TRD / ACC / TAS
Slow Control and Data Monitoring

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TRD-ACC-TAS SHIFTER:
TRD-ACC-TAS Phone Numbers

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Valery Zhukov: Office: +41 (0)22 767 8188 Mobile: +41 76 487 6537

Email adress for TRD/ACC/TAS experts: trd-expert@cern.ch

Email addresses for local experts: email if you have a non-critical problem
(if you aren‘t sure wether it‘s non-critical, it‘s better to call!):

Stefan: stefan.zeissler@cern.ch
Valery: joukov@cern.ch or vzhukov@physik.rwth-aachen.de

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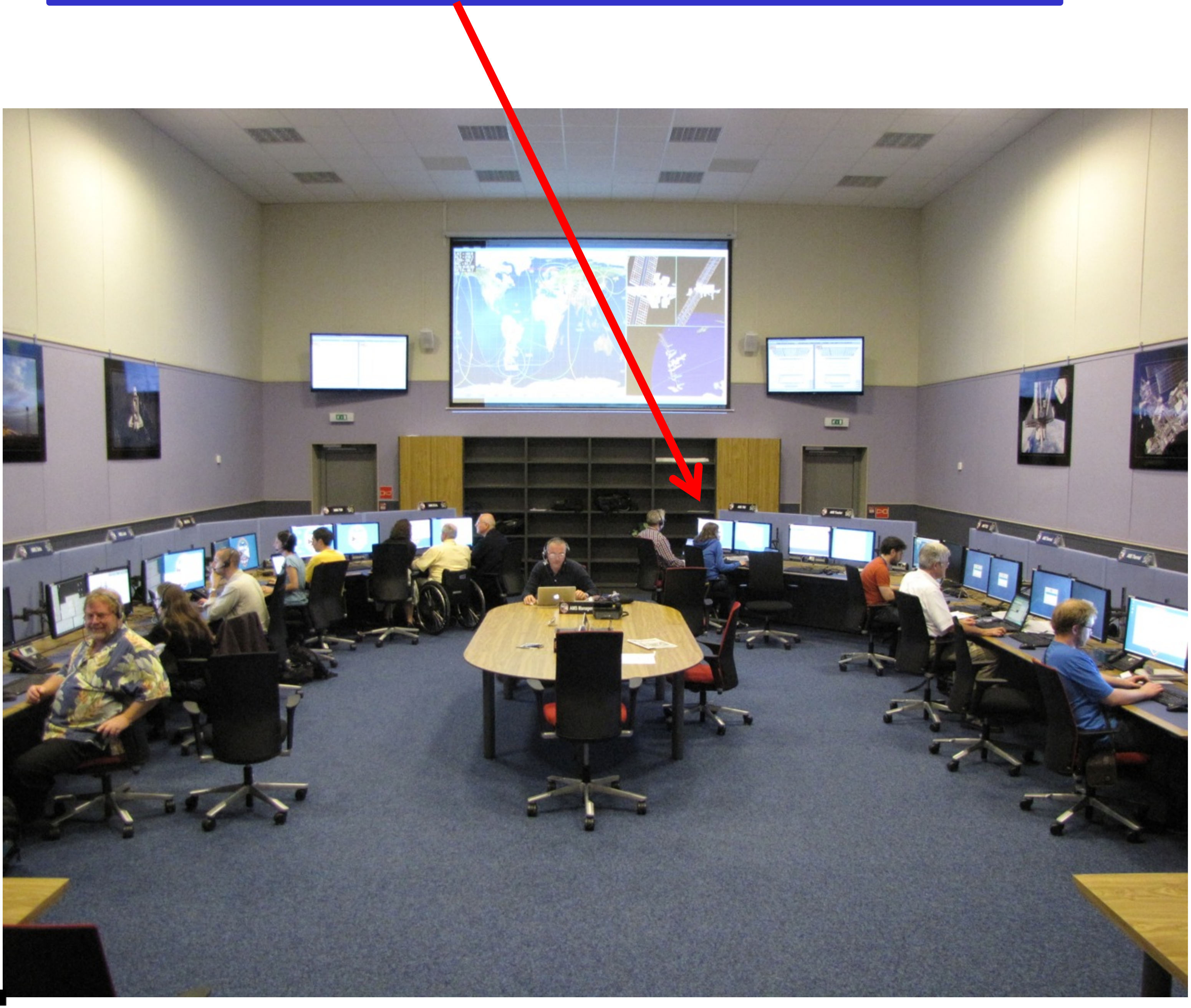
TRD/ACC/TAS-Standard Shift



List of TRD/TRDGas Programs

Electronics Monitoring:

- TRD Status Monitor (TRD-S)
- Pedes_Canvas
- UDR_HK_Canvas
- UHV Status Monitor (UHV-S)

Gas Monitoring:

- TRDGAS Monitor (TRDGAS-M)
- TRDGAS Status Monitor (TRDGAS-S)

Detector Monitoring:

- TRD-DTS Monitor (TRDDTS-M)
- TRD-Gain Monitor (TRD-GainMonitor)
- TRD-Pressure Monitor (TRD-PressureMonitor)

TRD/ACC/TAS-Standard Shift

List of ACC Programms:

- ACC Status Monitor (ACC-S)
- ACC Slow Control Monitor (ACC-M)
- ACC Data Monitor (ACC-data-M)

List of TAS Programms:

- TAS Status Monitor (TAS-S)
- TAS Data Monitor (TAS-M)

TRD-ACC-TAS SHIFTER:
TRDGas Standard Monitoring Shift

Start-up of AMS-Activation:

AMS Power-Step-1 from LEAD Post
- Initializes TRDGAS Crate (UG)
- Configures and starts UG CtrlTsk
- Activates UG Q-List items 7A/7B

HV ON: LEAD asks if TRD Gas is ok

Standard Shift Activity:

- **No** TRDGAS commanding in standard shift

- **Fill** out the two checklists (one for TRD/TAS and one for ACC)

- **Adjust** TRD HV once per day by a xxx V step (only TRD shifter)
  (MOP-ADC value ≈ 60, xxx V step to be determined!)
  details see pages 92-97, 129-131

- **Check:** TRDGAS monitor data available
  All plots in TRDGAS-M update

- **Check:** Pressures and Temperatures in range
  TRDGAS-S is updating regularly

TRD-ACC-TAS SHIFTER:
TRDGas Emergency Actions

Emergency Actions from TRD Post CALL EXPERT	**ASK for Commanding**
- Xe/CO2 Vessel High Pressure (>175/100bar)	UG Heaters DISABLE
- Xe/CO2 Vessel High Temperature (>+60°C)	UG Heaters DISABLE
- Xe/CO2 Vessel Low Temperature (<-20°C)	HEAT VESSELS (UG-A)
- Xe/CO2 Vessel Low Temperature (<-40°C)	HEAT VESSELS (UG-B)
Requires UGPD-B powered and all DC/DC on	
- Xe/CO2 Vessel Low Temperature (<-50°C)	Turn AMS into sun
- Mixing Vessel High Pressure (>13bar)	VENT MIX
- Box-C High Pressure (>1500mbar)	VENT Box C
- TRD High Pressure (>1300mbar)	Flipper Valves CLOSE
- TRD Low Pressure (< 750mbar)	Flipper Valves CLOSE
	ask LEAD: TRD HV OFF
-TRD-SidePanel High Temperature (>+40°C)	Flipper Valves CLOSE
Ask LEAD to disable TRD 120V Heaters	(PDS 120V Heater #3)
- TRD-SidePanel High Temperature (>+50°C)	ask LEAD: TRD StandBy
Option: ask LEAD for AMS StandBy last Option:	Turn TRD away from sun
- TRD-SidePanel Low Temperature (<+5°C)	Flipper Valves CLOSE
Ask LEAD to switch ON TRD 120V Heaters A & B	(PDS 120V Heater #3)
- TRD-SidePanel Low Temperature (<-20°C)	Turn AMS into sun
- Box-C Low Temperature (< 9°C)	HEAT Xe-VESSEL (UG-A)

TRD-ACC-TAS SHIFTER:
TRD Standard Monitoring Shift

- Check: TRD data monitor (Pedes_Canvas.ps, UDR_HK_Canvas)
- Check: TRD Temperatures in range (TRDGAS-S and TRD Sidepanels)

Emergency Actions from TRD Post **CALL** **EXPERT**

-TRD HV Trip!

ASK for Commanding
ASK LEAD to stop DAQ
Go to TRD-HV

reset HV by pressing button `HV On´

TRD-ACC-TAS SHIFTER:
ACC Standard Monitoring Shift

- Check: ACC slow control data and data monitor (ACC-M, ACC-data_M)
- Check: ACC scaler rates, HV-settings, Temperatures in range (ACC-S)

Emergency Actions from Shifter **ASK for Commanding**

1. Temperature PMT-Box out of Range LEAD: Turn ACC-HV off
   (Operational: -30°C … +45°C, Non-Operational: -35°C … +50°C)

2. Scaler rate to high (>35000 outside SAA and polar regions)
   Report to LEAD,
   LEAD reduce HV

3. Scaler rate zero -> HV off LEAD: Turn ACC-HV on
   -> HV on, ADC-spectra Pedestal line
   -> PMT dead LEAD: configure JLV1

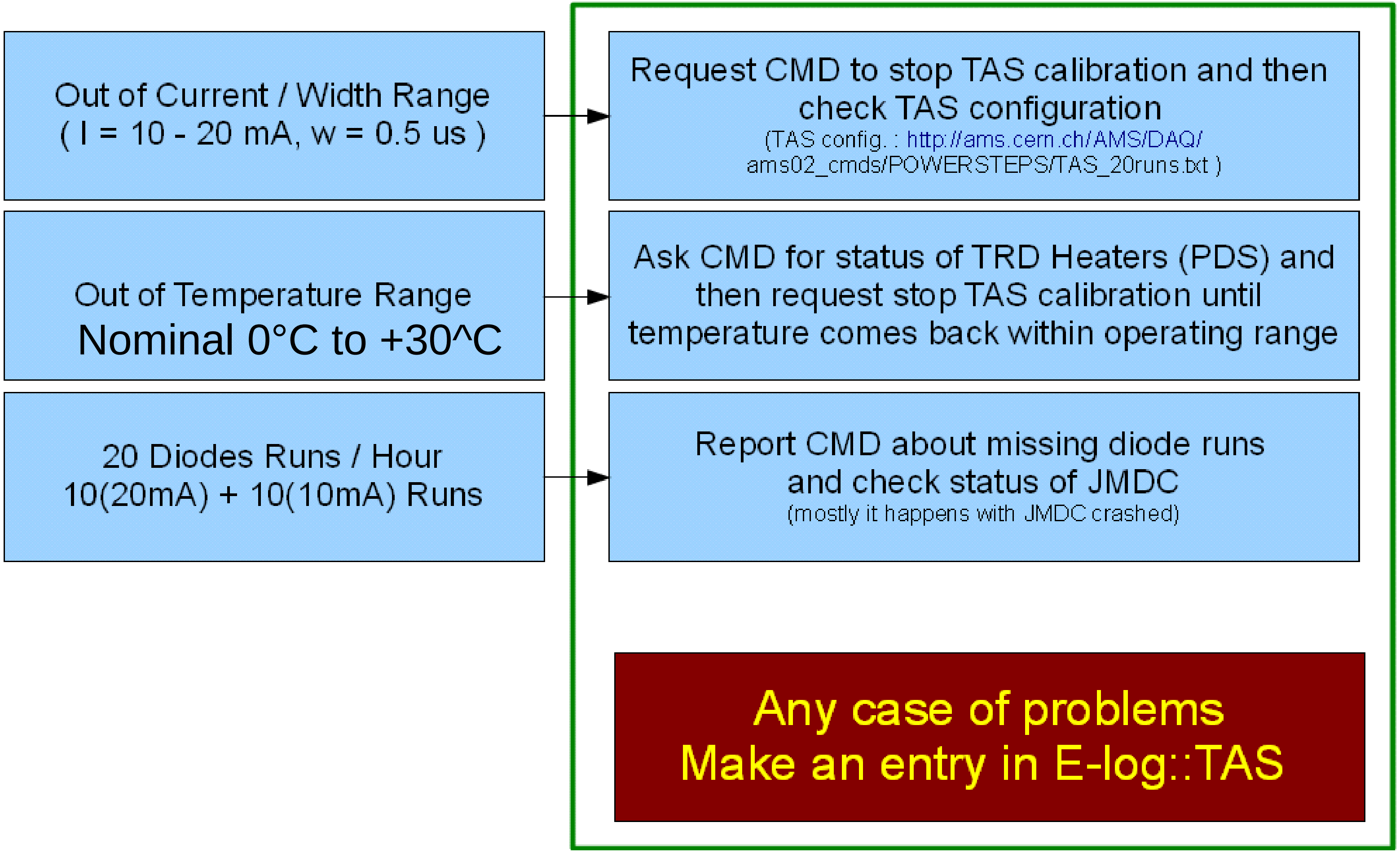
-> cooperate with TOF-Shifter!

-> make an entry in E-Log: TEE and TOF
-> Phone ACC-expert and/or send an email to trd-expert@cern.ch!

TRD-ACC-TAS SHIFTER:
TAS Standard Monitoring Shift

- Check: TAS slow control data (TAS-M)
- Check: TAS laser current, width and LFCR-temperatures (TAS-S)

Emergency Actions from TAS Shifter



Out of Current / Width Range
(I = 10 - 20 mA, w = 0.5 us)

Request CMD to stop TAS calibration and then check TAS configuration
(TAS config. : http://ams.cern.ch/AMS/DAQ/ams02_cmds/POWERSTEPS/TAS_20runs.txt)

Out of Temperature Range
Nominal 0°C to +30^C

Ask CMD for status of TRD Heaters (PDS) and then request stop TAS calibration until temperature comes back within operating range

20 Diodes Runs / Hour
10(20mA) + 10(10mA) Runs

Report CMD about missing diode runs and check status of JMDC
(mostly it happens with JMDC crashed)

Any case of problems
Make an entry in E-log::TAS

TRD-ACC-TAS SHIFT SETUP

TRD-ACC-TAS SHIFT SETUP

Start all Programs from Scratch !!!

TRD-ACC-TAS SHIFT SETUP

Login on PCPOC25 as user trd,
password: 2011may19
Push login button

Go to any Screen and open terminal [top-left bar of desktop has the icon]

```
trd@pcpoc25   $            cd ~/RUN/
trd@pcpoc25 RUN $     TRD_ACC_TAS_ShiftStart.sh
```

(This should work in both in Taiwan and at CERN but there is also TRD_ACC_TAS_ShiftStart_TAIWAN.csh if Taiwan has problems).

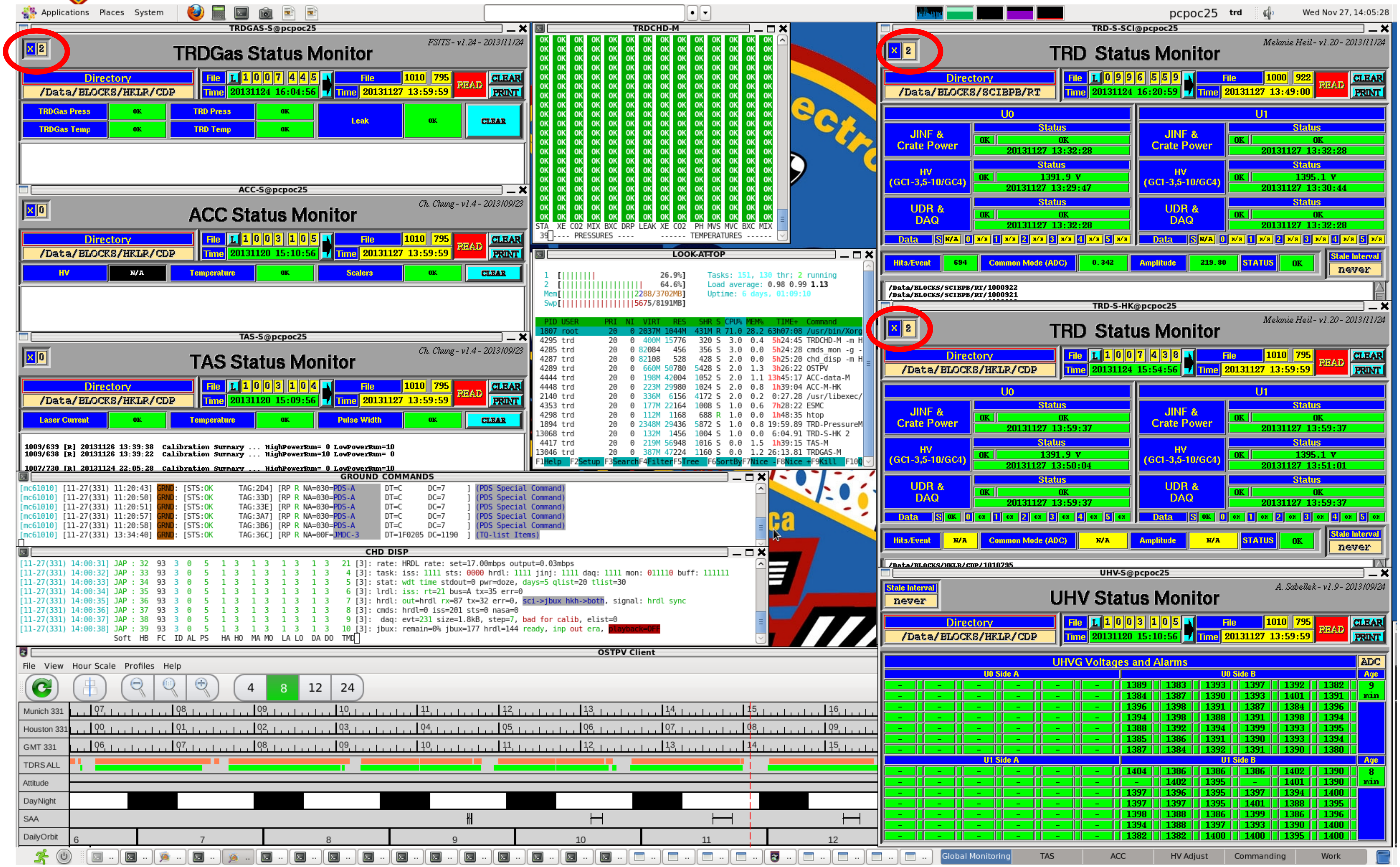
It will open with a pop-up window: read it and push OK.
Then: DO NOT TYPE OR MOVE THE MOUSE WHILE IT IS RUNNING!
It will tell you when it is finished.

This should open ALL shifter programs, start them running and put them in the right places. Only the TRD-GainMonitor, the TRD-PressureMonitor, and the OSTPV need opened by hand by pushing enter in their terminals (their terminals are opened and the commands are typed automatically: you only have to hit ENTER if you want them or kill their terminals if you don’t).

CHECK using the screenshots on the next pages to be sure that everything is in it’s proper place and running properly! Specifically, compare these things to the screenshots and fix them if they don’t match:
-X (= 0 or 2)
-Running Directory (HKLR/CDP, HKHR/CDP or SCIBPB/RT)
-The READ button should be RED

Instructions follow for opening each program individually from a terminal. If you need to do this please organize them in the same way they are in the screenshots.

Screen 1 Left (Global Monitoring)


Applications Places System
pcpoc25 trd Wed Nov 27, 14:05:28
TRDGAS-S@pcpoc25
TRDGas Status Monitor
FS/TS - v1.24 - 2013/11/24
Directory /Data/BLOCKS/HKLR/CDP
File 1007445 Time 20131124 16:04:56
File 1010 795 Time 20131127 13:59:59
READ CLEAR PRINT
TRDGas Press OK TRD Press OK Leak OK CLEAR
TRDGas Temp OK TRD Temp OK
TRDCHD-M
STA XE CO2 MIX BXC DRP LEAK XE CO2 PH MVS MVC BXC MIX
PRESSURES TEMPERATURES
ACC-S@pcpoc25
ACC Status Monitor
Ch. Chung - v1.4 - 2013/09/23
Directory /Data/BLOCKS/HKLR/CDP
File 1003105 Time 20131120 15:10:56
File 1010 795 Time 20131127 13:59:59
HV N/A Temperature OK Scalers OK CLEAR
TAS-S@pcpoc25
TAS Status Monitor
Ch. Chung - v1.4 - 2013/09/23
Directory /Data/BLOCKS/HKLR/CDP
File 1003104 Time 20131120 15:09:56
File 1010 795 Time 20131127 13:59:59
Laser Current OK Temperature OK Pulse Width OK CLEAR
LOOK-AT-TOP
TRD-S-SCI@pcpoc25
TRD Status Monitor
Melanie Heil - v1.20 - 2013/11/24
Directory /Data/BLOCKS/SCIBPB/RT
File 1009659 Time 20131124 16:20:59
File 1000 922 Time 20131127 13:49:00
U0 U1
JINF & Crate Power Status OK 20131127 13:32:28
HV (GC1-3,5-10/GC4) Status OK 1391.9 V 20131127 13:29:47
HV (GC1-3,5-10/GC4) Status OK 1395.1 V 20131127 13:30:44
UDR & DAQ Status OK 20131127 13:32:28
Hits/Event 694 Common Mode (ADC) 0.342 Amplitude 219.80 STATUS OK
Stale Interval never
/Data/BLOCKS/SCIBPB/RT/1000922
/Data/BLOCKS/SCIBPB/RT/1000921
TRD-S-HK@pcpoc25
TRD Status Monitor
Melanie Heil - v1.20 - 2013/11/24
Directory /Data/BLOCKS/HKLR/CDP
File 1007438 Time 20131124 15:54:56
File 1010 795 Time 20131127 13:59:59
JINF & Crate Power Status OK 20131127 13:59:37
HV (GC1-3,5-10/GC4) Status OK 1391.9 V 20131127 13:50:04
HV (GC1-3,5-10/GC4) Status OK 1395.1 V 20131127 13:51:01
UDR & DAQ Status OK 20131127 13:59:37
Hits/Event N/A Common Mode (ADC) N/A Amplitude N/A STATUS OK
Stale Interval never
UHV-S@pcpoc25
UHV Status Monitor
A. Sabellek - v1.9 - 2013/09/24
Stale Interval never
Directory /Data/BLOCKS/HKLR/CDP
File 1003105 Time 20131120 15:10:56
File 1010 795 Time 20131127 13:59:59
UHVG Voltages and Alarms ADC
U0 Side A U0 Side B Age 9 min
U1 Side A U1 Side B Age 8 min
GROUND COMMANDS
CHD DISP
OSTPV Client
File View Hour Scale Profiles Help
4 8 12 24
Munich 331 Houston 331 GMT 331 TDRS ALL Attitude DayNight SAA DailyOrbit
Global Monitoring TAS ACC HV Adjust Commanding Work

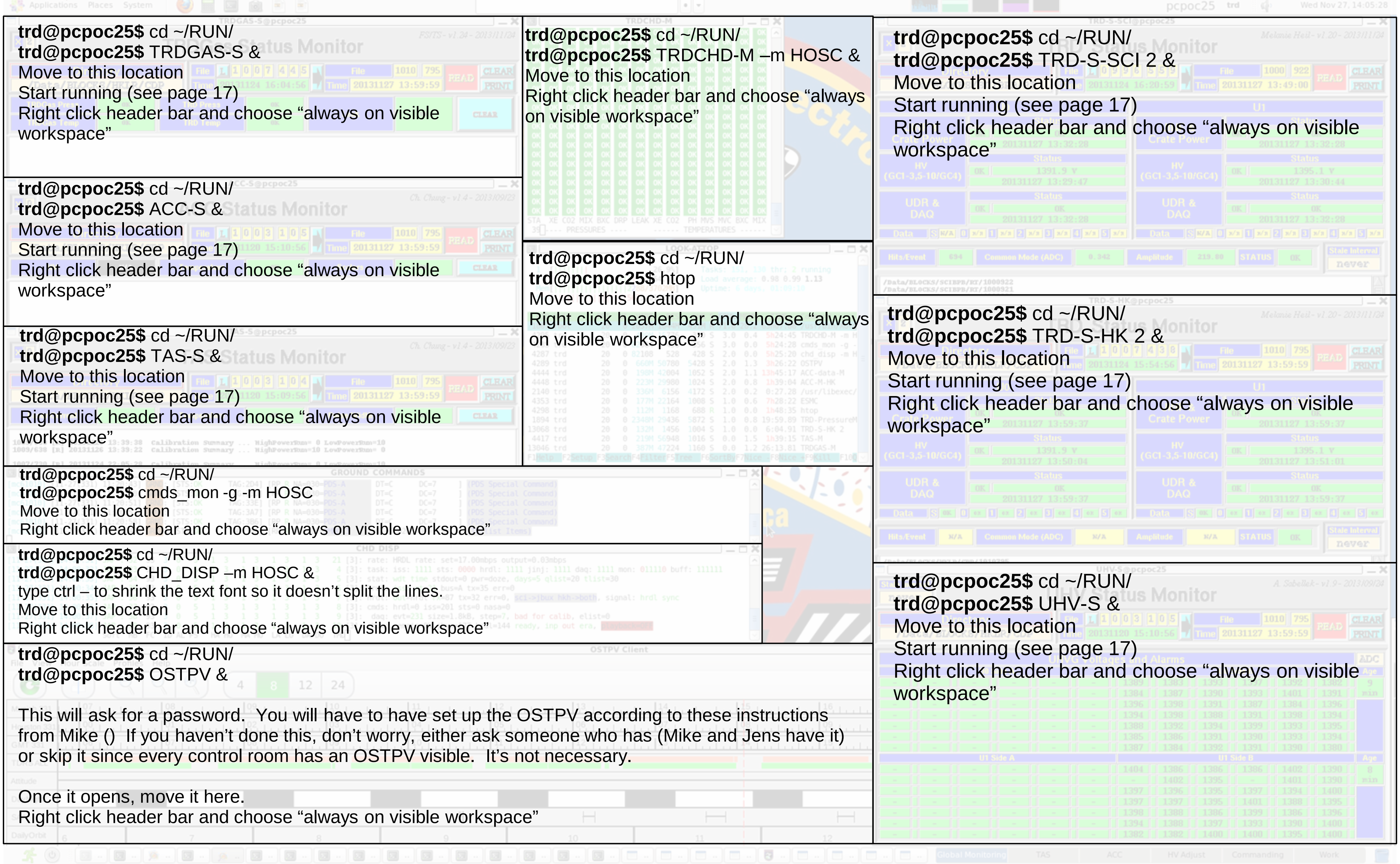
```
1009/639 [R] 20131126 13:39:38  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
1009/638 [R] 20131126 13:39:22  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0
1007/730 [R] 20131124 22:05:28  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
```

```
Tasks: 151, 130 thr; 2 running
Load average: 0.98 0.99 1.13
Uptime: 6 days, 01:09:10
```

```
[mc61010] [11-27(331) 11:20:43] GRND: [STS:OK    TAG:2D4] [RP R NA=030=PDS-A    DT=C     DC=7    ] (PDS Special Command)
[mc61010] [11-27(331) 11:20:50] GRND: [STS:OK    TAG:33D] [RP R NA=030=PDS-A    DT=C     DC=7    ] (PDS Special Command)
[mc61010] [11-27(331) 11:20:51] GRND: [STS:OK    TAG:33E] [RP R NA=030=PDS-A    DT=C     DC=7    ] (PDS Special Command)
[mc61010] [11-27(331) 11:20:57] GRND: [STS:OK    TAG:3A7] [RP R NA=030=PDS-A    DT=C     DC=7    ] (PDS Special Command)
[mc61010] [11-27(331) 11:20:58] GRND: [STS:OK    TAG:3B6] [RP R NA=030=PDS-A    DT=C     DC=7    ] (PDS Special Command)
[mc61010] [11-27(331) 13:34:40] GRND: [STS:OK    TAG:36C] [RP R NA=00F=JMDC-3   DT=1F0205 DC=1190 ] (TQ-list Items)
```

```
[11-27(331) 14:00:31] JAP : 32  93  3  0  5  1  3  1  3  1  3  1  3  21 [3]: rate: HRDL rate: set=17.00mbps output=0.03mbps
[11-27(331) 14:00:32] JAP : 33  93  3  0  5  1  3  1  3  1  3  1  3   4 [3]: task: iss: 1111 sts: 0000 hrdl: 1111 jinj: 1111 daq: 1111 mon: 011110 buff: 111111
[11-27(331) 14:00:33] JAP : 34  93  3  0  5  1  3  1  3  1  3  1  3   5 [3]: stat: wdt time stdout=0 pwr=doze, days=5 qlist=20 tlist=30
[11-27(331) 14:00:34] JAP : 35  93  3  0  5  1  3  1  3  1  3  1  3   6 [3]: lrdl: iss: rt=21 bus=A tx=35 err=0
[11-27(331) 14:00:35] JAP : 36  93  3  0  5  1  3  1  3  1  3  1  3   7 [3]: hrdl: out=hrdl rx=87 tx=32 err=0, sci->jbux hkh->both, signal: hrdl sync
[11-27(331) 14:00:36] JAP : 37  93  3  0  5  1  3  1  3  1  3  1  3   8 [3]: cmds: hrdl=0 iss=201 sts=0 nasa=0
[11-27(331) 14:00:37] JAP : 38  93  3  0  5  1  3  1  3  1  3  1  3   9 [3]:  daq: evt=231 size=1.8kB, step=7, bad for calib, elist=0
[11-27(331) 14:00:38] JAP : 39  93  3  0  5  1  3  1  3  1  3  1  3  10 [3]: jbux: remain=0% jbux=177 hrdl=144 ready, inp out era, playback=OFF
                            Soft HB  FC ID AL PS  HA HO MA MO LA LO DA DO TMD
```

Screen 1 Left (Global Monitoring)



```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ TRDGAS-S &
```

Move to this location

Start running (see page 17)

Right click header bar and choose “always on visible workspace”

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ ACC-S &
```

Move to this location

Start running (see page 17)

Right click header bar and choose “always on visible workspace”

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ TAS-S &
```

Move to this location

Start running (see page 17)

Right click header bar and choose “always on visible workspace”

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ TRDCHD-M –m HOSC &
```

Move to this location

Right click header bar and choose “always on visible workspace”

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ htop
```

Move to this location

Right click header bar and choose “always on visible workspace”

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ cmds_mon -g -m HOSC
```

Move to this location

Right click header bar and choose “always on visible workspace”

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ CHD_DISP –m HOSC &
```

type ctrl – to shrink the text font so it doesn’t split the lines.

Move to this location

Right click header bar and choose “always on visible workspace”

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ OSTPV &
```

This will ask for a password. You will have to have set up the OSTPV according to these instructions from Mike () If you haven’t done this, don’t worry, either ask someone who has (Mike and Jens have it) or skip it since every control room has an OSTPV visible. It’s not necessary.

Once it opens, move it here.

Right click header bar and choose “always on visible workspace”

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ TRD-S-SCI 2 &
```

Move to this location

Start running (see page 17)

Right click header bar and choose “always on visible workspace”

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ TRD-S-HK 2 &
```

Move to this location

Start running (see page 17)

Right click header bar and choose “always on visible workspace”

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ UHV-S &
```

Move to this location

Start running (see page 17)

Right click header bar and choose “always on visible workspace”

All programs that look like this are started in this way…

1) Set X to 0 or 2 (look at screenshots)

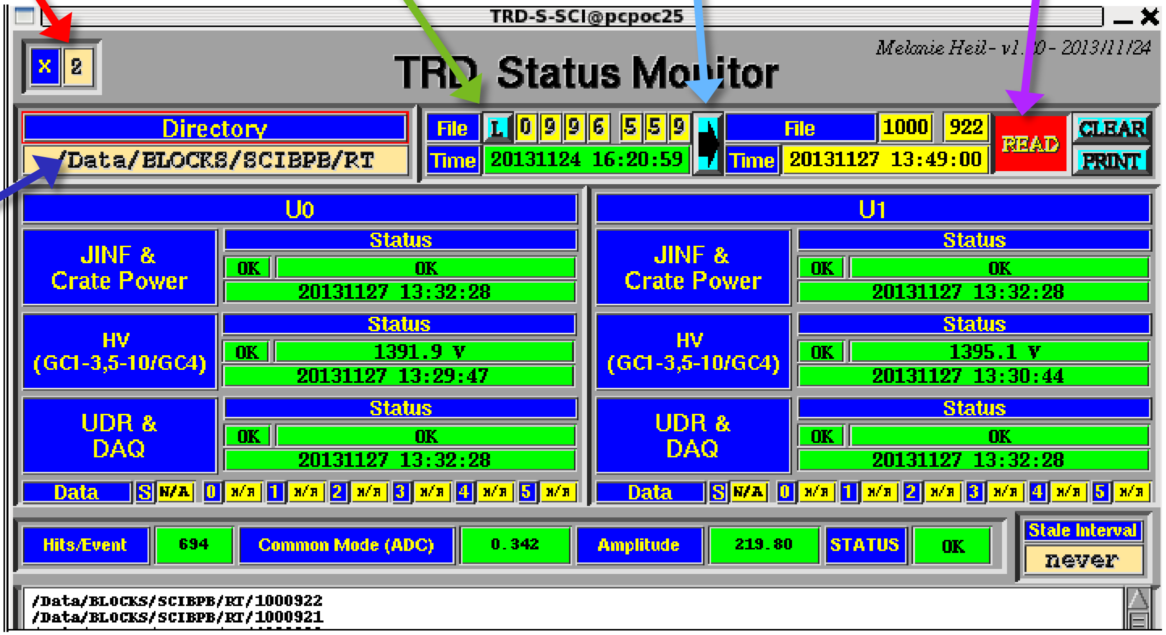
left-click ↑ number
right-click ↓ number

(Note: For those monitors with X set to 2, ONLY do this on the TEE shifter console; if LEAD starts additional TRD-S-HK, LEAD must set it X to 0, otherwise produced UDR-HK-Canvas gets corrupted)

3) Find Last File (left click)

4) Load for reading (left click)

5) Read continously (right click)—should turn from green to red!


TRD-S-SCI@pcpoc25
Melanie Heil - v1.?0 - 2013/11/24
TRD Status Monitor
X 2
Directory
File
Time
READ
CLEAR
PRINT
U0
U1
JINF & Crate Power
HV (GC1-3,5-10/GC4)
UDR & DAQ
Status
Data
S N/A 0 N/A 1 N/A 2 N/A 3 N/A 4 N/A 5 N/A
Hits/Event
Common Mode (ADC)
Amplitude
STATUS
Stale Interval

Directory: /Data/BLOCKS/SCIBPB/RT

File: L 0 9 9 6 5 5 9 — Time: 20131124 16:20:59

File: 1000 922 — Time: 20131127 13:49:00

	U0		U1	
JINF & Crate Power	OK	OK 20131127 13:32:28	OK	OK 20131127 13:32:28
HV (GC1-3,5-10/GC4)	OK	1391.9 V 20131127 13:29:47	OK	1395.1 V 20131127 13:30:44
UDR & DAQ	OK	OK 20131127 13:32:28	OK	OK 20131127 13:32:28

Hits/Event: 694 — Common Mode (ADC): 0.342 — Amplitude: 219.80 — STATUS: OK — Stale Interval: never

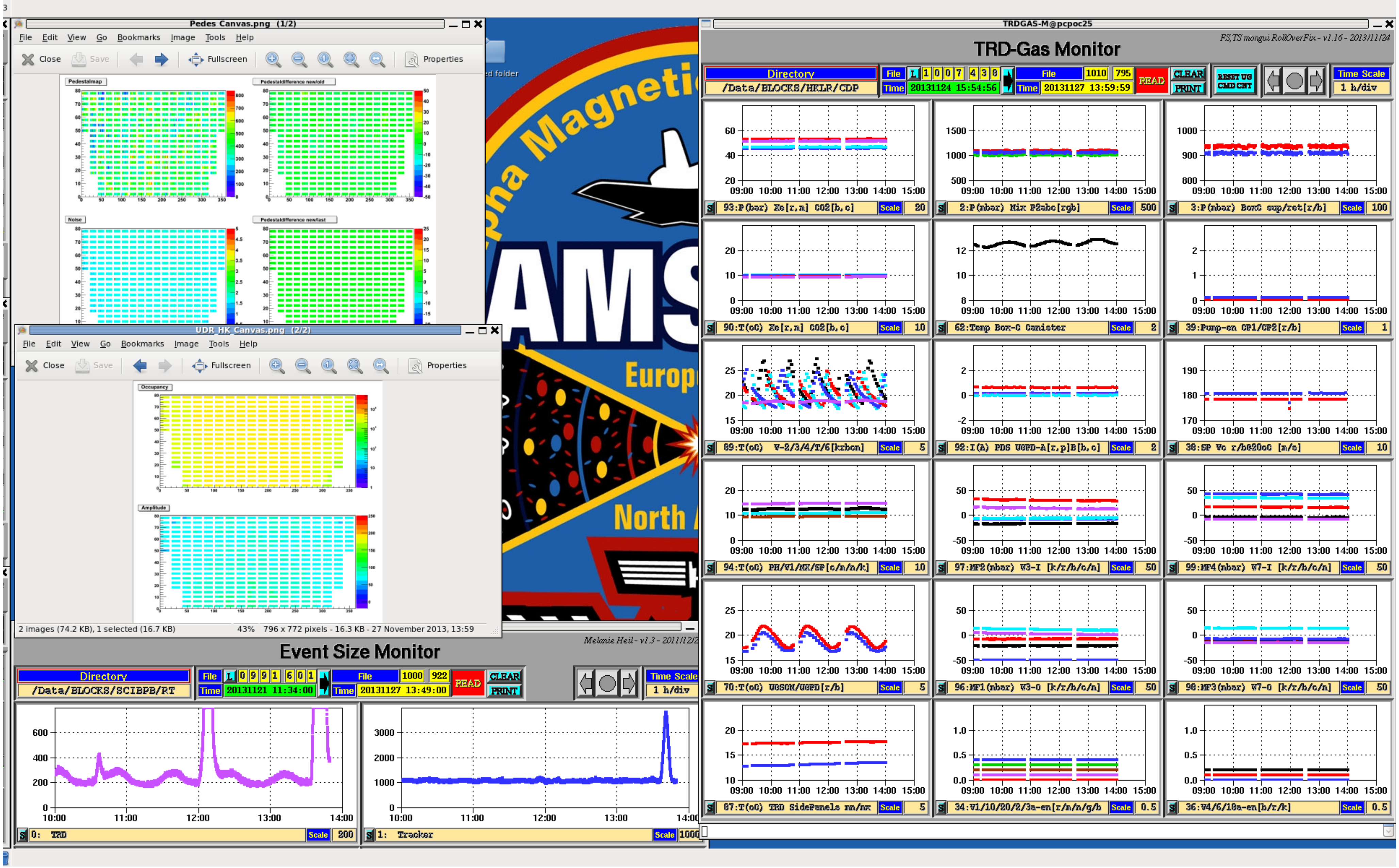
```
/Data/BLOCKS/SCIBPB/RT/1000922
/Data/BLOCKS/SCIBPB/RT/1000921
```

2) Set Directory to Data/BLOCKS/SCIBPB/RT
OR
Data/BLOCKS/HKLR/RT
OR
Data/BLOCKS/HKHR/CDP
(check screenshots to find out which directory to use for each monitor)

Eventually all the boxes should turn green, but sometimes this can take 20 minutes or more depending on the data stream, etc… be patient.

OR you can get the latest file (step 3) and THEN click back a few hundred files (ex. in this case above, change 559 to 449 or earlier) which will start reading older files and will catch up to your latest files quickly.

Screen 1 Right


Pedes Canvas.png (1/2)
File Edit View Go Bookmarks Image Tools Help
Close Save Fullscreen Properties
Pedestalmap
Pedestaldifference new/old
Noise
Pedestaldifference new/last
UDR_HK Canvas.png (2/2)
File Edit View Go Bookmarks Image Tools Help
Close Save Fullscreen Properties
Occupancy
Amplitude
TRDGAS-M@pcpoc25
TRD-Gas Monitor
FS,TS mongui RollOverFix - v1.16 - 2013/11/24
Directory
File
Time
READ
CLEAR
PRINT
RESET UG CMD CNT
Time Scale
Scale
Event Size Monitor
Melanie Heil - v1.3 - 2011/12/2

2 images (74.2 KB), 1 selected (16.7 KB) 43% 796 x 772 pixels - 16.3 KB - 27 November 2013, 13:59

TRD-Gas Monitor: Directory /Data/BLOCKS/HKLR/CDP; File 1 0 0 7 4 3 8, Time 20131124 15:54:56; File 1010 795, Time 20131127 13:59:59; Time Scale 1 h/div

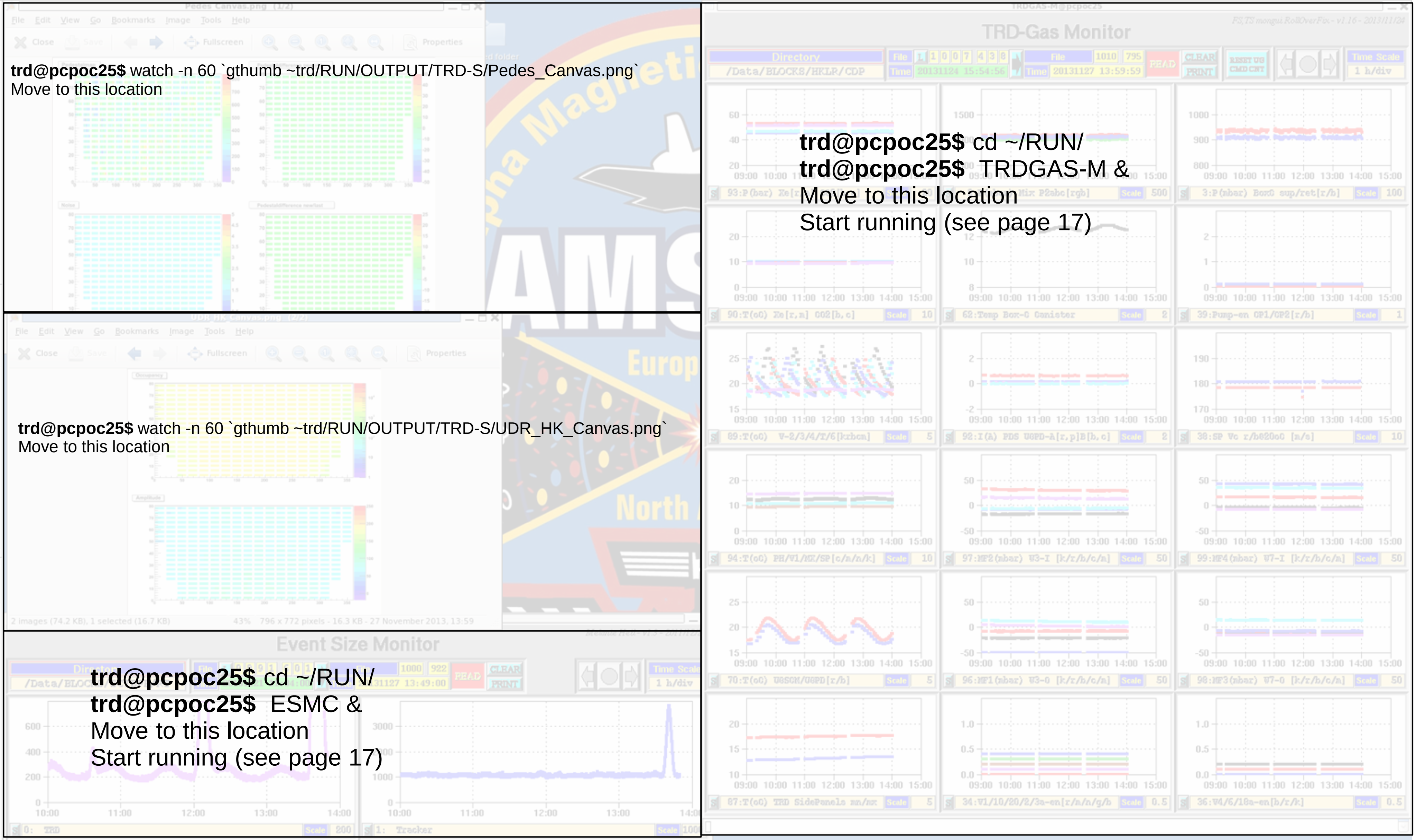
93:P(bar) Xe[r,m] CO2[b,c] Scale 20
2:P(mbar) Mix P2abc[rgb] Scale 500
3:P(mbar) BoxC sup/ret[r/b] Scale 100
90:T(oC) Xe[r,m] CO2[b,c] Scale 10
62:Temp Box-C Canister Scale 2
39:Pump-en CP1/CP2[r/b] Scale 1
89:T(oC) V-2/3/4/T/6[krbcm] Scale 5
92:I(A) PDS UGPD-A[r,p]B[b,c] Scale 2
38:SP Vc r/b620oC [m/s] Scale 10
94:T(oC) PH/V1/MX/SP[c/m/n/k] Scale 10
97:MF2(mbar) V3-I [k/r/b/c/m] Scale 50
99:MF4(mbar) V7-I [k/r/b/c/m] Scale 50
70:T(oC) UGSCM/UGPD[r/b] Scale 5
96:MF1(mbar) V3-O [k/r/b/c/m] Scale 50
98:MF3(mbar) V7-O [k/r/b/c/m] Scale 50
87:T(oC) TRD SidePanels mn/mx Scale 5
34:V1/10/20/2/3a-en[r/m/n/g/b Scale 0.5
36:V4/6/18a-en[b/r/k] Scale 0.5

Event Size Monitor: Directory /Data/BLOCKS/SCIBPB/RT; File 0 9 9 1 6 0 1, Time 20131121 11:34:00; File 1000 922, Time 20131127 13:49:00; Time Scale 1 h/div

0: TRD Scale 200
1: Tracker Scale 1000

Karlsruhe Institute of Technology

Screen 1 Right


Pedes_Canvas.png (1/2)
UDR_HK_Canvas.png (2/2)
TRD-Gas Monitor
Event Size Monitor
Directory
/Data/BLOCKS/HKLR/CDP
READ
CLEAR
PRINT
Time Scale
1 h/div
0: TRD
1: Tracker

```
trd@pcpoc25$ watch -n 60 `gthumb ~trd/RUN/OUTPUT/TRD-S/Pedes_Canvas.png`
```

Move to this location

```
trd@pcpoc25$ watch -n 60 `gthumb ~trd/RUN/OUTPUT/TRD-S/UDR_HK_Canvas.png`
```

Move to this location

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$  ESMC &
```

Move to this location

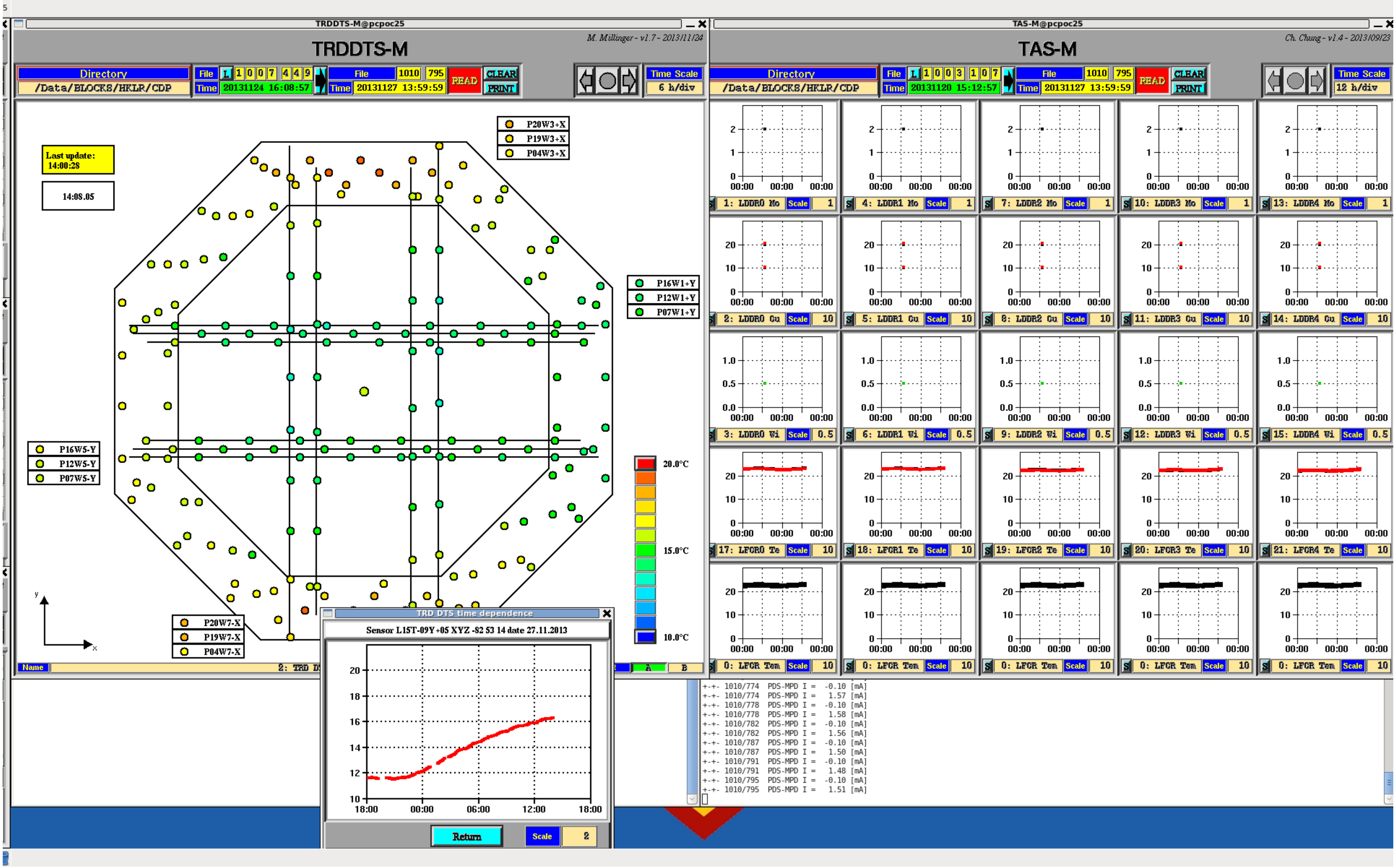
Start running (see page 17)

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$  TRDGAS-M &
```

Move to this location

Start running (see page 17)

Screen 2 Right (TAS)



TRDDTS-M@pcpoc25

TRDDTS-M

M. Millinger - v1.7 - 2013/11/24

Directory: /Data/BLOCKS/HKLR/CDP

File: 1 1007 449 — Time: 20131124 16:08:57

File: 1010 795 — Time: 20131127 13:59:59

Time Scale: 6 h/div

Last update: 14:00:28

14:08.05

TRD DTS time dependence

Sensor L15T-09Y +05 XYZ -82 53 14 date 27.11.2013

Scale: 2

TAS-M@pcpoc25

TAS-M

Ch. Chung - v1.4 - 2013/09/23

Directory: /Data/BLOCKS/HKLR/CDP

File: 1 1003 107 — Time: 20131120 15:12:57

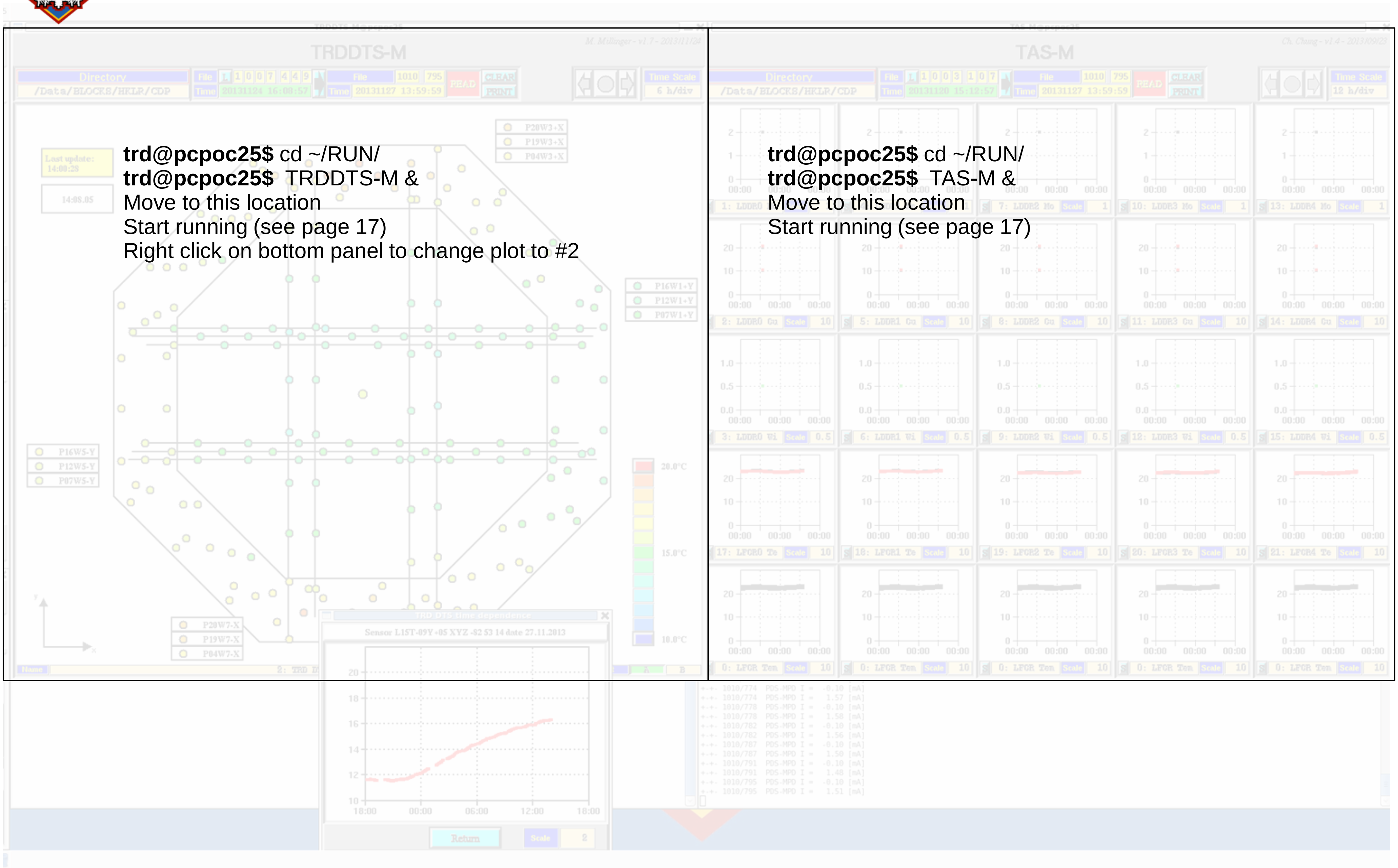
File: 1010 795 — Time: 20131127 13:59:59

Time Scale: 12 h/div

```
+-+- 1010/774  PDS-MPD I =  -0.10 [mA]
+-+- 1010/774  PDS-MPD I =   1.57 [mA]
+-+- 1010/778  PDS-MPD I =  -0.10 [mA]
+-+- 1010/778  PDS-MPD I =   1.58 [mA]
+-+- 1010/782  PDS-MPD I =  -0.10 [mA]
+-+- 1010/782  PDS-MPD I =   1.56 [mA]
+-+- 1010/787  PDS-MPD I =  -0.10 [mA]
+-+- 1010/787  PDS-MPD I =   1.50 [mA]
+-+- 1010/791  PDS-MPD I =  -0.10 [mA]
+-+- 1010/791  PDS-MPD I =   1.48 [mA]
+-+- 1010/795  PDS-MPD I =  -0.10 [mA]
+-+- 1010/795  PDS-MPD I =   1.51 [mA]
```

READ
CLEAR
PRINT
P20W3+X
P19W3+X
P04W3+X
P16W1+Y
P12W1+Y
P07W1+Y
P16W5-Y
P12W5-Y
P07W5-Y
P20W7-X
P19W7-X
P04W7-X
20.0°C
15.0°C
10.0°C
y
x
Name
2: TRD D
A
B
20
18
16
14
12
10
18:00
00:00
06:00
12:00
18:00
Return
Scale
1: LDDR0 Mo
4: LDDR1 Mo
7: LDDR2 Mo
10: LDDR3 Mo
13: LDDR4 Mo
2: LDDR0 Cu
5: LDDR1 Cu
8: LDDR2 Cu
11: LDDR3 Cu
14: LDDR4 Cu
3: LDDR0 Wi
6: LDDR1 Wi
9: LDDR2 Wi
12: LDDR3 Wi
15: LDDR4 Wi
17: LFCR0 Te
18: LFCR1 Te
19: LFCR2 Te
20: LFCR3 Te
21: LFCR4 Te
0: LFCR Tem
1.0
0.5
0.0
00:00

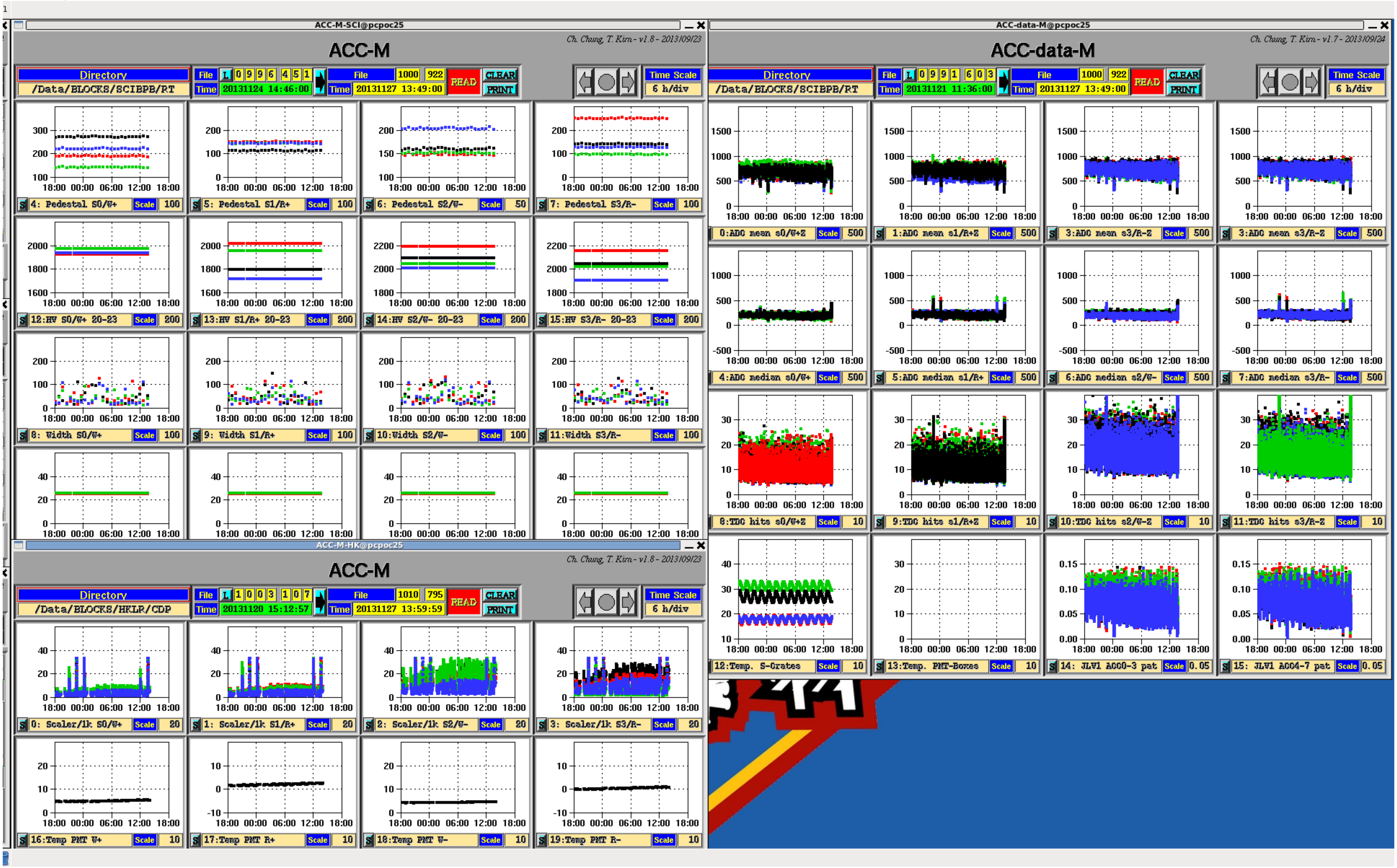
Screen 2 Right (TAS)


TRDDTS-M
TAS-M
Directory
/Data/BLOCKS/HKLR/CDP
READ
CLEAR
PRINT
Time Scale
6 h/div
12 h/div
TRD DTS time dependence
Return
Scale

trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ TRDDTS-M &
Move to this location
Start running (see page 17)
Right click on bottom panel to change plot to #2

trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$ TAS-M &
Move to this location
Start running (see page 17)

Screen 3 Right(ACC)



ACC-M-SCI@pcpoc25

ACC-M

Ch. Chung, T. Kim - v1.8 - 2013/09/23

Directory: /Data/BLOCKS/SCIBPB/RT

File: 0996451 Time: 20131124 14:46:00

File: 1000 922 Time: 20131127 13:49:00

Time Scale: 6 h/div

ACC-data-M@pcpoc25

ACC-data-M

Ch. Chung, T. Kim - v1.7 - 2013/09/24

Directory: /Data/BLOCKS/SCIBPB/RT

File: 0991603 Time: 20131121 11:36:00

File: 1000 922 Time: 20131127 13:49:00

Time Scale: 6 h/div

ACC-M-HK@pcpoc25

ACC-M

Ch. Chung, T. Kim - v1.8 - 2013/09/23

Directory: /Data/BLOCKS/HKLR/CDP

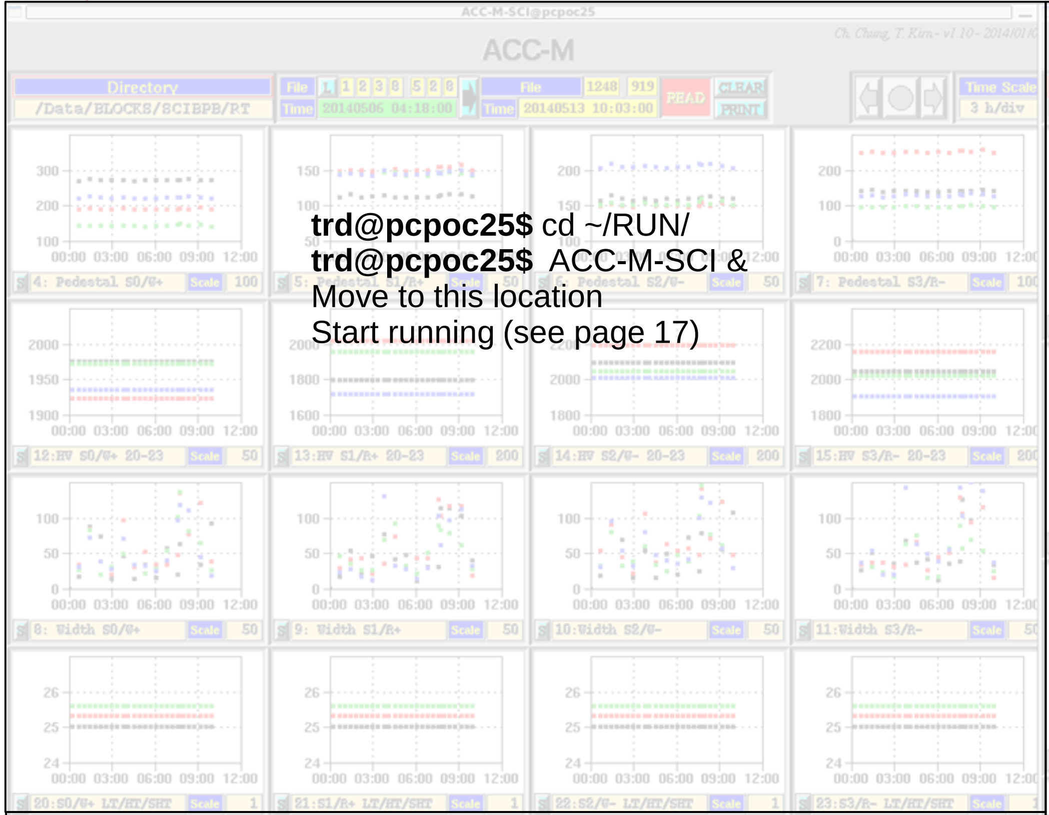
File: 1003107 Time: 20131120 15:12:57

File: 1010 795 Time: 20131127 13:59:59

Time Scale: 6 h/div

READ
CLEAR
PRINT
Scale
18:00 00:00 06:00 12:00 18:00
4: Pedestal S0/W+ 100
5: Pedestal S1/R+ 100
6: Pedestal S2/W- 50
7: Pedestal S3/R- 100
12:HV S0/W+ 20-23 200
13:HV S1/R+ 20-23 200
14:HV S2/W- 20-23 200
15:HV S3/R- 20-23 200
8: Width S0/W+ 100
9: Width S1/R+ 100
10:Width S2/W- 100
11:Width S3/R- 100
0:ADC mean s0/W+Z 500
1:ADC mean s1/R+Z 500
3:ADC mean s3/R-Z 500
3:ADC mean s3/R-Z 500
4:ADC median s0/W+ 500
5:ADC median s1/R+ 500
6:ADC median s2/W- 500
7:ADC median s3/R- 500
8:TDC hits s0/W+Z 10
9:TDC hits s1/R+Z 10
10:TDC hits s2/W-Z 10
11:TDC hits s3/R-Z 10
12:Temp. S-Crates 10
13:Temp. PMT-Boxes 10
14: JLV1 ACC0-3 pat 0.05
15: JLV1 ACC4-7 pat 0.05
0: Scaler/1k S0/W+ 20
1: Scaler/1k S1/R+ 20
2: Scaler/1k S2/W- 20
3: Scaler/1k S3/R- 20
16:Temp PMT W+ 10
17:Temp PMT R+ 10
18:Temp PMT W- 10
19:Temp PMT R- 10

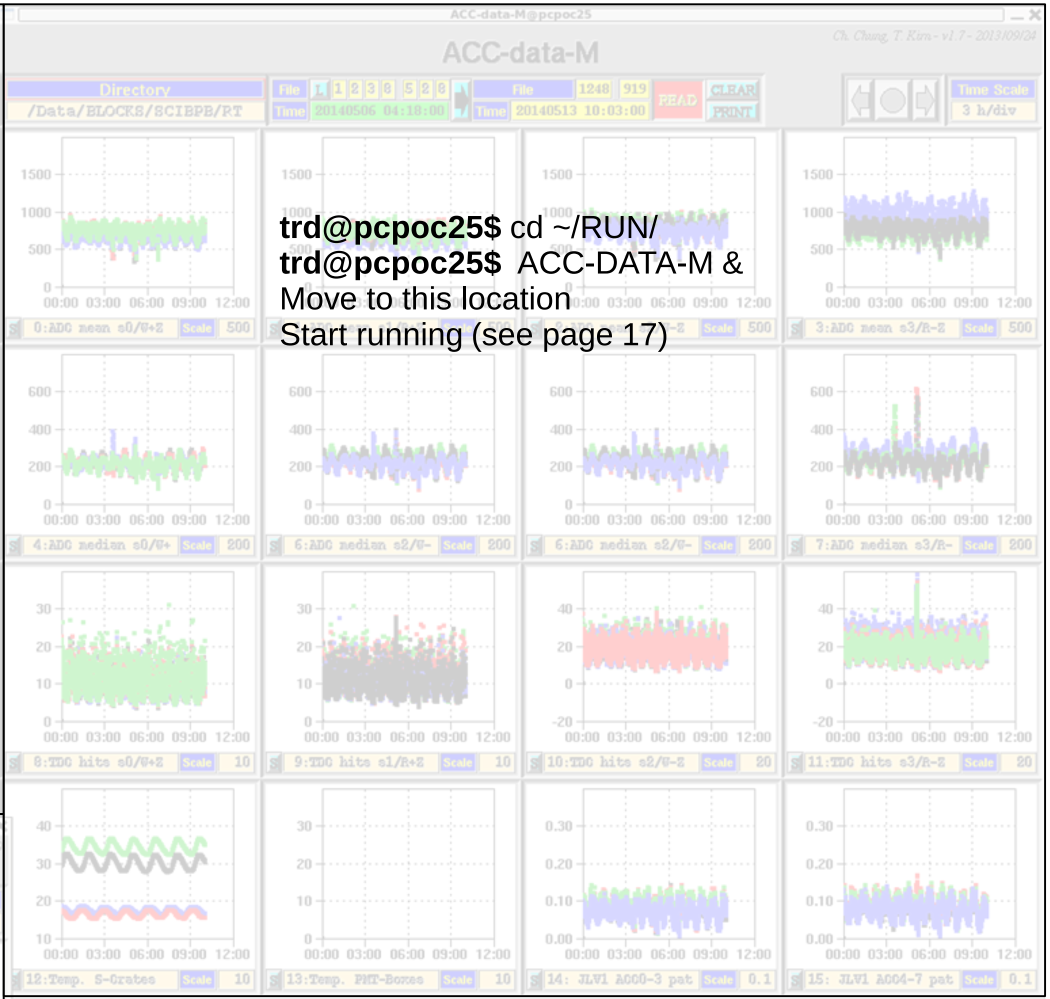
Screen 3 Right


ACC-M-SCI@pcpoc25
ACC-M
Ch. Chung, T. Kim - v1.10 - 20140110
Directory
/Data/BLOCKS/SCIBPB/RT
File
Time
20140506 04:18:00
20140513 10:03:00
READ
CLEAR
PRINT
Time Scale
3 h/div
4: Pedestal S0/U+
5: Pedestal S1/R+
6: Pedestal S2/U-
7: Pedestal S3/R-
12:HV S0/U+ 20-23
13:HV S1/R+ 20-23
14:HV S2/U- 20-23
15:HV S3/R- 20-23
8: Width S0/U+
9: Width S1/R+
10:Width S2/U-
11:Width S3/R-
20:S0/U+ LT/HT/SHT
21:S1/R+ LT/HT/SHT
22:S2/U- LT/HT/SHT
23:S3/R- LT/HT/SHT
Scale

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$  ACC-M-SCI &
```

Move to this location

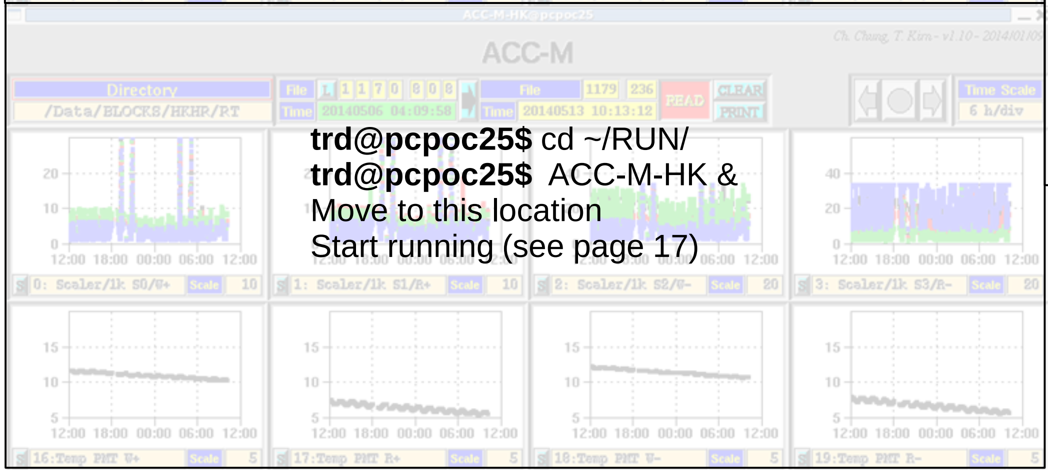
Start running (see page 17)


ACC-data-M@pcpoc25
ACC-data-M
Ch. Chung, T. Kim - v1.7 - 20130924
Directory
/Data/BLOCKS/SCIBPB/RT
File
Time
20140506 04:18:00
20140513 10:03:00
READ
CLEAR
PRINT
Time Scale
3 h/div
0:ADC mean s0/U+Z
3:ADC mean s3/R-Z
4:ADC median s0/U+
6:ADC median s2/U-
7:ADC median s3/R-
8:TDC hits s0/U+Z
9:TDC hits s1/R+Z
10:TDC hits s2/U-Z
11:TDC hits s3/R-Z
12:Temp. S-Crates
13:Temp. PMT-Boxes
14: JLV1 ACC0-3 pat
15: JLV1 ACC4-7 pat
Scale

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$  ACC-DATA-M &
```

Move to this location

Start running (see page 17)

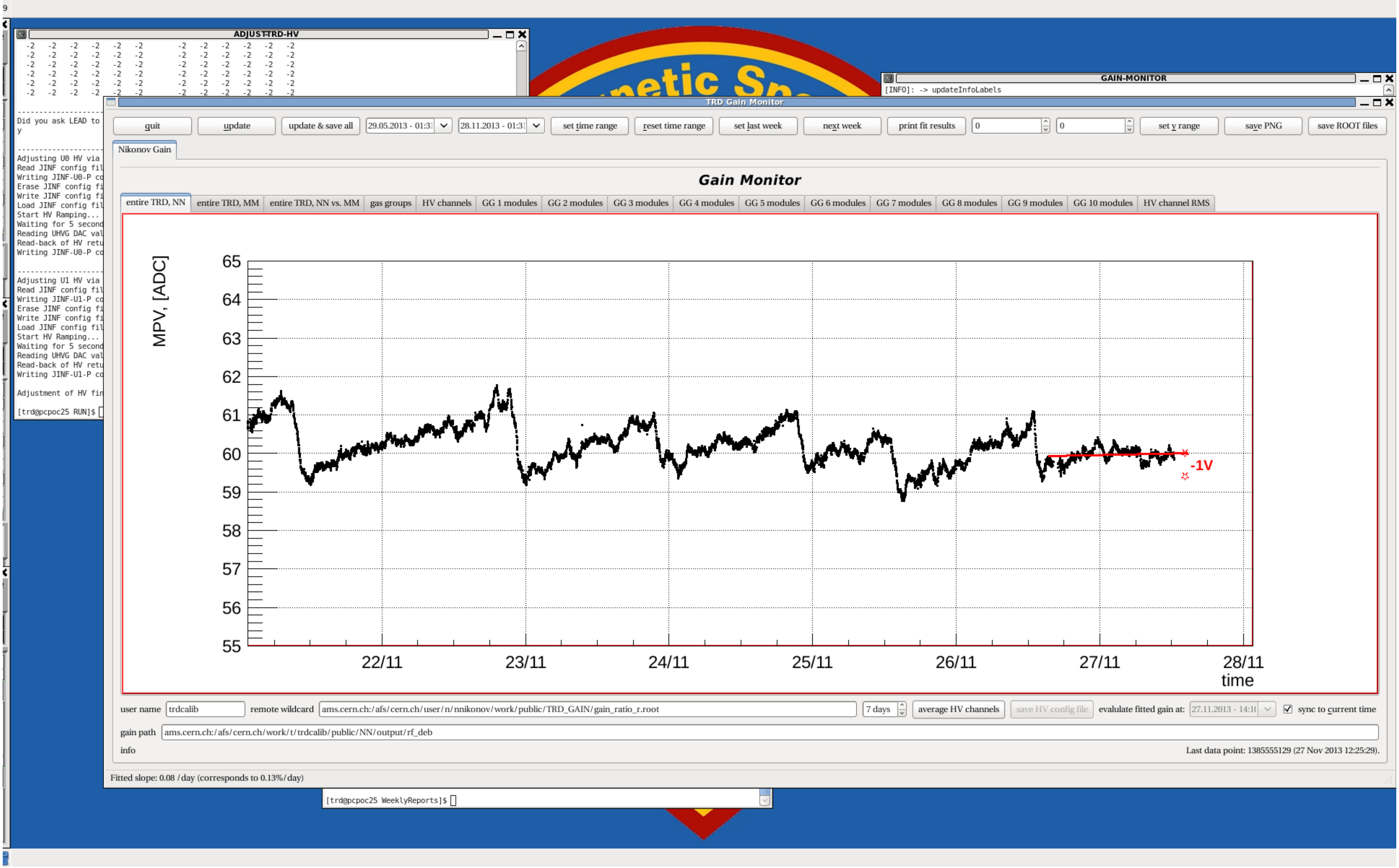

ACC-M-HK@pcpoc25
ACC-M
Ch. Chung, T. Kim - v1.10 - 20140110
Directory
/Data/BLOCKS/HKHP/RT
File
Time
20140506 04:09:58
20140513 10:13:12
READ
CLEAR
PRINT
Time Scale
6 h/div
0: Scaler/1k S0/U+
1: Scaler/1k S1/R+
2: Scaler/1k S2/U-
3: Scaler/1k S3/R-
16:Temp PMT U+
17:Temp PMT R+
18:Temp PMT U-
19:Temp PMT R-
Scale

```
trd@pcpoc25$ cd ~/RUN/
trd@pcpoc25$  ACC-M-HK &
```

Move to this location

Start running (see page 17)

Screen 4 Right(HV Adjust)


ADJUST-TRD-HV
GAIN-MONITOR
TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last week
next week
print fit results
set y range
save PNG
save ROOT files
Nikonov Gain
Gain Monitor
entire TRD, NN
entire TRD, MM
entire TRD, NN vs. MM
gas groups
HV channels
GG 1 modules
GG 2 modules
GG 3 modules
GG 4 modules
GG 5 modules
GG 6 modules
GG 7 modules
GG 8 modules
GG 9 modules
GG 10 modules
HV channel RMS
MPV, [ADC]
65
64
63
62
61
60
59
58
57
56
55
22/11
23/11
24/11
25/11
26/11
27/11
28/11
time
-1V
average HV channels
save HV config file
info

```
-2   -2   -2   -2   -2   -2        -2   -2   -2   -2   -2   -2
-2   -2   -2   -2   -2   -2        -2   -2   -2   -2   -2   -2
-2   -2   -2   -2   -2   -2        -2   -2   -2   -2   -2   -2
-2   -2   -2   -2   -2   -2        -2   -2   -2   -2   -2   -2
-2   -2   -2   -2   -2   -2        -2   -2   -2   -2   -2   -2
-2   -2   -2   -2   -2   -2        -2   -2   -2   -2   -2   -2

--------------------
Did you ask LEAD to
y

--------------------
Adjusting U0 HV via
Read JINF config fil
Writing JINF-U0-P co
Erase JINF config fi
Write JINF config fi
Load JINF config fil
Start HV Ramping...
Waiting for 5 second
Reading UHVG DAC val
Read-back of HV retu
Writing JINF-U0-P co


--------------------
Adjusting U1 HV via
Read JINF config fil
Writing JINF-U1-P co
Erase JINF config fi
Write JINF config fi
Load JINF config fil
Start HV Ramping...
Waiting for 5 second
Reading UHVG DAC val
Read-back of HV retu
Writing JINF-U1-P co

Adjustment of HV fin

[trd@pcpoc25 RUN]$
```

```
[INFO]: -> updateInfoLabels
```

29.05.2013 - 01:3

28.11.2013 - 01:3

0

0

user name: trdcalib

remote wildcard: ams.cern.ch:/afs/cern.ch/user/n/nnikonov/work/public/TRD_GAIN/gain_ratio_r.root

7 days

evalulate fitted gain at: 27.11.2013 - 14:1

☑ sync to current time

gain path: ams.cern.ch:/afs/cern.ch/work/t/trdcalib/public/NN/output/rf_deb

Last data point: 1385555129 (27 Nov 2013 12:25:29).

Fitted slope: 0.08 /day (corresponds to 0.13%/day)

```
[trd@pcpoc25 WeeklyReports]$
```

EXPERTS: Screen 4 Right(HV Adjust)

Go to Screen 4 Right (HV Adjust): **ONLY FOR EXPERTS**

The automatic script mostly takes care of this for you, you have to hit **ENTER**, as below

Xterm SHOULD be open and SHOULD have changed to the ~trd/RUN/ directory:

The command TRD-GainMonitor SHOULD already be in the field, like so:

```
trd@pcpoc25   $  cd ~trd/RUN/
trd@pcpoc25 RUN$ TRD-GainMonitor
```

Hit **ENTER** and it will bring-up the program, after it’s open click **“update and save all”**. For more details on the gain monitor see page 109.

Xterm SHOULD be open and SHOULD have changed to the ~trd/RUN directory:

The proper command path SHOULD also be set, like so:

```
trd@pcpoc25   $  cd ~trd/RUN/
trd@pcpos25 RUN$ set-command-path eas:hosc feplr
```

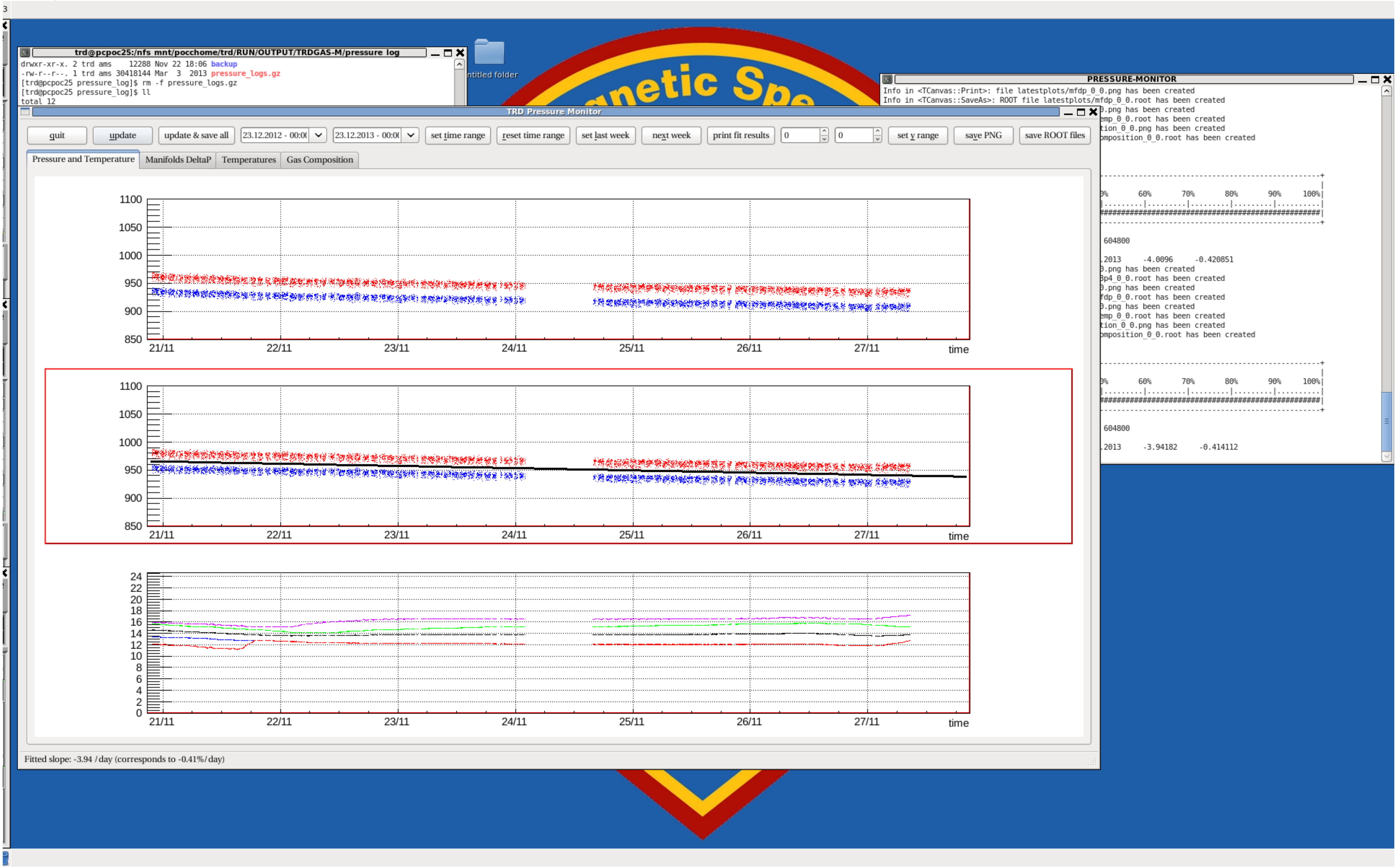
The HV adjustment (HV channel intercalibration or overall adjustment) is done by using 2 scripts:

```
prepare-trd-hv –value   (should be done only 10 min before adjustment)
apply-trd-hv            (must be done at equator before calibration)
```

(for both scripts you need commanding from LEAD!!!)

Place Programs on top of corresponding xterm (as shown in layout)

Screen 5 Right(Commanding)


3
ntitled folder
TRD Pressure Monitor
quit
update
update & save all
23.12.2012 - 00:0(
23.12.2013 - 00:0(
set time range
reset time range
set last week
next week
print fit results
0
0
set y range
save PNG
save ROOT files
Pressure and Temperature
Manifolds DeltaP
Temperatures
Gas Composition
1100
1050
1000
950
900
850
21/11
22/11
23/11
24/11
25/11
26/11
27/11
time
1100
1050
1000
950
900
850
21/11
22/11
23/11
24/11
25/11
26/11
27/11
time
24
22
20
18
16
14
12
10
8
6
4
2
0
21/11
22/11
23/11
24/11
25/11
26/11
27/11
time
PRESSURE-MONITOR

trd@pcpoc25:/nfs mnt/pocchome/trd/RUN/OUTPUT/TRDGAS-M/pressure log

```
drwxr-xr-x. 2 trd ams    12288 Nov 22 18:06 backup
-rw-r--r--. 1 trd ams 30418144 Mar  3  2013 pressure_logs.gz
[trd@pcpoc25 pressure_log]$ rm -f pressure_logs.gz
[trd@pcpoc25 pressure_log]$ ll
total 12
```

```
Info in <TCanvas::Print>: file latestplots/mfdp_0_0.png has been created
Info in <TCanvas::SaveAs>: ROOT file latestplots/mfdp_0_0.root has been created
0.png has been created
emp_0_0.root has been created
tion_0_0.png has been created
omposition_0_0.root has been created


------------------------------------------------------+
                                                      |
0%        60%       70%       80%       90%      100%|
|.........|.........|.........|.........|.........|
####################################################|
------------------------------------------------------+

 604800

.2013     -4.0096     -0.420851
0.png has been created
3p4_0_0.root has been created
0.png has been created
fdp_0_0.root has been created
0.png has been created
emp_0_0.root has been created
tion_0_0.png has been created
omposition_0_0.root has been created


------------------------------------------------------+
                                                      |
0%        60%       70%       80%       90%      100%|
|.........|.........|.........|.........|.........|
####################################################|
------------------------------------------------------+

 604800

.2013     -3.94182     -0.414112
```

Fitted slope: -3.94 /day (corresponds to -0.41%/day)

Screen 5 Right(Commanding)

Go to Screen 5 (Commanding) Right:

ONLY FOR EXPERTS
(The automatic script mostly takes care of this for you – you have to hit ENTER, as below)

Xterm SHOULD be open and SHOULD have changed to the ~/RUN/ directory:
The command TRD-PressureMonitor SHOULD already be in the field, like so:

```
trd@pcpoc25   $  cd ~trd/RUN/
trd@pcpoc25 RUN$ TRD-PressureMonitor
```

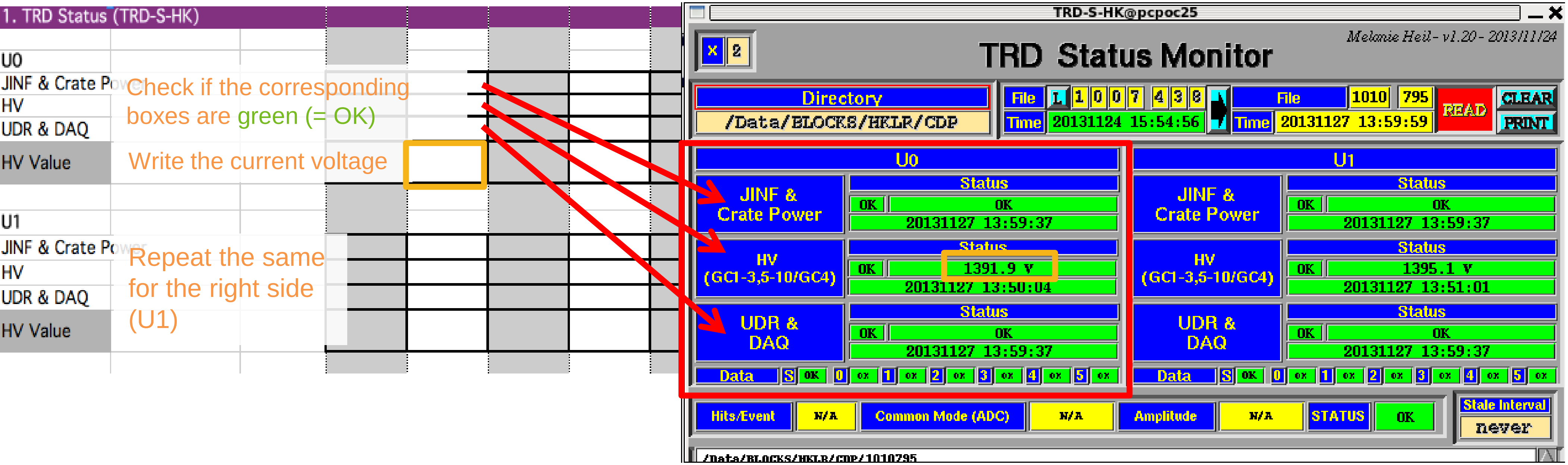
Hit ENTER and it will bring up the program – after it's open click “update and save all”. For more details on the pressure monitor see page 115

Place Programs on top of corresponding xterm (as shown in layout);

TRD-ACC-TAS Checklists

Fill Out Your TRD Checklist!

TRD Status Monitor:
TRD Checklist Section 1



1. TRD Status (TRD-S-HK)

U0
JINF & Crate Po
HV
UDR & DAQ
HV Value

U1
JINF & Crate Po
HV
UDR & DAQ
HV Value

Check if the corresponding boxes are green (= OK)

Write the current voltage

Repeat the same for the right side (U1)

TRD-S-HK@pcpoc25

TRD Status Monitor

Melanie Heil - v1.20 - 2013/11/24

Directory: /Data/BLOCKS/HKLR/CDP

File: L 1 0 0 7 4 3 8 — Time: 20131124 15:54:56

File: 1010 795 — Time: 20131127 13:59:59

READ CLEAR PRINT

U0	Status
JINF & Crate Power	OK — OK 20131127 13:59:37
HV (GC1-3,5-10/GC4)	OK — 1391.9 V 20131127 13:50:04
UDR & DAQ	OK — OK 20131127 13:59:37
Data	S OK 0 OK 1 OK 2 OK 3 OK 4 OK 5 OK

U1	Status
JINF & Crate Power	OK — OK 20131127 13:59:37
HV (GC1-3,5-10/GC4)	OK — 1395.1 V 20131127 13:51:01
UDR & DAQ	OK — OK 20131127 13:59:37
Data	S OK 0 OK 1 OK 2 OK 3 OK 4 OK 5 OK

Hits/Event: N/A — Common Mode (ADC): N/A — Amplitude: N/A — STATUS: OK

Stale Interval: never

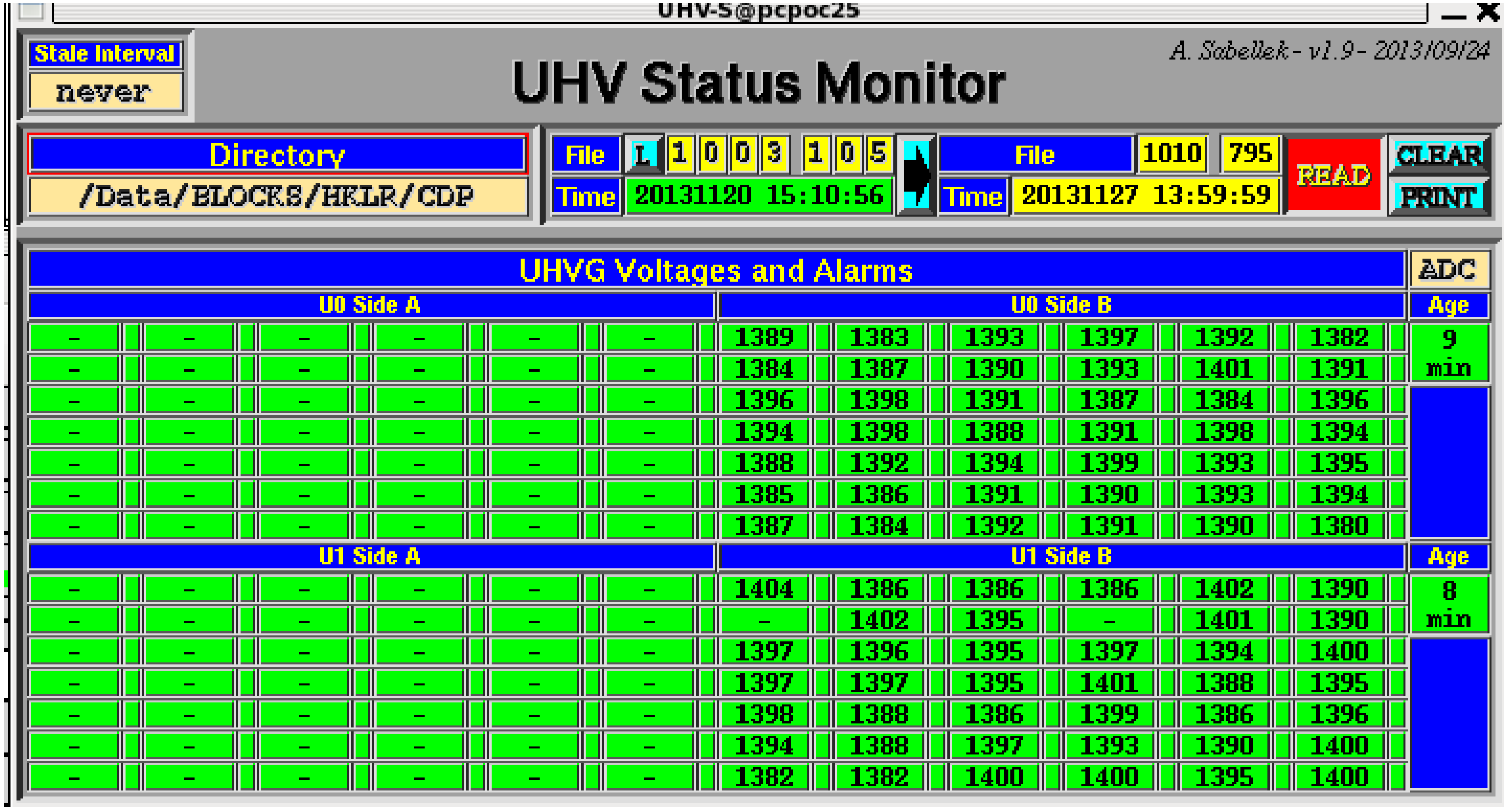
/Data/BLOCKS/HKLR/CDP/1010795

If any box is red:

(1) Check the elog: is there a note from an expert?

(2) If there is no note and it does not turn green after ~25 minutes of AOS, put a screenshot on the elog and call the trd oncall expert.

UHV Status Monitor:
TRD Checklist Section 1



UHV-S@pcpoc25

Stale Interval: never

A. Sabellek - v1.9 - 2013/09/24

UHV Status Monitor

Directory: /Data/BLOCKS/HKLR/CDP

File: L 1 0 0 3 1 0 5

Time: 20131120 15:10:56

File: 1010 795

Time: 20131127 13:59:59

UHVG Voltages and Alarms

U0 Side A						U0 Side B						Age
-	-	-	-	-	-	1389	1383	1393	1397	1392	1382	9 min
-	-	-	-	-	-	1384	1387	1390	1393	1401	1391	
-	-	-	-	-	-	1396	1398	1391	1387	1384	1396	
-	-	-	-	-	-	1394	1398	1388	1391	1398	1394	
-	-	-	-	-	-	1388	1392	1394	1399	1393	1395	
-	-	-	-	-	-	1385	1386	1391	1390	1393	1394	
-	-	-	-	-	-	1387	1384	1392	1391	1390	1380	

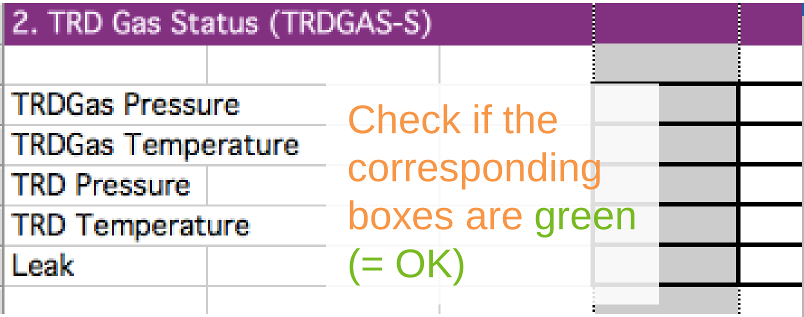
U1 Side A						U1 Side B						Age
-	-	-	-	-	-	1404	1386	1386	1386	1402	1390	8 min
-	-	-	-	-	-	-	1402	1395	-	1401	1390	
-	-	-	-	-	-	1397	1396	1395	1397	1394	1400	
-	-	-	-	-	-	1397	1397	1395	1401	1388	1395	
-	-	-	-	-	-	1398	1388	1386	1399	1386	1396	
-	-	-	-	-	-	1394	1388	1397	1393	1390	1400	
-	-	-	-	-	-	1382	1382	1400	1400	1395	1400	

Also check the UHV status monitor. The individual high voltages should all be similar, and none should be missing except those already missing. If anything changes or any box is red:

(1) Check the elog: is there a note from an expert?

(2) If there is no note and it does not turn green after ~25 minutes of AOS, put a screenshot on the elog and call the trd oncall expert.

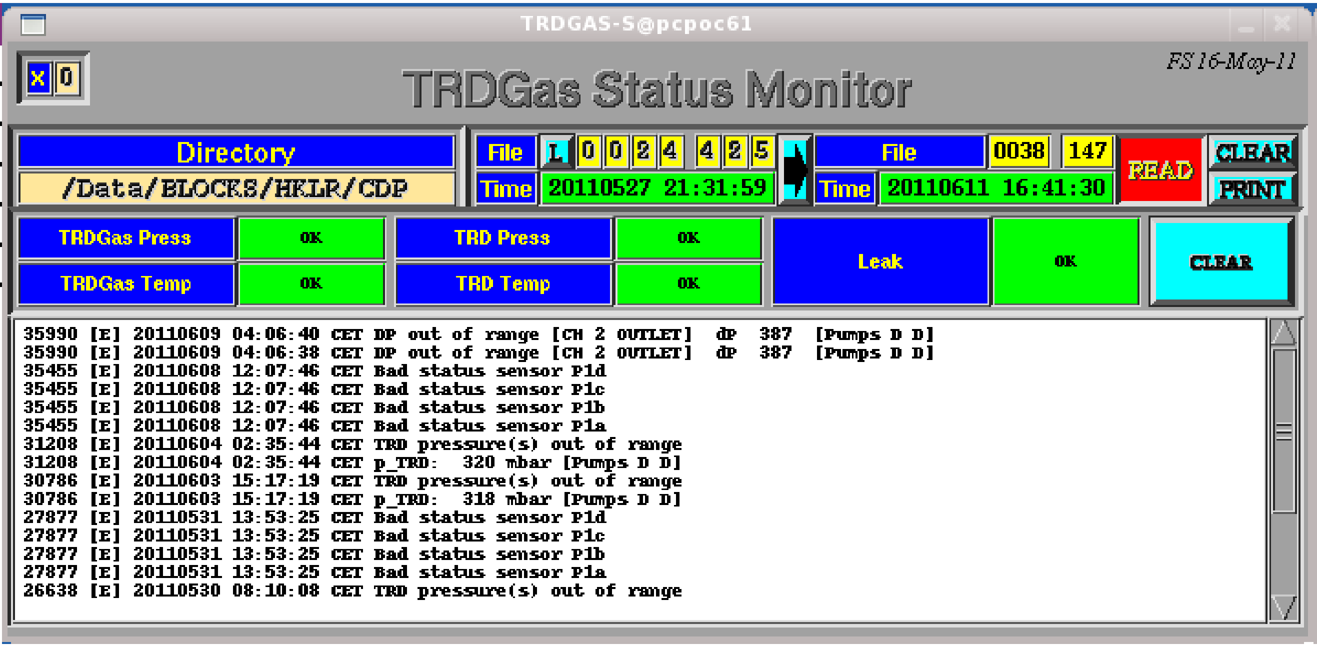
TRDGas Status Monitor: TRD Checklist Section 2



2. TRD Gas Status (TRDGAS-S)

TRDGas Pressure
TRDGas Temperature
TRD Pressure
TRD Temperature
Leak

Check if the corresponding boxes are green (= OK)



Directory: /Data/BLOCKS/HKLR/CDP
File: L 0024 425
Time: 20110527 21:31:59
File: 0038 147
Time: 20110611 16:41:30

TRDGas Press: OK
TRDGas Temp: OK
TRD Press: OK
TRD Temp: OK
Leak: OK

```
35990 [E] 20110609 04:06:40 CET DP out of range [CH 2 OUTLET]  dP  387  [Pumps D D]
35990 [E] 20110609 04:06:38 CET DP out of range [CH 2 OUTLET]  dP  387  [Pumps D D]
35455 [E] 20110608 12:07:46 CET Bad status sensor P1d
35455 [E] 20110608 12:07:46 CET Bad status sensor P1c
35455 [E] 20110608 12:07:46 CET Bad status sensor P1b
35455 [E] 20110608 12:07:46 CET Bad status sensor P1a
31208 [E] 20110604 02:35:44 CET TRD pressure(s) out of range
31208 [E] 20110604 02:35:44 CET p_TRD:  320 mbar [Pumps D D]
30786 [E] 20110603 15:17:19 CET TRD pressure(s) out of range
30786 [E] 20110603 15:17:19 CET p_TRD:  318 mbar [Pumps D D]
27877 [E] 20110531 13:53:25 CET Bad status sensor P1d
27877 [E] 20110531 13:53:25 CET Bad status sensor P1c
27877 [E] 20110531 13:53:25 CET Bad status sensor P1b
27877 [E] 20110531 13:53:25 CET Bad status sensor P1a
26638 [E] 20110530 08:10:08 CET TRD pressure(s) out of range
```

If any box turns red:

(1) Check the elog: is there a note from an expert? (i.e. Leak and Pressures turn red during the refill and when the pump is on, Temperatures may turn red during a cold phase)?

(2) Talk to LEAD/Thermal: is there something happening that could cause this?

(3) If there is no note and it does not turn green after ~25 minutes of AOS, put a screenshot on the elog and call the trd oncall expert.

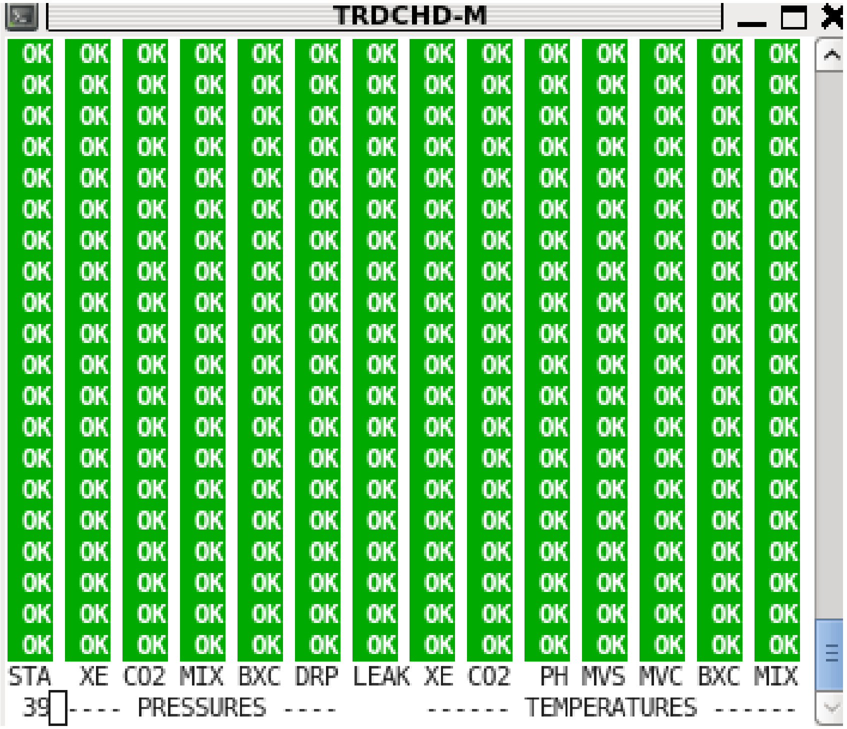
A note about **errors**: the errors in this status box happen regularly. If they happen **once** and do not continue (like above), it's fine. If the same error repeats continuously this is bad, and it should cause one of the status boxes to turn RED. **Whether or not** the status turns RED, if any error is **continuous** (i.e. repeats many times in a row) call the trd oncall expert.

TRDCHD Monitor:
TRD Checklist Section 2

Also check the TRDCHD status monitor. This monitor checks a number of parameters to be sure if they are in range. All of the boxes should be green. If something is red:

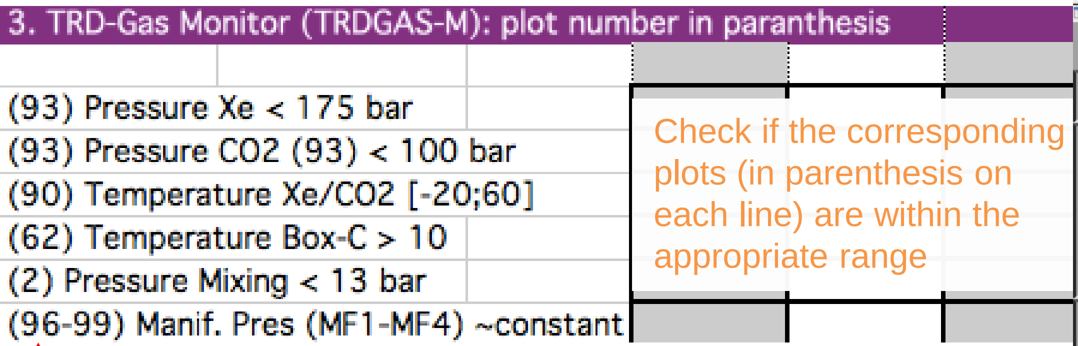
(1) Check the elog: is there a note from an expert (i.e. a gas refill)?

(2) If there is no note and it does not turn green after ~25 minutes of AOS, put a screenshot on the elog and call the trd oncall expert.



```
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK  OK
STA  XE CO2 MIX BXC DRP LEAK XE CO2  PH MVS MVC BXC MIX
 39 ---- PRESSURES ----       ------ TEMPERATURES ------
```

TRD-Gas Monitor: TRD Checklist Section 3

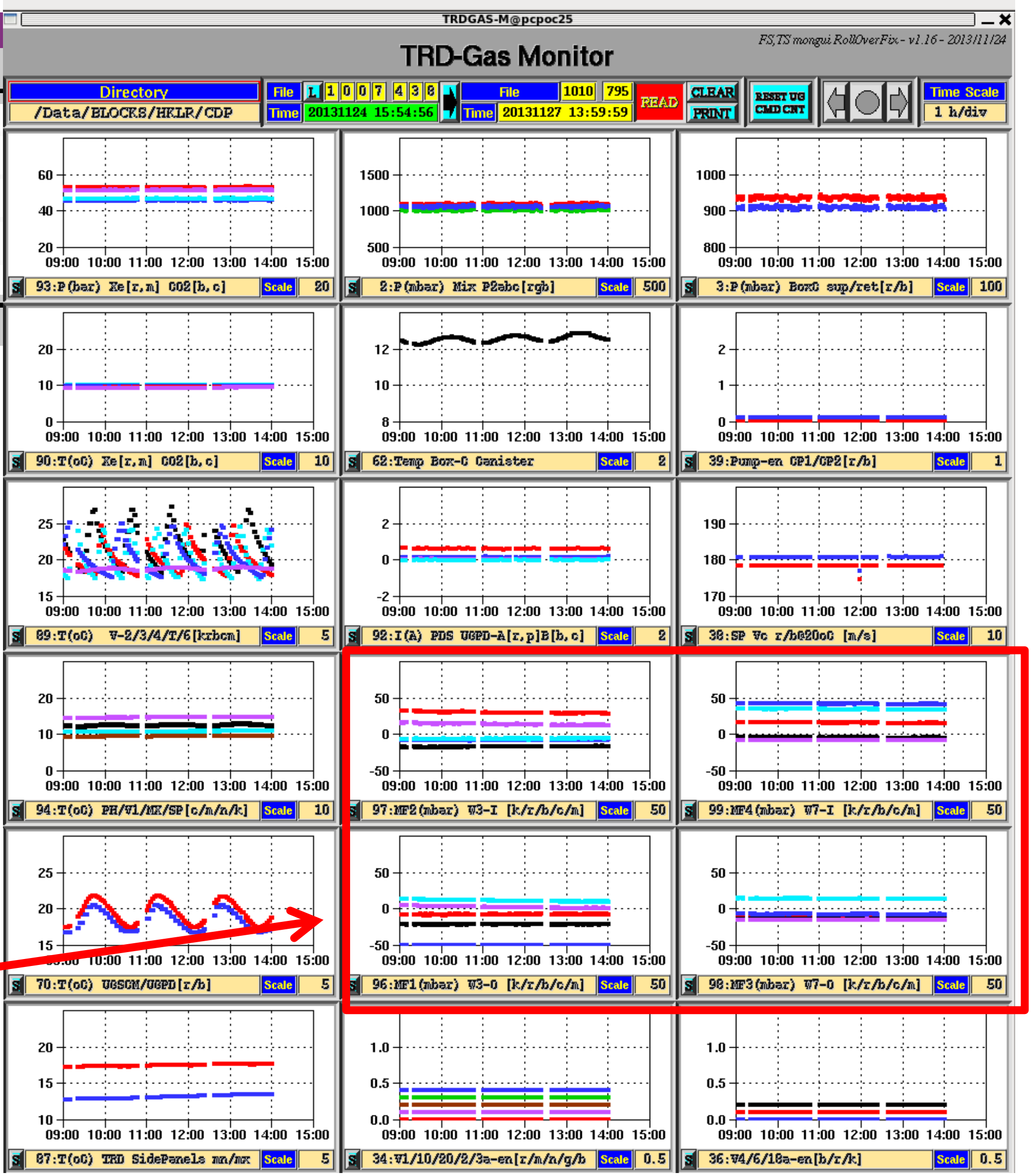


3. TRD-Gas Monitor (TRDGAS-M): plot number in paranthesis	
(93) Pressure Xe < 175 bar	Check if the corresponding plots (in parenthesis on each line) are within the appropriate range
(93) Pressure CO2 (93) < 100 bar	
(90) Temperature Xe/CO2 [-20;60]	
(62) Temperature Box-C > 10	
(2) Pressure Mixing < 13 bar	
(96-99) Manif. Pres (MF1-MF4) ~constant	

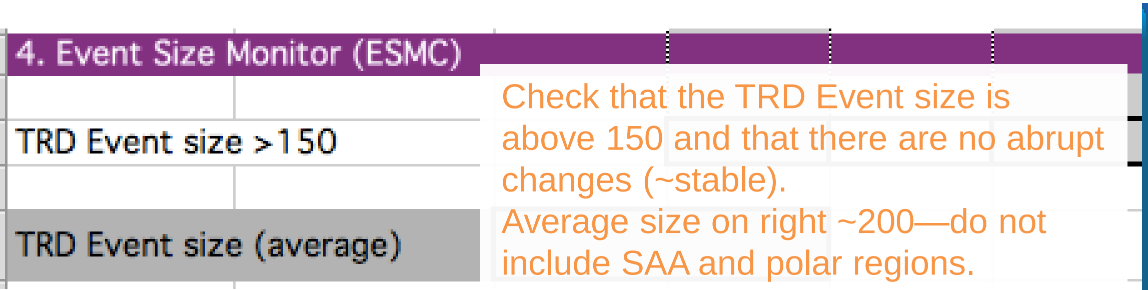
- If something is **briefly out of range** for 1-2 data points (like plot 38 at 12:00): do not worry, watch to make sure it comes back within range (this happens sometimes).

- If anything is **consistently out of range**:
  - (1) Check the elog: is there a note from an expert?
  - (2) Talk to Thermal and LEAD—is this a known problem?
  - (3) If there is no note and no one else knows what's going put a screenshot on the elog and call the trd oncall expert.

About Manifold pressures: these should be *approximately* constant; however, when heaters automatically turn on/off or the pump turns on/off you will see gradual changes. Those changes should correspond to a temperature change in plot 87 or 94. This is normal and happens all the time. However, if 87 and 94 both show all temperatures **constant**, changes in the manifold pressures could indicate a **leak**. **Call the expert immediately.** If there is a **sudden break** (**not** just one data point), this is **not OK. Call the expert immediately!**


TRDGAS-M@pcpoc25
TRD-Gas Monitor
FS,TS mongui RollOverFix - v1.16 - 2013/11/24
Directory
/Data/BLOCKS/HKLR/CDP
File
Time 20131124 15:54:56
File 1010 795
Time 20131127 13:59:59
READ
CLEAR
PRINT
RESET UG CMD CNT
Time Scale
1 h/div
09:00 10:00 11:00 12:00 13:00 14:00 15:00
93:P(bar) Xe[r,m] CO2[b,c] Scale 20
2:P(mbar) Mix P2abc[rgb] Scale 500
3:P(mbar) BoxC sup/ret[r/b] Scale 100
90:T(oC) Xe[r,m] CO2[b,c] Scale 10
62:Temp Box-C Canister Scale 2
39:Pump-en CP1/CP2[r/b] Scale 1
89:T(oC) V-2/3/4/T/6[krbcm] Scale 5
92:I(A) PDS UGPD-A[r,p]B[b,c] Scale 2
38:SP Vc r/bC20oC [m/s] Scale 10
94:T(oC) PH/V1/MX/SP[c/m/n/k] Scale 10
97:MF2(mbar) V3-I [k/r/b/c/m] Scale 50
99:MF4(mbar) V7-I [k/r/b/c/m] Scale 50
70:T(oC) UGSCM/UGPD[r/b] Scale 5
96:MF1(mbar) V3-O [k/r/b/c/m] Scale 50
98:MF3(mbar) V7-O [k/r/b/c/m] Scale 50
87:T(oC) TRD SidePanels mn/mx Scale 5
34:V1/10/20/2/3a-en[r/m/n/g/b Scale 0.5
36:V4/6/18a-en[b/r/k] Scale 0.5

Event Size Monitor: TRD Checklist Section 4



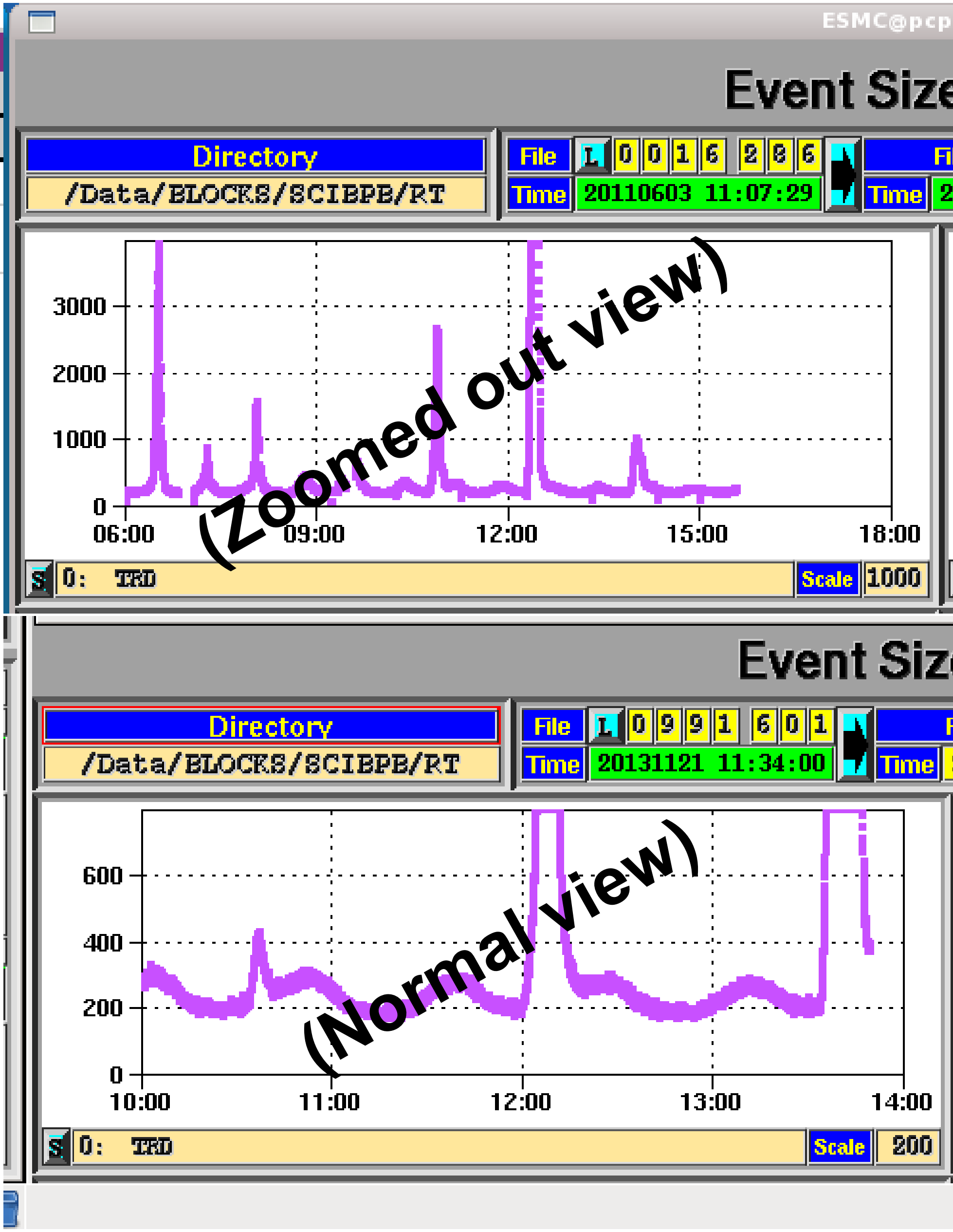
4. Event Size Monitor (ESMC)	
TRD Event size >150	Check that the TRD Event size is above 150 and that there are no abrupt changes (~stable).
TRD Event size (average)	Average size on right ~200—do not include SAA and polar regions.

