PHILIPS

VARI*LITE

VL1100CD ERS Luminaires

USER'S MANUAL

Table of Contents

Introduction

About This Manual

This manual provides necessary information regarding safety, installation, operation and routine maintenance for the VARI*LITE VL1100CD Ellipsoidal Reflector Spotlight (ERS) luminaire. Familiarizing yourself with this information will help you to get the most out of your 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.

This manual covers the following models:

Model	Part Number	Source	Integral Dimmer	Shutter	Iris	Fixture Color
VL1100CDS	20.9665.0001.02	315W CDM Lamp	On-board glass dimmer wheel	Yes	No	Black
VL1100CDS	20.9665.0001.02.02	315W CDM Lamp	On-board glass dimmer wheel	Yes	No	White
VL1100CDI	20.9665.0001.03	315W CDM Lamp	On-board glass dimmer wheel	No	Yes	Black
VL1100CDI	20.9665.0001.03.02	315W CDM Lamp	On-board glass dimmer wheel	No	Yes	White

Text Conventions

The following styles and meanings are used throughout this manual:

Style	Meaning
[Button]	Front panel button. Example: Press [Menu].
[Up] / [Down] arrows	Press either [Up] or [Down] arrow button at Menu Display.
MENU	LCD Menu Display read-out. Example: Press [Up] / [Down] arrows until LAMP appears.

Additional Documentation

A service manual for Authorized VARI*LITE Service Centers and technicians of the VL1100CD ERS luminaire is available in electronic (PDF) format:

- VL1100CD ERS Luminaire Service Manual (02.9665.0010)
  - Testing, Troubleshooting, Component Replacement and Illustrated Parts Breakdown.

Note: Performing maintenance procedures may void the product warranty. Refer to the Vari-Lite Limited Warranty card included in the product shipping package for more information.

For more information regarding DMX512 systems, refer to the following document available from United States Institute for Theatre Technology, Inc. (USITT):

- Digital Data Transmission Standard for Dimmers & Controllers plus AMX 192 Analog Multiplex Data Transmission Standard for Dimmers & Controllers.

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Customer Service

Our Goal

At Vari-Lite, we are committed to providing you the highest quality in customer service. Our comprehensive resources are available to help your business succeed and ensure you get the full benefit of being a Vari-Lite customer. Whether your needs are telephone troubleshooting assistance, product training or technical service, our full-time staff of experienced professionals are on-hand to provide support.

How to Reach Us

For assistance in your area, call the dealer from which your product was purchased.

or

Contact an Authorized Service Center.

or

Contact the Vari-Lite Customer Service Department, 9am -6pm CST Monday through Friday, at the following:

Phone: 1-877-VARI-LITE (1-877-827-4548) or +1-214-647-7880
E-mail: entertainment.service@philips.com

Additional Resources

For additional resources and documentation, please visit our website at www.vari-lite.com and follow the Support link.

CHAPTER 1.

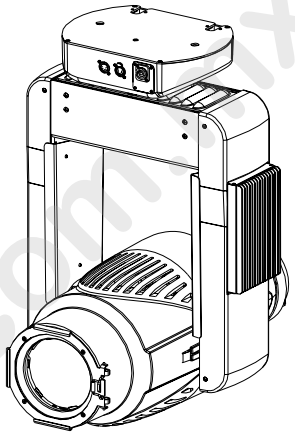
Description

This chapter contains descriptions of luminaire features and components, along with a list of accessories which are available.

- **Features**
- **Components**
- **Accessories**

Features

Standard Features



VL1100CD Ellipsoidal Reflector Spotlight (ERS) luminaires have the following standard features:

- 315W ceramic discharge, long-life lamp.
- Automated zoom optics system.
- Crossfading CYM color system. All motors utilize a noise reducing, 50kHz. drive system that quiets operation during movement and also while static.
- Intensity control through a glass dimmer wheel that provides full-field dimming designed for smooth timed fades.
- Diffusion system.
- Six-position rotating gobo wheel (five rotatable, indexable gobo positions and one open gobo position).
- Repositional pan/tilt system via 3-phase stepper motors.
- High-frequency drivers to reduce stationary noise when luminaire is in parked position.
- Control by DMX512 protocol.

Note: Additional specifications and information is found in "Technical Specifications" on page 63.

Model Specific Features

Each individual configuration has the following specific features:

VL1100CD ERS Luminaire (20.9665.0001.02 - Black / 20.9665.0001.02.02 - White)

- Four-blade shutter framing system.

VL1100CD ERS Luminaire (20.9665.0001.03 - Black / 20.9665.0001.03.02 - White)

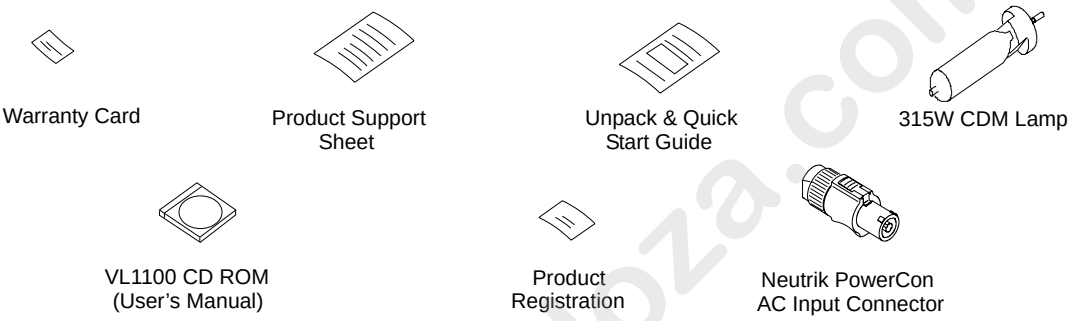
- Beam-size iris mechanism.

Components

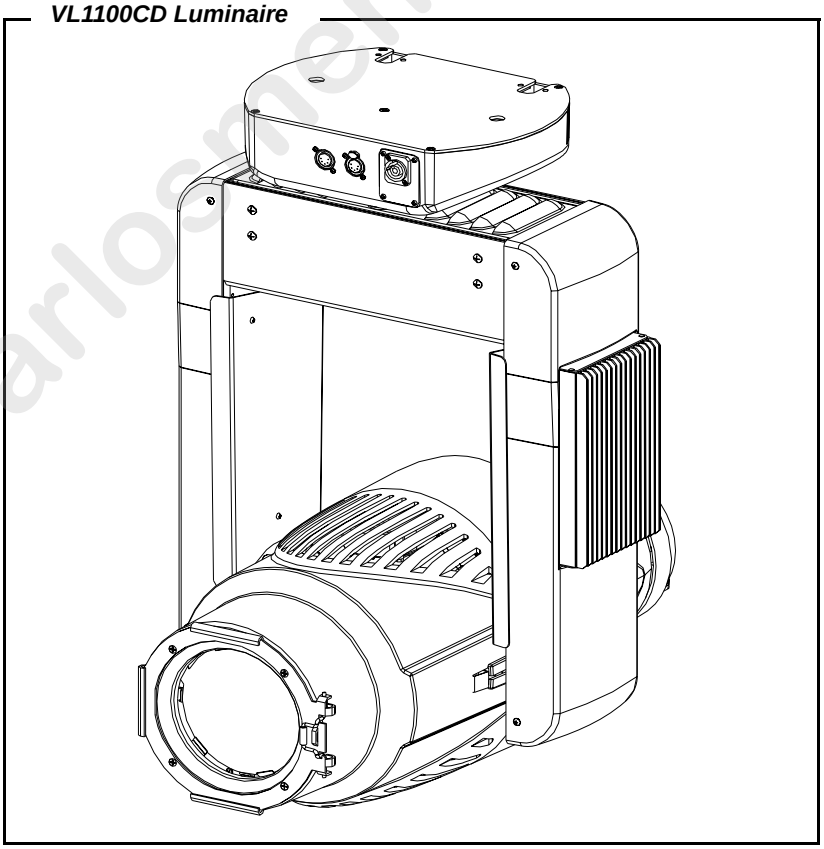
Included Items

The following illustration shows the included components for all models.

Included Items

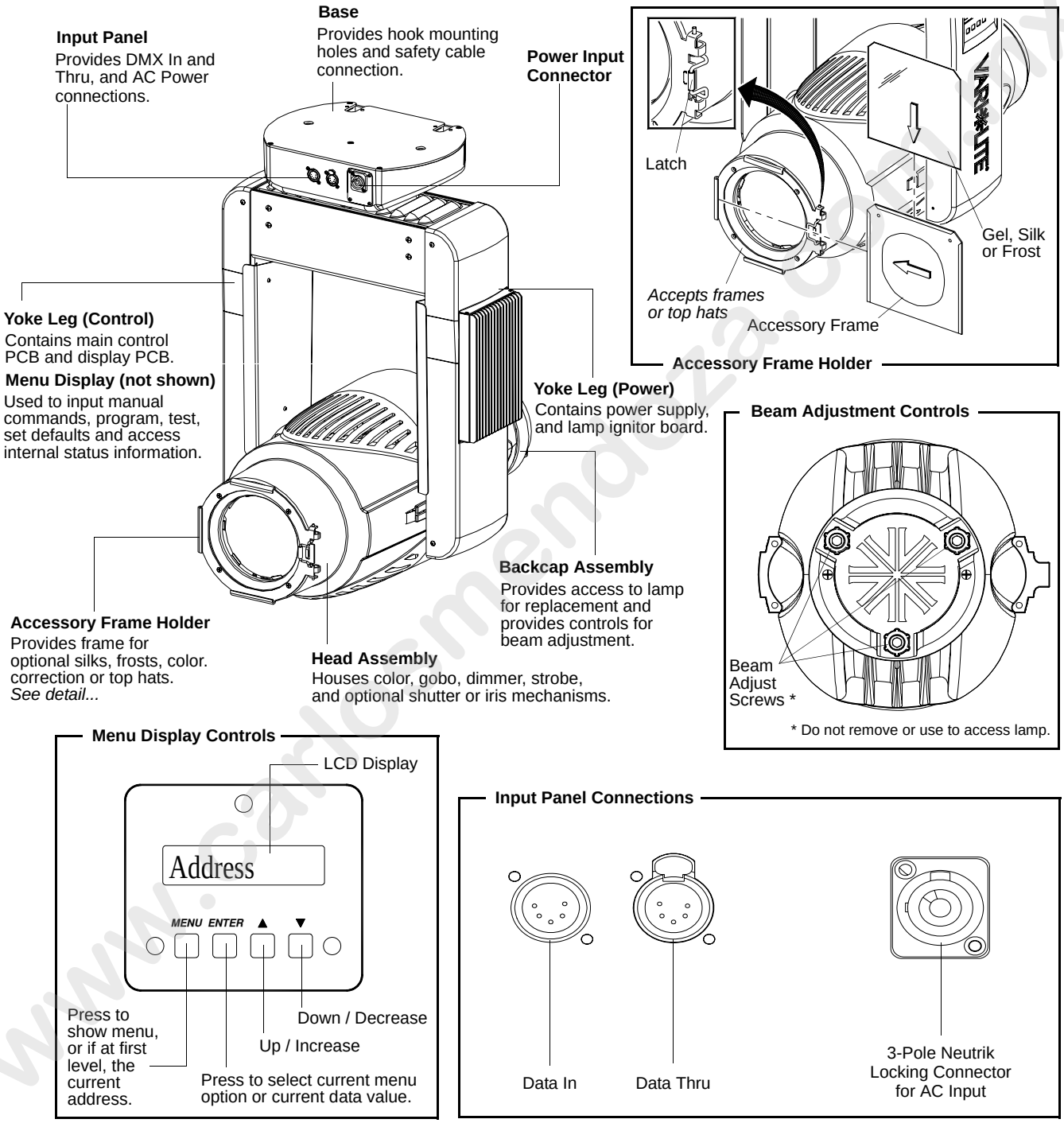


VL1100CD Luminaire



Luminaire Overview

The following illustration shows the external luminaire components and controls.



