

thermoscientific



# Thermo Scientific Gemini handheld analyzer

Integrated Raman and FTIR  
for chemical and explosives ID

**ThermoFisher**  
SCIENTIFIC

# Because every second counts

The rugged, compact Thermo Scientific™ Gemini™ analyzer meets the demanding requirements of elite military and public safety forces, helping operators execute their mission quickly, safely, and accurately.

## The industry standard

- The right tool for all missions
- Easy to understand and use
- Rugged and strong


### Scan formats

Gemini offers two formats for scanning. ID mode is ideal for advanced users looking for chemical identification. Screener mode offers a simpler interface, focused on low concentration narcotics detection.

### Intuitive operation for any user

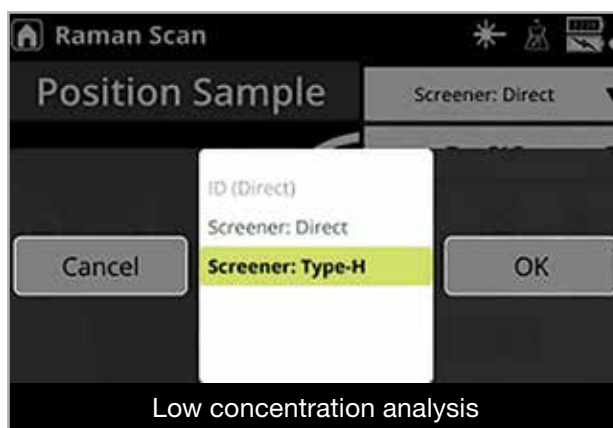
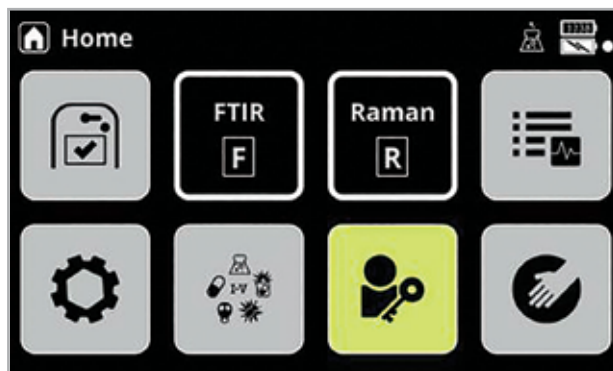
The graphical interface ensures that minimal training is required for proficiency. For new users, the Scan Assist feature guides technology selection with a series of easy questions. The consistent interface and workflow across technologies ensure that experienced operators can easily proceed with sampling.

### Scan delay

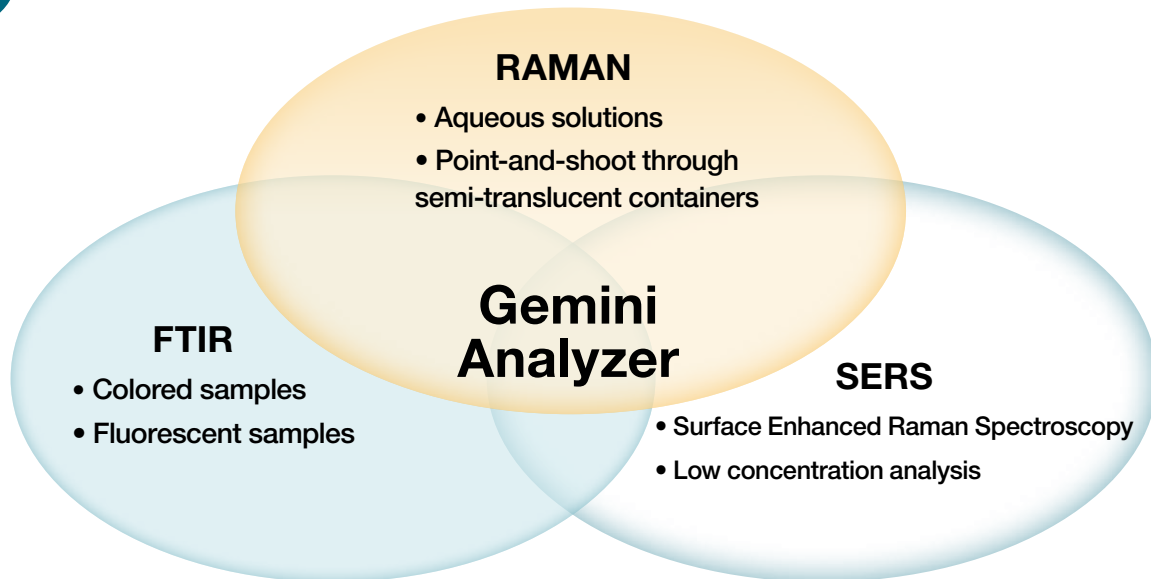
In addition to the Raman scan delay, adjustable laser power, and other built-in safety features, Gemini introduces the industry's first FTIR scan delay, enabled by the motorized anvil. 

