



**LOOFAL.COM**  
YOUR ELECTRICAL DOCTOR

**OUR PRODUCTS AND SERVICES  
OF  
EARTHING AND LIGHTNING  
PROTECTION**

We are into supply and services in electrical  
engineering

Loofal Protech solution

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# WE OFFER ALL TYPES OF EARTHING SOLUTION



## **EARTHING ELECTRODE**

### **1. GI Electrode Earthing (Price Range: ₹ 2, 500- ₹11, 500)**

In order to provide the best that is available in the market, we manufacture GI Earthing Electrode using raw materials of the highest grade that are available in the market. Used for the purpose of protection against overload and short circuit, the offered product is highly asked for. In addition, we process this product through a number of quality checks, before sending this for sales. These GI Pipes and Terminals provide a low impedance ground in locations of high soil resistivity.

#### **Salient Features:**

- Highly efficient and durable
- Free from maintenance hazard
- Highly cost effective
- Require minimal maintenance

### **2. Copper Earthing Electrode (Price Range: ₹3, 000- ₹14, 500)**

We are ranked amongst the foremost importer, trader, exporter, and supplier of Copper Earthing Electrode. This copper bonded earth rod is specifically processed according to the market defined standards. This copper bonded earth rod is completely tested on various factors of quality to assuring defect free range. Apart from this, the offered copper bonded earth rod is properly examined on quality norms using by using modern testing tools.

#### **Features:**

- Long and reliable life
- Easy to install
- Consistent performance

**Other Details:**

- Strip in pipe technology
- Long service life
- CCM filled
- Our design production process
- Based on globally accepted technology
- Values over the life of the product
- Cost effective
- Suitable for all types of soil
- Superior resistance to oxidation

**Specifications:**

- Copper Coating Thickness: 250+ microns

### **3. Maintenance free Chemical Earthing (Price Range: ₹2,000- ₹16,000)**

Our Safe Earthing Electrode is designed as per the most demanding of characteristics found in a great earthing system. Manufactured as per the IS 3043: 1987, the Arsh Safe Earthing Electrode is known for its hassle-free performance and ease-of-installation. Whether it is a data center, lightning protection system, electrical machinery or telecommunication center, the Arsh Safe Earthing Electrode is used in all.

**Construction:** The Pipe-in-Pipe with strip Technology concept involves two 'B' class mild steel pipes one inserted inside the other. Both the pipes are subjected to hot dip galvanization: 80 - 100 micron on the outer electrode and 80 - 100 microns inside the electrodes or can customized according to design. The empty space inside the electrodes is tightly filled with a specially developed Crystalline Conductive Mixture and then sealed. For uniform distribution of fault current, earthing electrode must be cylindrical in shape. The surface being circular the distance from the centre to any point is always equal. This facilitates uniform distribution of fault current from electrode to earth.

### **4. Customized earthing solution: (Price Range: according to the specification or design)**

We are innovator and creator in earthing solution. We can offer you the customized solution of all types of earthing system whether it is copper, copper bonded, GI or Zinc. We can offer you the best selection in earthing system. Let us know your Design we will give you the exact solution.

## **SILENT FEATURES**

### **Maintenance-Free:**

This is maintenance free Earthing. No need of extra water pouring at regular interval as in conventional Earthing, because it retains the moisture

### **Consistency:**

Continuously maintains the same (approx.) earth resistance value over time regardless of soil and climate conditions. Unlike a standard copper plate/rod, the stability of the Safe Earthing Electrode will remain constant over the life span of the plate/rod, and the resistance of the electrode is less affected by adverse climatic conditions. Adequate galvanization, highly conductive, No corrosion, eco-friendly and a long and reliable life (Fit and Forget)

### **Easy Installation:**

It can be installed indoors or outdoors and in almost all soil condition. For existing or new facilities, requires less space and time  
Cost effective & easy to install

## OUR EARTHING SYSTEM USED IN VARIOUS APPLICATION AND INDUSTRIES

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### **Applications:**

- LT and HT applications – Domestic / Industries
- Telecommunication, Transmission and Distribution systems
- Lightning protection systems
- Prevention of accidents caused by static charge and stray currents
- Substation and Power generated stations
- Equipment earthing / Electrical machines
- Ground fault neutralization
- Lightning arrester, Diesel generators etc.

