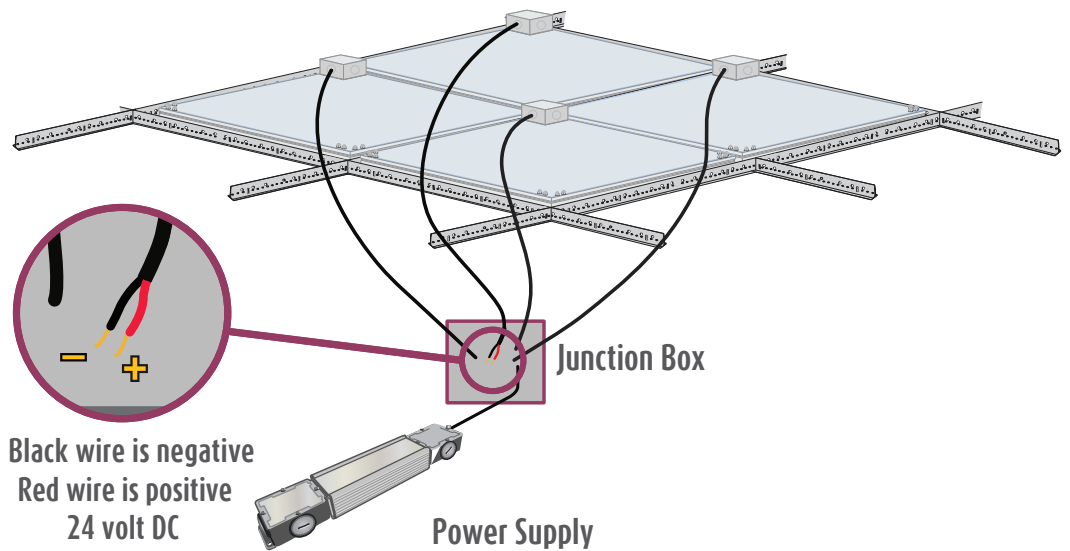




## Standard w/ EcoSlim Electrical Instructions (HLG)



### Installation Instruction includes:

Standard w/ EcoSlim Electrical Instructions (HLG)

Wiring Diagram EL001180

Number of ES22 Series Fixtures per HLG Power Supply

Number of ES24 Series Fixtures per HLG Power Supply

Wire Sizing Chart

Custom SkyCeiling wiring diagram (where applicable)

For technical support at any time during the installation, please call us **toll free at 866-759-3228**.

We want your installation to go as smoothly as possible. Thank you for choosing The Sky Factory.

## Standard w/ EcoSlim Electrical Requirements:

ES22 Series: ES22 (2' x 2'), ES22M (60cm x 60cm), ES22G (62.5cm x 62.5cm)

ES24 Series: ES24 (2' x 4'), ES24M (60cm x 120cm), ES24G (62.5cm x 125cm)

NOTE: For custom sizes, see Custom SkyCeiling wiring diagram (where applicable)

All EcoSlim fixtures are 24V DC only.

EcoSlim fixtures must be powered only by provided UL Recognized, CE Compliant 24V DC power supply

Dry locations only.

For number of fixtures per power supply, see

“Number of ESXX Series Fixtures per HLG Power Supply” on page 6-7

For installations with one or more custom sizes, see

Custom SkyCeiling wiring diagram attached

For dimming requirements, see page 4.

RF filter, if used, is not provided by The Sky Factory.

*Electrical work must be performed by a qualified electrician who is familiar with DC lighting systems and must conform to all local and national codes.*

Sky Factory provided external dimmable power supply:

Input (Typ) 90-305V, 47 - 63 Hz

Output 24V DC

UL (U.S. and Canada) Recognized and CE Compliant

Surface mountable

HLG-80H only:

Class 2, UL8750 Listed and CE compliant

Junction box on both input and output ends

Junction box wiring access holes limited to 1/2" nominal trade size conduit

Suitable for dry/damp/wet locations

Sky Factory provided dimmer control (where specified)

Lutron Diva DVSTV 0 - 10V sliding dimmer/switch (UL & CSA compliant)

Input: auto-ranging 120 - 277V AC

Lutron Lyneo preset 0 - 10V sliding dimmer/switch and external relay (CE compliant):

