Lightning & Power Surge Protection, Safety & Electrical Test Equipment
Established in 1970, Surge Technology, trading as Surgetek, specialises in all aspects of lightning, surge, safety and electric test equipment. Since its inception, the company has played a leading role in drafting relevant SABS earthing and lightning protection codes, and its highly experienced staff has served on various SABS IEC liaison committees. Surge Technology is listed with the ISO 9001 Quality Assurance Programme and certification was awarded during July 1999.

Today, Surgetek is a 100% black owned (B-BBEE) company and distributes a wide range of lightning, power surge protection, safety and test & measurement equipment in South Africa and neighbouring countries. Most of Surgetek’s power protection and safety equipment are SABS approved and are specified by major users. Included amongst its customers are government departments, air traffic control (civilian and military/defence), state-owned enterprises and companies/entities/organizations in the following sectors - banking and financial services, telecommunications, transport, agriculture, minerals and mining, energy and water, education, science and technology, housing, security, justice and correctional services, tourism and hospitality, health, sport/recreation/entertainment, manufacturing and construction, amongst others.

Our agencies

DEHN + SÖHNE was founded in Nuremberg, Germany, during 1910, and has been producing lightning protection, earthing components and safety equipment to protect systems, building and personnel working at electrical installations. DEHN + SÖHNE introduced the first generation surge arresters in 1954 and is recognised as the global leader in the industry, having technically led the power protection industry ever since.

SALTEK is a Czech company specialising in the development and production of surge protection devices. The company is a leader in its field in the Czech market and offers a full range of lightning current arresters and Class 1, Class 2 and Class 3 surge protection devices according to IEC 61643-1. The company offers surge protection for LV power supplies, signal, measurement and control, telecommunications, information technology and photovoltaic systems.

COPA is the brand name for our locally manufactured low cost surge protection devices, including for example, coaxial cable-connected systems, indoor 100/1000 Base-T Ethernet networks and ADSL line protectors.

DELTEC, founded by DEHN + SÖHNE and Elsic, combine their experience and know-how in the field of safety protection. Both companies specialise in occupational safety when working with electrical systems. Their product ranges complement one another and are identified as the Deltec safety program.

TRIDELTA is one of Europe’s leading manufacturers of magnetic materials and components. The company evolved in 1997 and offers a wide range of metal oxide arresters for voltages from 250 V - 800 kV. Arresters are characterised by low protective levels and high safety in operation. A wide range of housings made of porcelain and polymer permits optimal use, even in extreme climatic conditions.

HAUPA is a leading designer and manufacturer of safety tools and materials for electro-technical applications, and has been supplying its customers in more than 30 countries for over 40 years.

MEGGER has been the premier provider of electric test equipment and measuring instruments for electrical power applications for over 100 years. Although it is best known for its world famous range of insulation testers, Megger provides a full service solution to meet electrical test and measurement needs.

PROGRAMMA, founded in 1976, is a world renowned supplier of test equipment and diagnostic methods for protection relays, high voltage circuit breakers, stationary batteries, as well as portable high current applications. Programma products have become an industry standard for rugged, portable test instruments for field and commissioning testing of HV switchyard components.

KRIES has been designing and manufacturing electronic systems for optimising the availability of electrical energy since 1994. Their products include voltage detecting and monitoring systems for medium voltage systems.

DUCATI ENERGIA manufactures a highly diversified range of capacitors for direct and alternating current. Included in the range are DC capacitors – 3 kV DC networks and wave filter capacitors for railway systems.

FLUKE CORPORATION is the world leader in the manufacture, distribution and service of electronic test tools and software. Since its founding in 1948, Fluke has helped define and grow a unique technology market, providing testing and troubleshooting capabilities that have grown to mission critical status in manufacturing and service industries.
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Protection for the Renewable Energy Sector

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Approx. 20,000,000 lightning strikes in South Africa per year

Statistically the average house in Gauteng, in a 25 year period, has less than 1 chance of suffering damage from a direct lightning strike.

