Secure your Property

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Define Security Fence:

You can compare the sophistication of an electric fence with your office system security and the magnetic switch on the door to your office. There are right ways and easy ways to install a magnetic switch on your office door, but there is hardly a wrong way. HV Security fences are no more sophisticated than your magnetic switch. The only difference is perimeter security versus point security.

A HV electric fence strung around a pasture is what? it is nothing more than a length of wire with 2, 3 or a dozen strands. Electric fences have been around for over a hundred years. Depending on what type of animals you are penning or protecting depends on the design of the fence whether chickens, llamas, goats, cattle, pigs, or horses, etc.. A HV electric security fence is nothing more than a critter fence designed to keep humans out instead of critters in. The design of any electric fence depends on the final usage, location, and security level desired.

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Costs: Rental versus Owning

Compare a standard HV security fence between 1,500 to 2,000 feet long. The argument for rental versus owning is as follows. This is a “no-brainer” no matter how you calculate it.

Initial Costs Installed: (1st year)

Rent @ $1,000/month: arbitrary rental amount (usually more)
Includes:

Maybe a gallon of weed killer a month.
Central Station Monitoring for security and integrity.
Someone will drop by every year or so and check the fence.

Buy/Own: Material, wire, components and installed with in-house labor:

Materials and including labor $10,000 to $15,000 (one time)
Gallon of weed killer a month for $100 to $150/year depending on growth rate
Central station monitoring for security and integrity, This can be combined and included with your office security or as a separate account and will cost $0 to $300/year
Your perimeter can be easily be sub-divided into separate reporting zones for additional costs of $1,000 to $3,000 per zone with no limit on number of zones. This will allow response to a particular perimeter location.

Rent Versus owning Your Fence

First year costs:

Rent …… $12,000 (every year)
Buy/Own ……. $10,000 to $15,000 (one time)

There will be miscellany and repair expenses, for both rented and/or owned fences, which are paid at either "in-house" or "outside" labor rate.

Second year costs:

Rent …… $12,000
Buy/Own ……. $500/year

Third year and additional yearly costs:

This will be pretty much the same as the 2nd as previous years until the rental company increases their monthly rental fees.

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This is a "no-brainer". Consider and compare the total costs over a 10 year period.

Rent ……. $120,000 – plus added costs and price increases
Buy/Own …….. $20,000 – plus ??

You have a Third Option:

Third option – which can also be "in-house":
Setup and man a wholly owned subsidiary/department to install. With specialized maintenance personnel with proper equipment, one knowledgeable person with properly equipped and trained with test equipment could easily oversee/handle a hundred plus fences. Maintenance response and quality will be controlled in-house. Also there are no countries or boundaries that cannot be crossed when you control the operation.

How many fences are you paying rent for? How many? Why would you even consider the rental option unless you owned the rental company? or, rent from a wholly owned subsidiary: Set your own price.

For every 100 fences you save a million dollars plus a year. Do the math for your company. Commissions alone save you 2-3 hundred thousand dollars a year.

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Power Outages and Security Requirements:

Electric fences have been used for over a hundred years. High voltage electric fences have been used for security purposes for the last 30-40 years or so. The voltage produced by a fence charger is the same type voltage that fires the spark plugs in your vehicle. it hurts like the devil, but how many people are killed accidentally by touching a spark plug. However, I would still suggest using a UL Listed 12 volt fence charger from Gallagher or Parmak by Parker McCrory.

Almost every high voltage fence charger company makes a portable or 12 volt DC version that will operate from a 12 volt battery when utility power is not available. When you install a fence for security purposes, you don't want to rely solely on utility power.

These chargers are designed to make maximum use from a battery and usually draw about a tenth of an amp or less, A 7 amp-hour 12 volt battery will easily power a fence for 2 or more days. When was the last time your utility power was out for more than a few minutes?

