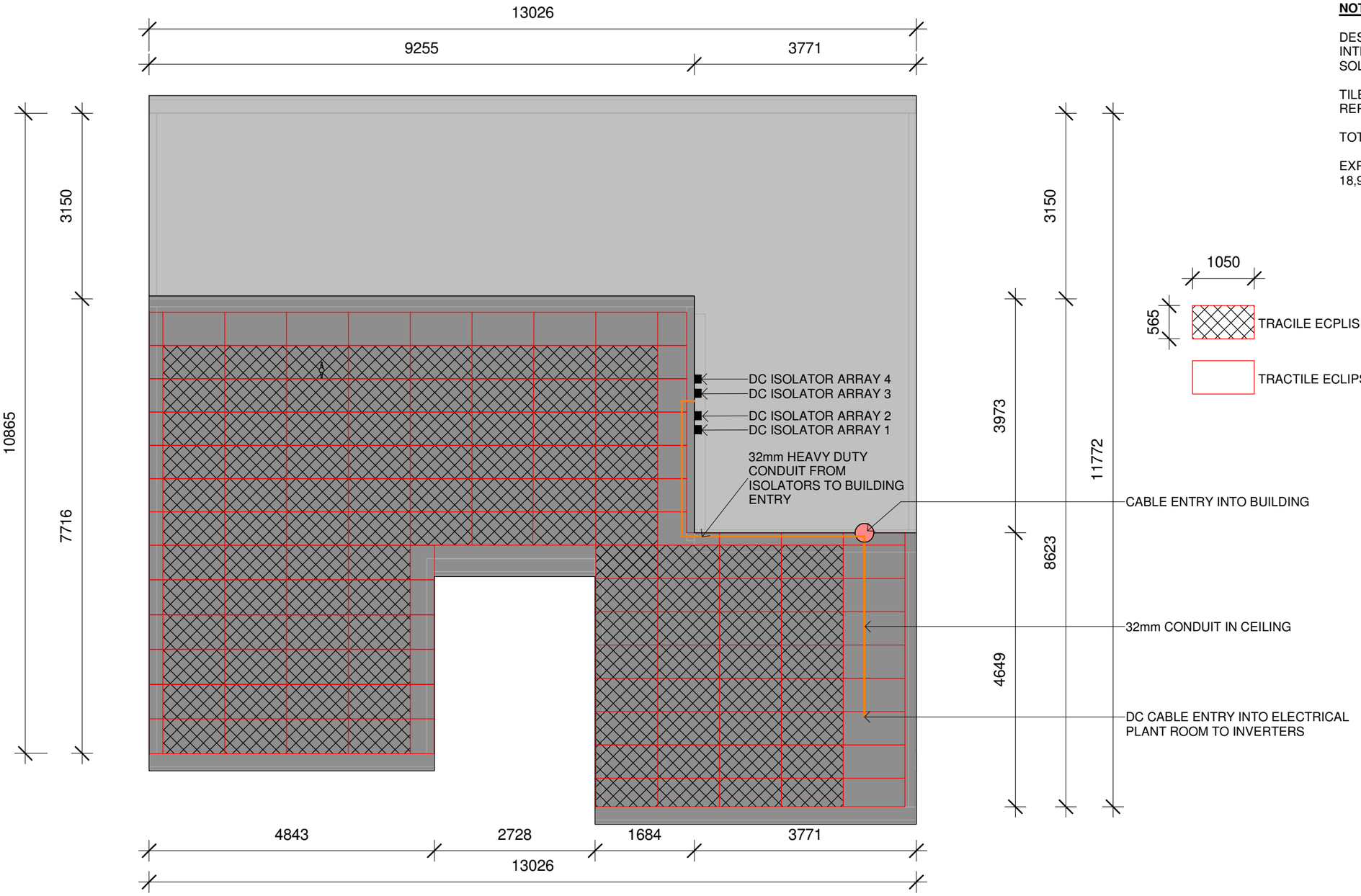

NOTES

DESERT ROSE ROOF CONSISTS OF 104 BUILING INTEGRATED PHOTOVOLTAIC-THERMAL TRACTILE SOLAR TILES.

TILES FIXED TO BATTENS UNDERNEATH AND REPLACE TRADITIONAL ROOF CONSTRUCTION .

TOTAL GENERATING CAPACITY IS 10.4 kW.

EXPECTED ANNUAL ENERGY GENERATION IS 18,997 kWh.

1 Solar PV Roof Plan

1 : 75

VISUAL SCALE 1:75 @ A3

Desert Rose
Team UOW
Australia - Dubai

Team: TEAM UOW

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NSW, AUSTRALIA 2522

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www.desertrosehouse.com.au

Client:

Dubai Electricity and Water Authority

SOLAR DECATHLON MIDDLE EAST DUBAI, UAE - 2018

AMENDMENTS

REV.	DESCRIPTION	DATE	DRAWN	CHECK
1	Updated to As-Built	14/09/18	BB	CM

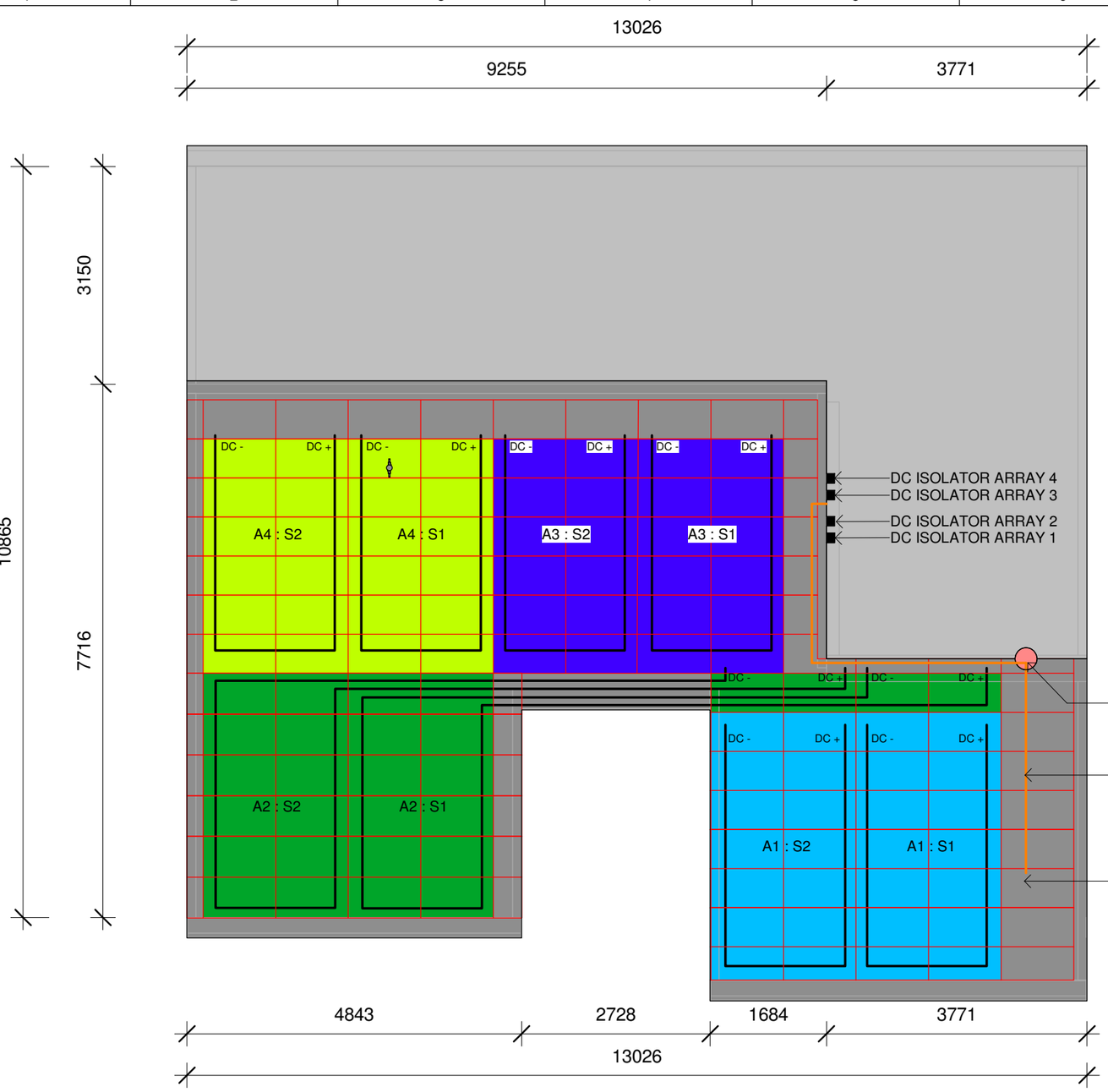
LOT # M
DRAWER B.BANFIELD
CHECKED C.MCDOWELL
DATE 12 September, 2018
SCALE 1 : 75 @ A3

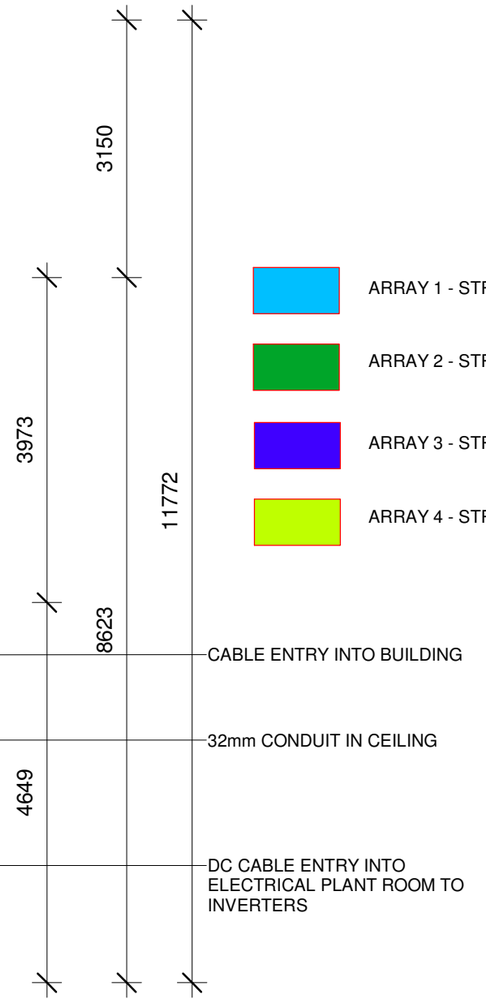
NORTH

SHEET: 01 OF 01

PV SYSTEM - ROOF PLAN

PV-001





NOTES

AX : SX DENOTES ARRAY NUMBER AND STRING NUMBER.

