



Electric Fence • Perimeter Security

www.gato.com.cn/en

Introduction



Shanghai Gato IT Co., Ltd. is the leading supplier of overall security solutions in China. Has been committed to applying technology to create a safe living environment, Gato provides advanced security products, solutions and professional services in the field of security, and has successfully solved the perimeter security issues for tens of thousands enterprises and governments, with customers everywhere from both domestic and abroad.

Gato is a High-Tech Enterprise and Software Enterprise recognized by Shanghai Municipal Government, the first drafting unit of the National Standard for pulse electric fence, tension electric fence, and leaky cable. It is the Vice President of Security Association of China, and First Grade Security Qualification Enterprise. Over 20 national patents and many of its software products have been recognized and affirmed by Shanghai Municipal Government.

Continuous focusing on R&D and quality guarantee make Gato leading in the perimeter security industry. It is the pioneer in many areas, and it guides the industry move forward continuously. Our product & solution has been widely used in agricultural, residential, industrial, commercial, energy sector, governments and high security like military & defence.

With leading technology, integrity management and the pursuit of excellence, Gato endeavors and determines to become reliable long-term partner for customers, to create greater values continuously and to become the world's leading security enterprises.

Certificate

Qualifications

- Vice President of Security Association of China
- High-Tech Enterprise
- Largest Electric Fence Supplier in China
- China Security Top 10 National Brand
- Recommended Excellent Security Product by Safe City System
- Top 10 Security Alarm Brand
- Top 10 high-profile Security Enterprise
- Chinese People's Liberation Army Military-using Electric Fence Recognized Enterprise
- ISO9001:2008 Quality Management System Certification
- Ping An Insurance Company's Accepted Product Liability Insurance (RMB: 8 Million)

Achievements

- Main Drafter of National Standard for Pulse Electric Fence
- Participate in drafting many other National Standard
- Supplier for 2010 Shanghai World Expo Electric Fence
- Dozens of National Patented Technology
- EU CE Certification
- Over tens of thousands Successful Cases all over the world
- Shanghai Public Security System Project Design and Construction Grade I Certification
- National Safety Alarm System Standardized Technical Committee Member



What is Electric Fence?

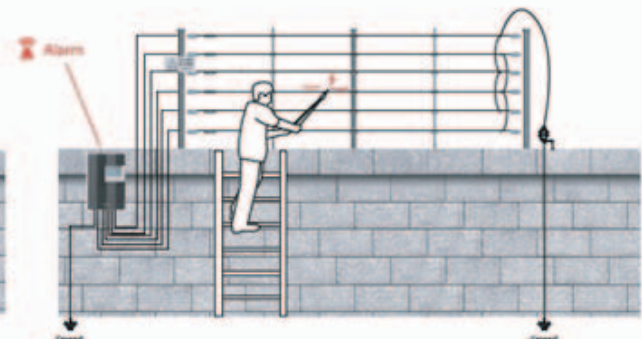
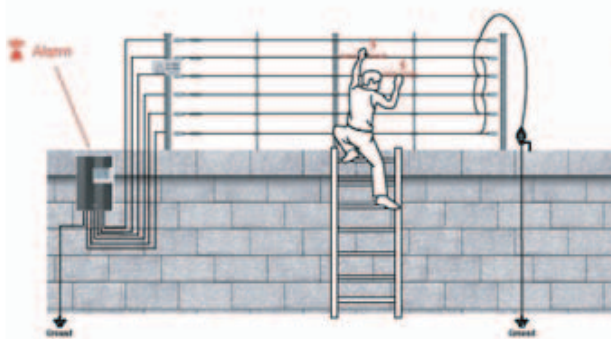
An electric fence energizer converts mains or battery power into a high voltage pulse. The energizer releases a very short-duration, safe, high voltage pulse on to an insulated fence line about once every second.

This pulse is commonly referred to as the "shock" and is felt by any intruder which touches an electrified fence. In the event of a voltage drop caused by either shorting or cutting, the system will trigger an alarm and alert you. The non-lethal high-voltage pulse electric fence serves as a deterrent towards any attempted break in. The diagram below shows how the electric fence system works.



