Airport Solar Garden

48.8kW South 49,000kWh Annual generation

IoS Smart Energy Islands Project

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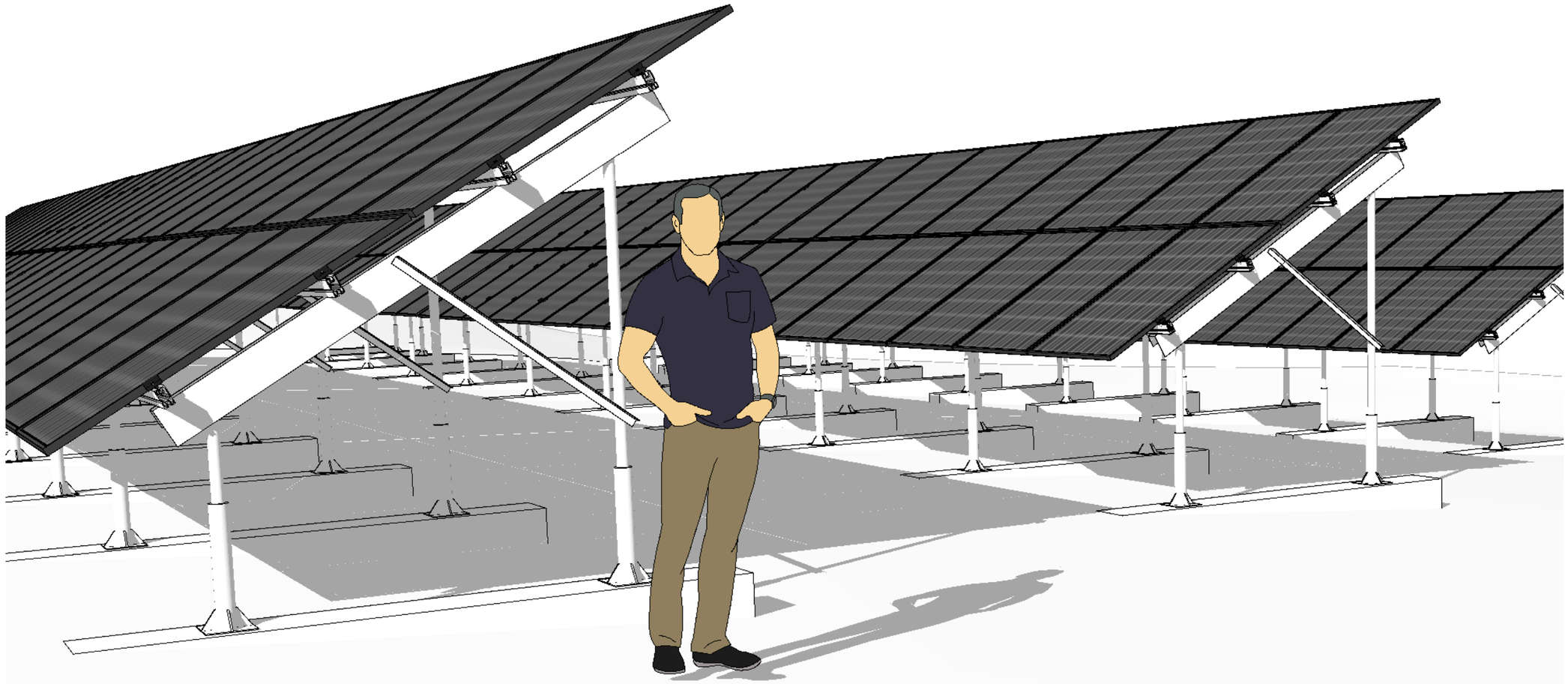
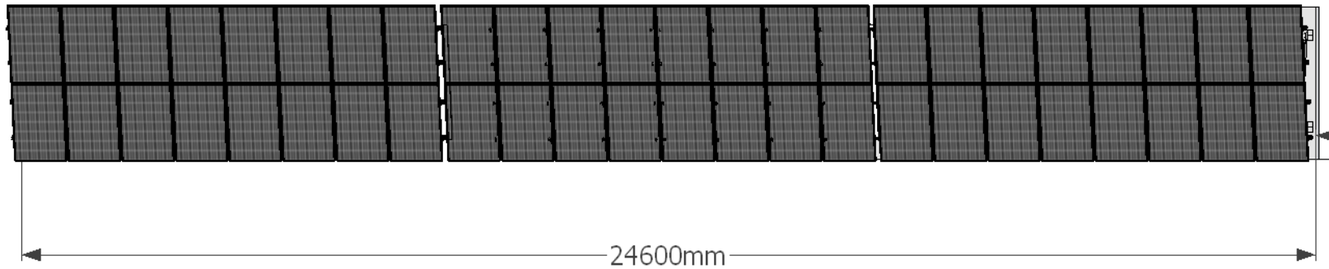
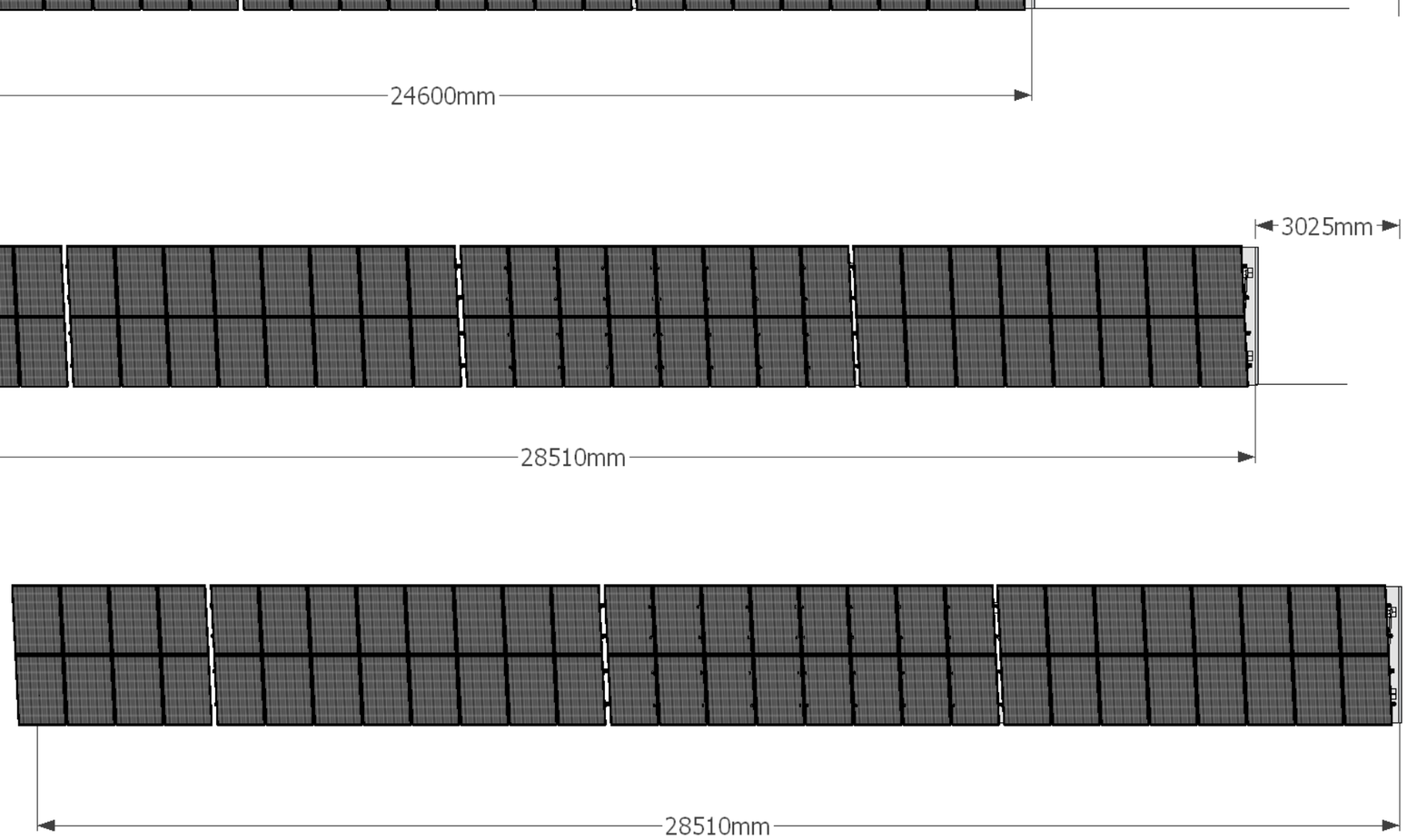


