Z60 LED Controller

D.T.S. Code
03.LA.053.V2 (RJ12 OUTPUT)
03.LA.069.V2 (M12 3CH OUTPUT)
03.LA.076.V2 (PLUG-IN OUTPUT)

User's Manual Rel 2.0 **GB**

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

DTS
The Lighting Company

Made in **Italy**

DESCRIPTION

Overview

Z60 is a power supply / DMX LED controllers designed to control the following D.T.S. LED products:

FOCUS LED projectors, MR16 LED lamps , DIVE 3 FULL COLOUR, DIVE 9 RGB, DIVE 6 FULL COLOUR (2 Output needed), DIVE 18 RGB (2 Output needed)

System

Z60 is fitted with 20 groups of 3 output channels each;max power of each output is 18W, max power of each channel is 6W. (6W RED, 6W GREEN, 6W BLUE)
Each output can supply and control an independent set-up of D.T.S. LED products at the same time, like one of the following:
* max   3 x MR16 RGB LED lamps
* max   1 x MR16 Full Color LED lamps
* max   3 x FOCUS RGB LED projectors
* max   1 x FOCUS Full Color LED projectors
* max   1 x DIVE 3 FULL COLOUR
* max   1 x DIVE 9 RGB

DIVE 6 FULL COLOUR and DIVE 18 RGB need 2 x LEDs output to be properly driven.

Interface

Z60 is fitted with a LED interface that lets you enter all functions of the internal menu.

DMX

Z60 LED CONTROLLER can be used in 2 DMX mode: 60 ch 9 ch mode or CUSTOM channels mode.

Operating system update

Z60 internal operating system can be updated via computer, through the dedicated D.T.S. RED BOX interface

Control

Z60 can be controlled by any DMX console.

Construction

Z60 is housed in a sturdy metal case, that offers high resistance to knocks and mechanical stress. Z60 is rack mountable.
The protection rating against external agents is Ip20.

Connections

DMX IN / OUT connectors: 2 XLR 5-pole by Neutrik (03.LA.053.V2) / 2 XLR 5-pole by Neutrik and 2 XLR 3-pole by Neutrik (03.LA.076.V2 / 03.LA.069.V2)
LEDs connector output:
Three models available; RJ12 female connector (03.LA.053.V2) / 6 poles plug-in screw connector (03.LA.076.V2) / M12 3CH connector (03.LA.069.V2) .
(The Maximum distance between the Z60 and the last LED unit in the line should not exeed 100 meters).

MAIN ELECTRICAL CHARACTERISTICS

Input Voltage Range
Vin 90 - 260 Vac
Frequency
50 - 60 HZ
Power Consumption Range
32 - 400 W
Power Factor (Pf)
0.95 electronic PFC controller
Efficiency
90% typical

Output
Power Output Range : 20 outputs of 3 channels each
Max power of each output is 18W (6W per channel)
Max power of each channel is 6W (6W Red, 6W Green, 6W Blue)

Output Current : 350 mA @ 100% per channel (0 - 4,5W per channel)
420-500 mA @ 100% per channel in BOOST Mode (0 - 6W per channel)
Output Voltage : Vout 12V
Max Load per output : 3 x MR16 RGB LED lamps, 1 x MR16 Full Color LED lamps,
3 x FOCUS RGB LED projectors, 1 x FOCUS Full Color LED projectors, 1 x DIVE 3 FULL COLOUR
1 x DIVE 9 RGB.
DIVE 6 FULL COLOUR and DIVE 18 RGB need 2 x LEDs output to be properly driven.
Min Load (output) per 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 Z60.
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

UNIT DIMENSION

Unit Dimensions
(LxDxH)
480 x 385 x 88 mm

Weight
7,5 Kg

Packing Dimensions
(LxDxH)
490 x 390 x 90 mm

Weight
8,5 Kg
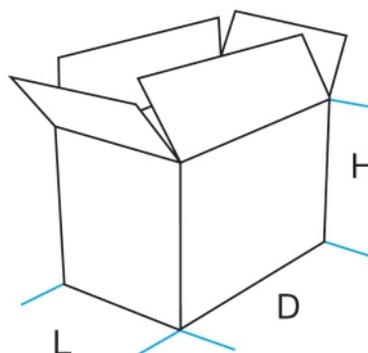
INPUT/OUTPUT CONNECTIONS

03.LA.053.V2 (RJ12 OUTPUT)

Mains Switch

Displays

Mains 90-260 Vac
50-60 Hz

20 x LEDs output
RJ12 Female panel connector

DMX IN-OUT connectors

1=GND
2=DATA-
3=DATA+
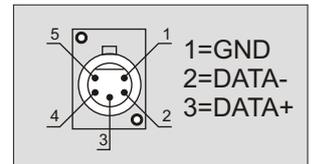
Pin 1 = RED +
Pin 2 = RED -
Pin 3 = GREEN +
Pin 4 = GREEN -
Pin 5 = BLUE +
Pin 6 = BLUE -
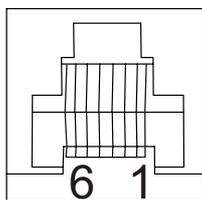
6-pin Female (RJ12)
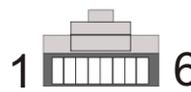
6-pin Male (Rj12)
Modular Plug

RJ12 : 6P6C

6P6C indicates 6 positions 6 cables

For application where IP65 rating is not necessary, Z60 LEDs cabling connection can be done with a standard UTP TIA/EIA 568-B2 category 5E cable.
The maximum distance between power supply and the last unit on the line should not exceed 100 meters.
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 power supply and the last unit on the line should not exceed 100 meters.