Alarm when short

Alarm when cut



The Benefit of Electric Fence Security

- Easy installation on existing wall or fence, or as a stand-alone perimeter fence.
- 24/7 Automated Detection, Deterrence & Delay
- Monitor the entire area in realtime
- Cost effective solutions: reduce cost of security personnel, low maintenance costs.
- Buys you extra reaction time, value added to property



Contents

Pulse Electric Fence Product

Energizer

G5s Series	05
G5p Series	06
Basic Type	08

Mk200 Keypad

MK200 keypad	09
--------------	----

Fiber Optic intrusion detection system

F5 series zone reporting Fiber Optic Intrusion Detection System	11
F7 series point reporting Fiber Optic Intrusion Detection System	14

Energizer Wiring

Pulse electric fence solution-Networking	17
Pulse electric fence solution-RS485	17

Applications

Industrial	18
Energy sector	18
Commercial	19
Residential	19
Agricultural	19
Military and defense	20
Government sector	20
Transportation	20

G5s Series

Pulse Electric Fence Energizer



The G5s is our most reliable electric fence energizer that can meet all requirements from basic residential security fence to fully integrated high security areas protection. The G5s series have single zone (G5s111 and G5s121) and dual zone (G5s211 and G5s221); RS485 (G5s111 and G5s211) and internet (G5s121 and G5s221) network transmission methods for your choices. The unit is fully compatible with the MK200 keypad and when wired up to a keypad is fully programmable. The energizer can be networked with other energizers and become a multi-zone group for larger sites where many zones are required.

Features:

- Multi network transmission methods: RS485 and TCP/IP.
- Remote control by connecting with MK200 keypad for voltage, alarm setting etc
- High voltage and low voltage options.
- Bi-Polar, it is all-live fence.
- Integration with other security devices, On/off signal output for siren, NVR etc.
- Multi power supply: support AC 220V, AC24V, DC12V and compatible with 12V 7AH battery, up to 16 hours working in the event of power failure.

G5s Series Energizer Models

Item \ Model	G5s111	G5s211	G5s121	G5s221
Zone	1	2	1	2
RS485	•	•		
TCP/IP			•	•

G5s Series Energizer Specification

Power supply: AC 220V (±15%); or AC 24V (±15%) or DC12V (±15%)	Overall dimension: 348mm x 236.7mm x 103 mm
Service environment: -25 °C ~ + 80 °C Relative humidity ≤ 95%	Weight: 4.0kg
Protection grade: IP43	Shell material: ABS engineering plastics
Pulse peak value of high voltage mode: 5000V ~ 10000V	Rated power: 30W
Pulse cycle: 1s ~ 1.5s	Pulse peak value of low voltage mode: 500V ~ 1000V
Pulse maximum energy: ≤ 5.0J	Pulse duration: ≤ 0.1s
Pulse current peak value: ≤ 10A	Pulse maximum output electricity quantity: ≤ 2.5mc
Pulse frequency: signal 1 time per second, pulse duration ratio 1/10	Duration when output exceed 300mA: ≤ 1.5ms
	Alarm delay: adjustable during 1s ~ 999s

G5p Series

Pulse Electric Fence Energizer



The G5p series with LCD display is the advanced range of energizers idea for installations where better zone identification is required. The energizer is the idea choice for the industrial installation and larger high security sites protection. The G5p series have single zone (G5p111 and G5p121) and dual zone (G5p211 and G5p221); RS485 (G5p111 and G5p211) and internet (G5s121 and G5s221) network transmission methods for your choices. The energizer has an LCD display showing voltage, zone, battery condition, output energy etc. The unit is fully compatible with the MK200 keypad and when wired up to a keypad is fully programmable. The energizer can be networked with other energizers and become a multi-zone group for larger sites where many zones are required.

Features:

- Multi network transmission methods: RS485 and TCP/IP.
- Remote control by connecting with MK200 keypad for voltage, alarm setting etc.
- High voltage and low voltage options.
- Bi-Polar, it is all-live fence.
- Integration with other security devices, On/off signal output for siren, NVR etc.
- Multi power supply: support AC 220V, AC24V, DC12V and compatible with 12V 7AH battery, up to 16 hours working in the event of power failure.
- LCD display gives you a quick glance of zone ID, voltage, energy, battery condition etc.

