PeriBar1000
Fence Protection by Vibration Detection

**PROTECTION BY VIBRATION SENSOR**
PeriBar 1000 is a stand-alone, small scale, perimeter intrusion detection system, for protection of sites with a perimeter of up to 1000 meters. The system is designed to psychologically and physically deter, delay and detect the intrusion attempts.

The unique technology embodied in PeriBar 1000 revolutionizes existing vibration detection technology. The system detect movements caused by any attempt of climbing or cutting the existing fence, breaking through a wall or cutting through a window. The sensitivity and parameters of each individual sensor is programmed using Shyam's proprietary PeriBar application software.

Based on Shyam's patented vibration perimeter fence sensor technology, the PeriBar1000 solution incorporates a single chip microprocessor that allows it to detect exact location of an intrusion to within 3 - 5 meters (10 - 15 ft.) of whole perimeter and extremely low false alarm rate (F.A.R.) Barrier is adaptable to most metal fabric fences, such as chain link, razor wire or welded mesh. Featuring ability to identify the exact disturbed sensor along a long chain of sensors, which are typically 3 - 5 meters (10 - 15 ft.) apart.

**COMPONENTS**
- **VSN-WD**: This is the primary sensor and multiple sensors are connected to create a perimeter.
- **VSIU-WD**: This is the interface and aggregation unit for the sensors; it can support two segments of 200 sensors each. It interfaces to the sensors on one side via RS485 interface (South Bound) and the monitoring and control centre unit on the other side via ethernet or wireless interface (North Bound).
- **MCCU**: The monitor and control centre unit interfaces with multiple VSIU's over ethernet & wireless interface, it collects the data from all the sensor segments and processes/logs the data further for alarm generation and triggering an action in response to the alarm like moving the camera towards the location where intrusion is detected.

**APPLICATIONS**
- Reservoirs
- Cellular Infrastructure
- Power Stations
- Oil Farms
- Small Factory
- Remote Sensing Station
- Remote Pumping Station
- Remote Communication Sites
- Storage Sites
- VIP Houses and more
PeriBar1000 - Fence Protection by Vibration Detection

FEATURES
- Precise location of the intruder by ID of individual Sensor enables pointing a camera to the specific intrusion location.
- Capability to detect and isolate simultaneous multiple intrusions.
- The sensor network is divided into segments and can be divided into logical zones through software, disregarding the physical layout of the detection lines.
- Very low nuisance and false alarm rate (NAR/FAR).
- Increased immunity to rain and harsh weather conditions, rejection of small animals etc.
- Adjustable sector/node sensitivity for flexible modes of operation (e.g. day, night).
- Very low power consumption hence sustainable with non-conventional power sources like solar power.
- Can be installed on any type of existing fence.
- Fault detection at sensor level.
- Independent configuration of Individual sensor nodes.

HOW IT WORKS
The basic sensing device is a discrete sensor, sensitive to physical movement/vibrations. The cable, along with the sensors, is fastened to the fence. All sensors are connected as cascade by RS485 protocol. A typical segment would be up to 1000 meters (according to the perimeter need) and consists of a single cable, carrying sensors 3 - 5 meters apart (10 to 15 ft.). The integrated cable-sensor line is fastened to the fence above the ground and height of the cable as per the height of wall/fence where vibration can be noticed and convert in to alarm. Up to 2 segments can be connected to VSIU-WD, which communicates with the command and control center. Any intrusion attempt (cutting or climbing), would send electronic signals to the local control. MCCU can make the local alarm device to interface in local level.

Fence vibrations are analyzed by the VSIU-WD and compare with available signage. The first layer of detection monitors the entire segment (up to 1000 meters) as a single entity, while the second layer at the monitor and control centre unit identifies the specific vibrated sensor and pinpoints the detection to within 3 meters (10 ft.). Both the algorithm runs in step. The combined signal is used to analyze and generate an alarm. Command and control room will visualize the area of alarm and MCCU will connect to audio/video system. Even auto dial to security agencies is possible for un-manned location.
PERIBAR APPLICATION SOFTWARE
Shyam’s PeriBar application software is designed to detect, classify and locate events along large linear assets with sufficient accuracy and early warning to enable corrective action to be put in place to prevent damage and cost occurring. PeriBar software provides unprecedented levels of around the clock situational awareness of the assets you wish to protect in order to prevent damage from third party interference, whether intentional or accidental.

FEATURES
- Intelligent software effectively minimizes nuisance alarms
- Integrate with other platforms such as CCTV
- Live view of perimeter on map.
- View alarms with the help of appropriate icons at accurate location of disturbance on map
- Configurable alarm types
- Multiple sites in a single instance can be configured
- Manage old and current alarms
- Device configuration
- Reports and alarms occurrence history
- Video matrix for the live video feed from the cameras installed near perimeter
- Sensor line management
- Configurable sensitivity
- Assign sensors to groups and zones

Schematic View
PeriBar1000 - Fence Protection by Vibration Detection

Cellular Infrastructure  
Home Security  
Water Treatment Plant

**TECHNICAL SPECIFICATIONS – VSIU-WD**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Voltage Range</td>
<td>12V-48V DC</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>&lt; SW (Standalone)</td>
</tr>
<tr>
<td>Sensor Nodes Segments</td>
<td>2</td>
</tr>
<tr>
<td>Sensors in Each Sensor Node Segment</td>
<td>200</td>
</tr>
<tr>
<td>Maximum Distance between Sensors</td>
<td>5m</td>
</tr>
<tr>
<td>Cable to Sensors</td>
<td>Shielded 22 AWG Eight Conductor Cable</td>
</tr>
<tr>
<td>Current Limit on Each Segment</td>
<td>500ma</td>
</tr>
<tr>
<td>Interfaces</td>
<td>3 RS 485, 10/100 Ethernet, USB 2.0 Interface (Optional)</td>
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</tbody>
</table>

**PHYSICAL/ENVIRONMENTAL**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-45° to 70° C (-49° to 158° F)</td>
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<tr>
<td>Enclosure</td>
<td>IP65 Outdoor Unit</td>
</tr>
<tr>
<td>Weight</td>
<td>0.5 Kg</td>
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</table>

**TECHNICAL SPECIFICATION – VSN-WD**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Input Voltage Range</td>
<td>12V-48V DC</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>&lt; 1mW (Sleep)</td>
</tr>
<tr>
<td></td>
<td>&lt; 50mW (Active)</td>
</tr>
<tr>
<td>Sensor Nodes Segments</td>
<td>2</td>
</tr>
<tr>
<td>Maximum Distance between Sensors</td>
<td>5m</td>
</tr>
<tr>
<td>Cable to VSIU</td>
<td>Shielded 22 AWG Eight Conductor Cable</td>
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<tr>
<td>Operating Temperature</td>
<td>-45° to 70° C (-49° to 158° F)</td>
</tr>
<tr>
<td>Enclosure</td>
<td>IP65 Injection Molded Plastic Unit</td>
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<tr>
<td>Weight</td>
<td>0.05 Kg</td>
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</table>

**ABOUT SHYAM NETWORKS**

Shyam Networks offers end-to-end state-of-the-art networking and surveillance solutions for homeland security, industrial security, and mission critical, sensitive sectors. From high end enterprise network solutions and wireless broadband connectivity to simple broadband access for homes, Shyam ensures speed, capacity and range for both outdoor and indoor applications. Shyam offers a range of products that bring you an enhanced internet experience, in dense urban locations or remote rural areas where power and infrastructure are unreliable. Shyam Networks has networking solutions to connect subscribers in even the most challenging environments.

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