LabVIEW® Control of SANS Sample Environment

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PROPERTIES
On passing, 'Finish' button: Goes to Next Slide
On failing, 'Finish' button: Goes to Next Slide
Allow user to leave quiz: After user has completed quiz
User may view slides after quiz: At any time
User may attempt quiz: Unlimited times
Overview

- Reasons for Changing Software
- Why LabVIEW®?
- Early Issues
- Software In-Use
- Future Projects
Why New Software?

- Inconsistent and Non-User Friendly
- Legacy Computing
- Future Proofing
  - Forward Compatibility
  - New Controller? Able to Retain Program Architecture
Why LabVIEW®?

- Graphical Programming Designed for Measurement and Automation
- Fast Implementation and Many Preexisting VIs
- Data-Flow Control
Issues

- Computing and Handshaking
  - Legacy Devices – ISA Compatible Cards
  - Solution: Serial-to-TTL Converter

- Rheometer
  - Proprietary Communication Language
  - Solution: Do not include in project
Handshaking

- Two VIs to mimic steps taken by VAX
  - Check input state and change output state when ready
Boulder Shear Cell

- Parker Compumotor KHX-250 Brushless Servo Motor – ASCII Serial
- Time-stamped, human-readable data log
- Rigid user task flow to limit potential user errors
- Previous software and computers removed from user program
Humidity Chamber

- Eurotherm X26 controller, Omega CN2002 controller and Neslab RTE-140 Circulator
- Direct interface to iTools software
Microlab 500

- Hamilton Microlab 500 Dispenser – ACSII, Serial
- Limited feature set required
Wire Diagram Template
Other Programs and Future Directions

- Other Small Programs
  - Handshaking Tester
  - RTD Reader
  - Pressure Rig
- Future Directions
  - Pressure Cell
  - Others?
  - ICE