

THE

# LightWand

User Manual



# LightWand Moving Mirror Power Supply

Manual revision: 03/13/02

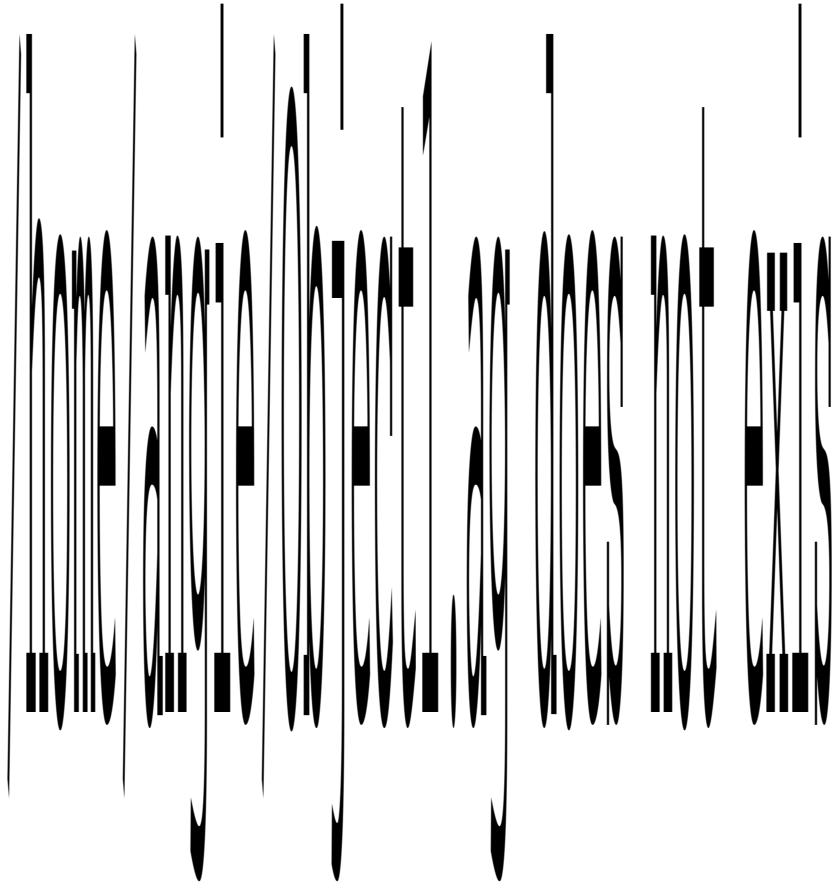
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# Introduction

The LightWand is a moving mirror add-on for 19, 26 and 36 degree Source Four and similar ellipsoidal lights. The unit is controlled with two to five DMX channels giving 8 or 16 bit resolution for both pan and tilt information and is designed to operate alone or in conjunction with Wybron color changing systems. The unit slides easily into the gel frame holder of the light fixture and the compact, 16-Way Forerunner Power Supply attaches easily to the truss of the lighting rig.

This manual gives step-by-step instructions for preparation, setup and operation of the LightWand and the Forerunner Power Supply.



# The Forerunner System

The Forerunner System consists of one or more color changers and/or one or more LightWand Moving Mirrors and a remote Power Supply which can power up to 16 color changers or 8 Moving Mirrors. The DMX512 control signal from the lighting board is connected to the Power Supply and can continue onto more Forerunner Power Supplies or other DMX-controlled devices. The Power Supply sends both power and control signal on a single cable eliminating the need for a separate power cable for each LightWand.

*Caution: The Forerunner System is not compatible with The Coloram II System. Do not connect products in the Coloram II System to Forerunner Power Supplies, or products in the Forerunner System to Coloram II Power Supplies. Damage from such action will not be covered by the Forerunner or Coloram II warranties.*