### Flexible input

Operators can easily navigate features using either the tactile keypad or resistive touch screen, even when wearing protective gloves.



# 3 Technologies in 1



## Complementary and confirmatory

Raman and FTIR are highly specific and reliable identification methods, each with strengths and limitations. By integrating both into a single analyzer, operators harness the power of each technology while enabling a broader range of chemical identification.



## SERS - low concentration analysis

By utilizing the enhanced hardware and software of the Gemini analyzer, combined with SERS (Surface Enhanced Raman Spectroscopy), Gemini is able to deliver low concentration analysis and results for key narcotics.

## Identifying low concentration narcotics

Drug	Drug Weight (%)	Cutting Agent	Gemini with LowDoseID
Fentanyl HCl	5	Acetaminophen	✓
	1	Caffeine	✓
	1	Confectioners' sugar	✓
	1	α-Lactose monohydrate	✓
	5	Procaine HCl	✓
	5	Quinine HCl	✓
Heroin HCl	5	Acetaminophen	✓
	2	Caffeine	✓
	5	α-Lactose monohydrate	✓





### Designed for survivability

From extreme climates to aggressive handling, Gemini has been certified to the latest military standards for ruggedness—drop, shock, vibration, temperature, immersion and much more.

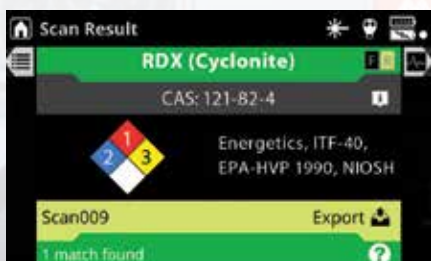


# Gemini Analyzer

Flexible approaches to scanning.

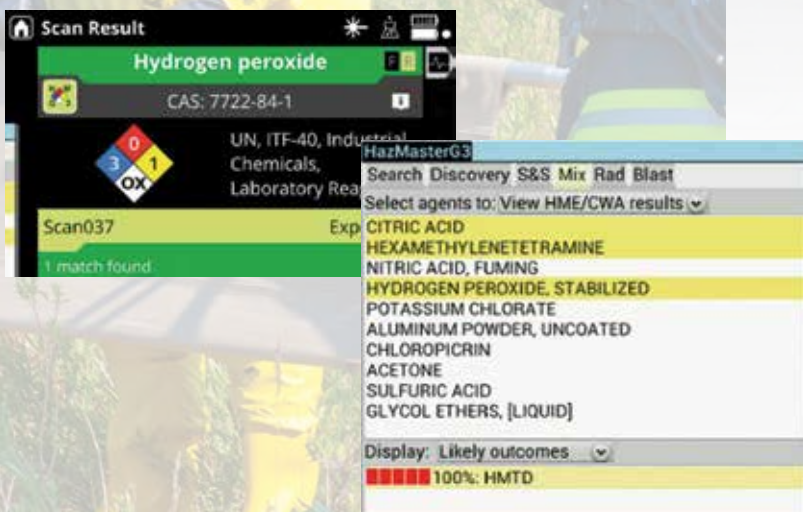
## ID Mode

- Utilizes both Raman & FTIR technology
- Provides complementary and confirmatory results
- Ideal for advanced users
- General characterization of chemicals



