COMUNE DI ACQUAVIVA DELLE FONTI

CITTA' METROPOLITANA DI BARI

REGIONE PUGLIA

REALIZZAZIONE DI UN IMPIANTO AGROVOLTAICO CONNESSO ALLA RETE ED INTEGRATO CON UN SISTEMA DI ACCUMULO DELLA POTENZA DI PICCO PARI A 33.496,32 kW E POTENZA IN IMMISSIONE PARI A 45.000,00 kW

Denominazione Impianto:

IMPIANTO ACQUAVIVA 1

Ubicazione:

Comune di Acquaviva delle Fonti (BA)
Contrada Borgo - Strada Vicinale Montevella

ELABORATO
021100

Cod. Doc.:
ACQ21_021100_R

COMPONENTI PRINCIPALI - DATA SHEET

ATOM S.R.L.
Project - Commissioning – Consulting
Via di Villa Pepoli, 23
00153 ROMA - Italy
P.Iva 02907090308

Scala: --

PROGETTO

Data: **17/01/2022**

PRELIMINARE	DEFINITIVO	AS BUILT
☐	☒	☐

Richiedente:

CCEN ACQUAVIVA s.r.l.
Piazza Walther Von Vogelweide, 8
39100 Bolzano (BZ)
P.IVA 03115710216

Tecnici e Professionisti:

Ing. Luca Ferracuti Pompa:
Iscritto al n.A344 dell'Albo dell'Ordine degli Ingegneri della Provincia di Fermo

Revisione	*Data*	*Descrizione*	*Redatto*	*Approvato*	*Autorizzato*
01	*17/01/2022*	*Progetto Definitivo*	*F.P.L.*	*F.P.L.*	*F.P.L.*
02					
03					
04					

Il Tecnico:
Dott. Ing. Luca Ferracuti Pompa

ORDINE degli INGEGNERI - PROVINCIA di FERMO
Luca FERRACUTI POMPA
Ingegnere
a - civile ambientale
b - industriale
c - dell'informazione
A344

.....

Il Richiedente:
CCEN ACQUAVIVA S.r.l.

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1. OGGETTO

Il presente documento è redatto quale allegato alla documentazione relativa all'istanza per il procedimento di Valutazione di Impatto Ambientale ministeriale, ai sensi dell'Art. 23 del D. Lgs. 152/06, finalizzata all'ottenimento dell'Autorizzazione Unica per la costruzione e l'esercizio in conformità alle vigenti disposizioni di legge di un **IMPIANTO AGROVOLTAICO** costituito da:

- un generatore di energia elettrica da fonte rinnovabile solare di potenza di picco pari a **33.496,32 kW** e potenza massima in immissione pari **45.000,00 kW** (grid-connected);
- un sistema colturale diversificato che prevede la coltivazione di **Olivo** e **Vite**, per la produzione di oliva da olio e uva da tavola;
- un elettrodotto interrato in alta tensione a **36 kV** con tracciato di lunghezza pari a circa **2,5 km**.

da realizzarsi nel Comune di **Acquaviva delle Fonti (BA)** in **Contrada Borgo** - **Strada Vicinale Montevella**.
L'energia elettrica prodotta sarà riversata completamente in rete con allaccio a 36 kV alla Rete Elettrica Nazionale del distributore **Terna S.p.A.** in ragione del progetto di connessione identificato con codice pratica **n. 202100439**, la cui soluzione tecnica minima generale (STMG) prevede che la centrale venga collegata in antenna su una nuova Stazione Elettrica (SE) di Trasformazione della RTN a 380/150/36 kV da inserire in entra – esce alla linea RTN a 380 kV "Andria – Brindisi Sud ST". Il collegamento avverrà per mezzo di un nuovo Satellite 150/36 kV.
Il Produttore e Soggetto Responsabile è la Società **CCEN ACQUAVIVA S.r.l.**, la quale dispone dell'autorizzazione all'utilizzo dell'area su cui sorgerà l'impianto in oggetto, la cui denominazione è "**ACQUAVIVA 1**".

