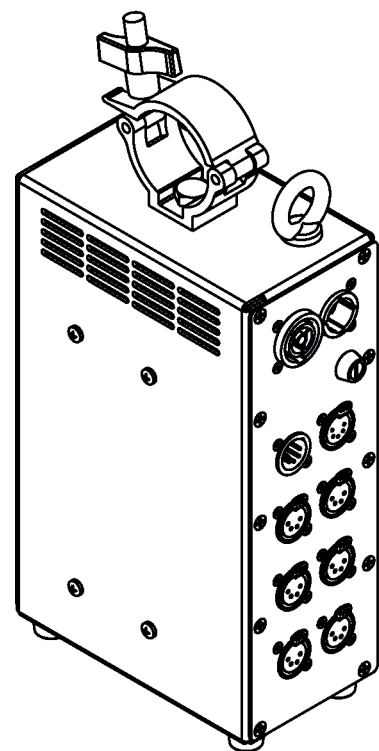
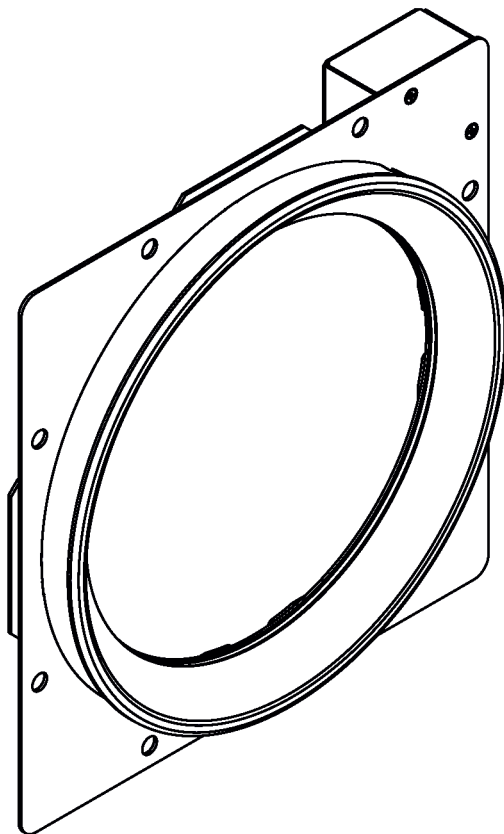


**ROBE**

# HALO RGB HALO Driver



**USER MANUAL**

Version 1.3

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**FOR YOUR OWN SAFETY, PLEASE READ THIS USER MANUAL CAREFULLY  
BEFORE YOU INSTALL THE PRODUCT .**

## **1. Safety instructions**

***CAUTION!***

**The HALO Driver and HALO RGBW were designed for indoor use only.  
These products are for professional use only, they are not for household use.**

These products have 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 warnings 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 products.

If the devices have been exposed to drastic temperature fluctuation (e.g. after transportation), do not switch them on immediately. The arising condensation water might damage devices. Leave the devices switched off until they have reached a room temperature.

**DANGEROUS VOLTAGE CONSTITUTING A RISK OF ELECTRIC SHOCK IS PRESENT WITHIN THE HALO DRIVER!**

Make sure that the available voltage is not higher than stated on the HALO driver.  
The HALO Driver 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! The HALO Driver 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 or connected LED rings.

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 of the HALO Driver. Do not locate this fixture where the power cord may be damaged by persons walking on it.

**Warning: Operation of this equipment in a residential environment could cause radio interference.**

The HALO RGB unit becomes hot during its operation, especially in PAR 64 (Source Four) installation. Allow it to cool prior to manipulation.

The HALO RGB unit and the Halo driver never must be covered with cloth or other materials during operation.

Refer servicing to qualified service personnel.

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

Do not connect the HALO Driver to a dimmer pack.

**Warning! Risk Group 2 LED product according to EN 62471  
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 concentrate the beam**

When choosing the installation spot, please make sure that the HALO rings and HALO Driver are not exposed to extreme heat, moisture or dust.

Air vents and slots in the HALO Driver 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.

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

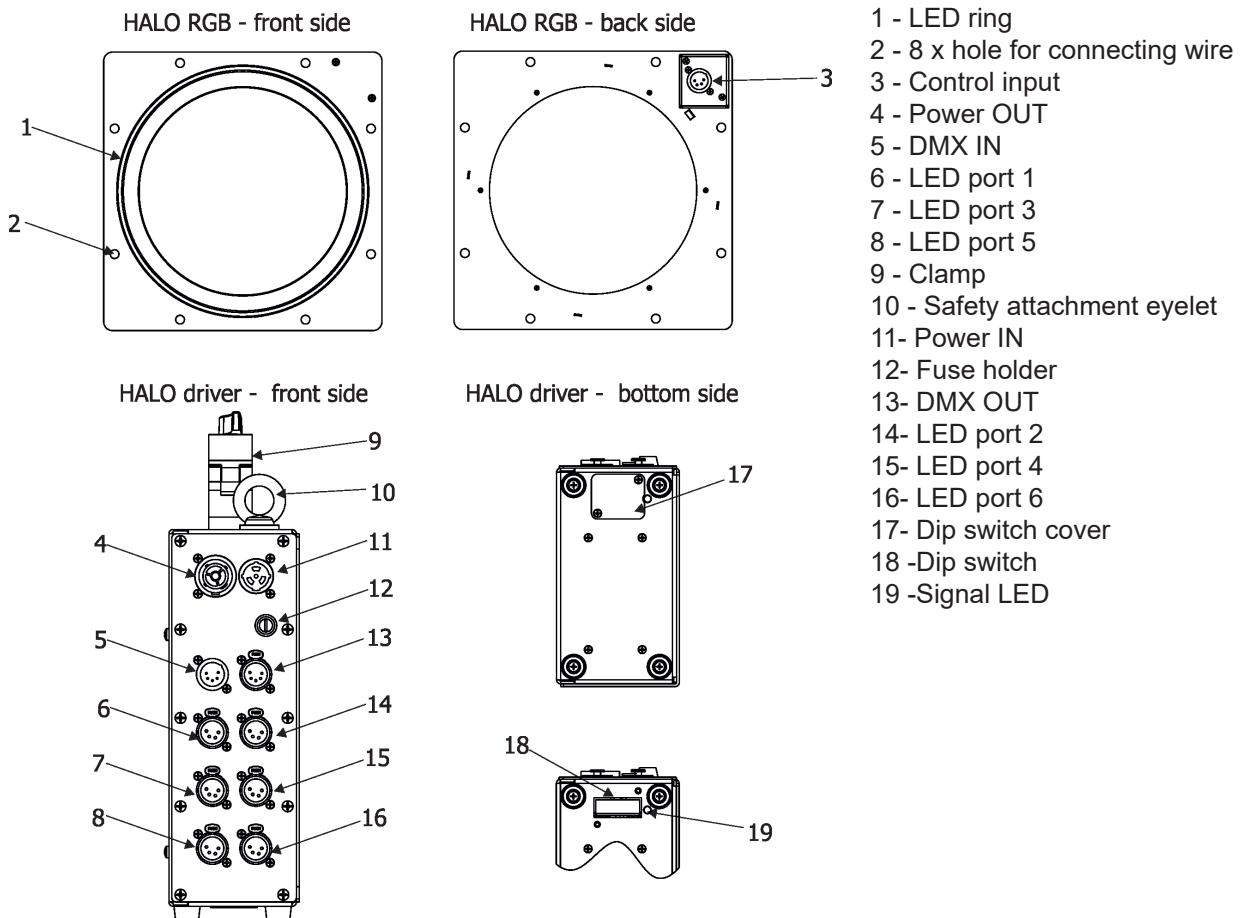
Please use the original packaging if the HALO set is to be transported.

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

## 2. Description

The HALO RGB is a LED ring mountable on a stage reflector PAR 64 or on the Robin Perfect 100 (150) using a HALO frame adaptor. This product can be also used for hanging installation without stage reflector.

The HALO Driver is a control unit for the Halo RGB. Up to 6 HALO RGB units can be connected to the HALO Driver.



## 3. Installation

**HALO set must be installed by a qualified electrician in accordance with all national and local electrical and construction codes and regulations.**

### 3.1 Connection the HALO driver to mains

**For protection from electric shock, the Halo driver must be earthed!**

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

If you install a cord cap on the power cable to allow connection to power outlets, install a grounding-type (earthed) plug, following the plug manufacturer's instructions.

The cores in the power cable are coloured according to the following table.

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

The Halo Driver falls under class one and must be earthed (grounded)!

Wiring and connection work must be carried out by qualified staff!

Design of the HALO Driver allows to connect several fixtures to AC mains power in one interconnected daisy chain using power in/out throughput connectors. The max. number of interconnected fixtures (with original power and daisy chain cables from Robe) depends on the AC mains voltage.

Mains voltage	CE	cETLus
230V	30 fixtures	17 fixtures
208V	27 fixtures	15 fixtures
120V	15 fixtures	9 fixtures

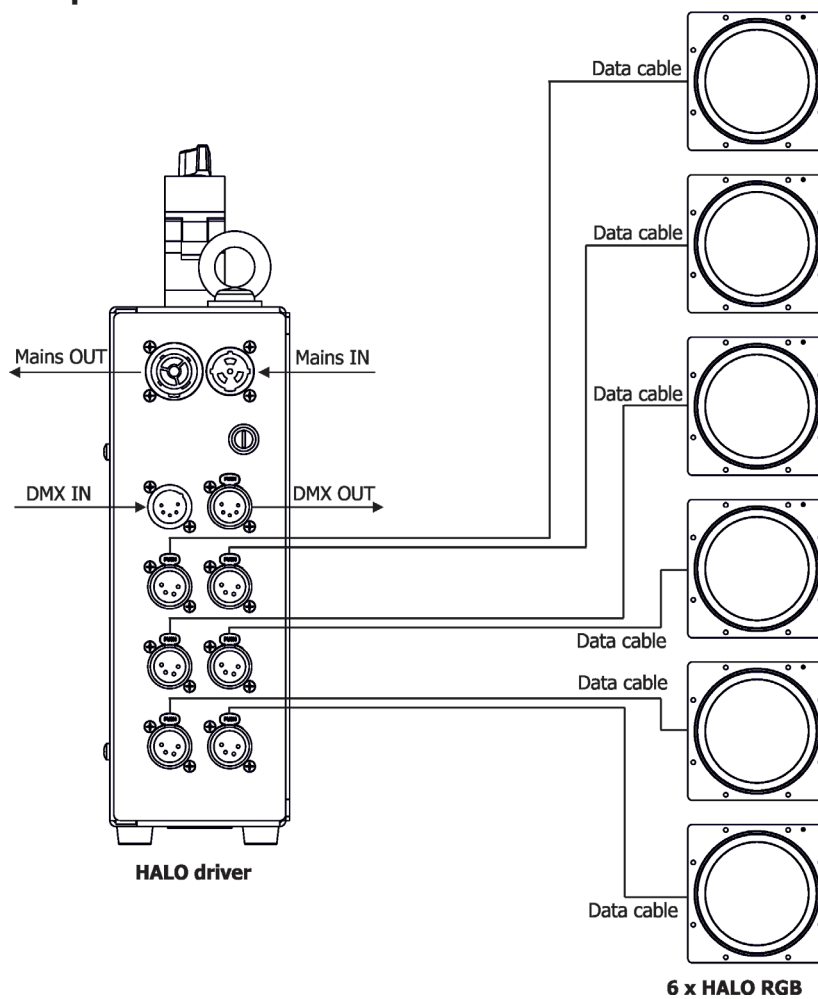
Actual numbers of fixtures may differ from values stated above as you have to take into account the length of supply cables, circuit breaker etc. at projecting of the fixtures installation Do not overload the supply line and the connecting leads.

