
Keysight B1530A WGFMU Sample Programs

Readme

This is a Readme file for B1530A Instrument Library. More details about this product can be obtained at : [B1500 Driver, Firmware and Software | Keysight](#)

Notices

© Copyright 2008 - 2025 Keysight Technologies, Inc.

The information contained in this document is subject to change without notice.

Keysight Technologies makes no warranty of any kind with regard to this material, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Keysight Technologies shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Manual Part Number

B1530-90942

Edition

Edition 5, November 2025

Printed in Japan/Malaysia

Published by:

Keysight Technologies, Inc.

Contents

This document contains the following:

- Introduction
- System Requirements
- Installation
- Other Documentations
- Revision History

Introduction

The sample software for the B1530A WGF MU is the program to demonstrate a basic performance of the B1530A and a used as a sample code to demonstrate the usage of the instrument library of the B1530A.

For this purpose, this sample program includes source codes in addition to the executable program. This sample program is written in the Microsoft Visual C# 2013, so to see the source code of it, the Microsoft Visual Studio 2013 (or later) is necessary.

The sample program of the B1530A includes following applications,

1. NBTI Test

- Supporting DC and AC stress
- Supporting various measurement, OTF, fast Id measurement, staircase sweep measurement, ramp sweep measurement and pulsed IV measurement.
- Supporting single sweep and dual sweep for sweep measurement.
- Iterative measurement after stress to evaluate a recovery effect.

2. Sampling Measurement

- Supporting multi measurement condition.
- Supporting linear and log sampling mode.

3. Sweep Measurement

- Supporting various type of sweep, staircase sweep measurement, ramp sweep measurement and pulsed IV measurement.
- Supporting single sweep and dual sweep.

4. Pulsed Sampling Measurement

- Sampling measurement with a pulsed bias.
- Supporting variable measurement condition.

5. Data Sampler

- Capturing voltage or current with a fixed sampling rate.
- The data captured by this program is used as a data source of the RTS analysis tool.

Each application is provided as an individual program.

All application uses the two of output channels of the WGFMU to force waveform and measure voltage or current. Also, two more WGFMU or SMU can be used as a constant bias source.

System Requirements

To use the sample program of the B1530A, Keysight B1530A instrument library and Keysight VISA are necessary.

The required environment to run the sample program of the B1530A are,

HW:

- Keysight B1500A Semiconductor Device Analyzer with the following option
 - B1530A WGFMU x 1 or more
- Windows PC to control the B1500A.
 - Windows 10 Pro or 11 Pro
 - Microsoft .Net Framework 3.5
 - Keysight I/O Library Suites 16.1 or later (including Keysight VISA)
 - Keysight B1530A Instrument Library (Rev A.04.00.2440.5403 or later)

Optional:

One of the following development environments is required to view or edit the source codes of the sample programs.

- Microsoft Visual Studio 2013
- Microsoft Visual Studio 2015
- Microsoft Visual Studio 2017

GPIO I/F:

- Keysight 82350C PCI GPIO I/F
- Keysight 82351B PCIe GPIO I/F
- Keysight 82357B USB GPIO I/F
- GPIO cable to connect the B1500A and the PC

Installation

1. Install the Instrument Library. Refer to the *Readme file for Instrument Library* for the detailed instructions.
2. Copy the "SamplePrograms" folder to any place you want.

The executable file of each application is included under the following directories.

- Data Sampler
 \SamplePrograms\bin\DATASAMPLER\DATASAMPLER.exe
- NBTI
 \SamplePrograms\bin\NBTI\NBTI.exe
- Sampling measurement
 \SamplePrograms\bin\SAMPLING\SAMPLING.exe
- Sweep measurement
 \SamplePrograms\bin\SWEEP\SWEEP.exe
- Pulsed sampling measurement
 \SamplePrograms\bin\PULSE\PULSE.exe
- RTS Analysis Tool
 \SamplePrograms\bin\RTSDataAnalysis\RTSDataAnalysis.exe

The source code (solution project) of each application is included under the following directories.

- Data Sampler
 \SamplePrograms\src\DATASAMPLER\DATASAMPLER.sln
- NBTI
 \SamplePrograms\src\NBTI\NBTI.sln
- Sampling measurement
 \SamplePrograms\src\SAMPLING\SAMPLING.sln
- Sweep measurement
 \SamplePrograms\src\SWEEP\SWEEP.sln

- Pulsed sampling measurement
\SamplePrograms\src\PULSE\PULSE.sln
- Common functions library
\SamplePrograms\src\WGFMU_SAMPLE_Lib\WGFMU_SAMPLE_Lib.sln
- RTS Analysis Tool
\SamplePrograms\src\RTSDataAnalysis\RTSDataAnalysis.sln

Other Documentations

As a reference of each application program, the following document is provided.

- P/N B1500-90503 User's manual of the B1500-87011 demo kit of the B1530A

Revision History

- A.01.00.2008-10-24
Initial Release
- A.01.01.2009.01.07
New Features:
 - In the pulse measurement application, PULSE.exe, the different baseline voltage can be set before or after pulse.
 - "Save" dialog stays previous directory after executing "Validate Pattern", "Execute", "Save Setup" or "Load Setup".
Fixed Defects:
 - [ID 7396] WGFMU data recorder application does not save entire data.
 - [ID 7409] B1530A NBTI Sample Program, error occurs when 100 kHz AC stress is used with a stress duration over 40,000 sec.
 - [ID 7474] B1530A Data Sampler Application, does not work at 200 M/s sampling rate.
 - [ID 7483] B1530A NBTI Application, error occurs when OTF measurement is selected.
 - [ID 7484] B1530A NBTI Sample Program, measurement timing is violated when the Range Change Hold time is set not as 0 s for the OTF measurement.
 - [ID 7485] B1530A NBTI Sample Program, measurement is not executed when the step delay time of sweep measurement is set as 0 s.

- [ID 7487] B1530A Pulse Sample Program, fall time is set as a same value of the rise time.

- A.02.00.2011.0815
New Features:
 - Windows 7 support is implemented.

- A.03.00.1821.8100
New Features:
 - Converted all solutions/projects to Visual Studio 2013.
 - Windows 8.1 and 10 support is implemented.
 - Windows Xp and Vista support is deleted.

- A.04.00.2440.5403
New Features:
 - Windows 11 support is implemented.

End of document.