

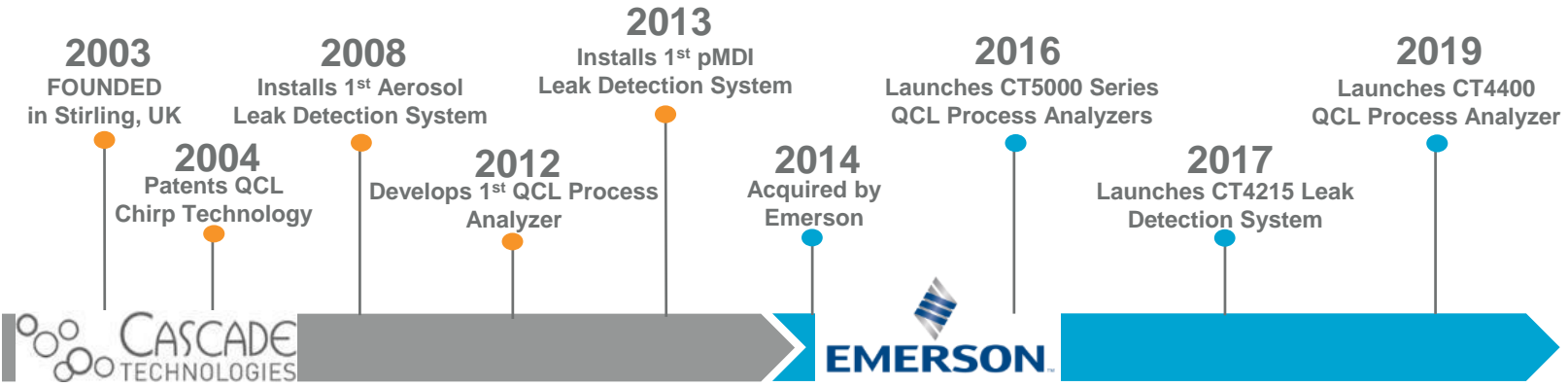
EPIC Online Technology Meeting on Mid-IR Photonics

May 13th 2020



Quantum Cascade Laser Gas Analyzers → Cascade Technologies Emerson

MILESTONES



LEADING TECHNOLOGY

- Continuous Laser Gas Analyzers
- Aerosol Leak Detection Systems
- Medical & Pharmaceutical Leak Detection Systems

AWARDS & RECOGNITIONS

FROST & SULLIVAN

“New Product Innovation 2016”



Analysis Division
“Innovative Product of the Year 2014”

