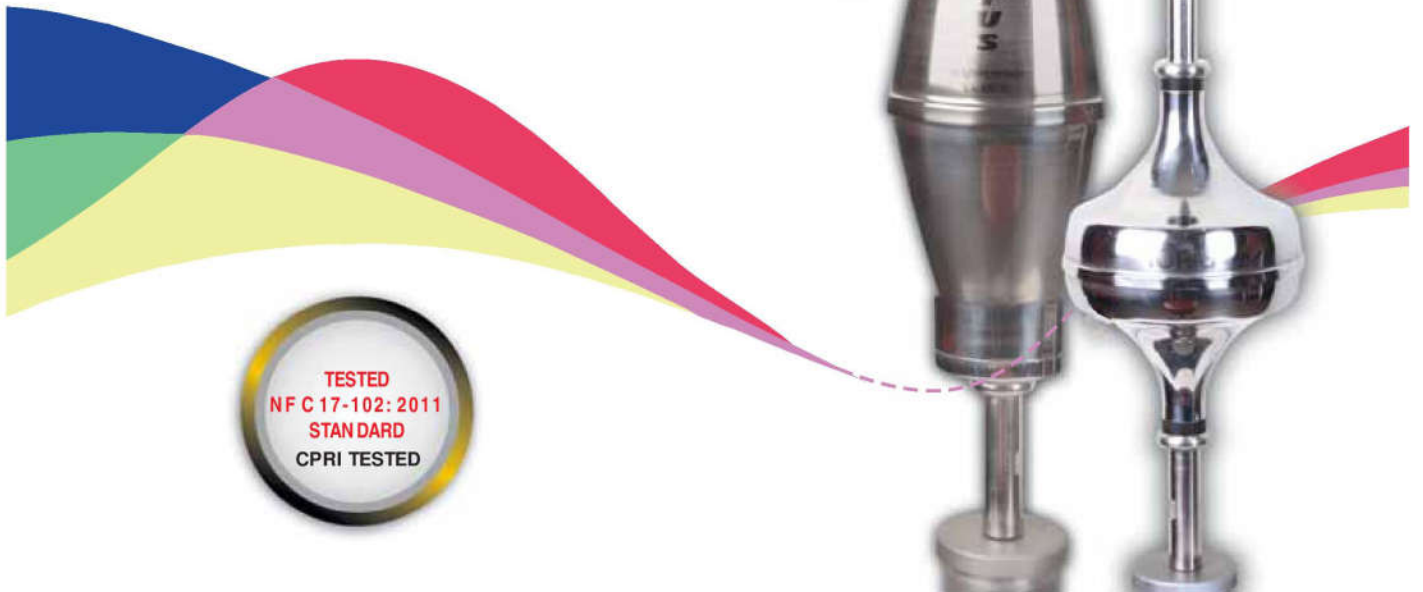


Sonia

lightning protection systems





Research & Development

As one of the leading companies in the field of lightning protection, IONIA LPS has invested heavily in field and laboratory testing as part of its ongoing commitment to research and development.

Throughout the product development of the IONIA LPS, the proto-type models were subjected to intense testing under high voltage conditions. Following further refinements, the IONIA LPS terminals were subjected to final testing by an independently accredited test laboratory which completed testing in full compliance with the French National standard NFC 17-102: 2011.

The Final testing of IONIA LPS ESE terminals showed effective performance as defined in this standard.

Ionía Lightning Protection Systems

was established with the principle of creating one of the best lightning rods as affordable as possible. With years of experience in the sector of lightning protection systems and after thoroughly studying the problems associated with lightning overtime, our company was established with modern lightning protection technologies. Ionía Lightning Protection Systems produces products at the affordable cost and at the same time it offers higher quality than most other companies.



Innovation and energy efficiency

IONIA LPS: A highly specialised team, test laboratories, high investment in R&D and more efficient solutions to increase device lifetime.

Personalised Attention

IONIA LPS offers immediate replies to your consultations. We offer for your disposition our qualified technical and personnel infrastructure which will provide the best assesement of lightning and surge protection and prevention.



Damage to lives and living

- One in five or 20% of strike victims die. About 70% have long term health effects after being struck by lightning.
- New Mexico has the most lightning deaths per million people-1.88-based statistics from 1959 to 1994.
- Most forest fires in the United States are caused by lightning.

Damage to a structure

- Puncture of electrical installations, fire and material damage.
- Failure of electrical and electronic equipment and systems installed.
- Loss of irreplaceable cultural heritage.
- Fire and malfunction of the plant with detrimental consequences to the local and global environment.



Damage to a service

- Mechanical damage to telecommunication line, melting of screens and conductors, breakdown of insulation of cable and equipments.
- Damages to insulators of low voltage overhead line, puncturing of insulation of cable line.
- Damages to electrical and electronic control equipments.

Need to protection

As damages of lightning and poor grounding shown, grounding and lightning protection is a need. Damages and dangers from poor grounding is significant in human safety, economic and also affect to safety, stability and image of the organization, however, the cost of grounding and lightning protection is insignificant.



