


The NHP logo is a white, bold, sans-serif font set against a solid blue square background. The background of the entire advertisement is a close-up photograph of an electrical worker wearing a white hard hat and safety glasses, looking at a control panel with various switches and handles.

# Maximise your power availability through innovation

Enabling a connected enterprise starts with SMART Distribution

**SMART DISTRIBUTION**

NHP Electrical Engineering Products

 AUS 1300 NHP NHP  
NZ 0800 NHP NHP

[nhp.com.au](http://nhp.com.au)  
[nhp-nz.com](http://nhp-nz.com)



# Your business, powered with SMART Distribution


Implement a network populated with devices that can sense and communicate a wealth of technical health and diagnostic data to help you efficiently use the available energy, reduce operating costs, improve safety of the switchroom and better predict the failure mode of critical devices long before any unexpected power blackout occurs.





A high performance, digitally connected, cost optimised power reticulation product suite for Medium and Low Voltage applications.

- Optimise your commercial building or industrial plant to improve energy efficiency
- Manage peak demand and implement an energy plan that works for you
- Reduce your running costs and move to a predictive, condition-based maintenance regime for critical electrical switchgear
- Achieve better returns and higher occupancy
- Protect your assets and improve your capital value
- Simplified implementation of regulatory compliance obligations such as NABERS energy consumption reporting, emergency light testing and earth leakage circuit breaker testing
- Maximum power availability, reducing risk of power outages
- Improved power quality
- Personnel and equipment protection from arc faults.



# Modernisation recharges Queensland electricity supply

**Stanwell Power Station is highly automated and recognised as one of the most efficient and economical coal-fired power stations in Australia. It is owned by Stanwell Corporation Ltd who, with an extensive power generation and energy infrastructure portfolio across Queensland, has a wealth of experience in the supply of energy.**

The station is located approximately 23 kilometres south-west of Rockhampton and is one of Stanwell's major operating sites.

With the capacity to generate 1460 megawatts using four power generation units, Stanwell Power Station supplies approximately 15 percent of Queensland's annual electricity demands by burning low sulphur black coal.

Constantly aiming to ensure a reliable, secure and affordable electricity supply, Stanwell Power Station has positioned itself as one of Australia's leading power generation sites, regularly distributing electricity to customers not only in Queensland, but throughout the country via the National Electricity Market.



## Project overview

After assessing the status of all equipment to ensure all aspects were functioning at the optimum levels as part of a plant-wide upgrade, it was determined that the Stanwell Power Station required a replacement of their 415V Air Circuit Breaker (ACB) with a Unit 415V switchboard and Ash and Dust 415V switchboard.

The existing ACBs had been in service since the units at Stanwell were first commissioned in 1993 and were experiencing reliability issues due to aging component failure. As well as this, they were difficult to maintain due to the unavailability of spare parts and support from the OEM.

With safety and operational efficiency taking priority, Stanwell decided to retrofit the ACBs installed in the plant and chose NHP to perform the services required for the upgrade.

## The solution

The NHP Service Team removed the legacy ACBs, retrofitting them with 2000A and 3200A SMART Terasaki AR ACBs which incorporated the premium model AGR31C protection relay with integrated 3C over temperature protection. 3C over temperature protection is a breakthrough self-monitoring temperature system for checking the condition of the AR ACBs main contacts and conductive path, setting industry leading standards without compromise.



To assist with the retrofit, NHP used CAD designed conversion/upgrade kits made specifically for NHP Terasaki ACBs. These kits are fully engineered, removing the need for onsite busbar bending and alteration. The kits come fully prefabricated to convert the new ACB connections to match the old ACB connections precisely, allowing fast and smooth integration within existing infrastructure.

NHP's compliance with the technical specifications of the existing ACBs and the added capacity for trusted technical support, maintenance and a reliable spare parts supply gave a quick and seamless installation with the right backup and on-site training.

Being the only authorised and trained Australian and New Zealand Terasaki distributor and service agent, NHP's Service Team have been specifically trained by Terasaki to deliver best practice services from concept design through to installation and after-sales service. On-site training was delivered to ensure the Stanwell electricians were well equipped for the new ACBs, demonstrating NHP's commitment to deliver industry-leading support.

"With a strong focus on minimising operational risks and enhancing personnel safety on the site, the ACB upgrade was embarked on to ensure any faulty or unreliable tripping and reset mechanisms which can often be associated with aging ACBs were resolved," said James Huf, NHP's Service Technician.

"Our Service Team are specifically trained in modernising protection systems with a future proof solution to increase overall system reliability and plant safety. We were confident in the retrofit product sourced from one of our global partners, which we customised to the local standards and further tailored to Stanwell's needs," continued Huf.

With Stage 1 of the project now successfully completed, attention turns to the eventual completion of the remainder of Stanwell Power Station's onsite power generation units.

NHP looks forward to playing an important role in helping to shape and transform one of Australia's leading power stations as it continues to set the benchmark for efficient and reliable electricity generation into the future.



## Enhance the protection of your people and assets

Implement the latest predictive technology to help prevent electrical arcing faults, fires and shocks. Recover quickly from power outages, with full access to the right information when and where you need it. Optimise operational and maintenance processes that improve occupant comfort and safety.

## Improve business continuity

Centralised analytics tools, reporting and alerts designed for SMART Distribution reveal operational insights, ensuring maximum facility operation by avoiding power outage and asset breakdown. Use of isolation style circuit breaker chassis and closed transition transfer switches with maintenance by-pass allows quick implementation of corrective actions, with maximum safety for electrical contractors.







# Digitally connected to improve facility performance

Communicate all necessary energy, protection and switchgear health analytics on fixed and mobile networks to manage multiple energy sources, gain visibility into energy-saving, as well as view and report your energy consumption and regulatory compliance.



# Predictive maintenance and extended service life

Adopt a predictive maintenance approach to increase equipment reliability by anticipating issues before they happen. Resolve issues faster when they do arise through event analytics and the use of real time switchboard and switchgear internal temperature data.



# Optimise your facility with IIOT SMART Distribution

## SMART Distribution Connectivity

SMART Kiosks, SMART Switchboards and SMART Panelboards integrate into multiple networks such as MODBUS, Ethernet/IP and Bacnet

