

Pfocuser

RS232 communications interface and command set

© Switched Systems Ltd 2006



PFocuser communication interface and command set

1. Introduction

This document details the communications protocol to access the various features of the Switched Systems Pfocuser computer controlled telescope focusing system.

The PFocuser can operate in two control modes, manual mode and computer control mode. When the PFocuser is operated under manual control the user can vary the motor direction and motor speed using the adjustment knobs. Manual mode is selected by switching the unit on whilst holding down one of the direction buttons. When the PFocuser is operated in computer control mode, the user's computer controls the direction and controls the speed through the computer interface. Many more facilities are available when operating in Computer control mode, for more information on these facilities please refer to the PFocuser Instruction manual.

2. Communications port settings

All communications to the PFocuser are made via the RS232 serial communications port. The PFocuser uses the following settings:

- 8-bits
- No parity
- 1 stop bit
- Baud rate of 9600bps

3. Communication protocol

All communications to the PFocuser is made by sending a control string to the unit. To be valid, the control string must start with the : (colon) character and be terminated with a # (hash) character. For example, to stop the focuser motor one would send the string :FQ#.

As you will see in the next section, certain commands require numeric data to be transmitted as part of their syntax. Where numeric data is required to be sent to or from the PFocuser it should be formatted in hexadecimal and transmitted as an ASCII string. For example, the decimal number 212 should be sent as D4. Please note that the PFocuser only accepts capital letters and could respond in an undefined manner if the unit receives poorly formatted commands.

Most of the instructions that require numerical data store this data in the PFocuser's onboard memory. Details of the memory address locations and how to access them are given in sections 4 and 5.

4. Instruction set

The following table provides a brief summary of the PFocuser's instruction set.

Motor commands	
:F+#	Set the motor moving in a forward direction
:F-#	Set the motor moving in a reverse direction
:FF#	Set the motor speed to fast
:FM#	Set the motor speed to medium
:FS#	Set the motor speed to slow
:FQ#	Stop the motor
:FG#	Goto new position
:GI#	Tests to see if the motor moving – returns 00# no, 01# yes
Positioning commands	
:GP#	Get current position – returns position as YYYY#
:GN#	Get new position – returns position as YYYY#
:SNYYYY#	Set new position - YYYY hexadecimal position
:SPYYYY#	Set current position - YYYY hexadecimal position
Miscellaneous	
:GM#	Focuser position mode – returns 00# for relative, 01# absolute – the PFocuser is a relative motion system thus always returns 01#
:GA#	Read current motor speed control knob value - returns YYYY#. Maximum value is 03FF.
Memory access	
:ERY#	Read a byte from memory – YY is the address
:EWYXX#	Write a byte to memory – YY is address data, XX is data to be written to the address.

5. Memory map

Address	Function
00	Slow speed high byte
01	Slow speed low byte
02	Medium speed high byte
03	Medium speed low byte
04	Fast speed high byte
05	Fast speed low byte
06	
07	
08	Speed compensation value for slow speed setting
09	Speed compensation value for medium speed setting
0A	Speed compensation value for fast speed setting
0B	Backlash compensation value for slow speed setting
0C	Backlash compensation value for medium speed setting
0D	Backlash compensation value for fast speed setting
0E	
0F	Flag register - upper nibble contains resolution data
10	Maximum permitted position high byte – defines upper position limit
11	Maximum permitted position low byte

12	Maximum permitted increment (in a single movement) high byte
13	Maximum permitted increment low byte

Flag register

Bit(s)	Function
0	Speed compensation enable bit - 0-disabled 1-enabled
1	Backlash compensation enable bit - 0-disabled 1-enabled
7-4	Position resolution – has values of 1,2,4,8