

IoBucket®

Monitor Bucket Charge Weight and Sequence

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.

IoBucket®

Improves bucket charging by using Machine Vision and AI to identify scrap type and volume distribution in real time before entering the EAF.

Key Features

As its counterpart, the IoBucket® uses the latest technology for automatic scrap classification, applying this functionality to the bucket charge.

- ▶ Identification of scrap volume layering, and distribution in the bucket
- ▶ Undesired material charge detection
- ▶ Assign Scrap chemical composition from historical data
- ▶ Actual scrap charge recompilation and accurate scrap charge historical generation

System Characteristics

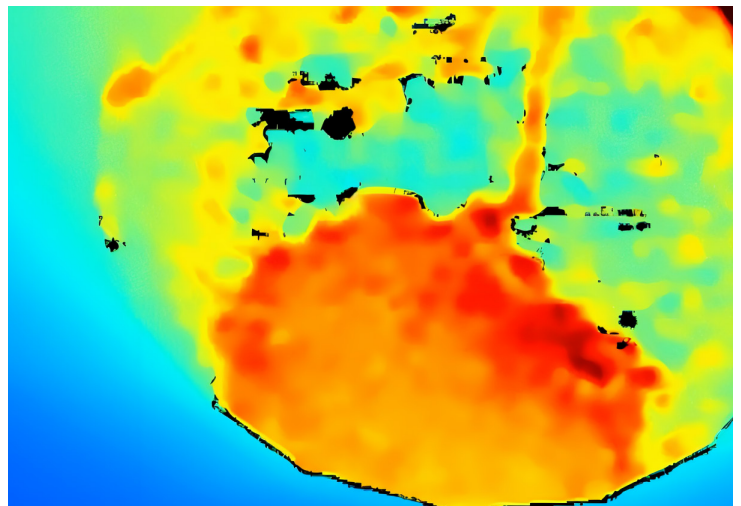
- ▶ Advanced camera array with no moving parts
- ▶ Works indoors and outdoors
- ▶ Built in Inertial Measurement Unit to stabilize images
- ▶ Range 0.2 to 20 meters
- ▶ Real-time streaming
- ▶ Instant volume measurement
- ▶ No contact measurement
- ▶ No operator intervention needed
- ▶ Integration with SmartFurnace® for advanced melt control

Benefits

- ▶ Monitor actual bucket charge
- ▶ Optimize charge composition
- ▶ Estimate carbon and fluxes tracking into the EAF
- ▶ Safety control of scrap for charge

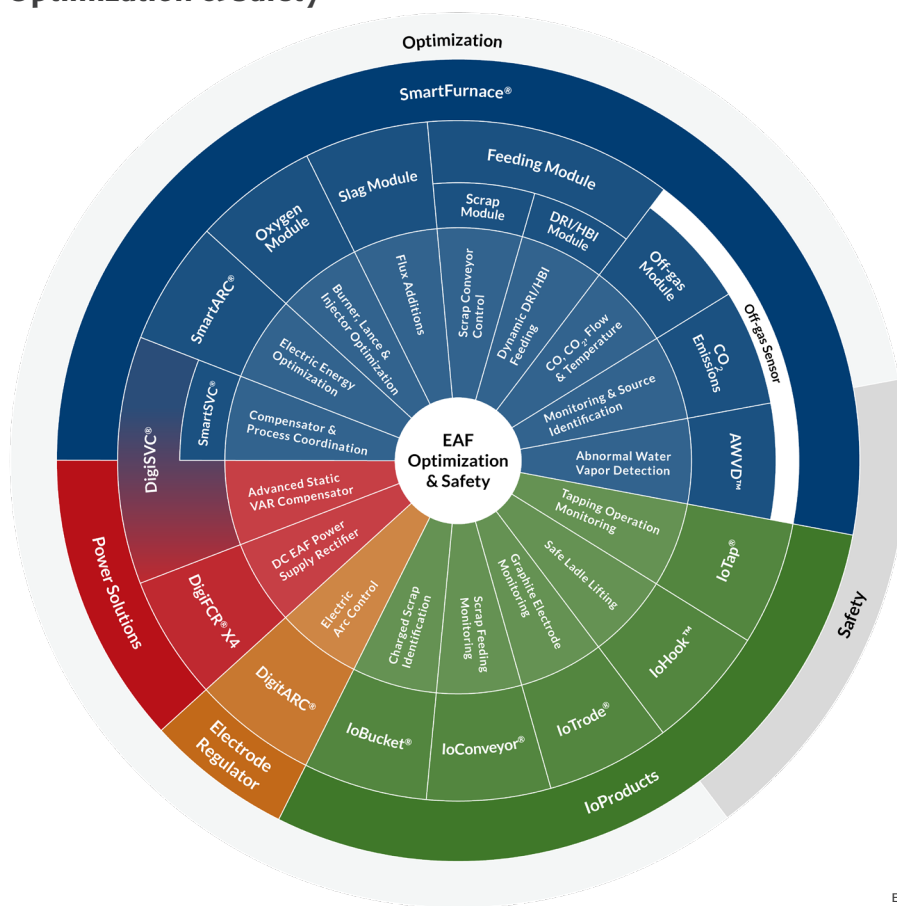


AMI IOBUCKET® COLOR IMAGE



AMI IOBUCKET® DEPTH IMAGE

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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