

# **SharpSky Focus Manager**

**V1.0**

# Contents

1	General.....	3
1.1	Change Record.....	3
2	Introduction.....	4
3	Detailed operation description.....	5
3.1	Initial software invocation.....	5
3.2	SharpSky focus manager concept.....	5
3.3	Detailed button/box descriptions.....	6
3.3.1	Connect.....	6
3.3.2	Disconnect.....	6
3.3.3	Absolute Position.....	6
3.3.4	Course/Medium/Fine Out/In buttons.....	6
3.3.5	Direction reverse.....	6
3.3.6	Reference position box.....	6
3.3.7	Reference position Load/Go and Load Lock.....	7
3.3.8	Profile select dropdown.....	7
3.3.9	Profile description.....	7
3.3.10	Filter names.....	7
3.3.11	Filter offsets.....	7
3.3.12	Filter Set button.....	7
3.3.13	Filter Go button.....	7

# 1 General

## 1.1 Change Record

Date	Version	Author	Reason For Change Issue
19/11/11	V1.0	Dave Trewren	Initial release of document

## 2 Introduction

This document describes the operation of the SharpSky ASCOM compliant focus manager. This piece of software takes the form of a standalone GUI based client application designed to run under Microsoft windows. It was primarily written to connect to the SharpSky focuser, although being ASCOM compliant should connect to any compliant focuser driver. The route from client to hardware is as follows :

SharpSky focus manger client <ASCOM API> SharpSky driver <USB> SharpSky PIC

The focus manger software has the following key features :

- Multi-rate focus control with user programming rates for Course, Medium & Fine focusing.
- Absolution focuser position display
- Selectable focus direction reverse
- Reference position loading with lock and load feature
- Five unique profiles
- Profile specific comment/description area
- Connect status bar
- Eight filters (user specified names) with individual step offsets
- Automatic filter step offset calculation and insertion per filter

## 3 Detailed operation description

### 3.1 Initial software invocation

The software takes the form of a single standalone executable (SharpSkyClient.exe). This can be run anywhere on the PC the user decides. The application requires one addition file which it uses to store the various profile specific setup (SharpProfile.txt). When the application is invoked it checks to see if the SharpProfile.txt setup file is present. If this file is not present the application creates a subdirectory ./SharpSky and subsequently creates an initial setup file template, the user is informed of this operation.

### 3.2 SharpSky focus manager concept

The focus manger has two main functions :

- To allow the user to focus his/her telescope by controlling the In/Out position using a number of predefined steps.
- To program a selection of filters with offset positions relative to a reference position. **I propose the reference position is the in focus point of a Luminance filter.** Once the filter offsets have been deduced the user can then move from filter to filter having only initially focused and loaded the luminance filter reference point.

Basic filter setting procedure :

1. Invoke focus manager application
2. Select required profile and enter description
3. Focus using luminance filter as accurately as possible
4. Hit the reference position load button to transfer the current luminance filter absolute focus point into the reference box. Load operation is automatically locked following a load.
5. Switch scope to first non luminance filter, say a Ha filter
6. Focus Ha filter as accurately as possible
7. Uncheck Set Lock button (protection against accidental focusing setting)
8. Name the filter 'Ha Filter'
9. Hit the Set button, the relative offset is automatically inserted and the Set Lock applied.
10. Repeat steps 5-8 for remaining filters

Basic procedure once filter setting complete

1. Invoke focus manager
2. Select required profile, read description to check equipment
3. Focus using luminance filter as accurately as possible
4. Hit the reference position load button to transfer the current luminance filter absolute focus point into the reference box. Load operation is automatically locked following a load
5. Switch scope to desired non luminance filter
6. Hit the appropriate Go button to move from reference point to desired filter focus point
7. Repeat steps 5-6 to focus other filters

### **3.3 Detailed button/box descriptions**

The following is a detailed description of the various application buttons and boxes

#### **3.3.1 Connect**

This button invokes the ASCOM chooser and allow the user to select the focuser connection.

#### **3.3.2 Disconnect**

This button disconnects the ASCOM client from the focuser driver

#### **3.3.3 Absolute Position**

Current focuser absolute position.

#### **3.3.4 Course/Medium/Fine Out/In buttons**

These buttons control the movement of the absolute focuser. Each of the Course, Medium and Fine buttons can be configured to move the focuser a user configurable number of steps. The default is Course-100steps, Medium-50steps and Fine-10steps. These settings are profile specific to allow for different focuser movement rates.

#### **3.3.5 Direction reverse**

This button allows the focuser direction to be reversed to allow for different motor mounting positions and drive systems.

#### **3.3.6 Reference position box**

This box contains the current reference position that all filter positions are moved with respect to.

### **3.3.7 Reference position Load/Go and Load Lock**

The load button transfers the current focuser absolute position to the reference position box. The Go button moves the focuser to the absolute position displayed in the reference position box. The load lock button can be checked to prevent erroneous reference position loads and is checked automatically following a load operation.

### **3.3.8 Profile select dropdown**

The SharpSky focus manager supports up to five unique user profiles. All displayed information including the comment box is profile specific.

### **3.3.9 Profile description**

In order to keep track of equipment used for different profiles and general notes a profile description box is provided. All text typed into this box is saved with the profile.

### **3.3.10 Filter names**

Each filter used in the current profile and be named in these boxes.

### **3.3.11 Filter offsets**

The filter offsets (offset with reference to the value shown in the reference position box). Offset can be entered by hand or inserted automatically.

### **3.3.12 Filter Set button**

Pressing this button automatically transfers the filter offset into the filter offset box. This is the difference between the current focuser absolute position and the value in the position reference box.

### **3.3.13 Filter Go button**

Pressing this button causes the focuser to be moved by the current filter offset and hopefully to the current filter correct focus point.