PHOS POWER SUPPLY INSTRUCTION FOR 3 PHOS MODULES. 18.01.2008, ALEXANDER MAMONOV

http://aliceinfo.cern.ch/Collaboration/ALICE_Project/PHOS/Documents/Manuals/PHOS_Power_Supply_Instruction.pdf

1. Devices controlled by PHOS DCS

Into the list of devices comprised in a system of slow control (DCS - Detector Control System) of PHOS detector there are included:

1. Four low-voltage power sources of WIENER PL512 mark with network names lvphoswiener, lvphoswiener2, lvphoswiener3, lvphoswiener4;

Figure 1 - Low-voltage power sources WIENER PL512

2. High-voltage power source ISEG ECH 238-UPS as well as three modules ISEG EHQ 8605p-F;

Figure 2 - High-voltage power source ISEG with 2 established modules

2. How to start and stop power supply system

2.1 Start of DCS system

Before start of project PVSS it is necessary to be convinced in the fact that all power devices of the detector are switched on (the crates are switched on). If necessary switch them on.

Switch-on of low-voltage crates WIENER PL512 can be realized only in a manual mode. For this purpose it is necessary to press the power-supply button in the left top part of the crate front panel (figure 3). Check the water cooling of each Wiener crate.

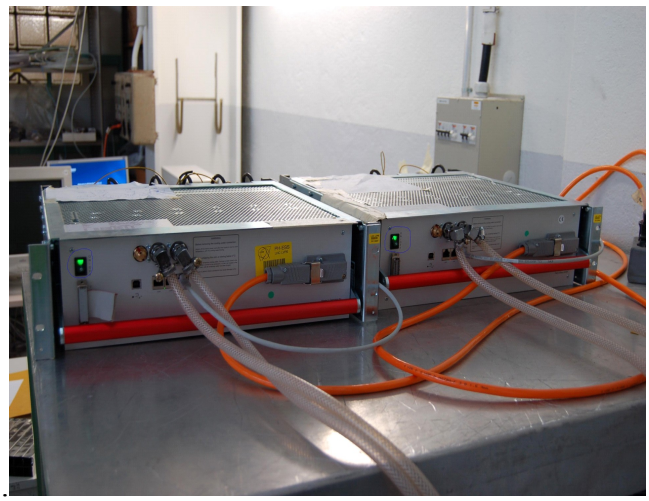

Figure 3 - The switched on low-voltage power sources WIENER

The switch-on of high-voltage crate ISEG can be carried out both in manual, and in an automatic mode. Before the beginning of work one should manually press the power-supply button in the right part of the crate front panel for correct start of an OPC-server (OPC – OLE for process control) of the device (figure 4).

Figure 4 – Switched on high-voltage source ISEG

In case of independent work before starting the system on a computer with a name pcvniief-dcs one should open DNS (DNS – Distributed Name Server) file which is in the root catalog of the project (by default - D:\PVSS_Projects\phs_pws_fw\bin\DNS.exe).

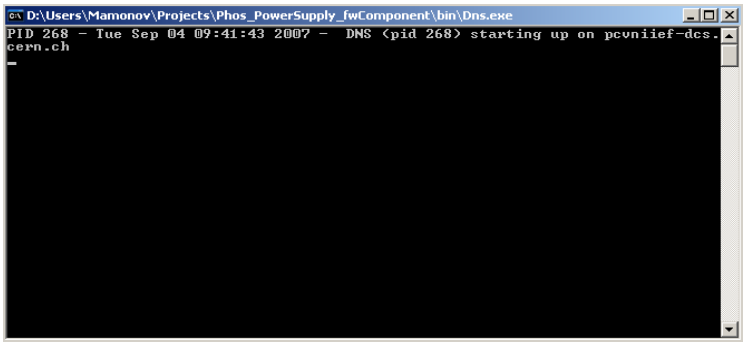

Figure 5 - DNS start

To receive the opportunity of operating ISEG device it is necessary to start manually its OPC-server (by default - Start\Programs\isegOPC\isegHVOPCServer). In case of successful start the user should see a window similar to figure 6. If the issued messages differ from those shown in the figure, it is necessary to check up whether the ISEG crate is switched on.

In case of problems with the source OPC-server start it is necessary to close ISEG OPC window to switch off ISEG device and repeat the procedure of switch-on.

