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H1 week

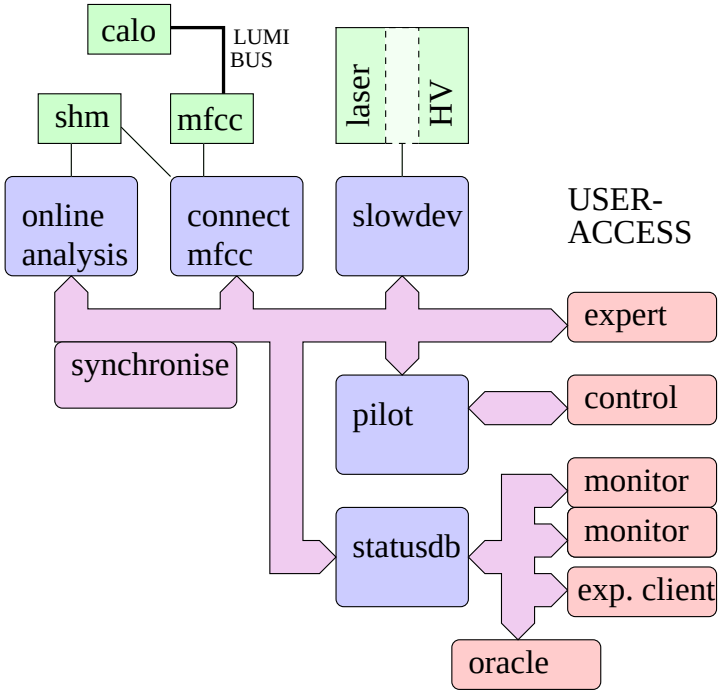
Transverse Polarimeter upgrade Software developments

- People involved
- Online software
- Data access by the experiments
- NETMEX server?
- Graphical user interface
- Things-to-do for H1

People working on the TPOL software

- Interface to the experiments:
  - HERMES, LPOL: Vahagn Gharibyan
  - H1: Nelly Gogitidze, Igor Cheviakov (?)
  - ZEUS: Arafat Gabareen-Mokhtar
- Interface to ORACLE: Jenny Böhme
- Online software: Stefan Schmitt
- Graphical user interface: Stefan Schmitt (additional manpower is welcome)
- NETMEX server: nobody...
- Documentation: nobody...

Online software



- Polarimeter operation is controlled by the pilot (Finite State Machines), little human intervention needed.
- All Polarimeter status information is accessible to client processes
- One TCP/IP slot for Run-Control process
- Fixed number of slots for TCP/IP clients
- Unlimited number of UDP clients

Data access by the experiments

Experiments should have a dedicated TPOL client running if they are interested in the online information (a skeleton program is available)

Offline: use ORACLE (contains all online results and will later contain the "best" offline results)

Note: the polarization is measured every minute. Time-stamps are synchronized to the DESY-wide time server by xntp (time.desy.de).

The experiments have to make sure that this time-stamp is available for their data!

NETMEX server

- No work has been done so far
- Only the average polarization will be available from the HERMES NETMEX server
- A polarimeter server should send the following minimal information:
  - Average $\mathcal{P}$ for colliding bunches (TPOL and LPOL)
  - Average $\mathcal{P}$ for non-colliding bunches (TPOL and LPOL)
  - $\mathcal{P}$ for single bunches (TPOL and LPOL)
  - Some status information

