Solar Accreditation Australia

SAA Labelling Support – Grid-connected Systems

Covering the requirements of

- AS/NZS 3000
- AS/NZS 4777.1
- AS/NZS 5033
- AS/NZS 5139

Overview

This support guide has been developed by Solar Accreditation Australia (SAA) to assist Accredited Persons in meeting labelling obligations under the relevant Australian Standards. Inspection findings from the Small-scale Renewable Energy Scheme (SRES) consistently show that incorrect or missing labelling on photovoltaic (PV) and battery systems are among the most frequent reasons for substandard or non-compliant installations. The numerous issues relating to labelling errors, highlights the need for clearer guidance.

The document is intended to help installers understand and comply with all applicable standards and labelling requirements assessed under the SRES audit program. It supports—rather than replaces—the need for installers to consult the full suite of standards governing grid-connected PV and battery systems.

Information is correct at the time of publishing.

This document is a support guide only and SAA is not liable for any omissions or issues arising from labelling decisions and use of the guide.

Applicable Standards and Reference Documents

This support guide summarises requirements outlined in the following standards, as they relate to labelling of grid-connected photovoltaic (GCPV) and grid-connected battery systems (GCBS).

Readers should ensure they have access to the following standards, including any current amendments:

- AS/NZS 3000:2018 Electrical installations Known as the Australian/New Zealand Wiring Rules
- AS/NZS 4777.1:2024 Grid connection of energy systems via inverters
- AS/NZS 5033:2021 Installation and safety requirements for photovoltaic (PV) arrays
- AS/NZS 5139:2019 Electrical installations – Safety of battery systems for use with power conversion equipment

NOTE: the definitions in AS/NZS 3000, AS/NZS 4777.1, AS/NZS 5033 and AS/NZS 5139 apply to this support guide.

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1. Requirements for signs and labels

Many requirements for signs and labels used in PV and battery systems are shared across the relevant standards—particularly those relating to sizing, materials, colours, durability, and identification.

Following is a summarised list of common requirements followed by the full clause within each applicable standard.

The document then details the specific labelling for grid-connected photovoltaic systems and grid-connected battery systems.

1.1. Summarised list of common requirements

(a) Labels and signs must be designed to remain durable for at least the full service life of the system.
(b) They must be made from materials that are robust and suitable for the installation environment.
(c) They must be securely affixed in a manner that ensures long-term durability.
(d) All labelling must be written in English.
(e) Text must be clear and appropriately sized to ensure readability.
(f) Labels must be indelible so they cannot fade or be removed.
(g) Labels must be positioned so they are visible wherever required.

1.2. Clauses on identification, sizing, materials, colours and durability

This section provides full requirements across relevant standards relating to sizing, materials, colours, durability and identification of markings, labels and signs.

Identification

AS/NZS 3000:2018 Clause 2.3.3.5

Identification

Main switches shall be identified as follows:

(a) Each main switch shall be marked ‘MAIN SWITCH’ and shall be readily distinguishable from other switchgear by means of grouping, contrasting colouring or other suitable means to provide for prompt operation in an emergency.
(b) Where there is more than one main switch, each main switch shall be marked to indicate the electrical installation or portion of the electrical installation it controls.
(c) Where the opening of a main switch brings into operation or isolates an alternative supply, a notice shall be provided to indicate the position of the main switch controlling the alternative supply.
(d) Where supply is provided at more than one point in any building, a prominent notice shall be provided at each main switchboard, indicating the presence of other supplies and the location of other main switchboards.
(e) Main switches for supplementary or alternative supplies shall be labelled to indicate the energy source.

NOTE: Marking requirements for other switches are contained in Clause 2.3.4.4 (of the standard).

Sizing, materials, colours, durability

AS/NZS 4777.1:2024 Clause 6.1

General

All labels and signs required in this section shall be —

(a) durable and designed to have a lifetime greater than, or equal to the service life of the IES;
(b) constructed of appropriate materials suitable for the location;
(c) where installed outdoors, be physically engraved, embossed, or etched with durable markings and be UV resistant;
(d) fixed in a manner appropriate for the location;
(e) in English;
(f) legible and the letter size to be appropriate for the location (see Note 1);
(g) indelible; and
(h) visible where applicable (e.g. some signs may be enclosed in a switchboard cabinet, but visible when an operator opens the switchboard to perform maintenance or emergency services);

NOTE 1: Sign lettering should be sized with uppercase lettering of 5 mm high and lows of 4 mm high per metre of viewing distance, unless otherwise specified.

NOTE 2: As a guide, the background colour and lettering colour should follow the following principles:

(i) Signs for general information should be white with black lettering.
(ii) Signs for the essential safety of service personnel should be yellow with black lettering with a warning symbol.
(iii) Signs for attention of emergency personnel should be red with white lettering.
(iv) Special signs may use other colours.