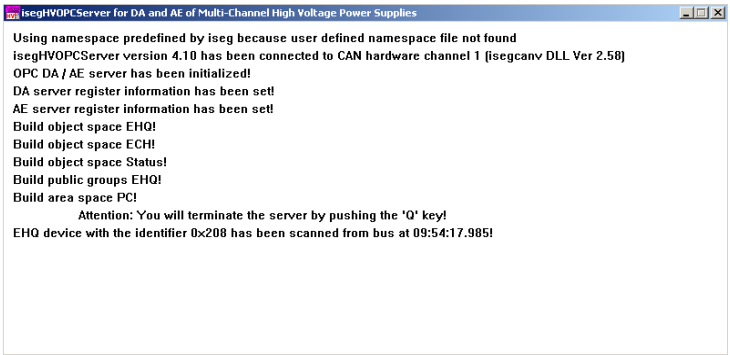

Figure 6 - Successful start of OPC-server ISEG

OPC-servers of Wiener mark devices are started automatically.

To initiate PVSS project it is necessary to start manually PVSS Control Panel (by default - Start\Programs\ETM PVSS II 3.6\PVSS II Console). In the opened window one should choose phs_pws project and press the button of a green light signal for start (in the right top part of panel PVSS II Console).

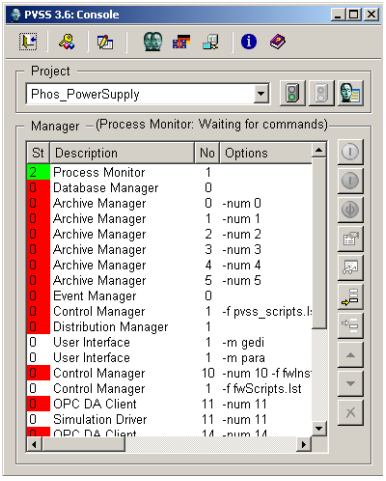

Figure 7 - Start of PVSS project

If all is made correctly the start of processes will begin and depending on a condition their color will change (green - successfully started, red - stopped). So, in figure 7 only the process responsible for PVSS Console display is started (Process Monitor).

The detailed information on the PVSS system working process can always be received in automatically opening window PVSS Log Viewer.

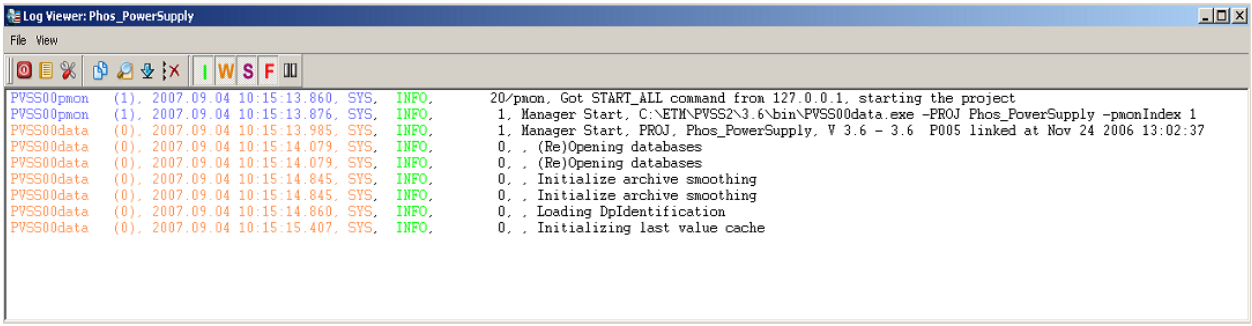

Figure 8 - PVSS Log Viewer

One of automatically opened windows is the window named as Device Editor & Navigator. After successful start of subsystems and receipt of connection between them it is necessary to start the system of final states FSM (FSM - Finite State Machine) on each of computers, having pressed button Start/Restart All in FSM inlay, Navigator mode of Device Editor & Navigator panel.

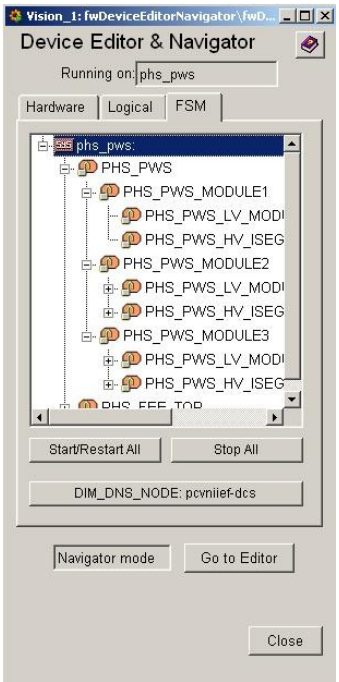

Figure 9 - Device Editor & Navigator, FSM stop

There is a funny bug with opening of Device Editor & Navigator. If you don't see the window after project start, press the right button of your mouse on Vision1: fwDeviceEditorNavogator on Windows panel, choose Move in opened window (figure 10) and then press once right button on your keyboard. Move opened window on visible part of your desktop.

