



DOKUMENTATION

airpointer trouble shooting

PC not running

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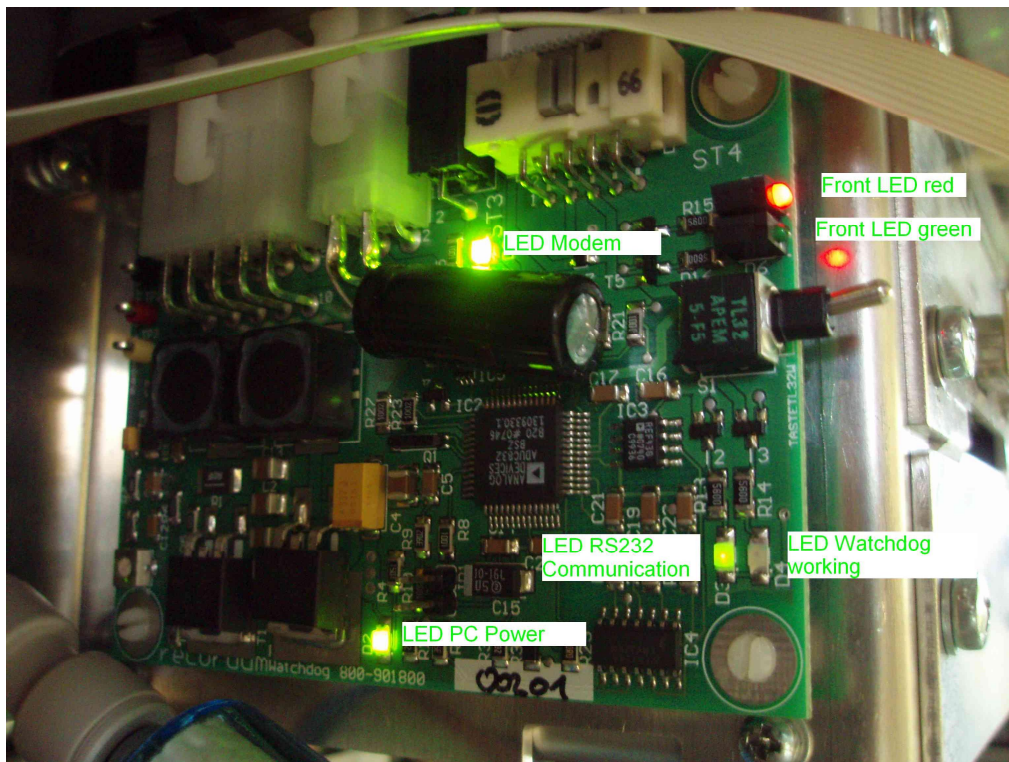
Goal:

This document is valid for airpointer V1 (800) and V2 (01) with watchdog board revision C and PC board WAFER -C-400.

The airpointer PC is not reacting to the user interface, no ping is possible even the LED's above the Ethernet sockets are dark. Then it is time to go ahead with this documentation.

1 Verify if PC is really not running:

The first view should be to the watchdog board's LEDs, they try to inform you what's going on.



If all LED's are dark start checking line power, power switch on, and power supplies.

2 What are the normal functions when starting up?

The watchdog board has been added to the airpointer for three main reasons: First to improve the stability of the supply, second to protect the hard drive in case of too low temperatures and last to have a hardware watchdog in case of software hang up. If the software does not trigger the watchdog within a certain interval (25 minutes), the watchdog assumes a software hang-up and restarts the PC.

The very first thing is that the red LED <Watchdog working> has to blink, if this is not the case you have an bad board or maybe a board with no firmware or no configuration in.

Recordum or a recordum distributor can load firmware with WSD and load configuration with LogSoft. But this only happens during repairs, it has never happened until now (Feb 2009) that a board loses its software.

Next step is that the watchdog board starts measuring the temperature around the PC. This state is show by the two Front LED's, they are flashing alternating with a frequency of 8Hz. Why is the temperature measured? The reason is the hard disk drive, it is OK to store a HDD at very low temperatures but it is allowed to operate the HDD only at temperatures above 5°C. The watchdog board is doing the temperature measurement with a NTC on board and with a temperature sensor inside the microcontroller, if one of the two shows above 8°C the PC power is switched on.

