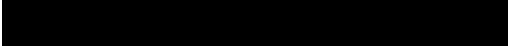
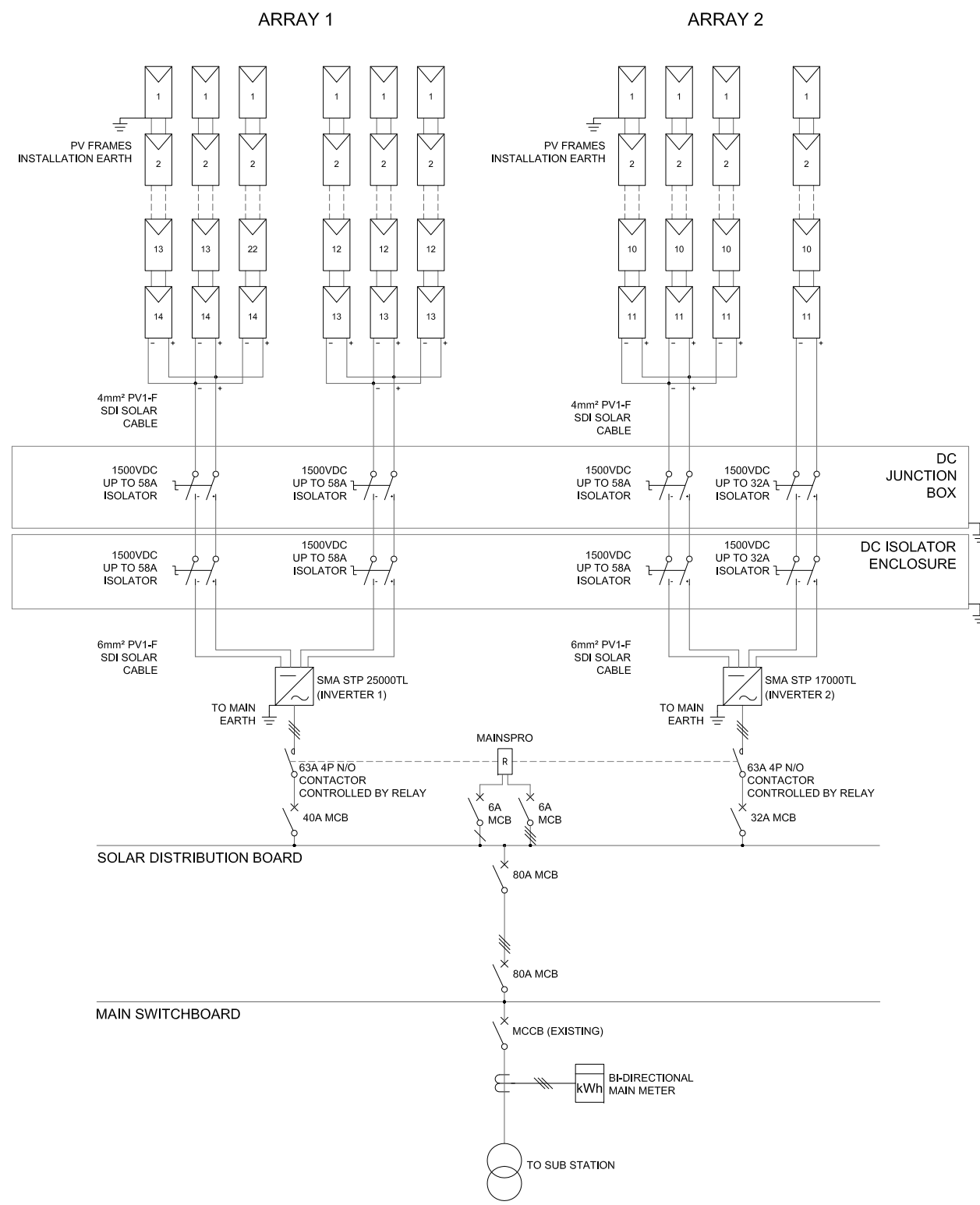
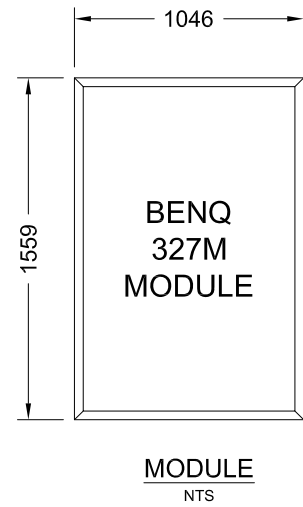


