

Securing Critical Police Infrastructure with Fibre Optic Perimeter Intrusion Detection



Project Summary

- **Client:** Singapore Police Force
- **Application:** Police station perimeter security
- **Solution:** FenceSentry™ DAS with MaxView™
- **Technology:** Fibre optic Distributed Acoustic Sensing
- **Key Benefit:** Real-time perimeter intrusion detection with precise alarm location

The Scenario

The Singapore Police Force (SPF) is one of Asia's most advanced law-enforcement organisations, responsible for maintaining public safety and security across Singapore's highly urbanised environment. Its stations operate critical infrastructure that requires robust monitoring systems to ensure continuous protection, operational resilience, and rapid response to potential security or safety incidents.

For a newly constructed police station, SPF required a state-of-the-art perimeter security system capable of providing continuous monitoring and rapid detection of intrusion attempts.

Client Requirements

The new police station required a reliable and intelligent perimeter security solution to protect its boundary fence and prevent unauthorised access. The system needed to provide continuous monitoring of the entire perimeter, accurately detect and locate intrusion attempts such as climbing or cutting, and minimise nuisance alarms in an urban environment. Integration with the station's existing security and monitoring infrastructure was also important to enable rapid verification and response.

The solution also needed to be highly reliable, low-maintenance, and capable of long-term operation in Singapore's hot and humid tropical climate.

What Did We Do?

Bandweaver supplied and installed its FenceSentry™ Distributed Acoustic Sensing (DAS) system to provide continuous fibre-optic monitoring along the perimeter fence. Using fibre optic cable as the sensing element, the system detects and precisely locates disturbances such as climbing, cutting, or tampering with the fence with location accuracy of less than 5 metres.

The solution was integrated with Bandweaver's MaxView™ monitoring software, providing operators with a clear graphical interface, accurate alarm location, and event management tools to enable rapid assessment and response to potential security breaches.



Figure 1 - View of fence #1



Figure 2 - View of Fence #2



Figure 3 - Team testing on site



Benefits To The Client

Some of the key following benefits and advantages to the end user include.

- **Simple Installation:** Because the fiber is the sensor the operator does not have the concern of whether to position the sensors as there is complete coverage. This leads to lower design and installation costs. There is also no in-field power or communications cable requirement which means both lower capital costs and lower ongoing operations and maintenance costs.
- **High Reliability:** Another benefit of the passive, inert nature of fiber optics is that they are very reliable and so there is no downtime. They are completely passive and are immune to EMC interference, not affected by dust or other environmental factors and are completely non-corrosive. Therefore, the lifetime of fiber optic cable can be greater than 30 years, without any maintenance required.
- **Complete Coverage:** In addition to the lower maintenance costs, they also provide a higher level of coverage which lowers the overall risk and improves protection levels.
- **Robust measurement:** With the 2-channel loop, *cut-redundancy* configuration the system continues to operate seamlessly even in the event of a cut to the cable (whether intentional or accidental) thus providing an extremely physically robust system. Also, with the software configurable *smart zones* and advanced environmental algorithms this leads to lower nuisance alerts and greater confidence in the system.
- **Precision of Detection:** The FenceSentry PIDS system can locate an intrusion event to within 1m which means that events can be located extremely accurately and early action can be taken to prevent any escalation of any intrusion incidents. With the integration with the CCTV a secondary form of verification can be employed to further clarify and improve decision making.

About Bandweaver Technologies

With an installed base of over 90,000km and 9,000 systems installed worldwide, Bandweaver's vision is to be the first choice for integrated distributed fiber optic sensing solutions across the globe. Since 2002, Bandweaver has been committed to delivering reliable, innovative, client-centric and value-added products and services, via a dedicated and talented team of people.

Bandweaver manufactures and distributes advanced fiber optic monitoring sensors and integrated technologies, enabling customers to monitor, secure and keep personnel and critical assets safe.

Utilising the latest technologies, Bandweaver provides solutions for Linear Heat Detection, Intrusion Detection, Condition Monitoring, Dynamic Cable Rating and Leak Detection.

For further information please contact our global team at info@bandweaver.com

