



RE-121
12 X 1200 Watts

RACK MOUNT DIMMER



OWNERS MANUAL

Revision 2.4

11/29/2007

RE - 121 RACK MOUNT DIMMER

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Revision 2.1

11/29/2007

RE-121 CONTROL PANEL



DESCRIPTION

The RE-121 is a 12 channel dimmer with a capacity of 1,200 watts per channel giving a total of 14,400 watts. The RE-121 is controlled by a lighting control console. The unit can be supplied to use either the DMX-512 control protocol or the LMX-128 control protocol. Channels A - F and/or channels G - L may be switched to operate in "relay" mode. In relay mode, channels may be switched only to either to full on or full off depending on fader position .

POWER REQUIREMENTS

Each RE-121 requires BOTH PHASES of a SINGLE PHASE 120/240 VOLT AC service or TWO PHASES OF A THREE PHASE 120/208 VOLT AC service. The neutral conductor is shared by two hots so it is important that the two hots used are of different phases. EACH PHASE must be capable of providing 60 AMPS. Line frequency can be either 50 or 60HZ. One or more RE-121 dimmers are to be installed into a standard 19" equipment rack with provisions for connection to an appropriate electrical service in accordance with the National Electrical Code.

LIGHTING LOAD CAPACITY

Each RE-121 channel has a 1200 Watt MAXIMUM rating and is protected by a fast acting 10 Amp fuse. 10 Amps equates to 1200 Watts at 120VAC. If you operate a channel at 1200 watts then you are very close to blowing the fuse. This will occur if AC line voltages are high or you have power surges. Other conditions which may cause the fuse to blow include turning a cold lamp quickly on to full intensity. A maximum practical load of 1000 Watts per channel will allow for some overhead and help prevent breaker tripping.

INSTALLATION

PLACEMENT

The RE-121 is designed to be mounted in a standard 19" equipment rack using the four mounting holes in the face plate. If the dimming system will be used for touring shows, it is recommended that you provide additional support for the rear of the unit. The dimmer is fan cooled and requires no space between units when multiple dimmers are used together in a rack. . Air enters the dimmer through slots on the side and exits through holes in the bottom of the face plate. Make certain these ventilation holes are not obstructed. Do not place the RE-121 where it will be exposed to moisture or excessive heat. The RE-121 is intended for indoor use only.

POWER CONNECTIONS



WARNING

MAKE CERTAIN POWER IS REMOVED FROM THE FEED CIRCUITS
BEFORE YOU BEGIN INSTALLATION.



Power enters the RE-121 through the rear of the unit via a hole sized for 1" conduit. Inside the RE-121 is a terminal block with three lugs. The "H1" and "H2" are the line connections or "hots". The center connection labeled "N" is the neutral. There is an additional ground lug labeled "G" located near the terminal block. This lug is for connecting the chassis to earth ground.

Consult your local electrical codes to determine the proper wire type and wiring methods for your installation. Connect a ground wire to the ground lug "G" first. Next connect the neutral to the center lug "N" on the terminal block, then connect one hot to the lug of the terminal block marked "H1" and the other hot to the "H2" lug of the terminal block.

CONTROL SIGNALS

The RE-121 is supplied to use one of two types of control signal. Either DMX-512 control or LMX-128 control is supplied when ordered. The front panel is marked to show which protocol can be used.

DMX CONTROL

The DMX-512 control signal enters the RE-121 through a **5 pin "XLR"** connector on the rear of the unit. A second connector (**5 pin female XLR**) is used to continue this control signal out to other dimmers in the system. Normally the male connector is used for the incoming control signal and the female connector is used to loop out to other dimmers. These connectors are wired in parallel so either connector may be used as input or output. The table below shows the control signal connector pin assignments.

