Luminous Virtual Window
DC Recessed Installation Packet

Installation Packet Includes:

- Luminous Virtual Window DC Recessed Installation Instructions
- Luminous Virtual Window Technical Specifications
- Luminous Virtual Window Maintenance
- LVW1 Layout (provided for custom and multiple windows)

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.
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Provided Components:

LVW Light Box: extruded aluminum case with LED edge lit light panel,
   wiring covers and trim safety cables.

Image Tile: High resolution reproduction mounted on a .125” (3.175mm) acrylic panel.

Trim: Wood or anodized aluminum frame which attaches to the LVW case with ball catches and safety cables.

Electrical: External V AC to V DC power supply, 1/2” (12.7mm) box connector,

Installation Hardware: 4 #10 x 1 1/2” (38mm) pan head screws.

Client Supplied Components:

Electrical circuit, V AC switch, conduit (if required) and wiring appropriate to local code provided and run
to the appropriate locations.
   For power consumption, see: LVW Technical Specifications for standard sizes, LVW1 for custom sizes

Miscellaneous hand tools

For larger LVW's, two installers may be needed.

Electrical work must be performed by a qualified electrician and must conform to all local and national codes.
LVW Component Details:

Major components:

- Trim
- LVW light box
- Wiring access covers x 4
- Image tile does not need to be removed for installation
- Ball catches for mounting trim
Attachment holes and wiring access:

Wiring access holes always on long sides of case (see detail below)

- 1/2” trade size (7/8" [22.2mm] dia.), centered 1 1/6” (27mm) in from outside edge and 22 15/16” (583mm) in from end

- attachment holes on all four sides of case (see detail below)

Attachment holes — 3/16" (4.8mm) dia., centered 1 15/16” (49mm) in from outside edge and 4 3/4” (121mm) in from ends
**Step 1: Unpack the LVW**

**IMPORTANT:** LVW comes with trim attached.

Do not try to lift the LVW out of the wrapper by pulling up on the trim. The trim is held to the LVW case by ball-catch hardware.

To remove the trim:
1. remove any shrink wrap holding it to the LVW case,
2. then, using both hands, grasp the trim and pull it directly away from the case.

Installation hardware is shipped above and/or along one side of the LVW(s).

**Step 2: Locate the LVW on the wall**

- For all standard LVW dimensions and rough openings, see Luminous Virtual Window Dimensions and Rough Opening Charts on pages 13-14
- For Custom, Twin and Triple LVW installations, see “LVW1” included
- For wiring access and attachment hole locations, see page 4

We recommend the LVW is placed at standard window height.

When placing an LVW on an exterior wall, appropriate precautions must be taken to maintain the building envelope and prevent condensation from forming on or in the LVW.

A location for the external power supply needs to be established.

See “Step 6: Wiring the LVW”, page 9 and Wiring Diagrams on pages 15-16.
Step 3: Frame the rough opening

Rough opening height and width:

3/8” (10mm) larger than outside dimensions of the LVW case.

Case depth: 1 3/4” (44.5mm).

Added depth for box connector and conduit or cabling is needed.

Rough opening should be **plumb, square and dimensionally accurate**.

Some trim selections have little overlap beyond the rough opening.
Framing additions:

LVW is secured in the opening through holes in the back wall of the case.
See page 4 for attachment hole locations

A 2 1/2” (64mm) tall framing addition is required both to seat the LVW case against and to receive the attachment screws

#10 x 1 1/2” (38mm) fastener

IMPORTANT:

- Additions must sit no more than 1 11/16” (43mm) back from finish wall surface for the trim ball catches to securely latch.

- Additions must sit in a flat plane for ball catches to securely latch
  Any excessive twist in the installed LVW case may keep some of the ball catches from latching and allow the trim to pop loose.

  See “Appendix A: Checking for Flatness” on page 18 for determining if the LVW will sit in a single plane.

When installing framing additions, allow for access to wiring.
Step 4: Install the LVW

Remove the trim (if provided):

IMPORTANT: Make sure the safety cables are not connected.

Trim is held by ball catch hardware. Using both hands, grasp the trim and pull it directly away from the LVW case.

Remove the top, bottom and right side wiring covers:

Covers remove with T15 Torx driver.

Cover screws need to be loosened only.

IMPORTANT: WHEN REPLACING THE WIRING COVERS, SNUG SCREWS ONLY!
(OPTIONAL SCREW SLOTS ARE PROVIDED IF A SCREW STRIPS IN CHANNEL.)

Insert the box connector:

If using a comparable box connector, it must meet local and national codes.

See page 10 for box connector specifications.

Make sure power cable is available and enters the LVW case at the proper location.

Hang the LVW on the wall:

Pass the power cable through the box connector while lifting the LVW into position and screwing it to the framing additions.

IMPORTANT:

Before wiring the LVW, make sure the trim will securely latch.

Use a straight edge to make sure the most forward point of the wall surface is at least 1/16" (1-1.5mm) back of the front of the LVW case.

If the trim is not secure, the LVW may need to be removed and the framing additions adjusted.

See bottom of page 7.
Step 5: Wire the LVW

- See Wiring Diagrams on pages 15-16 and Wire Sizing Chart on page 17.