If the *average* (not including TAS runs, SAA and polar regions) becomes much higher than ~200, or it becomes unstable:

(1) Check the elog: is there a note from an expert?

(2) Talk to the other detectors and LEAD—is this a known problem? Did something happen?

(3) If there is no note and no one else knows what's going on put a screenshot on the elog and call the trd oncall expert.



Directory: /Data/BLOCKS/SCIBPB/RT
File: L 0016 286
Time: 20110603 11:07:29

Directory: /Data/BLOCKS/SCIBPB/RT
File: L 0991 601
Time: 20131121 11:34:00

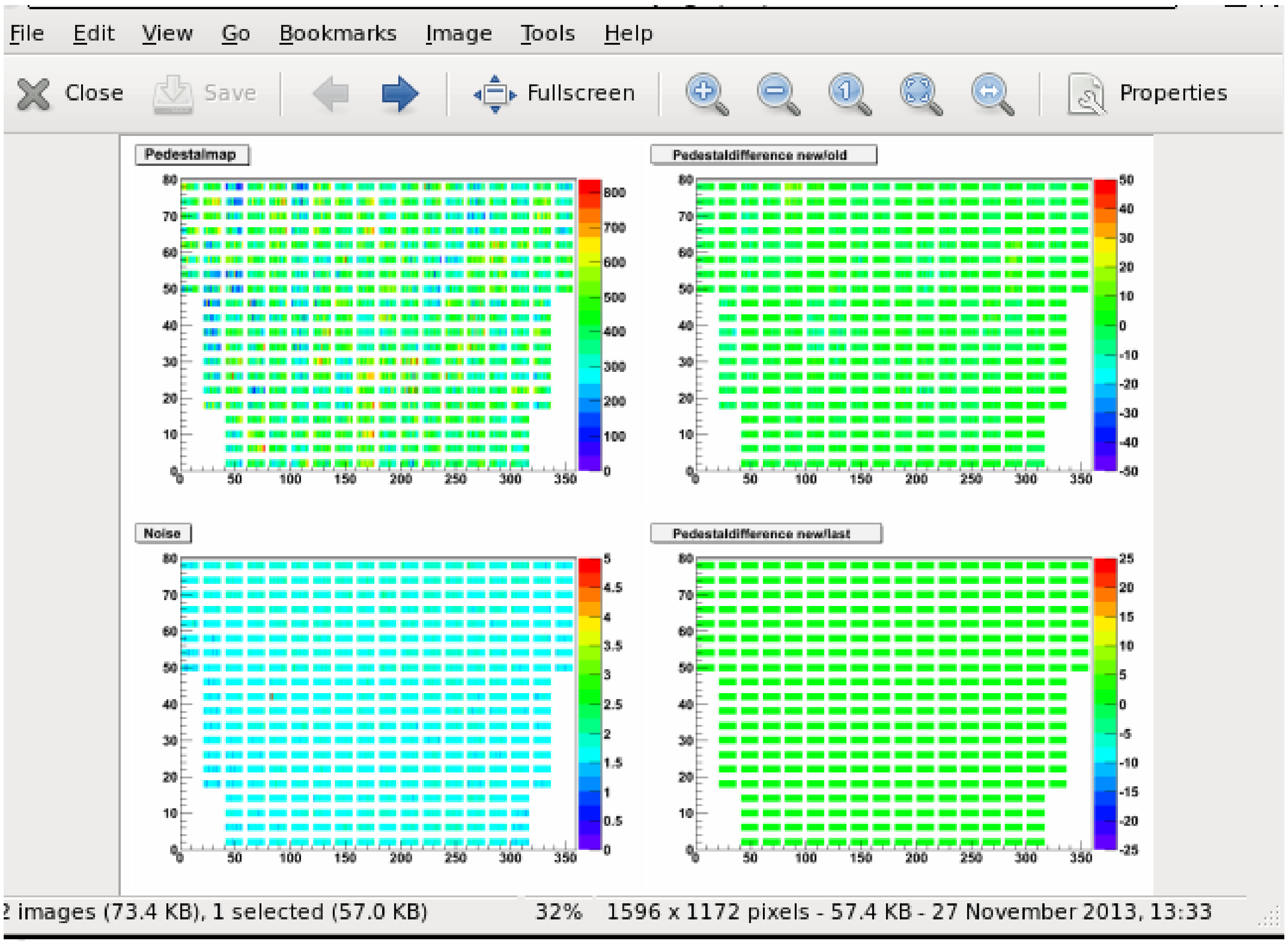
ESMC@pcp
Event Size
3000
2000
1000
0
06:00
09:00
12:00
15:00
18:00
0: TRD
Scale
1000
(Zoomed out view)
Event Siz
600
400
200
0
10:00
11:00
12:00
13:00
14:00
0: TRD
Scale
200
(Normal view)

Calibrations: TRD Checklist Section 4

Also check:

Calibration of each of the 5248 Straw-Tubes
Upper left: Actual Pedestal values in ADC channels
Upper Right: Difference between actual and default Pedestal values
Lower Left: Actual Noise values in ADC channels
Lower Right: Difference between actual and last Pedestal values

To check: Noise should show usual pattern (all but 2 channels green for A-Side Power, also slightly higher noises on end/front of segment for B-Side Power.)


File
Edit
View
Go
Bookmarks
Image
Tools
Help
Close
Save
Fullscreen
Properties
Pedestalmap
Pedestaldifference new/old
Noise
Pedestaldifference new/last
800
700
600
500
400
300
200
100
0
50
40
30
20
10
0
-10
-20
-30
-40
-50
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
25
20
15
10
5
0
-5
-10
-15
-20
-25
80
70
60
50
40
30
20
10
0
50
100
150
200
250
300
350

2 images (73.4 KB), 1 selected (57.0 KB) 32% 1596 x 1172 pixels - 57.4 KB - 27 November 2013, 13:33

If the pattern looks very inhomogeneous (i.e. during SAA), wait for a new calibration (every equator crossing). If it still looks bad, ask LEAD if the calibration times in the TQ list matches the OSTPV (more than 1 minute difference can cause bad calibrations). If this is not a problem, email the trd experts and attach a screenshot

Occupancy and Amplitudes: TRD Checklist Section 4

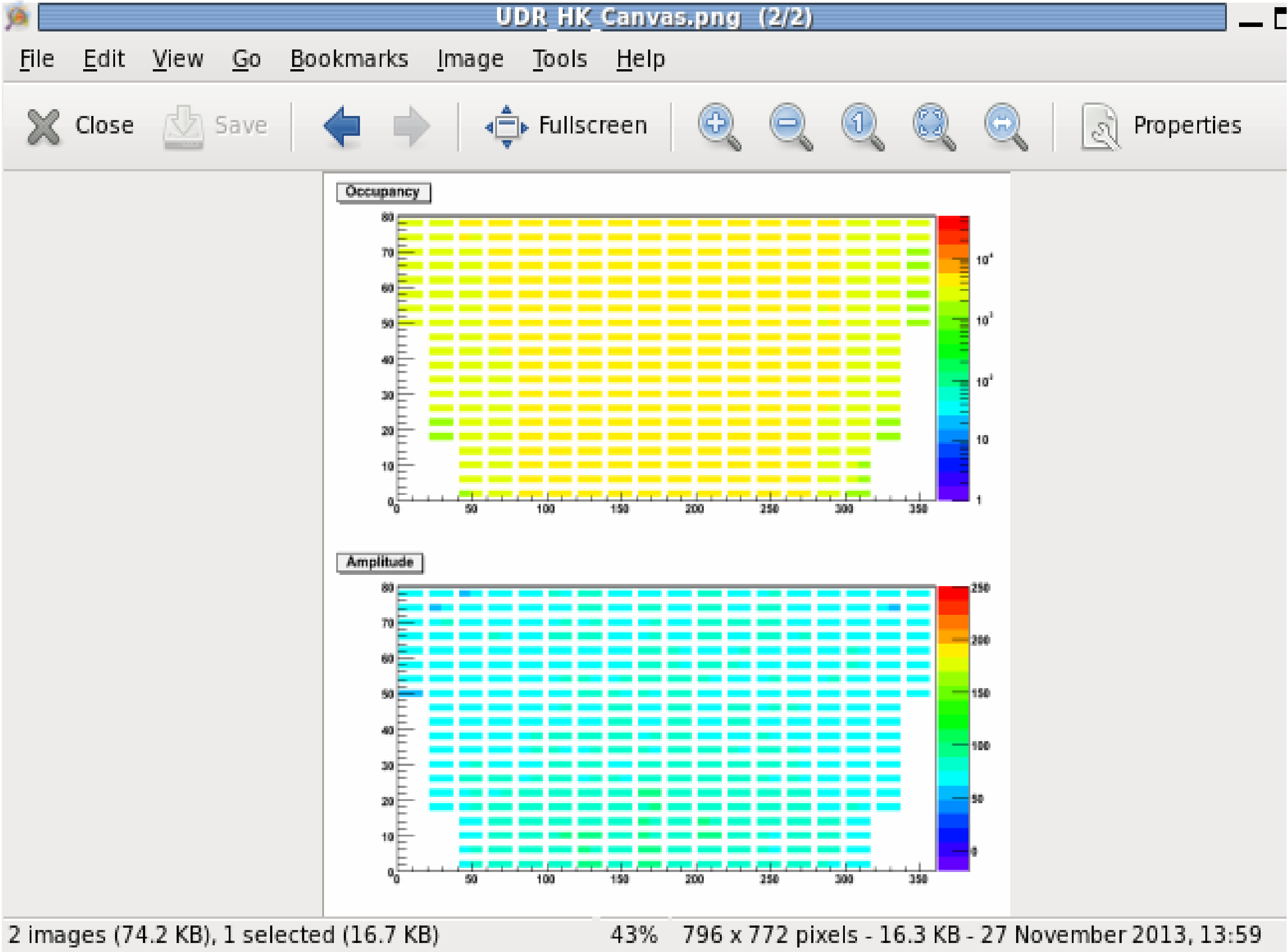
Also check:

Upper: Actual Occupancy (number of hits in each of the 5248 straws)
Lower: Actual Amplitude (Median, Pedestal corrected) values in ADC channels for each of the 5248 straws

To Check:

- Occupancy plot should not show any unusual high or low channels

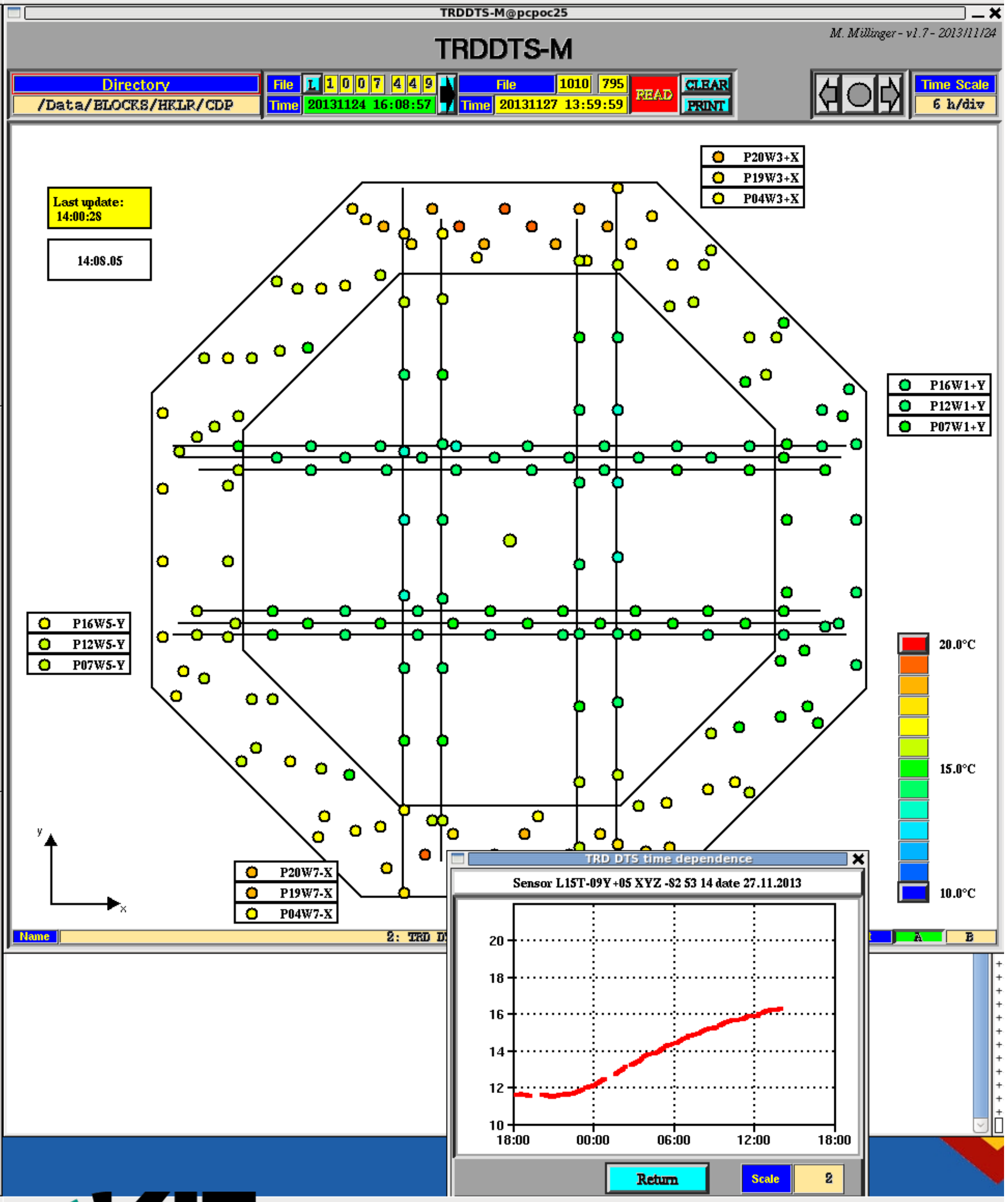
- Amplitudes should be fairly homogenous


UDR_HK_Canvas.png (2/2)
File
Edit
View
Go
Bookmarks
Image
Tools
Help
Close
Save
Fullscreen
Properties
Occupancy
80
70
60
50
40
30
20
10
0
0
50
100
150
200
250
300
350
10^4
10^3
10^2
10
1
Amplitude
80
70
60
50
40
30
20
10
0
0
50
100
150
200
250
300
350
250
200
150
100
50
0

2 images (74.2 KB), 1 selected (16.7 KB)   43%   796 x 772 pixels - 16.3 KB - 27 November 2013, 13:59

If the pattern looks very inhomogeneous (i.e. during SAA), wait for a new calibration (every equator crossing). If it still looks bad, ask LEAD if the calibration times in the TQ list matches the OSTPV (more than 1 minute difference can cause bad calibrations). If this is not a problem, email the trd experts and attach a screenshot

TRDDTS-M:
TRD Checklist Section 4


TRDDTS-M@pcpoc25

TRDDTS-M

M. Millinger - v1.7 - 2013/11/24

Directory /Data/BLOCKS/HKLR/CDP

File L 1 0 0 7 4 4 9

Time 20131124 16:08:57

File 1010 795

Time 20131127 13:59:59

Time Scale 6 h/div

Last update: 14:00:28

14:08.05

TRD DTS time dependence

Sensor L15T-09Y+05 XYZ -82 53 14 date 27.11.2013

Scale 2

READ
CLEAR
PRINT
P20W3+X
P19W3+X
P04W3+X
P16W1+Y
P12W1+Y
P07W1+Y
P16W5-Y
P12W5-Y
P07W5-Y
P20W7-X
P19W7-X
P04W7-X
20.0°C
15.0°C
10.0°C
y
x
Name
2: TRD D
A
B
20
18
16
14
12
10
18:00
00:00
06:00
12:00
18:00
Return

Also check:

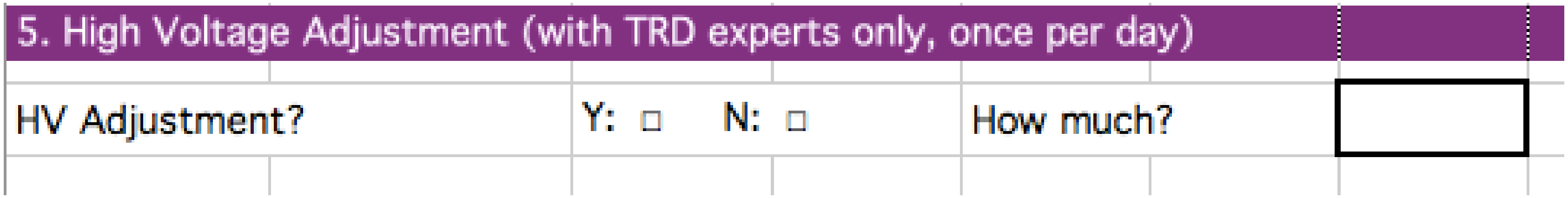
A total of 404 Dallas Sensors are read out on 40 strips are read out by USCM-UG-A/B (202 sensors – 20 strips – 7 busses respectively)

The Label contains Layer-Number L01..L20, Tower-Number T-9..T+9 and position along chamber in decimeters [XY]-10..[XY]+10

Some sensors are located outside the octagon volume. For those sensors the naming scheme is as follows: Layer-Number P01..L20, Wall-Number W1..W8 (W1 = +X, W3=+Y, W5=-X, W7=-Y, Wall-Half[+-][XY]

If there is a problem or question about heaters turning on or not, see pgs 87-90 in the full guide.

High Voltage Adjustment: TRD Checklist Section 5



5. High Voltage Adjustment (with TRD experts only, once per day)

HV Adjustment? Y: ☐ N: ☐ How much? ☐

If you are a TRD shifter (i.e. not a Tracker shifter), you should do a high voltage adjustment once per day (see TRD Procedures section—the pink tab—in the full guide).

If not, check the box next to “No” unless a TRD shifter tells you otherwise.

Laser Calibration:
TRD Checklist Section 6

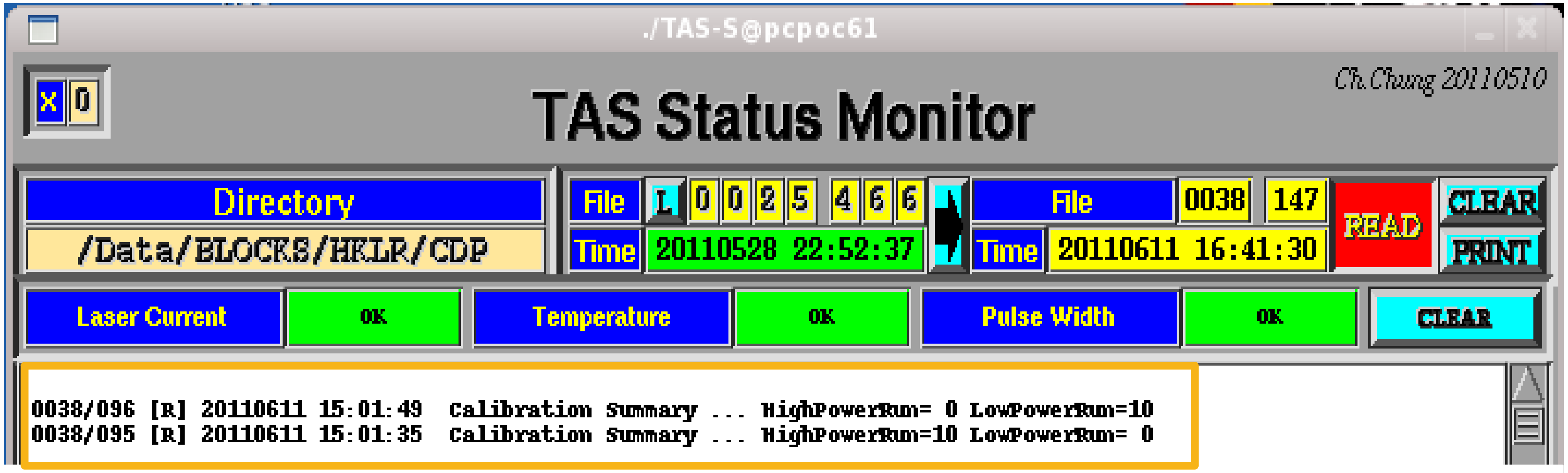
6. Laser Calibration (with TRD experts only, once per day)		
If there is no TRD HV adjustment in your shift, please ignore this item.		
Check for the following in the TAS Status Monitor error window:	Number Of High Power Laser Run = 10	Y: ☐ N: ☐
(Check against pg 55 in guide book)	Number Of Low Power Laser Run = 10	Y: ☐ N: ☐
If either of these answers is "No" put a note in the elog and *email* the expert on call.		

During the High Voltage adjustment, LEAD will start the TAS calibration run. Normally it will finish without problems, in which case you will see the number of High and Low Power Runs both = 10, as shown below in the TAS Status Monitor.

If **BOTH** of these do not show up within ~20 minutes, ask LEAD if they ran the TAS calibration during the HV adjustment.

If **ONE out of TWO** of these does not show up within ~ 20 minutes, notify LEAD and ask if there was a problem during the TAS run. They should check for the line “TAS Run Completed Successfully” on their JMSG monitor.

THIS IS **NOT AN EMERGENY**. If we miss the TAS run one day, it’s OK. But we **do not want to skip it two days in a row**. So if one or both runs are missing make sure you email the local experts and TAS expert C. H. Chung: tell them one got skipped, include a screenshot.



Directory: /Data/BLOCKS/HKLR/CDP
File: L 0 0 2 5 4 6 6
Time: 20110528 22:52:37
File: 0038 147
Time: 20110611 16:41:30

```
0038/096 [R] 20110611 15:01:49  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0038/095 [R] 20110611 15:01:35  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0
```

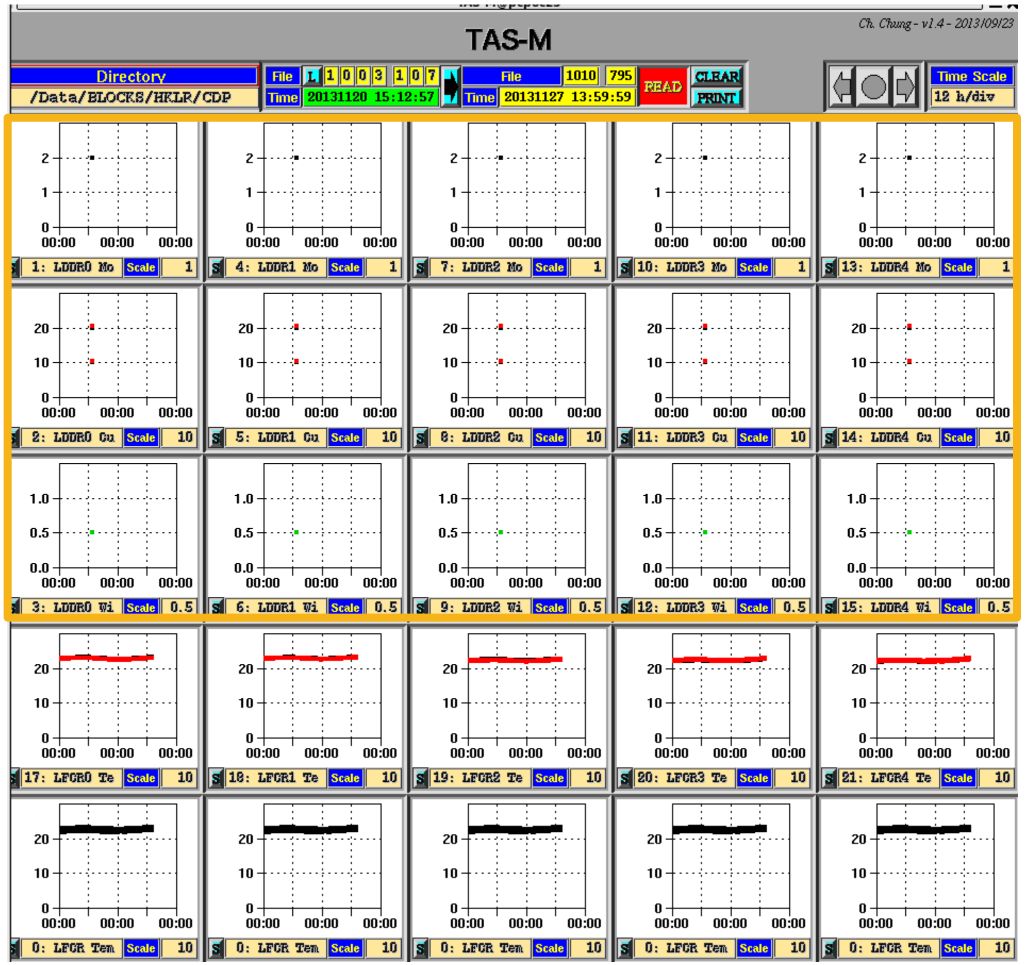
Laser Calibration:
TRD Checklist Section 6

6. Laser Calibration (with TRD experts only, once per day)		
If there is no TRD HV adjustment in your shift, please ignore this item.		
Check for the following in the TAS Status Monitor error window:	Number Of High Power Laser Run = 10	Y: ☐ N: ☐
(Check against pg 55 in guide book)	Number Of Low Power Laser Run = 10	Y: ☐ N: ☐
	If either of these answers is "No" put a note in the elog and *email* the expert on call.	

Also check: did you get new data points in the TAS Monitor with the TAS run. You will see the new points like we show on the right: they should be consistent (relatively constant) with the previous data points.

Furthermore, the bottom 10 plots should be relatively constant.

If you notice something wrong, **email** the local experts—be sure to attach a screenshot.


TAS-M
Ch. Chung - v1.4 - 2013/09/23
Directory
/Data/BLOCKS/HKLR/CDP
File
Time
20131120 15:12:57
File
1010
795
Time
20131127 13:59:59
READ
CLEAR
PRINT
Time Scale
12 h/div
1: LDDR0 Mo
4: LDDR1 Mo
7: LDDR2 Mo
10: LDDR3 Mo
13: LDDR4 Mo
2: LDDR0 Cu
5: LDDR1 Cu
8: LDDR2 Cu
11: LDDR3 Cu
14: LDDR4 Cu
3: LDDR0 Wi
6: LDDR1 Wi
9: LDDR2 Wi
12: LDDR3 Wi
15: LDDR4 Wi
17: LFCR0 Te
18: LFCR1 Te
19: LFCR2 Te
20: LFCR3 Te
21: LFCR4 Te
0: LFCR Tem
Scale
00:00

Operation Mode
0:Int, 1:Ext-A, 2:Ext-B
Default = 1 or 2

Laser Currents
Default = 20 & 10 mA

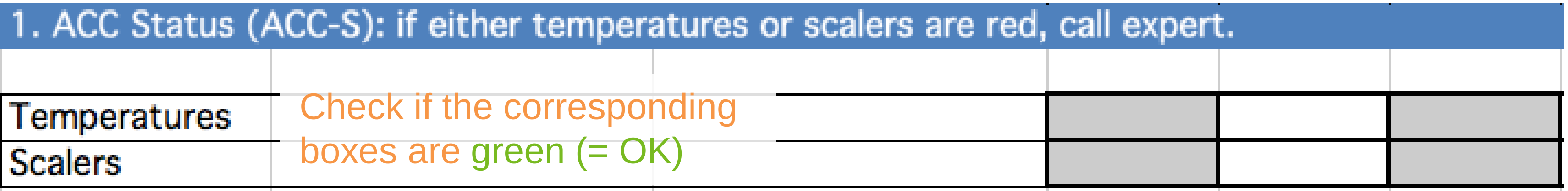
Laser PulseWidth
Default = 0.5 us

Diode Temperatures

LFCR 0 | LFCR 1 | LFCR 2 | LFCR3 | LFCR 4

Fill Out Your ACC Checklist!

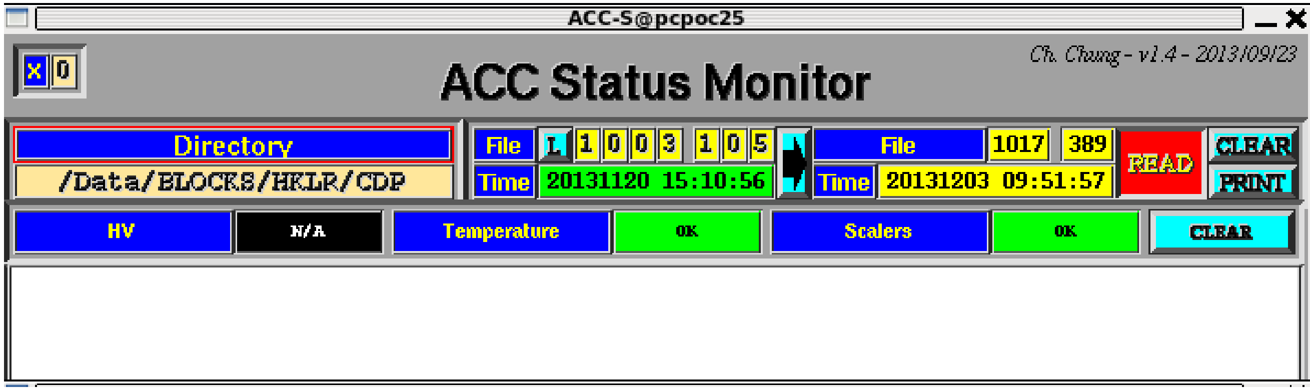
ACC Status Monitor:
ACC Checklist Section 1



1. ACC Status (ACC-S): if either temperatures or scalers are red, call expert.

Temperatures		▨	☐	▨
Scalers		▨	☐	▨

Check if the corresponding boxes are green (= OK)



ACC-S@pcpoc25

Ch. Chung - v1.4 - 2013/09/23

ACC Status Monitor

Directory: /Data/BLOCKS/HKLR/CDP

File: L 1 0 0 3 1 0 5

Time: 20131120 15:10:56

File: 1017 389

Time: 20131203 09:51:57

HV: N/A

Temperature: OK

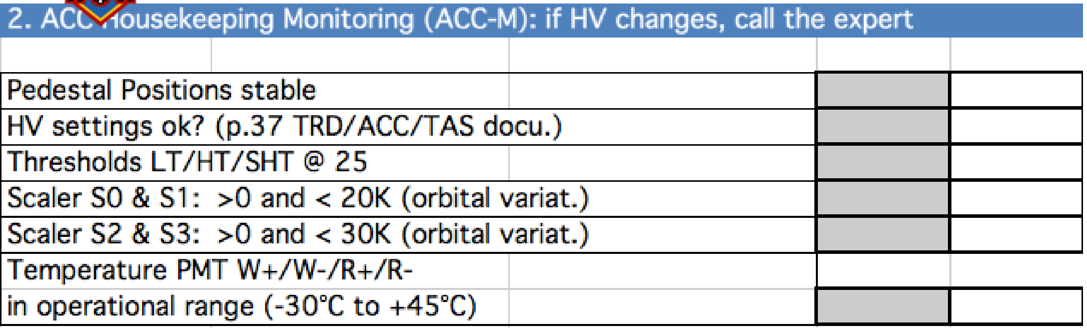
Scalers: OK

If any box turns red:

(1) Check the elog: is there a note from an expert?

(2) If there is no note and it does not turn green after ~25 minutes of AOS, put a screenshot of BOTH the ACC Status Monitor AND the ACC desktop on the elog and call the trd oncall expert.

ACC-M: ACC Checklist Section 2



2. ACC Housekeeping Monitoring (ACC-M): if HV changes, call the expert

Pedestal Positions stable		
HV settings ok? (p.37 TRD/ACC/TAS docu.)		
Thresholds LT/HT/SHT @ 25		
Scaler S0 & S1: >0 and < 20K (orbital variat.)		
Scaler S2 & S3: >0 and < 30K (orbital variat.)		
Temperature PMT W+/W-/R+/R-		
in operational range (-30°C to +45°C)		

Stable

Stable at correct settings (see pg. 37 of full guide)

Stable at 25

The magenta lines are the limits

-35 to +45 deg

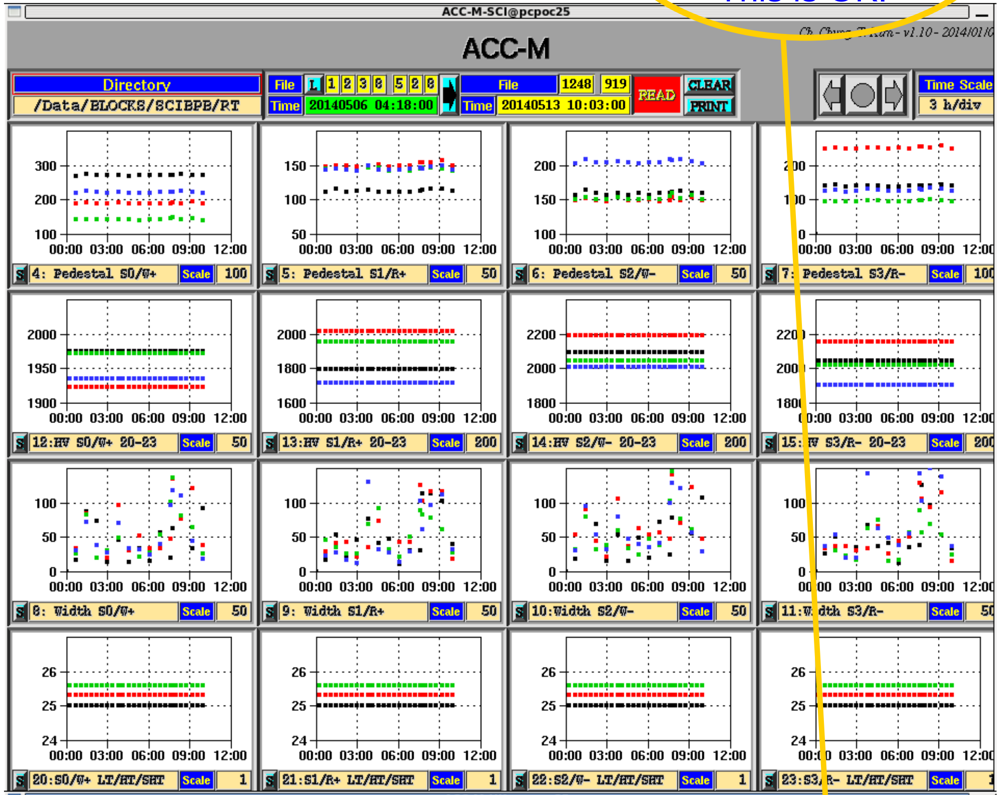
Follow the checklist down through the plots. If anything is out of range (except for SAA):

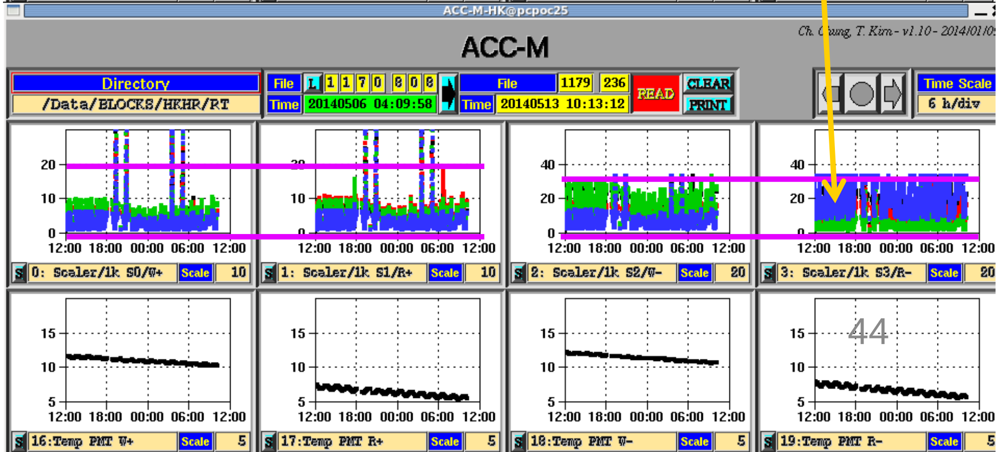
(1) Check the elog: is there a note from an expert?

(2) If it's HV, talk to TOF (PM Shift): is there something going on?

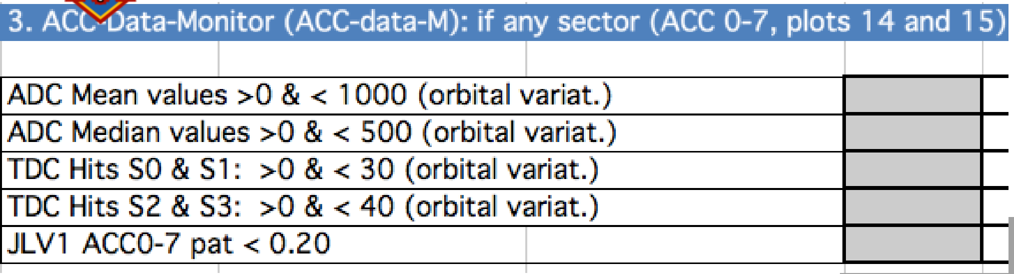
(3) If there is no note and it does not return to normal after ~25 minutes of AOS, put a screenshot of the ACC desktop on the elog and call the trd oncall expert.

The linear regulator for the S3 blue line is broken, so this is often a bit too high. This is OK.


ACC-M-SCI@pcpoc25
ACC-M
Directory
/Data/BLOCKS/SCIBPB/RT
File
Time 20140506 04:18:00
Time 20140513 10:03:00
READ
CLEAR
PRINT
Time Scale
3 h/div
4: Pedestal S0/W+
5: Pedestal S1/R+
6: Pedestal S2/W-
7: Pedestal S3/R-
12:HV S0/W+ 20-23
13:HV S1/R+ 20-23
14:HV S2/W- 20-23
15:HV S3/R- 20-23
8: Width S0/W+
9: Width S1/R+
10:Width S2/W-
11:Width S3/R-
20:S0/W+ LT/HT/SHT
21:S1/R+ LT/HT/SHT
22:S2/W- LT/HT/SHT
23:S3/R- LT/HT/SHT
Scale
00:00 03:00 06:00 09:00 12:00


ACC-M-HK@pcpoc25
ACC-M
Directory
/Data/BLOCKS/HKHR/RT
File
Time 20140506 04:09:58
Time 20140513 10:13:12
READ
CLEAR
PRINT
Time Scale
6 h/div
0: Scaler/1k S0/W+
1: Scaler/1k S1/R+
2: Scaler/1k S2/W-
3: Scaler/1k S3/R-
16:Temp PMT W+
17:Temp PMT R+
18:Temp PMT W-
19:Temp PMT R-
Scale
12:00 18:00 00:00 06:00 12:00

ACC-data-M: ACC Checklist Section 3



3. ACC-Data-Monitor (ACC-data-M): if any sector (ACC 0-7, plots 14 and 15)

ADC Mean values >0 & < 1000 (orbital variat.)	
ADC Median values >0 & < 500 (orbital variat.)	
TDC Hits S0 & S1: >0 & < 30 (orbital variat.)	
TDC Hits S2 & S3: >0 & < 40 (orbital variat.)	
JLV1 ACC0-7 pat < 0.20	

The magenta lines are the limits

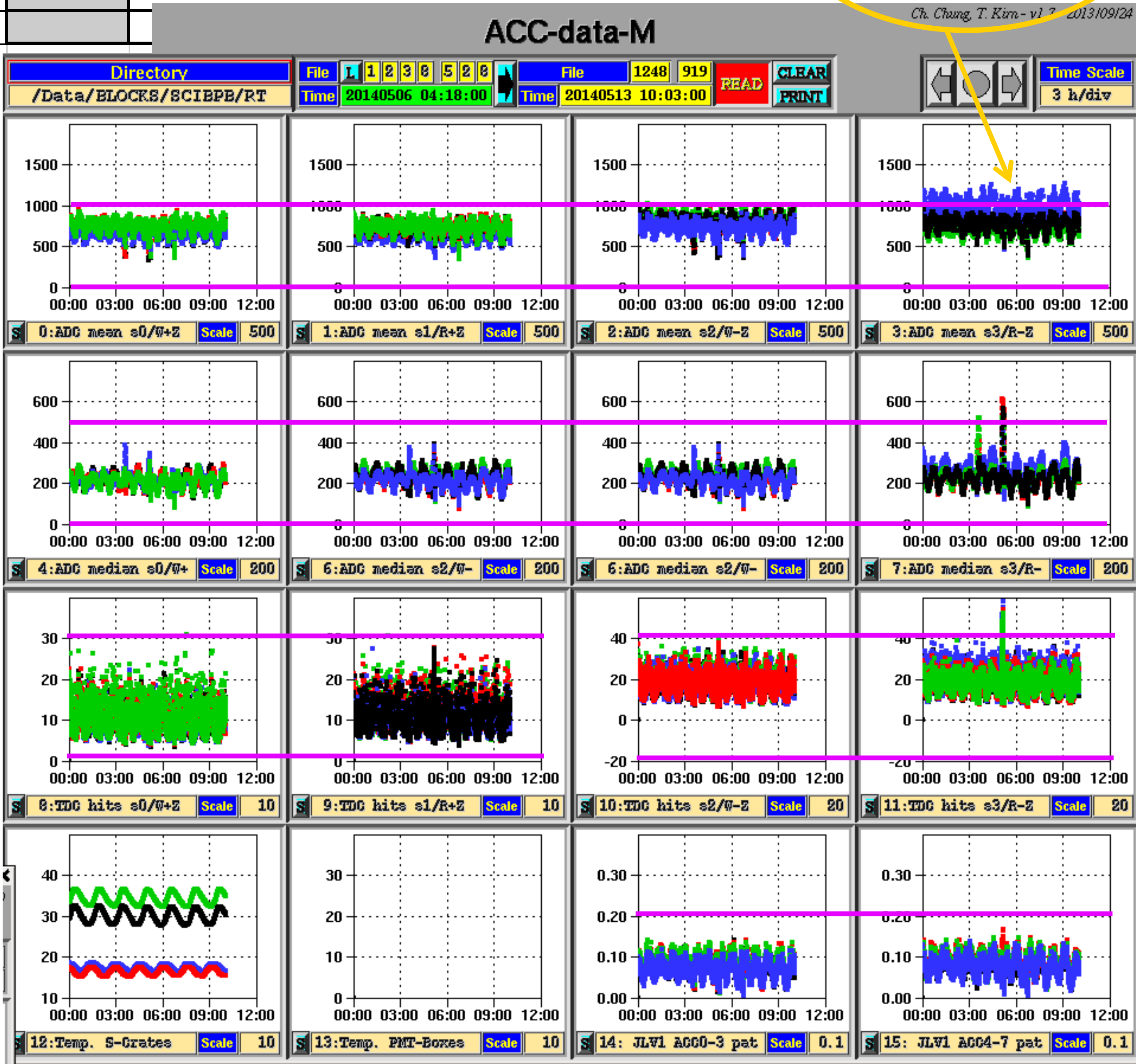
The linear regulator for the S3 blue line is broken, so this is often a bit too high. This is OK.

Follow the checklist down through the plots. If anything is out of range (except for SAA):

(1) Check the elog: is there a note from an expert?

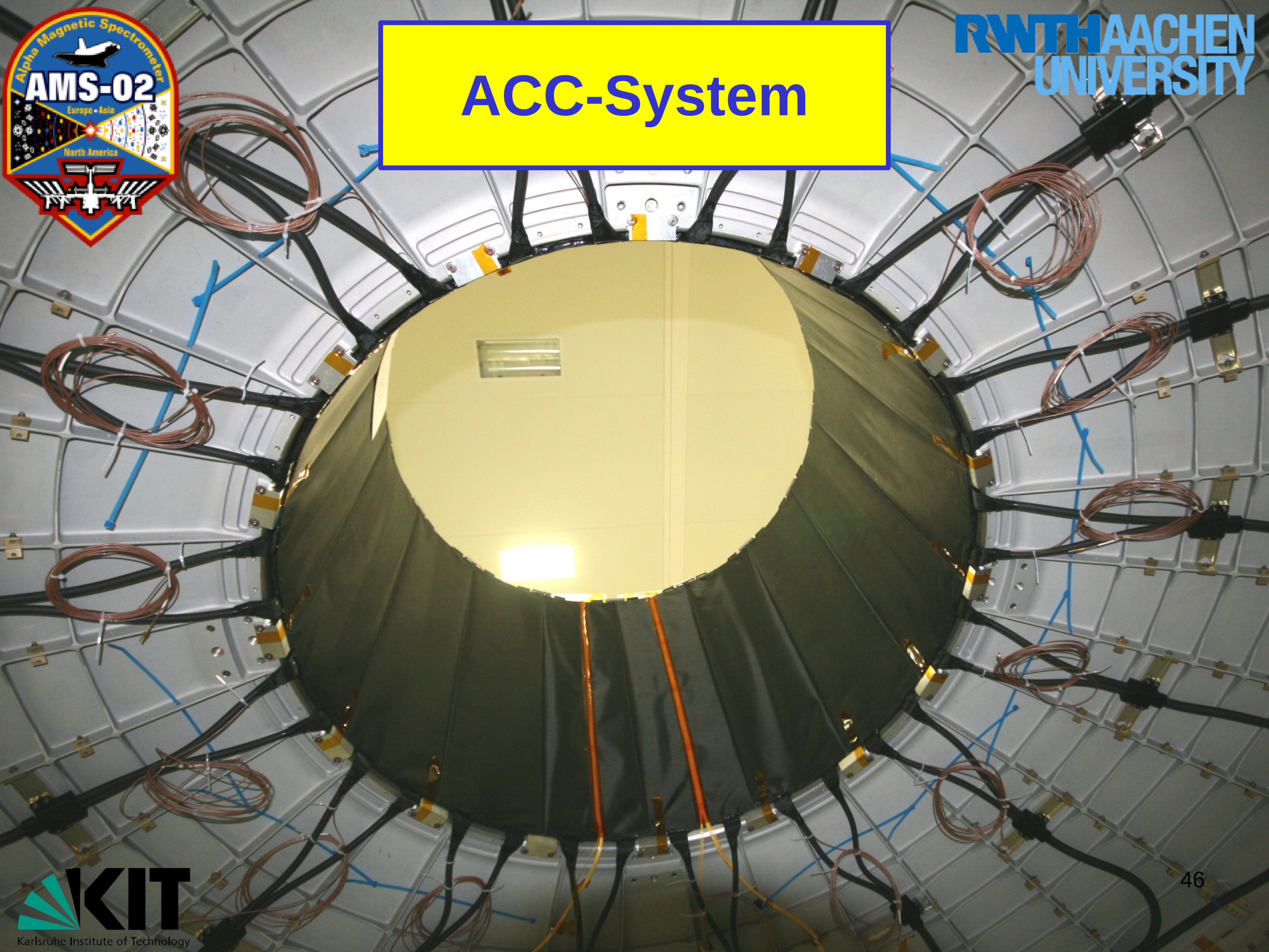
(2) Talk to TOF (PM Shift): is there something going on?

(3) If there is no note and it does not return to normal after ~25 minutes of AOS, put a screenshot of the ACC desktop on the elog and call the trd oncall expert.

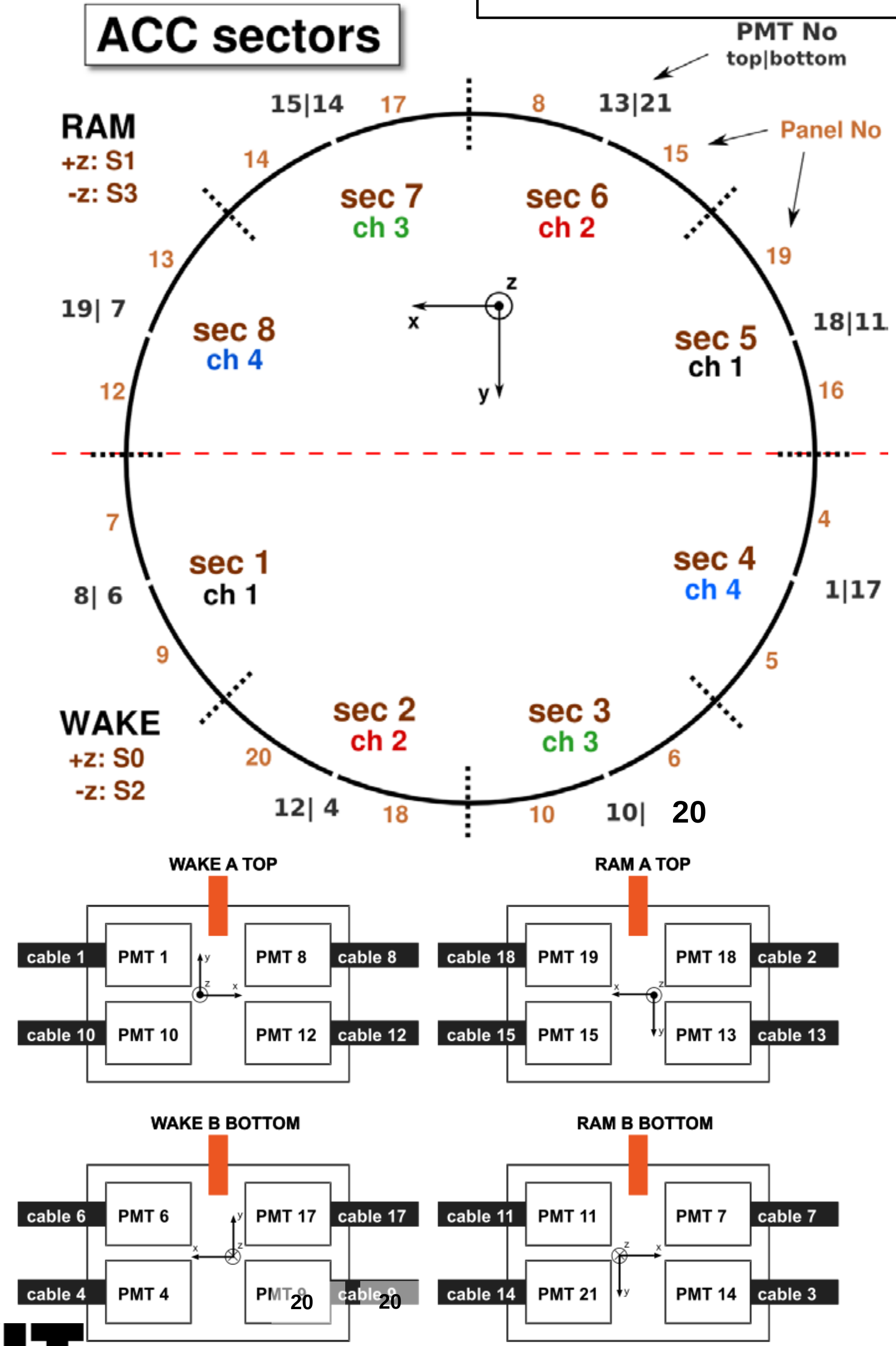


ACC-data-M
Ch. Chung, T. Kirn - v1.7 2013/09/24
Directory
/Data/BLOCKS/SCIBPB/RT
File
L 1 2 3 8 5 2 8
Time
20140506 04:18:00
File
1248 919
Time
20140513 10:03:00
READ
CLEAR
PRINT
Time Scale
3 h/div
0:ADC mean s0/V+Z Scale 500
1:ADC mean s1/R+Z Scale 500
2:ADC mean s2/V-Z Scale 500
3:ADC mean s3/R-Z Scale 500
4:ADC median s0/V+ Scale 200
6:ADC median s2/V- Scale 200
6:ADC median s2/V- Scale 200
7:ADC median s3/R- Scale 200
8:TDC hits s0/V+Z Scale 10
9:TDC hits s1/R+Z Scale 10
10:TDC hits s2/V-Z Scale 20
11:TDC hits s3/R-Z Scale 20
12:Temp. S-Crates Scale 10
13:Temp. PMT-Boxes Scale 10
14: JLV1 ACC0-3 pat Scale 0.1
15: JLV1 ACC4-7 pat Scale 0.1
00:00 03:00 06:00 09:00 12:00
1500
1000
500
0
600
400
200
40
30
20
10
-20
0.30
0.20
0.10
0.00

ACC-System



ACC-System


ACC sectors
PMT No
top|bottom
Panel No
RAM
+z: S1
-z: S3
WAKE
+z: S0
-z: S2
15|14
17
8
13|21
14
15
13
19
19| 7
18|11
12
16
7
4
8| 6
1|17
9
5
20
6
12| 4
18
10
10| 20
sec 7
ch 3
sec 6
ch 2
sec 8
ch 4
sec 5
ch 1
sec 1
ch 1
sec 4
ch 4
sec 2
ch 2
sec 3
ch 3
x
y
z
WAKE A TOP
cable 1
PMT 1
PMT 8
cable 8
cable 10
PMT 10
PMT 12
cable 12
RAM A TOP
cable 18
PMT 19
PMT 18
cable 2
cable 15
PMT 15
PMT 13
cable 13
WAKE B BOTTOM
cable 6
PMT 6
PMT 17
cable 17
cable 4
PMT 4
PMT 9 20
cable 9 20
RAM B BOTTOM
cable 11
PMT 11
PMT 7
cable 7
cable 14
PMT 21
PMT 14
cable 3

- ACC is mounted inside PM surrounding inner tracker planes to serve as a veto.
- ACC consists of 8 cylindrical sectors with a radius of 55 cm from the center of Z-axis, 83 cm in height and readout by 16 PMTs. Each sector is composed of two scintillator panels optically linked to upper one and lower one PMT.
- Upper and Lower 4 x 4 PMTs are grouped and housed into 4 PMT boxes (2 x Wake ±Z, 2 x RAM ±Z) mounted on vacuum case.
- Charge threshold is set the same 25 ADC in all LT/HT/SHT values.
- Monitor calibration (pedestal and its width), configuration (HV, threshold, ..) and scaler from JLV1 status
- Monitor ADC and TDC during DAQ

ACC-Monitoring Program

1. ACC Status Monitoring (ACC-S)

Check HV, Temperature and Scaler with operating ranges

2. ACC Housekeeping Monitoring (ACC-M)

JLV1 Scaler, ACC Calibration (Ped, Width), ACC Configuration (HV, Trigger Threshold)

3. ACC Data Monitoring (ACC-data-M)

Charge signal mean and ist running median, TDC mean, Temperatures (SFEA2, PMT boxes, Veto trigger rate w.r.t LV1

```
Programm 1: trd@pcpoc25 RUN $  ACC-S

Programm 2: trd@pcpoc25 RUN $  ACC-M-SCI

            trd@pcpoc25 RUN $  ACC-M-HK

Programm 3: trd@pcpoc25 RUN  $ ACC-data-M
```

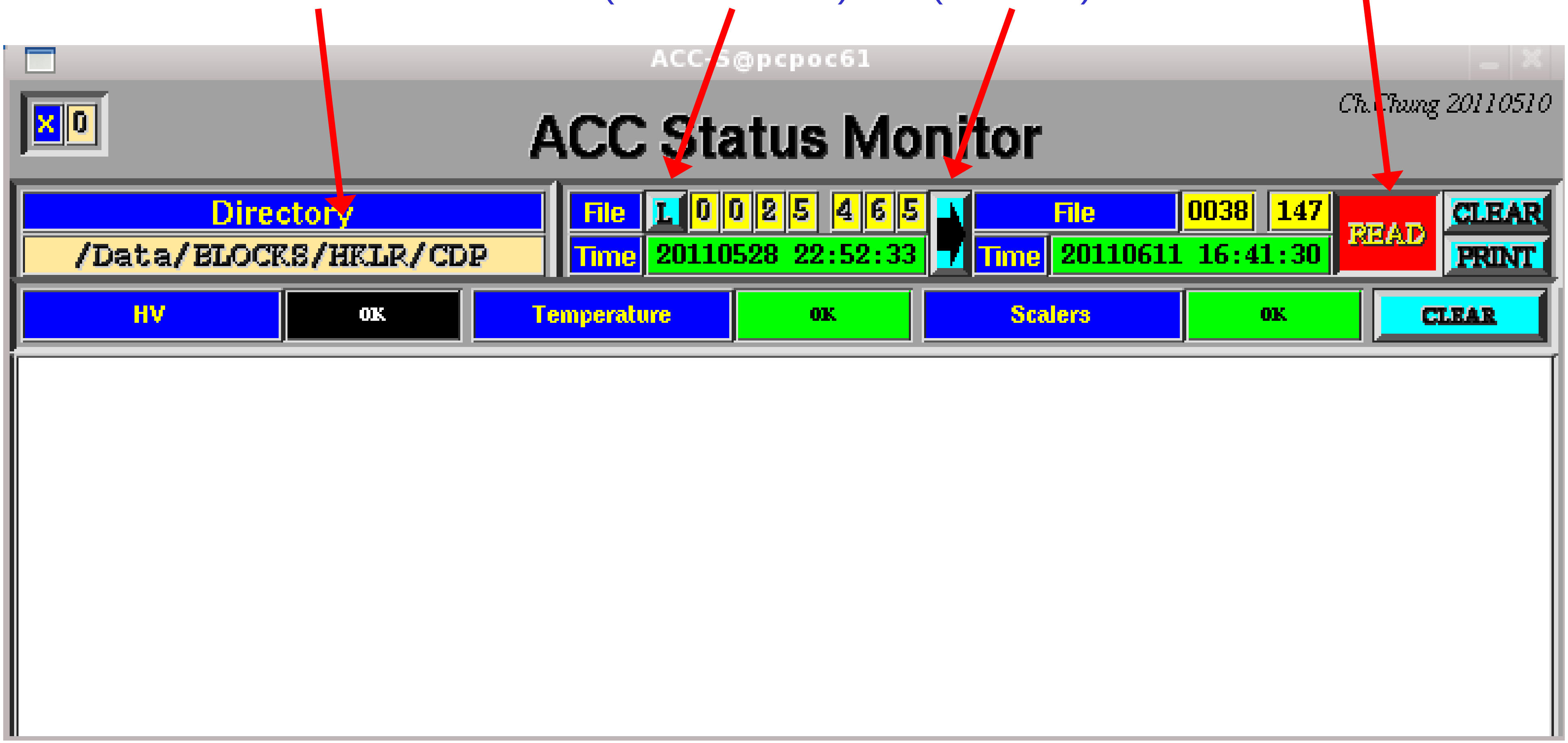
Configuration of ACC-S

Set Directory to /Data/BLOCKS/HKLR/CDP

Find Last File (left click on L)

Load for reading (left click)

Read continously (right click)



ACC-S@pcpoc61
X 0
ACC Status Monitor
Ch.Chung 20110510
READ
CLEAR
PRINT
CLEAR

Directory: /Data/BLOCKS/HKLR/CDP

File: L 0 0 2 5 4 6 5

Time: 20110528 22:52:33

File: 0038 147

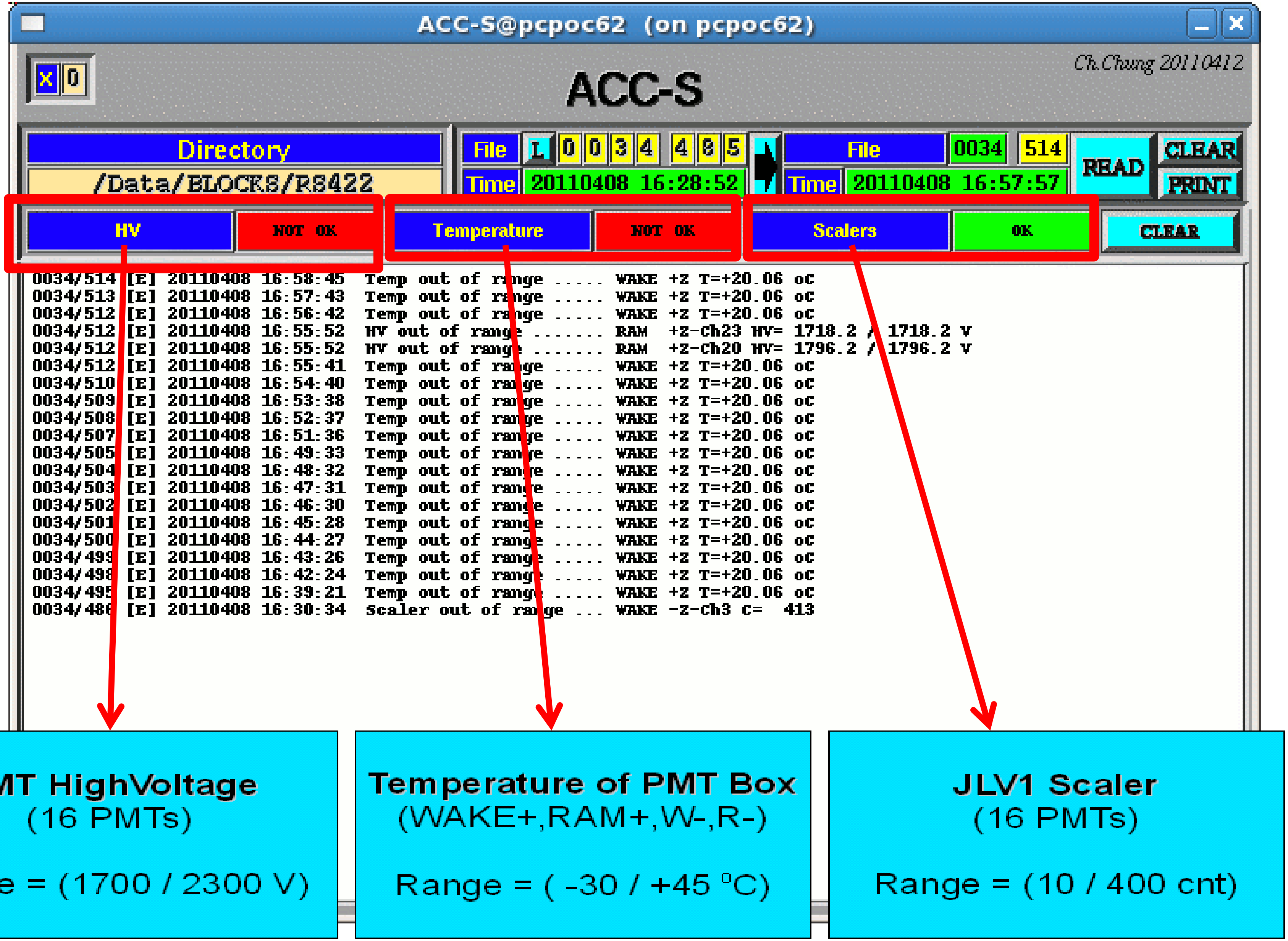
Time: 20110611 16:41:30

HV: OK

Temperature: OK

Scalers: OK

ACC-S



ACC-S@pcpoc62 (on pcpoc62)
X 0
ACC-S
Ch.Chung 20110412
Directory
/Data/BLOCKS/RS422
File L 0 0 3 4 4 8 5
Time 20110408 16:28:52
File 0034 514
Time 20110408 16:57:57
READ
CLEAR
PRINT
HV
NOT OK
Temperature
NOT OK
Scalers
OK
CLEAR

```
0034/514 [E] 20110408 16:58:45  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/513 [E] 20110408 16:57:43  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/512 [E] 20110408 16:56:42  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/512 [E] 20110408 16:55:52  HV out of range .......  RAM  +Z-Ch23 HV= 1718.2 / 1718.2 V
0034/512 [E] 20110408 16:55:52  HV out of range .......  RAM  +Z-Ch20 HV= 1796.2 / 1796.2 V
0034/512 [E] 20110408 16:55:41  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/510 [E] 20110408 16:54:40  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/509 [E] 20110408 16:53:38  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/508 [E] 20110408 16:52:37  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/507 [E] 20110408 16:51:36  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/505 [E] 20110408 16:49:33  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/504 [E] 20110408 16:48:32  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/503 [E] 20110408 16:47:31  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/502 [E] 20110408 16:46:30  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/501 [E] 20110408 16:45:28  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/500 [E] 20110408 16:44:27  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/499 [E] 20110408 16:43:26  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/498 [E] 20110408 16:42:24  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/495 [E] 20110408 16:39:21  Temp out of range .....  WAKE +Z T=+20.06 oC
0034/486 [E] 20110408 16:30:34  Scaler out of range ...  WAKE -Z-Ch3 C=  413
```

PMT HighVoltage
(16 PMTs)

Range = (1700 / 2300 V)

Temperature of PMT Box
(WAKE+,RAM+,W-,R-)

Range = (-30 / +45 °C)

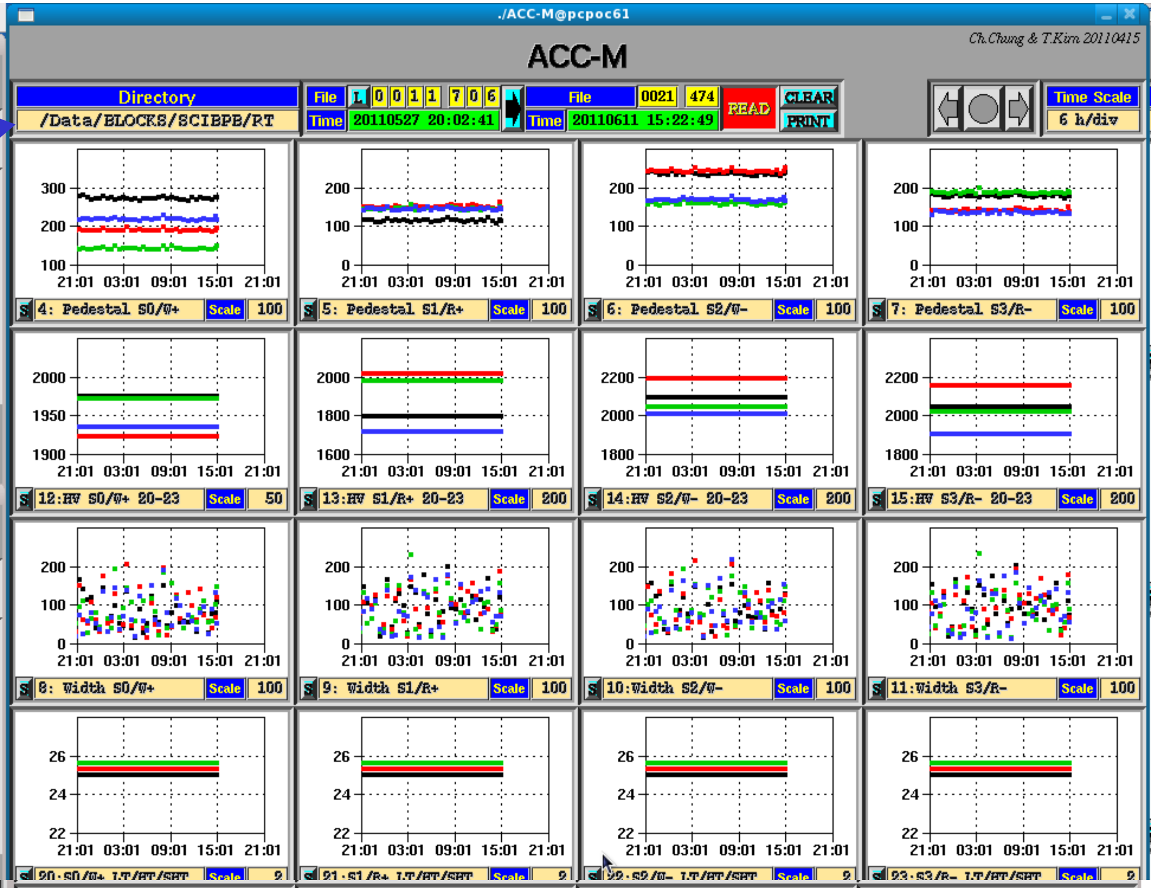
JLV1 Scaler
(16 PMTs)

Range = (10 / 400 cnt)

ACC-M

First ACC-M:
Set Directory to
/Data/BLOCKS/SCIBPB/RT

Second ACC-M:
Set Directory to
/Data/BLOCKS/HKLR/CDP



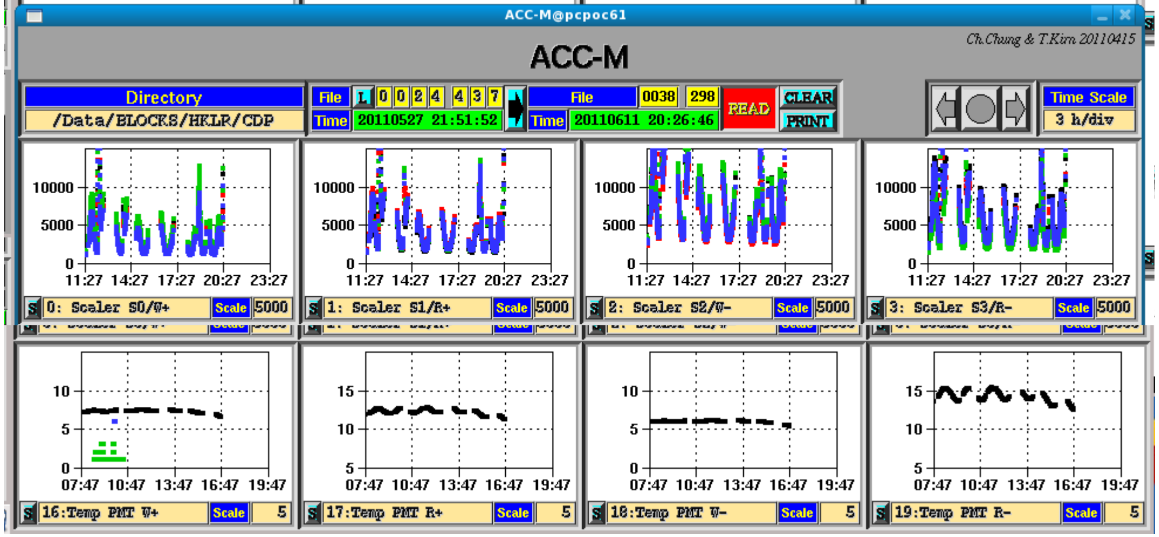
./ACC-M@pcpoc61

Ch.Chung & T.Kim 20110415

ACC-M

Directory: /Data/BLOCKS/SCIBPB/RT
File: L 0 0 1 1 7 0 6
Time: 20110527 20:02:41
File: 0021 474
Time: 20110611 15:22:49
Time Scale: 6 h/div

READ
CLEAR
PRINT
4: Pedestal S0/V+ Scale 100
5: Pedestal S1/R+ Scale 100
6: Pedestal S2/V- Scale 100
7: Pedestal S3/R- Scale 100
12:HV S0/V+ 20-23 Scale 50
13:HV S1/R+ 20-23 Scale 200
14:HV S2/V- 20-23 Scale 200
15:HV S3/R- 20-23 Scale 200
8: Width S0/V+ Scale 100
9: Width S1/R+ Scale 100
10:Width S2/V- Scale 100
11:Width S3/R- Scale 100
20:S0/V+ LT/HT/SHT Scale 2
21:S1/R+ LT/HT/SHT Scale 2
22:S2/V- LT/HT/SHT Scale 2
23:S3/R- LT/HT/SHT Scale 2
21:01 03:01 09:01 15:01 21:01



ACC-M@pcpoc61

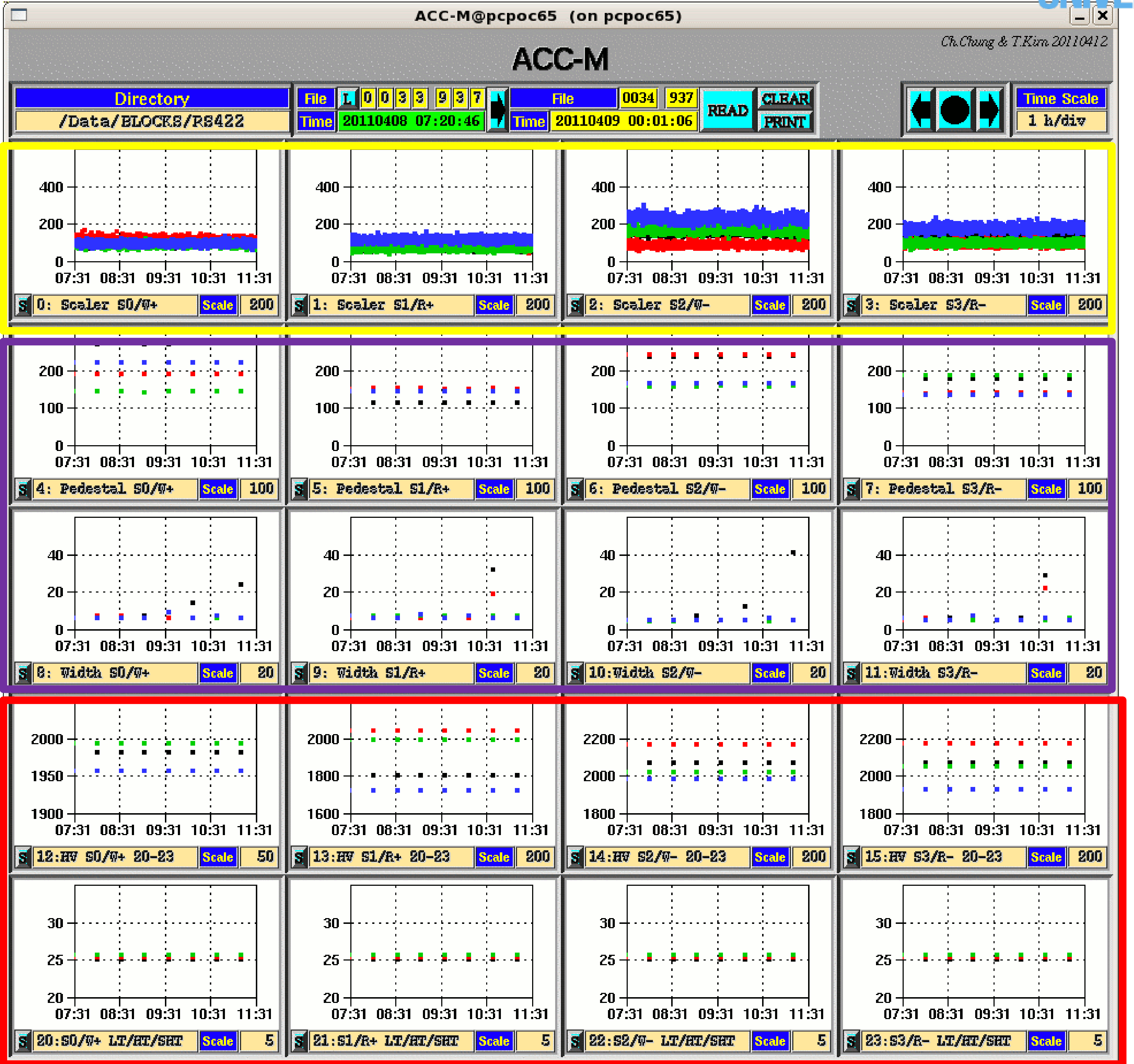
Ch.Chung & T.Kim 20110415

ACC-M

Directory: /Data/BLOCKS/HKLR/CDP
File: L 0 0 2 4 4 3 7
Time: 20110527 21:51:52
File: 0038 298
Time: 20110611 20:26:46
Time Scale: 3 h/div

READ
CLEAR
PRINT
0: Scaler S0/V+ Scale 5000
1: Scaler S1/R+ Scale 5000
2: Scaler S2/V- Scale 5000
3: Scaler S3/R- Scale 5000
11:27 14:27 17:27 20:27 23:27
16:Temp PMT V+ Scale 5
17:Temp PMT R+ Scale 5
18:Temp PMT V- Scale 5
19:Temp PMT R- Scale 5
07:47 10:47 13:47 16:47 19:47

ACC-M



ACC-M@pcpoc65 (on pcpoc65)

Ch.Chung & T.Kim 20110412

ACC-M

Directory: /Data/BLOCKS/RS422

File: L 0 0 3 3 9 3 7
Time: 20110408 07:20:46

File: 0034 937
Time: 20110409 00:01:06

Time Scale: 1 h/div

READ
CLEAR
PRINT
0: Scaler S0/W+ Scale 200
1: Scaler S1/R+ Scale 200
2: Scaler S2/W- Scale 200
3: Scaler S3/R- Scale 200
4: Pedestal S0/W+ Scale 100
5: Pedestal S1/R+ Scale 100
6: Pedestal S2/W- Scale 100
7: Pedestal S3/R- Scale 100
8: Width S0/W+ Scale 20
9: Width S1/R+ Scale 20
10:Width S2/W- Scale 20
11:Width S3/R- Scale 20
12:HV S0/W+ 20-23 Scale 50
13:HV S1/R+ 20-23 Scale 200
14:HV S2/W- 20-23 Scale 200
15:HV S3/R- 20-23 Scale 200
20:S0/W+ LT/HT/SHT Scale 5
21:S1/R+ LT/HT/SHT Scale 5
22:S2/W- LT/HT/SHT Scale 5
23:S3/R- LT/HT/SHT Scale 5
07:31 08:31 09:31 10:31 11:31
0
100
200
400
20
40
1600
1800
1900
1950
2000
2200
25
30

JLV1 Scaler
(DT=0x11)
DM

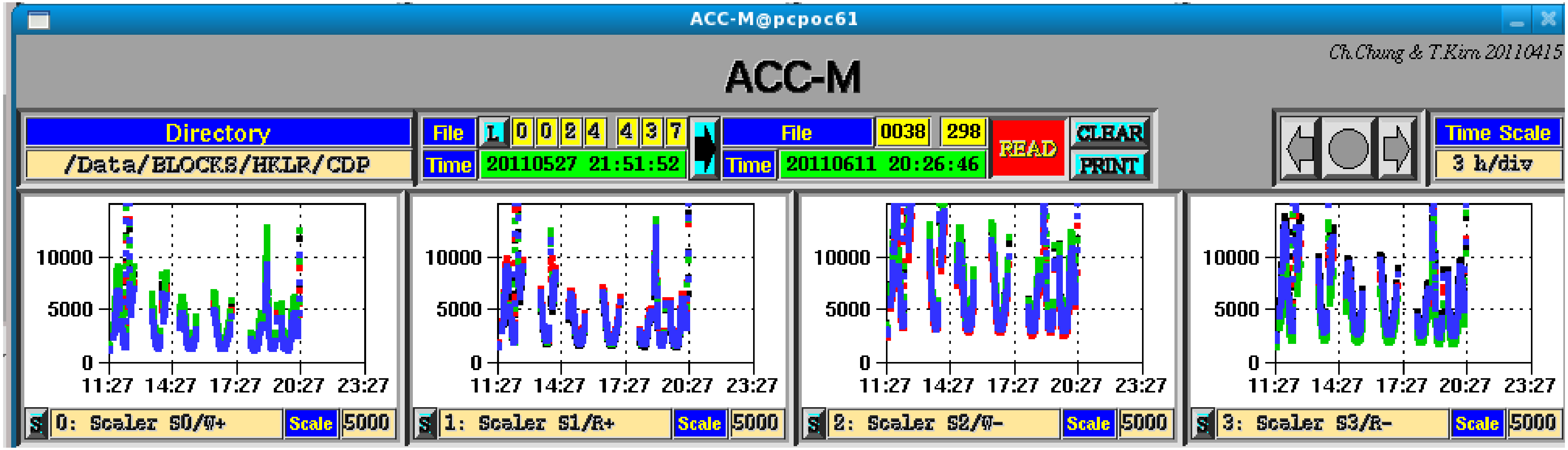
Calibration
(DT=0x13)
Pedestal / Width

SD Proc. Status
(DT=0x14)
SHV-LR

LT/HT/SHT
Threshold

ACC-M

Scalar rates of 16 ACC PMTs



ACC-M@pcpoc61

Ch.Chung & T.Kim 20110415

ACC-M

Directory: /Data/BLOCKS/HKLR/CDP

File: L 0 0 2 4 4 3 7

Time: 20110527 21:51:52

File: 0038 298

Time: 20110611 20:26:46

Time Scale: 3 h/div

0: Scaler S0/W+ Scale 5000

1: Scaler S1/R+ Scale 5000

2: Scaler S2/W- Scale 5000

3: Scaler S3/R- Scale 5000

READ
CLEAR
PRINT
S
10000
5000
0
11:27
14:27
17:27
20:27
23:27

S0
WAKE +Z

S1
RAM +Z

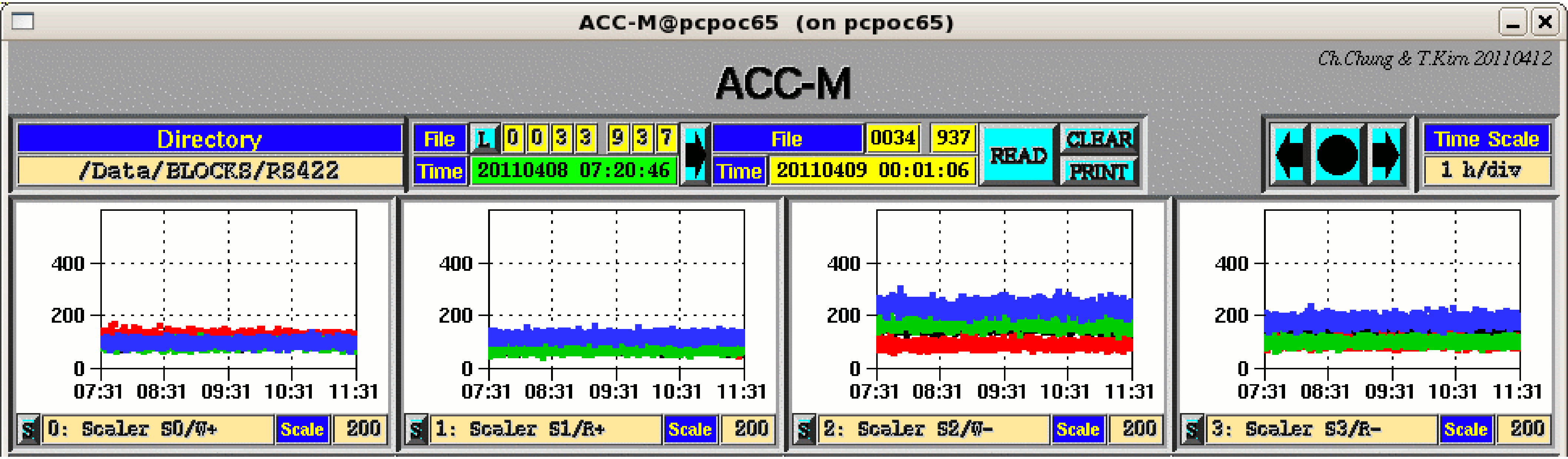
S2
WAKE -Z

S3
RAM -Z

Black (SFEA input channel 0)
Red (SFEA input channel 1)
Green (SFEA input channel 2)
Blue (SFEA input channel 3)

ACC-M

Scalar rates of 16 ACC PMTs during Cosmic Data taking at KSC



ACC-M@pcpoc65 (on pcpoc65)

Ch.Chung & T.Kim 20110412

ACC-M

Directory: /Data/BLOCKS/RS422

File: L 0 0 3 3 9 3 7 — Time: 20110408 07:20:46

File: 0034 937 — Time: 20110409 00:01:06

Time Scale: 1 h/div

0: Scaler S0/W+ — Scale 200

1: Scaler S1/R+ — Scale 200

2: Scaler S2/W- — Scale 200

3: Scaler S3/R- — Scale 200

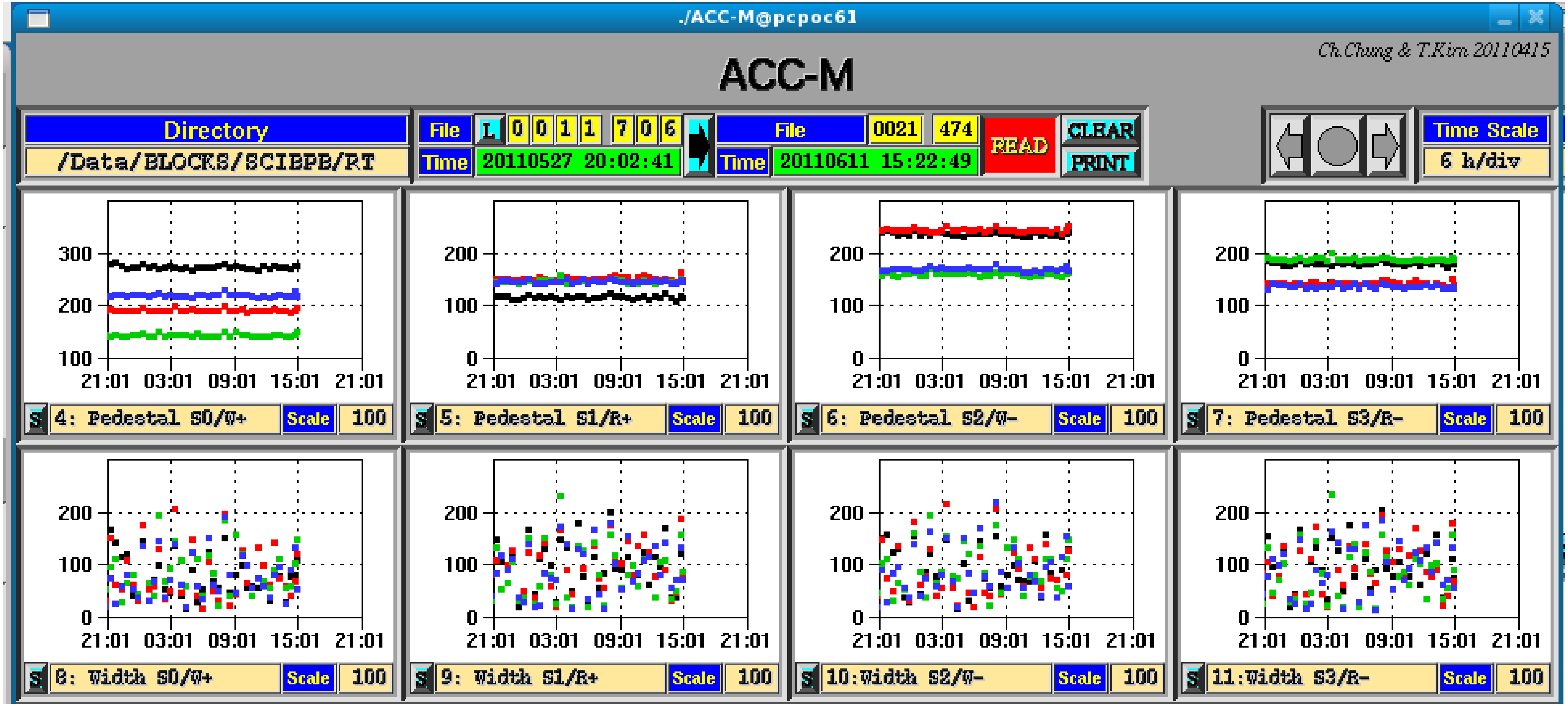
S0	S1	S2	S3
WAKE +Z	RAM +Z	WAKE -Z	RAM -Z

Black (SFEA input channel 0) **Red** (SFEA input channel 1)

Green (SFEA input channel 2) **Blue** (SFEA input channel 3)

ACC-M

Calibration: Pedestal & Pedestal Width of 16 ACC PMTs



./ACC-M@pcpoc61

Ch.Chung & T.Kim 20110415

ACC-M

Directory: /Data/BLOCKS/SCIBPB/RT

File: L 0 0 1 1 7 0 6

Time: 20110527 20:02:41

File: 0021 474

Time: 20110611 15:22:49

Time Scale: 6 h/div

READ
CLEAR
PRINT
300
200
100
0
21:01 03:01 09:01 15:01 21:01
4: Pedestal S0/W+ Scale 100
5: Pedestal S1/R+ Scale 100
6: Pedestal S2/W- Scale 100
7: Pedestal S3/R- Scale 100
8: Width S0/W+ Scale 100
9: Width S1/R+ Scale 100
10:Width S2/W- Scale 100
11:Width S3/R- Scale 100

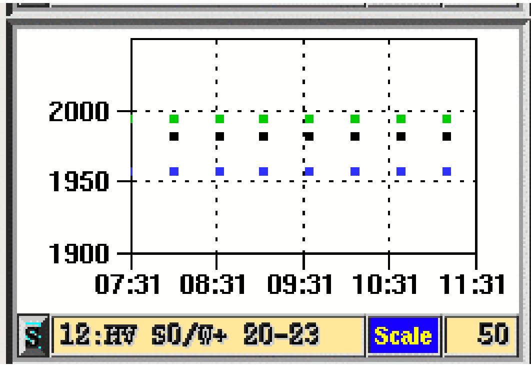
S0	**S1**	**S2**	**S3**
WAKE +Z	**RAM +Z**	**WAKE -Z**	**RAM -Z**

Black (SFEA input channel 0) **Red (SFEA input channel 1)**

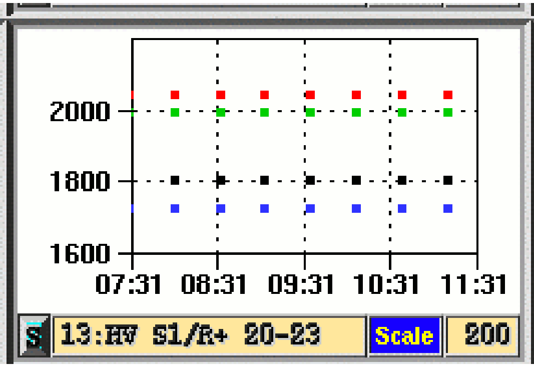
Green (SFEA input channel 2) **Blue (SFEA input channel 3)**

ACC-M

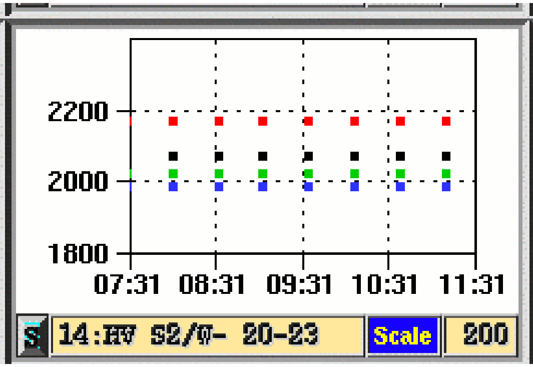
High voltage settings of 16 PMTs of S0, S1, S2 and S3-crate



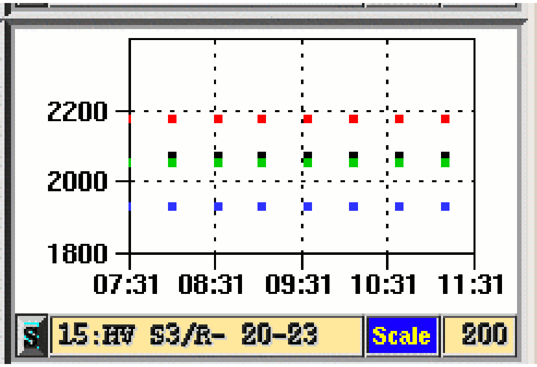
S0
WAKE +Z



S1
RAM +Z



S2
WAKE -Z

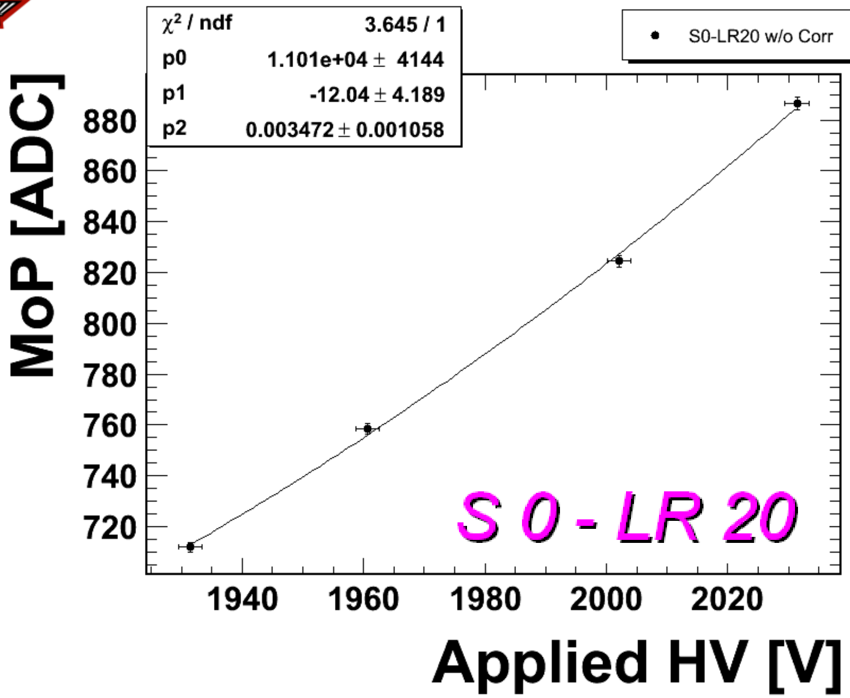


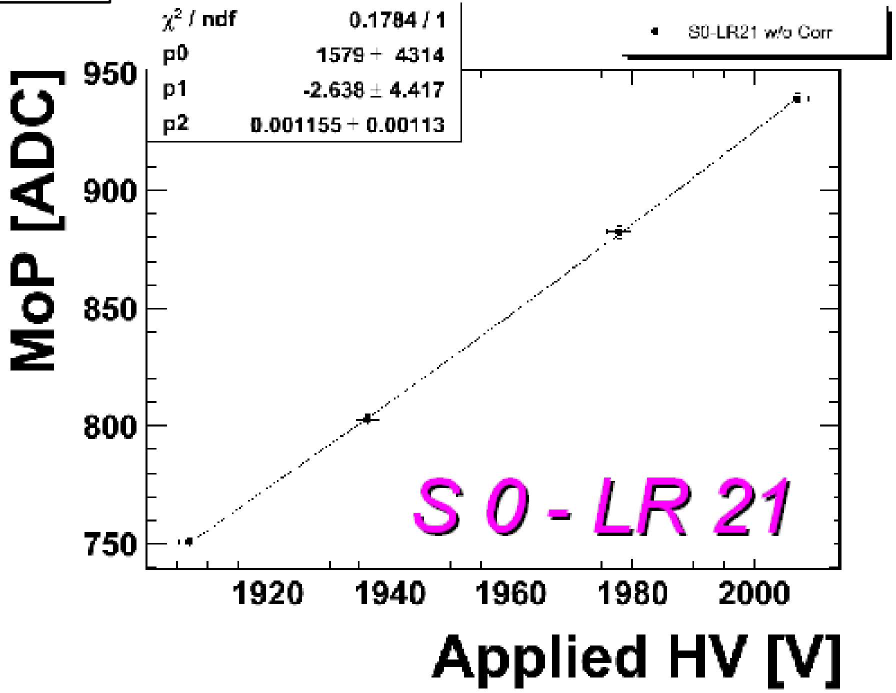
S3
RAM -Z

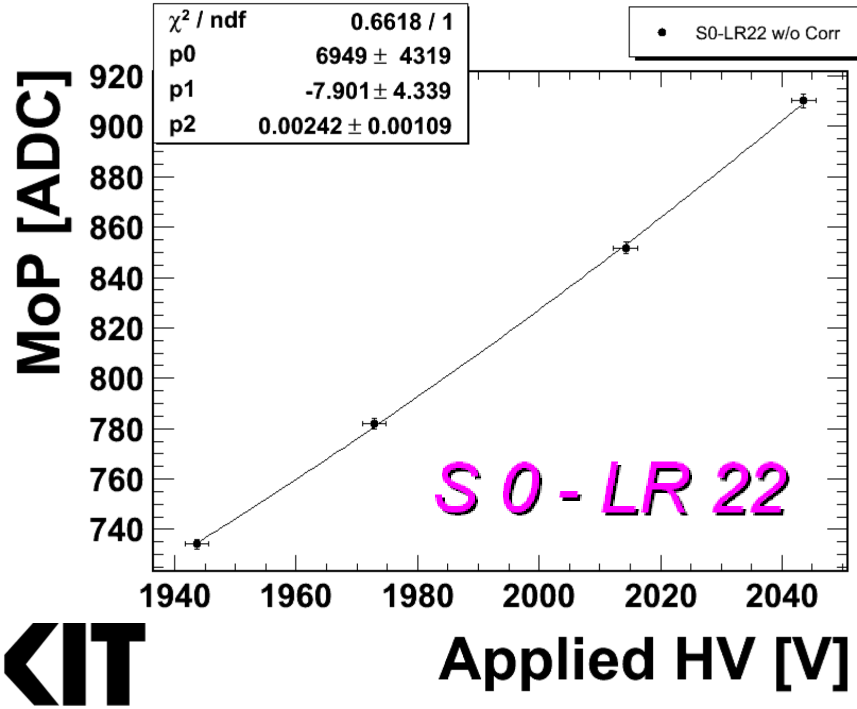
Black (SFEA input channel 0)
Red (SFEA input channel 1)
Green (SFEA input channel 2)
Blue (SFEA input channel 3)

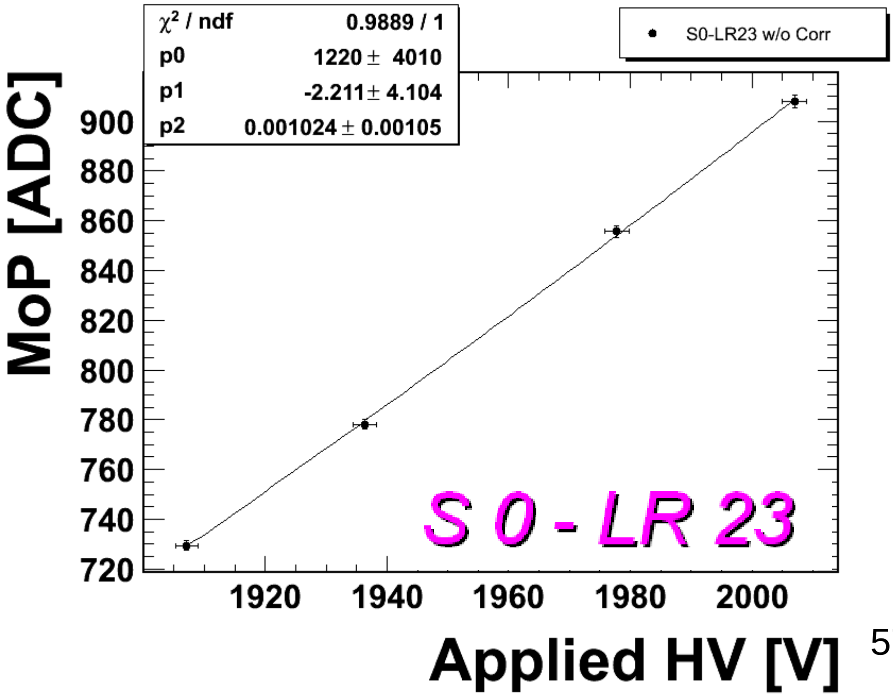
SHV-brick	S0	S1	S2	S3
Ch20	1975.4 V	1795.7 V	2093.2 V	2042.0 V
Ch21	1923.5 V	2014.6 V	2191.6 V	2157.1 V
Ch22	1972.4 V	1952 V	2048.5 V	2018.6 V
Ch23	1936.5 V	1719.4 V	2007.0 V	1900.8 V