When the fence is used in a security application, we suggest that you follow what the National Electric Code requires for commercial fire alarm systems, and is used extensively for security systems. See the following. A system that relies solely on solar power charged batteries does not meet the power requirements that are described adequately in the NFPA chapter 72.

Extracted from NFPA Chapter 72

Power requirements for fire alarm and signaling systems are specified in the National Fire Alarm and Signaling Code. The code requires a system to have either two source of power (primary and secondary) or a single Interruptible Power Supply (UPS), Where primary and secondary power supplies are used, the secondary supply can consist of batteries or batteries plus a standby generator. Figure 1 summarize the power supply options and lists the applicable code sections.The UPS options requires that the UPS be a Type 0, Class 24, Level 1 System per NFPA 111. Type 0 means that there is no switch-over time when power is transferred from the primary power source to UPS batteries. Essentially, the load is always on batteries that are being charged by the primary supply.

For basic fire alarm system that uses primary power with batteries only as secondary power, the battery capacity must be sufficient "to operate the systems under quiescent load (system operating in notification appliances" and all other connected loads for a period of five minutes.

The code specifies that the net capacity be based on two different demand rates (quiescent and alarm) for two different duration (24 hours and 5 minutes).

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Make a HV Electric Fence into a High Security Barrier:

Most farm fences connect the ends of all the high voltage wires together which works. Connected as such, if one or two wires are broken the other wires are still carrying high voltage.

A HV electric fence that is used for security applications is simply a livestock fence, but is configured as a single loop of wire where the high voltage is fed into the loop at one end, and the voltage is measured at the far end.

A single loop is maintained and becomes a multi-strand fence by simply folding the loop over as many times as required to achieve the spacing and number of strands that are required. Therefore any breaks or shorts will happen between the high voltage source and the voltage monitor and will be detected by the high voltage monitor.

We would recommend that the top wire is grounded to reduce false alarms from blowing and falling debris. Also every other wire is also connected to ground to provide the maximum voltage between any two adjacent wires.

There are arguments both pro and con for making the bottom wire hot or ground. To obtain the highest security rating the bottom wire needs to carry high voltage. However, this is also provides the most problems with the weeds and blown trash. Take your pick.

The power source for a security fence is usually set up the same as any security systems or fire alarm system. However, we strongly recommend two (2) power connections.

While both the fence charger and the fence monitor use the same 12 volt DC voltage, however, from a security perspective the high voltage charging circuitry should be separate from the monitoring circuitry.
If the high voltage charging the fence is lost or shorted out, you still want the system to report. Therefore the battery powering the fence voltage should be separate from the battery powering the monitoring circuitry.
Therefore, 2 separate charging circuits, charging 2 separate backup batteries are suggested for a true security fence system. One system puts high voltage on the fence. The other system reports the status of the fence.

I will have to say again that this is not rocket science although it may seem so for a city boy.

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Differences Between Fence Monitors:

This is where the rubber meets the road with any kind of high voltage fence used in a security application where dependability and accuracy is required. Why use a fence monitor that was designed for farmers and not intended for security applications, but are still used in many security applications. Standard farm use fence monitors are not concerned with false alarms as long as the voltage returns to normal after a period of time.

That period of time to return to normal allows a number of intruders to enter your property undetected. This is **not** a security fence. A security fence monitor should NOT "false alarm" but surely should alert you to an intrusion on your property.

For any fence that is used for perimeter security and any farm fence that encloses high dollar critters, a fence voltage monitor becomes highly desirable.

The way the high voltage fence pulse is currently measured by other manufacturers, is to have the pulsed fence voltage trigger a small light bulb which is detected via an internal photo sensor. The circuitry looks at this very small voltage pulse to determine that the fence voltage exist.

The main **advantage** of this method is that the fence voltage electrically isolates the monitor circuitry from the fence by taking the fence voltage pulse and transforming it to a light pulse and then back again to an electrical pulse. This works just fine for farm fences, but was never intended for a security function.

