CAPE ELECTRIC

PRODUCT OVERVIEW

2024/2025

Industrial Quality

INTERNATIONAL COLLABORATIONS

Headquartered in Germany, *Spelsberg offers a complete range of high quality products such as junction boxes, Distribution Board and Technical enclosures for electrical / electronic industry. The enclosures are made primarily from glass fiber reinforced polycarbonate for outdoor use as well as polystyrene for indoor use. The traditional products are available world wide which is continuously developed over 118 years*

Headquartered in Spain, *Uriarte Safybox manufactures outdoor nonmetallic enclosures, and cabinets in glass fiber reinforced polyester. The 50 years old company based out of bilbao, Spain is one of the popular manufacturers of outdoor electrical distribution panels. UV resistant GRP / FRP enclosures with IP 65/66 weather protection and an IK10 impact strength can also be used for indoor/outdoor, wall/floor mounting.*

Headquartered in Germany, *Raycap is a leading, award-winning company offering innovative technological solutions and services on Surge Protection to industrial clients across telecoms, energy, industrial, defense and transportation markets. The company is a world leader in surge protection.*

Headquartered in Germany, *KLK weld is founded during 1965 which is now a subsidiary of RAILTECH – France. RAILTECH Welding & Equipment (RW&E) is the railway division of the DELACHAUX Group specialized in Thermit - Welding Techniques, Flash - Butt Welding Systems, Track Equipment and Electrification Systems. RAILTECH Welding & Equipment is a leading player on the world railway industrial stage, not only for its expertise, but the quality of products, its technical solutions and the services provided to customers always*

Headquartered in Finland, *PPO-Elektroniikka Oy, founded in 1981, focuses on enhancing hospital safety with their advanced safety technology solutions. Their MEV Insulation Monitoring System, has been a crucial tool in maintaining electrical safety in operating rooms since 1982. By ensuring continuous monitoring and prompt detection of insulation faults, PPO-Elektroniikka contributes significantly to patient and staff safety in medical facilities. Their commitment to high-quality, innovative solutions and sustainable development underscores their dedication to creating safer hospital environments.*

Our Company

CAPE, founded in 1996, has over 28 years of experience in industry-leading innovation to produce the finest quality product to satisfy your most demanding difficulties in an ever-changing marketplace, we are the first and front runner in various technological products in India, whether it is Lightning Protection or Electrical Installation Materials.

During the early years of the CAPE's existence, our reactive power compensation panels demonstrated their excellence by performing in challenging climatic circumstances within wind turbine towers with high temperatures, significant harmonic distortions, and frequent fluctuations in reactive power demand.

CAPE today is popular among the electrical engineering community for its capability in various electrical engineering subjects and innovative solutions in the market. At CAPE, we understand the importance of user-friendly and highest quality products. CAPE today offers a wide range of products and technical solutions in Lightning protection, Earthing, and EMP / HEMP Protections, thanks to our decades of experience in technical solutions providing state-of-the-art knowledge. As a result of our continued and vast experience in the field of product development, installation, training, and consultancy in Lightning Protection and EMI/EMC, CAPE founded subsidiary/associate companies to focus on its specialized fields.

With 2 manufacturing facilities in Chennai and Kanyakumari, the products are tested and approved by various international laboratories and conform to IEC/UL/Indian standards. CAPE's success is driven by about 420+ talented workforce all over India.

Electrical Safety Verification (Inspection & Testing)

Industry / Data centres / Hospitals / Office Complex / Commercial Buildings

With 28 years of experience, We re-define electrical safety in LV system to new heights, as a

PARTNER IN ELECTRICAL SAFETY

to guide and implement electrical safety requirements as per latest IEC standards.

We Help in Making Electrical Installations In Compliance To

1. *Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023*
2. *National Electrical Code Of India 2023*
3. *Code of Practice for Electrical Wiring Installations (IS 732: 2019)*

What we do?