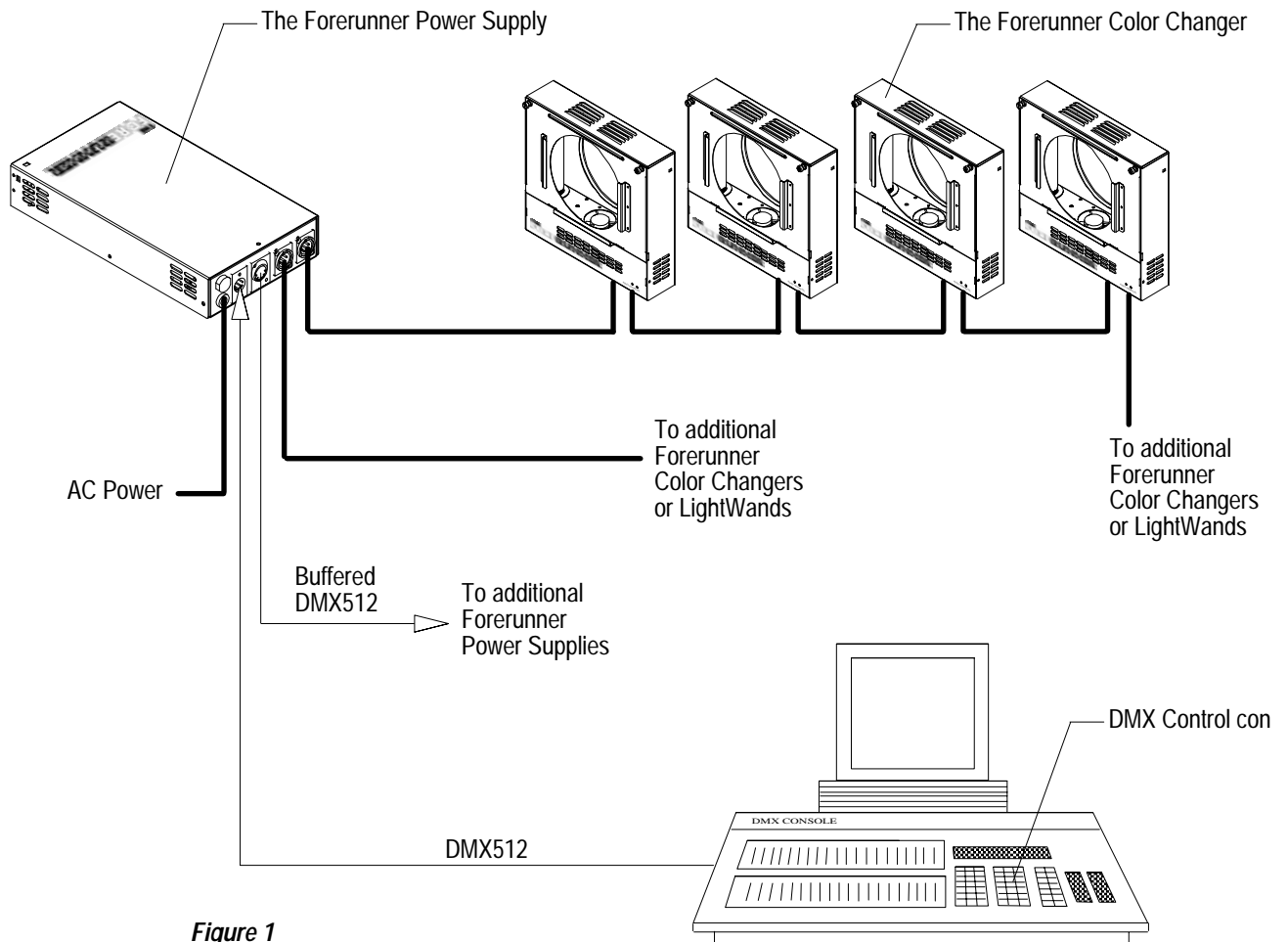


Figure 1

## Power Supply

The Power Supply has two Color Changer/Moving Mirror outputs and provides each Color Changer/Moving Mirror with DMX signal and 24 volts DC. The Power Supply features a DMX bypass relay to pass the DMX signal to the DMX output connector in the event of AC power loss. The Power Supply automatically accommodates 85 - 132 VAC (50/60 Hz) or 170 - 264 VAC (50/60 Hz). AC power is indicated by a red LED which can be viewed from the stage.

