Polarimeter status

- The JLab vacuum chamber will arrive this week ☺
- Once Lesker started building the chamber, I began purchasing equipment for the polarimeter
- The polarimeter is finally in the construction phase

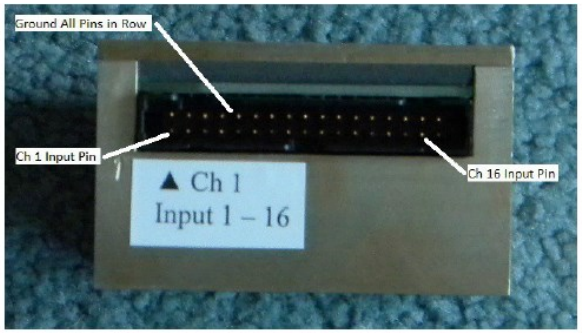
Purchased but do not have yet

Swan Research Preamp boxes with preamps installed

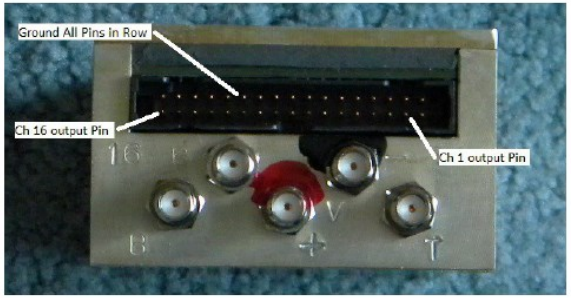
Dimensions:

