

COTRA ESE 60

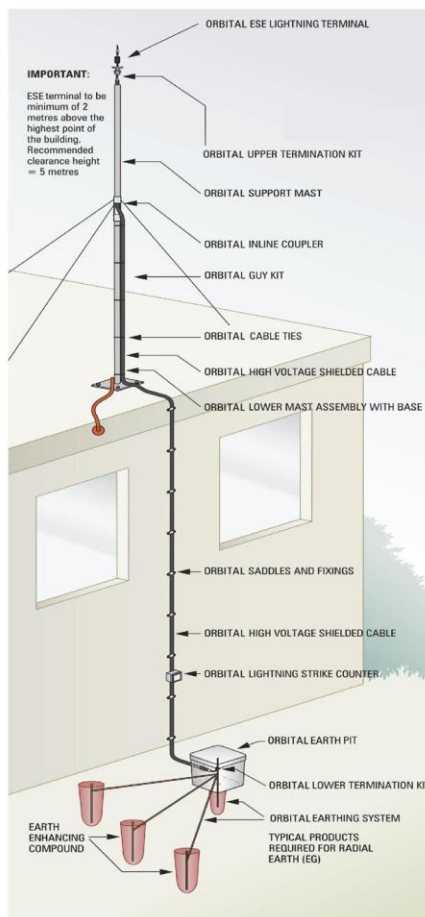
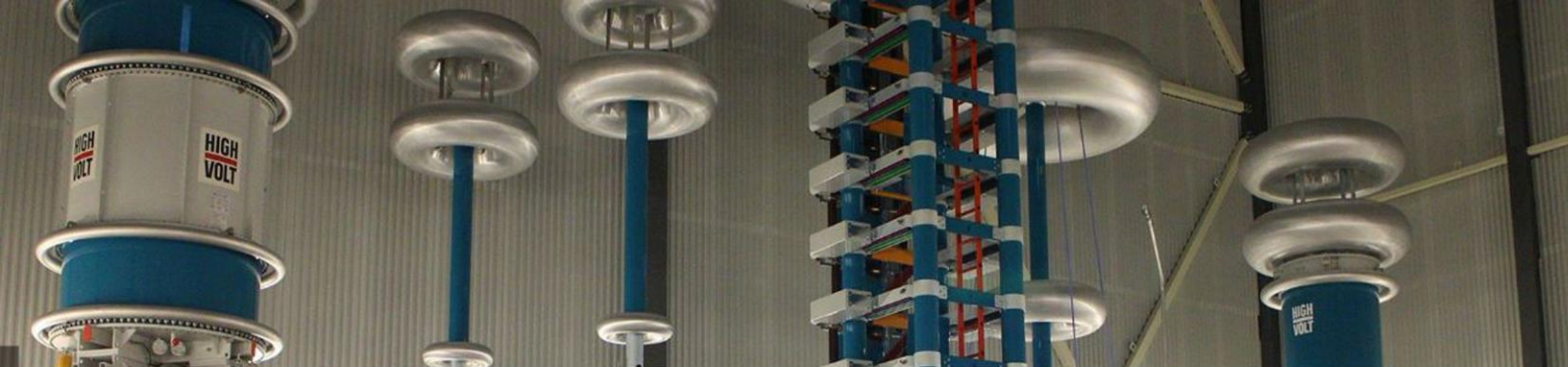
Essentials Of Lightning Protection



Summary Brochure **ORBITAL PRODUCT**



Advance Through Technics®



The protection radius (R_p) of an ESE terminal is calculated using the following formula as defined in NF C 17-102 (2011)

$$R_p(h) = \sqrt{2rh - h^2 + \Delta(2r + \Delta)} \text{ for } h \geq 5 \text{ m}$$

$R_p(h)$ = Protection radius at a given height (h)

h (m) = Height of the mast / pole

VALUES

r (m) = Protection Level I / Very High

Protection Level II / High

Protection Level III / Medium

Protection Level IV / Standard

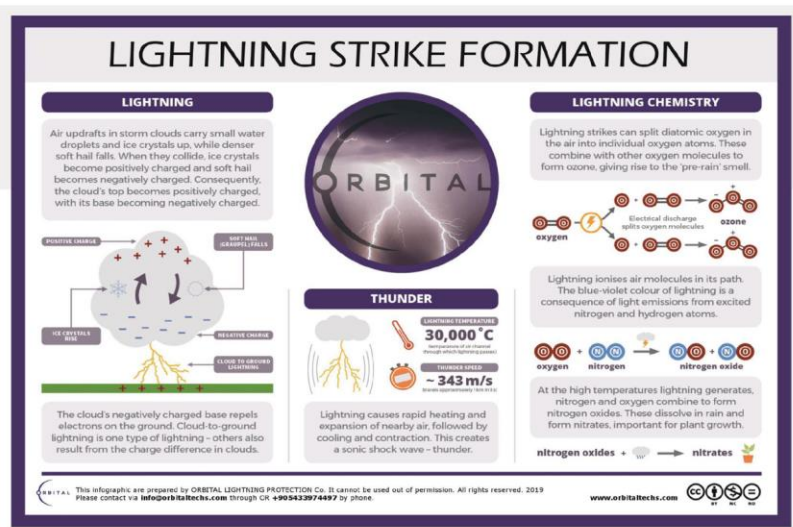
Δ = Time triggering advance time value of the ESE air terminal

