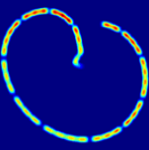# BLMDD Connection to LBDS Trigger Synchronisation Unit

Etienne CARLIER

TE/ABT

MPP – 08/04/2011
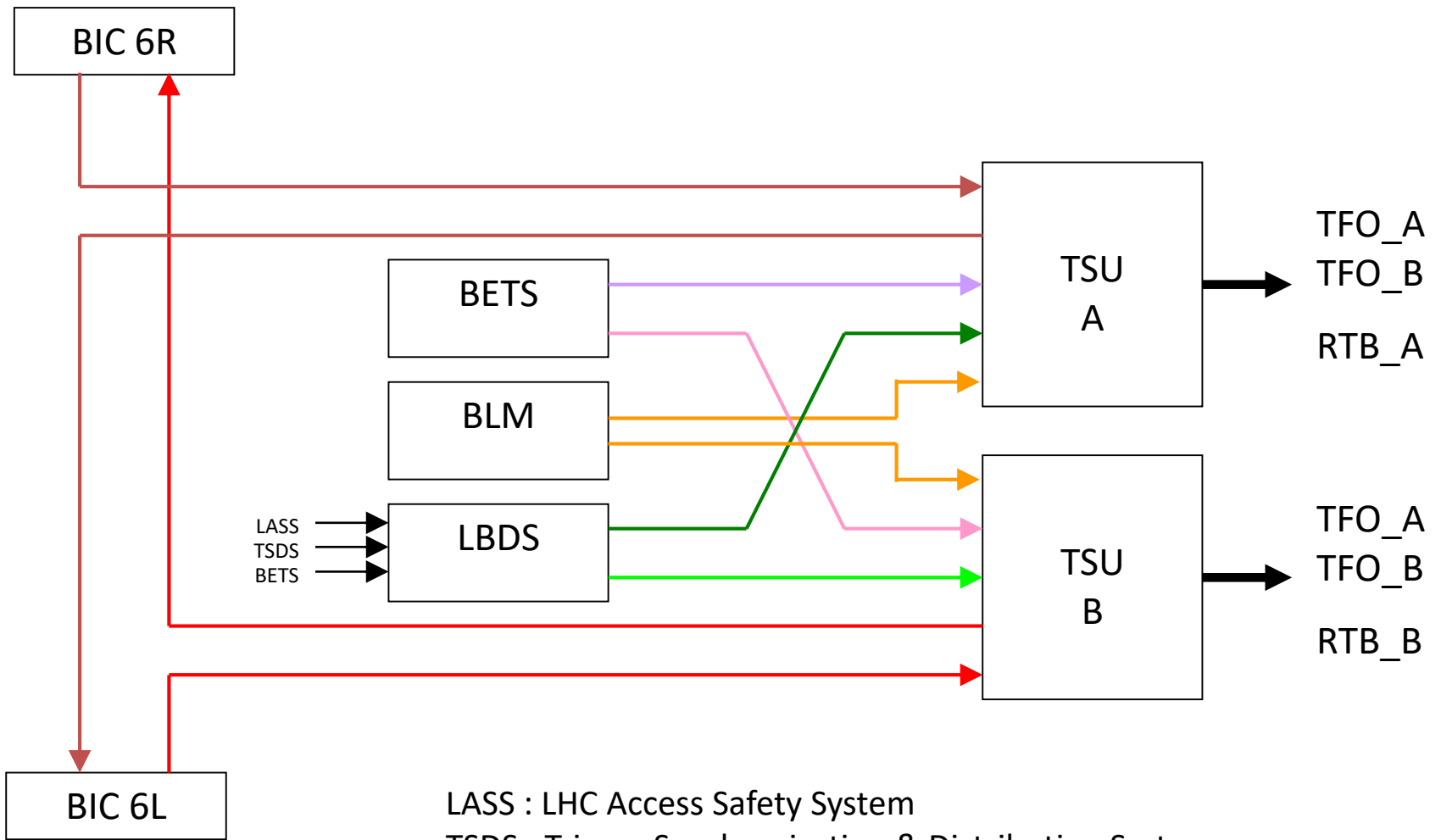