Product Variety:
Mitrex Solar Railing

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MITREX™

Mitrex Solar Railing

Merging innovation and functionality, Mitrex Solar Railing extends energy generation to your balcony. Nestled within its sleek design are high-efficiency solar cells, discreetly placed between layers of robust, heat-tempered glass.

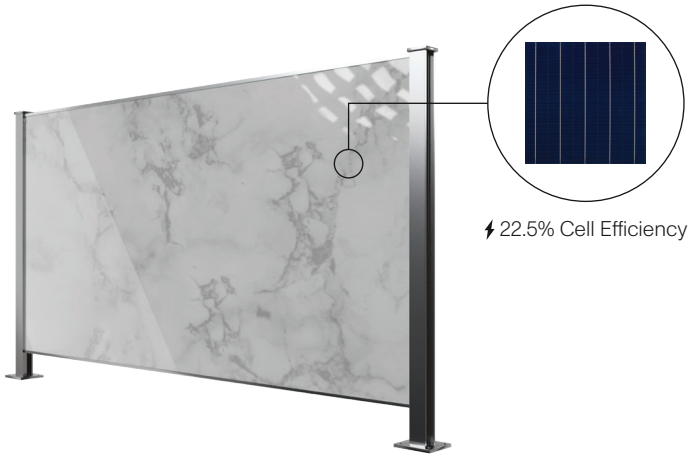
The magic of SolaRail™ lies in its ability to integrate BIPV seamlessly into your balcony's aesthetic, with all wiring artfully concealed. Whether it's a new project or a retrofit, SolaRail™ turns your balcony into a sustainable energy source.

- Code compliant, easy to install, safe, and durable.
- Design flexibility, including colour, pattern, handrail, and base options.
- Various installation methods can be used while seamlessly integrating circuitry and wiring.
- Versatility for new build or retrofits.
- Up to 41 LEED points
- 3.5 railings provide the equivalent energy of one full EV charge

Mitrex Solar Railing Design Options

Mitrex solar railings can utilize opaque glass with seamlessly integrated circuitry and connection points of all the electrical components. The opaque option can be customized to any pattern or colour in the world.

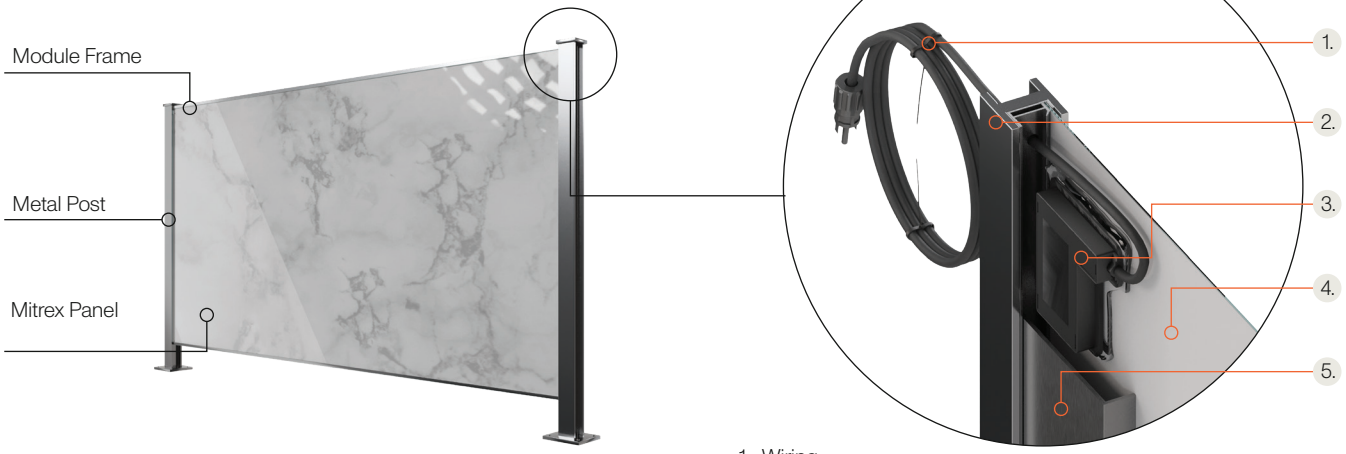
Mitrex SolaRail[1]



Mitrex SolaRail[2]

SolaRail[1]