1. *ELECTRICAL SAFETY IN EXISTING BUILDINGS*
   a. *Preliminary Site Study and Identification of requirement*
   b. *Preparation of technical requirements for Electrical Safety Verification*
   c. *On-Site Electrical Safety Inspection and Testing*
   d. *Identification of Functional requirements (BMS, Electronics, Etc)*
   e. *Preparation of Improvement plan*
   f. *Guidance and Supervision for Implementation of Improvement Plan*

2. *ELECTRICAL SAFETY IN NEW & UPCOMING BUILDINGS*
   a. *Study of Electrical Drawings & Value addition in Drawings*
   b. *Study of Selected Equipment, its compliance with standards and availability of test reports*
   c. *Guidance during Erection*
   d. *Complete Verification during Erection and Commissioning & after commissioning*
   e. *Periodic Electrical Safey Verification as per the schedule mentioned in the standard & record maintenance*

3. *FORENSIC INVESTIGATION OF ACCIDENTS / FAILURES*

How we do?

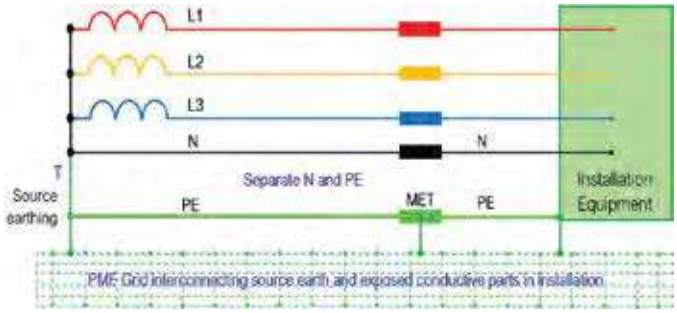
Our Strengths

- *Our knowledge*
- *Large collection of Test instruments*
- *SOLVE – our own software*
- *Digital tools*
- *Qualified and Trained Team*
- *Participation in International forums*

"The job where you need the support of a specialist."

TN-S system with PME for industrial and commercial applications

Earthing has been a confusing subject in India for decades, primarily due to the misinterpreted legal requirement of two separate and distinct connection to earth pit for resulting in unsafe electrical installation across industrial and commercial establishments in India. The standardised electrical networks such as TN-C, TN-S, TN-C-S, TT, IT etc were misused without proper protective measures.



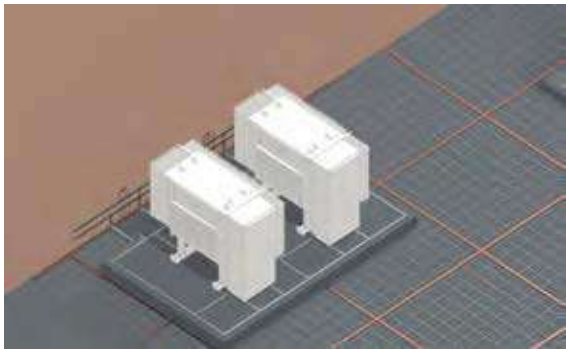
Safety measure called as protective equipotential bonding and automatic disconnection of supply is rarely understood and implemented as a result accidents such as FIRE DUE TO SHORT CIRCUIT become common in the country.

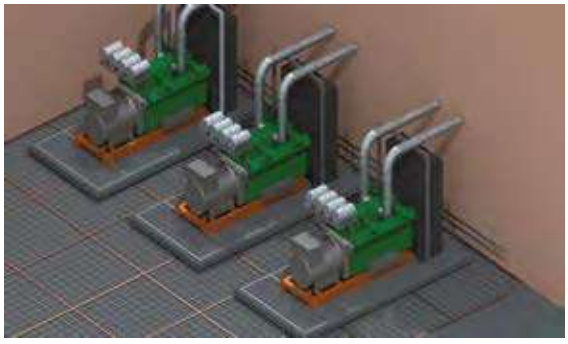
The system follows the basic rules of protective equipotential bonding, TN-S system with additional PME function ensure not only safety, but proper functionality of electronic system.

