

# CEEAMA E-NEWS

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Electrical Consultants' Newsletter

May 2018

## From the Secretary's Desk



Dear All,

It gives me an immense pleasure to inform you that CEEAMA has conducted two seminars at the start of the year, in Pune. One was on DG set and the other was on new products in connection with technology by Raychem. Soon, We will be having similar programs in Mumbai.

Few more programmes and factory visits are lined up in next couple of months. The details will be communicated in due course.

We are glad to announce CEEAMATECH-2019 in partnership with FAIRACT. I request all members to participate in CEEAMATECH-2019 exhibition actively. CEEAMA invites suggestions from members about how to increase the participation of our members in the exhibition. Suggestions can be send to me on my email or to the president. All such communications will be valuable to CEEAMA.

To increase the presence of CEEAMA we need to increase our membership. We appeal to all members to introduce at least one more member during next two months. If you are short of time for follow-up, after your preliminary talk, please inform prospective member's name, mobile no and email address to CEEAMA administration will follow-up the same and also in the case for Associate members.

Let's make all the efforts required to make CEEAMATECH-2019 a most successful event.

Best Regards,  
**Suhas Keskar**  
Hon. Secretary

## What is New?

### ABB launches the world's first digitally integrated power transformer

The ABB Ability<sup>TM</sup> Power Transformer, unveiled at the 2018 Hanover Fair, in Germany, will be the world's first integrated solution for digitally enabled power transformers, fundamentally changing the transformer paradigm. All power transformers leaving ABB factories will soon come enabled with digital capabilities, enabling remote monitoring and data analytics of its vital parameters in real time. This will enhance reliability and enable higher utilization of grid assets and power networks.

The transformer will come equipped with a digital hub that can leverage a portfolio of smart devices on a modular platform with plug-and-play capabilities. This modularity and scalability makes the system future-proof while giving users full control over their digital journey.

In addition to providing actionable intelligence at the local level, it will enable users to leverage the full ecosystem of software solutions and services at the station and enterprise levels. In addition to enhancing efficiency and product life, the new digital capability will boost reliability and mitigate outages through preventative action.

Transformers perform the important function of adapting voltage levels, stepping up for efficient long-distance high-voltage transmission, and stepping 'down' for distribution and safe use by consumers. They also help maintain power quality and control.



Source-Link:<http://new.abb.com/news/detail/4425/abb-launches-the-worlds-first-digitally-integrated-power-transformery-integrated-power-transformer>

Catalogue:<http://search.abb.com/library/Download.aspx?DocumentID=9AKK107046A1820&LanguageCode=en&DocumentPartId=&Action=Launch>

## In This Issue...

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ABB launches the world's first digitally integrated power transformer

*Technical Notes* : Early Streamer System

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Contributed By Mangesh Shirgaonkar

## Technical Notes

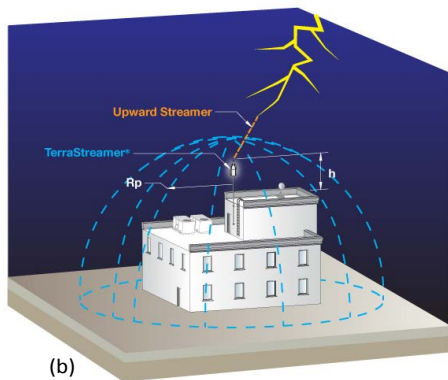
### Early Streamer System

Early Streamer System (ESE) is Lightning protection device which claims that;



(a)

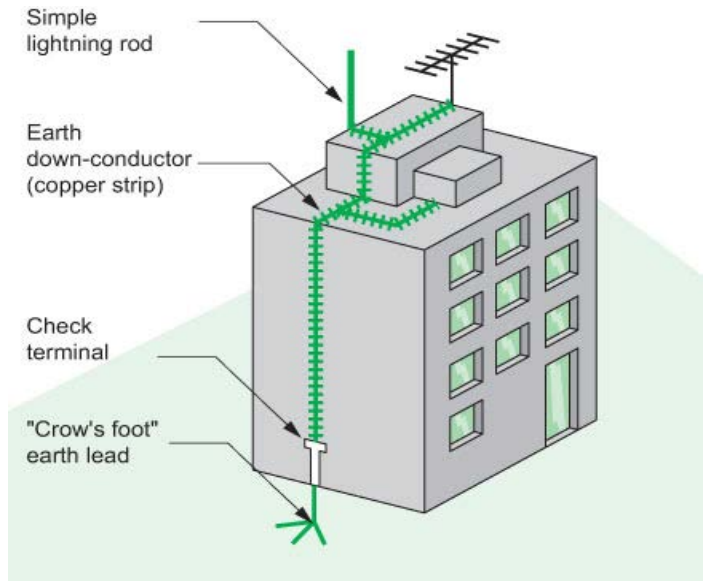
a.) A streak is sent upward from time to time under cloudy conditions to provide path for lightning strike to earth through ESE.



