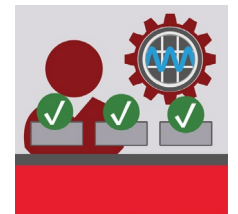# Keysight BenchVue Lab Management and Control Solution
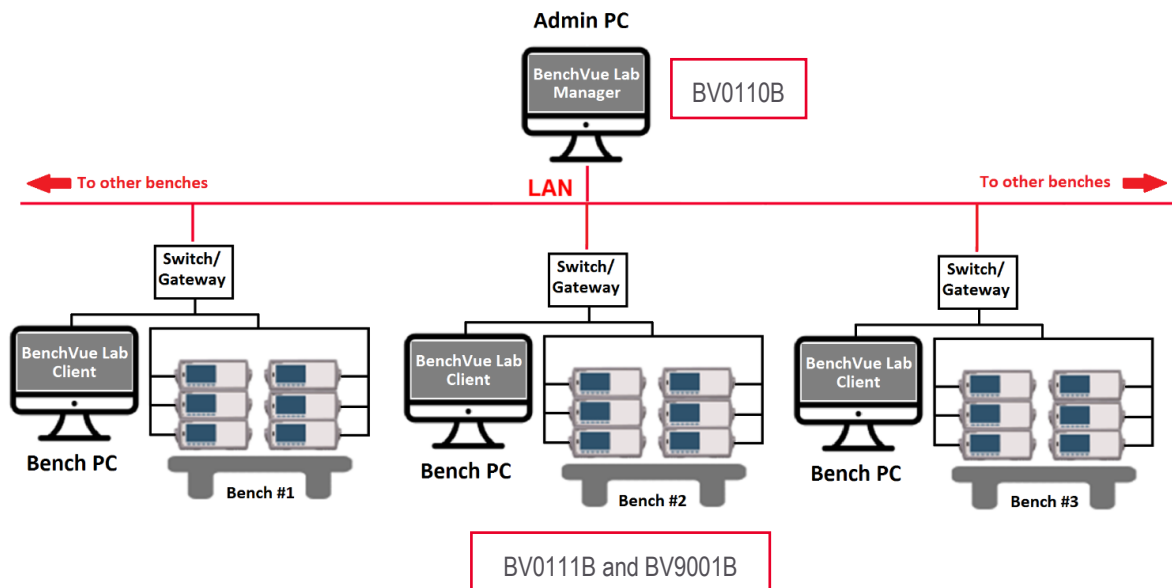
Providing efficient and centralized lab control for educators

Hands-on learning using real, industry-standard bench instruments is one of the most valuable experiences universities and teaching institutes can offer students, ensuring that the next generation of engineers get practical knowledge using the same industry-grade equipment that they would use when they graduate and are out in the industry. But with dozens of test benches, each equipped with multiple instruments, educators managing an engineering lab must spend significant amounts of time manually setting up test benches, configuring and updating the firmware for the instruments, and tracking the lab's assets for calibration and repair.

Now, with Keysight BV9111EDU BenchVue Lab Management and Control Solution, educators can spend less time on manual set up and tracking and focus on what really matters – providing high-quality teaching. This solution is built upon the BenchVue software platform, leveraging its strengths such as easy control, data capture, logging and report generation, all without requiring programming. Consisting of the LAN-based BV011xB BenchVue Lab apps and the BV9001B BenchVue education control collection, Keysight BenchVue Lab Management and Control Solution is a lab management solution that not only provides centralized control for educators to seamlessly connect and monitor all the instruments within lab, but also serves as a powerful teaching tool for instruction laboratories.

Instrument Lab Management, Simplified

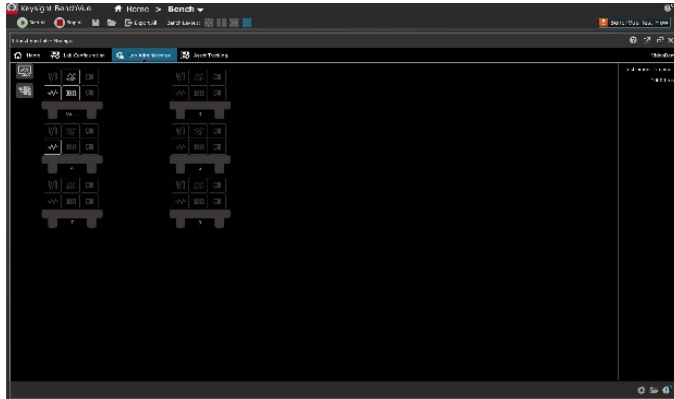Different components of the BV9111EDU in a typical lab setup

BV9111EDU BenchVue Lab Management and Control Solution consists of the BV0110B BenchVue Lab and BV9001B the BV9001B Education Control Collection.

