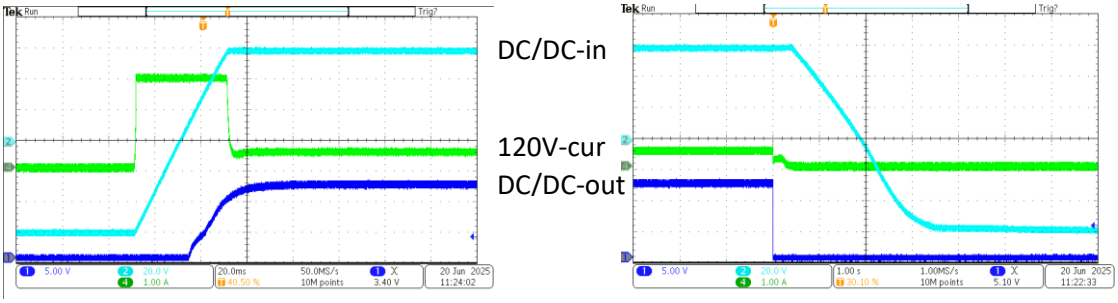
FSEB_3 to FSEB_4 Changes

Schematic Changes

1. 12V DC/DC on/off remotely possible by using the PMOS transistor V58 as switch. The latter also acts as a current limiter, resulting in a max. 3A inrush current for the 900uF (6x150uF) electrolytic capacitors. The power-on cycle time is ~40ms.
2. There is an active 900uF capacitors discharge circuitry. At power-off it takes about 3 seconds to fully discharge the capacitors. Power on/off cycles measurements are shown below:



Power-on Power-off

3. Current and voltage monitoring: the monitoring of the string output voltage should give a correct value of zero now, when the string voltage is powered off. It concerns the I2C-ADC U8 at address 1001 110
4. Overcurrent detection / hardware fuse: the idea, to use a current difference between +60V and -60V as criteria for emergency power-off in hardware, has given up. Still it can be implemented in software (ESP). The I2C-ADCs U7, U47 allow the independent measurement of both currents.
5. SBC ESP, port ESP_GPIO4_U1TXD (was unused before). A low level disables the power-off by an overcurrent detection.

Mechanics

1. The upper board edge height is reduced to 99.5 mm now, to make the boards slide-in easier. Alternatively one could also replace the FieldHubs fan holder by the latest version. But this would require a fully decabling (string patch cables) of the the FieldHub.