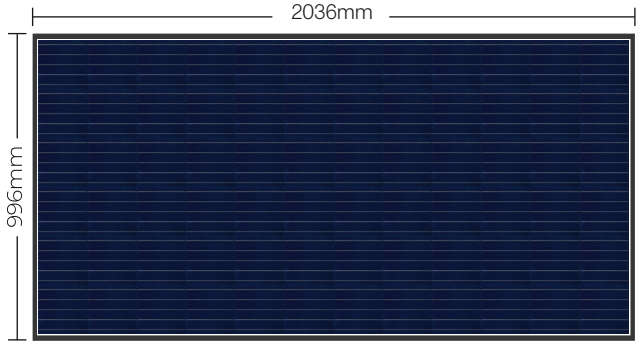
Opaque Only



1. Wiring
2. Metal Post
3. Junction Box
4. Mitrex Panel
5. Metal Flashing

*Back view

Opaque - Monocrystalline Solar Cell



Cell type:
G1 158.75 X 158.75mm (6.25”).
Number of cells:
72 Cells
Gap between cell:
2mm (0.07”).
Transparency:
~0%.
Power:
390W

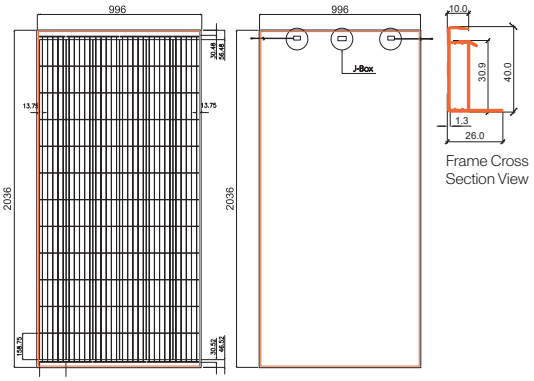
ISO 9001 · ISO 10002 · ISO 10004 · CERTIFIED IEC 61730 · CERTIFIED IEC 61215 · UL 61730 · UL 61215 · CSA 61730 · CSA 61215 · ANSI Z97.1 · ASTM C1048 · ASTM E2353 · ASTM E935

Electrical Specifications

Test Conditions	STC
Module Power (Pmax)	390W
Maximum Power Voltage (Vpmax)	41.9V
Maximum Power Current (Ipmax)	9.31A
Open Circuit Voltage (Voc)	48.2V
Short Circuit Current (Isc)	9.77A
Module Efficiency	22% - 22.5%
Maximum System Voltage (VDC)	1000V (IEC/UL)
Series Fuse Rating	20A
Power & Other Electrical Specification Tolerance	5%
Application Classification	Class A

Measurement Conditions: STC 1000 W/m² - AM 1.5 - Temperature 25°C

Engineering Drawing



Frame Cross Section View

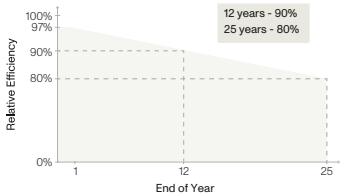
Mechanical Properties

	Metric	Imperial
Module Weight	22 kg	48.5 lbs
Dimensions (H x L x D)	2036 × 996 × 40mm	80.2 × 39.2 × 1.6in
Design Load	5400Pa front load / 2400Pa rear load	112.8psf front load / 50.1psf rear load
Hail Impact Resistance	ø 25mm at 83 km/h	ø 1in at 51.6 mph
Cells	72 [12×6] Mono-crystalline (158.75 × 158.75mm)	72 [12×6] Mono-crystalline (6.25 × 6.25in)
Glass	3.2mm tempered glass, high transmittance, anti-reflective coating	0.126in tempered glass, high transmittance, anti-reflective coating
Cables & Connectors (Refer to Installation Manual)	1000mm, 1200mm - 4mm2, 12 AWG (UL) MC4 from Staubli	39.4in, 47.2in - 0.16in2, 12 AWG (UL) MC4 from Staubli
Backsheet	High durability, UV resistant, PV backsheet	
Frame	Anodized aluminum alloy black frame	
Bypass Diodes	3 diodes- 30SQ045T (45V max DC blocking voltage, 30A max forward rectified current)	
Junction Box	IP68 rated, TUV and UL certified	
Fire Rating	Type II	

