intellaspot™
User Manual

HIGH END SYSTEMS

an ETC. Company

intellaspot™ User Manual

August, 2012

Contact Information

U.S. and the Americas

Sales Department   High End Systems, Inc.
2105 Gracy Farms Lane
Austin, TX 78758 USA
voice: 512.836.2242
fax: 512.837.5290
Toll Free: 800.890.8989

Customer Service   High End Systems, Inc.
2105 Gracy Farms Lane
Austin, TX 78758 USA
voice: 800.890.8989
fax: 512.834.9195
toll free: 800.890.8989

World Wide Web: http://www.highend.com

Declaration of Conformity
according to ISO/IEC Guide 22 and EN45104

Manufacturer's name: High End Systems,

Manufacturer's address: 2105 Gracy Farms Lane
Austin, Texas 78758 USA

Distributor's name: High End Systems, Inc.

Distributor's address: 2105 Gracy Farms Lane
Austin, Texas 78758 USA

Product Name: intellaspot

Product Options: All

We hereby declare that the above referenced product complies withthe essential requirements of Council Directives 2004/108/EC (EMC) and 2006/95/EC (LVD).

Equipment referred to in this declaration of conformity was manufactured in compliance with the following standards beginning in 1995:

Safety: EN 60598-1 : 2004

EN 60598-2-17: 1989

A1-A3 : 1993

EMC: Emission: EN 55022 Ed.2 (1998) + A1 (2000) + A2(2003)
EN 61000-3-2 (2000) + A2(2005)
EN 61000-3-3 (1995) + A1 (2001) + A2(2005)

Immunity: EN 55024 Ed.1 (1998) + A1 (2001) + A2(2003)

USA, Wednesday, August 15, 2012

Kenneth Stuart Hansen, Compliance Engineer

Product Modification Warning

High End Systems products are designed and manufactured to meet the requirements of United States and International safety regulations. Modifications to the product could affect safety and render the product non-compliant to relevant safety standards.

Mise En Garde Contre La Modification Du Produit

Les produits High End Systems sont conçus et fabriqués conformément aux exigences des règlements internationaux de sécurité. Toute modification du produit peut entraîner sa non conformité aux normes de sécurité en vigueur.

Produktmodifikationswarnung

Design und Herstellung von High End Systems entsprechen den Anforderungen der U.S. Amerikanischen und internationalen Sicherheitsvorschriften. Abänderungen dieses Produktes können dessen Sicherheit beeinträchtigen und unter Umständen gegen die diesbezüglichen Sicherheitsnormen verstoßen.

Avvertenza Sulla Modifica Del Prodotto

I prodotti di High End Systems sono stati progettati e fabbricati per soddisfare i requisiti delle normative di sicurezza statunitensi ed internazionali. Qualsiasi modifica al prodotto potrebbe pregiudicare la sicurezza e rendere il prodotto non conforme agli standard di sicurezza pertinenti.

Advertencia De Modificación Del Producto

Los productos de High End Systems están diseñados y fabricados para cumplir los requisitos de las reglamentaciones de seguridad de los Estados Unidos e internacionales. Las modificaciones al producto podrían afectar la seguridad y dejar al producto fuera de conformidad con las normas de seguridad relevantes.

Important Safety Information

Instructions pertaining to continued protection against fire, electric shock, and injury to persons are found in *Appendix B: Important Safety Information* on page 77. Please read all instructions prior to assembling, mounting, and operating this equipment.

Important: Informations De Sécurité
Les instructions se rapportant à la protection permanente contre les incendies, l'électrocution, excessif et aux blessures corporelles se trouvent dans l'Annexe B. Veuillez lire toutes les instructions avant d'assembler, de monter ou d'utiliser cet équipement.

Wichtige Sicherheitshinweise
Sicherheitsanleitungen zum Schutz gegen Feuer, elektrischen Schlag, und Verletzung von Personen finden Sie in Anhang B. Vor der Montage, dem Zusammenbau und der Intbetriebnahme dieses Geräts alle Anleitungen sorgfältig durchlesen.

Informazioni Importanti Di Sicurezza
Le istruzioni sulla protezione da incendi, folgorazione, e infortuni sono contenute nell'appendice B. Si prega di leggere tutte le istruzioni prima di assemblare, montare e azionare l'apparecchiatura.

Informacion Importante De Seguridad
En el Apéndice B se encuentran instrucciones sobre protección continua contra incendios, descarga eléctrica, y lesiones personales. Lea, por favor, todas las instrucciones antes del ensamblaje, montaje y operación de este equipo.

FCC Information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Safety Symbols

The following international caution and warning symbols appear in margins throughout this manual to highlight messages.

This symbol appears adjacent to Caution messages. Not heeding these messages could result in personal injury and/or damage to equipment.

This symbol appears adjacent to high voltage warning messages. Not heeding these messages could result in serious personal injury.

This symbol indicates the minimum focus distance from a combustible object.

This symbol cautions against mounting the fixture on or near a flammable surface.

This symbol indicates an explosion hazard.

This symbol cautions against an Ultraviolet Radiation hazard.

This symbol indicates that eye protection should be worn to prevent potential injury.

This symbol indicates that, while operating, equipment surfaces may reach very high temperatures. Allow the fixture to cool before handling.

Warranty Information

Limited Warranty

Unless otherwise stated, your product is covered by a one year parts and labor limited warranty. Dichroic filters and LithoPatterns® high resolution glass gobos are not guaranteed against breakage or scratches to coating. It is the owner's responsibility to furnish receipts or invoices for verification of purchase, date, and dealer or distributor. If purchase date cannot be provided, date of manufacture will be used to determine warranty period.

Returning an Item Under Warranty for Repair

It is necessary to obtain a Return Material Authorization (RMA) number from your dealer or point of purchase BEFORE any units are returned for repair. The manufacturer will make the final determination as to whether or not the unit is covered by warranty. Lamps are covered by the lamp manufacturer's warranty.

A fixture must be returned in its original packaging. Any other parts returned to High End Systems must be packaged in a suitable manner to ensure the protection of such product unit or parts, and such package shall be clearly and prominently marked to indicate that the package contains returned Product units or parts and with an RMA number. Accompany all returned Product units or parts with a written explanation of the alleged problem or malfunction. Ship returned Product units or parts to: 2105 Gracy Farms Lane, Austin, TX 78758 USA.

> *Note: **Freight Damage Claims are invalid for fixtures shipped in non-factory boxes and packing materials.***

Freight

All shipping will be paid by the purchaser. Items under warranty shall have return shipping paid by the manufacturer only in the Continental United States. Under no circumstances will freight collect shipments be accepted. Prepaid shipping does not include rush expediting such as air freight. Air freight can be sent customer collect in the Continental United States.

REPAIR OR REPLACEMENT AS PROVIDED FOR UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. HIGH END SYSTEMS, INC. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO ANY PRODUCT, AND HIGH END SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. HIGH END SHALL NOT BE LIABLE FOR ANY INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGE, INCLUDING LOST PROFITS, SUSTAINED OR INCURRED IN CONNECTION WITH ANY PRODUCT OR CAUSED BY PRODUCT DEFECTS OR THE PARTIAL OR TOTAL FAILURE OF ANY PRODUCT REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, AND WHETHER OR NOT SUCH DAMAGE WAS FORESEEN OR UNFORESEEN.

Warranty is void if the product is misused, damaged, modified in any way, or for unauthorized repairs or parts. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Patents

This product may use one or more of the following patents: US 4,392,187; US 4,602,321; US 4,688,161;
US 4,701,833; US 4,709,311; US 4,779,176; US 4,800,474; US 4,962,687; US 4,972,306; US 4,980,806;
US 5,010,459; US 5,031,078; US 5,073,847; US 5,078,039; US 5,186,536; US 5,209,560; US 5,278,742;
US 5,282,121; US 5,307,295; US 5,329,431; US 5,331,822; US 5,367,444; US 5,402,326; US 5,414,328;
US 5,426,576; US 5,430,629; US 5,432,691; US 5,454,477; US 5,455,748; US 5,502,627; US 5,506,762;
US 5,515,254; US 5,537,303; US 5,545,951; US 5,588,021; US 5,590,954; US 5,590,955; US 5,640,061;
US 5,647,662; US 5,691,886; US 5,702,082; US 5,728,994; US 5,758,955; US 5,758,956; US 5,769,527;
US 5,769,531; US 5,774,273; US 5,788,365; US 5,794,881; US 5,795,058; US 5,798,619; US 5,806,951;
US 5,812,596; US 5,823,661; US 5,825,548; US 5,828,485; US 5,829,868; US 5,857,768; US 5,882,107;
US 5,921,659; US 5,934,794; US 5,940,204; US 5,945,786; US 5,953,151; US 5,953,152; US 5,969,485;
US 5,980,066; US 5,983,280; US 5,984,248; US 5,986,201; US 6,011,662; US 6,029,122; US 6,048,080;
US 6,048,081; US 6,054,816; US 6,057,958; US 6,062,706; US 6,079,853; US 6,126,288; US 6,142,652;
US 6,142,653; US 6,172,822; US 6,175,771; US 6,188,933; US 6,208,087; US 6,219,093; US 6,220,730;
US 6,241,366; US 6,249,091; US 6,255,787; US 6,256,136; US 6,261,636; US 6,278,542; US 6,278,545;
US 6,278,563; US 6,288,828; US 6,326,741; US 6,327,103; US 6,331,756; US 6,346,783; US 6,421,165;
US 6,430,934; US 6,459,217; US 6,466,357; US 6,502,961; US 6,515,435; US 6,523,353; US 6,536,922;
US 6,538,797; US 6,545,586; US 6,549,324; US 6,549,326; US 6,563,520; US 6,565,941; US 6,570,348;
US 6,575,577; US 6,578,991; US 6,588,944; US 6,592,480; US 6,597,132; US 6,600,270; US 6,601,974;
US 6,605,907; US 6,617,792; US 6,621,239; US 6,622,053; US 6,635,999; US 6,648,286; US 6,664,745;
US 6,682,031; US 6,693,392; US 6,696,101; US 6,719,433; US 6,736,528; US 6,771,411; US 6,775,991;
US 6,783,251; US 6,801,353; US 6,812,653; US 6,823,119; US 6,865,008; US 6,866,390; US 6,866,402;
US 6,866,451; US 6,869,193; US 6,891,656; US 6,894,443; US 6,919,916; US 6,930,456; US 6,934,071;
US 6,937,338; US 6,955,435; US 6,969,960; US 6,971,764; US 6,982,529; US 6,988,805; US 6,988,807;
US 6,988,817; US 7,000,417; US 7,011,429; US 7,018,047; US 7,020,370; US 7,033,028; US 7,048,838;
US 7,055,963; US 7,055,964; US 7,057,797; US 7,073,910; US 7,078,869; US 7,092,098; US 7,119,902;
US 7,161,562; US 7,175,317; US 7,181,112; US 7,206,023; US 7,210,798; US D347,113; US D350,408;
US D359,574; US D360,404; US D365,165; US D366,712; US D370,080; US D372,550; US D374,439;
US D377,338; US D381,740; US D409,771; AT E169413; CA 2142619; CA 2145508; CA 2245842;
DE 22588.4-08; DE 621495; DE 655144; DE 69320175.4; DE 69322401.0; DE 69331145.2; DE 69525856.7;
DE 69734744.3; DE 797503; DK 0655144; DK 1447702; EP 0475082; EP 0621495; EP 0655144; EP 0662275;
EP 0767398; EP 0797503; EP 0969247; EP 1447702; ES 0621495; FR 0621495; FR 0655144; FR 0662275;
FR 1447702; GB 2043769B; GB 2055842B; GB 2283808B; GB 2290134B; GB 2291814B; GB 2292530B;
GB 2292896B; GB 2294909B; GB 2295058B; GB 2303203B; GB 2306887B; GB 2307036B; GB 2316477B;
IE 0621495; IT 034244BE; 2005; IT 0621495; IT 0655144; JP 3495373; JP 3793577; NL 0621495;
NL 0797503; NL 0969247; UK 0621495; UK 0655144; UK 0662275; UK 0797503; UK 0969247; UK 1447702;

Table of Contents

This chapter describes the features and specifications of the intellaspot™ fixture along with a list of related products and accessories.

Installation of your intellaspot fixture includes mounting, connecting to power and DMX linking and configuration.

Chapter 3: Menu System

This chapter shows you how to access and navigate the onboard Menu system and the options available at each menu level with examples.

Chapter 4: Fixture Programming

intellaspot™ fixtures can be programmed to provide hard edge beam with full CMY color, multiple gobo patterns and effects, as well as a variety of Shutter/Lamp functions. This chapter discusses the DMX programming options and describes the intellaspot DMX parameters in both the standard and enhanced protocols.

Chapter 5: General Maintenance and Troubleshooting

Maintaining and servicing intellaspot fixtures includes replacing parts and cleaning the unit. General troubleshooting tips help you identify potential problems.

Chapter I:

Product Overview

This chapter describes the features and specifications of the intellaspot™ fixture along with a list of related products and accessories.

The intellaspot is a hard-edged moving yoke light featuring smooth CMY color mixing and with variable CTO. A fixed color wheel allows instant color choices via easily exchangeable dichroic filters. Two rotating Lithopattern® wheels, each with seven patterns plus open, provide a large number of output patterns and images. The output is further enhanced with a rotating prism and an animation wheel.

The intellaspot optical system produces a 20,000 lumen output from the 850w HID lamp, while providing clear projections with a large zoom range of 11° to 55°. The fixture also features a fast mechanical iris, variable soft edge, and electronic strobing.

Built on an entirely new platform, the intellaspot combines new technologies to create an energy-efficient fixture that conforms to modern "greening" principles. A battery-controlled full color LCD menu system enables fixture addressing without having to power up the unit. Low ambient noise, RDM, Art-Net, and wireless DMX capabilities make the intellaspot the professional choice for a wide variety of applications.

Features

Operation

- 540° pan and 270° tilt movement
- Auto-ranging 100-240V 50/60 Hz
- High efficiency 20,000-lumen output
- 850w HID lamp - 750 hrs.
- Onboard menu system with Color LCD display
- Battery powered addressing option
- 39 DMX channels
- Internal Effects™ macro control option
- DMX/RDM Connector; 5-pin XLR
- RDM compatible
- Optional Art-Net
- Optional wireless DMX
- Low ambient noise

Optics

- 5:1 Zoom 11° – 55°
- Mechanical and Electronic strobe
- Variable soft edge
- Fast mechanical iris

Effects

- CMY color mixing plus variable CTO
- Color wheel with replaceable positions
- Two seven position plus open rotating gobo wheels
- Rotating prism
- Animation wheel
- Indigo Highlighter

Construction

- Modular construction
- Fast service design for all components
- Electronic cooling system control
- Fast, smooth and quiet yoke movement using proprietary multi-phase technology
- Performance oriented exterior design prevents stray light scatter
- Pan and tilt locks for easy transportation
- Easily carried with yoke-arm handles
- Optional touring roadcase

Specifications

Mechanical Specifications

Dimensions: 381 mm x 551 mm x 909 mm (15 in x 21.7 in x 35.7 in)

Shipping Box Dimensions: 597 mm x 610 mm x 1124 mm (23.5 x 24 x 44.25)

Fixture weight: 52.17 kg (115 lbs)
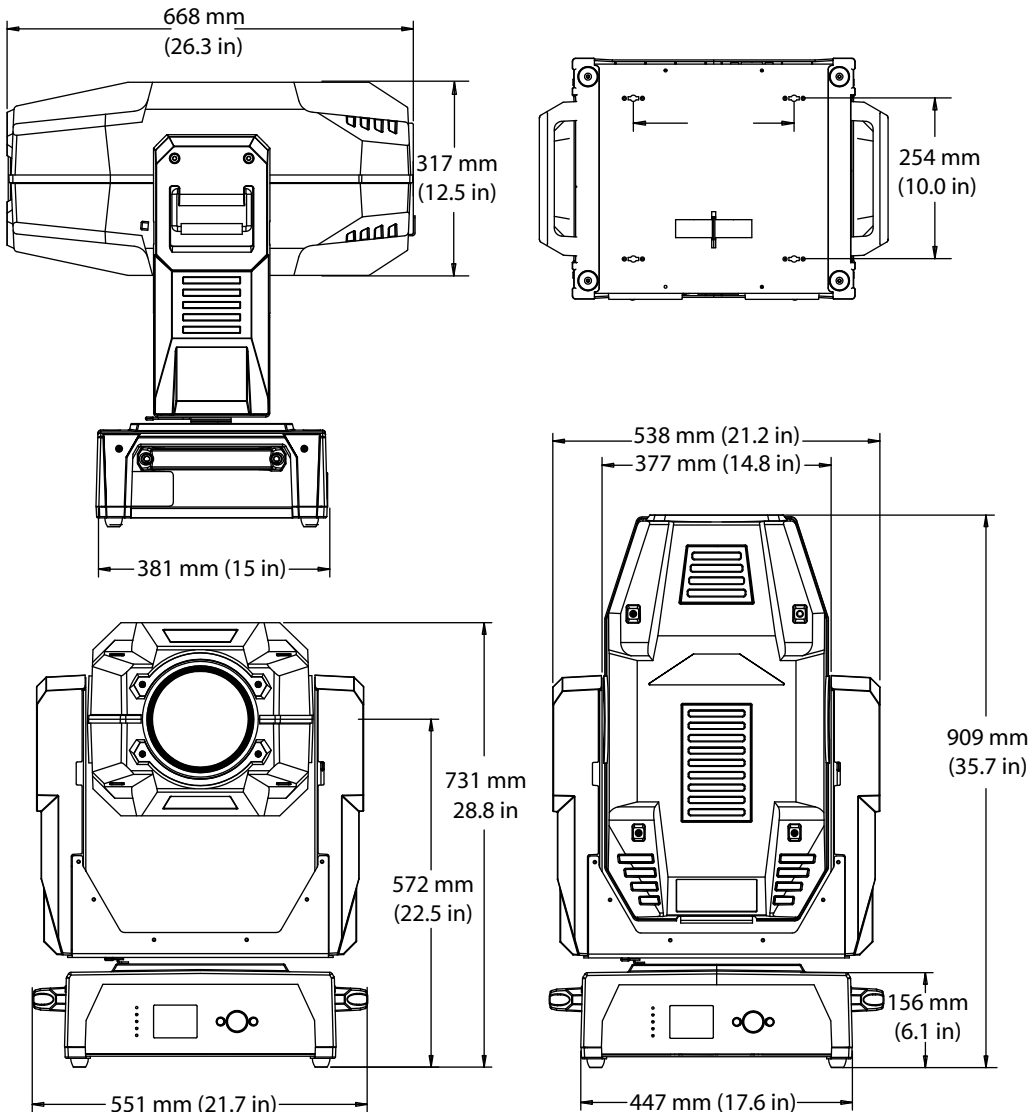
Wheel Components

Animation Wheel: Diameter: 127.0 mm ± .25 mm (5.0 in ± .10 in)
Thickness: 1.75 mm ± .25 mm (.69 in ± .008 in)
Maximum image area: 44 mm ± 0.425 mm (1.75 in ± .01 in)

Lithopatterns: Diameter: 36.8 mm ± .25 mm (1.45in ± .008in)
Image Area: 30 mm ± 0.425 mm (1.18 in ± .01 in)

Note: ***Metal Gobos are not recommended for use in intellespot fixtures.***

Electrical/Light Source Specifications

Fixture Rated Power: 1200 W

Power consumption: 12 Amps at 100V, 5 Amps at 240V

Rated frequency: 50-60Hz

Lamp: 850W HID

Color Temperature: 7000 K

Rated Lamp Life: 750 hrs

Fixture Output: 20,000 lumens

Warning: Class I equipment - For continued protection against electric shock connect this equipment to an earthed (grounded) power source only.

This equipment for connection to branch circuit having a maximum overload protection of 20 A.