Input: 220 - 240V AC

## Step 1: Wiring the EcoSlim fixtures to the power supply

See supporting drawing and charts on pages 5-8 and Custom SkyCeiling wiring diagram (where applicable)

| EcoSlim Lighting System - ES22 and ES24 |                               |         |                      |                             |
|-----------------------------------------|-------------------------------|---------|----------------------|-----------------------------|
| TSF Model No.                           | Dimensions: WxLxH             | Weight  | System Wattage (Max) | Input Current @ 24 Volts DC |
| ES22                                    | 23.75 x 23.75 x 3.72 (inches) | 10.5 lb | 24                   | 1.0 A                       |
| ES24                                    | 23.75 x 47.75 x 3.72 (inches) | 19.7 lb | 36                   | 1.5 A                       |
| ES22M                                   | 59.4 x 59.4 x 9.45 (cm)       | 4.76 kg | 24                   | 1.0 A                       |
| ES24M                                   | 59.4 x 119.4 x 9.45 (cm)      | 8.94 kg | 36                   | 1.5 A                       |
| ES22G                                   | 61.9 x 61.9 x 9.45 (cm)       | 4.76 kg | 24                   | 1.0 A                       |
| ES24G                                   | 61.9 x 124.4 x 9.45 (cm)      | 8.94 kg | 36                   | 1.5 A                       |

NOTE: For custom sizes, see also Custom SkyCeiling wiring diagram



**Notice:** The LED fixtures are 24V DC ONLY.

**AC voltage connected directly to the fixtures will destroy the lighting system.**

Fixtures may be arranged in rows or clusters, depending on the installation.

A junction box with 1/2" trade size knock-outs is attached on top corner of each fixture.

- Power leads inside fixture junction box are polarized, red (+) to (+) and black (-) to (-).
- Wire size 18 AWG stranded.

Wiring from fixtures to V DC side of provided power supply is polarized, positive (+) to positive (+) and negative (-) to negative (-):

EcoSlim fixture red "+" to power supply **V+ (RED)**

EcoSlim fixture black "-" to power supply **V- (BLACK)**

Power supply V DC wire size 18 AWG on 40-80w, 14 AWG on 100-600w.

Wire and additional junction boxes from fixtures to power supply provided by others.

Voltage drop will occur over long distances. For appropriate lengths and gauges, see Wire Sizing Chart.

Wire gauge must conform to local and national codes.

## Step 2: Wiring the power supply to source V AC

Run power to V AC side of the power supply. Power supply V AC wire size 18 AWG.

Line to **ACL (BROWN)**

Neutral to **ACN (BLUE)**

Ground to  **(GREEN/YELLOW)**

Wire gauge must conform to local and national codes.

Install the power switch on the V AC input side of the power supply.

## Step 3: Dimming requirements

Contact the Sky Factory if you plan on using a dimming system provided by others.



**Notice:** Dimming using non-approved systems may permanently damage LED's or power supply and will void the warranty!

### Wiring a Sky Factory provided dimmer control:

To wire the 0-10V dimmer control (and external relay where specified), refer to wiring diagram included with dimmer and relay and EL001180.

## Step 4: Checking the polarity



**Notice:** CHECK THE POLARITY BEFORE TURNING ON POWER. MAKE SURE:

Red wires on the fixtures go to the “+” terminals of the power supply

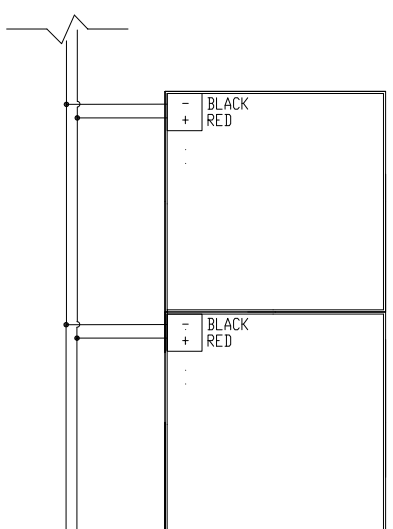
Black wires on the fixtures go to the “-” terminals of the power supply

