



VCC-3 ELECTRONIC INVERTER

(Part of VCC Compressors)

TECHNICAL INFORMATION



VCC-3 INVERTER WITH DIAGNOSTIC FUNCTION

This function is being incorporated in the new generation of VCC inverter in order to add a feature that help Services Technicians to diagnose fault components (compressor / inverter / signal control) .

1. LED Diagnostic Codes

Through a translucent front cover, this VCC-3 inverter flashes a green LED for a corresponding possible failure due to inverter failure, compressor failure or lack of signal from Main Control Board. The codes failure are informed on a label disposed on the inverter enclosure box (*Figure 1*), and the description for each code is detailed herewith in this technical sheet.

VCC-3 diagnostic codes	
1 Flash	– No failure detected
2 Flashes	– No signal from Main Control Board
3 Flashes	– Inverter failure
4 Flashes	– Compressor failure
Refer to Service Tech Sheets for more information	

Figure 1 – Diagnostic codes label on the VCC-3 inverter box



Figure 2 – LED position on the VCC-3 inverter box



The LED flashes every 0.5 second inside a flashing cycle. And each flash endurance lasts 125ms, as represented in the graphic example below:

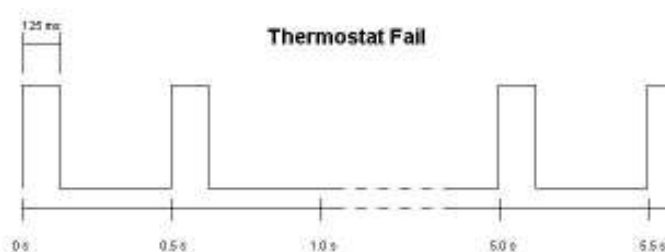


Figure 3 – Graphic example showing a diagnostic flashing cycle and each flashing endurance



Flashing cycles:

- **1-flash code:** 1 cycle every 15 seconds (1 flash every 15 seconds);
- **2-flash code:** 1 cycle every 5 seconds (2 flashes every 5 seconds);
- **3-flash code:** 1 cycle every 5 seconds (3 flashes every 5 seconds);
- **4-flash code:** 1 cycle every 5 seconds (4 flashes every 5 seconds);

2. Diagnostic Procedures

CODE	Compressor Status	PROBABLY ROOT CAUSES	SERVICE ACTION
1 Flash (every 15 seconds)	ON	- No failure detected	➤ Check other refrigerator components, in case of the system is not working properly
	OFF	- No signal from Main Control board (thermostat) - Thermostat damaged	➤ Unplug VCC from power supply and wait for 2 minutes ➤ Reconnect the VCC to the power supply and wait for 12 minutes ⚠ If inverter still shows 1 flash code and compressor is OFF: ➤ Check the thermostat control board
2 Flashes (every 5 seconds)	OFF	- No signal from Main Control board	➤ Check frequency cable connection ➤ Check the thermostat control board 🟢 If frequency cable connection and thermostat signal are OK: ➤ Replace the inverter
3 Flashes (every 5 seconds)	OFF	- Compressor / inverter cable interrupted (open circuit) - Inverter damaged - Compressor winding open circuit	➤ Check inverter / compressor cable is interrupted ➤ Check compressor windings resistances (among 3 terminal hermetic pins) 🟢 If resistance is within specification and inverter/compressor cable is Ok: ➤ Replace the inverter
4 Flashes (every 5 seconds)	OFF	- Compressor damaged / system damaged	➤ Check compressor input power ➤ Check compressor windings resistances (among 3 terminal hermetic pins) ➤ Check the leakage current between hermetic terminal pins and compressor shell ⚠ If resistance or leakage current is out of specifications: ➤ Replace the compressor 🟢 If resistance and leakage current are within the specification: ➤ Check inverter/compressor cable is interrupted ➤ Unplug VCC from power supply and wait for 2 minutes ➤ Reconnect the VCC to the power supply and wait for 12 minutes ⚠ If inverter still shows 4 flash code and compressor is OFF: ➤ Replace the compressor



LED OFF	OFF	<ul style="list-style-type: none"> - No Input power signal - Inverter damaged 	<ul style="list-style-type: none"> ➤ Check the input power signal (230V) 🔧 If there is no signal: <ul style="list-style-type: none"> ➤ Check the input power connections 🌱 If voltage is within specification: <ul style="list-style-type: none"> ➤ Unplug VCC from power supply and wait for 2 minutes ➤ Reconnect the VCC to the power supply and wait for 12 minutes 🔧 If inverter shows no flash code and compressor is off: <ul style="list-style-type: none"> ➤ Change inverter 🔧 If inverter shows no flash code and compressor is on: <ul style="list-style-type: none"> ➤ Diagnostic function is not work properly
---------	-----	---	---

Table 1 – Detailed description for VCC-3 diagnostic codes

Note:

- **Before replacing the inverter or compressor certify that there is no fault in the refrigerator: excessive pressure, blocked capillary tub, etc.**
- **After each Service Action has be done, follow the next inverter LED fault indication.**



MORE INFORMATION



EECON - EMBRACO ELECTRONIC CONTROLS

Rua Dona Francisca, 8300, Módulo 01, Bloco B
Joinville, SC, Brazil
Zip Code 89239-270

Phone: +55 47 3441 7900
Fax: +55 47 3441 7960

Internet: www.eecon.com.br

EECON can accept no responsibility for possible errors in this material. EECON reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequent changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. EECON and Embraco are trademarks of Embraco S/A. All rights reserved.

Document Version: 01 - revision 03 – April 2007