



**DeTekion**

# **VTW-400**

## **ELECTRONIC TAUT WIRE FENCE SYSTEM**

# Features

- *Immune to Nuisance & False Alarms*
- *Zone length Up to 100 Meters*
- *Single or Dual Zone Monitoring*
- *Tamper Protected*
- *Patented Strain Gauge Sensor*
- *Individual Sensor Reporting*
- *U.S. Manufactured Product*
- *User Adjustable Sensitivity Levels for each individual wire*
- *Extensive Diagnostic Features*
- *Immune to EMI and RFI*
- *Highly Defeat Resistant*
- *Separate Alarm Output for Trouble Conditions*
- *Automatic Temperature Compensation*
- *Available as Stand Alone or Mounted to Existing Fence or Wall*
- *Corrosion Resistant and Stainless Steel Parts Standard*

## Introduction

**DeTekion Security Systems, Inc.** is the U.S. manufacturer and distributor of the VTW-400 Electronic Taut Wire Fence System. The VTW-400 ETWFS is a highly reliable perimeter detection system. Barbed Wires are strung taut between anchor posts and clamped at the VTW-400 sensor post. The VTW-400 ETWFS is a physical barrier that will announce an alarm condition under attempts of intrusion by:

- *Climbing*
- *Spreading*
- *Cutting*

The VTW-400 ETWFS utilizes the latest technology to create a perimeter intrusion detection system with the highest probability of detection, lowest nuisance and false alarm rates and lowest maintenance of any perimeter intrusion detection system on the market.



## STW-40 Sensor

DeTekion Security Systems, Inc. patented Sensor design uses multiple strain gauges and state-of-the-art miniature circuitry to provide a highly stable and accurate Sensor signal. The VTW-400 ETWFS utilizes a sophisticated design employing bridge-compensated strain gauges as sensing elements and a powerful microprocessor based alarm processor. Movement of the taut barbed wires in any direction causes flexing of the composite structure of the Sensor's flexible circuit board. This flexing causes the Sensor's strain gauge to generate a signal to the FP-450 Processor as a very precise indicator of the movement of the barbed wire. The miniature sensor circuit board is mounted inside the specially designed rubber housing, sealed from the environment, and connected to the processor via a three pin connector at the base of each sensor. One end of the Sensor has a slotted, threaded stud. The Taut Barbed Wire is fitted in the stud slot and clamped to the Sensor by a nut. All exposed hardware is Stainless Steel.







## FP-450 Processor

A small, but powerful, microprocessor constantly monitors up to 32 sensors. Through multiple sensor sampling and multiplexing, the FP-450 processor determines the validity of an event and if the sensor value is outside a stored window of normalcy, the FP-450 reports an alarm by activating an internal alarm relay. The FP-450 processor uses a dual window alarm capturing system. If a taut barbed wire is cut, or if any internal wiring is broken, a trouble alarm relay is activated. The remaining sensor post sensors will still be functional and able to report alarms. Trouble alarms are automatically reset after the trouble condition is corrected. The design also allows the taut wire system to self-adjust for environmental conditions and to provide for various levels of sensitivity (user programmable) of the individual sensors. This technique practically eliminates false and nuisance alarms. An available option can monitor which "side" of a Sensor is stressed, allowing one Sensor to monitor up to two 50 meter Zones simultaneously.

On-board diagnostics allow a maintenance technician to easily troubleshoot the activity of the Processor. The Actual Reading, Long Term Average, Total number of Alarms, Alarm and Trouble states and Set Points for each sensor can be displayed at any time. It is not necessary to take the unit out of service for the diagnostics. The FP-450 processor has the added advantages of small size, 8" x 6" x 1", and low current requirements of 100 milliamps (10-30 VDC). The FP-450 processor is factory mounted in a NEMA enclosure and this enclosure is typically mounted directly to the sensor support post. Conduit stub-ups to large electrical junction boxes adjacent to a fence are significantly reduced.

