

# PowerPact® Electronic Motor Circuit Protectors Improve Start-ups

## *The ultimate solution for flexibility, code compliance and performance for protecting motor circuits*

The PowerPact® Electronic Motor Circuit Protectors (MCP) offer simple solutions that deliver more reliable start-ups, provide better protection for your equipment and adjust for a wide range of your motor starters.

The unique design of the PowerPact MCPs includes two dials to allow a customer to quickly and confidently adjust settings based on the characteristics of the motor. The first dial allows for Full Load Amperes (FLA) adjustment across the range of the frame size, while the second dial selects the type of motor protection based on Automatic 1 for Standard Efficiency or Automatic 2 for High Energy Efficient. Dial 2 also allows for traditional motor protection from 8 to 13 times the selected FLA.

These simple adjustments are all you need to ensure your motor circuit is set to the in-rush characteristics of the motor and is a fully National Electrical Code® (NEC®)-compliant installation. This new product has a number of significant advantages in managing your facility's motorized equipment:

### **More Reliable Start-ups of Your Equipment**

Motor in-rush creates many problems for sizing and setting the circuit breaker in motor circuits. The high in-rush demands of energy-efficient motors can create nuisance tripping or installations that are not NEC compliant. The PowerPact MCP has instantaneous trip points that align with the motor and NEC to ensure your installation will work every time.

### **Easier Installations**

With a wide adjustment range, there is no need to swap devices to cover the horsepower range of a starter. For example, the 30A MCP has an FLA adjustment range of 1.5A to 27A, covering the entire range of NEMA size 00, 0 and 1 starters. The settings align directly with information published on the motor nameplate. Likewise, just five MCPs cover the complete range from 1/2 hp to 200 hp at 480V.

### **High SCCR Ratings**

The PowerPact MCP also helps achieve high Short Circuit Current Rating (SCCR) needed to meet recent code changes for industrial control panels. They deliver up to 100kA at 480V SCCR when used in combination with Square D® NEMA or Telemecanique® IEC motor starters.

### **Better Equipment Protection and Safety**

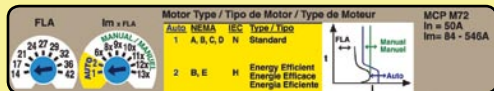
The PowerPact MCP provides for quick and decisive tripping when your motor exceeds its current limitations, improving the longevity of your equipment. This eliminates a common misapplication that occurs when instantaneous trip points are adjusted too far above the motor's locked rotor current to avoid nuisance tripping on high in-rush currents. The mechanism is also designed to ensure that the handle of the breaker provides positive indication that the contacts are in the ON, OFF or tripped position.

### **Lower Life Cycle Costs**

This product delivers high performance levels and precise adjustment for a wide variety of motor circuits. It also eliminates the need to stock the wide variety of fuses required to keep your equipment running.



PowerPact  
Electronic MCPs



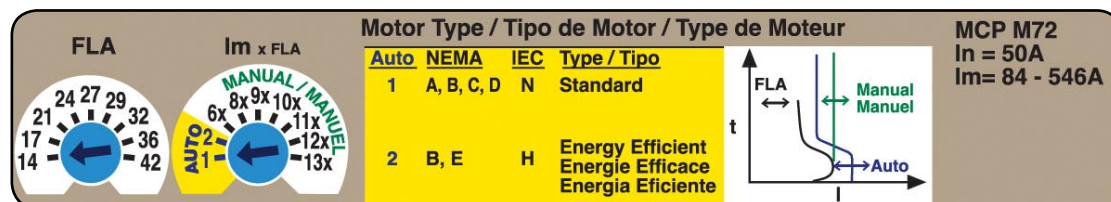
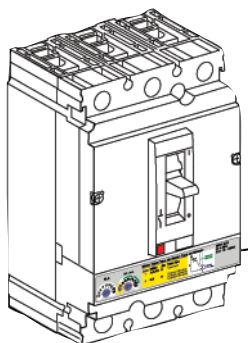
### **Settings for Standard or Energy-Efficient Motors**

*The automatic setting on the PowerPact MCP allows for a transient motor in-rush to safely clear before aligning the protection to the motor's locked rotor current. Device settings align directly with the various classifications found on the motor nameplate.*

## Application of PowerPact® Electronic MCPs

PowerPact® MCPs are magnetic only instantaneous-trip circuit breakers. They are designed to offer short circuit protection and meet NEC® requirements when installed as part of a UL listed combination controller having motor overload protection. MCP circuit breakers accept the same accessories and terminals as the equivalent PowerPact thermal-magnetic circuit breakers.

