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WE CREATE  
FOR YOUR SAFETY



- ⚡ ELECTRONIC DEVICE
- ⚡ INSIDE ION GENERATOR
- ⚡ TESTABLE



DESIGNED AND TESTED IN FULL ACCORDANCE WITH LATEST NF C 17-102 : 2011 STANDARD

# BARQ ESE LIGHTNING ARRESTER

The main function of the BARQ ESE lightning protection system installed on the existing buildings is to capture a lightning stroke and then conduct discharge current safely to the ground. In some conditions, however the ESE lightning system is the only possible method to protect from direct lightning strokes. Due to the arguments mentioned above, we recommend to use the active lightning protection whenever the conventional solution is inconvenient or when the former is more preferable to the latter as in the case of the efficient protection of architectures & electrical system.

The lightning discharge is initiated by so called down conductor which creates an ionized air path (downwards or upwards) between the cloud and the ground for the necessary flow of any lightning currents.

## THE LIGHTNING PROTECTION SYSTEMS HAS FOUR BASIC OBJECTIVES

1. To capture the lightning.
2. To conduct lightning current safely to earth.
3. To dissipate the lightning current in the ground.
4. To provide protection against the secondary effects of lightning.

The external protection system are used for this purpose and there are 3 major types. These major 3 types are:

1. ESE Lightning Protection Systems
2. Faraday Cage Systems
3. Franklin Rod Systems

### Tested & Certified

BARQ ESE Lightning Arrester tested from international (ILAC/ISO IEC) accreditation & CPRI tested.



## RADIUS OF PROTECTION

### Protection Radius (m)

| Type      | BARQ ESE<br>ACTIVE LIGHTNING ROD | h=tip height (m) |    |    |     |     |     |     |     |
|-----------|----------------------------------|------------------|----|----|-----|-----|-----|-----|-----|
|           |                                  | 2                | 3  | 4  | 5   | 6   | 10  | 20  | 30  |
| Level I   | BARQ - 30                        | 19               | 37 | 38 | 48  | 48  | 49  | 50  | 50  |
| Level II  | BARQ - 30                        | 22               | 42 | 44 | 55  | 55  | 57  | 59  | 60  |
| Level III | BARQ - 30                        | 25               | 49 | 51 | 63  | 64  | 66  | 71  | 73  |
| Level IV  | BARQ - 30                        | 28               | 55 | 57 | 71  | 72  | 75  | 81  | 85  |
| Level I   | BARQ - 60                        | 31               | 59 | 63 | 79  | 79  | 79  | 80  | 80  |
| Level II  | BARQ - 60                        | 35               | 65 | 69 | 86  | 87  | 88  | 89  | 90  |
| Level III | BARQ - 60                        | 39               | 65 | 78 | 97  | 97  | 99  | 102 | 104 |
| Level IV  | BARQ - 60                        | 43               | 48 | 85 | 107 | 107 | 109 | 113 | 116 |

# WORKING PRINCIPAL OF BARQ ESE LIGHTNING ARRESTER

BARQ is an Early Streamer Emission (ESE) air terminal based on the electrical characteristics of lightning formation. The ESE air terminal emits a continuous upward leader with time of advance to anticipate the descent of lightning and capture it before any other object within its protection area. This feature is referred to in the regulations as the advance time of an ESE air terminal ( $\Delta T$ ). The earlier the upward leader is triggered, the larger is the distance where the downward leader is intercepted, thus protecting a greater area against lightning (standards limit it to  $\Delta T 60\mu S$ ).

BARQ terminal offer the highest performance guarantees. It is manufactured in India consisting world class technological system and it is highly competent device.

In a world where buildings and equipments are becoming more complex every day, lightning is a constant hazard. One discharge can damage buildings and cause failures in electronic equipments. It can even provoke fire and lead to serious financial losses.

## RADIUS OF PROTECTION (RP)

The radius of protection is the distance between the point where you want to place the rod and the further point from the structure or building we want to protect for calculating the radius of protection. It is very important to get the triggering advance time value of the device.

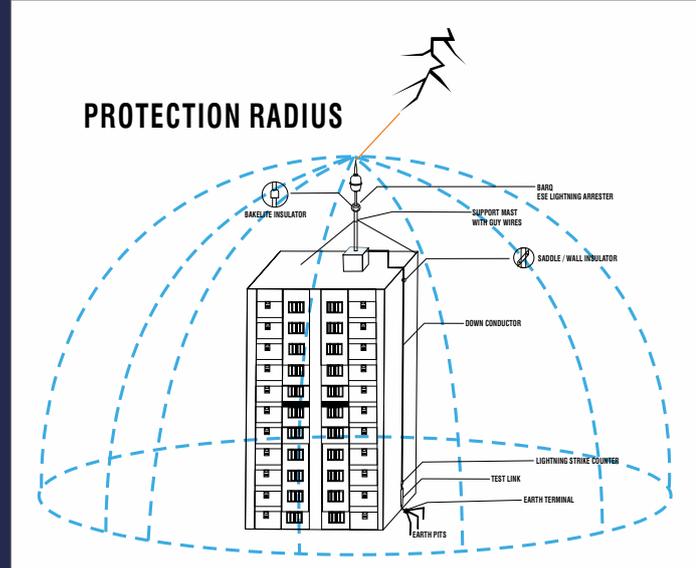
## TRIGGERING ADVANCE TIME ( $\Delta T$ )

The triggering advance time is defined as the difference in triggering time of an early streamer lightning rod and a simple Franklin rod. It is obtained when both rod exposed in the same atmospheric and electrical condition.

