

MP15Z Single & Three Phase Control & Monitor, With Zigbee SEP Protocol Communications



This page details a specification for a product which will provide;

- 240VAC Output for a controlled device (either single or three phase)
- 1-60 second adjustable start delay
- Supply low voltage and overvoltage protection for the motor (via monitoring control phase).
- Automatic restart after 15 minutes fault signal.
- Internally adjustable sensitivity for phase imbalance
- 3 Color Indicator LED for Start and Run Contactor outputs
- Monitor and report controlled device status including control voltages
- Zigbee wireless communications: can be started, stopped and report status to Zigbee network.

This new and exciting product is being developed by Phasefale, who have since 1971 been developing the MP15 range of 3 phase and single phase motor protection relays. The current range of MP15 includes special circuitry to avoid false trips from distortion, whilst maintaining 100% protection for the motor. The new MP15PZ incorporate this advanced and unique to Phasefale Circuitry.

Taking all the features of our MP15 and incorporating Zigbee communications allows the new unit to be a control and monitoring device suitable for Power control by Zigbee fitted electricity meters.

For more information call Phasefale on 03 9584 5590

Zigbee Functionality

- The MP15z is currently able to join Zigbee SEP 1.1 (test environments)
- The MP15z conforms to Zigbee protocols and joins with pre-installed Trust Center link Keys and can rejoin a secured network.
- The Mp15z in demo mode can response to standard text strings to activate commands over a distributed network. E.g. a plain text string sent by Silversprings UIQ command software is recognized and acted upon by the control.

Because the Mp15z employs an application CPU and a separate Zigbee module, Phasefale have employed a fully DNP3 compliant serial protocol between the CPU's. This ensures the MP15z can be adapted to different Zigbee modules and even different communications protocols such as 3G, serial, TCP etc. The following is a draft table of the Parameters the MP15z will be able to communicate

MP15z Parameters

Network requests from NIC to mp15

Direction	Initiated	Value	Units	Low Val	Hi Val	Default	Description	Note
OUT	NIC	T/F	TRUE/FALSE	FALSE	TRUE	FALSE	OUTPUT OUTPUT W	control output relay energized
OUT	NIC	T/F	TRUE/FALSE	FALSE	TRUE	FALSE	RANDOM	control output relay energized AFTER RANDOM start delay
OUT	NIC	T/F	TRUE/FALSE	FALSE	TRUE	FALSE	PROOF	Output matches network request to run
OUT	NIC	T/F	TRUE/FALSE	FALSE	TRUE	FALSE	FAULT	Summarizes memory or blown fuse fault condition
OUT	NIC/MP	0-15	MINUTES	0	15	0	OFF TIME	Control off due to off time (anti short cycle function)
OUT	NIC	0-15	MINUTES	0	15	0	MEMORY	Control off due to fault memory trip
OUT	NIC	T/F	TRUE/FALSE	FALSE	TRUE	FALSE	MEM FLAG	memory condition previous trip due to memory
OUT	NIC	0-300	VOLTS AC	0	300	240	SUPPPLY VOLTS CONTROL OUT	Incoming nominal 240 VAC supply to control
OUT	NIC	T/F	TRUE/FALSE	FALSE	TRUE	FALSE	VOLTS	Output voltage after relay and fuse (can also be 24vac)
OUT	NIC/MP	T/F	TRUE/FALSE	FALSE	TRUE	FALSE	FUSE BLOWN	diagnosed blown fuse
OUT	NIC	0-300	VOLTS AC	0	300	240	PHASE 1 VOLTS	Volts AC on phase 1 (only if control is on)
OUT	NIC	0-300	VOLTS AC	0	300	240	PHASE 2 VOLTS	Volts AC on phase 2 (only if control is on)
OUT	NIC	0-300	VOLTS AC	0	300	240	PHASE 3 VOLTS	Volts AC on phase 3 (only if control is on)
OUT	NIC	1-60	SECONDS	1	60	1	START DELAY MIN RANDOM	adjustable start delay on power up as a fixed time
OUT	NIC	1-999	SECONDS	1	999	60	START MAX RANDOM	adjustable minimum random start delay (seconds)
OUT	NIC	1-60	MINUTES	1	999	300	START	adjustable maximum random start delay (seconds)