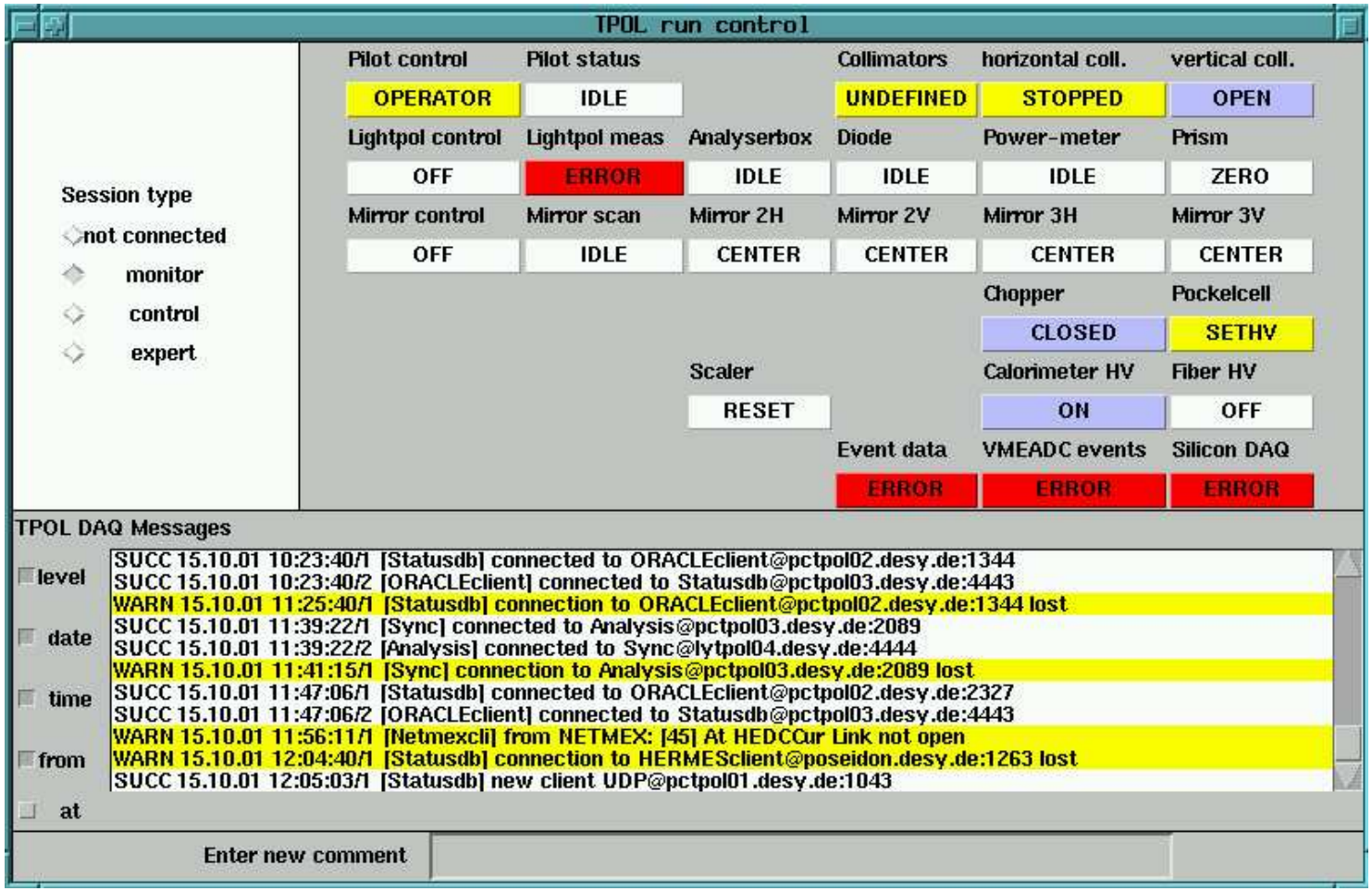
Graphical user interface

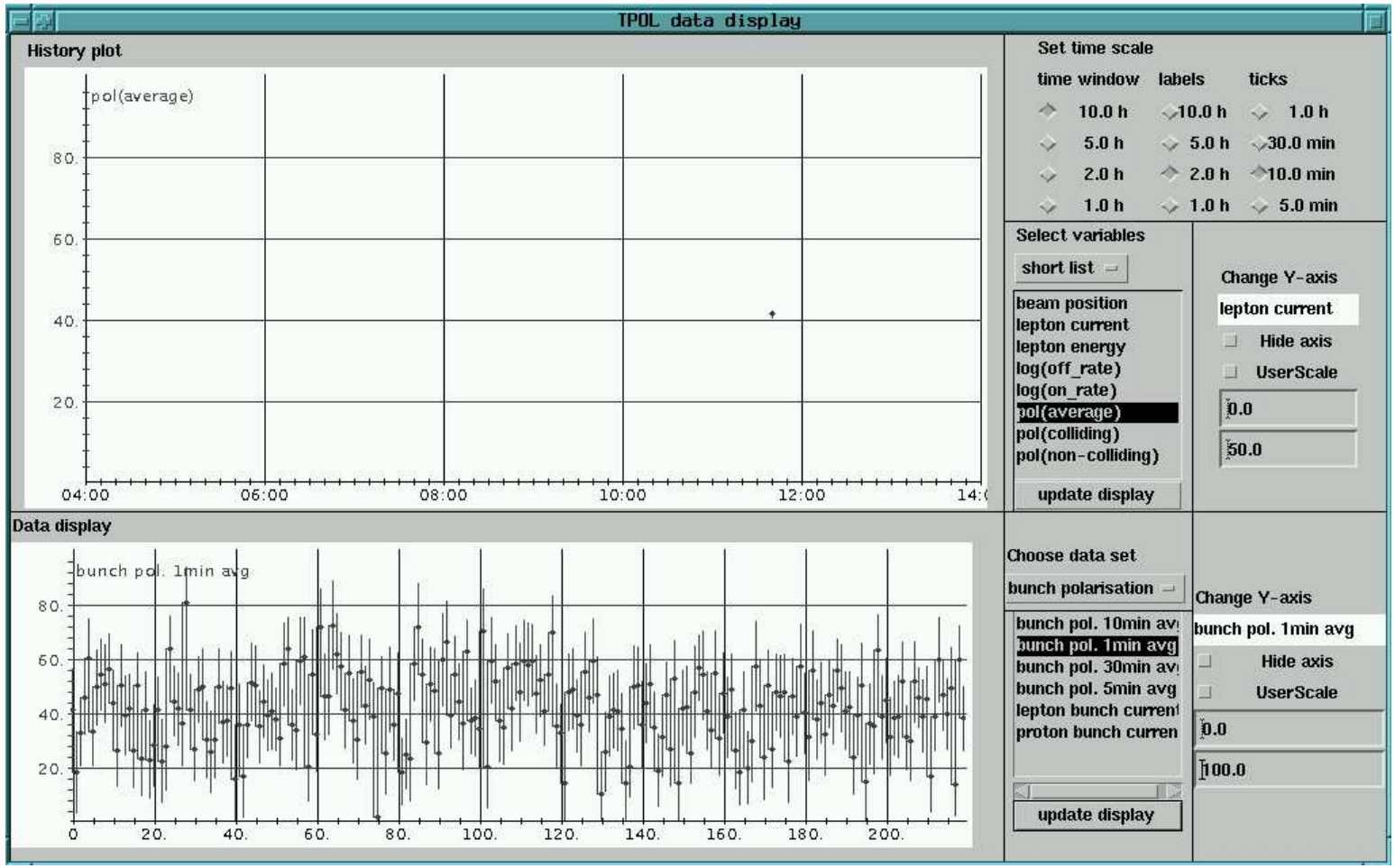
First version of the polarimeter Run-Control is existing (written in JAVA).