This is the easy way to protect the monitor circuitry from spurious voltage pulses caused by lightning, voltage surges, etc.

The **disadvantage** to this method is that the circuitry cannot tell the difference between the pulses caused by lightning, pulses causes by voltage surges, other spurious voltages, and the voltage pulses that are normally on the fence produced by the HV fence charger. Too many false alarms from a security fence makes the fence essentially worthless.

A second **disadvantage** of these types of fence monitors are weeds. Weeds will slowly reduce the voltage from an electric fence undetected until the fence voltage becomes so low as to be virtually useless, or cuts out altogether.

Because most HV fence voltage monitors are so unreliable there are only a few companies that bother with them at all. However, in a security application, monitoring the integrity of the high voltage wire and the fence voltage is critical, but needs to be accurate.

This is exactly what we did. We designed our own high voltage fence monitor. We have constantly refined the circuitry, always with accuracy and stability as the guiding principals. We warrantee the voltage monitoring device for 2 years, This device will accurately measure the output from a vehicle spark plug coil as well as any high voltage fence charger you'd care to use.

An unexpected side benefit that we were quick to capitalize upon, was the inherent accuracy of the device. This accuracy of the circuit allows the device to determine when weeds and spurious growth reduce the voltage by as little as 5%, hence "weed alert" section of the device.

This eliminates a ton of guesswork and greatly reduces the usage of "Roundup™" (weed killer). As the output high voltage will vary throughout the day due to humidity and other factors, so we recommend the "low voltage" threshold to be set about 10% below the working fence voltage.

We have sold and installed these high voltage fence monitors around the world. We are not novices or newcomers to this business.

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Setup a Maintenance Group Specifically for Your HV Electric Fences:

Well, you can rent from an overpriced fence rental company who only rents, only has one model available. This "one size fits all philosophy" that died with Henry Ford's model "T".

Why not setup a separate division, either internal or external, or even a separate maintenance corporation. By replacing your existing fences as they fall due and not adding any more fences to that bleeding sore that is sapping your profits? by doing this, your costs are essential zero and you achieve a totally new profit center.

Its a simple calculation what you will save a year plus or minus. Your maintenance personnel are already doing 75% of the maintenance needed with your monthly application of weed-killer, etc. With approximately only $400-$500 in test equipment and spare parts, your maintenance personnel on site can handle 95% or more of any problems. If you are willing to ship them replacement controls, parts and setup instructions, that just jumped to 99.9%.

A sharp maintenance guy with some special equipment could easily oversee and backup on site maintenance personnel for 100 to 200 fence sites or more. This "floater" would be sharp, well trained and well equipped, and only supplement and compliment your on-site maintenance personnel. Again, I would point out that this is not rocket science. Don't tell me that your guys (maintenance personnel) are not as sharp as farmers.

You will need an installation crew. A trained crew of four should be able to install most fences in less that a week. The first one or two installations will take longer, but the learning curve is very sharp. You will probably need several crews to start with and your "floating personnel" would be picked from these crews.

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Central Station Monitoring:

UL Listed Central Station Monitoring is available anywhere in the United States by either cell phone or land line. Ask your office security company what it would cost to add 5 or 10 zones to your office security account, and surely not more than a $25/month if anything.

If you request additional zones connected via cellular, the costs shouldn't be any more than your office security connection.

The best part is that you don't need an in-between person "to guess" if it was false alarm or an actual alarm as most monitored fences have. The closest that we have ever had to a false alarm is when a tree fell across the electric fence and shorted it out. The circuitry could not tell the difference between a tree intrusion or human intrusion.

The Fence Hawk high voltage fence monitor does not false alarm or react to spurious voltages. If the Fence Hawk does give an alarm, there is a reason and your people need to know about it.

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Bottom Line: Why Us?

