Easy Guide to Energy Management Compliance

Easy to follow guide to the Energy monitoring and distributed energy sources section of the national construction code (J9 NCC) and compliant products

Access our wide range of energy management products and resources to assist with improving energy usage in your business.

Introduction to the National Construction Code 2022

The National Construction Code (NCC), maintained by the Australian Building Codes Board (ABCB), sets minimum standards for safety, accessibility, health, amenity and sustainability in buildings.

- Section J focuses on sustainability and energy efficiency of a building.
- Part J9 is a new addition to the NCC, which includes energy monitoring and provisions for renewable energy and electric vehicle chargers.

The aim of this document is to guide you to the most appropriate solutions to meet the Part J9 requirements. Detailed information on the requirements can be found in the technical article summarising the requirements on the NHP website. View brochure →

Part J9D3(2) - Energy Monitoring

For larger buildings, J9D3(2) requires Building Classes 2 to 9 - with floor area more than 2,500m² - to record the energy consumption of individual loads such as lighting, HVAC, power, central hot water and any other large loads.

The 2022 version on the NCC also includes the requirement to individually monitor the energy of onsite renewable energy equipment, battery systems and electric vehicle charging equipment.

For the full list of loads that required to be metered, please refer to the technical article summarising the requirements or NCC 2022 Volume One on the ABCB website.

Solution

Concept Panelboard

NHP has a wide range of energy meters available to monitor all types of loads within your building. NHP's metered Concept Panelboards series includes single, double or triple metered distribution boards, combining power distribution and metering in one solution to meet J9D3(2) requirements.

This means that light, power and HVAC circuits within the panelboard can be monitored independently of one another, simplifying the analysis. HVAC, lighting and water storage control is also available via time clocks, PE cells and sensors reducing unnecessary energy consumption.

NHP's metering distribution boards can also be fitted with multifunction meters with import and export energy data to satisfy the energy monitoring requirements of onsite renewable energy equipment and battery storage equipment.

Ordering guide

Metering panelboards

Type	Main switch	Total poles	Height (mm)	Item no.[1]
Single	250A	24-96	864 – 1512	CPLMS-xxxx-M250-G
Dual		24-96	864 – 1728	CPLMD-xxxx-M250-G
Triple		46-108	1296 - 1944	CPLMT-xxxx-M250-G

Poles arrangement

Type	Light poles	Power poles	Miscellaneous Services Poles	Item no. [2]
Dual	12-48	12-60	-	CPLMD-xxxx-M250-G
Triple	12-36	24-60	12	CPLMT-xxxx-M250-G

1. Simply swap the 'G' at the end of the item number with 'O' for orange colour option
2. Swap the 'xxxx' in the item number for desired pole arrangement. eg for an orange dual metering panelboard with 18 poles for lighting and 18 poles for power, order CPLMD-1818-M250-O

For metering for EV charging, please refer to the 'EV DB' section on page 11.

Solution for on-site renewable energy equipment and battery storage

The NEMO 96HD is a modular three-phase multifunction meter with optional modules for Modbus RS485 or TCP communication protocols, analogue or digital signals as well as temperature monitoring. These can be installed in the Concept Plus panelboards or switchboards.

Multifunction Meter Options

Type	Connection Type	Import/Export Monitoring	Communication Options	Item no. *
Panel Mount Meter	5A Secondary CT	±kWh, ±kVArh	Modbus RTU	NEMO96HD1000
			TCP	NEMO96HD + IF96015
	Prewired Rogowski		Modbus RTU	KRNEMOHDLE080
DIN Mount	5A Secondary CT		Modbus RTU	MFD4421
	Prewired Rogowski		Modbus RTU	KRNEMOD4LE190

* More options for Rogowski versions available for different diameter size

Part J9D3(3) - Energy Data Centralising

J9D3(3) requires all energy meters must have the facility to communicate to the single user interface (i.e., through a common method such as MODBUS communication).

