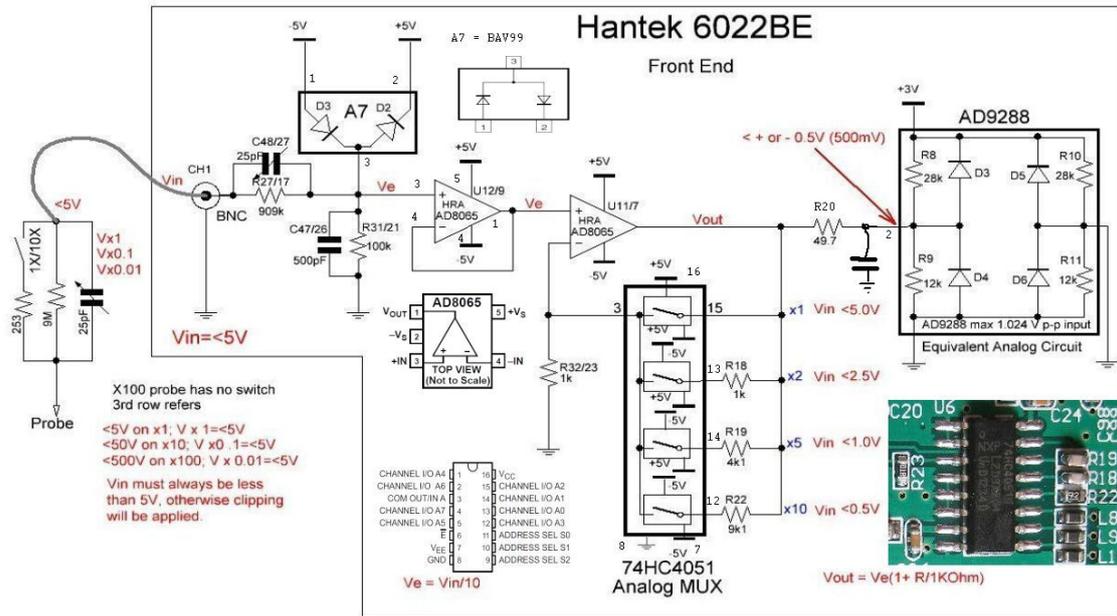


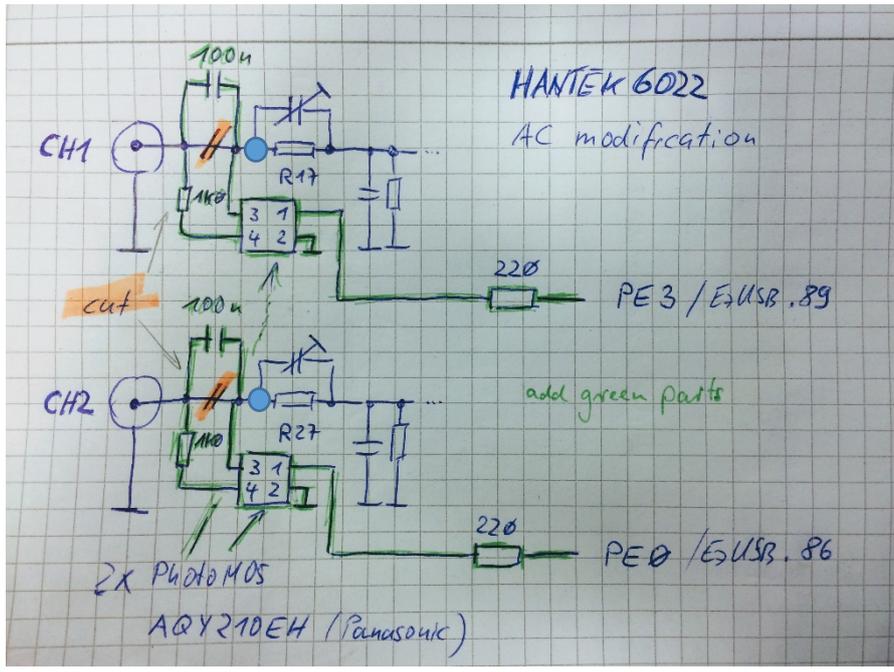
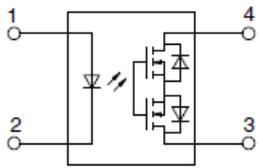
# Modification of HANTEK 6022BE to provide AC/DC coupling of the inputs

A big issue of the Hantek scope is the missing AC coupling (see front end schematics below).

