

ICARUS Update

Jacob Larkin and Anna Heggestuen

Proton PMG Meeting

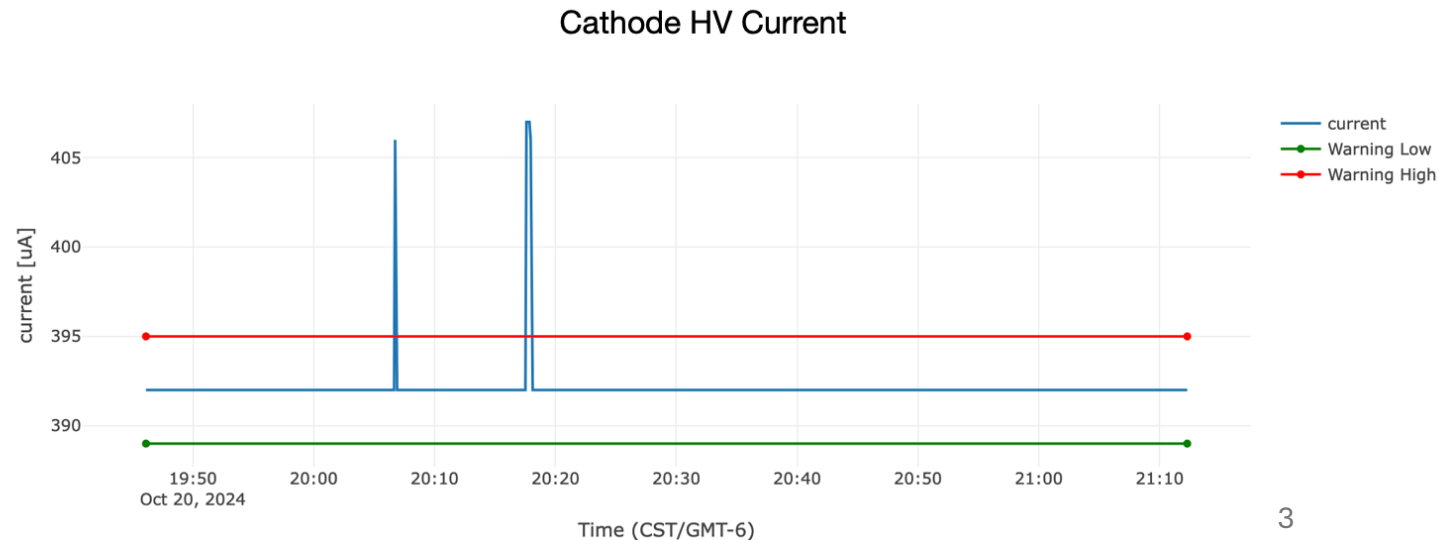
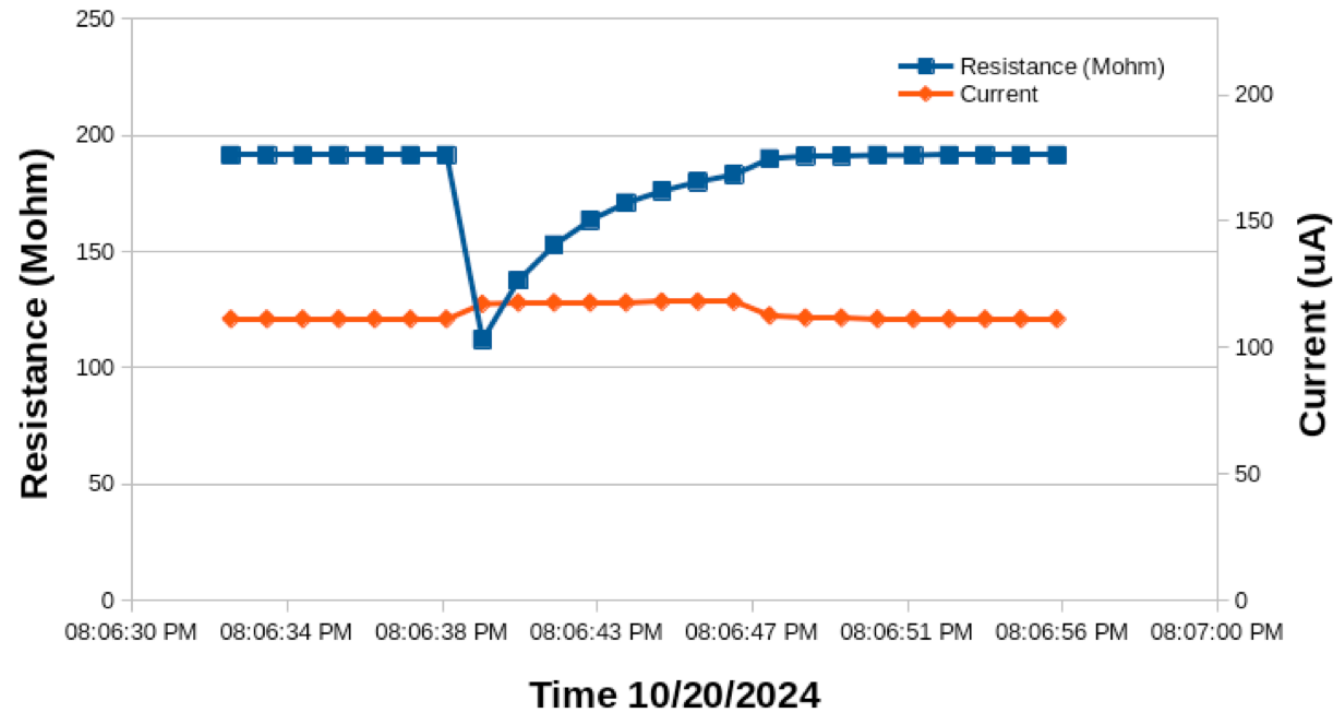
November 7, 2024

Current Status

- Currently operating at a reduced cathode voltage (50 kV instead of 75 kV nominal), will return to 75 kV when argon refilled
- Argon delivery Monday (Nov 11th), filling on Tuesday, ~1 week to recover argon purity
- Final trigger tests this week, then preparing for physics run when beam returns
- DAQ has been demonstrated to run for long (≥ 24 hrs) periods of time after AL9 upgrades, expected to be stable during beam run
- Hardware issue caused one server to fail, replaced with spare. Testing new servers to serve as additional spares.

Cathode HV

- Shortly after 8 pm on Oct 20 shifter notices a sudden drop in cathode voltage (75 kV to 30 kV and back to 75 kV)
- Timing lines up with scheduled venting of argon
- After consulting with experts, we lowered to cathode voltage to 50 kV around midnight
- The issue is thought to be caused by a low argon level
- Argon refill next week



Argon Purity

- Looks like argon venting triggered cathode voltage drop
- If we stop venting, can run stably at 75 kV until the argon is refilled?
- The week of Oct 21, we didn't vent the argon (but still at 50 kV) and saw a dramatic decrease in argon purity as a result
- 3 ms electron lifetime considered minimum necessary for physics
- Continue to run at 50 kV (with argon venting) until argon is refilled

