

Presented
By

BEI

Security



BEI SECURITY

DETECTIONS AT THE SPEED OF LIGHT

Fiber Optic Perimeter Intrusion Detection Systems



BEI Security

- 30 years of experience in security and surveillance
- Fiber optic perimeter detection
- Video motion detection
- Covert equipment
- Access control
- CCTV
- Under water detection

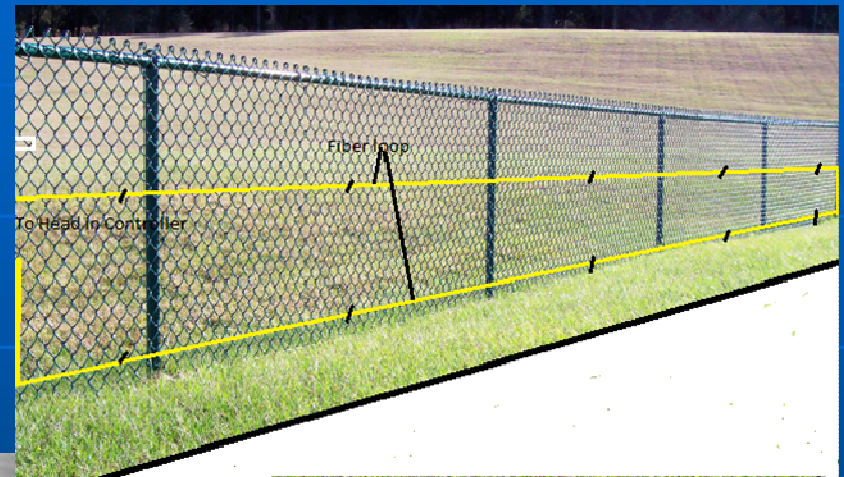
BEI Products Overview

- RLTD
- FiberNet
- FiberSensor
- OptiLoop
- MarineNet

RLTD: Reflected Light Time Differential

Lower cost protection for long perimeters

- RLTD offers a unique and easily deployed intrusion detection system utilizing a single mode fiber optic cable and a single head end controller. The system is capable of protecting perimeters up to **100** km in length with a single fiber. With this breakthrough in performance, the system offers major cost reduction over other fiber solutions.



For protection of long borders, or perimeters exceeding 100 kilometers, the RLTD single mode fiber optic cable is attached to an existing barrier or fence and looped back to the head end (as shown below) in 50 kilometer increments.

The disturbance detection identification zones remain at the normal ± 10 meters for precise intrusion detections. Alternatively, the product can also be buried for invisible protection.

RLTD Applications



Train,
Two Fibers



Prison,
One Fiber



Border, Two Fibers
(one fiber is buried)



Oil Pipe, Two Fibers



Airport, One Fiber

RLTD Underground

Mode of Operation

- RLTD terminates both ends of the fiber into the control sensor electronics at the head end. By doing so, the system now has two complete paths to examine signals. Since the system is looking at two signal paths, it eliminates false echoes and allows the system to make very precise time differential measurements as to the location of the disturbances (within ± 10 meters). By increasing the sampling frequency the system can further zero in on the exact disturbance.

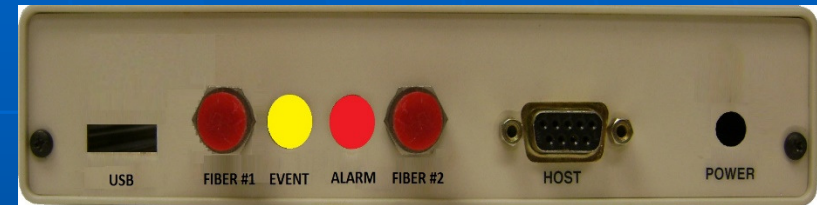
Technical Specifications

- The detection resolution is 4 meters and the detection is displayed graphically. False Alarm rate is Nil.
- The ZPU (Zone processor unit) analyze and distinguish between an intruder or an animal.
- The detection ranges :
 - Human Movement – Up to 3 m
 - Vehicles - Up to 10 m
 - Digging activities – Up to 5 m
- The controller provides dry contact outputs and text protocol. A protocol translation interface can be provided to communicate with other devices via dry contact or serial or an IP network. System can be programmed to provide **GPS** location of the alarm
- The enclosure is NEMA grade water proof with secure locks and with tamper alarm signaling.
- False alarm rates as a result of the environment are minimized by the software per the defined zones.
- Operating temperature limit of -3 to +55 deg C. The cable complies with MIL STD PREF.

RLTD FIBER SENSOR Operational Characteristics:

RLTD FIBER SENSOR Specifications:

- Electrical – 12 to 24 VDC or 9 to 18 VAC @ 1 amp into a 2.1mm receptacle
- 9/125 μ m Single mode fiber with ST fiber optic connectors
- Mechanical dimensions:
LWH 14" x 6" x 1.5"
- Environmental: Temperature -3 to +55 degrees Centigrade
- Humidity 10-90% non-condensing
- Maximum loop distance is 100 kilometers



- Derived from BEI's unique Fiber Sensor technology, the RLTD system builds on proven performance. It is easy to install and maintain.
- The RLTD fiber sensor controller is housed in a small enclosure powered by either low voltage AC or DC.
- The RLTD fiber sensor interfaces via either RS232 or USB to a PC for signal processing and alarm notification.
- With the RLTD fiber sensor unit there is no power required in the field.

Product Overview

FiberNet



Product Overview

FiberSensor



FiberNet probability of detection

99.99% detection
probability of all
attempts to:



Digging under

Cutting through



Climbing over



No Interference



- No lightning strikes, electrostatic or electromagnetic interference.
- No interference of motors, power lines, radar waves, or radio communication.
- No influence due to temperature changes, or ground movement.

