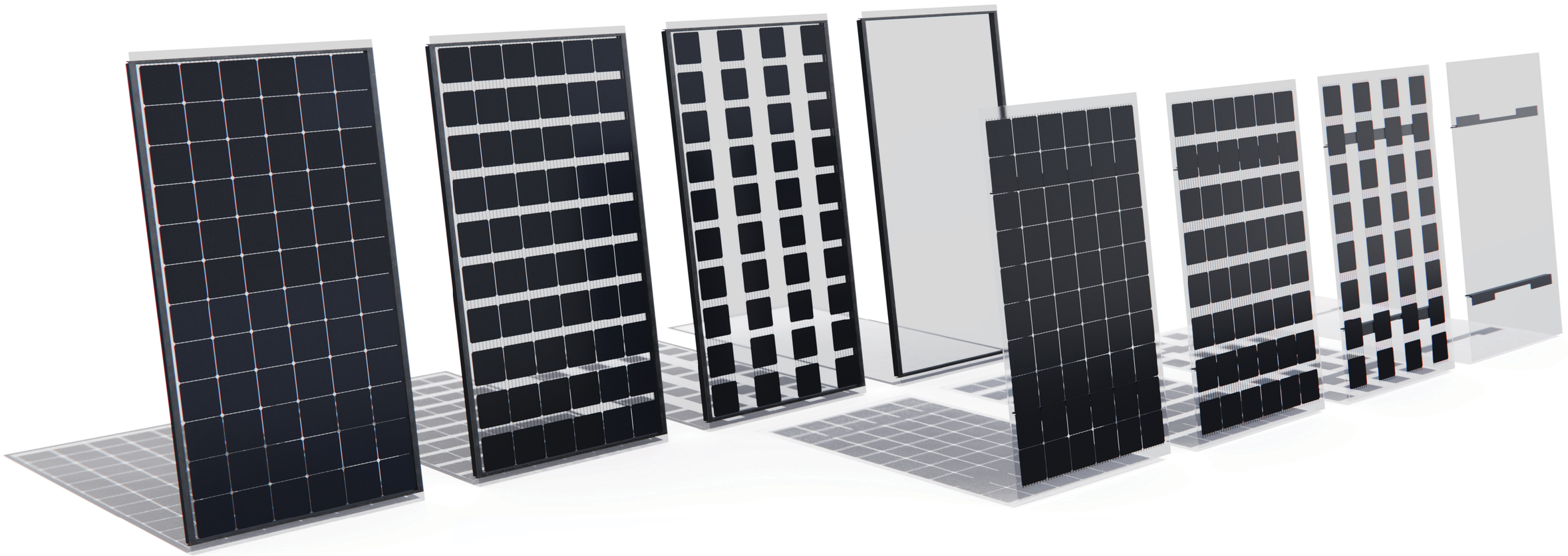
LUMOS

BiFi



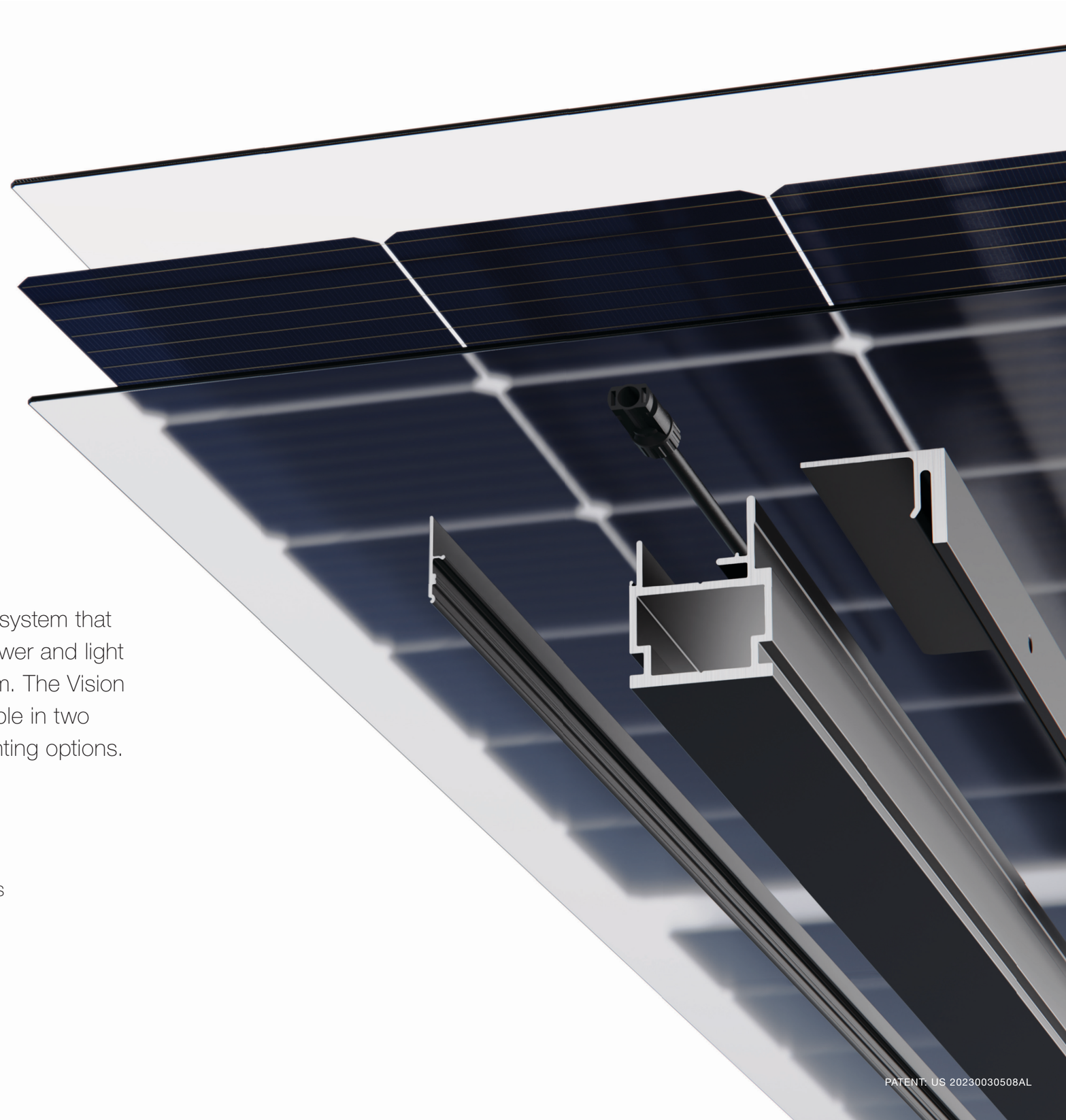
Vision Module System

The state of the art system for overhead solar

System Overview

The Vision Module System is an integrated module and racking system that offers designers unparalleled freedom to meet their project's power and light transmittance requirements with an off-the-shelf, modular system. The Vision Module System is based on glass-glass bifacial modules available in two primary form factors, each with a variety of cell layout and mounting options.

- Numerous cell layout options
- Ultra durable glass glass construction
- Integrated wireway
- Concealed conductors
- Concealed junction boxes
- Weatherproofing