AS/NZS 5033:2021 Clause 5.2

Requirements for labels and signs

Clause 5.2.1

General

All labels and signs required shall be —

(a) durable and designed to have a lifetime greater than or equal to the service life of the PV system;
(b) constructed of appropriate materials suitable for the location;
(c) fixed in a manner appropriate for the location;
(d) in English;
(e) legible and the letter size to be appropriate for the location (see Note 1);
(f) indelible;
(g) visible where applicable (e.g. some signs may be enclosed in a switchboard cabinet, but visible when an operator opens the switchboard to perform maintenance or emergency services); and
(h) where installed exposed to direct sunlight conform to Clause 5.2.2.

NOTE 1: Sign lettering should be sized with uppercase lettering of 5 mm high and lowercase of 4 mm high per metre of viewing distance, unless otherwise specified.

NOTE 2: As a guide, the background colour and lettering colour should follow the principles listed below:

(a) Signs for general information should be white with black lettering.

(b) Signs for the essential safety of service personnel should be yellow with black lettering with a warning symbol.

(c) Signs for attention of emergency personnel should be red with white lettering.

(d) Special signs may use other colours.

AS/NZS 5033:2021 Clause 5.2.2

UV resistance

Labels/signs exposed to direct sunlight shall be UV resistant.

Labels/signs shall conform to the following tests as specified in IEC 60068-2-5:2018:

(a) Ten samples of the markings shall be exposed for 720 h to open-flame sunshine carbon-arc, in accordance with ISO 4892-4.
(b) The test samples shall be mounted on the inside of the cylinder in the ultraviolet light apparatus perpendicular to the light source and in such a way that the samples do not touch each other.
(c) There shall be continuous exposure to light and intermittent exposure to water spray. The cycle shall consist of 102 min without water spray and 18 min with water spray. The apparatus shall operate with an open-flame sunshine carbon-arc lamp, borosilicate glass Type 1, inner and outer optical filters, a spectral irradiance of 0,35 W/m2/nm at 340 nm and a black panel temperature of (63 ± 3) °C. The temperature of the chamber shall be (45 ± 3) °C. The relative humidity in the chamber shall be (50 ± 5) %.

Legibility of markings on equipment intended for outdoor use shall not be degraded by UV radiation.

EXCEPTION — This requirement does not apply to markings that are physically engraved, embossed or etched with durable markings.

AS/NZS 5139:2019 Clause 7.2

Requirements for signs and labels

All signs required in this Section shall be —

(a) sufficiently durable and designed to have a lifetime greater than or equal to the service life of the battery system or BESS;
(b) constructed of durable materials suitable for the location, and where installed exposed to direct sunlight, shall use UV stabilized materials;
(c) fixed in a durable manner
(d) in English;
(e) legible and in a letter size appropriate for the location (see guidance in Note 1);
(f) indelible; and
(g) visible, as required, at the installed position.

Signs should not be —

(i) obscured by being located inside cupboards, behind doors or other materials;
(ii) located where they can be obscured by materials placed in front of them or be located where it is likely that material will be placed in front of them (e.g. immediately above a shelf); and
(iii) obscured by the door of the enclosure when in an open position.

Some battery signs may need to be within the battery system enclosure and may only become visible after opening the battery system enclosure.

Where more than one sign is required at the same location they may be incorporated into one physical label provided each individual sign requirement is met.

Safety signs should be designed and constructed to conform to AS 1319 and should be permanently displayed in prominent positions.

The minimum size of a danger sign shall be 175 mm × 175 mm.

NOTE 1 Sign lettering should be sized with upper case lettering of 5 mm high and lower case of 4 mm high per metre of viewing distance.

NOTE 2 As a guide, the background colour and lettering colour should follow the principles listed below:

(a) Signs for general information should be white with black lettering.

(b) Signs for the essential safety of service personnel should be yellow with black lettering with a warning symbol.

1.3. Specific labelling for GCPV and GCBS

Metering Panel and Main Switchboard

AS/NZS 5033:2021 Clause 5.4

Fire and emergency information

PV systems shall have a circular green reflector sign at least 100 mm in diameter with the letters “PV” on or immediately adjacent to the main metering panel and main switchboard, to be readily visible to approaching emergency workers.

Below the “PV” lettering shall include the following:

(a) “AC” — For inverters where the calculated PV d.c. circuit maximum voltage is less than 120 V d.c at the inverter PV input, and the PV modules are within 1.5 m of the inverter are installed.

(b) “DP” — Where a disconnection point is used as the isolation method.

(c) “SW” — Where a load break disconnection device is used as the isolation method.

NOTE: See Figure A.3.(in the standard).

