

IoConveyor®

Tracks and Monitors Continuous EAF Charging in Real-time

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.

IoConveyor®

The IoConveyor® System provides smart, continuous scrap feeding monitoring for Electric Arc Furnaces using 3D digital image processing, sensor fusion devices, and a deep learning algorithm to measure real-time scrap speed and volume, classify scrap types, and detect unwanted materials, optimizing continuous charging for enhanced melt efficiency and operational safety.

Key Features

- ▶ 3D camera-based system for scanning scrap profiles over the conveyor.
- ▶ No moving parts for low maintenance and high reliability.
- ▶ Safe for operators.
- ▶ Flexible installation (indoor/outdoor, 0.5–10+ meters distance).
- ▶ Vibration-tolerant operation.
- ▶ Easy maintenance with low-cost spare parts.
- ▶ Scalable and expandable on a common platform.
- ▶ Integration with SmartFurnace® for advanced melt control.
- ▶ Collaborative commissioning and testing with customer teams for optimal results.

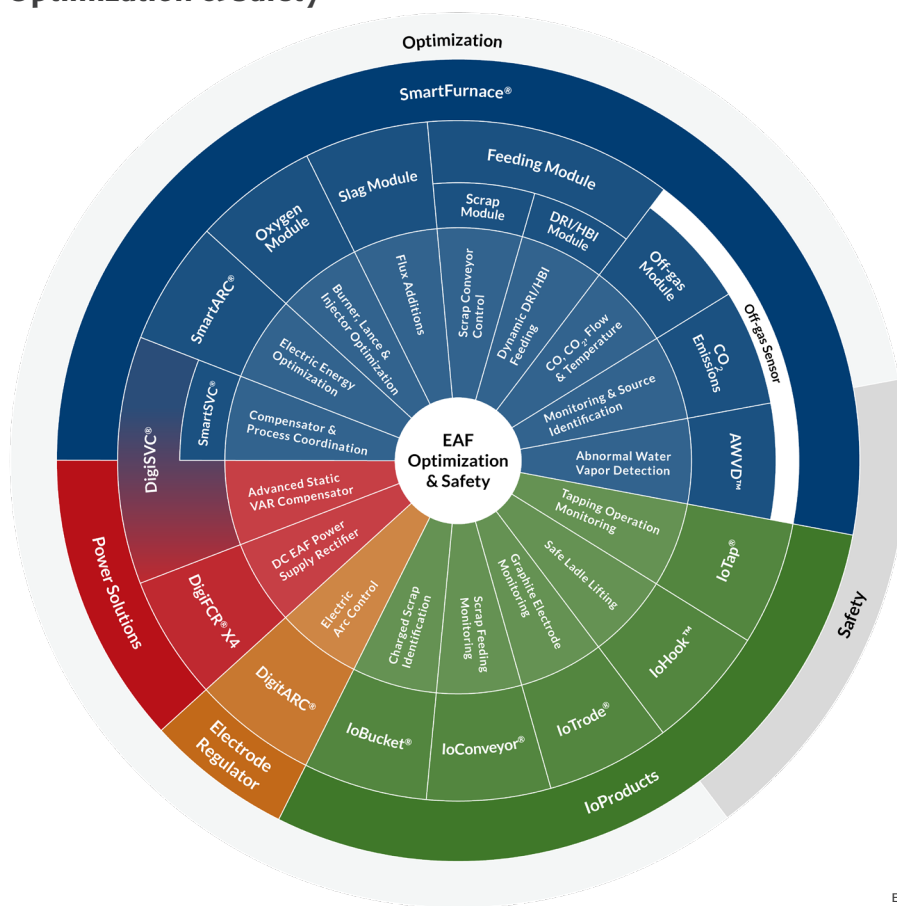


AMI'S IOCONVEYOR® INSTALLATION

Benefits

- ▶ Measures scrap volume being charged into the EAF in real time.
- ▶ Measures actual scrap speed, detecting stuck pieces or empty conveyor areas.
- ▶ Enables scrap classification of the upper layer to optimize melt control.
- ▶ Improves operator and process safety through potential alarms for closed containers or hazardous scrap types.
- ▶ Estimates scrap weight when density data is provided.
- ▶ Reduces maintenance compared to load-cell systems while improving feeding accuracy.
- ▶ Supports production cost reduction by enabling better energy utilization.
- ▶ Enhances melt productivity and bath stability in continuous charging operations.

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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