G5s Series Energizer Models

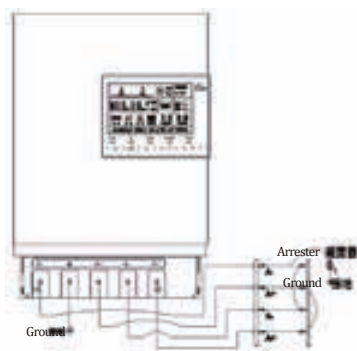
Item \ Model	G5p111	G5p211	G5p121	G5p221
Zone	1	2	1	2
RS485	•	•		
TCP/IP			•	•

G5s Series Energizer Specification

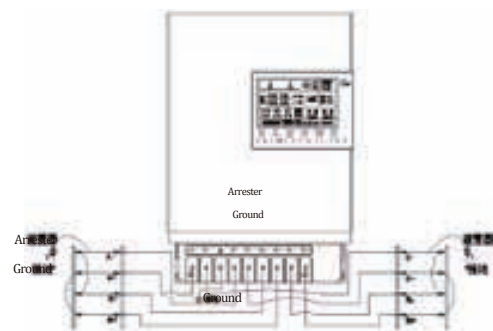
Power supply: AC 220V (±15%); or AC 24V (±15%) or DC12V (±15%)	Overall dimension: 348mm x 236.7mm x 103 mm
Service environment: -25 °C ~ +80 °C Relative humidity ≤ 95%	Weight: 4.0kg
Protection grade: IP43	Shell material: ABS engineering plastics
Pulse peak value of high voltage mode: 5000V ~ 10000V	Rated power: 30W
Pulse cycle: 1s ~ 1.5s	Pulse peak value of low voltage mode: 500V ~ 1000V
Pulse maximum energy: ≤ 5.0J	Pulse duration: ≤ 0.1s
Pulse current peak value: ≤ 10A	Pulse maximum output electricity quantity: ≤ 2.5mc
Pulse frequency: signal 1 time per second, pulse duration ratio 1/10	Duration when output exceed 300mA: ≤ 1.5ms
	Alarm delay: adjustable during 1s ~ 999s

Pulse Electric Fence Energizer

Pulse electric fence energizer wiring diagram



4 lines single zone electric fence energizer wiring diagram.



4 lines dual zone electric fence energizer wiring diagram

What is Bi-polar electric fencing?

A Bi-Polar fence is an all-live wire fence. A Bi-Polarenergizer has the ability to pulse synchronized positive and negative pulses down alternate wires of the same fence line. So, instead of having alternate live and earth wires on the same fenceline, one now has one wire with a positive pulse and one wire with a negative pulse. This means that all the wires on the security fence are live with the exception of the open true-earth wire in the fence grid, should one be included.

