

# Useful tools for cryocooler management

TWG Meeting

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# Outline

- A useful tool we came up with for switching to/away from the Equipment Protection System (EPS)
- A useful tool we didn't come up with: EPICS surveillance (or even control) of cryocooler controller
- Why you still want to look at your cryocooler every so often



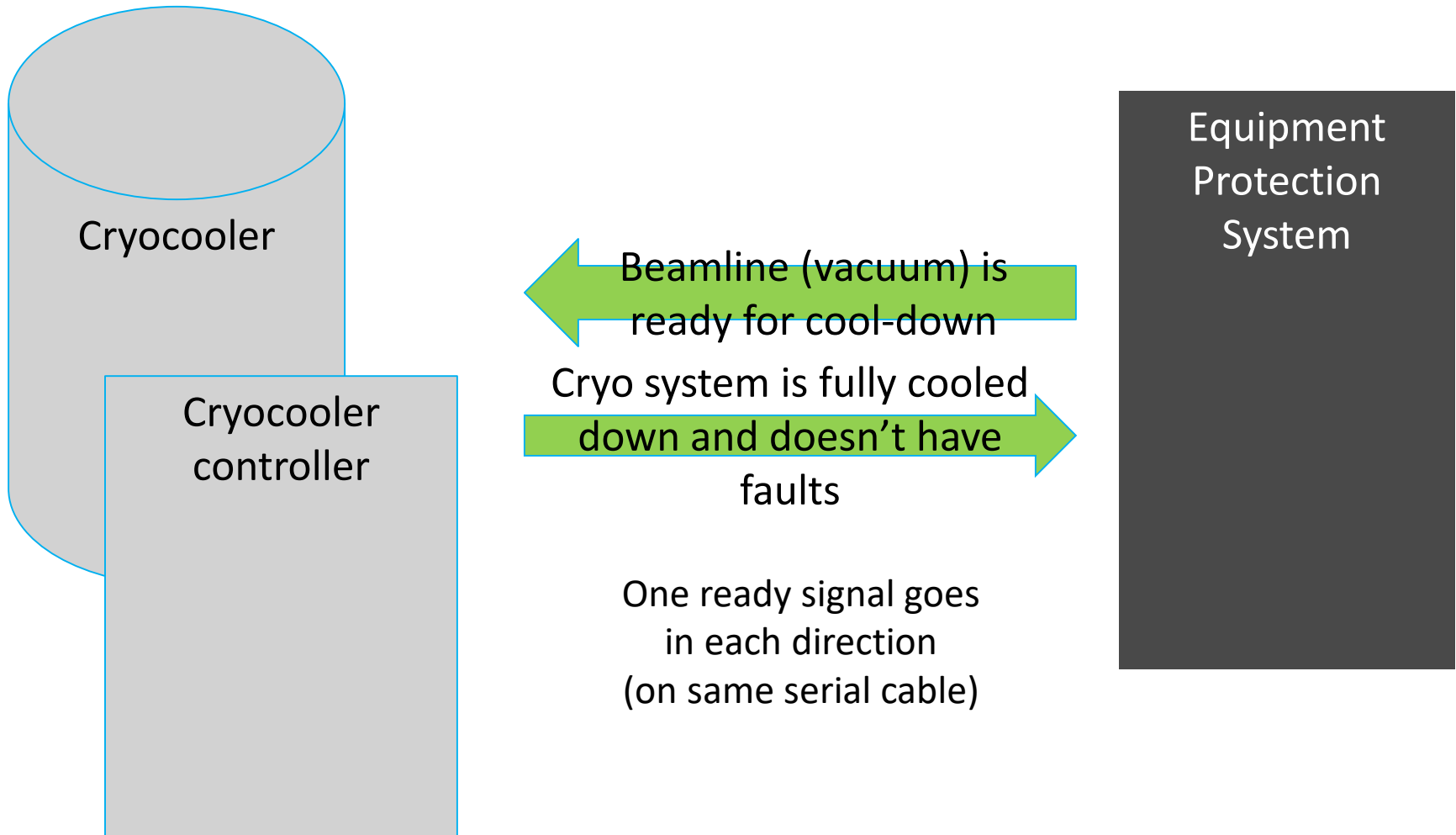
# Part 1:

## Our useful tool: A switch to quickly connect/disconnect cryocooler to EPS

A few beamlines have expressed interest in this, and Greg Banks suggested I present more generally than one beamline scientist at a time



# Schematic of cryocooler/EPS interaction



# The occasional need for a quick switch

- The issue: What if you want to run the cryocooler without the EPS?
  - EPS is being worked on
  - EPS electrical circuit will be turned off
  - You know the vacuum in the monochromator tank is good, but the EPS doesn't
- You can unplug the DB-9 cable that goes to the cryocooler control and replace it with the jumper that came with it
- But that takes a minute or two to do this, during which time the cryocooler will be turned off because it lost the EPS signal
- Instead, we installed a switch that quickly switches from the EPS signal to the jumper
- **Important Caution:**
  - Since this overrides the EPS signal, only use this when you're sure that the beamline is ready for the cryocooler to run, and use it for the shortest possible time



# Our useful tool: A switch to quickly connect/disconnect cryocooler to EPS



# Our useful tool: Switch to quickly connect/disconnect cryocooler to EPS

- The switch: DB9 manual data switch, \$30 on Amazon
- 7-ID has a different model that's apparently no longer produced but does the same thing



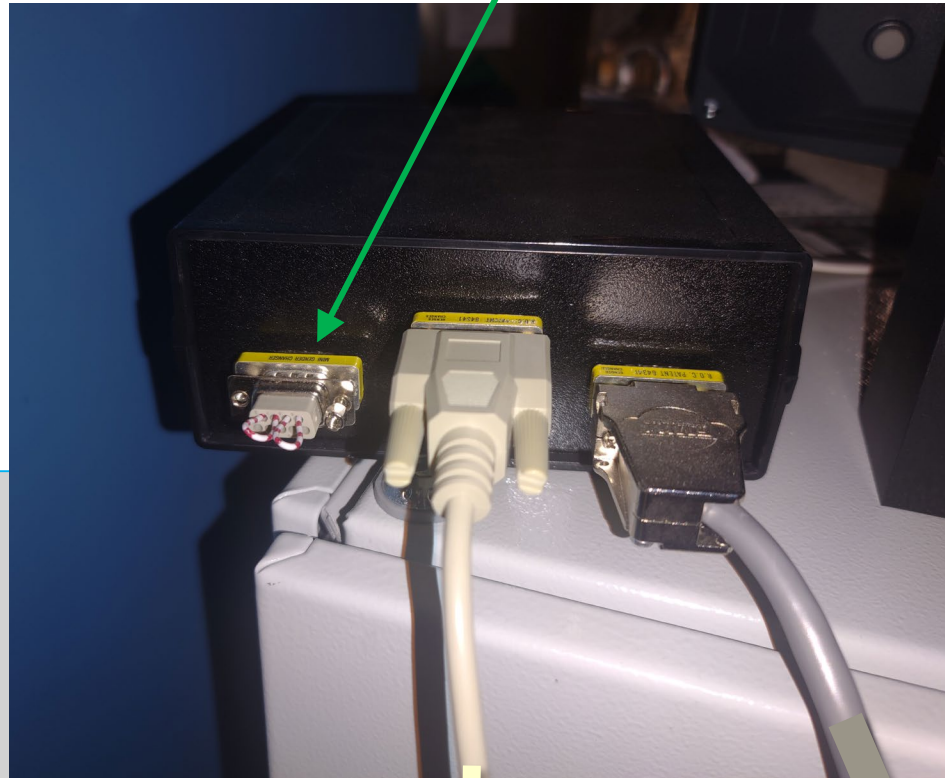
# Rear view of switch box & connections

Jumper

Cryocooler

Cryocooler controller

Equipment Protection System



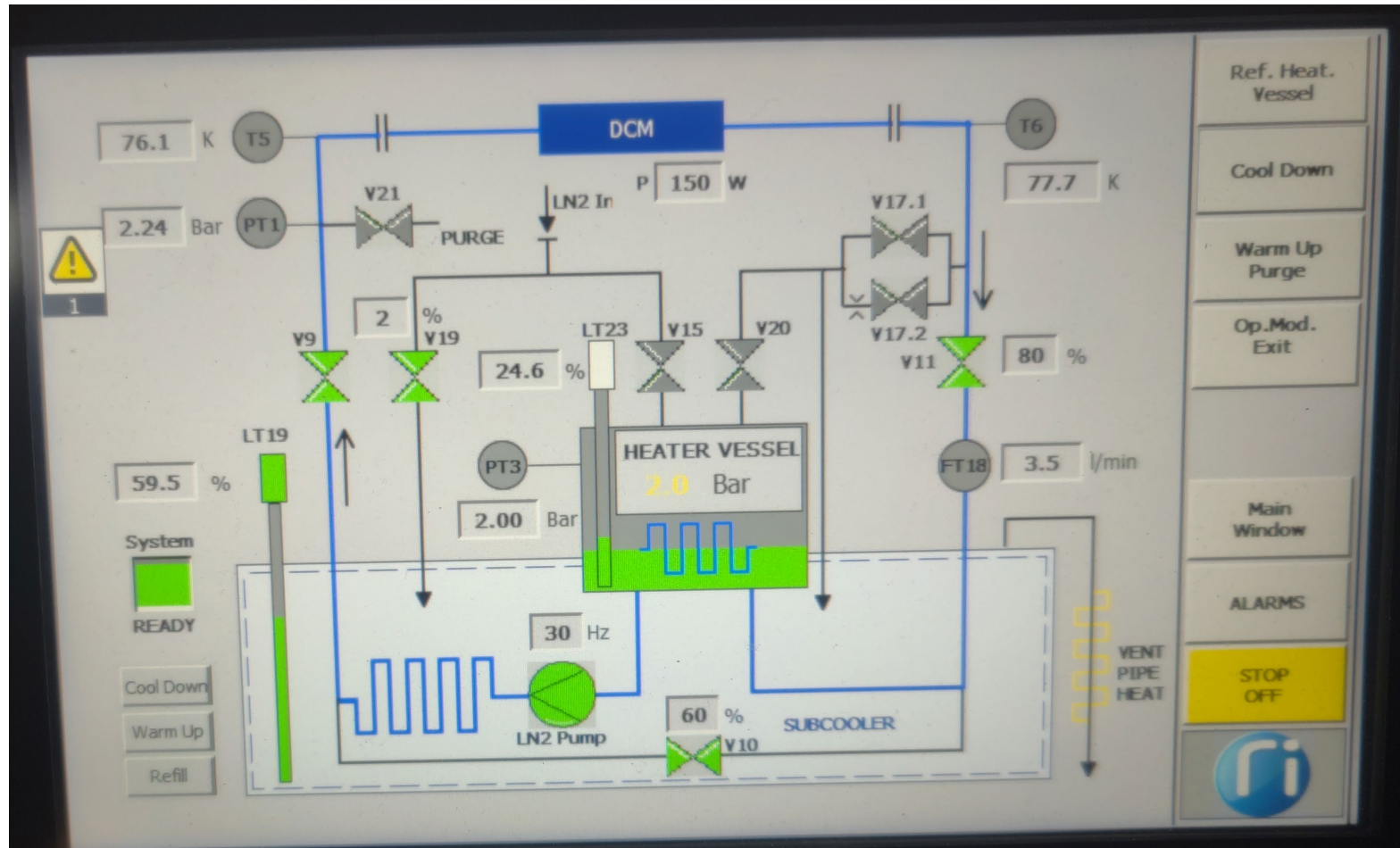


## Part 2:

The idea that isn't ours: EPICS version of control screen

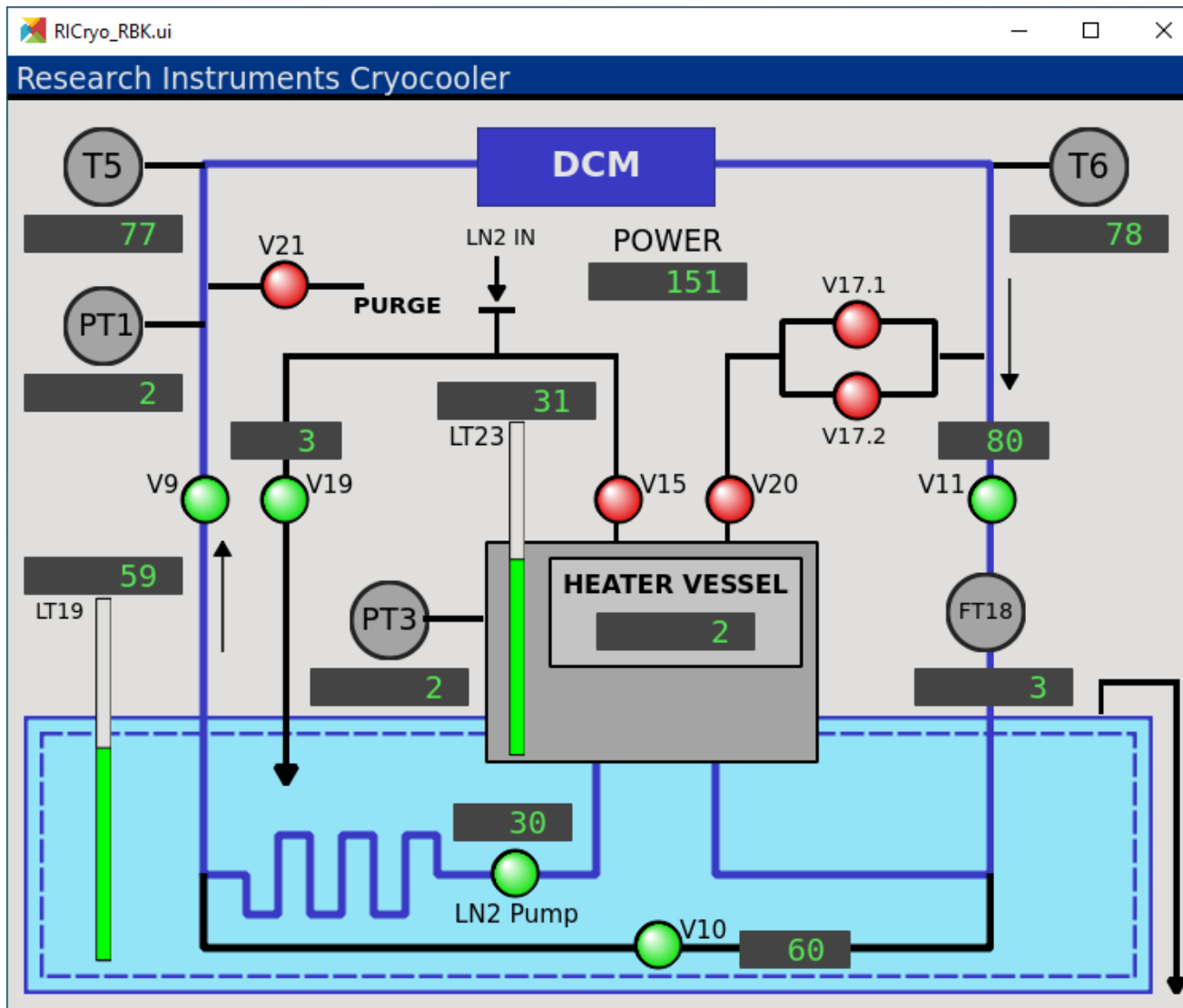


# Photo of touchscreen on RI controller



Very useful except you have to go to the cryocooler to use it

# EPICS read version of control screen



- Shows temperatures, pressures, valve status, etc.
- Ask your BCDA contact to find out more
- There is a second screen for controlling / changing PVs, which I have not used

## Part 3:

Even with the EPICS screen and EPS status, you should maybe look at your cryocooler every month or two



# What a cryocooler should not look like

- Simple explanation for this ice stalagmite:
- Heater was not working
- A relay in this box failed
- Sometimes, standard electrical components just fail



# Thanks to:

Erika Benda

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Kurt Goetze, Dave Cyl, possibly others

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