

### **EXACTUS®**

A leader in precious metal thermocouples for over 30 years, BASF has now applied its technical expertise to optical temperature measurement. Exactus® instruments incorporate technology breakthroughs which provide significant proven performance advantages in non-contact temperature measurement.

#### Features and benefits

- Low-temperature measurements ( $\geq 25\text{ °C}$ ) using short wavelengths
- High precision with resolution up to  $0.01\text{ °C}$  and accuracy of  $1.5\text{ °C}$
- Repeatability  $0.1\text{ °C}$  and drift of less than  $0.1\text{ °C}$  per year
- Speeds up to 1,000 readings/sec
- Digital and/or Analog outputs, easily integrated into control system.

#### Applications

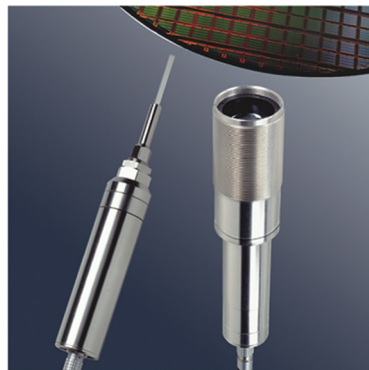
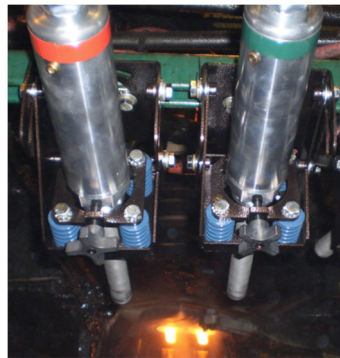
Exactus optical sensors are suitable for a wide range of applications. Ultra-sensitive electronics, precision optics, and the ability to measure low temperatures using short wavelengths allow for tighter process control, enhanced accuracy, and improved overall performance compared to other typical measurement technologies.

#### Glass processing

Exactus optical thermometers provide critical glass process information that can drive better process yields and increased plant profitability.

#### Semiconductor processing

BASF's innovative technology offers numerous advantages in controlling wafer-to-wafer uniformity in both temperature and film thickness. The highly sensitive electronics and advanced optics mean shorter wavelength detectors can be used to measure radiant energy. This decreases errors from both wafer transmission and emissivity. Plus, the instrument's high speed and high resolution provide better control and noise suppression. The result is better monitoring of wafer temperature and improved process results.



#### Industrial heating

The sensors' stability, size, and speed solves or improves many problems encountered in difficult industrial heat-treating applications, such as galvanneal, vacuum annealing, casting and high speed induction heat treating. frequent replacement associated with thermocouple sensor measurements.

## Exactus Specifications

<b>Measurement ranges</b>	65 – 1150 °C (0.7 to 1.6 µm measurement wavelength)	
	100 – 1900 °C (1.55 µm measurement wavelength)	
	120 – 3000 °C (0.7 to 1.6 µm measurement wavelength)	
	280 – 2200 °C (0.9 µm measurement wavelength)	
	350 – 3000 °C (0.9 µm measurement wavelength)	
	500 – 3000 °C (0.65µm measurement wavelength)	
	Specialized optics allow measurements to 200°C at 0.90µm & 25°C at 0.7-1.6µm	
<b>Accuracy</b>	Greater of 1.5 °C or 0.15% of reading	
<b>Resolution</b>	Up to 0.01 °C	
<b>Repeatability</b>	0.1 °C	
<b>Drift</b>	0.1 °C/year plus 0.05 °C/°C change in ambient temperature	
<b>Speed</b>	Up to 1000 readings per second, 1ms response time	
<b>Target sizes</b>	Standard target size is Focal Distance/40.0	
	Small target size is Focal Distance / 200.0	
	Custom optics available	
<b>Maximum environment temperature without cooling</b>	10-60 °C for electronics and standard optics	
	If Fiber optic cable is used:	
	< 70 °C for standard fiber optic cable < 250 °C for high temperature fiber optic cable	
<b>Measurement wavelengths</b>	0.65 µm	0.90 µm
	0.7 – 1.6 µm	1.55 µm

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## About Us

BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuels that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products, including advanced battery materials. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF's Catalysts division develops unique, proprietary solutions that drive customer success.

### BASF - We create chemistry

[www.catalysts.basf.com/tempensing](http://www.catalysts.basf.com/tempensing)

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