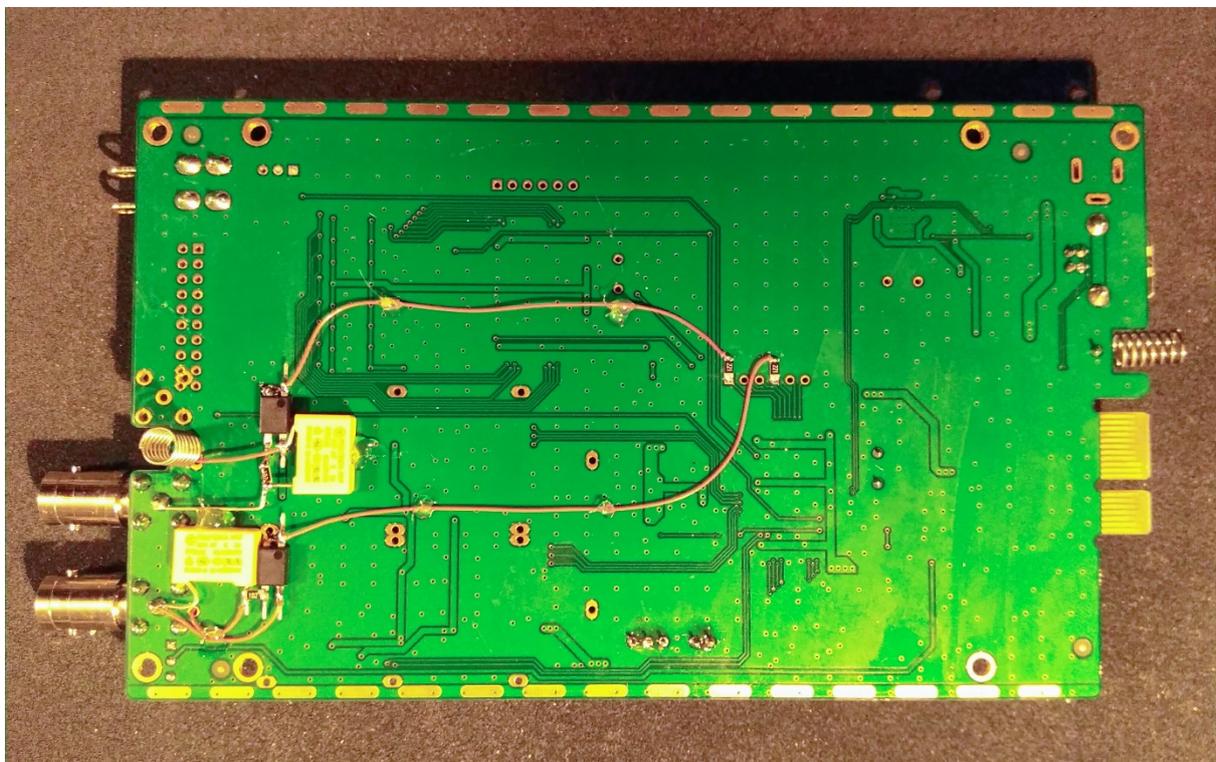
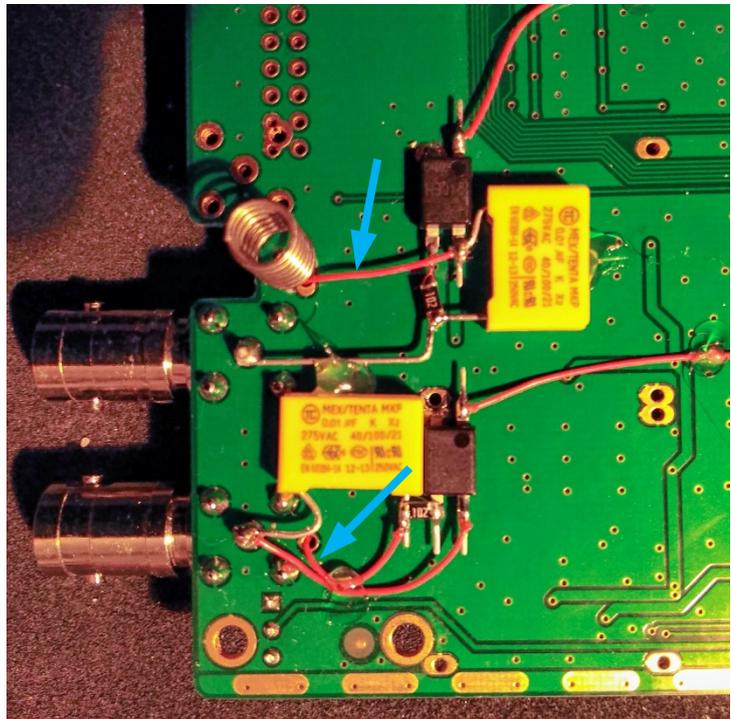
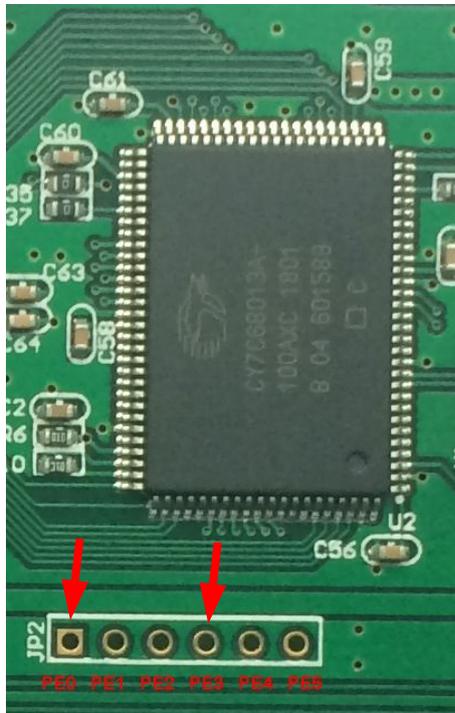