**Notice:** The LED fixtures are 24DC ONLY. AC voltage connected directly to the fixtures will destroy the lighting system.

Each LVW has an external V AC to V DC Class 2 power supply:

- **Input:** 100 – 240V AC/277V AC, 0.85A/0.40A, 50 – 60 Hz
  (277V AC for North America only)
- **Output:** 24V, 3.4A
- UL8750 Listed (U.S. and Canada) and CE Compliant
- Max operating temperature 50°C (120°F)
- Power supply surface mountable, suitable for dry/damp/wet conditions.
  - See mounting schematic on pages 15-16
- Power supply comes with a junction box on each end
  - Junction box wiring access holes limited to 1/2" nominal trade size conduit
- Power supply must be located outside the room in all MRI, shielded applications.
- For power consumption, see: LVW Technical Specifications for standard sizes, LVW1 for custom sizes

In MRI applications, an RF filter is required and will be supplied by others.

*Electrical work must be performed by a qualified electrician and must conform to all local and national codes.*
Wiring power supply V DC to LVW:

Run two continuous wires from the LVW terminal block to the V DC side of the power supply, positive (+) to positive (+) and negative (-) to negative (-).

LVW “+” to power supply V+ (RED)
LVW “−” to power supply V− (BLACK)

Terminal block wire range is #12 - #22 AWG.

To minimize voltage drop and maintain desired brightness, use the Wire Sizing Chart on page 17 as a guide to determine appropriate wire gauge.

A wiring cover must be removed to access terminal block.

Always turn circuit off before removing a wiring cover.

T15 Torx drive mounting screws need to be loosened only when replacing the cover, make sure all mounting screws are tight.

IMPORTANT: WHEN REPLACING THE WIRING COVERS, SNUG SCREWS ONLY! DO NOT OVERTIGHTEN SCREWS AND STRIP SCREW CHANNEL! (See page 8)

Fasten the provided 1/2” (12.7mm) box connector in the 7/8” (22mm) wiring access hole and make the electrical connection inside the LVW.

Power cable must meet MC/MCI-A or HDFMCI-A specifications; size range .38” (9.65mm) min to .61” (15.49mm) max

Power entry hole is limited to 1/2” nominal trade size conduit.

Connect DC power in conformance to local and national Electrical Codes.

Replace wiring covers and test the fixture before installing the trim.
Step 6: Install the trim

Safety cables:

Safety cables catch the LVW trim if it is jarred loose of the ball catches.

Cables are mounted on the LVW case just below the top ball catch on each side.

Attaching the safety cables is easiest with two people:

One person holds the trim up while the other person attaches the quick links to the d-ring hangers on the back of the trim.

Be sure to screw the gates closed.

Attach the trim:

Lower the trim until the ball catches line up and then press the trim against the LVW case.

Make sure all the catches latch.

Adjusting the ball catches (if necessary):

IMPORTANT: Ball catches are set at the factory and should not need adjustment in the field. Use the following directions only if absolutely necessary.

To adjust the holding strength of a ball catch -

Loosen or tighten adjustment screws on the two ends of the half attached to the LVW case.

To adjust the location of a ball catch -

Loosen the Phillips head screws holding the catch to the LVW case, slide the catch to the appropriate location in the track, and re-tighten the screws.
Step 7: Check installation using Final Inspection list.

Is the image evenly lit?

- If there are shadows, dark spots, or bright lines on the image, clean the SkyTile. See LVW Maintenance.

Is the trim securely latched?

- If trim pops off easily, and rubs against wall when it is installed:
  - LVW case is most likely recessed too far into the wall. Remove LVW and shim between framing additions and back of case.
- If trim pops off easily, and there is a gap between trim and wall all the way around:
  - Strength of trim ball catches needs to be adjusted.

Are the safety cables installed?

- Install cables.
LUMINOUS VIRTUAL WINDOW
IMPERIAL DIMENSIONS AND ROUGH OPENING CHART

For custom sizes, see LVW1 included

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<th>LUMINOUS VIRTUAL WINDOW</th>
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<th>ROUGH OPENING DIMENSIONS (INCHES)</th>
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# LUMINOUS VIRTUAL WINDOW

## METRIC DIMENSIONS AND ROUGH OPENING CHART

For custom sizes, see LVW1 included

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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”.
Wire sizes in AWG Conversion chart below.

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* Terminal block wire range #10 - #22 Awg.

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Appendix A: Checking for flatness

Making sure the LVW will sit in a single plane:

Use blocks of equal thickness to extend the framing additions out past the finished wall.

Then hold a builder’s level against the blocks to make sure the two vertical sides have equal plumb.

NOTE: The window does not have to sit plumb in the opening to function properly, but must sit in a single plane.

Bubbles on the builder’s level must read the same for both vertical sides.

If the two sides do not read the same, re-install one of the framing additions or shim between addition and back of LVW case.

Making sure the LVW is sitting in a single plane:

Use a builder’s level against the LVW case to make sure the two vertical sides have equal plumb. Shim case as necessary.

IMPORTANT: Make sure level is sitting parallel to LVW case before checking for equal plumb.