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# SPLITTERS

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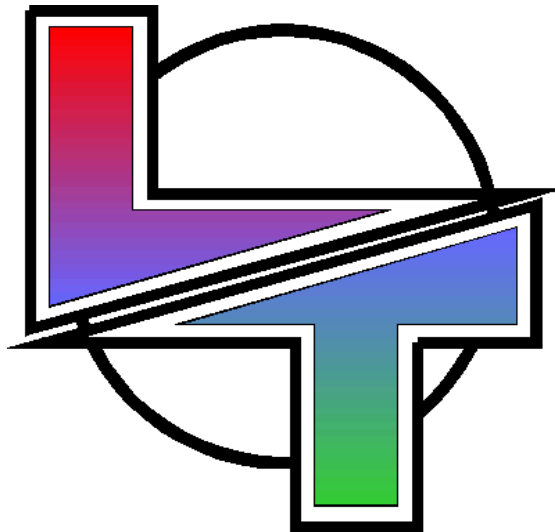
[www.lt-light.com](http://www.lt-light.com)

## DMX SIGNAL BUFFERS

STANDARD: 1 IN x 8 OUT

PLUS: 2 IN x 3 OUT

TRUSS: 1 IN x 4 OUT



## USER MANUAL



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2/14 **SPLITTER**

**PRESENTATION**

The objective of a **SPLITTER** is:

- The distribution of a control line in several control lines.
- The optical isolation of the input control line with the output control lines, and among the output control lines.
- The amplification of the signal in the output lines to restore their levels.

The distribution, isolation and amplification of DMX control lines permit us:

- Increase the length of the control lines.
- Increase the DMX receptors number connected in the installation.
- Distribute and isolate the DMX receptors, and with them, the possible problems of the control lines.

The security of one installation increases with the number of used isolation lines.

**LT** has different models and configurations of **SPLITTERS**:

<b>MODELS</b>	<b>Inputs DMX</b>	<b>Outputs DMX by input</b>	<b>In short</b>
<b>SPLITTER</b>	1 IN	8 OUT	1 IN x 8 OUT
<b>SPLITTER PLUS</b>	2 IN	3 OUT	2 IN x 3 OUT
<b>SPLITTER TRUSS</b>	1 IN	4 OUT	1 IN x 4 OUT

The **SPLITTER** & **SPLITTER PLUS** models are designed to be installed in a standard rack (19”), and both can be configured with their connections in the frontal or rear panel.

The **SPLITTER TRUSS** model is designed to be mounted in the rig.



SPLITTER 1IN X 8 OUTS (Frontal panel connectors)

#### 4/14 SPLITTER



SPLITTER  
1IN X 8 OUTS  
(Rear panel connectors)



SPLITTER PLUS 2 IN X 3 OUTS (Frontal panel connectors)



SPLITTER PLUS  
2 IN X 3 OUTS  
(Rear panel connectors)



**SPLITTER 5/14**



SPLITTER TRUSS 1 IN X 4 OUTS

## 6/14 SPLITTER

# TECHNICAL CHARACTERISTICS

## MAIN SUPPLY

Voltage: 230V~

Frequency: 50/60 Hz.

Nominal intensity: 150 mA.

Protection: 2 x 1 A/250V fuses, type F.

The **Splitter** and **Splitter Plus** have a Main Supply switcher.

## ENVIRONMENT

Working temperature: -40°C to 85°C

Humidity (without condensation): 80 %

## OVER-VOLTAGE CATEGORY

CAT II.

## FUNCTIONALITY

All models:

Isolation voltage of input-output: 2500 Vrms / 1minute (UL1577 CSA).

The power supply of the signal input section and the each one of the 6 sections of signal output is totally independent.

By model:

CHARACTERISTIC	SPLITTER	SPLITTER PLUS	SPLITTER TRUSS
Input of DMX512 (1990) signal or any other RS485 protocol.	1 IN	2 IN	1 IN
Output amplified, copy of the input signal, without isolation.	1 TRHU	2 THRU	1 THRU
Output amplified and isolated, copy of the input signal.	8 OUT	3 OUT (by input)	4 OUT

Each input (IN) and output (OUT) has associated a **green LED** for supply status.

Each input (IN) has associated a **red LED** to check the input signal activity.

Each output (OUT) has associated a **red LED** to check the output signal activity.

## **SIZE**

By model:

<b>MEASURE</b>	<b>SPLITTER</b>	<b>SPLITTER PLUS</b>	<b>SPLITTER TRUSS</b>
wide	19" (483 mm)	19" (483 mm)	160 mm
high	1 U rack (44 mm)	1 U rack (44 mm)	290 mm
deep	210 mm	210 mm	60 mm
weight	4.2 kg	4.2 kg	2.1 kg

The **SPLITTER TRUSS** included a standard pipe clamp for 50mm tube:

## **CONNECTIONS**



Each connection is clearly labeled, and they can be in the rear or frontal panel (depending of the model).

