

IoTrode®

Optimize Graphite Electrode Consumption in the EAF

IoProducts

Advanced solutions for monitoring and controlling critical aspects of the steelmaking process. Built on the SmartKnB® graphic development platform, they provide advanced customization within an open, user-friendly architecture. By integrating Artificial Intelligence, and Image Processing, these modules accelerate digitalization, improving efficiency, safety, and overall process optimization.

IoTrode®

Monitors and measures graphite electrode consumption using advanced AI-driven classification. Enables dynamic electrode cooling control based on the oxidation feedback to reduce electrode consumption.

IoTrode® instantly measures the consumption of graphite electrodes using advanced digital technologies with Artificial Intelligence.

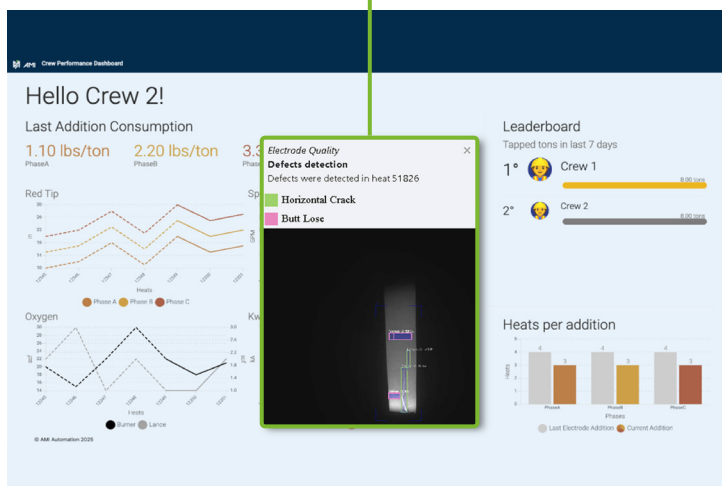
Key Features

- ▶ Graphite electrodes
 - Consumption measurement and visualization
 - Continuous oxidation reduction
- ▶ Real-time graphite electrodes quality detection

Benefits

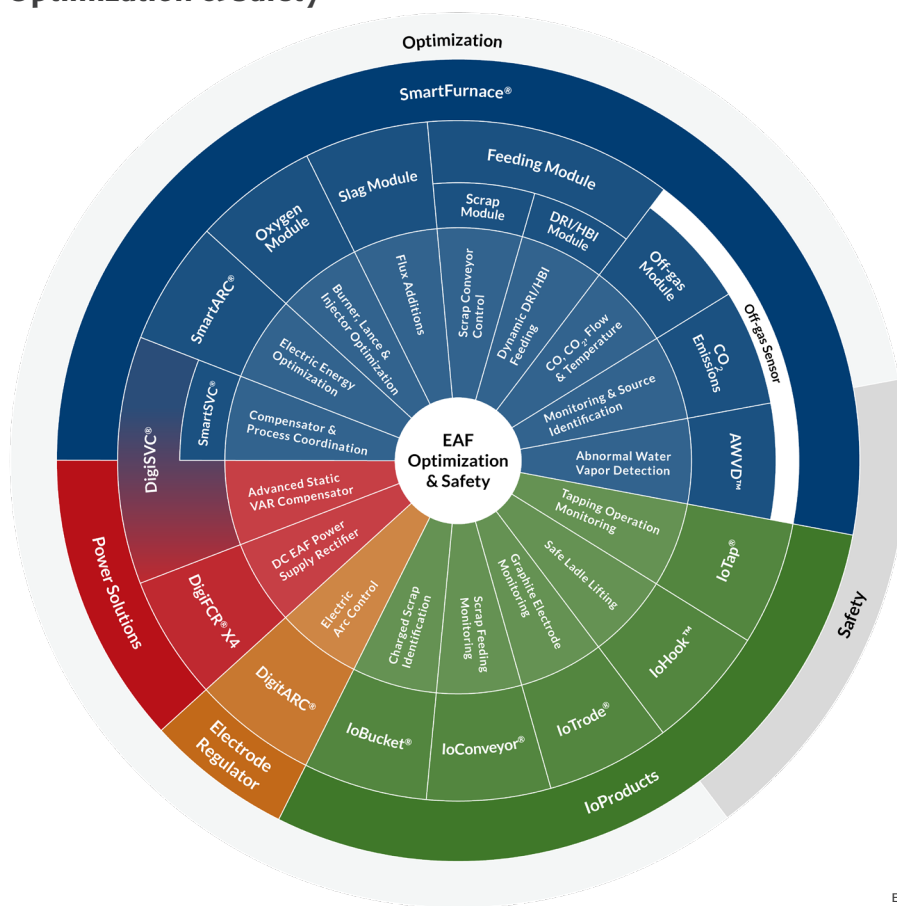
- ▶ Real-time electrode consumption visibility
- ▶ Immediate feedback of cooling effect
- ▶ Quantification of electrode consumption per crew
- ▶ Benchmark performance by supplier
- ▶ Automation/control module to reduce consumption and improve performance in use

Electrode Quality Pop Up.
Whenever defects are detected.



IOTRODE® CREW PERFORMANCE DASHBOARD

Electric Arc Furnace Optimization & Safety



SmartFurnace®

EAF OPTIMIZATION & SAFETY DIAGRAM

The SmartFurnace® System enhances productivity and reduces energy use per ton of steel. As an advanced AI-driven expert system, based on the SmartKnB® platform developed by AMI, it dynamically adjusts electrical and chemical energy inputs based on real-time heat conditions. Recognizing that every EAF is unique, we provide the tools and expertise needed to optimize performance. With a modular design, the system enables coordination between energy input controls, while its open architecture allows for seamless customization, ensuring maximum efficiency.

Electrode Regulation System

The DigitARC® PX3 Electrode Regulation System is the core of AMI's EAF optimization solutions. With over 35 years of expertise and implementation in 275+ Furnaces worldwide, it delivers proven reliability and efficiency for even the most demanding EAF and LF applications. Our advanced electrode control technology ensures optimal arc stability, real-time performance monitoring, and seamless operator interaction through an intuitive interface. Today, more than 80% of the North American EAF steel capacity is melted with the AMI regulation systems.

Power Solutions

We provide power electronic solutions that play a key role in enhancing Meltshop performance. The DigiFCR® X4 is our Firing Circuit Replacement system, designed to fully upgrade the controls of existing DC EAF power rectifiers. It improves current regulation while also extending protection for the furnace. Meanwhile, the DigiSVC® is our advanced Static VAR Compensator that stabilizes voltage, improves power factor, and compensates for reactive power in industrial electrical systems. Both solutions can be delivered with new power electronic hardware or as retrofits for existing systems, regardless of the original manufacturer.

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