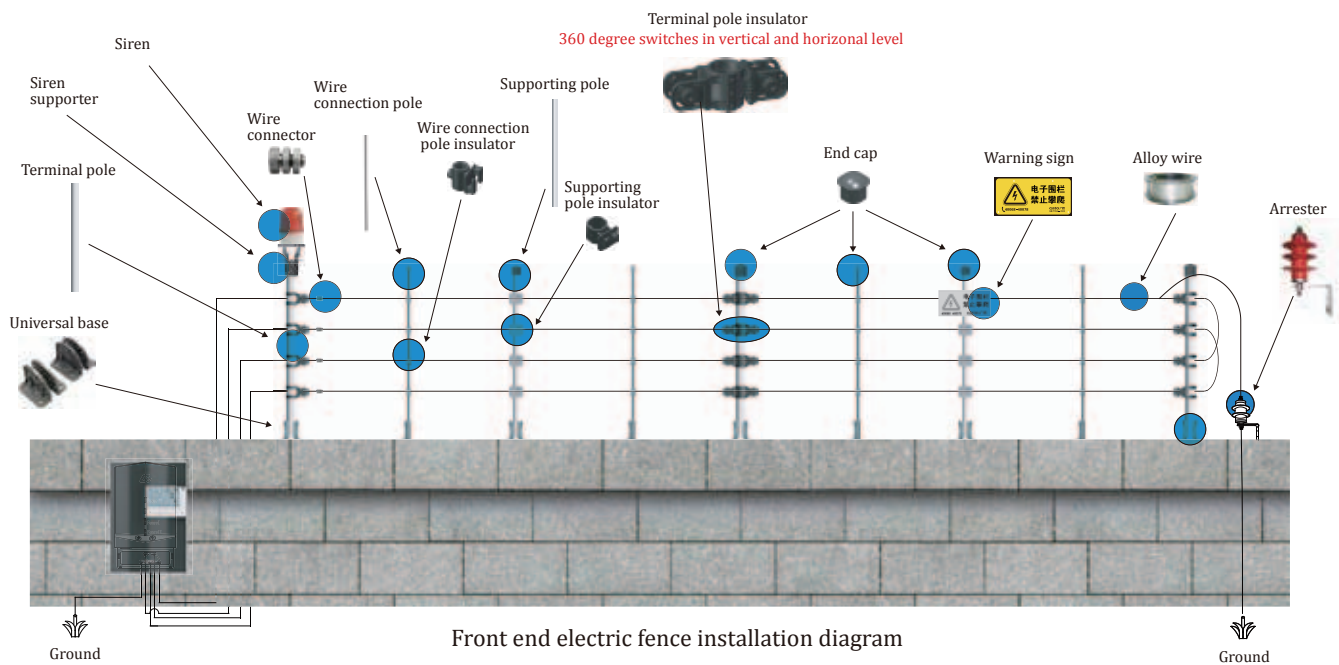
Basic Type

Electric Fence Front End

Basic type electric fence front end features

- Elegant appearance: Aluminum alloy material
- Solid structure: 2 national patents of solid structure
- Easy installation: brand new universal base, better for complicated construction environment
- Elaborate precaution: Brand new insulator: 360 degree switches in vertical and horizontal level
- Flexible allocation: flexible for customize wire spacing
- Long life span: overcome multi design difficulties, improve overall quality
- First in industry to pass wheathering resistance test product
- First in industry to pass high temperature test (GB/T2423.2-2001)
- First in industry to pass low temperature test (GB/T2423.1-2001)
- First in industry to pass neutral salt spray experiment (GB/T10125-1997)

Basic type electric fence front end components



Front end electric fence installation diagram

Item	Material	Color	Remark
Terminal pole	Magaluma	Silver	Elegant, high Intensity, light-weight, anti-corrosion, high precision
Supporting pole	Magaluma	Silver	Elegant, high Intensity, light-weight, anti-corrosion, high precision
Connection pole	Fiberglass	Gray	High Intensity, light-weight, anti-corrosion
Terminal pole insulator	Nylon plastic	Black	Insulation & tightening design; free rotation in vertical and horizon; easy to adjust wire spacing
Supporting pole insulator	ABS plastic	Black	High pressure resistance, antioxidant, anti-corrosion, easy installation
Connection pole insulator	ABS plastic	Black	High pressure resistance, antioxidant, anti-corrosion, easy installation
End cap	Rubber	Black	Flexible, easy installation, anti-corrosion
Universal base	Aluminum alloy	Silver	multi-angle installation, high Intensity, anti-corrosion
Alloy wire	Aluminum alloy	Silver	Melting with 10 of metals, antioxidant, anti-corrosion
High voltage insulated conductor	Magaluma + PVC	Black	Easy installation, bear 30KV Voltage
Warning sign	PVC	Yellow	UV stabilized with double clips, durable
Wire connector	Magaluma	Silver	Reliable, anti-corrosion, Antioxidant

MK200 Keypad

MK200 keypad

The MK200 keypad is the most power controller developed by Gato, specially for the electric fence energizers G5s and G5p series. The keypad has RS485 or TCP/IP to connect with the energizer or the computer. It has 4.3" display offer the user quick glance of the information that may be required.



Features

- 4.3" display, user friendly interface
- Support RS485 and TCP/IP connection with energizer & computer
- One keypad can be used to control up to 120 zones(energizers)
- The keypad can be used to program the energizer for arm, disarm, bypass, alarm cancel, voltage setting etc.
- Ability to customize zone
- Up to 20 users to visit the keypad
- Privilege management: administrator, installer, user for different privileges
- Store up to 3000 alarm messages
- Operation log checking

Alarm signal in & out to integrate with other security devices like CCTV system, access control system.

Parameter

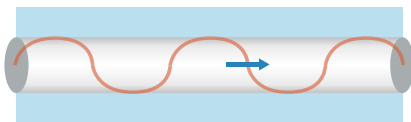
Power Supply: AC 24V(±20%) and DC12V (±20%) 1-2A self adjust	Rated Power: 10w
Environment: -20 C~+55 C ≤95%,non-Condensation	Gross Weight: 0.6kg
Dimension: 228mm*140mm*36mm	IP Grade: IP43

Fiber Optic intrusion detection system

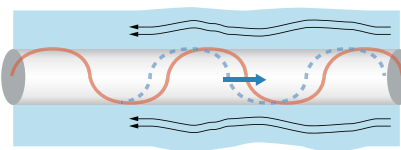
Fiber optic sensor operational principle

When the fiber optic cable senses the vibration or pressure from the outside, the laser signal, wave length transmission specifications will be alter. The system will find the specifications changed when scanning the lightwave signal and monitoring the zones. With its powerful intelligent data collection, analyze the variation of various situations. It can distinguish the intrusion or the normal vibration.

