

[REDACTED]

1. Technology: Solar PV

2. Maximum Power: 50 kW

3. Contribution to fault levels: N/A

4. Size & rating of the relevant Transformer: N/A

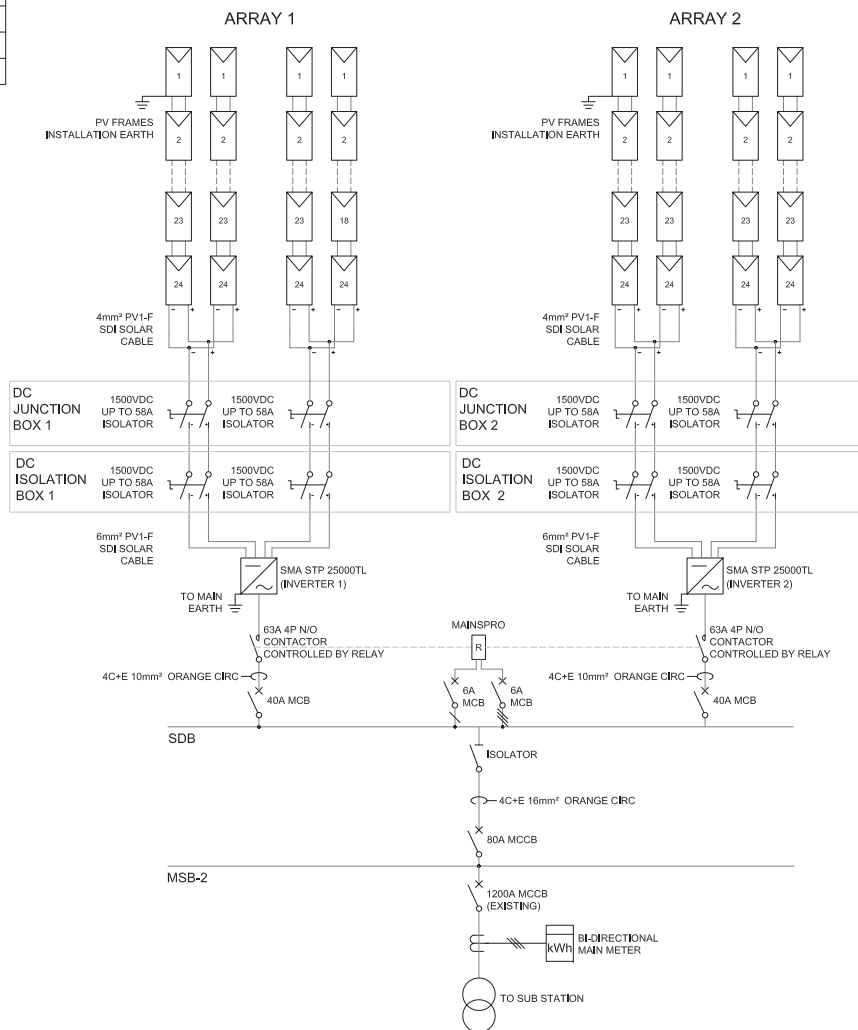
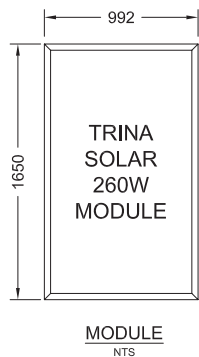
5. Single line diagram: refer to following page

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	TRINA SMART 260W	192
INVERTER	SMA STP 25000TL	2
TOTAL		49.92KWP



TYPICAL SYSTEM SCHEMATIC  
NTS

LEGEND:

	ISOLATOR		SINGLE PHASE CIRCUIT		MOULDED CASE CIRCUIT BREAKER 100A DENOTES 100AMPS RATING 200A DENOTES MINIMUM FRAME SIZE		260W POLYCRYSTALLINE SOLAR MODULE
	CIRCUIT BREAKER		THREE PHASE CIRCUIT		MAINSPRO RELAY		INVERTER
	ROTARY SWITCH		NEUTRAL CONDUCTOR SYMBOL		AC SUPPLY WIRING		MAIN METER
	EARTH POTENTIAL		AUXILIARY NC CONTACTS FROM GENERATOR ATS		CONTROL WIRING		

