Z8 LED Controller

D.T.S. Product Codes:
03.LA.074.V2 (RJ45 OUTPUT)
03.LA.075.V2 (M12 OUTPUT)
03.LA.080.V2 (PLUG-IN OUTPUT)

User's Manual rel 2.4 **GB**

D.T.S. Illuminazione srl - ITALY
http://www.dts-lighting.it

DTS
The Lighting Company

Made in Italy

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DESCRIPTION

Overview
Z8 is a power supply / DMX LED controller designed to control the following D.T.S. LED products: FOS 100, FOS 33, TITAN, HELIOS, FOCUS, MINIFOCUS, MR16 LED Range

System
Z8 is fitted with 8 groups of 4 output channels each; max power of each channel is 24W.
Each group can supply and control an independent set-up of D.T.S. LED products at the same time, like one of the following:
* max 12 x MR16 RGB LED lamps
* max 4 x MR16 Full Color LED lamps
* max 12 x FOCUS RGB LED projectors
* max 4 x FOCUS Full Color LED projectors
* max 3 x FOS 33 LED bars
* max 1 x HELIOS Full Colour LED projector
* max 1 x FOS 100 led bar
* max 1 x TITAN LED projector

Interface
Z8 is fitted with a DISPLAY interface that lets you enter all functions of the internal menu.

DMX
Z8 LED CONTROLLER can be used in 10 DMX modes: 112 ch, 80 ch, 64 ch, 48 ch, 32 ch, 14 ch, 10 ch, 1ch full or CUSTOM channels mode.

Operating system update
Z8 internal operating system can be updated via computer, through the dedicated D.T.S. RED BOX interface.

Control
Z8 can be controlled by any DMX console.

Construction
Z8 is housed in a sturdy metal case, that offers high resistance to knocks and mechanical stress.
Z8 is rack mountable.
The protection rating against external agents is Ip20.

Connections
DMX IN / OUT connectors: 2 XLR 5-pole by Neutrik and 2 XLR 3-pole by Neutrik
LEDs connector output:
Three models available; RJ45 female connector (03.LA.074.V2) /
8 poles plug-in screw connector (03.LA.080.V2) /
M12 connector (03.LA.075.V2).

The Maximum distance between the Z8 and the last LED unit in the line should not exceed 100 meters for: FOS 100 RGBA / WHITE, FOS 33 RGBA / WHITE (3pcs on the same line).
The Maximum distance between the Z8 and the last LED unit in the line should not exceed 50 meters for: TITAN all models, FOS 100 FULL COLOUR, FOS 33 FULL COLOUR (3pcs on the same line).

MAIN ELECTRICAL CHARACTERISTICS

Input Voltage Range
Vin 90 - 260 Vac
Frequency
50 - 60 HZ
Power Consumption Range
48 - 800 W
Power Factor (Pf)
0.95 electronic PFC controller
Efficiency
90% typical

Output
Power Output Range : 8 outputs of 4 channels each.
Max power of each output is 96W (24W per channel).
Max power of each channel is 24W (24W Red, 24W Green, 24W Blue, 24W Amber).

Output Current : 350 mA @ 100% per channel (1,5 - 15W per channel)
500 mA @ 100% per channel in BOOST Mode (1,5 - 24W per channel)
Output Voltage : Vout 48V (Constant Current PWM)
Max Load each output: 15 x MR16 RGB LED lamps or 5 x MR16 Full Color LED lamps or 15 x FOCUS RGB LED projectors or 5 x FOCUS Full Color LED projectors or 3 x FOS 33 LED bars or 1 x HELIOS Full Color LED projector or 1 x FOS 100 LED bar or 1 x TITAN LED projector.
Min Load each group: 1 x MR16 RGB LED lamp

Control Input
Control Signal : DMX 512
Dimming System :Constant Current PWM
Address Range : DMX 512 channels addressable by display

IMPORTANT SAFETY INFORMATION

Fire prevention:

Never locate the fixture on any flammable surface.
Minimum distance from flammable materials: 10 cm
Replace any blown or damaged fuses only with those of identical value

Prevention from electric shock:

High voltage is present inside the unit.
Unplug the unit prior to performing any operation which involves touching the inside of the unit.
This equipment must be grounded, do not connect to non-grounded supplies.
The use of a thermal magnetic circuit breaker is recommended for each Z8.
Use only AC supplies 90-260V, 50-60Hz
The unit should never be located in position exposed to rain or in areas of extreme humidity.
A good air ventilation is essential for proper equipment work.

Safety:

The external surface of the unit may exceed 50°C; never handle the unit until at least 5 minutes have elapsed since the unit was turned off.
Never install the unit in an enclosed area lacking sufficient air flow.
The ambient temperature should not exceed 40°C and should not be lower than -10°C

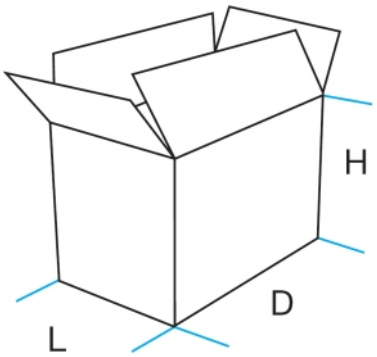
UNIT DIMENSION

Unit Dimensions
(LxDxH)
480 x 385 x 88 mm

Weight
7,5 Kg

Packing Dimensions
(LxDxH)
510 x 560 x 160 mm

Weight
8,5 Kg



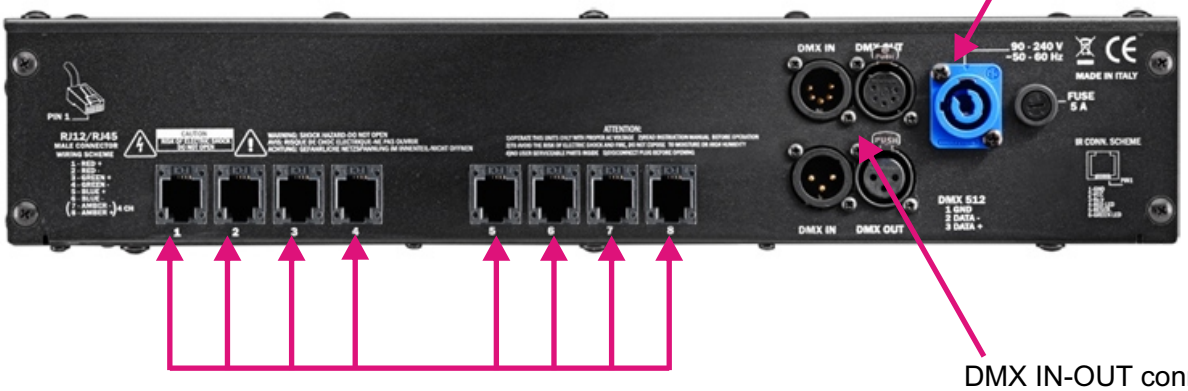
INPUT/OUTPUT CONNECTIONS

03.LA.074.V2 (RJ45 OUTPUT)