Accessories

VL1100CD ERS Replacement Items/Accessories

The following optional and/or replacement items can be ordered directly from Vari-Lite. (Please order by Vari-Lite part number.)

VARI-LITE P/N	ACCESSORY
22.9620.0194	Safety Cable Assembly
25.9661.0056	DMX Loopback Connector Assembly
25.9661.0057	DMX Terminator, 120 Ohm
28.8500.0054	USB Luminaire Programming Kit (Includes USB Upload Cable, Programming Kit CD ROM, Carry Bag, and Instructions)*
52.6541.0001	Neutrik PowerCon NAC 3 FCA AC Inlet Connector
55.6840.0001	Truss Hook, Mega-Clamp, Round and Square
55.6841.0001	Truss Hook, Mega-Claw for 2” Round Tube
71.2568.0315	315W CDM Lamp - Philips
41.6010.XXXX	VL1000 Gobo *(specify pattern from Vari-Lite catalog to complete P/N).* *Note, VL1100CD luminaires use the same size gobos as VL1000 luminaires. Contact your Authorized VARI✳LITE Dealer or Vari-Lite customer service for assistance.*

Note: * For more information on the USB Luminaire Programming Kit, please see “USB Download and Programming Luminaires” on page 41.

Notes

CHAPTER 2.

Installation

This chapter contains instructions for installation of all version of the VL1100CD ERS 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 Procedures**
- **Powering Up**
- **Addressing**

Power and Data Cabling Requirements

AC Power

WARNING: Do not power a VL1100CD ERS Luminaire from a dimmed circuit - even in "Non-Dim" mode. Dimmer and non-dim modules are not suitable sources of power because their output modifies the AC wave form. This may work for a short time, but will eventually result in power problems, luminaire mis-operation and/or failure. Using a dimmer or non-dim module to power your VARI*LITE luminaire will void your luminaire's warranty.

The luminaire requires standard AC power distribution from 90-264 VAC, 50/60 Hz in order to power all internal electronics and motors. It is equipped with a 3-pole Neutrik® PowerCon® locking connector (with contacts for line, neutral, and premating safety grounds) for the purpose of AC input. The mating Neutrik PowerCon® connector is supplied, however, you will need to purchase or construct a cable appropriate for your application.

Wire*	Connection
Green/Yellow	AC Ground
Blue	AC Neutral
Brown	AC Line

* International (Harmonized) Standard

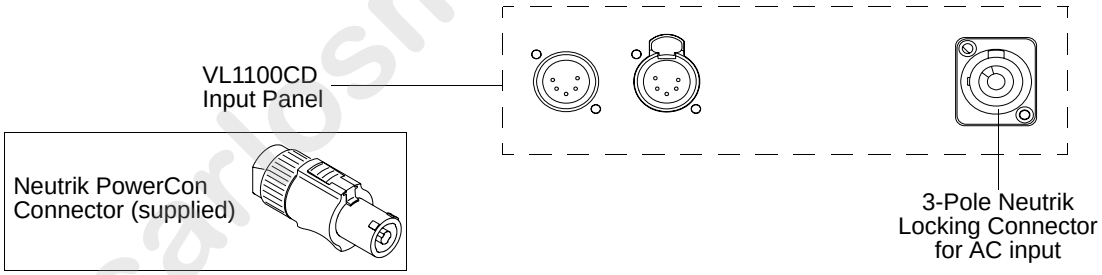


Figure 2-1: Power Connector

Current vs. Voltage

The following tables provide the luminaire's current draw at specific voltages. (Currents given are worst case with all motors sequencing.)

Table 2-1: VL1100CD Current vs. Voltage (Total Fixture Power)

Voltage @ 60Hz	Current
100	6.0 A
240	3.0 A

Data Cables

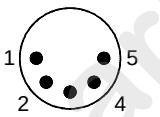
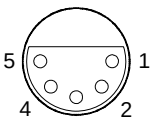
The luminaire is equipped with two, 5-pin XLR connectors for DATA IN and DATA THRU (out) applications. DATA IN requires a 5-pin, female XLR connector and DATA THRU requires a 5-pin, male XLR connector. When purchasing or constructing data cables, it is important that not only the correct cable type be 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 min. gauge for runs up to 1000 feet (300m).
- 22 AWG min. 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.

Refer to the USITT Recommended Practice for DMX512 guide for additional information regarding DMX512 systems. How to obtain a copy is detailed in "Additional Documentation" on page 1.

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

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.

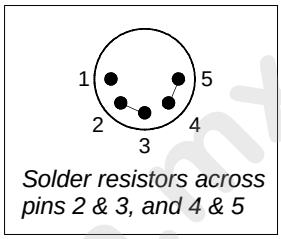
Type	Pairs	ZΩ*	Jacket	AWG	Use	Temp (F)
Belden Cables						
1215A	2	150	PVC	26	IBM Type 6 Office cable	75
1269A	2	100	PTFE	22 (Solid)	High Temp, Plenum cable	200
8102	2	100	PVC	24	UL2919	80
8132	2	120	PVC	28	UL2919	80
8162	2	100	PVC	24	UL2493	60
82729	2	100	PTFE	24	High Temp, Plenum cable	200
88102	2	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

DMX Termination Connector

A male XLR DMX 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

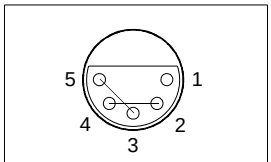
Note: A male termination connector is available as an accessory from Vari-Lite. See "Accessories" on page 7.

Loopback Connector

When transferring software versions from luminaire to luminaire, a loopback connector is required at the first luminaire in the data link.

To construct your own connector, you will need the following components:

- 5-pin, female XLR connector.
- Two small segments of 22 AWG wire.



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

Note: A loopback connector is available as an accessory from Vari-Lite. See "Accessories" on page 7.

Installation Procedures

Installing Lamp

In the event the lamp was packed separately during shipment, it will be necessary to install before use.

WARNING: Ensure that power is completely removed from luminaire when installing lamp.

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 install arc lamp:

Step 1. Ensure power is removed from luminaire.

Step 2. At backcap, gradually loosen two 10-32x2-3/8" PPSS black screws (Figure 2-2) a few turns at a time until backcap is free. (Screws must be alternately loosened to prevent one side from locking up.)

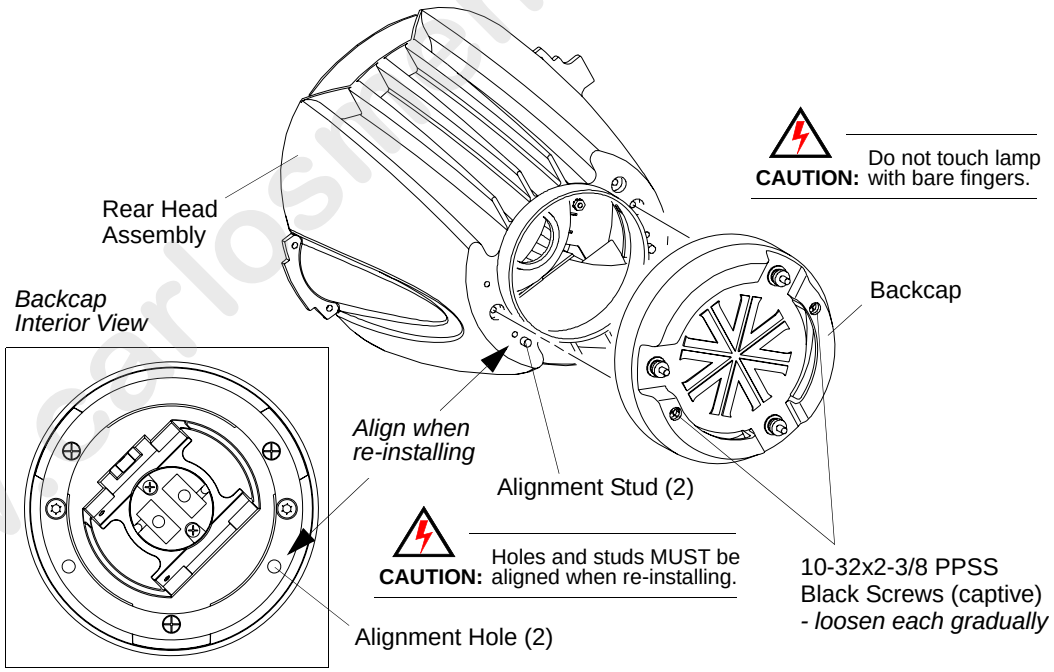


Figure 2-2: Removing Backcap

Step 3. Grip lamp by base and firmly install in socket.

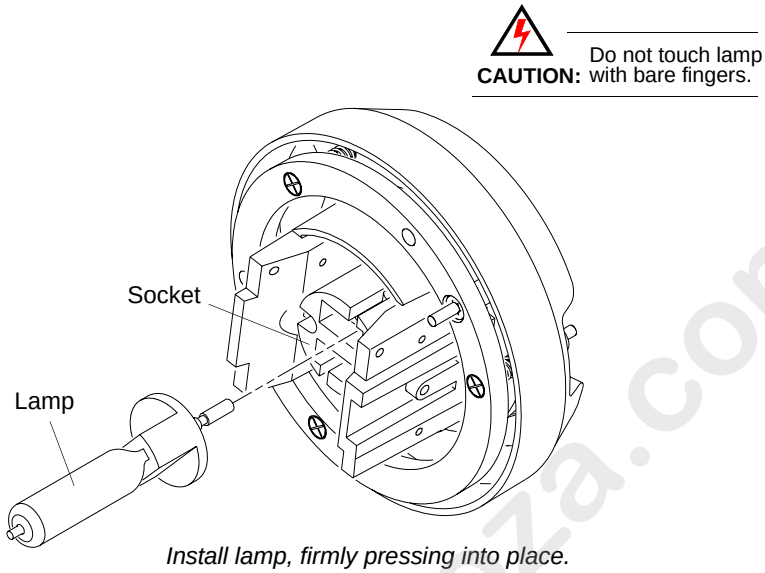


Figure 2-3: Installing VL1100CD Lamp in Socket

Step 4. Re-install backcap, ensuring that alignment studs and holes are aligned (Figure 2-2).

Step 5. Align lamp. (Refer to "Align Lamp For Maximum Beam Irradiance" on page 23.)

Accessory Frame Holder

An accessory frame holder is provided for the addition of a top hat or gel frame with silks, frosts or color correction if required. The frame holder is designed to fit a standard 7.5-inch gel frame or top hat.

