FTPC design parameters

PARAMETER	VALUE
Configuration	
# of TPC	2
# of pad-row per TPC	10
# of plates per pad-row	6
# of pads per plate	$\sim$ 180
Volume	
inner radius	8.0 cm
outer radius	31.0 cm
chamber length	120.0 cm ($\lvert z \rvert = 150 - 270$ cm)
acceptance	η=2.5 - 4.0 (θ=2.0^o - 9.3^o)
Field	
drift cathode voltage	10-20 kV
drift electrical field	100-900 V/cm (radial, $\perp$ beam)
solenoid magnetic field	0.5 T ($\parallel$ beam)
Gas	
gas mixture	Ar(50%)-CO_2(50%) or Ar(50%)-DME(50%)
drift velocity	0.2 - 1.5 $cm/\mu s$
trans. diffusion D_T	80-150 $\mu m/\sqrt{cm}$
long. diffusion D_L	80-150 $\mu m/\sqrt{cm}$
Lorentz angle	2 - 4 deg.
MSGC	
microstrip pitch	1000 μm
anode microstrip width	8 μm
cathode microstrip width	300-400 μm
anode voltage	$\sim$ 780-840 V
gas gain	$\sim$ 1-2$\times$10^3 (gain doubling per $\Delta V_a = +60V$)
Readout	
total # of pads	$\sim$ 22000
# of time bins per pad	256
pad pitch	$\sim$ 1.5 mm
pad length	20 mm
pad capacitance	$\sim$ 10 pF
shaping time (FWHM)	400 ns
SCA sampling rate	5 MHz
SCA time bin size	200 ns
ADC dynamic range	8 bits