Wiring and connection work must be carried out by qualified staff!

### 3.2 Rigging the HALO driver

The Halo Driver is equipped with the clamp for rigging on a truss. For securing the HALO Driver to the truss, install a safety wire that can hold at least 10 times the weight of the fixture. Use only the safety wire with a snap hook with screw lock gate. Fasten the snap hook in the safety attachment eyelet and the safety wire around the truss.

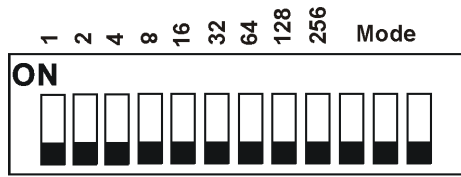
### 4. HALO driver operation



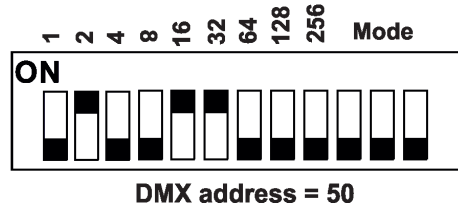
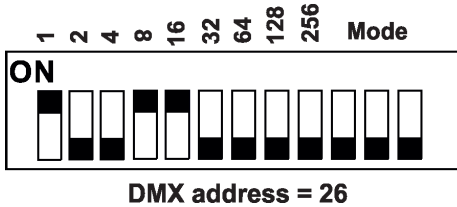
**ALWAYS DISCONNECT THE HALO DRIVER FROM MAINS BEFORE CONNECTING/DISCONNECTING THE HALO.**

**DMX start address setting**

The DMX start address, is the first channel used to receive instructions from the DMX controller. The address may be any channel from 1 to 510 and is set on the Address DIP switch.



Examples



**Control mode setting**

The last three DIP switches define control modes.

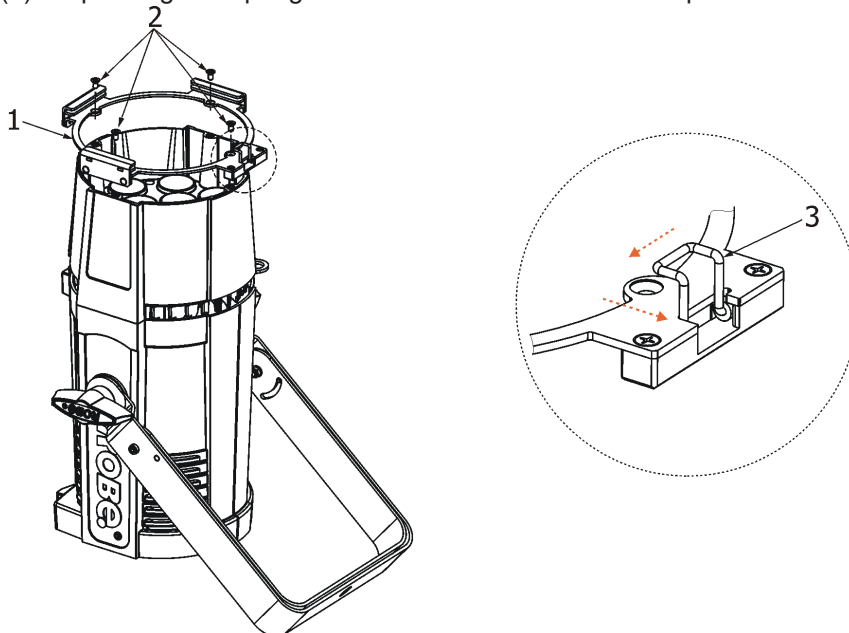
Control Mode	DIPs			Function
	10	11	12	
24 CH IntelliFlex Mode	OFF	OFF	OFF	Uses 24 Channel Personality to control each Halo Ring. Uses Start Address for first port as defined by DIP's 1-9. Each subsequent port is 24 channels Later.
3 CH Strobe Mode	ON	OFF	OFF	Uses 3 Channel Strobe Personality to control each Halo Ring. Uses Start Address for first port as defined by DIP's 1-9. Each subsequent port is 3 channels Later .
3 CH RGB Mode	ON	ON	OFF	Uses 3 Channel RGB Personality to control each Halo Ring. Uses Start Address for first port as defined by DIP's 1-9. Each subsequent port is 3 channels Later .
Direct Mapping Mode	OFF	ON	OFF	Pixel Map each Halo Ring using 72 Channels. Uses Start Address for first port as defined by DIP's 1-9. Each subsequent port is 72 channels Later .
Intelli-Mapping Mode	X	X	ON	All 6 ports use the same 24 Channel Personality. When Pixel Mapping Engine is active, it will work in a similar way to the direct mapping map, but will start the map 25 channels later that the start address (72 Channels per Port).
X = position ignored				

**ALWAYS DISCONNECT THE HALO DRIVER FROM MAINS BEFORE SETTING THE DIP SWITCHES.**

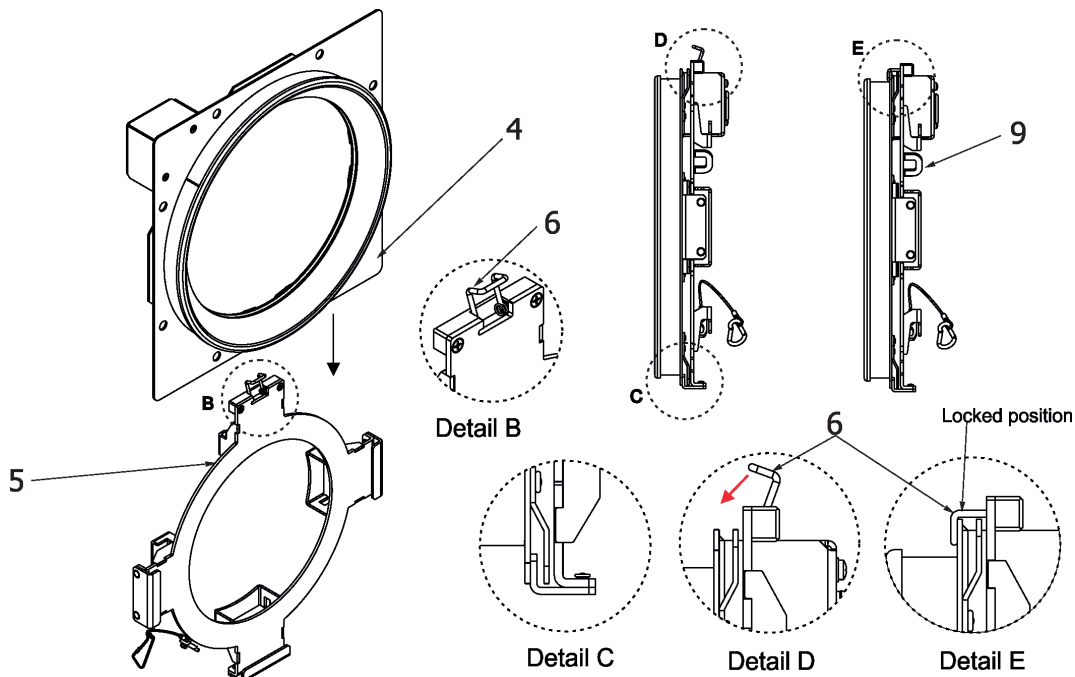
## 5. HALO RGB installation on the Robin Perfect 100(Robin Perfect SB1)

**Disconnect the HALO RGB from the HALO Driver before the HALO RGB installation!**

1. Disconnect the Robin Perfect 100 from mains and let it cool.
2. Screw the accessory frame adaptor (1) on the Perfect 100 housing with the four screws M4x8 (2) and unlock the spring lock (3) via pushing this spring lock as show red arrows on the picture.



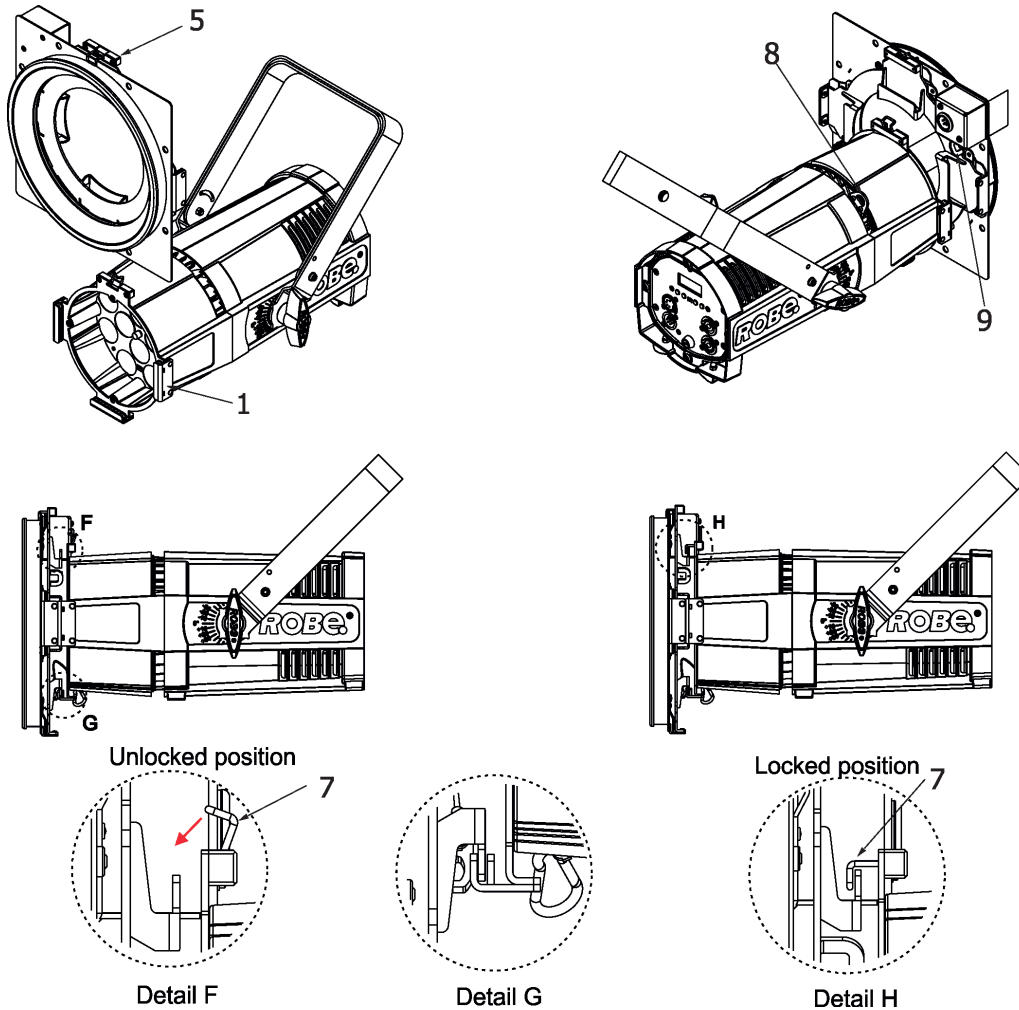
3. Insert the HALO RGB (4) into the slots of the Halo frame adaptor (5). The spring lock (6) has to be in an unlocked position. Keep the same orientation of all installed HALOs RGB (necessary for having the first pixel in the same position on all fixtures).
4. Secure the HALO RGB by moving the spring lock (6) down to the locked position as shows the red arrow on the picture below. Never use the Halo frame adaptor with unsecured HALO RGB.





