

## **Motorization of Sol'Ex.**

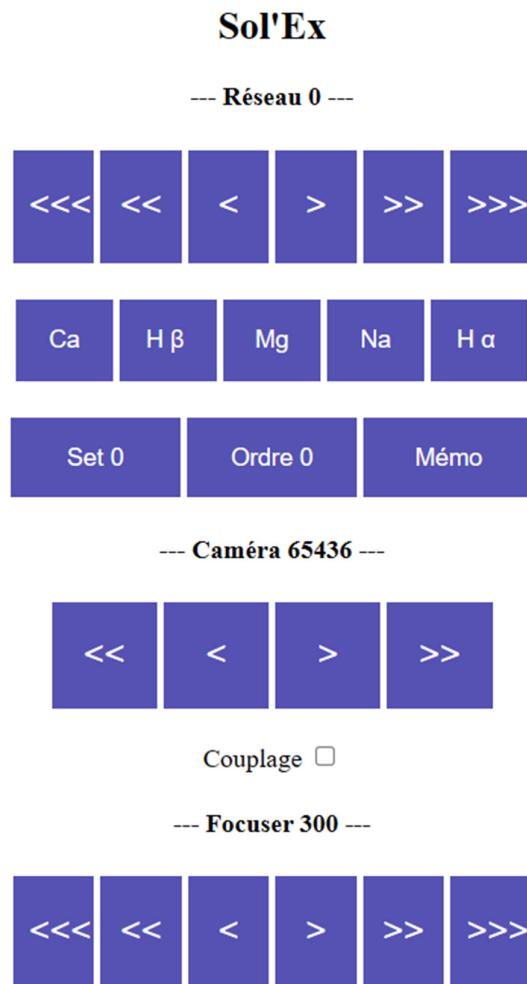
Following the publication on Github of our Wifi card to control the Sol'Ex network, we had the joy of being contacted by Pascal Berteau who sent us his project to control 3 engines, the network, the focus of the ZWO ASI 178MM camera and the focus of the shooting scope.

I remind you that this system allows you to remotely control all the motors from your PC or smartphone, which avoid manipulations on the instrument itself.

There followed many exchanges and we evolved the program together.

The software can always control the network with 5 predefined lines, but also ensure the focus of the camera with the focuser, essential when you go from the H alpha line to the calcium line. But the great novelty is to remember these two functions, line and focus, and to couple them. Thus, when you select a line, the network rotates, then the focus ring of the camera is positioned as previously memorized. So we only have a button on the interface to press to get the desired setting.

Here is the Wifi interface found on your smartphone or PC.



The program is sent with arduino software and must be done in two stages.

First, set the #define initmemo variable to 1. This clears the memory, otherwise the engines will do anything. Then reprogram ESP32 after setting #define initmemo 0. Type 192,168,4,1 in your browser and proceed with the settings.

In the spirit of simplification, we have kept only 5 lines programmed in this version.

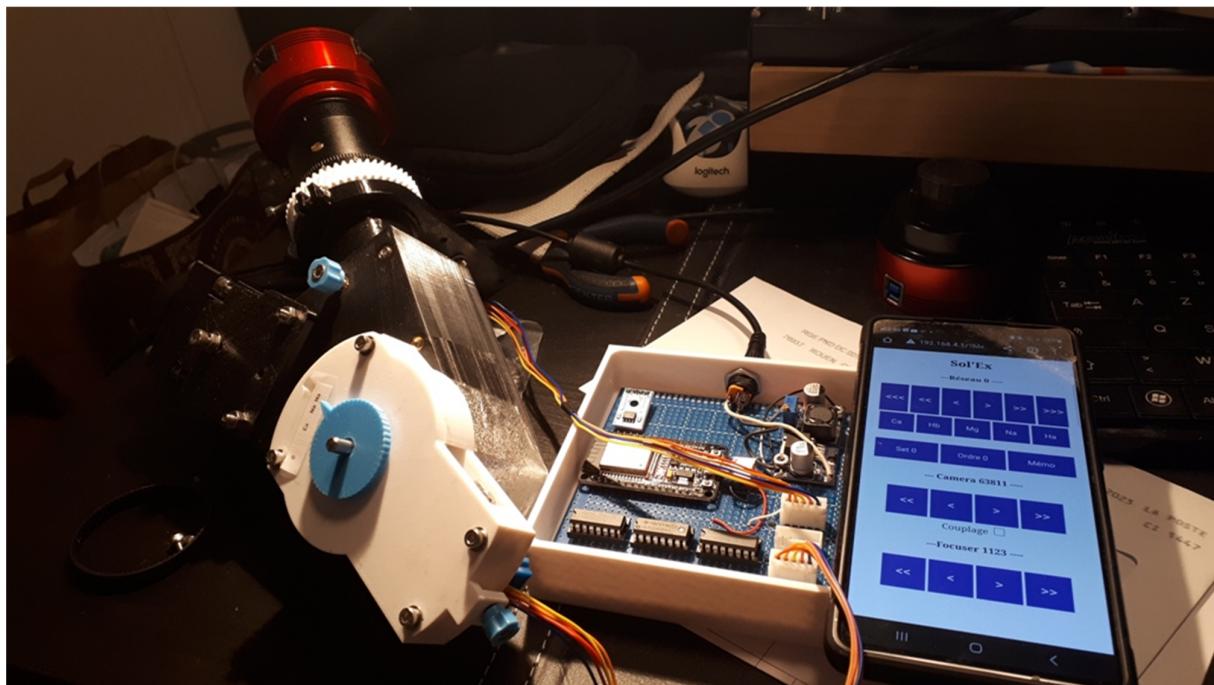
As for the other program, you must first find the order 0 (horizontal bar lumineuse on the screen) by playing with the < and > keys. Once found, press Set 0.

