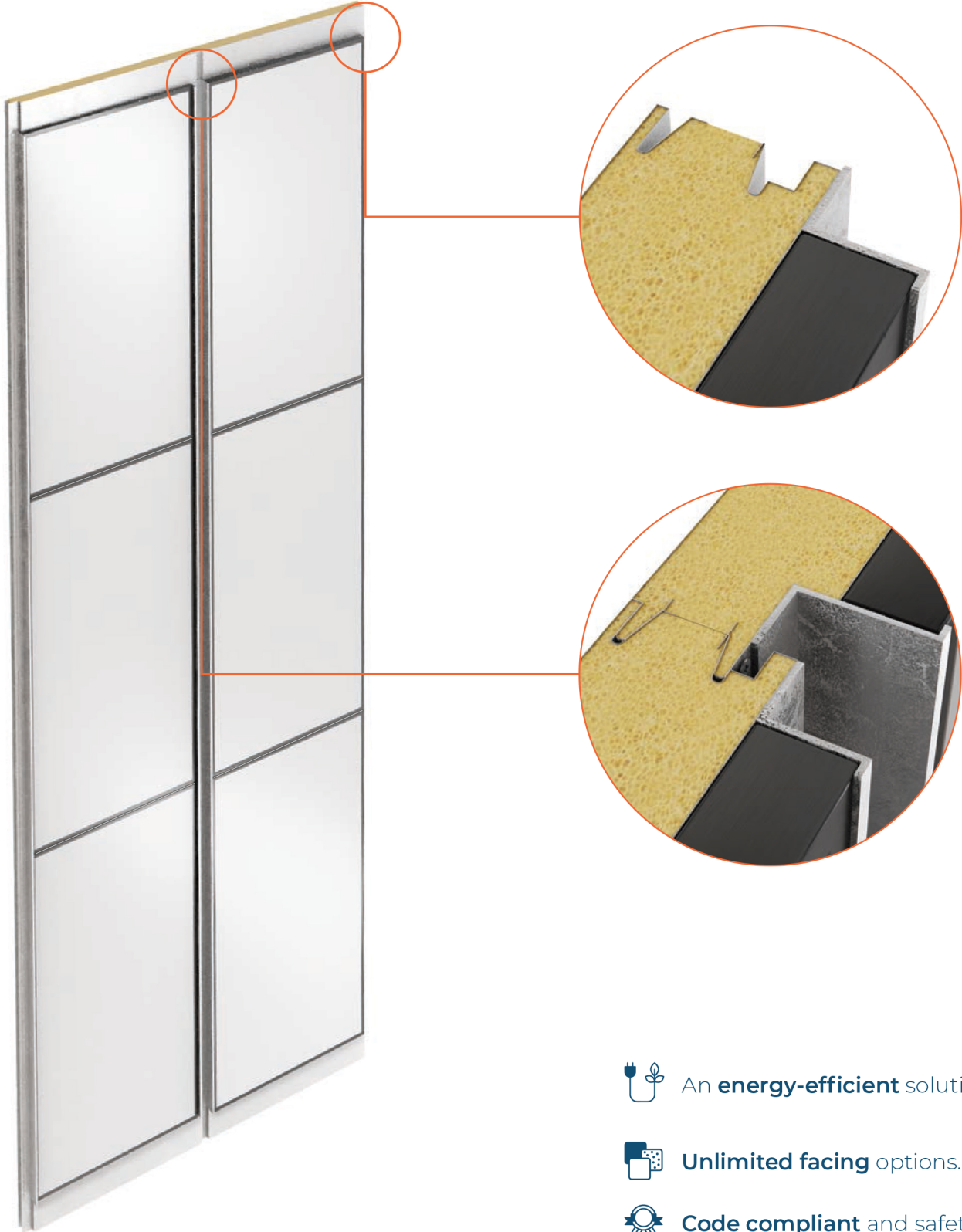


יבואן בלעדי: יוניקיט אנרגיה - 073-7969732

**INSULATED
SOLAR PANEL**
High Efficiency Module

INSULATED SOLAR PANEL (ISP)



 An **energy-efficient** solution.