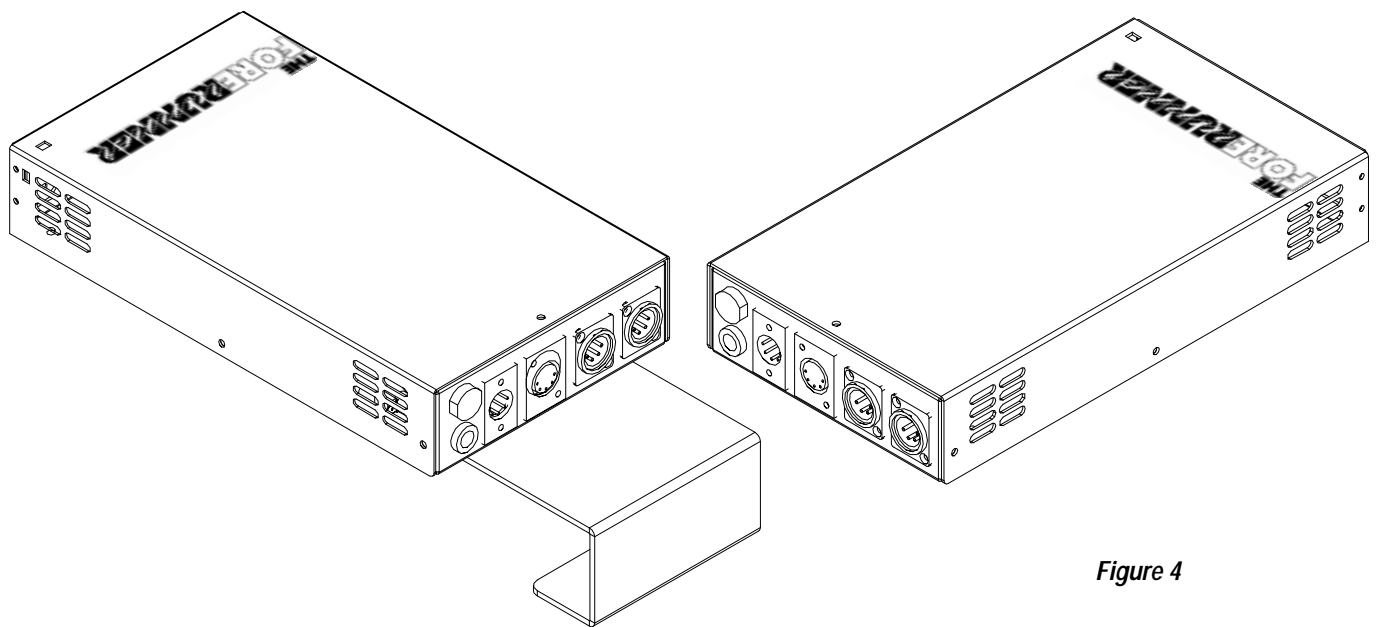


Figure 4

## Cables

The Forerunner cable connects each of the two Power Supply outputs to a daisy chain of up to four LightWand Moving Mirrors or eight Forerunner Color Changers and provides the Moving Mirrors/Color Changers with power and control signal. The Forerunner cable uses 4-pin XLR connectors on either end and consists of two -14 AWG conductors and a 22 AWG twisted, shielded pair.

*Note: The cable used in the Forerunner System is the same cable which is used in the Coloram II System and may be referred to as either Coloram II cable or Forerunner cable.*

# DMX Interface

The Light Wand uses 2 to 5 DMX channels as selected by the user. Eight or 16 bit pan/tilt modes are selected via dip switch number 1 (using 2 or 4 DMX channels respectively). See Figures 1 and 2 for the channel assignment charts. An optional channel exists and can be turned on via dip switch number 2. The optional channel is channel 3 in 8 bit mode or channel 5 in 16 bit mode. The optional channel controls spin mode and timed pan/tilt movement.

## Spin Mode

When the optional channel is set to 80% or above, the unit will go into spin mode. Channel 1 then controls spin speed and direction (see the DMX channel definitions). When spin mode is commanded, the unit will complete any pan/tilt move in progress, then spin mode will be started. Once the unit is in spin mode, the tilt position cannot be changed. It is possible to command a new tilt position at the same time as commanding spin to start. The unit will first perform the tilt move and then spin mode will be started. When spin mode is exited, the unit will go to the currently commanded pan/tilt position.

## Timed Pan/Tilt Moves

The optional channel also allows for a timed pan/tilt move. Values can be selected from 0 to 30 seconds for a move. See the time channel table in Appendix A for DMX values and the corresponding time to position values. For a point to point pan/tilt move, smoother results will be obtained by performing a timed move than by doing a pan/tilt DMX fade from the console.

