Documentation for E-835 Silicon Detector Safety Review

The E-835 Silicon Detector System consists of:

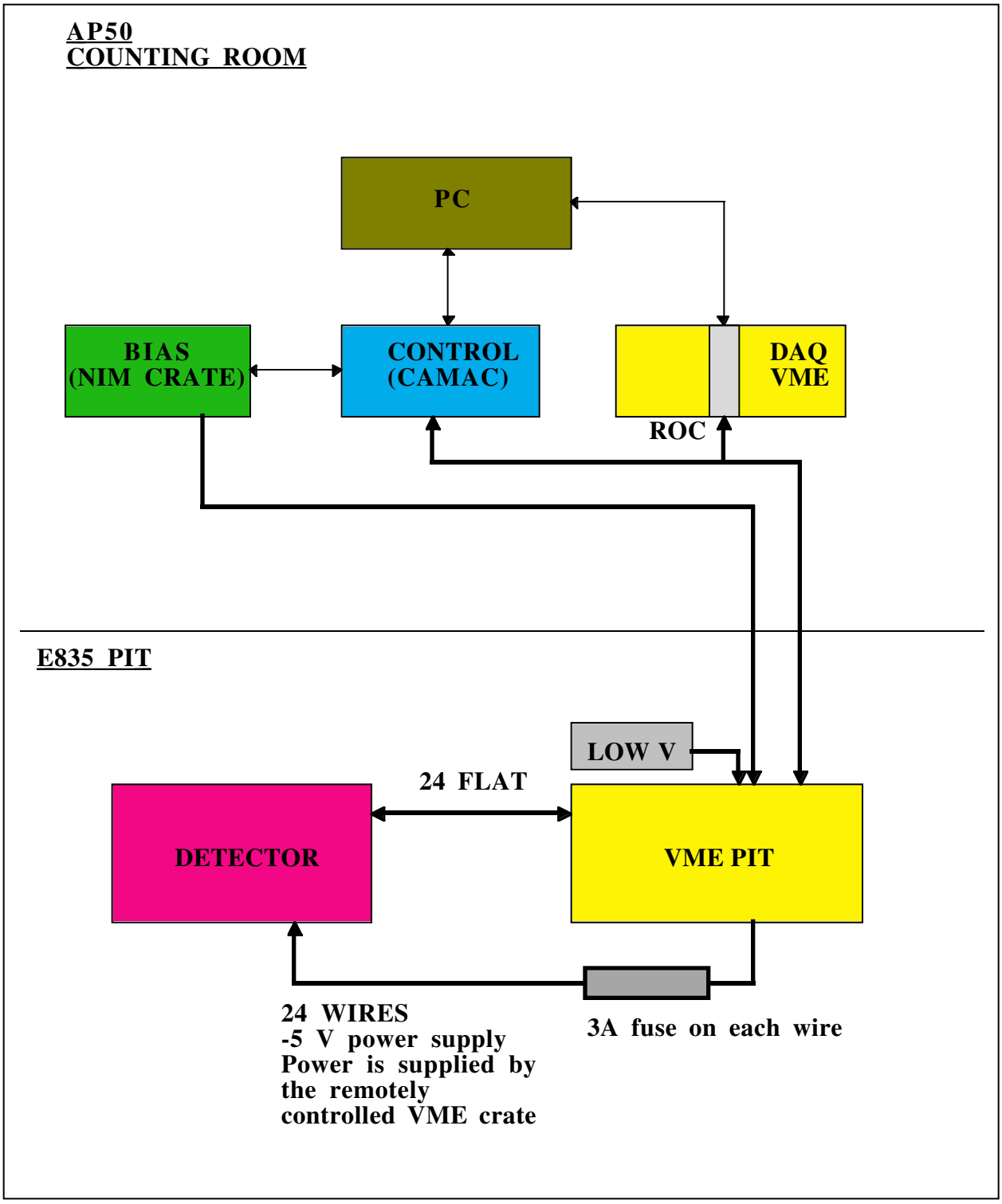
1. The **detector** itself
2. A **VME crate** located near the detector, down in AP50 pit
3. A **low voltage power** supply located near the detector in AP50 pit.
4. A **full rack** (Rack. N. 6) of electronics located in the AP50 Counting Room with :
   a) **2 NIM crates** for Silicon Bias supply
   b) **1 CAMAC crate** for Control System and Analog Read Out
   c) **1 PC**
   d) 1 Omega temperature control device
5. A **Cooling System**, composed of an air compressor, a cooling and drying unit and some filters to provide a dry and clean AIR flow to the detector.
6. 1 **VME board** (called ROC) located in main DAQ crate (Rack 14).

The whole system is very schematically shown in fig.1 while fig. 2 shows the AP50 Counting Room.

The cabling among various elements of the system is the following:

- 24 RG58 cables for Bias from NIM crates on Rack 6 down to the VME crate in the pit (range 0-100 V; current limited to 10 μA by the module; each module is fused).
- 24 RG58 read out cables from VME crate in the pit up to the CAMAC crate in Rack 6 (analog read out signals, DC value around -3 V).
- 2 flat read out cables from the VME crate in the pit to the ROC in Rack 14 (422 logic signals).
- 1 flat read out cable from VME crate in the pit to the Omega temperature controller (PT100 - 4-20 mA DC signals) .
- 24 flat read out cables from VME crate in the pit to the silicon detector (ECL and 422 logic signals).
- 24 power supplies cables (each of them independently fused) from the VME crate in the pit to the detector. Each cable draws a “normal” current of 0.9 A, is a 1 mm diameter copper wire 5 m long and has a 3A fuse.

Fermilab, may 7th 1996
M. Pallavicini
ext. 4280/2760
pallas@fnalu.fnal.gov


AP50
COUNTING ROOM
PC
BIAS
(NIM CRATE)
CONTROL
(CAMAC)
DAQ
VME
ROC
E835 PIT
LOW V
24 FLAT
DETECTOR
VME PIT
24 WIRES
-5 V power supply
Power is supplied by
the remotely
controlled VME crate
3A fuse on each wire