# ⊘Strand

# Light Pack

## IGBT Dimming Module - 120v

750W & 1200W Models

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Light Pack 120v Dimming Module Installation & Operation Guide

## Important Safeguards

When using electrical equipment, basic safety precautions should always be followed including the following:

  a. **READ AND FOLLOW ALL SAFETY INSTRUCTIONS**.

  b. Do not use outdoors.

  c. Do not mount near gas or electric heaters.

  d. Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.

  e. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.

  f. Do not use this equipment for other than intended use.

  g. Refer service to qualified personnel.

**SAVE THESE INSTRUCTIONS**.

**WARNING:** You must have access to a main circuit breaker or other power disconnect device before installing any wiring. Be sure that power is disconnected by removing fuses or turning the main circuit breaker off before installation. Installing the device with power on may expose you to dangerous voltage and damage the device. A qualified electrician must perform this installation.

**WARNING:** Refer to National Electrical Code® and local codes for cable specifications. Failure to use proper cable can result in damage to equipment or danger to persons.

**WARNING:** To reduce the risk of fire or shock hazard, do not expose this equipment to rain or moisture.

# TABLE OF CONTENTS

# PREFACE

## About this Guide

The document provides installation and operation instructions for the following products:

- Light Pack 120v Dimming Module - 750 watt
- Light Pack 120v Dimming Module - 1200 watt

Please read all instructions before installing or using this product. *Retain this guide for future reference*.

⚠ **IMPORTANT INFORMATION. PLEASE READ!**

This unit is intended for installation in accordance with the National Electric Code® and local regulations. It is also intended for indoor applications only. Before any electrical work is performed, disconnect power at the circuit breaker or remove the fuse to avoid shock or damage to the control. It is recommended that a qualified electrician perform this installation.

Observe the following precautions when installing, operating or servicing the product:

- Disconnect power before servicing.
- Install in dry locations only.
- DO NOT power module from a dimmed source. Connect to standard power or mechanical relay ONLY.
- Use the included safety cable for ALL installations.
- If installing any other type of mounting hardware or bracket, DO NOT use screws longer than 1/4" in length. Longer screws WILL damage interior electrical components.

# ABOUT THE LIGHT PACK DIMMING MODULE

The Light Pack dimming module utilizes state-of-the art Insulated Gate Bipolar Transistor (IGBT) technology, which provides significant performance enhancements over other conventional dimming equipment. The module is completely solid-state, enabling silent operation at 800 microseconds in either forward or reverse phase control, which minimizes lamp, ballast and transformer noise. The module supports LOW HARM mode, which controls harmonic neutral currents for extremely quiet operation and low neutral harmonics. As well, every Light Pack module has an on-board intelligent microprocessor, which adjusts and maintains proper voltage and current in response to changes detected in the load and electrical service. The microprocessor automatically suppresses surges, protects against dead shorts, and extends lamp life.

The 750 watt and 1200 watt versions of the Light Pack module can be easily identified by the label applied to the underside of the module *or* the label next to the Focus button.
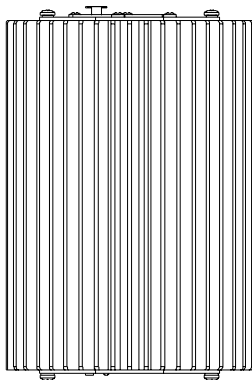
TOP VIEW
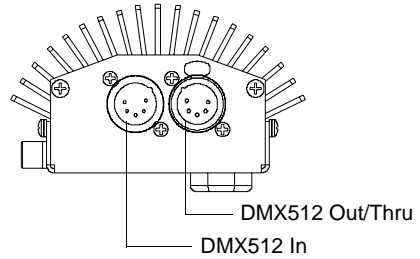
DMX512 Out/Thru

DMX512 In

Version Label
7 = 750W 6.5A
12 = 1200W 10A

LED Status Indicators

Focus Button

18" Pigtail *
Power Out (to fixture)

36" Pigtail *
Power In (to module)

