

## RAC Fault Codes

A summary of the fault codes is given in the table below, but they are described in greater detail in the pages that follow.

Error Code	Flashing Lights	Fault	Display		Indoor operation
			Indoor	Outdoor	
C1 or CH1	1	Indoor temperature sensor open or closed circuit	○		ON
C2 or CH2	2	Outdoor temperature sensor open or closed circuit	○	○	ON
C4 or CH4	4	Heat sink temperature sensor open or closed circuit	○	○	ON
C5 or CH5	5	Communication between indoor and outdoor units	○	○	OFF
C6 or CH6	6	Excessive current at inverter DC power circuit	○	○	SHUT DOWN
C7 or CH7	7	Excessive compressor current	○	○	SHUT DOWN
C8 or CH8	8	Indoor fan not rotating	○		OFF
C9 or CH9	9	Outdoor fan not rotating	○	○	OFF
CA	10	1. Discharge temp more than 130 °C 2. Faulty discharge thermistor	○	○	ON
CC	2 + 1	EEPROM error		○	ON
CD	3 + 1	Inverter module error		○	ON
CE	4 + 1			○	ON
Po		System in Power Mode – not a fault	○		
Lo		System in test mode – not a fault	○		

### Notes:

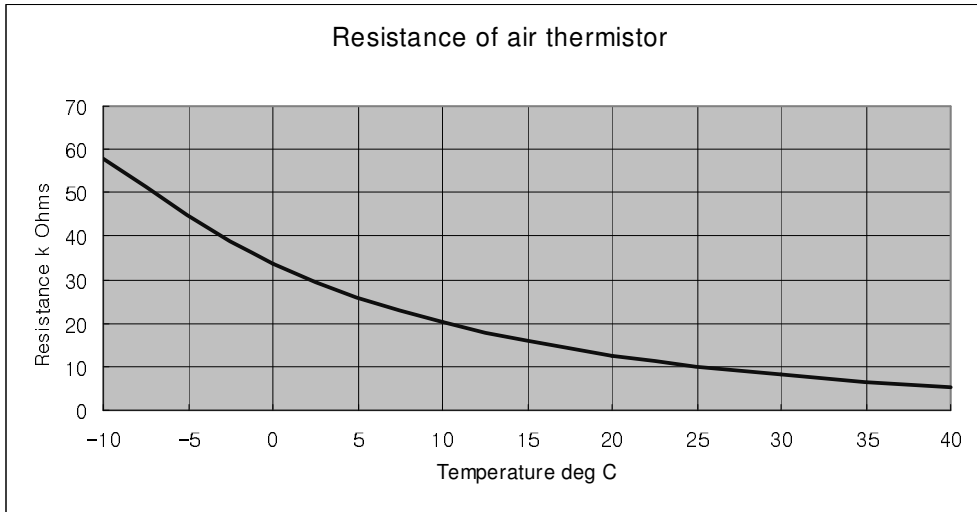
On models with an alpha-numeric display the error codes are as per the left hand column above.

On other models the fault is determined by counting the number of flashes on one or two led's. There is an interval of three seconds between repeats of the flashing sequence.