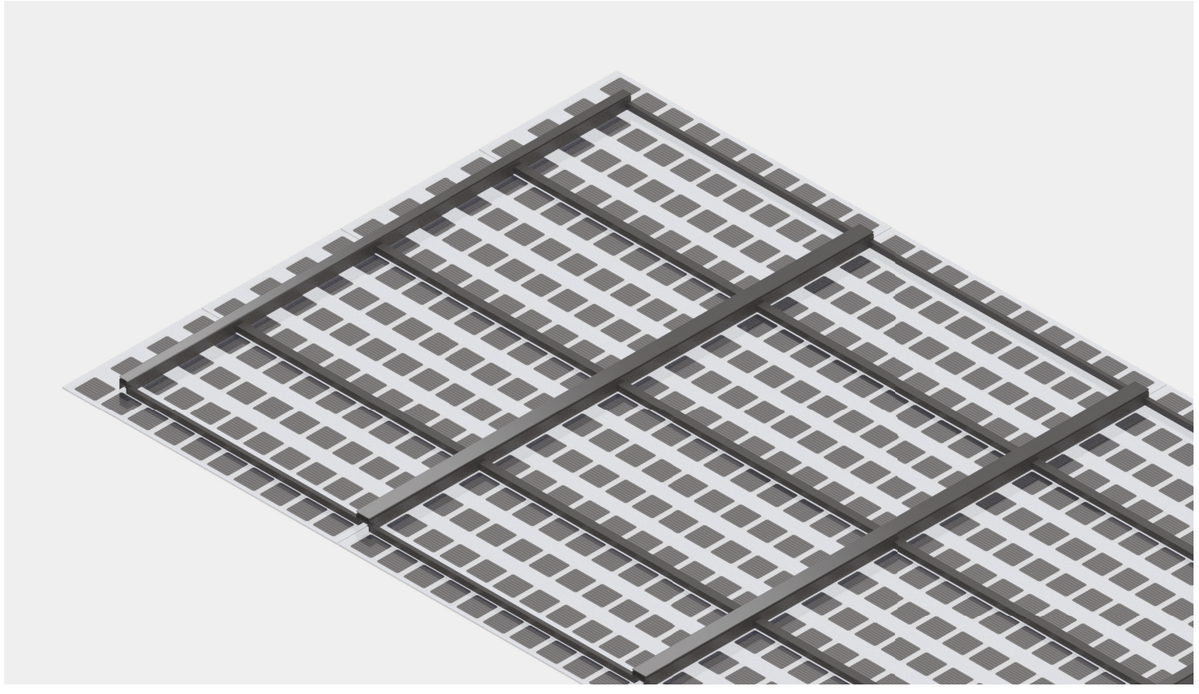


PATENT: US 20230030508AL

Module Overview

The Vision Module System is based on two primary module Types: L Type or S Type. L Type modules have a maximum of 72 cells and S Type modules have a maximum of 60 cells. Each module Type offers unique mounting options for another level of customization.