Mains Switch

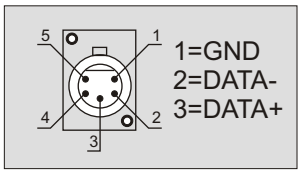
Displays

Mains 90-260 Vac
50-60 Hz
Powercon female panel connector

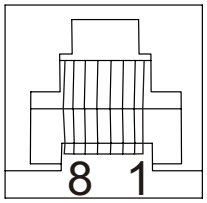


8 x LEDs output
RJ45 Female panel connector

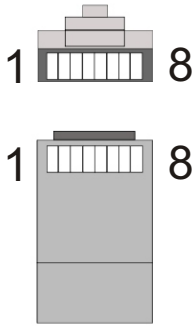
DMX IN-OUT connectors



Pin 1 = RED +
Pin 2 = RED -
Pin 3 = GREEN +
Pin 4 = GREEN -
Pin 5 = BLUE +
Pin 6 = BLUE -
Pin 7 = AMBER +
Pin 8 = AMBER -



8-pin Female (RJ45)



8-pin Male (RJ45)
Modular Plug

RJ45 : 8P8C

8P8C indicates 8 positions 8 cables

For application where IP65 rating is not necessary, Z8 LEDs cabling connection can be done with a standard UTP TIA/EIA 568-B2 category 5E cable.
For IP65 rating application, D.T.S. reccomed the use of a IP65/68 cable as the 4X2XAWG24 multipolar black outdoor cable (D.T.S. Code: 0509C062).
The Maximum distance between the Z8 and the last LED unit in the line should not exceed 100 meters for: FOS 100 RGBA / WHITE, FOS 33 RGBA / WHITE (3pcs on the same line).
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INPUT/OUTPUT CONNECTIONS

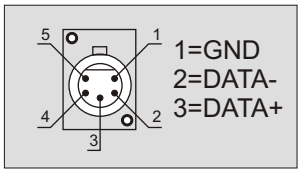
03.LA.080.V2 (PLUG-IN OUTPUT)

Mains Switch

Displays

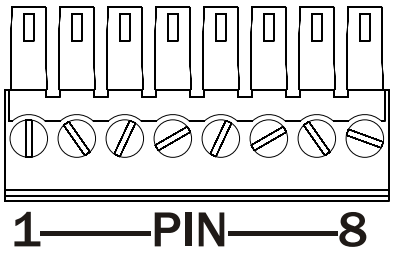
Mains 90-260 Vac
50-60 Hz
Powercon female panel
connector

DMX IN-OUT connectors



8 x LEDs output
8 poles plug-in screw connector

Pin 1 = RED +
Pin 2 = RED -
Pin 3 = GREEN +
Pin 4 = GREEN -
Pin 5 = BLUE +
Pin 6 = BLUE -
Pin 7 = AMBER +
Pin 8 = AMBER -



8 poles plug-in screw connector

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INPUT/OUTPUT CONNECTIONS

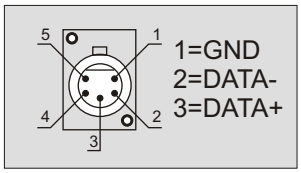
03.LA.075.V2 (M12 OUTPUT)

Mains Switch

Displays

Mains 90-260 Vac
50-60 Hz
Powercon female panel connector

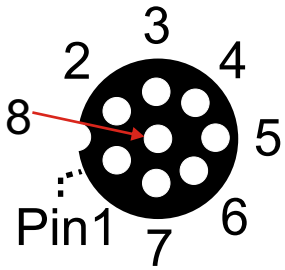
DMX IN-OUT connectors



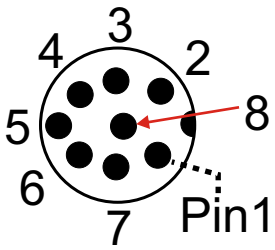
8 x LEDs output
M12 Female panel connector

Pin 1 = RED +
Pin 2 = RED -
Pin 3 = GREEN +
Pin 4 = GREEN -
Pin 5 = BLUE +
Pin 6 = BLUE -
Pin 7 = AMBER -
Pin 8 = AMBER +

M12 LED output
Female panel connector



M12 LED input
Male cable connector



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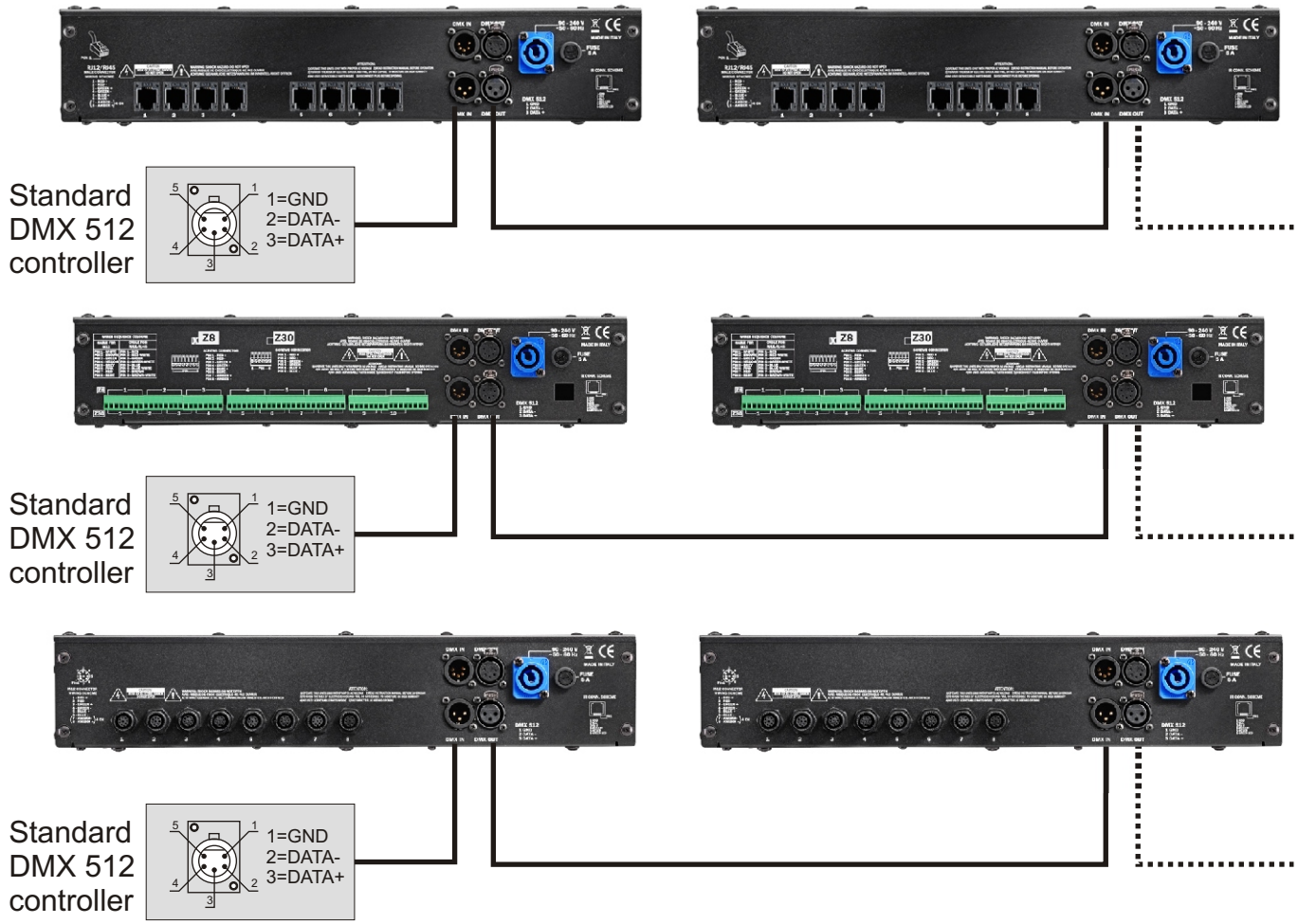
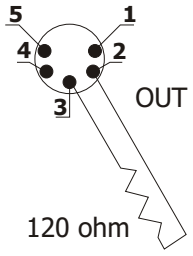
DMX SIGNAL CONNECTION:

