Y15 Tension Electronic Fence Detection System

2025 version

United CCTV SYSTEM

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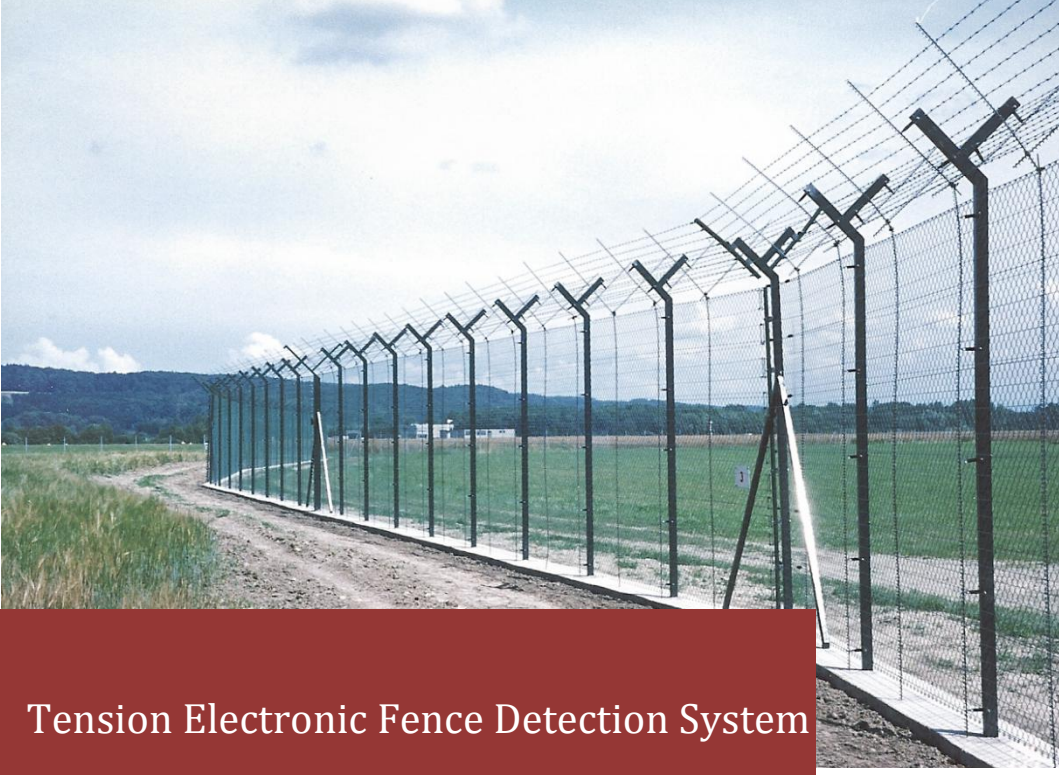


Tension Electronic Fence Detection System

System Introduction

The tension fence detection system is a physical defense fence that combines technical and physical defense. The system adopts a fully sealed United-Y15 sensor, which is based on the principle of tension detection and a special electrical signal processing method. It can effectively detect the intrusion behavior of illegally crossing the tension fence and sense the electromechanical device assembly that transmits (alarms) tension, compression, and cutting obstacle information. It is currently the safest, most reliable, environmentally friendly, and digitally intelligent perimeter intrusion prevention alarm system in the world.The system supports alarms for all detection units

Complies with MIL-STD-461/462 standard / Technical Requirements for Intrusion Alarm Systems GA/T368–2001 / Safety Engineering Procedures and Requirements GA/T75-94 / Standard for Protective Enclosures for Electrical Installations (IEC529)/ Electromagnetic Compatibility Standard (IEC801) / Engineering Design Specifications for Intrusion Alarm Systems GB50394-2007 / Civil Building Electrical Design Code (JGJ/T16-2008)

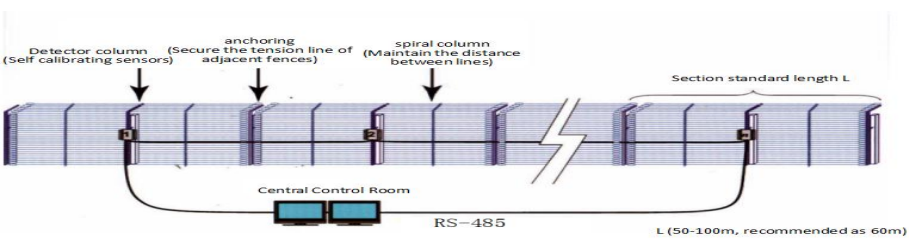
Core Features

- Extremely high detection rate (PD);
- Extremely low false alarm rate (FAR/NAR);
- Equipped with an automatic calibration structure that can maintain a constant detection sensitivity;
- Low energy consumption;
- Low maintenance cost;
- It Has A Open Media Network Interface (OMNI)

Market positioning and application environment

United-Y15 is an ideal solution for CIP (Critical Infrastructure Protection), such as nuclear facilities, military land, and other sensitive locations such as airports, energy facilities, and prisons.