You get --- Network 0 ---.

Verify that Pairing is **not selected** and click H alpha. Center the ray. Then focus the camera with the < and > keys. When you're happy with the result, tap Memo. Do this for each ray.

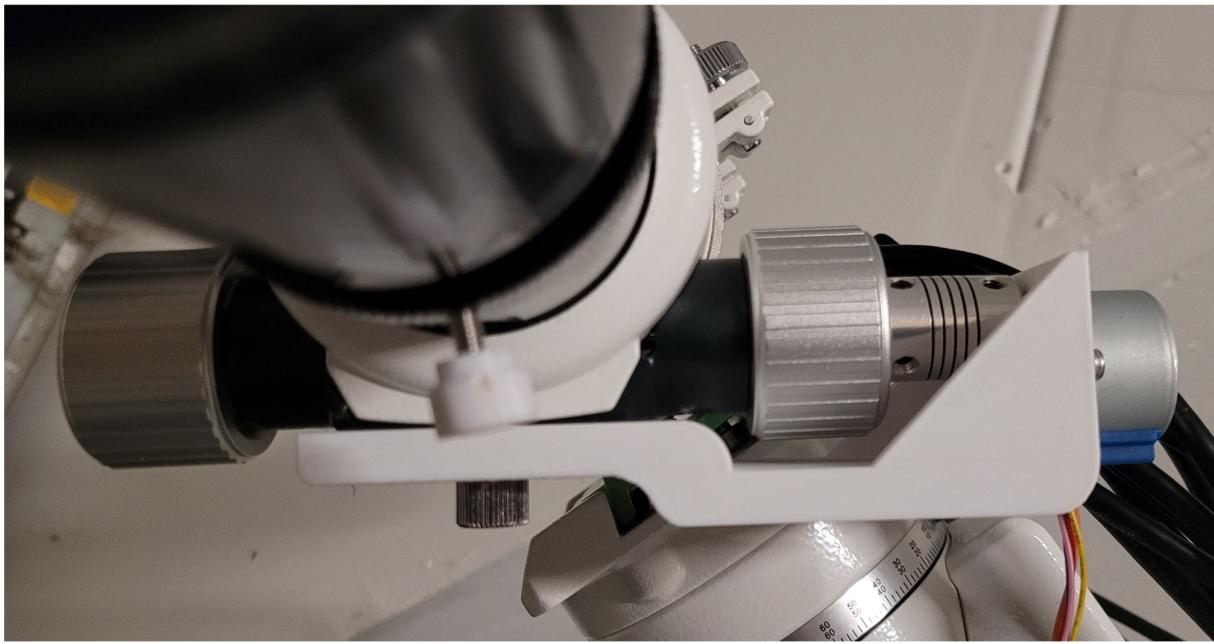
Once all the lines have been memorized, check Coupling and test each line. You have to find them sharp every time.

Given the backlash of the motor gears and despite a software correction, there may be a slight lag after a while. In this case start by finding order 0 by pressing Order 0. Then repeat the memorization of the different lines and the focus of the camera.



(Directed by Pascal Berteau)

