DSG NPS Update

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• Mindy Leffel is fabricating the 36-channel high voltage cables
• Mindy Leffel completed fabrication of five of 40 cables
• Grounding wire connected to each braided shield at Radiall connector end
• SAMTEC connectors (labeled 1, 2, and 3) have 15, 15, and 6 HV channels, respectively
HV Supply Cable: Testing

- Two 30-pin and one 16-pin SAMTEC connectors mounted on test chassis PCB
- Populated with thirty-six 2-MΩ resistors
- HV supply cable connects to CAEN A7030TN module with a Radiall 52-pin connector and test chassis with three SAMTEC connectors

Plastic test chassis enclosure

SAMTEC IPBT-115-H1-T-D-K

SAMTEC IPBT-108-H1-T-D-K

HV Supply Cable test chassis being designed by Marc McMullen
Safety loop routed through all three SAMTEC connectors to ensure HV turns off on disconnection of any connector from test chassis.
Hardware Interlock System Development

• Uses NI cRIO-9045, 8-slot controller located in detector hut

• LabVIEW-based interlock program with subroutines common to all DSG interlock systems
  – SVT, FT, RICH-I, RICH-II

• Subroutines have run reliably since 2015 with +10K hours between software updates
  – Two subroutines unique to NPS
    ▪ Keysight measurement unit initialization and scanning
    ▪ Chiller communication
Keysight Sensor Scanning System

• Two communication modes
  – LabVIEW (RS232)
  – Web application

• Programmable scanning sequence

• Ability to scan channels across multiplexers and different sensor types
Web application with programmable channel scanning
Front Panel for Sensor Scanning

- Keysight mainframe
- VISA address
- Number of channels being scanned
- Sensor value
- Channel number
- Error buffer
• Generated with voltage and current stability test data for each channel
CSS-BOY Screen

- Buttons to turn ON/OFF all channels in both crates
- Buttons to turn ON/OFF all channels in a slot
- Buttons to turn ON/OFF individual channels
Conclusion

• Good progress
THANK YOU!