## SMART MV Kiosk and SMART Main Switchboard

Maximum power availability systems

### SMART MV Kiosk up to 22kV / 2MVA

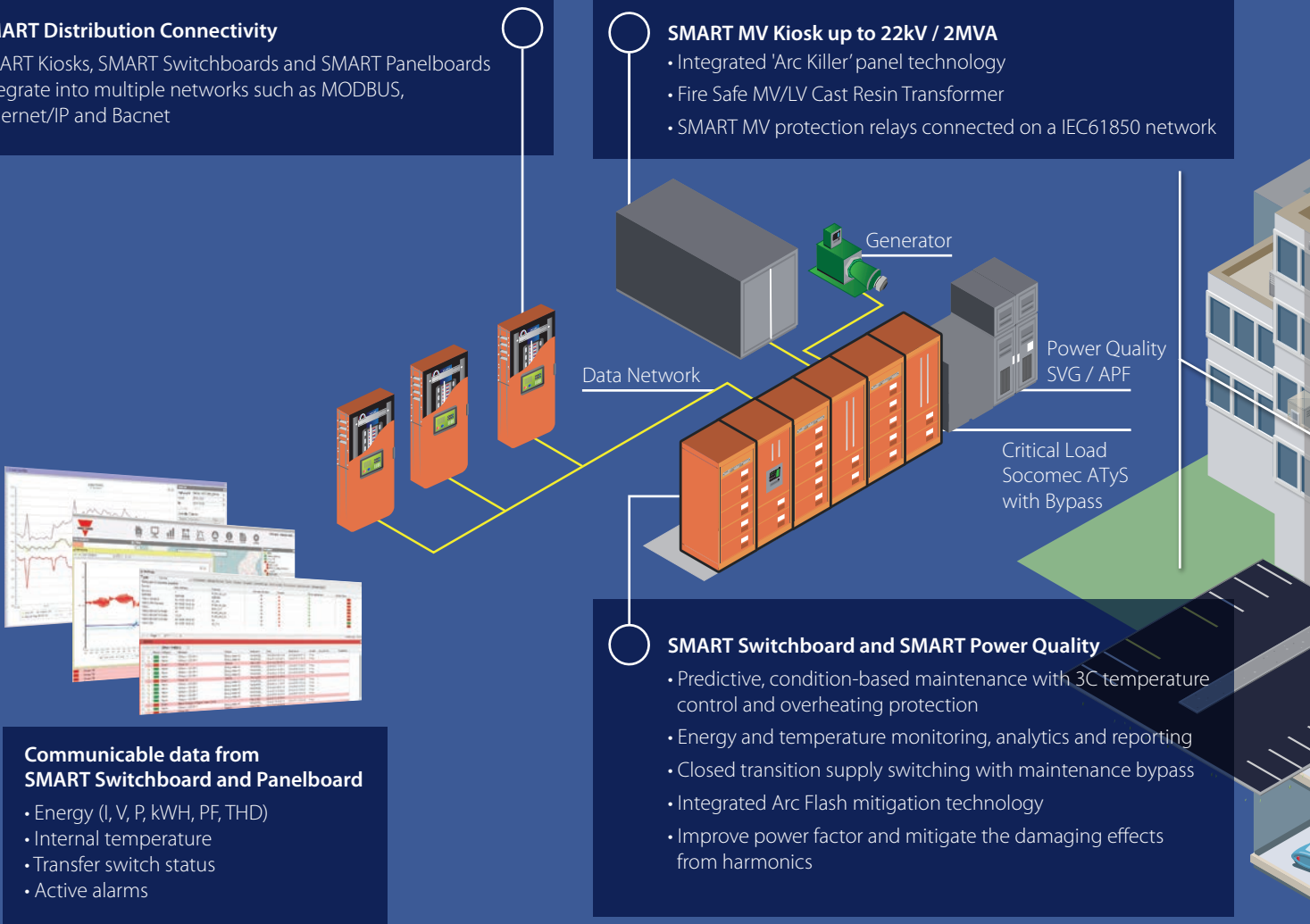
- Integrated 'Arc Killer' panel technology
- Fire Safe MV/LV Cast Resin Transformer
- SMART MV protection relays connected on a IEC61850 network

### SMART Switchboard and SMART Power Quality

- Predictive, condition-based maintenance with 3C temperature control and overheating protection
- Energy and temperature monitoring, analytics and reporting
- Closed transition supply switching with maintenance bypass
- Integrated Arc Flash mitigation technology
- Improve power factor and mitigate the damaging effects from harmonics

## Communicable data from SMART Switchboard and Panelboard

- Energy (I, V, P, kWh, PF, THD)
- Internal temperature
- Transfer switch status
- Active alarms



## SERVICES

A partnership with NHP will provide you with:



24/7/365  
EMERGENCY  
SERVICE



NHP PROJECT  
MANAGEMENT



EXTENSIVELY  
TRAINED AND  
QUALIFIED SERVICE  
TECHNICIANS



NATIONAL  
SERVICE  
NETWORK

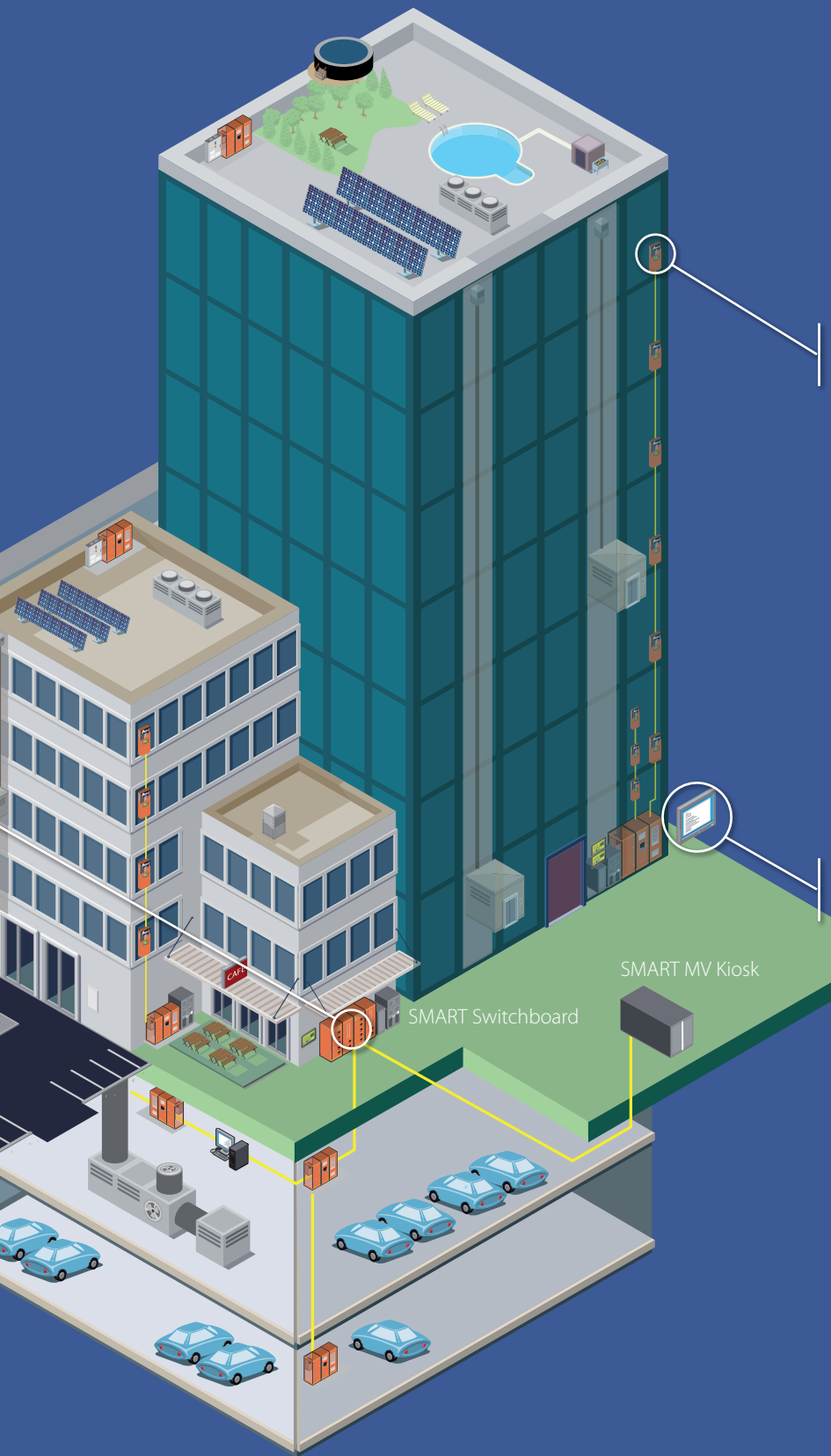


EXTENSIVE  
LOCAL  
STOCKHOLDING



CUSTOMISED  
MANUFACTURED  
SOLUTIONS





### SMART Panelboard

- Maximum performance and safety
- 3C temperature control and overheating protection
- Energy monitoring and analytics
- Continuity of power transfer switch
- Integrated Arc Flash mitigation technology
- Protection from over voltages

### Simplify regulatory testing

- Integrated earth leakage circuit breaker testing system
- Pre-wired emergency light testing system



### Arc LogiX SMART Touch Panel

#### Operation

- Localised visualisation of networked Terasaki TemPower 2 air circuit breakers (ACBs)
- Simple one touch activation of the trip unit's energy reduction arc flash maintenance mode setting
- Remotely switch ON and OFF ACBs
- Visibility of ACB energy metering, contact temperature, active alarms and protection settings
- Installed external to the switchroom.

## INDUSTRIES



Defence



Airports



Mining



Commercial Buildings



Data Centres



Educational Centres



Hospitals & Health Centres



Hotels



Intensive Farming



Utilities



Processing



Rail



Tunnels



Water





SUB-STATION  
No. 08

NHP

**DANGER**  
HIGH VOLTAGE  
AUTHORIZED  
PERSONNEL ONLY

**DANGER**  
415 VOLTS

**DANGER**  
415 VOLTS



# SMART MV kiosk substations



NHP has been supplying a range of customised prefabricated SMART MV/LV substation solutions up to 22kV and up to 2.5MVA into the Australian and New Zealand markets since 2012.

NHP MV prefabricated kiosk substations are engineered to suit customer specification and application requirements and can house a variety of High Voltage (HV) and Low Voltage (LV) equipment. The kiosks are designed and manufactured locally by our partners to NHP specifications and must pass final quality inspection and FAT to the customer's complete satisfaction.

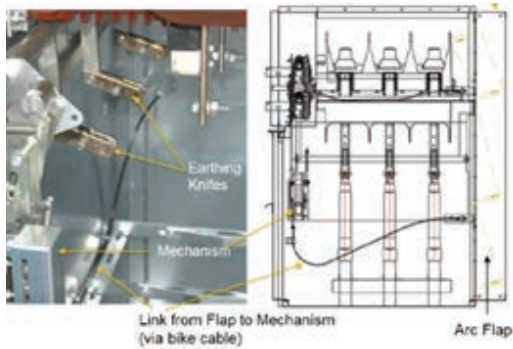
Typical configurations of NHP MV kiosks include:

- MV/LV kiosk substation
- MV modular AIS Switchgear (DF2) or RMU
- Cast resin or oil immersed transformer
- SMART Cubic LV switchboard with NHP/Terasaki circuit breakers and other LV equipment as required (UPS, HMI, Metering etc)
- Air insulated modular MV switchgear (DF2) in outdoor enclosures
- Cast resin transformers in outdoor enclosures with or without LV switchboard.

NHP SMART MV Kiosks are used in operations across various industries including:

- Australian Defence sites
- Australian correctional facilities
- Food manufacturing
- Oil & gas
- Mining & quarries
- Heavy steel fabrication
- Cement quarries
- Major infrastructure
- And many more.

# SMART MV kiosk substation key components



The Arc Killer in Network Switch Panel DF-A+ (in open position)



## Arc quenching system – the Arc Killer in the DF2+ switchgear panel

The Arc Killer is a unique worldwide patented, fast acting earthing switch activated by overpressure in the switchgear panel, connecting all three phases together and to earth, thus diverting the high energy arcing fault into the low energy metallic short circuit. The arcing fault will be then finally cleared by upstream CB as per the protection settings. The internal arcing fault is quenched by the Arc Killer in 48ms only, therefore the switchgear assembly is protected from arc flash damage, ensuring fast power restoration.

The Arc Killer is for the DF2+ series air insulated modular type switchgear and for the DR6+/DT6+ compact gas-insulated RMUs up to 24kV, where it quenches the arcing fault even faster in 25ms.

## NHP DF-2 & DF-2+ fixed air insulated switchgear with de-mountable vacuum CB

DF2 modular switchgear design accommodates custom-made combinations of MV cubicles:

- 2-24 kV up to 1250A & 25kA for 1s/3s
- Robust driving mechanisms & interlocks, easy to understand and operate
- Visible earth switch contacts for extra safety
- Remote isolation and remote earthing options
- 50 years design service life, specifically tested for harsh environments
- The super-swift Arc Killer arc quenching system in DF-2+ ensures highest level of personnel safety (IAC BFLR) and protects switchgear from arc fault damage.





## NHP cast resin transformers

NHP cast resin transformers suit a wide variety of applications in construction, mining, and utilities:

- 50 kVA to 20 MVA, up to 52kV
- Vacuum cast coil technology, proven over 30 years
- Clean with reduced maintenance and minimum fire risk - class F1
- Type tested to AS60076.11, complying with Minimum Energy Performance Standards (MEPS) AS2374.1.2
- Partial discharge level < 5pC, increasing service life by 3-5 years
- E3 environmental class, perfect for heavily polluted environments.



## Agile protection relays

MiCOM P40 Agile protection relays provide an integrated solution for the complete protection, control and monitoring of electrical power systems and are ideal for new-build and retrofit alike.

- Powerful logic, protection and communications
- Cost effective IEC 61850 and DNP3 redundant Ethernet
- NERC compliant cyber security
- Fully withdrawable case.

Easy retrofit solutions for legacy relays including fast plug-in replacement of K-type and CDG relays.



# SMART Main Switchboards



\*Demonstration switchboard shown. Actual look and layout will depend on customer specification.

Built with the CUBIC modular system, SMART Main Switchboards use core SMART technologies to secure maximum power availability. NHP's extensive network of 120 CUBIC accredited expert switchboard builders can design and build an IEC / AS/NZS 61439 test verified SMART Switchboard to meet your power critical application needs. SMART Switchboards 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.



## Unmatched circuit breaker protection

### Terasaki TemPower 2 Air Circuit Breakers (ACBs)

Terasaki TemPower 2 Air Circuit Breakers (ACBs) have a unique 'double break' modular contact mechanism, which provides full selectivity to the full system fault level, guaranteeing the continuity of the power supply.