ACC-High Voltage Scans

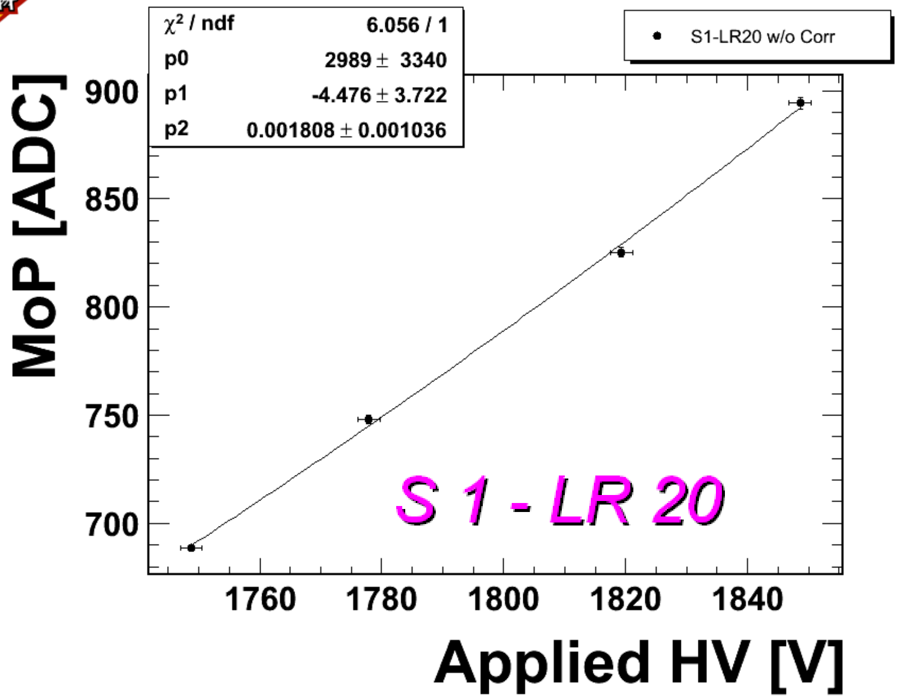


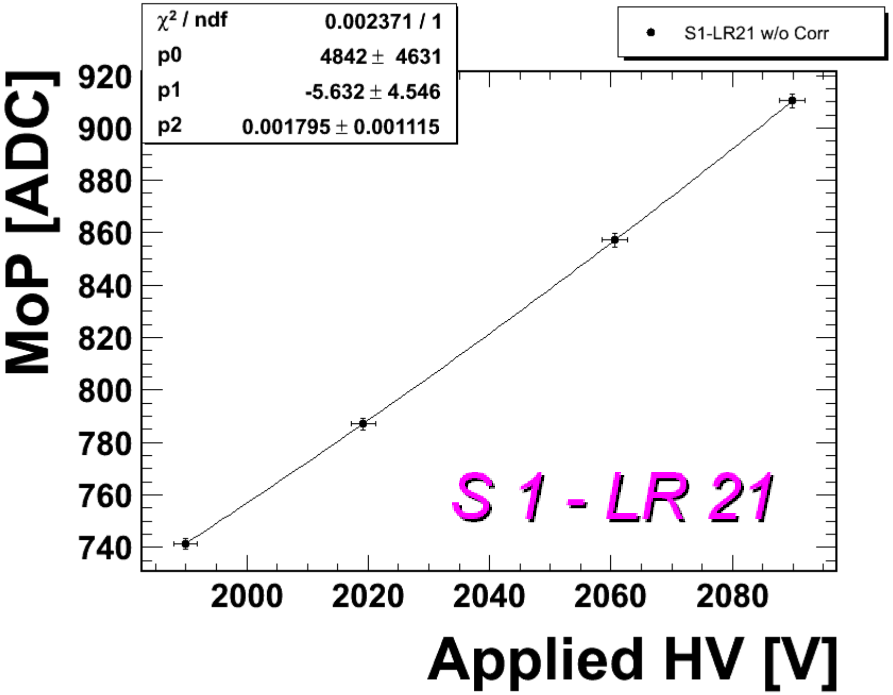


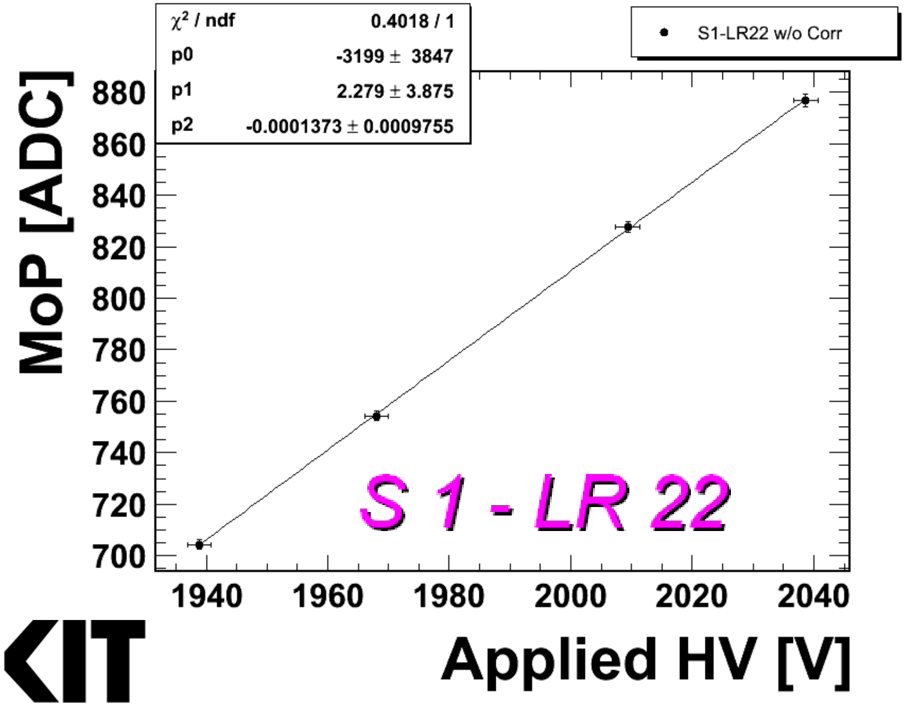


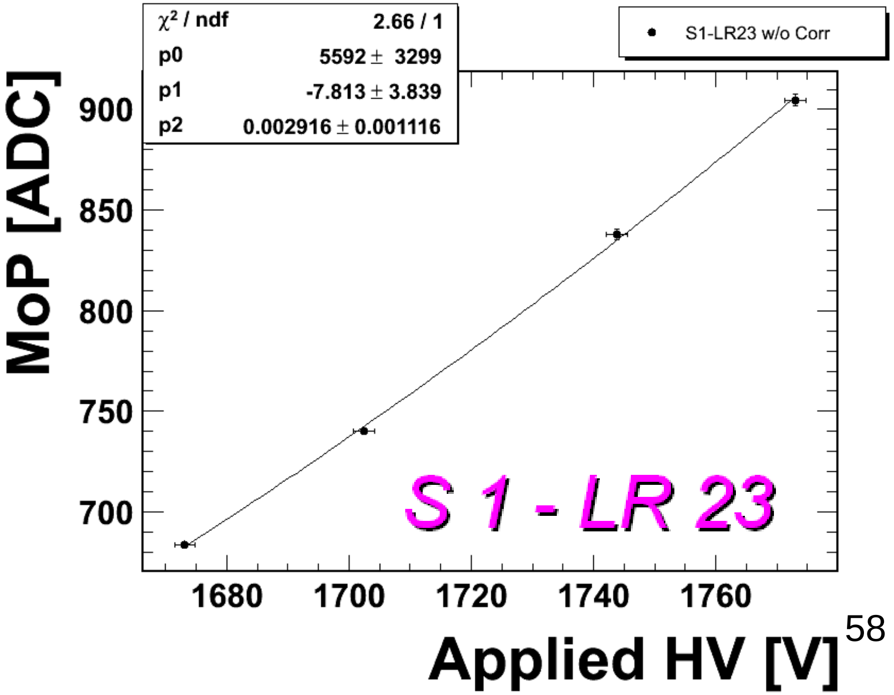


ACC-High Voltage Scans

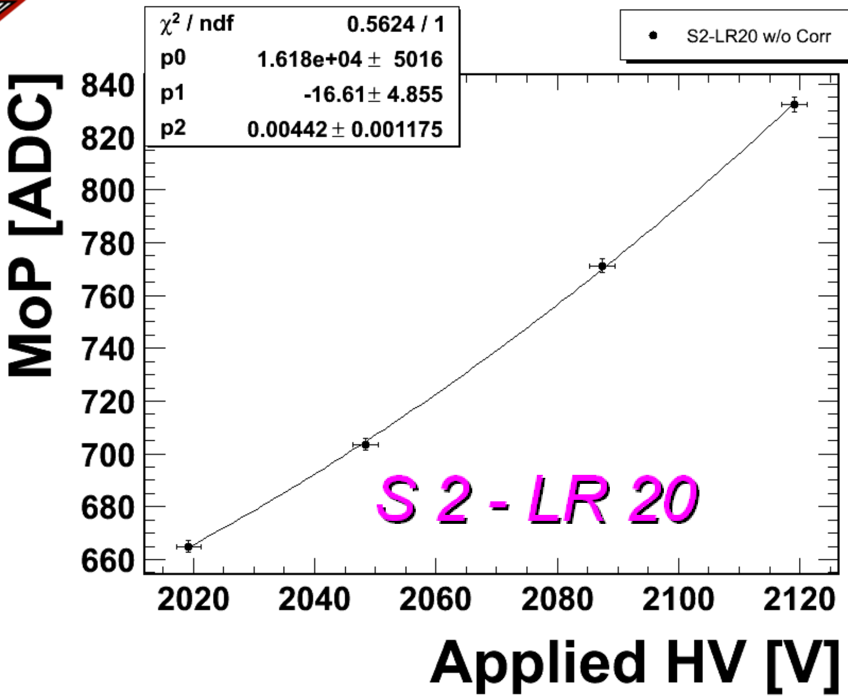


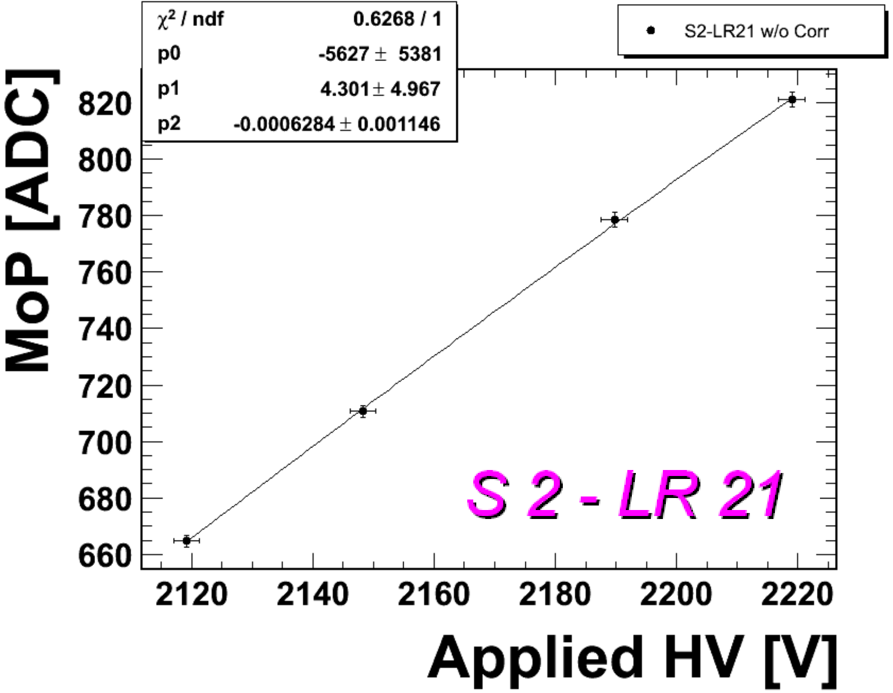


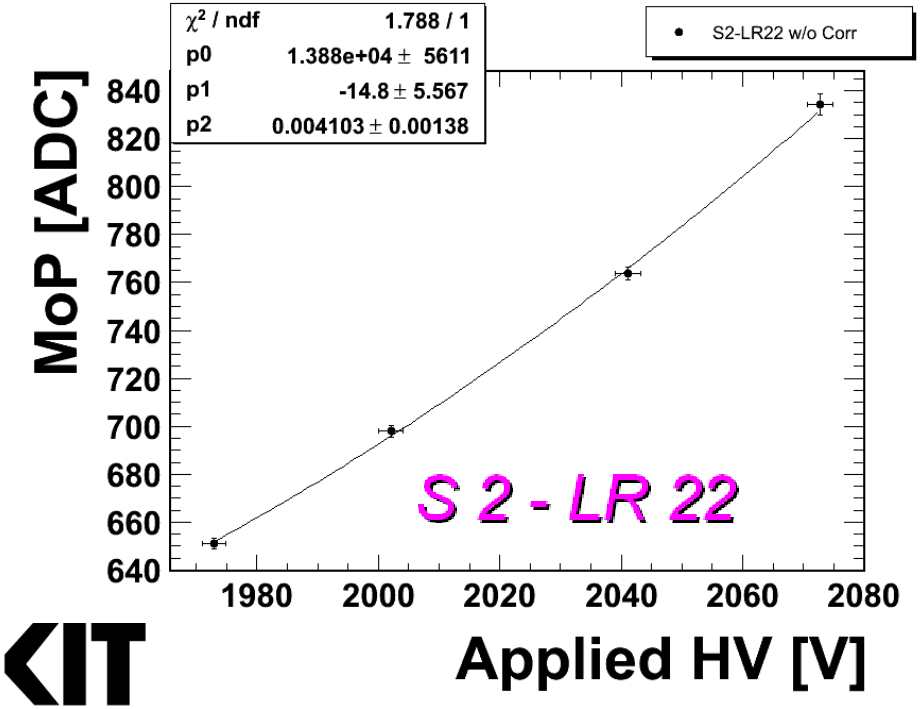


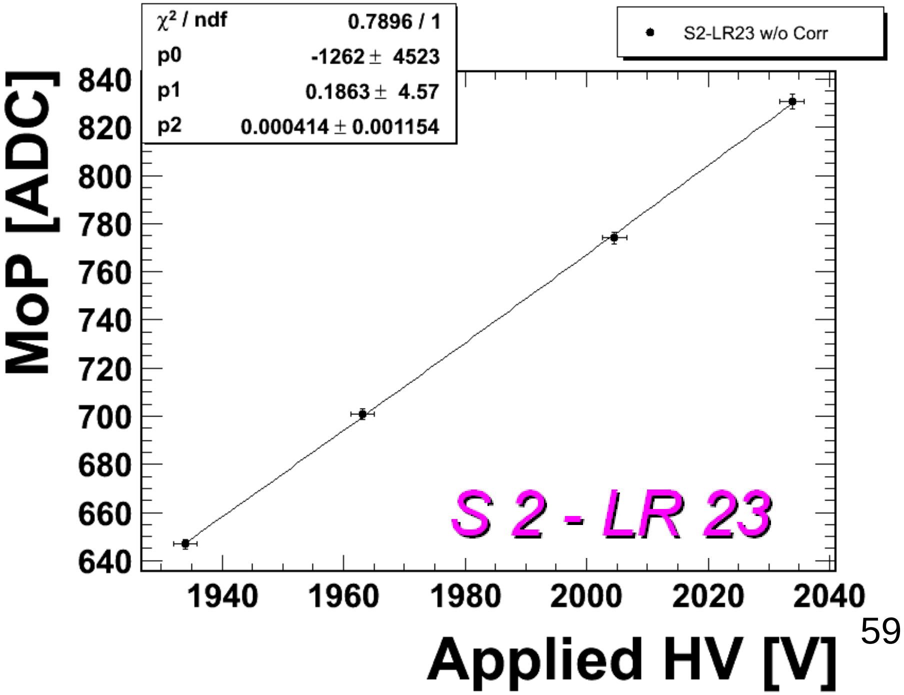


ACC-High Voltage Scans

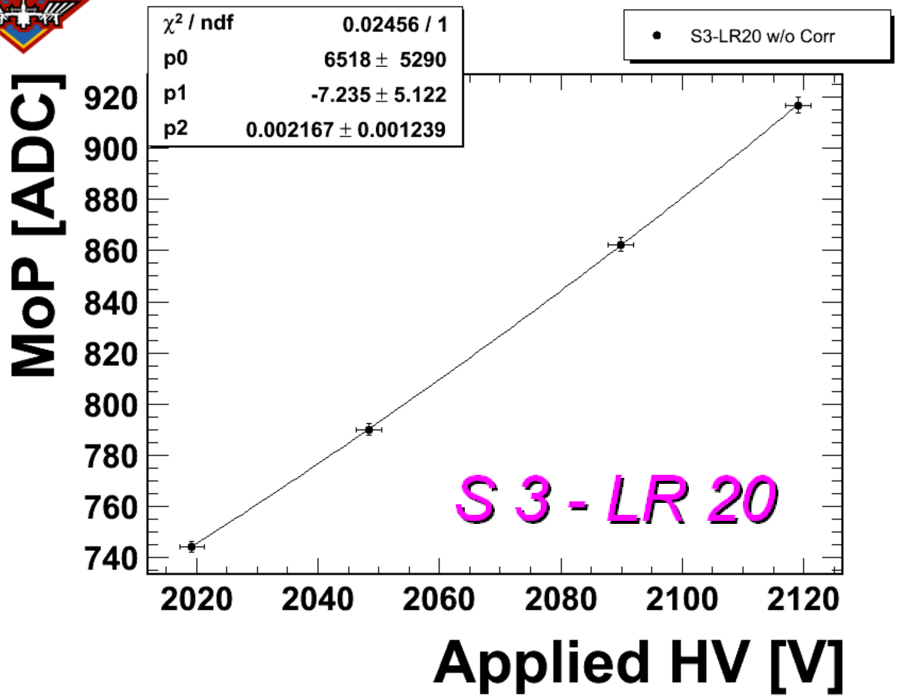


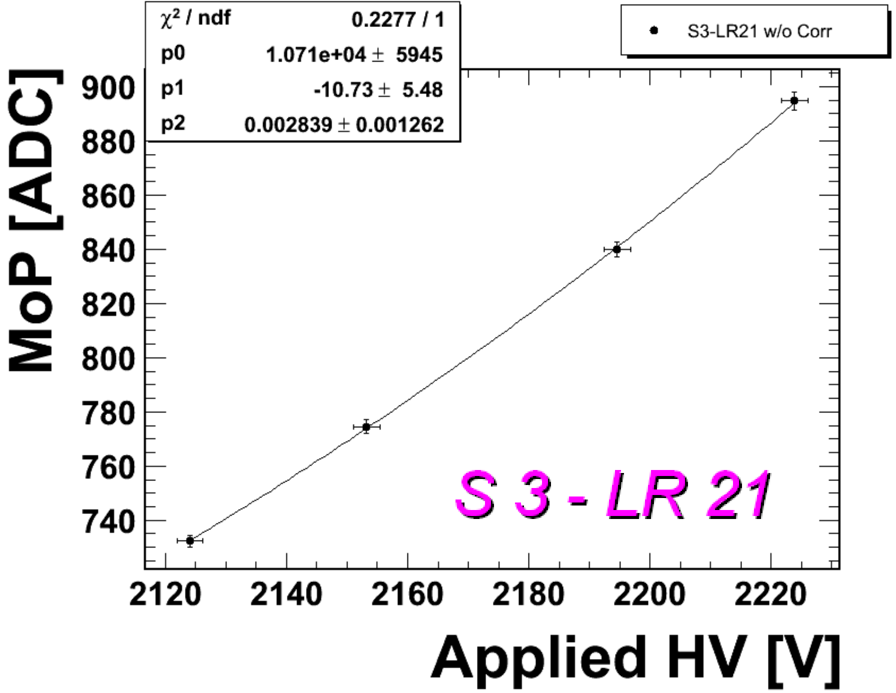


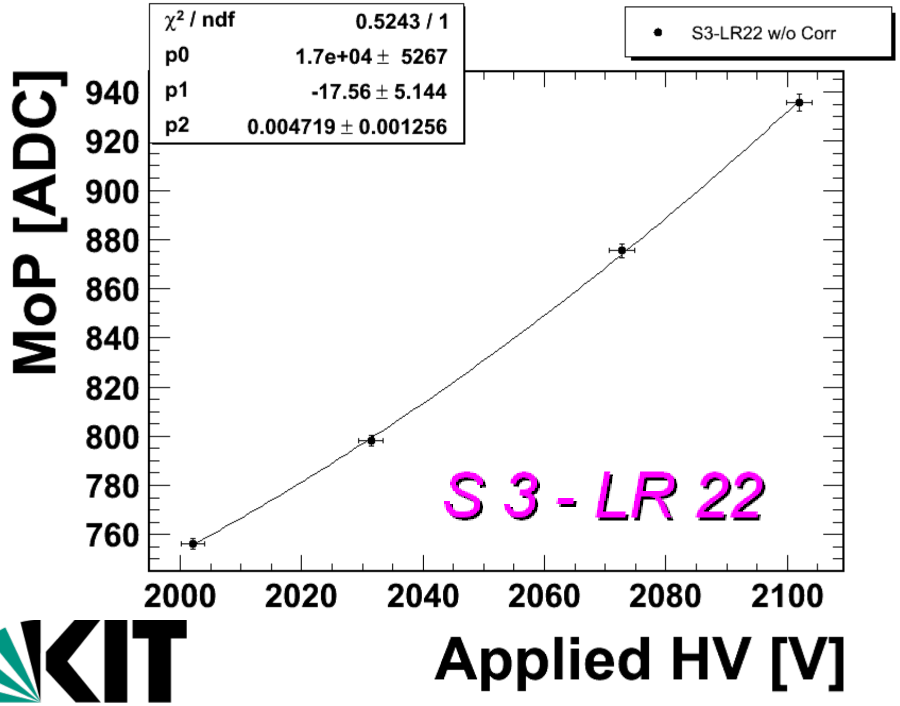


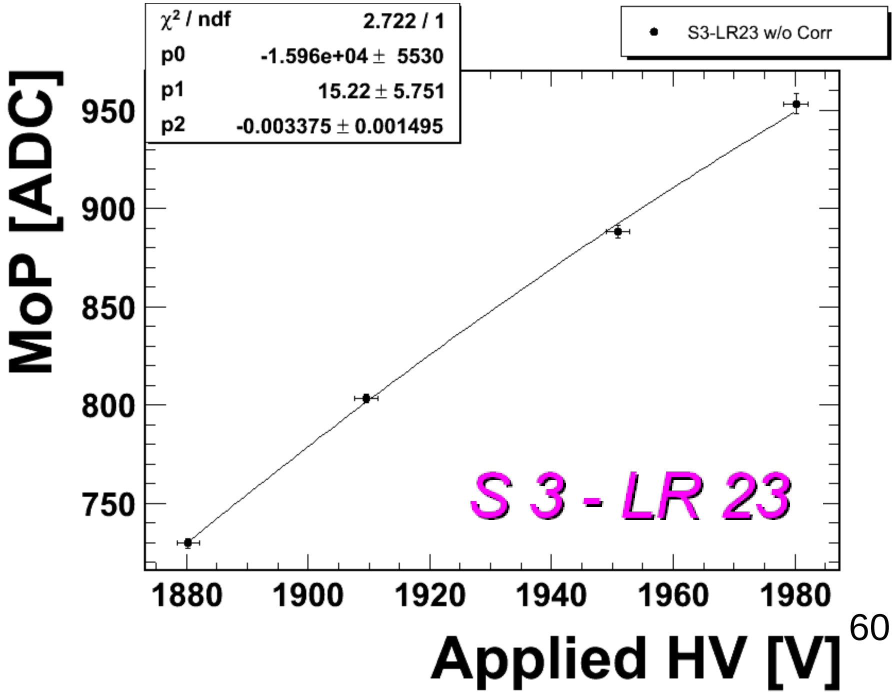


ACC-High Voltage Scans

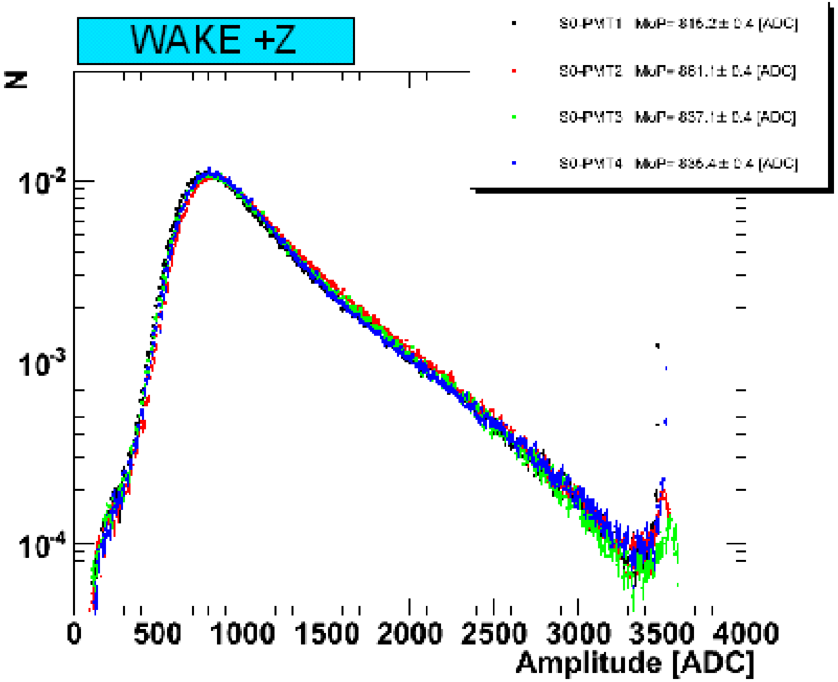


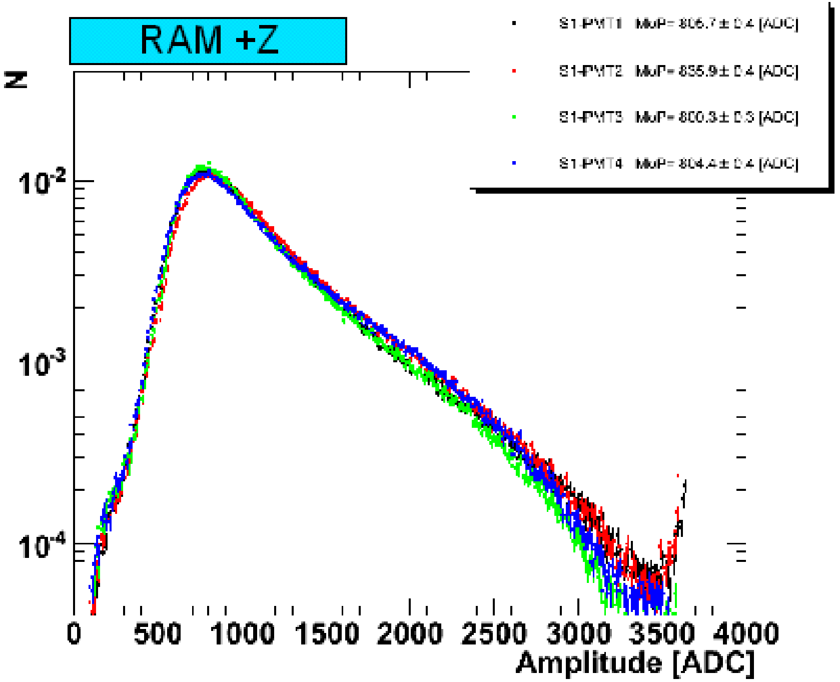


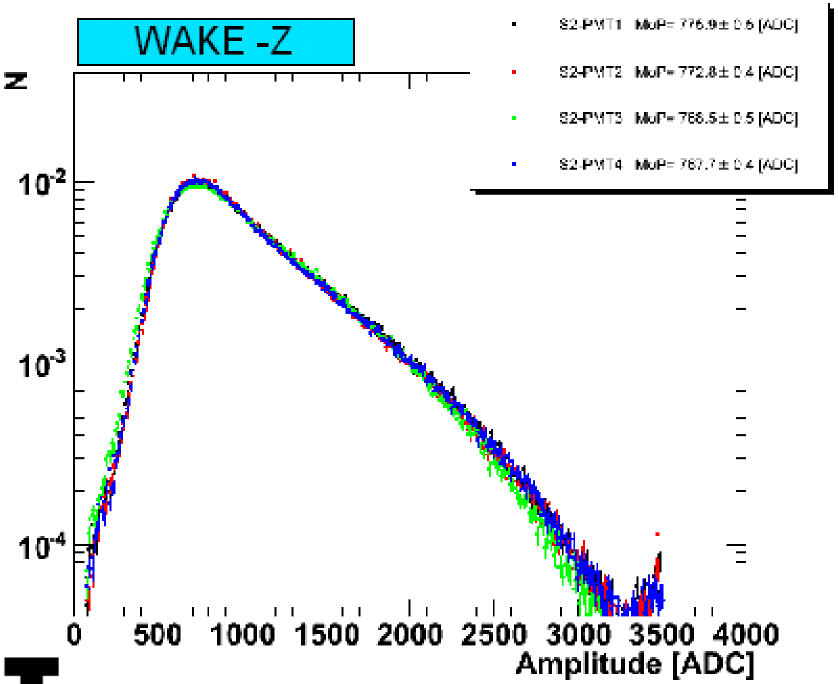


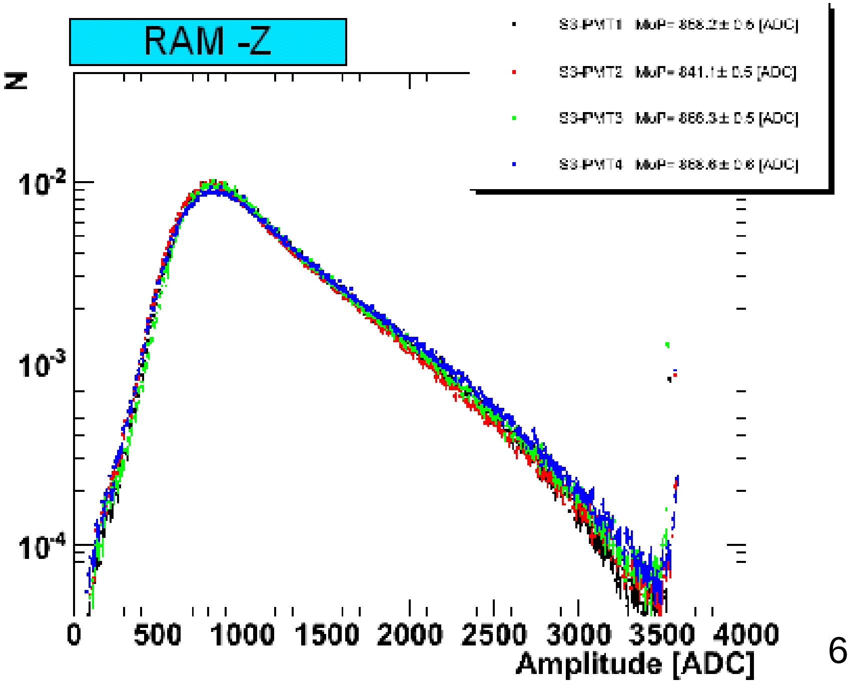


ACC-CR Spectra (Raw)



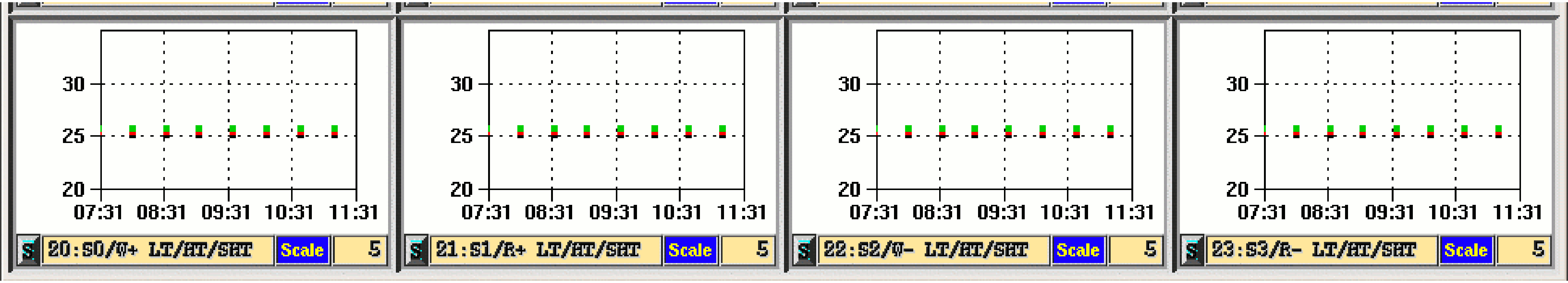






ACC-M

Discriminator threshold settings; all register values set to 25 (Maximum) (artificial spread to visualize 4 points)


30
25
20
07:31 08:31 09:31 10:31 11:31
20:S0/W+ LT/HT/SHT
Scale
5
21:S1/R+ LT/HT/SHT
22:S2/W- LT/HT/SHT
23:S3/R- LT/HT/SHT

S0
WAKE +Z

S1
RAM +Z

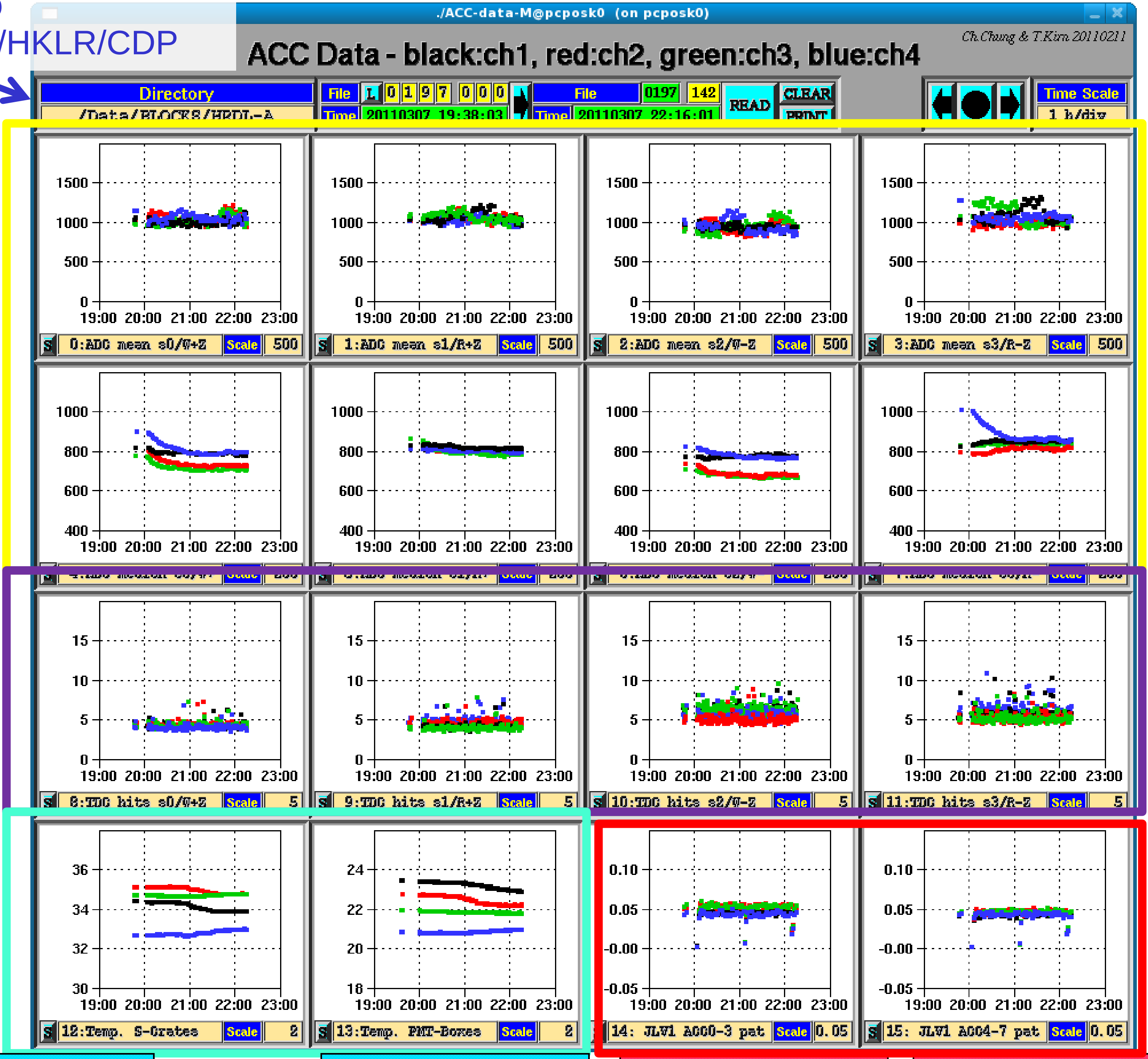
S2
WAKE -Z

S3
RAM -Z

Black (SFEA input channel 0)
Red (SFEA input channel 1)
Green (SFEA input channel 2)
Blue (SFEA input channel 3)

ACC-data-M

Set Directory to /Data/BLOCKS/HKLR/CDP


./ACC-data-M@pcposk0 (on pcposk0)
ACC Data - black:ch1, red:ch2, green:ch3, blue:ch4
Ch.Chung & T.Kim 20110211
Directory
/Data/BLOCKS/HRDL-A
File
L 0 1 9 7 0 0 0
Time 20110307 19:38:03
File 0197 142
Time 20110307 22:16:01
READ
CLEAR
PRINT
Time Scale
1 h/div
19:00 20:00 21:00 22:00 23:00
0:ADC mean s0/W+Z Scale 500
1:ADC mean s1/R+Z Scale 500
2:ADC mean s2/W-Z Scale 500
3:ADC mean s3/R-Z Scale 500
8:TDC hits s0/W+Z Scale 5
9:TDC hits s1/R+Z Scale 5
10:TDC hits s2/W-Z Scale 5
11:TDC hits s3/R-Z Scale 5
12:Temp. S-Crates Scale 2
13:Temp. PMT-Boxes Scale 2
14: JLV1 ACC0-3 pat Scale 0.05
15: JLV1 ACC4-7 pat Scale 0.05

Signal Amplitude ADC (mean)

vs.

Dynamic ADC

TDC

Temperature

SDR2
SFEA2

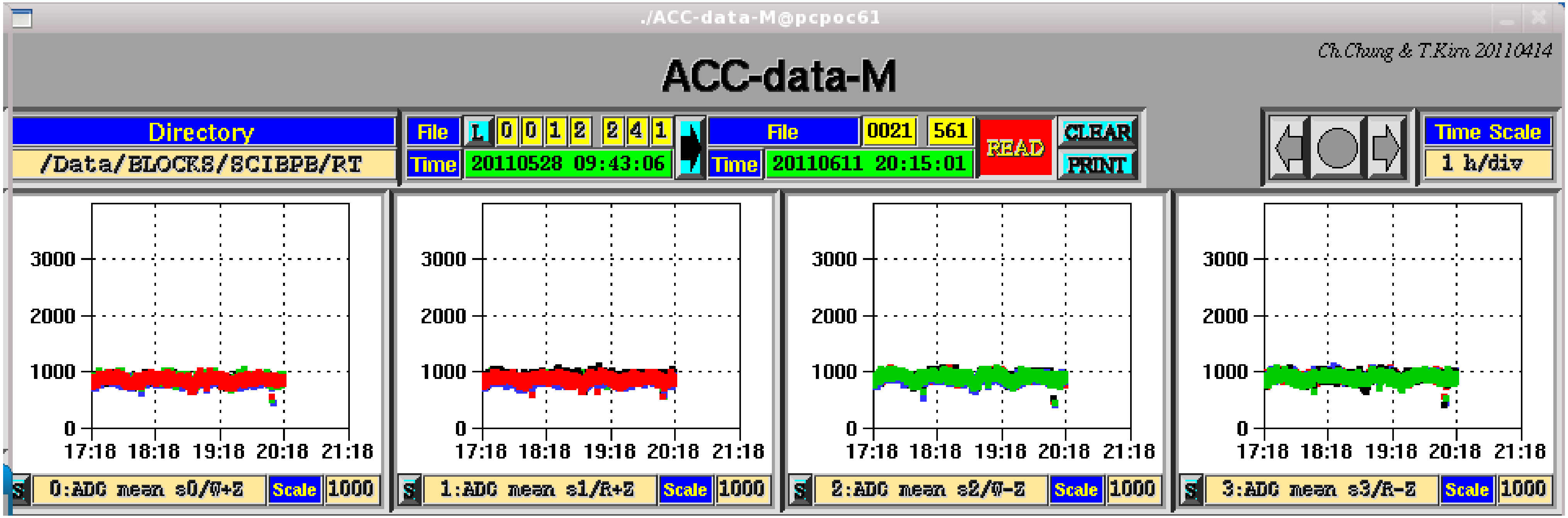
PMT Box
W+,R+,W-,R-

Veto cnt/ LV1 cnt
(W+,W-)

Veto cnt/ LV1 cnt
(R+,R-)

ACC-data-M

Mean ADC values for each of the 4 PMTs of S0, S1, S2 and S3 crate
Calculated out of 500 events, pedestal corrected


./ACC-data-M@pcpoc61
ACC-data-M
Ch.Chung & T.Kim 20110414
READ
CLEAR
PRINT
3000
2000
1000
0
17:18
18:18
19:18
20:18
21:18
S

Directory: /Data/BLOCKS/SCIBPB/RT

File: L 0 0 1 2 2 4 1

Time: 20110528 09:43:06

File: 0021 561

Time: 20110611 20:15:01

Time Scale: 1 h/div

0:ADC mean s0/W+Z Scale 1000

1:ADC mean s1/R+Z Scale 1000

2:ADC mean s2/W-Z Scale 1000

3:ADC mean s3/R-Z Scale 1000

S0
WAKE +Z

S1
RAM +Z

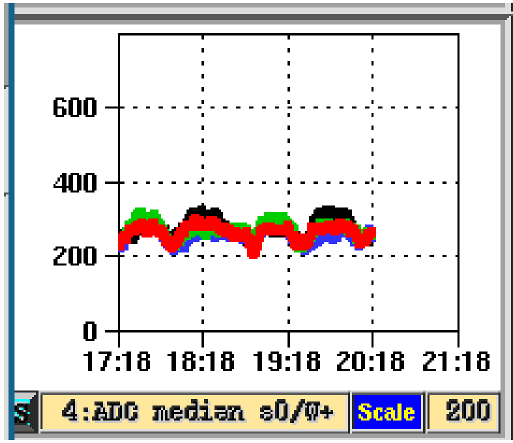
S2
WAKE -Z

S3
RAM -Z

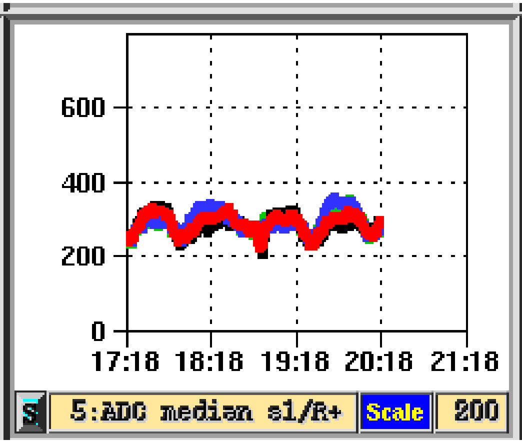
Black (SFEA input channel 0) **Red (SFEA input channel 1)**
Green (SFEA input channel 2) **Blue (SFEA input channel 3)**
Blue on S3 will be higher when ToF-ACC system is running on B-side
Due to a broken linear regulator the maximum output voltage of DC/DC converter is applied to this PMT.

ACC-data-M

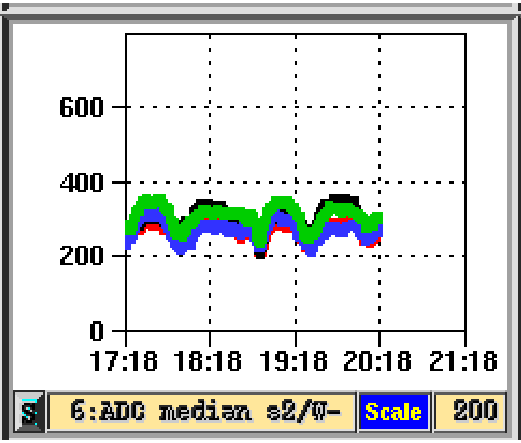
Median ADC values for each of the 4 PMTs of S0, S1, S2 and S3 crate
Median value range 700 – 1000, ADC value range 300 – 2000,
Running value: ADC value above median → median increase by 1/8
ADC value below median → median decrease by 1/8


600
400
200
0
17:18 18:18 19:18 20:18 21:18
S
4:ADC median s0/W+
Scale
200

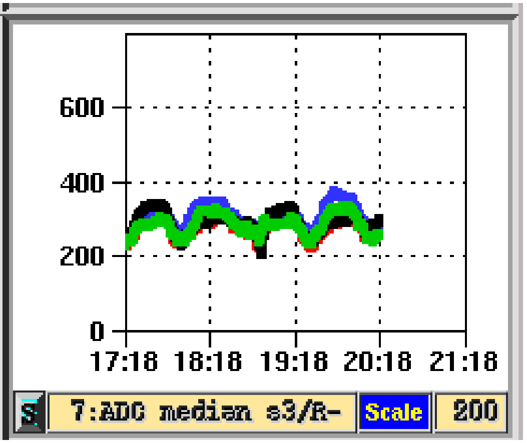
S0
WAKE +Z


600
400
200
0
17:18 18:18 19:18 20:18 21:18
S
5:ADC median s1/R+
Scale
200

S1
RAM +Z


600
400
200
0
17:18 18:18 19:18 20:18 21:18
S
6:ADC median s2/W-
Scale
200

S2
WAKE -Z

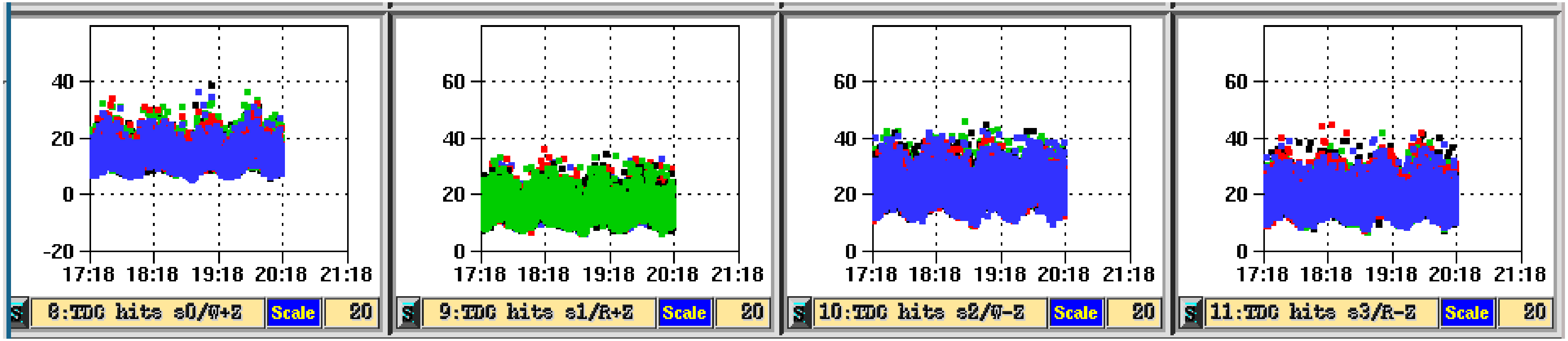

600
400
200
0
17:18 18:18 19:18 20:18 21:18
S
7:ADC median s3/R-
Scale
200

S3
RAM -Z

Black (SFEA input channel 0)
Red (SFEA input channel 1)
Green (SFEA input channel 2)
Blue (SFEA input channel 3)

ACC-data-M

Mean number of TDC Hits, averaged over 1500 entries



S0
WAKE +Z

S1
RAM +Z

S2
WAKE -Z

S3
RAM -Z

Black (SFEA input channel 0)

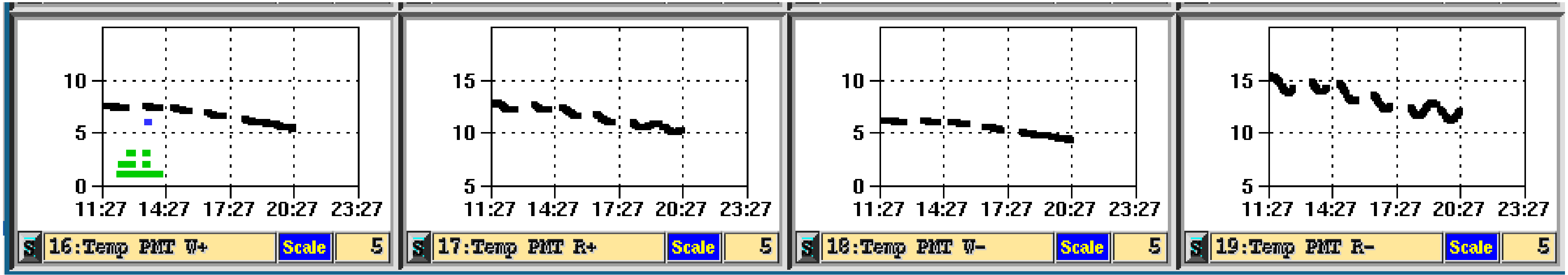
Red (SFEA input channel 1)

Green (SFEA input channel 2)

Blue (SFEA input channel 3)

ACC-data-M

Global DALLAS Temperature Sensor on each ACC PMT box



10
5
0
15
10
5
11:27 14:27 17:27 20:27 23:27
S 16:Temp PMT W+ Scale 5
S 17:Temp PMT R+ Scale 5
S 18:Temp PMT W- Scale 5
S 19:Temp PMT R- Scale 5

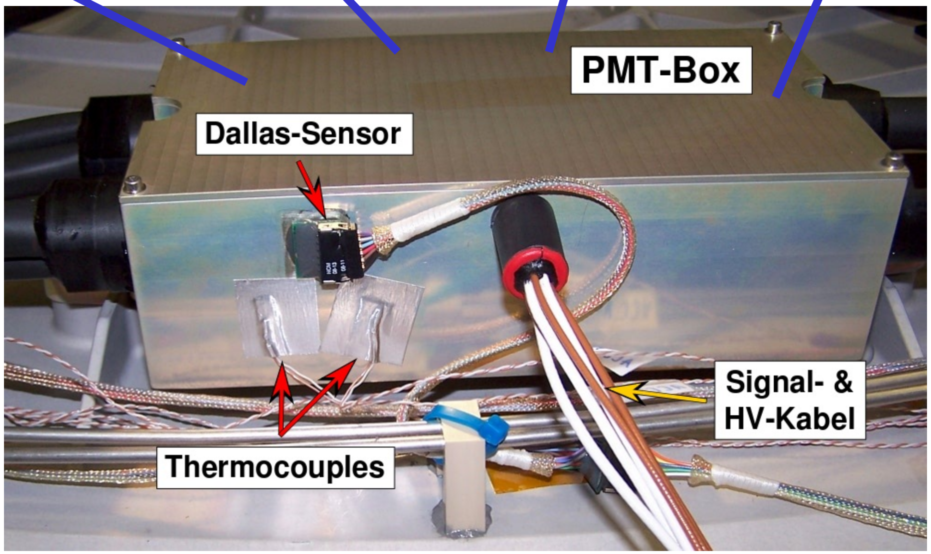
S0
WAKE +Z

S1
RAM +Z

S2
WAKE -Z

S3
RAM -Z

Operational:
-30°C … +45°C
Non-Operational:
-35°C … +50°C



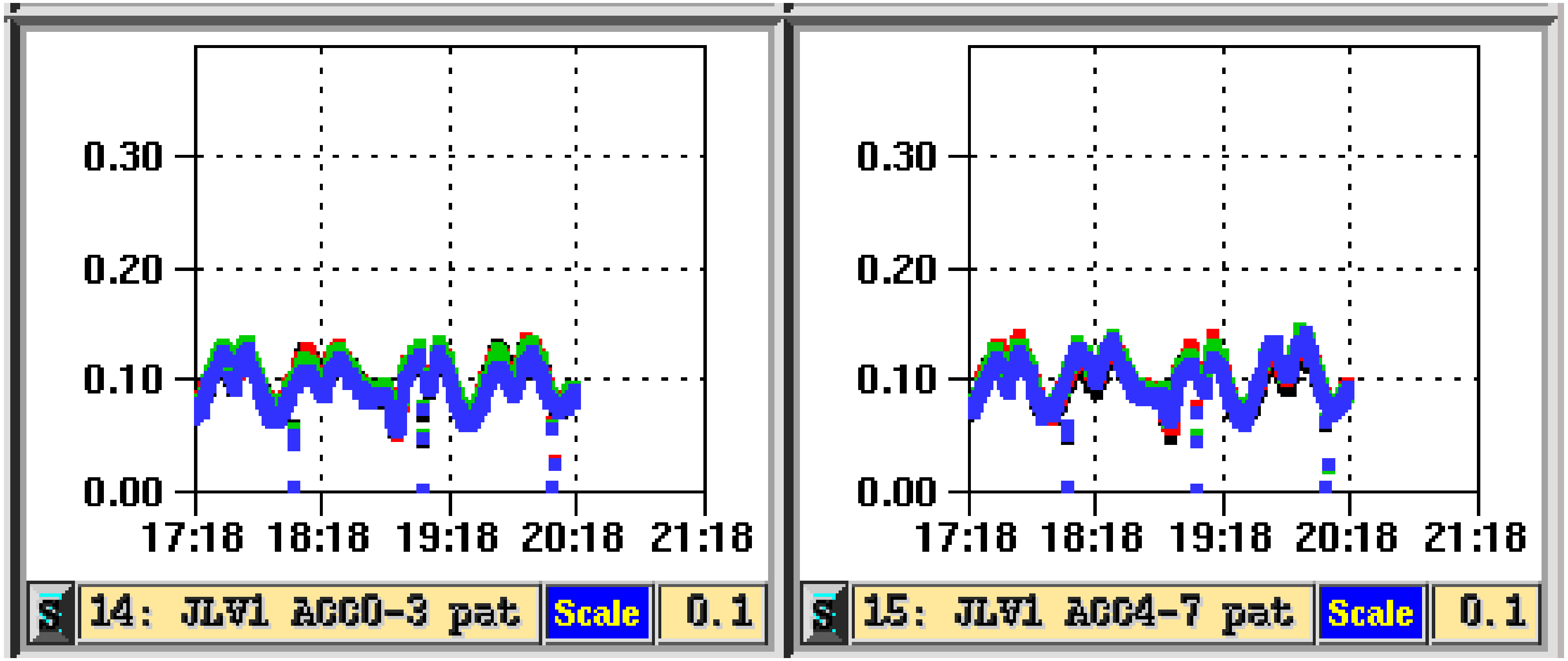
PMT-Box
Dallas-Sensor
Signal- &
HV-Kabel
Thermocouples

ACC-data-M

- **JLV1-trigger: Percentage of events which get a veto-flag**

  ACC Veto rate every 500 JLV1 trigger, depending on JLV1 trigger setting

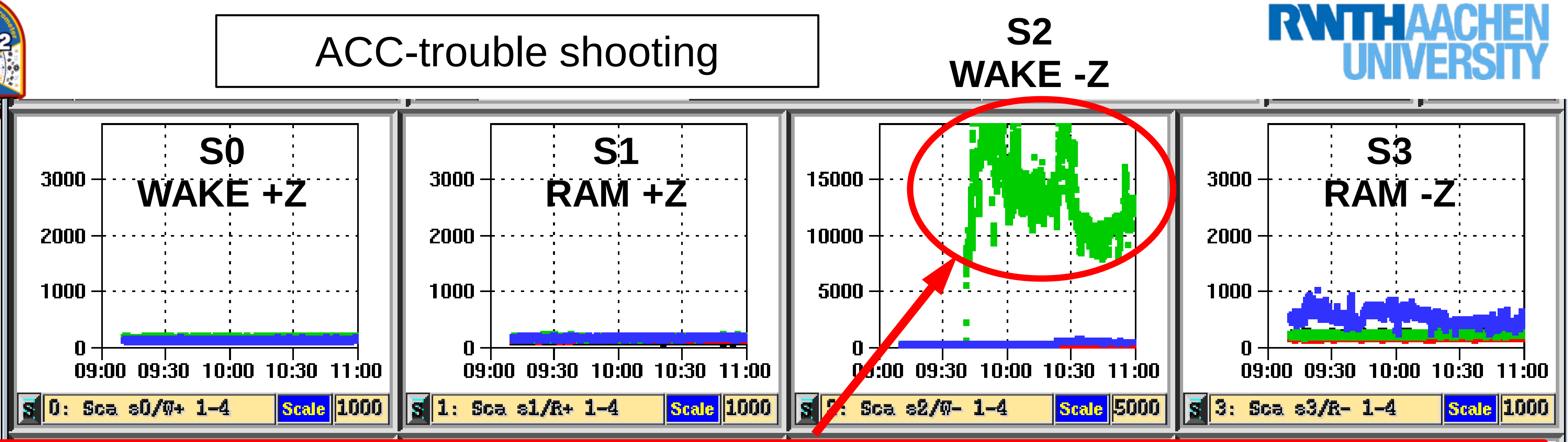
  (2 out of 4**, 3 out of 4 (standard),** 4 out of 4 or ECAL trigger)



Black (SFEA input channel 0) **Red (SFEA input channel 1)**

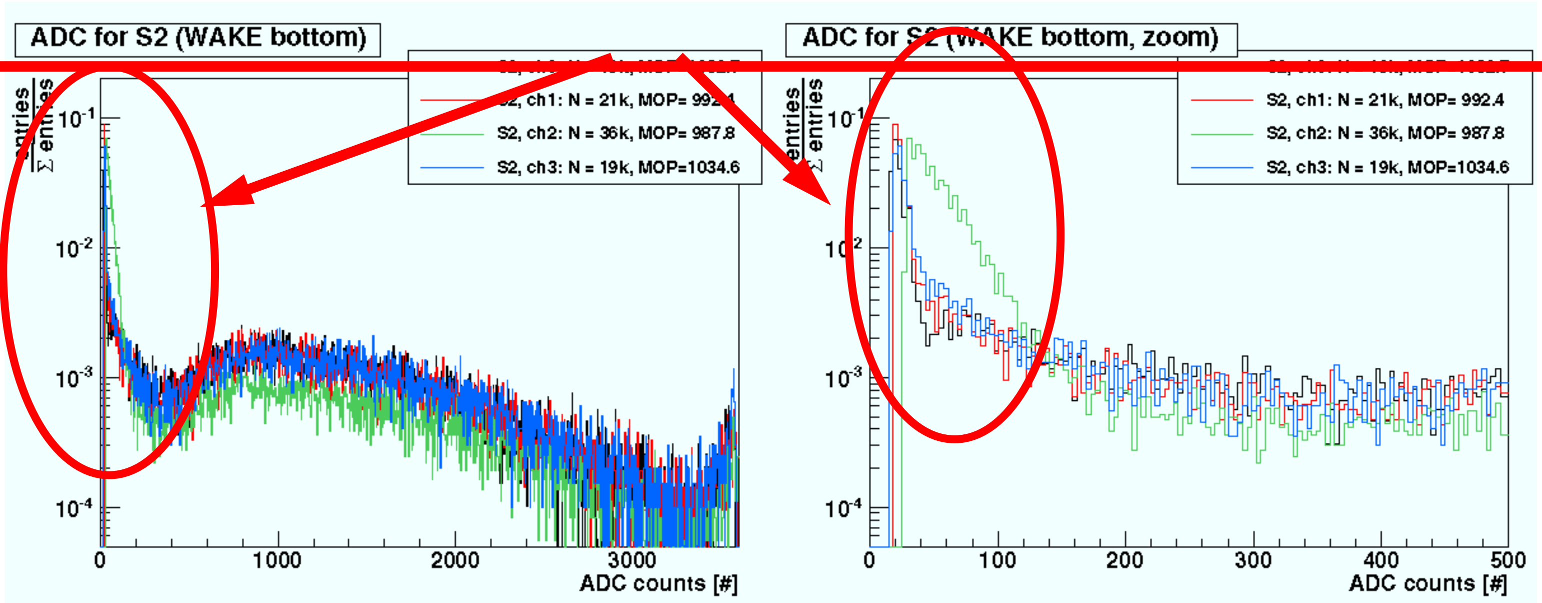
Green (SFEA input channel 2) **Blue (SFEA input channel 3)**

ACC-trouble shooting


S2
WAKE -Z
S0
WAKE +Z
S1
RAM +Z
S3
RAM -Z
3000
2000
1000
0
15000
10000
5000
09:00 09:30 10:00 10:30 11:00
0: Sca s0/W+ 1-4
Scale
1000
1: Sca s1/R+ 1-4
Scale
1000
Sca s2/W- 1-4
Scale
5000
3: Sca s3/R- 1-4
Scale
1000

Issue: Scaler too high (saturates at 32k): Check if ACC HV or thresholds have changed. If not askTOF expert/LEAD if trigger configuration has been modified. If not, possible the PMT became noisy.

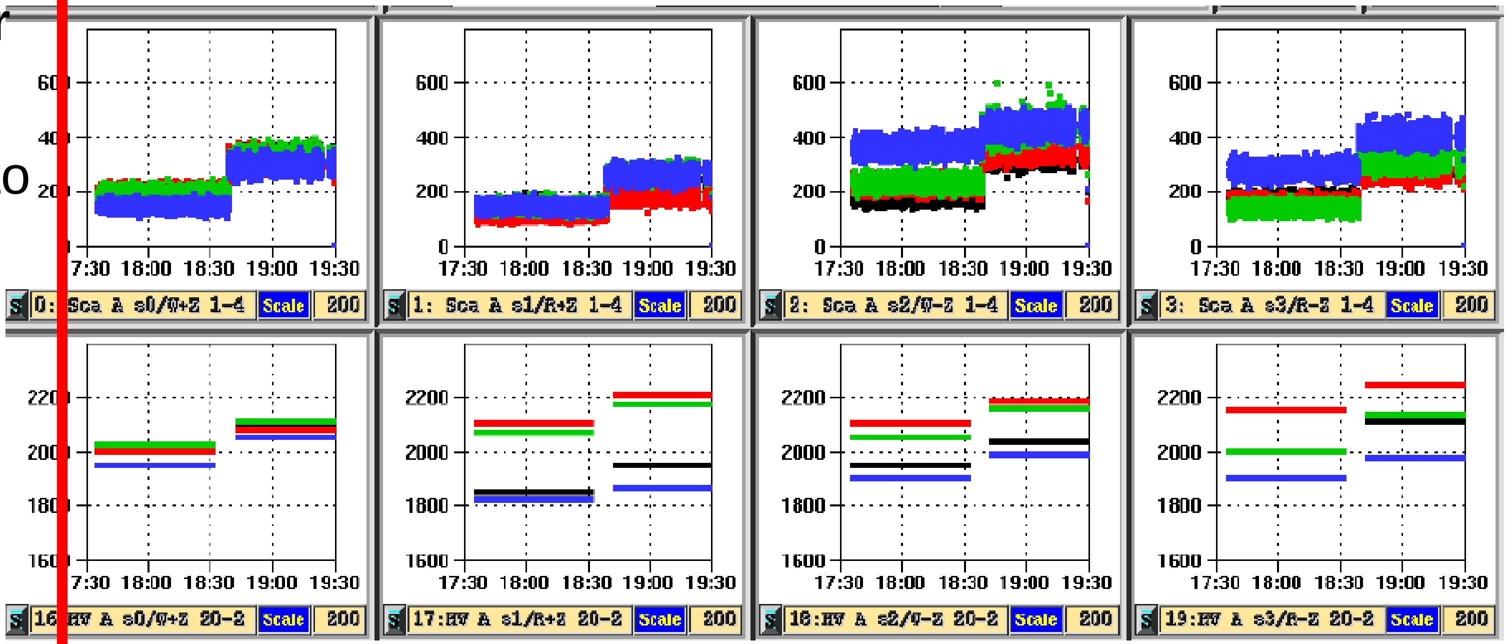
CALL TRD and ACC Experts (TRD phone and Thomas Kirn and Chan Hoon Chung) they will check the corresponding ADC. You will work with TOF expert to lower HV if necessary.



ACC-trouble shooting

Issue: stepwise scaler increase.

In this case it was due to change in HV settings which you can see in the HV plots. But if HV is the same, check with TOF expert to see if something (like trigger config) has changed.



S0 WAKE +Z **S1 RAM +Z** **S2 WAKE -Z** **S3 RAM -Z**

If scaler at zero:

HV could be off (check HV plot and check with LEAD and TOF)

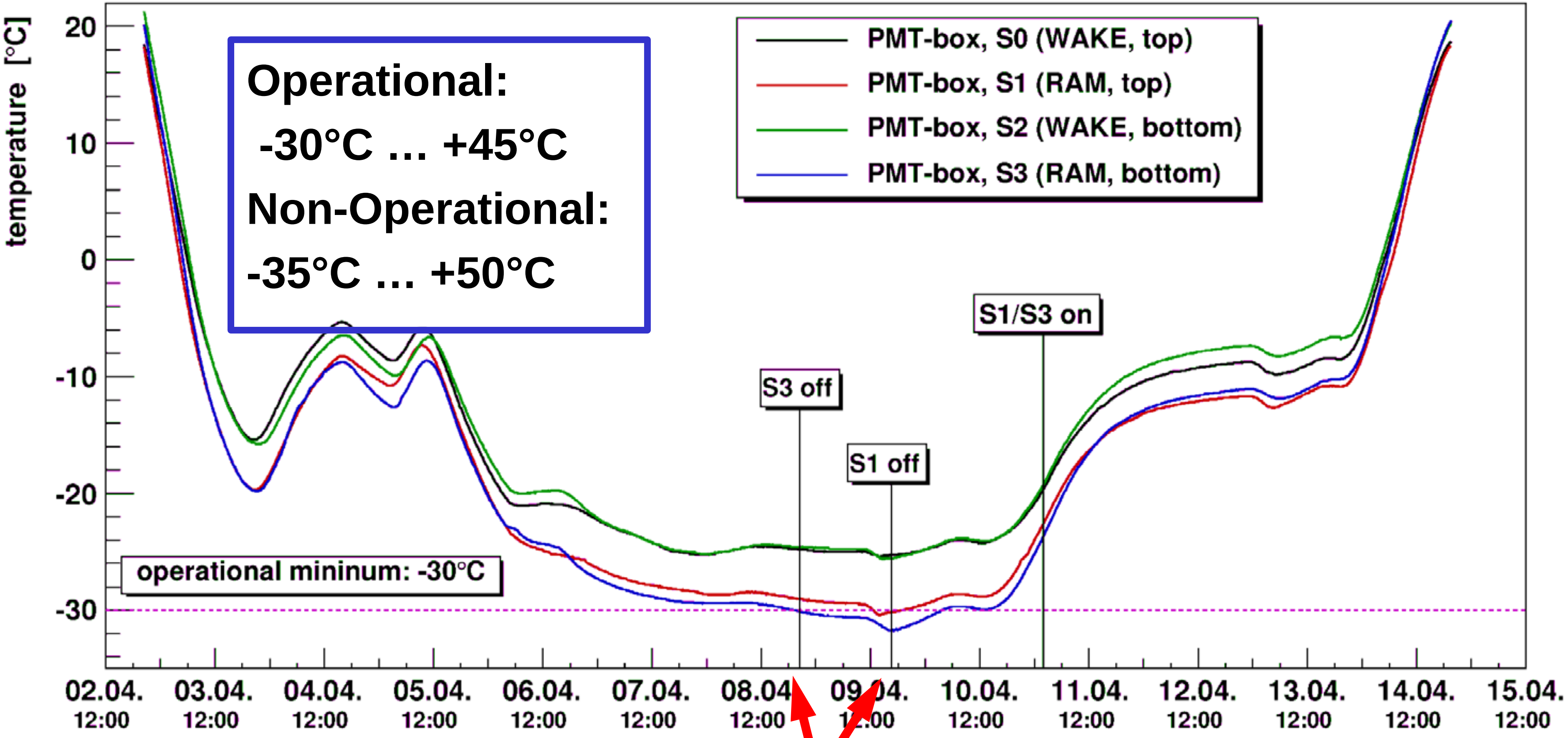
If HV is on, should also see the ADC mean and median plots and the JLV1 ACC pattern for this sector should all go down to 0.

HV channel could be broken. This can only be checked by TOF- and ACC-experts

No data taking, HV off, PMT dead, cross check with ACC-S!

Contact ACC-Expert, AMS-LEAD, TRD/ACC/TAS expert on call

ACC-trouble shooting



Operational:

-30°C … +45°C

Non-Operational:

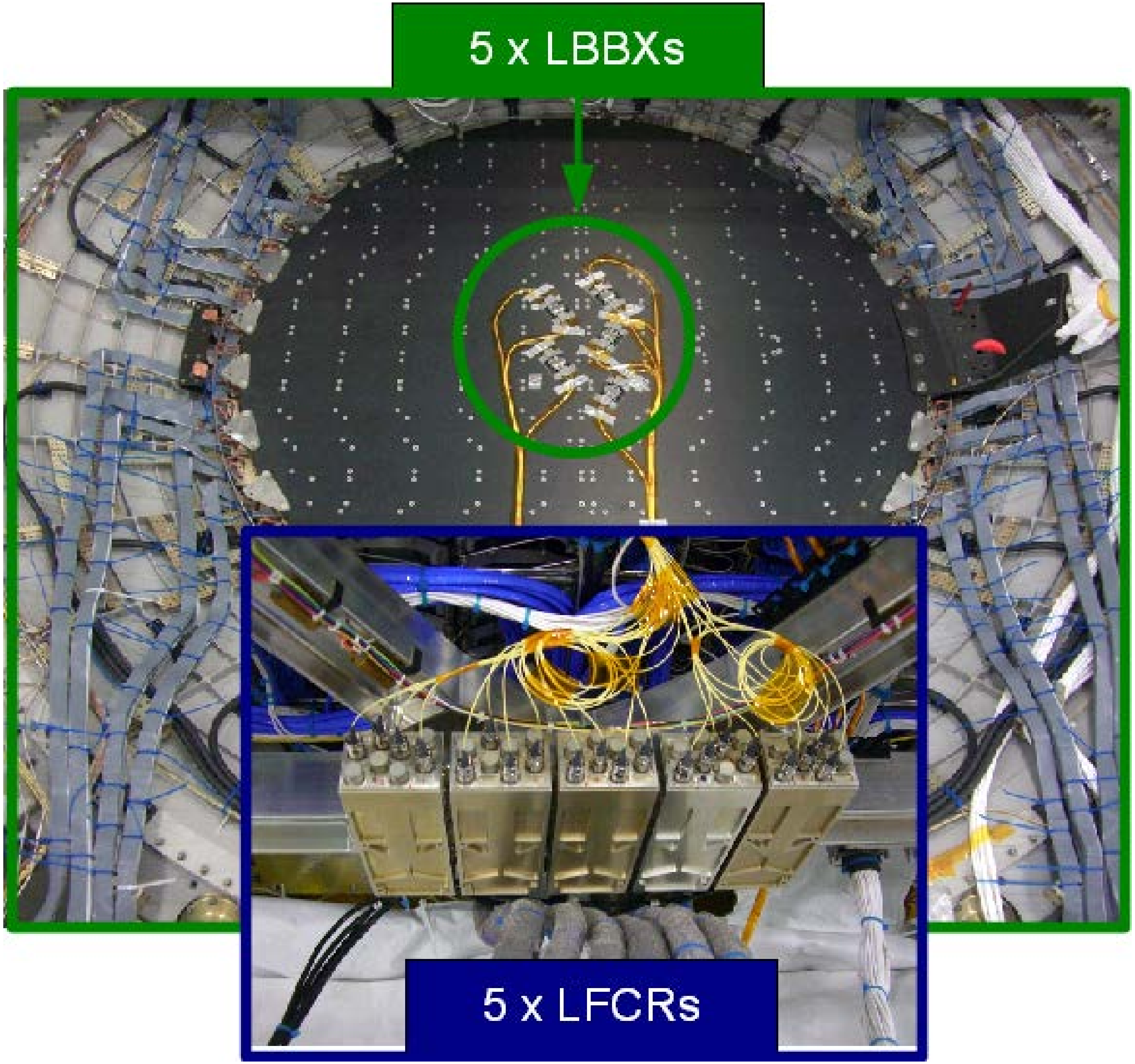
-35°C … +50°C

Temperature below operational range → Turn HV off!

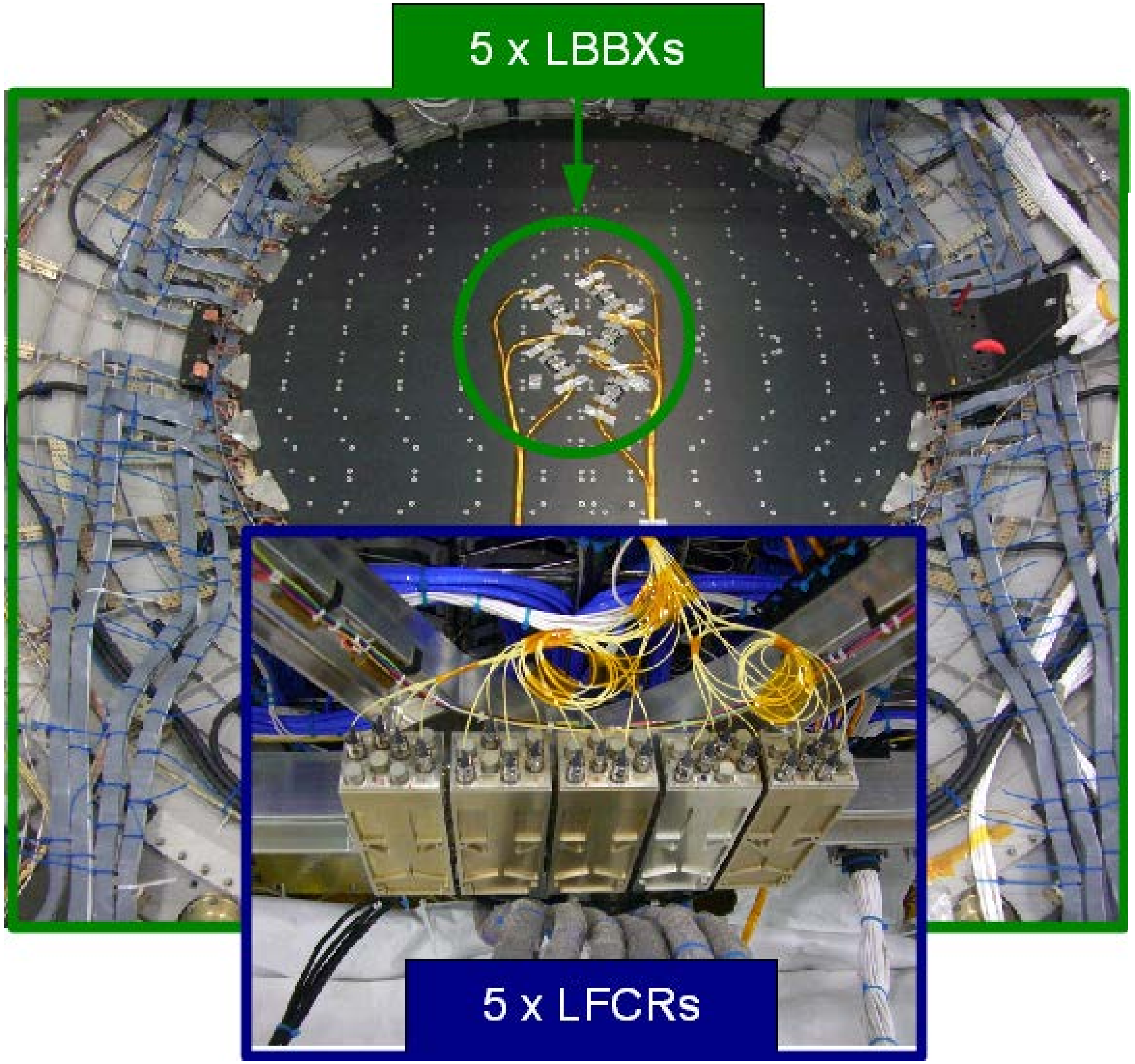
This can happen if it gets too cold, but has not happened in space (yet)

Turn of HV of affected PMTs. This needs to be coordinated with TOF experts as soon as possible. Inform TRD on-call and ACC experts Th. Kirn and C.H. Chung

Laser Alignment (TAS)-System


5 x LBBXs
5 x LFCRs

TAS-System



λ = 1082 nm
Δt_{pulse} = 0.5 µs
I = 15mA ($_{max}$140 mA)
$T_{ransmittance}$ = 40-45%

- Laser system is controlled by 5 laser driver boards integrated in the M-Crate
- Laser system is divided into 5 laser couplers (LFCR) housing each two laser diodes and 5 laser beam port boxes (LBBX) mechanically mounted on the top of tracker plane #2.
- Each LBBX delivers 4 laser beams injecting perpendicularly through 7 layers of inner tracker.
- Laser calibration is designed to be run by LEAD every time the TRD HV is adjusted, ~once per day.

TAS-Monitoring Program

1. TAS Status Monitoring (TAS-S)

Check Laser current, LFCR Temperatures, Laser Puls Width

2. TAS Housekeeping Monitoring (TAS-M)

Check LFCR operation mode, Laser currents, Laser Puls Width, Diode Temperatures

Programm 1: `trd@pcpoc25 RUN$  TAS-S`

Programm 2: `trd@pcpoc25 RUN$  TAS-M`

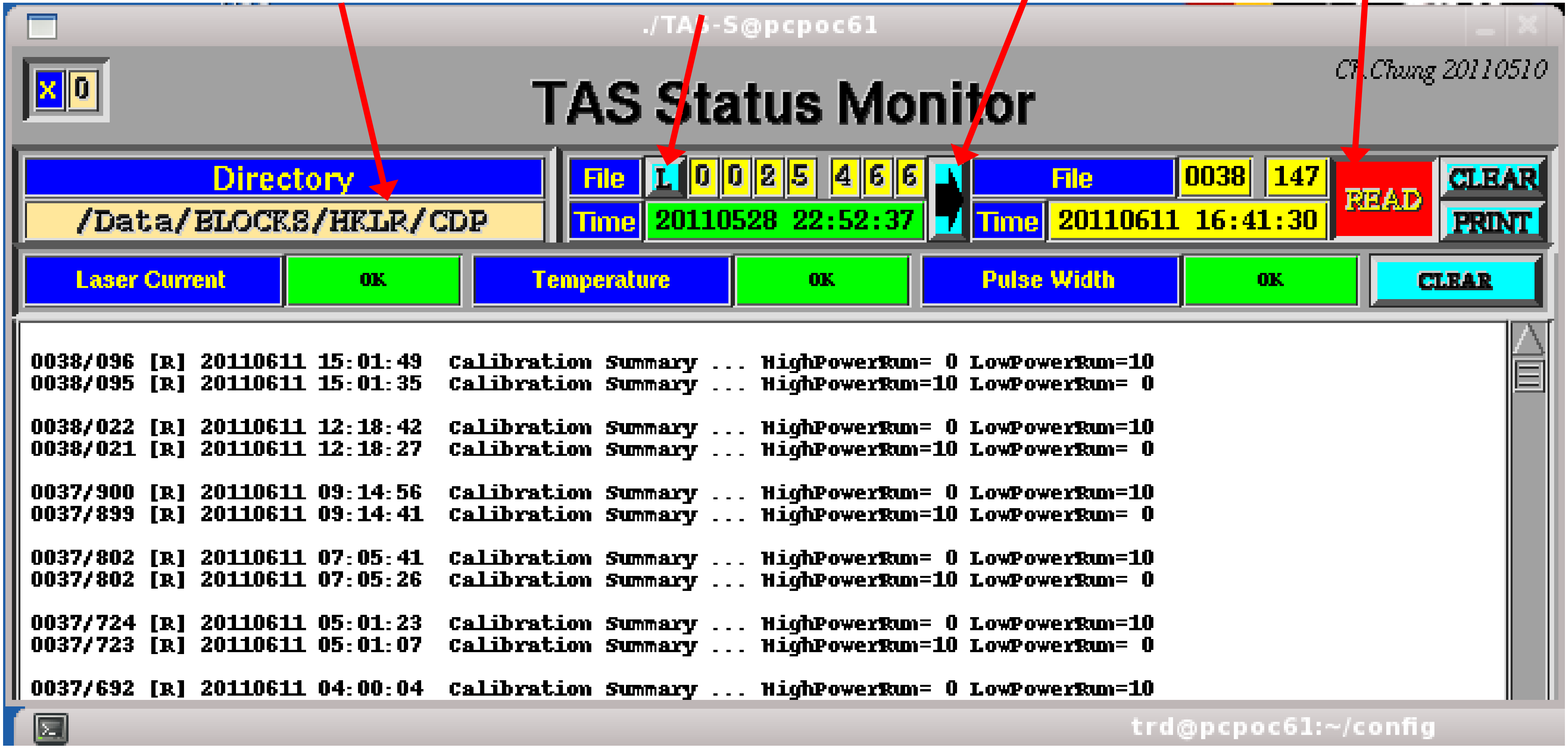
Configuration of TAS-S

Set Directory to /Data/BLOCKS/HKLR/CDP

Find Last File (left click on L)

Load for reading (left click)

Read continously (right click)



Directory: /Data/BLOCKS/HKLR/CDP

File: 0 0 2 5 4 6 6

Time: 20110528 22:52:37

File: 0038 147

Time: 20110611 16:41:30

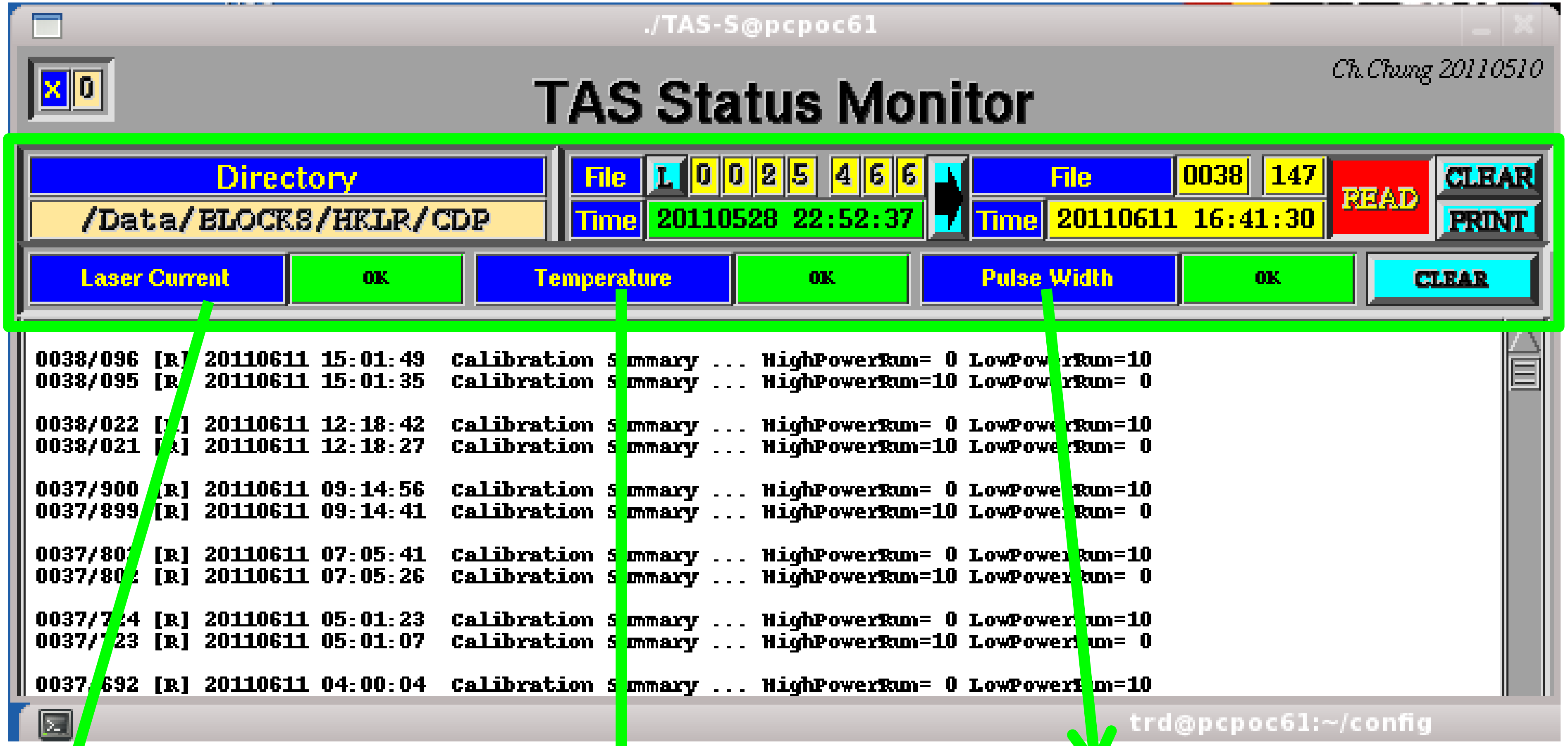
Laser Current: OK

Temperature: OK

Pulse Width: OK

```
0038/096 [R] 20110611 15:01:49  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0038/095 [R] 20110611 15:01:35  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0038/022 [R] 20110611 12:18:42  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0038/021 [R] 20110611 12:18:27  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/900 [R] 20110611 09:14:56  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0037/899 [R] 20110611 09:14:41  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/802 [R] 20110611 07:05:41  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0037/802 [R] 20110611 07:05:26  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/724 [R] 20110611 05:01:23  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0037/723 [R] 20110611 05:01:07  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/692 [R] 20110611 04:00:04  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
```

TAS-Monitoring Program TAS-S



TAS Status Monitor

Ch.Chung 20110510

Directory: /Data/BLOCKS/HKLR/CDP

File: L 0025 466 | Time: 20110528 22:52:37

File: 0038 147 | Time: 20110611 16:41:30

Laser Current: OK | Temperature: OK | Pulse Width: OK

```
0038/096 [R] 20110611 15:01:49  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0038/095 [R] 20110611 15:01:35  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0038/022 [R] 20110611 12:18:42  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0038/021 [R] 20110611 12:18:27  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/900 [R] 20110611 09:14:56  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0037/899 [R] 20110611 09:14:41  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/803 [R] 20110611 07:05:41  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0037/802 [R] 20110611 07:05:26  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/724 [R] 20110611 05:01:23  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0037/723 [R] 20110611 05:01:07  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/692 [R] 20110611 04:00:04  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
```

trd@pcpoc61:~/config

Laser Current
(20 Diodes)

Range = (5 / 120 mA)

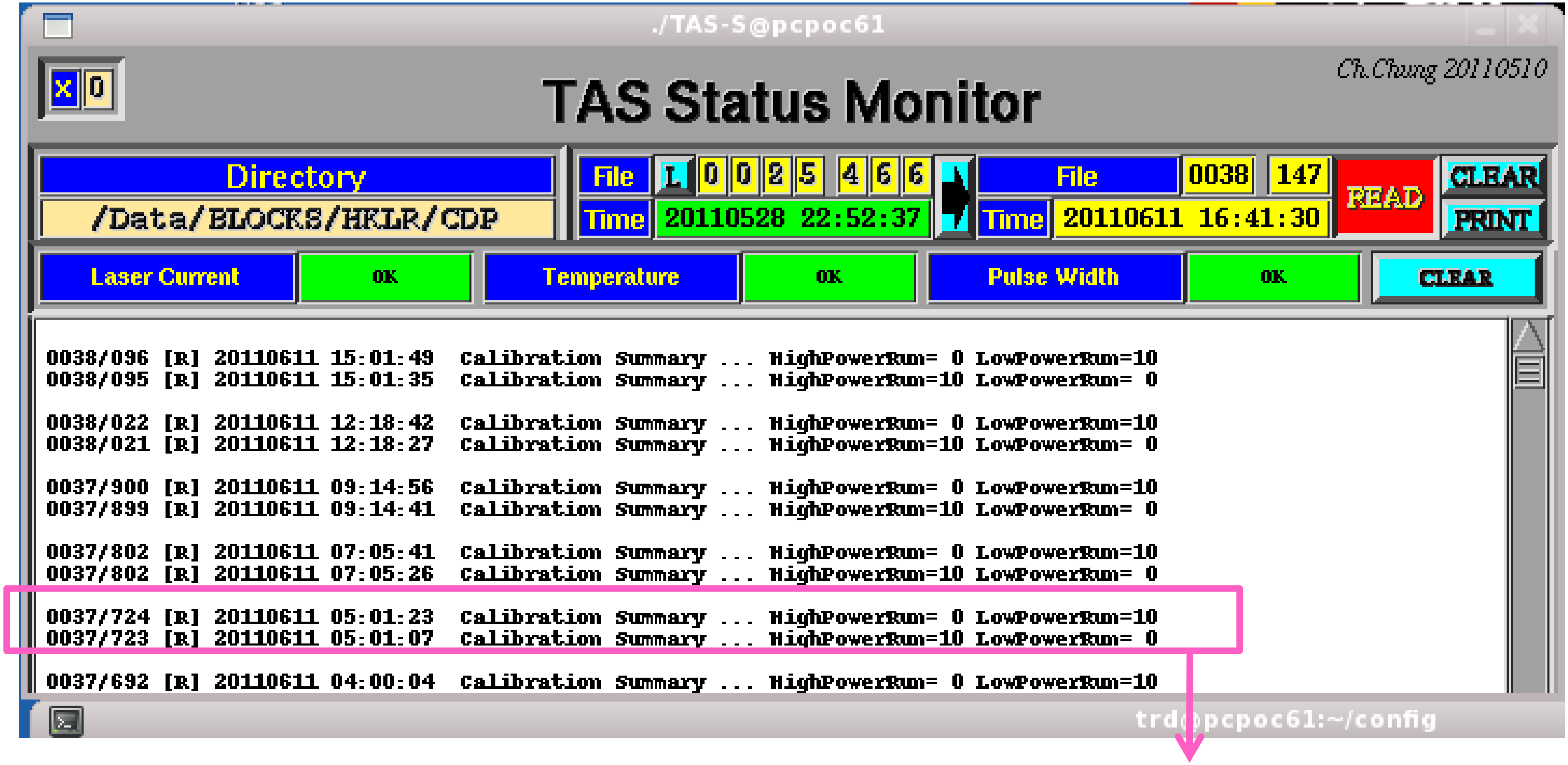
Temperature of LFCR
(5 LFCRs)

Range = (0 / +30 °C)

Laser Pulse Width
(20 Diodes)

Range = (0.5 - 5.0us)

TAS-Monitoring Program TAS-S



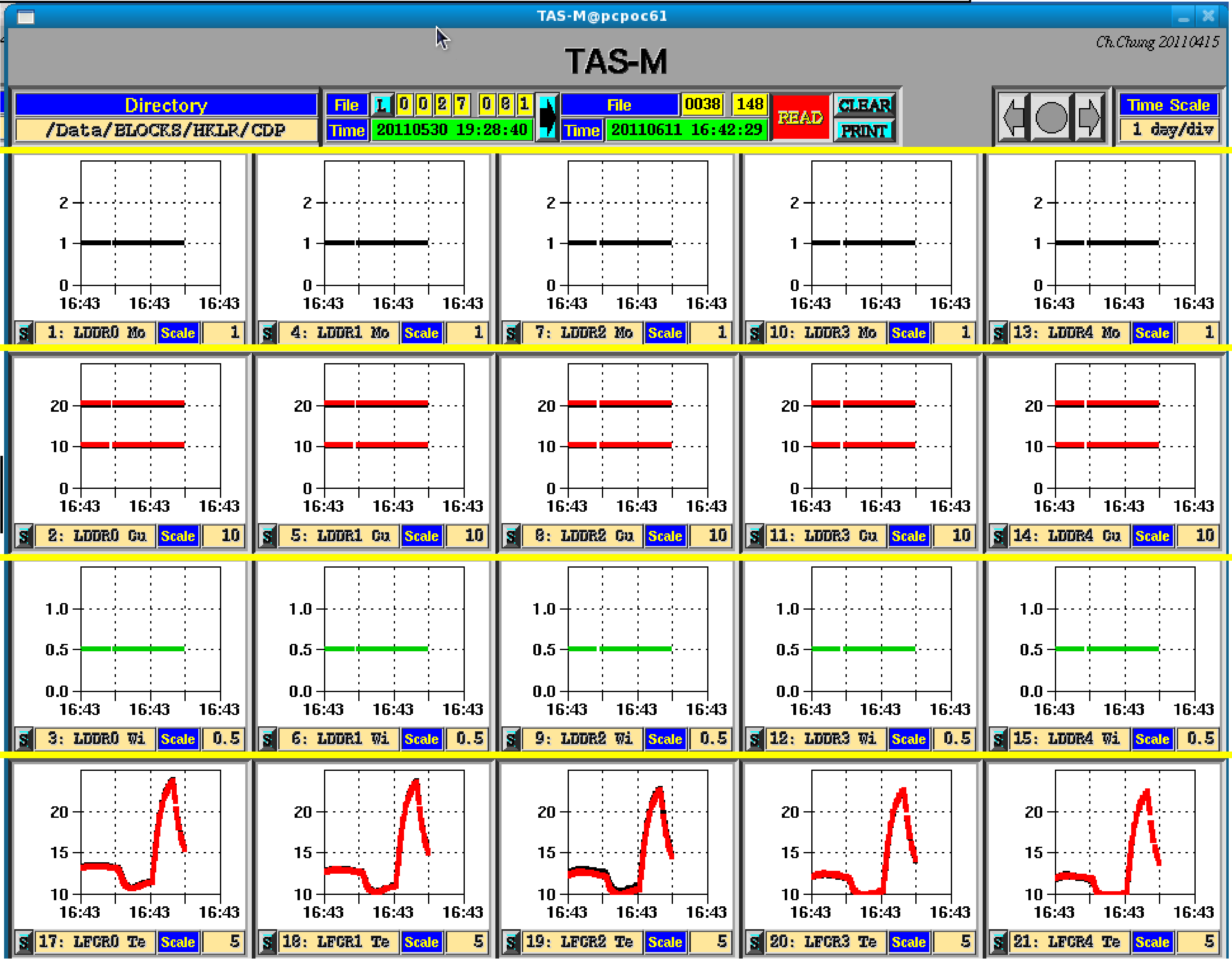
./TAS-S@pcpoc61
X 0
TAS Status Monitor
Ch.Chung 20110510
Directory
/Data/BLOCKS/HKLR/CDP
File
L 0 0 2 5 4 6 6
Time
20110528 22:52:37
File
0038 147
Time
20110611 16:41:30
READ
CLEAR
PRINT
Laser Current
OK
Temperature
OK
Pulse Width
OK
CLEAR
trd@pcpoc61:~/config

```
0038/096 [R] 20110611 15:01:49  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0038/095 [R] 20110611 15:01:35  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0038/022 [R] 20110611 12:18:42  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0038/021 [R] 20110611 12:18:27  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/900 [R] 20110611 09:14:56  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0037/899 [R] 20110611 09:14:41  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/802 [R] 20110611 07:05:41  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0037/802 [R] 20110611 07:05:26  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/724 [R] 20110611 05:01:23  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
0037/723 [R] 20110611 05:01:07  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

0037/692 [R] 20110611 04:00:04  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
```

TAS Calibration Sequences
(total 20 diode runs)

10 diodes with 20 mA
10 diodes with 10 mA
one each time a HV adjustment is performed

TAS-Monitoring Program: TAS-M



TAS-M@pcpoc61

TAS-M

Ch.Chung 20110415

Directory: /Data/BLOCKS/HKLR/CDP

File: L 0 0 2 7 0 8 1

Time: 20110530 19:28:40

File: 0038 148

Time: 20110611 16:42:29

Time Scale: 1 day/div

READ
CLEAR
PRINT
16:43
1: LDDR0 Mo Scale 1
4: LDDR1 Mo Scale 1
7: LDDR2 Mo Scale 1
10: LDDR3 Mo Scale 1
13: LDDR4 Mo Scale 1
2: LDDR0 Cu Scale 10
5: LDDR1 Cu Scale 10
8: LDDR2 Cu Scale 10
11: LDDR3 Cu Scale 10
14: LDDR4 Cu Scale 10
3: LDDR0 Wi Scale 0.5
6: LDDR1 Wi Scale 0.5
9: LDDR2 Wi Scale 0.5
12: LDDR3 Wi Scale 0.5
15: LDDR4 Wi Scale 0.5
17: LFCR0 Te Scale 5
18: LFCR1 Te Scale 5
19: LFCR2 Te Scale 5
20: LFCR3 Te Scale 5
21: LFCR4 Te Scale 5

Operation Mode
0:Int, 1:Ext-A, 2:Ext-B
Default = 1 or 2

Laser Currents
Default = 20 & 10 mA

Laser PulseWidth
Default = 0.5 us

Diode Temperatures

LFCR 0

LFCR 1

LFCR 2

LFCR3

LFCR 4

TAS-Trouble Shooting

Out of Current/Width Range
(I = 10 - 20 mA, w – 0.5 us)

→ Ask LEAD not to perform any TAS calibrations, then check TAS Configuration: (TAS Config: https://ams.cern.ch/AMS/DAQ/ams02_cmds/TAS/TAS_20runs.txt)

Out of Temperature Range
Nominal 0^{o}C to 30^{o}C

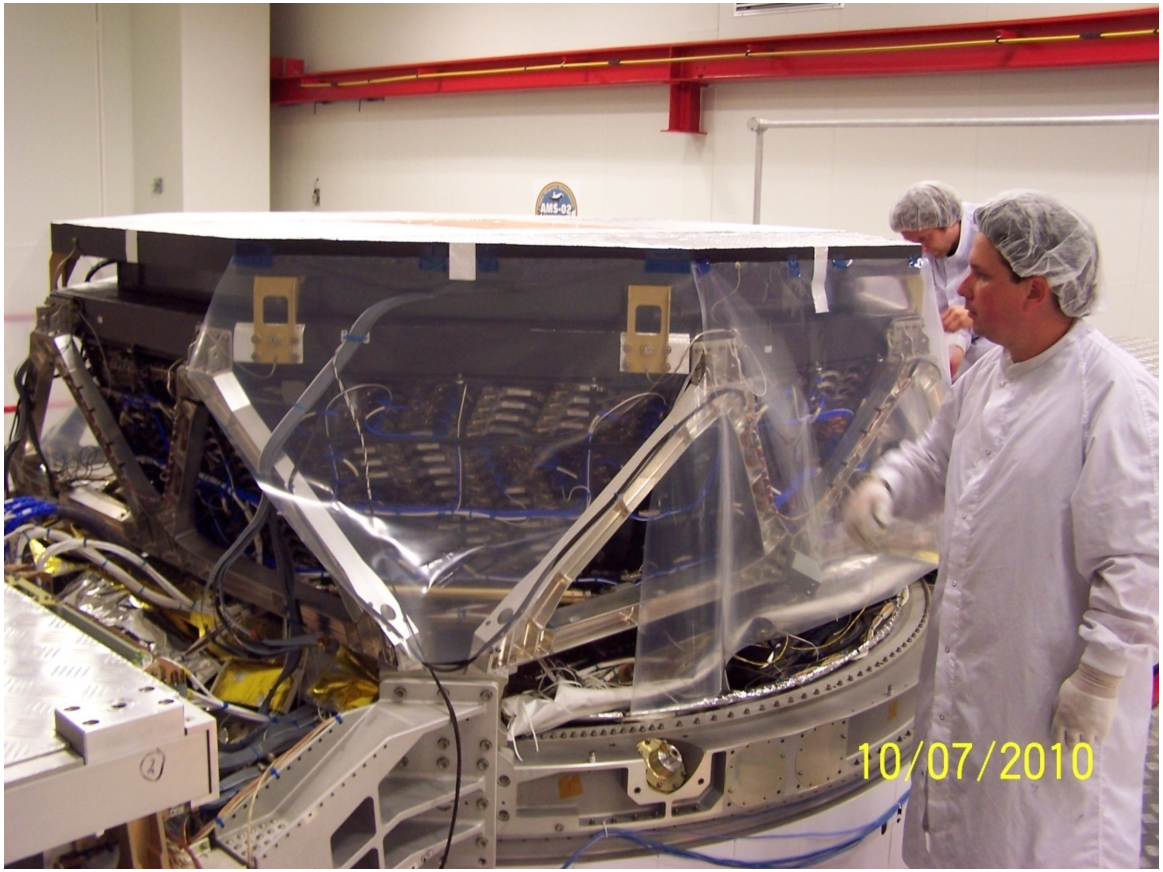
→ Ask LEAD to check status of TRD Heaters (PDS) and then request no more TAS runs until temperature comes back within operating range.

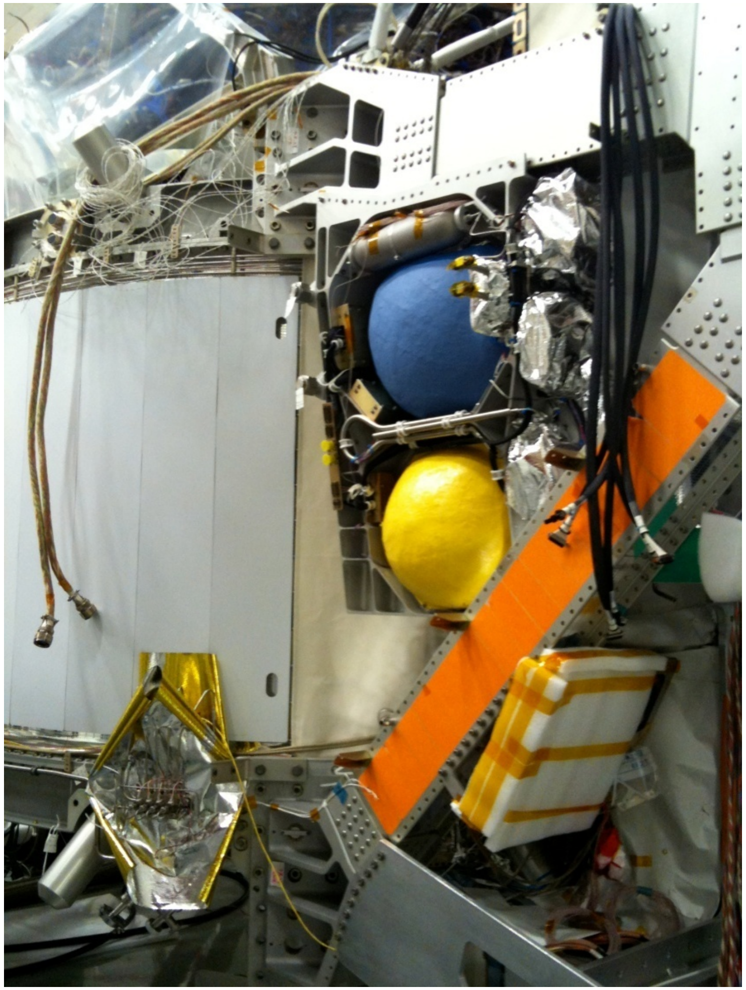
20 Diodes Runs / TAS Run
10 x 20mA + 10 x 10mA Runs

→ Report to LEAD about missing runs. If all ok, watch TAS run for next day. If problem repeats contact TAS experts.

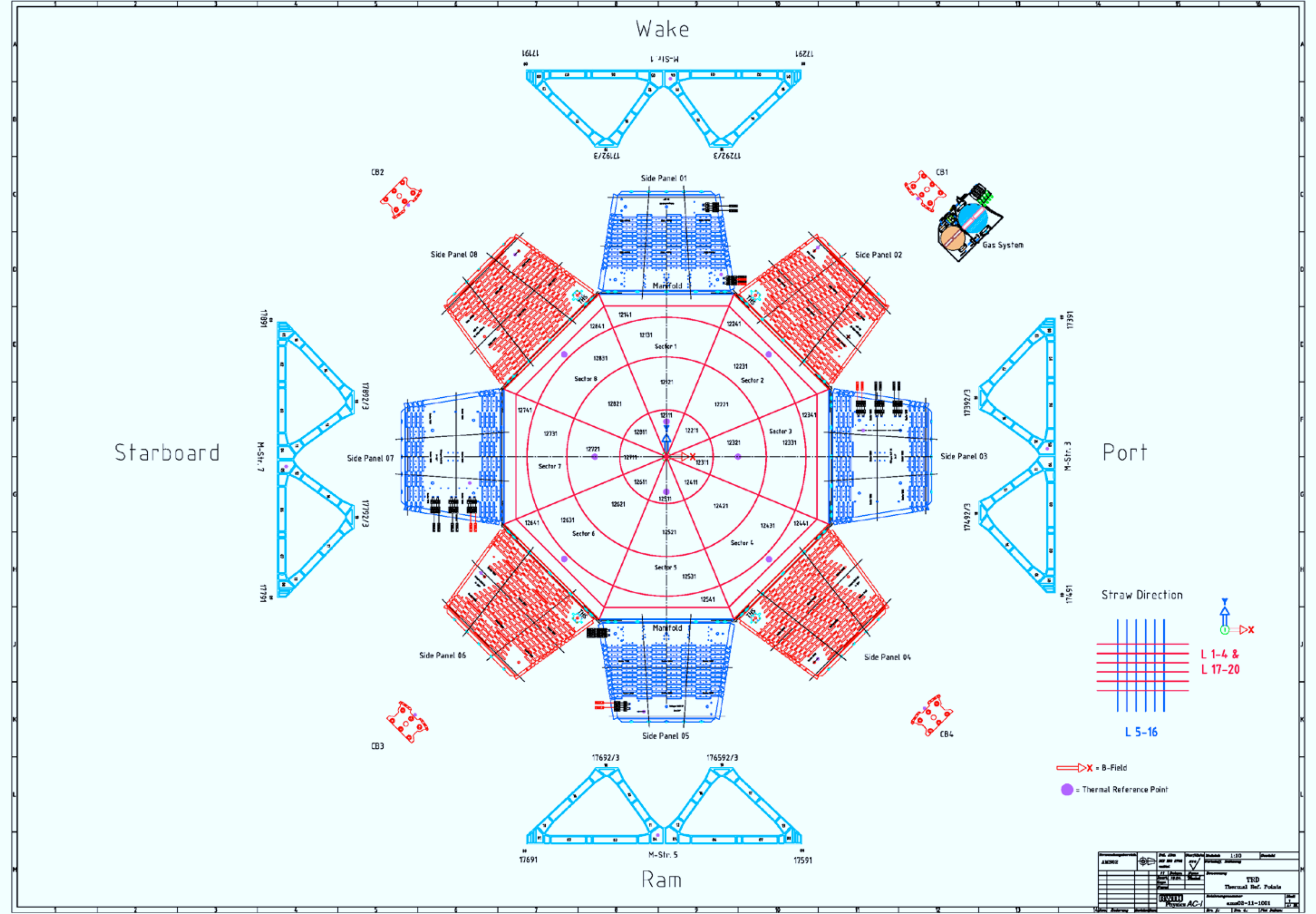
In case of problems
make an entry in elog.

TRD/TRDGas-System

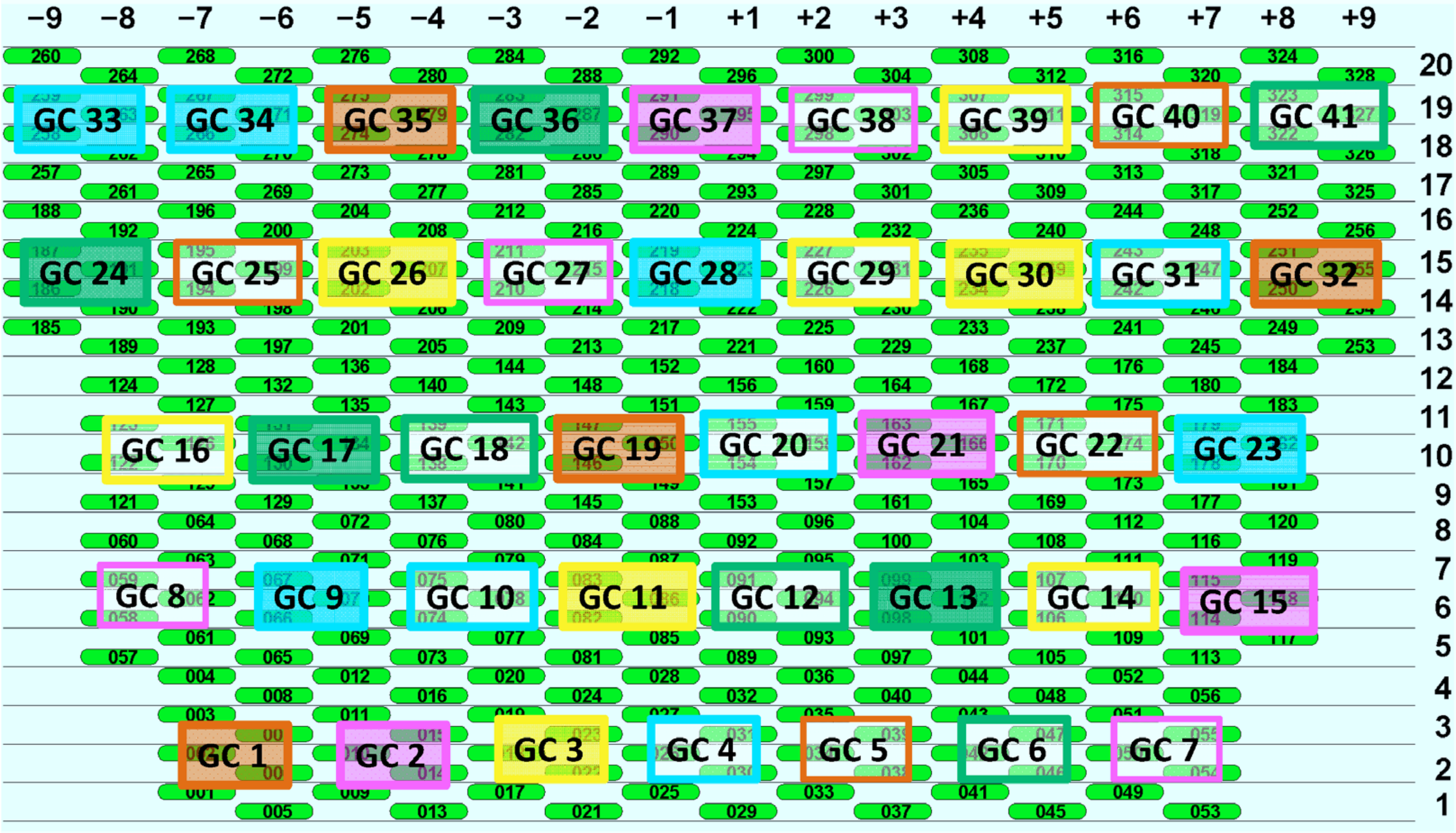

AMS-02
10/07/2010



TRD/TRDGas-System


Wake
M-Str. 1
17191
17291
17192/3
17292/3
CB2
CB1
Gas System
Side Panel 01
Side Panel 08
Side Panel 02
Manifold
Sector 1
Sector 2
Sector 3
Sector 4
Sector 5
Sector 6
Sector 7
Sector 8
Starboard
M-Str. 7
17891
17892/3
17792/3
17791
Side Panel 07
Side Panel 03
Port
M-Str. 3
17391
17392/3
17492/3
17491
Side Panel 06
Side Panel 04
Manifold
Side Panel 05
CB3
CB4
17692/3
176592/3
M-Str. 5
17691
17591
Ram
Straw Direction
L 1-4 &
L 17-20
L 5-16
X
= B-Field
= Thermal Reference Point
1:10
TRD
Thermal Ref. Points
ams02-11-1001
Physics AC-I

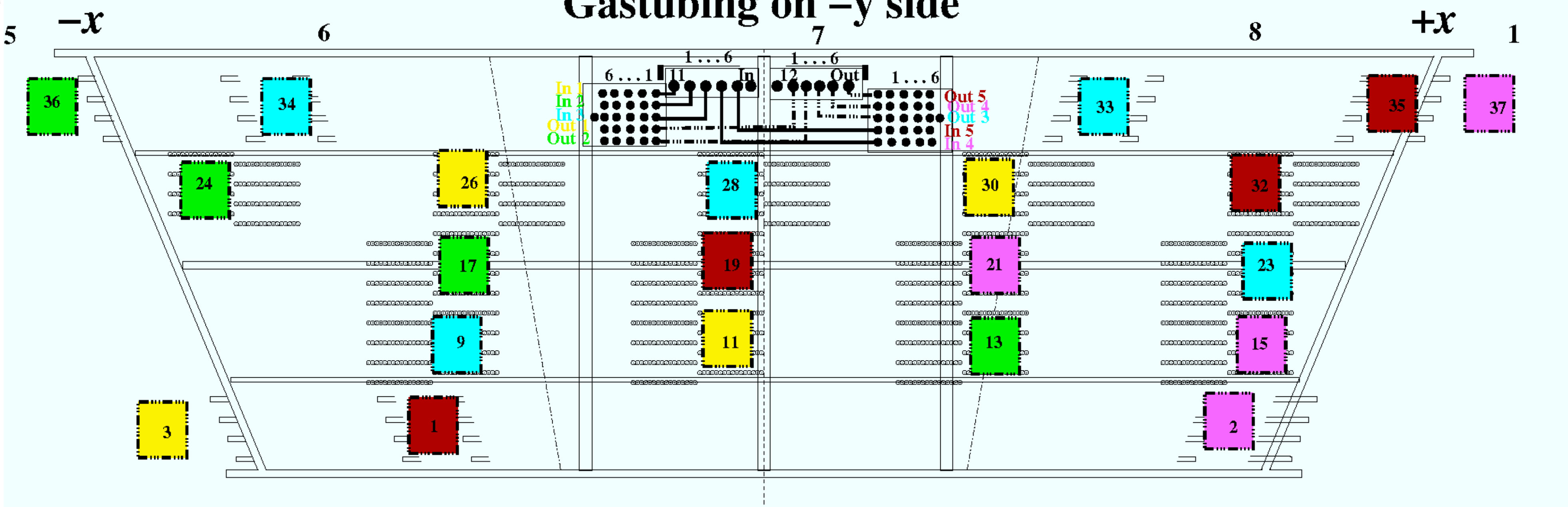
TRD/TRDGas-System



−9 −8 −7 −6 −5 −4 −3 −2 −1 +1 +2 +3 +4 +5 +6 +7 +8 +9
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
GC 33
GC 34
GC 35
GC 36
GC 37
GC 38
GC 39
GC 40
GC 41
GC 24
GC 25
GC 26
GC 27
GC 28
GC 29
GC 30
GC 31
GC 32
GC 16
GC 17
GC 18
GC 19
GC 20
GC 21
GC 22
GC 23
GC 8
GC 9
GC 10
GC 11
GC 12
GC 13
GC 14
GC 15
GC 1
GC 2
GC 3
GC 4
GC 5
GC 6
GC 7
260 268 276 284 292 300 308 316 324
264 272 280 288 296 304 312 320 328
257 265 273 281 289 297 305 313 321
261 269 277 285 293 301 309 317 325
188 196 204 212 220 228 236 244 252
192 200 208 216 224 232 240 248 256
185 193 201 209 217 225 233 241 249
189 197 205 213 221 229 237 245 253
128 136 144 152 160 168 176 184
124 132 140 148 156 164 172 180
127 135 143 151 159 167 175 183
121 129 137 145 153 161 169 177
064 072 080 088 096 104 112 120
060 068 076 084 092 100 108 116
061 069 077 085 093 101 109
057 065 073 081 089 097 105 113
004 012 020 028 036 044 052
008 016 024 032 040 048 056
003 011
009 017 025 033 041 049
005 013 021 029 037 045 053

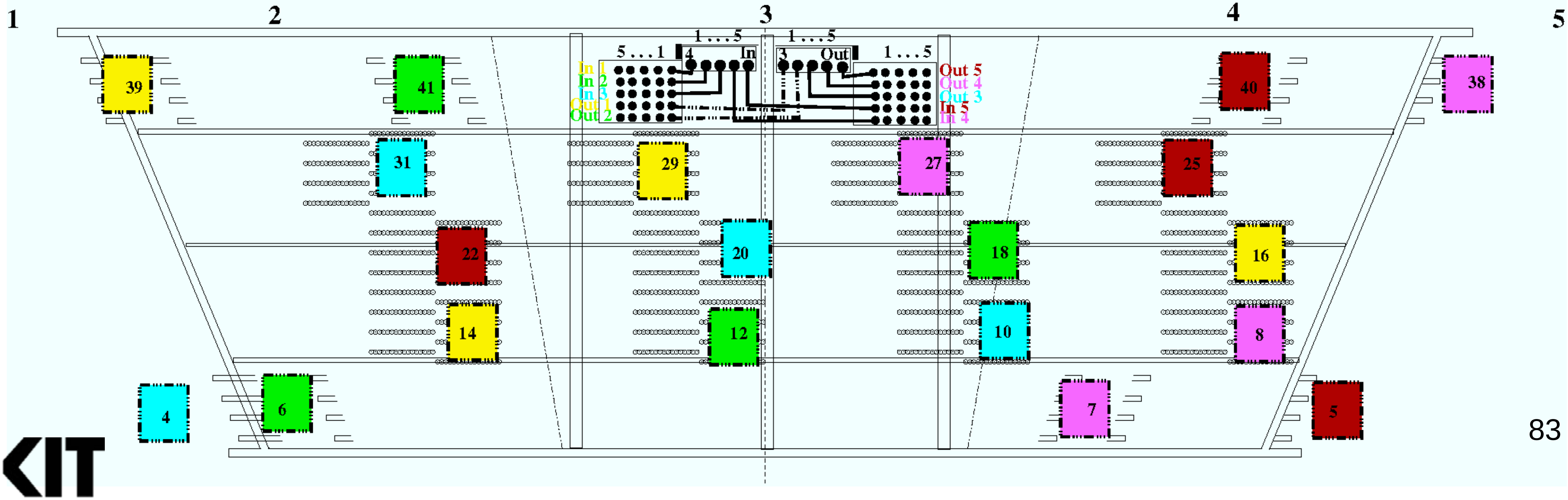
TRD/TRDGas-System

Gastubing on −y side



5
−x
6
7
8
+x
1
1…6
1…6
6…1
11
In
12
Out
1…6
In 1
In 2
In 3
Out 1
Out 2
Out 5
Out 4
Out 3
In 5
In 4
36
34
33
35
37
24
26
28
30
32
17
19
21
23
9
11
13
15
3
1
2

Gastubing on +y side

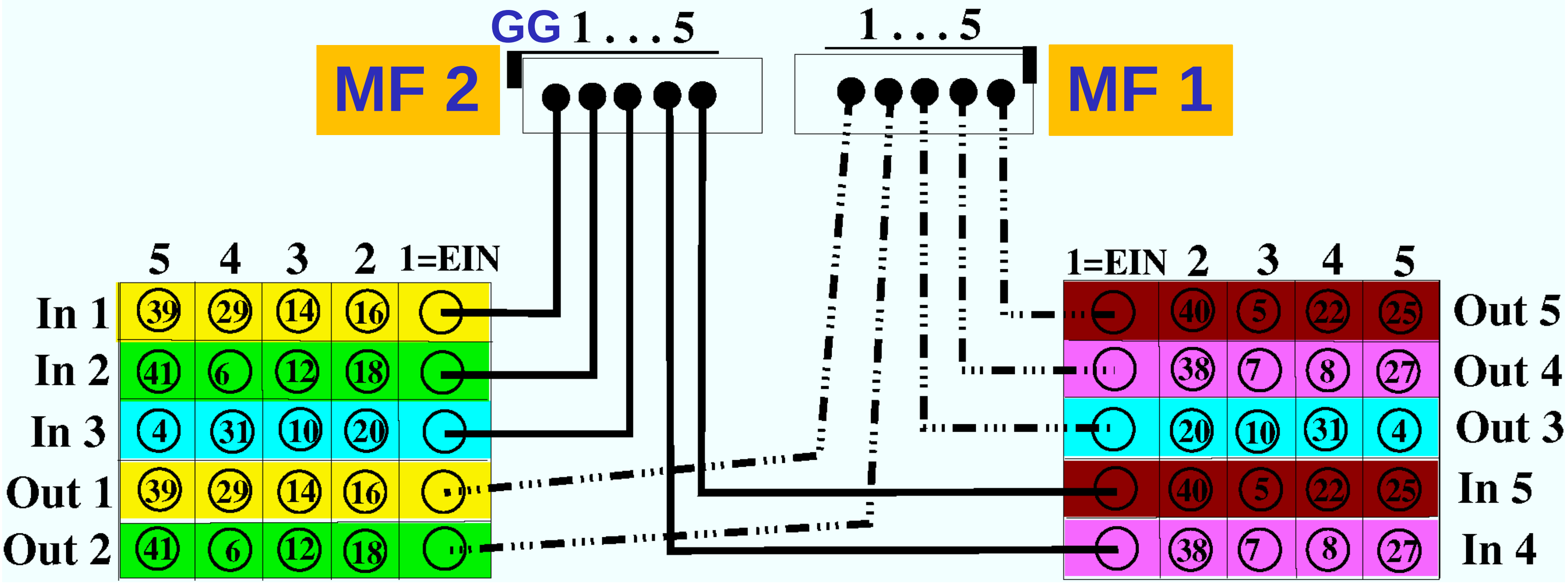


+x
−x
1
2
3
4
5
1…5
1…5
5…1
4
In
3
Out
1…5
In 1
In 2
In 3
Out 1
Out 2
Out 5
Out 4
Out 3
In 5
In 4
39
41
40
38
31
29
27
25
22
20
18
16
14
12
10
8
4
6
7
5

TRD/TRDGas-System

Gastubing on +y side

Wall 3 (SP 01, WAKE)

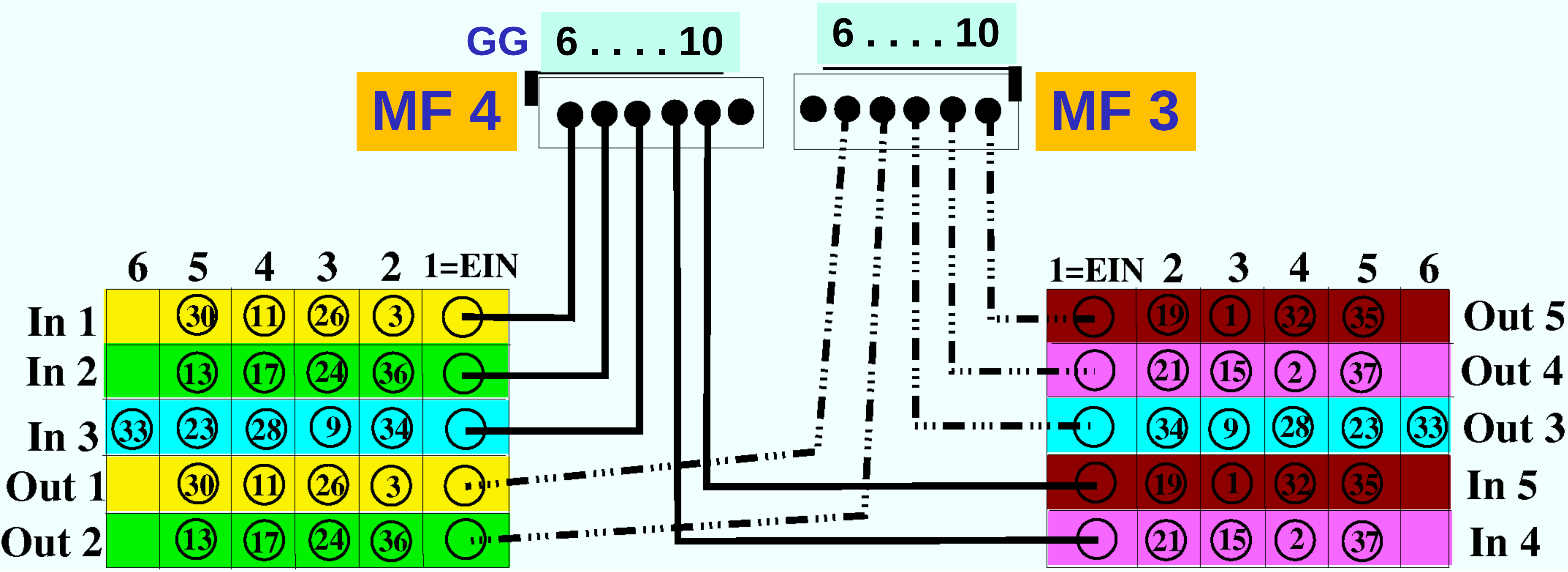


	5	4	3	2	1=EIN
In 1	㊴	㉙	⑭	⑯	○
In 2	㊶	⑥	⑫	⑱	○
In 3	④	㉛	⑩	⑳	○
Out 1	㊴	㉙	⑭	⑯	○
Out 2	㊶	⑥	⑫	⑱	○

1=EIN	2	3	4	5	
○	㊵	⑤	㉒	㉕	Out 5
○	㊳	⑦	⑧	㉗	Out 4
○	⑳	⑩	㉛	④	Out 3
○	㊵	⑤	㉒	㉕	In 5
○	㊳	⑦	⑧	㉗	In 4

Gastubing on –y side

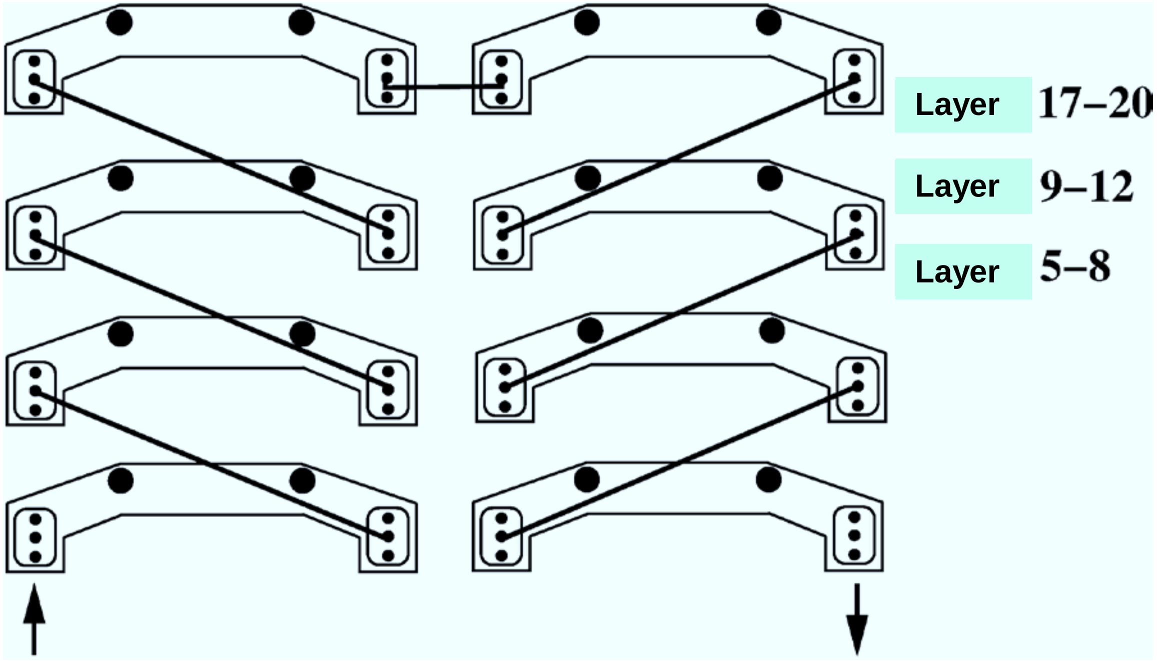
Wall 7 (SP 05 , RAM)

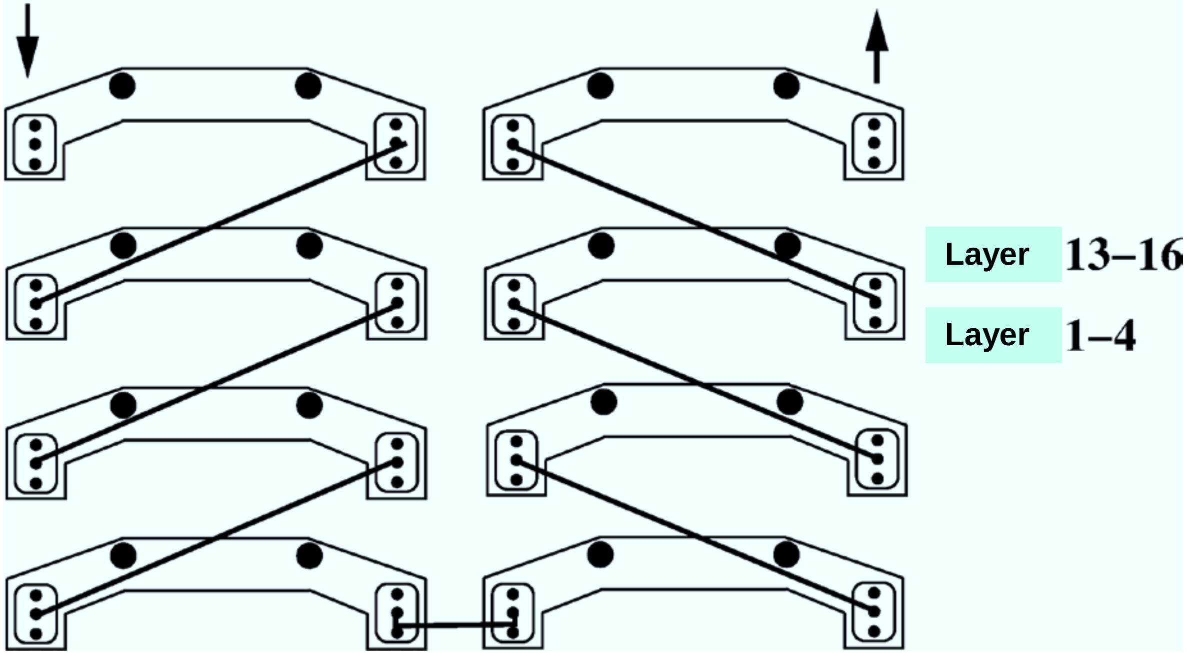


	6	5	4	3	2	1=EIN
In 1		㉚	⑪	㉖	③	○
In 2		⑬	⑰	㉔	㊱	○
In 3	㉝	㉓	㉘	⑨	㉞	○
Out 1		㉚	⑪	㉖	③	○
Out 2		⑬	⑰	㉔	㊱	○