LOCAL SUPPORT | GLOBAL REACH

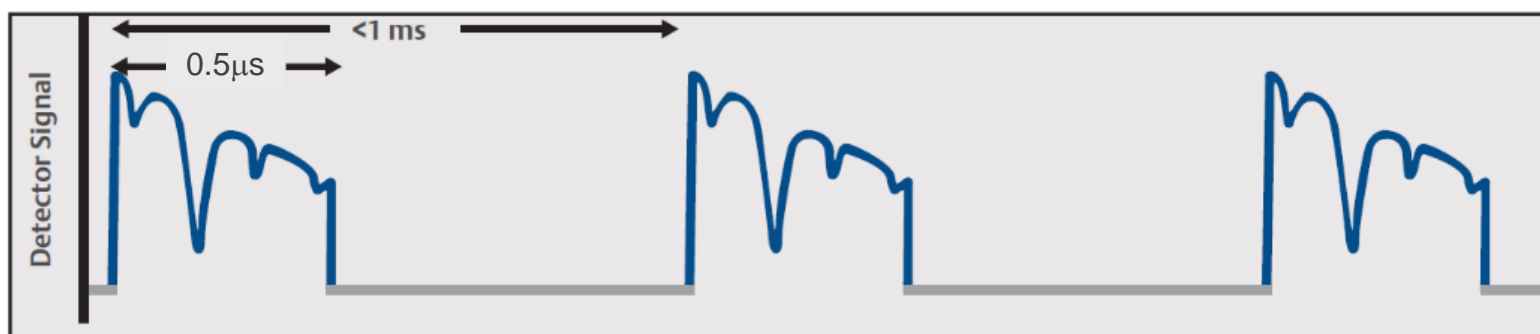


150
+
Countries Supported

★ Headquarters
■ Regional Offices

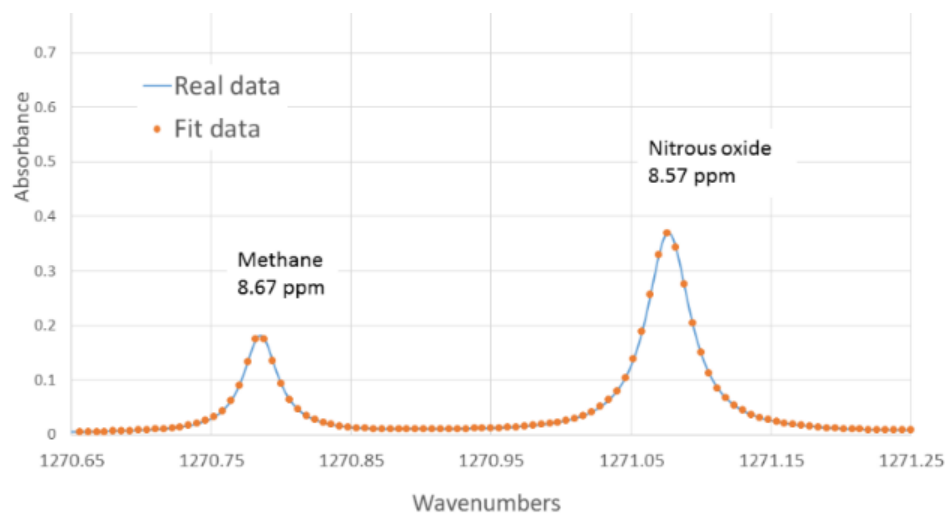
Laser “Chirp” Technique Sweeps Frequency

- The chirp technique measures full spectrum with each pulse
- Intra-pulse chirp



Patented
Laser Chirp
Technique

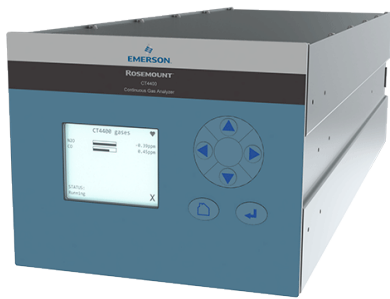
- Transmission spectrum is converted to absorbance
- Absorbance is fitted with multi-line spectrum and concentration derived using known path length along with measured temperature and pressure



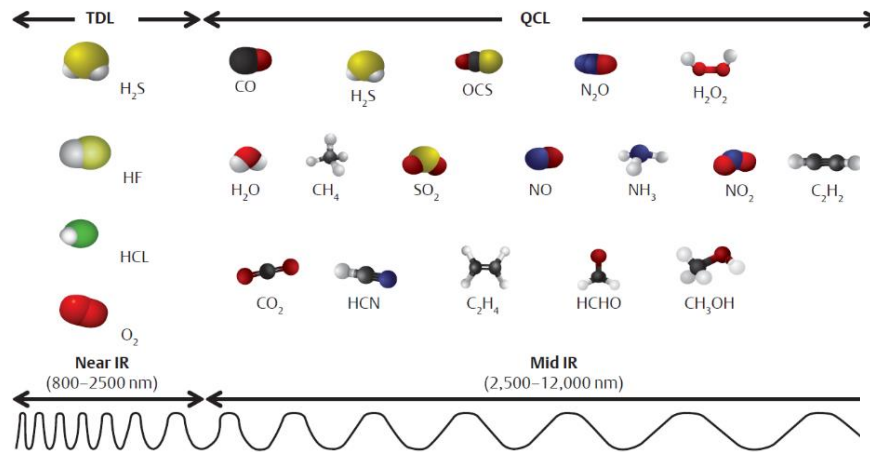
- Sub-ppm sensitivity and accuracy, with Hz update rates

