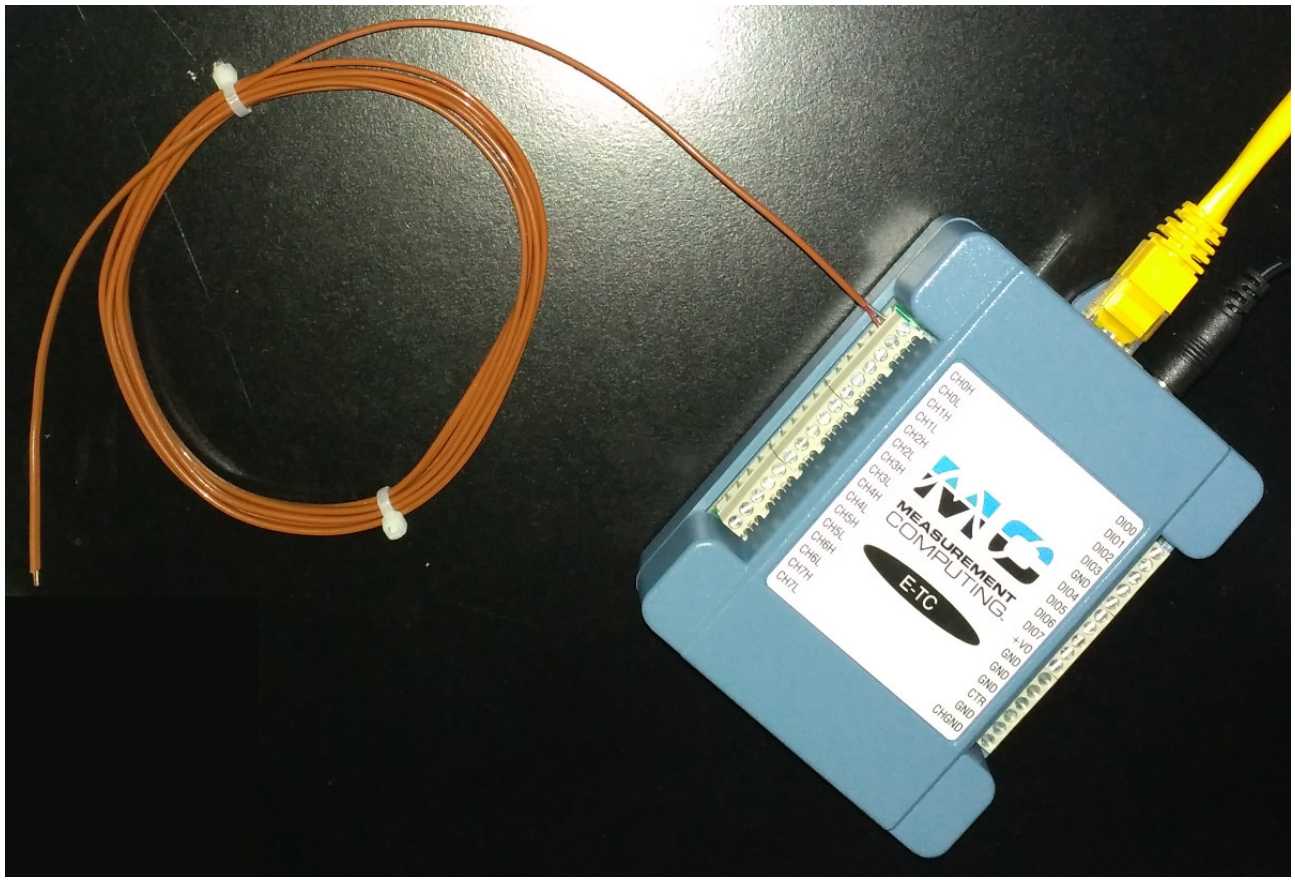
Setup

- MCC E-TC: Ethernet DAQ device for thermocouple
- Thermocouple (TC): Omega Type T



- Remote access system:
  E-TC – Home LAN – Win PC – LabVIEW

Status & Update

- Condition of the original VI code?

