

AS/NZS 3010:2017 A1 Amendment Changes

Below is a list of changes in the first amendment to AS/NZS 3010:2017 – Generating Sets. Most of the changes are graphical or minor wording alterations for clarity, with a major change being the inclusion of Appendix B into the Australian rules.

Clause #	Description of Change	Amended Clause	Original Clause
1.2	Appendix B is no longer NZ only - applies to AU as well		
1.3	Added additional standards to reference documents	AS/NZS3131, 60884, 60884.1 IEC60308.2	
2.6.3	Correct clause is now referenced for over current protection	2.6.2	2.6.3
2.7.1	Reword for clarity, added "Grid-connected" to start of sentence	A grid-connected inverter or regenerative supply source shall not be connected downstream of the generating set changeover device	An inverter or regenerative supply source shall not be connected downstream of the generating set changeover device.
Table 2.1	Updated table to be colourised and added extra alternative symbols		
Fig 2.3 - 2.16	Figures updated to include new colours and symbols altered in table 2.1, the wording "automatic" is removed from the changeover device label in the diagram. An actual note replaces an annotation for no Neutral-Earth (NE) connection and reworded to read "Note: No M.E.N connection at generator set"		
2.8.2 Ex 1 & Ex 3	Added italic's to additional paragraphs after initial one to show that it is all part of the exception		
Fig 2.11, 2.13, 2.14	Extra notes added	* May include overcurrent protection † Synchronisation and control equipment not shown ‡ Neutral earth connection	
Fig 2.14	Neutral bar moved to correct position before changeover switch		
Section 4	New Title	Additional requirements for generating sets connected by detachable connections	Additional requirements for portable generators
4.2.3	Corrected standard number	IEC 60309-2	IEC 60309
4.2.4	Clause moved from 4.3.2.3		

Clause #	Description of Change	Amended Clause	Original Clause
4.2.5	Clause moved from 4.3.2.4 and added an extra line to corrected note reference to only include Fig 4.2 & 4.3	The generator socket outlet complying with AS/NZS 3112, AS/NZS 60884.1, AS/NZS 3123, IEC 60309-2 or AS/NZS 3131 with an IP 2X rated terminals is deemed to comply.	
4.2.6	Clause moved from 4.3.2.5		
4.2.7	Clause moved from 4.3.2.6		
Fig 4.1	Figures updated to include new colours and symbols altered in table 2.1 An actual note replaces an annotation for no Neutral-Earth (NE) connection and reworded to read "Note: No M.E.N connection at generator set". Earth connection to Load is now shown		
Fig 4.2 & 4.3	Figures updated to include new colours and symbols altered in table 2.1, wording "manual" is removed from changeover device label in diagram. An actual note replaces an annotation for no Neutral-Earth (NE) connection and reworded to read "Note: No M.E.N connection at generator set"		
Fig A1	Diagram recoloured to show earth fault current path more clearly		
Fig B1, B2 & B4	Figures updated to include new colours and symbols altered in table 2.1		
Fig B3 & B5	Diagram recoloured to show earth fault current path more clearly		
B2.3.4	Added missing colon (:) in paragraph 5		
B2.4.1 (b) & (c)	Correct standard number	IEC 60309-2	IEC 60309
B3.5.1	Added missing comma		
Fig B8	New title, Neutral-Earth connection added, EQ bond now labelled, RCBO's labelled. Figures updated to include new colours and symbols altered in table 2.1	Isolated output generating set connected to a distribution switchboard	
B4.1	Spelling mistake, first sentence	Close	Closed
B5.4	Corrected standard number	IEC 60309-2	IEC 60309
B5.6	Corrected standard number	IEC 60309-2	IEC 60309
C2	Removed reference to 2007 edition of AS/NZS 3000	AS/NZS 3000	AS/NZS 3000:2007
D3.1.11	Corrected standard number	IEC 60309-2	IEC 60309

Important clause considerations of this standard:

2.5 EARTHING ARRANGEMENTS

When the multiple earth neutral system (MEN) is to be employed, the following connection principles shall apply:

(b) Where a generating set is connected to an electrical installation as either the primary source supply or alternative source of supply to the normal power supply, the alternator winding shall have no internal connection to the earthing system of the generating set.

(e) Where a MEN connection or link is located at a main switchboard of an electrical installation to which a generating set is connected, the electrical installation earth electrode shall be connected to the main switchboard in accordance with AS/NZS 3000 requirements.