Allegati:

- COMPONENTI PRINCIPALI – DATA SHEET

Bolzano, lì 17/01/2022

Il Tecnico
(Dott. Ing. Luca Ferracuti Pompa)

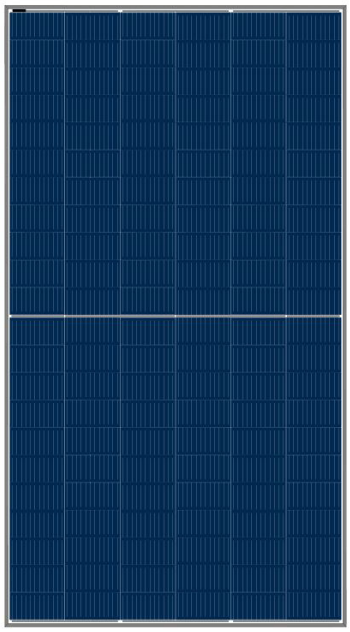
SUNTECH

Ultra X Plus

132 HALF-CELL MONOFACIAL MODULE

640-660W

STP*XXX*S - D66/Wmh



Features

High module conversion efficiency
Module efficiency up to 21.2 % achieved through advanced cell technology and manufacturing process

Suntech current sorting process
Up to 2 % power loss caused by current mismatch could be diminished by current sorting technique to maximize system power output

Excellent weak light performance
More power output in weak light condition, such as cloudy, morning and sunset

Lower operating temperature
Lower operating temperature and temperature coefficient increases the power output

Extended wind and snow load tests
Module certified to withstand extreme wind (2400 Pascal) and snow loads (5400 Pascal) *

Withstanding harsh environment
Reliable quality leads to a better sustainability even in harsh environment like desert, farm and coastline

Certifications and standards:
IEC 61215, IEC 61730, conformity to CE

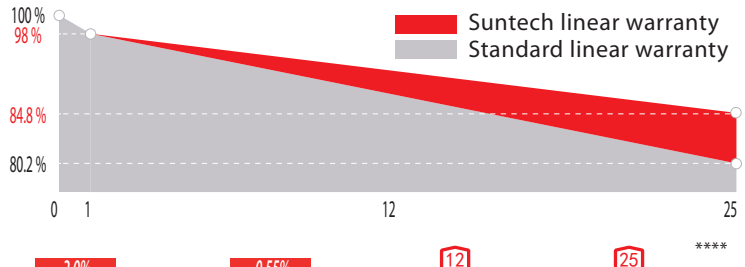
Trust Suntech to Deliver Reliable Performance Over Time

- World-class manufacturer of crystalline silicon photovoltaic modules
- Rigorous quality control meeting the highest international standards: ISO 9001, ISO 14001 and ISO17025
- Regular independently checked production process from international accredited institute/company
- Tested for harsh environments (IEC 61701, IEC 62716, DIN EN 60068-2-68) ***
- Long-term reliability tests
- 2 × 100% EL inspection ensuring defect-free modules

HD technology + Half-Cell

Half-cell with MBB design decreases internal resistance while boosts power output; narrowed inter-cell gap through flexible welding technology contributes to the module's compact dimension.

Industry-leading Warranty based on nominal power



-2.0%	-0.55%	12 YEARS	25 YEARS ****
First year power degradation	Annual degradation	Product warranty	linear warranty

IP68 Rated Junction Box

The Suntech IP68 rated junction box ensures an outstanding waterproof level, supports installations in all orientations and reduces stress on the cables.

* Please refer to Suntech Standard Module Installation Manual for details.
** WEEE only for EU market. *** Please refer to Suntech Product Near-coast Installation Guide for details.
**** Please refer to Suntech Limited Warranty for details.