 **Unlimited facing** options.

 **Code compliant** and safety-tested.

MECHANICAL DATA

The Insulated Solar Panel can be used in a variety of applications including industrial and commercial buildings, cold-storage and controlled-environment buildings, sports centers, and more.



- Superior fastening system.
- Wider girt spacing reduces costs.
- Fast, simple & economical installation.



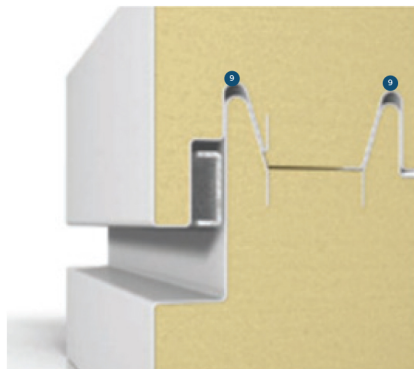
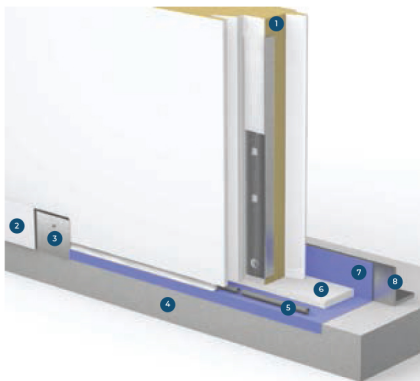
- The materials are environmentally friendly.
- Contribute to obtaining LEED certification.
- **Integrated solar technology that allows energy generation.**



- No moisture penetration, risk of interstitial condensation, or lack of insulation.
- The pressure-equalized rainscreen joint ensures that the building envelope is well sealed.
- Factory-applied butyl joint sealer ensures maximum seal.

SPECIFICATIONS	INSULATED SOLAR PANEL			
Description	<ul style="list-style-type: none"> - Insulated architectural panels with an integrated solar solution designed for building envelopes. - Horizontal & vertical mounting. - Applications: outdoor wall. 			
Overall Panel Width	41.5"			
Overall Panel Length	7' to 52' (+ Additional 3")			
Panel Thickness	2", 3" and 4"			
R-Value	R7.41/in (ASTM C-518)			
Steel Inner Face	0.019" (0.483mm) Standard Thickness - 26 Ga 0.023" (0.584mm) Optional - 24 Ga			
Steel Outer Face	0.0285" (0.724mm) - 22Ga			
Insulated Panel Weight	Thickness _(in)	2"	3"	4"
	Weight _(lb/ft²)	2.22	2.44	2.66

TECHNICAL DETAILS



1. Fastener
2. Trim
3. Trim Hanger
4. Foundation
5. Weep Hole
6. Polyethylene
7. Vapor Barrier
8. Structural Angle
9. Butyl

PHYSICAL PROPERTIES & TESTS

METHOD	SPECIFICATIONS	RESULTS
ASTM C518	R Value/in. of Thickness	7.41
ASTM D1622	Density (lb/ft ³)	Density (pcf) 2.29 Std Dev 0.01
ASTM 1621	Compressive Strength (PSI)	13.7 PSI (3" Thick Sample)
ASTM C203	Flexural Strength	25 - 30
ASTM E96/E96M	Permeability to water vapor (perms/in)	< 2,0
ASTM D2842	Water Absorption (Max.)	< 1.5%
ASTM 2126	Dimensional Stability (Max.)	Dimensional Stability Std. Dev. 0.2 7 Day Vol Chg @ 70°C/97 % R.H 4.3
ASTM D696	Linear Thermal Dilation Coefficient (in/in/°F)	35.47 X 10 - 6

FIRE TEST CANADA

PROCEDURE	DESCRIPTION	RESULTS
CAN / ULC - S101	Fire endurance test of building construction and materials.	Meets 10 minutes stay-in-place requirements
CAN / ULC - S102	Surface burning characteristics of building materials and assemblies.	Meets the National Building Code of Canada requirements.
CAN / ULC - S134	Fire test of exterior wall assemblies.	Complies with the fire-spread and heat-flux limitations required by the National Building Code of Canada.
CAN / ULC - S138	Fire growth of insulated building panels in a full-scale room configuration.	Test requirements have been met.
S - 126	Fire spread under roof deck assembly.	Test requirements have been met.