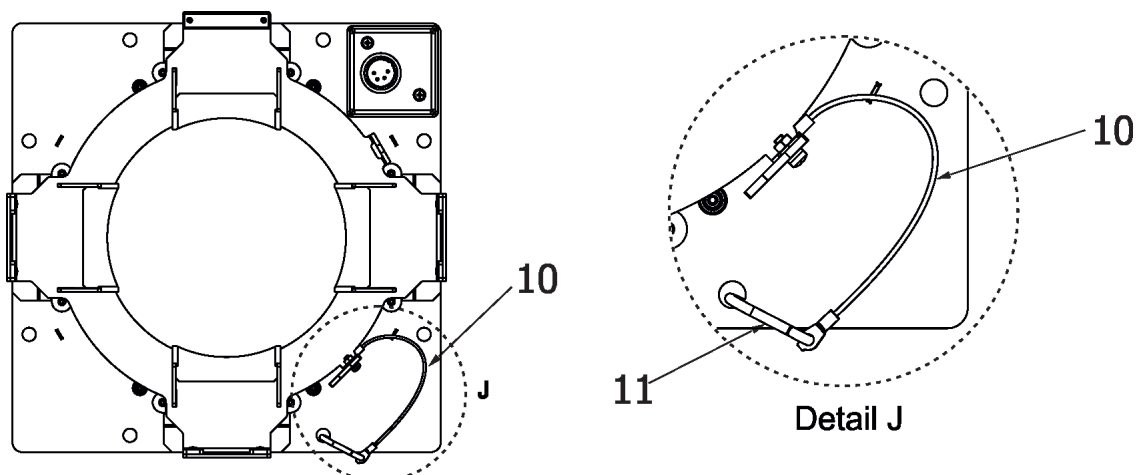
5. Insert the Halo frame adaptor (5) into the slots of accessory frame adaptor (1) on the Perfect 100. The spring lock (7) has to be in an unlocked position. Keep the same orientation of all installed Halo frame adaptors with HALO RGB.

6. Secure the HALO frame adaptor (5) in the accessory frame adaptor (1) by moving the spring lock (7) to the locked position as shows the red arrow on the picture.  
Never operate the fixture with unlocked HALO RGB.



We recommend you to secure the Halo frame adaptor (5) to the housing of the Perfect 100 using a safety wire which can hold at least 10 times the weight of the HALO frame adaptor +HALO RGB. As fastening points for the safety wire use the attachment point (8) on the Perfect 100 housing and the attachment point (9) on the Halo frame adaptor.

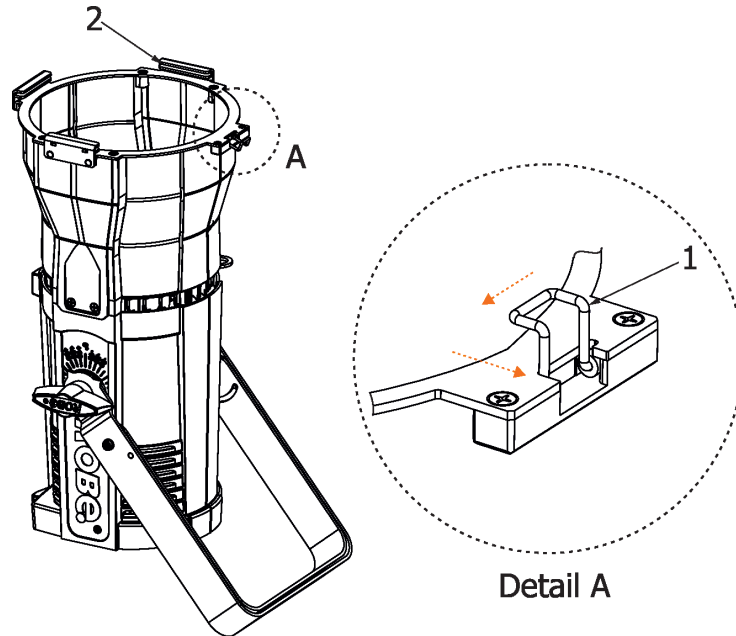
4. Fasten the safety wire (10) with a snap-hook (11) to the aperture in the HALO RGB.  
Never operate the Perfect 100 without securing the HALO RGB to the Halo frame adaptor by means of the safety wire!



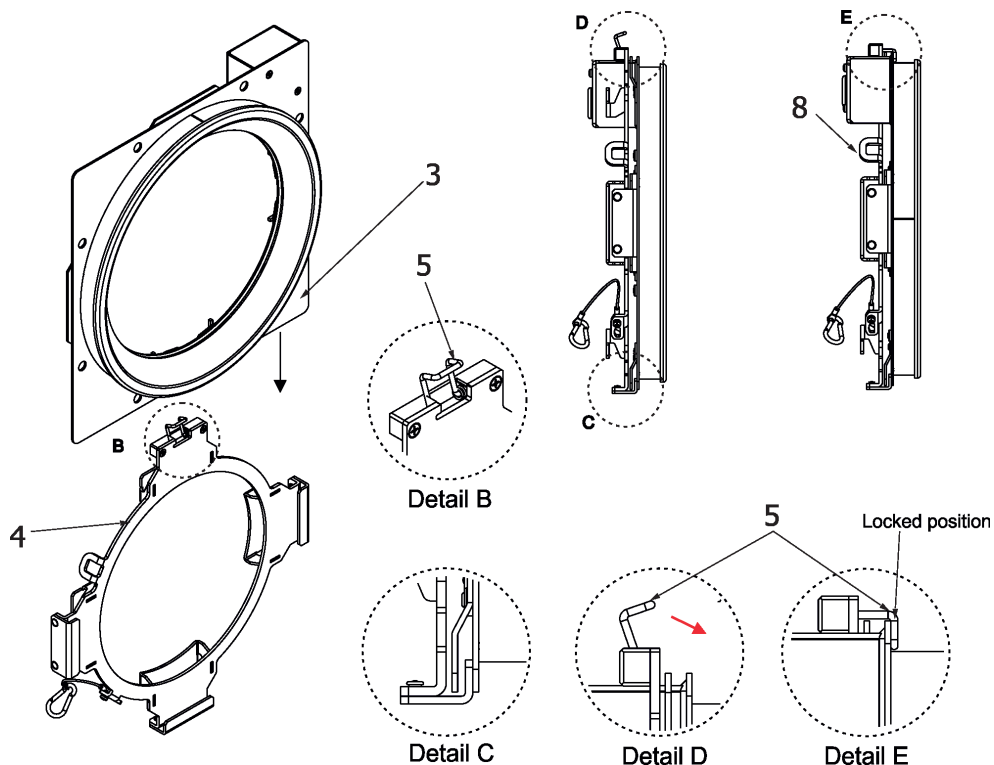
## 6. HALO RGB installation on the Robin Perfect 150

**Disconnect the HALO RGB from the HALO Driver before the HALO RGB installation!**

1. Disconnect the Robin Perfect 100 from mains and let it cool.
2. Move the spring lock (1) of the accessory frame (2) to unlocked position via pushing this spring lock as show red arrows on the picture.

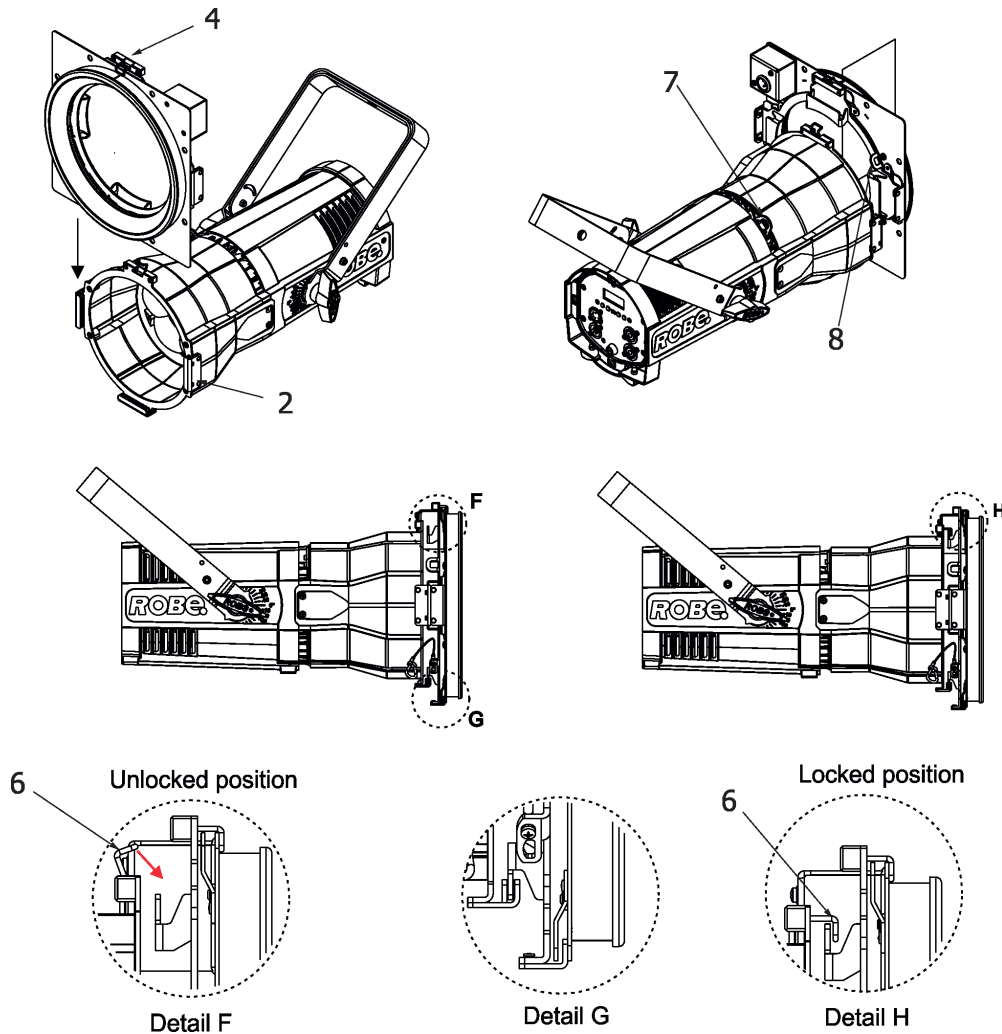


3. Insert the HALO RGB (3) into the slots of the Halo frame adaptor (4). The spring lock (5) has to be in an unlocked position. Keep the same orientation of all installed HALOs RGB (necessary for having the first pixel in the same position on all fixtures).
4. Secure the HALO RGB by moving the spring lock (5) down to the locked position as shows the red arrow on the picture below. Never use the Halo frame adaptor with unsecured HALO RGB.