There are maybe 100 manufacturers of high voltage fence chargers scattered around the world. 99% plus of the electric fence market is for animal containment. Consequently, a few seconds where the fence voltage is interrupted is not a critical factor. However, the security market is an area that the available fence voltage monitors were never designed for. A human intruder producing a momentarily short can get in (or out) through a high voltage electric fence in just a few seconds.

The only difference between an electric fence used to pen animals and an electric fence used in security applications is the number of conductors and the way the high voltage wire are interconnected.

Consider, a few short seconds is all a thief needs to compromise the security fence. The Fence Hawk was and is the only high voltage fence monitor specifically designed for high voltage security fences. The fence hawk can decide whether the alarm is caused by a voltage surge or an actual intrusion.

The required design for the specifications for a security fence voltage monitor; (Fence Hawk Plus)

It is specifically designed for professional security applications and requirements.

It will handle a wide range of voltages and is compatible with any make of high voltage fence chargers.

It will easily interface with any security system that you currently are using for your office or warehouse. (With on board isolated NONC contacts) it can also be configured as a completely separate system.

It can be monitored by any modern central monitoring station, or monitored directly.

It will not "false alarm" from lightning or miscellaneous voltage surges.

It will provide an immediate alarm on a cut or shorted high voltage fence wire.

It will provide an alert for a lowered fence voltage condition caused by weed/grass growth. Cut the weeds tomorrow on your schedule.

It will operate on the universal voltage of 12 volts DC.

It will accurately read fence voltages from 3,000 to 15,000 volts.

It uses 2 sources of power as described and recommended by NFPA for any commercial security or fire system.

It can also be mated to any wireless or cell phone system.

It is compatible with any fence charger available anywhere in the world. The electrically isolated output contacts are compatible with any brand of security alarms system.

It has the inherent built-in intelligence to tell you when your fence needs cleaning and can tell the difference between weeds and an intrusion. It does not need someone to wait and see if the voltage returns before calling the authorities as most security fence monitors are required to do? Two outputs are provided for both "low voltage" and "no voltage".

It will not require a third party between the monitoring company and your responding personnel to "kind of" sort out the false alarms.

This is the <u>only</u> high voltage fence monitor designed specifically for the security market that we are aware of. however, we might add, that it also works very well in the farmer's market.

This **IS** the only high voltage fence alarm that "does **NOT**" sporadically false alarm, that we know of, anywhere in the world. As it was designed specifically for security.

We work with and help design and install high voltage security fences anywhere in the world. We suggest that you may utilize us to work with your crew for the first one or two fences.

We suggest that you start with only one or two fences and see how it goes based on those results. One can always plan on what to do next, if anything. However, doing nothing throws away millions of dollars a year.

The Company that I consult for manufactures the high voltage monitor, "**Fence Hawk Plus**". They also sell ancillary equipment and supplies that might be required for any high voltage electric security fence installation. These items widely vary from country to country as we try to make use of local materials as much as possible. Ask for a quote.

It doesn't matter if you are currently renting your fences or not. It doesn't matter if you have never had an electric fence around any of your yards or not. It doesn't matter if you buy our fence monitor or not. The bottom line is simply that it is less expensive to own than it is to rent at

the current rental prices. This is a valid statement including adding in maintenance and monitoring. If there is only one company available, then you are at their financial mercy, and all to date are financially merciless. Even old college buddies collude to offer multiple quotes.

Depending on the rental cost; renting may be economically viable if you have one fence and are helpless.
Depending on the rental terms; renting may be economically viable if you have several fences in a single locale. Your people should be able to do the math and calculate when renting stops being economical feasible, and becomes a financial drag. With a nation-wide company and especially with a multi-national company, there are NO independent companies that can or will offer a realistic pricing. When there is no competition, there are NO pricing controls.

Considering the current cost of fence rentals, and amortized over 10 years (fence life is easily 20-30 years) and even when adding in UL Listed central station monitoring, maintenance, and control component replacement costs, you will pocket more than 7**5-80%** versus your current rental costs.

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