

SUPER EARTH GEL POWDER™

Electrical Earthing Chemical

Best Chemical for Electrical Earthing



**LOWER EARTH
RESISTANCE**
Up to 30% – 60%



**HIGH MOISTURE
RETENTION**
Up to 300% More



**CORROSION
PROTECTION**
Up to 50% More



**LONG LASTING
PERFORMANCE**
25+ Years Effective



SPECIAL FORMULA FOR EVERY SOIL
Effectively works in all types of soil for
more than 25 years.



REDUCES EARTH RESISTANCE
Capable of reducing earth resistance
by 30% to 60%.



HIGH MOISTURE RETENTION
Absorbs and retains moisture up to
300% more for long lasting performance.



CORROSION PROTECTION
Protects copper rod from corrosion
up to 50% more.



EASY TO USE
One bucket is sufficient for
one earthing bore.



DELIVERY NATIONWIDE
Available with fast & reliable delivery
all over Pakistan.



RESIDENTIAL
BUILDINGS



INDUSTRIAL
PLANTS



TELECOM
TOWERS



SOLAR POWER
SYSTEMS



ELECTRICAL
INSTALLATIONS



TRUSTED QUALITY

STRONG EARTHING • MAXIMUM SAFETY
RELIABLE PERFORMANCE

Super Earth GEL Powder™

GEM 015

UNI2302-W12-C700

A sodium bentonite-based ground enhancement compound engineered to deliver low, stable earth resistance and long-term grounding reliability across all soil conditions

Product of UNICORN ENERGY SYSTEMS



The Need for Electrical Earthing

Electrical earthing (grounding) provides a safe, low-resistance path for fault currents, lightning surges, and stray voltages to dissipate safely into the earth. It is a foundational requirement of every electrical installation — protecting human life, safeguarding equipment, and ensuring the stable, reliable operation of power and electronic systems.



HUMAN SAFETY

Diverts fault current away from people, preventing electric shock from a live chassis or enclosure.



EQUIPMENT PROTECTION

Limits damage to machinery, transformers, and appliances during short-circuit or fault conditions.



LIGHTNING PROTECTION

Gives lightning strike energy a controlled path to dissipate, protecting structures and sensitive equipment.



FIRE HAZARD REDUCTION

Prevents dangerous heat build-up and arcing caused by uncontrolled earth faults.



VOLTAGE STABILITY

Maintains a stable reference potential, reducing voltage fluctuations across a system.



SENSITIVE EQUIPMENT PERFORMANCE

Reduces electrical noise and interference for IT, telecom, and control systems.



CODE COMPLIANCE

A mandatory requirement under electrical safety standards such as NEC, IEC, and IEEE.



SYSTEM RELIABILITY

Ensures protective devices (fuses, breakers, RCDs) operate correctly when a fault occurs.

Why Soil Condition Matters

An earth electrode is only as effective as the soil surrounding it. Dry, rocky, or sandy soils naturally have high resistivity, which weakens an earthing system's ability to safely conduct fault current. Super Earth GEL Powder™ is designed specifically to correct this — enhancing the soil around the electrode so that the earthing system performs reliably regardless of native ground conditions or seasonal moisture changes.

WITHOUT SUPER EARTH GEL POWDER™ ❌

- ⚡ DRY, ROCKY OR SANDY SOIL
- ⬆️ HIGH SOIL RESISTIVITY
- ⬇️ WEAK CURRENT DISSIPATION
- 🛡️ HIGH EARTH RESISTANCE
- ⚠️ UNRELIABLE EARTHING SYSTEM

Poor soil conductivity leads to high resistance and unsafe earthing performance.

ENHANCES
SOIL
CONDUCTIVITY
➡️

WITH SUPER EARTH GEL POWDER™ ✅

- 💧 IMPROVED SOIL MOISTURE
- ⬇️ LOWER SOIL RESISTIVITY
- ⬇️ EFFICIENT CURRENT DISSIPATION
- 🛡️ LOW EARTH RESISTANCE
- 🛡️ RELIABLE & SAFE EARTHING SYSTEM

Enhanced soil conductivity ensures low resistance and safe earthing performance.