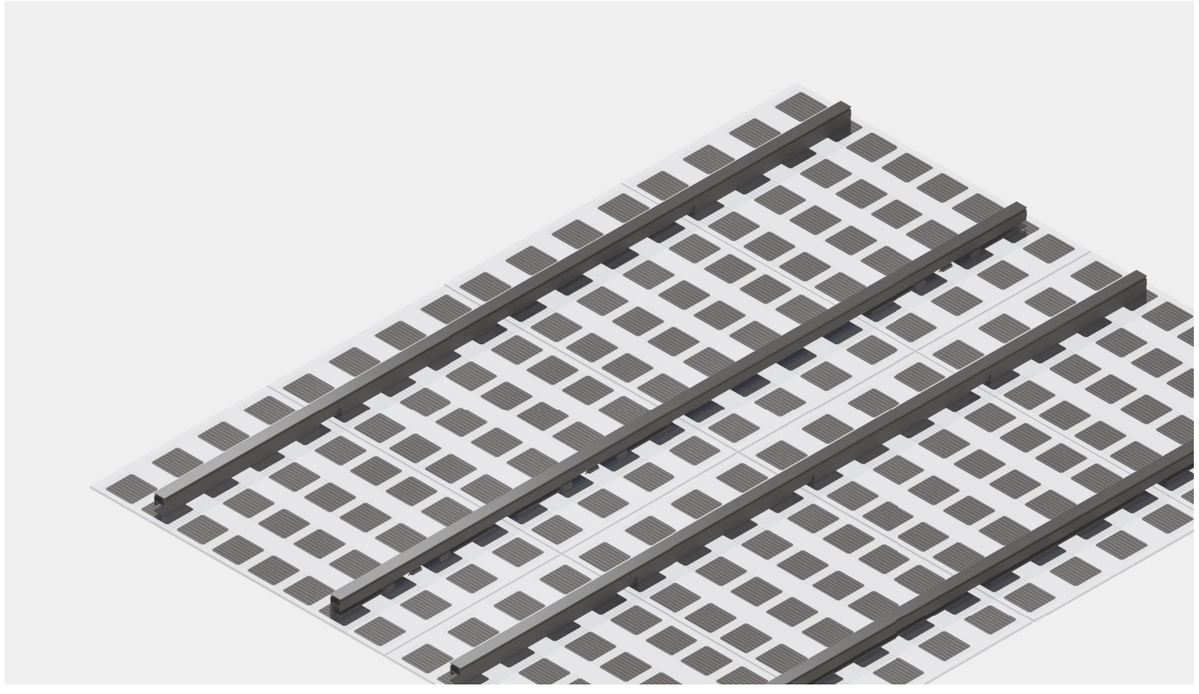
L TYPE



The L Type mounting options create cantilevered glass edges for a floating glass edge at the perimeter of your array.

- Cantilevered edge
- Edge and shared rails
- Ideal for contiguous arrays

S TYPE



The S Type is an interior mount solution meaning all edges of the module are exposed. It's is ideal for unique module mounting scenarios and non-contiguous arrays.

- Floating edges on all sides
- Edge rails only
- Ideal for unique configurations

Module Configurations

The Vision Module System is configured by selecting one of each:

Type: Specifies module dimension

Matrix: Specifies cell count

Mount: Specifies the mounting frame Type

Part Number Configuration

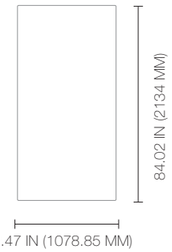
SELECT TYPE	L TYPE				S TYPE			
SELECT MATRIX	**72** 430 W • 08% T	**60** 355 W • 21% T	**40** 240 W • 47% T	**0** 0 W • 86% T	**60** 355 W • 13% T	**48** 285 W • 29% T	**32** 190 W • 50% T	**0** 0 W • 86% T
SELECT MOUNT	PM EM RM LM RC LC				IM			

EXAMPLE PART NUMBER: L (TYPE) - 72 (MATRIX) - PM (MOUNT) ⟶ L-72-430-08-PM

** Power Output is Rated Power at STC (front side); Light Transmittance is calculated based on cell coverage and not a result of testing.*

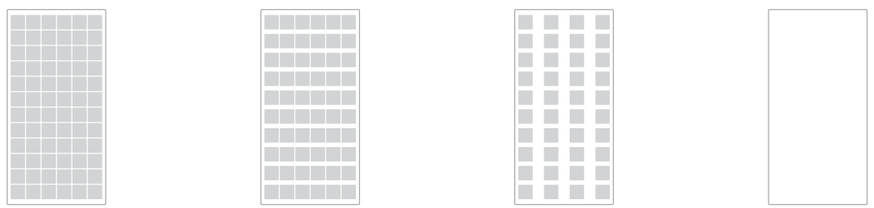
L TYPE

Step 1:
Select Type



Note: L and S Type modules are different widths due to the L Type mount options extending past the glass edge

Step 2:
Select Matrix



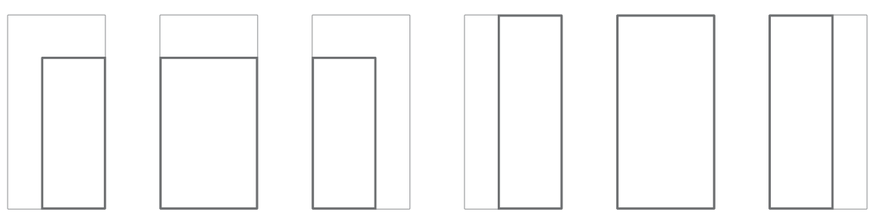
72 Cells
430W
08% Transmittance

60 Cells
355W
21% Transmittance

40 Cells
240W
47% Transmittance

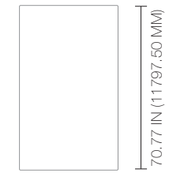
0 Cells
0W
86% Transmittance

Step 3:
Select Mount



Left Corner (LC) | Edge Mount (EM) | Right Corner (RC) | Left Mount (LM) | Perimeter Mount (PM) | Right Mount (RM)