No False Alarms



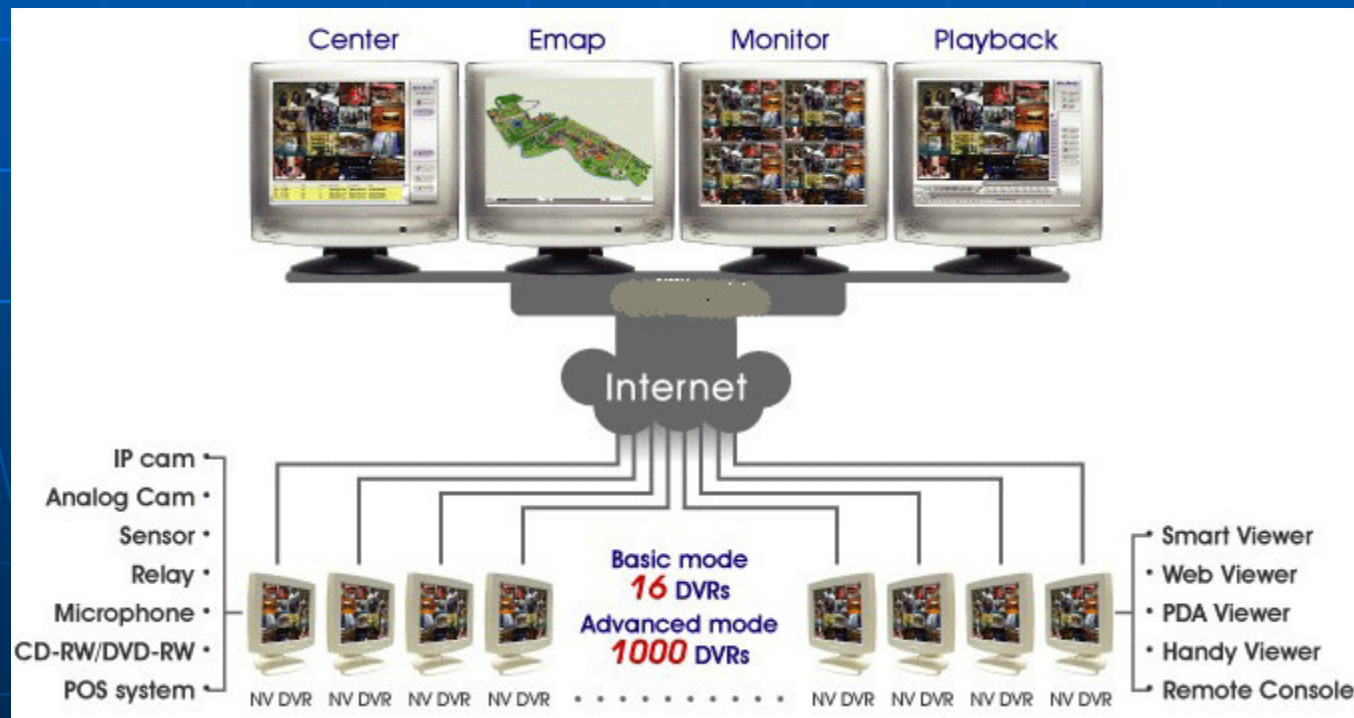
- Negligible nuisance alarms rate.
- Negligible false alarms rate.
- An alarm is activated only by a direct physical attack.