- 🛡️ **RELIABLE SAFETY**
Protection in all conditions
- 🌱 **ALL-SEASON PERFORMANCE**
Works in wet or dry conditions
- 🕒 **LONG LASTING PERFORMANCE**
Stable & effective for 25+ years
- 💰 **COST EFFECTIVE**
Improves earthing without extra electrodes

About the Product

Super Earth GEL Powder™ is an engineered ground enhancement material (GEM) formulated from **sodium bentonite (montmorillonite)**, blended with conductive graphite and carbon compounds and mineral salts. Designed to surround earth electrodes, it dramatically increases the effective contact area between the electrode and surrounding soil — lowering and stabilizing earth resistance regardless of soil type, moisture level, or seasonal variation.



Key Features

- **Engineered bentonite composition** — optimized sodium bentonite composition suitable for all soil types.
- **Superior water retention** — absorbs and retains up to 200% of its weight in moisture.
- **Reduced electrode corrosion** — lowers corrosive effects on copper and steel electrodes by up to 50%.
- **Significant resistance reduction** — decreases earth resistance by up to 50% versus untreated soil.
- **Long service life** — engineered for a functional lifespan exceeding 25 years.
- **High fault-current handling** — dissipates high fault currents with minimal temperature rise.
- **Chemically stable and inert** — non-corrosive, non-toxic, and environmentally safe.
- **Low, stable resistivity** — maintains consistent conductivity across seasonal moisture cycles.
- **Non-leaching formulation** — resists dilution and washout, preserving performance over time.
- **Cost-effective** — reduces the need for deep electrodes or multiple earth pits.



**ENGINEERED
COMPOSITION**

For all soils



**WATER
RETENTION**

Up to 200%



**REDUCED
CORROSION**

Up to 50%



**RESISTANCE
REDUCTION**

Up to 50%



**LONG
LIFE**

25+ years



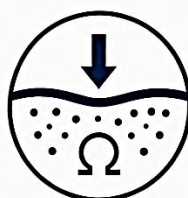
**HIGH FAULT
HANDLING**

Handles safely



**STABLE &
INERT**

Non-corrosive



**LOW STABLE
RESISTIVITY**

Consistent



**NON-LEACHING
FORMULA**

Resists washout



**COST
EFFECTIVE**

Lower overall cost

Applications

Super Earth GEL Powder™ is suitable for every electrical earthing whether it is IT sector, Power Sector in HT or LT, Solar PV systems or in residential or commercial building earthing



RESIDENTIAL
EARTHING



TRANSFORMER
EARTHING



INDUSTRIAL
EARTHING



SOLAR
EARTHING



IT EQUIPMENT
EARTHING



LT & HT
EARTHING



Technical Parameters

Parameter	Value
Product code	GEM 015 UNI2302-W12-C700
Dry Density	1,000 kg/m ³
Absorption Capability	200%
Swelling Capacity (with water)	220%
Hydrated Density	1,300 kg/m ³
Dry Resistivity	70 Ω·m
Wet Resistivity	0.9 Ω·m
Chemical Composition	Proprietary Formula of 80% Bentonite (montmorillonite), 15% different carbon forms, 5% different salts
Mesh Size	Mixed granular powder; bentonite fraction approx. 200 mesh, carbon/coal conductive granules approx. 20–40 mesh

Packaging & Storage

Specification	Detail
Packaging Format	Sealed plastic bucket
Net Weight	12 kg
Dimensions (H × D)	10"L × 9"D -- Bucket form
Storage Conditions	Store in a low-humidity environment at normal ambient temperature

Shipping Details

Specification	Detail
Packaging Format	Sealed plastic bucket or 25Kg bag (for international shipping)
Net Weight	12 kg bucket or 25Kg bag (for international shipping)
Dimensions (H × D)	(10"L × 9"D -- Bucket form) (25kg Bag 26" x 18" x 6")
Storage Conditions	Store in a low-humidity environment at normal ambient temperature
HS Code	25081000

Independent Laboratory Verification

Super Earth GEL Powder™ has been independently tested at the High Voltage Engineering Laboratory, Department of Electrical Engineering, University of Engineering & Technology (UET), Lahore, to evaluate its electrical resistivity and conductivity characteristics for earthing applications.

Verified Test Results

- Electrical Resistivity: $0.134 \Omega \cdot m$
- Electrical Conductivity: $7.44 S/m$



These independently verified laboratory results demonstrate that **Super Earth GEL Powder™** provides a highly conductive, low-resistivity ground enhancement medium suitable for electrical earthing applications. The measured electrical properties support its use in the design and installation of high-performance grounding systems where low earth resistance and long-term conductivity are required.

The measured electrical properties are consistent with the performance requirements expected from high-quality ground enhancement materials used in modern earthing and lightning protection systems designed in accordance with internationally recognized engineering practices.