- The single user interface must be able to collate information from various types of energy meters (meter type and brand).
- The information captured must be time stamped. (i.e., energy consumption recorded with reference to time and date). Ideally,
- the information captured should be easily identifiable (i.e., loads outlined in J9D3(2) should be grouped and/or labelled appropriately within the single user interface. e.g., lighting, power, HVAC, EV, solar).
- The single user interface must have the facility to store energy consumption information for a reasonable period of time (data storage capacity not specified).

Solution

SMART eBox

The SMART eBox, manufactured by NHP, is a powerful energy monitoring tool that collates, stores and displays data from various energy meters and power distribution devices. It can also transfer data to a building management system or SCADA, or cloud systems like Azure or AWS for larger sites. Combined with NHP's metered panelboards, it's a flexible, easy-to-install solution for Section J9D3.

Commissioning

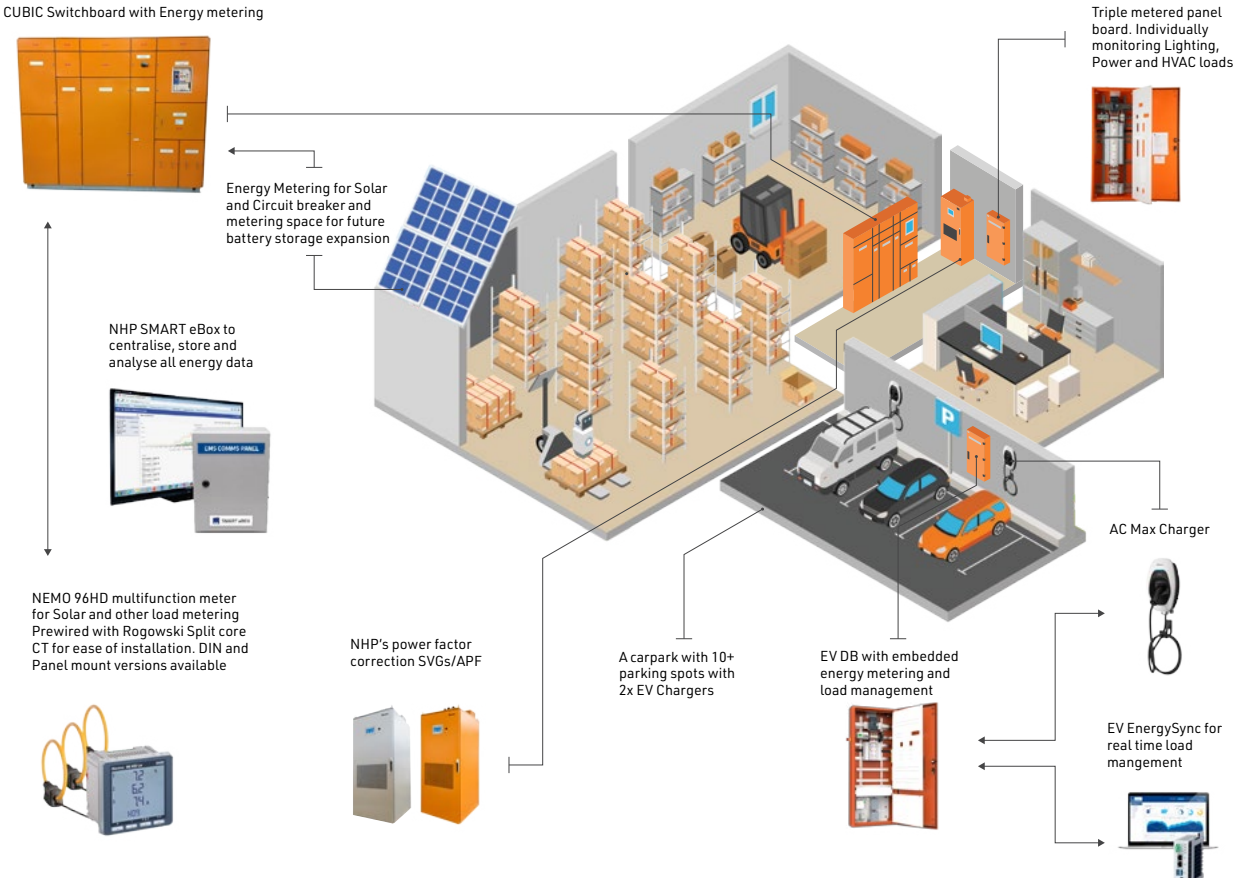
NHP's commissioning service for the SMART eBox ensures all configuration of this energy management system is correctly completed for seamless NCC section J9D3 compliance.