Additionally, the TemPower 2 ACB provides valuable energy metering data and critical health analytics using the integrated '3C' overheating protection technology.

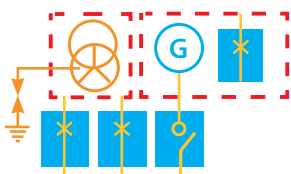
In 2020, NHP will be offering a remote racking solution.



## Visual safety

### RemLive positive isolation indicator

The REMLIVE device provides users with visual warning indicators to highlight when a circuit is live, providing instant visibility when something is wrong or unsafe within a switchboard.



Closed transition ATS arrangement

## Maximum power stability

### Closed transition Automatic Transfer Switch (ATS)

NHP's closed transition Automatic Transfer Switch system uses Terasaki TemPower 2 ACBs and a Socomec Load Break Switch under the control of a Woodward DTSC 200 relay to perform the switching and protection function.

The design includes a maintenance bypass ACB, which provides extra redundancy and maximum power availability and switchgear serviceability.

The NHP/Terasaki ACB closed transition ATS has been accepted by and is the preferred choice for many of Australia's major power utilities.



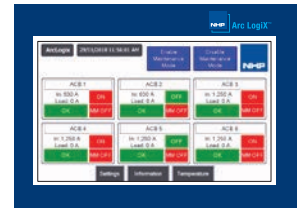
## Maximum arc flash safety

### Arc LogiX CS system and Arc LogiX OPTICAL relays

The Arc LogiX™ product range consists of two complementary technologies, the SMART touch screen-based system called Arc LogiX™ CS and the optical arc flash relay called Arc LogiX™ OPTICAL. Both technologies should be installed into an LV switchboard to provide maximum arc fault protection.

#### Arc LogiX™ CS

The Arc LogiX™ CS is a SMART touch screen-based system that works by implementing a temporary ‘reduced arc flash energy’ protection setting ‘maintenance mode’ within the incoming Terasaki TemPower 2.



#### Arc LogiX™ OPTICAL RS

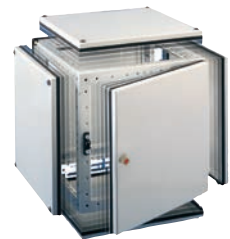
The Arc LogiX™ OPTICAL RS is a light reactive arc flash relay which limits arc fault damage by using fibre optic light sensors to rapidly detect an arc fault event and trip the Terasaki ACB. The Arc LogiX™ OPTICAL RS best suits multiple zone arc protection applications.



## Customisable CUBIC Modular switchboard enclosure system

The CUBIC Modular switchboard system is independently tested for verification to IEC61439 and is applicable to AS/NZS61439 ‘Original Manufacturer’ verification requirements.

NHP train, accredit and technically support over 120 CUBIC assembly manufacturing partners based in Australia and New Zealand through a dedicated CUBIC global training program.



The CUBIC Modular system has also passed arc fault containment testing for AS/NZS 61439 Annex ZD and the more demanding IEC/TR 61641.

## Energy management and predictive maintenance

### Multifunction power meters

Energy metering is the essential component to understanding your energy consumption and power quality and providing highly accurate important information for operators to identify consumption trends and take corrective actions.



### Centralised energy and temperature reporting system

The UWP 3.0 is a powerful solution for monitoring, centralising, storing and reporting on the SMART switchboard’s energy usage and predictive maintenance temperature indicator data. It has the ability to centralise hourly trending data from a wide range of SMART devices (eg meters and Terasaki ACBs) locally or on a remote server, making it the ideal solution for meeting the requirement of the NCC 2019, part J8.3(c).



# SMART Power Quality



Modern solid state technology 'non-linear' loads draw current non sinusoidally, creating potentially damaging harmonic disturbances on the network. NHP's cutting edge Static Var Generators and Active Power Filters can mitigate the effects of these harmonic disturbances.

## Static Var Generator

The Static Var Generator (SVG) is the newest technology on the market used to correct power factor issues. Utilising solid state inverter technology, the SVG delivers instantaneous power factor correction to the grid by injecting current within 20ms. With no risk of over-correction or under-correction, the SVG can correct the power factor of the system to  $> 0.99$  under all load conditions.

Furthermore, the SVG can correct the power factor of both leading and lagging loads and can correct unbalanced networks.

## Active Power Filters

Active Power Filters (APFs) are the premier solution available today for mitigating harmonic issues. APFs are able to mitigate harmonics up to the 50th order with a harmonic filtering rate up to 98%. Furthermore, the APF can also correct power factor and unbalanced three phase networks.

It is high efficiency ( $>97\%$ ), has low losses ( $<3\%$ ) and is fast (total response (20ms), making the APF adaptable and ensures network stability by providing infinite impedance to the grid.



## Hybrid solutions

In many applications there is a requirement to both correct power factor and mitigate a level of harmonics which are present. A simple solution is to combine the Static Var Generator and the Active Power Filter modules in a single cabinet which sits next to the SMART CUBIC Switchboard.

The SVG will work to correct the bulk reactive power requirements of the system while the APF focuses purely on harmonics, with both module types able to balance the load. This harmonious solution is easy to implement, economically viable, and provides a complete, single tier solution to the main power quality issues faced on site.



## Modular design

With a modular design, the units are highly adaptable and configurable.

## A complete PQ solution range

- Wall mount 50kVAr SVG and 50A APF options
- Floor standing options up to 700kVAr (SVG) and 500A (APF) in a single cabinet
- IP30 and IP54 options available
- RAL2000 and RAL7035 colour options
- Hot swappable modules available upon special request.

# SMART Critical Load Transfer Switch

## with No Break Maintenance Bypass



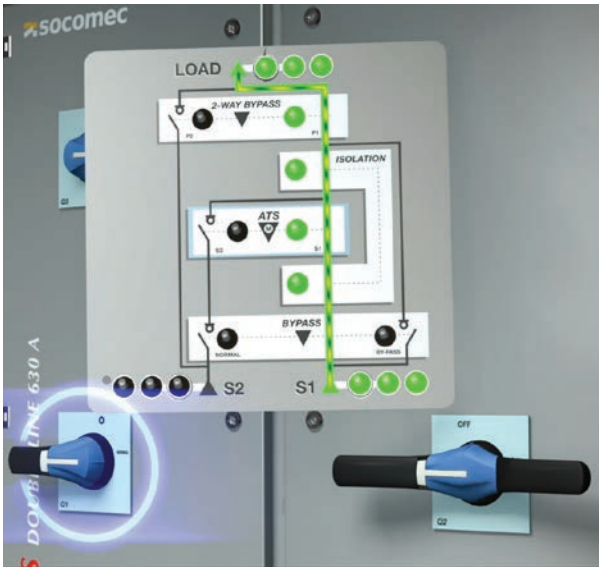
The Socomec enclosed Automatic Transfer Switch with Bypass (ATS+BP) has been developed to ensure a secure power supply for absolutely critical loads such as those found in hospital operating rooms, telecommunication exchanges, intensive farming temperature control systems and Tier 1 data centre server HVAC systems.

