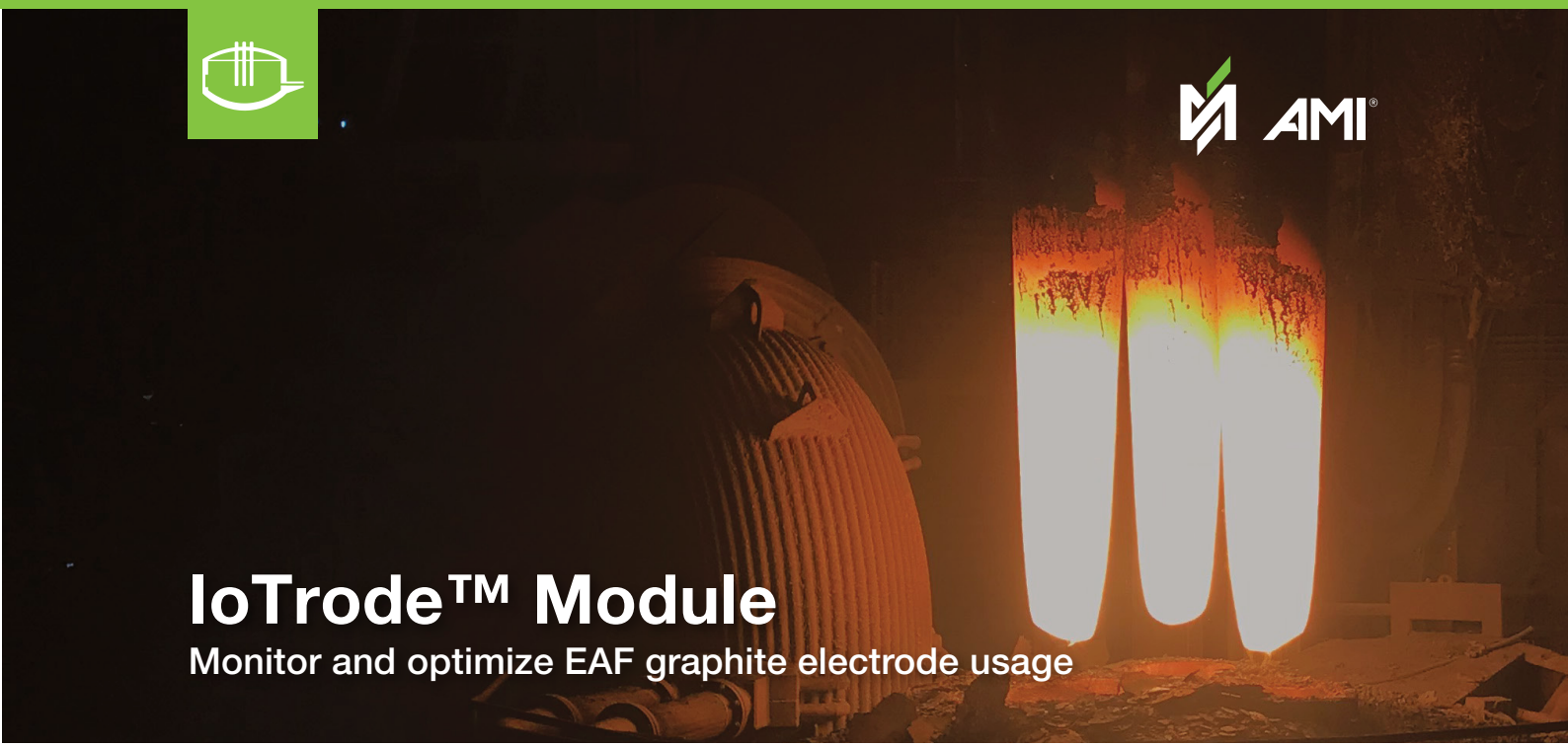


IoTrode™ Module

Monitor and optimize EAF graphite electrode usage

IoTrode™ Module

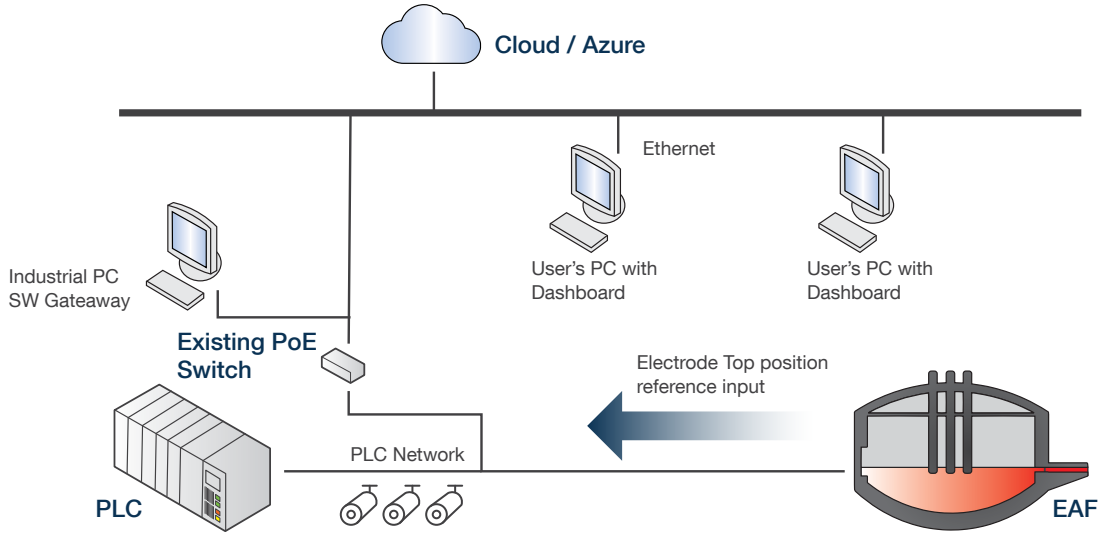
IoTrode™ Measures, Controls, and Optimizes the consumption of graphite electrodes using advanced digital technologies and the tools of Industry 4.0.

IoTrode™ includes:

- Real-Time electrode consumption visibility
- Real time measurement of consumption and of quantification of graphite electrode performance.
- Automation/Control module to reduce consumption and improve performance in use. This complete system contains the best technology in the market that fulfills the functionality and operational benefits that EAF steel producers need and the most forward thinking operators

Core Modules:

- The IoTrode™ system consists of modules that using Industry 4.0 techniques and tools creates a “Digital Twin” of graphite electrode usage in an EAF Melt Shop
- VCM: Visualization and Consumption Measurement
- ORP: Oxidation Reduction Performance and Real Time Modeling



Our Meltshops Solutions including SmartARC™, DigitARC™ and SmartFurnace™, will reduce your electrode consumption and make your EAF run better. We don't build EAF's we make them run more efficiently using AI algorithms to ensure that our customers EAF's run in an optimized fashion.

AMI Automation melt shop optimization hardware and software are used in over 90% (by tons poured) of the leading EAF melt shops and is supported by the largest technical team in the America's exclusively dedicated to EAF optimization. AMI offers flexible and friendly modular control systems designed to make your electric arc furnace run more efficiently and help your operator obtain the best performance in your furnaces.

