

Quench Protection Systems for:

Individually Powered Magnets
6 KA

Corrector Magnet Chains
600 A

6 KA

• Energy Extraction

- Internal Heaters

• Balance Detector

- Digital Detector
- Two (almost) Equal Elements
- 100 mV Threshold

Powered

5 KA RQ6 @ p2 & p8

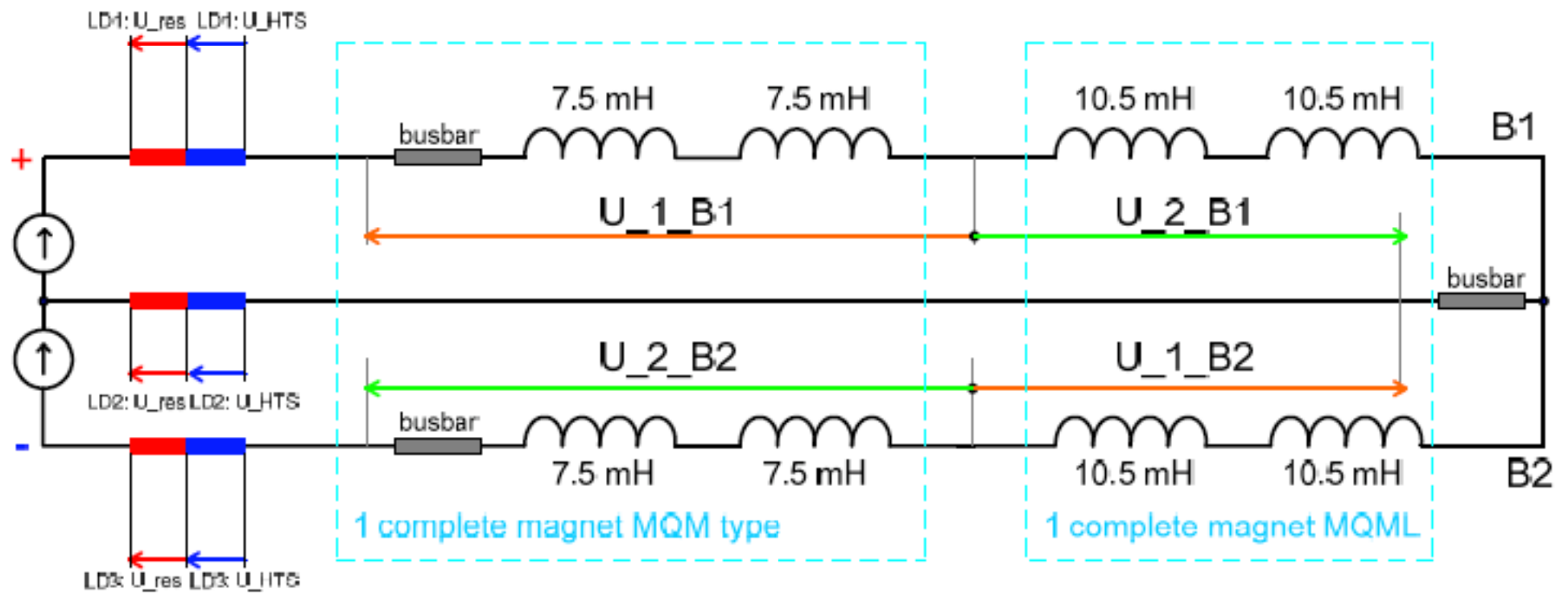


Fig.4. QPS signals for 2MQM + 2MQML type

12 KA

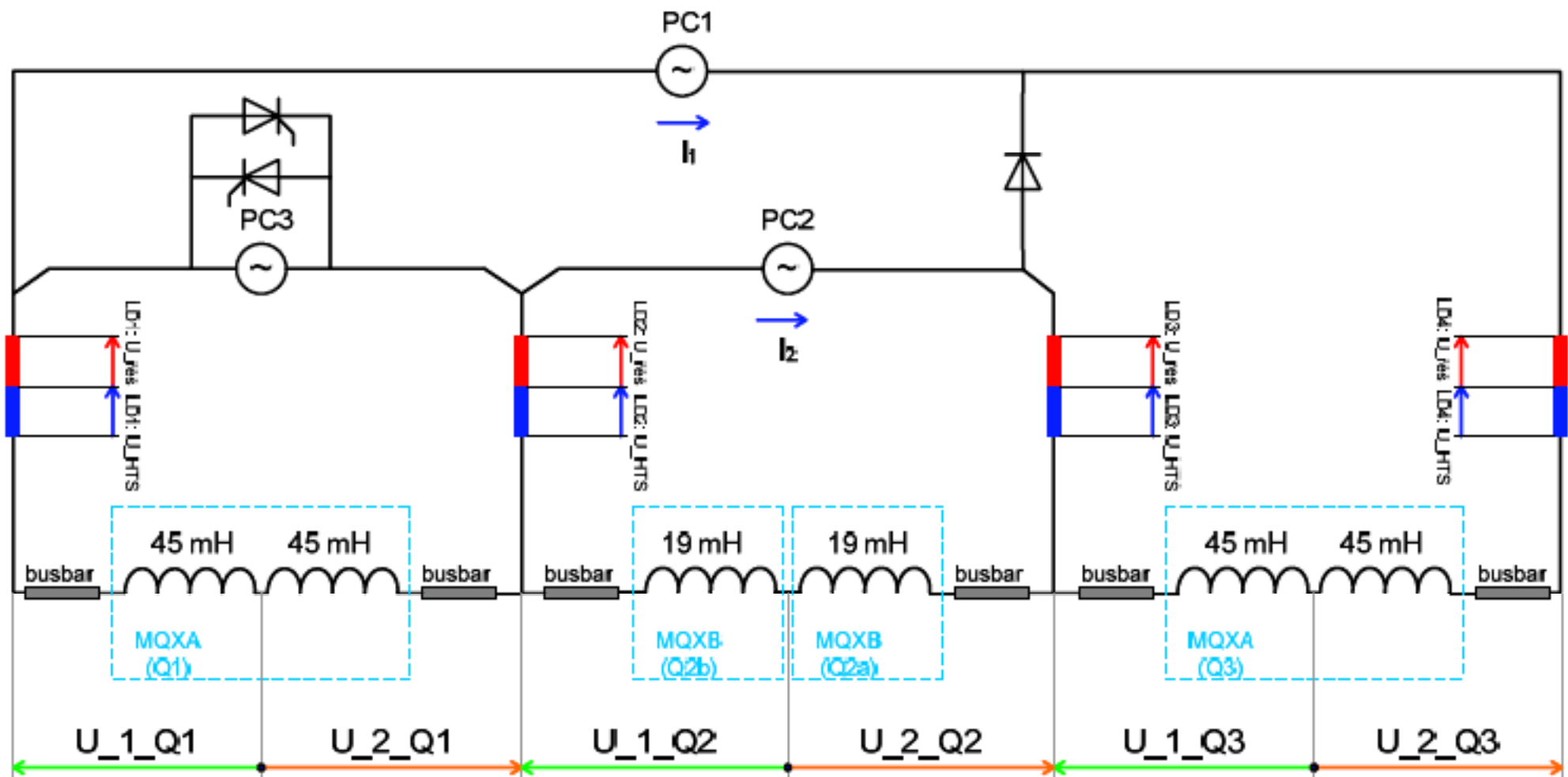


Fig 1. QPS simuk for Q1, Q2 and Q3

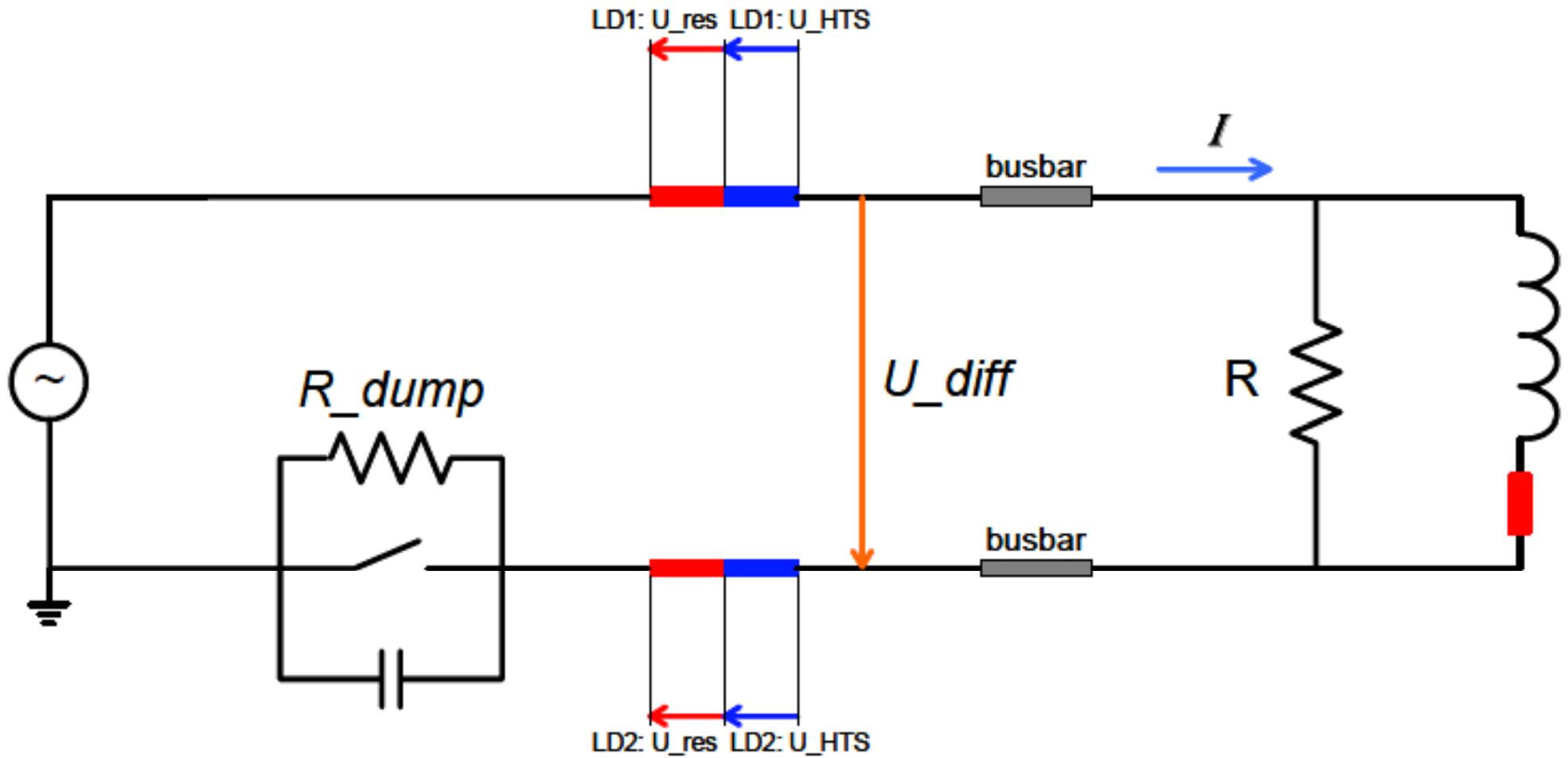
• Energy Extraction

- External Dump Resistor (usually)