Computer database centres, facilities, nuclear power stations

Mass industrial zones, chemical manufacturing facilities

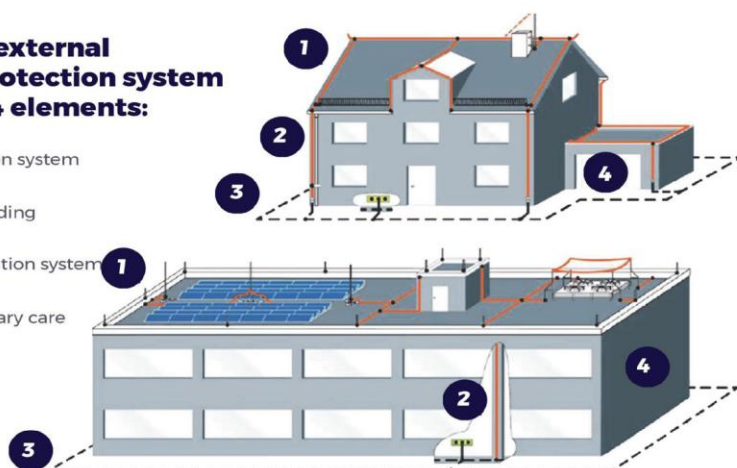
Photovoltaic systems > 10 kW, Solar panels, Hospitals, Schools

Others

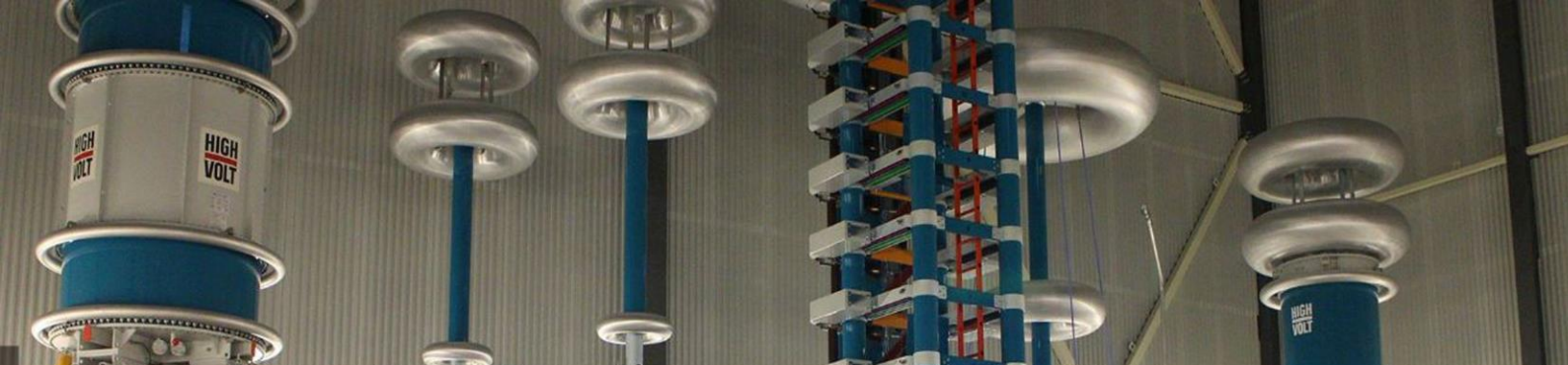


A standard external lightning protection system consists of 4 elements:

- 1 Air termination system
- 2 Earthing/Bonding
- 3 Earth termination system
- 4 Complementary care



PROTECTION RADIUS LEVEL				
Height(m)	Rp (m) Early Streamer Emission			
	Level 1	Level 2	Level 3	Level 4
2	35	38	44	47
4	19	77	85	89
5	81	90	99	110
10	83	91	101	112



GENERAL DESCRIPTIONS

CONTRA60 Controlled Early Streamer Emission (CESE) lightning terminal can anticipate all other elements and items within its protectable range according to its protection level radius by intercepting the lightning strikes and conducting these strikes into the earth through the safest and projected ways. CONTRA60 CESE Terminal work as to principle of creating IONS by its internal ION GENERATION channels. This structure itself allows the terminal to conduct the high voltage lightning strikes, even up to 200kA, to the earthing system then to the earth at the safest way.