FIRE TEST USA

PROCEDURE	DESCRIPTION	RESULTS
ASTM E84	Surface burning characteristics of building materials.	Meets 10 minutes stay-in-place requirements
FM 4880	Class 1 fire rating of insulated wall, ceiling and roof panels.	Meets the National Building Code of Canada requirements.
NFPA 259	Standard test method for potential heat of building materials.	Complies with the fire-spread and heat-flux limitations required by the National Building Code of Canada.
NFPA 286	Standard test method for evaluating contribution of wall and ceiling interior finish room fire growth.	Test requirements have been met.
NFPA 285	Standard test method for evaluation of fire propagation characteristics of exterior non-load-bearing wall assemblies containing combustible components.	Test requirements have been met.

PHYSICAL PROPERTIES & TESTS

STRUCTURAL

PROCEDURE	DESCRIPTION	RESULTS
ASTM E72	Deflection tests of panels for building construction.	See load chart (Page 7).
FM 4881	Class 1 exterior wall structural performance.	See FM wall load chart (Page 9).

AIR INFILTRATION

PROCEDURE	DESCRIPTION	RESULTS
ASTM E283	Rate of air leakage through curtain walls under specified pressure differences.	Test requirements have been met.
ASTM E330	Structural performance of exterior walls by uniform static air pressure difference.	Test requirements have been met.

THERMAL PERFORMANCE

PROCEDURE	DESCRIPTION	RESULTS
ASTM C518	Steady-state thermal transmission properties by means of heat-flow meter apparatus.	R 7.41 - Value 35/13°C k factor (W/m ² - K/m) 19.5 R 7.69 - Value 18/-4°C k factor (W/m ² - K/m) 18.8.
CAN / ULC - S 770 - 09	Long term thermal resistance.	Testing requirements have been met per CAN/ULC-S704-11.

WATER INFILTRATION

PROCEDURE	DESCRIPTION	RESULTS
ASTM E331	Water penetration of exterior walls by uniform static air pressure differences.	Test requirements have been met.
AAMA 501.1	Water penetration of exterior walls by dynamic air pressure.	Testing requirements have been met per CAN/ULC-S704-11.



PHYSICAL PROPERTIES & TESTS

LOAD CHART

SINGLE SPAN, L/180 (PSF)			
SPAN (FT)	THICKNESS		
	2"	3"	4"
6	40	68	81
7	35	58	70
8	30	51	61
9	23	45	54
10	17	35	49
11	13	26	44
12	10	20	41
13	8	16	38
14	6	13	33
15	5	10	27
16	-	9	22
17	-	7	19
18	-	6	16
19	-	5	13
20	-	-	11
21	-	-	10
22	-	-	9
23	-	-	8
24	-	-	7
25	-	-	6
26	-	-	5
27	-	-	5
28	-	-	-
29	-	-	-
30	-	-	-

MULTIPLE SPAN, L/180 (PSF)			
SPAN (FT)	THICKNESS		
	2"	3"	4"
6	40	68	81
7	35	58	70
8	30	51	61
9	27	45	54
10	24	41	49
11	22	37	44
12	20	34	41
13	18	31	38
14	15	29	35
15	12	25	33
16	10	21	31
17	8	17	29
18	7	15	27
19	6	12	26
20	5	11	24
21	-	9	23
22	-	8	21
23	-	7	18
24	-	6	16
25	-	5	14
26	-	5	13
27	-	-	11
28	-	-	10
29	-	-	9
30	-	-	8