INPUT/OUTPUT CONNECTIONS

03.LA.076.V2 (PLUG-IN OUTPUT)

Mains Switch

Displays

Mains 90-260 Vac
50-60 Hz
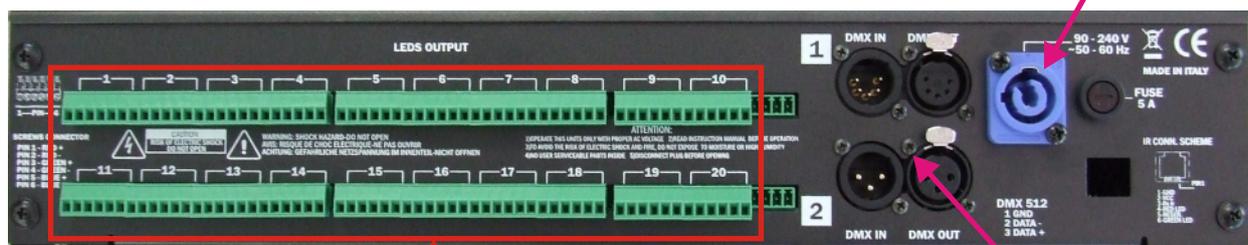
20 x LEDs output
6 poles plug-in screw connector

DMX IN-OUT connectors
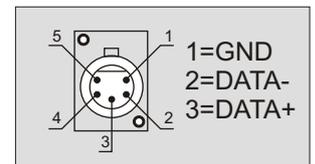
1=GND
2=DATA-
3=DATA+

Pin 1 = RED +
Pin 2 = RED -
Pin 3 = GREEN +
Pin 4 = GREEN -
Pin 5 = BLUE +
Pin 6 = BLUE -
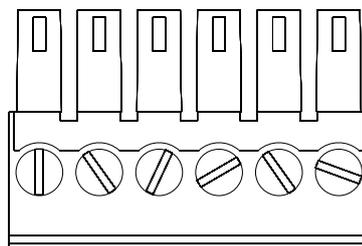
1----PIN----6

6 poles plug-in screw connector

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The maximum distance between power supply and the last unit on the line should not exceed 100 meters.
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The maximum distance between power supply and the last unit on the line should not exceed 100 meters.

INPUT/OUTPUT CONNECTIONS

03.LA.069.V2 (M12 3CH OUTPUT)

Mains Switch

Displays

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

DMX IN-OUT connectors

20 x LEDs output
M12 3CH Female panel connector
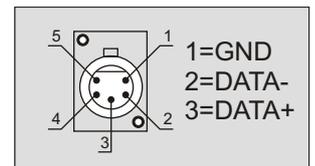
1=GND
2=DATA-
3=DATA+

Pin 1 = RED +
Pin 2 = RED -
Pin 3 = GREEN +
Pin 4 = GREEN -
Pin 5 = BLUE +
Pin 6 = BLUE -
Pin 7 = NOT CONNECTED
Pin 8 = NOT CONNECTED

M12 LED output
Female panel connector
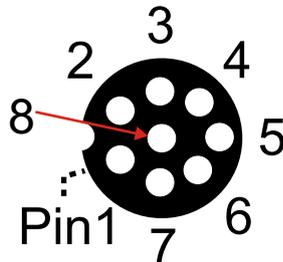
M12 LED input
Male cable connector
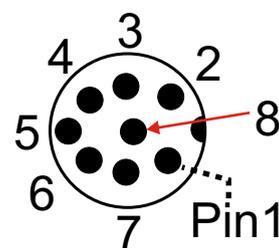
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The maximum distance between power supply and the last unit on the line should not exceed 100 meters.

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 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 Z60 plug and connect it to the next unit by connecting the DMX OUT plug on the first Z60 to the DMX IN plug of the second one.
This way, all the projectors are cascade connected.

Standard DMX 512 controller

1=GND
2=DATA-
3=DATA+

Standard DMX 512 controller

1=GND
2=DATA-
3=DATA+
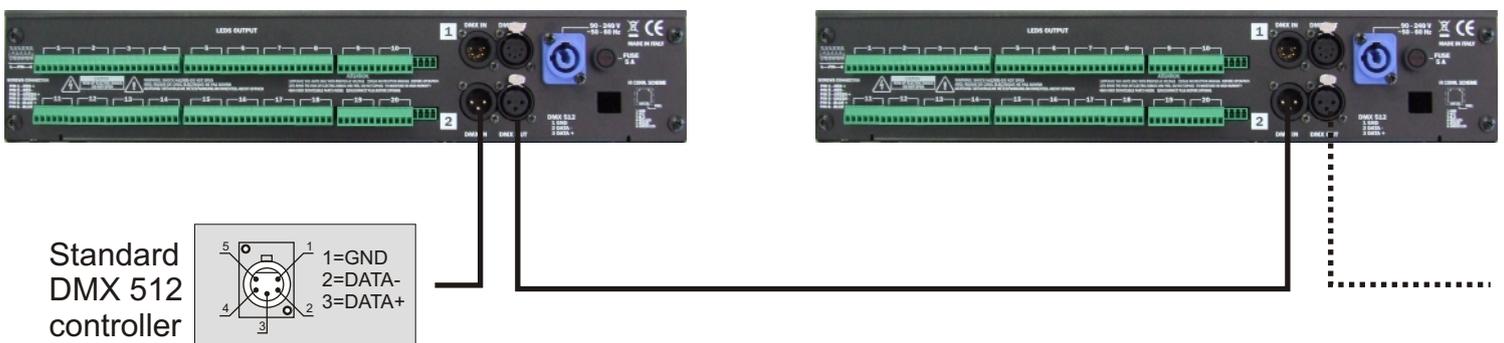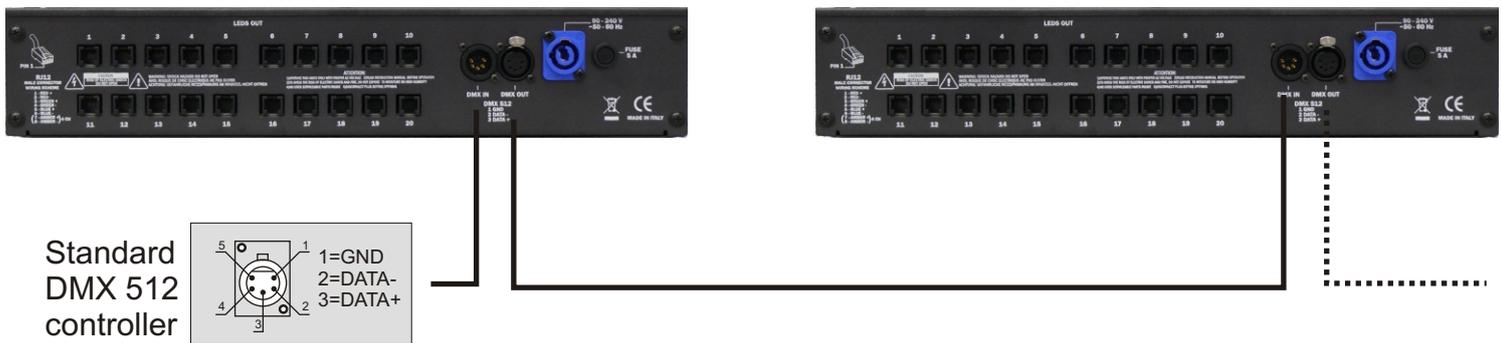
P.S:

 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.

OUT
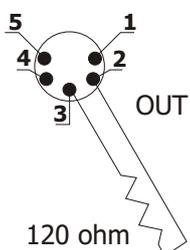
120 ohm

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

PIN 3

PIN 2
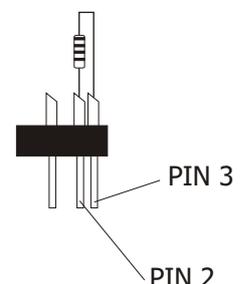
DMX ADDRESS

Z60 LED CONTROLLER can be used in 3 DMX mode: 60 ch, 9 ch mode or CUSTOM channels mode.

If you want to use the Z60   in 60 channels mode, select the 60 CH mode from the MODE menu and set the following addresses on the mixer:

Projector 1   A001
Projector 2   A0061
Projector 3   A0121
.....   A….
projector 6   A301

If you want to use the Z60 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

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

Z60 LED CONTROLLER

03.LA.053.V2 (RJ12 OUTPUT)
03.LA.069.V2 (M12 3CH OUTPUT)
03.LA.076.V2 (PLUG-IN OUTPUT)

DFP Digital Function Panel

Z60 LED DRIVER V.1.40

A001

DMX MODE-------->FULL

menu　　enter　　down　　up

MENU
ENTER
DOWN
UP
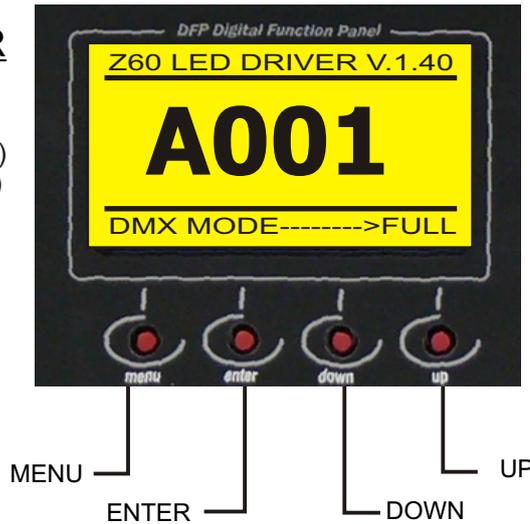
DISPLAY FUNCTIONS

The Z60 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.

Z60 Software version 1.40

👉 👉 Global setting　👉 👉
Menu Up-Down　　　　ENTER Up-Down

DEFAULT SETTING\ UPLOAD FIRMWARE\
 DOWNLOAD FIRMWARE\ ABOUT

GLOBAL SETTING

DEFAULT SETTING
To restore main 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

ABOUT
Master pcb code, pcb revision, SW version

2.GLOBAL SETTING
1.Default settings
2.Upload firmware
3.Download firmware
4.About...

DEFAULT SETTING　👉 ENTER
To restore Factory settings

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

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

ABOUT
Master pcb code, pcb revision, SW version

👉 ENTER

👉 👉 Display Setting   👉 👉
Menu Up-Down   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 COLOR
To select the colour of the display background

CONTRAST LEVEL
Display contrast

SCREEN SAVER
This menu allow to activate the screen saver.

**DISPLAY
SETTING**

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

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

BACKGROUND COLOR   👉
          ENTER
Background NORMAL (Default)
Background REVERSE

CONTRAST LEVEL   👉
          ENTER
Page under construction

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

👉 👉 Mode setting   👉 👉
Menu Up-Down   ENTER Up-Down

DMX MODE
To select DMX mode :
30 DMX ch, 9 DMX channel or
Custom map control.

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

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
SETTING**

3. MODE SETTING
1. DMX mode
2. Custom mode setup
3. InfraRed mode
4. Emergency setup

DMX MODE MAP   👉
          ENTER
Full control map = 60 DMX ch (default)
Z1 type map = 9 DMX ch mode
Custom map = DMX mode channels
configuration programmed by user under
Custom mode setup menu

CUSTOM MODE SETUP
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,
20 output blocks in total.
(Example: block 1 DMX 001, block 2 DMX
006, Block 3 DMX 011....)
Clear block setup = DMX starting address
reset.