Computerized Control Center

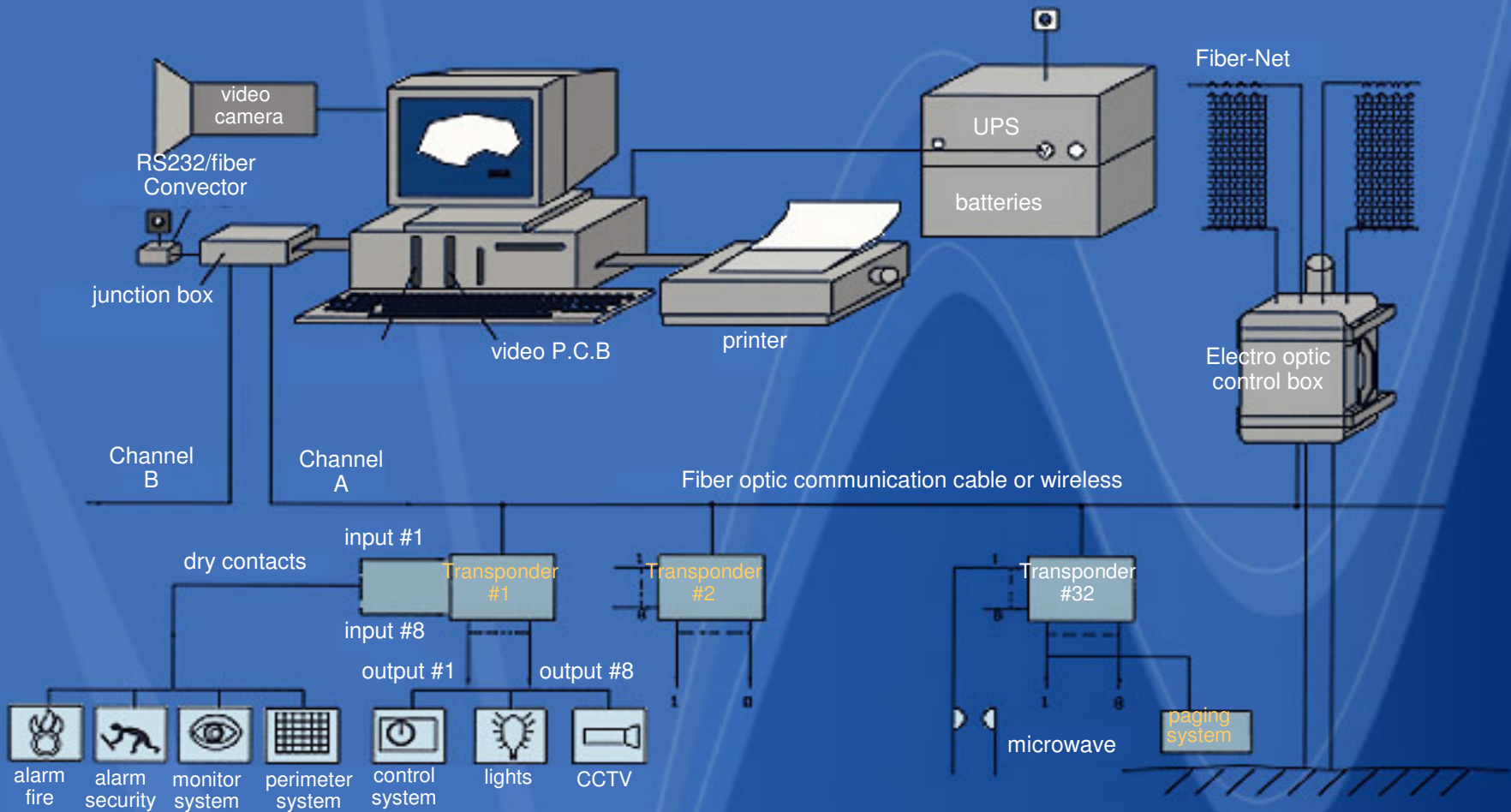
Hybrid Network Video Server

(IP and Analog)

alarm monitoring and control system



SCC Monitoring & Control System Drawing (hardware)



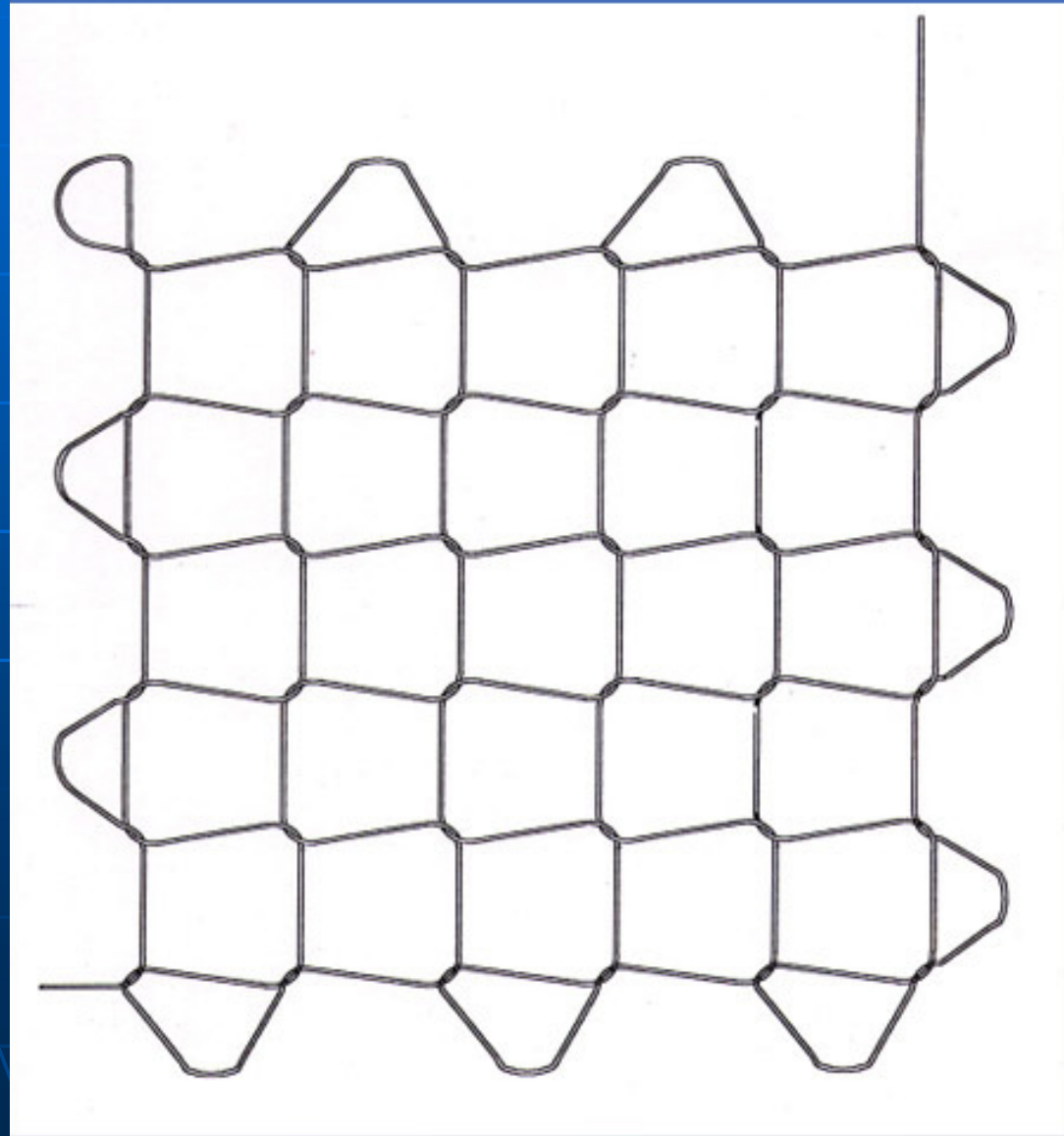
Weft Knitted Optical Fiber Net



Infrared Light Source

Weft Knitted Optical Fiber Net

The net is knitted from one cable only.

