RaySense
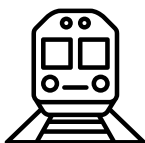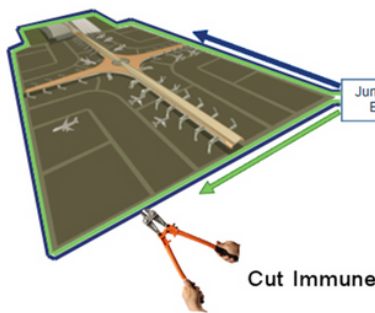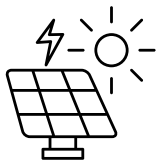## Fiber Optic Sensor Cable

AI DAS Fiber Optic Distributed Acoustic Sensing Sensor
Fiber Optic System Designed Specifically for Fence and Ground Detection

- Up to 100km/62 miles per processing unit.
- Ideal for 1.9 Miles + / 3km + Perimeter.
- 1 or 2 channel unit with cut immune feature.
- Sensing standard single-mode fiber.
- Distributed Acoustic Sensing (DAS) Technology.
- Up to 50km/31 miles per processing unit in straight line configuration.
- Within 3m/10ft resolution over the entire perimeter.
- AI Signature-based detection – Detection By Classification.
- It can be used on the fence and underground with the same cable.
- No electronics or power is required in the field.
- Offline AI – No Monthly fee or hidden costs.
- IP-based Remote control and monitoring – Software-based zones.

RaySense Distributed Acoustic Sensor (DAS) is Ideal for:

Junction Box

RaySense Control Unit

Cut Immune

Fiber Optic Cable:	Single-mode fiber optic cable.
Detection Channels:	Two fiber channels of simultaneous real-time independent intrusion detection per device.
Detection Distance:	1-100 km / 1-60 miles
Sensing Technology:	Coherent Optical Time Domain Reflectometer (COTDR).
Maximum Fiber Loss:	12dB
Operating Life:	> 10 years (dependent on operating environment and regular maintenance).
Artificial Intelligence (AI):	Deep-learning-based intrusion detection algorithms optimize sensitivity and probability of detection. Locations can be changed with parameters to avoid nuisance alarms. Different algorithms exist for buried and fence applications. The system is hybrid since both are applicable.
Detection Resolution:	3 m (10 ft) between detection points along the sensing fiber. 40 m (130 ft) minimum cable separation between individually reported disturbances (simultaneous).
System Interface:	Web 2.0.
Cut Resilience and Redundancy:	You can still detect intrusions from the controller within 10 m (30ft) of a fiber optical cable cut. For a redundant loop configuration, detection can be within 10m (30ft) on either side of a cable cut.
Sensor Sections:	Software configurable, independent sensor sections (detection zones).
Temperature Range	Device 0-40°C (32-104F) (AC environment).
Connection Ports:	TCP/IP (Ethernet), relay closures (via connected PLC or ADAM module or alternatives).
Inputs and Outputs:	2 x FC/APC single mode optical connectors (back, for sensing cables) 1 x USB2 ports (on back) 1 x Ethernet ports (10/100/1000 Mbps, on back).
Power Supply:	110 to 240 Vac, 47 to 63 Hz, auto ranging.
Power Consumption:	85 W typical, 125 W max.
Dimensions / Rack Clearance / Weight:	49 cm (19") x 50 cm x 8.9 cm (2U), 8 kg.
Laser Safety Class:	Class 1 (IEC 60825-1, 21CFR1040.10), shutoff: key switch on the front panel.
MTBF:	< 80,000 hours.
Warranty:	2 years, with an optional per-year warranty extension available.
Regulatory Certification:	ISO9001 accredited design and manufacturing is CE certified (Electromagnetic compatibility Directive (EMC) 2014/30/EU (EN 55032:2015 Class A, EN IEC 61000-3-2:2019+A1:2019, EN 61000-3-3:2013+A1:2019, EN 55035:2017+A1:2020, EN 61000-4-2:2009, EN 61000-4-3:2020, EN 61000-4-4:2012, EN 61000-4-5:2014+A1:2017, EN 61000-4-6:2014, EN 61000-4-8:2010, EN 61000-4-11:2020), The low voltage directive (LVD) (2014/35/EU), (IEC 62368-1:2018, EN IEC 62368-1:2020 + A11:2020).