SmartFurnace™

The AMI SmartFurnace™ System improves productivity and reduces energy used per ton of steel. As an Artificial Intelligence Expert system, it dynamically selects the best operating points for electrical and chemical energy input based on the actual heat conditions. Every EAF has a personality and AMI has the tools and the experienced technical people to help you tune your EAF operation.

The SmartFurnace™ System utilizes several individual modules to adapt and optimize every aspect of the furnace operation. The open architecture allows the user to customize the operation and enhance the EAF performance.

SmartFurnace™ MODULES

- **SmartARC™**
  Decides the best operating points based on the heat stage, slag level, arc stability and scrap mix for transformer and reactor tap reference.

- **IoTrode™**
  Measures, Controls, and Optimizes the consumption of graphite electrodes using advanced digital technologies and the tools of Industry 4.0.

- **Slag**
  Implements an online mass balance to model the slag composition and recommend fluxes to achieve the target basicity and MgO saturation.

- **DRI/HBI/Scrap**
  Controls the rate of DRI, HBI or Scrap in continuous feeding systems to maintain an optimum temperature profile, based on the actual heat conditions.

- **Abnormal Water Vapor Detection (AWVD)**
  Proven abnormal water vapor detection provides valuable information for process safety.

- **Off-Gas**
  Analyze on real time the EAF off gas using the TDLAS technology with a laser beam and Zolo-Scan.

- **Oxygen**
  Controls the rates of Gas, Oxygen and Carbon considering the conditions of the heat and the composition of the bath.