

Power supply for sensor: voltage=300 V; current= 4 mA.
 Analogue power supply for readout: voltage= 1.2 V; current= 199 mA.
 Digital power supply for readout: voltage= 1.2 V; current=1.22 A.
 Core power supply for readout: voltage= 1.5 V; current= 943 mA.
 Transceiver power supply for readout: voltage= 2.5 V; current= 425 mA.

Sensor										
<i>voltage</i>	<i>current</i>	<i>suggestion</i>	<i>required</i>	<i>channel</i>	<i>channel</i>	<i>module</i>	<i>crate</i>	<i>unit</i>		
[V]	[mA]	[#]	[#]	[#]	[#]	[#]	[#]	[U]		
500	15	a1520p		176	194	17	3	24		
Readout (option A)										
analogue		digital		<i>suggestion</i>	<i>required</i>	<i>channel</i>	<i>channel</i>	<i>module</i>	<i>crate</i>	<i>unit</i>
<i>voltage</i>	<i>current</i>	<i>voltage</i>	<i>current</i>	[#]	[#]	[#]	[#]	[#]	[#]	[U]
[V]	[A]	[V]	[A]	[#]	[#]	[#]	[#]	[#]	[#]	[U]
7.0	4	7.0	4	a1517b		636	700	117	8	64
Readout (option B)										
analogue + digital				<i>suggestion</i>	<i>required</i>	<i>channel</i>	<i>channel</i>	<i>module</i>	<i>crate</i>	<i>unit</i>
<i>voltage</i>	<i>current</i>			[#]	[#]	[#]	[#]	[#]	[#]	[U]
[V]	[A]			[#]	[#]	[#]	[#]	[#]	[#]	[U]
4.5	6			a1518b		318	350	59	4	32
Transmission										
core		transceiver		<i>suggestion</i>	<i>required</i>	<i>channel</i>	<i>channel</i>	<i>module</i>	<i>crate</i>	<i>unit</i>
<i>voltage</i>	<i>current</i>	<i>voltage</i>	<i>current</i>	[#]	[#]	[#]	[#]	[#]	[#]	[U]
[V]	[A]	[V]	[A]	[#]	[#]	[#]	[#]	[#]	[#]	[U]
7.0	4	7.0	4	a1517b		244	269	45	3	24
Total (option A)										
							<i>crate</i>	<i>unit</i>		
							[#]	[U]		
							14	112		

Part of the system	Comments	Partial
cooling plant (Pixel +Strips)	pump+vacuum pump+plc+controllers	10 kW
	Chiller (400VAC tri +N) if not cool water from FAIR	4 kW
	Heaters ((0.3-0.4 kW/ch) + transducers	26 kW
cooling system (x services)	chiller, pump,plc, controllers, transducers	10 kW
Part of the system	Comments	Single
Power supply Low Voltage	176 digital channels + 176 digital channels	3.4 kW
Pixel readout chips	power extrapolated from Topix3-> final Topix DC-DC efficiency ~60% cable losses- factor 2 + safety factor 2 13 kW as raw power (over exstimated) power supply - CAEN SY1527-16 boards A1513B board (6ch/board)	
Power supply High Voltage	176 sensor channels	3.4 kW
Pixel sensor	CAEN SY1527- 16 boards A1510 board (12 ch/board) (100 V-limit)	
EI/opt converter	122 GBT channels	3.4 kW
Pixel part	DC-DC efficiency ~ 60% (50 boards) cable losses -factor 2 + safety factor 2 2.8 kW as raw power power supply - CAEN SY1527-16 boards A1513B board (6ch/board)	
electronics crate	on-detectors electronics, interlocks	3 kW
pixel part	power supply controllers	
electronics crates-counting room	Optical receiver + data concentrator	3 kW
pixel part		
FE Module power supply	254 modules, 15 W/module incl. Mod. Data Concentrator	3.4 kW
strip part	and GBT Interface, 0,6 DCDC-Efficiency power supply - CAEN SY1527-16 boards A1513B board (6ch/board)	
HV power supply	254 sensors, CAEN power supply (see above)	3.4 kW
strip part		
EI/opt converter	254 GBT channels	3.4 kW
strip part		
electronics crate	on-detectors electronics, interlocks	3 kW
strip part	power supply controllers	
electronics crates-counting room	Optical receiver + data concentrator	3 kW
strip part		

**Total
40 kW**

Quantity **10 kW**
4 **Total**
 13.6 kW

1 3.4 kW

1 3.4 kW

1 3 kW

6 18 kW

6 20.4 kW

2 6.8 kW

2 6.8 kW

1 3 kW

6 18 kW