

perimeter protection



security
perimeter protection systems

SERIR



antintrusion system for fences



DEA
security
perimeter protection systems

antintrusion perimeter protection

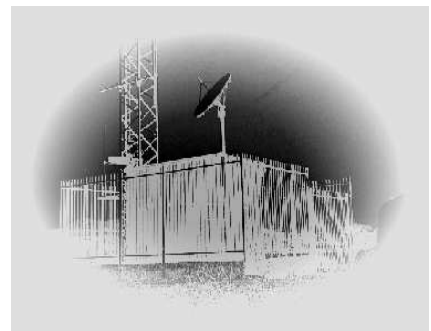
Only a perimeter detection system can guarantee the highest security since it signals an intrusion in advance.

The immediate detection induces to abandon any access attempt and permits activating an efficient defence.

DEA SECURITY has devoted its own research and development activity to the field of antintrusion perimeter protections, by creating a new technology object of international patents.

The result of this hard work is the realization of a wide range of products at high performances:

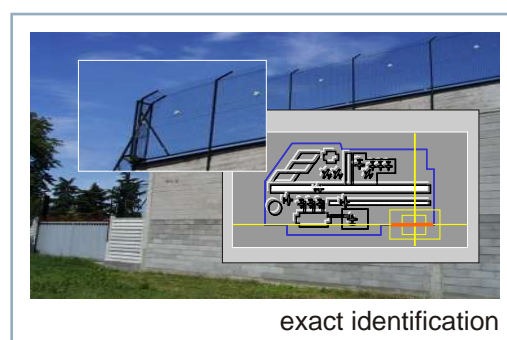
- **SERIR**, metal fence protection system;
- **TORSUS**, wire-netting protection system;
- **SISMA CP**, underground protection system;
- **SISMA CA**, protection system for pavings;
- **DEA NET**, communication network at high speed;
- **DEA MAP**, integrated management system;
- **SERIE A-03**, indoor perimeter protection system.



SERIR system



24H protection



exact identification



no maintenance



it can be used with climbing vegetation

SERIR is an electronic detection system for metal fence protection.

It is based on special piezodynamic detectors, patented by DEA SECURITY, which can be installed on almost any kind of net, both with meshes and electrowelded.

Each sensor is able to protect a fence portion, providing an efficient detection against **cutting, climbing and breaking-through attempts**.

The employed technology makes the system free from environmental drawbacks and guarantees high sensitivity and accuracy as far as the detection capability is concerned.

SERIR system efficiency, in fact, is not influenced by adverse climatic conditions, such as wind, rain, fog, very high or very low temperatures.

The remarkable analysis capacity of SERIR electronic boards permits carrying out the digital processing of the signals, thus warranting the best performances and a good protection against the most sophisticated intrusion techniques.

For all these reasons, **SERIR** can work 24 hours a day, 365 days a year.

In addition, being set on the border of a property, it allows movement freedom and consequently offers a permanent protection not only to valuables, but also to people.

The components of SERIR system

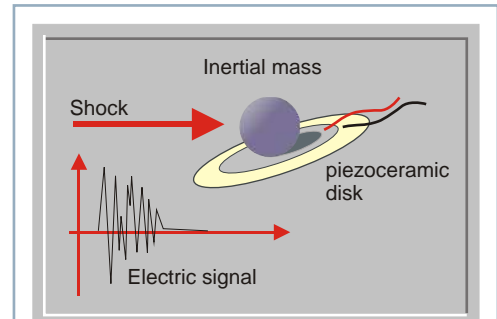
A-03ASR sensors

SERIR adopts piezodynamic detectors, the result of a technology created and developed by DEA SECURITY.

These sensors, in fact, use a piezoceramic transducer able to generate weak electric signals when undergone to vibrations and an inertial mass which amplifies the effect of the vibrations themselves.

SERIR piezodynamic technology, along with the great analysis capacity of the processing boards, offers a high immunity from disturbance sources situated near the fences, such as roads, highways or railways.