height = 1.375 inch
width = 2.5 inch
length = 3.725 inch

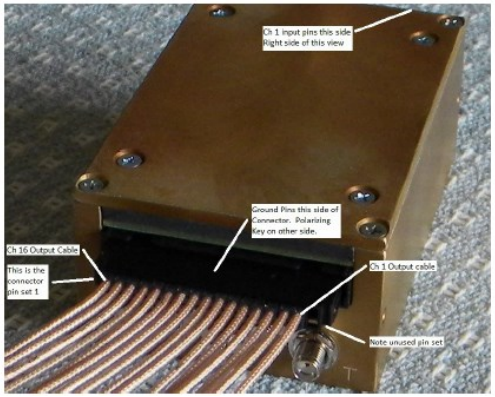
- Input side



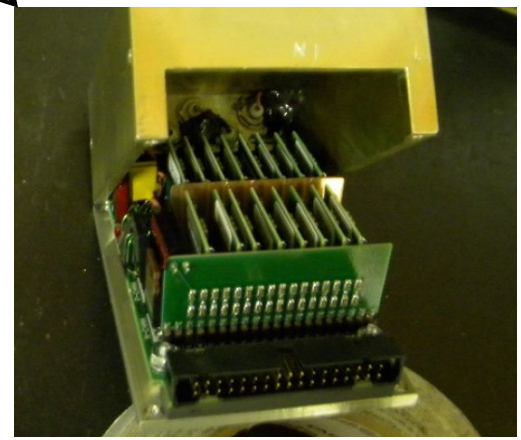
- Output side



- With output signal cables

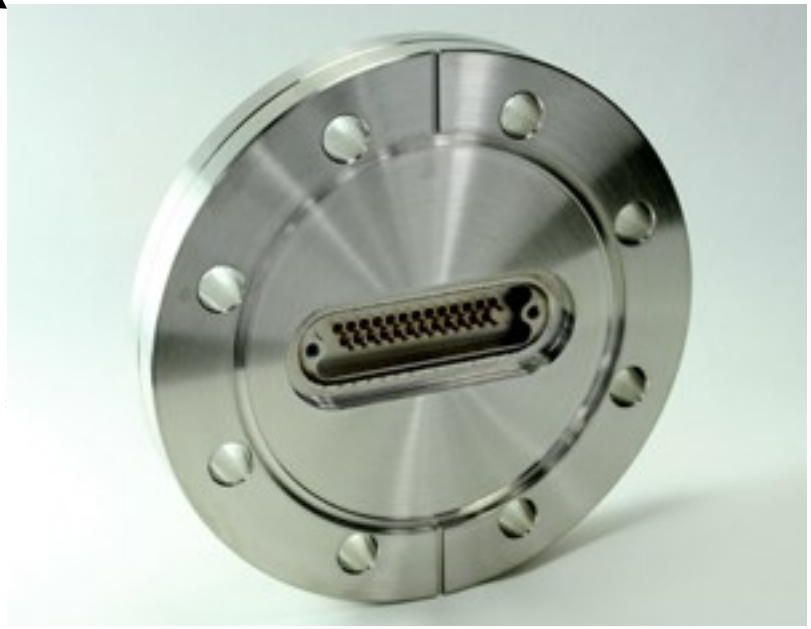


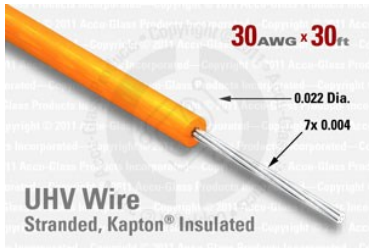
- Open view (showing 16 hybrid preamp cards)



Feed through

- D-type connectors
- Flange: Max vacuum 10^{-10} Torr
- Two 50-pin D-type on 6 inch CF ⟶ (for signals)
- 25-pin D-type on 4.5 inch CF (for positioning system)
- Vacuum side connectors: Max vacuum 10^{-8} Torr
- Wire: max vacuum 10^{-10} Torr





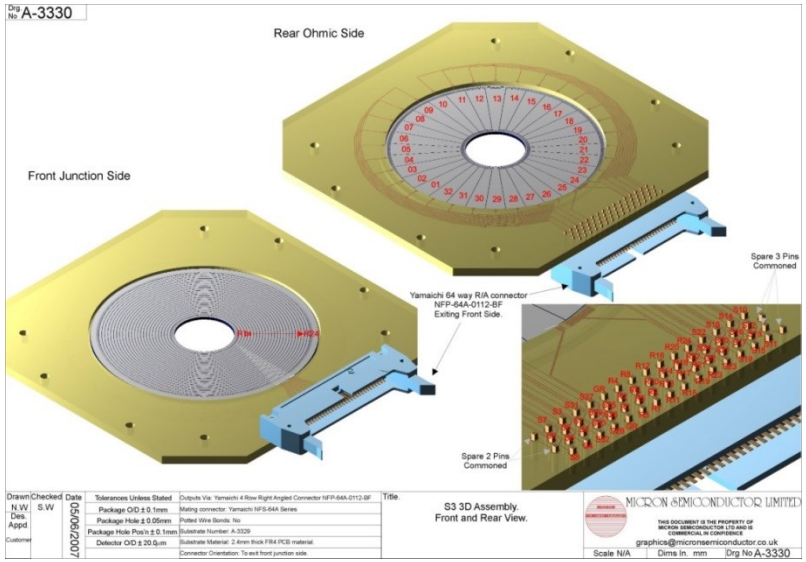
50-pin connector

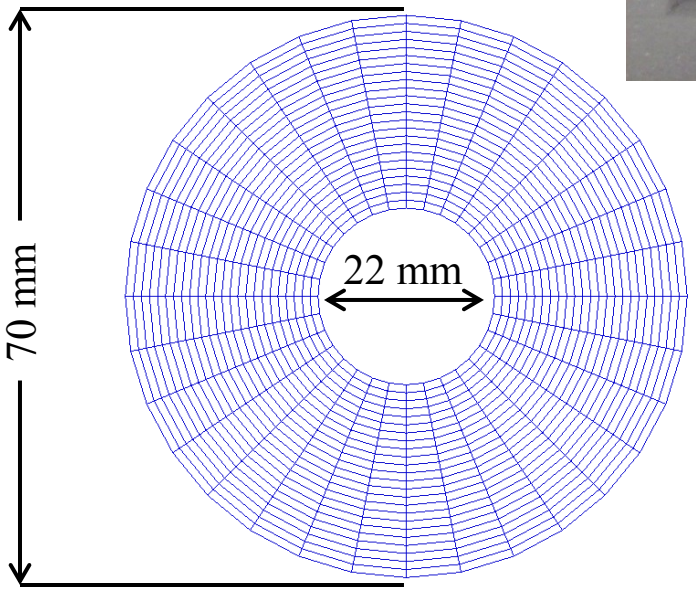
Other stuff that has been ordered but I do not have yet