**IF THE SYSTEM IS WIRED BACKWARD, IT WILL DESTROY THE LED'S!**

EP AND ES SERIES FIXTURES  
WITH HLG POWER SUPPLY  
DIMMING OPTION

ECOPULS  
EP22 SERIES, EP24 SERIES,  
EP26 SERIES, EP33 SERIES,  
EP34 SERIES, EP36 SERIES  
AND EP44 SERIES

ECOSLIM  
ES22 SERIES, ES24 SERIES,  
ES26 SERIES, ES33 SERIES,  
ES34 SERIES, ES36 SERIES  
AND ES44 SERIES

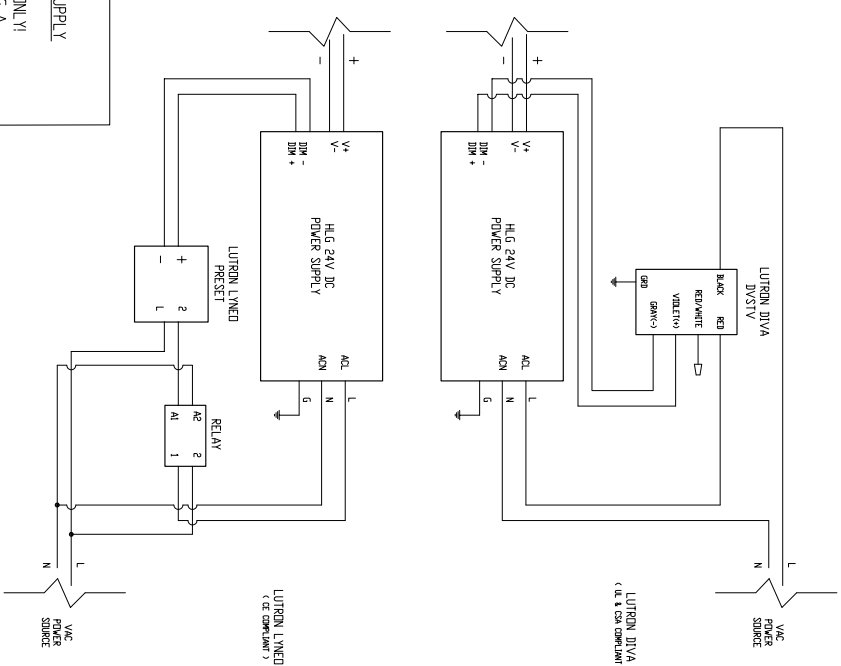


- NOTES:
1. ALL FIXTURES 24V DC ONLY.
  2. JUNCTION BOX ATTACHED TO EACH FIXTURE.
  3. WIRE SIZE 18 AWG STRANDED
  4. WIRE COLORS:

RED (+) (POSITIVE)  
BLACK (-) (NEGATIVE)

3. SEE ALSO NUMBER OF FIXTURES PER HLG POWER SUPPLY AND WIRE SIZING CHART.
4. USE OF SKY FACTORY APPROVED DIMMING SYSTEM ONLY!
5. CONTACT THE SKY FACTORY IF YOU PLAN ON USING A DIMMING SYSTEM PROVIDED BY OTHERS.
5. FOR MRI APPLICATIONS, ONE RF FILTER REQUIRED PER HLG POWER SUPPLY.

NOTICE: DIMMING USING NON-APPROVED SYSTEMS MAY PERMANENTLY DAMAGE LED'S AND WILL VOID THE WARRANTY!



|                                                                                                     |                                                                       |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>Sky Factory</b>                                                                                  |                                                                       |
| MANUFACTURER OF SKY FACTORY                                                                         | DATE: 01/01/2018                                                      |
| 1. ALL FIXTURES 24V DC ONLY.                                                                        | 2. JUNCTION BOX ATTACHED TO EACH FIXTURE.                             |
| 3. WIRE SIZE 18 AWG STRANDED                                                                        | 4. WIRE COLORS:                                                       |
| RED (+) (POSITIVE)                                                                                  | BLACK (-) (NEGATIVE)                                                  |
| 5. CONTACT THE SKY FACTORY IF YOU PLAN ON USING A DIMMING SYSTEM PROVIDED BY OTHERS.                | 5. FOR MRI APPLICATIONS, ONE RF FILTER REQUIRED PER HLG POWER SUPPLY. |
| NOTICE: DIMMING USING NON-APPROVED SYSTEMS MAY PERMANENTLY DAMAGE LED'S AND WILL VOID THE WARRANTY! |                                                                       |
| TITLE: EL001180                                                                                     | DATE: 01/01/2018                                                      |
| DESIGNED BY: SKY                                                                                    | DRAWN BY: SKY                                                         |
| CHECKED BY: SKY                                                                                     | DATE: 01/01/2018                                                      |
| SCALE: 1/8" = 1"                                                                                    | SHEET 1 OF 1                                                          |

## Number of ES22 Series Fixtures per HLG Power Supply

This table provides information for properly sizing an HLG power supply given the number of fixtures in a given installation.