1=EIN	2	3	4	5	6	
○	⑲	①	㉜	㉟		Out 5
○	㉑	⑮	②	㊲		Out 4
○	㉞	⑨	㉘	㉓	㉝	Out 3
○	⑲	①	㉜	㉟		In 5
○	㉑	⑮	②	㊲		In 4

TRD/TRDGas-System


Layer 17–20
Layer 9–12
Layer 5–8


Layer 13–16
Layer 1–4

TRD/TRDGas-System

Manifold In /Out	GG	Passive MF In / Out	Ch	GC	Straw Modules
MF 2/1	1	1 / 1	2	16	121-124
					125-128
			3	14	105-108
					109-112
			4	29	225-228
					229-232
			5	39	305-308
					309-312

Manifold In /Out	GG	Passive MF In / Out	Ch	GC	Straw Modules
MF 2/1	2	2 / 2	2	18	137-140
					141-144
			3	12	89-92
					93-96
			4	6	41-44
					45-48
			5	41	321-324
					325-328

TRD/TRDGas-System

Manifold In /Out	GG	Passive MF In / Out	Ch	GC	Straw Modules
MF 2/1	3	3 / 3	2	20	153-156
					157-160
			3	10	73-76
					77-80
			4	31	241-244
					245-248
			5	4	25-28
					29-32

Manifold In /Out	GG	Passive MF In / Out	Ch	GC	Straw Modules
MF 2/1	4	4 / 4	2	38	297-300
					301-304
			3	7	49-52
					53-56
			4	8	57-60
					61-64
			5	27	209-212
					213-216

TRD/TRDGas-System

Manifold In /Out	GG	Passive MF In / Out	Ch	GC	Straw Modules
MF 2/1	5	5/5	2	40	313-316
					317-320
			3	5	33-36
					37-40
			4	22	169-172
					173-176
			5	25	193-196
					197-200

Manifold In /Out	GG	Passive MF In / Out	Ch	GC	Straw Modules
MF 4/3	1	1 / 1	2	3	17-20
					21-24
			3	26	201-204
					205-208
			4	11	81-84
					85-88
			5	30	233-236
					237-240

TRD/TRDGas-System

Manifold In /Out	**GG**	**Passive MF In / Out**	**Ch**	**GC**	**Straw Modules**
MF 4/3	2	2 / 2	2	36	281-284
					285-288
			3	24	185-188
					189-192
			4	17	129-132
					133-136
			5	13	97-100
					101-104

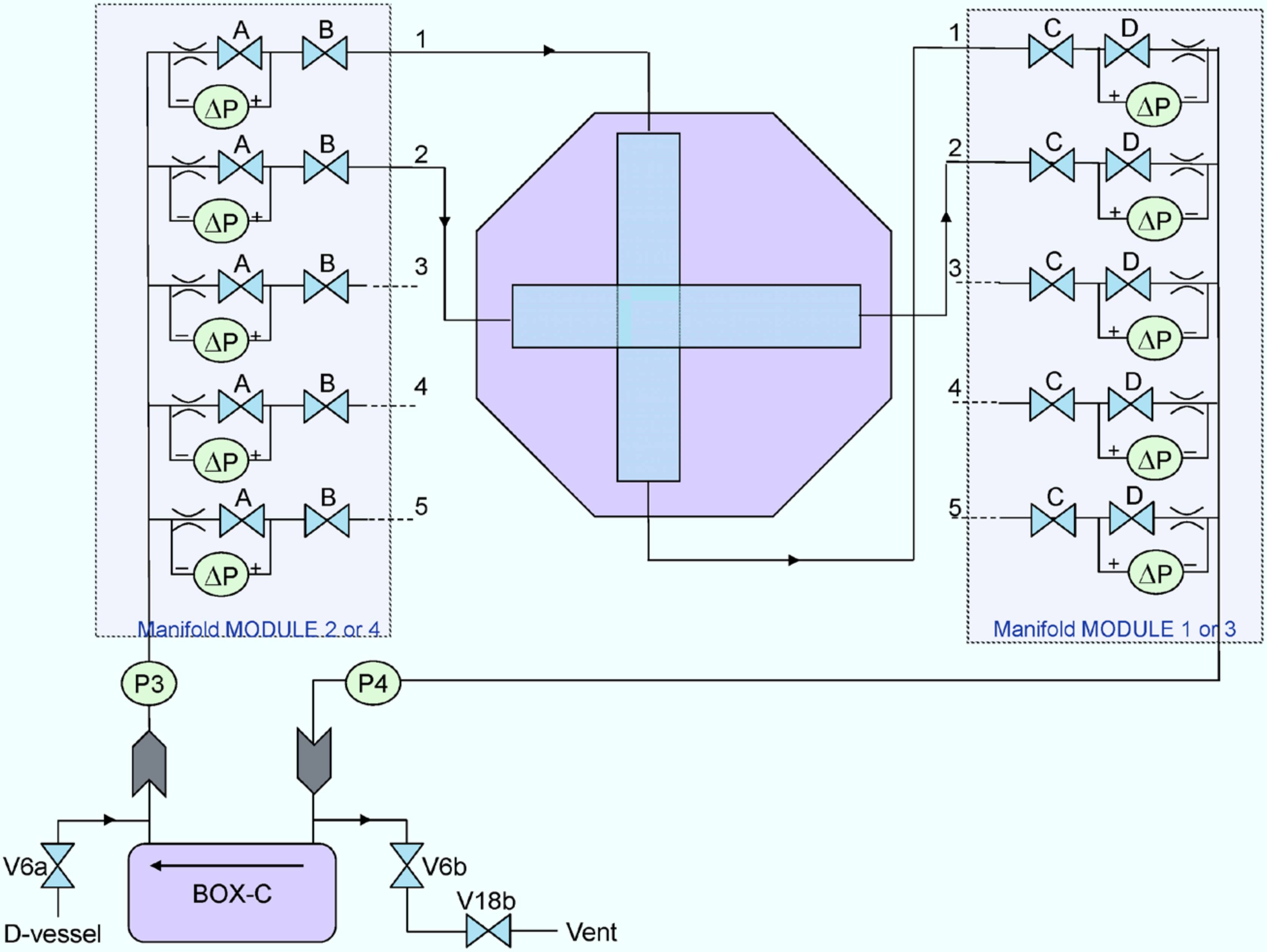
Manifold In /Out	**GG**	**Passive MF In / Out**	**Ch**	**GC**	**Straw Modules**
MF 4/3	3	3 / 3	2	34	265-268
					269-272
			3	9	65-68
					69-72
			4	28	217-220
					221-224
			5	23	177-180
					181-184
			6	33	257-260
					261-264

TRD/TRDGas-System

Manifold In /Out	GG	Passive MF In / Out	Ch	GC	Straw Modules
MF 4/3	4	4 / 4	2	21	161-164
					165-168
			3	15	113-116
					117-120
			4	2	9-12
					13-16
			5	37	289-292
					293-296

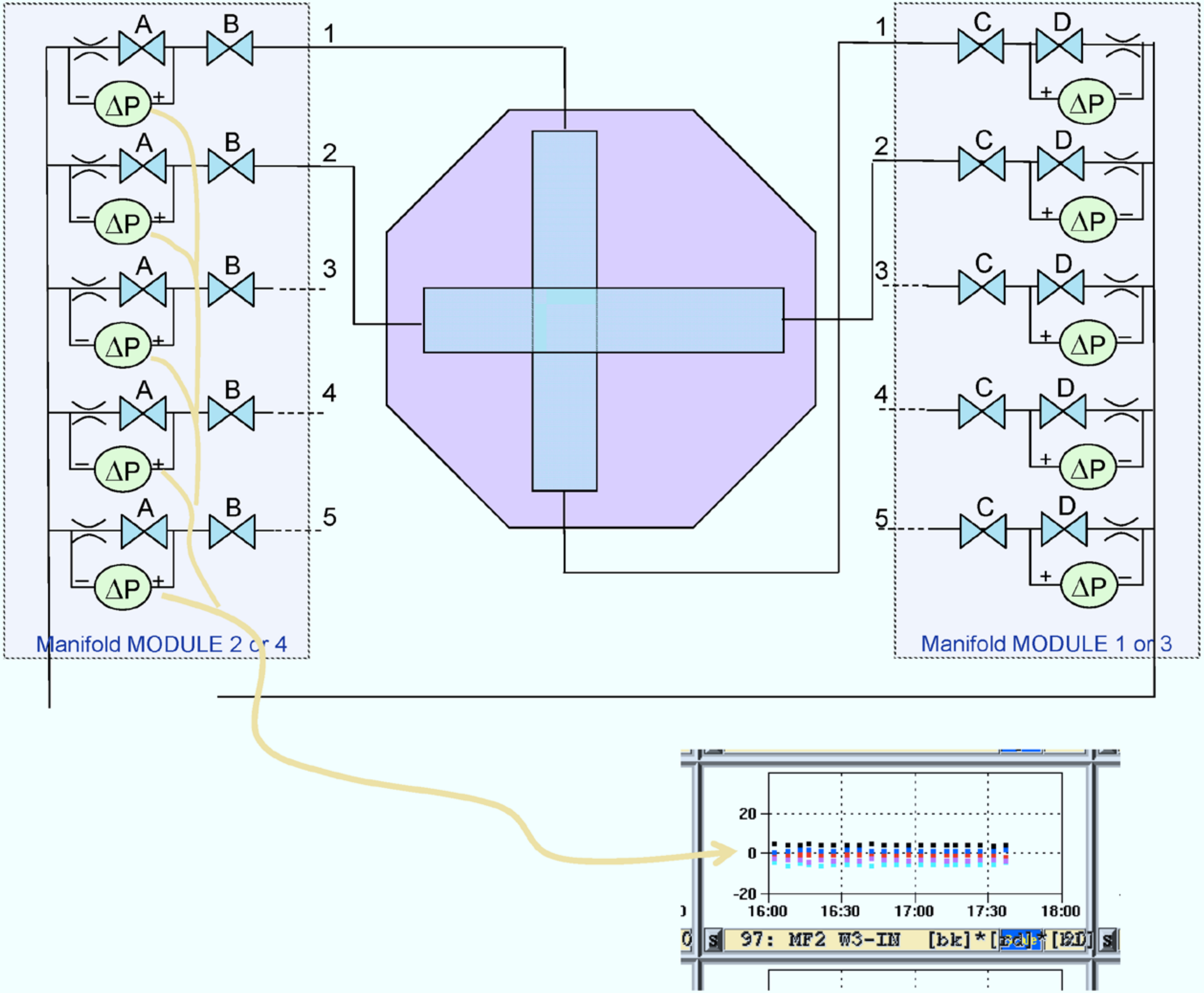
Manifold In /Out	GG	Passive MF In / Out	Ch	GC	Straw Modules
MF 4/3	5	5/5	2	19	145-148
					149-152
			3	1	1-4
					5-8
			4	32	249-252
					253-256
			5	35	273-276
					277-280

TRDGas-System

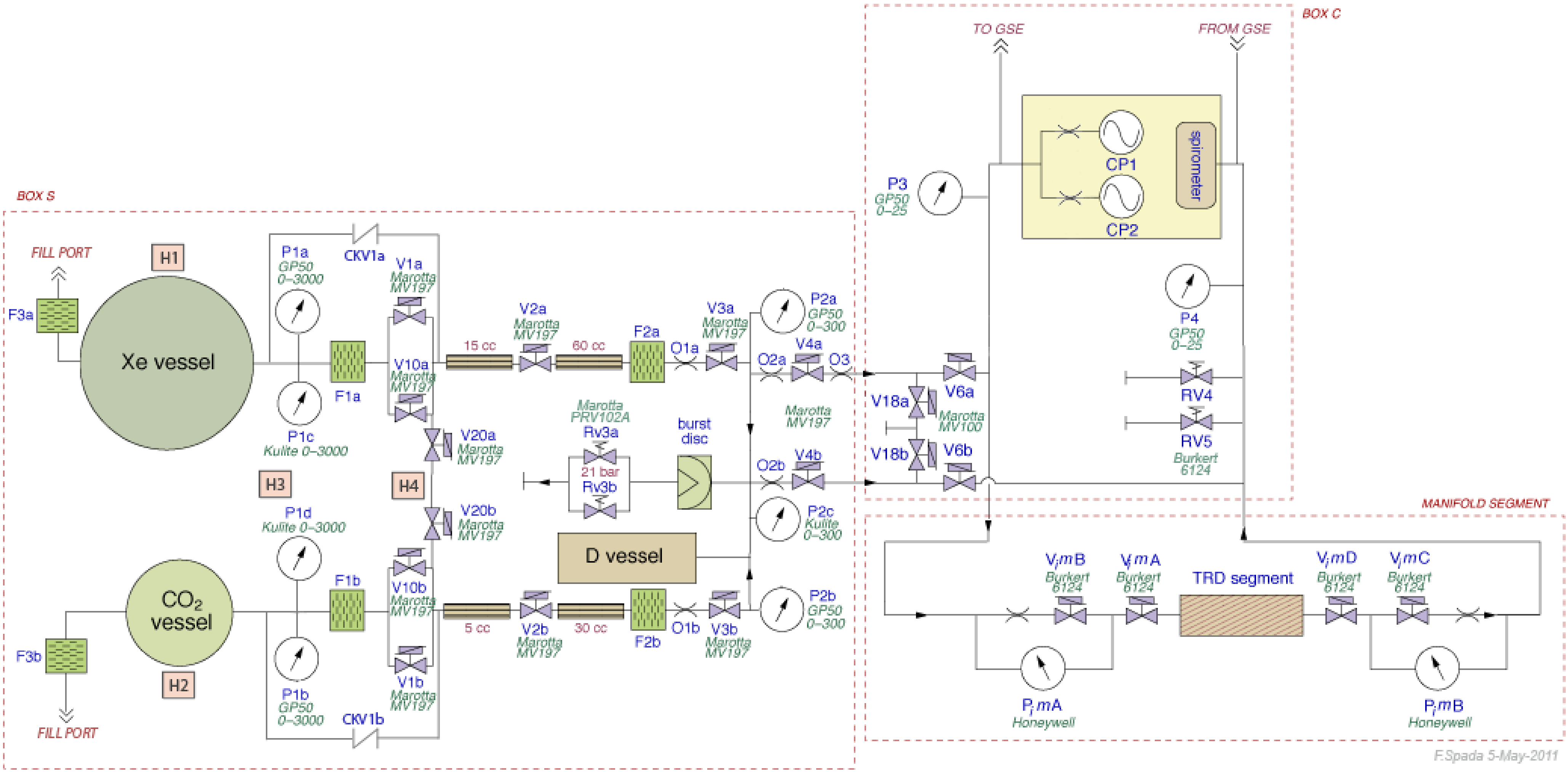


A
B
1
ΔP
2
3
4
5
C
D
Manifold MODULE 2 or 4
Manifold MODULE 1 or 3
P3
P4
V6a
D-vessel
BOX-C
V6b
V18b
Vent

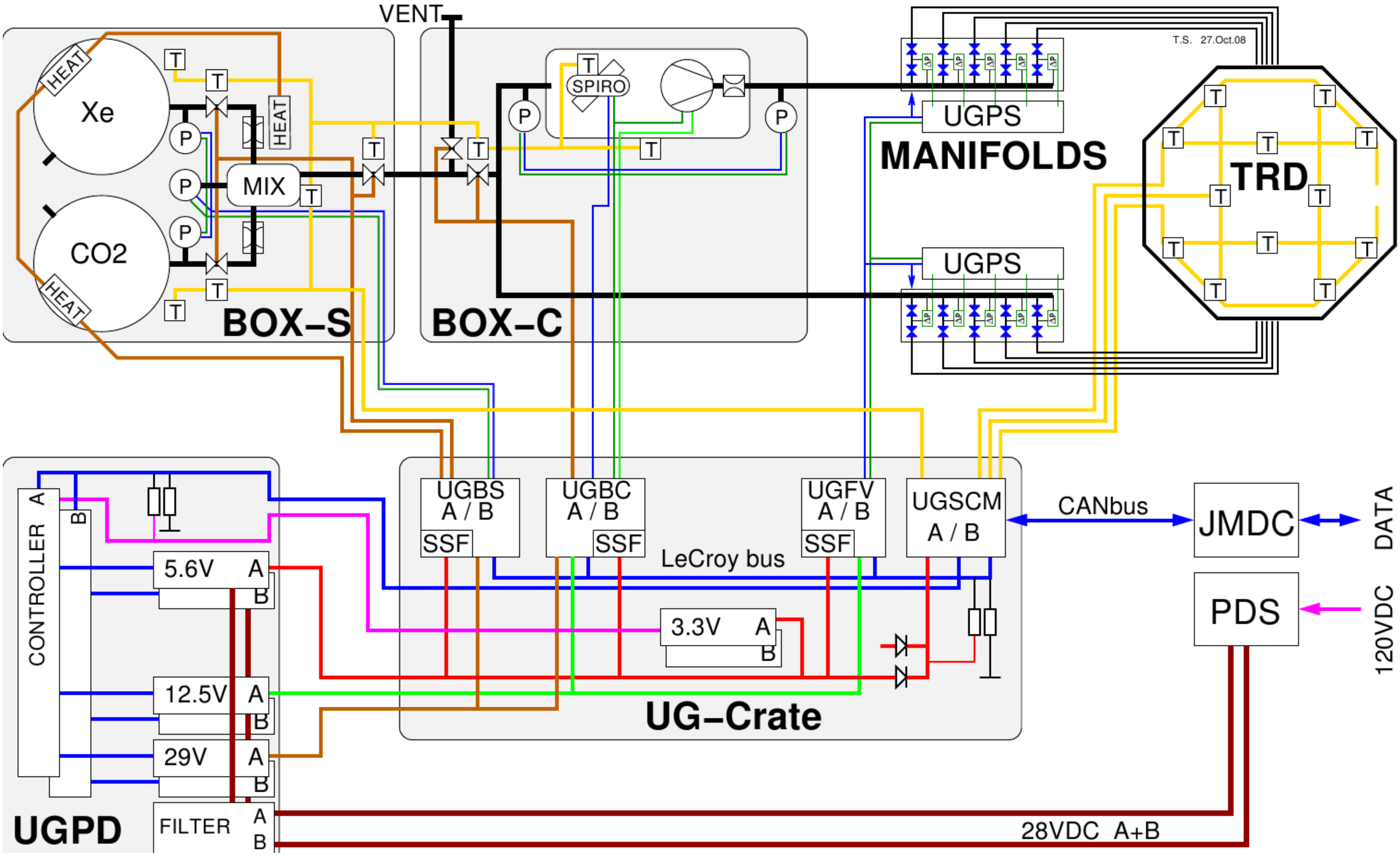
TRDGas-System


A
B
ΔP
−
+
1
2
3
4
5
C
D
Manifold MODULE 2 or 4
Manifold MODULE 1 or 3
20
0
-20
16:00
16:30
17:00
17:30
18:00
s
97: MF2 W3-IN [bk]*[

TRDGas-System

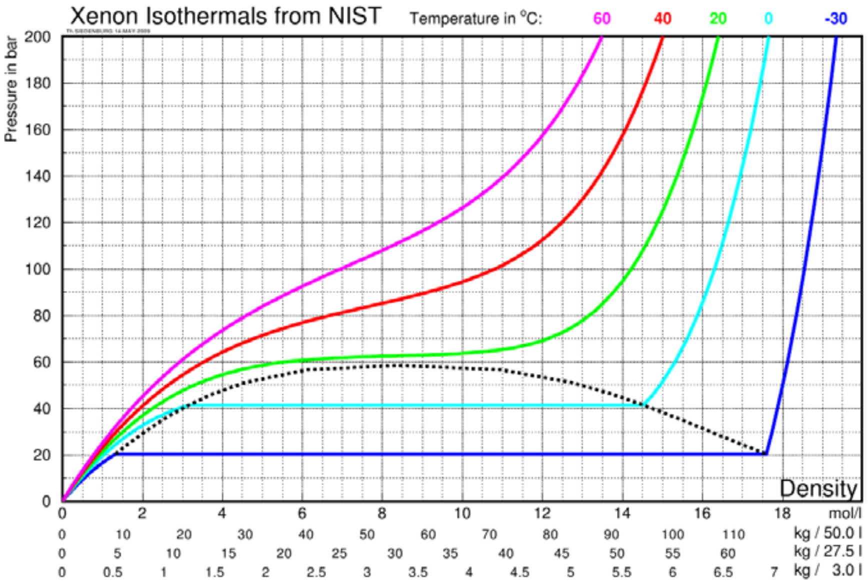

BOX S
BOX C
TO GSE
FROM GSE
MANIFOLD SEGMENT
FILL PORT
F3a
H1
Xe vessel
P1a
GP50
0–3000
CKV1a
V1a
Marotta
MV197
F1a
P1c
Kulite 0–3000
V10a
Marotta
MV197
15 cc
V2a
Marotta
MV197
60 cc
F2a
O1a
V3a
Marotta
MV197
P2a
GP50
0–300
V4a
O2a
O3
V20a
Marotta
MV197
Marotta
PRV102A
Rv3a
21 bar
Rv3b
burst
disc
Marotta
MV197
O2b
V4b
H3
H4
P1d
Kulite 0–3000
V20b
Marotta
MV197
D vessel
P2c
Kulite
0–300
CO$_2$
vessel
F3b
H2
FILL PORT
F1b
V10b
Marotta
MV197
5 cc
V2b
Marotta
MV197
30 cc
F2b
O1b
V3b
Marotta
MV197
P2b
GP50
0–300
P1b
GP50
0–3000
CKV1b
V1b
Marotta
MV197
P3
GP50
0–25
CP1
CP2
spirometer
P4
GP50
0–25
V18a
V6a
Marotta
MV100
V18b
V6b
RV4
RV5
Burkert
6124
V$_i$mB
Burkert
6124
V$_i$mA
Burkert
6124
TRD segment
V$_i$mD
Burkert
6124
V$_i$mC
Burkert
6124
P$_i$mA
Honeywell
P$_i$mB
Honeywell
F.Spada 5-May-2011

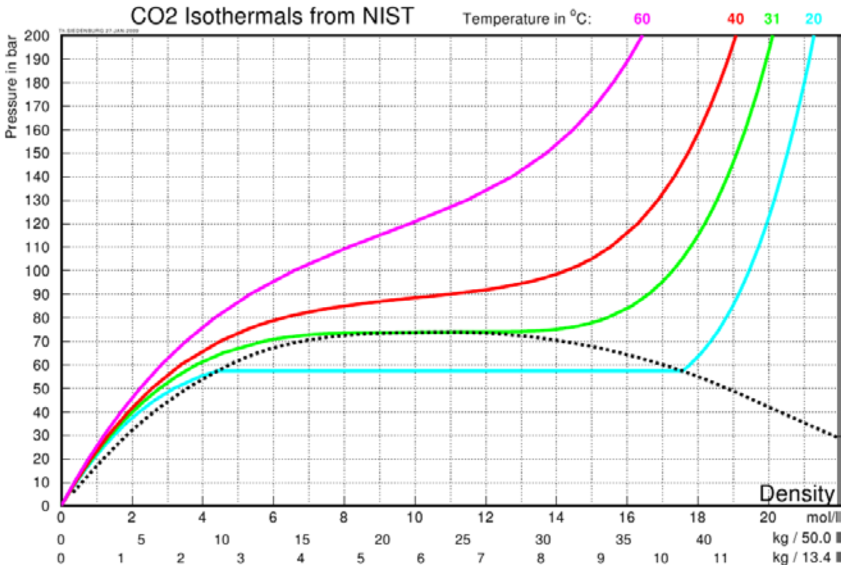
TRD/TRDGas-System


VENT
T.S. 27.Oct.08
HEAT
Xe
CO2
HEAT
HEAT
T
P
MIX
BOX–S
SPIRO
BOX–C
UGPS
MANIFOLDS
UGPS
ΔP
TRD
UGBS A / B
SSF
UGBC A / B
SSF
UGFV A / B
SSF
UGSCM A / B
LeCroy bus
CANbus
JMDC
DATA
PDS
120VDC
3.3V A B
UG–Crate
CONTROLLER A
B
5.6V A B
12.5V A B
29V A B
FILTER A B
UGPD
28VDC A+B

TRDGAS Supply Vessel Limits

Supply Vessels: Pressure-Temperature dependency





Vessel:	Xenon	CO2	MIX
100% Fill Level:	48kg	5kg	
Max.Op.Press.	175bar	100bar	**14bar**
Max.Des.Press.	**207bar**	**220bar**	20bar
Proof Press.	335Bar	330bar	40bar
Burst Press.	645Bar	440bar	80bar
Min.Des.Temp.	**-70°C**	-70°C	
Max.Des.Temp.	**+65°C**	**+65°C**	
Gas Freezing	-110°C	**-55°C**	

TRDGAS Sensor Value Limits

UG-Supply-Current [92] Monitoring: 0.6A
Pump HalfSpeed: +0.1A
Heat Vessels:
Heat for Mix: +1.0A
Marotta Valve: +1.2A

BoxC Canister Relief Valve at Inlet: 1.7bar

TRD Pressure: 750-1300 mbar
Pump HalfSpeed: Psup +320mbar Pret -320mbar

MfdP [96..99]: 0 +- 50 mbar

Temp [89/94]: -20°C .. +55°C
NO BOX-S/C Marotta-Valve Operations below 0 °C
NO Pump Operation below +5°C [94-SP blk]

Temp UGSCM/UGPD [70] -15°C .. +45°C

List of TRD/TRDGas Programs

Electronics Monitoring:

- TRD Status Monitor (TRD-S)
- Pedes_Canvas
- UDR_HK_Canvas
- UHV Status Monitor (UHV-S)

Gas Monitoring:

- TRDGAS Monitor (TRDGAS-M)
- TRDGAS Status Monitor (TRDGAS-S)

Detector Monitoring:

- TRD-DTS Monitor (TRDDTS-M)
- TRD-Gain Monitor (TRD-GainMonitor)
- TRD-Pressure Monitor (TRD-PressureMonitor)

TRD Monitoring:

- TRD Status Monitor (TRD-S)
  - Pedes_Canvas
  - UDR_HK_Canvas
- TRD-DTS Monitor (TRDDTS-M)
- TRD Gain Monitor (TRD-GainMonitor)
- TRD Pressure Monitor (TRD-PressureMonitor)

Configuration of TRD-S (TRD-S-SCI, TRD-S-HK)

Set X to 2
left-click ↑ number
right-click ↓ number

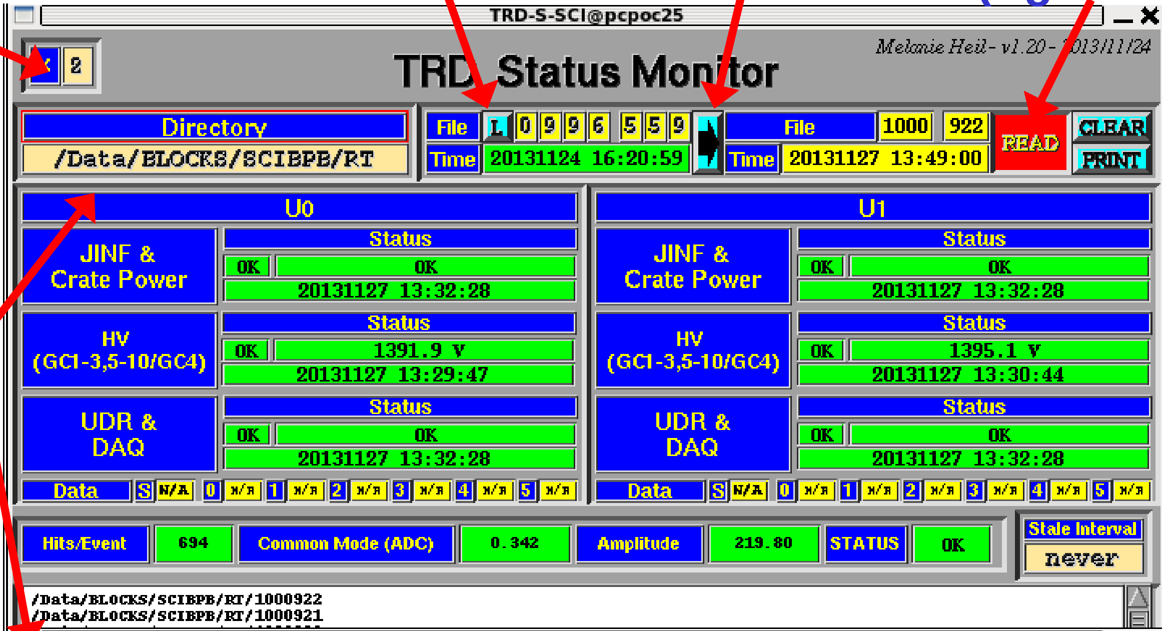
Set X to 2 only on the TEE shifter console; if LEAD starts additional TRD-S-HK, LEAD must set it X to 0, otherwise produced UDR-HK-Canvas gets corrupted

Find Last File (left click)

Load for reading (left click)

Read continously (right click)

Set Directory to Data/BLOCKS/SCIBPB/RT and **Data/BLOCKS/HKLR/CDP**


TRD-S-SCI@pcpoc25

TRD Status Monitor

Melanie Heil - v1.20 - 2013/11/24

X 2

Directory: /Data/BLOCKS/SCIBPB/RT

File: L 0 9 9 6 5 5 9 | Time: 20131124 16:20:59

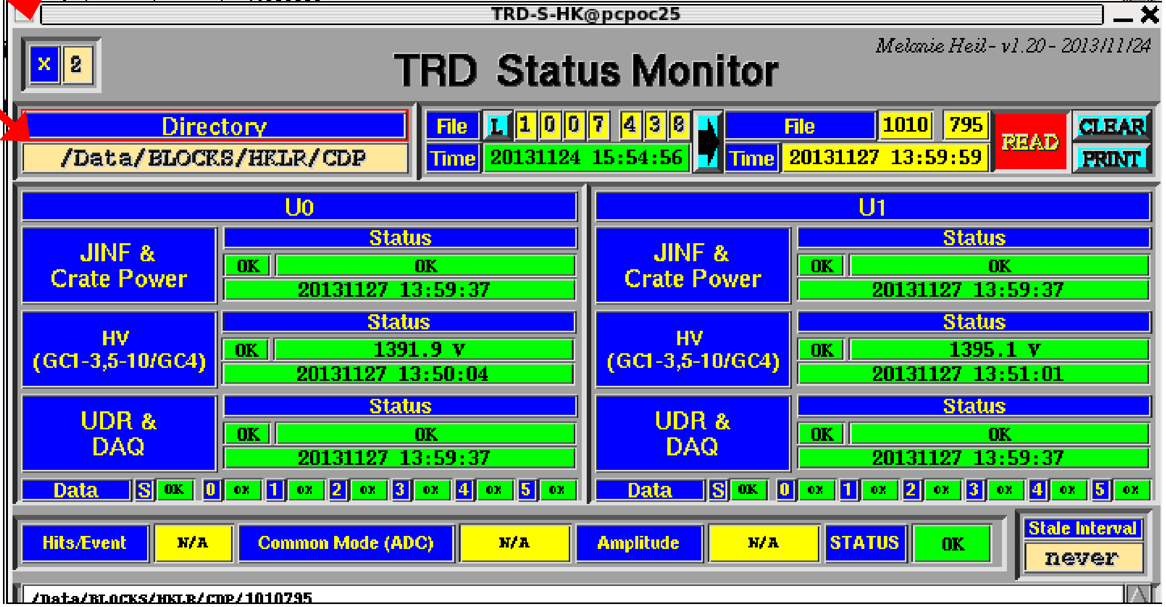
File: 1000 922 | Time: 20131127 13:49:00

U0	Status		U1	Status	
JINF & Crate Power	OK	OK 20131127 13:32:28	JINF & Crate Power	OK	OK 20131127 13:32:28
HV (GC1-3,5-10/GC4)	OK	1391.9 V 20131127 13:29:47	HV (GC1-3,5-10/GC4)	OK	1395.1 V 20131127 13:30:44
UDR & DAQ	OK	OK 20131127 13:32:28	UDR & DAQ	OK	OK 20131127 13:32:28

U0 Data: S N/A, 0 N/A, 1 N/A, 2 N/A, 3 N/A, 4 N/A, 5 N/A
U1 Data: S N/A, 0 N/A, 1 N/A, 2 N/A, 3 N/A, 4 N/A, 5 N/A

Hits/Event 694 | Common Mode (ADC) 0.342 | Amplitude 219.80 | STATUS OK | Stale Interval never

```
/Data/BLOCKS/SCIBPB/RT/1000922
/Data/BLOCKS/SCIBPB/RT/1000921
```


TRD-S-HK@pcpoc25

TRD Status Monitor

Melanie Heil - v1.20 - 2013/11/24

X 2

Directory: /Data/BLOCKS/HKLR/CDP

File: L 1 0 0 7 4 3 8 | Time: 20131124 15:54:56

File: 1010 795 | Time: 20131127 13:59:59

U0	Status		U1	Status	
JINF & Crate Power	OK	OK 20131127 13:59:37	JINF & Crate Power	OK	OK 20131127 13:59:37
HV (GC1-3,5-10/GC4)	OK	1391.9 V 20131127 13:50:04	HV (GC1-3,5-10/GC4)	OK	1395.1 V 20131127 13:51:01
UDR & DAQ	OK	OK 20131127 13:59:37	UDR & DAQ	OK	OK 20131127 13:59:37

U0 Data: S OK, 0 OK, 1 OK, 2 OK, 3 OK, 4 OK, 5 OK
U1 Data: S OK, 0 OK, 1 OK, 2 OK, 3 OK, 4 OK, 5 OK

Hits/Event N/A | Common Mode (ADC) N/A | Amplitude N/A | STATUS OK | Stale Interval never

```
/Data/BLOCKS/HKLR/CDP/1010795
```

Check:

- **Every box green,**
- **HV value match the settings,**
- **browser for warnings/errors**

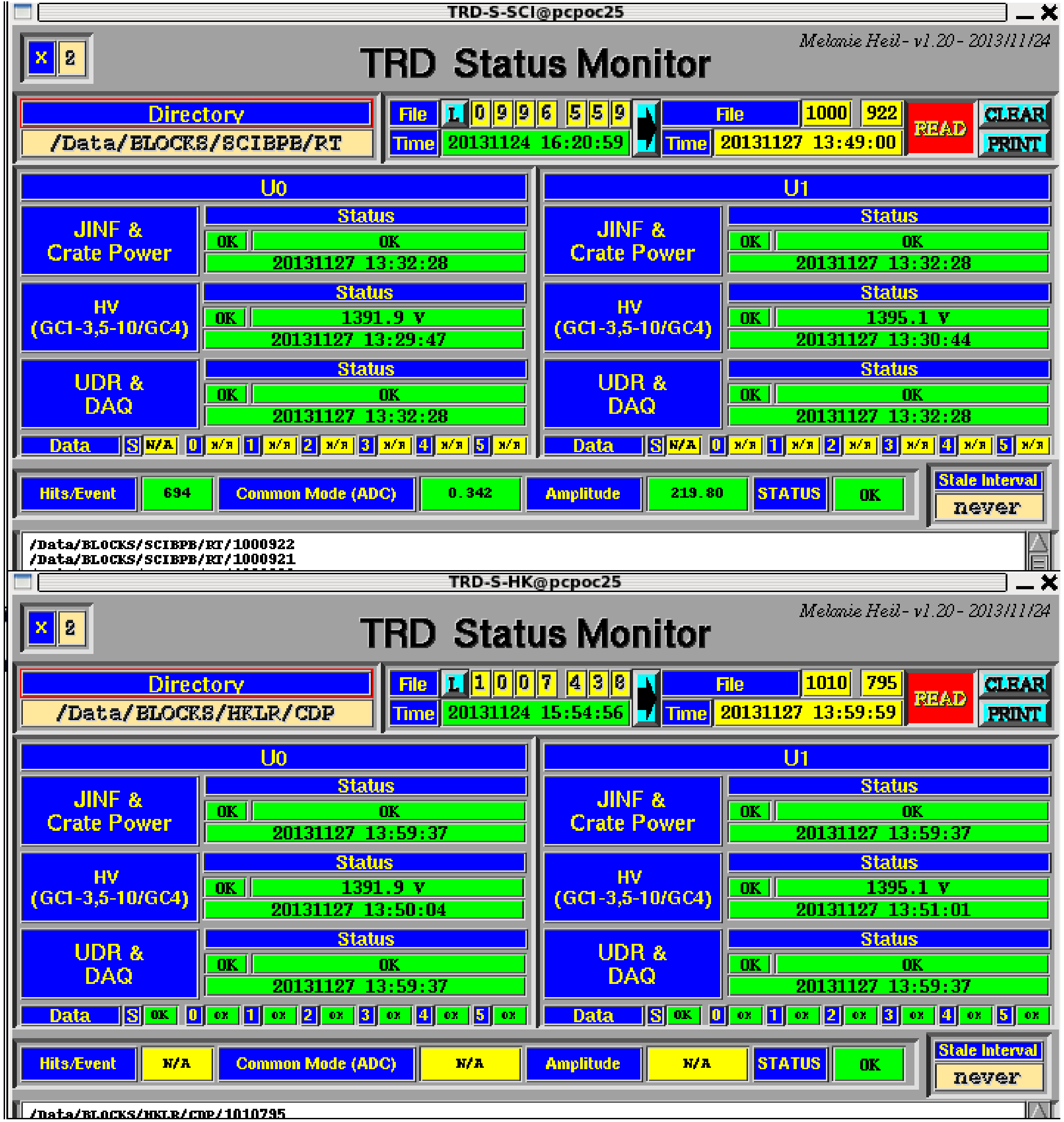
TRD-S (TRD-S-SCI, TRD-S-HK)

JMDC
QList

BLOCK
Files

Commands
from ground

DAQ and
SC Status



TRD-S-SCI@pcpoc25

TRD Status Monitor

Melanie Heil - v1.20 - 2013/11/24

Directory: /Data/BLOCKS/SCIBPB/RT
File: L 0996 559 → File: 1000 922
Time: 20131124 16:20:59 → Time: 20131127 13:49:00

	U0		U1	
JINF & Crate Power	OK	OK 20131127 13:32:28	OK	OK 20131127 13:32:28
HV (GC1-3,5-10/GC4)	OK	1391.9 V 20131127 13:29:47	OK	1395.1 V 20131127 13:30:44
UDR & DAQ	OK	OK 20131127 13:32:28	OK	OK 20131127 13:32:28
Data	S N/A	0 N/A 1 N/A 2 N/A 3 N/A 4 N/A 5 N/A	S N/A	0 N/A 1 N/A 2 N/A 3 N/A 4 N/A 5 N/A

Hits/Event: 694
Common Mode (ADC): 0.342
Amplitude: 219.80
STATUS: OK
Stale Interval: never

```
/Data/BLOCKS/SCIBPB/RT/1000922
/Data/BLOCKS/SCIBPB/RT/1000921
```

TRD-S-HK@pcpoc25

TRD Status Monitor

Melanie Heil - v1.20 - 2013/11/24

Directory: /Data/BLOCKS/HKLR/CDP
File: L 1007 438 → File: 1010 795
Time: 20131124 15:54:56 → Time: 20131127 13:59:59

	U0		U1	
JINF & Crate Power	OK	OK 20131127 13:59:37	OK	OK 20131127 13:59:37
HV (GC1-3,5-10/GC4)	OK	1391.9 V 20131127 13:50:04	OK	1395.1 V 20131127 13:51:01
UDR & DAQ	OK	OK 20131127 13:59:37	OK	OK 20131127 13:59:37
Data	S OK	0 OK 1 OK 2 OK 3 OK 4 OK 5 OK	S OK	0 OK 1 OK 2 OK 3 OK 4 OK 5 OK

Hits/Event: N/A
Common Mode (ADC): N/A
Amplitude: N/A
STATUS: OK
Stale Interval: never

```
/Data/BLOCKS/HKLR/CDP/1010795
```

All information from TRD Readout is analyzed and summarized in overall status for shift taker

Screen-3: Additional Tools for TRD Experts

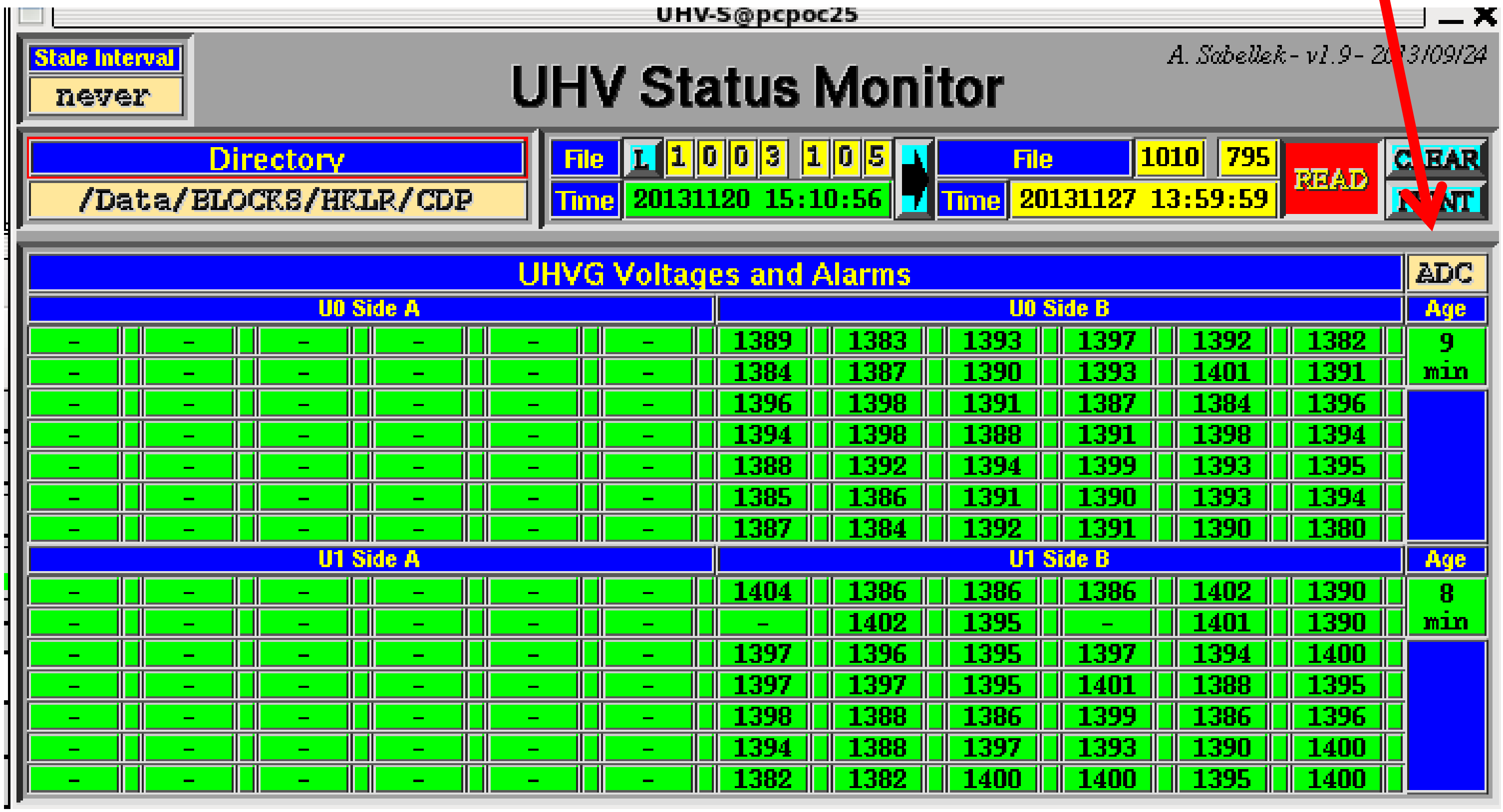
UHV Status Monitor:

Go to RUN directory and open programm:

```
cd ~/RUN
UHV-S &
```

Set DAC or ADC values

Set Directory to Data/BLOCKS/HKLR/CDP



A. Sabellek - v1.9 - 2 3/09/24

Stale Interval: never

Directory: /Data/BLOCKS/HKLR/CDP

File: L 1 0 0 3 1 0 5 — Time: 20131120 15:10:56

File: 1010 795 — Time: 20131127 13:59:59

U0 Side A						U0 Side B						Age
-	-	-	-	-	-	1389	1383	1393	1397	1392	1382	9 min
-	-	-	-	-	-	1384	1387	1390	1393	1401	1391	
-	-	-	-	-	-	1396	1398	1391	1387	1384	1396	
-	-	-	-	-	-	1394	1398	1388	1391	1398	1394	
-	-	-	-	-	-	1388	1392	1394	1399	1393	1395	
-	-	-	-	-	-	1385	1386	1391	1390	1393	1394	
-	-	-	-	-	-	1387	1384	1392	1391	1390	1380	

U1 Side A						U1 Side B						Age
-	-	-	-	-	-	1404	1386	1386	1386	1402	1390	8 min
-	-	-	-	-	-	-	1402	1395	-	1401	1390	
-	-	-	-	-	-	1397	1396	1395	1397	1394	1400	
-	-	-	-	-	-	1397	1397	1395	1401	1388	1395	
-	-	-	-	-	-	1398	1388	1386	1399	1386	1396	
-	-	-	-	-	-	1394	1388	1397	1393	1390	1400	
-	-	-	-	-	-	1382	1382	1400	1400	1395	1400	

Set to current directory and file

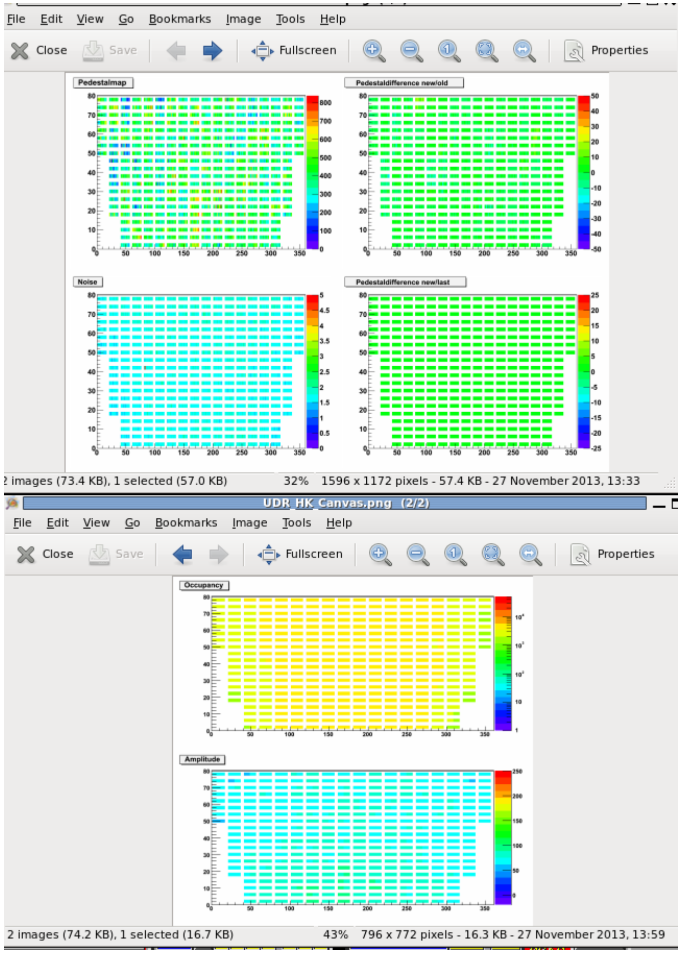
Use to check single channel HV values for A/B-Side

Configuration of Pedes- & UDR_HK-Canvases

In xterm of TRD-S:

```
[ RUN]$ ctrl-z
[ RUN]$ bg
[ RUN]$ xdotool search –name TRD-S-HK type –window %1 ‘watch –n 60
        `gthumb ~trd/RUN/OUTPUT/TRD-S/Pedes_Canvas.png` &‘
[ RUN]$  xdotool search –name TRD-S-HK type –window %1 ‘watch –n 60
        `gthumb ~trd/RUN/OUTPUT/TRD-S/UDR_HK_Canvas.png` &‘
```

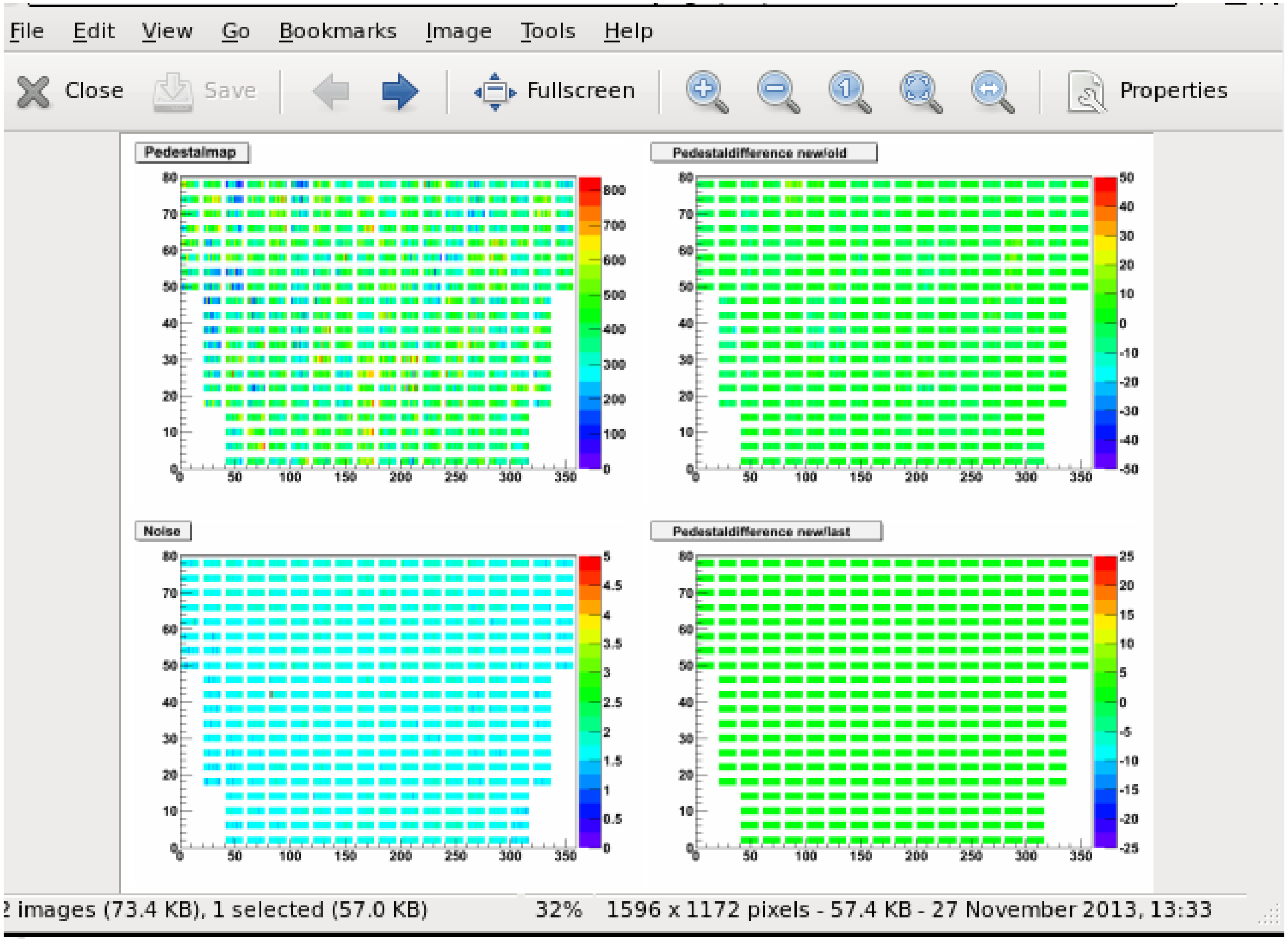
Place as shown on screen-1 layout


File Edit View Go Bookmarks Image Tools Help
Close Save Fullscreen Properties
Pedestalmap
Pedestaldifference new/old
Noise
Pedestaldifference new/last
UDR_HK_Canvas.png (2/2)
File Edit View Go Bookmarks Image Tools Help
Close Save Fullscreen Properties
Occupancy
Amplitude

2 images (73.4 KB), 1 selected (57.0 KB) 32% 1596 x 1172 pixels - 57.4 KB - 27 November 2013, 13:33

2 images (74.2 KB), 1 selected (16.7 KB) 43% 796 x 772 pixels - 16.3 KB - 27 November 2013, 13:59

Pedes_Canvas.png

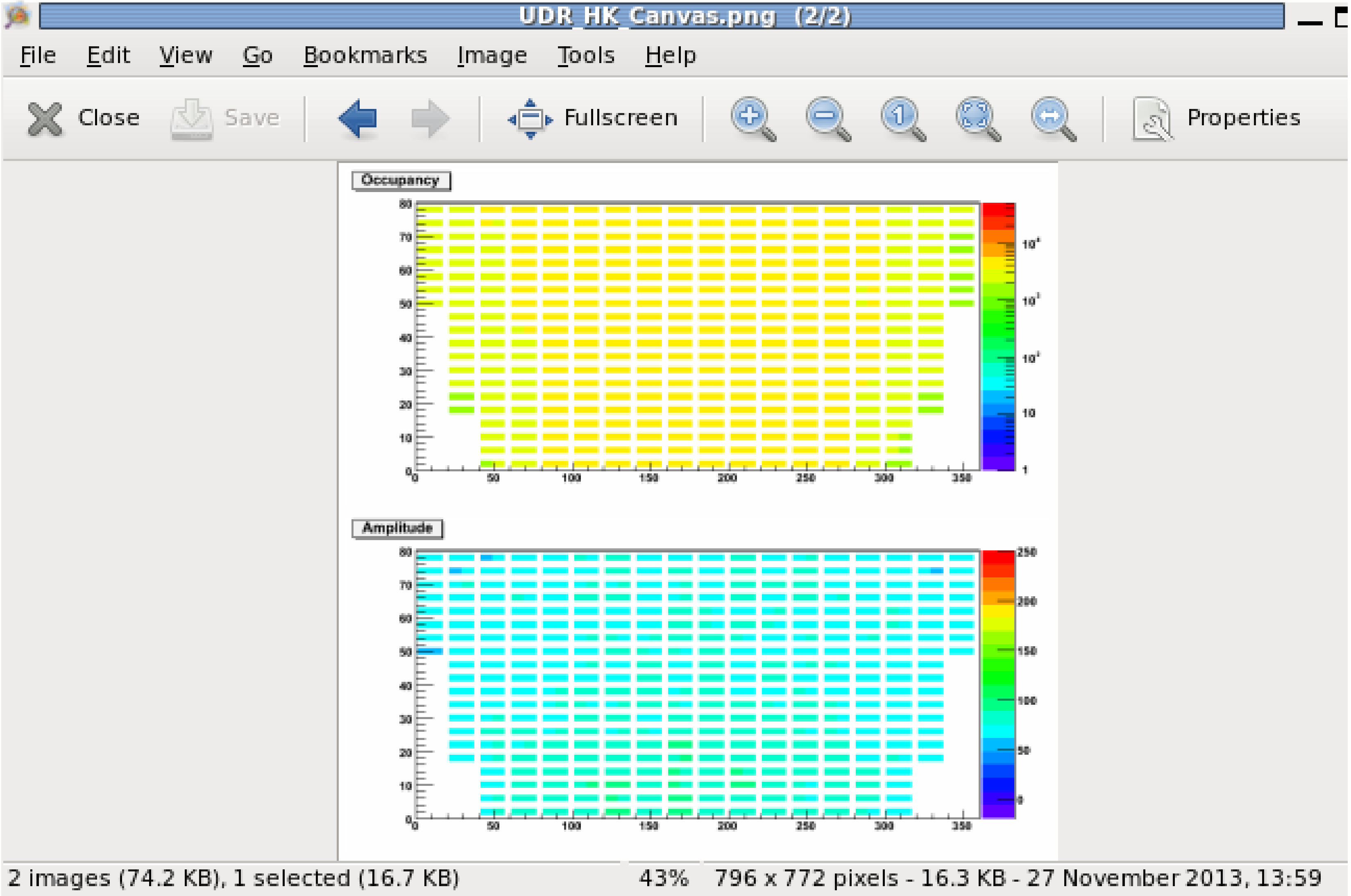

File
Edit
View
Go
Bookmarks
Image
Tools
Help
Close
Save
Fullscreen
Properties
Pedestalmap
Pedestaldifference new/old
Noise
Pedestaldifference new/last
0
10
20
30
40
50
60
70
80
50
100
150
200
250
300
350
800
700
600
500
400
300
200
100
50
40
30
20
10
-10
-20
-30
-40
-50
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
25
20
15
10
5
-5
-10
-15
-20
-25

2 images (73.4 KB), 1 selected (57.0 KB) 32% 1596 x 1172 pixels - 57.4 KB - 27 November 2013, 13:33

Calibration of each of the 5248 Straw-Tubes
Upper left: Actual Pedestal values in ADC channels
Upper Right: Difference between actual and default Pedestal values
Lower Left: Actual Noise values in ADC channels
Lower Right: Difference between actual and last Pedestal values

Noise should show usual pattern
(all but 2 channels green for A-Side Power,
also slightly higher noises on end/front of segment for B-Side Power)

UDR_HK_Canvas.png


UDR_HK_Canvas.png (2/2)
File
Edit
View
Go
Bookmarks
Image
Tools
Help
Close
Save
Fullscreen
Properties
Occupancy
0
10
20
30
40
50
60
70
80
0
50
100
150
200
250
300
350
1
10
10^2
10^3
10^4
Amplitude
0
10
20
30
40
50
60
70
80
0
50
100
150
200
250
300
350
0
50
100
150
200
250

2 images (74.2 KB), 1 selected (16.7 KB) 43% 796 x 772 pixels - 16.3 KB - 27 November 2013, 13:59

Upper: Actual Occupancy (number of hits in each of the 5248 straws)
Lower: Actual Amplitude (Median, Pedestal corrected) values in ADC channels for each of the 5248 straws

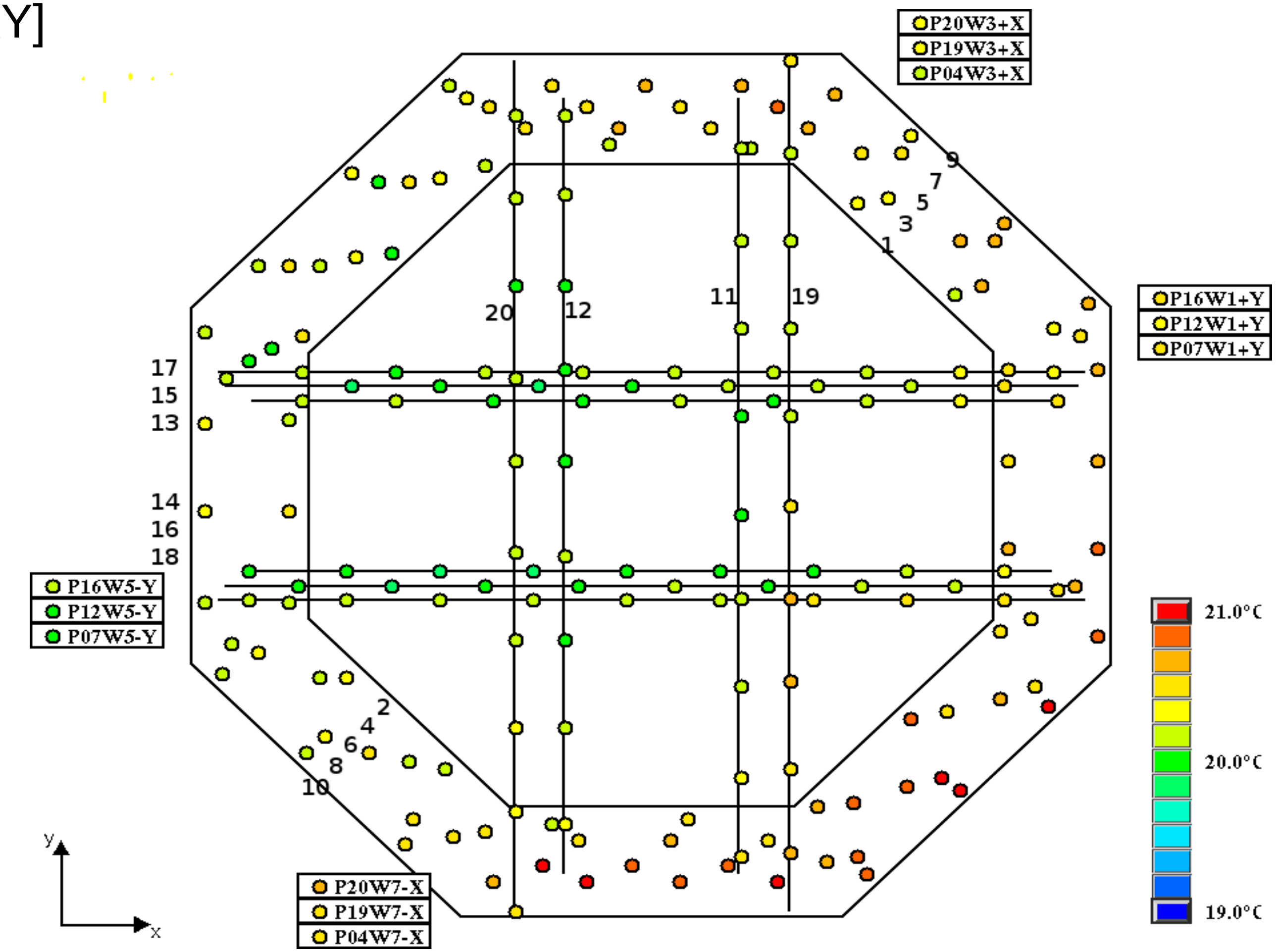
- **Occupancy plot should not show any unusual high or low channels**
- **Amplitudes should be fairly homogenous**

TRD-DTS Monitor – TRDDTS-M

A total of 404 Dallas Sensors on 40 strips are read out by USCM-UG-A/B (202 sensors – 20 strips – 7 busses respectively)

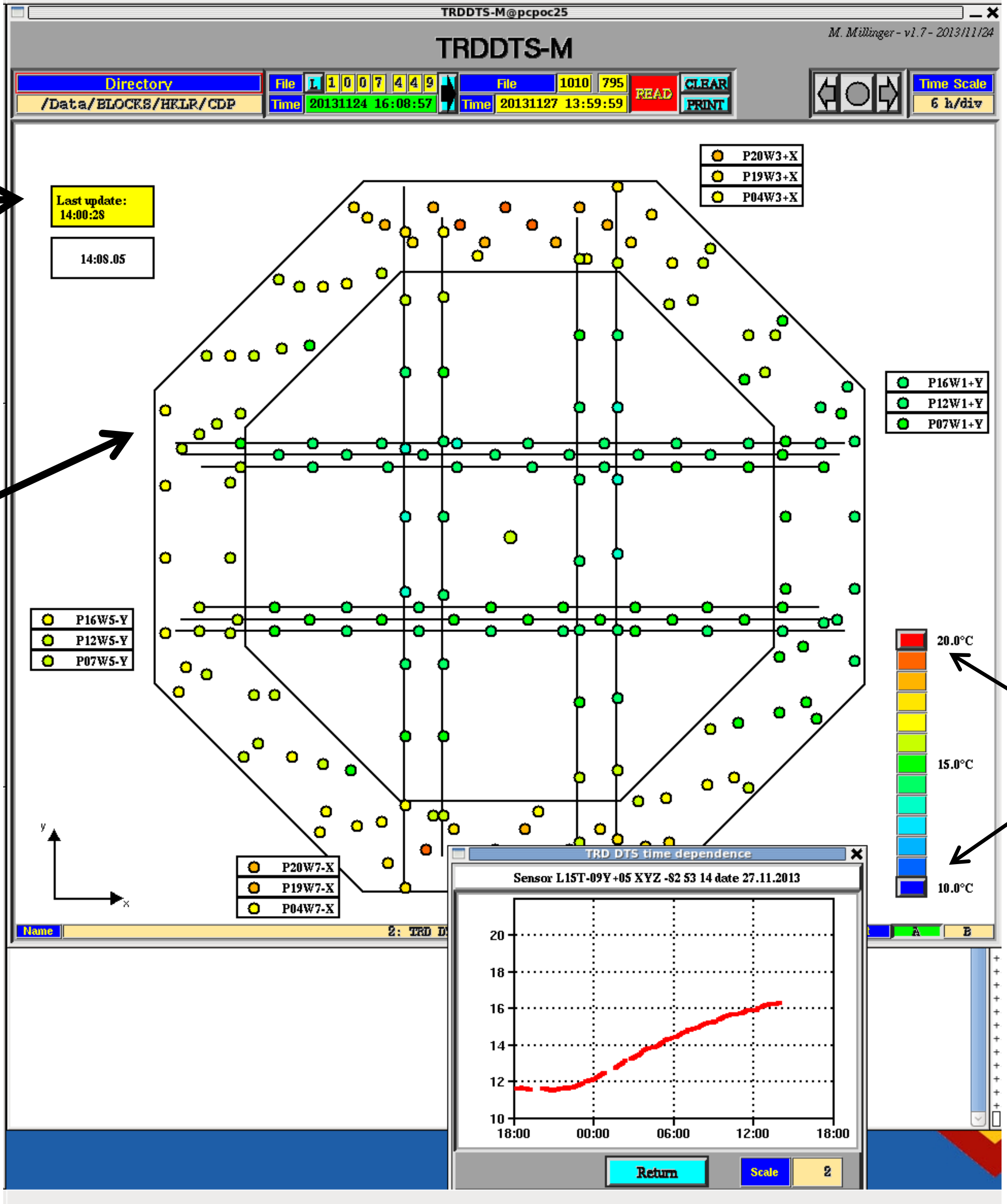
The Label contains Layer-Number L01..L20, Tower-Number T-9..T+9 and position along chamber in decimeters [XY]-10..[XY]+10

Some sensors on the strips are located outside of the octagon volume (near the connector patch-panel). For those sensors the naming scheme is as follows: Layer-Number P01..L20, Wall-Number W1..W8 (W1 = +X, W3=+Y, W5=-X, W7=-Y, Wall-Half[+-][XY]



P20W3+X
P19W3+X
P04W3+X
P16W1+Y
P12W1+Y
P07W1+Y
P16W5-Y
P12W5-Y
P07W5-Y
P20W7-X
P19W7-X
P04W7-X
9
7
5
3
1
20
12
11
19
17
15
13
14
16
18
2
4
6
8
10
21.0°C
20.0°C
19.0°C
y
x

Time of last update


TRDDTS-M@pcpoc25
TRDDTS-M
M. Millinger - v1.7 - 2013/11/24
READ
CLEAR
PRINT
P20W3+X
P19W3+X
P04W3+X
P16W1+Y
P12W1+Y
P07W1+Y
P16W5-Y
P12W5-Y
P07W5-Y
P20W7-X
P19W7-X
P04W7-X
y
x
20.0°C
15.0°C
10.0°C
Name
2: TRD D
A
B
TRD DTS time dependence
20
18
16
14
12
10
18:00
00:00
06:00
12:00
18:00
Return

Directory: /Data/BLOCKS/HKLR/CDP

File: L 1 0 0 7 4 4 9
Time: 20131124 16:08:57

File: 1010 795
Time: 20131127 13:59:59

Time Scale: 6 h/div

Last update:
14:00:28

14:08.05

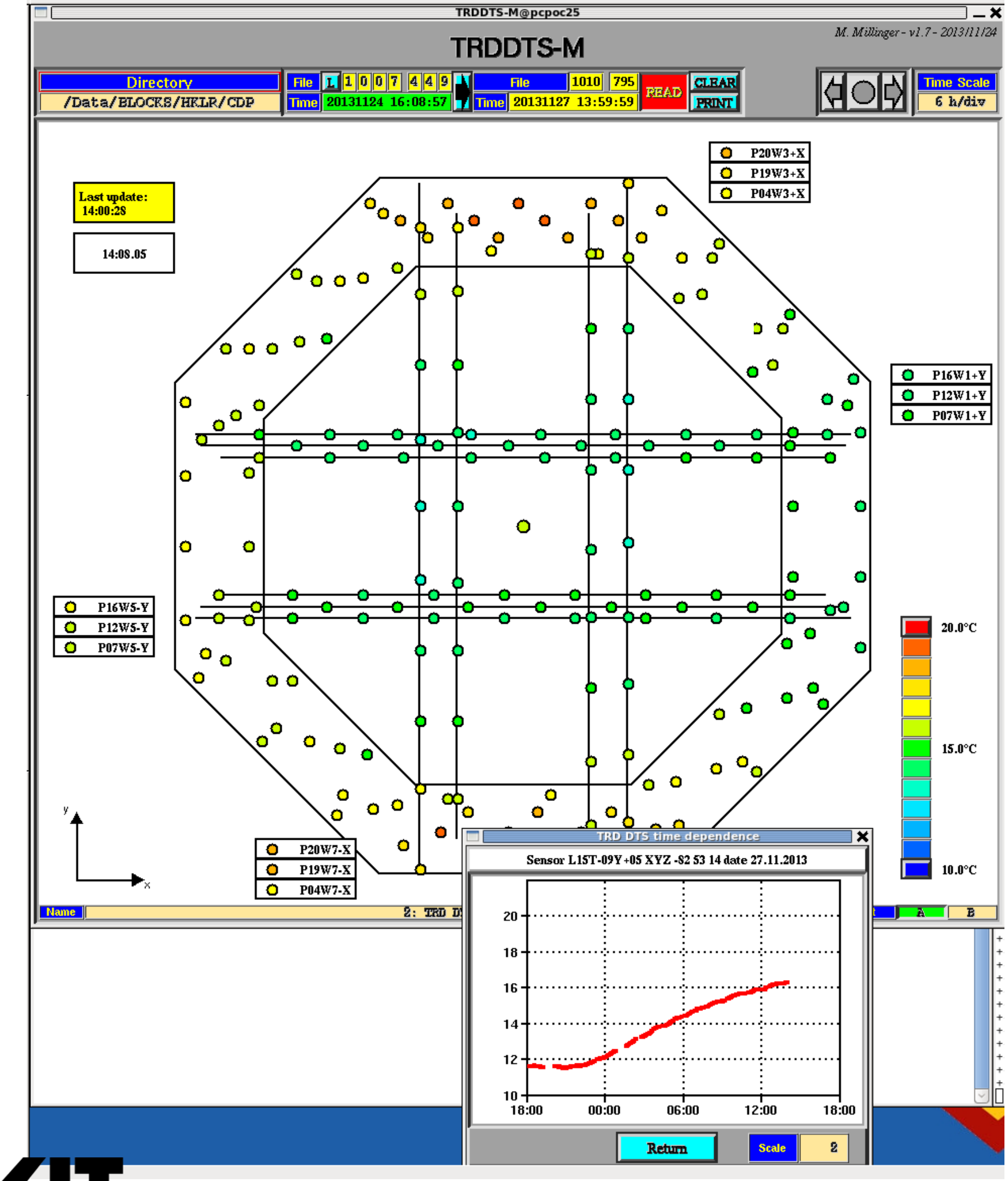
Sensor L15T-09Y +05 XYZ -82 53 14 date 27.11.2013

Scale: 2

On any sensor:
Left click -> get sensor information
Right click-> get histogram of sensor temperature (close histogram again using the 'Return' button!)

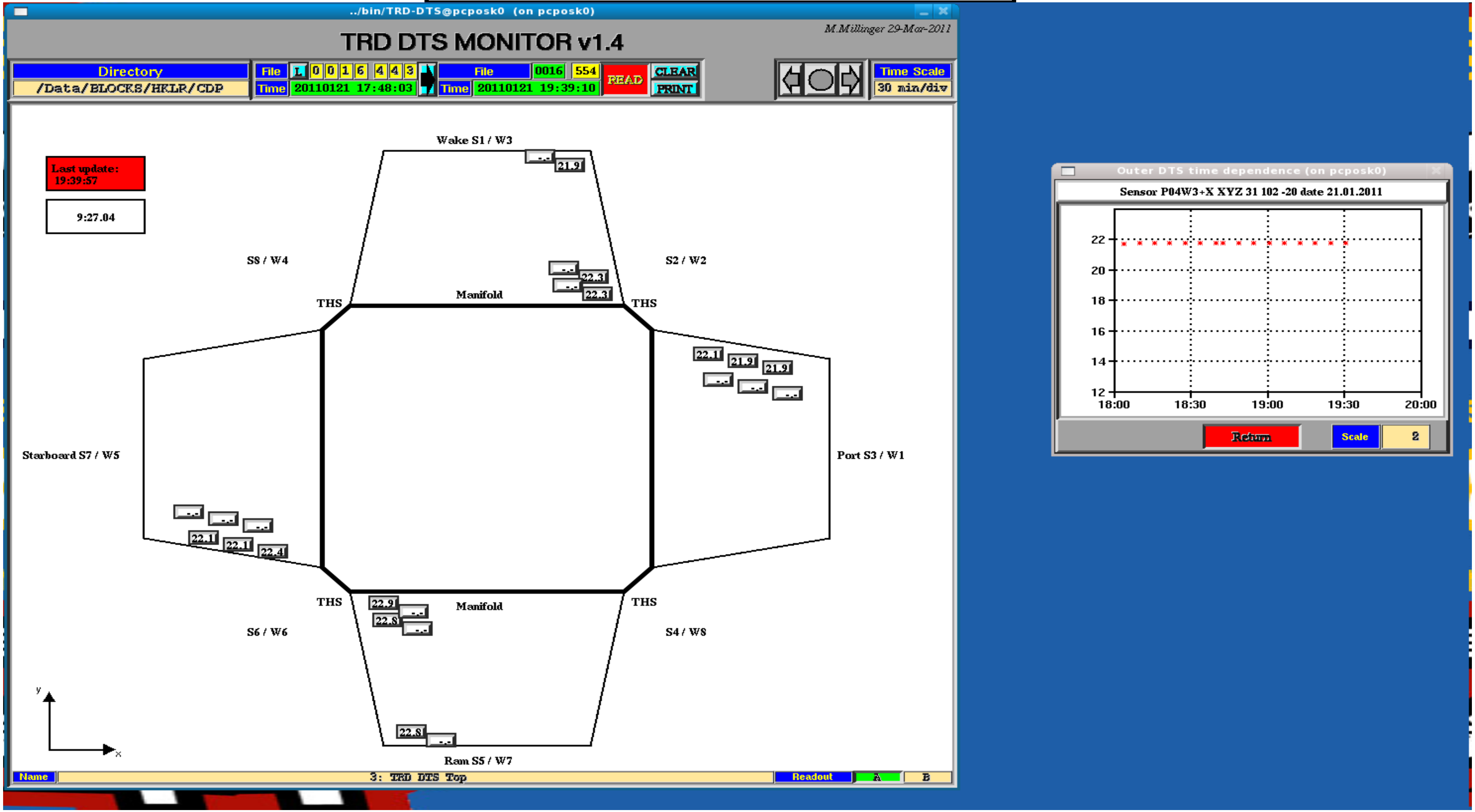
Change color range

Usage: TRD-DTS Monitor– TRDDTS-M


TRDDTS-M@pcpoc25
M. Millinger - v1.7 - 2013/11/24
TRDDTS-M
Directory
/Data/BLOCKS/HKLP/CDP
File
L 1 0 0 7 4 4 9
Time
20131124 16:08:57
File
1010
795
Time
20131127 13:59:59
READ
CLEAR
PRINT
Time Scale
6 h/div
Last update:
14:00:28
14:08.05
P20W3+X
P19W3+X
P04W3+X
P16W1+Y
P12W1+Y
P07W1+Y
P16W5-Y
P12W5-Y
P07W5-Y
P20W7-X
P19W7-X
P04W7-X
20.0°C
15.0°C
10.0°C
y
x
Name
2: TRD D
A
B
TRD DTS time dependence
Sensor L15T-09Y +05 XYZ -82 53 14 date 27.11.2013
20
18
16
14
12
10
18:00
00:00
06:00
12:00
18:00
Return
Scale
2

- Each button represents the approx. location of 1A & 1B sensor
- A left-/right-click on a button shows detailed information/ Temp.history of the sensor
- 'Last update' supposed to stay green in 'Read'-mode
- Color palette adjustable left-/right-click on maxor min button increases/decreases respective limit by 1
- On bottom right the active readout side is shown – in case both readouts are available one can select which one shall be displayed
- Different views available (click on 'Name' button on bottom)

TRD-DTS: ‘Top view’


../bin/TRD-DTS@pcposk0 (on pcposk0)

M.Millinger 29-Mar-2011

TRD DTS MONITOR v1.4

Directory /Data/BLOCKS/HKLR/CDP

File L 0 0 1 6 4 4 3

Time 20110121 17:48:03

File 0016 554

Time 20110121 19:39:10

Time Scale 30 min/div

Last update: 19:39:57

9:27.04

Name 3: TRD DTS Top

Outer DTS time dependence (on pcposk0)

Sensor P04W3+X XYZ 31 102 -20 date 21.01.2011

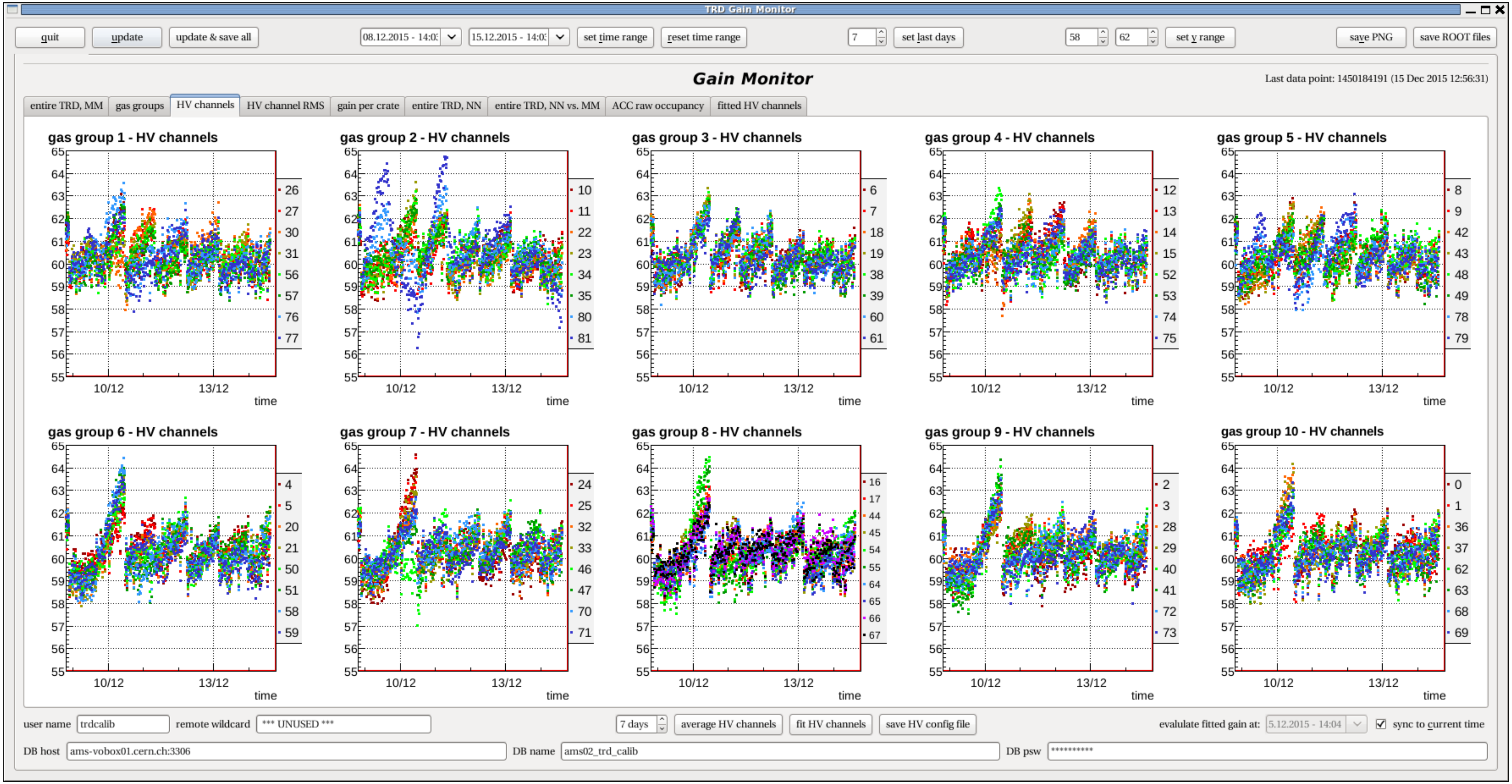
Scale 2

READ
CLEAR
PRINT
Wake S1 / W3
21.9
S8 / W4
S2 / W2
22.3
22.3
THS
Manifold
THS
22.1
21.9
21.9
Starboard S7 / W5
Port S3 / W1
22.1
22.1
22.4
THS
22.9
22.8
Manifold
THS
S6 / W6
S4 / W8
22.8
Ram S5 / W7
y
x
Readout
A
B
22
20
18
16
14
12
18:00
18:30
19:00
19:30
20:00
Return

- Selectable by clicking ‘Name’ button on bottom line
- Schematic display of the position and temperature of sensors outside the TRD volume, the naming convention for the TRD side elements, the TRDGas manifolds and the position of the TRD M-structure heaters (THS)
- Same ‘user interaction’ functionalities as other view(s)

TRD Gain Monitor:

The high voltages of the individual HV-channels (4 straw modules) are monitored.


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
gas group 1 - HV channels
26
27
30
31
56
57
76
77
gas group 2 - HV channels
10
11
22
23
34
35
80
81
gas group 3 - HV channels
6
7
18
19
38
39
60
61
gas group 4 - HV channels
12
13
14
15
52
53
74
75
gas group 5 - HV channels
8
9
42
43
48
49
78
79
gas group 6 - HV channels
4
5
20
21
50
51
58
59
gas group 7 - HV channels
24
25
32
33
46
47
70
71
gas group 8 - HV channels
16
17
44
45
54
55
64
65
66
67
gas group 9 - HV channels
2
3
28
29
40
41
72
73
gas group 10 - HV channels
0
1
36
37
62
63
68
69
65
64
63
62
61
60
59
58
57
56
55
10/12
13/12
time
average HV channels
fit HV channels
save HV config file

08.12.2015 - 14:03

15.12.2015 - 14:03

7

58

62

Last data point: 1450184191 (15 Dec 2015 12:56:31)

user name trdcalib

remote wildcard *** UNUSED ***

7 days

evalulate fitted gain at: 5.12.2015 - 14:04

☑ sync to current time

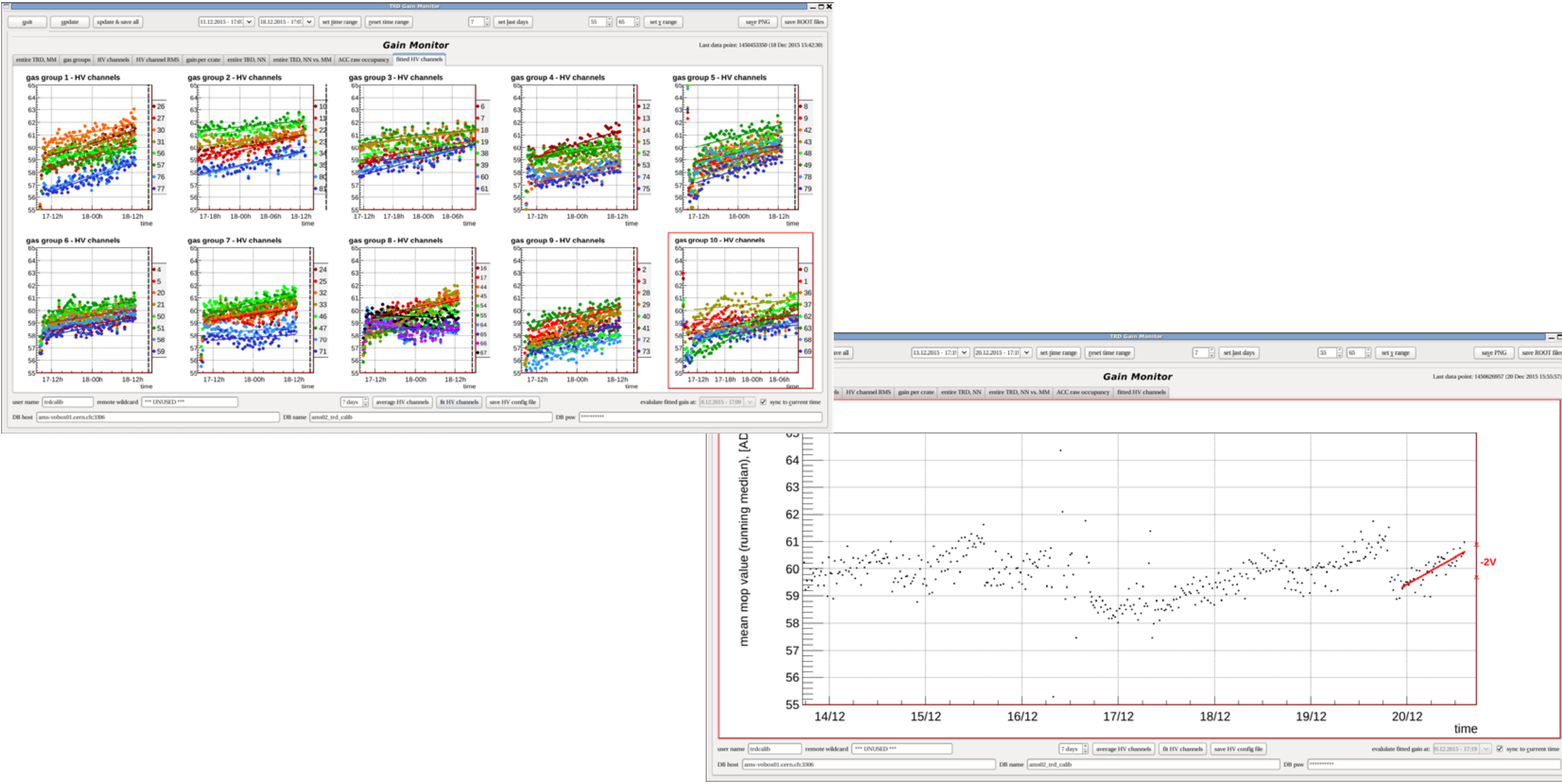
DB host ams-vobox01.cern.ch:3306

DB name ams02_trd_calib

DB psw **********

TRD Gain Monitor:

The new standard daily HV-adjustments are fitted with the program using the individual HV channels to do an intercalibration. If only an overall adjustment is possible then the average gain of the entire TRD is used.


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
gas group 1 - HV channels
gas group 2 - HV channels
gas group 3 - HV channels
gas group 4 - HV channels
gas group 5 - HV channels
gas group 6 - HV channels
gas group 7 - HV channels
gas group 8 - HV channels
gas group 9 - HV channels
gas group 10 - HV channels
time
mean mop value (running median), [AD
14/12
15/12
16/12
17/12
18/12
19/12
20/12
-2V
average HV channels
fit HV channels
save HV config file
sync to current time

11.12.2015 - 17:0 | 18.12.2015 - 17:0 | 7 | 55 | 65

Last data point: 1450453350 (18 Dec 2015 15:42:30)

user name trdcalib remote wildcard *** UNUSED *** 7 days evaluate fitted gain at: 8.12.2015 - 17:09 ☑ sync to current time

DB host ams-vobox01.cern.ch:3306 DB name ams02_trd_calib DB psw **********

13.12.2015 - 17:1 | 20.12.2015 - 17:1 | 7 | 55 | 65

Last data point: 1450626957 (20 Dec 2015 15:55:57)

TRD-GainMonitor

Gain Monitor:

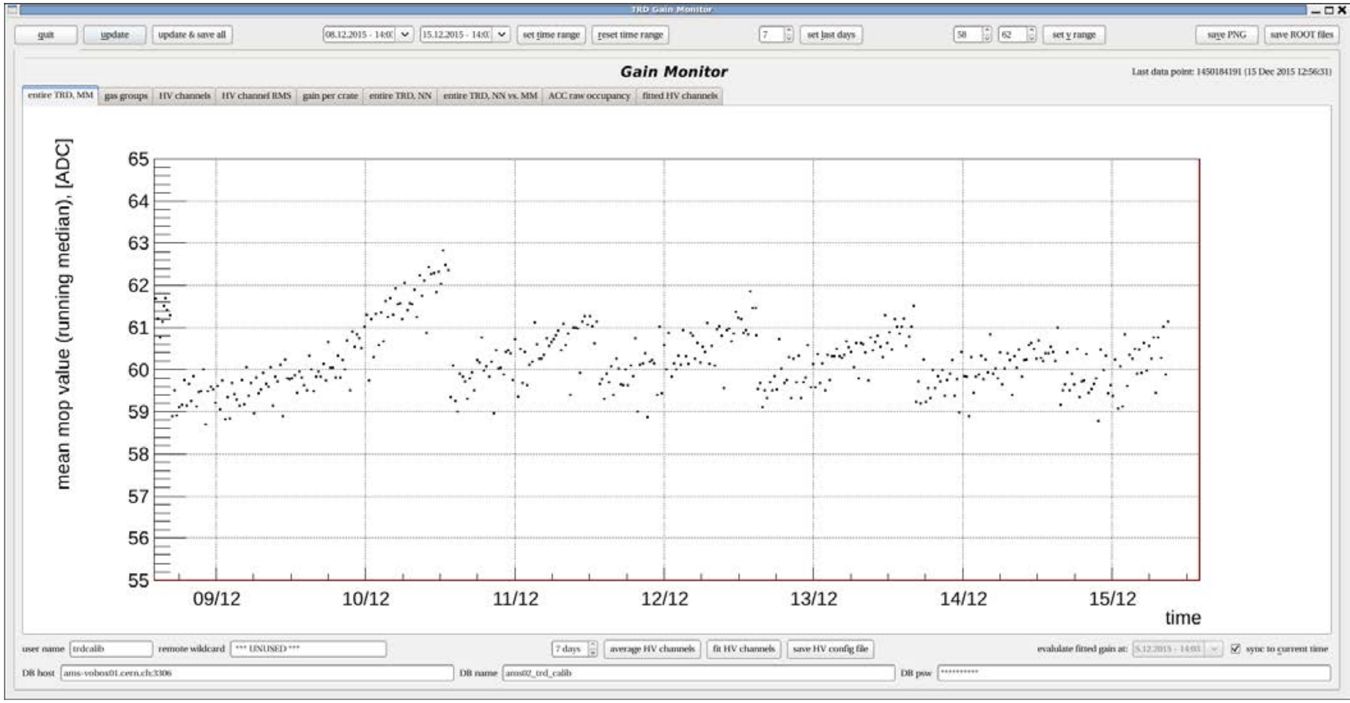
The HV of the TRD has to be adjusted every day to minimize the gas gain variations. The MOP should be at about 60 ADC counts.

For checking the evolution of the TRD signal gain, open a terminal, go to RUN directory and open program:

```
cd ~trd/RUN
TRD-GainMonitor
```

Take care that you do not hit any key afterwards (causes hang-up)

Be patient, especially when you ask for updating.


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
mean mop value (running median), [ADC]
65
64
63
62
61
60
59
58
57
56
55
09/12
10/12
11/12
12/12
13/12
14/12
15/12
time
average HV channels
fit HV channels
save HV config file

08.12.2015 - 14:0(15.12.2015 - 14:0(

7

58 62

Last data point: 1450184191 (15 Dec 2015 12:56:31)

user name: trdcalib

remote wildcard: *** UNUSED ***

7 days

evaluate fitted gain at: 5.12.2015 - 14:03

☑ sync to current time

DB host: ams-vobox01.cern.ch:3306

DB name: amsu02_trd_calib

DB psw: **********

TRD-GainMonitor

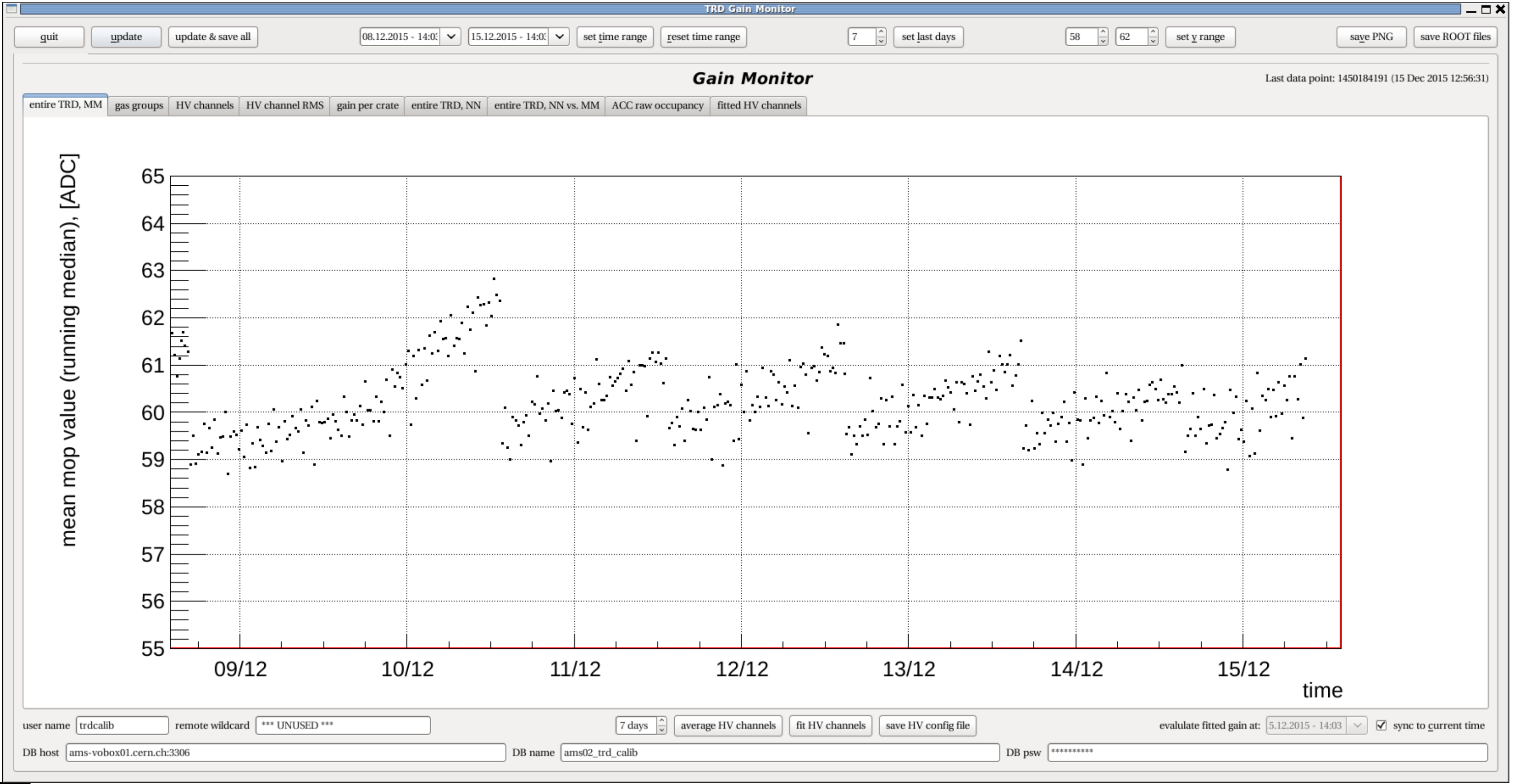
Gain Monitor:

The evolution of the TRD signal gain is determined via two different methods:

Millinger Gain: Using std-version of AMS-ROOT-files in SOC (late by ≈ 1 h)

this method is used to determine the overall daily HV adjustment

Nikonov Gain: Using 1-Minute-ROOT-files (late by ≈ 1 h)


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
mean mop value (running median), [ADC]
65
64
63
62
61
60
59
58
57
56
55
09/12
10/12
11/12
12/12
13/12
14/12
15/12
time
average HV channels
fit HV channels
save HV config file

08.12.2015 - 14:0 – 15.12.2015 - 14:0

7

58 62

Last data point: 1450184191 (15 Dec 2015 12:56:31)

user name: trdcalib

remote wildcard: *** UNUSED ***

7 days

evalulate fitted gain at: 5.12.2015 - 14:03

☑ sync to current time

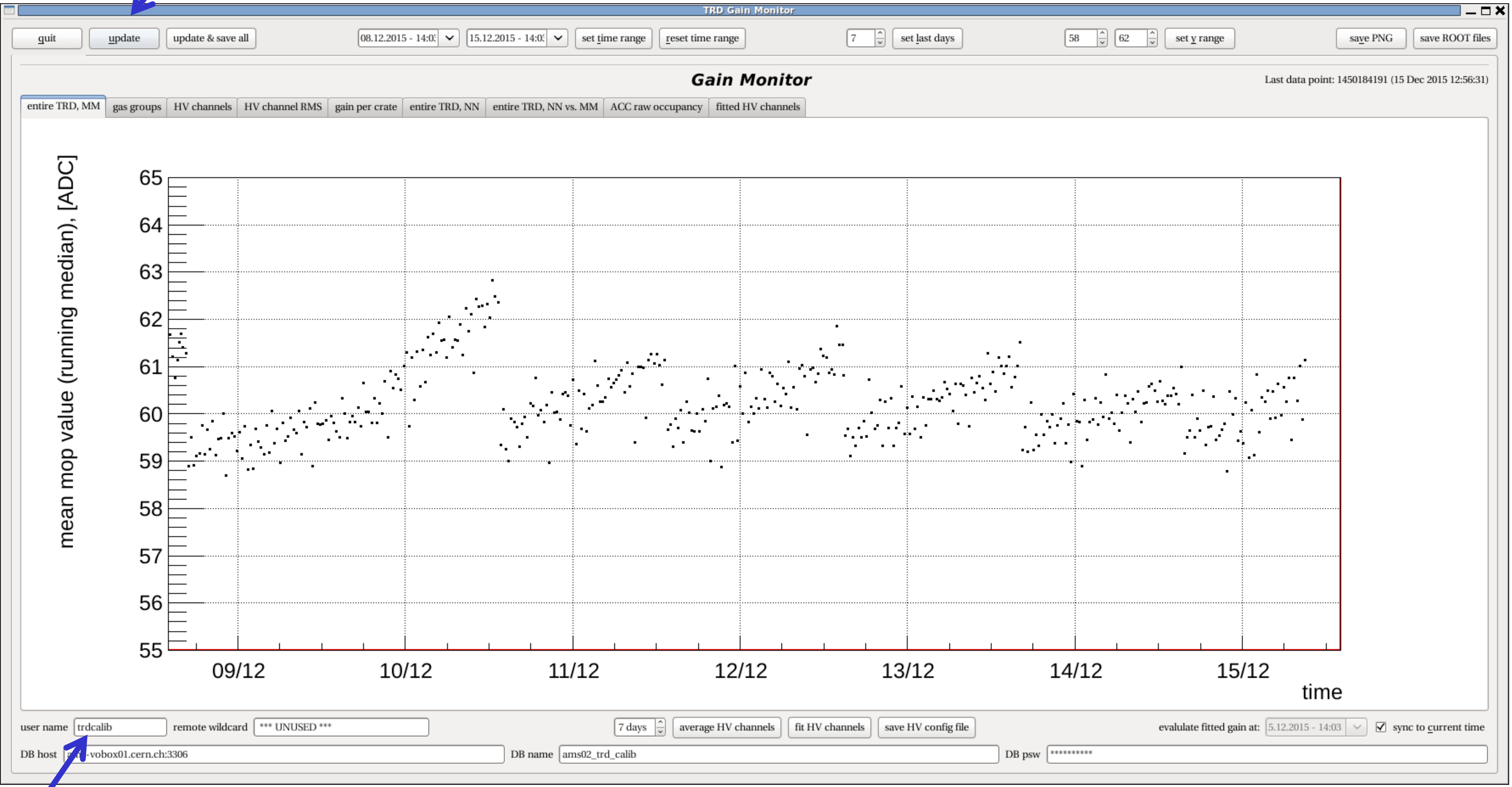
DB host: ams-vobox01.cern.ch:3306

DB name: ams02_trd_calib

DB psw: **********

TRD-GainMonitor

Click on update gains


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
mean mop value (running median), [ADC]
65
64
63
62
61
60
59
58
57
56
55
09/12
10/12
11/12
12/12
13/12
14/12
15/12
time
average HV channels
fit HV channels
save HV config file

08.12.2015 - 14:0; 15.12.2015 - 14:0; 7 58 62

Last data point: 1450184191 (15 Dec 2015 12:56:31)

user name trdcalib remote wildcard *** UNUSED ***

7 days

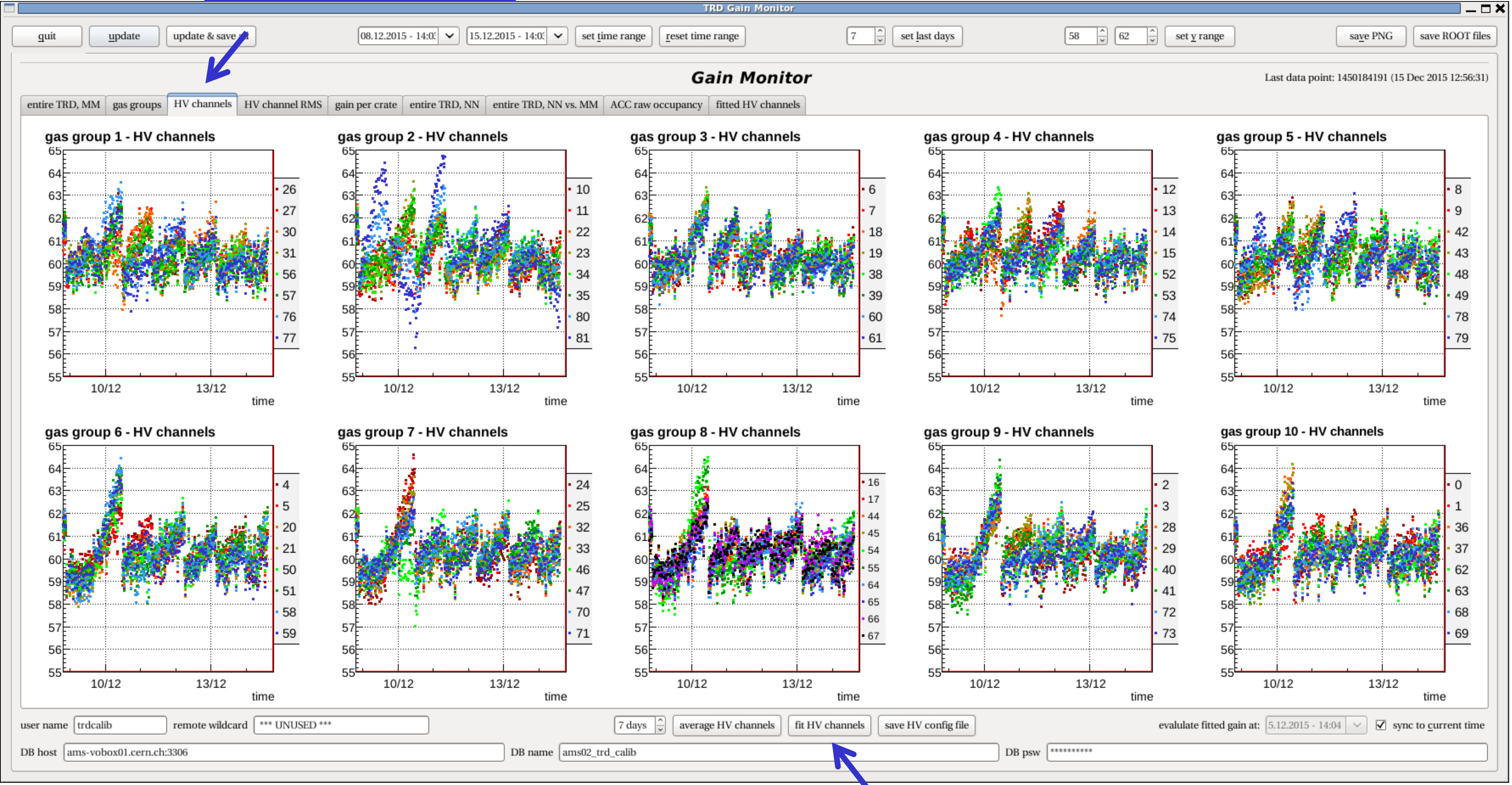
evalulate fitted gain at: 5.12.2015 - 14:03 ☑ sync to current time

DB host a[illegible]-vobox01.cern.ch:3306 DB name ams02_trd_calib DB psw **********

User name is trdcalib

TRD-GainMonitor

Click on HV channels


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
gas group 1 - HV channels
26 27 30 31 56 57 76 77
gas group 2 - HV channels
10 11 22 23 34 35 80 81
gas group 3 - HV channels
6 7 18 19 38 39 60 61
gas group 4 - HV channels
12 13 14 15 52 53 74 75
gas group 5 - HV channels
8 9 42 43 48 49 78 79
gas group 6 - HV channels
4 5 20 21 50 51 58 59
gas group 7 - HV channels
24 25 32 33 46 47 70 71
gas group 8 - HV channels
16 17 44 45 54 55 64 65 66 67
gas group 9 - HV channels
2 3 28 29 40 41 72 73
gas group 10 - HV channels
0 1 36 37 62 63 68 69
55 56 57 58 59 60 61 62 63 64 65
10/12
13/12
time
average HV channels
fit HV channels
save HV config file

08.12.2015 - 14:0: – 15.12.2015 - 14:0:

7

58 – 62

Last data point: 1450184191 (15 Dec 2015 12:56:31)

user name: trdcalib

remote wildcard: *** UNUSED ***

7 days

evalulate fitted gain at: 5.12.2015 - 14:04

☑ sync to current time

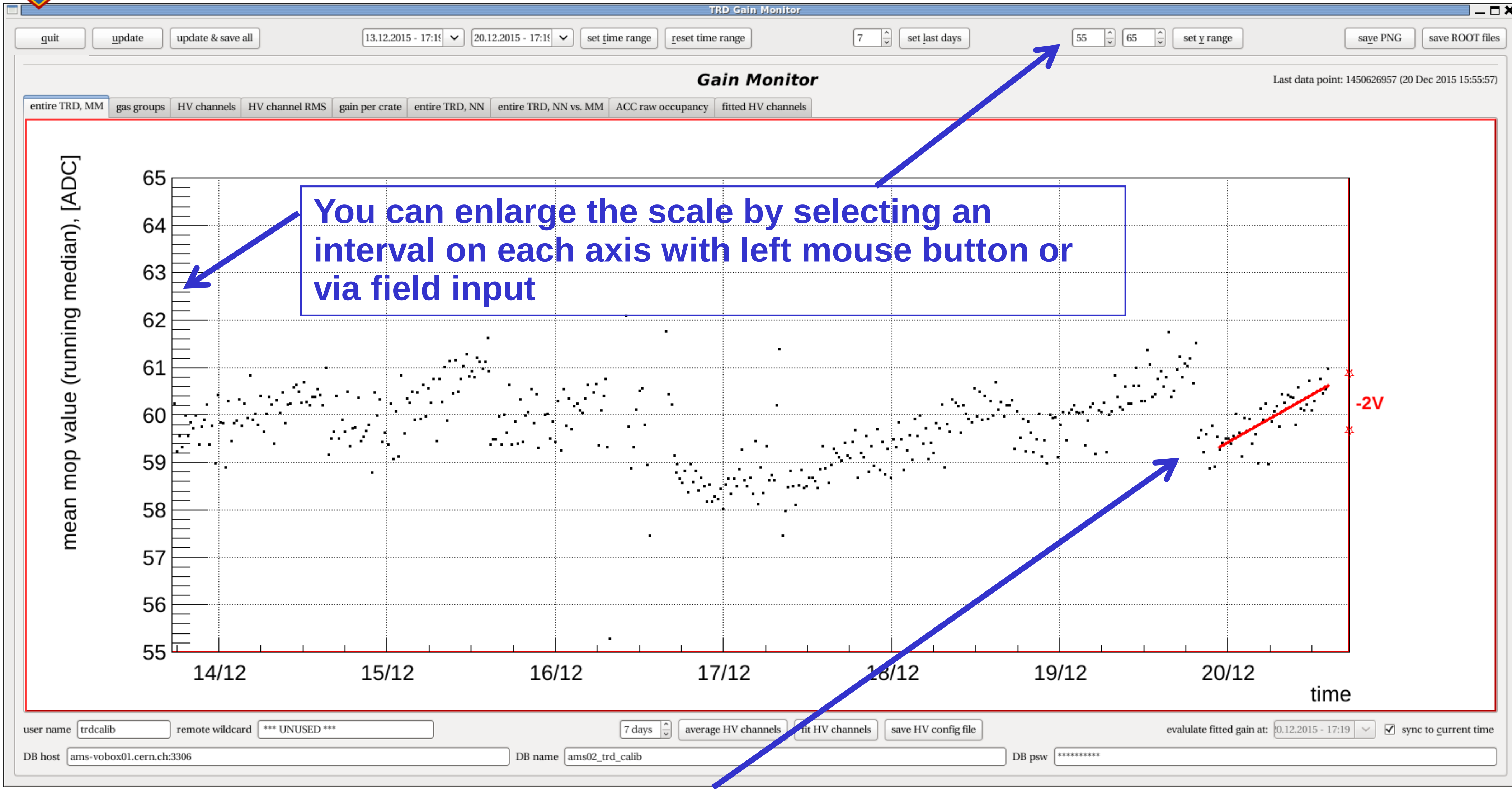
DB host: ams-vobox01.cern.ch:3306

DB name: ams02_trd_calib

DB psw: **********

Click on fit HV channels if you want to do daily HV intercalibration, more see procedure HV adjustment

TRD-GainMonitor


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
mean mop value (running median), [ADC]
65
64
63
62
61
60
59
58
57
56
55
14/12
15/12
16/12
17/12
18/12
19/12
20/12
time
-2V
average HV channels
fit HV channels
save HV config file

13.12.2015 - 17:1 | 20.12.2015 - 17:1 | 7 | 55 | 65

Last data point: 1450626957 (20 Dec 2015 15:55:57)

user name trdcalib

remote wildcard *** UNUSED ***

7 days

evalulate fitted gain at: 0.12.2015 - 17:19

☑ sync to current time

DB host ams-vobox01.cern.ch:3306

DB name ams02_trd_calib

DB psw **********

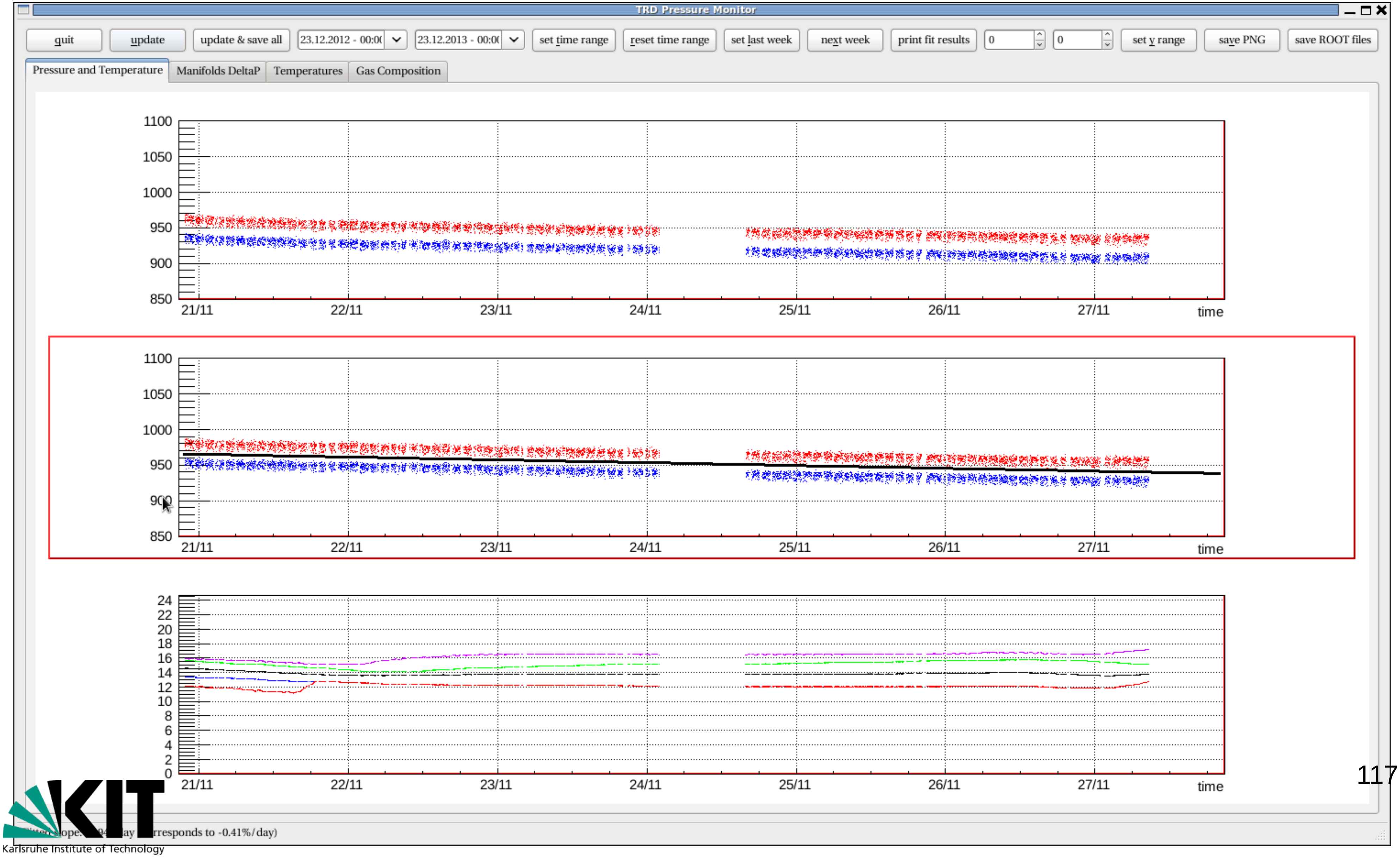
You can enlarge the scale by selecting an interval on each axis with left mouse button or via field input

You get the actual HV adjustment value by fitting the slope.
The fit region is marked with left mouse button. The std-Versions of ROOT-Files mostly are not more then 1 hour old, therefore after the fit the estimated actual mean mop value is shown plus the mean mop value if the estimated HV-adjustment would be done.

TRD Pressure Monitor:

TRD-PressureMonitor

The absolute pressure of the TRD (P3, P4), the differential pressure measurements in the active manifolds of the TRD, the temperatures in the TRD and the gas composition and the are monitored. The leak rate of the TRD is fitted with the program .