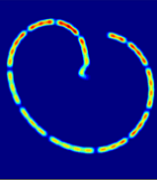
- Synchronously
  - Via the TSU's
- Asynchronously
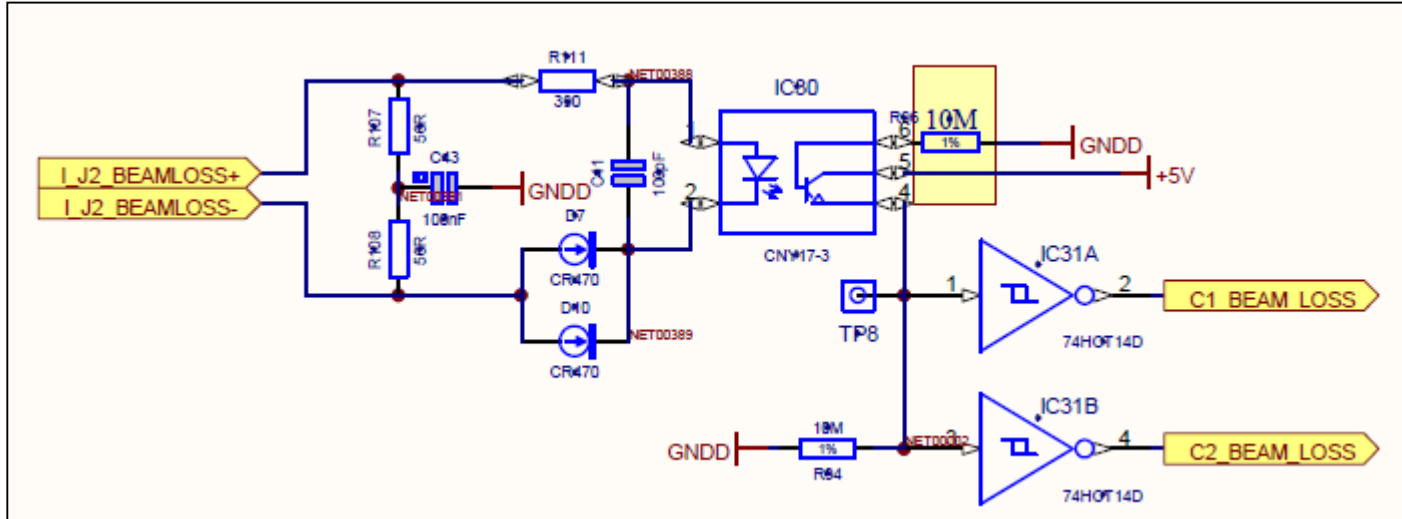 - Via the re-trigger lines

