



## Custom LED Lighting Installation Instructions (TSF)

### Lighting Installation Packet Includes:

Custom LED Lighting Installation Instructions (TSF)

Custom LED Electrical Drawings and Charts (TSF)

Sky Factory LSC 24PS Power System Installation

See also:

Drawings GR1, BP1, EL1, EL2, EL3, EL4, DE2 and DE3-4 included with specific Luminous SkyCeiling Installation

### Before Starting:

- All LED back pans must be carried by hanger wire. There are no end caps. End caps create light banding in the image. Refer to local codes for hanger wire size.
- Install the LED back pans prior to installing perimeter, grid and The Sky Factory Elevators and SkyTiles. (Back pans installed after perimeter where framing plates are specified.)
- Install the hanger wire for the grid before installing the back pans. See Step 1, Point 8; Grid Plan GR1; and Step 3 of specific Luminous SkyCeiling installation
- Preferred height for LED back pans is 10" – 12" (25.4 - 30.5cm) above the bottom of the grid, 8" (20.3cm) minimum. See Grid Detail DE2.

*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.*

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.

## Step 1: Installing the LED back pans

Each panel has multiple sets of holes to receive hanger wire.

- In seismic installations, these holes will also receive the seismic cables from the elevators.

Locate each back pan following drawings BP1 and EL1.

- The panels are labeled on the bottom. The label on the bottom is oriented to match drawing EL1.

### **IMPORTANT:**

GR1, BP1 and EL2 are Reflected Ceiling Plans.

The view is shown looking down from above the ceiling.

EL1 is looking up from below the ceiling.

All back pans are specifically arranged in branch circuits.

- Each branch circuit may be arranged in rows or clusters, depending on the installation.
- See EL1 and EL2.

The pans in each branch circuit are connected (wired) together with power cables.

- Each power cable goes to a specific sequence of back pans and is labeled accordingly.
- See EL2, EL3 and Step 2 for power cable details.

Back pans must be hung so the electrical connectors on the pans line up with the power cables, as shown in EL1, EL2 and EL3.

Back pans must be hung:

- 10" – 12" (25.4cm - 30.5cm) above the bottom of the grid,
- 8" (20.3cm) minimum, and
- must sit in the same plane to keep light leaks at a minimum.
- See BP1 and DE1.

All back pans must be centered directly over their prospective grid openings for proper lighting of the image.

- All straight edges are 1/16" (1.6mm) less than center of corresponding grid.
- All curved edges are 3/4" (19mm) greater than the inside diameter of corresponding perimeter angle.

All grid hanger wire must be centered directly over their prospective runners (mains) so it does not force a pan off center.

- The pans are designed to have a 1/8" (3.2mm) gap between them for the grid hanger wire to pass through.

## Step 2: Wiring the LED back pans

See drawings EL1-EL4

### IMPORTANT:

The LED light fixtures are DC ONLY.

AC voltage by-passing the power supplies and connected directly to the light fixtures will destroy the LED's.

Pre-fabricated power cables are manufactured and provided specifically for each branch circuit.

- In some installations, a branch circuit requires a primary and secondary power cable.

The primary power cable has one connector for each back pan in its branch plus a 2 Position Luminaire Disconnect.

If a secondary power cable is also required, the primary power cable will also have a connector to receive the secondary Power Cable.

Each power cable is labeled accordingly. For example, PC-1A = PC (Power Cable), 1 (Branch Circuit), and A (Primary).

- Where a secondary power cable is required, B will denote the secondary cable, as in PC-1B.

The connectors are polarized and have mating halves on the back pans.

- When the mating halves are fully inserted and lock together, you will hear a distinctive “click”.
- To unplug them, depress the latching lever and pull apart.

Power cables run on top of LED back pans.

- See EL2 for specific routes.

**IMPORTANT:** Do not run power cables under back pans unless ceiling height prohibits room for connectors on top.

If power cables must run under back pans, the back pan connectors can be relocated on the bottom of the pan.

However:

- cables must be firmly secured to the back pans so they don't hang down and break loose from the LED bars and/or obstruct the lighting, and
- cables must not be routed over and obstruct any of the LED strips.

## Step 2 (cont'd)

Power is connected to the yellow Luminaire Disconnect with Push-In style connections

- Disconnect receives 12 – 16 AWG solid or stranded

Red wire is DC positive (+) and connects to position number “1” in the Luminaire Disconnect.