TRD Pressure Monitor
quit
update
update & save all
23.12.2012 - 00:0(
23.12.2013 - 00:0(
set time range
reset time range
set last week
next week
print fit results
0
0
set y range
save PNG
save ROOT files
Pressure and Temperature
Manifolds DeltaP
Temperatures
Gas Composition
1100
1050
1000
950
900
850
21/11
22/11
23/11
24/11
25/11
26/11
27/11
time
24
22
20
18
16
14
12
10
8
6
4
2
0

Fitted slope: [illegible]94[illegible]ay [illegible]rresponds to -0.41%/day)

TRD-PressureMonitor

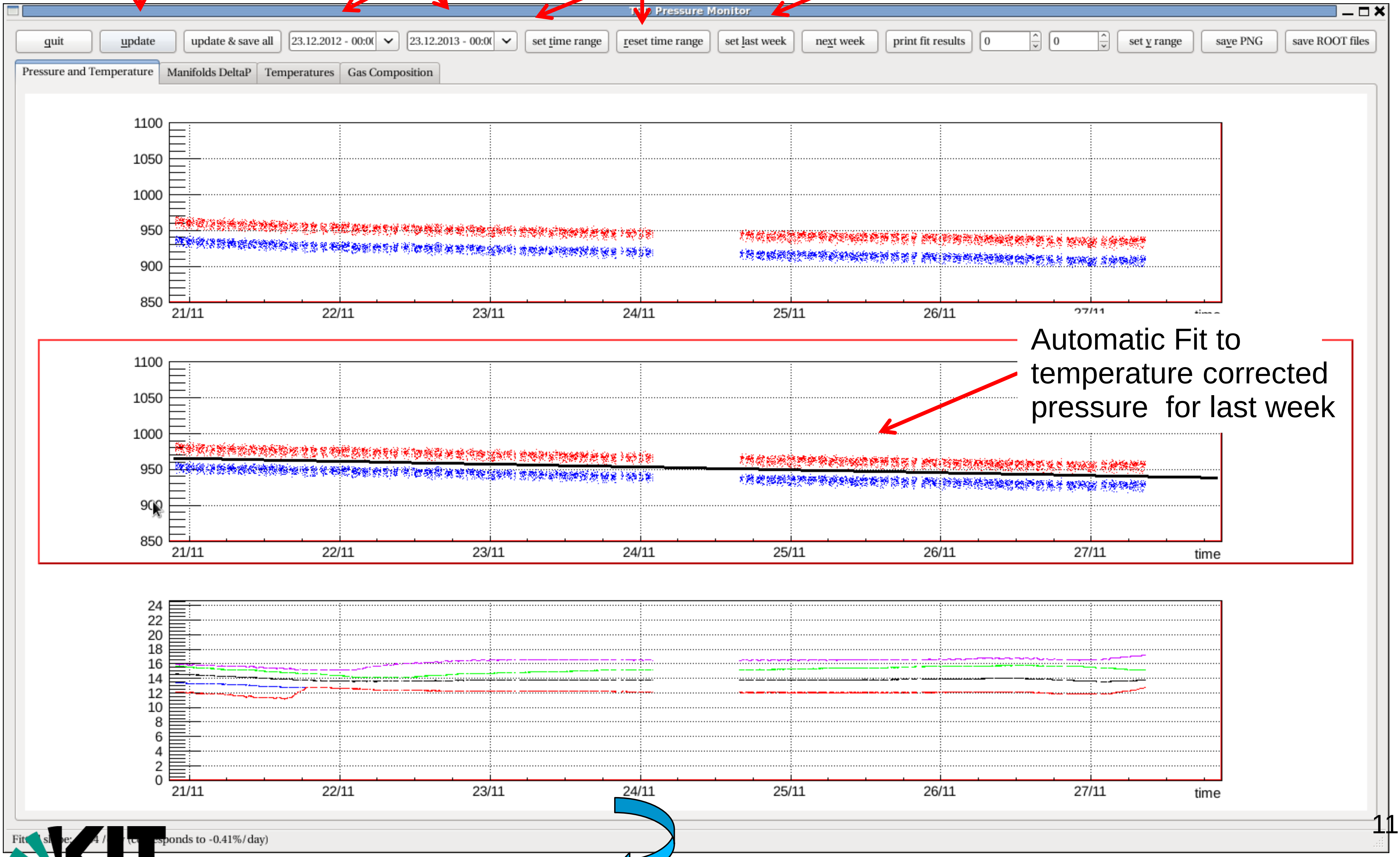
Actualize data

Chose Time Range, Start (Calendar) End

Set/Reset chosen time range

Set time range to last week

Automatic Fit to temperature corrected pressure for last week


T Pressure Monitor
quit
update
update & save all
23.12.2012 - 00:0(
23.12.2013 - 00:0(
set time range
reset time range
set last week
next week
print fit results
0
0
set y range
save PNG
save ROOT files
Pressure and Temperature
Manifolds DeltaP
Temperatures
Gas Composition
1100
1050
1000
950
900
850
21/11
22/11
23/11
24/11
25/11
26/11
27/11
time
24
22
20
18
16
14
12
10
8
6
4
2
0

Fit[illegible] sl[illegible]pe: [illegible]4 / [illegible] (c[illegible]esponds to -0.41%/day)

TRDGas Monitoring

- TRDGAS Status Monitor (TRDGAS-S)
- UG CHD (Critical Health Data)
- TRDGAS Monitor (TRDGAS-M)
- Pressure Monitor (TRD PressureMonitor)

Configuration of TRDGAS-S

Set Directory to Data/BLOCKS/HKLR/CDP

Find Last File (left click)

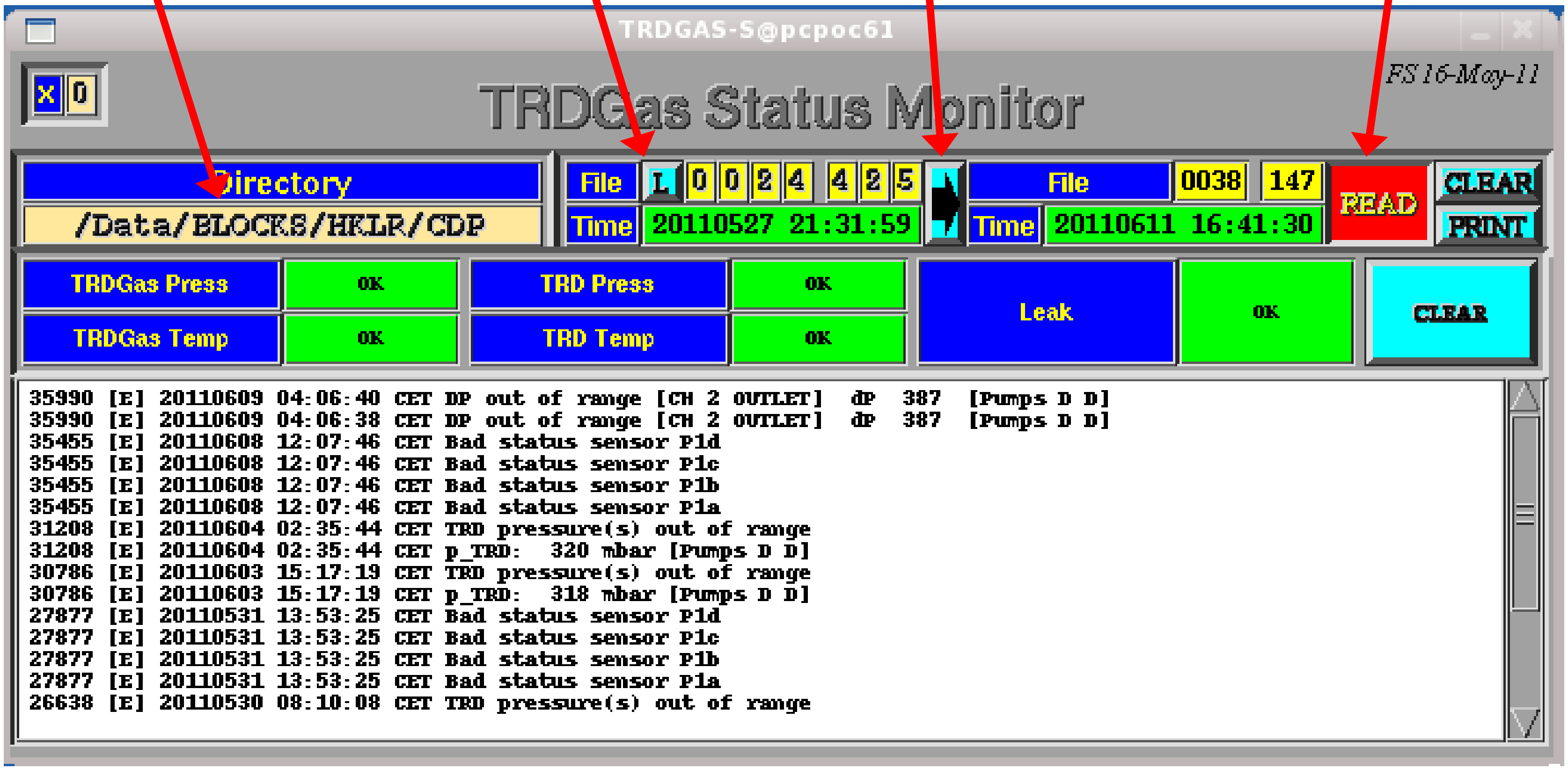
Load for reading (left click)

Read continously (right click)

Set X to 2

left-click ↑ number

right-click ↓ number


TRDGAS-S@pcpoc61
X
0
TRDGas Status Monitor
FS 16-May-11
L
READ
CLEAR
PRINT
TRDGas Press
OK
TRD Press
OK
TRDGas Temp
OK
TRD Temp
OK
Leak
OK
CLEAR

Directory: /Data/BLOCKS/HKLR/CDP

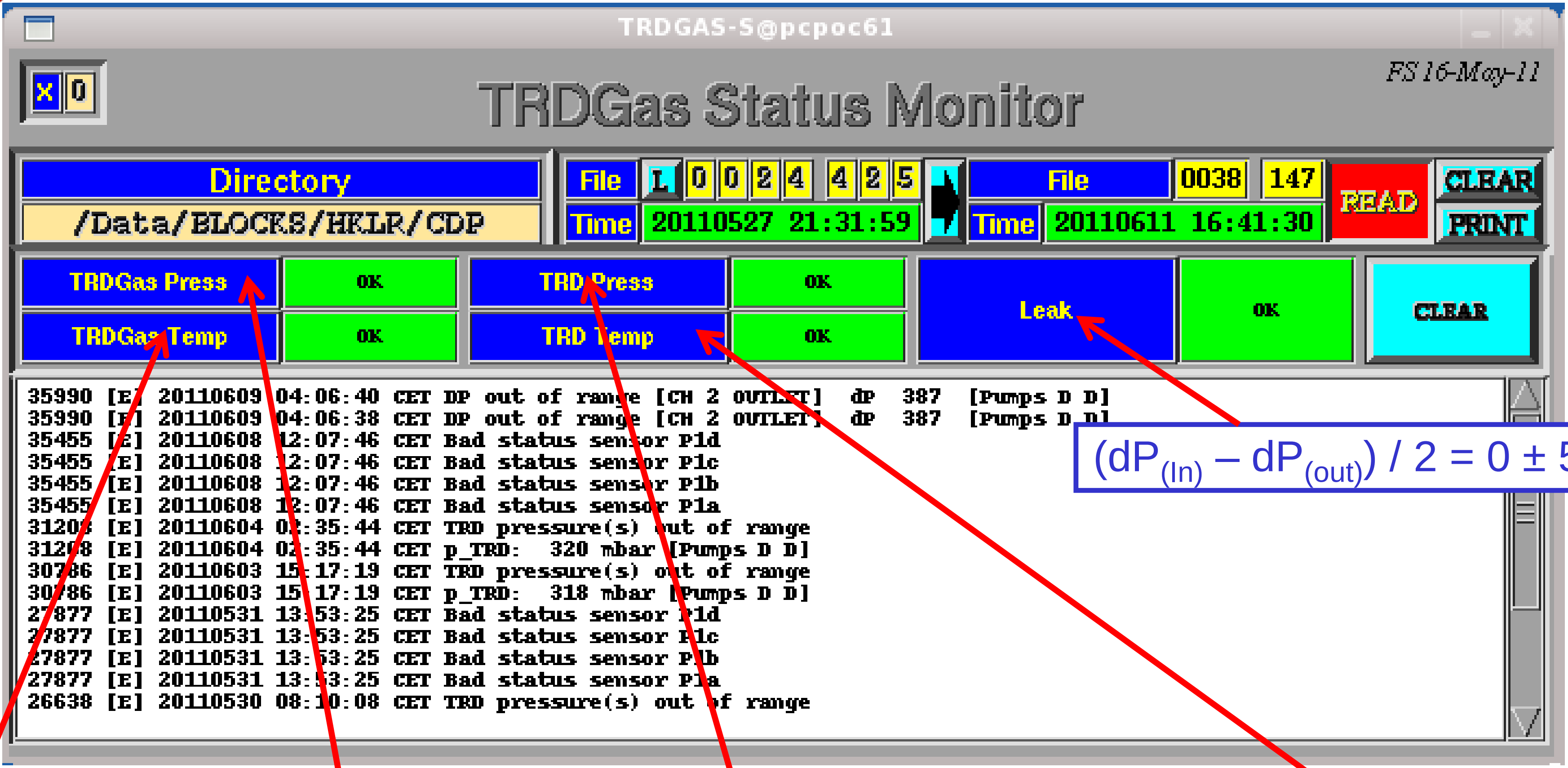
File: 0024 425 — Time: 20110527 21:31:59

File: 0038 147 — Time: 20110611 16:41:30

```
35990 [E] 20110609 04:06:40 CET DP out of range [CH 2 OUTLET]  dP  387  [Pumps D D]
35990 [E] 20110609 04:06:38 CET DP out of range [CH 2 OUTLET]  dP  387  [Pumps D D]
35455 [E] 20110608 12:07:46 CET Bad status sensor P1d
35455 [E] 20110608 12:07:46 CET Bad status sensor P1c
35455 [E] 20110608 12:07:46 CET Bad status sensor P1b
35455 [E] 20110608 12:07:46 CET Bad status sensor P1a
31208 [E] 20110604 02:35:44 CET TRD pressure(s) out of range
31208 [E] 20110604 02:35:44 CET p_TRD:  320 mbar [Pumps D D]
30786 [E] 20110603 15:17:19 CET TRD pressure(s) out of range
30786 [E] 20110603 15:17:19 CET p_TRD:  318 mbar [Pumps D D]
27877 [E] 20110531 13:53:25 CET Bad status sensor P1d
27877 [E] 20110531 13:53:25 CET Bad status sensor P1c
27877 [E] 20110531 13:53:25 CET Bad status sensor P1b
27877 [E] 20110531 13:53:25 CET Bad status sensor P1a
26638 [E] 20110530 08:10:08 CET TRD pressure(s) out of range
```

- **Every box should be green,**
- **Temperature and Pressure values should be in the operating ranges,**
- **check the browser for warnings or errors**

TRDGAS-S


TRDGAS-S@pcpoc61
X 0
TRDGas Status Monitor
FS 16-May-11
Directory
/Data/BLOCKS/HKLR/CDP
File
L 0 0 2 4 4 2 5
Time
20110527 21:31:59
File
0038
147
Time
20110611 16:41:30
READ
CLEAR
PRINT
TRDGas Press
OK
TRD Press
OK
TRDGas Temp
OK
TRD Temp
OK
Leak
OK
CLEAR

```
35990 [E] 20110609 04:06:40 CET DP out of range [CH 2 OUTLET]  dP  387  [Pumps D D]
35990 [E] 20110609 04:06:38 CET DP out of range [CH 2 OUTLET]  dP  387  [Pumps D D]
35455 [E] 20110608 12:07:46 CET Bad status sensor P1d
35455 [E] 20110608 12:07:46 CET Bad status sensor P1c
35455 [E] 20110608 12:07:46 CET Bad status sensor P1b
35455 [E] 20110608 12:07:46 CET Bad status sensor P1a
31208 [E] 20110604 02:35:44 CET TRD pressure(s) out of range
31208 [E] 20110604 02:35:44 CET p_TRD:  320 mbar [Pumps D D]
30786 [E] 20110603 15:17:19 CET TRD pressure(s) out of range
30786 [E] 20110603 15:17:19 CET p_TRD:  318 mbar [Pumps D D]
27877 [E] 20110531 13:53:25 CET Bad status sensor P1d
27877 [E] 20110531 13:53:25 CET Bad status sensor P1c
27877 [E] 20110531 13:53:25 CET Bad status sensor P1b
27877 [E] 20110531 13:53:25 CET Bad status sensor P1a
26638 [E] 20110530 08:10:08 CET TRD pressure(s) out of range
```

$(dP_{(In)} - dP_{(out)}) / 2 = 0 \pm 50$ mbar

Temperatures:
All TRDGas
DTS-Sensors
Range:
-30°C to +50°C

Pressures TRDGas:
Xe/CO_2 / Mix. Vol.
Range:
Xe: <175 bar
CO_2 : < 100 bar
Mix.Vol.: < 14 bar

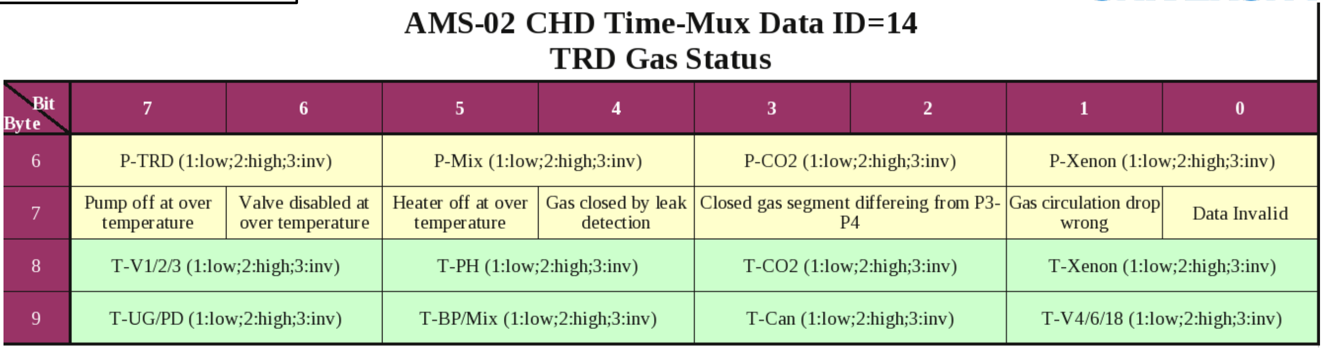
Pressures TRD:
BoxC
Range:
Pump off: 750 to 1500 mbar
Pump on half speed:
P3: 1220 to 1820 mbar
P4: 580 to 1180 mbar

SidePanel DTS-Sensors:
Ranges: +10°C to +40°C

UG CHD (Critical Health Data)

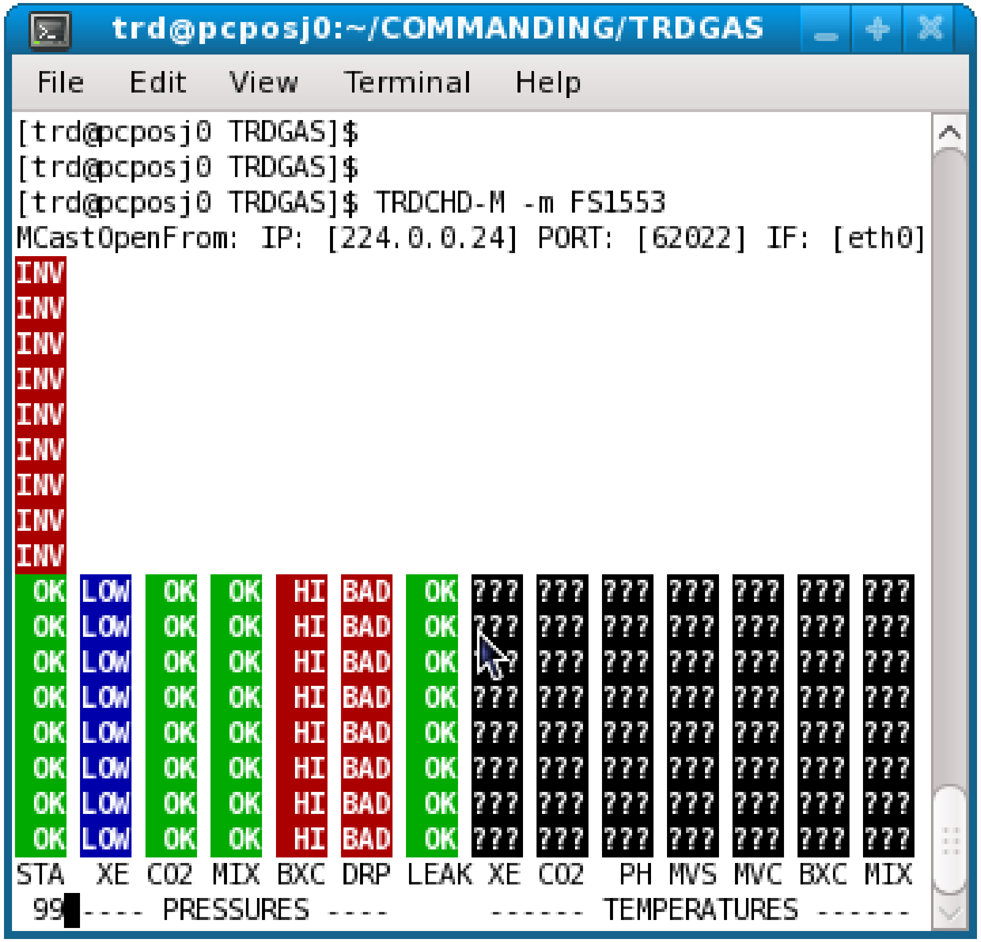
```
UG-CHD Bits from UG-CtrlTask

Monitor MultiCast Server:

$ TRDCHD-M -m MCC  (Shuttle)
           -m HOSC (ISS)


STA    INV – not updated
          -> UG-Task running ?

 XE  P   20.. 175bar
CO2  R   10.. 100bar
MIX  E    0..  13.8bar
BXC  S  800..1200mbar
DRP  S  Pin-Pout = 0 / 650mbar
        For CP    off  half

LEAK    detected by UG-CtrlTask

 XE  T  -30..+60degC
CO2  E  -50..+60degC
 PH  M  -15..+60degC
MVS  P  -15..+60degC
MVC  E  -15..+60degC
BXC  R   +5..+40degC
MIX  T  -15..+60degC
```

Bit Definition:



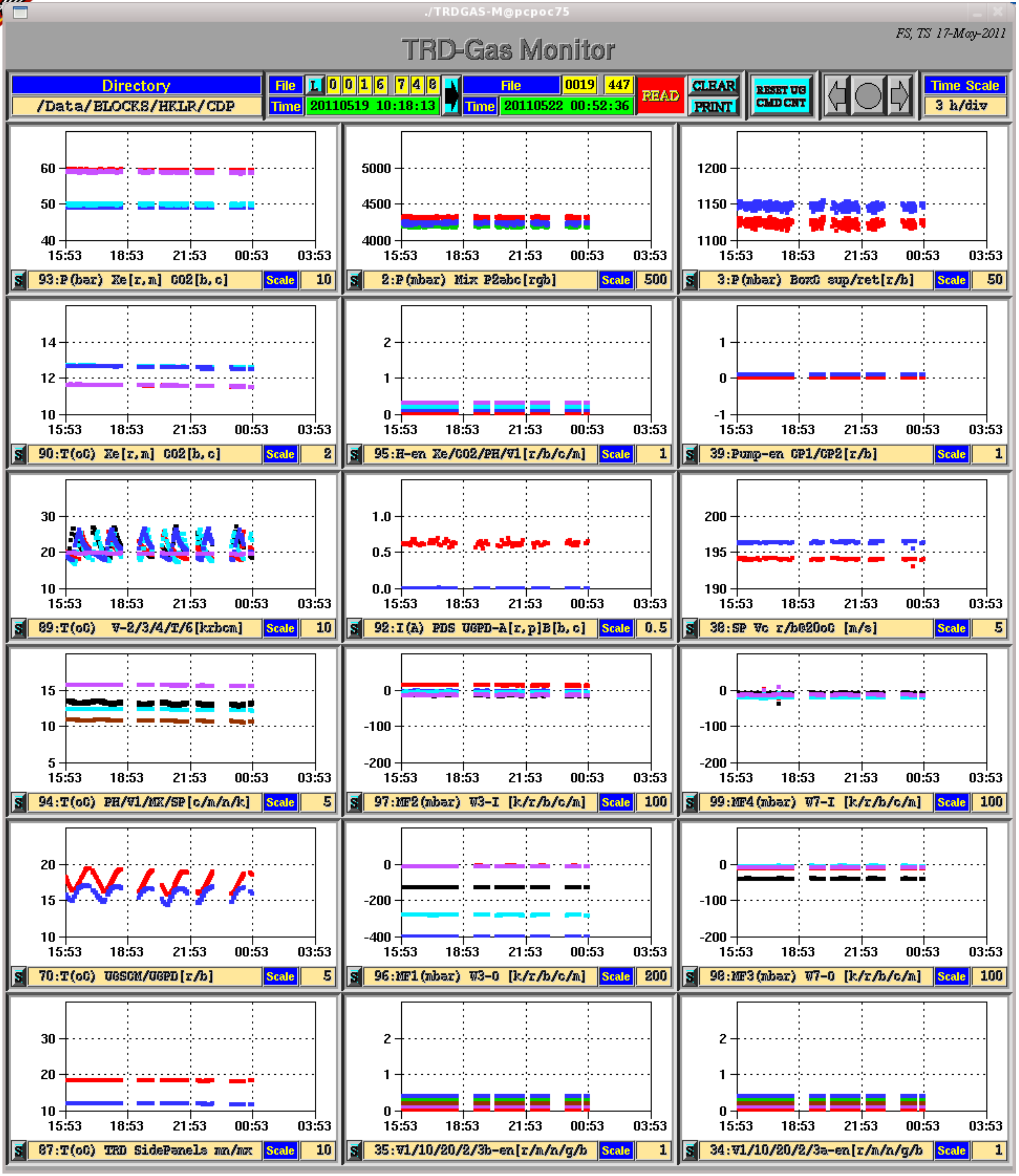
AMS-02 CHD Time-Mux Data ID=14
TRD Gas Status

Byte \ Bit	7	6	5	4	3	2	1	0
6	P-TRD (1:low;2:high;3:inv)		P-Mix (1:low;2:high;3:inv)		P-CO2 (1:low;2:high;3:inv)		P-Xenon (1:low;2:high;3:inv)	
7	Pump off at over temperature	Valve disabled at over temperature	Heater off at over temperature	Gas closed by leak detection	Closed gas segment differeing from P3-P4		Gas circulation drop wrong	Data Invalid
8	T-V1/2/3 (1:low;2:high;3:inv)		T-PH (1:low;2:high;3:inv)		T-CO2 (1:low;2:high;3:inv)		T-Xenon (1:low;2:high;3:inv)	
9	T-UG/PD (1:low;2:high;3:inv)		T-BP/Mix (1:low;2:high;3:inv)		T-Can (1:low;2:high;3:inv)		T-V4/6/18 (1:low;2:high;3:inv)	



```
[trd@pcposj0 TRDGAS]$
[trd@pcposj0 TRDGAS]$
[trd@pcposj0 TRDGAS]$ TRDCHD-M -m FS1553
MCastOpenFrom: IP: [224.0.0.24] PORT: [62022] IF: [eth0]
INV
INV
INV
INV
INV
INV
INV
INV
INV
 OK LOW  OK  OK  HI BAD  OK ??? ??? ??? ??? ??? ??? ???
 OK LOW  OK  OK  HI BAD  OK ??? ??? ??? ??? ??? ??? ???
 OK LOW  OK  OK  HI BAD  OK ??? ??? ??? ??? ??? ??? ???
 OK LOW  OK  OK  HI BAD  OK ??? ??? ??? ??? ??? ??? ???
 OK LOW  OK  OK  HI BAD  OK ??? ??? ??? ??? ??? ??? ???
 OK LOW  OK  OK  HI BAD  OK ??? ??? ??? ??? ??? ??? ???
 OK LOW  OK  OK  HI BAD  OK ??? ??? ??? ??? ??? ??? ???
 OK LOW  OK  OK  HI BAD  OK ??? ??? ??? ??? ??? ??? ???
STA  XE CO2 MIX BXC DRP LEAK XE CO2  PH MVS MVC BXC MIX
 99 ---- PRESSURES ----     ------ TEMPERATURES ------
```

TRD-Gas Monitor Program: TRDGAS-M


./TRDGAS-M@pcpoc75
TRD-Gas Monitor
FS, TS 17-May-2011
READ
CLEAR
PRINT
RESET UG CMD CNT
15:53
18:53
21:53
00:53
03:53

Directory /Data/BLOCKS/HKLR/CDP

File L 0 0 1 6 7 4 8 Time 20110519 10:18:13

File 0019 447 Time 20110522 00:52:36

Time Scale 3 h/div

93:P(bar) Xe[r,m] CO2[b,c] Scale 10

2:P(mbar) Mix P2abc[rgb] Scale 500

3:P(mbar) BoxC sup/ret[r/b] Scale 50

90:T(oC) Xe[r,m] CO2[b,c] Scale 2

95:H-en Xe/CO2/PH/V1[r/b/c/m] Scale 1

39:Pump-en CP1/CP2[r/b] Scale 1

89:T(oC) V-2/3/4/T/6[krbcm] Scale 10

92:I(A) PDS UGPD-A[r,p]B[b,c] Scale 0.5

38:SP Vc r/b@20oC [m/s] Scale 5

94:T(oC) PH/V1/MX/SP[c/m/n/k] Scale 5

97:MF2(mbar) V3-I [k/r/b/c/m] Scale 100

99:MF4(mbar) V7-I [k/r/b/c/m] Scale 100

70:T(oC) UGSCM/UGPD[r/b] Scale 5

96:MF1(mbar) V3-O [k/r/b/c/m] Scale 200

98:MF3(mbar) V7-O [k/r/b/c/m] Scale 100

87:T(oC) TRD SidePanels mn/mx Scale 10

35:V1/10/20/2/3b-en[r/m/n/g/b Scale 1

34:V1/10/20/2/3a-en[r/m/n/g/b Scale 1

Dir: selected interface
File: DDDD/NNN

right-click READ

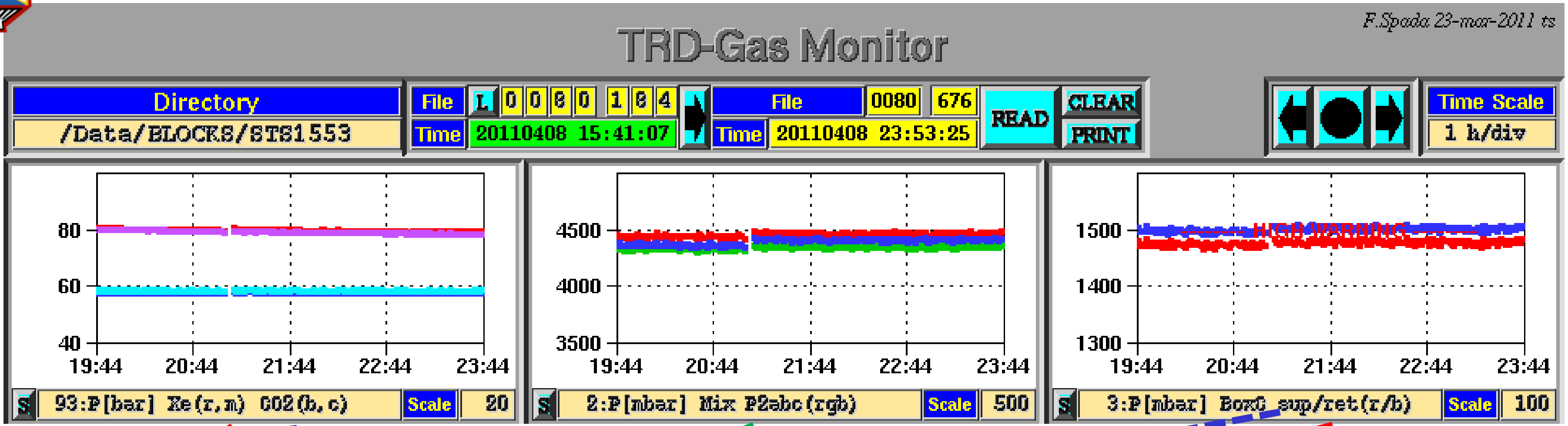
PDS-UGPD current from PDS

Other Data from UG

(1st DTSdata after 5min)

JMDC output in terminal

TRD-Gas Monitor Program: TRDGAS-M



TRD-Gas Monitor

F.Spada 23-mar-2011 ts

Directory: /Data/BLOCKS/STS1553

File: L 0080 184 — Time: 20110408 15:41:07

File: 0080 676 — Time: 20110408 23:53:25

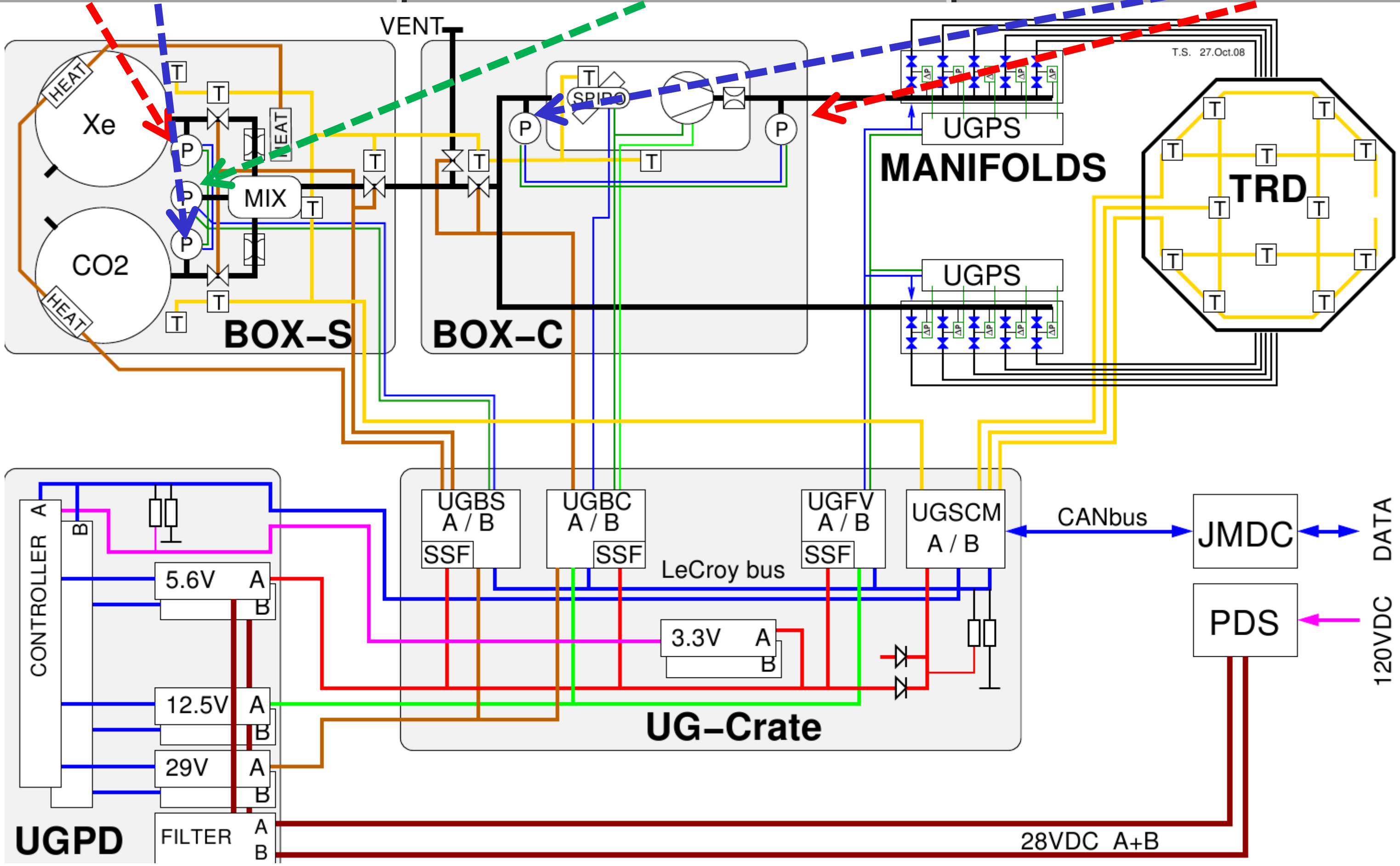
Time Scale: 1 h/div

S 93:P[bar] Xe(r,m) CO2(b,c) — Scale 20

S 2:P[mbar] Mix P2abc(rgb) — Scale 500

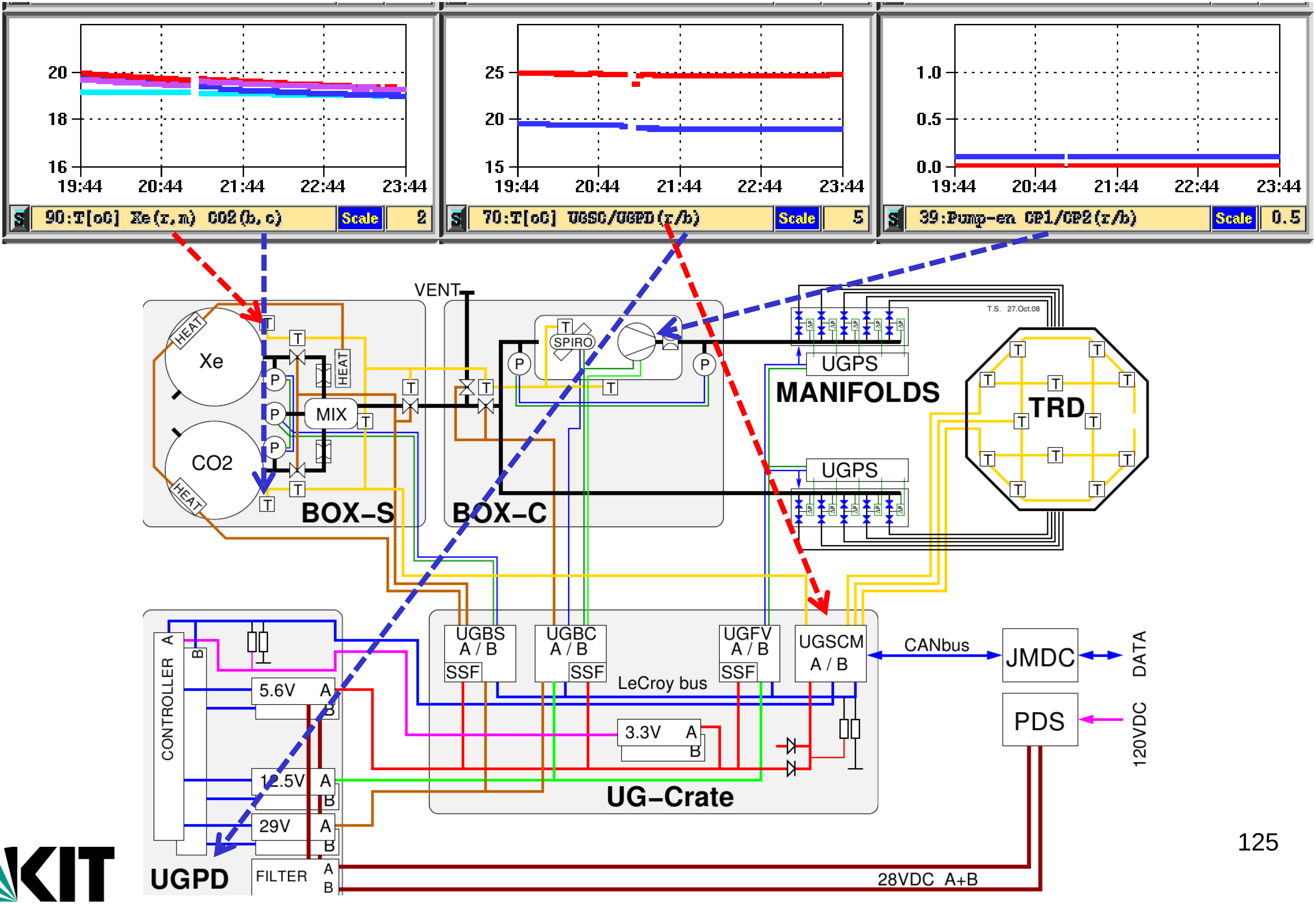
S 3:P[mbar] BoxC sup/ret(r/b) — Scale 100

READ
CLEAR
PRINT
80
60
40
4500
4000
3500
1500
1400
1300
19:44
20:44
21:44
22:44
23:44
HIGH WARNING

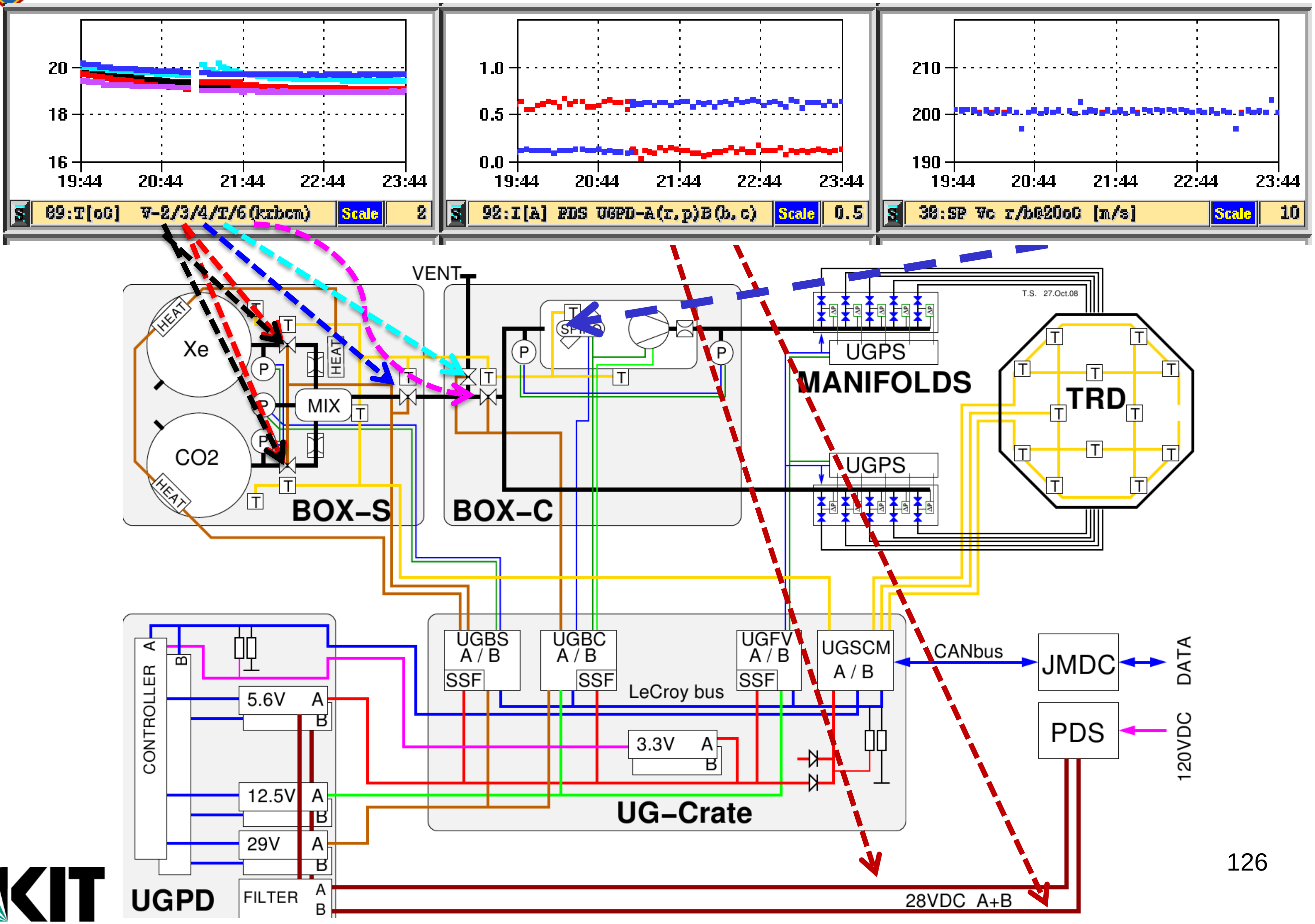


VENT
HEAT
Xe
CO2
HEAT
HEAT
P
P
P
MIX
T
BOX–S
BOX–C
SPIRO
MANIFOLDS
UGPS
UGPS
T.S. 27.Oct.08
TRD
UGBS A / B SSF
UGBC A / B SSF
UGFV A / B SSF
UGSCM A / B
LeCroy bus
3.3V A B
UG–Crate
CANbus
JMDC
DATA
PDS
120VDC
CONTROLLER A
B
5.6V A B
12.5V A B
29V A B
FILTER A B
UGPD
28VDC A+B

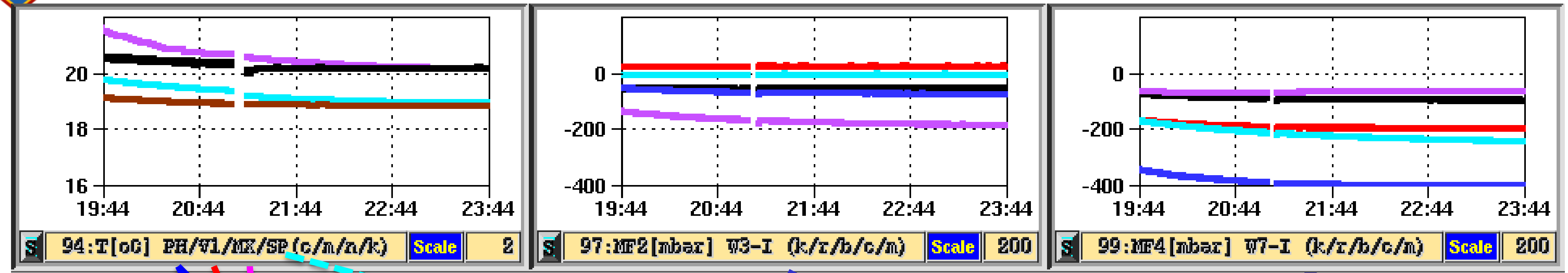
TRD-Gas Monitor Program: TRDGAS-M

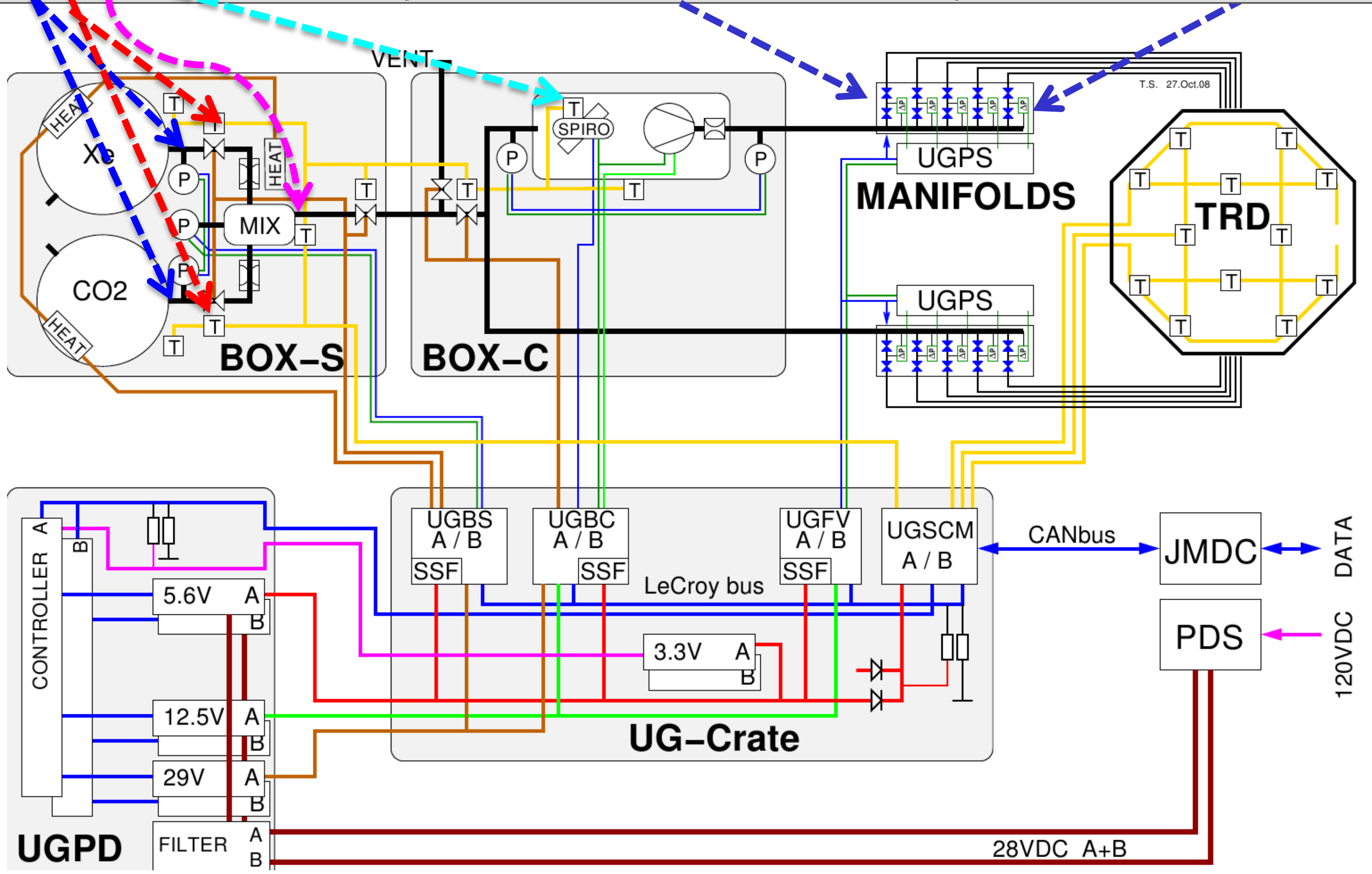

20
18
16
19:44
20:44
21:44
22:44
23:44
S
90:T[oC] Xe(r,m) CO2(b,c)
Scale
2
25
20
15
70:T[oC] UGSC/UGPD(r/b)
5
1.0
0.5
0.0
39:Pump-en CP1/CP2(r/b)
0.5
VENT
HEAT
Xe
CO2
P
T
MIX
BOX–S
BOX–C
SPIRO
UGPS
MANIFOLDS
T.S. 27.Oct.08
TRD
UGBS A / B
SSF
UGBC A / B
UGFV A / B
UGSCM A / B
LeCroy bus
CANbus
JMDC
DATA
PDS
120VDC
CONTROLLER A
B
5.6V A
3.3V A
12.5V A
29V A
FILTER A
UG–Crate
UGPD
28VDC A+B

TRD-Gas Monitor Program: TRDGAS-M

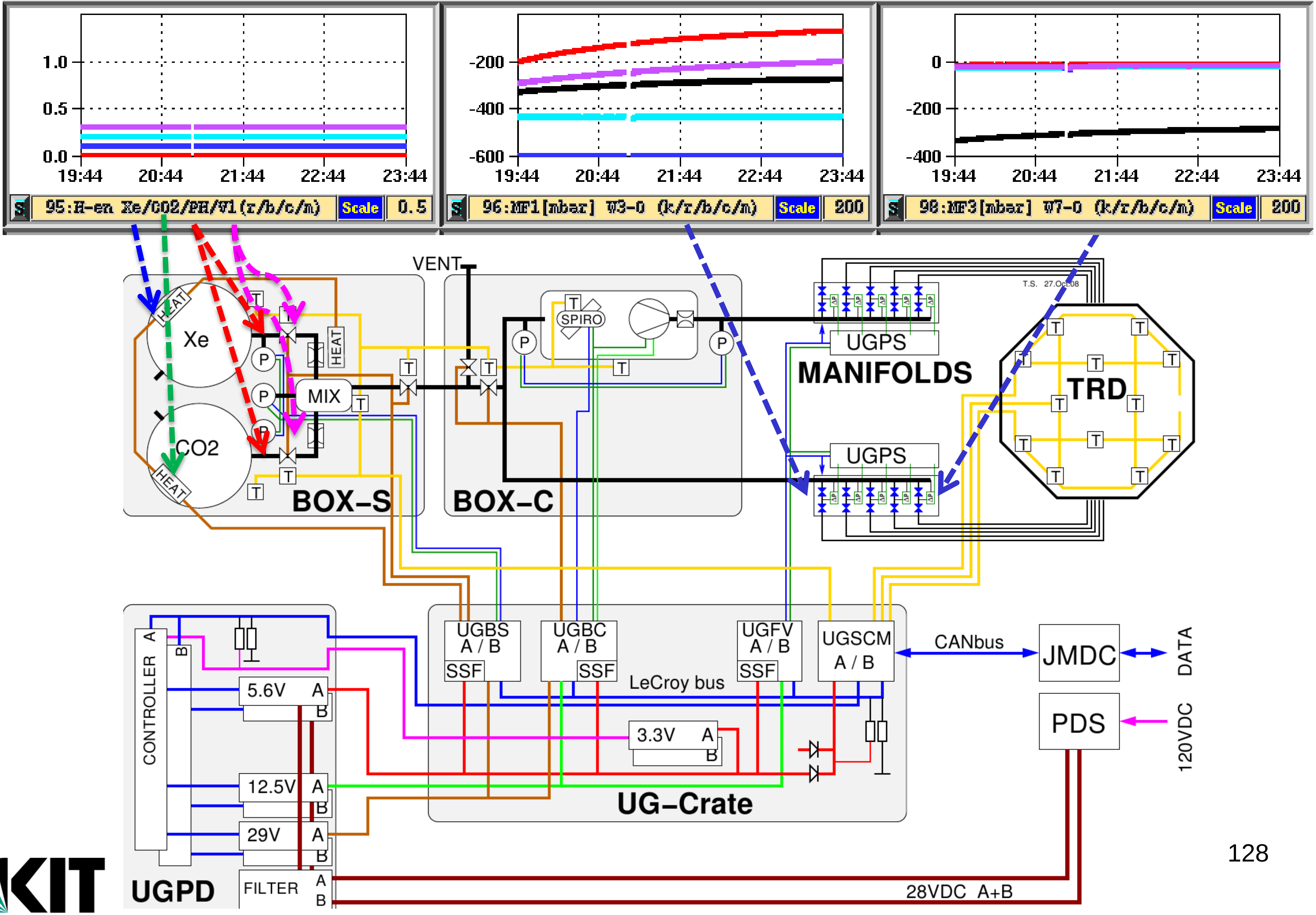

20
18
16
19:44
20:44
21:44
22:44
23:44
S
89:T[oC] V-2/3/4/T/6(krbcm)
Scale
2
1.0
0.5
0.0
19:44
20:44
21:44
22:44
23:44
S
92:I[A] PDS UGPD-A(r,p)B(b,c)
Scale
0.5
210
200
190
19:44
20:44
21:44
22:44
23:44
S
38:SP Vc r/b@20oC [m/s]
Scale
10
VENT
HEAT
Xe
HEAT
CO2
HEAT
P
P
P
MIX
T
BOX–S
BOX–C
SPIRO
P
P
UGPS
MANIFOLDS
UGPS
T.S. 27.Oct.08
TRD
T
ΔP
CONTROLLER
A
B
5.6V
A
B
12.5V
A
B
29V
A
B
FILTER
A
B
UGPD
UGBS
A / B
SSF
UGBC
A / B
SSF
UGFV
A / B
SSF
UGSCM
A / B
LeCroy bus
3.3V
A
B
UG–Crate
CANbus
JMDC
DATA
PDS
120VDC
28VDC A+B

TRD-Gas Monitor Program: TRDGAS-M

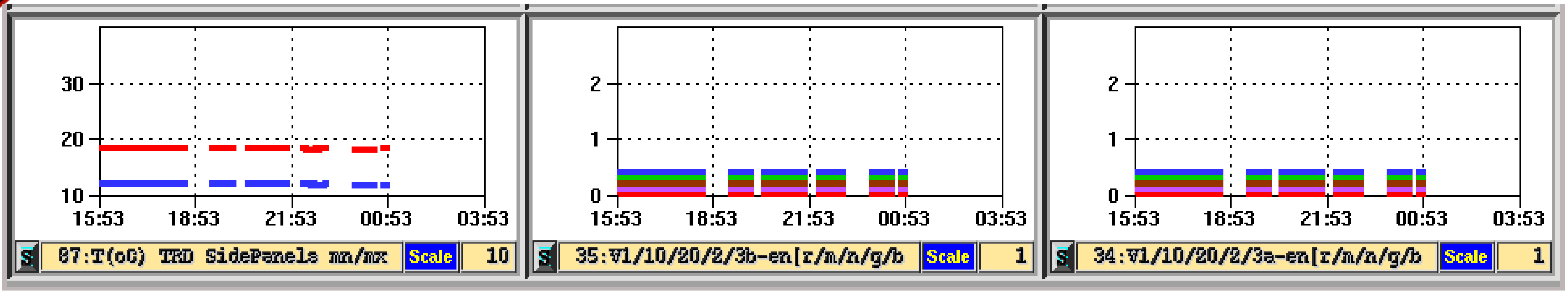

20
18
16
19:44
20:44
21:44
22:44
23:44
S
94:T[oG] PH/V1/MX/SP(c/m/n/k)
Scale
2
0
-200
-400
19:44
20:44
21:44
22:44
23:44
S
97:MF2[mbar] V3-I (k/r/b/c/m)
Scale
200
0
-200
-400
19:44
20:44
21:44
22:44
23:44
S
99:MF4[mbar] V7-I (k/r/b/c/m)
Scale
200

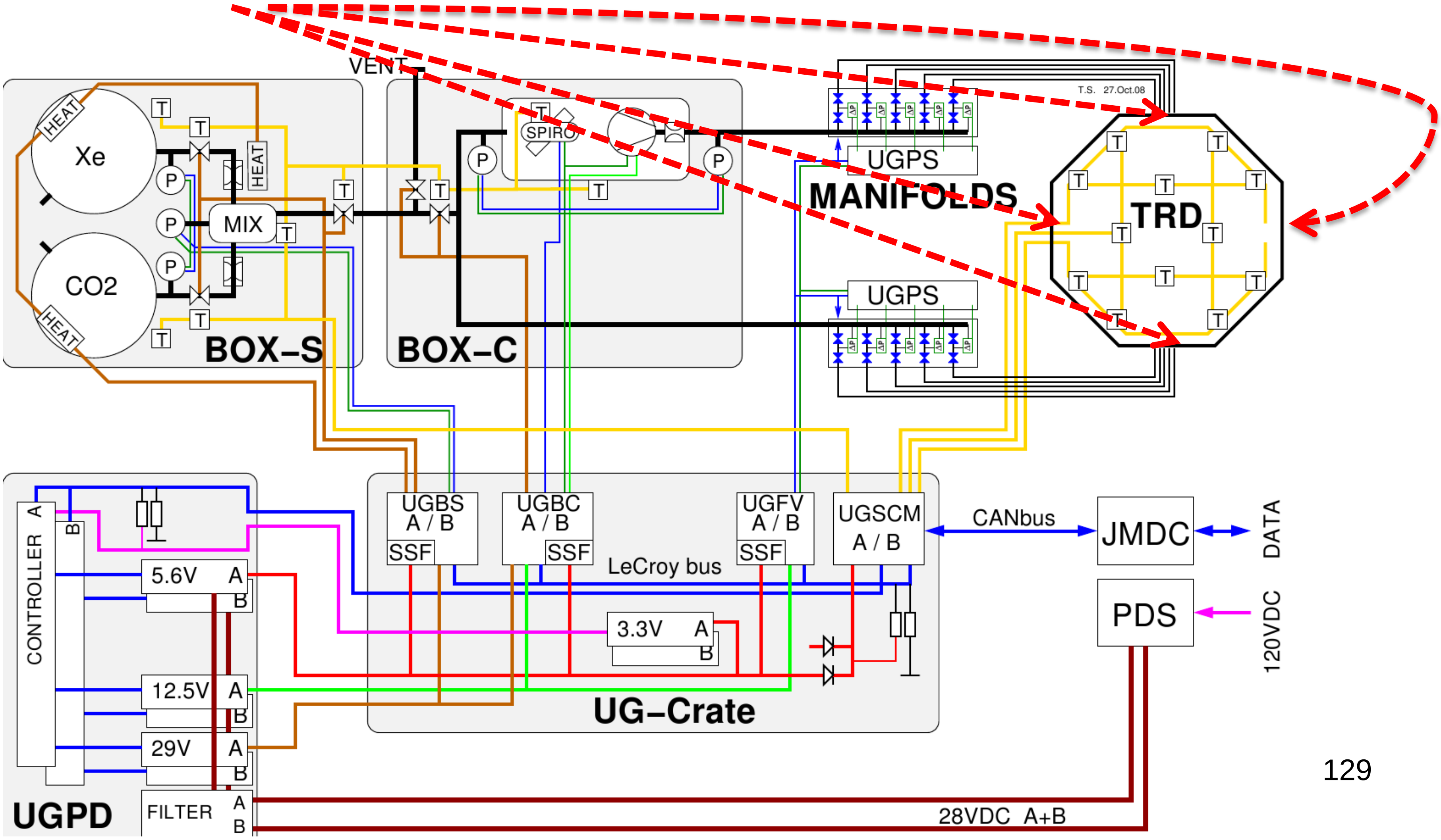

VENT
HEAT
Xe
T
P
MIX
HEAT
CO2
HEAT
BOX–S
SPIRO
BOX–C
T.S. 27.Oct.08
UGPS
MANIFOLDS
TRD
UGPS
CONTROLLER
A
B
5.6V
12.5V
29V
FILTER
UGPD
UGBS A / B
SSF
UGBC A / B
SSF
LeCroy bus
3.3V
UGFV A / B
SSF
UGSCM A / B
UG–Crate
CANbus
JMDC
DATA
PDS
120VDC
28VDC A+B

TRD-Gas Monitor Program: TRDGAS-M

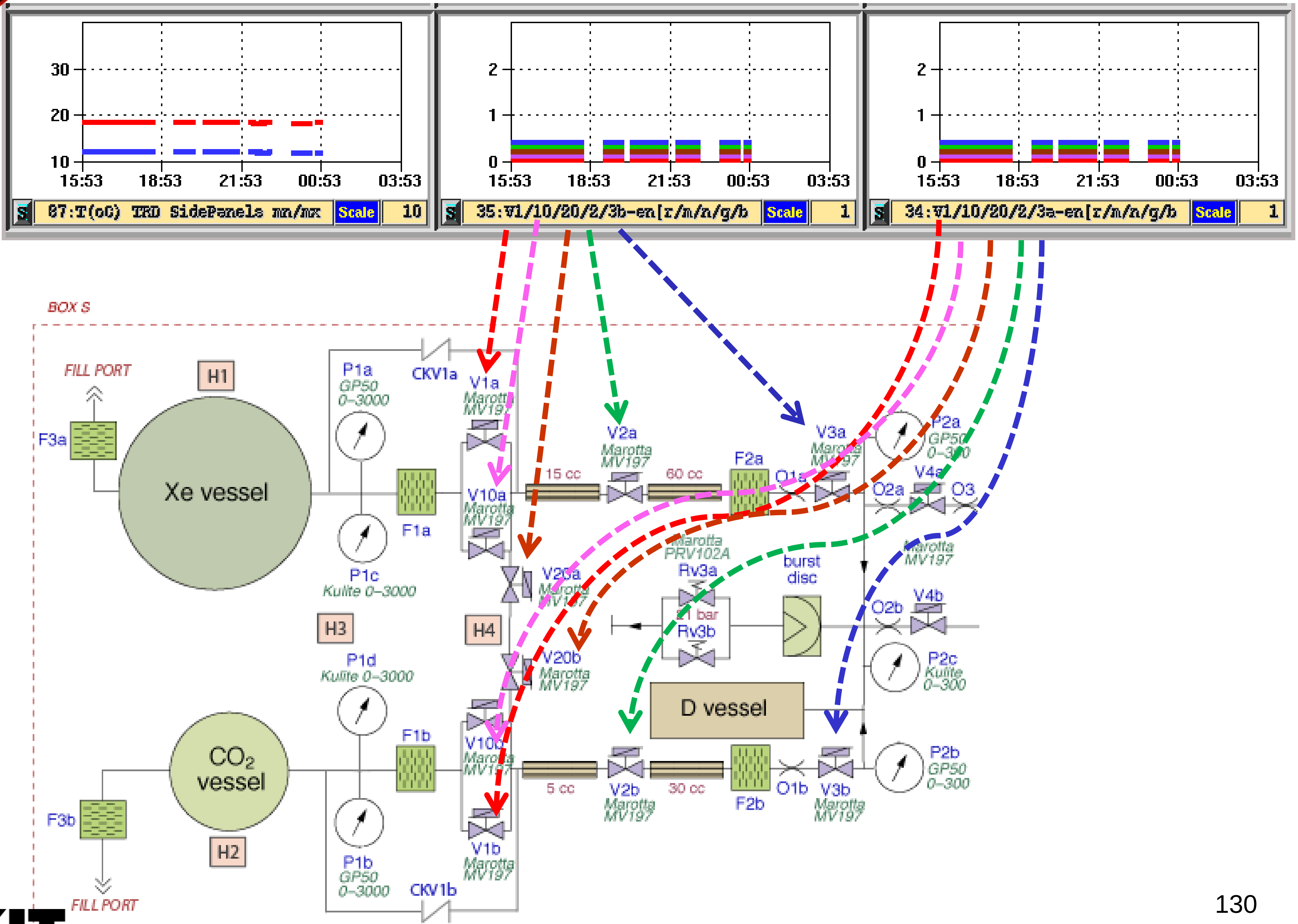

1.0
0.5
0.0
19:44
20:44
21:44
22:44
23:44
S
95:H-en Xe/CO2/PH/V1(r/b/c/m)
Scale
0.5
-200
-400
-600
96:MF1[mbar] V3-0 (k/r/b/c/m)
200
0
98:MF3[mbar] V7-0 (k/r/b/c/m)
VENT
Xe
CO2
HEAT
P
MIX
T
SPIRO
BOX-S
BOX-C
ΔP
UGPS
MANIFOLDS
T.S. 27.Oct.08
TRD
UGBS
A / B
SSF
UGBC
UGFV
UGSCM
LeCroy bus
CANbus
JMDC
DATA
PDS
120VDC
3.3V
A
B
UG-Crate
CONTROLLER
5.6V
12.5V
29V
FILTER
UGPD
28VDC A+B

TRD-Gas Monitor Program: TRDGAS-M

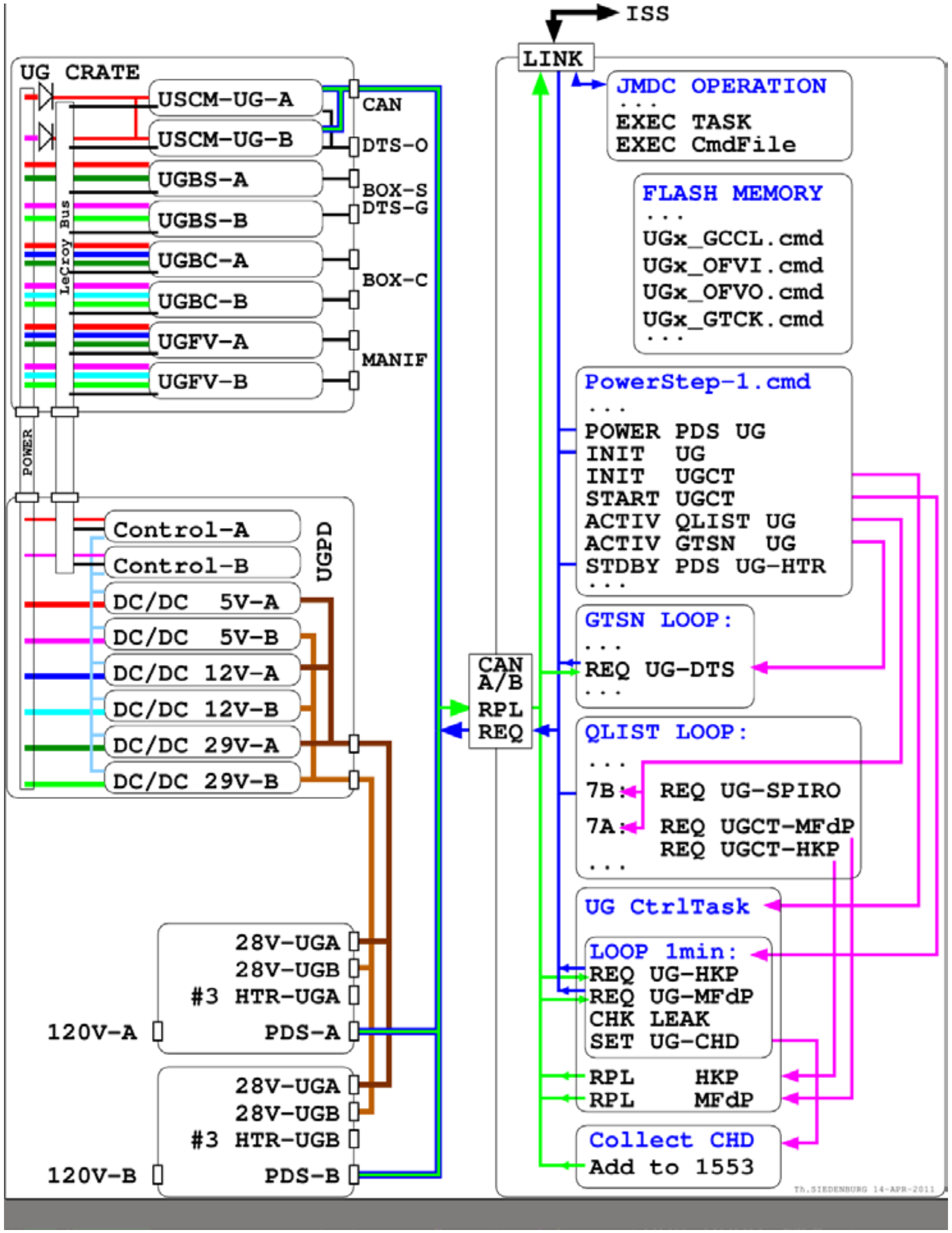

30
20
10
15:53
18:53
21:53
00:53
03:53
S
87:T(oC) TRD SidePanels mn/mx
Scale
10
2
1
0
15:53
18:53
21:53
00:53
03:53
S
35:V1/10/20/2/3b-en[r/m/n/g/b
Scale
1
2
1
0
15:53
18:53
21:53
00:53
03:53
S
34:V1/10/20/2/3a-en[r/m/n/g/b
Scale
1


VENT
T
HEAT
Xe
P
MIX
CO2
HEAT
BOX–S
SPIRO
P
BOX–C
T.S. 27.Oct.08
UGPS
MANIFOLDS
UGPS
TRD
CONTROLLER
A
B
5.6V
12.5V
29V
FILTER
UGPD
UGBS A / B
SSF
UGBC A / B
SSF
LeCroy bus
UGFV A / B
SSF
UGSCM A / B
3.3V
UG–Crate
CANbus
JMDC
DATA
PDS
120VDC
28VDC A+B

TRD-Gas Monitor Program: TRDGAS-M


30
20
10
15:53
18:53
21:53
00:53
03:53
S
87:T(oC) TRD SidePanels mn/mx
Scale
10
2
1
0
15:53
18:53
21:53
00:53
03:53
S
35:V1/10/20/2/3b-en[r/m/n/g/b
Scale
1
2
1
0
15:53
18:53
21:53
00:53
03:53
S
34:V1/10/20/2/3a-en[r/m/n/g/b
Scale
1
BOX S
FILL PORT
H1
F3a
Xe vessel
P1a
GP50
0–3000
CKV1a
V1a
Marotta
MV197
F1a
V10a
Marotta
MV197
P1c
Kulite 0–3000
15 cc
V2a
Marotta
MV197
60 cc
F2a
O1a
V3a
Marotta
MV197
P2a
GP50
0–300
V4a
O2a
O3
Marotta
MV197
Marotta
PRV102A
Rv3a
burst
disc
V20a
Marotta
MV197
H3
H4
2.1 bar
Rv3b
O2b
V4b
P1d
Kulite 0–3000
V20b
Marotta
MV197
P2c
Kulite
0–300
D vessel
F1b
V10b
Marotta
MV197
CO₂
vessel
F3b
H2
P1b
GP50
0–3000
5 cc
V2b
Marotta
MV197
30 cc
F2b
O1b
V3b
Marotta
MV197
P2b
GP50
0–300
V1b
Marotta
MV197
CKV1b
FILL PORT

TRD/TRDGas-Trouble Shooting 1


ISS
LINK
UG CRATE
USCM-UG-A
USCM-UG-B
UGBS-A
UGBS-B
UGBC-A
UGBC-B
UGFV-A
UGFV-B
CAN
DTS-O
BOX-S
DTS-G
BOX-C
MANIF
LeCroy Bus
POWER
Control-A
Control-B
DC/DC 5V-A
DC/DC 5V-B
DC/DC 12V-A
DC/DC 12V-B
DC/DC 29V-A
DC/DC 29V-B
UGPD
28V-UGA
28V-UGB
#3 HTR-UGA
120V-A
PDS-A
28V-UGA
28V-UGB
#3 HTR-UGB
120V-B
PDS-B
CAN A/B
RPL
REQ
JMDC OPERATION
...
EXEC TASK
EXEC CmdFile
FLASH MEMORY
...
UGx_GCCL.cmd
UGx_OFVI.cmd
UGx_OFVO.cmd
UGx_GTCK.cmd
...
PowerStep-1.cmd
...
POWER PDS UG
INIT UG
INIT UGCT
START UGCT
ACTIV QLIST UG
ACTIV GTSN UG
STDBY PDS UG-HTR
...
GTSN LOOP:
...
REQ UG-DTS
...
QLIST LOOP:
...
7B: REQ UG-SPIRO
7A: REQ UGCT-MFdP
REQ UGCT-HKP
...
UG CtrlTask
LOOP 1min:
REQ UG-HKP
REQ UG-MFdP
CHK LEAK
SET UG-CHD
RPL HKP
RPL MFdP
Collect CHD
Add to 1553
Th.SIEDENBURG 14-APR-2011

UG Data Collection:

UG-Crate control	USCM-UG-A or -B via CANbus
	Both powered by 5V-A or -B
UG-Board UGxx:	Comm. via LeCroy-Bus
xx=BS,BC UGxx-A	powered by 5/12/29V-A
FV,PD UGxx-B	powered by 5/12/29V-B
UG POWER & INIT:	JMDC in PowerStep-1

DATA	SOURCE	REQUESTED BY
UG-DTS	USCM	JMDC GTSN Loop
Octagon	Bus-1-7	
TRDGAS	Bus- 8	
USCM	Bus 9	
UG-HKP	UGBS/BC	UG-CtrlTask Loop
UG-MFdP	UGFV/USCM	UG-CtrlTask Loop
UG-HKP	UG-CtrlTask	JMDC Qlist #7A
UG-MFdP	UG-CtrlTask	JMDC Qlist #7A
UG-SPIRO	UGBC/USCM	JMDC Qlist #7B

All REQ are echoed to ground,
So UG-HKP and -MfdP are received twice

TRD/TRDGas-Trouble Shooting 2

UG Data missing in TRDGAS-M – but AMS data is arriving

```
All Data Missing:
UG Supply Current [92] = 0 ?  UG-Crate OFF    Ask LEAD to power on UG-A and INIT UG-A
No response from USCM-UG-P ?     Ask LEAD to Re-Initialize UG-A    Check the replies
Try other USCM-UG                Ask LEAD to set UG-P to USCM-UG-B and INIT UG-A
Try UG-Crate Power Cycle         Ask LEAD to power-cycle PDS UGPD-A feed and INIT UG-A
Try other half of UG-Crate       Ask LEAD to power PDS UGPD-B and INIT UG-B

Only DTS Data missing:           Ask LEAD to check UG status in GTSN Loop (and activate)

Only Spirometer Data missing:    Ask LEAD to check JMDC Qlist entry 7B (and activate)

Only Pressure and MfdP missing:  Ask LEAD to check UG-CtrlTask status (and start)
     With LeCroy Errors:         Ask LEAD to SwitchOff UGPD DC/DC-A and INIT UG-A
```

UG Replies are logged by TRDGAS-M in ./UGcmdLog/

```
Each time TRDGAS-M is started, new logfiles are opened with UNIXTIME basename

Replies from UG-Command-Files sent from ground (TAG F7A):   UNIXTIME.CmdFile
Other UG related Replies:                                   UNIXTIME.UGreply
TAGs:    200  PowerStep-1 requests to UG-Crate, UG-CtrlTask, Qlist, GTSNloop
         C7A  Qlist UG-HKP/MFdP request to UG-CtrlTask
         C7B  Qlist UG-SPIRO    request to UG-Crate
         E06  UG-CtrlTask requests to UG-Crate
```

Karlsruhe Institute of Technology

TRD/TRDGas-Error Messages

```
Expected TRDGAS-M ERROR Messages after UG-INIT in AMS Power-Step-1:

LeCroy         ERROR  i=0 :: bus=77 :: chk=1  Thu Apr  7 14:05:42 2011

[PDS-A]UG-A POWER ON  Thu Apr  7 14:05:44 2011

UG-ControlTask ERROR  Data Invalid  Thu Apr  7 14:05:44 2011
UG-ControlTask ERROR  Data Invalid  Thu Apr  7 14:05:44 2011
UG-ControlTask ERROR  Data Invalid  Thu Apr  7 14:05:44 2011
UG-ControlTask ERROR  Data Invalid  Thu Apr  7 14:05:44 2011
```

TRD Expert Tools

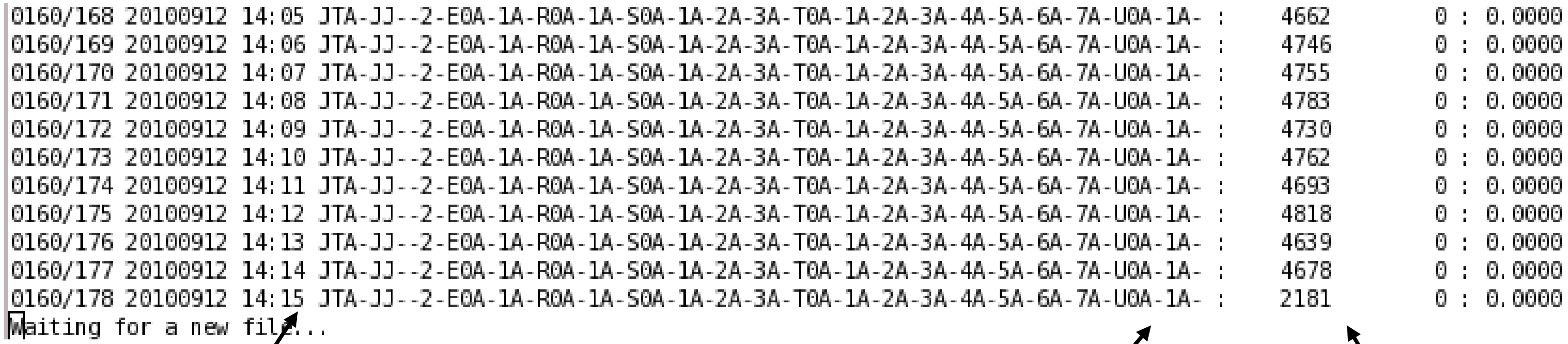
- read block files
- Event Size Monitor (ESMC)
- TRD-HV
- TRD Configurator
- TRD Status Monitor Pro
- UHV Status Monitor
- TRDGas Control (TRDGAS-C)
- TRDGas Emergency (TRDGas-E)

Screen-4: Additional Tools for TRD Experts

read_block_files:

- Start the program:

```
read_block_files /Data/BLOCKS/directory -10 1000
```



```
0160/168 20100912 14:05 JTA-JJ--2-E0A-1A-R0A-1A-S0A-1A-2A-3A-T0A-1A-2A-3A-4A-5A-6A-7A-U0A-1A- :    4662         0 : 0.0000
0160/169 20100912 14:06 JTA-JJ--2-E0A-1A-R0A-1A-S0A-1A-2A-3A-T0A-1A-2A-3A-4A-5A-6A-7A-U0A-1A- :    4746         0 : 0.0000
0160/170 20100912 14:07 JTA-JJ--2-E0A-1A-R0A-1A-S0A-1A-2A-3A-T0A-1A-2A-3A-4A-5A-6A-7A-U0A-1A- :    4755         0 : 0.0000
0160/171 20100912 14:08 JTA-JJ--2-E0A-1A-R0A-1A-S0A-1A-2A-3A-T0A-1A-2A-3A-4A-5A-6A-7A-U0A-1A- :    4783         0 : 0.0000
0160/172 20100912 14:09 JTA-JJ--2-E0A-1A-R0A-1A-S0A-1A-2A-3A-T0A-1A-2A-3A-4A-5A-6A-7A-U0A-1A- :    4730         0 : 0.0000
0160/173 20100912 14:10 JTA-JJ--2-E0A-1A-R0A-1A-S0A-1A-2A-3A-T0A-1A-2A-3A-4A-5A-6A-7A-U0A-1A- :    4762         0 : 0.0000
0160/174 20100912 14:11 JTA-JJ--2-E0A-1A-R0A-1A-S0A-1A-2A-3A-T0A-1A-2A-3A-4A-5A-6A-7A-U0A-1A- :    4693         0 : 0.0000
0160/175 20100912 14:12 JTA-JJ--2-E0A-1A-R0A-1A-S0A-1A-2A-3A-T0A-1A-2A-3A-4A-5A-6A-7A-U0A-1A- :    4818         0 : 0.0000
0160/176 20100912 14:13 JTA-JJ--2-E0A-1A-R0A-1A-S0A-1A-2A-3A-T0A-1A-2A-3A-4A-5A-6A-7A-U0A-1A- :    4639         0 : 0.0000
0160/177 20100912 14:14 JTA-JJ--2-E0A-1A-R0A-1A-S0A-1A-2A-3A-T0A-1A-2A-3A-4A-5A-6A-7A-U0A-1A- :    4678         0 : 0.0000
0160/178 20100912 14:15 JTA-JJ--2-E0A-1A-R0A-1A-S0A-1A-2A-3A-T0A-1A-2A-3A-4A-5A-6A-7A-U0A-1A- :    2181         0 : 0.0000
Waiting for a new file...
```

# events with error

Errors would be listed here

Check for time of data

Check active JINF-U's

# events in file

- Can be used to check the Power/DAQ configuration
- Check that there are no TRD command errors
- Look out for too many events with errors in one file (>10%)

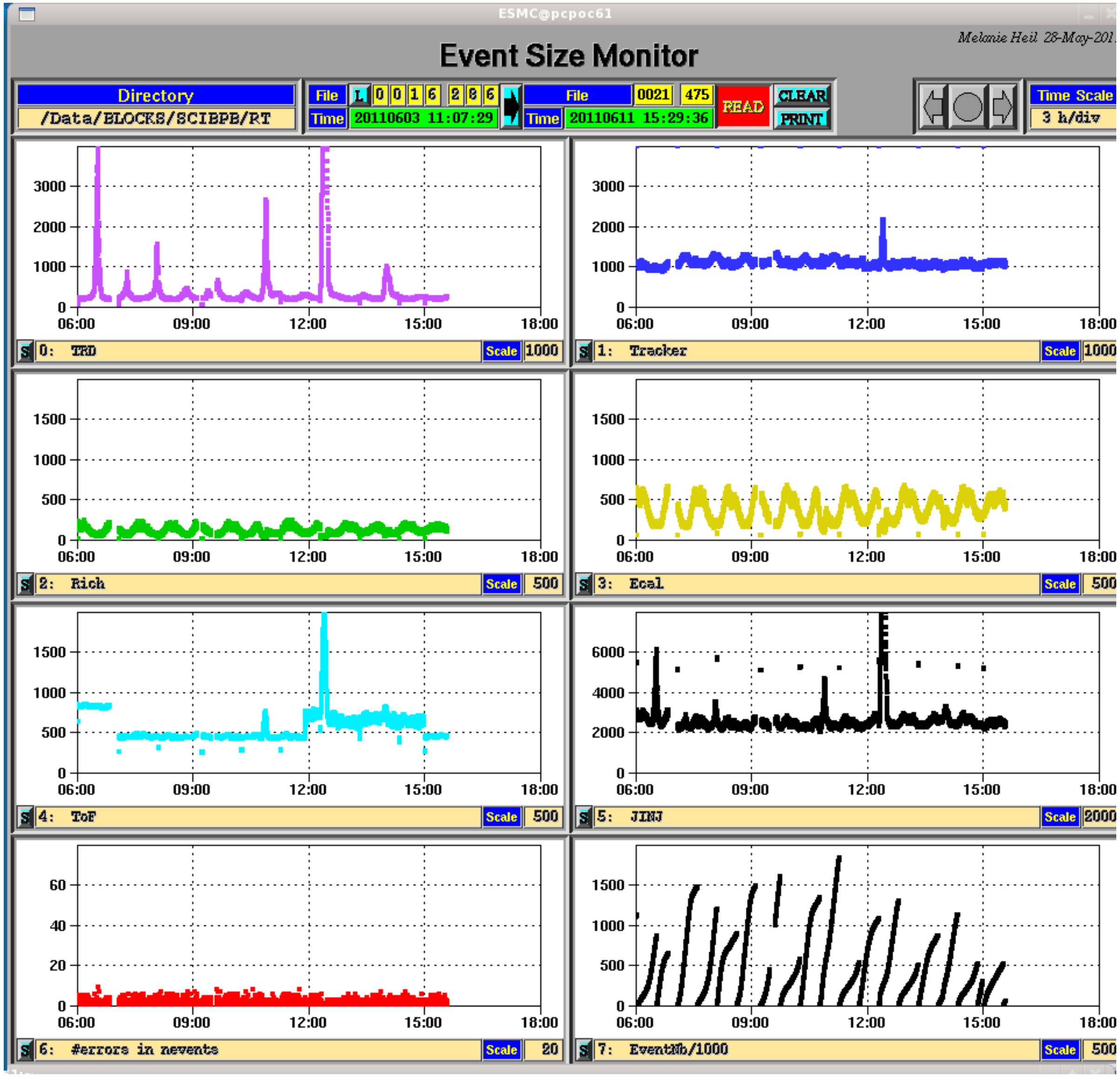
Screen 1: Additional Tools for TRD Experts

Event Size Monitor:

- Start the programm from the RUN directory:

```
cd ~trd/RUN
ESMC &
```

average TRD Event Size


ESMC@pcpoc61
Event Size Monitor
Melanie Heil 28-May-201
READ
CLEAR
PRINT
Scale
06:00
09:00
12:00
15:00
18:00
3000
2000
1000
1500
500
0
6000
4000
60
40
20

Directory: /Data/BLOCKS/SCIBPB/RT

File: L 0 0 1 6 2 8 6

Time: 20110603 11:07:29

File: 0021 475

Time: 20110611 15:29:36

Time Scale: 3 h/div

0: TRD Scale 1000

1: Tracker Scale 1000

2: Rich Scale 500

3: Ecal Scale 500

4: ToF Scale 500

5: JINJ Scale 2000

6: #errors in nevents Scale 20

7: EventNb/1000 Scale 500

check that event size is stable except for:

- TAS Runs,
- Polar region
- South Atlantic Anomaly

Screen-4: Additional Tools for TRD Experts

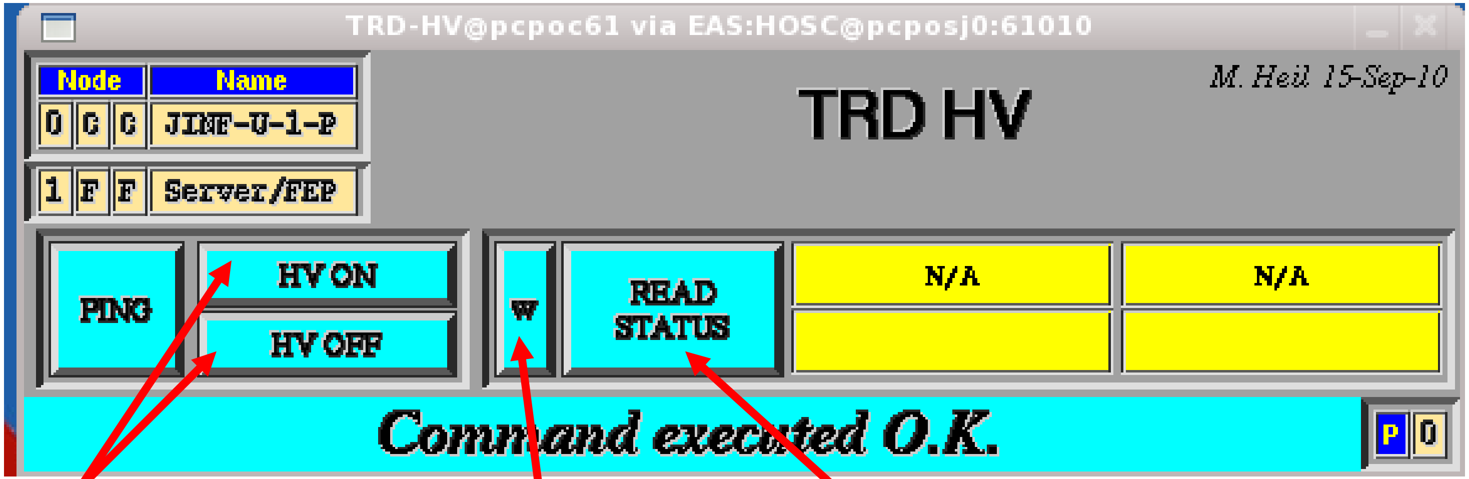
TRD-HV: direct commanding ->use only in case of problems!

- go to RUN directory and open program:

```
cd ~trd/RUN
TRD-HV ‘link’ ‘server’ &
```

Select active JINF-U-0-P or JINF-U-1-P

Can be used to check communication



TRD-HV@pcpoc61 via EAS:HOSC@pcposj0:61010

Node			Name
0	C	C	JINF-U-1-P
1	F	F	Server/FEP

Command executed O.K.

Ramp up or switch off HV on all channels
Reset of tripped HV

Write current HV values to register

Read HV values from register

- Can be used to check the HV of the TRD

  -> if HV on: Boxes should be green and value should match HV settings

  -> else: Boxes should be green and read ‘OFF’

- Set P=1 to get single channel HV settings (A/B) and values (A/B) from ‘REQUEST STATUS’ as output in terminal

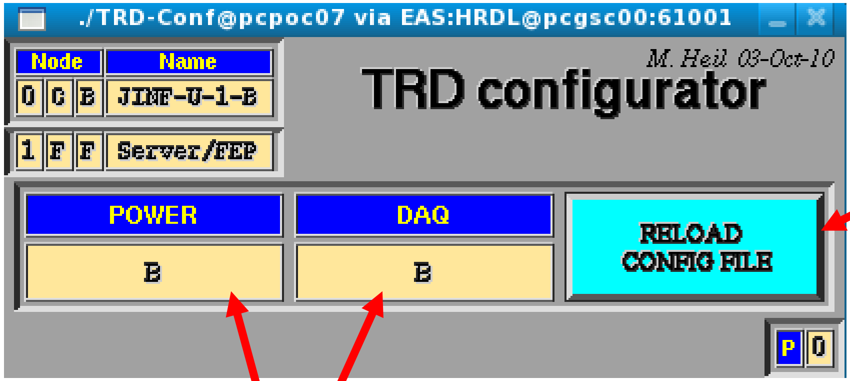
TRD-Configurator:

direct commanding ->use only in case of problems!

- go to the RUN directory and open the program:

```
cd ~trd/RUN
TRD-C 'link' 'server' &
```

Select only one or both JINF-U's (for only one, set the second panel to 1FF)



./TRD-Conf@pcpoc07 via EAS:HRDL@pcgsc00:61001

M. Heil 03-Oct-10

TRD configurator

Node			Name
0	C	B	JINF-U-1-B
1	F	F	Server/FEP

POWER: B

DAQ: B

Reload corresponding Configuration file

Set the current POWER/DAQ configuration used

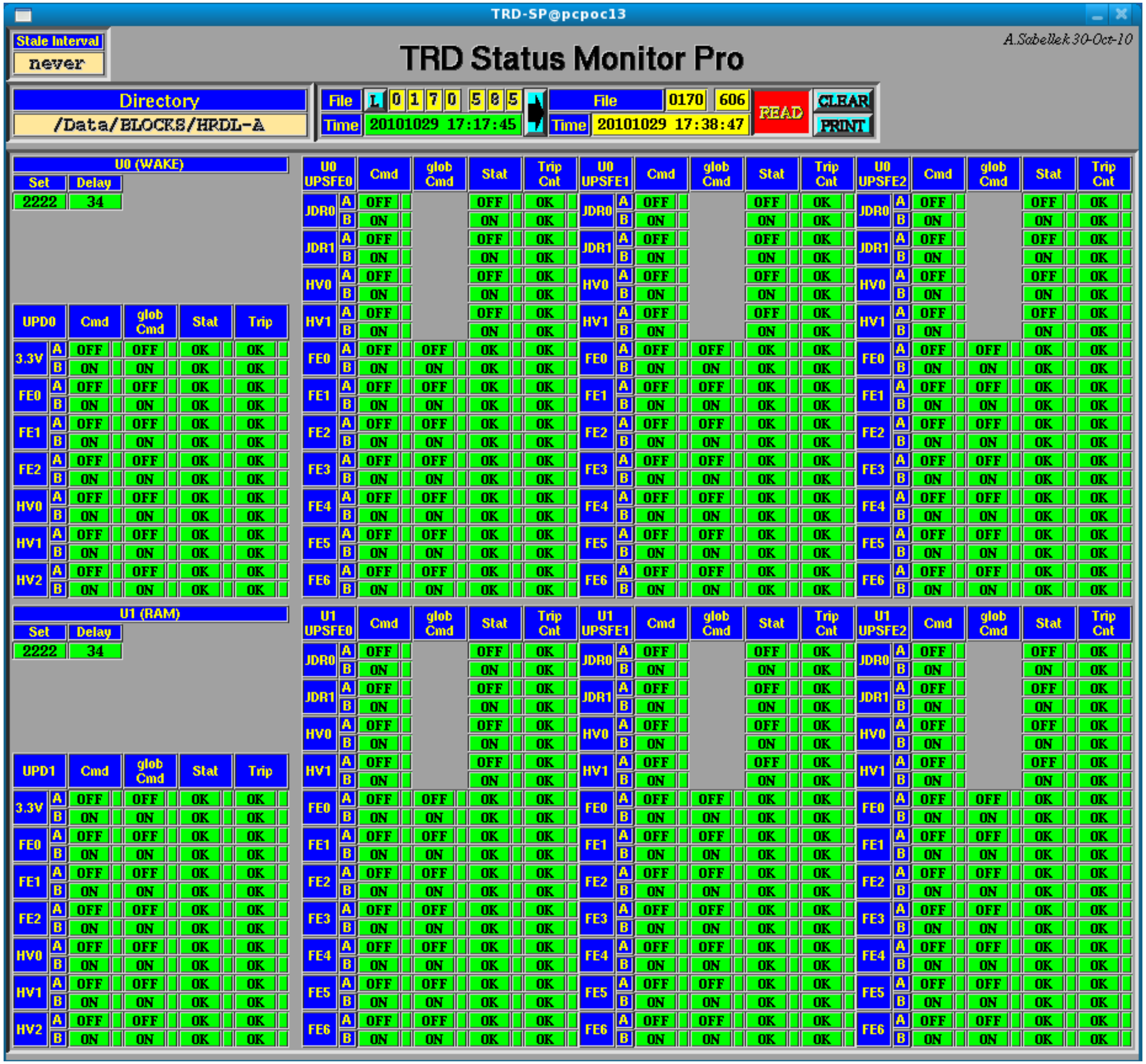
- can be used to recover from different problems

Screen-4: Additional Tools for TRD Experts

TRD Status Monitor Pro:

Go to RUN directory and open programm:

```
cd ~trd/RUN
TRD-SP &
```



TRD-SP@pcpoc13

A.Sabellek 30-Oct-10

TRD Status Monitor Pro

Stale Interval: never

Directory: /Data/BLOCKS/HRDL-A

File: L 0170 585 — Time: 20101029 17:17:45

File: 0170 606 — Time: 20101029 17:38:47

U0 (WAKE)

Set	Delay
2222	34

UPD0		Cmd	glob Cmd	Stat	Trip
3.3V	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE0	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE1	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE2	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
HV0	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
HV1	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
HV2	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

U0 UPSFE0		Cmd	glob Cmd	Stat	Trip Cnt
JDR0	A	OFF		OFF	OK
	B	ON		ON	OK
JDR1	A	OFF		OFF	OK
	B	ON		ON	OK
HV0	A	OFF		OFF	OK
	B	ON		ON	OK
HV1	A	OFF		OFF	OK
	B	ON		ON	OK
FE0	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE1	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE2	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE3	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE4	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE5	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE6	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

U0 UPSFE1		Cmd	glob Cmd	Stat	Trip Cnt
JDR0	A	OFF		OFF	OK
	B	ON		ON	OK
JDR1	A	OFF		OFF	OK
	B	ON		ON	OK
HV0	A	OFF		OFF	OK
	B	ON		ON	OK
HV1	A	OFF		OFF	OK
	B	ON		ON	OK
FE0	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE1	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE2	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE3	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE4	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE5	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE6	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

U0 UPSFE2		Cmd	glob Cmd	Stat	Trip Cnt
JDR0	A	OFF		OFF	OK
	B	ON		ON	OK
JDR1	A	OFF		OFF	OK
	B	ON		ON	OK
HV0	A	OFF		OFF	OK
	B	ON		ON	OK
HV1	A	OFF		OFF	OK
	B	ON		ON	OK
FE0	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE1	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE2	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE3	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE4	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE5	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE6	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

U1 (RAM)

Set	Delay
2222	34

UPD1		Cmd	glob Cmd	Stat	Trip
3.3V	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE0	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE1	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE2	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
HV0	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
HV1	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
HV2	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

U1 UPSFE0		Cmd	glob Cmd	Stat	Trip Cnt
JDR0	A	OFF		OFF	OK
	B	ON		ON	OK
JDR1	A	OFF		OFF	OK
	B	ON		ON	OK
HV0	A	OFF		OFF	OK
	B	ON		ON	OK
HV1	A	OFF		OFF	OK
	B	ON		ON	OK
FE0	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE1	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE2	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE3	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE4	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE5	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE6	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

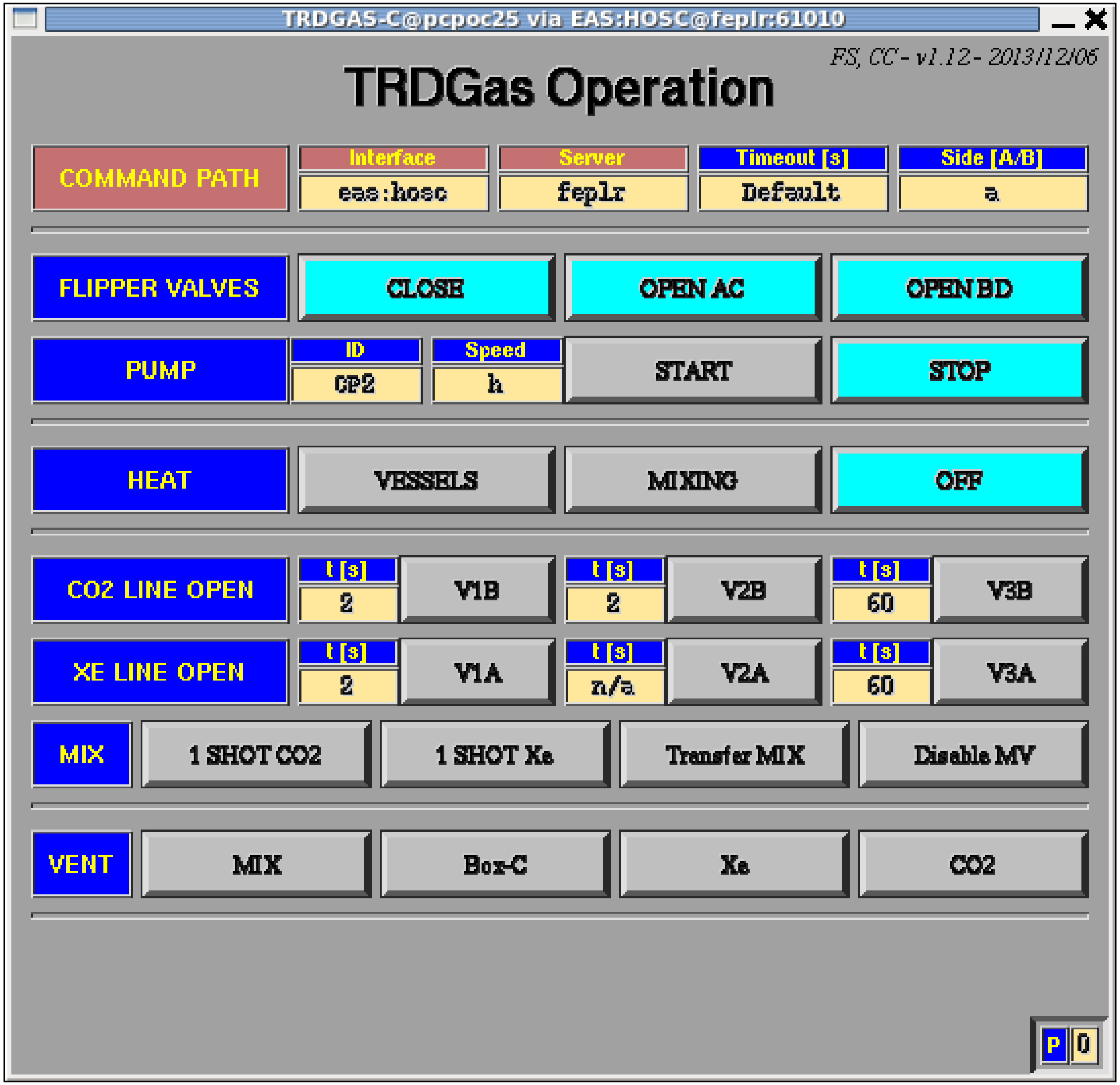
U1 UPSFE1		Cmd	glob Cmd	Stat	Trip Cnt
JDR0	A	OFF		OFF	OK
	B	ON		ON	OK
JDR1	A	OFF		OFF	OK
	B	ON		ON	OK
HV0	A	OFF		OFF	OK
	B	ON		ON	OK
HV1	A	OFF		OFF	OK
	B	ON		ON	OK
FE0	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE1	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE2	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE3	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE4	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE5	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE6	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

U1 UPSFE2		Cmd	glob Cmd	Stat	Trip Cnt
JDR0	A	OFF		OFF	OK
	B	ON		ON	OK
JDR1	A	OFF		OFF	OK
	B	ON		ON	OK
HV0	A	OFF		OFF	OK
	B	ON		ON	OK
HV1	A	OFF		OFF	OK
	B	ON		ON	OK
FE0	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE1	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE2	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE3	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE4	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE5	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
FE6	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

- Set to directory and file of interest
- Can be used to check all settings on UPDs and UPSFEs
- Helps finding location and cause of problem in case of error

Screen-4: Additional Tools for TRD Experts

TRDGas-Control



TRDGAS-C@pcpoc25 via EAS:HOSC@feplr:61010

FS, CC - v1.12 - 2013/12/06

TRDGas Operation

COMMAND PATH

Interface: eas:hosc
Server: feplr
Timeout [s]: Default
Side [A/B]: a

PUMP

ID: CP2
Speed: h

CO2 LINE OPEN

t [s]: 2 — V1B
t [s]: 2 — V2B
t [s]: 60 — V3B

XE LINE OPEN

t [s]: 2 — V1A
t [s]: n/a — V2A
t [s]: 60 — V3A

FLIPPER VALVES
CLOSE
OPEN AC
OPEN BD
START
STOP
HEAT
VESSELS
MIXING
OFF
MIX
1 SHOT CO2
1 SHOT Xe
Transfer MIX
Disable MV
VENT
MIX
Box-C
Xe
CO2
P
0

TRD Procedures:

- TRD HV Changing (TRD HV Changing)
- TRD Gas Xenon Vessel Heater and/or Pump on/off (TRD Heater/Pump ON/OFF)
- TRD HV on/off for AMS-02 Power Down/off (TRD HV ON/OFF)
- Example of a weird HV blink (Weird HV Blink)
- Example of a HV trip (HV Trip Example)
- How to accesss the Flight Spare System (Flight Spare System)
- Weekly Reports (Weekly Reports)
- TRD Gas Refilling (TRD Gas Refilling)

TRD HV Changing For TRD Shifter

TRD HV Changing For TRD Shifter

TRD-HV-Adjustments

To keep the TRD single straw tubes response (Most Probable Value of Landau-Distribution of dE/dx) for a Minimum Ionizing Particle (MIP) at a stable value of 60 ADC-channels and to keep the spread of the individual HV channels gain very low, the HV inter calibration should be adjusted on a daily basis: There exists two procedures, the standard one does the HV intercalibration, the other one adjusts the HV channels with an overall value

- HV-step: **ΔU = xxx V (has/have to be determined via GainMonitor!!)**
- Adjustement should be done, when AMS is close to an end of run to take new calibration (to avoid short runs)
- **Coordinate with AMS LEAD the best timing with respect to LOS, calibration, SAA, etc. well before you plan the action**

TRD HV Changing For TRD Shifter

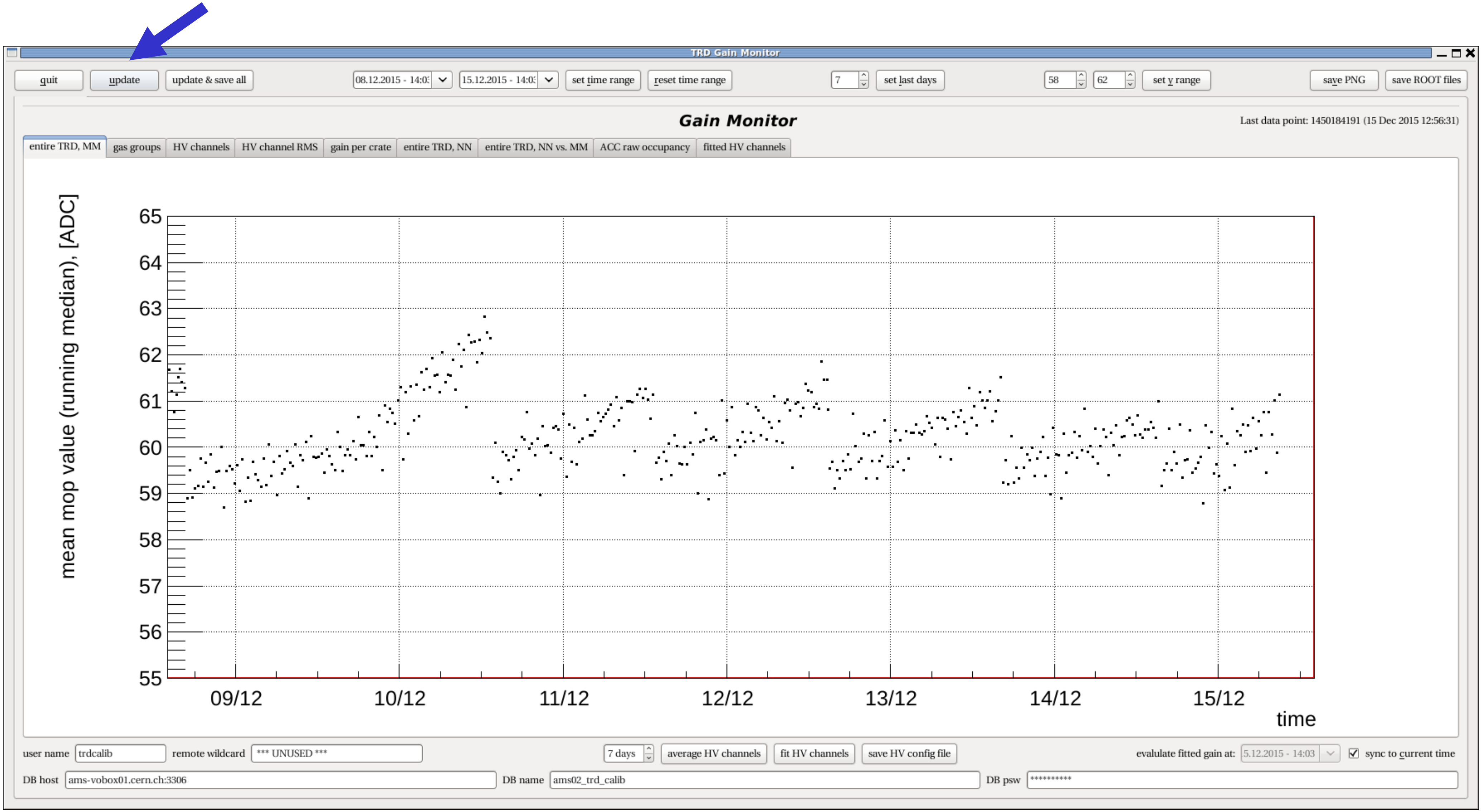
1.: Daily Standard Procedure:

HV Intercalibration to determine new daily HV config-file, followed by adjustment preparation (writing and uploading of config-file to JINF which should be done 10-20 minutes before adjustment) and finally the adjustment

1.) TRD-HV Intercalibration and Adjustment

Production of new config-file for daily HV-intercalibration and adjustment:

(1) In TRD-GainMonitor, click “Update”



TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
mean mop value (running median), [ADC]
65
64
63
62
61
60
59
58
57
56
55
09/12
10/12
11/12
12/12
13/12
14/12
15/12
time
average HV channels
fit HV channels
save HV config file

08.12.2015 - 14:0

15.12.2015 - 14:0

7

58

62

Last data point: 1450184191 (15 Dec 2015 12:56:31)

user name trdcalib

remote wildcard *** UNUSED ***

7 days

evalulate fitted gain at: 5.12.2015 - 14:03

☑ sync to current time

DB host ams-vobox01.cern.ch:3306

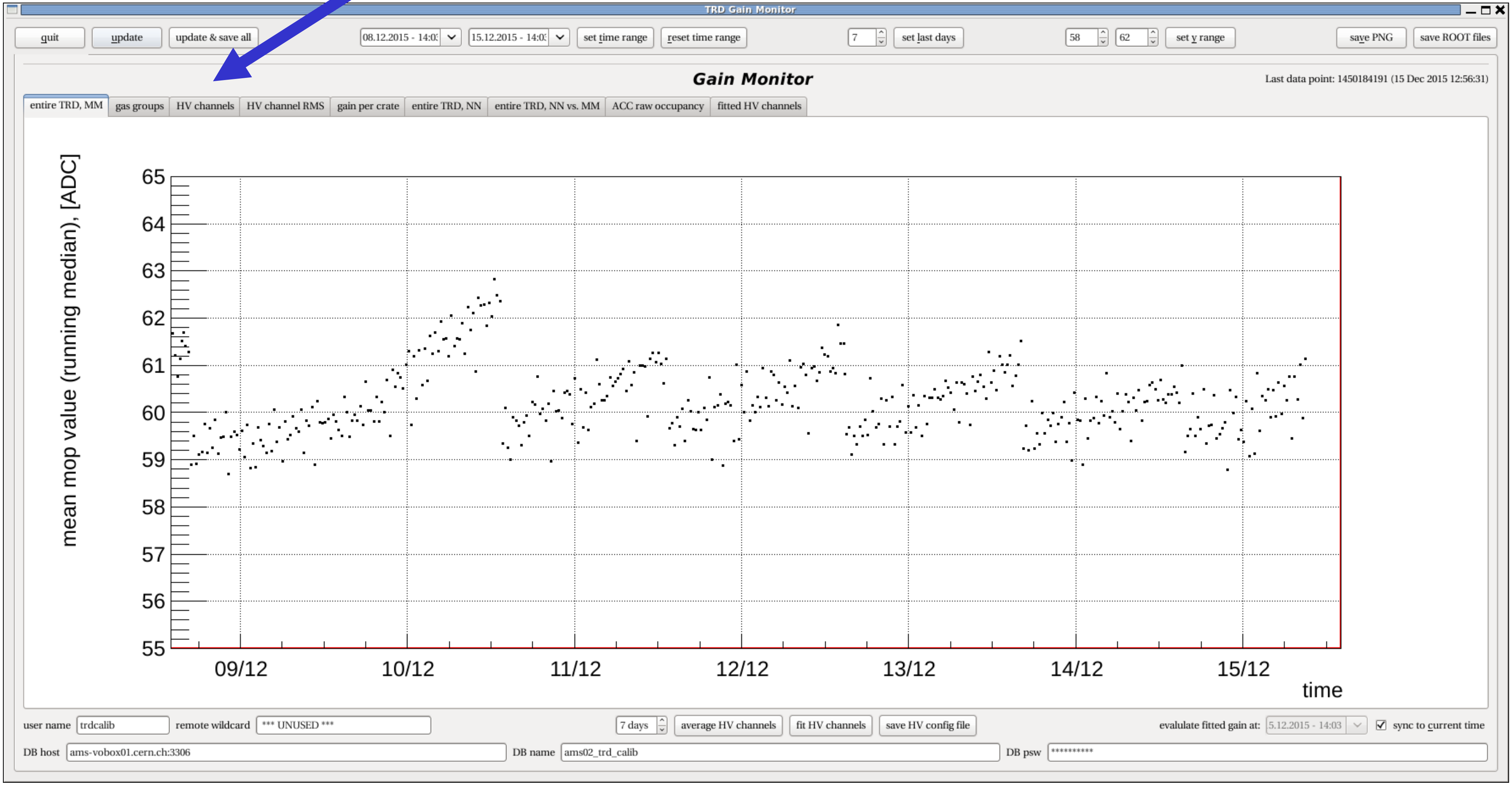
DB name ams02_trd_calib

DB psw **********

1.) TRD-HV Intercalibration and Adjustment

Production of new config-file for daily HV-intercalibration and adjustment:

(2) Select tab “HV channels”


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
mean mop value (running median), [ADC]
65
64
63
62
61
60
59
58
57
56
55
09/12
10/12
11/12
12/12
13/12
14/12
15/12
time
average HV channels
fit HV channels
save HV config file

08.12.2015 - 14:0:

15.12.2015 - 14:0:

7

58

62

Last data point: 1450184191 (15 Dec 2015 12:56:31)

user name: trdcalib

remote wildcard: *** UNUSED ***

7 days

evalutate fitted gain at: 5.12.2015 - 14:03

☑ sync to current time

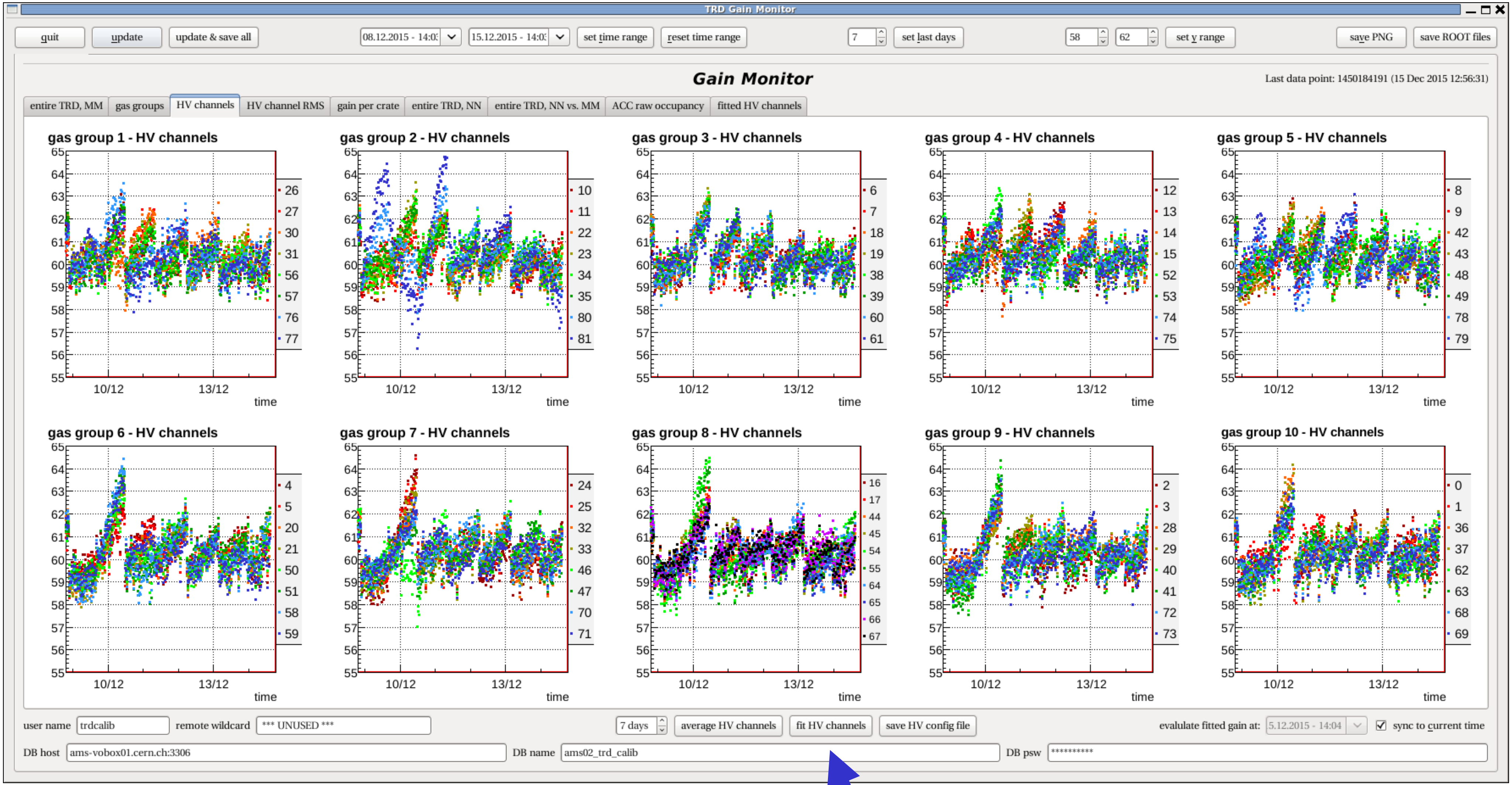
DB host: ams-vobox01.cern.ch:3306

DB name: ams02_trd_calib

DB psw: **********

1.) TRD-HV Intercalibration and Adjustment

Production of new config-file for daily HV-intercalibration and adjustment:


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
gas group 1 - HV channels
26 27 30 31 56 57 76 77
gas group 2 - HV channels
10 11 22 23 34 35 80 81
gas group 3 - HV channels
6 7 18 19 38 39 60 61
gas group 4 - HV channels
12 13 14 15 52 53 74 75
gas group 5 - HV channels
8 9 42 43 48 49 78 79
gas group 6 - HV channels
4 5 20 21 50 51 58 59
gas group 7 - HV channels
24 25 32 33 46 47 70 71
gas group 8 - HV channels
16 17 44 45 54 55 64 65 66 67
gas group 9 - HV channels
2 3 28 29 40 41 72 73
gas group 10 - HV channels
0 1 36 37 62 63 68 69
55 56 57 58 59 60 61 62 63 64 65
10/12
13/12
time
average HV channels
fit HV channels
save HV config file

From: 08.12.2015 - 14:03
To: 15.12.2015 - 14:03
Last days: 7
y range: 58 to 62

Last data point: 1450184191 (15 Dec 2015 12:56:31)

user name: trdcalib
remote wildcard: *** UNUSED ***
7 days
evalulate fitted gain at: 5.12.2015 - 14:04
☑ sync to current time

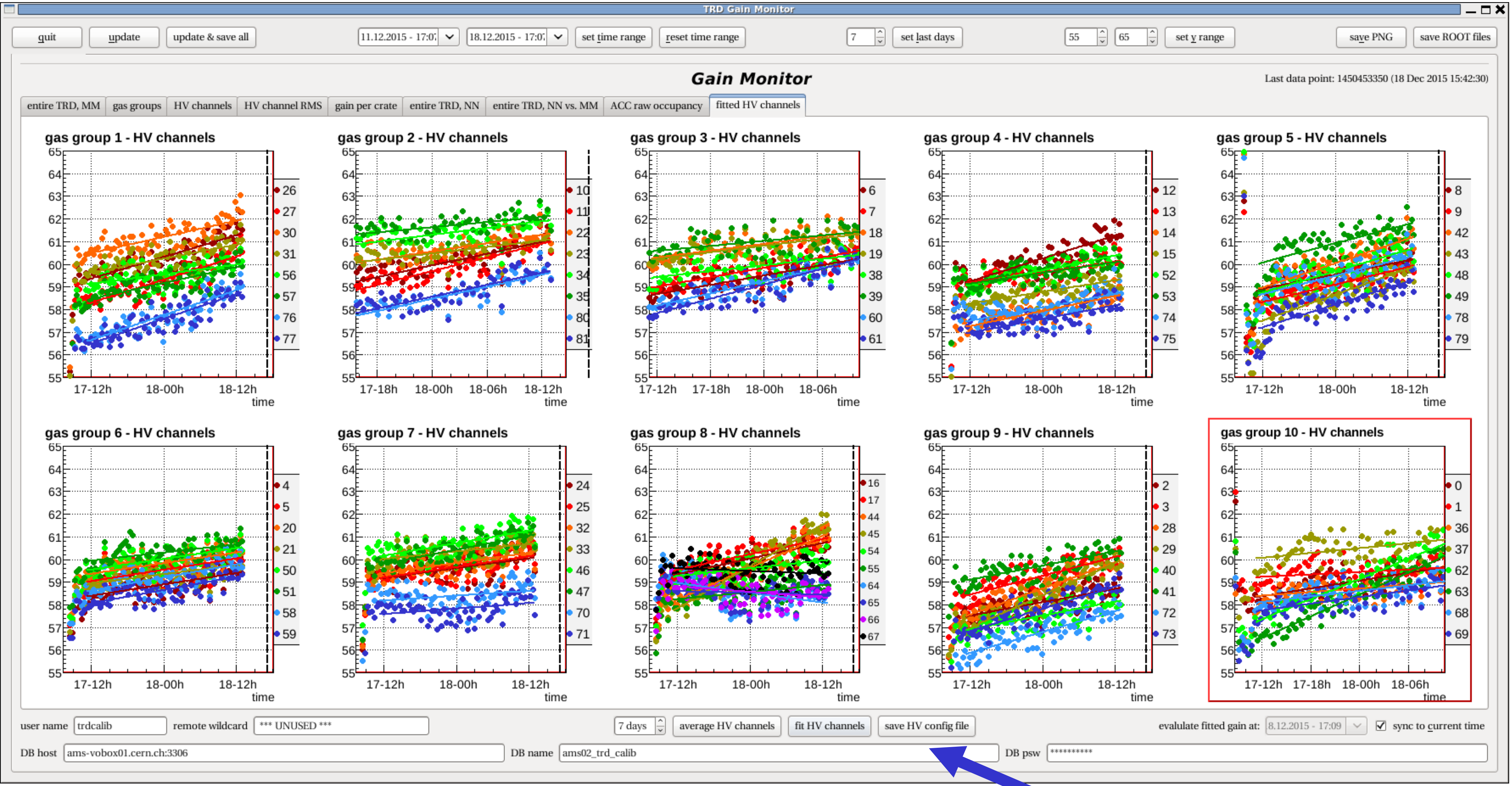
DB host: ams-vobox01.cern.ch:3306
DB name: ams02_trd_calib
DB psw: **********

(3) Click “fit HV channels”

1.) TRD-HV Intercalibration and Adjustment

Production of new config-file for daily HV-intercalibration and adjustment:

(4) Check that fits are reasonable, if not, do manual refits


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
gas group 1 - HV channels
26 27 30 31 56 57 76 77
gas group 2 - HV channels
10 11 22 23 34 35 80 81
gas group 3 - HV channels
6 7 18 19 38 39 60 61
gas group 4 - HV channels
12 13 14 15 52 53 74 75
gas group 5 - HV channels
8 9 42 43 48 49 78 79
gas group 6 - HV channels
4 5 20 21 50 51 58 59
gas group 7 - HV channels
24 25 32 33 46 47 70 71
gas group 8 - HV channels
16 17 44 45 54 55 64 65 66 67
gas group 9 - HV channels
2 3 28 29 40 41 72 73
gas group 10 - HV channels
0 1 36 37 62 63 68 69
55 56 57 58 59 60 61 62 63 64 65
17-12h 18-00h 18-12h
17-18h 18-06h
time
average HV channels
fit HV channels
save HV config file

11.12.2015 - 17:07 18.12.2015 - 17:07

7

55 65

Last data point: 1450453350 (18 Dec 2015 15:42:30)

user name trdcalib remote wildcard *** UNUSED ***

7 days

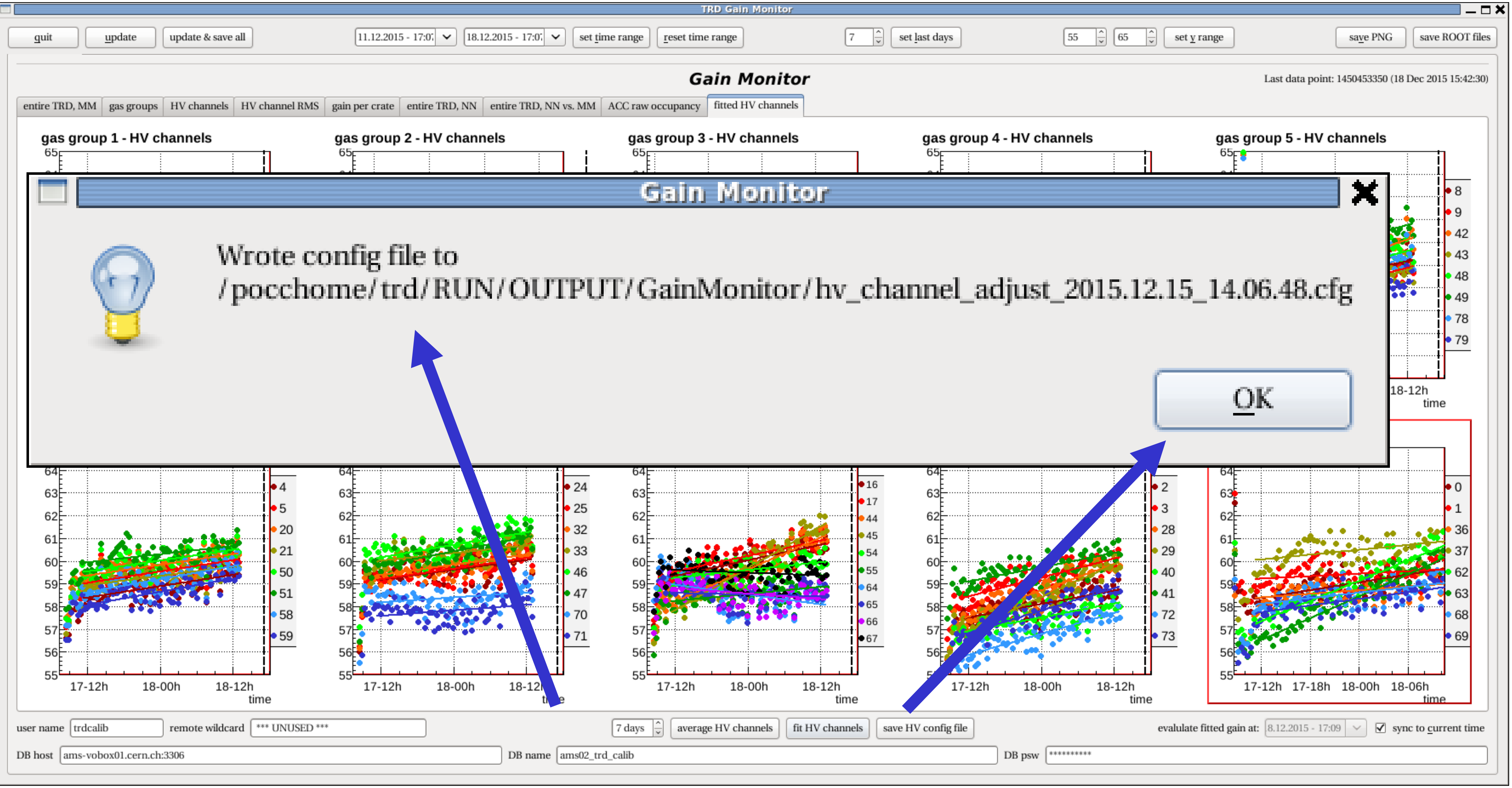
evaluate fitted gain at: 8.12.2015 - 17:09 ☑ sync to current time

DB host ams-vobox01.cern.ch:3306 DB name ams02_trd_calib DB psw **********

(5) Fits ok, then click “save HV config file”

1.) TRD-HV Intercalibration and Adjustment

Production of new config-file for daily HV-intercalibration and adjustment:


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
gas group 1 - HV channels
gas group 2 - HV channels
gas group 3 - HV channels
gas group 4 - HV channels
gas group 5 - HV channels
17-12h
18-00h
18-12h
17-18h
18-06h
time
OK
average HV channels
fit HV channels
save HV config file

Last data point: 1450453350 (18 Dec 2015 15:42:30)

11.12.2015 - 17:07 | 18.12.2015 - 17:07 | last days: 7 | y range: 55 – 65

Gain Monitor

Wrote config file to
/pocchome/trd/RUN/OUTPUT/GainMonitor/hv_channel_adjust_2015.12.15_14.06.48.cfg

user name: trdcalib
remote wildcard: *** UNUSED ***
7 days
evalulate fitted gain at: 8.12.2015 - 17:09
☑ sync to current time
DB host: ams-vobox01.cern.ch:3306
DB name: ams02_trd_calib
DB psw: **********

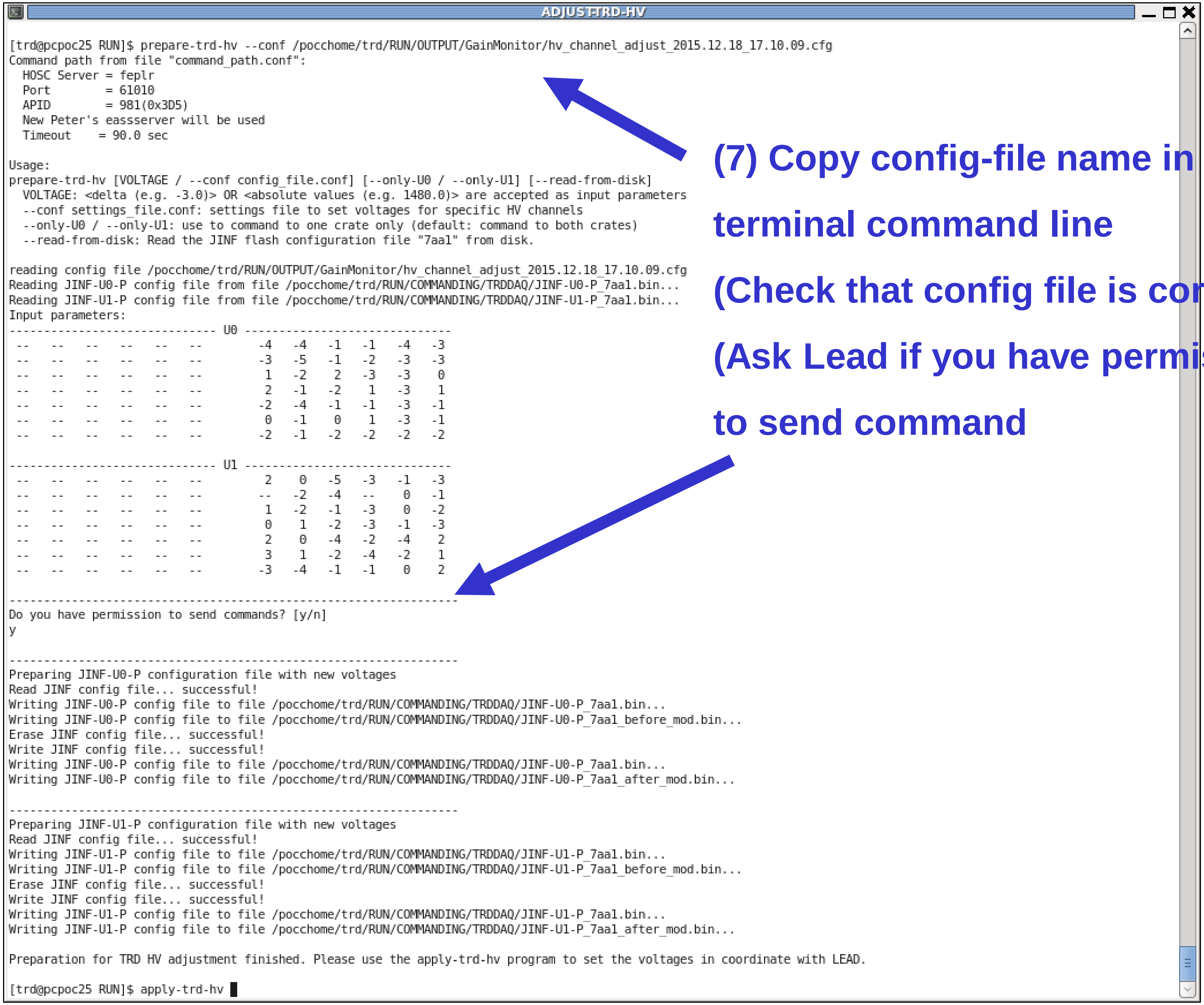
(6) Copy config-file name with mouse and click “OK” button

Karlsruhe Institute of Technology

1.) TRD-HV Intercalibration and Adjustment

Preparation of HV adjustment:

```
trd@pcpoc25 RUN$ prepare-trd-hv --conf filename.conf
```



```
[trd@pcpoc25 RUN]$ prepare-trd-hv --conf /pocchome/trd/RUN/OUTPUT/GainMonitor/hv_channel_adjust_2015.12.18_17.10.09.cfg
Command path from file "command_path.conf":
  HOSC Server = feplr
  Port        = 61010
  APID        = 981(0x3D5)
  New Peter's eassserver will be used
  Timeout     = 90.0 sec

Usage:
prepare-trd-hv [VOLTAGE / --conf config_file.conf] [--only-U0 / --only-U1] [--read-from-disk]
  VOLTAGE: <delta (e.g. -3.0)> OR <absolute values (e.g. 1480.0)> are accepted as input parameters
  --conf settings_file.conf: settings file to set voltages for specific HV channels
  --only-U0 / --only-U1: use to command to one crate only (default: command to both crates)
  --read-from-disk: Read the JINF flash configuration file "7aa1" from disk.

reading config file /pocchome/trd/RUN/OUTPUT/GainMonitor/hv_channel_adjust_2015.12.18_17.10.09.cfg
Reading JINF-U0-P config file from file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U0-P_7aa1.bin...
Reading JINF-U1-P config file from file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U1-P_7aa1.bin...
Input parameters:
------------------------------ U0 ------------------------------
 --   --   --   --   --   --        -4   -4   -1   -1   -4   -3
 --   --   --   --   --   --        -3   -5   -1   -2   -3   -3
 --   --   --   --   --   --         1   -2    2   -3   -3    0
 --   --   --   --   --   --         2   -1   -2    1   -3    1
 --   --   --   --   --   --        -2   -4   -1   -1   -3   -1
 --   --   --   --   --   --         0   -1    0    1   -3   -1
 --   --   --   --   --   --        -2   -1   -2   -2   -2   -2

------------------------------ U1 ------------------------------
 --   --   --   --   --   --         2    0   -5   -3   -1   -3
 --   --   --   --   --   --        --   -2   -4   --    0   -1
 --   --   --   --   --   --         1   -2   -1   -3    0   -2
 --   --   --   --   --   --         0    1   -2   -3   -1   -3
 --   --   --   --   --   --         2    0   -4   -2   -4    2
 --   --   --   --   --   --         3    1   -2   -4   -2    1
 --   --   --   --   --   --        -3   -4   -1   -1    0    2

-----------------------------------------------------------------
Do you have permission to send commands? [y/n]
y

-----------------------------------------------------------------
Preparing JINF-U0-P configuration file with new voltages
Read JINF config file... successful!
Writing JINF-U0-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U0-P_7aa1.bin...
Writing JINF-U0-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U0-P_7aa1_before_mod.bin...
Erase JINF config file... successful!
Write JINF config file... successful!
Writing JINF-U0-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U0-P_7aa1.bin...
Writing JINF-U0-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U0-P_7aa1_after_mod.bin...

-----------------------------------------------------------------
Preparing JINF-U1-P configuration file with new voltages
Read JINF config file... successful!
Writing JINF-U1-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U1-P_7aa1.bin...
Writing JINF-U1-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U1-P_7aa1_before_mod.bin...
Erase JINF config file... successful!
Write JINF config file... successful!
Writing JINF-U1-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U1-P_7aa1.bin...
Writing JINF-U1-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U1-P_7aa1_after_mod.bin...

Preparation for TRD HV adjustment finished. Please use the apply-trd-hv program to set the voltages in coordinate with LEAD.

[trd@pcpoc25 RUN]$ apply-trd-hv
```

(7) Copy config-file name in to terminal command line

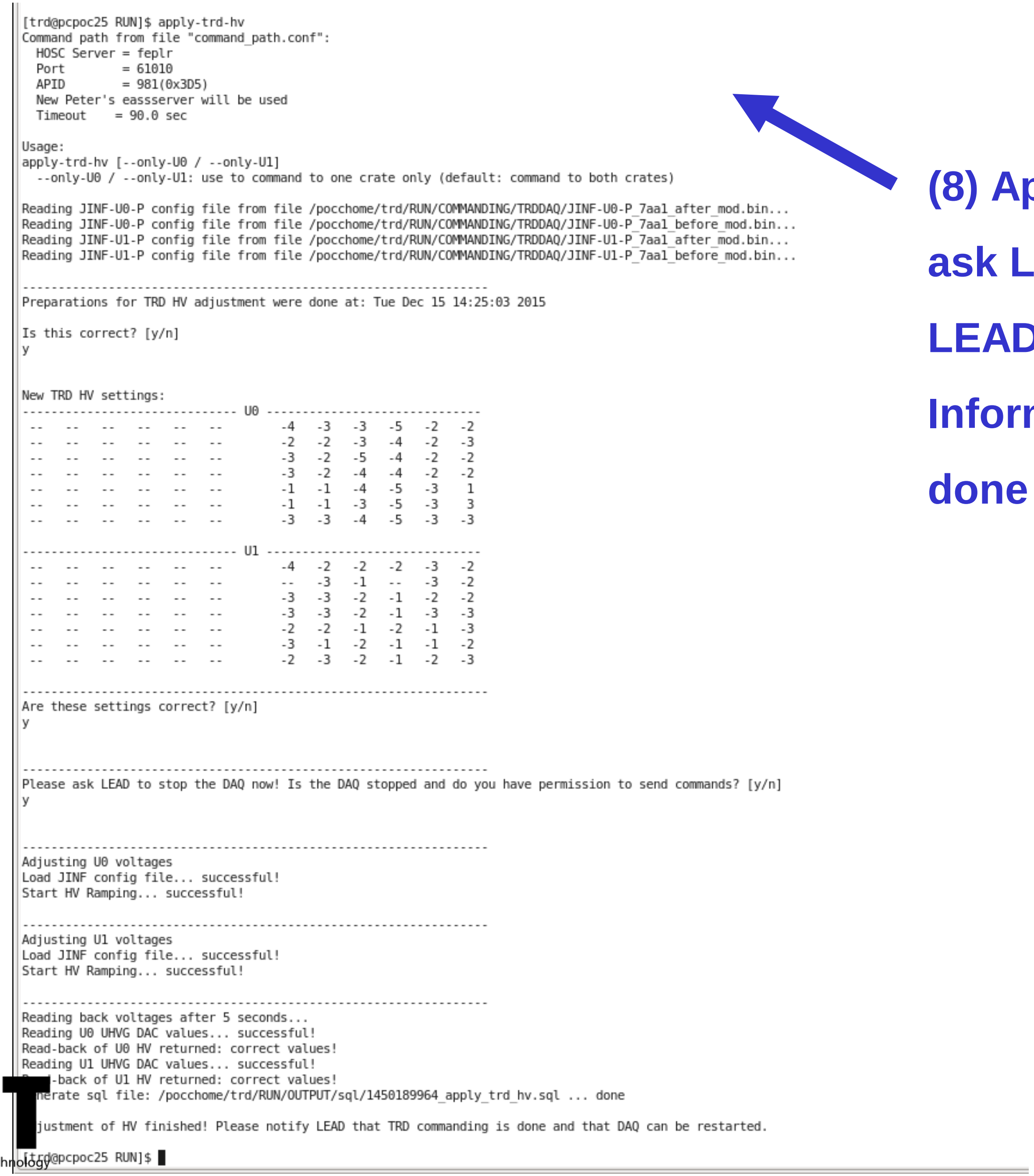
(Check that config file is correct

(Ask Lead if you have permission to send command

1.) TRD-HV Intercalibration and Adjustment

HV adjustment (near equator)

`trd@pcpoc25 RUN$ apply-trd-hv`



```
[trd@pcpoc25 RUN]$ apply-trd-hv
Command path from file "command_path.conf":
  HOSC Server = feplr
  Port        = 61010
  APID        = 981(0x3D5)
  New Peter's eassserver will be used
  Timeout    = 90.0 sec

Usage:
apply-trd-hv [--only-U0 / --only-U1]
  --only-U0 / --only-U1: use to command to one crate only (default: command to both crates)

Reading JINF-U0-P config file from file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U0-P_7aa1_after_mod.bin...
Reading JINF-U0-P config file from file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U0-P_7aa1_before_mod.bin...
Reading JINF-U1-P config file from file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U1-P_7aa1_after_mod.bin...
Reading JINF-U1-P config file from file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U1-P_7aa1_before_mod.bin...

-----------------------------------------------------------------
Preparations for TRD HV adjustment were done at: Tue Dec 15 14:25:03 2015

Is this correct? [y/n]
y


New TRD HV settings:
------------------------------ U0 ------------------------------
 --   --   --   --   --   --        -4   -3   -3   -5   -2   -2
 --   --   --   --   --   --        -2   -2   -3   -4   -2   -3
 --   --   --   --   --   --        -3   -2   -5   -4   -2   -2
 --   --   --   --   --   --        -3   -2   -4   -4   -2   -2
 --   --   --   --   --   --        -1   -1   -4   -5   -3    1
 --   --   --   --   --   --        -1   -1   -3   -5   -3    3
 --   --   --   --   --   --        -3   -3   -4   -5   -3   -3

------------------------------ U1 ------------------------------
 --   --   --   --   --   --        -4   -2   -2   -2   -3   -2
 --   --   --   --   --   --        --   -3   -1   --   -3   -2
 --   --   --   --   --   --        -3   -3   -2   -1   -2   -2
 --   --   --   --   --   --        -3   -3   -2   -1   -3   -3
 --   --   --   --   --   --        -2   -2   -1   -2   -1   -3
 --   --   --   --   --   --        -3   -1   -2   -1   -1   -2
 --   --   --   --   --   --        -2   -3   -2   -1   -2   -3

-----------------------------------------------------------------
Are these settings correct? [y/n]
y


-----------------------------------------------------------------
Please ask LEAD to stop the DAQ now! Is the DAQ stopped and do you have permission to send commands? [y/n]
y


-----------------------------------------------------------------
Adjusting U0 voltages
Load JINF config file... successful!
Start HV Ramping... successful!

-----------------------------------------------------------------
Adjusting U1 voltages
Load JINF config file... successful!
Start HV Ramping... successful!

-----------------------------------------------------------------
Reading back voltages after 5 seconds...
Reading U0 UHVG DAC values... successful!
Read-back of U0 HV returned: correct values!
Reading U1 UHVG DAC values... successful!
    -back of U1 HV returned: correct values!
  nerate sql file: /pocchome/trd/RUN/OUTPUT/sql/1450189964_apply_trd_hv.sql ... done

  justment of HV finished! Please notify LEAD that TRD commanding is done and that DAQ can be restarted.

[trd@pcpoc25 RUN]$ █
```

(8) Apply HV adjustment,

ask LEAD for commanding,

LEAD must stop run

Inform LEAD when adjustment is done

Summary of Production of new config-file for daily HV-intercalibration and adjustment:

In TRD-GainMonitor:

(1) Click”Update”

(2) Select tab “HV channels”

(3) Click “fit HV channels”

(4) Check that fits are reasonable, if not, do manual refits

(5)) Fits ok, then click “save HV config file”

(6) Copy config-file name with mouse and click “OK” button → produces file saved in

/pocchome/trd/RUN/OUTPUT/GainMonitor/

In Xterminal:

(7) Copy file-name into terminal command line

(trd@pcpoc25 RUN$ `prepare-trd-hv --conf filename.conf`)

Example: `prepare-trd-hv --conf /pocchome/trd/RUN/OUTPUT/GainMonitor/hv_channel_adjust_2015.12.15_14.06.48.cfg`

(8) Adjust HV: in RUN Directory: trd@pcpoc25 RUN$ `apply-trd-hv`

TRD HV Changing For TRD Shifter

2. Procedure:

HV adjustment done with an overall value for all HV channels.

This method is only needed during Gas Refills or in case an intercalibration of individual HV channels is not possible

This is also a splitted procedure:

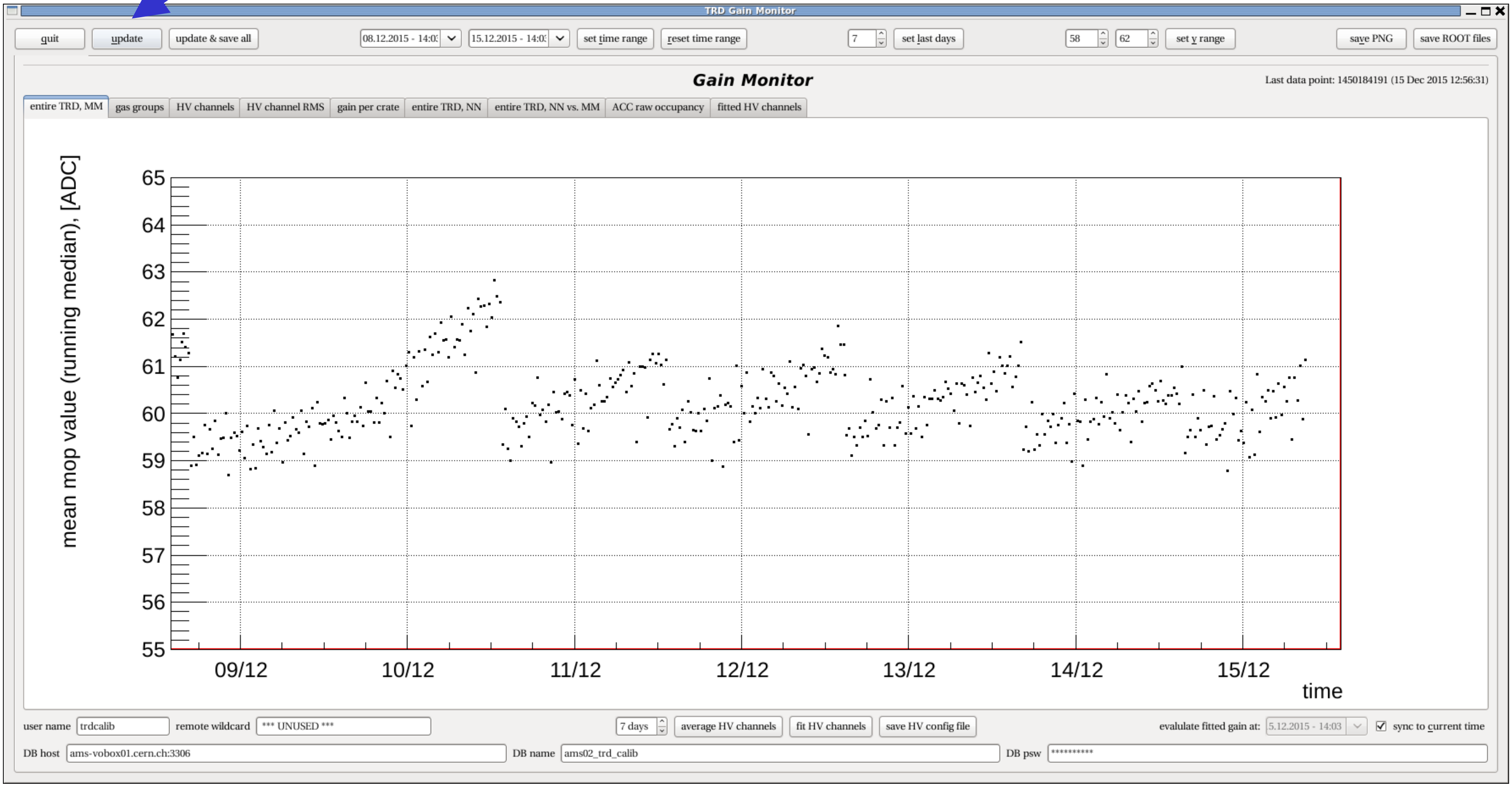
a) Preparation of adjustment to determine overall value for all HV channels (10-20 min before adjustment)

b) Apply adjustment at equator

2.) TRD-HV overall Adjustment

Determine HV-value for adjustment

(1) In TRD-GainMonitor, click “Update”


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
mean mop value (running median), [ADC]
65
64
63
62
61
60
59
58
57
56
55
09/12
10/12
11/12
12/12
13/12
14/12
15/12
time
average HV channels
fit HV channels
save HV config file

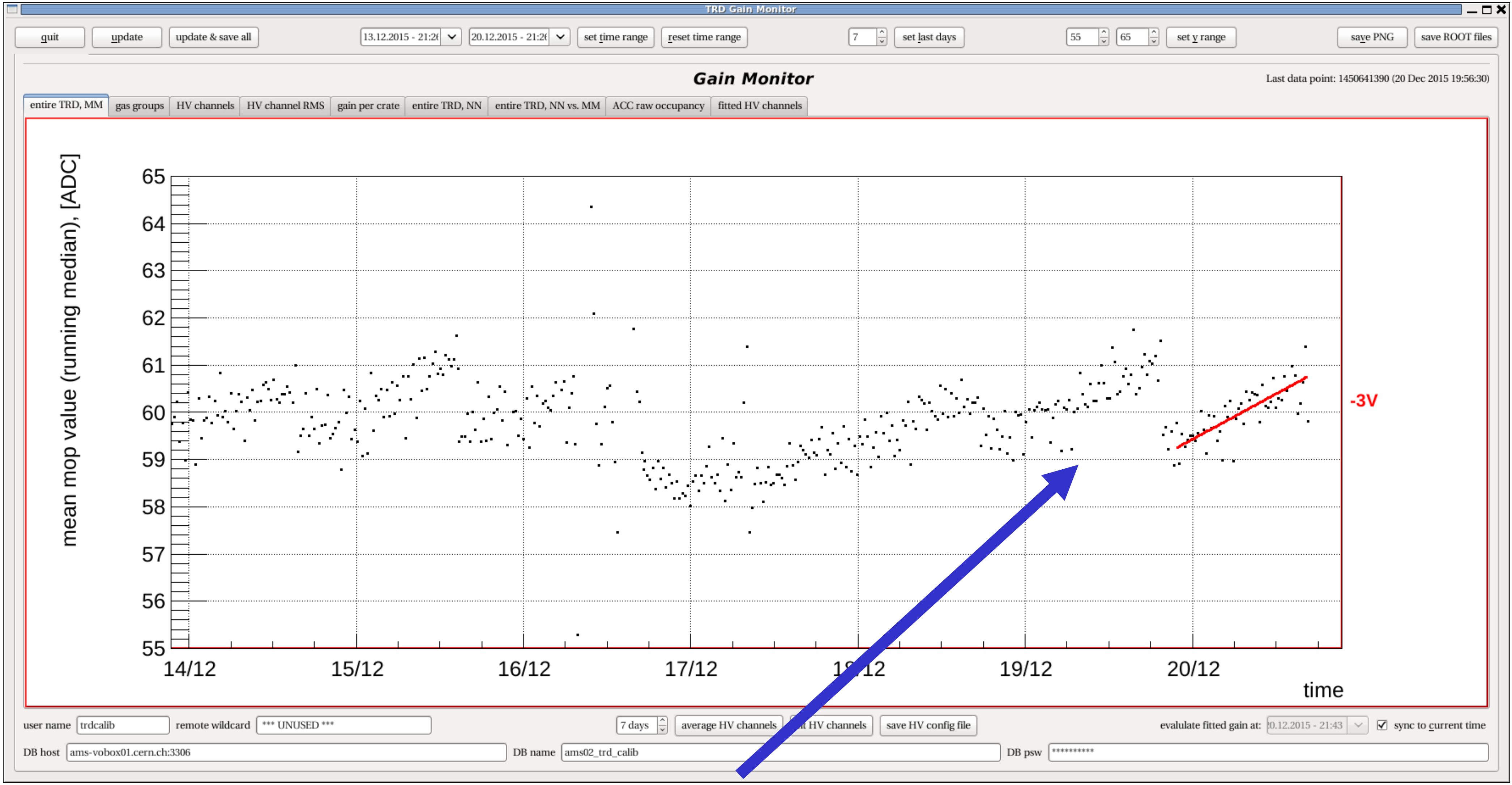
08.12.2015 - 14:0
15.12.2015 - 14:0
7
58
62

Last data point: 1450184191 (15 Dec 2015 12:56:31)

user name: trdcalib
remote wildcard: *** UNUSED ***
7 days
evalulate fitted gain at: 5.12.2015 - 14:03
☑ sync to current time
DB host: ams-vobox01.cern.ch:3306
DB name: ams02_trd_calib
DB psw: **********

2.) TRD-HV overall Adjustment

Determine HV-value for adjustment


TRD Gain Monitor
quit
update
update & save all
set time range
reset time range
set last days
set y range
save PNG
save ROOT files
Gain Monitor
entire TRD, MM
gas groups
HV channels
HV channel RMS
gain per crate
entire TRD, NN
entire TRD, NN vs. MM
ACC raw occupancy
fitted HV channels
mean mop value (running median), [ADC]
65
64
63
62
61
60
59
58
57
56
55
14/12
15/12
16/12
17/12
18/12
19/12
20/12
time
-3V
average HV channels
t HV channels
save HV config file

13.12.2015 - 21:2(20.12.2015 - 21:2(

7

55 65

Last data point: 1450641390 (20 Dec 2015 19:56:30)

user name: trdcalib

remote wildcard: *** UNUSED ***

7 days

evalulate fitted gain at: 20.12.2015 - 21:43

☑ sync to current time

DB host: ams-vobox01.cern.ch:3306

DB name: ams02_trd_calib

DB psw: **********

(2) In TRD-GainMonitor, in diagram select the range for the fit using the mouse

(3) Check Fit result

TRD HV Changing For TRD Shifter

Open Xterminal

```
trd@pcpoc25 ~$ cd ~trd/RUN
trd@pcpoc25 RUN$ set-command-path eas:hosc feplr
```

ASK LEAD for Commanding,

```
trd@pcpoc25 RUN$ prepare-trd-hv -3
```

Never type absolute values like 1400 V !!!

See example for 3V adjustment next slides !!!

At equator tell LEAD to stop DAQ, ask LEAD for Commanding and apply HV-adjustment

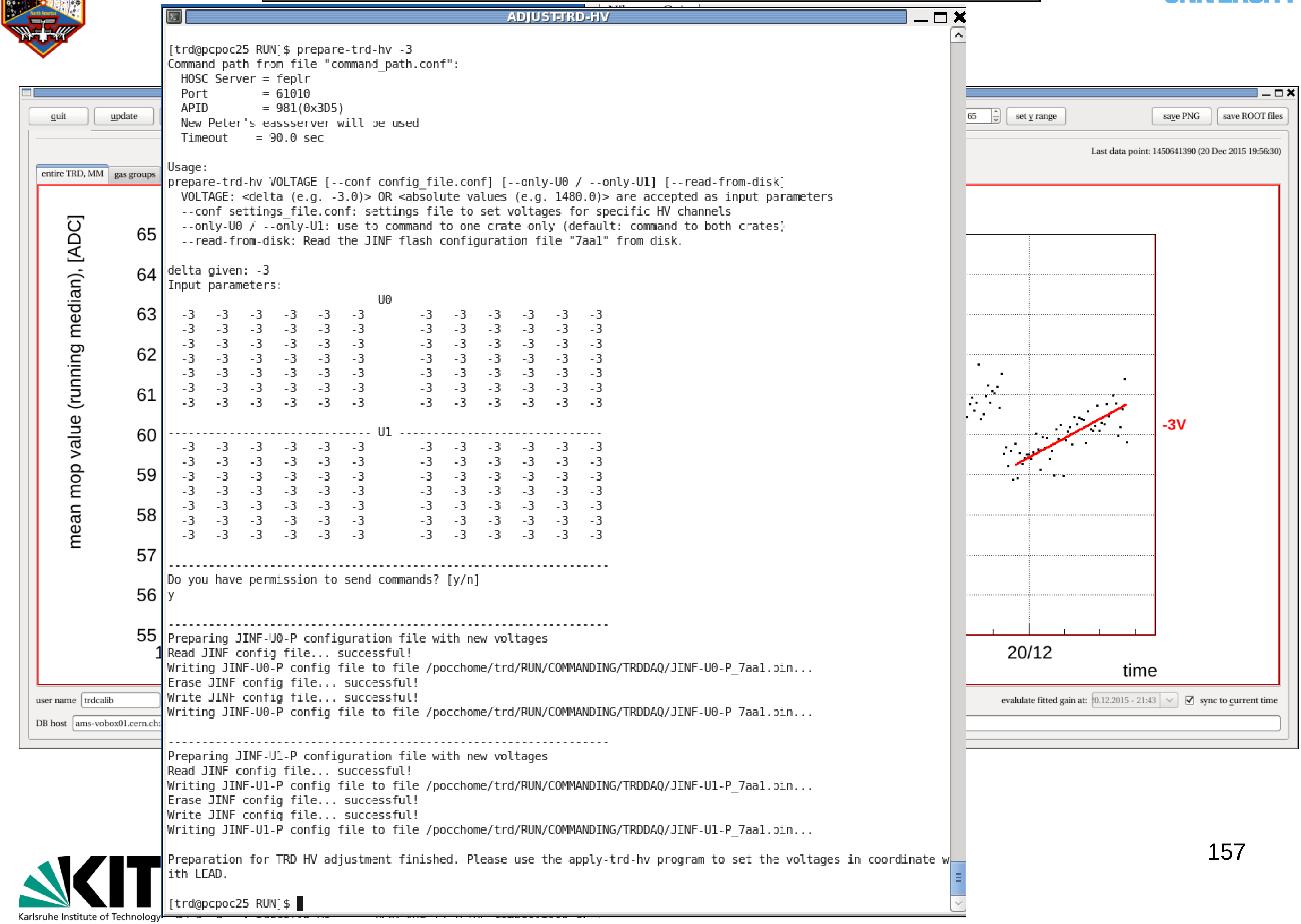
```
trd@pcpoc25 RUN$ apply-trd-hv
```

If the scripts fail they will print options how to proceed

If the options are not clear, call the expert!

Only use instructions on page 129 + , if you can’t get a hold of the expert!

TRD HV Changing For TRD Shifter



Last data point: 1450641390 (20 Dec 2015 19:56:30)

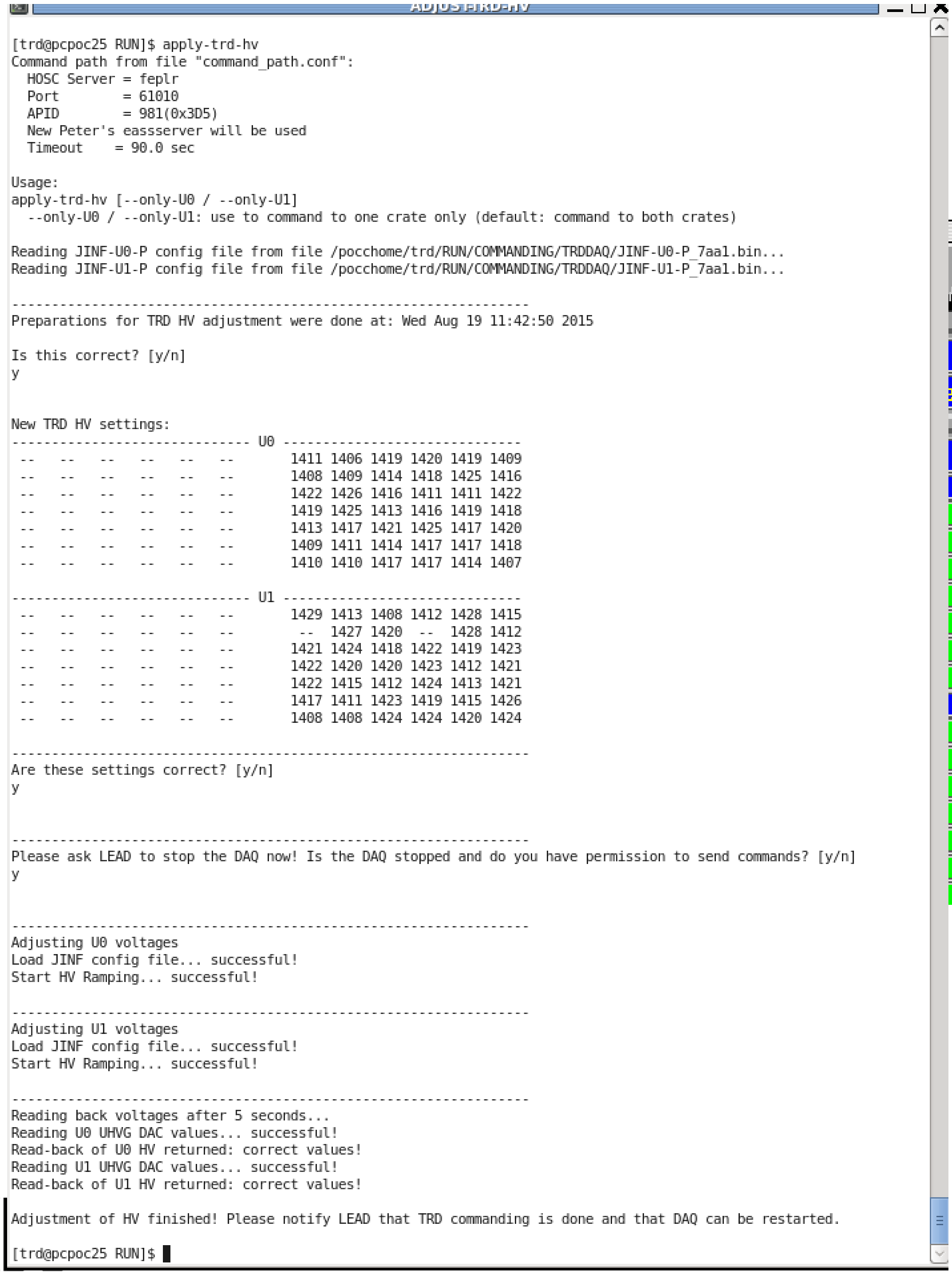
user name trdcalib

DB host ams-vobox01.cern.ch

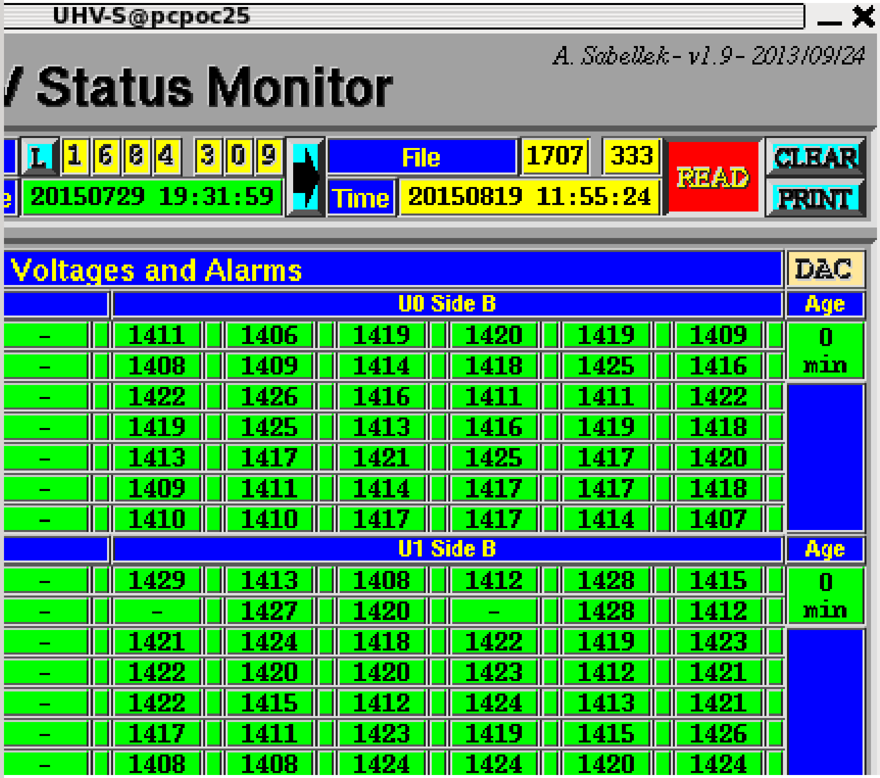
evaluate fitted gain at: 20.12.2015 - 21:43

```
[trd@pcpoc25 RUN]$ prepare-trd-hv -3
Command path from file "command_path.conf":
  HOSC Server = feplr
  Port        = 61010
  APID        = 981(0x3D5)
  New Peter's eassserver will be used
  Timeout    = 90.0 sec

Usage:
prepare-trd-hv VOLTAGE [--conf config_file.conf] [--only-U0 / --only-U1] [--read-from-disk]
  VOLTAGE: <delta (e.g. -3.0)> OR <absolute values (e.g. 1480.0)> are accepted as input parameters
  --conf settings_file.conf: settings file to set voltages for specific HV channels
  --only-U0 / --only-U1: use to command to one crate only (default: command to both crates)
  --read-from-disk: Read the JINF flash configuration file "7aa1" from disk.

delta given: -3
Input parameters:
------------------------------ U0 -------------------------------
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3

------------------------------ U1 -------------------------------
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3
  -3   -3   -3   -3   -3   -3        -3   -3   -3   -3   -3   -3

-----------------------------------------------------------------
Do you have permission to send commands? [y/n]
y

-----------------------------------------------------------------
Preparing JINF-U0-P configuration file with new voltages
Read JINF config file... successful!
Writing JINF-U0-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U0-P_7aa1.bin...
Erase JINF config file... successful!
Write JINF config file... successful!
Writing JINF-U0-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U0-P_7aa1.bin...

-----------------------------------------------------------------
Preparing JINF-U1-P configuration file with new voltages
Read JINF config file... successful!
Writing JINF-U1-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U1-P_7aa1.bin...
Erase JINF config file... successful!
Write JINF config file... successful!
Writing JINF-U1-P config file to file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U1-P_7aa1.bin...

Preparation for TRD HV adjustment finished. Please use the apply-trd-hv program to set the voltages in coordinate w
ith LEAD.

[trd@pcpoc25 RUN]$ █
```

TRD HV Changing For TRD Shifter



```
[trd@pcpoc25 RUN]$ apply-trd-hv
Command path from file "command_path.conf":
  HOSC Server = feplr
  Port        = 61010
  APID        = 981(0x3D5)
  New Peter's eassserver will be used
  Timeout     = 90.0 sec

Usage:
apply-trd-hv [--only-U0 / --only-U1]
  --only-U0 / --only-U1: use to command to one crate only (default: command to both crates)

Reading JINF-U0-P config file from file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U0-P_7aa1.bin...
Reading JINF-U1-P config file from file /pocchome/trd/RUN/COMMANDING/TRDDAQ/JINF-U1-P_7aa1.bin...

-----------------------------------------------------------------
Preparations for TRD HV adjustment were done at: Wed Aug 19 11:42:50 2015

Is this correct? [y/n]
y


New TRD HV settings:
------------------------------ U0 ------------------------------
 --   --   --   --   --   --       1411 1406 1419 1420 1419 1409
 --   --   --   --   --   --       1408 1409 1414 1418 1425 1416
 --   --   --   --   --   --       1422 1426 1416 1411 1411 1422
 --   --   --   --   --   --       1419 1425 1413 1416 1419 1418
 --   --   --   --   --   --       1413 1417 1421 1425 1417 1420
 --   --   --   --   --   --       1409 1411 1414 1417 1417 1418
 --   --   --   --   --   --       1410 1410 1417 1417 1414 1407

------------------------------ U1 ------------------------------
 --   --   --   --   --   --       1429 1413 1408 1412 1428 1415
 --   --   --   --   --   --        --  1427 1420  --  1428 1412
 --   --   --   --   --   --       1421 1424 1418 1422 1419 1423
 --   --   --   --   --   --       1422 1420 1420 1423 1412 1421
 --   --   --   --   --   --       1422 1415 1412 1424 1413 1421
 --   --   --   --   --   --       1417 1411 1423 1419 1415 1426
 --   --   --   --   --   --       1408 1408 1424 1424 1420 1424

-----------------------------------------------------------------
Are these settings correct? [y/n]
y


-----------------------------------------------------------------
Please ask LEAD to stop the DAQ now! Is the DAQ stopped and do you have permission to send commands? [y/n]
y


-----------------------------------------------------------------
Adjusting U0 voltages
Load JINF config file... successful!
Start HV Ramping... successful!

-----------------------------------------------------------------
Adjusting U1 voltages
Load JINF config file... successful!
Start HV Ramping... successful!

-----------------------------------------------------------------
Reading back voltages after 5 seconds...
Reading U0 UHVG DAC values... successful!
Read-back of U0 HV returned: correct values!
Reading U1 UHVG DAC values... successful!
Read-back of U1 HV returned: correct values!

Adjustment of HV finished! Please notify LEAD that TRD commanding is done and that DAQ can be restarted.

[trd@pcpoc25 RUN]$ 
```



20150729 19:31:59

20150819 11:55:24

	U0 Side B						Age
–	1411	1406	1419	1420	1419	1409	0 min
–	1408	1409	1414	1418	1425	1416	
–	1422	1426	1416	1411	1411	1422	
–	1419	1425	1413	1416	1419	1418	
–	1413	1417	1421	1425	1417	1420	
–	1409	1411	1414	1417	1417	1418	
–	1410	1410	1417	1417	1414	1407	

	U1 Side B						Age
–	1429	1413	1408	1412	1428	1415	0 min
–	–	1427	1420	–	1428	1412	
–	1421	1424	1418	1422	1419	1423	
–	1422	1420	1420	1423	1412	1421	
–	1422	1415	1412	1424	1413	1421	
–	1417	1411	1423	1419	1415	1426	
–	1408	1408	1424	1424	1420	1424	

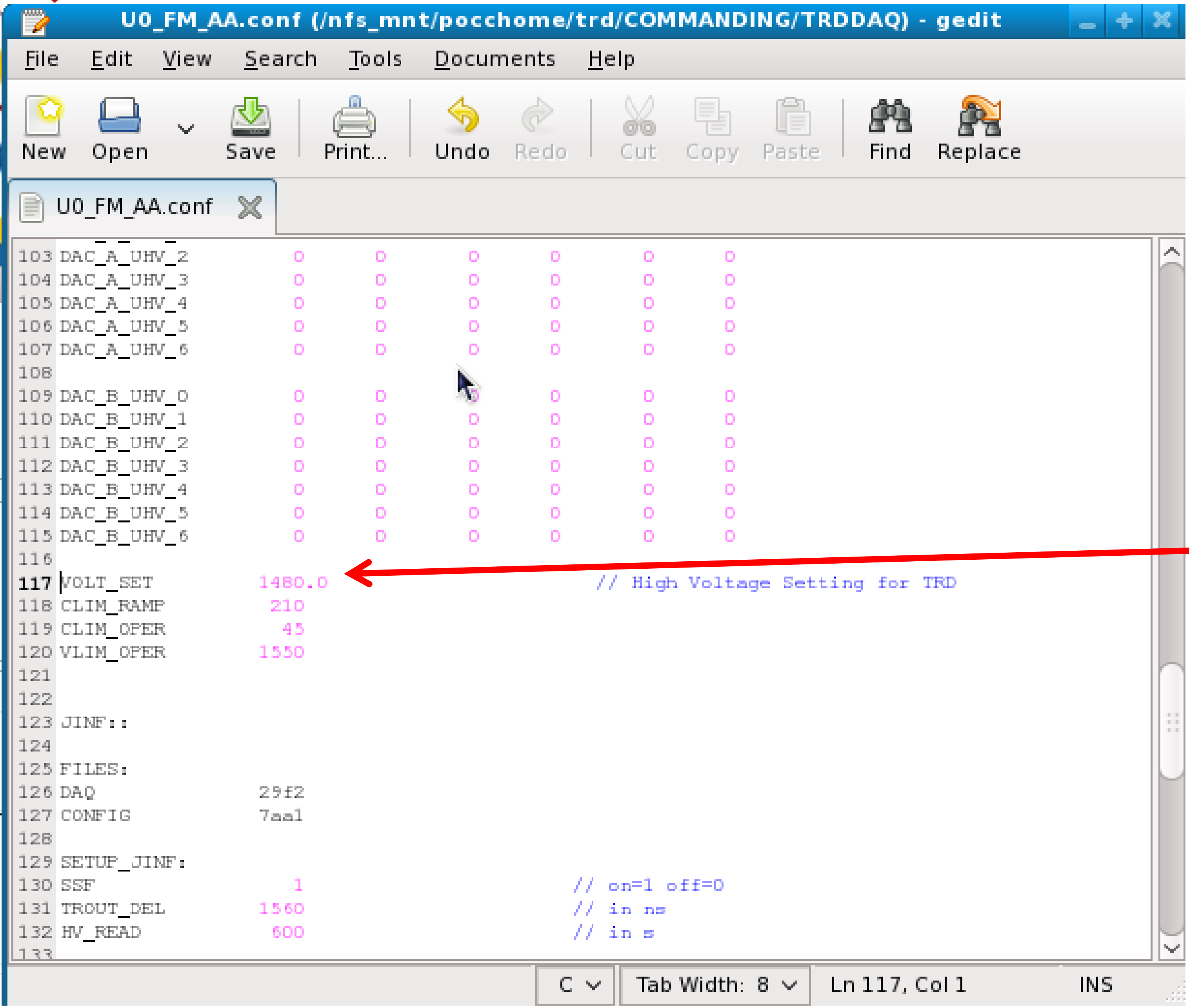
TRD HV Changing For Experts Only

TRD-HV: Change of HV settings!

- go to /RUN/COMMANDING/TRDDAQ directory and open config-files:

```
cd ~/RUN/COMMANDING/TRDDAQ
trd@pcpoc25 TRDDAQ$ gedit U0_FM_AA.conf  <- default config file!
                          U0_FM_AB.conf
                          U0_FM_BA.conf
                          U0_FM_BB.conf

trd@pcpoc25 TRDDAQ$ gedit U1_FM_AA.conf  <- default config file!
                          U1_FM_AB.conf
                          U1_FM_BA.conf
                          U1_FM_BB.conf
```

TRD HV Changing For Experts Only


U0_FM_AA.conf (/nfs_mnt/pocchome/trd/COMMANDING/TRDDAQ) - gedit
File
Edit
View
Search
Tools
Documents
Help
New
Open
Save
Print...
Undo
Redo
Cut
Copy
Paste
Find
Replace
U0_FM_AA.conf
C
Tab Width: 8
Ln 117, Col 1
INS

```
103 DAC_A_UHV_2          0      0       0      0       0      0
104 DAC_A_UHV_3          0      0       0      0       0      0
105 DAC_A_UHV_4          0      0       0      0       0      0
106 DAC_A_UHV_5          0      0       0      0       0      0
107 DAC_A_UHV_6          0      0       0      0       0      0
108
109 DAC_B_UHV_0          0      0       0      0       0      0
110 DAC_B_UHV_1          0      0       0      0       0      0
111 DAC_B_UHV_2          0      0       0      0       0      0
112 DAC_B_UHV_3          0      0       0      0       0      0
113 DAC_B_UHV_4          0      0       0      0       0      0
114 DAC_B_UHV_5          0      0       0      0       0      0
115 DAC_B_UHV_6          0      0       0      0       0      0
116
117 VOLT_SET          1480.0                        // High Voltage Setting for TRD
118 CLIM_RAMP          210
119 CLIM_OPER           45
120 VLIM_OPER         1550
121
122
123 JINF::
124
125 FILES:
126 DAQ               29f2
127 CONFIG            7aa1
128
129 SETUP_JINF:
130 SSF                  1                   // on=1 off=0
131 TROUT_DEL         1560                   // in ns
132 HV_READ            600                   // in s
```

HV change

Go to line 117

Type new HV Value

(default HV 1480 V @ 1000mbar)

TRD HV Changing For Experts Only

- after changing config-files transfer of config-files to JINFs:

Tell LEAD to stop DAQ!

ASK LEAD for Commanding,

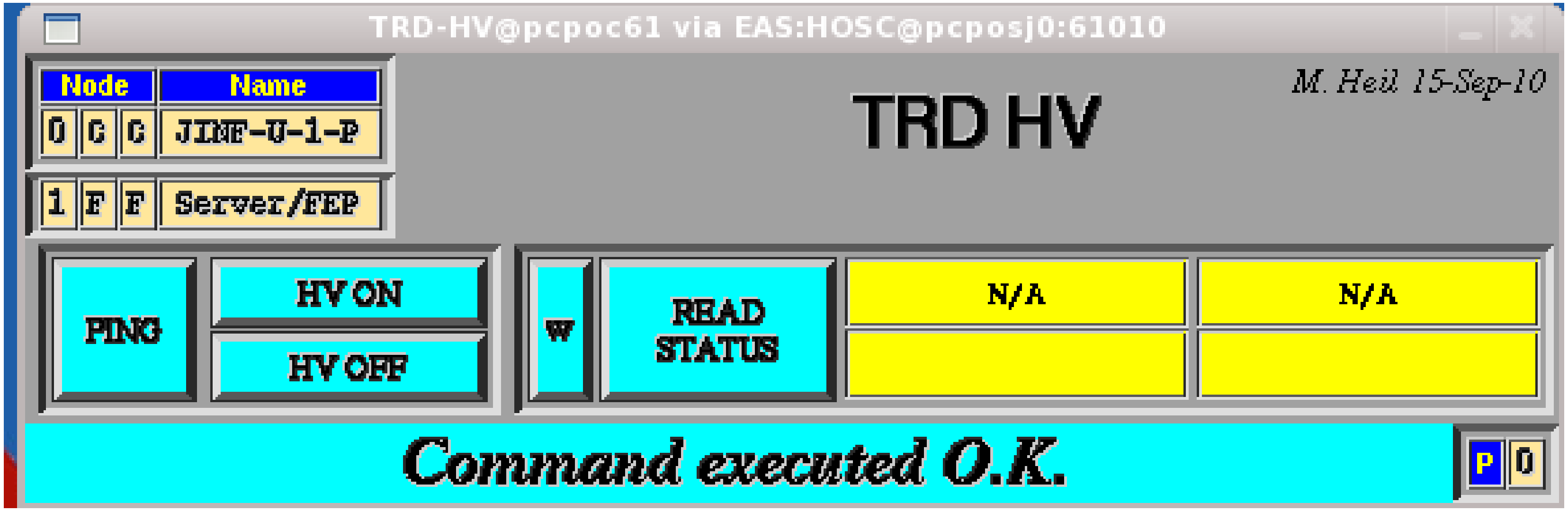
```
trd@pcpoc25 TRDDAQ$ set-command-path eas:hosc feplr
trd@pcpoc25 TRDDAQ$ create-config U0_FM_AA.conf c8 REPLACELOAD
(c8 = JINF-U-0-P)

If Replace successful:
Write JINF config file successful!
Load JINF config file successful!

Do the same with U1_FM_AA.conf:
trd@pcpoc25 TRDDAQ$ create-config U1_FM_AA.conf cc REPLACELOAD
(cc = JINF-U-1-P)

Once you have done this, you ALSO need to set the individual channel
voltages accordingly (see previous section).  Use adjust-trd-hv –
conf
~/trdsoft/trd_acc_tas/TRD/adjust_trd_hv_conf_files/hv_channel_adjust
_combined.conf --only-U1 (or --onlyU0)
```

TRD HV Changing For Experts Only

- DAQ should already be stopped. Go to TRD-HV on screen 4!
  - Click Button ‘HV ON’
  - Click Button ‘Read Status’ – the status should change to **the current value**

Go back to Step 5 on page 141

- **Tell LEAD to start DAQ again and that TRD Commanding is done!**


TRD-HV@pcpoc61 via EAS:HOSC@pcposj0:61010

Node			Name
0	C	C	JIMF-U-1-P
1	F	F	Server/FEP

TRD HV

M. Heil 15-Sep-10

Command executed O.K.

TRD Emergency Actions For Temperature Control:

1) Heaters On/Off
2) Pump On/Off

Karlsruhe Institute of Technology

1.a) TRD Xenon Vessel Heater Switch on

TRD Xenon Vessel Heater Switch on

Qualifying Conditions:

if Box C temperature drops below 8/9 degrees and will not be warming up soon (ask Joe Burger if you do not know what the maneuver plans are) we consider turning on Xenon vessel heaters.

- **Confirm all actions with the trd-expert list first.**
  - **Call Klaus Lübelsmeyer**
  - **Email Stefan Schael, Thomas Kirn, Thorsten Siedenburg, Bastian Beischer, Stefan Zeissler and Valery Zhukov.**

- **Once the procedure is agreed, follow next steps …**

- **If you’re doing a gas refill in the next few days, REMEMBER that the Xenon Vessel should not be more than 5° C warmer than the Mixing Vessel. To avoid this, turn off the heaters at LEAST 36 hours before the refill should start.**

TRD Xenon Vessel Heater Switch on

- **Be sure that there is item 14 in the TQ list – ask LEAD.** It should currently be disabled. (If this item does not exist and you or the TRD expert do not know how to fix this, Mike Capell knows how to fix it.)

- **Confirm with LEAD that you have ability to send commands.**
- Then, open a new TRD terminal and type:

```
trd@pcpoc25 trd $ cd ~/RUN/COMMANDING/TRDGAS
trd@pcpoc25 TRDGAS $ set-command-path eas:hosc feplr
trd@pcpoc25 TRDGAS $ ./Heat_Xenon.csh A
```

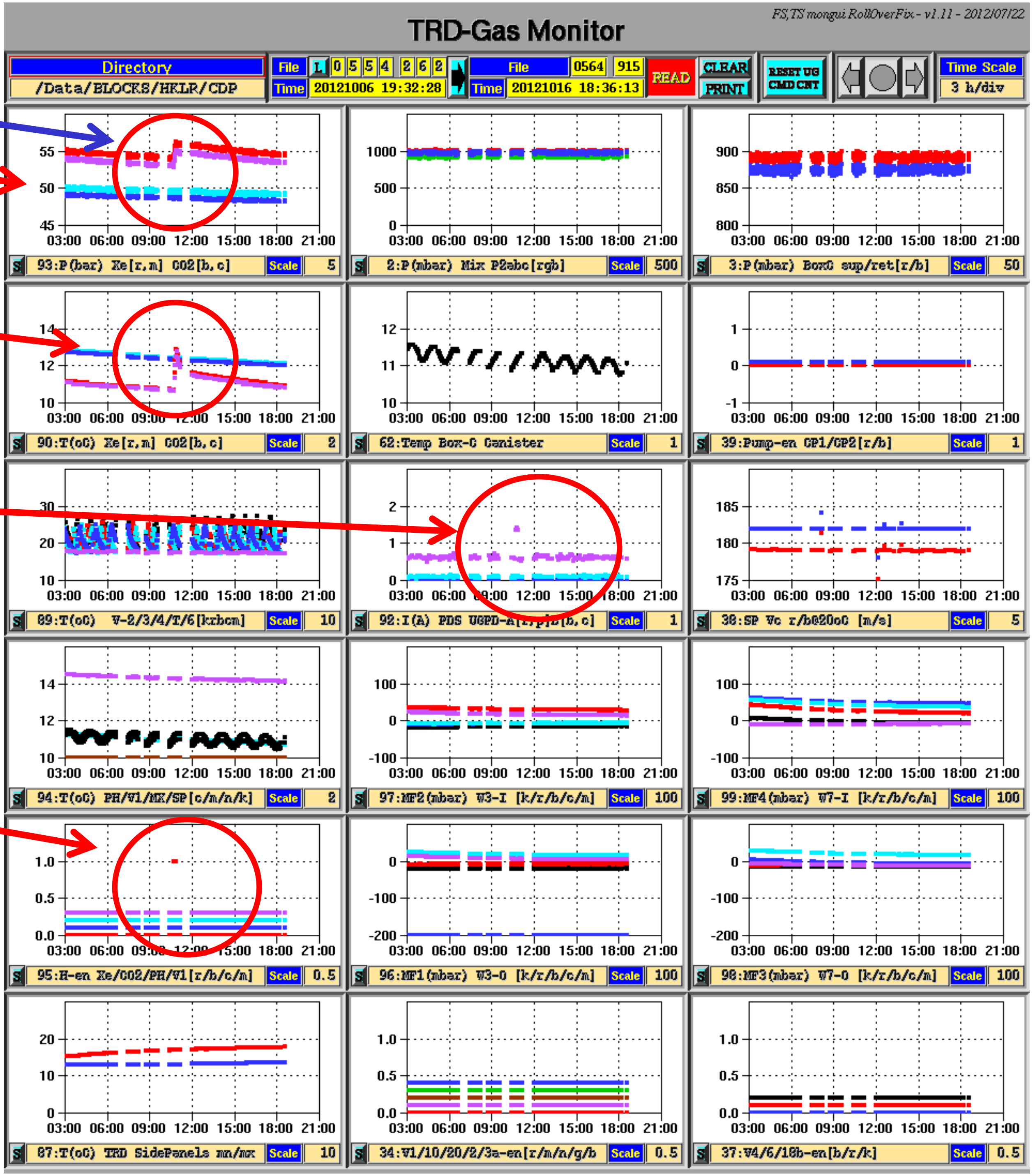
- **Watch for 8 replies**

Check for these changes in the TRD-Gas Monitor plots (see next slide)

- **Current should go from 0.6A to 1.4A (plot 92, center)**
- **Xenon heater enable Bit changes from 0 to 1 (plot 95, lower left)**
- **Xenon Temperature and Pressure (top left, plots 90 and 93) should increase**
- **CO2 pressure and temperature (same plots) should be unaffected**

It takes ~8 hours to heat up from 8 degrees. There is a thermostat, which will keep the heater running between: **Xe: ON 38°, OFF 49°, CO2: ON 43°, OFF 54°**
The Box C temperature will increase by about 1 degree from where it would have been otherwise.

TRD Xenon Vessel Heater Switch on


FS,TS mongui RollOverFix - v1.11 - 2012/07/22
TRD-Gas Monitor
READ
CLEAR
PRINT
RESET UG CMD CNT
93:P(bar) Xe[r,m] CO2[b,c]
2:P(mbar) Mix P2abc[rgb]
3:P(mbar) BoxC sup/ret[r/b]
90:T(oC) Xe[r,m] CO2[b,c]
62:Temp Box-C Canister
39:Pump-en CP1/CP2[r/b]
89:T(oC) V-2/3/4/T/6[krbcm]
92:I(A) PDS UGPD-A[r,p]B[b,c]
38:SP Vc r/b@20oC [m/s]
94:T(oC) PH/V1/MX/SP[c/m/n/k]
97:MF2(mbar) W3-I [k/r/b/c/m]
99:MF4(mbar) W7-I [k/r/b/c/m]
95:H-en Xe/CO2/PH/V1[r/b/c/m]
96:MF1(mbar) W3-O [k/r/b/c/m]
98:MF3(mbar) W7-O [k/r/b/c/m]
87:T(oC) TRD SidePanels mn/mx
34:V1/10/20/2/3a-en[r/m/n/g/b
37:V4/6/18b-en[b/r/k]
Scale
03:00 06:00 09:00 12:00 15:00 18:00 21:00

Directory: /Data/BLOCKS/HKLR/CDP

File: L 0554 262 — Time: 20121006 19:32:28

File: 0564 915 — Time: 20121016 18:36:13

Time Scale: 3 h/div

Xe-Vessel Pressure raises, CO2 not

Xe-Vessel Temperature raises, CO2 not effected

UG current from 0.6 A to 1.4 A

Xenon-Heater enable bit From 0 to 1

1.b) TRD Xenon Vessel Heater Switch off

TRD Xenon Vessel Heater Switch off

Do once you have confirmed that the temperature range is out of danger – Box-C temperature should be at 10 or 11 degrees.

- Confirm with LEAD that you have ability to send commands.
- Open a new TRD terminal and type:

```
trd@pcpoc25 trd $ cd ~/RUN/COMMANDING/TRDGAS

trd@pcpoc25 TRDGAS $ set-command-path eas:hosc feplr
trd@pcpoc25 TRDGAS $ ./Disable_Heaters.csh A
```

- Watch for 3 replies
- Have LEAD check that TQ list item 14 is now disabled again.

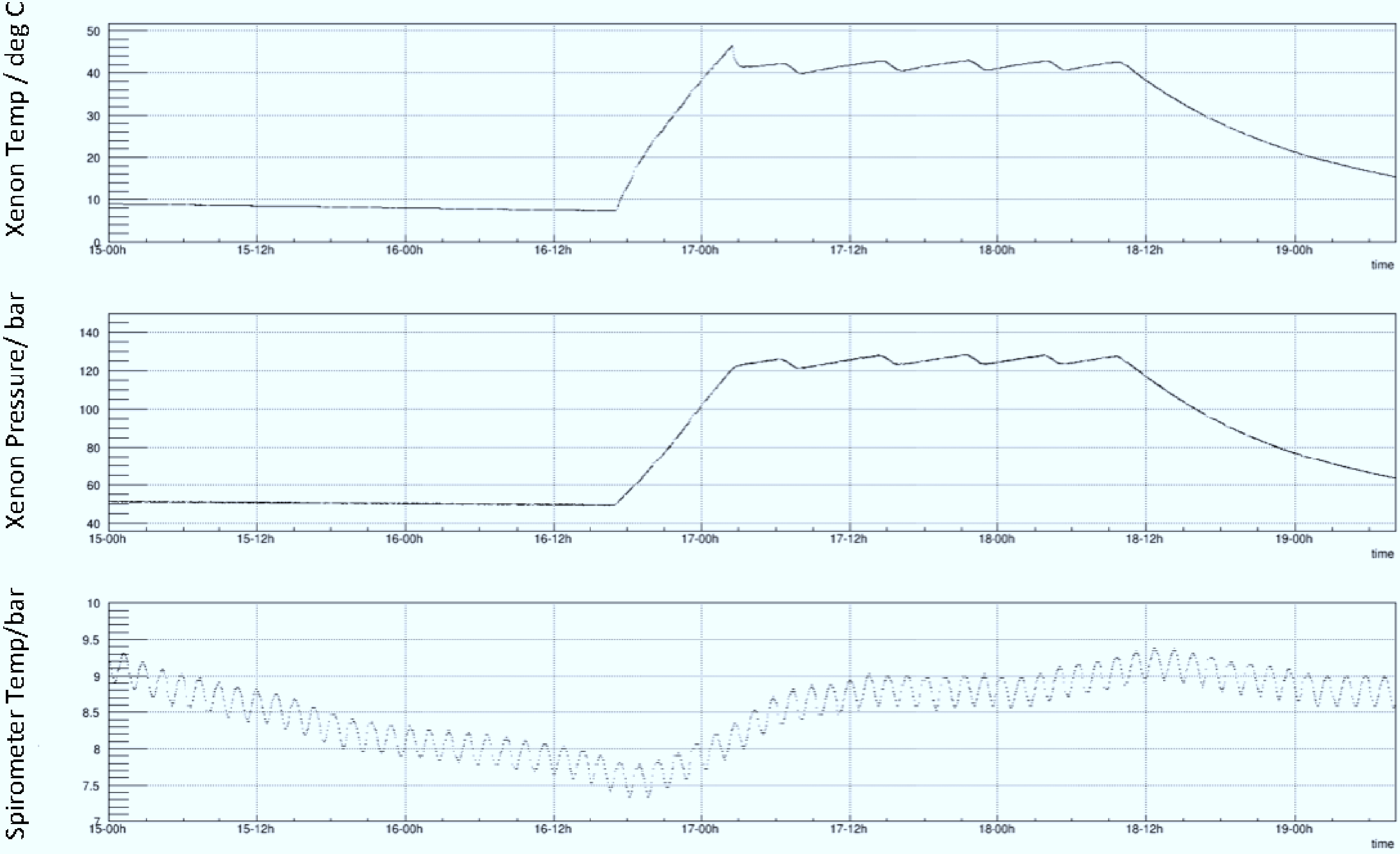
Check for these changes in the TRD-Gas Monitor plots (see slides before)

- Current should go from 1.4A to 0.6A (plot 92, center)
- Xenon heater enable Bit changes from 1 to 0 (plot 95, lower left)
- Xenon Temperature and Pressure (top left, plots 90 and 93) should decrease
- CO2 pressure and temperature (same plots) should be unaffected

Box-C temperature should decrease by about 1 degree from where it would have been otherwise.

TRD Xenon Vessel Heater Switch on/off

An example of temperature and pressure plots during Xenon vessel heating

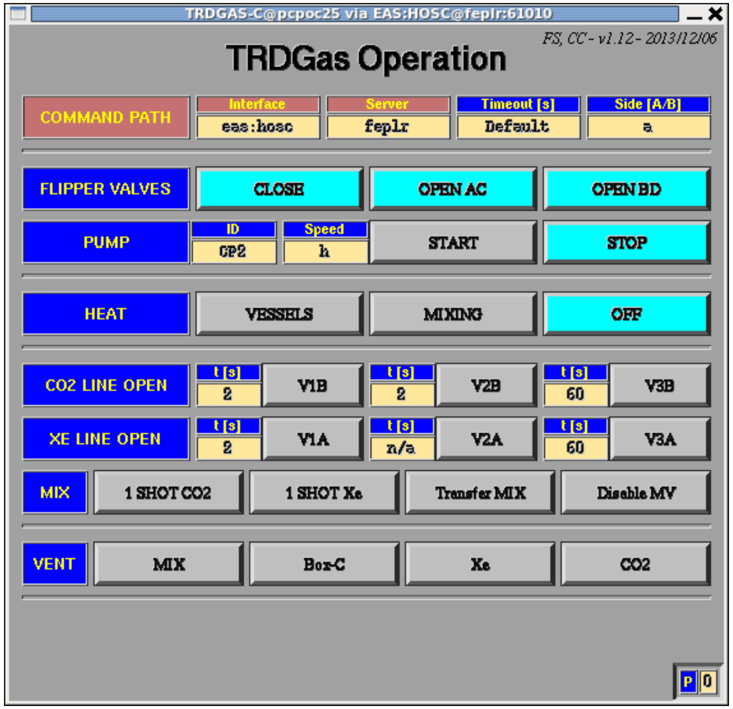


TRD Xenon Vessel Heater Switch on/off using GUI

An alternative method is to use the GUI. However the gui can only talk to both vessel heaters (Xenon & CO_2) at once. This is okay for simply turning the heater off. But for turning on be sure to get approval to turn **BOTH** heaters on.

Note: Turning the vessel heaters ON in this way requires CONSTANT Monitoring to keep the temperature in the correct range: 20-40°C. The automated script is MUCH simpler. Only follow this procedure if ABSOLUTELY NECESSARY !!!

- **Inform LEAD that you will be turning on the heaters.**
- **Ask LEAD if you have ability to send commands.**



TRDGAS-C@pcpoc25 via EAS:HOSC@feplr:61010

FS, CC - v1.12 - 2013/12/06

TRDGas Operation

COMMAND PATH: Interface eas:hosc; Server feplr; Timeout [s] Default; Side [A/B] a

PUMP: ID CP2; Speed h

CO2 LINE OPEN: t [s] 2, t [s] 2, t [s] 60

XE LINE OPEN: t [s] 2, t [s] n/a, t [s] 60

FLIPPER VALVES
CLOSE
OPEN AC
OPEN BD
START
STOP
HEAT
VESSELS
MIXING
OFF
V1B
V2B
V3B
V1A
V2A
V3A
MIX
1 SHOT CO2
1 SHOT Xe
Transfer MIX
Disable MV
VENT
MIX
Box-C
Xe
CO2
P
0

TRD Xenon Vessel Heater Switch on/off using GUI

To open the GUI, you must open three terminals

1st terminal (start the TRDGAS-Operation-Gui):

```
trd@pcpoc25 ~$ cd ~trd/RUN/
trd@pcpoc25 RUN$ set-command-path eas:hosc feplr
trd@pcpoc25 RUN$ TRDGAS-C eas:hosc feplr
```

2nd terminal (start TRDGAS-M):

```
trd@pcpoc25 ~$ cd ~/RUN/
trd@pcpoc25  RUN$ set-command-path eas:hosc feplr
trd@pcpoc25 RUN$ TRDGAS-M C
```

3rd terminal:

Look in 2nd terminal, where you opened TRDGAS-M C. There is a file called CmdFile which it says it will write to. For each command sent from the gui, confirm that there are no errors here (ERR, ABORT, etc…). Also watch for proper number of replies for each command.

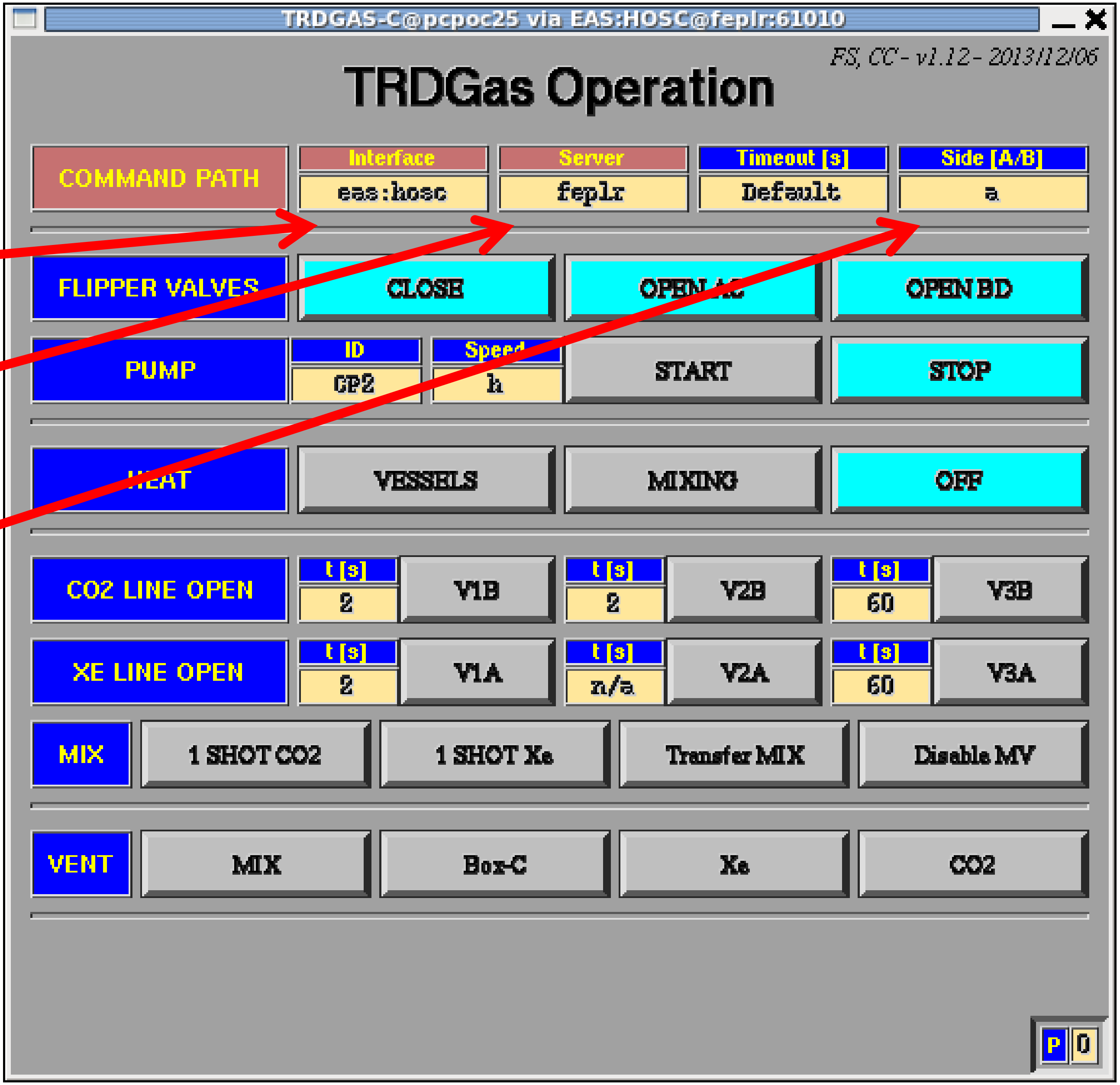
Watch this file:

```
trd@pcpoc25  RUN$ tail –f /path-to-file/CmdFile_....dat
```

TRD Xenon Vessel Heater Switch on/off using GUI

When looking at GUI, check that

- interface is eas:hosc
- server is feplr
- Side [A/B] is a



TRDGAS-C@pcpoc25 via EAS:HOSC@feplr:61010

FS, CC - v1.12 - 2013/12/06

TRDGas Operation

COMMAND PATH

Interface: eas:hosc

Server: feplr

Timeout [s]: Default

Side [A/B]: a

PUMP

ID: GP2

Speed: h

CO2 LINE OPEN: t [s] 2 V1B, t [s] 2 V2B, t [s] 60 V3B

XE LINE OPEN: t [s] 2 V1A, t [s] n/a V2A, t [s] 60 V3A

FLIPPER VALVES
CLOSE
OPEN AC
OPEN BD
START
STOP
HEAT
VESSELS
MIXING
OFF
MIX
1 SHOT CO2
1 SHOT Xe
Transfer MIX
Disable MV
VENT
MIX
Box-C
Xe
CO2
P
0

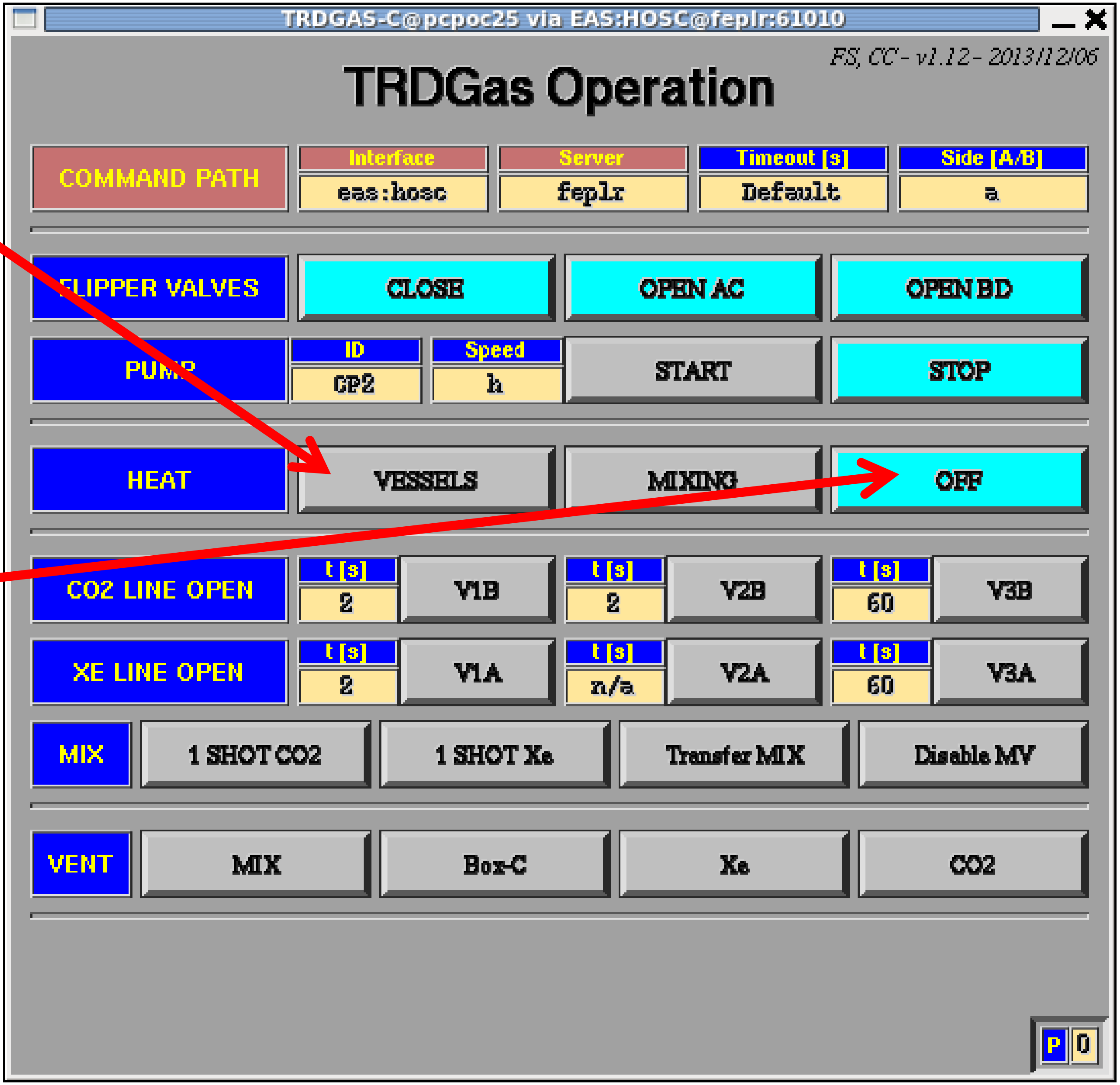
TRD Xenon Vessel Heater Switch on/off using GUI

To turn the Heaters **ON:**

- **Click [HEAT] [Vessels]**
- **Watch for 9 replies in 3rd terminal**
- **Watch for the changes in the plots as before**

To turn the Heaters **OFF:**

- **Click [HEAT] [OFF]**
- **Watch for replies in 3rd terminal**
- **Watch for the changes in the plots as before**



TRDGAS-C@pcpoc25 via EAS:HOSC@feplr:61010

FS, CC - v1.12 - 2013/12/06

TRDGas Operation

	Interface	Server	Timeout [s]	Side [A/B]
COMMAND PATH	eas:hosc	feplr	Default	a

PUMP: ID GP2, Speed h

CO2 LINE OPEN: t [s] 2 V1B, t [s] 2 V2B, t [s] 60 V3B

XE LINE OPEN: t [s] 2 V1A, t [s] n/a V2A, t [s] 60 V3A

FLIPPER VALVES
CLOSE
OPEN AC
OPEN BD
START
STOP
HEAT
VESSELS
MIXING
OFF
MIX
1 SHOT CO2
1 SHOT Xe
Transfer MIX
Disable MV
VENT
MIX
Box-C
Xe
CO2
P
0

2.) Pump ON/OFF

Pump ON/OFF

Qualifying Conditions:

if Box C temperature drops below 7 degrees and will not be warming up soon (ask Joe Burger if you do not know what the maneuver plans are) AND the Xenon vessel heater is already on, we consider turning on the pump – it should get you ~2 degrees for the BOX-C temperature. ***THIS PROCEDURE IS A LAST RESORT !!!***

- **Confirm all actions with the trd-expert list first.**
  - Call Klaus Lübelsmeyer
  - Email Stefan Schael, Thomas Kirn, Thorsten Siedenburg, Bastian Beischer, Stefan Zeissler and Valery Zhukov.

- **Since this will affect the science data we take, this must be confirmed also with Prof. Ting**

- Once the procedure is agreed, follow next steps …

TRD Xenon Vessel Heater Switch on/off using GUI

- Inform LEAD that the pump will be turned on
- Tell LEAD to increment the runtag
- Ask if you have ability to send commands to AMS

To open the GUI, you must open three terminals

1st terminal (start the TRDGAS-Operation-Gui):

```
trd@pcpoc25 ~$ cd ~/RUN/
trd@pcpoc25 RUN$ set-command-path eas:hosc feplr
trd@pcpoc25 RUN$ TRDGAS-C eas:hosc feplr
```

2nd terminal (start TRDGAS-M):

```
trd@pcpoc25 ~$ cd ~/RUN/
trd@pcpoc25  RUN$ set-command-path eas:hosc feplr
trd@pcpoc25 RUN$ TRDGAS-M C
```

3rd terminal:

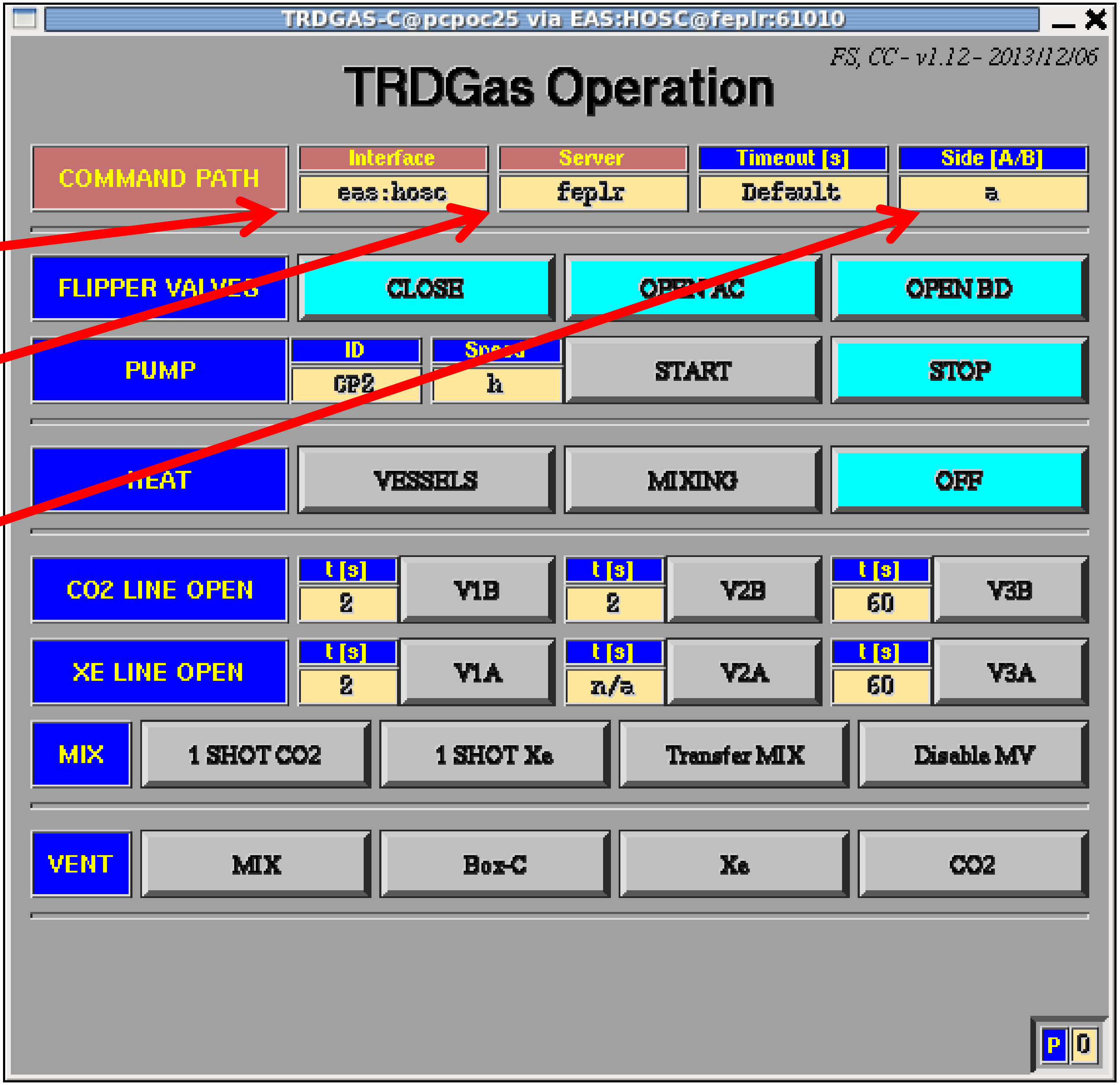
Look in 2nd terminal, where you opened TRDGAS-M C. There is a file called CmdFile which it says it will write to. For each command sent from Gui, confirm that there are no errors here (ERR, ABORT, etc…). Also watch for proper number of replies for each command.

Watch this file: `trd@pcpoc25  RUN$ tail –f /path-to-file/CmdFile_....dat`

Pump ON/OFF using GUI

When looking at GUI, check that

- interface is eas:hosc
- server is feplr
- Side [A/B] is a



TRDGAS-C@pcpoc25 via EAS:HOSC@feplr:61010

FS, CC - v1.12 - 2013/12/06

TRDGas Operation

COMMAND PATH	Interface	Server	Timeout [s]	Side [A/B]
	eas:hosc	feplr	Default	a

PUMP: ID GP2, Speed h

CO2 LINE OPEN: t [s] 2 V1B, t [s] 2 V2B, t [s] 60 V3B

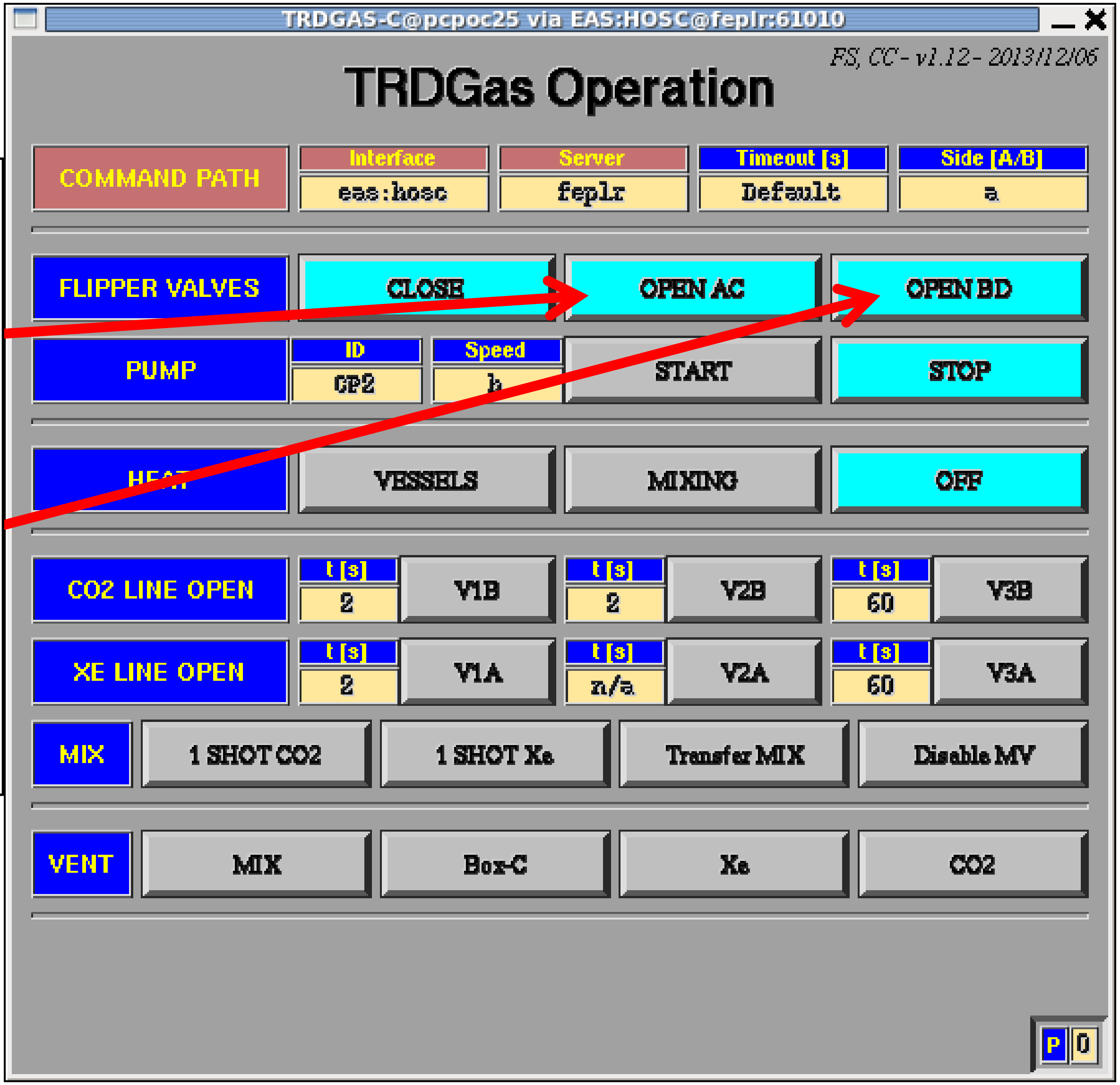
XE LINE OPEN: t [s] 2 V1A, t [s] n/a V2A, t [s] 60 V3A

FLIPPER VALVES
CLOSE
OPEN AC
OPEN BD
START
STOP
HEAT
VESSELS
MIXING
OFF
MIX
1 SHOT CO2
1 SHOT Xe
Transfer MIX
Disable MV
VENT
MIX
Box-C
Xe
CO2
P
0

Pump ON/OFF using GUI

BEFORE TURNING PUMP ON
OPEN ALL FLIPPER VALVES
(VERY IMPORTANT!!):

- `Click [Flipper Valves] [Open AC]`
- `Watch for 77 replies in 3rd terminal`
- `Click [Flipper Valves] [Open BD]`
- `Watch for 77 replies in 3rd terminal`



TRDGAS-C@pcpoc25 via EAS:HOSC@feplr:61010

FS, CC - v1.12 - 2013/12/06

TRDGas Operation

Interface: eas:hosc
Server: feplr
Timeout [s]: Default
Side [A/B]: a

PUMP ID: GP2
Speed: h

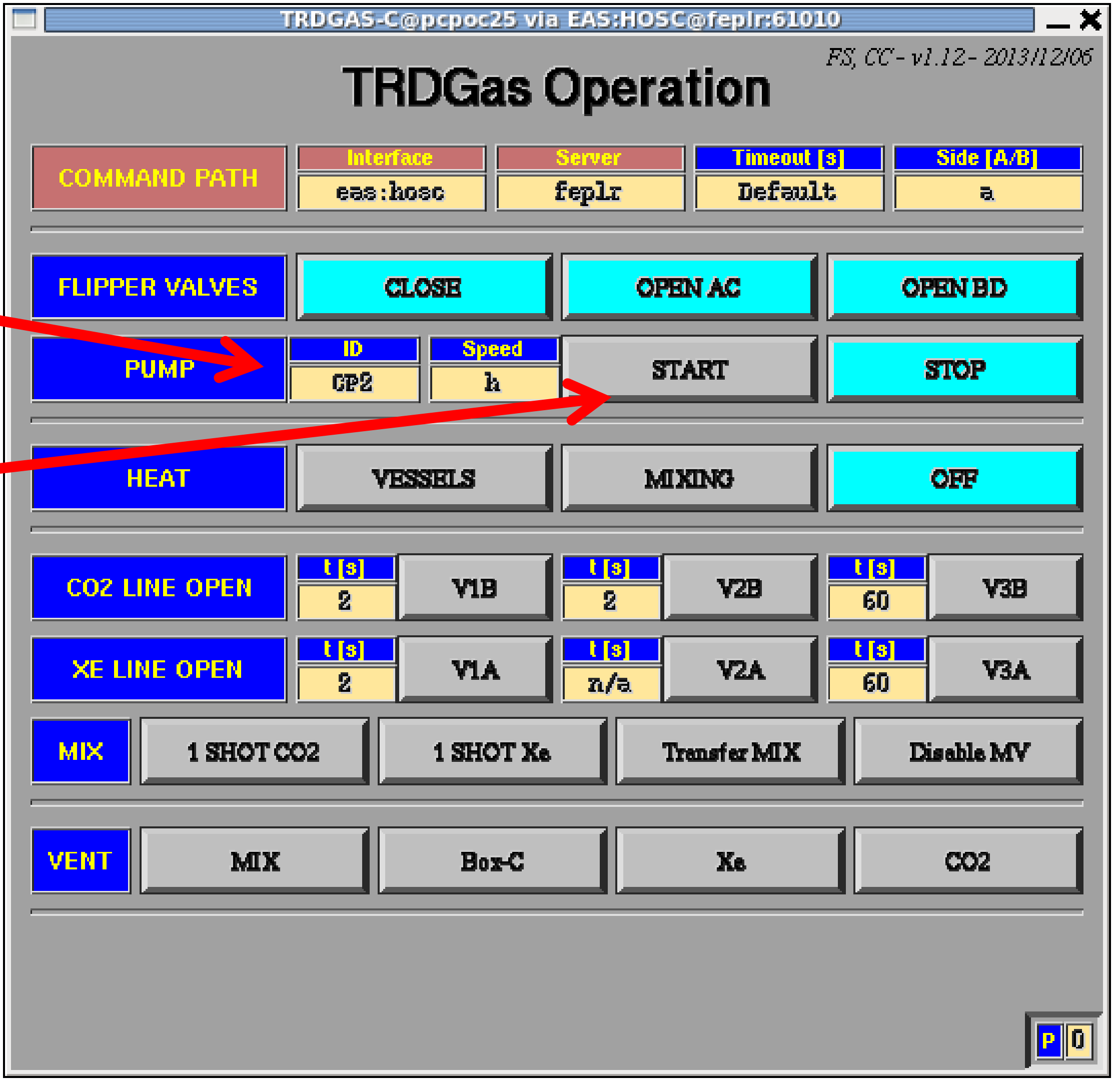
CO2 LINE OPEN: t [s] 2 V1B, t [s] 2 V2B, t [s] 60 V3B
XE LINE OPEN: t [s] 2 V1A, t [s] n/a V2A, t [s] 60 V3A

COMMAND PATH
FLIPPER VALVES
CLOSE
OPEN AC
OPEN BD
PUMP
START
STOP
HEAT
VESSELS
MIXING
OFF
MIX
1 SHOT CO2
1 SHOT Xe
Transfer MIX
Disable MV
VENT
MIX
Box-C
Xe
CO2
P
0

Pump ON/OFF using GUI

To turn the Pump **ON**:

- Verify that you have cp2 and h (for half speed → ~+1.5°C) or f (for full speed → ~+4.5°C)
- Click [PUMP] [START]
- Watch for 58 replies in 3rd terminal
- Watch for the changes in the plots on the next page
- DRP will briefly turn red "bad" until pressure stabilizes



TRDGAS-C@pcpoc25 via EAS:HOSC@feplr:61010

FS, CC - v1.12 - 2013/12/06

TRDGas Operation

COMMAND PATH — Interface: eas:hosc; Server: feplr; Timeout [s]: Default; Side [A/B]: a

PUMP — ID: CP2; Speed: h

CO2 LINE OPEN — t [s]: 2 V1B; t [s]: 2 V2B; t [s]: 60 V3B

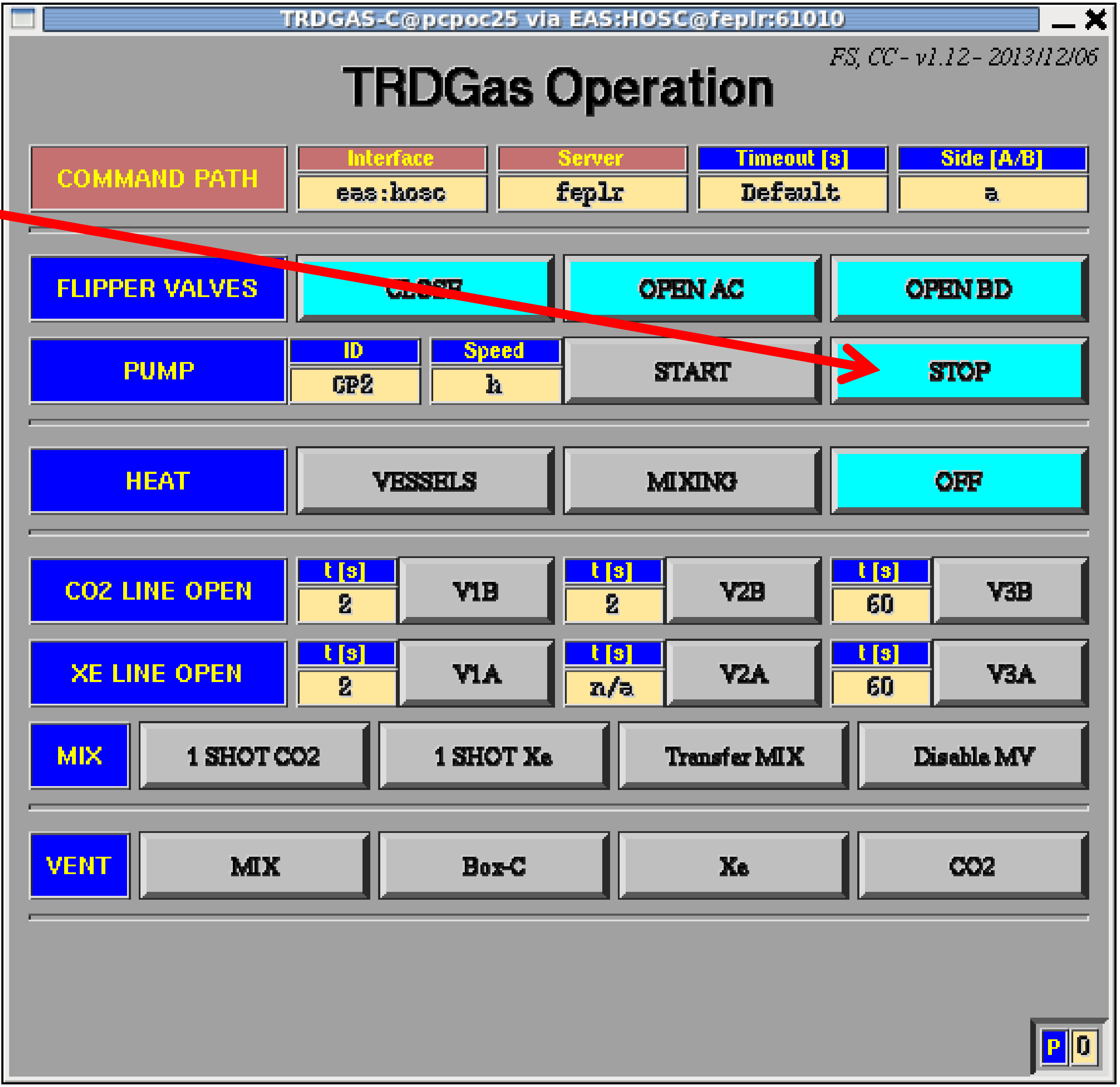
XE LINE OPEN — t [s]: 2 V1A; t [s]: n/a V2A; t [s]: 60 V3A

FLIPPER VALVES
CLOSE
OPEN AC
OPEN BD
START
STOP
HEAT
VESSELS
MIXING
OFF
MIX
1 SHOT CO2
1 SHOT Xe
Transfer MIX
Disable MV
VENT
MIX
Box-C
Xe
CO2
P
0

Pump ON/OFF using GUI

To turn the Pump **OFF:**

- **Click [PUMP] [STOP]**
- **Watch for 58 replies in 3rd terminal**
- **Watch for the changes in the plots on the next page**
- **DRP will briefly turn red “bad” until pressure stabilizes**



TRDGAS-C@pcpoc25 via EAS:HOSC@feplr:61010

FS, CC - v1.12 - 2013/12/06

TRDGas Operation

Interface: eas:hosc

Server: feplr

Timeout [s]: Default

Side [A/B]: a

PUMP ID: GP2

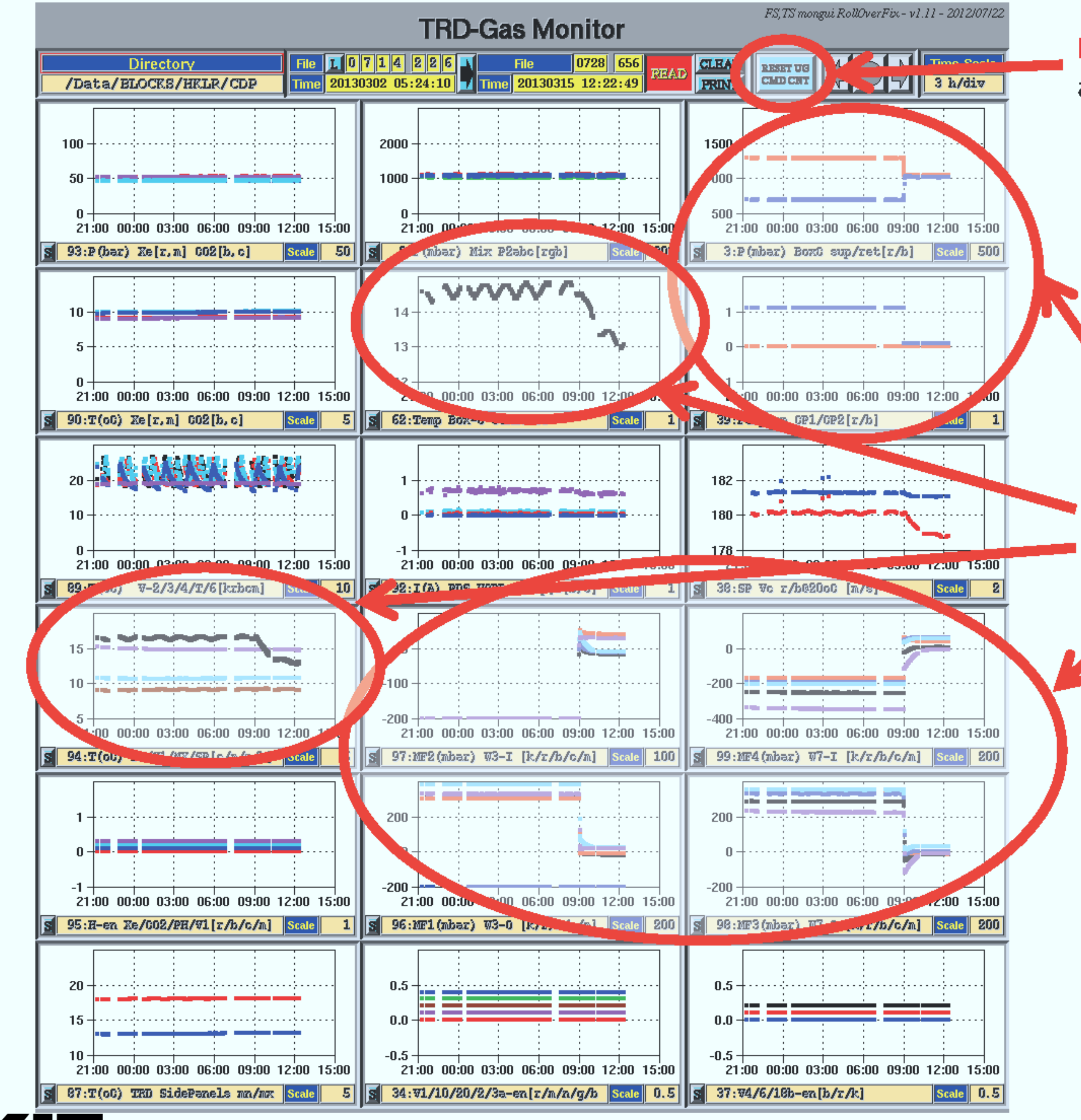
Speed: h

CO2 LINE OPEN: t [s] 2 V1B, t [s] 2 V2B, t [s] 60 V3B

XE LINE OPEN: t [s] 2 V1A, t [s] n/a V2A, t [s] 60 V3A

COMMAND PATH
FLIPPER VALVES
CLOSE
OPEN AC
OPEN BD
PUMP
START
STOP
HEAT
VESSELS
MIXING
OFF
MIX
1 SHOT CO2
1 SHOT Xe
Transfer MIX
Disable MV
VENT
MIX
Box-C
Xe
CO2
P
0

Pump ON/OFF


TRD-Gas Monitor
FS,TS mongui RollOverFix - v1.11 - 2012/07/22
Directory
/Data/BLOCKS/HKLR/CDP
File L 0 7 1 4 2 2 6
Time 20130302 05:24:10
File 0728 656
Time 20130315 12:22:49
READ
CLEA
PRIN
RESET UG CMD CNT
Time Scale
3 h/div
21:00 00:00 03:00 06:00 09:00 12:00 15:00
93:P(bar) Xe[r,m] CO2[b,c] Scale 50
(mbar) Mix P2abc[rgb] Scale
3:P(mbar) BoxC sup/ret[r/b] Scale 500
90:T(oC) Xe[r,m] CO2[b,c] Scale 5
62:Temp Box-C Scale 1
CP1/CP2[r/b] Scale 1
V-2/3/4/T/6[krbcm] Scale 10
92:I(A) Scale 1
38:SP Vc r/b@20oC [m/s] Scale 2
94:T(oC) Scale
97:MF2(mbar) W3-I [k/r/b/c/m] Scale 100
99:MF4(mbar) W7-I [k/r/b/c/m] Scale 200
95:H-en Xe/CO2/PH/V1[r/b/c/m] Scale 1
96:MF1(mbar) W3-O Scale 200
98:MF3(mbar) [k/r/b/c/m] Scale 200
87:T(oC) TRD SidePanels mn/mx Scale 5
34:V1/10/20/2/3a-en[r/m/n/g/b Scale 0.5
37:V4/6/18b-en[b/r/k] Scale 0.5

Reset Command Counters
after each set of replies

This is example of the pump turning **off**. When turning on it does the opposite.

