HIGH PERFORMANCE PERIMETER INTRUSION DETECTION FOR FENCE AND BURIED APPLICATIONS

Aura Ai-2

Aura Ai-2, the next generation controller from FFT, offers advanced and versatile perimeter intrusion detection with the capability of combining fence-based and covert buried intrusion detection in a single compact and highly resilient controller.

INDUSTRY LEADING REACH

Aura Ai-2 provides both industry leading detection for fence applications, together with unrivalled covert buried capabilities for the detection of activities such as walking or vehicles external to the fence. Aura Ai-2 can effectively monitor optical lengths of up to 110km per controller for buried, and 80km for fence.



PRECISE LOCATION ACCURACY

Aura Ai-2's superior signal and data processing, combined with new ultra low-noise detection electronics, produces industry leading distance and accuracy capabilities. Aura Ai-2 can detect, locate and report disturbances to within \pm 2m on fences and \pm 5m when buried.

HOW IT WORKS

Optical fibres are housed inside a cable attached to a perimeter fence or buried along a perimeter boundary. The Aura Ai-2 controller sends laser pulses down optical fibres connected to each of its two detection channels, and detects light that is scattered back. Minute disturbances cause changes in the scattered light. The Aura Ai-2 controller automatically analyses this reflected light to detect, locate and report disturbances.

INTELLIGENT SIGNAL PROCESSING

Aura Ai-2 uses the latest advanced signal processing algorithms, combined with artificial intelligence, to discriminate between intrusions, nuisance alarms and other causes of fence disturbance. Aura Ai-2 automatically adjusts controller settings to optimize sensitivity for reduced nuisance alarms and increased probability of detection (POD).

PROVEN NUISANCE ALARM RESISTANCE

Aura Ai-2 leverages over 15 years of real world experience in perimeter security, and can operate in a range of environments. With industry leading real-time signal processing, discrimination and classification techniques, Aura Ai-2 achieves the world's best nuisance handling capability while maintaining maximum sensitivity to intrusion events.

CYBERSECURITY ASSURANCE

Ava Group demonstrates a strong commitment to data security by establishing the Cybersecurity Centre of Excellence (CCoE). The CCoE's mission is to ensure a high standard of cybersecurity and that all Ava Group products are subjected to rigorous and continuous testing during development and their entire lifespan to ensure there are no weaknesses in the product that could compromise an organisation's security credentials.

Aura Ai-2 is tested to Cybersecurity standards based upon National Institute of Standards & Technology (NIST) cybersecurity framework combined with Underwriters Laboratories (UL) 2900 cybersecurity standards. The implementation of these well-known and verifiable standards ensures that customers can trust and have confidence in the cybersecurity profile of Ava Group's tested products.

CUT RESILIENCE AND REDUNDANCY

In addition to fully redundant internal power supplies, Aura Ai-2 can be configured for continued intrusion detection even when the sensing fibre optic cable is cut or damaged as the Aura Ai-2 controller continues to detect perimeter intrusions occurring between the controller and the cut.



KEY FEATURES

- High sensitivity fibre optic sensing up to 80km (50 miles) for fences and up to 110km (70 miles) for covert buried
- Intrusion detection to within \pm 2m (6.5ft) for fences and within \pm 5m (17ft) for covert buried
- Real time simultaneous detection on two channels
- Artificial intelligence algorithms for improved classification and reduced nuisance alarms
- Cut resilience (immunity) and redundancy

SPECIFICATIONS

- No electronics or power in the field
- Immune to EMI/RFI and lightning
- Intrinsically safe
- Compact (4RU) state-of-the-art opto-electronics
- Lower total cost of ownership versus alternative technologies
- Cyber penetration tested to National Institute of Standards & Technology (NIST) cybersecurity framework and Underwriters Laboratories (UL) 2900 cybersecurity standards.

Fibre Optic Cable	Single fibre for each channel in black UV stabilized single-mode fibre optic cable
Detection Channels	Two channels of simultaneous real time independent intrusion detection
Sensing Technology	Coherent Optical Time Domain Reflectometer (COTDR)
Maximum Fibre Loss	Fence: < 11dB (typical max distance ~ 40km /ch) / Buried: < 13.5 dB typical max distance ~ 55km /ch)
Operating Life	>10 years (dependent on operating environment and regular maintenance)
Artificial Intelligence	Intelligent intrusion detection algorithms optimize sensitivity and probability of detection, avoiding nuisance alarms
(Ai)	by automatically adapting to changing conditions and dynamically adjusting controller settings
Detection Resolution	0.5 m (1.6 ft) between detection points along sensing fibre (2000 measurements per km of sensing fibre)
	15 m (49 ft) minimum cable separation between individually reported disturbances (simultaneous)
Location Accuracy	± 2m (6.5 ft) location of an intrusion along fence perimeter / ±5 m (17 ft) for covert buried dependent on soil
	condition and event type
Cut Resilience and	Intrusions continue to be detected from the controller to within 10m of a fibre optical cable cut, or to within 10m
Redundancy	either side of a cut for a redundant loop configuration
Sensor Sections	Independently software configurable sensor sections (detection zones)
Operating Humidity /	FFT Fibre Optic Cables: -55°C to +85°C (-67°F to +185°F) for cable across complete humidity range
Temperature Range	Controller: +5°C to +45°C (+41°F to +113°F), 5% to 80% RH non-condensing
System Interface	TCP/IP (Ethernet), relay closures (via FFT CAMS connected PLC or ADAM module)
Inputs and Outputs	2 x E2000/APC single mode optical connectors (back, for sensing cables) 2 x USB2 ports (on back) 3 x USB3 ports
	(two on front, one on back) 1 x VGA port (on back) 2 x Ethernet ports (10/100/1000 Mbps, on back)
Data Storage	2 x 256GB internal SSD in RAID-1 configuration 1 x 3TB internal 7200 rpm HDD (hard disk drive)
Power Supply	Dual (for redundancy) power supplies. Hot swappable (one power supply can be removed/replaced while controller
	continues operating) 110 to 240 Vac, 47 to 63 Hz, auto ranging
Power Consumption	280 W typical, 380 W max
Dimensions / Rack	4U high in 19" rack module: 175 x 483 x 553 mm (6.9" x 19" x 21.7"), Minimum clearance - 30 mm (1.2") at controller
Clearance / Weight	front, 60 mm (2.4") at back, 24 kg (52.9 lb)
Laser Safety Class	Class 1 (IEC 60825-1, 21CFR1040.10), shutoff: key switch on front panel
MTBF	> 50,000 hours
Warranty	2 years, with optional per year warranty extension available
Regulatory	ISO9001 accredited design and manufacturing CE certified (EN60950-1 safety, EC Low Voltage Directive 2006/95/
Certification	EC, CISPR 22-EN55022 emissions, EN 50130-4 electrostatic, radiated and conduced immunity, EN61000 EMC and
	RoHS2 2011/65/EU); FCC Part 15B Class B compliant
Cyber Assurance	Cyber penetration tested to National Institute of Standards & Technology (NIST) cybersecurity framework and
	Underwriters Laboratories (UL) 2900 cybersecurity standards



TECHNOLOGIES

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