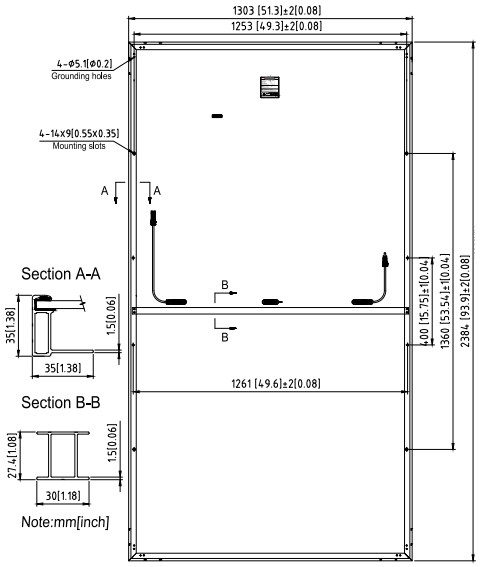
Electrical Characteristics

STC	STPXXXS-D66/Wmh				
Maximum Power at STC (Pmax)	660W	655W	650W	645W	640W
Optimum Operating Voltage (Vmp)	38.05V	37.85V	37.65V	37.45V	37.25V
Optimum Operating Current (Imp)	17.35A	17.31A	17.27A	17.23A	17.19A
Open Circuit Voltage (Voc)	46.05V	45.85V	45.65V	45.45V	45.25V
Short Circuit Current (Isc)	18.35A	18.31A	18.27A	18.23A	18.19A
Module Efficiency	21.2%	21.1%	20.9%	20.8%	20.6%
Operating Module Temperature	-40 °C to +85 °C				
Maximum System Voltage	1500 V DC (IEC)				
Maximum Series Fuse Rating	35 A				
Power Tolerance	0/+5 W				

STC: Irradiance 1000 W/m², module temperature 25 °C, AM=1.5;
Tolerance of Pmax is within +/- 3%;
For tracker installation, please turn to Suntech for mechanical load information.

NMOT	STPXXXS-D66/Wmh				
Maximum Power at NMOT (Pmax)	497.9W	494.1W	490.3W	486.7W	483.0W
Optimum Operating Voltage (Vmp)	35.6V	35.4V	35.2V	35.1V	34.9V
Optimum Operating Current (Imp)	13.99A	13.96A	13.92A	13.89A	13.85A
Open Circuit Voltage (Voc)	43.4V	43.2V	43.0V	42.8A	42.6V
Short Circuit Current (Isc)	14.76A	14.73A	14.70A	14.67V	14.64A

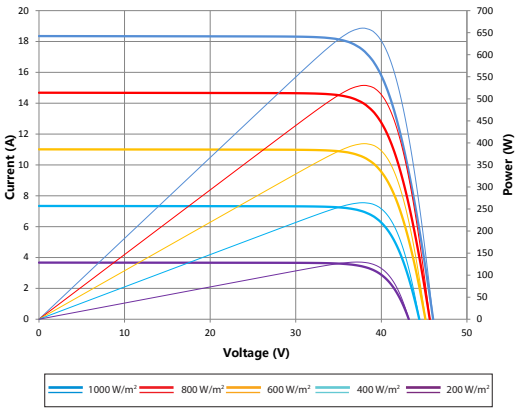
NMOT: Irradiance 800 W/m², ambient temperature 20 °C, AM=1.5, wind speed 1 m/s.



Temperature Characteristics

Nominal Module Operating Temperature (**NMOT**)	42 ± 2 °C
Temperature Coefficient of Pmax	-0.36%/°C
Temperature Coefficient of Voc	-0.304%/°C
Temperature Coefficient of Isc	0.050%/°C

Current-Voltage & Power-Voltage Curve (660S)



Mechanical Characteristics

Solar Cell	Monocrystalline silicon 210 mm
No. of Cells	132 (6 × 22)
Dimensions	2384 × 1303 × 35 mm (93.9 × 51.3 × 1.4 inches)
Weight	34.5 kgs (76.1 lbs.)
Front Glass	3.2 mm (0.126 inches)
Frame	Anodized aluminium alloy
Junction Box	IP68 rated (3 bypass diodes)
Output Cables	4.0 mm², Portrait: (-) 350 mm and (+) 160 mm in length Landscape: (-) 1400 mm and (+) 1400 mm in length or customized length
Connectors	MC4 EVO2, Cable 01S