48.8kW Array, South orientation. Ten strings of 16 x 305Wp panels.
Two 20kW 3phase dual MPPT inverters.
Estimated annual generation of 49,000kWh

Array positioning





Note: Array spacing takes account of increase in slope as terrain falls away to the North.

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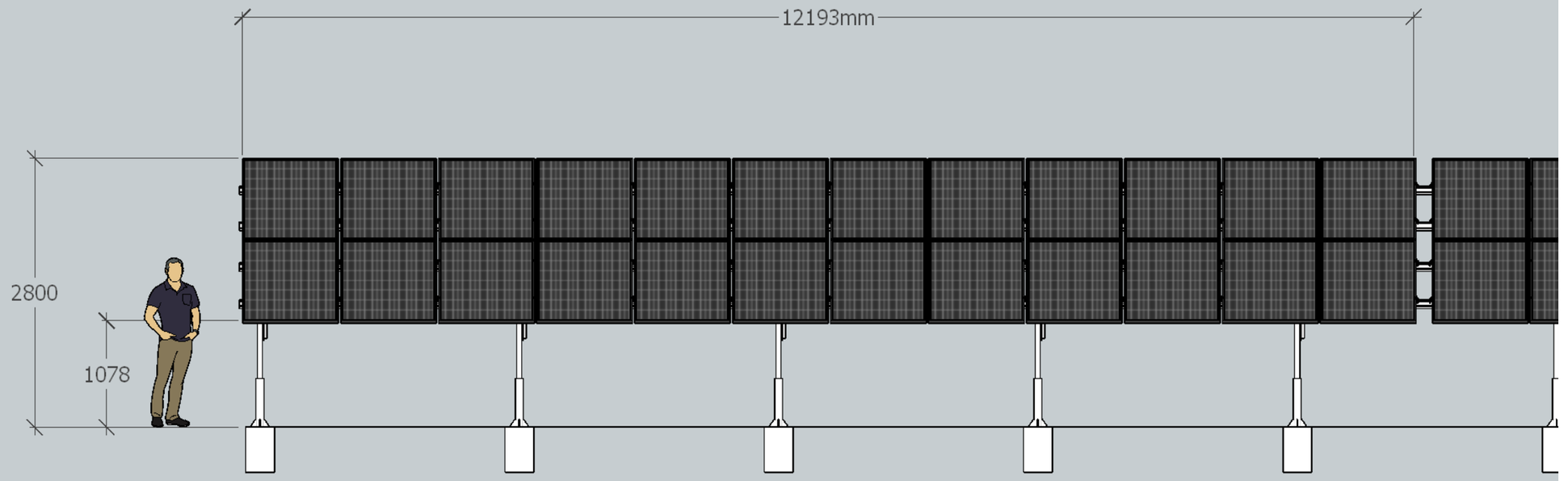
Dimensions