- 
1. Technology: Solar PV
 2. Maximum Power: 42kW
 3. Contribution to fault levels: N/A
 4. Size & rating of the relevant Transformer: N/A
 5. Single line diagram: refer to following page
 6. Protection Systems & Communication Systems: refer to following page
 7. Voltage Control and reactive power capability: N/A
 8. Details specific to the location of facility: N/A

ITEM	SPECIFICATION	QTY
MODULE	BENQ 327M	125
INVERTER	SMA STP 25000TL	1
	SMA STP 17000TL	1
TOTAL		40.87kWP



TYPICAL SYSTEM SCHEMATIC
NTS

LEGEND:

- ISOLATOR
- SINGLE PHASE CIRCUIT
- MOULDED CASE CIRCUIT BREAKER. 100A DENOTES 100AMPS RATING 200A DENOTES MINIMUM FRAME SIZE
- 325W MONOCRYSTALLINE SOLAR MODULE
- CIRCUIT BREAKER
- THREE PHASE CIRCUIT
- MAINSPRO RELAY
- INVERTER
- ROTARY SWITCH
- EARTH POTENTIAL
- NEUTRAL CONDUCTOR SYMBOL
- AC SUPPLY WIRING
- MAIN METER
- HRC FUSE, CARTRIDGE AND CARRIER
- EARTH CONDUCTOR SYMBOL
- CONTROL WIRING

ARRAY 1

	MPPT1	MPPT2
Panel Type	BenQ 327M	BenQ 327M
Number of Panels in Series (N)	14	13
Number of Parallel Strings	3	3
Total Number of Panels	81	
Inverter Type	SMA STP25000TL-30	
Number of Individual MPPT's	2	
Rated Power (W)	13739	12758
Total Rated Power (W)	26497	
Panel Voc (V)	64.9	64.9
Panel Isc (A)	6.46	6.46
Fill Factor (%)	0.78020961	0.78020961
Input Voc (V)	908.6	843.7
Input Isc (A)	19.38	19.38
PV Array Max Voltage	969.93	900.65
Distance to Junction Box (m)	20	
DC Cable Resistance (Ohm*mm2/m)	0.0172	
Min cable size (mm2)	0.49	0.53
Cable Size selected (mm2)	4	4
Voltage drop (%)	0.12	0.13
String Protection Needed	NO	
Distance to Inverter (m)	15	
DC Cable Resistance (Ohm*mm2/m)	0.0172	
Min cable size (mm2)	1.10	1.19
Cable Size selected (mm2)	6	6
Voltage drop (%)	0.18	0.20
DC Isolation min voltage [per pole rating] (V)	969.93	900.65
DC Isolation min Current (A)	24.23	24.23
Phases output	3	
Max AC current [per phase; line to neutral] (A)	36.20	
AC Breaker min Current (A)	36.20	
AC Breaker max Current (A)	72.40	
AC Breaker Chosen (A)	40	
Distance to POC (m)	5	
Cable Impedance (Ohm*mm2/m)	0.018	
Min cable size (mm2)	2.72	
AC Cable size (mm2)	10.00	

ARRAY 2

	MPPT1	MPPT2
Panel Type	BenQ 327M	BenQ 327M
Number of Panels in Series (N)	11	11
Number of Parallel Strings	3	1
Total Number of Panels	44	
Inverter Type	SMA STP17000TL-10	
Number of Individual MPPT's	2	
Rated Power (W)	10795	3599
Total Rated Power (W)	14394	
Panel Voc (V)	64.9	64.9
Panel Isc (A)	6.46	6.46
Fill Factor (%)	0.78020961	0.78020961
Input Voc (V)	713.9	713.9
Input Isc (A)	19.38	6.46
PV Array Max Voltage	762.09	762.09
Distance to Junction Box (m)	20	
DC Cable Resistance (Ohm*mm2/m)	0.0172	
Min cable size (mm2)	0.62	0.62
Cable Size selected (mm2)	4	4
Voltage drop (%)	0.16	0.16
String Protection Needed	NO	
Distance to Inverter (m)	15	
DC Cable Resistance (Ohm*mm2/m)	0.0172	
Min cable size (mm2)	1.40	0.47
Cable Size selected (mm2)	6	6
Voltage drop (%)	0.23	0.08
DC Isolation min voltage [per pole rating] (V)	762.09	762.09
DC Isolation min Current (A)	24.23	8.08
Phases output	3	
Max AC current [per phase; line to neutral] (A)	20.86	
AC Breaker min Current (A)	20.86	
AC Breaker max Current (A)	41.72	
AC Breaker Chosen (A)	32	
Distance to POC (m)	5	
Cable Impedance (Ohm*mm2/m)	0.018	
Min cable size (mm2)	1.56	
AC Cable size (mm2)	6.00	

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- EXACT LOCATION OF ALL PARTS OF THE INSTALLATION TO BE DETERMINED ON SITE.