Environmental Specifications

Maximum ambient temperature: 50° C (122° F)

Maximum exterior surface temperature: 95° C (203° F)

Minimum distance to lighted object: 2 m (7.8 ft)

Minimum distance to flammable objects: 2 m (7.8 ft)

**Caution: Do not mount on a flammable surface.
Not for residential use.
Use in dry locations only.**

Compliance

Cables and Connectors

Belden® 3107A or equivalent (meets specifications for EIA RS-485 applications) with the following characteristics:

- Two twisted pairs plus a shield
- maximum capacitance between conductors - 30 pF/ft.
- maximum capacitance between conductor and shield - 55 pF/ft.
- maximum resistance of 20Ω / 1000 ft.
- nominal impedance 100-140Ω

Related Products and Accessories

Name	Part Number
Replacement Lamp (850W HID)	6103411941
intellaspot LithoPatterns	**Contact Customer Service:** 2105 Gracy Farms Lane Austin, TX 78758 USA voice:800.890.8989 fax: 512.834.9195 toll free: 800.890.8989
intellaspot color wheel dichroic wedge filters	
Replacement, Module link fuse, 6.3A 250V, SB	90403019EF
Replacement display, 2-phase and 3-phase board fuse, 2.5A, 125V, Slow Blow SMF	90402024
Replacement, Battery fuse,1.5A 125V Slow SMF	90412029EF
Road Case	H6070001
Wholehog®3 Lighting Console	25020001
Road Hog® Full Boar Lighting Console	A6020001
Road Hog® Lighting Console	A2020001
Heavy duty 5-pin XLR cable (10')	55050017
Heavy duty 5-pin XLR cable (25')	55050018
Heavy duty 5-pin XLR cable (50')	55050019
Heavy duty 5-pin XLR cable (100')	55050020
Galvanized safety cable	12040001

Chapter 2:

Setup and Configuration

> *Installation of your intellaspot fixture includes mounting, connecting to power and DMX linking and configuration.*

Use the following steps to set up and configure your fixture:

1. **Unpack the fixture.**

2. **Install power cord cap for your location.**

3. **Mount the fixture upright or suspended from a standard truss.**

4. **Connect the fixture to a DMX controller via DMX cabling.**

5. **Configure the fixture for DMX control using the battery mode or after connecting to power.**

Unpacking the Fixture

The intellaspot fixture ships in a box or an optional road case specifically designed to protect the product during transport. When unpacking, inspect the fixture for physical damage to components. High End Systems® assumes no responsibility for products that are damaged during transport. Return a product for repair in its road case.

Before sending anything to the factory, call your High End Systems dealer/distributor for a Return Material Authorization (RMA) number. The factory cannot accept any goods shipped without an RMA number.

Pan and Tilt Locking

The intellaspot fixture ships with pan and tilt latches locked. You can unlock/adjust these latches to stabilize the fixture for mounting.
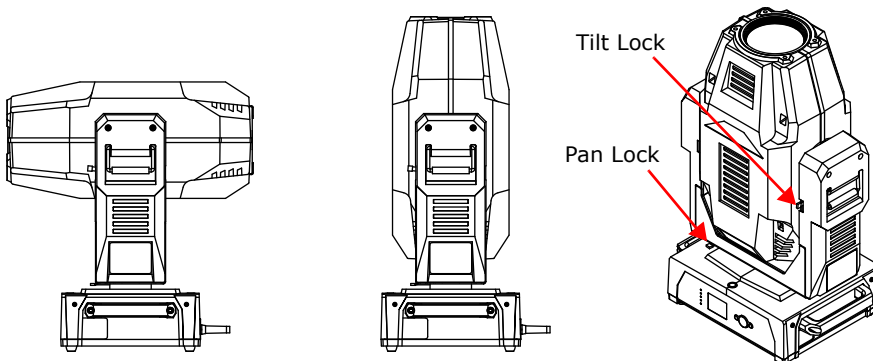
Note: Disengage Pan and Tilt locks before operating the fixture.

Installing a Power Cord Cap

The custom power cord for intellaspot fixtures ships without a power cord cap. Use the information in this section to install the correct power cord cap for your location.

Because of the variety of power cord caps used worldwide, High End Systems, Inc. cannot make specific recommendations for the power cord cap. Contact a local authority for the type of power cord cap needed. When installing the power cord cap, note that the cores in the mains lead are colored according to the following code:

- green and yellow = earth
- blue = neutral
- brown = live

Installing a Line Cord Cap - U.K. Only

In the United Kingdom, core colours in the mains lead of this equipment may not correspond with the colored markings identifying the terminals in the fixture's plug. In that case, install a line cord cap in accordance with the following code:

- Connect the green and yellow core to the plug terminal marked with the letter "E," or by the earth symbol ⏚ or coloured green, or green and yellow.
- Connect the blue core to the terminal marked with the letter "N" or coloured black.
- Connect the brown core to the terminal marked with the letter "L" or coloured red.

WARNING:
Class 1 equipment - This equipment must be earthed.

Vatic Fitter Heads Information - Danmark

Advarsel: Beskyttelse mod elektrisk chock.

Vigtigt!

Lederne med gul/groen isolation maa kun tilsluttes en klemme maerket ⏚ eller ⏚

Mounting the Fixture

You can mount your intellaspot fixture suspended from a support system (such as a truss) or freestanding on its base.

WARNING!
Equipment suitable for dry locations only. Do not expose this equipment to rain or moisture.

CAUTION!
intellaspot fixtures must be installed and operated by trained personnel only.
Always use a secondary safety cable when mounting this fixture.

Do not mount within 2 meters (6.56 feet) of a flammable object.

Note: *Due to the wide variety of possible lighting designs, High End Systems cannot make specific mounting recommendations. Consider the following procedure as a suggested guideline only.*

Mounting the Fixture Upright

CAUTION!
Do not mount the fixture upright without the four rubber feet attached.

To mount the fixture upright:

1. Place the fixture on a sturdy, stable non-flammable surface that will support more than the 52.2 kg (115 lb) weight of the intellaspot fixture. If the surface is above floor height, use safety cables to secure the fixture to the surface.

2. Disengage Pan and Tilt locks before powering up the fixture.

Truss Mounting

When mounting the fixture on a truss or another type of support:

- Verify the truss or support will handle the combined weight of all the devices on the truss. Each intellaspot fixture weighs 52.2 kg (115 lb).

- Always mount an intellaspot fixture using the mounting bracket assembly that shipped with your fixture and a safety cable attached to the fixture's base.

WARNING!
Before mounting, disconnect power to the fixture. If it has been operating, allow the fixture to cool for five minutes before handling.

CAUTION!
Do not use C- Clamps to mount the intellaspot fixture to a truss.

Only experienced lighting personnel should attempt to hang a lighting fixture to an appropriate theatrical truss.

WARNING: In all cases a safety cable should also be fixed between the safety cable mounting point located at the bottom of the fixture base housing and the truss. Failure to use a safety cable could result in injury or death. High End Systems supplies the proper safety cables and may be contacted for replacements if necessary. For more information go to: www.highend.com/trusshang

Use the following steps to mount an intellaspot fixture on a standard truss:

1. Due to its size and weight, at least two people should support the fixture while another attaches clamps and safety cables. Always stand on a firm, stable surface when mounting the fixture to its support.

2. Tighten the clamps firmly to the fixture's base and to the truss.

3. Run the safety cable through the loop on the fixture's base, and around the truss.

Safety Cable Mount
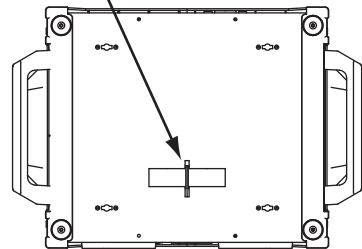
Side Mounting and Angular Mount by Moving Truss

When side mounting a intellaspot fixture, orient the unit as show on the right with the Display panel up or down perpendicular to the floor.

For fixtures in a side mount or at an acute Angular orientation, set the Outrig Mode on the DMX console, (see *Control* on page 45).
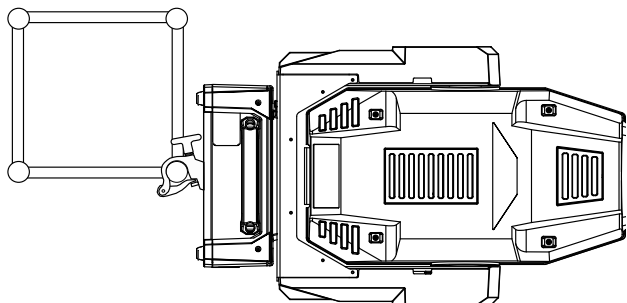
Note: ***Operating a fixture in the Outrig mode will slow Pan and Tilt motion.***

Linking intellaspot Fixtures

The intellaspot fixture operates on standard DMX512 link controlled by a DMX console. The number of fixtures on a link will be determined by the combined number of channels required by all the fixtures. An intellaspot fixture requires a 41 channel footprint on a standard DMX512 link.

Attach the fixture to the link using data-grade cable and 5-pin XLR cable connectors.

Cable Connectors

The intellaspot fixture accepts 5-pin XLR cable connectors. Cabling must have a male XLR connector on one end of the cable and a female XLR connector on the other end.

Pin one is the common (cable shield), pin two is the data complement (negative), pin three is the data true (positive). Pins four and five are not used, but they allow a secondary data link to pass through the fixture.
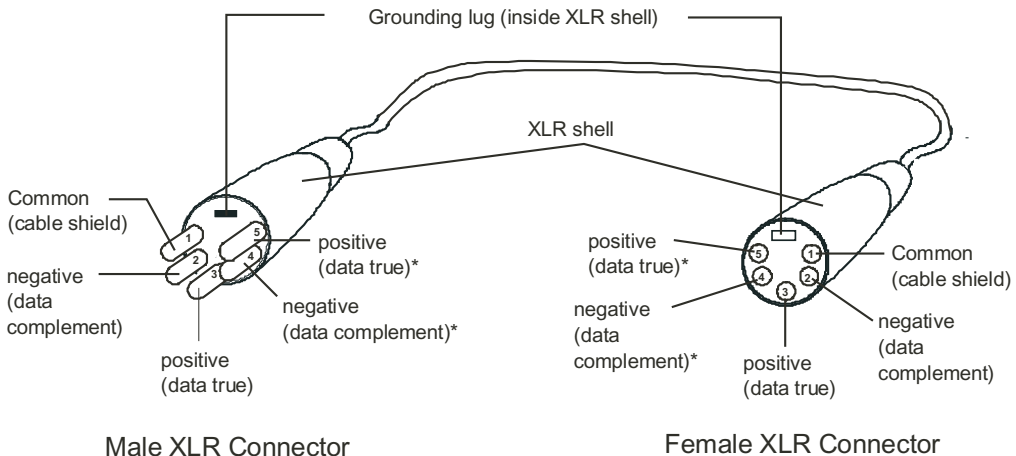
This data line is not used by the fixture, but allows data to pass through the fixture.

Test each cable with a voltage/ohm meter (VOM) to verify correct polarity and to make sure that the negative and positive pins are not grounded or shorted to the shield or to each other.

CAUTION!

Do not connect anything to the ground lug on the XLR connectors. Do not connect or allow contact between the common (cable shield) and the fixture's chassis ground. Grounding the common could cause a ground loop and/or erratic behavior.

Connecting to the Link

To link one or more fixtures to a DMX controller:

1. Connect the male XLR connector of a DMX Data cable to the controller's DMX Data Out connector.

2. Connect the Data cable's female XLR connector to the Data In connector of the first (or next) fixture on the DMX link.

3. Continue linking the remaining fixtures connecting a cable from the Data Out connector of each fixture to the Data In connector of the next fixture on the link.

4. Terminate the link by installing a 120 ohm, 1/4 watt (minimum) terminator in the fixture's Data Out (female) cable connector in the last fixture on each DMX link.

A terminator on the last fixture of the link prevents data reflection, which can corrupt the data communication on the link.
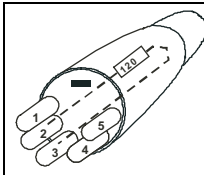
To construct a terminator:

1. Disassemble a male 5-pin XLR connector

2. Solder a 120 ohm resistor, minimum of 1/4 watt, between Pin 2 and Pin 3.

3. Reassemble the XLR connector.

Note: *You can Address the fixture for DMX control using the Battery mode before connecting to a power source, (see* **Setting a Start Channel in Battery Mode** *on page 14) or in Normal mode, after powering up the fixture.*

Powering On the Fixture

WARNING:
This equipment is designed for connection to a branch circuit having a maximum overload protection of 20 A.

CAUTION:
Do not power on the fixture until *verifying* that the line cord cap is suitable for the power source in your location. For more information, see Installing a Power Cord Cap on page 8.

Disengage Pan and Tilt locks before operating the fixture. For more information, see Pan and Tilt Locking on page 7.

Do not unplug motor harnesses while unit is powered.

To power on the intellaspot fixture, simply connect it to a 100V-240V AC power source.

Once the intellaspot fixture is connected to a power source, it automatically begins a homing procedure to verify that fixture components are functioning.

Setting the DMX Start Channel

Each intellaspot fixture requires a block of 39 consecutive channels on a standard DMX512 link. Up to 13 standard intellaspot fixtures can be assigned to a single link. For more information on Start Channels, see *Determining DMX Start Channel Assignment* on page 26.

Address your fixture by setting the start channel of the

To Set the Start Channel on an intellaspot fixture:

1. Access the fixture's menu system via the LCD display on the fixture's front panel. For a detailed description of the menu system, see *Chapter 3: Menu System* on page 17.

Use **LEFT** and **RIGHT** arrows to move through the current menu level options

Use **UP** and **DOWN** arrows to select from available value or setting options.

Use the **MENU** button (on the left when viewing the display) to unlock the menu and move back to the previous menu level

Center Navigation Button

Use the **ENTER** button (on the right when viewing the display) to enter a menu option or store a selected menu value.

> *Note: Navigation system buttons' functions invert automatically when the fixture is turned upside down.*

2. Unlock the menu system by pressing and holding down the Menu button until the extended 2-line display appears. `DMX Address Menu` is the first option at the top menu level.

3. Press the Enter button to select. The display will show `Set DMX Start Channel:###.` The display will show the start channel currently assigned to the fixture.

4. Use the Up and Down arrow buttons on the Center button to select a new DMX start channel. The display will flash a new option ready for selection.

> *Note: The last valid Start channel for an intellaspot fixture is based on its 39-channel range. The last valid start channel for an intellaspot fixture is 474 (512–39+1).*

5. Press the Enter button to store the new DMX Start channel. The display will stop flashing when a new option is entered.

Setting a Start Channel in Battery Mode

Note: This option only applies when no power is applied to the fixture.

1. Turn on the menu system by pressing and holding the MENU and ENTER buttons at the same time. The display will show **Set DMX Start Channel: ###** with the start channel currently assigned to the fixture and the current versions for fixture and display software.

2. Use the UP and DOWN arrow buttons on the Navigation button

   to select a valid DMX start channel from 1-474. The display will flash a new option ready for selection.

3. Press the ENTER button to accept the new DMX Start channel. The display will stop flashing when a new option is entered. The new address will not be stored until the ENTER button is pressed.

Setting a Start Channel in Normal Mode

1. After powering on the fixture, unlock the menu by pressing and holding down the MENU button until the extended 2-line display appears. **DMX Address Menu** is the first option at the top menu level.

2. Press the ENTER button to select. The display will show **Set DMX Start Channel:###** with the start channel that is currently assigned to the fixture.

3. Use the UP and DOWN arrow buttons on the Navigation button to select a valid DMX start channel from 1-474. The display will flash a new option ready for selection.

4. Press the ENTER button to accept the new DMX Start channel. The display will stop flashing when a new option is entered. The new address will not be stored until the ENTER button is pressed.

Shutting Down the Fixture

A DMX controller can shut down the fixture remotely with the Shutdown option in the Control Channel or you can simply disconnect from power. The intellaspot fixture automatically shuts down in the event of DMX data loss longer than five minutes.

Placing Fixture in Road Case

Before shipping an intellaspot fixture, lock the pan and tilt position so the fixture does not move during transit.

To lock the fixture:

1. Orient the fixture head for packing in the road case and secure both the pan lock located on the base and the tilt lock on the yoke arm.

   Note: This is the only pan position that locks.

2. Gently move the fixture head and yoke to verify that both pan and tilt positions are locked in place.

3. Place the intellaspot fixture in the road case as shown for shipping.
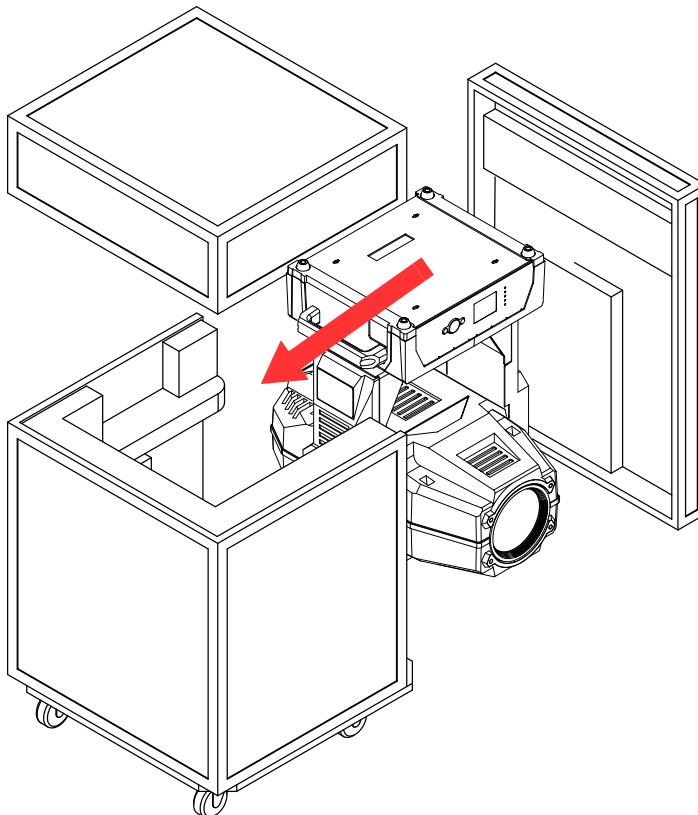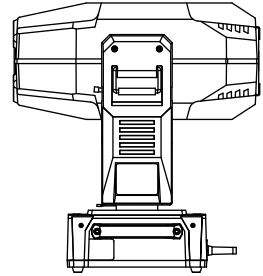
Chapter 3:

Menu System

This chapter shows you how to access and navigate the onboard Menu system and the options available at each menu level with examples.

Menu System Components

The front panel on intellaspot fixtures has a full color LCD screen and three navigation buttons to display and operate the onboard menu system. You can use the Menu system to perform the following functions at the fixture level:

- Assign a DMX start channel

- Access and set fixture options

- View fixture status

- Crossload software between fixtures

Menu system buttons   **LCD display**

Menu Screen

The LCD screen displays the top level menu mode, the configuration options and available Data Source options for your fixture.

Connection Options

Connection options are listed across the bottom of the menu screen. By default, you will see DMX listed. If your unit has a WiFi and/or an Art-Net card installed, those option(s) will also display. When you configure the unit the selected option will show a red box in the brackets.

Menu

Config Settings Option

Data Source Options

Navigation Buttons

Use the four-way **Center** button to navigate through levels

Left and **Right** arrows move through the current menu level options

Up and **Down** arrows select from available value or setting options.

Menu button (on the left when viewing the display) unlocks the menu or moves back to the previous menu level.

Enter button (on the right when viewing the display) selects the currently displayed menu value or option.

Press and hold both the **Menu** and **Enter** buttons to access the battery mode.

> *Note: The intellaspot fixture can sense orientation and automatically inverts the display and button functions when the fixture is mounted upside down.*

Battery Mode

Before applying power, you have the option to address the fixture in battery mode. Setting the DMX start channel is the only function allowed in battery mode, (see *Setting a Start Channel in Battery Mode* on page 25). For all other fixture configuration functions, you need to power up the unit and enter the full Menu system.

Navigation Basics

1. When the fixture is on, you can unlock the Menu system by pressing the **Menu**▼ button for a few seconds until the display goes to the 2-line format.

2. Use the left and right arrows ◀▶ on the **Center** button to scroll through menu options at the current level.

3. Stop at the desired menu and press the **Enter** ◀ button to select.

    > *Note: The new option will not be stored unless the Enter button is pressed.*

4. If there is another level of menu choices repeat Steps 2 and 3.

5. At the option or setting level of the menu, use the Up and Down arrows ▲▼ on the **Center** button to scroll to the desired option or setting. The option flashes until the **Enter** ◀ button is pressed. Pressing the **Enter** ◀ button stores the new value for that option. Pressing the **Menu**▼ button returns to the previous menu level *without changing* the value of an option.