# DMX Channel Definitions

## 16 Bit Pan/Tilt

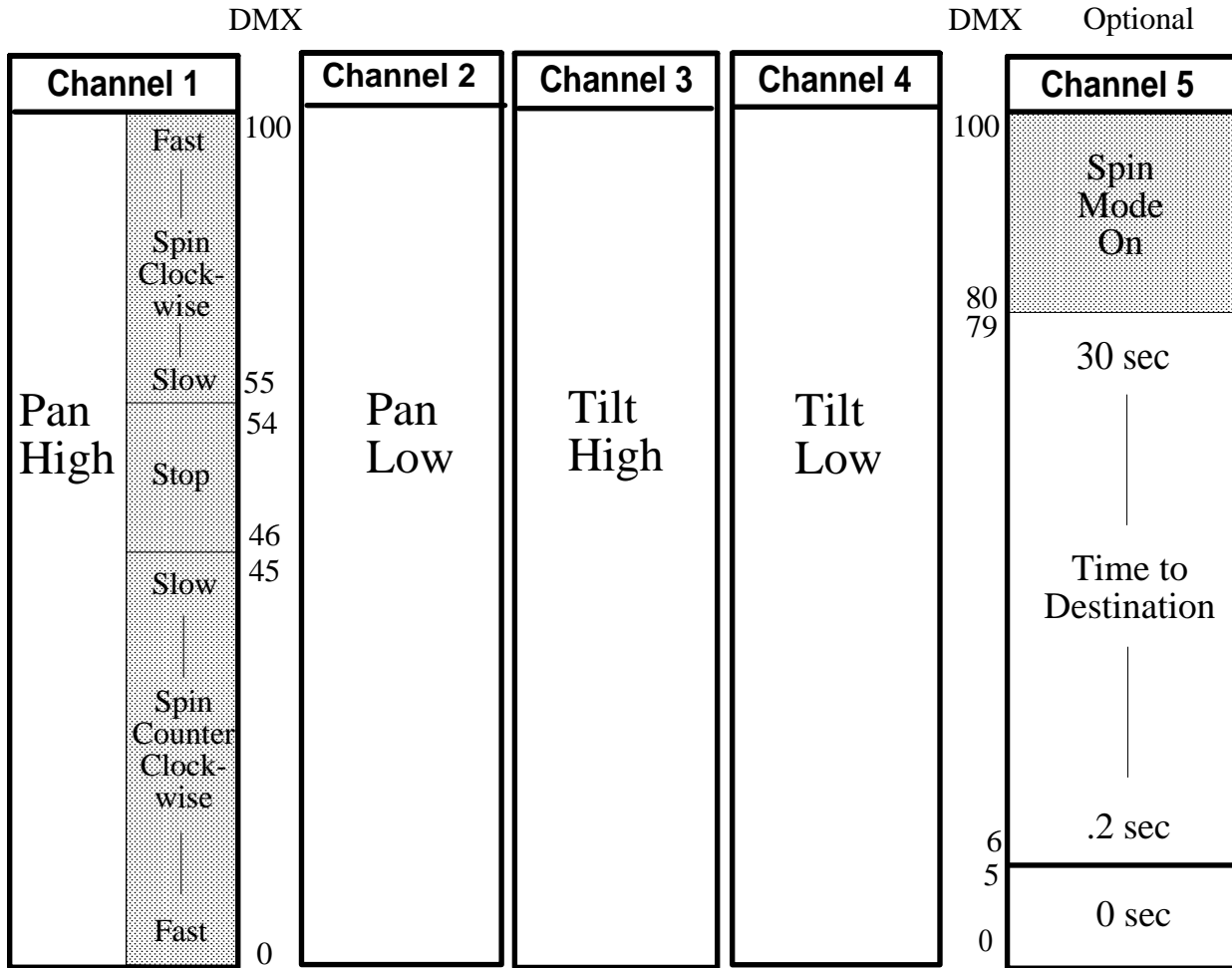


Figure 1

# DMX Channel Definitions

## 8 Bit Pan/Tilt

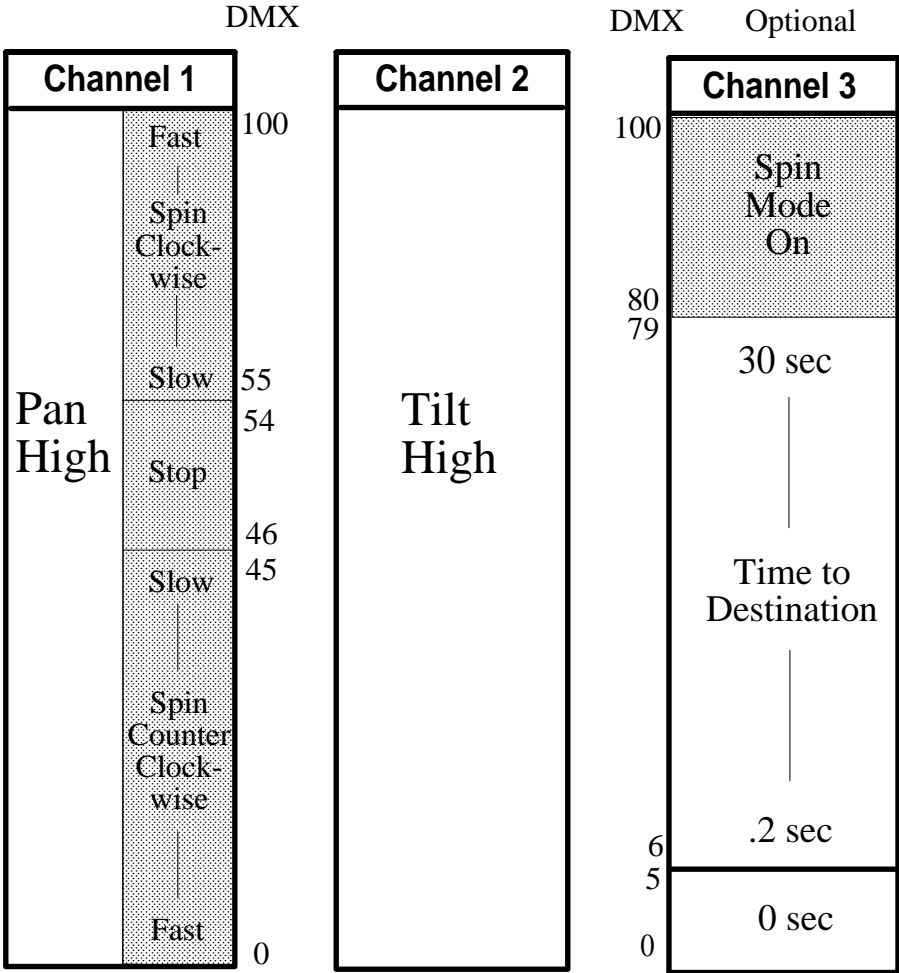


Figure 2



# Setup for the LightWand

To get your Forerunner System up and running, follow these hookup and checkout procedures.

## 1. Set the DMX512 Moving Mirror Channel

Each Moving Mirror is assigned an individual DMX address to which it will respond from the lighting console. The address is set via the three rotary switches located on the back of each Moving Mirror. Valid DMX addresses are 001 - 511.

Set the DMX starting channel on the three rotary switches. The red LED indicates that the unit is powered. The blinking green LED indicates that the unit is receiving DMX control data.

## 2. Set the Dip Switches

Set dip switch number 1 to select between 8 and 16 bit pan/tilt mode.

Set dip switch number 2 to select the Optional DMX channel on or off (see description of the Optional Channel in the DMX Interface section above).

Set dip switch number 3 to select Shortest Path Mode on or off. If the unit is in shortest path mode it will travel the shortest distance to a new pan destination even if it means spinning around the "back" side of the unit.

## 3. Attach the Moving Mirror to the Lamp

Slide the Moving Mirror's mounting bracket into the gel frame holder of your lamp and lock the gel frame retention clip (if available).