ALL DC WIRING CONSISTS OF 4.0mm² TWIN DC SOLAR CABLE. REFETR TO PV-106 FOR DATA SHEET.

PARALLELING STRINGS ACHIEVED USING GENUINE MC4 BRANCH CONNECTORS.

EACH ARRAY CONNECTED TO DESIGNATED PGK 1000V DC ISOLATOR LOCATED ON ROOF.

CONNECTION TO ISOLATOR VIA MC4 CONNECTOR.

FOR DC WIRING SCHEMATIC REFER TO PV-201.

- ARRAY 1 - STRING CONFIGURATION: 2X14
- ARRAY 2 - STRING CONFIGURATION: 2X14
- ARRAY 3 - STRING CONFIGURATION: 2X12
- ARRAY 4 - STRING CONFIGURATION: 2X12

VISUAL SCALE 1:75 @ A3

0m 1.5m 3m 4.5m 6m 7.5m

1 Solar PV Roof Wiring Plan

1 : 75

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SCALE 1 : 75 @ A3

NORTH

SHEET: 01 OF 01

PV SYSTEM - ARRAY WIRING PLAN

PV-002

RENEWANLE ENERGY SYSTEMS SCHEDULE			
DESCRIPTION	**MAKE**	**MODEL**	**QTY**
BIPV-T SOLAR TILE 100W	TRACTILE	ECLIPSE SOLAR TILE	104
INVERTER 7 kW	E3DC	S10 MINI	2
LITHIUM ION BATTERY MODULES 3.45kWH	PANASONIC	DCB-Z	4
MC4 BRANCH SOCKET	MULTI-CONTACT (STAUBLI)	PV-AZB4	4
MC4 BRANCH PLUG	MULTI-CONTACT (STAUBLI)	PV-AZS4	4
MC4 MALE MALE CONNECTOR	MULTI-CONTACT (STAUBLI)	PV-KBT4	24
MC4 MALE FEMALE CONNECTOR	MULTI-CONTACT (STAUBLI)	PV-KST4	24
WEATHERPORRF DC ISOLAOR 1000V 32A	PGK	SE042E	4

ELECTRICAL LEGEND	
DC	DC ISOLATOR
XX A	LINE AND NEUTRAL CIRCUIT BREAKER (XX A IS THE CURRENT RATING)
XX A	RESIDUAL CURRENT DEVICE PROTECTED CIRCUIT BREAKER (XX A IS THE CURRENT RATING)
	CURRENT TRANSFORMER FOR METERING
	LIGHTNING ARRESTOR
AC	AC ISOLATOR
DC	DOUBLE POLE DC ISOLATOR
	ACTIVE CONDUCTOR
	NEUTRAL CONDUCTOR
	EARTH CONDUCTOR
	SOLAR INVERTER
	SOLAR PV MODUILE
	ENERGY STORAGE UNIT
	DC/DC CONVERTER

1 PV Systems Legend

Desert Rose
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SOLAR DECATHLON MIDDLE EAST DUBAI, UAE - 2018

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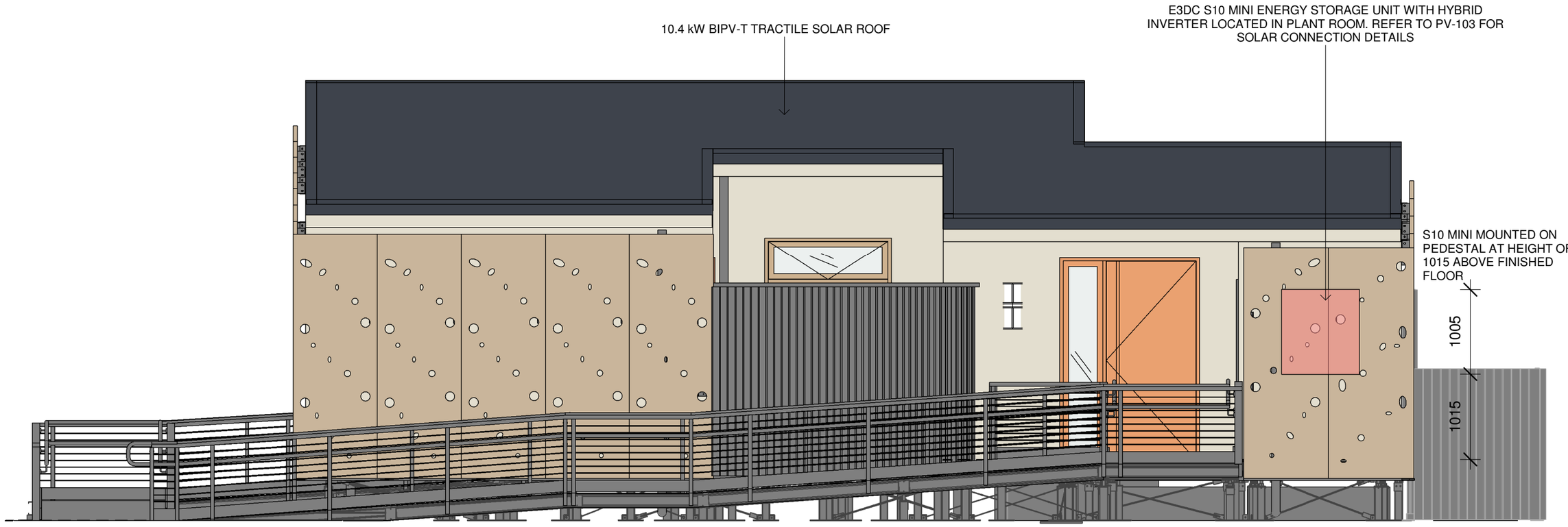
SCALE N.T.S. @ A3

SHEET: 01 OF 01

PV SYSTEMS LEGEND/ SCHEDULE

PV-003



S PV Elevations South

1 : 50

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SOLAR DECATHLON MIDDLE EAST DUBAI, UAE - 2018

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DATE 13 September, 2018
SCALE 1 : 50 @ A3

SHEET:
01 OF 01

PV SYSTEM ELEVATIONS - SOUTH

PV-011

E3DC S10 MINI ENERGY STORAGE UNIT WITH HYBRID INVERER.SOLAR ARRAY 1 CONNECTED TO INVERTER. REFER TO PV-201 FOR DETAILS

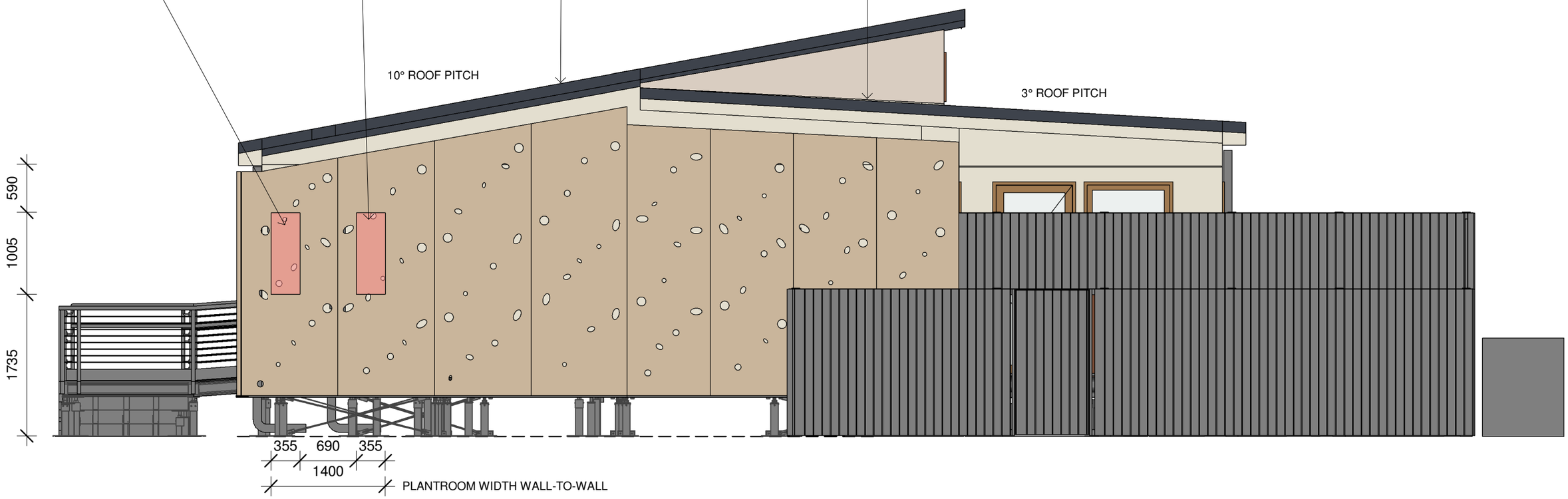
E3DC S10 MINI ENERGY STORAGE UNIT WITH HYBRID INVERTER. SOLAR ARRAY 2 CONNECTED TO INVERTER. REFER TO PV-201 FOR DETAILS

