

# LED ENGINE R-09 USER MANUAL



## **CAUTION!**

**Keep this device away from rain and moisture!  
Unplug the mains cable before opening the casing.!**



**FOR YOUR OWN SAFETY, PLEASE READ THIS USER MANUAL CAREFULLY  
BEFORE YOUR INITIAL START-UP!**

## **SAFETY INSTRUCTIONS**

Every person involved with the installation, operation and maintenance of this equipment must:

- be qualified
- follow the instructions of this manual
- consider this manual to be part of the total product
- keep this manual for the entire life of the product
- pass this manual on to every further owner or user of the product
- download the latest version of the user manual from the internet



**CAUTION! TAKE CARE USING THIS PRODUCT**  
**With high voltage you can suffer a dangerous  
electric shock when touching wires!**

This equipment has left our premises in absolutely perfect condition. In order to maintain this condition and to ensure a safe operation, it is absolutely necessary for the user to follow the safety instructions and warning notes written in this user manual.

**Important:** *Damages caused by the disregard of this user manual are not subject to warranty. The dealer will not accept liability for any resulting defects or problems.*

If the device has been exposed to drastic temperature fluctuation (eg: after transportation), do not switch it on immediately. The arising condensation may damage your equipment. Leave the equipment switched off until it has reached room temperature.

Please make sure that there are no obvious transport damages. Should you notice any damage to the power connection cable or on the casing, do not connect the equipment and immediately consult your local dealer.

This equipment falls under protection-class 1. The power plug must only be plugged into a protection class 1 outlet. The voltage and frequency must be exactly the same as stated on the equipment. Incorrect voltages or power outlets can lead serious damage and electrical shock.

Always plug in the power plug last. The power plug must always be inserted without force. Make sure that the plug is tightly connected with the outlet.

Never let the power-cord come into contact with other cables! Handle the power-cord and all connections with the mains with particular caution! Never touch them with wet hands, as this could lead to electric shock.

Never modify, bend, strain mechanically, put pressure on, pull or heat up the power cord. Never operate next to sources of heat or cold. Disregard of this information can lead to power cord damage, fire or electric shock.

The cable insert or the female part in the equipment must never be strained. There must always be sufficient cable to the equipment, otherwise, the cable may be damaged which may lead to electric shock.

Make sure that the power-cord is never crimped or damaged by sharp edges. Check the equipment and the power-cord periodically.

If extension cables are used, make sure that the core diameter is sufficient for the required power consumption of the equipment. All warnings concerning the power cables are also valid for possible extension cables.

Always disconnect from the mains, when the equipment is not in use or before cleaning it. Only handle the power-cable by the plug. Never pull out the plug by tugging the power-cable, otherwise, the cable or plug can be damaged leading to an electric shock. If the power plug or the power switch is not accessible, the equipment must be disconnected via the mains.

If the power plug or the equipment is dusty, the device must be taken out of operation, disconnected and then be cleaned with a dry cloth. Dust can reduce the insulation which may lead to an electric shock.

More severe dirt in and on the equipment should only be removed by a specialist.

There must never be any liquid allowed to enter the power outlets, extension cables or any holes in the housing of the equipment. In the event of any liquid entering the equipment, it must be disconnected immediately. This is also valid if the equipment was exposed to high humidity. Also if the equipment is still working, the equipment must be checked by a specialist.

There must never be any objects allowed to enter the equipment. This is especially valid for metal parts. If any metal parts like staples or coarse metal chips are allowed to enter the equipment, the equipment must be taken out of operation and disconnected immediately. Malfunction or short circuits caused by metal parts may cause injuries.

Keep away from children and amateurs!

Never leave the device running unattended.

