



# *Quench Detection*

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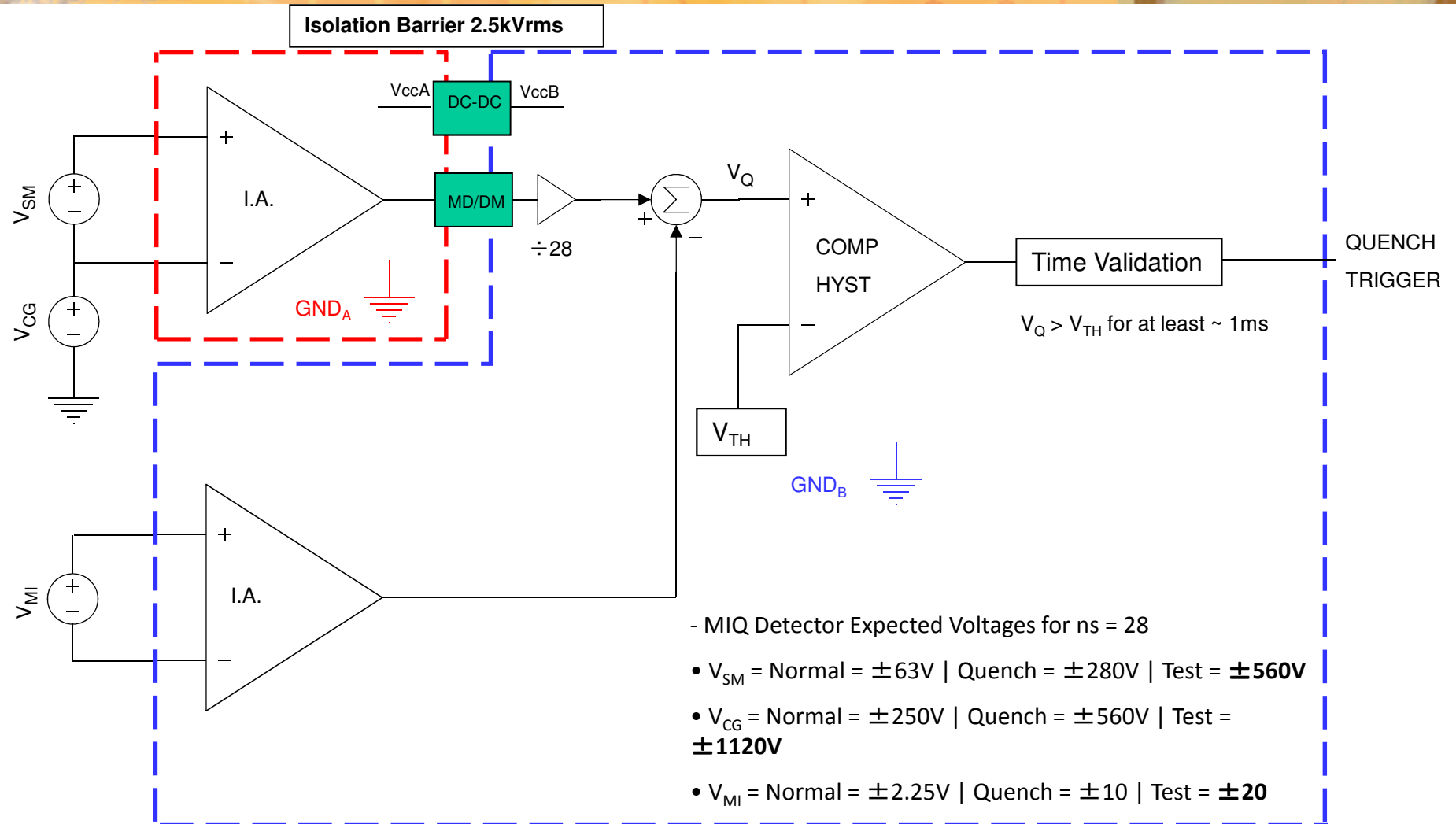
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Facility for Antiproton  
and Ion Research  
in Europe GmbH