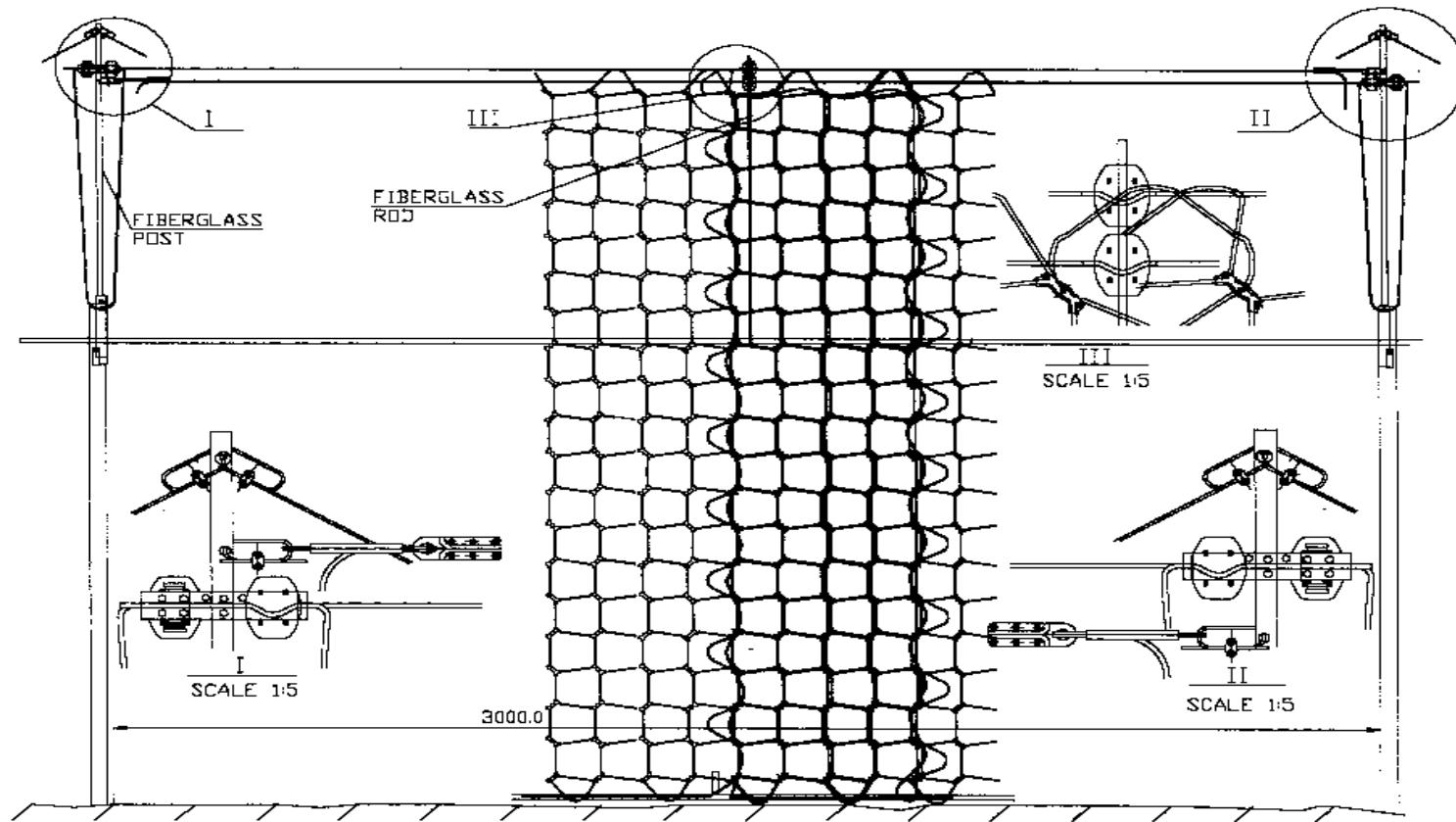


FiberNet Upper Cable

DRAWING NO. 29

END OF ZONE - UPPER PART (OVERLAPPING)

SCALE 1:20



Solution for Gates

Magnetic switch on the gate and IR detectors on top



Solution for Water Gates



The only detection system which protects water inlets/outlets.

Potential uses:

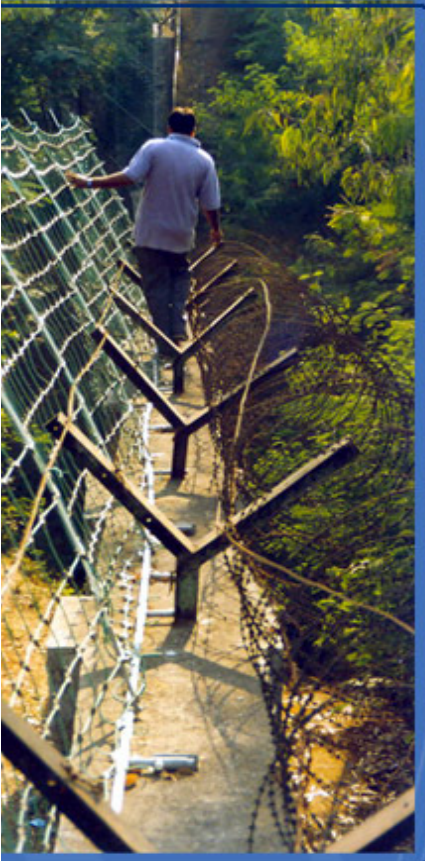
- Hydro-electric plants
- Nuclear plants
- Public water systems

Water Drain



Installation

- Easy and quick installation.
- Suitable for all kinds of existing or new perimeter barriers.