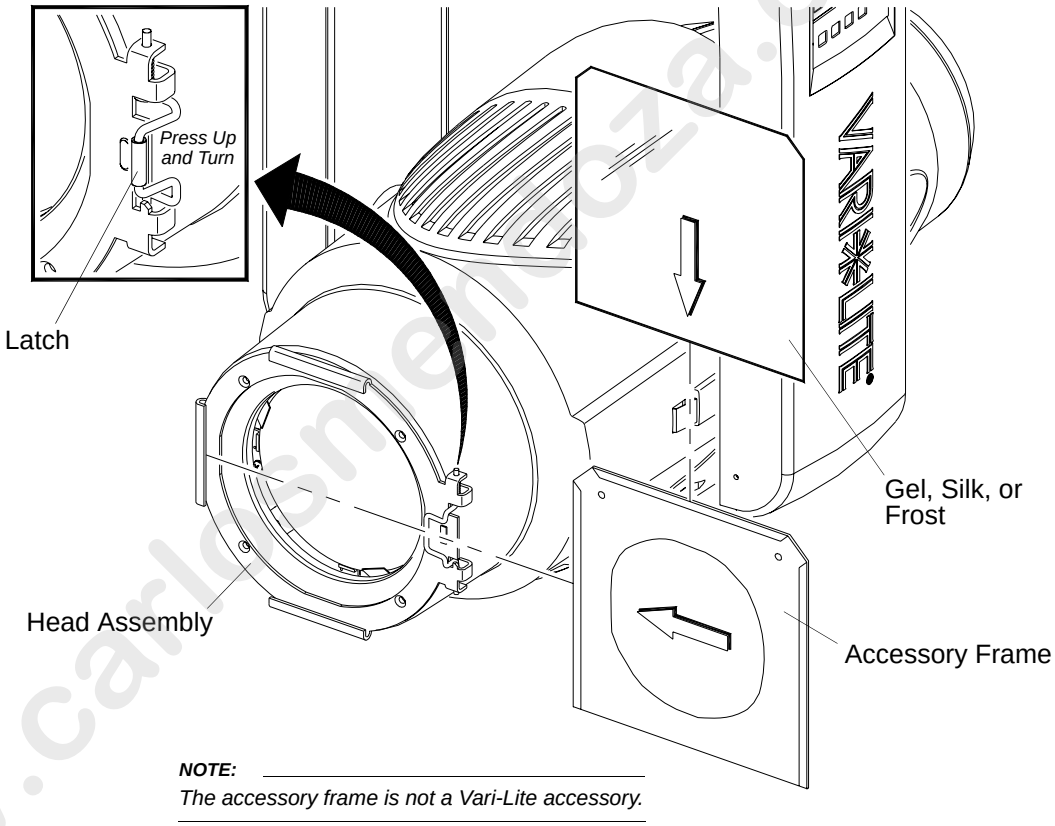
To remove and replace frame or top hat:

Step 1. Disconnect luminaire AC input cable from power source.

Step 2. At front lens, press upward on accessory frame latch and turn to open.

Step 3. Remove frame/top hat, if any (Figure 2-4).

Step 4. Install frame/top hat and close latch.



NOTE:
The accessory frame is not a Vari-Lite accessory.

Figure 2-4: Installing a Frame or Top Hat

Hanging the Luminaire

The luminaire can be hung horizontally or vertically from any structure designed to work with the type of load created by this moving luminaire. The pan tube base provides two mounting holes for attaching truss hooks or other mounting hardware as required. Many compatible truss hooks are available from different manufacturers for your particular needs. The Mega Claw Truss Hook, shown in the example illustration below, can be ordered separately from Vari-Lite (refer to "VL1100CD ERS Replacement Items/Accessories" on page 7).

To install truss hooks (if required):

Step 1. At pan tube base, attach two truss hooks as shown below (Figure 2-5).

Step 2. Tighten hardware securely.

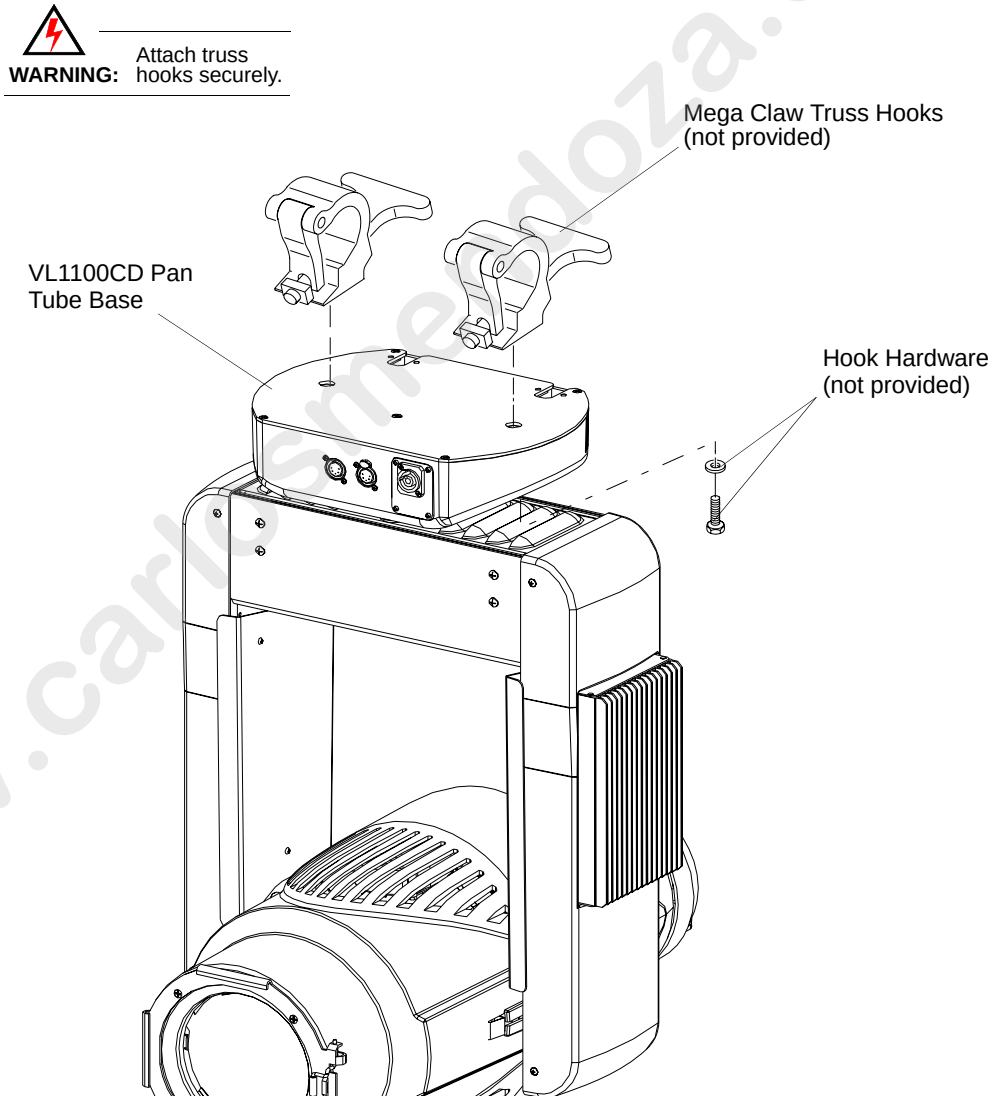


Figure 2-5: Example VL1100CD Luminaire Truss Hook Installation

To hang luminaire in truss:

Step 1. Lift luminaire into mounting position.

Step 2. Secure in place with truss hooks. Ensure truss hook hardware that locks hook in place (e.g. wing bolt) is properly tightened and that luminaire is fully supported.

Step 3. Attach safety cable (sold separately) as follows:

a. Connect end of cable to mounting pin at one side of pan tube base.

b. Loop at least once around pipe and attach other end at second mounting pin.

Step 4. Connect power and data cables according to procedure given in "Connecting Data and Power" on page 19.

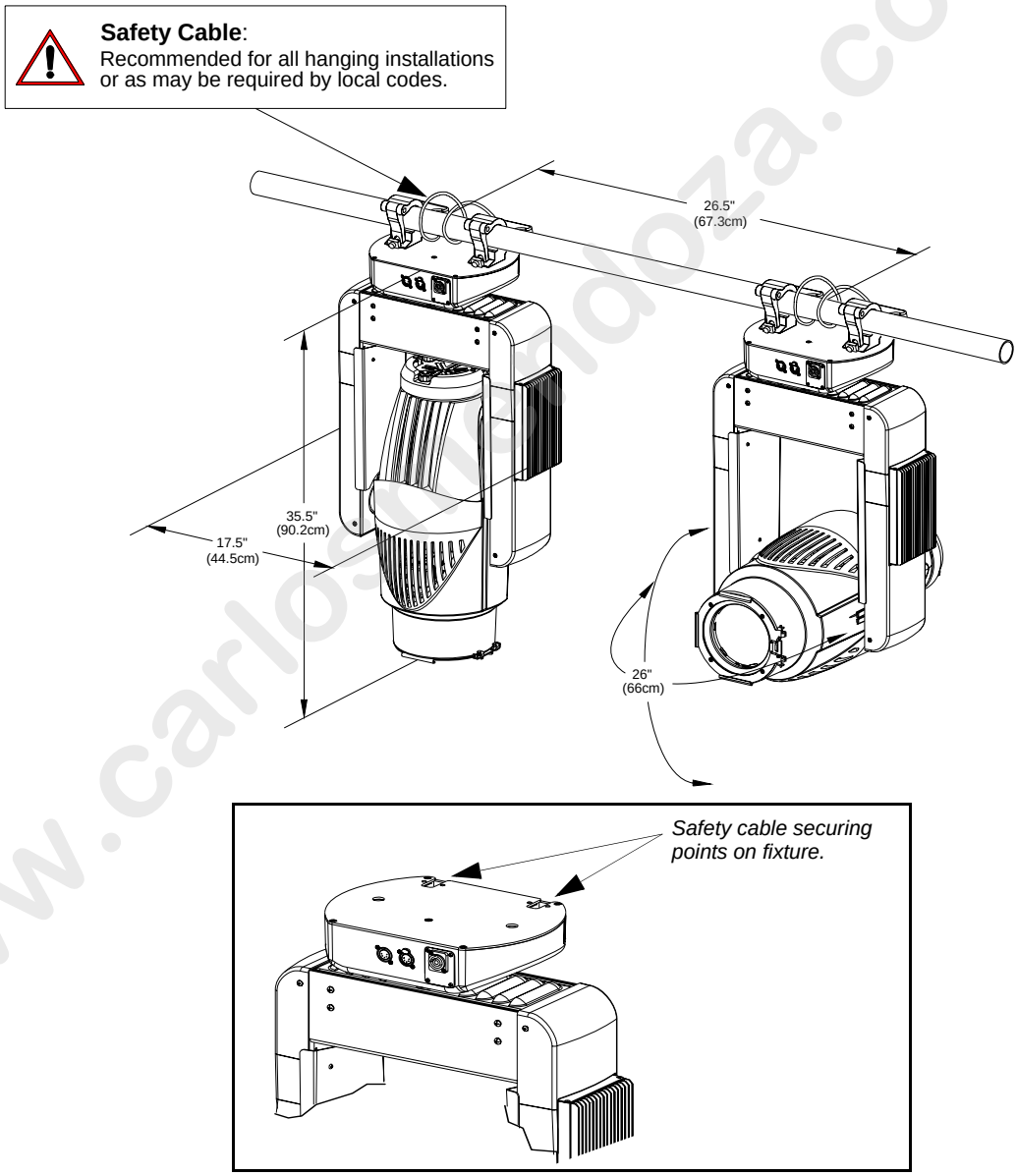


Figure 2-6: Example VL1100CD Luminaire Truss Hanging Installation

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. After luminaire(s) are installed, connect data cable from console to first luminaire in chain at DATA IN connector.

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 DMX termination connector at DATA THRU connector. (Luminaires and other devices on the same DMX chain may not function properly without termination.)

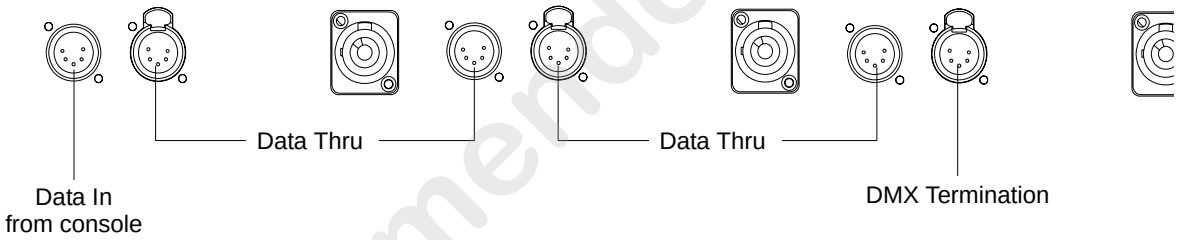


Figure 2-7: Data Connection

Step 4. Connect AC Input Cable connector to power input source.

