SOFTWARE VERSION 2.1

WWW.PRG.COM

AUTOPAR® WASH LUMINAIRE

USER MANUAL

AutoPar® Wash Luminaire User Manual

Version as of: November 8, 2010

PRG part number: 02.9802.0001.21

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FOREWORD

Compliance Notice

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) This device must accept any interference received, including interference that may cause undesired operation.

Conforms to:

UL STD 1573

Certified to:

CAN/CSA STD E598-1
CAN/CSA STD E598-2-17

3077774

Safety Notice

It is extremely important to read ALL safety information and instructions provided in this manual and any accompanying documentation before installing and operating the products described herein. Heed all cautions and warnings during installation and use of this product.

Safety symbols used throughout this manual are as follows:

CAUTION advising of potential damage to product.

WARNING advising of potential injury or death to persons.

GENERAL INFORMATION PERTAINING TO PROTECTION AGAINST ELECTRICAL SHOCK, FIRE, EXPOSURE TO EXCESSIVE UV RADIATION, AND INJURY TO PERSONS CAN BE FOUND BELOW.

WARNING: INSTRUCTIONS FOR CONTINUED PROTECTION AGAINST FIRE

1) PRG luminaires have been designed for use only with specific lamps. Note lamp type before replacing. Installing another type of lamp may be hazardous.
2) PRG luminaires may be mounted on any type of surface as long as mounting instructions are followed. See instructions detailed in this manual.
3) Replace fuses with same type and rating only.
4) Minimum distance from head to any flammable object is 2m.

WARNING: INSTRUCTIONS FOR CONTINUED PROTECTION AGAINST ELECTRICAL SHOCK

1) PRG luminaires are designed for dry locations only. Exposure to rain or moisture may damage luminaire.
2) Disconnect power before servicing any PRG equipment.
3) Servicing to be performed by qualified personnel only.

WARNING: INSTRUCTIONS FOR CONTINUED PROTECTION AGAINST EXPOSURE TO EXCESSIVE ULTRAVIOLET RADIATION

1) PRG luminaires may use an HID type lamp which produces UV radiation. DO NOT look directly at lamp.
2) It is hazardous to operate luminaires without complete lamp enclosure in place or when lens is damaged. Lenses or UV shields shall be changed if they have become visibly damaged to such an extent that their effectiveness is impaired.

WARNING: INSTRUCTIONS FOR PROTECTION AGAINST INJURY TO PERSONS

1) Exterior surfaces of the luminaire will be hot during operation. Use appropriate safety equipment (gloves, eye protection, etc.) when handling and adjusting hot equipment and components. Service and maintenance should be performed only by qualified personnel as determined by the high pressure lighting fixture manufacturer.
2) Arc lamps generate intense heat. Disconnect power and allow lamp to cool for 15 minutes before relamping.
3) Arc lamps emit ultraviolet radiation which can cause serious skin burn and eye inflammation. Additionally, arc lamps operate under high pressure at very high temperatures. Should the lamp break, there can exist a danger of personal injury and/or fire from broken lamp particles being discharged.
4) The lamp shall be changed if it has become damaged or thermally deformed.
5) Wear eye protection when relamping.
6) If lamp is touched with bare hands, clean lamp with denatured alcohol and wipe with lint-free cloth before installing or powering up the luminaire.
7) Serious injury may result from the generation of ozone by this lamp system. A proper means of venting must be provided.

Notes de sécurité

Avant de procéder à l'installation des produits décrits dans ce guide et de les mettre en marche, il est extrêmement important de lire TOUS les renseignements et TOUTES les directives de sécurité contenues dans ce guide ainsi que toute documentation jointe. Tenir compte de tous les avertissements et suivre toutes les précautions pendant l'installation et l'utilisation de cet appareil.

Les symboles de sécurité utilisés dans ce guide sont les suivants :

ATTENTION Ce symbole annonce que l'appareil risque d'être endommagé.

AVERTISSEMENT Ce symbole annonce qu'il y a risque d'accident grave ou même fatal.

CETTE SECTION CONTIENT DES INFORMATIONS GÉNÉRALES POUR SE PROTÉGER CONTRE LES DÉCHARGES ÉLECTRIQUES, LES INCENDIES, L'EXPOSITION EXCESSIVE AUX RAYONS UV ET TOUT AUTRE ACCIDENT POUVANT ENTRAÎNER DES BLESSURES.

AVERTISSEMENT: Risque d' explosion.

1) Le service et le maintenance ne devront être assurés que par des personnes qualifiées comme precisé par le frabricant des lampes à haute pression.
2) Des vêtement de protection et les procédures précisées dans le manuel du frabricant doit être fournies.

AVERTISSEMENT: Réglage des lampes

1) Chaleur intense. Débrancher le matériel et laisser refroidir pendant 15 minutes avant de rallumer.
2) Risque l'incendie. N'utilise que des METAL HALIDE MSR 700 Watt G 22 Base.

AVERTISSEMENT: DIRECTIVES POUR SE PROTÉGER CONTRE UNE EXPOSITION EXCESSIVE AUX RAYONS UV

1) Risque d'explosion en cas de radiation ultraviolet imprantes.
2) Ne pas intervener en l'absence de confinement de la lampe en place ou quand la lentille est abîmée.

AVERTISSEMENT: DIRECTIVES POUR SE PROTÉGER CONTRE LES ACCIDENTS POUVANT ENTRAÎNER DES BLESSURES

1) Chaleur intense. Eviter tout contact avec des personnes ou des tissues. Attention, de graves blessures peuvent résulter de production d'ozone par cette lampe. Un système de ventilation adapté doit être fournies
2) La température de surface = 300.c
   La temperature de l'ambiance = 50.c
3) Ne convient pas pour un usage résidential.
4) Utilisable seulement dans les locaux secs

Revision History

This manual has been revised as follows:

Version	Release Date	Notes
BASIC	February 8, 2006	Software version 1.0. Initial release.
A	March 20, 2006	Revised “Aligning Lamp” p. 13
B	September 11, 2007	Updated menu system operation to software version 2.0
C	November 8, 2010	Changed software version to 2.1 and updated book format. (No change to technical information.)

TABLE OF CONTENTS

Appendix A. Technical Specifications

INTRODUCTION

About This Manual

This manual provides necessary information regarding product safety, installation, and operation for the following PRG equipment:

+ AutoPar® Wash Luminaire (20.9802.0001)

The instructions apply to AutoPar software version 2.1.

Familiarizing yourself with this information will help you get the most out of your PRG product.

WARNING: It is important to read ALL accompanying safety and installation instructions to avoid damage to the product and potential injury to yourself or others.

Additional Documentation

For extended service information, refer to the following PRG manual:

+ AutoPar Wash Luminaire Service Manual (02.9802.0010)

For more information regarding DMX512 systems, refer to the DMX512/1990 & AMX 192 Standards publication available from United States Institute for Theatre Technology, Inc. (USITT).

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Syracuse, NY 13206-1111 USA
1-800-93USITT
www.usitt.org

Customer Service

For technical assistance, contact the PRG International Service Center or contact your nearest PRG office. Contact information for all PRG office locations can be found on our website at: www.prg.com/about-us/locations/

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For additional resources and documentation, please visit our website at: www.prg.com

1.

DESCRIPTION

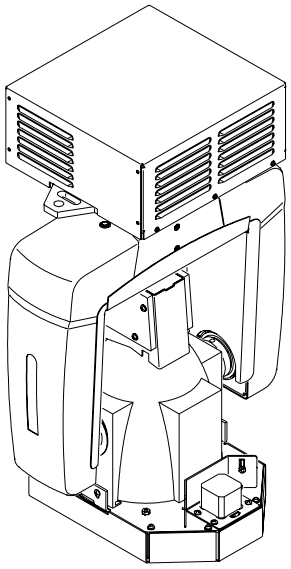
This chapter contains descriptions of luminaire features, components, and accessories.

+ FEATURES

+ COMPONENTS

FEATURES

Overview



The AutoPar Wash Luminaire from PRG Lighting is a compact, lightweight fixture which incorporates PAR 56 illumination with the dynamic features of an automated luminaire.

The AutoPar luminaire features a powerful 700 watt arc lamp, an integrated ballast with power factor correction and a moving yoke. Four interchangeable front lenses provide a wide range of beam options, while a standard gel frame allows for color customization. A programmable rotating front lens assembly provides smooth rotation of the front lens within a 200° range. The unit contains a cold mirror dichroic coated reflector and a UV filter, which produce a cool, safe beam of light.

The AutoPar wash luminaire can be mounted in any orientation and easily controlled by any DMX512-compatible console. Two Mega-Claw truss hooks are included for quick, safe installation.