(b)

b.) It gives umbrella coverage based on the mounting height and device model selected which can be upto 105mtr. radius. These devices are mainly manufactured in France and Spain and are supported by French standard NFC7-102. Facts that need to be considered while deciding on use of ESE are;

- This Lightning protection system does not find any supporting standard in IEC, IEEE, IS NFPA or UL at present.
- Major installation are seen in Europe and now in India particularly for IT Clients.
- There is no concrete evidence of its effectiveness and umbrella coverage.
- This is a vertical termination. If standards are to be followed down conductors can not be avoided. Also horizontal termination requirements need to be checked (Maton roof)
- Faradays cage has to be provided for high rise buildings even when ESE is used.



- Some of the systems use batteries. These are of no uses as batteries will not be replaced any time after installation due to location & height.
- The costs are high compared to conventional systems.
- According to installation requirements two down conductors are enough and cables can be used. This is advantage but is not supported by any standard other than NEC7-102
- Counters can be used with these to keep record of strikes if one is interested.

When we consider above points though ESE is convenient for installation, If we have to follow reputed international standard and IS these cannot be used without horizontal termination and down conductors as per standards as claimed hence it becomes a costly affair.

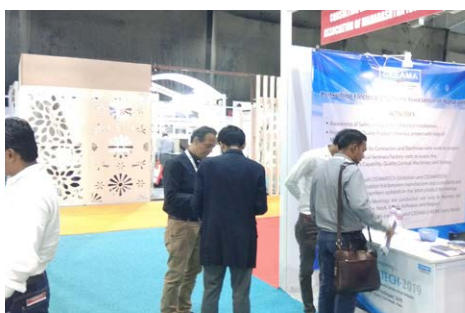
A conventional Faraday system is well elaborated in standards including IS 2309.

Prepared by:

Vinayak A. Vaidya

## Ceeama Activities

Date : 19th to 21st April 2018, BCEE, Mumbai  
 Worldbuild India - India's key B2B exhibition for the building industry  
 As you all aware we are trying to grow and expand CEEAMA, This was one of the step to increase presence of CEEAMA in Industry.  
 WorldBuild India was great platform to know the latest trends in the Building Industry



## Ceeama Activities

### Tech Summit 2018

Date – 13th April 2018

Venue – Hotel Deccan Rendezvous, Pune

CEEAMA had organized first technical Seminar of this year, “Tech Summit 2018” at Pune, along with Sterling Wilson Powergen Pvt Ltd, Perkins India Pvt Ltd & Powerparts Private Limited.

The session began with Perkins providing an overview of their organization to the audience. Around 25 plus consultants attended the Tech Summit along with teams from Perkins, Powerparts and SWPPL. Few of Perkins overseas distributors were also present for the meeting.

Perkins and Powerparts made a technical presentation covering the following topics –

- ISO related to the DG Sets, Engines
- ISO Reference Conditions
- Deration
- Cooling Systems with Air Induction Systems
- Types of Fuel Acceptable
- Block Loading
- Governing and Transient Performance
- Exhaust Emissions
- Alternators - Features and Benefits
- Genset Sizing
- Sound Emissions
- Synchronization

There was a lively discussion and debate between participants on ISO standards related to Gensets, Governor and Transient Performance, Alternator etc. The meeting ended with a vote of thanks followed by dinner.

Overall, the Tech Summit 2018 received a good response from Consultants. SWPPL, Perkins and Powerparts are thankful to CEEAMA for the support and help in organizing this Summit and look forward to a continuous and fruitful interaction in the future as well.