- Assorted flanges, fittings and related hardware
- Pump exhaust filter
- Air-side connectors and other wire related items

Stuff that we have in the lab

Detector

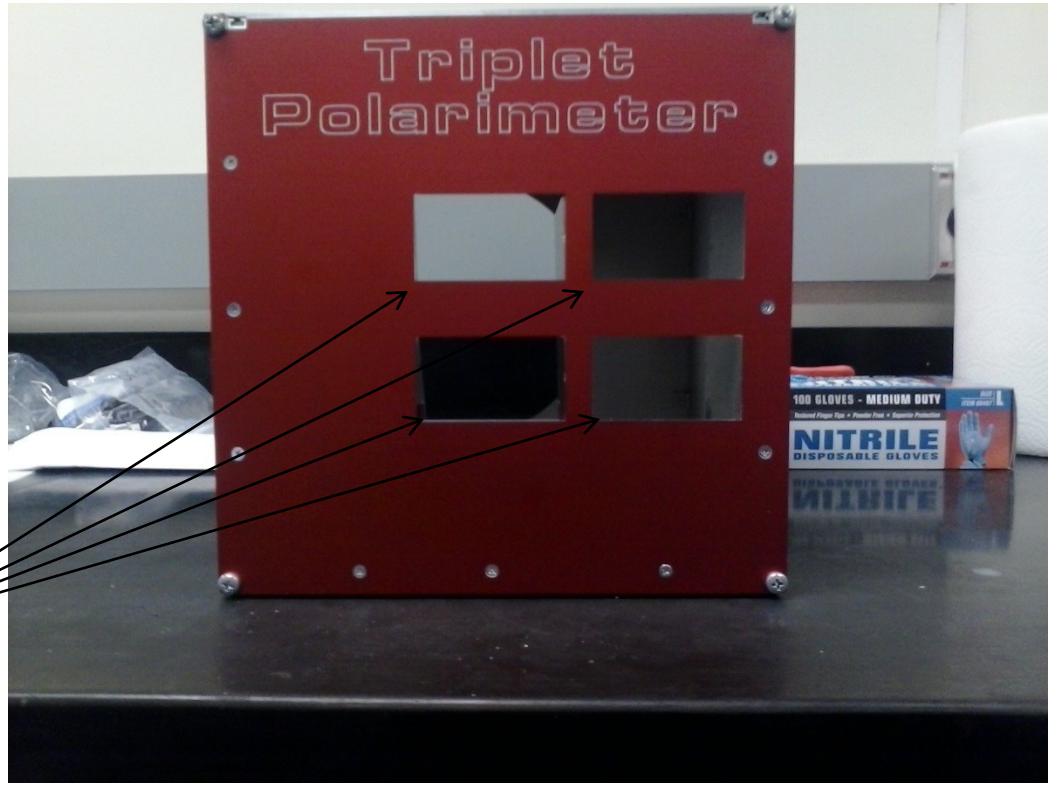




1.034 mm thick

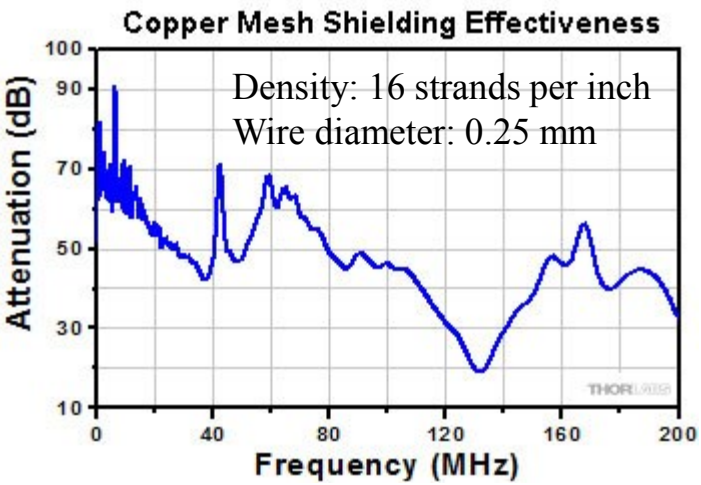
Preamp enclosure (view 1)

