

PANELBOARDS and AS/NZS 61439

Ensuring compliance
to latest standards

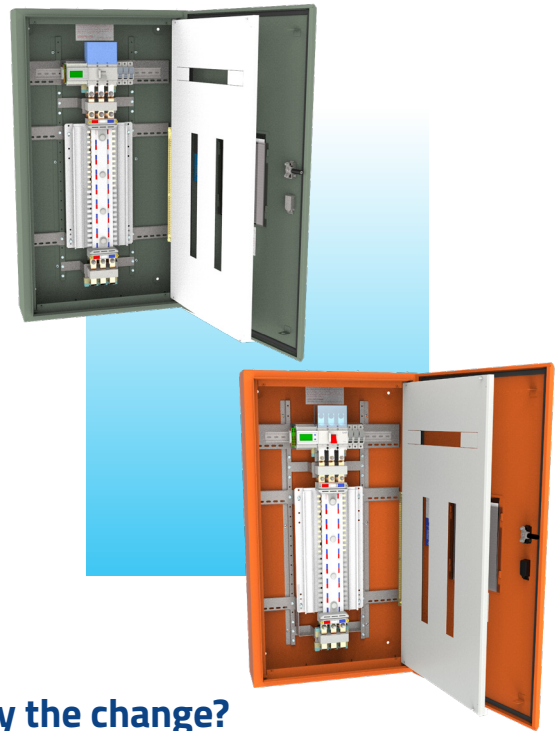


SMART DISTRIBUTION

AS/NZS 61439 - quick facts

What is AS/NZS 61439?

AS/NZS 61439 is a series of standards for low voltage switchgear and controlgear assemblies that is replacing the AS/NZS 3439 series. It is a copy of the International Electrotechnical Commission (IEC) 64139 series with some changes specific to Australia and New Zealand. There are 8 parts to the series.



Low-voltage switchgear and controlgear assemblies

Part 0	Guide to specifying assemblies
Part 1	General rules
Part 2	Power switchgear and controlgear assemblies
Part 3	Distribution boards intended to be operated by ordinary persons (DBO)
Part 4	Assemblies for construction sites
Part 5	Assemblies for power distribution in public networks
Part 6	Busbar trunking systems
Part 7	Marina, camping, market and charging

Transition period

Either 3439 or 61439 was allowed during the transition period of 5 years which expired in May 2021.

After May 2021

- 3439 is superseded by 61439

For upgrades to existing switchboards built to previous standards:

- replacing like for like electrical components is allowable
- any alterations to the switchboard itself may require that section to be upgraded to the new standard, which may require replacing with a new switchboard

Why the change?

The objective of the 61439 series of standards is to harmonise as far as practicable all rules and requirements of a general nature applicable to low-voltage switchgear and controlgear assemblies (ASSEMBLIES), in order to obtain uniformity of requirements and verification for ASSEMBLIES, and avoid the need for verification to other standards (*as referenced 61439.0 introduction*).

AS/NZS 61439 is more thorough and detailed, clarifying the specific requirements for testing and verification and removing some grey areas of interpretation found in AS/NZS 3439.

The new standard aims to clarify legal and financial responsibilities in specification, testing, design and construction between the user and the assembly manufacturer.



What is the process required for NHP Concept Panelboards?

NHP have tested an extensive number of onerous configurations which allows a large range of combinations to be used, providing verified ratings. This allows NHP to:

- declare ratings for standard catalogued models
- provide ratings for engineered to order assemblies that are to be agreed between NHP and the end user

Information in NHP documentation may take the place of some agreements. e.g. for performance of co-ordination of protective devices. This documentation is used in case of no user specification.

Assembly verification

The requirements in the AS/NZS 61439 series include verification of the assembly. Verification covers two main aspects:

- **Design Verification** – this ensures that the design meets the relevant requirements of the standard.
- **Routine Verification** – this ensures that the assembly has been constructed correctly and checked before despatch e.g checking electrical connections



Design Verification

AS/NZS 61439.2 CI10 (see also AS/NZS 61439.1 Annex D, Table D.1) and AS/NZS 61439.3 CI10 provide characteristics that are to be verified. There are 3 methods available:

Verification by test	The Distribution Panelboard is designed and assembled in the same configuration as the test assembly.
Verification by comparison	The Distribution Panelboard is designed in a similar but different configuration to a tested configuration, where the (tested) reference designs are more onerous than the Distribution Panelboard being verified.
Verification by assessment	This requires the correct application of design rules and calculations, including use of appropriate safety margins

Points to consider!

