QUAKELOGIC

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HANDHELD RAMAN IDENTIFICATION SYSTEM

QL-RamanGuard Pro

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Handheld Raman Identification System

FIELD-READY RAMAN MATERIAL IDENTIFICATION

The QL-RamanGuard Pro is a compact, ruggedized handheld Raman spectrometer for rapid, non-destructive identification of controlled substances, precursor chemicals, pharmaceuticals, and hazardous or unknown materials. Built for field and laboratory use, it pairs a 785 nm excitation laser with a 200–4000 cm^{-1} range and 10 cm^{-1} resolution. An IP67 body, one-touch identification, and through-container analysis let operators return a Pass/Fail result on-site without an external computer.

- One-touch identification with an advanced comparison algorithm returns clear Pass/Fail results in seconds, letting first responders and analysts act without lab delays.
- IP67-rated, 450 g construction with MIL-STD-810G-equivalent ruggedness and a 4–6 hour battery sustains demanding field operations across a -20°C to +50°C range.
- Non-destructive analysis through transparent containers preserves chain-of-custody evidence and reduces operator exposure to hazardous or unknown substances.
- 21 CFR Part 11-equivalent electronic records, integrated cameras, and GPS produce audit-ready, geotagged reports for regulatory and forensic documentation.

STANDARD FEATURES »

- 785 nm Excitation Laser
- Advanced ID Algorithm
- One-Touch Identification
- Pass/Fail Results
- Onboard Spectral Libraries
- User-Expandable Libraries
- 5.5 in HD Touchscreen
- Android Operating System
- Dual Integrated Cameras
- Barcode/QR Scanning
- Through-Container Analysis
- Adjustable Laser Power
- Integrated GPS
- Wi-Fi / Bluetooth / GSM
- USB Type-C Interface
- Rechargeable Lithium Battery
- IP67 Rugged Enclosure
- 21 CFR Part 11 Compliance
- Exportable Reports
- Standalone Operation

Key Features

- 785 ±0.5 nm excitation laser with a 200–4000 cm^{-1} range and 10 cm^{-1} resolution delivers reliable identification across controlled substances and industrial chemicals.
- Advanced identification algorithm with one-touch operation returns clear material identity and Pass/Fail results, reducing operator training time and decision latency.
- Comprehensive onboard spectral libraries cover illicit drugs, precursors, pharmaceuticals, and toxic chemicals, and expand with user-defined spectra for site-specific materials.
- Adjustable laser power enables safe measurement of sensitive or dark materials, minimizing sample degradation and combustion risk during analysis.
- Through-container analysis identifies substances inside transparent packaging non-destructively, preserving evidence and limiting exposure to hazardous unknowns.
- Dual 13 MP + 8 MP cameras plus barcode and QR scanning capture sample and evidence documentation directly into exportable analytical reports.
- 5.5-inch 1920 × 1080 capacitive touchscreen on an Android-based OS supports full standalone operation without an external computer in the field.
- IP67, MIL-STD-810G-equivalent rugged construction at 450 g withstands demanding environments while remaining portable for extended handheld field use.
- Wi-Fi, Bluetooth, USB Type-C, GSM, and integrated GPS enable geotagged data transfer, remote reporting, and networked evidence management.

PRODUCT FEATURES

Optical System
785 ±0.5 nm excitation laser · 200–4000 cm^{-1} spectral range · 10 cm^{-1} spectral resolution · Adjustable laser power

Identification
Advanced comparison algorithm · One-touch identification · Pass/Fail result capability · Mixture detection support

Spectral Libraries
Controlled substances & precursors · Toxic industrial & hazardous chemicals · Pharmaceutical & general chemicals · User-expandable libraries

Interface & Display
5.5 in HD capacitive touchscreen · 1920 × 1080 resolution · Android-based operating system · Standalone operation

Documentation & Imaging
Dual 13 MP + 8 MP cameras · Barcode and QR scanning · Exportable analytical reports · Integrated precision GPS

Connectivity
Wi-Fi and Bluetooth · USB Type-C · GSM cellular · 21 CFR Part 11-equivalent records

Power & Environment
Rechargeable lithium battery · 4–6 hour continuous operation · IP67 environmental protection · MIL-STD-810G-equivalent ruggedness

For more information about the features, specifications, and available configurations of the QL-RamanGuard Pro, please contact QuakeLogic.

