



U.S. DEPARTMENT OF  
**ENERGY**



# SY4527 High Voltage CAEN Board Tests

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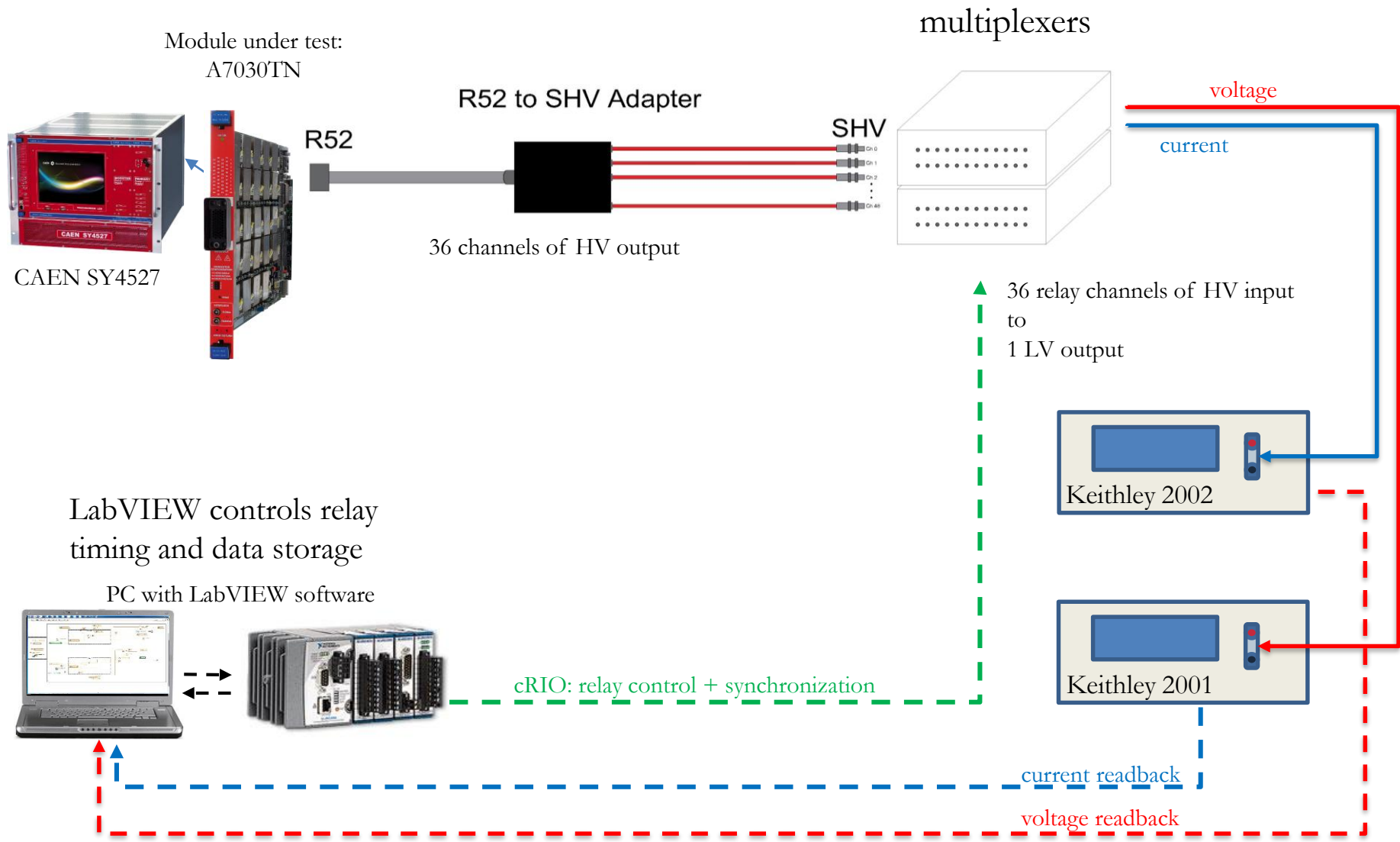
# Contents

- Development of automated multiplexer chassis
- Independent measurement using relay control software
- Test results