AS/NZS 5139:2019 Clause 7.3

Battery type general labelling

Locations where battery systems or BESSs are installed shall require a circular green reflector sign at least 100 mm in diameter with the letters “ES” on or immediately adjacent to the main metering panel and main switchboard, so as to be readily visible to approaching emergency workers. Below the “ES” lettering shall be include the United Nations number for the primary chemistry installed at the installation, e.g. UN 2794.

AS/NZS 4777.1:2024 Clause 6.11.2

Energy source labelling for electric vehicles and electric vehicle supply equipment

Sites with electric vehicles and EV supply equipment capable of reverse power transfer shall require a circular green reflector sign at least 100 mm in diameter with the letters “EV” on or immediately adjacent to the meter box and main switchboard, to be readily visible to approaching emergency workers.

AS/NZS 5033:2021 Clause 5.6

Recording of solar system layout

AS/NZS 5033:2021 Clause 5.6.1

General

Solar system layout shall be shown on a plan (map or drawing) located at the main switchboard and/or meter box, fire panel.

The site information sign shall—

(a) be legible and be sufficiently durable for the location, i.e. be laminated or protected by a solid clear sheet (Perspex, etc.);
(b) be fixed permanently in a manner appropriate for the location;
(c) be in English;
(d) be labelled “PV (Solar) site information” in white letters with a red background;
(e) show the location address as recorded for the installation;
(f) contain a plan view of the building showing the location of the PCE, the PV array(s);
NOTE 1: An elevation plan view of the building may also be included for more complex installations.
(g) contain a legend for the map or clearly label to identify key components and building reference points;
(h) identify the location of the site information sign with the words “you are here”;
(i) be as accurate as practicable ensuring the various components on the drawing are indicative of the actual installation; and
(j) installation date.

NOTE 2: See Figure A.5 for example (in the standard)

NOTE 3: In addition to the requirements of this Clause, electronic links such as QR codes may be added to provide additional information.

AS/NZS 5033:2021 Clause 5.6.1.1

Additional information for PV d.c. systems

Additional site information for PV d.c. systems shall include:

(a) the path of the d.c. cabling;
(b) the location of d.c. disconnection point(s) indicated by “DP”;
(c) the location of additional load break disconnector(s);
(d) PV array size;
(e) d.c. Voltage; and
(f) contain a warning where d.c. disconnection type(s) can only be operated by suitable qualified personnel.

EXCEPTION — These requirements do not apply for systems with a calculated PV d.c. circuit maximum voltage less than 120 V d.c. and where the inverter is located within 1.5 m of the connected PV module using d.c. disconnection consistent with Clause 4.5.3.1 (of the standard).

As shown above for AS/NZS 5033:2021 Clause 5.6.1

AS/NZS 4777.1:2024 Clause 6.5

May be included in Solar System Layout

Signs for inverter locations

Where the inverter is not within 3 metres, and fully visible from the switchboard, the inverter location shall be shown on a plan (map or drawing) located at the main switchboard and/or fire panel.

NOTE: The site plan as required by other Standards may be used to identify the inverter location (e.g. AS/NZS 5033, AS/NZS 5139, etc.).

AS/NZS 5139:2019 Clause 7.4

May be included in Solar System Layout

Signs for battery system location

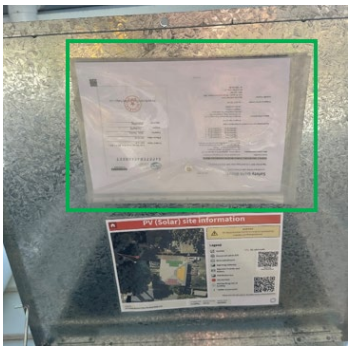
Battery system locations that are difficult to find, not evident from the main metering panel or in large buildings shall be shown on a plan (map or drawing) located at the main switchboard and/or fire control and indicating panel. This plan shall indicate the location of shutdown procedures.

AS/NZS 5139:2019 Clause 7.7

Safety data sheet (SDS)

In Australia, a physical copy of the SDS shall be included within a document holder at the main switchboard or meter box and, where available, at the fire control and indicator panel. The SDS shall include an Australian emergency contact number within the document.

The SDS document for battery systems shall be protected to prevent degradation in the location of storage (e.g. sealed and stored in a durable clear pouch).



Switchboards and Distribution Boards

AS/NZS 4777.1:2024 Clause 6.3

Signs for the switchboard to which the IES is directly connected

The following signs shall be installed on the switchboard to which the IES is directly connected:

(a) The main switch for the IES supplementary supply shall be labelled “MAIN SWITCH (INVERTER)”. Where there is more than one IES supplementary supply other wording associated with the energy source may be added to the label e.g. “MAIN SWITCH (SOLAR INVERTER)”. Where an IES has a IPSD providing supplementary supplies to an electrical installation as part of a multiple electrical installation, the label for each supplementary supply main switch shall be labelled “MAIN SWITCH (INVERTER)” and be followed by additional information to identify the associated electrical installation as part of a multiple electrical installation and be consistent with terminology used in the multiple electrical installation.

