OptiInstrument

Instruments Communication and Control Tool

1.0

New Features

OptiInstrument 1.0 is a new released software by Optiwave that addresses the needs of researchers, scientists, photonic engineers, professors and students who are working with instruments. OptiInstrument software satisfies the demands of users who are searching for a powerful yet easy tool to physically or remotely communicate and control instruments.

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OptiInstrument Software Overview

The user-friendly graphical user interface (GUI) of **OptiInstrument 1.0** Software is shown in Fig. 1. It is a standalone tool that can be used to communicate and control different kinds of instruments. OptiInstrument uses the standard commands for programmable instruments (**SCPI**) to communicate **physically** or **remotely** with instruments. The tool uses standard communication interfaces such as **TCP/IP**, **USB**, **GPIB**, or a serial port (**RS232/RS485**). Users can load lists of SCPI commands from **XML files** or write individual commands to control the instrument(s). The commands appear in a **tree configuration**. A single command or a sequence of commands can be executed by OptiInstrument. A **Python script** can be generated for the SCPI commands, saved, loaded and executed by OptiInstrument or in a Python environment. OptiInstrument GUI has a built-in viewer and CSV file analysis window. The GUI supports dockable windows that can be split of the main GUI or placed anywhere in the GUI. OptiInstrument is ideal for automated testing and characterization.

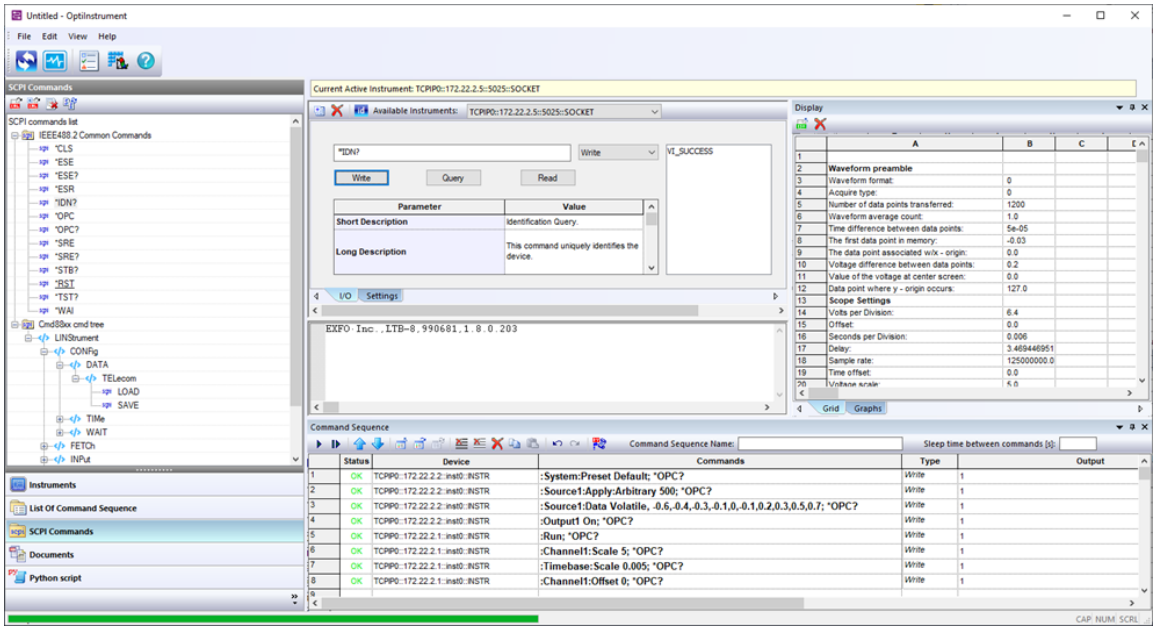

Fig. 1 OptiInstrument GUI

Key Features of OptiInstrument 1.0

- User friendly GUI
- Execute single or sequence of SCPI commands
- Load XML files and all other file formats into GUI panels
- Drag and drop commands with flexible sequence ordering
- Generate Python script for sequence of commands

