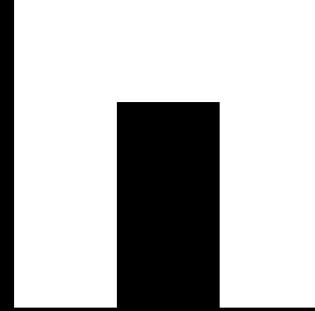
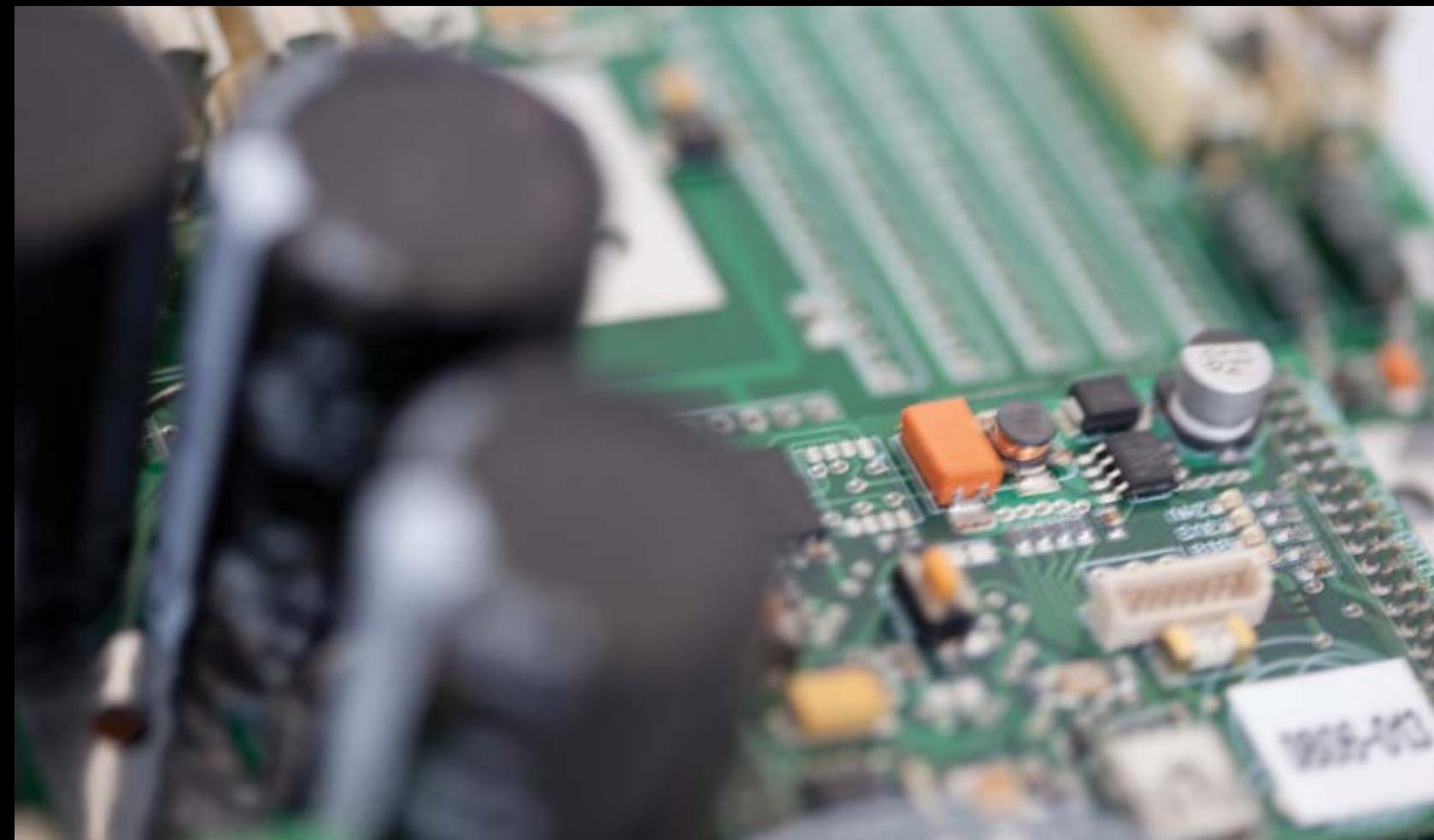


NEPEAN
Power

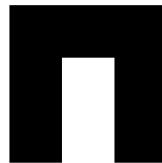


TM

Electronics



NEPEAN Power



NEPEAN
Power
TM

NEPEAN Power is a market leader in the design and manufacture of innovative, cost effective and quality electronic solutions for Mining and Industrial applications.

NEPEAN Power was originally established in 1994 to provide mining and industrial electrical solutions. Our Electronics department, formerly M.I.Electronics Pty Ltd, was founded in 1999 for the purpose of providing custom, fast, reliable and economic electronic solutions to support NEPEAN Power's products.

Since its establishment, NEPEAN Power's Electronic Department has significantly progressed its customer base and now offers electronic solutions to a diverse range of clients nationwide.

NEPEAN Power's extensive experience in engineering and design, as well as the quality development of electronics, allows us to effectively and efficiently provide solutions that offer increases in safety and productivity for your workplace.

NEPEAN Power is 100% Australian owned and operated, and is a subsidiary of NEPEAN. NEPEAN is one of Australia's leading privately owned engineering, mining services and industrial manufacturing groups with unique capabilities to deliver high value, innovative and sustainable solutions for the world's leading construction, transport and mining businesses. Established in 1974, NEPEAN operates in more than 8 countries, employing more than 1,100 staff.



VISION

To be the chosen partner for high value, innovative and sustainable solutions for the world's mining companies.

MISSION

Help create and support growth across our industry sector and deliver on the business potential of our key customers and stakeholders.

We create solutions that exceed customer expectations.

We will achieve this by challenging current thinking to deliver integrated, responsive and innovative solutions and services, supported by best practice in safety, design, project management and strategic partnerships.

VALUES

We will always value our employees, our customers, the environment and the society we operate in by acting responsibly, ethically and with integrity, while at the same time remaining innovative and entrepreneurial.

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Research & Development Initiatives

NEPEAN Power understand the importance of plant reliability, especially in a mine or industrial environment. The ability to control, monitor and protect machinery of high importance and use ensures a continual level of site safety and productivity is maintained.

To ensure NEPEAN Power remain at the cutting edge of electronic technology, a considerable amount of time and resources is allocated to Research and Development.

Our extensive staff knowledge and experience in Electrical, Electronics and Computer Engineering ensures we continue to provide a high level of technologically advanced solutions for our clients.

