SMART Panelboard Selection guide

Enhance your CONCEPT Panelboard with SMART Upgrade options

- Energy metering & reporting
- Digital connectivity to the web
- Arc Flash optical relay
- Temperature monitoring
- Power transfer switching
- Earth leakage testing
- Emergency light testing
- Isolation chassis for maintenance
- Surge protection + earth monitor

SMART DISTRIBUTION

CONCEPT Panelboard + SMART options

A Panelboard is a distribution centre for the electrical circuits within an installation. The mains power comes in and is divided into the sub circuits. NHP's CONCEPT Panelboard range is broken into two main models* which can have 'SMART upgrade options' fitted to enhance safety, circuit protection, and digital connectivity.

CONCEPT Plus

- IP42 (optional IP52 kit)
- 1.6mm steel
- Grey or orange
- Hinged escutcheon

- Suits Din-T MCB and RCDs
- 250A busbar rating (optional 400A)
- Full range of accessory modules
- Built in cable management

CONCEPT Premier

- IP66
- 1.6mm steel
- Grey or orange
- Hinged escutcheon standard

- Suits Din-T MCB and RCDs
- Fully welded construction
- Door handle 3 point locking
- Dual earth and neutral bars

Enhance your CONCEPT Panelboard with SMART upgrade options:

Energy metering & reporting	Digital connectivity to the web	Arc Flash optical relay
Temperature monitoring	Power transfer switching	Earth leakage testing
Emergency light testing	Isolation chassis for maintenance	Surge protection + earth monitor

*SMART Option can be fitted to CONCEPT Tough – Contact NHP

Allen Bradley 1492-P
Push-In Terminal Blocks

WM50 Branch Energy
Monitor and SMART UWP3.0
reporting system

Rapid test earth leakage
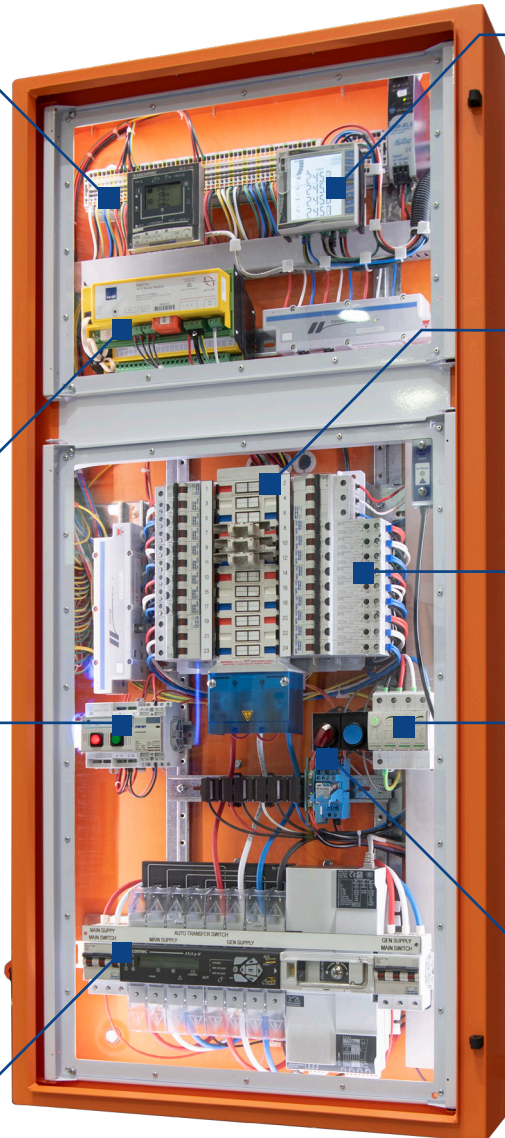device test system

PowerMax GB
Isolation Chassis

Compact emergency
light test system

Earth leakage circuit breakers

SAFEGROUND® Surge
Protection Device

Socomec ATyS transfer switch
(mains & alternative supply)

Arc LogiX OPTICAL SS Relay

When selecting a Panelboard, you need an understanding of the number of circuits and the circuit breakers that are going to protect those circuits. There are also other factors, such as the environment of the installation and any accessories that may be needed.

There are seven steps involved in selecting the right Panelboard option.

