Fiber SenSys
A CompuDyne Company

Protecting Perimeters Around the World
Located in Hillsboro, Oregon, USA, Fiber SenSys is the world's largest manufacturer of fiber optic intrusion detection systems.
• Founded in 1990 by Corning Glass
• A division of CompuDyne Corporation - one of the USA’s largest security companies - since Nov 2000
  – 900 employees
  – $200m annual turnover
  – NASDAQ listed
• Certified by US DOD for PL-1 Nuclear facilities
• Approved by Sandia National Laboratories
• No.1 perimeter protection supplier to US Air Force
• Protects some of the most sensitive sites in the world
• Authorised agents throughout the world
The Fiber Defender range of products is the world’s most advanced fibre optic based Perimeter Intrusion Detection System (PIDS)
Mounted on physical structures such as fences or walls…

... or buried underground for covert systems
• The APU continually interrogates the sensor cable by transmitting laser light through it.
• Motion, pressure, or vibration from an intruder causes a detectable phase shift in the pattern of transmitted light.
• The APU is programmed to respond using criteria set by the installer.
PRINCIPLE OF OPERATION

- The Alarm Processor continually interrogates the sensor cable by transmitting laser light through it.
- The light is received back at the processor after passing through the sensor.
- Any movement, pressure, or vibration from an intruder causes a change in the pattern of the received light.
- This change is detected by the Alarm Processor and converted to a digital signal for processing.
- The Alarm Processor is programmed to respond using criteria set by the installer.
• Component Parts:
  – Alarm Processing Unit (APU)
  – Sensor
  – Protective Conduit
THE SENSOR

SC-4
Direct burial type sensing fibre for buried sensing systems. Extremely tough, requires no special ground preparation.

SC-3
Sensing fibre for fence line and other applications. Used with protective flexible conduit for external applications. Withstands extreme temperatures.

EZ-400NSS
UV resistant polyethylene conduit for use with SC-3. Provides high impact protection and gives the sensor an expected life of over 20 years.
THE SENSOR

FENCE
THE SENSOR

BURIED
THE APU

FD-220P  
Baseline processor designed specifically for fence line applications. Simplified calibration for rapid install. For low to medium security where cost is a major factor. Single zone processor.

FD-331/332  Advanced processing for high security and difficult applications. Comprehensive calibration parameters for excellent discrimination.

FD-341/342  As above with the added benefit of insensitive leads, allowing the APU to be located remotely from the sensing zone.

Single and dual zone processors

FD-208R  Similar to the FD-342 in a rack mount format; for multi zone systems where APU’s must be in remote location. Ideal for hazardous and extreme environments.
• Unique processing algorithms in the APU give Fiber SenSys’ intrusion detection systems event discrimination on a level unparalleled by any other sensor.

  – Screens out the effects of wind, rain, and other non-threatening events
  – Focuses on Signals generated by intruders
THE APU

• Features
  – Two Digital Signal Processors and a micro-controller provide intelligent signal processing
  – Advanced processing and complex event modeling capability
  – Processing carried out in the ‘Frequency Domain’ to enable high level analysis
  – Two independent parameter groups provide excellent discrimination
  – Dynamic Environmental Compensation Algorithm provides excellent operation in windy environments
  – Optional anemometer driven wind rejection
ADVANTAGE OF FIBER-OPTIC SENSOR

- Immune to lightning strikes
- Sensor Cable does not radiate or pick-up
  - EMI/RFI
  - Radar
  - Two-way radio signals
  - High voltage static or transmission signals
- Unaffected by metal, salt water, or minerals in soil
- Free from earth loop problems
- Uniform detection characteristics over entire zone length
- Corrosion-free
- Intrinsically Safe
- Processor can be as far as 20 Km from the sensing zone
- Sensing zone of up to 5 Km
• The FD-341/342 and the FD-208 APU’s can be situated up 20Km from the sensing zone
• Insensitive cable is inserted between the APU and the sensor cable, eliminating a possible source of nuisance alarms
• Advantages include:-
  – Ultimate protection from lightning, EMI and RFI
  – Systems can be mounted in extreme climatic environments
  – Increased life expectancy
  – Intrinsic safety for even the most sensitive areas
  – Simplified maintenance and re-calibration
  – Suitable for securing high radiation areas
  – Enhanced system security against sabotage and vandalism
VERSATILE