EPOCH Protection Series

The need to supply advanced and reliable electronic protection systems that ensure safety in the minerals sector has seen the creation of the NEPEAN Power EPOCH range of devices.

Description	Code	Part No
Earth Leakage Relay	EL1	Z0309
Overload Relay	OL1	
Earth Continuity Relay	EC1	Z0310
Protection System	PS1	Z0333
- Power Interface	PI1-415 PI1-1K PI1-3K3	Z0334-415 Z0334-1K Z0334-3K3
- Control Interface	PC1	Z0335
- Memory Interface	PM1	Z0337
- Display Unit	PD1	Z0340
- Remote ID Module	PR1	Z0336

The NEPEAN EPOCH Protection System is the new generation in providing complete protection for Electrical equipment in mining and industrial environments. Advanced Microprocessor controlled technology ensures high accuracy and reliability, exceeding Australian Standard requirements and offering suitability for use in SIL 2 systems.

Power Interface



The EPOCH Power Interface performs the measurement and analysis of the power delivered to the load. The analysis results are transmitted to the control interface via high speed fibre optic link.

Control Interface

The Control Interface provides facilities for the required low-voltage control wiring to be connected for each outlet protected by the system. The unit is connected by a fibre-optic cable to the Power Interface, and by a high speed digital link to the Memory Interface.

As all control wiring for the outlet is grouped to this unit, the complexity and volume of wiring is greatly reduced. In combination with the fibre-optic connection to the Power Interface, this architecture provides extremely high immunity to interference, and excellent reliability.



The Control Interface houses the Earth Continuity and Machine Identification functionality. As with all EPOCH equipment, these functions are achieved using highly refined algorithmic techniques and cutting-edge hardware. This technical sophistication provides the utmost assurance of reliable performance, absolute reliability and freedom from false tripping.

Memory Interface

The Memory Interface provides a database of protection parameters for equipment that can be protected by the system. The unit additionally provides a single network connection point for all protected outlets, removing the need for individual Ethernet connections per outlet. The control wiring connections to this unit are those that are relevant to the full group of outlets, for example where a single Main Circuit Breaker is used.

The Ethernet interface of the unit provides support for EtherNet/IP, natively supporting commonly used PLC and HMI equipment. HMI devices, such as the Allen-Bradley PanelView, can be integrated seamlessly with the EPOCH system, and ready-made HMI screens for common HMI types are available for easy integration and guaranteed functionality.



Display Unit

The EPOCH Intrinsically-Safe Display is a physically smaller, yet full-featured HMI device, for use with the EPOCH system. High resolution, full colour graphics allow intuitive operation, even by those who are not familiar with the system already.

The display is eminently suitable for location in Hazardous Areas (Group I), ensuring ease of operation and reducing the need for valuable Flameproof Enclosure space. All wiring to the display is Intrinsically Safe, and does not require the inclusion of barriers external to the EPOCH system

Remote ID Unit

The Remote ID Unit is used to identify a piece of machinery to the EPOCH Protection System.

It also provides vital information back to the protection system such as bearings and gearbox temperature status. Facility for remote Start is also handled by this unit.



EPOCH System Features

SIL Rated Functions

The EPOCH Protection System supports a diverse range of safety functions, in full compliance with the AS 61508 and AS 62061 Functional Safety standards. Equipment using the EPOCH Protection System can achieve up to SIL 2 on specified safety functions, including all AS 2081-10 supply removal on overload, short-circuit, earth leakage, voltage and current imbalance and under/over-value, phase rotation, SIL Rated Pilot Connected E-Stop and numerous other functions.

Integrated Live Line Indication

The system has built in Live Line Indication on the Power Interface which eliminates the need for additional components and wiring.

High Voltage Insulation ("Megger") Test

EPOCH equipment achieves industry best practice in the design of its measurement subsystems. This high level of performance is particularly reflected in the accuracy of the high voltage insulation test function – over the wide range of 10kΩ to 100MΩ, accuracy of better than 1% is guaranteed, and better than 0.3% is typical.

Bulletproof Reliability

The EPOCH Protection System achieves the maximum possible reliability, durability and immunity to interference. In applications where other systems have produced costly false-trips and erratic behaviour (such as with high-powered VVVF drives), the EPOCH Protection System performs flawlessly. The EPOCH has a fibre-optic connection between the high-power half of the system and the control interface. This optical link ensures that no electrical interference can disrupt critical communications or intrude into sensitive control circuits causing malfunction, damage or danger.

VVVF Suitable

The latest technology and design techniques have been applied to develop a system that is compatible for use where VVVF drives are operated.

Real Time Monitoring

The nature of the system's communications Architecture has been developed with the end user in mind. The high-speed, high-reliability optic fibre technology is used to deliver Real Time information to the user on all aspects of the system. Data such as phase voltage, leakage currents, power factor, earth conductor integrity and vital machine information can be monitored live as well as using the trending feature to look back at trends.

Full Real-Time Data Logging

As well as providing full real time monitoring, the system is capable of recording this live data over a period of time for future reference. Troubleshooting is made simple by the ability to extract and recreate the full live sequence of events that produced a trip, warning or any other event that may be of interest. This information is recorded and presented in a way that comprehensively assists in predicting imminent failure of cables and equipment.

Parallel Outlet Support

The NEPEAN Power EPOCH range has full parallel outlet support including pre-energisation, test coordination and trip synchronization. The full integrated support offered by the units include earth leakage, overload, insulation test, earth fault lockout and phase transposition detection.

Fibre Optically Coupled

The high data rates and unsurpassed noise immunity of Fibre Optics is employed by the system to provide an extremely reliable and ultra fast communication medium between the key components, greatly reducing the effects of electrical interference and producing a reliable system.

Full Colour HMI Screen - Colour Interface

The HMI also uses the latest in high resolution, full colour, LCD technology delivering unsurpassed visual indication, along with intuitive navigation, providing the operator with the simplest and most efficient experience possible.

Also in our range of EPOCH Protection devices are the Earth Leakage Relay, Overload Relay and Earth Continuity Relay. All units offer outstanding protection, safety and reliability.

Earth Leakage Relay

The NEPEAN Power Earth Leakage Relay from the EPOCH range provides protection in the event that leakage of phase current to earth is detected, in excess of configured magnitude and duration, and de-energises the equipment under protection.



Overload Relay

The NEPEAN Power EPOCH Overload Relay provides protection of a conventional nature, by preventing damage to equipment and cabling from operating under excessive overload conditions. Our



Overload Relay also supports short circuit protection at a configurable multiplier to the overload setting.