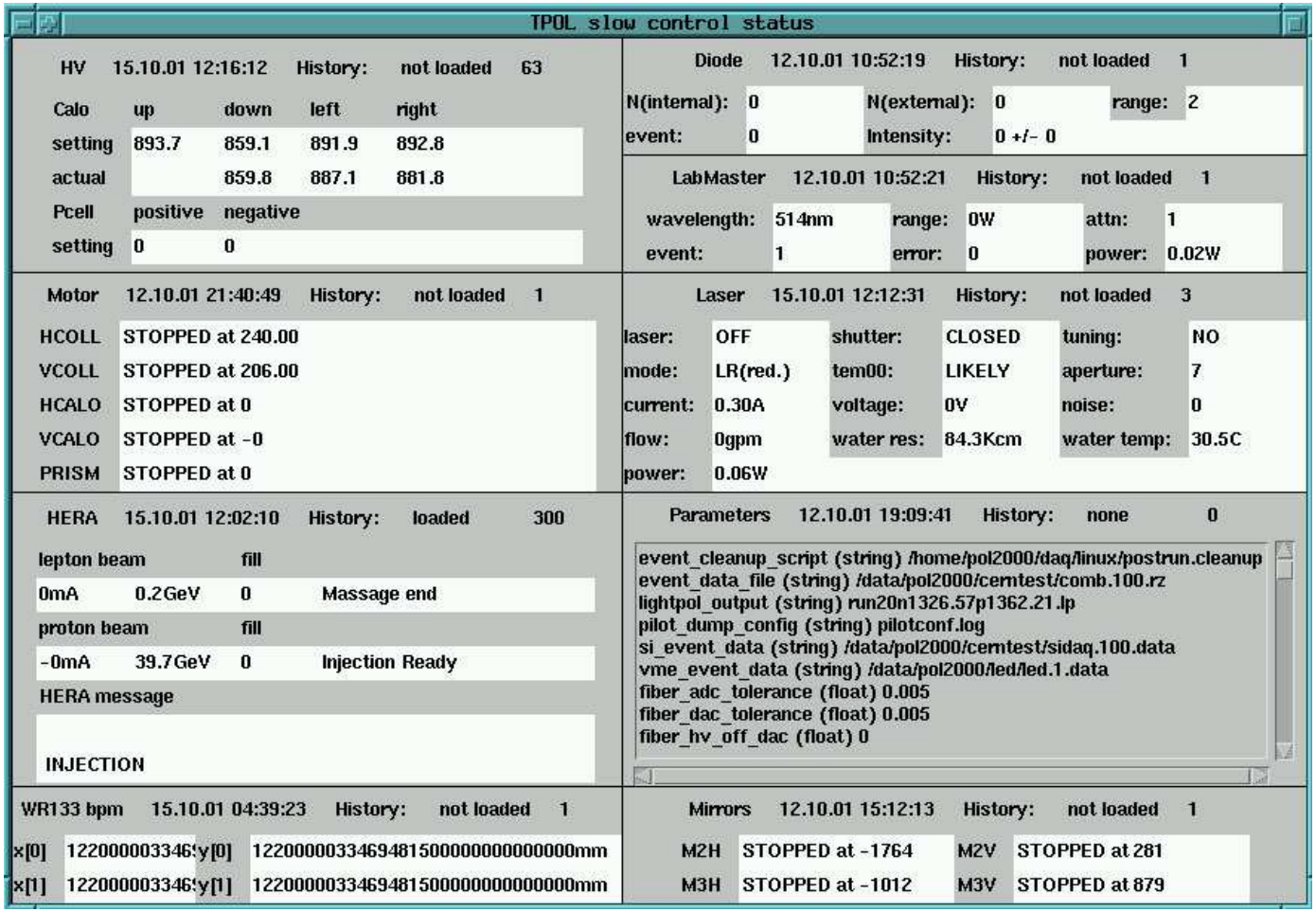
Contains also all monitoring information. To be used by the TPOL control experiment.