## **MAIN SUPPLY**

IEC base for 85-265V~ / 50-60 Hz. Use homologated main cable with ground lead. The main supply is protected with 2 x 1A fuses type F.

**Splitter Truss** hasn't Main power Switch.

**Splitter** and **Splitter Plus** has a Main power switch, always placed in the frontal panel.

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### DMX SIGNAL

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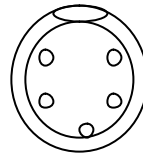
**DMX OUT:** The DMX outputs use a standard XLR-5 female connector.  
Each output is amplified and isolated (optically).  
With polaritation resistor and protection diodes.

**DMX IN:** The DMX inputs use a standard XLR-5 male connector.  
With polaritation resistor and protection diodes.

**DMX THRU:** The DMX links use a standar XLR-5 female connector.  
Each THRU has a by-pass relay. These relay connects phisically the input with the THRU connection when the unit is turned off (in this case, this THRU connection is not amplified).  
With polaritation resistor and protection diodes.

#### DMX connectors code:

Pin 1 : 0 Vref.  
Pin 2 : Data -  
Pin 3 : Data +  
Pin 4 & 5 : N.C.



Use data cable to RS485 transmission, of 120 ohms of impedance. The cable must be formed a minimum of twister pair and the protection shield. Connect the Data+ & Data- in the same twister pair, and the 0 Vref to the protection shield. Don't use audio cables.



Remember:

Don't connect more of 32 DMX receptors by line.

Don't use cables longer than 500m.

Close the line with a ended impedance: 120  $\Omega$  resistor connected between the 2 & 3 pins of the last THRU connector.

## **INSTALLATION**

The **Splitter** is provided ready to use, and it doesn't need adjust.

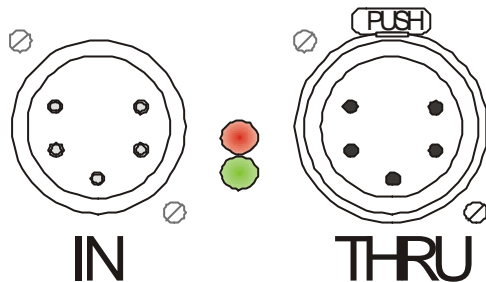
- Take out the Splitter of its transport case. Inside this case you must find: The Splitter, its user manual and the guaranty sheet. If you observe some transport anomaly (blow, humidity), don't try start up the Splitter and follow the usual procedure to resolve this type of problems.
- SPLITTER & SPLITTER PLUS
  1. Place the equipment in a plane surface, or fix it to a standard rack.
  2. Keep accessible the mains supply switcher and keep visible the status LEDs.
  3. Keep free and clean the vent.
- SPLITTER TRUSS
  1. Place the equipment in a plane surface, or fix it to the rig structure checking the security of its placing. The Splitter Truss can operate in any position.
  2. It is recommended keep visible the status LEDs.
- Connect the DMX signal cables to use.
- Connect the main supply cable checking that this has ground lead. If the equipment (specially the Splitter Truss) is not a easy access, it is need to identify its connection plug in the socket as disconnection system.
- Turn on the equipment (Main supply switcher: **I** position)

**Note:** Don't expose the equipment to drop or dash, and don't place on the equipment objects with liquids.

The Splitter now is operating!

## **OPERATION**

2 connector, IN & THRU, compose the input section:



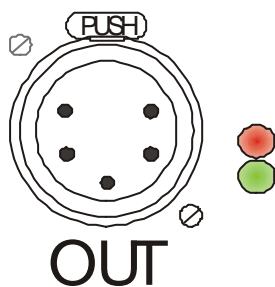
When the equipment is turned on, the green LED of the input section is at ON. This LED shows us that the power supply of the input section is correct.

When a DMX signal is connected in the IN connector, the red LED is blinking. This LED shows us the input signal activity when is blinking. This LED doesn't guarantee that the DMX frame is correct, only that there is "signal".

Always that the red LED is blinking, in the THRU connector has an **amplified copy** of the input signal.

If the equipment is disconnected, or the input section power supply isn't correct, a by-pass relay connects IN with THRU, to guarantee the continuity of the signal input.

1 connector composes each one of the output sections, OUT:



When the equipment is turned on, the green LED of the output section is at ON. This LED shows us that the power supply of the output section is correct. If the green LED is at OFF this section isn't operating.

Remember that each section has a independent power supply!

The output section always is transmitting the input signal. Its red LED blinking to shows us the output signal activity. The transmission velocity is the same that of the input signal.