- NHP Concept Panelboards are designed and verified to meet AS/NZS 61439
- If a user modifies the Panelboard outside the scope of the NHP design, they are deemed to be the original manufacturer and are responsible for compliance to AS/NZS 61439
- If a user accepts a Panelboard without suitable verification, they may be putting their facility and persons at risk and may be liable for any issues that arise
- Test certification to AS/NZS 3439 may be used for verification purposes to AS/NZS 61439 but only if the test methods required are the same e.g. certain short circuit tests

What modifications can I do that are within scope?

For catalogue models¹

Installing

- NHP MOD6 MCBs and RCBOs or NHP DIN-T MCBs and RCBOs in Concept One Panelboard (COE)
- NHP DIN-T MCBs and RCBOs in Concept Plus (CPL) or Concept Premier (CPR) Panelboard
- Emergency lighting kits on horizontal DIN rail – Models CELAELKxx
- External lighting kits on horizontal DIN rail – Models CELEXTKxx
- Surge protection kit on horizontal DIN rail – Models CELSURGExx
- Safety service mechanical kit on horizontal DIN rail CPL, CPR–CELASSEDx²
- DIN contactors on horizontal DIN rail – Models DTCxxxx²
- Attaching an accessory module beside, above or below Panelboard
- Fitting mullions, E/N kits or gear trays into accessory modules.
- Use DINTT100A to feed a DTCB10H 80A or 100A 3P MCB on horizontal DIN rail²
- Rainhoods and floor mounting plinths

Installing or interchanging

- Main switch Isolator – Models CEL3160, CEL3250, CEL3160M, CEL3250M
- Main switch MCCB (up to 200A) – Models S160NJ, S250NJ, E250, A250, P250
- Door handles CL001, 92268, pad lockable, PWD lock ETC – Models CELHDxxx
- Gland-plates or Gland-plate gasket

For more options or information, please call your local NHP Account Representative.

Engineered to order models available on request.

Note

- 1) Not applicable for engineered to order models – contact NHP for more information
- 2) Refer to NHP for more information on maximum quantities/ratings

AS/NZS 64139 – which part applies to my Concept Panelboard?

NHP catalogued Concept Panelboards have been verified to both AS/NZS 61439.2 and AS/NZS 61439.3. The Concept Panelboards are marked to AS/NZS 61439.3 unless it falls outside the scope of this standard.

AS/NZS 61439.3 Distribution Panelboards are intended to be operated by ordinary persons (DBO), so have additional requirements over and above of AS/NZS 61439.2.

AS/NZS 61439.3 Distribution Panelboards

- Intended to be operated by ordinary persons
- Current rating not exceeding 250A (I_{nA} 250A)
- An outgoing circuit not exceeding 125A (I_{nC} 125A)
- Outgoing protective circuits must be suitable to be operated by ordinary persons e.g. MCBs to AS/NZS 60898
- No form of separation – if needed, must be to Part 2

AS/NZS 61439.2 Distribution Panelboards

- Any current rating. NHP's Concept Range is most commonly available in 160A, 250A, 400A or 630A
- No current limit on an outgoing circuit
- Specified to have a form of separation

What to look for on the panelboard

The assembly should be marked in a durable manner (not simple paper label) and be visible and legible when installed and in operation.

Required markings AS/NZS 61439.2 (items 1-4)

- 1) Manufacturer's name
- 2) Identification number
- 3) Means of identifying date of manufacture
- 4) 61439 standard that it is built to (i.e. Part 2 or 3)

Required markings AS/NZS 61439.3 (items 1-6)

- 5) Rated current of DBO I_{nA}
- 6) IP rating if greater than IP 2XC



For more information, please call your local NHP Account Representative.

SUPPLIED AND SERVICED BY NHP

At NHP, it's our objective to supply, assemble and manufacture to the highest quality performance standards. If our product requires maintenance or service, please contact our experienced service staff who will attend to your requirements quickly and professionally. NHP prides itself on service excellence, guaranteeing our products operate to the toughest possible demands.

AUS | 1300 NHP NHP | nhp.com.au
 NZ | 0800 NHP NHP | nhpnz.co.nz

Example of a Declaration of Compliance

When design verification is requested it can be presented as a supplier declaration of conformity as per the example on Page 5 of this brochure.

