

Grounding and Bonding Solutions • Surge Suppression • Lightning Protection



SOLUTION PROVIDERS FOR AN ENERGIZED WORLD™



**ALLTEC is an international, full-service company specializing in engineered grounding/earthing & bonding solutions, surge/transient protection, and lightning protection. We offer decades of knowledge and experience to our customers, advising of the best methods for risk mitigation, and ultimately applying those evaluations as comprehensively engineered solutions for today's infrastructure challenges.**

**Our global experience has yielded specialized and advanced technology for a wide range of applications. Our organization maintains one of the most knowledgeable and experienced technical staffs in the world. We pride ourselves on providing high quality solutions and customer service. We are ready to help you solve your unique facility needs.**

– Christopher Bean  
PRESIDENT/CEO



ALLTEC is an ISO 9001:2008 registered company. We are committed to our customers' satisfaction and follow strict quality guidelines to ensure that we meet or exceed our customer's needs. When dealing with the risks associated with lightning and power quality issues, it is imperative that every effort is taken to use the highest quality products and adhere to the highest standards for protection services.

## What We Do

Since 1991, ALLTEC has been a leader in applying global engineered solutions which reduce the risks associated with direct and indirect lightning strikes, as well as diminishing the hidden effects of surge events. We have focused continuously on innovating new technology, improving solutions, refining product quality and enhancing customer service. As ***Solution Providers for an Energized World™*** we offer a comprehensive facility protection approach to solving the world's most difficult lightning, grounding and power quality problems. ALLTEC has the knowledge, experience, and products to provide the optimal protection solution.



### OUR MISSION

Our mission is to exceed the expectations of our customers. We aspire to the highest level of excellence in our risk mitigation evaluation, product & technology offerings, design, and systems services. We accomplish this by committing all of our resources to achieve superior customer satisfaction.

## Filling a Critical Need

### The Lightning Phenomenon

Lightning is an awesome and unpredictable act of nature. It causes more deaths and property damage than any other weather related event. In the United States alone, lightning detection systems monitor an average of 25 million flashes of lightning from cloud to ground every year, and lightning is reported to cause more than \$2 billion damage annually.

Fortunately, it is economically viable to protect any structure or facility from a lightning strike. A properly installed lightning protection system (or LPS) is over 98% effective in preventing damage associated with a lightning strike. Installation of an LPS is a tried and true method of protection that has been used for more than a century.

Whatever lightning protection method is implemented, the importance of the grounding system supporting it cannot be overemphasized. A well designed, correctly installed, low impedance and low resistance connection between the earth and the LPS components is essential. An organization can most effectively approach and resolve the concerns of safety and power quality issues by utilizing multiple methods of protection and the complete facility approach employed by the solution specialists at ALLTEC.

You can learn more at [www.alltecglob.com/lightning](http://www.alltecglob.com/lightning)

### Transient Electrical Voltage

While lightning-induced surges represent the most formidable transient-related equipment menace, most surges originate from sources located internally – sources located physically within a facility. Studies have verified that approximately 80% of transient activity at a given facility is internally generated. Transient activity can weaken equipment over time and eventually lead to catastrophic equipment failure.

The effective installation of surge protection devices can reduce the magnitude of random, high energy, short-duration electrical power anomalies. A multitude of devices are available for Main & Sub Panel, AC & DC, Medium Voltage, and Telecom & Data protection. These devices keep equipment safe during the nanoseconds that a disruptive transient occurs.

Properly installed surge protection devices on all circuit conductors maximizes total site protection from the threat that transient surges present. Surge suppression should be one part of an overall scheme of total site protection, a component of a complete solution including effective grounding and lightning protection.

You can learn more at [www.alltecglob.com/surge](http://www.alltecglob.com/surge)



## The ALLTEC Protection Pyramid™

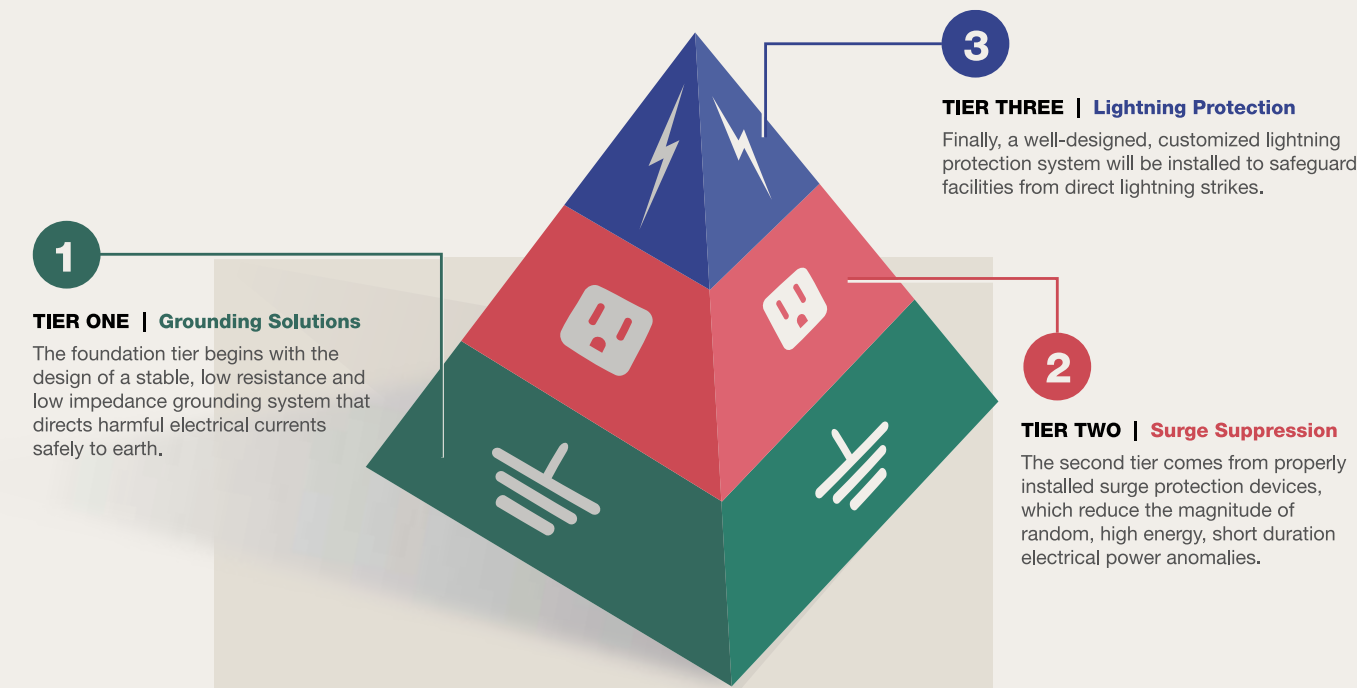
The ALLTEC Protection Pyramid™ provides a three-tier comprehensive facility approach for grounding/earthing & bonding, surge suppression, and lightning protection solutions. The Pyramid comes as close as humanly possible to protect both man and machine from lightning and non-lightning induced transient voltage damage.

