



Arduino auto-focusser

Hoe bouw je je eigen auto-focusser?

8 april 2017

Voorjaarsbijeenkomst

Astro-fotografie Oss

[Rob Musquetier](#)

In den beginnen...



Alternatieven

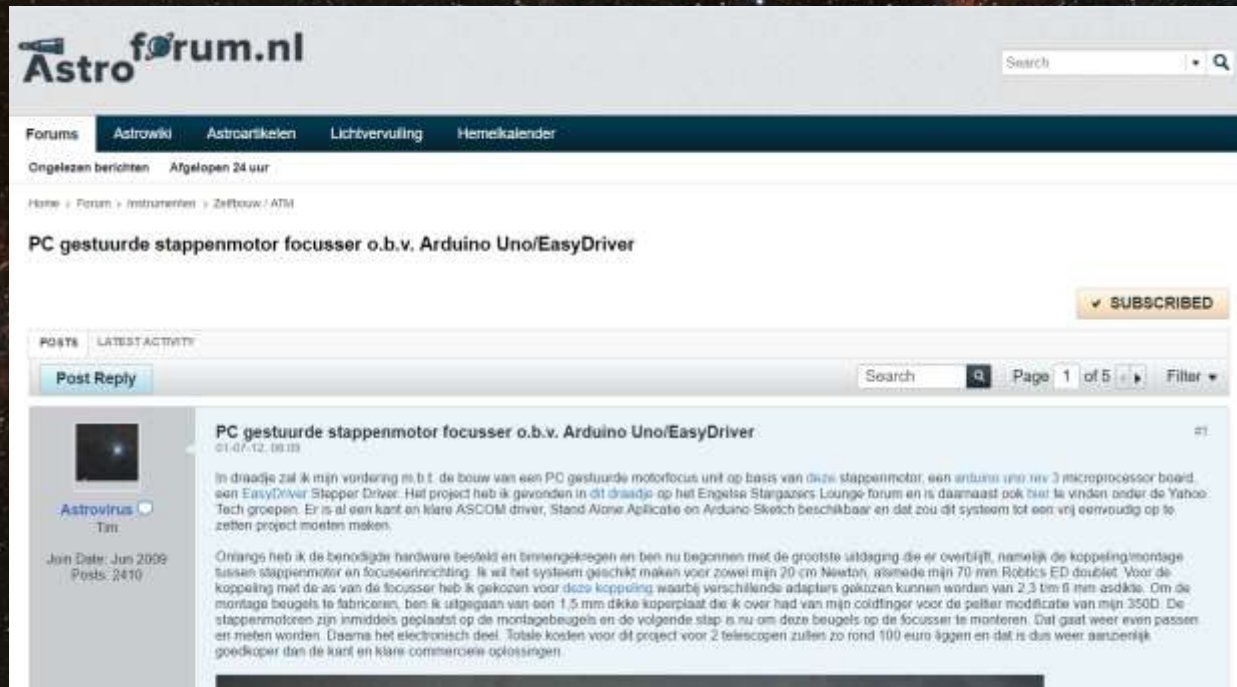


- Trial & error
- Bathinov masker
- Hartmann masker
- Diffraction spikes



SGL & Astroforum.nl

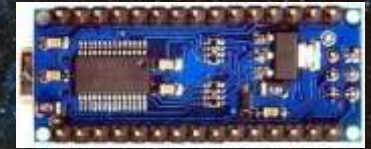
- Oorspronkelijk ontwerp van Neil Steve op het Stargazers Lounge forum
- [Draadje op Astroforum.nl](#)



The screenshot shows the Astroforum.nl website interface. At the top, there is a search bar and navigation tabs for 'Forums', 'Astrowiki', 'Astroartikelen', 'Lichtvervulling', and 'Hemelkalender'. Below the navigation, there are links for 'Ongelezen berichten' and 'Afgelopen 24 uur'. The main content area displays a thread titled 'PC gestuurde stappenmotor focuser o.b.v. Arduino Uno/EasyDriver'. The thread is marked as 'SUBSCRIBED'. The post is by user 'Astrovirus' and is dated 'Jun 2009'. The post content describes the user's project of building a PC-controlled motor focus unit using a stepper motor, an Arduino Uno, and an EasyDriver Stepper Driver. The user mentions that they found the project on the Stargazers Lounge forum and that it is now available on the Astroforum.nl website. The user also mentions that they have ordered the hardware and are now working on the assembly and mounting of the focuser.

