

19 Electronics Workshop

D. Florin, P. Soland, and A. Vollhardt

We built test setups for various research projects at the institute. We also adjusted and modified existing equipment as requested by the researchers and designed different cable adapters. We did maintenance of facilities in the various laboratories and for the LHCb experiment at CERN, fixed different faulty systems and made minor repairs.

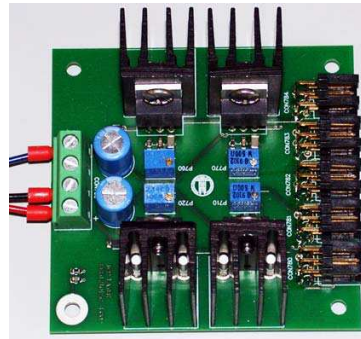
Some more interesting projects and activities:

- Undergraduate lectures
For the Frank-Hertz demonstration experiment we developed an improved timing control and built a completely new deflection output stage. Simple computer controlled operation is possible now and the measured curves can directly be projected with the beamer giving a clear presentation of the results.
- Phase Transitions, Materials and Applications (Sec. 14)
Four workbenches were equipped with LED lighting. For that purpose we designed and built adjustable power supplies for brightness control.

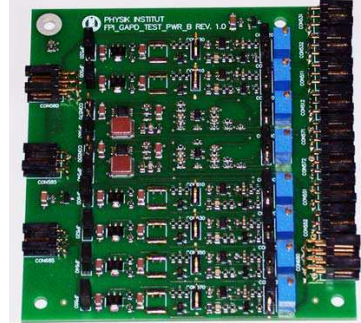


FIG. 19.1 – Adjustable LED lighting power supply for laboratory workbenches.

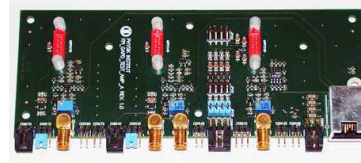
- Electronics for the Cherenkov Telescope Array (CTA) experiment (Sec. 7)
We continued the development of the active mirror control (AMC) and were able to improve the position resolution from $30 \mu\text{m}$ down to $5 \mu\text{m}$. We started the design and construction of a 12×12 pixel camera for the Flashcam project. In order to test different concepts for the GAPD FlashCam electronics, especially the design of the amplifiers and bias voltage power supplies, we manufactured and assembled different printed circuit boards shown on the right. For the print soldering we used the reflow oven in the electronics labs. Meanwhile we are testing the devices. A second set of boards was produced for the University of Geneva where additional extensive tests will be made.
- Astroparticle Physics (Sec. 3)
For the precise positioning of the calibration sources in the GERDA experiment at the Laboratori Nazionali del Gran Sasso (LNGS) in Italy a second motor control system with appropriate peripherals has been manufactured.



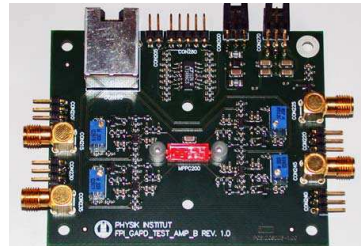
Adjustable low voltage regulator.



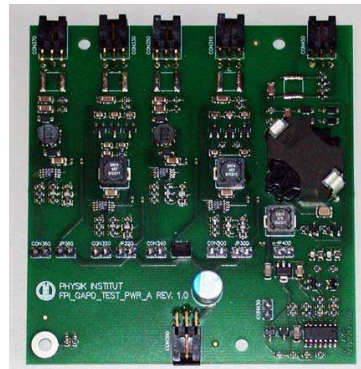
High voltage regulator board.



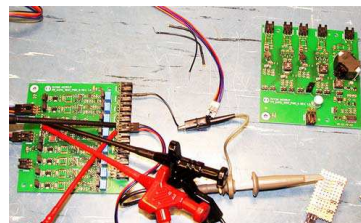
General purpose preamplifier module.



Four channel preamplifier.



High voltage generator board.



Commissioning and test setup.

FIG. 19.2 – Electronic boards for CTA.