



LAFARGE Cement Plant – Conveyer Application

CASE STUDY



THE SCENARIO

Bandweaver'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 in Spain is a key part of the value chain to the client's business.

CLIENT REQUIREMENTS

This plant must be able to operate over long periods of time with minimum disruption to production demands. The conveyors, taking the kiln fuel supply from the stock pile, send the product to an elevated position, from where it is positioned prior to feeding the Kiln, 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 the effective management of temperature events within this critical area
- Detecting local overheating of equipment
- Providing early fire detection capability

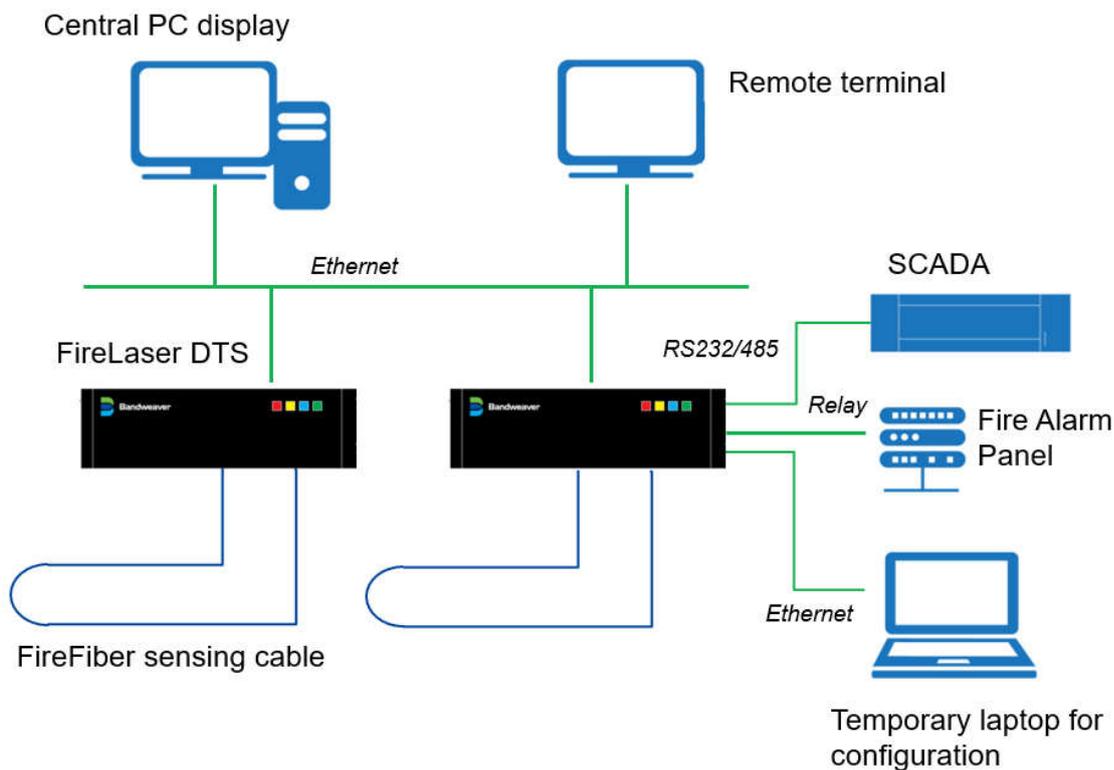


The solution had to be cost effective in terms of cost of ownership, throughout the retrofit installation and including lifetime support costs and to fit seamlessly into the site's overall emergency response system.

WHAT DID WE DO?

The Bandweaver 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

Bandweaver's FireLaser product carries international approvals, and the product is designed to comply with the fire product standard prEN54 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 Bandweaver 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 there are no blind spots
- Precise location of any temperature event means that the operator can locate any event to within 1m
- Smart alarms means early detection of temperature events prior to ignition which ensures the plant running 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 minimizing ongoing maintenance costs.