*\* Pre-installed connector is optional.*

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# INSTALLATION

The Light Pack module can be mounted in a variety of configurations. Depending on your requirements, choose one of the methods shown below. The Light Pack module can be mounted vertically (recommended) or horizontally as required, however, to allow for optimum convection cooling, the module cannot be mounted with the heatsink fins downward.
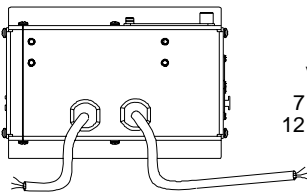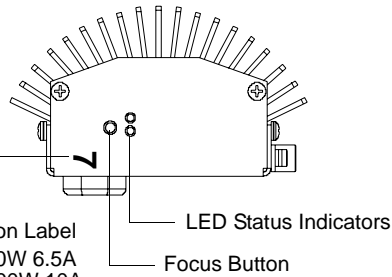
Incorrect

**WARNING:** A safety cable is supplied with the Yoke and Pipe mounts. The safety cable must be secured to the fixture or structure and may be required by local codes.

## Yoke Mount

*(Strand #71340) \*\**

Step  1.  Attach yoke-mount bracket to Light Pack module (as required).

Step  2.  Fit bracket onto fixture yoke.

Step  3.  Tighten threaded attachment knob to secure in place.

Step  4.  Attach safety cable.

4 Each, No. 8-32 Thread
8-32 x .25" Long (Max)
82° Flat Head

TOP VIEW

Yoke-Mount Bracket

Yoke     Knob
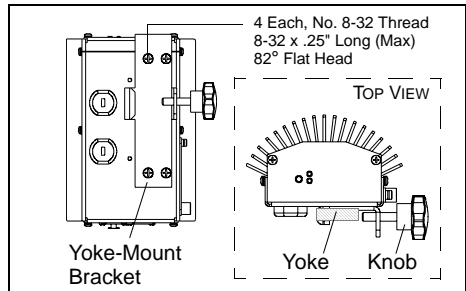
## Wall Mount

*(Strand #71341) \*\**

Step  1.  Attach wall-mount bracket to Light Pack module (as required).

Step  2.  At wall, locate suitable installation position.

Step  3.  Using Light Pack mounting bracket as template, mark holes for drilling.

Step  4.  Drill mounting holes and secure Light Pack module to wall.

Bracket

SIDE VIEW

Mounting Holes

Wall
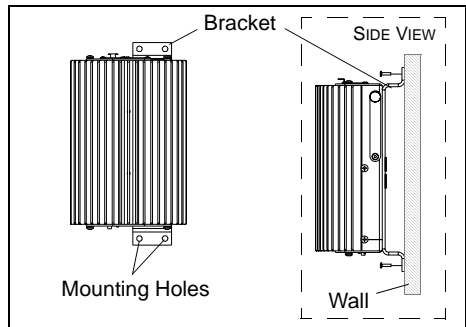
## Pipe Mount

*(Strand #71342) \*\**

Step  1.  Attach threaded knob or C-clamp (not supplied) to Light Pack mounting bracket (as required).

Step  2.  Fit bracket over pipe\*.

Step  3.  Tighten knob (or clamp) to secure in place.

Step  4.  Attach safety cable.

Bracket  Knob  **OR**

Pipe

C-Clamp
(not supplied)
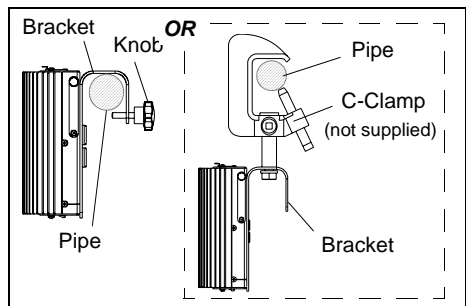
Pipe

Bracket

\*    Mounts to 1.5" schedule 40 pipe *or* 2" aluminum tube truss.
\*\*  Installation of mounting bracket must be done using the (4) supplied screws. Using other screws can result in damage to the unit. Supplied screws are 8-32 x .25" long (max) 82° flat head.

