Z1 DMX-512 LED CONTROLLER

Code 03.LA.009

User's Manual Rel 1.6 **GB**

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

The Lighting Company

Made in Italy

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 Z1.
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 exeed 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 exeed 40°C and should not be lower than -10°C

DESCRIPTION:

Z1 / DMX-512 LED controller is a unit dedicated to the following LED products by D.T.S.:
MR16 RGB LED lamp; MR16 full color LED lamp; FOCUS LED projectors; HELIOS LED projectors; FOS led bar.
4 channels output DMX-512 Power interface, able to drive RGB+AMBER LED units (Max 100W per output, 25W per channel: 25W red, 25W green, 25W blue, 25W amber).
4 x 350mA electronically dimmable led control outputs.
Main Input voltage range is 90V - 260V, 50 - 60 HZ
It is possible to use this item through every DMX-512 mixer or by using the DTS InfraRed control

MAIN ELECTRICAL CHARACTERISTICS:
Input Voltage Range : Vin **90** - 26**0** Vac
Frequency : 50 - 60 HZ
Power Consumption Range : **8** - **100** W
Power Factor (Pf) : 0.95 electronic PFC controller
Efficiency : 90% typical

IP protection grade: IP 20

Output:
Power Output Range : 6 - 100W per output, 1,5 - 25W per channel
Output Current : 350 mA @ 100% per channel (500mA @ 100% per channel in BOOST Mode)
Output Voltage : Vout 48V
Max Load (output) : 15 x MR16 RGB LED lamp or 15 x FOCUS RGB LED projector or 5 x MR16 full color LED lamp or 5 x FOCUS full color LED projector or 1 x HELIOS full color LED projector or 1 x FOS RGBA led bar.
Min Load (output) : 1 x MR16 RGB LED lamp

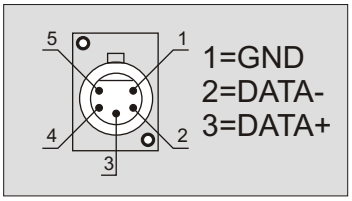
Control Input:
Control Signal : DMX 512
Dimming System :Constant Current PWM
Address Range : DMX 512 channels addressable by display

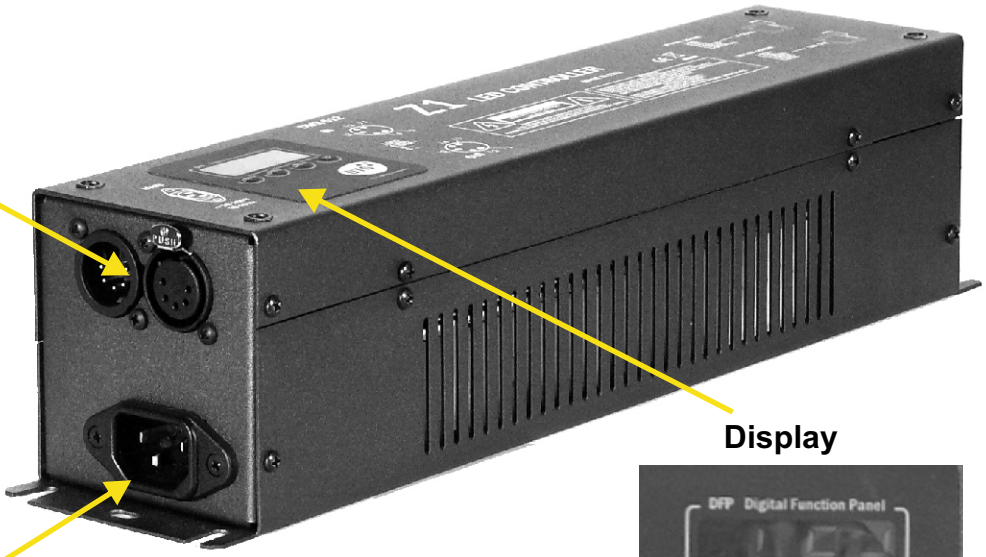
APPLICATIONS:
Cinemas - Restaurants and pubs - Discoteques - Architectural - Interior and Exterior.

INPUT/OUTPUT CONNECTIONS

DMX IN-OUT connectors

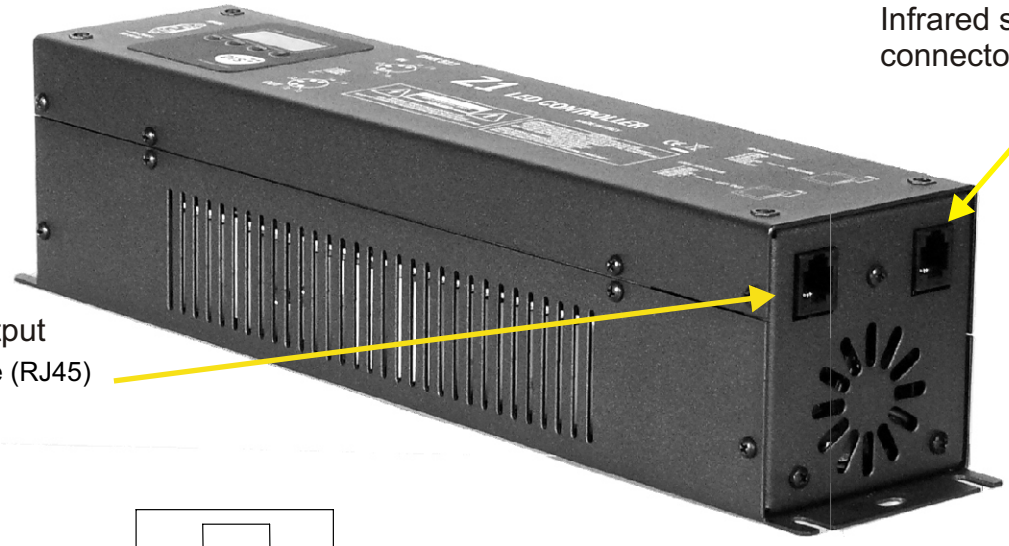
STANDARD
DM X 5 1 2
CONTROLLER





Display

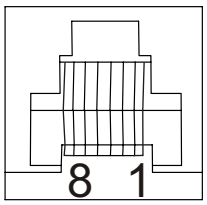
Mains 90-260 Vac
50-60 Hz



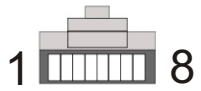
Infrared sensor input connector

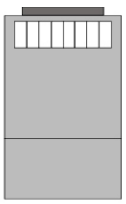
RGB output
8-pin Female (RJ45)

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-pin Female (RJ45)





8-pin Male (RJ45)
Modular Plug

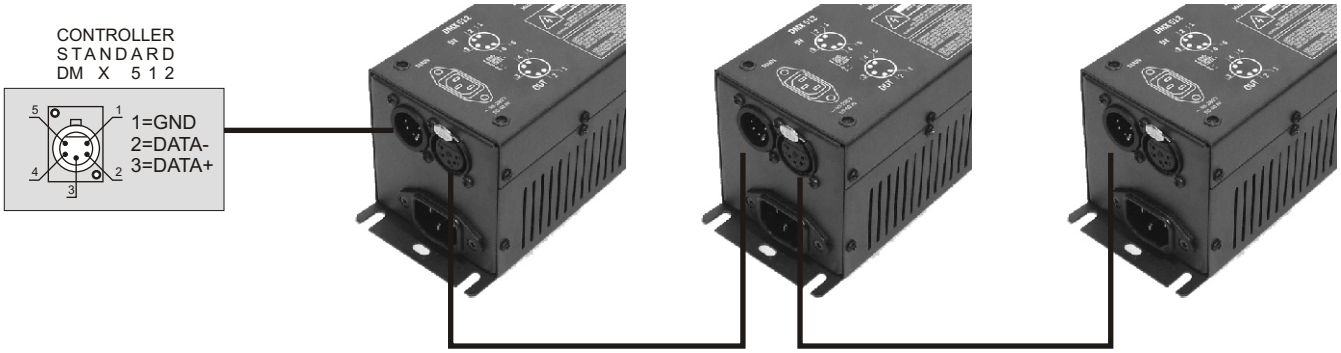
RJ45 : 8P8C

8P8C indicates 8 positions 8 cables

LEDs cabling connection can be done with a standard UTP TIA/EIA 568-A category 3 cable. The maximum distance between power supply and the last LED lamp in the line should not exceed 100 meters.

