

# Facility Electrical Protection for the 21st Century





## **Facility Electrical Protection for the 21st Century**

Lightning strikes and the dangerous over-voltage surges caused by lightning and man-made events represent a direct threat to people, buildings and sensitive electronic equipment.

### **Total Facility Protection**

The consequences of an unexpected lightning strike or power surge can be catastrophic for a facility:

- Personnel are at risk.
- Critical equipment may be damaged or destroyed.
- Data can be corrupted.
- The costs of operational downtime and lost revenue can be very substantial.

As industries become more dependent on increasingly sensitive equipment, proper protection from lightning and dangerous overvoltage transients is necessary.

With over 60 years of research, testing and product development, ERICO has acknowledged that no single technology can totally eliminate vulnerability to lightning and surges.

Today, the consequences of an unexpected lightning strike or power surge can be catastrophic for a company. Proper protection can save thousands of dollars in damage, operational downtime and lost business opportunities.

The ERICO Six Point Plan of Protection is designed to provide total facility protection by integrating several concepts.

The Six Point Plan will minimize the risk of damage to facilities through:

- **Direct Strike Protection** •
- Grounding and Bonding
- Surge and Over-voltage Transient Protection •



ERICO is a leading global designer, manufacturer and marketer of precision-engineered specialty metal products serving niche markets in a diverse range of electrical, construction, utility and rail applications. The company is headquartered in Solon, Ohio, USA with a network of sales locations serving more than 25 countries and with manufacturing and distribution facilities worldwide.

ERICO's well-known brand names include: CADDY® electrical and mechanical fixings, fasteners and supports: CADWELD<sup>®</sup> welded electrical connections: ERITECH<sup>®</sup> surge protection devices; ERICO<sup>®</sup> rail and industrial products; ERIFLEX® low voltage power distribution; ERITECH® facility electrical protection; and LENTON® concrete products. Visit ERICO online at www.erico.com.



#### **Direct Strike Protection**

ERICO's innovative technology provides two systems for capturing lightning energy. The ERITECH® SYSTEM 2000 provides conventional air terminal technology to meet traditional needs.

An alternative approach to lightning protection is the ERITECH<sup>®</sup> SYSTEM 3000, which utilizes the collection volume principle to determine the effective placement of lightning protection to ensure the safe conveyance and dissipation of the lightning energy into the ground.

Over 7000 facilities, including some of the tallest and most vulnerable buildings in the world, are protected by ERITECH SYSTEM 3000 from ERICO.



- Well known technology of passive rods or air terminals, familiar to installers
- Air terminals available in aluminum, copper and stainless
- IEC<sup>®</sup>, B.S., and U.S. Standard Compliant
- Precision manufacturing helps ensure easy assembly and installation
- Computer-aided design to IEC62305, NFPA®-780, AS/NZS1768









- Enhanced area of protection, fewer air terminals needed
- Economical and easy to install
- Fewer downconductors are required
- Designed to protect all types of structures and "open areas"
- Computer-aided design using Collection Volume method





#### **Grounding and Bonding**

For the efficient performance of a lightning protection system, it is essential that a low impedance ground be provided to facilitate the dissipation of the lightning energy into the earth mass.

Because soil conditions and seasonal patterns vary from site to site, the methods of grounding need to be considered on an individual basis.

As a grounding specialist, ERICO provides a range of grounding systems to suit any application.

COVE

IGN

WELD

STER

CADWELD® PLUS



Connections are often the most critical element of grounding systems, so the preferred method of connection is the CADWELD® exothermic welding process.





ERICO offers a variety of products, such as ground bars, signal reference grids, ground plates and potential equalization clamps, which are designed to create an equipotential plane and help protect personnel and valuable equipment.



ERITECH® copper-bonded or stainless steel earth rods and GEM facilitate the transfer of surges and fault currents into the earth, and provide a very long service life due to superior construction and quality.



ERICO

## **Facility Electrical Protection for the 21st Century**

#### **Power Protection**

Modern electronics and circuitry used in computing, communications and control/alarm installations are highly susceptible to damage from lightning surges and other transient over-voltages. ERICO specializes in providing protection at two points:

 At the point of entry of power lines to buildings, high energy shunt diverters rapidly limit surges into the facility, directing the excess surge energy to ground. • At secondary locations, provide various levels of protection from surges on power lines.





