

Shift instructions for the Pad detector, Version 2.01 / 05.08.06

During the lumi operation:

The Pad detector provides a trigger on the particle tracks in the backward region of the H1 experiment. Since July 2006 the Pad detector is used again to control the backscattered synchrotron radiation in H1. Turn ON the pad detector when HERA announces the positron injection. Turn it OFF when HERA requests to switch OFF the high voltages. The rule of thumb for any other conditions: the detector should be always ON whenever the positrons are in HERA!

The detector control is complemented with an automatic positron beam dump to protect the H1 components against radiation damages. The BBL3 alarm “radiation level” warns about too high dose rate and after 20 seconds of the persistent alarm the beam dump is activated. The shift person must acknowledge it by pressing the button in the pop-up window to enable the new fill. This window appears on a macintosh screen next to the panel of the slow control program.

Cosmics calibration run:

The cosmics data collected with the Pad trigger alone or in a combination with the SPACAL is poor because of very limited detector acceptance for those tracks. Therefore you may keep the detector OFF.

On the maintenance day(s):

Please make sure that the detector is OFF unless otherwise specified.

Troubleshooting:

The hardware failures (most probable is a crate power cut-off) result in a hanging control program that generates a BBL3 watchdog alarm. After fixing them the shift person must shut down the computer by the marked button in the left corner above the screen, and then boot it by the marked button on the macintosh keyboard to restart the detector control.

In case of severe troubles call an expert on the PAD system from the phone list !

The detector control is performed by the program running on the Macintosh-PC "Si-Test-Mac.desy.de" (IP-address: 131.169.3.162). The computer's console is situated in the North Hall, in the room 307, on the right side of the rack Nr. 20. The remote control is possible via the Timbuktu connection to this machine under the user name "h1shift" and the current password known to all authorized H1 members. Some Si-experts may have their own login IDs.



Program description:

The program launches and starts automatically after (re)booting the macintosh, the detector supply voltages are all forced to OFF. The shift person must switch them ON manually if needed.

The "ON/OFF" button in the left upper corner is the main detector control. The button is **green** or **grey** for the "ON" and "OFF" switch positions respectively.

The "RADMON" indicator in the right upper corner provides an alarm on the high radiation background rate. The panel is **green** when the radiation level is normal or **red** otherwise.

The "Boards" panel is:

- grey when all front-end supply voltages are OFF.
- green when at least one front-end board is ON.
- orange when the voltage status doesn't match its reference for the ON and OFF detector states (voltage trip, readout failure etc.).

"Details" sub-control: monitoring the supply voltages of the front-end and the VME boards.

"Expert" sub-control (password protected): setting up the front-end and the VME boards.

The "Hybrids" panel is:

- grey when all front-end supply voltages are OFF.
- green when at least one front-end board is ON and all its hybrids are successfully initialized.
- orange when the ASIC initialization status doesn't match its reference for the ON and OFF detector states (ASIC upset, readout failure etc.).

"Details" sub-control: monitoring the hybrid initialization status

"Expert" sub-control (password protected): setting up each ASICs individually.

The "Thresholds" panel is:

- grey when all front-end supply voltages are OFF.
- green when all thresholds provide a reasonable noise and a hit rate below 250 kHz in total from one silicon wafer, orange otherwise.

"Details" sub-control: monitoring the actual threshold values.

"Expert" sub-control (password protected): setting up each threshold individually.