ARRAY 1-2

	MPPT1	MPPT2
Panel Type	Trina-Honey 260P	Trina-Honey 260P
Number of Panels in Series (N)	24	24
Number of Parallel Strings	2	2
Total Number of Panels	96	
Inverter Type	SMA STP25000TL-30	
Number of Individual MPPT's	2	
Rated Power (W)	12485	12485
Total Rated Power (W)	24970	
Panel Voc (V)	38.2	38.2
Panel Isc (A)	9	9
Fill Factor	0.756544503	0.756544503
Input Voc (V)	916.8	916.8
Input Isc (A)	18	18
PV Array Min Voltage	587.712	587.712
PV Array Max Voltage	990.14	990.14
Distance to Junction Box (m)	50	
DC Cable Resistance (Ohm*mm2/m)	0.0172	
Min cable size (mm2)	1.69	1.69
Cable Size selected (mm2)	4	4
Voltage drop (%)	0.42	0.42
String Protection Needed	NO	NO
Distance to Inverter (m)	30	
DC Cable Resistance (Ohm*mm2/m)	0.0172	
Min cable size (mm2)	2.03	2.03
Cable Size selected (mm2)	6	6
Voltage drop (%)	0.34	0.34
DC Isolation min voltage [per pole rating] (V)	990.14	990.14
DC Isolation min Current (A)	22.50	22.50
Phases output	3	
Max AC current [per phase; line to neutral] (A)	36.19	
AC Breaker min Current (A)	36.19	
AC Breaker max Current (A)	72.38	
AC Breaker Chosen (A)	40	
Distance to POC (m)	10.00	
Cable Impedance (Ohm*mm2/m)	0.018	
Min cable size (mm2)	5.43	
AC Cable size (mm2)	10.00	

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- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS IN MILLIMETERS UNLESS NOTED OTHERWISE.
- EXACT LOCATION OF ALL PARTS OF THE INSTALLATION TO BE DETERMINED ON SITE.
- CIRCUIT BREAKER TO MATCH MAKE, MODEL AND FAULT CURRENT OF EXISTING CIRCUIT BREAKERS.
- 2C 1.5mm<sup>2</sup> CONTROL CABLE.

Rev	Description	Date	Checked	Authorised
A	PRELIMINARY DESIGN	11.05.15		

PROJECT:

CLIENT:

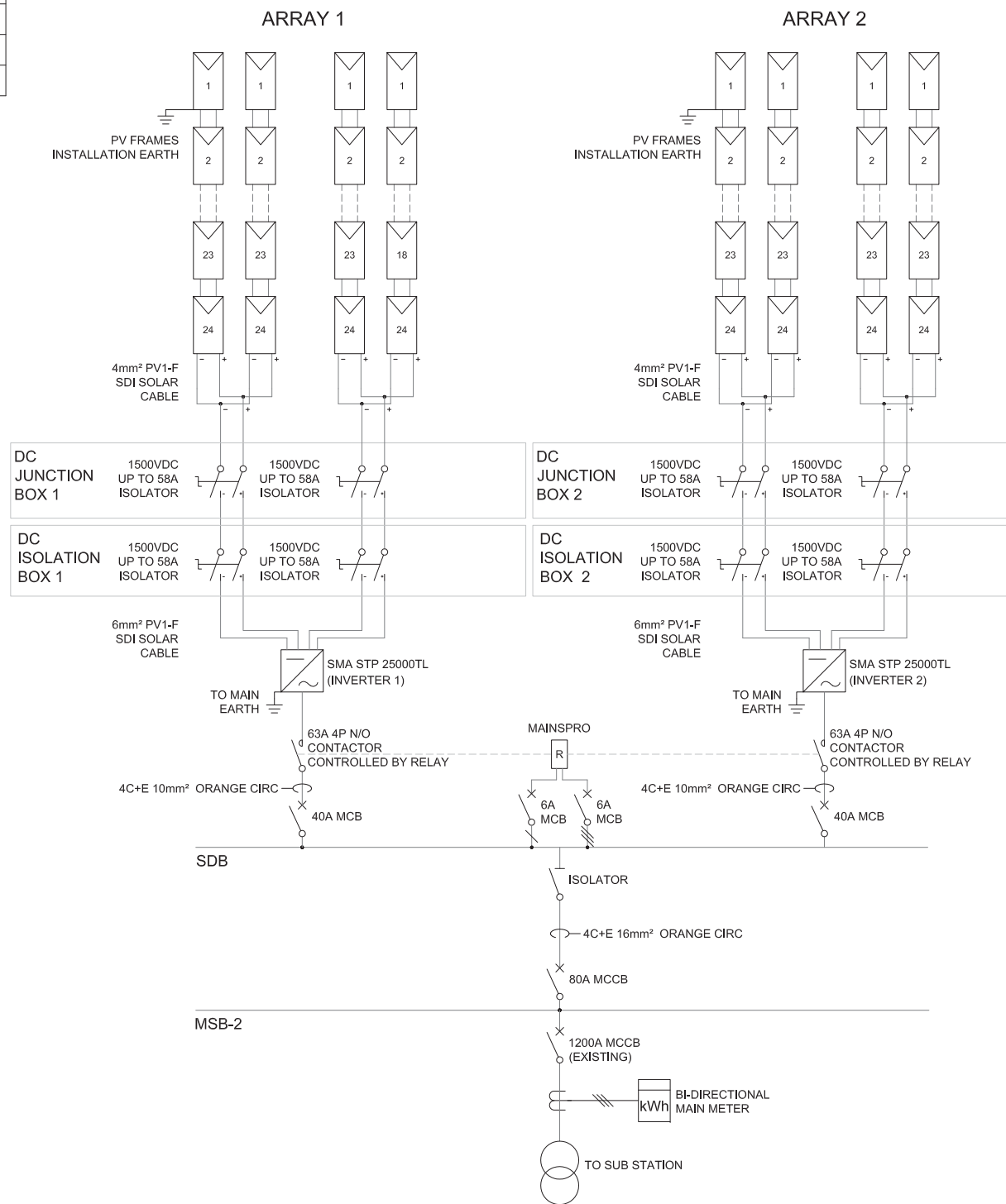
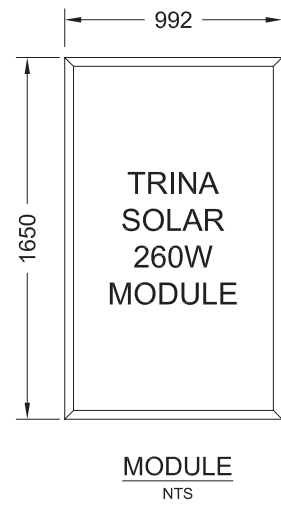
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DRAWING TITLE:

49.92kWP PHOTOVOLTAIC SYSTEM SCHEMATIC

SCALE	DRAWN	CHECKED	AUTHORISED	SIZE
AS SHOWN	11.09.2015	11.09.2015	10.09.2015	A3
DRAWING No.	D-EL-12628P6-201			Rev A

ITEM	SPECIFICATION	QTY
MODULE	TRINA SMART 260W	192
INVERTER	SMA STP 25000TL	2
TOTAL		49.92kWP



TYPICAL SYSTEM SCHEMATIC  
NTS

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	ROTARY SWITCH		NEUTRAL CONDUCTOR SYMBOL		AC SUPPLY WIRING		MAIN METER
	EARTH POTENTIAL		AUXILIARY N/C CONTACTS FROM GENERATOR ATS		CONTROL WIRING		

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- CIRCUIT BREAKER TO MATCH MAKE, MODEL AND FAULT CURRENT OF EXISTING CIRCUIT BREAKERS.
- 2C 1.5mm<sup>2</sup> CONTROL CABLE.

Rev	Description	Date	Checked	Authorised
A	PRELIMINARY DESIGN	11.09.15		

PROJECT:

CLIENT:

SOLGEN ENERGY PTY LTD

DRAWING TITLE:  
49.92kWP PHOTOVOLTAIC SYSTEM SCHEMATIC

SCALE	DRAWN	CHECKED	AUTHORISED	SIZE
AS SHOWN	Date: 11.09.2015	Date: 11.09.2015	Date: 10.09.2015	A3
DRAWING No.	D-EL-12628P6-201			Rev A