Maintenance and Reliability



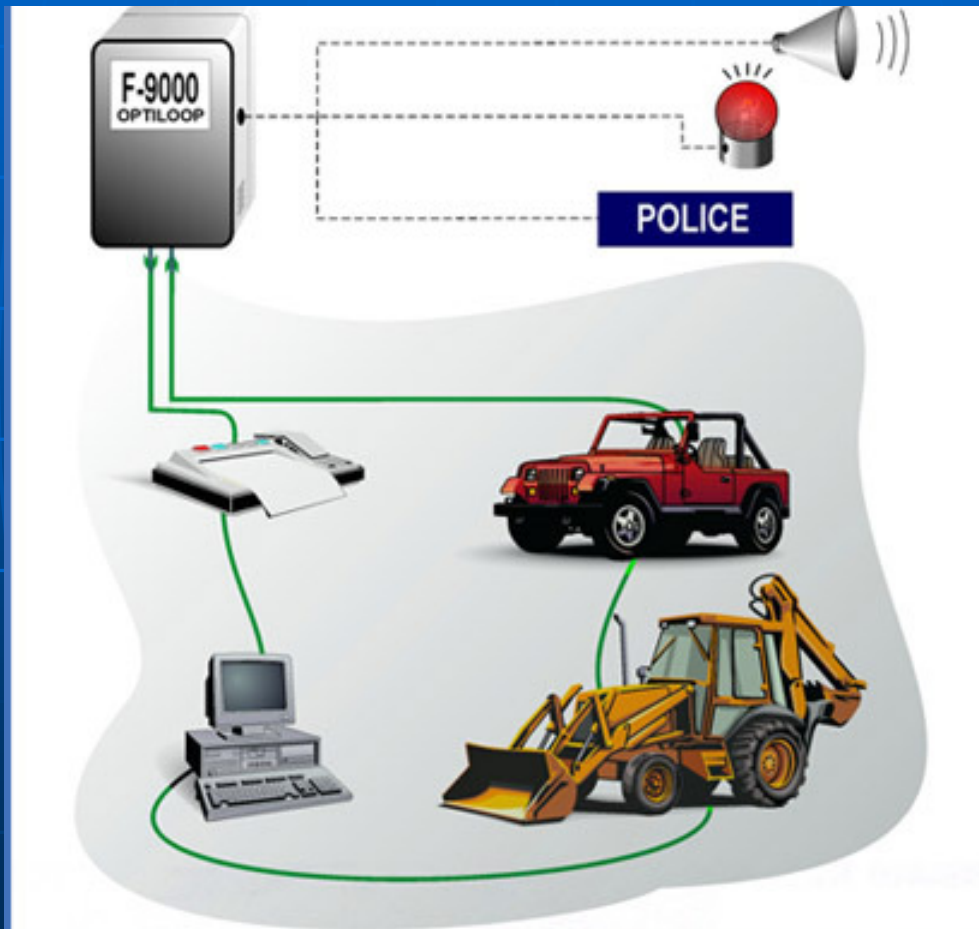
Minimal maintenance,
easy repair of fiber cable
with a mechanical splice

FiberNet Conclusions

- Perimeter security system
- Applicable on any existing barrier or fence
- Anti climb system
- Safe in combustible area
- Underground fiber optic detection
- Can be built into structures
- Suitable to windows & frames protection
- Underwater fence

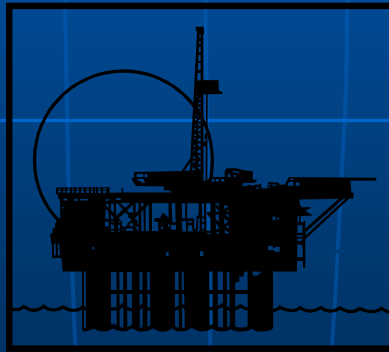
Product Overview

OptiLoop



A solution against theft!

MarineNet

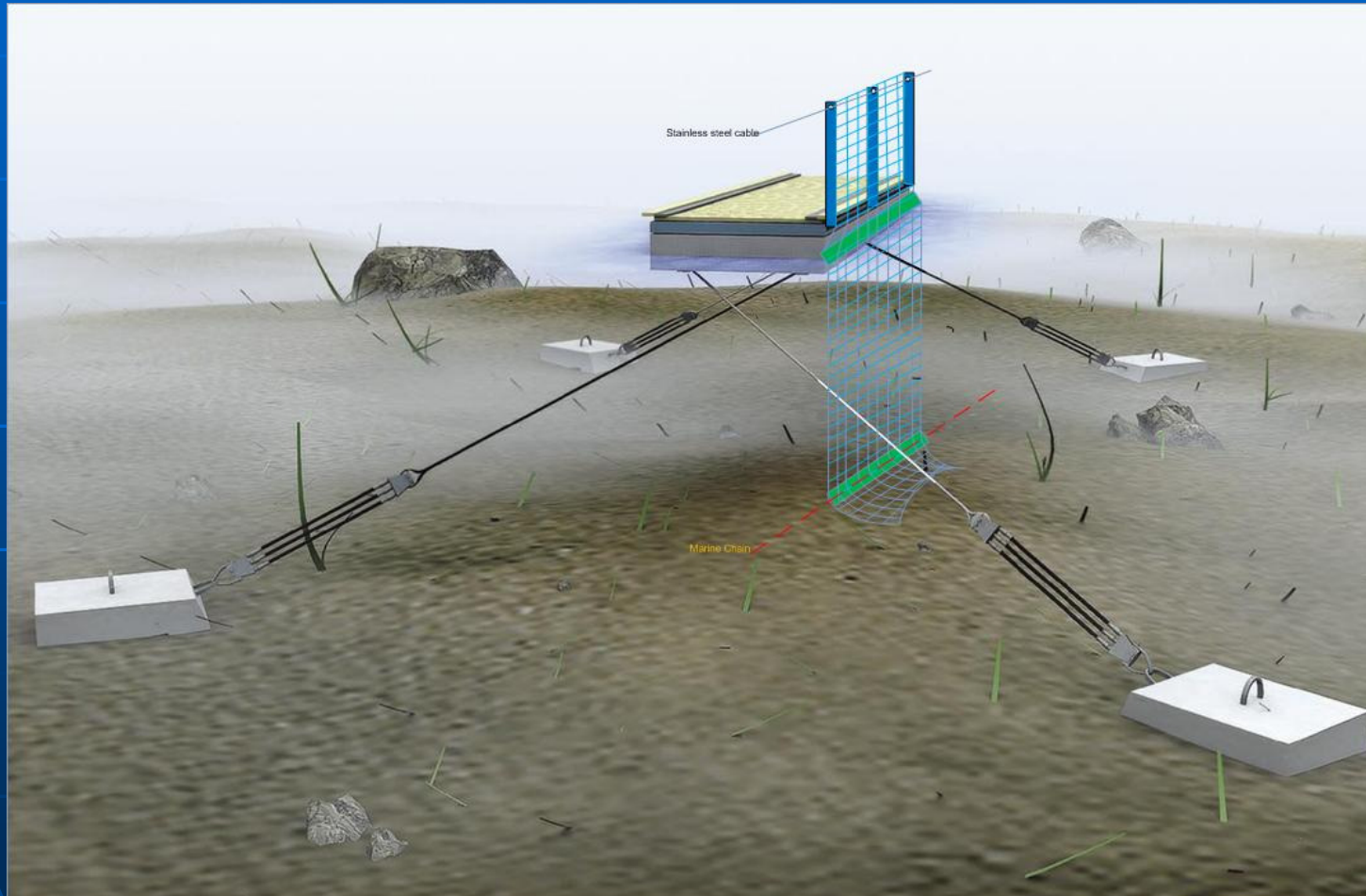


Product Overview

MarineNet



MarineNet





The Threat

Terrorist Attack of offshore installations

Why offshore?