### **Industries:**

- Petrochemical, LNG, and nuclear facilities
- Data centers, telecom, and broadcasters
- Process control and automation
- Corrections, hospitals, and 911 centers
- Government, military, and defence installations
- T & D operations, substations, and wind turbines

## General: Earthing Product Details:

<b>Diameter</b>	17.2 mm, 40 mm , 50 mm, 80 mm
<b>Length of Rod</b>	1000 mm, 2000 mm, 3000 mm
<b>Material</b>	Galvanized Iron (GI), Zinc, Copper
<b>Size of Conductor</b>	1000 mm, 2000 mm, 3000 mm
<b>Make</b>	Remedies And others
<b>Colour</b>	SILVER, COPPER
<b>Equipment Type</b>	Copper Bonded Grounding Rod, Earthing Pit Cover, Earth Bar, Earthing Plate Clamp, Earthing Electrode Pipe
<b>Rod Diameter</b>	50 MM
<b>Connector Size</b>	3000 MM
<b>Condition</b>	New
<b>Application</b>	INDUSTRIES, RESIDENTIAL, HOSPITAL, MES, AIR FORCE,
<b>Coating Thickness (Microns)</b>	80 TO 254 MICRON
<b>Diameter (mm)</b>	17.2 mm, 40 mm , 50 mm, 80 mm
<b>Packaging</b>	BUBBLE ROPE
<b>Rod Diameter (mm)</b>	17.2 MM, 19 MM, 14.2 MM,
<b>Terminal Size (mm)</b>	100 MM X 6 MM
<b>Terminal Hole (mm)</b>	16 mm
<b>Model Number</b>	RESPL
<b>Tolerance (%)</b>	2
<b>Weight Of Pipe (kg)</b>	18 kg
<b>Service Life</b>	25 -30 years
<b>Certification</b>	ISO, CPRI, ROHS,
<b>Coating Thickness (micron)</b>	80 TO 254 MICRON
<b>Purity (%)</b>	100

<b>EARTHING ELECTRODE</b>	
<b>Condition</b>	New
<b>Brand</b>	Remedies and others
<b>Material</b>	Galvanized Iron (GI), Copper, Copper Bonded
<b>Usage/Application</b>	INDUSTRIES, RESIDENTIAL, HOSPITAL, MES, AIR FORCE
<b>Packing Type</b>	Bubble rope
<b>UL listed   CPRI tested   ROHS tested   thermal stability tested   corrosion resistance tested</b>	



# BFC-BACKFILL COMPOUND (CHEMICAL OF EARTHING)

## PRODUCT DETAILS: (PRICE: ASK FOR)

Expansion Chemicals	Expands 18 to 20 times and removes entrapped air
Condition	New
Feature	Environmentally safe
Brand	Remedies and others
Usage	Industrial

Leveraging upon our technologically-advanced production facility, we have been able to supply a qualitative range of Earthing Compound. The offered backfill compound is excellently processed in compliance with market specified standards under the direction of competent experts. We acquire material from consistent vendors to process the offered backfill compound. Apart from this, our expert team of quality controllers tests the whole range of backfill compounds to ensure their quality from our end.

### Features:

- Artificial Treatment Compound
- Environmentally safe
- Highly hygroscopic

### Special Features:

- Artificial Treatment Compound
- High corrosion resistance enhances the life of earth electrode
- Highly hygroscopic Mixes homogeneously with soil and one set stable for life
- Environments Friendly
- Saved Equipment's form ground faults
- PH Neutral & corrosion inhibitors enhances the life of the electrode
- Maintenance free No periodic charging/ treatment / replacement required
- Environmentally safe does not contain any hazardous chemicals
- Application suitable for vertical and horizontal strip electrode installations



# WE OFFER ALL TYPES OF LIGHTNING ARRESTER

## COPPER CONVENTIONAL LIGHTNING ARRESTER



### PRODUCT DETAILS:

PRICE	₹ 2,000 – ₹ 8,000
Colour	COPPER
Brand	REMEDIES AND OTHERS
Mast Height	1 METER
Air Terminal Diameter	14 MM , 16 MM, 19 MM
Lighting Protection Material	Copper, Copper-Clad Steel, Aluminium, SS
Size	1000 MM, 2000 MM

**Note:** The cost of the entire system of Lightning-Arrester can vary, including Lightning-Arrester mast, down-conductor and other accessories.