Connector Pin #	Signal Name
1	DMX Common
2	DMX Data -
3	DMX Data +
4	Not Used
5	Not Used

LMX CONTROL

The LMX-128 control signal enters the RE-121 through a **3 pin "XLR"** connector on the rear of the unit. A second connector (**3 pin female XLR**) is used to continue this control signal out to other dimmers in the system. Normally the male connector is used for the incoming control signal and the female connector is used to loop out to other dimmers. These connectors are wired in parallel so either connector may be used as input or output. The table below shows the control signal connector pin assignments.

Connector Pin #	Signal Name
1	LMX Common
2	Console Power (+15VDC)
3	LMX Signal

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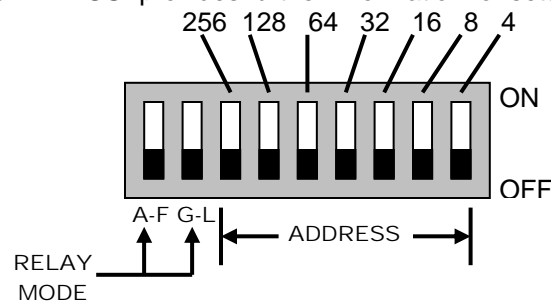
OUTPUT CHANNEL CONNECTIONS

The RE-121 can be supplied with one of several rear panel output options. Channel output connections are according to the rear panel selected. Channel connections generally proceed from left to right (if you are facing the rear of the unit). Channel "A" will be on the left end. Connections for load Neutrals are provided. There is also a ground lug terminal to be used for your load circuits grounds.

OPERATION

CHANNEL ASSIGNMENT

The starting channel of each RE-121 is selected using the DIP switches on the front panel. The table below indicates the actual value of each DIP switch position. A chart at the end of this manual "CHANNEL ASSIGNMENT SWITCH SETTINGS" provides further information for setting the starting address DIP switches.



Any switch in the up position ADDS the associated value to the starting channel number. All switches down = starting channel number 1.

For example: to set the starting channel to 13, move the 2nd switch from the right (value 8) and the 1st switch from the right (value 4) to the up position. For a starting channel of 21, move the third switch from the right (value 16) and the rightmost switch (value 4) to the up position. A complete table of address assignments is provided further on in this manual.

OPERATION

MANUAL CONTROL

Dimmer channels can be activated manually by pressing corresponding button switches located on the front panel. This will latch the associated channel to full on. Push the button again to turn the channel off. The associated LED will light when the channel is activated.

NORMAL OPERATION

LEDs located on the front panel of the RE-121 indicate channel levels as you operate faders on your console. The "VALID SIGNAL" LED will light whenever the dimmer is receiving a control signal within the range of channels that the dimmer is assigned to. The "Phase A" and "Phase B" LEDs will indicate that power sources are applied to the dimmer. The fan will run continuously whenever power is applied to the RE-121. An over-temperature sensor will shut down all channel output if the dimmer temperature rises above safe limits ($\approx 175^{\circ}\text{F}$ exit air temperature).

RELAY MODE

The two leftmost DIP switches on the front panel control the "relay" mode. When either switch is in the up position, the channels associated with that switch operate in non-dim mode. These channels will be either full on or full off depending on the level of the faders controlling them.

MAINTENANCE AND REPAIR

FUSES

Each channel of the RE-121 is protected by a 10 Amp, 250 Volt, fast acting fuse located on the front panel of the unit. If the total load for a channel is greater than 1200 Watts the channel fuse will blow.

There are also two 1/2 Amp., 250 Volt, fast acting fuses on the front panel to protect the internal electronic circuits from an overvoltage condition. These fuses may be replaced **ONLY** by fuses of the same size and type.

TROUBLESHOOTING

VERIFY THAT ALL POWER IS REMOVED BEFORE HANDLING THE UNIT.

- Verify that the unit channel addresses are correctly set.
- Check that the console is powered and that console channels are correctly patched or set.
- Check the control cable between the dimmer and its console.
- Verify the loads and their connections.

OWNER MAINTENANCE

There are no user serviceable parts inside the unit.

