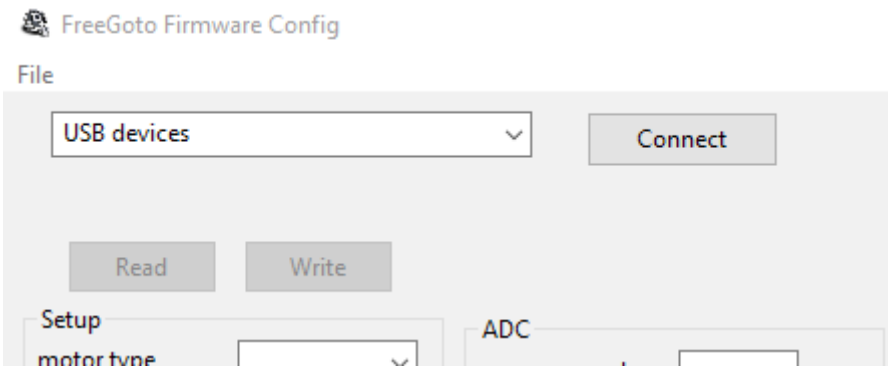
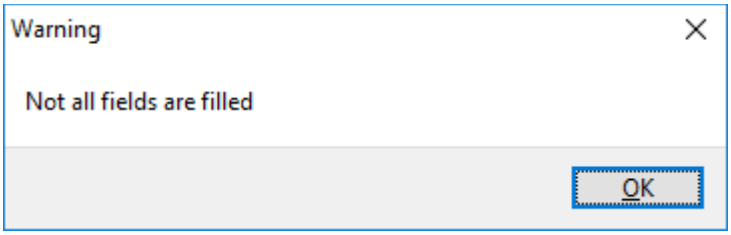
FreeGo2-set

To check and modify the freego2-board parameters

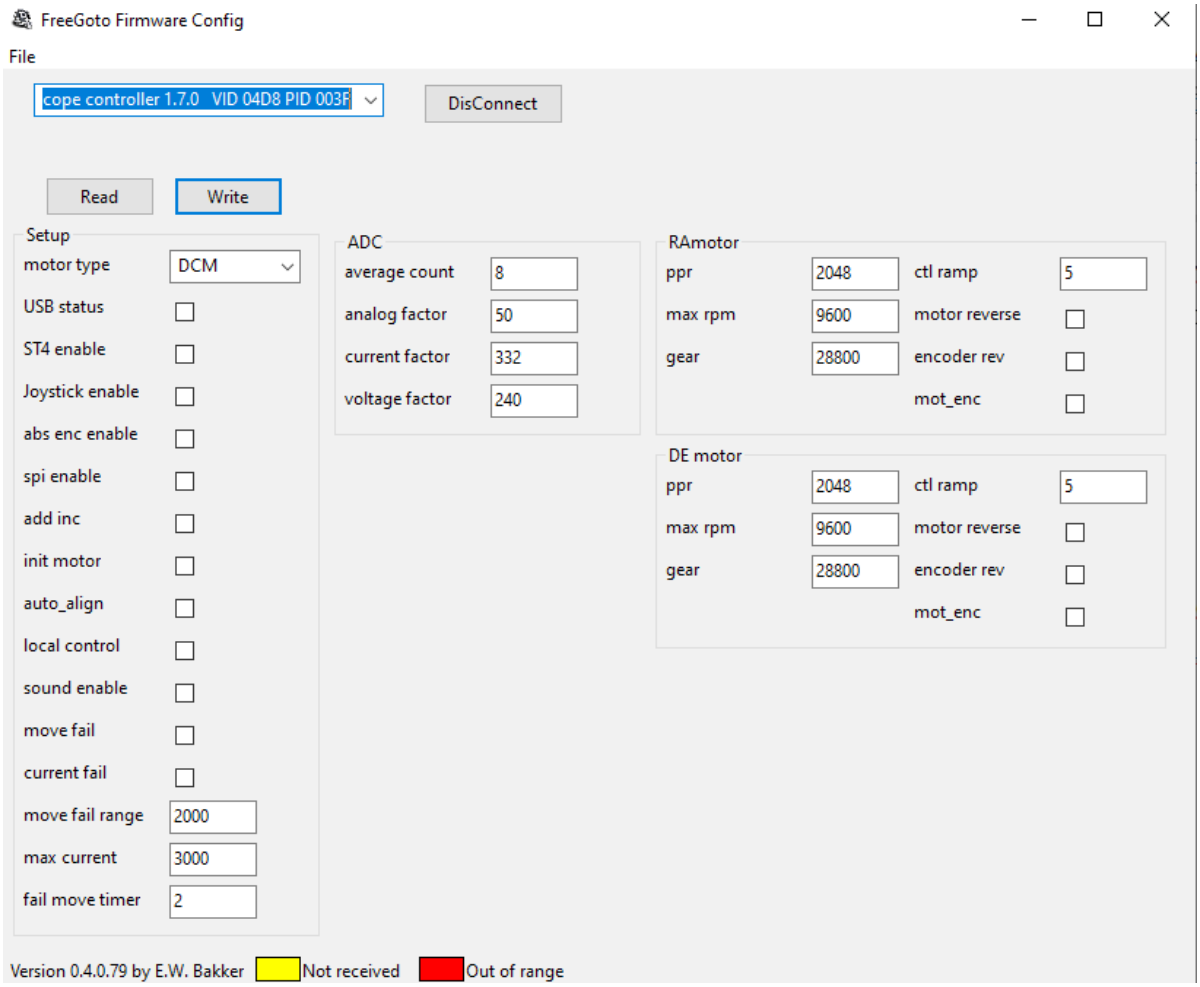
At startup the program searches for the freego2-board and if is found shows the name and version in a dropdown select box. As long as de program has no connection with the freego2-board the data-fields are empty. When the program is not connected the button besides the boardname shows “Connect” klicking on the button connects the program toe the Frego2-board. The button will show “DisConnect” to indicate that cliking ont the same button will disconnect the program from the freego2-board.