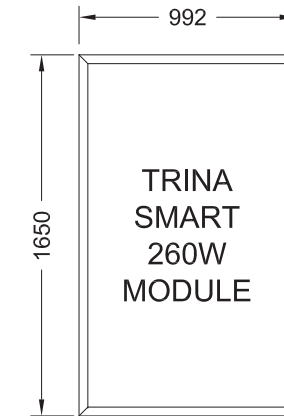


**SITE LAYOUT**  
NTS

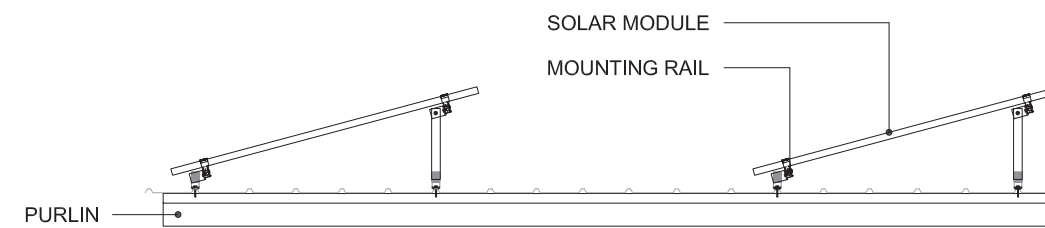
EXCLUDED AREA / ROOF OBSTRUCTIONS

ALL MODULES TO BE INSTALLED TILT MOUNTED TO THE ROOF IN PORTRAIT ORIENTATION

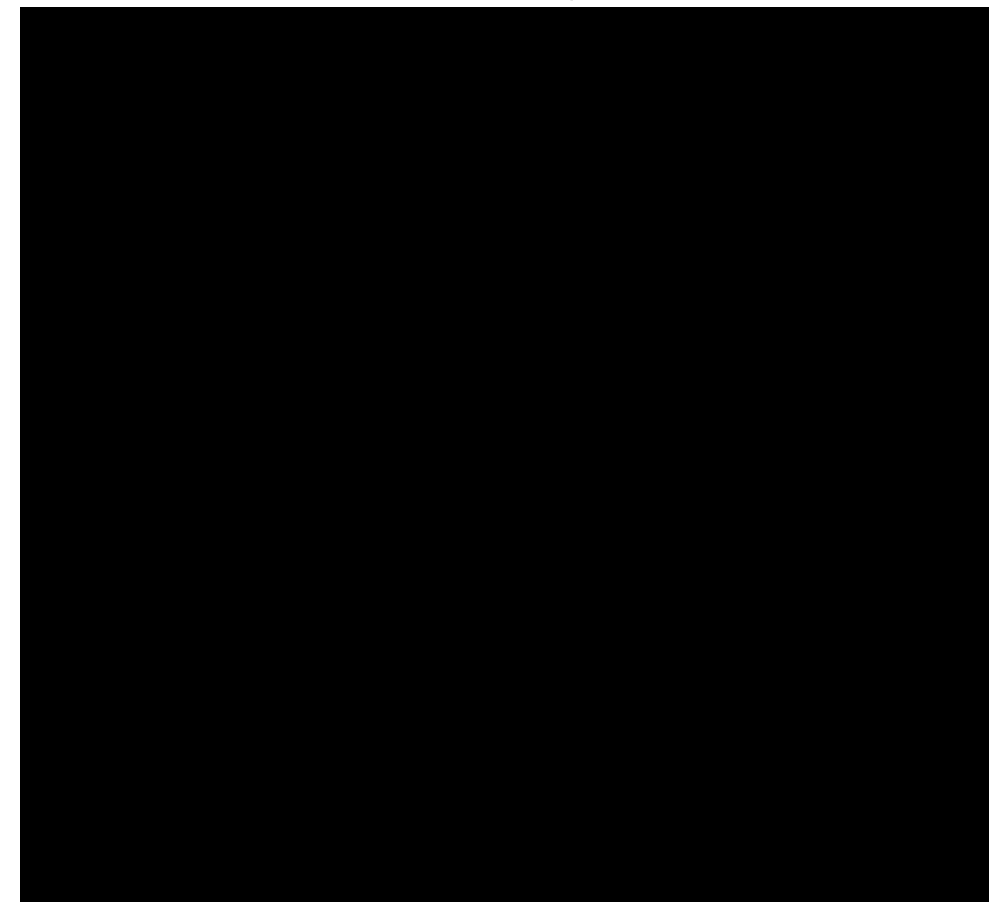
ITEM	SPECIFICATION	QTY
MODULE	TRINA SMART 260W	192
INVERTER	SMA STP 25000TL	2
<b>TOTAL</b>		<b>49.92kWp</b>



