

# Rayonet®

## IR Perimeter Protection



Setting New Standards  
in Perimeter Protection

Rayonet is an active infrared perimeter protection system. Rayonet has an installed range of up to 150 metres between towers, allowing apertures from a few metres to perimeters of many kilometres to be effectively protected.

The Rayonet range has been designed to achieve three main goals:

- To provide the highest probability of detection
- The lowest potential false alarm rate
- Ensure the reduction in initial installation and ongoing maintenance costs.

Rayonet has a number of unique features common to both the 1000 and 2000 versions, which are designed to give reliable operation with the lowest possible false alarm rate whilst maintaining a high probability of detection.

- Reliability
- Neural Network Decision Making
- Intruder Profiling
- Automatic Gain Control
- Fault Tolerance
- Robust Enclosure
- Easy Installation
- Meter-Free Alignment

### Reliability

Rayonet has a long history of protecting sites. Systems are still operational that were installed as long as 16 years ago. Rayonet's IR beams are the same as originally used to ensure that the system will give many years of protection. Continual research & development based on proven technology has resulted in the addition of a RISC microprocessor and neural networks to produce one of the most advanced systems available today.

### Neural Network Decision Making

Neural networks have been developed to simulate the learning and discrimination capabilities of the human brain. Neural networks base their decision making on models of the human brain, and can learn from real life experiences as opposed to mathematical models.

### Intruder Profiling

Using neural network concepts Rayonet uses all beams simultaneously to profile the size, shape and speed of any intrusion. The result of this intelligence and flexibility ensures lowest possible incidence of false alarms and allows Rayonet to be uniquely tailored to suit the particular needs of any site.

### Automatic Gain Control

Rayonet's long-range infrared beams (150 metres @ 90% attenuation) ensure continued operation in all usual weather conditions. In the event of extreme fog, Rayonet will alert the user to the fact that visibility is dropping. This allows alternative measures to be taken if necessary, thus maintaining the security of the site. Rayonet utilises an Automatic Gain Control system, which ensures the gain at each individual receive head is always at the optimum level. This minimises the potential for visibility problems, whilst allowing towers to be installed at short range without card masking.

### Fault Tolerance

In the event of an individual beam becoming blocked, Rayonet will first activate an alarm to signal the fact that there is a fault. However, this does not impede the system's detection as Rayonet will continue to operate with the remainder of the functioning beams. In potentially hazardous situations such as snow, very dense low level mist, overgrown foliage and cars blocking beams, Rayonet will continue to be able to detect intruders and provide reliable protection 24 hours a day.



### Robust Enclosure

Rayonet is supplied fully tested and assembled in a robust IP55 enclosure with a unique thermal management and air ducting system, which maintains optimum operating conditions inside the tower during most extremes of weather conditions. Rayonet can be supplied with a silver back panel for heat exchange, this combined with fan control air ducting improves reliability in desert conditions. Rayonet 2000 will also detect people attempting to tamper with, or climb over the tower.

### Easy Installation

Rayonet has been designed with easy installation and maintenance in mind. The new style beam heads and lenses, individually mounted in an easily adjustable bracket, combined with the meter-free alignment system, allow for quick installation and reduce the possibility of alignment failure due to knocks to the tower or strong winds. On board diagnostic LED's facilitate troubleshooting and ensure easy servicing. Rayonet is designed with quick mounting options and is fully compatible with most alarm-monitoring systems.

### Meter-Free Alignment

Rayonet utilises an on-board sounder for the alignment of beams. This quick and easy method enables the installation engineer a greater level of mobility to ensure quick and accurate alignment.

The smart choice for perimeter protection



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### TECHNICAL SPECIFICATION

#### Rayonet 2000

Rayonet 2000 is IDL's high performance perimeter protection system designed to provide the best possible level of detection and false alarm management available in any active infra red system.

#### Higher Probability of Detection

Rayonet 2000 comes complete with a minimum of 6 beams per tower with a typical spacing of 20 centimeters between beam heads. This large amount of beams in a compact space ensures optimum protection and highly accurate intruder profiling.

#### Built-in Anti Crawl

The lowest beams are positioned down in the bottom of the tower and are designed to detect persons attempting to crawl through the system. The minimum height for the bottom beam is 7 centimeters.

#### Lowest False Alarm Rate

The additional information supplied to the neural network by the extra beams allows Rayonet 2000's microprocessor to make incredibly accurate decisions about the size, shape and speed of any intrusion thereby ensuring Rayonet 2000 will provide the lowest possible false alarm rate. Therefore guards can respond with assurance that if the system alarms there is a genuine intruder.