Temperature Ratings

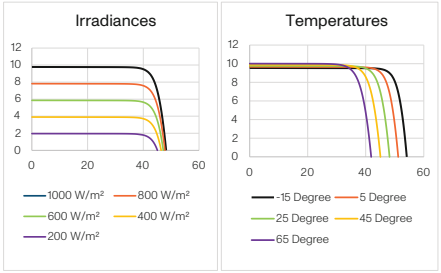
Temperature Coefficient Isc	0.046% /°C
Temperature Coefficient Voc	-0.30% /°C
Temperature Coefficient Pmax	-0.36% /°C
Nominal Module Operating Temperature	42 ± 3°C
Operating Temperature	-40°C ~ +85°C

Warranty



Product Material Warranty: 25 years
Perfomance Warranty: 25 years
≥ 97% end of 1st year
≥ 90% end of 12th year
≥ 80% end of 25th year

I-V Curves

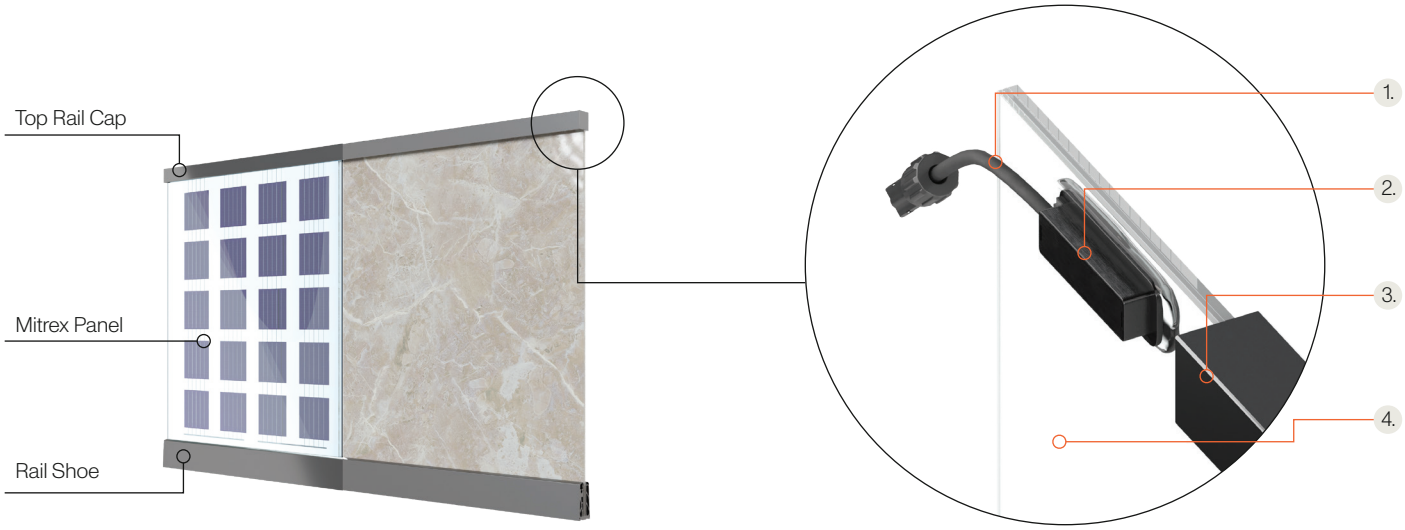


SolaRail¹ - Opaque

Datasheet is subjected to change without prior notice, always obtain the most recent version of the datasheet. **Caution:** For professional use only, the installation, handling, and cleaning of PV modules should only be performed by qualified professionals. Read the Installation Manual for mounting specifications before handling, installing and operating modules.

SolaRail²

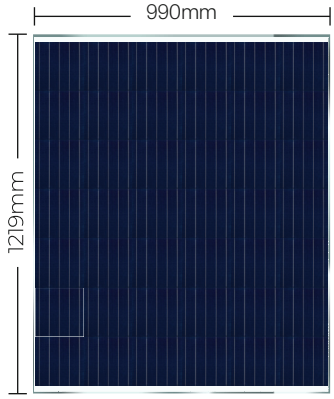
Opaque or Semi-opaque



*Back view

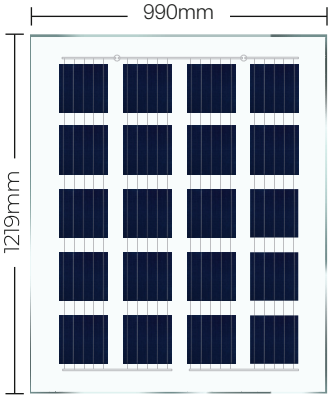
1. Wiring
2. Junction Box
3. Top Railing Cap
4. Mitrex Panel