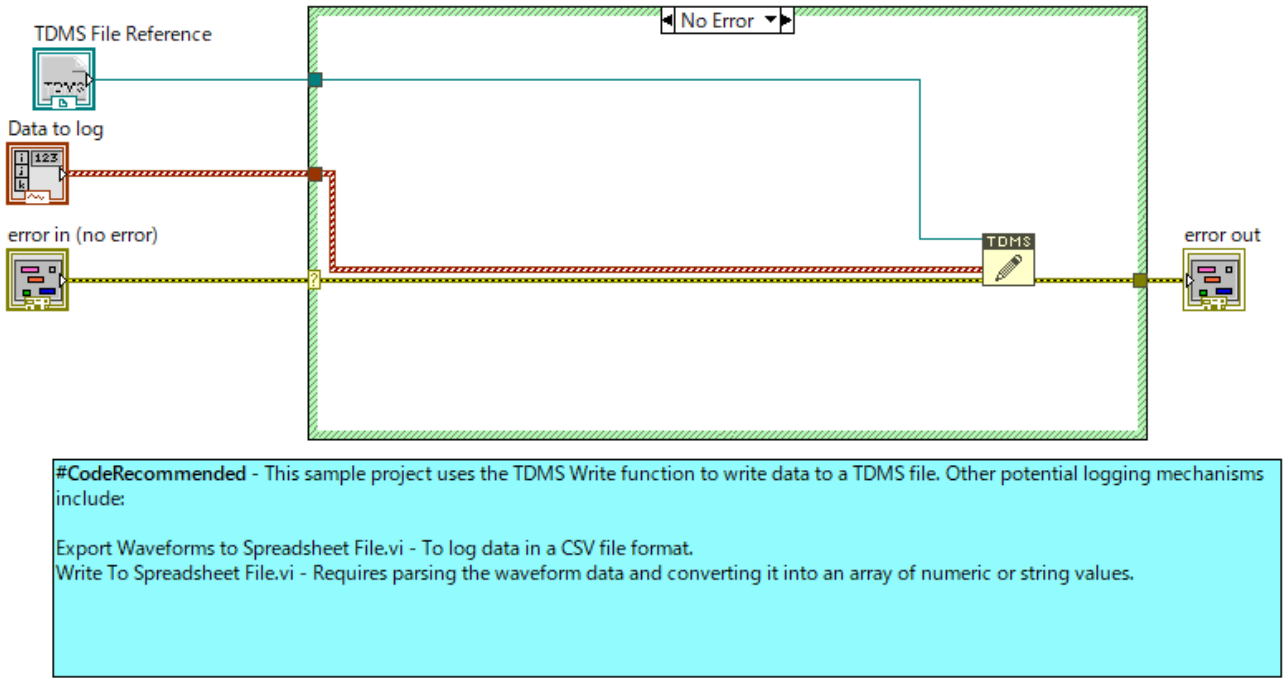
  `https://github.com/uva-spin/Temperature-Pressure-VIs/tree/main/Delacor_Complete/js5mv_10272020/ThermistorCML`

  - Does not run as is in my environment
  - Run fine in Reggie's environment
  - Any version difference in VI code, ULx library, hardware, etc.?
- My version:

  `https://github.com/uva-spin/Temperature-Pressure-VIs/tree/main/MCC_ETC_VIs`
- Tasks: Find a reasonable way of changes under CML DQMH
  1. Change the format of log files
  2. Adjust the readout rate
  3. Increase the number of channels to be read out, plotted and logged

