Status of FREDs

Fuse-Relay Board: Versions 1 - 3

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Status of FREDs
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Lines of Ancestry

FRED1
Voltage channels:
4x pos./ 3x neg./ 1x isolated

FRED2_B
“original”
• Smaller form factor
• Program via FP connector

FRED2_B
• “softstart”

FRED2_C
• 10nF on in-/outputs
• GND – chassis-GND connection by mounting holes

FRED3_A
• Smaller form factor
• TMCB current limit on 3V3 MP
• 8x 470uF
• 10nF on in-/outputs
• Soft-start
• FET on-board

FRED3M_A
• Smaller form factor
• 7x pos./ 1x isolated
• FET on-board
• (no curr. Limit on 3V3_MP)

FRED_FAN
• Fan speed control (12V/1.5A)
• 3x analog IN 0…1V
• 10x 3V3 I/O
• Temp.Sensor
**Hardware Status**

- **Tests performed : Bugs/Issues**
  - Boards tested successfully on the table
  - Latest bugs found **ONLY** through integration tests in 19" modules: DMC/LOGM + PSM
  - FRED3_A was ordered with FRED3_M FP-adapter
    - (different routing of voltage monitoring LEDs : does not fit to labels on 19" module FPs of WP02)

- **Open hardware tests**
  - Check GND distortion by FRED I/U measurement
  - Check of all Vcc power supply: time domain & baseband spectra
  - Test of max. load capacitance on all FRED inputs
  - Check whether 470uF primary, secondary or required at all!
  - Hot-plug functionality of all Ch.s when connected to PSM

- **HW production status**
  - **5x FRED3_A for tests**
    - Need to remove 2 of the changes from last revision
    - New FP-adapters necessary
  - **30x (+5) FRED3M_A for WP18 delivered**
    - tested correct function only on table
    - only small bug found (curr. limit missing)
    - to be done: integration tests in SD-19" boxes, but, 19"-boxes just now being finalised & final SD-PSM missing
Firmware Status

Status

 ✓ One FW version fits all board revisions:
   recognition through No. of GND pins

 FW features

 ✓ Interface via ETH (on front-panel)
 ✓ Remote monitoring/switching of voltage channels
 ✓ Remote programming of FRED via ETH

Bugs/Issues

 ❖ From beginning no document with explicit FW requirements

 ➢ Realization (by D.Makowski, P.Plewinski) difficult:
   time inefficient/many changes

 ➢ No final FW version yet:
   ➢ lack of thorough tests/possibilities for tests

 ➢ Continue: from 14.06.: dedicated HW will be provided to P.Plewinski required for tests.

 ➢ To be done:
   write down specs/check-list in flow-chart to avoid misunderstandings (happened before)

 Open FW features

 ❖ FRED-FAN support
   ❖ Remote monitoring of fan current & speed
   ❖ watchdog
   ❖ Solve issue of full fan speed after few hours of operation

 ❖ Interface to TMCB incl. its hot-plug functionality
   ❖ Implementation not working correctly yet

 ❖ Remote programming of TMCB through FRED interface
   ❖ Implementation not working correctly yet