# Introduction

## Features

### CONTROL FEATURES

- 4-channel DMX-512 LED Engine
- Blackout/Dimmer/Strobe
- Individual control of Red, Green and Blue LEDs

### Features

- 3 LED's per surface
  - Red (1X3W), Green (1X3W), and Blue (1X3W)
- Ultra bright high power LED's
- RGB colour mixing
- Built-in colour change programs
- Low power consumption
- Up to 100,000-hour LED life span
- Master/Slave mode

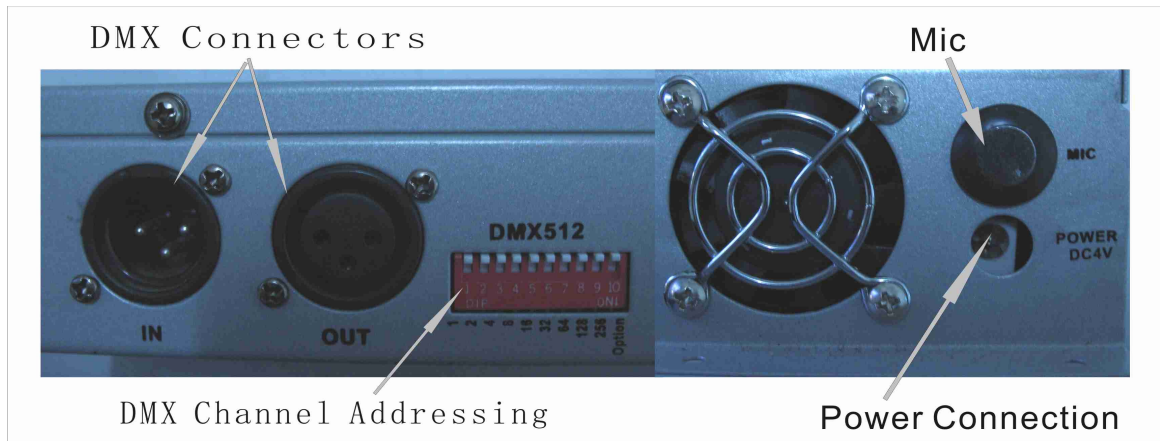
### OPTIONS

- Programmable: Any universal DMX-512 controller

## DMX Channel Summary

CHANNEL	INTENSITY CONTROL OF
1	BLACKOUT/STROBE/DIMMER
2	RED
3	GREEN
4	BLUE

# Product Overview



DMX dipswitches:  
DMX channel addressing

## Setup

Power

### **Warning!**

Verify that the power requirement printed on your unit matches the line voltage applied. All fixtures must be connected to circuits with a suitable Earth Ground.

- To determine the power requirements for a particular fixture, see the label affixed to the back of the plate of the fixture or refer to the fixture's specifications chart.
- A fixture's listed current rating is its average current draw under normal conditions.
- All fixtures must be powered directly off a switched circuit and cannot be run off a rheostat (variable resistor) or dimmer circuit, even if the rheostat or dimmer channel is used solely for a 0% to 100% switch.
- Before applying power to a fixture, check that the source voltage matches the fixture's requirement
- All fixtures must be connected to circuits with a suitable Earth Ground.

# Operating Instructions

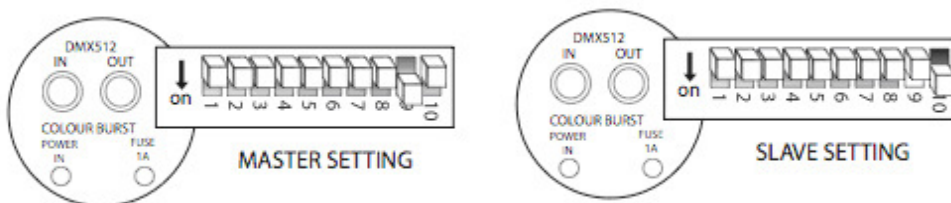
The LED Engine is a DMX-512 controllable, full RGB colour mixing LED Engine made up of high efficiency and super bright high power LED's. There are three colour groups (red, blue and green) whose intensity can be controlled individually allowing the creation of an unlimited range of colours.

The LED Engine will operate in stand-alone, Master/Slave and via DMX-512 control utilizing 4 channels.

## Master/Slave & Stand-Alone Mode

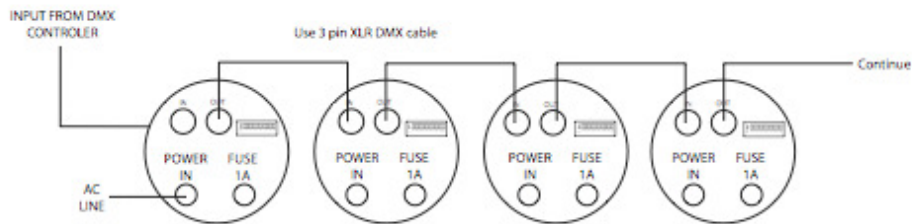
The Master/Slave mode will allow you to link up to as many units you want in a daisy chain fashion. In this mode, the first unit in the daisy chain will automatically command all other units following.