Dealer information

Packing Configuration

Container	40' HC
Pieces per container	558

Information on how to install and operate this product is available in the installation instruction. All values indicated in this data sheet are subject to change without prior announcement. The specifications may vary slightly. All specifications are in accordance with standard EN 50380. Color differences of the modules relative to the figures as well as discolorations of/in the modules which do not impair their proper functioning are possible and do not constitute a deviation from the specification.

SUN2000-215KTL-H3
Smart String Inverter

100A
Per MPPT

99.0%
Max. Efficiency

String-Smart
Switch

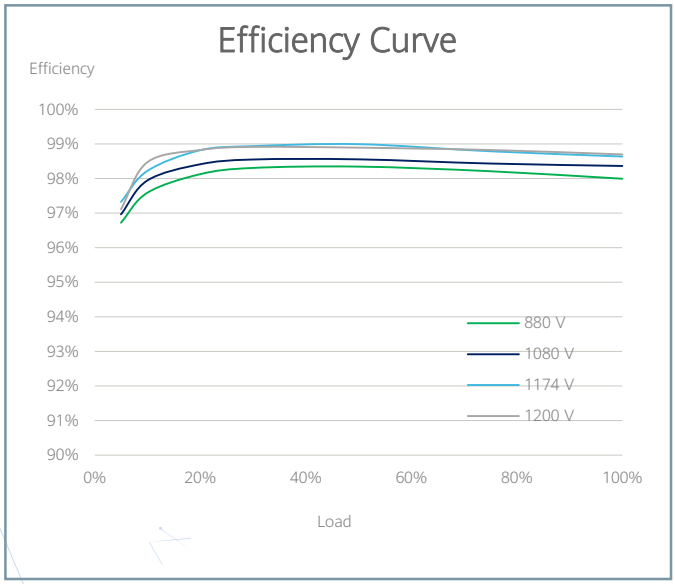
Smart I-V Curve
Diagnosis Supported

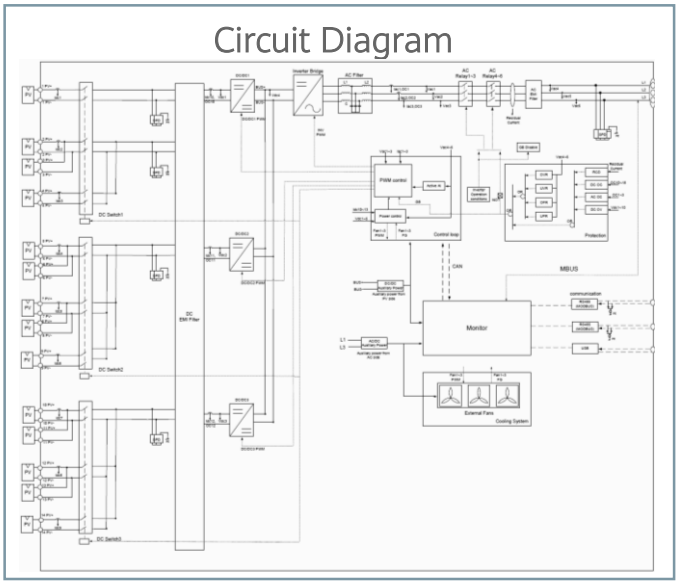
MBUS
Supported

Fuse Free
Design

Surge Arresters for
DC & AC

IP66
Protection





SUN2000-215KTL-H3

Technical Specifications

Efficiency	
Max. Efficiency	≥99.0%
European Efficiency	≥98.6%
Input	
Max. Input Voltage	1,500 V
Number of MPP Trackers	3
Max. Current per MPPT	100A/100A/100A
Max. PV Inputs per MPPT	4/5/5
Start Voltage	550 V
MPPT Operating Voltage Range	500 V ~ 1,500 V
Nominal Input Voltage	1,080 V
Output	
Nominal AC Active Power	200,000 W
Max. AC Apparent Power	215,000 VA
Max. AC Active Power (cosϕ=1)	215,000 W
Nominal Output Voltage	800 V, 3W + PE
Rated AC Grid Frequency	50 Hz / 60 Hz
Nominal Output Current	144.4 A
Max. Output Current	155.2 A
Adjustable Power Factor Range	0.8 LG ... 0.8 LD
Max. Total Harmonic Distortion	< 1%
Protection	
Input-side Disconnection Device	Yes
Anti-islanding Protection	Yes
AC Overcurrent Protection	Yes
DC Reverse-polarity Protection	Yes
PV-array String Fault Monitoring	Yes
DC Surge Arrester	Type II
AC Surge Arrester	Type II
DC Insulation Resistance Detection	Yes
Residual Current Monitoring Unit	Yes
Communication	
Display	LED Indicators, WLAN + APP
USB	Yes
MBUS	Yes
RS485	Yes
General	
Dimensions (W x H x D)	1,035 x 700 x 365 mm (40.7 x 27.6 x 14.4 inch)
Weight (with mounting plate)	≤86 kg (191.8 lb.)