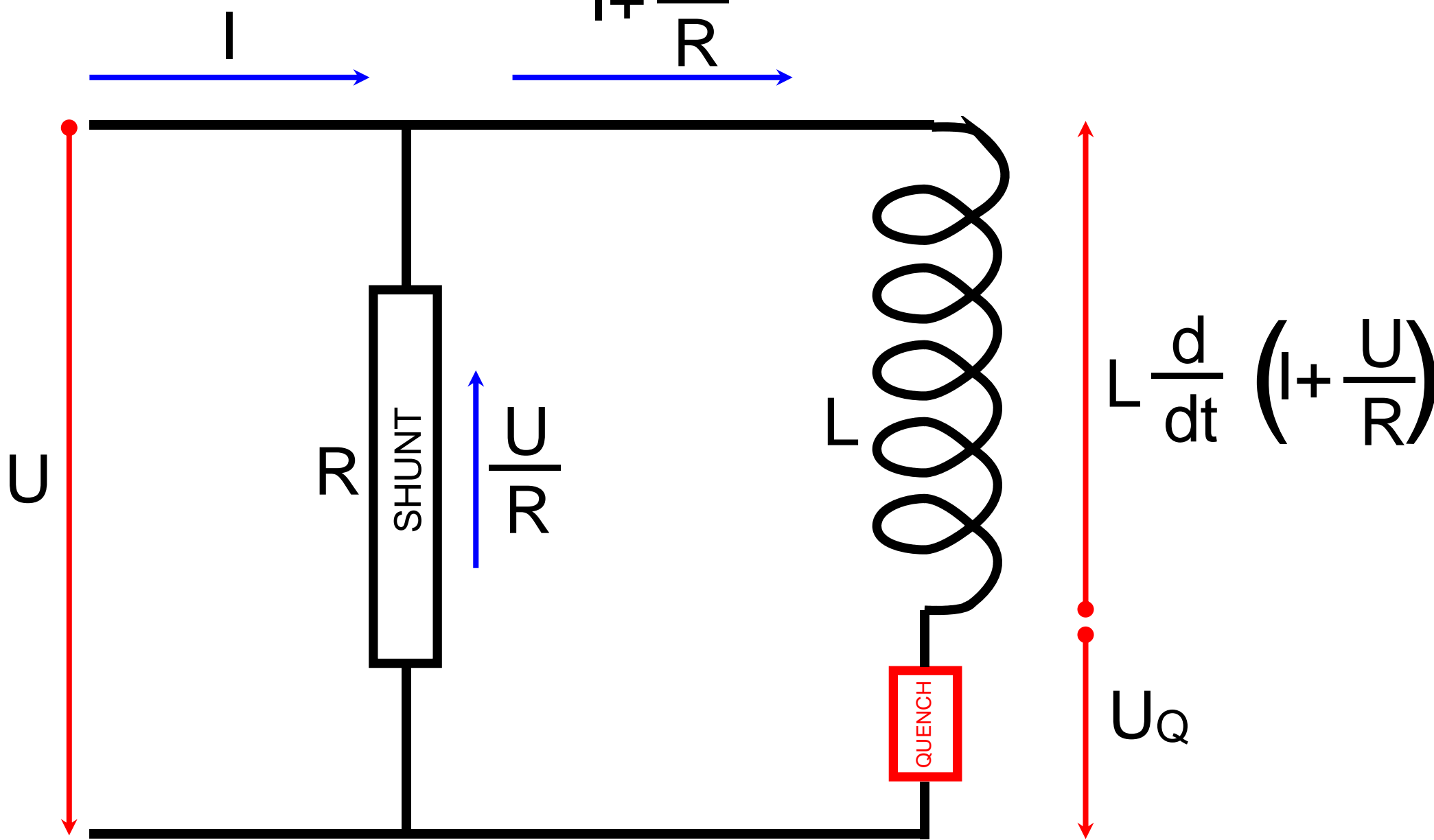
• Absolute Detector

- Digital Detector
 - Total Superconducting Voltage Measurement
 - External Current Measurement
- Inductance Model

