



Grounding Solutions
Surge Protection
Lightning Protection

SUPPORTING PRODUCTS



EARLY STREAMER EMISSION TERMINALS

TerraStreamer®



TerraStreamer® ESE Terminals are the preferred protection method for mega-structures such as distribution warehouses, industrial plants, amusement parks, shopping malls, sports arenas, golf courses, and other large area structures. ESE Terminals are tested to withstand a minimum electrical discharge current of 100 kA.



Early Streamer Emission (ESE) Terminals

Extensive research and development has allowed Alltec Corporation 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, TerraStreamer® ESEs provide lightning protection to facilities that would otherwise be difficult or cost prohibitive to protect by conventional means.

The TerraStreamer® ESE 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 TerraStreamer® ESE 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 TerraStreamer's internal design. These combined advantages ensure that the TerraStreamer® ESE System provides a secure zone of protection.

TerraStreamer® ESEs are made of non-corrosive materials, utilize advanced and sustainable technologies, maintain a 5-year replacement warranty, and are independently tested and certified

to NF C 17-102 and UNE 21 186 standards. TerraStreamer® products complete the Alltec Protection Pyramid by capturing dangerous lightning discharges and safely channeling them to earth.

Features

- NF C 17-102 and UNE 21 186 tested and certified
- Lightweight and low wind loading
- Reliable performance in all weather conditions
- Suitable for corrosive environments
- Available in five models for multiple applications
- Economical and easy to install
- Five-year replacement warranty

A Certificate of Protection Radius and Fulfillment of standards UNE 21 186 and NF C 17-102 for each model and level

- Certificate of Withstood Current
- Certificate of Gain in Triggering Time

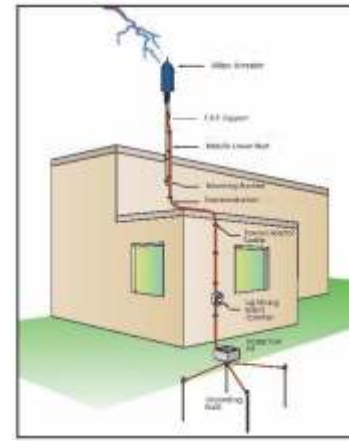
Alltec has developed the TerraStreamer® product according to internationally recognized standards. However, Alltec does not make any specific performance guarantees as no lightning protection system can be 100% effective.

The ESE Principle

The principle of operation for ESE terminals is to create an upward propagating streamer earlier than conventional air terminals or other objects on the earth. TerraStreamer® 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 TerraStreamer® ESE terminal will be the target of the developing lightning strike. The selection of the TerraStreamer® model, placement, and mounting height above the protected area all factor into formulas calculating the dimensions of the protection area.



The standard protection radius R_p of the TerraStreamer is linked (according to NF C 17-102 standard) to ΔT , to the protection levels I, II, III, or IV and to the height of the TerraStreamer above the protected structure (H, defined by NF C 17-102 as a minimum of 2 m). The NF C 17-102 standard includes four levels of protection.

Additional Levels

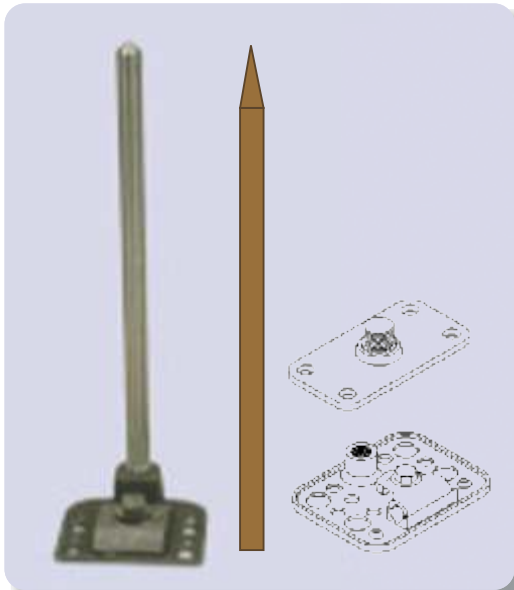
Level 1+: Structure with a roof protected by an ESE air terminal. The whole constituted by ESE, down conductor(s) and earthing system(s), is connected to continuous metal framework or in concrete of the structure which are used as additional natural down conductors.

Level 1 ++: Structure with roof protected by ESE level 1+ with protection radius reduction by 40% and ensuring a complete protection from the materials on the roof against direct lightning.

PROTECTION AREAS						
	H(m)	TSP 20 (Rp)	TSP 30 (Rp)	TSP 40 (Rp)	TSP 50 (Rp)	TSP 60 (Rp)
Level I	2	15	20	25	30	32
	3	23	29	37	45	48
	4	31	40	50	59	65
	5	39	50	62	73	79
	6	40	50	62	74	80
	8	40	51	63	74	80
Level II	2	18	23	28	33	38
	3	26	34	42	49	55
	4	36	46	55	64	74
	5	45	58	69	80	89
	6	47	58	69	80	90
	8	47	59	70	81	90
Level III	2	21	26	32	37	42
	3	31	39	48	54	62
	4	42	52	63	73	82
	5	54	66	80	92	99
	6	54	66	80	92	99
	8	56	68	81	93	100
Level IV	2	24	29	36	41	45
	3	35	43	52	60	65
	4	49	59	71	80	87
	5	61	74	88	101	107
	6	62	74	89	102	108
	8	63	76	90	103	109
	10	65	77	91	104	110

Air Terminal & Air Terminal Bases

(Traditional Lightning Protection System)



ALLTEC manufactures and distributes a full line of structural lightning protection components for residential, commercial and industrial applications. All of our products are made from the highest quality materials, with strict quality assurance procedures to ensure that all of our parts will perform to specification and provide many years of worry free service.