An earth electrode shall not be directly connected to the generating set.

When a generator is connected to an installation, any existing NE (Neutral-Earth) connection made inside the generator would need to be disconnected. The conductive frame of the generator is provided with an earth conductor from the installation MEN earth bar or point. No further earthing by earth electrode is necessary and specifically not permitted.

2.6.3 GENERATOR OUTPUT ISOLATOR

Each generating set shall be provided with an isolating switch operating in all live conductors, that is installed adjacent to, or on, the generating set so that a person working on the generating set has a clear view of the isolating device, and may be combined with overcurrent protection required by Clause 2.6.2

Ensure that the isolator on the generator is switching all live conductors, remembering that the neutral conductor in this standard is considered a live conductor. Refer to the definition contained in AS/NZS 3000:2018 clause 1.4.79

2.7 ALTERNATIVE SUPPLY (STANDBY)

2.7.1 GENERAL

A grid-connected inverter or regenerative supply source shall not be connected downstream of the generating set changeover device.

Exception: Where suitable control systems prevents backfeed to the generator the above provision does not apply.

Unless a suitable back-feed prevention device is fitted, the generator supply to a changeover switch must ensure any supplementary supply is not inadvertently energized by the generator source. This would require any solar / battery back-up system supply to be connected to the normal supply which would be isolated from the generator by the changeover switch when in generator operation. Refer to the definitions in AS/NZS 3000:2018 clause 1.4.120 Supplementary supply and AS/NZS 3010:2017 clause 1.4.1 Alternative supply, 1.4.8 Normal Supply.

2.7.10 CHANGEOVER DEVICE IN THE GENERATOR NEUTRAL

2.7.10.1 IN AUSTRALIA

In Australia only, a changeover device switching contact in the generator set neutral connection is not the recommended connection method for generating sets that are permanently connected to any switchboard. However, when a changeover device is fitted in a generating neutral connection, the neutral connection shall not disconnect the connection to the main switchboard MEN link connection (see Figures 2.3 to 2.9).

For a permanently connected alternative supply generator, the changeover switch installed within the installation does not switch the generator neutral conductor where connected at the installation termination point and the connection to the MEN system. This will ensure the frame of the generator and the neutral and active windings will be at the same earthed potential when not in use.

4.2.5 ENCLOSURE OF LIVE PARTS

The electrical installation supply inlet and the generator socket outlet connection shall not expose live parts to direct contact while disconnected or in the normal process of cord extension set insertion or withdrawal.

The neutral pin of the electrical installation supply inlet is considered to be a live part and shall be isolated from the main switchboard neutral connection by the changeover device when in the normal supply or 'off' positions. NOTE: See Figures 4.2 and 4.3.

When a generator is connected by an extension lead and inlet socket to an installation, the changeover device operates in all live conductors (active and neutral) of the generator supply. This is not a “new” requirement but a clarification of the existing requirements of this standard.

4.2.4 CURRENT LIMITING OF THE INCOMING SUPPLY

Each incoming supply to the installation from a generating set shall be protected by a separate overcurrent protection device located within the electrical installation and, operating in all active conductors.

The operating setting of the protection device shall not exceed the rating of either the supply conductors or the inlet fittings.

Where the generator is connected by any method of plug and socket connection device to an installation, an over current device must be installed on the building and rated to protect the generator supply cable and any connection device (plug/ inlet socket). A generator is required to have a local over current device installed on the equipment but cannot be used to meet this clause.

4.2.6 MARKING

Any inlet connection fitting provided for the connection of a generating set shall be permanently marked to indicate its purpose.

The marking shall include the following wording:

**ISOLATED output generating set only.
RCD protected and centre tapped
generating sets shall not be connected.**

This indelible label must be added next to the inlet socket to ensure the correct type of generator is connected to the installation. RCD protected generators will cause reliability issues with the installations existing RCD protection and accumulative earth leakage.

4.3.2.2 EARTH ELECTRODE

The connection of the portable generating set equipotential bonding system to the switchboard earthing system provides the protective earthing requirement as detailed in AS/NZS 3000.

The connection of a portable generating set equipotential bonding system to the general mass of earth through a separate earth electrode is not a general requirement of this Standard.

This is a reminder that earthing of the generator is achieved via the supply lead connected to the installations earthing system (MEN) and therefore an earth electrode is not required to be connected to the generator frame. This is clearly referenced above in clause 2.5(e) of AS/NZS 3010:2017 A1.