the "Start Uploading button" to start uploading. It will take several
      minutes to perform software update.
      If the option "Incremental Update" is not checked, all processors will be updated (including
      processors with the same software version).
      If you wish to update only later versions of processors, check the "Incremental Update box".
      Avoid interrupting the process. Update status is being displayed in the Info Box window.
      When the update is finished, the line with the text "The fixture is successfully updated" will appear in

this window and the fixture will reset with the new software.
Note: In the case of an interruption of the upload process (e.g. power cut), the fixture keeps the updating mode and you have to repeat the software update again.

8. RDM

This fixture supports RDM operation. RDM (Remote Device Management) is a bi-directional communications protocol for use in DMX512 control systems, it is the new open standard for DMX512 device configuration and status monitoring.

The RDM protocol allows data packets to be inserted into a DMX512 data stream without adversely affecting existing non-RDM equipment. By using a special „Start Code," and by complying with the timing specifications for DMX512, the RDM protocol allows a console or dedicated RDM controller to send commands to and receive messages from specific moving lights.

RDM allows explicit commands to be sent to a device and responses to be received from it.

The list of commands for Robin Strobe is the following.

Parameter ID	Discovery command	SET command	GET command
DISC_UNIQUE_BRANCH	*		
DISC_MUTE	*		
DISC_UN_MUTE	*		
DEVICE_INFO			*
SUPPORTED_PARAMETERS			*
SOFTWARE_VERSION_LABEL			*
DMX_START_ADDRESS		*	*
IDENTIFY_DEVICE		*	*
DEVICE_MODEL_DESCRIPTION			*
MANUFACTURER_LABEL			*
DEVICE_LABEL		*	*
SENSOR_DEFINITION			*
SENSOR_VALUE			*
DISPLAY_INVERT		*	*
DISPLAY_LEVEL		*	*
PAN_INVERT		*	*
TILT_INVERT		*	*
DEVICE_RESET		*	
DMX_PERSONALITY		*	*
DMX_PERSONALITY_DESCRIPTION			*
STATUS_MESSAGES			*
STATUS_ID_DESCRIPTION			*
DEVICE_HOURS			*
PARAMETER_DESCRIPTION			*
ROBE_DMX_INPUT		*	*
ROBE_WIRELESS_UNLINK		*	

9. Wireless DMX operation

The wireless DMX version of the Robin Strobe is equipped with the Lumen Radio CRMX module and antenna for receiving DMX signal. CRMX module operates on the 2.4 GHz band.

The item " Wireless " from the menu "DMX Input" allows you to activate receiving of wireless DMX (Personality--> DMX Input -->Wireless.).

To link the fixture with DMX transmitter.
The fixture can be only linked with the transmitter by running the link procedure at DMX transmitter .
After linking , the level of DMX signal (0-100 %) is displayed in the menu item "Wireless State" (Information

-->Wireless State).

<u>To unlink the fixture from DMX transmitter.</u>
The fixture can be unlinked from receiver via the menu item " Unlink Wireless Adapter" (Information--> Wireless State --> Unlink Wireless Adapter.).
Note: If the fixture is placed outdoor during wireless DMX operation , both its XLR connectors has to be interconnected each other (male-female) to meet their IP rating (IP 65).

10. Error and information messages

Occurred errors during fixture operation are signalled by the yellow warning icon at the bottom line of the screen:

001

⚠
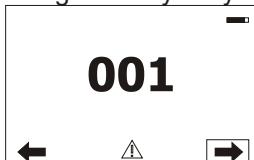
Touch the warning icon or press the [ESCAPE] button to display error messages.
List of error and information messages:

Temp. Sensor Error
The message informs you that the communication between the head temperature sensor and the main processor failed.

LED Zone 1 Short Error

The message informs you that short circuit has occured on the PCB of LED zone 1.

LED Zone 2 Short Error
The message informs you that short circuit has occured on the PCB of LED zone 2.

LED Zone 3 Short Error
The message informs you that short circuit has occured on the PCB of LED zone 3.

LED Zone 4 Short Error
The message informs you that short circuit has occured on the PCB of LED zone 4.

LED Zone 5 Short Error
The message informs you that short circuit has occured on the PCB of LED zone 5.

LED Zone 6 Short Error
The message informs you that short circuit has occured on the PCB of LED zone 6.

LED Zone 7 Short Error
The message informs you that short circuit has occured on the PCB of LED zone 7.

LED Zone 8 Short Error
The message informs you that short circuit has occured on the PCB of LED zone 8.

LED Zone 9 Short Error
The message informs you that short circuit has occured on the PCB of LED zone 9.

LED Zone 10 Short Error
The message informs you that short circuit has occured on the PCB of LED zone 10.

LED Zone 11 Short Error
The message informs you that short circuit has occured on the PCB of LED zone 11.

LED Zone 12 Short Error
The message informs you that short circuit has occured on the PCB of LED zone 12.

Internal Error 1
Communication error between PCBs (error or noise was detected on communication wires).

Internal Error 2

Ballast communication error (some PCB has failed or is disconnected (this PCB will show as N/A in menu --> Information --> Software versions) or error/noise was detected on communication wires).

11. Technical Specifications

Electrical

Power supply:.........................electronic auto-ranging
Input voltage range:............... 100-240V, 50/60Hz
Fuse:......................................T8 A
Max. power consumption:.......660 W (power factor=0,98, I=2.93A@230V)

Optic

Light source: 120 high power LEDs
12 LED zones with individual control of each
Typical Lumen Maintenance: 70% @ 60,000 hours
LED life expectancy: 60.000 hours
Colour temperature: 6000K

Zone effectsl

Zone effects in both directions with variable speed

Strobe

Strobe effect with variable speed
Pulses adjustment: frequency, duration, intensity
Special effects: rump up, rump down, rump up/down, random, lighting, spikes

Control

Graphic touch screen for fixture setting and addressing
Gravitation sensor for auto screen positioning
Battery backup of the touch screen
Readout fixture usage, receiving DMX values, temperatures, etc
Built-in analyzer for easy fault finding, error messages
Built-in demo sequences
Stand-alone operation
3 user editable programs, each up to 88 steps
Supported protocols: USITT DMX 512, RDM, ArtNet, MANet, MANet2, sACN
Support of RDM (Remote Device Management)
4 DMX modes (8, 20, 3, 4 control channels)

Optional Wireless DMX/RDM module

Compliance with USITT DMX-512 (1986 & 1990) and 512-A
Full DMX fidelity and frame integrity
Auto sensing of DMX frame rate and frame size
<5ms DMX latency
Operational frequency range of 2402-2480 MHz
Producer: LumenRadio

Connection

DMX data in/out: 2 x 150mm of DMX outdoor cable CA-0611 + 2 x 5-pin XLR connectors:
Neutrik NC5MX-HD (male) , Neutrik NC5FX-HD (female)
Ethernet: RJ45
Power : Neutrik NAC 3MPX

Rigging

via U-bracket

Temperatures

Maximum ambient temperature: 45°C
Maximum housing temperature : 75° C

Minimum distances

Min. distance from flammable surfaces: 0.5 m
Min. distance to lighted object: 1m (single fixture)
                        2 m (6 fixtures in "top-to-bottom" configuration)

Total heat dissipation

2050 BTU/h (calculated)

Weight (net):

14.3 kg

Dimensions (mm)
All dimensions in mm

Tilt range:+/-90°
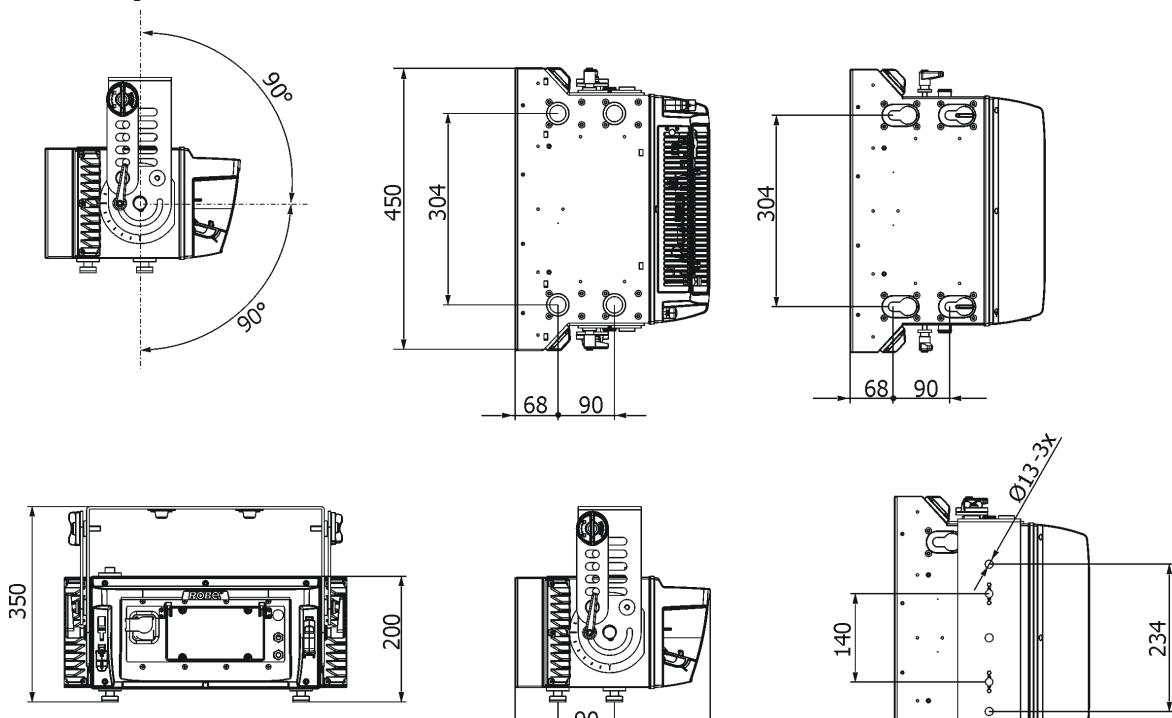
Protection factor

IP 22

Accessories

1 x Mounting bracket Omega CL assembled (P/N 99010420)