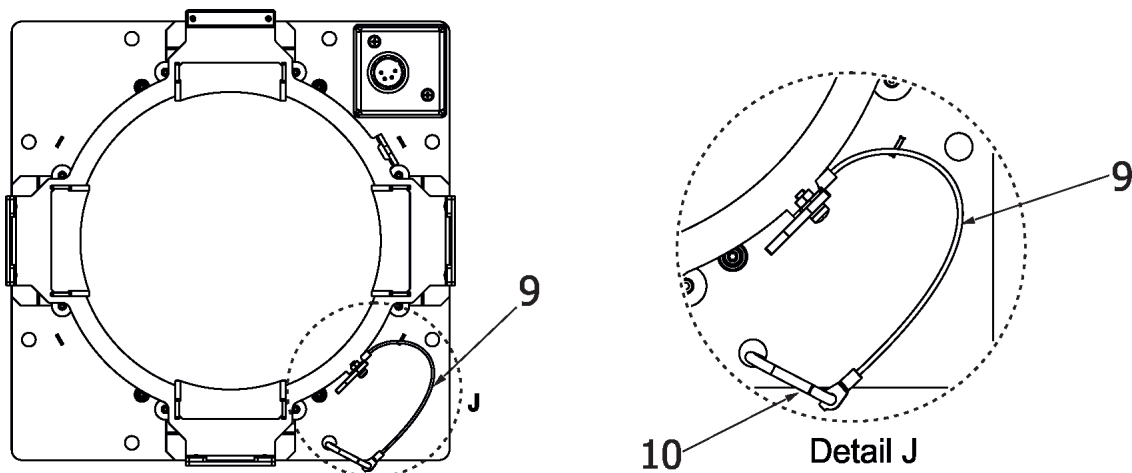
5. Insert the Halo frame adaptor (4) into the slots of accessory frame adaptor (2) on the Perfect 150. The spring lock (6) has to be in an unlocked position. Keep the same orientation of all installed Halo frame adaptors with HALO RGB.

6. Secure the HALO frame adaptor (4) in the accessory frame adaptor (2) by moving the spring lock (6) to the locked position as shows the red arrow on the picture.  
Never operate the fixture with unlocked HALO RGB.



We recommend you to secure the Halo frame adaptor (4) to the housing of the Perfect 150 using a safety wire which can hold at least 10 times the weight of the HALO frame adaptor +HALO RGB. As fastening points for the safety wire use the attachment point (7) on the Perfect 100 housing and the attachment point (8) on the Halo frame adaptor.

4. Fasten the safety wire (9) with a snap-hook (10) to the aperture in the HALO RGB.  
Never operate the Perfect 150 without securing the HALO RGB to the Halo frame adaptor by means of the safety wire!

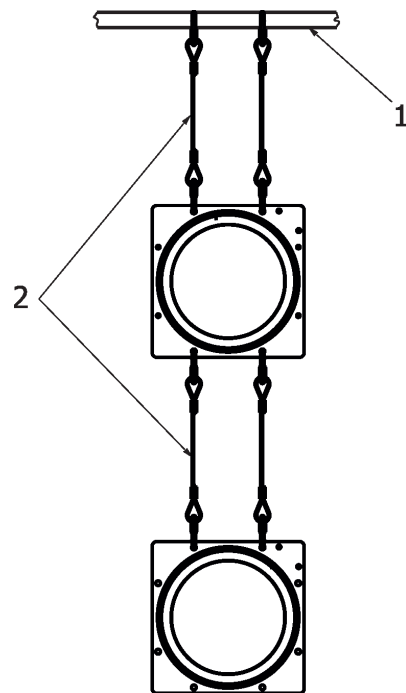


## 7. HALO RGB hanging installation

**Disconnect the HALO RGB from the HALO Driver before the HALO RGB installation!**

The eight holes (diameter of 8mm each) allow to hang the HALO modules in a vertical row.  
Connection wires (2), which connect HALO modules to the truss (1) and each other, are optional accessories.  
Always screw lock gates on all connection wires.

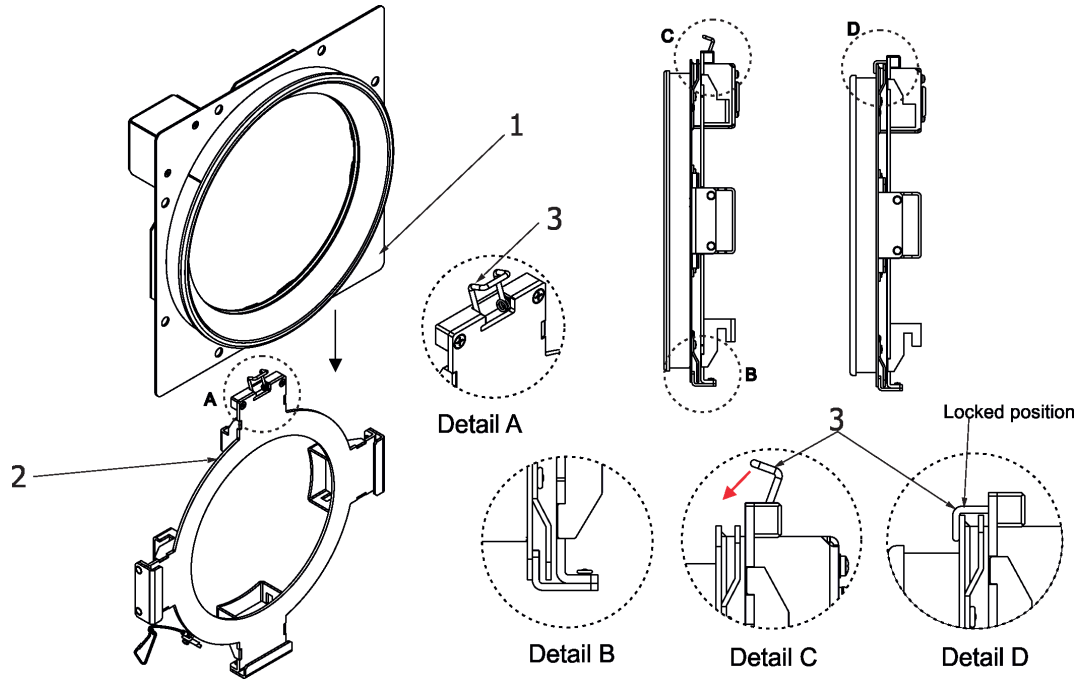
If you use the Connection wires for HALO RGB (P/N 99015184), max. 18 HALO RGB modules may hang in one line.



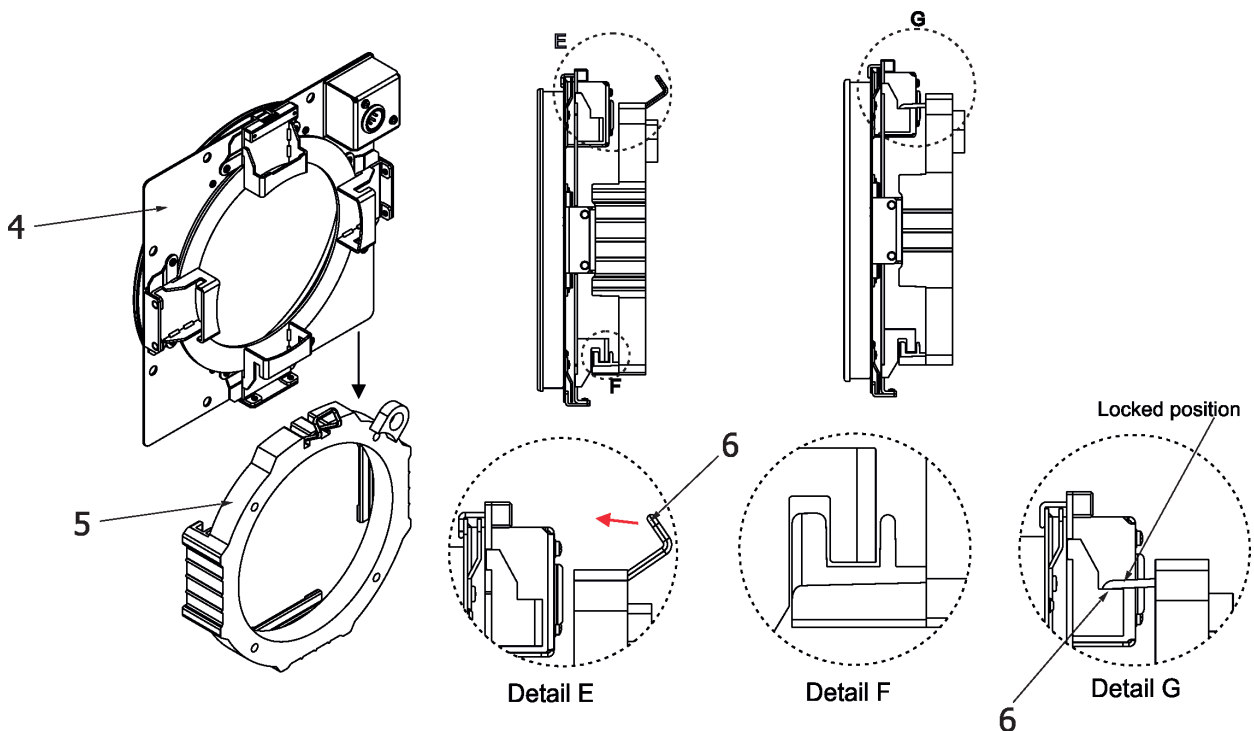
## 8. HALO RGB installation on ETC SourceFor fixtures

