

nQPS for insertion region magnets– Status and Plans

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TE-MPE-CP

- Current measurement principle : diagram
- Improvement : busbars measurement : diagram
- Hardware requirements
- Status
- Resources
- Conclusion

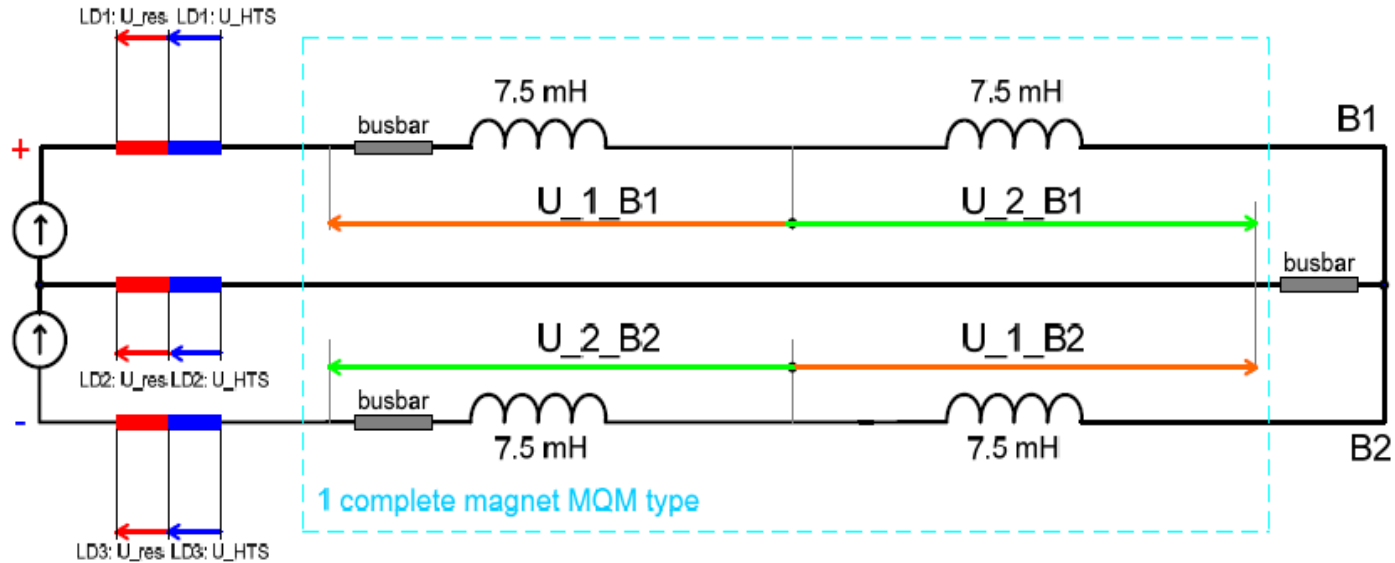
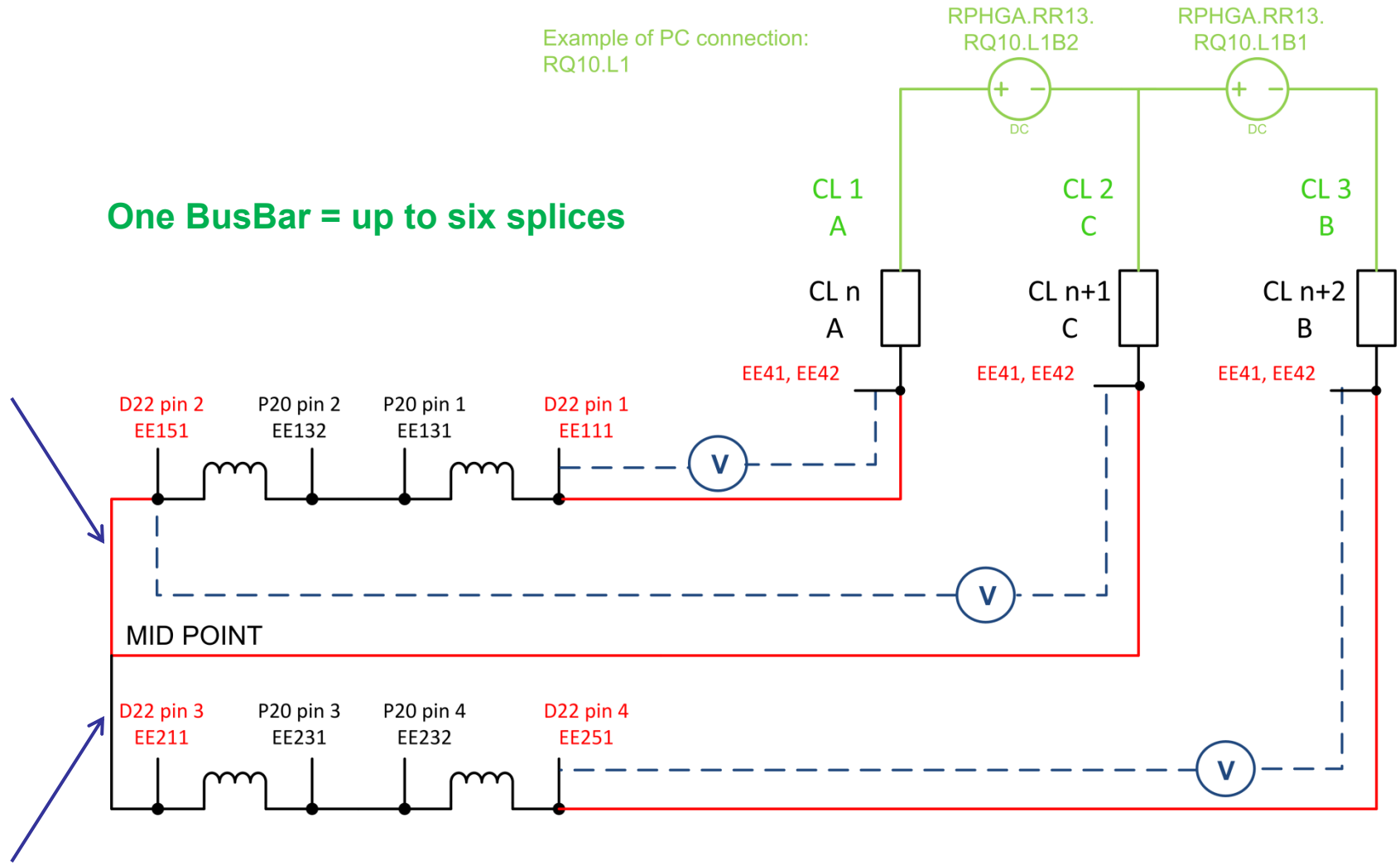