CONTRA60 CSE Lightning Terminal is exclusively suitable to install where primary protection is needed like critical points; military zones and aero-space bases at higher protection radiuses range.

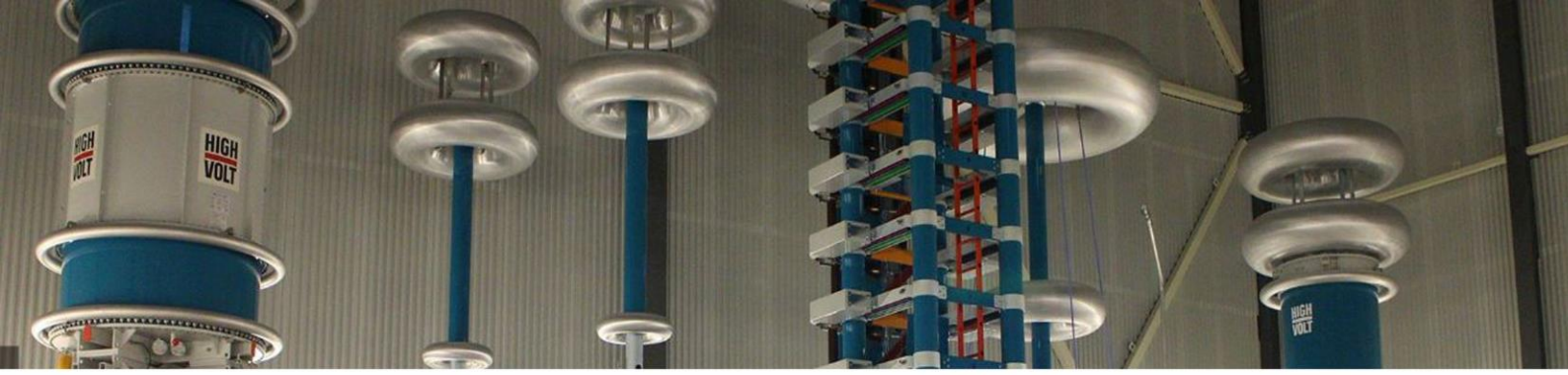
Tested and certified according to NFC 17-102/2011 Controlled Early Streamer Emission Standard including DeltaT (ΔT) advance time test, current withstanding test to determine CONTRA60's protection levels.

- > High Salt mist treatment
- > Humid sulphurous atmosphere treatment
- > Current withstanding test: 200kA (10/350 μ s).
- > Advance time DeltaT (ΔT) test

TECHNICAL CHARACTERISTICS

Material	Stainless Steel
Weight	3.00 kg
Ext. Diameter	120 mm.
Lenght (h)	52 cm.
Box Lenght	56 cm.
Rod Diameter	20 mm.
Adapter Diameter	60mm. Male
IP Code	IP67
Working Temperature	-25°C / 90°C
Type of Terminal	Electroatmospheric
Internal Insulation	High Density Polyurethane Resin
Standard	NFC 17-102/2011
Grounding Method	Wire/Tape
Max. Current Withstand (10/350 μ s) / >2.5 MJ/ Ω	200kA
Advance Time (ΔT)	60 μs.

High voltage impulse emitter	ION GENERATOR unit
Completely autonomous	Testable with ORBITAL Testers
30% more efficient than passive systems	Fully compatible with the standards
Electroatmospheric capacitor-inside	20 years manufacturer warranty



ABOUT ORBITAL

ORBITAL Lightning Protection Technologies is a fully compatible and competitive manufacturer and supplier of external direct strike lightning instruments, grounding/bonding equipments under ORBTech® brand, surge protection devices (SPDs) and all kinds of Lightning protection side products. For long successful years, ORBITAL has been providing expertise for lightning protection insights to its customers in some of the most lightning prone areas of the world. Each of our personnel have extensive experience in risk management, system designings, training, installation, certification, qualifications, production and commissioning of all systems in a wide variety of industry groups like manufacturing, transportation, security and military zones.

ORBITAL also maintains a third party Quality Management System to AS/NZS ISO 9001:2015, ISO 14001:2015, ISO 29001:2010, OHSAS 9001:2007 and CE European Conformity certificates. ORBITAL's most range of products and services are exported from its head Office, manufacture and research facility in Izmir, Turkey and via regional/local offices and branches worldwide in 4 continents.



Our company has been recognised in Turkey in a very respectful aspect by Ministry of Industry, Exporters Agencies and Trade Chambers. ORBITAL's fascinating production and export successes has been awarded by government and export agencies with many prestigious awards.

ORBITAL TECHS LIGHTNING PROTECTION

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