- Easy access
- Unguarded

Their Objective:

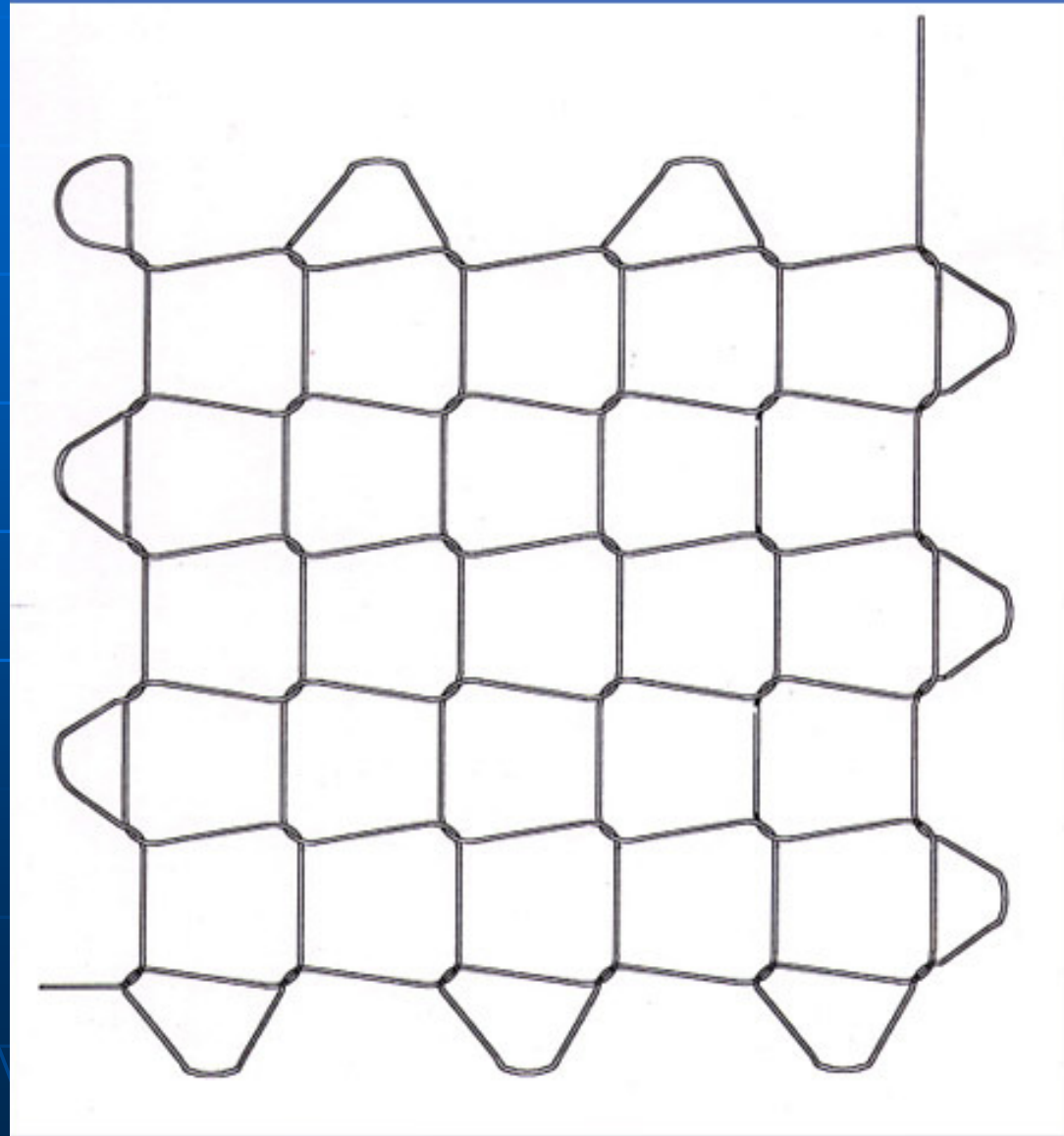
- Loss of life
- Damage to the economy
- Damage to the environment

MarineNet

- Light net comprised of a weft-knitted multi mode fiber optic
- Cable resides in a Kevlar reinforced polyurethane jacket
- Infrared light is continually pulsing through the fiber
- Impossible for divers, underwater vehicles or swimmers to pass through, climb over, cut, tear, tamper with or bridge without being detected

Weft Knitted Optical Fiber Net

The net is
knitted from
one cable
only.