Elevation shows dimensions of one 'Table'. Solar Garden comprises three rows of tables. Due to variations in terrain, level of concrete footing above ground will differ depending on location. Height of tables is adjustable. Tables are shown adjusted to maximum height

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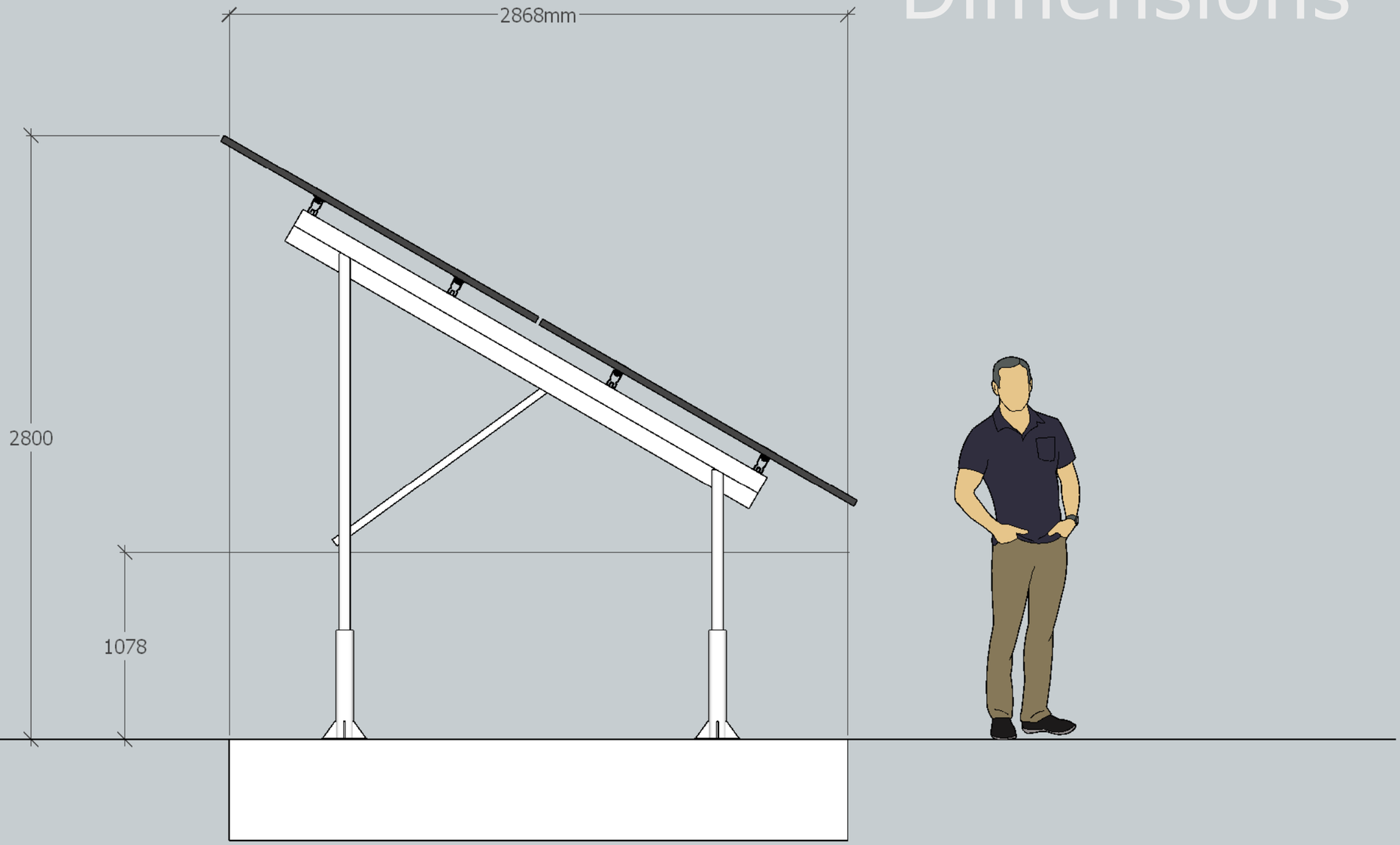
Dimensions



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Connection arrangement

The solar plant was originally intended to feed power to the IoS Airport infrastructure. After consultation with WPD, there were concerns that the connection point in the Airport may be vulnerable to voltage uplift during periods of low consumption and high solar generation. WPD have offered a new more 'robust' connection point in the adjacent field.

