

PCScope User

Introduction

Purpose

PC Scope User is a tool for testing and measuring gimbal performance, as well as controlling basic gimbal functions. It supports sending movement commands, setting limits, initialization commands and sending raw TASS commands. In addition a virtual scope allows for detailed monitoring and measurement of gimbal performance.

Input/Output

PCScope User takes input from both the user and a servo gimbal attached through a serial port (RS232 or RS422), and sends commands to the gimbal back over the same port. Error messages are reported to the user in a diagnostic text box.

Implementation Details

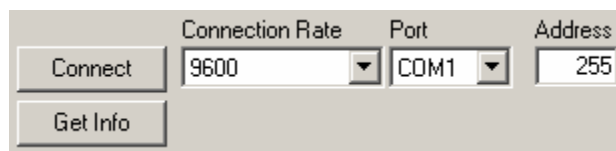
PC Scope User was written in MS Visual C++ 6.0.

Operational Overview

Upon starting PCScope User the main window is displayed and the scope window is minimized.

Connecting to the Gimbal

To connect to an attached gimbal, check the baud rate, serial port number and device address, then click the “Connect” button. The default baud rate is for the gimbal as shipped and the default device address is set to broadcast to all attached devices. Once connected, PCScope User will update the display with information about the gimbal, including serial number, movement limits and control gains.



The screenshot shows a dialog box with a light gray background. It contains two buttons on the left: "Connect" and "Get Info". To the right of these buttons are three input fields. The first is labeled "Connection Rate" and has a dropdown menu showing "9600". The second is labeled "Port" and has a dropdown menu showing "COM1". The third is labeled "Address" and has a text box containing "255".

To change the connection speed choose a new baud rate from the drop down menu, then click the “Get Info” button.

Setting Limits

After connecting to a gimbal PCScope Light will display the Acceleration, Movement Rate and Positional limits for the gimbal. It is possible to save the limits to the gimbal by entering the new desired limits and selecting “Save Limits”.



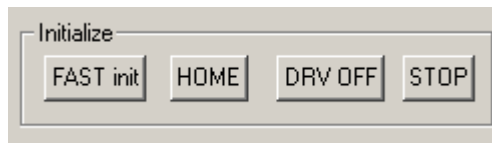
The Limits dialog box contains a table for setting acceleration, rate, and positional limits for AZ and EL axes. It also includes buttons to clear or save the limits.

	Accel	Rate	+ Limit	- Limit
AZ	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
EL	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Clear Limits Save Limits

Initializing the Gimbal

To initialize the gimbal after power up click the “FAST init” button. The gimbal will run through a short initialization sequence and stop near the home position. When initializing the gimbal first moves down and left looking for the home switch. If the gimbal is positioned up and to the right of the home position the initialization sequence will take less time. Clicking the “HOME” button after initialization will return the gimbal to the home position.

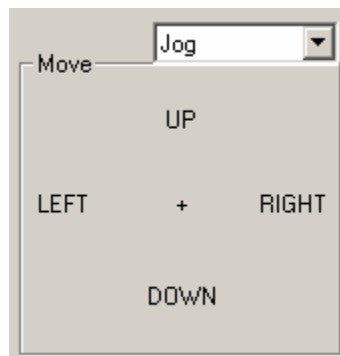


The Initialize dialog box contains four buttons for controlling the gimbal's initialization and movement.

FAST init HOME DRV OFF STOP

Moving the Gimbal with the Virtual Joystick

A virtual joystick is provided for movement testing. Clicking the mouse around the UP, DOWN, LEFT and RIGHT controls will move the gimbal in the appropriate directions.



The Virtual Joystick dialog box features a dropdown menu for movement mode and a set of directional buttons.

Move: Jog

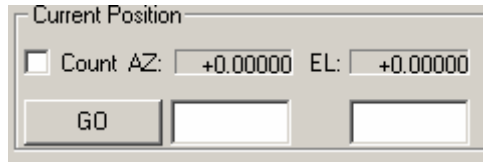
UP

LEFT + RIGHT

DOWN

Moving the Gimbal to a Specific Location

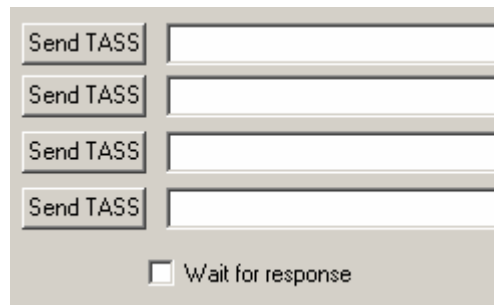
The gimbal can be sent to a specific location by entering the desired position in degrees and clicking the “GO” button. The current position of the gimbal is displayed above the desired position input. Position information can be displayed in either degrees or encoder counts by toggling the “Count” checkbox.



A dialog box titled "Current Position". It contains a checkbox labeled "Count" which is currently unchecked. To the right of the checkbox are two input fields: "AZ:" with the value "+0.00000" and "EL:" with the value "+0.00000". Below these fields is a "GO" button and two empty input boxes for user-defined values.

Sending TASS Commands

If it is necessary to send TASS commands this can be done using the “Send TASS” buttons. If a response from the gimbal is expected, check the “Wait for response” box. Four “Send TASS” buttons have been provided to allow multiple TASS commands to be readied for use.



An interface for sending TASS commands. It features four rows, each with a "Send TASS" button and an adjacent empty text input field. At the bottom of the interface is a checkbox labeled "Wait for response", which is currently unchecked.