SERIR system sensors do not contain active electronic components; consequently, any breakdown possibility is completely avoided. In addition, they have been specially designed for outdoor use and to guarantee a high degree of tolerance towards environmental conditions which typically hit a fence, such as wind and sudden changes of temperature. For these reasons, the sensitive element is completely sealed with epoxy and protected by a housing resistant to U.V. rays and to temperatures between -25° and +70° C.



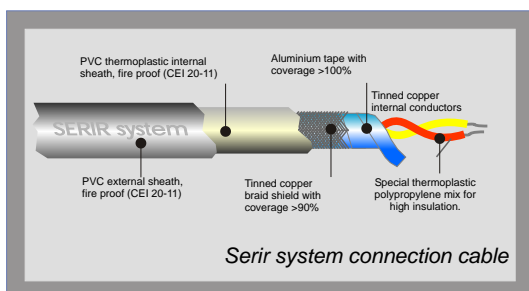
The sensors are supplied with pre-wired strings and are available in two versions:

- **exposed (A-03ASR-2)**: the detectors are set in the central part of each fence panel;
- **embedded (A-03ASR/in)**: the detectors are installed inside the fence posts.

The first version adds a deterrent effect to a greater usage versatility. The second one, to be applied inside tubular posts with minimum diameter of 38 mm, does not alter the fence aesthetics, since it is almost invisible.



The connection cable



SERIR system sensors are interconnected with a special cable (CSSR2 7) produced on DEA SECURITY's specifications.

The cable has been designed for outdoor use and adds very good electric qualities to excellent mechanical characteristics.

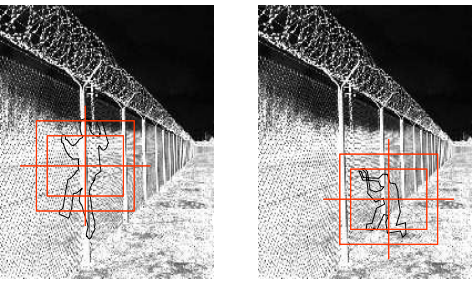
As far as the electric aspect is concerned, in order to guarantee perfect quality of signal transmission and high immunity from electromagnetic noises, all the conductors are tinned and twisted, the shield is double, since it joins aluminium tape to tinned copper braid. As regards the mechanical aspect, an anticrushing protection of the electric conductor and a double protection sheath, U.V. resistant, have been used to give inalterability and long operation life to the cable.

The components of SERIR system


SE SERIR MCP processing board


The signals produced by the sensors string are amplified and processed by SE SERIR MCP electronic board. This unit represents the “brain” of the system, being able to interpret what is “felt” by the sensors.

The digital processing of the signals offers an efficient protection against the most sophisticated intrusion techniques. In fact, SE SERIR MCP, besides detecting cutting, breaking-through and climbing attempts, is also able to recognize, by exploiting a special memory, the attacks to a fence carried out at intervals of time (**sporadic cut detection**).



zone 4
zone 3
zone 2
zone 1

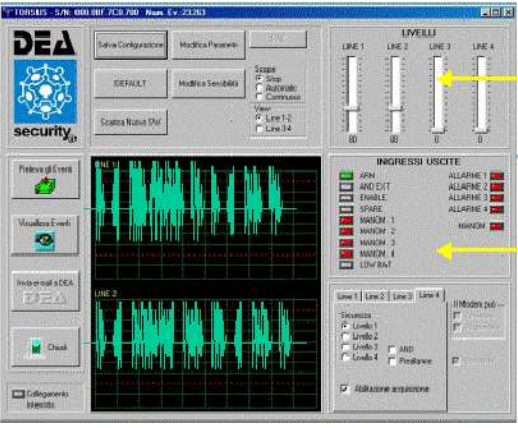





sensitivity digital trimmer

I/O panel

security panel



SE SERIR MCP electronic board is based on a 16bit microprocessor able to analyse, at the same time and in an independent way, the signals coming from 4 sensors strings.



This board permits carrying out independent adjustments of the sensitivity and the intervention modes to make the system reach the maximum performances in each single installation.

The calibration of the board is completely digital and entrusted to an intuitive graphic interface of a PC or notebook.

