



# Motorsafe 110

## Electronic voltage protector for 110Vac motors

## Overview

The BREAKERMATIC MOTORSAFE 110 is designed to prevent damage to your 110V motor equipment caused by voltage fluctuations. It features four adjustment knobs on the front for high and low cutoff voltage, the duration of the wait 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 built-in mounting brackets.

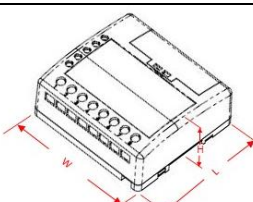
## Operation

1. Protection against steady-state voltage variations. The BREAKERMATIC MOTOR SAFE 110 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 for the disconnection to be activated. 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 s and 4 min 30 s. 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 initiate a standby cycle. The blackout detector's response time is instantaneous; the minimum blackout duration is specified in the specifications, but it is guaranteed to be longer 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
PMP110-D00MOT	120VAC	30A	50/60 Hz	1	Adjustable	adjustable	adjustable	Yes	Spa. – Eng.

# Specifications

<b>Electrical</b>			
Nominal Voltage	120	VAC	
Nominal Frequency	50 - 60	Hz	
Steady state voltage protection			
Low cut-off voltage, minimum position	80 +/- 3%	VAC	
Low cut-off voltage, maximum position	115 +/- 3%	VAC	
High cut-off voltage, minimum position	115 +/- 3%	VAC	
High cut-off voltage, maximum position	150 +/- 3%	VAC	
Reconnection Hysteresis	3 - 6	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	
<b>Maximum load</b>			
Maximum Resistive Load (cos φ = 1)			
Current (Amperage)	30	A	
Power	3.6	KW	
Electric motors, maximum load capacity			
Motor nominal power	1 / 0.75	H.P. / KW	
Maximum Motor Nominal amperage	9	A	
Maximum Motor Input nominal power	1	KW	
Apparent Power (No load)	8	VA	
<b>Mechanicals</b>			
Dimensions			
Length L		102	mm
Width W		109	mm
Height H		43	mm
Weight		280	gr.
<b>Connection terminals</b>			
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	mm² / AWG	
Maximum	4 / 8	mm² / AWG	
Recommended wire stripping length	7-8	Mm	
<b>Isolation materials</b>			
Enclosure	ABS		
Connection terminals	PBT		
Printed circuit board	FR4		
Flame retardant classification (UL94)			
Enclosure	V0, 5VA		
Connection terminals	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:** N/A

**Note 2:** For currents above 20A 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 mm<sup>2</sup>) wire and can be used up to 30A.

**Note 4:** For two identical conductors on a terminal, maximum 2.5 mm<sup>2</sup> or 10 AWG.

**Note 5:** Use the appropriate wire 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 draw 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 120V voltage, is less than the protector's maximum motor rated 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)	Weight (Kg)
Carton CC48	48 pcs (6 x 8 pack)	58 x 33 x 52	14.90
Carton CC 8 pack	8 pcs in blister	28 x 18.58 x 22	2.48