

SolShare Design & Installation Requirements for Victoria

Version A.1

MANDATORY DESIGN TRAINING

Allume Energy offers free online design training to all SolShare Installation Partners. All system designers in Victoria should complete the SolShare Technical Basics, System and SLD Design courses.

SWITCHBOARD REQUIREMENTS

GENERAL

The release of the new AS/NZS 4777.1 draft has brought about scrutiny on SolShare installations by ESV and the DNSPs in Victoria. This has led to ESV requesting that all future SolShare installations in Victoria, comply with the requirements set out in the draft release, prior to the full release of this draft as an official standard.

These additional requirements which are to be implemented include:

- External contactors on each SolShare output.
- Interface protection on all SolShare installations.
- Load side connection of SolShare to tenancy main switches.

Details on each of these requirements can be found below. We are still in active discussion with the committee to review some of these clauses, particularly the interface protection clause. As soon as an agreement is reached with the drafting committee and ESV, this document will be updated.

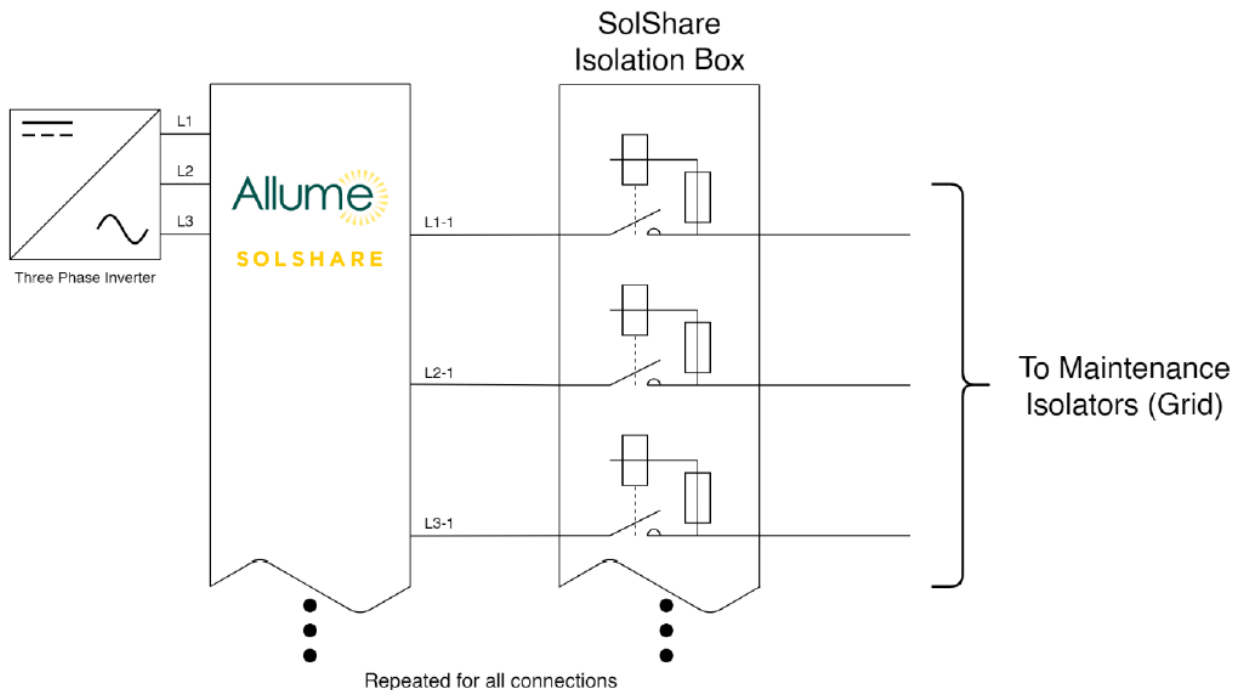
EXTERNAL CONTACTOR REQUIREMENTS

There is a requirement for there to be automatic air-gap isolation on all SolShare output ports. Allume has designed a system to achieve this involving a single pole normally open contactor on each SolShare output, ensuring air gap isolation when an individual apartment is isolated from the grid.

This contactor is normally open (NO) and is energized by a 230V coil. The voltage to power the coil is taken from the grid side of the contactor (*refer to template SLD*).

This results in the following sequence if a single apartment is isolated from the grid:

1. The SolShare will notice a reduction in grid usage below its permissible threshold and isolate the apartment's solar supply (via solid state switchgear)
2. This will cause the voltage on the corresponding SolShare output to drop to zero, causing the contactor coil to become de-energized.
3. This will open the contact providing airgap isolation for the solar supply to that unit.
4. This contact will not close again until the voltage is restored to the coil via the apartment being reconnected to the grid.
5. SolShare will only begin supplying solar energy to that unit once it has demonstrated grid supply above its permissible current threshold for longer than 60s.