600 A



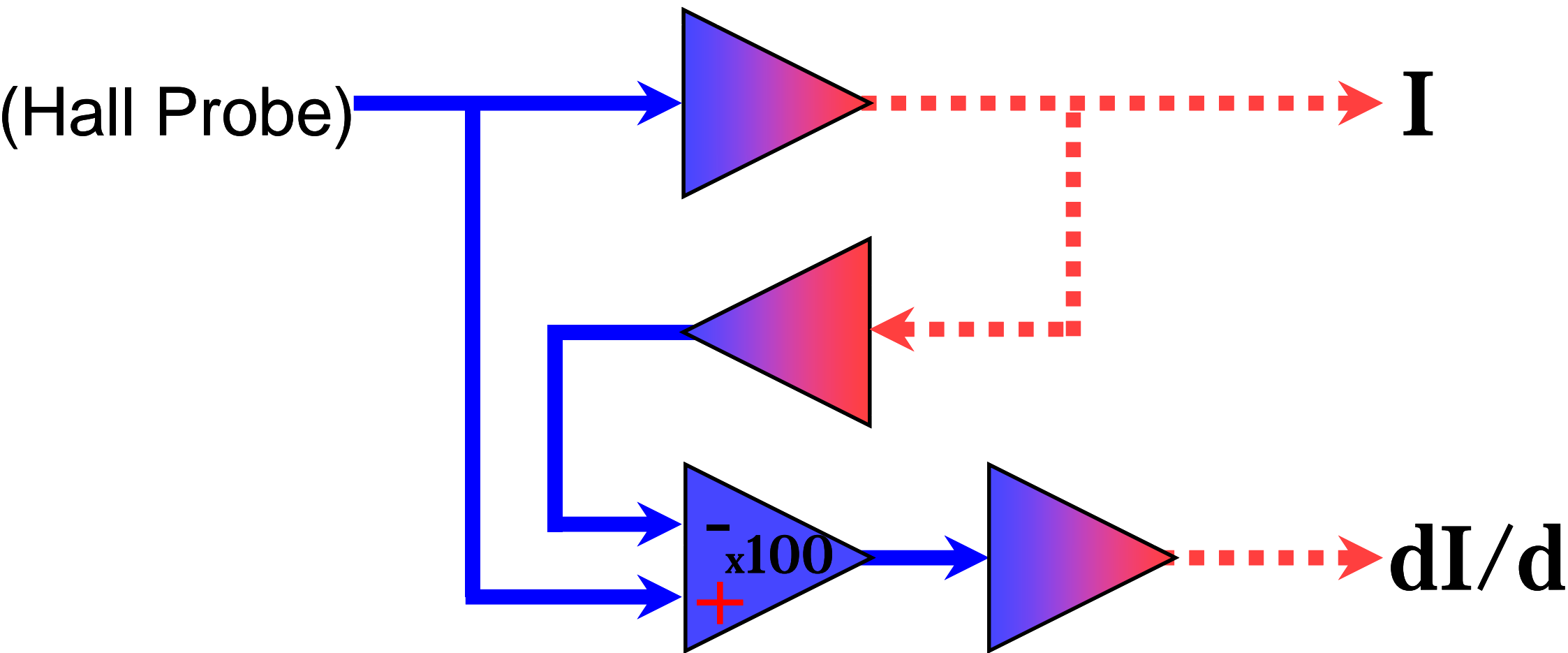
SHUNT

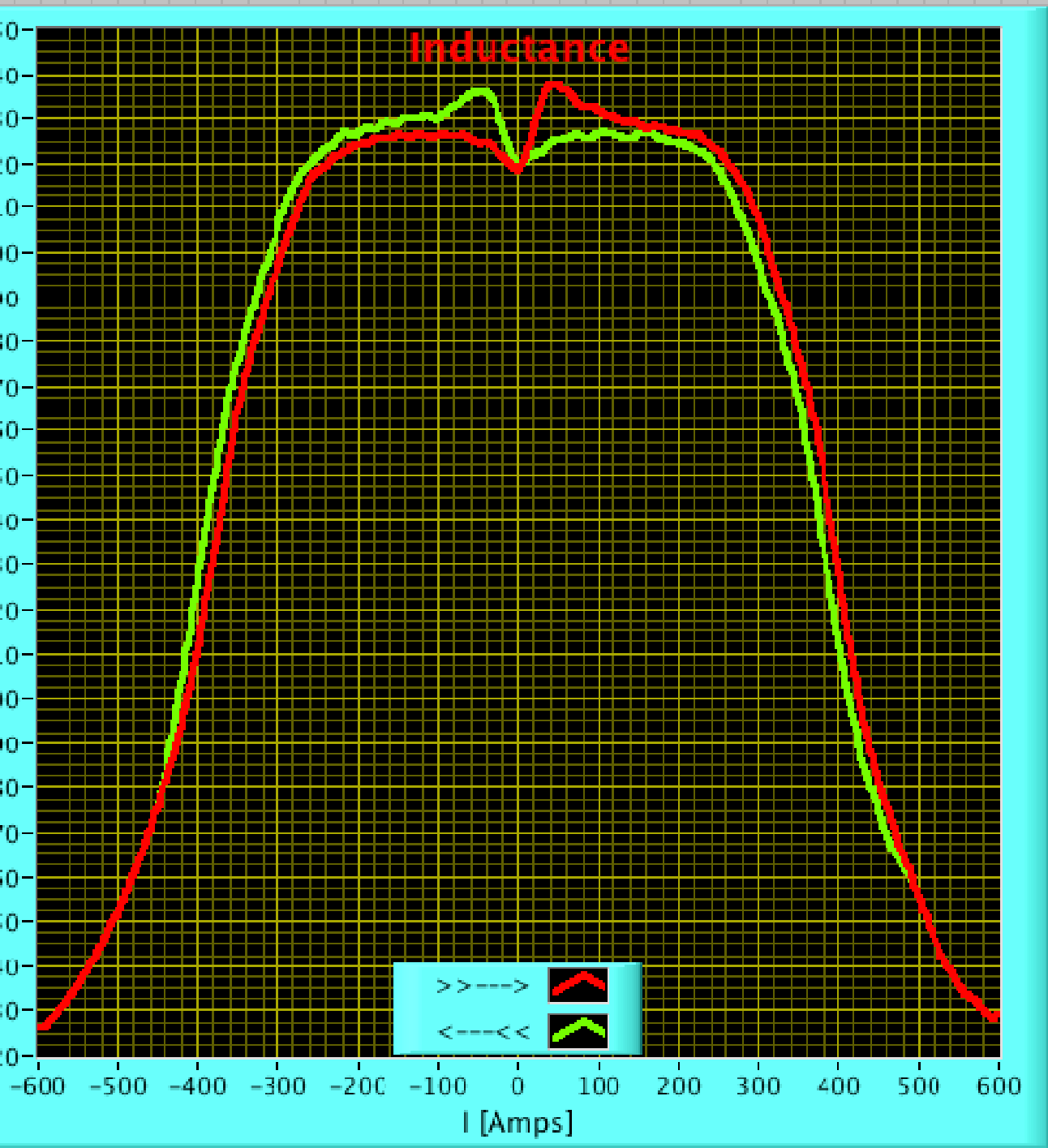


$d(I + \frac{U}{R})$

$(I + \frac{U}{R})$

Algorithm





I(t)

106.251

L(t)