All Air terminals in these section meet OR exceed the material specifications and requirement of IS standard and Lightning Protection Institute,

All Air Terminals are machines to "threads — standard.

AT— C-1— 40 Air Terminal Copper Alloy 1" Dia, 40" Long
AT— A-1— 40 Air Terminal Aluminum 1" Dia, 40" Long
AT— SS-1— 40 Air Terminal Stainless Steel 1" Dia, 40" Long

Air Terminal Bases

Applicable where placing Air Terminals on grounded on pre-bonded metal surfaces. The has an 6 sq in. contact surface and four holes for fastening.

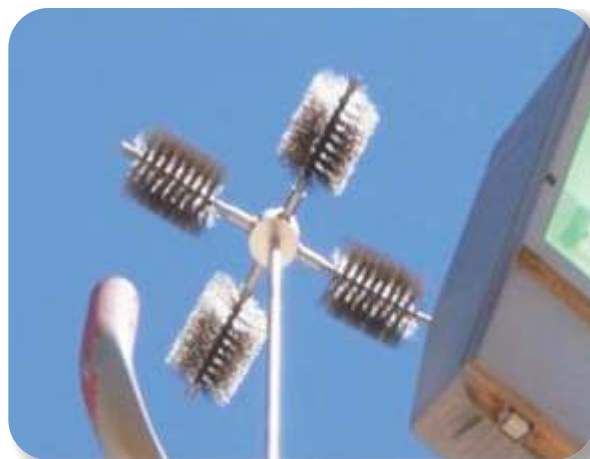
BS—A-1" -H—AT Base Aluminum 1" -13 threaded ID for Air Terminal

TerraStat

Science and experience show that TerraStat Charge Dissipation Terminals, and the structures on which they are installed, are much less likely to sustain a direct lightning strike than unprotected structures or structures with traditional lightning protection systems. Designs utilizing TerraStat Charge Dissipation Terminals (CDT) should be created to meet or exceed UL96A, NFPA 780, and IEC 62305-3 standards, while providing the enhanced performance offered by CDT technology

Charge Dissipation, or Charge Redistribution Technology uses the principle of point discharge to facilitate the dissipation, or the reduction, of a buildup of static electrical charges. The purpose of charge dissipation products is to reduce the accumulation of electrical charges and thereby prevent an electrical arc or an electrical current flow that can cause damage.

This technology is successfully applied to lightning protection with the development of our patented TerraStat product line, which can be mounted on structures to reduce the accumulation of ground charge. This is accomplished by ionizing surrounding air and neutralizing accumulated charges on the earth's surface, including the grounding system.



TERRAWELD Exothermic Welding Systems

Provides simple, cost effective, permanent connections using a high temperature exothermic reaction.

Requires no external heat source, portable fault tolerant, highly conductive, corrosion resistant, will not loosen.

UL listed

The Terraweld® Exothermic Welding System provides the ultimate in permanent molecular bonding. The process of exothermic welding, in which no external source of heat or power is required, is the universally preferred method of making electrical connections of copper-to-copper or copper-to-steel.



TERRAFILL Ground Enhancement Material

Provides a simple method to economically tackle difficult grounding situations.

Resistivity $< 1 \Omega\text{-cm}$; freezing increases resistance less than 10%
Will not expand, shrink, dissolve, or decay; contains corrosion inhibitor.

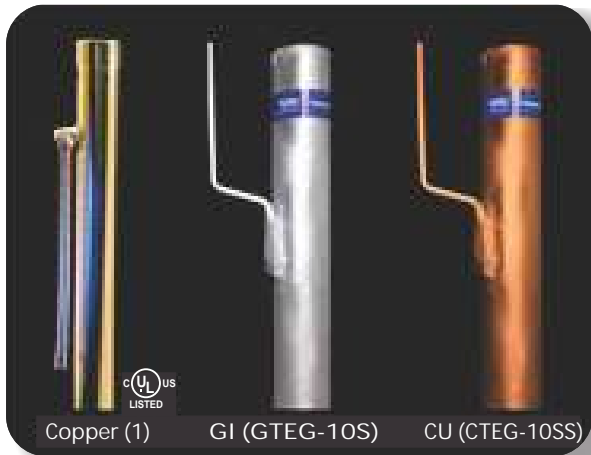
Environmentally friendly

Self-compacting, easy to install

Does not require mixing with water

Motorola R56 compliant

ROHS compliant



TERRADYNE Electrolytic Grounding System

Provides efficient electrical grounding with continuous low resistance/low impedance. Corrosion resistance and maintenance free rated for high fault currents replaces multiple conventional rods vertical and horizontal models available in both Cu and GI, produces effective, stable, year round grounding reference.

Terradyne electrolytic Grounding system is a multipurpose grounding system. It has been designed to provide long term protection from lightning, electrical transients, static discharges, electro-magnetic interference and other electrical hazards. The system may be used for virtually any application where the protection of machinery, electronics and personnel is important.

COPPER CLAD STEEL ROD

Mild Steel Grounding Rod Clad with 250 micron copper.

UL Listed

Available in 5F and 10f lengths

Suitable for all soil types

UL Listed maintenance free economical earthing system. The electrode is of 5/8" or 3/4" dia MS rod with 250 microns of copper cladding, in multiple of 5ft lengths, joined using bronze couplers, or 10ft single with optional terminal plate and SS hardware, and supported with TerraFill TF-50, a non-soluble, environment friendly, low residence backfill. Electrodes are packed all around and at bottom when placed in a 3" - 4" dia hole of 10" depth. The system is supplied with a polyplastic pit cover with specially engineered locking facility.

These electrodes can be used as standalone, in Delta configuration or as part of any multi electrode system.





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