TN-S systems with PME are the recommended practice for achieving safety in industrial and commercial installations as per the National Electrical Code of India 2023 and IS3043.

Global Earthing System

GES is an earthing system created by interconnecting local earthing systems to minimize dangerous touch voltages. GES permits the division of the earth fault current in a way that reduces the earth potential rise at the local earthing system. Such system could be said to form a quasi-equipotential surface. Exposed and extraneous conductive parts are bonded together with a sufficiently dense interconnection (following the rules of main and supplementary bonding) that the rise in potential "together" ensuring NIL/MINIMUM potential difference between each item under fault conditions. No true earth reference exists and therefore safety voltages are limited.





Typical applications of GES are

- *Substation surrounded by buildings with foundation earth electrode and earthing system inter connected by low voltage protective earth conductors.*
- *Substation feeding densely built up areas.*
- *Substation feeding suburban area with many distributed earth electrodes interconnected by low voltage protective earth conductors.*
- *Substation with given number of nearby substations.*
- *Substations connected via cables with earth electrode effect.*
- *Substation feeding extended industrial area.*
- *Substations that are part of system with multi earthed high voltage neutral conductors.*
- *For installations where high-voltage equipment is not located in closed electrical operating areas, e.g. in an industrial environment, GES prevent touch voltages resulting from HV faults in a LV system.*

Lightning Protection System

Protecting a building against the direct and indirect effects of lightning is important for the safety of people and equipment. It is a mandatory requirement in industrial/commercial and multi-storeyed buildings. Lightning in an installation can create fire, explosion and can cause severe damages to electrical and electronic system. Indian standard recommends the users to seek the help of an experienced lightning protection expert with sound knowledge in EMI/EMC, civil and electrical construction practices to design and install an LPS.

Our systems, ELPS - Exposed LPS and ILPS - Integrated LPS offer high degree of safety from lightning. ILPS have the advantage of avoiding separation distance between LPS and building, in addition to aesthetics and space saving features.

CAPE's products and services are based on the rich experience of the technical knowledge which we developed over last decades. Knowledge about the local regulation and hands on experience of installation practices in several countries ensures even complicated design conditions are met

- ***Designing of LPS, Risk Assessment, Supply & Installation.***
- ***Components tested to IEC 62561, confirming to IS/IEC 62305 & NBC-2016.***
- ***Lightning Protection using Structural steel materials***

Exposed LPS

Integrated LPS

Maintenance Free Earthing

CAPE CBR earthing rods are made of high tensile strength low carbon solid steel rod, molecularly bonded with electrolytic grade copper. The rods are tested as per IEC 62561. These highly corrosion resistant rods can be used in Industrial, commercial and residential applications to make maintenance free earthing system. CAPE CBR are available in various sizes with 250 micron copper coating. The rods offer tensile strength above 600 N/mm². Compared to solid copper rods, CAPE CBE rods are much more stronger with a corrosion resistance almost equal to copper.

Advantages :

- *Tensile Strength: higher than 600 N/mm2*
- *Accelerated corrosion resistance test*
- *Salt mist test as per IEC 60068-2-52:1996.*
- *Humid sulphureous atmosphere test as per ISO 6988:1985 with Ammonia atmosphere test as per ISO 6957:1988*

All 8 feet and 10 feet rods 14.2, 17.2, 20 and 25 mm are UL listed

RDSO APPROVED
RDSO/SPN/197

Surge Protection Devices

SPD (Surge Protective Device) are devices to limits transient voltages by diverting surge current. SPD's are a cost effective solution to prevent downtime, improve system and data reliability, and eliminate equipment damage caused by transient voltages and surges for power and signal lines.