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 settings
Dimmer level = 0-255 (default = 255)

👉 👉 LED Setup
Menu Up-Down

👉 👉
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

LED MAX SETUP
This menu allow to select the maximum levels for Red, Green, Blue and Amber

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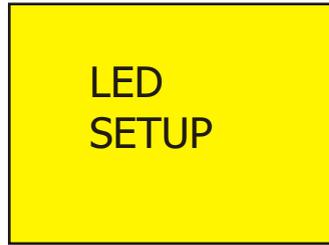
```
4.LED SETUP
1.Hardware test
2.Led MIN setup
3.Led MAX setup
4.MR16 full colour
5.Output filter
```

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

HARDWARE TEST
Hardware test OFF (default)
Hardware test ON

👉 ENTER

LED MIN SETUP

👉 ENTER

MIN level RED (default = 0)
MIN level GREEN (default = 0)
MIn level BLUE (default = 0)
MIN level AMBER (default = 0)

LED MAX SETUP

👉 ENTER

MAX level RED (default = 255)
MAX level GREEN (default = 255)
MAX level BLUE (default = 255)
MAX level AMBER (default = 255)

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

👉 ENTER

OUTPUT FILTER
Output filter OFF
Output filter ON (Default)

👉 ENTER

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

👉 ENTER

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

👉 ENTER

👉 👉 Measure 👉 👉
Menu Up-Down   ENTER Up-Down

Lifetime\ voltage level \ temperature

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

VOLTAGE LEVEL
Internal voltage measure

TEMPERATURE
Internnal / External temperature
measure
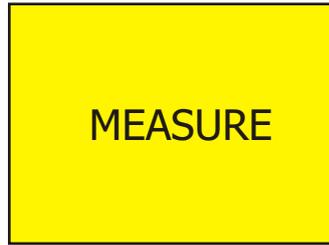
MEASURE

```
5.MEASURE
1.Lifetime
2.Voltage level
3.Temperature
4.DMX tester
```

LIFETIME   👉
Unit lifetime   ENTER
LED Lifetime

VOLTAGE LEVEL   👉
Internal voltage measure   ENTER

TEMPERATURE   👉
Internal / External temperature measure ENTER

👉
ENTER

DMX PROTOCOL

Z60 RGB

**60 CHANNELS
MODE (Default)**

1	RED	1	21	BLUE	7	41	GREEN	14
2	GREEN	1	22	RED	8	42	BLUE	14
3	BLUE	1	23	GREEN	8	43	RED	15
4	RED	2	24	BLUE	8	44	GREEN	15
5	GREEN	2	25	RED	9	45	BLUE	15
6	BLUE	2	26	GREED	9	46	RED	16
7	RED	3	27	BLUE	9	47	GREEN	16
8	GREED	3	28	RED	10	48	BLUE	16
9	BLUE	3	29	GREEN	10	49	RED	17
10	RED	4	30	BLUE	10	50	GREEN	17
11	GREEN	4	31	RED	11	51	BLUE	17
12	BLUE	4	32	GREEN	11	52	RED	18
13	RED	5	33	BLUE	11	53	GREEN	18
14	GREEN	5	34	RED	12	54	BLUE	18
15	BLUE	5	35	GREED	12	55	RED	19
16	RED	6	36	BLUE	12	56	GREEN	19
17	GREED	6	37	RED	13	57	BLUE	19
18	BLUE	6	38	GREEN	13	58	RED	20
19	RED	7	39	BLUE	13	59	GREEN	20
20	GREEN	7	40	RED	14	60	BLUE	20