You can see that the watchdog board switches on the PC when looking at the LED <PC Power>. If everything is running fine, the PC boots up and after about 4 minutes the LED <RS232 Communication> starts flickering around. Flickering around shows that intern communication of the airpointer is going on, if it flashes up a bit, it is the indication that the board has answered a request.

During normal operation the green Front LED is blinking. Only in case of a software malfunction this blinking is becoming faster because the watchdog timer is running out. If you press the switch on the watchdog this timer is set to 8 hours and the green Front LED will be on until the timer is coming to the normal values after about 7,5 hours, this function is only needed during factory software installation. The red Front LED is changing off/on every time the watchdog is triggered.

After this long explanation let's check:

3 Normal LED behavior on watchdog

Green <RS 232 Communication> LED is flickering -> your PC is running !

The red and the green Front LED are alternating flashing (and you are freezing) -> it is too cold close the airpointer door for 30 minutes for warm up then try again.

Green <PC Power> LED off, the other LED's are normal -> watchdog bad or power supply bad.

4 Checks with VGA

If you have a keyboard (with PS2 connector) and a VGA monitor with you, connect it and check what's going on, in worth case restart the airpointer and check if see BIOS starting and airpointer is booting.

Know failures:

Screen dark, also after restart -> check voltages

BIOS starts OK, then "GRUB" is displayed -> failure on HDD, good chance to be repaired at recordum

BIOS starts OK, then displays something like "missing boot device" -> HDD bad, no chance to be repaired

Screen dark but PC is peeping -> bad RAM

BIOS starts OK, starts booting after some seconds or even minutes the PC starts again -> Problem with power supply and/or watchdog adjustment -> follow adjustment instruction

5 Measuring some Voltages:

All LED's normal, please use a multimeter to check some voltages:

To have some space to work remove the zero air canister.