In addition, the processing board permits:

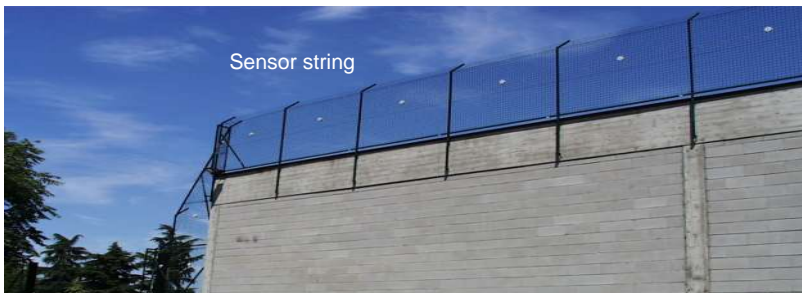
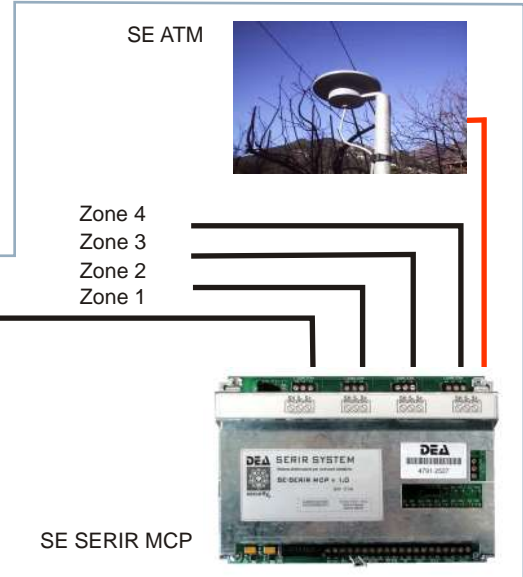
- viewing in real time the graph of the signals coming from each sensor strings;
- recording all the signals detected by the sensors. The signals are chronologically stored in a very capable integrated memory; this allow **DEA SECURITY's Specialist** to carry out an accurate analysis to determine the cause provoking the possible alarm (DEA REPORT).
- connecting with **DEA NET** communication network and to **DEA MAP** management system.

The components of SERIR system

atmospheric control module

Thanks to the presence of **SE-ATM** detector, **SERIR** can always operate at the highest performances, even in the presence of adverse climatic events, such as hail or storms.

SE-ATM module, if enabled by the user, detects bad environmental conditions and transmits them to the processing board; this board activates the specific program which permits keeping the maximum detection efficiency without improper signals. **SERIR** comes back to its regular functioning as soon as the adverse climatic condition is over.



SERIR technology in depth



Independent detectors

The use of independent detectors to cover a perimeter offers a lot of advantages, such as:

- **High functional redundancy.** The damage or the tamper of one sensor do not compromise the functionality of other sensors of the string;
- **No background noise.** Each detectors "covers" its own area, avoiding the accumulation of background noises or environmental nuisances, which are present in linear sensors;
- **Easy and fast recover** of the system in case of accidental or intentional damage of a detector or a cable section. In these cases it is not necessary to replace the entire string.

"Sporadic cut" detection

One of the most insidious techniques to attack a fence consists of creating a gap in the net, by executing one cut at a time, letting a long time pass by (even one day or more) before carrying out the following one (sporadic cuts).

DEA SECURITY has developed a special program, available for all the versions of **SERIR system boards**, which permits recognizing and signaling the "sporadic cut" technique in a very efficient way.

50 mt analysis front

DEA SECURITY experience has led to identify the ideal length of an alarm zone with 50 m.

This size is highly valid in residential, industrial and military sites.

An alarm front of 50 m offers the possibility to optimize the management of the zone numbers and, at the same time, permits determining the perimeter section subject to attack.

In addition, 50m represent a standard length also for CCTV systems, which are, therefore, perfectly compatible with SERIR system.

SERIR technology in depth

A protection always active



Thanks to its efficiency and high immunity from atmospheric and environmental nuisances, SERIR can be left always active, 24 hours a day, 365 days a year.

This guarantees the maximum protection not only to valuables, but also to people, who can go on moving inside the perimeter.

Compatible with climbing vegetation



The application of the piezodynamic technology to SERIR detectors has permitted reaching a very good sensitivity and an elevated immunity.