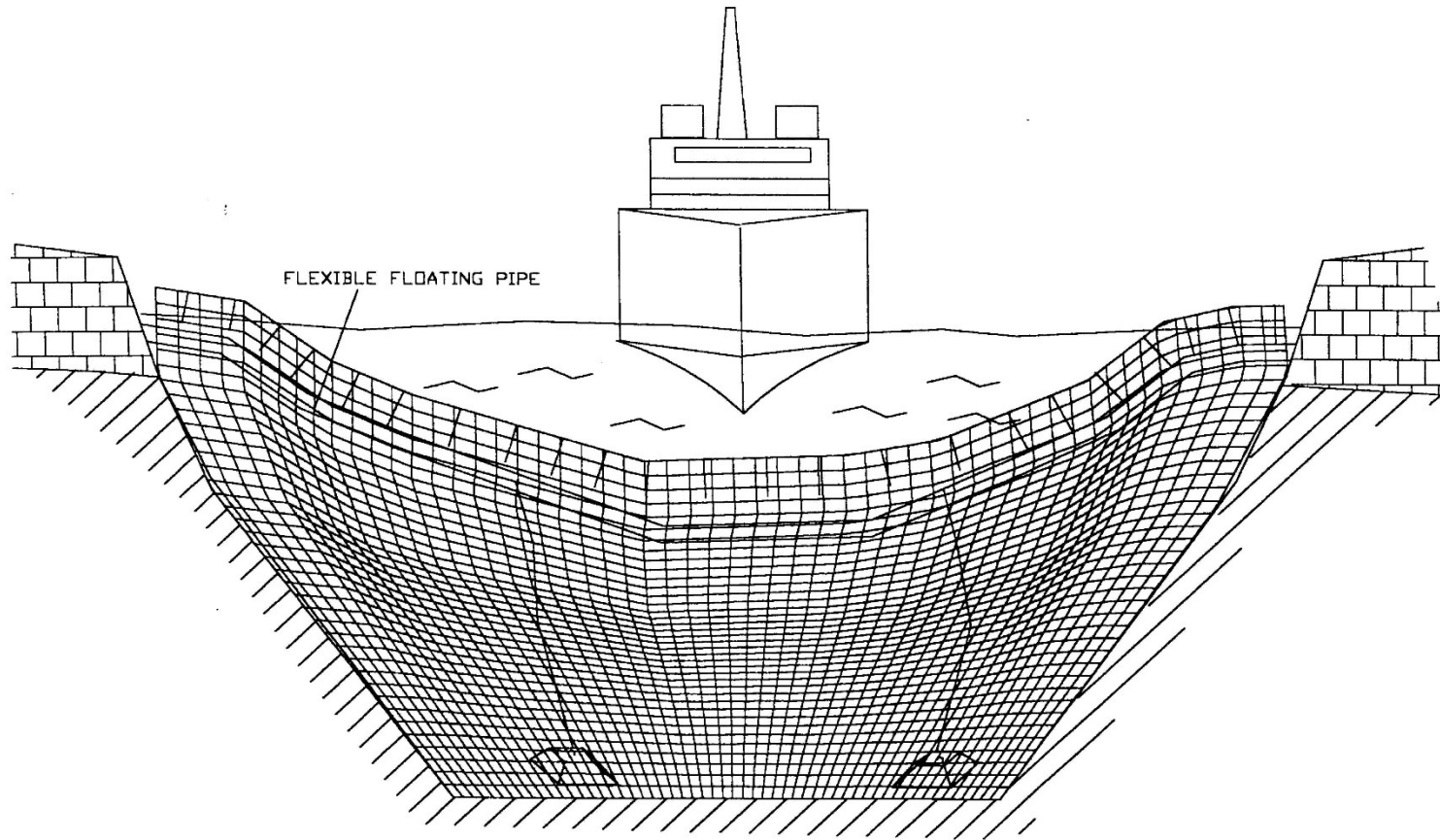


Why Fiber Optic

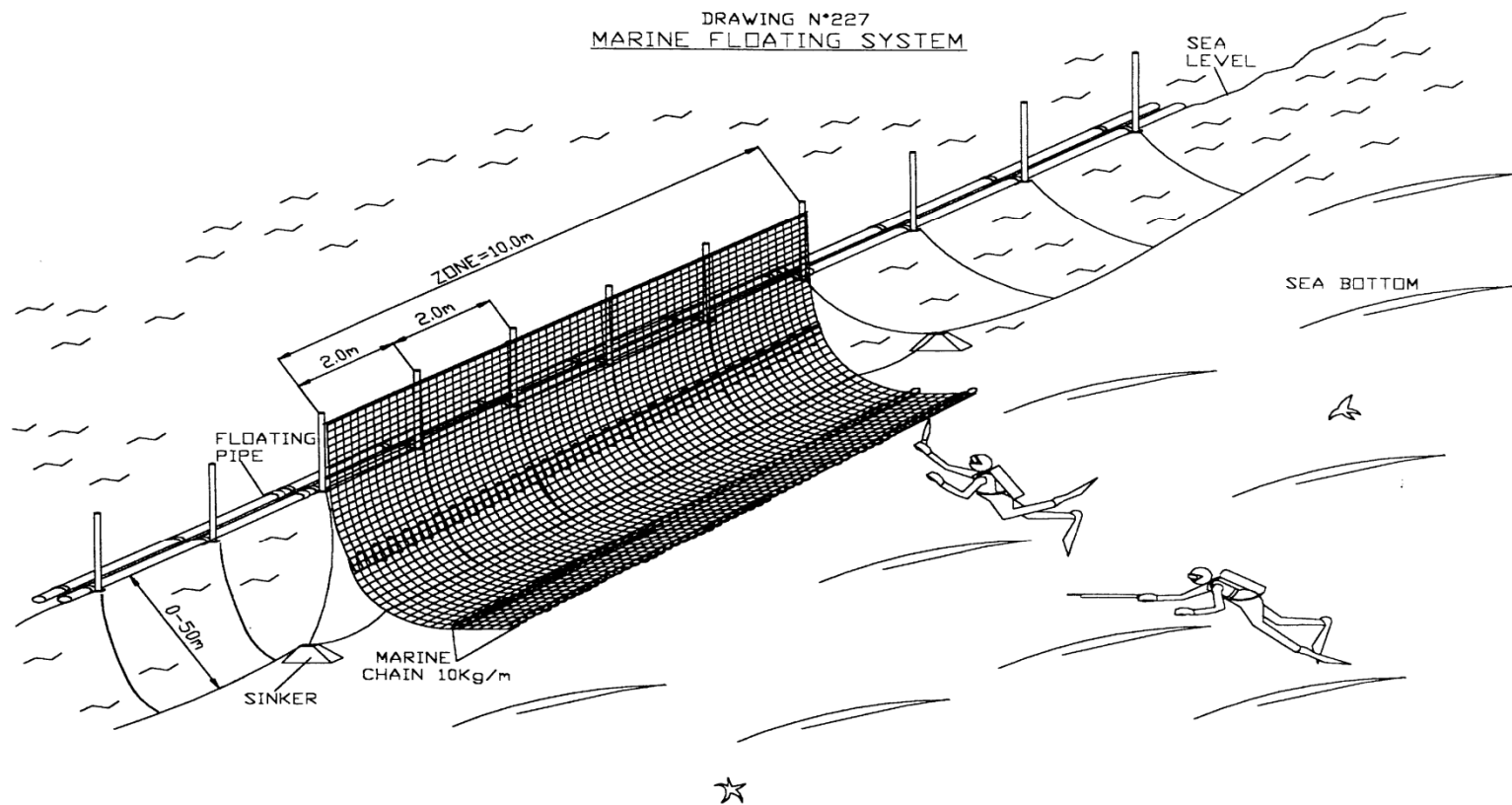
- Total immunity to natural or artificial noise of any kind
- Immune to lightning, electrostatic or electromagnetic interference (EMI RFI)
- Immune to the interference caused by the presence of motors, power lines and Radio communications
- Fiber optics do not carry any electrical charge