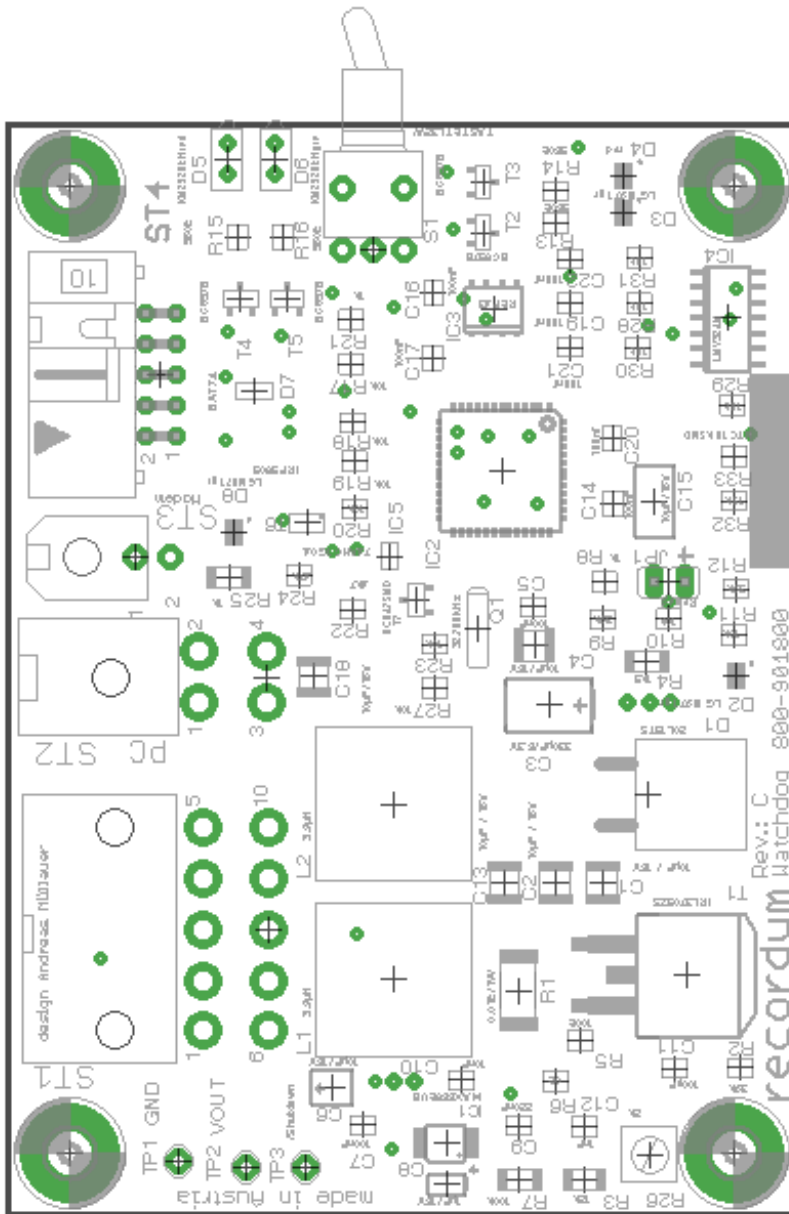
Use TP1 as ground,

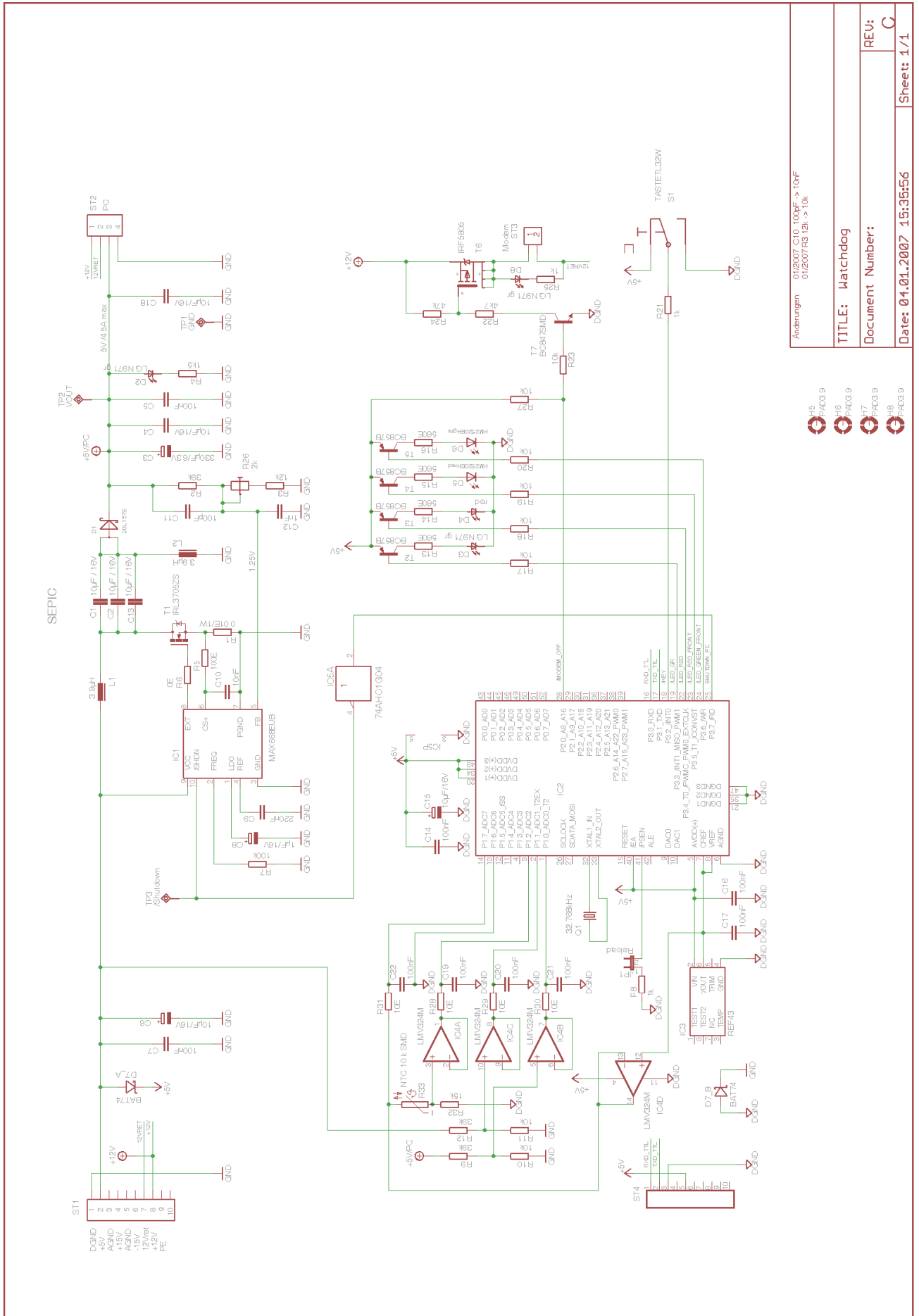
TP3 should be around 5V to indicate that PC Power is switch on by the microcontroller.

