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HADES Test beamtime - DCS lessons learned / truisms "Binsenweisheiten" / anecdotes

Wednesday, 17 February 2021 14:00 (30 minutes)

HADES just finished its test beamtime (Feb 8-13, 2021) introducing and evaluating the performance of the new forward detectors together at maximum proton beam intensities 10^8 and maximum beam energies of 4.2 GeV on an LH2 target.

beam vs. equipment

- again, while threading the beam to the target, powered LV devices (TDK lamdda) where hit by intense primary/secondary beam 2 out of 8 failed (positioned there for more then 15 years)
- "again", since Mar2019, magnet failure in front of the cave, opened the way directly to a stack of ~10 TDK Lambda, ~4-5 broken, power amplifier.

Options

→ evaluation of different positioning longer cables / rules for switching power
→ shielding
→ "TOP" principle (from OSH/"Arbeitsschutz"):Technical → Organizational (→ Personal))

Silence

- 1-wire sensors (performance & keep alive)
- based on HadCon2: chained 1-wire bus readout of ADCs
- EPICS uses streamDevice to communicate with HadCon2
- record issues read command, every second.
- HadCon2 (1-wire master) evaluates itself list of available devices and addresses and reads the values and publishes the results "en bloc".
- StreamDevice triggers I/O Events to scan those results and processes only the relevant records.

→ Problem: no error recognition

- If a sensor or the complete bus does not answer anymore, it is not recognized immediately, since it is not updated.

→ possible solutions:

- single device read/response mechanism vs. performance?
- regular separate device check, changing the error state of the value records.

remotely switchable plugs

- Latter problem was temporarily solved by power cycle to revive the HadCon2 connection

→ switchable plug plug + automatic IOC restart

(this time no network issues)

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