The unit operates using a digital DMX 512 signal. Connection between the controller and the unit or between units must be carried out using a two pair screened ø 0.5 mm cable and a CANNON XLR 5 pins connector.
Ensure that the conductors do not touch each other. Do not connect the cable ground to the XLR chassis. The plug housing must be isolated. Connect the mixer signal to the DMX IN of the Z8 plug and connect it to the next unit by connecting the DMX OUT plug on the first Z8 to the DMX IN plug of the second one.
This way, all the projectors are cascade connected.

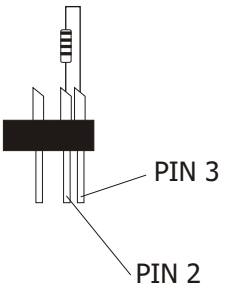


P.S:If the display showing the DMX address flashes, then one of the following errors has occurred:
- DMX signal not present
- DMX reception problem

For Installations where long distance DMX cable connections are needed, we suggest to use a DMX terminator.
The DMX terminator is a male XLR 3-5 pins connector with a 120 ohm resistor Between pin 2 and 3.
The DMX terminator must be plugged into the last unit (DMX out panel connector) of the DMX line.



PLACE A 120 OHM RESISTOR BETWEEN PIN 2 AND 3 OF A MALE XRL CONNECTOR AND PLUG IT INTO THE DMX OUT PANEL CONNECTOR OF THE LAST UNIT CONNECTED TO THE DMX LINE



DMX ADDRESS

Z8 LED CONTROLLER can be used in 10 DMX modes: 112 ch, 80 ch, 64 ch, 48 ch, 32 ch, 14 ch, 10 ch, 1ch full or CUSTOM channels mode.

If you want to use the Z8 in 32 channels mode, select the " **Full type - 8 bit** " mode from the DMX MODE menu under MODE SETTINGS and set the following addresses on the mixer:

Projector 1	A001	
Projector 2	A033	If you want to select the next projector, just add "32"
Projector 3	A065	
…..	A….	
projector 6	A161	

If you want to use the Z8 in 10 channels mode, select the " **Z1 type - 8 bit** " mode from the DMX MODE menu under MODE SETTINGS and set the following addresses on the mixer:

Projector 1	A001	
Projector 2	A011	If you want to select the next projector, just add "10"
Projector 3	A021	
…..	A….	
projector 6	A051	

Selelcting the DMX address

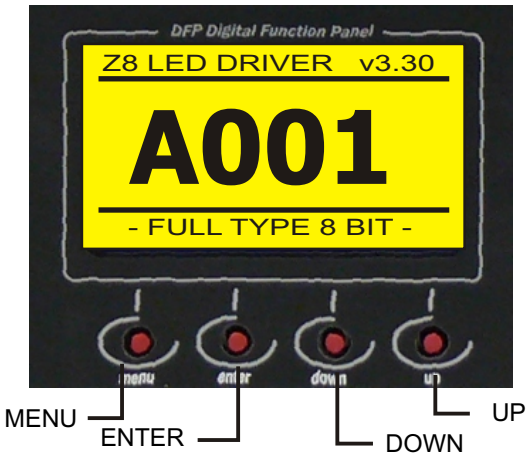
1) Press the UP-DOWN key until you reach the required DMX address. The numbers on the display will start flashing (but the new DMX address hasn't yet been set).
2) Press ENTER to confirm your selection. The numbers on the display will stop flashing and the projector is now controlled by the new DMX address.

TIPS: if you keep pushed the UP or DOWN keys, the channels are calculated more quickly and you get a faster selection.

DISPLAY FUNCTIONS

Z8 LED CONTROLLER

03.LA.074.V2 (RJ45 OUTPUT)
03.LA.075.V2 (M12 OUTPUT)
03.LA.080.V2 (PLUG-IN OUTPUT)

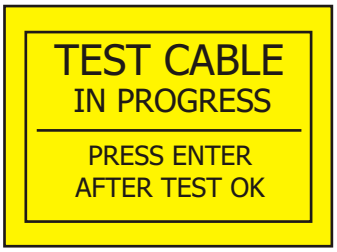


Z8 Software version 3.30

DISPLAY FUNCTIONS

The Z8 display panel shows all the available functions . Using these functions, it is possible to change some of the parameters and add some functions. Changing the D.T.S. setting can vary the functions of the unit so that it does not respond to the DMX 512 signal used to control it. Carefully follow the instructions below before carrying out any variations or selections.
NOTE: the symbol ☞ shows which key has to be pushed to obtain the desired function.

TEST CABLE IN PROGRESS
At the first Start-Up, Z8 is forced in TEST CABLE MODE (20 % Max LEDs power output)
This special function let you test all the LEDs output lines in order to check for possible problems on LEDs cabling connections.
Press Enter to confirm and Exit from TEST



TEST CABLE MODE
Press ENTER to confirm and EXIT from TEST

Menu Up-Down Global setting ENTER Up-Down

DEFAULT SETTING
To restore Factory settings

UPLOAD FIRMWARE
Upload the firmware by DMX. This menu allow to upgrade the unit's software by computer

DOWNLOAD FIRMWARE
This menu allow to save unit's programs into computer

FORCE CABLE TEST
This special function let you test all the LEDs output lines in order to check for possible problems on LEDs cabling connections (once selected, the Z8 should be tuned OFF and ON again to launch the TEST).

ABOUT
Master pcb code, pcb revision, SW version

GLOBAL SETTINGS

1. GLOBAL SETTINGS
1. Default settings
2. Upload firmware
3. Download firmware
4. Force cable test
5. About...

DEFAULT SETTING
To restore Factory settings
ENTER

UPLOAD FIRMWARE
Upload the firmware via DMX
This menu allow to upgrade the unit's software by computer
ENTER

DOWNLOAD FIRMWARE
This menu allow to save unit's programs into computer
ENTER

FORCE CABLE TEST
This special function let you test all the LEDs output lines in order to check for possible problems on LEDs cabling connections (once selected, the Z8 should be tuned OFF and ON again to run the TEST).
ENTER

ABOUT
Master pcb code, pcb revision, SW version
ENTER

Menu Up-Down Display Setting ENTER Up-Down

Flip Visual / Background colour / contrast level / Screen saver
FLIP VISUAL
Reverses display's reading depending on the mounting position
(on the ground or suspended).
BACKGROUND COLOUR
To select the colour of the display background
CONTRAST LEVEL
Display contrast
SCREEN SAVER
This menu allow to activate the screen saver.