- Note: the connector color for position **1** is **Black**.

Black wire is DC negative (-) and connects to position number “2” in the Luminaire Disconnect.

- Note: the connector color for position **2** is **White**.

## Step 3: Wiring the LED back pans to the power system

See applicable wiring diagram for your ceiling and Wire Sizing Chart in “Custom LED Electrical Drawings and Charts (TSF)”

For applications requiring an RF filter, see also “Step 5: Wiring the power system in MRI applications”

Power cable(s) are connected directly to the power system with wire provided by others.

Each power system has up to four branch circuits:

In non-dimmable systems, each branch is 270 Watts maximum.

- See “Sky Factory LSC 24PS Power System Installation” and wiring diagram EL001101 or EL001103.

In dimmable systems, each branch is 250 Watts maximum.

- See “Sky Factory LSC 24PS Power System Installation” and wiring diagram EL001102 or EL001104.

Wire from power cable to power system branch circuit is polarized, “+” to “+” and “-” to “-”.

- Voltage drop will occur over long distances. See the Wire Sizing Chart for appropriate lengths and gauges.

Branch circuit terminal block on power system accepts wire sizes 10 - 16 AWG.

## Step 4: Wiring the Sky Factory LSC 24PS Power System

See applicable wiring diagram for your ceiling and Fuse Chart in “Custom LED Electrical Drawings and Charts (TSF)”

Power system enclosure must have a minimum of 12” (30.5cm) clearance for adequate air flow for proper cooling and the screens must be inspected regularly for dust accumulation.

Connect AC line voltage to appropriate terminals on power system – “**L**” (**Line**), “**N**” (**Neutral**) and “**G**” (**Ground**).

- AC terminal block on power system accepts wire sizes 10 - 18 AWG.

For non-dimmable systems, AC line voltage must have an On/Off switch.

For dimmable systems, On/Off switch is optional.

External fuse in AC line is required. When using multiple power systems, each power system must have a dedicated, fused AC circuit:

### **IMPORTANT:**

Fuse in AC line must be less than or equal to internal power system fuse.  
See Fuse Chart for sizing.

For dimming systems only:

See drawing EL000195 for dimmer assembly details and wiring diagram EL0001102 or EL0001104 for power system details. See also “c” below for multiple power systems.

Connect dimmer to primary power system with 16 - 22 AWG low voltage wire.

- Dimmer **BRT**(Bright) to power system **BRIGHT**
- Dimmer **COM**(Common) to power system **WIPER**
- Dimmer **DIM**(Dimmer) to power system **DIM**

Install the dimmer in a standard wall box.

- Wiring and box for the dimmer provided by others.

When operating multiple power systems with one dimmer:

- Run three wires from dimmer to primary power system as in “a.” above.
- Run two wires from primary power system to additional power systems: **DIM** to **DIM** and **WIPER** to **WIPER**.
- See EL000364.

## Step 5: Wiring the power system in MRI applications

See wiring diagram EL0001103 or EL0001104 in "Custom LED Electrical Drawings and Charts (TSF)"

**NOTE:** In MRI applications, an RF filter is required and is not provided by The Sky Factory.



**Notice:** IF ONLY ONE FILTER IS USED, BRANCH CIRCUITS ON OUTPUT SIDE MUST BE INDIVIDUALLY FUSED TO AVOID EXCESSIVE CURRENT IN EVENT OF A FAILURE WITHIN ANY SINGLE BRANCH. SEE BELOW

Power system must be located outside of shielded room in MRI applications.

To use one filter per power system with more than one branch:

Inside the RF filter and on the Input side -

- Connect all positive, or "+", legs of the branch circuits from the power system to one leg of the RF filter.
- Connect all negative, or "-", legs of the branch circuits from the power system to the other leg of the RF filter.

Inside the RF filter and on the Output side:

- Connect the positive, or "+", leg of each branch circuit from the SkyCeiling to a 10 amp in-line fuse, and then to the leg of the RF filter which corresponds to the positive input.
- Connect the negative, or "-", leg of each branch circuit from the SkyCeiling to the leg of the RF filter which corresponds to the negative input.

## Step 6: Checking the Polarity



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

Red "+" wires on the fixtures → position 1 (Black) on power cable Disconnect → "+" terminals of the power system

Black "-" wires on the fixtures → position 2 (White) on power cable Disconnect → "-" terminals of the power system

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