(a)

MAIN SWITCH (INVERTER)

MAIN SWITCH (SOLAR INVERTER)

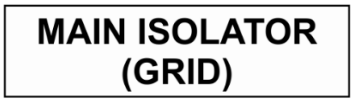
(b) Where the inverter is connected to the main switchboard, the main switch for the grid supply shall be labelled “MAIN SWITCH (GRID)”.
(c) Where the inverter is connected to a distribution switchboard and where there is a main isolator/s for the distribution board it shall be labelled “MAIN ISOLATOR (GRID)”.
(d) The main switch for the IES alternative supply shall be labelled “MAIN SWITCH (ALTERNATIVE)”.
(e) The main switch for the IES Independent supply shall be labelled “MAIN SWITCH (INDEPENDENT)”.
(f) The overcurrent protection device for the independent inverter a.c. input port shall be labelled “ISOLATOR (GRID INPUT)”.
(g) A warning sign containing the text “WARNING”, “MULTIPLE SUPPLIES” and “ISOLATE ALL SUPPLIES BEFORE WORKING ON THIS SWITCHBOARD”, and shall be in a prominent position on the switchboard and visible to personnel operating at the switchboard.

All main switch labels shall be identified in accordance with AS/NZS 3000.

NOTE: In some areas, alternate words may be used for “grid” to indicate the grid supply or the supply from the electricity distributor; acceptable alternatives that can be used for “grid” include “mains” and “normal”. Where a main switch is for both a supplementary supply and an alternative supply, the main switch shall be labelled as per (d) above.

(b)

(c)



(d)

(e)

(f)

(g)

AS/NS 4777.1:2024 Clause 6.4

Signs for other switchboards

Where the IES is directly connected to a distribution switchboard, signs shall be installed in prominent positions on the main switchboard and all distribution switchboards electrically connected between the main switchboard and the distribution switchboard to which the IES is directly connected. These signs shall contain the text “WARNING”, “MULTIPLE SUPPLIES” and “ISOLATE INVERTER SUPPLY AT DISTRIBUTION SWITCHBOARD” and “LOCATION”, where “LOCATION” refers to the physical location of the switchboard that the IES is directly connected to.

AS/NZS 4777.1:2024 Clause 6.8

Signs for multiple mode inverters

A warning sign shall be installed in the main switchboard, and all distribution switchboards electrically connected between the main switchboard and a distribution switchboard to which an IES is directly connected, warning that a multiple mode inverter with alternative supply or independent supply mode is connected, including the requirement to follow the shutdown procedure for safe isolation.

The warning sign shall contain the text, “WARNING”, “MULTIPLE MODE INVERTER CONNECTED” and

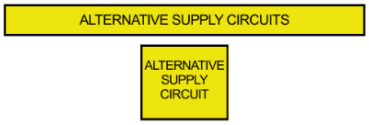
"NEUTRAL AND EARTH CIRCUITS MAY BE LIVE UNDER NORMAL AND FAULT CONDITIONS".

See Clause 6.3 for labelling requirements for main switches associated with multiple mode inverters.

AS/NZS 3000:2018 Clause 2.10.5.2

Relationship of electrical equipment

The relationship of switches, circuit-breakers, fuses, RCDs and similar electrical equipment to the various sections of the electrical installation shall be marked on or adjacent to the switchboard.
The means of identification shall enable persons to readily identify equipment supplied and the corresponding circuit protective device.



AS/NZS 4777.1:2024 Clause 6.11.1

Energy sources with applicable installation standards

The labelling requirements for the following energy sources for use with an IES shall conform with—
(a) AS/NZS 5033 for PV arrays; and
(b) AS/NZS 5139 for battery systems.

Where multiple energy sources are connected to an IES, a warning sign shall be installed adjacent to the inverter(s) indicating that all energy sources are to be turned off to achieve complete isolation.

Inverter

AS/NZS 4777.1:2024 Clause 6.2

Signs for emergency shutdown procedure

A permanent sign detailing the shutdown procedure for the IES in the event of an emergency situation shall be installed adjacent to, and visible from, the equipment or the switch to be operated in the event of a shutdown. All labelling of devices shall be consistent with terminology used in the shutdown procedure.

Where the energy source is a photovoltaic array, then the shutdown labelling shall conform with AS/NZS 5033. Where the energy source is a battery system, then the shutdown labelling shall conform with AS/NZS 5139.

NOTE 1: The shutdown procedure in these standards may be used where it details the requirements to shutdown the IES.

Where a building has a fire panel, a sign shall be installed at the fire panel stating "MULTIPLE SUPPLIES" with instructions as to the location of the IES emergency shutdown procedures.