HIGH VOLTAGE ENGINEERING LABORATORY

DEPARTMENT OF ELECTRICAL ENGINEERING
UNIVERSITY OF ENGINEERING AND TECHNOLOGY
LAHORE-54890, PAKISTAN

Unicorn Energy Systems,
Plot # 3, Khursheed Street, Opposite Rehman City Office,
0.5 km Saggiyan Bypass, Lahore.

No: Univ./EED/0170/23
Dated: 09.10.2023

Subject: Testing of Electrical Earthing Chemical

The following electrical earthing chemical sample was tested on 04.10.2023 in the High Voltage Engineering Laboratory. The testing results are presented below:

TEST REPORT:

Specimen: Super Eath GEL Powder™
Manufacturer: Unicorn Energy Systems
Physical Condition: Wet
Filled Volume:

Dimensions: (D×W×L): 49 mm × 49 mm × 300 mm
 Cross-Sectional Area: (D×W): $2.4 \times 10^{-3} m^2$
 Length (L): 0.3 m
 Room Temperature: 31 °C

Sr. No	Sample	Electrical Resistivity	Electrical Conductivity
1.	Super Eath GEL Powder™	0.134 $\Omega \cdot m$	7.44 S/m

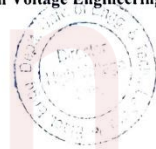
Note: The results are valid only for the sample tested on 04.10.2023.

Test(s) witnessed by:
 Mr. Muhammad Bilal,
 Assistant Professor, Department of Electrical Engineering,
 UET, Lahore.


Chairman
 Department of Electrical Engineering


Dr. Muhammad Asghar Saqib
 Director
 High Voltage Engineering Laboratory

CHAIRMAN
Deptt. of Elect. Engg.
University of Engineering
Technology, Lahore



Page 1 of 1

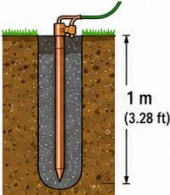
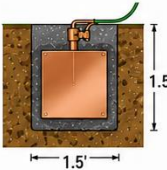
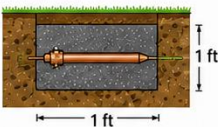
Office: +92-42-99029423, Web: www.uet.edu.pk Email: hvtagelab@uet.edu.pk

Recommended Quantity Guide

Super Earth GEL Powder usage quantity depends on many technical factors. 1st it depends on soil conditions. 2nd it depends on electrode length which indirectly depends on electrical system fault current

RECOMMENDED USAGE OF SUPER EARTH GEL POWDER™

(Number of Buckets Required)

APPLICATION	 WET SOIL 20% HUMIDITY	 DRY SOIL	 SOIL WITH SMALL ROCKS
BORE EARTHING — copper electrode, 1 m (3.28 ft) 	 1 BUCKET	 2 BUCKETS	 2 BUCKETS
PLATE EARTHING — 1.5' × 1.5' 	 2 BUCKETS	 3 BUCKETS	 4 BUCKETS
HORIZONTAL EARTHING — 1 ft × 1 ft 	 1 BUCKET / METER	 1 BUCKET / METER	 1 BUCKET / METER

NOTE:

Always consult Unicorn Energy Systems technical staff about exact amount of chemicals you required specifically to your site