- 1) Connect all units in a daisy chain fashion as described in the section following
- 2) Slaves: Set dipswitch No: 10 to the on position and all others to the off position.
- 3) Master Unit: Set dipswitches No:1-9 to select the effects you want, for details of each effect, please refer to the section of Manual Control Options. No: 10 must be the off position.
- 4) You can also run the fixtures in a automatic stand-alone mode by simply setting all fixtures to run as master units.



## Daisy Chain Connection

- 1) Connect the (male) 3 pin connector side of the DMX cable to the output (female) 3pin connector of the first fixture
- 2) Connect the end of the cable coming from the first fixture which will have a (female) 3pin connector to the input connector of the next fixture consisting of a (male) 3pin connector. Then proceed to connect from the output as stated above to the input of the following fixture and so on.



## Manual Control Options

### Static Mode

- With Dip Switch 1, 2 set to on you obtain static RED (1 for high bright, 2 for medium bright)
  - With Dip Switch 3, 4 set to on you obtain static GREEN (3 for high bright, 4 for medium bright)
  - With Dip Switch 5, 6 set to on you obtain static BLUE (5 for high bright, 6 for medium bright)
- You can have any combination of switches 1,2,3,4,5,6 to obtain static colour mix (1,3,5 for high bright, 2,4,6 for medium bright).

### Colour Mixing Change Mode

Set Dip Switch 9 to on position, you obtain the fastest RGB colour mixing change effect. By using Dip Switches 4,5,6 to control the changing speed, 4 is slow changing, 4&5 is slower changing and 4&5&6 is the slowest changing.

### Flashing Mode

Set Dip Switch 9, 1 to on position, you obtain the fastest flash effect. By using Dip Switches 4,5,6, to control the flash speed, 4 is slow flash, 4&5 is slower flash and 4&5&6 is the slowest flash.



### Fading Mode

- 1) Set Dip Switch 9, 1, 3 to on position to make RED GREEN BLUE fading effect.



- 2) Set Dip Switch 9, 3 to on position to make RED GREEN fading effect.



3) Set Dip Switch 9, 2, 3 to on position to make RED BLUE fading effect.



4) Set Dip Switch 9, 1, 2, 3 to on position to make BLUE GREEN fading effect.



## Blackout Mode

With all dipswitches to off the LED Engine will blackout.

## Sound Control Mode

Set dip switch 8 to on position the fixture will run the built-in program via sound.

## DMX Control Mode

Operating in a DMX control mode environment gives the user the greatest flexibility when it comes to customizing or creating a show. In this mode you will be able to control each individual trait of the fixture and each fixture independently. The Engine uses 4 channels of control.

Enable the DMX control by setting dipswitch No: 10 to the ON position. Use dipswitches 1 – 9 to address each fixture accordingly.

## Setting the DMX address

The DMX mode enables the use of a universal DMX controller device. Each fixture requires a “start address” from 1- 511. A fixture requiring one or more channels for control begins to read the data on the channel indicated by the start address. For example, a fixture that occupies or uses 7 channels of DMX and was addressed to start on DMX channel 100, would read data from channels: 100,101,102,103,104,105 and 106. Choose a start address so that the channels used do not overlap. E.g. the next unit in the chain starts at 107.

If this is your first time addressing a fixture using the DMX-512 control protocol then I suggest jumping to the Appendix Section and read the heading “DMX Primer”. It contains very useful information that will help you understand its use.

Set the start address using the group of dipswitches located usually on the bottom of the fixture. Each dipswitch has an associated value. Adding the value of each switch in the ON position will provide the start address. Determining which switches to toggle ON given a specific start address can be accomplished in the following manner. By subtracting the largest switch value possible from the selected start address until zero is achieved.



