W45 SHIFT TUTORIAL

1 The Detectors

We call the large drift chambers in front of ECAL2 the W45 system. We have six of these chambers (DW01, DW02, DW03, DW04, DW05, DW06), each of them having two pairs of readout planes of up to 144 wires per plane. We have X, Y and two type of stereo planes (U and V). The wires in the stereo planes are inclined by 30 degrees from the vertical direction.

2 Low Voltage

The low voltage power supplies which power the discriminator boards (6V), the Saclay TDC boards (9V) and the so called adaptor boards (6V) are installed in a rack on the saleve side of our chambers. Each chamber is powered by one low voltage crate with two channels (6V and 9V). The following table lists typically observed currents on the LV supplies.

Crate Number	Chamber Number	I(6V)[A]	I(9V)[A]	I(6V)[A]	I(9V)[A]
1	6	3.7	9.7	4.8	12.3
2	5	5.0	12.5	3.8	10.3
3	4	3.7	9.7	3.1	7.6
4	3	3.7	9.6	3.0	7.3
5	2				
6	1				
7	spare				

At the moment there are only 4 crates included in slow control (rest will follow soon). To look at them click on W45 button on the main PVSS screen then select low voltage. Essential for the correct operation of the digital part of the front end electronics is the cooling which is provided by fans (slow control). These fans are connected to a standard 220V power bar if they fail data can be erroneous.

3 High Voltage

The high voltage is hosted in a rack which is standing about three meters upstream of our chambers directly at the concrete wall. The lowest HV crate (a CAEN SY527) we share with GEM station 10. We are using the four HV cards in slot seven to ten for positive and negative HV. This crate is controlled by two programs. The first mean of control is the PVSSII system. Click on the W45 button to get access to our crate. The second way to control the W45 HV is provided by the RS232 connection from pccofe14 which is also used by GEMs (details on http://wwwcompass.cern.ch/compass/detector/gem/operation/shift_hv.html). The operating voltages of all planes is +1925V and -800V.

4 Gas System

The gas system of W45 can be found in the gas zone downstairs. It consist of two racks. The gas system itself can be found in the first rack on the right. The PLC (so called PLC3) which

controls the gas system is the last rack on the right side.

In the gas rack you should check the flow meters for each chamber (upper row). They should have the values noted on the check list. Have also a look on the output flow meters (lower row) and the pressure meter which should operate within the indicated parameter range.

On the PLC press the button W45 until you get the W45 screen. Here you should read off the three gas flows which are given and compare them to the required values which are: 10 % CF_4, 5 %CO_2, 66 l/h $< Ar_{flow} <$ 96 l/h.

5 Loading Threshholds

Log on as onl to pccofe14 here you have to launch the program /w45/tcontrol/bin_i386_linux22/tcontrol2. If this program works correctly a long list of thresholds will be displayed and finally a text based menu.

6 Restarting the Chambers

If you have to restart the W45 system after a power failure please try the following instructions before calling for experts.

1. Switch on the low voltage power supplies (see section 2). Known problems: Fuse in the normabar connector.
2. Initialise front end electronics by issuing the command: LOAD -A pccofe06. Known problems: NONE.
3. To load thresholds see section 5.
4. Switch on and set the HV (cf. section 3) by either slow control. Known problems: Sometimes the CAEN crate stops communication, i.e. no program can get any response from it. In this case you have to enter the area and reset or power cycle it.

7 Experts

The following people who are regularly at CERN might help to solve problems with the W45 chambers:

- Davide (76342 and 160539)
- Oleg
- Andrea Ferrero (might answer some questions)

In case of problems you can anytime reach a expert via 160539.

8 Contact

For feedback about this handout please email to: Davide.Reggiani@cern.ch