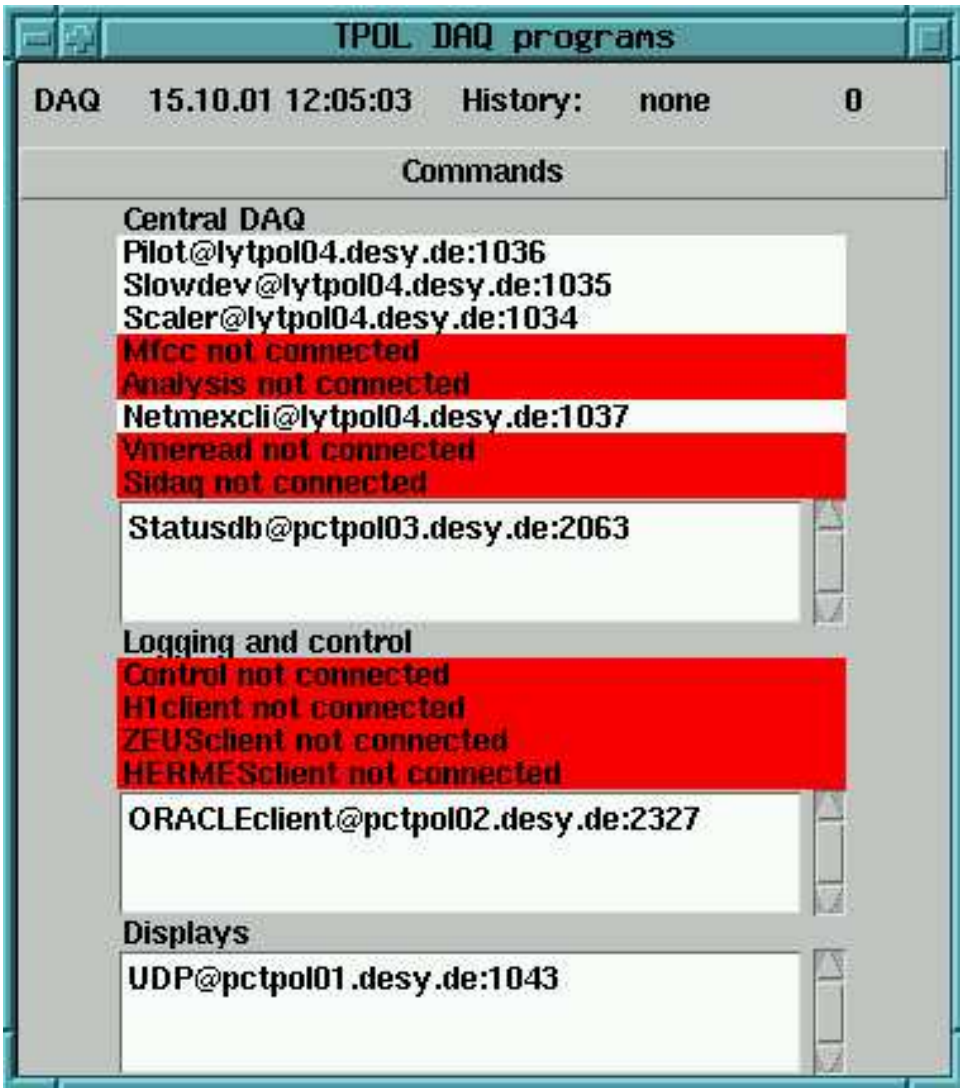
→ Create a version with reduced functionality to display the main TPOL status information. To be used by all experiments and the machine.

Anyone interested to work on this?


TPOL run control
Pilot control
Pilot status
Collimators
horizontal coll.
vertical coll.
OPERATOR
IDLE
UNDEFINED
STOPPED
OPEN
Lightpol control
Lightpol meas
Analyserbox
Diode
Power-meter
Prism
OFF
ERROR
IDLE
IDLE
IDLE
ZERO
Session type
not connected
monitor
control
expert
Mirror control
Mirror scan
Mirror 2H
Mirror 2V
Mirror 3H
Mirror 3V
OFF
IDLE
CENTER
CENTER
CENTER
CENTER
Chopper
Pockelcell
CLOSED
SETHV
Scaler
Calorimeter HV
Fiber HV
RESET
ON
OFF
Event data
VMEADC events
Silicon DAQ
ERROR
ERROR
ERROR
TPOL DAQ Messages
level
date
time
from
at
SUCC 15.10.01 10:23:40/1 [Statusdb] connected to ORACLEclient@pctpol02.desy.de:1344
SUCC 15.10.01 10:23:40/2 [ORACLEclient] connected to Statusdb@pctpol03.desy.de:4443
WARN 15.10.01 11:25:40/1 [Statusdb] connection to ORACLEclient@pctpol02.desy.de:1344 lost
SUCC 15.10.01 11:39:22/1 [Sync] connected to Analysis@pctpol03.desy.de:2089
SUCC 15.10.01 11:39:22/2 [Analysis] connected to Sync@lytpol04.desy.de:4444
WARN 15.10.01 11:41:15/1 [Sync] connection to Analysis@pctpol03.desy.de:2089 lost
SUCC 15.10.01 11:47:06/1 [Statusdb] connected to ORACLEclient@pctpol02.desy.de:2327
SUCC 15.10.01 11:47:06/2 [ORACLEclient] connected to Statusdb@pctpol03.desy.de:4443
WARN 15.10.01 11:56:11/1 [Netmexcli] from NETMEX: [45] At HEDCCur Link not open
WARN 15.10.01 12:04:40/1 [Statusdb] connection to HERMESclient@poseidon.desy.de:1263 lost
SUCC 15.10.01 12:05:03/1 [Statusdb] new client UDP@pctpol01.desy.de:1043
Enter new comment


