Forward Tracking Hodoscope

M. Khandaker

SANE Readiness Meeting

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Tracking Hodoscope Design

Location and Size:

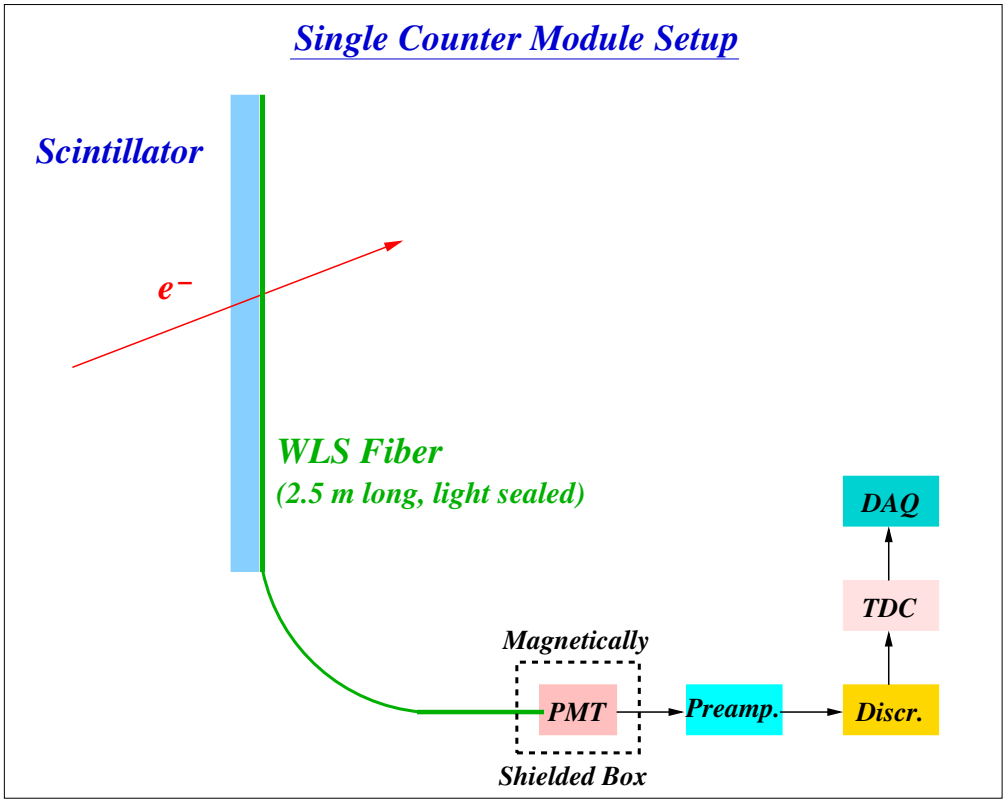
- *Located 50 cm downstream of target directly in front of gas Čerenkov.*
- *Active area: 38 cm (vertical) $\times$ 21 cm (horizontal).*
- *128 bars along vertical and 72 along horizontal.*
- *Two Y planes, offset by 1.5 mm for redundancy, and one X plane.*

Material:

- *Bicron BC-408 Plastic Scintillator (3 mm $\times$ 3 mm square).*
- *Bicron BCF-92MC multi-clad blue-green WLS Fiber (1.2 mm $\varnothing$, 2.5 m long).*
- *Fiber glued on to scintillator surface along length of bar.*
- *Scintillator/Fiber unit wrapped with Teflon for reflectivity.*

Tracker Readout System

- ***Single-ended readout with multianode PMT.***
- ***Preamplifier, Discriminator, and TDC per channel.***



- ***Hodoscope not included in event trigger.***
- ***Offset Y-planes' coincidence (in software) for reliability.***

Tracker Mount Support Frame

- ***Individual counter module stacked next to each other in each plane.***
- ***Tedlar separator between counters to prevent light crosstalk.***
- ***Counters held in place between two G-10 frames per plane.***
- ***WLS fibers coupled to PMT with Delrin block adapter and optical grease.***
- ***All three planes mounted to Čerenkov's front support frame.***
- ***Shielded box with PMTs mounted on to Čerenkov's back support frame $>$2 m away from target magnetic field.***

Tracker Hardware and Electronics

Item	Status
• Hamamatsu H8804 64-channel PMT	all units acquired
• BC-408 scintillators	all units acquired
• Multi-clad WLS fibers	all units acquired
• Fiber-PMT Mounting Adapter	all units acquired
• 64-channel PMT signal cables	all units acquired
• Phillips 776 Preamplifier	Hall C (all chnls)
• LeCroy 4413 16-chnl Discriminators	LEGS/BNL (all chnls)
• LeCroy 1877 96-chnl Multihit TDCs	Hall C (all chnls)
• CAMAC Crate	LEGS/BNL (2)
• Ribbon Cables from Discr. to TDC	all units acquired