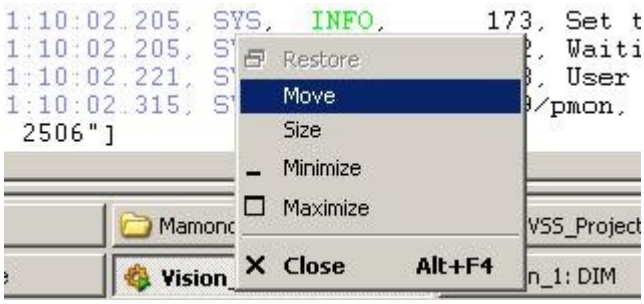

Figure 10 – Opening Device Editor & Navigator

2.2 Stop of DCS system

To stop the project it is necessary to open Device Editor & Navigator window (figure 9), choose FSM inlay, Navigator mode, and press the Stop All button to stop FSM of the project.

Then, it is necessary to press the red light signal button in PVSS Control Panel (see figure 7) to close windows DNS.exe and OPC-server ISEG, switch off all power supplies by pressing the button of power supply switch-off on the panel of each device (by analogy to switch-on, see above) disconnect water delivery to cool WIENER devices.

3. How to work with power supply for PHOS modules

3.1 Main power supply window

Click right button of your mouse on PHS_PWS (PHS_PWS - PHOS Power Supply) inlay in Device Editor & Navigator. Choose “View” and next window will be opened:

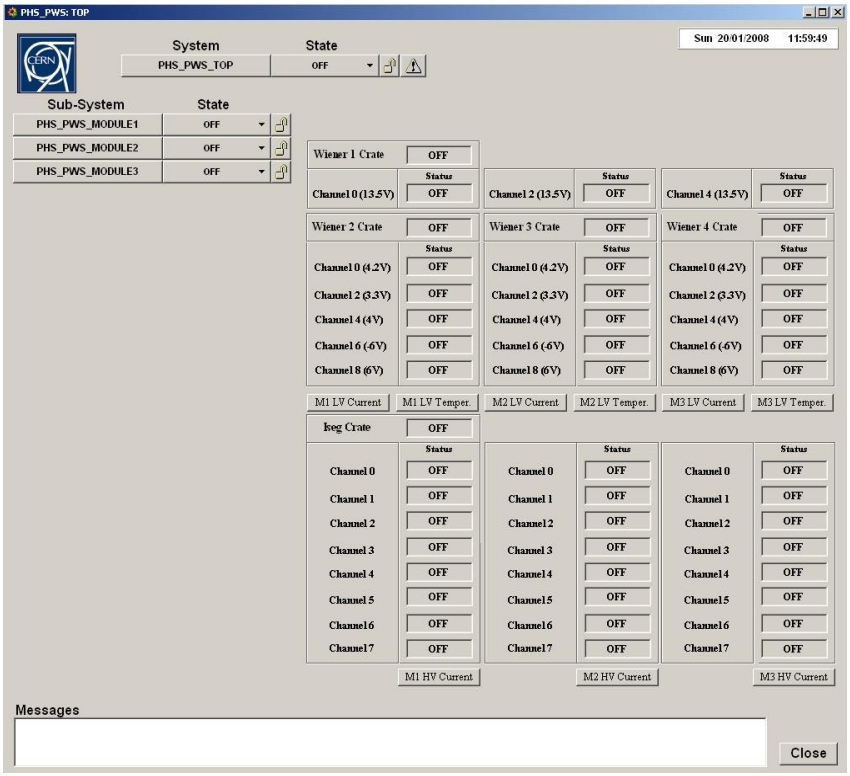

Figure 11 – Main power supply FSM window

Left side of this window shows the list of available modules, which you can supply.

PHS_PWS_MODULE1 controls low voltage channel 0 (and channel 2 as temporary solution until new 13V Wiener is not delivered) for Wiener1, channels 0, 2, 4, 6, 8 for Wiener 2 and Iseg high voltage module 1.