Opaque - Monocrystalline Solar Cell



Cell type:
G1 158.75 X 158.75mm (6.25”).
Number of cells:
42 Cells
Gap between cell:
2mm (0.07”).
Transparency:
~0%.
Power:
225W

Semi-Opaque - Monocrystalline Solar Cell



Cell type:
G1 158.75 X 158.75mm (6.25”).
Number of cells:
20 Cells
Gap between cell:
50mm (2”).
Transparency:
~60%.
Power:
105W

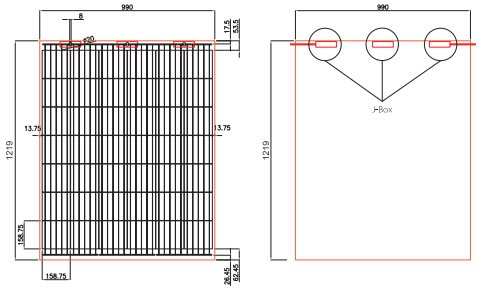
ISO 9001 · ISO 10002 · ISO 10004 · CERTIFIED IEC 61730 · CERTIFIED IEC 61215 · UL 61730 · UL 61215 · CSA 61730 · CSA 61215 · ANSI Z97.1 · ASTM C1048 · ASTM E2353 · ASTM E935

Electrical Specifications

Test Conditions	Bifacial Gain			
	Front Only	10%	20%	30%
Module Power (Pmax)	225W	247W	270W	292W
Maximum Power Voltage (Vpmax)	24.3V	24.3V	24.3V	24.3V
Maximum Power Current (Ipmax)	9.26A	10.19A	11.11A	12.04A
Open Circuit Voltage (Voc)	28.6V	28.6V	28.6V	28.6V
Short Circuit Current (Isc)	9.91A	10.90A	11.89A	12.88A
Module Efficiency	22% - 22.5%			
Maximum System Voltage (VDC)	1000V (IEC/UL)			
Series Fuse Rating	20A			
Power & Other Electrical Specification Tolerance	5%			
Application Classification	Class A			

Measurement Conditions: STC 1000 W/m² - AM 1.5 - Temperature 25°C

Engineering Drawing



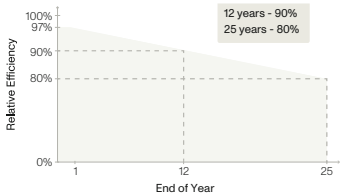
Mechanical Properties

	Metric	Imperial
Module Weight	38 kg	83.7 lbs
Dimensions (H x L x D)	1219 × 990mm	48 × 39in
Design Load	5400Pa front load / 2400Pa rear load	112.8psf front load / 50.1psf rear load
Hail Impact Resistance	ø 25mm at 83 km/h	ø 1in at 51.6 mph
Cells	42 [7×6] Mono-crystalline (158.75 × 158.75mm)	42 [7×6] Mono-crystalline (6.25 × 6.25in)
Glass	3.2mm tempered glass, high transmittance, anti-reflective coating	0.126in tempered glass, high transmittance, anti-reflective coating
Cables & Connectors (Refer to Installation Manual)	500mm, 1000mm, 1200mm - 4mm2, 12 AWG (UL) MC4 from Staubli	19.6in, 39.4in, 47.2in - 0.16in2, 12 AWG (UL) MC4 from Staubli
Backcover	3.2 mm tempered glass + 6 mm tempered glass	0.126in tempered glass + 0.23in tempered glass
Bypass Diodes	3 diodes- 30SQ045T (45V max DC blocking voltage, 30A max forward rectified current)	
Junction Box	IP68 rated, TUV and UL certified	
Fire Rating	Type II	

Temperature Ratings

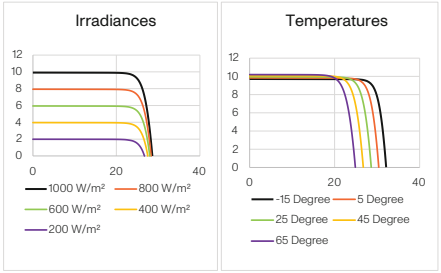
Temperature Coefficient Isc	0.046% /°C
Temperature Coefficient Voc	-0.30% /°C
Temperature Coefficient Pmax	-0.36% /°C
Nominal Module Operating Temperature	42 ± 3°C
Operating Temperature	-40°C ~ +85°C