**Disconnect the HALO RGB from the HALO Driver before the HALO RGB installation!**

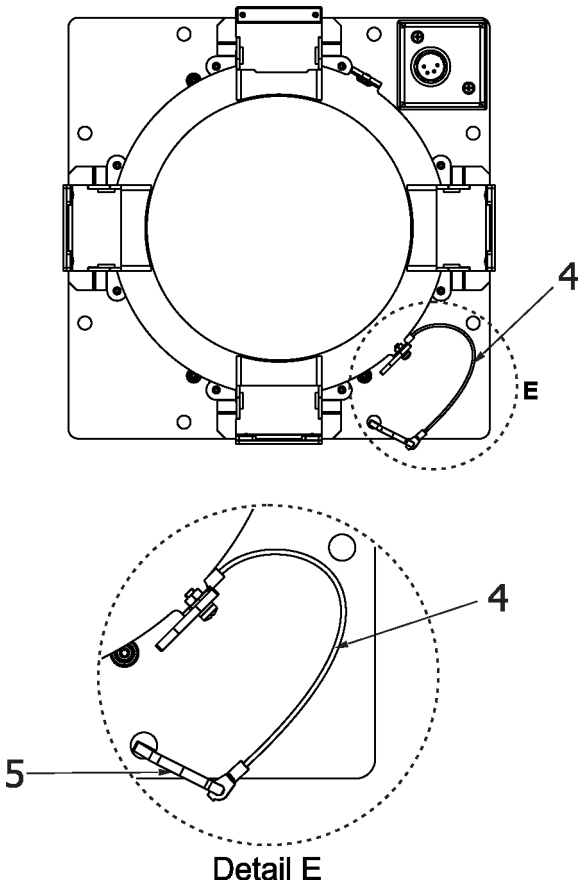
1. Disconnect the ETC SourceFor fixture from mains and let it cool.
2. Insert the HALO RGB (1) into the slots of the Halo frame adaptor (2). The spring lock (3) has to be in an unlocked position. Keep the same orientation of all installed HALOs RGB (necessary for having the first pixel in the same position on all fixtures).
3. Secure the HALO RGB by moving the spring lock (3) down to the locked position as shows the red arrow on the picture below. Never use the Halo frame adaptor with unsecured HALO RGB.



4. Insert the Halo frame adaptor with HALO RGB (4) into the slots of a gel frame holder (5) of the ETC fixture. The spring lock (6) has to be in an unlocked position.
5. Keep the same orientation of all installed Halo frame adaptors (necessary for having the first pixel in the same position on all fixtures).
6. Secure the Halo frame adaptor with HALO RGB by moving the spring lock (6) down to the locked position as shows the red arrow on the picture below. Never use the ETC fixture with unsecured Halo frame adaptor.



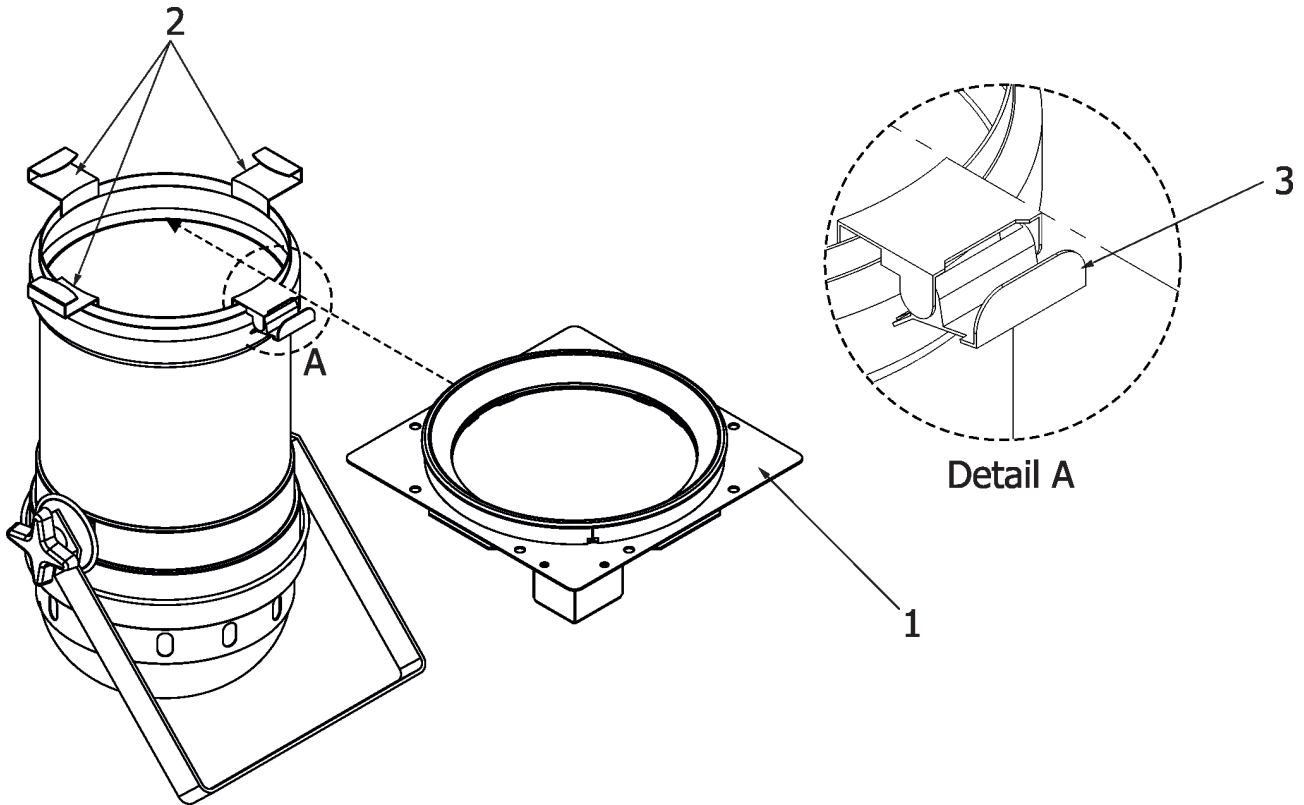
7. Fasten the the safety wire (4) with a snap-hook (5) to the aperture in the HALO RGB.  
Never operate the ETC SourceFor without securing the HALO RGB to the Halo frame adaptor by means of the safety wire!



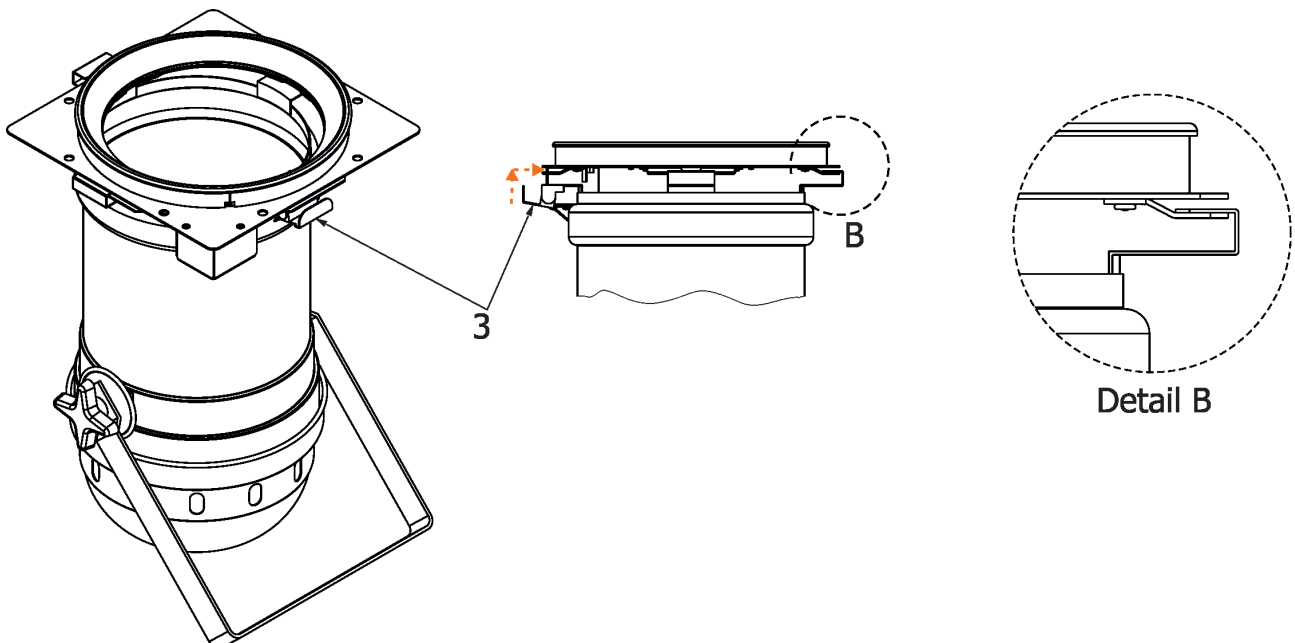
## 9. HALO RGB installation on the stage reflector PARcanR64

**Disconnect the HALO RGB from the HALO Driver before the HALO RGB installation!**

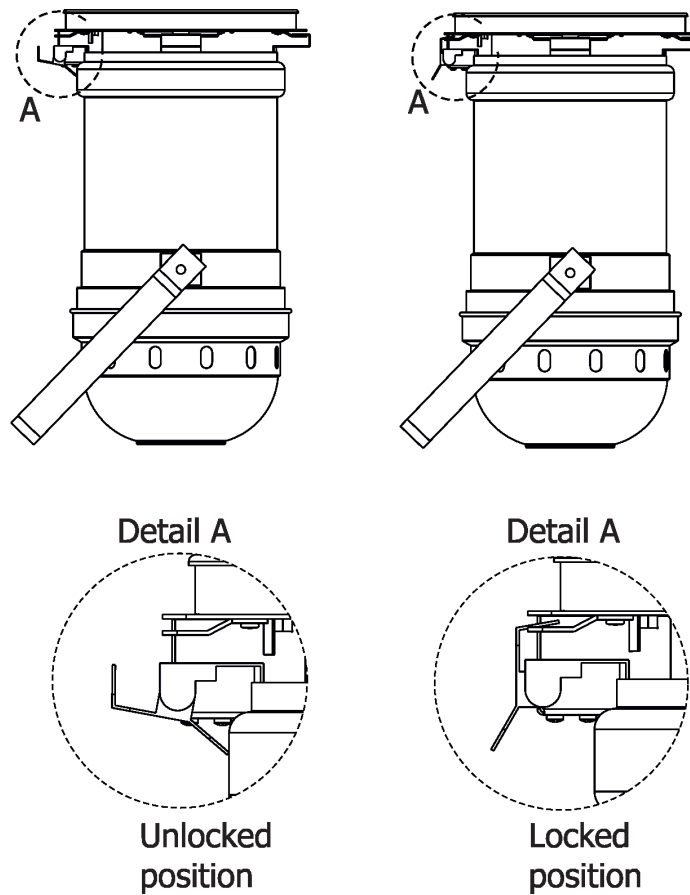
1. Disconnect the stage reflector PARcanR64 from mains and let it cool.
2. Insert the HALO RGB (1) into the slots (2) of a gel frame holder. The spring lock (3) has to be in an unlocked position. Keep the same orientation of all installed HALOs RGB (necessary for having the first pixel in the same position on all fixtures).



