

Rough cost estimate for a muon telescope of the EEE (Extreme Energy Events) Project

1. Material needed for 3 MRPCs (Multigap Resistive Plate Chambers)

Per chamber:

gas box	530 euros
2 interface cards	200 euros
cables + connectors	50 euros
honeycomb 2x259 euros	520 euros
vetronite	150 euros
copper tape	300 euros
glass 80 +140	220 euros
connectors HV	65 euros
connectors gas	40 euros
fishing line	50 euros
conductive paint + urethane s	50 euros
mylar	30 euros
white foam	}
screws	}
CAF glue	}
carbon tape	}
double sticky tape	}
Alcohol + paper	20 euros

2325 euros x 3 = 6975 -> ~ 7000 euros for 3 chambers

2. Rough estimate for HV box

DC Dc converter EMCO	250 euros
HV connector	40 euros
aluminum box	13 euros
Farnel 1 GOHM	5 euros
lemo connectors, resistors..	25 euros

333 euros x 6 = 1998 -> ~ 2000 euros for 6 HV supplies

3. FEA cards (with 3 NINO) 100 euros (guess) x 6 = 600 euros for 6 cards
Amphenol cables 50 euros x 6 = 300 euros for 6 cables
gas connectors + gas tubes for 3 chambers ~ 100 euros

Total : 7000
2000
600
300
100

10000 euros for the detectors, HV boxes + FEAs + cables

4. Gas mixers (bronkhorst) : 6500 euros

5. Readout electronics

VME crate
TDC 128 channels
TDC 64 channels
VME USB bridge
GPS card + antenna
trigger card
Estimate : **20 000 euros**

6. Various

oscilloscope
Unit to provide low voltages (for FEAs + HV converters)
Cupboard for the gas bottles
Estimate : **3.500 euros**

TOTAL COST PER TELESCOPE ~ 40000 euros