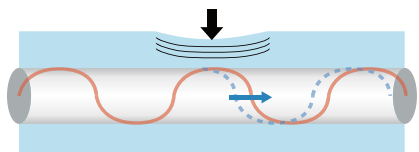
The signal transmission is as follow in normal condition:



The signal transmission route changed when the fiber optic cable senses the vibration:



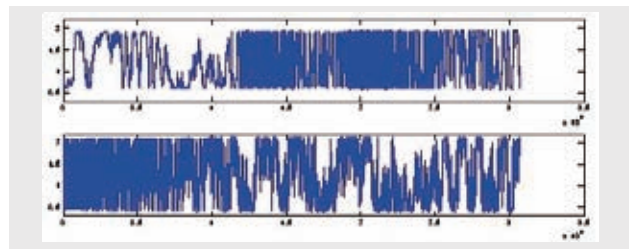
The signal transmission route also changes when the fiber optic deformation with pressure:



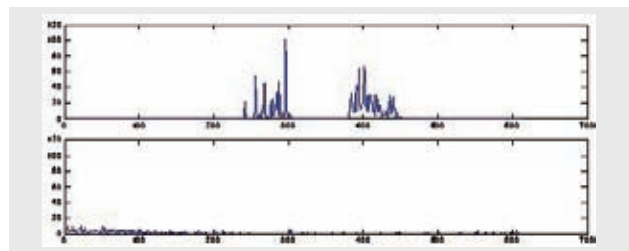
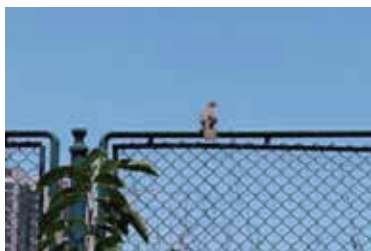
F3 fiber optic data model

The system collects the vibration signal, analyze the feature and identify the signal source then exclude the false alarm. The system can exclude the false vibration signals that caused by wind, rain, birds, traffic etc.

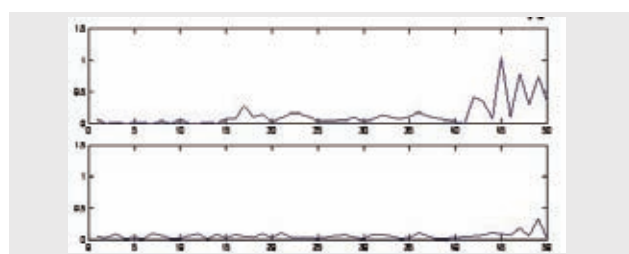
Signal generated by the human invasion



Signal generated by the animals, branch, hailstone occasional hit



Signal generated by the wind and rain



F5 series zone reporting Fiber Optic Intrusion Detection System

F5 series zone reporting Fiber Optic Intrusion Detection System

F5 is the latest introduction to the fiber optic intrusion detection systems. The F5 system adopt narrow laser source, with improved light path detection technology, full spectrum smart computing and big data analysis. The system solved the high false alarm and limited installation problem from the root.



Features

- Innovative light source detection increase sensor distance improves Signal Noise Ratio and reduce false alarm. It is more sensitive to HF signal.
- Smart sensing, simulation of interference signal characteristic and build the big data base. The system can distinguish the intrusion signal from the interference signal like wind, rain, snow, vehicle and animal pass by.
- The innovative technology reduces the light loss during the long range transmission. Single zone up to 2KM.
- No electrical power required in the field. EMI/RFI and lightning immunity. Idea for inflammable and explosive areas protection.
- Multi installation methods, on the metal fence, on the wall, under ground etc.