S TYPE



Step 2:
Select Matrix

60 Cells
355W
13% Transmittance

48 Cells
285W
29% Transmittance

32 Cells
190W
50% Transmittance

0 Cells
0W
86% Transmittance

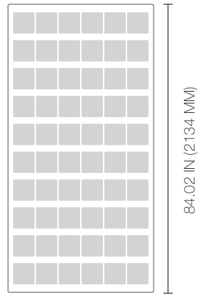
Step 3:
Select Mount

Interior Mount (IM)

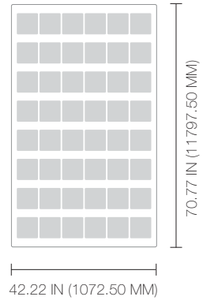
Module Specifications

TEMPERATURE COEFFICIENTS	
NOMINAL OPERATING CELL TEMPERATURE (NOCT)	43.6 °C
POWER TEMPERATURE COEFFICIENT (PMPP)	- 0.38% / °C
VOLTAGE TEMPERATURE COEFFICIENT (VOC)	- 0.36% / °C
CURRENT TEMPERATURE COEFFICIENT (ISC)	- 0.07% / °C

L



S



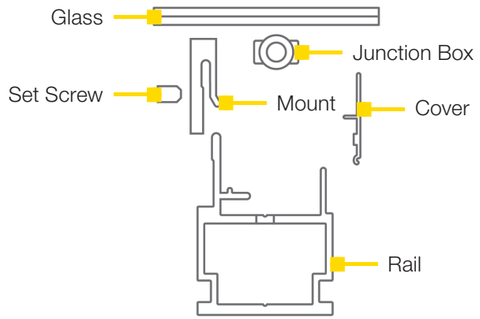
		L TYPE				S TYPE			
MATRIX	CELLS	72	60	40	00	60	48	32	00
	POWER	430 W	355 W	240 W	0W	355 W	285 W	190 W	0 W
	TRANSMITTANCE	8%	17%	43%	86%	13%	29%	50%	88%
PEAK POWER VOLTAGE (VMP)		40.4 V	33.0 V	22.3 V	0 V	33.4 V	27.1 V	17.6 V	0 V
MAXIMUM POWER CURRENT (IMP)		10.2 A	10.3 A	10.3 A	0 A	10.2 A	10.0 A	10.2 A	0 A
OPEN CIRCUIT VOLTAGE (VOC		48.4 V	39.2 V	27.4 V	0 V	41.1 V	31.0 V	20.1 V	0 V
SHORT CIRCUIT CURRENT (ISC)		11.22 A	11.1 A	11.4 A	0 A	11.2 A	11.4 A	11.8 A	0 A
MODULE EFFICIENCY		18.8%	15.5%	10.5%	0%	18.4%	14.8%	9.9%	0%
OPERATING TEMPERATURE		- 40°C TO 85°C							
MAXIMUM SYSTEM VOLTAGE		1000 V							
MAXIMUM TYPE FUSE RATING		20 A							
POWER TOLERANCE		- 0/+3%							
SOLAR CELL		MONOCRYSTALLINE BIFACIAL 6.5” X 6.5” (166 MM X 166 MM)							
CELL LAYOUT		6 X 12	6 X 10	4 X 10	0	6 X 10	6 X 8	4 X 6	0
MODULE DIMENSIONS		84.02 IN X 42.47 IN X 2.06 IN (2134 MM X 1078.85 MM X 52.17 MM)				70.77 IN X 42.22 IN X 2.06 IN (1797.50 MM X 1072.50 MM X 52.17 MM)			
MODULE AREA		24.6 FT^2 (2.3M^2)				20.8 FT^2 (1.9M^2)			
FRONT / BACK GLASS		FULLY TEMPERED 3.2MM LOW-IRON PV GLASS							
MODULE WEIGHT		105.5 LBS (47.8 KG)				78.6 LBS (35.6 KG)			
SYSTEM WEIGHT / AREA		SD 4.85 PSF (23.68 KG/M^2) MD 5.06 PSF (24.71 KG/M^2)				SD 4.55 PSF (22.22 KG/M^2) MD 4.81 PSF (23.48 KG/M^2)			
STATIC LOAD		MAX +105 PSF/ -108 PSF SEE ENGINEERING LETTER FOR TYPE SPECIFIC ENGINEERING							
OUTPUT CABLES		LEAD LENGTH 500MM STAUBLI MC4 CONNECTORS							
FIRE RATING		CLASS A / TYPE 29							
CERTIFICATIONS		UL 61730							
WARRANTY		10 YEARS WORKMANSHIP / 30 YEARS LINEAR POWER PRODUCTION (POWER PRODUCTION WARRANTY ON FRONT SIDE STC ONLY)							