TP2 should be at 5.1V - 5.2V you can use R26 to adjust. If it is not possible to adjust bring poti back to its old position.

Measure the 12V supply on ST1/8 (the pin in the middle) it should be around 11,5 to 14V. (The PC needs some mA of 12V to startup.)

Measure the 5V supplied to the watchdog, this is easiest done on +pol of C6 (close to TP3, a yellow tantal). You should have 5.0V - 5.2V here.





Änderungen:	01/2007 C10 100µF -> 10µF 01/2007 R3 12k -> 10k.
TITLE:	Watchdog
Document Number:	
Date:	04.01.2007 15:35:56
REV:	C
Sheet:	1 / 1

- P/AC3 9
- P/AC3 9
- P/AC3 9
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6 Adjustments:

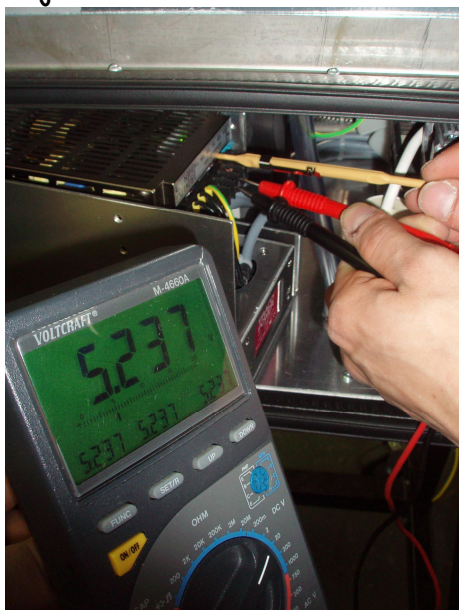
If your system is rebooting you need to readjust the 5V power supply first.

You need to have an education in electronics, because of line voltages to do this!

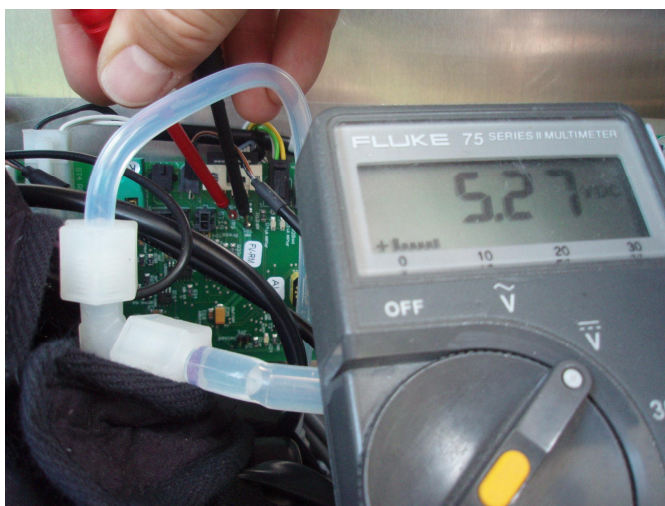
Unscrew the power supply:



Then rotate it toward you, then you have good access for measurement and adjustment:



Adjust the 5V Output (labeled V1 - G1) to 5,2-5,3V.



Best way is to check the 5V on the ValveHeater2 Board of Ozon or NOx Bench, and adjust to 5.1 -5.2V on TP1 to TP3.

Then connect your multimeter to TP1 and TP2 on watchdog board and adjust 5.2V there. If you have difficulties to adjust this voltage check again the 5V input to the watchdog board, if you are loosing more then 0.2-0.3V you have a too high resistance in the cabling, maybe a crimp of a connector pin is bad.

With this adjustment the airpointer PC should run fine again.

7 Last possibility:

If you see no chance to run PC in the airpointer, there is one more chance left: Unscrew the airpointer PC from the airpointer, if you are looking from the top to the WAFER board you fine a standard 51/2" HDD connector for power supply. You can use a normal desktop computer to power up the airpointer PC for testing.