If the mounting plate installed on your Moving Mirror doesn't fit the fixture, you may replace it with a differently sized plate. See page 11 for information on changing mounting plates.

## 4. Attach the Safety Cable

A safety cable is attached to the back, right hand side of the LightWand. Run this cable around the pipe or truss from which you hang the light fixture and clip it to itself (fig. 5).

## 5. Attach the Power Supply to the truss

The Forerunner Power Supply is designed to attach directly to the pipe or truss of your lighting rig.

The Power Supply comes with a mounting bracket which hooks over the pipe or truss and is then locked into place with a thumb screw.

Once you have the Power Supply positioned and locked into place, connect the safety cable by running it around the pipe or truss to which the Power Supply is attached.

*Note: For cabling purposes, it may be preferable to position your Power Supply toward the center of the pipe or truss and daisy chain either direction from it.*

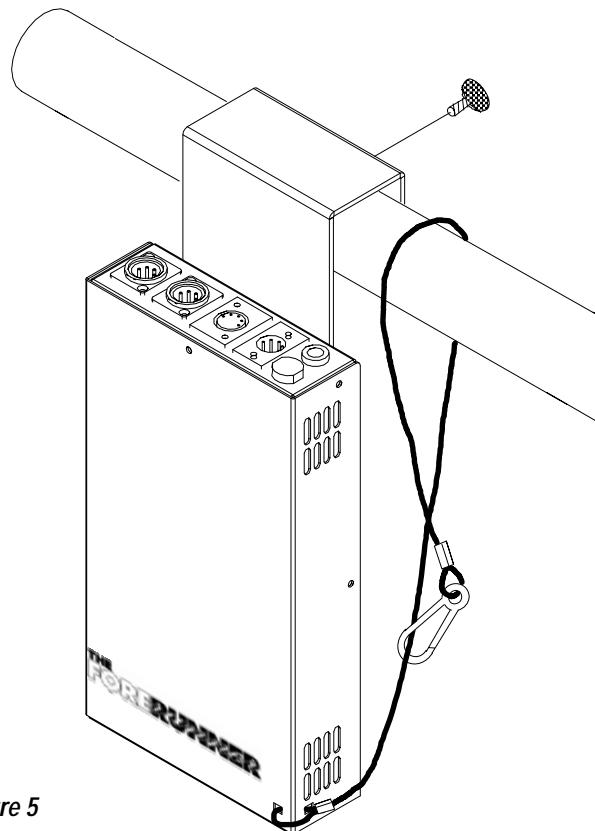


figure 5

## 6. Connect the Moving Mirror to the Power Supply

Connect the Moving Mirror to the Power Supply using the supplied 4-pin power/signal cable. The connectors are on the back of the LightWand and the front of the Power Supply.