Optional accessories

(P/N 10 980 261) Floor stands for Robin Strobe/Colour Strobe
(P/N 10 980 262) Bandoor for Robin Strobe/ColourStrobe/Strobe Lite/ColorStrobe Lite
(P/N 10 980 263) Frame Adaptor for Robin Strobe/ColourStrobe/Strobe Lite/ColorStrobe Lite
(P/N 10 980 264) Gel Frame for Robin Strobe/ColourStrobe/Strobe Lite/ColorStrobe Lite
(P/N 10 980 265) Stacker for Robin Strobe/ColourStrobe
(P/N 10 980 033) Omega Adaptor CL-regular 2 pcs
(P/N 17 030 386) Doughty Trigger Clamp
(P/N 99 011 963) Safety wire 35 kg
(P/N 13 052 276) Mains Cable PowerCon TRUE1 In/open ended, EU 2m, outdoor
(P/N 13 052 277) Mains Cable PowerCon TRUE1 In/open ended, US 2m, outdoor
(P/N 13 052 405) Mains Cable powerCON TRUE1 In/Schuko, 2m, Indoor
(P/N 13 052 406) Mains Cable powerCON TRUE1 In/US, 2m, Indoor

(P/N 13 052 445) Mains Cable powerCON TRUE1 In/CEE 16A, 2m, Indoor
(P/N 13 052 407) Mains Cable powerCON TRUE1 In/open ended, 2m, Indoor

Photometric chart

Distance (m)	4	5	8	12	16	20	24	28	
White	8750/813	5600/520	2190/203	970/90	550/51	350/33	243/23	180/17	Intensity (center) Lux/Footcandles
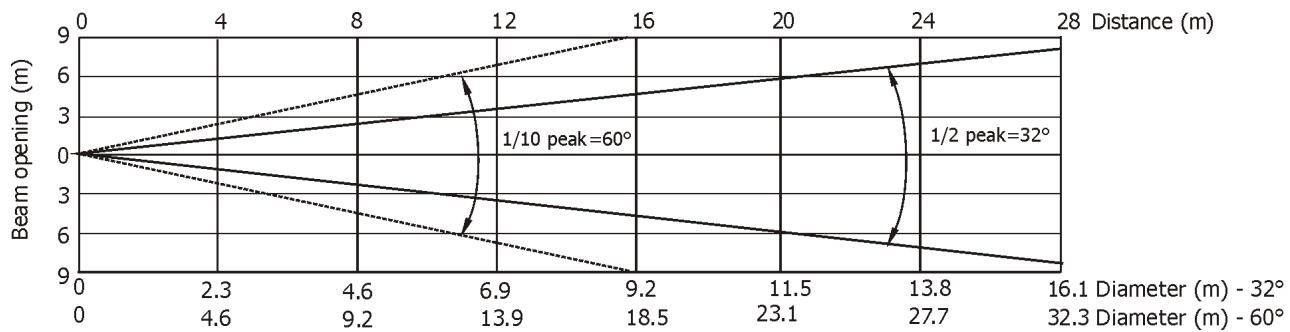
Illuminance distribution
Distance=5m
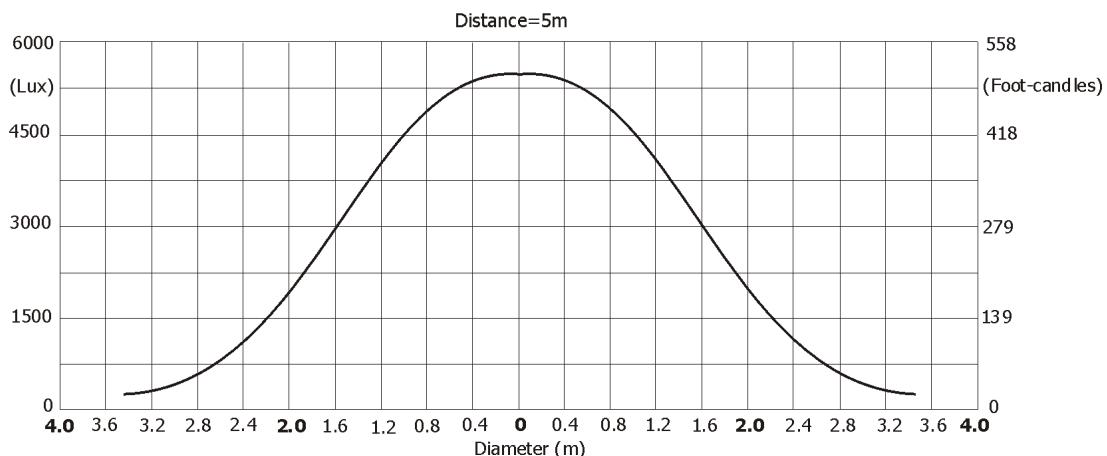
12. Maintenance and cleaning

> **DANGER !**
> **Disconnect from the mains and allow to cool completely before starting any cleaning or maintenance work**

The front transparent cover will require monthly cleaning as smoke fluid tends to build up residues, reducing the light output very quickly. For cleaning use a wet clout and a vacuum-cleaner or air-jet. Do not use solvents or any other aggressive cleaning fluid.
The interior of the fixture including fans should be cleaned annually (or more often according operating conditions) using a vacuum-cleaner and a soft brush. A qualified electrician should service and clean the interior of the fixture as disconnecting and connectinng electrical cables is required.
Should you need any spare parts, please use genuine parts.

More complicated maintenance and service operations are only to be carried out by authorized distributors.

To get access to the fixture´s inside
1. Unscrew three screws (1) along both sides of the rear cover (2).
2. Disconnect cables between rear cover and inside of the fixture (power, display, DMX).
3. Unscrew two screws (3) at each side of the chassis with power supply (4) and pull the chassis out with care.
4. Now you can clear inside of the fixture including fans (5).
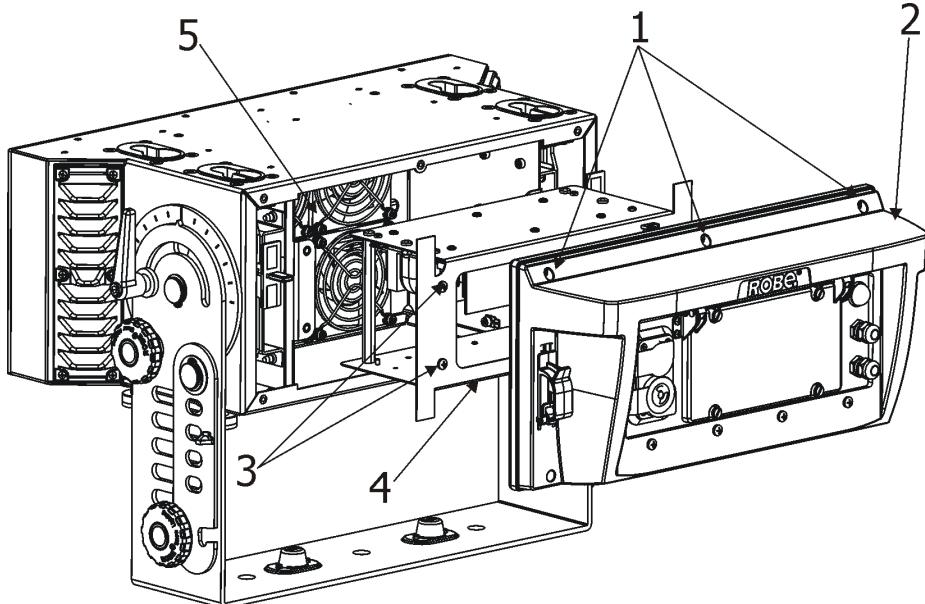
12.1 Replacing fuse

Only replace the fuse by a fuse of the same type and rating.

Before replacing the fuse, unplug mains lead!
      1) Remove the fuse holder on the rear panel of the base with a fitting screwdriver from the housing (anti-clockwise).
      2) Remove the old fuse from the fuse holder.
      3) Install the new fuse in the fuse holder (only the same type and rating).
      4) Replace the fuse holder in the housing and fix it.

12.2 Disposing of the product

To preserve the environment please dispose or recycle this product at the end of its life according to the local regulations and codes.