### Why the Pyramid?

Each level of the ALLTEC Protection Pyramid™ represents a method utilized to protect facilities from damages caused by harmful electrical events. Rather than treating these tiers as independent, ALLTEC regards each layer as an interlocking component. When all three tiers are designed, installed, and maintained as a total system, comprehensive facility protection can be achieved.

Safeguard valuable assets, defend critical electronics, and protect businesses using the ALLTEC Protection Pyramid™. The ALLTEC Protection Pyramid™ uses ALLTEC's proven products and services for grounding, surge suppression, and lightning protection to provide full infrastructure protection.

You can learn more at [www.alltecglob.com/pyramid](http://www.alltecglob.com/pyramid)





# Consulting, Engineering & Design, Project Management and Inspection/Preventative Maintenance Services

ALLTEC's greatest strength is our complete Systems Engineering and Products Solutions Program. Our experienced and accredited Engineering and Project Management teams apply the three-tiered ALLTEC Protection Pyramid™ approach while working with leading international client companies to develop the best solutions for each and every situation. While ALLTEC offers a full multi-phase solution for clients in need of all of our services, we can also provide a selection of individualized services which best fit a client's unique protection needs.

## ALLTEC's Solutions for Our Clients:

- Protect critical facilities, equipment, records, and assets
- Provide a safe working environment for personnel
- Reduce the risk of downtime, lost revenue and productivity
- Reduce vulnerability of interdependent critical infrastructures for a disaster resilient enterprise

## Consulting (Phase I) TerraEval™ Advanced Solution Assessment

Developed by ALLTEC, the TerraEval™ Advanced Solution Assessment combines our capabilities to facilitate the design of your grounding & bonding solutions, surge protection, and lightning protection systems to meet any industry or customer specific performance specifications and requirements.

- Historical Analysis
- Site Plan Analysis and Zone Determination
- Establish Scope of Work
- Testing & Site Engineering Evaluation
- Data Analysis & Computer Modeling
- Review of Existing CAD Drawings
- Risk Assessment
- Formal Report, Assessment of Compliance, Recommendations for Improvement

## Engineering & Design (Phase II)

Innovation and sound engineering practices combine in ALLTEC's custom Engineering and Design services. Special problems require special solutions, and we are ready to design, engineer and manufacture the answers to our client's needs while conforming to application, specification, and budgetary necessities.

- Engineering & Design of Grounding and Lightning Protection Systems – Future State
- Design Optimization for Cost & Performance
- Design Validation
- Internal Review & Sign Off
- Client Approval
- Materials List & Specifications
- Material Supply of Standard & Custom Engineered Mechanical, Electrical and Electronic Devices
- UL Master Label Compliant Designs Certified by Master Designer/Installer Personnel

## Project Management (Phase III)

ALLTEC's Project Management Team provides strong, cost effective, and professional project management services that encompass the oversight of all engineering, architectural, and construction activities as well as technical and testing support.

- General Oversight of All Project Related Activities
- Resource Procurement & Allocation
- Bidding Document Preparation
- Oversight of Project Execution
- Progress & Change Reporting
- Quality Control/Testing
- Maintenance Program Set-up & Training
- Project Closeout Management
- UL Master Label Compliant Installation

## Inspection/Preventative Maintenance (Phase IV)

After the completion of the project it is important to develop an annual inspection program which will evaluate system performance and condition. When organizations choose ALLTEC to complete their inspections, they ensure that their risk mitigation system continues to comply with UL 96A, NFPA 780, LPI 175 and other applicable codes and standards, regardless of changes in standards or changes in the facilities on site.

- Initial System Verification (if not installed by ALLTEC)
- Review Damage Caused by Weather/Mechanical Separation/Theft
- Recommend Necessary Protection for Facility Additions or Changes in Use
- Provide Site Specific Reporting to Client or Governing Body
- Assist in Preparing Facility for UL Re-Inspection
- UL Master Label Recertification

## Standards & Code Specification Compliance

ALLTEC is accredited and certified by numerous standards authorities. As an expert in the latest approved standards and code specifications for grounding and lightning protection systems, ALLTEC is an active sought-after member for standards committees. When your company enlists our complete turn-key services for lightning protection, surge & transient protection, and grounding systems, you are assured of compliance with these organizations.