| No. of Fixtures | Amperage [A] | Power [W] | HLG Power Supply 24V DC | Fixtures per Power Supply        |
|-----------------|--------------|-----------|-------------------------|----------------------------------|
| 1               | 1            | 24.0      | Contact Sky Factory     | Contact Sky Factory              |
| 2               | 2            | 48.0      | 60                      | 2 per 60                         |
| 3               | 3            | 72.0      | 80                      | 3 per 60                         |
| 4               | 4            | 96.0      | 120                     | 4 per 120                        |
| 5               | 5            | 120.0     | 150                     | 5 per 150                        |
| 6               | 6            | 144.0     | 185                     | 6 per 185                        |
| 7               | 7            | 168.0     | 185                     | 7 per 185                        |
| 8               | 8            | 192.0     | 240                     | 8 per 240                        |
| 9               | 9            | 216.0     | 240                     | 9 per 240                        |
| 10              | 10           | 240.0     | 320                     | 10 per 320                       |
| 11              | 11           | 264.0     | 320                     | 11 per 320                       |
| 12              | 12           | 288.0     | 320                     | 12 per 320                       |
| 13              | 13           | 312.0     | 150+240                 | 5 per 150, 8 per 240             |
| 14              | 14           | 336.0     | 185+185                 | 7 per 185                        |
| 15              | 15           | 360.0     | 80+320                  | 3 per 80, 12 per 320             |
| 16              | 16           | 384.0     | 240+240                 | 8 per 240                        |
| 17              | 17           | 408.0     | 120+150+240             | 4 per 120, 5 per 150, 8 per 240  |
| 18              | 18           | 432.0     | 240+240                 | 9 per 240                        |
| 19              | 19           | 456.0     | 600                     | Contact Sky Factory              |
| 20              | 20           | 480.0     | 600                     | 20 per 600                       |
| 21              | 21           | 504.0     | 600                     | 21 per 600                       |
| 22              | 22           | 528.0     | 600                     | 22 per 600                       |
| 23              | 23           | 552.0     | 600                     | 23 per 600                       |
| 24              | 24           | 576.0     | 320+320                 | 12 per 320                       |
| 25              | 25           | 600.0     | 120+600                 | 4 per 120, 21 per 600            |
| 26              | 26           | 624.0     | 80+600                  | 3 per 80, 23 per 600             |
| 27              | 27           | 648.0     | 240+240+240             | 9 per 240                        |
| 28              | 28           | 672.0     | 240+600                 | 8 per 240, 20 per 600            |
| 29              | 29           | 696.0     | Contact Sky Factory     | Contact Sky Factory              |
| 30              | 30           | 720.0     | 320+320+320             | 10 per 320                       |
| 31              | 31           | 744.0     | Contact Sky Factory     | Contact Sky Factory              |
| 32              | 32           | 768.0     | 120+240+600             | 4 per 120, 8 per 240, 20 per 600 |
| 33              | 33           | 792.0     | 320+320+320             | 11 per 320                       |
| 34              | 34           | 816.0     | Contact Sky Factory     | Contact Sky Factory              |
| 35              | 35           | 840.0     | Contact Sky Factory     | Contact Sky Factory              |
| 36              | 36           | 864.0     | 320+320+320             | 12 per 320                       |
| 37              | 37           | 888.0     | Contact Sky Factory     | Contact Sky Factory              |
| 38              | 38           | 912.0     | 600+600                 | 19 per 600                       |
| 39              | 39           | 936.0     | Contact Sky Factory     | Contact Sky Factory              |
| 40              | 40           | 960.0     | 600+600                 | 20 per 600                       |

Please contact the Sky Factory for additional or custom configurations

## Number of ES24 Series Fixtures per HLG Power Supply

This table provides information for properly sizing an HLG power supply given the number of fixtures in a given installation.

