DEHNnews

Intersolar Europe 2013 trade fair edition

DEHN protects investments

Be it photovoltaic systems on single-family houses, stand-alone systems or solar power plants: Standard-compliant operation of PV systems also includes professional lightning and surge protection. DEHN offers lightning protection components and surge protective devices specifically matched to the requirements of PV systems.

The modular systems from DEHN for external lightning protection including air-termination system, down conductor and earth-termination system, for equipotential bonding as well as for lightning current and surge arresters fully protect every PV system. DEHN does not only provide components, devices or systems, but also supports planners, operators and manufacturers of PV systems from the early stages of planning to testing and documentation. Application proposals, brochures and the reference book "Lightning Protection Guide" provide comprehensive information on standard-compliant lightning protection. Efficient protection can only be achieved if systems are planned and installed using harmonised components. DEHN's Technical Support provides competent advice.

Even voltage peaks can be handled

Cascaded surge protection is the prerequisite for successful device and system protection, not only in case of lightning currents, but also in case of small voltage peaks. The DEHNguard® M YPV SCI arrester ensures safe operation even if devices are overloaded, for example as a result of an insulation fault in the PV generator circuit. Surge protective devices for PV systems earthed on the d.c. side are also available.

Reliable partner for safety equipment

Safety equipment is another important aspect for PV systems. DEHN safety equipment such as voltage detectors, earthing and short-circuiting devices, switching sticks, fuse tongs as well as insulating and earthing sticks provide the safety required for work on electrical installations. The range of safety equipment is complemented by arc-fault-tested personal protective equipment (PPE) consisting of a safety helmet with visor, protective suit or jacket for use in switchgear installations as well as arc-fault-tested protective gloves.

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San Francisco, USA

GAWP Annual Conference & Expo
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9. Fachtagung Arbeiten unter Spannung
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New surge protective device for string inverters

Concentrating on the essentials without compromising safety. For the protection of string inverters, this means that reliable products with economic benefits are needed. With its new compact DEHNguard® YPV SCI arrester specifically designed for string inverters, DEHN meets this customer requirement.

The compact type 2 arrester for photovoltaic systems has a total discharge current up to 40 kA (8/20 µs). The total capacity of the PV system – be it a roof-mounted system or large-scale solar park – can be easily determined by means of the number of inverters. From a surge protection point of view, this means a high number of d.c. circuits to be protected. With a narrow width of 3 modules and a clamping range of 1.5 mm² to 35 mm², the mechanical design of DEHNguard® YPV SCI compact is ideally suited for protecting string inverters. Since the terminals are located on only one side of the device, more space is created for further installations. Moreover, the terminals are clearly labelled.

Safety anytime

The SCI technology (Short Circuit Interruption) with the combined disconnection and short-circuiting device is the core of the arrester. In case of overload, the arrester is safely disconnected and the d.c. switching arc is extinguished since this arrester does not feature a mere disconnector, but a switching concept specifically developed for PV systems. The devices are tested to the latest EN 50539-11 and have a short-circuit current rating I_{scpv} of 200 A d.c. They are available for voltages of 600 V and 1.000 V.

Since this new product is based on heavy-duty varistors which are permanently connected to the d.c. circuit by means of a fault-resistant Y circuit, it increases the reliability and longevity of PV systems. Impulse currents up to 40 kA (8/20 µs) can be handled. Moreover, small voltage peaks which reduce the service life of the electronic devices of the PV system due to their frequency are limited.

The devices feature an operating-current-free operating state and fault indication which immediately provides information on the availability of each protective circuit.

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Higher functionality at reduced costs

The new range of printed circuit board bases DEHNguard® PCB (FM) opens up new possibilities for protecting power electronic devices against surges. Since the bases are directly positioned on the PCB, manual wiring required for DIN rail mounted devices of this class is not necessary. Surge protection is ensured at any time by simply plugging the relevant protection modules in the base. Thus, lightning currents up to 40 kA (8/20 µs) can be handled.