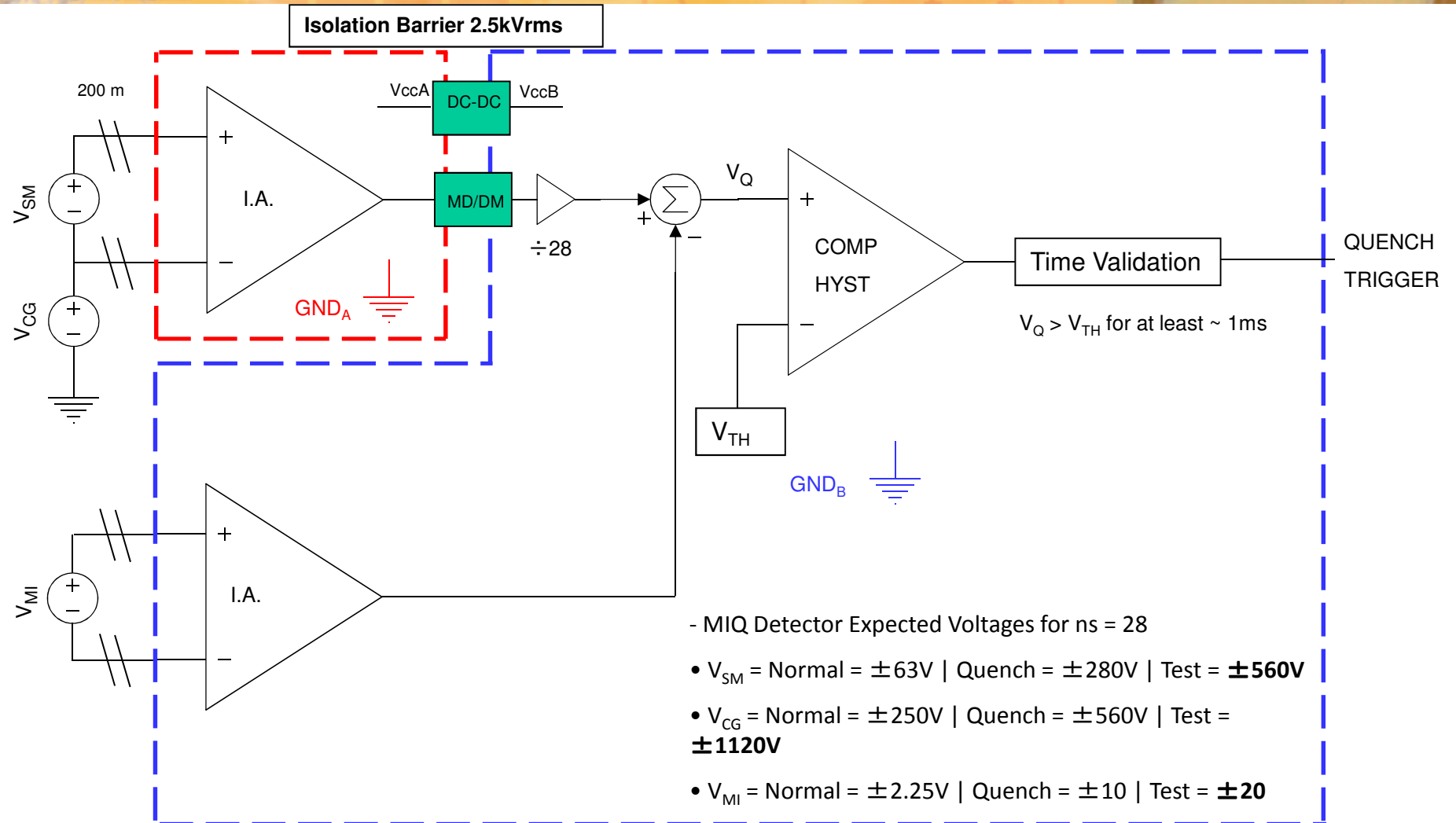


# Previous Concept: MIQ Detector



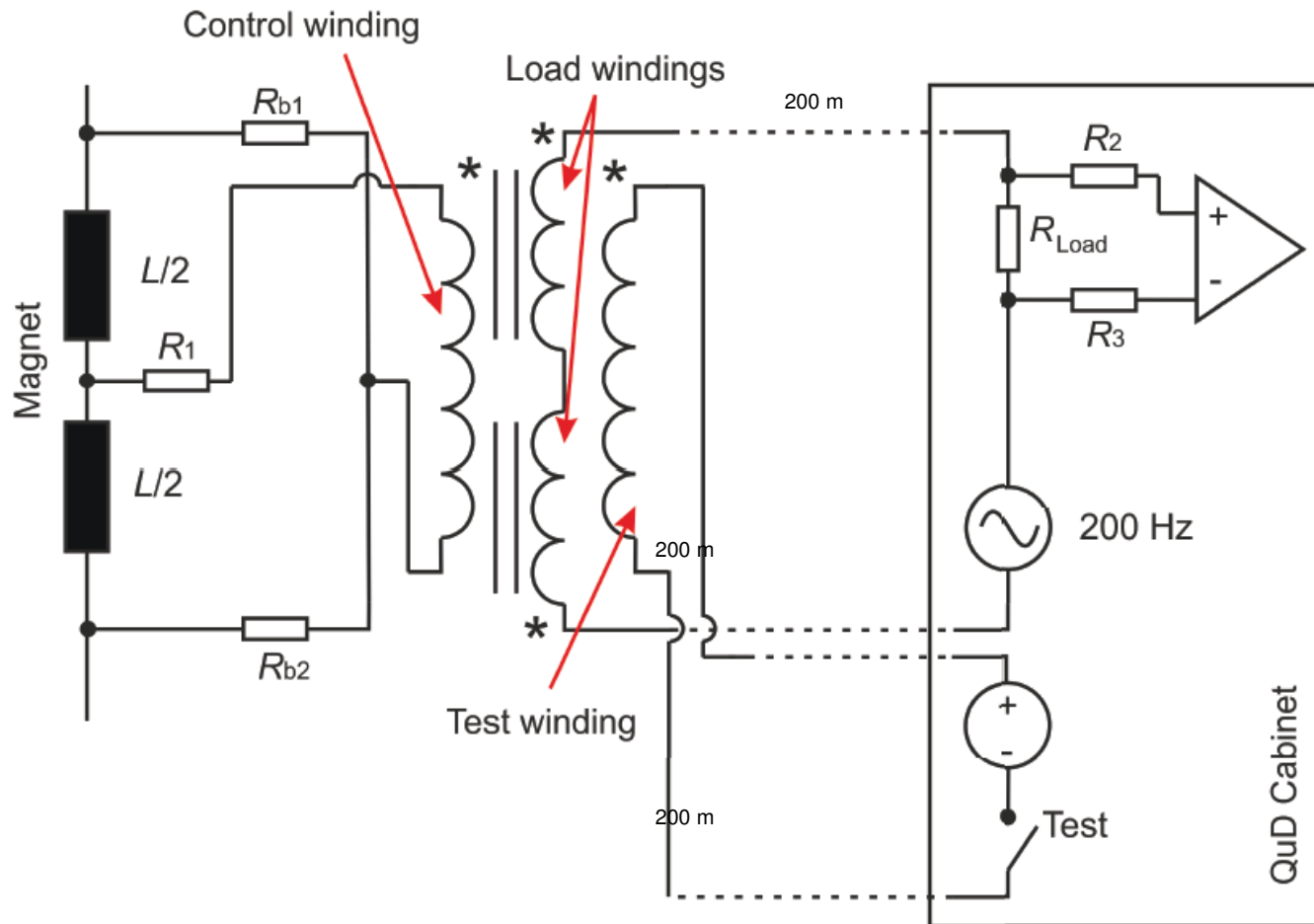
$GND_A$  = Floating at  $V_{CG}$   
 $GND_B$  = Normal Ground

# Previous Concept: MIQ Detector



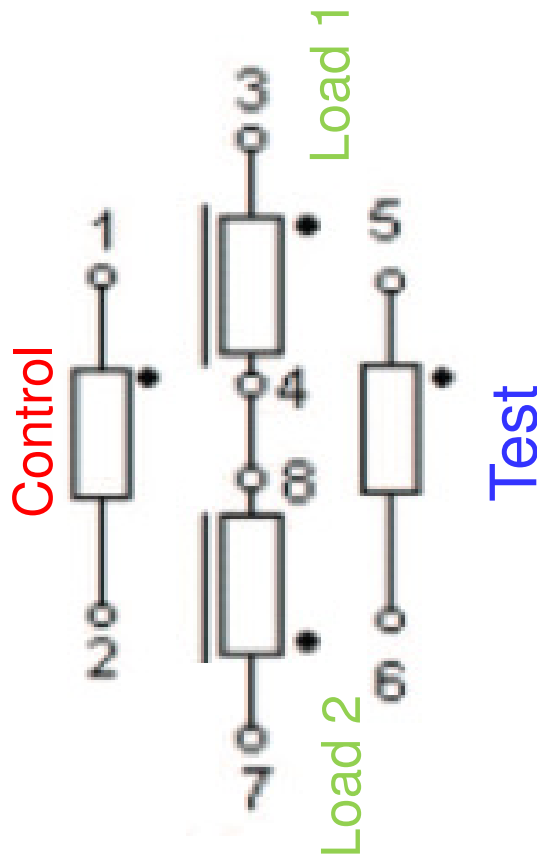
$GND_A$  = Floating at  $V_{CG}$   
 $GND_B$  = Normal Ground

# Magnet Connections



# New Concept: Magnetic Amplifier Transducer

- **Control**: measures quench current
- **Load**: monitors magnetic core status
- **Test**: fakes quench by saturating core



- **Normal**:
  - $i_{\text{Control}} \sim 0 \text{ mA} \rightarrow \text{Core NOT saturated} \rightarrow \text{Load} = \text{high impedance.}$
- **Quench**:
  - $i_{\text{Control}} \sim 1 \text{ mA} \rightarrow \text{Core saturated} \rightarrow \text{Load} = \text{lower impedance.}$
- **Test**:
  - $i_{\text{Test}} \sim 1 \text{ mA} \rightarrow \text{Core saturated} \rightarrow \text{Load} = \text{lower impedance.}$

# Block Diagram