# Testing Set Up

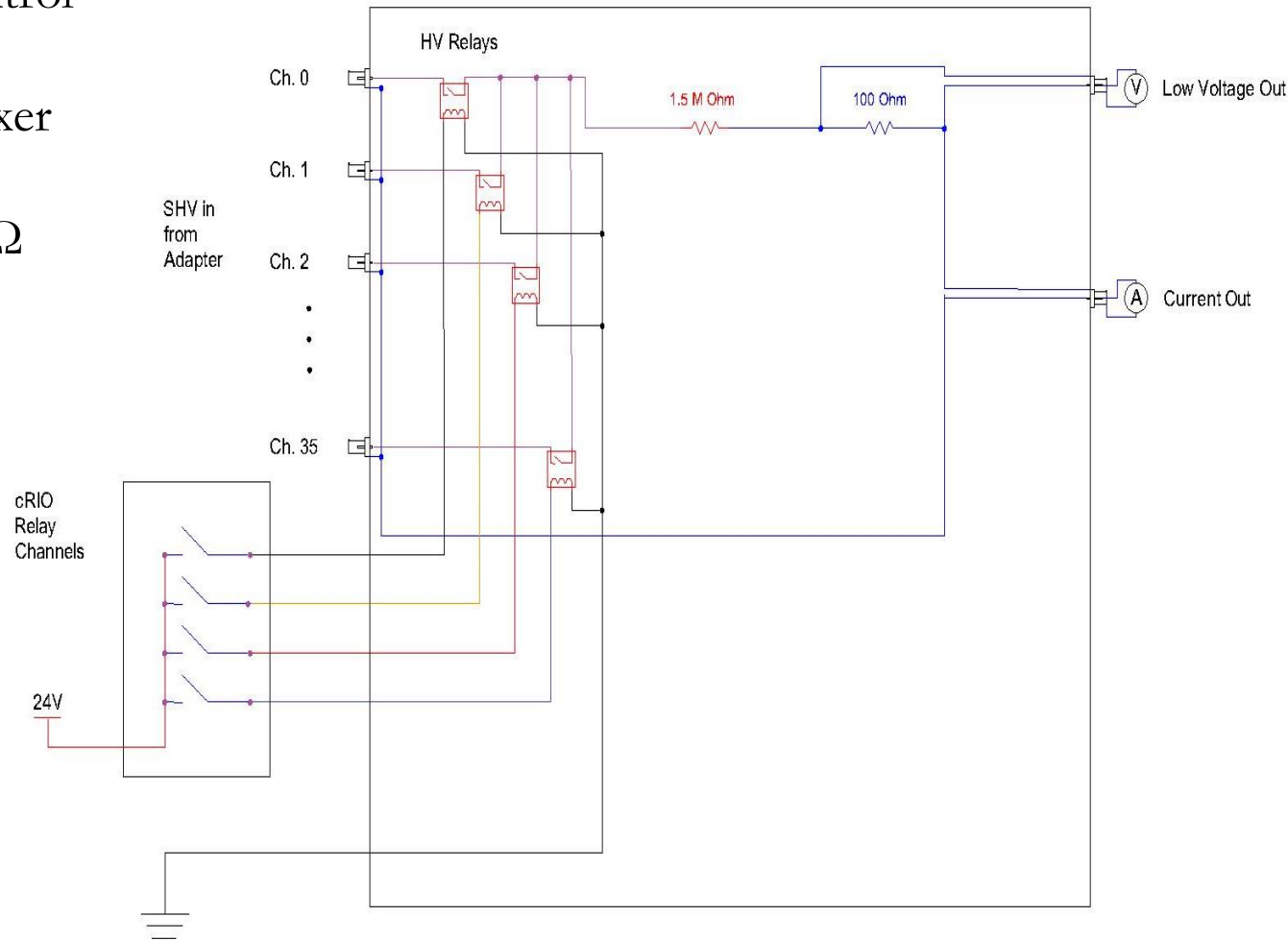
- Due to issues with CAEN SY4527 EPICS server
  - Developed test system which does not interact with CAEN's internal software
  - Used GECO software to control channels
    - GECO does not use EPICS
    - Ramps all channels simultaneously in timed stages
  - Modified HV test stand software to scan each channel and record voltage and current measurements made by two Keithley multi-meters
- Two prototype HV multiplexers built to actuate HV relays with cRIO relay modules
  - LabVIEW software developed to sequence relays and record measurements as each channel is switched across a  $\sim 1.5 \text{ M}\Omega$  load