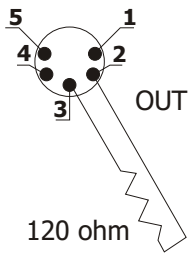
DMX SIGNAL CONNECTION:

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 ø0.5 mm cable and a CANNON XLR 5 or 3 pole 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 projector plug and connect it to the next projector by connecting the DMX OUT plug on the first unit to the DMX IN plug of the second one.
In this way, all the projectors are cascade connected.

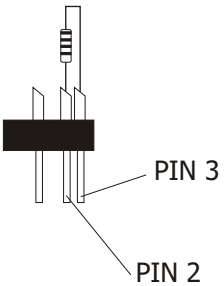


P.S:
If the display showing the DMX address flashes, then one of the following errors has occurred:
- DMX signal not present
- DMX reception problem

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



The standard configuration of the Z1 is with XLR 5 pins connectors.

DMX ADDRESS

Z1 can be set at 3 (RGB) or 4 (RGBA) leds channels output (please refer to page 14 for details).
Z1 RGB can be used in five different modes: 6 DMX channels, 9 DMX channels (default), 1 DMX channel, RGB mode (3 channels) or CUSTOM DMX mode.
Z1 RGBA can be used in five different modes: 6 DMX channels, 10 DMX channels (default), 1 DMX channel, RGBA mode (4 channels) or CUSTOM DMX mode.

If you want to use the Z1 RGB in 6 channels mode, select the 6 CH mode from the MODE menu and set the following addresses on the mixer: **(To be used only with DTS Wall mounted DMX controller 0514L007)**

Projector 1	A001	If you want to select the next projector, just add "8"
Projector 2	A009	**DTS Wall mounted DMX controller 0514L007 assign 8 DMX**
Projector 3	A017	**channels per unit also if some channels are not used**
…..	A….	
projector 6	A041	

If you want to use the Z1 RGB in 9 channels mode, select the 9 CH mode from the MODE menu and set the following addresses on the mixer:

Projector 1	A001	
Projector 2	A010	If you want to select the next projector, just add "9"
Projector 3	A019	
…..	A….	
projector 6	A046	

If you want to use the Z1 RGB in CUSTOM DMX channels mode, select the CUSTOM mode from the MODE menu and set the parameters for Shutter, Dimmer, Red, Green, Blue, Ctc, Macro and Function to the desired DMX channels and confirm the settings with DONE

If you want to use the Z1 RGBA in 10 channels mode, select the 10 CH mode from the MODE menu 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	

If you want to use the Z1 RGBA in CUSTOM DMX channels mode, select the CUSTOM mode from the MODE menu and set the parameters for Shutter, Dimmer, Red, Green, Blue, Amber, Ctc, Macro and Function to the desired DMX channels and confirm the settings with DONE

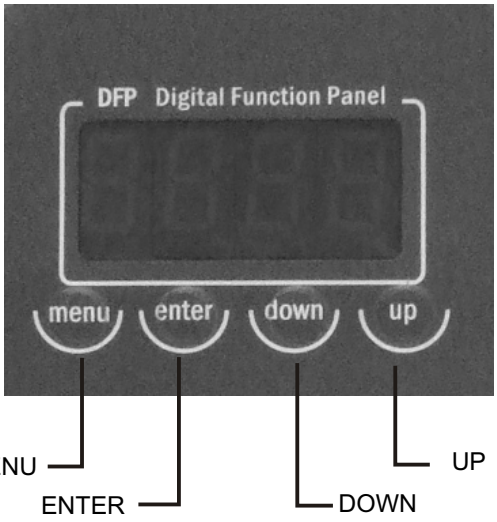
Selelcting the DMX address

1) Press the UP-DOWN key until you reach the required DMX address. The numbers on the display will start to flash (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

Z1 RGB



DISPLAY FUNCTIONS

The Z1 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.

Z1 RGB (3 leds channels output) Software version 2.70

A001 — MENU / Up-Down

dISP — ENTER / Up-Down

POSI — ENTER / Up-Down

- **AA** — Floor position — ENTER
- **bb** — Suspension position — ENTER

REVERSE DISPLAY
Reverses display's reading depending on the mounting position
(On the ground or suspended).

Up-Down

StbY — ENTER / Up-Down

- **oFF** — Display OFF — ENTER
- **on** — Display always ON — ENTER

DISPLAY STAND BY
To turn off the display (after 5 seconds)
Or leave it always on.

MENU / Up-Down — **MOdE** — ENTER / Up-Down

- **9CH** — 9 CHANNELS — ENTER — Default DMX Mode = 10 CH
- **6CH** — 6 CHANNELS — ENTER
- **1CH** — 1 CHANNEL — ENTER
- **rGb** — RGB (3 CHANNELS) — ENTER
- **AUX** — AUX MODE — ENTER — External ON - OFF control on IR connector
- **CUSt** — ENTER / Up-Down
  - **SEL** — Custom mode enabled — ENTER
  - **ShoU** — Show Custom settings — ENTER
  - **SEt** — Setting the parameters on Custom Mode — ENTER

DMX MODE
To select DMX mode : 9 ch (default) - 6 ch - RGB (3ch) - 1 ch - AUX - CUSTOM

AUX mode let you activate an external ON -OFF control on IR connector.

CUSTOM DMX mode let you set the parameters for Shutter, Dimmer, Red, Green, Blue, Ctc, Macro and Function to the desired DMX channels.

MENU / Up-Down — **bSt** — ENTER / Up-Down

- **On** — Boost mode activated — ENTER — Whit BOOST active,the LED's current is setted to 500mA (30%more gain). Default = Disable
- **OFF** — Boost mode deactivated — ENTER

BOOST DRIVING
This menu allow to increase the LED's current from 350mA to 500 mA

MENU Up-Down **LEd** ENTER Up-Down **rEd** ENTER Up-Down **MIn** Default = 0 ENTER

MAH Default = 255 ENTER

LED
RGB Min/Max, Smooth and Compression level values settings

Up-Down **GrEE** ENTER Up-Down **MIn** Default = 0 ENTER

MAH Default = 255 ENTER

RGB MINIMUM VALUES
This menu allow to select the minimum levels for Red,Green and blue

Up-Down **bLUE** ENTER Up-Down **MIn** Default = 0 ENTER

MAH Default = 255 ENTER

RGB MAXIMUM VALUES
This menu allow to select the maximum levels for Red,Green and blue

These settings have priority on Master Dimmer (DMX channel 2)

Up-Down **SMtH** ENTER Up-Down **4** Range = Off-20 Default = 4 ENTER

SMOOTH VALUE
This menu allow to select the value of the delay(in millisecons) for RGB and Dimmer channels reaction to DMX or Program variation.
Off=25 ms delay (Fast response)
20=250 ms delay (Slow response)

Off = 25 ms
Istant responce to DMX variation

20 = 250 ms
Smooth response to DMX variation

Up-Down **COMP** ENTER Up-Down **LInE** Linear = Linear courrent output ENTER

QUAd Quadratic = Linear light output ENTER

COMPRESSION
This menu allow to select between Linear courrent output or Quadratic courrent output for LEDs
Default = Linear

Up-Down **SYnc** ENTER Up-Down **610** Range = 610 Hz -10 KHz Default = 610 Hz ENTER

SYNC
This menu allow to adjust the PWM frequency value (Hz) in order to reduce flickering in the process of your camera recordings

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MENU Up-Down **AUtO** ENTER **SUrE** ENTER Up-Down **ChPr** ENTER **SPEE** Up-Down **0010** ENTER

WAIt **0010**

AUTOMATIC MODE
Automatic demo game without DMX controller

ChPr
Chase with 16 steps previously created in REC MODE
Speed and Wait time selectable by user

CUPr ENTER **rEd** Up-Down **120** ENTER

GrEE **255**

bLUE **104**

CUPr
RGB values selectable by user

rAIn ENTER **SPEE** Up-Down **0010** ENTER

Rainbow (rAIn)
Rainbow colours effect.
Speed time selectable by user

CU01 ENTER Up-Down ENTER

CU02

CU16

CU01-CU16
Color Macros as on DMX channel 8 (Macro)

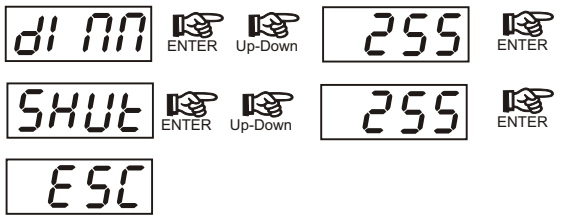
AUTOMATIC MODE
Automatic demo game without DMX controller

WHITE MACROS
16 macros for White color from 2000 to 7200 ° K

DIMMER
Dimmer level selectable by user as on DMX channel 2 (Dimmer)
Dimmer level is active for all the programs and macros