Earth Continuity Relay

The EPOCH Earth Continuity Relay monitors the pilot-earth loop to ensure the integrity of the earthing in a supply cable to connected equipment. The Earth Continuity Relay will only energise the relay outputs provided that the series resistance measured on a supply cable is <45Ω, and the shunt resistance is >1kΩ. Whenever the supply cable pilot-earth resistances are outside specification, the device will de-energise the relay outputs, removing power from, or preventing the application of power to, a supply cable.



EPOCH SYSTEM FEATURES

- Earth Continuity
- Lockout Earth Fault
- "Frozen" Contactor
- Contactor Loss of Vacuum
- High-Voltage Insulation
- Earth Leakage
- Short Circuit
- Overcurrent and Undercurrent
- Overvoltage and Undervoltage
- Phase Voltage Loss, Rotation Reversal and Current Imbalance
- Machine/Motor Repeated Re-Start Protection
- Machine/Motor Temperature Monitoring
- Machine Identification / Communication
- Fan Interlocking
- Local and Remote Control of Outlet, including Emergency Stop



Monitor, Protection & Control

NEPEAN Power specialise in supplying and developing electronic solutions designed to monitor, protect and control mining and industrial equipment.



MOTOR CONTROL

MachineWatch

The MachineWatch (X0270) is a complete Motor control safety system in one box. NEPEAN Power's MachineWatch is suitable for Coal Mines Auxiliary Fans and other motor applications that require constant monitoring of vital functions.

The MachineWatch is capable of monitoring more than motor vibration, temperature, airflow, gas content, voltage and current. Simply plug and play with any other 4-20mA compatible sensor and you can monitor whatever you like.

NEPEAN Power's MachineWatch can safely shutdown the motor in unsafe conditions such as Overload, Undercurrent, Phase rotation/loss, and any other sensor you care to connect. Up to 100 trip events are stored in history within the unit and retained when power is removed. The internal record keeps track of start/stop times as well as the service run time. Both live and history information is available through either ModbusTCP or EthernetIP connections.

The X0287 Power Supply is an improved design 24V Power Supply that allows the MachineWatch to engage an Anti-Windmill Contactor up to 12 seconds after power is removed. The Power Supply also provides a secondary output to power 4-20mA sensors.



X0270 MACHINEWATCH

Neutral Earth Resistor Monitor

NEPEAN Power's Neutral Earth Resistor Monitor has been designed to monitor the integrity of the Neutral Earth Resistor and its connection between the neutral point of the Transformer and earth for IT Earthing Systems. Our Neutral Earth Resistor Monitor will detect an open circuit or short circuit neutral resistor or excessive voltage at the neutral point with respect to the earth connection. If the measured parameters are outside of the set limits, the Neutral Earth Resistor Monitor relay provides a trip.

The AS/NZS 4871 Standard states "where an earth-fault limitation device is used, a facility shall be provided to test the state of the earth-fault current limitation circuit." NEPEAN Power's Neutral Earth Resistor Monitor complies with the Standard.

Our Neutral Earth Resistor Monitor has a proven design compatible with VVVF Drives. It includes Din rail mounting and a high impact PVC Housing. The device is available for 415V, 1,000V and 3,300V Power Systems.



X0327 NERM

CONVEYOR CONTROL

Eddy Current Controller

NEPEAN Power's Eddy Current Controller has been designed to manage the dynamic control of a Conveyor Winch system.

NEPEAN Power's Eddy Current Controller has 4-20mA input (from PLC) to control the coupling force applied by the Eddy Current Coil. It also has 4-20mA output for feedback loop of the current signal used to control the Coil. Our Eddy Current Controller performs open, short or leakage current diagnostics tests on the Coupling Coil for correct and safe operation.



X0314 EDDY CURRENT
CONTROLLER

Boss Coupling Controller

The NEPEAN Power Boss Coupling Controller has been designed to efficiently provide a precise method for controlling the Boss Coupling from a PLC. The Boss Coupling and the controller form the perfect combination to control the smooth acceleration of any Conveyor system. An integral part of the system is the unique error correcting algorithms which allows torque to be applied to achieve the optimal speed/time curve for the Conveyor application and load.



X0060 BOSS
CONTROLLER

Belt Slip & Speed Monitor

NEPEAN Power's Belt Slip and Speed Monitor is a user configurable, purpose built Conveyor Belt Slip and Speed Protection Module.

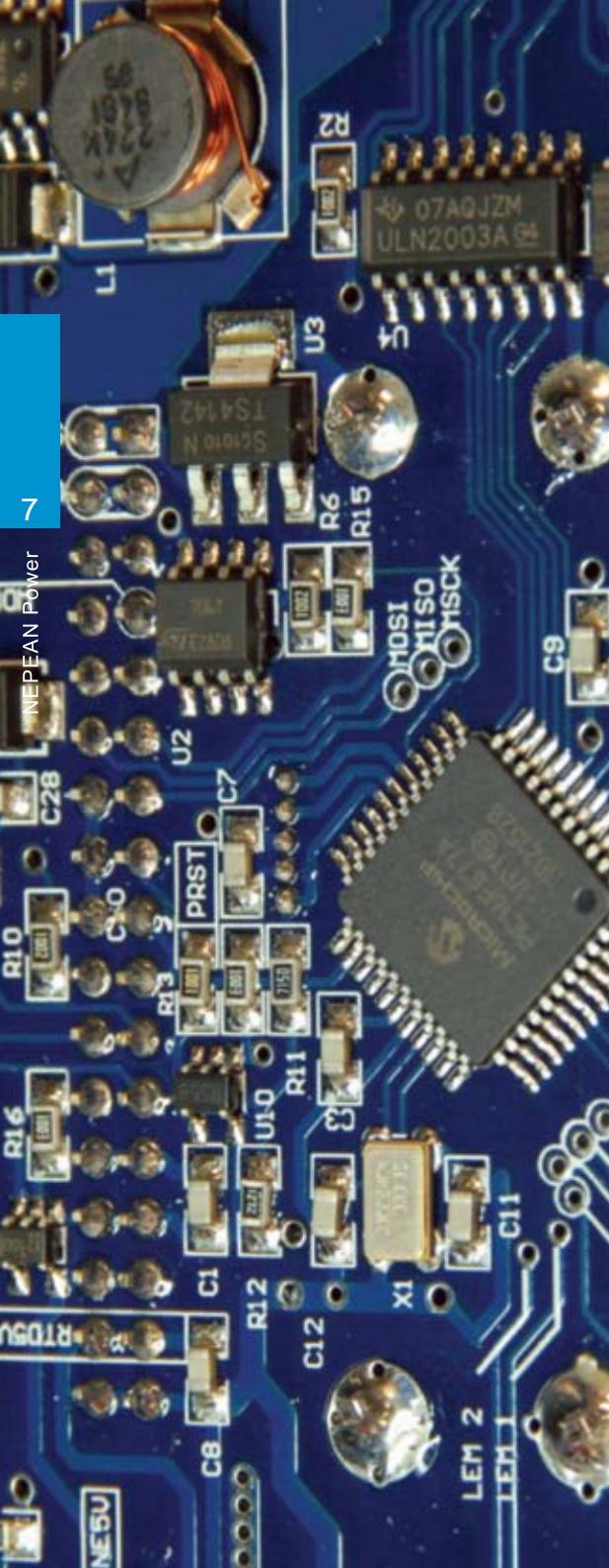
NEPEAN Power's Monitor features the following;