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

Powering Up

Power-Up and Configuration Overview

First Power-Up

When powering up a VL1100CD ERS Luminaire for the first time, the lamp type and shutter settings must be configured. This procedure will usually happen prior to delivery. However, in the event that it has not been done or if the Main Controller Board has been replaced, it will be necessary. Follow one of these two power-up procedures depending on whether the luminaire requires configuration:

- Already configured - "Standard Power Up Procedure" on page 21.
- Not configured - "Power Up and Configuration Procedure" on page 22.

Calibration Sequence

After AC power is applied, the luminaire will start powering up (this will take 10-15 seconds) and then begin a calibration sequence that steps it through full pan and tilt movements. The internal mechanisms will also move through a full range of motion. 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 defined position if DMX data is present. All internal mechanisms also move to their "home" or defined positions.

Depending on the luminaire's setting for Lamp Power-Up State (refer to "Menu System Function Chart" on page 49), when power is applied the lamp will either **a)** "strike" or ignite - Lamp On (*default)*, **b)** await calibration and then strike - Cal On, or **c)** await manual command to strike - Lamp Off.

Importance of Correct Configuration

The configuration settings MUST be correct or the luminaire will not operate properly. The configuration settings specify whether or not the luminaire contains a shutter system or beam-size iris, which will then affect the DMX mapping of the luminaire. For example, choosing the shutter option will configure the luminaire for 27 DMX channels, while not choosing the shutter option will configure it for 19 DMX channels. When the luminaire is configured as having no shutter, the option for the beam-size iris becomes available. Refer to "Channel Mapping" on page 26 for more detailed information on this subject.

Standard Power Up Procedure

Use this procedure when powering up a luminaire that has already been configured. (Refer to "Power-Up and Configuration Overview" on page 20.)

Note: Refer to **Chapter 4:** Menu System for detailed instructions on menu functions.

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

To power up luminaire:

Step 1. At each luminaire, apply power by switching on power source. Luminaire will display Starting for 10-15 seconds, and then automatically step through the following procedure:

1) If Lamp Power-Up State is set to Lamp On, lamp will strike (ignite).
2) Luminaire will cycle through calibration and stop at "home" position.
3) If Lamp Power-Up State is set to Cal On, lamp will strike (ignite) at end of calibration sequence.
4) If Lamp Power-Up State is set to Lamp Off, them Luminaire will cycle through calibration and stop at "home" position. Lamp will not strike (ignite) until a Lamp On command is received by luminaire.

Power Up and Configuration Procedure

Use this procedure when powering up a luminaire that has not been previously configured. (Refer to "Power-Up and Configuration Overview" on page 20.)

Note: Refer to **Chapter 4:** Menu System for detailed instructions on menu functions.

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

To configure luminaire at power up:

Step 1. At each luminaire, apply power by switching on power source.

Step 2. For unconfigured luminaires, menu will display LampType. Press [Enter] to move to next level.

Step 3. Press [Up]/[Down] to toggle options. For VL1100CD luminaires, you must choose CD option. Set selection by pressing [Enter].

Note: When CD is selected, the menu system will update to include the Dimmer, DMX, and Manual commands. (Dimmer will be added even if no dimmer is present.)

Step 4. Press [Up]/[Down] to select Shutter?. Press [Enter] to move to next level.

Step 5. Press [Up]/[Down] to toggle options. Choose either Yes or No by pressing [Enter].

Note: If the luminaire is configured NOT to have the shutter system, the menu will automatically update to include the beam-size iris assembly (even if one is not present), DMX, and Manual commands.

Step 6. Luminaire will display Starting for 10-15 seconds, and then automatically step through following procedure:

1) If Lamp Power-Up State is set to Lamp On, lamp will strike (ignite).
2) Luminaire will cycle through calibration and stop at "home" position.
3) If Lamp Power-Up State is set to Cal On, lamp will strike (ignite) at end of calibration sequence.
4) If Lamp Power-Up State is set to Lamp Off, them Luminaire will cycle through calibration and stop at "home" position. Lamp will not strike (ignite) until a Lamp On command is received by luminaire.

Align Lamp For Maximum Beam Irradiance

After a new lamp is installed in the luminaire, it will be necessary to align the lamp to optimize the beam.

WARNING: Backcap and adjustment screws will be HOT during lamp operation. Wear gloves and/or use tools to prevent burns.

To align lamp:

Step 1. Set intensity to 100%.

Step 2. Position beam on a white wall at a distance of 10 to 20 feet.

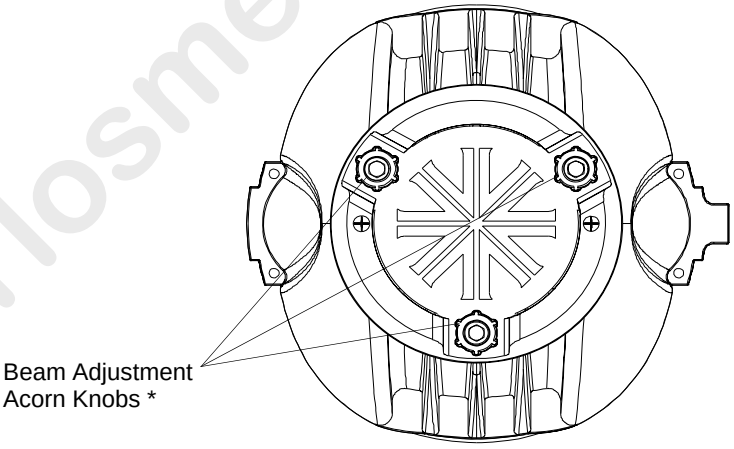
Step 3. Using console or internal luminaire menu controls, set zoom to zero and focus to a hard edge. If installed, be sure that beam-size iris and shutters are open.

Step 4. Using three adjustment screws, adjust hot spot to center of beam (Figure 2-8).

Step 5. Check color uniformity as follows:

a. Position one of the color stages at 30% of maximum. (Cyan or Magenta work best.)

b. Verify that beam color is uniform (if lamp is misaligned, color will be concentrated to one side of beam). If color is not uniform, readjust lamp until color is uniform across entire beam field.



* Do not remove or use to access lamp.

Figure 2-8: Lamp Alignment Screws

Note: The nature of the CDM lamp used in the VL1100CD ERS Luminaire prevents it from restriking when it is hot after use. It takes approximately 15 minutes for the lamp to cool enough to restrike.

Addressing

Program Starting Address

The DMX starting address is entered using the Menu Display. This address will be retained even if the power is removed.

Note: Refer to **Chapter 4:** Menu System for detailed instructions on menu functions.

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

To program a DMX starting address:

Step 1. Press [Menu].

Step 2. Press [Up] / [Down] arrows until Address appears. Press [Enter].

Step 3. DMX will appear. Press [Enter].

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

Step 5. Press [Enter] to set.

Program 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.

To program starting address without calibrating luminaire:

- While powering up luminaire, press and hold [Menu]. Program address as in Program Starting Address above.
- Release when display reads ":"

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

CHAPTER 3.

Operation

This chapter contains instructions for operating the luminaire using DMX control and for updating the internal software.

DMX Operation

Channel Mapping

These tables assume a DMX start address of 1. When a different starting address is used, this address becomes channel 1 function and other functions follow in sequence. (There is only one DMX mode for this luminaire, which is Enhanced 16-bit Mode.)

Table 3-1: Enhanced 16-Bit Mode - VL1100D Iris (I) Models

DMX Channel	Parameter	Range
1	Dimmer *	0-255
2	Hi Byte Pan	0-65535
3	Lo Byte Pan	0-65535
4	Hi Byte Tilt	0-65535
5	Lo Byte Tilt	0-65535
6	Edge	0-255
7	Zoom	0 (small) - 255 (big)
8	Diffusion	0 (open) - 255 (diffused)
9	Blue	0 (open) - 255 (full saturation)
10	Amber	0 (open) - 255 (full saturation)
11	Magenta	0 (open) - 255 (full saturation)
12	Rotating Gobo	0-127 index 128-255 rotate
13-14	Gobo Index	Index: 0-65535 Rotate: 0 (cw max) - 32535 (cw min) 32536-33031 (stop) 33032 (ccw min) - 65535 (ccw max)
15	Beam	0 (small) - 255 (open)
16	Focus Time	0-255
17	Color Time	0-255
18	Beam Time	0-255
19	Control	0-255

* Dimmer refers to an internal dimmer for VL1100CD Iris models.

Table 3-2: Enhanced 16-Bit Mode - VL1100CD Shutter (S) Models

DMX Channel	Parameter	Range
1	Dimmer *	0-255
2	Hi Byte Pan	0-65535
3	Lo Byte Pan	0-65535
4	Hi Byte Tilt	0-65535
5	Lo Byte Tilt	0-65535
6	Edge	0-255
7	Zoom	0 (small) - 255 (big)
8	Diffusion	0 (open) - 255 (diffused)
9	Blue	0 (open) - 255 (full saturation)
10	Amber	0 (open) - 255 (full saturation)
11	Magenta	0 (open) - 255 (full saturation)
12	Rotating Gobo	0-127 index 128-255 rotate
13-14	Gobo Index (13 = Hi Byte) (14 = Lo Byte)	Index: 0-65535 Rotate: 0 (cw max) - 32535 (cw min) 32536-33031 (stop) 33032 (ccw min) - 65535 (ccw max)
15	Frame 1A	0 (open) - 255 (closed)
16	Frame 1B	0 (open) - 255 (closed)
17	Frame 2A	0 (open) - 255 (closed)
18	Frame 2B	0 (open) - 255 (closed)
19	Frame 3A	0 (open) - 255 (closed)
20	Frame 3B	0 (open) - 255 (closed)
21	Frame 4A	0 (open) - 255 (closed)
22	Frame 4B	0 (open) - 255 (closed)
23	Rotate Frame	0-255 128 center
24	Focus Time	0-255
25	Color Time	0-255
26	Beam Time	0-255
27	Control	0-255

* Dimmer refers to an internal dimmer for VL1100CD Shutter models.

Control Channel Functions

Control channel functions allow special actions such as reset, lamp on/off and partial recalibration. These must be executed with zero time transition or with 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.

Lamp On or Lamp Off - switches lamp on or off.

Partial Recalibration - resets only the target mechanism (color, gobo, zoom, etc.) without affecting others.

Table 3-3: Control Channel Functions

Control Channel Function	Control Channel Value		
	% Value	DMX Value	
		For 3 Secs or Greater	After 3 Secs
Luminaire Reset	32-33	81-87	0
Lamp Off	65-67	165-171	0
Lamp On	98-100	249-255	0
Partial Recalibration of:			
- Blue/Amber/Magenta/Diffuser *	40	100-104	0
- Rotating Gobo/Index *	45	113-117	0
- Edge/Zoom *	50	126-130	0
- Beam Size Iris/Shutter *	55	138-142	0

* For arc models, the dimmer will close during each recalibration action.

To use control channel functions:

Step 1. Select an action to be sent.

Step 2. Set control channel value for desired action (for example, 84 for reset). Hold value for 3 seconds.

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.

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.)

DMX Data Display

The DMX data display shows the data received for the given luminaire and does not show the entire stream of 512 bytes. It shows only the number of channels used for the given luminaire model in 16-bit enhanced mode.

For example, a VL1100CD (shutter model) luminaire with an address of 40 will show DMX Channels 1-27 which would correlate to DMX Channels 40-66.

DMX Mapping

Color Mixing

The color mixing mechanism is a CYM subtractive color mixing system made up of a graduated color system for cyan, yellow, and magenta.

Table 3-4: DMX Map For Cyan

% Value	DMX Value	Action
0	0	Open
100	255	Closed or Full Saturation

Table 3-5: DMX Map For Yellow

% Value	DMX Value	Action
0	0	Open
100	255	Closed or Full Saturation

Table 3-6: DMX Map for Magenta

% Value	DMX Value	Action
0	0	Open
100	255	Closed or Full Saturation

Rotating Gobo Wheel

Note: Gobos are sold separately. Contact your Authorized VARI*LITE Dealer or visit the Vari-Lite web site, www.vari-lite.com, for available gobo patterns.