Disrupting the Process Market with Quantum Cascade Laser Technology

Rosemount CT4000 Series: Quantum Cascade Laser Gas Analyzers



Half-rack configuration



Full-rack configuration

Rosemount CT5000 Series: Quantum Cascade Laser Gas Analyzers



CT5100 Continuous Gas Analyzer



CT5800 Continuous Gas Analyzer

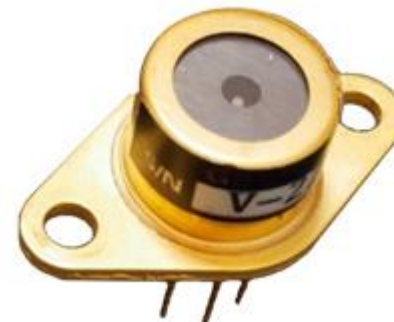
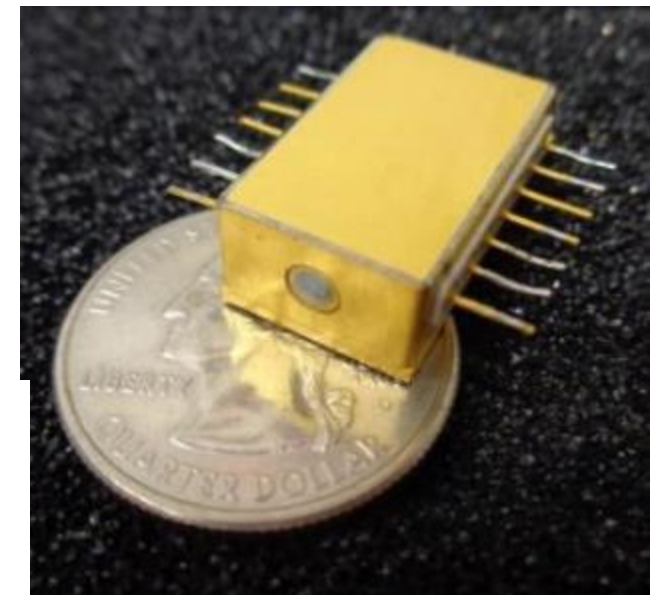
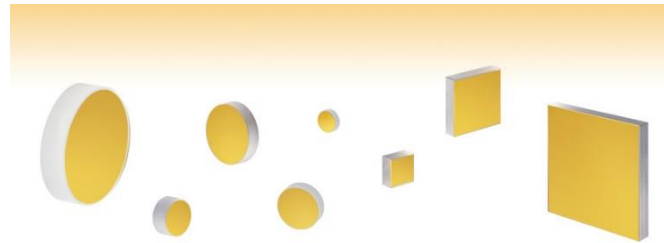
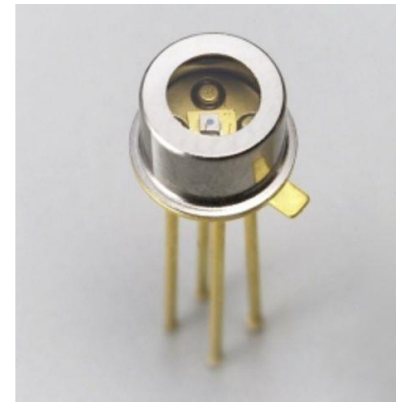


CT5400 Continuous Gas Analyzer

Best-in-Class Laser Technology

Cascade Technologies

- **What can you do for us?**
 - Collaborative development
 - MIR and NIR solutions
 - Sources
 - Detectors
 - Components
 - Novel techniques



Cascade Technologies