As a protection solutions provider, ERICO also offers protection systems and consultancy services to suit specific industry applications ranging from power conversion for the telecommunications industry to plug-in power line filters for the home/small office environment.

#### **Telecommunications and Data Protection**

With the increased use of sensitive electronics in telecommunications, signal and data management, effective surge clamping is essential to prevent data corruption, component damage, operational downtime, loss of revenue, customer dissatisfaction and risk to human safety.

ERICO facility electrical protection products are designed to provide comprehensive protection against surges of up to 20kA on telephone subscriber lines, industrial process control lines, coaxial feeders, computer networks and serial data circuits.



#### WARNING

ERICO products shall be installed and used only as indicated in ERICO's product instruction sheets and training materials. Instruction sheets are available at www.erico.com and from your ERICO customer service representative. Improper installation, misuse, misapplication or other failure to completely follow ERICO's instructions and warnings may cause product malfunction, property damage, serious bodily injury and death. WARRANTY

RENCO products are warranted to be free from defects in material and workmanship at the time of shipment. NO OTHER WARRANTY, WHETHER EXPRESS OR IMPLIED (INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), SHALL EXIST IN CONNECTION WITH THE SALE OR USE OF ANY ERICO PRODUCTS. Claims for errors, shortages, defects or nonconformities ascertainable upon inspection must be made in writing within 5 days after Buyer's receipt of products. All other claims must be made in writing to ERICO within 6 months from the date of shipment or transport. Products claimed to be nonconforming or defective must, upon ERICO's prior written approval in accordance with its standard terms and procedures governing returns, promptly be returned to ERICO for inspection. Claims not made as provided above and within the applicable time period will be barred. ERICO shi is precifications and recommended procedures. ERICO will, at its option, either repair or replace nonconforming or defective products for which it is responsible or return the purchase price to the Buyer. THE FOREGOING STATES BUYER'S EXCLUSIVE REMEDY FOR ANY BREACH OF ERICO WARRANTY AND FOR ANY CLAIM, WHETHER SOUNDING IN CONTRACT, TORT OR NEGLIGENCE, FOR LOSS OR INJURY CAUSED BY THE SALE OR USE OF ANY PRODUCT.

LIMITATION OF LIABILITY

ERICO excludes all liability except such liability that is directly attributable to the willful or gross negligence of ERICO's employees. Should ERICO be held liable its liability shall in no event exceed the total purchase price under the contract. ERICO EXcludes all liability except such liability that is directly attributable to the willful or gross negligence of ERICO's employees. Should ERICO be held liable its liability shall in no event exceed the total purchase price under the contract. ERICO EXcludes all liability except such liability that is directly attributable to the willful or gross negligence of ERICO's employees. Should ERICO be held liable its liability shall in no event exceed the total purchase price under the contract. ERICO EXCLUDES OF ALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS OF BUSINESS OR PROFITS, DOWNTIME OR DELAY, LABOR, REPAIR OR MATERIAL COSTS OR ANY SIMILAR OR DISSIMILAR CONSEQUENTIAL LOSS OR DAMAGE INCURRED BY BUYER IEC is a registered trademark of the International Electrotechnical Commission.

NFPA is a registered trademark of the National Fire Protection Association.

Copyright ©2010 ERICO International Corporation. All rights reserved.

CADDY, CADWELD, CRITEC, ERICO, ERIFLEX, ERITECH, and LENTON are registered trademarks of ERICO International Corporation.

www.erico.com

• For sensitive electronic equipment protection, or when high performance protection is required, Surge Reduction Filters (SRF's) are recommended. They reduce the peak residual voltage to suitably low levels and dramatically reduce the rate of current and voltage rise to downstream equipment.

The SRF product family incorporates suitably designed low pass filter technologies coordinated with shunt diversion stages incorporating both the ERICO Transient Discriminating (TD) and Triggered Spark Gap (TSG)

Technologies. The coordination of each of the above technologies within one package provides the ultimate hybrid technology performance. This results in a robust surge rating and extremely low residual voltages with a high Maximum Continuous Operating Voltage (MCOV), designed to withstand sustained over-voltage conditions.