- Detects slip between a driven roller (input S1) and two other rollers (inputs S2 & S3). Or the slip of one roller from its normal run speed.
- Provides the maximum slip measurement (0-50%) on a 4-20mA output.
- Provides proximity sensor fault indication and relay output.
- Measure and display speed of up to three rollers.
- Provides a system healthy indication by closing the 80%-Relay after both start signal and 80% speed is detected.
- Both under-speed and over-speed conditions can be monitored.



X0289FS BELT SLIP &
SPEED MONITOR

Description	Part No
MachineWatch Relay	X0270
MachineWatch Relay with Ethernet Module (IP)	X0270E
MachineWatch Relay with Ethernet Module (Modbus)	X0270M
MachineWatch Power Supply Unit 15W + 15W Aux	X0287
MachineWatch Power Supply Unit 15W + 35W Aux	X0316
MachineWatch Personality Key - Additional	X0324
Voltage Interface module 1100V AC input, 60VAC output	X0086
MachineWatch Mounting Kit - Panel	X0318
Toroid Ferrite	X0323
Neutral-Earth Resistor Monitor Relay - NERM - 1000V	X0327-1K
1000V Line Interface Unit - NERM 1000V Barrier	X0327-1KB
Neutral-Earth Resistor Monitor Relay - NERM - 415V	X0327-415
415V Live Line Interface Unit - NERM 415V Barrier	X0327-415B
Neutral-Earth Resistor Monitor Relay - NERM - 3,300V	X0327-3K3
3,300V Live Line Interface Unit - NERM 3,300V Barrier	X0327-3K3B
Overload Relay	X0306
Overload Relay with Ethernet Module (Modbus)	X0306M
Overload Relay with Ethernet Module (EIP)	X0306E



PROTECTION

Overload Relay

NEPEAN Power's high quality, solid state Overload Relay monitors short circuit, overload under current and temperature in the protected circuit. NEPEAN Power's Overload Relay also detects faults with the current transformers used ensuring maximum protection for site personnel.

Features of the Overload Relay include

- Overload trip settings 15-500A Standard Inverse Curve
 - Instantaneous Short Circuit $x_1 - x_{10}$ of the Overload Setting
 - Undercurrent Detection
 - Four Relay Outputs (2 x fixed, 2 x configurable)
 - Thermistor input
 - 2 x CT inputs with open circuit and short circuit detection
 - 3 second operation after power loss
 - 4-20mA Load Current Monitoring Loop
 - Remote Ethernet monitoring/control (optional)



X0306 OVERLOAD
RELAY

Current Transformer

NEPEAN Power's MSQ series Current Transformers can be applied to test, control, display and record the running of electrical equipment.

NEPEAN Power's Current Transformers feature:
include:

- Flame retardant
 - High mechanical strength
 - High dielectric strength
 - Transparent sealable terminal cover
 - Maximum Voltage: 0.72K Vrms
 - Rated Dynamic Current: 125kApeak
 - Frequency: 50/60Hz
 - Class: 0.5
 - Short Time Thermal Current: 50kAr.m.s for
 - Dielectric Strength: 3kV r.m.s. for 1 min
 - Insulation Class: B



CURRENT TRANSFORM

SAFETY

Flag Relay

NEPEAN Power's reliable and high quality Flag Relays offer visible indication on operation and remains latched out until a mechanical or electrical command to reset.

NEPEAN Power's Flag Relay features include;

- Flag window to indicate tripped state
 - Standard 11pin plug-in connection
 - Relay enabled to remain latched with the supply removed
 - Two changeover contacts, MAX 10A
 - Coils withstand permanent connection
 - Electrical and Manual reset
 - Complete with Base



FLAG RELAY

Phase Indicator

NEPEAN Power's 1kV Phase Indicator has been designed to indicate if phase voltage is present. It is a compact design that is easily installed. The Phase Indicator works by connecting directly between each phase terminal. The opening voltage is from 500V up to 1500V Systems (300V to 900V Phase to earth). Two red LEDs on the front of the unit indicate the presence of voltage. NEPEAN Power's Phase Indicator includes optional External Indicator Connection.



X0347 PHASE INDICATOR

Live Line Indicator

NEPEAN Power's Live Line Indicator has been designed with a strong focus on safety. It uses a non-contact method for sensing the presence of voltage on a phase regardless of Current flow and indicates the presence or absence via several status LED's.



X0276 LIVE LINE INDICATOR

Phase Loss & Rotation Relay

The NEPEAN Power Phase Loss and Rotation Relay has been designed for use with power systems and rotating machines where the possibility of incorrect phase rotation exists.

The unit constantly monitors phase rotation and phase loss of machinery and reports phase sequence by LEDs on the front panel and relay contact outputs. Our Phase Loss and Rotation Relay has separate relays with change over contacts for each phase direction, one of which will change state on the correct phase sequence being detected.



X0269 PLAR RELAY

Description	Part No
Current Transformer 1000:1 A Ratio suitable for O/L relay	XCT10001
Current Transformer suitable for MachineWatch 100:5 A ratio	XCT01005
Current Transformer suitable for MachineWatch 150:5 A ratio	XCT01505
Current Transformer suitable for MachineWatch 200:5 A ratio	XCT02005
Current Transformer suitable for MachineWatch 250:5 A ratio	XCT02505
Current Transformer suitable for MachineWatch 300:5 A ratio	XCT03005
Current Transformer suitable for MachineWatch 400:5 A ratio	XCT04005
Have a requirement for a Current Transducer not listed? Contact NEPEAN Power to discuss	
Flag Relays c/w Base 24V DC	X0155
Flag Relays c/w Base 48V DC	X0141
Flag Relays c/w Base 24V AC	X0201
Flag Relays c/w Base 110V AC	X0137
Flag Relays c/w Base 240V AC	X0158
1kV Phase Indicator	X0347
1kV Phase Indicator c/w Panel mount Indicator	X0349
Live Line Indicator - 24V DC Control (with Battery Backup)	X0276
Phase Loss and Rotation Relay 415V/1000V (Flying Leads)	X0269

MEAN WELL Power Supplies

NEPEAN Power have developed strong relationships with key distributors of Mean Well Power Supplies. The commitment shared by NEPEAN Power and Mean Well allows for the successful distribution of high quality electronics to a wide range clients.