- Designed enclosure after consulting with preamp manufacturer
- Front Panel Express fabricated parts
- Backend of each preamp box will be flush with surface of enclosure
- Four preamp-box cutouts

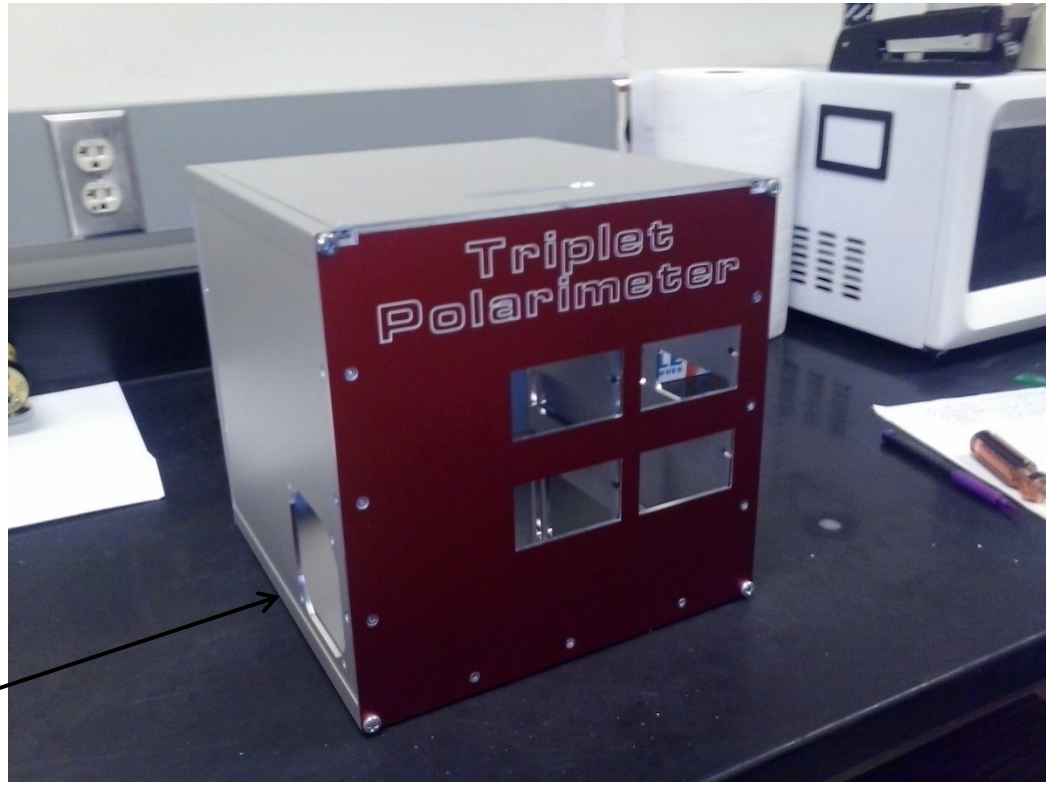


Preamp enclosure (view 2)

