

Distribution:

SOLARCITY INSTALLER NETWORK

Overview

For all micro inverter systems, the installation of a rooftop isolator is now required by solarcity. The recommended isolator and associated parts are as specified below. These parts are readily available from most electrical wholesalers.

There are some new directives in this document, therefore it is vital that it be read through and fully understood.

This technote sets out the instructions and photographic examples for correctly installing a rooftop isolator to the required standard.

Please note that any variations from the methods described herein must be approved in writing by the solarcity technical team before proceeding. If an installation is failed due to non-adherence to the instructions written below, any remedial work will be at the installer's cost.

References

NZS5033:2014 Section:4.4.4.6

NZS4777.1:2016 Section 5.5.2

NZS3000:2007

Details

Location of the rooftop isolator

Locate the Isolator according to the following guidelines:

1. Place it at the rail end that is as close as practicable to the proposed roof penetration to minimise the length of the cable run on the roof surface.
2. Place it to facilitate access to the switch from one side of the array.
3. Place it approximately one hand-width in from where the edge of the end panel sits on the rail to ensure the Isolator will sit underneath that end panel. This provides additional protection from UV exposure and rainwater whilst still being accessible.

Note: The recommended isolator (refer parts list) maintains its IP66 rating in any orientation provided the associated connections/entries used follow the manufacturer's instructions. These instructions have been incorporated into the details below.

Fixing the isolator

Fasten the Isolator body to the rail using 2 of (12g x 20 or 25mm) Galvanised (Class 4 min.) Metal Tek screws with rubber seals to maintain water-tightness.

Typically, there is about 15 to 20mm of the isolator body that sits above the rail once installed.

Depending on which way the isolator is installed if necessary the switch mech can easily be removed to facilitate drilling the pilot holes on a flat area but please ensure it is reinstalled in the same orientation.

Refer photos below:

Tech Note – TN1115-PV-v1

Rooftop isolator installation instructions for micro inverter systems

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Switch Mech removed to allow Tek screw seals to fit neatly onto smooth surface of isolator

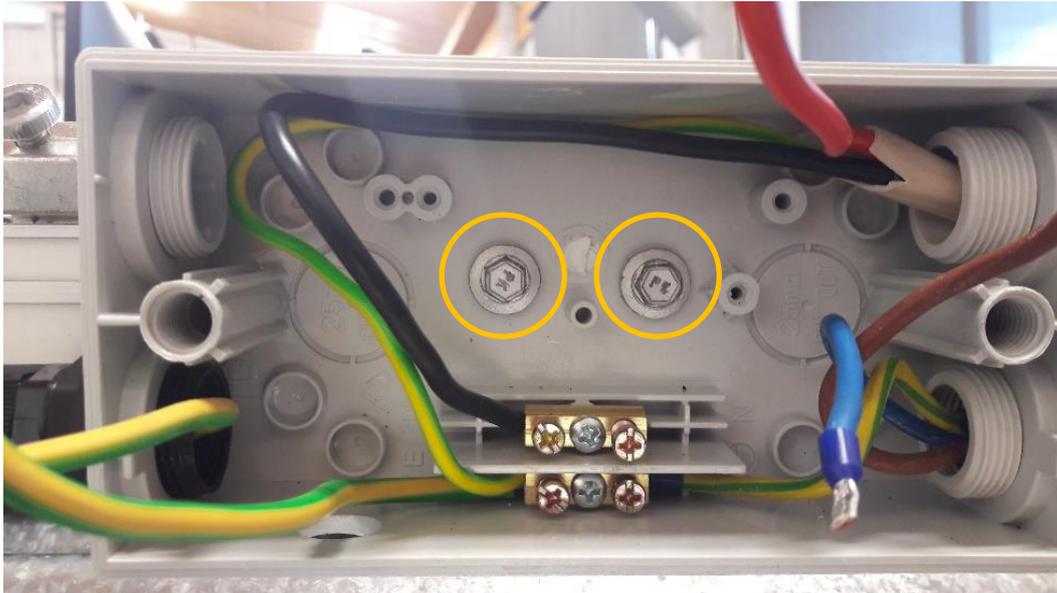


Figure 1 fixing screws behind switch mech

Switch mech left in place



Figure 2 fixing screws above switch mech

We recommend that a 3mm pilot hole be drilled through the back of the isolator body into the rails to align the enclosure pilot holes to the rail pilot holes. Thereafter, the enclosure holes only, should be enlarged to 5mm. This will ensure that Tek screw seals neatly onto the interior face of the isolator body whilst the 3mm hole in the rails facilitates smooth self-tapping into the rail metal.

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The Tek screws typically protrude through to the upper section of the rail as per photo below.



Figure 3 Back side of isolator showing screw fixings through rail

Cable Entries

IMPORTANT

Before connecting any wiring to the isolator, ensure the isolator switch is OFF and all wiring is isolated.

To comply with NZS5033:2014 Section:4.4.4.6, the only cable entries permitted to be used are those that have been provided for by the isolator manufacturer i.e. it is NOT permitted to drill holes in the isolator body. All fittings must not compromise the IP rating of the isolator.

No 'drain holes' are permitted.