We will be stocking suitable contactors so they can be provided as an accessory to each SolShare. These will be offered at cost. SolShare installation partners are also welcome to procure their own contactors should they meet the required specifications.

INTERFACE PROTECTION REQUIREMENTS

Under the current draft AS/NZS 4777.1 wording, there is also a requirement for interface protection to be used on all sites, regardless of kVA rating.

“Interface protection shall be installed for an inverter or multiple inverters that are connected to multiple electrical installations using a SolShare.”

The interface protection contactor should be placed between the inverter and the SolShare for each SolShare unit. An interface protection relay is included to monitor the incoming supply and control the interface protection contactor(s).

Multichannel NPUs can be used in installations with more than 1 SolShare. The contactor and interface protection relay do not have to be co-located. This configuration is shown in the snippet below of an example site – *please note that some of the aspects of this drawing will be different to your projects.*

We are working towards the removal of this requirement. However, in the meantime it would be prudent to include this in quotes and designs.

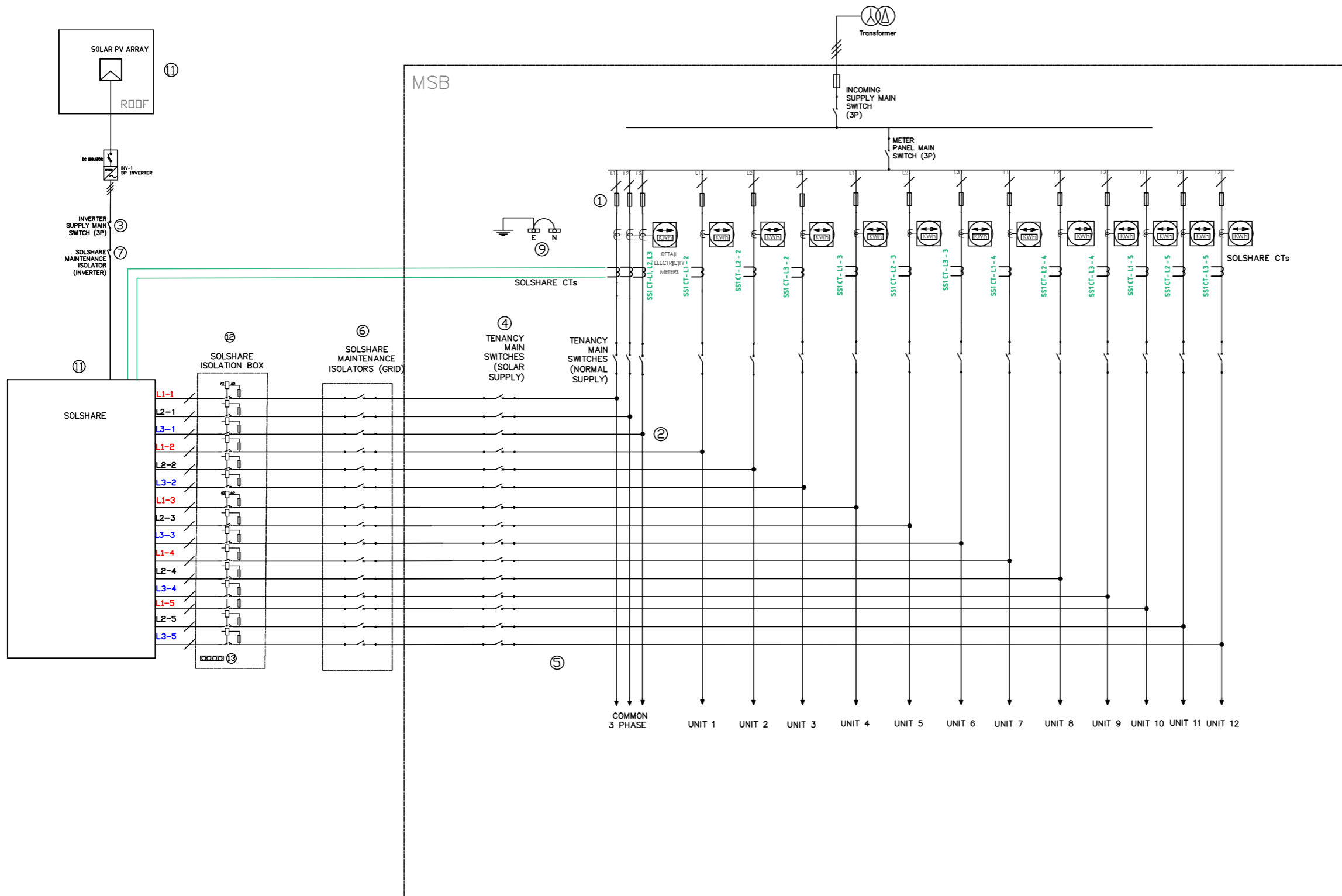
LOAD SIDE CONNECTIONS

The new standards define a new way to integrate the SolShare into a solar electrical system, by connecting the Solshare outputs on the load side of the tenancy main switches (grid supply) of each tenancy participating in the solar installation.

This differs from guidance in other markets which advise service side connections or the use of 2 pole main switches.

TEMPLATE SLD

The template SLDs on the following page shows an example configuration suitable in Victoria for a typical single and multiple SolShare installations. Configuration of external contactor box requirements are also included; notes are included in the SLD to annotate key considerations of your design.