10.4 kW BIPV-T TRACTILE SOLAR ROOF

COLORBOND METAL ROOF SHEETING

10° ROOF PITCH

3° ROOF PITCH



1 PV Elevations East

1 : 50

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SOLAR DECATHLON MIDDLE EAST DUBAI, UAE - 2018

AMENDMENTS				
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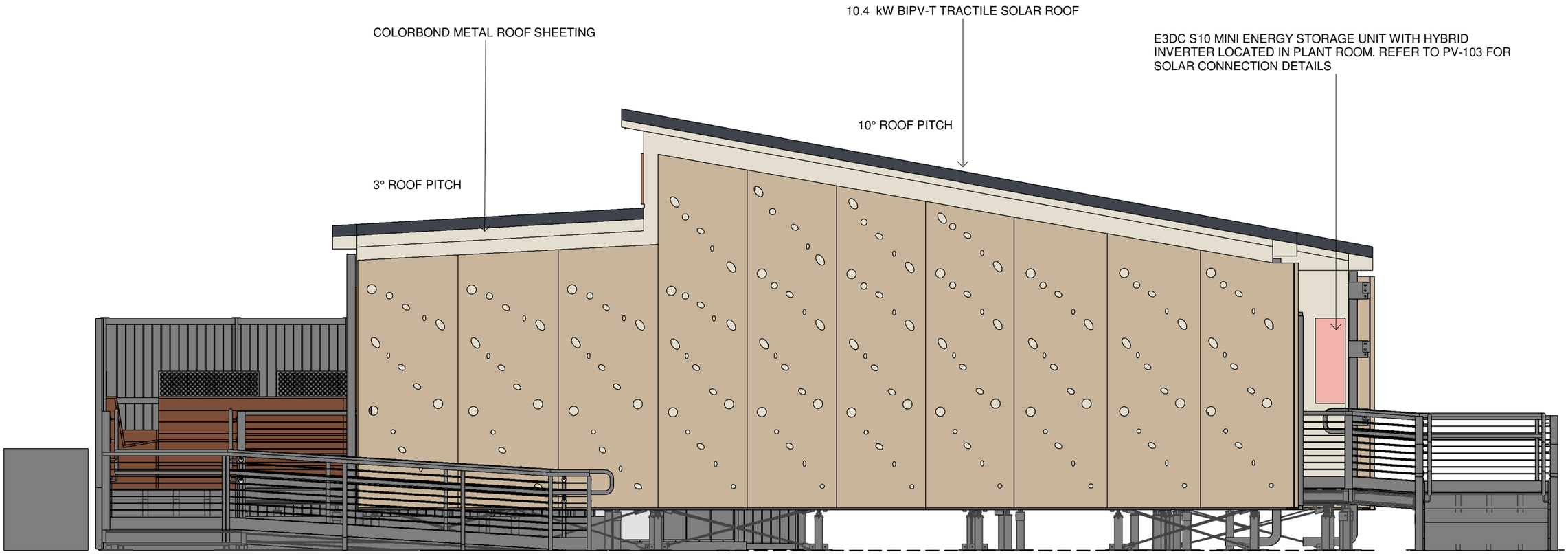
DRAWER B.BANFIELD
CHECKED C.MCDOWELL
DATE 13 September, 2018
SCALE 1 : 50 @ A3

SHEET: 01 OF 01

PV SYSTEM ELEVATIONS - EAST

PV-012



1 PV Elevations West

1 : 50

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Client:

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SOLAR DECATHLON MIDDLE EAST DUBAI, UAE - 2018

AMENDMENTS

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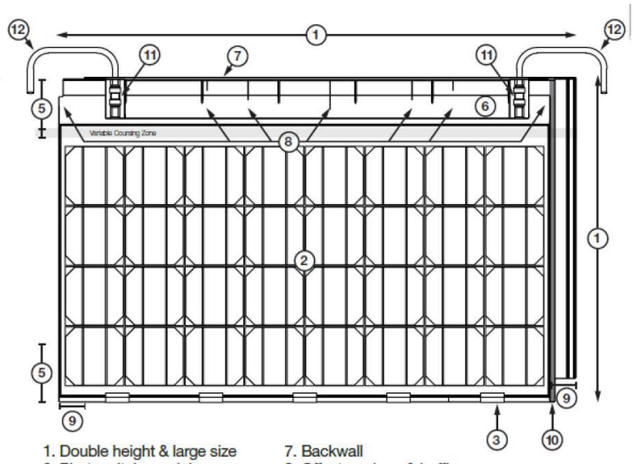
LOT # M
DRAWER C.EIO
CHECKED B.BANFIELD
DATE 13 September, 2018
SCALE 1 : 50 @ A3

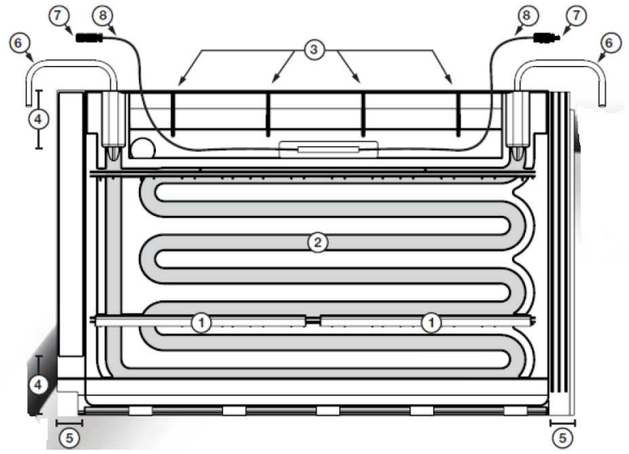
SHEET: 01 OF 01

PV SYSTEM ELEVATIONS - WEST

PV-013



1. Double height & large size
2. Photovoltaic module
3. Low profile tile edge
4. Hook and batten fixing system
5. Head and tail lap zones
6. Ramp
7. Backwall
8. Offset markers & baffles
9. Side lapping
10. Silicone bead channel
11. SharkBite® push-fit connector
12. Tractile 'U' copper pipe



1. Lower hooks
2. Pipe channel
3. Support fins
4. Head and tail lap zones
5. Side lapping
6. Tractile 'U' copper pipe
7. MC4 connector
8. Cable 600mm

NOTES

THE PHOTOVOLTAIC SYSTEM ON THE DESERT ROSE HOUSE IS A COMPLETELY BUILDING INTEGRATED, PHOTOVOLTAIC-THERMAL (BIPV-T) SYSTEM. THE SYSTEM IS MADE UP OF TRACTILE ECLIPSE SOLAR ROOF TILES WHICH ARE REPLACING THE ENTIRE ROOF CONSTRUCTION ON THE PITCHED PORTION OF THE DESERT ROSE ROOF.

TRACTILE IS KNOWN AS "THE SMARTER ROOF" AS IT IS A 4-IN-1 MODULE, PROVIDING A ROOF, INSULATION, ELECTRICITY AND HOT WATER ALL IN ONE SYSTEM. THE DESERT ROSE HOUSE WILL CONSIST OF 104 SOLAR ROOF TILES, ADDING UP TO A TOTAL OF 10.4 kWp OF GENERATION.

THE SYSTEM WILL ALSO BE USED TO PRODUCE DOMESTIC HOT WATER FOR THE DESERT ROSE HOUSE. THE ACT OF RUNNING WATER UNDER THE SOLAR ROOF TILES WILL ALSO DECREASE THE SOLAR CELL TEMPERATURE, THUS INCREASING EFFICIENCY OF THE PANELS.

PV SPECIFICATION - ECLIPSE SOLAR ROOF TILES	
PANEL DIMENSIONS	H 1040 mm L 574 mm W 5 mm
FRONT COVER	3.2mm TEMPERED
BACK COVER	TEDLAR / KYNAR BACKSHEET (BLACK OR
CABLE LENGTH	600 mm x 2 (CROSS SECTIONAL AREA 4
CONNECTORS	MC4
CELL TYPE	MONOCRYSTALLIN
EFFICENCY	>20.4%
NOCT	45+/-2°C
TEMPERATURE COEFFICIENT	Pmax: -0.42 %/ºC, Voc: -0.34 %/ºC, Isc: 0.05 %/ºC
OPERATING TEMPERATURE	-40°C ~ +80°C
POWER TOLERANCE	-3% ~ +3%
PMP	100 W
ISC	3.89 A
VOC	34.22 V
IMP	3.56 A
VMP	27.50 V
CERTIFICATION	ISO 9001, ISO 14001, OHSAS 18001, CE, IEC 61215, IEC 61730 TÜV
PERFORMANCE WARRANTY	90% OF POWER OUTPUT FOR 10 YEARS AND 80% FOR 25

ARRAY 1 SPECIFICATION	
INVERTER	1
MPPT CHANNEL	1
MODULES IN STRING	14
STRINGS IN PARRALLEL	2
VOC	479.08 V
ISC	7.78 A
VMP	385.00 V
IMP	7.12 A

ARRAY 3 SPECIFICATION	
INVERTER	1
MPPT CHANNEL	2
MODULES IN STRING	12
STRINGS IN PARRALLEL	2
VOC	410.64 V
ISC	7.78 A
VMP	330.00 V
IMP	7.12 A