## CALCULATION FOR RADIUS OF PROTECTION

$$Rp = \sqrt{h(2D-h) + \Delta L(2D+\Delta L)} \text{ for } >6m.$$

- Rp : ESE protected radius  
 h : Height of Protector tip above the area to be protected.  
 D : Triggering distance defined by NFC 17-102,  $D(m) = 10.0^{2/3}$  that is  
 20 meter at Level 1 (99% protection)  
 30 meter at Level 2 (97% protection)  
 45 meter at Level 3 (94% protection)  
 60 meter at Level 4 (92% protection)  
 $\Delta L$  : upward leader length gain  
 $\Delta L(m) = V_{(m/\mu S)} \times \Delta T_{(m/\mu S)}$   
 $\Delta T$  : triggering advance

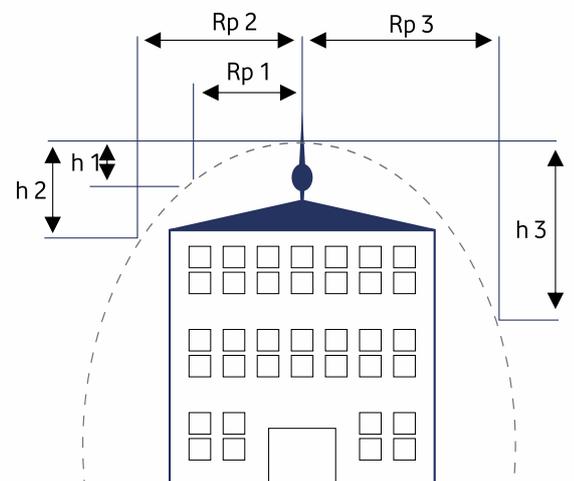


## SALIENT FEATURES

- BARQ is an ESE type of 'ESE' lightning arrester that provides zonal protection in accordance with standard NFC 17-102:2011.
- BARQ is a sturdy robust device made of 304L stainless steel.
- It is protected against corrosion and needs no maintenance.
- Testable Device.
- Electronic Device.
- Inside Ion Generator.
- Needs no external power source.
- Compact and easy to install.
- Warrantee for 10 years.
- Tested and certified by international (ILAC/ISO IEC) accreditation & CPRI tested.

## APPLICATIONS

- Large multistoried /high rise residential complexes and housing colonies. A single Protector can cover several blocks.
- Large multistoried /high rise office complexes, multiplexes, shopping malls, etc.
- Modern buildings housing IT office, BPO's and concentration of sensitive electronic and/or telecom equipments.
- Factories having PLC based controls for critical plant and machinery.
- Hospitals, Banks, Cinema Halls, Museums, Old Monuments, Schools etc.



PROTECTION LEVEL AS PER  
 NF C 17-102 : 2011 STANDARD

BARQ ESE Lightning Arrester can be tested any time by utilizing the respective tester. The Tester indicates OK (Green LED) or FAULT (Red LED). There are two different types of testers available:

## LIGHTNING STRIKE COUNTER

The Lightning Strikes will be detected any recorded by Lightning Counter. This device can also show the intact operation of the Lightning System.

## LIGHTNING COUNTER TESTER

The Lightning Counter can be checked by this Tester every time. The Tester will indicate OK or FAULT with the help of Green or Red LED.

## WHY SHOULD WE USE LIGHTNING COUNTER

By using an inductive record, the counter is able accurately to count all lightning events for a later reference.

## LIGHTNING CONDUCTOR TESTER

With Tester, you are able to determine if there is a short circuit or a fault in the ion generator immediately by simply screwing in the special plug at the end of the cable to the ESE rod and pressing the button on the testing device. We are able to make the cable length on the testing device according to the customer's requirements.



## about us

REMEDIES EARTHING SYSTEMS PRIVATE LIMITED (RESPL) is an ISO 9001 : 2015 Certified Company, established in the year 2006 with its Corporate Office at Lucknow, INDIA. RESPL is a manufacturer, exporter, importer, supplier & trader of a wide range of Earthing, Lightning & Bonding products. We RESPL are the India's first ESE Lightning Arrester manufacturing Company according to the NF C 17-102 : 2011 Standard. We consider Make in India as priority for our manufactured products. RESPL has developed a full range of earthing & lightning products to safe guard assets & secures infrastructure from earthing & lightning hazards. All our products are exclusively engineered by highly qualified and skilled professionals using modern equipments and advanced technology to ensure superior functionality. We are using materials that are genuine and highly reliable acquired from the reputed clientele in the industry.

## VISION

To Endorse High Quality Protection Products of Make in India on Global Platform.

## MISSION

**Team :** Dedicated team of skilled & qualified professionals to provide outstanding expertise across all industries.

**Integrity :** Our desire is to stick to our commitments irrespective of the time lines & diverse implementation arena.

**Customer Focus :** We provide safety with quality by understanding customer's requirement & implementing their thoughts into action.

## TESTED & APPROVED BY



## DEALER NETWORK : INDIA, NEPAL & UAE



## REMEDIES EARTHING SYSTEMS PVT. LTD.

Address: 2ND FLOOR, AL FAZAL ENCLAVE, KHURRAM NAGAR, RING ROAD, LUCKNOW - 226022 (INDIA)

AUTHORIZED DEALER

## FOR MORE DETAILS :

+91 522 2751600 | +91 9936476665 | +91 9198989899 | [info@remediessystems.com](mailto:info@remediessystems.com) | [www.remediessystems.com](http://www.remediessystems.com)