### OFFERING COMPLIANCE TO:

- IEEE 80 & 81
- UL 96A
- NFPA 780
- LPI 175
- API 2003
- API 545
- IEC 62305
- UNE 21 186
- NF C 17-102
- Motorola R56
- UL 1449
- IEC 61643
- Customer-specific & other Specifications

You can learn more at [www.alltecglob.com/services](http://www.alltecglob.com/services)





## GROUNDING SOLUTIONS TIER ONE:

The most important and costly investment an organization makes is in their sensitive electronic equipment. As this equipment becomes more sophisticated and electrically susceptible, the need for an exceptionally low-resistance grounding system becomes crucial. It is in response to this requirement that ALLTEC developed the TerraDyne® Electrolytic Grounding System, TerraFill® Low Resistivity Grounding Backfill, TerraWeld® Exothermic Welding System, GroundGuardian® Active Floating Roof Tank Monitoring System, and other protection innovations. You can learn more at [www.alltecglobal.com/groundingsolutions](http://www.alltecglobal.com/groundingsolutions).

### Electrolytic Grounding System (EGS)

## TerraDyne®

TerraDyne® (EGS) is a multipurpose grounding system which may be used for virtually any application where the protection of machinery, electronics, and personnel are important.



#### FEATURES & BENEFITS

- Enhances Performance of Your Electronics
- Provides Ultra-low Resistance to Earth
- 24/7 Protection
- No Dependency on Ground Moisture
- Stabilizes Signal References
- Reduces the Risk of Injuries
- Exceptional Product Warranty

#### PROTECT AGAINST

- Lightning
- Electrical Transients
- Static Discharges
- Electromagnetic Interference
- Other Electrical Hazards

#### TYPICAL APPLICATIONS

- Telecommunications
- Military
- Data Centers
- Oil & Gas

#### HOW IT WORKS

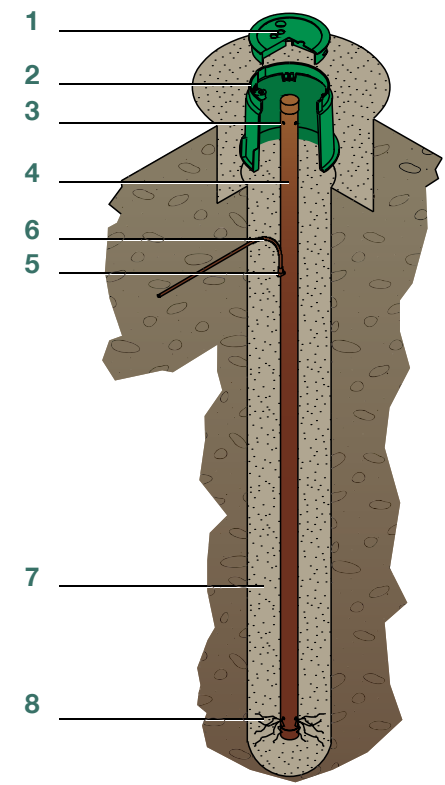
- TerraDyne® EGS effectively utilizes a hygroscopic process to acquire moisture from the atmosphere.
- The moisture and the nontoxic chemicals inside the electrode react and create an electrolytic solution.
- The solution leaches into the surrounding soil through carefully positioned ports
- Soil conductivity is improved and dramatically reduces electrical resistance between electrode and earth.
- The hole surrounding the TerraDyne® electrode is backfilled with TerraFill® (included in each kit) which lowers earth and electrode contact resistance.
- Typical ground rods are often ineffective when compared to the capabilities of the TerraDyne® EGS.

You can learn more at [www.alltecglobal.com/terradyne](http://www.alltecglobal.com/terradyne)