SHUTTER
Shutter level selectable by user as on DMX channel 1 (Shutter)
Shutter level is active only for CU01/CU16 and Wh01/Wh16 macros

ESC
Esc from Automatic Mode Menu



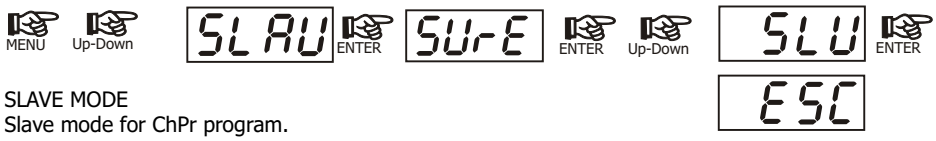
REC MODE
In DMX Recorder Mode,it is possible to create and store the scenes of the ChPr by using an external DMX controller.
The unit must be setted to 9 channels MODE

DMX Recorder Mode
For the programming of ChPr by using a DMX controller, besides the 9 channels necessary to control the unit a further 3 DMX channels are needed.
So that in RECORDER mode (via DMX) the unit will need 12 channels to be correctly programmed.
The three new DMX channels are:

DMX channel 10 = SCENES channel
From 0-10 = no function (r001)
From 11-255 are displayed the programmable scenes (max 16 scenes from M001 to M0016)

DMX channel 11 = EDIT channel:
-From 0-19 = no function
-From 20-234 the unit runs the configuration given by the received input DMX values.
With the channel SCENES it is possible to pass from one step to the next while with REC it is possible to record the selected scene.
-From 235-255 the unit runs the configuration given by the received input DMX values closing the sequence as last scene.
With the channel REC it is possible to record the selected scene as last scene.

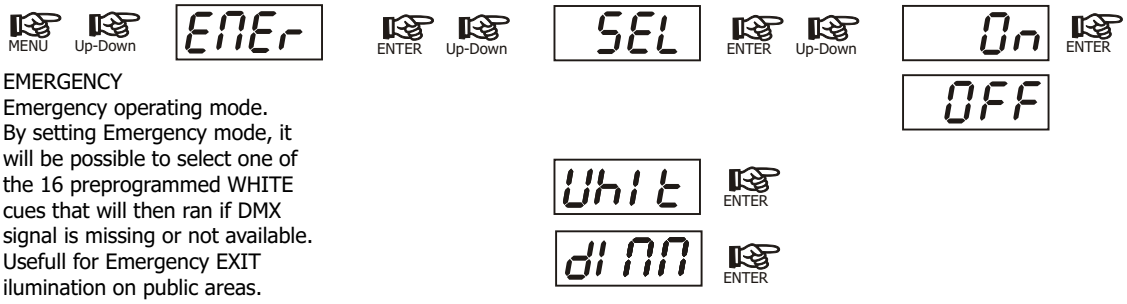
DMX channel 12 = RECORDING channel
Records the set scene with a variation between 0 to 255 (the display flashes indicating that the scene has been recorded).It is advised that you keep the REC channel set to 0 and to run through the 255 only once you have decided to save the scene. If ChPr is not closed, by indicating the last scene (Edit channel between 235-255), in playback mode all 16 scenes will be played through even if not programmed



SLAVE MODE
Slave mode for ChPr program.
All slave units will be synchronised with master unit, running their own Chpr program.

INFRARED MODE
Infrared remote control.
By activating Ir 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

NOTE:
External infrared remote sensor needed.
D.T.S. Code :03.LA.016



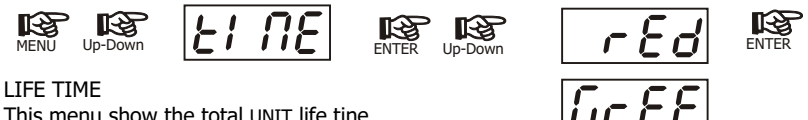
EMERGENCY
Emergency operating mode.
By setting Emergency mode, it will be possible to select one of the 16 preprogrammed WHITE cues that will then ran if DMX signal is missing or not available.
Usefull for Emergency EXIT ilumination on public areas.

Default = OFF

Default = White 1

Default = 255

DEFAULT
To restore default settings



LIFE TIME
This menu show the total UNIT life tine and the RGB life time

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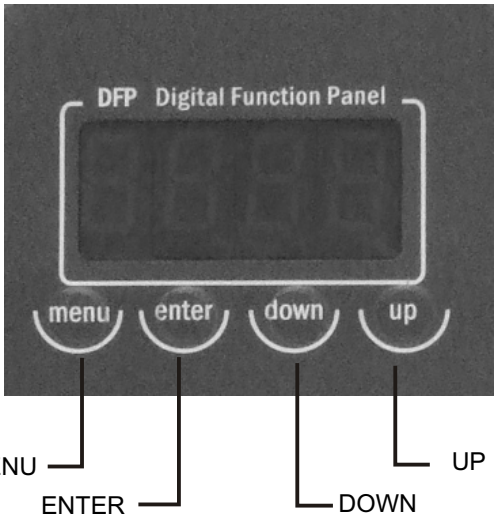
TEST MODE
RGB colours test with rainbow

SOFTWARE
Software version

DISPLAY FUNCTIONS

Z1 RGBA



DISPLAY FUNCTIONS

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NOTE: the symbol ☞ shows which key has to be pushed to obtain the desired function.

Z1 RGBA (4 leds channels output) Software version 2.70

A001 — MENU / Up-Down

dISP — ENTER / Up-Down

REVERSE DISPLAY
Reverses display's reading depending on the mounting position
(On the ground or suspended).

POSI — ENTER / Up-Down

- **AA** — Floor position — ENTER
- **bb** — Suspension position — ENTER

Up-Down

StbY — ENTER / Up-Down

DISPLAY STAND BY
To turn off the display (after 5 seconds)
Or leave it always on.

- **oFF** — Display OFF — ENTER
- **on** — Display always ON — ENTER

MENU / Up-Down

MODE — ENTER / Up-Down

DMX MODE
To select DMX mode : 10 ch (default) - 6 ch - RGBA - 1 ch - AUX - CUSTOM

AUX mode let you activate an external ON -OFF control on IR connector.

CUSTOM DMX mode let you set the parameters for Shutter, Dimmer, Red, Green, Blue, Amber, Ctc, Macro and Function to the desired DMX channels.

- **10CH** — 10 CHANNELS — ENTER — Default DMX Mode = 10 CH
- **6CH** — 6 CHANNELS — ENTER
- **1CH** — 1 CHANNEL — ENTER
- **rGbA** — RGBA (4 CHANNELS) — ENTER
- **AUX** — AUX MODE — ENTER — External ON - OFF control on IR connector
- **CUSt** — ENTER / Up-Down
  - **SEL** — ENTER — Custom mode enabled
  - **ShoU** — ENTER — Show Custom settings
  - **SEt** — ENTER — Setting the parameters on Custom Mode

MENU / Up-Down

bSt — ENTER / Up-Down

BOOST DRIVING
This menu allow to increase the LED's current from 350mA to 500 mA

- **On** — Boost mode activated — ENTER — Whit BOOST active,the LED's current is setted to 500mA (30%more gain). Default = Disable
- **OFF** — Boost mode deactivated — ENTER

MENU Up-Down **LEd** ENTER Up-Down **rEd** ENTER Up-Down **MIn** Default = 0 ENTER

LED
RGBA Min/Max, Smooth and Compression level values settings

MAH Default = 255 ENTER

Up-Down **GrEE** ENTER Up-Down **MIn** Default = 0 ENTER

RGBA MINIMUM VALUES
This menu allow to select the minimum levels for Red, Green, Blue and Amber

MAH Default = 255 ENTER

Up-Down **bLUE** ENTER Up-Down **MIn** Default = 0 ENTER

RGBA MAXIMUM VALUES
This menu allow to select the maximum levels for Red, Green, Blue and Amber

MAH Default = 255 ENTER

AMbr ENTER Up-Down **MIn** Default = 0 ENTER

These settings have priority on Master Dimmer (DMX channel 2)

MAH Default = 255 ENTER

Up-Down **SMtH** ENTER Up-Down **4** Range = Off - 20 Default = 4 ENTER

SMOOTH VALUE
This menu allow to select the value of the delay (in millisecons) for RGBA and Dimmer channels reaction to DMX or Program variation.
Off = 25 ms delay (Fast response)
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Off = 25 ms
Istant responce to DMX variation

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Smooth response to DMX variation