SYSTEM SPECIFICATIONS	
MODULE	ECLIPSE SOLAR ROOF TILE
MODULE QUANTITY	104
PEAK POWER OUTPUT	11.2 kWp
NO. INVERTERS	2
MPPT CHANNELS PER INVERTER	2
JUNCTION BOX LOCATION	ON ROOF UNDER PANELS

ARRAY 2 SPECIFICATION	
INVERTER	2
MPPT CHANNEL	1
MODULES IN STRING	14
STRINGS IN PARRALLEL	2
VOC	479.08 V
ISC	7.78 A
VMP	385.00 V
IMP	7.12 A

ARRAY 4 SPECIFICATION	
INVERTER	2
MPPT CHANNEL	2
MODULES IN STRING	12
STRINGS IN PARRALLEL	2
VOC	410.64 V
ISC	7.78 A
VMP	330.00 V
IMP	7.12 A

MC4 CONNECTOR	
MAKE	MULI-CONTACT (STAUBLI)
MODEL	PV-KBT4 (MALE), PV-KST4 (FEMALE)
CABLE SIZE	4.0mm²
RATED VOLTAGE	1000 V
RATED CURRENT	39 A
DEGREE OF PROTECTION	IP65, IP68 (1 h/ 1m)

1 Photovoltaic System - General

Desert Rose Team UOW Australia - Dubai

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SOLAR DECATHLON MIDDLE EAST DUBAI, UAE - 2018

AMENDMENTS

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1	Updated to As-Built	14/09/18	BB	CM

LOT # M
DRAWER B.BANFIELD
CHECKED V.PHAM
DATE 14 September, 2018
SCALE N.T.S. @ A3

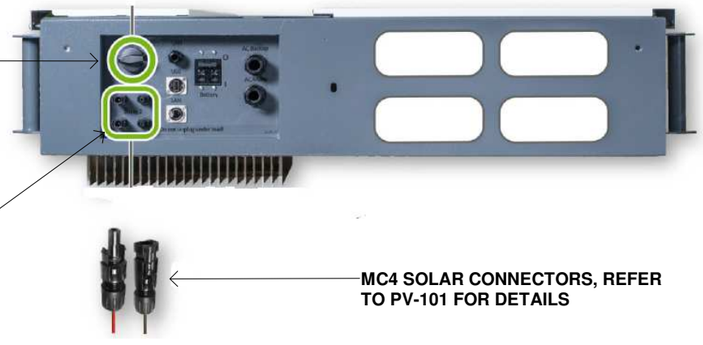
SHEET: 01 OF 01

PV SYSTEMS - GENERAL

PV-101

FRONT OF S10 MINI WITH ENCLOSURE DOOR REMOVED

BOTTOM OF S10 MINI



MC4 SOLAR CONNECTORS, REFER TO PV-101 FOR DETAILS

CERTIFICATIONS

- VDE 0126
- VDE-ARN-4105
- EN 61000-6-3:2011
- EN 61000-6-2:2006
- EN 61000-3-2:2006 + A1:2009 + A2:2009
- EN 61000-3-3:2008
- EN 62109-1:2010
- EN 62109-2:2011
- EN 50581:2012

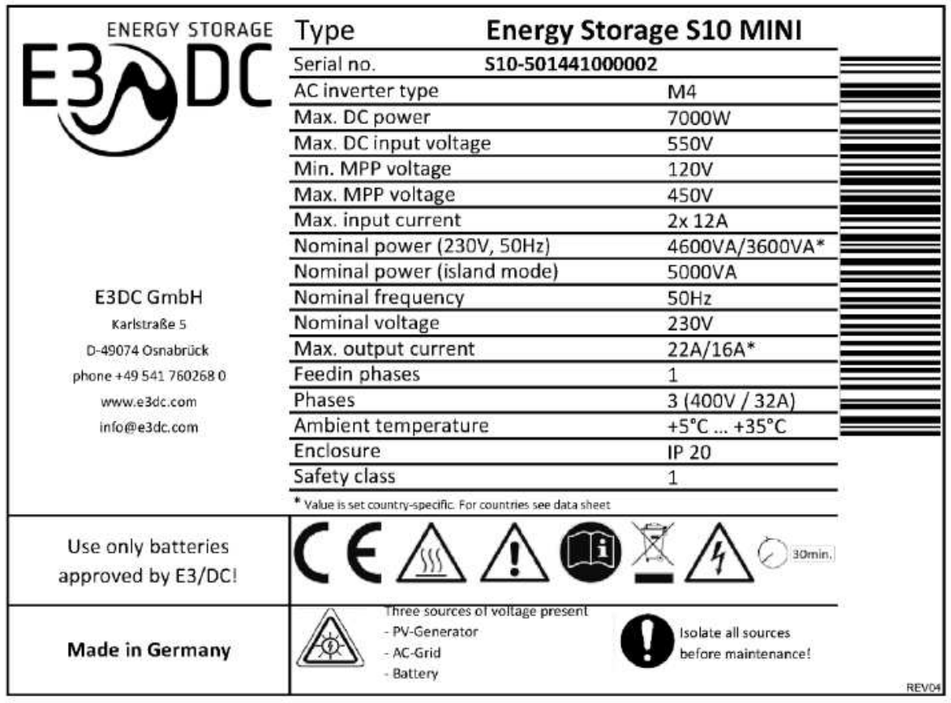
NOTES

DESERT ROSE HOUSE CONSISTS OF TWO ENERGY STORAGE UNITS (E3DC S10 MINI, REFER TO PV-103 FOR DETAILS). EACH S10 MINI CONTAINS A HYBRID INVERTER WHICH CAN CONNECT UP TO 7.0 kWp OF SOLAR PV ON TWO MPPT CHANNELS.

EACH INVERTER LIMITED TO A MAXIMUM POWER OUTPUT OF 4 KW ON THE AC SIDE (COMBINED TOTAL OF 8 KW).

REFER TO PV-201 FOR DC WIRING OF INVERTERS, PV-211 FOR AC WIRING.

EACH INVERTER CONSISTS OF 2.8 kWp OF SOLAR CONNECTED TO MPP1 AND 2.4 kWp OF SOLAR CONNECTED TO MPP2.



1 Inverters - General

Desert Rose Team UOW Australia - Dubai

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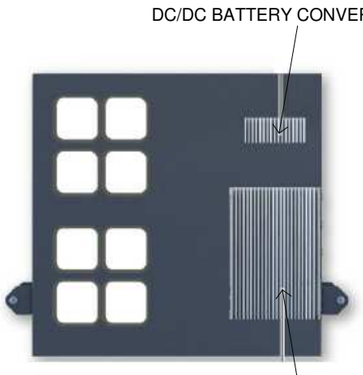
DATE 14 September, 2018
SCALE N.T.S. @ A3

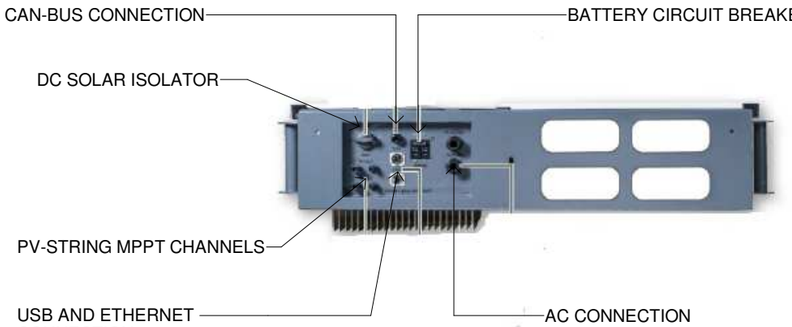
SHEET: 01 OF 01

INVERTERS - GENERAL

PV-102

weight: 94kg
incl. bracket: 106kg
incl. stand: 114kg





ENERGY STORAGE	
MAKE	E3DC
MODEL	S10 MINI
QUANTITY	2
BATTERY CAPCITY	6.9 kWh
DEPTH OF DISCHARGE	92%
BATTERY OUTPUT POWER	1.5 kW
MAX EFFICIENCY	98%
BATTERY TECHNOLOGY	LITHIUM-ION
PROTECTION CLASS/	IP21
PHASE/S	SINGLE PHASE

1 Batteries - General

CERTIFICATIONS

- VDE 0126
- VDE-ARN-4105
- EN 61000-6-3:2011
- EN 61000-6-2:2006
- EN 61000-3-2:2006 + A1:2009 + A2:2009
- EN 61000-3-3:2008
- EN 62109-1:2010
- EN 62109-2:2011
- EN 50581:2012