Declaration of Compliance on next page

Supplier Declaration of Conformity (SDOC)



(in accordance with ISO/IEC 17050-1:2004)

SDoC Identification Number: NHPCOE.002

NHP Electrical Engineering Products (N.Z.) Ltd
118a Carbine Road, Mt Wellington
Auckland 1060
New Zealand
NZ Company No: 931377
Telephone +64 9 276 1967
www.nhp-nz.com

NHP Electrical Engineering Products Pty Ltd
43-67 River Street, Richmond
Victoria 3121
Australia
A.B.N. 84 004 304 812
Telephone +61 3429 2999
www.nhp.com.au

Product details:

Product model:

COE24M160LG
COE36M160LG
COE48M160LG
COE60M160LG
COE84M160LG

Description/Ratings:

Pole Capacity: 24, 36, 48, 60, 84
Current Rating I_{nA} : 160A
Main Switch: 160A
Busbar Rating: 250A
IP Rating: 40
Short circuit rating I_{cw} : 6.5kA 1s (for higher rating refer to NHP)
Rated Diversity Factor RDF: 0.6 (63A)
Rated Operational Voltage U_e : 230/400 – 240/415V 50 Hz
Form of Separation: 2b
Impact Rating: IK 07

The products listed above are in conformity with the following Standard(s)/Normative Documents:

Standard/Document:

- AS/NZS: 61439.1:2016, Annex D Table D.1 List of design verification to be performed
- AS/NZS: 61439.2:2016, CL10 Design verification
- AS/NZS: 61439.3:2016, CL10 Design verification (Product is marked AS/NZS 61439.3)

Test reports/Certificates:

No.	Characteristic to be verified	Clause or subclause	Tested	Comparison with a reference design	Assessment	Test report (s) / Comments
	Strength of material and parts	10.2				
	Resistance to corrosion	10.2.2	✓			CE TR2945A-R1
	Properties of insulating materials	10.2.3				
	Thermal stability	10.2.3.1				Assessed and deemed not required as enclosure is metallic
1	Resistance to abnormal heat and fire due to internal electric effects	10.2.3.2	✓			TUV50203205001 & TUV50227631001
	Resistance to UV radiation	10.2.4				Assessed and deemed not required as enclosure is metallic
	Lifting	10.2.5				Assessed and deemed not required as there are no specific lifting points
	Mechanical impact	10.2.6	✓			TUV AU21W2IS001
	Marking	10.2.7	✓			NHP202104-01

■ = Not allowed

Supplier Declaration of Conformity (SDOC)



(in accordance with ISO/IEC 17050-1:2004)

SDoC Identification Number: NHPCOE.002

No.	Characteristic to be verified	Clause or subclause	Tested	Comparison with a reference design	Assessment	Test report (s) / Comments
2	Degree of protection of enclosures	10.3	✓			TUV500923299001
3	Clearance	10.4	✓			NHP202105-08
4	Creepage distances	10.4	✓			NHP202105-07
	Protection against electric shock and integrity of protective circuits	10.5				
5	Effective continuity between the exposed conductive part of the assembly and the protective circuit	10.5.2	✓			Tested and passed by TÜV Rheinland Australia, awaiting final test report number
	Short circuit withstand strength of the protective circuit	10.5.3	✓	✓		TUV 50074477001
6	Incorporating of switching devices and components	10.6			✓	NHP202103-07
7	Internal electrical circuits and connections	10.7			✓	NHP202103-08
8	Terminals for external conductors	10.8			✓	NHP202103-09
	Dielectric properties	10.9				
9	Power-frequency withstand voltage	10.9.2	✓			NHP202103-01
	Impulse withstand voltage	10.9.3	✓			NHP202103-04
10	Temperature-rise limits	10.10	✓	✓		NHP202105-11 & NHP202105-02
11	Short-circuit withstand strength	10.11	✓	✓		TUV AU21C7KJ001 & TUV AU214UDO001
12	Electro magnetic compatibility (EMC)	10.12				Assessed and deemed not required, incorporated installed devices comply with EMC requirements
13	Mechanical operation	10.13	✓			NHP202105-06
	Mechanical strength or fastening mean of enclosures	10.101	✓			NHP202104-02
	Fixing in position of pole fillers to comply IP2XC of 8.2.2	10.102	✓			NHP202104-03

■ = Not allowed

Name: Jamie Goddard
Position: Product Manager—Distribution systems and Protection
Date: 24/05/2021



Signature of Authorised Person

SMART Panelboard solutions

SMART Panelboards are built using NHP's new CONCEPT enclosure design, which has undergone testing and is manufactured to comply with the requirements of AS/NZS 61439. Packed with connected SMART technologies, SMART Panelboards provide energy consumption and switchgear health analytics which can be accessed via a variety of network protocols, including MODBUS RTU/TCP, BACnet and EtherNet IP.