Up-Down **COMP** ENTER Up-Down **LInE** Linear = Linear courrent output ENTER

COMPRESSION
This menu allow to select between Linear current output or Quadratic current output for LEDs
Default = Linear

QUAd Quadratic = Linear light output ENTER

Up-Down **SYnc** ENTER Up-Down **610** Range = 610 Hz -10 KHz Default = 610 Hz ENTER

SYNC
This menu allow to adjust the PWM frequency value (Hz) in order to reduce flickering in the process of your camera recordings

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MENU Up-Down **AUtO** ENTER **SUrE** ENTER Up-Down **ChPr** ENTER **SPEE** Up-Down **0010** ENTER

AUTOMATIC MODE
Automatic demo game without DMX controller

WAIt **0010**

ChPr
Chase with 16 steps previously created in REC MODE
Speed and Wait time selectable by user

CUPr ENTER **rEd** Up-Down **120** ENTER

GrEE **255**

CUPr
RGB values selectable by user

bLUE **104**

Rainbow (rAIn)
Rainbow colours effect.
Speed time selectable by user

rAIn ENTER **SPEE** Up-Down **0010** ENTER

CU01-CU16
Color Macros as on DMX channel 8 (Macro)

CU01 ENTER Up-Down ENTER

CU02

CU16

AUTOMATIC MODE
Automatic demo game without DMX controller

WHITE MACROS
16 macros for White color from 2000 to 7200 ° K

DIMMER
Dimmer level selectable by user as on DMX channel 2 (Dimmer)
Dimmer level is active for all the programs and macros

SHUTTER
Shutter level selectable by user as on DMX channel 1 (Shutter)
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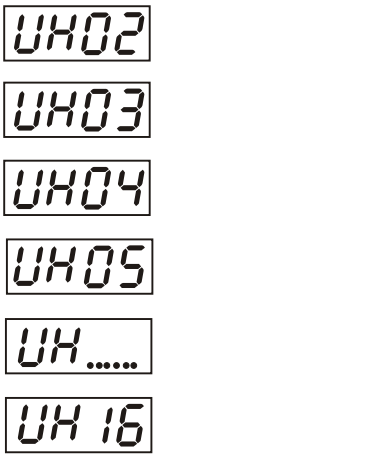
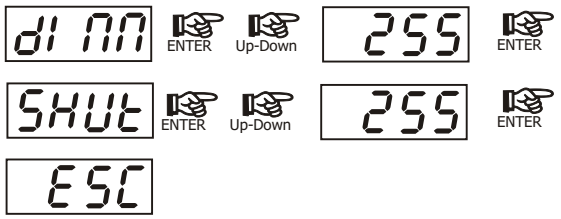
ESC
Esc from Automatic Mode Menu





REC MODE
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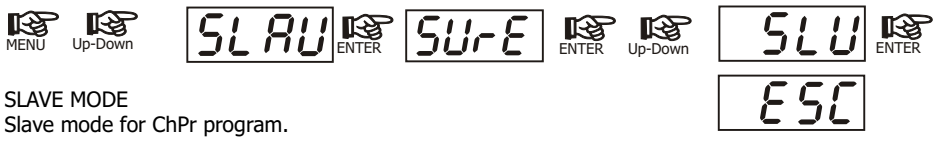
The unit must be setted to 10 channels MODE

DMX Recorder Mode
For the programming of ChPr by using a DMX controller, besides the 10 channels necessary to control the unit a further 3 DMX channels are needed.
So that in RECORDER mode (via DMX) the unit will need 13 channels to be correctly programmed.
The three new DMX channels are:

DMX channel 11 = SCENES channel
From 0-10 = no function (r001)
From 11-255 are displayed the programmable scenes (max 16 scenes from M001 to M0016)

DMX channel 12 = EDIT channel:
-From 0-19 = no function
-From 20-234 the unit runs the configuration given by the received input DMX values.
With the channel SCENES it is possible to pass from one step to the next while with REC it is possible to record the selected scene.
-From 235-255 the unit runs the configuration given by the received input DMX values closing the sequence as last scene.
With the channel REC it is possible to record the selected scene as last scene.

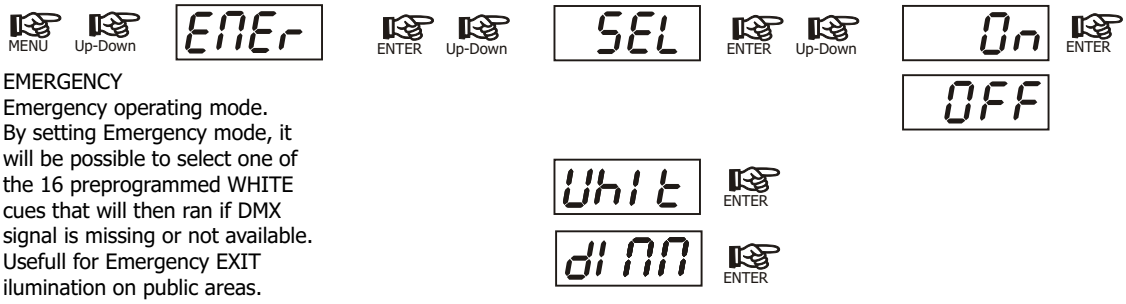
DMX channel 13 = RECORDING channel
Records the set scene with a variation between 0 to 255 (the display flashes indicating that the scene has been recorded).It is advised that you keep the REC channel set to 0 and to run through the 255 only once you have decided to save the scene. If ChPr is not closed, by indicating the last scene (Edit channel between 235-255), in playback mode all 16 scenes will be played through even if not programmed



SLAVE MODE
Slave mode for ChPr program.
All slave units will be synchronised with master unit, running their own Chpr program.

INFRARED MODE
Infrared remote control.
By activating Ir 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

NOTE:
External infrared remote sensor needed.
D.T.S. Code :03.LA.016



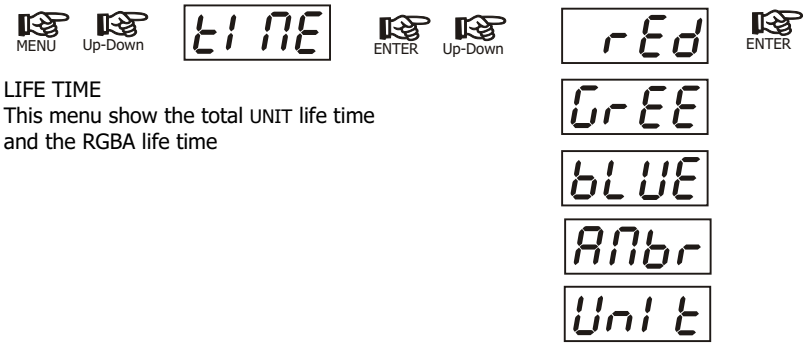
EMERGENCY
Emergency operating mode.
By setting Emergency mode, it will be possible to select one of the 16 preprogrammed WHITE cues that will then ran if DMX signal is missing or not available.
Usefull for Emergency EXIT ilumination on public areas.

Default = OFF

Default = White 1

Default = 255

DEFAULT
To restore default settings



LIFE TIME
This menu show the total UNIT life time and the RGBA life time

---

TEST MODE
RGBA colours test with rainbow

SOFTWARE
Software version

HIDDEN MENU

For technical personnel only

To operate this menu:
-Connect the unit to the main
-While reset is running, press the MENU and ENTER keys at the same time.

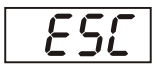
Reset EEPROM (Reset all settings)
ATTENTION: by pressing this key you must repeat all previous calibrations

UPLOAD
This menu allow to upgrade the unit's software by computer

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

CHANNELS
This menu allow to set 3 channels or 4 channels LEDs output mode
3 LEDs channels output mode = Z1 RGB
4 LEDs channels output mode = Z1 RGBA

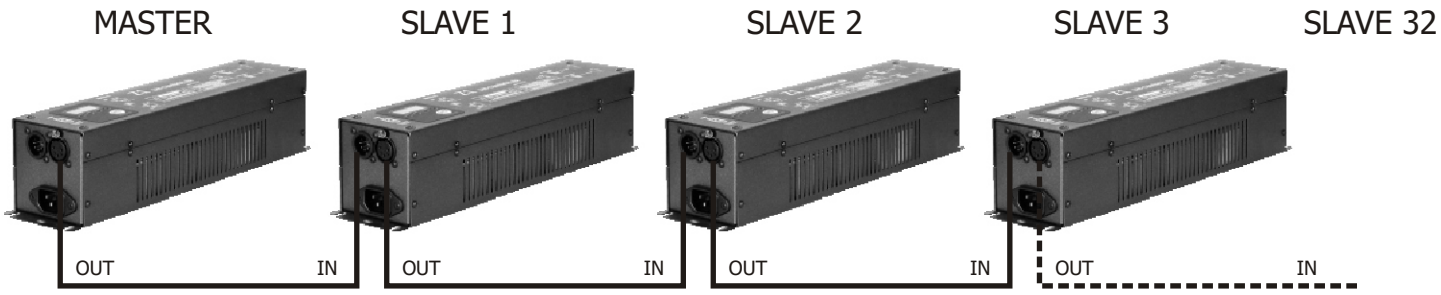
MAXIMUM LEDs OUTPUT POWER
This menu allow to set the maximum power available on LEDs (1-100 %)



EXIT
Exit from hidden menu.