MW MEAN WELL NEPEAN Power, together with Mean Well, can offer our clients reliable, cost effective Power Supplies that are of a high quality design.

For more information on Power Supplies available, contact our Electronics team to discuss your requirements.



X0223 POWER SUPPLY



X0107 POWER SUPPLY



X0106 FAULT DRIVEN POWER SUPPLY

Power Supply

NEPEAN Power offers a diverse range of custom manufactured Power Supplies.

Fault Driven Power Supply

NEPEAN Power's Fault Driven Power Supply is designed to provide a source of auxiliary power for circuit breaker applications. The Fault Driven Power Supply provides power to close and trip coils, and to allow protective relays to operate reliably under Power System fault conditions.

The output of the Fault Driven Power Supply is 48Vdc and is used to trip circuit breakers and/or power other protective devices. Primary input power to the Fault Driven Power Supply is 110Vac with a secondary power input of 3 circuits of 5A/1A fed from current transformers on the mains input to the equipment being protected.

The Fault Driven Power Supply output is also current limited to protect against overload. If the current limit condition continues the unit will switch off to protect the power supply from overheating and causing permanent internal damage. These conditions are indicated on the front panel with an Over Temperature and Current Limit LEDs.

DC to DC Power Supply

The NEPEAN Power DC to DC Power Supply provides regulated DC Output with an input of 15VDC to 48VDC in a reliable, compact Din Rail mounted package .

The device has a maximum Load Current of 500mA. The DC to DC Power Supply has an LED to indicate when the Power is on. DC to DC Power Supplies are available in 5V, 7.5V, 9V and 12V DC Output.



X0320 DC-DC SUPPLY

AC Power Supplies

NEPEAN Power specialises in a large range of industrial Power Supplies. With a variety of Power Supplies available, you are likely to find a solution for your application.

NEPEAN Power's range of typical industrial Power Supplies can be used in most applications; we can cater for many different styles, voltages and wattages.

For more information on NEPEAN Power's range of AC Power supplies available, please contact our Electronics Department.



X0225 POWER SUPPLY

Measurement

NEPEAN Power specialise in precision measurement products customised for mining and industrial applications.

Current & Voltage Transducers

NEPEAN Power's Engineers have designed and manufactured a range of Current and Voltage Transducers to provide a simple interface to control systems. Our cost effective and reliable Transducers provide 4 to 20mA signals suitable for a PLC analog input card.

NEPEAN Power's Current and Voltage Transducers are available in 1 x Current and 1 x Voltage or 3 x Current.



X0031 CURRENT/
VOLTAGE TRANSDUCER

Strain Guage Transmitter

NEPEAN Power's Strain Guage Transmitter has been designed for signal interfacing between typical Wheatstone Bridge Load Cells and Analog control system, for example, PLC. NEPEAN Power's Strain Gauge Transmitter unit is designed for use with 4 wire load cells, either 1mV/V or 2mV/V with an internal jumper to select between the two.



X0167 STRAIN GUAGE
TRANSMITTER

4 Way Multiplexer

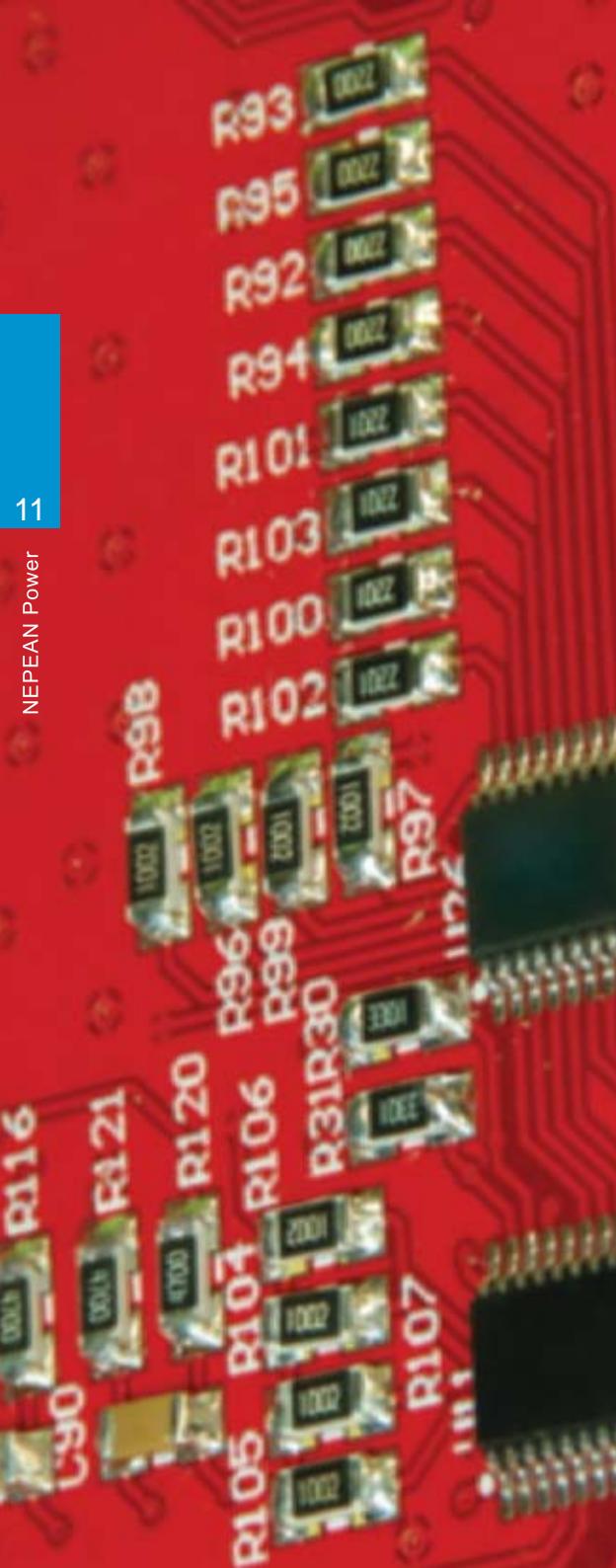
When additional inputs are required at a PLC and spare inputs are at a premium, the NEPEAN Power 4 Way Current Loop Switch provides the solution. It allows up to four 4-20mA current loops to be connected to a single input device. This is possible by multiplexing 4 loop input channels into one loop output. Whilst an input is not selected, it is maintained to allow for continual operation of other devices in the loop.



