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POWER EQUIPMENT MEET
AUSTRALIAN STANDARDS?**



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Are you using or investing in a portable power distribution board?

Critical factors to consider

To help take the guess work out of selecting a portable power distribution board, Powersafe Products has compiled this summary of key factors to consider (see below).

These factors revolve around safety, durability, being fit-for-purpose and value for money, many of which, as indicated, are also reflected in Australian standards.

Powersafe invest in ensuring their products meet Australian standards, understanding that more and more business owners are not only seeking to ensure safe work places, but also are rightly concerned about possible legal consequences of non-compliance.



Features which meet Australian standards

1. Is the unit able to be placed on a board stand and be mounted securely?
2. Does the unit provide a means to prevent strain relief on the incoming and outgoing leads? Is it constructed of non-conductive material (metal bars do not comply)?
3. Is the isolating switch clearly marked?
4. Is the unit fitted with handles or lifting points?
5. Is the board fitted with a load switch that can be accessed without tools or the use of a key? A main isolator located behind a padlocked window does not allow this.
6. Has the portable power distribution board been IP tested as a complete item? (Some manufacturers are stating the IP rating of the socket outlets but have not had their complete unit actually IP tested.)
7. Emergency Stop - Is the board fitted with an emergency stop? Does your application for the power board require an emergency stop?
8. Breather drain - Is the board fitted with a breather drain to allow condensation to escape the board?
9. Is the board fitted with double pole switches?

Features exceeding Australian standards

1. Can the board be fitted with an amp meter?
2. Can the power board be fitted with extra low voltage light outlets?
3. Can the board be fitted with remote emergency stops?
4. How many outlets are connected to one RCD protection device?
5. Can the board be fitted with protection devices to operate in an IT, TT type system or where the earth impedance issues may effect the operation of the RCD?
6. Under voltage control and automatic restart. Will the power board automatically restart after disconnection and reconnection of power causing a risk to operators of connected machinery?
7. What warranty is provided on the power board?

1. MOUNTED SECURELY

Is the unit able to be placed on a stand and be mounted securely?

AUSTRALIAN STANDARDS STATE	
AS3012	<p>2.3.3 Mounting of switchboards</p> <p>Switchboards shall be securely attached to a pole, post, wall, floor or other structure unless of a stable, freestanding design that takes into account any external forces that may be exerted on the switchboard, for example, by flexible cords.</p>
AS3439	<p>7.2.4 Supports and securing devices of ACS</p> <p>Every assembly for construction sites (ACS) shall be fitted with supports enabling it to stand on a horizontal surface (e.g. feet or legs, articulated or not) and/or a system for fixing it to a vertical wall, attached to the enclosure or supporting framework. These various supports or securing devices shall be external to the enclosure but firmly attached to it. They shall be appropriate to the constructional features (weight, environment, etc.) and service characteristics of the ACS.</p>

Powersafe's poly board stand is purpose-built to meet the standard requirements. Our board stands are stable, secure and separate to the main board.

Boards are fixed to the stand via a bolt through the stand into a nutsert moulded into the foot of the board.



2. STRAIN RELIEF

Does the unit provide a means to prevent strain relief on the incoming and outgoing leads? Is it constructed of nonconductive material?

AUSTRALIAN STANDARDS STATE	
AS3012	<p>2.3.5 Support of cables entering switchboards</p> <p>At each switchboard, a fixed secure and stable means shall be provided to prevent mechanical damage to flexible cords and cables and prevent the transfer of mechanical strain to the cable connections (plug and socket outlet).</p>
AS3012	<p>2.3.2.1</p> <p>(d) Where the switchboard is provided with a socket outlet, means to prevent strain at the connections or terminations, such as an insulated or covered tie bar, shall be provided for the anchorage of external cables and flexible cords.</p>

An example of strain relief is to support flexible cords and cables above the floor or ground on stands, cross arms or similar, covered with material that is non-conducting to which the cables can be anchored.

Powersafe boards achieve strain relief either by looping cables and leads through the handles of our boards or through the integrated bars at the top of our poly board stands.

The metal tie off bars used by some of our competitors do not comply.

3. CLEARLY MARKED ISOLATING SWITCH

Is the isolating switch clearly marked?

AUSTRALIAN STANDARDS STATE	
AS34394	<p>3.4.3 Marking of isolating switches</p> <p>All isolating switches controlling the portions of the installation included in Clause 2.4.1 shall be marked as required by AS/NZS 3000 as follows:</p> <p>“MAIN SWITCH” - on main switchboards</p> <p>“DISTRIBUTION BOARD ISOLATING SWITCH” - on distribution boards</p> <p>“ISOLATING SWITCH AFTER HOURS SUPPLY - DO NOT SWITCH OFF” - for circuits supplying electrical equipment operating out of normal working hours. Main switches for safety services shall be identified in accordance with AS/NZS 3000.</p>
	<p>2.4.4 Size of marking</p> <p>Letters used for marking referred to in clause 2.4.3 shall not be less than 6mm high and of a contrasting colour to the background material.</p>



Powersafe clearly mark the main switch. As an added feature Powersafe fit coloured indicator lights to show power on each phase.