- Inlet fan (not shown) will be mounted on outside of box and copper mesh will be used to shield preamps from electrical noise coming from the fan



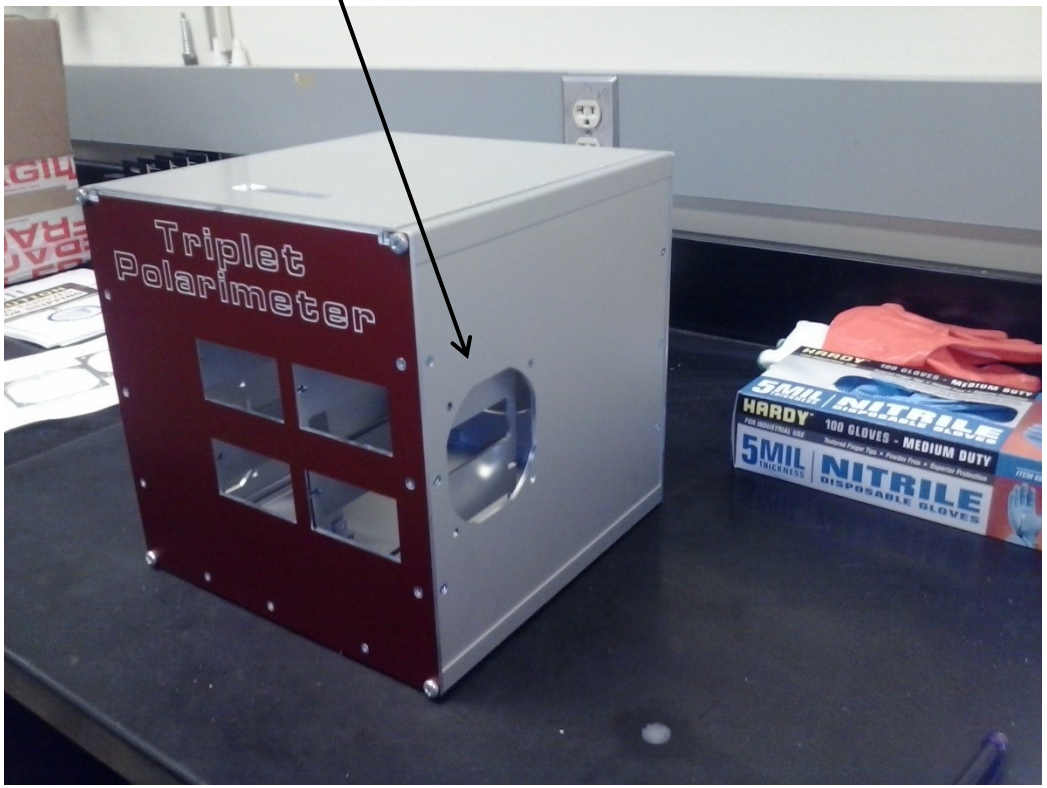
(Note: Cutoff frequency of preamps will be 100 MHz)



- Inlet fan goes here

Preamp enclosure (view 3)