6. Continue pressing the **Menu**▼ button to move back up levels until exiting the Menu system.

Display in Menu Locked Mode

The intellaspot display panel gives access to the fixture's onboard Menu System. When the Menu System is in locked mode, the panel displays in large 8-character format designed to be viewed from a distance. Under normal circumstances, when the display is locked, it cycles between:

- the intellaspot model
- fixture software version [V##.##]
- fixture's DMX start channel [DMX_C###].
- any errors present

Fixture Software Version

The software version loaded on the fixture can vary even between units purchased at the same time. The latest software version is always posted on the High End Systems website (**www.highend.com/support**).

DMX Start Channel

The DMX Start Channel is the first channel currently assigned to that fixture in its range of channels on a DMX link. To reset the DMX start channel, see *Address Menu* on page 25. For more information on DMX Start channels, see *Determining DMX Start Channel Assignment* on page 26.

Error Message Display

Errors are displayed in large 8-character form when the menu system is locked. Unlocked, the menu system's 2-line format displays more detailed information. For information on accessing the detailed error message, see *Display Errors Menu* on page 39.

Unlocking the Menu System

To unlock the menu system after the fixture is powered up, press and hold the **Menu**▼ button until the display changes. You will need to hold the Menu button for a few seconds before the menu unlocks to protect against an inadvertent menu change. ADDRESS is the Menu screen you will view.

Exiting the Menu System

To exit the menu system, keep pressing the Menu button to back out of each menu level until the display switches back to the large 8-character format and, after a few seconds, begins the standard display for the locked mode as described above.

intellaspot™ Menu Map

Menu	Level 2	Level 3	Option/Setting	Description/Notes
DMX ADDRESS	Set DMX Start Channel: ###		1-474	Sets the first value of a unique 39-channel range on DMX link.
Set Parameters Menu	Factory Default Settings: XXXXX		Reset	Indicates factory default change
			OFF	Reverts to default setting
	Pan/Tilt Swap:		Disabled	Restores default Pan and Tilt
			Enabled	Swaps the Pan and Tilt Motion
	Pan Invert:		Disabled	Restores default Pan direction
			Enabled	Inverts Pan motor direction
	Tilt Invert:		Disabled	Restores default Tilt direction
			Enabled	Inverts Tilt motor direction
	Display Level:		On	Display at full brightness
			14 - 1	Reduces brightness in 14 steps
			Off	Display off when menu is locked
	LED LEVEL		On	Panel LEDs at full brightness
			14 - 1	Reduces brightness in 14 steps
			Off	Panel LEDs off when menu is locked. *Note: Blue Power LED dims but does not turn off.*
	Lamp Life Limit:		Disabled	Disables lamp life tracking
			Enabled	Tracks lamp operation time and sends a warning when the lamp approaches it's rated life limit.
	Lamp Level		Econo Mode	Operates lamp at 700W
			Standard Mode	Operates lamp at 850 W
	Data Loss Timeout:		Short	Shutter closes 1 second after data loss.
			Long	Shutter closes on shutdown.
	Lamp Strike Mode		Auto	Strikes the lamp when DMX is applied.
			Power On	Strikes the lamp when power is applied.
			Manual	Leaves the lamp off until you send a lamp strike command from the DMX controller.

Menu	Level 2	Level 3	Option/Setting	Description/Notes
Set Parameters Menu	Data Source		DMX	Selects the Data Source from the installed options on this unit.
			WiFi	
			NetWork	
Mode	Crossload Firmware:		No	Safe setting
			Yes	Uploads fixture software to all intellaspot fixtures on the link.
Test Options	Home Fixture:		No	Homes all fixture functions
			Yes	
	Lamp State:		Off	Indicates or turns lamp off
			On	Indicates or turns lamp on
	Copy Boot:		No	Does nothing when selected
			Yes	Copies boot code to fixture
	Self Test Menu		Pan	Tests motion functions
			Tilt	
			DIM	Tests the mechanical function of separate wheels, flags and iris movement. *Note: Effect designates the 4-facet prism wheel.*
			Cyan	
			Magenta	
			Yellow	
			CTO	
			Static Color	
			Gobo 1	
			Gobo 1 Rotate	
			Gobo 2	
			Gobo 2 Rotate	
			Animation	
			Iris	
			Soft Edge	
			Effect	
			Focus	
			Zoom	
			All	Tests all functions in sequence
	Display Test		Off	Default Safe setting
			On	Performs Display test
	Setup Motors		Off	Default Safe setting
			On	Runs motor setup routine

Menu	Level 2	Level 3	Option/Setting	Description/Notes
Test Options Menu	Encoders		On	Leaves encoders enabled
			Off	Disables encoders
	Code Menu			For factory use only
Information Menu	Sensor Status Menu		Pan Encoder	Locates Pan position
			Tilt Encoder	Locates Tilt position
	Unique Number ##########			Displays fixture's unique 10-character number
	DMX Values	By Channel	1:### ### ### 4:### ### ###	Displays current values for all channels in groups of six DMX values per screen
		By Parameter	Pan Coarse	Displays current DMX decimal value of each of the 39 channels used by the intellaspot fixture
			Pan Fine	
			Tilt Coarse	
			Tilt Fine	
			Mix Color Function	
			Cyan	
			Magenta	
			Yellow	
			CTO	
			Static Color Function	
			Static Color Position	
			Gobo 1 Function	
			Gobo 1 Position	
			Gobo 1 Rotate Function	
			Gobo 1 Rotate Coarse	
			Gobo 1 Rotate Fine	
			Gobo 2 Function	
			Gobo 2 Position	
			Gobo 2 Rotate Function	
			Gobo 2 Rotate Coarse	
			Gobo 2 Rotate Fine	

Menu	Level 2	Level 3	Option/Setting	Description/Notes
Information Menu	DMX Values	By Parameter	Effect Function	Displays current value of each of the 39 channels used by the intellaspot
			Effect Rotate Coarse	
			Effect Rotate Fine	
			Animate Function	
			Animate Rotate	
			Soft Edge	
			Focus Function	
			Focus Coarse	
			Focus Fine	
			Zoom Coarse	
			Zoom Fine	
			Iris	
			Lamp Function	
			Shutter	
			Dim	
			M-Speed	
			Macro	
			Control	
			DMX Breaks	Monitors the DMX stream for transmission errors
			DMX Framing Err	
			DMX Overrun Err	
			DMX Start Channl	
	Temperatures Menu	Current Temp Menu	Topbox: ###C	Displays temperature in degrees Celsius for the Electronics Housing (topbox) and the Head.
			Head: ###C	
		Maximum Temp Menu	Topbox: ###C	
			Head: ###C	
		Minimum Temp Menu	Topbox: ###C	
			Head: ###C	
		Temperatures Reset	NO	Select YES and press Enter for 5 seconds to reset all sensors to Current Temperature
			YES	
	Fan Speed		LPS: ###RPS	Displays current speed of the electronics housing fan and the fans in the fixture head
			Optics: ###RPS	
			Lamp :	
	Fixture Hours:			Displays fixture operation time in hours:minutes
	Fixture Hours Reset:		NO	Default "safe" setting
			YES	Press Enter for 5 seconds to reset fixture hours to 0

Menu	Level 2	Level 3	Option/Setting	Description/Notes
Information Menu	Lamp Hours:			Lamp operation time in hours:minutes
	Lamp Strikes:			Current number of lamp strikes
	Lamp Hr/Strike Reset: ###		NO	Default "safe" setting
			YEs	Press Enter for 5 seconds to reset fixture hours to 0
	Lamp Status:		Lamp Off	Current lamp status
			Lamp On	
			Lamp Striking	
			Lamp Error	
	Display Errors Menu		XXXXXXXXXXXX XXXXXXXXXXXX	Scrolls through errors displayed in 2-line, 16-character format
	Software Version:		L##.##.###	Status Major.Minor.Build
	Module Version Menu		Pan HW:# SW:#	Displays the Hardware and Software versions for each logic board in the fixture.
			Tilt HW:# SW:#	
			Animate/FX HW:# SW:#	
			Dim/Cyn/CTO/Iris HW:# SW:#	
			Dim/Mag/Yel/Clr HW:# SW:#	
			Litho1/Litho2 HW:# SW:#	
			Focus/Frost/Zoom HW:# SW:#	
			Display - L##.##.###	Status Major.Minor.Build
	Channels Needed: ##			Displays channel range for the unit as configured
	Next DMX Channel: ##			Current channel range + 1 *Note: The display reads* **Link Full** *if there is not a sufficient channel range remaining on the DMX link.*

Menu System Options

The following sections describe and give examples for selecting and/or setting available fixture configuration options.

Address Menu

Address is the top level menu selection used to set the fixture's DMX start channel. You can address the fixture before applying power in the battery mode or in normal mode after you power up the fixture.

> *Note: The last valid Start channel for an intellaspot fixture is 474 (512–39+1).*

Setting a Start Channel in Battery Mode

1. Unlock the menu system in battery mode by pressing and holding the MENU and ENTER buttons at the same time. The display will show **Set DMX Start Channel: ###** with the current fixture start channel and the unit's fixture and display software versions.

1. Note: The current fixture and display software is available for verification and download from highend.com.

2. Use the UP and DOWN arrow buttons on the Navigation button to select a valid DMX start channel. The display will flash a new option ready for selection.

3. Press the ENTER button to accept the new DMX Start channel. The display will stop flashing when a new option is entered. **The new address will not be stored until the ENTER button is pressed**.

Setting a Start Channel in Normal Mode

1. After powering on the fixture, unlock the menu by pressing and holding down the MENU button until the extended 2-line display appears. **DMX Address Menu** is the first option at the top menu level.

2. Press the ENTER button to select. The display will show **Set DMX Start Channel:###** with the start channel that is currently assigned to the fixture.

3. Use the UP and DOWN arrow buttons on the Navigation button to select a valid DMX start channel from 1-474. The display will flash a new option ready for selection.

4. Press the ENTER button to accept the new DMX Start channel. The display will stop flashing when a new option is entered. **The new address will not be stored until the ENTER button is pressed**.

Determining DMX Start Channel Assignment

There are 512 available channels on each DMX link divided among *all* the devices in a particular link. A fixture must have a *unique* Start channel number in order to respond *independently* to controller commands.

To determine each fixture's DMX start channel in a link, identify the channel range of every fixture on the link. Channel range is the number of consecutive channels a fixture requires. Each intellaspot fixture requires a block of 39 consecutive channels on a 512-Channel DMX link. The Start channel is the first number of a fixture's channel range.

The notes in the following table show the various considerations in determining valid Start Channels for fixtures on a 512 DMX link. A single 512-Channel DMX link can accommodate up to thirteen 39-channel intellaspot fixtures.

Fixture rig position	Fixture type	DMX channels footprint	DMX Start channel	Channel Range	Notes
First	intellaspot	39 channels	C001	1-39	The Start channel is the first channel in a consecutive block of channels assigned to a fixture.
Third	intellaspot	39 channels	C040	40-78	Fixture can be assigned the second block of DMX channels without being the second fixture on the rig.
Second	intellaspot	39 channels	C079	79-117	Avoid overlapping channels with other fixtures
Fourth	Studio Spot	18 channels	C121	121-138	Every channel in the link does not need to be assigned.

When setting the Start channel on a fixture, remember:

- A fixture's physical location on the link does not have to coincide with the order of channel range assignments in the link.

- The fixture's channel range must not overlap any other device's channel range on the link. When two devices on the same DMX link have overlapping channel ranges, one or both devices will be disabled or behave erratically. The single exception would be if two or more fixtures need to respond to controller commands in exactly the same way. In that case, those fixtures must be the same type (for example two intellaspot fixtures) and must share the *entire* channel range.

Set Parameters Menu

The Set Parameters menu lets you configure your fixture's motion, display, lamp, and data source settings.

To enter the set menu:

1. Press the **Menu** button to unlock the menu system or to move back up the system to the top level menus.

2. Using the left and right arrows on the **Center** button, scroll through the top level to Set Parameters Menu and press the **Enter** button to select. The screen will display the SET icon in the screen banner and the first option of the next menu level.

Factory Default Settings

This option lets you return all factory options to their default settings or changes the factory options individually.

An intellaspot fixture ships with the following factory default settings:

Pan Tilt Swap = Disabled	Tilt Invert = Disabled	Lamp Life Limit = Disabled
Pan Invert = Disabled	Display Level = On	Data Loss Timeout = Short
Data Source = DMX	Lamp Strike Mode = Auto	LED Level = On

If any of the default settings are changed, this menu reverts to the Off option. The On option restores all factory defaults.

To check and reset factory defaults:

1. Navigate to and select the Set Parameters Menu as shown above. Factory Default Settings is the first option in the next Menu level with the current state. On is the default and Off indicates that a factory default has been changed.

2. Press the **Enter** button to select.

3. To reinstate the factory defaults if Off is displayed, use the up and down arrows on the **Center** button to scroll to ON and press the **Enter** button to select. All settings will be restored to their factory default setting.
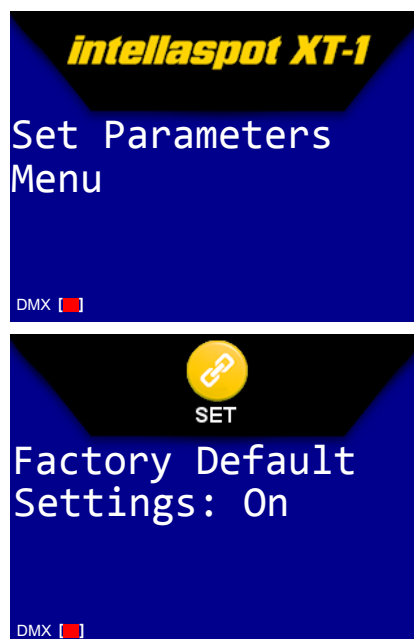
Pan/Tilt Swap

This option swaps the pan motor and tilt motor operation to coordinate movements between fixtures on a link mounted perpendicular to each other.
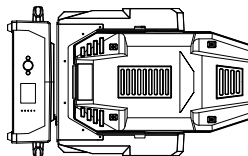
To swap Pan and Tilt:

1. Navigate to and select the `Set Parameters` Menu, (see *Set Parameters Menu* on page 27).

2. Using the left and right arrows on the **Center** button, scroll to `Pan/Tilt Swap`. The current state (`Enabled` or `Disabled`) will be displayed.

3. Use the up and down arrows on the **Center** button to scroll to `Enabled` to swap pan and tilt or `Disabled` to restore default setting and press the **Enter** button to select.
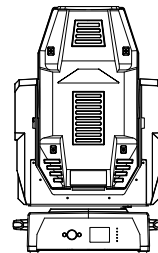
Pan Invert

This menu option inverts the direction of the pan motor to coordinate movements between fixtures mounted opposite each other horizontally.

To invert the fixture's Pan motion:

1. Navigate to and select the `Set Parameters` Menu (see *Set Parameters Menu* on page 27).

2. Using the left and right arrows on the **Center** button, scroll to `Pan invert`. The current state (`Enabled` or `Disabled`) will be displayed.

3. Use the up and down arrows on the **Center** button to scroll to `Enabled` to invert Pan movement or `Disabled` to restore default setting and press the **Enter** button to select.
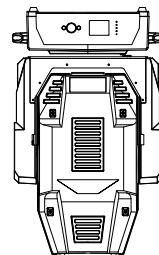
Tilt Invert

This menu option inverts the direction of the tilt motor to coordinate movements between fixtures on a link facing each other vertically.

To invert the fixture's Tilt motion:

1. Navigate to and select the `Set Parameters` Menu (see *Set Parameters Menu* on page 27).

2. Using the left and right arrows on the **Center** button, scroll to `Tilt Invert`. The current state (`Enabled` or `Disabled`) will be displayed.

3. Use the up and down arrows on the **Center** button to scroll to `Enabled` to invert Tilt movement or `Disabled` to restore default setting and press the **Enter** button to select.
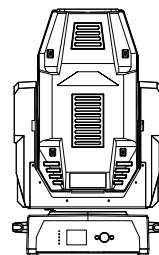
Lamp Life Limit

Use this menu option to display the warning message `Lamp Life Error` when the current lamp hours reach the rated lamp life. When the `Lamp Life Limit` parameter is enabled, the fixture tracks the number of hours the lamp is on. As the lamp life approaches it's limit, the fixture displays an error message. At close to the lamp life limit, the lamp shuts off, and the fixture will not strike until the lamp is replaced and the lamp hours are reset to 0. See *Replacing the Lamp* on page 43 and *Lamp HR/Strike Reset* on page 39.

Lamp Life
Limit: Disabled

DMX [ ]
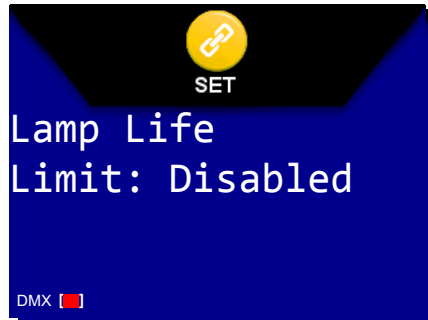
To enable the `Lamp Life Limit` parameter:

1. Navigate to and select the `Set Parameters Menu`, (see *Set Parameters Menu* on page 27).

2. Using the left and right arrows on the **Center** button, scroll to `Lamp Life Limit`.

3. Using the up and down arrows on the **Center** button, choose the `Enable` option and press **Enter** to select.

Lamp Level

This menu option lets you choose the lamp power economy mode setting operating the lamp at 700W or the standard 850W mode.

To change the `Lamp Level`:

1. Navigate to and select the `Set Parameters Menu`, (see *Set Parameters Menu* on page 27).

2. Using the up and down arrows on the **Center** button, scroll to Lamp Level.

3. Using the up and down arrows on the **Center** button, choose the `Econo Mode` or the `Standard Mode` and press **Enter** to select.

Data Loss Timeout

This menu option determines how the fixture will react in the event of DMX data loss. Set the shutter to stay open until shutdown or to close one second after data loss.

To set the `Data Loss Timeout`:
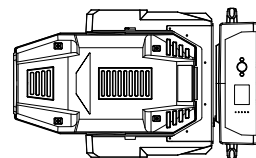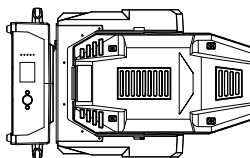
1. Navigate to and select the `Set Parameters Menu`, (see *Set Parameters Menu* on page 27).

2. Using the left and right arrows on the **Center** button, scroll to `Data Loss Timeout`.

Data Loss
Timeout: Short

DMX [ ]

3. Using the up and down arrows on the **Center** button, choose `Long` to keep the shutter open until shutdown, or `Short` to close the shutter 1 second after data loss and press the **Enter** button to select.

Lamp Strike Mode

This menu option lets you choose when the lamp will strike (turn on).

To set the `Lamp Strike Mode`:

1. Navigate to and select the `Set Parameters Menu`, (see *Set Parameters Menu* on page 27).

2. Using the left and right arrows on the **Center** button, scroll to `Lamp Strike Mode`.

3. Using the up and down arrows on the **Center** button, choose `Auto` to strike the lamp as soon as data is received, `Power On` to strike the lamp as soon as power is applied, or `Manual` to strike the lamp when you send a Lamp On command from the DMX console.

4. Press the **Enter** button to select.

Data Source

Every fixture automatically defaults to DMX as a data source. If your fixture is equipped with a WIFI or other NETWORK card, you can use the menu option to select that as a data source. The display screen will show any connection options installed on your fixture.

To change the data source:

1. Navigate to and select the `Set Parameters Menu`, (see *Set Parameters Menu* on page 27).

2. Using the left and right arrows on the **Center** button, scroll to `Data Source` and press the **Enter** button to select. The default data source DMX will be displayed.

3. Use the up and down arrows on the **Center** button to scroll to `WiFi` or `NETWORK` (for example, Art-Net) and press the **Enter** button to select.
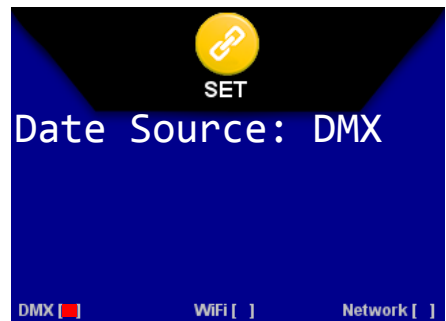
Fixture Mode Menu

The Mode menu crossloads software from one fixture to other intellaspot fixtures on the link.