Array Configuration

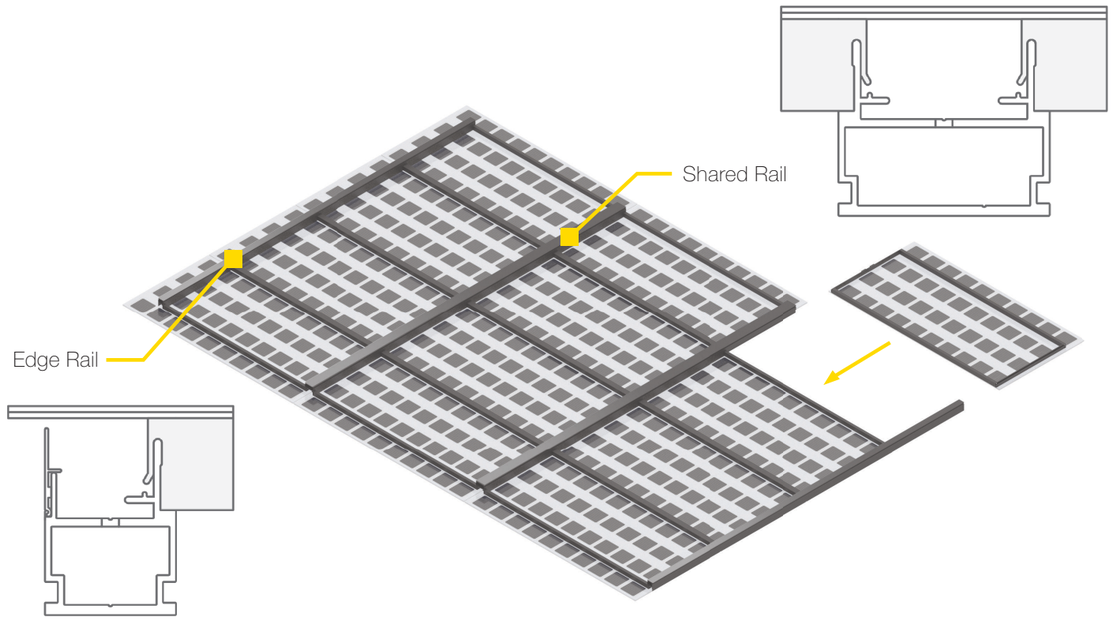
The Vision System features an easy to design and install mounting rail system. Mounting rails run in portrait mode, parallel with the short side of the glass and feature integrated wire ways that conceal all conductors and module junction boxes.

ASSEMBLY

Vision Module System features a simple, adjustable and unique mounting system. Vision modules are mounted to the mounting rail by placing the module anywhere desired along the rail and then tightening with a simple set screw.