The function operates in two modes: INDEX Mode and ROTATE Mode. The DMX values corresponding to these modes are as follows:

- DMX values 0-127 will select each gobo in Indexing mode.
- DMX values 128-255 will select each gobo in Rotating mode.

Table 3-7: DMX Map For Gobo Index/Rotate

Position	Indexing	Rotating	Function
1	0	128	Open
2	18	146	Gobo 1
3	41	169	Gobo 2
4	63	191	Gobo 3
5	86	214	Gobo 4
6	108	236	Gobo 5

Index/Rotation

The Gobo Index function utilizes 16-bit control which offers enhanced resolution whether in INDEX or ROTATE mode.

Table 3-8: Index/Rotation Range

Function	Range
Index	0-65535
Rotate	0 (cw max) - 32535 (cw min) 32536-33031 (stop)

Shutter Mechanism

For units with a shutter mechanism, the shutter is comprised of four frame blades that move independently or in unison. The entire assembly operates in a smooth, time-continuous motion using stepper motors (two per frame blade and one to rotate the entire shutter mechanism). The shutter mechanism can rotate 45° in either direction and the frame blades can tilt +/- 35°.

Table 3-9: Shutter Mechanism DMX Map Chart (shutter models only)

Item	% Value	DMX Value	Action
Frame 1A to Frame 4B	0	0	Open
	100	255	Closed
Shut Rot *(Shutter Rotation)*	0	0	CCW
	50	128	Center
	100	255	CW

Luminaire Timing

Timing Channel Information

Timing channel control improves the timed moves of certain groups of parameters. We provide three timing channels, one for Focus (Pan and Tilt), one for color parameters and one for beam parameters. Timing channels support time values of up to six minutes.

Table 3-10: Channel Function / Timing Channel Relationship

Channel Function	Timing Channel		
	Focus Time	Color Time	Beam Time
Pan (Hi Byte/Lo Byte)	♦		
Tilt (Hi Byte/Lo Byte)	♦		
Blue		♦	
Amber		♦	
Magenta		♦	
Color Wheel		♦	
Diffusion			♦
Beam			♦
Edge			♦
Zoom			♦
Rotating Gobo			♦
Gobo Index (HiByte/LoByte)			♦
Shutter (all 9 motors)			♦

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

Note: The particular storing syntax for your console, as well as instructions on how to write part cues, can be found in the operation manual for that console.

To use these channels, you must:

Step 1. Create the cue, including color, gobo, edge and diffusion as required.

Step 2. Decide which fixtures and which parameter groups 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 3-11: VL1100CD Timing Channels Map

% 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

Table 3-11: VL1100CD Timing Channels Map

% Value	DMX	= Seconds
	34	6.8
	35	7.0
14	36	7.2
	37	7.4
15	38	7.6
	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

Table 3-11: VL1100CD Timing Channels Map

% Value	DMX	= Seconds
30	76	20
	77	20
	78	21
31	79	21
	80	21
	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

Table 3-11: VL1100CD Timing Channels Map

% Value	DMX	= Seconds
	118	36
	119	37
47	120	37
	121	38
48	122	38
	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

Table 3-11: VL1100CD Timing Channels Map

% Value	DMX	= Seconds
	160	53
63	161	53
	162	54
64	163	54
	164	54
	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

Table 3-11: VL1100CD Timing Channels Map

% Value	DMX	= Seconds
	202	110
	203	120
80	204	120
	205	120
81	206	130
	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

Table 3-11: VL1100CD Timing Channels Map

% Value	DMX	= Seconds
	244	280
96	245	280
	246	290
97	247	290
	248	290
	249	300
98	250	300
	251	310
99	252	310
	253	310
	254	310
100	255	Follows Cue Data

Updating Software

USB Download and Programming Luminaires

You can upgrade Vari-Lite luminaire operating software using the USB Luminaire Programming Kit (Vari-Lite part number 28.8500.0054, sold separately) for desktop computers and newer laptops equipped with USB 2.0 ports. The USB Luminaire Programming Kit can be ordered directly from your Authorized VARI✳LITE Dealer.

The VARI✳LITE USB Luminaire Programming Kit (28.8500.0054) includes:

- VARI✳LITE USB Upload Cable (25.9600.0001)
- USB Luminaire Programming Kit CD (87.8500.0002)
- Instruction Sheet (02.8500.0100)
- VARI✳LITE carry bag (07.5044.0005)

Computer Requirements for the USB Luminaire Programming Kit

- PC running Windows® 98, 2000, XP, or Vista. Although the USB Luminaire Programming kit software is not directly compatible with Macintosh® computers, it does run with some Windows emulators.
- In addition to Windows, your computer must be running IE 5.01 or later, and Microsoft.NET Framework Version 3.5 (or later), which you can download from http://www.microsoft.com and search for .NET Framework downloads.
- An available USB 2.0 port on the PC.

USB VLDownloader PC Program and .bin Luminaire Files

The USB VLDownloader program and current .bin files are available from the Product Downloads page at www.vari-lite.com. Instructions for installing the USB VLDownloader program on your PC are also available on the Product Downloads page. Use the USB VLDownloader program to transfer updated versions of the luminaire operating software (.bin files) from your PC to the luminaires.

Note: Refer to instruction sheet 02.8500.0100 for detailed programming instructions for VARI✳LITE luminaires.

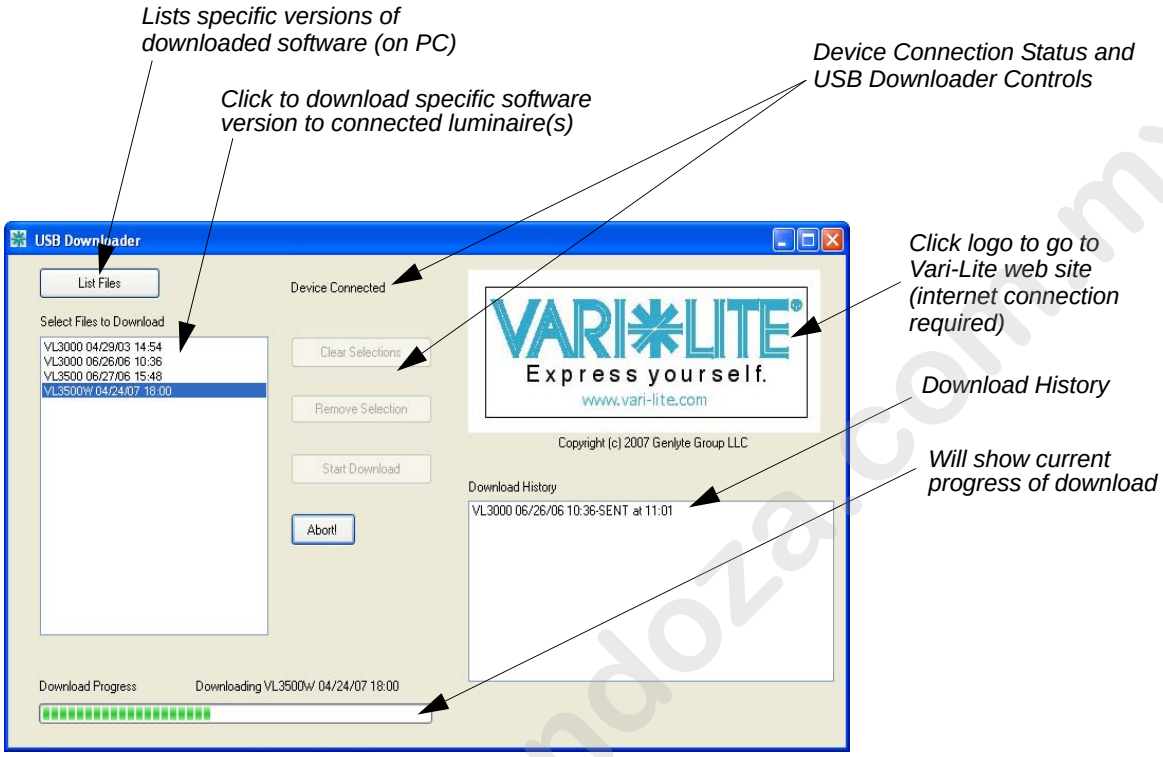


Figure 3-1: VL Download Program Window

Transferring Software From Luminaire to Luminaire

It is possible to transfer specific software versions between luminaires. As in the case of installing new software versions, multiple luminaires can be programmed at the same time when they are data linked together (refer to "Connecting Data and Power" on page 15), however, only a maximum of 32 luminaires can be updated at once.

Hardware Requirements

Data cables used in this process must have two twisted pairs and a shield. It is also recommended that cables meet all other USITT DMX specification requirements. Refer to "Data Cables" on page 9.

A termination connector is used in this process. Refer to page 10 for more information regarding the construction of this connector.

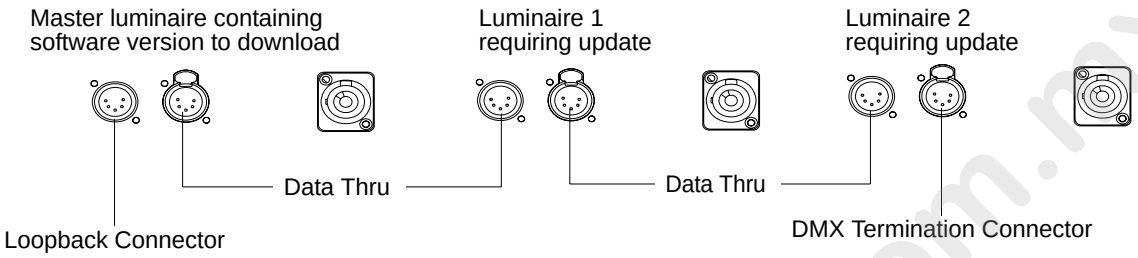


Figure 3-2: Software Transfer Setup

Transfer Procedure

This procedure is used to transfer software versions between luminaires.

Step 1. At last luminaire, install male termination connector into DATA THRU XLR connector.

Step 2. At master luminaire (first in chain) Menu Display, press [Menu].

Step 3. Press [Up] / [Down] arrows until Fixture appears.

Step 4. Press [Up] / [Down] arrows until Download appears. Press [Enter].

Step 5. OK? will be displayed. Press [Enter] to accept.

Step 6. Download proceeds. (Download takes 4-5 seconds.) The number of blocks displayed is less in a luminaire-to-luminaire download than in a PC-to-luminaire download for the same software version.

Step 7. When download is complete, luminaire automatically recalibrates. When recalibration is complete, luminaire is ready for operation with its new software version.

Verify software version at luminaire:

Step 1. At Menu Display, press [Menu].

Step 2. Press [Up] / [Down] arrows until Fixture appears. Press [Enter].

Step 3. Press [Up] / [Down] arrows until Version appears. Press [Enter].

The first half of the version will be displayed as a date (MM.DD.YY). For example, 03.18.03 (March 18, 2003).

Press [Up] / [Down] arrows to display second half of version. This will be displayed as a time (HH:MM). For example, 16:00

Notes

CHAPTER 4.

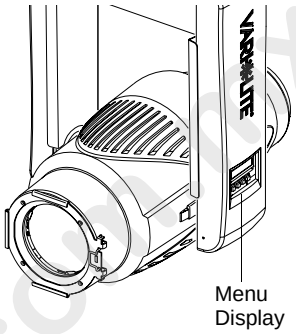
Menu System

This chapter contains instructions for operating the luminaire using the Menu Display feature.

- **Menu Operation**
- **Menu Functions**
- **Self Tests**

Menu Operation

What Is the Menu System?



The menu system is a programmable set of commands used to configure, address, operate, and test the luminaire. The menu system is controlled at the Menu Display available at the yoke leg.

The menu system has seven main functions which are referred to as "1st level." Within these main functions, there can be up to four additional sub-functions (levels 2 thru 5), making five total levels.

