AgilFence®
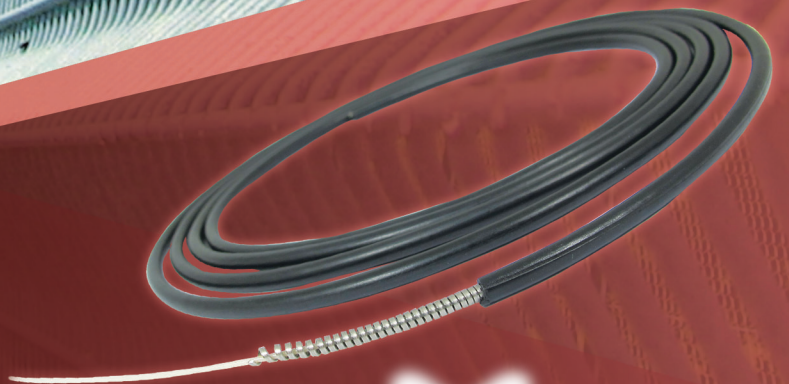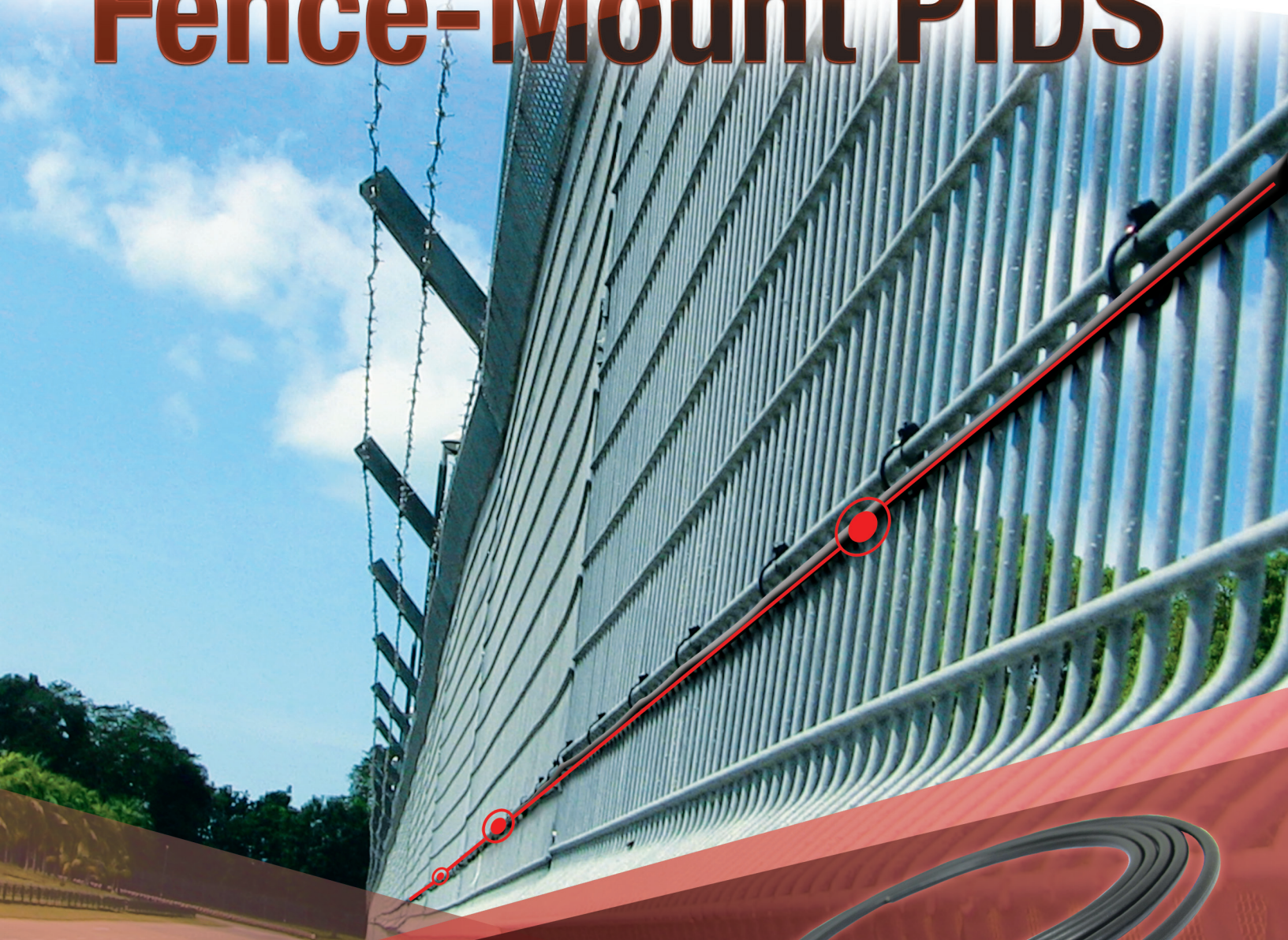## Perimeter Intrusion Detection System
A Product of ST Electronics

AGILFENCE
Fence-Mount PIDS

- Fast & easy deployment
- High probability of intrusion detection
- Extremely low false alarm rate
- Pin-pointing intrusion location

Aisthon
Lightspeed Industrial Sensing

ST Electronics
Satcom & Sensor
Systems
A member of ST Engineering

Empowering thru' Innovation

Mega cities around the world face constant security risks. These threats must be anticipated, identified and taken down with pinpoint accuracy. Vital facilities also pose as attractive targets. As perpetrators devise new models of infiltration, security protocols need to adapt accordingly by offering reliable and credible solutions.