SINGLE SPAN, L/240 (PSF)			
SPAN (FT)	THICKNESS		
	2"	3"	4"
6	40	68	81
7	35	58	70
8	25	51	61
9	17	36	54
10	13	26	49
11	9	20	44
12	7	15	40
13	6	12	31
14	5	10	25
15	-	8	20
16	-	6	17
17	-	5	14
18	-	5	12
19	-	-	10
20	-	-	9
21	-	-	7
22	-	-	6
23	-	-	6
24	-	-	5
25	-	-	-
26	-	-	-
27	-	-	-
28	-	-	-
29	-	-	-
30	-	-	-

PHYSICAL PROPERTIES & TESTS

LOAD CHART

MULTIPLE SPAN, L/240 (PSF)			
SPAN (FT)	THICKNESS		
	2"	3"	4"
6	40	68	81
7	35	58	70
8	30	51	61
9	27	45	54
10	24	41	49
11	22	37	44
12	18	34	41
13	14	29	38
14	11	23	35
15	9	19	33
16	7	16	31
17	6	13	29
18	5	11	27
19	-	9	24
20	-	8	21
21	-	7	18
22	-	6	16
23	-	5	14
24	-	5	12
25	-	-	11
26	-	-	9
27	-	-	8
28	-	-	8
29	-	-	7
30	-	-	6

SINGLE SPAN, L/360 (PSF)			
SPAN (FT)	THICKNESS		
	2"	3"	4"
6	39	68	81
7	24	51	70
8	16	34	61
9	12	24	54
10	8	18	46
11	6	13	35
12	5	10	27
13	-	8	21
14	-	6	17
15	-	5	14
16	-	-	11
17	-	-	9
18	-	-	8
19	-	-	7
20	-	-	6
21	-	-	5
22	-	-	-
23	-	-	-
24	-	-	-
25	-	-	-
26	-	-	-
27	-	-	-
28	-	-	-
29	-	-	-
30	-	-	-

MULTIPLE SPAN, L/360 (PSF)			
SPAN (FT)	THICKNESS		
	2"	3"	4"
6	40	68	81
7	35	58	70
8	30	51	61
9	27	45	54
10	20	41	49
11	15	32	44
12	12	25	41
13	9	19	38
14	7	15	35
15	6	13	33
16	5	10	27
17	-	9	23
18	-	7	19
19	-	6	16
20	-	5	14
21	-	5	12
22	-	-	10
23	-	-	9
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29	-	-	5
30	-	-	-