Determine the horsepower rating from the nameplate of the motor. Select an MCP with an ampere rating recommended for the horsepower and voltage involved. When using the automatic settings, the MCP microprocessor automatically adjusts the trip setting for both current and time to align with the start-up characteristics for the motor type, whether it be standard or energy efficient. This includes a dampening means to accommodate a transient motor in-rush current without nuisance tripping of the circuit breaker.



### Ordering Information/Specifications

Suffix	Frame/Current	Full-Load Amperes Range (A)	Adjustable Instantaneous Trip Range (A)	J Interrupting (see SCCR table)	L Interrupting (see SCCR table)
				Catalog Number	Catalog Number
M71	H-Frame	30A	15 – 25	9 – 325	HJL36030M71
M72		50A	14 – 42	84 – 546	HJL36050M72
M73		100A	30 – 80	180 – 1040	HJL36100M73
M74		150A	58 – 130	348 – 1690	HJL36150M74
M75	J-Frame	250A	114 – 217	684 – 2500	JJL36250M75

Based on 2005 NEC table 430.52

Maximum Rating or Setting of Motor Protective Devices			
Type of Motor		Percentage of Full-Load Current	
		Setting	Not to Exceed <sup>^</sup>
A,B,C,D	Standard	800%	1300%
B,E	Energy Efficient	1100%	1700%

<sup>^</sup>See NEC Exception No. 1 to table 430.52.

The NEC 1300% maximum setting may be inadequate for instantaneous-trip circuit breakers to withstand current surges typical of the magnetization current of autotransformer type reduced voltage starters, or open transition wye-delta starters during transfer from "start" to "run," constant horsepower multi-speed motors, and motors labeled "high efficiency."

Based on 2005 NEC table 430.250

MCP Selection by Horsepower Ratings of Induction Type Squirrel-Cage and Wound Rotor Motors					
Three Phase 60 Hz AC				Full Load Amperes	Suffix
200V	230V	460V	575V		
1/2 – 5 hp	1/2 – 7.5 hp	3/4 – 15 hp	1 – 20 hp	15 – 25	M71
5 – 10	5 – 15	10 – 30	15 – 40	14 – 42	M72
10 – 25	15 – 30	25 – 60	30 – 75	30 – 80	M73
20 – 40	25 – 50	50 – 100	60 – 125	58 – 130	M74
40 – 60	50 – 75	100 – 150	125 – 200	114 – 217	M75

Listed voltages are rated motor voltages. Corresponding system voltages are 200, 220 to 240, 440 to 480 and 550 to 600 volts. Select wire and circuit breakers on the basis of horsepower rather than nameplate full-load current per NEC 430.6(A) for general motor applications.

Per NEC 430.3, part-winding motors should select two circuit breakers, each at not more than one half the allowable trip setting for the horsepower rating. The two circuit breakers should be operated simultaneously as a disconnecting means per NEC 430.103.

### Short Circuit Current Ratings (SCCR) of PowerPact MCP Combinations

	J Interruption			L Interruption		
Contactor/Starter	200 – 240V	480V	600V	200 – 240V	480V	600V
Tesys® D-line and F-line	100kA	65kA	25kA	100kA	100kA	50kA
NEMA Type S	100kA	65kA	25kA	100kA	100kA	50kA

See [www.squared.com/ul508A](http://www.squared.com/ul508A) for specific ratings and combination ID numbers.

Tested to meet NEC and UL 508A requirements for short circuit current ratings as part of an approved combination controller.

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For more information on the Square D® PowerPact Electronic Motor Circuit Protector, contact your nearest Square D distributor or visit [www.us.squared.com/mcp](http://www.us.squared.com/mcp)