Coordinated SPD's installed in the electrical system provide protection against conducted surges. SPD shall be selected according to their environmental conditions and the acceptable failure rates of the equipment and the SPD.

New generation din rail SPD

Strikesorb - SPD for fuse less panels

Data SPD's

Surge counters

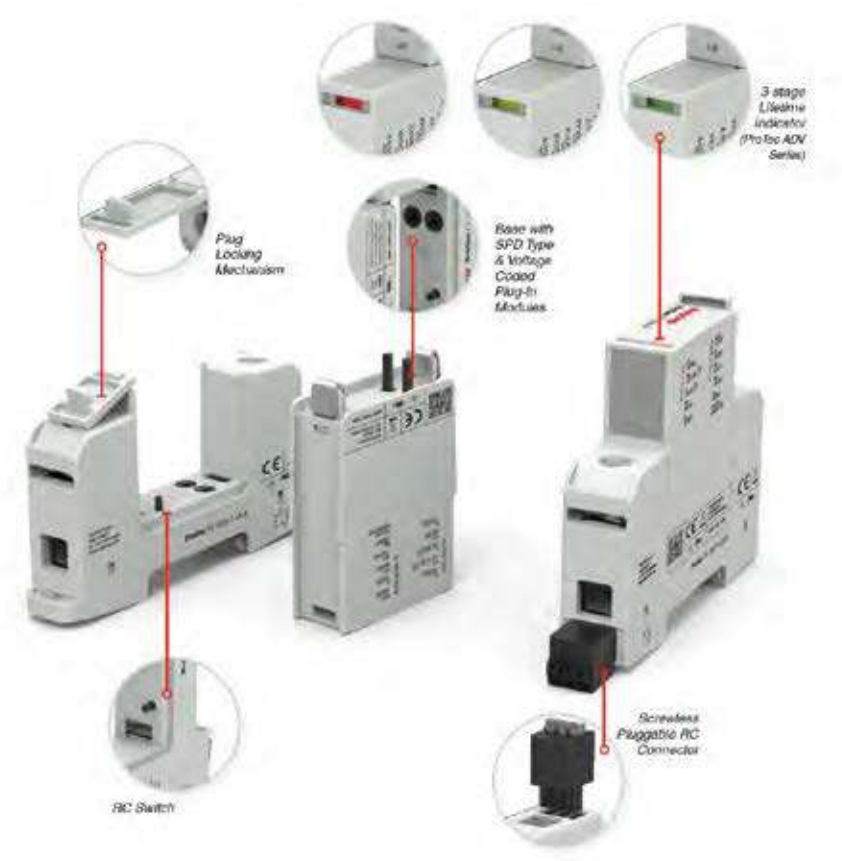
RJ 45 (Cat 6) - SPD's

***CAPE SPD's** are tested and certified as per IEC standards and are UL listed.*

Rich experience and knowledge of CAPE support customers in designing and implementing shielding and routing of power and data lines, bonding and earthing in order to ensure a high degree of safety.

New Generation CAPE SPD

- *TOV withstand 120 minutes*
- *Low residual protection level*
- *Lifetime indicators*
- *Redesigned thermal disconnection*
- *Patented protection technologies*
- *No external back-up fuse required up to 315A*
- *Vibration and shock withstand capability*
- *Patented Module locking mechanism*
- *IEC 61643 - 11 and UL 1449 - 4th edition tested.*



Thermoplastic Non-Metallic Enclosures

These double insulated enclosures are made from halogen free fiber reinforced Polycarbonate (Outdoor) / Polystyrene (Indoor), which are available up to IP68. Junction Boxes are available for cable dimension from 0.25 Sq mm to 240 Sq mm.

Application IP65 Boxes : Street Poles, Industrial, commercial etc.

Application IP68 Boxes : Gardens, Swimming pools, Shipyards etc.