Early Streamer Emission (ESE) Terminals

Extensive research and development has allowed IONIA LPS to create a lightweight and low wind loading ESE system to provide a safe and efficient manner of controlling dangerous lightning energy before it damages structures or its important contents, including human occupants. By utilizing advanced technology, SIRIUS and IONIA ESE provide lightning protection to facilities that would otherwise be difficult or cost prohibitive to protect by conventional means.

The SIRIUS and IONIA ESE air terminals are externally mounted, proactive, structural lightning protection devices and are designed to activate in the moments directly preceding an imminent direct strike. The installation of a SIRIUS and IONIA ESE air terminal combines the best advantages of two systems: the direct path to ground of a conventional lightning protection system, and state-of-the-art ESE technology employed in the SIRIUS and IONIA internal design. These combined advantages ensure that the SIRIUS and IONIA ESE System provides a secure zone of protection.

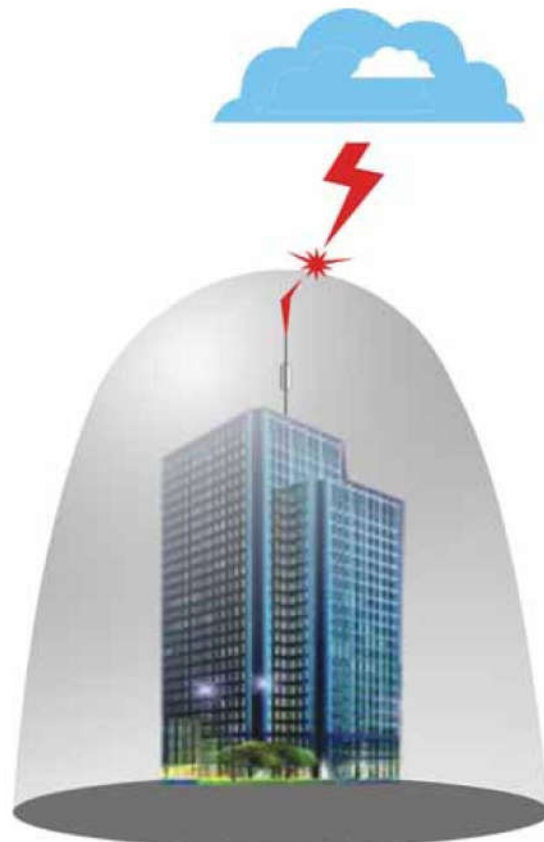
SIRIUS and IONIA ESE are made of non-corrosive materials, utilize advance and sustainable technologies, maintain a 30 years warranty, and are independently tested and certified to NF C 17-102: 2011 standard. SIRIUS and IONIA ESE products protect the structures by capturing dangerous lightning discharges and safely channeling them to earth.

FEATURES

- NF C 17-102: 2011 tested and certified
- CPRI tested
- Stainless steel material
- Reliable performance in all weather conditions
- Suitable for corrosive environments
- 30 years warranty
- ISO 9001 & 14001 certified
- CE certification
- No use of battery or power source is required
- Testable by means of external tester

SIRIUS & IONIA ESE Working Principal

The principle of operation for SIRIUS and IONIA ESE terminals is to create an upward propagating streamer earlier than conventional air terminals or other objects on the earth. SIRIUS and IONIA ESE does this by collecting and storing ground charge during the initial phase of a thunderstorm development. Once a thunderstorm begins creating downward step leaders, the ambient electric field intensity in the area of the ESE terminal increases. When this electric field intensifies, it triggers the terminal to release the stored ground charge, forming an upward streamer microseconds earlier than other objects in the immediate area. This development of an upward streamer earlier in time and space ensures that the SIRIUS and IONIA ESE terminal will be the target of the developing lightning strike. The selection of the SIRIUS and IONIA ESE model, placement, and mounting height above the protected area.





IONIA PROPERTIES

Length: 59 cm

Net Weight: 3.70 kgs

Gross Weight: 4.40 kgs

ΔT Early Streamer Warning Time

(according to NF C 17-102: 2011 Standard)

$\Delta T = 78 \mu S$

PROTECTION RADIUS R_p (m)

h = height of IONIA ESE terminal above the area to be protected (m)	Level I (Very High)	Level II (High)	Level III (Medium)	Level IV (Standard)
2	31	35	39	43
3	47	52	58	63
4	63	69	78	85
5	79	86	97	107

NF C 17- 102: 2011, Clause 5.2.3.4 Protection of high rise buildings (height greater than 60 m)

Additional protection against direct lightning strike for the highest 20% of the structure height for buildings greater than 60 m or any point above 120 m, using ESEAT or any other means must be implemented at each facade wall according to a valid standard. Furthermore a minimum of 4 downconductors, interconnected by a ring conductor when applicable, shall be used, distributed along the perimeter and if possible at each angle of the building.

NOTE: In general the risk due to the lateral flashes is low because only a few percent of all flashes to tall structures will be to the side and moreover their parameters are a lot lower than those of flashes to the top of structures.