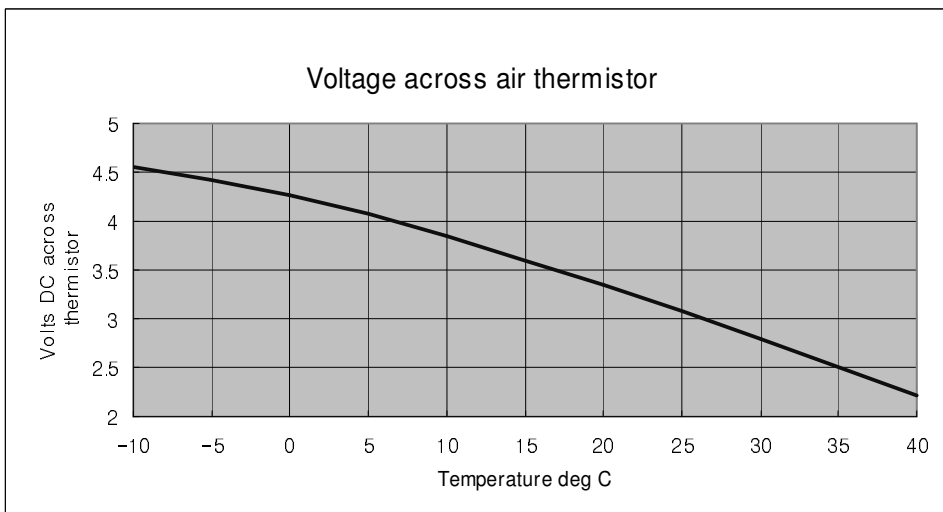
**Fault code C1, CH1 or 1 flash**

Is a fault with the Indoor unit return air Thermistor

Unplug the Thermistor from the PCB and Check its resistance check against this graph:



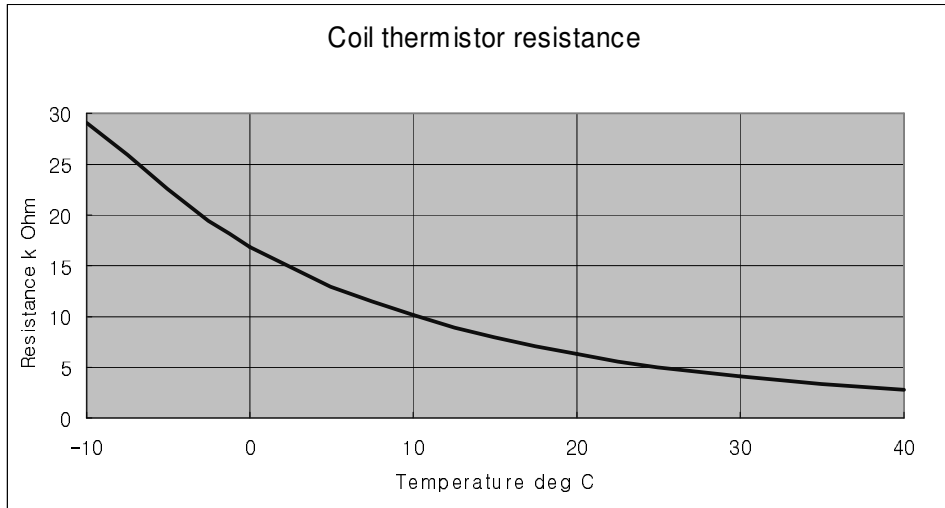
Alternatively the sensor can be tested while still connected to the PCB measure the DC voltage across the resistor and check it against the graph below.



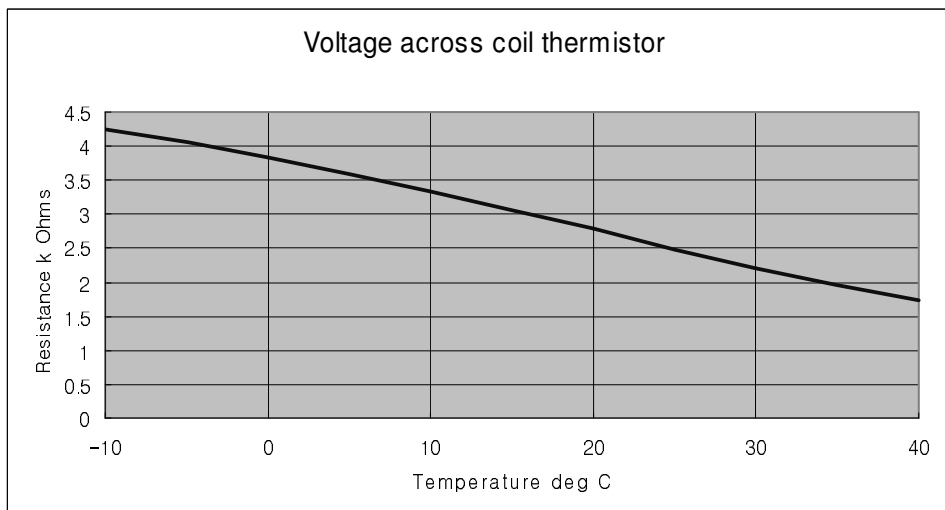
**Fault code C2, CH2 or 2 flashes**

Is a problem with the Indoor unit coil Thermistor

Unplug the Thermistor from the indoor PCB and Check its resistance against this graph:



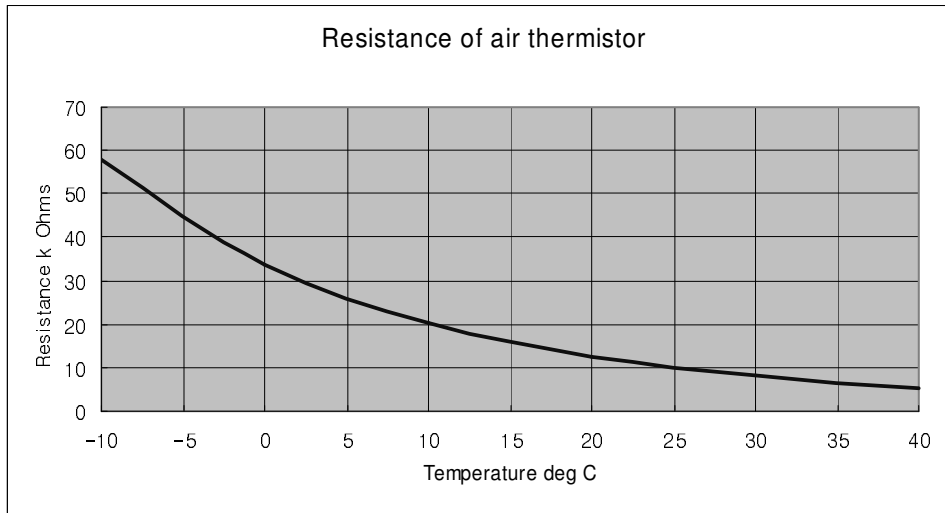
Alternatively the sensor can be tested while still connected to the PCB measure the DC voltage across the resistor and check it against the graph below.



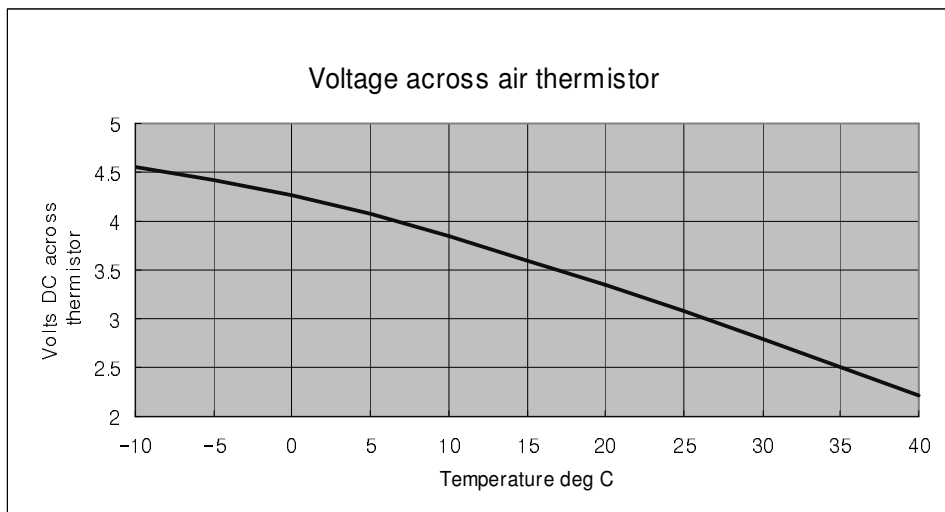
### Fault Code C4, CH4 or 4 flashes

Is a fault with the Outdoor unit inverter Heat sink Thermistor, the fault will occur if the sensor is faulty or the heat sink temperature exceeds 85°C ?