Menu Controls Operation

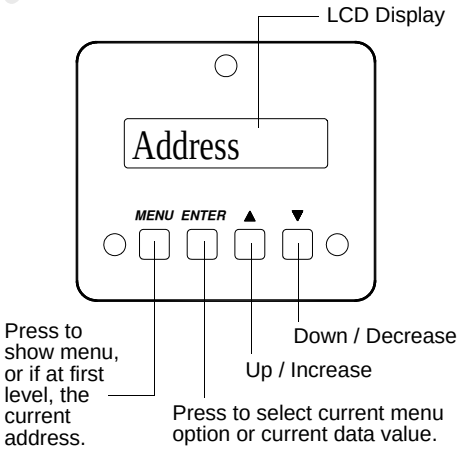
The menu system is controlled by four buttons. These buttons function as follows:

[Menu] button Displays the menu, or if at first level, the current address. Can also enable menu to exit a menu level.

[Enter] button Selects the current menu option or stores current data value.

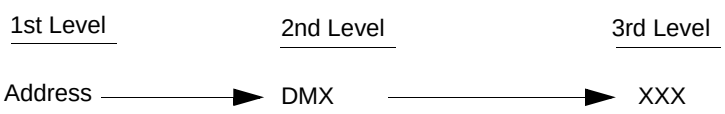
[Up] arrow Scrolls menu options upward or increases current data value.

[Down] arrow Scrolls menu options downward or decreases current data value.



To enter the menu system, first press [Menu]. The functions displayed will be 1st level functions. Scroll through the 1st level functions by pressing [Up] / [Down] arrows. Once the desired function appears in the display, press [Enter]. You are now at the 2nd level. Once again, press the [Up] / [Down] arrows to scroll through 2nd level functions. Press [Enter] to access 3rd level functions and so forth. When the highest level for the function is reached, [Up] / [Down] arrows can be pressed to select a value or select a toggle activation such as ON/OFF. Press [Enter] to store the value or select an action.

For example, the Address function has one sub-level: DMX. This 2nd level menu allow access to a 3rd level, which is a value. The Address function is a 3-level menu.



Menu Default State

The menu display's default state during normal operation is to display the address. After 10 seconds of inactivity at the display, it will change to this default state.

After 5 minutes of inactivity, the menu display will switch to its off state.

Menu Shortcuts

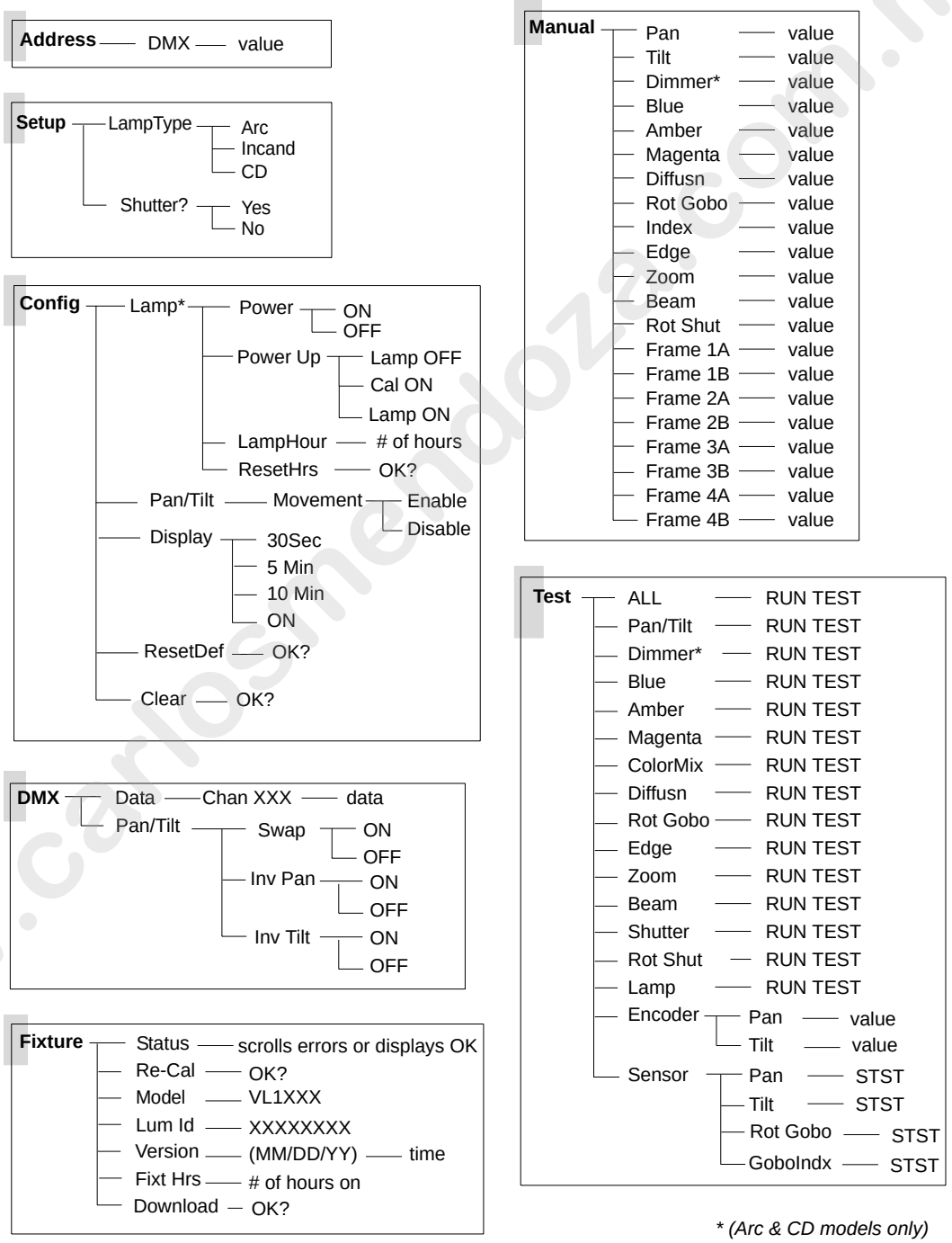
A few button combinations are provided as shortcuts for frequently used menu functions. These are as follows:

- Lamp On - Press and hold [Up], then press [Enter]. (Arc and CD models only.)
- Lamp Off - Press and hold [Down], then press [Enter]. (Arc and CD models only.)
- Recalibrate - Press and hold [Up], then press [Menu].
- Interrupt Calibration - Press [Menu] at Power up. (See "Program Starting Address Without Calibrating" on page 24 for more information.)

Menu Functions

Menu System Overview

The following is a graphic representation of the entire menu system.



** (Arc & CD models only)*

Menu System Function Chart

1st Level	2nd Level	3rd Level	4th Level	5thLevel
Address	**DMX** *DMX Address*	**XXX** *Address value*		
Setup	**LampType**	**Arc**		
		Incand		
		CD		
	Shutter?	**Yes**		
		No		
Config *System Configuration*	**LAMP** *Lamp Options (Arc & CD Models Only)*	**Power** *Lamp Power*	**ON** (default)	
			OFF	
		Power Up *Lamp Power-up State*	**Lamp OFF** *Lamp Off*	
			Cal ON *Lamp On After Calibration*	
			Lamp ON *Lamp On* (default)	
		LampHour *Lamp Hours Used*	**XXXX** *Cumulative # of Operation Hours* (Not editable)	
		ResetHrs *Reset Lamp Hour and Lamp Strike Counters*	**OK?**	
	Pan/Tilt *Pan and Tilt Options*	**Movement** *Position Recovery*	**Enable** *Enable*	
			Disable *Disable*	
	Display *Display Illumination*	**30s** *OFF in 30 seconds*		
		5M *OFF in 5 minutes* (default)		
		10M *OFF in 10 minutes*		
		ON *ON indefinitely*		
	ResetDef *Reset Default Values*	**OK?**		
	Clear *Clear Stored Parameters and Re-Cal*	**OK?**		
DMX *DMX Mode and Data*	**DATA**	**Chan XXX** *DMX Channel*	**XXXX** *Data*	
	Pan/Tilt *Pan and Tilt Options*	**Swap** *Swap Pan & Tilt*	**ON**	
			OFF	
		InvP *Invert Pan*	**ON**	
			OFF	
		InvT *Invert Tilt*	**ON**	
			OFF	

1st Level	2nd Level	3rd Level	4th Level	5thLevel
Fixture	**Status** *Status/Error Display*	*Scrolls error messages or displays* **OK**		
	Re-Cal *Recalibrate*	**OK?**		
	Model *Luminaire Model Type*	**VL1100XX** *Model Type*		
	Lum Id *Luminaire ID*	**XXXXXXXX** *Luminaire ID Number*		
	Version *Version*	**XX/XX/XX** *MM/DD/YY* (Page 1)	**XXX** *Time (in 6 min intervals)* (Page 2)	
	Fixt Hrs *Fixture Hours*	**XXXX** # *Hours On*		
	Download	**OK?**		
Manual *Manual Commands*	**Pan** *Pan*	**XXXX** *Data*		
	Tilt *Tilt*	**XXXX** *Data*		
	Dimmer *Dimmer (Arc & CD Only)*	**XXX** *Data*		
	Blue *Blue*	**XXX** *Data*		
	Amber *Amber*	**XXX** *Data*		
	Magenta *Magenta*	**XXX** *Data*		
	Diffusn *Diffusion*	**XXX** *Data*		
	Rot Gobo *Rotating Gobo*	**XXX** *Data*		
	Index *Rotating Gobo Index*	**XXXX** *Data*		
	Edge *Edge*	**XXX** *Data*		
	Zoom *Zoom*	**XXX** *Data*		
	Beam *Beam-size Iris (If Beam-Size Iris Accessory)*	**XXX** *Data*		
	Rot Shut *Rotating Frame (Shutter) (If Shutter Accessory)*	**XXX** *Data*		
	Frame 1A *(If Shutter Accessory)*	**XXX** *Data*		
	Frame 1B *(If Shutter Accessory)*	**XXX** *Data*		
	Frame 2A *(If Shutter Accessory)*	**XXX** *Data*		
	Frame 2B *(If Shutter Accessory)*	**XXX** *Data*		
	Frame 3A *(If Shutter Accessory)*	**XXX** *Data*		
	Frame 3B *(If Shutter Accessory)*	**XXX** *Data*		
	Frame 4A *(If Shutter Accessory)*	**XXX** *Data*		
	Frame 4B *(If Shutter Accessory)*	**XXX** *Data*		

1st Level	2nd Level	3rd Level	4th Level	5thLevel
Test *System Test*	**ALL** *Test All Motors*	**RUN TEST** *Run-Test in Progress*	Press [Menu] to stop tests	
	Pan/Tilt	**RUN TEST** *Run-Test in Progress*		
	Dimmer *(Arc Only)*	**RUN TEST** *Run-Test in Progress*		
	Blue	**RUN TEST** *Run-Test in Progress*		
	Amber	**RUN TEST** *Run-Test in Progress*		
	Magenta	**RUN TEST** *Run-Test in Progress*		
	ColorMix *Blue, Amber, Magenta test*	**RUN TEST** *Run-Test in Progress*		
	Diffusn *Diffusion Test*	**RUN TEST** *Run-Test in Progress*		
	Rot Gobo *Rotating Gobo Test*	**RUN TEST** *Run-Test in Progress*		
	Edge	**RUN TEST** *Run-Test in Progress*		
	Zoom	**RUN TEST** *Run-Test in Progress*		
	Beam *(If Beam-Size Iris Accessory)*	**RUN TEST** *Run-Test in Progress*		
	Shutter *(If Shutter Accessory)*	**RUN TEST** *Run-Test in Progress*		
	Rot Shut *(If Shutter Accessory)*	**RUN TEST** *Run-Test in Progress*		
	Lamp *Disables Pan/Tilt and executes Home position.*	**Lamp 1** *Run-Test in Progress*		
		Lamp 2 *(inserts magenta to 30%) Run-Test in Progress*		
	Encoder *Encoders*	**Pan** *Pan Encoder*	**XXXX** *Data*	
		Tilt *Tilt Encoder*	**XXXX** *Data*	
	Sensor *Sensors*	**Pan** *COT Sensor*	**STST** *Sensor Test in Progress*	**PASS/FAIL**
		Tilt *COT Sensor*	**STST** *Sensor Test in Progress*	**PASS/FAIL**
		Rot Gobo *Gobo Select EOT Sensor*	**STST** *Sensor Test in Progress*	**PASS/FAIL**
		GoboIndx *Gobo Index EOT Sensor*	**STST** *Sensor Test in Progress*	**PASS/FAIL**

Menu Function Definitions

For easy reference, each possible menu item is listed alphabetically in the first column by its display abbreviation. The second column follows with a definition of the abbreviation and then a third column provides an explanation of its purpose and function.

