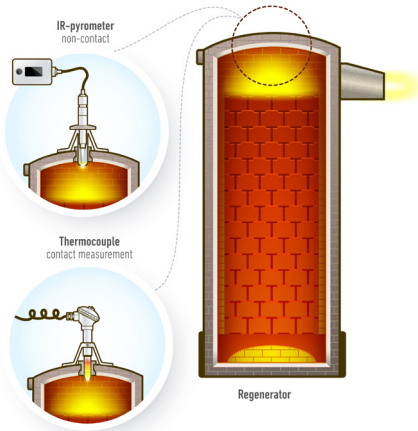


FLAT GLASS REGENERATOR MONITORING



Regenerator with thermocouples and infrared pyrometer comparison.

The Opportunity

Accurate monitoring of regenerator checker temperatures is necessary to ensure efficient and stable operation of the glass melting tank.

Glass manufacturing is a very energy intensive process requiring temperatures up to 1700 °C. Regenerators play an important role in this process by allowing preheating of the combustion air. They enable higher operation temperatures and more efficient melting in the glass melt tank.

Typically, there will be two regenerators per melting tank which alternate to support the firing cycles. When a regenerator is not being fired, the refractory brickwork checkers in the regenerator absorb and recover heat from waste gases from the melting tank. During the firing cycle, the checkers release heat to preheat the combustion air while allowing the other regenerator to recover heat from waste gases.

Correct temperature measurement of the checker brickworks allow accurate switching of the regenerators, which enables efficient and stable operation of the melting tank. In addition, the regenerator crown refractory is often subjected to the highest temperatures and is a very expensive component, therefore it is important to protect this critical asset.

Traditionally, these temperature measurements have been performed with thermocouples that will deteriorate over time and have known reliability issues. An improved solution is an infrared pyrometer that measures temperature without contact and remains outside high temperature zones. This solution offers a significant improvement in long-term stability and reliability over traditional thermocouples.

Our Solution

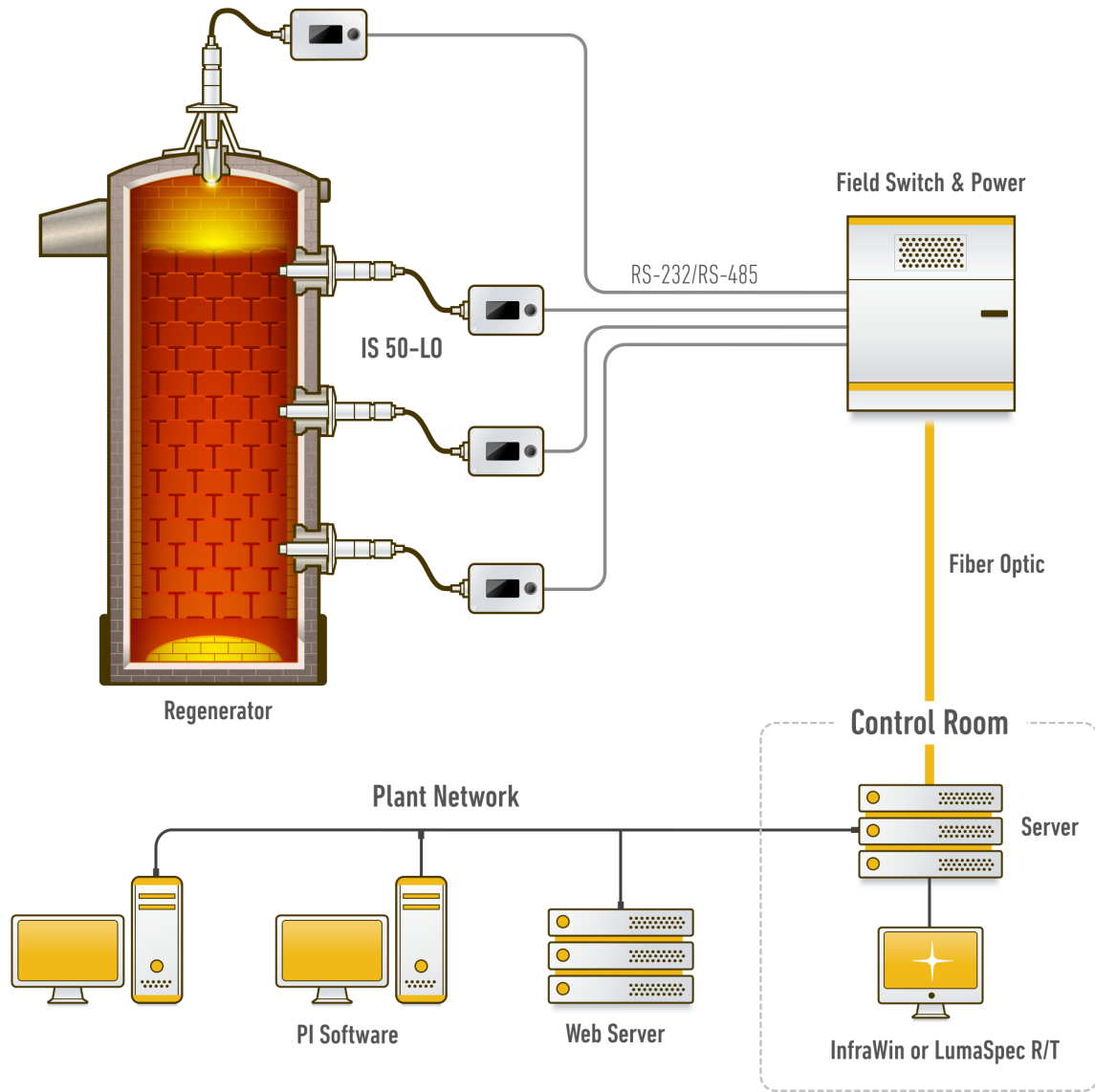
Our IMPAC division developed the IS 50-LO Plus for high temperature monitoring of graphite & ceramics components and is ideally suited for the glass industry. This rugged, industrial design incorporates field proven components and is easy to retrofit into existing thermocouple wells such as on the crown refractory. The optical head can also be mounted to directly monitor the checker brickwork if a viewport is provided. The system can help optimize the furnace operation by monitoring, or controlling, regenerator switching temperatures, and monitor the health of the refractory crown enabling the user to maximize production efficiency.

Key Features Include:

- **Wide temperature range** options (600-3000 °C) with highly accurate silicon detector.
- **High temperature (<250 °C) optical head** with flexible armored fiber optics cable to facilitate mounting in difficult locations.
- **Full Analog and Digital output** to interface with facilities control system.
- **Local parameterization interface and local graphical display.** InfraWin software also provided for digital monitoring and configuration.
- **Laser targeting and easy installation with test signals.**



IMPAC IS 50-LO Plus



Your Benefits

- ✓ Direct, accurate measurement of the refractory brickwork temperatures for improved control of switching processes
- ✓ Retrofit into existing thermocouple wells
- ✓ Improved monitoring of critical crown refractory
- ✓ Increased lifetime, with minimal installation and maintenance required



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