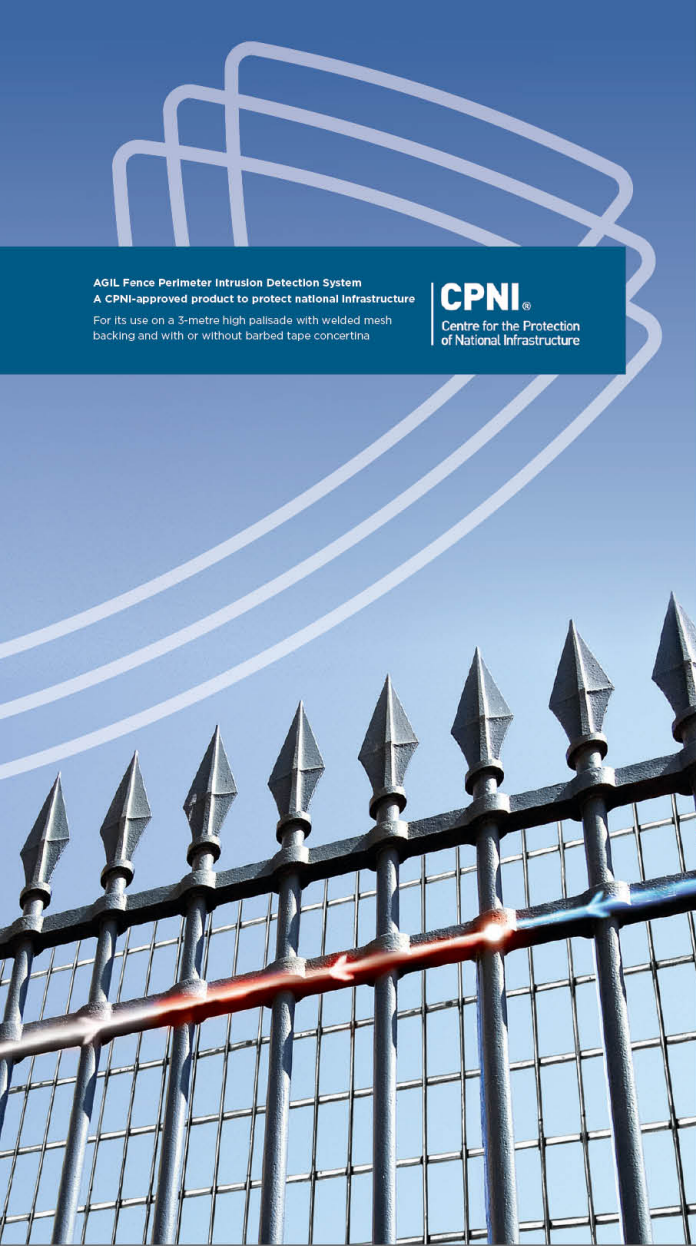


PERIMETER INTRUSION DETECTION SYSTEM

AGIL Fence, the NEXT Generation of
Fibre Optic Sensor Solution





AGIL Fence Perimeter Intrusion Detection System
A CPNI-approved product to protect national infrastructure
For its use on a 3-metre high palisade with welded mesh
backing and with or without barbed tape concertina

CPNI
Centre for the Protection
of National Infrastructure

With the innovation-led sensing of our sensors, we are obsessed with a deep sense of purpose to effect unparalleled security solution to safeguard lives and establishments.

For every security solution engineered, AGIL™, our unique solutioning approach, acts as the heart of our conscious innovation. We constantly ask and challenge if each is incisive, inventive and intuitive to help solve real-world problems.

With our state-of-the-art sensor technology, adaptive threshold capabilities and experiential thinking, we have effected the implementation proof points for various critical infrastructures and key installations including airports, utility sites, military facilities and industrial premises globally.

NEXT-GENERATION OF FIBRE-OPTIC SENSOR

AGIL Fence Perimeter Intrusion Detection System (PIDS) is a barrier-mounted intrusion detection system providing 24/7 protection. This next-generation fibre optic sensor technology requires no power or electronics in the field, providing immunity against EMI and lightning, and hence allows safe operation even in harsh environments.