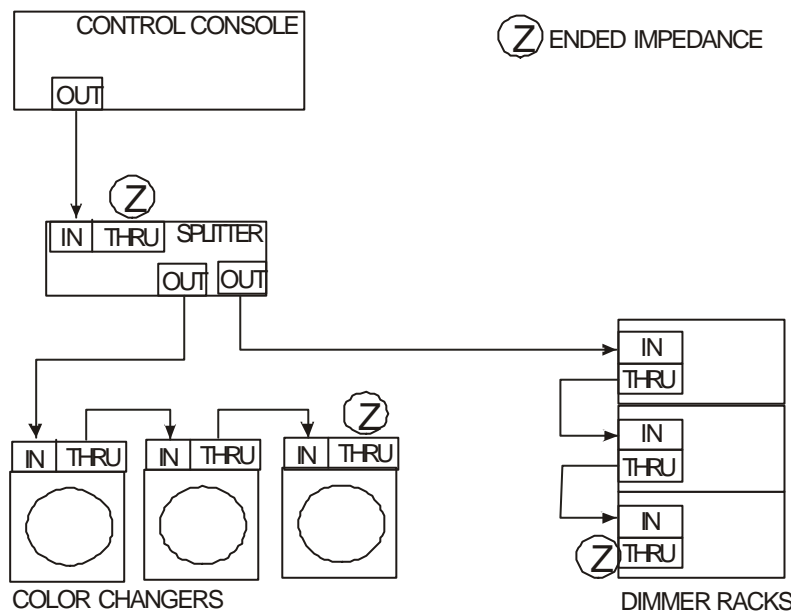
Each output transmits a copy of the input signal, optically isolated and amplified. Each out can be considered as a “new” signal line.

## **USE RECOMMENDATIONS**

A clear installation of the cables helps to identify, isolate and solve any problem in an easy way.

- Distribute the output lines by zones or uses.  
Zones: Stage left, stage right, etc.  
Uses: Scrollers, Spots, Dimmers, etc.
- Keep the lines identified clearly.

Don't forget that each output line is a “new line” and each line must be its ended impedance.



Avoid that the DMX cables cover long distances “in parallel” with power cables.

Don't turn the remaining DMX cable forming a “0” shape. If it is needed, turn it forming a “8” shape as bigger as possible.

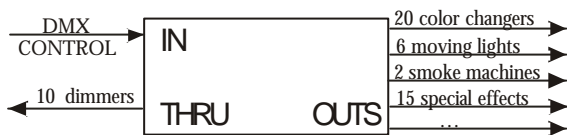
Use always the proper signal cable (see DMX SIGNAL, page 8).

## **USE EXAMPLES**

1.- To increase the line length:



2.- To increase the number of DMX receivers connected or to distribute and isolation the installation in several parts:



## **MORE ABOUT DMX LINE...**

RECOMMENDED PRACTICE FOR DMX512 A guide for users and installers. Autor: Adam Bennete. Editorial: PLASA / USITT.

## **MAINTENANCE AND TECHNICAL SERVICE**

The Splitter has not adjustments.

External cleaning: Use a gentle cloth moistened with water.

If the Splitter is operating in a "dirty" environment (dust, confetti, smoke...), it is recommended to clean the inner printed circuit, at least one time per year, with a small vacuum cleaner:

Disconnect the main power input.

Remove the upper cover.

Clean the inner printed circuits.

Fuses change: the Splitter has an external fuse holder, with 2 x 1A/250V fuses, type F:

Disconnect the main power input

Open the fuse holder with a small screwdriver.

Replace the broken fuse by a new fuse (if you have not a new fuse, use the second fuse, or spare fuse, but don't forget to replace as soon as possible).

To solve other problems, contact with qualified personal.

TECHNICAL SERVICE POINTS:

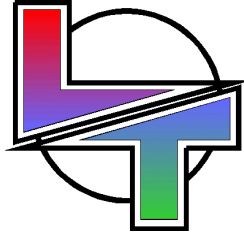
MADRID	C/ Matilde Hernández Nº 31 3ºC
<b>BEN-RI Electrónica S.A.</b>	Edificio JAEN
	28019 MADRID
	Tel: (91) 472 06 66

ZARAGOZA	Pol. Ind. Malpica-Alfinden
<b>BEN-RI Electrónica S.A.</b>	C/ Los Almendros, 61
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	Tel: (976) 10 89 59

You can find a complete distributors list, around the world, in [www.lt-light.com](http://www.lt-light.com)

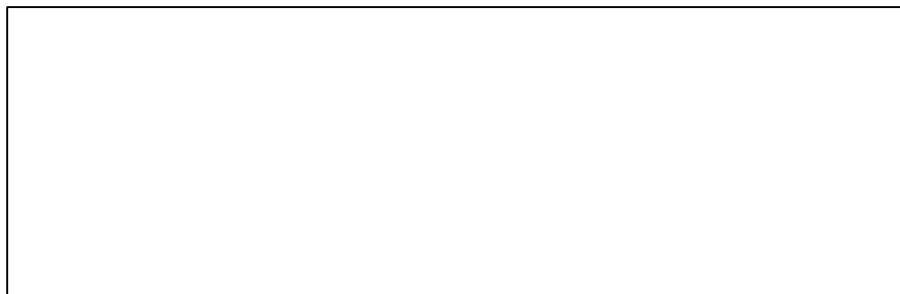
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*Because your  
successes are  
ours*

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Specifications can be changed without previous notice.