**MODULE**  
NTS



**ELEVATION 01**  
NTS



**SATELLITE VIEW**  
NTS



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4. EXACT LOCATION OF ALL PARTS OF THE INSTALLATION TO BE DETERMINED ON SITE.
5. DETAILED SHADING ANALYSIS TO BE CONDUCTED ON SITE.
6. ALL CLAMPED ROOF FIXINGS MUST BE INSTALLED DIRECTLY ABOVE ROOF PURLINS.
7. SCREWED ROOF FIXINGS TO REPLACED EXISTING ROOF SCREWS.

Rev	Description	Date	Checked	Authorised
A	PRELIMINARY DESIGN	06.05.15		

PROJECT:  
[Redacted]

CLIENT:  
[Redacted]

**SOLGEN ENERGY PTY LTD**

[Redacted]

DRAWING TITLE:  
**49.92kWp PHOTOVOLTAIC SYSTEM LAYOUT**

SCALE	DRAWN	CHECKED	AUTHORISED	SIZE
AS SHOWN				A3

DRAWING No. **D-GE-12628P6-101** Rev **A**

SOLAR DB COMPONENT SCHEDULE			
PART NR.	ID	MANUFACTURER	DESCRIPTION
1	MCB 1	GE	40A 3P MCB (INV 1 CONNECTION)
2	MCB 2	GE	40A 3P MCB (INV 2 CONNECTION)
3	MCB 3	GE	6A 1P MCB (CONTROL SUPPLY)
4	MCB 4	GE	6A 1P MCB (RELAY POWER SUPPLY)
5	MCB 5	GE	6A 3P MCB (RELAY VOLTAGE REFERENCE)
6	MAIN SWITCH	GE	250A 3P ISOLATOR
7	CONTACTOR 1	ELKO	63A 4P N/O CONTACTOR (INV 1 CONTROL)
8	CONTACTOR 2	ELKO	63A 4P N/O CONTACTOR (INV 2 CONTROL)
9	MAINSPRO	ComAP	MAINSPRO MAINS DECOUPLING RELAY

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 10mm <sup>2</sup> Cu
SOLAR DB TO MSB-2	4C + E 16mm <sup>2</sup> Cu
AC CONTROL CIRCUITS	1.5mm <sup>2</sup> COPPER

**O/U VOLTAGE SETTINGS**

Protection Setting	Set Point	
	Value	Units
OV Pick Up	270	V
OV Timing	1.0	S
UV Pick Up	200	V
UV Timing	1.0	S