When a write comand is given (with the Write button) a warning is given that the data-fields are not filled.



After connecting the program to the freego2-board a Read command can be given to get the current configuration of the freego2-board.



A set of groups of settings is shown.

Setup

motor type:	select motor type DCM: DCmotor, STP:Stepper, BLDC:BrushlesDCmotor
USB status:	Show USB status
ST4 enable:	Enable ST4 interface. If no ST4 interface is connected this gives unspecified behavior
Joystick enable:	Enable analog joystick control
abs enc enable:	enable absolute SSI encoders (default to 17 bits)
SPI enable:	enable SPI abs encoder (default to 14 bits)
add inc:	add incremental encoder position to absolute encoder valueADC
init motor:	not used any more
auto_align:	enables motor/encoder align at power-up
local control:	test for position control on controller board
sound enable:	enable sound at move or current fail
move fail:	detect motor runaway
current fail:	detect over current
move fail range:	fail threshold for motor runaway
max current:	fail threshold for current
fail move timer:	fail duration before triggered

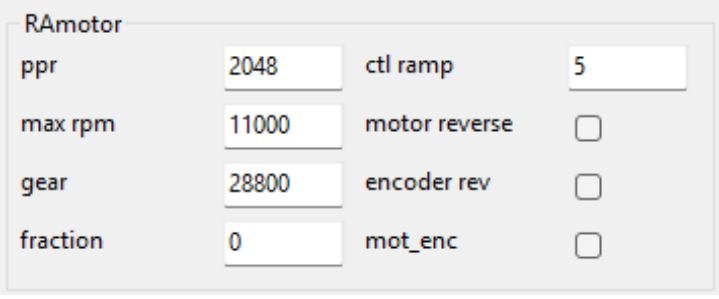
ADC

average count:	The number of subsequent values of which the average is calculated
analog factor:	Multiplication factor for calculating analog input voltage
current factor:	Multiplication factor for calculating current measurement
power factor:	Multiplication factor for calculating the motor voltage measurement

Depending on the motor type
Two groups of motor settings are shown. One far RA motor and the other for DE motor.

DCM:

ppr:	pulses per rotation of the incrimental motor encoders
max rpm:	maximum rotations per minute of the motor



gear: total reduction from motor chaft to telescope chaft

fraction: Gear fraction part of gear (x.0 - x.99)