Where the energy source is not de-energized when the IES is shutdown, a warning shall be included in the emergency shutdown procedure indicating that isolation of the energy source, by shutting down the inverter and isolating the IES, may not de-energize the energy source and further actions may be required.

NOTE 2: Manufacturer instructions for startup and shutdown procedures may have optional requirements.

As an example, the shutdown procedure could be as follows:

AS/NZS 5033:2021 Clause 5.7

Shutdown procedure

All systems shall include a shutdown procedure that clearly sets out the steps to safely shut down the system. The procedure shall be placed adjacent to and visible from the equipment to be operated in the event of a shutdown. Where the inverter is adjacent to the switchboard it is directly connected to, the shutdown procedure may be placed within that switchboard.

All labelling of devices shall be consistent with terminology used in the shutdown procedure.

For PV array disconnectors, a warning shall be included in the shutdown procedure stating the following:
WARNING: PV ARRAY d.c. ISOLATORS DO NOT DE ENERGIZE THE PV ARRAY AND PV CABLES.

NOTE 1 — The yellow warning can be separate but added below the shutdown sign so as to simplify sign manufacturing.

As an example, the shutdown procedure could be as follows:

AS/NZS 5139:2019 Clause 7.16

Shutdown procedure

All BESS shall include a permanent sign detailing the shutdown procedure that sets out the sequential steps to safely shutdown the BESS. The shutdown procedure shall be —

(a) installed adjacent to the PCE to which the battery system is connected; and
(b) placed adjacent to and visible from the equipment to be operated in the event of a shutdown.

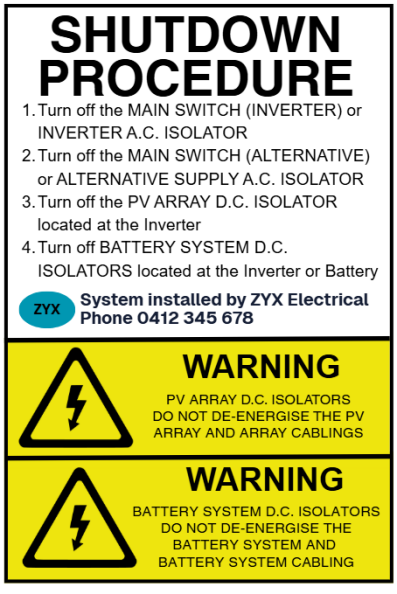
Where the PCE is adjacent to the switchboard it is directly connected to, the shutdown procedure may be placed within that switchboard.

The sign detailing the shutdown procedure may also include the start-up procedure. All labelling of devices shall be consistent with terminology used in the shutdown procedure.

A warning shall be included in the shutdown procedure indicating that isolation of the battery system by isolation and shutting down the PCE may not de-energize the battery system and further action may be required.

The shutdown procedure should also include emergency contact information for manufacturer or supplier.

As an example, the shutdown procedure for a PV & battery system could be as follows:



AS/NZS 4777.1 Clause 6.6

Signs located adjacent to inverter(s)

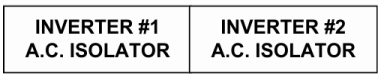
An “INVERTER A.C. ISOLATOR” sign shall be installed for labelling of isolators adjacent to the inverter(s). Isolators shall be marked with an identification name or number consistent with the terminology used in the shutdown procedure.

AS/NZS 4777.1:2024 Clause 6.7

Signs for multiple systems

Where multiple IES are installed within one electrical installation, signage and labelling shall—

(a) be clear and combined with consistent terminology; and
(b) accurately reflect which devices control which items of equipment.



AS/NZS 4777.1:2024 Clause 6.9

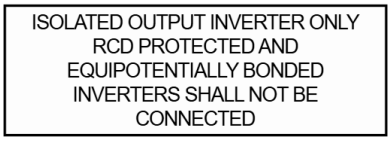
Signs for inverters with substitute supply function

A warning sign shall be installed adjacent to the socket-outlet for the substitute supply from a multiple mode inverter. The warning sign shall contain the text, “LIMITED POWER OUTPUT” and “ONLY AVAILABLE WHEN GRID POWER IS INTERRUPTED”.

AS/NZS 4777.1:2024 Clause 6.10

Signs for portable IES inlet plug

The inlet plug shall be permanently marked to indicate its purpose and contain the text, “ISOLATED OUTPUT INVERTER ONLY” and, “RCD PROTECTED AND EQUIPOTENTIALLY BONDED INVERTERS SHALL NOT BE CONNECTED”



AS/NZS 5033:2021 Clause 5.5.1

General

Load break disconnection devices shall be marked with an identification name or number consistent with terminology used in the shutdown procedure.

All switches shall clearly and reliably indicate the isolating position of the device.

NOTE — The symbols “O” (off) and “I” (on) are deemed to satisfy this requirement.

