The SM3410_TOOL User Guide.

Introductions

The sm3410_tool is a GUI which communicates to a RPC server for the sm3410 Smart Motor. The sm3410 is a serial motor/controller from the <Vendor>.

The Spex littledog computer has two sm3410 motors attached to its serial ports. This program allows you to directly communicate to these motors. For Littledog, the following configuration is used:

- Sm3410Index 0 is /dev/ttyC0 -> smartMotor -> rotator mechanism.
- Sm3410Index 1 is /dev/ttyC1 -> smartMotor -> grating mechanism.

Starting Application

These tools are installed on the IRTF bigdog and guidedog computers. To start the program, just type the command ‘sm3410_tool’. To export the display to another X server, don’t forget xhost (for displaying remote clients) and setting you DISPLAY environment.

Here is an example for remotely displaying to myhost:

```
myhost% xhost +
myhost% rlogin bigdog
bigdog% setenv DISPLAY myhost:0.0
bigdog% sm3410_tool
```

The following should appear on your screen:

![Image of sm3410_tool](image)

Figure 1 – sm3410_tool
**Display formats**

There are 2 status display formats: SM3410 Status and Application Variables.

Use the tabs under the status display to select the format.

The **SM3410 Status** format displays status information from both the sm3410 hardware and application variables. Review the sm3410 manual for detailed descriptions. See figure 1 for examples screen.

The **About** give links to the IRTF home page where you can obtain more information.

**Parameters Window**

The parameters window provides widgets board and application control.

![Figure 3 – Parameters Window](image)

Type text into the **IO** text entry widget to send command directly to the sm3410 motor.
The **sm3410Index** selects the motor to communication to.
The **Interval (ms)**: text entry set the sampling rate to the host computer with the sm3410.
The **Quit** button exits the application.

**Feedback Area**

The feedback widget is a text window used to display the commands and return codes processed by the program. Also any user messages are printed in this area.

![Figure 4 – Feedback Area](image)

The **Command** entry widget allows you to type in any valid sm3410_tool command.
Command Syntax

This section describes the command set of the sm3410_tool application.

**IO** – Sends a command string to the PC58. Any replies are printed in the feedback text widget.

- **Prompt**: IO:
- **Range**: Any valid sm3410 command.
- **Syntax**: IO string

**Interval** – Set the sampling interval in msec the GUI uses to query status.

- **Prompt**: Interval (ms):
- **Range**: 200 to 10000 msec (or 0.2 to 10 seconds).
- **Syntax**: Interval msec

**Quit** – Exits the application.

- **Prompt**: Quit button
- **Syntax**: Quit

**View** – Sets the format for the status display

- **Prompt**: Tab widget under status window.
- **Range**: The index can be 0 to 1.
  - 0 – sm3410 status
  - 1 – About
- **Syntax**: view index

**Sm3410Index** – The index identifies the sm3410 to communication with.

- **Prompt**: sm3410Index:
- **Range**: For Spex’s Littledog computer
  - 0 – Spex Rotator’s sm3410
  - 1 – Spex Grating’s sm3410
- **Syntax**: sm3410 index

**SM3410 Commands**

These are examples of sm3410 commands. Consult the sm3410 manual for details.

- **MP A## V## D## G** – Puts the motor in position mode specifying the acceleration, velocity, and destination.
- **MV A## V## G** – Put the motor in velocity mode specifying acceleration and velocity.
- **O##** – Set the motor position using the origin command.
- **S** – the stop command.
- **RP** – report position query.
Development

This application was developed for the NASA IRTF (http://irtf.ifa.hawaii.edu) for the Spex project (http://irtf.ifa.hawaii.edu/spex).

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