The ATS+BP is an open transition design and is often used as a complementary technology in applications that utilise a 'closed transition' ATS topology, such as that shown in the NHP SMART Switchboard. It is also ideal for retrofit applications, as it is delivered fully assembled in an enclosure allowing for quick deployment and installation next to an existing switchboard.

The integrated bypass switch allows for the full isolation of the enclosed ATS unit, facilitating safe inspection, servicing and testing during maintenance periods. When isolating the enclosed ATS unit by switching into Bypass mode, no power loss occurs to the load (No Break Bypass).

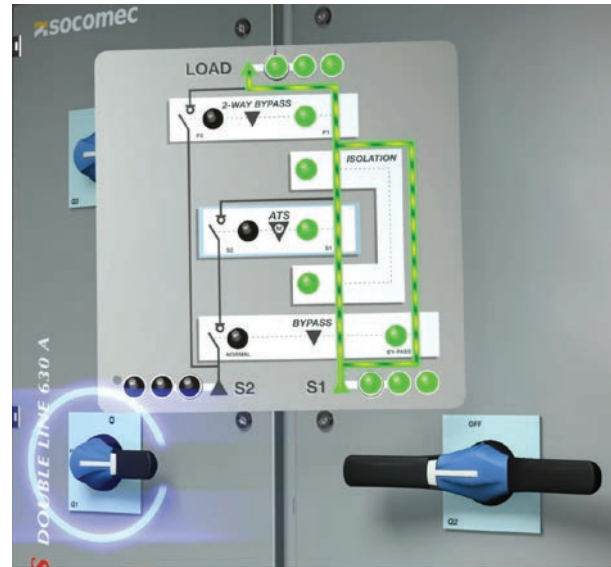
### A complete 'standalone' enclosed transfer switch solution

- Independently test verified to IEC61439-2 for guaranteed performance
- All the functional units are operable individually to ensure full redundancy
- Manual transfer to Bypass position without breaking the load (no blackout)
- Isolation between the automatic transfer switch sources and load
- For double line bypass, no break while bypassing ATS from either the normal or the backup power source
- Front display for easy access to configuration and measurement of the transfer switch
- Bypass solution is IP2X open door.



### Standard operation of the enclosed ATS

Normal operation with the load being powered from power source 1 through the enclosed ATS.



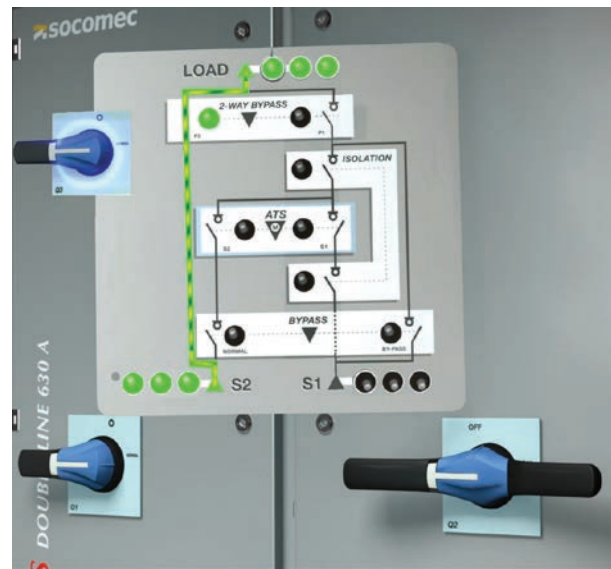
### Bypass switch closed with parallel connection

Switch from 'Normal' to 'Bypass' mode creates a parallel connection. The load is now being powered via the enclosed ATS and the Bypass switch ensuring no loss of power.



### Bypass switch closed and enclosed ATS isolated

Switch isolator and the enclosed ATS is fully isolated. There is no loss of power to the load. The enclosed ATS can now be inspected for off load testing or maintenance purposes.



### 2-way bypass with emergency bypass switch closed

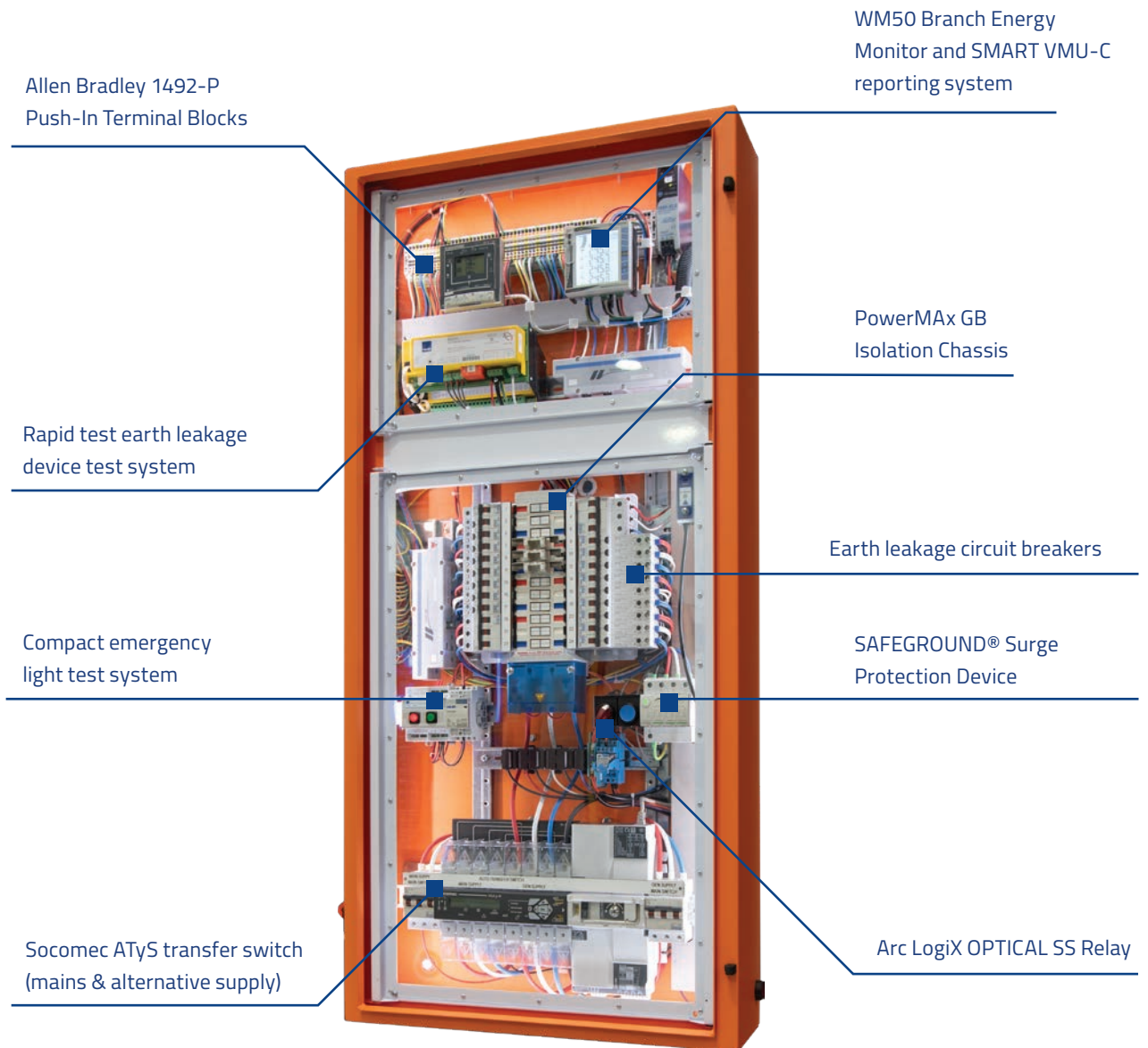
Switch the 2-way bypass to 'Emergency', which will fully isolate the enclosed ATS and directly connect the alternative supply directly to the load. This adds an extra level of redundancy, although a momentary power break will occur.