The tolerance towards environmental disturbances is so high that the sensors can be installed even on nets covered by climbing vegetation.

Under these working conditions, SERIR system is however very reliable and completely free from atmospheric nuisances.

No maintenance

The accurate choice of the components, the piezodynamic technology and the quality of the electronic boards guarantee a constant functioning in time, without routine maintenance service by the technical installer.

Dea Security's skilled staff carry out scrupulous tests on each single component; this allows offering a warranty of **3 years** on processing boards and of **5 years** on sensors.

Easy installation



For a correct installation, **SERIR** does not require any particular device.

Sensors can be installed on any type of net, also pre-existent, provided that it is in good conditions and well taut.

The electronic boards can be set both indoors and outdoors; for outdoor use, it is necessary to place them in a dust-proof and water resistant box (we suggest IP 65 protection degree).

The installation of the sensor string consists of fixing each sensor to the fence by using the bolt and the tightening plate which are provided with the sensors. A special locking cap covers the bolt and prevents it from being accidentally or intentionally unscrewed.

SERIR system cable can be directly fixed on the fence through self-locking bands, U.V. resistant (FPM 100).

How to design a SERIR system

Perimeter subdivision

Along a perimeter, different types of fences can be found according to the following features: thickness and material of the net, shape of the posts (the most common are t-shaped or round), method through which the net is fixed to the posts.

These parameters imply a different reply to cutting, breaking-through and climbing stress.

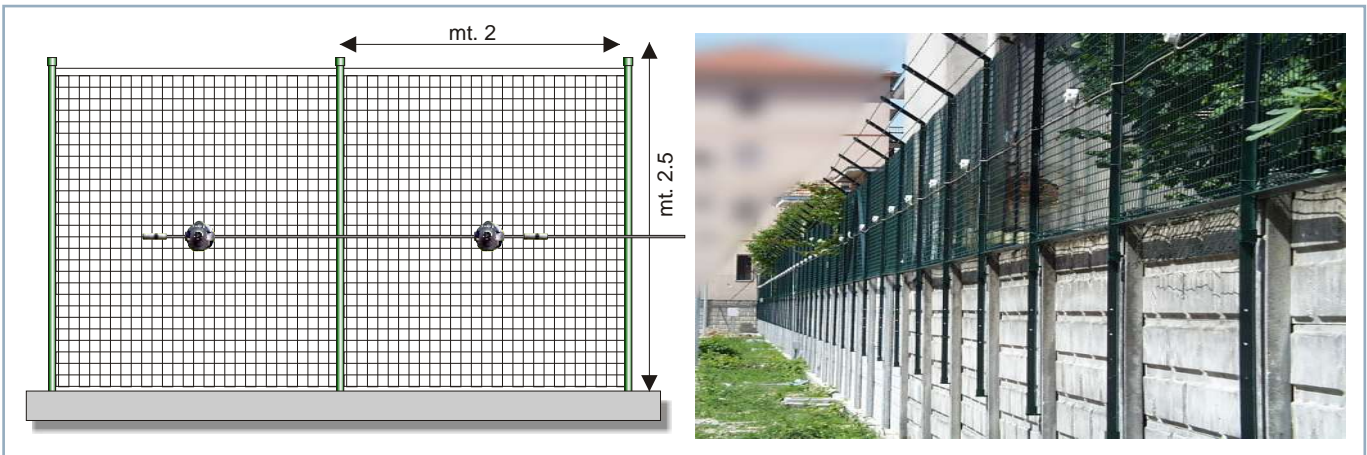
When designing, it is therefore important to divide the perimeter so that each string can protect a section with similar features. In addition, the zoning must permit the user a simple and quick identification of the alarm sector.



New and pre-existent nets

In case SERIR system is installed on pre-existent structure, the net must be in good conditions and adequately taut.

In case a new fence has to be realized, it is advisable to use an electrowelded net with 50x50 mm, wire diameter of 3 mm and posts set every 2 m. These features ensure the best transmission of the vibrations, maximizing the system performances.