NOTES

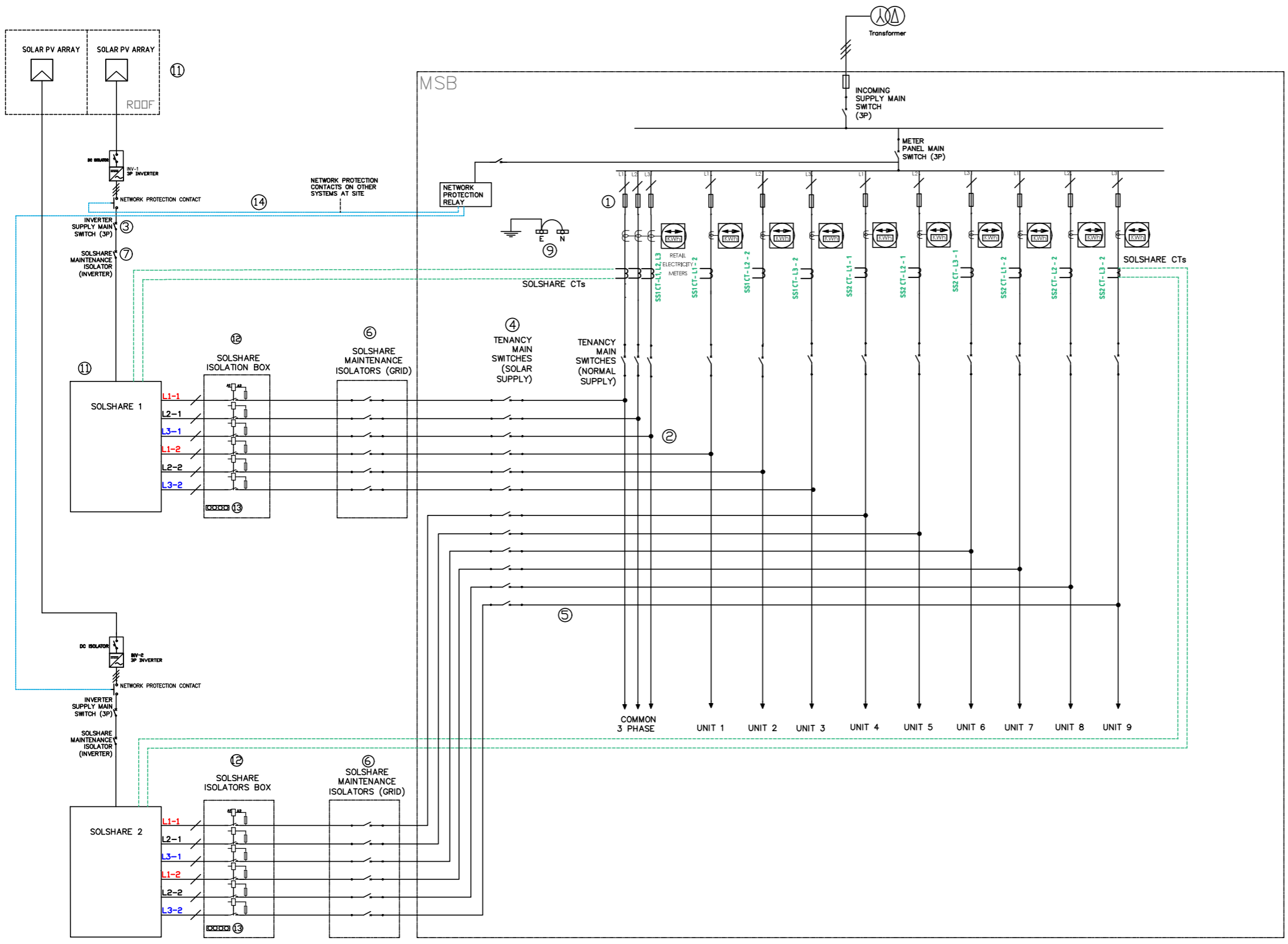
- In South Australia Service Side fuses will be replaced by meter isolators. If this is the case the system shall be configured for SYSTEM LEVEL ANTI-ISLANDING.
- The solar point of connection is on the load side of the Main Switch (Normal Supply) for each tenancy. Tenancy Main Switch (Normal Supply) will isolate both grid and solar supply to tenancy. Clear labelling must be included on the meter panel to indicate this wiring configuration (label provided with SolShare).
- If possible, the Inverter Supply Main Switch shall be housed in the MSB. If not possible, then clear labeling of location of Inverter Supply Main Switch must be included in MSB.
- Tenancy Main Switches (Inverter Supply) should be housed in MSB. If this is not possible, then Inverter Supply Main Switch must be in MSB (see point 3).
- The cables shall be size correctly to meet AS/NZS 4777.1:2016, AS/NZS 3000:2018 and AS/NZS 3008.1.2:2017 requirements.
- SolShare Maintenance Isolators (Grid) are highly recommended, and are required if Tenancy Main Switches (Inverter Supply) are not readily accessible from SolShare.
- SolShare Maintenance Isolator (Inverter) is required if Inverter Supply Main Switch is not easily accessible from SolShare.
- Inverter phase connections shall match the grid phases for each tenancy connection on the SolShare.
- SolShare requires a direct connection to MEN. Neutral and Earth shall be connected to MEN link within the switchboard.
- All output cables of the SolShare must be sized for the inverters maximum current, as at points in time the SolShare may direct all current to one unit on each phase.
- Each SolShare requires its own solar PV array and dedicated inverter/inverters.
- An isolation box shall be installed, by utilizing the 40A, 240VAC coil contactors provided as part of the installation kit.
- The Neutral connection of the coil (A1) shall be terminated at the neutral bar in the isolation box and linked back to the main MEN at the MSB.