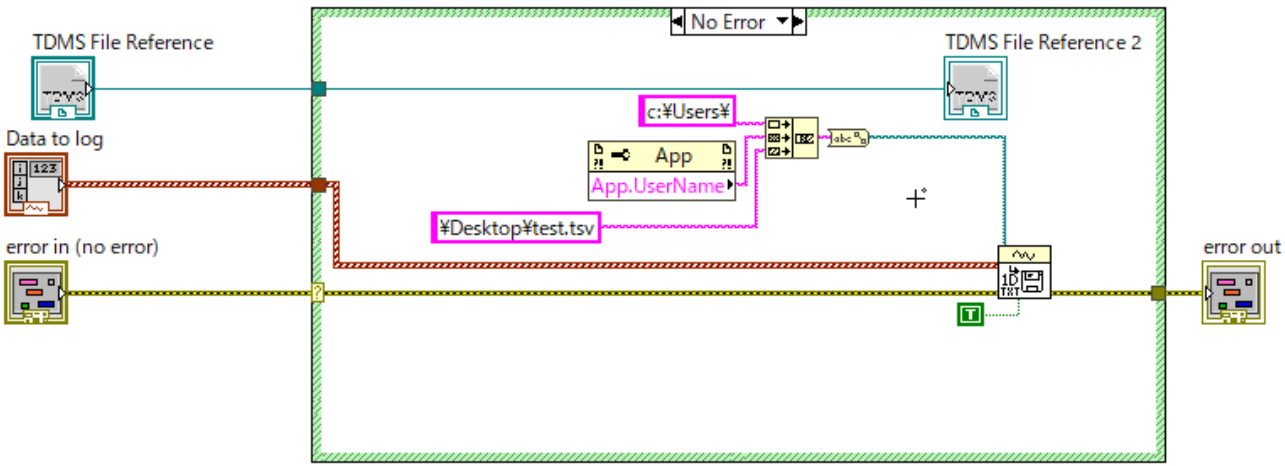
#1: Format of Log File

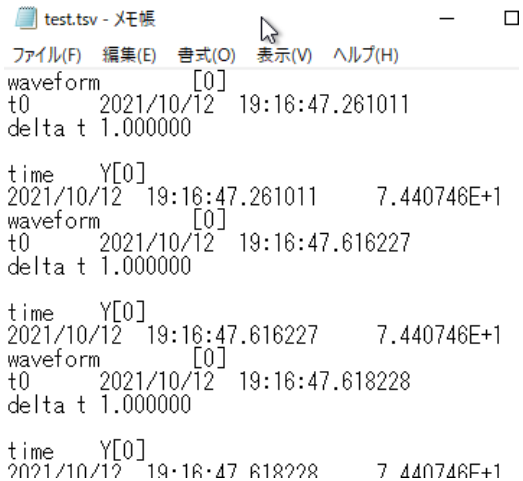
- Better use TSV, instead of TDMS
- `Logger.lvlib/Logging Calls/Log Data to File.vi`



  - The "`TDMS Write`" function is used in the original code

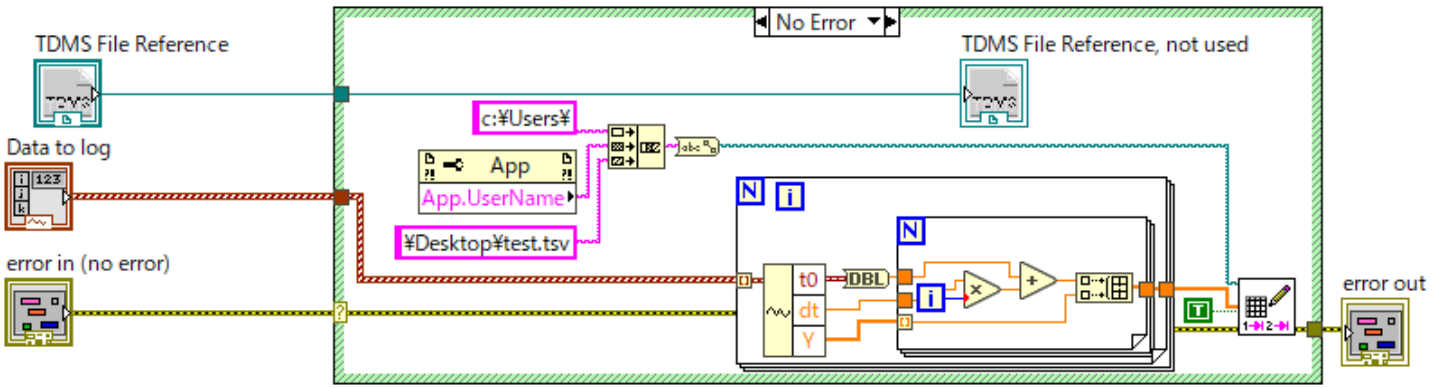
- Trial #1:
  Use “`Export Waveforms to Spreadsheet File.vi`”
  as recommended





  - Not quite satisfactory
  - The line format of TSV is hardly usable
  - The file path is not taken from “`TDMS File Reference`”