X0096 CURRENT
LOOP

NEPEAN Power's 4 Way Multiplexer is powered by 24V DC, has 2 opto-isolated inputs for channel selection, or it can be placed into an Auto mode for continuous automatic cycling of the inputs.

Description		Part No	
Fault Driven Power Supply - 5A CT		X0106	
Fault Driven Power Supply - 1A CT		X0161	
Mini 15-48VDC Input - Multi-Voltage 5, 7.5, 9 or 12 VDC Output		X0320	
5V DC	5V 5A 45W Output; 85-265VAC Input - Mean Well	X0227	
12V DC	12V 3.5A 45W Output; 85-265VAC Input - Mean Well	X0135	
12V DC	12V 4.5A 60W Output; 85-265VAC Input - Mean Well	X0138	
12V DC	12V 6.3A 75W Output; 85-265VAC Input - Mean Well	X0208	
DIN	24V 2A 45W Output; 85-265VAC Input - Mean Well	X0107	
DIN	24V 3.2A 75W Output; 85-265VAC Input - Mean Well	X0113	
DIN	24V 5A 120W Output; 85-265VAC Input - Mean Well	X0114	
DIN	24V 5A 120W Output; 400-500VAC Input - Mean Well	X0187	
DIN	24V 5A 120W Output; 100-120, 200-240VAC Input - Greegoo	XPS12024	
DIN	24V 10A 120W Output; 85-265VAC Input - Mean Well	X0160	
DIN	24V 20A 480W Output; 110- 240VAC Input - Mean Well	X0325	
DIN	24V 10A 240W Output; 340-550 3PHASE - Mean Well	X0188	
Caged	12V DC	12V 12.5A 150W Output; 85- 265VAC Input - Mean Well	X0152
Caged	24V DC	24V 6.5A 150W Output; 85- 265VAC Input - Mean Well	X0006
Caged	24V DC	24V 4.5A 100W Output; 100- 240VAC Input - Mean Well	X0118
Power Supply to suit IP2 converter (Ampcontrol) 110:20-0-20		X0225	
1x Current (0-5A), 1x Voltage (0-165VAC), 2 x 4/20mA out, 24Vac/dc supply		X0031	
3 x Current (0-5A), 3 x 4/20mA out, 24Vac/dc supply		X0033	
1 x DC Voltage & Current (0-150VDC), 2 x 4/20mA out, 24Vac/dc supply		X0070	
Voltage Interface Module - 415 to 110Vac (Max 5VA)		X0123	
CT Transducer, 0-10mA AC Input gives 4-20mA DC Output		X0330	
Strain Guage Transmitter		X0167	
Current Loop, 4 way multiplexer- 4-20mA		X0096	



Vibration Sensors

NEPEAN Power's Vibration Sensors are available in a range of configurations and have been designed to offer lasting reliability and performance.

These devices allow equipment to be easily and effectively monitored for maximum control, with a high accuracy reading. Our Vibration Sensors have been fully tested in the toughest conditions and are delivered with comprehensive product documentation.



X185CQ20 VIBRATIC
SENSOR

NEPEAN Power also have a large range of other sensors available, this range includes; Temperature & Vibration, Tri-Axial Vibration and Vibration test equipment all available upon request.
NEPEAN Power also supply suitable Safety Barriers for use with Vibration Sensors.

NEPEAN Power can offer a range of Quick Release Connectors for our Vibration range.



X87SB SAFETY
BARRIER



QUICK
ADAPTOR



X0153 RTD
MULTIPLEXE

Resistance Temperature Detectors (RTD's)

RTD's are a reputable temperature sensor in the mining and industrial markets, well known for their superior stability and accuracy. RTD PT-100 Sensors are an industry standard, made from platinum, with a 100 ohm resistance of 0°C and a temperature coefficient (alpha) of 0.00385 ohm/degree C.

NEPEAN Power can supply a wide range of RTD PT-100 Temperature Sensors allowing the accurate temperature measuring over an extremely wide range.

Bolt Type

NEPEAN Power can supply Bolt Type RTD's with a sensing element drilled into the head of the bolt. Typical diameters are M8, M10 or M12 and come in lengths of 30mm to 100mm.

Washer Type

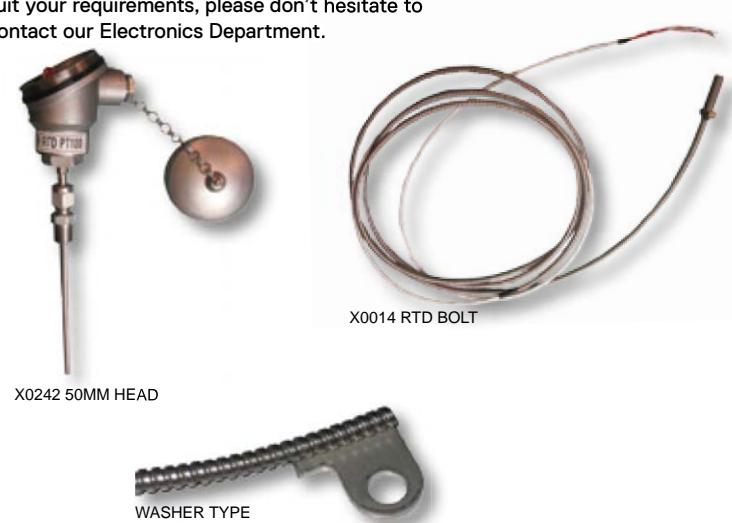
NEPEAN Power can supply a Washer Type Probe that can be mounted under a bolt head like a washer. Typical sizes are M6 to M20. These are supplied as flying lead type only.

Probe Type

NEPEAN Power's Probes come in various sizes, mounting type and mounting thread. They can also be straight or right angle mounted. Standard diameters are 3mm, 6mm and 8mm with lengths of up to 1m, however sizes can be customised to suit individual specifications.

Adjustable Compression Fittings
NEPEAN Power can supply adjustable compression fittings used to fix probes to the device pipe. These fittings contain ferrule to accommodate specific probe diameters. Standard internal diameter is 3mm or 6mm and the mounting thread (BSP) is typically 1/4BSP.

NEPEAN Power can adapt a range of RTD's to suit individual specifications. If you would like more information on any of the above mentioned types, or discover how we can find a solution to suit your requirements, please don't hesitate to contact our Electronics Department.