Step 1

Select the breaker / circuit protection type:

DIN-mount Miniature Circuit Breakers (MCB)

NEMA Style

MOD6   **Din-T**

Safe-T

Most times DIN Miniature Circuit Breakers will be used, however if a contractor is replacing or adding to an existing building, they may require the NEMA style breakers and boards. Panelboards are sold as MOD6, Din-T or Safe-T and come with the correct busbar chassis to accommodate the chosen breaker style.

SMART circuit protection upgrade – RapidTest Earth Leakage Testing System

This unique system allows an entire distribution board fitted with earth leakage circuit breakers to be tested in accordance with Work Health and Safety regulations within minutes and diagnoses problems immediately, ensuring maximum safety of personnel. A test report is automatically generated. Depending on the Panelboard design the radiptest device may be able to be installed within the enclosure or housed within a separate header box.

24 Channel RapidTest unit

SMART circuit protection upgrade – SafeGround Surge Protection

The SAFEGROUND® Surge Protection Device SPD not only protects sensitive equipment from destruction due to over voltages, but it is the first SPD to feature an integrated ground status indictor which visually shows the condition of the path to ground (which is essential for correct operation).

**SafeGround surge protection device**

Step 2

What is the chassis size?

As mentioned, a Panelboard distributes sub circuits, so it is important to know how many circuits are required for the installation. Each circuit requires a circuit breaker to be mounted to the chassis; we refer to this as a pole or a way. Boards are sized by the number of poles required. You need to choose between a 24 pole, 36 pole, 48 pole, 60 pole, 72 pole or 96 pole board. The 'NC encapsulated chassis' is the standard chassis offered by NHP. A dual energy meter monitoring option is available to allow light and power circuits to be separately measured.
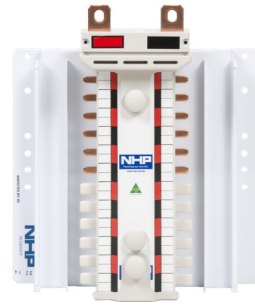
NC chassis
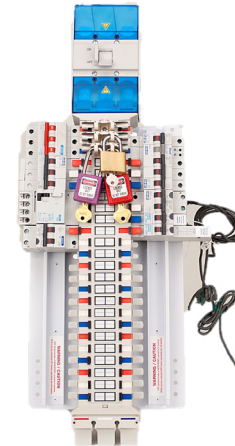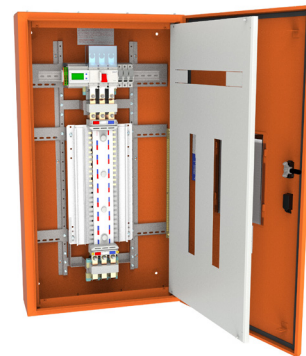
GB chassis

SMART upgrade – PowerMax GB Isolation chassis

The PowerMax GB Isolation Chassis is a miniature circuit breaker power distribution isolation chassis that reduces potential hazards for electrical maintenance workers, because tee offs can be individually de-energised.

It has an encapsulated design that incorporates a proven mechanically interlocked busbar tee off disconnection system. Furthermore, the PowerMax GB Isolation Chassis has undergone temperature rise (to AS/NZS 61439.1) and short circuit (to AS/NZS 3439.1:2002) 3rd party TUV test verification.

Dual metering chassis

GB Isolator Interlock

Innovative isolator mechanical interlock ensures the tee off can only be switched 'live' once a circuit breaker is fitted.

GB Integrated Padlocking System

A unique lock off attachment can be fitted to the chassis ensuring the isolator interlock switch can be padlocked open / off for safety.

Step 3

Isolator type

Select whether a Isolator is required. Sometimes the installer may choose to isolate the board from a circuit breaker or Isolator in another location. If this is the case, choose "No Isolator" for the board.

Note: The terms "isolator" and "mainswitch" are similar devices, they describe a device that is used only to remove power to the board. Isolators do not provide overload or short-circuit protection, however, circuit breakers are used for that purpose.
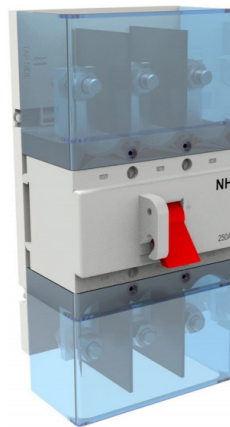
Isolator   **MCCB**

SMART isolator upgrade – Arc LogiX OPTICAL arc flash relay

The Arc LogiX™ OPTICAL SS Relay is a light reactive arc flash relay which limits arc fault damage by tripping the incoming circuit breaker. The Arc LogiX Optical SS is a solid state, super high speed, arc flash protection relay intended for use with switchgear, utilising two optical point sensors. A circuit breaker main switch with a shunt trip installed must be used with the arc flash relay. Otherwise the arc flash relay must be wired to an up stream circuit breaker with a shunt trip.