13. Appendix

13.1 Strobe and Special effects timing

June 9, 2018
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Specifications are subject to change without notice.
Made in ROBE Lighting s.r.o., Palackého 416, 757 01 Valašské Meziříčí, Czech Republic

	Strobe duration		
	Mode 3 and 4		Mode 1 and 2
DMX	50Hz	60Hz	50 and 60 Hz
	[ms]	[ms]	[ms]
0	20,00	16,67	13,31
1	20,00	16,67	16,64
2	20,00	16,67	19,97
3	20,00	16,67	23,30
4	20,00	16,67	26,62
5	20,00	16,67	29,95
6	20,00	16,67	33,28
7	20,00	16,67	36,61
8	20,00	16,67	39,94
9	20,00	16,67	43,26
10	20,00	16,67	46,59
11	20,00	16,67	49,92
12	20,00	16,67	53,25
13	20,00	16,67	56,58
14	40,00	33,33	59,90
15	40,00	33,33	63,23
16	40,00	33,33	66,56
17	40,00	33,33	69,89
18	40,00	33,33	73,22
19	40,00	33,33	76,54
20	40,00	33,33	79,87
21	40,00	33,33	83,20
22	60,00	50,00	86,53
23	60,00	50,00	89,86
24	60,00	50,00	93,18
25	60,00	50,00	96,51
26	60,00	50,00	99,84
27	60,00	50,00	103,17
28	60,00	50,00	106,50
29	60,00	50,00	109,82
30	80,00	66,67	113,15
31	80,00	66,67	116,48
32	80,00	66,67	119,81
33	80,00	66,67	123,14
34	80,00	66,67	126,46
35	80,00	66,67	129,79
36	80,00	66,67	133,12
37	80,00	66,67	136,45
38	100,00	83,33	139,78
39	100,00	83,33	143,10
40	100,00	83,33	146,43
41	100,00	83,33	149,76
42	100,00	83,33	153,09
43	100,00	83,33	156,42
44	100,00	83,33	159,74
45	100,00	83,33	163,07
46	120,00	100,00	166,40
47	120,00	100,00	169,73
48	120,00	100,00	173,06
49	120,00	100,00	176,38
50	120,00	100,00	179,71
51	120,00	100,00	183,04
52	120,00	100,00	186,37
53	120,00	100,00	189,70

	Strobe duration		
	Mode 3 and 4		Mode 1 and 2
DMX	50Hz	60Hz	50 and 60 Hz
	[ms]	[ms]	[ms]
54	140,00	116,67	193,02
55	140,00	116,67	196,35
56	140,00	116,67	199,68
57	140,00	116,67	203,01
58	140,00	116,67	206,34
59	140,00	116,67	209,66
60	140,00	116,67	212,99
61	140,00	116,67	216,32
62	160,00	133,33	219,65
63	160,00	133,33	222,98
64	160,00	133,33	226,30
65	160,00	133,33	229,63
66	160,00	133,33	232,96
67	160,00	133,33	236,29
68	160,00	133,33	239,62
69	160,00	133,33	242,94
70	180,00	150,00	246,27
71	180,00	150,00	249,60
72	180,00	150,00	252,93
73	180,00	150,00	256,26
74	180,00	150,00	259,58
75	180,00	150,00	262,91
76	180,00	150,00	266,24
77	180,00	150,00	269,57
78	200,00	166,67	272,90
79	200,00	166,67	276,22
80	200,00	166,67	279,55
81	200,00	166,67	282,88
82	200,00	166,67	286,21
83	200,00	166,67	289,54
84	200,00	166,67	292,86
85	200,00	166,67	296,19
86	220,00	183,33	299,52
87	220,00	183,33	302,85
88	220,00	183,33	306,18
89	220,00	183,33	309,50
90	220,00	183,33	312,83
91	220,00	183,33	316,16
92	220,00	183,33	319,49
93	220,00	183,33	322,82
94	240,00	200,00	326,14
95	240,00	200,00	329,47
96	240,00	200,00	332,80
97	240,00	200,00	336,13
98	240,00	200,00	339,46
99	240,00	200,00	342,78
100	240,00	200,00	346,11
101	240,00	200,00	349,44
102	260,00	216,67	352,77
103	260,00	216,67	356,10
104	260,00	216,67	359,42
105	260,00	216,67	362,75
106	260,00	216,67	366,08
107	260,00	216,67	369,41

	Strobe duration		
	Mode 3 and 4		Mode 1 and 2
DMX	50Hz	60Hz	50 and 60 Hz
	[ms]	[ms]	[ms]
108	260,00	216,67	372,74
109	260,00	216,67	376,06
110	280,00	233,33	379,39
111	280,00	233,33	382,72
112	280,00	233,33	386,05
113	280,00	233,33	389,38
114	280,00	233,33	392,70
115	280,00	233,33	396,03
116	280,00	233,33	399,36
117	280,00	233,33	402,69
118	300,00	250,00	406,02
119	300,00	250,00	409,34
120	300,00	250,00	412,67
121	300,00	250,00	416,00
122	300,00	250,00	419,33
123	300,00	250,00	422,66
124	300,00	250,00	425,98
125	300,00	250,00	429,31
126	320,00	266,67	432,64
127	320,00	266,67	435,97
128	320,00	266,67	439,30
129	320,00	266,67	442,62
130	320,00	266,67	445,95
131	320,00	266,67	449,28
132	320,00	266,67	452,61
133	320,00	266,67	455,94
134	340,00	283,33	459,26
135	340,00	283,33	462,59
136	340,00	283,33	465,92
137	340,00	283,33	469,25
138	340,00	283,33	472,58
139	340,00	283,33	475,90
140	340,00	283,33	479,23
141	340,00	283,33	482,56
142	360,00	300,00	485,89
143	360,00	300,00	489,22
144	360,00	300,00	492,54
145	360,00	300,00	495,87
146	360,00	300,00	499,20
147	360,00	300,00	502,53
148	360,00	300,00	505,86
149	360,00	300,00	509,18
150	380,00	316,67	512,51
151	380,00	316,67	515,84
152	380,00	316,67	519,17
153	380,00	316,67	522,50
154	380,00	316,67	525,82
155	380,00	316,67	529,15
156	380,00	316,67	532,48
157	380,00	316,67	535,81
158	400,00	333,33	539,14
159	400,00	333,33	542,46
160	400,00	333,33	545,79
161	400,00	333,33	549,12

	Strobe duration		
	Mode 3 and 4		Mode 1 and 2
DMX	50Hz	60Hz	50 and 60 Hz
	[ms]	[ms]	[ms]
162	400,00	333,33	552,45
163	400,00	333,33	555,78
164	400,00	333,33	559,10
165	400,00	333,33	562,43
166	420,00	350,00	565,76
167	420,00	350,00	569,09
168	420,00	350,00	572,42
169	420,00	350,00	575,74
170	420,00	350,00	579,07
171	420,00	350,00	582,40
172	420,00	350,00	585,73
173	420,00	350,00	589,06
174	440,00	366,67	592,38
175	440,00	366,67	595,71
176	440,00	366,67	599,04
177	440,00	366,67	602,37
178	440,00	366,67	605,70
179	440,00	366,67	609,02
180	440,00	366,67	612,35
181	440,00	366,67	615,68
182	460,00	383,33	619,01
183	460,00	383,33	622,34
184	460,00	383,33	625,66
185	460,00	383,33	628,99
186	460,00	383,33	632,32
187	460,00	383,33	635,65
188	460,00	383,33	638,98
189	460,00	383,33	642,30
190	480,00	400,00	645,63
191	480,00	400,00	648,96
192	480,00	400,00	652,29
193	480,00	400,00	655,62
194	480,00	400,00	658,94
195	480,00	400,00	662,27
196	480,00	400,00	665,60
197	480,00	400,00	668,93
198	500,00	416,67	672,26
199	500,00	416,67	675,58
200	500,00	416,67	678,91
201	500,00	416,67	682,24
202	500,00	416,67	685,57
203	500,00	416,67	688,90
204	500,00	416,67	692,22
205	500,00	416,67	695,55
206	520,00	433,33	698,88
207	520,00	433,33	702,21
208	520,00	433,33	705,54
209	520,00	433,33	708,86
210	520,00	433,33	712,19
211	520,00	433,33	715,52
212	520,00	433,33	718,85
213	520,00	433,33	722,18
214	540,00	450,00	725,50
215	540,00	450,00	728,83

	Strobe duration		
	Mode 3 and 4		Mode 1 and 2
DMX	50Hz	60Hz	50 and 60 Hz
	[ms]	[ms]	[ms]
216	540,00	450,00	732,16
217	540,00	450,00	735,49
218	540,00	450,00	738,82
219	540,00	450,00	742,14
220	540,00	450,00	745,47
221	540,00	450,00	748,80
222	560,00	466,67	752,13
223	560,00	466,67	755,46
224	560,00	466,67	758,78
225	560,00	466,67	762,11
226	560,00	466,67	765,44
227	560,00	466,67	768,77
228	560,00	466,67	772,10
229	560,00	466,67	775,42
230	580,00	483,33	778,75
231	580,00	483,33	782,08
232	580,00	483,33	785,41
233	580,00	483,33	788,74
234	580,00	483,33	792,06
235	580,00	483,33	795,39
236	580,00	483,33	798,72
237	580,00	483,33	802,05
238	600,00	500,00	805,38
239	600,00	500,00	808,70
240	600,00	500,00	812,03
241	600,00	500,00	815,36
242	600,00	500,00	818,69
243	600,00	500,00	822,02
244	600,00	500,00	825,34
245	600,00	500,00	828,67
246	620,00	516,67	832,00
247	620,00	516,67	835,33
248	620,00	516,67	838,66
249	620,00	516,67	841,98
250	620,00	516,67	845,31
251	620,00	516,67	848,64
252	620,00	516,67	851,97
253	620,00	516,67	855,30
254	640,00	533,33	858,62
255	660,00	550,00	861,95

DMX	Strobe Rate			
	Mode 3 and 4		Mode 1 and 2	
	50Hz	60Hz	50Hz	60Hz
	[Hz]	[Hz]	[Hz]	[Hz]
0	x	x	x	x
1	x	x	x	x
2	x	x	x	x
3	x	x	x	x
4	x	x	x	x
5	x	x	x	x
6	0,289	0,347	0,289	0,347
7	0,289	0,347	0,347	0,417
8	0,431	0,517	0,431	0,517
9	0,431	0,517	0,495	0,594
10	0,575	0,690	0,575	0,690
11	0,575	0,690	0,641	0,769
12	0,714	0,857	0,714	0,857
13	0,714	0,857	0,781	0,937
14	0,862	1,034	0,862	1,034
15	0,862	1,034	0,926	1,111
16	1,000	1,200	1,000	1,200
17	1,000	1,200	1,064	1,277
18	1,136	1,364	1,136	1,364
19	1,136	1,364	1,220	1,463
20	1,282	1,538	1,282	1,538
21	1,282	1,538	1,351	1,622
22	1,429	1,714	1,429	1,714
23	1,429	1,714	1,515	1,818
24	1,563	1,875	1,563	1,875
25	1,563	1,875	1,667	2,000
26	1,724	2,069	1,724	2,069
27	1,724	2,069	1,786	2,143
28	1,852	2,222	1,852	2,222
29	1,852	2,222	1,923	2,308
30	2,000	2,400	2,000	2,400
31	2,000	2,400	2,083	2,500
32	2,083	2,500	2,083	2,500
33	2,083	2,500	2,174	2,609
34	2,273	2,727	2,273	2,727
35	2,273	2,727	2,381	2,857
36	2,381	2,857	2,381	2,857
37	2,381	2,857	2,500	3,000
38	2,500	3,000	2,500	3,000
39	2,500	3,000	2,632	3,158
40	2,632	3,158	2,632	3,158
41	2,632	3,158	2,778	3,333
42	2,778	3,333	2,778	3,333
43	2,778	3,333	2,941	3,529
44	2,941	3,529	2,941	3,529
45	2,941	3,529	3,125	3,750
46	3,125	3,750	3,125	3,750
47	3,125	3,750	3,125	3,750
48	3,125	3,750	3,125	3,750
49	3,125	3,750	3,333	4,000
50	3,333	4,000	3,333	4,000
51	3,333	4,000	3,571	4,286
52	3,571	4,286	3,571	4,286
53	3,571	4,286	3,846	4,615