**EXAMPLE STARTING ADDRESS**

**Address 10**

Pin NO: 4 = 8  
 Pin NO: 2 = 2  
 Total = 10



option  
 256  
 128  
 64  
 32  
 16  
 8  
 4  
 2  
 1

**Address 24**

Pin NO: 5 = 16  
 Pin NO: 4 = 8  
 Total = 24



option  
 256  
 128  
 64  
 32  
 16  
 8  
 4  
 2  
 1

**Address 24**

**DMX address using simple maths**

233 - (128 = 105, Turn on dip No: 8  
 105 - (64) = 41, Turn on dip No:7  
 41 - (32) = 9, Turn on dip No: 6  
 9 - (8) = 1, Turn on dip No: 4  
 1 - (1) = 0, Turn on dip No:1

You will most likely use the first available number which maybe Number 1. This number was selected for example purposes

DIP SWITCH	(DMX VALUE)
1	1
2	2
3	4
4	8
5	16
6	32
7	64
8	128
9	256
10	

# APPENDIX

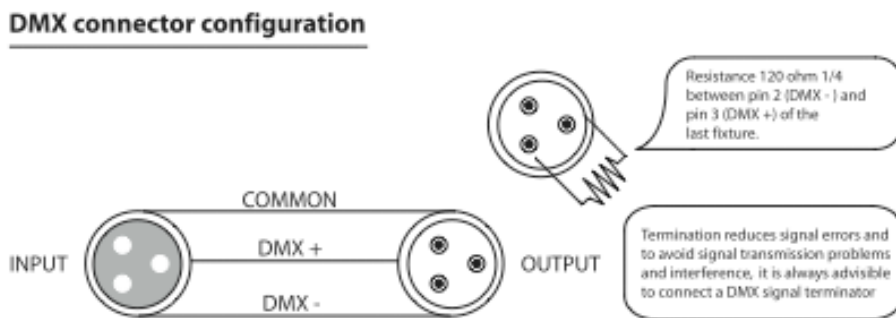
## DMX INTRODUCTION

There are 512 Channels in a DMX-512 connection. Channels may be assigned in any manner. A fixture capable of receiving DMX-512 will require one or a number of sequential channels. The user must assign a starting address on the fixture that indicates the first channel reserved in the controller. There are many different types of DMX controllable fixtures and they all may vary in the total number of channels required. Choosing a start address should be planned in advance. Channels should never overlap. If they do, this will result in erratic operation of the fixtures whose starting address is set incorrectly. You can however, control multiple fixtures of the same

type using the same starting address as long as the intended result is that of unison movement or operation. In other words, the fixtures will be slaved together and all respond exactly the same.

DMX fixtures are designed to receive data through a serial Daisy chain. A daisy chain connection is where the DATA OUT of one fixture connects to the DATA IN of the next fixture. The order in which the fixtures are connected is not important and has no effect on how a controller communicates to each fixture. Use an order that provides for the easiest and most direct cabling. Connect fixtures using shielded two conductor twisted pair cable with three pin XLR male to female connectors. The shield connection is pin 1, while pin 2 is the Data Negative (S-) and pin 3 is Data Positive (S+). LEDJ carries 3-pin XLR-DMX compliant cables, DMX-10(33'), DMX-4.5 (15') and DMX-1.5 (5').

## Fixture Linking



**If you use a controller with a 5 pin DMX output connector, you will need to use a 5 pin to 3 pin adaptor..**

### 3 Pin to 5 Pin Conversion Chart

Conductor	3 pin female (output)	5 pin male (input)
Ground/Shield	Pin 1	Pin 1
Data (-)	Pin 2	Pin 2
Data (+)	Pin 3	Pin 3
Do not use		Do not use
Do not use		Do not use