DISPLAY SETTINGS

2. DISPLAY SETTINGS
1. Flip visual
2. Background colour
3. Contrast level
4. Screen saver

FLIP VISUAL
Flip visual OFF (Default)
Flip visual ON
ENTER

BACKGROUND COLOR
Background NORMAL (Default)
Background REVERSE
ENTER

CONTRAST LEVEL
0-100% (default 100%)
ENTER

SCREEN SAVER
Screen saver TYPE (default disabled)
Screen saver TIME (default 10 sec.)
ENTER

Menu Up-Down Mode setting ENTER Up-Down

DMX MODE
To select DMX mode :
Full Type 8 bit 32 DMX ch.
Full Type 16 bit 64 DMX ch.
Z1 Type 8 bit 10 DMX ch.
Z1 Type 16 bit 14 DMX ch (for Chase and Cue recording).
Z1 Full 8 bit 10x8 = 80 DMX ch.
Z1 Full 16 bit 14x8 = 112 DMX ch.
Z1 Short Full 8 bit 6x8 = 48 DMX ch.
Z1 Short Full 16 bit 10x8 = 80 DMX ch.
Custom map control.
1CH Full mode.

MODE SETTINGS

3. MODE SETTINGS
1. DMX mode
2. Custom mode setup
3. Master mode setup
4. Chase recorder
5. Cue recorder
6. InfraRed mode
7. Emergency setup

DMX MODE MAP ENTER

Full type - 8 bit = 32 DMX ch (default) = RGBA 4ch each output: 1-Red, 2-Green, 3-Blue, 4-Amber.

Full type - 16 bit = 64 DMX ch mode = RGBA 2ch each colour; 8ch each output: 1-Red 8 bit, 2-Red 16 bit, 3-Green 8 bit, 4-Green 16 bit, 5-Blue 8 bit, 6-Blue 16 bit, 7-Amber 8 bit, 8-Amber 16 bit

Z1 type - 8 bit = 10 DMX ch mode with all the outputs automatically set on DMX starting channel 1:
1=Shutter, 2=Dimmer, 3=Red, 4=Green, 5=Blue, 6=Amber, 7=White control, 8=CTC, 9=Macro, 10=Function

Z1 type - 16 bit = 14 DMX ch mode with Dimmer and RGBA channels with 16 bit control and all outputs automatically set on DMX starting address 1:
1=Shutter, 2=Dimmer, 3=Red 8 bit, 4=Red 16 bit,5=Green 8 bit, 6=Green 16 bit, 7=Blue 8 bit, 8=Blue 16 bit, 9=Amber 8 bit, 10=Amber 16 bit, 11=White control, 12=CTC, 13=Macros, 14=Special Function

Z1 full - 8 bit = (10x8) 80 DMX ch mode same as Z1 type 8 bit 10ch but each output with independent DMX control:
Output 1=DMX 1, Output 2= DMX 11, Output 3= DMX 21 ...

Z1 full - 16 bit = (14x8) 112 DMX ch mode same as Z1 type 16 bit 14ch but each output with independent DMX control:
Output 1 = DMX 1, Output 2 = DMX 15, Output 3 = DMX 29...

Z1 short full - 8 bit = (6x8) 48 DMX ch. mode with Dimmer, Shutter and RGBA 8 bit channels and each output with independent DMX control
Output 1 = DMX 1, Output 2 = DMX 7, Output 3 = DMX 13...

Z1 short full - 16 bit = (10x8) 80 DMX ch. mode with RGBA 16 bit each colour and each output with independent DMX control
Output 1 = DMX 1, Output 2 = DMX 11, Output 3 = DMX 21...
1-Dimmer, 2-Shutter, 3-Red 8 bit, 4-Red 16 bit, 5-Green 8 bit, 6-Green 16 bit, 7-Blue 8 bit, 8-Blue 16 bit, 9-Amber 8 bit, 10-Amber 16 bit

Custom map = DMX mode channels configuration selectable by user under Custom mode setup menu

1CH Full = 1 DMX ch mode

CUSTOM MODE SETUP
DMX mode channels configuration selectable by user.
This menu let you set Shutter, Dimmer, Red, Green, Blue, Amber, Ctc, Macro and Function to the desired DMX channels. (Custom map control)

MASTER MODE SETUP
Automatic LEDs output settings without needing of an external DMX controller.
3 different selectable options with Dimmer level (Master level output 0-255) selectable by user:
Master Chase: (Rainbow game or Chase with 15 programmable scenes), with Speed time and Wait time selectable by user.
Master Cue: (7 selectable Cues with fixed colours)
Master White RGB: (4 selectable Whites with different colour temperature).

CHASE RECORDER
Chase with 15 user programmable scenes.
(**External DMX controller needed**)
Z8 is automatically forced to 14 DMX receiving channels when entering inside the CHASE RECORDER.
For the programming of Chase by using a DMX controller, besides the 10 channels necessary to control the unit (Z1 type - 8 bit mode) a further 5 DMX channels are needed.
So that in CHASE RECORDER mode the unit will need 15 channels to be correctly programmed.
The five new DMX channels are:
DMX CH 11 = Scene number select
Let you select the Scene to be programmed / viewed (1-15)
DMX ch 12 = Scene status (Edit, Show, Last)
Let you Edit the scenes, View the previously programmed scenes or Set the last scene of the chase.
DMX ch 13 = Scene speed (0-240 seconds)
Let you set the Scene speed time (independend speed time for each scene of the Chase)
DMX ch 14 = Scene wait (0-240 seconds)
Let you set the Scene Wait time (independend Wait time for each scene of the Chase)
DMX ch 15 = Store
Let you store the programmed scenes (Channel 12 "Scene status" should be set to Edit mode or to Set Last mode)

CUE RECORDER
Single step Cue with Red, Greed, Blue and Amber output levels selectable by user

MODE SETTINGS

3. MODE SETTINGS
1. DMX mode
2. Custom mode setup
3. Master mode setup
4. Chase recorder
5. Cue recorder
6. InfraRed mode
7. Emergency setup

Z8 LED DRIVER v3.30
TRANSMISSION ON AIR
- MASTER MODE -

CUSTOM MODE SETUP
ENTER
SET dmx order = DMX mode channels configuration selectable by user.
Block set wizard = let you select the DMX starting address on every single output block,
8 output blocks in total.
(Example: block 1 DMX 001, block 2 DMX 006, Block 3 DMX 011....)
Clear block setup = DMX starting address reset.

MASTER MODE SETUP
ENTER
Master selection = Master disable, Master Chase, Master Cue, Master White RGB.
Chase selection = Chase Rainbow, Chase Recorded.
Cue Selection = Cue Red, Cue Green , Cue Blue, Cue RED + Green, Cue Red + Blue, Cue Green + Blue, Cue Recorded (configuration selectable by user.)
White selection = White Cold, White Natural, White Warm, White Full.
Speed Time = Chase speed time (1-240 seconds) default 10 sec.
Wait time = Chase wait time (1-240 seconds) default 10 sec.
Dimmer level = Master level output (0-255) default 255.

