

CPM1-Plus-2

Control & Protection Module

Leaders in Innovative Protection Systems, Bramco's next generation Control and Protection Module CPM1-Plus-2, 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.

CPM1-Plus-2 Features:

- Ethernet connectivity for PLC MODBUS ASCII/TCP communications via external MODBUS serial server.
- Optional intrinsically safe remote display to be mounted external to the flame proof enclosure with button cluster and fault LEDs.
- 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.

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 closely matched to IEC255 – 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.

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.

New 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.

Undercurrent:

- Programmable 40% to 90% of overload current.
- Programmable time between 1s and 25s.

Earth Leakage:

- Earth leakage protection available using the Bramco 100:1 toroid.
- Current range: 50-500mA
- Time range: 50-500ms

Earth Continuity:

- 5-45 Ω
- 100-500ms
- Local or remote mode.

Frozen Contact:

- 'Intelligent' frozen contact detection. Frozen contact trip occurs if, after contactor opens, either:
 - Voltage is still present on any of the phases up to 20s. (adjustable timeout)



Ordering Information:

A01240	CPM1-Plus-2 - Control Module
A00487	CPM Remote Display
A01237	mri3 - Module Remote Interface
A01243	nlm3 - Neutral Link Monitor

The CPM1-Plus-2 comes with a minimum 2 year warranty.

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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.

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.

Peripherals:

The CPM1-Plus-2 supports the following new peripherals:

- I.S. remote display c/w buttons.
 - Mimics all of the functionality of the local LCD on the module.
 - Start.
 - All Trip identification.

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

Compatibility:

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

The only exceptions are the following:

- Any CPM1 installation utilising I2C remote display/buttons.

The following are still supported:

- Existing 1100V (A00000) 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)

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:

AS2081 - 2002:

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

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