A spike Lightning Protection Rod is a single component in a spike Lightning Protection System. To protect a home or building in the event of lightning, a metal conductor is mounted on the top of the building and electrically connected to the earth through a wire which is known as conventional lightning rod or spike Arrester.



## ESE (Early Streamer Emission) LIGHTING ARRESTER

Product Details:

Price	₹ 35,000 – ₹90,000
Principle of operation	PDC / PDA (E.S.E)
Condition	New
Trigger	Neomidium
Brand	KARLE AND OTHERS
Material	Stainless steel
Arrester Type	Station Type, Intermediate Type, Distribution Type

**Note:** The cost of the entire system of ESE Lightning-Arrester can vary, including ESE Terminal, down-conductor and other accessories.

Remedies ESE lightning rod with an Early Streamer Emission system has as a target anticipate it to the lightning strike, in order to protect all the rest of the area. The operating principle is the same as a simple rod, but an additional ionization system getting cover a greater protection radius.

We create an upward leader farther away thanks to the extra ionization of the ESE lightning rod, which is activated by the electromagnetic field produced by the storm. The ESE attracts the lightning to its tip, and then the down-conductors conduct the current discharge to the grounding system keeping the entire installation protected.

This ionization, allows to the active protection, to have a greater protection radius. With this methodology we managed to cover not only the structure but also its surroundings or open areas

Length: 60 cm

Material: Stainless steel

Diameter of the ionic cell: 200 mm

Diameter of lightning conductor: 20 mm (monolith)

Trigger: Neomidium

Principle of operation: PDC / PDA (E.S.E)

Standard: NF C 17-102 (2011) latest version

$\Delta T = 60 \mu s$

$R_p$  (Radius protection) = 97 meter ( Protection radius range can be available from 60Mtr up to 135Mtr)



# SPD (Surge Protection Device)

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## Surge Protection Theory over Voltage Definition

Over voltage is any voltage, whose peak value exceeds the appropriate peak value of the highest operating voltage in the LV power system. Over voltage is usually an accidental phenomenon, which differs in time history and the place of its occurrence. Its parameters are defined by its cause (lightning stroke, switching in heavy-current network and so on) and also by electrical character of the circuit (wave resistance, ending impedance, discharge ability and so on). In the past few years the range of current and voltage courses for different uses has been standardized. These courses enable implementation of testing on equipment and constructive elements under the same conditions. In the following text the most important parameters of the most used standardized courses will be defined (according to EN 61 643-11, IEC 60-1 and CSN 34 5640)

We are one of the leading suppliers of extreme quality range of Surge Protection Device. The offered lightning protection device is excellently processed in compliance with market specified standards under the direction of competent experts. We acquire material from consistent vendors to process the offered lightning protection device. Apart from this, our expert team of quality controllers tests the whole range of lightning protection devices to ensure their quality from our end.

### Features:

- Hassle-free operations
- Less maintenance
- Robustness

### Specifications:

- Buildings with a considerably high need for protection, requiring a Lightning Protection Level of 2 - LPL II (Imp= 75 kA)
- Industrial buildings, schools, supermarkets, cathedrals
- Objects connected by buried cable.

**Class: B, C, D+C**

## You may inquire for:

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### 1. Earthing & equipotential Bonding Systems

### 2. Lightning and surge protection for maximum and security

- Air termination and down conductor systems.
- Earthing Systems
- Surge protection system

### 3. Transient and lightning protection system.

- Surge protection Energy technology
- Surge protection device for photovoltaic
- Surge protection, data, and information technology
- Surge protection, Ex protection
- Protection and spark gaps
- Measuring and test systems
- Interception and down-conductor systems

**We are into supply in switch-gear items and other electrical equipment's as well**



**To look at our products...**

**Please take a minute to look at our highly efficient services which may help you some of the other ways**





# Installation and Testing Services

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We are a team of engineers who are highly experience to perform highly technical electrical job. We do consulting design, supply and commissioning of these highly delicate products of earthing and lightning protection.