CHASE RECORDER
ENTER
Scene setup = Scene number, Scene status, Scene speed, Scene wait.
Restore default = Restore Factory settings

CUE RECORDER
ENTER
Cue level Red = Red intensity (0-255) default 255
Cue level Green = Green intensity (0-255) default 255
Cue level Blue = Blue intensity (0-255) default 255
Cue level Amber = Amber intensity (0-255) Default 255

INFRARED MODE
Infrared remote control.
By activating INFRARED MODE, it will be possible to navigate trought the unit functions by using the D.T.S. infrared remote control. D.T.S. Code :0514L008. (Internal hardware interface not yet implemented)

EMERGENCY SETUP
Emergency operating mode.
By setting Emergency mode, it will be possible to select one of the 5 preprogrammed WHITE cues that will then ran if DMX signal is missing or not available (Dimmer level also selectable by user). Usefull for Emergency EXIT ilumination on public areas.

MODE SETTINGS

3. MODE SETTINGS
6. InfraRed mode
7. Emergency setup

INFRARED MODE
Infrared disabled (default)
Infrared enabled
NOTE:
Internal hardware interface not yet implemented
External infrared remote sensor needed.
D.T.S. Code :03.LA.016

EMERGENCY SETUP
Mode selection = ON/OFF (default = OFF)
Macro selection = White COLD, NATURAL, WARM, FULL, DMX.
Macro DMX Program= Save regolation.
Dimmer level = 0-255 (default = 255)

Menu Up-Down LED Setup ENTER Up-Down

Hardware test\ LED min setup\ LED max setup\ MR16 full colour\ Output filter\ output delay\ Led BOOST.

HARDWARE TEST
Complete hardware test

LED MIN SETUP
This menu allow to select the minimum levels for Red, Green, Blue and Amber (external DMX controller needed)

LED MAX SETUP
This menu allow to select the maximum levels for Red, Green, Blue and Amber(external DMX controller needed)

MR16 FULL COLOUR
Preprogrammed RGB values for MR16 full colour led lamp

OUTPUT FILTER
Output filter OFF
Output fileter ON (default)

OUTPUT DELAY
This menu allow to select the value of the delay (in millisecons) for RGBA and Dimmer channels reaction to DMX or Program variation.
No output delay = 25 ms delay
Short output delay = 80 ms delay
Long output delay = 250 ms delay

LED BOOST
Led BOOST (350mA)
Led BOOST Min (420 mA),
Led BOOST Max (500 mA)

LED SETUP

4. LED SETUP
1. Hardware test
2. Led MIN setup
3. Led MAX setup
4. MR16 full colour
5. Output filter

4. LED SETUP
6. Output delay
7. Led BOOST

HARDWARE TEST ENTER
Hardware test OFF (default)
Hardware test ON

LED MIN SETUP ENTER
(external DMX controller needed)
MIN level RED (default = 0)
MIN level GREEN (default = 0)
MIn level BLUE (default = 0)
MIN level AMBER (default = 0)

LED MAX SETUP ENTER
(External DMX controller needed)
MAX level RED (default = 255)
MAX level GREEN (default = 255)
MAX level BLUE (default = 255)
MAX level AMBER (default = 255)

MR16 FULL COLOUR ENTER
MR16 limit OFF (Default)
MR16 limit ON

OUTPUT FILTER ENTER
Output filter OFF
Output filter ON (Default)

OUTPUT DELAY ENTER
No output delay
Short delay (default)
Long delay

LED BOOST ENTER
Led BOOST disabled (350mA) Default
Led BOOST MIN (420 mA)
Led BOOST MAX (500 mA)

Menu Up-Down Measure

Lifetime\ voltage level \ temperature

LIFETIME
This menu show the total UNIT LIFE TIME (reset not possible) and the RGBA life TIME (reset possible)

VOLTAGE LEVEL
Internal voltage measure

TEMPERATURE
Internnal / External temperature measure

ENTER Up-Down

MEASURE

5. MEASURE
1. Lifetime
2. Voltage level
3. Temperature

LIFETIME
Unit lifetime
LED Lifetime

ENTER

VOLTAGE LEVEL
Internal voltage measure

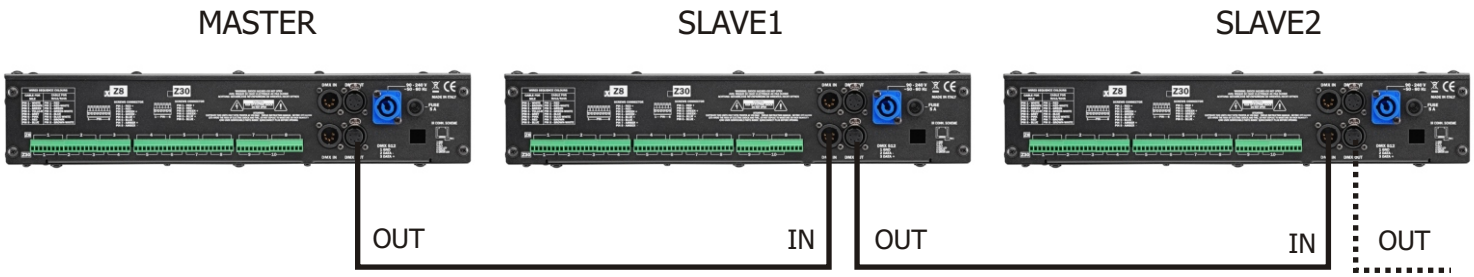
ENTER

TEMPERATURE
External temperature measure

ENTER

AUTOMATIC OPERATION (MASTER MODE):

Z8 can work in automatic mode without a DMX controller. First of all connect the projectors with a DMX cable (picture below). A maximum quantity of 32 slave units can be connected to the same Master unit.



To activate Automatic mode on the first unit, use the menu to run through the different menus until MODE SETTING appear, press ENTER, select Master mode Setup, press ENTER, than select Master selection.
Now it is possible to choose between the different pre-programmed games (Master Chase, Master CUE, Master White RGB). To confirm game activation press ENTER on the selected GAME.
The first unit that will work as a Master should be set in MASTER mode, the other units have to be set in 10 channels DMX mode (MODE 10 CH) and the DMX address should be set at A001.
On the master unit it is possible to vary the Speed time for the colour changhing and the Wait time between the steps (Master Chase).