Features:

+ 700W arc lamp
+ Programmable rotating front lens assembly.
+ Smooth, timed continuous pan and tilt motion by way of three-phase stepper motors.
+ Integrated electronic ballast with universal input and power factor correction.
+ Modified parabolic, multifaceted reflector finished with a metal cold mirror dichroic coating.
+ Internal coated UV filter which rejects greater than 99% of ultra-violet radiation.
+ Four heat resistant, molded borosilicate glass lenses included: Very Narrow Spot, Narrow Spot, 8-Row Lenticular, and 12-Row Lenticular.
+ Gel frame holder which allows tool-free replacement of standard color gels.
+ Forced-air cooling for ballast.
+ Control by DMX512.
+ Remote start and douse from console.
+ Self-test functions.

COMPONENTS

Included Items

The following illustration shows all items included with the luminaire:

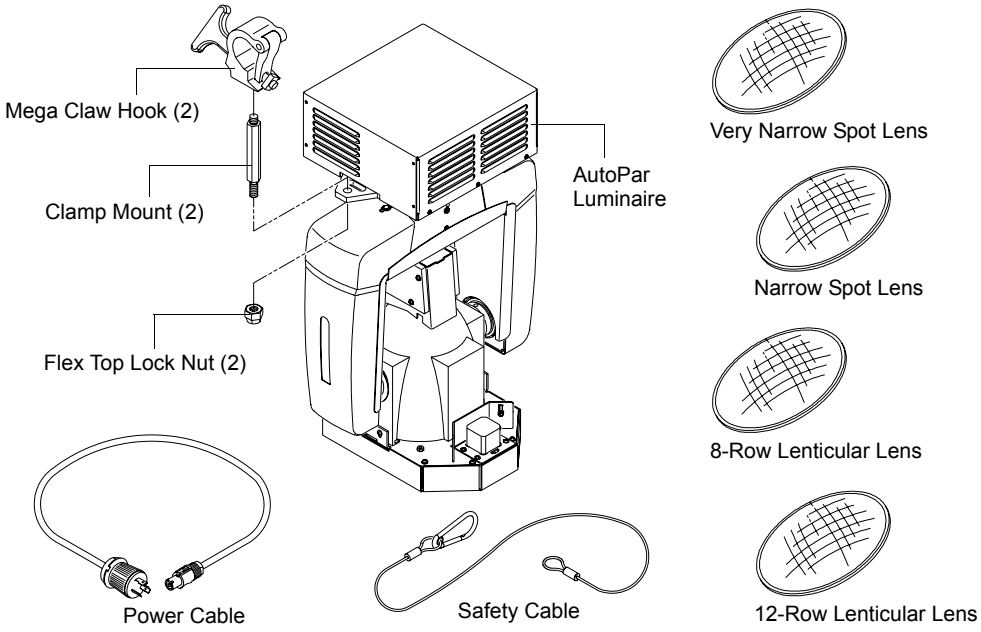


Figure 1-1: AutoPar Wash Luminaire Included Items

Replacement Items and Accessories

The following items can be ordered from PRG. (Please order by PRG part number.)

PRG P/N	Accessory
10.9802.0010	Clamp Mount
23.9623.0177	DMX Termination Connector
55.6840.0001	Mega-Claw Truss Hook (Round and Square)
55.6841.0001	Mega-Claw Truss Hook (2" Round Tube)
71.2566.0700.0	MSR 700W LAMP

Major Components and Controls

The following illustration shows the external luminaire components and controls.

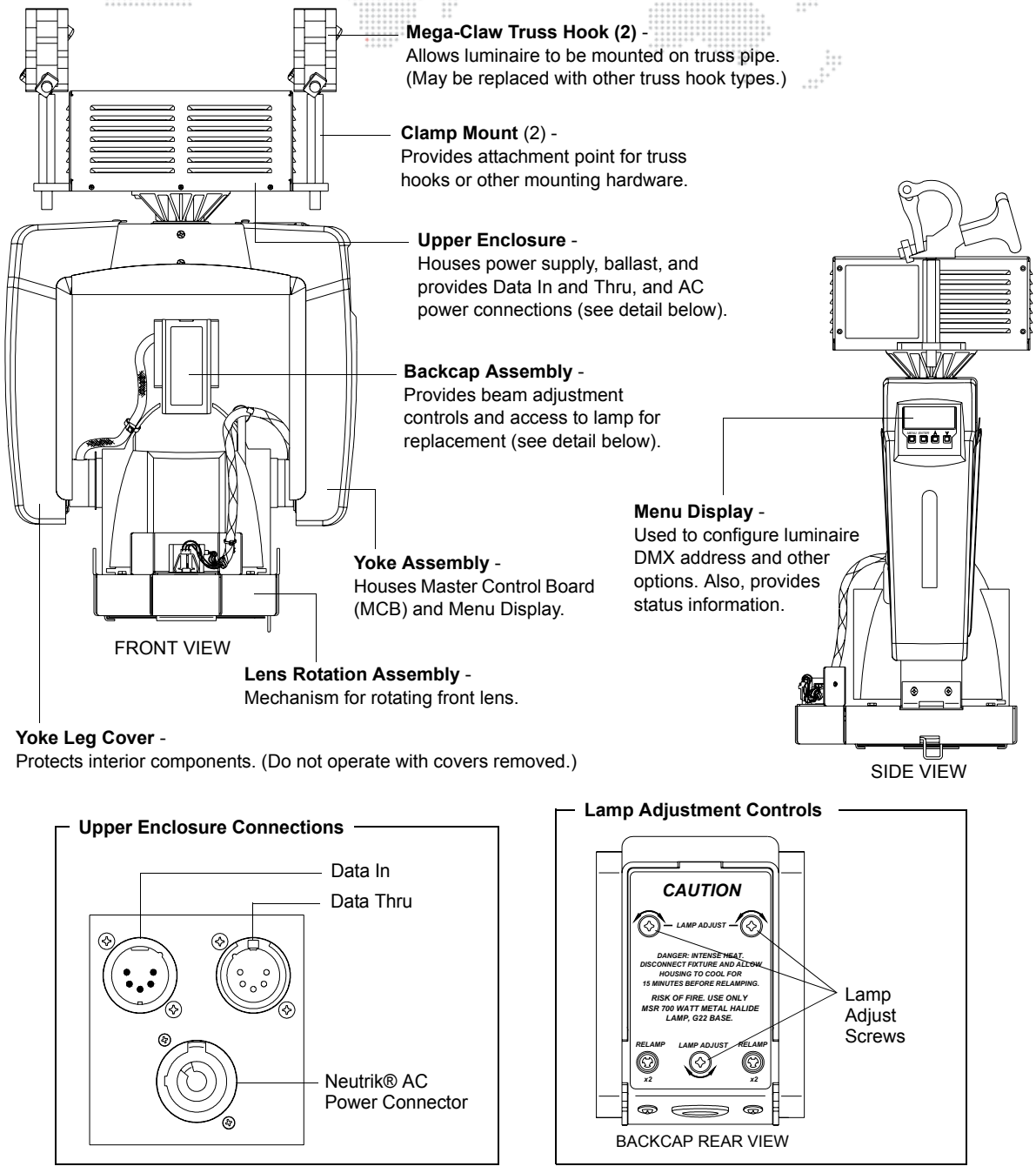


Figure 1-2: AutoPar External Components and Controls

2.

INSTALLATION

This chapter contains instructions for installing the luminaire. It includes connecting power and data, along with instructions for powering up the luminaire for the first time and addressing it within your system.

+ POWER AND DATA CABLING REQUIREMENTS
+ INSTALLATION PROCEDURE
+ POWER UP PROCEDURE

POWER AND DATA CABLING REQUIREMENTS

Power

The AutoPar Wash Luminaire requires standard AC power distribution from 100-240 VAC, 50/60 Hz, 10 Amps maximum. The upper enclosure provides a Neutrik® connector for power input. (Power cable not supplied.)

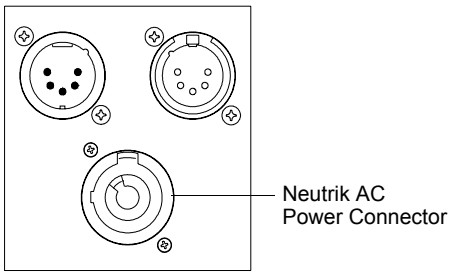


Figure 2-1: Power Input Connector

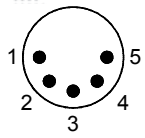
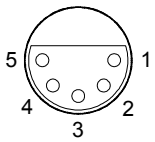
Data

The AutoPar Luminaire is equipped with two, 5-pin XLR connectors for DATA IN and DATA THRU (out) applications. DATA IN requires a 5-pin, female XLR connector and DATA THRU requires a 5-pin, male XLR connector. When purchasing or constructing data cables, it is important that not only the correct cable type be used, but also quality cable to ensure a reliable DMX512 system. Your cabling should meet the following USITT DMX specification requirements:

+ Suitable for use with EIA485 (RS485) operation at 250k baud.
+ Characteristic impedance 85-150 ohms, nominally 120 ohms.
+ Low capacitance.
+ Two twisted pairs.
+ Foil and braid shielded.
+ 24 AWG minimum gauge for runs up to 1000 feet (300m).
+ 22 AWG minimum gauge for runs up to 1640 feet (500m).