- BV0110B BenchVue Lab
  - Manager App - acts as the main software application installed on the lab administrator's PC for centralized control, monitoring and management
  - Client App - runs on test bench PCs and connects all the instruments at individual test benches. This app links readily to the Manager app.

- BV9001B Education Control Collection
  - Contains the following apps to control unique instrument types: Data acquisition, digital multimeter, electric load, FieldFox handheld analyzer, function generator, network analyzer, oscilloscope, power meter, power supply, signal generator and spectrum analyzer, and universal counter
  - Test Flow feature – enables users to build automated test sequence blocks from multiple instruments with a drag-and-drop interface, without requiring programming
  - Extensive data trace and measurement logging capabilities, with report generation
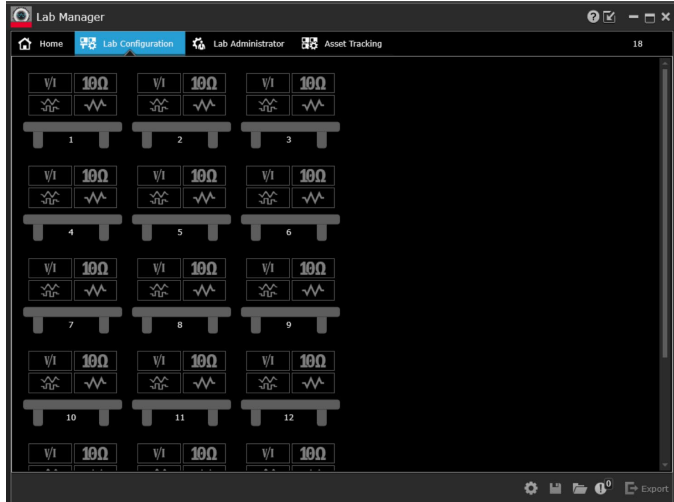
Key Features

BenchVue Lab Management and Control Solution provide several core lab features.

Lab Administrator

Lab Administrator provides a quick overview of the current instruments connection status, so the lecturer or lab manager can monitor the condition of the lab. This feature allows them to easily identify which instrument, and on which bench, that is not correctly connected.

Lab Configuration

The Lab Configuration Tab allows educators to configure the lab layout, number of benches, type and number of instruments, and name of the benches according to their actual lab layout. The maximum limit for test benches is ten rows by ten columns, for a total of 100 test benches. There are two options to configure the lab layout - either manually or by importing from a CSV file. Multiple lab layouts can be saved and easily interchanged to allow flexibility for different classes sharing a lab.

Asset Tracking

BenchVue Lab Manager Asset Tracking provides intuitive management tool educators to easily keep track of a long list of assets in the lab, including but not limited to instruments, equipment and accessories. The Asset Tracking feature is designed to manage instrument loaning, instrument calibration schedule tracking with e-mail reminder/alert system, and allows users to view as well as export asset reports. Items may be added to the asset tracking list manually, or imported from the lab or CSV file.

Mass Firmware Update

Mass firmware update provides intuitive management tool educators to easily update their connected Keysight instrument's firmware, it designs to provide a convenient way to update all instruments in one click. This feature requires additional update installation on top of the current BV0110B Manager App.

Multiple Instruments Control, Data Log, Analysis and Automation

BenchVue Education Control Collection provides dedicated apps for twelve Keysight instrument families and supports several hundred instruments, with the list continuing to grow. These apps allow users to easily log and export data and images in a few clicks for faster analysis, and then quickly create automated test sequences with minimal instrument knowledge. They also support data log and print screen capability and allows users to visualize and automate multiple instruments simultaneously.

Benefits for using BenchVue Lab Management and Control Solution

- **Streamline and simplify lab management, saving lab administrators and educators time and freeing them to focus on teaching**

    BenchVue Lab provides overview connection statuses of all instruments via a customizable home screen with widget control and allows administrators to configure the measurement settings of all instruments at once, all from a single admin PC. With this single software platform, administrators also can easily track asset inventories; changes to the asset list – such as when instruments are sent for calibration or removed from the lab on loan – are automatically updated in software's lab configuration status. It also provides easier way to update firmware for all the connected Keysight instruments.

- **Enhance the learning experience of students by utilizing this solution as an education lab teaching software platform**

    The BenchVue instrument control apps allow users to easily control, analyze and build custom automated sequences with BenchVue Test Flow. Full desktop and application sharing allow for easy remote monitoring and student assistance in the test lab. And with the BenchVue Lab Client App installed at each test bench computer, students can easily control instruments, log data and screen shots, and automatically join lab sessions.