*Note: Both power and signal are supplied to the Moving Mirror on the same cable. The Power Supply has two Color Changer outputs. Each output will control up to four Moving Mirrors with a maximum of 350 feet of cable per output.*

## 7. Connect the Power Supply to AC Power

Plug the AC cord into a non-dimmed power circuit. The power supply automatically accommodates 85 - 132 VAC (50/60 Hz) or 170 - 264 VAC (50/60 Hz).

Power at the Power Supply is indicated by a red LED which can be viewed from the stage. Power is also indicated by a red LED on the bottom of each LightWand.

*Caution: Do not power the unit from a dimmer. Severe damage will result, and is not covered by product warranty.*

## 7. Connect and Set the DMX512 Source

Connect the DMX512 signal source to the DMX input connector on the front of the Power Supply using standard DMX cable. Valid DMX signal will be indicated by a green LED on the bottom of each LightWand.

# Mounting and Installation Accessories

The components of your Forerunner System may require the installation of additional mounting accessories or the replacement of others. Some of these accessories, such as the Power Supply hanger bracket and your choice of one LightWand mounting plate, are supplied while other accessories, such as additional mounting plates, may need to be purchased separately. The following sections describe the procedures for installation and replacement of these accessories.

## Power Supply Hanger Bracket

The Forerunner Power Supply is shipped with a hanger bracket to allow pipe or truss mounting. The hanger bracket will need to be installed prior to the Forerunner System installation.

Follow these steps to install the hanger bracket.

1. Disconnect AC power from the Power Supply.
2. Place the Power Supply upside down on a flat surface.
3. Position the bracket as shown below.
4. Attach the bracket using a 3/16" Allen wrench and the supplied screws.

*Note: Use the supplied thumb screw to clamp the hanger bracket to the desired pipe or truss.*

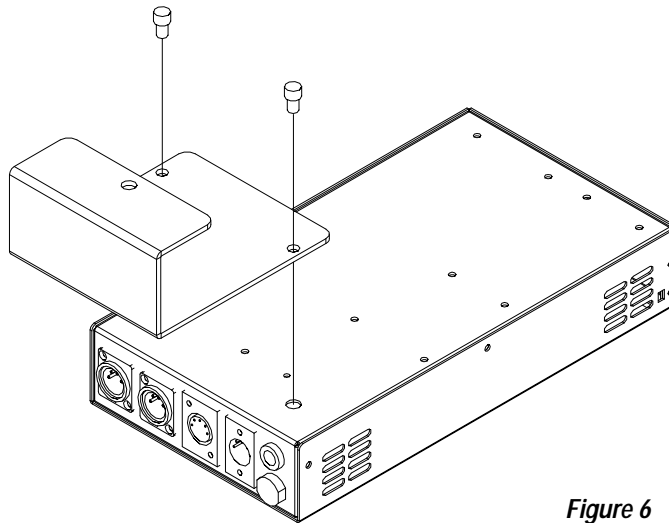


Figure 6

## LightWand Mounting Plate

The LightWand ships with your choice of available mounting plates installed. It may be necessary, when mounting the LightWand on different light fixtures, to replace the mounting plate.

Follow these instructions to replace the mounting plate.

1. Place the LightWand on a flat surface.
2. Unscrew the four screws which hold the current mounting plate on.
3. Place the replacement mounting plate on the LightWand, aligning the screw holes properly.
4. Fasten the four corners of the mounting plate to the LightWand using the same screws you removed in step 2.

*Note: Always use the supplied screws, as they are treated with an anti-vibration compound to keep them from loosening.*

## Specifications

### LightWand Moving Mirror

DMX : Uses two to four DMX channels  
Tilt: 46 degrees of motion  
Pan: 360 degrees of motion  
Fan: Single speed - normal  
Pan/Tilt Resolution: 0.02 degree position  
Pan/Tilt Move Speed: ~40 degrees/second  
Current: .6A draw  
Fuse: 1.5A SloBlo  
Individual DMX address: 001 - 512  
Upgrade Features: four DIP switches included on the unit for future upgrades  
Fixture compatibility (with optional mounting plates):  
19, 26 and 36 degree Source Four and similar ellipsoidal lights.