Network commands from mp15 to NIC

IN	NIC	T/F	TRUE/FALSE	FALSE	TRUE	FALSE	CONTROL REQUEST	Control to run/stop. Control will start after any fault or off time counters
IN	NIC	T/F	TRUE/FALSE	FALSE	TRUE	FALSE	MEM FLAG	Clear previous memory condition
IN	NIC	T/F	TRUE/FALSE	FALSE	TRUE	FALSE	OFF TIMERS	Clear off time counter
IN	NIC	T/F	TRUE/FALSE	FALSE	TRUE	FALSE	OFF TIMERS	Clear memory counter

The MP15 Automatic Motor Protector for single & three phase motors

interactive
animation @
mp15.info

Superior Protection for all kinds and sizes of single & three phase motors

The MP15 is a fully automatic solid state motor protector with adjustable start delay, anti short cycle timer and fault memory. It is suitable for all sizes and types of single and 3 phase motors. Models for 2010 include new improved phase detection electronics and precision for greater all round motor protection in all supply situations.

The MP15 protects against these common causes of motor failure:

- Voltage imbalances of more than 25% between phases (adjustable).
- Blown fuses causing single phasing.
- Chattering or poor making motor starting contacts.
- Faulty 415V isolating switch-gear
- Loose or poor connections simulating a phase loss.
- Overloading. Motor starters which automatically reset can cause windings failure. The MP15's automatic 15 minute restart delay allows the motor to cool and prevent winding overloads and damage.
- Under voltage. If the voltage drops to ~180 VAC on supply phase, the MP15 automatically trips and initiates a 15 minute off time delay.



- Power failure\tripping caused by multiple motors starting together. The MP15 adjustable start delay limits startup currents.
- Auto Restart: the MP15 automatically restarts after all faults allowing unattended operation.



Green: motor is running

Green/Amber: motor running but prior fault

Red: Motor not running, either start delay or three phase supply problem.

Red/Amber: Motor not running, fault memory



The improved electronics feature individual phase sensing and supply monitoring for greater protection and detection. Also new: an internal voltage sensitivity adjustment pot. For convenience, both plug in MP15 *above* and MP15D *left* are shipped as three phase types, but can be converted to single phase. MP15's also include a 5A replaceable control fuse.

Go Live! See the MP15 in operation, visit mp15.info and click on the animation link for a virtual and interactive display of the mp15 in action. It's both educational and fun.

PHASEFALE

CONTROL

MONITOR

PROTECT



So, if it's protection you need, call the MP15 family....

The adjustable start delay of the MP15 is ideal for stage starting of multiple three phase motors on a common supply and saves additional timers, wiring and complexity.

The MP15 has been delivering reliable service in Australia since 1970 and offers either an 8 pin mounting base type allowing plug in change-over or the compact DIN rail mounting version with a standard circuit breaker profile.