**O/U FREQUENCY SETTINGS**

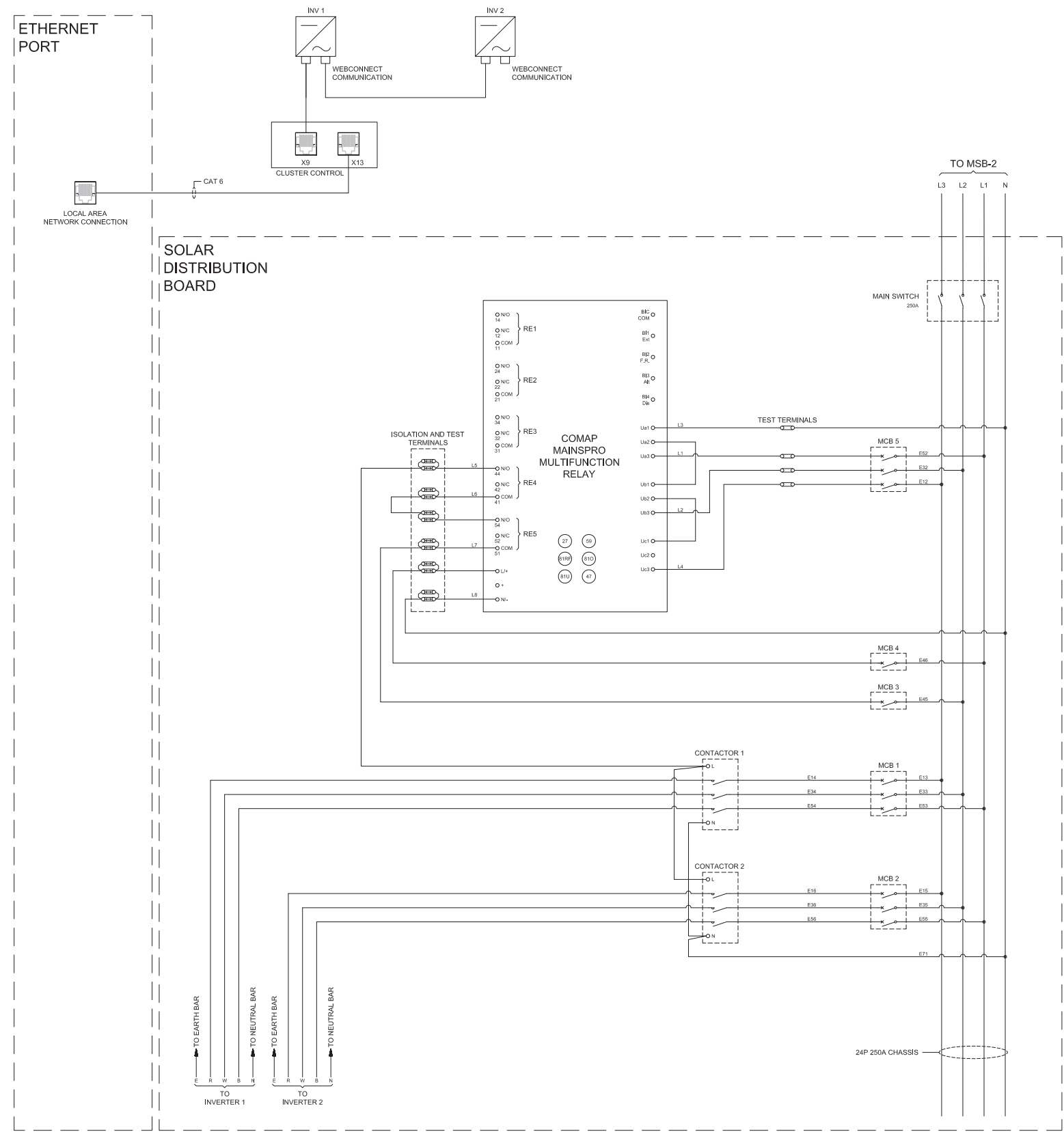
Protection Setting	Set Point	
	Value	Units
OF Pick Up	52	Hz
OF Timing	2.0	S
UF Pick Up	48	Hz
UF Timing	2.0	S

**ROCOF SETTINGS**

Protection Setting	Set Point	
	Value	Units
+ve ROCOF Pick Up	0.7	Hz/S
+ve ROCOF Timing	1.0	S
-ve ROCOF Pick Up	0.7	Hz/S
-ve ROCOF Timing	1.0	S

**VECTOR SHIFT SETTINGS**

Protection Setting	Set Point	
	Value	Units
+ve Vector Shift Pick Up	8	Degrees
-ve Vector Shift Pick Up	8	Degrees



**SOLAR DISTRIBUTION BOARD WIRING SCHEMATIC**  
NTS

**INVERTER O/U VOLTAGE SETTINGS**

Protection Setting	Set Point	
	Value	Units
OV Pick Up	260	V
OV Timing	1.0	S
UV Pick Up	200	V
UV Timing	1.0	S

**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.
3. START TRIP ACTIVATED ON RELAY.

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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.

Rev	Description	Date	Checked	Authorised
A	PRELIMINARY DESIGN	11.09.15		

PROJECT: [REDACTED]  
CLIENT: [REDACTED]

**SOLGEN ENERGY PTY LTD**

DRAWING TITLE:  
**SOLAR DB WIRING AND PROTECTION SETTINGS**

SCALE	DRAWN	CHECKED	AUTHORISED	SIZE
AS SHOWN	Date: 11.09.2015	Date: 11.09.2015	Date: 11.09.2015	A3
DRAWING No. D-EL-12628P6-203				Rev A