TPOL data display
History plot
pol(average)
80.
60.
40.
20.
04:00
06:00
08:00
10:00
12:00
Set time scale
time window
labels
ticks
10.0 h
10.0 h
1.0 h
5.0 h
5.0 h
30.0 min
2.0 h
2.0 h
10.0 min
1.0 h
1.0 h
5.0 min
Select variables
short list
beam position
lepton current
lepton energy
log(off_rate)
log(on_rate)
pol(average)
pol(colliding)
pol(non-colliding)
update display
Change Y-axis
lepton current
Hide axis
UserScale
0.0
50.0
Data display
bunch pol. 1min avg
80.
60.
40.
20.
0
20.
40.
60.
80.
100.
120.
140.
160.
180.
200.
Choose data set
bunch polarisation
bunch pol. 10min avg
bunch pol. 1min avg
bunch pol. 30min avg
bunch pol. 5min avg
lepton bunch current
proton bunch curren
update display
Change Y-axis
bunch pol. 1min avg
Hide axis
UserScale
0.0
100.0


TPOL slow control status
HV 15.10.01 12:16:12 History: not loaded 63
Calo up down left right
setting 893.7 859.1 891.9 892.8
actual 859.8 887.1 881.8
Pcell positive negative
setting 0 0
Diode 12.10.01 10:52:19 History: not loaded 1
N(internal): 0 N(external): 0 range: 2
event: 0 Intensity: 0 +/- 0
LabMaster 12.10.01 10:52:21 History: not loaded 1
wavelength: 514nm range: 0W attn: 1
event: 1 error: 0 power: 0.02W
Motor 12.10.01 21:40:49 History: not loaded 1
HCOLL STOPPED at 240.00
VCOLL STOPPED at 206.00
HCALO STOPPED at 0
VCALO STOPPED at -0
PRISM STOPPED at 0
Laser 15.10.01 12:12:31 History: not loaded 3
laser: OFF shutter: CLOSED tuning: NO
mode: LR(red.) tem00: LIKELY aperture: 7
current: 0.30A voltage: 0V noise: 0
flow: 0gpm water res: 84.3Kcm water temp: 30.5C
power: 0.06W
HERA 15.10.01 12:02:10 History: loaded 300
lepton beam fill
0mA 0.2GeV 0 Massage end
proton beam fill
-0mA 39.7GeV 0 Injection Ready
HERA message
INJECTION
Parameters 12.10.01 19:09:41 History: none 0
event_cleanup_script (string) /home/pol2000/daq/linux/postrun.cleanup
event_data_file (string) /data/pol2000/cerntest/comb.100.rz
lightpol_output (string) run20n1326.57p1362.21.lp
pilot_dump_config (string) pilotconf.log
si_event_data (string) /data/pol2000/cerntest/sidaq.100.data
vme_event_data (string) /data/pol2000/led/led.1.data
fiber_adc_tolerance (float) 0.005
fiber_dac_tolerance (float) 0.005
fiber_hv_off_dac (float) 0
WR133 bpm 15.10.01 04:39:23 History: not loaded 1
x[0] 122000003346 y[0] 122000003346948150000000000000mm
x[1] 122000003346 y[1] 122000003346948150000000000000mm
Mirrors 12.10.01 15:12:13 History: not loaded 1
M2H STOPPED at -1764 M2V STOPPED at 281
M3H STOPPED at -1012 M3V STOPPED at 879


TPOL DAQ programs
DAQ 15.10.01 12:05:03 History: none 0
Commands
Central DAQ
Pilot@lytpol04.desy.de:1036
Slowdev@lytpol04.desy.de:1035
Scaler@lytpol04.desy.de:1034
Mfcc not connected
Analysis not connected
Netmexcli@lytpol04.desy.de:1037
Vmeread not connected
Sidaq not connected
Statusdb@pctpol03.desy.de:2063
Logging and control
Control not connected
H1client not connected
ZEUSclient not connected
HERMESclient not connected
ORACLEclient@pctpol02.desy.de:2327
Displays
UDP@pctpol01.desy.de:1043

Things-to-do for H1

- Verify we have the "official" DESY time in our data
- Online polarization data (if wanted): write online-polarization measurements into the H1 data stream/into NDB:

  colliding/non-colliding/single bunch polarization.
- Offline: use single-bunch polarization from ORACLE and H1 single bunch luminosity to calculate the H1 polarization