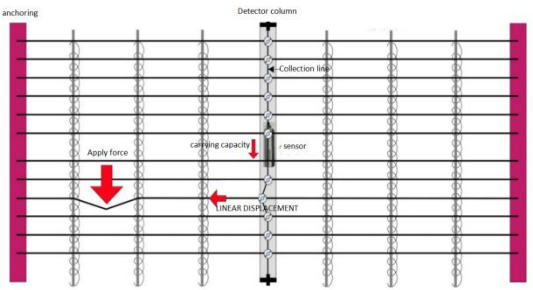
Typical system layout



Working principle

Alarm conditions: when the external force acting on any detection wire is greater than the set force (15-30kg) and lasts for more than 2 seconds; when the force causes any horizontal detection wire to move more than 15cm from the equilibrium state and lasts for more than 2 seconds; or when any detection wire is cut; the signal transmission line is short-circuited or open-circuited.

United-Y15 is composed of multiple parallel twisted steel wires, with a spacing of generally 10-20 centimeters between the wires, and a defense zone length of typically 50 to 100 meters. A detection column equipped with sensors and a communication processor are arranged in the middle of each section to collect signals from all steel wires. The power supply and communication use the same cable, which connects various sections and connects to a unified management and control system.

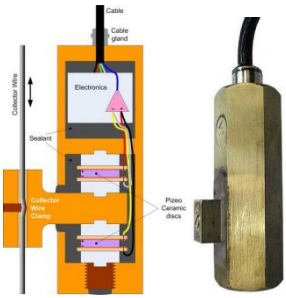


Main parameters of the system

- Working temperature: -40~+85 ˚C
- Relative humidity: 0~95% relative humidity, no condensation
- Mean time between failures of communication controller: 20000 hours
- Continuous operation of the system without false alarms or omissions: no more than once every 3 months per kilometer
- Communication processor output signal: RS-485、TCP/IP、 DRY
  The system can operate on fences without any distance limitation.
- Waterproof grade: IP66
- It has self checking, self balancing, and adaptive functions
- Environmental conditions such as wind, temperature changes, rain, fog, ultraviolet rays, radio waves and magnetic fields must not affect the operation of the system
- The mean time to repair (MTTR) is no more than 30 minutes.

Y15 sensor

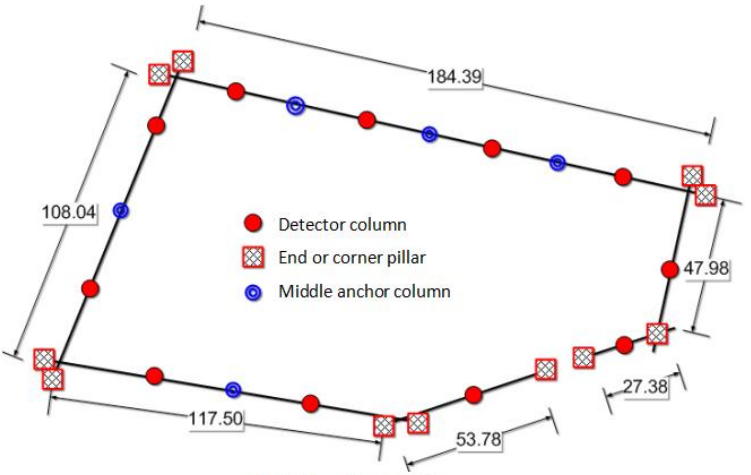
- When the pressure changes, the pressure plate will generate an electrical signal
- Connect the collection line to the clip
- Two pressure plates are tightened together and fixed to the collection line, completely unaffected by temperature
- The sensor continuously performs self inspection
- Sealing device



communication processor

- One processor corresponds to one Yael-15 sensor
- RS-485 communication
- Connect with the control center to provide dry contact signal access
- Remote adjustment, testing, and repair
- Low current supply of 2.5mA

Location layout



Typical Location Layout

Location Design - Main Components

- Number of main spiral columns=total length/3 minus (number of sensor columns+number of intermediate anchor columns)
- Number of secondary spiral columns=Total length 13 (+approximately 5% redundancy)
- Tension wire length=total length x number of tension wires+10%
- Communication cable length=perimeter length+distance to central control room+5%
- The distance between two sensor columns (including their quantity) is affected by the following factors:
  - On site line verticality
  - On site terrain
  - Possible nearby objects (trees, telephone booths or utility poles, buildings, etc.)
- Environmental conditions affect the selection of material

Application Cases

Applied to the perimeter defense system of an energy facility base in a certain province and city, the United-Y15 tension alarm system is used, which can effectively prevent external personnel from climbing over the wall and serve as a warning against personnel intrusion.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Applied to the perimeter of a certain military base, the United -Y15 tension fence detection system is used to effectively prevent foreign personnel from invading.


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