It is often suggested that by putting up a mast, finial or external lightning protection one can prevent damage to equipment, but in actual fact it can make the problem worse. A 30 meter mast has an attractive radius of 108 meters which means that lightning that would have struck 108 meters away is now more likely to strike the mast which is next to the very equipment being protected.

External lightning protection only protects the building against structural damage in the event of a direct strike. It offers a preferential point of strike and a controlled discharge path to earth. Unfortunately this will not prevent damage to sensitive electronics such as computers and PABXs housed within the building. Lightning up to 2 km away can cause damage to sensitive electronics and thus it is most important to install internal lightning and overvoltage protection for the equipment.

SABS CODE FOR LIGHTNING AND SURGE PROTECTION

Installation of surge arresters is optional. Should they be installed, then they must be installed in accordance with SANS 10142-1:2012 Annex L (the wiring code which is law). This simply means that the minimum requirement is to install SABS compliant Class 2 surge arresters which must be hard-wired into the electrical distribution board by a registered electrician. The installation of Class 3 surge arresters such as plug tops, multi plugs, etc., can only be used after the minimum requirements have been met, therefore Class 3 arresters may NOT be used on their own.
Class 1 and 2 Lightning and Surge Protection

To be used when a site has external lightning protection as per SANS 10142-1:2012 Annex L, or if it will be exposed to potential direct lightning strikes/critical industry.

- In accordance with SABS, IEC, EN, and VDE standards
- Built-in de-coupling
- RADAX-Flow spark-gap technology
- Installed in all power supply systems (TNC, TN-C-S, TNC, & TT)
- Capable of protecting equipment, even in the case of a direct lightning strike (10/350 μs)
- Replaceable modules with visual fault indication

Class 1 Combined Lightning Current and Surge Arrester

For protecting residential buildings and special applications.

- Capable of protecting terminal equipment
- Discharge capacity up to 50 kA (10/350 μs)
- Easily integrated into closed distribution boards

Class 2 – Induced Lightning 40 kA (8/20 μs)

For use in all electrical distribution boards, as well as sub boards (essential if lightning current arresters are installed upstream).

- Replaceable modules with visual fault indication
- Simple wiring eliminates potential faults
- Clamp voltages to less than 1 500 V as per SANS 10142:2012 table L1 (for sensitive electronics)
- Available in single and three-phase units

Class 3 – Induced Lightning 5 kA (8/20 μs)

Protection of equipment downstream from Class 2 arresters.

- Designed to withstand surges of 10 kA (8/20 μs)
- Energy-coordinated within the Red/Line product range
- Units such as the DEHNrail® are pluggable and have visual fault indication
Saltek Lightning and Power Surge Protection

**FLP-B+C MAXI VS/3+1**

**Class 1 and 2 Combined Arrester**

Highly efficient varistor lightning current arrester to be installed in low voltage distributions at the boundary of LPZ 0A–LPZ 1 zones and higher, to prevent overvoltage effects induced during direct or indirect lightning strikes.

- Visual fault signalling
- Remote status signalling

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**FLP-B+C MAXI VS**

**Class 1 and 2 Combined Arrester**

Surge protection device for protection of low voltage (230/400 V AC) networks and connected appliances against surge voltages due to direct and indirect lightning strikes. Module offers a combination of heavy duty gas discharge tube (GDT) rated at 25 kA (10/350 μs pulse) with high energy varistor block.

- No follow-on current, very low leakage current (μA range)
- Very low residual voltage

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**SLP-275 V**

**Class 2 Surge Arrester**

Varistor surge protection to be installed in low voltage distributions at the boundary of LPZ 1 and LPZ 2 zones to protect the distributions and equipment against overvoltage effects induced during a lightning strike and to prevent switching overvoltage.