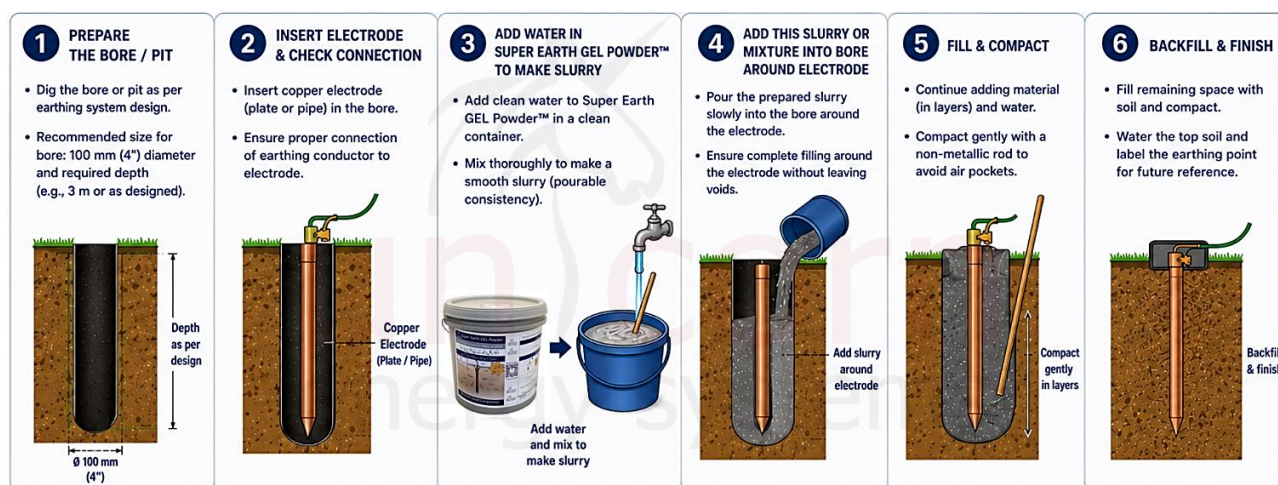
Installation Methods

Super Earth GEL Powder™ is designed for quick and reliable installation with all common earthing systems, including bore, plate, and horizontal electrodes. First, prepare the earthing bore or pit and securely install the earth electrode. Mix the required quantity of **Super Earth GEL Powder™** with clean water to form a smooth, homogeneous slurry. Pour the prepared slurry evenly around the electrode to completely fill the surrounding space, ensuring maximum contact with the soil. If required, continue filling in layers while lightly compacting to eliminate air voids, then backfill with excavated soil and add water if necessary. Once hydrated, the bentonite-based formulation expands to form a stable, conductive zone around the electrode, improving soil conductivity, reducing earth resistance, enhancing moisture retention, and providing long-term, maintenance-free earthing performance.

Super Earth GEL Powder Installation Video



[click here to see video](#)



Important Installation Precautions

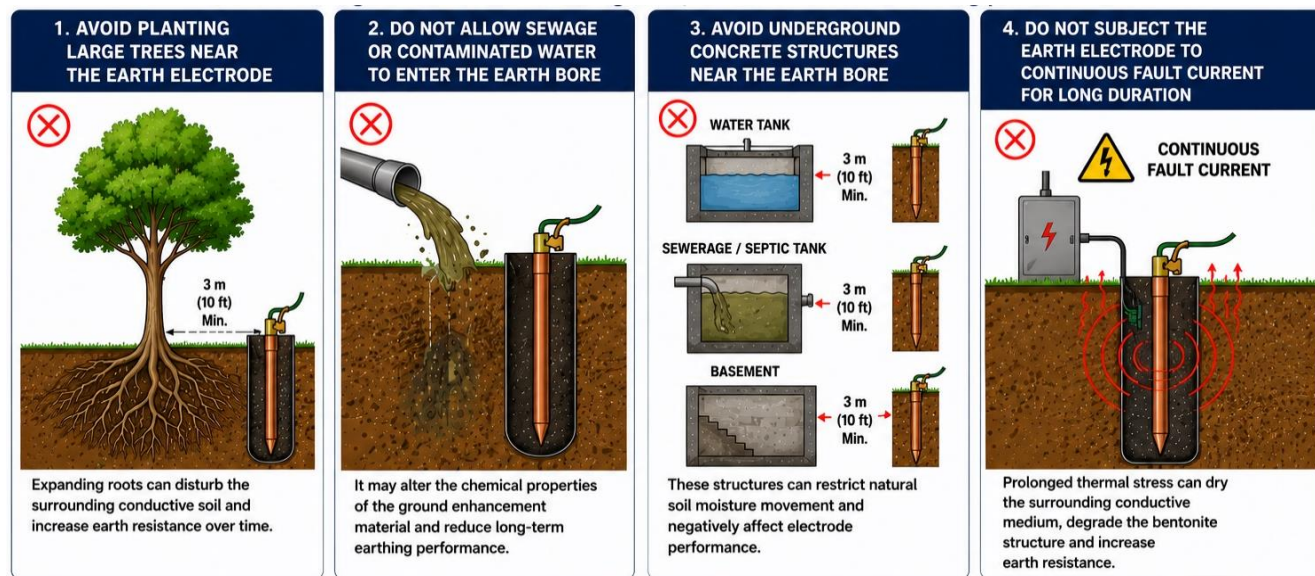
⚠ CAUTION

- **Avoid planting large trees near the earth electrode**, as expanding roots can disturb the surrounding conductive soil and increase earth resistance over time.
- **Do not allow sewage or contaminated water to enter the earth bore**, as it may alter the chemical properties of the ground enhancement material and reduce long-term earthing performance.
- **Avoid constructing underground concrete water tanks, septic tanks, basements, or similar structures close to the earth bore**, since they can restrict natural soil moisture movement and negatively affect electrode performance.
- **Do not subject the earth electrode to continuous high fault current for extended periods**, as prolonged thermal stress can dry the surrounding conductive medium, degrade the bentonite structure, and increase earth resistance.
- **Maintain the earth pit in a location with natural soil moisture whenever possible**, avoiding areas prone to excessive excavation or future civil works.

