



**Electro Optical Components, Inc.**

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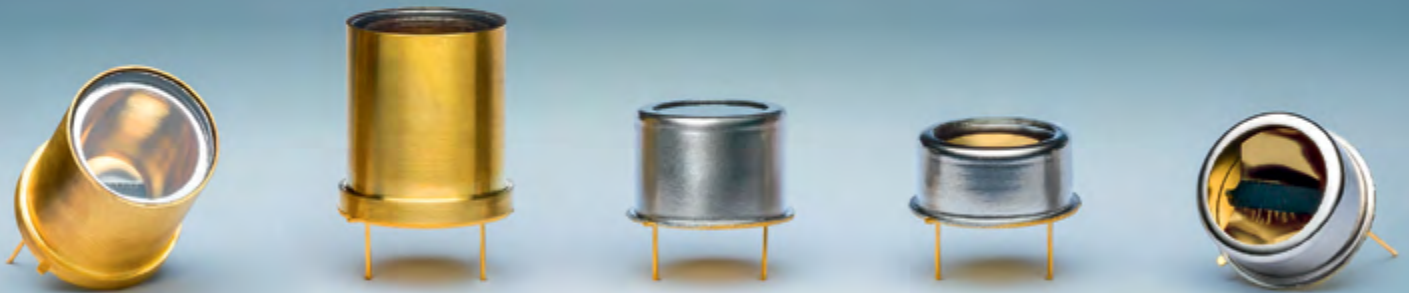
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Highest efficiency · Most powerful · Nanostructured NiCr emitters

# Thermal Infrared Emitters

for high-performance measurement systems



## TO-8 IR emitters

- ✓ Wide wavelength range from 2  $\mu\text{m}$  up to 20  $\mu\text{m}$  enables a broad range of applications
- ✓ Pulsable thermal black-body infrared source in an industry standard or customized TO-8 package
- ✓ Patented nanostructured radiating element generates black-body spectrum with up to 500 % more detection signal compared to competitors
- ✓ Highest optical output power of up to 1 W for most accurate measurements
- ✓ Soldered, high-quality filter windows guarantee long-term stable operation. Leakage tested!

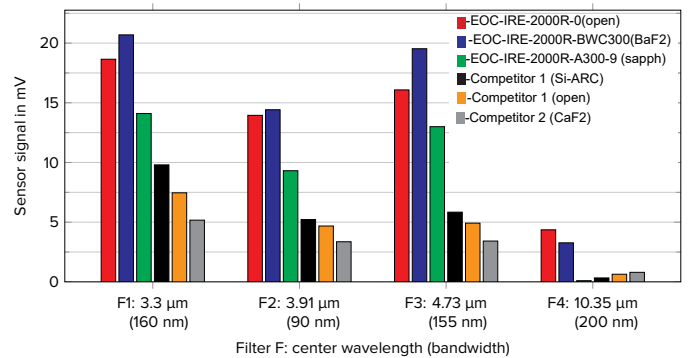


Fig. 1: Performance comparison of TO-8 IR emitters in a typical NDIR gas sensor set-up (4-channel detector, 200 mm optical path length, 5 Hz modulation frequency)