Note: All threaded entry points must be installed using Teflon tape or appropriate mastic as per manufacturers recommendations

1. Once the rooftop isolator is mounted to the rail, feed the Engage cable to into the isolator via an IP67/8 M20gland and 25-20mm reducer. Remember to use Teflon tape on the reducer. Once located tighten the gland onto the cable.
2. The AC cable should enter the isolator in flexible HD solar rated conduit using a 25mm plain screwed adaptor. Once again, please remember to use Teflon tape on the screwed adaptor thread to maintain the IP rating.
3. The 4 or 6mm² bonding earth that exits the isolator MUST be installed via 1 x 25 to 20mm screwed reducer plus 1 x 20 to 16mm reducer. Then a M16 gland enables the 4mm² earth bond wire to be sealed. Remember to use Teflon tape on both the screwed adaptor threads to maintain the IP rating.
4. Finally, please ensure that the supplied PV ARRAY AC ISOLATOR label is affixed to the side of the PV panel to indicate where the isolator can be found when approaching the array.

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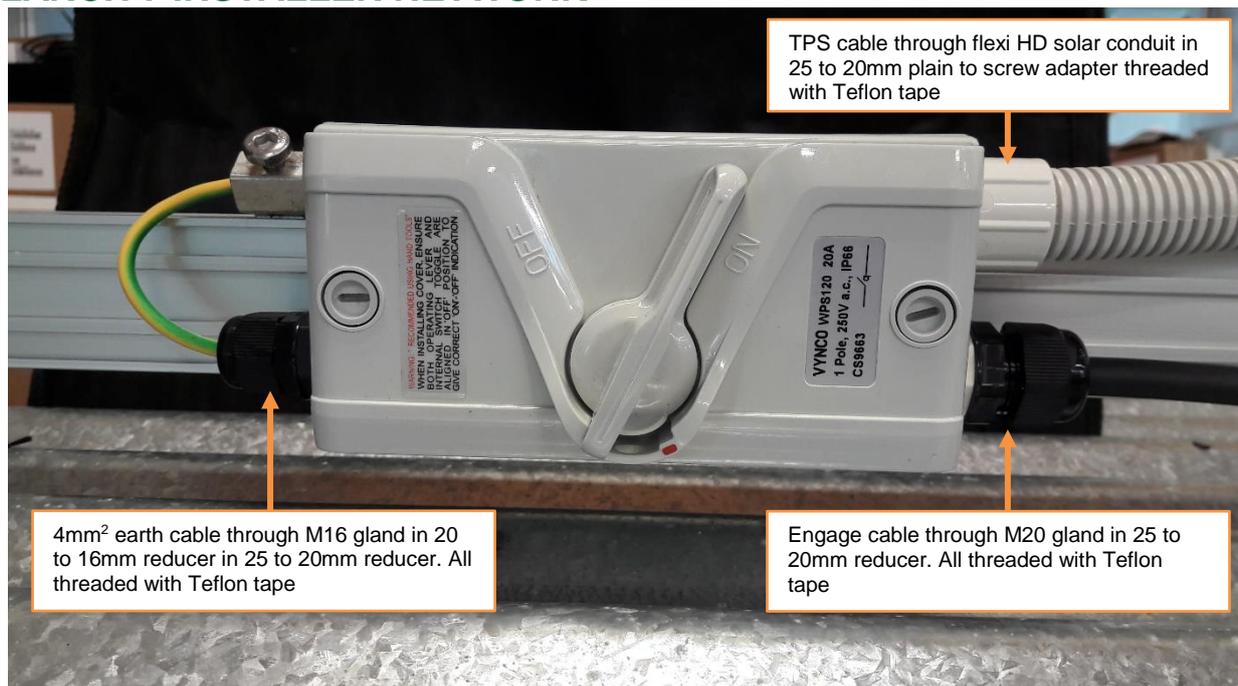


Figure 4 Completed Isolator Assembly

Additional Notes:

- Engage cable terminals must be terminated using 2.5mm² ferrules before attaching to screwed tunnel type connectors.
- Flexible conduit can be attached to the rails with SS cable ties.
- For further details on roof penetrations please refer to tech note: [TN1111-PV-v1](#)
- For installations that include a split array, the wiring can be configured to have two AC cables fed through the 25mm HD conduit and into the roof cavity. One of the AC cables is from the switchboard, the other is the feed to the second array. This allows both the arrays to be isolated from the same isolator. However, please note in this case that the Engage cable on the second array must be joined in a plain IP rated enclosure fixed to the rail in a similar way to the isolator enclosure. Do not pass Engage cable directly through the Dektite into the roof space.
- For arrays that are separated in such a way that one of the arrays cannot be seen from the other, please refer to the solarcity technical team.

Detailed Parts List (Available from J.A. Russells/Radcliffs/Stewarts)

Isolator:	Vynco WPS120 IP 66 Isolator Switch	Pt No: 55790500
Cable Glands:	M20 (x1)	Pt No: 35960040
	M16 (x1)	Pt No: 35960030
Screwed Reducers:	25mm to 20mm (x2)	Pt No: 30211660
	20mm to 16mm (x1)	Pt No: 30211640
25mm Plain Screwed Adaptor:	25mm (x1)	Pt No: 30211000
25mm HD Flexi Conduit		
Teflon Sealing Tape (can use other proprietary PTFE thread tapes)		Pt No: 48241820