

MP15P

MOTOR PROTECTION RELAY

► *Closing the gap in industrial motor protection* ◀



- Superior motor load-side supply monitoring/protection
- Installation and operational flexibility
- Unrivalled ease-of-use
- Powerful return-on-investment



• CONTROL • MONITOR • PROTECT

Designed and Manufactured in Australia

MP15P: CLOSING THE MOTOR PROTECTION GAP...

For some time, industrial professionals have straddled a 'gap' in conventional motor protection technologies. On the one hand lie motor overload relays; both bi-metallic and electronic versions. These, along with rudimentary phase-protection relays, provide built-to-a-budget 'bare-minimum' protection functionalities. On the other hand lie thermistor protection solutions; costly stator winding thermal-averaging devices that respond to localised motor winding thermo-electric stresses after they occur.

What's missing? Direct and immediate protection against the vagaries of the power supply and system that can stress motor windings, shorten motor life, and jeopardise production up-time.

While 'high-end' electronic protection relays can offer such protection, they are in a price-bracket and form-factor that make them 'unaffordable' for smaller motors under 45 kW.

AN INDUSTRIAL DILEMMA:

While the capital cost of smaller motors might be small, the cost of lost production in the event of a motor burnout can be huge. The 'gap' is a costly accident waiting to happen...

Phasefale's MP15P motor protection relays closes the motor protection gap.

In an affordable and compact package, the MP15P shields motors from the damaging thermo-electric motor winding stresses that can result from:

- ▶ Phase loss
- ▶ Undervoltage
- ▶ Phase imbalance

▶ HIGH PERFORMANCE

PROTECTION PERFORMANCE



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COST

BI-METALLIC RELAY

ELECTRONIC OVERLOAD AND/OR RUDIMENTARY SUPPLY PROTECTION



THERMISTOR PROTECTION

HIGH-END ELECTRONIC MOTOR PROTECTION

▶ LOW COST

CLOSING THE MOTOR PROTECTION GAP...

SUPERIOR MOTOR SUPPLY MONITORING & PROTECTION

The MP15P's advanced microprocessor-based fault detection technology responds to supply faults before they cause motor damage—unrivalled precision, flexibility and responsiveness acting on three distinct fronts:

► PHASE LOSS

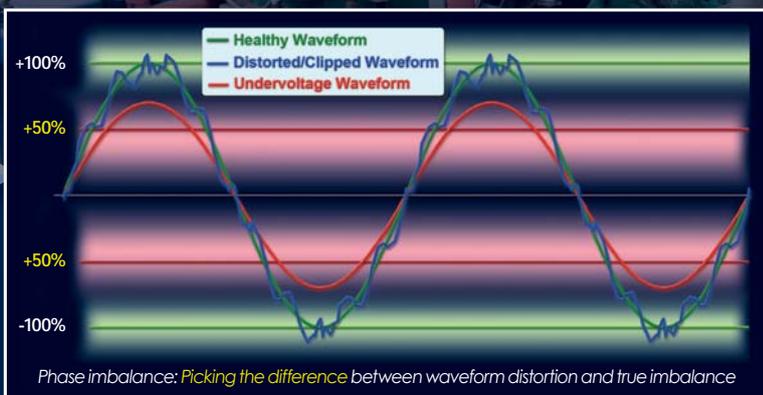
The MP15P's advanced electronics responds to phase loss in seconds, a fraction of the response time typical of thermal overload relay solutions.

► UNDERVOLTAGE/BROWN OUT

Typically not addressed by overload protection technologies, 'brown out' conditions result in high current/ high torque winding stresses that are insidious degraders of motor life. The MP15P uniquely offers a user-adjustable undervoltage trip point (nominal 75%; adjustable between 60-90%), and fault-response time of less than three seconds.

► PHASE IMBALANCE

Conventional phase-imbalance protection is a 'blunt' instrument. Founded on star-point/voltage summation technologies, these struggle to differentiate between genuine three-phase imbalance and the waveform distortion/clipping commonly found in modern industrial facilities. Using advanced signal processing solutions, the MP15P elegantly and precisely 'picks the difference', thus providing incomparable phase-imbalance sensitivity and speed of response (2.5% nominal; 1.5-3.5% adjustable. Less than three seconds response time).