Operating Temperature Range	-25°C ~ 60°C (-13°F ~ 140°F)
Cooling Method	Smart Air Cooling
Max. Operating Altitude without Derating	4,000 m (13,123 ft.)
Relative Humidity	0 ~ 100%
DC Connector	Staubli MC4 EVO2
AC Connector	Waterproof Connector + OT/DT Terminal
Protection Degree	IP66
Topology	Transformerless


Soltec
SF7
Bi-facial
From both
sides now
The next-generation-now horizontal single-axis solar tracker
LISTED
[PV SOLAR TRACKER]
E476688
ANATEL
07441-17-10783
INTI
FINAME
BNDES

TECHNICAL DATASHEET

SF7 Bi-facial

Single-Axis Tracker

MAIN FEATURES

Tracking System	Horizontal Single-Axis with independent rows
Tracking Range	up to ± 60°
Drive System	Enclosed Slewing Drive, DC Motor
Power Supply	Self-Powered PV Series
	Optional: AC/DC Universal Input
Tracking Algorithm	Astronomical with TeamTrack Backtracking
Communication	
RS-485 cable not included in Soltec scope	
Wire	RS-485 Full Wired
Optional: Wireless	Hybrid Radio + RS-485 Cable
Wind Resistance	Per Local Codes
Land Use Features	
Independent Rows	YES
Slope North-South	up to 17%
Slope East-West	Unlimited
Ground Coverage Ratio	Configurable. Typical range: 30-50%
Foundation	Driven Pile | Ground Screw | Concrete
Temperature Range	
Standard	- 4°F to +131°F | -20°C to +55°C
Extended	-40°F to +131°F | -40°C to +55°C
Availability	>99%
Modules	Bifacial

MODULE CONFIGURATIONS Aproximate Dimentions

	Length	Height	Width
2x27	28.1 m (92' 2")	3.95 m (12' 12")	4.5 m (14' 9")
2x28	29 m (95' 2")		

	Length	Height	Width
2x40.5	42 m (137' 9")	3.95 m (12' 12")	4.5 m (14' 9")
2x42	43.4 m (142' 5")		

SERVICES

Pull Test Plan	Commissioning Plan
Factory Support Plan	Operation & Maintenance Plan
Onsite Advisory Plan	Tracker Monitoring System Plan
Construction Plan	Solmate Customer Care

MAINTENANCE ADVANTAGES

- Self-lubricating Bearings
- Face to Face Cleaning Mode
- 2x Wider Aisles

WARRANTY

Structure	10 years (extendable)
Motor	5 years (extendable)
Electronics	5 years (extendable)

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B&V Bankability report
DNV GL Technology Review available
RWDI WIND TUNNEL TESTED