Boodschappenlijstje (basisuitvoering)

- Arduino (bv. [Uno](#) of [Nano](#))
- [Kastje \(Uno\)](#)
- EasyDriver stepper driver bordje ([standard](#) of [big](#))
- [Stappenmotor](#)
- [Overbrenging](#) met [inzetstukjes](#) naar focusknop*
- Bevestigingsbeugel, boutjes en moertjes**
- Snoertjes, [jack connector](#) en [bus](#) (4 weg)
- [USB snoertje](#)
- [Krimpkous](#)
- [12v adapter](#)



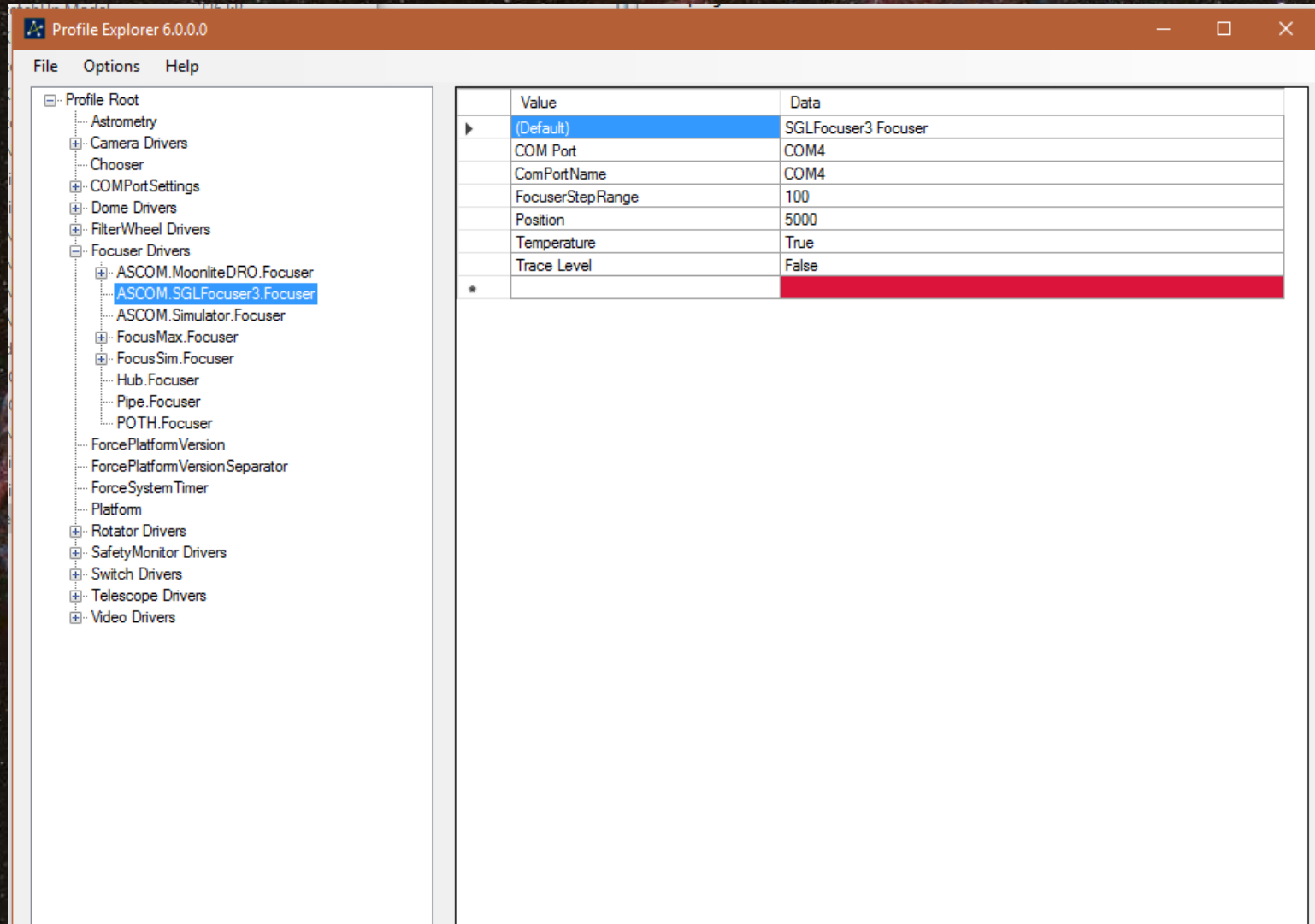
Software (Windows 7 en 10)

- [ASCOM 6.x](#)
- Arduino ontwikkelsoftware ([versie 1.6.5](#))
- [eepromRW Arduino library](#)
- [Arduino sketch](#)
- SGL Driver en Windows registry entries:
 - [C:\Program Files \(x86\)\Common Files\ASCOM\Focuser\SGL_Focuser3.dll](#)
 - [SGL Focuser Registry Entries.reg](#)

Software Aanpassingen

```
float Rr = 27000;           // Value of resistor positioned in serial with the temp sensor
int ManSpeed = 3;          // Manual usage speed (set to fixed value)
long Limit = 25000;        // Maximum position focuser
int SPEED = 150;           // Delays in micro seconds between step pulses
long Mfactor = 12;         // Multiplication factor
```

Focuser in ASCOM



The screenshot shows the Profile Explorer 6.0.0.0 application window. The left pane displays a tree view of the profile structure, with the following items visible:

- Profile Root
 - Astrometry
 - Camera Drivers
 - Chooser
 - COMPortSettings
 - Dome Drivers
 - FilterWheel Drivers
 - Focuser Drivers
 - ASCOM.MoonliteDRO.Focuser
 - ASCOM.SGLFocuser3.Focuser**
 - ASCOM.Simulator.Focuser
 - FocusMax.Focuser
 - FocusSim.Focuser
 - Hub.Focuser
 - Pipe.Focuser
 - POTH.Focuser
 - ForcePlatformVersion
 - ForcePlatformVersionSeparator
 - ForceSystemTimer
 - Platform
 - Rotator Drivers
 - SafetyMonitor Drivers
 - Switch Drivers
 - Telescope Drivers
 - Video Drivers

The right pane displays a table of configuration parameters for the selected driver:

Value	Data
(Default)	SGLFocuser3 Focuser
COM Port	COM4
ComPortName	COM4
FocuserStepRange	100
Position	5000
Temperature	True
Trace Level	False
*	

Overbrenging



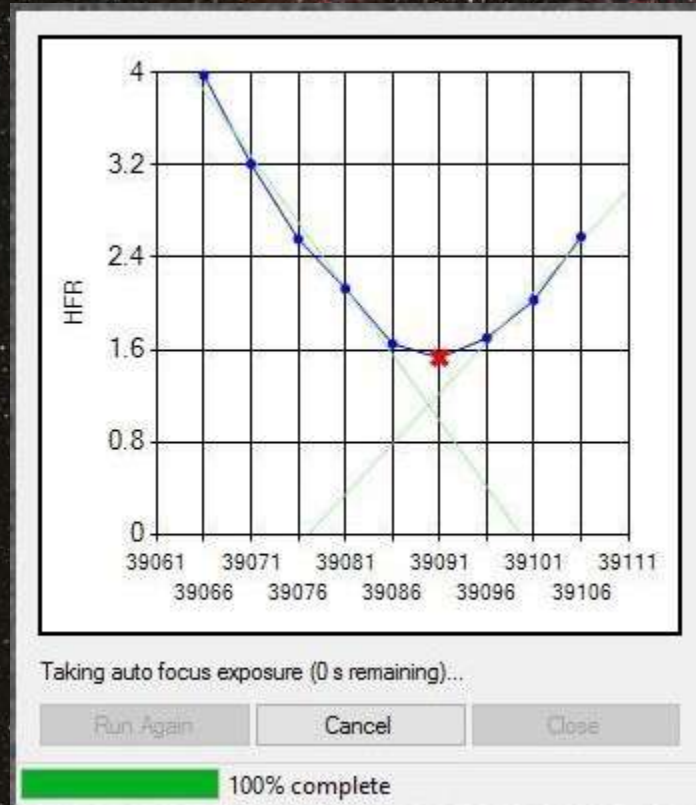
Overbrenging (vervolg)



Beugels



Sequence Generator Pro



Maxim DL

Observatory

All Sky | Zoom | Catalog | Telescope | Dome | Focus | Status | Setup

Focuser 1 Focuser 2

Focuser Status

Position: 4765

Temperature: 19.50

Focuser Type: Absolute

1/2 Flux Diam.: 8.92

FWHM: 0.00

Incremental: 20

Absolute: 5000

Move In

Move Out

Move To

Temp. Tracking

Autofocus

Start

Options

Snapshot

Backlash Compensation

Enabled On Outward Moves

Steps: 50

Abort

Exposure

Pos = 4927, 1/2 Flux Dia. = 5.18
Pos = 4909, 1/2 Flux Dia. = 3.63
Pos = 4891, 1/2 Flux Dia. = 2.91
Pos = 4873, 1/2 Flux Dia. = 3.07
Pos = 4855, 1/2 Flux Dia. = 3.57
Pos = 4837, 1/2 Flux Dia. = 4.62
Passed best focus; measuring
Pos = 4819, 1/2 Flux Dia. = 6.20
Pos = 4801, 1/2 Flux Dia. = 7.49
Pos = 4783, 1/2 Flux Dia. = 8.92

V-Curve

Position	HFD (unbinned)
4927	5.18
4909	3.63
4891	2.91
4873	3.07
4855	3.57
4837	4.62
4819	6.20
4801	7.49
4783	8.92

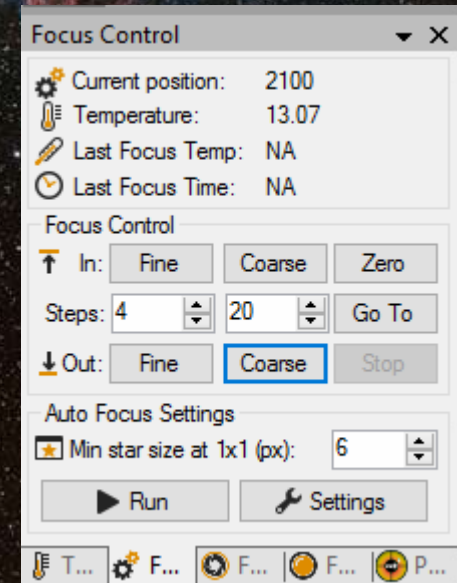
Boodschappenlijstje (uitbreidingen)

Handbediening:

- [Drukschakelaar](#) (2x)
- [10k weerstand](#) (2x)

Temperatuursensor:

- [Temperatuursensor](#)
- [27k weerstand](#)





Vragen ???