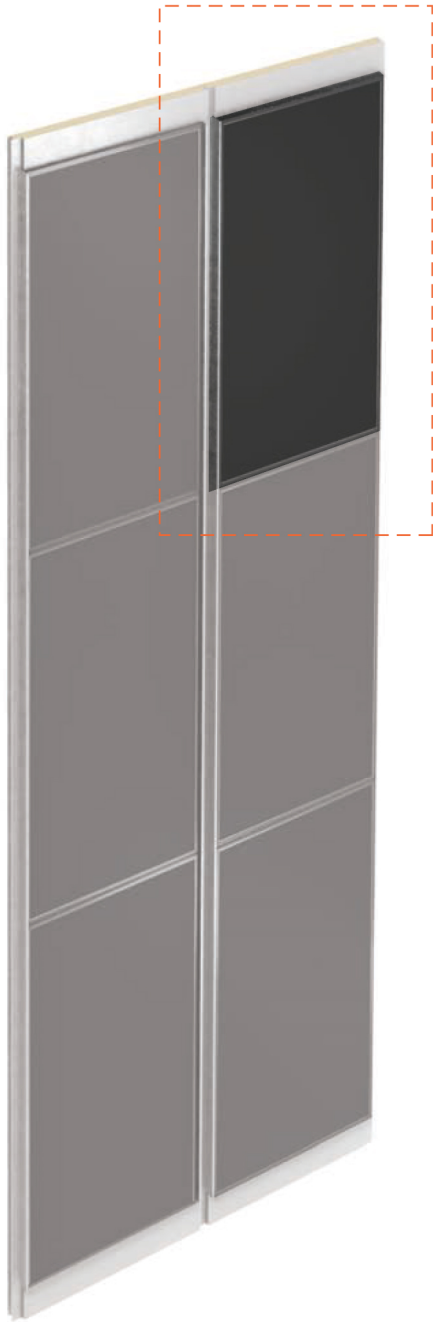
PHYSICAL PROPERTIES & TESTS

Class S (Severe)

FM WALL LOAD CHART

	WIDTH	MAX HEIGHT	HAIL RESISTANCE RATING	WIND LOAD RATING & ZONE	MAX SUPPORT STEEL SPACING	MIN SUPPORT STEEL THICKNESS	MIN SUPPORT STEEL YIELD STRESS
3" - 6" (76-152 mm) Fastening System FP1 Listened Below	36" - 42.5" (914-1080 mm)	No Limit	Class S (Severe)	Class +30/-42	84" (2134mm)	14 ga. (0.0747" [1.9mm])	50 ksi
	36" - 42.5" (914-1080 mm)	No Limit	Class S (Severe)	Class +40/-56	72" (1829mm)	14 ga. (0.0747" [1.9mm])	50 ksi
	36" - 42.5" (914-1080 mm)	No Limit	Class S (Severe)	Class +45/-63	60" (1524mm)	14 ga. (0.0747" [1.9mm])	50 ksi
	36" - 42.5" (914-1080 mm)	No Limit	Class S (Severe)	Class +60/-84	48" (1219mm)	14 ga. (0.0747" [1.9mm])	50 ksi
3" - 6" (76-152 mm) Fastening System FP4 Listened Below	36" - 42.5" (914-1080 mm)	No Limit	Class S (Severe)	Class +30/-42	120" (3048mm)	14 ga. (0.0747" [1.9mm])	50 ksi
	36" - 42.5" (914-1080 mm)	No Limit	Class S (Severe)	Class +40/-56	108" (2743mm)	14 ga. (0.0747" [1.9mm])	50 ksi
	36" - 42.5" (914-1080 mm)	No Limit	Class S (Severe)	Class +45/-63	96" (2438mm)	14 ga. (0.0747" [1.9mm])	50 ksi
	36" - 42.5" (914-1080 mm)	No Limit	Class S (Severe)	Class +50/-70	84" (2134mm)	14 ga. (0.0747" [1.9mm])	50 ksi
	36" - 42.5" (914-1080 mm)	No Limit	Class S (Severe)	Class +60/-84	72" (1829mm)	14 ga. (0.0747" [1.9mm])	50 ksi

ELECTRICAL DATA (Single Solar Panel)



SPECIFICATIONS	M390-AIF
Cell Type	Mono-Crystalline
Cell Arrangement	72 [(12X6)]
Width (mm)	996 (39.2")
Length (mm)	2036 (80.2")
Thickness (mm)	w/Frame 40 (1.6")
Front Cover	3.2 mm tempered glass
Frame	Anodized aluminum alloy black frame
Weight (kg)	22kg
J-Box Protection Class	≥ IP67
Connector Protection Class	IP68
Max. Power (P _{MAX})	390W +/- 5%
Open Circuit Voltage _(V_{oc})	47.2V +/- 5%
Short Circuit Current _(I_{sc})	9.77A +/- 5%
Max. Power Voltage _(V_{PM})	41.9V +/- 5%
Current at Max Power _(I_{PM})	9.31A +/- 5%
Max. Series Fuse Rating	20A
Max. System Voltage	1000V
Fire Protection Class	C / Type 1
Operating Temperature (°C)	-40° - +85° [-40°F - 185°F]