The best way to prolong the life of your unit is to keep it cool, clean, and dry. It is important that the cooling intake and exit vent holes are clean and unobstructed.

Service by other than Lightronics authorized agents may void your warranty.

OPERATING AND MAINTENANCE ASSISTANCE

If service is required, contact the dealer from whom you purchased the equipment or return it to the Lightronics Service Department, 509 Central Drive, Virginia Beach, VA 23454. TEL 757 486 3588. All items returned for service must include a description of the problem along with your name, address, and phone number.

Lightronics recommends that you record the serial number of your unit for future reference.

SERIAL NUMBER _____

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CHANNEL ASSIGNMENT SWITCH SETTINGS

The DIP Switch Setting column shows the positions of the DIP switches on the dimmer. The Start Channel column shows the resulting channel assignment for the first channel of the dimmer

All Lightronics products using DIP switches for address assignments conform to this table. Some dimmers cannot be set to all 512 channels and will have fewer switches than are shown in the table. If this is the case then match the right end switches in the table to your dimmer switches.

NOTE: Some control consoles can be programmed or "patched" to alter their channel order. You may get unexpected results if you are not aware of the console patch condition when you assign channels at a dimmer.

EXAMPLE: If a dimmer's DIP switches are set to $\downarrow \uparrow \downarrow \uparrow \downarrow \uparrow \downarrow \uparrow$ then the first channel of the dimmer will respond to console channel 173. The remaining dimmer channels will respond to console channels 174, 175, 176 ...etc.