To enter the Mode menu:

1. Press the **Menu** button to unlock the menu system or to move back up the system to the top level menus.

2. Using the left and right arrows on the **Center** button, scroll through the top level to `Fixture Mode Menu` and press the **Enter** button to select. The MODE icon will be displayed in the banner with the next level of configuration options below.

Crossloading Fixture Software

A fixture running a newer software version can load the new software to all other intellaspot fixtures on the link using the `Crossload Firmware` menu option.

To `Crossload Firmware` from one fixture to all intellaspot fixtures on the link:

1. Disconnect or bypass any controllers, serial data distributors, data line optoisolators, and any fixtures using RS-422 communications (such as Dataflash® AF1000 xenon strobes). These devices will block communication between the crossloading fixture and any other intellaspot fixtures on the link.

2. On the crossloading fixture *only*, unlock the menu system and navigate to the `Fixture Mode Menu` (see above) and press the **Enter** button to select.

3. Use the left and right arrows on the **Center** button to scroll to `Crossload Firmware`.

4. Use the up and down arrows on the **Center** button to scroll to the `Yes` option and press the **Enter** button to store. The fixture will upload its software to all other intellaspot fixtures on the link.

When the crossload has finished successfully, `Crossloading Complete` will appear briefly in the display of the crossloading fixture, and all other fixtures will automatically home.

> *Note:* **If a new boot code was included with the latest software, the fixture displays a** BOOTDIFF **error when it returns to the locked mode of the menu system. To correct the boot code, copy the new boot code to each fixture (see** Copying the Boot Code **on page 33).**

Test Options Menu

This menu lets you Home the fixture, test the mechanical functions, control the Lamp, set Display brightness level, and manage Encoder functions. You can also perform Motor Setup and Copy Boot Code procedures when needed during fixture maintenance.

To Enter the Test Options Menu:

1. Press the **Menu** button to unlock the menu system or to move back up the system to the top level menus.

2. Use the left and right arrows on the **Center** button to scroll to the `Test Options` Menu and press the **Enter** button to select. The screen will display the TEST icon in the screen banner and the first option of the next menu level.

Homing the Fixture

The intellaspot fixture automatically homes whenever it is turned on. To manually home the fixture:

1. Unlock the menu system and navigate to the `Test Options Menu` as shown above. The first option you will see is `Home Fixture`. The default safe option is `No`.

2. Press the **Enter** button to select.

3. Use the up and down arrows on the **Center** button to scroll to `Yes.`

4. Press the **Enter** button to select. The fixture will begin homing.

Lamp State

The `Lamp State` setting in the `Test Options` menu lets you manually turn the lamp `On` or `Off`. To manually change the lamp state:

1. Unlock the menu system and navigate to and select the `Test Options Menu` as shown above.

2. Use the right and left arrows on the **Center** button to scroll to the `Lamp State` option and press the **Enter** button to select. The display will show the current lamp state as either `On` or `Off`.

3. Use the up and down arrows on the **Center** button to scroll to the other state and press the **Enter** button to select.

> *Note:* *If you are unable to change the state, check the Information Menu (see **Lamp Status** on page 39).*

Copying the Boot Code

When new software is uploaded to intellaspot fixtures, it may contain a new boot code which must be copied to each fixture. This is apparent if the fixture displays a `BOOTDIFF` error.

> ⚠ **CAUTION:Do not remove power from the fixture while performing a boot copy.**

To accept and store the new boot code:

1. Navigate to and select the `Test Options Menu`, (see *Test Options Menu* on page 32).

2. Using the left and right arrows on the **Center** button, scroll to the `Copy Boot` option and press the **Enter** button to select.

3. Use the up and down arrows on the **Center** button to scroll to the YES option and then press the **Enter** button to store the command. The fixture will store the new boot code and then automatically home.

Self Test

This option lets you test the mechanical function of separate component or all of the components in sequence.

To perform a self test:

1. Navigate to and select the `Test Options Menu`, (see *Test Options Menu* on page 32).

2. Using the left and right arrows on the **Center** button, scroll to the `SELF Test` option and press the **Enter** button to select.

3. Use the up and down arrows on the **Center** button to scroll to the specific component or to `All` and press the **Enter** button to select. The fixture will test the mechanical operation of the selected component. If you selected All, every function is tested in sequence.

Display Test

To start a routine that tests display function:

1. Navigate to and select the `Test Options Menu`, (see *Test Options Menu* on page 32).

2. Using the left and right arrows on the **Center** button, scroll to the `Display Test` option and press the **Enter** button to select.

3. Use the up and down arrows on the **Center** button to scroll to `On` and press the **Enter** button.

Setup Motors

This option is used when calibrating flag motors in Production Homing, see *Production Homing* on page 51.

To run the motor setup routine:

1. Navigate to and select the `Test Options Menu`, (see *Test Options Menu* on page 32).

2. Using the left and right arrows on the **Center** button, scroll to the `Setup Motors` option and press the **Enter** button to select.

Use the up and down arrows on the **Center** button to scroll to `On` and press the **Enter** button to select and start the motor setup routine.

Encoders

Encoders maintain the Pan and Tilt position of the fixture, but may need to be disabled to perform certain test and maintenance procedures like optimizing a new lamp.

To disable encoders:

1. Navigate to and select the `Test Options Menu`, (see *Test Options Menu* on page 32).

2. Using the left and right arrows on the **Center** button, scroll to the `Encoders` option and press the **Enter** button to select. The default option is `On`.

3. Use the up and down arrows on the **Center** button to scroll to `Off` and press the **Enter** button to disable the pan and tilt encoders.
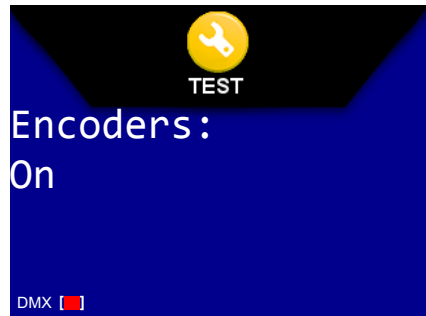
Code Menu

This option is for factory use only in debugging situations.

Information Menu

The Information menu displays current fixture information such as internal temperature, lamp hours, total fixture hours, lamp strikes, hardware and software versions, DMX errors, and lets you view DMX data for any device on the link.

Lamp and Fixture hours resets are also executed in the Information Menu.

To enter the Information Menu:

1. Press the **Menu** button to unlock the menu system or to move back up the system to the top level menus.

2. Use the left and right arrows on the **Center** button to scroll to the `Information Menu` and press the **Enter** button to select. The screen will display the INFO icon in the screen banner and the first option of the next menu level.
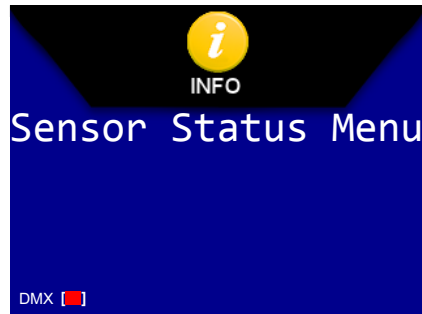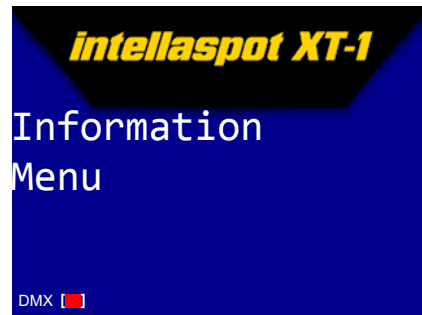
Sensor Status Menu

The Sensor Status displays the current numeric position of the fixture's encoders.

To view encoder values:

1. Navigate to and select the `Information Menu` as shown above. The `Sensor Menu` is the first option you will view.

2. Use the up and down arrows on the **Center** button to scroll to view `Pan Encoder` or `Tilt Encoder` value. You will know if the sensor is working properly if the value changes as you move the fixture's position.
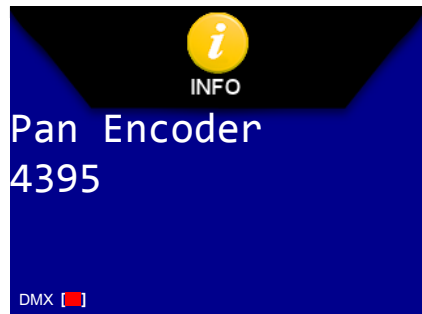
Unique Number

Each intellaspot fixture has a unique number similar to a serial number.

To view the fixture's unique number:

1. Navigate to and select the `Information Menu` as shown above.

2. Use the left and right arrows on the **Center** button to scroll to `Unique Number` to view.
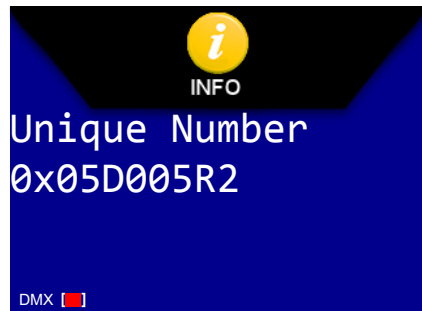
DMX Values Menu

This menu option lets you view the current DMX value for every channel on the DMX link that includes this fixture. You can view all the DMX values on the link by channel or view the DMX value of an individual parameter.

To view DMX values By Channel:

1. Navigate to and select the Information Menu (see *Information Menu* on page 35).

2. Use the left and right arrows on the **Center** button to scroll to the DMX Values Menu and press the **Enter** button to select.

3. Use the left and right arrows on the **Center** button to scroll to the By Channel and press the **Enter** button to select.

4. Use the up and down arrows to view the DMX values for Channels 001– 512 in two lines of three DMX values. The number at the beginning of each line indicates the first channel with a value displayed on that line. For example, line 1:### ### ### displays values for channels 1, 2, and 3. Line 4:### ### ### displays values for channels 4, 5, and 6.

To view DMX values By Parameter:

1. Navigate to and select the Information Menu (see *Information Menu* on page 35).

2. Use the left and right arrows on the **Center** button to scroll to the DMX Values Menu and press the **Enter** button to select.

3. Use the left and right arrows on the **Center** button to scroll to the By Parameter and press the **Enter** button to select.

4. Use the up and down arrows to view the parameter DMX value for each channel the fixture occupies on the DMX link.

> *Note:* *In addition, the* By Parameters *selection also monitors the DMX stream for transmission errors by including options to view DMX Breaks, DMX Framing Error, DMX Overrun Errors and DMX Start Channel.*

Temperatures Menu

The intellaspot fixture contains temperature sensors that track current, maximum and minimum temperatures produced in the unit. Sensors monitor the air temperature of the electronics housing and the lamp housing.

Initially, the setting for current, maximum and minimum temperatures are equal. As the sensor detects temperature changes, the fixture adjusts the minimum and maximum settings.

To view maximum temperature the LED System reached since the last reset:

1. Navigate to and select the Information Menu (see *Information Menu* on page 35).

2. Use the left and right arrows on the **Center** button to scroll to the `Temperatures` Menu and press the **Enter** button to select.

3. Use the left and right arrows on the **Center** button to scroll to `Maximum Temp`. Press the **Enter** button to select.
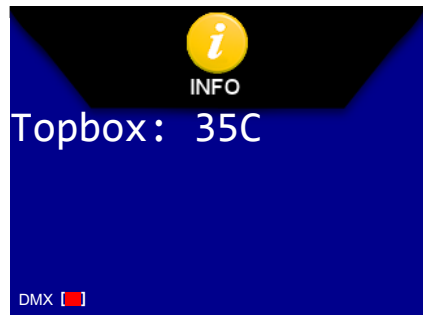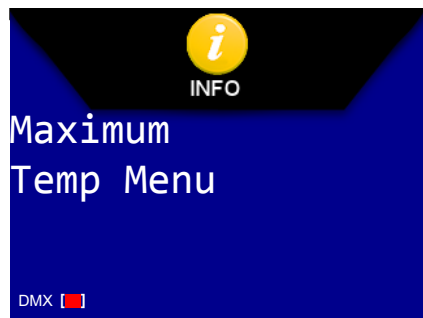
To reset all the temperature readings back to the current temperature:

1. After navigating to and selecting the `Temperatures` Menu, use the left and right arrows on the **Center** button to scroll to `Temp Reset`. Press the **Enter** button to select. The display will read NO. Use the up and down arrow to scroll to YES.

2. Press the **Enter** button and hold for 5 seconds to reset all sensors to the current temperature in centigrade.

Fan Speed Menu

The intellaspot fixture contains four actively controlled internal fans labeled Topbox 1 (located in the electronics housing) Optics, Head 1 and Head 2.

To view the current fan speed:

1. Navigate to and select the Information Menu (see *Information Menu* on page 35).

2. Use the left and right arrows on the **Center** button to scroll to the Fan Speed Menu and press the **Enter** button to select.

3. Use the up and down arrows to view the current speed of the different fans in revolutions per second.

Fixture Hours

To view the current fixture operation time:

1. Navigate to and select the Information Menu (see *Information Menu* on page 35).

2. Use the left and right arrows on the **Center** button to scroll to Fixture Hours to view operation time in hours and minutes.

Fixture Hours Reset

Use this option to reset the fixture operation time to Zero.

To access the Fixture Hours Reset option:
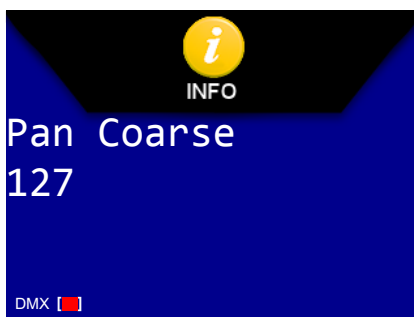
1. Navigate to and select Information Menu (see *Information Menu* on page 35).

2. Use the left and right arrows on the **Center** button to scroll to the Fixture Hours Reset: No option and press the **Enter** button to select.

3. Use the up and down arrows on the **Center** button to scroll to YES**.** Press and hold the **Enter** button down for 5 seconds to select.
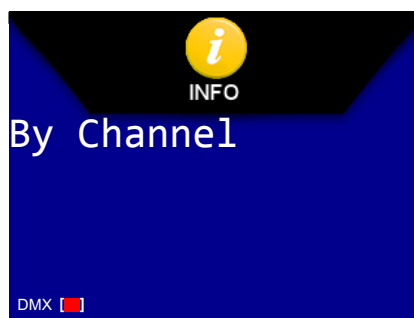
Lamp Hours

To view the current lamp operation time:

1. Navigate to and select the Information Menu (see *Information Menu* on page 35).

2. Use the left and right arrows on the **Center** button to scroll to Lamp Hours to view the lamp operation time since the last reset in hours and minutes.
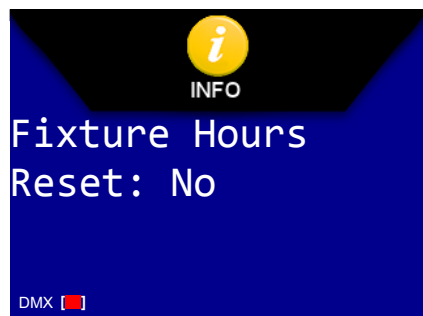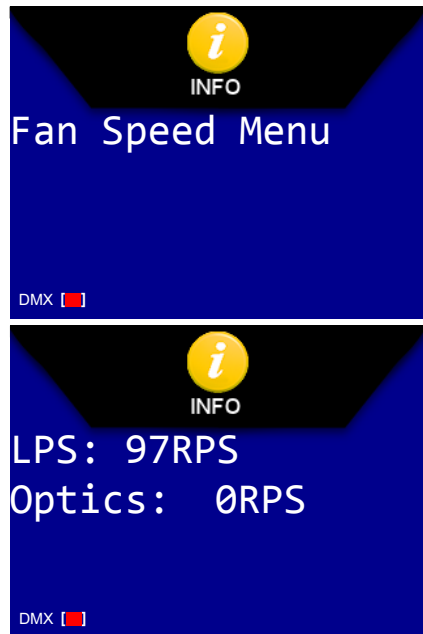
Lamp Strikes

Knowing the number of lamp strikes helps you to track lamp life and adjust for color temperature changes over the life of a lamp.

To view the total number of lamp strikes:

1. Navigate to and select the `Information` Menu (see *Information Menu* on page 35).

2. Use the left and right arrows on the **Center** button to scroll to `Lamp Hours` to view the number of lamp strikes since the last reset.

Lamp HR/Strike Reset

After installing a new lamp the Lamp hours and Lamp strike sensors must be reset to 0 before the Lamp will strike.

To access the `Lamp HR/Strike Reset` option:

1. Navigate to and select the `Information` Menu (see *Information Menu* on page 35).

2. Use the left and right arrows on the **Center** button to scroll to the `Lamp HR/Strike Reset` option and press the **Enter** button to select.

3. Use the up and down arrows on the **Center** button to scroll to YES**.** Press and hold the **Enter** button for 5 seconds to reset the number of Lamp Hours and Lamp Strikes to 0.
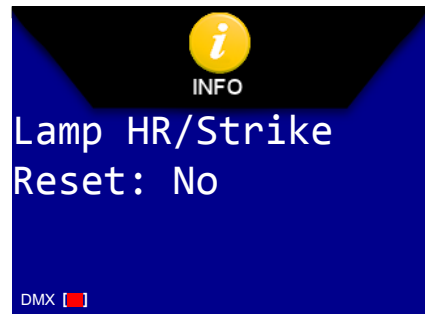
Lamp Status

This option displays the current Lamp Status as `Lamp Off,` `Lamp On,` `Lamp Striking`, or `Lamp Error.`

Display Errors Menu

This menu option displays current errors in a descriptive 32-character text field.

To view an error description:

1. Navigate to and select the `Information` Menu (see *Information Menu* on page 35).

2. Use the left and right arrows on the **Center** button to scroll to the `Display Errors` menu option and press the **Enter** button to select. The ERROR logo will appear in the banner and the first active error.

3. Use the up and down arrows on the **Center** button to view a description of all current errors. If there are no errors, the display will read `No Active Errors.`

Software Version

This option display's the fixture's CPU board Software version. The version number is composed of: Status(Major).(Minor).(Build). Status can be V (Version), Proto, Alpha, or Beta.

Module Versions Menu

This option displays the current hardware and software versions for the following components:

| Component	Operation Description
Pan	3-phase board controlling the Pan motor
Tilt	3-phase board controlling the Tilt motor
Animate/Fx	2-phase board controlling the Animation and the Prism Effects wheels
Dim/Cyn/CTO/Iris	2-phase motor driver board controlling Dim 1, the Cyan and CTO wheels, and the Iris
Dim/Mag/Yel/Clr	2-phase motor driver board controlling Dim 2, and the Magenta, Yellow, and Fixed Color wheels
Litho1/Litho2	2-phase motor driver board controlling the Gobo 1 and Gobo 2 wheels
Focus/Frost/Zoom	2-phase motor driver board controlling Focus, Soft Edge and Zoom operation
Display	Display driver board

To view the Module Version:

1. Navigate to and select the `Information` Menu (see *Information Menu* on page 35).

2. Use the left and right arrows on the **Center** button to scroll to the `Module Version` menu option and press the **Enter** button to select.

3. Use the left and right arrows to scroll through the different components and view their current hardware and software version.
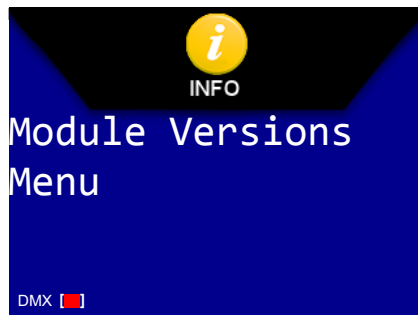
Channels Needed

This option displays the number of channels this fixture requires based on its configuration. A standard configuration intellaspot requires 39 channels.

Next DMX Channel

Use this option to view the next available DMX Start channel on the link following this fixture and is based on the fixture's specific configuration. The value displayed uses the formula (current Start channel + 39 +1).

If there is no consecutive range of channels available, the display will read `Link Full`.

Chapter 4:

Fixture Programming

intellaspot™ fixtures can be programmed to provide hard edge beam with full CMY color, multiple gobo patterns and effects, as well as a variety of Shutter/Lamp functions. This chapter discusses the DMX programming options and describes the intellaspot DMX parameters in both the standard and reduced protocols.