3. Secure the HALO RGB by moving the spring lock (3) up to the locked position as shows the red arrow on the picture.



4. Check, that the HALO RGB is securely fastened in the PARcanR64.  
Never operate the fixture with unlocked HALO RGB.



## 10. Operating restriction of the PARcanR64 (ETC SourceFour) fixture with HALO RGB

Unlike the HALO RGB hanging installation or installation on the Robin Perfect 100, the installation on the PARcanR64 (ETC fixture) subjects the following rules as the heat generated by the lamp in the PARcanR64 (ETC fixture) may damage the HALO RGB module.

### 1. Continual mode - for lamp wattage to 500W.

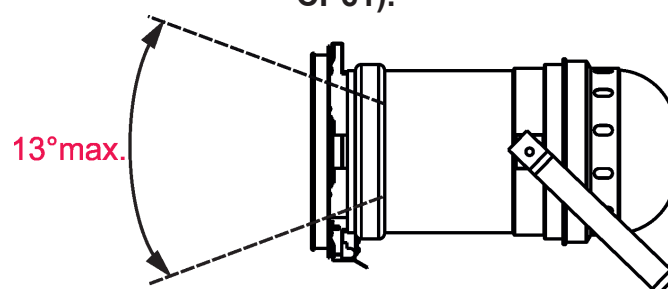
The lamp can permanently light without reducing its power.

### 2. Cyclic mode - for lamp wattages above 500W (750W,1000W).

For this lamp wattages is necessary to observe one of the following cyclic mode of the lamp operation:

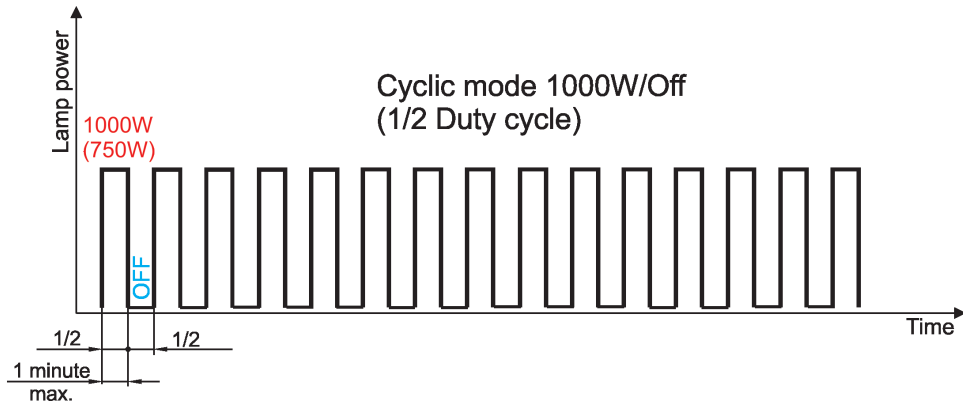
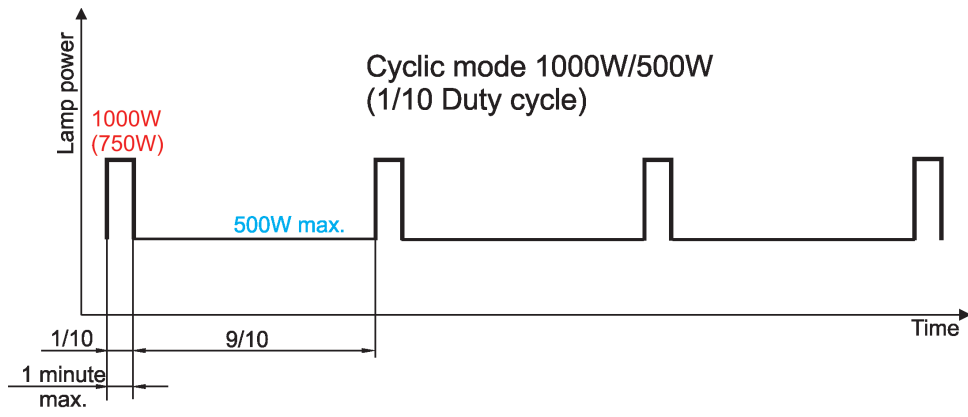
Cyclic mode	Duty cycle	Max. allowed time for full power of lamp	Example of operation
1000W/500W	1/10 (10%)	1 minute	1minute 1000W or 750W / 9 minutes 500W max..
1000W/OFF	1/2 (50%)	1 minute	1minute 1000W or 750W / 1minutes OFF

**For PARcanR64: Max. radiating beam angle of used lamp can be 13° (e.g lamp CP61).**





Graphic representation of the Cycles modes



**DO NOT ALLOW A LAMP WITH A WATTAGE ABOVE 500W PERMANENTLY LIGHT AT FULL POWER!  
THE HALO RGB MODULE CAN BE DAMAGED!**

# 11. Technical specifications

## HALO RGB

Input voltage:	5V
Max. power consumption :	15W
Light source:	192 RGB LED multichips
Number of pixels:	96
Viewing angle:	160°
Protection factor:	IP20, (IP44 only with outdoor cable HALO 4 pin DMX )
Weight:	1 kg
Control input:	Locking 4-pin XLR (male)
Rigging:	Fits to PARcan64 gel frame holder or to Robin Perfect 100 Can be merged to digital canvas via 8 mounting holes

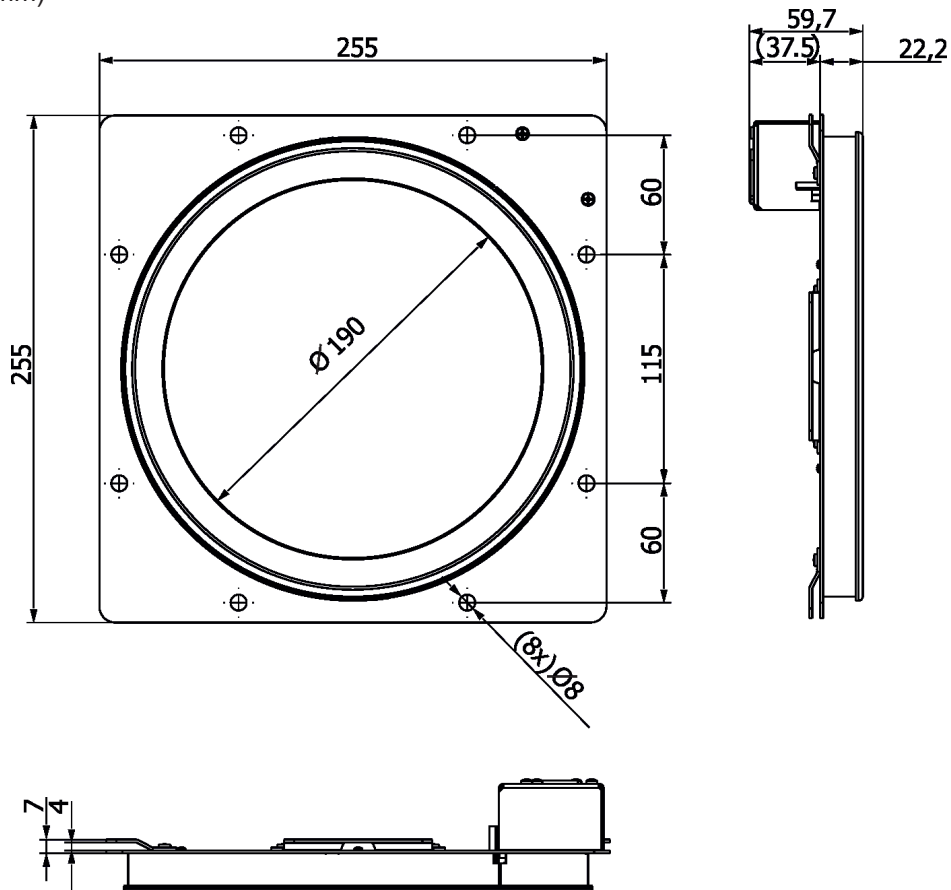
### Installation in the Robin Perfect 100 (or hanging installation in the open space)

Led Life Expectancy:	20.000 hours
Maximum surface temperature:	70 °C
Maximum ambient temperature:	40 °C
Min. distance from flammable surfaces:	0.3 m

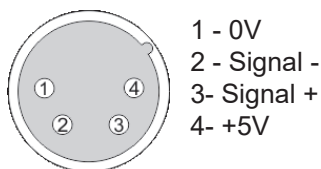
### Installation in the PARcan64 gel frame holder (with lamp CP61)

Led Life Expectancy:	10.000 hours
Maximum ambient temperature:	40 °C
Lamp operating modes:	continual (for lamp wattage to 500W) pulse (for lamp wattage above 500W to 1000W)

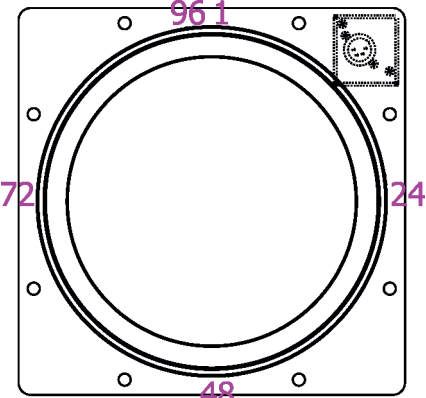
Dimensions (mm)



