

Ar atomic number	40 g/mol	
Ar gas density	1.79E+00 g / l	1.79E-03 kg / l
Cu electrical resistivity	1.72E-08 Ohm m	
Cu Thermal conductivity	401 W/m K	
Argon heat of vaporization	6.43 kJ/mol	
Argon specific heat at 300 K	20.8 J/mol K	
Ar specific heat	0.52 J/g K	520 J/kg K
Total # APA panels	168	
Total insulation heat loss	30000 W	
Total electronic heat load	6800 W	
Lead top temperature	320 K	
Lead bottom temp	87 K	
Lead length	2 m	

	<b>Total detector</b>		<b>For each APA</b>	
Lead area total for both polarities	0.04 m <sup>2</sup>		0.000238 m <sup>2</sup>	
Equivalent square edge dimension for each polarity	0.141421356 m		0.010911 m	1.09 cm
Lead current each polarity	10000 A		59.52381 A	
Lead current, total	20000 A		119.0476 A	
Lead resistance(both polarities in parallel)	8.60E-07 Ohm		1.44E-04 Ohm	
Lead voltage drop	0.017 Volt		0.017 Volt	
Electrical loss power, sum for both leads	344 W		2.05 W	
Heat resistance, sum for both leads	12.500 K/W		2100 K/W	
Total heat flow power, sum for both leads	19 W		0.11 W	
Elec plus heat conductance power	363 W		2.16 W	
As fraction of total heat loss	0.0099			
Argon mass flow to compensate	2.99E-03 kg/s	1.68E+00 l / s	1.78E-05 kg/s	9.98E-03 l / s

**Internal DC current leads for each APA**

Typical lead length, top	15.00 m
typical lead length, bottom	30 m
Average lead length Including feed through	24.50 m
Resistance each polarity	3.54E-03 ohm
Voltage drop Each line	2.11E-01 Volt
Power each polarity	13 W
Power per APA	25 W
Total power for all APA's	4214 W