- Chain Link Fence
- Weld Mesh Fence
- Decorative Fence
- Outriggers
- Perimeter Walls
- Interior Walls
- Roof Tops
- Storage/Bank Vaults
- Buried Underground
- Data Conduit (SecurLAN)
VERSATILE

- Nuclear Installations
- Airports
- Military Compounds
- Manufacturing Plants
- Power Utilities
- Petrochemical
- Borders
- Prisons
- Residential Projects
- Embassies
COMMUNICATIONS

- **Dry Relay Contact**
  - Separate contacts for Alarm and Fault

- **Fiber Security Network**
  - Functions with all Fiber Defender series processors and other perimeter sensors
  - Single fibre-optic cable ring sends alarms for over 100 sensors to the central response centre
  - Auto-configures: no address conflicts or node point switches
  - RS232 or relay contacts for communication with central monitor

- **TCP/IP Network**
  - RJ45 socket for direct connection into LAN
  - Industry standard XML schema for integration into third party reporting systems
  - FD-33X and FD-34X only
CALIBRATION

- Basic setup and calibration possible from Laptop PC running Windows HyperTerminal
- Use SpectraView for advanced environmental tuning and modeling.
  - Optional analysis software for Fiber SenSys intrusion detection systems.
  - Real time display of sensor disturbance waveforms.
  - Allows recording of signal waveforms for analysis.
  - Hyperion hand held touch screen version for field use
  - Provides sensor modeling capability for optimal configuration (not Hyperion)
  - Takes the ‘guesswork’ out of system calibration.
  - Reduces false alarms to absolute minimum levels.
HYPERION

- All the calibration functionality of SpectraView in a ruggedised hand held PC
- Full waveform analysis and recording
- Manufactured to MIL-STD-810
- Works in temperatures exceeding 100°C
- Can withstand full immersion and being dropped onto hard surfaces
Fiber SenSys’ intrusion detection systems are installed at thousands of sites around the world, including commercial, military, and government installations.
To protect numerous critical facilities around the US:

- Sandia National Laboratories
- Savannah River Site
- Pacific Northwest National Lab.
- Lawrence Livermore National Lab.
- Los Alamos National Laboratory
- Idaho National Laboratory
- Bonneville Power Administration
- Y-12 National Security Complex
To protect their bases around the world and to physically secure their confidential Secure LAN
To protect the Space Shuttle launch pads at Kennedy Space Centre & Cape Canaveral
U.S. Nuclear Power Plants:

Maine Yankee
Georgia Power
Allegheny Power

Southern Electric
Entergy
To protect chemical production facilities at worldwide locations:-

China    Taiwan    USA    Germany
Thailand  Spain     Brazil  Holland
To secure their worldwide headquarters at Boeing Field, Seattle
To secure the main airport perimeter
To secure Seraya Power Station, a gas fuelled facility on Jurong Island, Singapore
To secure the Malaysia/Singapore border along the Second Link Highway and Customs & Immigration Compound
To secure the Malaysia/Thai Border at Padang Besar
To protect several refineries and assets in Saudi Arabia
To secure airport fuel and energy plants
- Kennedy Space Centre & Cape Canaveral Launch Pads
- Samsung Plant Perimeters, S. Korea
- Du Pont Plant Perimeters, US
- VIP Residences, US, Malaysia
- Pensacola Airport, Florida, US
- Incheon Airport, S. Korea
- US Embassies, Various
- Saudi Aramco, Saudi Arabia
- Exxon Mobil, South America, Africa
- Numerous Prisons & Penitentiaries, US
- Linkedua, Malaysia-Singapore Border Crossing
- Thailand-Malaysia Border, Padang Besar
- Seraya Power Station, Singapore
- San Roque Power Plant, Philippines
- Ratchaburi Power Plant, Thailand
- Gulf State Utilities Nuclear Plant
- ROK Army Base, S. Korea
- Military Bases, China
- 1000+ US Military Tactical Installations in the Middle East
- Many more installations throughout US, Europe and Asia
Australian point of Contact

• Applied Infrared Sensing offers FiberSenSys products in Australia and New Zealand.

• Please visit www.applied-infrared.com.au for more information