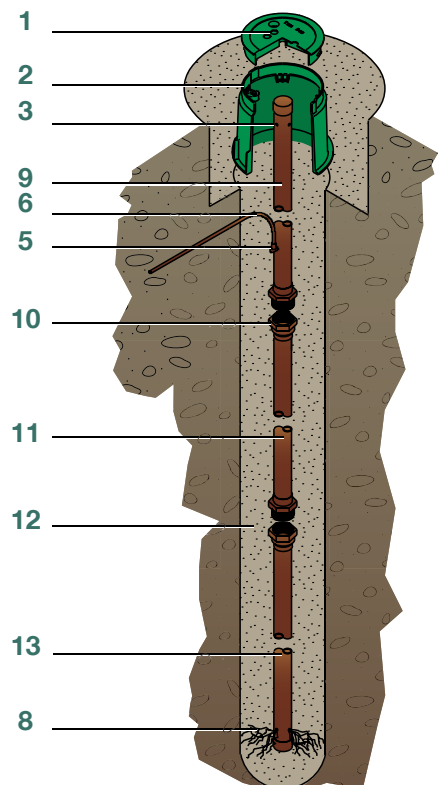




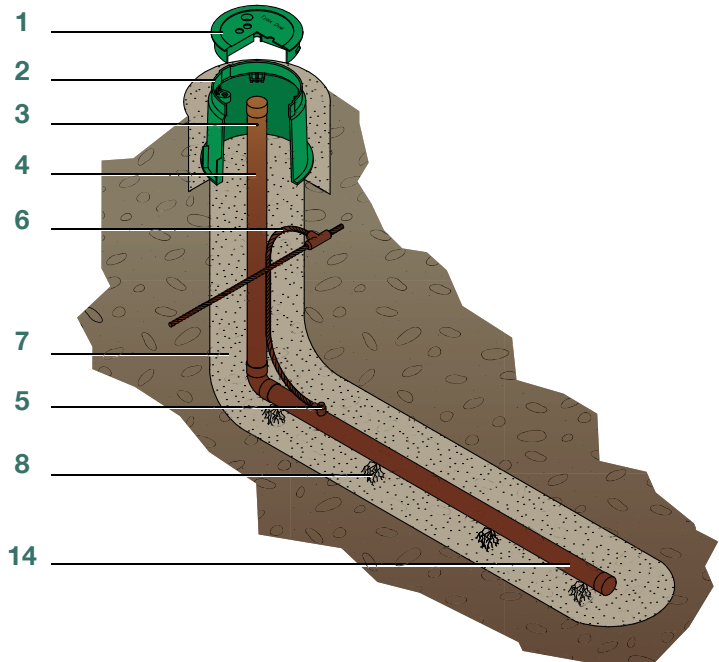
# TerraDyne®



VERTICAL MODEL "S" Series



VERTICAL MODEL "Deep" Series



HORIZONTAL MODEL "L" Series

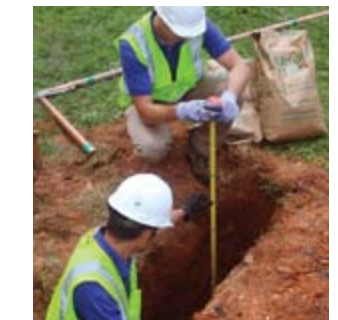
**TERRADYNE® SERIES KEY**

1 Vented Cover	5 Exothermic Connection	9 20'-0" Upper Electrode Section	13 20'-0" Lower Electrode Section
2 Protective Test Well	6 Copper Conductor	10 Copper Coupler	14 Horizontal Shaft
3 Vent Ports	7 TerraFill® Backfill	11 20' Body Sections (Quantities Vary)	
4 Vertical Shaft	8 Electrolytic "Routes" and Leach Ports	12 TerraFill® Deep Series Backfill (TF-50DS)	

## Ground Enhancing Backfill

# TerraFill®

TerraFill® (Low Resistivity Grounding Backfill) provides a simple method to substantially lower the earth resistance of grounding systems. When used with copper grounding equipment, contact resistance to earth is lowered by up to 63%. TerraFill® produces lower steady state and stable grounding impedance, resulting in a reliable, low resistance, electrical connection between the grounding system and the earth.



### FEATURES & BENEFITS

- Easily applied
- Produces lower surge impedance resulting in faster transient dissipation
- Excellent shelf life with long-term performance
- Manufactured to be compatible with copper grounding systems and standard field application methods
- Can be used in connection with grounding grids to minimize step and touch potentials
- Produces acceptable grounding impedance in high-resistivity soils, within a reasonably sized area
- Versatile – Applying TerraFill® to lower the ground resistance of grounding equipment allows for a variety of earthing designs which might otherwise be impractical
- Self-compacting – comes in easily transportable 50 lb. (22.68 kg) bags, easily installed by a single person

### PERMANENT

- Will not dissolve or decay with time
- Requires no maintenance
- Maintains constant resistance for the life of the system

### ENVIRONMENTALLY FRIENDLY

- Does not affect soil or ground water
- Meets all EPA requirements for landfill
- Material Safety Data Sheet (MSDS) available on request
- Restriction of Hazardous Substances (RoHS) compliant
- Motorola R56 compliant

You can learn more at [www.alltecglob.com/terrafill](http://www.alltecglob.com/terrafill)





Exothermic Welding System

# TerraWeld®

The TerraWeld® Exothermic Welding System provides a superior solution via permanent molecular bonding. The process of exothermic welding is an industry preferred method of making electrical connections because of its inherent molecular-level reliability for conductors and grounding points.



You can learn more at [www.alltecglobal.com/terraweld](http://www.alltecglobal.com/terraweld)

**FEATURES & BENEFITS**

- Maintains current carrying capacity exceeding that of the conductors in the system (necessary for all lightning protection and grounding systems)
- Provides higher fusing capacity than conductors to which they're bonded
- Complies with all regulations for functionality and safety. (TerraWeld®'s system resistance, impedance and ampacity meet all challenges and deliver assurance for your company)
- Provides performance superior to all existing surface-to-surface mechanical retention connectors (pressure type connections are susceptible to variation, aging, corrosion and failure—not TerraWeld®)
- Are the only connections that will not loosen or increase resistance over the lifetime of the installation
- Is the preferred connection method especially for below-grade connections

TerraWeld® is distributed internationally and meets or exceeds the standards of the following:

- UL 467
- IEEE 80, 837 and 1100
- NEC Article 250
- IEC 62305

**TYPICAL APPLICATIONS**

- Cable-to-cable splices, tee connection, cross run connection, parallel connections, etc.
- Wire grid-to-ground rod, cable-to-rod, steel sheets and pipes and rod-to-rod splices
- Tap conductor-to-vertical/horizontal pipe, flat surface, or plate



- Through conductor-to-vertical/horizontal pipe, flat surface or plate
  - Bus bar & wire-to-rail connections
  - Solid or stranded cable, metal tape, re-bar, and terminal lug connections
- COMPATIBLE WITH**
- Copper
  - Steel
  - Columbium
  - Bronze
  - Iron
  - Copper-clad steel
  - Stainless steel
  - Monel
  - Niobium
  - Brass
  - Silicon bronze

Active Floating Roof Tank Monitoring System

# GroundGuardian®

The GroundGuardian® Active Floating Roof Tank Monitoring System, developed by ALLTEC, alerting you to resistive changes in your roof-to-shell bond, maintaining a safe work environment, and reducing risks.

**FEATURES & BENEFITS**

- Uses patent pending, innovative active monitoring technology to detect any change in resistance of the electrical bond between a floating roof and the storage tank's grounding system
- The GroundGuardian® continuously monitors the established ground loop for dangerous deviation in the bond resistance between the floating roof and the External Floating Roof Tank (EFRT)'s grounded shell, commonly caused by corrosion, wax accumulation, or breakage

**DRY RELAY CONTACT (DRC) COMPATIBILITY**

The GroundGuardian® DRCs can be used by the facility's Process Control monitoring system to:

- Initiate External Alarms
- Activate Product Transfer Interlocks
- Update Time/Date Stamp Records
- Trigger Lightning Protection Bonding Inspection/Maintenance

**HOW IT WORKS**

- The GroundGuardian® Monitor/Alarm is housed in an ATEX rated flame-proof/explosion proof metal enclosure suitable for installation in the hazardous environment of your External Floating Roof Tank (EFRT).
- From the Monitor/Alarm's Intrinsically Safe (IS) rated subsystem, current is passed to the optional Remote I/O Enclosure, which is rated for installation on the storage tank shell wall.
- The Remote I/O Enclosure connects to a self-retracting insulated Monitoring Reel with a bond to the tank's floating roof.
- A simple reference connection is made from the monitor's supervisor circuit to the EFRT's earthing/grounding system.
- During conditions of less than 10 Ohm resistance, a green LED will flash on the monitor's front panel.
- When resistance exceeds 10 Ohms, the GroundGuardian® initiates an alarm state; two Dry Relay Contacts (DRCs) change state and the Red LEDs on the front panel light up.