- **Periodically inspect the earthing system** to ensure the electrode connection remains secure and the measured earth resistance stays within the required design limits.

Note:

Proper installation and site selection are essential to achieve the maximum performance and long service life of the Super Earth GEL Powder™ earthing system.



Scan for Product Videos

Super Earth GEL Powder
Detail Video of Product



[Click here to see video](#)

Super Earth GEL Powder
How to Use video



[click here to see video](#)

Electrical Earthing
Process Video



[click here to see video](#)

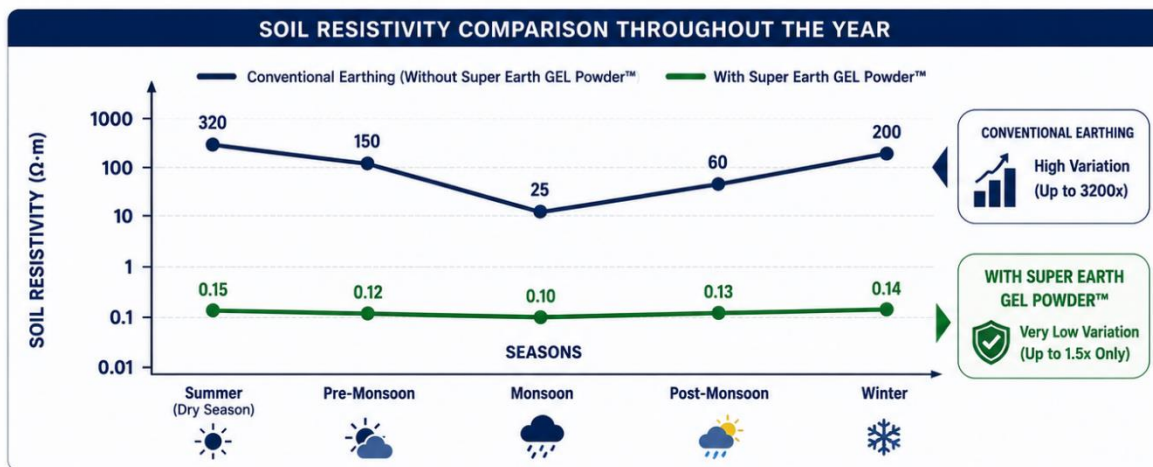


Super Earth GEL Powder™ vs. Traditional Backfill

Aspect	Traditional Charcoal / Salt Backfill	Super Earth GEL Powder™
Resistance Stability	Fluctuates significantly with seasonal moisture changes	Maintains low, stable resistance year-round
Effective Lifespan	Degrades and typically needs replacement within a few years	Engineered for 25+ years of service life
Electrode Corrosion	Salt content accelerates electrode corrosion	Reduces corrosive effects on electrodes by up to 50%
Moisture Retention	Dries out quickly, often requiring re-wetting	Retains up to 200% of its weight in moisture
Leaching Behavior	Salts leach into soil over time, reducing effectiveness	Non-leaching; stable long-term performance
Environmental Impact	Salt can contaminate surrounding soil and groundwater	Chemically inert and environmentally safe

WHY SUPER EARTH GEL POWDER™ ENSURES CONSISTENT PERFORMANCE

RESISTIVITY THROUGHOUT THE YEAR – SUPERIOR & STABLE



Scan for Product Videos

Super Earth GEL Powder
Detail Video of Product



[Click here to see video](#)

Super Earth GEL Powder
How to Use video



[click here to see video](#)

Electrical Earthing
Process Video



[click here to see video](#)



Standards & Compliance

Super Earth GEL Powder™ is formulated with reference to internationally recognized earthing and lightning protection standards, including **NEC 250** (National Electrical Code — Grounding & Bonding), **IEC 62305** (Protection Against Lightning), and **EN 50164** (Lightning Protection Components).