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: **GREEN**1

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: **RED 2**			

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

DMX CHANNEL	5	Parameter: **GREEN 2**			

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

DMX CHANNEL	6	Parameter: **BLUE 2**			

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

DMX CHANNEL	7	Parameter: **RED 3**			

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

DMX CHANNEL	8	Parameter: **GREEN 3**			

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

DMX CHANNEL	9	Parameter: **BLUE 3**			

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

DMX CHANNEL	10	Parameter: **RED 4**

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

DMX CHANNEL	11	Parameter: **GREEN 4**

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

DMX CHANNEL	12	Parameter: **BLUE 4**

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

DMX CHANNEL	13	Parameter: **RED 5**

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

DMX CHANNEL	14	Parameter: **GREEN 5**

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

DMX CHANNEL	15	Parameter: **BLUE 5**

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

DMX CHANNEL	**16**	Parameter: **RED 6**

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

DMX CHANNEL	**17**	Parameter: **GREEN 6**

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

DMX CHANNEL	**18**	Parameter: **BLUE 6**

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

DMX CHANNEL	**19**	Parameter: **RED 7**

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

DMX CHANNEL	**20**	Parameter: **GREEN 7**

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

DMX CHANNEL	**21**	Parameter: **BLUE 7**

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

DMX CHANNEL	22	Parameter: **RED 8**

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

DMX CHANNEL	23	Parameter: **GREEN 8**

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

DMX CHANNEL	24	Parameter: **BLUE 8**

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

DMX CHANNEL	25	Parameter: **RED 9**

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

DMX CHANNEL	26	Parameter: **GREEN 9**

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

DMX CHANNEL	27	Parameter: **BLUE 9**

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

DMX CHANNEL	**28**	Parameter: **RED 10**

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

DMX CHANNEL	**29**	Parameter: **GREEN 10**

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

DMX CHANNEL	**30**	Parameter: **BLUE 10**

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

DMX CHANNEL	**31**	Parameter: **RED 11**

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

DMX CHANNEL	**32**	Parameter: **GREEN 11**

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

DMX CHANNEL	**33**	Parameter: **BLUE 11**

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

DMX CHANNEL	34	Parameter: **RED 12**

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

DMX CHANNEL	35	Parameter: **GREEN 12**

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

DMX CHANNEL	36	Parameter: **BLUE 12**

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

DMX CHANNEL	37	Parameter: **RED 13**

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

DMX CHANNEL	38	Parameter: **GREEN 13**

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

DMX CHANNEL	39	Parameter: **BLUE 13**

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

DMX CHANNEL	40	Parameter: **RED 14**			

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

DMX CHANNEL	41	Parameter: **GREEN 14**			

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

DMX CHANNEL	42	Parameter: **BLUE 14**			

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

DMX CHANNEL	43	Parameter: **RED 15**			

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

DMX CHANNEL	44	Parameter: **GREEN 15**			

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

DMX CHANNEL	45	Parameter: **BLUE 15**			

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

DMX CHANNEL	46	Parameter: **RED 16**

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

DMX CHANNEL	47	Parameter: **GREEN 16**

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

DMX CHANNEL	48	Parameter: **BLUE 16**

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

DMX CHANNEL	49	Parameter: **RED 17**

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

DMX CHANNEL	50	Parameter: **GREEN 17**

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

DMX CHANNEL	51	Parameter: **BLUE 17**

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

DMX CHANNEL	52	Parameter: **RED 18**			

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

DMX CHANNEL	53	Parameter: **GREEN 18**			

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

DMX CHANNEL	54	Parameter: **BLUE 18**			

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

DMX CHANNEL	55	Parameter: **RED 19**			

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

DMX CHANNEL	56	Parameter: **GREEN 19**			

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

DMX CHANNEL	57	Parameter: **BLUE 19**			

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

DMX CHANNEL	**58**	Parameter: **RED 20**

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

DMX CHANNEL	**59**	Parameter: **GREEN 20**

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

DMX CHANNEL	**60**	Parameter: **BLUE 20**

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

DMX PROTOCOL

9 CHANNELS MODE

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)**			

WIRING DIAGRAMS

Z60 is available in 3 version with different LED output connectors:
RJ12 female connectors (03.LA.053.V2), 6 poles plug-in screw connectors (03.LA.076.v2) and M12 3CH connector (03.LA.069.V2) .

RJ12 Female
panel connector
on board :
Z60 LED
CONTROLLER
(03.LA.053)
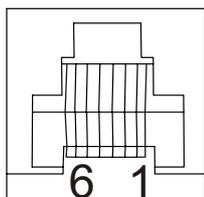
RJ12 LED input
male cable connector
on board :
Focus, Helios,
MR16 led lamps
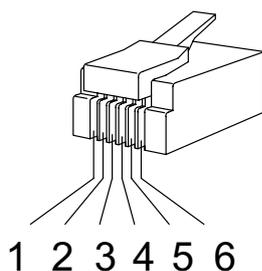
LEDS
CONNECTOR PINOUT (Rj12)

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

6-pin Female (RJ12)

1 2 3 4 5 6

6 poles plug-in
screw connector
on board :
Z60 LED
CONTROLLER
(03.LA.076)
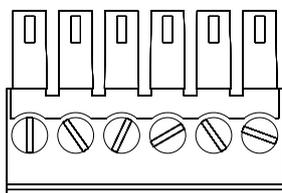
LEDS
CONNECTOR PINOUT
6 poles plug-in
screw connector

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

1-----PIN-----6

6 poles plug-in screw connector

M12 3CH LED output
Female panel connector
on board :
Z60 LED
CONTROLLER
(03.LA.069.V2)
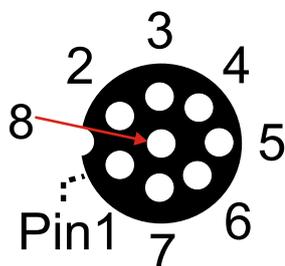
M12 3CH LED input
Male cable connector
mountable **on request**
on:
FOCUS RGB LED projectors
FOCUS Full Color LED projectors
DIVE 3 / 6 FULL COLOUR
DIVE 9 / 18 RGB
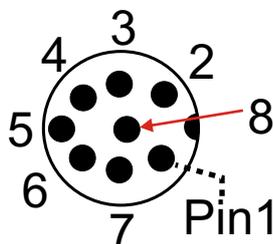
LEDS
CONNECTOR PINOUT (M12 3CH)

Pin 1 = RED +
Pin 2 = RED -
Pin 3 = GREEN +
Pin 4 = GREEN -
Pin 5 = BLUE +
Pin 6 = BLUE -
Pin 7 = NOT CONNECTED
Pin 8 = NOT CONNECTED

LED UNITS WIRING CONNECTION
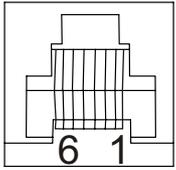
03.LA.053.V2 (RJ12 OUTPUT)
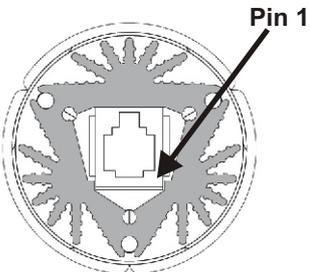
6-pin Female (RJ12)

6-pin Female (RJ12)

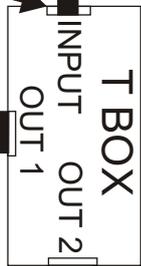6-pin Female (RJ12)

1

R G B

MR16 RGB

2

R G B

MR16 RGB

6-pin Female (RJ12)

3

R G B

MR16 RGB

Pin 1

6-pin Male (RJ12)
Modular Plug
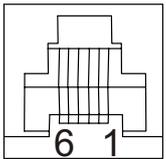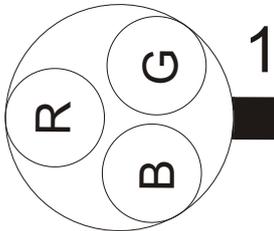
T BOX
INPUT OUT 1 OUT 2
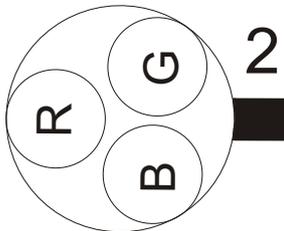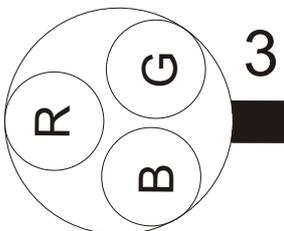
T BOX
INPUT OUT 1 OUT 2

LEDs OUT 5
LEDs OUT 4
LEDs OUT 3

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

INPUT   **OUT 2**

OUT 1

IMPORTANT:

The maximum number of MR16 / FOCUS RGB LED lamps connectable to each Z60 LEDs output is 3 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 Z60 and the last MR16 unit in the line should not exceed 100 meters

LED UNITS WIRING CONNECTION

03.LA.053.V2 (RJ12 OUTPUT)

6 1
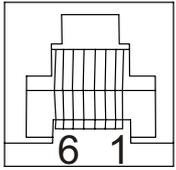
6-pin Female (RJ12)

LEDs OUT 5

FOCUS FULL COLOUR

DIVE3 FULL COLOUR R
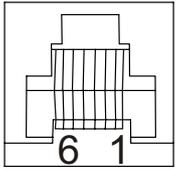
DIVE9 RGB R

DIVE9 RGB

IMPORTANT:

The maximum number of MR16 / FOCUS FULL COLOUR LED lamps, DIVE 3 FULL COLOUR, DIVE 9 RGB connectable to each Z60 LEDs output is 1 pcs.

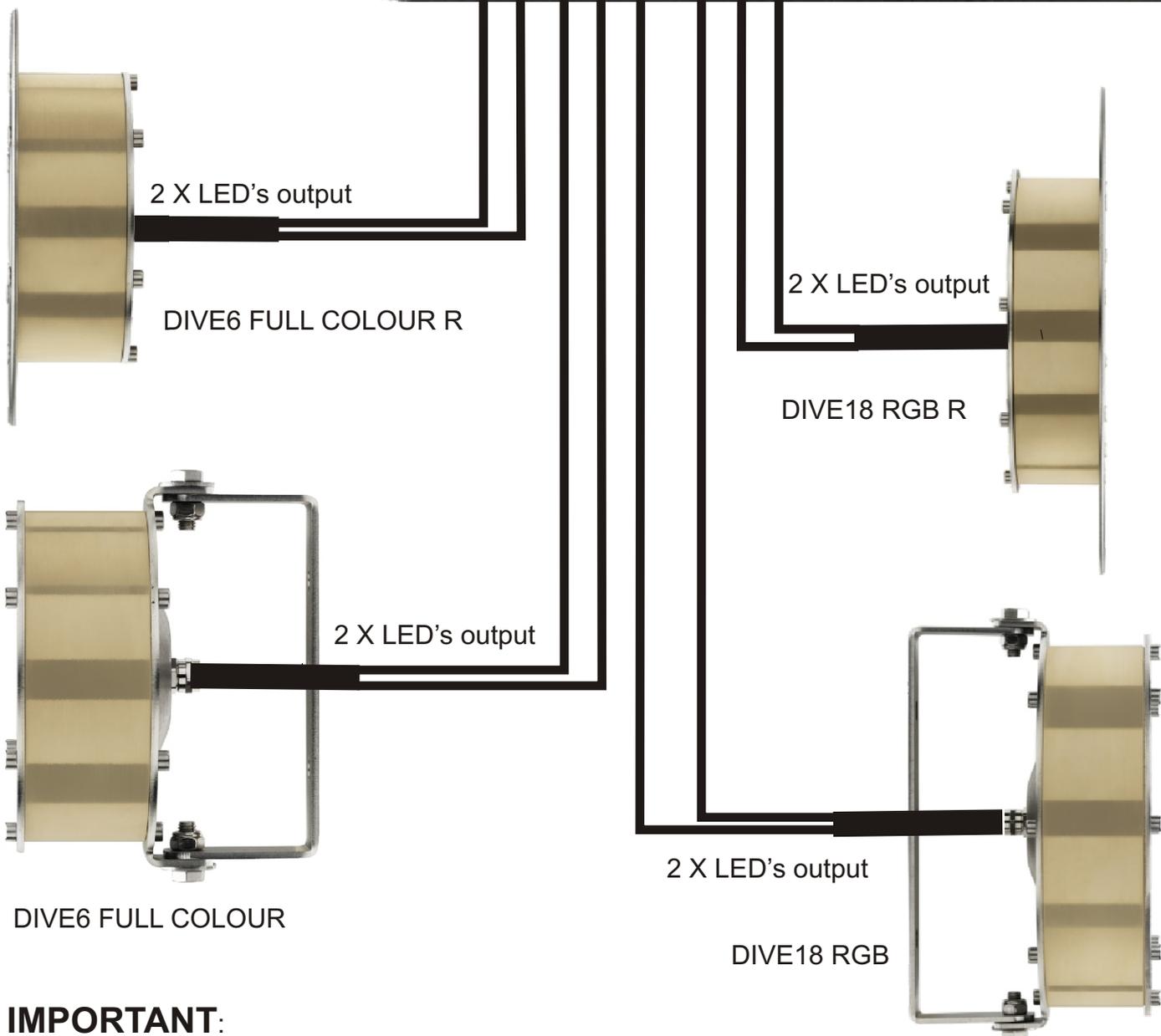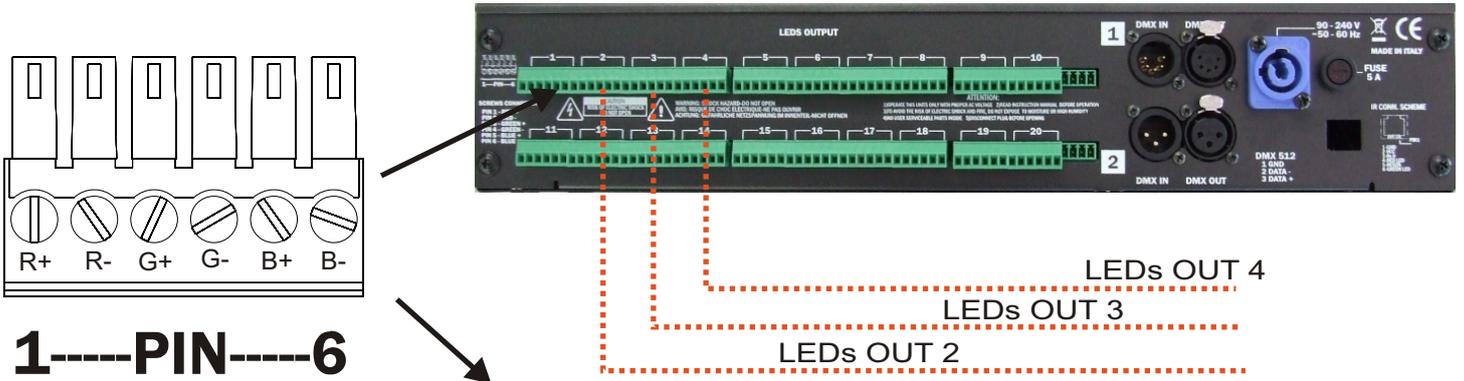**NEVER CONNECT NOR DISCONNECT A NEW UNIT WHEN THE POWER SUPPLY IS TURNED ON.**