## 1. EARTHING TESTING SERVICES



### ABOUT

Electrical safety testing is essential to ensure safe operating standards for any product that uses electricity. Various governments and agencies have developed stringent requirements for electrical products that are sold world-wide. In most markets it is mandatory for a product to conform to safety standards promulgated by safety and standard agencies such as **UL, CE, VDE, CSA, BSI, and CCC** and so on. To conform to such standards, the product must pass safety tests such as the high voltage test (also called as Dielectric voltage-withstand test or high potential test), Insulation Resistance Test, Ground (Earth) Bond & Ground Continuity Test & Leakage Current Test (also called as Line Leakage Test, Earth Leakage Current Test, Enclosure Leakage Current Test or Patient Leakage Current Test). These tests are described in **IEC 60335, IEC 61010** and many other national and international standards.

### OUR ENGINEERS WILL DO:

1. Physical walk through to check earth-pit and connection condition
2. Earth pit resistance measurement and comparison with the Indian standards
3. Earth resistance of all electrical and electronic equipment's

### OUR SERVICE INVOLVED IN:

1. High Voltage Test (Dielectric Voltage-withstand Test)
2. Insulation Resistance Test
3. Earth Continuity Test
4. Leakage Current Test (Line Leakage Test)
5. Visual inspection:
6. Dead testing
7. Live testing

**OUR SERVICE OFFER:**

With the constant support of the qualified team of professionals, we are engaged in offering an extensive array of Earthing System Testing Services in the market. We are rendering these services in compliance with the set industry standards using highest quality components with the help of progressive technology. Also, we are offering this array in attractive attributes as per the exact requirements of our customers.

**SERVICE DESCRIPTION:**

In electricity supply systems, an Earthing System Testing Services is circuitry which connects parts of the electric circuit with the ground, thus defining the electric potential of the conductors relative to the Earth conductive surface. The choice of earthing system can affect the safety and electromagnetic compatibility of the power supply. In particular, it affects the magnitude and distribution of short circuit currents through the system, and the effects it creates on equipment and people in the proximity of the circuit. If a fault within an electrical device connects a live supply conductor to an exposed conductive surface, anyone touching it while electrically connected to the earth will complete a circuit back to the earthed supply conductor and receive an electric shock

**SERVICE CHARGE:**

Value check	Rs.650 per Earth Pit
Advance earthing check-up	Rs.9, 500 onward

**WE SUBMIT REPORT FOR:**

**For Value Check:**

1. 1 to 3 pages details report
2. Current status of the earth pit
3. Resistance value report
4. Recommendation
5. Cost Estimation (If service required)
6. Handover

**Advance earthing check-up:**

1. Multiple pages details report
2. Reports on: a)High Voltage Test (Dielectric Voltage-withstand Test), b)Insulation Resistance Test, c)Earth Continuity Test, d)Leakage Current Test (Line Leakage Test), e)Visual inspection:1.Dead testing, 2.Live testing
3. Current status of the earth pit
4. Resistance value report
5. Recommendation
6. Cost Estimation (If service required)
7. Handover

## 2. SOIL RESISTIVITY TESTING



### ABOUT

Soil resistivity is a measure of how much the soil resists the flow of electricity. It is a critical factor in design of systems that rely on passing current through the Earth's surface. An understanding of the soil resistivity and how it varies with depth in the soil is necessary to design the grounding system in an electrical substation, or for lightning conductors. It is needed for design of grounding (earthing) electrodes for substations and High-voltage direct current transmission systems. It can also be a useful measure in agriculture as a proxy measurement for moisture content.

