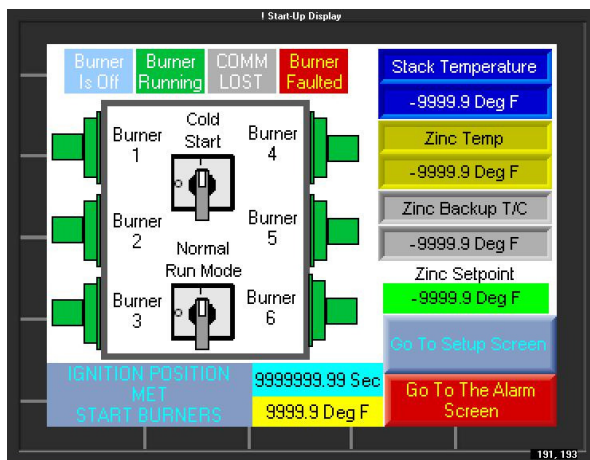


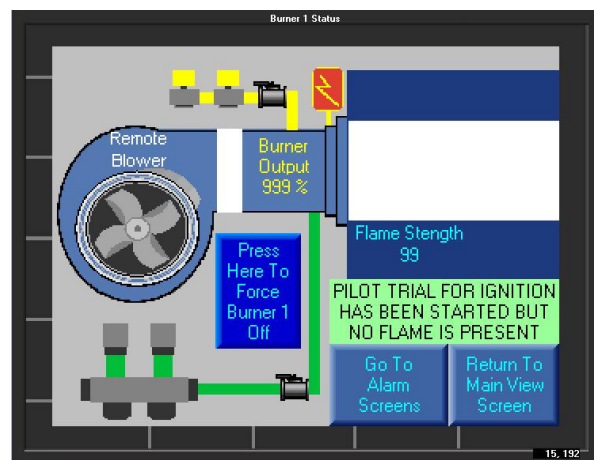
Complete Control- Vision570™ Operates & Monitors IGS 6 Burner Zinc Melting Furnace

Advanced Industrial Devices in Tulsa Oklahoma specializes in meeting the challenges and opportunities that customers allow them to solve. “We have many choices in what we can use to meet a customer’s automation needs” Says Keith Walker, AID Control Engineer. “But we use Unitronics for our PLC requirements whenever we can.”

International Galvanizing Services, a customer of AID asked for the development of a lower cost but fully capable control system to operate and monitor the operation of a Zinc melting furnace. The furnace consists of 6 Eclipse Combustion burners located at three locations on each side of the melting process and AID was given the task of minimizing the hot spots, and maximizing the quality and efficiency of the melting process. The process consists of starting cold and adding large ingots of Zinc material to the melt. Since the ingots are solid and not liquid we cannot simply just apply heat and hope for the best. They needed to control the overall heat applied so that it did not overheat and damage the melting pot or any of the other equipment in the system. To do the control of the burners AID chose 6 Fireye MEP flame safety controllers to perform the direct burner safety management. For overall system control, they used a V570-57-T40B PLC and HMI unit along with the V200-18-E3XB snap in IO module to complete the needed hardware. They also used a variable speed drive to operate the single combustion blower motor to provide the full modulation of the



6 burners.



What was the final verdict? They used one of the two standard RS232/RS485 communication capabilities of the V570 to set up communications with the 6 Fireye MEP controllers using the Unitronics

as the master using a Modbus RTU protocol. Three of the analog inputs of the E3XB IO module were used to read the values of three K-type thermocouples and one analog input was used to obtain the speed output from the VFD. The VFD was not linked through Modbus to prevent troubles in the future if the VFD model needed to change. The system also uses the built in PID functions of the V570 to create 2 loops that were used to control the heating process in the two main sections of the application and used one analog output from the E3XB to control the speed of the VFD controlled combustion blower. One PID loop was dedicated to the required slow heating process required to make the solid Zinc ingots come up to a high enough temperature to be liquefied, and one PID loop was dedicated to the control of the process after the Zinc had reached a molten state.

The V570 color touch screen was used to allow the customer to start the process at either a cold or hot running mode using the build in disable feature to prevent anyone from selecting both operations at the same time. Full animation of the six burners and full diagnostics of each of the burners is made possible through the Modbus connections to the 6 Fireye flame safety controllers.

“The process of program development was very easy and efficient using the Visilogic program. “ Says Walker. “The online testing mode made debugging quick and accurate and the control panel was able to be put in service with no delays caused by needing to debug in the field.”