Rev	Description	Date	Checked	Authorised

PROJECT:
[Redacted]

CLIENT:
[Redacted]

SOLGEN ENERGY PTY LTD
[Redacted]

DRAWING TITLE:
40.87kWP PHOTOVOLTAIC SYSTEM SCHEMATIC

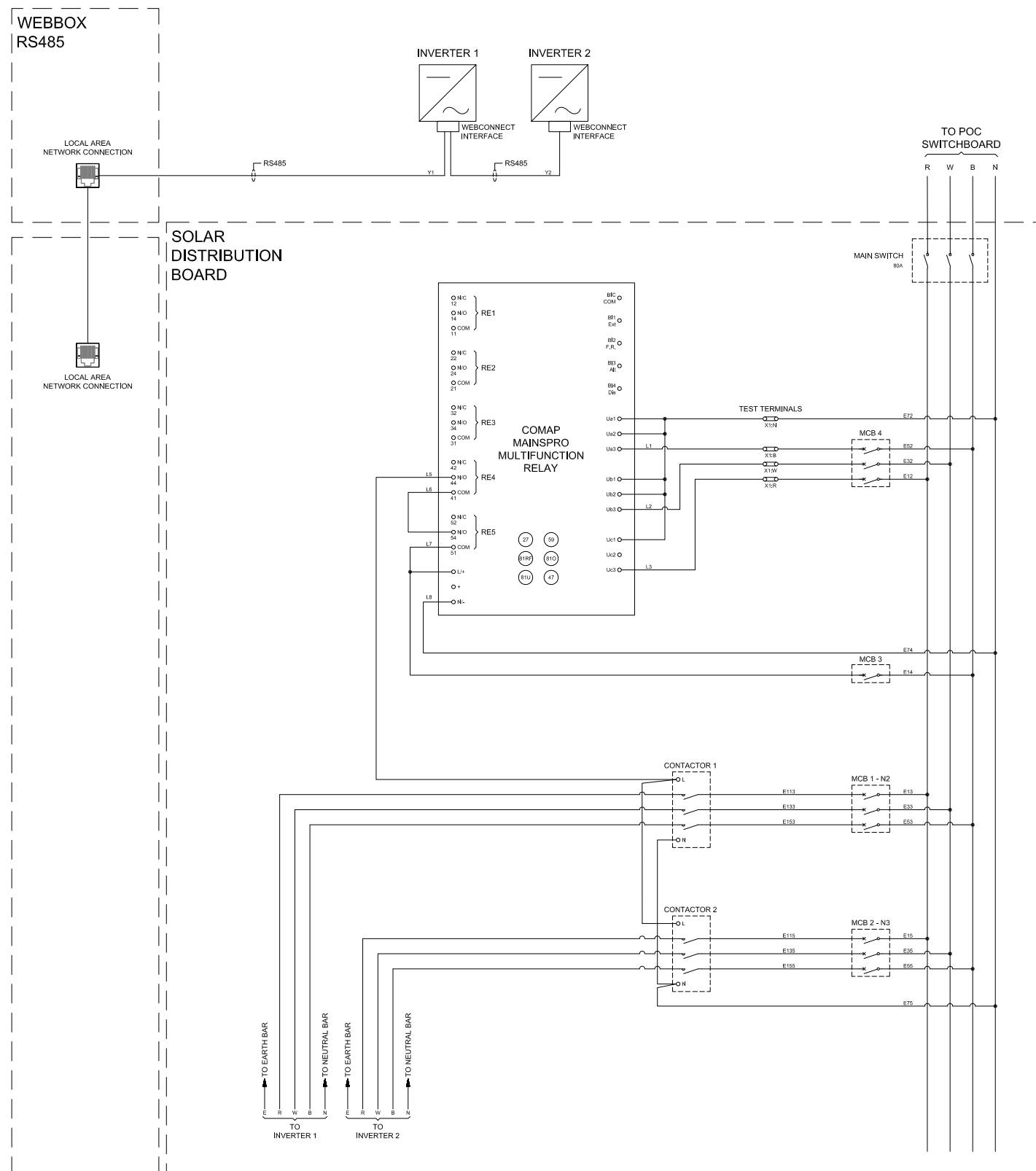
SCALE	DRAWN	CHECKED	AUTHORISED	SIZE
AS SHOWN	Date: 19.06.2015	Date: 19.06.2015	Date: 19.06.2015	A3