Benefits

The AgilFence PIDS from ST Electronics is a solution designed and developed in Singapore for fence security, offering highly accurate and instantaneous detection. This enables a facility's security force to respond quickly and effectively.

ASEAN Outstanding Engineering Achievement Award

The Institution of Engineers Singapore's Prestigious Engineering Achievement Award

Key Features

- Quick & easy deployment
- Highly reliable, more than 95% probability of detection
- Pinpoint intrusion location to within 10 metres (i.e. ± 5 metres accuracy)
- Extremely low false alarm rate
- Extremely low nuisance alarm rate
- Resilient to defeat

Applications

- Airports
- Military sites
- Prisons
- Nuclear & power plants
- Refineries
- Sensitive buildings & land areas
- Banking facilities
- Ports
- Museums
- Industrial & commercial sites
- Sites requiring maximum security

How it works

The AgilFence PIDS uses advanced optical fibre sensors known as Fibre Bragg Grating (FBG). These are embedded in the optical fibre cable to form an array of sensors for perimeter fence intrusion detection. These extremely sensitive FBG sensors are used to "sense" incidents in various scenarios where very slight disturbance to the physical perimeter will trigger a response in the optical fibre sensor that translates into an intrusion alert.

The FBG sensors work like a colour-selective mirror (see illustration A). Under normal conditions, each sensor reflects a specific colour back to the system.

Transmitted signal

Reflected signal

Fibre Bragg Grating 'Written' onto the fibre

illustration A

An attempt to climb or cut the fence will impose a strain on the nearest FBG sensor, causing a change in its reflected colour and triggers an alert at the Operations Centre immediately.
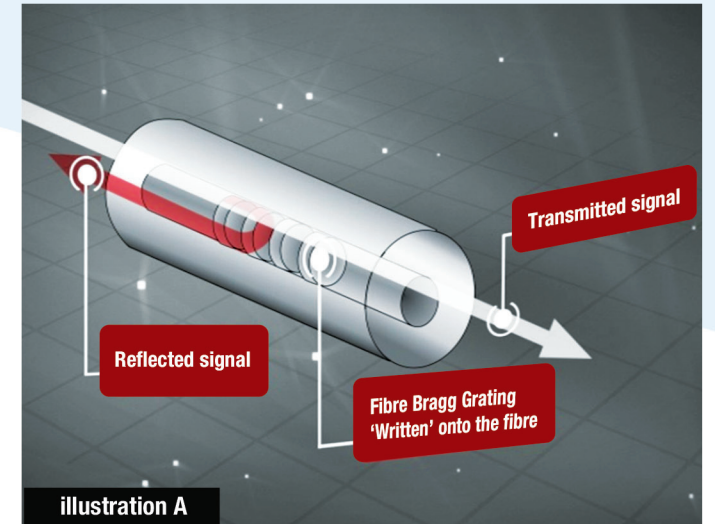
illustration B

Optical fibre cables embedded with a series of such FBG sensors each with a unique colour, is then mounted on the fence. (see illustration B)

Intrusions which include climbs, cutting of the fence etc. which will affect this steady state and change the colour that is reflected by the sensor back to the system. When a change in colour is detected, an alert will be triggered.

Operational Concept

1. An intruder attempts to breach the perimeter by cutting or scaling the fence.

2. When the fence panel is disturbed, the nearest sensor will cause a change in its reflected colour and trigger an alert to the operation centre.

3. The nearest strategically placed CCTV on the perimeter is automatically activated to display pop-up video where intrusion is suspected.
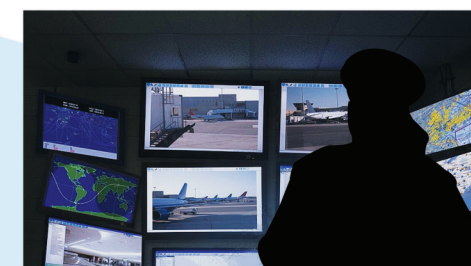
4. The instantaneous detection enables security force to verify the intrusion quickly.

5. The security response team is quickly activated and dispatched to the intrusion location.

6. The intruder is approached before any damage is done. The entire process is monitored by the operation centre.

Performance Specifications

Probability of Detection (unaided climb)	• ≥ 95%
Detection Accuracy	• ±5 m
Detection Resolution	• 20 m
False Alarm Rate (average)	• ≤ 5 per day per kilometre
Cut Immunity	• Impact of cut is limited to and only affects one channel, from cut point to end of channel

Technical Specifications

Technology	• Optical fibre embedded with Fibre Bragg Grating (FBG)
Mechanical	• Outdoor splicing enclosure box IP66 • All equipment mountable on 19-inch rack • 1U for Sensing Unit, 2U for Signal Processing Unit, 1U for keyboard & monitor
Power Consumption	• Each Sensing Unit: 45 W typical (4-channel, 8-channel, 16-channel) • Each Signal Processing Unit: 460 W
Environmental Specs	• UV-resistant and armour-protected sensor cable • UV-resistant cable tie • Sensing Unit & Signal Processing Unit operate in air-conditioned room
Product Life	• ≥ 10 years product life • A comprehensive warranty program and extension option available