NOTE: As seen above, this requirement is generally met by the equipment manufacturer

AS/NZS 5033:2021 Clause 5.5.2.1

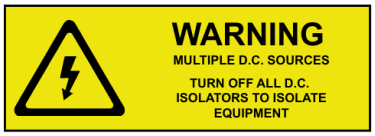
Load break disconnection device

Load break disconnectors shall be provided with a sign affixed in a prominent location with the following text:

PV ARRAY d.c. ISOLATOR

Where multiple isolation/disconnection devices are used that are not ganged (see Clause 4.5.4.2), the following sign shall be fixed adjacent to the PCE and have a warning label containing a warning symbol and stating:

WARNING: MULTIPLE d.c. SOURCES
TURN OFF ALL d.c. ISOLATORS TO ISOLATE EQUIPMENT



Wiring System between Inverter and PV Array

AS/NZS 5033:2021 Clause 5.3.2

Signs for junction boxes containing PV d.c. cable terminations

A warning label containing the warning symbol and stating the following shall be attached to junction boxes housing the terminations of PV d.c. cable:

WARNING: HAZARDOUS d.c. VOLTAGE

NOTE 1 — See Figure A.2.
NOTE 2 — This does not apply to PV array disconnecting devices as they have their own labelling requirements (see Clause 5.5.2).

AS/NZS 5033:2021 Clause 5.3.1.1

General

Where the wiring system containing PV d.c. cables is not installed directly behind and adjacent to the PV modules, it shall be—

(a) identified by distinctive labels marked with the word "SOLAR" on the exterior surface of the wiring system over the length of the enclosure at intervals not exceeding 2 m; and
(b) visible after mounting.

NOTE 1: Where labels are attached directly to PV d.c cables, tags with the words "SOLAR" may be required to meet the sizing guide.
NOTE 2: The background colour and lettering colour on the exterior surface of wiring systems should have appropriate contrast so that it is clearly visible and readable. Any colours that meet the requirement of this clause may be used.

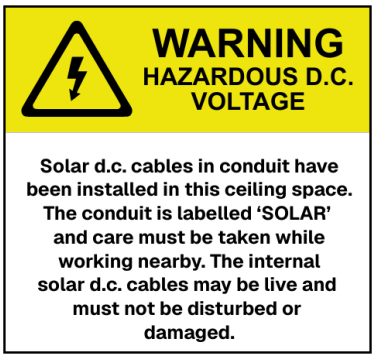
AS/NZS 5033:2021 Clause 5.3.1.2

In a ceiling space or accessible floor space

Where PV d.c. wiring systems between the disconnection point and a load break disconnection device are installed in an accessible ceiling space or within an accessible floor space, a warning label shall be installed adjacent to the access point containing the warning symbol and stating the following:

WARNING: HAZARDOUS d.c. VOLTAGE
Solar d.c. cables in conduit have been installed in this ceiling space. The conduit is labelled 'SOLAR' and care must be taken while working nearby. The internal solar d.c. cables may be live and must not be disturbed or damaged.

NOTE 1: The yellow warning can be separate but added above the information sign so as to simplify sign manufacturing.



PV Array

AS/NZS 5033:2021 Clause 5.5.1

General

Load break disconnection devices shall be marked with an identification name or number consistent with terminology used in the shutdown procedure. All switches shall clearly and reliably indicate the isolating position of the device.

NOTE — The symbols "O" (off) and "I" (on) are deemed to satisfy this requirement.

NOTE: As seen above, this requirement is generally met by the equipment manufacturer.

AS/NZS 5033:2021 Clause 5.5.2.1

Load break disconnection device

Load break disconnectors shall be provided with a sign affixed in a prominent location with the following text:

PV ARRAY d.c. ISOLATOR

NOTE: See Figure A.4(a).

Where multiple isolation/disconnection devices are used that are not ganged (see Clause 4.5.4.2), the following sign shall be fixed adjacent to the PCE and have a warning label containing a warning symbol and stating:

WARNING: MULTIPLE d.c. SOURCES
TURN OFF ALL d.c. ISOLATORS TO ISOLATE EQUIPMENT

PV ARRAY
D.C. ISOLATOR

AS/NZS 5033:2021 Clause 5.3.2

Signs for junction boxes containing PV d.c. cable terminations

A warning label containing the warning symbol and stating the following shall be attached to junction boxes housing the terminations of PV d.c. cable:

WARNING: HAZARDOUS d.c. VOLTAGE

NOTE 1: See Figure A.2.
NOTE 2: This does not apply to PV array disconnecting devices as they have their own labelling requirements. (see Clause 5.5.2).

