LIMINAL-K

SUPERIOR DETECTION, UNMATCHED SECURITY

DESCRIPTION

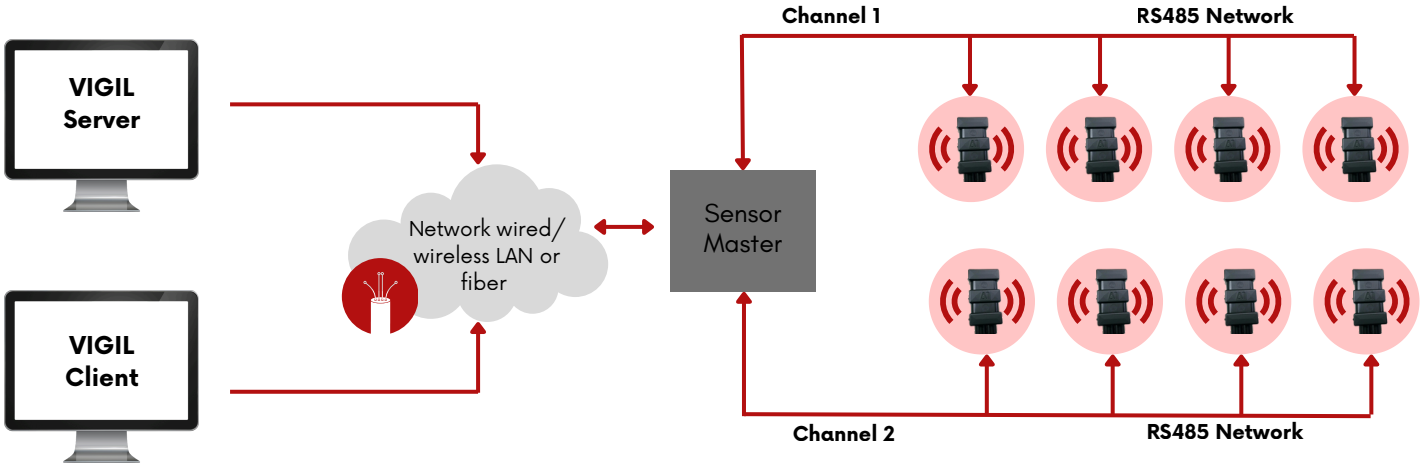
Liminal-K is a MEMS based sensor that detects the kinetic energy impinged on a fence. It is an active intrusion detection device that detects vibrations in different fences and walls that are caused due to intrusion attempts. Along with alarm generation on intrusion, the discrete sensor is able to pinpoint the intrusion location with high degree of accuracy.

- **Detects mechanical disturbance / impacts**
- **Local alarms**
- **I/O Integration**
- **Easy sensitivity adjustment**

Most premises have a wall, or a fence, which was installed to stop intruders from entering. However, no barrier is impossible to cross, and hence there is a need to get the information of intrusion attempt immediately so that corrective actions can be taken. This gives rise to the need of intrusion detection sensor for perimeter wall/fence.

Liminal-K is a fence mounted intrusion detection sensor that can detect disturbances on the fence and generate an alarm. The sensor has a maximum detection range of upto 32' (16' on either side) per sensor. It is also IP67 rated and comes with adjustable sensitivity allowing customization depending on the site conditions and reduce false alarms.