## DMX Dipswitch Quick Reference Chart

### Dip Switch Position

<b>DMX DIP SWITCH SET</b> 0=OFF 1=ON X=OFF or ON					#9	0	0	0	0	0	0	0	01	1	1	1	1	1	1	1	1
					#8	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
					#7	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
					#6	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
#1	#2	#3	#4	#5																	
0	0	0	0	0		32	64	96	128	160	192	224	256	288	320	352	384	416	448	480	
1	0	0	0	0	1	33	65	97	129	161	193	225	257	289	321	353	385	417	449	481	
0	1	0	0	0	2	34	66	98	130	162	194	226	258	290	322	354	386	418	450	482	
1	1	0	0	0	3	35	67	99	131	163	195	227	259	291	323	355	387	419	451	483	
0	0	1	0	0	4	36	68	100	132	164	196	228	260	292	324	356	388	420	452	484	
1	0	1	0	0	5	37	69	101	133	165	197	229	261	293	325	357	389	421	453	485	
0	1	1	0	0	6	38	70	102	134	166	198	230	262	294	326	358	390	422	454	486	
1	1	1	0	0	7	39	71	103	135	167	199	231	263	295	327	359	391	423	455	487	
0	0	0	1	0	8	40	72	104	136	168	200	232	264	296	328	360	392	424	456	488	
1	0	0	1	0	9	41	73	105	137	169	201	233	265	297	329	361	393	425	457	489	
0	1	0	1	0	10	42	74	106	138	170	202	234	266	298	330	362	394	426	458	490	
1	1	0	1	0	11	43	75	107	139	171	203	235	267	299	331	363	395	427	459	491	
0	0	1	1	0	12	44	76	108	140	172	204	236	268	300	332	364	396	428	460	492	
1	0	1	1	0	13	45	77	109	141	173	205	237	269	301	333	365	397	429	461	493	
0	1	1	1	0	14	46	78	110	142	174	206	238	270	302	334	366	398	430	462	494	
1	1	1	1	0	15	47	79	111	143	175	207	239	271	303	335	367	399	431	463	495	
0	0	0	0	1	16	48	80	112	144	176	208	240	272	304	336	368	400	432	464	496	
1	0	0	0	1	17	49	81	113	145	177	209	241	273	305	337	369	401	433	465	497	
0	1	0	0	1	18	50	82	114	146	178	210	242	274	306	338	370	402	434	466	498	
1	1	0	0	1	19	51	83	115	147	179	211	243	275	307	339	371	403	435	467	499	
0	0	1	0	1	20	52	84	116	148	180	212	244	276	308	340	372	404	436	468	500	
1	0	1	0	1	21	53	85	117	149	181	213	245	277	309	341	373	405	437	469	501	
0	1	1	0	1	22	54	86	118	150	182	214	246	278	310	342	374	406	438	470	502	
1	1	1	0	1	23	55	87	119	151	183	215	247	279	311	343	375	407	439	471	503	
0	0	0	1	1	24	56	88	120	152	184	216	248	280	312	344	376	408	440	472	504	
1	0	0	1	1	25	57	89	121	153	185	217	249	281	313	345	377	409	441	473	505	
0	1	0	1	1	26	58	90	122	154	186	218	250	282	314	346	378	410	442	474	506	
1	1	0	1	1	27	59	91	123	155	187	219	251	283	315	347	379	411	443	475	507	
0	0	1	1	1	28	60	92	124	156	188	220	252	284	316	348	380	412	444	476	508	
1	0	1	1	1	29	61	93	125	157	189	221	253	285	317	349	381	413	445	477	509	
0	1	1	1	1	30	62	94	126	158	190	222	254	286	318	350	382	414	446	478	510	
1	1	1	1	1	31	63	95	127	159	191	223	255	287	319	351	383	415	447	479	511	

Dip Switch Position

DMX Address

## DMX Channel Values

DEFAULT	VALUE	FUNCTION
<b>1</b>	000 001<>152 153<>242	<b>Shutter/Strobe/Dimmer</b> Blackout :000 Intensity : 001<>152 Strobe: 153<>242
<b>2</b>	000 <> 255	<b>RED</b> 0 > 100%
<b>3</b>	000 <> 255	<b>GREEN</b> 0 > 100%
<b>4</b>	000 <> 255	<b>BLUE</b> 0 > 100%

## Technical Specifications

### Weight & Dimensions

- Length.....210mm
- Width.....120mm
- Height.....90mm
- Weight.....1.0kgs

### Power

- AC input.....240V/50hz

### Control & Programming

- Data input.....Locking 3-pin XLR male socket
- Data output.....Locking 3-pin XLR female socket
- Data pin configuration.....Pin 1 shield, pin2 (-), pin 3 (+)
- Protocols.....DMX-512 UTSITT
- DMX channels.....4