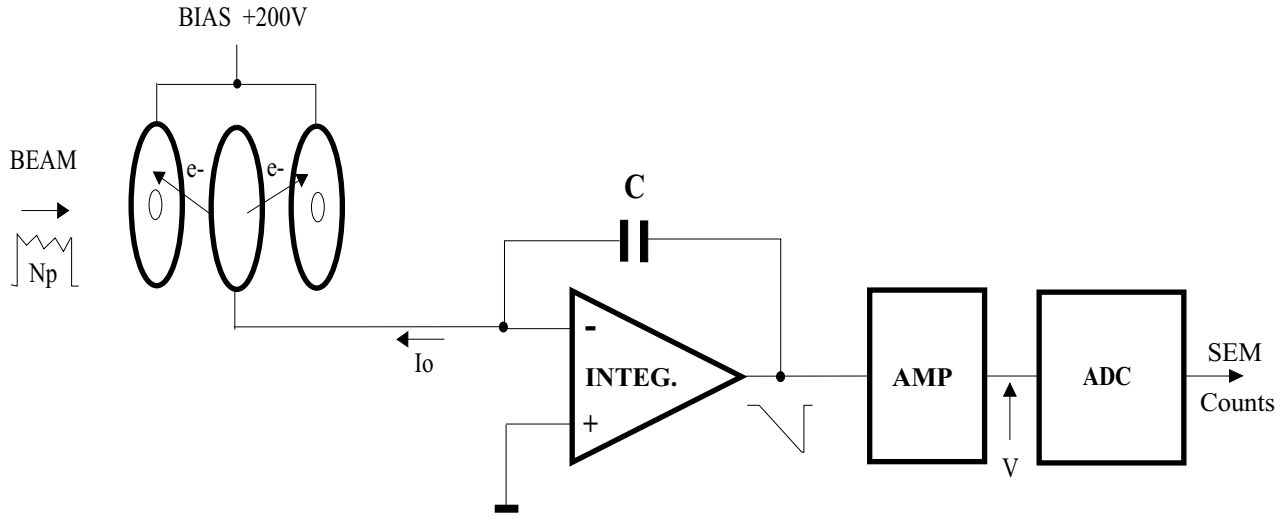
SPS Secondary Emission Monitors



ADC: Full Scale = 10v
Sem counts (FS) = 2047

$$\mathbf{E} = \frac{\text{Number of secondary electrons emitted by detector foil}}{\text{Number of protons traversing detector foil}}$$

$$\mathbf{V} = \frac{Np*E*Qel*G}{C} \qquad \frac{Np}{count} = \frac{V_{(FS)}*C}{Qel*E*S*G}$$

With E=3.9% Np/count = 6.58*10^9

Np = Number of protons traversing detector foil
E = Secondary emission efficiency
C = Capacitance of integrator (33nF)
Qel = Electron charge 1.602189*10^(-19) Coul.
V = Output of amplifier (V)
S = Sem counts (FS) = 2047 counts
G = Amplifier gain = 3.92

SEM electronics:

Gain error between channels	+/- 0.5%
Noise cables plus detector	+/- 1.5 count

Detector foils:

Diameter	145mm
Aluminium foil thikness	20 um
Titanium foil thikness	20 um

Specifications of BCTs installed in TT60

LF cut off	1 Hz
HF cut off	20KHz
Precision	+/- 1.5%
Resolution	1.0* E11p
Calibrator	1.0* E13p