



## • BRAVO Handheld Raman Spectrometer

Outstanding performance and design, an intuitive graphical user interface (GUI) supported by a large touch screen - BRAVO is the dedicated handheld Raman solution that speeds up your raw materials identification at a maximum.

- SSE™ - Patented fluorescence mitigation
- Duo LASER™ excitation
- IntelliTip™ - Automated measuring tip recognition
- Laser class 1 in all operating modes
- Intuitive and guided touchscreen operation
- Ultimate Raman shift accuracy
- Wireless and Ethernet connectivity
- Automated data transfer and reporting
- Complies with latest pharmaceutical regulations

BRAVO gives the ability for raw material verification by Raman spectroscopy into everybody's hands. Be guided straightforward through a reasoned workflow while simply touching icons on a large touch screen. Additionally, the user interface will support you in 18 different languages in parallel.

### **SSE™ - Patented Fluorescence Mitigation:**

In many cases raw material verification by Raman spectroscopy is prevented due to fluorescence. BRAVO uses SSE™ (Sequentially Shifted Excitation) a patented fluorescence mitigation that enables to measure a much wider range of raw materials with handheld Raman systems than ever before.

### **Duo LASER™ Excitation:**

The Duo LASER™ excitation provides highest sensitivity across the entire spectral range and hence guarantees for maximum unambiguous verification.

### **IntelliTip™ - Automated Measuring Tip Recognition:**

Whether you choose a tip for measuring samples in vials or through bags IntelliTip™ for BRAVO ensures this information to be stored in the records. There is no room for mistakes, IntelliTip™ guarantees that if defined for a raw material BRAVO will advise which tip has to be used.



Highest quality standards and personal customer service guarantee a reliable and efficient solution.



Results are clearly visible and presented self-explaining on the graphical user interface.



The optional docking station features battery charging, storage options, data transfer and measurements within.

### Intuitive and Guided Touch Screen Operation

Right from the login the operator is guided through an utmost intuitive workflow by simply touching icons. At each step available options are shown and results are clearly visible and presented self-explaining on the graphical user interface. On demand further information can be derived by various analysis tools.

### Laser Class 1

The BRAVO incorporates a sophisticated design of optics and lasers, which makes BRAVO the only handheld Raman device being a laser class 1 product in all operating modes. BRAVO ensures maximum user safety.

### Ultimate Raman Shift Accuracy

The automated and permanent wavenumber calibration for BRAVO ensures highly reproducible measurements in combination with unmatched wavenumber accuracy for dispersive instrumentation. With a Raman shift accuracy typically better than  $1 \text{ cm}^{-1}$  in the fingerprint region, a performance is achieved that meets requirements for benchtop instrumentation in Pharmaceutical regulations.

Technologies used are protected by one or more of the following patents: US 8,570,507 B1. Additional patents are pending.

### Material, Method and Library Setup

BRAVO offers a simple tool to setup libraries for your raw materials with high flexibility and advanced settings. For example a raw material delivered by different suppliers can be considered in the same library, as well the suppression of packaging signals is supported. Note, that building a library is no time-consuming process. The acquisition time of spectra for a material to be stored in a library is identical to the one of verification in standard measurement mode.

### Automated Data Transfer and Reporting

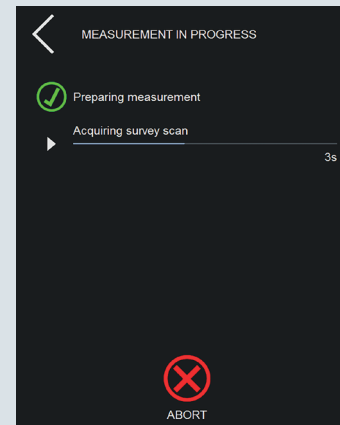
BRAVO offers a high degree of automation, whether it is for batch scans using the fully configurable bar code scanner or automated transfer of analysis results and reports. With WiFi and Ethernet functionality BRAVO supports a flexible connection to your data system.

### Validation

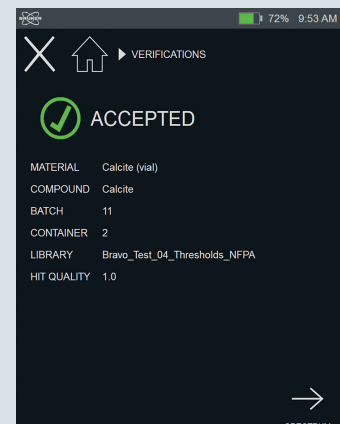
BRAVO is designed for the operation in validated environments of the Pharmaceutical industry and offers all required functionality to meet regulatory requirements out of the box.

### Graphical User Interface

The large touch screen provides an easy operation throughout all workflows as well as a clear and bright presentation of information on current status and results.



Measurement in progress: Remaining measurement time of 3 seconds.



Measurement accomplished: Verification of sample was successful and is accepted.

[www.bruker.com/optics](http://www.bruker.com/optics)

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