LED Indicators: Power and DMX512 signal  
Power Supply compatibility:

Forerunner Power Supply  
Rainbow Power Supply  
ChromaQ Power Supply

Weight:

## Forerunner Power Supply

Capacity: 16 Forerunner Color Changers

Color Changer compatibility:

Forerunner Color Changers  
Rainbow Color Changers  
ChromaQ Color Changers

Connectors:

DMX in: Male 5-pin XLR

DMX out: Female 5-pin XLR

Color Changer out x 2: Female 4-pin XLR

Power loss DMX bypass relay: Yes

DMX512 termination: Terminated and regenerated

Fuse: 2 amp slow blow at 115 VAC

1 amp slow blow at 230 VAC

Input Power: Automatically accepts 85 - 132 VAC 50/60 Hz  
and 170 - 264 VAC 50/60Hz

Input Signal: 1990 USITT standard DMX512

LED indicator: Power

## Forerunner Cable

The Forerunner cable uses 4-pin XLR connectors on either end and consists of two -14 AWG conductors and a 22 AWG twisted, shielded pair.

<b>XLR Pin #</b>	<b>Wire Color</b>	<b>Function</b>	<b>Size</b>
1	White	Ground	14 AWG
2	Green	Data -	22 AWG
3	Red	Data +	22 AWG
4	Black	24 Volts DC	14 AWG

*Note: The maximum amount of cable per LightWand output on the power supply is 350 feet.*

## DMX512 Control Cable

The DMX control cable from the lighting board to the Power Supply is a five conductor cable with 5-pin XLR connectors on each end. The wiring pin out is specified by the USITT DMX512/ 1990 standard.

<b>XLR Pin #</b>	<b>Function</b>
1	Common
2	Data -
3	Data +
4	Talkback -
5	Talkback +

## Parts List

To order any of the following items, contact your authorized WYBRON dealer.

### LightWand Moving Mirror and Power Supplies

4570.....	LightWand Moving Mirror
7150.....	The Forerunner Power Supply
715-08-01 .....	User Manual

### Forerunner Mounting and Installation Accessories

715-01-03P .....	Power Supply hanger bracket
SCRWC252075 .....	Wing screw for Power Supply hanger bracket to pipe
SCRSC2520037 .....	Socket cap screw for hanger bracket to Power Supply
452-01-03P .....	6.25"/158.75mm mounting plate for 4 inch Color Changer
452-03-04 .....	6.25"/158.75mm mounting plate for 7 inch Color Changer
703-01-03P .....	7.5"/190.5mm mounting plate for 7 inch Color Changer
703-01-05P .....	10"/254mm mounting plate for 7 inch Color Changer
SCRPH832037 .....	Pan head screws for mounting plate to Color Changer

## Forerunner System Cable

7042-3 .....	3' power/signal cable
7042-5 .....	5' power/signal cable
7042-10 .....	10' power/signal cable
7042-15 .....	15' power/signal cable
7042-25 .....	25' power/signal cable
7042-50 .....	50' power/signal cable
7042-75 .....	75' power/signal cable
7042-100 .....	100' power/signal cable

## Warranty Information

WYBRON, INC. warrants to the original owner or retail customer that for a period of one year from date of delivery of a portable system or energization of a permanently installed system (up to a maximum of 18 months from delivery) its products will be free from defects in materials and workmanship under normal use and service.

Warranty does not cover any product or part of a product subject to accident, negligence, alteration, abuse, misuse or any accessories or parts not supplied by WYBRON, INC.. Warranty does not cover "consumable" parts such as fuses, lamps, or color media. WYBRON, INC.'s warranty does not extend to items not manufactured by us. Freight terms on warranty repairs are FOB WYBRON, INC. factory or designated repair facility. Collect shipments or freight allowances will not be accepted.

WYBRON, INC.'s sole responsibility under this warranty shall be to repair or replace at WYBRON, INC.'s option such parts as shall be determined to be defected on WYBRON, INC.'s inspection. WYBRON, INC. will not assume any responsibility for any labor expended or materials used to repair any equipment without WYBRON, INC.'s prior written authorization. WYBRON, INC. shall not be responsible for any incidental, general or consequential damages to



property, damages for loss of use, time, profits or income, or any other charges.

The owner's obligations during the warranty period under this warranty are to notify WYBRON, INC. at WYBRON, INC.'s address within one week of any suspected defect, and return the goods prepaid to WYBRON, INC. at their factory or authorized service center.

This warranty is contingent on the customer's full and timely compliance with the terms of payment set forth in said purchase order. This warranty is expressly in lieu of any and all other warranties expressed or implied including the warranties of merchantability and fitness for a particular purpose and of other obligations and liabilities on our part. The owner acknowledges that no other representations were made to him or relied upon him with respect to the quality and function of the goods sold.

This written warranty is intended as a complete and exclusive statement of the terms thereof. Prior dealings or trade usage shall not be relevant to modify, explain or vary this warranty. Acceptance of, or acquiescing in, a course of performance under this warranty shall not modify the meaning of this agreement even though either party has knowledge of the performance and a chance to object.