# SMART Panelboard

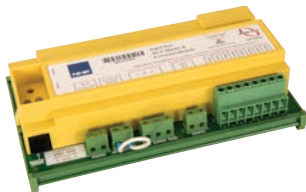
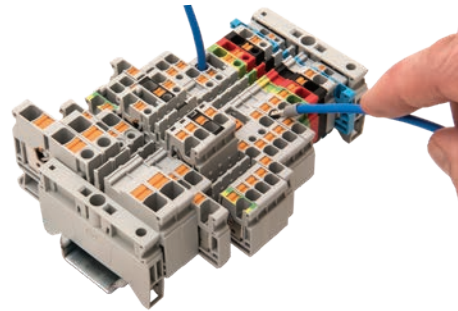
SMART Panelboards are built using NHP's new CONCEPT enclosure design, which has undergone testing and is manufactured to comply with the requirements of AS/NZS 61439. Packed with connected SMART technologies, SMART Panelboards provide energy consumption and switchgear health analytics which can be accessed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



## Fast cable connections to minimise installation time

### Allen Bradley 1492-P Push-In Terminal Blocks

For speed of fit off, all of the internal device control power, communications and relay signaling are terminated into a convenient push-in terminal row. This wiring arrangement also enables ease of ongoing maintenance and improves long term reliability.



## Regulatory testing of critical devices and systems

### Rapid test earth leakage device test 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.



### Compact emergency light test system

Emergency Lighting Test Units provide a safe, simple and time efficient testing method to comply with the six monthly 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 the batteries recharge.



## Backup power connection and monthly generator testing

Socomec ATyS transfer switch (mains & alternative supply)

The 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 can be used as the main incoming isolator.



## Energy management and predictive maintenance

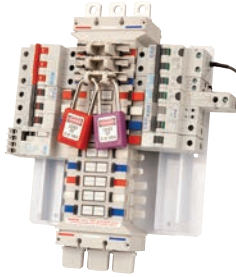
WM50 branch energy monitor and SMART VMU-C reporting system

The WM50 is a multichannel power analyser 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 module.

The VMU-C is an energy management controller, which is the ideal webserver-based solution for monitoring small to medium size installations. The VMU-C gathers data from SMART devices such as energy meters and SMART Terasaki circuit breakers, facilitating energy optimisation analysis and reporting. The VMU-C unit can also measure the internal temperature of the SMART Panelboard for predictive maintenance analytics.



## Maximum safety - arc flash, earth leakage and surge protection



### 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.



### Earth leakage circuit breakers

With the AS/NZS3000 wiring rules now mandatory in Australia and New Zealand, NHP's range of earth leakage circuit breakers (RCBOs) provides a higher level of protection with Type AC RCD/RCBOs through to Type A RCD/RCBOs, which allow for protection against common rectified loads.



### SAFEGROUND® Surge Protection Device

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 indicator which visually shows the condition of the path to ground (which is essential for correct operation).



### Arc LogiX OPTICAL SS 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.

# SMART Distribution enables secure access to energy and maintenance temperature data

## UWP 3.0 – central interface for energy monitoring and control

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

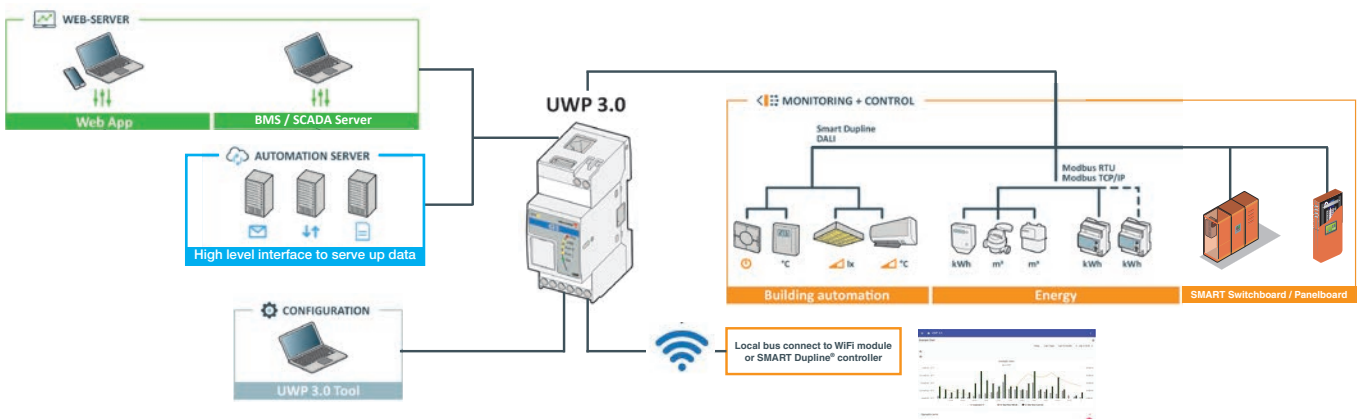


## A complete energy management solution

- Centralises energy and temperature monitoring and control devices
- Can customise dashboard to view data that is most important to you
- Has no data loss with an on-board storage capability
- Reduces installation time and space
- All in one datalogger, controller, gateway and webserver.

## UWP 3.0 integration of NHP SMART Distribution

NHP SMART Switchboards and SMART Panelboards serve key energy management data and critical switchgear health analytics to the UWP 3.0. This data is centralised and stored within the UWP 3.0 for reporting uses.



# Critical building SMART Distribution topology for maximising power availability and reducing failures

A SMART Distribution power network that includes a main switchboard featuring a closed transition ATS and the critical load Socomec ATS + Bypass provides end users with capability to minimise power disruptions while optimising the initial capex and the ongoing opex costs. Furthermore, by incorporating NHP's 3C overheating protection technology, it is possible to move to a condition-based maintenance program for critical switchgear.

The figure below shows a typical SMART Distribution topology for use in critical buildings such as hospitals, airports, financial institutions and data centres.