Solar PV cable to Point of Connection in green cabinet. Buried direct in trench, approximately 120m in length

WPD provided cable to Point of Connection in green cabinet

Proposed extent of fencing. 4m access gate in SE corner

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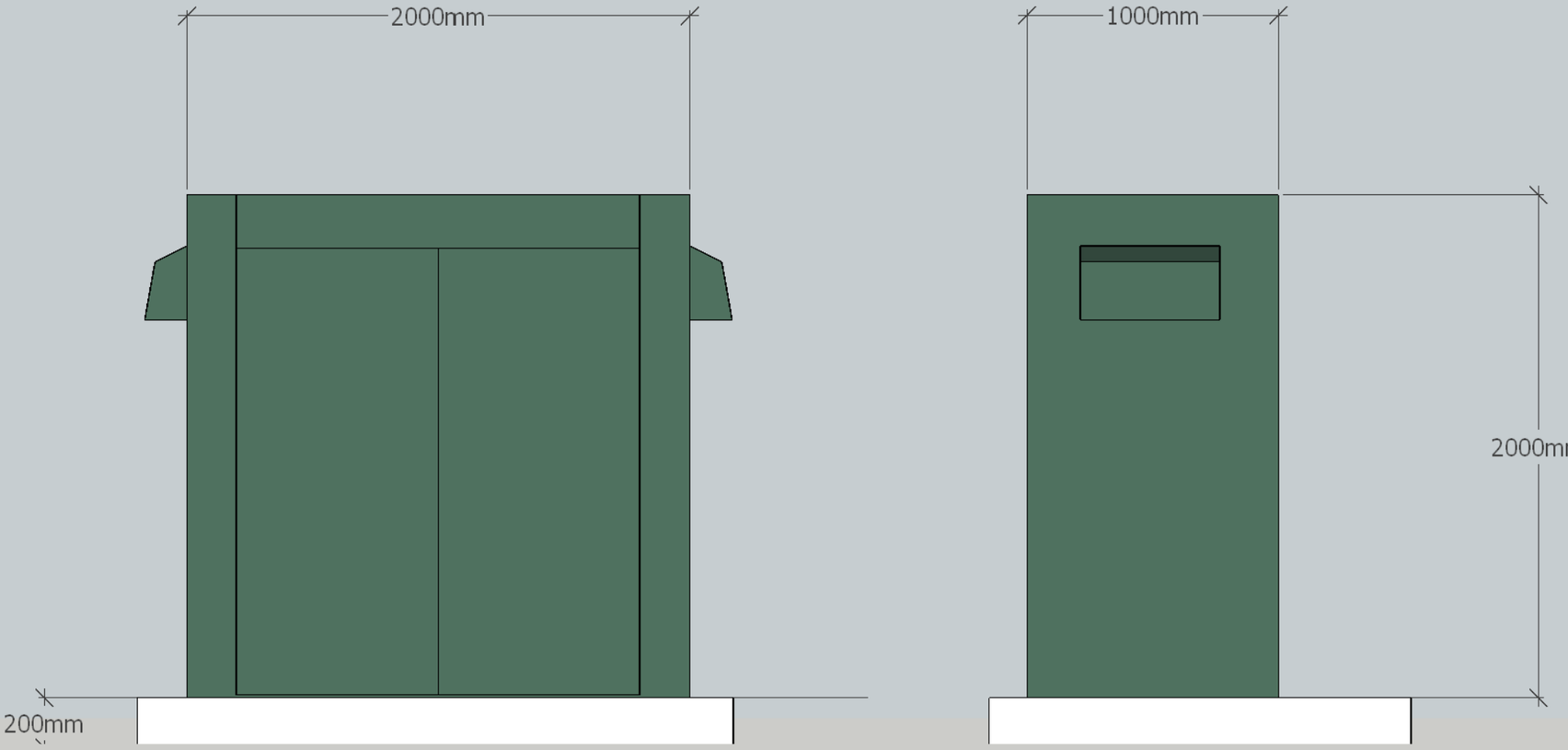
Point of Connection