Description		Part No
4-20mA 20mm/s	Top Entry 5M Cable with Quick Connect Mount GRP I (mining) MTN/M1185IC	X185-CQ20
	Top Entry 5M Cable with Quick Connect Mount GRP II (Petrochemical)	X285-CQ20
	Top Entry 5M Cable with Quick Connect Mount GRP I/II MTN/1100I	X287-CQ05
100mV/G	Top Entry 2pin Connector M8 Mount GRP I/II MTN/1100I	X200-0800
	Top Entry 5M Cable Quick Connect GRP I/II MTN/1100IC	X200-CQ00
	Side Entry 5M Cable M8 Bolt Mount GRP I/II MTN/1100ISC	X200-B800
Vibration Sensor 4-20mA 20mm/S Top Entry Cable with Quick Connect Mount NON I.S		X085-CQ20
Vibration Sensor 4-20mA 20mm/S Top Entry Cable with M8 Bolt Mount NON I.S		X085-C820
Safety Barrier to use with Vibration Sensor		X87SB
From Q/F Male to Glue		X00QF
From Q/F Male to 1/4"-28 UNF Male		X04QF
From Q/F Male to M6 Male		X06QF
From Q/F Male to M8 Male		X08QF
From Q/F Male to M10 Male		X10QF
R/A Metal plate adaptor suit Vibration Sensors		X0378
RTD Transducer 0-150DegC / 4-20mA		X0317
RTD 4 way multiplexer - 4-20mA Output		X0153
INOR Head Mount Transducer 0-150DegC / 4-20mA		X0350
Temperature Relay - Single RTD input - Dual independent relay outputs		X0331
Custom 3/4 BSP 70mm Magnetic End 2m s/s armour 3M overall		X0136
Panel Mount 3mm RTD Fitting with Lock Nuts		X0126
Compression Fitting 3mm 1/4 BSP s/s		X0215
RTD Compression Fitting 6mm 1/2 BSP s/s		X0204
RTD Compression Fitting 6mm 1/4 BSP s/s		X0203
RTD Compression Fitting 6mm M12 s/s 1.75 pitch		X0271
Stainless Steel Probe with Compression Fitting		
Stainless Steel Washer		

Power Quality

NEPEAN Power understand Power Systems and the importance of Power Quality.



Filter

NEPEAN Power have developed a variety of Power System filters to suit a range of applications.

All filters supplied by NEPEAN Power are suitable for use with VVVF Systems.

Power Supply filters are available in 415V which includes Power-On delay and a 690V model without Power-On delay.



Diode Isolator

NEPEAN Power's Dual Diode Isolator (DDI) has been developed to allow simple connection of two DC power supplies to provide a single DC output, offering Power Supply redundancy. If one of the DC supplies fails the other DC supply will take over automatically, ensuring Power Supply availability.

For ease of troubleshooting and identifying if one of the DC power supplies has failed, the status indication of the two DC inputs and single DC output are provided on the front of the device.



X0305 DIODE ISOLATOR

Communications

NEPEAN Power recognise the advantage of smart equipment and have a range of specialised communication products.

RS232 Multiplexer

NEPEAN Power's Channel Chooser is a high quality, serial link multiplexer. Our Channel Chooser enables four serial devices to be connected to a single serial port. The channel chooser selects one of four serial channels by applying signals (24V) onto 2 port selection pins, and selecting the channel number in a binary manner. These port selection inputs are opto-isolated from the rest of the Channel Chooser circuitry. A 24V power supply is also required to power the device. Each serial channel supports 2 data lines in each direction.



X0089 MULTIPLEXER

Diode Termination Blocks

NEPEAN Power have designed Diode Termination Blocks with the following features;

- 12 Diodes with one common anode
- 12 Discrete Diodes
- Suitable for 12 terminations
- Compact Din Rail mount devices



X0122 DIODE MODULE

ETHERNET DIRECT

NEPEAN Power has teamed with Ethernet Direct to provide our Customers with reliable Communications Devices. NEPEAN Power is dedicated to providing our clients with the latest communication technology to ensure safety on their sites.

Ethernet Direct is part of the Alloy Group, and have a wide range of communication systems to suit a variety of applications.



Description	Part No
Supressor contactor coil 110VA filter 40 x 40 x 20 500mm flying leads	X0229
690 VVVF Filter w/o delay ckt	X0312
VVVF drive capacitive filter with power on delay	X0181
Dual Supply Diode Isolator	X0305
4 way multiplexer - RS232 - Channel Chooser	X0089
Prosoft Module Terminal Adaptor	X0233
Ausdac Diode module (12W) - common anode	X0120
Ausdac Diode module (12W) - discrete diodes	X0122
Diode Bridge rectifier - 35A 1000V	X0147

Human Interface

NEPEAN Power have a diverse range of customised indication products.



Intelligent Message Display

NEPEAN Power's configurable Intelligent Message Display can be used to provide operator instruction and system status with the simplicity of an LCD display. NEPEAN Power's Intelligent Message Display can perform two tasks; these include messages being displayed directly from the serial port on the screen or through referencing pre-stored messages.



X0111 IMD

Led Packs & Indication Panels

NEPEAN Power can supply our clients with a range of customised panels designed to individual specifications. For more information on adapting LED Packs to suit your specification, please don't hesitate to contact NEPEAN Power's Electronics Department.



X0043 LED PACK

4 Way Signal Level/Open Collector Relay Interface

NEPEAN Power's 4 Way Signal Level Interface offers 4 Relay changeover outputs from low level or open collector outputs, i.e it allows low current transistor outputs to switch interposing relay outputs.



X0066 INPUT RELAY

Intrinsically Safe Indicator

NEPEAN Power offer many solutions to provide indication in a hazardous environment, one of which is this I.S. LED Red/Green indicator. The indicator houses high efficiency LEDs to give a high intensity light output from an intrinsically safe power source.

The Indicator enclosure has LED elements encapsulated into the lid with a 3 wire connection to the indicator, one common and one connection for each segment.

NEPEAN Power also have available a power supply and barrier assembly to allow easy installation into an existing system. This assembly defaults to a RED indication and upon the closure of a switch input, changes to GREEN. This may be used to indicate that a particular machine is running by simply connecting a normally open auxiliary contact from the motor contactor to the input terminals.



X0093 I.S STOP/GO INDICATOR

Custom Specials

Do you have an electronic product requirement you can't find? Contact NEPEAN Power to discuss development options. NEPEAN Power can adapt and customise a wide variety of devices to ensure it is compliant to your specific requirements.

An example of customised devices available is this Belt Status Display with three highly visible and clear states; Fault, Stop and Run.