- Ensuring correct datalogging
- Setting up dashboards
- Setting up automated reports and notifications
- Assistance with setting up as gateway (for sites with larger EMS or BMS onsite)

Ordering guide

Please contact your local NHP Account Representative to arrange your tailored SMART eBox solution.

Architecture Example:
Warehouse with office and car parks



Part J9D4 - EV Charger Facilities

For buildings with more than 9 carpark spaces, Part J9D4 requires to install an EV dedicated distribution board. The distribution board must be:

- Labelled as a dedicated EV distribution board Include or have space for energy metering for each EV charging station
- Include a charging control system that can manage and schedule charging of electric vehicles in response to total building demand.
- Have the capacity to support the minimum kWh requirement of the building class as per below.

Building class	Daily minimum capacity per circuit
Class 2	12 kWh from 11:00 pm to 7:00 am
Class 3	48 kWh from 11:00 pm to 7:00 am
Class 5 to 9	12 kWh from 9:00 am to 5:00 pm

- Have the capacity to support the future upgrade of EV charger installation of 7 kW (32 A) Type 2 EV charger. The upgradable spaces to be considered are outlined below.

Building class	Future installation 7 kW (32 A) Type 2 EV charger [1]
Class 2	100% of the car parking spaces
Class 3	20% of car parking spaces
Class 5 to 9	10% of car parking spaces

Note: 1. A dedicated distribution board is required for every 10 to 24 car park spaces per storey or thereof. This includes the upgradable spaces specified in the table above. For buildings with more than 24 carpark spaces per storey, additional metered distribution boards are required per 23 spaces or part thereof.

Solution

EV Distribution Boards (EV DBs)

NHP's EV DBs are purposefully designed in compliance with the National Construction Code (Part J9D4). In addition to all the features of the Concept Plus range, they offer a segregated load management zone, overall metering and space for individual EV charger metering.

Ordering guide

Load management panelboards

Load management zone	Poles	Charger types	Extra DIN rail	Height (mm)[1]	Item no.[2&3]
Without control Load management	24 - 72	1 – 3 phase	2 – 3 rows x 24	1080 – 1728	CPLMSXpwM250G
Single module control	24 – 72	1 – 3 phase	2 – 3 rows x 24	1296 – 1944	CPLMSXCSpwM250G
Double module control	24, 48	1, 1/3 phase	2 – 3 rows x 24	1512 – 1944	CPLMSXCDpwM250G

Notes:

1. Width 600mm Depth 200mm includes door, excluding door handle.
2. In the above part number, 'G' stands for grey colour option. Substitute with 'O' for orange colour option.
3. Substitute 'pw' with pole width to obtain actual item number, e.g., 'CPLMSXCS48M250G'.

Load management

Dynamic load management

Monitors full energy usage to allow smarter load management for EV charging

- Additional hardware required if more than five EV DBs

Static load management

Using a preset maximum allowable current for EV charging, the static load management allows for EV charging as per NCC time and capacity requirements.

- No limit to number of DBs

NHP EnergySync EV Load management

Charging ports	Spare Ethernet ports	Item no.
6	-	EVLM2CP06
12	-	EVLM2CP12
	4	EVLM2CP12DBA
	12	EVLM2CP12DBB
24	-	EVLM2CP24
	4	EVLM2CP24DBA
	12	EVLM2CP24DBC

Metering

NHP's new Countis P range is a high accuracy, comms enabled device with small footprint option for direct or CT connect option.

Metering options for EV load management panelboards.

Type	Connection type	Current	Communication options	Item no.
Single phase	Direct connect	45A	Modbus RS485	48505004
		100A		48505034
Three phase	CT connect	5A/1A		48505044

EV chargers

- Please contact NHP or visit our website to choose the appropriate EV chargers for your applications.

Australia
nhp.com.au
1300 647 647

New Zealand
nhpnz.co.nz
0800 647 647