PHS_PWS_MODULE2 controls channel 2 for Wiener1, channels 0, 2, 4, 6, 8 for Wiener 3 and Iseg module 2.

PHS_PWS_MODULE3 controls channel 4 for Wiener1, channels 0, 2, 4, 6, 8 for Wiener 4 and Iseg module 3.

On the right side of this screen there is a summary of states of each channel. Each cell can shows OFF, ON, RAMPING status.

“M1 LV Current” button opens Current over time curve for all low voltage channels of PHOS module 1.

“M1 LV Temper.” button opens Temperature over time curve for all low voltage channels of PHOS module 1.

“M2 LV Current” button opens Current over time curve for all low voltage channels of PHOS module 2.

“M2 LV Temper.” button opens Temperature over time curve for all low voltage channels of PHOS module 2.

“M3 LV Current” button opens Current over time curve for all low voltage channels of PHOS module 3.

“M3 LV Temper.” button opens Temperature over time curve for all low voltage

channels of PHOS module 3.

"M1 HV Current" button opens Current over time curve for all low voltage channels of PHOS module 1.

"M2 HV Current" button opens Current over time curve for all low voltage channels of PHOS module 2.

"M3 HV Current" button opens Current over time curve for all low voltage channels of PHOS module 3.

Some of curve buttons you can find on screens which showed below.

3.2 Low voltage control

Choose your PHOS module and click double left button of your mouse.

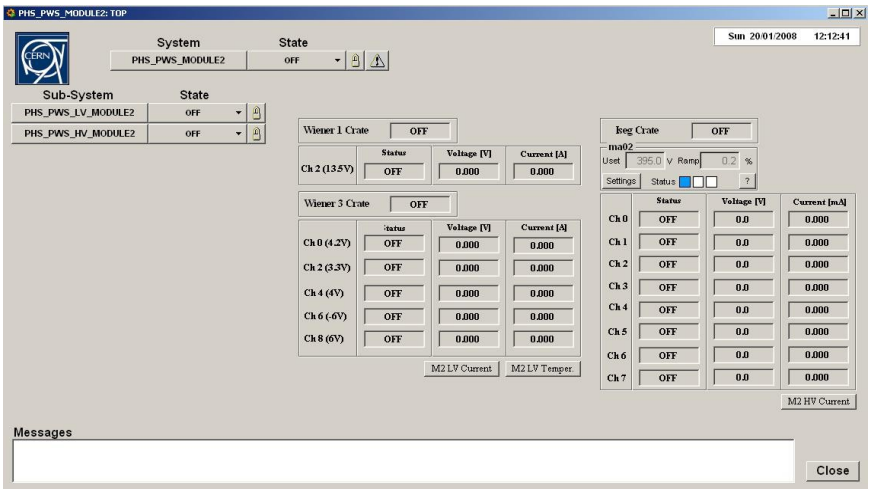

Figure 12 – PHS_PWS_MODULE2 window

Push the lock button to unlock your window and access the control of the device.

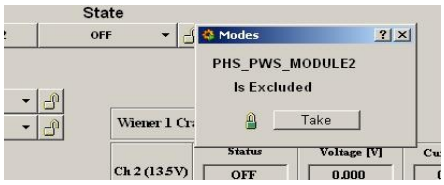

Figure 13 – Getting control over PHS_PWS_MODULE 2 FSM

If you get control, the color of cells will change.

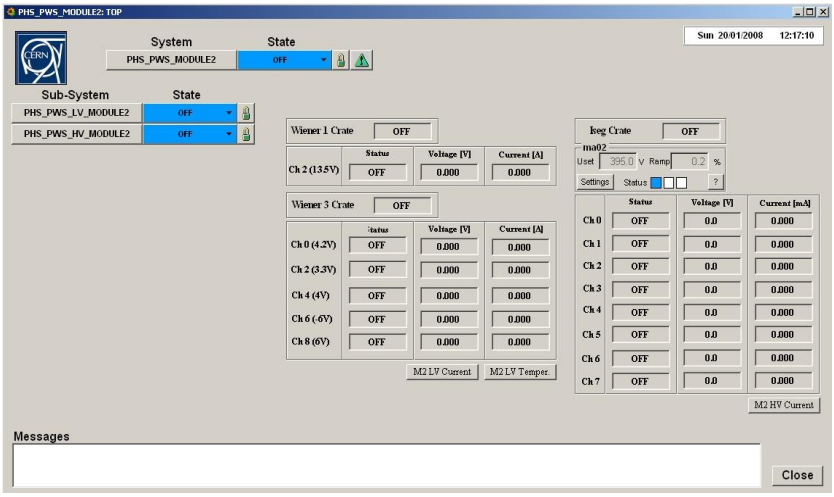

Figure 14 – PHS_PWS_MODULE2 under user control

Now user get power supply control of PHOS Module 2. You must do the same operation for the second and third PHOS module. Click double PHS_PWS_LV_MODULE2 to get an access to LV control window.