Benefits :

- *Can be used under harsh and corrosive environment, acid and gasoline resistant.*
- *Break-proof, self-extinguishing thermoplastic of high quality and perfect finish.*
- *Halogen free, Low Smoke, Non-Toxic & Silicon Free.*
- *Temperature Resistance -350°C to + 800°C.*
- *UV resistant (PC).*

Types :

- *Junction Boxes*
- *Empty Enclosures*
- *Distribution Boards*
- *Fire resistant JB's*

Glass Fibre Reinforced Polyester Enclosures

These double insulated enclosures are tested for IP66 and IK10, with operating temperature ranging from -500°C to+1200°C. Fire Retardant materials (at 960 deg) used are self extinguishing and Halogen Free.

Benefits :

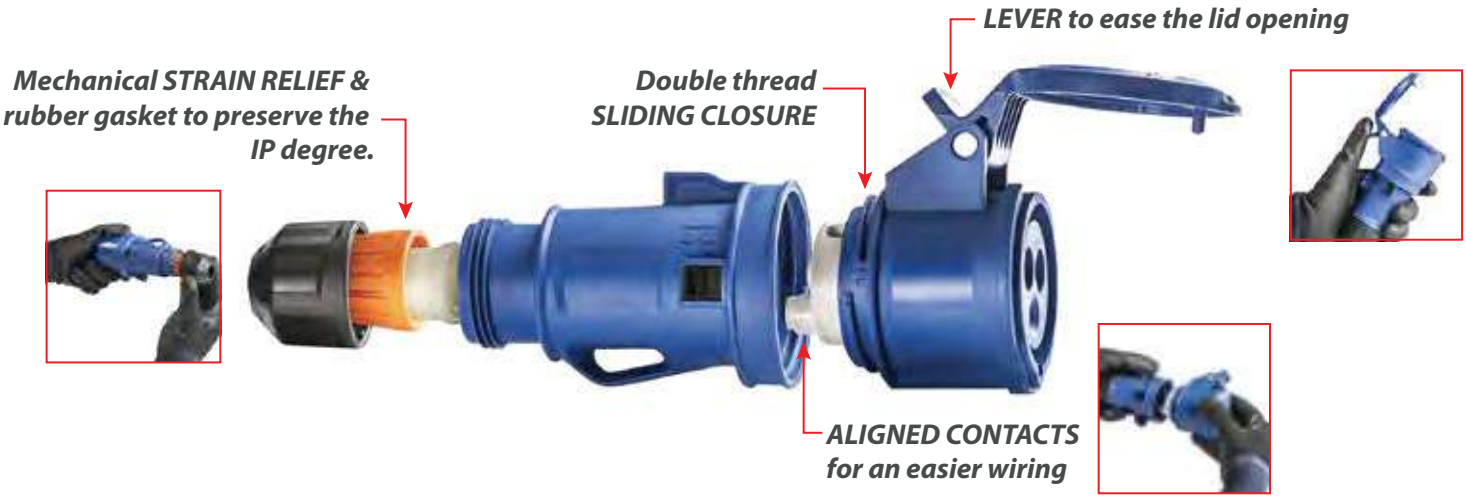
- *Can be used under harsh and corrosive environment, acid and gasoline resistant.*
- *Break-proof, self-extinguishing thermoplastic of high quality and perfect finish.*
- *Halogen free, Low Smoke, Non-Toxic & Silicon Free.*
- *Temperature Resistance -350°C to + 800°C.*
- *UV resistant (PC).*

Industrial Plugs and Sockets

Industrial Plug and Sockets made from PA 6 material confirming to IS/IEC 60309 1 and 2, Insulated. Outer plastic material PA 6 is UV resistant with an operating temperature ranges from -25°C to +85°C (100°C for 1 Hour). Contacts are made from brass conforming to RoHS-directive 2002/95/EG, nickel plated contacts also available upon request. Both screw and screw-less options available in contact terminals of Plug and Sockets. For higher ampere rating plug and sockets like 63A and 125A we have an laminar Spring inside the sockets for lower insertion and extraction forces, Also Pilot contact / Pilot contact system available in these higher rating plug and sockets for electrical interlocking.