Connection of control input



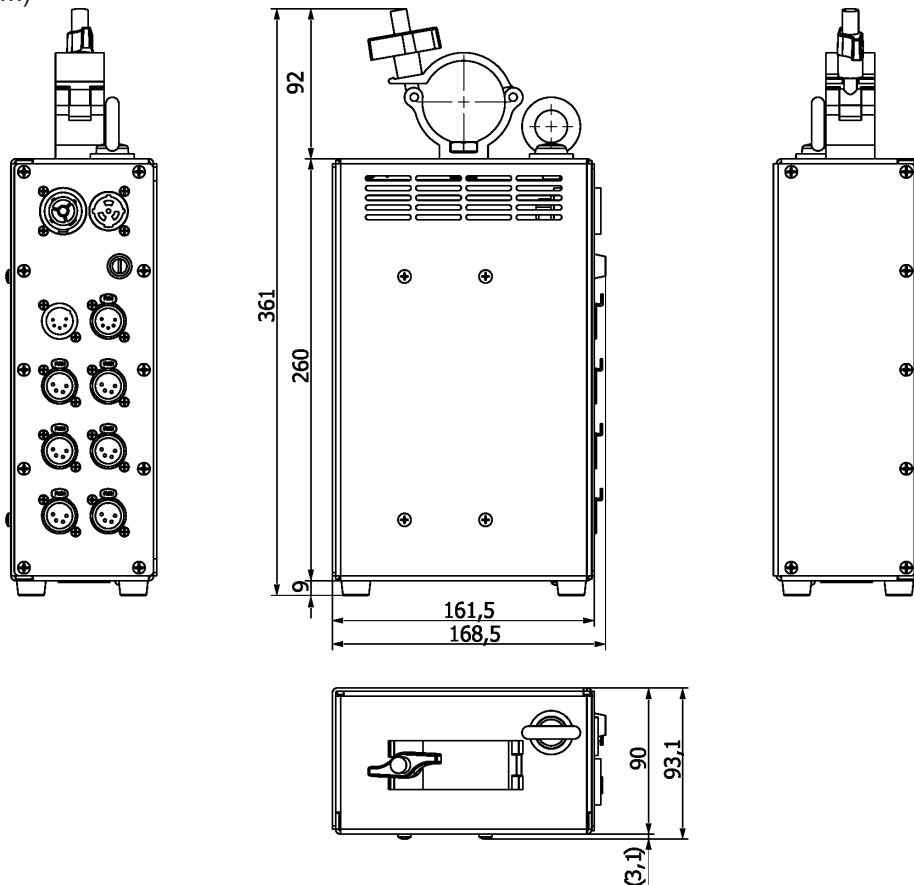
Pixel order



Front view

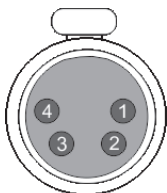
**HALO Driver**

Input voltage range: 100-240V, 50-60Hz  
 Max. power consumption : 100W  
 Fuse: T 1.6A /250V ~  
 Mains input: 16A max. (CE ), 10A max. (cETLus)  
 Mains output: 15A max. (CE ), 9A max. (cETLus)  
 Protocol: USITT DMX-512  
 DMX protocol modes: 24 CH IntelliFlex mode  
 3 CH Strobe mode  
 3 CH RGB mode  
 Direct Mapping mode  
 Intelli-Mapping mode  
  
 R, G, B colors: 8-bit  
 Dimmer: 8-bit  
 Number of LED ports: 6 (Locking 4-pin XLR, female)  
 Max. cable length (HALO Driver-HALO RGB): 25 m\*(2.5mm<sup>2</sup> cross-section), 20 m ( 2mm<sup>2</sup> cross-section)  
 \*Data cables 4 pin (P/N 13051800, P/N 13052531, P/N 13052665, P/N 13052666) have cable cross-section of 2.5mm<sup>2</sup>  
 DMX IN/OUT: Locking 5-pin XLR (male/female)  
 Power IN: Neutrik Neutrik powerCON TRUE1 NAC3MPX  
 Power OUT: Neutrik Neutrik powerCON TRUE1 NAC3FPX  
 Maximum surface temperature: 50 °C  
 Maximum ambient temperature: 40 °C  
 Protection factor: IP20 (for dry location only)  
 Weight: 3.8 kg  
 Rigging: via clamp  
 Dimensions (mm)



**Connection**

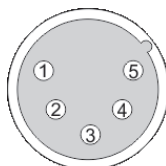
LED port



Front view

1 - 0V  
 2 - Signal -  
 3 - Signal +  
 4 - +5V

DMX IN



Front view

1 - 0V (shield)  
 2 - Signal -  
 3 - Signal +  
 4 - Not connected  
 5 - Not connected

DMX OUT



Front view

### Included items in the HALO set

6 x HALO RGB

1x Halo Driver

1x User manual

(needed cables has to be specified - see the Optional Accessories)

### Optional Accessories

(P/N 13051800) Data cable 4 pin 10m,EU, outdoor

(P/N 13052531) Data cable 4 pin 5m,EU outdoor

(P/N 13052665) Data cable 4 pin 10m,US, indoor

(P/N 13052666) Data cable 4 pin 5m,US indoor

(P/N 1305 2439) Daisy Chain PowerCon TRUE1 In/Out, EU, 2m, indoor

(P/N 1305 2440) Daisy Chain PowerCon TRUE1 In/Out, US, 2m, indoor

(P/N 13052444) Daisy Chain PowerCon TRUE1 In/Out, EU, 5m, indoor

(P/N 13052405) Mains Cable PowerCon In TRUE1/Schuko, 2m, indoor

(P/N 13052406) Mains Cable PowerCon In TRUE1/US, 2m, indoor

(P/N 13052407) Mains Cable PowerCon In TRUE1/open ended, 2m, indoor

(P/N 13052445) Mains Cable PowerCon In TRUE1/CEE 16A, 2m, indoor

(P/N 10980316) Halo frame adaptor for Robin Parfect 100

(P/N 10980348) Halo frame adaptor for Robin Parfect 150

(P/N 10980366) Halo frame adaptor for S4 7,5x7,5 holder (for ETC)

(P/N 10980367) Halo frame adaptor for S4 6,25x6,25 holder (for ETC)

(P/N (99011957) Safety wire 50kg

(P/N 99015184) Connection wire for HALO RGB

## 12. Overview of mounting adaptors

### ETC SourceFor fixtures

Type	Colour frame dimension		Mounting adaptor
Source Four 70 & 90 degree	7.7" x 7.5"	190.0 mm x 190.0 mm	<b>P/N 10980366</b> (HALO frame adaptor for S4 7.5 x 7.5 holder)
Source Four 14 degree	7.7" x 7.5"	190.0 mm x 190.0 mm	
Source Four PAR MCM, PARNEL	7.7" x 7.5"	190.0 mm x 190.0 mm	
Source Four 15 & 30 degree zoom	7.7" x 7.5"	190.0 mm x 190.0 mm	
Source Four 25 & 50 degree zoom	7.7" x 7.5"	190.0 mm x 190.0 mm	
Source Four 19,26,36 & 50 degree	6.25" x 6.25"	160.0 mm x 160.0 mm	<b>P/N 10980367</b> (HALO frame adaptor for S4 6.25 x 6.25 holder)
Source Four Jr and Jr Zoom	6.25" x 6.25"	160.0 mm x 160.0 mm	

### Standard PARcanR64

Type	Colour frame dimension		Mounting adaptor
ShowTec PAR64 long	PAR64 size	253.0 mm x 253.0 mm	(Directly into gel frame)
LiteCraft PAR64 long			
j Thomas Engineering Par64			

### Robin Parfect fixtures

Type	Colour frame dimension		Mounting adaptor
ParFect 100	PAR56 size	170.0 mm x 170.0 mm	<b>P/N 10980316</b> (HALO frame adaptor for Robin Parfect 100)
ParFect S1			
ParFect SB1			
ParFect 150	PAR64 size	210.0 mm x 210.0 mm	<b>P/N 10980348</b> (HALO frame adaptor for Robin Parfect 150)

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All Specifications subject to change without notice

Made in ROBE Lighting s.r.o., Palackého 416, 757 01 Valašské Meziříčí, Czech Republic

## HALO Driver - DMX protocol, version 1.2

### 24 CH IntelliFlex Mode

Port/Channel						DMX	Function	Type of control
1	2	3	4	5	6	Value		
<b>Layer 1</b>								
1	25	49	73	97	121		<b>Intensity</b>	
						0 - 255	Intensity 0% -> 100%	proportional
2	26	50	74	98	122		<b>Red 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
3	27	51	75	99	123		<b>Green 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
4	28	52	76	100	124		<b>Blue 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
5	29	53	77	101	125		<b>Red 2 - Main FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
6	30	54	78	102	126		<b>Green 2 - Main FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
7	31	55	79	103	127		<b>Blue 2 - Main FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
8	32	56	80	104	128		<b>FX Select</b>	
							See table below	
9	33	57	81	105	129		<b>Rotate</b>	
						0	No rotation	step
						1-127	Forwards Rotation (fast -> slow )	proportional
						128	Pause rotate	step
						129-255	Backwards Rotation (slow -> fast )	proportional
10	34	57	82	106	130		<b>Repeat</b>	
						0	Full	step
						1-63	x 2	step
						64-127	x 4	step
						128-195	x 8	step
						196-254	x 16	step
						255	x 32	step
11	35	59	83	107	131		<b>Direction</b>	
						0-63	Forwards	step
						64-127	Reverse	step
						128-191	Mirror Out	step
						192-255	Mirror In	step
12	36	60	84	108	132		<b>Rotate offset</b>	
						0 - 255	Offsets start point of rotating effects over each port	proportional
<b>Layer 2</b>								
13	37	61	85	109	133		<b>Intensity</b>	
						0 - 255	Intensity 0% -> 100%	proportional
14	38	62	86	110	134		<b>Red 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
15	39	63	87	111	135		<b>Green 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
16	40	64	88	112	136		<b>Blue 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
17	41	65	89	113	137		<b>Red 2 - Main FX colour</b>	

Port/Channel						DMX Value	Function	Type of control
1	2	3	4	5	6			
						0 - 255	Colour saturation control 0 ->100%	proportional
<b>18</b>	<b>42</b>	<b>66</b>	<b>90</b>	<b>114</b>	<b>138</b>		<b>Green 2 - Main FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
<b>19</b>	<b>43</b>	<b>67</b>	<b>91</b>	<b>115</b>	<b>139</b>		<b>Blue 2 - Main FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
<b>20</b>	<b>44</b>	<b>68</b>	<b>92</b>	<b>116</b>	<b>140</b>		<b>FX Select</b>	
							See table below	
<b>21</b>	<b>45</b>	<b>69</b>	<b>93</b>	<b>117</b>	<b>141</b>		<b>Rotate</b>	
						0	Off	step
						1-127	Forwards Rotation (fast -> slow )	proportional
						128	Pause rotate	step
						129-255	Backwards Rotation (slow -> fast)	proportional
<b>22</b>	<b>46</b>	<b>70</b>	<b>94</b>	<b>118</b>	<b>142</b>		<b>Repeat</b>	
						0	Full	step
						1-63	x 2	step
						64-127	x 4	step
						128-195	x 8	step
						196-254	x 16	step
						255	x 32	step
<b>23</b>	<b>47</b>	<b>71</b>	<b>95</b>	<b>119</b>	<b>143</b>		<b>Direction</b>	
						0-63	Forwards	step
						64-127	Reverse	step
						128-191	Mirror Out	step
						192-255	Mirror In	step
<b>24</b>	<b>48</b>	<b>72</b>	<b>96</b>	<b>120</b>	<b>144</b>		<b>Rotate offset</b>	
						0 - 255	Offsets start point of rotating effects over each port	proportional
Port/Channel						DMX Value	Function	Type of control
1	2	3	4	5	6			
<b>8/20</b>	<b>32/44</b>	<b>56/68</b>	<b>80/92</b>	<b>104/116</b>	<b>128/140</b>		<b>FX Select</b>	
						0	Off	step
							<i>One colour Paparazzi-Snap</i>	
						1	Example Effect	step
						2	Slow- low density	step
						3	Slow - medium density	step
						4	Slow - high density	step
						5	Slow - linear	step
						6	Medium - low density	step
						7	Medium - medium density	step
						8	Medium - high density	step
						9	Medium - linear	step
						10	Fast - low density	step
						11	Fast- medium density	step
						12	Fast - high density	step
						13	Fast - linear	step
							<i>One colour Paparazzi-Fade</i>	
						14	Example Effect	step

