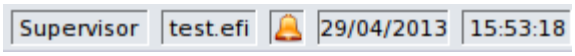
VISIONS 3000 LINUX 2.52
DIAGNOSTICS

Diagnostics

You can access the diagnostics function from the **home screen**.

You must first be logged in as the supervisor



This function is useful for fault-checking new tools. Once you have configured the controller for the new tool (i.e.: set the number of cavities and manifolds) the diagnostics function can be used to check that the new tool is wired correctly.

The diagnostics function will determine the following tool characteristics:

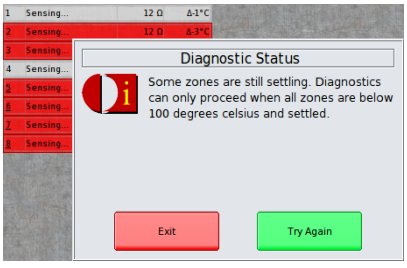
- Cross-wired zones, e.g.: Zone 1's heater wired to Zone 2's thermocouple.
- No-load heaters. This could be a blown fuse or an open-circuit fault. The heater resistance cannot be determined because of poor connections. It is possible that the heater itself is faulty.
- Open thermocouples. The two connections to the thermocouple do not make a circuit. The zone's temperature cannot be read in this case.
- Reversed thermocouples. The two connections to the zone's thermocouple are reversed. The zone's temperature reading is incorrect in this case.
- Heater resistance for each zone. This determines the maximum current drawn by the heater when it is at 100% power. It determines the power of the heater.
- The response of each zone to a set amount of power to it's heater.

The diagnostics function works by applying a set amount of power to each zone, one zone at a time, and measuring the response from each thermocouple during the time that power is applied. By doing so, it is able to detect cross-wired zones as well as determining how the zones respond to power.

The diagnostics function proceeds automatically without user intervention. However, some simple checks are carried out first to make sure that the results will be accurate.

Diagnostics will not proceed unless the following conditions are met, these being checked automatically by the controller before diagnostics begins:

- All zones must be below 212° F (100° C).
- All zones should be "settled". This means that they are not still cooling down particularly quickly.



The controller will detect these conditions before continuing and will warn the user if either condition is not met:

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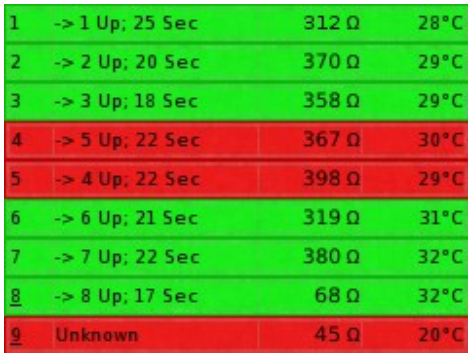
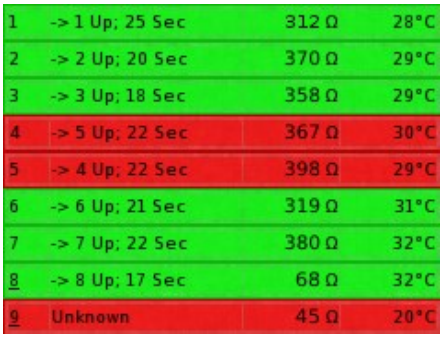
Once diagnostics begins, the user is informed of the progress in the zone information box, as well as the status-bar:

This image shows that zone 1 has been tested already, that it is wired correctly (->1), that the thermocouple is ok ("Up") and that it took 25 seconds to change temperature by at least 10° F (6° C). Zone 2 is currently being tested.
Note that for cavities, the controller will expect temperatures to change by 10° F (6° C). within 120 seconds.
For manifolds, a 10° F (6° C) change is expected within 240 seconds. The cavity currently being tested is energized at 30% full power for this period, whilst manifolds being tested are energized at 60% power.



This image shows a problem with zones 4, 5 and 9.
Zones 4 and 5 are cross-wired (the thermocouples or heaters are connected in reversed order).
Zone 9 failed to respond. It is a manifold (it's zone number is underlined), so 60% power was applied to this zone for 240 seconds and no thermocouple changed by 10° F (6° C). It could be a "cold thermocouple", or perhaps the thermocouple is not seated correctly.



Once all zones have been tested, diagnostics is ended and the user has the option of saving the results in a text file stored on the controller. This file can be later viewed on the controller or exported and viewed on a PC.

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