

## TEMPERATURE MEASUREMENT IN A COKE OVEN

### The Opportunity

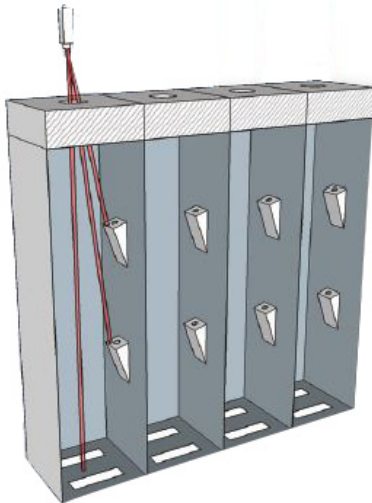
*Accurate monitoring and recording of coke oven temperatures is necessary to maintain efficient coke production.*

Metallurgical coal – or coking coal – is a vital ingredient in the iron and steel making process. For the production of this material, the coke oven is filled with coal through the filler holes in the oven roof. The processing of the coal is then carried out in the absence of air at temperatures of up to 1300 °C.

The coking oven battery is heated by vertical heating walls which can consist of up to 40 heating flues, located between each oven chamber. Heat is transferred from the walls to the center of the oven, where the coal is converted into coke and solidifies away from the oven walls. In order to achieve efficient coking of the coal, an optimal heat distribution must be ensured over the entire heating wall. Any residue and deposits on the heating walls can not only have a negative effect on the quality of the coking process, but can also result

in production losses and high costs on a restart. Accurate control of the supply of heat and monitoring of the temperature distribution in the heating walls throughout the whole production process is essential. The relevant temperature measurements are made of the heating walls of the adjacent coke ovens from directly above the furnace cover after opening the heating flue ports.

Most coking oven batteries are constructed with 70 ovens and up to 40 heating flues. The temperature recording is carried out alternately as a longitudinal or transverse measurement. During a transverse measurement, several heating walls are usually measured and recorded as a series of measurements. During a measurement sequence, several heating walls are recorded in a series that may reach up to approximately 2000 values.



*Temperature measurement of the air stages and nozzle bricks in a coke oven*



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*Measurement of coking oven temperatures from the oven roof through the inspection hole*

# Our Solution

LumaSense presents the special IMPAC IGA 315-K and IS 8 Pro portable pyrometers with integrated data storage for non-contact temperature measurement in coking oven batteries.

- Simple operation by parameter setting on the rear of the measurement instrument and display of the measurement values in the view finder and on the rear.
- High quality variable focus optics combined with a large view finder enable simple aiming and measurement even with large measurement distances (up to 12 m). Precision optics for measuring the smallest areas within the coke oven through the inspection ports.
- Integrated data memory for up to 2,000 temperature measurements and an interface for transferring the data to a PC in Excel format.
- Housing specifically developed for coking plants, with a robust design including thermal protection sheath for daily use with high ambient temperatures and very dusty atmospheres.



IMPAC IGA 315-K



IMPAC IS 8 Pro

## Your Benefits

- ✓ **Fast, time-saving and accurate temperature measurement of the air stages and nozzle bricks** in coking oven batteries from the oven roof, without endangering the operational reliability or interrupting operation- Automatic recording of the pouring temperature
- ✓ **Quality assurance and cost savings** through the optimal use of energy and raw materials
- ✓ **Convenient process monitoring and dedicated control** of the heat supply throughout the whole oven battery by means of non-contact temperature measurement
- ✓ **Complete documentation** of the monitoring of the coking oven by means of data storage and subsequent evaluation facilities

*Contact your LumaSense applications engineering representative for more details on integrated solutions.*

### LumaSense Technologies

Americas and Australia  
Sales & Service  
Santa Clara, CA  
Ph: +1 800 631 0176  
Fax: +1 408 727 1677

Europe, Middle East, Africa  
Sales & Service  
Frankfurt, Germany  
Ph: +49 69 97373 0  
Fax: +49 69 97373 167

India  
Sales & Support Center  
Mumbai, India  
Ph: +91 22 67419203  
Fax: +91 22 67419201

China  
Sales & Support Center  
Shanghai, China  
Ph: +86 133 1182 7766  
Fax: +86 21 5039 8096

[www.lumasenseinc.com](http://www.lumasenseinc.com)

[info@lumasenseinc.com](mailto:info@lumasenseinc.com)

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### Awakening Your 6<sup>th</sup> Sense