TRD HV OFF/ON for an AMS-02 Power Down or Power OFF (and then presumably Power Up/On)

Power Down/Off or Up/On
TRD HV On/Off

When does this happen?

- In this case, it was a Soyuz docking on 7th Nov 2013, while AMS on ISS was at an extremely negative beta angle. There was not enough power to both dock the Soyuz **AND** to keep the AMS DAQ running. Many systems were powered **down** for this maneuver.

Stage 1: Prior to Docking turn TRD HV Off

After LEAD has stopped DAQ and **before** crates are powered off:

- In elog, note current HV settings for U0 and U1 from TRD-S
- Open new terminal and type:

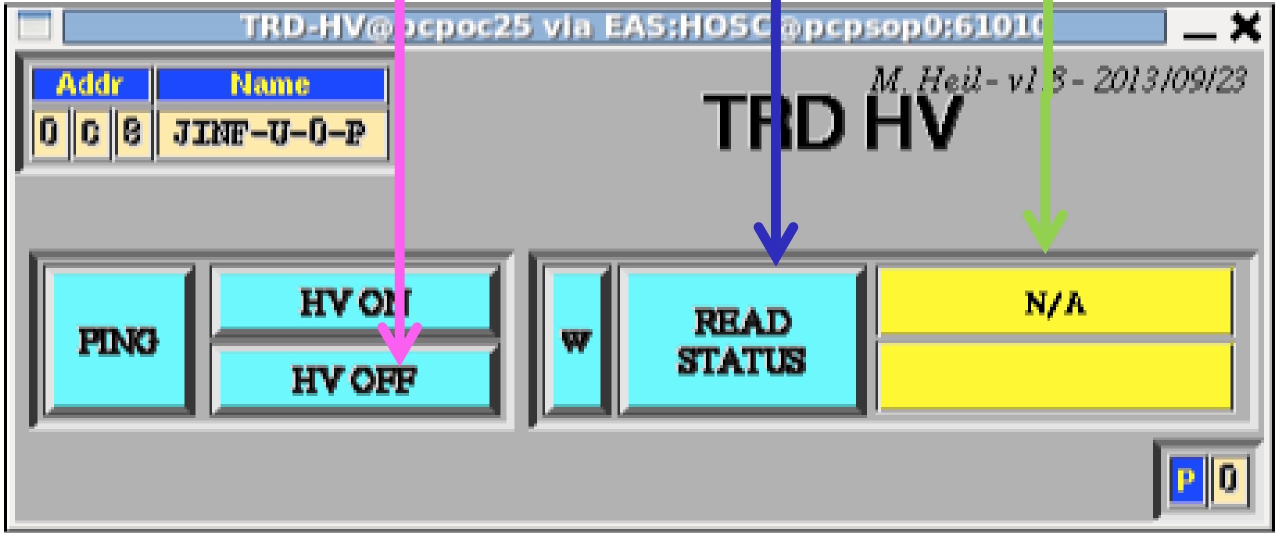
```
cmds_mon -g -m HOSC
```

Watch this terminal for any aborts for commands sent to JINF-Us

- From another new terminal open TRD-HV gui:

```
cd ~/RUN
Set-command-path eas:hosc feplr
TRD-HV eas:hosc feplr
```

- For both JINFs ((U-0-P and U-1-P) ***in turn***:
  - Switch Gui to proper JINF **(Node C8 for U-0-P and CC for U-1-P)** using right and left clicks
  - Left Click **"READ STATUS"**
  - Left Click **"HV OFF"**
  - Left Click **"READ STATUS"**
  - Repeat “READ STATUS” until yellow box **turns green and reads OFF**
- **Communicate to LEAD that TRD HV is off and they can proceed to power off the UPDs**

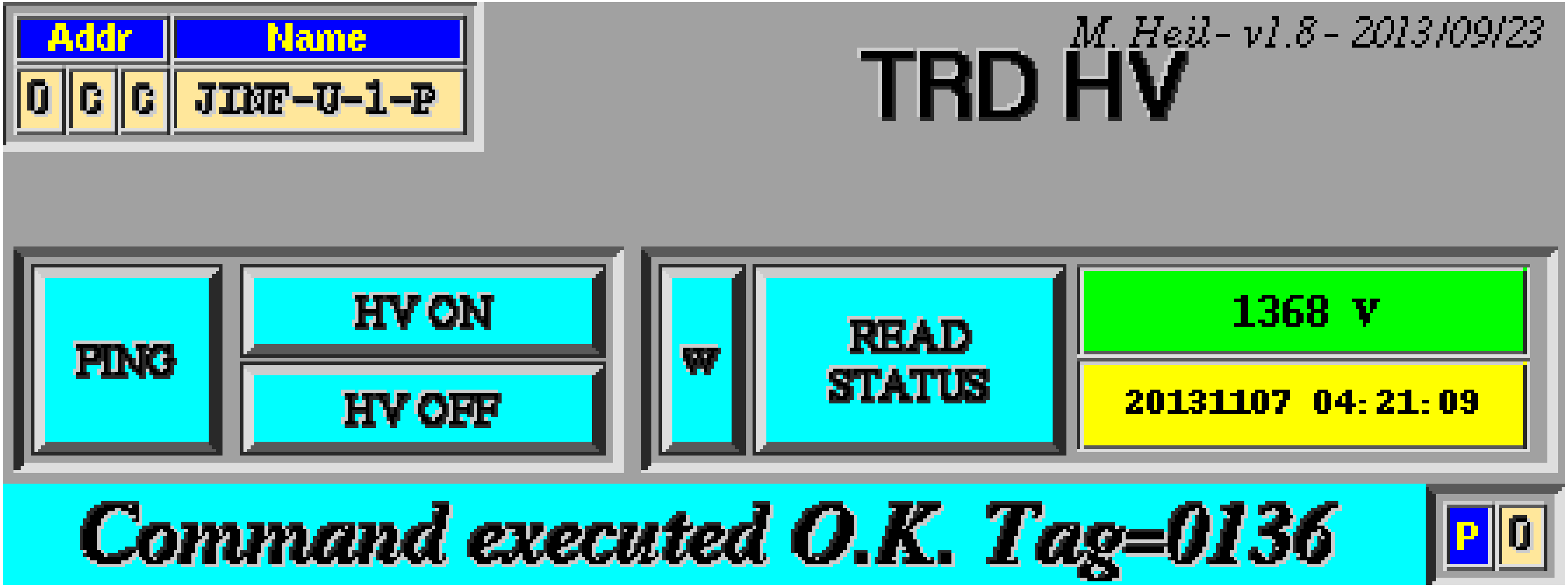


Addr			Name
0	C	8	JINF-U-0-P

TRD-HV@pcpoc25 via EAS:HOSC@pcpsop0:61010
M. Heil - v1 3 - 2013/09/23
TRD HV
PING
HV ON
HV OFF
W
READ STATUS
N/A
P
0

Stage 1: TRD HV Off

After “READ STATUS”



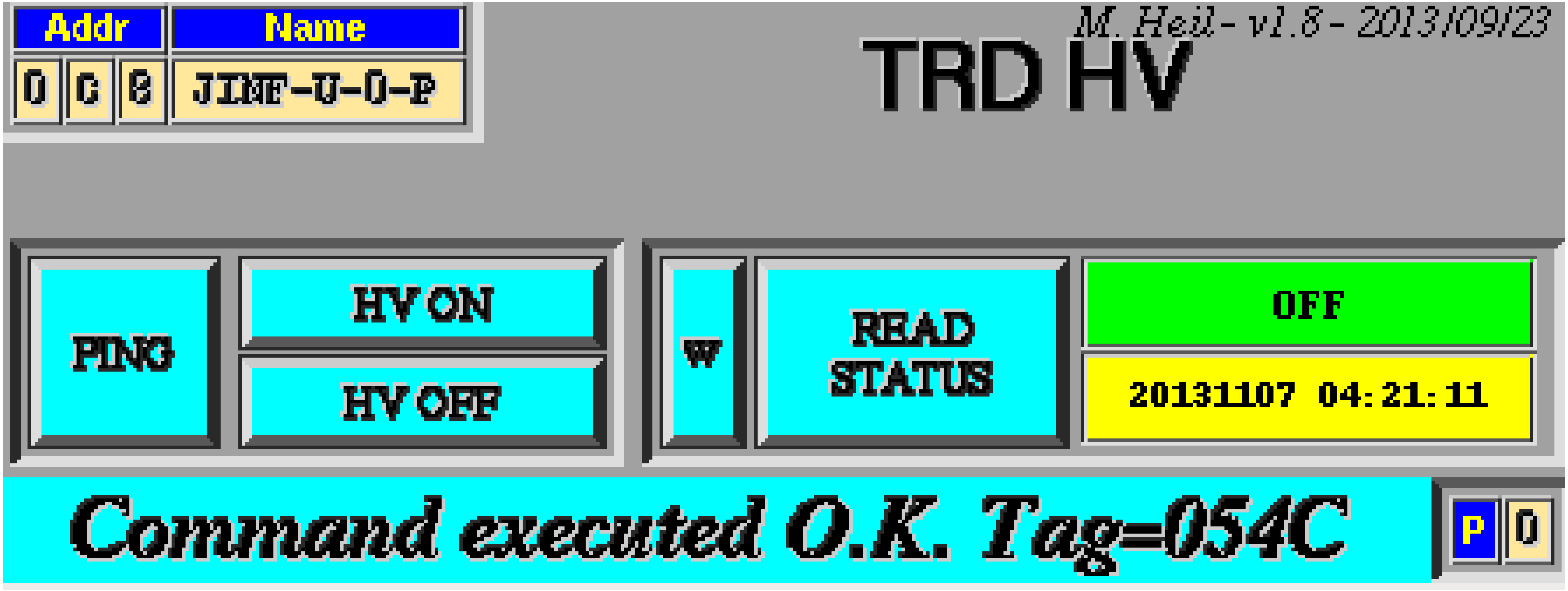
Addr
Name
0
C
C
JINF-U-1-P
M. Heil - v1.8 - 2013/09/23
TRD HV
PING
HV ON
HV OFF
W
READ STATUS
1368 V
20131107 04:21:09
P
0

Command executed O.K. Tag=0136

Stage 1: TRD HV Off

After “HV OFF” and

2nd “READ STATUS”


Addr
Name
TRD HV
PING
HV ON
HV OFF
W
READ STATUS
P

0 C 8 JINF-U-0-P

M. Heil - v1.8 - 2013/09/23

OFF

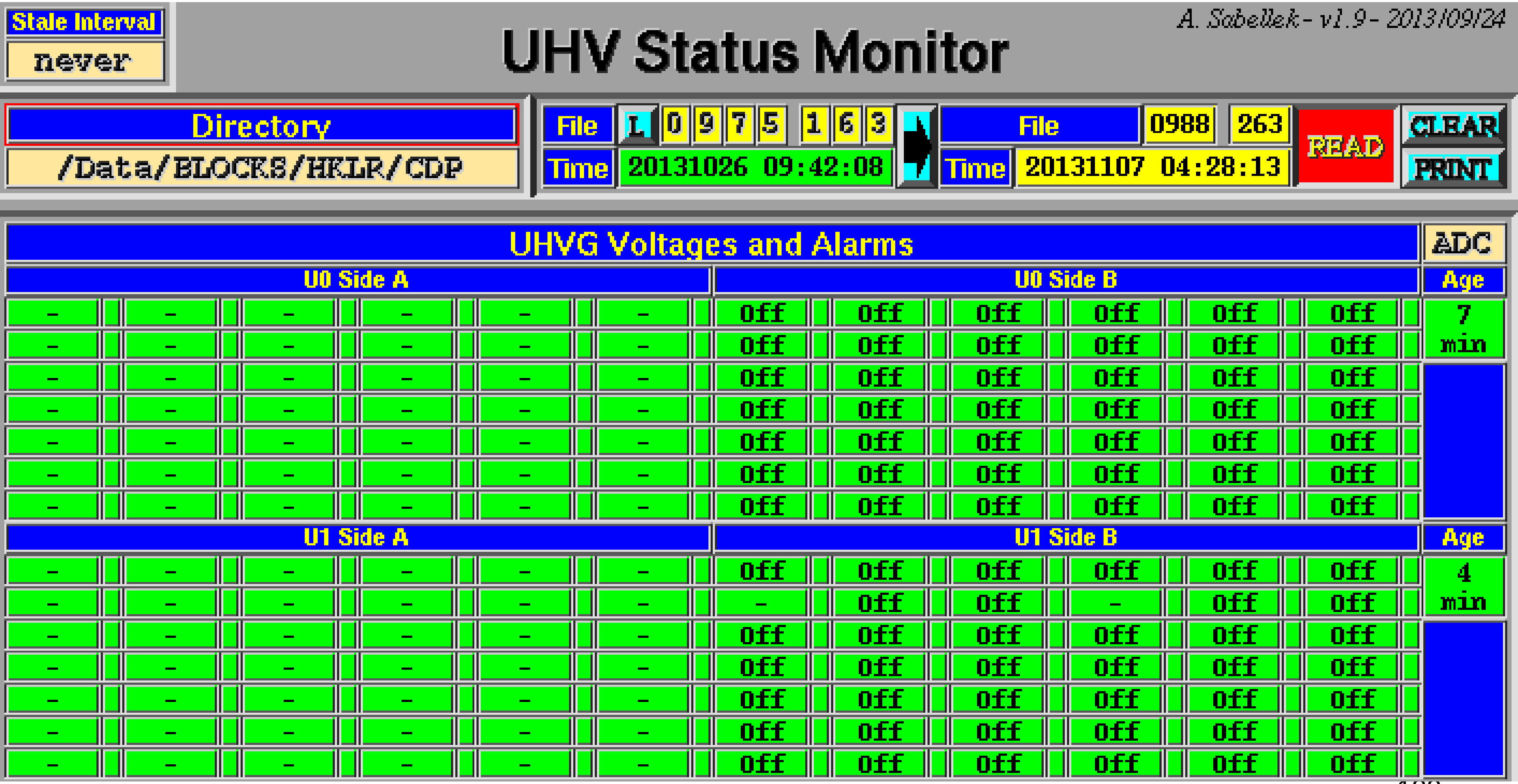
20131107 04:21:11

Command executed O.K. Tag=054C

0

Stage 1: TRD HV Off

When HV off, UHV Status Monitor looks like this



Stale Interval
never

UHV Status Monitor

A. Sabellek - v1.9 - 2013/09/24

Directory: /Data/BLOCKS/HKLR/CDP

File: L 0 9 7 5 1 6 3
Time: 20131026 09:42:08

File: 0988 263
Time: 20131107 04:28:13

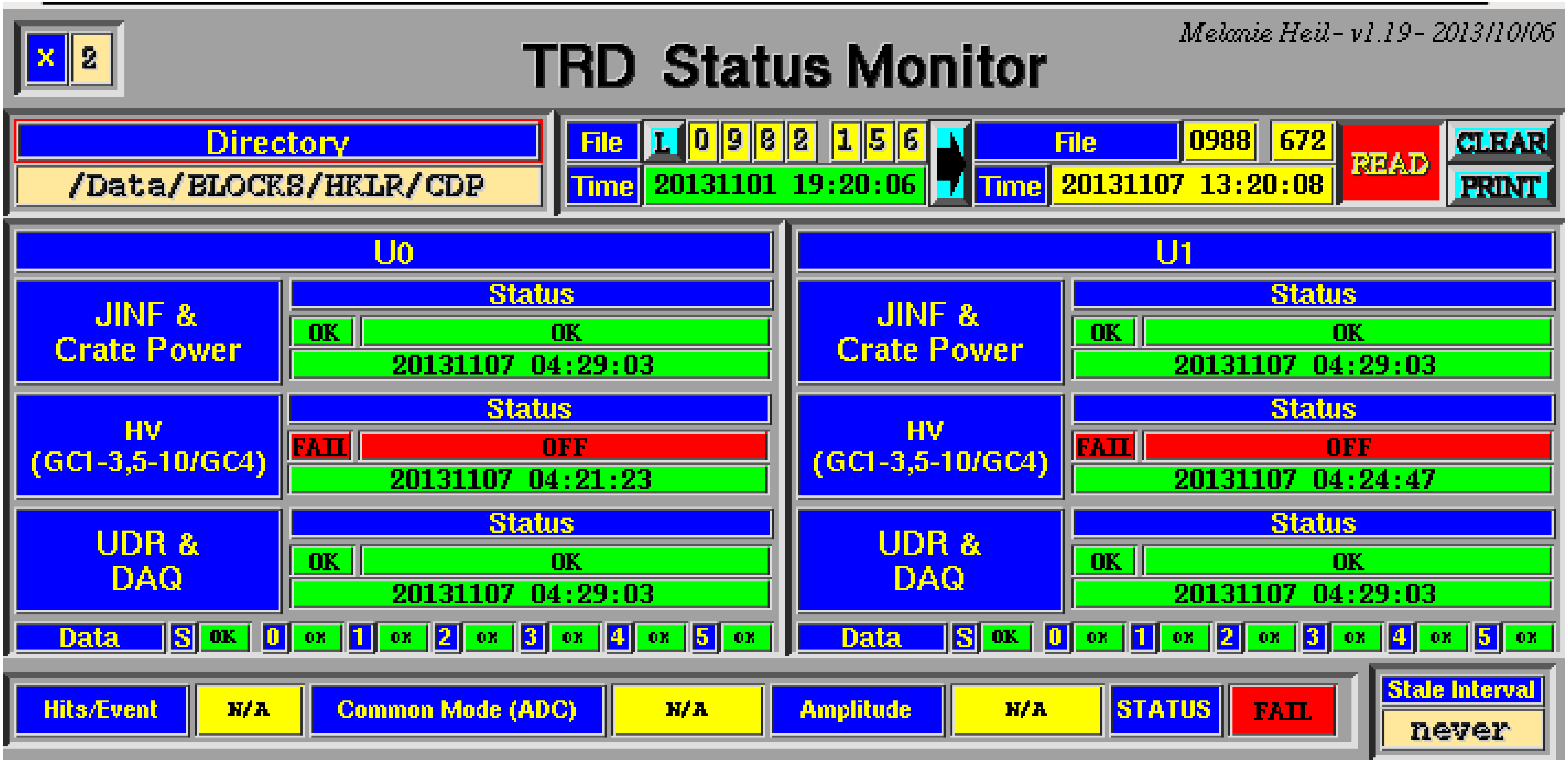
UHVG Voltages and Alarms

U0 Side A						U0 Side B						ADC Age
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	7 min
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	

U1 Side A						U1 Side B						Age
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	4 min
-	-	-	-	-	-	-	Off	Off	-	Off	Off	
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	
-	-	-	-	-	-	Off	Off	Off	Off	Off	Off	

Stage 1: TRD HV Off

When TRD HV off, TRD Status Monitor looks like this



x 2

Melanie Heil - v1.19 - 20131106

TRD Status Monitor

Directory: /Data/BLOCKS/HKLR/CDP

File: L 0 9 8 2 1 5 6 → File: 0988 672

Time: 20131101 19:20:06 → Time: 20131107 13:20:08

READ | CLEAR | PRINT

	U0		U1	
	Status		Status	
JINF & Crate Power	OK	OK 20131107 04:29:03	OK	OK 20131107 04:29:03
HV (GC1-3,5-10/GC4)	FAIL	OFF 20131107 04:21:23	FAIL	OFF 20131107 04:24:47
UDR & DAQ	OK	OK 20131107 04:29:03	OK	OK 20131107 04:29:03

U0 Data: S OK, 0 OK, 1 OK, 2 OK, 3 OK, 4 OK, 5 OK

U1 Data: S OK, 0 OK, 1 OK, 2 OK, 3 OK, 4 OK, 5 OK

Hits/Event: N/A | Common Mode (ADC): N/A | Amplitude: N/A | STATUS: FAIL

Stale Interval: never

Stage 2a: After Docking, Configure

After LEAD has powered UPDs back on

- Open new terminal and type:

```
cmds_mon -g -m HOSC
```

- From another new terminal open TRD-HV gui:

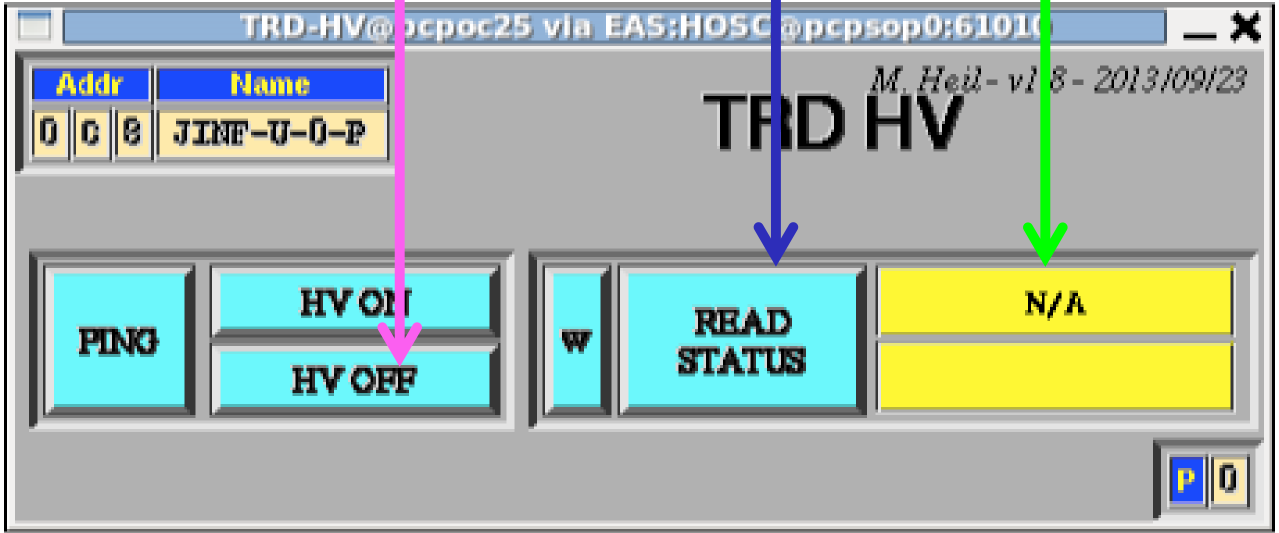
```
cd ~/RUN/COMMANDING/TRDGAS/CommandFiles/PowerUp
set-command-path eas:hosc feplr
./PowerUp_TRD.csh
```

Stage 2b: After Configure, Turn ON HV

After Configure and **before** new Run is started

- Open new terminal and type:
```
cmds_mon -g -m HOSC
```
Watch this terminal for any aborts for commands sent to JINF-Us

- From another new terminal open TRD-HV gui:
```
cd ~/RUN
Set-command-path eas:hosc feplr
TRD-HV eas:hosc feplr
```
- For both JINFs ((U-0-P and U-1-P) ***in turn***:
  - Switch Gui to proper JINF **(Node C8 for U-0-P and CC for U-1-P)** using right and left clicks
  - Left Click **"READ STATUS"**
  - Left Click **"HV ON"**
  - Left Click **"READ STATUS"**
  - Repeat "READ STATUS" until yellow box **turns green and reads ON**
- **Communicate to LEAD that TRD HV is off and they can proceed to start the run**

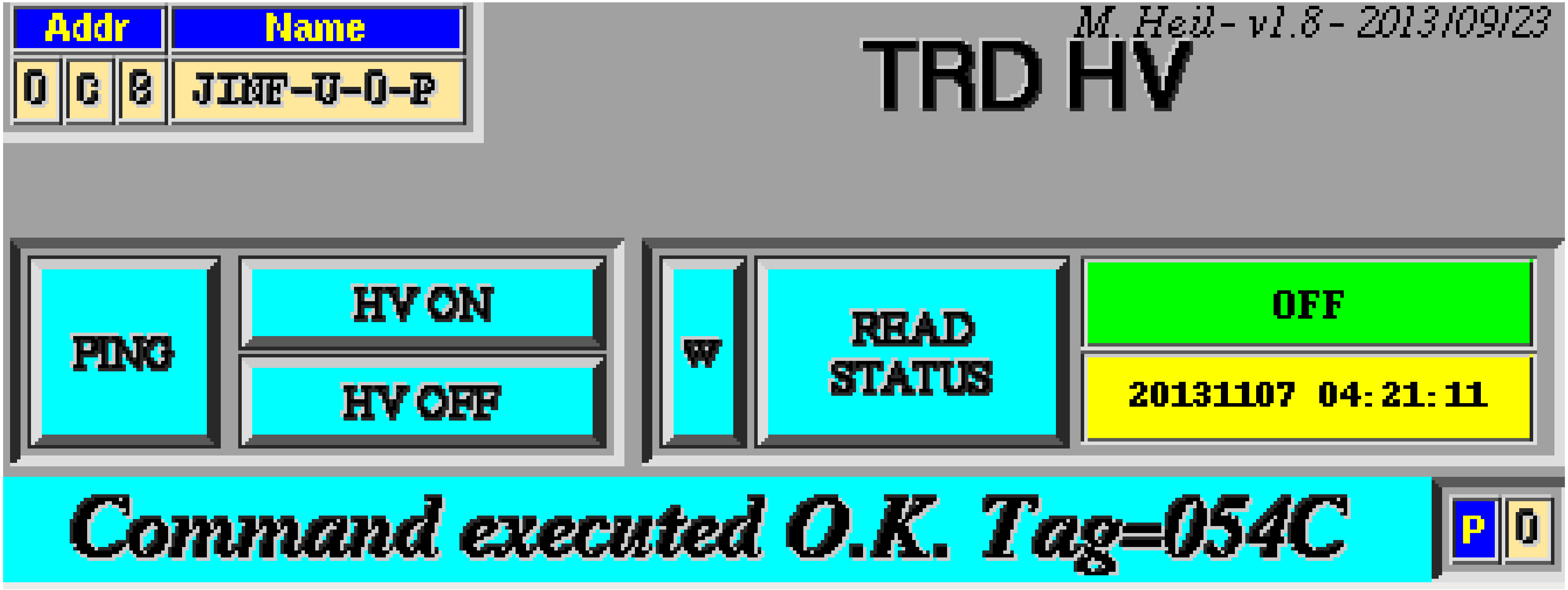


TRD-HV@pcpoc25 via EAS:HOSC@pcpsop0:61010

Addr			Name
0	C	8	JINF-U-0-P

Stage 2b: TRD HV ON

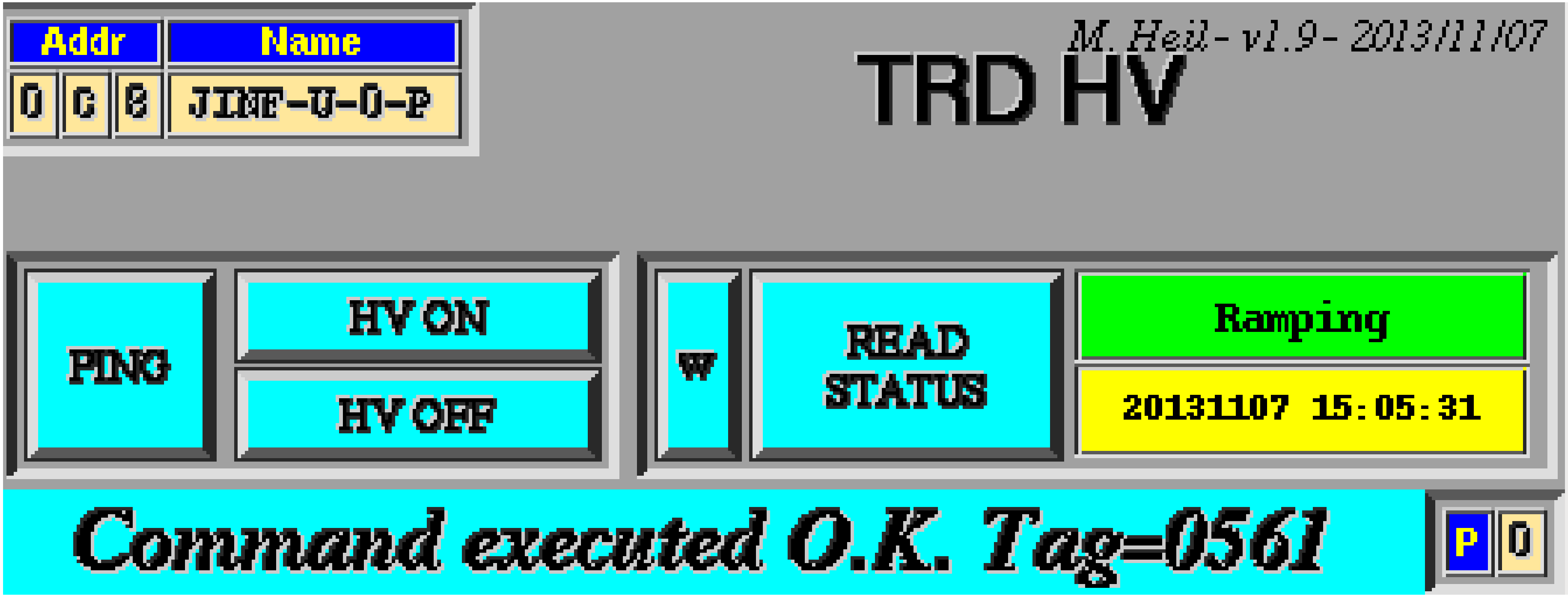
After "READ STATUS"


Addr
Name
0 C 8
JINF-U-0-P
M. Heil - v1.8 - 2013/09/23
TRD HV
PING
HV ON
HV OFF
W
READ STATUS
OFF
20131107 04:21:11
P 0

Command executed O.K. Tag=054C

Stage 2b: TRD HV ON

After “HV ON” and 2nd “READ STATUS”



TRD HV
M. Heil - v1.9 - 2013/11/07
PING
HV ON
HV OFF
W
READ STATUS
P

Addr			Name
0	G	8	JINF-U-0-P

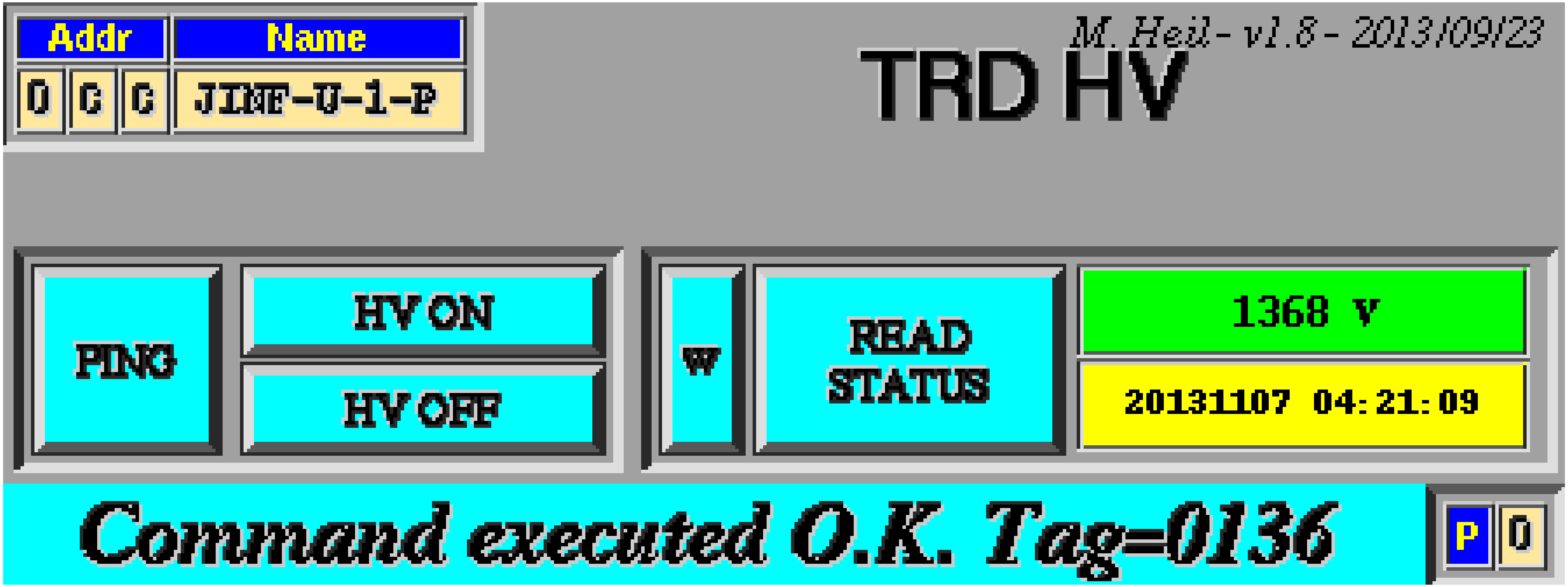
Ramping

20131107 15:05:31

Command executed O.K. Tag=0561

Stage 2b: TRD HV ON

A few minutes later: “READ STATUS”


TRD HV
PING
HV ON
HV OFF
W
READ STATUS
P

M. Heil - v1.8 - 2013/09/23

Addr			Name
0	C	C	JINF-U-1-P

1368 V

20131107 04:21:09

Command executed O.K. Tag=0136

0

After TRD HV ON

After TRD-HV status reports the voltage one should check the statuses of the individual JINFs and UDRs
(must be a better way to do this?)

Type the following and look for “Err 0000” at the end of the reply:

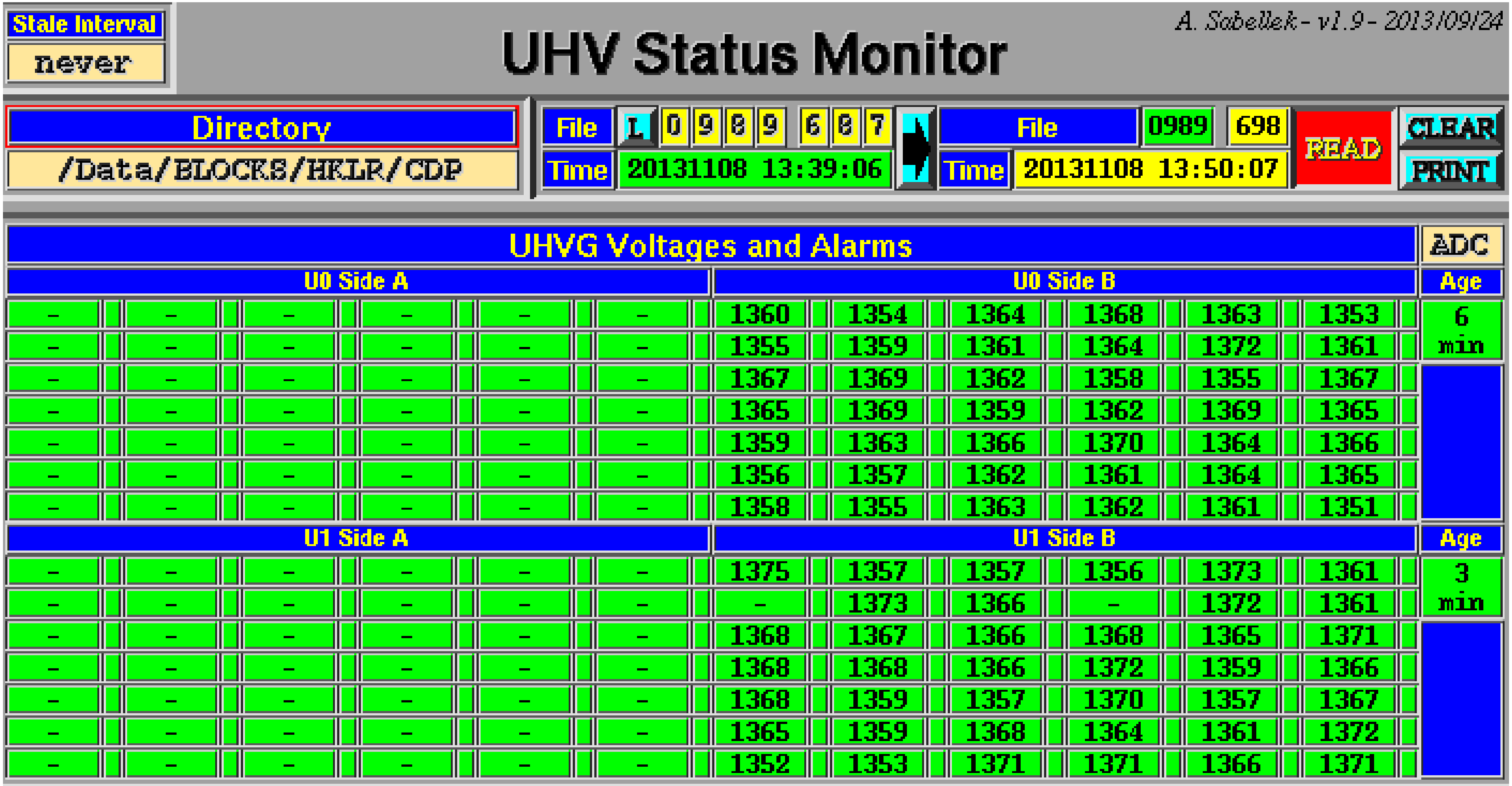
```
cd ~/RUN
set-command-path eas:hosc feplr
my-t R JINF-U0-P 14 2002
my-t R JINF-U1-P 14 2002
```

And cycle through all of:

```
my-t R UDR-[0-1]-[0-5]P 14 2002
(ie, my-t R UDR-0-0P 14 2002
     …
     my-t R UDR-1-5P 14 2002 )
```

HV and DAQ back ON

When HV and DAQ back on,
UHV Status Monitor looks like this



Stale Interval
never

A. Sabellek - v1.9 - 2013/09/24

UHV Status Monitor

Directory
/Data/BLOCKS/HKLR/CDP

File: L 0 9 8 9 6 8 7
Time: 20131108 13:39:06

File: 0989 698
Time: 20131108 13:50:07

UHVG Voltages and Alarms

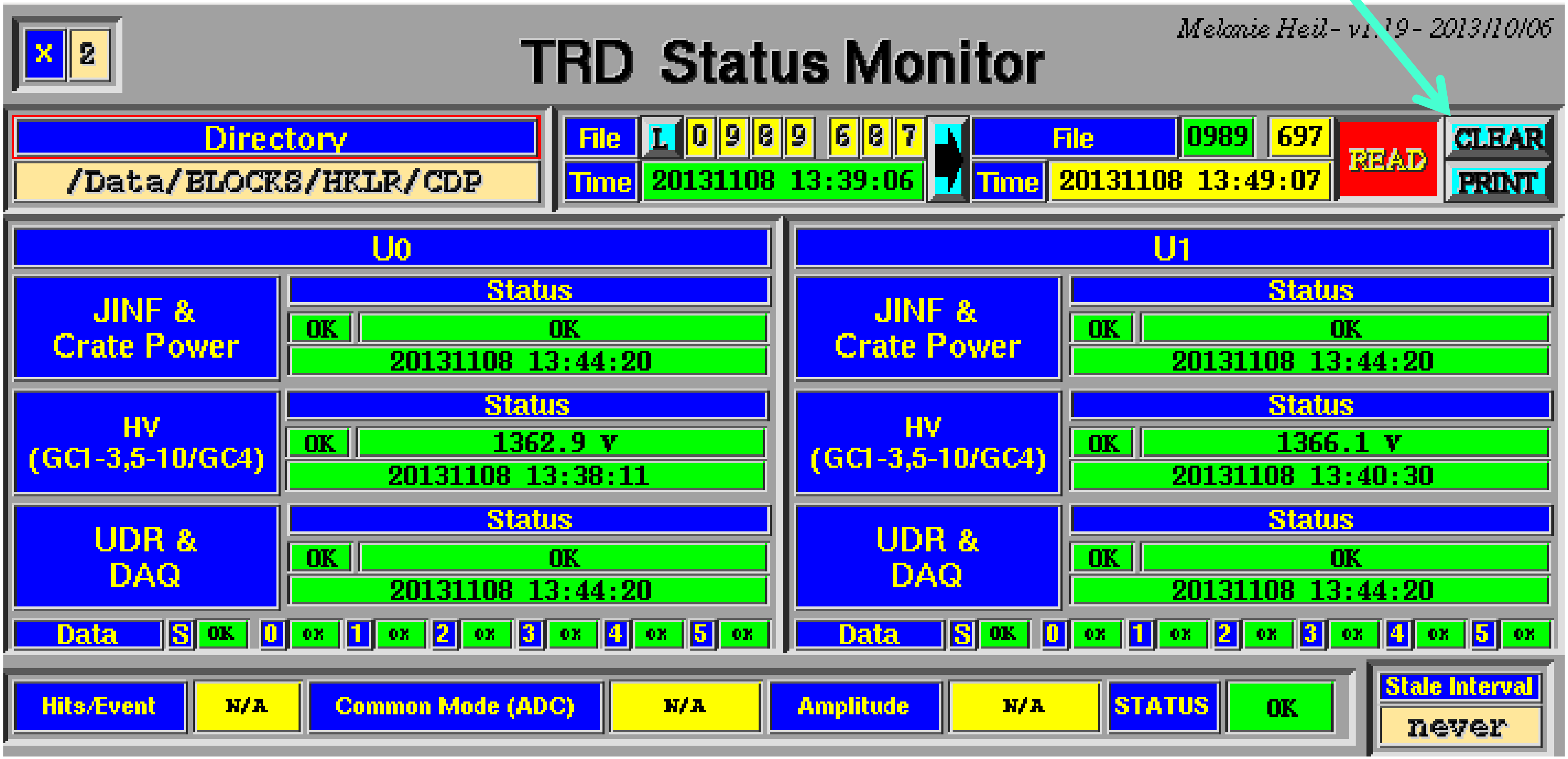
ADC

U0 Side A						U0 Side B						Age
-	-	-	-	-	-	1360	1354	1364	1368	1363	1353	6 min
-	-	-	-	-	-	1355	1359	1361	1364	1372	1361	
-	-	-	-	-	-	1367	1369	1362	1358	1355	1367	
-	-	-	-	-	-	1365	1369	1359	1362	1369	1365	
-	-	-	-	-	-	1359	1363	1366	1370	1364	1366	
-	-	-	-	-	-	1356	1357	1362	1361	1364	1365	
-	-	-	-	-	-	1358	1355	1363	1362	1361	1351	
U1 Side A						**U1 Side B**						**Age**
-	-	-	-	-	-	1375	1357	1357	1356	1373	1361	3 min
-	-	-	-	-	-	-	1373	1366	-	1372	1361	
-	-	-	-	-	-	1368	1367	1366	1368	1365	1371	
-	-	-	-	-	-	1368	1368	1366	1372	1359	1366	
-	-	-	-	-	-	1368	1359	1357	1370	1357	1367	
-	-	-	-	-	-	1365	1359	1368	1364	1361	1372	
-	-	-	-	-	-	1352	1353	1371	1371	1366	1371	

TRD HV and DAQ back on

When HV and DAQ back on, Hit CLEAR and wait ~1 hour for our CQ list items to run.

Then the TRD Status Monitor should look like this…



X 2

TRD Status Monitor

Melanie Heil - v1.19 - 2013/10/06

Directory: /Data/BLOCKS/HKLR/CDP

File: L 0 9 8 9 6 8 7 → File: 0989 697

Time: 20131108 13:39:06 → Time: 20131108 13:49:07

	U0		U1	
JINF & Crate Power	OK	OK 20131108 13:44:20	OK	OK 20131108 13:44:20
HV (GC1-3,5-10/GC4)	OK	1362.9 V 20131108 13:38:11	OK	1366.1 V 20131108 13:40:30
UDR & DAQ	OK	OK 20131108 13:44:20	OK	OK 20131108 13:44:20

U0 Data: S OK, 0 OK, 1 OK, 2 OK, 3 OK, 4 OK, 5 OK

U1 Data: S OK, 0 OK, 1 OK, 2 OK, 3 OK, 4 OK, 5 OK

Hits/Event: N/A

Common Mode (ADC): N/A

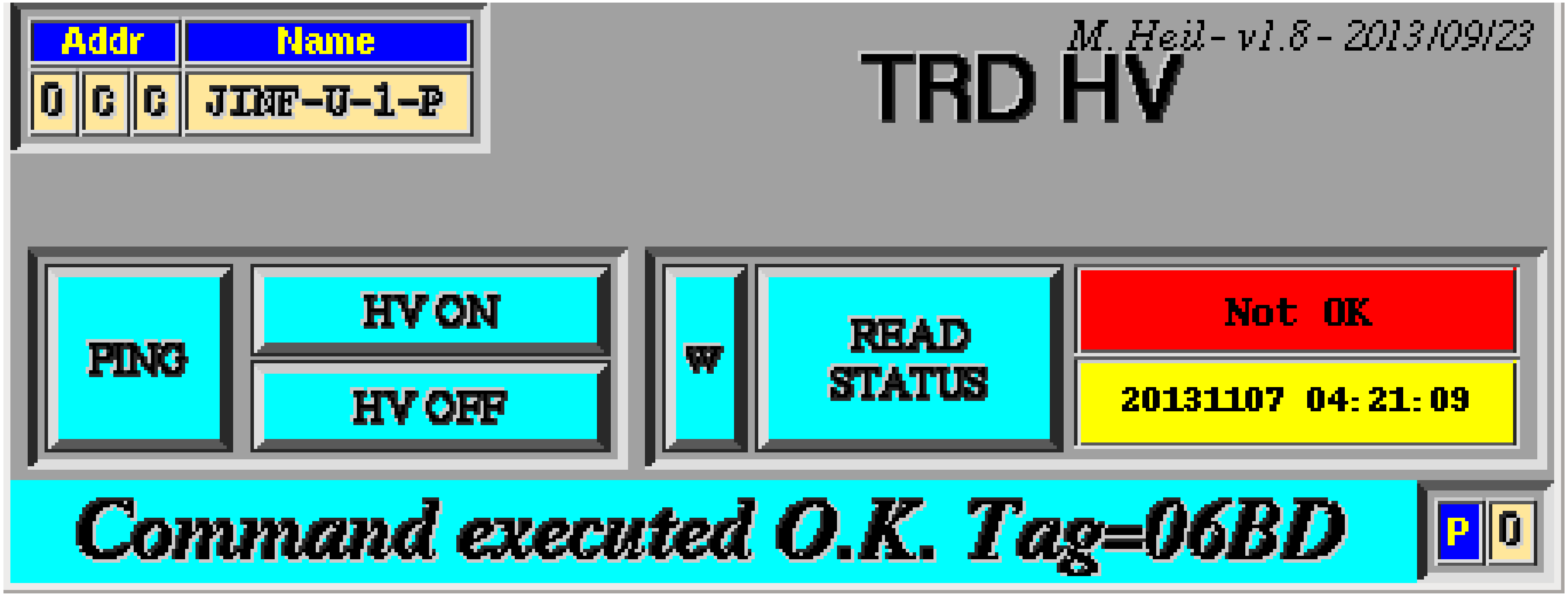
Amplitude: N/A

STATUS: OK

Stale Interval: never

Power Back up: Trouble Shooting

The first sign will likely be the following “Not OK” when you power back up (Step 2b):



TRD HV

M. Heil - v1.8 - 2013/09/23

Addr: 0 C C

Name: JINF-U-1-P

Not OK

20131107 04:21:09

Command executed O.K. Tag=06BD

0

This can happen if something went wrong in Step 2a! What follows are a few solutions to try…

Power Back up: Trouble Shooting

Solution 1: Execute the command file called by the PowerUp.csh script by hand…

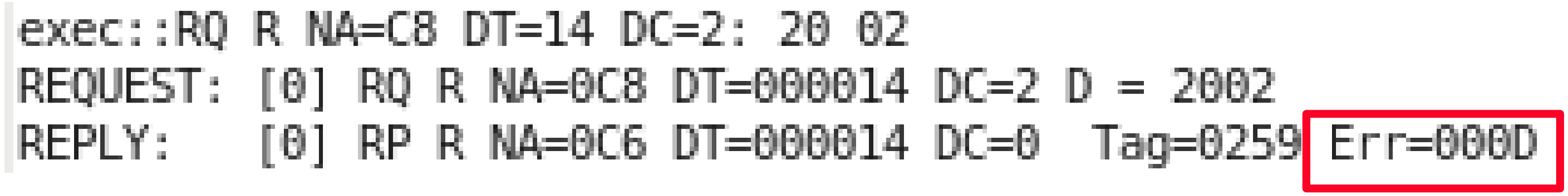
1) Type:

```
cd ~/RUN/COMMANDING/TRDGAS/CommandFiles/PowerUp
set-command-path eas:hosc feplr
```

2) Now, send a status command to each JINF, like so:

```
my-t R JINF-U0-P 14 2002
my-t R JINF-U1-P 14 2002
```

If the replies looked something like this you have a **problem**:



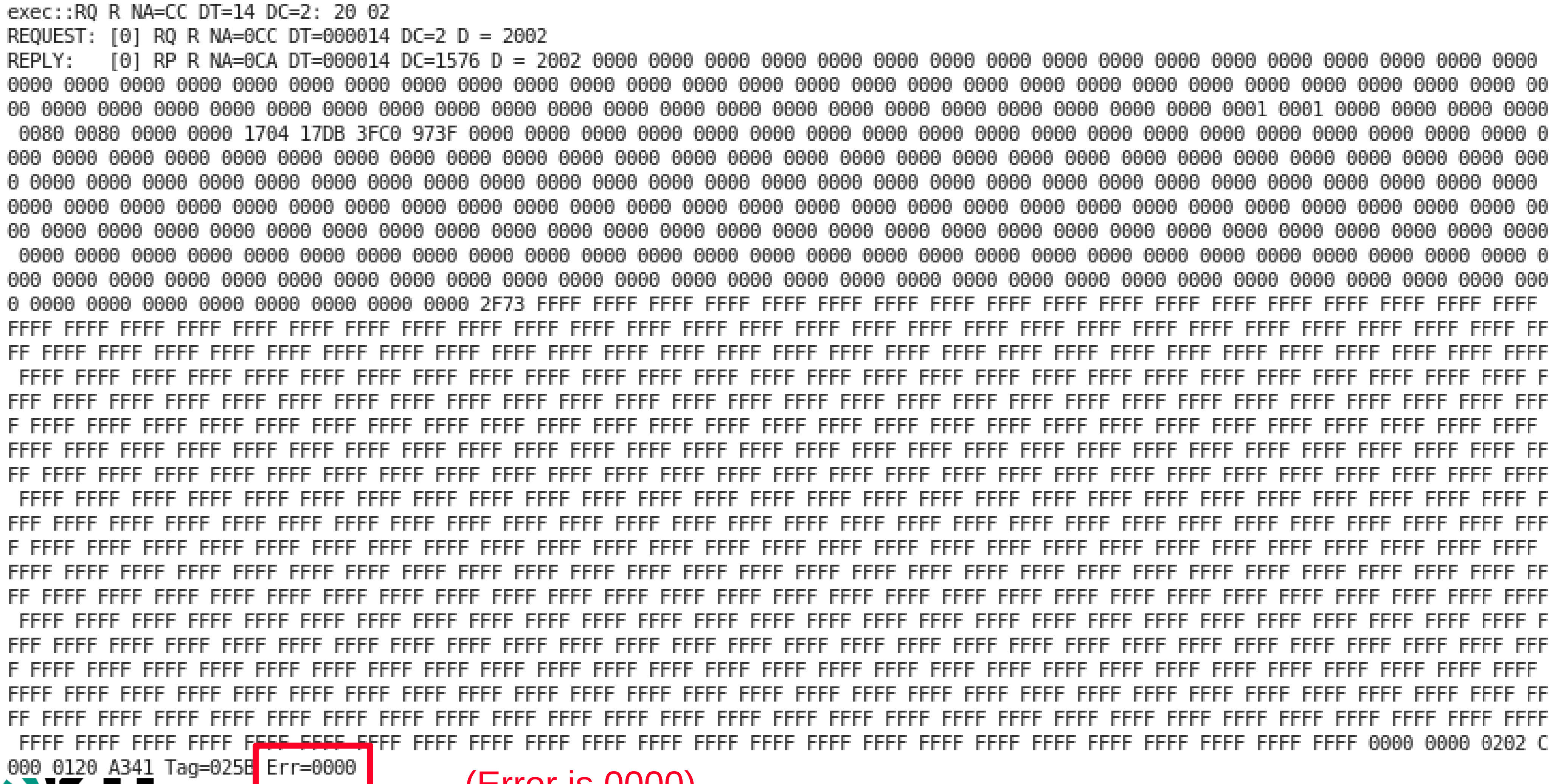
```
exec::RQ R NA=C8 DT=14 DC=2: 20 02
REQUEST: [0] RQ R NA=0C8 DT=000014 DC=2 D = 2002
REPLY:   [0] RP R NA=0C6 DT=000014 DC=0  Tag=0259 Err=000D
```

(Error is 000**D**)

Power Back up: Trouble Shooting

Solution 1 con’t:

If the replies looked something like this, you’re in **good shape**:



```
exec::RQ R NA=CC DT=14 DC=2: 20 02
REQUEST: [0] RQ R NA=0CC DT=000014 DC=2 D = 2002
REPLY:   [0] RP R NA=0CA DT=000014 DC=1576 D = 2002 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 00
00 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0001 0001 0000 0000 0000 0000
 0080 0080 0000 0000 1704 17DB 3FC0 973F 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0
000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 000
0 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
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00 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0
000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 000
0 0000 0000 0000 0000 0000 0000 0000 0000 2F73 FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF
FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FF
FF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF
 FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF F
FFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFF
F FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF
FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FF
FF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF
 FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF F
FFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFF
F FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF
FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FF
FF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF
 FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF F
FFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFF
F FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF
FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FF
FF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF
 FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF FFFF 0000 0000 0202 C
000 0120 A341 Tag=025B Err=0000
```

(Error is 0000)

Power Back up: Trouble Shooting

Solution 1 con’t^2:

3) If Steps 1 and 2 work, *copy and paste* each line from TRD_INIT.com that IS NOT COMMENTED OUT and prepend it with my-t, like so:

```
emacs TRD_INIT.com &

my-t W JINF-U0-P 6 7AA1

my-t W JMDC-SELF 1F0207 0000 05DC

etc…
```

Solution 2: Use the JINF Controller

(If you’ve trained for LEAD you may remember how to use this; if not here’s a quick tutorial.)

Type:

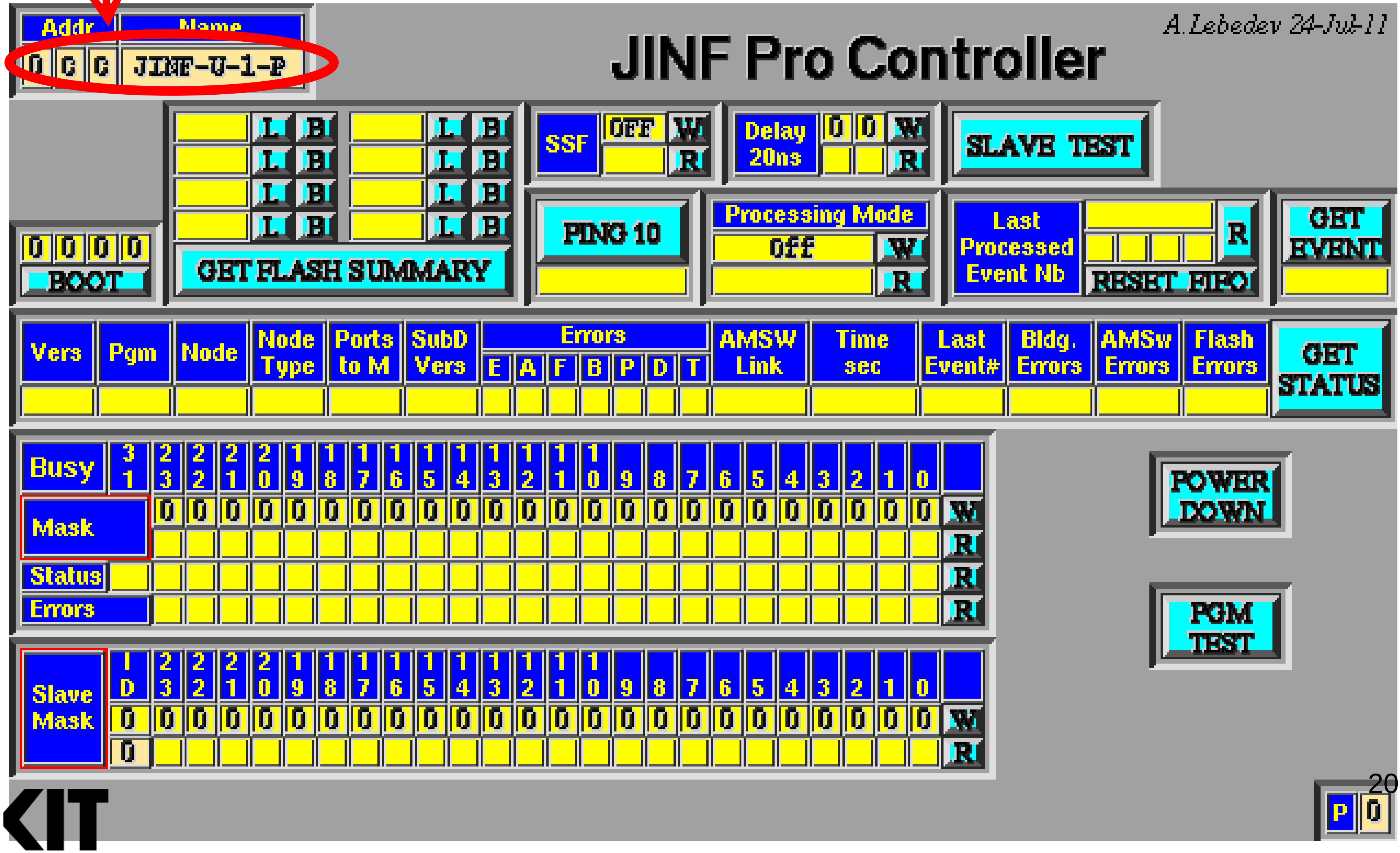
```
cd ~/RUN
set-command-path eas:hosc feplr
JINF eas:hosc feplr
```

This will pop up the following display:

Power Back up: Trouble Shooting

Solution 2 con’t:

1) Select the Proper JINF using right/left clicks: JINF-U-0-P or JINF-U-1-P



Addr: 0 C C

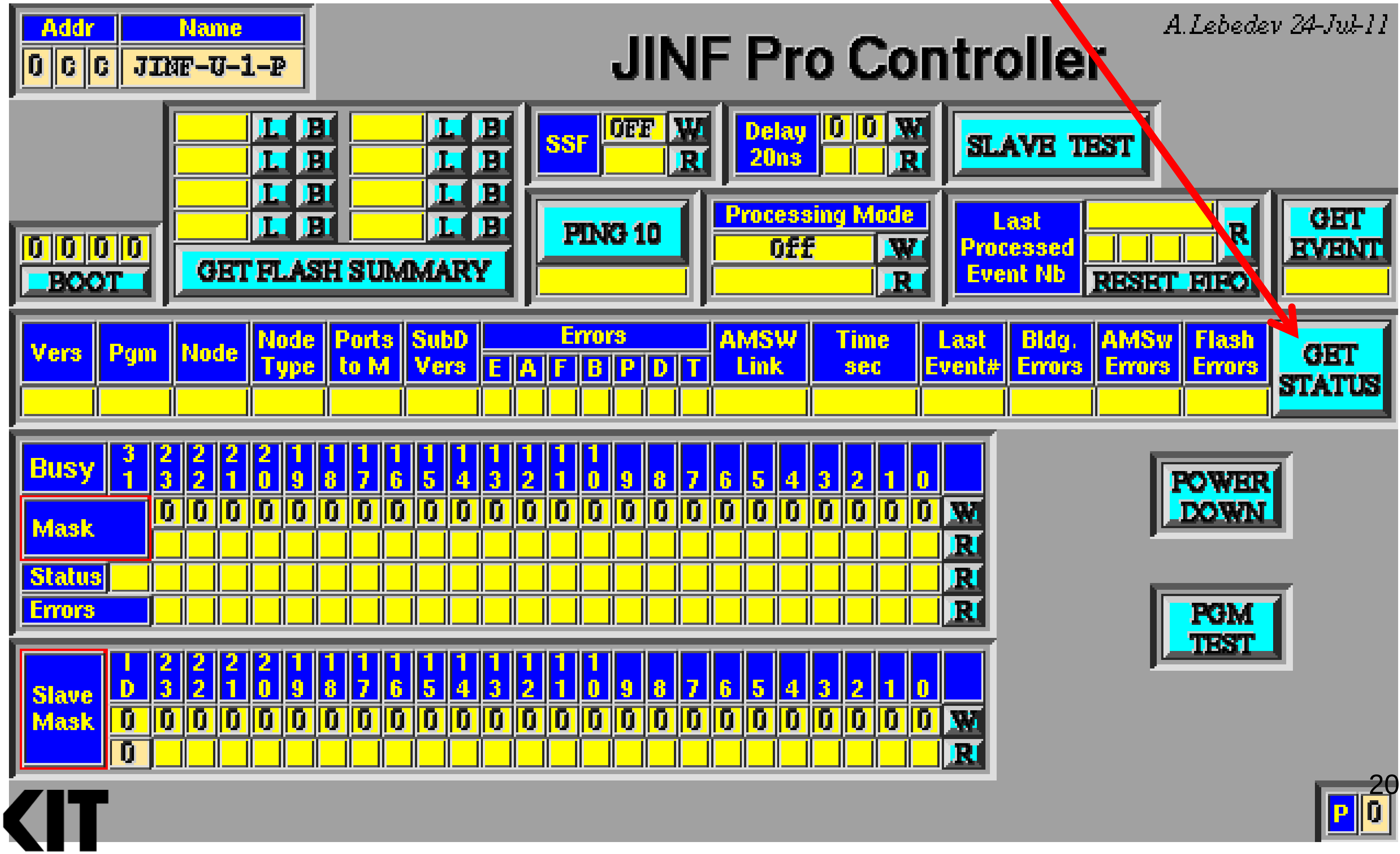
Name: JINF-U-1-P

A.Lebedev 24-Jul-11
JINF Pro Controller
L
B
GET FLASH SUMMARY
0 0 0 0
BOOT
SSF
OFF
W
R
Delay 20ns
0 0
SLAVE TEST
PING 10
Processing Mode
Off
Last Processed Event Nb
RESET FIFO
GET EVENT
Vers
Pgm
Node
Node Type
Ports to M
SubD Vers
Errors
E A F B P D T
AMSW Link
Time sec
Last Event#
Bldg. Errors
AMSw Errors
Flash Errors
GET STATUS
Busy
31 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
Mask
Status
Errors
Slave Mask
1D 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
POWER DOWN
PGM TEST
P 0

Power Back up: Trouble Shooting

Solution 2 con’t:

2) Then click “GET STATUS”



JINF Pro Controller

A.Lebedev 24-Jul-11

Addr: 0 C C

Name: JINF-U-1-P

SSF: OFF

Delay 20ns: 0 0

Processing Mode: Off

BOOT: 0 0 0 0

Mask: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Slave Mask: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0; 0

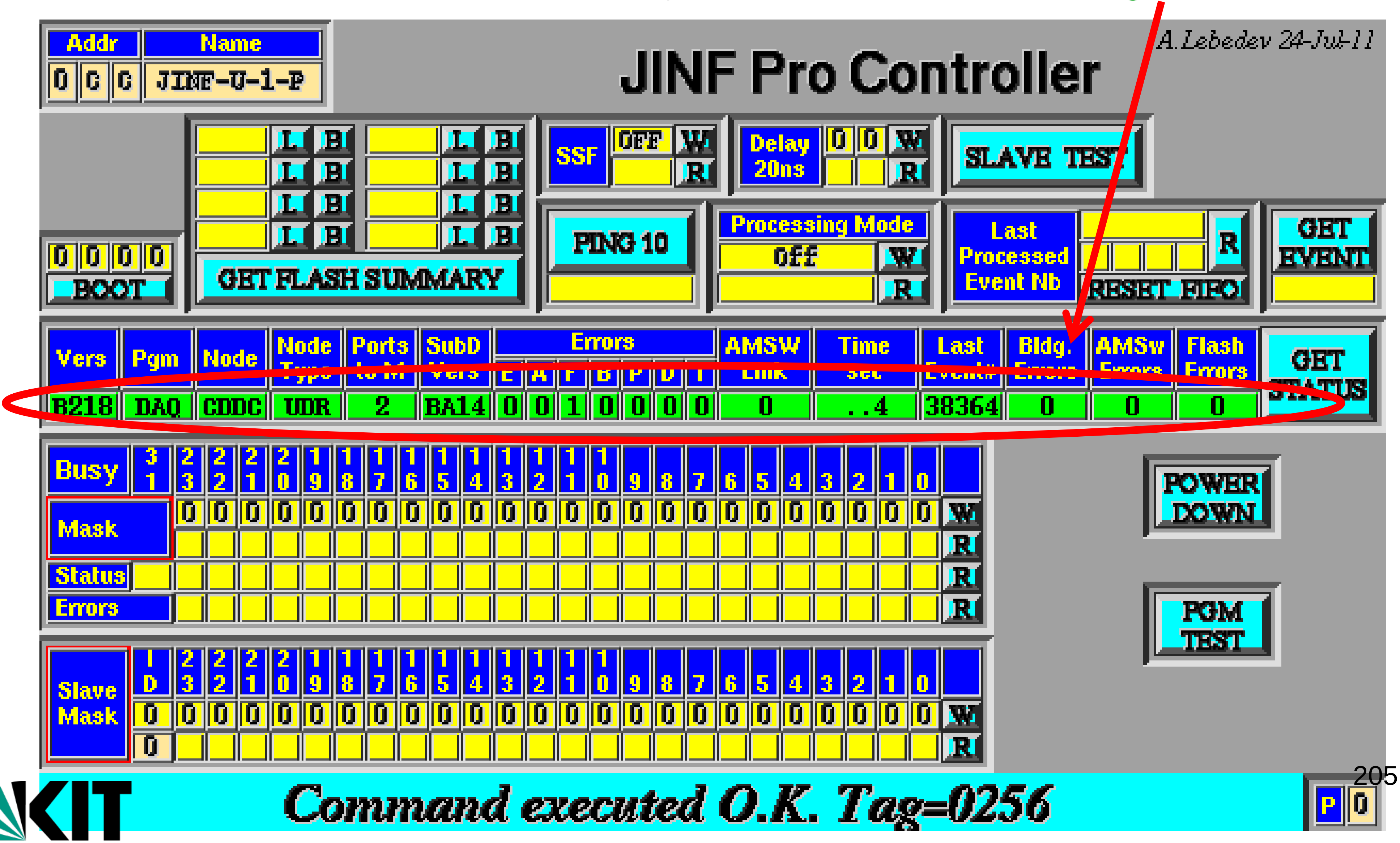
P: 0

L
B
W
R
SLAVE TEST
PING 10
GET FLASH SUMMARY
Last Processed Event Nb
RESET FIFO
GET EVENT
Vers
Pgm
Node
Node Type
Ports to M
SubD Vers
Errors
E
A
F
B
P
D
T
AMSW Link
Time sec
Last Event#
Bldg. Errors
AMSw Errors
Flash Errors
GET STATUS
Busy
31 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
Mask
Status
Errors
Slave Mask
ID 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
POWER DOWN
PGM TEST

Power Back up: Trouble Shooting

Solution 2 con't:

2) That whole line should turn green



A.Lebedev 24-Jul-11

JINF Pro Controller

Addr	Name
0 C C	JINF-U-1-P

Vers	Pgm	Node	Node Type	Ports to M	SubD Vers	Errors E	A	F	B	P	D	T	AMSW Link	Time sec	Last Event#	Bldg. Errors	AMSw Errors	Flash Errors
B218	DAQ	CDDC	UDR	2	BA14	0	0	1	0	0	0	0	0	..4	38364	0	0	0

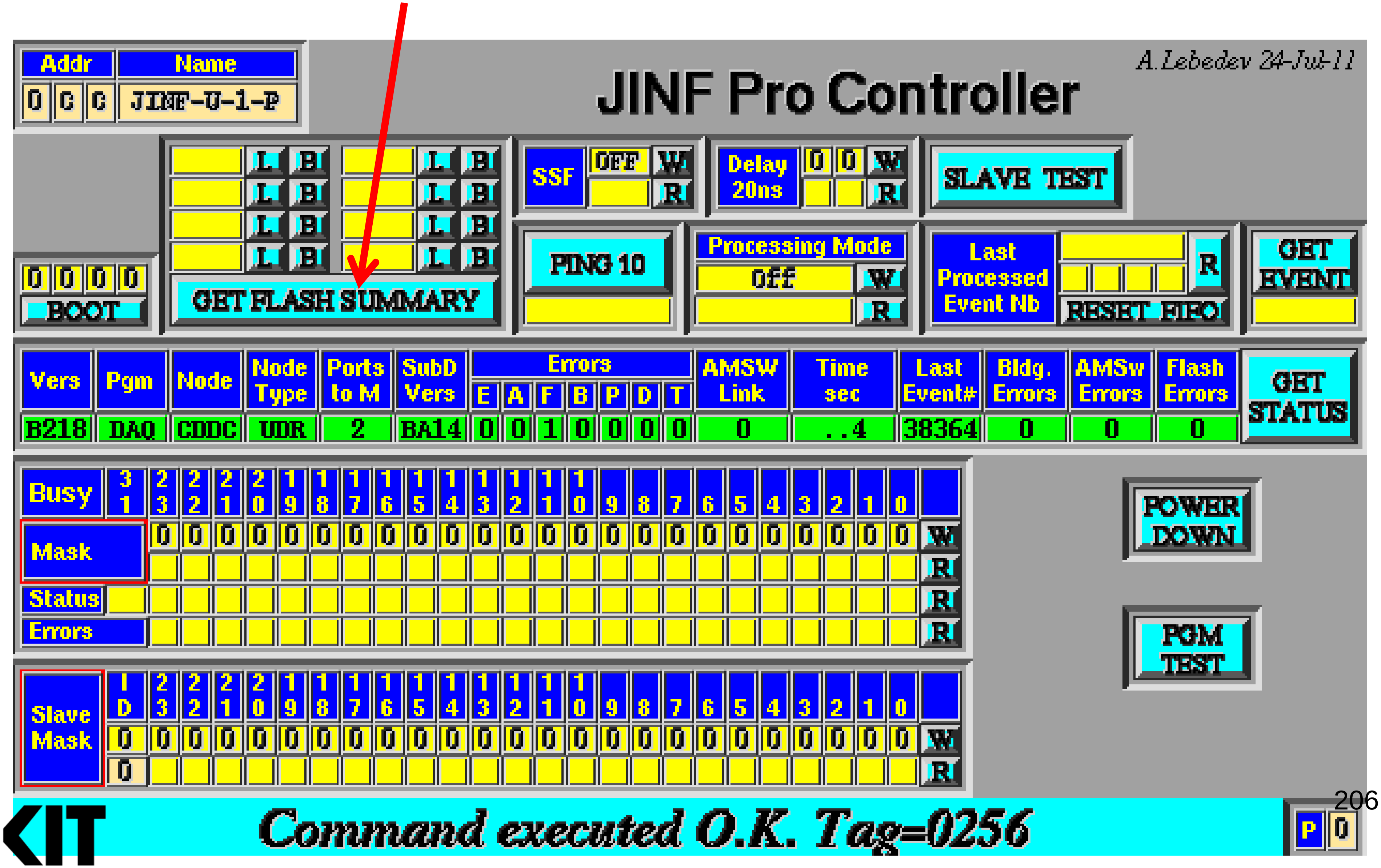
Command executed O.K. Tag=0256

BOOT
0 0 0 0
L B
GET FLASH SUMMARY
SSF
OFF
W
R
Delay 20ns
0 0
SLAVE TEST
PING 10
Processing Mode
Off
Last Processed Event Nb
RESET FIFO
GET EVENT
GET STATUS
Busy
Mask
Status
Errors
Slave Mask
POWER DOWN
PGM TEST
P 0

Power Back up: Trouble Shooting

Solution 2 con’t:

3) Then click “GET FLASH SUMMARY”


JINF Pro Controller
A.Lebedev 24-Jul-11
L
B
GET FLASH SUMMARY
BOOT
SSF
W
R
Delay 20ns
SLAVE TEST
PING 10
Processing Mode
Last Processed Event Nb
RESET FIFO
GET EVENT
GET STATUS
POWER DOWN
PGM TEST

Addr			Name
0	C	C	JINF-U-1-P

SSF: OFF

Delay 20ns: 0 0

Processing Mode: Off

BOOT: 0 0 0 0

Vers	Pgm	Node	Node Type	Ports to M	SubD Vers	Errors E	Errors A	Errors F	Errors B	Errors P	Errors D	Errors T	AMSW Link	Time sec	Last Event#	Bldg. Errors	AMSw Errors	Flash Errors
B218	DAQ	CDDC	UDR	2	BA14	0	0	1	0	0	0	0	0	..4	38364	0	0	0

Busy	31	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
Mask		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	W
																										R
Status																										R
Errors																										R

Slave Mask	D	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	W
	0																									R

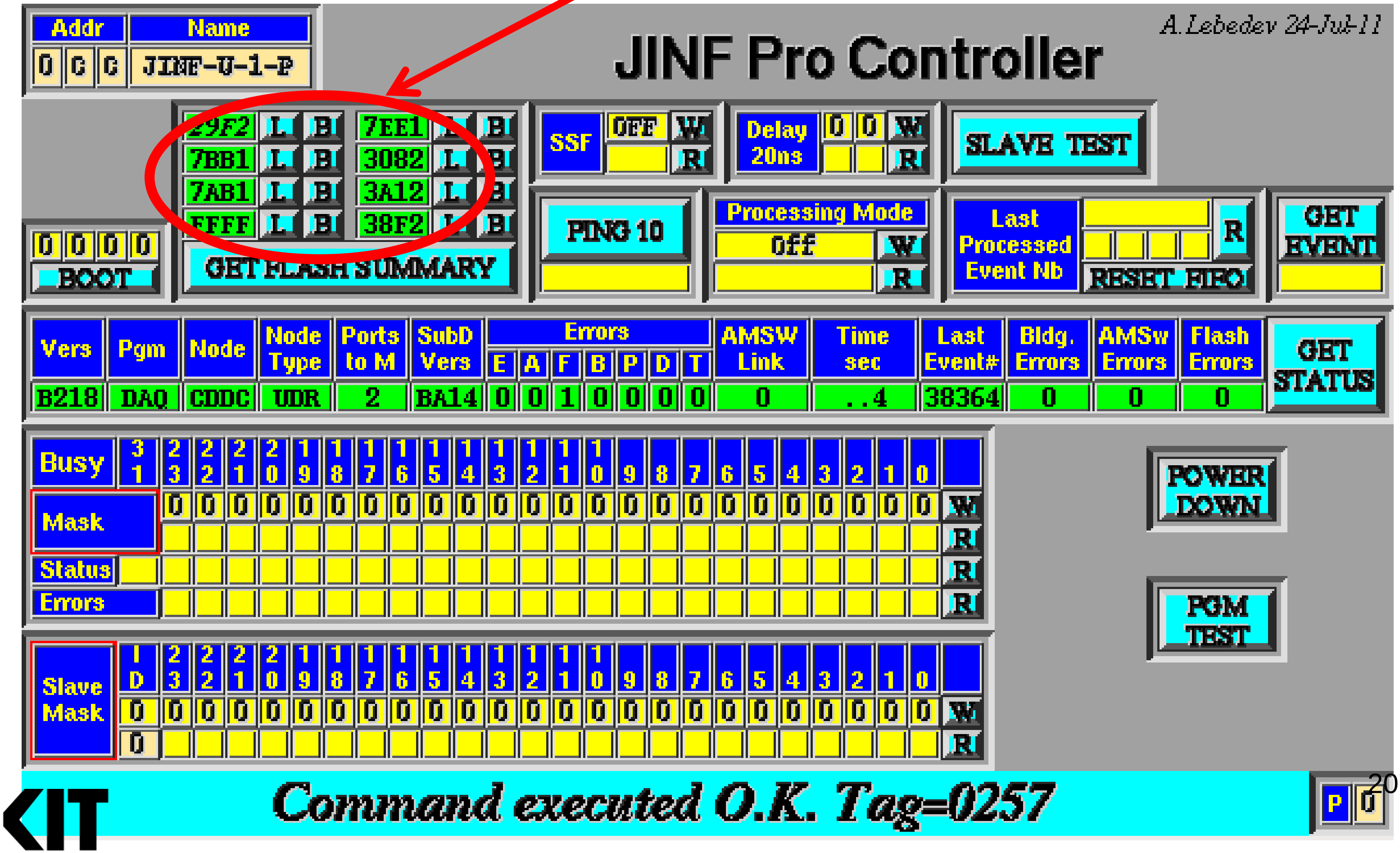
Command executed O.K. Tag=0256

P 0

Power Back up: Trouble Shooting

Solution 2 con’t:

3) That should turn the whole section green


JINF Pro Controller
A.Lebedev 24-Jul-11
Addr
Name
SSF
W
R
Delay 20ns
SLAVE TEST
BOOT
GET FLASH SUMMARY
PING 10
Processing Mode
Last Processed Event Nb
RESET FIFO
GET EVENT
GET STATUS
Busy
Mask
Status
Errors
Slave Mask
POWER DOWN
PGM TEST
P

Addr			Name
0	C	C	JINF-U-1-P

29F2	L	B	7EE1	L	B
7BB1	L	B	3082	L	B
7AB1	L	B	3A12	L	B
FFFF	L	B	38F2	L	B

SSF: OFF

Delay 20ns: 0 0

BOOT: 0 0 0 0

Processing Mode: Off

Vers	Pgm	Node	Node Type	Ports to M	SubD Vers	Errors E	A	F	B	P	D	T	AMSW Link	Time sec	Last Event#	Bldg. Errors	AMSw Errors	Flash Errors
B218	DAQ	CDDC	UDR	2	BA14	0	0	1	0	0	0	0	0	..4	38364	0	0	0

Busy	31	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Mask		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Slave Mask	ID	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0																								

Command executed O.K. Tag=0257

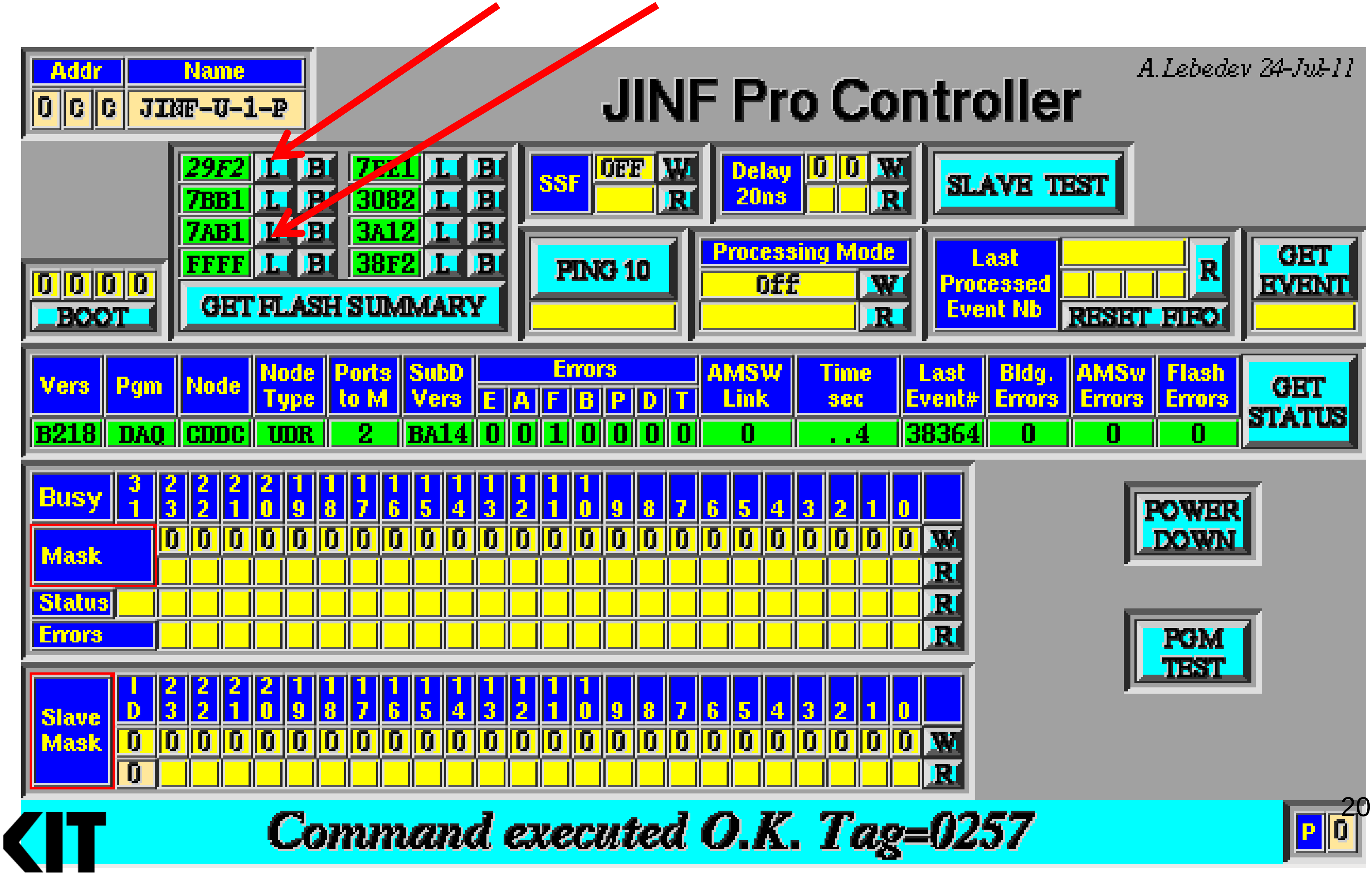
P 0

Power Back up: Trouble Shooting

Solution 2 con’t:

4) Then Load the config files:

click the L next to the numbers 29F2 and 7AA1 (this says 7AB1 because it’s from the BU pocc)


A.Lebedev 24-Jul-11
JINF Pro Controller
L
B
GET FLASH SUMMARY
BOOT
SSF
W
R
SLAVE TEST
PING 10
GET EVENT
RESET FIFO
GET STATUS
POWER DOWN
PGM TEST

Addr: 0 C C
Name: JINF-U-1-P

29F2 L B | 7EE1 L B
7BB1 L B | 3082 L B
7AB1 L B | 3A12 L B
FFFF L B | 38F2 L B

0 0 0 0 BOOT

SSF: OFF
Delay 20ns: 0 0
Processing Mode: Off
Last Processed Event Nb

Vers	Pgm	Node	Node Type	Ports to M	SubD Vers	Errors E	A	F	B	P	D	T	AMSW Link	Time sec	Last Event#	Bldg. Errors	AMSw Errors	Flash Errors
B218	DAQ	CDDC	UDR	2	BA14	0	0	1	0	0	0	0	0	..4	38364	0	0	0

Busy: 31 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
Mask: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 W
R
Status R
Errors R

Slave Mask: ID 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 W
0 R

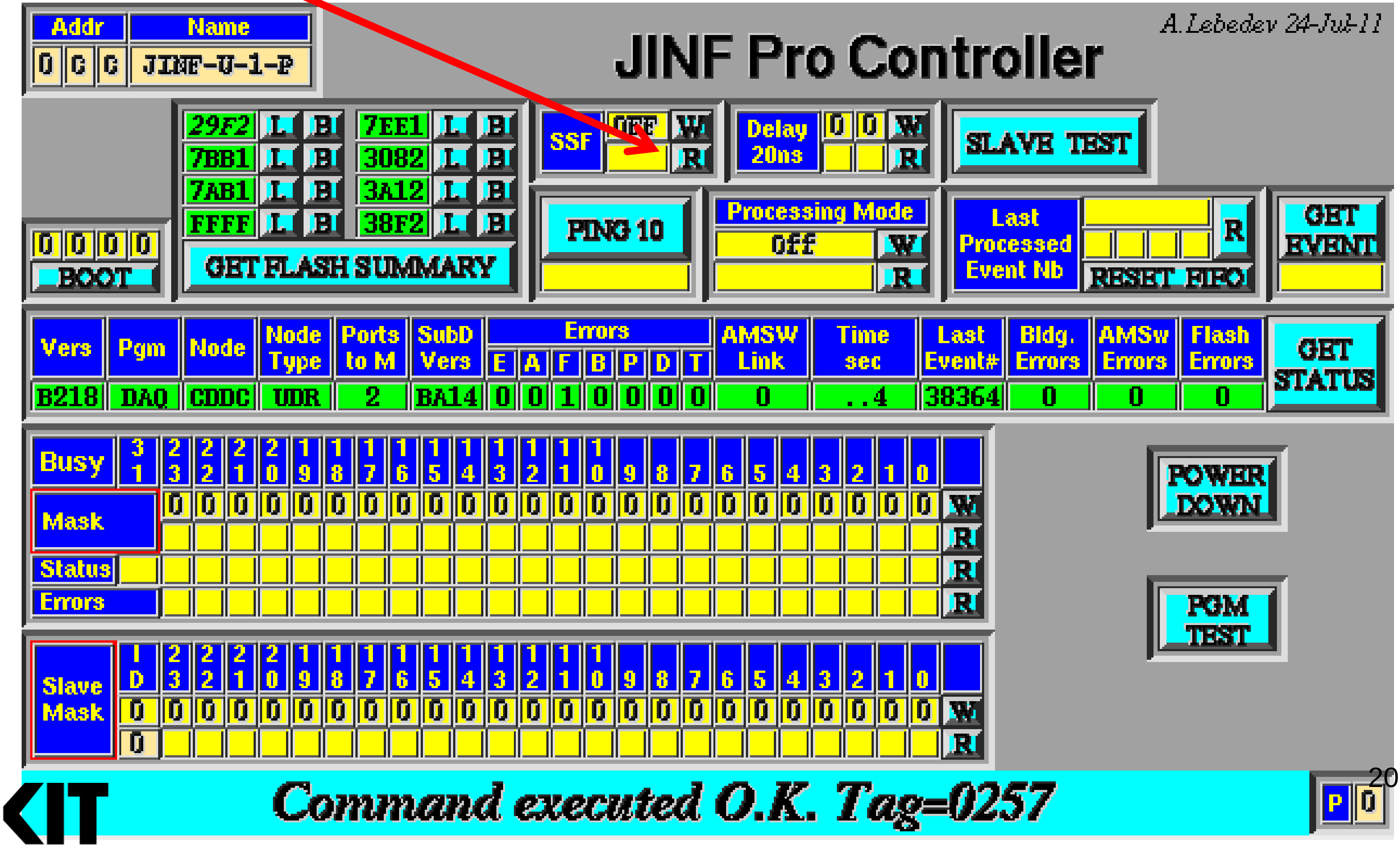
Command executed O.K. Tag=0257

P 0

Power Back up: Trouble Shooting

Solution 2 con’t:

5) Now need to turn off the brother, which is done in the box SSF (Solid State Fuse).
First click Read (R) to be sure that it’s on.


A.Lebedev 24-Jul-11
JINF Pro Controller
W
R
BOOT
GET FLASH SUMMARY
SLAVE TEST
PING 10
GET EVENT
RESET FIFO
GET STATUS
POWER DOWN
PGM TEST

Addr: 0 C C
Name: JINF-U-1-P

29F2	L	B	7EE1	L	B
7BB1	L	B	3082	L	B
7AB1	L	B	3A12	L	B
FFFF	L	B	38F2	L	B

0 0 0 0

SSF: OFF

Delay 20ns: 0 0

Processing Mode: Off

Last Processed Event Nb

Vers	Pgm	Node	Node Type	Ports to M	SubD Vers	Errors E	A	F	B	P	D	T	AMSW Link	Time sec	Last Event#	Bldg. Errors	AMSw Errors	Flash Errors
B218	DAQ	CDDC	UDR	2	BA14	0	0	1	0	0	0	0	0	..4	38364	0	0	0

Busy	31	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Mask		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Status																									
Errors																									

Slave Mask	ID	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0																								

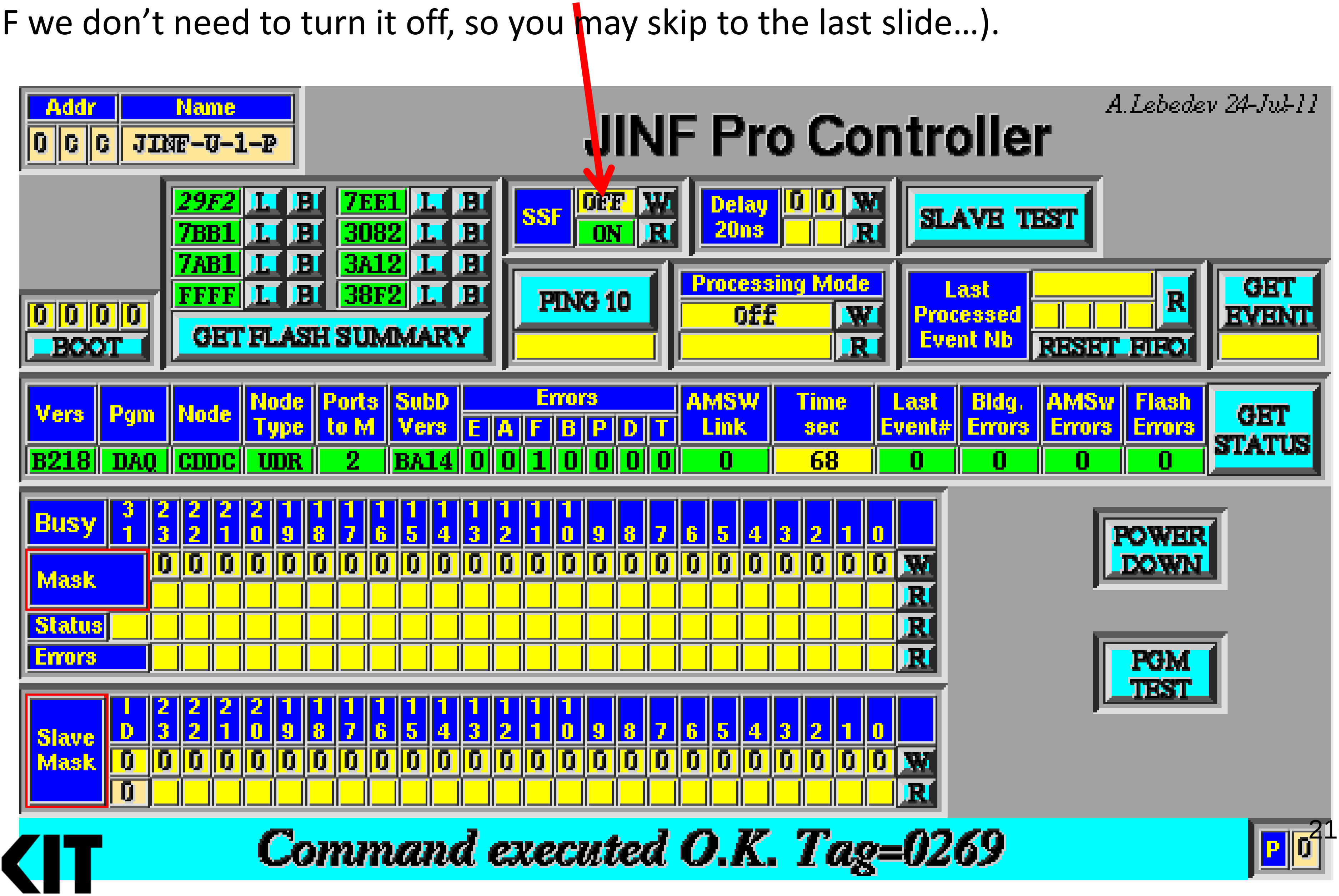
Command executed O.K. Tag=0257

P 0

Power Back up: Trouble Shooting

Solution 2 con't:

5) The Field next to the R should turn Green and give you the current status as ON. (If it's OFF we don't need to turn it off, so you may skip to the last slide…).


A.Lebedev 24-Jul-11
JINF Pro Controller
Addr
Name
0 C C
JINF-U-1-P
29F2 L B
7BB1 L B
7AB1 L B
FFFF L B
7EE1 L B
3082 L B
3A12 L B
38F2 L B
GET FLASH SUMMARY
0 0 0 0
BOOT
SSF
OFF W
ON R
Delay 20ns
0 0 W
R
SLAVE TEST
PING 10
Processing Mode
Off W
R
Last Processed Event Nb
R
RESET FIFO
GET EVENT
GET STATUS
Busy
Mask
Status
Errors
W
R
Slave Mask
POWER DOWN
PGM TEST
P 0

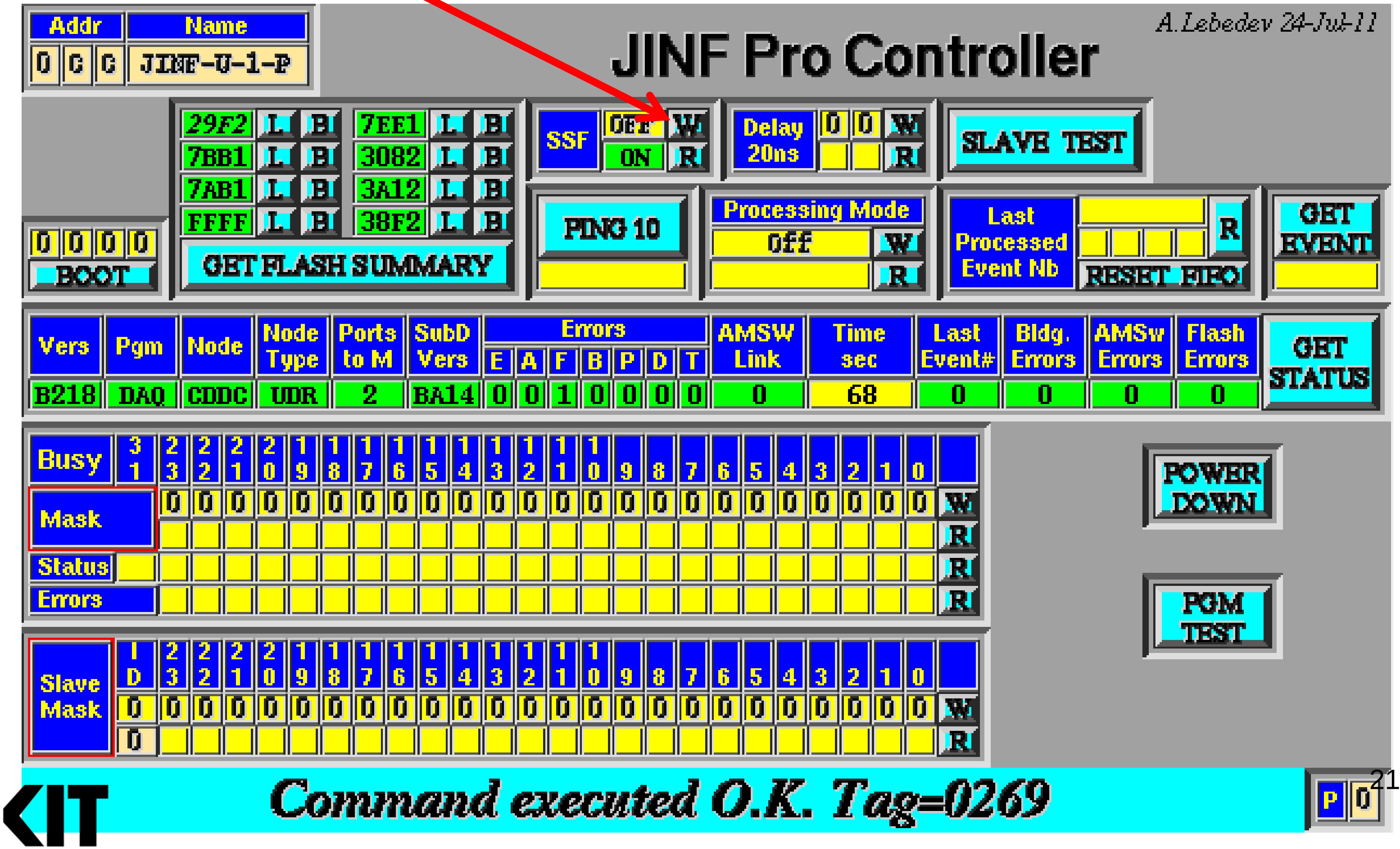
Vers	Pgm	Node	Node Type	Ports to M	SubD Vers	Errors E	A	F	B	P	D	T	AMSW Link	Time sec	Last Event#	Bldg. Errors	AMSw Errors	Flash Errors
B218	DAQ	CDDC	UDR	2	BA14	0	0	1	0	0	0	0	0	68	0	0	0	0

Command executed O.K. Tag=0269

Power Back up: Trouble Shooting

Solution 2 con’t:

6) Then click the W (write) next to the off (off can be changed to on if you click on that field but you don’t want to)


A.Lebedev 24-Jul-11
JINF Pro Controller
BOOT
GET FLASH SUMMARY
SSF
W
R
Delay 20ns
SLAVE TEST
PING 10
Processing Mode
Last Processed Event Nb
RESET FIFO
GET EVENT
GET STATUS
POWER DOWN
PGM TEST
L
B

Addr			Name
0	C	C	JINF-U-1-P

Boot: 0 0 0 0

29F2	L B	7EE1	L B
7BB1	L B	3082	L B
7AB1	L B	3A12	L B
FFFF	L B	38F2	L B

SSF: OFF / ON

Delay 20ns: 0 0

Processing Mode: Off

Vers	Pgm	Node	Node Type	Ports to M	SubD Vers	E	A	F	B	P	D	T	AMSW Link	Time sec	Last Event#	Bldg. Errors	AMSw Errors	Flash Errors
B218	DAQ	CDDC	UDR	2	BA14	0	0	1	0	0	0	0	0	68	0	0	0	0

Busy	31	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
Mask		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	W
																										R
Status																										R
Errors																										R

Slave Mask	ID	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	W
	0																									R

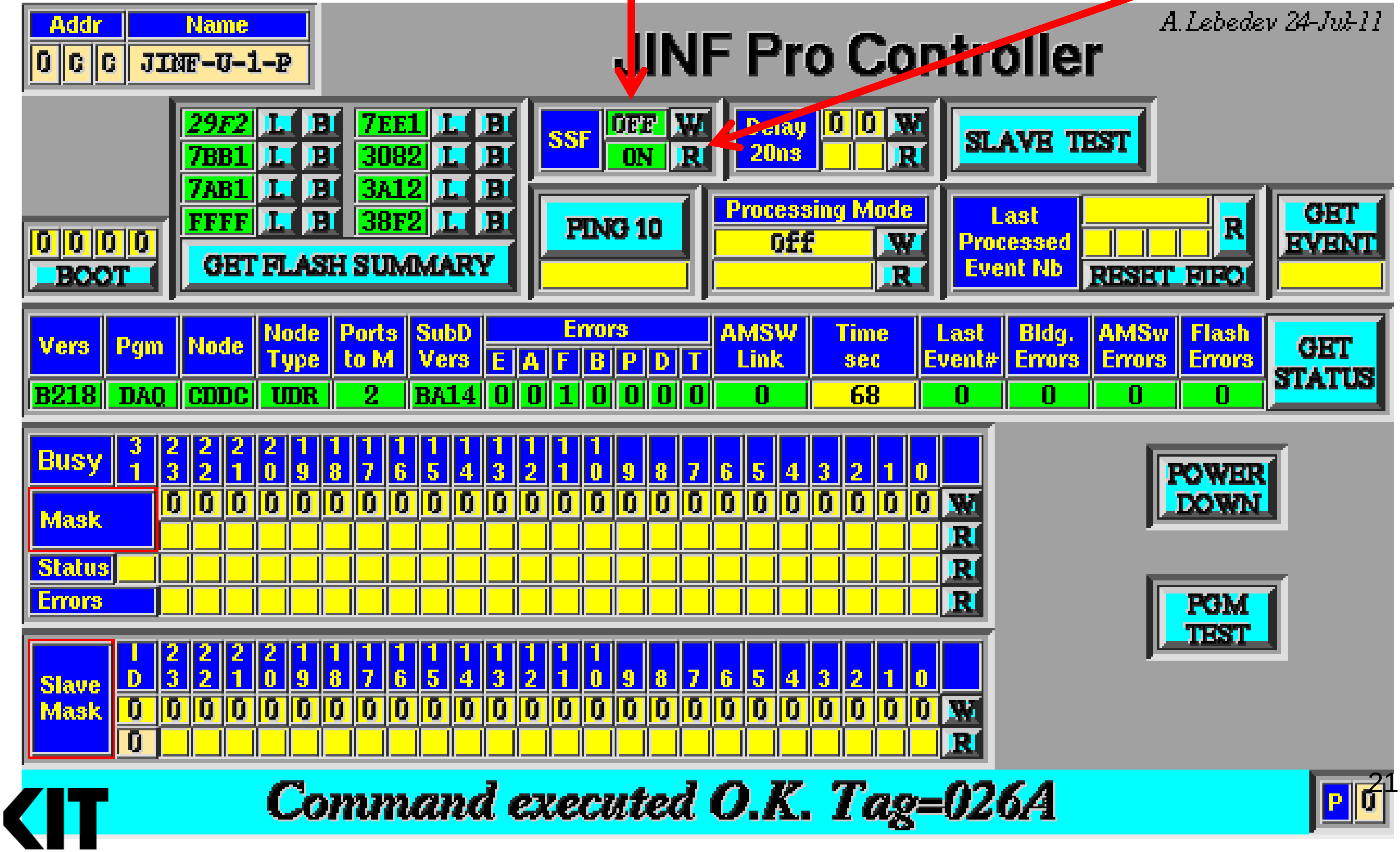
Command executed O.K. Tag=0269

P 0

Power Back up: Trouble Shooting

Solution 2 con't:

6) The field next to the W should turn Green and read OFF. Now to be sure click the R (read) again


A.Lebedev 24-Jul-11
JINF Pro Controller
Addr
Name
0 C C
JINF-U-1-P
29F2 L B
7BB1 L B
7AB1 L B
FFFF L B
7EE1 L B
3082 L B
3A12 L B
38F2 L B
GET FLASH SUMMARY
0 0 0 0
BOOT
SSF
OFF
ON
W
R
Delay 20ns
0 0
W
R
SLAVE TEST
PING 10
Processing Mode
Off
W
R
Last Processed Event Nb
R
RESET FIFO
GET EVENT
GET STATUS
Busy
Mask
Status
Errors
W
R
R
R
Slave Mask
ID
W
R
POWER DOWN
PGM TEST
P 0

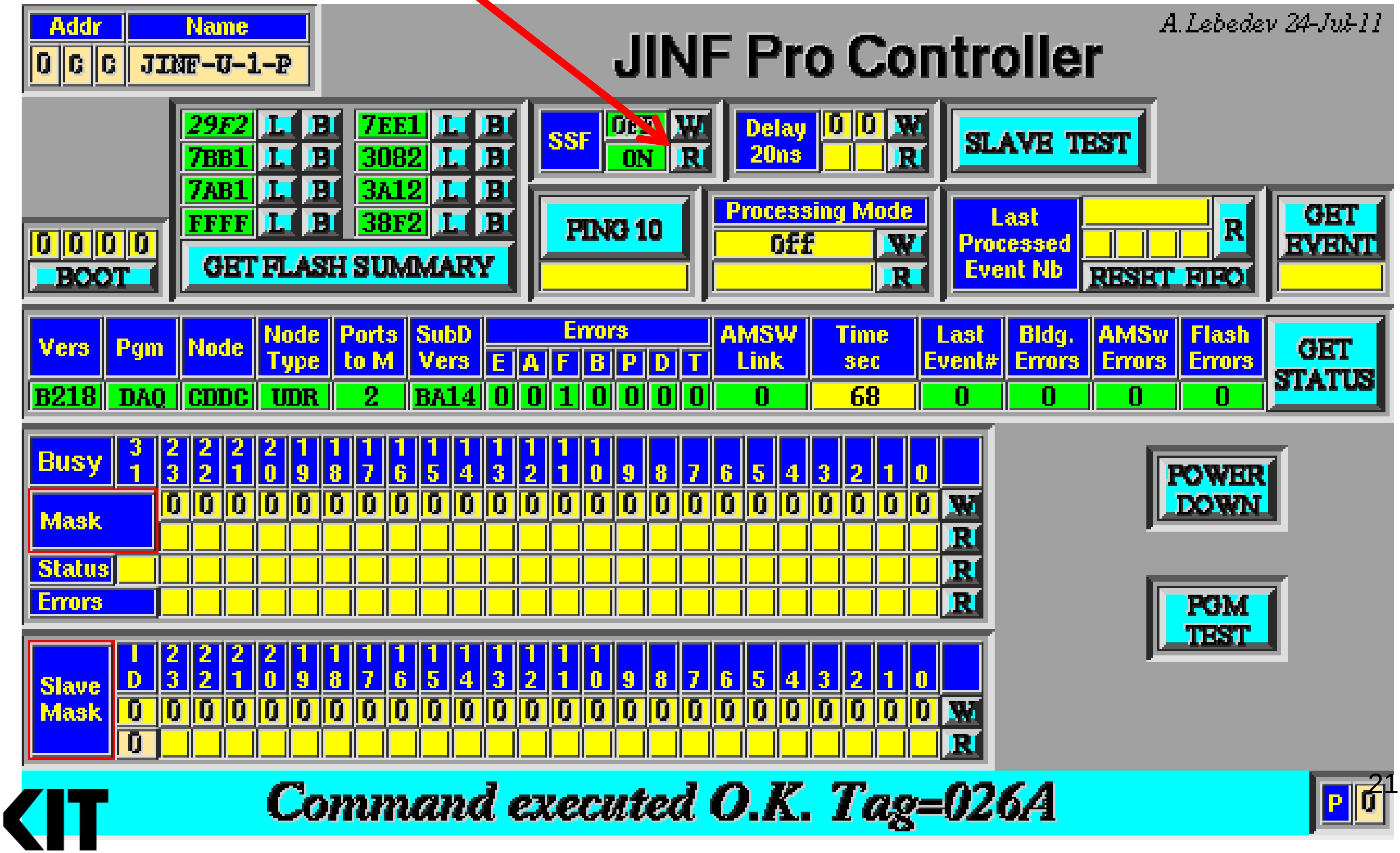
Vers	Pgm	Node	Node Type	Ports to M	SubD Vers	Errors E	A	F	B	P	D	T	AMSW Link	Time sec	Last Event#	Bldg. Errors	AMSw Errors	Flash Errors
B218	DAQ	CDDC	UDR	2	BA14	0	0	1	0	0	0	0	0	68	0	0	0	0

Command executed O.K. Tag=026A

Power Back up: Trouble Shooting

Solution 2 con’t:

7) Now to be sure click the R (read) again



JINF Pro Controller

A.Lebedev 24-Jul-11

Addr: 0 C C

Name: JINF-U-1-P

SSF: OFF / ON

Delay 20ns: 0 0

Processing Mode: Off

Vers	Pgm	Node	Node Type	Ports to M	SubD Vers	Errors E	A	F	B	P	D	T	AMSW Link	Time sec	Last Event#	Bldg. Errors	AMSw Errors	Flash Errors
B218	DAQ	CDDC	UDR	2	BA14	0	0	1	0	0	0	0	0	68	0	0	0	0

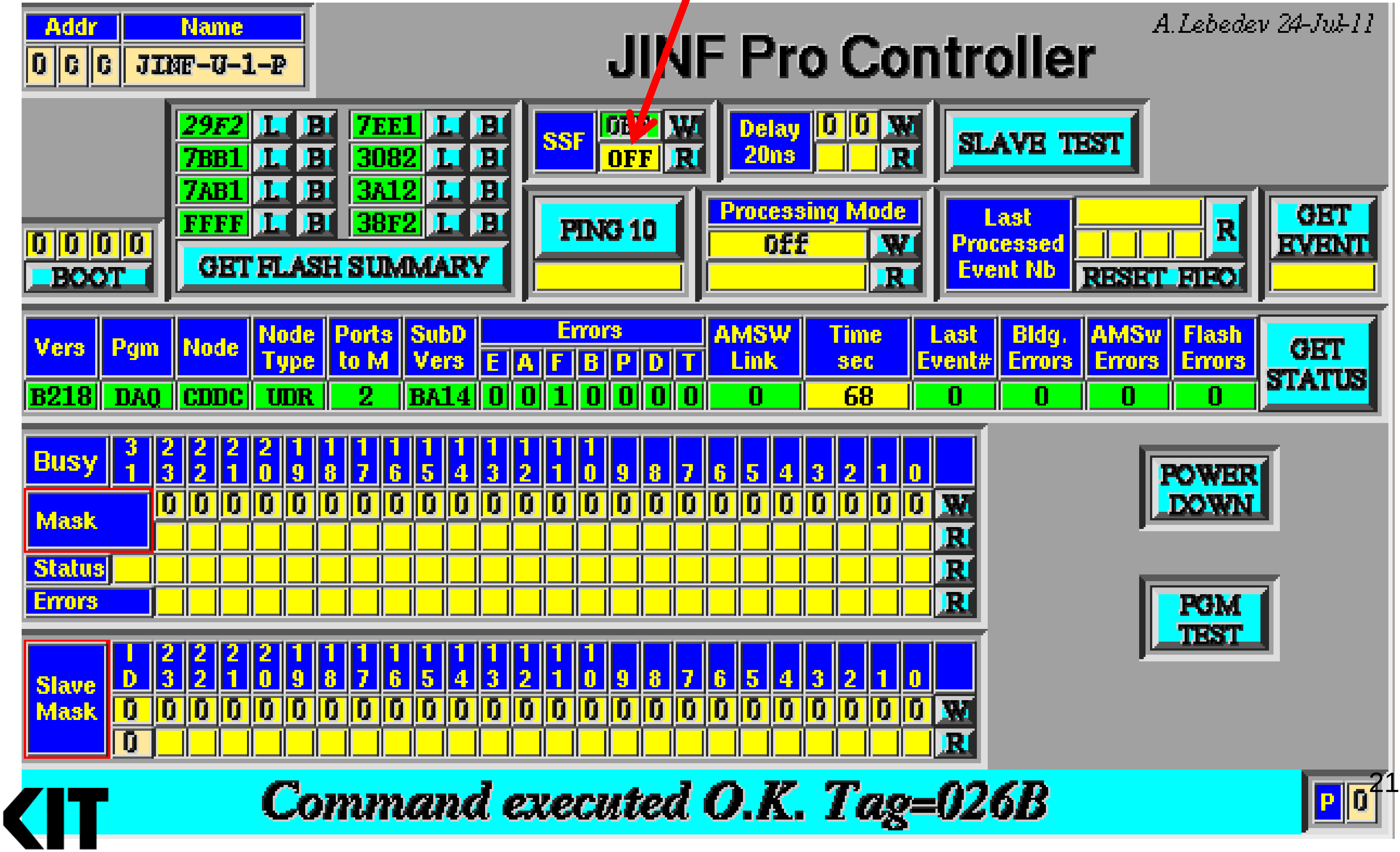
Command executed O.K. Tag=026A

29F2 L B
7BB1 L B
7AB1 L B
FFFF L B
7EE1 L B
3082 L B
3A12 L B
38F2 L B
0 0 0 0
BOOT
GET FLASH SUMMARY
W
R
SLAVE TEST
PING 10
Last Processed Event Nb
RESET FIFO
GET EVENT
GET STATUS
Busy
Mask
Status
Errors
Slave Mask
ID
31 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
POWER DOWN
PGM TEST
P 0

Power Back up: Trouble Shooting

Solution 2 con't:

8) Confirm that the read command returned OFF.