F5 series zone reporting Fiber Optic Intrusion Detection System

F5 series zone reporting fiber option intrusion detection system



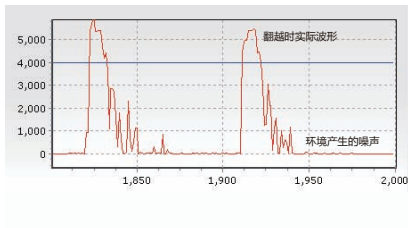
Specifications

Laser source	Wave length 1550nm
Power	220V, 100W
Fiber communication	Single mode FC/APC connector
Alarm output	On/off signal and communication protocol
Installation	Metal fence, wall, underground
Sensibility	Programmable
Zones	8/16/32
Zone length	Suggest 50-300 meter per zone
Detection	Vibration detection
Acceleration	0.0001g~100000g
Frequency	1~100kHz
Temperature	/T UU □□□□□ □□□□□ □□□□□ Z UU □□□□□ □□□□□□
Sensor cable	Armored
Max sensor	□□□4 □□□□4
Max bending radius	300mm static and 60mm dynamic

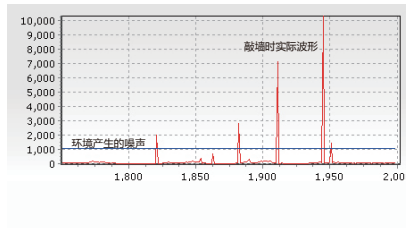
F5 series zone reporting Fiber Optic Intrusion Detection System

F5 series fiber optic intrusion detection system installation

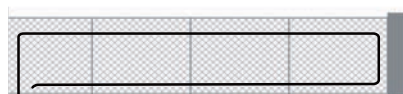
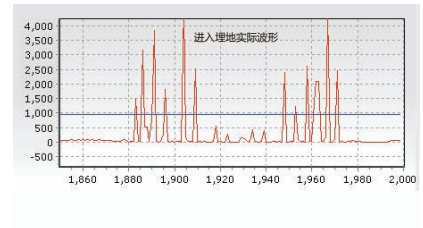
U shape on wire mesh



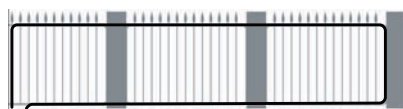
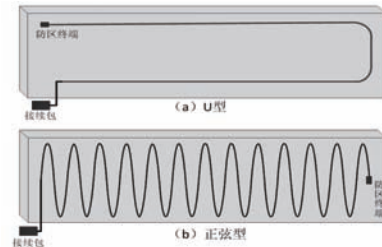
Embedded on the wall



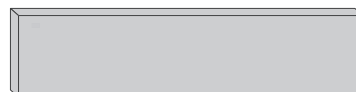
Underground



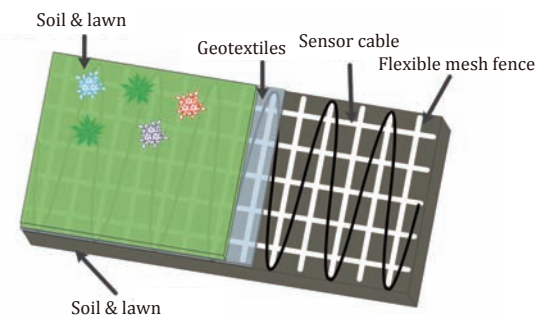
U shape on wire mesh



On metal fence



Embedded on the wall



Underground

F7 Series point reporting Fiber Optic Intrusion Detection System

F7 series point reporting fiber optic intrusion detection system

F7 series fiber optic intrusion detection system is the point reporting system. The system adopts O-OTDR laser source detection technology.



Features

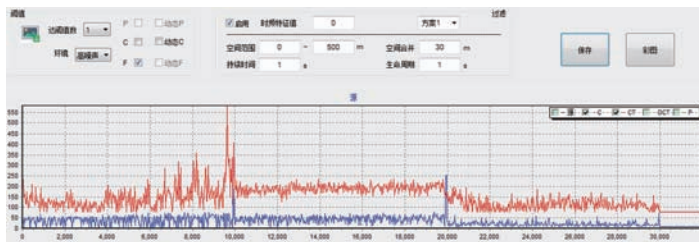
- Accurate detection of multiple simultaneous intrusions
- Points intrusions with a ± 2 m accuracy
- No electrical power required in the field.
- EMI and lightning immunity. Idea for inflammable and explosive areas protection.
- Sensibility programmable for different site conditions
- Integrates with a wide range of SMS/PSIM platforms
- Long range detection up to 40 KM
- Privilege management: administrator, installer, user for different privilege

