BREAKERMATIC
AIR INVERTER 110

Overview

The **BREAKERMATIC AIR 110 INVERTER** is designed to prevent damage to your 120V equipment caused by power surges, especially mini-split air conditioners and refrigeration equipment connected with NEMA 5-15 plugs. It includes a surge suppressor to protect your equipment's electronic components.

Operation

1. **Protection against steady-state voltage variations.** The BREAKERMATIC AIRE 110 disconnects the output if the steady-state voltage is above the high cut-off voltage or below the low cut-off voltage indicated in the specifications. In the case of adjustable equipment, the cut-off voltages can be set within the ranges indicated in the specifications. The response time to a fault is typically 1 s. 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 failure, the protector will initiate a reconnection delay before connecting the output. The duration of the reconnection delay is indicated in the specifications. This standby cycle protects sensitive equipment from short cycles of operation, allowing, in the case of A/C and refrigeration equipment, system pressures to equalize before reconnecting.
3. **Autostart.** This feature reduces the standby cycle to 5 seconds when the protector has been off for a considerable amount of time..
4. Blackout detection, sag detection, etc. The protector will instantly disconnect the load if it detects a sudden voltage drop below 50% of the nominal voltage and will initiate a standby cycle.
5. Suppression of transient overvoltages. Transient overvoltages are very short-duration, high-energy voltage spikes produced by the connection or disconnection of loads or induced by atmospheric discharges near the electrical grid. They propagate through it until they reach the equipment. The BREAKERMATIC AIRE 110 INVERTER cuts transient overvoltages between phase and neutral (differential mode) and between each current-carrying line and ground (common mode) without disconnecting the output..

Models

Model	Nominal Voltage	Nominal amperage	Frequency	Cut off voltages	Reconnection delay	Response delay	Connections	Voltage protection level	on-off switch	Language
PIN110-E++EST	120VAC	15A	50/60 Hz	87V-143V	3:50	1 s	NEMA 5-15	0.6 kV	No	Spanish
PIN110-E++ING	120VAC	15A	50/60 Hz	87V-143V	3:50	1 s	NEMA 5-15	0.6 kV	No	English

Fabricado por:
MAVIGAL SAS GALLIUM
NIT 900.340.440-0
Teléfono 601 898 5103
Autopista Medellín Km. 2.5.
Entrada Parcelas 900 Mts
CIEM OIKOS OCCIDENTE - Bodega B27
Cota – Cundinamarca - Colombia

Specifications

Electrical		
Nominal Voltage	120	VAC
Nominal Frequency	50 - 60	Hz
Steady state voltage protection		
Low cut-off voltage	87 +/- 3%	VAC
High cut-off voltage	143 +/- 3%	VAC
Reconnection Hysteresis	3 - 6	VAC
Response delay	1 +/- 20%	s.
Reconnection delay cycle	4:00 +/- 20%	Min:seg
Blackout detection		
Minimum blackout duration (0% nominal voltage)	32 -64	ms
Minimum brownout duration (50% nominal voltage)	>100	ms
Transient voltage suppressor		
IEEE C62.41 Location	Cat. A3 / B3	
Allowed Maximum continuous voltage (r.m.s.) Phase-neutral Phase-ground	 175 175	 VAC VAC
Voltage protection level (clamping voltage). Phase-neutral Phase-ground	 0.6 0.6	 kV kV
Maximum peak current (1 time, 8/ 20 us) Phase-neutral Phase-ground	 6.5 6.5	 kA kA
Maximum peak current (2 times) Phase-neutral Phase-ground	 4 4	 kA kA
Energy (10/1000 us)	3 x 158	J
Maximum load		
Maximum Resistive Load (cos ϕ = 1) Current (Amperage) Power	 15 3.3	 A KW
Maximum Load for inverter type air conditioner or Refrigeration Equipment Input power consumed. Nominal / Maximum Current (Amperage) Nominal / Maximum	 3.3/3.6 14/16	KW A
Maximum Load for Conventional Air Conditioner or Refrigeration Equipment Input power consumed Maximum Nominal amperage Maximum	 2.6 12	KW A
Apparent Power (no load)	8.5	VA
Mechanicals		
Dimensions		
Length	135	mm
Width	87	mm
Height	45	mm
Weight	237	gr.
Connections		
Input plug	NEMA 6-15P	
Output Receptacle	NEMA 6-15R	
Isolation materials		
Enclosure	ABS	
Plug and Receptacle	PC	
Printed circuit board	FR4	
Flame retardant classification (UL94)		
Enclosure	V0, 5VA	
Plug and Receptacle	V0, 5VA	
Printed circuit board	V0	
Glow wire test (NTC 5283:2015, NMX-J-565/2-11:2005)	Enclosure 650°C pass Plug and Receptacle 850°C pass	
Ball pressure test NTC 1650 num. 25.2 y 25.3	<2	mm.
Isolation resistance (NTC1650:2004 Num 17.1)	>550	Mohms
Dielectric strength (NTC1650:2004 num 17.2)	>1.25	kV
Impact (NTC /IEC 62262:2013)	pass	
Contacts		
Material	Brass 260 (70% Cu, 30% Zn)	
Oxidation Resistance Test (NTC 1650 num 29)	It shows no traces of corrosion or oxidation.	
Environmental		
Maximum operating ambient temperature	45	°C
Place of use: Indoor use, in a dry and ventilated place Outdoor use and/or in wet places	Yes No	

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Product certificates

NOM NOM-003-SCFI

Application Notes

1. As a general rule, select the surge protector to fit your A/C plug.
2. Check the nominal input amperage of your equipment, which should not exceed the rating indicated in the surge protector's specifications table.
3. The maximum cooling capacity will depend on the efficiency of the A/C or refrigeration equipment. To determine your equipment's input power consumption, divide the nominal cooling power by the EER (not to be confused with the SEER). It should not exceed the rating indicated in the surge protector's specifications. Be careful to use consistent units. If cooling capacity is expressed in BTU/h, EER in BTU/Wh, or alternatively, cooling capacity can be expressed in W or kW, and EER in W/W.
4. Example: a) Inverter Cap Equipment 18,000 BTU/h b) EER 10.9 BTU/Wh
   We obtain: Pin= 18000/10.9= 1651W = 1.65 KW < 1.7 KW (PIN110-000) ok

Shipping packaging

Type	Capacity	Dimensions (Length x Width x Height) (cm)	Weight (Kg)
Carton corrigado CC54	54 pcs (9 x 6 pack)	51 x 35 x 50	16.4
CC 6 pack	6 pcs en blister	33.5 x 16 x 16	1.82

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