Note: Microphone type cables and other general purpose, two-core audio or signal cables are not suitable for use with DMX512.

The XLR 5-pin connectors should be wired as follows:

Pin/Wire Code to XLR Connectors						
Data Thru Cable Pinout  Male Conn	**Pin 1** Foil & Braided Shield	**Pin 2** 1st conductor of 1st twisted pair Data (-)	**Pin 3** 2nd conductor of 1st twisted pair Data (+)	**Pin 4** 1st conductor of 2nd twisted pair Data (-)	**Pin 5** 2nd conductor of 2nd twisted pair Data (+)	Data In Cable Pinout  Female Conn

Note: Refer to the USITT Recommended Practice for DMX512 guide for additional information regarding DMX512 systems. See "Additional Documentation" on page 1.

Recommended Cable Types/Manufacturers

These are only a few of the suitable cable types. Any quality EIA485, twisted pair, 120 ohm, shielded cable will also work.

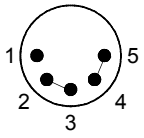
Type	Pairs	ZΩ*	Jacket	AWG	Use	Temp (F)
Belden Cables						
1215A	2	150	PVC	26	IBM Type 6 Office cable	75
1269A	2	100	PTFE	22 (Solid)	High Temp, Plenum cable	200
8102	2	100	PVC	24	UL2919	80
8132	2	120	PVC	28	UL2919	80
8162	2	100	PVC	24	UL2493	60
82729	2	100	PTFE	24	High Temp, Plenum cable	200
88102	2	100	PTFE	24	High Temp, Plenum cable	200
89696	2	100	PTFE	22	High Temp, Plenum cable	200
89729	2	100	PTFE	24	High Temp, Plenum cable	200
89855	2	100	PTFE	22	High Temp, Plenum cable	200
9729	2	100	PVC	24	UL2493	60
9804	2	100	PVC	28	UL2960	60
9829	2	100	PVC	24	UL2919	80
9842	2	120	PVC	24	UL2919	80
Proplex Cables						
PC224P	2	110	Polyurethane	22	Heavy Duty and Portable	105
PC224T	2	110	PVC	22	UL2464	105
PC226T	3	110	PVC	22	UL2464	

* Characteristic Impedance

Male Termination Connector

A male XLR termination connector is required at the last luminaire (or "far end of the line") to prevent signal reflections. Signal reflections may cancel out the signal at certain line lengths, resulting in errors. The terminator is also necessary for software downloads and running tests on multiple luminaires. To construct your own connector, you will need the following components:

+ 5-pin, male XLR connector.
+ Two 1/4W 5% 120 ohm resistors.



Solder resistors across pins 2 & 3, and 4 & 5

Note: A male termination connector is also available as an accessory from PRG. See "Replacement Items and Accessories" on page 5.

INSTALLATION PROCEDURE

Hanging the Luminaire

The AutoPar wash luminaire can be hung horizontally or vertically from any structure designed to accommodate the load created by this moving luminaire. Two provided clamp mounts are used to attach truss hooks or other mounting hardware as required. A Mega-Claw truss hook is provided, however, other compatible truss hooks are available from manufacturers such as Grainger.

The safety cable (provided), should be looped through the mounting bracket slot and then attached to the pipe.

WARNING: A safety cable and two truss hooks should be used in all hanging configurations.

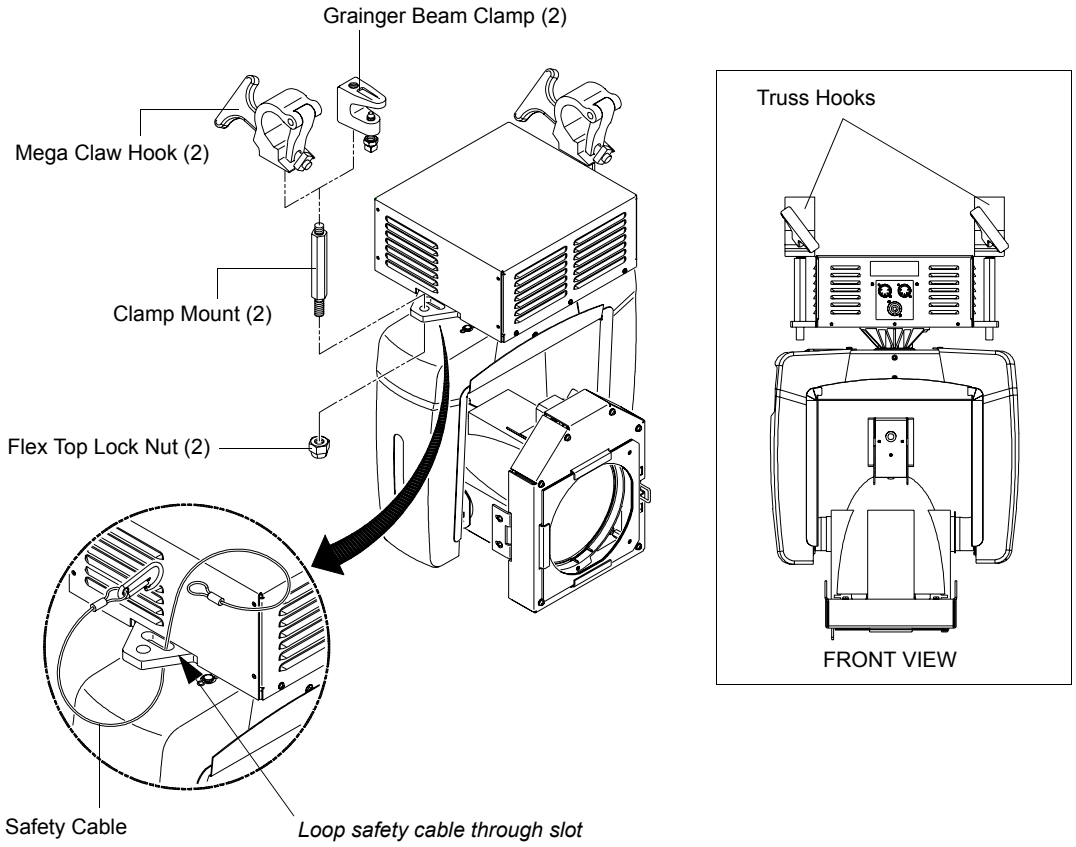


Figure 2-2: Attaching Truss Hooks and Safety Cable

Installing in Truss:

Step 1. Attach hardware and loop safety cable through mounting bracket slot (**Figure 2-2**).

Step 2. Lift luminaire into mounting position (**Figure 2-3**).

Step 3. Secure in place with truss hooks. Ensure truss hook hardware (e.g. wing bolt) is properly tightened and that luminaire is fully supported.

Step 4. Attach safety cable around pipe as shown.

Step 5. Connect power and data cables according to "Connecting Data and Power" on page 13.

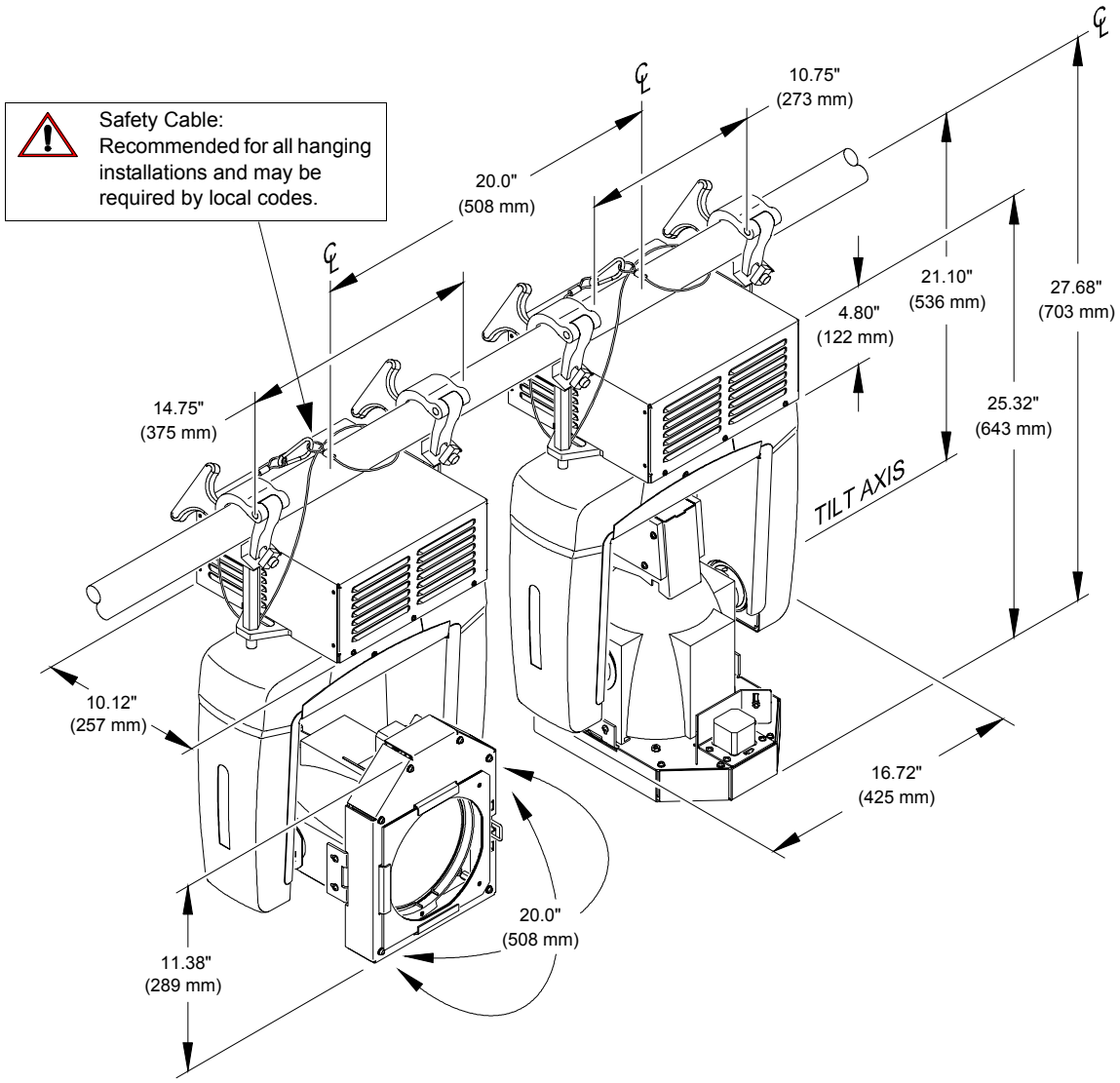
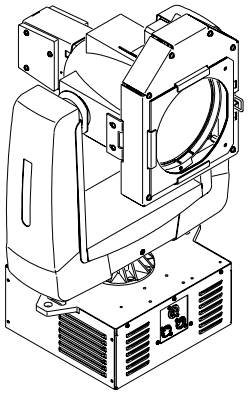


