

HV-Set for PMT calibration

Set Superuser mode in Commfiler: Ser → 4 → Do → 3668 → Enter.

Use protocol number 6 in Commfiler. HVSet.

Use C-14 20ml Standard sample for calibration in tray position A1.

To change HV values in Commfiler: Ser → 5) Parameters → 0) Analyser → R, S, T

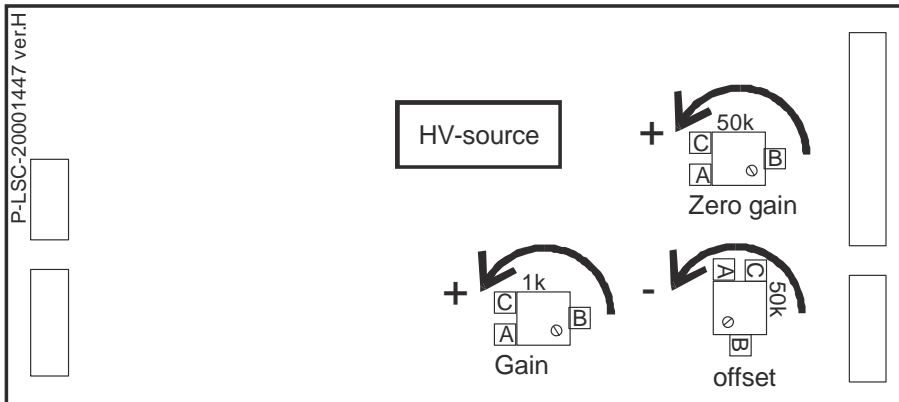
When HVSet is running and you want to change HV values: Stop → 9 → Para → choose a tube and change the value → Stop → Del to continue.

Increase or decrease HV if the spectrum QPE (Quench parameter end point at 99% of the spectrum) value is different than 440 ± 3 channels. But make sure, that efficiency is correct when counting with all PMT's. If efficiency is good, but QPE values are not, those can be adjust with offset positometer in the logic unit.

R-tube HV value should always be the highest and the difference between tube HV values should not be more than 200.

When all PMT (R, S and T) has the same QPE values and the spectra looks almost the same then HVSet is ready.

If QPE values in all PMT tubes need to be changed by the same amount it can be made with offset adjustment. Rotating the offset to the left will decrease the QPE values and rotating the offset to the right will increase the values.



Picture 1 Logic unit with adjustment potentiometers.

Zero gain will affect to the beginning of the spectrum. With zero gain it is possible to change starting point of the spectrum.

Gain will spread out/thin the spectrum. It will affect to the QPE values and difference between different sample QPE's.

Offset will move the whole spectrum in linear way in x-axis. It will not affect to the shape of the spectrum, but it will change the start and end point of the spectrum.

When the measurement is completed, compare the efficiency and QPE values.

When measuring with all PMT's (MikroWin) results should be:

C-14 QPE = 600 ± 5 (595-605) and efficiency above 0.96

H-3 QPE = 300 ± 5 (295-305) and efficiency above 0.71

The differences between QPE of the C-14 and H-3 should be about 300 (± 3 channels).

Example pictures for PMT calibration