Unplug the Thermistor from the PCB and Check its resistance check against this graph (the air thermistor and heat sink thermistor have the same calibration graph)



Alternatively the sensor can be tested while still connected to the PCB measure the DC voltage across the resistor and check it against the graph below.



### **Fault code C5, CH5 or 5 flashes**

This fault code indicates a communication error between the indoor and outdoor units. If there is a communication error fault **CH05**, will appear within 5 minutes of powering up the system.

Communications between the outdoor and indoor units are via terminal 3 and N of the interconnecting cable. Communications errors can be due to:

1. Cable and cable connection faults.
2. Devices such as an external pump connected to the communications terminals
3. Faulty indoor or outdoor PCBs.

If there is a communications error CH05, then first check the terminals at both the indoor and outdoor units for any devices other than the interconnecting cable. Remove such equipment, and connect them elsewhere. If the fault persists, proceed as follows:

1. Disconnect the signal cable at both ends (Terminal 3).
2. With the INDOOR unit powered up and switched on, check the DC voltage at the INDOOR unit between the signal (terminal 3) and neutral. Connect the red lead from your meter to 3 and the Black lead to N, the Voltage should be negative, and fluctuating up to about -70 V. If there is no voltage, the indoor PCB is faulty
3. With the OUTDOOR unit powered up and switched on, check the DC voltage at the OUTDOOR unit between the signal (terminal 3) and neutral, connect the red lead from your meter to 3 and the black lead to N, It should be positive, fluctuating up to about +70 V. If there is no voltage, the outdoor PCB is faulty
4. If the tests in 2 and 3 above show the correct voltage, the fault lies in the interconnecting cable. Remove all cores at both ends, and check for open and short circuits, including shorts to earth. Check also that there are no switches on the signal wire, since poor contact can cause the problem. Check also that there are adequate earth connections at both the indoor and outdoor units.
5. When communications are healthy, there should be up to +70V DC between the signal and neutral wires when the unit is running and the interconnecting cable is connected.

### **Fault code C6, CH6 or 6 flashes**

This fault is caused by an over current in the inverters DC power circuit. This is caused by either the inverter PCB or compressor being short circuit or down to earth.

Check the resistance of the compressor windings with the electrical connections disconnected, typically they should be between 1 and 5 Ohms each.

If the compressor is OK check the inverter output voltages are all equal.

### **Fault Code C7, CH7 or 7 flashes**

This fault is caused by a Compressor over-current see code 06

**Fault Code C8, CH8 or 8 flashes**

This fault is caused by the Indoor fan being locked;

Check the fan motor is plugged into the indoor PCB correctly; check the fan motor is turning, if not check the AC Voltage supplied to the fan motor, this will vary from 120 V ac at low speed to 170V AC at high speed.

If no Voltage is present the PCB is faulty, if the Voltage is present the fan motor will be Faulty.

**Fault Code C9, CH9 or 9 flashes**

This is an Outdoor unit fan motor fault

Check the fan motor is plugged into PCB correctly; Start the unit up the fan motor should turn when the compressor is running.

Check the fan motor is turning, if not check the Voltages supplied to the fan motor, there will be a connector on the PCB with five wires, measure from red to Black, it should be 300 - 320V DC,