Green cabinet housing WPD Point of Connection,
isolation, cable protection and metering equipment.
GRP construction, Green (RAL 14 C 39) gloss finish.
Mounted on concrete plinth

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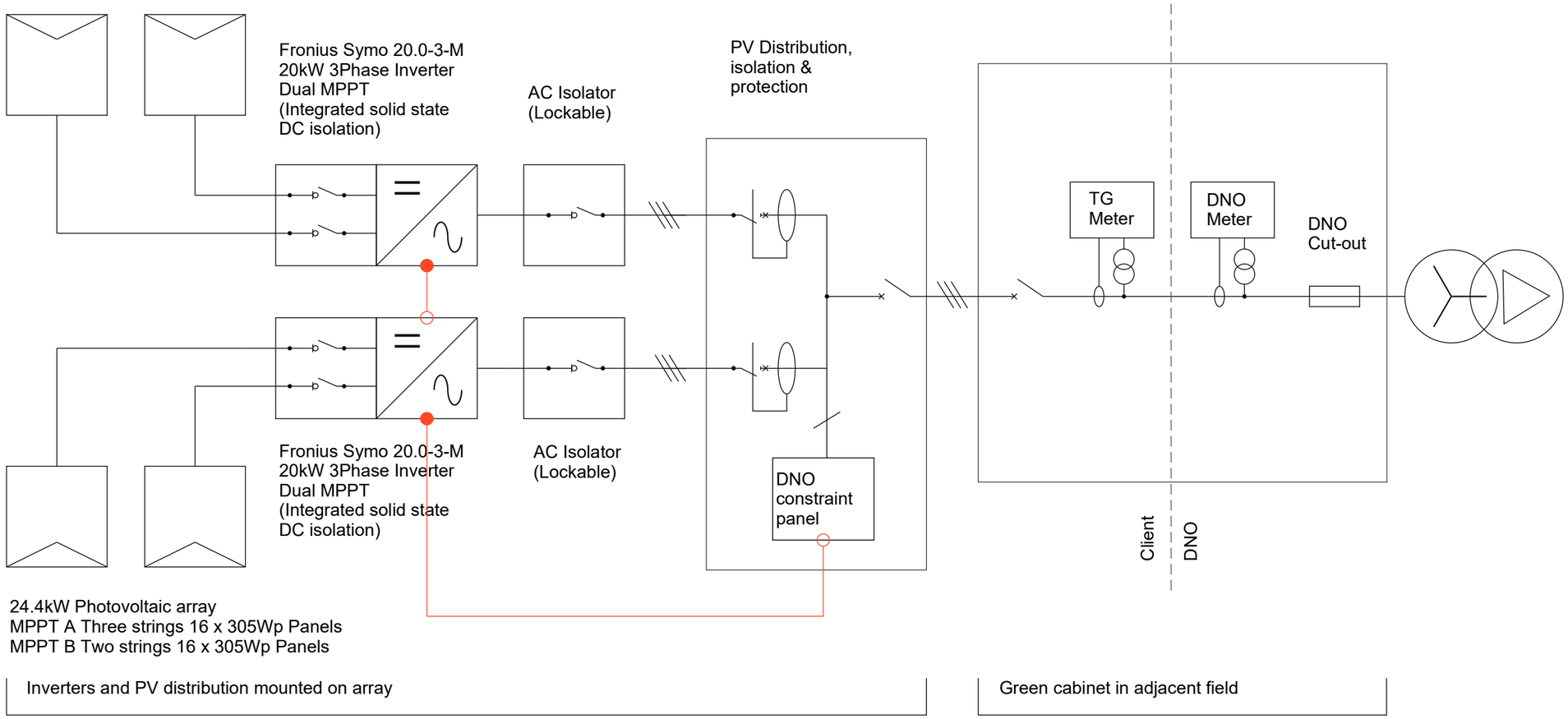
Schematic