In control area of the screen press must be NOT_READY state power button on the front panel of Wiener devices are in ON mode. Press GO_READY button to move low voltage power system in ON mode.

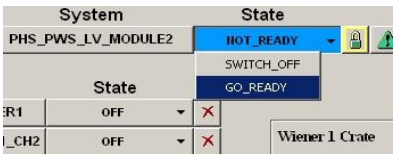

Figure 15 – Switching on low voltage channels

You can always check status of each channel in the right side of the window. When all channels be ready, their colors become green and status will change to ON.

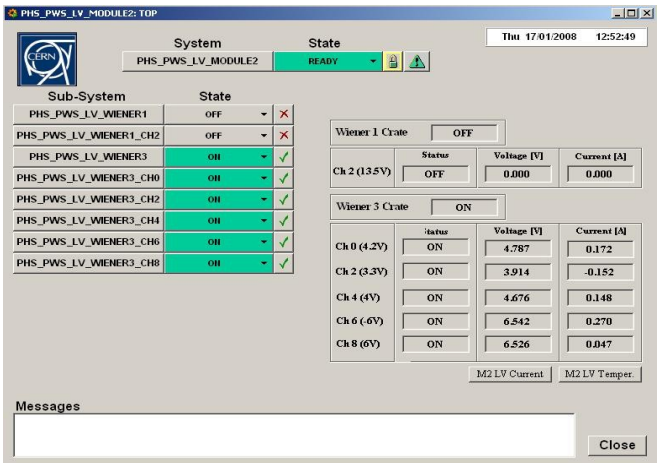

Figure 16 – LV control of PHOS module 2

You can also include or exclude separate low voltage channels by pressing the button opposite their names (on figure 15 first two channels are uncontrolled and do not change they states after commands). In ON state press GO_NR to switch off all channels. If you need to switch off separate channel press GO_OFF opposite the name of this channel. If some channels are ON and

some are OFF control level will be in NOT_READY state. Press SWITCH_OFF to switch off all channels and GO_ON start channels, which are in OFF mode.

If you need to change channel configuration press double on interested channel and input new settings in opened window. If new settings applied, they will appear in gray window. You can change all setting except maximum power. In case you need to change maximum power please contact DCS experts.

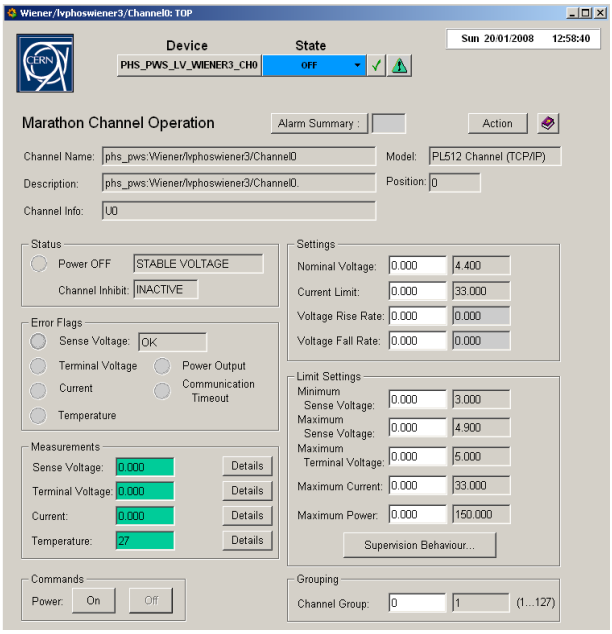

Figure 16 – Changing settings for Wiener device channel

You can always check status of each Wiener typing lvphoswiener (or lvphoswiener2) in the command line of any web browser.