#### Programming Package

Rayonet 2000 is supplied with a Windows™-based programming package. This package can be used to tailor Rayonet 2000 to any site to give the lowest rate of false alarms possible and to gather beam alignment information. Both these functions can be used locally at a tower or remotely.

#### Rayonet 1000

The 1000 series is IDL's highly cost-effective entry level version of Rayonet. As standard it features 4 beams per zone and its intruder profiling offers unrivalled performance in comparison to other competitive systems within its price range. Rayonet 1000 is designed to detect intruders who are walking, running or jumping making it ideal for low to medium security level sites.

#### On-Board Control

At the heart of Rayonet is its custom built microprocessor. Rayonet 1000 features on board controls so adjustments for single beam sensitivity and multi-beam profiling can be made manually within the tower for each zone. Additionally on-board diagnostic LED's indicate the status for each individual beam.

for further information please contact your local dealer or the manufacturer

#### Range:

150 metres @ 90% attenuation

#### Height:

1.8 metres  
(options include 2.4 and 3 metres)

#### Number of Beam Heads:

Rayonet 1000  
4 TX and 4 RX per standard 1.8 metre tower  
Rayonet 2000  
6 TX and 6 RX per standard 1.8 metre tower  
Taller towers have more beams

#### RX & TX Beam Head Movement:

200° horizontal - 110° vertical

#### Operating voltages:

24VDC or 18VAC

#### Power consumption:

40 watts including heater

#### Operating temperature range:

-20°C to +60°C

#### Outputs:

Voltage Free Relay Contacts:  
Alarm, Tamper, Visibility and Power Fault

#### Alarm discrimination method:

Microprocessor control

#### Mounting:

Pole or wall mounted

#### Housing:

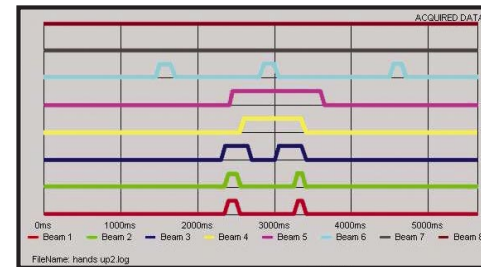
IP55

(Due to continued improvements specifications are subject to change without prior notice)

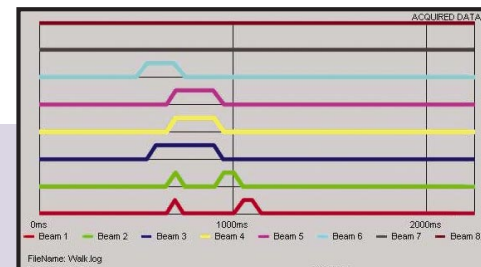
#### Intruder Profiling & False Alarm Management

False alarms can plague many perimeter systems potentially resulting in guards being unresponsive to genuine alarms as they have become desensitised by repeated false alarm events. Rayonet employs a custom-built microprocessor employing a neural network to profile the size and shape of intrusions. This gives Rayonet a clear advantage in terms of balancing the highest probability of detection rates with a low incident of false alarms. The following images are taken using Rayonet 2000's unique programming software; these show how the system is designed to differentiate between human intruders whilst ignoring smaller objects like birds flying from tower to tower and small animals breaking lower beams.

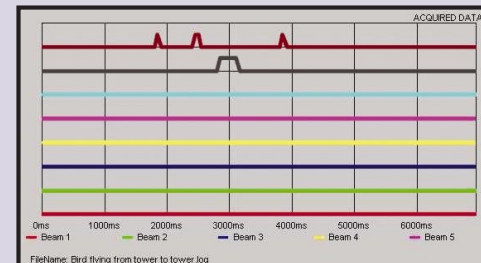
Rayonet's ability to think in terms of shapes and sizes gives it a clear performance advantage over simple single/double beam break logic systems to provide efficient and reliable perimeter protection.



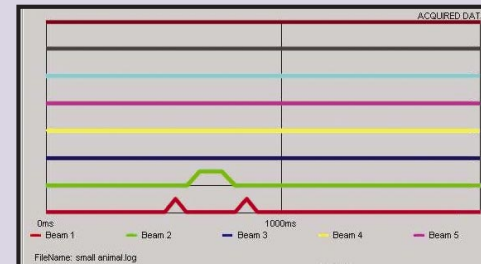
Man Walking with hands held up at head height



Man Walking



Bird flying from tower to tower



Small animal breaking lower beams



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