Allen Bradley 1492-P Push-In Terminal Blocks

Rapid test earth leakage device test system

Compact emergency light test system

Socomec ATyS transfer switch (mains and alternative supply)

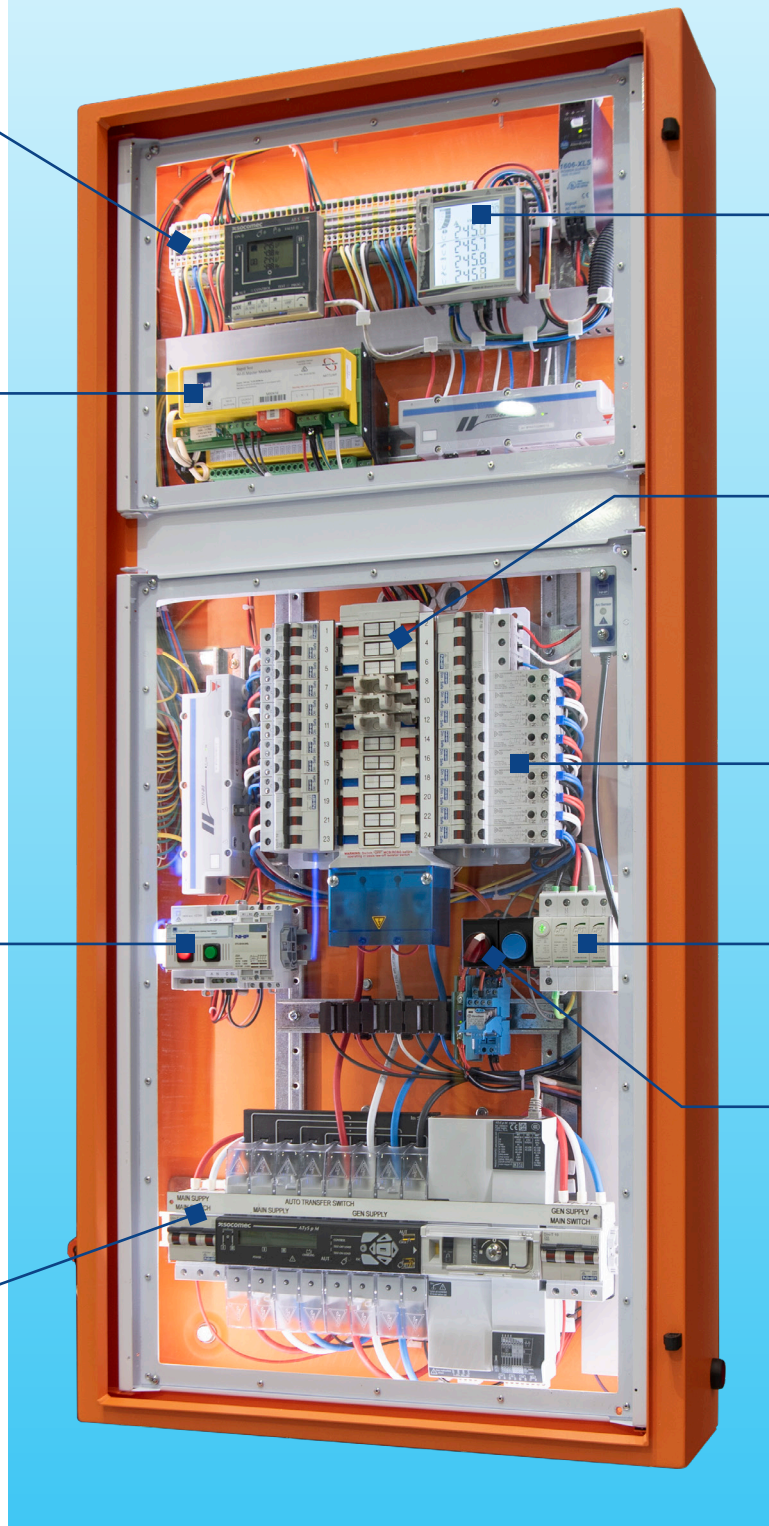
WM50 Branch Energy Monitor and SMART VMU-C reporting system

PowerMAX GB Isolation Chassis

Earth leakage circuit breakers

SAFEGROUND® Surge Protection Device

Arc LogiX OPTICAL SS Relay



The NHP logo consists of the letters 'NHP' in a bold, white, sans-serif font, centered within a dark blue square background.

NHP

nhp.com.au
SALES 1300 NHP NHP
sales@nhp.com.au

nhpnz.co.nz
SALES 0800 NHP NHP
sales@nhp-nz.com

NHP Electrical Engineering Products

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