Figure 2-3: Hanging Configuration and Dimensions

Floor Mounting the Luminaire

The luminaire enclosure is sufficient to stabilize the luminaire in a floor installation, provided that the mounting surface is flat and sturdy.



Connecting Data and Power

A maximum of 32 luminaires may be connected in any one DMX data link.

Note: This maximum limit applies to the luminaire "daisy chain" only. Your system or console may require fewer luminaires on a single data link path. Consult your console documentation for more information.

To connect power and data:

Step 1. Connect data cable from console to first luminaire in chain at DATA IN connector (**Figure 2-4**).

Step 2. If required, connect additional data cables from DATA THRU connectors to DATA IN connectors of remaining luminaires in link.

Step 3. At last luminaire in link, install male termination connector at DATA THRU connector. (Luminaires and other devices on the same DMX chain may not function properly without termination.)

Step 4. At each luminaire, connect AC cable from power input source.

Step 5. Dress and secure all cables so that they will not interfere with luminaire head or yoke movement.

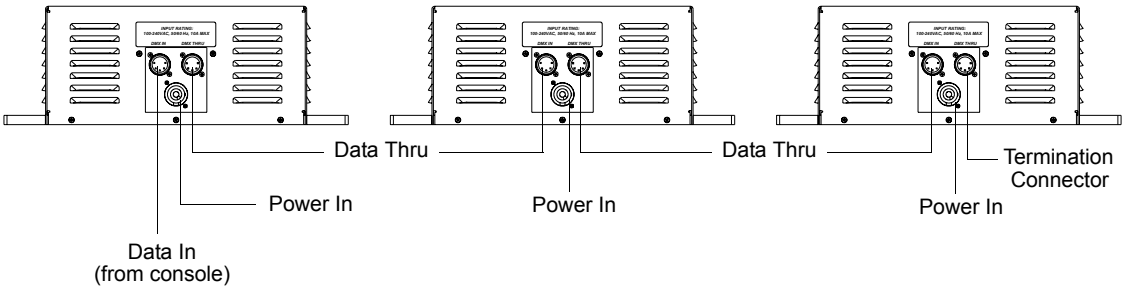


Figure 2-4: Connecting Power and Data Cables

POWER UP PROCEDURE

Powering Up the Luminaire

When AC power is applied, the luminaire will begin a calibration sequence which moves its pan, tilt, and lens rotation mechanisms. After calibration, the luminaire head will either stop at its "home" position (which positions the pan axis at mid-rotation and the head parallel to the yoke with the lens pointing away from the luminaire upper enclosure) or move to its current DMX-defined position if DMX512 data is present. The lens rotation mechanism will also move to its "home" or DMX-defined position.

The lamp is set to off in the default mode. DMX512 control is required to strike the lamp.

CAUTION: Before applying power, be sure the luminaire is hung or positioned so that the head and yoke can move freely without restriction.

CAUTION: If luminaire is operated without yoke leg covers in place, pan problems will occur.

To power up:

Step 1. At each luminaire, connect AC input cable and apply power. Allow luminaire to complete its calibration sequence.

Step 2. For normal power up, Display Menu will display "**Status OK**." After a few seconds, Menu will display a DMX address or "**No Comm**" if an address has not been set or no DMX512 signal is detected.

Step 3. To strike lamp, send appropriate DMX512 value from console. Refer to "Control Channel Functions" on page 21.

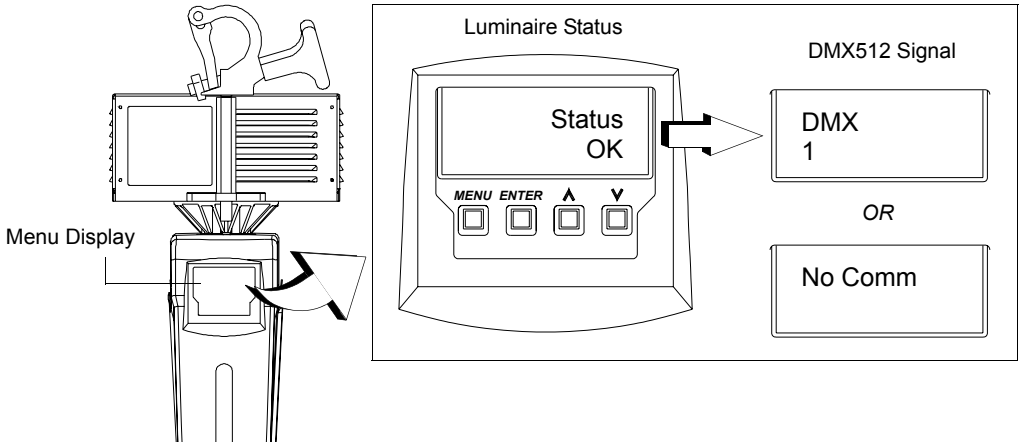


Figure 2-5: Menu Display at Power Up

Note: Refer to "Menu System" on page 18 for more information about the Menu Display.

Programming a Starting Address

The address setting for DMX512 systems is programmed at the Menu Display (refer to "Menu System" on page 18 for more detailed instructions). The luminaire retains its DMX512 address even if power is removed.

Note: Refer to your console operating instructions for specific information regarding its addressing requirements.

Program a DMX512 starting address:

Step 1. Press [Enter] to access top level functions.

Step 2. Press [Up] / [Down] arrows to scroll to Dmx menu. Press [Enter].

Step 3. Press [Up] / [Down] arrows to scroll to Address menu. Press [Enter] to begin edit mode.

Step 4. Press [Up] / [Down] arrows to enter starting address.

Step 5. Press [Enter] to set.

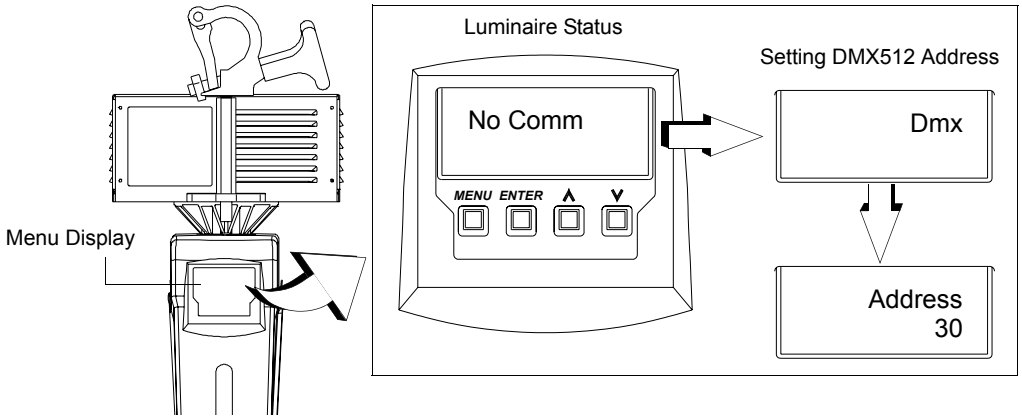


Figure 2-6: Setting DMX512 Address

Programming Starting Address Without Calibrating

It is possible to bypass the calibration sequence and go directly to the Menu Display programming in order to pre-program an address setting.