Gate

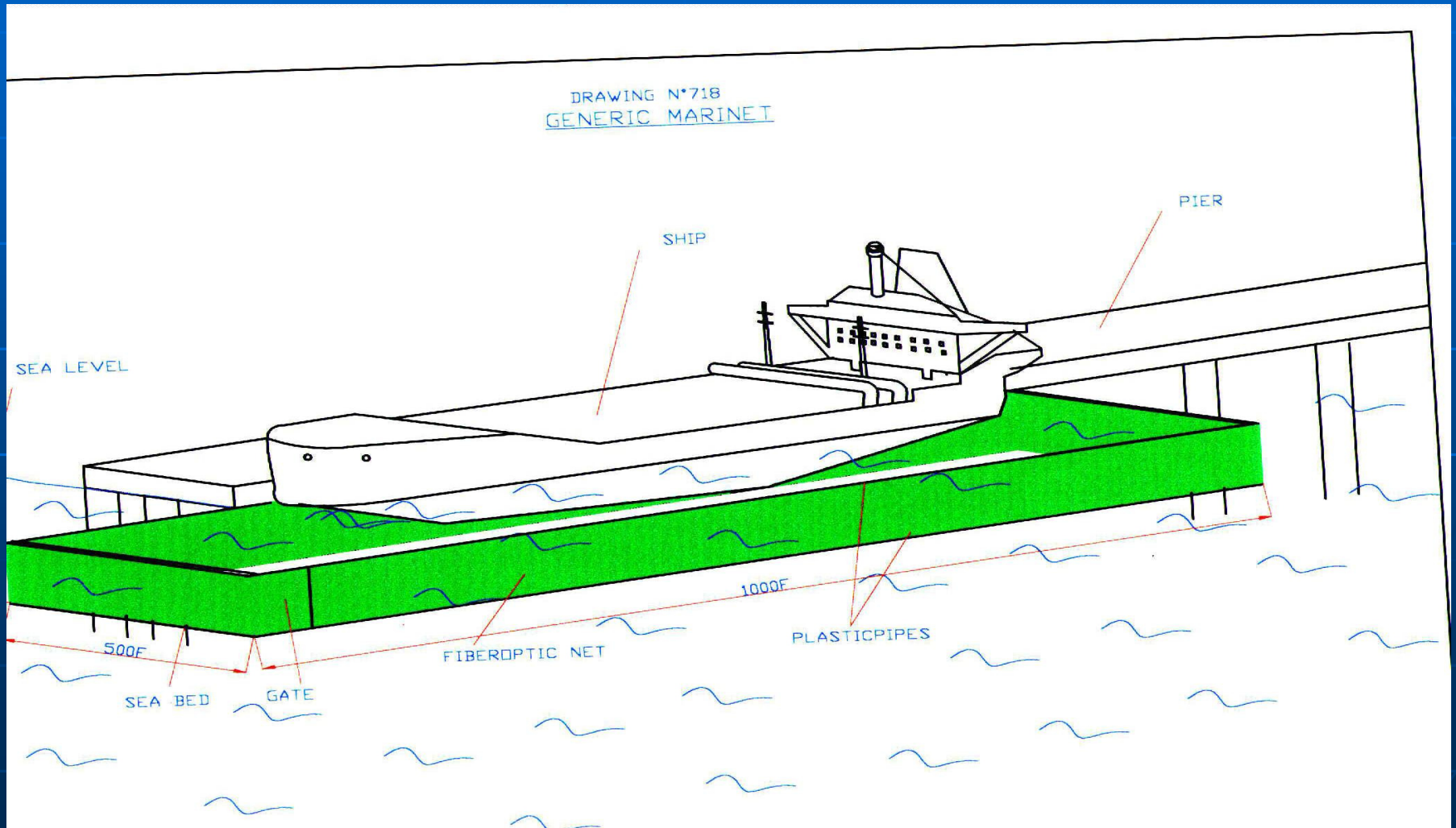
DRAWING N°237
HARBOUR ENTRANCE



Under water



Pier Protection



Applications

- Naval bases
- Harbor entrances
- Offshore oil rigs
- Nuclear power plants
- Underwater pipe lines

Marine Rig Grid

- Shallow water
- Connects to existing structure
- 10 feet of net lays on ocean floor or lake bed





Marine Floating System

- Deep water
- Connects to floating buoys
- Drops 100 feet



Benefits of Fiber Optics

- Virtually 100% detection
- Negligible false Alarms
- High durability under sea conditions
- Maintenance free
- Long life
- High performance to cost ratio
- Environmentally safe



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