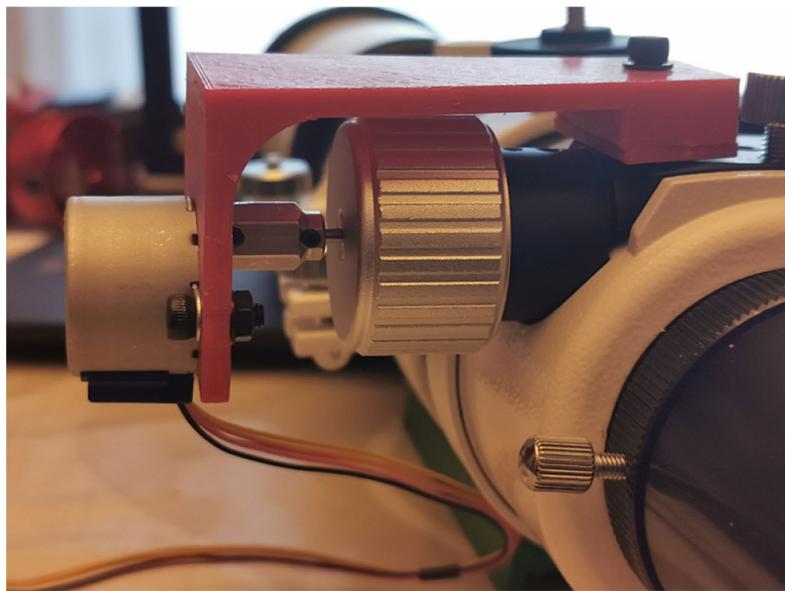
Modified network motor assembly, gear focuser , electronic board and application.



(Directed by Pascal Berteau)  
Attaching the engine to the Sky-WATCHER EVOSTAR 72ED bezel



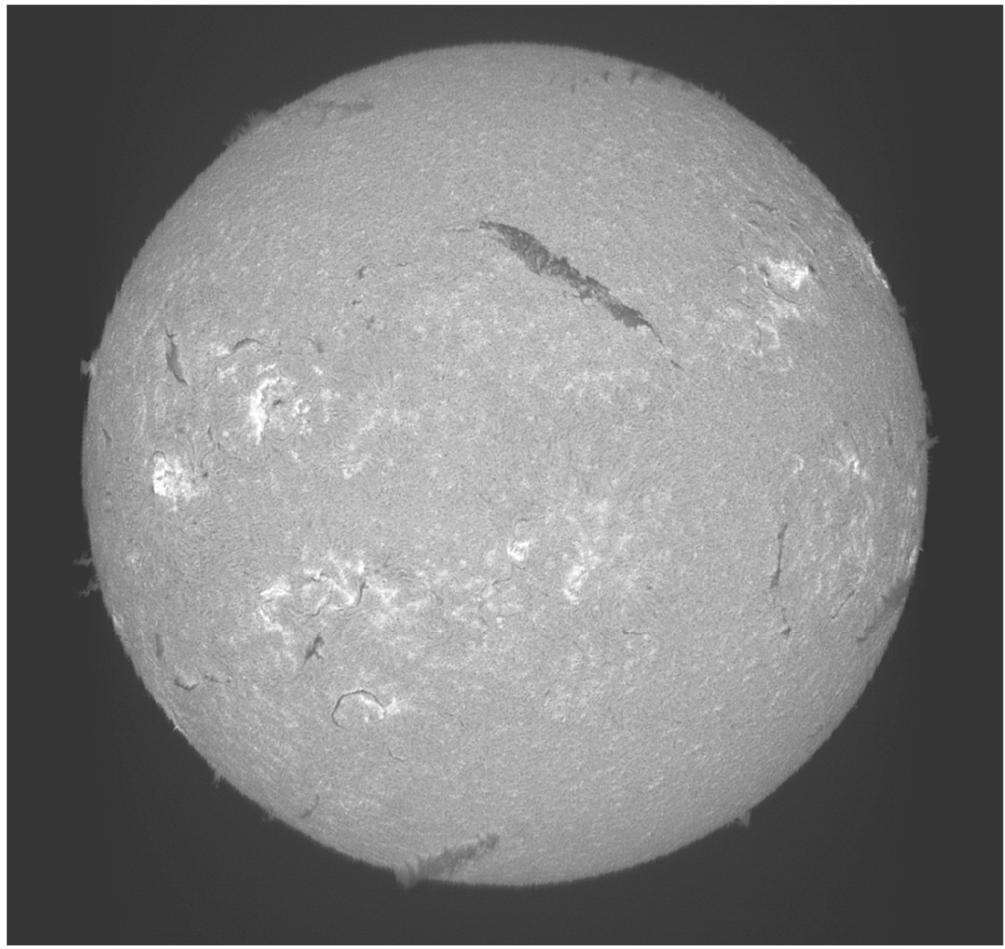
(Directed by Pascal Berteau)



Direct coupling (Directed by Jean Brunet)



(Directed by Jean Brunet)  
Focus fixed on the ZWO held by the double stiffener.  
The motors are connected to the new housing.



Here is an image in H alpha made by Pascal Berteau with his motorized Sol'Ex and his Sky-WATCHER EVOSTAR 72ED bezel. A shot he enjoyed. "Making all the settings well in the shade, and going from Ha to Ca in a few clicks, it's nice!"

It's up to you to get started with realization!

Jean Brunet  
Pascal Berteau  
Stéphane Ferier