0.727281

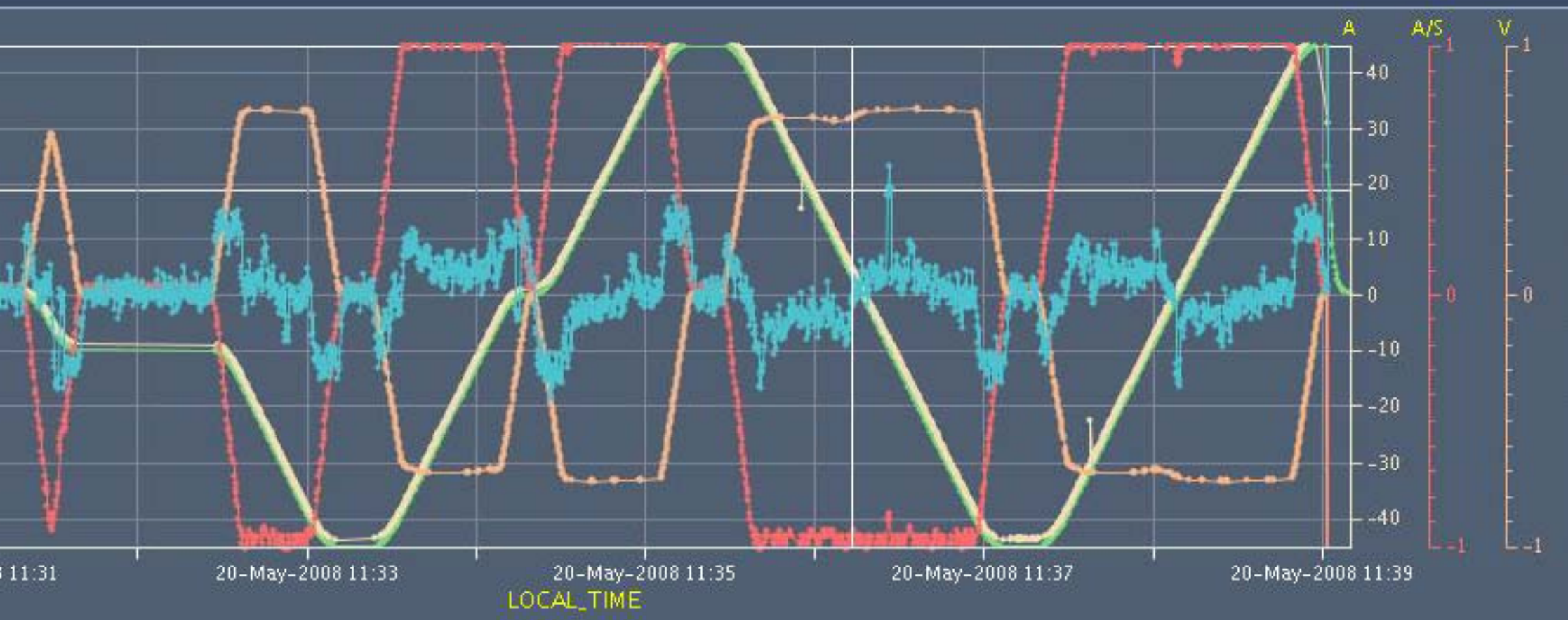
251

2008-05-20 11:30:00 and 2008-05-20 11:40:00 (LOCAL_TIME)

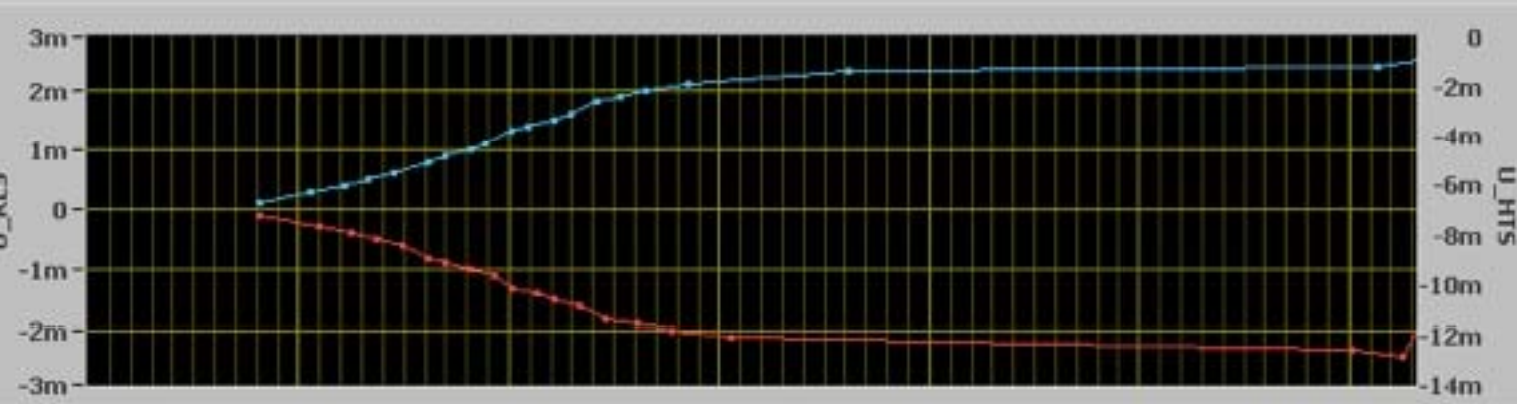
2D Cursor Coordinates

2008-05-20 11:30:00 and 2008-05-20 11:40:00 (LOCAL_TIME)

→ RQ6.R7B1:I_DCCT
→ RQ6.R7B1:I_DIDT
→ RQ6.R7B1:U_DIFF
→ RQ6.R7B1:U



X:	20-May-2008 11:37:15.538	Y:	-43.83
X:	20-May-2008 11:36:51.488	Y:	44.325842696629216