HEIGHT OPTIONS FOR SOLAR IMPs

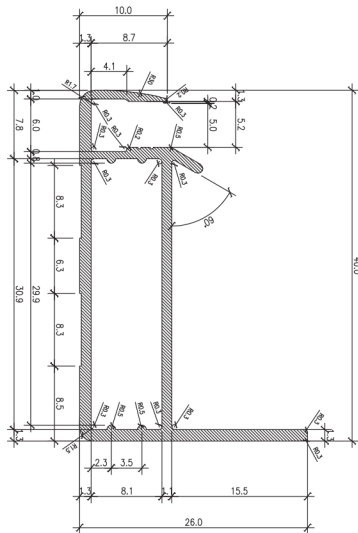
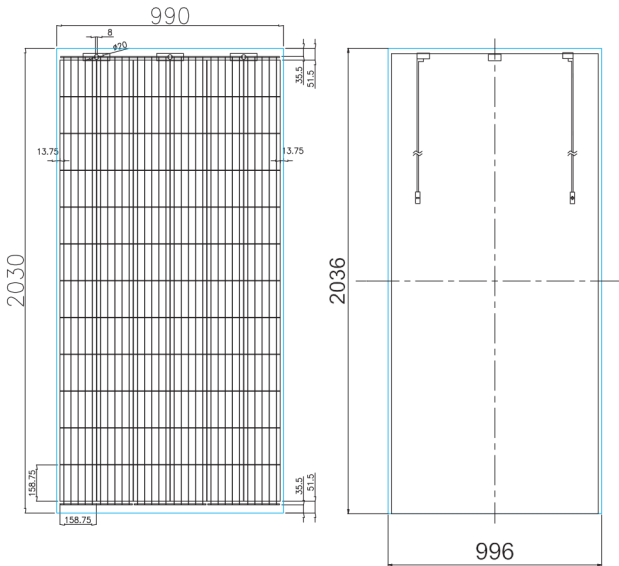
# OF SOLAR PANELS	2 PANEL	3 PANELS	4 PANELS	5 PANELS
ISP Minimum Length (in)	168"	248"	348"	409"
ISP Width (in)	41.5"	41.5"	41.5"	41.5"
ISP Weight (ISP Thickness of 3")	118.3lbs	174.7lbs	231.0lbs	287.3lbs
Overall System Weight (ISP Thickness of 3")	264lbs	394lbs	523lbs	652lbs

For overall system weight:
ISP Weight from page 4 + (# of panels x 73lbs).

SOLAR PANEL BLACK HP (Datasheet)



ENGINEERING DRAWING (mm)



MECHANICAL DATA

SPECIFICATIONS	BLACK HP M390-A1F
Cell Type	Mono-Crystalline
Cell Arrangement	72 [(12X6)]
Dimensions	2036x996x40mm
Front Cover	3.2mm tempered glass
Frame	Anodized aluminum alloy frame
Weight	22kg
J-Box	IP68, 3 bypass diodes
Cable	4mm ² , 12 AWG (UL)
Cable Length (Including Connector)	500mm, 1000mm, 1200mm
Connector	MC4

ELECTRICAL DATA | SCT*

SPECIFICATIONS	BLACK HP M390-A1F
Nominal Max. Power (Pmax)	390W
MPP Operating Voltage (Vmp)	41.9V
MPP Operating Current (Imp)	9.31A
Open Circuit Voltage (Voc)	48.2V
Short Circuit Current (Isc)	9.97A
Module Efficiency	19.2%
Operating Temperature	-40°C ~ +85°C
Max. System Voltage	1000V (IEC/UL)
Max. Series Fuse Rating	20A
Application Classification	Class A

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m² spectrum AM 1.5 and cell temperature of 25°C.