### Some Glimpse from the Seminar



## Article

### Reactive Power

The increasing demand of electrical power and the awareness of the necessity of energy saving has improved quite a lot these days. Also the awareness of power quality is increasing, and power factor correction (PFC) and harmonic filtering is being implemented on a growing scale.

Enhancing power quality – improvement of power factor - saves costs and ensures a fast return on investment. In power distribution, in low-and medium-voltage networks, PFC focuses on the power flow ( $\cos \phi$ ) and optimization of voltage stability by generating reactive power – to improve voltage quality and reliability at distribution level on the other hand Harmonic Mitigation, filtration improve system stability, reduces losses, life of electrical & electronics equipment's etc and many more.

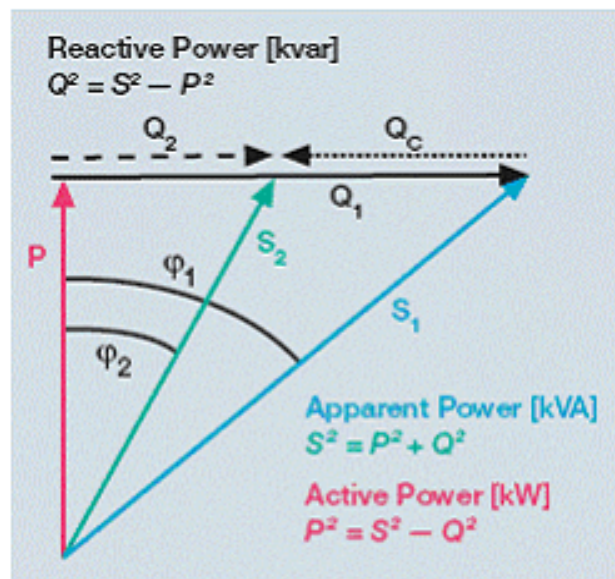
How reactive power is generated –

Every electric load that works with magnetic fields (motors, chokes, transformers, inductive heating and arc welding generators etc) produces a varying degree of electrical lag, which is called inductance. This lag of inductive loads maintains the current sense (e.g. positive) for a time even though the negative-going voltage tries to reverse it. This phase shift between the current & voltage is maintained, current and voltage having opposite signs. During this time, negative power or energy is produced and fed back in to the network. When current and voltage have the same sign again, the same amount of energy is again needed to build up the magnetic fields in inductive loads. This magnetic reversal energy is called reactive power.

In AC networks (50 / 60 Hz) such a process is repeated 50 or 60 times a second. So an obvious solution is to briefly store the magnetic reversal energy in capacitors and relieve the network (supply line) of this reactive energy. For this reason, static or automatic reactive power compensation systems (detuned / conventional) are installed for large loads like industrial machinery. Such systems consist of a group of capacitor units that can be cut in and cut out and which are driven and switched by a power factor controller.

The vector representation of Reactive Power is shown below -

The Power Factor Correction or Reactive Power compensation needs components of good quality and reliability like Capacitors, PF Controllers, Capacitor duty contactors, anti-resonance



$$\begin{aligned} \text{Apparent power } S &= \sqrt{P^2 + Q^2} \\ \text{Active power } P &= S \cdot \cos \phi \\ \text{Reactive power } Q &= S \cdot \sin \phi \end{aligned}$$

With power factor correction the apparent power  $S$  can be decreased by reducing the reactive power  $Q$ .

de-tuned filter reactors, Thyristor switching modules for dynamic compensation etc. EPCOS provided a one stop shop solution for such components ( see the attachments for brief information).

We shall meet after 1 month again in Next E News, with some more information on this topic.

#### Reference :

**Rushikesh R.Rajdhar**

Business Development  
EPCOS India Private Limited  
Aluminium and Film Capacitors Business Group

#### Mark your Diary

Technical Seminar on "Electrical Safety & Energy Conservation in Buildings"

Date: 25th May 2018

Venue: VITS Hotel, Andheri East, Mumbai

Announcing...

# CEEAMATECH-2019

7<sup>th</sup> Exhibition & Conference on Electrical Industry

8<sup>th</sup> to 10<sup>th</sup> February 2019  
Auto Cluster, Chinchwad, Pune

