The Focus control are located on the MCC2 GUI Tab. Details are located in MCC/Details/FIOC. The _focus.c program controls the focus control.

**Summary of the focus program:**

**User Variables:**
- `int enable; // UI: enable control loop [0=off, 1=on]
- `float dpos; // UI: requested Focus position as voltage
- `float apos; // AI: value of Focus position indicator...
- `speed; // DO: Focus Speed [0=slow | 1=fast]
- `int stuck; // UO: set if focus does not respond to move command

**Digital Output:**
- `FOC_DO_Focus_In - opto 22 logic: 0=stop; 1=focus_in
- `FOC_DO_Focus_Out - opto 22 logic: 0=stop; 1=focus_out
- `FOC_DO_Focus_Fast - opto 22 logic: 0=slow; 1=fast;
- `FOC_DO_Focus_Brake - opto 22 logic: 0=on; 1=off;

**Analog Inputs:**
- `FOC_AI_Focus_Pos - raw ranges -10.99 to +10.55 (-7.33 to +7.00V scaled by relay board).

**Summary of Logic:**

apos is the focus position, the relay board reduces the voltage by 2/3 to bring the -10V range to within +/- 10 volts of the opto22 A2D. The focus program, multiplies the opto22 A2D input by 1.5 for focus.apos:

$$\text{focus.apos} = \text{FOC\_AI\_Focus\_Pos} \times 1.5;$$

The FIOC_DO_Focus_Fast is set to 1. In the past, the slow setting would cause the motor to stick. User operation of Fast/Slow was removed from the GUI. The operator must set focus.enable ON to allow changes in the focus.

When focus.enable is ON, the focus program tries to position the focus.apos to match focus.dpos. A match is when abs(focus.apos-focus.dpos) < 0.05 volts.

To move the focus In:
- `FOC_DO_Focus_In = 1
- `FOC_DO_Focus_Brake = 0
To move the focus Out:
- `FOC_DO_Focus_In = 0
- `FOC_DO_Focus_Brake = 1

When trying to move the focus mechanism, if the voltages does not change within 1.5 seconds, a stick flag is set to alert the operator. And a warning is generatated with the focus is stuck.