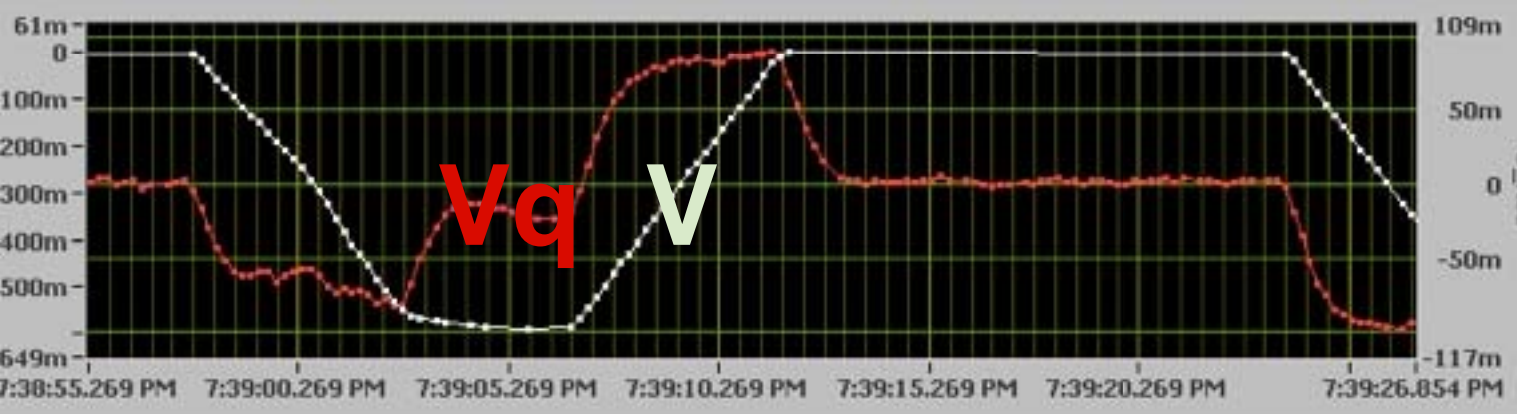


- DFLBS.7L7.RQS.A67B1.LD1:U-HTS
- DFLBS.7L7.RQS.A67B1.LD1:U_RES
- DFLBS.7L7.RQS.A67B1.LD2:U-HTS
- DFLBS.7L7.RQS.A67B1.LD2:U_RES



- RQS.A67B1:I_DCCT
- RQS.A67B1:I_DIDT
- RPMBA.RR73.RQS.A67B1:I_MEAS

MeasDB: "FGC:I_MEAS"



- RQS.A67B1:U_DIFF
- RQS.A67B1:U_RES

Normalize

Get Data

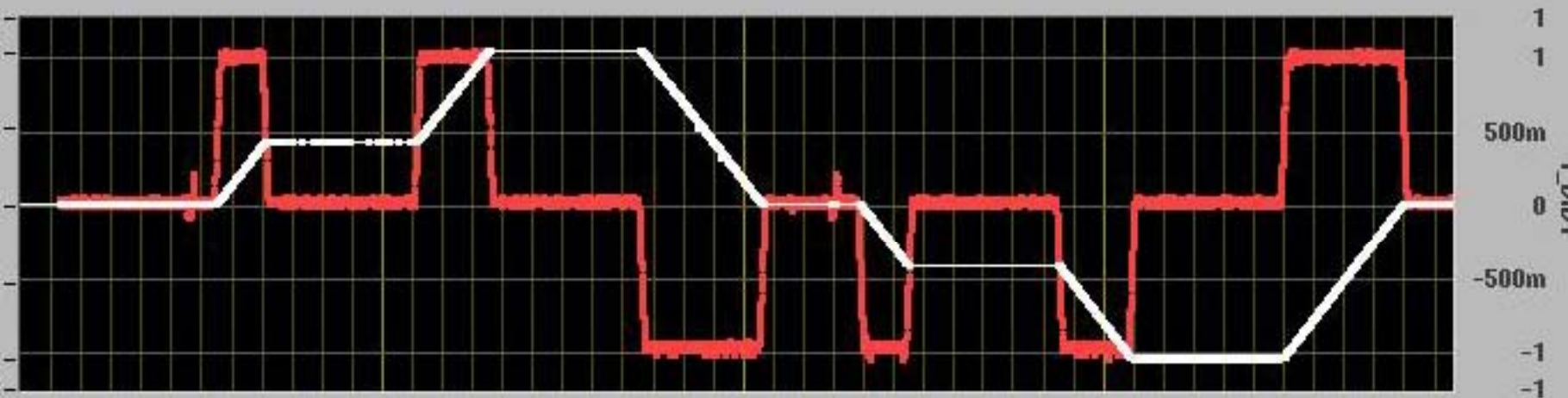
Analysis

Print

link X Scale?

from file?