Tracker Construction Status

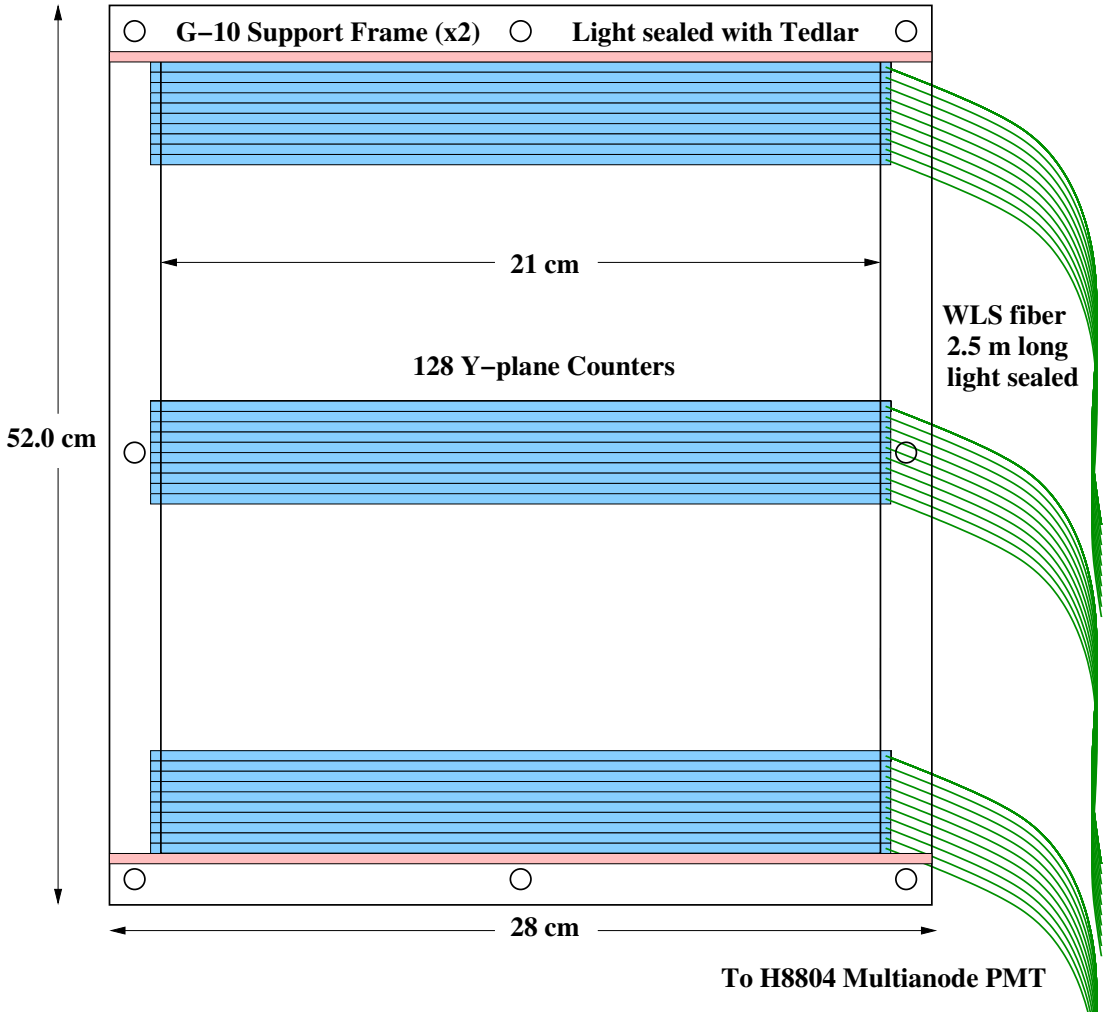
Scintillator/Fiber Module:

- ***All scintillator/fiber modules for both Y planes completed.***
- ***30/72 modules for the X plane completed.***
- ***One full Y plane of 128 bars mounted on support frame and completely instrumented.***

Support Frame:

- ***All three G-10 support frames constructed.***
- ***Metal stand for one Y plane constructed.***

Tracker Y Plane Tests



- *One Y plane of 128 bars in the hall for beam tests.*
- *Currently, mounted under the BigCal for tests with cosmics.*
- *Dedicated time available November 2-4, 2007.*

Tasks to be Completed

- ***Complete rest of X-plane scintillator/fiber modules.***
- ***Complete mounting of modules in their support frames.***
- ***Work with Hall C designers for PMT shielding box, and mounting on to gas Čerenkov support structure.***