Arc Logix OPTICAL relay

SMART Automatic Transfer Switch Upgrade

Socomec ATyS transfer switch is used to manage and automatically switch between an incoming mains and alternative power supply (eg diesel genset), ensuring minimal power loss to critical loads. Depending on requirements of state-based service installation rules, the ATyS may be used as an isolator.

Socomec Automatic transfer switch ATyS p M

Step 4

Type of board

Choose the range of board required to suit the application and environment

CONCEPT Plus	CONCEPT Premier	CONCEPT Tough
• IP42, IP52 option indoor applications	• Weatherproof IP66	• Weatherproof IP66
• Commercial or industrial	• Industrial	• Mining
• DIN-T only with flying lead	• Mild or stainless steel	• Mild or stainless steel
	• DIN-T or MCCBs	• DIN-T or MCCBs
	• Deeper enclosures	• Rainhood as standard
		• Deeper enclosures

Step 5

Colour options

The colour option describes the look of the Panelboard, externally. Standard base/door combinations available are:

- RAL7035 light grey (CONCEPT One only)

- N42 storm grey or X15 Orange

- Natural (stainless version only)

- Note: The paint options are flexible in the CONCEPT range, but must be specified when ordering the board if it's a non-standard colour.

Step 6

Other options

Once the basic layout and look of the board has been selected, we then choose options to be included. Some of the more common options include:

Accessory

Flush mounting

Plinth

Rain hood

SMART upgrade – Energy metering and reporting

The WM50 is a multichannel power analyzer for single, two and three-phase systems which can monitor up to 96 single phase loads (or combinations). Furthermore, the WM50 directly interfaces with the VMU-C / UWP3 module.

The UWP 3.0 is a central interface for energy monitoring and control. It is a powerful solution for monitoring, centralizing and storing a building's energy usage data as well as offering an open interface for building management functionalities.

Its ability to centralize hourly energy data from a wide range of energy meters and SMART protection devices, transfer it to a local or remote server and internally store it if communication is lost, makes it the ideal solution for meeting the requirement of the NCC 2019, part J8.3(c).

Its comprehensive communication capabilities offer the ability to act as a datalogger, gateway or controller for BACnet devices, gather data from environmental sensing devices with Modbus communication capabilities and be retrofitted to centralize other web-server based solutions (such as the VMU-C) with newly installed meters. The UWP 3.0 can be easily scalable to a larger site or multi-site installations.

For a more basic metering option the EM270 is best option for applications that require separate light and power measurements.

WM50 meter system

**UWP3 system**

EM270 dual power meter

SMART eBox – Energy management & power product integration

The SMART eBox is an enclosed energy management, reporting and NHP SMART power product integration solution. For a contractor it simplifies connecting NHP SMART switchboards, Power Quality SVG systems and SMART Panelboards to a digital network for remote access. Just place the SMART eBox in a similar way as a Panelboard on a wall. The SMART eBox incorporates the UWP3 module with NHP power product software drivers installed ready to go.