- **Easily integrate the solution into the existing lab setup**

    This solution supports over five hundred Keysight test and measurement instruments, and will also connect to non-Keysight test instruments that are compliant with the VISA connection protocol. Together with an intuitive GUI and the ability to import CSV files, BenchVue Lab enables educators to quickly set up and configure large labs.

- **Save on investment**

  Educators can take advantage of the license bundling the BenchVue Education Lab and Control Collection provides, which includes:

  - One BenchVue Lab manager app license
  - 50 BenchVue Lab client app licenses
  - 50 BenchVue Education Control Collection network licenses
  - And unlimited one-year student licenses, allowing students to access the BenchVue Education Control Collection apps on their personal devices

System Installation and Requirements

System Requirements
Computer Operating System • Windows 10 – 32-bit and 64-bit (Professional, Enterprise, Education, Home versions) • Windows 8 – 32-bit and 64-bit (Professional, Enterprise, Core versions) • Windows 7 – SP1 and later, 32-bit and 64-bit (Professional, Enterprise, Ultimate, Home Basic, Home Premium versions)
Computer Hardware Requirements • Processor: 1 GHz or faster (2 GHz or greater recommended) • RAM: 1 GB for 32-bit or 2 GB for 64-bit (3 GB or greater recommended) • Display Resolution:1280x1024 minimum for single instrument view (higher resolution recommended for multiple instrument view) Note: An Internet connection is required when installing the BenchVue application and updates from the Keysight web site or an FTP site. An Internet connection is not required when installing from a DVD. Administrator privileges are required when installing BenchVue.
Data Exports • For data exports to Microsoft Excel and Microsoft Word, BenchVue supports Microsoft Office 2003 and later.
BV0110B BenchVue Lab setup requirements • All instruments MUST be connected to the administrator PC via LAN, either directly or through a bench PC, so that the Manager App can connect, configure and monitor the instrument status. • It is recommended to install the Client App at test bench PCs (or student laptops). Remote instrument status monitoring, ability to send instrument state file and other features will be available. • Recommended USB connection between test bench PCs and instruments • Both Lab Configuration and Asset Tracking features will continue to work without the instruments connected. These features support non-Keysight instruments as well. Note: Mass firmware update additional installer file can be downloaded from: https://www.keysight.com/main/editorial.jspx?cc=US&lc=eng&ckey=3009369&nid=-11143.0.00&id=3009369

System Requirements

Supported Instruments

For BV011XB BenchVue Lab

- Support up to 100 benches, each bench supports a maximum of 6 instruments.
- Supported Keysight instrument family for state file sending: Oscilloscope, power supply, digital multimeter and function generator
- For Non-Keysight Instruments that comply with IEEE-488 standards, user is able to check the connectivity status of the instruments and for asset tracking usage, but not for sending state file to the instruments.

For BV9001B BenchVue Education Control Collection

Note: For Keysight Instruments, users can refer to the following link to view the list of supported instruments: www.keysight.com/find/benchvueinstruments

Supported Interfaces

For BV0110B BenchVue Lab

- LAN connection (Wired LAN recommended)

For BV9001B BenchVue Education Control Collection

- USB, LAN, GPIB, and RS-232 (not supported on all instruments). Requires Keysight IO Libraries Suite v16.0 or later.

Ordering Information

Solution number	Description
BV9111EDU	**BenchVue Lab Management and Control Solution** • 1x BV0110B BenchVue Lab Manager App, transportable license • 50x BV0111B BenchVue Lab Client App, network/floating licenses, this is part of BV9001B • 1 x BV9001B BenchVue Education and Control Collection consists 50 network licenses, which cover control collection apps • Upgrade option to increase additional 50 network licenses for BV9001B and BV0111B on top of BV9111EDU • Unlimited one-year student licenses, allowing students to access the BenchVue Education Control Collection apps on their personal devices Note: BV9111EDU offers 3 license term: • 12 Months • 24 Months • Perpetual

Customer will receive two license certificates after purchasing the BenchVue Lab Management and Control Solution:

- BV0110B BenchVue Lab Manager App

- BV9001B BenchVue Education Control Collection (BV0111B BenchVue Lab Client App is included under this certificate)

Further Information

Please visit our solution page for more information http://www.keysight.com/find/lms

More information about the solution in the technical overview
https://www.keysight.com/my/en/assets/7018-06445/technical-overviews/5992-3559.pdf

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

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