	Strobe Rate			
	Mode 3 and 4		Mode 1 and 2	
DMX	50Hz	60Hz	50Hz	60Hz
	[Hz]	[Hz]	[Hz]	[Hz]
54	3,571	4,286	3,846	4,615
55	3,571	4,286	3,846	4,615
56	3,846	4,615	3,846	4,615
57	3,846	4,615	4,167	5,000
58	3,846	4,615	4,167	5,000
59	3,846	4,615	4,167	5,000
60	4,167	5,000	4,167	5,000
61	4,167	5,000	4,545	5,455
62	4,167	5,000	4,545	5,455
63	4,167	5,000	4,545	5,455
64	4,167	5,000	4,545	5,455
65	4,167	5,000	4,545	5,455
66	4,545	5,455	4,545	5,455
67	4,545	5,455	5,000	6,000
68	4,545	5,455	5,000	6,000
69	4,545	5,455	5,000	6,000
70	4,545	5,455	5,000	6,000
71	4,545	5,455	5,000	6,000
72	4,545	5,455	5,000	6,000
73	4,545	5,455	5,000	6,000
74	5,000	6,000	5,000	6,000
75	5,000	6,000	5,556	6,667
76	5,000	6,000	5,556	6,667
77	5,000	6,000	5,556	6,667
78	5,000	6,000	5,556	6,667
79	5,000	6,000	5,556	6,667
80	5,000	6,000	5,556	6,667
81	5,000	6,000	5,556	6,667
82	5,556	6,667	5,556	6,667
83	5,556	6,667	6,250	7,500
84	5,556	6,667	6,250	7,500
85	5,556	6,667	6,250	7,500
86	5,556	6,667	6,250	7,500
87	5,556	6,667	6,250	7,500
88	5,556	6,667	6,250	7,500
89	5,556	6,667	6,250	7,500
90	6,250	7,500	6,250	7,500
91	6,250	7,500	7,143	8,571
92	6,250	7,500	7,143	8,571
93	6,250	7,500	7,143	8,571
94	6,250	7,500	7,143	8,571
95	6,250	7,500	7,143	8,571
96	6,250	7,500	7,143	8,571
97	6,250	7,500	7,143	8,571
98	6,250	7,500	7,143	8,571
99	6,250	7,500	7,143	8,571
100	6,250	7,500	7,143	8,571
101	6,250	7,500	7,143	8,571
102	7,143	8,571	7,143	8,571
103	7,143	8,571	8,333	10,000
104	7,143	8,571	8,333	10,000
105	7,143	8,571	8,333	10,000
106	7,143	8,571	8,333	10,000
107	7,143	8,571	8,333	10,000

DMX	Strobe Rate			
	Mode 3 and 4		Mode 1 and 2	
	50Hz	60Hz	50Hz	60Hz
	[Hz]	[Hz]	[Hz]	[Hz]
108	7,143	8,571	8,333	10,000
109	7,143	8,571	8,333	10,000
110	7,143	8,571	8,333	10,000
111	7,143	8,571	8,333	10,000
112	7,143	8,571	8,333	10,000
113	7,143	8,571	8,333	10,000
114	7,143	8,571	8,333	10,000
115	7,143	8,571	8,333	10,000
116	7,143	8,571	8,333	10,000
117	7,143	8,571	8,333	10,000
118	8,333	10,000	8,333	10,000
119	8,333	10,000	10,000	12,000
120	8,333	10,000	10,000	12,000
121	8,333	10,000	10,000	12,000
122	8,333	10,000	10,000	12,000
123	8,333	10,000	10,000	12,000
124	8,333	10,000	10,000	12,000
125	8,333	10,000	10,000	12,000
126	8,333	10,000	10,000	12,000
127	8,333	10,000	10,000	12,000
128	8,333	10,000	10,000	12,000
129	8,333	10,000	10,000	12,000
130	8,333	10,000	10,000	12,000
131	8,333	10,000	10,000	12,000
132	8,333	10,000	10,000	12,000
133	8,333	10,000	10,000	12,000
134	8,333	10,000	10,000	12,000
135	8,333	10,000	10,000	12,000
136	8,333	10,000	10,000	12,000
137	8,333	10,000	10,000	12,000
138	8,333	10,000	10,000	12,000
139	8,333	10,000	10,000	12,000
140	8,333	10,000	10,000	12,000
141	8,333	10,000	10,000	12,000
142	10,000	12,000	10,000	12,000
143	10,000	12,000	12,500	15,000
144	10,000	12,000	12,500	15,000
145	10,000	12,000	12,500	15,000
146	10,000	12,000	12,500	15,000
147	10,000	12,000	12,500	15,000
148	10,000	12,000	12,500	15,000
149	10,000	12,000	12,500	15,000
150	10,000	12,000	12,500	15,000
151	10,000	12,000	12,500	15,000
152	10,000	12,000	12,500	15,000
153	10,000	12,000	12,500	15,000
154	10,000	12,000	12,500	15,000
155	10,000	12,000	12,500	15,000
156	10,000	12,000	12,500	15,000
157	10,000	12,000	12,500	15,000
158	10,000	12,000	12,500	15,000
159	10,000	12,000	12,500	15,000
160	10,000	12,000	12,500	15,000
161	10,000	12,000	12,500	15,000

DMX	Strobe Rate			
	Mode 3 and 4		Mode 1 and 2	
	50Hz	60Hz	50Hz	60Hz
	[Hz]	[Hz]	[Hz]	[Hz]
162	10,000	12,000	12,500	15,000
163	10,000	12,000	12,500	15,000
164	10,000	12,000	12,500	15,000
165	10,000	12,000	12,500	15,000
166	10,000	12,000	12,500	15,000
167	10,000	12,000	12,500	15,000
168	10,000	12,000	12,500	15,000
169	10,000	12,000	12,500	15,000
170	10,000	12,000	12,500	15,000
171	10,000	12,000	12,500	15,000
172	10,000	12,000	12,500	15,000
173	10,000	12,000	12,500	15,000
174	10,000	12,000	12,500	15,000
175	10,000	12,000	12,500	15,000
176	12,500	15,000	12,500	15,000
177	12,500	15,000	16,667	20,000
178	12,500	15,000	16,667	20,000
179	12,500	15,000	16,667	20,000
180	12,500	15,000	16,667	20,000
181	12,500	15,000	16,667	20,000
182	12,500	15,000	16,667	20,000
183	12,500	15,000	16,667	20,000
184	12,500	15,000	16,667	20,000
185	12,500	15,000	16,667	20,000
186	12,500	15,000	16,667	20,000
187	12,500	15,000	16,667	20,000
188	12,500	15,000	16,667	20,000
189	12,500	15,000	16,667	20,000
190	12,500	15,000	16,667	20,000
191	12,500	15,000	16,667	20,000
192	12,500	15,000	16,667	20,000
193	12,500	15,000	16,667	20,000
194	12,500	15,000	16,667	20,000
195	12,500	15,000	16,667	20,000
196	12,500	15,000	16,667	20,000
197	12,500	15,000	16,667	20,000
198	12,500	15,000	16,667	20,000
199	12,500	15,000	16,667	20,000
200	12,500	15,000	16,667	20,000
201	12,500	15,000	16,667	20,000
202	12,500	15,000	16,667	20,000
203	12,500	15,000	16,667	20,000
204	12,500	15,000	16,667	20,000
205	12,500	15,000	16,667	20,000
206	12,500	15,000	16,667	20,000
207	12,500	15,000	16,667	20,000
208	12,500	15,000	16,667	20,000
209	12,500	15,000	16,667	20,000
210	12,500	15,000	16,667	20,000
211	12,500	15,000	16,667	20,000
212	12,500	15,000	16,667	20,000
213	12,500	15,000	16,667	20,000
214	12,500	15,000	16,667	20,000
215	12,500	15,000	16,667	20,000