Industrial Plug and Socket :

- *Shock proof Construction Panels*
- *Interlocked socket - Industrial Kitchen, Data Centers*
- *Plugs, Angled Plugs - Portable Equipment's Manufacturers*
- *Solid Rubber DB, Plastic DB - Industries*
- *Extra Low Voltage Sockets & Plugs*
- *Container Plug and sockets - Reefer Container*



INDUSTRIAL SOCKETS - PANEL / WALL / CABLE MOUNTED

INDUSTRIAL PLUGS

INTERLOCK SOCKETS

Non - Metallic Panels

Non Metallic panels are made from halogen free Thermoplastic / Thermosetting Plastic enclosures. The panels are made up to IP65 / IP66 Ratings for Outdoor / Indoor Application. The panel enclosures are tested for higher impact resistance. With UV resistant property and highest degree of protections these Panels are designed to withstand extreme weather conditions like chemical / Corrosive environments. With more than 300 varying sizes of standard enclosures the panels can be customized as per the requirements.

Non Metallic Panels :

- *MCCB and MCB Panels up to 630 amps Incoming*
- *Power Distribution board*
- *Lighting Distribution board*
- *Metering Panels*
- *MCC - Motor Control Center*
- *Combiner Box and array junction boxes for solar*
- *Local control Stations, Electrical Junction Boxes*
- *Shock Proof Portable / Fixed Construction Panels*
- *Feeder Pillar / Street Light control Panels*

Features :

- *Halogen Free*
- *Corrosion Resistance*
- *Double Insulated - Shock Proof*
- *UV and Temperature Resistant*
- *Lightweight*

Advantages :

- *Safety*
- *Durability*
- *Cost-Effective*
- *Customizable*

Medical IT System

Enhancing Electrical Safety in Group 2 Medical Locations with Medical Insulation Monitoring Device (MED - IMD)

- *Medical Isolating Transformers (IEC 61558-2-15)*
- *Medical Insulation Monitoring Device (MED - IMD) (IEC 61557- 8)*
- *Insulation Fault Location System (MED - IFLS) (IEC 61557-9)*
- *Protective Conductor Continuity Monitoring*

Medical IT systems, are critical safety measure for Group 2 medical locations. They ensure the continuity of power supply to critical medical equipment during first fault condition. Insulation monitoring is vital in operating rooms, as it detects and addresses electrical leakage currents caused by poor connections, damaged cables, and defective components. These systems monitor insulation levels, transformer load, and temperature, ensuring any faults are promptly managed.

Medical IT systems by CAPE significantly enhance safety by integrating various protective measures in medical locations and ensure the reliability and efficiency of critical medical equipment.

The Medical Isolation Transformer provides electrical separation from TN / TT system, minimizing shock risks and leakage currents. The MED IMD continuously checks the insulation resistance of the ungrounded system, issuing alarms once the insulation level falls below the set limit, and the remote alarm indicator promptly alerts medical staff on any issues, allowing immediate action to ensure patient safety and equipment reliability.

Why to use Medical IT System (insulation monitoring) in group2 locations?

- *It is a matter of safety, efficiency and cost savings*
- *The early detection of potential electric faults prevents risky situations during critical functions; for example, during surgeries.*
- *More efficient & effective usage of valuable surgical and/or other protection equipment due to: Predictable and timely maintenance which results in substantially smaller operating costs.*
- *Significantly increased the lifetime of expensive surgical and/or protection equipment*

Applications :

- *Operation Theatres*
- *Intensive Care Units*
- *Anesthesia Rooms*
- *Neonatal Intensive Care Units*
- *Cardiac Catheterization Lab*
- *Dialysis Centers*

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