- Built-in signal viewer and CSV file analysis page
- Built-in full Python script editor
- Remote operation and control of instruments
- Supports dockable windows

OptiInstrument Software Applications

- Remotely communicate with instruments
- Setup parameters of equipment
- Automate testing and characterization
- View generated signals
- Extract & save the data of generated signals for post processing
- Integrate instruments with photonics and systems simulation tools

Display and Data Acquisition Window

OptiInstrument GUI allows users to display waveforms produced by instruments that support signal generation. Once the sequence of SCPI commands for an instrument is executed, the generated waveform is displayed in the **Display Window** in OptiInstrument GUI as illustrated in Fig. 2. The user is able to acquire the displayed waveform of the instrument as an image and save the waveform data in a .CSV spreadsheet.

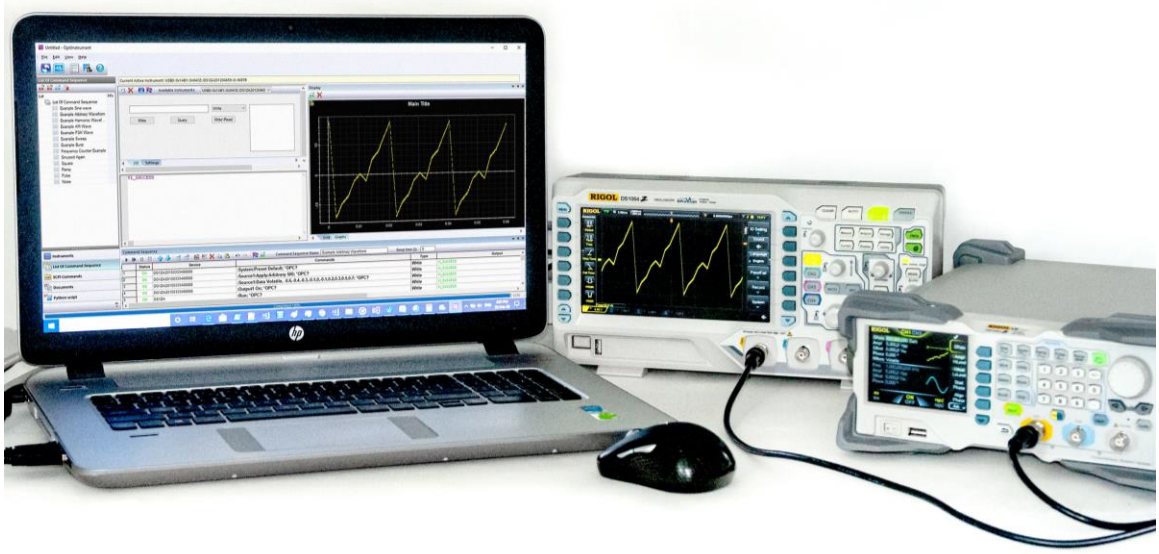

Fig. 2 OptiInstrument software communication and control of a function generator and an oscilloscope

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OptiInstrument & Python Script

OptiInstrument software supports Python scripting. A Python script is generated for a single SCPI command or a list of commands using the tool. The generated script can be saved into a file. The generated script can be executed from OptiInstrument GUI or in **command prompt** or **Windows PowerShell**. A Python script can be loaded into OptiInstrument GUI and executed by the GUI. Fig. 3 shows a Python script generated for a sequence of SCPI commands and displayed in the GUI Python script pane. This capability allows users to execute features that are not supported by OptiInstrument GUI such as logic control and looping options.