AS/NZS 5033:2021 Clause 5.5.2.2

Disconnection point

A sign containing the following text shall be attached to both the positive and negative cable within 100 mm of the disconnection point of the PV string:

WARNING: LOADS MUST BE ISOLATED AND CIRCUIT MUST BE TESTED FOR THE ABSENCE OF CURRENT BEFORE UNPLUGGING

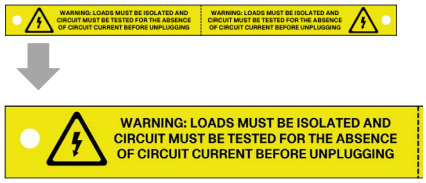
NOTE 1: See Figure A.4 (c) of the standard.

A sign containing the following text shall be attached to the PV module or structure within 300 mm of the disconnection point to identify the location of the disconnection point:

WARNING: PV STRING DISCONNECTION POINT

NOTE 2 See Figure A.4 (d) of the standard.

The text shall be with a minimum letter size of 10 mm.



Wiring System between Inverter and Battery

AS/NZS 5139:2019 Clause 7.14

Battery system cables

For battery system cabling, which is not enclosed in conduit, permanent indelible identification shall be —

(a) provided for battery system cabling installed in or on buildings;
(b) provided by distinctive and coloured labels marked with the word “BATTERY”; and
(c) attached over the length of that cable at an interval not exceeding 2 m.

For battery system cabling, which is housed in a wiring enclosure or in conduit, permanent indelible identification shall —

(i) be provided for the enclosure and conduit; and
(ii) be identified by distinctive and coloured labels marked with the word “BATTERY” on the exterior surface over the length of the enclosure at intervals not exceeding 2 m.

If fixed to a surface, the identification shall be visible following complete installation of the battery system.

Battery System

AS/NZS 5139:2019 Clause 7.5

Restricted access

Battery systems that are accessible within an enclosure or room shall have a sign which—

(a) designates “DANGER”, “restricted access” stating that access is permitted only for authorized persons; and
(b) is mounted either adjacent to the enclosure or on all doors to the room where the battery system is located.

Signs relating to PPE and arc flash requirements shall be located adjacent to the restricted access sign.

AS/NZS 5139:2019 Clause 7.6

Voltage and current

A sign stating voltage and current shall be mounted either adjacent to the enclosure or on all doors to the battery system or BESS room.

This sign shall state the following:

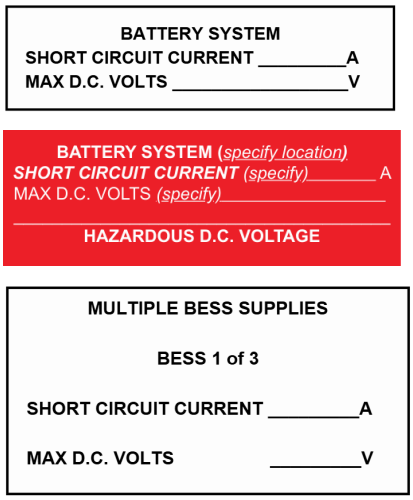
(a) The words “Battery System” or “Battery Energy Storage System”.
(b) Short-circuit current (specify current in amperes).
(c) Maximum d.c. voltage (specify voltage in volts).

For systems over DVC-A, the above signage requirements apply plus an additional line shall be added to the sign stating “Hazardous d.c. voltage”.

Where multiple battery systems or BESS are installed the following apply:

(i) Only one sign is required if the battery systems are all in the same room/enclosure.
(ii) The voltage specified shall be the maximum voltage present.
(iii) The current shall be maximum short-circuit current calculated for any of the BESS, where for each BESS that has multiple battery systems connected in parallel, the calculated current shall be the sum of the battery system short-circuit currents of each of the paralleled battery systems.

Where multiple BESS are installed within one electrical installation, there shall be a sign for each BESS that includes an identifiable number together with the total number of BESS shown. For example:
BESS 1 of (insert total number of BESS), BESS 2 of (insert total number of BESS).



AS/NZS 5139:2019 Clause 7.8

Explosive gas hazard

BESS types and battery system types categorized as explosive gas hazards shall have a “Danger, Risk of Battery Explosion” sign installed in a prominent position when approaching the battery system. This sign shall be mounted either —

(a) adjacent to the enclosure; or
(b) on all doors to the room where the battery system is located.

AS/NZS 5139:2019 Clause 7.9

Toxic fume hazard

BESS types and battery system types categorized as toxic fume hazard shall have a sign: “Danger, toxic fumes”. The sign shall specify the specific fault condition (e.g. fire) under which the fumes will be present. This sign shall also include PPE requirements for entering the room/working with the battery systems. This sign shall be mounted either —

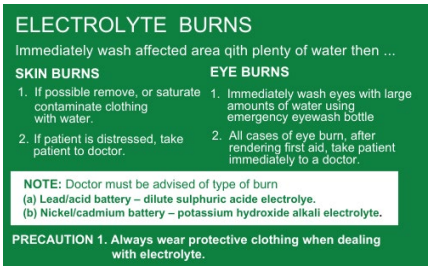
(a) adjacent to the enclosure; or
(b) on all doors to the room where the battery system is located.