The soil resistivity value is subject to great variation, due to moisture, temperature and chemical content. Typical values are:

Usual values: from 10 up to 1000 ( $\Omega$ -m)

Exceptional values: from 1000 up to 10000 ( $\Omega$ -m)

### SERVICE DESCRIPTION:

IS 3043 1987 INTRODUCTION to design the most economical and technically sound grounding system for electric sub-station, it is necessary to obtain accurate data on the soil resistivity and on its variation the site. Variation of the resistivity of the soil with depth is more predominant as compared to the variation with horizontal distance. Resistivity measurements at the site reveal whether the soil is homogeneous or no-uniform. The resistivity of earth varies overall in a wide range depending on its moisture content, stratification and composition of earth layers. It is therefore, advisable to conduct earth resistivity tests during the dry season in order to get conservative result. PRINCIPLE OF TEST Wenner's four electrode method is recommended for these types of field investigation. In this method four electrodes are driven into the earth along straight line intervals. Earth testers normally used for these tests comprise the current source and metre in a single instrument and directly read the resistance. The earth tester uses the four terminal meggar. The resistivity is evaluated by the formula -  $\rho = 2 A R$   $\rho$  = Resistivity of soil in ohm-meters A = distance between two successive electrodes in meter R = meggar reading in ohms

## OUR SERVICE INVOLVED

### **1. CORROSION CHECK:**

Soil resistivity is one of the driving factors determining the corrosiveness of soil. The soil corrosiveness is classified based on soil electrical resistivity by the British Standard BS-1377 as follow:

- $\rho E > 100 \Omega m$ : slightly corrosive
- $50 < \rho E < 100 \Omega m$ : moderately corrosive
- $10 < \rho E < 50 \Omega m$ : corrosive
- $\rho E < 10 \Omega m$ : severe

### **2. MEASUREMENT**

Because soil quality may vary greatly with depth and over a wide lateral area, estimation of soil resistivity based on soil classification provide only a rough approximation. Actual resistivity measurements are required to fully qualify the resistivity and its effects on the overall transmission system.

Several methods of resistivity measurement are frequently employed

1. Wenner method
2. Schlumberger method

### **3. SOIL RESISTIVITY VARIABILITY**

Electrical conduction in soil is essentially electrolytic and for this reason the soil resistivity depends on:

1. Moisture content
2. Salt content
3. Temperature (above the freezing point  $0^\circ C$ )

Because of the variability of soil resistivity, IEC standards require that the seasonal variation in resistivity be accounted for in transmission system design. Soil resistivity can increase by a factor of 10 or more in very cold temperatures.

### **SERVICE CHARGE:**

Proper Soil Resistivity Testing	Rs.3, 200 onward
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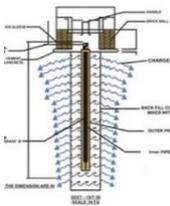
### **WE SUBMIT REPORT OF:**

1. Multiple pages test report
2. Corrosion check details
3. Measurement data
4. Soil resistivity variability report
5. Graph
6. Graph of soil resistive in ohm-meter according to energy load.
7. Short distance measurement (difference and variability)
8. Recommendation
9. Best earthing solution according to soil resistivity
10. Handover

### 3. EARTHING INSTALLATION SERVICES



#### CHEMICAL EARTHING INSTALLATION



#### SERVICE DESCRIPTION:

We are the expert at installing chemical earthing nowadays. Ask for any types of chemical earthing installation our highly experienced team and well support labours are ready to perform any task on installation. We generally dig 4- 6 inches hole for chemical earthing installation. We generally use auger machine or else we have well-experienced labour to dig the required hole in order to install chemical earthing. After all the complete process our technical engineer personally verifies and provides the confirmation of correct installation.

#### INSTALLATION CHARGE OF CHEMICAL EARTHING:

Normal Soil Earthing Installation	Rs.1,500 - Rs. 8,000
If breaker or other machine used	Rs.1200 extra per pit

#### WE ALSO PERFORM INSTALLATION ON:

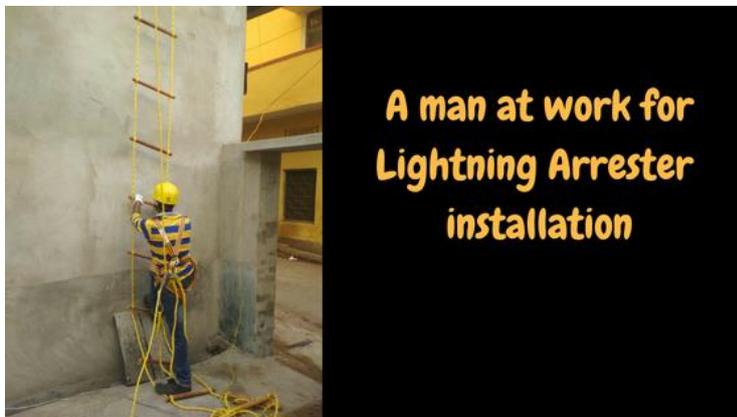
1. Neutral Earthing
2. Ground earthing
3. Earthing Mat
4. Earthing Electrode
5. Pipe Earthing
6. Plate Earthing
7. Earthing Through Water Mains
8. Mesh earthing