**ENCLOSURE RATINGS**

- NEC/CEC: Class I, Groups B, C & D, Type 3 & 4, Class II, Groups E, F & G, and Class III Hazardous Locations
- ATEX: Zone 1

You can learn more at [www.alltecglobal.com/groundguardian](http://www.alltecglobal.com/groundguardian)



## SURGE SUPPRESSION TIER TWO:

To prolong the service life of mission critical equipment it is absolutely necessary for facilities to be equipped to effectively dissipate large amounts of surge energy. Properly installed DynaShield® Surge Protection Devices on all critical circuit conductors reduce the magnitude of random, high energy, short-duration electrical power anomalies. You can learn more at [www.alltecglobal.com/surgesuppression](http://www.alltecglobal.com/surgesuppression).

### Surge Protection Device (SPD)

## DynaShield®

DynaShield® Surge Protective Devices (SPD) incorporate both Voltage and Frequency Reactive Circuitry that is years ahead of other devices on the market today. DynaShield® SPDs dissipate large amounts of surge energy and help prolong the service life of modern equipment. They are state of the art SPDs that meet all current UL 1449-3rd edition safety and operational requirements.

#### FEATURES & BENEFITS

- Neutral/Ground Monitoring Circuitry and internal circuitry problem indicator
- Fast response and recovery
- Tight clamping levels
- Frequency Reactive Filtering
- Surge Counter, Audible Alarms and Dry Relay Contacts (certain models)
- An array of NEMA 4 & 4X rated enclosures
- Full Mode Suppression

Dedicated "Common Mode" suppression circuits to suppress lightning induced activity

Dedicated "Normal Mode" suppression circuits to suppress non-lightning generated transient activity

- Patented Rapid Response Thermal Disconnecting Mechanism Ensures Safe Operation
- UL1449-3rd Edition Approved for TYPE 1 and TYPE 2 Applications
- High 200kArms Short Circuit Current Rating (SCCR)
- Integrated Fault Indication Contact
- High Surge Current Capacity
- Dual Encapsulated Suppression Components Ensures (certain models):
  - Efficient, High Performance Operation
  - Wide Operational Temperature Ranges
  - Low Leakage Current Characteristics

You can learn more at [www.alltecglobal.com/dynashield](http://www.alltecglobal.com/dynashield)



#### COMPLIANCE

- Listed to ANSI/UL 1449-3rd Edition; UL 1283 (PT-Series)
- ANSI/IEEE C62.41.1- 2002 and C62.41.2- 2002 (PT-Series)
- Designed and tested to IEC 61643-1 (KSB Series and AD Series)
- KSB SPD product line is designed to adhere to IEC 61643-21 specifications, and provide protection from the highest LPZ, to equipment level application.

#### SURGE SOURCES

- Direct and Indirect lightning activity
- Grid switching & power factor correction actions
- Line Faults
- HVAC & furnace Igniters
- Fluorescent light ballasts
- Industrial equipment sequencing
- Elevator operation
- Inductive/Motorload power cycling
- Rectifiers
- And Many More





## LIGHTNING PROTECTION TIER THREE:

Securing investments, operations, and personnel against direct lightning strikes is critical for any organization. ALLTEC's TerraStat® Charge Dissipation Terminals, TerraStreamer® Early Streamer Emission Terminals, and traditional lightning protection components each have their own unique methods of effectively protecting your people and facility from lightning damages and injury. You can learn more at [www.alltecglobal.com/lightningprotection](http://www.alltecglobal.com/lightningprotection).

### Charge Dissipation Terminal (CDT)

## TerraStat®

Developed by ALLTEC, TerraStat® is the latest design in lightning dissipation technology. 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.

#### FEATURES & BENEFITS

- Provides enhanced performance over traditional lightning protection
- Patented Technology
- High-grade stainless steel construction
- Lightweight and easy to install
- Corrosion resistant
- Low wind loading
- Large selection of mounting hardware
- UL listed and recommended as per API 2003
- Independently tested
- Meets or exceeds UL 96A, NFPA 780, and IEC 62305 standards
- Is available in custom systems designed and manufactured by ALLTEC to fit your needs

#### TYPICAL APPLICATIONS

- TS-100: Standard Protection. Office buildings, shelters, industrial facilities, homes, and warehouses
- TS-400: Enhanced Protection. Monopoles, petrochemical, high-mast lightning, communication towers and externally mounted cameras
- TS-500 (Vertically Mounted) and TS-510 (Horizontally Mounted): Enhanced Protection. Communication towers, bridges, petrochemical storage facilities, and stacks

You can learn more at [www.alltecglobal.com/terrastat](http://www.alltecglobal.com/terrastat)





## How It Works

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.