There are several manufacturers that are not fitting isolating switches or are fitting isolating switches behind windows that can be padlocked.

This is leaving the isolating switch in a position that can be locked out in the “on” position.

Some manufacturers are also not marking the distribution board isolating switch.

4. LIFTING POINTS

Is the unit fitted with handles or lifting points?

AUSTRALIAN STANDARDS STATE	
AS3012	<p>7.2.5 Lifting and handling devices of ACS</p> <p>Lifting rings and/or handles (or any other equivalent system) shall be provided on the ACS and be firmly attached to the enclosure or supporting framework.</p>

Handles on Powersafe powerboards, integrated into the moulded poly shell, act as lifting points and provide maximum strength and stability during carriage.



5. ACCESSIBLE LOAD SWITCH

4. Is the board fitted with a load switch that can be accessed without tools or the use of a key? A main isolator located behind a padlocked window does not allow this.

AUSTRALIAN STANDARDS STATE

AS3439.4	<p>9.1.3</p> <p>b) There shall be means for securing the isolating device(s) in the open position (for example, a padlock or installation inside a locked enclosure).</p> <p>c) The load switching device shall be easily accessible without the use of a key or tool unless national regulations require otherwise.</p>
AS3012	<p>2.4.1 Control</p> <p>Each switchboard shall be provided with one isolating switch marked in accordance with Clause 2.4.3 and complying with the requirements for isolating switches in AS/NZS 3000.</p> <p>This switch shall interrupt supply to all final sub-circuits and sub-mains originating from the switchboard, including circuits supplying socket outlets mounted on the switchboard.</p>
AS3000	<p>2.3.2.2 Devices for isolation (general)</p> <p>c) Clearly and reliably indicate the isolating position of the device [NOTE: The symbols “O” (off) and “I” (on) are deemed to satisfy this requirement]</p> <p>f) Be readily available</p>



By locating a main isolator behind a pad-lockable window, as some of our competitors do, where it can be secured in an open position, meets clause (b) of the standard, but fails to meet clause (c).

If the only means of isolating the power board is behind a padlocked window where the window is locked, in the event of an emergency, what is the means of isolating the power board?

Powersafe boards (*pictured left*) use an isolating switch that is red for easy identification. This isolating switch can be padlocked in the off position but cannot be locked in the on position.

Powersafe boards also allow the main isolator to be closed off and padlocked behind a window; ensuring the safety of an isolation switch that can only be padlocked in the off position.

Using a PowerSafe board ensures that an operator will always be able to safely isolate power to the power board, and never be stopped by a padlocked window.

Some competitors' boards locate their main isolator behind a pad-lockable window and are not “readily available”. Neither are they correctly and adequately marked as required by the standards.

Powersafe clearly mark the main switch, and as an option, fit coloured indicator lights to show power on each phase.



6. IP TESTED AS A COMPLETE UNIT

Has the portable power distribution board been IP tested as a complete item?

AUSTRALIAN STANDARDS STATE	
AS3439.4-1995	<p>7.2 Enclosure and degree of protection</p> <p>7.2.1.1 The degree of protection provided by an ACS against contact with live parts, ingress of solid foreign bodies and liquid is indicated by the designation IP according to IEC529. The degree of protection of all parts of the ACS shall be at least IP43, with all doors closed and all removable panels and cover plates fitted.</p> <p>7.2.1.3 Unless otherwise specified, the degree of protection indicated by the manufacturer applies to the complete ACS, when it is installed in a working position in accordance with the manufacturer's instructions.</p>

Does your board have an Ingress Protection (IP) rating, and independent certification (the minimum in the standard is IP43)?

Many manufacturers use the IP rating of the switchgear to mask the fact that, their boards as an entire unit are not tested.

Powersafe use IP66 switchgear and then send each standard model off for independent certification to IP66 by a certified CNAS lab. Powersafe boards are rated to IP66 – as an entire unit - to withstand harsh conditions.

We have seen boards claiming to be IP65 yet the components they are using have a lower IP rating.

7. EMERGENCY STOP

Emergency stop - Is the board fitted with an emergency stop? Does your application of the powerboard require the use of an emergency stop?

AUSTRALIAN STANDARDS STATE	
AS40424	<p>1604 AND ISO13850</p> <p>The emergency stop (ES) function is a function that is intended to avert an impending hazard for personnel, damage to the machine or work in progress, or to alleviate existing hazards, and that is to be triggered by a single user action.</p>
AS3000	<p>2.3.5</p> <p>Means shall be provided for emergency switching of any part of an electrical installation where it may be necessary to control the supply to remove an unexpected danger. Where a risk of electric shock is involved, the emergency switching device shall be an isolating device.</p>
AS3000	<p>2.3.5.2 (v)</p> <p>Where danger is likely to occur, it is required to be reset manually before the electrical equipment can be started.</p>

The requirement for an emergency stop on a power board is determined by individual risk assessments for each application. Powersafe fit these as an option on request.