DMX Programming Overview

A parameter is a fixture attribute that can be controlled to modify the light beam in terms of color, beam quality and pattern, intensity, or focus (position). DMX programming assigns a DMX value to each of the fixture's parameters. A look (sometimes referred to a *scene* or a *cue*) is one combination of parameter settings. These looks are the building blocks for show creation.

Full Speed verses MSpeed Control

Some parameters can be set to operate at full speed or MSpeed (motor speed). Full speed operations are completed in the shortest length of time after the motor starts moving. With MSpeed control, change occurs smoothly over the entire MSpeed time value selected. For example, if you select an MSpeed time of 30 seconds, the motor will gradually change position until it reaches its new destination at the end of 30 seconds.

16-bit Functionality

Several parameters use two channels to provide 16-bit control for very fine adjustment capabilities.

DMX Programming Options

Using a DMX controller, you can program an unlimited number of looks and retain direct control over the intellaspot XT-1 fixture at all times.

Programming with a DMX Console

Wholehog® and Road Hog lighting consoles; and Hog® 3PC software are available from High End Systems to control intellaspot XT-1 fixtures (see *Related Products and Accessories* on page 5). For information on whether your DMX controller supports intellaspot XT-1 fixtures, contact the controller's vendor. For information on operating your fixture with a controller (or control device such as DMX control software), consult the documentation provided with the controller.

intellaspot DMX Protocol

The intellaspot fixture uses 39 channels of a standard DMX512 link to control motion, wheel functions, Soft edge, focus, zoom, iris, shutter and lamp function. Factory installed macros use Internal Effects™ for an additional control option.

Channel	Function
1	Pan
2	
3	Tilt
4	
5	Color Mix Function
6	Cyan
7	Magenta
8	Yellow
9	CTO
10	Static Color Function
11	Static Color Position
12	Gobo 1 Function
13	Gobo 1 Position
14	Gobo 1 Rotate Function
15	Gobo1 Rotate
16	
17	Gobo 2 Function
18	Gobo 2 Position
19	Gobo 2 Rotate Function
20	Gobo 2 Rotate
21	

Channel	Function
22	Effect Function
23	Effect Rotate
24	
25	Animation Function
26	Animation Rotate
27	Soft Edge
28	Focus Function
29	Focus
30	
31	Zoom
32	
33	Iris
34	Shutter/Lamp Function
35	Shutter
36	Dim
37	MSpeed
38	Macro
39	Control
40*	Indigo Highlighter Function
41*	Indigo Hightlighter Dim

* Channels not included in reduced protocol

These parameters are described in the following sections.

> Note: *All DMX values indicated in the detailed parameter descriptions are in decimal units.*

Pan and Tilt Parameters

The intellaspot fixture has a 540° pan range and a 270° tilt range. Two DMX channels provide 16-bit adjustment to a fraction of a degree for pan and tilt position.

MSpeed values control the pan and tilt motion for intellaspot fixtures by default, see *MSpeed (Motor Speed)* on page 55. To control the Pan and Tilt parameters with DMX controller crossfading, set Pan/Tilt MSpeed off in the Control parameter (see *Control Parameter* on page 57).

Note: *Optical encoders for pan and tilt instantly correct the fixture's position if the fixture is jarred from its programmed position. If a physical obstruction prevents the fixture from correcting its position, the fixture "times out" to prevent wear on the motors. If the fixture has timed out, remove the obstruction and home the fixture to return it to normal operation.*

Color Parameters

CMY color mixing is achieved using three color wheels (Cyan, Magenta, and Yellow). A CTO wheel lets you adjust color temperature. A fixed color wheel provides an additional five factory selected dichroic color wedge filters.

Color Mix Function

This parameter determines how the cyan, magenta, and yellow color wheels move. The Color Function values can be enabled in either full speed (controller crossfading the wheel positions), or MSpeed (MSpeed control of the wheel motor). For more information on MSpeed, see *MSpeed (Motor Speed)* on page 55.

Color Function	Description
Pure Mix	Allows color wheel movement from open (white) to saturated color (permits a smaller "step" between color wheel positions for color crossfades). You can select this function with or without a Quick Path option. When the *Quick Path* option is selected, the wheel will pass through the open aperture. When you select the *No Quick Path* option, the wheel with rotate through the open aperture.
Continuous	Allows exact positioning of the color wheel from white to full color to white over the full revolution of the wheel. Using this feature allows you to split the light beam into two distinct colors. You can select this function with or without a Quick Path option. When the *Quick Path* option is selected, the wheel will pass through the open aperture. When you select the *No Quick Path* option, the wheel with rotate through the open aperture.
Spin	Puts all three (cyan, magenta, and yellow) color wheels in spin mode. Wheel Spin speed, direction, or fixed position can be set individually on CMY channels.
Cycle	Uses only the color-mixing portion of the cyan, magenta, and yellow color wheels to cycle colors from red to green to blue at variable speeds (rate set by cyan DMX channel).
Random	Performs a pseudo-random color chase of 12 factory-selected colors using the cyan, magenta, and yellow color wheels at variable speeds (rate set by cyan DMX channel).
Blink	Closes then reopens the shutter between indexed color changes.

Cyan, Magenta, and Yellow

These three parameters determine the **Cyan**, **Magenta**, and **Yellow** color wheel position and movement. The **Color Function** parameter value you choose determines how the individual color mixing wheels can move.

Color Function Parameter Setting	Cyan, Magenta, and Yellow Parameter Options
Pure Mix Mode	Positions a color wheel from full saturation to open (white)
Continuous Mode	Sets a color wheel to open (white).
	Moves a color into the open (white) optical path to create a split color
	Adjust variable saturation from full saturation to open
Spin Mode	Continuous Positioning
	Spins the wheel in a reverse from fastest to slowest.
	Stops Spin
	Spins the wheel forward from slowest to fastest
Cycle, Random, and Blink Mode	Sets the speed at which all three (cyan, magenta, and yellow) color wheels move to the next cycle color or random color from slowest to fastest. *Note: The Cyan color wheel sets the rate for all the wheels.*

CTO

The Color Temperature Orange (CTO) wheel provides variable color temperature in intellaspot fixtures. Setting the parameter to zero reduces the color temperature to 3,200K. Increasing the DMX value of this parameter increases the color temperature up to 7,000K = no filtering.

> *Note: CTO is not affected by Color Mix function settings.*

Static Color Function

The **Static Color Function** parameter determines how the fixed color wheel moves and can be enabled in either full speed (controller crossfading the wheel positions), or MSpeed (MSpeed control of the wheel motor).

For more information on MSpeed, see *MSpeed (Motor Speed)* on page 55.
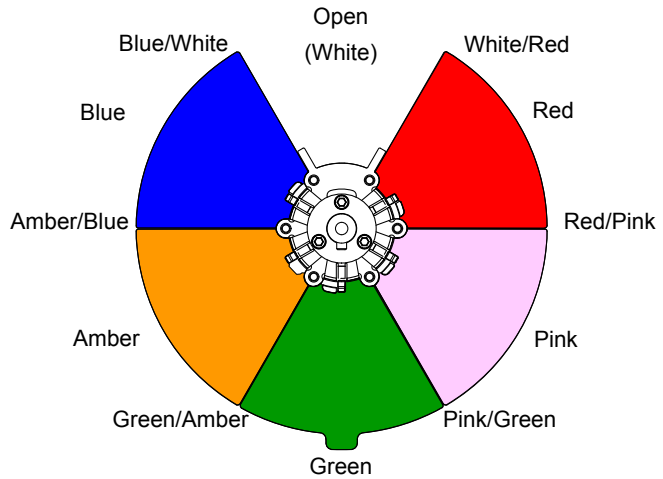
Static Color Function Parameter Options	Description
Indexed	Allows the color wheel to take the quickest path and snap to the chosen whole or half color
Forward Spin	Spins the fixed color wheel forward at variable speeds
Reverse Spin	Spins the fixed color wheel in reverse at variable speeds
Continuous	Moves to any point on the color wheel to allow a smaller "step" between color wheel positions for color crossfades
Fast Scan	Oscillates the fixed color wheel at a factory-determined range and speed
Random	Selects random whole color positions at variable speeds
Blink	Closes then reopens the shutter between indexed color changes

Static Color Position

Static Color Position parameter controls fixed color wheel positioning. The **Static Color Function** setting you choose determines how the individual color mixing wheels can move.

Color Function Setting	Static Color Position Options
Indexed or Scan Mode	Position the wheel at the center of a color wedge or halfway between two adjacent colors from Open (white) to Open
Spin, Blink or Random Mode	Stop wheel motion
	Adjust the wheel motion from slowest to fastest
Continuous Mode	Position the wheel at any point from 0–360°

Gobo Wheel Parameters

An intellaspot fixture has two Gobo wheels each with seven rotating lithopatterns™ and effects plus an optional lithopattern for position four on Gobo wheel 1. Each Gobo wheel uses **Gobo Function** and **Gobo Position** parameters to control the positioning and rotation of the wheels. **Gobo Rotate Function** and **Gobo Rotate** parameters control the individual aperture position and rotation on each wheel.

> *NOTE: Gobo Wheel 1 is located closest to the lens.*

Gobo 1

7
Dense Foliage

Open

1
Sharp Burst

6
Triangle

2
Fracture

5
Psy Dye, Indigo

3
Psy Spin, Red

4
Skull

Hollywood Stars
(optional)

Gobo 2

7
Multidot

Open

1
Red Chicklet

6
Gatlin Gun,
Indigo

2
Animation
Litho

5
Valiant

3
Blades

4
Fusion Fire, clear
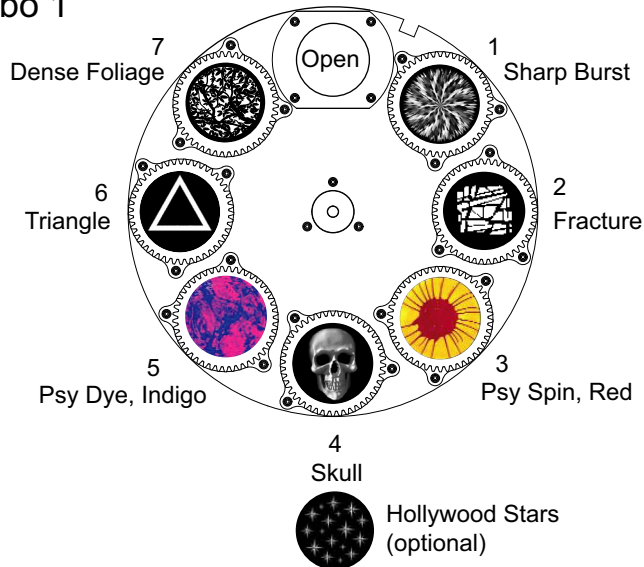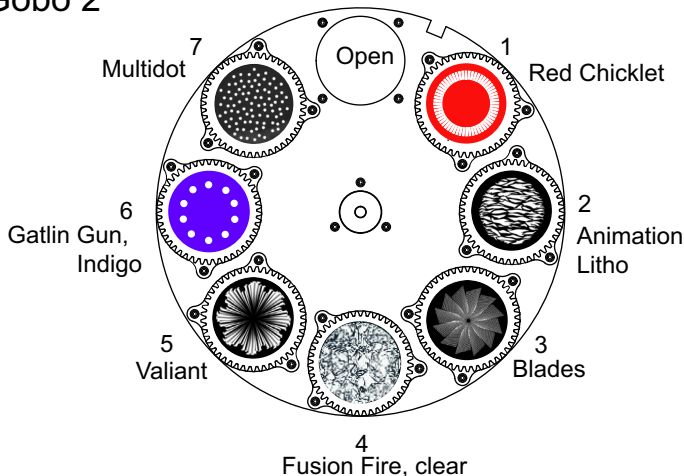
Gobo Function

The Gobo 1 and Gobo 2 Function parameters determine how a gobo wheel moves. The **Gobo Function** parameter can be enabled in either full speed, or MSpeed (MSpeed control of the wheel motor). For more information about MSpeed, see *MSpeed (Motor Speed)* on page 55.

Gobo Function Parameter Options	Description
Indexed	Moves by the quickest path and snaps to the chosen aperture.
Forward Wheel Spin	Spins the gobo wheel forward at variable speeds.
Reverse Wheel Spin	Spins the gobo wheel in reverse at variable speeds.
Scan	Oscillates the gobo wheel at a factory-determined range and speed.
Random	Selects random aperture positions at variable speeds.
Blink	Closes and opens the shutter on wheel position changes.

Gobo Position

A **Gobo Position** parameter for each of the two gobo wheels positions the wheel in the optical path at the center of the aperture on the gobo to perform the function selected by the **Gobo Function** parameter.

Open (White)	Gobo 1	Gobo 2	Gobo 3	Gobo 4	Gobo 5	Gobo 6	Gobo 7	Open (White)

1 ➤ 255
Global Position Parameter DMX Value

Gobo Rotate Function

Gobo rotate refers to the motion of the individual aperture wheels on a Gobo Wheel. The **Gobo Rotate Function** parameter determines position and rotation options for gobos and can be enabled in either full speed (controller crossfading the gobo position), or MSpeed (MSpeed control of the gobo position). For more information about MSpeed, see *MSpeed (Motor Speed)* on page 55.

Gobo Rotate Function Parameter	Description
Indexed	Rotates the specified indexed aperture to any position
Forward Rotate	Rotates the aperture forward
Reverse Rotate	Reverses the aperture rotation
Blink	Closes and opens the shutter on rotate position changes
Forward Animate	Rotates the aperture forward in strobing steps
Reverse Animate	Reverses the rotation in strobing steps

Gobo Rotate

Two channels for each Gobo Wheel provide 16-bit control for smooth and precise Gobo Rotation. **Rotate Coarse** and **Rotate Fine** parameters determine the apertures' rotation position and speed.

Gobo Rotate Function Parameter	Gobo Rotate Parameter Options
Indexed	Rotate the specified indexed aperture to any position
Rotate, Blink, or Animate	Stop rotation
	Set rotation speed from slow to fast

Effect Parameters

The intellaspot fixture has separate 4-facet prism that can be placed and rotated in the optical path and used along with gobo patterns and color mixing.

Effect Function

The Effect Rotate Function parameter determines how the prism effect wheel moves and can be enabled in either full speed (controller crossfading the wheel positions), or MSpeed (MSpeed control of the wheel motor). For more information about MSpeed, see *MSpeed (Motor Speed)* on page 55.

Effect Rotate Function Parameter	Description
Disengage	Removes prism from the optical path
Continuous	Positions the prism continuously from 0–360°
Forward Spin	Spins the prism effect wheel forward
Reverse Spin	Reverses the spin of the prism effect wheel
Forward Animate	Rotates the prism forward in strobing steps
Reverse Animate	Reverses the prism rotation in strobing steps

Effect Rotate

Two channels provide 16-bit control for smooth and precise Prism Effect Wheel Rotation. **Prism Rotate Coarse** and **Prism Rotate Fine** parameters determine the prism rotation position and speed.

Effect Rotate Function Parameter	Effect Rotate Parameter Options
Continuous	Position the prism effect wheel at any point of the rotation
Rotate, Blink, or Animate	Stop rotation
	Set rotation speed from slow to fast

Animation Wheel Parameters

The Animation effect wheel is a separate lithopattern wheel providing another effect that can be layered onto the light beam output of an intellaspot fixture.

Animation Function

The **Animation Function** parameter determine how the animation effect wheel moves and can be enabled in either full speed (controller cross-fading the wheel positions), or MSpeed (MSpeed control of the wheel motor).

For more information about MSpeed, see *MSpeed (Motor Speed)* on page 55.
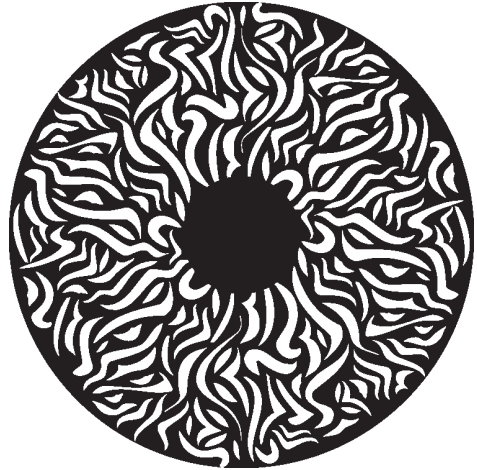
Animation Function Parameter Setting	Description
Disengage	Removes the Animation effect wheel from the optical path
Continuous	Positions the Animation effect wheel continuously from 0–360°
Forward Spin	Spins the Animation effect wheel forward
Reverse Spin	Reverses the spin of the Animation effect wheel
Forward Animate	Rotates the Animation effect wheel forward in strobing steps
Reverse Animate	Reverses the Animation effect wheel rotation in strobing steps

Animation Rotate

Two channels provide 16-bit control for smooth and precise Animation effect wheel rotation. **Animation Rotate Coarse** and **Animation Rotate Fine** parameters determine the Animation effect wheel rotation position and speed.

Animation Rotate Function Parameter	Animation Rotate Parameter Options
Continuous	Positions the animation wheel to any position from 0-360°
Rotate, Blink, or Animate	Stop rotation
	Set rotation speed from slow to fast

Soft Edge Parameter

The Soft Edge parameter settings add a haze or fog effect in increasing/decreasing densities to the projected pattern. The soft edge effect is achieved with a single flag that moves into the optical path.

Soft Edge Parameter Setting	Description
Open (No Soft Edge)	Removes the soft edge flag from the optical path
Variable Soft Edge	Allows variable diffusion from full open to closed
Full Soft Edge	Soft edge flag fully closed in optical path
Periodic Soft Edge Strobe	Allows variable strobing of the soft edge flag from slow to fast
Random Soft Edge Strobe	Randomly strobes the soft edge flag from slow to fast

Focus Parameters

Focus Function

Focus Function Parameter Setting	Description
Manual Focus	Lets you focus the output manually
Focus Tracking, Animation	Sets an automatic focus based on the animation wheel plane
Focus Tracking, Gobo 1	Sets an automatic focus based on the Gobo 1 wheel plane
Focus Tracking, Gobo 2	Sets an automatic focus based on the Gobo 2 wheel plane
Focus Tracking, Iris	Sets an automatic focus based on the iris plane

Focus

Two channels determine the focus function providing 16-bit control for smooth and precise control. The **Focus Course** and **Focus Fine** parameters focus from in to out,

Zoom Parameter

The intellaspot fixture has a 5:1 zoom ranging from 11° to 55°. The **Zoom Coarse** and **Zoom Fine** parameters provide 16-bit continuous control for smooth and precision zoom function from in to out.

Iris Parameter

The intellaspot iris has a variable circular opening that controls the beam diameter in a similar fashion as a camera's iris controls the amount of light entering the camera. **Iris** is a continuous parameter that adjusts the iris from closed to open.

Shutter and Lamp Parameters

Shutter/Lamp Function

The Lamp Function parameter) modifies the Shutter parameter and Dim parameter functions to enhance and expand the range of effects available on the intellaspot XT-1 fixture including Light Burst™ effects, lightning strikes and Electronic Dimming™ effects.

The Light Burst™ effect boosts the Lamp above the 850 Watt level for the specified period of time. Boosting to white ends with the shutter open; boosting to black closes the shutter. Boosting is also used to created Lightning effects with the Dim channel scaling the overall brightness.

The intellaspot fixture supports Electronic Dimming™ effects as well as mechanical dimming and a combination of both. Electronic Dimming™ effect works by lowering the lamp power. Electronic Dimming alone will not go to black.

Shutter/Lamp Function Parameter Setting	Description
Normal Shutter Functions	Opens and closes shutter flags in the optical path
Random Random Strobe	Strobes beam using the shutter flags at random intervals
Synchronous Random Strobe	Synchronizes random strobing for all intellaspot fixtures using the same DMX controller
Lamp Functions	Uses lamp Dimming with the Shutter to produce strobing, Light Burst, lightening strikes and Electronic Dimming effects.