Display	Definition	Purpose
10 Min	10 Minutes	Sets Menu Display to automatically shut off after 10 minutes of non-use.
30 Sec	30 Seconds	Sets Menu Display to automatically shut off after 30 seconds of non-use.
5 Min	5 Minutes	Sets Menu Display to automatically shut off after 5 minutes of non-use.
Address	DMX Address	Accesses function for setting luminaire DMX starting address.
ALL	All Motors	Tests all internal motors.
Amber	Amber	Specifies Amber for manual control (**Manual**) or test Amber functions (**Test**).
Arc	Arc	Specifies luminaire as having an arc lamp source.
Blue	Blue	Specifies Blue for manual control (**Manual**) or tests Blue functions (**Test**).
Cal ON	Calibration On	Configures arc luminaire so that lamp will strike after calibration procedure is complete.
CD	VL1100CD Model	Sets menu option to VL1100CD luminaire *(VL1100CD models only)*
Chan XXX	DMX Channel	Specifies DMX channel for display of current data value.
Clear	Clear	Clears stored parameters and re-calibrates luminaire.
ColorMix	Color Mixer	Tests color mixing mechanism.
Config	System Configuration	Accesses functions for setting lamp, pan/tilt, and Menu Display options. Also accesses lamp information such as number of strikes, and hours used, along with their respective reset function.
Data	DMX Data	Accesses function for displaying DMX data by channel number.
Diffusn	Diffusion	Specifies manual control of Diffusion (**Manual**) or tests Diffusion functions (**Test**).
Dimmer	Dimmer	Specifies dimmer mechanism for manual control (**Manual**) or tests dimmer/ strobe functions (**Test**).
Disable	Disable	Disables a function.
Display	Display Illumination	Accesses options for Menu Display on and off times.
DMX	DMX	Sets starting address for DMX systems.
Edge	Edge Function	Specifies edge function for manual control (**Manual**) or for testing (**Test**).
Enable	Enable	Enables a function.
Encoder	Encoders	Accesses encoder choices for diagnostic testing.
FAIL	Test Fail	Indicates that sensor test has failed.
Fixt Hrs	Fixture Hours	Displays total number of hours luminaire has been powered on.
Fixture	Fixture	Access luminaire specification information such as model, serial number, software version, along with status information.
Frame 1A - Frame 4B	Frame Side	Specifies shutter frames 1A, 1B, 2A, 2B, 3A, 3B, 4A or 4B for manual control depending on which one is selected at the Manual Commands menu.
GoboIndx	Gobo Index	Specifies gobo index EOT sensor for testing.
Incand	Incandescent	Specifies luminaire as having an incandescent lamp source.
Index	Gobo Index	Specifies rotating gobo index for manual control.
Inv Pan	Invert Pan	Reverses pan action for special focus requirements.

Display	Definition	Purpose
Inv Tilt	Invert Tilt	Reverses tilt action for special focus requirements.
Lamp	Lamp	Accesses lamp power up options and information (**Config**).
Lamp 1	Lamp	Specifies test lamp operation (**Test**).
Lamp 2	Lamp	Specifies test lamp operation (**Test**). Inserts magenta to 30%.
Lamp OFF	Lamp is Off	Configures arc luminaire so that lamp will not strike upon power up.
Lamp ON	Lamp is On	Configures arc luminaire so that lamp will strike upon power up.
LampHour	Lamp Hours	Displays total number of lamp operating hours.
LampType	Lamp Type	Accesses menu item for configuring luminaire for arc or incandescent source.
Lum Id	Luminaire ID	Displays unique luminaire ID number.
Magenta	Magenta	Specifies manual control of Magenta (**Manual**) or test Magenta functions (**Test**).
Manual	Manual Commands	Accesses functions for controlling luminaire mechanisms and timing by entry of an absolute data value.
Model	Model	Displays model number of luminaire. For example, VL1100TS.
Movement	Movement	Enables and disables pan and tilt movement and auto-correction.
No	No	Specifies that the luminaire does not contain the shutter accessory.
OFF	Off	Turns off a function.
OK	Okay	Calibration has completed and no errors have occurred.
OK?	Okay?	Prompt for pressing [Enter] before an action is executed.
ON	On Indefinitely	Sets Menu Display to stay on until programmed otherwise (**Display**) or turns on a function.
Pan	Pan	Specifies pan function for manual control (**Manual**) or pan encoder for testing (**Test**).
Pan/Tilt	Pan/Tilt	Accesses pan and tilt options for DMX function, system configuration, and testing.
PASS	Test Pass	Indicates that sensor test has passed.
Power	Lamp Power	Accesses function to turn lamp on or off.
PROG	Programming	Currently programming the new version of software.
Re-Cal	Recalibrate	Currently executing calibration or recalibrates luminaire.
ResetDef	Reset Default	Resets default system configuration values.
ResetHrs	Reset Lamp Info	Resets lamp hour and lamp strike counters. For use when new lamp is installed.
Rot Gobo	Rotating Gobo	Specifies rotating gobo for manual control (**Manual**) or gobo select EOT sensor for testing (**Test**).
Rot Shut	Rotating Shutter	Specifies shutter mechanism rotating function for manual control (**Manual**) or for testing (**Test**).
RUN TEST	Run-Test	Indicates that a system mechanism test is in progress.
Sensor	Sensors	Accesses sensor choices for diagnostic testing.
Setup	Setup	Accesses lamp type and shutter operation settings.
Shutter	Shutter	Specifies shutter mechanism for testing.
Shutter?	Shutter	Accesses menu item for configuring luminaire for shutter operation.
Status	Status/Error Display	Allows scrolling through error list or displays **OK** if no errors.
STST	Sensor Test	Indicates that a system sensor test is in progress.
Test	System Tests	Accesses diagnostic tests for internal mechanisms.
Tilt	Tilt	Specifies tilt function for manual control (**Manual**) or tilt encoder for testing (**Test**).

Display	Definition	Purpose
Version	Version	Displays current software version (Date and Time in two pages).
Yes	Yes	Specifies that the luminaire contains the shutter accessory.
Zoom	Zoom Function	Specifies zoom function for manual control (**Manual**) or for testing (**Test**).

Self Tests

Running Parameter Tests

The luminaire is capable of running self tests by using the TEST menu functions.

Note: If a DMX data stream is present on the luminaire's DMX input connector, Self Test and Manual control is overwritten by the DMX command protocol and neither (Self Test and Manual) will operate.

When running tests on multiple luminaires, a loopback connector is required at the master luminaire (first in link) and a male termination connector is required at the last luminaire in the link. Refer to page 13 for more information regarding the construction of these connectors.

Note: After 10 seconds of inactivity, the menu display will change to the default state showing the address.

To connect luminaires for simultaneous testing:

Step 1. At first luminaire in link, install loopback connector into DATA IN XLR connector.

Step 2. At last luminaire, install DMX termination connector into DATA THRU XLR connector.

Step 3. At master luminaire Menu Display, press [Menu].

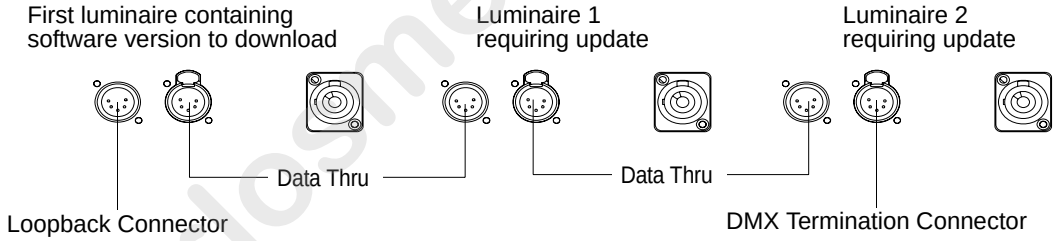


Figure 4-1: Hardware Setup

To run tests:

Step 1. Press [Menu].

Step 2. Press [Up] / [Down] arrows until Test appears. Press [Enter].

Step 3. Use [Up] / [Down] arrows to select a parameter to test. Refer to "Menu System Function Chart" on page 49 for a complete list of test parameters which can be chosen.

Step 4. Press [Enter] to run test.

Step 5. Press [Menu] to stop test at any time.

Movement Disable

The Movement option allows pan and tilt to be disabled so that the luminaire can be placed in any position for testing without movement occurring. In order to regain full control of the luminaire, Movement will need to be enabled after testing.

Note: When using the Movement option, pan and tilt will be disabled for all the luminaires that are linked.

To set movement option:

Step 1. Press [Menu].

Step 2. Press [Up] / [Down] arrows until Config appears. Press [Enter].

Step 3. Press [Up] / [Down] arrows until Pan/Tilt appears. Press [Enter].

Step 4. Movement will be displayed. Press [Enter].

Step 5. Use [Up] / [Down] arrows to select Enable or Disable. Press [Enter] to select.

APPENDIX A.

Troubleshooting and Maintenance

This appendix provides instructions for troubleshooting and performing routine maintenance which may be necessary during the life of the luminaire.

- **Troubleshooting**
- **Routine Maintenance**

WARNING: All routine maintenance procedures are to be performed with power completely removed from the luminaire. Never remove protective covers when luminaire is powered. Wear appropriate protective eye wear and gloves when servicing the fixture. All service and maintenance, other than described herein should be performed by an Authorized VARI*LITE Dealer or Service Center.

WARNING: DO NOT connect or disconnect energized power cable at fixture (under load). Turn off circuit breaker (or completely de-energize circuit) before connecting or disconnecting power cable at fixture. Power is only removed from the fixture by disconnecting power cable from source or turning off source circuit breaker.

Troubleshooting

Error Messages

If a problem occurs during luminaire calibration, at the end of the calibration sequence the Menu Display will cycle through any applicable error message(s) 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.

To access error messages:

Step 1. Press [Menu].

Step 2. Press [Up] / [Down] arrows until Fixture appears. Press [Enter].

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

Table A-1: Error Messages

Display	Message...
OK	No Errors Found
Pan/No Sens	Pan sensor not found.
Pan/Encoder/Fail	Pan encoder failure.
Tilt/No Sens	Tilt sensor not found.
Tilt/Encoder/Fail	Tilt encoder failure.
Index/No Sens	Gobo Index sensor not found.
Rot Gobo/No Sens	Rotating Gobo sensor not found.
Lamp/Strike/Fail	Lamp strike failure.

Troubleshooting Guide

If a problem is suspected, first try recalibrating the luminaire to prompt an error message. Table A-2 below provides possible causes and remedies for various error messages and/or symptoms.

CAUTION: Some troubleshooting is included for reference only. Performing remedies marked by gray areas will void product warranty. Refer to the Vari-Lite Limited Warranty card included with the product.