X0174 BELT STATUS DISPLAY

Description	Part No
IMD Advanced - switchable for standalone or serial	X0111
IMD Mounting Kit	X0035
Right Angle Cable Connector Kit	X0036
Remote I/O Serial Cable 5m, Terminates at IMD end	X0037
Led Pack Meter Case 96Q (one column of LEDs)	X0041
Led Pack Meter Case 96Q additional LED column	X0199
Led Pack Meter Case 144 x 96mm (3 columns of LEDs)	X0043
Led Pack Meter Case 144 x 96mm additional LED column	X0202
Led Pack Meter Case style 96 x 48mm - single column of LEDs	X0212
Led Pack - Eimco 10 way VA long	X0226
Led Pack - Eimco 30 way (A2U20-772020)	X0128
Led Pack - Eimco 4 way (A2U1400-790159)	X0193
I.S Stop/Go Indicator KIT - (power supply + indicator + barrier)	X0093
Stop Go Indicator Power Supply 110 with change over relay isolated supply	X0125
Indicator I.S Indicator (Red/Green) *Must be used with I.S barrier Z-966 to satisfy I.S requirements	X0094
Barrier P&F Z-966	M0170
Belt Status Display (RUN - STOP - FAULT)	X0174
Din Rail Base suit ELD Relay	X0228

NEPEAN Power's Capability

As well as a diverse range of Electronic devices, NEPEAN Power specialise in the design, manufacture and supply of Electrical Solutions for the mining industry. NEPEAN Power's customised product and services focus on key process areas.



CONVEYORS

NEPEAN Power offer Electrical solutions for your Conveyor. Solutions include a range of Conveyor Starters, Substations, Drive Technologies and specialised Electronic products.



LONGWALL

NEPEAN Power offer Longwall Electric systems for the supply, control and automation of Longwall systems.



VENTILATION

NEPEAN Power offer a range of ventilation equipment including Auxiliary Ventilation Fan Starter and Main Mine Ventilation Fan Systems.



SURFACE INFRASTRUCTURE

NEPEAN Power offer Surface Infrastructure solutions including Switchrooms, Substations, Transformers and Power Factor Correction.



DEVELOPMENT

NEPEAN Power have extensive experience and range of product for supplying Underground Mining Development Equipment.

FUNCTIONAL SAFETY

NEPEAN Power recognise the benefits to the operator and NEPEAN reputation in applying a Functional Safety approach to Engineering design to mitigate risk. NEPEAN Power have actively committed to Functional Safety and have invested in the training and certification

of multiple engineers within our organisation as TÜV Rheinland Functional Safety Engineers.

NEPEAN Power have committed to integrate Functional Safety within our ISO 9001 Certified Quality Management System.

Commitment to a Green Approach to Business

At NEPEAN Power, we understand that everything we do affects the environment. We continually review our systems and processes to identify opportunities for us to be more caring for our environment.

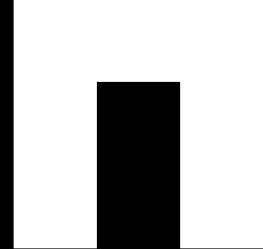
We are committed to finding solutions that reduce our environmental impact without compromising our service or quality levels, and we focus on the following:



- Pollution Prevention – we commit to prevent the release of harmful substances into the environment
- Water and Energy Conservation – we commit to conserve water and energy in our operations
- Waste Reduction – we commit to reduce waste in our manufacturing processes and all of our business operations
- Sustainability – we commit to offer sustainable product solutions that help reduce the carbon footprint impact
- Recyclability – we commit to buy, sell and use products that may be recycled
- Stewardship – we commit to do business with others who share our philosophy of progressive environmental policies

We operate our manufacturing facilities in accordance with all necessary environmental permits, approvals and operational controls. We adhere to all applicable environmental laws and regulations and commit to exceed the required levels of compliance wherever feasible.

We are continually working to find new ways to make our company as environmentally friendly as possible. We hope you will support us in making our environment a cleaner, better place.

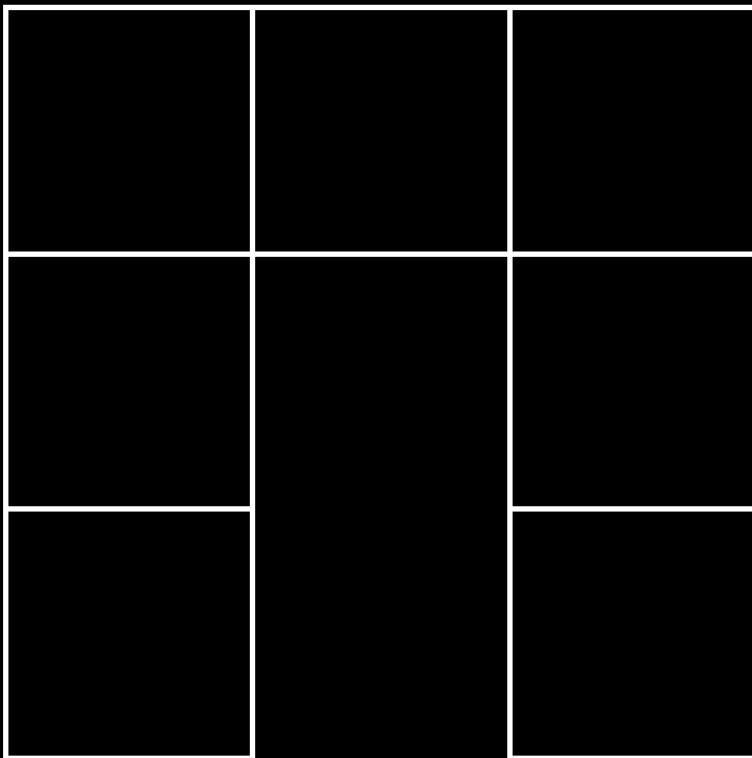


NEPEAN
Power

TM



NEPEAN



TM

ELECTRONICS

58 Bonville Ave
Thornton, NSW 2322

Ph: + 612 4028 5000
Fx: + 612 4028 5097
Em: power.electronics@nepean.com

HEAD OFFICE

THORNTON, AUSTRALIA

58 Bonville Ave
Thornton, NSW 2322

Ph: + 612 4028 5000
Fx: + 612 4028 5096
Em: power@nepean.com

BRANCHES

QUEENSLAND

1 Victoria St
Mackay, QLD 4740

Ph: +617 4953 1490
Fx: +617 4953 1544
Em: power.qld@nepean.com

NEW SOUTH WALES

15 Bridge St
Picton, NSW 2571

Ph: +612 4677 7527
Fx: +612 4677 1669
Em: power.nsw@nepean.com

www.nepeanpower.com