General procedure to bias the E-front and E-back detectors:

**Requirements:**
A – cables inside the chamber are properly attached (see procedure “how to connect cables inside the chamber”)
B – chamber is under vacuum
C – you know exactly which channel of CAEN power supply corresponds to which slot on the motherboard and what kinds of chipboards are located in which slots (see procedure “how to learn which CAEN channel biases which slot in which motherboard”)
D – you know exactly which detectors are connected to which chipboards and on what slots
E – detectors have been used and found OK in the near past (~ days-weeks) – if not, look for procedure “how to bias detectors for the first time”

1) Check the vacuum in the chamber – it has to be below 5.10-5 Torr
2) Check that VME crate and Sparky is off
3) Check that the power cable is properly attached to the flange and Sparky distribution box (both ends with 2 screws !!)
4) Check that the BNC cable from the Tenelec power supply is properly attached at its backside and to the front box of the Sparky distribution box
5) Turn on the CAEN power supply
6) Login in
7) Check with detector database what are the nominal (Indiana University) bias voltages for the detectors which you have in the chamber – if you don’t know that this is the correct bias file STOP until this is verified

**Biasing the E-fronts:**

1) Check that the maximum allowed voltage for a particular channel “SV Max” is by 100 Volts smaller than nominal bias given by Indiana University (remember – you are already supplying 100 Volts of bias through Tenelec power supply) and corrected for leakage (see => how to correct for leakage)
2) Check that the maximum allowed current “I0 Set” for the channels you plan to use is set to no more than 6 uA.
3) Check that the Rup (ramp-up) value is set to the lowest limit = 1V/s.
4) Set “V0 Set” to the desired bias voltage for a channel which corresponds to a proper E-front detector (if you are biasing a detector after long time being idle – go better in steps of 50 V).
5) Start ramping up the voltage by switching power “Pwr” to “on” by clicking spacebar. Ramp-up one detector at a time !!!

**Biasing the E-backs:**

1) Check that the polarity of the Tenelec power supply is set to “positive”
2) Check that the “voltage range” is set to “100 Volts” and reading of the “front knob” is “0”
3) Enable the Tenelec power supply by switching it on
4) Switch the display to read current
5) Start turning the knob SLOWLY and watch the reading of current. It should not exceed 1-1.5 uA per biased detector (i.e. 3 detectors means limit in ~3-4.5 uA).
6) Set slowly bias to 100 Volts – this can take a couple of minutes.
7) When bias reaches 100 Volts fix the knob with “black lever” so it cannot move.
8) Watch the leakage current !!! Check the leakage current values with the database !!! Put new values to the database.