## Wide application range



**SAFETY  
ENGINEERING**



**EMISSION  
MONITORING**



**INDUSTRIAL GAS  
ANALYSIS**



**WATER  
ANALYSIS**

# Highest optical power in hermetically-sealed TO-8 packages

Parameter	Standard cap		Winston cone collimator cap
	Cap height 6.3 mm	Cap height 9.4 mm	Cap height 14.4 mm
Cap			
Product name	<b>EOC-IRE- 2000R-0</b>	<b>EOC-IRE-2000R-A300-9 / C300-9</b>	<b>EOC-IRE-2000R-OWC</b>
Package	TO-8	TO-8	TO-8
Radiating element area	40 mm <sup>2</sup>	40 mm <sup>2</sup>	40 mm <sup>2</sup>
Radiating element emissivity	> 0.9	> 0.9	> 0.9
Radiating element temperature	630 °C at 2.5 W	630 °C at 2.5 W	630 °C at 2.5 W
Optical output power	up to 1 W	up to 730 mW	up to 830 mW
Max. electrical power (DC)	2.5 W	2.5 W	2.5 W
Max. voltage	3.8 V	3.8 V	3.8 V
Max. electrical current	660 mA	660 mA	660 mA
Modulation frequency*	4 Hz	4 Hz	4 Hz
Wavelength range**	2 μm to 20 μm	2 μm to 6 μm / 2 μm to 10 μm	2 μm to 20 μm
Filling gas:	None (open) / Nitrogen (with window)	Nitrogen (with window)	None (open) / Nitrogen (with window)
Window options:	EOC-IRE-2000R-0 (open) EOC-IRE-2000R-A300-6 (soldered Sapphire) EOC-IRE-2000R-C300-6 (glued CaF <sub>2</sub> )	EOC-IRE-2000R-A300-9 (soldered Sapphire) EOC-IRE-2000R-C300-9 (glued CaF <sub>2</sub> )	EOC-IRE-2000R-OWC (open) EOC-IRE-2000R-CW300 (soldered CaF <sub>2</sub> ) EOC-IRE-2000R-BWC300 (soldered BaF <sub>2</sub> )
			

\* 50 % modulation depth, square wave signal, 50 % duty cycle  
 \*\* depending on filter transmissivity

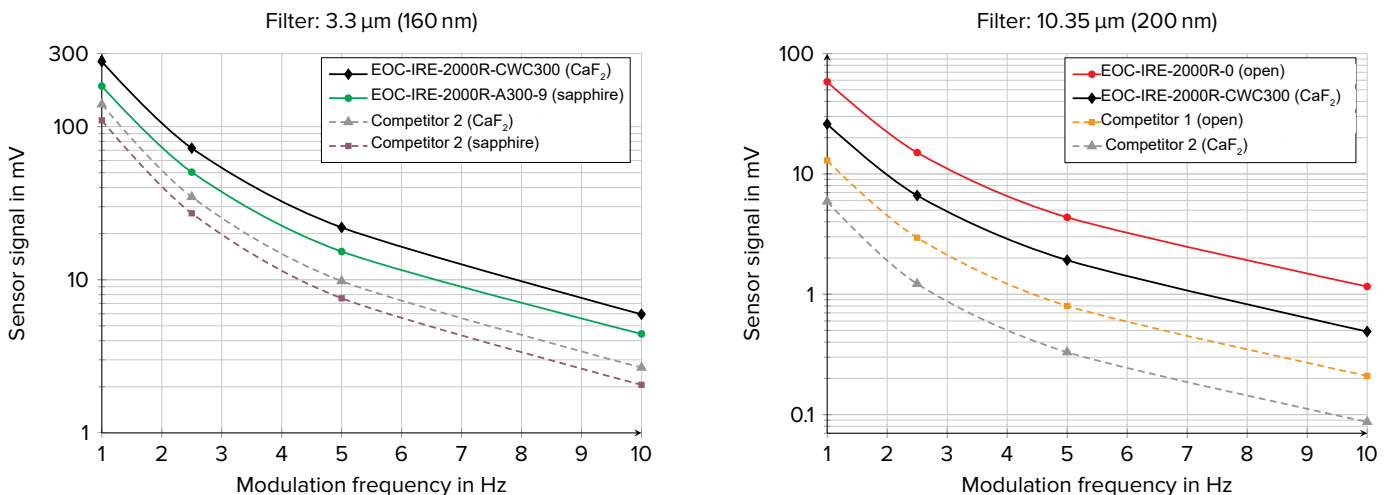


Fig. 2: Sensor signal vs. modulation frequency of TO-8 IR emitters in a typical NDIR gas sensor set-up (4-channel detector, 200 mm optical path length).  
 Left: filter with center wavelength of 3.3 μm and bandwidth of 160 nm; right: filter with center wavelength of 10.35 μm and bandwidth of 200 nm

Are you looking for further emitters, detailed technical specifications or would you like to have an individual development?  
 Visit our website and feel free to contact us!