- Trial #2:
  Write a circuit by myself



test - メモ帳

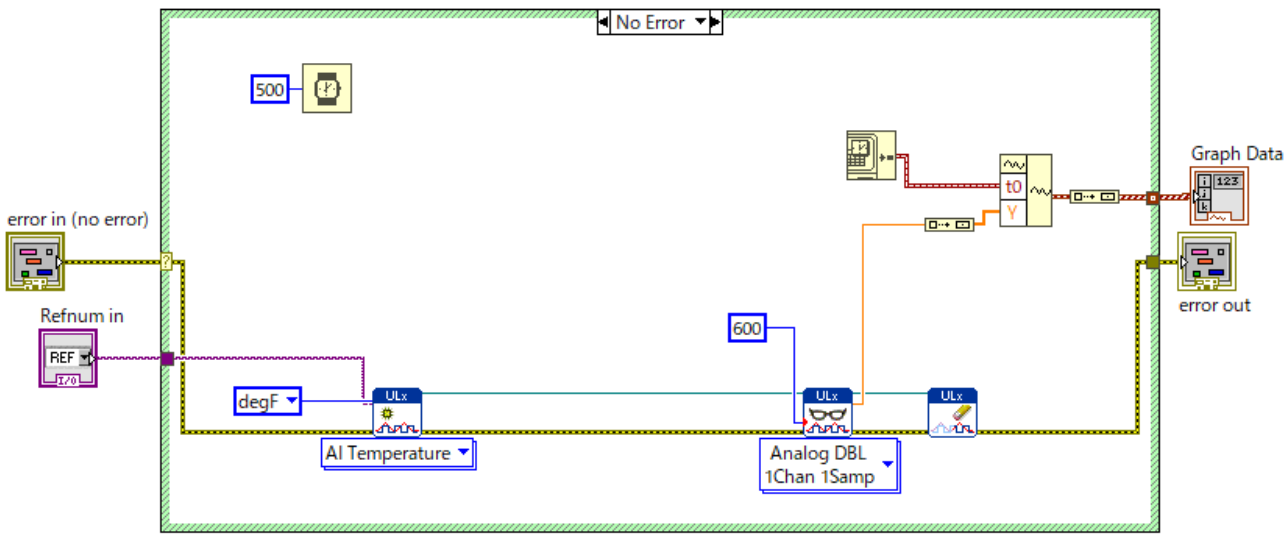
ファイル(F)　編集(E)　書式(O)

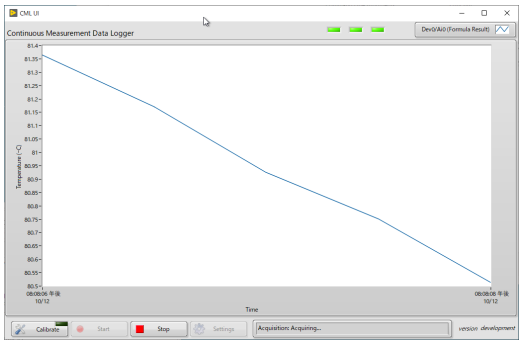
3716931498.694	74.086
3716931499.037	74.086
3716931499.039	74.086
3716931499.040	74.086
3716931499.042	74.086
3716931499.044	74.086
3716931499.045	74.086
3716931499.046	74.086
3716931499.048	74.086
3716931499.050	74.086
3716931499.051	74.086
3716931499.053	74.086
3716931499.054	74.086
3716931499.056	74.086
3716931499.058	74.086

  - Convert “array of waveforms” into “array of (time, reading)”
  - The contents of TSV is OK
    - The time is now “seconds” (since 1904-01-01 00:00:00) instead of “time string”
  - The file path is still not taken from “`TDMS File Reference`”
  - Is this the reasonable way????

#2: Adjustment of Readout Rate

- `Acquisition.lvlib/HW calls/Acquire.vi`





- Simply added the "`Wait (ms)`" function
- The "`ULx Timing`" function seems not usable in this case, since it cannot control the rate when `clock source` = `NoClock`

#3: Change N of Readout Channels

- Not tested yet
- Possible methods
  - Make the DQMH module “cloneable” and set up one instance per channel
  - Store the readings of all channels into one “waveform” in “`Acquire.vi`” and interpret it correctly in “`Log Data to File.vi`”