MACHINE CONFIGURATION

COMPONENT	CONFIGURATION
System Type	Portable handheld Raman identification system
Measurement Method	Raman spectroscopy with comparison algorithm
Excitation Source	785 ±0.5 nm laser, adjustable power
Display	5.5 in HD capacitive touchscreen, 1920 × 1080
Operating System	Integrated Android-based OS
Imaging	Dual cameras, 13 MP + 8 MP
Sample Identification	Integrated barcode and QR scanning
Positioning	Integrated precision GPS
Communications	Wi-Fi, USB Type-C, Bluetooth, GSM
Power Source	Built-in rechargeable lithium battery
Charging Interface	USB Type-C
Enclosure	IP67, MIL-STD-810G-equivalent rugged

CAPACITY

SPECIFICATION	VALUE
Spectral / Wavenumber Range	200–4000 cm^{-1}
Spectral Resolution	10 cm^{-1}
Excitation Wavelength	785 ±0.5 nm
Continuous Battery Operation	4–6 hours
Weight	≈ 1.0 lb (450 g)
Dimensions	6.7 × 3.1 × 1.2 in (170 × 79 × 30 mm)
Operating Temperature	-4°F to +122°F (-20°C to +50°C)
Camera Resolution	13 MP + 8 MP dual
Display Resolution	1920 × 1080

BUNDLED ANALYSIS LAPTOP

Intel Core i5 laptop with Windows 11 Pro 64-bit, 8 GB RAM, and SSD storage for analytical software operation.

IQ/OQ QUALIFICATION

Installation and Operational Qualification performed at install, with follow-up services scheduled throughout the warranty period.

ON-SITE TRAINING

Minimum four hours of operator and administrator training for up to ten personnel, covering operation, libraries, and safety.

PREVENTIVE MAINTENANCE

Scheduled preventive maintenance support delivered per the recommended schedule throughout the warranty period.

TECHNICAL SPECIFICATIONS

SPECIFICATION	DESCRIPTION
System Type	Portable handheld Raman identification system
Measurement Method	Raman spectroscopy with comparison algorithm
Excitation Wavelength	785 ±0.5 nm
Spectral / Wavenumber Range	200–4000 cm^{-1}
Spectral Resolution	10 cm^{-1}
Laser Power	Adjustable for wide material range
Through-Container Analysis	Direct analysis through transparent containers
Material Identification	One-touch algorithm-based identification
Identification Interface	Clear ID with Pass/Fail capability
Mixture Analysis	Advanced mixture detection support
Spectral Libraries	Controlled, precursor, hazardous & pharma
User-Expandable Library	Supports user-defined spectra
Display	5.5 in HD capacitive touchscreen
Display Resolution	1920 × 1080
Operating System	Integrated Android-based OS
Standalone Operation	Full analysis without external computer
Sample Identification	Integrated barcode and QR scanning

SPECIFICATION	DESCRIPTION
Integrated Imaging	Dual cameras, 13 MP + 8 MP
Report Generation	Exportable reports with spectra & images
Electronic Records	21 CFR Part 11-equivalent compliance
Rugged Compliance	MIL-STD-810G-equivalent performance
Environmental Protection	IP67
Communications	Wi-Fi, USB Type-C, Bluetooth, GSM
Positioning	Integrated precision GPS
Battery	Built-in rechargeable lithium
Continuous Operation	4–6 hours
Charging Interface	USB Type-C
Weight	≈ 1.0 lb (450 g)
Dimensions	6.7 × 3.1 × 1.2 in (170 × 79 × 30 mm)
Operating Temperature	-4°F to +122°F (-20°C to +50°C)
Software	ID, comparison, library & reporting suite
Software Licenses	All required licenses included
System Condition	Factory-new, current-production
Warranty	Minimum 24 months

QL-RAMANGUARD IDENTIFICATION SUITE

The onboard identification suite runs directly on the analyzer's Android-based operating system and covers the full analytical workflow: spectral acquisition, material identification against comprehensive libraries, Pass/Fail comparison, library management, data management, and exportable reporting. All software licenses required for complete system operation are included, with 21 CFR Part 11-equivalent electronic records compliance for audit-ready documentation.

MATERIAL IDENTIFICATION

An advanced comparison algorithm matches acquired Raman spectra against onboard libraries covering controlled substances, precursors, pharmaceuticals, and hazardous chemicals. One-touch operation returns clear identification and Pass/Fail results, with mixture detection for complex or contaminated samples.

LIBRARY MANAGEMENT

Comprehensive spectral libraries ship preloaded and remain fully user-expandable. Operators create and add user-defined spectra and custom libraries for site-specific materials, tailoring the system to evolving threat lists and local chemical inventories.

DATA & REPORTING

Exportable analytical reports combine identification results, spectral data, and supporting sample or evidence images captured by the dual cameras. GPS geotagging and 21 CFR Part 11-equivalent records support chain-of-custody and regulatory documentation.

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About QuakeLogic:

QuakeLogic Inc. is a California-based engineering and technology company providing innovative, reliable, high-quality solutions to customers worldwide.

Our Commitment

We are committed to quality, innovation, and customer satisfaction — building lasting partnerships through reliable solutions and dependable support.

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