Outlet fan goes here

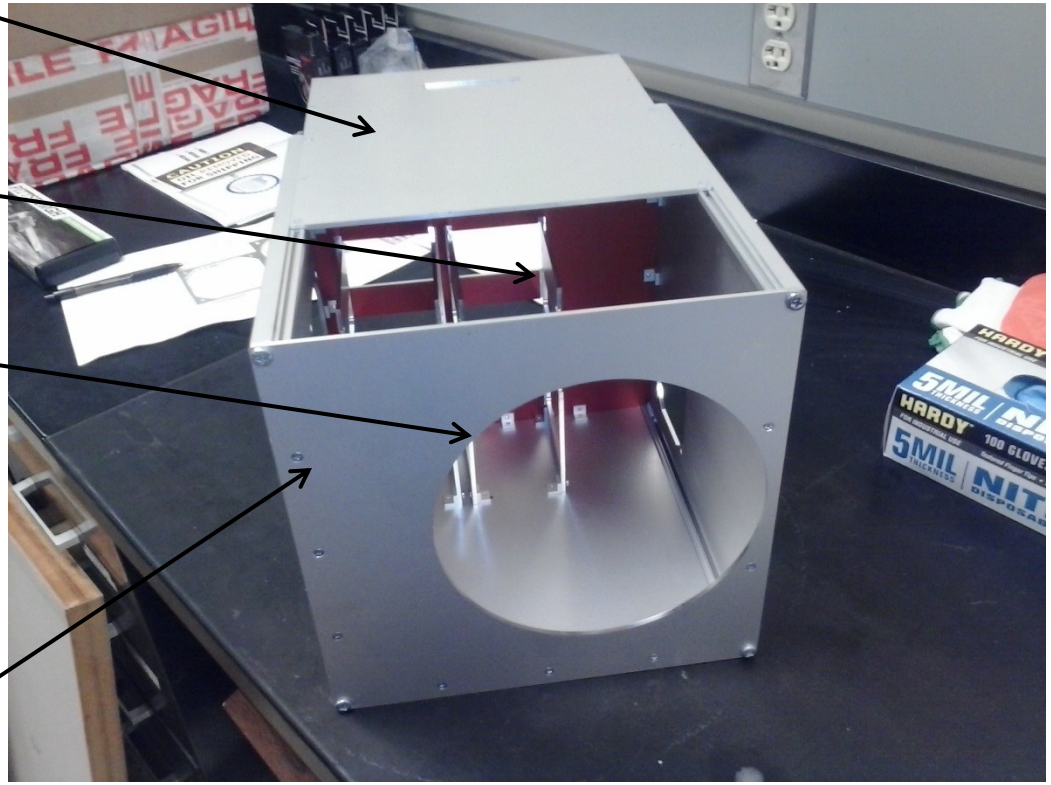


Fans:

- Standard computer case fans
- Enermax 80 mm
- 1500 RPM
- 24 CFM
- Bought and received

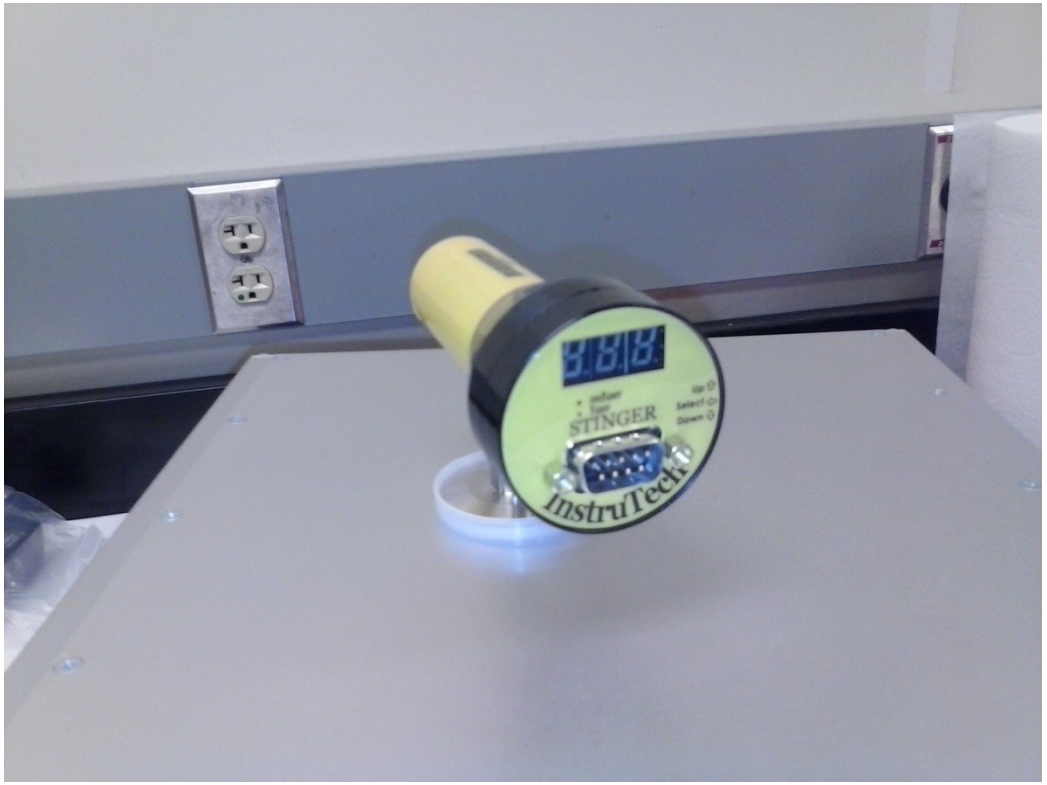
Preamp enclosure (view 4)