F7 Series point reporting Fiber Optic Intrusion Detection System

F7 series fiber optic point reporting system



F7 series point reporting software interface



The software can adjust the sensibility to suit different site conditions and to reduce false alarm

Specifications

Single channel sensor cable	□□1S
Single rout output laser power	< 0dBm
Accuracy	r □S
Alarm out	≤ 3s
Zones	Up to 8000
Temperature	0°C ~ 40°C
Humidity	<95%RH
Power supply	AC220V/50Hz (±10%)
Power consumption	130W

SAM100

Monitoring Management Platform System

Monitoring management platform system SAM100

Range of Application

- Electric fence system: Gato G5s, G5p, G5, T7 series pulse electric fence energizer
- Video monitoring system: compatible with mainstream video monitoring devices

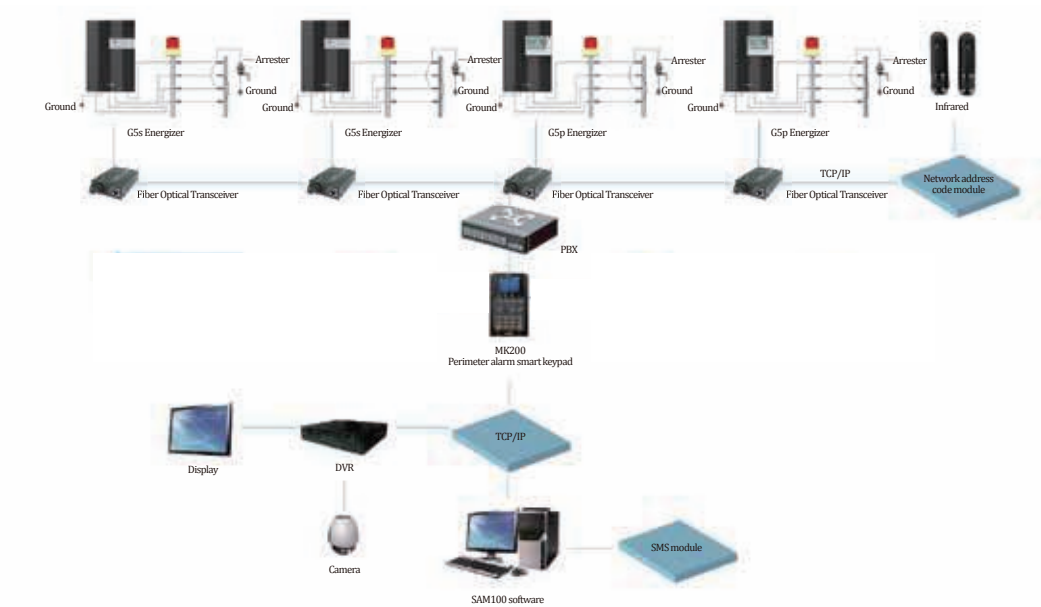
Function:

- Delivery the image information of front area and communication machine room to the main control / assistant control etc. related department by network transmission to do the daily monitoring, emergency analysis and site determination, so as to enhance the monitoring & controlling capacity of end site. Regarding the various sporadic incident and public security security cases, through the video device could conduct the precaution or video evidence, in support of providing related law evidence in future
- Alarm monitoring: utilize the protocol switch to proceed the real time monitoring on the perimeter, mansions, fire fighting apparatus, timely handle the alarming signal. If any intrusion occurs, linkage video devices will conduct the recording, capture the evidence, and run the audible & visual alarm. Meanwhile, it gives warning to remote staffs, reminding them to handle and ensuring the safety of monitoring front end site