AUTOMATIC OPERATION (AUTO):

Z1 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 Auto mode on the first unit, use the menu to run through the different modes until AUTO appears on the display, at this point press enter.
Now it is possible to choose between the different pre-programmed games (CUPr-RAIn-CU01/CU16-Wh01/Wh16) or ChPr which is user programmable through REC mode. To confirm game activation press ENTER on the selected GAME.

CUPr-RAIn-CU01/CU16-Wh01/Wh16

The first unit that will work as a Master should be placed in Automatic mode (AUTO), the other units have to be placed in 9 channels DMX mode (MODE 9CH) for Z1 RGB or in 10 channels DMX mode (MODE 10 CH) for Z1 RGBA and the DMX address should be set at A001. For RaIn (rainbow) game it is possible to select the speed for the colour changhing (SPEE).
DIMMER function (in AUTOMATIC MODE) is active for all the programs.
SHUTTER function (in AUTOMATIC MODE) is active only for CU01/CU16 and Wh01/Wh16 macros.

ChPr MASTER/SLAVE

The first unit that will function as a Master must be set to Automatic mode (AUTO), the other units must be set to Slave mode (SLAV), selectable through the menu. In this way all the Slave units will be synchronised with the master and running their own ChPr game.
On the master unit it is possible to vary the Speed time (SPEE) for the colour changhing and the Wait time (UAIt) between the steps.
Speed time and Wait time on the Master, have priority on the slave units.
NB: It is possible to run GA.Pr on the other units even though these do not have GA.Pr programmed. You can do this by setting the units to 9 ch DMX MODE for Z1 RGB or 10 channels DMX mode for Z1 RGBA and selecting DMX address A001.

Rec mode

It is possible to program your own game on the Z1 unit that will then run it in AUTO mode (ChPr).
Each unit can have its own programmed game.
In REC mode the unit must be set to 9 channels mode for Z1 RGB and 10 channels mode for Z1 RGBA.
To program the ChPr by using a DMX controller, you need 3 more channels in addition to the 9/10 channels necessary to control the unit.
So that in RECORDER mode (via DMX) the unit will need 12/13 DMX channels to be correctly programmed.
The three new DMX channels are:
Z1 IN RGB MODE (3 CHANNELS LED OUTPUT)
DMX channel 10 = SCENES channel
From 0-10 = no function (r001)
From 11-255 are displayed the programmable scenes (max 16 scenes from M001 to M0016)

DMX channel 11 = EDIT channel:
-From 0-19 = no function
-From 20-234 the unit runs the configuration given by the received input DMX values.
With the channel SCENES it is possible to pass from one step to the next while with REC it is possible to record the selected scene.
-From 235-255 the unit runs the configuration given by the received input DMX values closing the sequence as last scene.
With the channel REC it is possible to record the selected scene as last scene.

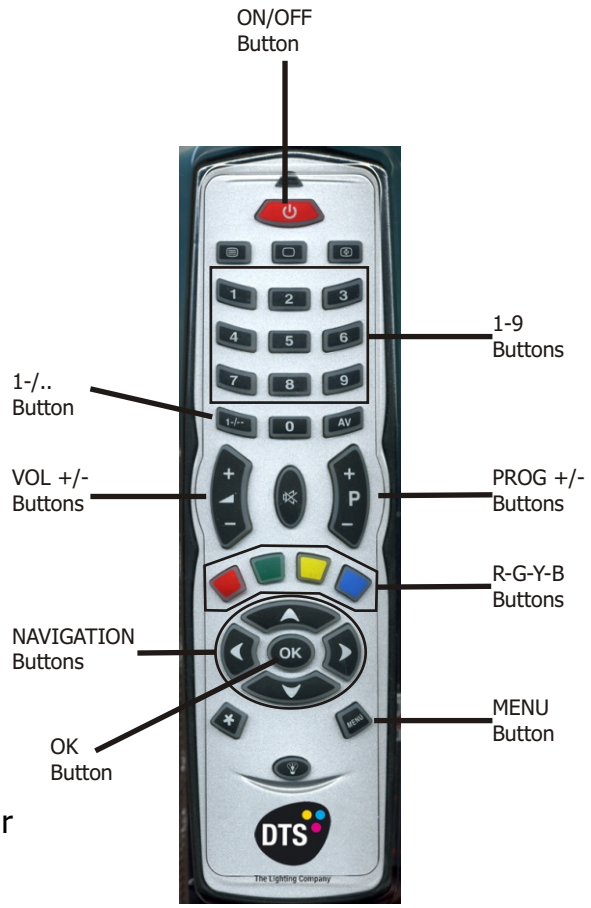
DMX channel 12 = RECORDING channel
Records the set scene with a variation between 0 to 255 (the display flashes indicating that the scene has been recorded).It is advised that you keep the REC channel set to 0 and to run through the 255 only once you have decided to save the scene. If ChPr is not closed, by indicating the last scene (Edit channel between 235-255), in playback mode all 16 scenes will be played through even if not programmed

Z1 IN RGBA MODE (4 CHANNELS LED OUTPUT)
DMX channel 11 = SCENES channel
From 0-10 = no function (r001)
From 11-255 are displayed the programmable scenes (max 16 scenes from M001 to M0016)

DMX channel 12 = EDIT channel:
-From 0-19 = no function
-From 20-234 the unit runs the configuration given by the received input DMX values.
With the channel SCENES it is possible to pass from one step to the next while with REC it is possible to record the selected scene.
-From 235-255 the unit runs the configuration given by the received input DMX values closing the sequence as last scene.
With the channel REC it is possible to record the selected scene as last scene.

DMX channel 13 = RECORDING channel
Records the set scene with a variation between 0 to 255 (the display flashes indicating that the scene has been recorded).It is advised that you keep the REC channel set to 0 and to run through the 255 only once you have decided to save the scene. If ChPr is not closed, by indicating the last scene (Edit channel between 235-255), in playback mode all 16 scenes will be played through even if not programmed

INFRARED REMOTE CONTROL



By activating Ir MODE on Z1 Menu it will be possible to navigate trought the unit functions by using the D.T.S. infrared remote control (D.T.S. Code :0514L008).
Please note that external infrared remote sensor is also needed. (D.T.S. Code :03.LA.016)

Infrared remote control functions:

ON/OFF and MUTE buttons
In Automatic mode let you stop the games running.
Master and slaves will go in Stand-by mode

1-9 buttons
In Automatic mode let you select the colour macros 1/9

1-/.. Button
In Automatic mode let you select the colour macros 10-16

VOL +/-
In Automatic mode let you select the desired value for DIMMER

PROG +/-
In Automatic mode let you scroll between the selectable games

RED/GREEN/YELLOW/BLUE buttons
Direct acces to Automatic mode for Red/Green/Blue/Yellow colour macros.
Red=CU01 / Green=CU07 / Yellow=CU04 / Blue=CU13

Navigation buttons
Same as UP/DOWN on unit display

OK button
Same as ENTER on unit display

MENU button

DMX PROTOCOL

Z1 RGB (3 CHANNELS LED OUTPUT)

9 CHANNELS MODE (Default)

1 SHUTTER
2 DIMMER
3 RED
4 GREEN
5 BLUE
6 WHITE (Pre-programmed whites at different color temperatures)
7 CTC
8 COLOURS MACRO
9 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 RGB 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: **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 9 (FUNCTIONS) = CUSTOM WHITE RECALL (Dmx range value 0 - 79)

156-205	**180**	**Custom White Recall**
206-255	**225**	**White CTC (Channel 7 CTC enabled 43 color temp. Correction Macros: 2000°K-7200°K)**

IF CHANNEL 9 (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 7 CTC enabled 43 color temp. Correction Macros: 2000°K-7200°K)**

DMX CHANNEL	7	Parameter: **CTC (Color temperature correction)**

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

IF CHANNEL 6 (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 6 (White) = NO FUNCTION (Dmx range value 0 - 43)