GRID PROTECTION SETTINGS (G59/3)

STAGE 1 OVERVOLTAGE	262V	1.0S
STAGE 1 UNDERVOLTAGE	200V	2.5S
STAGE 2 OVERVOLTAGE	274V	1.0S
STAGE 2 UNDERVOLTAGE	184V	0.5S
STAGE 1 OVERFREQUENCY	51.5Hz	90S
STAGE 1 UNDERFREQUENCY	47.5Hz	20S
STAGE 2 OVERFREQUENCY	52Hz	0.5S
STAGE 2 UNDERFREQUENCY	47Hz	0.5S
DISCONNECT ON LOSS OF MAINS		
VECTOR SHIFT	12 DEGREES	
RoCoF	0.2Hz/sec	

The Total Installed Capacity of this system will be 48.8kW.
The Declared Net Capacity will be 40kW

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Module Datasheet

IoS Smart Energy Islands Project

Garden

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Q.PEAK DUO BLK-G5 300-320

Q.ANTUM SOLAR MODULE

The new Q.PEAK DUO BLK-G5 solar module from Q CELLS impresses with its outstanding visual appearance and particularly high performance on a small surface thanks to the innovative Q.ANTUM DUO Technology. Q.ANTUM's world-record-holding cell concept has now been combined with state-of-the-art circuitry half cells and a six-busbar design, thus achieving outstanding performance under real conditions — both with low-intensity solar radiation as well as on hot, clear summer days.

Q.ANTUM TECHNOLOGY: LOW LEVELIZED COST OF ELECTRICITY
Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.3 %.

INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behavior.

ENDURING HIGH PERFORMANCE
Long-term yield security with Anti LID Technology, Anti PID Technology[1], Hot-Spot Protect and Traceable Quality Tra.Q™.

EXTREME WEATHER RATING
High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa) regarding IEC.

A RELIABLE INVESTMENT
Inclusive 12-year product warranty and 25-year linear performance guarantee[2].

STATE OF THE ART MODULE TECHNOLOGY
Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

EUPD RESEARCH TOP BRAND PV MODULES EUROPE 2018

Q CELLS YIELD SECURITY – ANTI PID TECHNOLOGY (APT) – HOT-SPOT PROTECT (HSP) – TRACEABLE QUALITY (TRA.Q™) – ANTI LID TECHNOLOGY (ALT)

VDE Quality Tested – high reliability – low degradation – frequent product surveillance
ID. 40032587

PV magazine award 2017 Top Innovation

[1] APT test conditions according to IEC/TS 62804-1:2015, method B (−1500V, 168 h)
[2] See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:

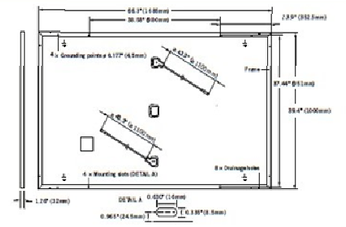
Rooftop arrays on residential buildings

Engineered in **Germany**

Q CELLS

MECHANICAL SPECIFICATION

Format	66.3 in × 39.4 in × 1.26 in (including frame) (1685 mm × 1000 mm × 32 mm)
Weight	41.2 lbs (18.7 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 20 monocrystalline Q.ANTUM solar half-cells
Junction box	2.76-3.35 in × 1.97-2.76 in × 0.51-0.83 in (70-85 mm × 50-70 mm × 13-21 mm), decentralized, IP67
Cable	4 mm² Solar cable; (+) ≥ 43.3 in (1100 mm), (−) ≥ 43.3 in (1100 mm)
Connector	Multi-Contact MC4, IP68

