

Leaders in Innovative Protection Systems, our new n Control and Protection Module CPM - Plus, represents a completely new range of single or multi-functional micro processor based intelligent relays for monitoring and protecting outlets supplying power to mining machinery.

## CPM - Plus Features:

- Ethernet connectivity for PLC MODBUS ASCII/TCP communications via external MODBUS serial server.
- Additional protection functions:
  - Event/Trip Logging
  - Multiple Circuit Protection
- Isolated earth continuity circuit for improved protection and extended measurement range.
- Advanced earth leakage protection for VSD drives.
- Drop-in compatible for almost all existing CPM installations.
- Optional NER monitoring and protection using an nlm3.

## Undercurrent:

- Programmable 20% to 90% of overload current.
- Programmable time between 1s and 25s.

## Earth Leakage:

- Earth leakage protection available using our 1000:1 toroid.
- Current range: 20-500mA
- Time range: 20-500ms

## Earth Continuity:

- 5-45  $\Omega$
- 100-500ms
- Local or remote mode.

## Frozen Contact:

Frozen contact trip occurs if, after contactor opens, Voltage is still present on any of the phases up to 20s.

## Protection Feature Details:

### Overload:

- 1 - 1000A.
- 3x IEC255 curves are available: standard inverse, very inverse and extremely inverse.  
For example on OL – the range is 1-995A with x3 different curve choices – with standard inverse, very inverse and extreme inverse. There are also x25 time setting points.
- Time for each curve may be set between 10 and 250 seconds.
- Overload follows the IEC255 specification.
- Hot/Cold curve selection.
- Timed overload reset inhibit.

### Short Circuit:

- 4 – 5000A.
- Motor start protection allows a higher value to be used during motor startup inrush.
- Instantaneous trip. (Currently the fastest in industry)

### Fan Interlock:

Single-wire scheme. Prevents connected outlets from starting until interlocking fan outlet is running. Also interlock between DCB.



## DMC:

Offering local and remote interrogation/start etc. DMC provides the ability to locally or remotely via the modules screen start/stop with password protection.

## Data Features:

### MODBUS to PLC

- Connection via RS485.
- Information available:
  - Trip status for each protection function.
  - Internal diagnostics.
  - 120 most recent logs.
  - Peak, running and start current measurements.
- All protection settings may be set via the MODBUS interface.
- Controls available via MODBUS:
  - Start outlet.
  - Stop outlet.

### LCD display (local and remote):

Displays running measurements and setpoints, as well as trip information. Last 120 log entries are viewable. Optional 5 button (mri3) interface available.

### Basic outlet data is available:

Peak running and starting currents etc.

Menu allows programming of all protection settings. May also be used to start and stop the outlet. Password controlled access.

### Order details and accessories

A01240	CPM Plus Module
A00487	CPM I.S Remote Display
A01237	mri3 - Module Remote Interface
A01243	nIm3 - Neutral Link Monitor
A01307	ADAM 4572 Ethernet Interface

The CPM - Plus comes with a 3 years warranty.

## Compatibility:

The CPM1-Plus-2 is compatible with the vast majority of existing CPM1-style installations, where a CPM1m, CPM1mSP or six-card module has been used.

- See manual for compatibility details.

The following are still supported:

- Existing 1100V (A000000) and 3.3Kv (A00014) Barriers.
- First-generation 500mA toroids.
- Existing installations using two CTs. (1000:1A)

### Material:

- Powder coated steel construction

### Module Size:

- 240mm x 115mm x 160mm deep.
- In base 300mm x 165mm x 160mm deep.
- Remote LCD Screen - IP65 with flange gasket.
- Dims: 96mm x 96mm x 100mm deep 70mm behind panel.
- Cut out 92mm x 92mm for fascia mount Display (A00487)



## New Ethernet

Bramco offers an interface between modbus serial devices and computer hosts running Modbus/TCP on an Ethernet network. Fully compliant with Modbus/TCP this provides an easy way to connect existing devices or controllers running Modbus serial protocols (Modbus/ASCII) to Ethernet networks.

## Specifications:

### Output Current Rating (Standard):

- DR1 1xN/O 5Amp @ 240Volt AC 100VA Max
- DR2 1xC/O 5Amp @ 240Volt AC 100VA Max
- DR3 1xC/O 5Amp @ 240Volt AC 100VA Max
- Short Cct 1xC/O 5Amp @ 240Volt AC 100VA Max

### Fault Rating CTs:

- 60KA - 1 second
- 20KA - 3 seconds
- 11KA - 11 seconds

## Compliance:

The CPM1-Plus-2 will be certified for use in accordance with AS2081 and ExIb Intrinsically safe IEC60079.11

Suitable for use in a Queensland Coal Mine.

Complying with relevant Australian Standards, Queensland Department of Mineral Resources guidelines, Coal Mines Regulations Act and the Occupational Health and Safety Act.

### ASNZS 60079-11:

- Electrical Apparatus for explosive gas atmospheres - Intrinsic Safety.

### AS2081 - 2011:

- Electrical Equipment for Coal and Shale Mines - Electrical Protection Devices.

## Bramco Contacts

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