AGIL Fence PIDS precisely locates intrusion along the patented sensor cable, and with FBG (Fibre Bragg Grating) technology, enabling any discrimination against environmental nuisance alarms including inclement weather and wildlife against actual threats to the perimeter.

Features

- Pinpoints intrusion location to 3 m (10 ft)
- Patented Fibre Optic FBG Sensors along sensor cable for high Pd and low NAR
- Each FBG sensor is monitored in real time with Adaptive Thresholding
- Locate perimeter intrusions across multiple sites all connected to a single security network*
- No outdoor power, or electronics required for EMI and lightning immunity
- Single cable running straight along the fence no looping or double run required
- Software configured detection zones to adapt to site and security requirements
- Channelisation to achieve high resilience to single or multiple cable cut
- Integrates with ISMS, VMS and PSIM platforms

* Dependent on processing server

The Innovation In AGIL Fence PIDS

Each Fibre Bragg Grating (FBG) is a distributed reflector constructed in short segments of the optical fibre that reflects a particular wavelength of light.

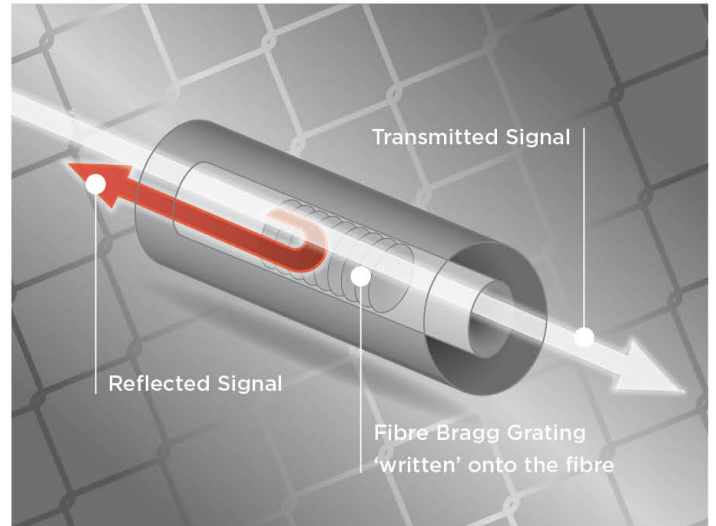
In contrast to other fibre-optic sensor systems which solely rely on the fibre-optic cable itself for sensing abilities, AGIL Fence PIDS utilises FBG technology as the primary “sensor” for more accurate results.

These FBG sensors are embedded in fibre-optic cable and then mounted on fences, walls and drain gratings. In an attempt to breach the physical perimeter security, any slight motion on the structure created by cutting, climbing or lifting will impose a strain on the nearest sensor, causing the wavelength to change. In response, the triggered sensor will immediately send an alert to a centralised command centre.

As the sensor generates thousands of sensor data points every second, its intelligent signal processing system can support massive counts of data and identify reliable intrusion signals.