Higher functionality at reduced costs is a requirement that is frequently placed on developers of power electronics. In case of DEHNguard® PCB (FM), the connection for the surge protective device is integrated in the PCBs of the devices. The cost-effective bases, which are optionally available with remote signalling contact, considerably reduce surge protection costs. The efficient protective circuit that is directly situated on the PCB after the relevant protection module has been plugged in complies with the standards for surge protective devices. This is not possible to the same extent if a PCB is equipped with standard protection components such as varistors and gas discharge tubes.

By combining the bases, a variety of circuits can be realised. Bases are available for different system voltages for direct or alternating currents. The modules of the DEHNguard® family required for the actual protection can be tailored to customer needs. The coded base and protection modules prevent incorrect installation. The pre-mounted base and the simple plug-in mechanism of the protection modules allow easy retrofitting at any time.

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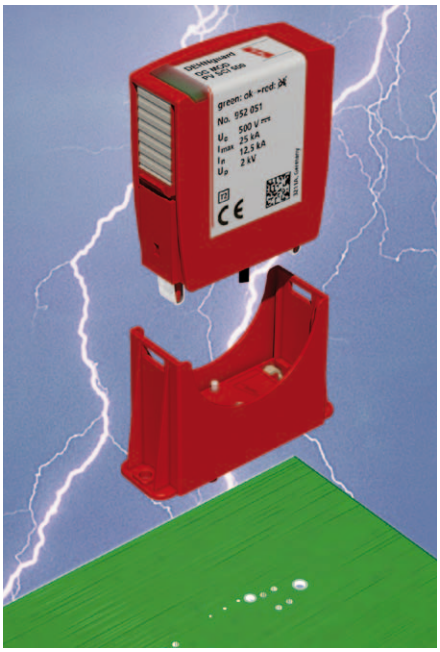

PV systems now protected up to 1,500 V

The globally used DEHNguard® M YPV SCI with unique SCI technology for the d.c. circuit is also available for systems up to 1,500 V.

Available as 150 V, 600 V, 1,000 V, 1,200 V and 1,500 V versions, the DEHNguard® M YPV SCI surge protective devices are ideally adapted to the system voltages, making them suitable for almost any application. Apart from the fault-resistant Y circuit and the combined disconnection and short-circuiting device with

Thermo Dynamic Control, a d.c. fuse is integrated which ensures safe replacement of protection modules without arc formation in case of arrester overload. This reduces the risk of damage to protective devices as a result of installation and insulation faults in the PV circuit. Moreover, the risk of fire is considerably reduced and an overloaded arrester is put into a safe state without disrupting the operation of the PV system.

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Indirect shield earthing prevents disruption of PV systems

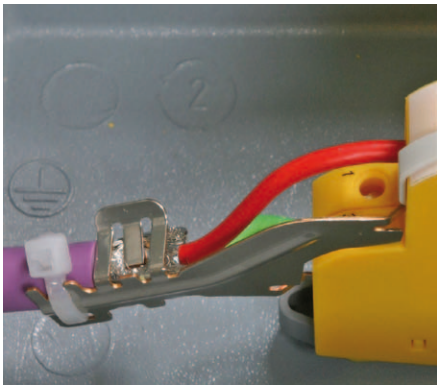
The BLITZDUCTOR® XT combined arrester is a pluggable, multipole and universal lightning current and surge arrester. It can be used for information technology installations and systems which require maximum availability.

BLITZDUCTOR® XT combines the permanently high impulse current discharge capacity of a lightning current arrester with the low voltage protection level of a surge arrester to effectively protect terminal equipment in case of lightning strikes and surges.

The LifeCheck® technology integrated in the protection modules permanently monitors the arrester status, thus allowing easy and quick arrester testing without removing the module. The arrester status can be read out via RFID technology by means of the portable DEHNrecord LC test device.

Benefits of BLITZDUCTOR® XT

The module locking system ensures that the arrester provides protection against vibration effects and shock up to a 30-fold acceleration of gravity. Nevertheless, the design of the device ensures quick and easy replacement of the protection module. The protection modules of type BLITZDUCTOR® XT ML2 ... S allow to directly or indirectly connect a cable shield to the equipotential bonding. Indirect shield earthing ensures that interference caused by equalising currents via the cable shield is prevented and transient impulse currents are safely discharged to earth via a gas discharge tube. Especially for bus systems used e.g. for data acquisition and monitoring of PV systems it is advisable to use an EMC spring terminal for low-impedance contact with cable shields over large areas.