This document shows a simple hardware modification similar to the *SainSmart DDS120* scope. (HW info: [https://sigrok.org/wiki/SainSmart\\_DDS120](https://sigrok.org/wiki/SainSmart_DDS120))

1. Cut the traces between BNCs and R17/R27 and add a 100nF capacitor across. This gives an AC coupling with cut-off frequency  $f_c = 1.6\text{ Hz}$ . (10nF in the prototype gave  $f_c = 16\text{ Hz}$  with a visibly tilted 1kHz square wave.)
2. To select DC short the capacitor by a PhotoMOS AQY210EH. The 1K $\Omega$  resistor limits the current when the PhotoMOS shorts the 100 nF capacitor.



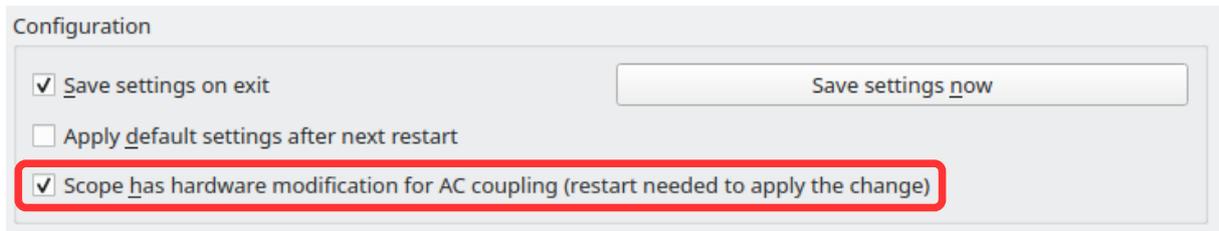
3. JP2 next to the EzUSB chip delivers the signals PE0 .. PE5.  
PE0 (CH2) and PE3 (CH1) are used, same as in *SainSmart DDS120* (red arrows).
4. All new components are soldered/glued on the bottom side of the PCB.
5. One wire per channel (blue arrow) connects to R17/R27 on the top side (blue dot).



OpenHantek6022 supports this AC modification starting with version v2.17-rc6 / FW0204.  
To enable this feature go to the directory `build` and type

```
cmake -D HANTEK_AC=1 ../  
make -j2
```

Later OpenHantek6022 versions beginning with 3.1.1 offer an Oscilloscope/Settings option that allows you to use the modification without the need to compile your own version.



## Hantek DSO-6022BL

The DSO-6022BL doesn't provide JP2. PR #9 implemented a change to use R40 (PE0, CH2) and R41 (PE1, CH1) connected to USB-XI port as connections for the AC/DC modification that are easier to solder than the pins of the EzUSB chip.

This change is available starting with FW0208.