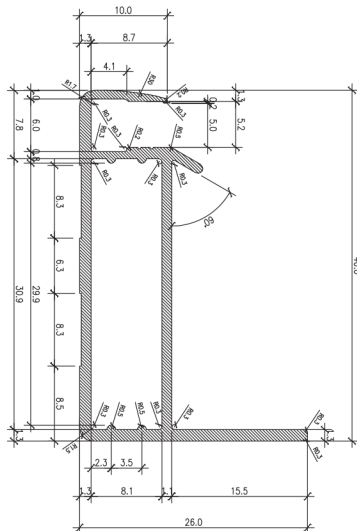
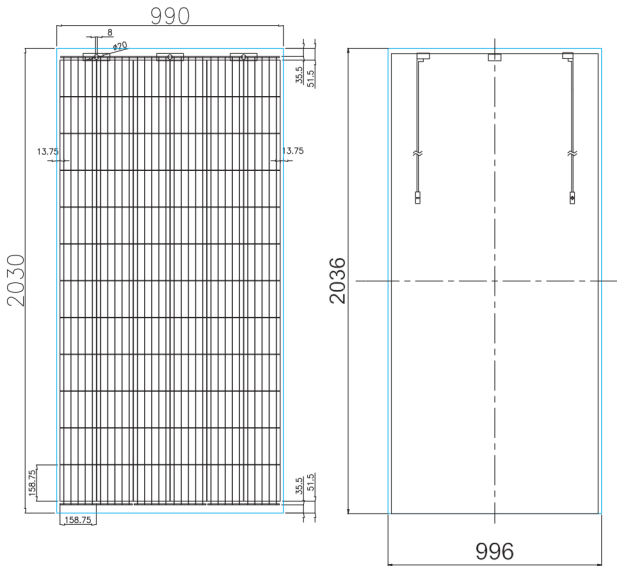
TEMPERATURE CHARACTERISTICS

SPECIFICATIONS	BLACK HP M390-A1F
Temperature Coefficient Pmax	-0.36% / °C
Temperature Coefficient Voc	-0.30% / °C
Temperature Coefficient Isc	0.046% / °C
Nominal Module Operating Temperature	42 ± 3°C

SOLAR PANEL WHITE (Datasheet)



ENGINEERING DRAWING (mm)



MECHANICAL DATA

SPECIFICATIONS	SOLAR PANEL WHITE
Cell Type	Mono-Crystalline
Cell Arrangement	72 [(12X6)]
Dimensions	2036x996x40mm
Front Cover	3.2mm tempered glass
Frame	Anodized aluminum alloy frame
Weight	22kg
J-Box	IP68, 3 bypass diodes
Cable	4mm ² , 12 AWG (UL)
Cable Length (Including Connector)	500mm, 1000mm, 1200mm
Connector	MC4

ELECTRICAL DATA | SCT*

SPECIFICATIONS	SOLAR PANEL WHITE
Nominal Max. Power (Pmax)	175W
MPP Operating Voltage (Vmp)	43.0V
MPP Operating Current (Imp)	4.07A
Open Circuit Voltage (Voc)	48.2V
Short Circuit Current (Isc)	4.36A
Cell Efficiency	22% - 22.5%
Operating Temperature	-40°C ~ +85°C
Max. System Voltage	1000V (IEC/UL)
Max. Series Fuse Rating	20A
Application Classification	Class A

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m² spectrum AM 1.5 and cell temperature of 25°C.

TEMPERATURE CHARACTERISTICS

SPECIFICATIONS	SOLAR PANEL WHITE
Temperature Coefficient Pmax	-0.36% / °C
Temperature Coefficient Voc	-0.30% / °C
Temperature Coefficient Isc	0.046% / °C
Nominal Module Operating Temperature	42 ± 3°C

AVAILABLE COLOURS

⚡ SOLAR SOLID COLOURS



Bright White



White



Bone White



Imperial White



Regal White



Pewter



Grey Rigel



Charcoal



Stone Grey



Slate Blue



Heron Blue



Dark Brown



Tile Red



Colonial Red



Melchers Green



Weathered Copper

The power per panel for the solar ISP will change depending on the colour.



LEARN MORE:

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