## 3C condition-based switchgear over heating protection technology

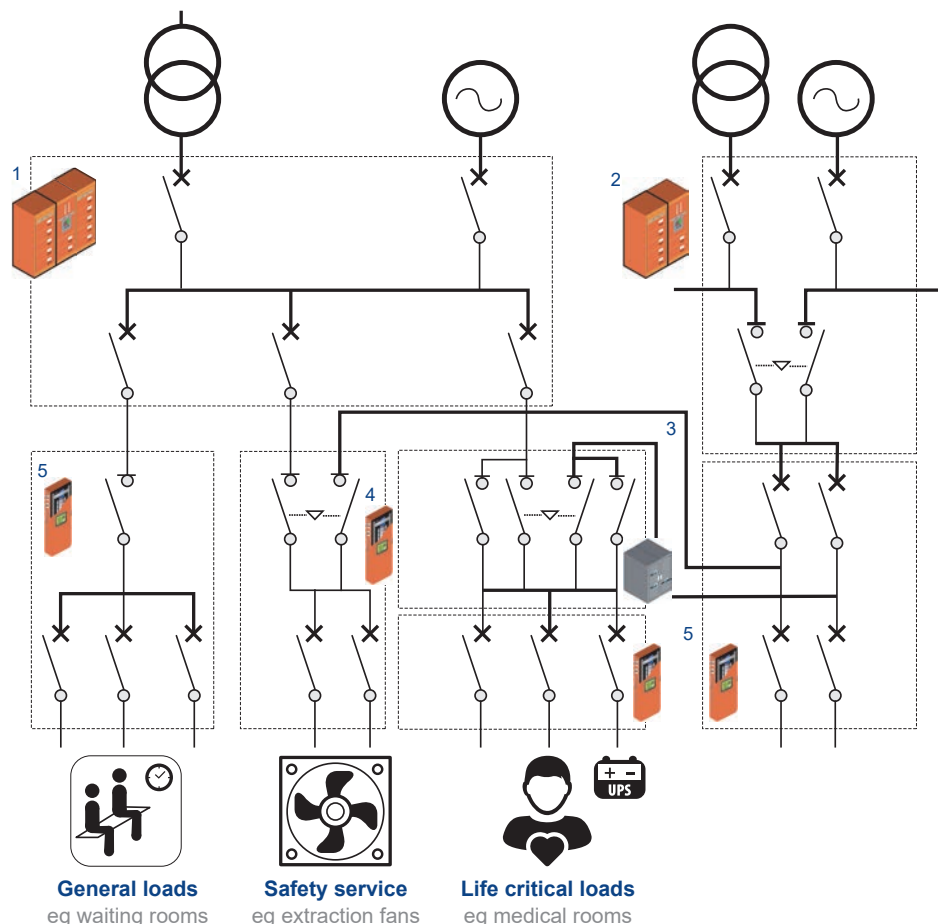


Over time, neglect of electrical infrastructure can cause significant failures due to switchgear contact corrosion, loose busbar connections and blocked air ventilation, inevitably leading to overheating and fire hazards.

To help solve this problem, Terasaki ACBs can be fitted with an integrated condition-based temperature monitoring system. This fully integrated temperature condition monitoring system continually checks for overheating abnormalities that could be due to an issue with the main Conductors, Contacts and Connections of the ACB. This overheating protection system is called '3C Technology'. Real time temperature data can be exported, stored and graphically visualised using the UWP 3.0.

## Typical SMART Distribution topology for a critical building such as a hospital

1. SMART Switchboard with Closed Transition ATS
2. SMART Switchboard with Open Transition ATS
3. Critical Load with Bypass ATS
4. SMART Panelboard with ATS
5. SMART Panelboard







# SMART services and asset management technologies

NHP offers an extensive range of service solutions to suit a wide range of needs. Whether your need is for installation and commissioning, migration, emergency breakdown or lifecycle services, NHP has a national network of technicians throughout Australia and New Zealand in order to quickly respond to your needs.



## Preventative maintenance

All products have a finite lifespan. When products do fail, it can lead to costly repairs or production losses. Using 3C overheating protection technology, this service makes it possible to predict failure before it occurs, ultimately extending the lifespan of products. Our service team can discuss your site requirements with you and develop a suitably structured maintenance program to suit your budget.



## Commissioning and start-up

Our field commissioning and start-up services are available to assess application demands and configure products in accordance with your project requirements. Pre-commissioning and witness tests can be accommodated prior to dispatch.



## Modernisation: retrofits and upgrades

With retrofit solutions available to facilitate the installation for a range of products and brands, as well as customising solutions to suit specific requirements, NHP can work within your existing switchboard environment to provide a cost effective solution. The NHP retrofit solutions have been designed according to relevant Australian standards and recognised industrial practices.



## Emergency breakdown assistance

NHP service provides you with 24/7/365 protection, ensuring that your assets continue to work for you. Our service technicians and engineers are on standby and are here to provide you with rapid assistance if required.



## Training

In addition to our comprehensive range of formal classroom training sessions, NHP technicians and engineers can provide private one on one training at your site. Our field service training capability includes equipment operation and maintenance related to your site install base.

# Air Circuit Breaker services and switchboard modernisation

## | The ACB Total Care Package

To help support customers with their current challenges, NHP have created a new comprehensive service package for NHP's Terasaki Air Circuit Breakers (ACBs) and the wider NHP range of products called 'The ACB Total Care Package'.

### Yearly service

NHP's Service Team will perform an on-site predictive and preventive maintenance check according to Terasaki's (the manufacturer) specifications on your ACBs. NHP is the only authorised Australian and New Zealand Terasaki distributor and service agent, with our service team specifically trained by Terasaki to deliver industry-leading services. NHP also services MCCBs, PFCs and AHFs.

### 24 x 7 emergency service support

The ACB Total Care Package gives you optional round-the-clock access to our team of service technicians and provides prompt and responsive assistance to ensure an efficient and reliable operation.

### Extended warranty

At the conclusion of every service of the ACB Total Care Package, the warranty is extended by 12 months for a duration of up to 7 years. This offer is also optional for other NHP products.

### Access to emergency replacement ACBs

NHP's ACB Total Care Package gives customers optional access to emergency replacement ACBs, minimising costly downtime and allowing for a speedy change of breakers within minutes. NHP's service technicians can quickly service the original breaker, without the need for an unplanned shutdown.

## | NHP Service can retrofit 'remote racking' to Terasaki AR ACBs

To help reduce the danger from an arc flash, in conjunction with global circuit breaker manufacturer Terasaki, NHP has developed two different types of remote racking options for the Terasaki AR air circuit breaker, due for release in 2020.

### External mount type remote racker

NHP's external mount type remote racker system is designed to be temporarily mounted to the face of the Terasaki AR ACB during the racking operation. The system is controlled by a wire mounted pendant. This device is best suited to installations that require infrequent racking, typically commercial or utility type applications.

### Internal mount type remote racker

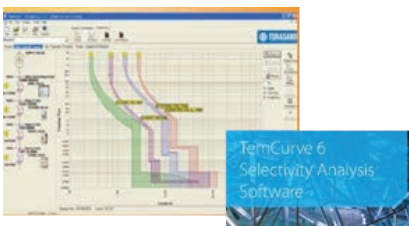
NHP's internal mount type remote racker system is designed to be permanently installed within the ACB body in a similar way to other accessories. The system can be controlled by a hardwired control station via integration into a site BMS / SCADA. This device is best suited to installations that require frequent racking, typically heavy industrial or mining type applications.