*With our specialized team of engineers, we always try to maintain our quality work*

Recommended maximum grounding resistance values

Substation Capacity	Maximum Grounding Resistance ( $\Omega$ )	
	Below 4.16kV	Above 4.16kV
Below 1000kVA	5	10
1000kVA ~ 5000kVA	2	5
More than 5000kVA	1	2
Small Distribution Transformer Banks	15	25

**4. LIGHTNING ARRESTER INSTALLATION**



**SERVICE DESCRIPTION:**

The destructive capacity of lightning makes it necessary to assess the need for protection, and possibly to install a system for effective protection.

**WHAT STANDARDS SAYS:**

In the field of lightning protection, using either ESE lightning rods or classical Faradisation systems, the following principle standards are used:

NFC 17-102 and similar ESE standards: "Protection of structures and open areas against lightning by lightning rods with early emission device". ESE product standard, which has been adapted in many countries under national designations in similar terms.

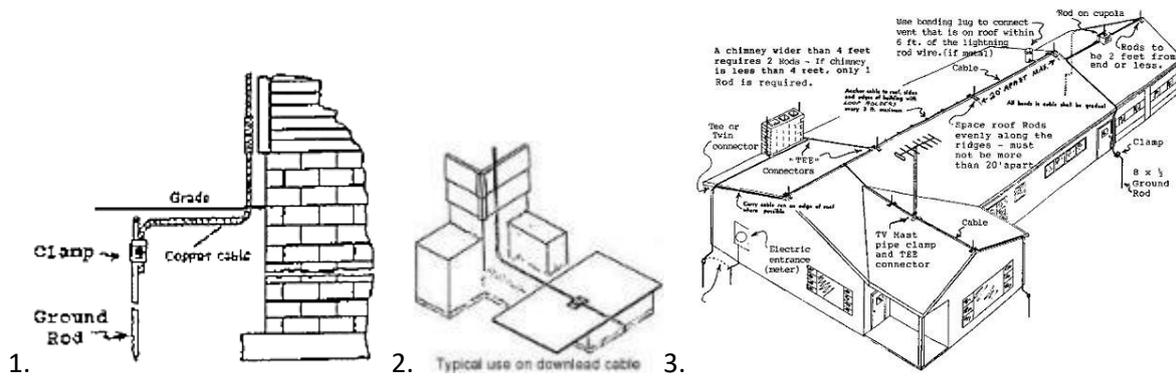
IEC 62305: "Protection against lightning". European and international standard.

***In each country, the current regulatory framework defines the need for protection and sets out the steps to follow for designing a system which guarantees protection against lightning:***

Evaluate the need for lightning protection: The need for protection of a facility is established starting from the evaluation of the degree of safety required and associated risk factors. Whenever the expected strike frequency ( $N_e$ ) is greater than the permissible risk ( $N_a$ ), protection must be installed.

**EVALUATE THE NEED FOR LIGHTNING PROTECTION**

- 1. Design the lightning protection system (equipment needed):** The standards define an effective lightning protection system as a set of equipment and devices to capture (never to attract) lightning and conduct it safely to ground.
- 2. Design the lightning protection system**
- 3. Choose the capture device (technology):** Various types of lightning protection systems are available, which may be more or less appropriate depending on the construction features of the facility to be protected, the overall installation costs, etc.
- 4. Lightning rod protection with ESE Early Streamer Emission technology: Standards:** NFC 17-102 and similar ESE standards. Suitable for any installation type and open areas, where it optimises the material and installation cost while ensuring proper safety.
- 5. Protection by Faradisation: Standards:** IEC 62305



**LA INSTALLATION SERVICE CHARGE:**

Conventional Lightning Arrester with Earthing	Rs.8,000 onwards
ESE LA Installation with Earthing	Rs.15,000 Onwards

