TOPBAS GRUP

Lightning Protection Systems

Lightning Protection **Solutions**

NFC 17-102 ✔

CE

Lightning Event **Counters**

All of Topbas Grup's products have been extensively tested at an independent high-voltage laboratory in accordance with the requirements of French NFC 17-102. The testing, as defined in the standard, was designed to simulate naturally occurring conditions and allow comparison of the performance between differing types of lightning protection systems.

NF C 17-102: 2011, Clause 5.2.2. ESEAT efficiency

An ESEAT (Early Streamer Emission Air Terminal) is characterized by its efficiency ΔT which is proved in the evaluation test in Annexe C.

NF C 17-102: 2011, Annexe C, Clause C.2.2 Requirements of early streamer emission

The early streamer emission of the ESEAT (ΔT) shall be determined according to the procedures of clause C.3.5

All of the products were tested and found as compatible with the regarded standart. Test results would be provided upon request.

According to NF C 17-102:2011, the standard protection radius (Rp) is linked to ΔT , the protection levels I, II, III or IV (as calculated in EN 62305-2) and the height (h) of Lightning Rod above the structure or feature to be protected (defined by NF C 17-102 as a minimum 2 m).

Where h≥5 m, then Rp can be calculated from

$$R_p(h) = \sqrt{2rh - h^2 + \Delta(2r+\Delta)}$$

Where 2 m ≤ h ≤ 5 m, then Rp can be calculated from

$$R_p = h \times R_p(5) / 5$$

Rp (h) (m)	is the protection radius at a given height h
h (m)	is the height of the ESEAT tip over the horizontal plane through the furthest point of the object to be protected
r (m)	20 m for protection level I 30 m for protection level II 45 m for protection level III 60 m for protection level IV
Δ (m)	Δ = ΔT x 106 Field experience has proved that Δ is equal to the efficiency obtained during the ESEAT evaluation tests

Technical Features

- Designed and tested according to NFC 17-102 Standards
- %100 effectiveness in discharge
- 100kA lightning current durability
- Certified under Middle East Technical University, Turkey and CPRI, Central Power Research Institute of the Govt. of India
- ISO 9001-14001 certified
- No use of battery or external power source
- 304 L Stainless Steel (Inox) design suitable for any environment condition
- All models inlcuding own mast brackets for grounding
- Suitable for use with a variety of downconductor systems, including tape, cable, smooth-weave, Isolated Downconductors (ISODC).
- 20 years warranty
- Testable by external Topbas® Test Devices

Ionia® ESE Lightning Rod

Protection Radius

Protection Level	Protection Level I (99%, D = 20 m)			Protection Level II (97%, D = 30 m)			Protection Level III (91%, D = 45 m)			Protection Level IV (84%, D = 60 m)		
Model	Ionia 15	Ionia 40	Ionia 60	Ionia 15	Ionia 40	Ionia 60	Ionia 15	Ionia 40	Ionia 60	Ionia 15	Ionia 40	Ionia 60
ΔT (µs)	15	40	60	15	40	60	15	40	60	15	40	60
h (m)	Rp (m) Protection Radius											
2	15	23	32	16	26	34	19	30	40	22	34	44
3	20	35	48	23	39	52	28	45	59	31	50	65
4	26	46	64	30	52	68	36	60	78	41	67	87
5	32	58	79	37	65	86	44	75	97	51	83	107
6	32	59	79	38	66	86	45	76	97	52	84	107
7	33	59	79	39	66	87	46	76	98	53	85	108
8	33	59	79	40	67	87	47	77	99	54	86	108

Technical Specifications

- **Electronical** Structure
- ESEAT (ΔT): 15/40/60 µs
- NFC 17-102 Early Streamer
- Suitable for corrosive environment
- 304 L Stainless Steel (Inox) Material
- No use of external battery
- Lenght: 59 cm / Net Weight: 3.1 kg
- Ion Unit Diameter: 125mm
- Rod diameter: 20ø
- Grounding mast diameter: 2”
- Testable with external Topbas® Test Device
- 20 years warranty
- CE Certification, ISO 9001&14001

Protection Radius

Protection Level	Protection Level I (99%, D = 20 m)			Protection Level II (97%, D = 30 m)			Protection Level III (91%, D = 45 m)			Protection Level IV (84%, D = 60 m)		
Model	Sirius 25	Sirius 40	Sirius 60	Sirius 25	Sirius 40	Sirius 60	Sirius 25	Sirius 40	Sirius 60	Sirius 25	Sirius 40	Sirius 60
ΔT (µs)	25	40	60	25	40	60	25	40	60	25	40	60
h (m)	Rp (m) Protection Radius											
2	17	23	32	19	26	34	23	30	40	26	34	44
3	25	35	48	26	39	52	34	45	59	39	50	65
4	34	46	64	39	52	68	46	60	78	52	67	87
5	42	58	79	49	65	86	57	75	97	65	83	107
6	43	59	79	49	66	86	58	76	97	66	84	107
7	44	59	79	50	66	87	59	76	98	67	85	108
8	44	59	79	51	67	87	60	77	99	68	86	108

Technical Specifications

- **Mechanical** Structure
- ESEAT (ΔT): 15/40/60 µs
- NFC 17-102 Early Streamer
- Suitable for corrosive environment
- 304 L Stainless Steel (Inox) Material
- No use of external battery
- Lenght: 60 cm / Net Weight: 3.2 kg
- Ion Unit Diameter: 26mm
- Rod diameter: 20ø
- Grounding mast diameter: 2”
- Testable with external Topbas® Test Device
- 20 years warranty
- CE Certification, ISO 9001&14001

Sirius® ESE Lightning Rod

TOPBAS GRUP

Endeavouring for Top

Topbas Grup
6276 sok. No 19/A Semikler, Karsiyaka, 35600 Izmir-TURKEY
Tel: +90232 449 4091 Fax: +90232 449 4091
info@topbasgrup.com.tr
www.topbasgrup.com.tr