The FP-450 processor provides relay contacts for integration with virtually any type of control system. The FP-450 has a built in transponder and built in repeater and an optional Fiber Optic bus. DeTekion also offers the Open Media Network Interface (OMNI) Controller with a proprietary security programming that can interface seamlessly with the FP-450 processor for remote adjustments/bidirectional communication. In addition, the OMNI can also annunciate other sensor systems.

## Basic Configuration

The VTW-400 ETWFS is custom tailored to client specifications. The sensor post can be designed to accommodate coverage of almost any area needing protection. The most common designs are:

- vertical post
- single outrigger
- dual outrigger
- combination of vertical post and outrigger

The VTW-400 ETWFS can be mounted as a stand-alone system, mounted on an existing fence, or mounted on a wall or roof.

Sectors can extend up to 100 meters. A zone can be one sector or several sectors wired together. Each sector requires an anchor post at each end, one sensor post with processor in the center of the zone, and slider posts spaced 10' (3 meters) on center. Barbed wire is strung taut between the anchor posts and clamped at the sensor post. Wire tensioners maintain the proper tension on the wires.

The spacing of the sensors is custom tailored to each individual project. The overall gap between wires for alarm activation should be considered in the design of the taut wire system. It is critical to design the sensor post wire spacing so that an alarm will activate before the gap between adjacent wires reaches the alarm parameters for the project. The software of the VTW-400 ETWFS has the unique capability to adjust the sensitivity of each sensor. This sensitivity adjustment allows the client to manipulate the alarm parameters between any adjacent two wires.

## Design

**DeTekion Security Systems, Inc.** has staff available to assist in layout and design of the taut wire system. Contact the factory for your special needs.

# Specifications

## General

Fence Height:	Custom Made
Fence Length:	No Limitation
False Alarm Rate (FAR):	< 3 per year per km
Humidity:	20% to 95% relative (condensing)
Temperature:	-34 to +70 degrees C (-30 to +158 degrees F) ambient
Wind:	Up to 100 mph (160Kph)
Sensitivity:	Field Adjustment via software

## Sensor Post

Zone Length:	Maximum 100 meters
Sensor:	Strain Gauge (STW-40) (environmentally sealed)
Number of Sensors:	Maximum 32 per processor
Size:	Varies with Configuration
Weight:	Varies with Configuration
Storage Temperature:	-55 to +85 degrees C (-67 to +185 degrees F) ambient
Operating Temperature:	-34 to +70 degrees C (-30 to +158 degrees F) ambient
Relative Humidity:	20% to 95%, condensing
Mean Time to Repair (MTTR):	30 minutes(sensor)
Mean Time Between Failure(MTBF):	100,000 hours
Replaceable Components:	STW-40 Sensor

## Processor

Input Power:	10-30 VDC, 100 milliamps
Weight:	2 pounds (0.9 Kg)
Board Size:	8"L x 6" W x 1" H (20.3 x 15.2 x 2.54 cm)
Storage Temperature:	-55 to +85 degrees C (-67 to +185 degrees F) ambient
Operating Temperature:	-34 to +75 degrees C (-30 to +158 degrees F) ambient
Relative Humidity:	20% to 95 %, condensing
Inputs:	32 STW-40 Taut Wire Sensors, DC input power TTL for OMNI
Outputs:	Two Alarm Relays (Form C), Trouble Relay (Form C), Tamper Alarm Contact; RS-422 RS-422 to OMNI
Comm Port:	RS-485/RS232 port
Controls:	Single Zone /Dual Zone Jumper
Replaceable Modules:	FP-450 PCB Assembly
Mean Time to Repair (MTTR):	<30 minutes
Mean Time Between Failure (MTBF):	100,000 hours
Tamper Protected:	yes, via internal Tamper Switch
Diagnostics:	Software via laptop computer
Board Power:	Built in reset Button
Communication:	RS-422 Optional Fiber Optic

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Specifications subject to change



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