On disconnection of power or isolation via emergency stop or distribution board main isolating switch, Powersafe boards will not automatically reset. Resetting of the main isolator on the board is required to re-power the board.

Powersafe also offer dedicated emergency stop boards and remote emergency stop boards in a Cat 2 and Cat 4 configurations with safety relays and self-monitoring configurations.

8. BREATHER DRAIN

Breather drain - Is the board fitted with a breather drain to allow condensation to escape the board?

AUSTRALIAN STANDARDS STATE

AS3000	3.3.2.3 Presence of water or high humidity Wiring systems should be selected and installed so that high humidity or the entry of water does not cause damage. Where water may collect or condensation may form in a wiring system, to the extent that it creates a hazard, provision shall be made for its harmless escape through a suitably located drainage point.
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During operation, the air inside a board will become hot, particularly if outside in direct sunlight. Upon a drop in temperature, for example overnight, condensation can occur inside the board.

All models of the Powersafe boards are fitted with breather drains. This allows air to circulate throughout the board to prevent condensation in high humidity areas or environments with substantial temperature variances and allows the escape of moisture.

Powersafe is the **ONLY** manufacturer offering this very important feature as standard.



9. DOUBLE POLE SWITCHES

Is the board fitted with double pole switches?

AUSTRALIAN STANDARDS STATE

AS302	2.4.7 Switching of single phase socket outlets Every single phase socket outlet in the following situations shall be individually controlled by a double pole switch: a) Portable generators of the isolating winding type fitted with integral socket outlets b) Portable inverters of the isolated type fitted with socket outlets c) Portable socket outlet assemblies d) In Australia only, on or in transportable structures that are connected to supply a flexible cord and plug e) Socket outlets on equipment that is supplied by means of a plug and socket
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This means that socket outlets may either be with a manual switch or an integral switch that switches on when the plug top is inserted and switches off when it is removed.

There are power boards on the market that do not use double pole switches on single phase outlets, however all Powersafe boards use double pole auto switching mechanisms.

Safety features on Powersafe powerboards that exceed Australian standards

Can the boards be fitted with an amp meter?

In many applications the need for an amp meter is critical to determine if the load is balanced or if the board is approaching its full load rating.

All Powersafe MB and LB models can easily be fitted with amp meters displaying current draw, voltage on each phase, power factor and Kw Hours used.

Can the board be fitted with extra low voltage light outputs?

Powersafe boards are designed so that low voltage (24V DC or 12V DC) outlets can easily be

fitted for operation of lights and/or operation of low voltage sensors.

Can the power board be fitted with remote emergency stop switches?

Powersafe boards are designed to easily incorporate remote emergency stop switches or wireless remote stops units.

These can be fitted to Cat 2 or Cat 4 standards. Powersafe also has a dedicated range of remote emergency stop boards and air supply emergency stop boards.

How many outlets are connected to one RCD protection device?

Many power board manufacturers use one residual-current device (RCD) protection device for up to 12 x 240V outlets. If most outlets are connected there is the possibility that combined earth leakage would exceed 30mA and tripping would occur, even though every appliance connected is within the safety standard required.

This is a cost saving to the manufacturer but can be a major site issue where tripping constantly creates down time on site.

Powersafe boards limit no more than 2 x 240V outlets to 1 RCBO to eliminate this issue. Yes the cost is a minor increase, but in the long term, it is far more efficient and cost effective than the lost labour due to down time caused by nuisance tripping.

It also helps isolate the issue without losing the entire power board if there is an issue or a ground fault on one appliance or connected device.

Can the board be fitted with protection devices to operate in an IT, TT type system?

Powersafe power boards are designed so that RCD Duo devices can be fitted for use in MEN, TT or IT type systems, or where earth impedance may stop an RCD from operating.

This is important where smaller generator type IT units are used or where earthing integrity can be an issue.

Under voltage control and automatic restart - will the powerboard automatically restart after disconnection and re-connection of power, causing a risk to operators of connected machinery?

Why use under voltage protection? The first and the most important reason is that if power is lost to a power board and suddenly restored - any connected equipment will automatically re start.

This can place operators of machinery in high-risk situations.

Under voltage can also cause damage to the board and connected devices, particularly if incorrectly sized leads are used to connect power

boards. This can cause burnt insulation on the internal wiring, component damage and other issues.

Powersafe is the only manufacturer to fit under voltage units to protect your investment. Powersafe boards are designed to shut-down on disconnection of power and require manual resetting of the main switch, so that automatic restarting risk is eliminated.

What warranty is provided on the power board?

Powersafe stand behind the products we manufacture and sell. Not only is it the most advanced power board available on the Australian market, we also offer the longest warranty periods available.

Some manufacturers only offer a three-month warranty.

Powersafe offer a five-year pro rata warranty giving you the confidence of a superior product, backed by an ISO9001 certified company.





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From mine and construction sites to outdoor concerts and major festivals and markets, Powersafe Products are designed and manufactured to deliver safe, reliable distribution of power under the toughest of conditions.

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