Program starting address without calibrating luminaire:

+ While powering up luminaire, press and hold [Menu]. Program address as in Programming a Starting Address above.

Note: The luminaire will require a reset to restore control.

Configuring Lamp Operation and Other Options

The lamp can be turned off or on using the Menu Display. The luminaire can also be configured to power up with the lamp on or off. For instructions on setting all menu options, refer to "Menu Functions" on page 19.

Notes

3.

OPERATION

This chapter contains instructions for using the Menu Display system and controlling the luminaire by DMX512.

+ MENU SYSTEM
+ DMX512 OPERATION
+ LUMINAIRE TIMING

MENU SYSTEM

Overview

The menu system is a programmable set of commands used to configure, address, and report status information at the Menu Display. The system is controlled by four buttons as shown in **Figure 3-1**.

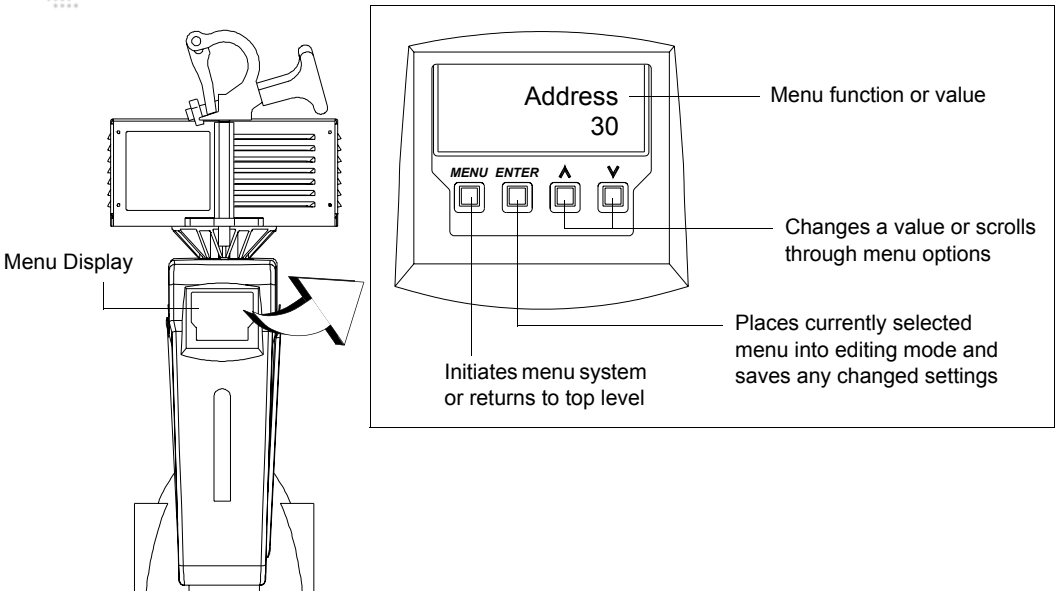


Figure 3-1: Menu Display Controls

To enter the menu system, press [Menu]. The first level of functions are referred to as top level functions. Scroll through the top level functions by pressing [Up] / [Down] arrows. Once the desired function appears in the display, press [Enter] to move to the sub function. Once again, press the [Up] / [Down] arrows to scroll through all sub functions. At any function, press [Enter] to enter editing mode. Use [Up] / [Down] arrows to program a value or toggle a setting such as On/Off. Press [Enter] to store the value or setting. Press [Menu] to move up a level.

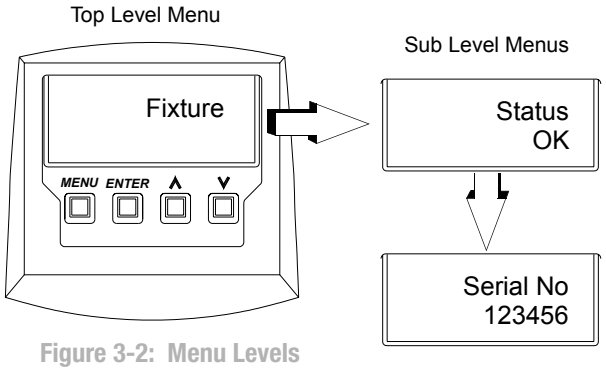


Figure 3-2: Menu Levels

Example: Enable tilt reverse option

Step 1. Press [Enter] to access top level functions.

Step 2. Press [Up] / [Down] arrows to scroll to Dmx menu. Press [Enter].

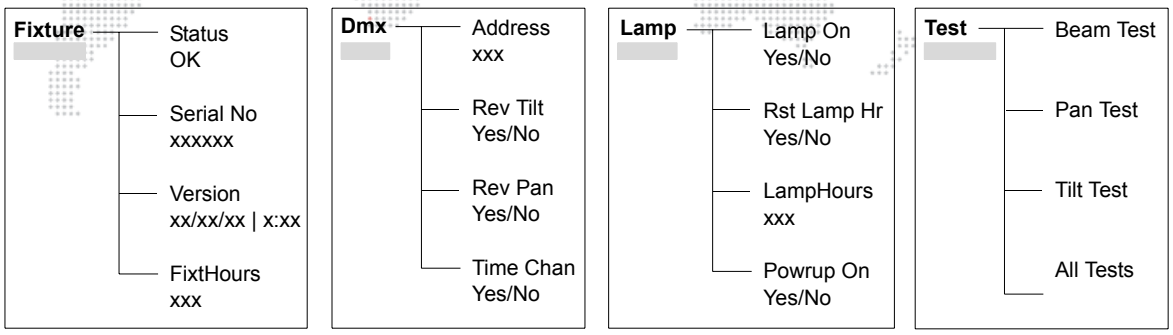
Step 3. Press [Up] / [Down] arrows to scroll to Rev Tilt option. Press [Enter] to begin edit mode.

Step 4. Press [Down] arrow to toggle setting to **Yes**.

Step 5. Press [Enter] to set.

Menu Functions

The following is a graphic representation of the menu system. **Fixture**, **Dmx**, **Lamp** and **Test** are top level functions which have a series of sub-functions associated with each.



Function	Purpose
Fixture	Top level menu which accesses luminaire information such as serial number, software version, and total operation hours.
Status	Indicates calibration status.
Serial No	Displays luminaire serial number.
Version	Displays luminaire software version by date and time.
FixtHrs	Displays total number of hours luminaire has been powered on.
Dmx	Top level menu which accesses luminaire DMX address and control options.
Address	Sets DMX512 address.
Rev Tilt	Sets reverse tilt option: yes or no.
Rev Pan	Set reverse pan option: yes or no.
Time Chan	Sets luminaire to Timing Channel Mode: yes or no.
Lamp	Top level menu which accesses lamp information, turns lamp on or off, and configures lamp operation at luminaire power-up.
Lamp On	Turns lamp on or off: yes or no.
Reset Lamp Hours	Resets total lamp operation hours. *Requires a confirmation.*
Lamp Hours	Displays total number of hours lamp has been powered on.
Power-up On	Configures lamp to turn on at luminaire power-up: yes or no (default).
Test	Top level menu which accesses self-test options. Allows tests to be performed without DMX512 input. *NOTE: Tests will not operate if DMX is present.*
Beam Test	Rotates lens through a full range of motion at full speed. Press [Enter] to start. Press any button other than [Enter] to stop.
Pan Test	Moves luminaire head through entire range of pan motion at full speed. Press [Enter] to start. Press any button other than [Enter] to stop.
Tilt Test	Moves luminaire head through entire range of tilt motion at full speed. Press [Enter] to start. Press any button other than [Enter] to stop.
All Tests	Runs Beam, Pan and Tilt tests simultaneously at full speed. Press [Enter] to start. Press any button other than [Enter] to stop.

DMX512 OPERATION

Channel Mapping

These tables assume a DMX512 start address of 1. When a different starting address is used, this address becomes channel 1 function and other functions follow in sequence.

DMX Channel	Function	Default	Virtuoso® Control
1	Intensity	0	(dummy channel)
2-3	Pan	32767	Pan
4-5	Tilt	32767	Tilt
6	Lens	0	Beam
7	Control	0	Start/Douse/Reset

DMX Channel	Function	Default	Virtuoso® Control
1	Intensity	0	(dummy channel)
2-3	Pan	32767	Pan
4-5	Tilt	32767	Tilt
6	Lens	0	Beam
7	Focus Time	0	(timing channel)
8	Beam Time	0	(timing channel)
9	Control	0	Start/Douse/Reset

Note: Use Menu Display to enable Timing Channels. Refer to "Menu Functions" on page 19.

Control Channel Functions

Control channel functions allow special actions such as reset, douse and start. These must be executed with zero time transition or with console timing disabled. Discrete values must be used; not manual controls such as faders or encoders (see chart below for values).

Reset - resets all luminaire mechanisms.

Douse - turns lamp off.

Start - strikes lamp.