- Top slides off
- Supports for Preamp boxes can be seen
- Opening (7 inch) for the 6-inch electrical feed through flange
- This surface will be in contact with the vacuum chamber



Vacuum gauge (for testing)

- Stinger convection gauge
- From 10^{-4} to 10^{3} Torr
- Built-in controller
- LED display
- One analog output
- One set-point relay

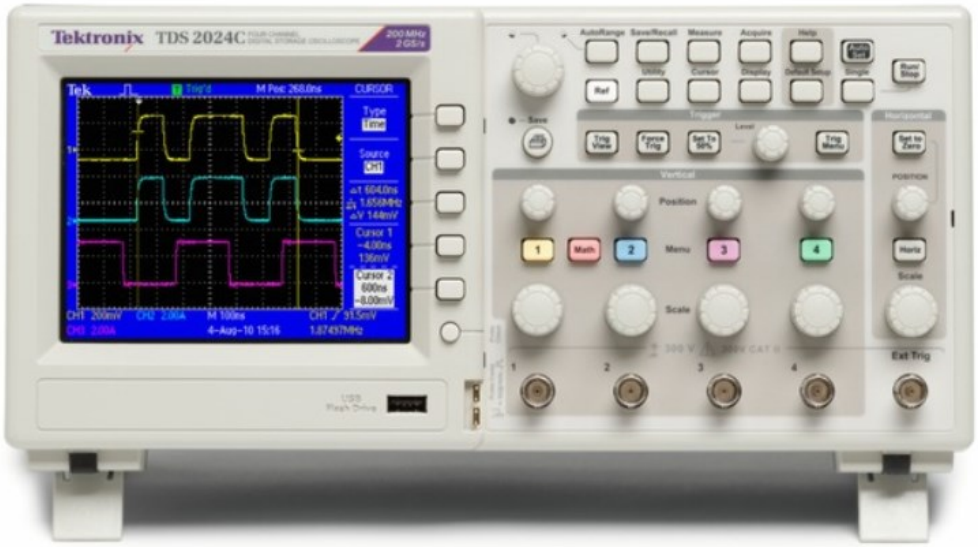


Vacuum pump (for testing)

- Manufacturer: Alcatel
- Model: 2004A
- Type: Dual stage rotary vane
- 3.2 CFM
- Ultimate pressure: 10^{-4} Torr

New scope

- Tektronix TDS-2024
- Bandwidth: 200 MHz
- Sample rate: 2GS/s
- 4-channel



- Data logging (need for analysis of signals until we can get JLab to lend us a fast ADC)

Still need to purchase

- Low voltage (+/- 12V), low noise power-supply (consulting with preamp manufacturer to help in choosing good supply)
- Cables from air-side connector to preamp boxes
- Low voltage power-supply cables
- Items for positioning system
- Other stuff I can’t think of at the moment