Shutter

The **Shutter** parameter determines the way the shutter is opened and closed. In addition to the normal functions, the **Lamp Control** modifies the **Shutter** parameter to create Lamp Burst, Lightning, and Electronic Dimming effects. The following table describes the interaction between the **Lamp Function**, **Shutter** and **Dim** Channels

Lamp Function Setting	Shutter Parameter Options
Normal Shutter Functions Random Random Strobe Synchronous Random Strobe	Close shutter
	Set strobe rate from slow to fast. Mechanical shutter strobing is replaced with electronic strobing at higher frequencies.
	Open shutter

Lamp Function Setting	Shutter Parameter Options
Lamp Effects	Close Shutter
	Periodically strobe the lamp with shutters open boosting the lamp above 850 W
	Randomly strobe the lamp with shutters open boosting the lamp above 850 W
	Synchronize random lamp strobing between all intellaspot fixtures controlled by the same DMX console.
	Boost lamp, black. Boosts the lamp for a specified time then closes the shutter. *Six time ranges from 1–.25 second*
	Boost lamp, white. Boosts the lamp for a specified time, then leaves the shutter open with the lamp dimmed.*Six time ranges from 1–.25 second*
	Lightning strike. *Six variations are available for intellaspot fixtures.* The **Dim** parameter scales the overall brightness of the lightning effect
	Open Shutter

Dim

The **Dim** parameter provides full mechanical dimming capability without changing the color temperature or the beam shape from closed to fully open. The **Lamp Function** parameter, (see *page 53*), controls whether the Dimming is accomplished by lower lamp power (electronic), closing the shutter (mechanical) or both (dual dimming). The preceding table describes the interaction between the **Lamp Function**, **Shutter** and **Dim** parameters.

MSpeed (Motor Speed)

MSpeed is the time required for a motor to complete movement when changing from one position to another. MSpeed provides a means for all motors to reach their target position at the same time, even though each motor may have different distances to travel. MSpeed movement is extremely smooth because the fixture controls movements independent of DMX refresh rates.

MSpeed times vary from 0.15 seconds to 252.7 seconds. However, when MSpeed is applied to a parameter, the delay value (length of time allowed for the entire scene) needs to be longer than the MSpeed value to allow the motors to complete their movement before the end of the scene. An MSpeed value that is longer than the delay value could produce an undesirable result; for example, no light output during the scene. For a listing of exact MSpeed times, see *Important Safety Information* on page 77.

By default, MSpeed is applied to Pan and Tilt positioning. Disable MSpeed for pan and tilt with the Control parameter (see *Pan and Tilt Parameters* on page 42). MSpeed times can also be applied to the following parameters:

- Color Mix Function
- Static Color Function
- Gobo 2 Function
- Gobo 1 Function
- Effect Function
- Animation Function

Macro

Internal Effects™ macros are factory-programmed sequences which allow complicated looks in one scene. Each Internal Effects™ macro modifies a specific set of parameters, while allowing user control of all other parameters in the scene. The four Internal Effects macros available on a standard configuration intellaspot fixture are Pan Sweep, Tilt Sweep, Clockwise Circle and Counterclockwise Circle.

The value set in the **Macro** parameter determines the size of each of the movements. The **MSpeed** channel determines the speed. With the MSpeed set between DMX 5-255 all internal effects complete movement at the selected MSpeed time (up to 25 seconds). An MSpeed DMX value less than 4 uses the default time of 2.5 seconds to provide a pleasing look when the additional variation given by using the MSpeed channel is not required.

Macro Parameter Setting	Description
Macro Off	Disables the currently playing macro
Pan Sweep	Moves the light beam back and forth through the 540° pan range
Tilt Sweep	Moves the light beam back and forth through the 270° tilt range
Clockwise circle	Moves the light beam in a series of clockwise circles from small to large.
Counterclockwise circle	Moves the light beam in a series of counterclockwise circles from small to large.

Control Parameter

The **Control** parameter allows remote control of Pan and Tilt MSpeed, Display, Homing, Lamp and Shutdown.

Note: To access all control settings (except for Pan & Tilt MSpeed Off), first select a control channel value, then set the Shutter channel to "0."

Control Parameter Setting	Description
Safe	Disables all Control settings for normal operation
Pan & Tilt MSpeed Off	Sets Pan & Tilt MSpeed off
Display/LEDs Off	Turns display and status LEDs illumination off
Display/LEDs Bright	Turns display and status LEDs illumination on
Home All	Remotely homes the fixture
Lamp On	Remotely restrikes the fixture's lamp
Lamp Off	Remotely extinguishes the fixture's lamp
Outrig Mode On	Enables outrig mode for fixtures mounted sideways from wall or truss
Outrig Mode Off	Disaples outrig mode
Shutdown	Remotely shuts down the fixture. When a fixture is shut down, the lamp is extinguished, power to the motors is disabled, and the display reads Shutdown. If a fixture is in shutdown mode, the fixture must be homed to bring it back into operation.

Indigo Highlighter

The Indigo Highlighter system consists of four 1-watt indigo LEDs that provide additional light output. Two parameters define the Indigo Highlighter operation.

Indigo Highlighter Function

You can choose to have the Indigo Highlighter system function independently from the fixture's dimming or track it.

Dim Tracking Mode	Description
Tracking Continuous	Tracks the fixture dimming with continuous output
Periodic Strobe	Tracks the fixture dimming with periodic strobing from slowest to fastest
Random Strobe	Tracks the fixture dimming with random strobing from slowest to fastest

Independant Mode	Description
Continuous	Continuous output independent from fixture dimming
Periodic Strobe	Strobing output independent from fixture dimming from slowest to fastest
Random Strobe	Random strobing output independent from fixture dimming from slowest to fastest

Indigo Highlighter Dim

This parameter adjusts the Indigo Highlighter LEDs from **Off** at a DMX value of 0 to fully **On** at a DMX value of 255.

Chapter 5:

General Maintenance and Troubleshooting

Maintaining and servicing intellaspot fixtures includes replacing parts and cleaning the unit. General troubleshooting tips help you identify potential problems.

The intellaspot fixture is designed for simple maintenance. Modules are easily removed for repair or custom configurations. The module driver boards are identical and use orientation to differentiate their function for a specific module.

> ⚠️ **CAUTION: The information in this chapter is intended to assist qualified personnel *only*.**

Toolset Required:

- 2.0, 2.5, and 3 mm allen wrench
- Flathead screwdriver
- Phillips screwdriver
- Gloves
- Protective eyewear
- Dental pick (for removing broken static color wedge glass)

The bezel and is easily removed for maintenance by loosening the four captive screws on each side cover. The electronics housing cover has two captive screws on each side.

Captive Screws

Captive Screws
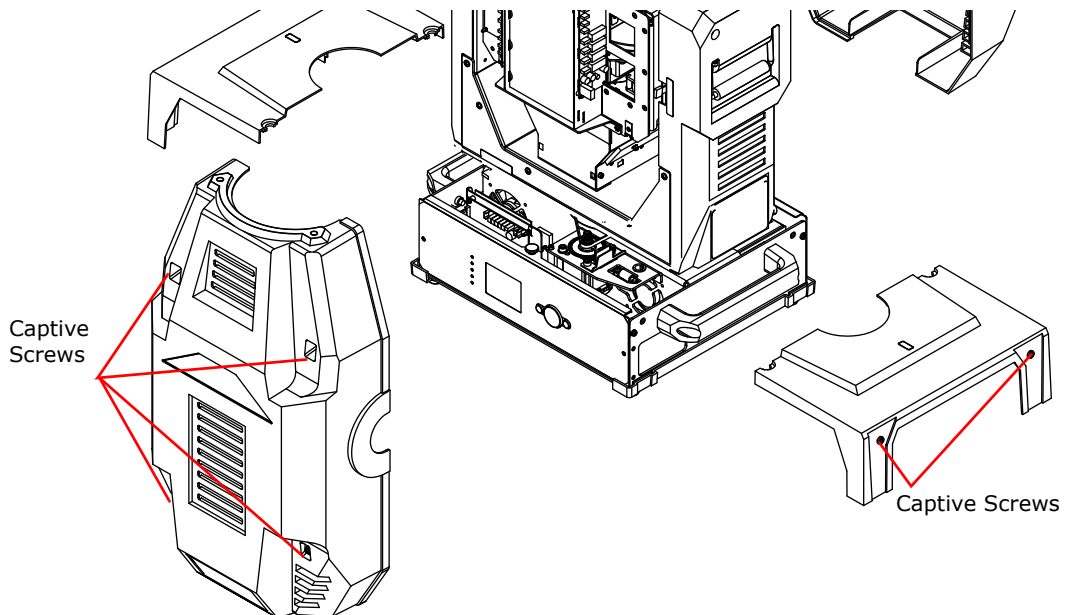
Replacing Parts

⚡ **WARNING: Disconnect power before servicing. Replace fuses with the specified type and rating only.**

🔥 **Equipment surfaces may reach temperatures up to 130°C (266°F). Allow the fixture to cool before handling.**

Replacing Fuses

To replace a fuse:

1. Disconnect power to the fixture. If the fixture has been operating, allow the fixture to cool before handling.

2. Use the following table to determine which fuse to replace and its location

Fuse	Fuse Location	Symptom of Failure
Module Link	One fuse inside the electronics housing on top of power supply.	Fixture shuts down and will not receive power.
2-phase motor driver boards	Two fuses [F1] and [F2] on each module driver board below the connector.	Module motors will be off. Each fuse protects two of the 4 motors associated with each board. Board LEDs will remain on.
3-phase Pan and Tilt boards	[F1] on Tilt board in the head near the fixture lens.	Pan or Tilt board-related motors and fans will be off.
	[F1] on Pan board in the electronic housing behind the display panel	
Display Board	[F1] next to the Module Link header	Display will not operate
Battery	On display board next to battery	

3. Replace the appropriate fuse(s) with a fuse of the same type and rating shown in the following table.

Fuse	Fuse Type and Rating	Manufacturer	HES p/n
Module Link	6.3A, 250V, Slow Blow	Littelfuse 326 015 or Bussmann MDA-15	90403019EF
Battery	1.5A, 125 V slow blow SMF	Order from High End Systems	90412029EF
2-phase driver boards	2.5A, 125V, Slow Blow SMF	Littelfuse R454 02.5	90402024
3-phase motor driver boards			
Display board			

> *Note:* **(F2) on the Pan and Tilt boards has a spare fuse that can be used for any of the motor driver boards.**

Replacing Display Batteries

Four AA cell rechargeable batteries power the intellaspot LCD display. They are located in a bracket on the back of the display panel. Replace with Sanyo Eneloop, Rayovac Platinum, or comparable precharged rechargeable AA cell 1.2V NiMH batteries.

⚠️ **CAUTION:Insert the batteries as shown in the holder. Reversing the direction can blow the fuse, damage the battery, or prevent the battery from operating.**

Anything loose in the road case that could inadvertently actuate the MENU and ENTER keys can drain the battery.

Do not mix old and new batteries or batteries of differing types.

The battery charger activates power is applied to the fixture. It charges the battery for one hour. After that, the charger will be disabled to avoid overcharging the battery.

Replacing the Lamp

Please review and follow these warnings and cautions before replacing the lamp.

⚡ **WARNING: To avoid electrical shock, disconnect power before re-lamping or servicing.**

An operating, unshielded lamp emits ultraviolet and visible (UV-vis) radiation which could damage eyes and skin. Whenever working on or near an exposed lamp, wear protective eye gear. Never look directly at the lamp while the lamp is on.

Hot lamp may be an explosion hazard. Do not open for five minutes after switching off.

Equipment surfaces may reach temperatures up to 130° C (266° F). Allow the fixture to cool before handling.

⚠️ **CAUTION: This equipment is designed for use with a 850W HID lamp only. Use of any other type lamp may be hazardous and may void the warranty.**

To replace the lamp:

1. Disconnect power to the fixture. If the fixture has been operating, wait for the lamp to cool before handling.

2. Put on protective eyewear and gloves.

3. Using a wide tip, flat head screwdriver, loosen (*but do not remove*) the two lamp assembly screws.

Lamp assembly screws

4. Pull the lamp assembly straight out of the fixture.

5. Holding the existing lamp by its ceramic base, carefully pull the lamp straight out of the lamp socket.
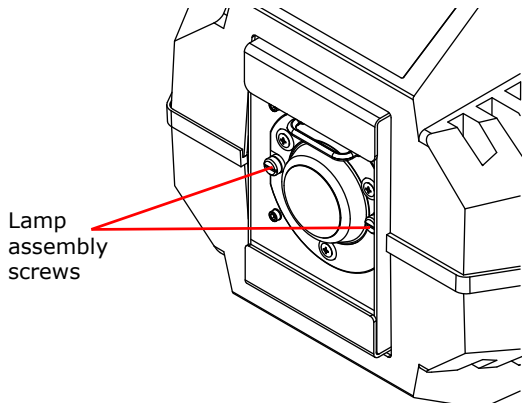
> **CAUTION: Do not squeeze the lamp glass while removing the existing lamp from the socket. Lamp glass may shatter.**
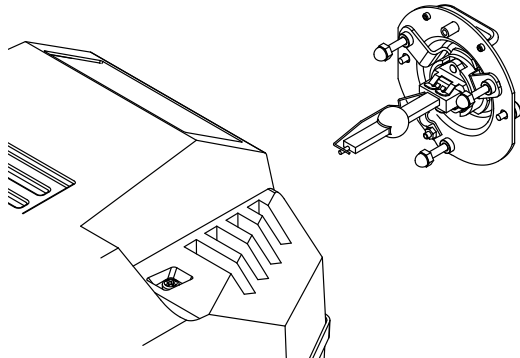
6. Remove all packaging materials from the new lamp.

7. Holding the new lamp by its ceramic base, gently press the two base pins into the lamp socket until the lamp is firmly seated.

> **CAUTION: When handling the new lamp, avoid contact with the lamp glass. If the lamp glass is soiled by oil or dirt from skin, gloves, etc., clean the cold lamp glass with an alcohol wipe. A soiled lamp could overheat and burst, causing damage to the fixture.**

8. Reinsert the lamp assembly straight into the fixture.

> **CAUTION: Make sure the lamp socket wires are not wrapped around the lamp or crimped while reinserting the lamp assembly.**
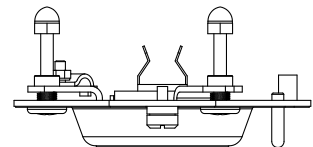
9. Tighten the lamp assembly screws.

10. Reset the lamp hours to zero to track the lamp life, (see *Lamp HR/Strike Reset* on page 39).

11. Optimize the new lamp.

Optimizing the Lamp

Optimize the lamp after replacement, or if there is a "hot spot" of brightness anywhere other than the center of the light beam.

1. Orient the fixture so that the beam will project onto a flat, white surface at least 10 feet (3m) away.

2. Turn the lamp on. Ensure the light beam is round and not oval. If necessary, adjust the pan and tilt construct values until the beam is round.

Lamp optimization screws

3. Adjust the focus until the edge of the light beam is sharp.

4. Set the DIM to full (see *Chapter 4: Fixture Programming* on page 41).

5. Locate the three lamp optimization screws (x, y, and z).

6. Look at the wall where the beam is projected and use the optimization screws to adjust the lamp's position within the fixture until the "hotspot" of brightness is at the center of the beam and diffused. The *x* and *y* screws move the hotspot. The center *z* screw adjusts beam flatness.
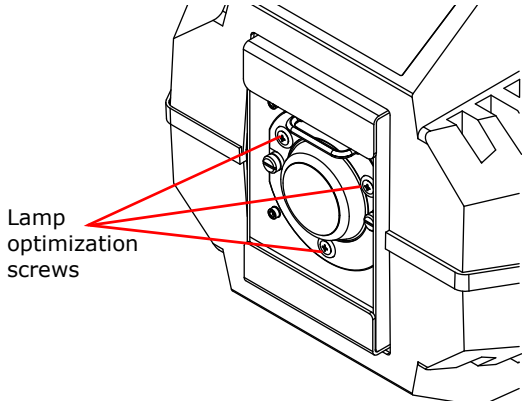
Replacing Interchangeable Motor Driver Boards

The intellaspot fixture is designed with two basic types of motor driver boards:

1. Interchangeable 2-phase boards drive the motors for each of the user-configured modules, and the Focus/Frost/Zoom functions.

2. Interchangeable 3-phase pan and tilt driver boards.

A driver board is interchangeable with other boards of its type. The position of a board's standoffs and contact screw determine the board addressing.

> ⚠ **CAUTION: The fixture will not function correctly if contact screws are missing from driver boards.**

When replacing a board, observe the following warnings.

> ⚡ **WARNING! To avoid electrical shock, disconnect power before servicing.**

> **Equipment surfaces may reach temperatures up to 130° C (266° F). Allow the fixture to cool before handling.**

Locating 2-Phase Motor Driver Boards

Four 2-phase boards control the motors for all Color wheels, Soft Edge Flags, Gobo Indexing and Rotation as well as Zoom, Focus and Iris functions.

Board 1: Animate/Animate Rot/Prism FX/Prism FX Rot

Board 2: Shutter/Cyan/CTO/Soft Edge

Board 3: Shutter/Magenta/Yellow/Color

Board 4: Gobo 1, Gobo 1 Rotation/Gobo 2/Gobo 2 Rotation

Board 8: Focus/Zoom/Iris
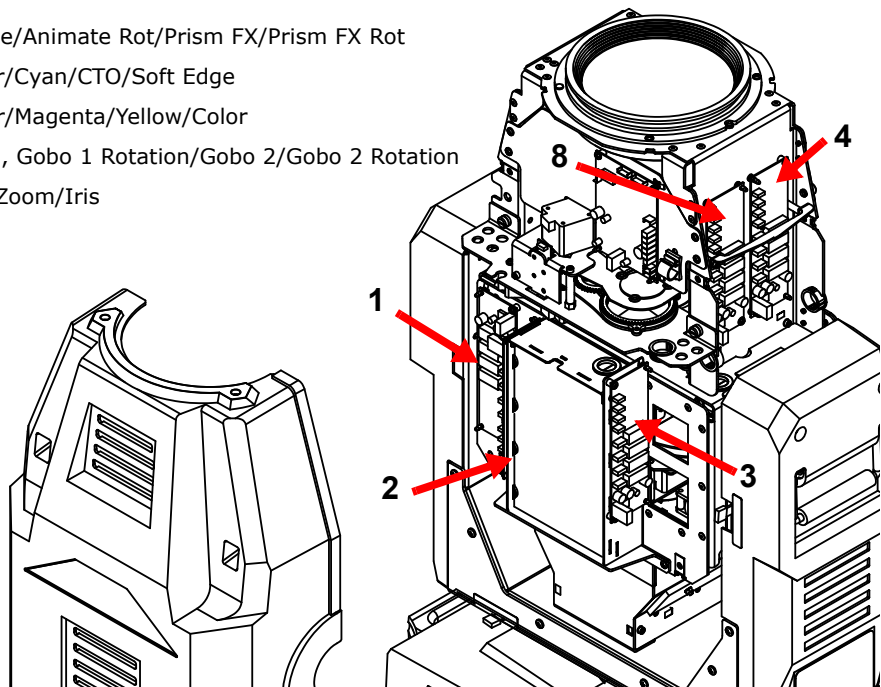
2-Phase Board Configuration
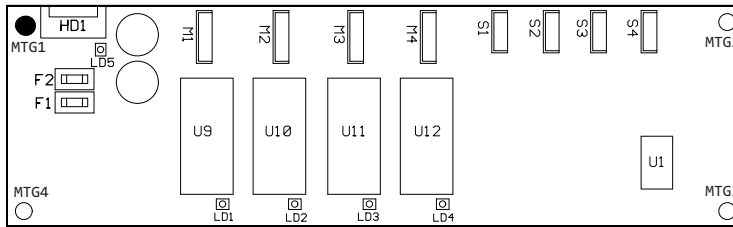
Board 1

M1	Animation
M2	Animation Rotate
M3	Prism FX Position Sensor
M4	Prism FX Rotate
S1	Animation Sensor
S3	Prism FX Position Sensor
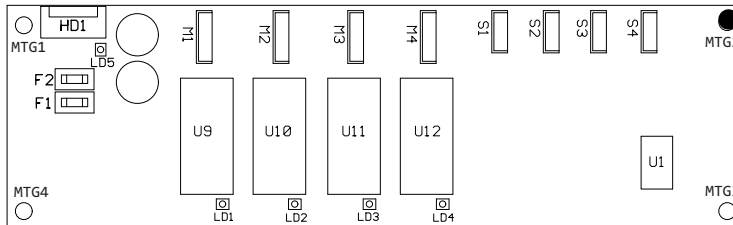
Board 2