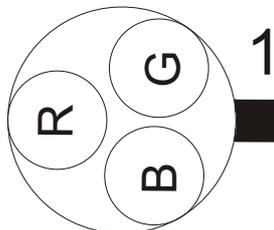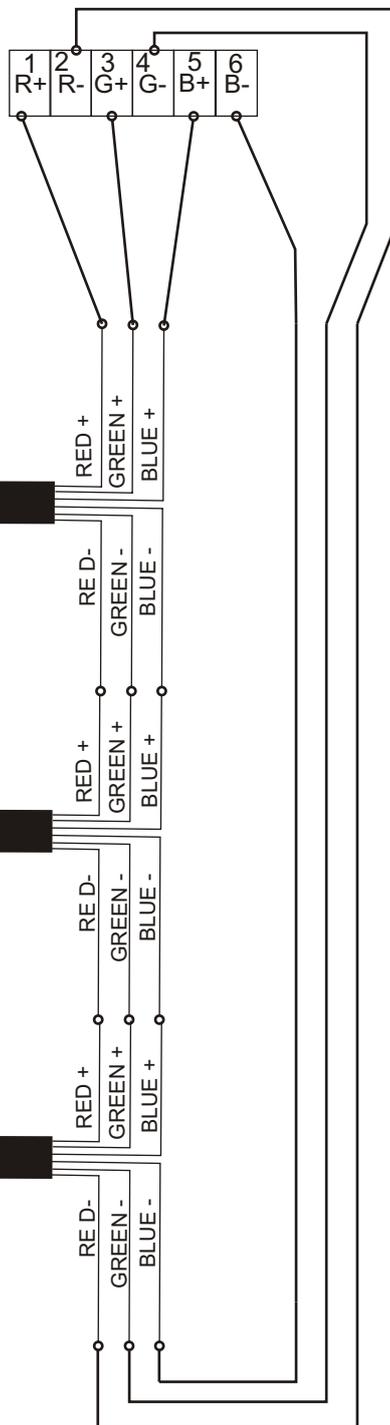The Maximum distance between the Z60 and the LEDs unit in the line should not exceed 100 meters

LED UNITS WIRING CONNECTION

03.LA.053.V2 (RJ12 OUTPUT)

6   1

6-pin Female (RJ12)

2 X LED's output

DIVE6 FULL COLOUR R

2 X LED's output

DIVE18 RGB R

2 X LED's output

2 X LED's output

DIVE6 FULL COLOUR

DIVE18 RGB

IMPORTANT:

DIVE6 FULL COLOUR and DIVE18 RGB unit are provided with 2 separeted LED's input lines.
DIVE6 FULL COLOUR and DIVE18 RGB unit need 2 x Z60 LED's output each.

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

The Maximum distance between the Z60 and the LEDs unit in the line should not exceed 100 meters

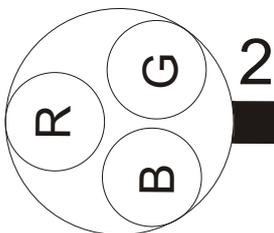## LED UNITS WIRING CONNECTION

03.LA.076.V2 (PLUG-IN OUTPUT)

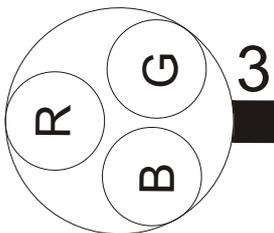R+   R-   G+   G-   B+   B-

1----PIN----6

LEDs OUT 4
LEDs OUT 3
LEDs OUT 2

LEDS OUTPUT

1	2	3	4	5	6
R+	R-	G+	G-	B+	B-

RED +   GREEN +   BLUE +

RE D-   GREEN -   BLUE -

R   G   B   **1**

MR16 RGB

RED +   GREEN +   BLUE +

RE D-   GREEN -   BLUE -

R   G   B   **2**

MR16 RGB

RED +   GREEN +   BLUE +

RE D-   GREEN -   BLUE -

R   G   B   **3**

MR16 RGB

IMPORTANT:

The maximum number of MR16 / FOCUS RGB LED lamps connectable to each Z60 LEDs output is 3 pcs.