DIP Switch Setting	Start Channel	DIP Switch Setting	Start Channel	DIP Switch Setting	Start Channel	DIP Switch Setting	Start Channel
$\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$	1	$\downarrow \uparrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$	129	$\uparrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$	257	$\uparrow \uparrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow$	385
$\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \uparrow$	5	$\downarrow \uparrow \downarrow \downarrow \downarrow \downarrow \downarrow \uparrow$	133	$\uparrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \uparrow$	261	$\uparrow \uparrow \downarrow \downarrow \downarrow \downarrow \downarrow \uparrow$	389
$\downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \uparrow \downarrow$	9	$\downarrow \uparrow \downarrow \downarrow \downarrow \downarrow \uparrow \downarrow$	137	$\uparrow \downarrow \downarrow \downarrow \downarrow \downarrow \uparrow \downarrow$	265	$\uparrow \uparrow \downarrow \downarrow \downarrow \downarrow \uparrow \downarrow$	393
$\downarrow \downarrow \downarrow \downarrow \downarrow \uparrow \uparrow$	13	$\downarrow \uparrow \downarrow \downarrow \downarrow \uparrow \uparrow$	141	$\uparrow \downarrow \downarrow \downarrow \downarrow \uparrow \uparrow$	269	$\uparrow \uparrow \downarrow \downarrow \downarrow \uparrow \uparrow$	397
$\downarrow \downarrow \downarrow \downarrow \uparrow \downarrow \downarrow$	17	$\downarrow \uparrow \downarrow \downarrow \uparrow \downarrow \downarrow$	145	$\uparrow \downarrow \downarrow \downarrow \uparrow \downarrow \downarrow$	273	$\uparrow \uparrow \downarrow \downarrow \uparrow \downarrow \downarrow$	401
$\downarrow \downarrow \downarrow \downarrow \uparrow \downarrow \uparrow$	21	$\downarrow \uparrow \downarrow \downarrow \uparrow \downarrow \uparrow$	149	$\uparrow \downarrow \downarrow \downarrow \uparrow \downarrow \uparrow$	277	$\uparrow \uparrow \downarrow \downarrow \uparrow \downarrow \uparrow$	405
$\downarrow \downarrow \downarrow \downarrow \uparrow \uparrow \downarrow$	25	$\downarrow \uparrow \downarrow \downarrow \uparrow \uparrow \downarrow$	153	$\uparrow \downarrow \downarrow \downarrow \uparrow \uparrow \downarrow$	281	$\uparrow \uparrow \downarrow \downarrow \uparrow \uparrow \downarrow$	409
$\downarrow \downarrow \downarrow \downarrow \uparrow \uparrow \uparrow$	29	$\downarrow \uparrow \downarrow \downarrow \uparrow \uparrow \uparrow$	157	$\uparrow \downarrow \downarrow \downarrow \uparrow \uparrow \uparrow$	285	$\uparrow \uparrow \downarrow \downarrow \uparrow \uparrow \uparrow$	413
$\downarrow \downarrow \downarrow \uparrow \downarrow \downarrow \downarrow$	33	$\downarrow \uparrow \downarrow \uparrow \downarrow \downarrow \downarrow$	161	$\uparrow \downarrow \downarrow \uparrow \downarrow \downarrow \downarrow$	289	$\uparrow \uparrow \downarrow \uparrow \downarrow \downarrow \downarrow$	417
$\downarrow \downarrow \downarrow \uparrow \downarrow \downarrow \uparrow$	37	$\downarrow \uparrow \downarrow \uparrow \downarrow \downarrow \uparrow$	165	$\uparrow \downarrow \downarrow \uparrow \downarrow \downarrow \uparrow$	293	$\uparrow \uparrow \downarrow \uparrow \downarrow \downarrow \uparrow$	421
$\downarrow \downarrow \downarrow \uparrow \downarrow \uparrow \downarrow$	41	$\downarrow \uparrow \downarrow \uparrow \downarrow \uparrow \downarrow$	169	$\uparrow \downarrow \downarrow \uparrow \downarrow \uparrow \downarrow$	297	$\uparrow \uparrow \downarrow \uparrow \downarrow \uparrow \downarrow$	425
$\downarrow \downarrow \downarrow \uparrow \downarrow \uparrow \uparrow$	45	$\downarrow \uparrow \downarrow \uparrow \downarrow \uparrow \uparrow$	173	$\uparrow \downarrow \downarrow \uparrow \downarrow \uparrow \uparrow$	301	$\uparrow \uparrow \downarrow \uparrow \downarrow \uparrow \uparrow$	429
$\downarrow \downarrow \downarrow \uparrow \uparrow \downarrow \downarrow$	49	$\downarrow \uparrow \downarrow \uparrow \uparrow \downarrow \downarrow$	177	$\uparrow \downarrow \downarrow \uparrow \uparrow \downarrow \downarrow$	305	$\uparrow \uparrow \downarrow \uparrow \uparrow \downarrow \downarrow$	433
$\downarrow \downarrow \downarrow \uparrow \uparrow \downarrow \uparrow$	53	$\downarrow \uparrow \downarrow \uparrow \uparrow \downarrow \uparrow$	181	$\uparrow \downarrow \downarrow \uparrow \uparrow \downarrow \uparrow$	309	$\uparrow \uparrow \downarrow \uparrow \uparrow \downarrow \uparrow$	437
$\downarrow \downarrow \downarrow \uparrow \uparrow \uparrow \downarrow$	57	$\downarrow \uparrow \downarrow \uparrow \uparrow \uparrow \downarrow$	185	$\uparrow \downarrow \downarrow \uparrow \uparrow \uparrow \downarrow$	313	$\uparrow \uparrow \downarrow \uparrow \uparrow \uparrow \downarrow$	441
$\downarrow \downarrow \downarrow \uparrow \uparrow \uparrow \uparrow$	61	$\downarrow \uparrow \downarrow \uparrow \uparrow \uparrow \uparrow$	189	$\uparrow \downarrow \downarrow \uparrow \uparrow \uparrow \uparrow$	317	$\uparrow \uparrow \downarrow \uparrow \uparrow \uparrow \uparrow$	445