# CONNECTING POWER

The Light Pack module is supplied with two pigtail type cables. In the event your module did not come pre-configured with power connectors, install connectors meeting your requirements at end of each cable. Refer to the following color code diagram:



**18" Pigtail Power Out (to fixture)**

**36" Pigtail Power In (to module)**

| Red (Load) | Black | *To Hot Line* |
| White (Neu) | White | *To Neutral* |
| Green (Grn) | Green | *To System Ground* |

Fixture    18" Wire Leads       36" Wire Leads

*Female Connector*       *Male Connector*
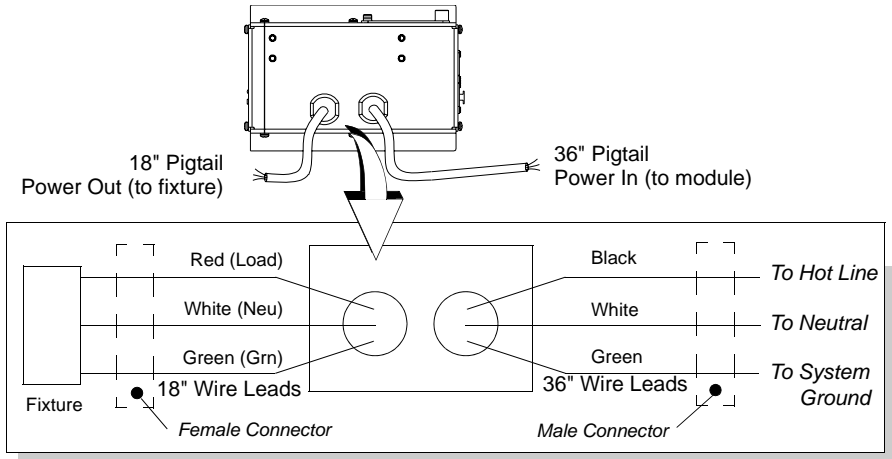
**WARNING:** DO NOT power module from a dimmed source. Connect to standard power or mechanical relay ONLY.

Connect the 18" pigtail to the fixture and the 36" pigtail to the system power source. (The Light Pack module will power up when the system power source is applied.)

Light Pack is rated to control any dimmable load - incandescent, fluorescent, or general inductive (Forward Phase Control [FPC] only).

# CONNECTING DATA

The Light Pack module supports standard USITT DMX512/1990 protocol. Connect data cabling as follows:



DMX512 In Cable ————       DMX512 Out/Thru Cable *or* Termination Plug
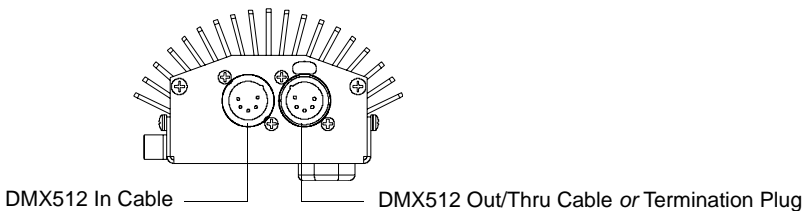
A termination plug (Strand # 71346) is required at the last module in the data link.

# SETTING MODE AND ADDRESS

Light Pack operating parameters, such as input/output modes and DMX512 addresses, can be easily configured to meet your requirements using the switches located inside the recess panel. The standard DIP switches configure input/output modes, while three rotary switches configure address and effects settings by providing three numerical dials: 100's, 10's and 1's digits respectively.

For example, to set a DMX512 address (slot) of 355, you would set the 100's dial to "3", the 10's dial to "5", and the 1's dial to "5". To configure the input/output modes, set each of the four standard DIP switches to either the ON or OFF setting. This toggles between two presets such as Non-Dim or Dim.

Thumbscrew
Address Dials
DIP Switches

**To access Dials and DIP Switches:**

Step  1.  At side of module, locate recess panel.

Step  2.  Loosen thumbscrew and rotate cover.
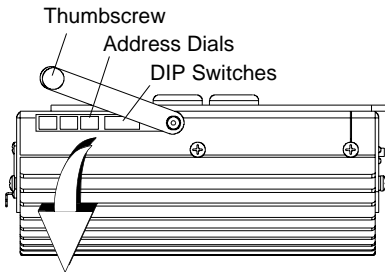
Step  3.  Using #0 (small) flat head screwdriver, set dials as required. Refer to diagram below.

| 100 | 10 | 1 |

| 1 | 2 | 3 | 4 |

ON ↓

○— Mode LED
*(see table)*

000 = Disabled *(only Focus button active)*

001-512 = DMX512 Address

*513-599 = For future use*

6XX = Flicker Effect *(controlled by DMX512)*
     where XX is DMX512 address 01-99

