

The TRD HV can deliberately switched off if Astronauts are working in the vicinity of the AMS-02 Detector. The TRD is operated by a HV of Maximum 1600 V and typical currents of 1.6 nA corresponding to a HV Power of 2.5 μ W for each of the 82 HV channels.

The HV Power-Supply has a current limiter, which is set to 20 nA, thus limiting the HV Power to 32 μ W . per channel.

The HV is switched of after reaching the current limitation in 2 sec.

The HV for the TRD is supplied by 82 micro-miniature HV cables (Typ: Reynold P/N 167-3306) assembled with HV plugs and receptacles

(Typ: Reynold P/N 167-3306) to the UHVD distributors, each of these feeding 4 Chamber-Modules. The 82 HV cables cross in 2 bunches of 41 cables each the MLI, which covers hermetically the whole TRD.

The HV connection from the UHVD to the 4 Chamber-Modules is provided by 4 HV cables

(Type: Reynold P/N 178-5139), which are

soldered at the UHVD and the UTE. All soldering areas are potted with Dexter (EE4215 and HD3561) compound and Hysol-934 which are EVA safe inside MLI

Fig.1 FE Electronics (in particular UHVD, UFE)

Fig.2 ISATEC ppt cable routing - MLI

Fig.3 Photo UHVD including potting

Fig.4 Photo UTE including potting

Fig. 5 shows a complete HV group of 4 Chamber Modules inside the TVT.

The measured results (Figure 6) for the critical high voltage carrying components UHVD and UTE show in the pressure range between 0.01 Pa and 10^5 Pa no discharge.