Sensor-string dimensioning

Exposed version

In this version, SERIR is available with pre-wired sensors every 2m or every 2.5m. In order to obtain detection zones of 50m, the strings must have up to 25 sensors if the distance is 2m and maximum 20 sensors if the distance is 2.5m.

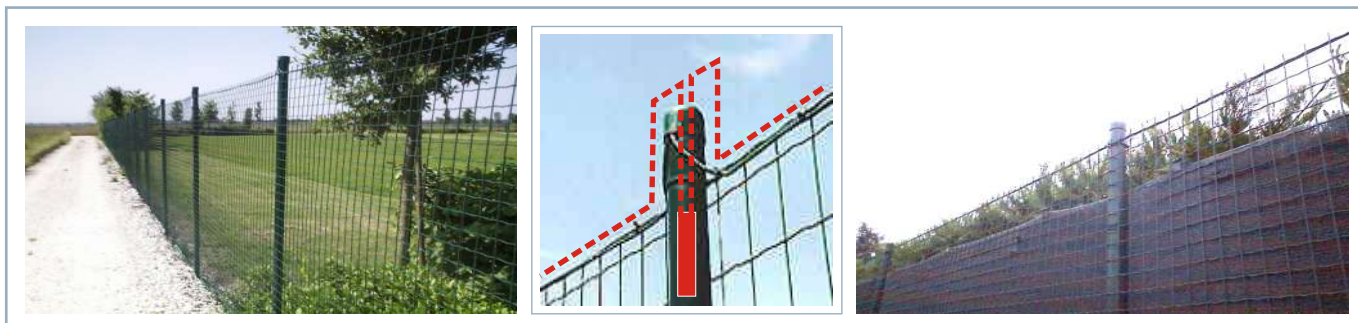
The detectors must be set one every net panel, preferably in the centre of the panel itself. If the width of the panel is less than 2m, the excess cable will have to be fixed to the fence. In case the posts of the net are set at an irregular distance from one another, or at more than 2.5m, sensors must be fixed to the fence by keeping a distance of 2m maximum.

How to design a SERIR system

String dimensioning

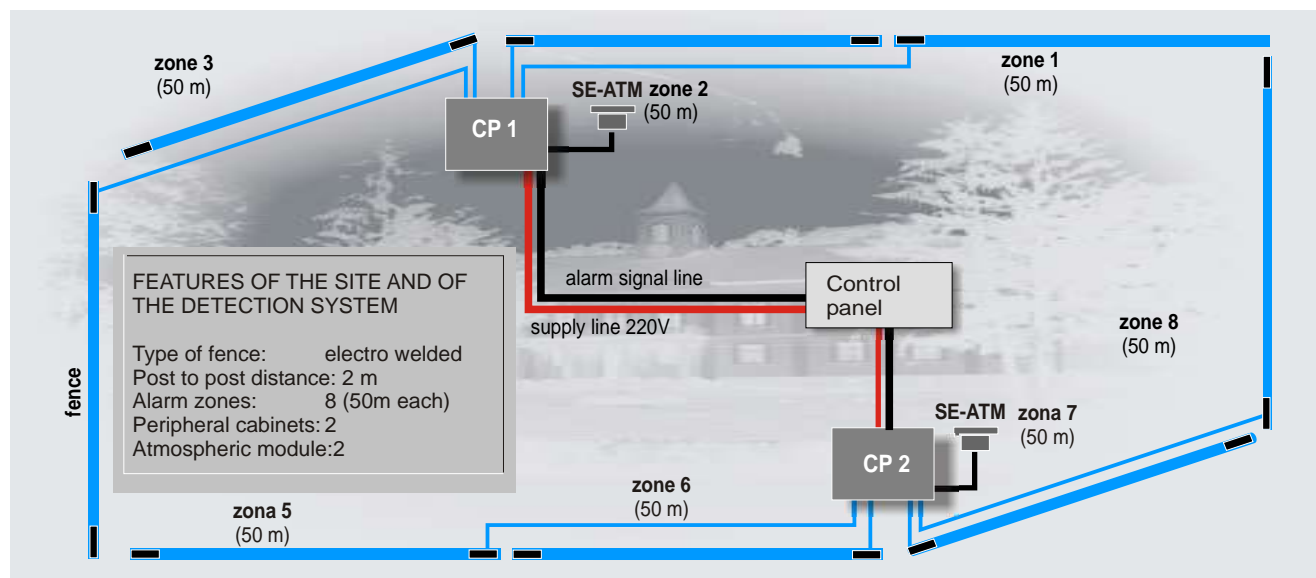
Embedded version

In this version, SERIR is available with pre-wired sensors every 2 m, thus each string has up to 25 sensors. The detectors are to be put inside the posts, which must have a round shape and a minimum diameter of 40 mm.