Synchronous Triggers via TSU's

LASS : LHC Access Safety System
TSDS : Trigger Synchronisation & Distribution System
BETS : Beam Energy Tracking System

- 100Ω isolated current loop
- TRUE if current > 10mA
- Dump request issued on TRUE to FALSE transition
- < 1us reaction time to current loop opening... but depends of current switch OFF characteristics
- 2 separate detection systems in one TSU to generate the synchronous and asynchronous Dump Requests (DR)
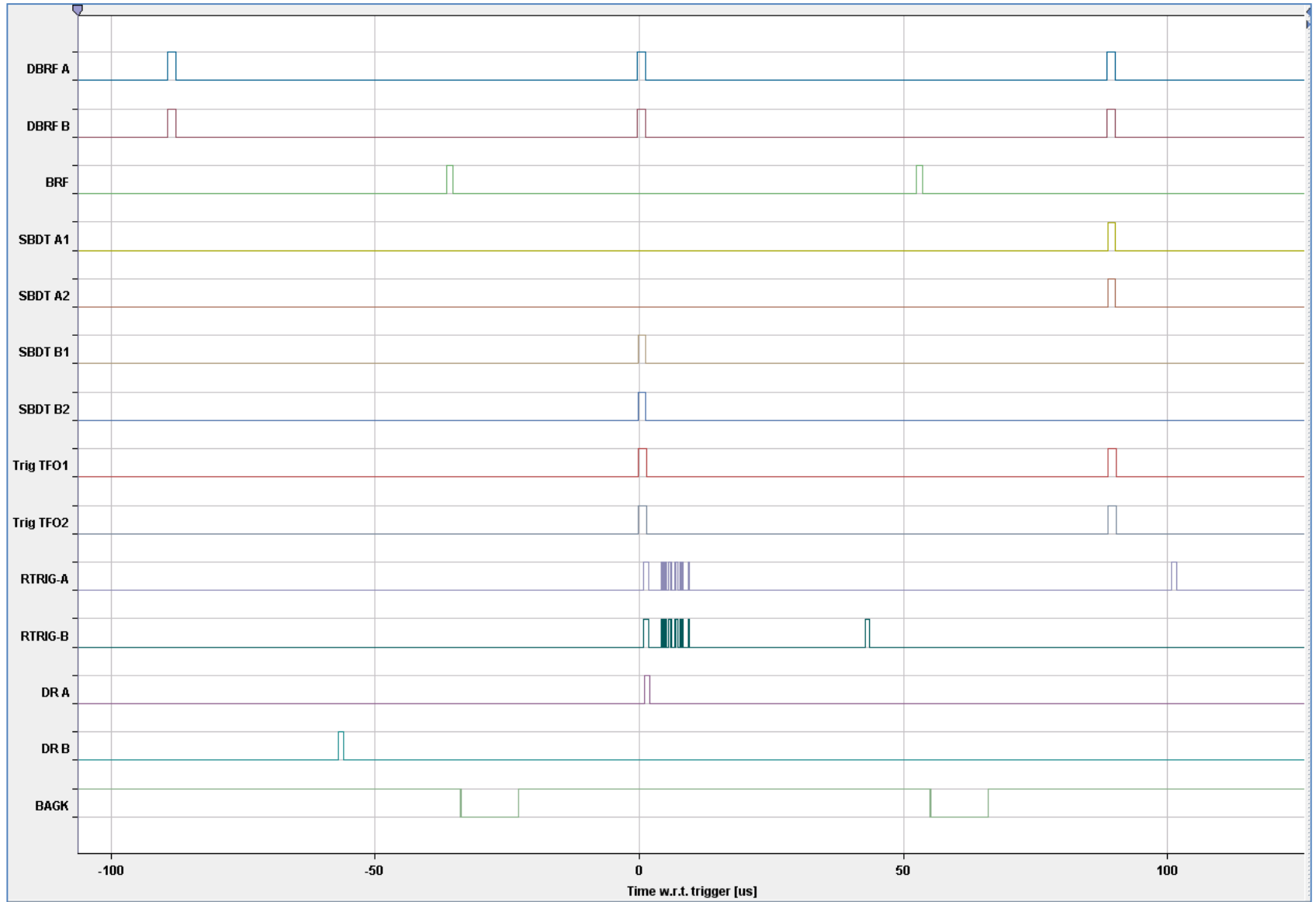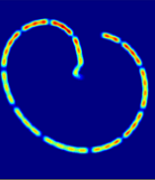
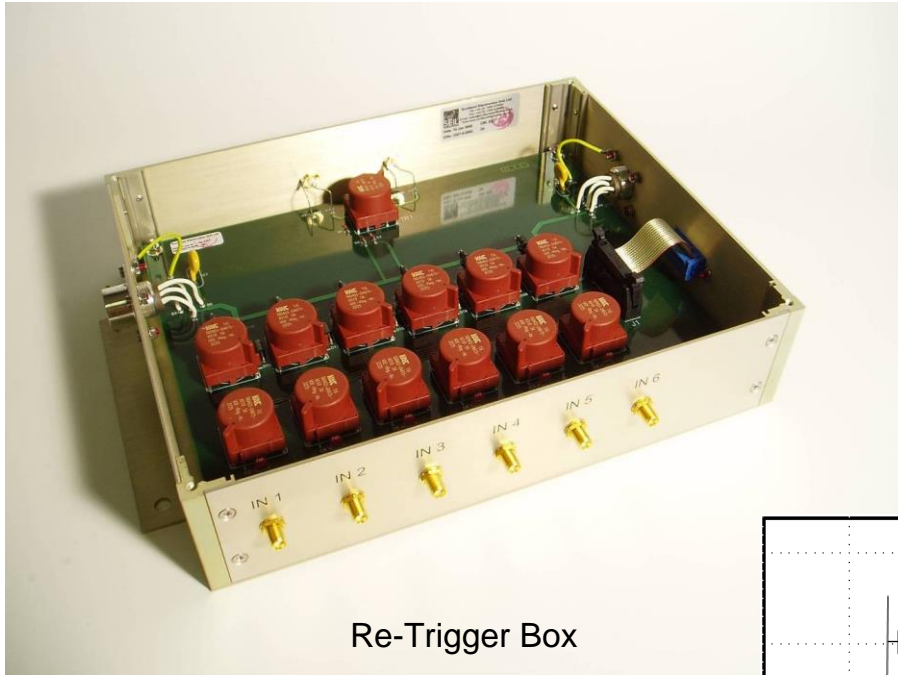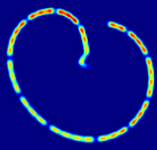# Trigger Synchronization Unit
Block Diagram
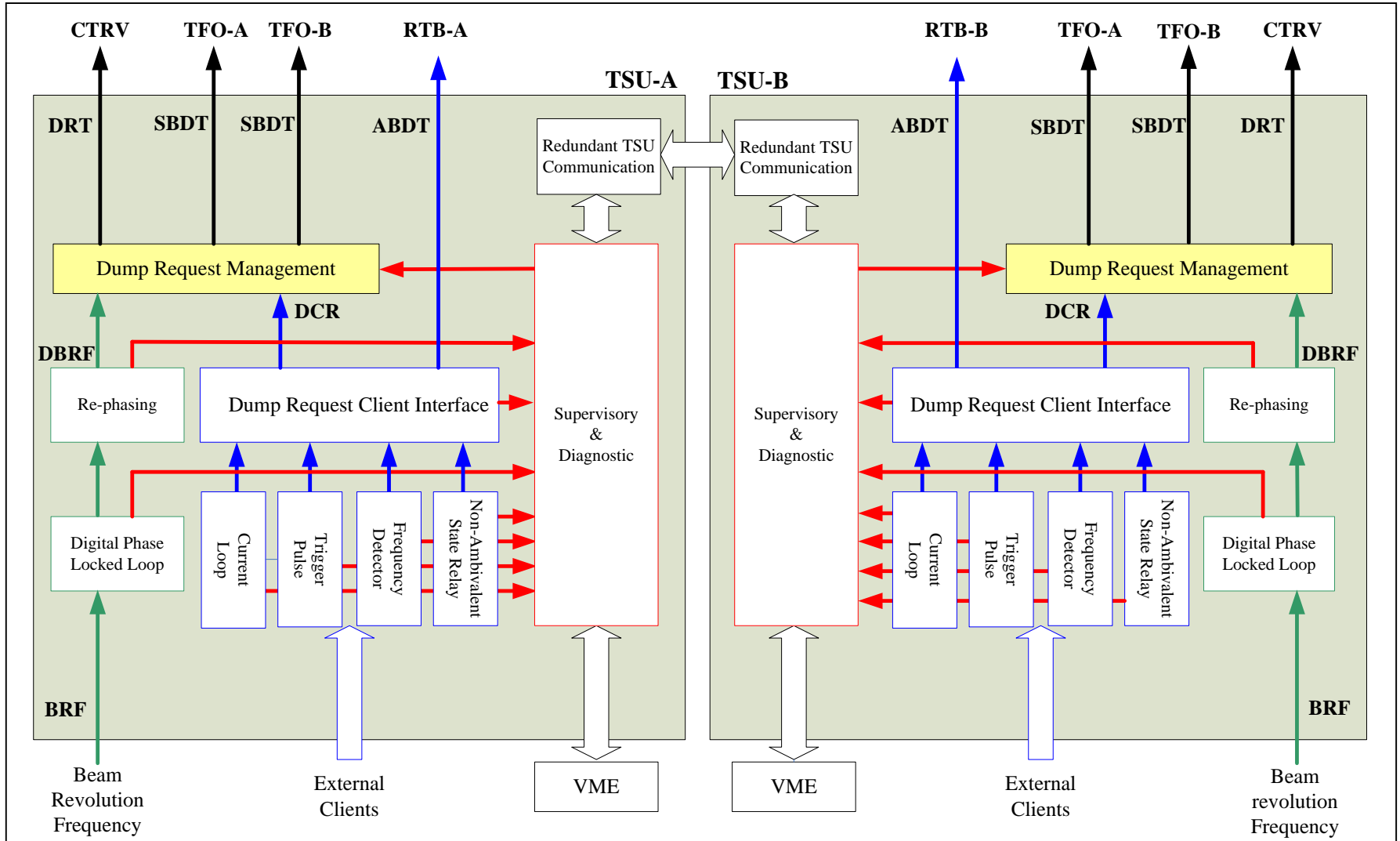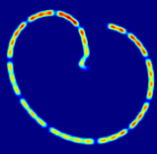
Dump Trigger Events Sequence