## Be prepared and aware

- HazMasterG3 Software (add on capability)
- Determine potential hazardous material being made from on site chemicals
- Determine what HME formula ingredients are missing



## Screener Mode

(available with LowDoseID)

- Utilizes Raman and SERS
- Ideal for all user levels
- Narcotics identification

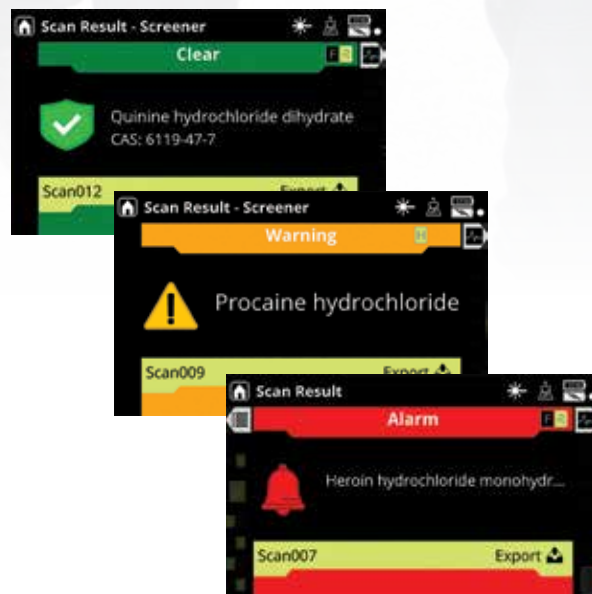


## Direct Scan

- Analysis via holder or probe
- Substances that are pure or in high concentration

## Type H Scan

- Substances present in low concentration
- Items with fluorescence issues





Specifications	
Size	10.1 in x 5.7 in x 2.4 in (25.6 cm x 14.6 cm x 6.1 cm)
Weight	4.2 lbs (1.9 kg)
Spectral range	FTIR: 4,000 $\text{cm}^{-1}$ to 650 $\text{cm}^{-1}$ Raman: (785nm) 250 $\text{cm}^{-1}$ to 2875 $\text{cm}^{-1}$
Spectral resolution	FTIR: 4 $\text{cm}^{-1}$ Raman: 7 to 10.5 $\text{cm}^{-1}$ (FWHM) across range
Collection optics	FTIR: ATR diamond crystal, single bounce      Raman: Fiber optic probe
Power supply	Internal 3.7V lithium polymer (QTY 1) battery pack      Internal CR123A (QTY 3) batteries DC wall adapter, 12 V DC 1.25 A
SERS	1.5 ml solvent vial via polycarbonate H-stick with substrate
Data export	SPC (for use in standard spectroscopic software), reachback (.rbk), text, or PDF
Ruggedness	MIL-STD-810G and IP67
Languages	English, German, Turkish, Spanish, Chinese, Japanese, Arabic, French, Russian
Add on capability	Optional HazMasterG3 <sup>®</sup> decision support software (English GUI only); requires Gemini v1.6 or later software. Low dose ID for low concentration analysis
Onboard mixture analysis	Identification of up to 4 components in a mixture

- Intuitive interface including customizable profiles and Scan Assist, to guide the operator through technology selection and sampling;
- Motorized anvil adjusts sample pressure based on user settings and enables Scan Delay for safer FTIR analysis

**Americas**  
Boston, USA  
+1 978 670 7460

**Europe, Middle East, Africa**  
Munich, Germany  
+49 89 3681 380

**India**  
Mumbai, India  
+91 22 6680 3000

**Asia Pacific**  
New Territories, Hong Kong  
+852 2885 4613

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