	Strobe Rate			
	Mode 3 and 4		Mode 1 and 2	
DMX	50Hz	60Hz	50Hz	60Hz
	[Hz]	[Hz]	[Hz]	[Hz]
216	12,500	15,000	16,667	20,000
217	12,500	15,000	16,667	20,000
218	12,500	15,000	16,667	20,000
219	12,500	15,000	16,667	20,000
220	12,500	15,000	16,667	20,000
221	12,500	15,000	16,667	20,000
222	12,500	15,000	16,667	20,000
223	12,500	15,000	16,667	20,000
224	12,500	15,000	16,667	20,000
225	12,500	15,000	16,667	20,000
226	12,500	15,000	16,667	20,000
227	12,500	15,000	16,667	20,000
228	12,500	15,000	16,667	20,000
229	12,500	15,000	16,667	20,000
230	12,500	15,000	16,667	20,000
231	12,500	15,000	16,667	20,000
232	12,500	15,000	16,667	20,000
233	12,500	15,000	16,667	20,000
234	16,667	20,000	16,667	20,000
235	16,667	20,000	25,000	30,000
236	16,667	20,000	25,000	30,000
237	16,667	20,000	25,000	30,000
238	16,667	20,000	25,000	30,000
239	16,667	20,000	25,000	30,000
240	16,667	20,000	25,000	30,000
241	16,667	20,000	25,000	30,000
242	16,667	20,000	25,000	30,000
243	16,667	20,000	25,000	30,000
244	16,667	20,000	25,000	30,000
245	16,667	20,000	25,000	30,000
246	16,667	20,000	25,000	30,000
247	16,667	20,000	25,000	30,000
248	16,667	20,000	25,000	30,000
249	16,667	20,000	25,000	30,000
250	16,667	20,000	25,000	30,000
251	16,667	20,000	25,000	30,000
252	16,667	20,000	25,000	30,000
253	16,667	20,000	25,000	30,000
254	16,667	20,000	25,000	30,000
255	25,000	30,000	25,000	30,000

DMX	Strobe Rate			
	Mode 3 and 4		Mode 1 and 2	
	50Hz	60Hz	50Hz	60Hz
	[ms]	[ms]	[ms]	[ms]
0	x	x	x	x
1	x	x	x	x
2	x	x	x	x
3	x	x	x	x
4	x	x	x	x
5	x	x	x	x
6	3460,00	2883,34	3460,00	2883,34
7	3460,00	2883,34	2880,00	2400,00
8	2320,00	1933,34	2320,00	1933,34
9	2320,00	1933,34	2020,00	1683,34
10	1740,00	1450,00	1740,00	1450,00
11	1740,00	1450,00	1560,00	1300,00
12	1400,00	1166,67	1400,00	1166,67
13	1400,00	1166,67	1280,00	1066,67
14	1160,00	966,67	1160,00	966,67
15	1160,00	966,67	1080,00	900,00
16	1000,00	833,34	1000,00	833,34
17	1000,00	833,34	940,00	783,33
18	880,00	733,33	880,00	733,33
19	880,00	733,33	820,00	683,33
20	780,00	650,00	780,00	650,00
21	780,00	650,00	740,00	616,67
22	700,00	583,33	700,00	583,33
23	700,00	583,33	660,00	550,00
24	640,00	533,33	640,00	533,33
25	640,00	533,33	600,00	500,00
26	580,00	483,33	580,00	483,33
27	580,00	483,33	560,00	466,67
28	540,00	450,00	540,00	450,00
29	540,00	450,00	520,00	433,33
30	500,00	416,67	500,00	416,67
31	500,00	416,67	480,00	400,00
32	480,00	400,00	480,00	400,00
33	480,00	400,00	460,00	383,33
34	440,00	366,67	440,00	366,67
35	440,00	366,67	420,00	350,00
36	420,00	350,00	420,00	350,00
37	420,00	350,00	400,00	333,33
38	400,00	333,33	400,00	333,33
39	400,00	333,33	380,00	316,67
40	380,00	316,67	380,00	316,67
41	380,00	316,67	360,00	300,00
42	360,00	300,00	360,00	300,00
43	360,00	300,00	340,00	283,33
44	340,00	283,33	340,00	283,33
45	340,00	283,33	320,00	266,67
46	320,00	266,67	320,00	266,67
47	320,00	266,67	320,00	266,67
48	320,00	266,67	320,00	266,67
49	320,00	266,67	300,00	250,00
50	300,00	250,00	300,00	250,00
51	300,00	250,00	280,00	233,33
52	280,00	233,33	280,00	233,33
53	280,00	233,33	260,00	216,67

DMX	Strobe Rate			
---	Mode 3 and 4		Mode 1 and 2	
	50Hz	60Hz	50Hz	60Hz
	[ms]	[ms]	[ms]	[ms]
54	280,00	233,33	260,00	216,67
55	280,00	233,33	260,00	216,67
56	260,00	216,67	260,00	216,67
57	260,00	216,67	240,00	200,00
58	260,00	216,67	240,00	200,00
59	260,00	216,67	240,00	200,00
60	240,00	200,00	240,00	200,00
61	240,00	200,00	220,00	183,33
62	240,00	200,00	220,00	183,33
63	240,00	200,00	220,00	183,33
64	240,00	200,00	220,00	183,33
65	240,00	200,00	220,00	183,33
66	220,00	183,33	220,00	183,33
67	220,00	183,33	200,00	166,67
68	220,00	183,33	200,00	166,67
69	220,00	183,33	200,00	166,67
70	220,00	183,33	200,00	166,67
71	220,00	183,33	200,00	166,67
72	220,00	183,33	200,00	166,67
73	220,00	183,33	200,00	166,67
74	200,00	166,67	200,00	166,67
75	200,00	166,67	180,00	150,00
76	200,00	166,67	180,00	150,00
77	200,00	166,67	180,00	150,00
78	200,00	166,67	180,00	150,00
79	200,00	166,67	180,00	150,00
80	200,00	166,67	180,00	150,00
81	200,00	166,67	180,00	150,00
82	180,00	150,00	180,00	150,00
83	180,00	150,00	160,00	133,33
84	180,00	150,00	160,00	133,33
85	180,00	150,00	160,00	133,33
86	180,00	150,00	160,00	133,33
87	180,00	150,00	160,00	133,33
88	180,00	150,00	160,00	133,33
89	180,00	150,00	160,00	133,33
90	160,00	133,33	160,00	133,33
91	160,00	133,33	140,00	116,67
92	160,00	133,33	140,00	116,67
93	160,00	133,33	140,00	116,67
94	160,00	133,33	140,00	116,67
95	160,00	133,33	140,00	116,67
96	160,00	133,33	140,00	116,67
97	160,00	133,33	140,00	116,67
98	160,00	133,33	140,00	116,67
99	160,00	133,33	140,00	116,67
100	160,00	133,33	140,00	116,67
101	160,00	133,33	140,00	116,67
102	140,00	116,67	140,00	116,67
103	140,00	116,67	120,00	100,00
104	140,00	116,67	120,00	100,00
105	140,00	116,67	120,00	100,00
106	140,00	116,67	120,00	100,00
107	140,00	116,67	120,00	100,00

DMX	Strobe Rate			
	Mode 3 and 4		Mode 1 and 2	
	50Hz	60Hz	50Hz	60Hz
	[ms]	[ms]	[ms]	[ms]
108	140,00	116,67	120,00	100,00
109	140,00	116,67	120,00	100,00
110	140,00	116,67	120,00	100,00
111	140,00	116,67	120,00	100,00
112	140,00	116,67	120,00	100,00
113	140,00	116,67	120,00	100,00
114	140,00	116,67	120,00	100,00
115	140,00	116,67	120,00	100,00
116	140,00	116,67	120,00	100,00
117	140,00	116,67	120,00	100,00
118	120,00	100,00	120,00	100,00
119	120,00	100,00	100,00	83,33
120	120,00	100,00	100,00	83,33
121	120,00	100,00	100,00	83,33
122	120,00	100,00	100,00	83,33
123	120,00	100,00	100,00	83,33
124	120,00	100,00	100,00	83,33
125	120,00	100,00	100,00	83,33
126	120,00	100,00	100,00	83,33
127	120,00	100,00	100,00	83,33
128	120,00	100,00	100,00	83,33
129	120,00	100,00	100,00	83,33
130	120,00	100,00	100,00	83,33
131	120,00	100,00	100,00	83,33
132	120,00	100,00	100,00	83,33
133	120,00	100,00	100,00	83,33
134	120,00	100,00	100,00	83,33
135	120,00	100,00	100,00	83,33
136	120,00	100,00	100,00	83,33
137	120,00	100,00	100,00	83,33
138	120,00	100,00	100,00	83,33
139	120,00	100,00	100,00	83,33
140	120,00	100,00	100,00	83,33
141	120,00	100,00	100,00	83,33
142	100,00	83,33	100,00	83,33
143	100,00	83,33	80,00	66,67
144	100,00	83,33	80,00	66,67
145	100,00	83,33	80,00	66,67
146	100,00	83,33	80,00	66,67
147	100,00	83,33	80,00	66,67
148	100,00	83,33	80,00	66,67
149	100,00	83,33	80,00	66,67
150	100,00	83,33	80,00	66,67
151	100,00	83,33	80,00	66,67
152	100,00	83,33	80,00	66,67
153	100,00	83,33	80,00	66,67
154	100,00	83,33	80,00	66,67
155	100,00	83,33	80,00	66,67
156	100,00	83,33	80,00	66,67
157	100,00	83,33	80,00	66,67
158	100,00	83,33	80,00	66,67
159	100,00	83,33	80,00	66,67
160	100,00	83,33	80,00	66,67
161	100,00	83,33	80,00	66,67