- Replaceable varistor module
- Visual fault signalling

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**SLP-275 V/1+1**

**Class 2 Surge Arrester**

Combination of varistor surge protection and an encapsulated spark gap connected in the mode 1+1. To be installed in low voltage distributions at the boundary of LPZ 1 and LPZ 2 zones to protect distributions and equipment against the overvoltage effects induced during a lightning strike and to prevent switching overvoltage.

- Optional remote status signalling (S)
- Replaceable module, visual fault signalling

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**SLP-275 V/3S+1**

**Class 2 Surge Arrester**

Combination of 3-pole varistor surge protection and an encapsulated spark gap connected in the mode 3+1. To be installed in low-voltage distributions at the boundary of LPZ 1 and LPZ 2 zones to protect distributions and equipment against the overvoltage effects induced during a lightning strike and to prevent switching overvoltage.

- Replaceable module, visual fault signal
- Optional remote status signalling (S)
Dehn Surge Protection for Data Systems and Hazardous Areas

Blitzductor® Range
Pluggable 2- and 4-wire combination 2.5 kA (10/350 μs) lightning current and 20 kA (8/20 μs) overvoltage protection module. Suitable for use on most applications from 5 – 220 V, 4 – 20 mA loops and high frequency systems up to 100 MHz.

DEHNgate Antenna Protection
Antenna protectors for 50 Ω and 93 Ω coaxial systems with frequencies up to 1.0 GHz and 500 W output transmission.

DEHNpatch
Universal Type 2 SPD for industrial Ethernet and similar applications in structured cabling systems. Fully shielded adapter with sockets for DIN rail mounting.

- Used on 10/100 Base-T, 1 Gigabit Ethernet and POE networks

Ex Type
Lightning surge protection units designed specifically for protection of equipment in hazardous areas.

BLITZductor BXT
Two-pole surge arrester device with LifeCheck monitoring for use in potentially explosive atmospheres.
Copa Surge Protection for Data Systems

COPA DPL 10 F
10 kA (8/20 μs) protection of 10-wire telephone lines and for installation in Krone LAS disconnect type blocks.

Net Protector 10/100 Base-T
Surge protection modules in 8-, 16-, and 24-way for 19” rack mount protection of 10/100 Base-T networks.

COP903
Surge protection device for coaxial cable-connected systems such as video surveillance systems and similar equipment.

COP907
Surge arrester providing superior surge protection for indoor 100/1000 Base-T Ethernet networks.

Data 8-wire
10kA (8/20) 8-wire data protection module typically for fire alarm panels, instrumentation and access control systems.
Safety Equipment, Portable Earthing Equipment and Arc Rated Protective Equipment

Voltage Detector Type PHE III and PHE/G

The PHE III voltage detectors are for use in sub-stations, switchgear and overhead line applications from 3 kV to 132 kV / 50 Hz. The voltage detectors comply with IEC / SANS 61243-1 and are SABS approved.

The PHE/G voltage detectors are for use in sub-stations, switchgear and overhead lines of rail traction systems. The PHE/G voltage detector is available in single and two-pole design for DC voltages from 1 kV DC to 7.5 kV DC.

Phase Comparator Type PHV

Two-pole phase comparator with visual indication for testing the in-phase condition of three-phase systems from 3 kV to 36 kV / 50 Hz. The PHV two-pole type has interchangeable colour coded test prods that are selected for the desired voltage and application. The phase comparator complies with IEC / SANS 61481 and is SABS approved.

Portable Earthing and Short-Circuiting Equipment

A range of portable earthing and short-circuiting devices designed to ensure the safety of personnel while working on low, medium and high voltage electrical installations. Snap-on, screw type and tubular busbar phase clamps, earth clamps, fixed phase and earth connection points and various accessories provide the ideal solution for all earthing requirements.