DMX Value	Action
85	Reset
168	Douse
252	Start

To use control channel functions:

Step 1. Select an action to be sent.

Step 2. Set control channel value for desired action (for example, 85 for reset). Hold value for 3 seconds.

Step 3. Set control channel value to zero. (This must occur without any scaling values. Action will be voided if other values are detected between action value and zero.)

Note: A numerical keypad is required for sending values. An encoder or fader does not allow for a quick value change, which is required to effect the control functions.

LUMINAIRE TIMING

Timing Channel Information

Timing channel control allows for smoother transition and movement of the luminaire mechanisms. In this case, timing channels are provided for focus (pan/tilt) and beam.

Types of timing control:

+ Timing Control Channel: the luminaire uses its timing channel value to calculate a smooth, continuous movement for a given time and transition.
+ Console Timing: the console calculates the time duration between the DMX512 increments to be sent for a given time and transition.

Guidelines:

+ Timing channels support time values of up to six minutes.
+ To use a timing channel instead of console timing, it is necessary to set the timing channel to the desired value and set cue and/or parameter time to zero. A combination of time controls can produce unexpected results.
+ The default value setting in the profile should be 255 (proportional control) to allow smooth movement when using console timing.
+ The timing channel data should change as a snap. A zero value will give the fastest move, however, without any smoothing this can appear "steppy" in console timed moves.

Channel Function	Timing Channel	
	Focus Time	Beam Time
Pan (Hi Byte/Lo Byte)	♦	
Tilt (Hi Byte/Lo Byte)	♦	
Beam		♦

A timing value of zero is full speed. A time value of 100% (or 255 in DMX) enables the associated parameter(s) to follow cue fade time (console time) rather than the timing channel.

Note: For instructions on storing syntax and writing cues, refer to your particular console manual.

To use these channels, you must:

Step 1. Create the cue, including beam and position settings as required.

Step 2. Decide which fixtures and which parameters will use timing channels.

Step 3. Assign a value to the particular timing channel(s) you wish to use (for timing information, see chart on next page).

Step 4. Set console timing (or cue fade time) for parameters and timing channels to zero seconds.

Step 5. Store cue.

Note: Avoid changing timing channel values in a fading cue. This can cause unexpected behavior in the luminaire as the timing channel value is updated over time. Timing channel values and the final destination of the parameters affected by the timing channel should always be sent in a zero count.

Timing channels can be set in either % or 0-255 (DMX) modes, with the following values assigned:

Table 3-1: DMX Mapping

% Value	DMX	= Seconds
	0	Full Speed
	1	0.2
	2	0.4
1	3	0.6
	4	0.8
2	5	1
	6	1.2
	7	1.4
3	8	1.6
	9	1.8
4	10	2
	11	2.2
	12	2.4
5	13	2.6
	14	2.8
6	15	3
	16	3.2
	17	3.4
7	18	3.6
	19	3.8
8	20	4
	21	4.2
	22	4.4
9	23	4.6
	24	4.8
10	25	5
	26	5.2
	27	5.4
11	28	5.6
	29	5.8
	30	6
12	31	6.2
	32	6.4
13	33	6.6
	34	6.8
	35	7.0
14	36	7.2
	37	7.4
15	38	7.6

Table 3-1: DMX Mapping (Continued)

% Value	DMX	= Seconds
	39	7.8
	40	8
16	41	8.2
	42	8.4
17	43	8.6
	44	8.8
	45	9
18	46	9.2
	47	9.4
19	48	9.6
	49	9.8
	50	10
20	51	10.2
	52	10.4
	53	10.6
21	54	11
	55	11
22	56	12
	57	12
	58	13
23	59	13
	60	14
24	61	14
	62	14
	63	15
25	64	15
	65	16
26	66	16
	67	16
	68	17
27	69	17
	70	18
28	71	18
	72	18
	73	19
29	74	19
	75	20
30	76	20
	77	20
	78	21
31	79	21
	80	21

Table 3-1: DMX Mapping (Continued)

% Value	DMX	= Seconds
	81	22
32	82	22
	83	23
33	84	23
	85	23
	86	24
34	87	24
	88	25
35	89	25
	90	25
	91	26
36	92	26
	93	27
37	94	27
	95	27
	96	28
38	97	28
	98	29
39	99	29
	100	29
	101	30
40	102	30
	103	30
	104	31
41	105	31
	106	32
42	107	32
	108	32
	109	33
43	110	33
	111	34
44	112	34
	113	34
	114	35
45	115	35
	116	36
46	117	36
	118	36
	119	37
47	120	37
	121	38
48	122	38

Table 3-1: DMX Mapping (Continued)

% Value	DMX	= Seconds
	123	38
	124	39
49	125	39
	126	39
	127	40
50	128	40
	129	41
51	130	41
	131	41
	132	42
52	133	42
	134	43
53	135	43
	136	43
	137	44
54	138	44
	139	45
55	140	45
	141	45
	142	46
56	143	46
	144	47
57	145	47
	146	47
	147	48
58	148	48
	149	49
59	150	49
	151	49
	152	50
60	153	50
	154	50
	155	51
61	156	51
	157	52
62	158	52
	159	52
	160	53
63	161	53
	162	54
64	163	54
	164	54

Table 3-1: DMX Mapping (Continued)

% Value	DMX	= Seconds
	165	55
65	166	55
	167	56
66	168	56
	169	56
	170	57
67	171	57
	172	58
68	173	58
	174	58
	175	59
69	176	59
	177	59
	178	60
70	179	60
	180	65
71	181	65
	182	65
	183	70
72	184	70
	185	75
73	186	75
	187	75
	188	80
74	189	80
	190	85
75	191	85
	192	85
	193	90
76	194	90
	195	95
77	196	95
	197	95
	198	100
78	199	100
	200	110
79	201	110
	202	110
	203	120
80	204	120
	205	120
81	206	130

Table 3-1: DMX Mapping (Continued)

% Value	DMX	= Seconds
	207	130
	208	140
82	209	140
	210	140
	211	150
83	212	150
	213	160
84	214	160
	215	160
	216	170
85	217	170
	218	180
86	219	180
	220	180
	221	190
87	222	190
	223	200
88	224	200
	225	200
	226	210
89	227	210
	228	210
	229	220
90	230	220
	231	230
91	232	230
	233	230
	234	240
92	235	240
	236	250
93	237	250
	238	250
	239	260
94	240	260
	241	270
95	242	270
	243	270
	244	280
96	245	280
	246	290
97	247	290
	248	290

Table 3-1: DMX Mapping (Continued)

% Value	DMX	= Seconds
	249	300
98	250	300
	251	310
99	252	310
	253	310
	254	310
100	255	Follows Cue Data

4.

TROUBLESHOOTING AND MAINTENANCE

This chapter provides a basic troubleshooting guide, along with procedures for extended care of the luminaire.

+ TROUBLESHOOTING

+ ROUTINE MAINTENANCE

TROUBLESHOOTING

Error Messages

After calibration, the Menu Display will cycle through any applicable error message(s), one a time until the end of the list is reached. To review the error messages again, it will be necessary to access them using the Status function.

The following table provides all possible error messages. These errors can be reported for each mechanism (Pan, Tilt, or Beam), except Enc Fail which does not apply to the Beam mechanism.

Display	Cause
No Sensor	The active sensor state was not detected during calibration. Mechanism not moving (off sensor), sensor broken or disconnected.
Sensor On	The sensor was stuck active during calibration. Mechanism not moving (on sensor), sensor broken or disconnected.
Enc Fail	The encoder was not changing during pan or tilt calibration. Mechanism not moving, encoder broken or disconnected.

To access error messages:

Step 1. Press [Enter] to access top level functions.

Step 2. Press [Up] / [Down] arrows to scroll to Fixture menu. Press [Enter].

Step 3. Press [Up] / [Down] arrows to access Status. (Display will scroll through any error messages or display OK if no errors.)

CAUTION: If luminaire is operated without yoke leg covers in place, pan problems will occur.

Troubleshooting Guide

The following table provides a list of common failures and possible solutions.

Symptom	Message	Solution(s)	Refer to...
No power to luminaire.	n/a	Ensure power cable is properly connected to Neutrik input connector. Ensure power is switched on at source (mains, disconnect box, etc.)	page 13
No DMX512 control.	No Comm	Ensure data cable is connected to DMX In connector. Ensure DMX512 address setting is correct.	page 13 page 15
DMX512 control not working correctly throughout daisy chain.	n/a	Ensure data cables are correctly configured. Ensure termination connector is installed at last luminaire in data link.	page 13 page 13
Erratic control of luminaire(s).	n/a	Ensure termination connector is installed at last luminaire in data link. Ensure termination connector is properly configured.	page 13 page 10
Lamp does not strike at power-up.	n/a	Configure lamp to start at power-up.	page 19
Timing Channels not working.	n/a	Ensure Timing Channels are enabled.	page 20
Pan mechanism not operating correctly.	n/a	Ensure yoke leg covers are installed. (Light beams from adjacent fixtures can affect the optical pan encoder, causing it to lose track.)	n/a

ROUTINE MAINTENANCE

Replacing Lamp

Parts:

71.2566.0700.0 LAMP, MSR 700W

Tools:

#2 Phillips Screwdriver

WARNING: Remove power from luminaire before performing any maintenance procedures.