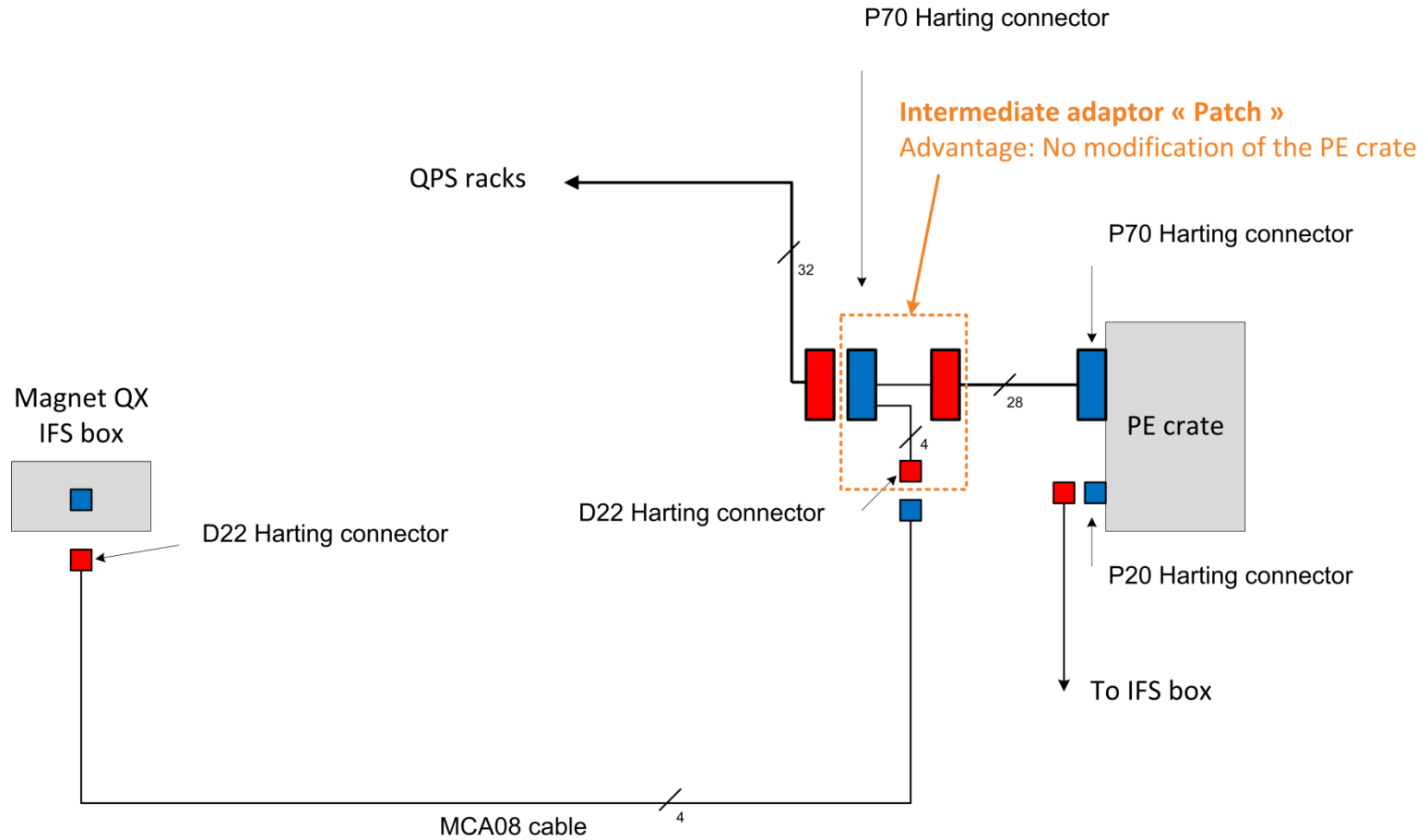
Fig.1. QPS signals for 2MQM type

Example of PC connection:
RQ10.L1

One BusBar = up to six splices



- Dedicated supervision (not protection) of superconducting bus-bars
 - Protection fully ensured by existing system
- 94 crates required in total
- The 68 existing old crates in principal can be modified
 - To be checked with RP for crates currently installed in RR's and UJ's
- Cable patches for the IFS box, interlocks and WFIP connection
- Non conformities
- In addition there might be remote reset units
 - Remote restart of stalled racks



- Prototype production and type testing in 2011, installation of first systems during winter shutdown 2011/2012
- Definition of controls interface started and first discussions launched
 - Update will be transparent for PIC
 - New software agent type to be defined
- Advancing smoothly - no showstoppers so far
- Precision of magnet signals will be increased as well
 - As well revision and change of maximum input voltage range ($\pm 200\text{ V} \rightarrow \pm 10\text{ V}$)
- Some additional commands for device maintenance
- Radiation tolerant version of DQQDI board taken into account (new version with FPGA under development)

- ➔ Approved, partial installation feasible
 - First crates could be updated in 2011
- ➔ Sufficient resources for R&D, firmware development, test and installation inside CP section
 - Additional resources needed for modifications of the QPS supervision
- ➔ For prototype and series production IGM (“In Group Manufacturing”) envisaged
 - Small contract for DQQBS board production to be launched
- ➔ 30 new crates → 150 kCHF
- ➔ 300 DQQBS boards → 60 kCHF (splice diagnostics)
- ➔ 100 cable patches → 20 kCHF
- ➔ Firmware update for DQAMGRQx, DQAMGC (102 units)

- Protect magnet and busbars separately. This will allow to reduce the threshold and make diagnostics / monitoring measurements of splices
- Accuracy measurement improved by 20 (alredy done for some IPQs)
- Ongoing for Q9-Q10 and some Q8