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DRAWER B.BANFIELD
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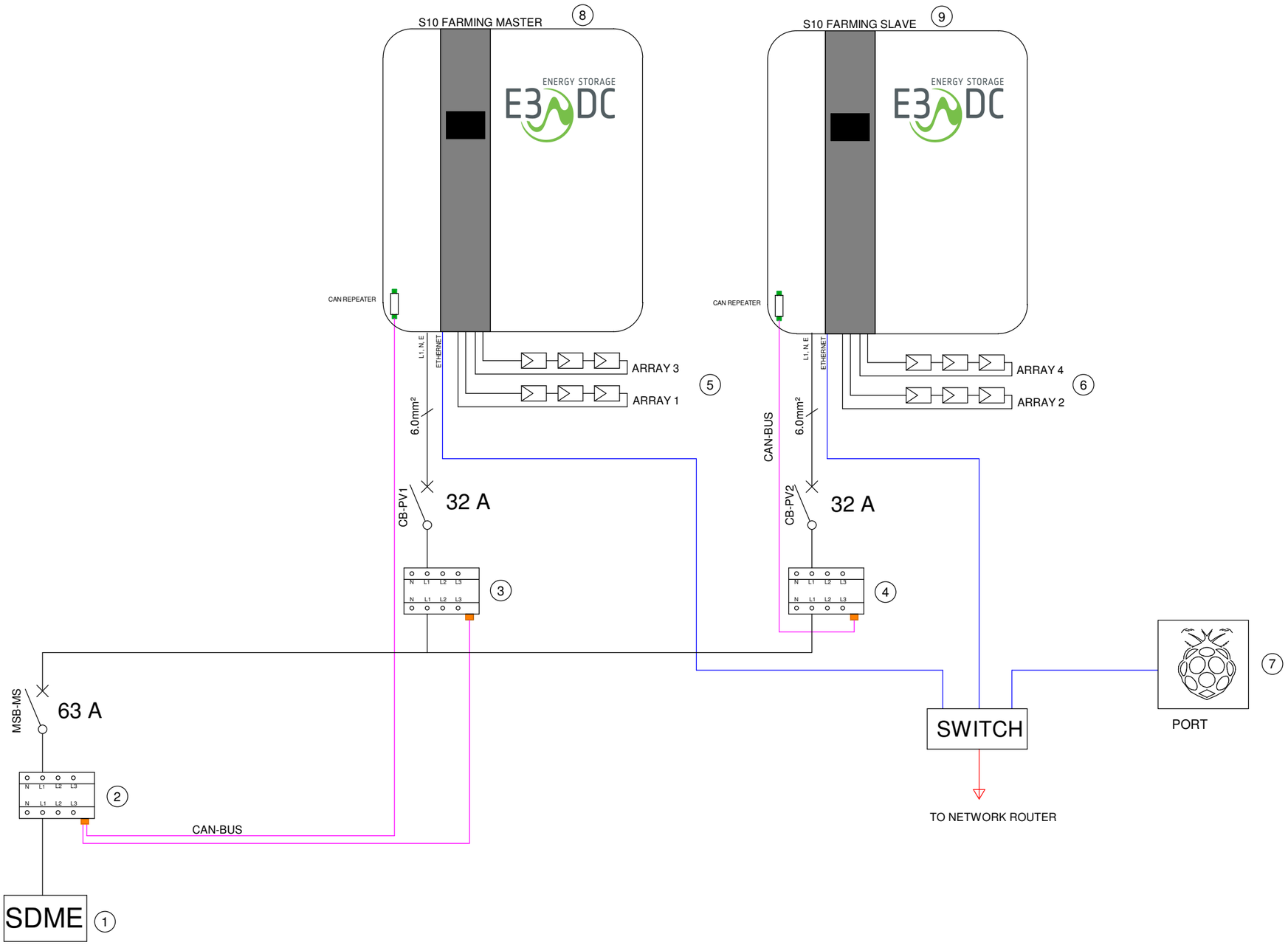
SHEET: 01 OF 01

BATTERIES - GENERAL

PV-103



NOTES

1. SDME BI-DIRECTIONAL GRID CONNECTED METER

2. E3DC GRID CONNECTION ELECTRICAL METER (LM3p40isp-ID105) FOR ENERGY STORAGE SYSTEM. COMMUNICATION WITH S10 MINI MASTER VIA CAN-BUS. REFER TO ID-004 FOR CONNECTION DETAILS

3. E3DC ELECTRICAL METER FOR S10 MINI MASTER (LM3p40isp-ID106). COMMUNICATION WITH GRID CONNECTED METER VIA CAN-BUS. REFER TO ID-004 FOR CONNECTION DETAILS

4. E3DC ELECTRICAL METER FOR S10 MINI SLAVE (LM3p40isp-ID106). COMMUNICATION WITH S10 MINI SLAVE VIA CAN-BUS. REFER TO ID-004 FOR ONNECTION DETAILS

5. SOLAR PV ARRAY 1, 5.2 kWp CONNECTED TO S10 MINI MASTER. REFER TO PV-201 FOR DC WIRING

6. SOLAR PV ARRAY 2, 5.2 kWp CONNECTED TO S10 MINI SLAVE. REFER TO PV-201 FOR DC WIRING

7. RASPBERRY PI SETTING THE MAXIMUM CHARGING/DISCHARGING POWER OF THE ENERGY STORAGE UNITS VIA A MODEL PREDICTIVE CONTROL ALGORITHM. THE CONTROLLER COMMUNICATES OVER E3DC PROTOCOL RSCP/IP

8. S10 MINI MASTER ENERGY STORAGE UNIT/INVERTER, RATED CAPACITY 6.9 kWh

9. S10 MINI SLAVE ENERGY STORAGE UNIT INVERTER, RATED CAPACITY 6.9 kWh

1 Battery Metering and Control

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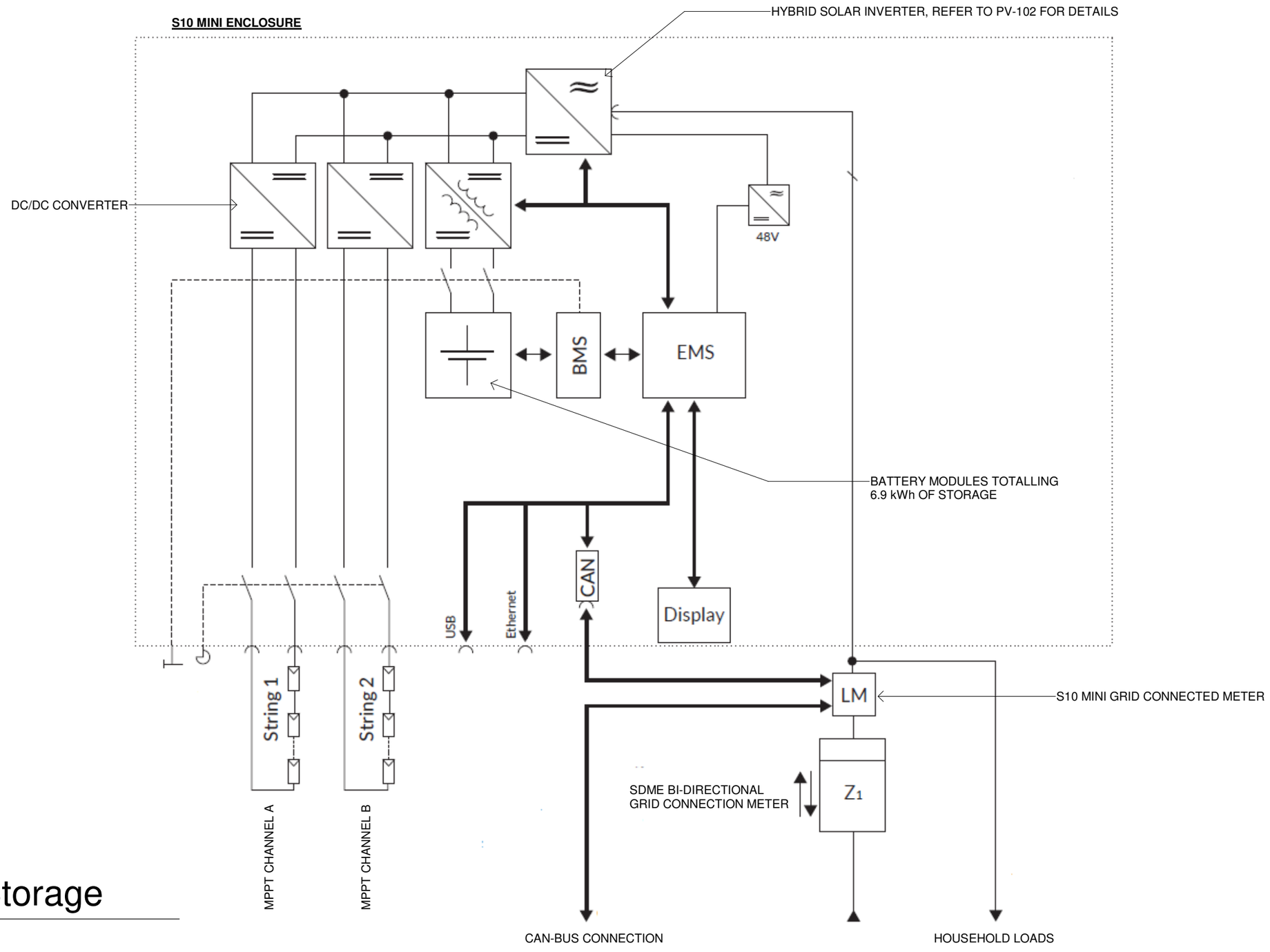
SHEET: 01 OF 01

BATTERY METERING AND CONTROL

PV-104



1 Energy Storage

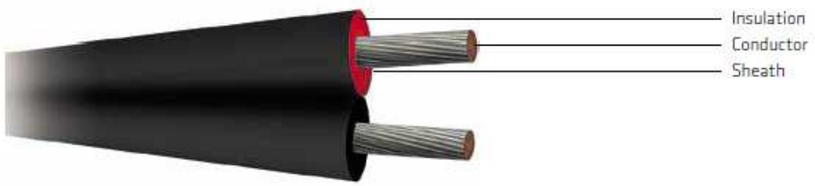
Desert Rose Team UOW Australia - Dubai	Team: TEAM UOW Address: UNIVERSITY OF WOLLONGONG WOLLONGONG NSW, AUSTRALIA 2522 Contact: sd-2018@uow.edu.au www.desertrosehouse.com.au	Client: Dubai Electricity and Water Authority SOLAR DECATHLON MIDDLE EAST DUBAI, UAE - 2018	AMENDMENTS				COPYRIGHT None; Project is Public		ENERGY STORAGE (S10 MINI) SCHEMATIC
			REV.	DESCRIPTION	DATE	DRAWN	CHECK	LOT # M		
			1	Updated to As-Built	14/09/18	BB	CM	DRAWER E3DC		
								CHECKED B.BANFIELD	SHEET: 01 OF 01	PV-105
								DATE 14 September, 2018		
								SCALE N.T.S. @ A3		