$\downarrow \downarrow \uparrow \downarrow \downarrow \downarrow \downarrow$	65	$\downarrow \uparrow \uparrow \downarrow \downarrow \downarrow \downarrow$	193	$\uparrow \downarrow \uparrow \downarrow \downarrow \downarrow \downarrow$	321	$\uparrow \uparrow \uparrow \downarrow \downarrow \downarrow \downarrow$	449
$\downarrow \downarrow \uparrow \downarrow \downarrow \downarrow \uparrow$	69	$\downarrow \uparrow \uparrow \downarrow \downarrow \downarrow \uparrow$	197	$\uparrow \downarrow \uparrow \downarrow \downarrow \downarrow \uparrow$	325	$\uparrow \uparrow \uparrow \downarrow \downarrow \downarrow \uparrow$	453
$\downarrow \downarrow \uparrow \downarrow \downarrow \uparrow \downarrow$	73	$\downarrow \uparrow \uparrow \downarrow \downarrow \uparrow \downarrow$	201	$\uparrow \downarrow \uparrow \downarrow \downarrow \uparrow \downarrow$	329	$\uparrow \uparrow \uparrow \downarrow \downarrow \uparrow \downarrow$	457
$\downarrow \downarrow \uparrow \downarrow \downarrow \uparrow \uparrow$	77	$\downarrow \uparrow \uparrow \downarrow \downarrow \uparrow \uparrow$	205	$\uparrow \downarrow \uparrow \downarrow \downarrow \uparrow \uparrow$	333	$\uparrow \uparrow \uparrow \downarrow \downarrow \uparrow \uparrow$	461
$\downarrow \downarrow \uparrow \downarrow \uparrow \downarrow \downarrow$	81	$\downarrow \uparrow \uparrow \downarrow \uparrow \downarrow \downarrow$	209	$\uparrow \downarrow \uparrow \downarrow \uparrow \downarrow \downarrow$	337	$\uparrow \uparrow \uparrow \downarrow \uparrow \downarrow \downarrow$	465
$\downarrow \downarrow \uparrow \downarrow \uparrow \downarrow \uparrow$	85	$\downarrow \uparrow \uparrow \downarrow \uparrow \downarrow \uparrow$	213	$\uparrow \downarrow \uparrow \downarrow \uparrow \downarrow \uparrow$	341	$\uparrow \uparrow \uparrow \downarrow \uparrow \downarrow \uparrow$	469
$\downarrow \downarrow \uparrow \downarrow \uparrow \uparrow \downarrow$	89	$\downarrow \uparrow \uparrow \downarrow \uparrow \uparrow \downarrow$	217	$\uparrow \downarrow \uparrow \downarrow \uparrow \uparrow \downarrow$	345	$\uparrow \uparrow \uparrow \downarrow \uparrow \uparrow \downarrow$	473
$\downarrow \downarrow \uparrow \downarrow \uparrow \uparrow \uparrow$	93	$\downarrow \uparrow \uparrow \downarrow \uparrow \uparrow \uparrow$	221	$\uparrow \downarrow \uparrow \downarrow \uparrow \uparrow \uparrow$	349	$\uparrow \uparrow \uparrow \downarrow \uparrow \uparrow \uparrow$	477
$\downarrow \downarrow \uparrow \uparrow \downarrow \downarrow \downarrow$	97	$\downarrow \uparrow \uparrow \uparrow \downarrow \downarrow \downarrow$	225	$\uparrow \downarrow \uparrow \uparrow \downarrow \downarrow \downarrow$	353	$\uparrow \uparrow \uparrow \uparrow \downarrow \downarrow \downarrow$	481
$\downarrow \downarrow \uparrow \uparrow \downarrow \downarrow \uparrow$	101	$\downarrow \uparrow \uparrow \uparrow \downarrow \downarrow \uparrow$	229	$\uparrow \downarrow \uparrow \uparrow \downarrow \downarrow \uparrow$	357	$\uparrow \uparrow \uparrow \uparrow \downarrow \downarrow \uparrow$	485
$\downarrow \downarrow \uparrow \uparrow \downarrow \uparrow \downarrow$	105	$\downarrow \uparrow \uparrow \uparrow \downarrow \uparrow \downarrow$	233	$\uparrow \downarrow \uparrow \uparrow \downarrow \uparrow \downarrow$	361	$\uparrow \uparrow \uparrow \uparrow \downarrow \uparrow \downarrow$	489
$\downarrow \downarrow \uparrow \uparrow \downarrow \uparrow \uparrow$	109	$\downarrow \uparrow \uparrow \uparrow \downarrow \uparrow \uparrow$	237	$\uparrow \downarrow \uparrow \uparrow \downarrow \uparrow \uparrow$	365	$\uparrow \uparrow \uparrow \uparrow \downarrow \uparrow \uparrow$	493
$\downarrow \downarrow \uparrow \uparrow \uparrow \downarrow \downarrow$	113	$\downarrow \uparrow \uparrow \uparrow \uparrow \downarrow \downarrow$	241	$\uparrow \downarrow \uparrow \uparrow \uparrow \downarrow \downarrow$	369	$\uparrow \uparrow \uparrow \uparrow \uparrow \downarrow \downarrow$	497
$\downarrow \downarrow \uparrow \uparrow \uparrow \downarrow \uparrow$	117	$\downarrow \uparrow \uparrow \uparrow \uparrow \downarrow \uparrow$	245	$\uparrow \downarrow \uparrow \uparrow \uparrow \downarrow \uparrow$	373	$\uparrow \uparrow \uparrow \uparrow \uparrow \downarrow \uparrow$	501
$\downarrow \downarrow \uparrow \uparrow \uparrow \uparrow \downarrow$	121	$\downarrow \uparrow \uparrow \uparrow \uparrow \uparrow \downarrow$	249	$\uparrow \downarrow \uparrow \uparrow \uparrow \uparrow \downarrow$	377	$\uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \downarrow$	505
$\downarrow \downarrow \uparrow \uparrow \uparrow \uparrow \uparrow$	125	$\downarrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow$	253	$\uparrow \downarrow \uparrow \uparrow \uparrow \uparrow \uparrow$	381	$\uparrow \uparrow \uparrow \uparrow \uparrow \uparrow \uparrow$	509