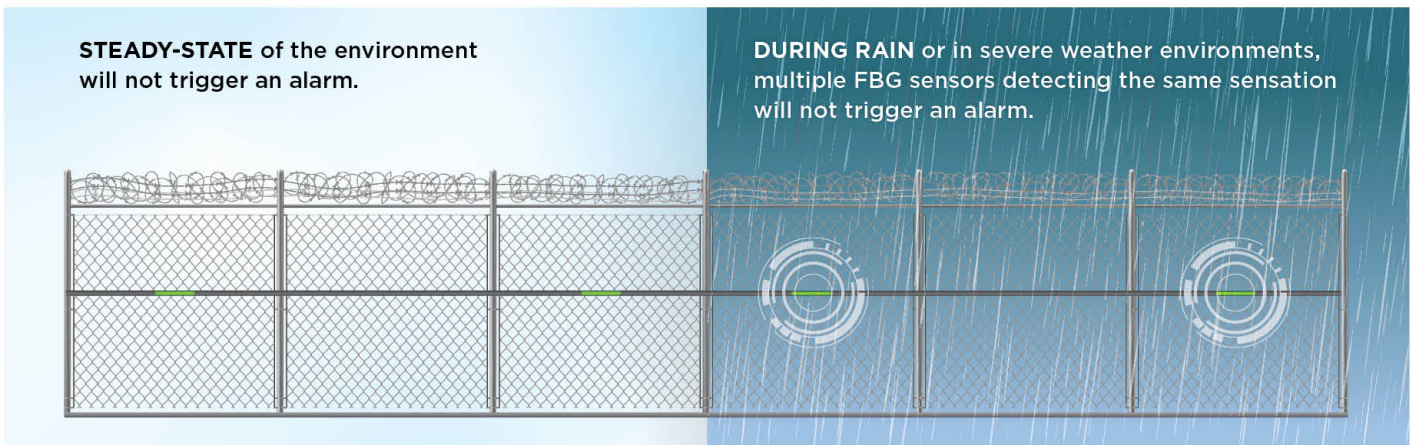
FBG Assures Highest Pd with the Lowest Nuisance Alarms

Our FBG sensing capabilities originate from a strain principle that measures force by showing its application on the threshold chart. In most systems, detection of intruders climbing slowly, with or without aid, generally goes undetected as it does not create strong vibrations. In contrast, any form of intrusion on FBG protected perimeter will result in an act of force upon the physical panel and in turn, impose a strain on the nearest sensor. Thus, it is impossible to attempt to disable or manipulate the AGIL Fence PIDS FBG sensor cable without setting off an intrusion alarm.



STEADY-STATE of the environment will not trigger an alarm.

DURING RAIN or in severe weather environments, multiple FBG sensors detecting the same sensation will not trigger an alarm.

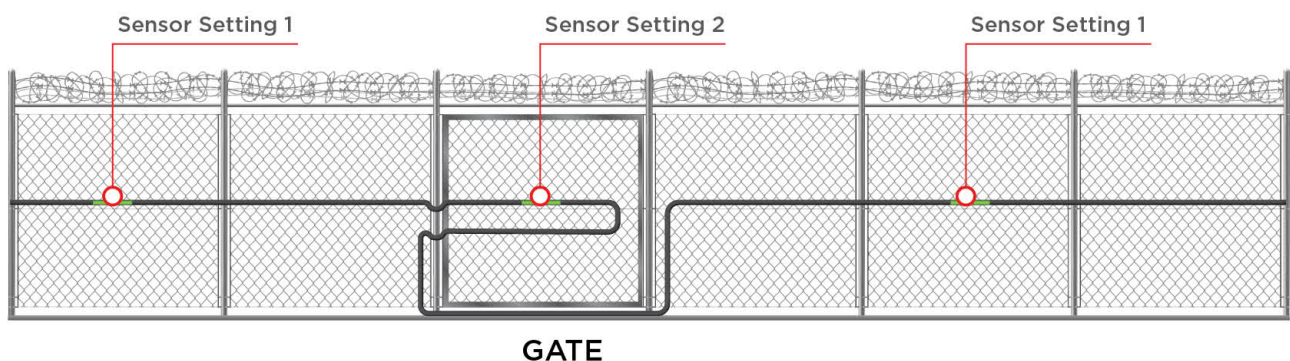


Coupled with adaptive thresholding, AGIL Fence PIDS consistently monitors inputs from each FBG sensor in real-time. It adapts the threshold for each sensor automatically and dynamically in reference to the environmental conditions such as strong winds, heavy rains and sand storms affecting that sensor. Advanced Signal Processing collects and processes data to differentiate and identify scenarios, even in extreme environments.