LEGEND

	Circuit Breaker
	Meter
	Solshare CT
	CT Cable
	MEN Link
	Fuse
	Contactor Coil
	Neutral Bar

For installation design

<p>ABN: 58605671494 A: Unit 1/ 1 Brohmam PI, Richmond VIC. 3121 T: 03 9427 0005 W: www.allumeenergy.com.au</p>	ADDRESS 123 Main Street, Melbourne, VIC 3000.		PROJECT NAME: Sample Project			TITLE: SAMPLE SLD-SINGLE SOLSHARE				
	DRAWN V. Obasuyi	DATE 15/02/2024	CHECKED S. Omolewa	DATE 15/02/2024	APPROVED M. Dart	DATE 15/02/2024	SHEET SIZE A3		DRAWING NUMBER ALL-100-01	REV A1
	SCALE		NTS							



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- The Neutral connection of the coil (A1) shall be terminated at the neutral bar in the isolation box and linked back to the main MEN at the MSB.
- Please note that Network Protections requirements may differ across regions in Australia, so please ensure to check with your network regulator (DNSP) for the appropriate requirement.

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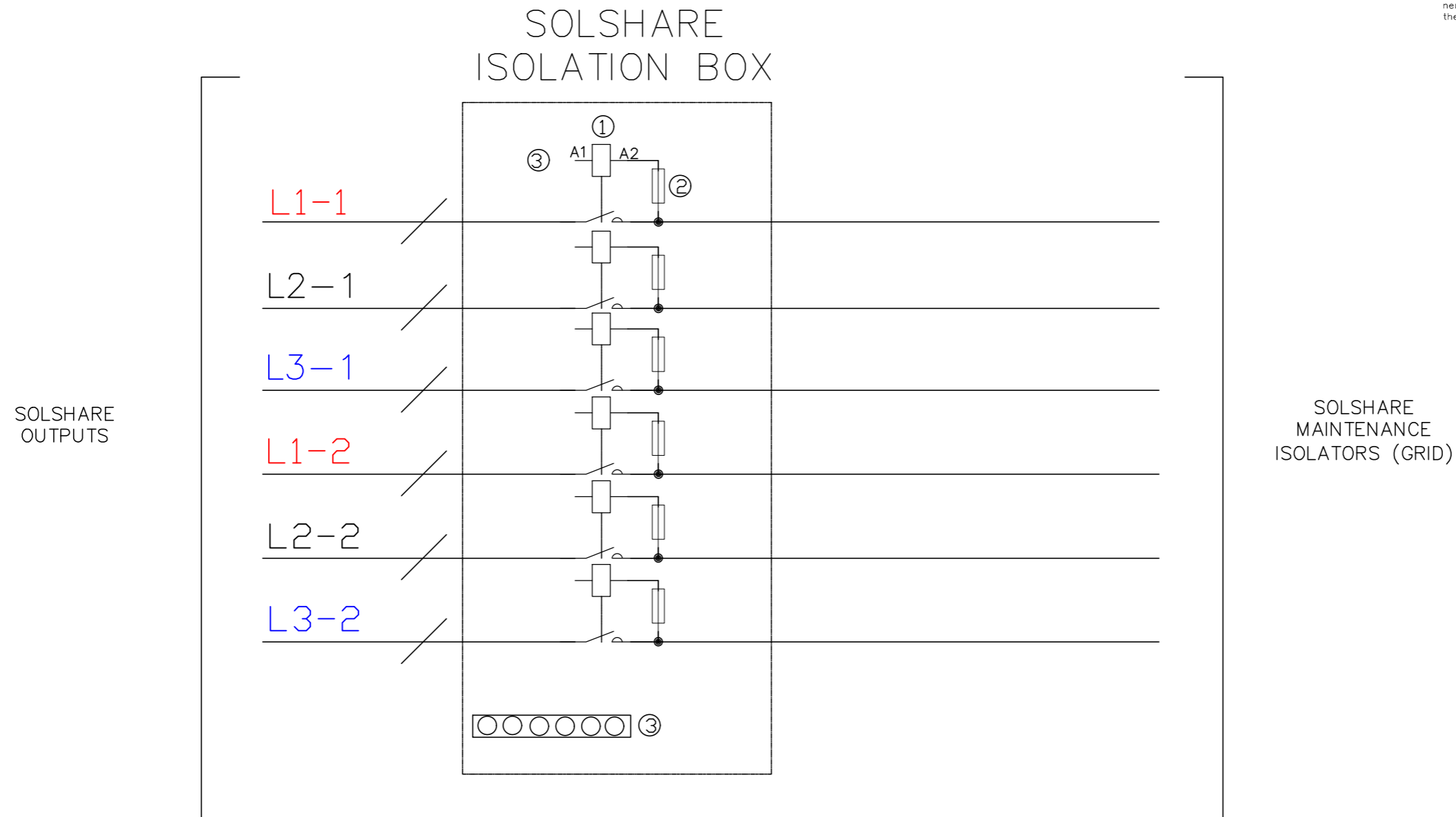
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	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>DRAWN</th> <th>DATE</th> <th>CHECKED</th> <th>DATE</th> <th>APPROVED</th> <th>DATE</th> </tr> <tr> <td>V. Obasuyi</td> <td>15/02/2024</td> <td>S. Omolewa</td> <td>15/02/2024</td> <td>M. Dart</td> <td>15/02/2024</td> </tr> </table>	