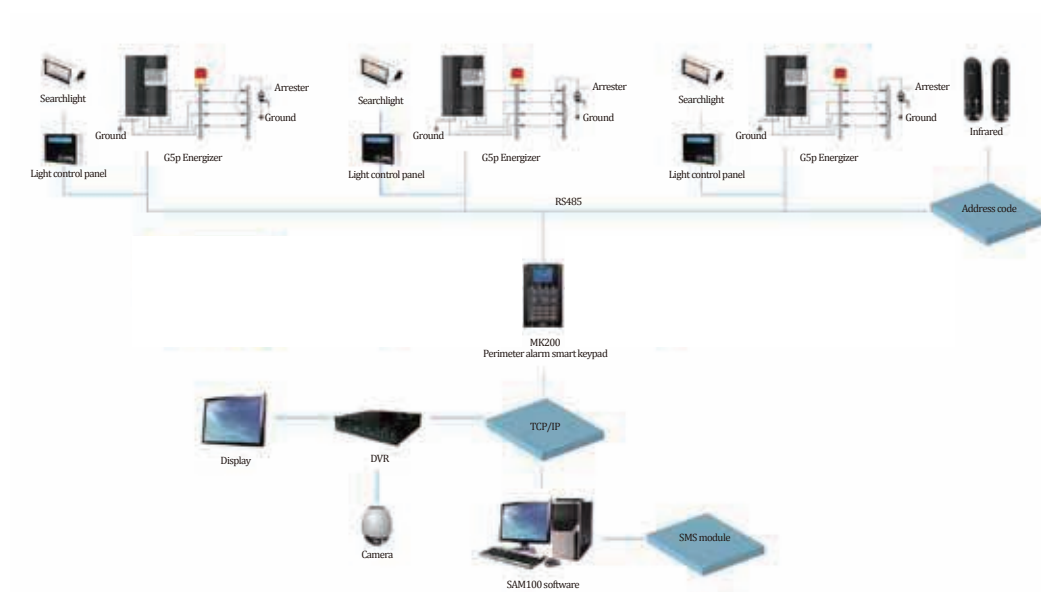


Energizer network diagram

Pulse electric fence solution-Networking



Pulse electric fence solution-RS485



Application

Since inception, Gato has provided thousands of customers with its professional perimeter security solutions and superior products. Following are some typical applications.

Industrial



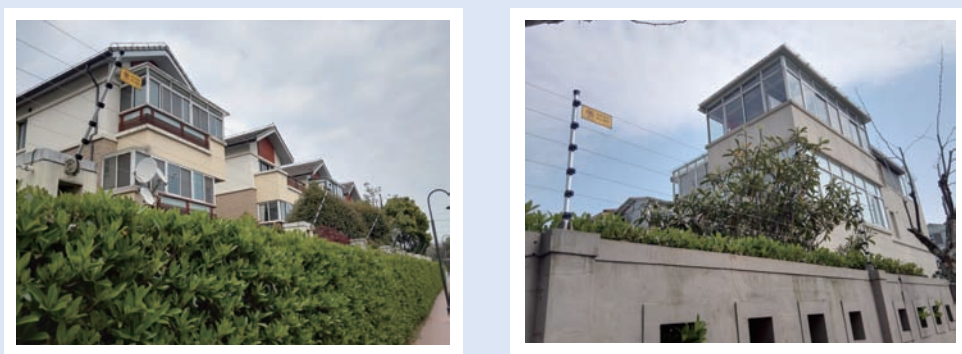
Energy sector



Commercial



Residential



Agricultural



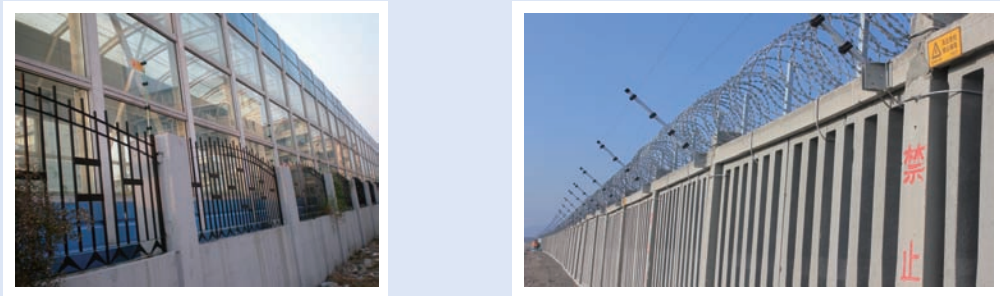
Military and defense



Government sector



Transportation





Shanghai Gato IT Co.,Ltd

Address: 11F, Hengtong Metro Building, No.222 Hengtong Road, Zhabei District, Shanghai

E-mail: info@gato.com.cn

Tel: +86-13611608041

Fax: +86-21-31353030

Website: www.gato.com.cn/en

Although the information presented in this product catalogue is believed to be accurate and reliable ,no responsibility for inaccuracies can be assumed by Gato Technologies.Performance data is typical only and variations owing to component manufacturing tolerances are normal.