	Strobe Rate			
	Mode 3 and 4		Mode 1 and 2	
DMX	50Hz	60Hz	50Hz	60Hz
	[ms]	[ms]	[ms]	[ms]
162	100,00	83,33	80,00	66,67
163	100,00	83,33	80,00	66,67
164	100,00	83,33	80,00	66,67
165	100,00	83,33	80,00	66,67
166	100,00	83,33	80,00	66,67
167	100,00	83,33	80,00	66,67
168	100,00	83,33	80,00	66,67
169	100,00	83,33	80,00	66,67
170	100,00	83,33	80,00	66,67
171	100,00	83,33	80,00	66,67
172	100,00	83,33	80,00	66,67
173	100,00	83,33	80,00	66,67
174	100,00	83,33	80,00	66,67
175	100,00	83,33	80,00	66,67
176	80,00	66,67	80,00	66,67
177	80,00	66,67	60,00	50,00
178	80,00	66,67	60,00	50,00
179	80,00	66,67	60,00	50,00
180	80,00	66,67	60,00	50,00
181	80,00	66,67	60,00	50,00
182	80,00	66,67	60,00	50,00
183	80,00	66,67	60,00	50,00
184	80,00	66,67	60,00	50,00
185	80,00	66,67	60,00	50,00
186	80,00	66,67	60,00	50,00
187	80,00	66,67	60,00	50,00
188	80,00	66,67	60,00	50,00
189	80,00	66,67	60,00	50,00
190	80,00	66,67	60,00	50,00
191	80,00	66,67	60,00	50,00
192	80,00	66,67	60,00	50,00
193	80,00	66,67	60,00	50,00
194	80,00	66,67	60,00	50,00
195	80,00	66,67	60,00	50,00
196	80,00	66,67	60,00	50,00
197	80,00	66,67	60,00	50,00
198	80,00	66,67	60,00	50,00
199	80,00	66,67	60,00	50,00
200	80,00	66,67	60,00	50,00
201	80,00	66,67	60,00	50,00
202	80,00	66,67	60,00	50,00
203	80,00	66,67	60,00	50,00
204	80,00	66,67	60,00	50,00
205	80,00	66,67	60,00	50,00
206	80,00	66,67	60,00	50,00
207	80,00	66,67	60,00	50,00
208	80,00	66,67	60,00	50,00
209	80,00	66,67	60,00	50,00
210	80,00	66,67	60,00	50,00
211	80,00	66,67	60,00	50,00
212	80,00	66,67	60,00	50,00
213	80,00	66,67	60,00	50,00
214	80,00	66,67	60,00	50,00
215	80,00	66,67	60,00	50,00

DMX	Strobe Rate			
	Mode 3 and 4		Mode 1 and 2	
	50Hz	60Hz	50Hz	60Hz
	[ms]	[ms]	[ms]	[ms]
216	80,00	66,67	60,00	50,00
217	80,00	66,67	60,00	50,00
218	80,00	66,67	60,00	50,00
219	80,00	66,67	60,00	50,00
220	80,00	66,67	60,00	50,00
221	80,00	66,67	60,00	50,00
222	80,00	66,67	60,00	50,00
223	80,00	66,67	60,00	50,00
224	80,00	66,67	60,00	50,00
225	80,00	66,67	60,00	50,00
226	80,00	66,67	60,00	50,00
227	80,00	66,67	60,00	50,00
228	80,00	66,67	60,00	50,00
229	80,00	66,67	60,00	50,00
230	80,00	66,67	60,00	50,00
231	80,00	66,67	60,00	50,00
232	80,00	66,67	60,00	50,00
233	80,00	66,67	60,00	50,00
234	60,00	50,00	60,00	50,00
235	60,00	50,00	40,00	33,33
236	60,00	50,00	40,00	33,33
237	60,00	50,00	40,00	33,33
238	60,00	50,00	40,00	33,33
239	60,00	50,00	40,00	33,33
240	60,00	50,00	40,00	33,33
241	60,00	50,00	40,00	33,33
242	60,00	50,00	40,00	33,33
243	60,00	50,00	40,00	33,33
244	60,00	50,00	40,00	33,33
245	60,00	50,00	40,00	33,33
246	60,00	50,00	40,00	33,33
247	60,00	50,00	40,00	33,33
248	60,00	50,00	40,00	33,33
249	60,00	50,00	40,00	33,33
250	60,00	50,00	40,00	33,33
251	60,00	50,00	40,00	33,33
252	60,00	50,00	40,00	33,33
253	60,00	50,00	40,00	33,33
254	60,00	50,00	40,00	33,33
255	40,00	33,33	40,00	33,33

	Rumping Duration				Rumping Rate	
	Mode 4		Mode 1 and 2		Mode 1, 2 and 4	
DMX	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
	[ms]	[ms]	[ms]	[ms]	[Hz]	[Hz]
0	2480,00	2066,67	2480,00	2066,67	2600,00	2166,67
1	2480,00	2066,67	2380,00	1983,34	2600,00	2166,67
2	2480,00	2066,67	2280,00	1900,00	2580,00	2150,00
3	2480,00	2066,67	2180,00	1816,67	2580,00	2150,00
4	2480,00	2066,67	2080,00	1733,34	2560,00	2133,34
5	2480,00	2066,67	1980,00	1650,00	2560,00	2133,34
6	2480,00	2066,67	1880,00	1566,67	2540,00	2116,67
7	2480,00	2066,67	1780,00	1483,34	2540,00	2116,67
8	1680,00	1400,00	1680,00	1400,00	2520,00	2100,00
9	1680,00	1400,00	1620,00	1350,00	2520,00	2100,00
10	1680,00	1400,00	1560,00	1300,00	2500,00	2083,34
11	1680,00	1400,00	1500,00	1250,00	2500,00	2083,34
12	1680,00	1400,00	1440,00	1200,00	2480,00	2066,67
13	1680,00	1400,00	1380,00	1150,00	2480,00	2066,67
14	1680,00	1400,00	1320,00	1100,00	2460,00	2050,00
15	1680,00	1400,00	1260,00	1050,00	2460,00	2050,00
16	1220,00	1016,67	1220,00	1016,67	2440,00	2033,34
17	1220,00	1016,67	1180,00	983,34	2440,00	2033,34
18	1220,00	1016,67	1160,00	966,67	2420,00	2016,67
19	1220,00	1016,67	1120,00	933,34	2420,00	2016,67
20	1220,00	1016,67	1100,00	916,67	2400,00	2000,00
21	1220,00	1016,67	1080,00	900,00	2400,00	2000,00
22	1220,00	1016,67	1040,00	866,67	2380,00	1983,34
23	1220,00	1016,67	1020,00	850,00	2380,00	1983,34
24	1000,00	833,34	1000,00	833,34	2360,00	1966,67
25	1000,00	833,34	960,00	800,00	2360,00	1966,67
26	1000,00	833,34	940,00	783,33	2340,00	1950,00
27	1000,00	833,34	920,00	766,67	2340,00	1950,00
28	1000,00	833,34	900,00	750,00	2320,00	1933,34
29	1000,00	833,34	880,00	733,33	2320,00	1933,34
30	1000,00	833,34	860,00	716,67	2300,00	1916,67
31	1000,00	833,34	840,00	700,00	2300,00	1916,67
32	820,00	683,33	820,00	683,33	2280,00	1900,00
33	820,00	683,33	800,00	666,67	2280,00	1900,00
34	820,00	683,33	780,00	650,00	2260,00	1883,34
35	820,00	683,33	760,00	633,33	2260,00	1883,34
36	820,00	683,33	760,00	633,33	2240,00	1866,67
37	820,00	683,33	740,00	616,67	2240,00	1866,67
38	820,00	683,33	720,00	600,00	2220,00	1850,00
39	820,00	683,33	700,00	583,33	2220,00	1850,00
40	700,00	583,33	700,00	583,33	2200,00	1833,34
41	700,00	583,33	680,00	566,67	2200,00	1833,34
42	700,00	583,33	660,00	550,00	2180,00	1816,67
43	700,00	583,33	660,00	550,00	2180,00	1816,67
44	700,00	583,33	640,00	533,33	2160,00	1800,00
45	700,00	583,33	620,00	516,67	2160,00	1800,00
46	700,00	583,33	620,00	516,67	2140,00	1783,34
47	700,00	583,33	600,00	500,00	2140,00	1783,34
48	600,00	500,00	600,00	500,00	2120,00	1766,67
49	600,00	500,00	580,00	483,33	2120,00	1766,67
50	600,00	500,00	580,00	483,33	2100,00	1750,00
51	600,00	500,00	580,00	483,33	2100,00	1750,00
52	600,00	500,00	560,00	466,67	2080,00	1733,34
53	600,00	500,00	560,00	466,67	2080,00	1733,34

	Rumping Duration				Rumping Rate	
	Mode 4		Mode 1 and 2		Mode 1, 2 and 4	
DMX	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
	[ms]	[ms]	[ms]	[ms]	[Hz]	[Hz]
54	600,00	500,00	560,00	466,67	2060,00	1716,67
55	600,00	500,00	540,00	450,00	2060,00	1716,67
56	550,00	458,33	540,00	450,00	2040,00	1700,00
57	550,00	458,33	540,00	450,00	2040,00	1700,00
58	550,00	458,33	520,00	433,33	2020,00	1683,34
59	550,00	458,33	520,00	433,33	2020,00	1683,34
60	550,00	458,33	500,00	416,67	2000,00	1666,67
61	550,00	458,33	500,00	416,67	2000,00	1666,67
62	550,00	458,33	480,00	400,00	1980,00	1650,00
63	550,00	458,33	480,00	400,00	1980,00	1650,00
64	480,00	400,00	480,00	400,00	1960,00	1633,34
65	480,00	400,00	460,00	383,33	1960,00	1633,34
66	480,00	400,00	460,00	383,33	1940,00	1616,67
67	480,00	400,00	460,00	383,33	1940,00	1616,67
68	480,00	400,00	460,00	383,33	1920,00	1600,00
69	480,00	400,00	440,00	366,67	1920,00	1600,00
70	480,00	400,00	440,00	366,67	1900,00	1583,34
71	480,00	400,00	440,00	366,67	1900,00	1583,34
72	440,00	366,67	440,00	366,67	1880,00	1566,67
73	440,00	366,67	420,00	350,00	1880,00	1566,67
74	440,00	366,67	420,00	350,00	1860,00	1550,00
75	440,00	366,67	420,00	350,00	1860,00	1550,00
76	440,00	366,67	420,00	350,00	1840,00	1533,34
77	440,00	366,67	400,00	333,33	1840,00	1533,34
78	440,00	366,67	400,00	333,33	1820,00	1516,67
79	440,00	366,67	400,00	333,33	1820,00	1516,67
80	400,00	333,33	400,00	333,33	1800,00	1500,00
81	400,00	333,33	380,00	316,67	1800,00	1500,00
82	400,00	333,33	380,00	316,67	1780,00	1483,34
83	400,00	333,33	380,00	316,67	1780,00	1483,34
84	400,00	333,33	380,00	316,67	1760,00	1466,67
85	400,00	333,33	360,00	300,00	1760,00	1466,67
86	400,00	333,33	360,00	300,00	1740,00	1450,00
87	400,00	333,33	360,00	300,00	1740,00	1450,00
88	360,00	300,00	360,00	300,00	1720,00	1433,34
89	360,00	300,00	340,00	283,33	1720,00	1433,34
90	360,00	300,00	340,00	283,33	1700,00	1416,67
91	360,00	300,00	340,00	283,33	1700,00	1416,67
92	360,00	300,00	340,00	283,33	1680,00	1400,00
93	360,00	300,00	340,00	283,33	1680,00	1400,00
94	360,00	300,00	340,00	283,33	1660,00	1383,34
95	360,00	300,00	340,00	283,33	1660,00	1383,34
96	340,00	283,33	340,00	283,33	1640,00	1366,67
97	340,00	283,33	320,00	266,67	1640,00	1366,67
98	340,00	283,33	320,00	266,67	1620,00	1350,00
99	340,00	283,33	320,00	266,67	1620,00	1350,00
100	340,00	283,33	320,00	266,67	1600,00	1333,34
101	340,00	283,33	320,00	266,67	1600,00	1333,34
102	340,00	283,33	320,00	266,67	1580,00	1316,67
103	340,00	283,33	320,00	266,67	1580,00	1316,67
104	320,00	266,67	320,00	266,67	1560,00	1300,00
105	320,00	266,67	300,00	250,00	1560,00	1300,00
106	320,00	266,67	300,00	250,00	1540,00	1283,34
107	320,00	266,67	300,00	250,00	1540,00	1283,34