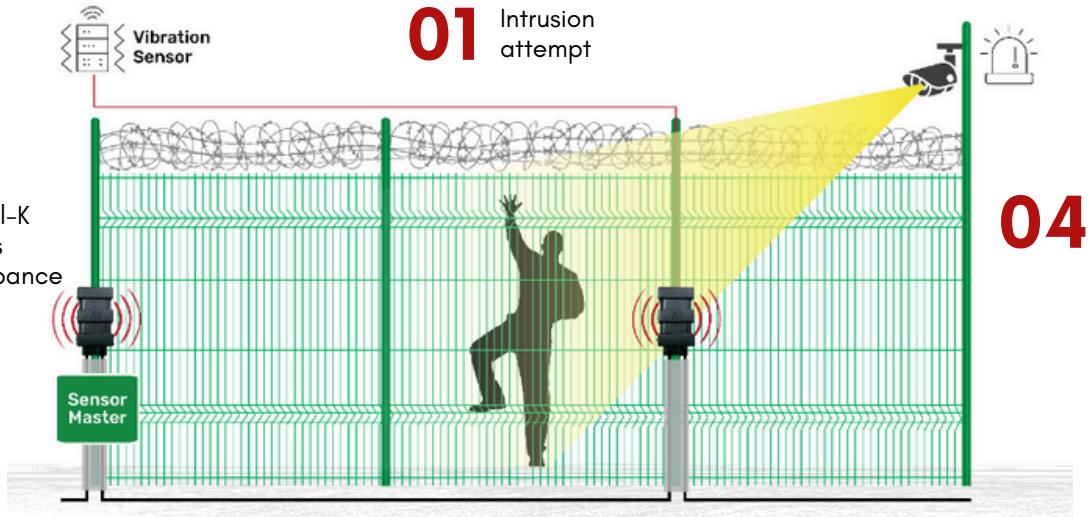
SYSTEM ARCHITECTURE / Large Scale Applications



Medium Scale Applications: The VIGIL server and client can be in the same CPU if required. Or else can be installed in seperate CPUs

Small Scale Applications: VIGIL server, cilent & sensor master housed in single CPU. Applicable when no. of sensor are less than 200

WORKING



01 Intrusion attempt

02 Liminal-K senses disturbance

03 Sensor Master relays alarm info to the surveillance software

04 Camera is cued on the intrusion spot and a visual confirmation is obtained in the control room

SENSOR FEATURES

TEMPERATURE ALARM
Senses increase in temperature whenever any attempt is made to melt or burn

MAGNETIC SENSOR
Magnetic chips make sure that site patrolling is recorded or it can also be used for SOS alerts.

SURGE PROTECTION
Any fluctuation in voltage is sent to the ground leaving the sensor and its components unharmed.

TAMPER PROOF
The system continues to operate normally even after detecting a failure in a few components.

TILT DETECTION
Changes in the position of the sensor due to weather are easily detected and alerted

EASY INSTALLATION
The ergonomic design allows plug & play installation procedure

SENSOR SPECIFICATIONS

PARAMETER	SPECIFICATIONS
Sensor Specifications	
Detection Range	32' (16' on either side)
Sensor Detection Sensitivity	Adjustable depending on mounting surface/perimeter
IP Protection	IP67 fully encapsulated (Water & Weather proof)
Mounting Surface	Can be mounted on metal fences & walls
Operating Range	-22 °F to +140 °F
Input Power	10 to 15V DC, 60W @12V DC
Communication	Industry Standard MODBUS RTU communication protocol for Liminal-K sensors
Sensor Cable	Braided, outdoor rated with UV protection, rodent resistant
Sensor Master Specifications	
General	Embedded Linux
Connectivity Ports	Ix Ethernet, 2x Sensor channel interfaces, 1x Debug interface, 2x Power interfaces, Additonal interfaces through relay board extension: 2 dry contacts, 4 digital inputs and 4 digital outputs
Others	IO modules with each having 2x digital inputs and 2x digital outputs can be connected in the circuitsulated (Water & Weather proof)
Capacity	200 Liminal-K sensors and 20 IO modules per sensor master
Modes of Operation	Redundant mode & Non-Redundant mode
Input Power	12V DC 1 A
Power Consumption	10V to 25V DC, Max 100W per Miles
Monitoring & Control Software Specifications	
Monitoring Software	• Provision to upload maps in Vigil UI • Ability to acknowledge and reset individual alarms • Historical logs • Multiple instances of Vigil UI • Temperature, magnetic and Tilt alarm detection. • Up to 30 day backup of sensor data • Ability to enable/disable sensors by admin users • Users with admin and operator rights • User configurable actions based on 10 module inputs
Software Integration	Vigil server can be integrated with "Milestone" and "Genetec" video management systems. Ability to que PTZ cameras can be added by VMS integration with Liminal-K software suite
Power Consumption	PTZ IP Camera • Normal operation mode • Redundant operation mode: Imunity against sensor wire cut, sensor master failure and network disruption **

* Detection ability of the sensors depends upon the type of mounting surface characteristics such as perimeter type, vibration transfer characteristics etc.
**Redundant mode can handle a single instance of failure of the mentioned scenarios