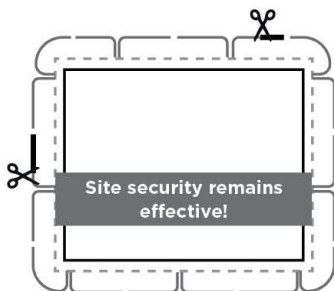
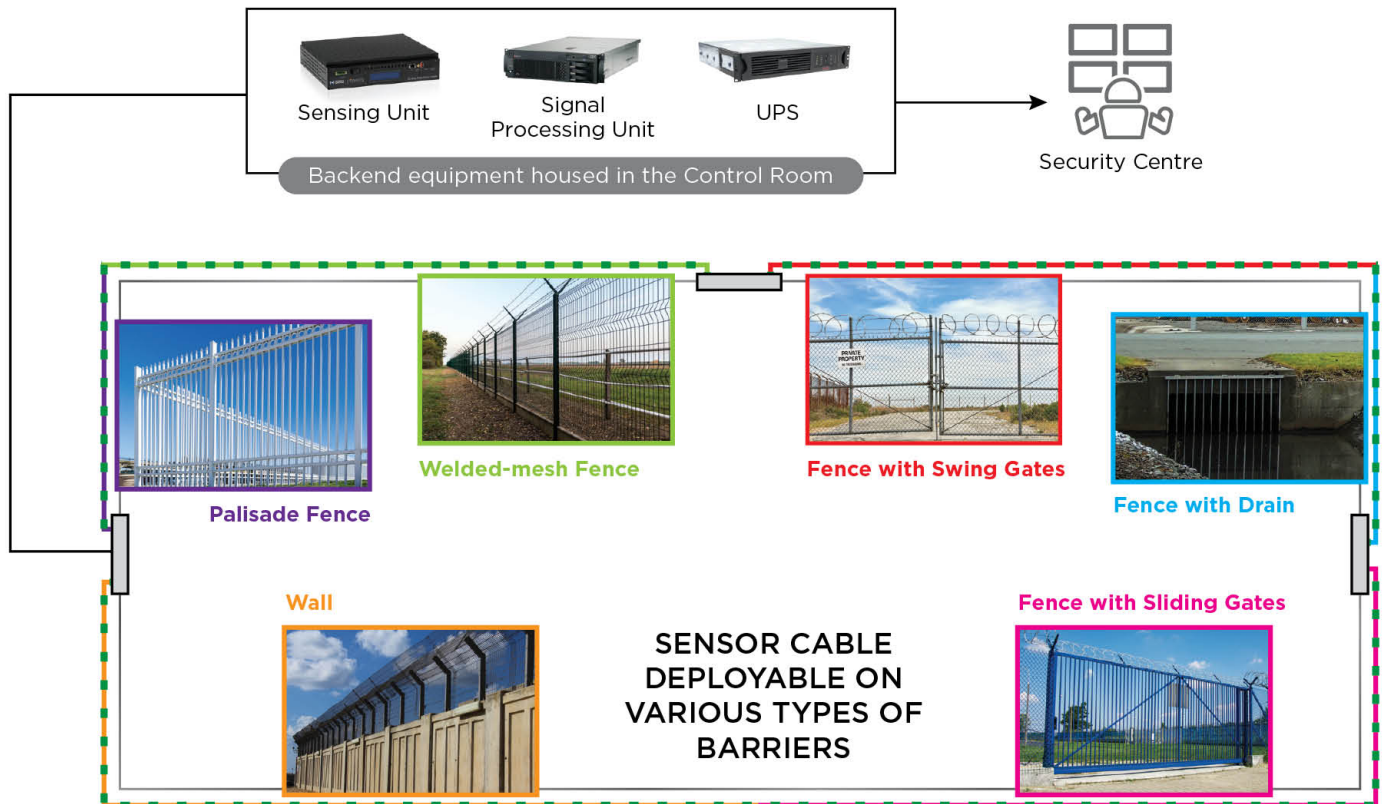
The Smarter Way with AGIL Fence PIDS Individual Sensor Setting

Each FBG sensor can have its own customised setting, ensuring adaptation to the site's perimeter fence condition.