# HV Module Test Stand Setup



# Prototype HV Multiplexer Schematic

- cRIO relay channel control software operates two prototype HV multiplexer
- 1.5 M $\Omega$  load with 100  $\Omega$  resistor provides safe measurement voltage

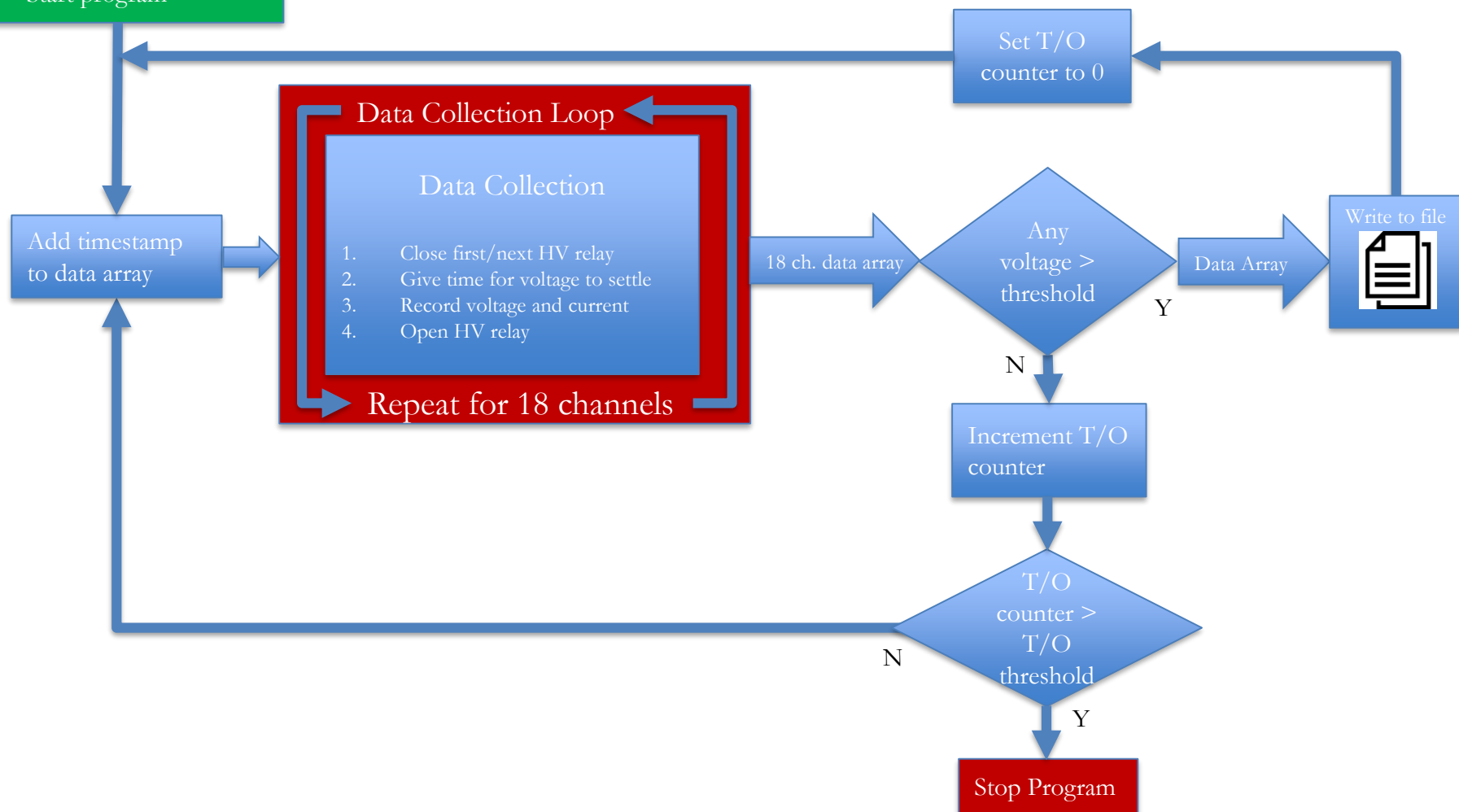


## **Test Parameters:**

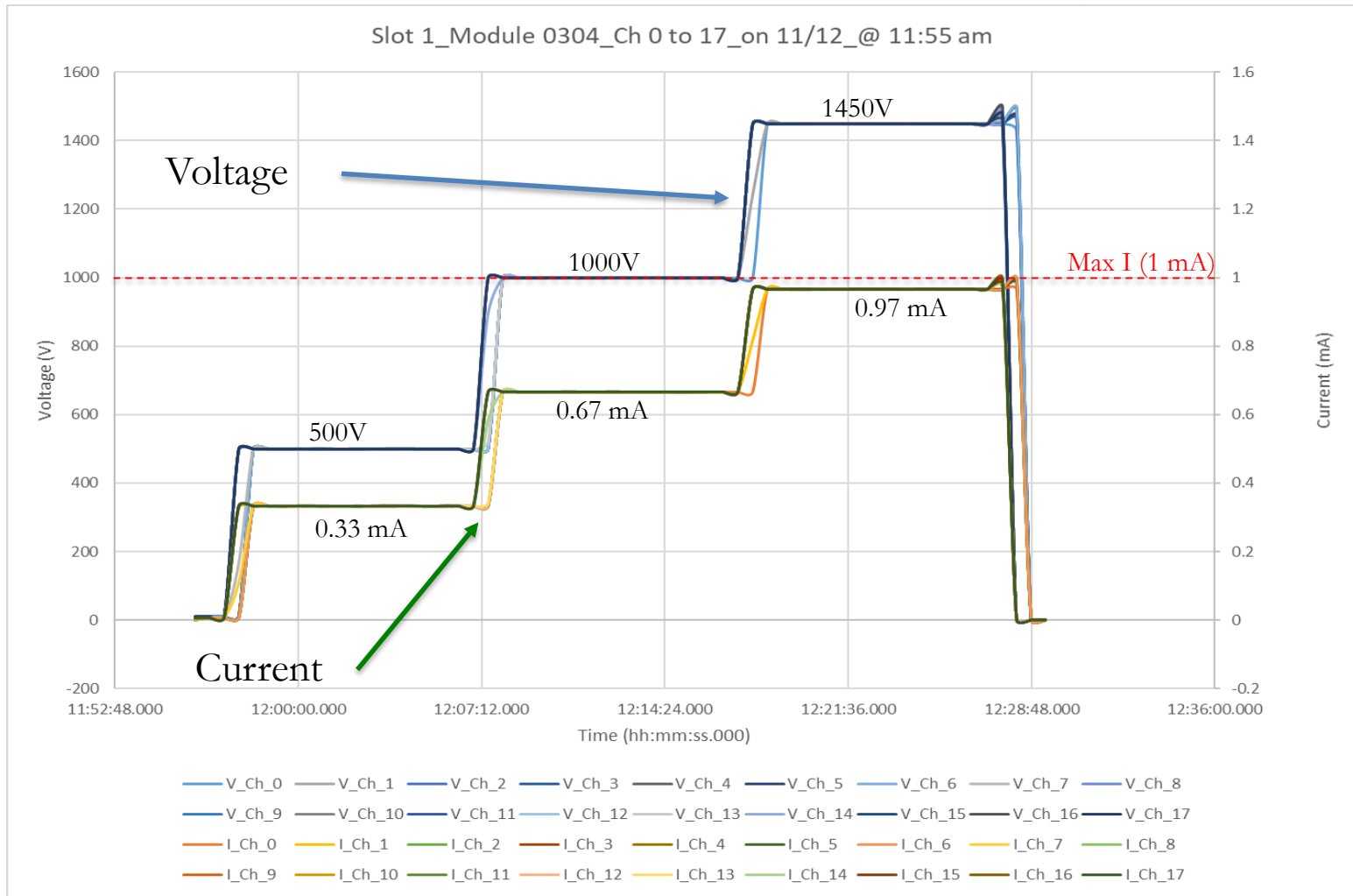
HV Voltage Range: 0 – 1500 V  
Load: 1.5 M $\Omega$  + 100  $\Omega$   
Max Divider Voltage: 100 mV  
Max Current: 1 mA  
Max Power: 1.5 W

# Relay Sequencing and Data Recording Code

1. Enter test file info
2. Set timeout (T/O) and voltage threshold
3. Start program



# Module S/N 304 results for channels 0 to 17



Test shows that this module's channels 0 – 17 work as expected.

# Conclusion

- Modifications to prototype multiplexers completed.
- Software developed to sequence relays, read, and record display from the meters.
- Measurements from first two modules indicate that test stand and software operate as expected.



# End

Thank You