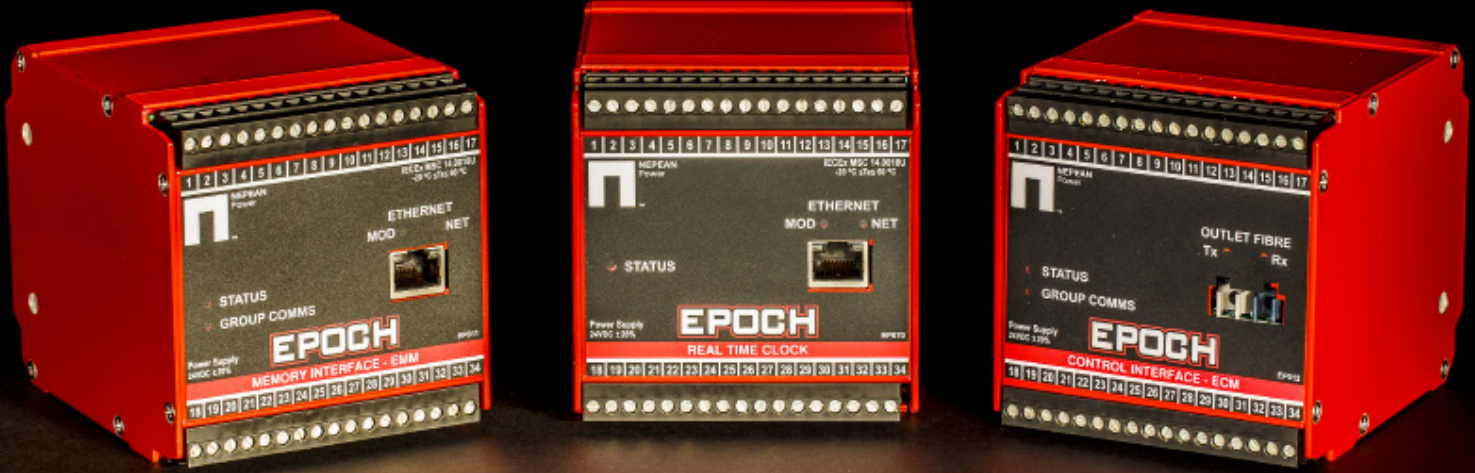


# EPOCH Protection System



Nepean Power is a proven leader in the supply and manufacture of quality engineered solutions, products and technologies. Established in 1994, through the commitment of our dedicated team we have become a supplier of choice.

The Epoch Protection System is the new generation in protection devices, designed to provide complete protection to the AS/NZS 2081 :2011 standard and is certified Intrinsically safe under IEE 60079.11 'Ex ia' for electrical equipment in mining and industrial environments. Using advanced microprocessor controlled technology and state of the art hardware design, the Epoch Protection System achieves high accuracy, long lasting reliability, and exceeds the requirements of Australian Standards.

## Flexibility in Design

EPOCH's functions provide operational flexibility by:

- Fault co-ordination to IEC
- Up to '16 outlets' per system
- Single or Multiple displays
- Segregation of voltages. (ELV Modules)
- EPOCH is supplied and comes with SKM Power tools for windows (PTW) library blocks ready for integration into your site power system model
- System voltages '415V to 3.3kV' are standard components

EPOCH's compliant protection functions include:

- Earth leakage
- Earth continuity
- Earth fault lockout
- Loss of vacuum
- Frozen contact
- Motor thermal modelling
- Short circuit
- Overload
- Under voltage
- Over Voltage
- Under Current
- Fan interlocking
- Power Monitoring
- Type 2 Co-ordination
- Phase Imbalance
- Phase Loss

EPOCH provides for a competitive market:

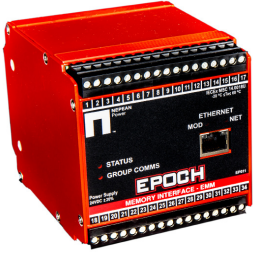
- Lower Life Cycle Costs
- Fast Instantaneous Protection
- High Noise Immunity
- Date and Time Stamped
- Easily Replaces Existing Technologies
- Certified to the Latest Standards

## Spare Parts List

Part	Description
EP011	EPOCH Memory Module - EMM
EP012	EPOCH Control Module - ECM
EP013	EPOCH Power Interface Mod 1K EPIM1K
EP014	EPOCH Power Interface Mod 3K3 EPIM3K3
EP015	EPOCH Display Module - PD1
EP016	EPOCH Remote Module - PR1
EP017	EPOCH Remote Module - PR1-ERM (dummy plug)
EP041	EPOCH ECM Pilot Barrier
EP051	EPOCH EDM IS Communication Barrier for PD1
EP081	EPOCH IS Power Supply for PD1