PRYSMIAN

A brand of the Prysmian Group

TWIN FLEXIBLE PV SOLAR CABLES

SLIM SOLAR TWIN PV



Cable description

Twin power cables - 600V/1000V AC – 900V/1800V DC
PV1-F cable to 2 PfG 1169/08.07

Application

Domestic PV system wiring

Approvals

2 PfG 1169/08.07

Behaviour in flame and fire

Fire Performance: IEC60332-1
Smoke Density: IEC 61034, EN 50268-2
Content of halogen acid gas: IEC 670754-1, EN 50267-2-1

Temperature range

Maximum operating temperature: +125 °C
Minimum operating temperature: -40 °C

Flexibility

Flexible Class 5

Resistance to

Chemical exposure: Excellent
Mechanical Impact: Light
Water exposure: Good
Solar radiation and weather exposure: Excellent

Cable design

Conductor:
Stranded Tinned copper conductor to IEC60228-2

Insulation:
XLPO
Colours: Red, Black

Sheath:
XLPO
Colour: Black

Markings:
Standard cable print on top of the sheath

Sizes & pack lengths available:
4 mm² & 6 mm² in 100 m plastic reels

Installation conditions

In free air
In conduit
External building with protection

Solar PV Cable

1

TWIN FLEXIBLE PV SOLAR CABLES

PRYSMIAN

Physical & electrical characteristics

4 mm² Twin Solar Cable		
	Item	Specification
Conductor	Cross-section area (mm²)	4 mm²
	Material	Stranded tinned copper
	Size (mm)	52/(0.30±0.008)
	Strand OD (mm)	2.45±0.05
Insulation	Material	Electron-beam cross-linked materials
	Nominal OD (mm)	3.65±0.15
	Colour	Red, Black
Sheath	Material	Electron-beam cross-linked materials
	Nominal OD (mm)	4.85±0.20 x 10.0±0.40
	Colour	Black

6 mm² Twin Solar Cable		
	Item	Specification
Conductor	Cross-section area (mm²)	6 mm²
	Material	Stranded tinned copper
	Size (mm)	78/(0.30±0.008)
	Strand OD (mm)	3.0±0.05
Insulation	Material	Electron-beam cross-linked materials
	Nominal OD (mm)	4.30±0.15
	Colour	Red, Black
Sheath	Material	Electron-beam cross-linked materials
	Nominal OD (mm)	5.55±0.20 x 11.6±0.50
	Colour	Black

Technical data

	Nominal voltage	Test voltage	Temperature rating	Ambient temperature	
4 mm² Twin Solar Cable	U_0/U=600/1000V AC, 900/1800V DC	6500 V, 50 Hz, 5 min	-40°C up to +125°C	(-40°C up to +120°C): >25 years	
6 mm² Twin Solar Cable	U_0/U=600/1000V AC, 900/1800V DC	6500 V, 50 Hz, 5 min	-40°C up to +125°C	(-40°C up to +120°C): >25 years	
	Max. conductor temperature	Bending radius	Conductor resistance	Insulation resistance	UV resistant
4 mm² Twin Solar Cable	+120°C	≥ 6 x cable OD	≤ 5.09 Ω /km at 20°C	≥ 10^{14} Ω .cm at 20°C	>720h
6 mm² Twin Solar Cable	+120°C	≥ 4 x cable OD	≤ 3.39 Ω /km at 20°C	≥ 10^{14} Ω .cm at 20°C	>720h

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Dubai Electricity and Water Authority

SOLAR DECATHLON MIDDLE EAST DUBAI, UAE - 2018

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SOLAR PV CABLE TECHNICAL DATA

PV-106

ROOFTOP DC ISOLAOR -

PGK 1000V DC Isolator Genuine MC4 - SE042E

Technical Specifications	
Type	SE030A, SE030B, SE030E, SE042B, SE042E
Function	Isolator, Control
Standard	IEC60947-3, AS60947.3
Utilization category	DC-PV2 / DC-21B
Pole	4P
Rated frequency	DC
Rated operational voltage (U_e)	500V, 600V, 800V, 1000V
Rated operational current (U_e)	32A
Rated insulation voltage (U_i)	1200V
Conventional free air thermal current (I_{th})	II
Conventional enclosed thermal current (I_{th})	Same as I_e
Rated short-time withstand current (I_{cw})	1kA,1s (4, 4S,4B); 1.7kA, 1s (2H)
Rated short-time making capacity (I_{cm})	1.7kA,1s (4, 4S,4B); 3kA, 1s (2H)
Rated conditional short-circuit current (I_{cn})	3kA
Rated impulsed withstand voltage (U_{imp})	**8.0kV**
Overvoltage category	**II**
Suitability for isolation	Yes
Polarity	No polarity, "+" and "-" polarities could be interchanged.
Mechanical	20000
Electrical	2000
Ingress Protection Enclosure	IP66
Ingress Protection Switch body	IP20
Storage Temperature	-5°C ~ +85°C
Mounting Type	Vertically or horizontally
Pollution degree	3
Suitable environment	Outdoor / Indoor

NOTES

AC ISOLATORS LOCATED UNDER E3DC S10 MINI ENERGY STORAGE UNITS. THESE ISOLATORS ARE CAPABLE OF SIMULATING MAINS FAILURE, CAUSING AN INVERTER DISCONNECT.

AC ISOLATION ALSO POSSIBLE VIA 32A CIRCUIT BREAKER LOCATED IN MAIN SWITCHBOARD. REFER TO EL-301 FOR DETAILS.

DC ISOLATORS ARE LOCATED ON THE ROOF AND ARE USED TO DISCONNECT EACH SOLAR ARRAY CONNECTED TO AN MPPT CHANNEL (4 IN TOTAL). REFER TO PV-201 AND EL-301 FOR CONNECTIONS. REFER TO PV-001 FOR ISOLATOR LOCATION ON ROOF.

DC POWER TO NEVER BE ISOLATED UNDER LOAD. AC ISOLATORS MUST BE DISCONNECTED AND LOCKED BEFORE ISOLATING DC SIDE.

BOTTOM OF S10 MINI INVERTER

1 Solar PV Protection

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SOLAR PV DC PROTECTION

PV-107

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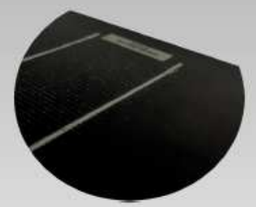

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- Powerful 100Wp solar module to suit your individual off-grid system requirements.
- 5 years product warranty with 25 years performance warranty.
- Features: Best cost/performance ratio, durable and robust design, fluoride-based backsheet, guaranteed power, and TÜV certification.
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OPES SOLUTIONS

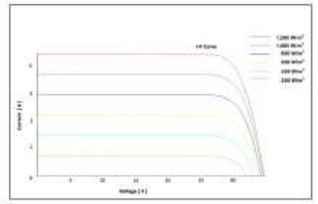
Power Your Innovations

O-Design TRC Mono 100W

Reliable PV Power for Solar Home Systems

Electrical Parameters			at Standard Test Conditions (STC)	at Nominal Operating Cell Temperature (NOCT)
Power Output	P_{max}	W	100.00	73.3
Power Output Tolerances	ΔP_{max}	%	-0% / +10%	-0% / +10%
Voltage at P_{max}	V_{mpp}	V	27.50	24.97
Current at P_{max}	I_{mpp}	A	3.64	2.94
Open-Circuit Voltage	V_{oc}	V	34.22	24.02
Short Circuit Current	I_{sc}	A	3.89	3.14
Max System	V_{SYS}	V	1000	1000
Overcurrent Production limit		A	9	NA

STC: 1000W/m², 25°C, 1.5AM - NOCT: 800W/m², 45±2°C, 1m/sec wind speed



Thermal Characteristics

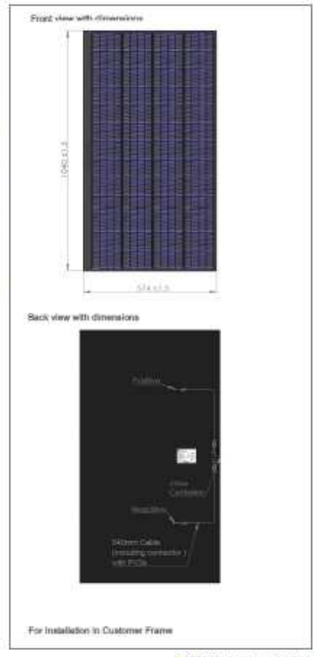
Nominal Operating Cell Temperature	NOCT	°C	45 ±2 °C
Temperature Coefficient of P_{max}	γ	%/°C	-0,42
Temperature Coefficient of V_{oc}	β_{Voc}	%/°C	-0,30
Temperature Coefficient of I_{sc}	α_{sc}	%/°C	+0,04
Temperature Coefficient of V_{mpp}	β_{Vmpp}	%/°C	-0,30

Construction Materials

Front Cover	3.2 mm tempered glass
Cell	52 (13x4), mono crystalline silicon, 130,5 mm x76.5 mm, 5 busbars, eff.≧21.4%
Encapsulant	High quality EVA (Ethylene-Vinyl Acetate) with continuous cross-linking tests
Junction Box	IP65 rated J-Box, 2 Diodes
Cable	540mm cable with PV2e connector When wiring modules into a system, please use only copper single conductor, 2.5-10 mm2 (8-14 AWG), 90°C wet rated solar cable, with proper insulation that is able to withstand the maximum possible system open-circuit voltage (i.e. TUV 2PfG1169 or PV1-F1 approved).
Back Cover	Coveme dyMat BkPYE SPV L ,Black

General Characteristics

Dimension (L x W x H) in mm	1040 x 574 x 5
Weight in Kg	6.35



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1 Solar PV Module Technical Data

Desert Rose Team UOW Australia - Dubai	Team: TEAM UOW Address: UNIVERSITY OF WOLLONGONG WOLLONGONG NSW, AUSTRALIA 2522 Contact: sd-2018@uow.edu.au www.desertrosehouse.com.au	Client: Dubai Electricity and Water Authority SOLAR DECATHLON MIDDLE EAST DUBAI, UAE - 2018	AMENDMENTS					COPYRIGHT None; Project is Public	SOLAR PV MODULE TECHNICAL DATA
			REV.	DESCRIPTION	DATE	DRAWN	CHECK	LOT # M	
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								DATE 14 September, 2018	PV-108
								SCALE N.T.S. @ A3	

1 EV Charger

NOTES

EV CHARGER INSTALLED ON WESTERN SIDE OF DESERT ROSE HOUSE. FOR LOCATION REFER TO EL-102.