Example

This is a perimeter of 400m divided into 8 detection zones; the electronic boards are set into 2 peripheral cabinets.



Material you need

(for the site in the example)

Q.ty	Code	Description
200	A03ASR/2	Sensor strings and accessories Pre-wired sensors available in strings.
16	CT2580	Box for initial and final string junction.
350 m	CSSR27	Connection cable from the sensor string to the processing board.
14	FPM 92	Cable bands, U.V. resistant to fix the cable to the fence.
5	KIT R 250	Two component epoxy to seal connections.
2	SE-ATM	Atmospheric control module.
2	AP2	Peripheral cabinets Cabinet for outdoor use
2	AL25	Stabilized linear power supply 12V 3.5Ah
2	SE SERIR MCP	Microprocessor electronic board - 4 zones.
2	ER MCP	8 relay expansion board (optional).

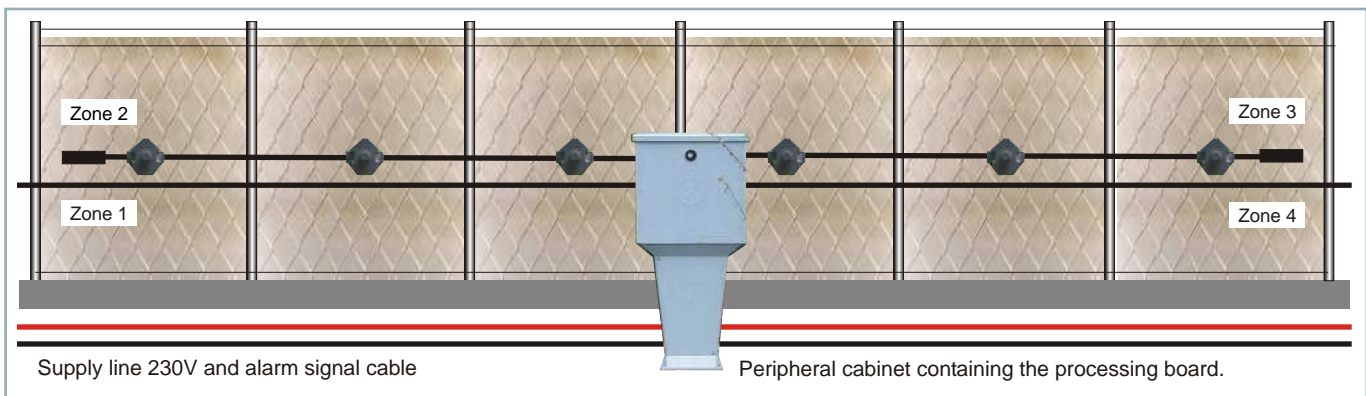
How to realize a SERIR system

All the electric connections must be tinned and sealed with two component epoxy (KIT R250) inside the special boxes CT2580. Each KIT R 250 can be used to seal up to 3 CT2580 boxes.

The processing board can be set in the same place as the control panel, if it is within 150 m from the beginning of the string, or in special cabinets (peripheral units) to be sited near the sensor-strings.

The second solution, suggested for big perimeters, minimizes the quantity of connection cable between the sensor string and the processing board.

The best dimensioning is obtained by positioning a cabinet every 200 m (4 zones) with its own atmospheric control module (SE-ATM).



Peripheral cabinets

Each peripheral cabinet contains:

- processing boards;
- stabilized linear power-supply;
- one emergency buffer battery;
- one possible peripheral concentrator to transmit alarm signals to the control panel (the presence of a concentrator depends on the type of control panel used).

In addition, each box will have to be connected to a 230V supply.