# EPOCH Protection System

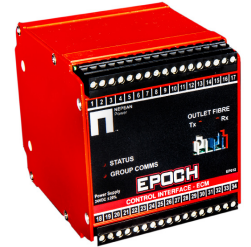
## EPOCH MEMORY - EMM - EP011



Contains the database of protection function settings for all outlets and various loads. This information is transmitted to all outlets and connected to the EMM via a high speed group communication interface. Through this interface the run time data from each machine is available to the EMM in real time. The depth of memory available to the EMM gives it the advantage of being a gateway for external devices such as a PLC to access this data from each outlet and the configuration settings each outlet is adhering to. The memory interface takes on the important role of conducting synchronisation tasks between multiple outlets, for example, controlling outlets which are interlocked by a fan.

## EPOCH CONTROL - ECM - EP012

The Control Interface is the central unit of the Epoch Protection System and is the integral component that brings together the full protection functionality of each outlet. It performs the AS/NZS 2081:2011 Earth Continuity protection function on the outlet as well as receive and process signals from the Power Interface. The pilot conductor is connected through an EP041 barrier into the hazardous zone. It drives the HMI Display (EDM) and also controls the Main Circuit Breaker. External buttons for Start, Stop, and Reset are connected through the Control Interface.



## EPOCH INTERFACE - EPIM - EP013 + EP014

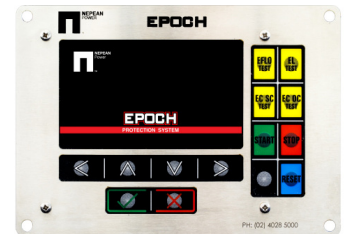


The Power Interface is the heart of the Epoch Protection System and its purpose is to collect and process voltage and current signals in order to perform the protection functions for the system.

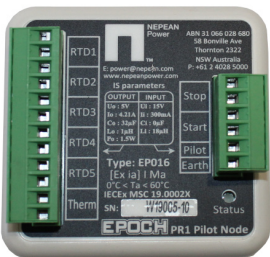
It controls the main-contactor for each outlet and the design makes it quick and easy to install. The Power Interface enclosure has been designed to provide protection from electrical noise and as such ensures reliable operation in harsh target environments, such as high voltage switching cabinets. There are two intrinsically safe devices certified to 'Ex ia' installed in a Power Interface unit, the Real Time Clock (RTC) Flag Relay and the EFLO Barrier. When the EPIM unit is powered, the RTC Flag Relay and EFLO Barrier are not suitable for installation in a hazardous area and it is recommended that an 'Ex d' enclosure be used. When the EPIM is not powered, the RTC Flag Relay and EFLO Barrier are suitable to be installed or present in a hazardous area.

## EPOCH DISPLAY - PD1 - EP015

The Display Interface is an 'Ex ia' panel mounted WVGA 480x272 pixel 24-bit full colour LCD with a membrane keypad which integrates system functionality. This display, together with the keypad has the advantage of reducing the wiring overhead for each outlet by integrating test and runtime functionality. The interface is robust, easy to use and enables the user to view system status, modify protection functions and debug trip issues using the comprehensive event log database. The PD1 is powered by the EP081 IS power supply and communicates with the ECM through the EP051 intrinsically safe communications barrier.



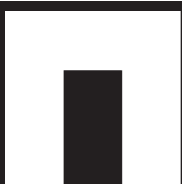
## EPOCH REMOTE MODULE - PR1 - EP016



The Remote Modules provide additional monitoring and protection for the connected machinery. The PR1 relays information from the machinery back to the ECM using the pilot wire. This information is then communicated via Extended Internet Protocol (EIP) to the EMM. Monitoring of the machine includes equipment identification, earth continuity, remote start and stop functionality as well as temperature protection. This ensures quick disconnection and reconnection of a variety of plant as each machine has a unique identifier which is recognised by the EPOCH protection system. The protection settings for the machine can be pre-stored on the PR1 and this is automatically detected by the EPOCH system once the PR1 is connected to an outlet. This allows for site wide management of the equipment and its protection settings via the EMM and an Ethernet network connection. Equipment settings can be adjusted and saved "in situ" by personnel authorised to access the locked reset facility.

## PR1 - ERM - EP017

The PR1 can also be provided in a "dummy plug" arrangement.



**NEPEAN**  
Power

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