Safety & Handling

- **Handling** — wear gloves and a dust mask when handling the dry powder to avoid dust inhalation and skin contact.
- **Storage** — store sealed buckets in a cool, dry location away from direct moisture ingress.
- **Disposal** — naturally inert and environmentally safe; dispose of empty packaging in accordance with local regulations.
- **Full safety data** — refer to the product Material Safety Data Sheet (MSDS) for complete GHS/OSHA hazard classification and first-aid measures.

Shelf Life

Super Earth GEL Powder™ has no defined shelf life under proper storage conditions. As a bentonite-based material, it is naturally designed to absorb moisture; however, it should be kept **sealed** and **stored in a dry environment** prior to use, as premature exposure to humidity may cause clumping and make it harder to apply."

Warranty

Unicorn Energy Systems warrants that **Super Earth GEL Powder™** is free from manufacturing defects and meets the technical specifications stated in this datasheet at the time of dispatch. This warranty covers the material composition and quality of the product only.

Earth resistance achieved at any given site depends on multiple external factors — including native soil composition, moisture content, electrode design, installation method, and site-specific conditions — which are outside the manufacturer's control and cannot be guaranteed by the product alone. Accordingly, this warranty does not extend to resistance values, performance outcomes, or claims arising after final site inspection and client acceptance of the installed earthing system. Any claim under this warranty must be raised prior to installation, accompanied by proof of purchase and storage in accordance with this datasheet.

— OUR TRUSTED CLIENTS —

 PAKISTAN RAILWAYS	 PTCL	 FWO	 MUGHAL STEEL	 SUI NORTHERN GAS	 PAKISTAN AIR FORCE	 NHA	 NATIONAL HIGHWAYS & MOTORWAY POLICE	 EMCO
 REKO DIQ MINING COMPANY	 ARY LAGUNA	 BAHRIA TOWN	 NUTRIBEL	 NUTRIFACTOR	 AEPL	 ROYAL SOLAR ENERGY	 PANTERA ENERGY	 PAKISTAN ARMY

About Unicorn Energy Systems

Unicorn Energy Systems is a Lahore-based engineering company and Pakistan's first dedicated **manufacturer** of electrical earthing chemicals. Founded on the principle of delivering **internationally-benchmarked** earthing and lightning protection solutions to the local market, the company designs, manufactures, and supplies a complete range of **products** — including ground enhancement materials, conductivity enhancement compounds, ESE and conventional lightning arrestors, earthing electrodes, and solar PV solutions. Beyond manufacturing, Unicorn Energy Systems also provides **specialized engineering services**, including solar installation **inspection and audits**, **thermal imaging** of solar and electrical installations, **lightning arrestor protection radius design**, and **earthing material design consultancy** tailored to specific project requirements.

Every product and service is developed with reference to recognized international standards such as **IEC 62305**, **IEC 62561-7**, and **NEC 250**, and is independently verified through testing at accredited laboratories including the High Voltage Engineering Laboratory at the **University of Engineering & Technology (UET), Lahore**.

Unicorn Energy Systems serves **residential**, **commercial**, and **industrial** clients across Lahore, Islamabad, Rawalpindi, Karachi, Multan, Gujranwala, Raiwind, and Kasur, and has been trusted by leading national organizations including Pakistan Railways, PTCL, the Pakistan Air Force, Frontier Works Organization (FWO), Sui Northern Gas Pipelines Limited (SNGPL), and Mughal Steel. Backed by in-house engineering expertise and a commitment to quality, safety, and reliability, Unicorn Energy Systems continues to advance the standard of electrical earthing and lightning protection practice in Pakistan."

Contact & Support

Website: www.unicornenergysystems.com

Phone: +92 335 4946 498

WhatsApp: +92 335 4946 498

Email: unicornenergysystems@gmail.com

Address: Saggiyan Industrial Area, Lahore, Pakistan



YouTube
[/unicornenergysystems](https://www.youtube.com/unicornenergysystems)



LinkedIn
[/unicornenergysystems](https://www.linkedin.com/company/unicornenergysystems)



Facebook
[/unicornenergysystems](https://www.facebook.com/unicornenergysystems)

Disclaimer: Specifications, features, and images in this datasheet are subject to change without prior notice. This document is intended for general product reference; always consult project-specific engineering guidelines and the product MSDS before installation.



ELECTRICAL EARTH SOLUTIONS

RELIABLE • DURABLE • EFFECTIVE



**HIGH
RELIABILITY**



**CORROSION
RESISTANT**



**EFFECTIVE
PROTECTION**



**LONG LASTING
PERFORMANCE**



www.unicornenergysystems.com