Table A-2: Troubleshooting Guide

Error Display	Description	Possible Cause and Remedy
Pan/No Sens	Pan Sensor Not Found	EOT flag attached to large pulley is not engaging the EOT sensor - Ensure flag is attached to the large pulley - Ensure that flag passes through the sensor at a depth sufficient to engage the sensor beam Pan belt disconnected, extremely loose or not installed properly - Properly install belt between pan motor and large pulley
Pan/Encoder/Fail	Pan Encoder Failure	Main board pan/tilt connector (J9) disconnected - Connect main board pan/tilt connector (J9) Pan motor disconnected - Connect pan motor power Encoder faulty - Replace pan end-of-travel/encoder sensor assembly
TILT NO SENS	Tilt Sensor Not Found	EOT flag attached to large pulley is not engaging the EOT sensor - Ensure flag is attached to the large pulley - Ensure that flag passes through the sensor at a depth sufficient to engage the sensor beam Tilt belt disconnected, extremely loose or not installed properly - Properly install belt between tilt motor and large pulley
Tilt/Encoder/Fail	Tilt Encoder Failure	Main board pan/tilt connector (J9) disconnected - Connect main board pan/tilt connector (J9) Tilt motor disconnected - Connect tilt motor power Encoder faulty - Replace pan end-of-travel/encoder sensor assembly
Lamp/Strike/Fail	Lamp Strike Failure*	Lamp failed to strike after repeated attempts - Replace lamp

Note: *The nature of the CDM lamp used in the VL1100CD ERS Luminaire prevents it from restriking when it is hot after use. It takes approximately 15 minutes for the lamp to cool enough to restrike.

Routine Maintenance

Cleaning Optical Lenses and Gobos

WARNING: Remove power from luminaire before performing maintenance.

The front lens and gobos may require cleaning after extended use. Use only isopropyl alcohol, along with a soft, lint-free cloth to clean glass components.

To access gobos, refer to procedure below.

Rotating Gobo Replacement

WARNING: Remove power from luminaire before performing maintenance. Gobos may be HOT after operation. Allow to cool before replacing.

To replace a rotating gobo:

Step 1. Remove power from luminaire.

Step 2. At either side of head assembly, press in front cover latch and pull cover straight back until stopped by tether.

Step 3. Rotate gobo wheel until required gobo position is accessible at finger access cutout.

Step 4. Rotate gobo gear until open end of carrier is upward.

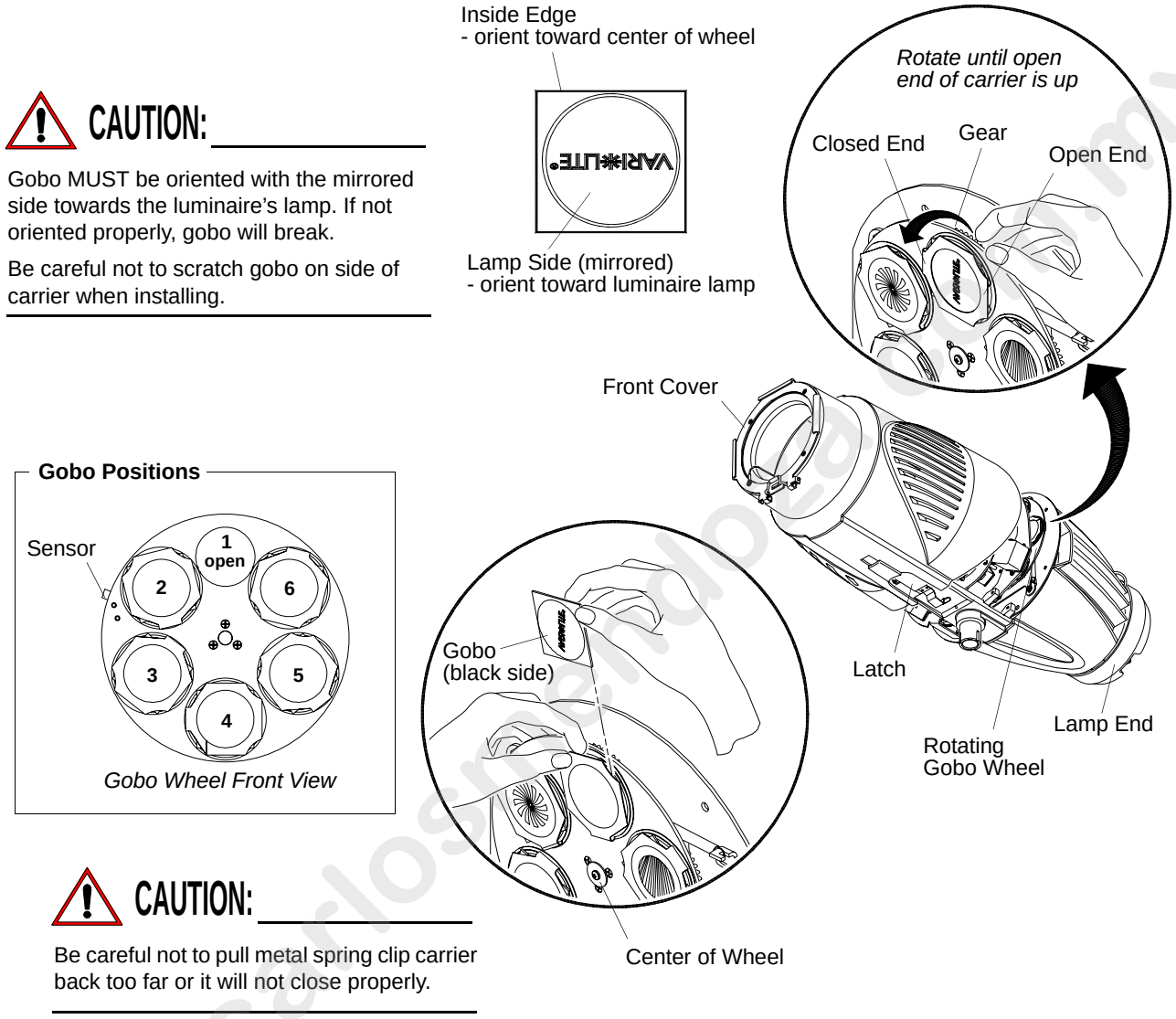
CAUTION: Do not touch gobos with bare fingers. Wear cotton gloves or other covering while replacing. Clean with isopropyl alcohol and soft, lint-free cloth if required.

CAUTION: Do not pull metal spring clip carrier back too far or it will not close properly.

Step 5. If applicable, carefully pull current gobo up and out of carrier. *Gobo can be easily scratched on sides of carrier if not careful.*

Step 6. Carefully install new gobo, orienting side marked "This Edge In" toward center of gobo wheel and side marked "Lamp Side" (mirror finish) toward lamp. *Gobo can be easily scratched on sides of carrier if not careful.* Ensure gobo is firmly set in carrier grooves.

Step 7. Re-install front cover.



CAUTION:

Gobo MUST be oriented with the mirrored side towards the luminaire's lamp. If not oriented properly, gobo will break.

Be careful not to scratch gobo on side of carrier when installing.

CAUTION:

Be careful not to pull metal spring clip carrier back too far or it will not close properly.

Figure A-1: Rotating Gobo Replacement/Cleaning

Lamp Replacement

For lamp replacement procedure, refer to "Installation Procedures" on page 14.

APPENDIX B.

Technical Specifications

Mechanical

Zoom Optics

Continuously variable field angle in imaging range from 19° to 36°, super zoom angles to 70° is programmable over a timed range of 2 seconds to 20 minutes.

Color Mixing System

A fully cross-fading CYM color system. All motors utilize a noise reducing, 50kHz. drive system that quiets operation during movement and also while static.

Diffusion

Field or gobo image can be continuously and smoothly diffused to wash.

Intensity Control

A coated glass dimmer wheel provides full-field dimming designed for smooth timed fades.

Rotating Gobo Wheel

Six position rotating gobo wheel with a central bearing system, five rotatable and indexable gobo positions plus open. (Patterns are not included with the fixture. Use of glass or metal patterns is acceptable.)

Shutter (Framing Models)

Four-blade system can frame and crop beam field and gobos. Each individual shutter is capable of translating to beam center while also rotating ±35°. Entire shutter rotates ±45°.

Beam Size Control (Iris Models)

In addition to the zoom optics, a mechanical iris provides continuous beam size control for both rapid changes and smooth timed beam angle changes.

Pan and Tilt

Smooth, timed continuous motion using three-phase, ultra quiet stepper motors with encoder correction. Pan range is 540°; tilt is 270°. Resolution is 0.3°. Unit will calibrate to support close hangs (yoke-to-yoke).

Optical

Source

315W CDM Lamp. Color Temp: 3200K, CRI: 95 Output: >8,000 Lumens, Rated Life: 8,000 Hours

Reflector

Precision glass reflector with dichroic cold mirror coating.

Operational

Power Requirements

3 to 6 Amps depending upon input voltage. 100 - 240 VAC 50/60 Hz.

Operational Temperature

-20° to 122°F (-29° to 50°C)

Cooling

Free convection cooling when hung. Floor mounted units and extreme ambient temperatures activate a low-noise, forced-air cooling system.

Control

Compatible with a wide variety of DMX512 consoles.

Mounting Position

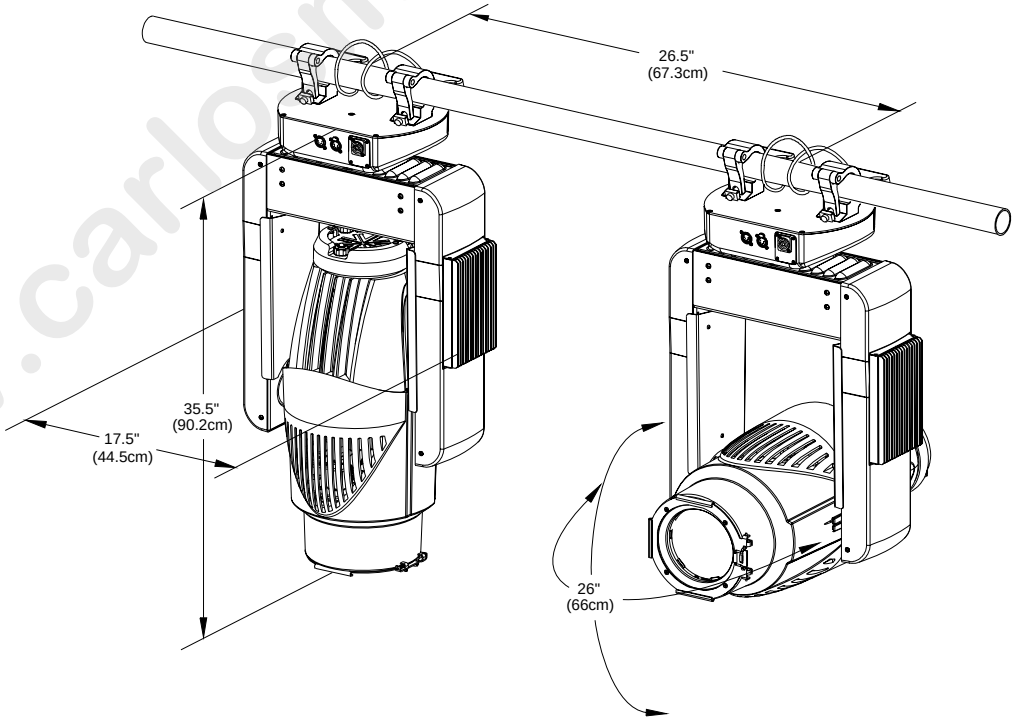
All models can be mounted and operated in any orientation.

Weight

74.9 lbs (34 kg)

Spacing

Hangs on 26.5 in. (67.3 cm) centers.



Photometric

VL1100CD ERS Luminaire - 315 CDM Lamp

(All data taken with a seasoned light source at 20 hours of life.)

FIELD ANGLE (degrees)	FIELD DIAMETER TN*	BEAM ANGLE (degrees)	BEAM DIAMETER TN*	CANDELA (cd)
19.0	.335	13.0	0.228	99,700
26.0	.462	19.5	0.344	44,400
36.0	.650	25.5	0.453	26,700
70.0 (Super Zoom)	1.40	29.0	0.517	9,400

* Multiply throw distance by Tn to determine coverage.

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

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