

Press Release

InfraTec GmbH Infrarotsensorik und Messtechnik

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New PYRONEER Detector DSV-7341: Highest Measuring Stability Guaranteed InfraTec Equips its DLaTGS Detectors with an Integrated Thermo-electric Cooling

At modulation frequencies in the kHz range, the pyroelectric material **DLaTGS** (deuterated L-alanine doped triglycine sulphate) achieves up to **three times higher detectivity** compared to lithium tantalate. This makes DLaTGS detectors the gold standard for use in Fourier transform infrared spectrometers (FTIR).

However, the higher detectivity requires a better thermal stabilization of the detector. Besides that, DLaTGS shows a high sensitivity to humidity. InfraTec's coming soon **DSV series** detector DSV-7341, designed for both **premium** and **mobile FTIR spectrometers**, overcome these challenges with:

- **Hermetic sealing** for outstanding protection against moisture and an
- **integrated thermo-electric cooling** to maintain a stable pyrochip temperature.

Together, these innovations ensure exceptional stability and highly accurate measurements even under demanding conditions. In addition, InfraTec is expanding its PYRONEER family with detectors featuring **2.0 mm DLaTGS pyrochips**, which can accommodate larger electronical beams.

Enhanced Moisture Resistance

Zinc selenide (ZnSe) is typically used as window material for infrared detectors, operating in harsh environments, thanks to its excellent moisture resistance. Soldering the window into the detector cap also creates a hermetic seal, further preventing moisture ingress. This guarantees long-term accuracy and extends the lifetime of the detector. An additional anti-reflection coating optimizes the transmission in the mid-IR.

Stable Operating Temperature Inside the Detector

Precise temperature is critical to maximize infrared detector performance and minimize temperature-dependent signal drift. InfraTec addresses this challenge for its DLaTGS detectors of the PYRONEER family by integrating a **thermo-electric cooler (TEC)** and a negative temperature coefficient (**NTC**) thermistor.

The combination of these two components enables the detector user to monitor the internal temperature of the detector, regulate the TEC and thus stabilize the active DLaTGS element. This function helps compensate not only for environmental thermal influences but also for varying radiation levels on the detector, e. g. between background and sample. As a result, the detector achieves significantly higher measurement precision and stability.

Steady Feedback for Reliable Temperature Regulation

The NTC thermistor, positioned close to the detector chip, provides an electrical resistance value corresponding to the internal detector temperature. This resistance can be measured at two designated pins of the detector and used as a feedback signal for the external TEC controller.

By changes in the supply current of the TEC the component heats or cools the detector chip if necessary – keeping the working temperature stable and precise. By utilizing a modern design, components, and state-of-the-art manufacturing, the InfraTec detector additionally offers a thermally efficient operation.

Press Release

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The TEC increases the independency of the new PYRONEER detector from environmental conditions – advantageous for both kinds of FTIR, mobile as well as premium spectrometers. The improved packaging of the DSV-7341 enables a simple and reproducible thermal connection to a heat sink, providing a reliable and efficient solution for thermal management.

Information: 3.422 characters (incl. spaces)

About InfraTec

The InfraTec infrared sensor and measurement technology company was founded in 1991 and has its headquarters in Dresden, Germany. The privately held company employs more than 240 employees and has its own design, manufacturing and distribution capabilities.

The Infrared Sensor division produces custom-made components – especially pyroelectrical infrared detectors – for clients worldwide. The product range includes analogue single and multi-channel detectors as well as digital multi-channel detectors (PyrIQ) and high-performance detectors (PYRONEER) for analytical instruments. The detectors are used in gas analysis, fire and flame sensors and spectroscopy.

With its infrared measurement business unit, InfraTec is one of the leading suppliers of commercial thermal imaging technology. In addition to the high-end camera series ImageIR® and the camera series TaxisIR® and VarioCAM® High Definition, InfraTec offers turnkey thermographic automation solutions e. g. for industry processes, non-destructive testing and fire detection and prevention.

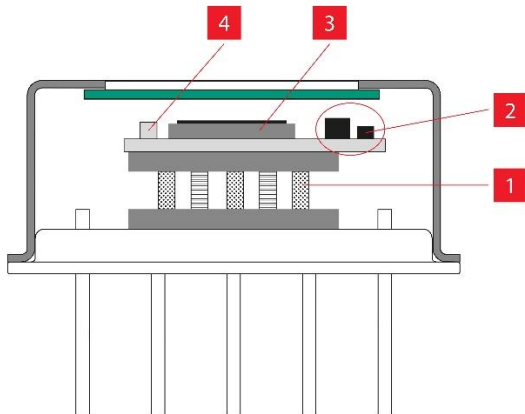
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Press Release

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Picture:



- 1: TEC (Thermo Electric Cooler)
- 2: Preamplifier
- 3: High-performance DLaTGS chip
- 4: Thermistor
(NTC = Negative Temperature Coefficient)

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