Nuisance alarms (NAR) generated by wind, rain disturbance will be reduced while maintaining a high probability of intrusion detection (Pd) for the entire site. Besides, each sensor is unique, and when paired with our intelligent system, it can distinguish the exact location of an intrusion along the perimeter. As such, it frees the security team to focus on real threats.

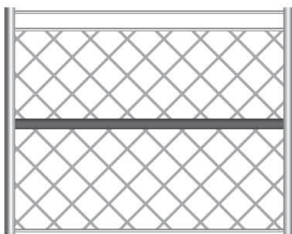


One-Stop Solution with Robust System Architecture



Multiple cable cuts resilience achieved through Channelisation

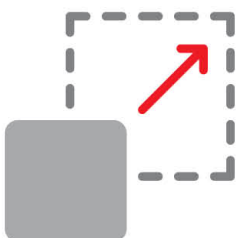
Our system is configured with several independent channels, with each channel having multiple sensors. A cut along would only affect part of a specific channel. Other channels shall continue to work normally.



Completely passive sensor cable, no power required in the field

The deployment of our full fibre-optic sensor is possible with the use of one cable for all types of perimeter barriers such as fences, walls, drain gratings and gates, forming a line from a single-pass installation around the protected areas.

It requires no power or electronics in the field providing immunity against EMI and lightning, and hence allows safe operation even in harsh environments.



Future-ready and scalable system architecture for expansion

Our scalable system configuration can be adapted for any perimeter size, providing the right solutions to meet each unique needs and requirements. Large and small sites can have peace of mind when considering an area expansion, as the design is scalable to site with no or minimal changes to the existing infrastructure.

TECHNICAL SPECIFICATIONS

FBG Cable Embedded with Discrete Fibre Sensors

Cable Construction	Armored, Black UV-stabilized TPU jacket. Expected life ≥ 10 years
Optical Fibre Grade	9/125 μm single-mode
Detection Accuracy / Resolution	± 3 m (9.85 ft), 30 m (98.43 ft)
Zone Length (Customised to site)	Software assignable
Detection Performance	> Pd 95%, NAR site dependent
Operating Temperature	-50 °C to 70 °C (-58 °F to 158 °F) / No restrictions on humidity
Size	Per reel weight / length: 6 kg / 150 m (typical) Cable diameter: 4.3 mm

Multiple-Channel Sensing Unit 4/8/16

Temperature Range (Operating / Storage)	-20 °C to 60 °C (-4 °F to 140 °F), < 80% RH, non-condensing / -30 °C to 70 °C (-22 °F to 158 °F), < 95% RH non-condensing
Size	Dimension: W30.7 cm x D27.4 cm x H6.9 cm (typical) Rack space: 19-inch rack-mountable, 2U
Power Consumption	30 W to 40 W (12 VDC)
Maximum FBG per channel	50
Optical Connectors	LC/APC
Interface	Ethernet

Signal Processing Unit

Temperature Range	10 °C to 35 °C (50 °F to 95 °F) / 20% to 80% RH, non-condensing
Size	Dimension: H8.7 cm x D44.5 cm x W72.0 cm (typical) Rack space: 19-inch rack-mountable, 2U
Power Consumption	750 W (230 V / 115 V)

Integrated Perimeter Alarm Management System (iPAMS)

Our Integrated AGIL Fence Integrated Perimeter Alarm Management System (iPAMS) provides the option of real-time monitoring of alarms locations using a simple map-based user interface and secure database.

Our system can provide alarm notifications, remote monitoring and status information with an option to present these data on a unified platform – either through our iPAMS or other security management platforms as it can seamlessly integrate with other ISMS, VMS and PSIM.

Single Site



Receive instantaneous alarm and video pop-up with pinpoint accuracy map indication when an intrusion occurs.

Multiple Sites



Monitor and manage multiple sites that are protected by the AGIL Fence PIDS all at once on the iPAMS.

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