DMX PROTOCOL

Z8 RGBA "FULL TYPE - 8 BIT" MAP (32 DMX CHANNELS)

32 CHANNELS MODE
(Default)

1	**RED**	**1**	**17**	**RED**	**5**
2	**GREEN**	**1**	**18**	**GREEN**	**5**
3	**BLUE**	**1**	**19**	**BLUE**	**5**
4	**AMBER**	**1**	**20**	**AMBER**	**5**
5	**RED**	**2**	**21**	**RED**	**6**
6	**GREEN**	**2**	**22**	**GREEN**	**6**
7	**BLUE**	**2**	**23**	**BLUE**	**6**
8	**AMBER**	**2**	**24**	**AMBER**	**6**
9	**RED**	**3**	**25**	**RED**	**7**
10	**GREEN**	**3**	**26**	**GREEN**	**7**
11	**BLUE**	**3**	**27**	**BLUE**	**7**
12	**AMBER**	**3**	**28**	**AMBER**	**7**
13	**RED**	**4**	**29**	**RED**	**8**
14	**GREEN**	**4**	**30**	**GREEN**	**8**
15	**BLUE**	**4**	**31**	**BLUE**	**8**
16	**AMBER**	**4**	**32**	**AMBER**	**8**

DMX CHANNEL	1	Parameter: **RED 1**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	2	Parameter: **GREEN1**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	3	Parameter: **BLUE 1**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	4	Parameter: **AMBER 1**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	5	Parameter: **RED 2**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	6	Parameter: **GREEN 2**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	7	Parameter: **BLUE 2**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	8	Parameter: **AMBER 2**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	9	Parameter: **RED 3**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	10	Parameter: **GREEN 3**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	11	Parameter: **BLUE 3**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	12	Parameter: **AMBER 3**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	13	Parameter: **RED 4**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	14	Parameter: **GREEN 4**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	15	Parameter: **BLUE 4**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	16	Parameter: **AMBER 4**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	17	Parameter: **RED 5**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	18	Parameter: **GREEN** 5

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	19	Parameter: **BLUE 5**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	20	Parameter: **AMBER 5**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	21	Parameter: **RED 6**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	22	Parameter: **GREEN 6**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	23	Parameter: **BLUE 6**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	24	Parameter: **AMBER 6**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	25	Parameter: **RED 7**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	26	Parameter: **GREEN 7**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	27	Parameter: **BLUE 7**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	28	Parameter: **AMBER 7**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	29	Parameter: **RED 8**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	30	Parameter: **GREEN 8**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	31	Parameter: **BLUE 8**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX CHANNEL	32	Parameter: **AMBER 8**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
000-255					**Proportional colour**

DMX PROTOCOL

Z8 RGBA "Z1 TYPE - 8 BIT" MAP (10 DMX CHANNELS)

10 CHANNELS MODE

1 **SHUTTER**
2 **DIMMER**
3 **RED**
4 **GREEN**
5 **BLUE**
6 **AMBER**
7 **WHITE (Pre-programmed whites at different colour temperatures)**
8 **CTC**
9 **COLOURS MACRO**
10 **FUNCTIONS**

DMX CHANNEL	1	Parameter: **SHUTTER**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-9	**5**				**Black-out**
10-19	**14**				**Open**
20-29	**24**				**Black-out**
30-119					**Strobe at variable speed from slow to fast (3400ms-20ms)**
120-149					**Pulse open at variable speed from slow to fast (43s-100ms)**
150-179					**Pulse close at variable speed from slow to fast (43s-100ms)**
180-204	**192**				**Random Strobe (Master and RGBA active)**
205-229	**218**				**Random Strobe (Full)**
230-255	**240**				**Open**

DMX CHANNEL	2	Parameter: **DIMMER**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					**Proportional dimmer**

DMX CHANNEL	3	Parameter: **RED**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					**Proportional colour**

DMX CHANNEL	4	Parameter: **GREEN**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					**Proportional colour**

DMX CHANNEL	5	Parameter: **BLUE**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					**Proportional colour**

DMX CHANNEL	6	Parameter: **AMBER**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					**Proportional colour**

DMX CHANNEL	7	Parameter: **WHITE (Pre-programmed White at diff. color temperature)**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-55	**23**		**No Function**		
56-105	**80**		**Full (Red-Green-Blue at Full)**		
106-155	**130**		**White DTS**		

IF CHANNEL 10 (FUNCTIONS) = CUSTOM WHITE RECALL (Dmx range value 0 - 79)

156-205	**180**	**Custom White Recall**
206-255	**225**	**White CTC (Channel 8 CTC enabled 43 color temp. Correction Macros: 2000°K-7200°K)**

IF CHANNEL 10 (FUNCTIONS) = CUSTOM WHITE CREATE (Dmx range value 80 - 160)

156-205	**180**	**Custom White Create (RGB levels selectable by DMX)**
206-255	**225**	**White CTC (Channel 8 CTC enabled 43 color temp. Correction Macros: 2000°K-7200°K)**

DMX CHANNEL	8	Parameter: **CTC (Color temperature correction)**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function

IF CHANNEL 7 (White) = WHITE CTC (Dmx range value 206 - 255)

0-255	**43 color temp. Correction Macros: 0 = 2000°K / 128 = 5500°K / 255 = 7200°K**

IF CHANNEL 7 (White) = NO FUNCTION (Dmx range value 0 - 43)

0-255	**Smooth RGB linear Hue correction**

DMX CHANNEL	9	Parameter: **COLOUR MACROS**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-14					**No Function**
15-29					**Macro 1**
30-44					**Macro 2**
45-59					**Macro 3**
60-74					**Macro 4**
75-89					**Macro 5**
90-104					**Macro 6**
105-119					**Macro 7**
120-134					**Macro 8**
135-149					**Macro 9**
150-164					**Macro 10**
165-179					**Macro 11**
180-194					**Macro 12**
195-209					**Macro 13**
210-225					**Macro 14**
226-239					**Macro 15**
240-255					**Macro 16**

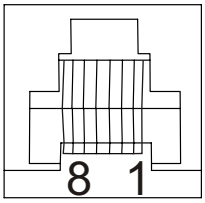
DMX CHANNEL	10	Parameter: **FUNCTIONS (Recall,Create and Store the Custom white)**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-79		**Custom White Recall (Enable CH 7 for Custom white Recall)**			
80-160		**Custom White Create (Enable CH 7 for Custom white Creation)**			
161-255		**Custom White Store (Store the Custom White created)**			

WIRING DIAGRAMS

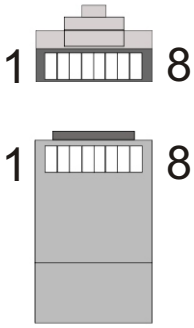
Z8 is available in three versions with different LED output connectors:
RJ45 female connector (03.LA.074.V2), 8 poles plug-in screw connector (03.LA.080.V2) and M12 connector (03.LA.075.V2).