DRAWN	DATE	CHECKED	DATE	APPROVED	DATE	V. Obasuyi	15/02/2024	S. Omolewa	15/02/2024	M. Dart	15/02/2024	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>SHEET SIZE</th> <th>DRAWING NUMBER</th> <th>REV</th> </tr> <tr> <td>A3</td> <td>ALL-100-02</td> <td>A1</td> </tr> </table>	SHEET SIZE	DRAWING NUMBER	REV	A3	ALL-100-02	A1			
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SOLSHARE ISOLATION BOX (Can vary from 6– 15 Connections per SolShare)

NOTES

1. An isolation box shall be installed, between the Solshare and the Solshare maintenance isolator (Grid), by utilizing the 40A, 240VAC coil contactors that will be provided as part of the installation kit.
2. The Control coil of the contactor labeled A2 shall be connected to the contactor's grid input terminal labeled "2" by utilizing a 6A fused cable provided as part of the installation kit.
3. The Neutral connection of the coil (A1) shall be terminated at the neutral bar in the isolation box and linked back to the main MEN at the MSB.



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	123 Main Street, Melbourne, VIC 3000.		Sample Project					
	DRAWN	DATE	CHECKED	DATE	APPROVED	DATE	SHEET SIZE	DRAWING NUMBER
V. Obasuyi	15/02/2024	S. Omolewa	15/02/2024	M. Dart	15/02/2024	A3	ALL-100-03	A1
						SCALE	NTS	