	Rumping Duration				Rumping Rate	
	Mode 4		Mode 1 and 2		Mode 1, 2 and 4	
DMX	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
	[ms]	[ms]	[ms]	[ms]	[Hz]	[Hz]
108	320,00	266,67	300,00	250,00	1520,00	1266,67
109	320,00	266,67	280,00	233,33	1520,00	1266,67
110	320,00	266,67	280,00	233,33	1500,00	1250,00
111	320,00	266,67	280,00	233,33	1500,00	1250,00
112	280,00	233,33	280,00	233,33	1480,00	1233,34
113	280,00	233,33	260,00	216,67	1480,00	1233,34
114	280,00	233,33	260,00	216,67	1460,00	1216,67
115	280,00	233,33	260,00	216,67	1460,00	1216,67
116	280,00	233,33	260,00	216,67	1440,00	1200,00
117	280,00	233,33	260,00	216,67	1440,00	1200,00
118	280,00	233,33	260,00	216,67	1420,00	1183,34
119	280,00	233,33	260,00	216,67	1420,00	1183,34
120	280,00	233,33	260,00	216,67	1400,00	1166,67
121	280,00	233,33	260,00	216,67	1400,00	1166,67
122	280,00	233,33	260,00	216,67	1380,00	1150,00
123	280,00	233,33	260,00	216,67	1380,00	1150,00
124	280,00	233,33	260,00	216,67	1360,00	1133,34
125	280,00	233,33	260,00	216,67	1360,00	1133,34
126	280,00	233,33	260,00	216,67	1340,00	1116,67
127	280,00	233,33	260,00	216,67	1340,00	1116,67
128	260,00	216,67	260,00	216,67	1320,00	1100,00
129	260,00	216,67	240,00	200,00	1320,00	1100,00
130	260,00	216,67	240,00	200,00	1300,00	1083,34
131	260,00	216,67	240,00	200,00	1300,00	1083,34
132	260,00	216,67	240,00	200,00	1280,00	1066,67
133	260,00	216,67	240,00	200,00	1280,00	1066,67
134	260,00	216,67	240,00	200,00	1260,00	1050,00
135	260,00	216,67	240,00	200,00	1260,00	1050,00
136	260,00	216,67	240,00	200,00	1240,00	1033,34
137	260,00	216,67	220,00	183,33	1240,00	1033,34
138	260,00	216,67	220,00	183,33	1220,00	1016,67
139	260,00	216,67	220,00	183,33	1220,00	1016,67
140	260,00	216,67	220,00	183,33	1200,00	1000,00
141	260,00	216,67	220,00	183,33	1200,00	1000,00
142	260,00	216,67	220,00	183,33	1180,00	983,34
143	260,00	216,67	220,00	183,33	1180,00	983,34
144	220,00	183,33	220,00	183,33	1160,00	966,67
145	220,00	183,33	200,00	166,67	1160,00	966,67
146	220,00	183,33	200,00	166,67	1140,00	950,00
147	220,00	183,33	200,00	166,67	1140,00	950,00
148	220,00	183,33	200,00	166,67	1120,00	933,34
149	220,00	183,33	200,00	166,67	1120,00	933,34
150	220,00	183,33	200,00	166,67	1100,00	916,67
151	220,00	183,33	200,00	166,67	1100,00	916,67
152	220,00	183,33	200,00	166,67	1080,00	900,00
153	220,00	183,33	200,00	166,67	1080,00	900,00
154	220,00	183,33	200,00	166,67	1060,00	883,34
155	220,00	183,33	200,00	166,67	1060,00	883,34
156	220,00	183,33	200,00	166,67	1040,00	866,67
157	220,00	183,33	200,00	166,67	1040,00	866,67
158	220,00	183,33	200,00	166,67	1020,00	850,00
159	220,00	183,33	200,00	166,67	1020,00	850,00
160	200,00	166,67	200,00	166,67	1000,00	833,34
161	200,00	166,67	180,00	150,00	1000,00	833,34

	Rumping Duration				Rumping Rate	
	Mode 4		Mode 1 and 2		Mode 1, 2 and 4	
DMX	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
	[ms]	[ms]	[ms]	[ms]	[Hz]	[Hz]
162	200,00	166,67	180,00	150,00	980,00	816,67
163	200,00	166,67	180,00	150,00	980,00	816,67
164	200,00	166,67	180,00	150,00	960,00	800,00
165	200,00	166,67	180,00	150,00	960,00	800,00
166	200,00	166,67	180,00	150,00	940,00	783,33
167	200,00	166,67	180,00	150,00	940,00	783,33
168	200,00	166,67	180,00	150,00	920,00	766,67
169	200,00	166,67	180,00	150,00	920,00	766,67
170	200,00	166,67	180,00	150,00	900,00	750,00
171	200,00	166,67	180,00	150,00	900,00	750,00
172	200,00	166,67	180,00	150,00	880,00	733,33
173	200,00	166,67	180,00	150,00	880,00	733,33
174	200,00	166,67	180,00	150,00	860,00	716,67
175	200,00	166,67	180,00	150,00	860,00	716,67
176	180,00	150,00	180,00	150,00	840,00	700,00
177	180,00	150,00	160,00	133,33	840,00	700,00
178	180,00	150,00	160,00	133,33	820,00	683,33
179	180,00	150,00	160,00	133,33	820,00	683,33
180	180,00	150,00	160,00	133,33	800,00	666,67
181	180,00	150,00	160,00	133,33	800,00	666,67
182	180,00	150,00	160,00	133,33	780,00	650,00
183	180,00	150,00	160,00	133,33	780,00	650,00
184	180,00	150,00	160,00	133,33	760,00	633,33
185	180,00	150,00	160,00	133,33	760,00	633,33
186	180,00	150,00	160,00	133,33	740,00	616,67
187	180,00	150,00	160,00	133,33	740,00	616,67
188	180,00	150,00	160,00	133,33	720,00	600,00
189	180,00	150,00	160,00	133,33	720,00	600,00
190	180,00	150,00	160,00	133,33	700,00	583,33
191	180,00	150,00	160,00	133,33	700,00	583,33
192	160,00	133,33	160,00	133,33	680,00	566,67
193	160,00	133,33	140,00	116,67	680,00	566,67
194	160,00	133,33	140,00	116,67	660,00	550,00
195	160,00	133,33	140,00	116,67	660,00	550,00
196	160,00	133,33	140,00	116,67	640,00	533,33
197	160,00	133,33	140,00	116,67	640,00	533,33
198	160,00	133,33	140,00	116,67	620,00	516,67
199	160,00	133,33	140,00	116,67	620,00	516,67
200	160,00	133,33	140,00	116,67	600,00	500,00
201	160,00	133,33	140,00	116,67	600,00	500,00
202	160,00	133,33	140,00	116,67	580,00	483,33
203	160,00	133,33	140,00	116,67	580,00	483,33
204	160,00	133,33	140,00	116,67	560,00	466,67
205	160,00	133,33	140,00	116,67	560,00	466,67
206	160,00	133,33	140,00	116,67	540,00	450,00
207	160,00	133,33	140,00	116,67	540,00	450,00
208	160,00	133,33	140,00	116,67	520,00	433,33
209	160,00	133,33	140,00	116,67	520,00	433,33
210	160,00	133,33	140,00	116,67	500,00	416,67
211	160,00	133,33	140,00	116,67	500,00	416,67
212	160,00	133,33	140,00	116,67	480,00	400,00
213	160,00	133,33	140,00	116,67	480,00	400,00
214	160,00	133,33	140,00	116,67	460,00	383,33
215	160,00	133,33	140,00	116,67	460,00	383,33