Smart eBox

SMART eBox

SMART MV Kiosk

SMART Power Quality

SMART Panelboard

SMART Transfer Switch

SMART Switchboard
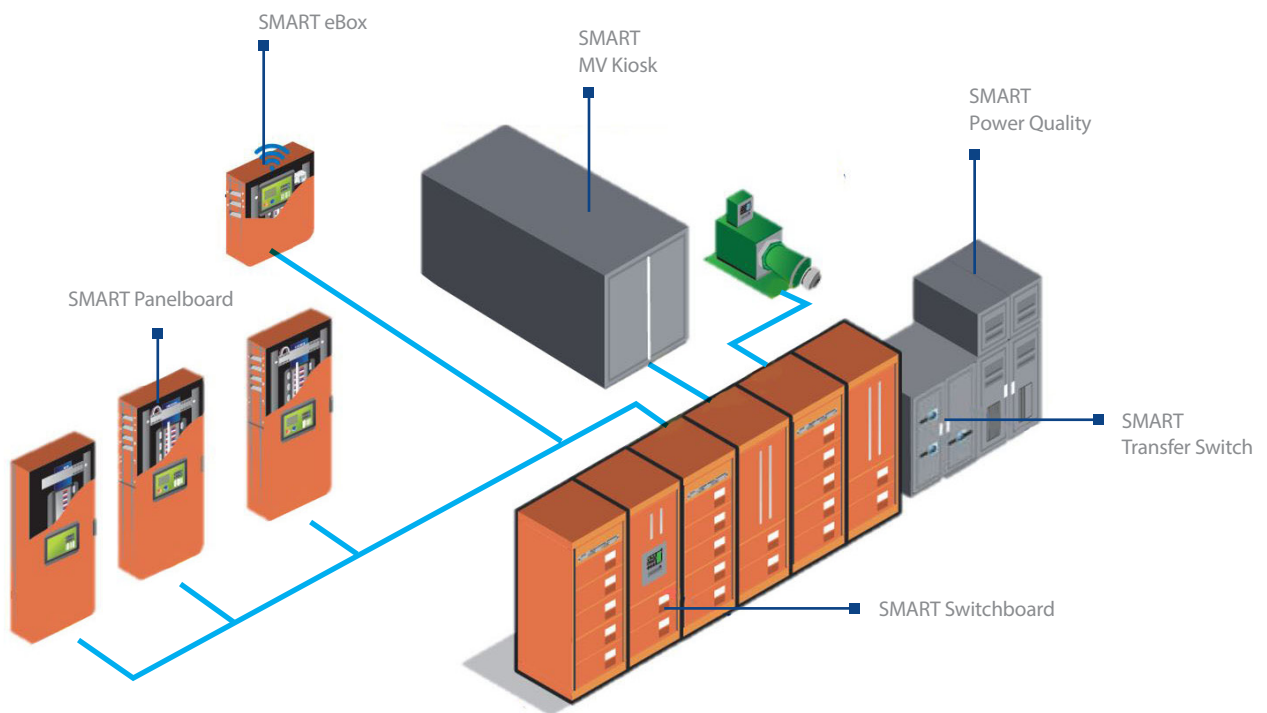
SMART upgrade – Temperature monitoring

Over time, neglect of electrical infrastructure can cause significant failures due to switchgear contact corrosion, loose busbar connections and blocked air ventilation, inevitably leading to overheating and fire hazards.

To help monitor and communicate this problem, the SMART Panelboard can be fitted with a UWP3 unit with a PT100 sensor which can measure the internal temperature of the SMART Panelboard for predictive maintenance analytics.

SMART Panelboard with Temperature monitoring unit

SMART upgrade – Emergency Light Test Kit

Emergency Lighting Test Units provide a safe, simple and time efficient testing method to comply with the six month-ly testing requirements of AS/NZS 2293 standards.

During a test, the timer starts and a contactor cuts mains supply so emergency and exit lights run on battery power. The inspection continues until either the timer times out or the stop button is pressed to cancel the test, and mains power is automatically restored to the lights and to recharge the batteries.

Emergency light test unit

Step 7

Specification check list

Choose the range of specifications including the SMART options from below summary

Specifications		Include Y/N
Type of Board	CONCEPT Plus	
	CONCEPT Premier	
	CONCEPT Tough	
Colour Option	N42 Storm Grey	
	X15 Orange	
	Other (Specify)	
Circuit Protection	MOD6	
	Din-T	
	Safe-T	
SMART Circuit Protection Upgrade	Rapid Test Unit	
	SafeGround Surge Protection Unit	
Isolator	No Isolator	
	Isolator (Specify Current Rating)	
	MCCB (Specify Current Rating)	
SMART Isolator Upgrade	Arc Logix Unit	
	ATyS Transfer Switch	
Chassis	NC Chassis	
	NC Chassis - dual metering	
Chassis Upgrade	GB isolation Chassis	
SMART Energy Management	EM270 Energy Meter	
	WM50 Branch Monitor	
	UWP-3 with temperature sensing module (PT100 sensor not provided)	
	SMART eBox	
Emergency Light Testing	Emergency light Testing Kit	
Other Accessories	Gland Plates	
	Flush mounting Kit	
	Plinth	
	Rain hood	
	Accessory Modules	
	Locking Rods	
	Escutcheon Labels	

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