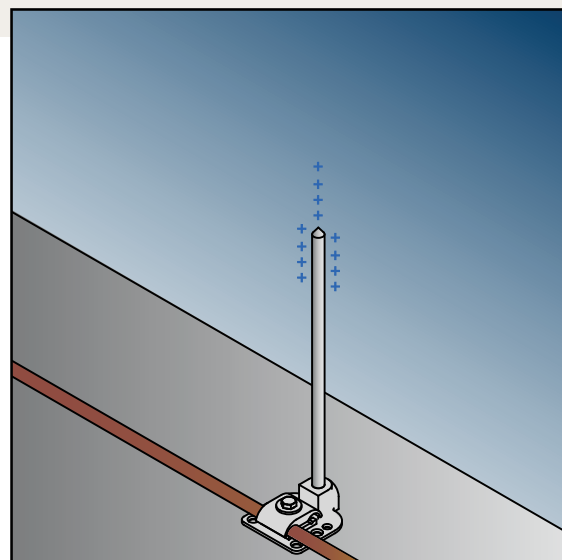
This technology is successfully applied to lightning protection with the development of our TerraStat® product line, which can be mounted on structures to reduce the accumulation of ground charge. This is accomplished by ionizing surrounding air and neutralizing accumulated charges on the earth's surface,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

### Charge Accumulation

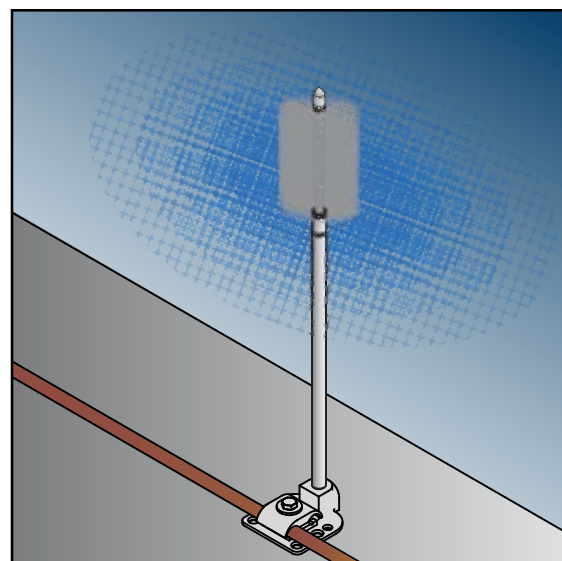
A single point, such as on a lightning rod, or as occurs on a corner of a tower or structure, will reach a point of saturation to the extent that it cannot disperse charge at a fast enough rate to keep up with the charge accumulation. These areas then become the points where streamers will form, thereby attracting a lightning strike to themselves.

### Charge Dissipation

When the process is intensified with the addition of thousands of specially engineered charge dissipation elements positioned to maximize corona generation, the dissipation of ions is magnified many times over that of a single sharp point. The resulting effect is that the ground charges, which develop streamers attracting a lightning strike, no longer have sufficient electrical energy supporting them to initiate this process. Without the formation of an upward streamer, the downward stepped leaders will look for a better target. Thereby, the structure can be better protected from receiving a direct lightning strike.



Traditional Lightning Rod



Charge Dissipation Terminal



## Early Streamer Emission Terminal (ESE)

# TerraStreamer®

Extensive research has allowed ALLTEC to create a lightweight, low wind loading ESE system to provide a safe and efficient manner of controlling dangerous lightning energy before it damages a structure or its important contents, including human occupants. The TerraStreamer® ESE air terminal initiates the upward connecting streamer earlier in time than a traditional lightning air terminal, thus extending the effective range of protection over and above that of conventional lightning air terminals. By utilizing this advanced technology, TerraStreamer® ESEs provide lightning protection to facilities that would otherwise be difficult or cost prohibitive to protect by conventional means.



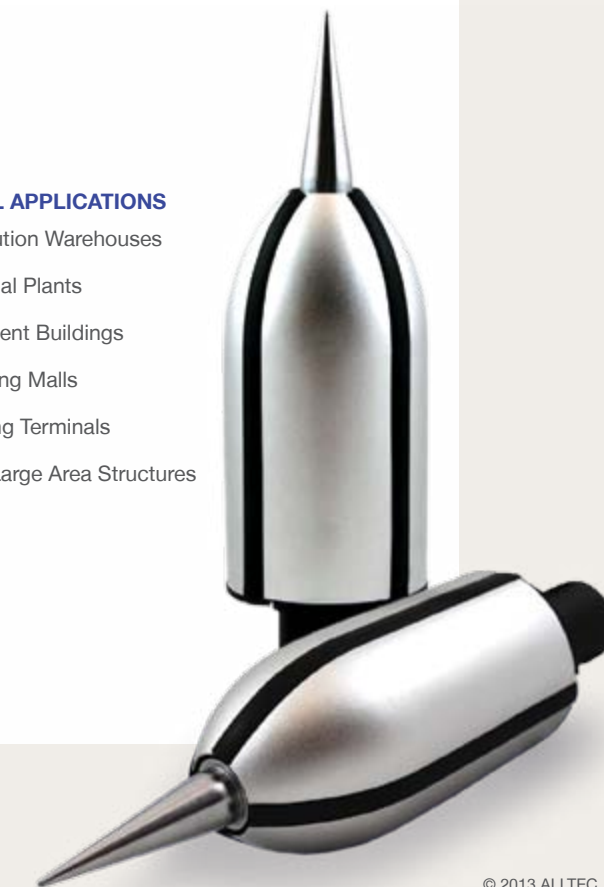
### FEATURES & BENEFITS

- Patented Technology
- 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 numerous applications
- Economical and easy to install
- No internal electronics or power supply

### TYPICAL APPLICATIONS

- Distribution Warehouses
- Industrial Plants
- Apartment Buildings
- Shopping Malls
- Shipping Terminals
- Other Large Area Structures

You can learn more at [www.alltecglob.com/terrastreamer](http://www.alltecglob.com/terrastreamer)





## 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.

1. Thunderstorm begins creating downward step leaders
2. Ambient electric field intensity in the area of the ESE terminal increases
3. Terminal is triggered to release the stored ground charge
4. Upward streamer is formed microseconds earlier than other objects in the immediate area
5. The TerraStreamer® ESE terminal becomes 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.