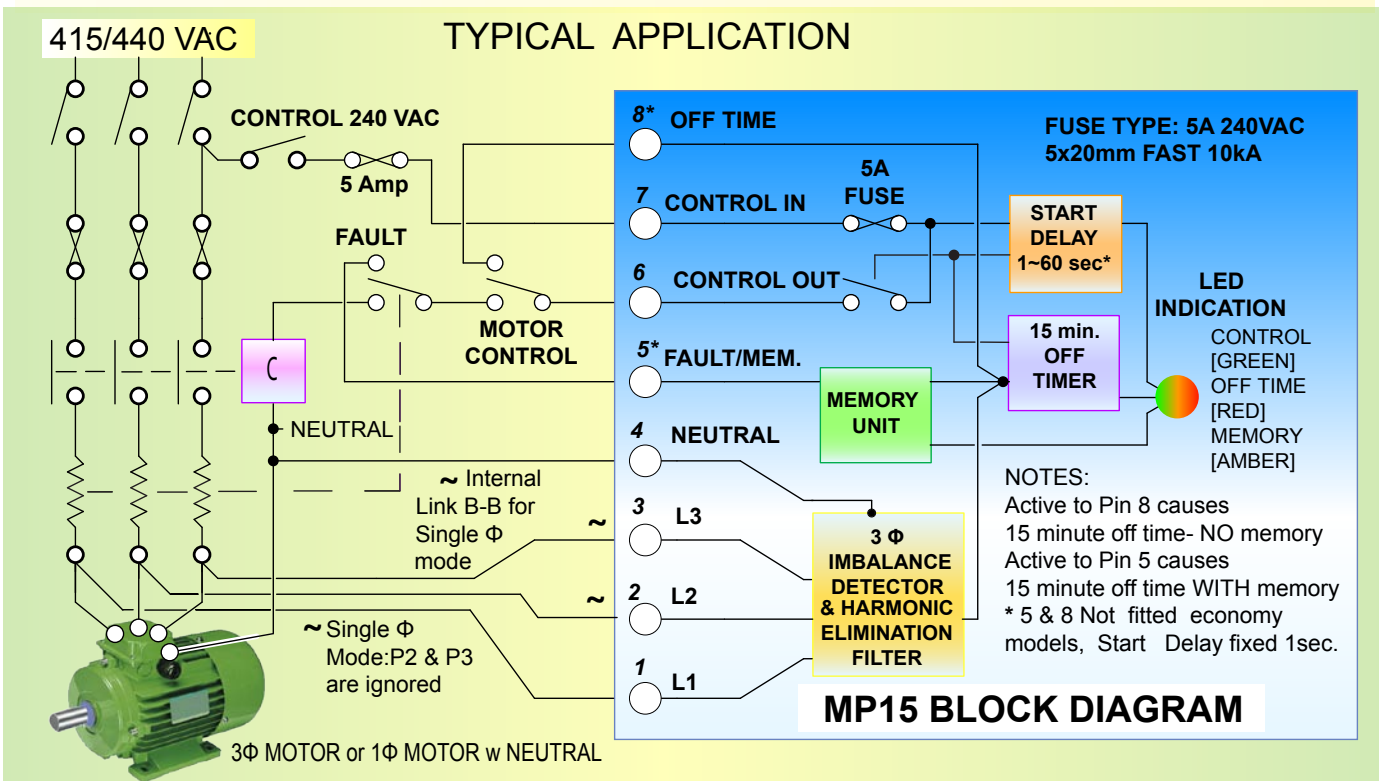
Economy versions of the MP15 achieve cost savings by the omission of fault and memory inputs and have a fixed 1 second start delay.

New for 2010 the **unique** individual phase monitoring circuitry is far superior to the standard phase summation technique, which treats harmonics and phase distortion as a phase imbalance. New MP15s avoid this compromise between sensitivity to imbalance and phase distortion which in certain supply situations can leave your motor either unprotected or tripping continuously!



Economy MP15's; high protection at a reduced price.

The DIN mount 8 pin base used with the MP15 allows plug in flexibility



MP15 Model Selection Table *All models 3 Φ or 1 Φ

Model	Mounting	Description
MP15	Octal Base	MP15 with Fault memory and adjustable start delay
MP15D	DIN Rail	DIN mount MP15 with Fault memory and adjustable start delay
MP15/E	Octal Base	Economy MP15 with fixed 1 second start delay
MP15DE	DIN Rail	Economy DIN mount MP15 with fixed 1 second start delay

* models shipped 3 phase. Factory or user conversion to single phase mode with internal jumper link fitted across B-B