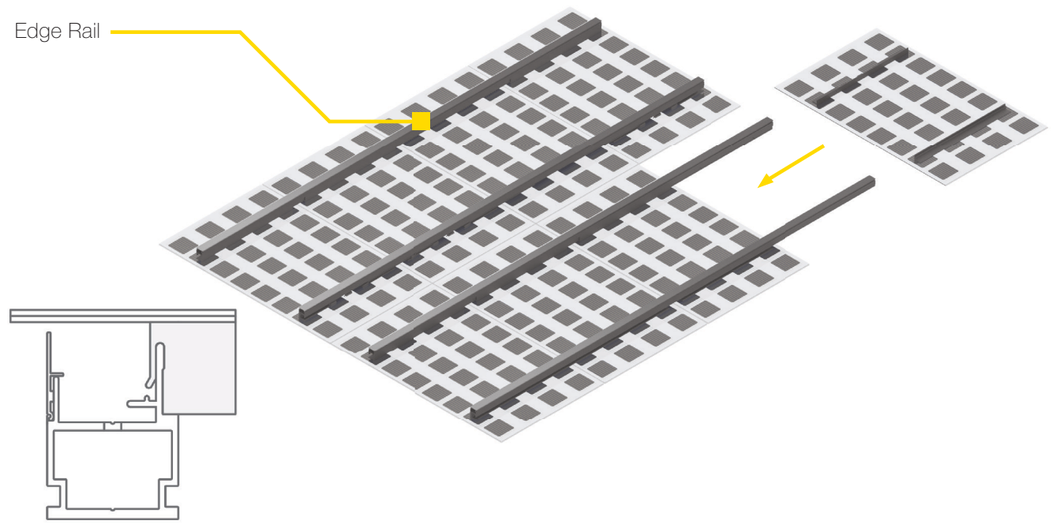


L TYPE



The L Type mounting options include long edge, short edge and corner mounts that create cantilevered glass edges for a floating glass edge at the perimeter of your array. The L Type also includes full perimeter mount options for the interior of the array.

S TYPE

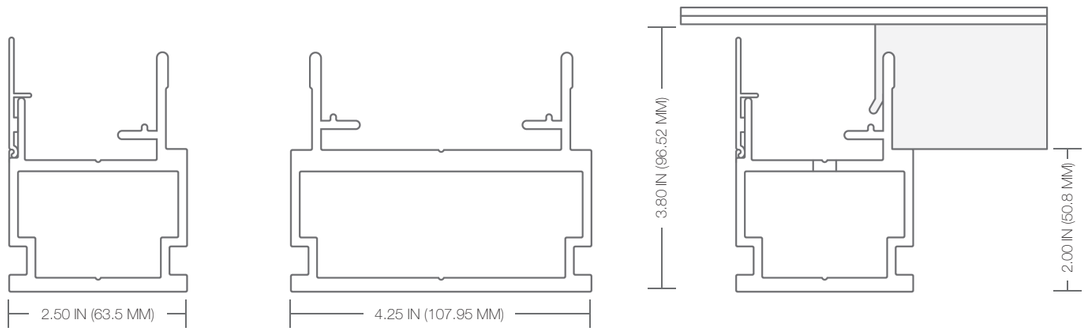


The S Type modules feature interior mounts that provide floating glass edge visible on all sides of the module. The modules are all mounted using Edge Rail meaning there are no shared rails. The S Type modules are ideal for unique installations and mounting configurations.

