InfraTec pyroelectric detectors are distributed through a worldwide network to offer the best pre and post sales service for our customers. InfraTec operates direct branches in the UK and US. For the name and address of our subsidiaries or distributors nearest you, please visit our website at www.InfraTec.de.

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Uncooled detectors have a highly stable performance and highest quality products.

UV VIS IR Package Outlines Quality made in Germany Pyroelectric & Multispectral Detectors

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The key components of InfraTec’s detectors are single crystalline lithium tantalate (LiTaO₃) elements formed like a very thin plate capacitor. Lithium tantalate is a pyroelectric crystal whose ends become oppositely charged when heated. The thin pyroelectric elements of InfraTec’s detectors are coated with an appropriate ‘black’ coating to enhance the absorption of incident infrared radiation in the wavelength range of interest, defined by an IR filter. The absorbed radiation energy changes the temperature of the active element, thus changing the surface charge. Owing to the limited temperature range, the temperature change is converted into an output signal. The key thermal changes generated by external sources, cause temperature not detectable solely from external data processing because the detector operates in so called ‘null measurement’ mode. This means that the output signal is set to zero, and thus external changes caused by the detector are not detected. This creates a separate and dedicated pass environment with separated preamplifiers and operational amplifiers with very low leakage and offset current, connected to the detector. The output signal is then amplified and shaped to a useful signal. It is important to note that an increase / decrease in detector package temperature (only in the temperature ramp!) can produce “false” signals. A compensation element shielded from the IR radiation and connected in an anti-parallel way suppresses this effect.

- IR filter
- Transistor package
- JFET/OpAmp
- Feedback/Gate resistor
- Compensation element
- Active element

How does a detector work?

City

Chesterfield

Dresden

Dallas

Shanghai
2002 Production startup for the additional 5000 sqft from the “Dresden Infrared School” University of Technology Engineering Department at the Dresden University of Technology.

1940 KRS5 (a wide band IR window and lens material)

1900 PLANCK formulated the Radiation Law

1859 KIRCHHOFF introduced the term Black Body

1800 Detection of infrared radiation in sunlight by HERSHEL

InfraTec is committed to becoming the most customer-oriented infrared detector supplier in the world. The development to production cycle of our products is extremely compressed and the new technology is being constantly incorporated into our existing product line. The quality goals are matched by high stability and reliability. This is only possible through a total comprehensive quality assurance, which starts even before the order is placed. This includes the immediate reaction to inquiries and permanent support of our detectors and the demonstration of our ability to respond to and fulfill our customers’ requests by means of comprehensive application experience, work closely with customers, conduct application studies at the user site and verify results in our own laboratories. InfraTec specialists, with many years of infrared systems experience, are available to advise you personally and to ensure the smoothest operation of InfraTec’s products. InfraTec can provide you with fully specified detector specifications for any application, with or without other parameters such as environmental conditions, and produce prototypes if required.

Research and Development

The Research and Development (R&D) Department of the Sensor Division is staffed by professionals with many years of experience in the Steiner Optics-Wien-Schalltechnik (SWS) and other proficient institutions. They are responsible for the conceptual design, construction and distribution of our pyroelectric detectors, which perfectly match the customer requirements. This is done with the support of our state-of-the-art computer-aided design systems and state-of-the-art computer-aided manufacturing systems, which allow us to continuously improve our products’ performance and quality.

The Production of the Sensor Division

Our detectors are produced in a complete in-house system that includes the conceptual design, manufacturing, testing and application of pyroelectric detectors. The division is fully committed to ensuring that the best possible detector is delivered to the customer at the lowest possible cost. We employ state-of-the-art computer-aided design systems and computer-assisted manufacturing systems to assure that our detectors will be constantly improved. We are committed to the continuous improvement of our products and systems. The Sensor Division is staffed by technical personnel complete-ly familiar with the latest developments in pyroelectric detectors, which perfectly match the customer requirements.

Application Fields

The Sensor Division is a leading manufacturer of pyroelectric detectors, which perfectly match the customer requirements. Our detectors are used in a wide range of applications, including:

- **Flame detection**
- **Temperature production**
- **Industrial security**
- **Quality control**
- **Nuclear power plants**
- **Automotive**, **Aerospace**, **Defence**, **Space**, **Medical**
- **Consumer Electronics**
- **Medical equipment**
- **Industrial machinery**
- **Automotive**

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