Port/Channel						DMX Value	Function	Type of control
1	2	3	4	5	6			
						15	Slow- low density	step
						16	Slow - medium density	step
						17	Slow - high density	step
						18	Slow - linear	step
						19	Medium - low density	step
						20	Medium - medium density	step
						21	Medium - high density	step
						22	Medium - linear	step
						23	Fast - low density	step
						24	Fast- medium density	step
						25	Fast - high density	step
						26	Fast - linear	step
							<i>Two colour Paparazzi-Snap</i>	
						27	Example Effect	step
						28	Slow- low density	step
						29	Slow - medium density	step
						30	Slow - high density	step
						31	Slow - linear	step
						32	Medium - low density	step
						33	Medium - medium density	step
						34	Medium - high density	step
						35	Medium - linear	step
						36	Fast - low density	step
						37	Fast- medium density	step
						38	Fast - high density	step
						39	Fast - linear	step
							<i>Two colour Paparazzi-Fade</i>	
						40	Example Effect	step
						41	Slow- low density	step
						42	Slow - medium density	step
						43	Slow - high density	step
						44	Slow - linear	step
						45	Medium - low density	step
						46	Medium - medium density	step
						47	Medium - high density	step
						48	Medium - linear	step
						49	Fast - low density	step
						50	Fast- medium density	step
						51	Fast - high density	step
						52	Fast - linear	step
							<i>Trace 1-Uniform Decay</i>	
						53	Example Effect	step
						54	Slow - short tail	step
						55	Slow - medium tail	step
						56	Slow- long tail	step
						57	Medium -short tail	step
						58	Medium - medium tail	step
						59	Medium - long tail	step



Port/Channel						DMX Value	Function	Type of control
1	2	3	4	5	6			
						60	Fast - short tail	step
						61	Fast - medium tail	step
						62	Fast - long tail	step
							<i>Trace 2-Uniform Decay (colour mix with base)</i>	
						63	Example Effect	step
						64	Slow - short tail	step
						65	Slow - medium tail	step
						66	Slow- long tail	step
						67	Medium -short tail	step
						68	Medium - medium tail	step
						69	Medium - long tail	step
						70	Fast - short tail	step
						71	Fast - medium tail	step
						72	Fast - long tail	step
							<i>Trace 3-Uniform Colour</i>	
						73	Example Effect	step
						74	Slow - short tail	step
						75	Slow - medium tail	step
						76	Slow- long tail	step
						77	Medium -short tail	step
						78	Medium - medium tail	step
						79	Medium - long tail	step
						80	Fast - short tail	step
						81	Fast - medium tail	step
						82	Fast - long tail	step
							<i>Trace 4-Uniform Colour (colour mix with base)</i>	
						83	Example Effect	step
						84	Slow - short tail	step
						85	Slow - medium tail	step
						86	Slow- long tail	step
						87	Medium -short tail	step
						88	Medium - medium tail	step
						89	Medium - long tail	step
						90	Fast - short tail	step
						91	Fast - medium tail	step
						92	Fast - long tail	step
							<i>Jockey</i>	
						93	Example Effect	step
						94	Smallest	step
						95	..	step
						96	..	step
						97	..	step
						98	..	step
						99	..	step
						100	..	step
						101	..	step
						102	Biggest	step
							<i>Checkers</i>	



## HALO Driver - DMX protocol, version 1.2

### 3 CH Strobe Mode

Port/Channel						DMX	Function	Type of control
1	2	3	4	5	6	Value		
1	4	7	10	13	16		<b>Strobe Intensity</b>	
						0 - 255	Intensity 0% -> 100%	proportional
2	5	8	11	14	17		<b>Flash Rate</b>	
						0 - 255	Flash rate per second	proportional
3	6	9	12	15	18		<b>Flash Duration</b>	
						0 - 255	Duration of flash	proportional

### 3 CH RGB Mode

Port/Channel						DMX	Function	Type of control
1	2	3	4	5	6	Value		
1	4	7	10	13	16		<b>Red</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
2	5	8	11	14	17		<b>Blue</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
3	6	9	12	15	18		<b>Green</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional



## HALO Driver - DMX protocol, version 1.2

### Intelli-Mapping Mode

Port/Channel						DMX	Function	Type of control
1	2	3	4	5	6	Value		
<b>Layer 1</b>								
1	1	1	1	1	1		<b>Intensity</b>	
						0 - 255	Intensity 0% -> 100%	proportional
2	2	2	2	2	2		<b>Red 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
3	3	3	3	3	3		<b>Green 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
4	4	4	4	4	4		<b>Blue 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
5	5	5	5	5	5		<b>Red 2 - Main FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
6	6	6	6	6	6		<b>Green 2 - Main FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
7	7	7	7	7	7		<b>Blue 2 - Main FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
8	8	8	8	8	8		<b>FX Select</b>	
							See table below	
9	9	9	9	9	9		<b>Rotate</b>	
						0	No rotation	step
						1-127	Forwards Rotation (fast -> slow)	proportional
						128	Pause rotate	step
						129-255	Backwards Rotation (slow -> fast)	proportional
10	10	10	10	10	10		<b>Repeat</b>	
						0	Full	step
						1-63	x 2	step
						64-127	x 4	step
						128-195	x 8	step
						196-254	x 16	step
						255	x 32	step
11	11	11	11	11	11		<b>Direction</b>	
						0-63	Forwards	step
						64-127	Reverse	step
						128-191	Mirror Out	step
						192-255	Mirror In	step
12	12	12	12	12	12		<b>Rotate offset</b>	
						0 - 255	Offsets start point of rotating effects over each port	proportional
<b>Layer 2</b>								
13	13	13	13	13	13		<b>Intensity</b>	
						0 - 255	Intensity 0% -> 100%	proportional
14	14	14	14	14	14		<b>Red 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
15	15	15	15	15	15		<b>Green 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
16	16	16	16	16	16		<b>Blue 1 - Background or 2nd FX colour</b>	
						0 - 255	Colour saturation control 0 ->100%	proportional
17	17	17	17	17	17		<b>Red 2 - Main FX colour</b>	



Port/Channel						DMX Value	Function	Type of control
1	2	3	4	5	6			
						2	Slow- low density	step
						3	Slow - medium density	step
						4	Slow - high density	step
						5	Slow - linear	step
						6	Medium - low density	step
						7	Medium - medium density	step
						8	Medium - high density	step
						9	Medium - linear	step
						10	Fast - low density	step
						11	Fast- medium density	step
						12	Fast - high density	step
						13	Fast - linear	step
							<i>One colour Paparazzi-Fade</i>	
						14	Example Effect	step
						15	Slow- low density	step
						16	Slow - medium density	step
						17	Slow - high density	step
						18	Slow - linear	step
						19	Medium - low density	step
						20	Medium - medium density	step
						21	Medium - high density	step
						22	Medium - linear	step
						23	Fast - low density	step
						24	Fast- medium density	step
						25	Fast - high density	step
						26	Fast - linear	step
							<i>Two colour Paparazzi-Snap</i>	
						27	Example Effect	step
						28	Slow- low density	step
						29	Slow - medium density	step
						30	Slow - high density	step
						31	Slow - linear	step
						32	Medium - low density	step
						33	Medium - medium density	step
						34	Medium - high density	step
						35	Medium - linear	step
						36	Fast - low density	step
						37	Fast- medium density	step
						38	Fast - high density	step
						39	Fast - linear	step
							<i>Two colour Paparazzi-Fade</i>	
						40	Example Effect	step
						41	Slow- low density	step
						42	Slow - medium density	step
						43	Slow - high density	step
						44	Slow - linear	step
						45	Medium - low density	step
						46	Medium - medium density	step

Port/Channel						DMX Value	Function	Type of control
1	2	3	4	5	6			
						47	Medium - high density	step
						48	Medium - linear	step
						49	Fast - low density	step
						50	Fast- medium density	step
						51	Fast - high density	step
						52	Fast - linear	step
							<i>Trace 1-Uniform Decay</i>	
						53	Example Effect	step
						54	Slow - short tail	step
						55	Slow - medium tail	step
						56	Slow- long tail	step
						57	Medium -short tail	step
						58	Medium - medium tail	step
						59	Medium - long tail	step
						60	Fast - short tail	step
						61	Fast - medium tail	step
						62	Fast - long tail	step
							<i>Trace 2-Uniform Decay (colour mix with base)</i>	
						63	Example Effect	step
						64	Slow - short tail	step
						65	Slow - medium tail	step
						66	Slow- long tail	step
						67	Medium -short tail	step
						68	Medium - medium tail	step
						69	Medium - long tail	step
						70	Fast - short tail	step
						71	Fast - medium tail	step
						72	Fast - long tail	step
							<i>Trace 3-Uniform Colour</i>	
						73	Example Effect	step
						74	Slow - short tail	step
						75	Slow - medium tail	step
						76	Slow- long tail	step
						77	Medium -short tail	step
						78	Medium - medium tail	step
						79	Medium - long tail	step
						80	Fast - short tail	step
						81	Fast - medium tail	step
						82	Fast - long tail	step
							<i>Trace 4-Uniform Colour (colour mix with base)</i>	
						83	Example Effect	step
						84	Slow - short tail	step
						85	Slow - medium tail	step
						86	Slow- long tail	step
						87	Medium -short tail	step
						88	Medium - medium tail	step
						89	Medium - long tail	step
						90	Fast - short tail	step



Port/Channel						DMX Value	Function	Type of control
1	2	3	4	5	6			
						91	Fast - medium tail	step
						92	Fast - long tail	step
							<i>Jockey</i>	
						93	Example Effect	step
						94	Smallest	step
						95	..	step
						96	..	step
						97	..	step
						98	..	step
						99	..	step
						100	..	step
						101	..	step
						102	Biggest	step
							<i>Checkers</i>	
						103	Example effects	step
						104	1/2's	step
						105	1/4's	step
						106	1/8's	step
						107	1/16's	step
						108	1/32's	step
						109	1/64's	step
						110	Rotating 1/4's	step
						111	Rotating 1/16's	step
						112	Rotating 1/32's	step
							<i>Colour Merge</i>	
						113	Example Effect	step
						114	Full	step
						115	Three Quarter	step
						116	Half	step
						117	Quarter	step
							<i>Colour Wave</i>	
						118	Example Effect	step
						119	V. Small	step
						120	Small	step
						121	Medium	step
						122	Large	step
							<i>Colour Wave (colour Mix)</i>	
						123	Example Effect	step
						124	V. Small	step
						125	Small	step
						126	Medium	step
						127	Large	step
							<i>Sweep</i>	
						128	Example Effect	step
						129	V. Slow	step
						130	Slow	step
						131	Medium	step
						132	Fast	step