# NHP SMART Software

## Optimising engineering designs

NHP offers a suite of software tools and 3D product models to ensure easy optimisation of engineering designs.

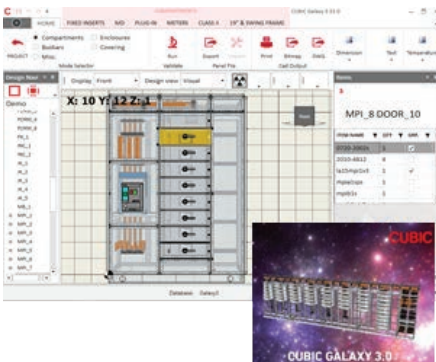


### TemCurve 6 circuit breaker selectivity package

TemCurve 6 (TC6) is a circuit breaker selection software for selectivity and cascade applications. Featuring the full range of TemPower 2 ACBs, TemBreak 2 MCCBs and DIN-T MCBs, consultants and LV protection engineers can conduct basic protection studies.

TC6 is highly flexible, providing:

- configurable load and fault currents
- selectable cable and transformer details
- selectable print report options
- the ability to add user-defined curves
- access to technical data sheet PDFs for product.



### CUBIC Galaxy SMART Switchboard design package

The Cubic Galaxy 3 software was specially created by CUBIC for their CUBIC Partners as an intuitive, time-saving solution to optimise resources when designing electrical switchboards.

For speed and accuracy, components are inserted in groups, without the need to enter items individually. Heat rise calculation report to IEC 60098 and electronic purchase orders of the bill of materials can be easily created.



### XPD panelboard design package

NHP's Manufacturing team use the XPD 3D software design package to quickly and accurately design custom panelboards. While XPD is currently only used internally within NHP, in the future this software package will be adapted for customer use.

# Building information modeling and Revit 3D product models

Building Information Modeling (BIM) is an intelligent 3D model-based process that gives architecture, engineering, and construction professionals the insight and tools to more efficiently plan, design, construct and manage buildings and infrastructure.

To support customers applying BIM, NHP has created a number of 3D SMART 'Revit' product models. Revit is a single application built for BIM with features for architectural design, MEP (mechanical, electrical and plumbing) and structural engineering and construction. Revit and other applications made for BIM help designers to design, simulate, visualise and collaborate in order to capitalise on the advantages of the interconnected data within a BIM model.

## SMART Concept Panelboard

NHP has created 3D Revit models for the Concept range of panelboards including:

- Concept One
- Concept Plus
- Concept Premier
- Accessories modules
  - » Plinths
  - » Gland-plates
  - » Rain-hoods

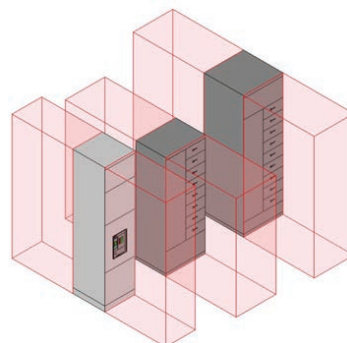


## SMART CUBIC Switchboard

NHP has created 3D Revit models for a range of the CUBIC switchboard designs, making it easy to quickly size a SMART Switchboard for a proposed switch room layout.

NHP/CUBIC Revit models under development include:

- Out-going MPI tier
- Incoming ACBs tier
- DOL motor starting tier
- Power factor correction tier
- MCCB sub distribution tier





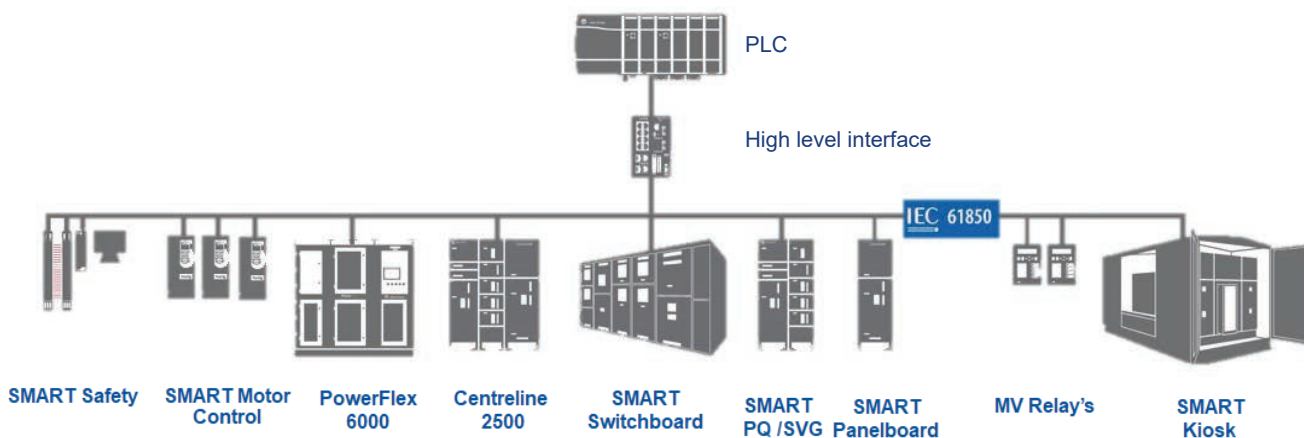


The Hub is a purpose built, specialist demonstration and training facility located at NHP's head office in Melbourne. The fully interactive displays have been constructed to replicate typical site installations, facilitating hands on demonstrations and customer training.

The Hub showcases NHP's fully connected SMART Distribution, SMART Motor Control, SMART Safety and Rockwell Automation portfolios, all integrated and communicating via an Ethernet/IP network. Rockwell Automation's FT View network is used to visualise data from all SMART industrial devices on a single integrated platform.

## Initiative technologies on display at The Hub include

- MV SMART Kiosks / Switchgear / Transformers
- SMART CUBIC Switchboard System
- SMART Concept Panelboard System
- Terasaki Air Circuit Breakers
- 3C over temperature protection technology
- Arc Flash mitigation technologies/Arc LogiX System
- SMART Power Quality Solutions
- Open and closed transition transfer switches
- Energy management and reporting solutions
- Safety and sensor products
- MV and LV drives
- Intelligent Motor Control centres (MCC) which include motor protection, soft starters and drives.



## Nationally recognised MV and HAE training at The Hub

The NHP Hub also hosts nationally recognised and accredited High Voltage Switching courses and Hazard Area Equipment (HAE) courses, which are delivered by Competency Training (CI) several times per year. For booking enquiries for the next HV Switching or HAE course, please call **1300 NHP NHP**.

To experience a variety of practical demonstrations and learning activities in a safe and controlled environment, please call **1300 NHP NHP** or contact your NHP sales representative to arrange a tour of the NHP Hub.

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

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