# Appendix A

## Time to Destination Table

If the optional channel is enabled via dip switch #2 then the following DMX values commanded on the optional channel will result in a timed pan/tilt move in seconds as shown.

<b>DMX Decimal</b>	<b>DMX Percent</b>	<b>Time to Destination (sec)</b>
0	0	0
.	.	0
.	.	0
14	5	0
15	6	29.8
16	6	29.7
17	7	29.5
18	7	29.4
19	7	29.2
20	8	29.0
21	8	28.9
22	9	28.7
23	9	28.6
24	9	28.4
25	10	28.3
26	10	28.1
27	11	27.9
28	11	27.8
29	11	27.6
30	12	27.5
31	12	27.3
32	13	27.1
33	13	27.0
34	13	26.8
35	14	26.7
36	14	26.5
37	15	26.3
38	15	26.2
39	15	26.0
40	16	25.9
41	16	25.7
42	16	25.6

<b>DMX Decimal</b>	<b>DMX Percent</b>	<b>Time to Destination (sec)</b>
43	17	25.4
44	17	25.2
45	18	25.1
46	18	24.9
47	18	24.8
48	19	24.6
49	19	24.4
50	20	24.3
51	20	24.1
52	20	24.0
53	21	23.8
54	21	23.7
55	22	23.5
56	22	23.3
57	22	23.2
58	23	23.0
59	23	22.9
60	24	22.7
61	24	22.5
62	24	22.4
63	25	22.2
64	25	22.1
65	25	21.9
66	26	21.7
67	26	21.6
68	27	21.4
69	27	21.3
70	27	21.1
71	28	21.0
72	28	20.8
73	29	20.6
74	29	20.5
75	29	20.3
76	30	20.2
77	30	20.0
78	31	19.8
79	31	19.7
80	31	19.5
81	32	19.4
82	32	19.2
83	33	19.0
84	33	18.9
85	33	18.7
86	34	18.6

<b>DMX Decimal</b>	<b>DMX Percent</b>	<b>Time to Destination (sec)</b>
87	34	18.4
88	35	18.3
89	35	18.1
90	35	17.9
91	36	17.8
92	36	17.6
93	36	17.5
94	37	17.3
95	37	17.1
96	38	17.0
97	38	16.8
98	38	16.7
99	39	16.5
100	39	16.3
101	40	16.2
102	40	16.0
103	40	15.9
104	41	15.7
105	41	15.6
106	42	15.4
107	42	15.2
108	42	15.1
109	43	14.9
110	43	14.8
111	44	14.6
112	44	14.4
113	44	14.3
114	45	14.1
115	45	14.0
116	45	13.8
117	46	13.7
118	46	13.5
119	47	13.3
120	47	13.2
121	47	13.0
122	48	12.9
123	48	12.7
124	49	12.5
125	49	12.4
126	49	12.2
127	50	12.1
128	50	11.9
129	51	11.7
130	51	11.6

<b>DMX Decimal</b>	<b>DMX Percent</b>	<b>Time to Destination (sec)</b>
131	51	11.4
132	52	11.3
133	52	11.1
134	53	11.0
135	53	10.8
136	53	10.6
137	54	10.5
138	54	10.3
139	55	10.2
140	55	10.0
141	55	9.8
142	56	9.7
143	56	9.5
144	56	9.4
145	57	9.2
146	57	9.0
147	58	8.9
148	58	8.7
149	58	8.6
150	59	8.4
151	59	8.3
152	60	8.1
153	60	7.9
154	60	7.8
155	61	7.6
156	61	7.5
157	62	7.3
158	62	7.1
159	62	7.0
160	63	6.8
161	63	6.7
162	64	6.5
163	64	6.3
164	64	6.2
165	65	6.0
166	65	5.9
167	65	5.7
168	66	5.6
169	66	5.4
170	67	5.2
171	67	5.1
172	67	4.9
173	68	4.8
174	68	4.6

<b>DMX Decimal</b>	<b>DMX Percent</b>	<b>Time to Destination (sec)</b>
175	69	4.4
176	69	4.3
177	69	4.1
178	70	4.0
179	70	3.8
180	71	3.7
181	71	3.5
182	71	3.3
183	72	3.2
184	72	3.0
185	73	2.9
186	73	2.7
187	73	2.5
188	74	2.4
189	74	2.2
190	75	2.1
191	75	1.9
192	75	1.7
193	76	1.6
194	76	1.4
195	76	1.3
196	77	1.1
197	77	1.0
198	78	0.8
199	78	0.6
200	78	0.5
201	79	0.3
202	79	0.2
203	80	Spin Mode
.	.	.
.	.	.
255	100	Spin Mode



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