Modular RICH Detector (mRICH)

Xiaochun He and Mickey Chiu
T - 1048
The modular RICH detector consists of three components: a front-side hodoscope, RICH detector holder box, and a back-side hodoscope, as shown below.
Modular RICH Service Scheme

Legend:
- High Voltage
- Low Voltage
- Optical Fiber

1. **High Voltage Module**
   - ATX Power Supply
   - Fused < 5A
   - Ethernet: LC-LC Duplex

2. **Low Voltage Module**
   - Twisted Pair 1 Amp
   - Ethernet: LC-LC Duplex

3. **Patch Panel**
   - 8 A/160V
   - 20 AWG Twisted Pair 1 Ampere

4. **RICH Prototype Box**
   - MAPMT Cable with SHV Connector (HTC-50-1-1 like)
   - FPGA Board: 5 Volt 0.8 A
   - ASIC Board: 5 Volt 0.2 A
   - Adapter Board

5. **Trigger Hodoscopes**
   - 16 Channels in Total
   - Using sPHENIX HBD Readout Electronics (T-1044)

6. **Control Room**
   - DAQ PC
   - Ethernet: LC-LC Duplex

7. **NOTE:**
   - 1) FPGA BOARD: fuse 12 Volt 1.60 A
   - 2) Board to board connector distributes power to ASIC board: Samtec ERM5-070 / ERF5-070

8. **Trigger Hodoscopes**
   - 8 ch

9. **Front and Back Views**

10. **Ethernet Connections**
    - 10 meters (approximately)
    - < 0.5 meters