STOP



DFLBS.UJ33.RQT12.F
DFLBS.UJ33.RQT12.F

RQT12.R3B1:I_DCCT
RQT12.R3B1:I_DIDT
RPMBA.UJ33.RQT12

RQT12.R3B1:U_DIFF
RQT12.R3B1:U_RES

Normalize

600 Amp Energy Extraction



Legend at right

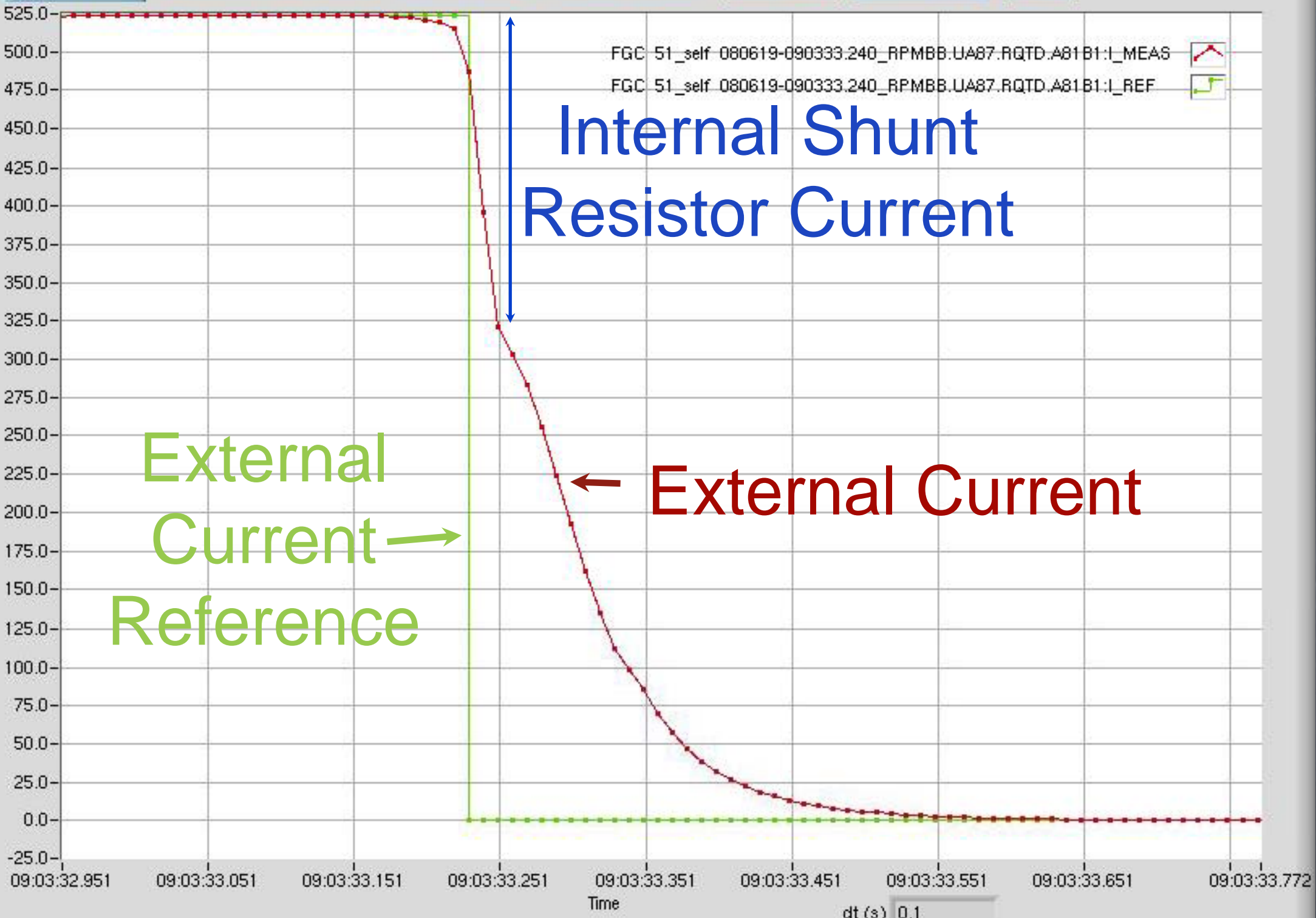
Default Scale

Screen Capture

Scale ±10

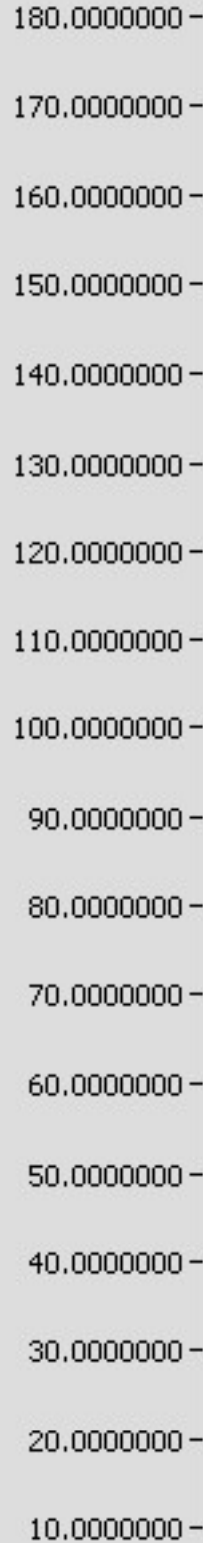
Analysis

Y Log





Dump Resistor Voltage



← Quench Back