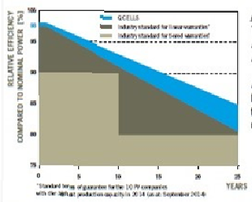


ELECTRICAL CHARACTERISTICS

POWER CLASS				300	305	310	315	320
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W/−0 W)								
Minimum	Power at MPP[1]	P_{MPP}	[W]	300	305	310	315	320
	Short Circuit Current[1]	I_{SC}	[A]	9.72	9.78	9.83	9.89	9.94
	Open Circuit Voltage[1]	V_{OC}	[V]	39.48	39.75	40.02	40.29	40.56
	Current at MPP	I_{MPP}	[A]	9.25	9.31	9.36	9.41	9.47
	Voltage at MPP	V_{MPP}	[V]	32.43	32.78	33.12	33.46	33.80
	Efficiency[1]	η	[%]	≥ 17.8	≥ 18.1	≥ 18.4	≥ 18.7	≥ 19.0
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]								
Minimum	Power at MPP	P_{MPP}	[W]	224.1	227.8	231.6	235.3	239.1
	Short Circuit Current	I_{SC}	[A]	7.83	7.88	7.92	7.97	8.01
	Open Circuit Voltage	V_{OC}	[V]	37.15	37.40	37.66	37.91	38.17
	Current at MPP	I_{MPP}	[A]	7.28	7.32	7.37	7.41	7.45
	Voltage at MPP	V_{MPP}	[V]	30.78	31.11	31.44	31.76	32.08

[1] Measurement tolerances P_{MPP} ± 3 %; I_{SC}; V_{OC} ± 5 % at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 G according to IEC 60904-3 • [2] 800 W/m², NMOT, spectrum AM 1.5 G

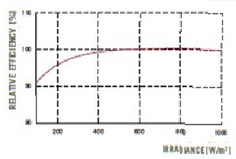
Q CELLS PERFORMANCE WARRANTY



At least 98 % of nominal power during first year.
Thereafter max. 0.54 % degradation per year.
At least 93.1 % of nominal power up to 10 years.
At least 85 % of nominal power up to 25 years.

All data within measurement tolerances.
Full warranties in accordance with the warranty terms of the Q CELLS sales organization of your respective country.

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.28
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.37	Normal Operating Module Temperature	NMOT	[°F]	109 ±5.4 (43 ±3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V_{SYS}	[V]	1000 (IEC) / 1000 (UL)	Safety Class	II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating	C (IEC) / TYPE 1 (UL)
Max. Design Load, Push / Pull (UL)[2]	[lbs/ft²]	75 (3600 Pa) / 55 (2667 Pa)	Permitted module temperature on continuous duty	−40 °F up to +185 °F (−40 °C up to +85 °C)
Max. Test Load, Push / Pull (UL)[2]	[lbs/ft²]	113 (5400 Pa) / 84 (4000 Pa)	[2] see installation manual	

QUALIFICATIONS AND CERTIFICATES

UL 1703; VDE Quality Tested; CE-compliant;
IEC 61215:2016; IEC 61730:2016, Application class A

PACKAGING INFORMATION

Number of Modules per Pallet	32
Number of Pallets per 53' Trailer	30
Number of Pallets per 40' High Cube Container	26
Pallet Dimensions (L × W × H)	69.3 in × 45.3 in × 46.9 in (1760 mm × 1150 mm × 1190 mm)
Pallet Weight	1415 lbs (642 kg)

NOTE: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

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