'TIME OUT' FOR YOUR MOTOR

- **15-minute fault timer:** In the event of a fault—phase fault, or optionally, thermal overload—the MP15P ensures your motor takes 'time out' to thermally recover. The MP15P's onboard timer maintains a 'tripped' condition for 15 minutes, preventing phase-fault hunting and drawing attention to the problem.
- **Five-minute restart timer:** The MP15P's five-minute restart timer can be deployed to ensure restarts per hour are kept to an acceptable level.



'THE LOAD-SIDE ADVANTAGE'

Why load-side protection? The MP15P monitors the supply at the output to the motor terminals, not on the incoming supply like other rudimentary phase-protection devices. This gives the added

protection of monitoring the entire power supply chain between incoming supply and the motor cable itself. A faulty contactor, loose or disconnected wire, or a faulty thermal overload element can all lead to load-side faults.

SO EASY TO INSTALL SO EASY TO USE

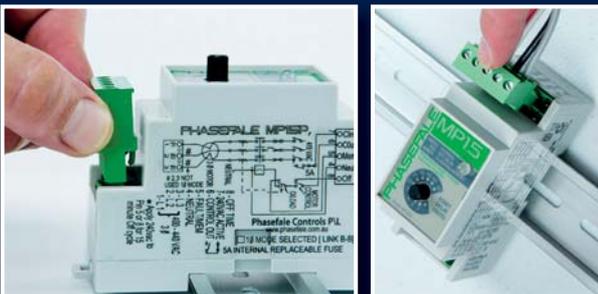
▶ **POWERFUL EASY-TO-USE DIAGNOSTICS:**

The MP15P provides intuitive LED diagnostics permitting quick and easy diagnosis in all failure modes. The MP15P is straightforward easy to use; no complex digital displays and DIP switch settings are required. One quick push of the front-fascia 'reset' button reveals precisely what condition tripped the motor. A longer push clears the fault indication and the 15-minute timer, ready to restart!



▶ **EASE OF INSTALLATION:** The MP15P is a breeze to install—no CTs or add-on modules are required; an eight-wire in-panel wiring connection does it all! 'Plug-and-play' functionality is a 'standard', featuring quick-release DIN-rail mount and foolproof dual-pluggable wiring terminals.

▶ **A PLANT-WIDE SOLUTION:** Any MP15P relay can address all three-phase 415V and single-phase 230V motor protection applications across the plant, ranging from fractional horsepower drives through to the largest motors in this voltage class.



MP15P Diagnostics scheme **LED Indications**

-  ▶ Running
-  ▶ Running with Memory
-  ▶ Stopped-Fault
-  ▶ Stopped - Restart Delay
-  ▶ Stopped + O'load Memory

DELAYS - Fault: 15mins; Restart: 5mins



MP15P Diagnostics

Momentary P/B for Last Fault Logged

-  ▶ x1 No Fault Logged
-  ▶ x1 Phase 1 Low or Loss
-  ▶ x2 Phase 2 Low or Loss
-  ▶ x3 Phase 3 Low or Loss
-  ▶ x4 Phase Imbalance
-  ▶ x5 O'load/ Fault Memory
-  ▶ x6 Load-side Undervoltage
-  ▶ x7 Load-side Overvoltage
-  ▶ x8 Supply-side Undervoltage

*** Press & hold button 5 secs to CLEAR last fault logged & also RESTART MP15P**

MP15P BOTTOM LINE

A POWERFUL RETURN-ON-INVESTMENT

Can you afford an unscheduled production outage of two or three hours?

Most facilities can't. In the event of a motor burnout, the accumulative cost—production down—time, repair materials and labour, and spares inventory—can be huge, regardless of the motor size. The prevention of just one motor failure pays for the MP15P many times over—it offers a return-on-investment far greater than conventional motor protection technologies.

► **Enhanced motor uptime/availability**

By shielding the motor from load-side supply faults, motor life is enhanced, catastrophic motor failure prevented and unscheduled production outages avoided.

The end result? Maximised production uptime, total plant productivity and throughput.

► **Protection cost comparisons**

The MP15P's cost is just a fraction of that of conventional bimetallic or electronic motor protection, yet seriously enhances their motor protection functionality. It is an order of magnitude less costly than thermistor relay solutions or high-end electronic motor protection relays, and markedly less labour-intensive to install.