SERIR MCP boards allow the centralized management of the system by exploiting DEA NET. In this case a shielded connection cable FTP cat. 5 will have to be used to transmit data from the peripheral cabinet to DEA NET CONTROLLER.



Technical specifications

The sensors



A-03 ASR/2 - Pre-wired piezodynamic sensor for metal net protection

Plastic monobloc, sealed with epoxy, U.V. resistant; provided with base plate.

Dimensions: 85 x 85 x 45 mm (b x h x d)

Working temperature: - 25 ÷ + 70 °C

Relative humidity: 100%

Versions:

A-03ASR2/200 V - for 2m panels, green colour, provided in string of 25 sensors max;

A-03ASR2/250 V - for 2.5m panels, green colour, provided in string of 20 sensors max;

A-03ASR2/200 G - for 2m panels, grey colour, provided in string of 25 sensors max;

A-03ASR2/250 G - for 2.5m panels, grey colour, provided in string of 20 sensors max;



A-03 ASR/IN 200 - Pre-wired piezodynamic sensor for metal net protection

Version to be embedded inside posts (Ø 40mm minimum) for net panels 2m wide max.

Plastic housing sealed with epoxy. Provided with holding-down spring.

Dimensions: 28 x 90 mm (Ø x h)

Working temperature: - 25 ÷ + 70 °C

Relative humidity: 100%

Colour: GREEN

Available in standard strings of 25 sensors.

The processing board



SE SERIR MCP - Microprocessor processing board for four serir sensor strings

To be mounted in a self-protected, water-proof cabinet.

In conformity with: EMC 89/336 CEE EN 50130-4: 1995 + A1:1998
EN 61000-6-3: 2001 (CE2003) - CEI 79/2 2nd ed. 2nd level

Supply: 12V DC (11.5 ÷ 15.0V)

Current: 180 mA (Max)

Working temperature: + 5 ÷ + 40 °C

Relative humidity: < 95% non condensing

Dimensions: 180 x 130 mm (b x h) board

200 x 130 mm (b x b) base plate

Analogue Inputs: 4 lines for sensor string with resistor balancing

Digital Inputs: ARM, AND, Reset, AUX

Relay outputs (NC): Intrusion alarm zone 1, zone 2, zone 3, zone 4

General tamper alarm

OC output (NC): Insufficient supply

Connections: - ER MCP relay expansion module

- PC connection (serial RS-232, 9pins)

- MODEM

- DEA NET

Analysis capacity (for each line): up to 25 sensors 2m distance, or up to 20 sensors 2.5m distance.



SW SERIR MCP - board management software (license supplied with the board)

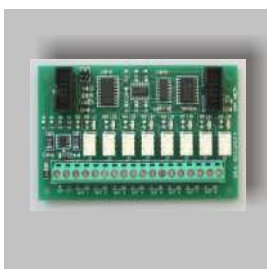
Functions: Real time graphic view of the signal detected by the sensor string.

Sensitivity levels and security level setting.

Event file storing, management and transmission.

Requirements: PC Pentium 2 class - 266Mhz or more. MS-Windows 95 or superior. 5 MB of free Hard Disk space.

Relay expansion module



ER MCP - 8 relay expansion module

Supply: 12V DC (11.5 ÷ 15.0V)

Current: 100mA (Max)

Working Temperature: + 5 ÷ + 40 °C

Relative Humidity: < 95% non condensing

Dimensions: 110 x 63 mm (b x h) board

130 x 64 mm (b x h) base plate

Inputs: 10 pin flat connector (flat cable included)


Outputs: 8 NC relays for:

- Pre-alarm zone 1, zone 2, zone 3, zone 4

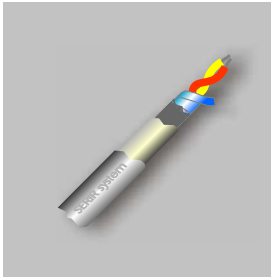
- Alarm for "sporadic cuts" on zone 1, zone 2, zone 3, zone 4

Technical specifications



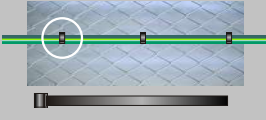
Atmospheric control module

	SE ATM - Atmospheric control module in plastic housing U.V. resistant
	In conformity with: EMC 89/336 CEE EN 50130-4:1995 + A1:1998 (CE2000)
	Supply: 12 V DC (11.5 ~ 15.0V)
	Current: 4 mA (stand by mode) 15 mA (Max)
	Working temperature: - 25 ÷ + 70 °C
	Relative humidity: < 95% non condensing
	Dimensions: 153 x 70 mm (Ø x h)
	NC/NO output: relay alarm output with insulated exchange contact. NC output: antitamper against housing opening.