LIGHTRONICS INC. **WARRANTY** LIGHTRONICS INC.

All Lightronics products are warranted for a period of TWO/FIVE YEARS from the date of purchase against defects in materials and workmanship.

This warranty is subject to the following restrictions and conditions:

- A) If service is required, you may be asked to provide proof of purchase from an authorized Lightronics dealer.
- B) The FIVE YEAR WARRANTY is only valid if the warranty card is returned to Lightronics accompanied with a copy of the original receipt of purchase within 30 DAYS of the purchase date, if not then the TWO YEAR WARRANTY applies. Warranty is valid only for the original purchaser of the unit.
- C) This warranty does not apply to damage resulting from abuse, misuse, accidents, shipping, and repairs or modifications by anyone other than an authorized Lightronics service representative.
- D) This warranty is void if the serial number is removed, altered or defaced.
- E) This warranty does not cover loss or damage, direct or indirect arising from the use or inability to use this product.
- F) Lightronics reserves the right to make any changes, modifications, or updates as deemed appropriate by Lightronics to products returned for service. Such changes may be made without prior notification to the user and without incurring any responsibility or liability for modifications or changes to equipment previously supplied. Lightronics is not responsible for supplying new equipment in accordance with any earlier specifications.
- G) This warranty is the only warranty either expressed, implied, or statutory, upon which the equipment is purchased. No representatives, dealers or any of their agents are authorized to make any warranties, guarantees, or representations other than expressly stated herein.
- H) This warranty does not cover the cost of shipping products to or from Lightronics for service.
- I) Lightronics Inc. reserves the right to make changes as deemed necessary to this warranty without prior notification.