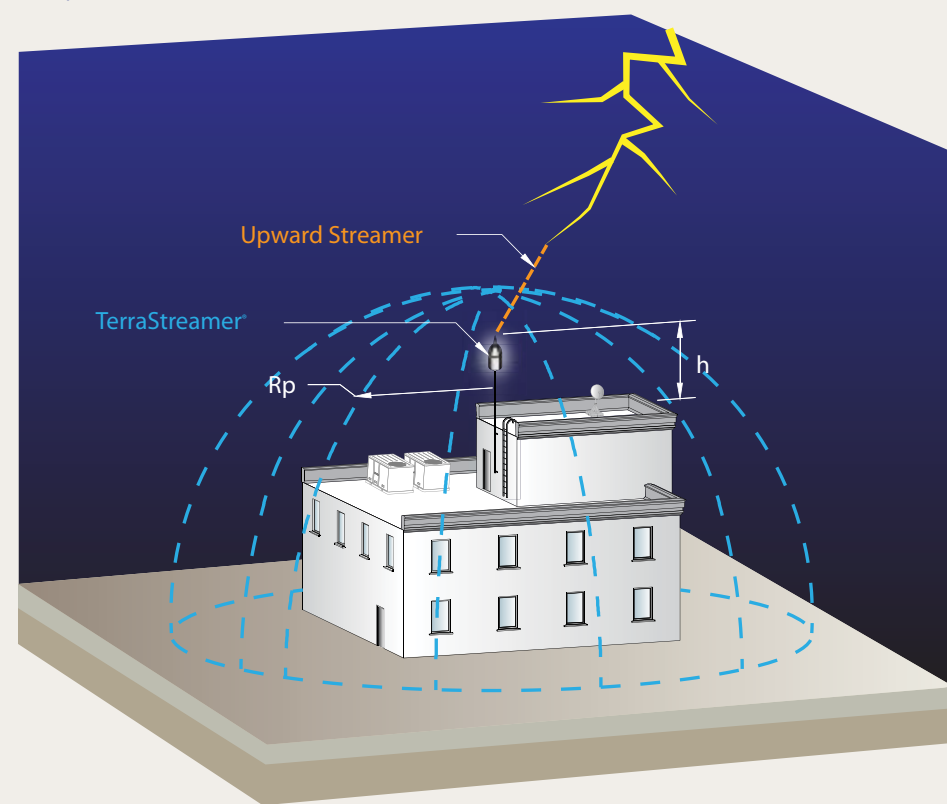
## Advantages

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 patented design. TerraStreamer® terminals are:

- Externally mounted, proactive, structural lightning protection devices
- Designed to activate in the moments directly preceding an imminent, direct strike
- Tested to certify gain in triggering time ( $\Delta T$ ) as per NF C 17-102 and UNE 21 186
- Designed to ensure that the system provides a secure zone of protection

## Protection Radius

The standard protection radius  $R_p$  of the TerraStreamer® is linked (according to NF C 17-102 standard) to  $T$ , 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.



## Products

### GROUNDING AND BONDING

- TerraDyne® Electrolytic Ground Rods
- TerraFill® Ground Enhancing Backfill
- TerraWeld® Exothermic Welding Equipment
  - Molds
  - Weld Material
  - Handles and Accessories
- GroundGuardian® Active Floating Roof Tank Monitoring System
- TerraBar® Bus Bars
- Copper Ground Plates
- Bonding Jumpers
- Ground and Signal Reference Grids
- Copper Clad and Stainless Steel Ground Rods
- Compression Lugs and Tools
- Split Bolts and Bonding Lugs

### SURGE PROTECTION DEVICES

- Main and Sub Panel Protectors (AC & DC)
- Medium Voltage Protectors
- Telephone Line Protectors
- Data Line and Low Voltage Protectors
- RF and Coaxial Protectors

### LIGHTNING PROTECTION COMPONENTS

- TerraStat® Charge Dissipation Terminals
- TerraStreamer® Early Streamer Emission Terminals
- Lightning Strike Counters
- Conventional Air Terminals and Bases
- Lightning Protection Conductors
- Bonding Lugs, Clamps and Straps
- Connectors and Splices
- Adhesives, Fasteners, Anchors, and Hardware



## Quality

### Comprehensive Quality Control To Ensure Total Success

ALLTEC is committed to providing customers with superior-quality services and products. With this commitment, we have implemented comprehensive quality systems throughout the organization. Our methods, while not always the least expensive option, result in industry leadership in customization, quality assurance, and shortest lead times. Total quality management is embedded in ALLTEC's philosophy and corporate culture.

- ALLTEC is an ISO 9001:2008 Quality Management System Registered company.
- Internal management systems have been designed to monitor and maintain quality at all levels of service and production.
- Our manufactured products are designed to utilize a common pool of raw materials when possible.
- Modular products ensure a lean inventory of raw material and the flexibility to customize to client requirements.
- Workcell assembly-focused manufacturing process (as opposed to a batch process) allows us to effectively address diverse product requirements, while keeping high quality output.
- We are able to cater to highly customized requirements based upon standard product designs, with short lead times.
- Customers are the center of our focus. We insist that just being good is not good enough, and as such, we work to exceed our customers' expectations and to constantly improve our quality systems and processes to meet changing customer needs.

Mitigate Risk with Customized Products & Solutions

# Why ALLTEC

Organizations around the world face the same challenge daily: how to reduce the risk from lightning and surge transients which regularly threaten the safety of valuable equipment, infrastructure, and personnel. These threats can range from costly nuisances to catastrophic disasters. ALLTEC offers engineered systems unique to your specific situations and environments. International companies can count on the proven experience of ALLTEC to provide and apply the guidance and technology necessary to make sound decisions for the protection of their facility, equipment, and personnel based upon our comprehensive ALLTEC Protection Pyramid™ approach.

