



MOTORSafe 220

Electronic voltage protector for electric motors

Overview

The BREAKERMATIC MOTORSafe 220 is designed to prevent damage to your 220V motor equipment caused by voltage fluctuations. It features four adjustment knobs on the front for high and low cut-off voltage, the duration of the standby cycle, the delay time between fault detection and output disconnection, and an on/off switch.

The protector can be mounted using an omega rail (DIN rail) for electrical panels or directly to a wall using the built-in mounting brackets.

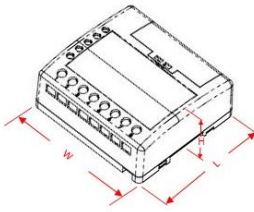
Operation

1. **Protection against steady-state voltage variations.** The BREAKERMATIC MOTORSafe 220 disconnects the output if the steady-state voltage is above the voltage set on the "over voltage" knob or below the voltage set on the "under voltage" knob. The response time is adjustable on the "disconnection time" knob between 1 and 8 seconds. The voltage must remain outside the range longer than the response time before the protector disconnects the output. While the fault persists, the corresponding high or low voltage indicator will remain illuminated.
2. **Reconnection delay or standby cycle.** When the protector is energized, or at the end of a voltage fault, the protector will initiate a time delay before connecting the output. The duration of the time delay can be adjusted using the "delay time" knob between 30 seconds and 4 minutes 30 seconds. The standby cycle protects sensitive equipment from short operating cycles.
3. **Blackout detection, sag detection, etc.** The protector will disconnect the load if it detects a sudden voltage drop below 50% of the nominal voltage and will initiate a standby cycle. The response time of the blackout detector is instantaneous; the minimum blackout duration is specified in the specifications, but it is guaranteed to be greater than the maximum transfer time on distribution lines.

Models

Model	Nominal Voltage	Nominal amperage	Frequency	No. Phases	Cut off voltages	Reconnection delay	Response delay	On/Off switch	Language
PMP220-BD0MOT	220VAC	30A	50/60 Hz	1	Adjustable	adjustable	adjustable	Yes	Spa. - Eng.
PMP220-AD0MOT	220VAC	40A	50/60 Hz	1	Adjustable	adjustable	adjustable	Yes	Spa. - Eng.

Specifications

Electrical			
Nominal Voltage	220	VAC	
Nominal Frequency	50 - 60	Hz	
Steady state voltage protection			
Low cut-off voltage, minimum position	150 +/- 3%	VAC	
Low cut-off voltage, maximum position	210 +/- 3%	VAC	
High cut-off voltage, minimum position	210 +/- 3%	VAC	
High cut-off voltage, maximum position	280 +/- 3%	VAC	
Reconnection Hysteresis	5 - 10	VAC	
Response delay, minimum position	1 +/- 20%	s.	
Response delay, maximum position	8 +/- 20%	s.	
Standby cycle			
Reconnection delay time, minimum position	30 +/- 20%	s.	
Reconnection delay time, maximum position	4:30 +/- 20%	Min:seg	
Blackout detection			
Minimum blackout duration (0% nominal voltage)	32 -64	ms	
Minimum brownout duration (50% nominal voltage)	>100	ms	
Maximum load	PMP220-BD0MOT	PMP220-AD0MOT	
Maximum Resistive Load (cos ϕ = 1)			
Current (Amperage)	30	40	A
Power	6.6	8.8	KW
Electric motors, maximum load capacity			
Motor nominal power	1.5 / 1	2 / 1.5	H.P. / KW
Nominal amperage Maximum	9	13.3	A
Maximum Input nominal power	2	3	KW
Apparent Power (No load)	15	15	VA
Minimum required load (see note 1)	0	2	W
Mechanicals			
Dimensions			
Length L	102	mm	
Width W	109	mm	
Height H	43	mm	
Weight	280	gr.	
Connection terminals			
Screw thread	6-32		
Screwdriver			
Phillips	PH2		
Flat	1.0 x 5.5	mm	
Tightening torque min. / max.	0.8 / 1	Nm	
Wire section / gauge (solid or multifilament) (see notes 2, 3, 4 and 5)			
Minimum	0.34/ 22	mm ² / AWG	
Maximum	4 / 8	mm ² / AWG	
Recommended wire stripping length	7-8	Mm	
Isolation materials			
Enclosure	ABS		
Terminals block	PBT		
Printed circuit board	FR4		
Flame retardant classification (UL94)			
Enclosure	V0, 5VA		
Terminals block	V0		
Printed circuit board	V0		
Isolation resistance (NTC1650:2004 Num 17.1)	>550	Mohms	
Dielectric strength (NTC1650:2004 num 17.2)	>2	KV	

Environmental		
Maximum operating ambient temperature	45	°C
Place of use: Indoor use, in a dry and ventilated place	Yes	
Outdoor use and/or in wet places	No	
Enclosure ingress protection IP (IEC 60529)	IP40	

Note 1: The PMP220-AD0MOT MOTOR SAFE 220-A Protector requires a minimum load for proper operation.

Due to the type of switch, the A model will allow a current of 82 uA to flow even with the switch off or during the standby cycle. Some low-power devices in standby mode may not operate properly if this minimum load is not guaranteed.

Caution: If you energize the PMP220-AD0MOT protector without a load, it will present an output voltage as high as the input voltage, even with the switch off or during the standby cycle. To make connections, you must completely de-energize both phases of the protector.

Note 2: For currents greater than 20 A with direct cable connection to the terminal block, use solid wire.

Note 3: The terminals supplied are for 12-10 AWG (2.05 – 2.5 mm²) wire and can be used up to 30 A.

Note 4: For two identical conductors in a single terminal, maximum 2.5 mm² or 10 AWG.

Note 5: Use the appropriate cable according to the national electrical standard or the specifications of the manufacturer of the equipment to be protected.

Product certificates

NOM NOM-003-SCFI-2014 (NMX-J-515-ANCE)

Application notes

Adjusting the response time allows you to handle motors with long start-up times due to the load's inertia. During start-up, single-phase motors consume a higher current, which can be reflected in voltage drops.

If the protector is installed too close to the motor, it could experience these voltage drops, triggering the voltage protection. Increasing the response time can prevent the protector from tripping due to these drops during start-up, without having to modify the cut-off voltage settings.

Always verify that the motor's nameplate current (FRA), for 220V voltage, is less than the protector's maximum rated motor current.

The motor's rated power refers to the motor's commercial designation, which usually indicates the mechanical load the motor can handle. The protector's specifications indicate a typical value that each model can handle, but this may vary depending on the efficiency of each motor. Therefore, it is recommended to check the FRA current values to determine which protector model to select.

Shipping packaging

Type	Capacity	Dimensions (Length x Width x Height) (cm)	Models	Weight (Kg)
Carton CC48	48 pcs (6 x 8 pack)	58 x 33 x 52	A B	15.2 15.0
CC 8 pack	8 pcs in blister	28 x 18.58 x 22	A B	2.53 2.50