2 year background industrial operation

Soltec

www.soltec.com

ORMAZABAL
velatia

TECHNICAL SPECIFICATION

TRANSFORMER ARE CALCULATED AT 40ºC AMBIENT TEMPERATURE

TRANSFORMER TYPE: **5150/36/34,5 2x0,585 O-PB**
STANDARD : IEC 60076
FREQUENCY : 60 Hz

FACTOR K: 1

ELECTRICAL FEATURES
INSULATION LEVEL VOLTAGE :
HIGH VOTAGE: 36 KV
LOW VOLTAGE : 3,6 KV

Maximum altitude: 1.300 m.a.s.l

POWER RATING (MVA)			**5,15**	**(2X2541 KVA)**			
VOLTAGE (V)		PRIMARY	34500				
		SECONDARY NO LOAD	2x585				
PRIMARY TAP			± 2,5 ± 5%				
VECTOR GROUP			Dyn11yn11				
RATED CURRENT HV (A)			86,18				
RATED CURRENT LV (A)			**2x2541**	**2403**	**2403**		
POWER (KVA)			**5150**	**2575**	**2575**	**2575**	
NO LOAD LOSSES (W)			5150				+ 0%
LOAD LOSSES (W)			41000	20500	20500		+ 0%
SHORT CIRCUIT VOLTAGE %			**HV/LV1-LV2**	**HV/LV1**	**HV/LV2**	**LV1/LV2**	
Ucc(%)			6,53	5,55	5,88	> 8	+ 10%
UccR(%)			0,69	0,69	0,69		+ 10%
UccX(%)			6,49	5,51	5,84		+ 10%
X/R ratio			8,8	8	8,5		
Zo (%)			6,30				
NO LOAD CURRENT BT 100 % Un (A)			8,64				+ 30%
NO LOAD CURRENT AT 100 % Un (A)			0,15				+ 30%
Resistance, R (Ω/phase) LV			0,00022				
Reactance, X (Ω/phase) LV			0,0015				
THD (%)			< 3				
FACTOR K			1				
SOUND LEVEL dB (A)			79				
Positive sequence resistance (RT) 75ºC %			0,69				
Positive sequence reactance (XT) 75ºC %			6,12				
Inrush current (or B/H curve)			6,5				
50% decaying time constant (s)			0,3				
VOLTDROP AT		cos f = 1	1,04				
FULL LOAD (%)		cos f = 0.8	3,13				
EFFICIENCY (%)	LOAD 100%	cos f = 1	99,11				
		cos f = 0.8	98,89				
	LOAD 75%	cos f = 1	99,27				
		cos f = 0.8	99,10				
	LOAD 50%	cos f = 1	99,41				
	50%	cos f = 0.8	99,26				
COOLING METHOD			ONAN				
INSULATION LEVEL							
HV / LV POWER FREC. TEST VOLTAGE (KV)			70/10				
HV / LV IMPULSE TEST VOLTAGE (KV)			170/20				
INDUCED POTENCIALTEST (KV)			1,170				

	4890 KVA at 50ºC	**4870 KVA at 36ºC**	**5120 KVA at 25ºC**
HEATING :			
WINDING TEMPERATURE (K)	54,5	64,5	79,5
TOP OIL TEMPERATURE (K)	49,5	59,5	74,5
Tª at 1300 m of altitude (ºC)	50	40	25
COILS	Aluminum	/	Aluminum
TYPE OF TANKING	CORRUGATED HERMETICALLY SEALED HERMETIC AND INTEGRAL FILING		

DIMENSIONS	LENGHT (mm)	2800	**FINAL DIMENSIONS**
	WIDTH (mm)	1800	
	HEIGHT WITHOUT WHEELS (mm)	2271	
CLEARANCES (mm)		at least 100mm.	
OIL	(Litres)	3051	
WEIGHT	(Kgr)	10245	

NOTE: All transformers have electrostatic screen between high voltage and low voltage

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