Warranty

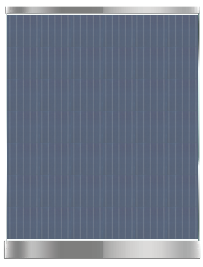


Product Material Warranty: 25 years
Perfomance Warranty: 25 years
≥ 97% end of 1st year
≥ 90% end of 12th year
≥ 80% end of 25th year

I-V Curves



SolaRail² - Opaque

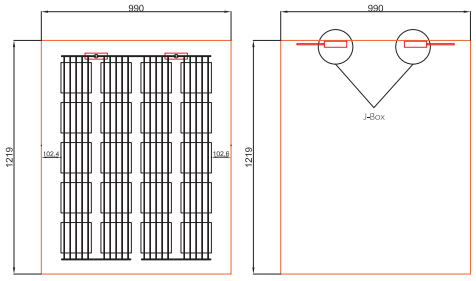


Electrical Specifications

Test Conditions	Bifacial Gain			
	Front Only	10%	20%	30%
Module Power (Pmax)	105W	115W	120W	136W
Maximum Power Voltage (Vpmax)	11.3V	11.3V	11.3V	11.3V
Maximum Power Current (Ipmax)	9.29A	10.22A	11.15A	12.08A
Open Circuit Voltage (Voc)	13.6V	13.6V	13.6V	13.6V
Short Circuit Current (Isc)	9.92A	10.91A	11.90A	12.90A
Module Efficiency	22% - 22.5%			
Maximum System Voltage (VDC)	1000V (IEC/UL)			
Series Fuse Rating	20A			
Power & Other Electrical Specification Tolerance	5%			
Application Classification	Class A			

Measurement Conditions: STC 1000 W/m² - AM 1.5 - Temperature 25°C

Engineering Drawing



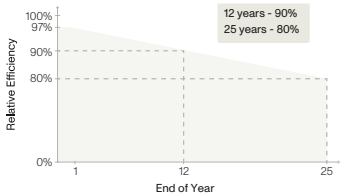
Mechanical Properties

	Metric	Imperial
Module Weight	38 kg	83.7 lbs
Dimensions (H x L x D)	1219 × 990mm	48 × 39in
Design Load	5400Pa front load / 2400Pa rear load	112.8psf front load / 50.1psf rear load
Hail Impact Resistance	ø 25mm at 83 km/h	ø 1in at 51.6 mph
Cells	20 [5×4] Mono-crystalline (158.75 × 158.75mm)	20 [5×4] Mono-crystalline (6.25 × 6.25in)
Glass	3.2mm tempered glass, high transmittance, anti-reflective coating	0.126in tempered glass, high transmittance, anti-reflective coating
Cables & Connectors (Refer to Installation Manual)	500mm, 1000mm, 1200mm - 4mm2, 12 AWG (UL) MC4 from Staubli	19.6in, 39.4in, 47.2in - 0.16in2, 12 AWG (UL) MC4 from Staubli
Backsheet	3.2 mm tempered glass + 6 mm tempered glass	0.126in tempered glass + 0.23in tempered glass
Bypass Diodes	3 diodes- 30SQ045T (45V max DC blocking voltage, 30A max forward rectified current)	
Junction Box	IP68 rated, TUV and UL certified	
Fire Rating	Type II	

Temperature Ratings

Temperature Coefficient Isc	0.046% /°C
Temperature Coefficient Voc	-0.30% /°C
Temperature Coefficient Pmax	-0.36% /°C
Nominal Module Operating Temperature	42 ± 3°C
Operating Temperature	-42°C ~ +3°C

Warranty



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Perfomance Warranty: 25 years
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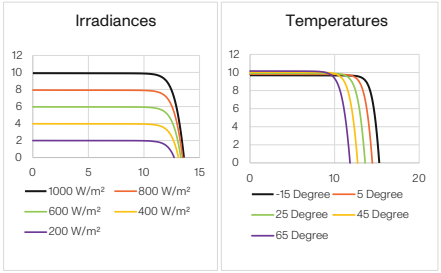
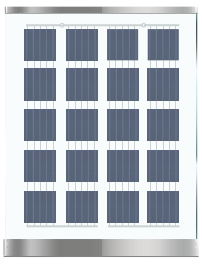
I-V Curves



SolaRail² - Semi-Opaque



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