Arc Rated Protective Equipment

In the event of an electric arc, workers can be exposed to temperatures of more than 20 000°C resulting in severe burns. Protection for workers can be provided by selecting the correct Personal Protective Equipment (PPE) as determined by the risk analysis and includes arc rated flash suits, workwear, visors, balaclavas and gloves in accordance with SANS 724, ASTM1959 and IEC 61482-1-1.
Surge Arresters, Capacitors, Voltage Detecting Systems, Overhead Line Fault Indicators and Safety Tools

Surge Arresters

A complete range of MV and HV polymer and porcelain housed metal oxide surge arresters for the protection of transformers, switchgear and overhead line networks against lightning and switching overvoltages.

DC Capacitors for Railway Applications

DC power capacitors for traction and railway applications. Transnet approved 3 kVDC/4 μF capacitors to specification CEE0115 and 3,4 kVDC/10 μF, 3,4 kVDC/20 μF and 3,4 kVDC/50 μF wavefilter capacitors to specification BBB3139.

Integrated Capacitive Voltage Detecting System

Integrated three-phase capacitive voltage detecting systems according to IEC/SANS 61243-5. Voltage detecting system for medium voltage with integrated three-phase voltage indication and test points.

Overhead Line Fault Indicators

The IKI fault indicator provides overcurrent, earth-fault and broken line detection for ring and radial overhead line networks. When used in combination with the PONLINE Butler, fault information is sent via GSM-SMS to the PONLINE Master GSM station or just to a mobile phone.

Safety Tools, Cable Cutters, Crimping Tools and Accessories

A wide range of safety tools with 2-colour multi-layer insulation for live working up to 1000 V, hydraulic and battery operated cable cutters and crimpers as well as cable accessories.
Megger Test and Measurement Equipment

**Insulation Resistance Testers**

5 kV and 10 kV insulation resistance testers for testing and maintenance of high voltage electrical equipment.

**Automated Insulation Power Factor Test Set**

The Delta 4000 series is a fully automatic insulation power factor test set, designed for condition assessment of electrical insulation in high voltage apparatus such as transformers, bushings, circuit breakers, cables, lightning arrestors, and rotating machinery. The Delta 4000 includes a sweep frequency response (1-500 Hz) and as an option can be used in conjunction with the Megger TTR 300 transformer turns ratio meters.

**Cable Fault Finding Systems**

The PFL22M-1500 is designed for cable fault location on both simple and complex networks. The PFL22M-1500 features a simple-to-operate MTDR (Megger Time Domain Reflectometry) built into the lid and an inductive arc reflection filter to enable quick and easy fault location. An optional on-board inverter provides the user with a choice of input power options.

**Circuit Breaker Analyser**

The Programma EGIL is an automatic time and motion analyser for medium and high voltage substation circuit breakers. It tests three phase breakers and is intended for use on distribution type circuit breakers. A 200 Amp microhm meter can also be added into the EGIL package to allow for simultaneous contact resistance measurement.

**Relay Test Equipment**

SMRT is recognised for its versatility, its impressive power capability and extra rugged design. Testing performance is proven every day in some of the most remote areas of the world. New features and capabilities include; Click-On-Fault, Binary Search, RIO File Import, Recorder Capabilities, etc.

**Digital Multimeters**

The AVO 410 range of multimeters are tough compact instruments designed not only for the contracting electrician, but are also suitable for a wide range of applications. The instrument offers a wide range of measurement modes for both AC and DC measurements. The AVO 410 is offered with a CAT IV 600v safety rating, is auto ranging on the selected scale/range and to ensure easy reading of the values a large screen and back lite LCD display.