	Rumping Duration				Rumping Rate	
	Mode 4		Mode 1 and 2		Mode 1, 2 and 4	
DMX	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz
	[ms]	[ms]	[ms]	[ms]	[Hz]	[Hz]
216	160,00	133,33	140,00	116,67	440,00	366,67
217	160,00	133,33	140,00	116,67	440,00	366,67
218	160,00	133,33	140,00	116,67	420,00	350,00
219	160,00	133,33	140,00	116,67	420,00	350,00
220	160,00	133,33	140,00	116,67	400,00	333,33
221	160,00	133,33	140,00	116,67	400,00	333,33
222	160,00	133,33	140,00	116,67	380,00	316,67
223	160,00	133,33	140,00	116,67	380,00	316,67
224	140,00	116,67	140,00	116,67	360,00	300,00
225	140,00	116,67	120,00	100,00	360,00	300,00
226	140,00	116,67	120,00	100,00	340,00	283,33
227	140,00	116,67	120,00	100,00	340,00	283,33
228	140,00	116,67	120,00	100,00	320,00	266,67
229	140,00	116,67	120,00	100,00	320,00	266,67
230	140,00	116,67	120,00	100,00	300,00	250,00
231	140,00	116,67	120,00	100,00	300,00	250,00
232	140,00	116,67	120,00	100,00	280,00	233,33
233	140,00	116,67	120,00	100,00	280,00	233,33
234	140,00	116,67	120,00	100,00	260,00	216,67
235	140,00	116,67	120,00	100,00	260,00	216,67
236	140,00	116,67	120,00	100,00	240,00	200,00
237	140,00	116,67	120,00	100,00	240,00	200,00
238	140,00	116,67	120,00	100,00	220,00	183,33
239	140,00	116,67	120,00	100,00	220,00	183,33
240	140,00	116,67	120,00	100,00	200,00	166,67
241	140,00	116,67	120,00	100,00	200,00	166,67
242	140,00	116,67	120,00	100,00	180,00	150,00
243	140,00	116,67	120,00	100,00	180,00	150,00
244	140,00	116,67	120,00	100,00	160,00	133,33
245	140,00	116,67	120,00	100,00	160,00	133,33
246	140,00	116,67	120,00	100,00	140,00	116,67
247	140,00	116,67	120,00	100,00	140,00	116,67
248	140,00	116,67	120,00	100,00	120,00	100,00
249	140,00	116,67	120,00	100,00	120,00	100,00
250	140,00	116,67	120,00	100,00	100,00	83,33
251	140,00	116,67	120,00	100,00	100,00	83,33
252	140,00	116,67	120,00	100,00	80,00	66,67
253	140,00	116,67	120,00	100,00	80,00	66,67
254	140,00	116,67	120,00	100,00	60,00	50,00
255	120,00	100,00	120,00	100,00	60,00	50,00

DMX	Lightning Rate Mode 1, 2, and 4 50Hz [ms]	60Hz [ms]
0	2600,00	2166,67
1	2600,00	2166,67
2	2580,00	2150,00
3	2580,00	2150,00
4	2560,00	2133,34
5	2560,00	2133,34
6	2540,00	2116,67
7	2540,00	2116,67
8	2520,00	2100,00
9	2520,00	2100,00
10	2500,00	2083,34
11	2500,00	2083,34
12	2480,00	2066,67
13	2480,00	2066,67
14	2460,00	2050,00
15	2460,00	2050,00
16	2440,00	2033,34
17	2440,00	2033,34
18	2420,00	2016,67
19	2420,00	2016,67
20	2400,00	2000,00
21	2400,00	2000,00
22	2380,00	1983,34
23	2380,00	1983,34
24	2360,00	1966,67
25	2360,00	1966,67
26	2340,00	1950,00
27	2340,00	1950,00
28	2320,00	1933,34
29	2320,00	1933,34
30	2300,00	1916,67
31	2300,00	1916,67
32	2280,00	1900,00
33	2280,00	1900,00
34	2260,00	1883,34
35	2260,00	1883,34
36	2240,00	1866,67
37	2240,00	1866,67
38	2220,00	1850,00
39	2220,00	1850,00
40	2200,00	1833,34
41	2200,00	1833,34
42	2180,00	1816,67
43	2180,00	1816,67
44	2160,00	1800,00
45	2160,00	1800,00
46	2140,00	1783,34
47	2140,00	1783,34
48	2120,00	1766,67
49	2120,00	1766,67
50	2100,00	1750,00
51	2100,00	1750,00
52	2080,00	1733,34
53	2080,00	1733,34

DMX	Lightning Rate Mode 1, 2, and 4 50Hz [ms]	60Hz [ms]
54	2060,00	1716,67
55	2060,00	1716,67
56	2040,00	1700,00
57	2040,00	1700,00
58	2020,00	1683,34
59	2020,00	1683,34
60	2000,00	1666,67
61	2000,00	1666,67
62	1980,00	1650,00
63	1980,00	1650,00
64	1960,00	1633,34
65	1960,00	1633,34
66	1940,00	1616,67
67	1940,00	1616,67
68	1920,00	1600,00
69	1920,00	1600,00
70	1900,00	1583,34
71	1900,00	1583,34
72	1880,00	1566,67
73	1880,00	1566,67
74	1860,00	1550,00
75	1860,00	1550,00
76	1840,00	1533,34
77	1840,00	1533,34
78	1820,00	1516,67
79	1820,00	1516,67
80	1800,00	1500,00
81	1800,00	1500,00
82	1780,00	1483,34
83	1780,00	1483,34
84	1760,00	1466,67
85	1760,00	1466,67
86	1740,00	1450,00
87	1740,00	1450,00
88	1720,00	1433,34
89	1720,00	1433,34
90	1700,00	1416,67
91	1700,00	1416,67
92	1680,00	1400,00
93	1680,00	1400,00
94	1660,00	1383,34
95	1660,00	1383,34
96	1640,00	1366,67
97	1640,00	1366,67
98	1620,00	1350,00
99	1620,00	1350,00
100	1600,00	1333,34
101	1600,00	1333,34
102	1580,00	1316,67
103	1580,00	1316,67
104	1560,00	1300,00
105	1560,00	1300,00
106	1540,00	1283,34
107	1540,00	1283,34

DMX	Lightning Rate	
	Mode 1, 2, and 4	
	50Hz	60Hz
	[ms]	[ms]
108	1520,00	1266,67
109	1520,00	1266,67
110	1500,00	1250,00
111	1500,00	1250,00
112	1480,00	1233,34
113	1480,00	1233,34
114	1460,00	1216,67
115	1460,00	1216,67
116	1440,00	1200,00
117	1440,00	1200,00
118	1420,00	1183,34
119	1420,00	1183,34
120	1400,00	1166,67
121	1400,00	1166,67
122	1380,00	1150,00
123	1380,00	1150,00
124	1360,00	1133,34
125	1360,00	1133,34
126	1340,00	1116,67
127	1340,00	1116,67
128	1320,00	1100,00
129	1320,00	1100,00
130	1300,00	1083,34
131	1300,00	1083,34
132	1280,00	1066,67
133	1280,00	1066,67
134	1260,00	1050,00
135	1260,00	1050,00
136	1240,00	1033,34
137	1240,00	1033,34
138	1220,00	1016,67
139	1220,00	1016,67
140	1200,00	1000,00
141	1200,00	1000,00
142	1180,00	983,34
143	1180,00	983,34
144	1160,00	966,67
145	1160,00	966,67
146	1140,00	950,00
147	1140,00	950,00
148	1120,00	933,34
149	1120,00	933,34
150	1100,00	916,67
151	1100,00	916,67
152	1080,00	900,00
153	1080,00	900,00
154	1060,00	883,34
155	1060,00	883,34
156	1040,00	866,67
157	1040,00	866,67
158	1020,00	850,00
159	1020,00	850,00
160	1000,00	833,34
161	1000,00	833,34

DMX	Lightning Rate Mode 1, 2, and 4	
	50Hz	60Hz
	[ms]	[ms]
162	980,00	816,67
163	980,00	816,67
164	960,00	800,00
165	960,00	800,00
166	940,00	783,33
167	940,00	783,33
168	920,00	766,67
169	920,00	766,67
170	900,00	750,00
171	900,00	750,00
172	880,00	733,33
173	880,00	733,33
174	860,00	716,67
175	860,00	716,67
176	840,00	700,00
177	840,00	700,00
178	820,00	683,33
179	820,00	683,33
180	800,00	666,67
181	800,00	666,67
182	780,00	650,00
183	780,00	650,00
184	760,00	633,33
185	760,00	633,33
186	740,00	616,67
187	740,00	616,67
188	720,00	600,00
189	720,00	600,00
190	700,00	583,33
191	700,00	583,33
192	680,00	566,67
193	680,00	566,67
194	660,00	550,00
195	660,00	550,00
196	640,00	533,33
197	640,00	533,33
198	620,00	516,67
199	620,00	516,67
200	600,00	500,00
201	600,00	500,00
202	580,00	483,33
203	580,00	483,33
204	560,00	466,67
205	560,00	466,67
206	540,00	450,00
207	540,00	450,00
208	520,00	433,33
209	520,00	433,33
210	500,00	416,67
211	500,00	416,67
212	480,00	400,00
213	480,00	400,00
214	460,00	383,33
215	460,00	383,33

DMX	Lightning Rate Mode 1, 2, and 4	
	50Hz	60Hz
	[ms]	[ms]
216	440,00	366,67
217	440,00	366,67
218	420,00	350,00
219	420,00	350,00
220	400,00	333,33
221	400,00	333,33
222	380,00	316,67
223	380,00	316,67
224	360,00	300,00
225	360,00	300,00
226	340,00	283,33
227	340,00	283,33
228	320,00	266,67
229	320,00	266,67
230	300,00	250,00
231	300,00	250,00
232	280,00	233,33
233	280,00	233,33
234	260,00	216,67
235	260,00	216,67
236	240,00	200,00
237	240,00	200,00
238	220,00	183,33
239	220,00	183,33
240	200,00	166,67
241	200,00	166,67
242	180,00	150,00
243	180,00	150,00
244	160,00	133,33
245	160,00	133,33
246	140,00	116,67
247	140,00	116,67
248	120,00	100,00
249	120,00	100,00
250	100,00	83,33
251	100,00	83,33
252	80,00	66,67
253	80,00	66,67
254	60,00	50,00
255	60,00	50,00