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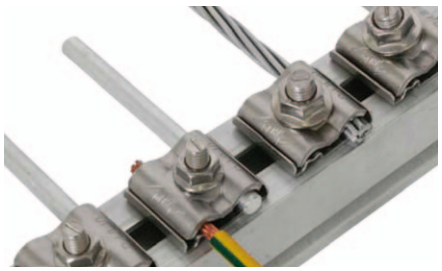
Easy-to-connect and corrosion-free earthing and saddle clamps



DEHN UNI earthing and saddle clamps allow to easily integrate PV mounting systems in the functional and lightning equipotential bonding.

A stainless steel intermediate element (contact plate) can be used to connect different conductor materials and cross-sections to mounting systems made of, for example aluminium, without contact corrosion. Profiles can be easily and quickly interconnected by means of the double cleat version. This terminals can be used for different conductor materials such as steel, aluminium, copper or stainless steel. The flexible use in terms of material also minimises storage requirements.

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DEHNcombo: Type 1+2 combined arrester and fire protection

The DEHNcombo YPV SCI combined arrester, which will be available as of the fourth quarter 2013, reliably protects PV systems from surges caused by lightning. For the first time, this new concept combines a number of benefits in a single device. The surge protective device combines a type 1 lightning current arrester with a type 2 surge arrester. It incorporates the proven Y circuit with the patented SCI technology and takes up little space.

DEHNcombo is a compact, lightning current carrying combined arrester for the d.c. side of photovoltaic systems which can be used without backup fuse up to 1000 A. It has a total discharge current of 12.5 kA (10/350 µs) and a low voltage protection level which allows coordination with terminal equipment.

The SCI technology with a combined disconnection and short-circuiting device is the core of DEHNcombo. In case of overload, the arrester is safely disconnected and the d.c. switching arc is extinguished since this arrester does not feature a mere disconnector, but a switching concept specifically developed for PV systems.

DEHNcombo is tailored to meet the requirements of the new prTS 50539-12 standard, which will be published in autumn, and the national supplement 5 of the DIN EN 62305-3 standard, which will also be available in the fourth quarter 2013.

They have a short-circuit current rating I_{scpv} of 1000 A d.c. and can thus be used in both small-sized and large-scale systems. DEHNcombo is available for voltages of 600 V, 1000 V and 1500 V as of the fourth quarter 2013.

With a width of only 4 modules, the device is compact and space-saving. Nevertheless, it feature an operating-current-free operating state and fault indication as well as a remote signalling contact which immediately provides information on the availability of each protective circuit.

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DEHNcare® provides protection in case of arc faults

DEHN has developed an arc-fault-tested protective suit and jacket for use in switchgear installations as part of the personal protective equipment. In combination with a safety helmet and gloves, protective suits and jackets for use in switchgear installations the risk of injury resulting from the thermal effects of arc faults during work on electrical installations is thus reduced.

When designing the two-part protective suit and the new jacket for use in switchgear installations, DEHN did not only attach great importance to the protective effect, but also to the wearing comfort. For this reason, breathable leather and neoprene materials, which have already been successfully used for the protective gloves, were chosen. The flame-retardant lining and reflective strips of the protective suit and jacket for use in switchgear installations provide comprehensive protection. The Zip and hook-and-loop fasteners are also made of flame retardant material.

Objectively confirmed safety

Standardised tests prove the efficiency of DEHNcare® in case of an arc fault. DEHNcare® meets and even exceeds all criteria of the guideline for the selection of personal protective equipment published by the IVSS (International Social Security Association). Thus, DEHcare® provides a higher degree of protection than required by the IEC 61482-1-2 standard. Safety devices and equipment from DEHN are manufactured and tested in compliance with applicable standards. DEHN is also a reliable partner for maintenance tests on earthing and short-circuiting devices, voltage detectors, switching sticks, fuse tongs, insulating sticks and earthing sticks.

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