From white to Black it should be 10-15V DC,

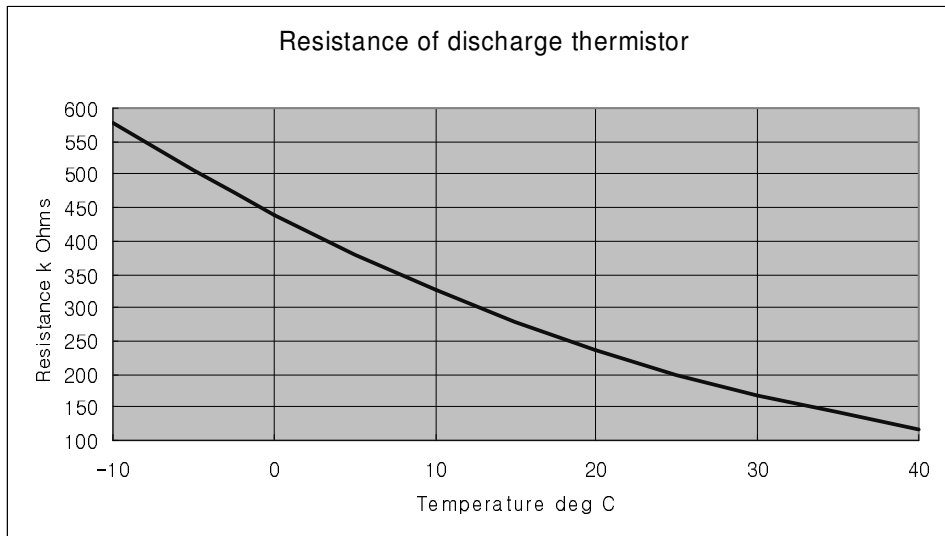
If no Voltage is present the PCB is faulty, if the Voltage is present the fan motor will be Faulty.

**Fault Code CA or 10 flashes**

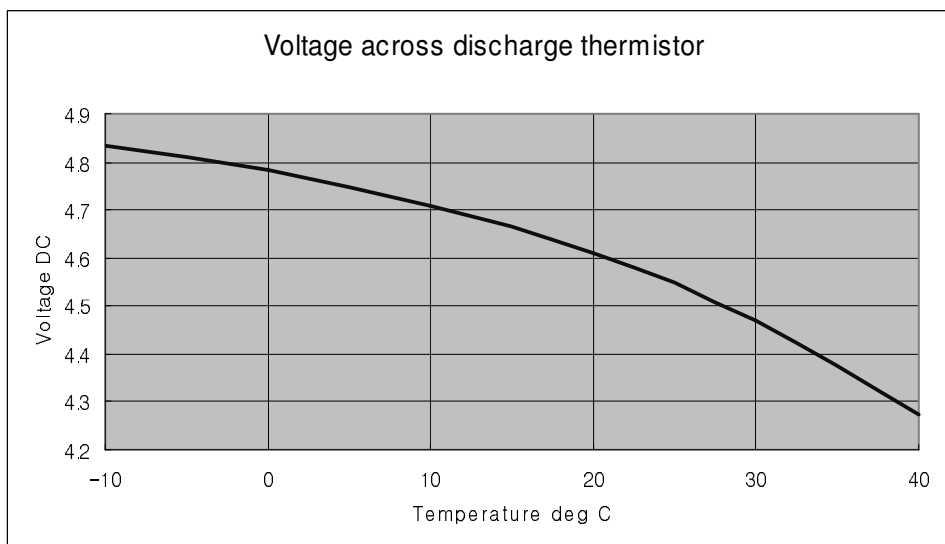
This fault is caused by the compressor discharge sensor reading over 130°C or the discharge Thermistor being faulty.

Reset the power, if the fault goes away and the compressor starts check the discharge temperature, if it is very hot check the refrigerant charge. High discharge temperatures are usually caused by shortage of refrigerant.

If the unit wont restart after resetting the power check the Thermistor, Unplug the Thermistor from the PCB and Check its resistance check against this graph:



Alternatively the sensor can be tested while still connected to the PCB measure the DC voltage across the resistor and check it against the graph below.



**Fault Code CC or 2 + 1 flashes (2 flashes on one led, 1 flash on another)**

Check the correct PCB assembly has been installed, check for dry joints, replace outdoor unit PCB if nothing is found.

**Fault Code CD or 3 + 1 flashes (3 flashes on one led, 1 flash on another)**

This fault indicates a problem with the inverter module, see section on testing inverters. Also check reactor is connected to the PCB and check its resistance it should be well under 1 Ohm.