

IoTap®

Optimize EAF Tapping Operation

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.

IoTap®

Optimize clean and safe steel production with live slag carryover and ladle fill level measurement. Our high-speed, high-resolution infrared cameras enhance EAF tapping operations, reducing spill risks and slag reversion while improving steel cleanliness.

Key Features

- ▶ Main HMI displaying relevant heat data, with live video
- ▶ Process warnings for operators during tapping
- ▶ Multi-user access to the interface for teams
- ▶ Intuitive dashboard with historical heat data and videos
- ▶ Enable safer, remote-controlled EAF tapping operations

Slag carryover submodule

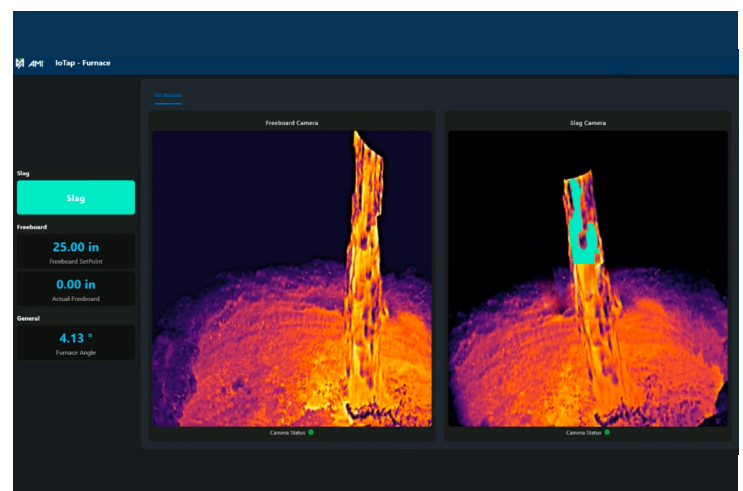
- ▶ Real-time visualization of the slag during tapping procedure
- ▶ Quantification of the slag carryover from the EAF to ladle
- ▶ Determines the EBT wear status
- ▶ Classifies hot heel by: Large, Target, Small based on tapping variables
- ▶ Supports and optimizes tapping operations

Freeboard sub module

- ▶ Show target freeboard in real time for operation guidance
- ▶ Measures actual freeboard
- ▶ Alarms when ladle reaches optimal fill level
- ▶ Extends ladle refractory lining life
- ▶ Prevents steel spills onto the ground
- ▶ Enables safer remote EAF tapping

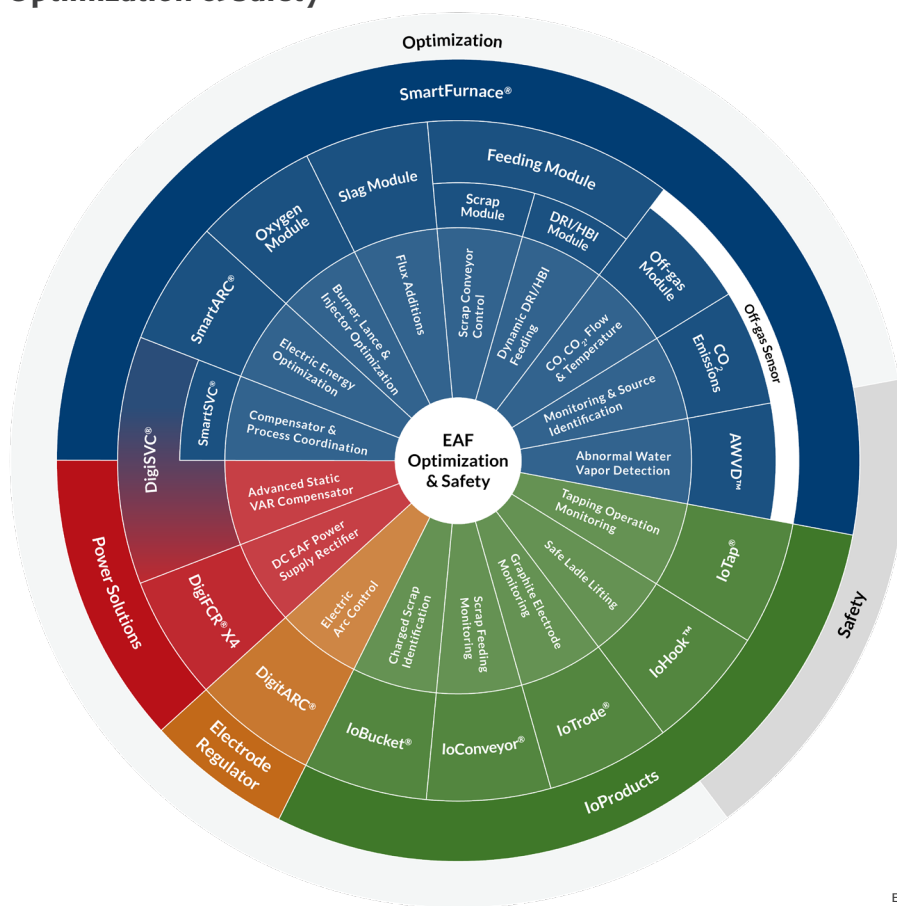
Benefits

- ▶ Assist to reduce the aluminum additions required for deoxidation
- ▶ Decreases desulphurization time at the LMF
- ▶ Produces cleaner steel, reducing inclusions and extending refractory life
- ▶ Measures stream position and furnace angle for safer operations
- ▶ Prevents ladle refractory washout
- ▶ Supports consistent, clean tapping with reduced slag reversion



IOTAP® HMI

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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