CAUTION: Wear cotton gloves or other covering while installing lamp. Touching lamp glass with bare fingers will leave oil and may cause the lamp to explode or reduce lamp life. If touched, use alcohol and cotton cloth to thoroughly clean glass portion of lamp.

To replace lamp:

Step 1. Remove power from luminaire and allow lamp to cool.

Step 2. At backcap, remove four tamper-proof screws and lock washers (**Figure 4-1**).

Step 3. Pull backcap straight back and out of head assembly.

Step 4. Gripping lamp at base, remove from socket.

Step 5. Install new lamp.

Step 6. Reset lamp hours as required. Refer to "Menu Functions" on page 19.

Step 7. Align lamp according to procedure on next page.

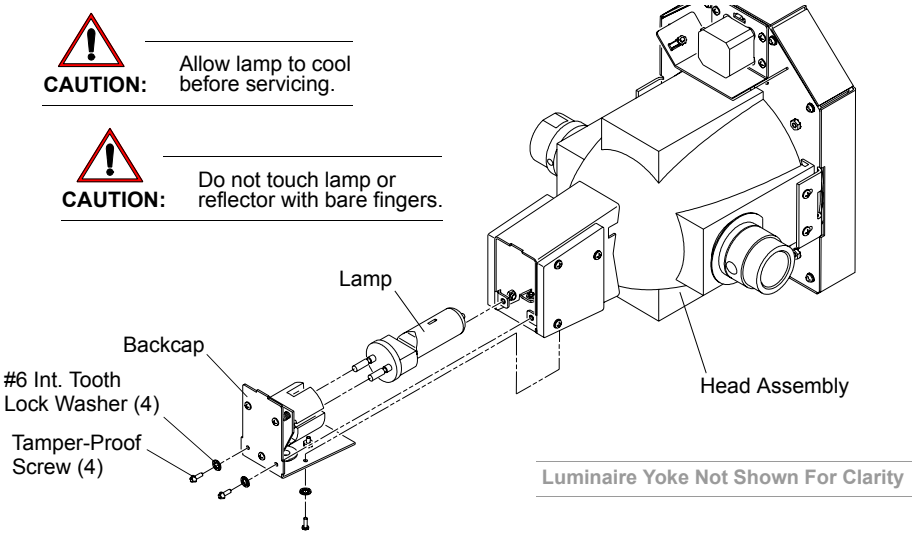


Figure 4-1: Replacing Lamp

Aligning Lamp

After a new lamp is installed, it will be necessary to align the lamp to optimize the beam. Screws located at the luminaire's backcap allow for adjustment.

Tools:

#2 Phillips screwdriver
Light meter

To align lamp:

Step 1. Remove power from luminaire.

Step 2. Remove front lens (refer to "Replacing Front Lens" on page 32).

Step 3. At backcap, using *only* top two adjustment screws (as shown in **Figure 4-2**), align lamp so that it is centered within the reflector hole. This can be done by visually looking at the lamp from the front (while the lens is removed).

Step 4. Once lamp is centered, install a clear lens. (Lenticular lenses are not recommended for alignment purposes.)

Step 5. Power-up luminaire, strike lamp and allow it to achieve full brightness (about 1 minute).

Step 6. Position beam on a white wall at a distance of 10 to 20 feet.

Step 7. Using two adjustment screws, adjust as needed so that "hot spot" is centered within beam.

Step 8. Using meter and two adjustment screws, adjust so that brightness is maximized as follows:

a. Turn adjustment screws equally 1/2 turn clockwise *or* counterclockwise. Using light meter, note whether brightness increases or decreases. Do one of the following:

1) *If brightness increases*, try turning screws in 1/2 turn in same direction until brightness no longer increases.

2) *If brightness decreases*, turn screws back 1/2 turn (to original position).

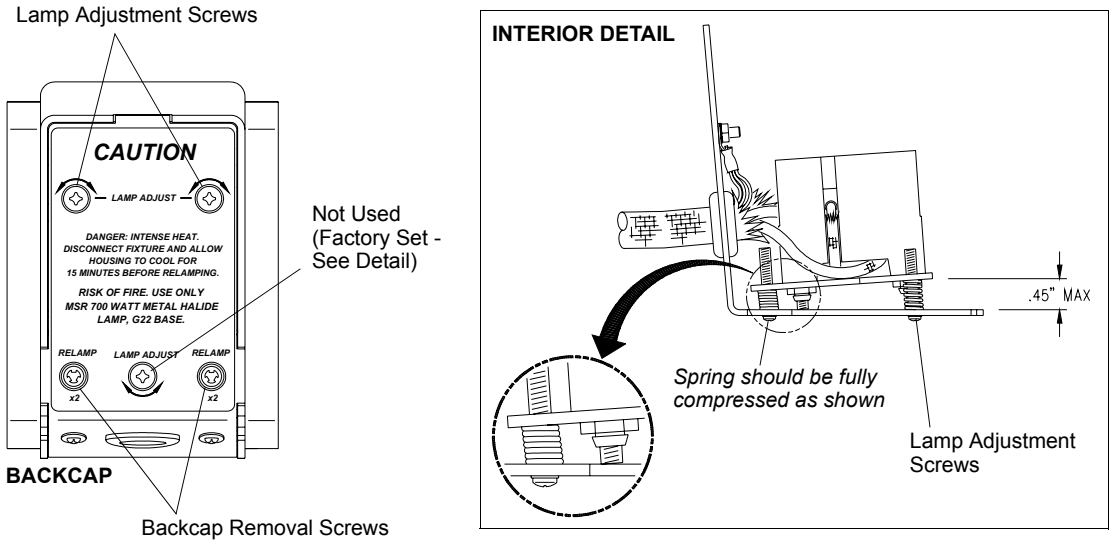


Figure 4-2: Lamp Adjustment Screws

Replacing Front Lens

The luminaire includes four different front lens which can be swapped as needed.

Parts:

LENS, VERY NARROW
LENS, NARROW
LENS, 8-ROW LENTICULAR
LENS, 12-ROW LENTICULAR

Tools:

none

WARNING: Remove power from luminaire before performing any maintenance procedures.

To replace Front Lens:

Step 1. Remove power from luminaire.

Step 2. At securing ring, squeeze flanges and remove (**Figure 4-3**).

Step 3. Remove Front Lens.

Step 4. Align raised areas on back of new Front Lens with notches in Rotation Assembly. (Lens can be installed in one of two 180° orientations.)

Step 5. Re-install securing ring, ensuring it is fully seated in its groove.

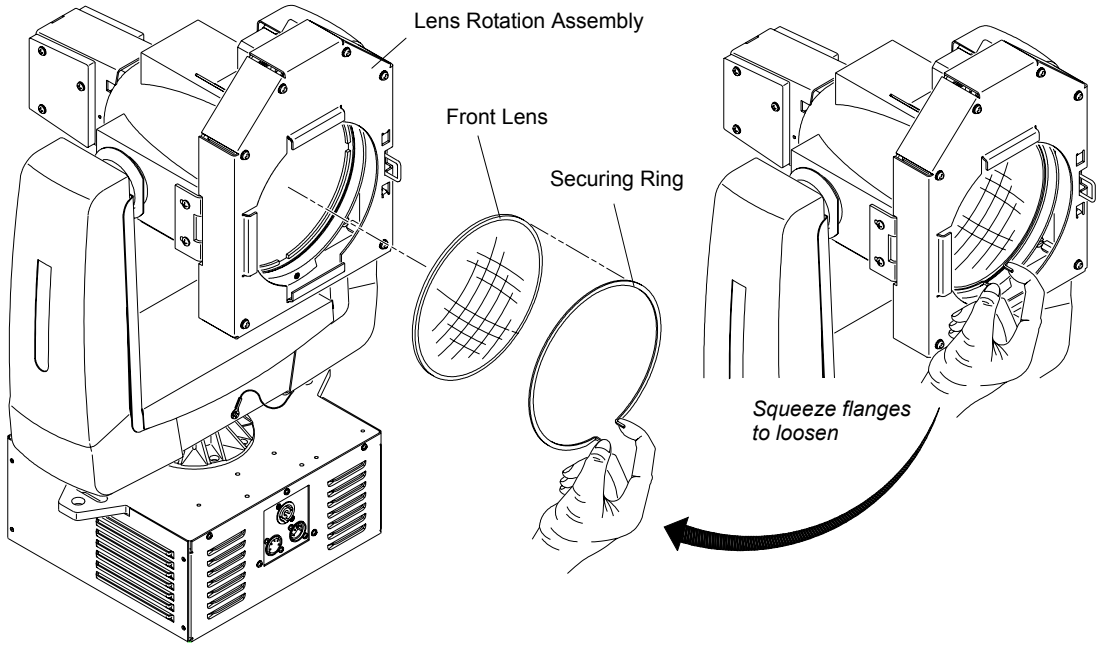


Figure 4-3: Replacing Front Lens

Installing a Color Gel

Color gels can be installed in the gel frame located at the front of the head assembly.

