LAFARGE Cement Plant – Conveyor Application

CASE STUDY

THE SCENARIO

Kifta's FireLaser Distributed Temperature (DTS) sensing system was installed in the harsh environment associated with Lafarge's largest cement manufacturing plant in Spain. This production plant is a key part of the value chain within the client's business.

CLIENT REQUIREMENTS

This plant must be able to operate over extended periods of time with minimum disruption to production. The conveyors, taking the kiln fuel supply from the stock pile, sends the product to an elevated position from where it is positioned prior to feeding the kiln. This is where it is burned to provide the heat necessary for producing clinker.

The client required continuous temperature monitoring within the specific high-risk area of the kiln fuel supply handling system.

A solution was required to:

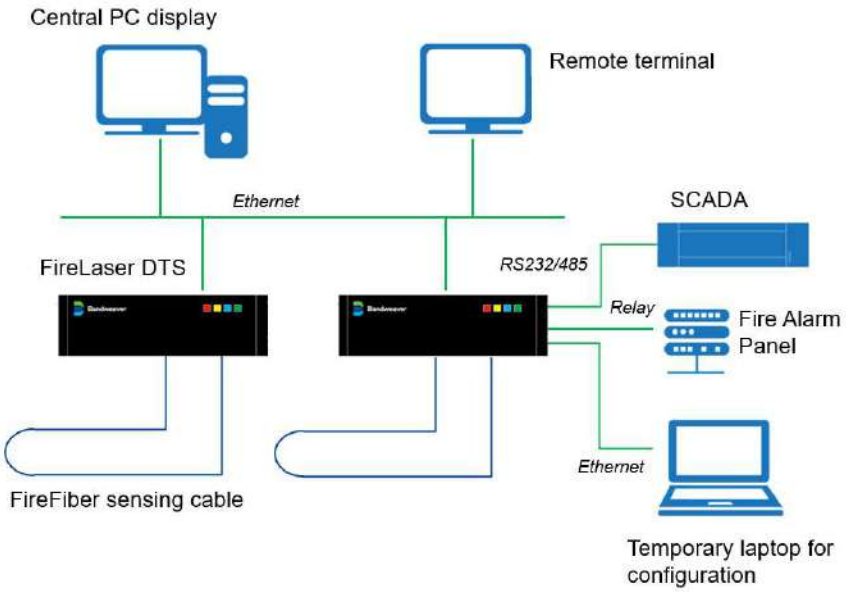
- Ensure for the effective management of temperature events within this critical area
- Detect local overheating of equipment
- Provide early fire detection

In terms of cost of ownership and including lifetime support costs, the solution had to be cost-effective throughout the retrofit installation and beyond, as well as the need to fit seamlessly into the site's overall emergency response system.

WHAT DID WE DO?

The Kifta Firelaser DTS system was chosen as the preferred option as an integral part of the overall fire detection and extinguishing system.

Below is the system architecture for the system configuration:



The following information was provided by the Firelaser DTS system:

- Continuous temperature data and alarm events are fed to the cement plant SCADA system via a Modbus link. Providing continuous temperature monitoring and automatic fire detection system for each individual conveyor.
- Fire Alarm events are relayed directly to the fire responsible for the activation of the water deluge system located on the conveyors.
- Real time temperature logging was provided by a central PC passed logging system, responsible for logging temperature profiles and alarm events.

The sensing cable is effectively a zero maintenance passive sensor technology that provides real time temperatures along the entire casing cable route. The photos below show the route of the sensing cable in relation to the conveyor belt.

Path of the sensor cable in relation to the conveyor belts

Kifta's Firelaser product carries international approvals, and the product is designed to comply with the fire product standard EN54 part 22: line type heat detection systems. This standard is one of the latest updates to the European EN54 range of product standards.

BENEFITS TO THE CLIENT

The Kifta Firelaser DTS system provided the following benefits in order to minimise risk and maximise operational efficiency for the end user:

- Full coverage of the conveyor belt means that all events will be located and there are no blind spots.
- Precise location of any temperature event means that the operator can locate any event to within 1m.
- Smart alarms mean early detection of temperature events prior to ignition. This ensures that the plant runs continually and reduces commercial losses associated with production downtime.
- Fiber optic sensing cable is fully passive and so requires minimal maintenance, is completely safe in an Atex environment and is immune to Electromagnetic interference.
- The FireLaser Distributed Temperature sensor acts as a condition monitoring system, detecting any potential issues and minimising ongoing maintenance costs.