

LINEAR HEAT DETECTION USING FIRELASER DISTRIBUTED TEMPERATURE SENSING TECHNOLOGY IN SINGAPORE



The Scenario

The client was a leading Singapore based global pharmaceuticals company. They built a state of the art refectory for their employees and wanted to install the most reliable and effective linear heat detection technology. Their goal was to guarantee the safety and wellbeing of their employees and also provide protection for the high value facility. Bandweaver and Innovative Energy proposed a solution based on Bandweaver FireLaser technology.

Client Requirements

The client had a requirement to extend an existing fire detection system deployed on the pharmaceutical production site, to provide coverage on the new site facility. The system was to be designed in accordance with CP10, the local Singapore fire detection standard, which draws references from BS5839 (UK), AS 1670 (Australia) and EN54-2 (Europe).

The client has a sophisticated integrated fire and security system, which is controlled by a master control panel. The design of the refectory included a concealed space above the ceiling of greater than 0.8 m. According to CP10, there must be heat detector sensors within this void. The CP10 standard also states the mandatory maintenance regime to be implemented to ensure continuous fire detection system operation.

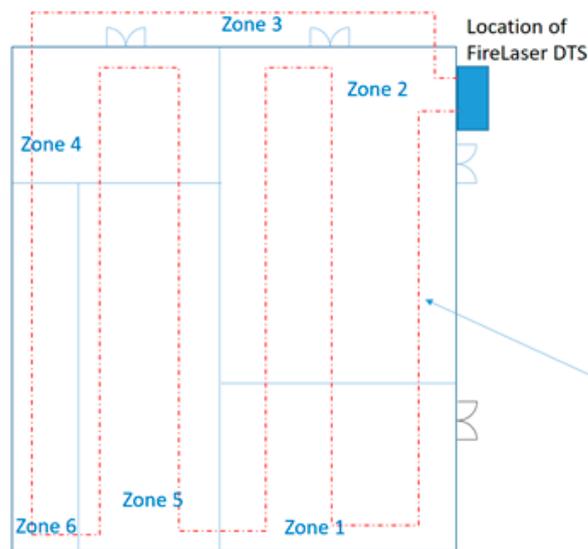
What Did We Do?

Bandweaver and Innovative Energy supplied and commissioned a FireLaser DTS linear heat detection system. The optical fiber linear heat detection cable was installed in the ceiling void. The cable route crossed the length of the canteen eight times, thus providing complete coverage.

Using the DTS configuration software, it was then a simple task to set the alarms as per the required standards. In this case, the sensing cable length was divided into 5 zones.

The FireLaser DTS integrated with the fire control panel and in this scenario utilised the inbuilt electrical relays to provide the signal to the fire panel.

The FireLaser DTS included a built-in touch screen for easy ongoing diagnostics.



Schematic depicting cable route and zonal arrangements



Fiber optic linear heat detection cable in ceiling void

Benefits to the Client

Overall, FireLaser provided the client with a flexible, feature rich and user friendly heat detection system with low cost of installation and low cost of ownership. The key benefits over standard point based addressable heat detectors include:

The FireLaser DTS is a very user friendly system and with its in-built electrical relays and user friendly configuration software and integrates very easily with the fire control panel.

FireLaser provides a low maintenance solution with a the passive fiber optic heat sensing cable installed above the ceiling in the concealed space. No electronics are installed in the concealed space.

The system is divided into multiple detection zones, which are controlled by the system software, and not directly dependent on the type of fibre optic cable deployed, as is the case with digital type linear heat detection technology.

The system operates as a combination fixed temperature and rate-of-rise heat detector over the entire fiber optic sensor cable route. The system has

the capability to have additional independent pre-alarm levels set for each detection zone, to increase the systems sensitivity.

FireLaser can detect the temperature and location of the alarm event to within 1m over the entire sensor cable route, thus providing more precise data regarding the exact location of the alarm event. There is therefore no requirement to install remote indicators as would be required with a point based heat detection solution.

CP10 recommends that 20% of the overall fire detection system's detectors are tested on an annual basis. With an addressable point based heat detection solution, this places a significant cost and inconvenience issue with access to test every addressable point sensor. The FireLaser system alleviates this issue by necessitating access for each linear heat zone, as opposed to each individual addressable detector.