RJ45 Female panel connector on board : Z8 LED CONTROLLER (03.LA.074.V2)



8-pin Female (RJ45)

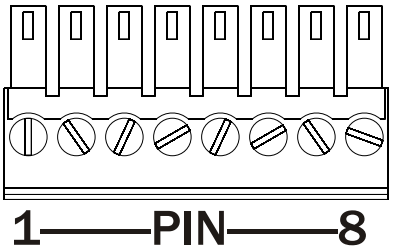
RJ45 LED input male cable connector on board: HELIOS R / RA7 HEAD



LEDS CONNECTOR PINOUT (Rj45)

Pin 1 = RED +
Pin 2 = RED -
Pin 3 = GREEN +
Pin 4 = GREEN -
Pin 5 = BLUE +
Pin 6 = BLUE -
Pin 7 = AMBER +
Pin 8 = AMBER -

8 poles plug-in screw connector on board : Z8 LED CONTROLLER (03.LA.080.V2)

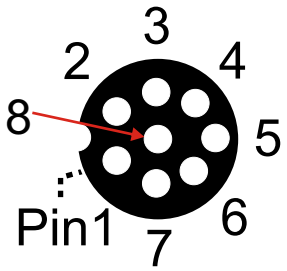


8 poles plug-in screw connector

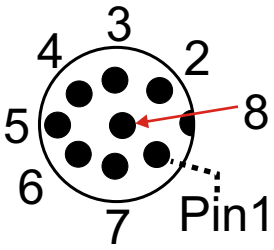
LEDS CONNECTOR PINOUT 8 poles plug-in screw connector

Pin 1 = RED +
Pin 2 = RED -
Pin 3 = GREEN +
Pin 4 = GREEN -
Pin 5 = BLUE +
Pin 6 = BLUE -
Pin 7 = AMBER +
Pin 8 = AMBER -

M12 LED output Female panel connector on board : Z8 LED CONTROLLER (03.LA.075.V2)



M12 LED input Male cable connector on board: FOS 100 - FOS 33 TITAN

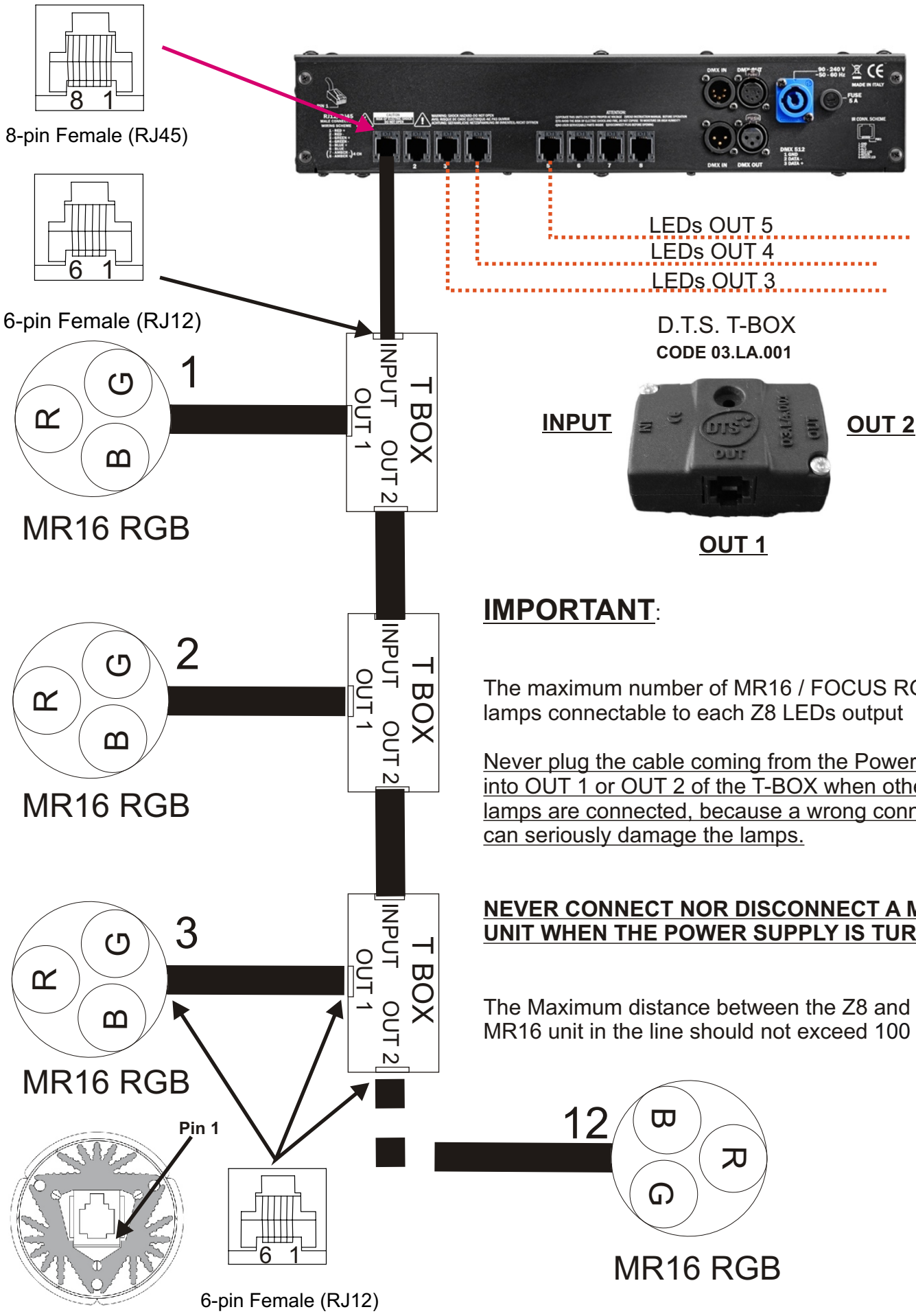


LEDS CONNECTOR PINOUT (M12)

Pin 1 = RED +
Pin 2 = RED -
Pin 3 = GREEN +
Pin 4 = GREEN -
Pin 5 = BLUE +
Pin 6 = BLUE -
Pin 7 = AMBER -
Pin 8 = AMBER +

LED UNITS WIRING CONNECTION

03.LA.074.V2 (RJ45 OUTPUT)



IMPORTANT:

The maximum number of MR16 / FOCUS RGB LED lamps connectable to each Z8 LEDs output is 12 pcs.

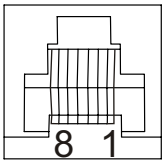
Never plug the cable coming from the Power supply into OUT 1 or OUT 2 of the T-BOX when other MR16 lamps are connected, because a wrong connection can seriously damage the lamps.

NEVER CONNECT NOR DISCONNECT A MR16 UNIT WHEN THE POWER SUPPLY IS TURNED ON.

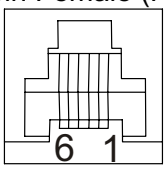
The Maximum distance between the Z8 and the last MR16 unit in the line should not exceed 100 meters

LED UNITS WIRING CONNECTION

03.LA.074.V2 (RJ45 OUTPUT)



8-pin Female (RJ45)



6-pin Female (RJ12)