Connection cable

	CSSR 2 7 - Connection cable from the sensor string to the processing board.
	In conformity with: CEI 20-11, CEI 20-14, CEI 20-35 (IEC 332-1), 73/23/CEE, 93/68/CEE
	Diameter: 6,4 mm Ø
	Working temperature: - 25 ÷ + 80 °C
	External insulation: 0.6 - 1 KV
	Conductor insulation: polypropylene
	Double shield: braid (coverage >90%) + aluminium tape (coverage >100%)
	External double shield of PVC, U.V. resistant
	Versions: CSSR 2 7 V colour GREEN CSSR 2 7 G colour GREY
	Available in 50, 100 and 200 m lengths.


The material for the wiring

  	CT2580 - Plastic box for initial and final SERIR string connections.
	To be sealed with two-component epoxy KIT R 250
	Dimensions: 25 x 80 mm (Øx h)
	Versions: CT2580V colour GREEN CT2580N colour BLACK (for GREY cable CSSR 2 7)
	KIT R 250 - two-component epoxy to seal connections
	250g kit to seal up to 3 CT2580 boxes.
	FPM92 - Cable bands to fix CSSR 2 7 cable to the fence - U.V. certified.
	Dimensions: 92 x 2.4 mm
	Quantity: 100 piece package
	Colour: BLACK

Cabinets

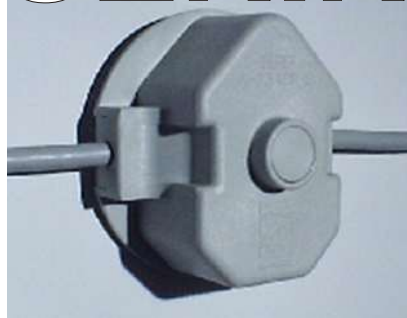
	AP- Peripheral cabinet, water proof, made of polyester, U.V. resistant.
	Protection degree: IP65
	Provided with: base plate, lock clamps, antitamper,
	Versions and dimensions: AP1 - dimensions 405 x 500 x 200 mm (b x h x d) AP2 - dimensions 405 x 650 x 200 mm (b x h x d) AP3 - dimensions 515 x 650 x 250 mm (b x h x d)

Stabilized linear power supplies

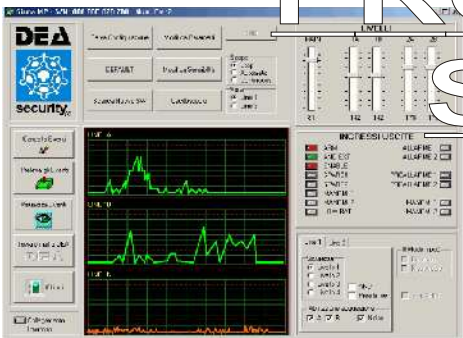
	Common features
	Dimensions: 95 x 105 x 185 mm (b x h x d)
	Input voltage: 230V - 50Hz
	Working temperature: + 5 ÷ + 40°C
	Relative humidity: < 95% non condensing
	Versions: AL15 output tension: 13,8 V DC - 1.5A current: 160mA (Max) AL25 output tension: 13,8 V DC - 2.5A current: 280mA (Max) AL35 output tension: 13,8 V DC - 3.5A current: 530mA (Max)



SERIR



PERIMETER PROTECTION SYSTEM





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SERIR SYSTEM INFORMATION NOTES

edition November 2004 v.2.0.8

Following a policy of continuous development, Dea Security reserves the right to vary at any moment and without notice the information and the technical features herein.

perimeter protection



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