Asynchronous Trigger via Retrigger Lines

Re-Trigger Box

- 1us /15V pulse on 50Ω is sufficient to trigger the system

- Redundant fault-tolerant approach (cable presence is detected at posteriori)
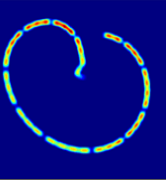
- Fully passive

- Fully monitored (All inputs and outputs are tested after a dump)

- Missing signal → Error
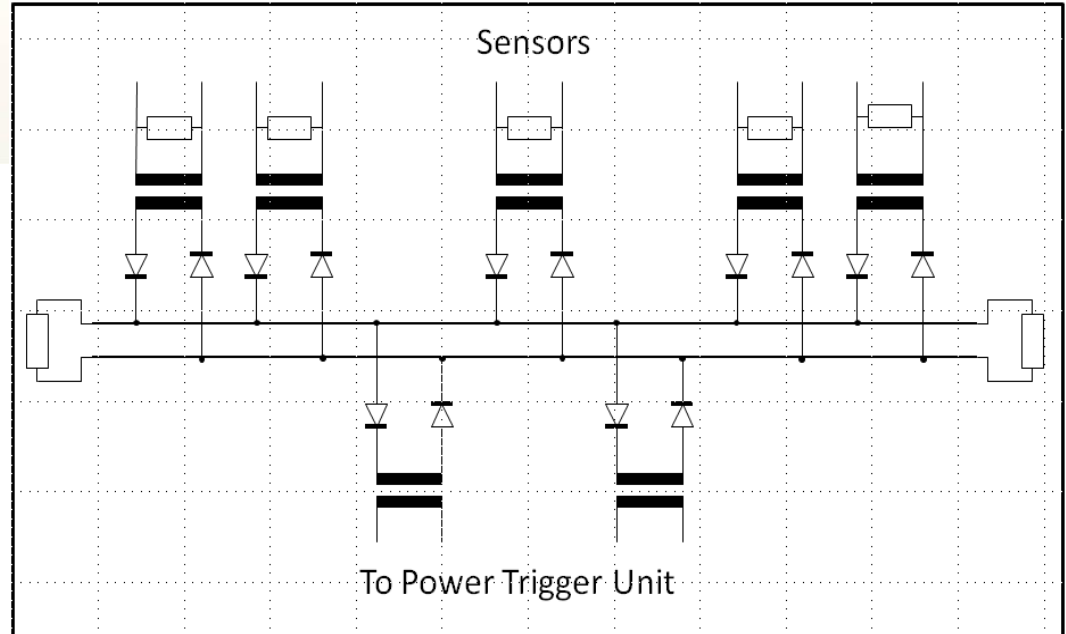
- Synchronous option:
  - Extension / modification of actual BLMDD client channel
  - Rely on TSU's (Generation of synchronous and asynchronous dump requests)
- Asynchronous option:
  - Asynchronous… but redundant to the normal trigger path
  - Don't rely on TSU
  - How to test the connection when no trigger request is generated.