EV CHARGER CONNECTED TO DEDICATED 32 A BREAKER IN DESER ROSE MAIN SWITCH BOARD.

EV CHARGING CONTROLLED THROUGH DESERT ROSE BUILDING MANAGEMENT SYSTEM TO COINCIDE CHARGING WITH SOLAR PV PRODUCTION

FOR EV CONNECTION TO MAIN SWITCHBOARD REFER TO EL-301.

EV CHARGER SPECIFICATION	
MAKE	HAGER
MODEL	XEV201C
RATED VOLTAGE	230 V, 50 Hz
RATED CURRENT	32 A
MAXIMUM LOAD	7.4 kW
PHASE/S	SINGLE
HEIGHT	480 mm
WIDTH	346 mm
DEPTH	233 mm
CABLE CONNECTION	TYPE 2
IP RATING	IP54

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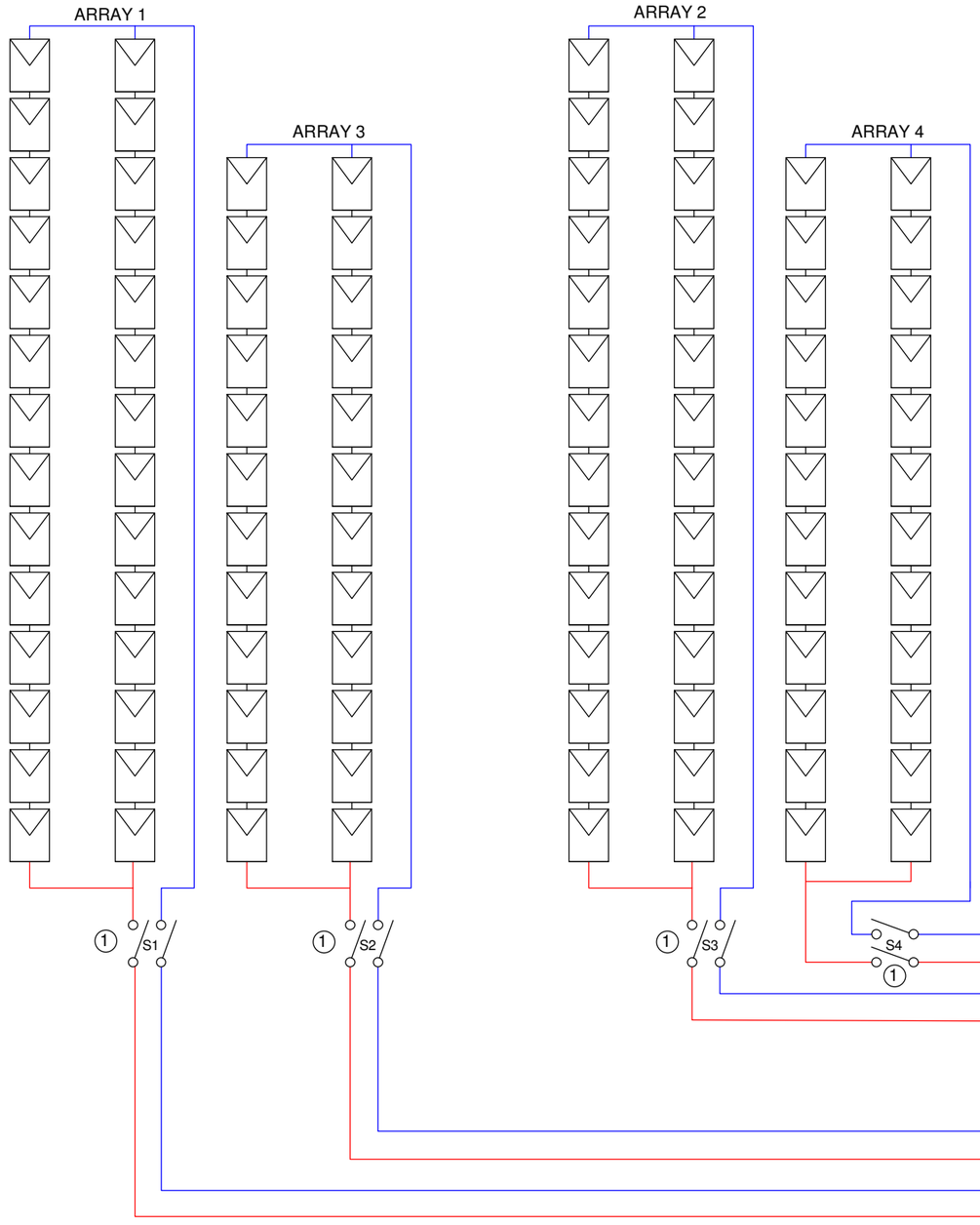
EV CHARGER

PV-109



NOTES

ALL DC CABLES ARE 4.0mm² PER CONDUCTOR.

ALL AC CABLES ARE 6.0mm² PER CONDUCTOR.

FOR ROOF LAYOUR REFER TO PV-001.

FOR ROOF WIRING PLAN REFER TO PV-002.

EARTHING OF SOLAR PV VIA EARTH CONDUCTOR FROM ALUMINIUM TRACTILE SOLAR BATTENS BACK TO ERATH TERMINAL AT MAIN SWITCHBOARD.

SOLAR MODULE	
MAKE	TRACTILE SOLAR
MODEL	ECLIPSE SOLAR ROOF TILE
RATING (Wp)	100 W
Voc	34.22 V
Isc	3.89 A
Vmp	27.50 V
Imp	3.56 A
TEMP COEFF (%PMAX)	-0.42%/°C
MODULE TILT	10°

SOLAR ARRAY	
MODULE QUANTITY	104
STRING CONFIGURATION INVERTER 1	A1: (2X14) A3: (2X12)
STRING CONFIGURATION INVERTER 2	A2: (2X14) A4: (2X12)
Voc ARRAY 1 & 2	479.08 V
Voc ARRAY 3 & 4	410.64 V
Isc ARRAY 1, 2, 3 & 4	7.78 A
Vmp ARRAY 1 & 2	385.00 V
Vmp ARRAY 3 & 4	330.00 V
Imp ARRAY 1, 2, 3 & 4	7.12 A
TOTAL POWER	10.4 kW

INVERTER	
MAKE	E3DC
MODEL	S10 MINI
QUANTITY	2
MAX POWER OUTPUT	7.0 kWp
NO. MPPT CHANNELS	2
PHASE	SINGLE
ENCLOSURE RATING	IP20

LEGEND	
①	DC ISOLATOR LOCATED ON ROOF
②	DC ISOLATOR LOCATED IN PLANT ROOM AT BOTTOM OF S10 INVERTER UNIT. REFER TO PV-103 FOR DETAILS
	DC POSITIVE
	DC NEGATIVE

