# Low & High voltage power supplies

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# Required channels

- Low voltage:
  - Each OPB board requires 3x  5V (< 37 W) primary inputs.
  - Total channels is 52*3= 156.
- High Voltage:
  - Each module needs 4 HV. (One for each tile.)
  - Total required : 52*4=208
  - Requirements is 1000V/1mA

| Device | $V_{IN}$ [V] | $I_{IN}$ [A] | $P_{HYBRID}$ [W] | $P_{OPB}$ [W] | $P_{CABLE}$ [W] | $P_{PS}$ [W] |
|---|---|---|---|---|---|---|
| OPB | 5 | 5 | 0 | 25 | 12 | 37 |
| Hybrid (front) | 1.5 | 11 | 16.5 | 5.5 | 9.5 | 31.5 |
| Hybrid (back) | 1.5 | 11 | 16.5 | 5.5 | 9.5 | 31.5 |
| | | | | | | |
| Total (module) | | | 33 | 36 | 31 | 100 |
| Total (VELO) | | | 1700 | 1900 | 1600 | 5200 |

Table 8: Power dissipation estimates for the OPB and detector module. $V_{IN}$ and $I_{IN}$ are the input voltage and current to the device. $P_{HYBRID}$, $P_{OPB}$ and $P_{CABLE}$ are the heat dissipated in the hybrid, OPB and cables, and $P_{PS}$ is the power delivered by the power supply. The first three lines in the table correspond to the three power supply channels.

# Current Velo

- Low voltage:
  - Remote supplies (60m). No radiation.
  - Caen Easy system A3009. Total 264, Channels 8V , 45W.
  - Can be reused (cable drop <2.5V).
  - Maintenance beyond 2018 ? We have 100 spares A3009 units …Mainframes ?
- High Voltage :
  - Iseg system. Total ~100 channels.
  - Remote (~60m): no radiation
  - Need 208 channels : 100 missing …
  - And limited to 500V.
  - Need to be replaced.