**Clamp-on Earth Resistance Tester**

The Megger DET24C earth/ground clamp-on resistance testers induce a test current into earth systems and measure ground resistance in multi ground installations without needing to disconnect the ground. The testers are easy to use and have CAT IV 600 V safety protection. They measure ground resistance from 0.05 Ω to 1500 Ω and are suitable for use in power stations, substations, towers and many more facilities.
Advanced Performance Infrared Cameras

Fluke’s Ti400 infrared camera range is equipped with the LaserSharp™ Auto Focus feature that uses a laser to calculate the distance to the target before it focuses. The user simply places the red laser dot on the equipment he is inspecting and then pulls and releases the trigger for a perfect in-focus image. Temperatures up to 1200 °C can be measured.

345 Single Phase Power Clamp Meter

With a bright colour display to analyse the harmonic spectrum, a low-pass filter to remove high frequency noise, and a high EMC immunity design, the Fluke 345 is ideal for measurements on switching loads such as variable frequency drives, electronic lighting and UPS systems. Additionally, the Hall Effect measurement system makes measurement of dc current possible without the need to break the circuit, and the internal memory enables long-term logging for analysis of trends or intermittent problems.

Three-Phase Power Quality and Energy Analyser

The Fluke 435 Series II offers the best in power quality analysis and has the ability to monetarily quantify energy losses. The instrument helps locate, predict, prevent, and troubleshoot power quality problems in three-phase and single-phase power distribution systems. Additionally, the Fluke-patented energy loss algorithm, Unified Power Measurement, measures and quantifies energy losses due to harmonics and unbalance issues, allowing the user to pinpoint the origin of energy waste within a system.

Power Quality Logger Memobox

The Fluke 1743/44 is an IP65 water-proof power quality logger that can be used on any low or medium electrical installation to measure power parameters. Since the 1743 is a memobox, it does not come with a built-in screen. Instead this device is designed to log data continuously on the tester and then allows the download of this data into PQ Log software (included) for carrying out analysis of trends, creation of statistic summaries and for the generation of graphs, tables and reports based on information captured using the tester. The device can be used to measure common power parameters: voltage, current, power, VA, VAR, PF, energy, flicker, voltage events (such as dips and swells) and can also showcase total harmonic distortion on a connected system. All power quality measurements are carried out to EN50160 standards.

Please note: Although Surgetek is focussing on the above products, we are able to supply the entire Fluke product range.
Wind turbine systems are especially vulnerable to lightning discharges during thunderstorms. Lightning strikes are a wind turbine’s worst enemy. The blades of wind turbines can reach heights of close to 150 m making them extremely susceptible to damage from lightning and related surges.

Without effective lightning protection, both the blades and the turbine itself can be severely damaged by the powerful energy surges in lightning, resulting in serious consequences for the operation of the system.

Surgetek offers lightning and surge protection devices from DEHN and SALTEK to provide superior and reliable protection for wind turbine plants. A properly installed lightning protection system will dramatically improve both the cost-effectiveness and reliability of the system.
Highly excessive voltages and currents can threaten the operation of a PV plant. Such surges are mainly caused by lightning, but can also be due to faults in the grid. To ensure a path to earth for any lightning strike, or currents caused by overvoltage, is an extremely important factor in PV plant protection.

Solar panels are especially susceptible because of their large, fully exposed surface areas and prevalent installations in open, isolated areas.

In all situations downtime has to be avoided and by using an economically coordinated lightning and surge protection system from Surgetek, this can easily be achieved.

Wherever photovoltaic or solar systems have to be protected against the consequences from surge and lightning damage, DEHN and SALTEK have the answer.
Surgetek distributes its wide range of products throughout Africa.

Surgetek’s protection devices and equipment are used by the following clients:

- Cell C
- Eskom
- Celtel
- Kenya Power & Lighting
- MTN
- Sentech
- Siemens
- Transnet
- Vodacom
- Telkom
- BP
- Anglo American
- Calitex
- BHP Billiton
- Engen
- De Beers
- Sasol
- Glencore
- Honeywell
- PRASA

The company has been involved as a supplier and consultant on numerous projects within the following business sectors - airports, banks, hospitals, computer networks, utilities, water, electricity, sewerage & telecommunications.