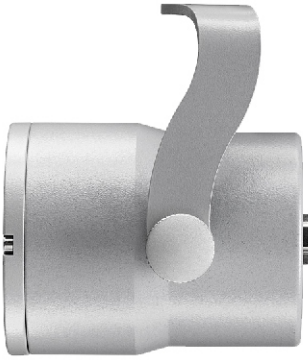
LEDs OUT 5
LEDs OUT 4
LEDs OUT 3

D.T.S. T-BOX
CODE 03.LA.001

INPUT

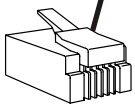
OUT 2

OUT 1



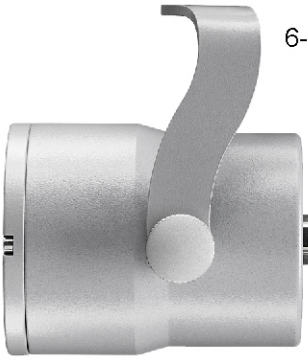
1

FOCUS FULL COLOUR



6-pin Male (RJ12)
Modular Plug

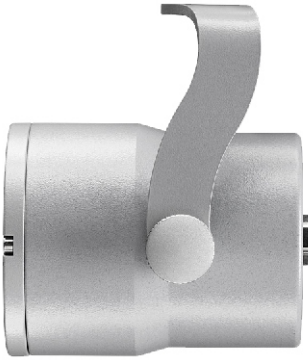
T BOX
INPUT
OUT 1
OUT 2



2

FOCUS FULL COLOUR

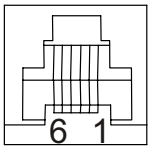
T BOX
INPUT
OUT 1
OUT 2



3

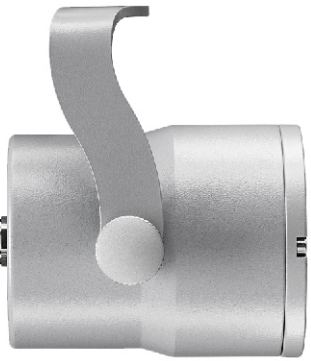
FOCUS FULL COLOUR

T BOX
INPUT
OUT 1
OUT 2



6-pin Female (RJ12)

4



FOCUS FULL COLOUR

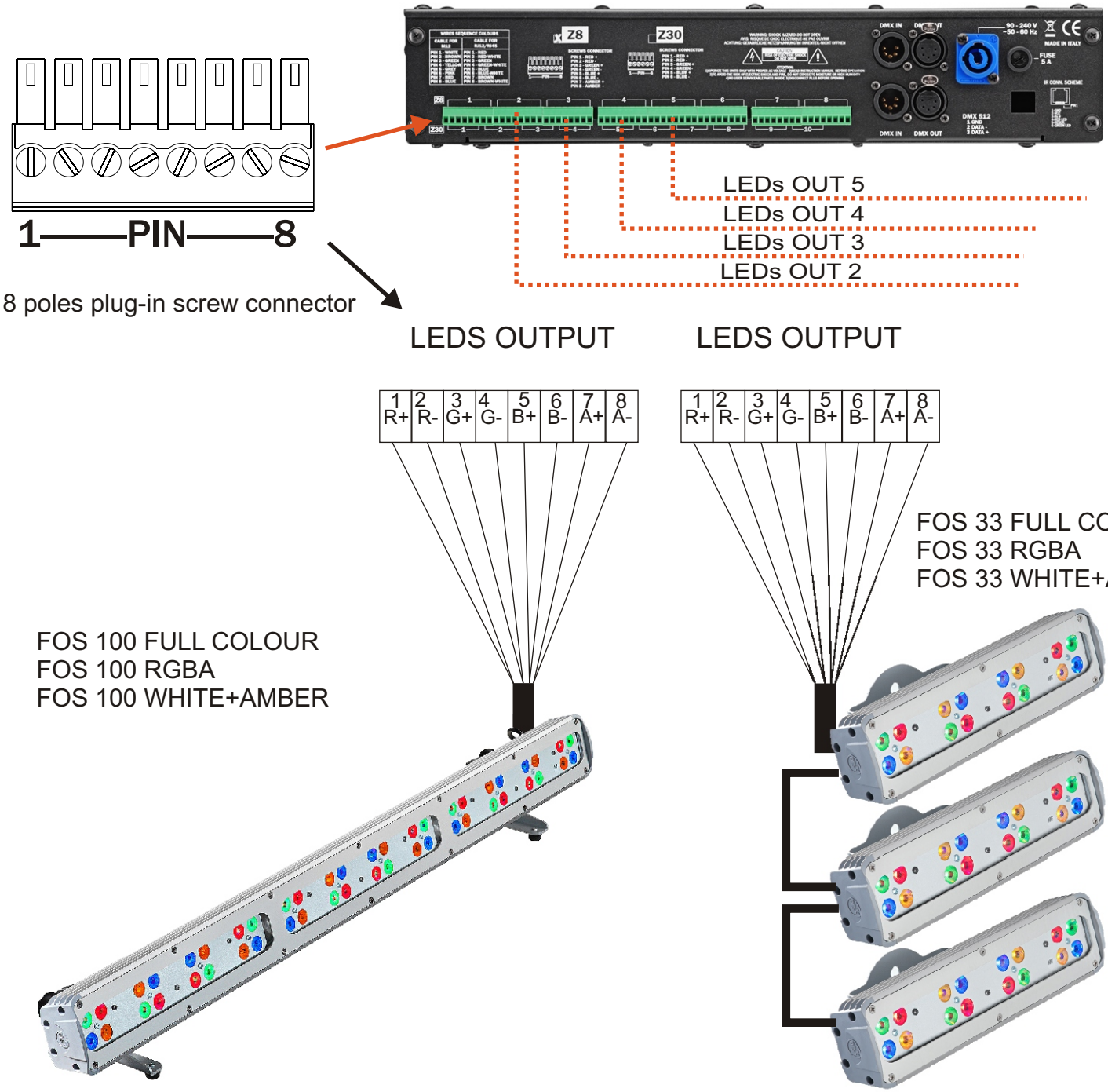
IMPORTANT:

The maximum number of MR16 / FOCUS FULL COLOUR LED projectors connectable to each Z8 LEDs output is 4 pcs.
Never plug the cable coming from the Power supply into OUT 1 or OUT 2 of the T-BOX when other MR16 / FOCUS FULL COLOUR units are connected, because a wrong connection can seriously damage the lamps.
NEVER CONNECT NOR DISCONNECT A MR16 UNIT WHEN THE POWER SUPPLY IS TURNED ON.

The Maximum distance between the Z8 and the last MR16 unit in the line should not exceed 100 meters

LED UNITS WIRING CONNECTION

03.LA.080.V2 (8 POLES PLUG-IN OUTPUT)



IMPORTANT:

The maximum number of FOS 100 LED bar connectable to each Z8 LEDs output is 1 pc.
The maximum number of FOS 33 LED bars connectable to each Z8 LEDs output is 3 pc.
NEVER CONNECT NOR DISCONNECT A FOS UNIT WHEN THE POWER SUPPLY IS TURNED ON.
The Maximum distance between the Z8 and the FOS 100 FULL COLOUR unit should not exceed 50 meters.
The Maximum distance between the Z8 and the last FOS 33 FULL COLOUR unit in the line (3 pcs) should not exceed 50 meters
The Maximum distance between the Z8 and the FOS 100 RGBA / WHITE unit should not exceed 100 meters.
The Maximum distance between the Z8 and the last FOS 33 RGBA / WHITE unit in the line (3 pcs) should not exceed 100 meters

LED UNITS WIRING CONNECTION

03.LA.075.V2 (M12 OUTPUT)

IMPORTANT:

The maximum number of TITAN LED projector connectable to each Z8 LEDs output is 1 pc.
NEVER CONNECT NOR DISCONNECT A TITAN UNIT WHEN THE POWER SUPPLY IS TURNED ON.
The Maximum distance between the Z8 and the TITAN FULL COLOUR / RGBA / WHITE+AMBER unit should not exceed 50 meters.

NOTES

NOTES

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The Lighting Company

ISO 9001:2008

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is certified to the
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