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

DMX CHANNEL	8	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	9	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 6 for Custom white Recall)**			
80-160		**Custom White Create (Enable CH 6 for Custom white Creation)**			
161-255		**Custom White Store (Store the Custom White created)**			

6 CHANNELS MODE (For use with DTS Wall mounted DMX controller 0514L007)

1 GREEN
2 RED
3 BLUE
4 DIMMER
5 NOT USED
6 SHUTTER

DMX CHANNEL	1	Parameter: **GREEN**

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

DMX CHANNEL	2	Parameter: **RED**

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

DMX CHANNEL	3	Parameter: **BLUE**

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

DMX CHANNEL	4	Parameter: **DIMMER**

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

DMX CHANNEL	5	Parameter: **NOT USED**

DMX range Value	Mid point DMX value	Move range (degrees)	Mode	Option	Function
0-255					**No Function**

DMX CHANNEL	6	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 RGB active)**
205-229	**218**				**Random Strobe (Full)**
230-255	**240**				**Open**

DMX PROTOCOL

Z1 RGBA (4 CHANNELS LED OUTPUT)

10 CHANNELS MODE (Default)

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**

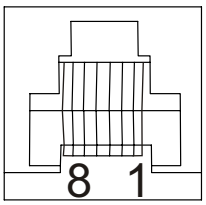
DMX CHANNEL	10	Parameter: **FUNCTIONS (Recall,Create and Store the Custom white)**

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 DIAGRAM

Z1 is provided with an RJ45 female panel connector.

RJ45 LED output
female panel connector
on board :
Z1 controller

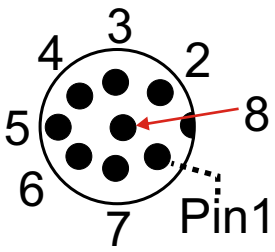


8-pin Female (RJ45)

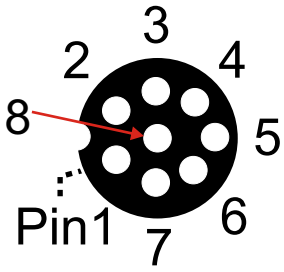
LEDS
CONNECTOR PINOUT

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 input
Male cable connector
on board:
FOS 100 all models



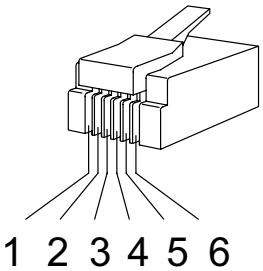
M12 LED output
Female panel connector
on board :
Z10 / Z1 outdoor
led controller



LEDS
CONNECTOR PINOUT

1-RED + (FC / RGBA / WHITE)
2-RED - (FC / RGBA / WHITE)
3-GREEN + (FC / RGBA / WHITE)
4-GREEN - (FC / RGBA / WHITE)
5-BLUE + (FC / RGBA / WHITE)
6-BLUE - (FC / RGBA / WHITE)
7-AMBER - (RGBA / WHITE)
8-AMBER + (RGBA / WHITE)

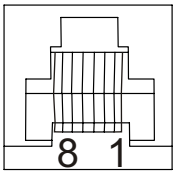
RJ12 LED input
male cable connector
on board :
Focus, Helios, MR16 led lamps



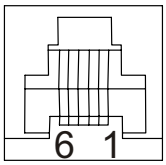
LEDS
CONNECTOR PINOUT

1-RED +
2-RED -
3-GREEN +
4-GREEN -
5-BLUE +
6-BLUE -

Z1 - LED UNITS WIRING CONNECTIONS

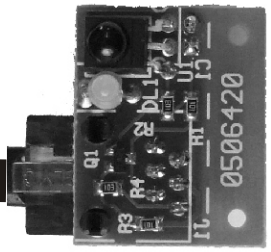


8-pin Female (RJ45)



6-pin Female (RJ12)

D.T.S. INFRARED REMOTE SENSOR
CODE 03.LA.016

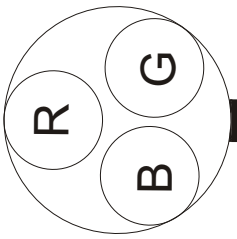


D.T.S. T-BOX
CODE 03.LA.001

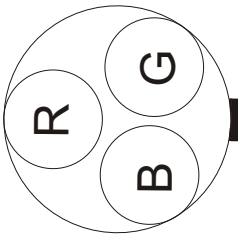
INPUT

OUT 2

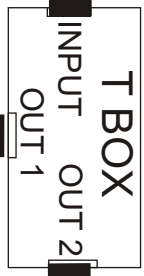
OUT 1

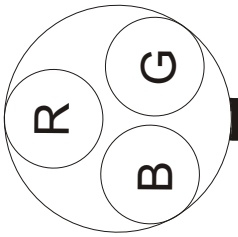


MR16 RGB

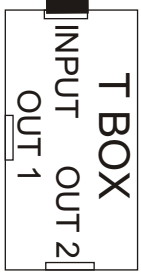


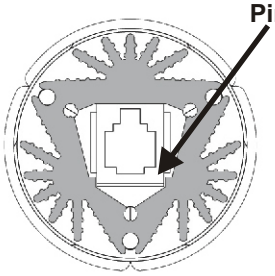
MR16 RGB

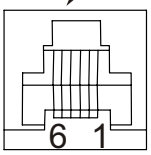




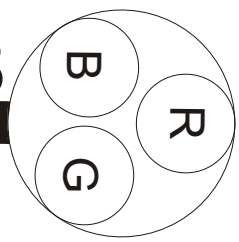
MR16 RGB







6-pin Female (RJ12)



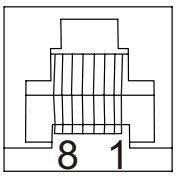
MR16 RGB

IMPORTANT:

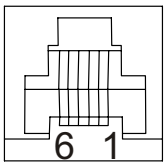
The maximum number of MR16 / FOCUS 3W LED lamps connectable to the Z1 Power supply is 15 pcs.

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 plug in a new MR16 lamp when the power supply is turned on.

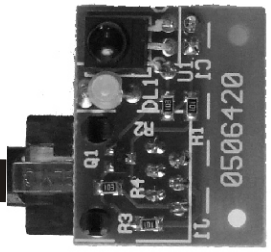


8-pin Female (RJ45)



6-pin Female (RJ12)