7XX = Effects
     where XX is effect parameter
     *(refer to Effects section on next page)*

8XX = Fixed Light Output (Dim) Level
     where XX is % level (99%=100%)

9XX = R21 Powered Raceway Address
     where XX is address (901-996)
     *(Note: 997-999 are used for Test Mode)*

↑ Non-Dim
↓ Dim*

↑ 120 VAC
↓ 115 VAC*

↑ Reverse Phase Control
↓ Forward Phase Control*

↑ 450 microseconds
↓ 800 microseconds*

* Default Setting

The **Mode LED,** located next to the DIP switch, indicates the following conditions:

| LED Flashing Status | Condition |
|---|---|
| Rapid blink | Invalid address setting |
| One blink On - delay | Valid DMX512 address |
| Two blinks On - delay | Valid DMX512 address and receiving DMX512 |
| Slow blink | Effects address setting |
| One blink Off - delay | Valid Powered Raceway address |
| Two blinks Off - delay | Valid R21 Raceway address and receiving R21 data |

# EFFECTS

When set to 7XX, the rotary DIP switch settings can be used to create simple effects without DMX control. Effect parameters can be set as follows:

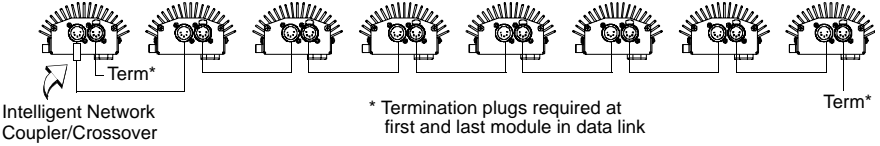| Dial Settings | Effect | Description |
|---|---|---|
| 70X - where X is ramp time | Bounce Up | ramp up, instant off (100% intensity) |
| 71X - where X is ramp time | Bounce Down | instant on, ramp down (100% intensity) |
| 72X - where X is ramp time | Saw Tooth | ramps up, ramps down |
| 73X - where X is toggle time | Bump | 50% on/off toggle |
| 74X - where X is time off | Blink On | 12% on, 88% off |
| 75X - where X is time on | Blink Off | 12% off, 88% on |
| 76X - where X is speed | Strobe | variable speed strobe |
| 77X - where X is lamp intensity | Flame Flicker | random flicker and intensity |
| 78X - where X is rate | Bell Curve | ramps up, holds, ramps down |
| 79X | *for future use* | n/a |

## Intelligent Effects Network

Effects can be synchronized across a network of Light Pack modules to create chase, runway and wave sequences. For this purpose, eight unique phase shifts are output from the first module in the data link, transmitting on DMX512 addresses 002-008. To utilize this feature, an Intelligent Effects Network Coupler (Strand Lighting Part Number 71347) will be required at the first module in the link.

**To create effects using the Intelligent Effects Network, do the following:**

Step   1.   Using data cables, connect Light Pack modules as shown below. At first module data input, install Intelligent Effects Network Coupler. At first and last module, install DMX512 termination plug (Strand Lighting Part Number 71346).

Step   2.   The first Light Pack module's address (slot) will automatically be considered as 001. Set subsequent module addresses to any number between 002 and 008. These can be in numerical order or out of sequence. The address setting will determine the delay and execution order of the effect at that particular module.

Step   3.   At first module, using rotary dials, set to desired effect (7XX).

Step   4.   Apply power. Effect will execute across network.

Step   5.   Adjust address settings to vary effect execution as required.
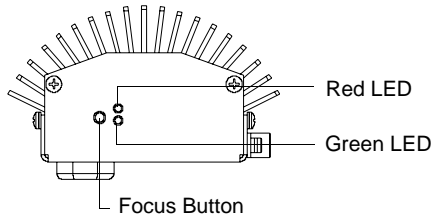
**Intelligent Effects Network - Up to 64 Light Pack Modules**

| *Example Address Settings* | 001 | 002 | 003 | 004 | 005 | 006 | 007 | 008 |
|---|---|---|---|---|---|---|---|---|
| | 001 | 008 | 002 | 007 | 003 | 006 | 004 | 005 |
| | 001 | 003 | 005 | 007 | 002 | 004 | 006 | 008 |

Term*

Intelligent Network Coupler/Crossover

\* Termination plugs required at first and last module in data link

Term*

# OPERATION

The Light Pack module provides two LED status indicators and a Focus button.