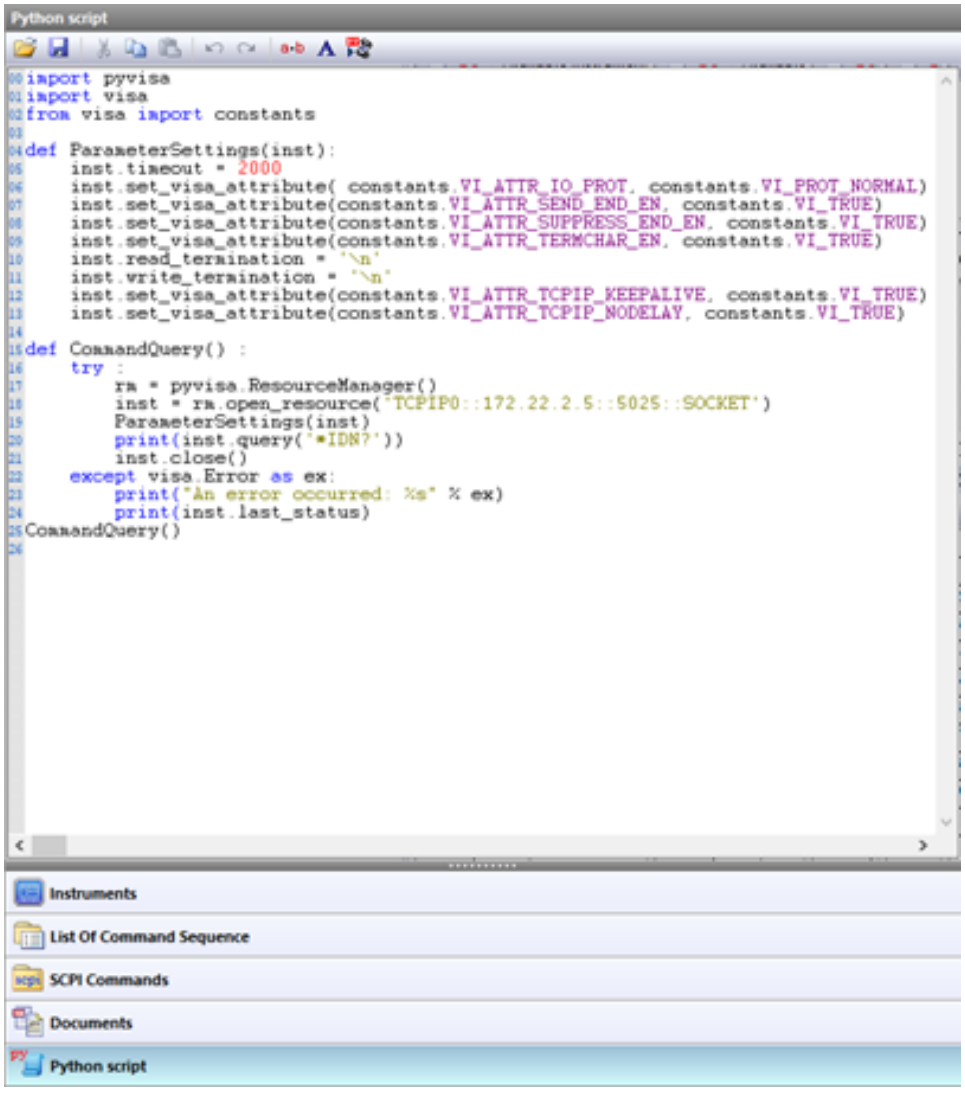

Fig. 3 Generated Python script for a sequence of SCPI command displayed in the Python script pane of OptiInstrument GUI

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OptiInstrument 1.0 Example Library

OptiInstrument 1.0 Software has many examples that are created using commercial instruments from Rigol and EXFO. The examples are organized in directories for each vendor. Each example has a readme file that describes the setup and the instruments/cards used in each example as well as the result files.

1. EXFO Samples
    a. Power Balzer_CFP4_EBERT
    b. Power Balzer_QSFP_EBERT
    c. Power Meter
    d. Switch
    e. Switch with CW Sources
    f. VOA with OSA
    g. VOA with Power Meter
    h. Looping Execution of SCPI Commands
    i. Data Parsing for Results of Looping Execution of SCPI Commands Example

2. RIGOL Samples
    a. AM waveform
    b. Arbitrary waveform
    c. Burt waveform
    d. Harmonic waveform
    e. PSK waveform
    f. Pulse waveform
    g. Ramp waveform
    h. Sinewave
    i. Square waveform

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Optiwave
7 Capella Court
Ottawa, Ontario, K2E 8A7, Canada
www.optiwave.com