



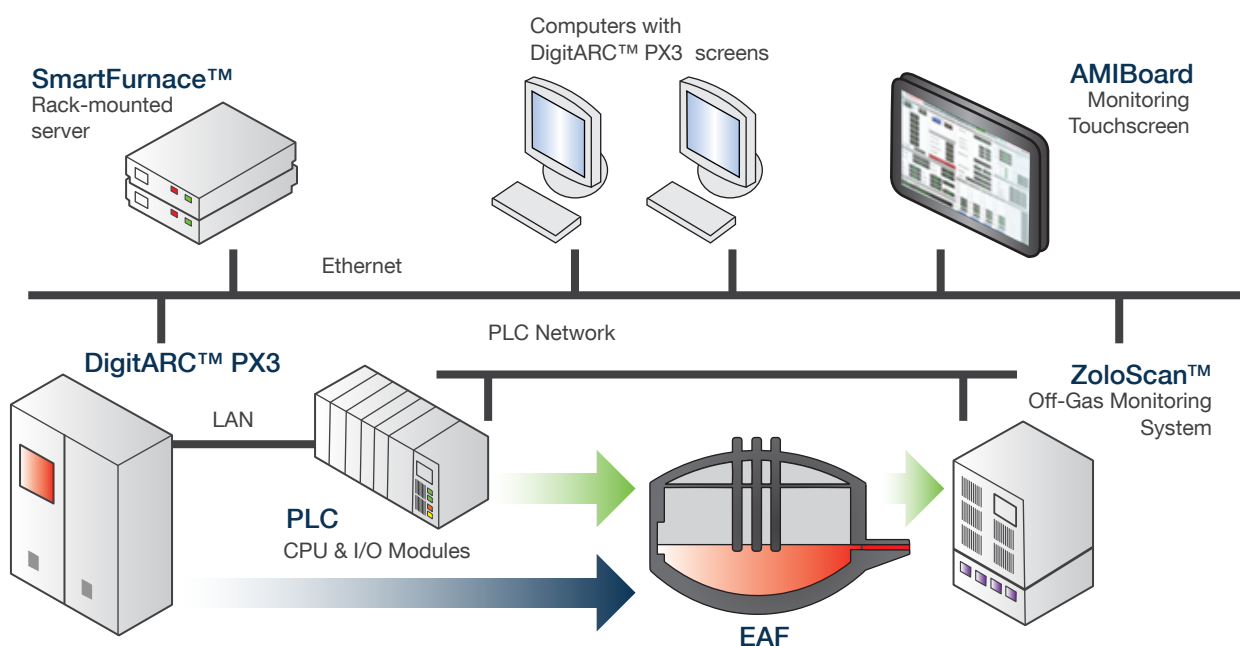
SmartFurnace™

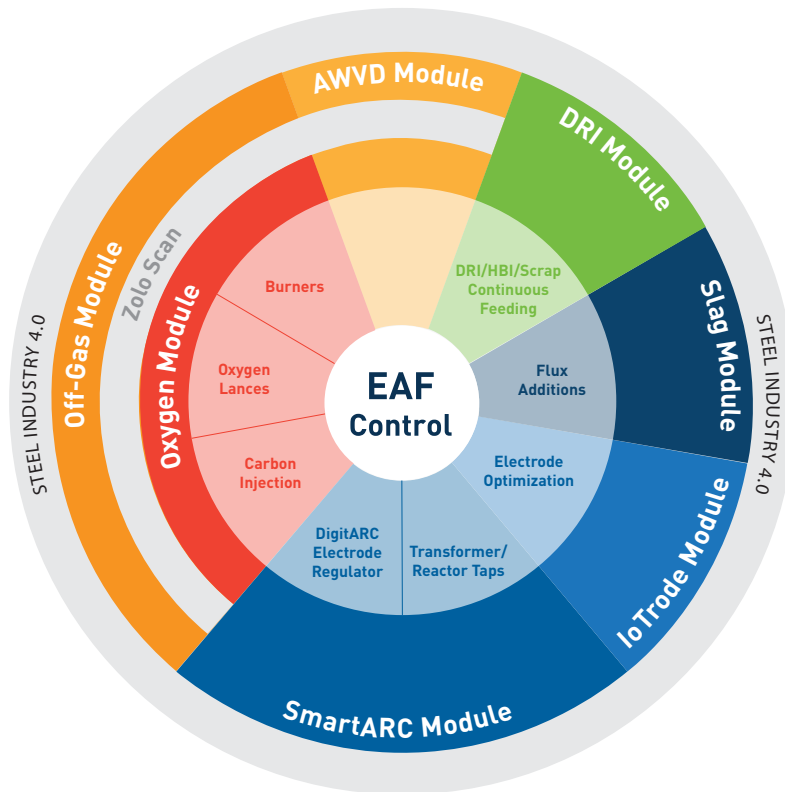
An integrated solution for total EAF Optimization

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.
- ▶ **Oxygen**
Utilizes electrical data from the PX3 and SmartARC™ to become more than a burner control program. The SmartFurnace™ Oxygen Module controls the rates of gas, oxygen and carbon considering the conditions of the heat the composition of the bath and additional inputs to provide accurate end point prediction and control.
- ▶ **Slag Optimization**
For carbon steel producers this SmartFurnace™ Module implements an online mass balance to model the slag composition and recommend and control flux additions to achieve the target basicity and MgO Saturation.
- ▶ **Off-Gas**
The Off-Gas Module saves energy. The main goal is to optimize the chemical energy into the EAF. The EAF control system is capable of analyzing on real time the EAF off gas using the TDLAS technology with a laser beam.
- ▶ **AWVP (Abnormal Water Vapor Detection)**
One of the most advanced SmartFurnace™ Modules AWVD utilizes AI and machine learning to compare the many normal sources of water in a furnace vs an abnormal water vapor condition.
- ▶ **DRI/HBI Feed**
Optimize the time to start the DRI/HBI feeding and control the steel temperature using advanced metallurgical modeling to avoid accumulation of un-melted material in the furnace.