DRAWING No. D-EL-12639P4-201 Rev B

SOLAR DB COMPONENT SCHEDULE			
PART NR.	ID	MANUFACTURER	DESCRIPTION
1	MCB 1	GE	40A 3P MCB (INV 1 CONNECTION)
2	MCB 2	GE	32A 3P MCB (INV 2 CONNECTION)
3	MCB 3	GE	10A 1P MCB (RELAY POWER SUPPLY)
4	MCB 4	GE	10A 3P MCB (RELAY VOLTAGE REFERENCE)
5	MAIN SWITCH	GE	80A 3P ISOLATOR
6	CONTACTOR 1	ELKO	63A 4P N/O CONTACTOR (INV 1 CONTROL)
7	CONTACTOR 2	ELKO	63A 4P N/O CONTACTOR (INV 2 CONTROL)
8	MULTIFUNCTION RELAY	ComAP	MAINSPRO MAINS DECOUPLING RELAY
9	WEBBOX	SMA	SUNNY BLUETOOTH WEBBOX

MULTIFUNCTION RELAY TERMINAL SCHEDULE		
TERMINAL	FUNCTION	DEFAULT STATE
RE 1	SPARE	/
RE 2	SPARE	/
RE 3	SPARE	/
RE 4	!CommTrpPer	N/O
RE 5	!InternFail	N/O

CABLE SCHEDULE	
INVERTER TO SOLAR DB	4C + E 6mm ² Cu ORANGE CIRC
SOLAR DB TO POC	4X1C 16mm ² CU XLPE + 1C 6mm ² EARTH (BUILDING WIRE)
AC CONTROL CIRCUITS	1.5mm ² COPPER



**SOLAR DISTRIBUTION BOARD
WIRING SCHEMATIC**
NTS

O/U VOLTAGE SETTINGS

Protection Setting	Set Point		Pass Criteria	
	Value	Units	Lowest	Highest
OV Pick Up	270	V	267	270
OV Timing	1.0	S		1.1
UV Pick Up	200	V	200	203
UV Timing	1.0	S		1.1

O/U FREQUENCY SETTINGS

Protection Setting	Set Point		Pass Criteria	
	Value	Units	Lowest	Highest
OF Pick Up	50.7	Hz	50.4	51
OF Timing	1.0	S		1.1
UF Pick Up	49.5	Hz	49.2	49.6
UF Timing	1.0	S		1.1

ROCOF SETTINGS

Protection Setting	Set Point		Pass Criteria	
	Value	Units	Lowest	Highest
+ve ROCOF Pick Up	0.7	Hz/S	0.6	0.8
+ve ROCOF Timing	1.0	S		1.0
-ve ROCOF Pick Up	0.7	Hz/S	0.6	0.8
-ve ROCOF Timing	1.0	S		1.0

VECTOR SHIFT SETTINGS

Protection Setting	Set Point		Pass Criteria	
	Value	Units	Lowest	Highest
+ve Vector Shift Pick Up	8	Degrees	7	9
-ve Vector Shift Pick Up	8	Degrees	7	9

INVERTER O/U VOLTAGE SETTINGS

Protection Setting	Set Point		Pass Criteria	
	Value	Units	Lowest	Highest
OV Pick Up	260	V	257	270
OV Timing	1.0	S		1.1
UV Pick Up	200	V	200	203
UV Timing	1.0	S		1.1

INVERTER O/U FREQUENCY SETTINGS

Protection Setting	Set Point	
	Value	Units
OF Pick Up	52	Hz
OF Timing	2	S
UF Pick Up	48	Hz
UF Timing	2	S

1. MAINSPRO DECOUPLING RELAY USES NORMALLY OPEN CONTACTS. WHEN A FAULT IS DETECTED A CIRCUIT IS BROKEN TO THE AC CONTROL CIRCUIT CAUSING IT TO TRIP THE CONTACTORS.
2. AUTO RECONNECT SETTING: 60 SECONDS AFTER FAULT IS CLEARED.

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3. EARTH CABLE ROUTE NOT SHOWN FOR CLARITY
4. CABLE SIZED ACCORDINGLY FOR THE APPROPRIATE RATINGS.
5. SOLAR POWER SYSTEM COMPLIES WITH CLASS II INSTALLATION
6. INSTALLATION TO COMPLY WITH AS4777, AS5033, AS3000, AS3430, STATE SERVICE AND INSTALLATION RULES AND ENERGY AUTHORITY NETWORK RULES
7. SOLAR AC SWITCHGEAR SIZED FOR MAXIMUM INVERTER AC OUTPUT.

PROJECT:

CLIENT:

SOLGEN ENERGY PTY LTD

DRAWING TITLE:

40.87KWP SOLAR DB WIRING AND PROTECTION SETTINGS

SCALE: AS SHOWN
DRAWING NO.: D-EL-12639P4-203
Rev: A