D.T.S. INFRARED
REMOTE SENSOR
CODE 03.LA.016

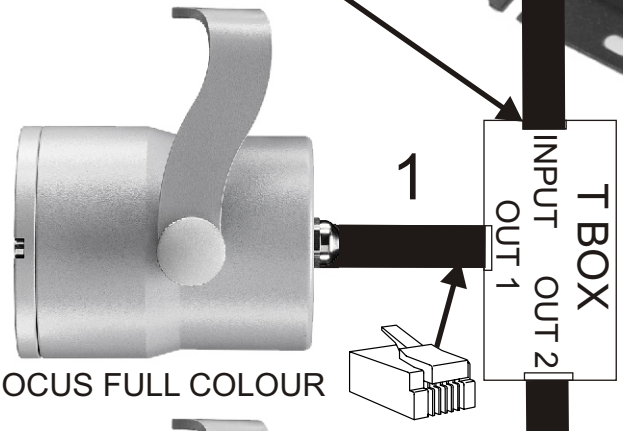


D.T.S. T-BOX
CODE 03.LA.001

INPUT

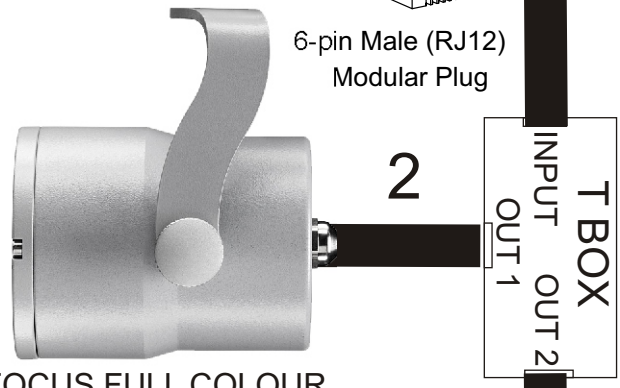
OUT 2

OUT 1

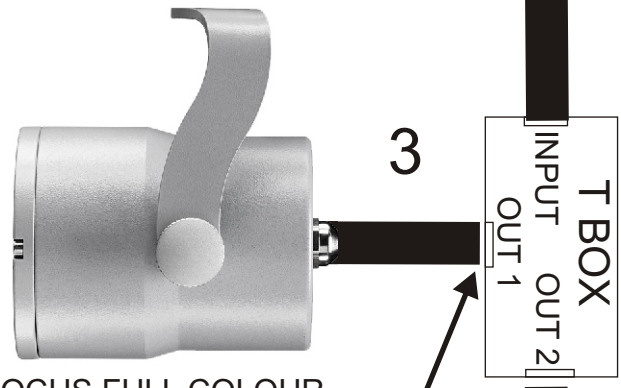


FOCUS FULL COLOUR

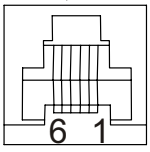
6-pin Male (RJ12)
Modular Plug



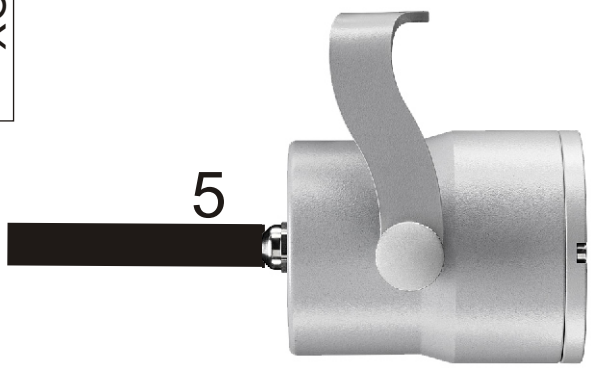
FOCUS FULL COLOUR



FOCUS FULL COLOUR



6-pin Female (RJ12)



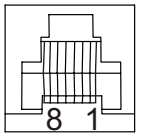
FOCUS FULL COLOUR

IMPORTANT:

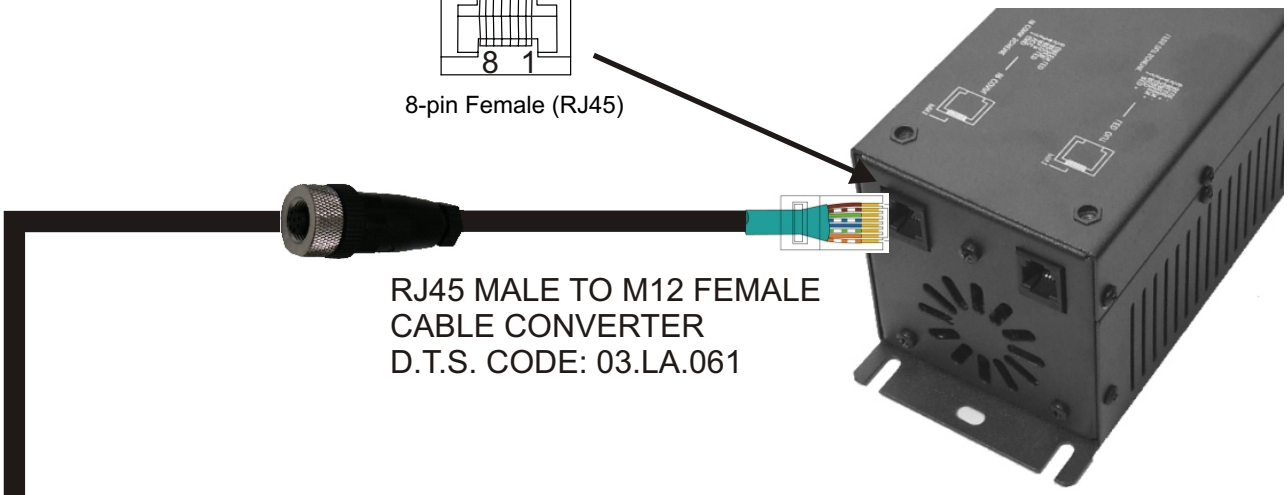
The maximum number of MR16 / FOCUS FULL COLOUR LED lamps connectable to the Z1 Power supply is 5 pcs.

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 plug in a new Mr16 / FOCUS lamp when the power supply is turned on.

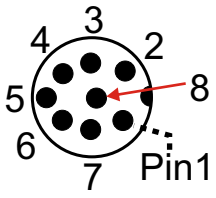


8-pin Female (RJ45)



RJ45 MALE TO M12 FEMALE
CABLE CONVERTER
D.T.S. CODE: 03.LA.061

M12 LED input
Male cable connector
on board:
FOS 100 all models



M12 MALE - FEMALE CABLE
CONNECTOR PINOUT

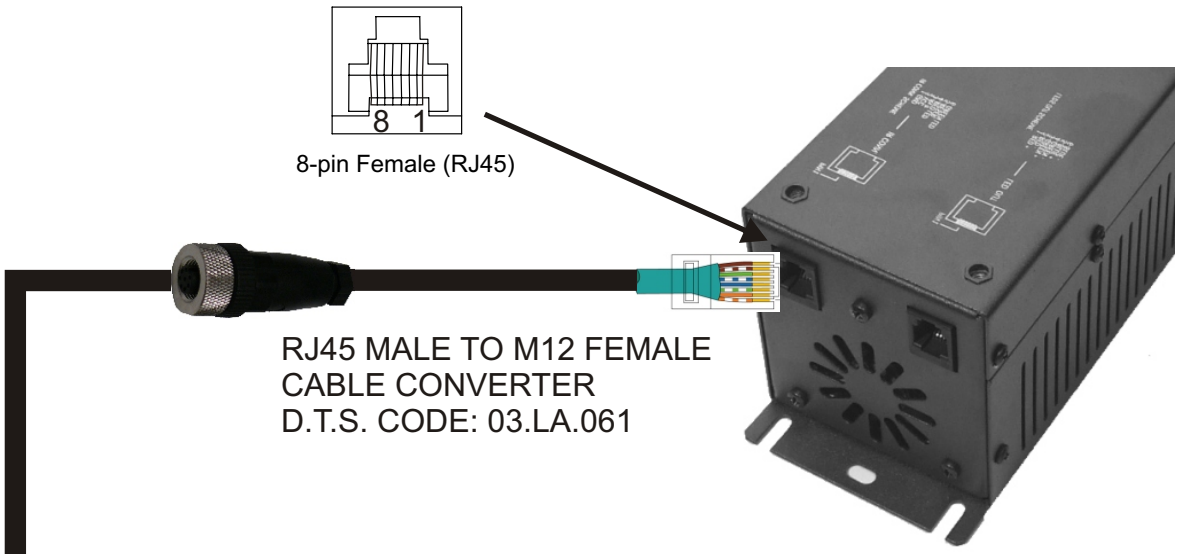
1-RED + (FC / RGBA / WHITE)
2-RED - (FC / RGBA / WHITE)
3-GREEN + (FC / RGBA / WHITE)
4-GREEN - (FC / RGBA / WHITE)
5-BLUE + (FC / RGBA / WHITE)
6-BLUE - (FC / RGBA / WHITE)
7-AMBER - (RGBA / WHITE)
8-AMBER + (RGBA / WHITE)