1 PV Systems - DC

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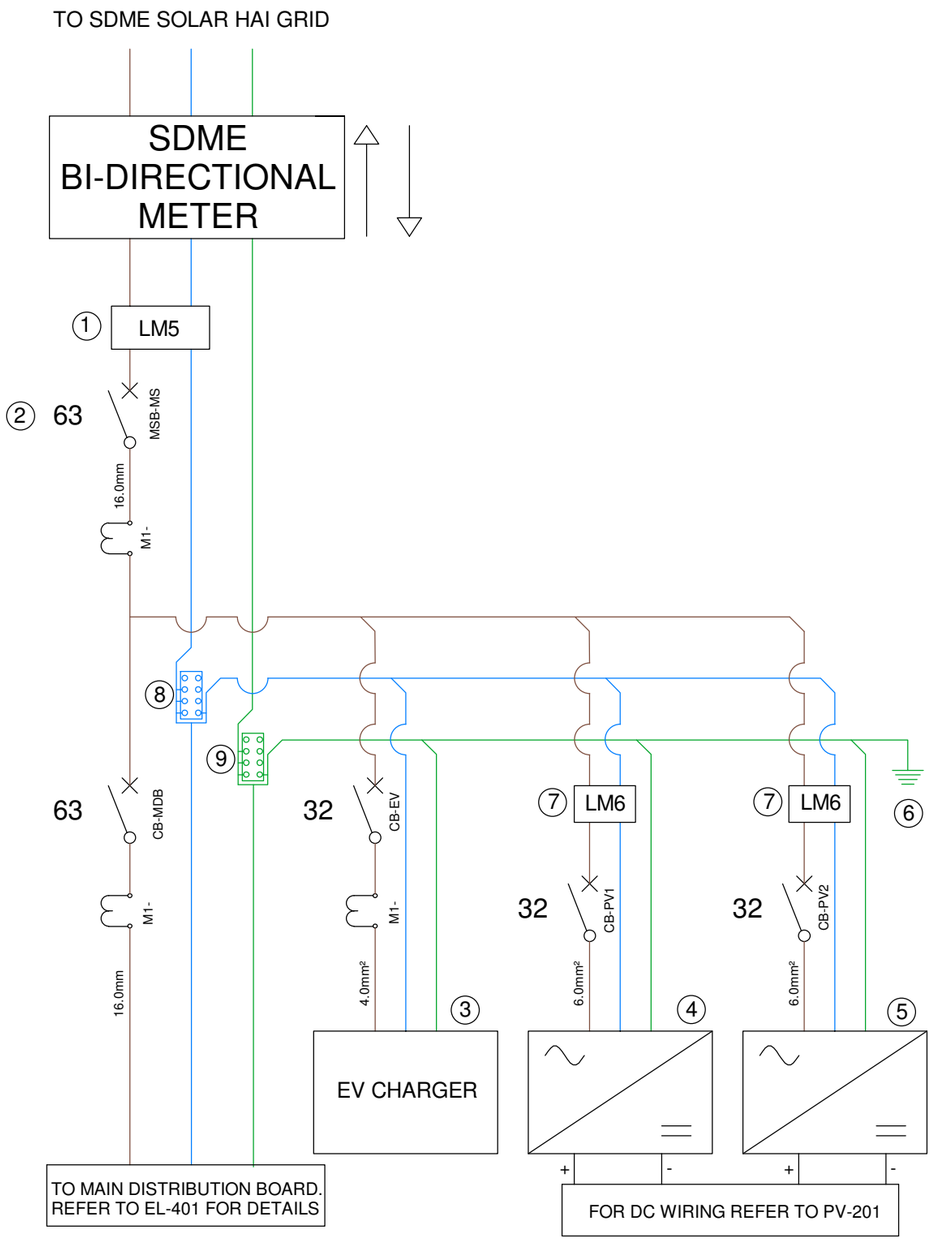
PV SYSTEMS - DC CIRCUITS

PV-201



NOTES

1. E3DC GRID CONNECTION METER FOR SOLAR PV/ ENERGY STORAGE SYSTEM LOCATED IN MAIN ELECTRICAL PANEL

2. MAIN 63A INCOMING CIRCUIT BREAKER

3. HAGER EVCS WITTY PARK 1PH 7kW EV CHARGER

4. E3DC S10 MINI MASTER 6.9 kWh ENERGY STORAGE SYSTEM WITH BUILT IN HYBRID INVERTER. REFER TO PV-102 FOR DETAILS

5. E3DC S10 MINI SLAVE 6.9 kWh ENERGY STORAGE SYSTEM WITH BUILT IN HYBRID INVERTER. REFER TO PV-102 FOR DETAILS

6. EARTH CONNECTION TO SDME SERVICE PILLAR

7. E3DC SOLAR PV CONNECTION METERS LOCATED IN DESERT ROSE MAIN ELECTRICAL PANEL

8. NEUTRAL TERMINAL BLOCK LOCATED IN MAIN ELECTRICAL PANEL

9. EARTH TERMINAL BLOCK LOCATED IN MAIN ELECTRICAL PANEL

1 PV System - AC

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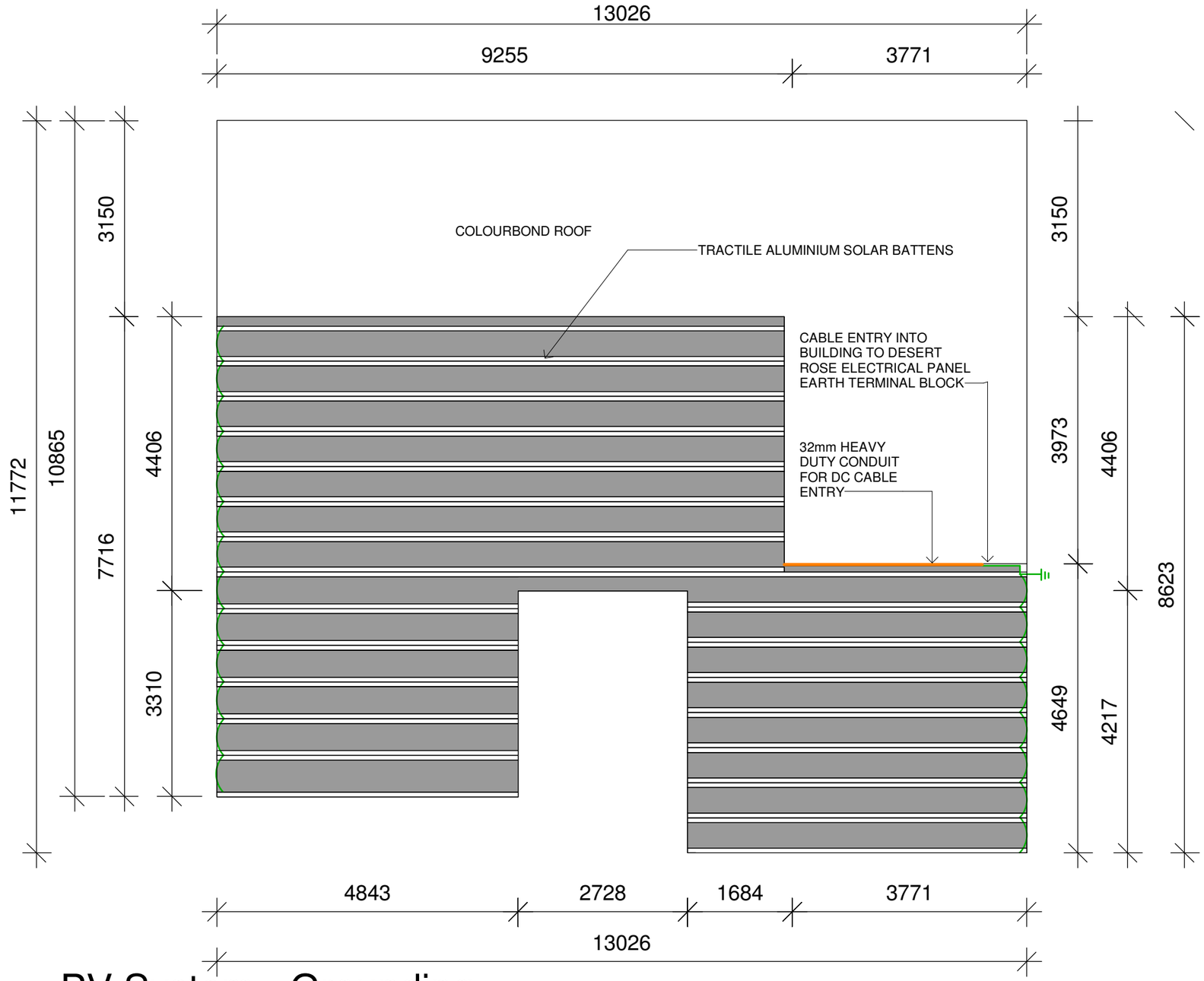
PV SYSTEMS - AC CIRCUITS

PV-211



1 PV System - Grounding

NOTES

SOLAR HAI GRID CONNECTED IN A TT CONFIGURATION. NO EARTH CONDUCTOR BETWEEN DISTRIBUTION TRANSFORMER AND VILLAGE DWELLINGS.

TEAM UOW PROVIDE 6mm² EARTHING CONDUCTOR FROM MAIN ELECTICAL PANEL TO SDME GRID CONNECTION POINT.

TRACTILE BATTENS UNDERNEATH TRACTILE SOLAR TILES ARE EARTHED.

SOLAR PV EARTH CONDUCTOR IS SCREWED TO CLOSEST BATTEN TO BUILDING CABLE ENTRY. CABLE TERMINATES AT EARTHING TERMINAL BLOCK AT DESERT ROSE MAIN ELECTRICAL PANEL. FOR CONNECTION TO TERMINAL BLOCK REFER TO EL-401.

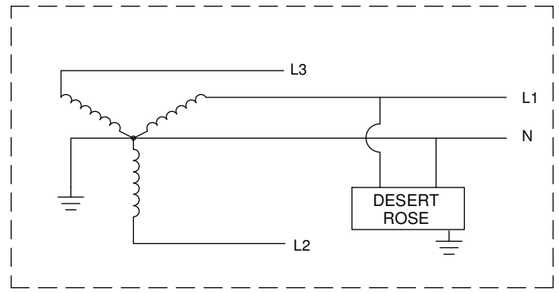
SOLAR PV EARTH CONDUCTOR SIZE 4.0mm².

TRACTILE SOLAR TILES ARE MADE UP OF A COMPOSITE FIBREGLASS MATERIAL WITH NO METAL COMPONENTS MAKING UP THE CHASSIS, THEREFORE THERE IS SUFFICIENT ISOLATION BETWEEN THE PANELS AND THE BATTENS.

TRACTILE COPPER WATER CONNECTIONS ARE ISOLATED BY THE FIBREGLASS WATER CHANNELS THAT RUN THROUGH TRACTILE SOLAR TILES.

EARTH TESTING POINTS LOCATED ON ROOF NEXT TO CABLE ENERY AND AT DESERT ROSE MAIN ELECTRICAL PANEL EARTH TERMINAL BLOCK.

SOLAR HAI GRID



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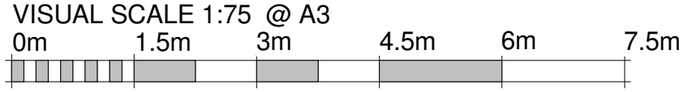

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NORTH

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PV SYSTEMS - GROUNDING

PV-221