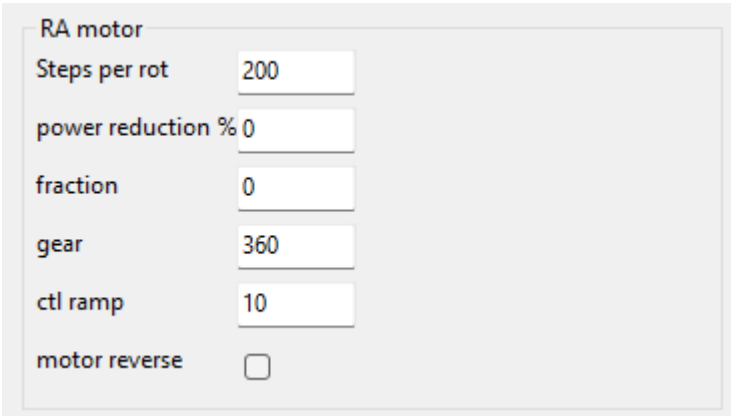
ctl ramp: indication of rampspeed the higher the faster thr rampup/down

motor reverse: reverse motor direction

encoder rev: reverse encoder direction this also invluences motor direction

mot_enc: this is read only indication of relation between motor and motor-encoder

STEP:



Steps per rot: step count for full rotation

power reduction %: reduce motor power if stepper runs on lower voltage then board power.

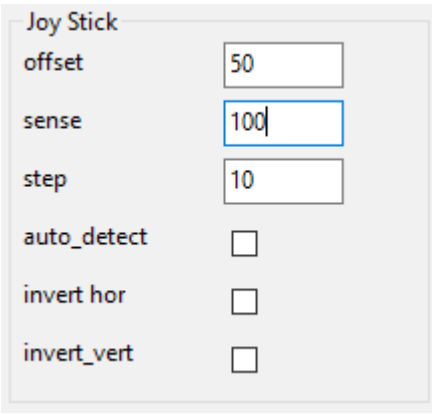
Fraction: gear fracktion (gear.fraction)

gear: total reduction from motor chaft to telescope chaft

ctl ramp: indication of rampspeed the higher the faster thr rampup/down

motor reverse: reverse motor direction

If joystick is enabled in Setup an extra set of parameters appears.



Joy Stick

offset: joystick offset before detecting movement

sense: start factor n/1000 for joystick sensetivity

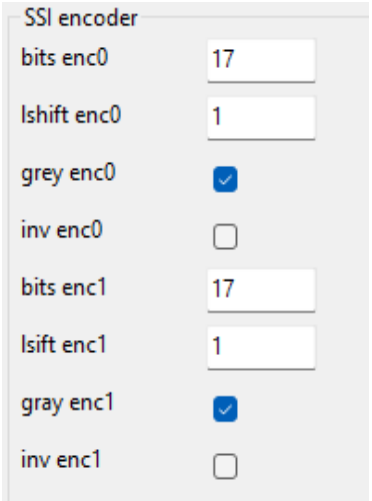
step: multiply sense with every joystick button press (if higher then 10 go back to sense)

auto_detect: if set movement will start after detecting max joystick value

invert hor: invert horizontal movment

invert vert: invert vertical movement

if abs enc is enabled in Setup an extra set of parameters appears. These settings depend on the type of absolute encoder.



SSI encoder (absolute)

bits encx: number of bits the encoder word is wide.

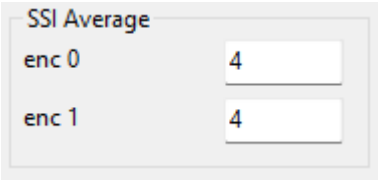
lshift encx: left shifts needed after reading encoder

grey encx: encoder data is Grey format

the above 3 values are depending on the encoder type and should not be changed once the encoder is configured.

inv encx: change count direction of the encoder

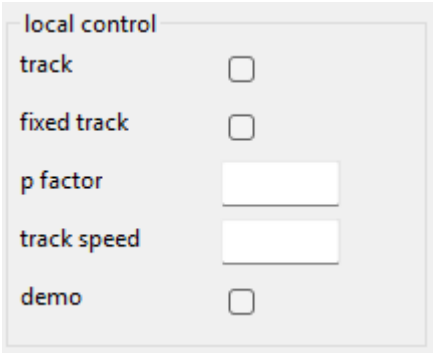
SSI Average



encx: number of bits for everage count count is 2^n (e.g. 4=> 2^4 = 16). This means that the average of 16 subsequent values is calculated and returned as encoder value

Local control

With local control the board can be configured to track stand-alone. This is a simple constant speed movement. These tracking settings are expirimental.



track: Enable tracking (sidereal time)

fixed_track: Enable fixed tracking

p factor: Adjustment to sidereal speed (in micro seconds).

track speed: Speed value used by fixed_track speed (dempending on gear values, moostly around 20)

demo: Set board in demo mode to simulate a connected telescope.