M1	Dim 1
M2	Cyan
M3	CTO
M4	Soft Edge
S2	Cyan/CTO Sensor
S4	Soft Edge Sensor
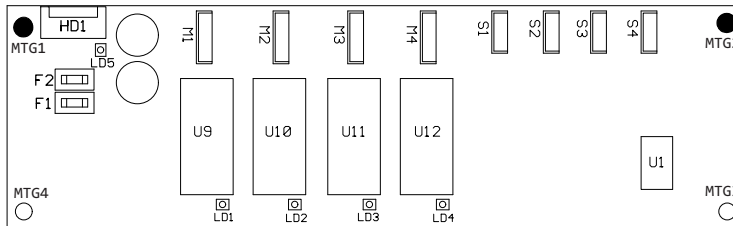
Board 3

M1	Dim 2
M2	Magenta
M3	Yellow
M4	Static Color
S2	Mag/Yell/Color Sensor
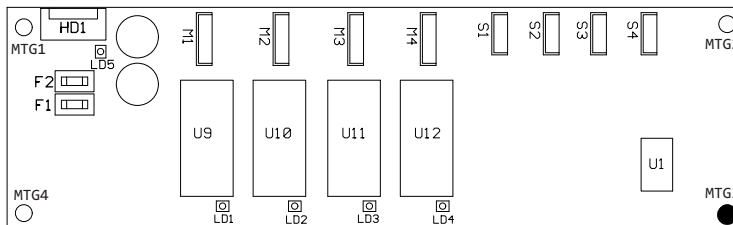
Board 4

M1	Gobo 1
M2	Gobo 1 Rotate
M3	Gobo 2
M4	Gobo 2 Rotate
S1	Gobo 1 Sensor
S2	Gobo 1 Rotate Sensor
S3	Gobo 2 Sensor
S4	Gobo 2 Rotate Sensor
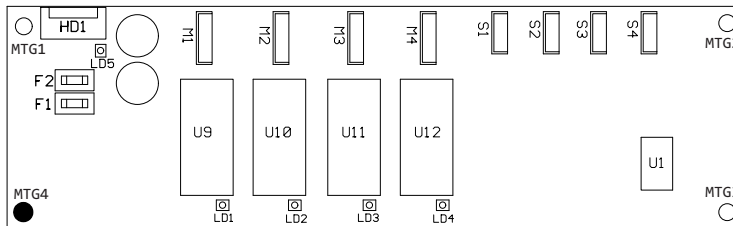
Board 8

M2	Focus
M3	Zoom
M4	Iris
S2	Focus Sensor
S3	Zoom Sensor

● *screw position*
○ *standoff position*

3-Phase Board Location and Configuration

Two 3-phase boards drive Pan and Tilt motors. They are located on the back of the electronic housing's display panel.
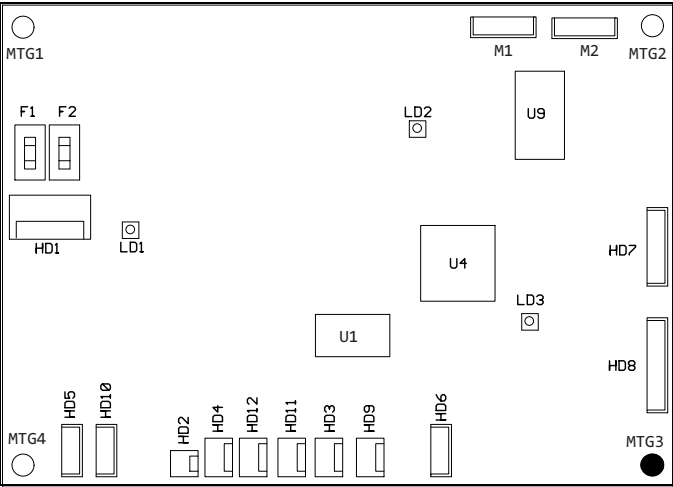
Pan Board

M1	Pan Motor
HD7	Pan Encoder
HD8	Lamp Power Supply
HD6	Pan Sensor
HD9	Lamp Power Supply Fan
HD4	Optics Fan
HD2	Relay
HD10	Thermal Sensor
HD1	Module Link
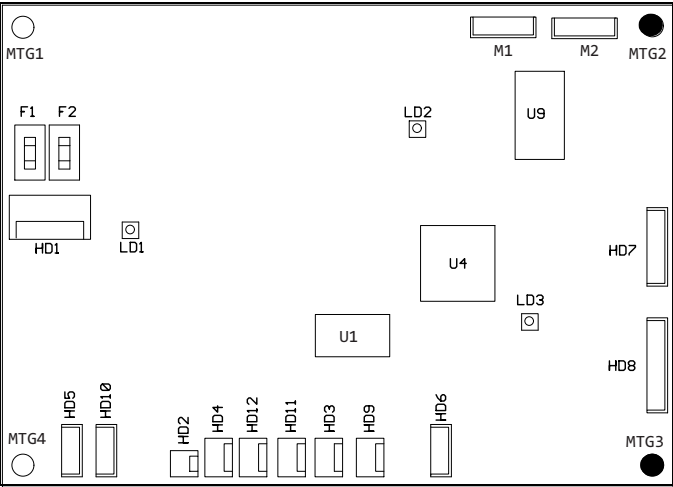
Tilt Board

M1	Tilt Motor
HD7	Tilt Encoder
HD6	Tilt Sensor
HD9	Lamp Blower
HD11	Head Exhaust Fan
HD4	Head Exhaust Fan
HD5	Head Thermal Sensor
HD1	Module Link Data

Replacing a Motor Driver Board

When changing a board, align the screw holes and standoffs to ensure correct orientation in the fixture. To replace a 2-phase driver board:

1. After remove the bezel and electronic housing cover if applicable, Use a 3 mm allen wrench to remove the addressing screws and star washers.

2. Position new board against module aligning the center top standoff. Place contact screw(s) in the appropriate position.

> *Note:* ***When installing a replacement driver board on a module, always place a star washer between an address screw and the pad on the logic board to ensure good electrical contact.***

3. Reattach the bezel and retighten captive bezel screws.

Replacing Static Color Wheel Dichroic Wedges

Replace color wedges if they are damaged or
broken, to change their order in the wheel, or
to install a new or custom color. (See *Related
Products and Accessories* on page 5 for
ordering information.)

To replace a color wedge:

1. Lock the fixture in the upright position.

2. Remove both sides of the bezel.

3. Locate the Color Mix Module and use a
   flathead screwdriver to loosen the two
   thumbscrews that hold it in the fixture.

4. Free the harness by removing the
   grommet from its slot next to the module.

5. Grasping the module from each side, slide
   it part way out of the fixture.

6. Rotate the static color wheel to access the
   wedge you want to replace.

7. Grasp the wedge and pull it straight out of
   the fixture. If the wedge has been broken, use a dental pick to remove any glass retained in
   the hub taking care that loose glass does not fall into the fixture.
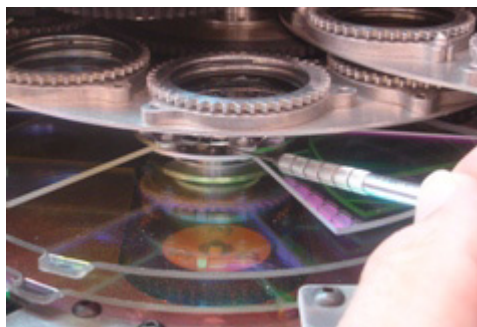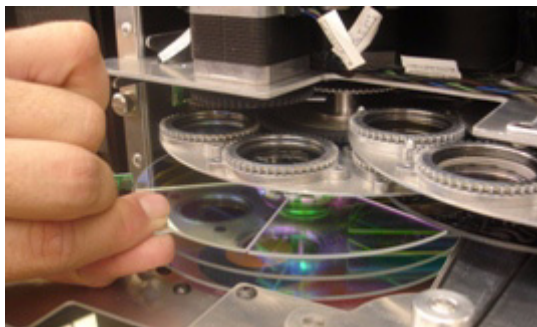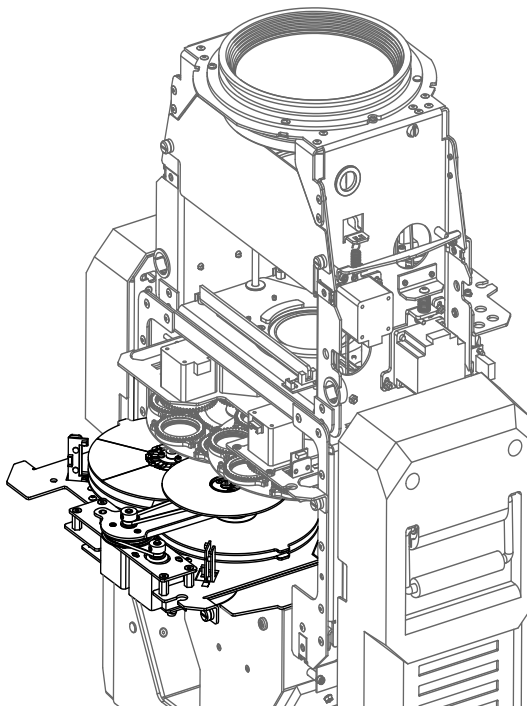
> *Note:* *You must use a dental pic as a tool to remove any debris from the
> spring clip. Prying up the clip tab can result in a sprung clip that will
> NOT hold the color segment securely and cause the wedge to fall out.*

8. Position the new dichroic wedge with the coated side facing the lamp with the coated side
   facing the lamp.

> *Note:* *To determine which side of the litho is coated, place the tip of a pen against each
> side of the litho and view it from a slight angle. On the coated side, the tip of the*

pen appears to touch its reflection. On the uncoated side, there appears to be a gap between the pen and its reflection

9. Insert the new wedge into the slot aligning the tab with the clip on the hub.

Note: There are two wedge shapes on the static color wheel. The wedge type with an outside tab must always remain in the position directly opposite the open position. When ordering color wedges be sure to specify whether it should be a tabbed or a standard shaped wedge.

For dichroic wedge specifications, see the intellaspot *support page at www.highend.com/support/ automated_luminaires/.*

10. Slide the module back into the fixture and tighten the thumbscrew screw to secure it.

11. Replace the harness grommet into the slot alongside the module

12. Reattach the bezel and retighten the captive bezel screws.
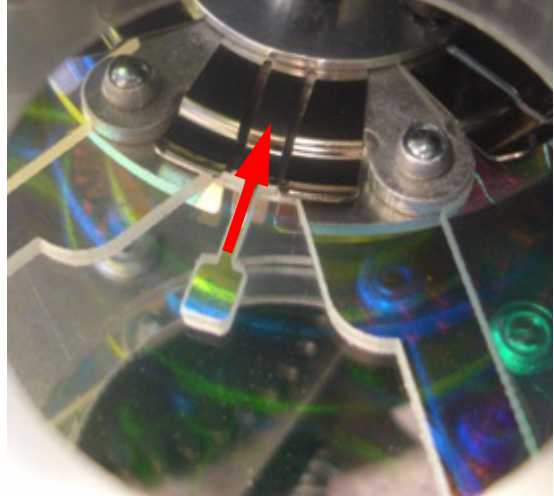
Replacing intellaspot Lithopatterns®

You can use the steps in this section to replace lithopatterns if they are damaged or broken, to change their order in the wheel, to clean them, or to install a new or custom lithopattern or effect. (See *Related Products and Accessories* on page 5 for ordering information.)

WARNING! To avoid electrical shock, disconnect power before servicing.

Equipment surfaces may reach temperatures up to 130° C (266° F). Allow the fixture to cool before handling.

If applicable, remove all pieces of broken glass in the fixture before beginning.

To replace a lithopattern or effects glass in a rotating effects or gobo wheel:

1. Use the Pan and Tilt locks to position the fixture upright and remove the fixture's head covers.

2. Manually rotate the gobo wheel until the selected lithopattern is easy to access.

3. Locate the spring securing the litho or effect to the wheel. Pull the spring tip towards the center of the aperture. The spring will release from its groove inside the aperture.

4. Remove the spring, the underlying ring and the lithopattern.

5. Place the new lithopattern or effect into the aperture.

   Note: *Install lithopatterns with the coated side away from the lamp. Install effect glass with the smooth side toward the lamp.*

   To determine which side of the litho is coated, place the tip of a pen against each side of the litho and view it from a slight angle. On the coated side, the tip of the pen appears to touch its reflection. On the uncoated side, there appears to be a gap between the pen and its reflection.
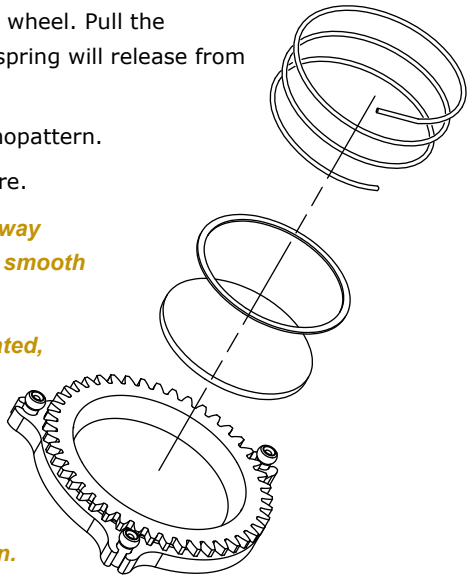
6. Place the ring over the lithopattern and replace the spring.

7. After replacing the lithopattern, clean it by using a soft, lint-free cotton cloth and a mild glass cleaning solution (*containing no ammonia*).

8. Replace the bezel.

Replacing the Animation Wheel

⚠ **WARNING! To avoid electrical shock, disconnect power before servicing.**

Equipment surfaces may reach temperatures up to 130° C (266° F). Allow the fixture to cool before handling.

Use these steps to replace the animation wheel if it is broken, or to change to a custom wheel.

Note: You can find drawings and specifications for a custom animation wheel on the intellaspot support page at www.highend.com/support/automated_luminaires.

1. Loosen the four captive screws on each side and remove the head covers.
1. Rotate and lock the head perpendicular to the electronic housing to access the color mix animation module.
2. Loosen harness connections to the color mix animation module by freeing the grommets from their slots.
3. Use a flathead screwdriver to loosen two captive screws holding the module to the head and slide the module out of the fixture.
4. Lay the module down with the Animation wheel side up.
5. Loosen the two cap screws on the wheel hub.
6. Slide the wheel and lift off the wheel shaft.
7. Place the new wheel through the keyhole slot and slide into place.
8. Retighten the cap screws on the hub.
9. Replace the module
10. Replace the harness grommets.
11. Replace the head covers.
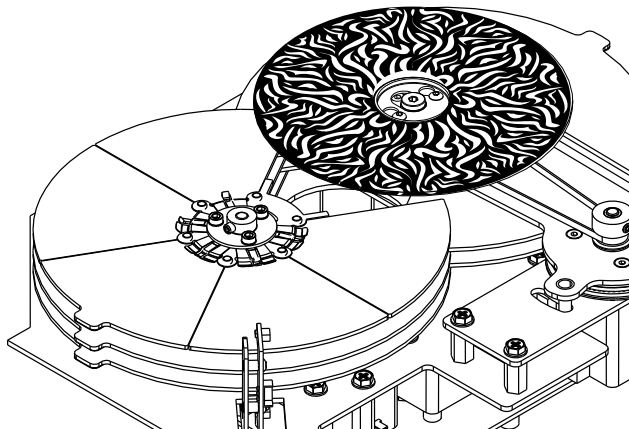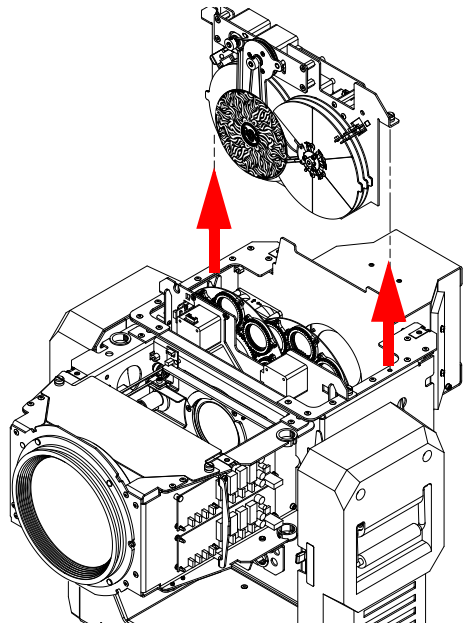
Cleaning the Fixture

Lenses, Dichroics and Lithos

⚠️ **Warnings:To avoid electrical shock, disconnect power before servicing.**

Equipment surfaces may reach temperatures up to 130° C (266° F). Allow the fixture to cool before handling.

To clean the internal glass components:

1. Disconnect power to the fixture. If the fixture has been operating, allow the fixture to cool before handling.

2. Remove the bezel by loosening the four captive screws on each side.

3. Clean the dichroics, lithopattern and effects, color wheels, and lens using a mild glass cleaner (containing no ammonia) and a soft, lint-free cotton cloth.

Filters

There are five washable filters in intellaspot fixtures. Two are behind the intake vents on the electronics housing. Two are located on the inside of one head cover and one on the other head cover.

To clean the filter:

1. Remove the filter from its location.

2. Wash with soap and water.

3. Allow to dry and then re-insert.

Bezel filters are located on the inside of each cover over air intakes.
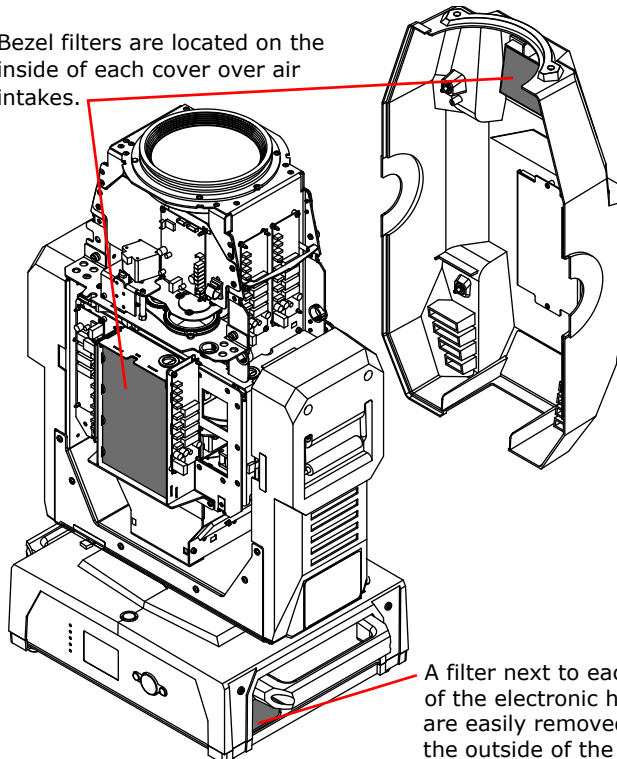
A filter next to each handle of the electronic housing are easily removed from the outside of the housing.

Troubleshooting

System State LEDs

Five labeled LEDs on the display panel indicate the following system activity:

Name	Color	State	Problem?	Description
Status	Green	On	No	(45 sec On/1.4 sec.Off) Running normal motion-control code
		Off	Yes	Fixture code not running
Lamp	White	On	No	Lamp is on
		Off	Maybe	Lamp is off
				If the Status Lamp is also off, Check that the harness is connected from the HD1 on the LED status board to HD8 on the Tilt board
		Blinking	No	Lamp is either cooling down or in a indeterminate state
CPU	Amber	Steady	No	Fixture is running code
PSU	Blue	Steady	No	40V Power Supply is running
5V	Red	Steady	No	Fixture's Motion Control system is receiving power

Board LED States

LEDs located on the CPU, 2-phase, 3-phase, and Data Communication boards help you troubleshoot the unit.