Vision Mounting Rail

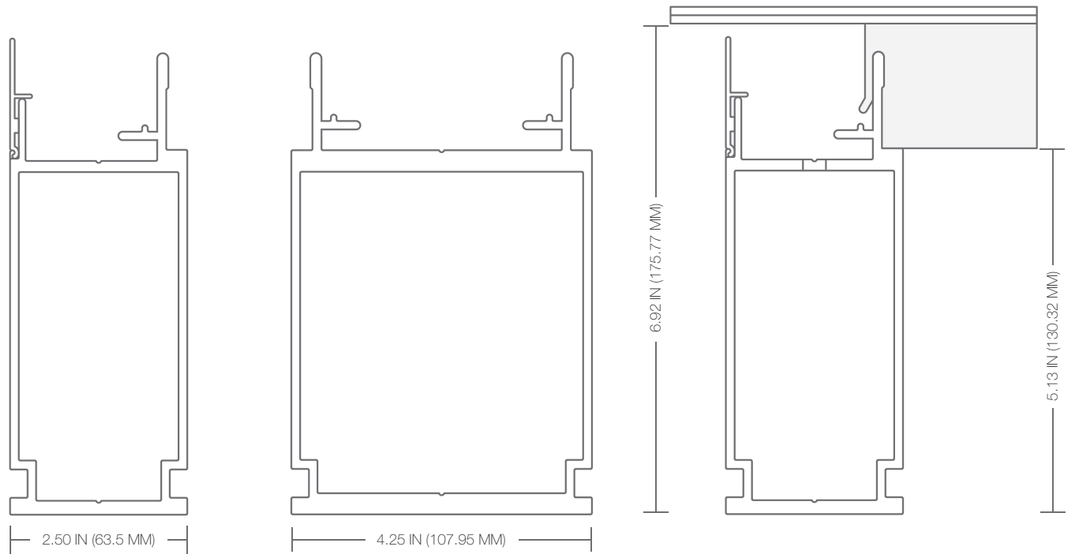
The Vision Module System is based on the streamlined integration of the module and mounting rail which result in super clean and durable installation.

STANDARD DUTY RAIL (SD)



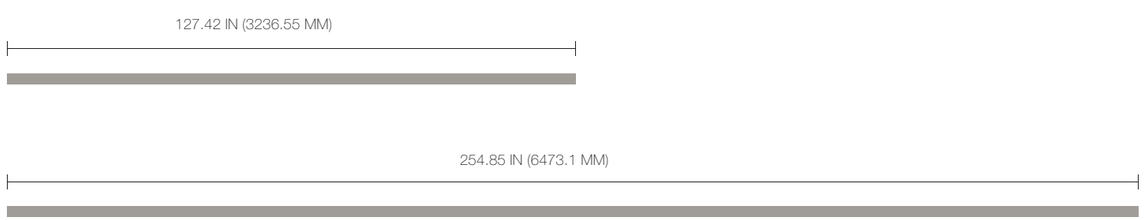
SD EDGE RAIL **SD SHARED RAIL**

MEDIUM DUTY RAIL (MD)



MD EDGE RAIL **MD SHARED RAIL**

STANDARD RAIL LENGTHS



TYPICAL RAIL SPANS

			SD	MD
	WIND SPEED (MPH)	SNOW LOAD (PSF)	MAX SPAN (FT)	MAX SPAN (FT)
HONOLULU	110	0	9'3"	20'
LOS ANGELES	110	0	9'3"	20'
ATLANTA	115	5	8'9"	18'6"
DENVER	110	20	7'9"	16'
MIAMI	180	0	7'3"	15'3"
BOSTON	130	40	6'	12'6"

**Refer to engineering letter for project specific rail spans and cantilevers*

You Dream It, We Built It

We understand that not every system is a perfect rectangle. The Vision Module System helps solve real world problems with functional solutions. Think outside the box.

WEATHERPROOFING

The Vision Module System can be weatherproofed to create sealed, overhead arrays. There are a range of weatherproofing options in terms of cost, durability and project requirements.

SYSTEM	COLOR	COST	DURABILITY	WARRANTY
3M 7070UV	TRANSPARENT	LOW	GOOD	NA
3M EXTREME SEALING TAPE	OPAQUE	MEDIUM	BETTER	NA
GLAZING	OPAQUE	HIGH	BEST	PROVIDED BY INSTALLER

CUSTOMIZATION

The Vision Module System offers the ability to create custom infill glass modules to allow the integration of non-functional modules to create continuous arrays. Vision custom infill modules can be created in almost any shape and size and incorporate any of the Vision module mounts. Infill panels can be made from polycarbonate, clear glass, frit treatment, or with faux pv cells. Custom infill modules can used to create “wedges” in curved arrays, provide infill in shaded areas, integrate graphics or logos, create curved edges.