| No. of Fixtures                                                        | Amperage [A] | Power [W] | HLG Power Supply 24V DC | Fixtures per Power Supply        |
|------------------------------------------------------------------------|--------------|-----------|-------------------------|----------------------------------|
| 1                                                                      | 1.5          | 36.0      | 40                      | 1 per 40                         |
| 2                                                                      | 3            | 72.0      | 80                      | 2 per 80                         |
| 3                                                                      | 4.5          | 108.0     | 120                     | 3 per 120                        |
| 4                                                                      | 6            | 144.0     | 185                     | 4 per 185                        |
| 5                                                                      | 7.5          | 180.0     | 240                     | 5 per 240                        |
| 6                                                                      | 9            | 216.0     | 240                     | 6 per 240                        |
| 7                                                                      | 10.5         | 252.0     | 320                     | 7 per 320                        |
| 8                                                                      | 12           | 288.0     | 320                     | 8 per 320                        |
| 9                                                                      | 13.5         | 324.0     | 120+240                 | 3 per 120, 6 per 240             |
| 10                                                                     | 15           | 360.0     | 240+240                 | 5 per 240                        |
| 11                                                                     | 16.5         | 396.0     | 120+320                 | 3 per 120, 8 per 320             |
| 12                                                                     | 18           | 432.0     | 240+240                 | 6 per 240                        |
| 13                                                                     | 19.5         | 468.0     | 600                     | 13 per 600                       |
| 14                                                                     | 21           | 504.0     | 600                     | 14 per 600                       |
| 15                                                                     | 22.5         | 540.0     | 600                     | 15 per 600                       |
| 16                                                                     | 24           | 576.0     | 320+320                 | 8 per 320                        |
| 17                                                                     | 25.5         | 612.0     | Contact Sky Factory     | Contact Sky Factory              |
| 18                                                                     | 27           | 648.0     | 240+240+240             | 6 per 240                        |
| 19                                                                     | 28.5         | 684.0     | Contact Sky Factory     | Contact Sky Factory              |
| 20                                                                     | 30           | 720.0     | 320+600                 | 7 per 320, 13 per 600            |
| 21                                                                     | 31.5         | 756.0     | 240+600                 | 6 per 240, 15 per 600            |
| 22                                                                     | 33           | 792.0     | 40+240+600              | 1 per 40, 6 per 240, 15 per 600  |
| 23                                                                     | 34.5         | 828.0     | 320+600                 | 8 per 320, 15 per 600            |
| 24                                                                     | 36           | 864.0     | 320+320+320             | 8 per 320                        |
| 25                                                                     | 37.5         | 900.0     | 80+320+600              | 2 per 80, 8 per 320, 15 per 600  |
| 26                                                                     | 39           | 936.0     | 120+320+600             | 3 per 120, 8 per 320, 15 per 600 |
| 27                                                                     | 40.5         | 972.0     | 240+240+600             | 6 per 240, 15 per 600            |
| 28                                                                     | 42           | 1008.0    | 600+600                 | 14 per 600                       |
| 29                                                                     | 43.5         | 1044.0    | Contact Sky Factory     | Contact Sky Factory              |
| 30                                                                     | 45           | 1080.0    | 600+600                 | 15 per 600                       |
| 31                                                                     | 46.5         | 1116.0    | 320+320+600             | 8 per 320, 15 per 600            |
| 32                                                                     | 48           | 1152.0    | 80+600+600              | 2 per 80, 15 per 600             |
| 33                                                                     | 49.5         | 1188.0    | 120+600+600             | 3 per 120, 15 per 600            |
| 34                                                                     | 51           | 1224.0    | Contact Sky Factory     | Contact Sky Factory              |
| 35                                                                     | 52.5         | 1260.0    | Contact Sky Factory     | Contact Sky Factory              |
| 36                                                                     | 54           | 1296.0    | 240+600+600             | 6 per 240, 15 per 600            |
| 37                                                                     | 55.5         | 1332.0    | Contact Sky Factory     | Contact Sky Factory              |
| 38                                                                     | 57           | 1368.0    | 320+600+600             | 8 per 320, 15 per 600            |
| 39                                                                     | 58.5         | 1404.0    | 600+600+600             | 13 per 600                       |
| Please contact the Sky Factory for additional or custom configurations |              |           |                         |                                  |

# Wire Sizing Chart

This chart is a guideline for recommended wiring practice.

Applies to 24V DC power only, i.e. from “fixture to power supply.”

Not meant for “V AC to power supply” nor “dimmer to power supply.”

Wire sizes in AWG Conversion chart below.

| Distance: Feet (Meters)                    | AWG for 5A | AWG for 10A | AWG for 15A |
|--------------------------------------------|------------|-------------|-------------|
| 20 (6)                                     | 18         | 14          | 12          |
| 30 (9)                                     | 16         | 12          | 10          |
| 40 (12)                                    | 14         | 10          | 10          |
| 50 (15)                                    | 12         | 10          | *           |
| 60 (18)                                    | 12         | 10          | *           |
| 80 (24)                                    | 10         | *           | *           |
| 100 (30)                                   | 10         | *           | *           |
| * Terminal block wire range #10 - #22 Awg. |            |             |             |

| AWG | MM    |
|-----|-------|
| 10  | 6.271 |
| 11  | 5.156 |
| 12  | 3.302 |
| 13  | 2.629 |
| 14  | 2.088 |
| 15  | 1.652 |
| 16  | 1.308 |
| 17  | 1.039 |
| 18  | 0.823 |