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

The Maximum distance between the Z60 and the last MR16 unit in the line should not exceed 100 meters
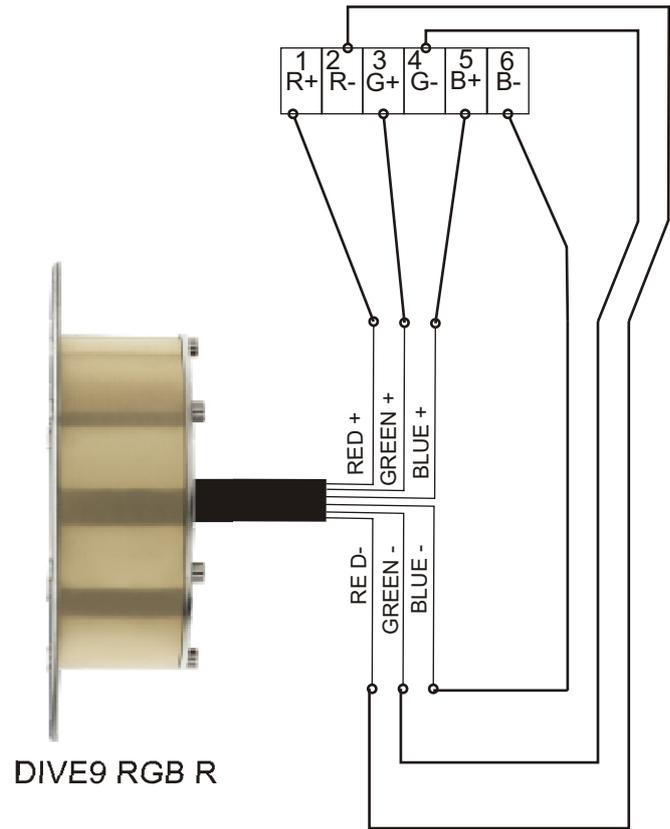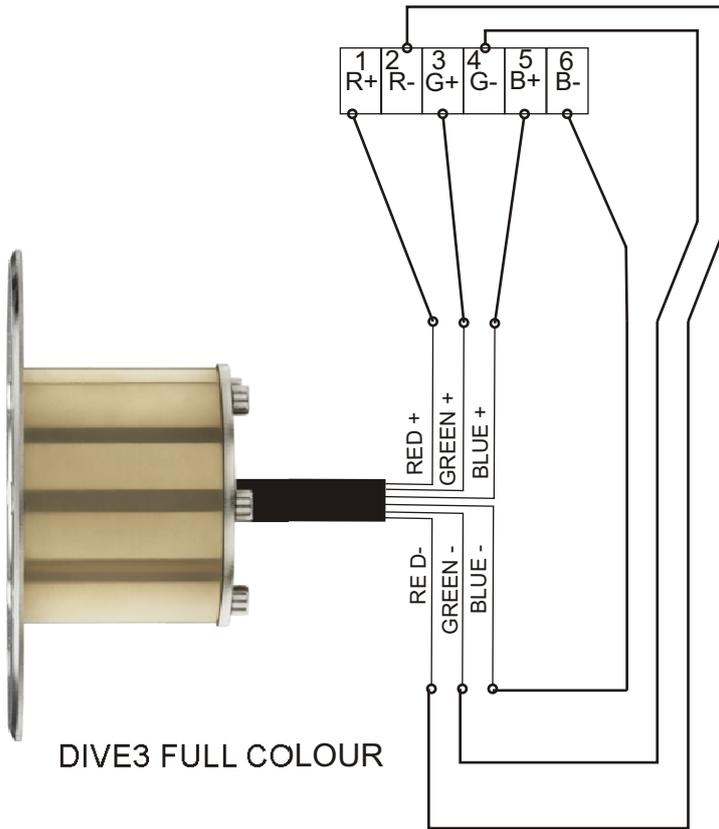
LED UNITS WIRING CONNECTION

03.LA.076.V2 (PLUG-IN OUTPUT)

R+   R-   G+   G-   B+   B-

1----PIN----6

LEDs OUT 4

LEDs OUT 3

LEDS OUTPUT 1

1	2	3	4	5	6
R+	R-	G+	G-	B+	B-

RED +   GREEN +   BLUE +

RE D-   GREEN -   BLUE -

DIVE3 FULL COLOUR

LEDS OUTPUT 2

1	2	3	4	5	6
R+	R-	G+	G-	B+	B-

RED +   GREEN +   BLUE +

RE D-   GREEN -   BLUE -

DIVE9 RGB R

IMPORTANT:

The maximum number of MR16 / FOCUS FULL COLOUR LED lamps, DIVE 3 FULL COLOUR, DIVE 9 RGB connectable to each Z60 LEDs output is 1 pcs.

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

The Maximum distance between the Z60 and the LEDs unit in the line should not exceed 100 meters

LED UNITS WIRING CONNECTION

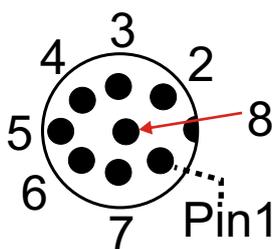03.LA.069.V2 (M12 3CH OUTPUT)
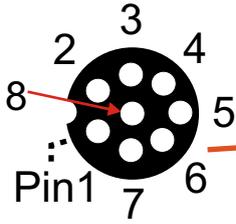
M12 3CH LED output
Female panel connector

FOCUS FULL COLOUR

DIVE 3 FULL COLOUR R

DIVE 9 RGB R

LEDs OUT 20

LEDs OUT 16

IMPORTANT:

The maximum number of MR16 / FOCUS FULL COLOUR LED lamps, DIVE 3 FULL COLOUR, DIVE 9 RGB connectable to each Z60 LEDs output is 1 pcs.

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

The Maximum distance between the Z60 and the LEDs unit in the line should not exceed 100 meters

DIVE18 RGB

2 X LED's output

M12 3CH LED input
Male cable connector
mountable **on request**
on board:
FOCUS RGB LED projectors
FOCUS Full Color LED projectors
DIVE 3 / 6 FULL COLOUR
DIVE 9 / 18 RGB

Pin 1 = RED +
Pin 2 = RED -
Pin 3 = GREEN +
Pin 4 = GREEN -
Pin 5 = BLUE +
Pin 6 = BLUE -
Pin 7 = NOT CONNECTED
Pin 8 = NOT CONNECTED

DIVE 6 FULL COLOUR and DIVE 18 RGB unit are provided with 2 separeted LED's input lines.
DIVE 6 FULL COLOUR and DIVE 18 RGB unit need 2 x Z60 LED's output each.

MADE IN ITALY $C\varepsilon$

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 ·

0517I153