

SmartARC®

Dynamic Electrode and Power Input Control for Arc Stability

SmartFurnace®

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.

SmartARC®

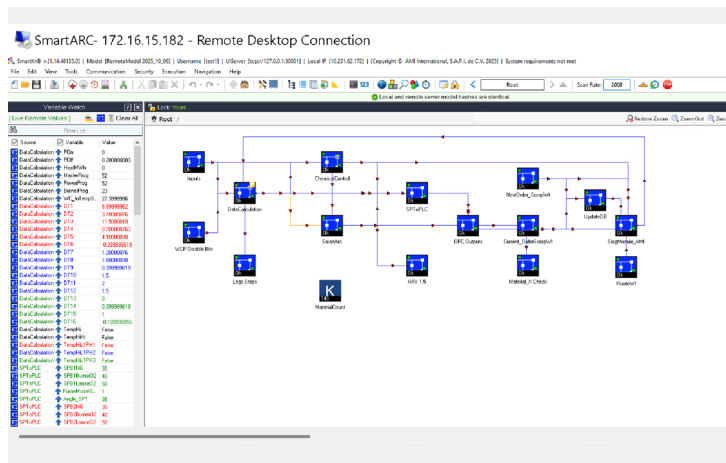
SmartARC® enables more efficient, optimized steel production through decision-making powered by Artificial Intelligence, by dynamically adjusting power profiles, mimicking an expert furnace operator 24/7. It considers key process parameters such as heat MWH, raw material type and weight, arc stability, panel temperatures, electrode position, voltage and current, and every energy source to automatically manage:

- ▶ Voltage/tap references
- ▶ Current references
- ▶ Reactor references
- ▶ Regulator response
- ▶ Protections
- ▶ Back charge signal

This leads to improved energy efficiency, reduced operational variability, and enhanced process stability in your EAF operation.

Key Features

- ▶ **Dynamic melting program:** Control of electrical energy setpoints based on actual heat conditions. Includes Artificial Intelligence capabilities such as Machine Learning and Fuzzy Logic algorithms.
- ▶ **Improve arc stability:** Better arc stability improves power input and decreases refractory or panel damage.

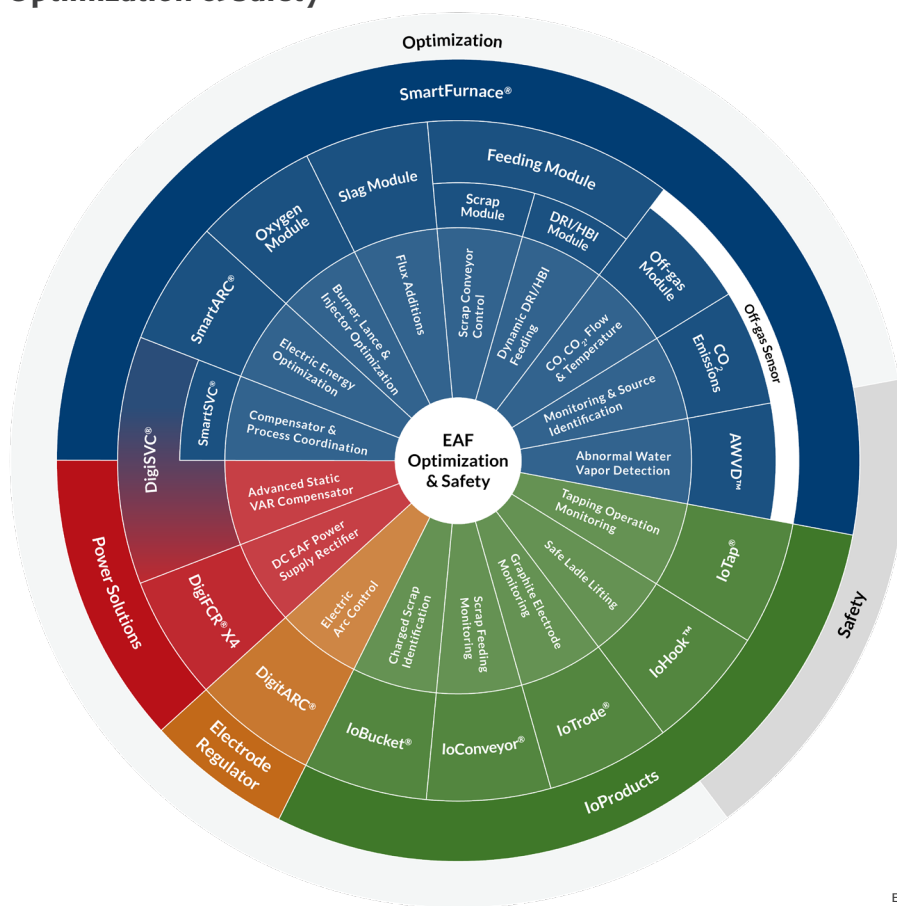


SMARTKNB® PLATFORM

Benefits

- ▶ **Increasing productivity:** Efficient energy input shortens the time required to melt the scrap.
- ▶ **Lower cost:** Efficient power input lowers consumptions. Less stress in the transformer and the power equipment reduces maintenance cost and time.

Electric Arc Furnace Optimization & Safety



EAF OPTIMIZATION & SAFETY DIAGRAM

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.

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.

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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