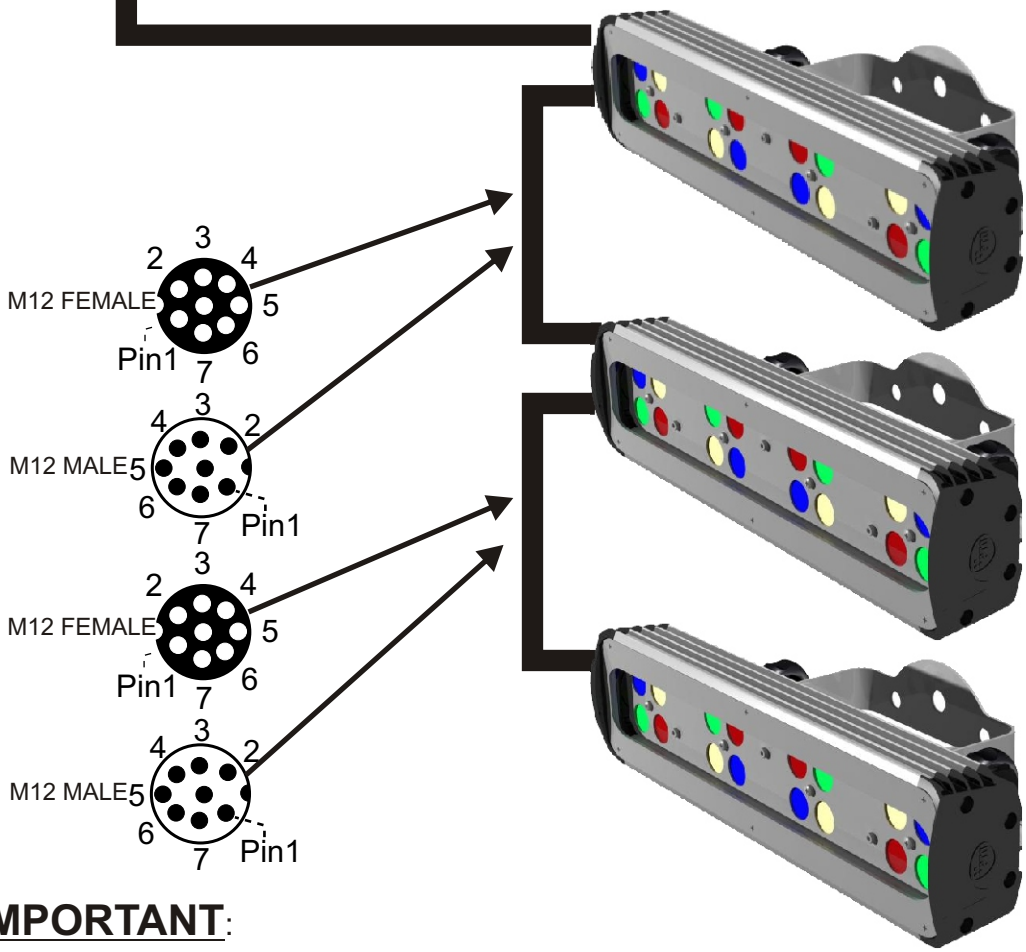
FOS 100 ALL MODELS

IMPORTANT:

The maximum number of FOS 100 connectable to the Z1 Power supply is 1 pcs.

Never plug in a FOS 100 unit when the power supply is turned on.





FOS 33 all models

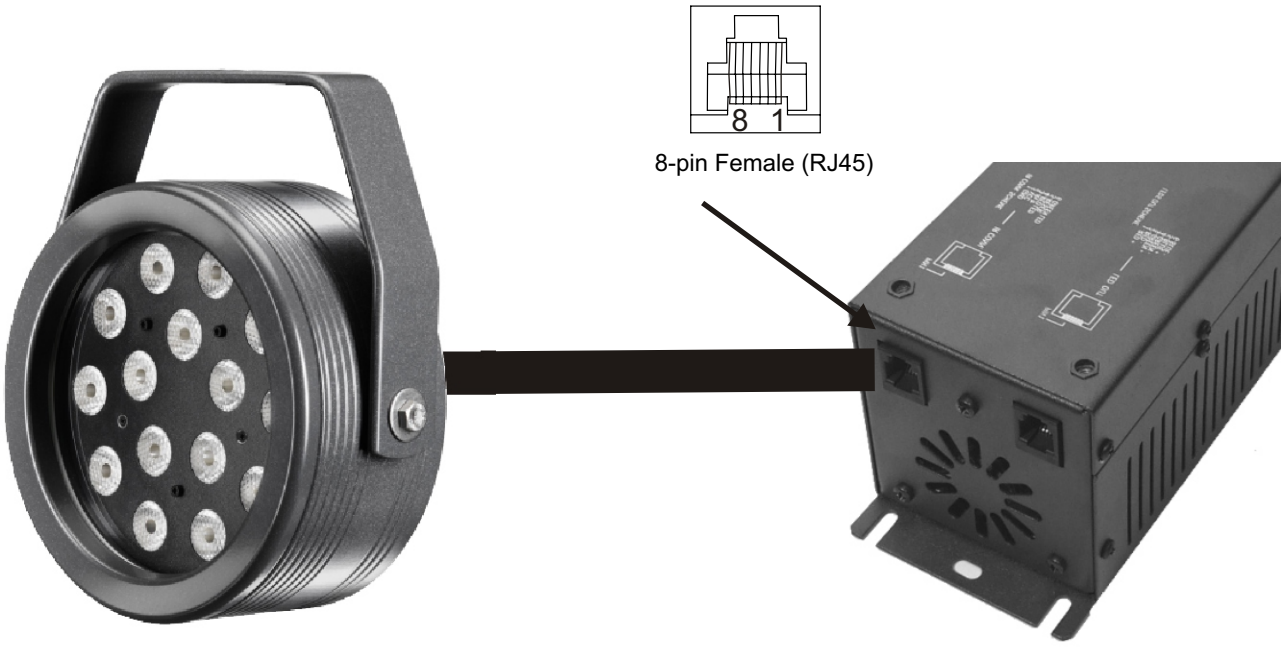
M12 MALE - FEMALE CABLE CONNECTOR PINOUT

1-RED + (FC / RGBA / WHITE)
2-RED - (FC / RGBA / WHITE)
3-GREEN + (FC / RGBA / WHITE)
4-GREEN - (FC / RGBA / WHITE)
5-BLUE + (FC / RGBA / WHITE)
6-BLUE - (FC / RGBA / WHITE)
7-AMBER - (RGBA / WHITE)
8-AMBER + (RGBA / WHITE)

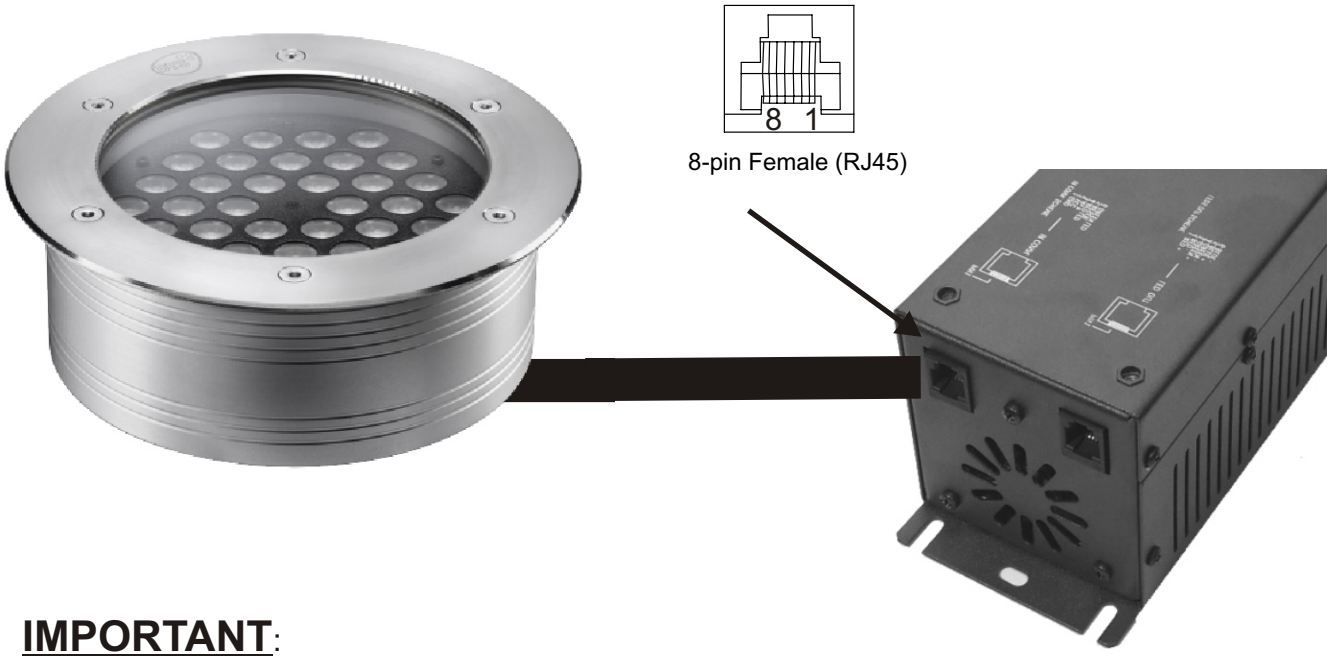
IMPORTANT:

The maximum number of FOS 33 FULL COLOUR / RGBA / WHITE+AMBER Led projector connectable to the Z1 power supply is 3 pcs.

Never plug in a new UNIT when the power supply is turned on.



HELIOS all models



IMPORTANT:

The maximum number of HELIOS LED PROJECTOR connectable to the Z1 Power supply is 1 pcs.

Never plug in a HELIOS unit when the power supply is turned on.

MADE IN ITALY CE

DTS

The Lighting Company

ISO 9001:2000
D.T.S. quality system
is certified to the
ISO 9001:2000 standard

D.T.S. products are designed
and manufactured at the D.T.S.
plants in Italy

PROUDLY MADE IN ITALY

0517I052

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