► **Reduced spares inventory costs**

A single model supports all three-phase 415V and single-phase 230V motor protection applications across an entire facility.

► **Panel space costs**

The MP15P occupies minimal panel space (around the size of a small electronic timer relay), and requires no additional CTs or interface modules. Costly panel space real estate is thus kept to a minimum.

\$



\$

FLEXIBILITY: SO MUCH IN SO LITTLE

The functionality, configurability and flexibility of the MP15P ensure it can address the widest range of motor protection applications. This ensures minimal technical familiarisation and stock holding requirements for an entire industrial site.

CONFIGURABILITY AND ADAPTABILITY

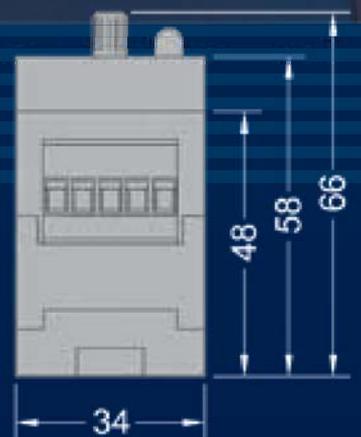
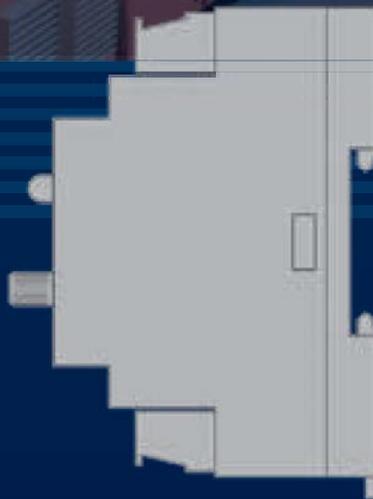
- **Adjustable trip settings:** Both the undervoltage and phase-imbalance trip sensitivities are user-configurable, supporting the widest range of protection applications.
- **Start-time delay:** The MP15P boasts a user-adjustable 1-60 second start delay timer for delayed motor-start sequences. This is particularly useful in applications requiring multiple coincident DOL motor starts.
- **Single-phase and three-phase:** Any MP15P unit can be wired to protect either three-phase or single-phase motors. A simple terminal link is all that is required.



MP15P internal replaceable fuse

TECHNICAL SPECIFICATIONS

Technical Detail	Nominal/range	Notes
PROTECTION MODES/FEATURES Phase loss Under voltage/brownout (adjustable) Phase imbalance (adjustable) Over voltage Fault reset time	Trip 180V phase-neutral nominal; adjustable +40V to -60VAC 15 minutes	Nominal Supply L-N 240VAC, L-L 415VAC 3 phase User-adjustable via internal potentiometer
CONNECTIVITY & MOUNTING Unit mounting Control connections Phase monitoring	DIN Top Row Terminals Bottom Row Terminals	Standard DIN-rail circuit breaker profile Pluggable top-row terminal connector, five-pole Pluggable bottom-row terminal connector, three-pole load-side connections (accomodating three-phase and single-phase)
DIAGNOSTICS/CONTROL/UNIT PROTECTION LED INDICATION - STATUS LED INDICATION - MEMORY Memory pushbutton Reset pushbutton Control circuit protection	Run, Stop, Delay,Memory Phase loss, Fault, Under & Over Volts From front— momentary push button From front— push button 5 seconds 6.3A FB 5X20mm fuse	Run - green; stopped - red; delay - red cycle; memory - amber Eight distinct modes (one run, seven 'fault') indicated Memory LED indications are shown Resets fault and off-start timers, unit runs Internally accessible & replaceable
ANCILIARY CONTROL FUNCTIONS Start delay time Off-time restart time	1-60 seconds 5 Minutes	Typically for staggered starts in multiple drive situations Anti short-cycle function limits motor starts per hour to 6
PHYSICAL DIMENSIONS Weight Shipping weight Shipping Size	71 gm 95gm 135 * 90 * 55 mm	
APPROVALS Australian electrical approval 'C-Tick'	Australian Approval Number N757	AS/NZS CISPR 11:2004 ISM Class B (Domestic)



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