Tools:
none

To install/replace a color gel:

Step 1. At front of luminaire, press latch to release gel frame as shown (**Figure 4-4**).

Step 2. Remove gel frame from luminaire.

Step 3. Install color gel in frame.

Step 4. Re-install gel frame in luminaire and close latch.

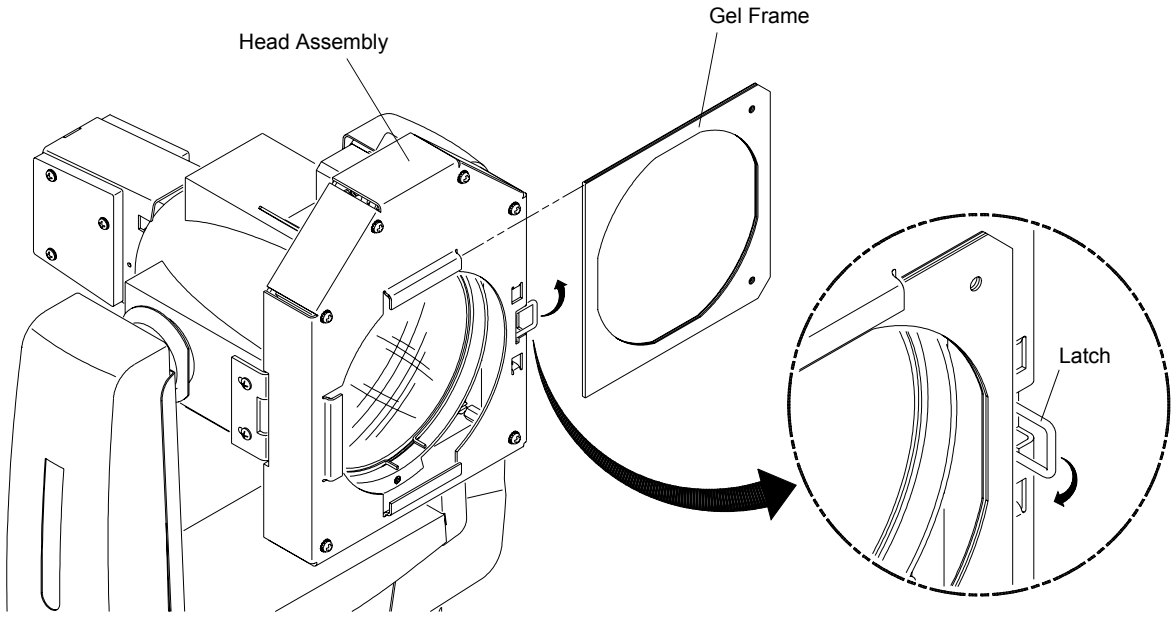


Figure 4-4: Installing/Replacing a Color Gel

Cleaning the Luminaire

Tools:

Window cleaner (commercial grade)
Clean, lint-free cloth
Vacuum cleaner with brush nozzle

To clean the outside of the luminaire:

WARNING: Remove power from luminaire before performing any maintenance procedures.

Step 1. Remove power from luminaire.

Step 2. Using vacuum cleaner with brush nozzle, gently clean dust from external components.

Step 3. Apply window cleaner sparingly to clean, lint-free cloth.

Step 4. Wipe outside surface of luminaire with cloth.

A.

TECHNICAL SPECIFICATIONS

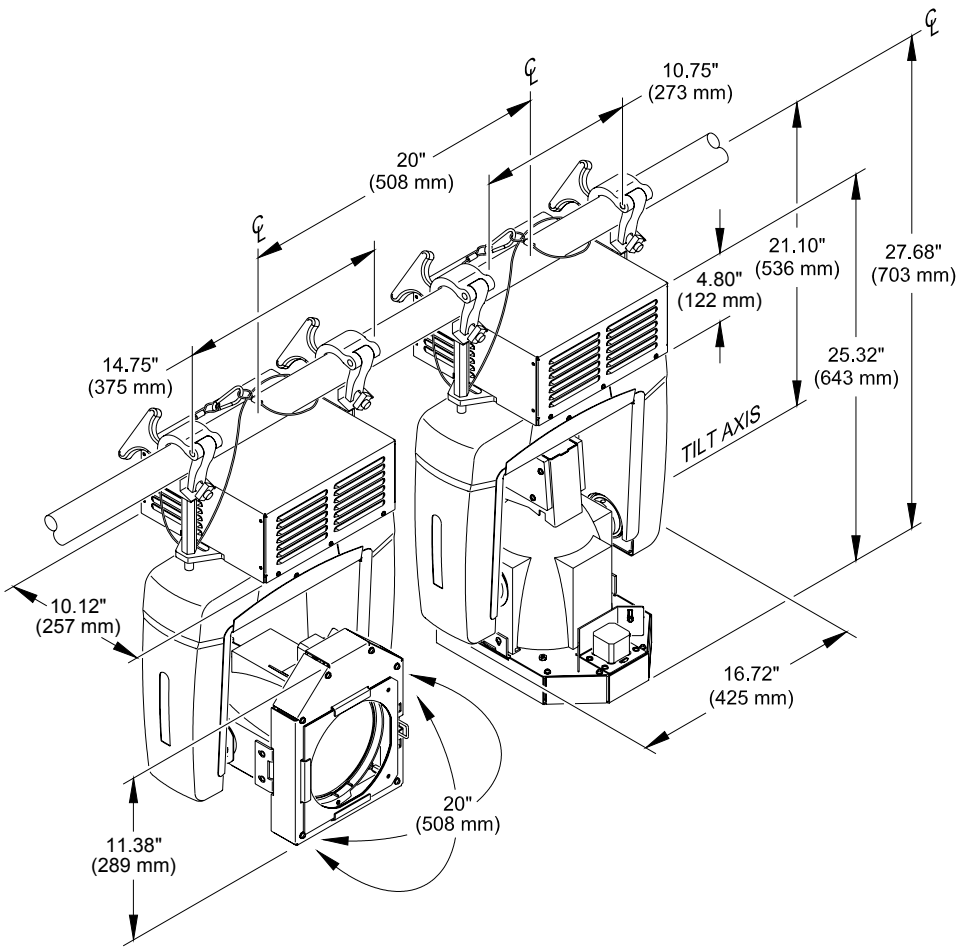
AutoPar Wash Luminaire

Description

SOURCE:	Philips MSR700 1CT 700W arc lamp Color Temp: 5600°K CRI: 85
BALLAST:	Integrated electronic ballast with universal input and power factor correction.
REFLECTOR:	Modified parabolic, multifaceted reflector finished with a metal cold mirror dichroic coating.
UV FILTER:	Internal coated filter. Rejects greater than 99% of ultra-violet radiation.
LENSES:	Four heat resistant, molded borosilicate glass lenses included: Very Narrow Spot, Narrow Spot, 8-Row Lenticular, and 12-Row Lenticular.
OUTPUT:	30,000 lumens
COLOR:	Gel frame holder allows tool-free replacement of standard color gels.
TEMP RANGE:	-20° to 120° F (-29° to 49° C)
COOLING:	Ballast: forced air Head and Yoke: free convection
CONTROL:	Control by DMX512. Uses nine DMX512 channels.
POSITIONING:	Can be mounted and operated in any orientation.
SPACING:	Hangs on 20 inch (508 mm) centers.
WEIGHT:	38 lbs (17 kg)
POWER REQ.	120V/8A, 208V/4A

Programmable Functions

LAMP CONTROL:	Remote start and douse from console.
ROTATING LENS:	Programmable rotating front lens assembly with 200° range and 5 second full travel.
PAN AND TILT:	Smooth, timed continuous motion by way of three-phase stepper motors.
RANGE:	Pan - 360° and Tilt - 240° @ 60° per second.
ACCURACY:	0.3° resolution.



Photometric Data

AutoPar Luminaire with MSR700 Lamp

LENS	CANDELA (cd) **	BEAM ANGLE (degrees)	BEAM (Tn) *	FIELD ANGLE (degrees)	FIELD (Tn) *
VNSP	1,625,000	5°	0.087	14°	0.246
NSP	1,155,000	7.5°	0.131	15°	0.263
8-Row Horiz	360,000	18°	0.317	31°	0.555
8-Row Vert	360,000	12°	0.210	23°	0.407
12-Row Horiz	140,000	31°	0.555	50°	0.933
12-Row Vert	140,000	21°	0.371	33°	0.592

* Multiply throw distance by Tn to determine coverage.

**To calculate center beam illuminance (I) at a specific distance (D): $I = \frac{cd}{D^2}$

-- if (D) is in feet, (I) is in foot candles
-- if (D) is in meters, (I) is in lux

Notes

AutoPar® Wash Luminaire User Manual

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PRG part number: 02.9802.0001.21

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