A.Lebedev 24-Jul-11
JINF Pro Controller
SLAVE TEST
BOOT
GET FLASH SUMMARY
PING 10
RESET FIFO
GET EVENT
GET STATUS
POWER DOWN
PGM TEST
W
R

Addr			Name
0	C	C	JINF-U-1-P

29F2 L B   7EE1 L B
7BB1 L B   3082 L B
7AB1 L B   3A12 L B
FFFF L B   38F2 L B

SSF: OFF (R)

Delay 20ns: 0 0 (W)

0 0 0 0 BOOT

Processing Mode: Off (W)

Last Processed Event Nb

Vers	Pgm	Node	Node Type	Ports to M	SubD Vers	Errors E	A	F	B	P	D	T	AMSW Link	Time sec	Last Event#	Bldg. Errors	AMSw Errors	Flash Errors
B218	DAQ	CDDC	UDR	2	BA14	0	0	1	0	0	0	0	0	68	0	0	0	0

Busy: 31 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
Mask: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 (W)
Status (R)
Errors (R)

Slave Mask: ID 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 (W)
0 (R)

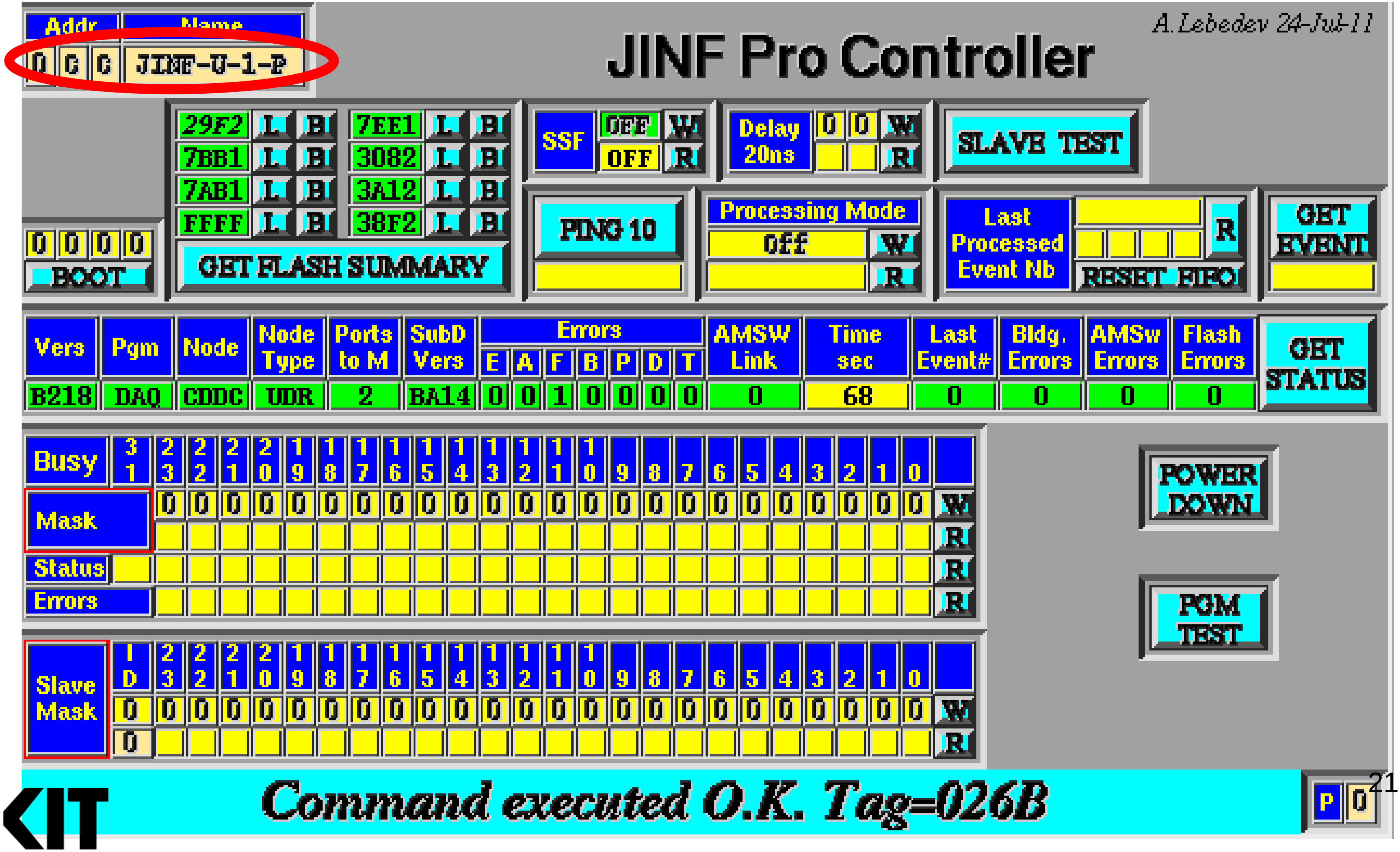
Command executed O.K. Tag=026B

P 0

Power Back up: Trouble Shooting

Solution 2 con’t:

9) Follow steps 1-8 for the other JINF


A.Lebedev 24-Jul-11
JINF Pro Controller
Addr
Name
BOOT
GET FLASH SUMMARY
SSF
W
R
Delay 20ns
SLAVE TEST
PING 10
Processing Mode
Last Processed Event Nb
RESET FIFO
GET EVENT
Vers
Pgm
Node
Node Type
Ports to M
SubD Vers
Errors
E A F B P D T
AMSW Link
Time sec
Last Event#
Bldg. Errors
AMSw Errors
Flash Errors
GET STATUS
Busy
Mask
Status
Errors
Slave Mask
POWER DOWN
PGM TEST
P

Addr: 0 C C Name: JINF-U-1-P

29F2 L B 7EE1 L B
7BB1 L B 3082 L B
7AB1 L B 3A12 L B
FFFF L B 38F2 L B

0 0 0 0

SSF: OFF / OFF

Delay 20ns: 0 0

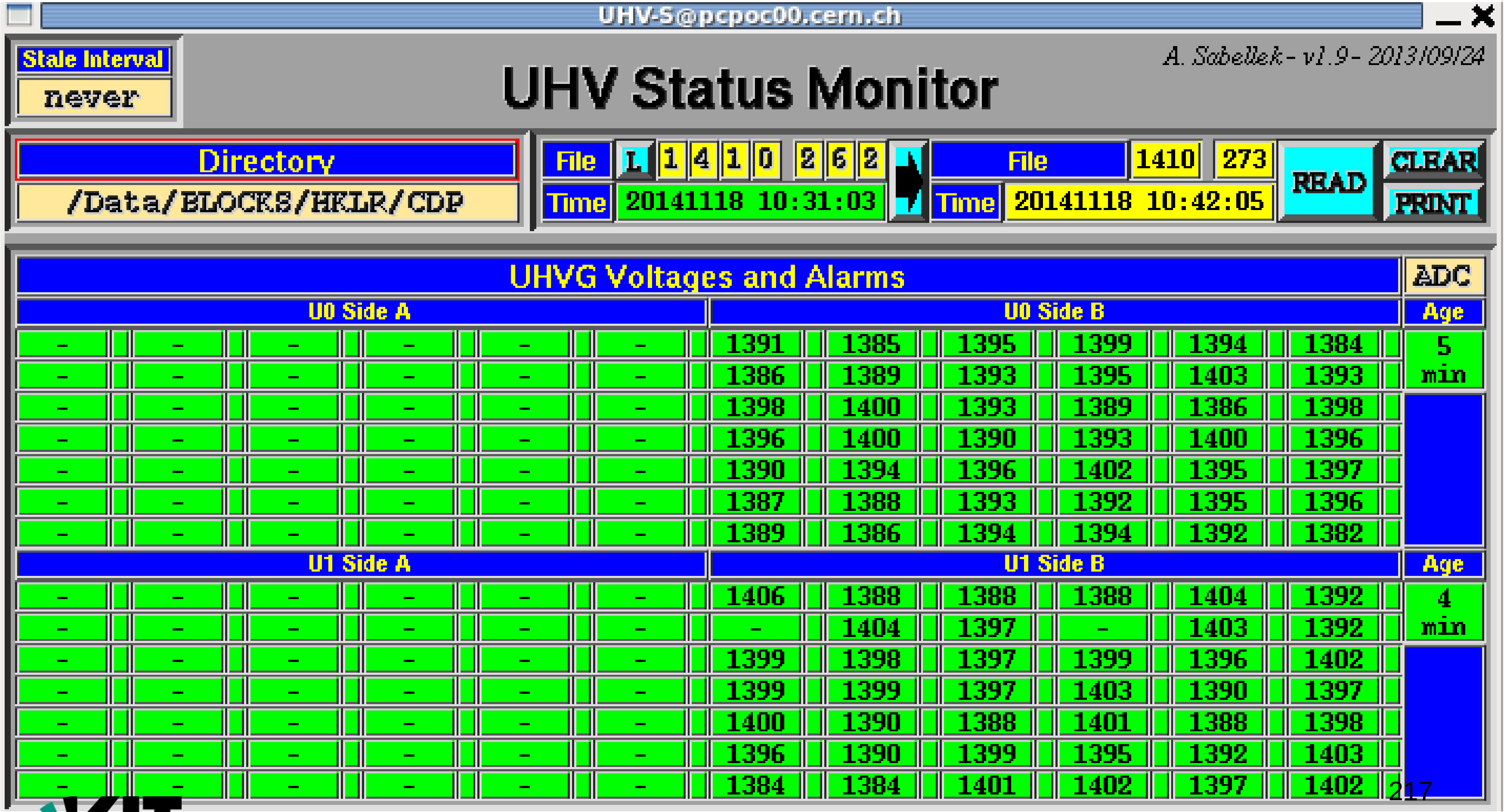
Processing Mode: Off

Vers	Pgm	Node	Node Type	Ports to M	SubD Vers	E	A	F	B	P	D	T	AMSW Link	Time sec	Last Event#	Bldg. Errors	AMSw Errors	Flash Errors
B218	DAQ	CDDC	UDR	2	BA14	0	0	1	0	0	0	0	0	68	0	0	0	0

Command executed O.K. Tag=026B

Weird HV “blink” on Nov 18 2014

HV Blink—before blink



UHV-S@pcpoc00.cern.ch

Stale Interval
never

UHV Status Monitor

A. Sabellek - v1.9 - 2013/09/24

Directory
/Data/BLOCKS/HKLR/CDP

File: L 1 4 1 0 2 6 2
Time: 20141118 10:31:03

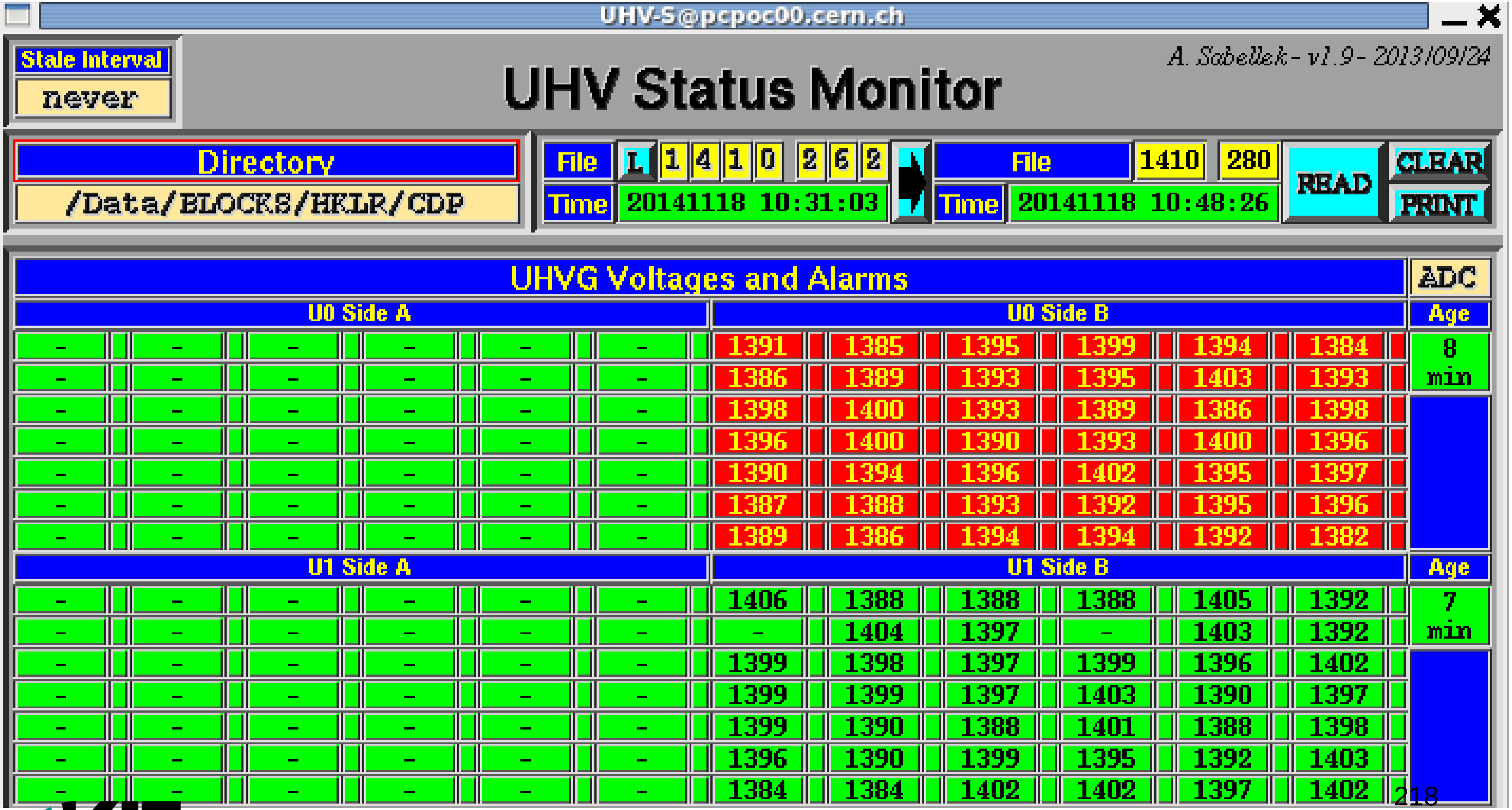
File: 1410 273
Time: 20141118 10:42:05

UHVG Voltages and Alarms ADC

U0 Side A						U0 Side B						Age
–	–	–	–	–	–	1391	1385	1395	1399	1394	1384	5 min
–	–	–	–	–	–	1386	1389	1393	1395	1403	1393	
–	–	–	–	–	–	1398	1400	1393	1389	1386	1398	
–	–	–	–	–	–	1396	1400	1390	1393	1400	1396	
–	–	–	–	–	–	1390	1394	1396	1402	1395	1397	
–	–	–	–	–	–	1387	1388	1393	1392	1395	1396	
–	–	–	–	–	–	1389	1386	1394	1394	1392	1382	

U1 Side A						U1 Side B						Age
–	–	–	–	–	–	1406	1388	1388	1388	1404	1392	4 min
–	–	–	–	–	–	–	1404	1397	–	1403	1392	
–	–	–	–	–	–	1399	1398	1397	1399	1396	1402	
–	–	–	–	–	–	1399	1399	1397	1403	1390	1397	
–	–	–	–	–	–	1400	1390	1388	1401	1388	1398	
–	–	–	–	–	–	1396	1390	1399	1395	1392	1403	
–	–	–	–	–	–	1384	1384	1401	1402	1397	1402	

HV Blink—blink!



UHV-S@pcpoc00.cern.ch

UHV Status Monitor

A. Sabellek - v1.9 - 2013/09/24

Stale Interval: never

Directory: /Data/BLOCKS/HKLR/CDP

File: L 1410 262

Time: 20141118 10:31:03

File: 1410 280

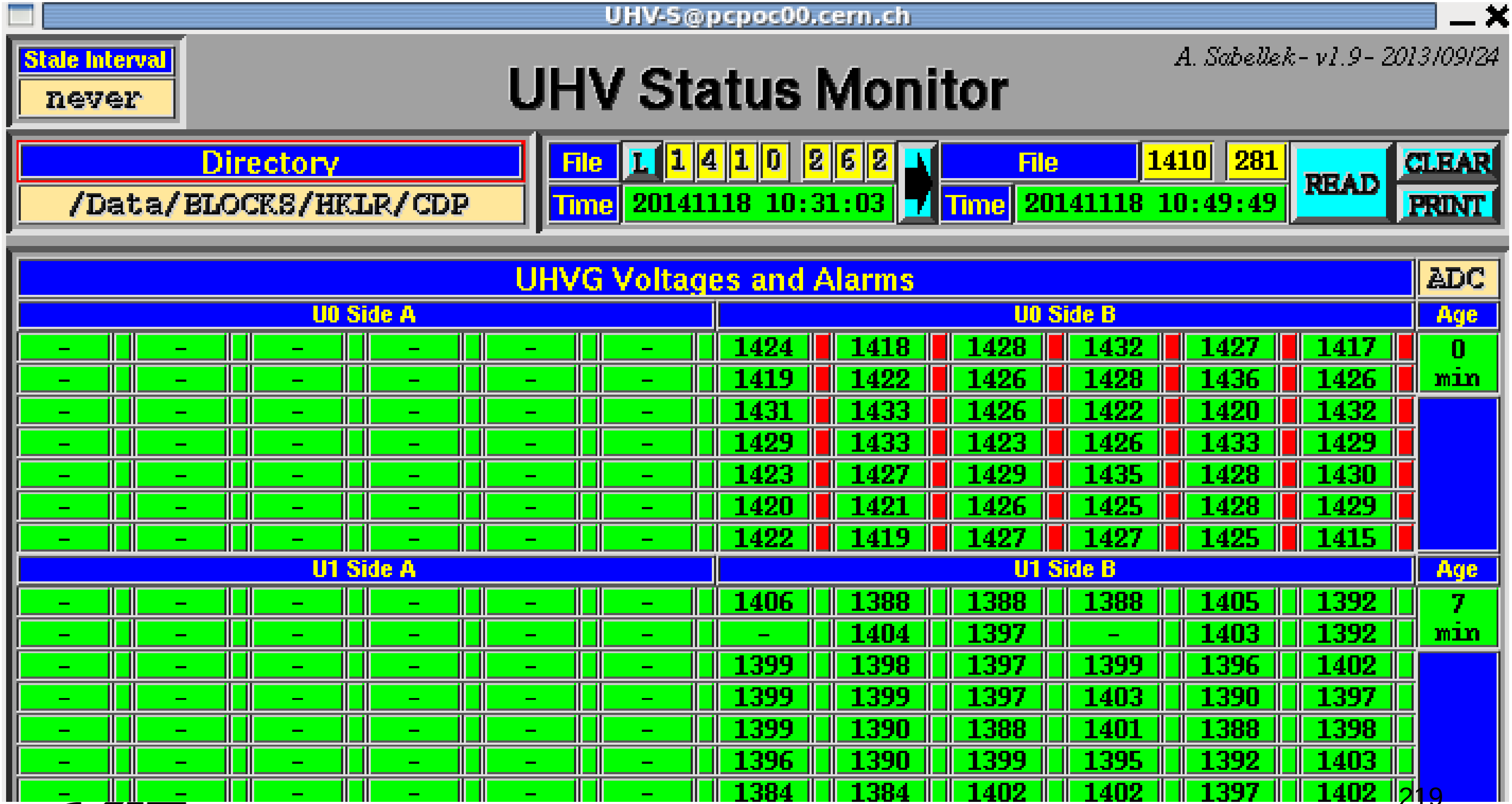
Time: 20141118 10:48:26

UHVG Voltages and Alarms ADC

U0 Side A						U0 Side B						Age
–	–	–	–	–	–	1391	1385	1395	1399	1394	1384	8 min
–	–	–	–	–	–	1386	1389	1393	1395	1403	1393	
–	–	–	–	–	–	1398	1400	1393	1389	1386	1398	
–	–	–	–	–	–	1396	1400	1390	1393	1400	1396	
–	–	–	–	–	–	1390	1394	1396	1402	1395	1397	
–	–	–	–	–	–	1387	1388	1393	1392	1395	1396	
–	–	–	–	–	–	1389	1386	1394	1394	1392	1382	

U1 Side A						U1 Side B						Age
–	–	–	–	–	–	1406	1388	1388	1388	1405	1392	7 min
–	–	–	–	–	–	–	1404	1397	–	1403	1392	
–	–	–	–	–	–	1399	1398	1397	1399	1396	1402	
–	–	–	–	–	–	1399	1399	1397	1403	1390	1397	
–	–	–	–	–	–	1399	1390	1388	1401	1388	1398	
–	–	–	–	–	–	1396	1390	1399	1395	1392	1403	
–	–	–	–	–	–	1384	1384	1402	1402	1397	1402	

HV Blink—after blink



Stale Interval
never

UHV Status Monitor

A. Sabellek - v1.9 - 2013/09/24

Directory
/Data/BLOCKS/HKLR/CDP

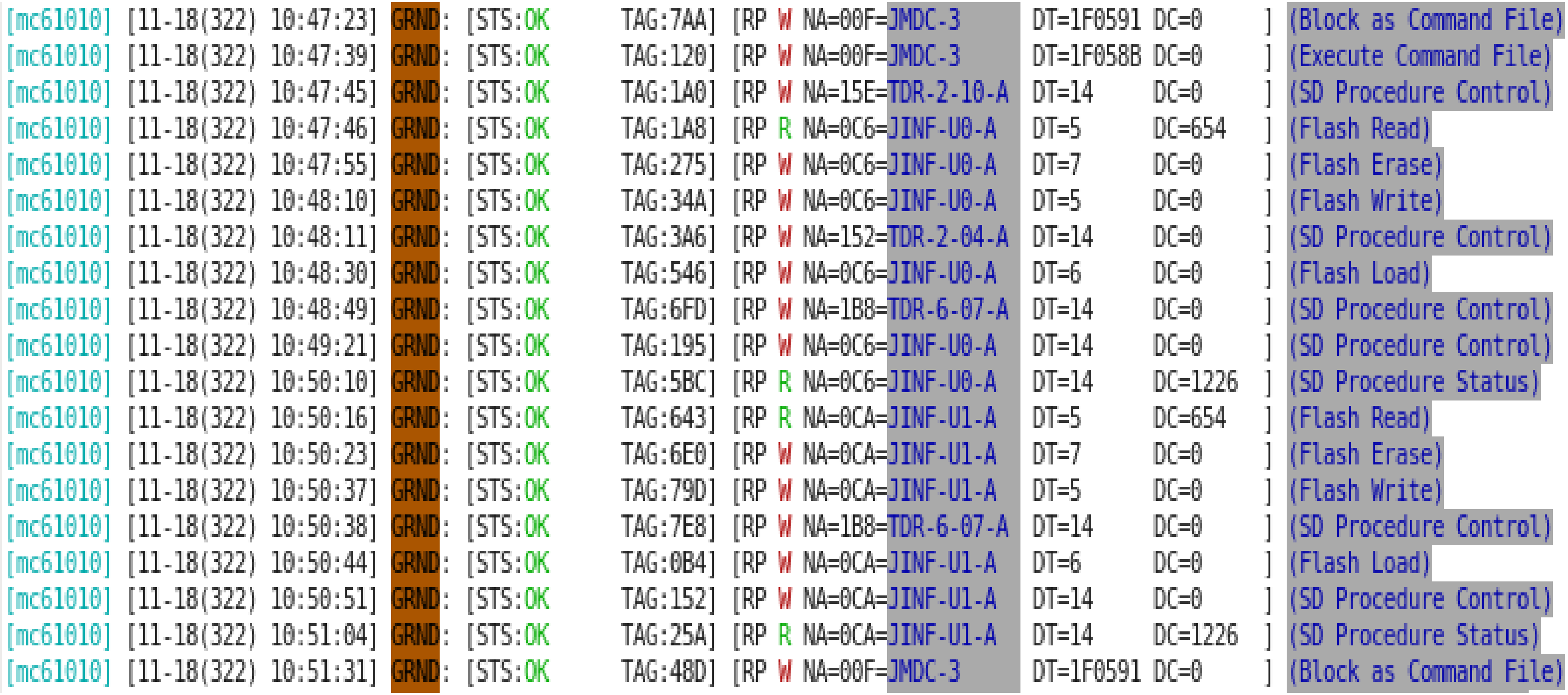
File L 1 4 1 0 2 6 2
Time 20141118 10:31:03

File 1410 281
Time 20141118 10:49:49

UHVG Voltages and Alarms

U0 Side A												U0 Side B												Age
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1424	🟥	1418	🟥	1428	🟥	1432	🟥	1427	🟥	1417	🟥	0 min
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1419	🟥	1422	🟥	1426	🟥	1428	🟥	1436	🟥	1426	🟥	
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1431	🟥	1433	🟥	1426	🟥	1422	🟥	1420	🟥	1432	🟥	
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1429	🟥	1433	🟥	1423	🟥	1426	🟥	1433	🟥	1429	🟥	
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1423	🟥	1427	🟥	1429	🟥	1435	🟥	1428	🟥	1430	🟥	
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1420	🟥	1421	🟥	1426	🟥	1425	🟥	1428	🟥	1429	🟥	
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1422	🟥	1419	🟥	1427	🟥	1427	🟥	1425	🟥	1415	🟥	
U1 Side A												U1 Side B												Age
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1406	🟩	1388	🟩	1388	🟩	1388	🟩	1405	🟩	1392	🟩	7 min
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1404	🟩	1397	🟩	-	🟩	1403	🟩	1392	🟩	
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1399	🟩	1398	🟩	1397	🟩	1399	🟩	1396	🟩	1402	🟩	
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1399	🟩	1399	🟩	1397	🟩	1403	🟩	1390	🟩	1397	🟩	
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1399	🟩	1390	🟩	1388	🟩	1401	🟩	1388	🟩	1398	🟩	
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1396	🟩	1390	🟩	1399	🟩	1395	🟩	1392	🟩	1403	🟩	
-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	-	🟩	1384	🟩	1384	🟩	1402	🟩	1402	🟩	1397	🟩	1402	🟩	

HV Blink—ground commanding (note: tracker also fixing bit flips)



```
[mc61010] [11-18(322) 10:47:23] GRND: [STS:OK     TAG:7AA] [RP W NA=00F=JMDC-3     DT=1F0591 DC=0    ] (Block as Command File)
[mc61010] [11-18(322) 10:47:39] GRND: [STS:OK     TAG:120] [RP W NA=00F=JMDC-3     DT=1F058B DC=0    ] (Execute Command File)
[mc61010] [11-18(322) 10:47:45] GRND: [STS:OK     TAG:1A0] [RP W NA=15E=TDR-2-10-A DT=14     DC=0    ] (SD Procedure Control)
[mc61010] [11-18(322) 10:47:46] GRND: [STS:OK     TAG:1A8] [RP R NA=0C6=JINF-U0-A  DT=5      DC=654  ] (Flash Read)
[mc61010] [11-18(322) 10:47:55] GRND: [STS:OK     TAG:275] [RP W NA=0C6=JINF-U0-A  DT=7      DC=0    ] (Flash Erase)
[mc61010] [11-18(322) 10:48:10] GRND: [STS:OK     TAG:34A] [RP W NA=0C6=JINF-U0-A  DT=5      DC=0    ] (Flash Write)
[mc61010] [11-18(322) 10:48:11] GRND: [STS:OK     TAG:3A6] [RP W NA=152=TDR-2-04-A DT=14     DC=0    ] (SD Procedure Control)
[mc61010] [11-18(322) 10:48:30] GRND: [STS:OK     TAG:546] [RP W NA=0C6=JINF-U0-A  DT=6      DC=0    ] (Flash Load)
[mc61010] [11-18(322) 10:48:49] GRND: [STS:OK     TAG:6FD] [RP W NA=1B8=TDR-6-07-A DT=14     DC=0    ] (SD Procedure Control)
[mc61010] [11-18(322) 10:49:21] GRND: [STS:OK     TAG:195] [RP W NA=0C6=JINF-U0-A  DT=14     DC=0    ] (SD Procedure Control)
[mc61010] [11-18(322) 10:50:10] GRND: [STS:OK     TAG:5BC] [RP R NA=0C6=JINF-U0-A  DT=14     DC=1226 ] (SD Procedure Status)
[mc61010] [11-18(322) 10:50:16] GRND: [STS:OK     TAG:643] [RP R NA=0CA=JINF-U1-A  DT=5      DC=654  ] (Flash Read)
[mc61010] [11-18(322) 10:50:23] GRND: [STS:OK     TAG:6E0] [RP W NA=0CA=JINF-U1-A  DT=7      DC=0    ] (Flash Erase)
[mc61010] [11-18(322) 10:50:37] GRND: [STS:OK     TAG:79D] [RP W NA=0CA=JINF-U1-A  DT=5      DC=0    ] (Flash Write)
[mc61010] [11-18(322) 10:50:38] GRND: [STS:OK     TAG:7E8] [RP W NA=1B8=TDR-6-07-A DT=14     DC=0    ] (SD Procedure Control)
[mc61010] [11-18(322) 10:50:44] GRND: [STS:OK     TAG:0B4] [RP W NA=0CA=JINF-U1-A  DT=6      DC=0    ] (Flash Load)
[mc61010] [11-18(322) 10:50:51] GRND: [STS:OK     TAG:152] [RP W NA=0CA=JINF-U1-A  DT=14     DC=0    ] (SD Procedure Control)
[mc61010] [11-18(322) 10:51:04] GRND: [STS:OK     TAG:25A] [RP R NA=0CA=JINF-U1-A  DT=14     DC=1226 ] (SD Procedure Status)
[mc61010] [11-18(322) 10:51:31] GRND: [STS:OK     TAG:48D] [RP W NA=00F=JMDC-3     DT=1F0591 DC=0    ] (Block as Command File)
```

What happened?

The status monitor checks its values against the config file.

In this case—completely random chance, and will almost never happen—the status monitor updated its data just exactly as the HV changed, but BEFORE the new config file was written.

This means that it sees the new values, which ARE correct, and *thinks* that they're wrong by a LOT because this happened during a gas refill.

Upshot: this will probably never *ever* happen again because it's so unlikely (timing of the update, during the gas refill so large step, etc…) But if it does, don't worry about it: just click the red boxes to acknowledge that it happened.

HV Trip Example:
20 Oct 2014

Timeline of what happened, Oct 20 (GMT day 293)

What we did:

13:38 Error in TRD-S monitor: JINF Status Fail

13:54 next read on UHV status, HV crate off.

Also HV Status Fail in TRD-S monitor

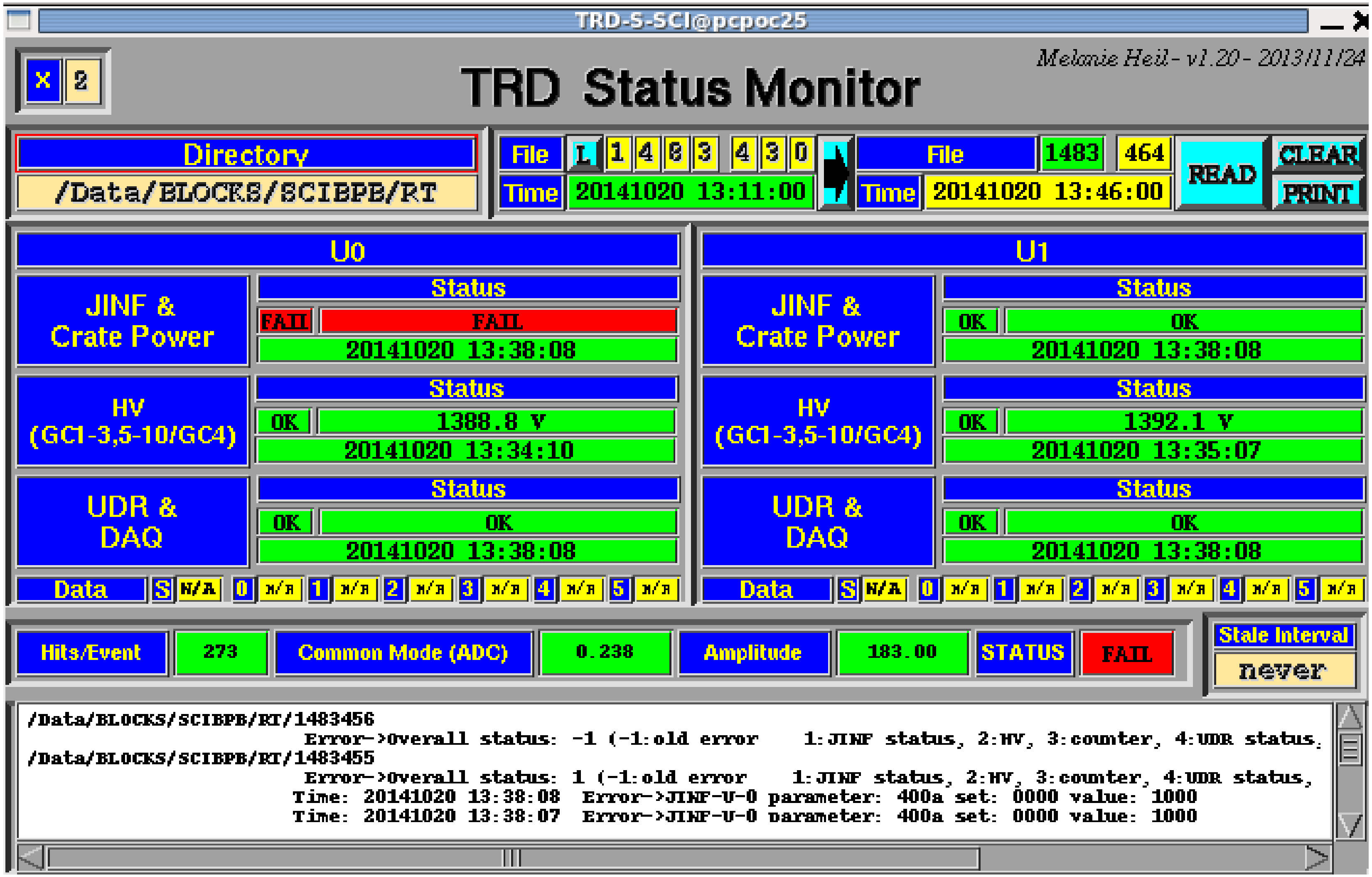
→ Problem is clear.

14:23 HV Crate powered on again—fixed HV status, but JINF status counter has been incremented so JINF status is still “bad”.

15:37 (next equator crossing with AOS) Reload JINF config file to clear status error counters.

BETTER/EASIER SOLUTION: Skip HV power and JINF config file, simply do an HV adjustment of 0V. Should fix all problems!

13:38 JINF Error in TRD-S monitor



TRD-S-SCI@pcpoc25

TRD Status Monitor

Melanie Heil - v1.20 - 2013/11/24

Directory: /Data/BLOCKS/SCIBPB/RT

File: 1483430 — Time: 20141020 13:11:00

File: 1483 464 — Time: 20141020 13:46:00

READ · CLEAR · PRINT

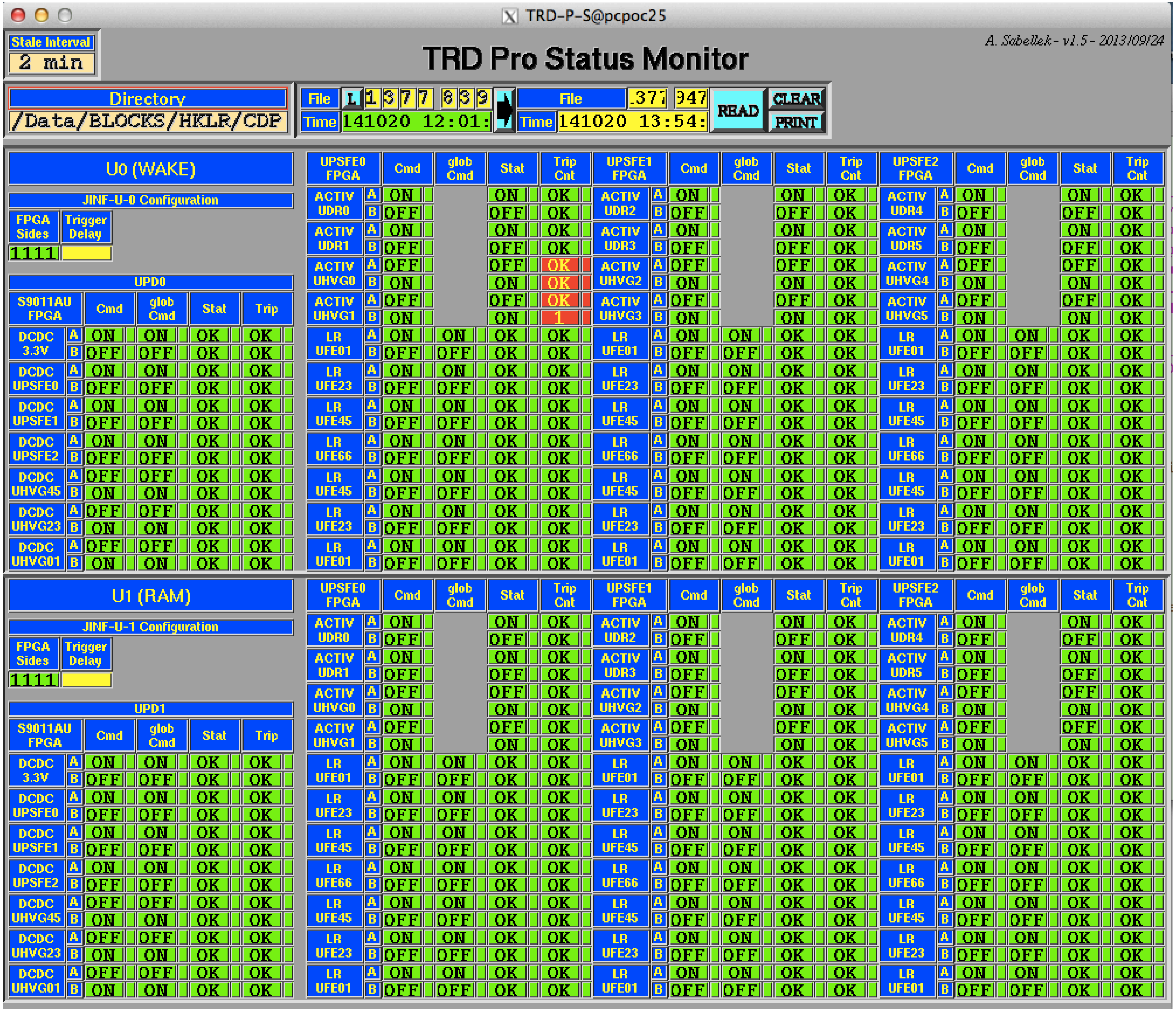
	U0 Status	U0	U1 Status	U1
JINF & Crate Power	FAIL	FAIL 20141020 13:38:08	OK	OK 20141020 13:38:08
HV (GC1-3,5-10/GC4)	OK	1388.8 V 20141020 13:34:10	OK	1392.1 V 20141020 13:35:07
UDR & DAQ	OK	OK 20141020 13:38:08	OK	OK 20141020 13:38:08
Data	S N/A · 0 N/A · 1 N/A · 2 N/A · 3 N/A · 4 N/A · 5 N/A		S N/A · 0 N/A · 1 N/A · 2 N/A · 3 N/A · 4 N/A · 5 N/A	

Hits/Event: 273 — Common Mode (ADC): 0.238 — Amplitude: 183.00 — STATUS: FAIL

Stale Interval: never

```
/Data/BLOCKS/SCIBPB/RT/1483456
                                Error->Overall status: -1 (-1:old error    1:JINF status, 2:HV, 3:counter, 4:UDR status,
/Data/BLOCKS/SCIBPB/RT/1483455
                                Error->Overall status: 1 (-1:old error    1:JINF status, 2:HV, 3:counter, 4:UDR status,
                               Time: 20141020 13:38:08  Error->JINF-U-0 parameter: 400a set: 0000 value: 1000
                               Time: 20141020 13:38:07  Error->JINF-U-0 parameter: 400a set: 0000 value: 1000
```

13:38 JINF Error in TRD-P-S monitor



TRD-P-S@pcpoc25

TRD Pro Status Monitor

A. Sabellek - v1.5 - 2013/09/24

Stale Interval: 2 min

Directory: /Data/BLOCKS/HKLR/CDP

File: L 1 3 7 7 8 3 9 — Time: 141020 12:01:

File: .377 947 — Time: 141020 13:54:

U0 (WAKE)

JINF-U-0 Configuration

FPGA Sides	Trigger Delay
1111	

UPD0

S9011AU FPGA		Cmd	glob Cmd	Stat	Trip
DCDC 3.3V	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE0	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE1	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE2	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UHVG45	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
DCDC UHVG23	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
DCDC UHVG01	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

UPSFE0 FPGA		Cmd	glob Cmd	Stat	Trip Cnt
ACTIV UDR0	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UDR1	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UHVG0	A	OFF		OFF	OK
	B	ON		ON	OK
ACTIV UHVG1	A	OFF		OFF	OK
	B	ON		ON	1
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE66	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK

UPSFE1 FPGA		Cmd	glob Cmd	Stat	Trip Cnt
ACTIV UDR2	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UDR3	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UHVG2	A	OFF		OFF	OK
	B	ON		ON	OK
ACTIV UHVG3	A	OFF		OFF	OK
	B	ON		ON	OK
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE66	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK

UPSFE2 FPGA		Cmd	glob Cmd	Stat	Trip Cnt
ACTIV UDR4	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UDR5	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UHVG4	A	OFF		OFF	OK
	B	ON		ON	OK
ACTIV UHVG5	A	OFF		OFF	OK
	B	ON		ON	OK
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE66	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK

U1 (RAM)

JINF-U-1 Configuration

FPGA Sides	Trigger Delay
1111	

UPD1

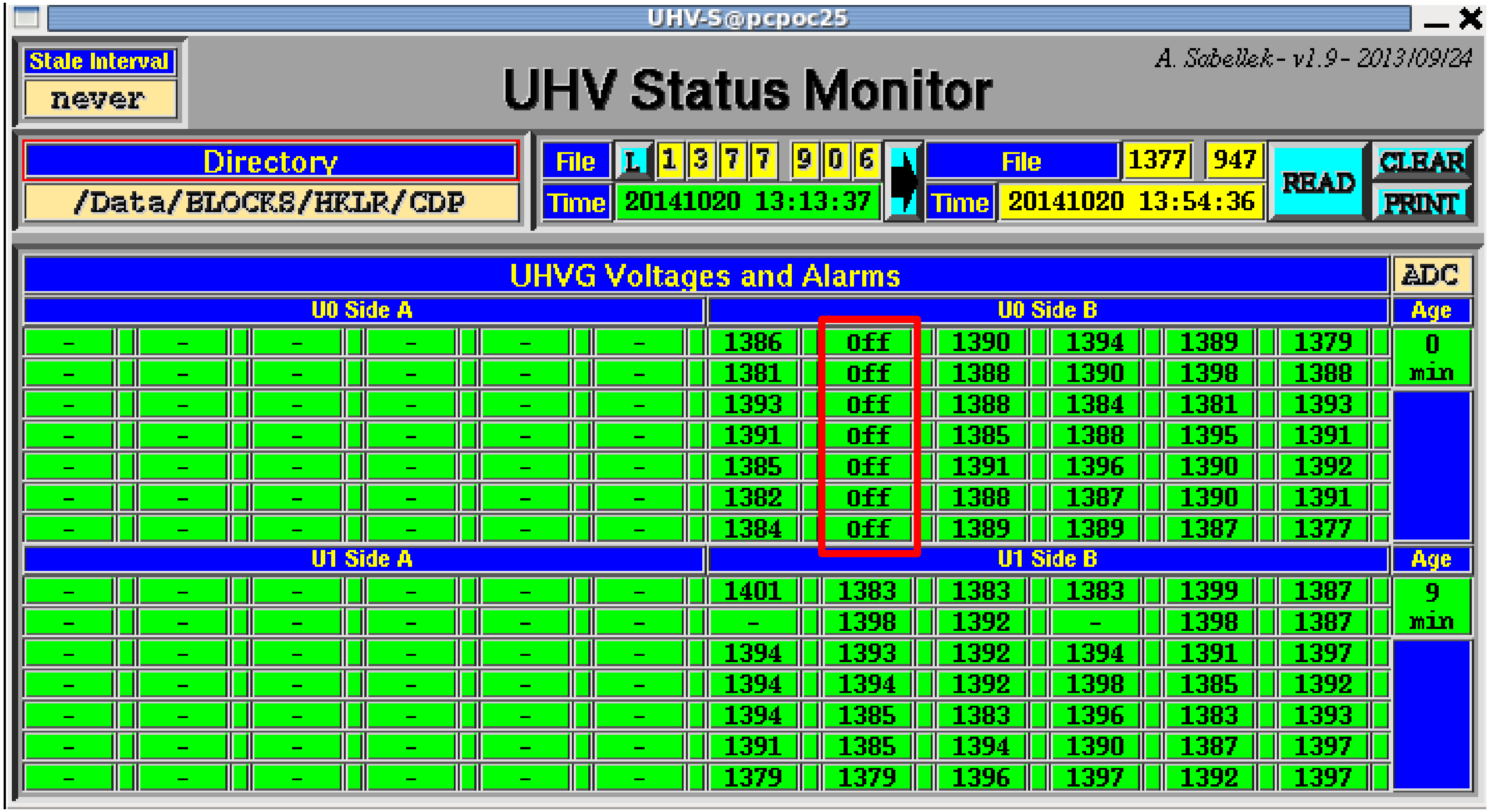
S9011AU FPGA		Cmd	glob Cmd	Stat	Trip
DCDC 3.3V	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE0	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE1	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE2	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UHVG45	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
DCDC UHVG23	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
DCDC UHVG01	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

UPSFE0 FPGA		Cmd	glob Cmd	Stat	Trip Cnt
ACTIV UDR0	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UDR1	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UHVG0	A	OFF		OFF	OK
	B	ON		ON	OK
ACTIV UHVG1	A	OFF		OFF	OK
	B	ON		ON	OK
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE66	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK

UPSFE1 FPGA		Cmd	glob Cmd	Stat	Trip Cnt
ACTIV UDR2	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UDR3	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UHVG2	A	OFF		OFF	OK
	B	ON		ON	OK
ACTIV UHVG3	A	OFF		OFF	OK
	B	ON		ON	OK
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE66	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK

UPSFE2 FPGA		Cmd	glob Cmd	Stat	Trip Cnt
ACTIV UDR4	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UDR5	A	ON		ON	OK
	B	OFF		OFF	OK
ACTIV UHVG4	A	OFF		OFF	OK
	B	ON		ON	OK
ACTIV UHVG5	A	OFF		OFF	OK
	B	ON		ON	OK
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE66	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK

13:54 HV “Error” in UHV-S monitor (HV off)



UHV-S@pcpoc25

UHV Status Monitor

A. Sabellek - v1.9 - 2013/09/24

Stale Interval: never

Directory: /Data/BLOCKS/HKLR/CDP

File: L 1 3 7 7 9 0 6

Time: 20141020 13:13:37

File: 1377 947

Time: 20141020 13:54:36

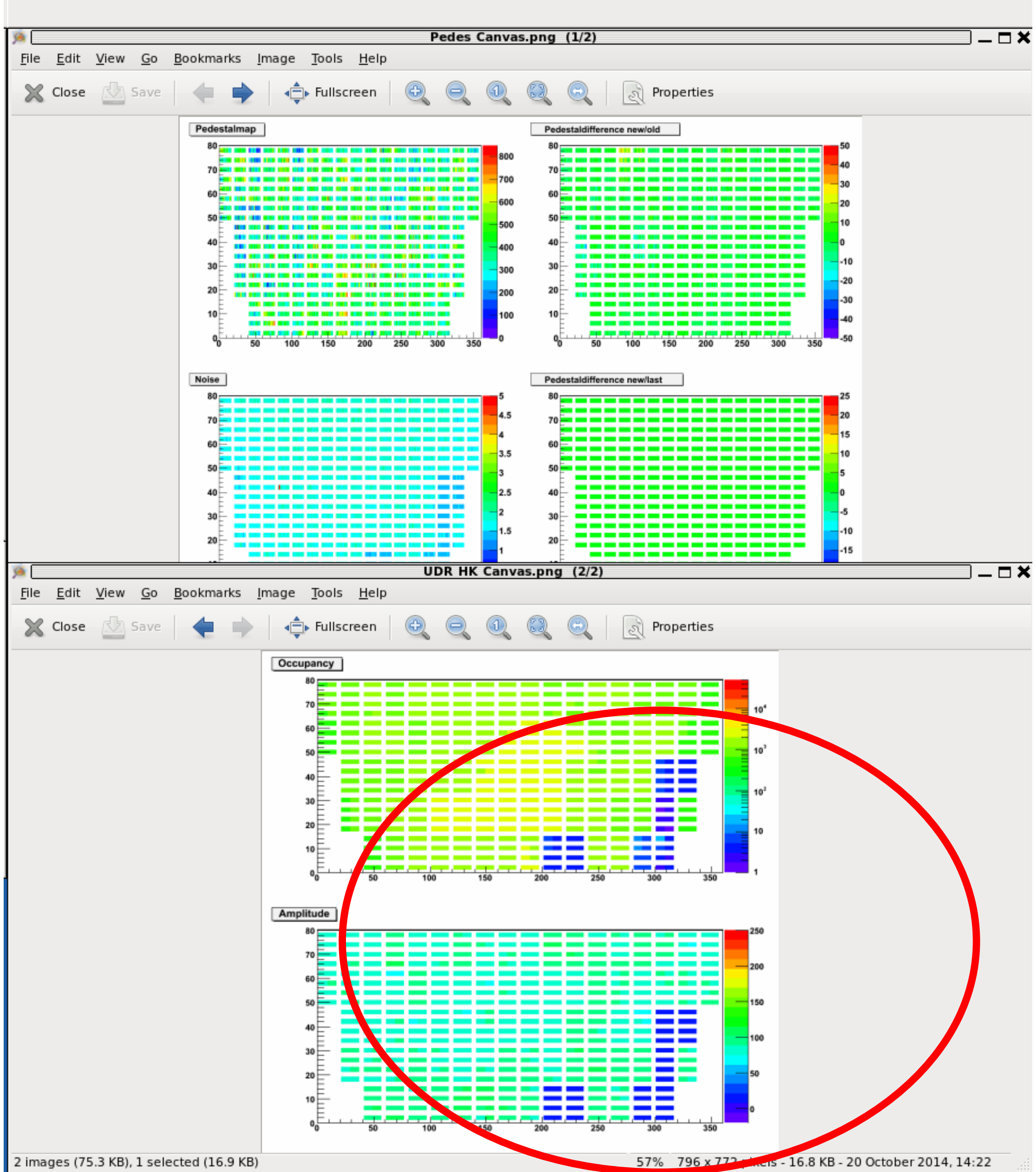
UHVG Voltages and Alarms

ADC

U0 Side A						U0 Side B						Age
-	-	-	-	-	-	1386	0ff	1390	1394	1389	1379	0 min
-	-	-	-	-	-	1381	0ff	1388	1390	1398	1388	
-	-	-	-	-	-	1393	0ff	1388	1384	1381	1393	
-	-	-	-	-	-	1391	0ff	1385	1388	1395	1391	
-	-	-	-	-	-	1385	0ff	1391	1396	1390	1392	
-	-	-	-	-	-	1382	0ff	1388	1387	1390	1391	
-	-	-	-	-	-	1384	0ff	1389	1389	1387	1377	

U1 Side A						U1 Side B						Age
-	-	-	-	-	-	1401	1383	1383	1383	1399	1387	9 min
-	-	-	-	-	-	-	1398	1392	-	1398	1387	
-	-	-	-	-	-	1394	1393	1392	1394	1391	1397	
-	-	-	-	-	-	1394	1394	1392	1398	1385	1392	
-	-	-	-	-	-	1394	1385	1383	1396	1383	1393	
-	-	-	-	-	-	1391	1385	1394	1390	1387	1397	
-	-	-	-	-	-	1379	1379	1396	1397	1392	1397	

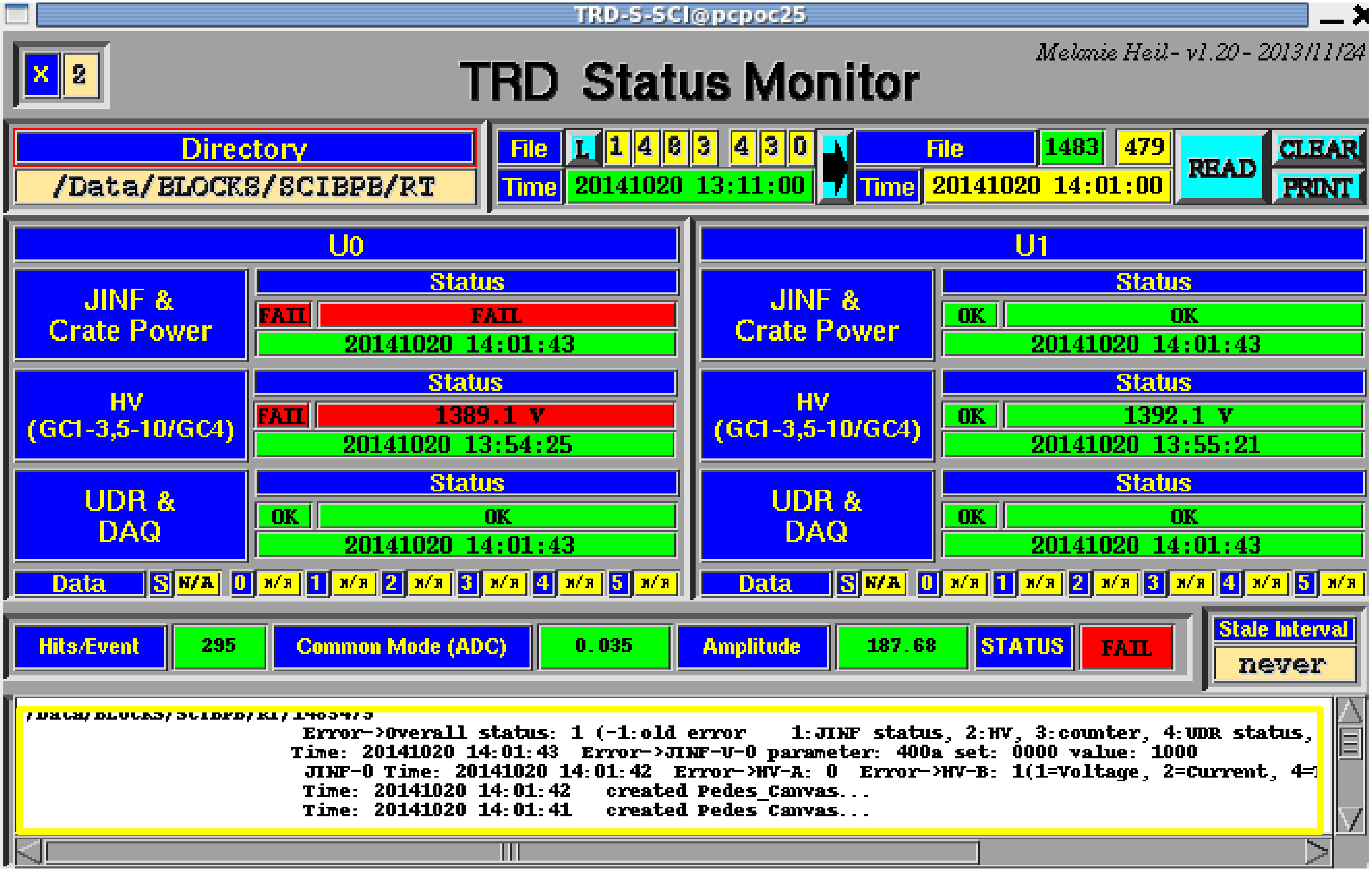
Presumably this happened at 13:38.


Pedes Canvas.png (1/2)
File Edit View Go Bookmarks Image Tools Help
Close Save Fullscreen Properties
Pedestalmap
Pedestaldifference new/old
Noise
Pedestaldifference new/last
UDR HK Canvas.png (2/2)
File Edit View Go Bookmarks Image Tools Help
Close Save Fullscreen Properties
Occupancy
Amplitude

2 images (75.3 KB), 1 selected (16.9 KB)

57% 796 x 772 pixels - 16.8 KB - 20 October 2014, 14:22

13:54 HV Error in TRD-S monitor



Melanie Heil - v1.20 - 2013/11/24

TRD Status Monitor

Directory: /Data/BLOCKS/SCIBPB/RT

File: L 1483 430 — Time: 20141020 13:11:00

File: 1483 479 — Time: 20141020 14:01:00

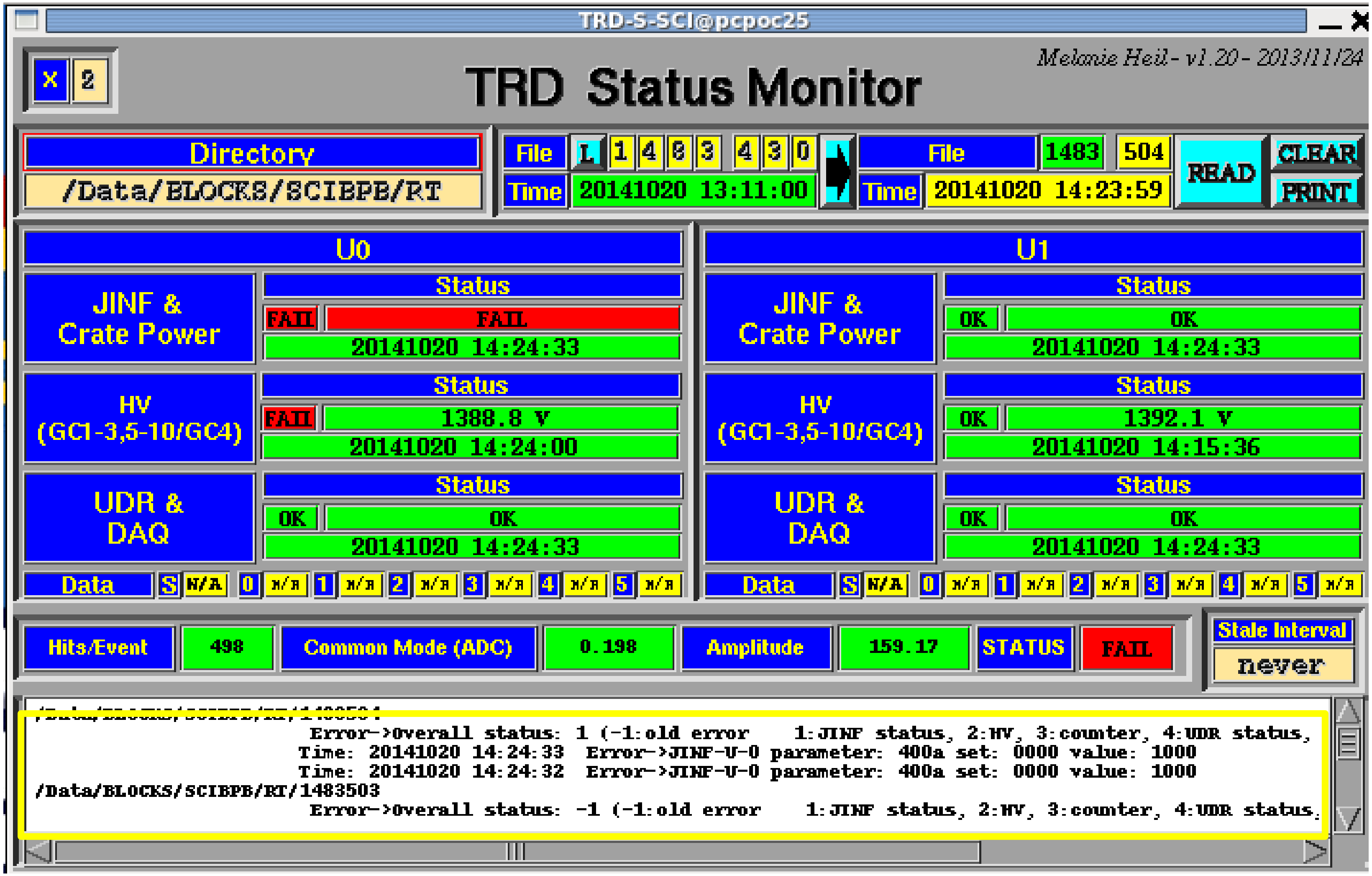
U0	Status		U1	Status	
JINF & Crate Power	FAIL	FAIL 20141020 14:01:43	JINF & Crate Power	OK	OK 20141020 14:01:43
HV (GC1-3,5-10/GC4)	FAIL	1389.1 V 20141020 13:54:25	HV (GC1-3,5-10/GC4)	OK	1392.1 V 20141020 13:55:21
UDR & DAQ	OK	OK 20141020 14:01:43	UDR & DAQ	OK	OK 20141020 14:01:43

Hits/Event	Common Mode (ADC)	Amplitude	STATUS
295	0.035	187.68	FAIL

Stale Interval: never

```
/Data/BLOCKS/SCIBPB/RT/1483479
                         Error->Overall status: 1 (-1:old error    1:JINF status, 2:HV, 3:counter, 4:UDR status,
                        Time: 20141020 14:01:43  Error->JINF-U-0 parameter: 400a set: 0000 value: 1000
                         JINF-0 Time: 20141020 14:01:42  Error->HV-A: 0  Error->HV-B: 1(1=Voltage, 2=Current, 4=
                         Time: 20141020 14:01:42   created Pedes_Canvas...
                         Time: 20141020 14:01:41   created Pedes Canvas...
```

14:23 HV turned on



TRD Status Monitor

Melanie Heil - v1.20 - 2013/11/24

Directory: /Data/BLOCKS/SCIBPB/RT

File: L 1 4 8 3 4 3 0 — File: 1483 504

Time: 20141020 13:11:00 — Time: 20141020 14:23:59

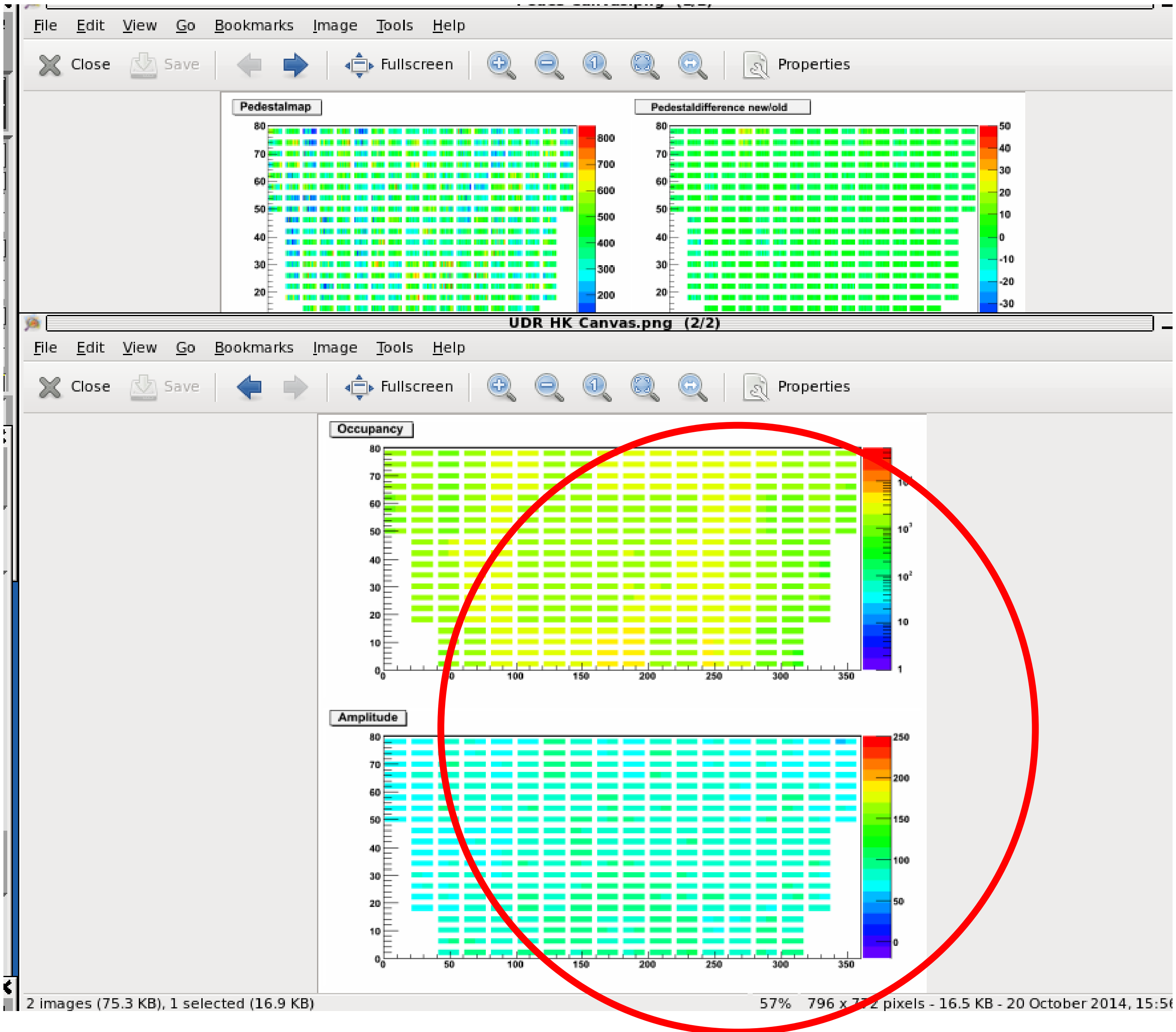
	U0 Status		U0 Time	U1 Status		U1 Time
JINF & Crate Power	FAIL	FAIL	20141020 14:24:33	OK	OK	20141020 14:24:33
HV (GC1-3,5-10/GC4)	FAIL	1388.8 V	20141020 14:24:00	OK	1392.1 V	20141020 14:15:36
UDR & DAQ	OK	OK	20141020 14:24:33	OK	OK	20141020 14:24:33

Data S N/A 0 N/A 1 N/A 2 N/A 3 N/A 4 N/A 5 N/A — Data S N/A 0 N/A 1 N/A 2 N/A 3 N/A 4 N/A 5 N/A

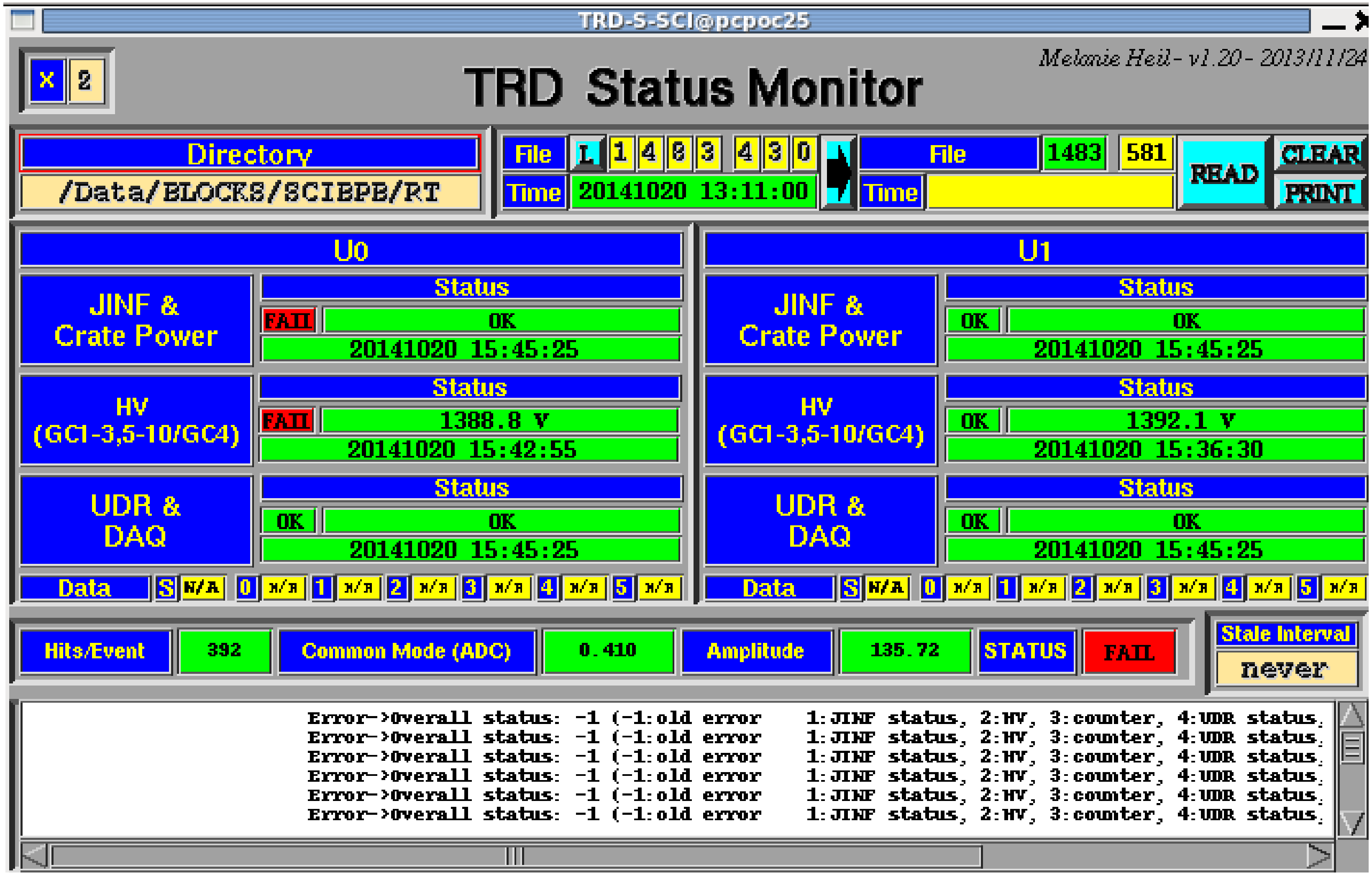
Hits/Event	Common Mode (ADC)	Amplitude	STATUS	Stale Interval
498	0.198	159.17	FAIL	never

```
/Data/BLOCKS/SCIBPB/RT/1483504:
                               Error->Overall status: 1 (-1:old error    1:JINF status, 2:HV, 3:counter, 4:UDR status,
                              Time: 20141020 14:24:33  Error->JINF-V-0 parameter: 400a set: 0000 value: 1000
                              Time: 20141020 14:24:32  Error->JINF-V-0 parameter: 400a set: 0000 value: 1000
/Data/BLOCKS/SCIBPB/RT/1483503
                               Error->Overall status: -1 (-1:old error    1:JINF status, 2:HV, 3:counter, 4:UDR status,
```

This also fixed after 14:23 HV on.


File Edit View Go Bookmarks Image Tools Help
Close Save Fullscreen Properties
Pedestalmap
80 70 60 50 40 30 20
800 700 600 500 400 300 200
Pedestaldifference new/old
50 40 30 20 10 0 -10 -20 -30
UDR HK Canvas.png (2/2)
File Edit View Go Bookmarks Image Tools Help
Close Save Fullscreen Properties
Occupancy
0 10 20 30 40 50 60 70 80
50 100 150 200 250 300 350
1 10 10²
10³
Amplitude
0 50 100 150 200 250
2 images (75.3 KB), 1 selected (16.9 KB)
57% 796 x 7?2 pixels - 16.5 KB - 20 October 2014, 15:5

15:37 JINF config file reloaded → trip counter reset



Directory: /Data/BLOCKS/SCIBPB/RT

File: L 1483 430

Time: 20141020 13:11:00

File: 1483 581

Time:

U0

JINF & Crate Power — Status: FAIL OK 20141020 15:45:25

HV (GC1-3,5-10/GC4) — Status: FAIL 1388.8 V 20141020 15:42:55

UDR & DAQ — Status: OK OK 20141020 15:45:25

Data: S N/A 0 N/A 1 N/A 2 N/A 3 N/A 4 N/A 5 N/A

U1

JINF & Crate Power — Status: OK OK 20141020 15:45:25

HV (GC1-3,5-10/GC4) — Status: OK 1392.1 V 20141020 15:36:30

UDR & DAQ — Status: OK OK 20141020 15:45:25

Data: S N/A 0 N/A 1 N/A 2 N/A 3 N/A 4 N/A 5 N/A

Hits/Event: 392

Common Mode (ADC): 0.410

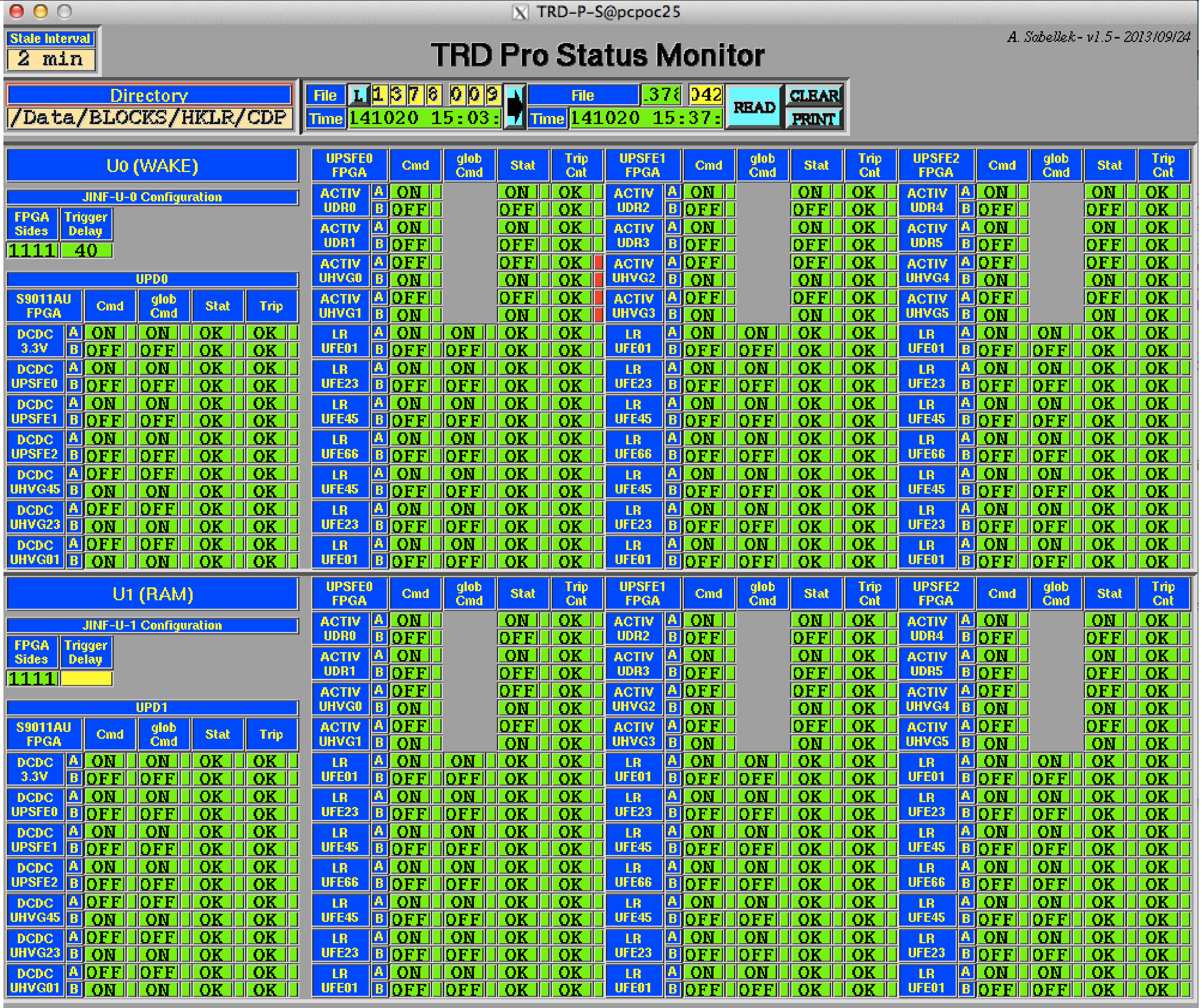
Amplitude: 135.72

STATUS: FAIL

Stale Interval: never

```
Error->Overall status: -1 (-1:old error    1:JINF status, 2:HV, 3:counter, 4:UDR status,
Error->Overall status: -1 (-1:old error    1:JINF status, 2:HV, 3:counter, 4:UDR status,
Error->Overall status: -1 (-1:old error    1:JINF status, 2:HV, 3:counter, 4:UDR status,
Error->Overall status: -1 (-1:old error    1:JINF status, 2:HV, 3:counter, 4:UDR status,
Error->Overall status: -1 (-1:old error    1:JINF status, 2:HV, 3:counter, 4:UDR status,
Error->Overall status: -1 (-1:old error    1:JINF status, 2:HV, 3:counter, 4:UDR status,
```

15:37 JINF config file reloaded → trip counter reset



TRD-P-S@pcpoc25

TRD Pro Status Monitor

A. Sobellek - v1.5 - 2013/09/24

Stale Interval: 2 min

Directory: /Data/BLOCKS/HKLR/CDP

File: L 1 3 7 8 0 0 9 — Time: 141020 15:03:

File: .378 042 — Time: 141020 15:37:

U0 (WAKE)

JINF-U-0 Configuration

FPGA Sides	Trigger Delay
1111	40

UPD0

S9011AU FPGA		Cmd	glob Cmd	Stat	Trip
DCDC 3.3V	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE0	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE1	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE2	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UHVG45	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
DCDC UHVG23	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
DCDC UHVG01	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

UPSFE0 FPGA		Cmd	glob Cmd	Stat	Trip Cnt	UPSFE1 FPGA		Cmd	glob Cmd	Stat	Trip Cnt	UPSFE2 FPGA		Cmd	glob Cmd	Stat	Trip Cnt
ACTIV UDR0	A	ON		ON	OK	ACTIV UDR2	A	ON		ON	OK	ACTIV UDR4	A	ON		ON	OK
	B	OFF		OFF	OK		B	OFF		OFF	OK		B	OFF		OFF	OK
ACTIV UDR1	A	ON		ON	OK	ACTIV UDR3	A	ON		ON	OK	ACTIV UDR5	A	ON		ON	OK
	B	OFF		OFF	OK		B	OFF		OFF	OK		B	OFF		OFF	OK
ACTIV UHVG0	A	OFF		OFF	OK 🟥	ACTIV UHVG2	A	OFF		OFF	OK	ACTIV UHVG4	A	OFF		OFF	OK
	B	ON		ON	OK 🟥		B	ON		ON	OK		B	ON		ON	OK
ACTIV UHVG1	A	OFF		OFF	OK 🟥	ACTIV UHVG3	A	OFF		OFF	OK	ACTIV UHVG5	A	OFF		OFF	OK
	B	ON		ON	OK 🟥		B	ON		ON	OK		B	ON		ON	OK
LR UFE01	A	ON	ON	OK	OK	LR UFE01	A	ON	ON	OK	OK	LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK	LR UFE23	A	ON	ON	OK	OK	LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK	LR UFE45	A	ON	ON	OK	OK	LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE66	A	ON	ON	OK	OK	LR UFE66	A	ON	ON	OK	OK	LR UFE66	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK	LR UFE45	A	ON	ON	OK	OK	LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK	LR UFE23	A	ON	ON	OK	OK	LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE01	A	ON	ON	OK	OK	LR UFE01	A	ON	ON	OK	OK	LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK

U1 (RAM)

JINF-U-1 Configuration

FPGA Sides	Trigger Delay
1111	

UPD1

S9011AU FPGA		Cmd	glob Cmd	Stat	Trip
DCDC 3.3V	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE0	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE1	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UPSFE2	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK
DCDC UHVG45	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
DCDC UHVG23	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK
DCDC UHVG01	A	OFF	OFF	OK	OK
	B	ON	ON	OK	OK

UPSFE0 FPGA		Cmd	glob Cmd	Stat	Trip Cnt	UPSFE1 FPGA		Cmd	glob Cmd	Stat	Trip Cnt	UPSFE2 FPGA		Cmd	glob Cmd	Stat	Trip Cnt
ACTIV UDR0	A	ON		ON	OK	ACTIV UDR2	A	ON		ON	OK	ACTIV UDR4	A	ON		ON	OK
	B	OFF		OFF	OK		B	OFF		OFF	OK		B	OFF		OFF	OK
ACTIV UDR1	A	ON		ON	OK	ACTIV UDR3	A	ON		ON	OK	ACTIV UDR5	A	ON		ON	OK
	B	OFF		OFF	OK		B	OFF		OFF	OK		B	OFF		OFF	OK
ACTIV UHVG0	A	OFF		OFF	OK	ACTIV UHVG2	A	OFF		OFF	OK	ACTIV UHVG4	A	OFF		OFF	OK
	B	ON		ON	OK		B	ON		ON	OK		B	ON		ON	OK
ACTIV UHVG1	A	OFF		OFF	OK	ACTIV UHVG3	A	OFF		OFF	OK	ACTIV UHVG5	A	OFF		OFF	OK
	B	ON		ON	OK		B	ON		ON	OK		B	ON		ON	OK
LR UFE01	A	ON	ON	OK	OK	LR UFE01	A	ON	ON	OK	OK	LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK	LR UFE23	A	ON	ON	OK	OK	LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK	LR UFE45	A	ON	ON	OK	OK	LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE66	A	ON	ON	OK	OK	LR UFE66	A	ON	ON	OK	OK	LR UFE66	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE45	A	ON	ON	OK	OK	LR UFE45	A	ON	ON	OK	OK	LR UFE45	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE23	A	ON	ON	OK	OK	LR UFE23	A	ON	ON	OK	OK	LR UFE23	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK
LR UFE01	A	ON	ON	OK	OK	LR UFE01	A	ON	ON	OK	OK	LR UFE01	A	ON	ON	OK	OK
	B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK		B	OFF	OFF	OK	OK

How To Fix, Easiest Method: Do a HV adjustment of 0V!

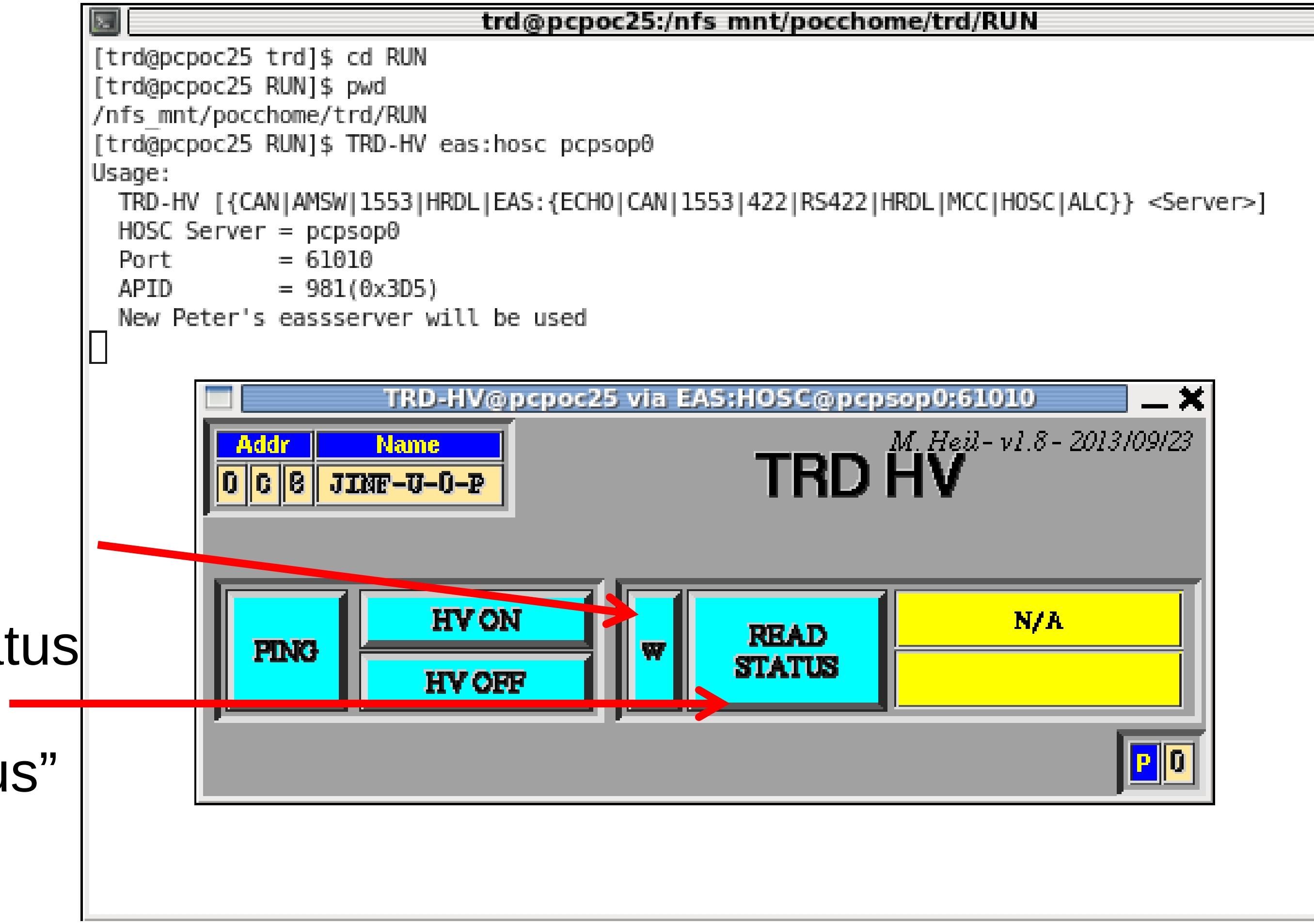
This is not what we did on Oct 20 2014, BUT if you do an HV adjustment of 0 Volts, this should solve your problem. If not continue with the next procedures!

How To Fix:
1) turn on power

(a) Open the GUI (as in the terminal)

(b) Check that you're on the proper JINF
(in this case U-0)

(c) Press "w" to write the status (ensures an updated status), then "Read Status" to see what it is.



```
trd@pcpoc25:/nfs_mnt/pocchome/trd/RUN
[trd@pcpoc25 trd]$ cd RUN
[trd@pcpoc25 RUN]$ pwd
/nfs_mnt/pocchome/trd/RUN
[trd@pcpoc25 RUN]$ TRD-HV eas:hosc pcpsop0
Usage:
  TRD-HV [{CAN|AMSW|1553|HRDL|EAS:{ECHO|CAN|1553|422|RS422|HRDL|MCC|HOSC|ALC}} <Server>]
  HOSC Server = pcpsop0
  Port        = 61010
  APID        = 981(0x3D5)
  New Peter's eassserver will be used
```

TRD-HV@pcpoc25 via EAS:HOSC@pcpsop0:61010
Addr
Name
0 C 8
JINF-U-0-P
M. Heil - v1.8 - 2013/09/23
TRD HV
PING
HV ON
HV OFF
w
READ STATUS
N/A
P 0

Note: Screenshots from a different day but it's the same point.

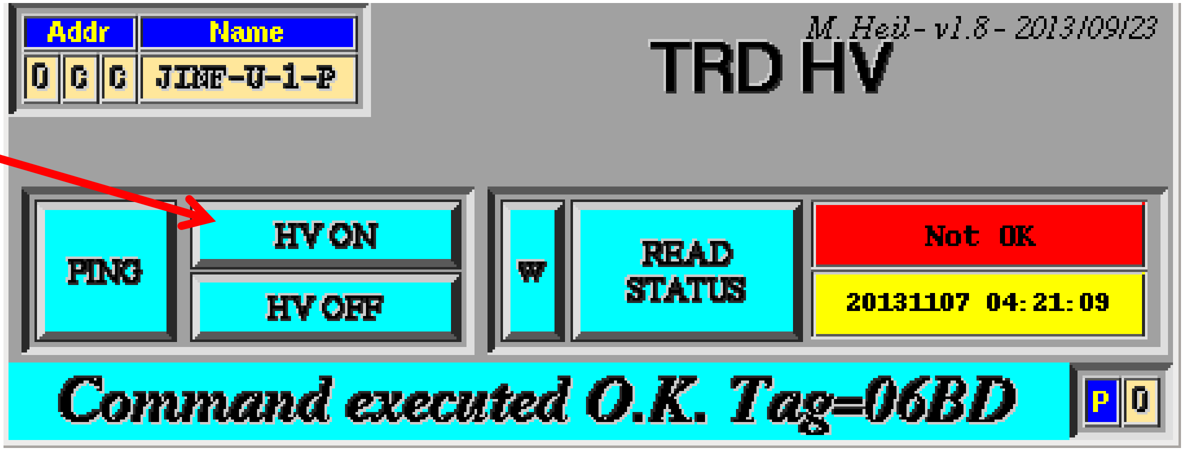
How To Fix:
1) turn on power

In this case status was bad,
which we expected.

(d) Click “HV ON”

(e) Wait a minute for it to ramp

(f) Click “w” and “Read Status” again.


Addr
Name
TRD HV
PING
HV ON
HV OFF
w
READ STATUS
P

0 C C JINF-U-1-P

M. Heil - v1.8 - 2013/09/23

Not OK

20131107 04:21:09

Command executed O.K. Tag=06BD

0

Note: Screenshots from a different day but it’s the same point.

How To Fix:
1) turn on power

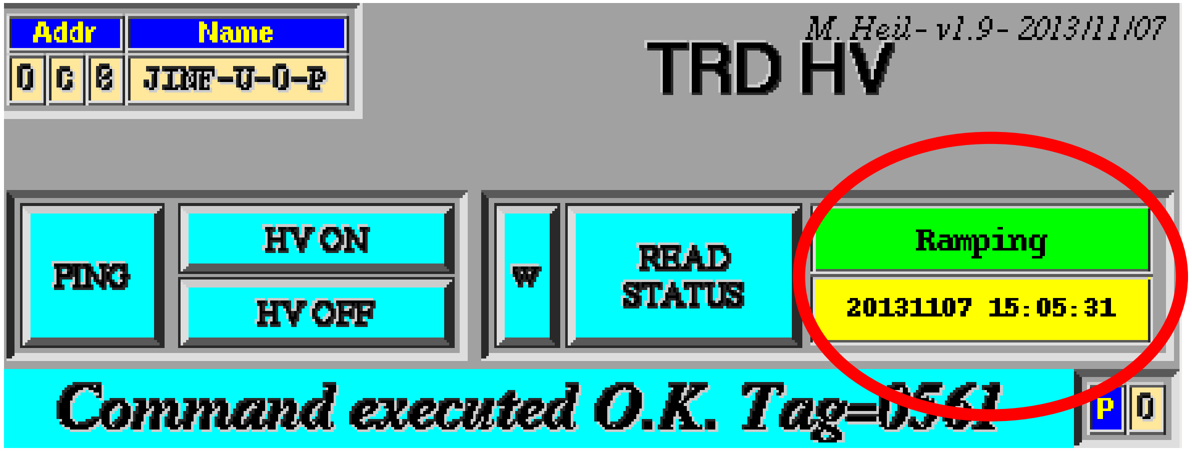
In this case status was bad, which we expected.

(d) Click “HV ON”

(e) Wait a minute for it to ramp

(f) Click “w” and “Read Status”

(g) If you do it too soon it says “ramping”. Just repeat…


TRD HV
M. Heil - v1.9 - 2013/11/07
PING
HV ON
HV OFF
w
READ STATUS

Addr			Name
0	C	8	JINF-U-0-P

Ramping

20131107 15:05:31

Command executed O.K. Tag=0561

P 0

Note: Screenshots from a different day but it’s the same point.

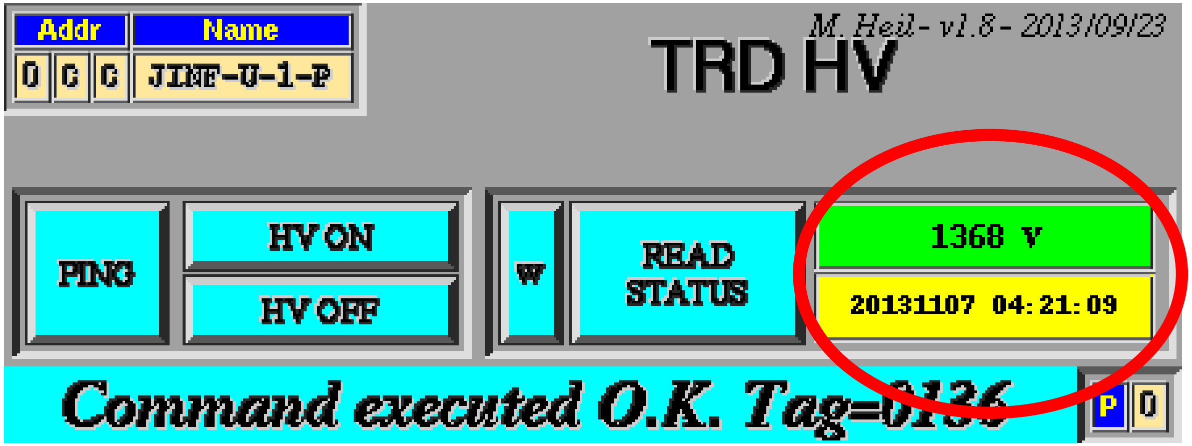
How To Fix:
1) turn on power

In this case status was bad, which we expected.

(d) Click “HV ON”

(e) Wait a minute for it to ramp

(f) Click “w” and “Read Status”


Addr
Name
PING
HV ON
HV OFF
w
READ STATUS
P
0

TRD HV

M. Heil - v1.8 - 2013/09/23

Addr: 0 C C

Name: JINF-U-1-P

1368 V

20131107 04:21:09

Command executed O.K. Tag=0136

(g) If you do it too soon it says “ramping”. Just repeat until it looks like this…

Note: Screenshots from a different day but it’s the same point.

How To Fix:
2) reset the error counter (option 1)

In the directory trd_acc_tas/TRD there is a file with the commands to send:

reset-jinfu-tripstatus.txt

Send the commands corresponding to the proper JINF with my-t like so (for JINF-U-0):

(a) Read the status:

```
my-t R C8 14 2002
```

(b) Set the counter to 0:

```
my-t W C8 9 2001 4103 0000
```

(c) Read the status again (look for Error = 0000 at the end of the reply):

```
my-t R C8 14 2002
```

(d) Check the TRD-P-S monitor to ensure the counter has been reset (as in slides 4 and 11)

How To Fix:
2) reset the error counter (option 2)

Use the JINF controller.

It is probably safer/better if you ask LEAD to do it or to help you do it.

In case LEAD forgot: there are instructions of how to use the JINF controller in ~daq/Desktop/commander.log under the section “DSP PROCEDURE BELOW”

LEAD does NOT need to BOOT the node, just to reload the configuration file (they should use ONLY Steps 0, 1, 5, and 6 of their procedure).

As in option 1, use the TRD-P-S monitor to ensure the counter has been reset (as in slides 4 and 11)

Initializing TRD Gas system during Power Up (UG Crate)

Powering Up UG Crate

When does this happen?

If, for example, there's a power trip on bus 3A on the ISS. This happened on 8th May 2014 at 12:21 GMT

In this case, only the TRD Gas system was powered off. The TRD itself was fine (powered on bus 4B). So this section is the complement to what we did above. (Above TRD was powered down, not TRD Gas)

With these two pieces together you can do the entire power cycle

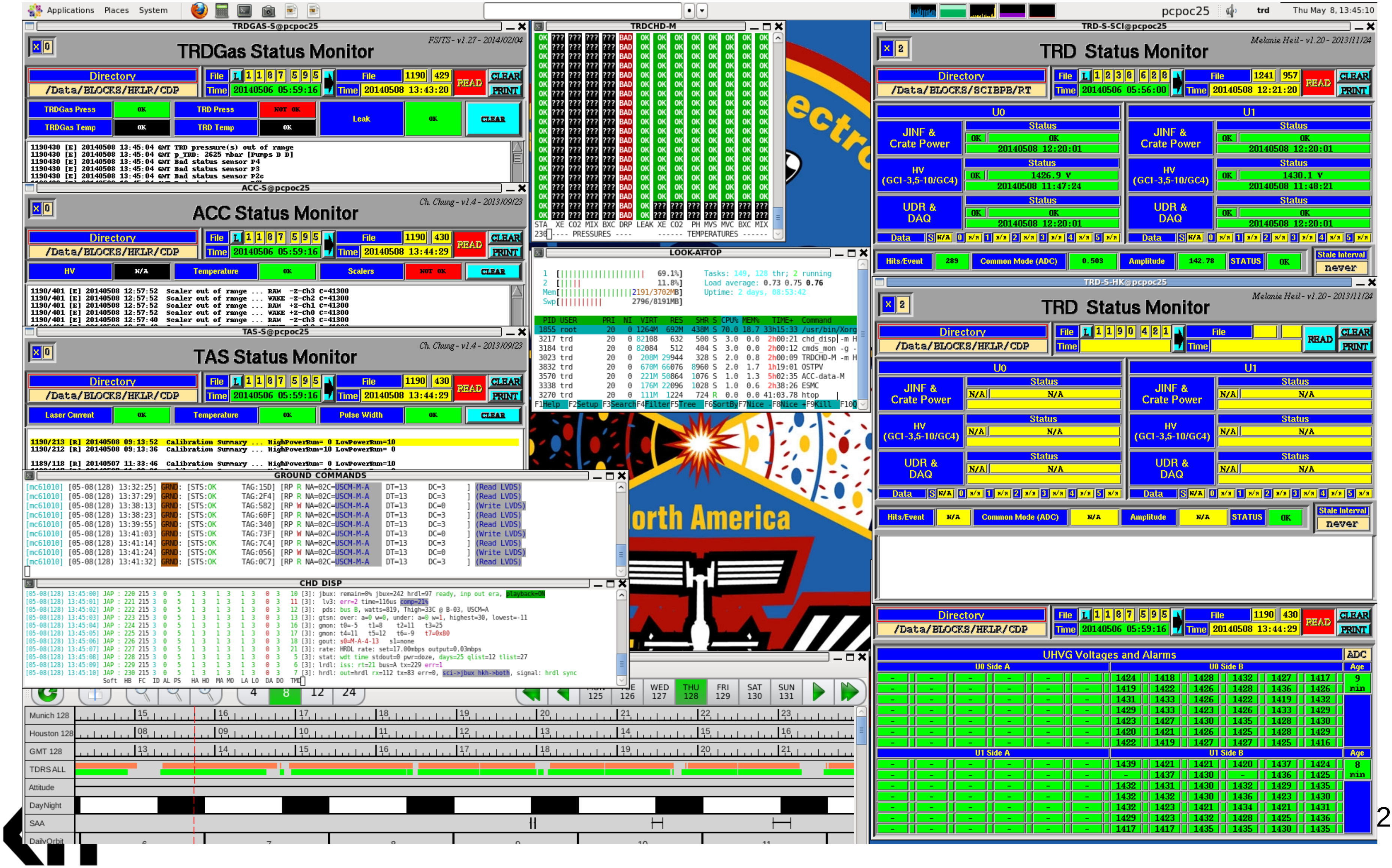
Powering Up UG Crate

- When we saw the power trip, LEAD (K.A.) noticed a line in the chd display “ALL PUMPS OFF”, and the DAQ seemed to turn off (line DA = 0 instead of 1) without any reason.
- TRD could have noticed that the trdchd had a whole bunch of black boxes, and many of the status boxes turned red.
- The ACC scalers went crazy, and the ACC status was also bad.

See following slides for screenshots.

Powering Up UG Crate

Problems in status monitors; trdchd multiple boxes not reading (**black**), others bad (red); DA line 0 in chd_disp



Applications Places System
pcpoc25 trd Thu May 8, 13:45:10
TRDGAS-S@pcpoc25
TRDGas Status Monitor
FS/TS - v1.27 - 2014/02/04
Directory /Data/BLOCKS/HKLR/CDP
File L 1187 595 → File 1190 429 READ CLEAR PRINT
Time 20140506 05:59:16 Time 20140508 13:43:20
TRDGas Press OK
TRD Press NOT OK
Leak OK CLEAR
TRDGas Temp OK
TRD Temp OK

```
1190430 [E] 20140508 13:45:04 GMT TRD pressure(s) out of range
1190430 [E] 20140508 13:45:04 GMT p_TRD: 2625 mbar [Pumps D D]
1190430 [E] 20140508 13:45:04 GMT Bad status sensor P4
1190430 [E] 20140508 13:45:04 GMT Bad status sensor P3
1190430 [E] 20140508 13:45:04 GMT Bad status sensor P2c
```

ACC-S@pcpoc25
ACC Status Monitor
Ch. Chung - v1.4 - 2013/09/23
Directory /Data/BLOCKS/HKLR/CDP
File L 1187 595 → File 1190 430 READ CLEAR PRINT
Time 20140506 05:59:16 Time 20140508 13:44:29
HV N/A
Temperature OK
Scalers NOT OK CLEAR

```
1190/401 [E] 20140508 12:57:52  Scaler out of range ... RAM  -z-ch3 c=41300
1190/401 [E] 20140508 12:57:52  Scaler out of range ... WAKE -z-ch2 c=41300
1190/401 [E] 20140508 12:57:52  Scaler out of range ... RAM  +z-ch1 c=41300
1190/401 [E] 20140508 12:57:52  Scaler out of range ... WAKE +z-ch0 c=41300
1190/401 [E] 20140508 12:57:40  Scaler out of range ... RAM  -z-ch3 c=41300
```

TAS-S@pcpoc25
TAS Status Monitor
Ch. Chung - v1.4 - 2013/09/23
Directory /Data/BLOCKS/HKLR/CDP
File L 1187 595 → File 1190 430 READ CLEAR PRINT
Time 20140506 05:59:16 Time 20140508 13:44:29
Laser Current OK
Temperature OK
Pulse Width OK CLEAR

```
1190/213 [R] 20140508 09:13:52  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
1190/212 [R] 20140508 09:13:36  Calibration Summary ... HighPowerRun=10 LowPowerRun= 0

1189/118 [R] 20140507 11:33:46  Calibration Summary ... HighPowerRun= 0 LowPowerRun=10
```

TRDCHD-M
STA XE CO2 MIX BXC DRP LEAK XE CO2 PH MVS MVC BXC MIX
230 ---- PRESSURES ---- ------ TEMPERATURES ------

```
  1  [|||||||||||||||||||||      69.1%]     Tasks: 149, 128 thr; 2 running
  2  [|||||                      11.8%]     Load average: 0.73 0.75 0.76
  Mem[|||||||||||||||||||2191/3702MB]     Uptime: 2 days, 08:53:42
  Swp[||||||||||             2796/8191MB]

  PID USER      PRI  NI  VIRT   RES   SHR S CPU% MEM%   TIME+  Command
 1855 root       20   0 1264M  692M  438M S 70.0 18.7 33h15:33 /usr/bin/Xorg
 3217 trd        20   0 82108   632   500 S  3.0  0.0  2h00:21 chd_disp -m H
 3184 trd        20   0 82084   512   404 S  3.0  0.0  2h00:12 cmds_mon -g -
 3023 trd        20   0  208M 29944   328 S  2.0  0.8  2h00:09 TRDCHD-M -m H
 3832 trd        20   0  670M 66076  8960 S  2.0  1.7  1h19:01 OSTPV
 3570 trd        20   0  221M 50864  1076 S  1.0  1.3  5h02:35 ACC-data-M
 3338 trd        20   0  176M 22096  1028 S  1.0  0.6  2h38:26 ESMC
 3270 trd        20   0  111M  1224   724 R  0.0  0.0 41:03.78 htop
F1Help  F2Setup F3SearchF4FilterF5Tree  F6SortByF7Nice -F8Nice +F9Kill  F10Q
```

GROUND COMMANDS

```
[mc61010] [05-08(128) 13:32:25] GRND: [STS:OK     TAG:15D] [RP R NA=02C=USCM-M-A  DT=13   DC=3    ] (Read LVDS)
[mc61010] [05-08(128) 13:37:29] GRND: [STS:OK     TAG:2F4] [RP R NA=02C=USCM-M-A  DT=13   DC=3    ] (Read LVDS)
[mc61010] [05-08(128) 13:38:13] GRND: [STS:OK     TAG:582] [RP W NA=02C=USCM-M-A  DT=13   DC=0    ] (Write LVDS)
[mc61010] [05-08(128) 13:38:23] GRND: [STS:OK     TAG:60F] [RP R NA=02C=USCM-M-A  DT=13   DC=3    ] (Read LVDS)
[mc61010] [05-08(128) 13:39:55] GRND: [STS:OK     TAG:340] [RP R NA=02C=USCM-M-A  DT=13   DC=3    ] (Read LVDS)
[mc61010] [05-08(128) 13:41:03] GRND: [STS:OK     TAG:73F] [RP W NA=02C=USCM-M-A  DT=13   DC=0    ] (Write LVDS)
[mc61010] [05-08(128) 13:41:14] GRND: [STS:OK     TAG:7C4] [RP R NA=02C=USCM-M-A  DT=13   DC=3    ] (Read LVDS)
[mc61010] [05-08(128) 13:41:24] GRND: [STS:OK     TAG:056] [RP W NA=02C=USCM-M-A  DT=13   DC=0    ] (Write LVDS)
[mc61010] [05-08(128) 13:41:32] GRND: [STS:OK     TAG:0C7] [RP R NA=02C=USCM-M-A  DT=13   DC=3    ] (Read LVDS)
```

```
[05-08(128) 13:45:00] JAP : 220 215 3  0   5   1  3   1  3   1  3   0  3   10 [3]: jbux: remain=0% jbux=242 hrdl=97 ready, inp out era, playback=ON
[05-08(128) 13:45:01] JAP : 221 215 3  0   5   1  3   1  3   1  3   0  3   11 [3]:  lv3: err=2 time=116us comp=21%
[05-08(128) 13:45:02] JAP : 222 215 3  0   5   1  3   1  3   1  3   0  3   12 [3]:  pds: bus B, watts=819, Thigh=33C @ B-03, USCM=A
[05-08(128) 13:45:03] JAP : 223 215 3  0   5   1  3   1  3   1  3   0  3   13 [3]: gtsn: over: a=0 w=0, under: a=0 w=1, highest=30, lowest=-11
[05-08(128) 13:45:04] JAP : 224 215 3  0   5   1  3   1  3   1  3   0  3   16 [3]: gmon: t0=-5   t1=8    t2=11   t3=25
[05-08(128) 13:45:05] JAP : 225 215 3  0   5   1  3   1  3   1  3   0  3   17 [3]: gmon: t4=11   t5=12   t6=-9   t7=0x80
[05-08(128) 13:45:06] JAP : 226 215 3  0   5   1  3   1  3   1  3   0  3   18 [3]: gout: s0=M-A-4-13   s1=none
[05-08(128) 13:45:07] JAP : 227 215 3  0   5   1  3   1  3   1  3   0  3   21 [3]: rate: HRDL rate: set=17.00mbps output=0.03mbps
[05-08(128) 13:45:08] JAP : 228 215 3  0   5   1  3   1  3   1  3   0  3    5 [3]: stat: wdt time stdout=0 pwr=doze, days=25 qlist=12 tlist=27
[05-08(128) 13:45:09] JAP : 229 215 3  0   5   1  3   1  3   1  3   0  3    6 [3]: lrdl: iss: rt=21 bus=A tx=229 err=1
[05-08(128) 13:45:10] JAP : 230 215 3  0   5   1  3   1  3   1  3   0  3    7 [3]: hrdl: out=hrdl rx=112 tx=83 err=0, sci->jbux hkh->both, signal: hrdl sync
                            Soft HB FC  ID AL PS  HA HO  MA MO  LA LO  DA DO  TMD
```

4 8 12 24
MON 125 TUE 126 WED 127 THU 128 FRI 129 SAT 130 SUN 131
Munich 128 15 16 17 18 19 20 21 22 23
Houston 128 08 09 10 11 12 13 14 15 16
GMT 128 13 14 15 16 17 18 19 20 21
TDRS ALL
Attitude
DayNight
SAA
DailyOrbit 6 7 8 9 10 11
orth America

TRD-S-SCI@pcpoc25
TRD Status Monitor
Melanie Heil - v1.20 - 2013/11/24
Directory /Data/BLOCKS/SCIBPB/RT
File L 1238 628 → File 1241 957 READ CLEAR PRINT
Time 20140506 05:56:00 Time 20140508 12:21:20

	U0 Status		U1 Status	
JINF & Crate Power	OK	OK 20140508 12:20:01	OK	OK 20140508 12:20:01
HV (GC1-3,5-10/GC4)	OK	1426.9 V 20140508 11:47:24	OK	1430.1 V 20140508 11:48:21
UDR & DAQ	OK	OK 20140508 12:20:01	OK	OK 20140508 12:20:01

Data S N/A 0 N/A 1 N/A 2 N/A 3 N/A 4 N/A 5 N/A
Data S N/A 0 N/A 1 N/A 2 N/A 3 N/A 4 N/A 5 N/A

Hits/Event 289 Common Mode (ADC) 0.503 Amplitude 142.78 STATUS OK Stale Interval never

TRD-S-HK@pcpoc25
TRD Status Monitor
Melanie Heil - v1.20 - 2013/11/24
Directory /Data/BLOCKS/HKLR/CDP
File L 1190 421 → File READ CLEAR PRINT
Time Time

	U0 Status		U1 Status	
JINF & Crate Power	N/A	N/A	N/A	N/A
HV (GC1-3,5-10/GC4)	N/A	N/A	N/A	N/A
UDR & DAQ	N/A	N/A	N/A	N/A

Data S N/A 0 N/A 1 N/A 2 N/A 3 N/A 4 N/A 5 N/A
Data S N/A 0 N/A 1 N/A 2 N/A 3 N/A 4 N/A 5 N/A

Hits/Event N/A Common Mode (ADC) N/A Amplitude N/A STATUS OK Stale Interval never

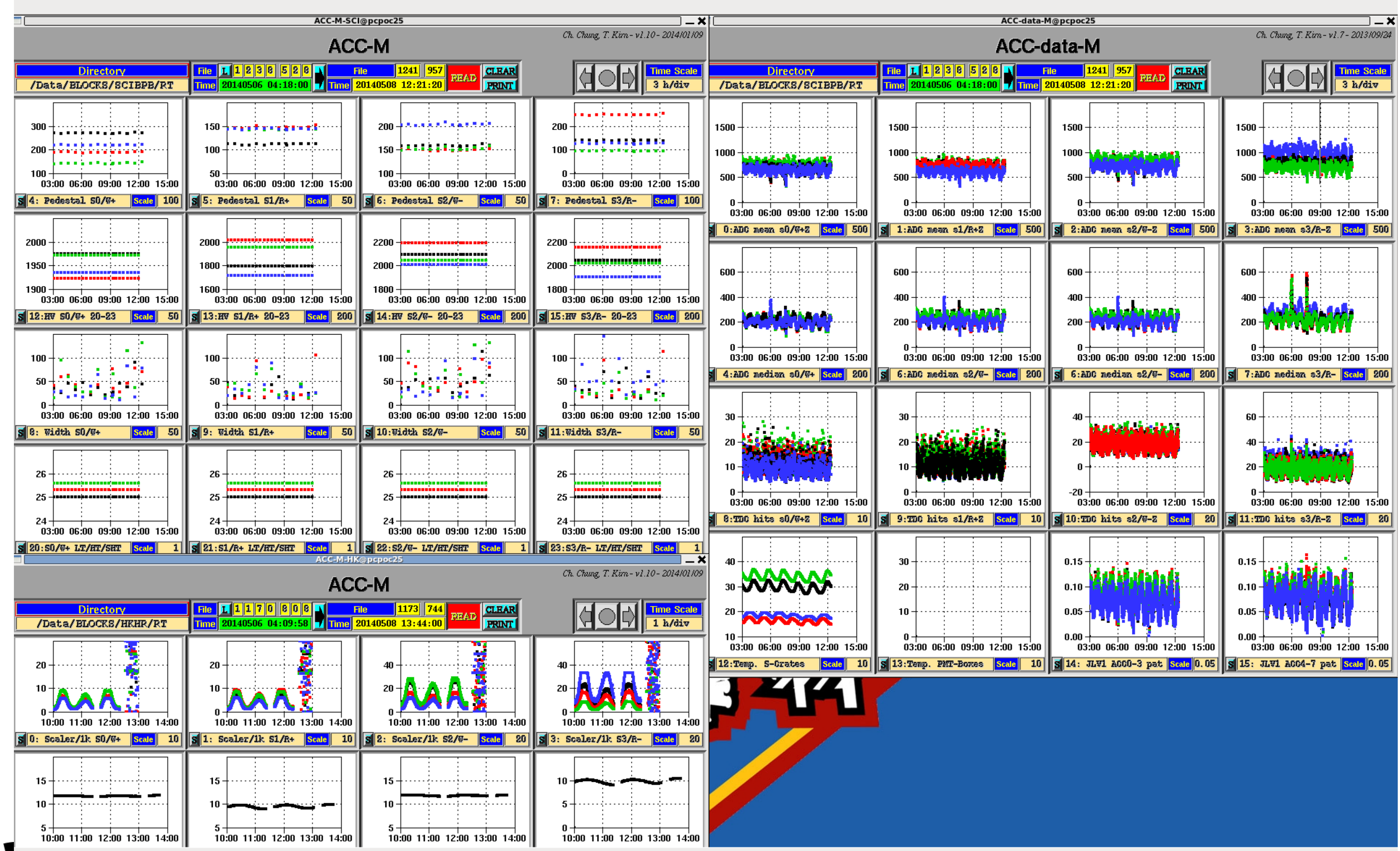
Directory /Data/BLOCKS/HKLR/CDP
File L 1187 595 → File 1190 430 READ CLEAR PRINT
Time 20140506 05:59:16 Time 20140508 13:44:29

UHVG Voltages and Alarms

U0 Side A						U0 Side B						Age
-	-	-	-	-	-	1424	1418	1428	1432	1427	1417	9 min
-	-	-	-	-	-	1419	1422	1426	1428	1436	1426	
-	-	-	-	-	-	1431	1433	1426	1422	1419	1432	
-	-	-	-	-	-	1429	1433	1423	1426	1433	1429	
-	-	-	-	-	-	1423	1427	1430	1435	1428	1430	
-	-	-	-	-	-	1420	1421	1426	1425	1428	1429	
-	-	-	-	-	-	1422	1419	1427	1427	1425	1416	
U1 Side A						**U1 Side B**						**Age**
-	-	-	-	-	-	1439	1421	1421	1420	1437	1424	8 min
-	-	-	-	-	-	-	1437	1430	-	1436	1425	
-	-	-	-	-	-	1432	1431	1430	1432	1429	1435	
-	-	-	-	-	-	1432	1432	1430	1436	1423	1430	
-	-	-	-	-	-	1432	1423	1421	1434	1421	1431	
-	-	-	-	-	-	1429	1423	1432	1428	1425	1436	
-	-	-	-	-	-	1417	1417	1435	1435	1430	1435	

Powering Up UG Crate

No data coming for ACC: scalars (near bottom) totally bizarre.


ACC-M-SCI@pcpoc25
ACC-M
Ch. Chung, T. Kim - v1.10 - 2014/01/09
Directory
/Data/BLOCKS/SCIBPB/RT
File
Time
20140506 04:18:00
1241
957
20140508 12:21:20
READ
CLEAR
PRINT
Time Scale
3 h/div
4: Pedestal S0/U+
5: Pedestal S1/R+
6: Pedestal S2/U-
7: Pedestal S3/R-
12:HV S0/U+ 20-23
13:HV S1/R+ 20-23
14:HV S2/U- 20-23
15:HV S3/R- 20-23
8: Width S0/U+
9: Width S1/R+
10:Width S2/U-
11:Width S3/R-
20:S0/U+ LT/HT/SHT
21:S1/R+ LT/HT/SHT
22:S2/U- LT/HT/SHT
23:S3/R- LT/HT/SHT
ACC-M-HK@pcpoc25
ACC-M
/Data/BLOCKS/HKHR/RT
20140506 04:09:58
1173
744
20140508 13:44:00
1 h/div
0: Scaler/1k S0/U+
1: Scaler/1k S1/R+
2: Scaler/1k S2/U-
3: Scaler/1k S3/R-
ACC-data-M@pcpoc25
ACC-data-M
Ch. Chung, T. Kim - v1.7 - 2013/09/24
0:ADC mean s0/U+Z
1:ADC mean s1/R+Z
2:ADC mean s2/U-Z
3:ADC mean s3/R-Z
4:ADC median s0/U+
6:ADC median s2/U-
6:ADC median s2/U-
7:ADC median s3/R-
8:TDC hits s0/U+Z
9:TDC hits s1/R+Z
10:TDC hits s2/U-Z
11:TDC hits s3/R-Z
12:Temp. S-Crates
13:Temp. PMT-Boxes
14: JLV1 ACC0-3 pat
15: JLV1 ACC4-7 pat
03:00 06:00 09:00 12:00 15:00
10:00 11:00 12:00 13:00 14:00
Scale

Powering Up UG Crate

Now, what do you do about it?

- As a TRD shifter, there's nothing you can do but alert LEAD if they didn't notice.
- Wait until the power is back.
- When asked to initialize, do two things:
    - Check the TRDGasM –plots are empty?
    - Check the TRD HV (if this is the bux 3A the TRD HV should be unaffected, this is just a sanity check)
    - Initialize the UG crate.

Powering Up UG Crate

Initialize UG Crate

This is easy:

- `cd ~/RUN/COMMANDING/TRDGAS`
- `set-command-path eas:hosc pcposp0`
- `./UG_EXEC.csh A INIT`

You should get a reply with `ERR=0000` (If not, call someone immediately!)

Now, simply wait a few minutes (maybe 20) until you get new data for all systems/plots/monitors/guis and check to be sure everything is as it was before the power trip.

You may need to hit the "CLEAR" button on the Status Monitors.

Accessing the Flight Spare System

To access the flight spare system

First ask Xudong Cai to turn on the U-Crate. Then you have two command path choices. According to Bastian:

1) eas:1553 pcgsc09 (I'm using that one)

2) eas:hrdl amslaptop2 (didn't work for me last time, but it should, and commands get through faster as well)

Use these for things like:

```
set-command-path eas:1553 pcgsc09
```

and then run a command

Or as input to the controllers:

```
TRDGAS-C eas:1553 pcgsc09
```

Once you set the proper path, you can just issue the commands as normal. But be VERY VERY careful to use the proper terminal and controller, etc.

I strongly recommend doing this on an entirely separate machine so that you don't mess up on accident and send something to the space station!

What can you do with the FS system?

Generally the FS system is used to test commands that we want to send to space but aren't sure of. For example, during the UDR failure in October 2013, we tested a number of commands.

See the notes on the Oct 2014 HV trip scenario and the UDR failure in Oct 2013 which you can find on the twiki page or direct linked here:

http://www-ekp.physik.uni-karlsruhe.de/~trdcalib/docs/2014_Oct_20_HVTrip.pdf

http://www-ekp.physik.uni-karlsruhe.de/~trdcalib/docs/UDR_Failure.pdf

TRD Gas Refill
Only EXPERTS

See Documentation

`TRD_Gas_Refill_v5`