### Assessing the Problems, Providing Answers, Project Oversight & Continued Protection

- Consulting (Phase I) - TerraEval<sup>SM</sup> Advanced Solution Assessment
- Engineering & Design (Phase II) - Customized Solution Development
- Project Management (Phase III) – Strong and Cost Effective Project Management Support
- Inspection/Preventative Maintenance (Phase IV) – System Performance and Condition Evaluation

### Development & Manufacture of Technologically Advanced Products

#### GROUNDING SOLUTIONS:

- TerraDyne<sup>®</sup> Electrolytic Grounding System
- TerraFill<sup>®</sup> Resistivity Grounding Backfill
- TerraWeld<sup>®</sup> Exothermic Welding System
- GroundGuardian<sup>®</sup> Active Floating Roof Tank Monitoring System
- Traditional Grounding & Bonding Components

#### SURGE SUPPRESSION:

- DynaShield<sup>®</sup> Surge Protection Devices

#### LIGHTNING PROTECTION:

- TerraStat<sup>®</sup> Charge Dissipation Terminal
- TerraStreamer<sup>®</sup> Early Streamer Emission Terminal
- Lightning Strike Counter
- Traditional Lightning Protection Components

### A Trusted Partner Committed to Protecting Your Organization Anywhere in the World

ALLTEC offers a global reach with our knowledgeable and experienced technical staff. We provide extensive service capabilities few others can match. That, along with our long history of customer satisfaction, keeps leaders in major industries coming back for our assistance.

### Self Assessment

If you would like to take the Self Assessment test to determine how protected your facilities are, go to [www.alltecglobal.com/selfassessment](http://www.alltecglobal.com/selfassessment)



# Who We Work With

ALLTEC products and services have been utilized by an international array of private companies and governments, from conventional and alternative energy to telecommunications and petrochemical infrastructure. Below is a partial list of ALLTEC customers.

#### COMMERCIAL

- American Express, India
- Bank of America, USA
- CSX Railways, USA
- FedEx Freight, USA
- Merrill Lynch, USA
- Norfolk Southern Railway, USA
- Raytheon, USA
- Save-A-Lot Food Stores, USA
- Tongren Daxing Airport, China
- Wackenhut/Geo Group, USA

#### DATA CENTERS

- Alltel, USA
- Level 3 Communications, USA
- MCI/WorldCom, USA
- Time Warner/AOL, USA

#### ENERGY

- Chonggou Power Station, China
- Cincinnati Gas & Electric, USA
- Dominion Power, USA
- Duke/Progress Energy, USA
- Energy Northwest, USA
- Ladachong Power Station, China
- Luz Y Fuerza, Mexico
- Scana Utility, USA
- Tenaska, USA
- Yunnan Dian Dong Power Bureau, China

#### GOVERNMENT & EDUCATION

- Central Intelligence Agency, USA
- Federal Aviation Administration, USA
- Fermilab, USA
- Florida Dept. of Transportation, USA
- General Dynamics, USA
- Georgia Dept. of Transportation, USA
- Indiana Department of Transportation, USA
- Kennedy Space Center, USA
- National Oceanic & Atmospheric Administration, USA
- North Carolina Dept. of Transportation, USA
- Sandia National Laboratories, USA
- United Nations, USA
- U.S. Department of Corrections, USA
- U.S. Department of Defense, USA
- U.S. Department of Energy, USA
- U.S. Department of Interior, USA
- U.S. State Department, Worldwide
- Veterans Administration, USA
- World Health Organization, Philippines

#### MANUFACTURING

- Alcoa, USA
- Ford Motor Company, Mexico
- Hanson Aggregates, USA
- Inland Steel, USA
- Lafarge Cement Factory, Jordan
- Lockheed/Martin Aerospace, USA
- Nissan Motors, Mexico
- Northrup Grumman, USA
- Nuclear Fuel Services, USA
- Packaging Corporation of America, USA
- Westinghouse, USA

#### MILITARY & DEFENSE

- Indian Air Force, India
- Indian Army, India
- Royal Thai Air Force, Thailand
- South Carolina Air National Guard, USA
- United States Air Force, USA
- United States Army, USA
- United States Marine Corp., USA
- United States Navy, USA
- U.S. Department of Defense, USA

#### OIL, GAS, & PETROCHEMICAL

- AGIP KCO, Kazakhstan
- Brenntag, USA
- Chevron, Worldwide
- Columbia Gas Transmission, USA
- EcoPetrol, Colombia
- Egyptian Petroleum Council, Egypt
- El Paso Pipeline, USA
- Exxon, Worldwide
- Kuwait Oil, Kuwait
- Lee C. Moore/Woolslayer, USA
- Marathon Oil, Worldwide
- Mobil Oil Corporation, USA
- National Oilwell Varco, Venezuela
- Northern Borders Pipeline, USA
- Oxychem, USA
- Pemex, Mexico
- PetroEcuador, Ecuador
- Petroleo de Venezuela, Venezuela
- Petronas Carigali, Malaysia
- Union Gas, Canada
- Unocal, USA

#### TELECOMMUNICATIONS & BROADCASTING

- AirTel, India
- America Online, USA
- AT&T Wireless, USA
- Baise Mobile Center, China
- Bechtel, USA
- Bharti, India
- Cincinnati Bell, USA
- Comcast Cellular, USA
- Crown Castle, USA
- HUTCH, India
- Idea, India
- Iusacell, Mexico
- Kazakhtelecom, Kazakhstan
- Motorola, USA
- Nokia, India
- Sabre, USA
- Sprint/Nextel, USA
- Telmex, Mexico
- T-Mobile, USA
- TV Azteca, Mexico
- TYCO Electronics Systems, India
- Velocita Wireless, USA
- Verizon, USA



Grounding and Bonding Solutions • Surge Suppression • Lightning Protection



SOLUTION PROVIDERS FOR AN ENERGIZED WORLD™



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