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Rich High Voltage

General

There is also some HV information available on the SSB2 wiki.

The assignment of columns to ISEG channels is tabulated below:

ISEG#	Up	Down
0	C0	C0
1	C1	C1
2	C2	C2
3	C3	C3
4	C4	C4
5	C5	C5
6	C6	C6
7	C7	C7
8	C8	C8
9	NC	NC
10	A0	A0
11	A1	A1
12	A2	A2
13	A3	A3
14	A4	A4
15	A5	A5
16	A6	A6
17	A7	A7
18	A8	A8
19	NC	NC

CCPC

An alias is defined in the group login which setups the CCPC HV software:
just type: HVSetup, to setup whatever is needed, and follow the on-screen instructions.

The HV Operating Instruction Manual can be found in the User Manual

PVSS

The HV system can be controlled via a PVSS interface.

The PVSS interface is not yet available for public use, but it is still under testing at the pit, as it was agreed that it would become available only after the CCPC program would be completely stable and tested.

Note that PVSS is only acting as an interface to the CCPC server program: the latter does the real control.

The PVSS interface allows controlling the HV via the FSM.

Control of single channels is possible via the expert panel opening when navigating the FSM tree down to the single HV channel (DU).

Trend plots can be seen via the HPDVoltTrend panel.

The FSM panels for HV_A and HV_C show a big table with many data per each column, including settings and readings for the ISEG and ELMB Voltage Monitoring.

Current recipes:

```
COMMISSIONING:  standby1 = 0.1 kV; standby2 = 0.5 kV; ready = 1 kV.
TEST:          standby1 = 3 kV; standby2 = 8 kV; ready = 13 kV.
PHYSICS:       standby1 = 3 kV; standby2 = 15 kV; ready = 20 kV.
```

Operations

If the PVSS is not running (as certified by the Web console) it can be started by logging into the controls PC (not the CCPC!), going to the OPER folder and running StartHV.bash. PVSS will continue to run in background also when the session to the controls PC will be closed: shortcuts can be used to operate it.

The FSM is very close to the standard LHCb HV FSM. The additional commands are:

- SWITCH_OFF: ramps to zero all channels, regardless and without use of the RECIPES/ConfigDB;
- RECOVER: clears the error flag at the PVSS level; note that this does nothing if the error flag is still set by the CCPC;
- Set_EMERGENCY: set the channel in emergency and locks it there; not yet used: it will be used for automatic emergency switch off.

The link column is extremely important: if purple it means that no connection to the CCPC is present. An additional check that the connection is present is to look at the monitored values, such as vMon or iMon, and check that they are updated every few seconds.

Current problems and limitations

The PVSS interface is still under test. The current problems and limitations must be carefully remembered.

Beware that for the time being the HV top level object is there but it is not yet implemented. On the other hand HV_A and HV_C should work properly.

In order to better understand the operation in this preliminary phase a special state WARNING has been introduced.

The meaning of this state is that the system receives data/settings which do not easily allow to understand what the real status/wish is.

In future it is foreseen that this state will be removed.

Note that, for the time being, there might be, under some circumstances, undesired flipping between different states.

These will be removed, as soon as usage in the pit will show the best tuning of the parameters of the FSM.

Prior to any operation the correct recipe has to be loaded: this must be only done via the HV_A_ConfDB/HV_C_ConfDB buttons: never issue a load from HV_A /HV_C.

Note that for the time being the CCPC program does not send back to PVSS the settings it receives directly. This means that if settings are changed at the CCPC program they are not sent back to PVSS. Under this circumstance PVSS will be confused as it will monitor the real values and it will compare them to the settings which PVSS has in its memory, which may not correspond to the actual settings. As a general rule: to make the PVSS control consistent all operations must go via PVSS.

-- StephenWotton - 22 Nov 2007

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