Red LED

Green LED

Focus Button

The **LED indicators** report operating conditions as follows:

| Red LED | Green LED | Condition |
|---|---|---|
| Off | Off | Normal |
| Off | Flashing | No Load |
| Off | On | Focus Mode (controlled at dimmer) |
| Flashing (1.5 sec on, .5 off) | Off | Oversized Load or Overload |
| Flashing (.5 sec on, .5 off) | Off | Over Temperature |
| On | Off | No communications |
| Flashing | Flashing | Over Voltage |
| On | On | No Communications / In Focus Mode |

The **Focus button** can be used to quickly set the output level or test the module.

- If the module is off, a tap on the button will take it to full on.
- If the module is on, a tap will turn it off.
- Whether on or off, pressing and holding the button will ramp up the intensity level. Releasing the button will hold the setting at an intermediate level.

Fixtures turned on in this fashion will remain on until a control console sets a non-zero level for the module. The module's level setting will be cancelled and it will now follow console control. If the module is already set to a non-zero level by the console, the button becomes a "Flash-to-Full" control, overriding the level only while the button is pressed.

# SPECIFICATIONS

| | | | |
|---|---|---|---|
| Number of Dimmers: | 1 IGBT Intelligent Dimmer | Ambient Temperature: | 0° to 50° C |
| Max Output Voltage: | 120 VAC | Relative Humidity: | 5% to 95%, non condensing |
| Min./Max Dimmer Load: | Min. 1 Watt, Max. 750 or 1200 Watts* | Cooling Method: | Natural Convection |
| Transition Time: | 450 or 800 microseconds (user selectable) | Height: | 6.82" |
| Insertion Loss: | Max. 1.5 Volts (2%) | Width: | 4.53" |
| Supply: | 120 Volts AC, 6.5A or 10A per module* | Depth: | 2.93" (750 Watt) 3.18" (1200 Watt) |
| Frequency: | 50 / 60 Hz | Weight: | 2.0 lbs. |
| Control Connections: | USITT DMX512/1990 In (D5M) / Out/Thru (D5F) | Power In Feed: | 36" Pigtail provided from module is 3-#14 AWG |
| Circuit Protection: | Internal Short Circuit & Thermal Protection | Power Out Feed: | 18" Pigtail provided from module is 3-#14 AWG |
| Load Control: | Any dimmable load - incandescent, fluorescent, or general inductive *(Forward Phase Control only)* | DMX512 Data Link Load | Represent 1/4 ETA 485 Unit Load |

*\* Depends on model*

# CATALOG NUMBER REFERENCE

## Light Pack 120v Modules

| Strand P/N | Description |
|------------|-------------|
| 71300 | Light Pack 750 watt, Bare Leads |
| 71301 | Light Pack 750 watt, with GP connectors |
| 71302 | Light Pack 750 watt, with GTL connectors |
| 71303 | Light Pack 750 watt, with GR connectors |
| 71310 | Light Pack 1200 watt, Bare Leads |
| 71311 | Light Pack 1200 watt, with GP Connectors |
| 71312 | Light Pack 1200 watt, with GTL connectors |
| 71313 | Light Pack 1200 watt, with GR connectors |

## Light Pack 120v Module Accessories

The following accessories are sold separately and available through your local Authorized Strand Lighting dealer. For the dealer in your area or for more information on Light Pack Modules and accessories, visit the Strand Lighting web site at www.strandlighting.com.

| Strand P/N | Description |
|------------|-------------|
| 71340 | Yoke Mount Bracket |
| 71341 | Wall Mount Bracket |
| 71342 | Pipe Mount Bracket |
| 71345 | Network Coupler - 5 pin Female to Female Turnaround |
| 71346 | DMX512 Terminator |

# NOTES

# NOTES

# TECHNICAL SUPPORT

## GLOBAL 24HR TECHNICAL SUPPORT:

Call: +1 214 647 7880

entertainment.service@signify.com

## NORTH AMERICA SUPPORT:

Call: 877-VARI-LITE (877-827-4583)

entertainment.service@signify.com

## EUROPEAN CUSTOMER SERVICE CENTER:

Call: +31 (0) 543 542 531

entertainment.europe@signify.com