AS/NZS 5139:2019 Clause 7.10

Chemical hazard

BESS types and battery system types categorized as chemical hazards shall carry a sign specifying what to do if the skin, eyes or other parts of the body are exposed to the chemical. This sign shall be mounted either —

(a) adjacent to the enclosure; or
(b) on all doors to the room where the battery system is located.



AS/NZS 5139:2019 Clause 7.11

Arc flash

BESS types and battery system types categorized as having an arc flash hazard above “minor” (see Table 6.1) shall carry a warning sign to indicate the dangers of arc flash. This sign shall be mounted either —

(a) adjacent to the enclosure; or
(b) on all doors to the room where the battery system is located.

AS/NZS 5139:2019 Clause 7.12

Disconnection devices

Clause 7.12.1

General

Disconnection devices shall be marked with an identification name or number according to the BESS wiring diagram and consistent with the shutdown procedure. The minimum size of this sign shall be such that it can be read from a distance of 1 m. All switches shall clearly and reliably indicate the isolating position of the device. The symbols “0” (off) and “I” (on) are deemed to satisfy this requirement.

NOTE: As seen above, this requirement is generally met by the equipment manufacturer.

AS/NZS 5139:2019 Clause 7.12.2

Battery system isolation device

The battery system isolation device shall carry a sign fixed in a prominent location with the following text:
“BATTERY SYSTEM D.C. ISOLATOR”

NOTE: The term “isolator” used in this sign is to better inform the public, although the function required of the device is load breaking.

AS/NZS 5139:2019 Clause 7.12.3

Multiple isolation device

When a battery system has more than one isolation device installed, these shall be labelled and numbered according to the battery system to which they are connected. Where there are parallel battery systems connected to the PCE(s) and multiple isolation/disconnection devices are used, the following signage shall be fixed adjacent to the PCE connected to the multiple battery systems and have a warning label containing a warning symbol and stating:

WARNING — MULTIPLE BATTERY SYSTEMS
TURN OFF ALL BATTERY SYSTEM ISOLATORS TO ISOLATE EQUIPMENT

If there are multiple PCEs, only one sign is required to be located beside one of the PCEs.

AS/NZS 5139:2019 Clause 7.12.4

Disconnectors for DVC-B and DVC-C systems

Isolating switches, interconnecting connectors, cables or links used to separate the battery system into sections to meet the requirements of Clause 6.3.1.3.10 shall be fixed adjacent to each disconnector and have a warning label containing a warning symbol and stating:

WARNING — DO NOT DISCONNECT UNDER LOAD
All internal isolating devices shall also be suitably identified for breaking down of the battery system to offset particular maintenance and access requirements.

This only applies to Section 6 Battery systems

AS/NZS 5139:2019 Clause 7.13

Overcurrent devices

AS/NZS 5139:2019 Clause 7.13.1

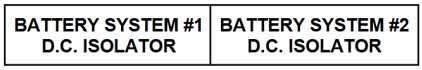
General

Overcurrent devices shall be marked with an identification name or number in accordance with the BESS wiring diagram. The minimum size of this sign shall be such that it can be read from a distance of 1 m. Where a circuit breaker is used as the main battery system isolator it shall be labelled as follows (see Clause 7.12.2):
BATTERY SYSTEM D.C. ISOLATOR

AS/NZS 5139:72019 Clause 7.13.2

Multiple overcurrent devices

When a battery system has more than one overcurrent device installed, these shall be labelled and numbered according to the battery system to which they are connected.



AS/NZS 5139:2019 Clause 7.13.3

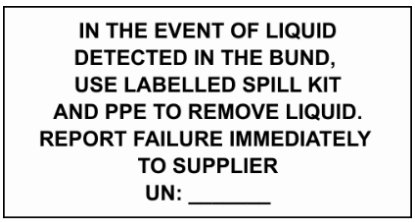
Fuse holders

Where HRC fuse holders that are separate to the switch-disconnector have been installed, each fuse holder shall carry a warning label stating not to withdraw the fuse under load. The minimum size of this sign shall be such that it can be read from a distance of 1 m.

AS/NZS 5139:2019 Clause 7.19

Spill containment

Information signs informing the actions to be undertaken in the event of a chemical spillage or leak shall be installed adjacent to the battery system.



This generally only applies to Section 6 Battery systems.

3. Document History and Review Cycle

This document will be reviewed when there are amendments and changes to referenced standards.

Version no.	Description of changes	Pages affected	Approved by/ Effective Date	Implementation actions
1	Document development	All	EMSD 20 February 2026	Website resource hub creation Share resources with accredited persons through SAA communications
1.1	Updates to solar system layout	7	3 March 2026	Update to website