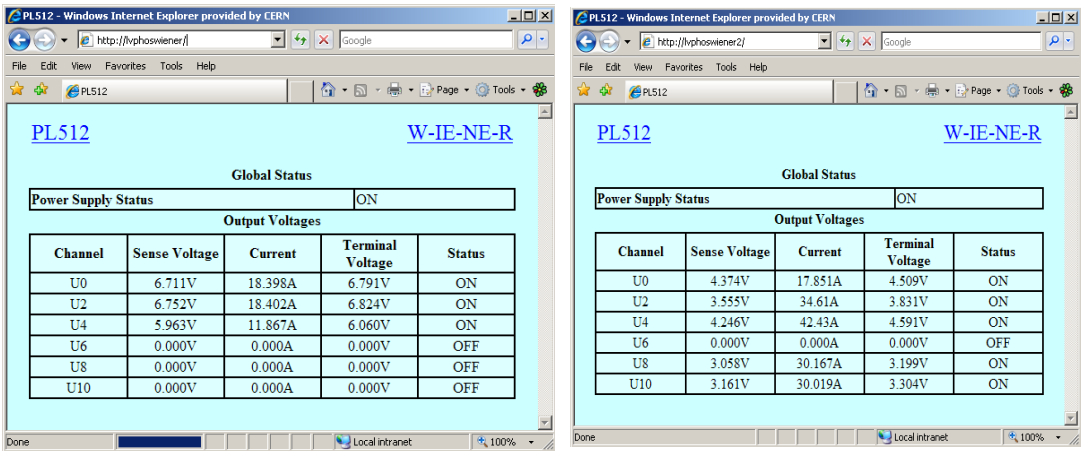

Figure 17 – Checking Wiener status from web browser

If you want to finish your work with low voltage power supply don't forget to press the power button on the front panel of Wiener device.

In case of Error of any sub-sytem control cells become red. Press RESET button reset the status of the power channel which functions improperly.

3.3 High voltage control

In figure 14 press twice on PHS_PWS_HV_ISEG_MODULE1 to get the access to Iseg high voltage channels. Next window will be opened:

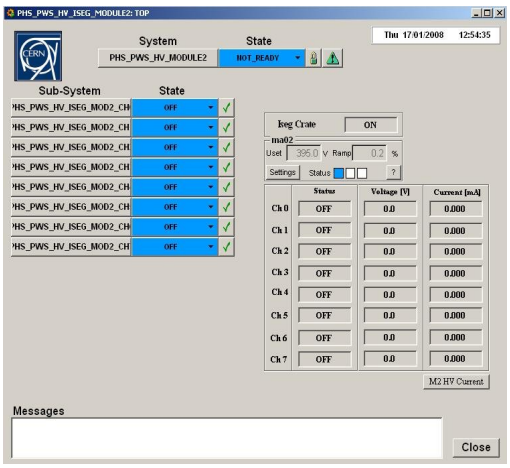

Figure 18 – HV control of PHOS module 2

Press SWITCH_ON to switch on Iseg high voltage crate. You can always check the status of the crate in the right side of user window. If crate is on, system will go to NOT_READY state.

Press GO_READY button to start ramping of all channels. If you need to start only few channels press GO_ON button opposite the name of this channel. Default ramping speed of each channel is 0,5 Volts per second. Wait while all channels become green and change they status to ON. You can always find the current of each channel in the right part of your window.

If you need to switch off all channels press GO_OFF button from READY state. It is also possible to make emergency reset of high voltage system pressing EMERG_RESET in each state (except OFF). It increase ramping speed to maximum value – 50 Volts per second and switch off all channels.

Press SWITCH_OFF in NOT_READY stare to switch off high voltage crate (be careful, if another modules are on, you will switch them off as well).

In case of Error of any sub-sytem control cells become red. Press RESET button reset the status of the power channel which functions improperly. Don't forget that it is not allowed to keep high voltage on while low voltage is off.

4. Conclusion

To control another PHOS modules return back to figure 11 and choose another module. Repeat the same steps for new module.

In case of bugs or unusual behavior of power supply system please contact Alexander Mamonov (PHOS DCS) or Lionel Wallet (ALICE DCS).

You can also find answers in PHOS DCS Manual (old version):
http://aliceinfo.cern.ch/Collaboration/ALICE_Project/PHOS/Documents/Manuals/PHOS_DCS_manual.pdf

Previous version of this instruction is here:
http://aliceinfo.cern.ch/Collaboration/ALICE_Project/PHOS/Documents/Manuals/PowerSystem_Manual.pdf