

Heavy Duty Marine Net (HDMN)

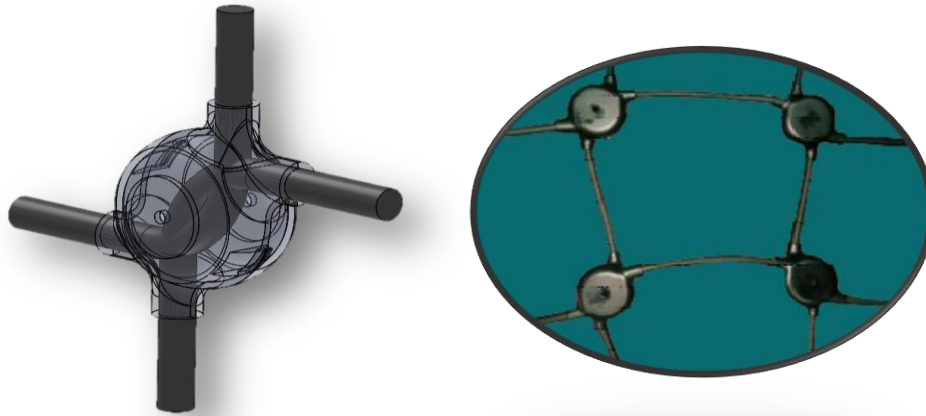
Underwater Heavy Duty Marine Sensor Net
For Intrusion Detection - 2nd Generation



WHITE PAPER



G-MAX- Heavy Duty Marine Net (2nd Generation)



Introduction

The Heavy Duty Marine Net (HDMN) is a marine intrusion detection system based on large electronic sensor nets. The nets are made of special sensor cable containing steel fibers and composite materials with high durability to rough seas condition. Designed to prevent and impede intrusions by hostile divers under the water,

HDMN both delays and detects underwater intrusion attempts.

HDMN is an advanced concept for underwater intrusion which may be integrated with floating barriers, floaters, and sea gates as well as detection system for deployment over the nets above sea level.

Overview

HDMN consists of a grid structure with optional sizes 20cm X 20cm, 25cm X 25cm or 30cm X 30cm openings. The cables have a diameter of 8.8 mm, and contain copper, steel fibers, and composite materials fibers, coated with high durability polymers.

The HDMN system has been designed for durability and a longer lifespan from materials which are mechanically durable and able to resist corrosion by seawater and oil for many years.

The HDMN system is designed to be impervious to lightning .

HDMN simultaneously combines multiple detection technologies - including a unique special cable structure which allows the HDMN a higher probability of detection, functional reliability and redundancy in the case of damage or sabotage of the external coated polymers.

HDMN is engineered to be impossible to defeat without cutting the net and thus triggering the alarm. Any attempt to damage the HDMN will alert two separate subsystems. This includes:

- Injury or sabotage of the external coated polymers

- Severance of the cables
- Attempts to electronically bypass sensor cables

HDMN can also incorporate the following add-ons:

- a unique complementary system for detecting climbing attempts over the nets above sea level; and/or,
- An acoustic shocker for an immediate response is optional.

HDMN key facts

- adaptable to suit different security requirements
- redundant detection capability
- easy to repair damage
- high durability
- does not require a dedicated professional staff for repairs
- built from modular net segments that allow for rapid repairs
- composed of materials both mechanically durable and resistant to corrosion by seawater
- severe sea conditions and winds will not cause false alarms
- controllers permit two-way communication and test commands from remote control rooms
- may be integrated with gates for ease of passage
- may be integrated with floaters or floating barriers to block speedboats
- prevents climbing above sea level (optional)
- low maintenance requirements
- optional integration of underwater acoustic shockers

System Advantages

- very low false alarm rate
- low maintenance costs
- designed for medium to high security risk installations

System Applications

- Protection of naval bases, ports, power stations, offshore oil rigs, underwater pipelines, cables, marine equipment, aquacultures and beaches

Product Specifications

	HDMN-26-C	HDMN-28-C
Data Communication	Two Channels - HWS controller	Two Channels RS-485E CMS controller (up to 7 km communication on twisting and shielding pair)
HDMNSensor Net #3SNET46	Up to 1,200 m ² for each detection channel with 20 cm X 20 cm, 25 cm X 25 cm or 30 cm X 30 cm squares. Sensor cable with outer diameter: 9.5 mm/14 mm, polymer coated, Max. cable Pulling Tension 750 kgF -50 °C to +80 °C	Up to 1,200 m ² for each detection channel with 20 cm X 20 cm, 25 cm X 25 cm or 30 cm X 30 cm squares. Sensor cable with outer diameter: 9.5 mm/14, polymer coated, Max. cable Pulling Tension 750 kgF -50 °C to +80 °C
Power requirement	11-28VDC 55 mA	11-28VDC 85 mA
Alarm Outputs	Two relays for dry contacts, one for each detection channel	Multiplex data communication integrating to G-Max4000 communication hardware.
Signal processing	Adaptive sensitivity	Adaptive sensitivity
Test Command	No	Yes
Operating temperature	-30°C to 55°C	-30°C to 55°C
Controller Dimensions	13 cm diameter, 9 cm height	13 cm diameter, 9 cm height
Humidity	Up to 100%	Up to 100%
Sealing	Spray proof IP65	Spray proof IP65