Location	LED #	State	Problem?	Description
2-phase board	LD1-LD4	Green	No	S1-S4 sensor open
		Yellow	No	S1-S4 sensor closed
		Flashing red	No	Board is ready to initialize
		Infinitely flashing red	Yes	Board not receiving data
		Red	Yes	Board not receiving data
		Flashing red and green	Yes	Addressing screw(s) missing from board
		Sporadically flashing green& yellow	Yes	2 boards are addressed the same. (Move addressing screw to appropriate location)
		OFF	Yes	Board not receiving power
	LD5	Green	No	Receiving data
		Dim green	Yes	Board not receiving data
		OFF	Yes	Board not receiving power

Location	LED #	State	Problem?	Description
3-phase board	LD1	Green	No	Board receiving proper voltage
		Dim green	Yes	Board not receiving data
		OFF	Yes	Board not receiving power
	LD2	Red	No	HD6 sensor open
		Green	No	HD6 sensor closed
		Flashing red	Yes	Board not receiving data
		OFF	Yes	Board not receiving data or power
	LD3	Green	No	Board programmed properly
		Flashing red	Yes	Board not programmed
CPU board	LD1	Orange	No	Receiving information from 2 & 3 phase boards
	LD1	Dim flickering	Yes	Not receiving information from 2 & 3 phase boards
	LD2	Green	No	Board receiving proper voltage
		OFF	Yes	Board not receiving power
	LD3	Red	No	Currently not used
	LD4	Green	No	Receiving data
		OFF	Yes, if data is applied	Not receiving data
Data Com board	Receive	Green	No	Receiving DMX data
		OFF	Yes, if data is applied	Not receiving DMX data
	Transmit	Red	No	Transmitting DMX data
		OFF	Yes, if data is applied	Not transmitting DMX data

Appendix A:

MSpeed Conversion Table

The following table lists the MSpeed (motor) movement times and their corresponding DMX controller values. If you have a numeric-type controller, use the Value Decimal (dec.) column. If you have a fader-type controller, use the Value Percentage (%) column. If your controller allows you to program hex values, use the Value (hex) column.

Time (sec.)	Value (dec.)	Value (%)	Value (hex)	Time (sec.)	Value (dec.)	Value (%)	Value (hex)	Time (sec.)	Value (dec.)	Value (%)	Value (hex)
0.15	255	100	FF	5.94	217	85	D9	23.30	179	70	B3
0.15	254	100	FE	6.25	216	85	D8	23.92	178	70	B2
0.17	253	99	FD	6.56	215	84	D7	24.54	177	69	B1
0.19	252	99	FC	6.89	214	84	D6	25.17	176	69	B0
0.21	251	98	FB	7.22	213	84	D5	25.80	175	69	AF
0.25	250	98	FA	7.56	212	83	D4	26.45	174	68	AE
0.29	249	98	F9	7.91	211	83	D3	27.10	173	68	AD
0.35	248	97	F8	8.27	210	82	D2	27.76	172	67	AC
0.41	247	97	F7	8.63	209	82	D1	28.43	171	67	AB
0.47	246	96	F6	9.00	208	82	D0	29.11	170	67	AA
0.55	245	96	F5	9.39	207	81	CF	29.80	169	66	A9
0.63	244	96	F4	9.77	206	81	CE	30.49	168	66	A8
0.73	243	95	F3	10.17	205	80	CD	31.19	167	65	A7
0.83	242	95	F2	10.58	204	80	CC	31.90	166	65	A6
0.94	241	95	F1	10.99	203	80	CB	32.62	165	65	A5
1.05	240	94	F0	11.41	202	79	CA	33.34	164	64	A4
1.18	239	94	EF	11.84	201	79	C9	34.08	163	64	A3
1.31	238	93	EE	12.28	200	78	C8	34.82	162	64	A2
1.45	237	93	ED	12.72	199	78	C7	35.57	161	63	A1
1.60	236	93	EC	13.17	198	78	C6	36.33	160	63	A0
1.75	235	92	EB	13.63	197	77	C5	37.09	159	62	9F
1.92	234	92	EA	14.10	196	77	C4	37.87	158	62	9E
2.09	233	91	E9	14.58	195	76	C3	38.65	157	62	9D
2.27	232	91	E8	15.07	194	76	C2	39.44	156	61	9C
2.46	231	91	E7	15.56	193	76	C1	39.44v	156	61	9C
2.66	230	90	E6	16.06	192	75	C0	40.23	155	61	9B
2.86	229	90	E5	16.57	191	75	BF	41.04	154	60	9A
3.07	228	89	E4	17.09	190	75	BE	41.85	153	60	99
3.29	227	89	E3	17.61	189	74	BD	42.68	152	60	98
3.52	226	89	E2	18.14	188	74	BC	43.50	151	59	97
3.76	225	88	E1	18.68	187	73	BB	44.34	150	59	96
4.00	224	88	E0	19.23	186	73	BA	45.19	149	58	95
4.25	223	87	DF	19.79	185	73	B9	46.04	148	58	94
4.52	222	87	DE	20.36	184	72	B8	46.90	147	58	93
4.78	221	87	DD	20.93	183	72	B7	47.77	146	57	92
5.06	220	86	DC	21.51	182	71	B6	48.65	145	57	91
5.34	219	86	DB	22.10	181	71	B5	49.54	144	56	90
5.64	218	85	DA	22.70	180	71	B4	50.43	143	56	8F

Time (sec.)	Value (dec.)	Value (%)	Value (hex)	Time (sec.)	Value (dec.)	Value (%)	Value (hex)	Time (sec.)	Value (dec.)	Value (%)	Value (hex)
51.33	142	56	8E	102.77	95	37	5F	175.24	46	18	2E
52.24	141	55	8D	104.05	94	37	5E	176.92	45	18	2D
53.16	140	55	8C	105.35	93	36	5D	178.61	44	17	2C
54.09	139	55	8H	106.65	92	36	5C	180.30	43	17	2B
55.02	138	54	8A	107.96	91	36	5B	182.01	42	16	2A
55.96v	137	54	89	109.28	90	35	5A	183.72	41	16	29
56.91	136	53	88	110.61	89	35	59	185.44	40	16	28
57.87	135	53	87	111.94	88	35	58	187.17	39	15	27
58.84	134	53	86	113.28	87	34	57	188.90	38	15	26
59.81	133	52	85	114.63	86	34	56	190.65	37	15	25
60.79	132	52	84	115.99	85	33	55	192.40	36	14	24
61.78	131	51	83	117.36	84	33	54	194.16	35	14	23
62.78	130	51	82	118.73	83	33	53	195.92	34	13	22
63.79	129	51	81	120.12	82	32	52	197.70	33	13	21
64.80	128	50	80	121.5v	81	32	51	199.48	32	13	20
65.82	127	50	7F	122.91	80	31	50	201.28	31	12	1F
66.85	126	49	7E	124.31	79	31	4F	203.08	30	12	1E
67.89	125	49	7D	125.73	78	31	4E	204.88	29	11	1D
68.94	124	49	7C	127.15	77	30	4D	206.70	28	11	1C
69.99	123	48	7B	128.58	76	30	4C	208.52	27	11	1B
71.05	122	48	7A	130.02	75	29	4B	210.36	26	10	1A
72.13	121	47	79	134.39	72	28	48	212.19	25	10	19
73.20	120	47	78	135.86	71	28	47	214.04	24	9	18
74.29	119	47	77	137.34	70	27	46	215.90	23	9	17
75.38	118	46	76	138.82	69	27	45	217.76	22	9	16
76.49	117	46	75	140.32	68	27	44	219.63	21	8	15
77.60	116	45	74	141.82	67	26	43	221.51	20	8	14
78.71	115	45	73	143.33	66	26	42	223.40	19	7	13
79.84	114	45	72	144.85	65	25	41	225.30	18	7	12
80.98	113	44	71	146.38	64	25	40	227.20	17	7	11
82.12	112	44	70	147.92	63	25	3F	229.11	16	6	10
83.27	111	44	6F	149.46	62	24	3E	231.03	15	6	0F
84.43	110	43	6E	151.01	61	24	3D	232.96	14	5	0E
85.59	109	43	6D	152.57	60	24	3C	234.90	13	5	0D
86.77	108	42	6C	154.14	59	23	3B	236.84	12	5	0C
87.95	107	42	6B	155.71	58	23	3A	238.79	11	4	0B
89.14	106	42	6A	157.30	57	22	39	240.75	10	4	0A
90.34	105	41	69	158.89	56	22	38	242.72	9	4	09
91.55	104	41	68	160.49	55	22	37	244.70	8	3	08
92.76	103	40	67	162.09	54	21	36	246.68	7	3	07
93.98	102	40	66	163.71	53	21	35	248.68	6	2	06
95.21	101	40	65	165.33	52	20	34	250.68	5	2	05
96.45	100	39	64	166.96	51	20	33	246.68	7	3	07
97.70	99	39	63	168.60	50	20	32	248.68	6	2	06
98.95	98	38	62	170.25	49	19	31	250.68	5	2	05
100.22	97	38	61	171.91	48	19	30	252.68	4	2	04
101.49	96	38	60	173.57	47	18	2F				

Appendix B:

Important Safety Information

Warning: For Continued Protection Against Fire

1. This equipment is designed for use with specified lamps only. Use of any other type lamp may be hazardous and may void the warranty.

2. Do not mount on a flammable surface.

3. Maintain minimum distance of 1.0 meter (3 feet) from combustible materials.

4. Replace fuses only with the specified type and rating.

5. Observe minimum distance to lighted objects of 3.0 meter (10 feet).

6. This equipment for connection to branch circuit having a maximum overload protection of 20 A.

Warning: For Continued Protection Against Electric Shock

1. If this equipment was received without a line cord plug, attach the appropriate line cord plug according to the following code:

- brown–live

- blue–neutral

- green/yellow–earth

2. In the United Kingdom, the colours of the cores in the mains lead of this equipment may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- the core which is coloured green and yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol ⏚, or coloured green or green and yellow.

- the core which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

- the core which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

3. Class I equipment. This equipment must be earthed.

4. Equipment suitable for dry locations only. Do not expose this equipment to rain or moisture.

5. Disconnect power before re-lamping or servicing.

6. Refer servicing to qualified personnel; no user serviceable parts inside.

Warning: For Continued Protection Against Exposure To Excessive Ultraviolet (UV) Radiation

1. Change shields and lenses if they have become visibly damaged to such an extent that their effectiveness is impaired, for example by cracks or deep scratches.

2. Never look directly at the lamp while lamp is on.

Warning: For Continued Protection Against Injury To Persons

1. Use secondary safety cable when mounting this fixture.

2. Caution: Hot lamp may be an explosion hazard. Do not open for 5 minutes after switching off. Wear eye and hand protection when re-lamping.

3. Equipment surfaces may reach temperatures up to 160° C (320° F). Allow a minimum of 10 minutes for cooling before handling.

4. Change the lamp if it becomes damaged or thermally deformed.

Appendice B: Importantes Informations Sur La Sécurité

Mise En Garde: Pour Une Protection Permanente Contre Les Incendies

1. Cet appareil est conçu pour l'usage avec les lampes spécifiées seulement. Son utilisation avec tout autre type de lampe peut être dangereuse et annuler la garantie.

2. Ne pas monter les lampes sur une surface inflammable.

3. Maintenir à une distance minimum de 1.0 mètre de matières inflammables.

4. Ne remplacer les fusibles qu'avec des modèles et valeurs assignées recommandés.

5. Respecter une distance minimum de 4.0 mètre par rapport aux objets éclairés.

6. Cet appareil de connection au circuit comporte une protection contre les surcharges de 20 A.

Mise En Garde: Pour Une Protection Permanente Contre Les Chocs Électriques

1. Si cet équipement est livré sans prise de cable, veuillez connecter la prise de cable correcte selon le code suivant:

- marron - phase
- bleu - neutre
- vert/jaune - terre

2. Débrancher le courant avant de changer les lampes ou d'effectuer des réparations.

3. Cet équipement doit être uniquement utilisé dans des endroits secs. Ne pas l'exposer à la pluie ou l'humidité.

4. À l'intérieur de l'équipement il n'y a pas de pièces remplaçables par l' utilisateur. Confiez l'entretien à un personnel qualifié.

5. Equipement de Classe I. Cet équipement doit être mis à la terre.

Mise En Garde: Pour Une Protection Permanente Contre Des Expositions Excessives Aux Rayons Ultra Violets (UV)

1. Changer les blindages ou les écrans s'ils sont visiblement endommagés au point que leur efficacité aient été altérée, par exemple par des fissures ou de profondes égratignures.

2. Ne jamais regarder directement la lampe quand celle ci est allumée.

Mise En Garde: Pour Une Protection Permanente Contre Les Blessures Corporelles

1. Lors de l'assemblage, utiliser un câble de sécurité secondaire.

2. AVERTISSEMENT: Les lampes chaudes comportent un risque d'explosion. Après l'avoir éteinte, attendre 5 minutes avant de la dégager. Lors du remplacement de la lampe, une protection des yeux et des mains est requise.

3. Les surfaces de l'appareil peuvent atteindre des températures de 160 C. Laisser refroidir pendant 5 minutes avant la manipulation.

4. Changer la lampe si elle est endommagée ou thermiquement déformée.

Anhang B: Wichtige Hinweise Für Ihre Sicherheit

Warnung: Zum Schutz Vor Brandgefahr

1. Diese Ausrüstungen sind für Gebrauch mit angegebenen Lampen nur entworfen. Der Gebrauch irgend eines anderen Lampentyps könnte Sie gefährden und Ihre Garantie außer Kraft setzen.

2. Das Gerät nie auf einer feuergefährlichen Fläche montieren.

3. Stets einen Mindestabstand von 1 Meter zu brennbaren Materialien einhalten.

4. Zum Ersatz nur Sicherungen verwenden, die dem vorgeschriebenen Typ und Nennwert entsprechen.

5. Einen Mindestabstand von 4 Meter zu den angestrahlten Objekten einhalten.

6. Dieses Gerät darf nur an eine Zweigleitung mit einem Überlastungsschutz von höchstens 20 A angeschlossen werden.

Warnung: Zum Schutz Gegen Gefährliche Körperströme

1. Wenn dieses Gerät ohne einen Netzkabelstecker erhalten wurde, ist der entsprechende Netzkabelstecker entsprechend dem folgenden Code anzubringen:

- Braun - Unter Spannung stehend
- Blau - Neutral
- Grün/Gelb - Erde

2. Vor dem Austauschen von Lampen oder vor Wartungsarbeiten stets den Netzstecker ziehen.

3. Diese Geräte sind nur zum Einbau in trockenen Lagen bestimmt und müssen vor Regen und Feuchtigkeit geschützt werden.

4. Servicearbeiten sollten nur von Fachpersonal ausgeführt werden. Das Gerät enthält keine wartungsbedürftigen Teile.

5. Dieses Gerät gehört zur Klasse I. Dieses Gerät muß geerdet werden.

Warnung: Zum Schutz Gegen Übermässige Ultraviolett (UV)-Bestrahlung

1. Die Schutzabdeckungen, Linsen und der UV-Schutz müssen ausgewechselt werden, wenn sie sichtlich dermaßen beschädigt sind, daß sie ihre Wirksamkeit einbüßen, z.B. infolge von Rissen oder tiefen Kratzern.

2. Nie direkt in die eingeschaltete Lampe schauen.

Warnung: Zum Schutz Vor Verletzungen

1. Verwenden Sie bei der Installation des Beleuchtungskörpers ein zusätzliches Sicherheitskabel.

2. VORSICHT: Bei einer heiße Lampe besteht Explosionsgefahr. Nach dem Abschalten der Netzspannung sollten Sie etwa 5 Minuten warten, bevor Sie das Lampengehäuse öffnen. Schützen Sie beim Auswechseln der Lampen Ihre Hände und tragen Sie eine Schutzbrille.

3. Die Oberflächen des Gerätes können Temperaturen bis zu 160 C erreichen. Vor dem Anfassen stets 5 Minuten lang abkühlen lassen.

4. Falls die Lampe beschädigt oder durch Wärmeeinwirkung verformt ist, muß sie ausgewechselt werden.

Apéndice B: Información Importante De Seguridad

Advertencia: Para Protección Continua Contra Incendios

1. Este equipo se diseña para el uso con lámparas especificadas sólo. El uso de cualquier otro tipo de lámpara puedá resultar peligroso, y puedá anular la garantía.

2. No monte el equipo sobre una superficie inflamable.

3. Mantenga una distancia mínima de materiales combustibles de 1,0 metro.

4. Cambie los fusibles únicamente por otros que sean del tipo y la clasificación especificadas.

5. Guarda una distancia mínima a objetos iluminados de 4,0 metro.

6. Este equipo debe conectarse a un circuito que tenga una protección máxima contra las sobrecargas de 20 A.

Advertencia: Para La Protección Continua Contra Electrocuciones

1. Si se recibió este equipo sin el enchufe de alimentacion, monte usted el enchufe correcto según el clave siguente:

- moreno - vivo

- azul - neutral

- verde/amarillo - tierra

2. Desconecte el suministro de energía antes de recambiar lámparas o prestar servicio de reparación.

3. Questa apparecchiatura e' da usarsi in ambienti secchi. Non e' da essere esposta ne alla pioggia ne all' umidita'.

4. Derive el servicio de reparación de este equipo al personal calificado. El interior no contiene repuestos que puedan ser reparados por el usuario.

5. Equipo de Clase I. Este equipo debe conectarse a la tierra.

Advertencia: Para Protección Continua Contra La Exposición A Radiación Ultravioleta (UV) Excesiva

1. Cambie el blindaje, los lentes si nota una avería visible, a tal grado que su eficacia se vea comprometida. Por ejemplo, en el caso de grietas o rayaduras profundas.

2. Jamás mire directamente a la lámpara en tanto ésta esté encendida.

Advertencia: Para Protección Continua Contra Lesiones Corporales

1. Al montare questa apparechiatura, usare un secondo cavo di sicurezza.

2. Precaución: Una lámpara caliente puede constituir un peligro de explosión. No la abra por 5 minutos luego de haberla apagado. Lleve puestos, un protector ocular, y guantes al recambiar lámparas.

3. Las superficies del equipo pueden alcanzar temperaturas máximas de 160 grados centígrados. Deje que se enfríen por 5 minutos antes de tocarlas.

4. Cambie la lámpara si ésta se avería o deforma por acción térmica.

Appendice B: Importanti Informazioni Di Sicurezza

Avvertenza: Per Prevenire Incendi

1. Quest'apparecchiatura è disegnata per l'uso con le lampade specificate soltanto. L'uso di qualunque altra lampada di tipo può essere pericoloso e può nullo la garanzia.

2. Da non montare sopra una superficie infiammabile.

3. Mantenere l' apparecchio a un minimo di 1.0 metri (3.28 piedi) di distanza dai materiali combustibili.

4. Rimpiazare i fusibili usando soltanto quelli del tipo e della taratura adatta.

5. Mantenere una distanza minima di 4.0 metri (6.56 piedi) dagli oggetti accesi.

6. Questa apparecchiatura e' da collegarsi ad un circuito con una protezzione da sovraccarico massima di 20 amperes.

Avvertenza: Per Prevenire Le Scosse Elettriche

1. Se questa apparecchiatura è stata consegnata senza una spina del cavo di alimentazione, collegare la spina appropriata del cavo di alimentazione in base ai seguenti codici:

- marrone - sotto tensione
- blu - neutro
- verde/giallo - terra

2. Disinnestare la corrente prima di cambiare la lampadina o prima di eseguire qualsiasi riparazione.

3. Este equipo se adecua a lugares secos solamente. no lo exponga a la lluvia o humedad.

4. Per qualsiasi riparazione rivolgersi al personale specializzato. L' utente non deve riparare nessuna parte dentro l' unita'.

5. Aparecchio di Classe I. Questa apparecchiatura deve essere messa a terra.

Avvertenza: Per Proteggersi Contro Le Radiazioni Dei Raggi Ultravioletti

Non usare questa apparecchiatura se il sistema di chiusura della lampadina non e' completo o se gli scudetti, le lenti, si sono visibilmente danneggiati di maniera tale che la loro efficacia sia stata ridotta --- ad esempio, se vi sono visibili spaccature o graffi profondi. Mai guardare direttamente verso la lampadina quando sia accesa.

Avvertenza: Per Non Ferire Ad Altre Persone

1. Use cable secundario de seguridad al montar este aparato.

2. Avvertenza: La lampadina calda potrebbe esplodere. Spegnerla per 5 minuti prima di aprirla. Usare protezzioni per le mani e per gli occhi prima di cambiare la lampadina.

3. Le superfici della apparecchiatura possono arrivare a temperature di 160 gradi centrigradi (194 gradi f). Aspettare 5 minuti prima di maneggiare.

4. Cambiare la lampadina se si danneggia o se si e' deformata dovuto alle alte temperature.

Vigtig Sikkerhedsinformation

Advarsel: Beskyttelse mod elektrisk chock.

VIGTIGT!

LEDEREN MED GUL/GROEN ISOLATION MAA KUN TILSLUTTES KLEMME MAERKET ⏚ ELLER ⏚ .