

## TECHNICAL SPECIFICATION FOR HIGH VOLTAGE AND DATA ACQUISITION SYSTEM.

To study the Atmospheric Muons, we use Resistive Plate Chamber (RPC) which is a parallel plate charged particle detector. It needs high voltage and data acquisition system with following specification.

### High Voltage System:

To operate the above detector we have to have a power supply system that can provide

- 1) +6kV to +10kV, 12-Channel (with SHV connectors as output) High Voltage Module which can draw up to 200uA current
- 2) -6kV to -10kV, 12-Channel (with SHV connectors as output) High Voltage Module which can draw up to 200uA current
- 3) Display Screen to operate the above boards
- 4) And finally Basic 600W Main Frame where the above modules will be housed.

### Data Acquisition (DAQ) System:

Data have to be accessed and collected for further analysis. For this process the following electronic modules are needed as a single unit.

### NIM Based:

- 1) 4-8 Logic FAN-IN/FAN-OUT: single width NIM unit to have multiple outputs
- 2) 300W NIM 7U Powered Crate to house the NIM based modules : should consists of 12 slots, Smart Fan Unit, and the output voltages as  $\pm 6V, 17A$ ;  $\pm 12V, 3.4A$ ;  $\pm 24V, 3.4A$ .

### VME Based:

1) Scaler:

Specifications : 32 Channel, 32-Bit resolution Scaler with 250 MHz width and ECL/ LVDS inputs.

2) ADC (Analog to Digital Converter) :

Specifications : 32 Channel Multi Event Charge ADC, 12-Bit resolution, ~512 pC full Scale and NIM inputs with LEMO connectors.

3) TDC (Time to Digital Converter) :

Specifications : 64 Channel Multihit TDC, 100-200-800 ps as LSB with different resolutions, and ECL/ LVDS inputs

4) General Purpose VME Board: can be directly customized by the User through two FPGA units.

5) 32 ECL output channel interface for the above General Purpose VME Board

6) VME-PCI Bridge + PCI Optical Link + Optical Fiber 5m duplex

7) 32 Channel Cable Adaptor

8) 7U Low Cost VME Crate:

This crate houses all the above electronic modules.

Specifications : 19" rack mountable, 21 Slot, Pluggable Power Supply as 5V, 60A; +12V, 8.9A; -12V, 6A .

Other essential requirements.

- a. Warranty for a minimum period of one year.
- b. Operating and service manuals for all units must be provided.

- c. The company must specify the year, name and address of the institutes / organizations to which similar units have been supplied and installed in India.