



DEHNrecord Smart Device

Creating transparency in a low-voltage system

Modern power grids consist of an increasing proportion of electronics and therefore have many components with a low dielectric strength. They are also highly interconnected. Added to this is the shift from centralised power generation to a volatile power grid supplemented by a multitude of decentralised renewable energy generators and non-linear power consumers. So, we are going from a predictable unidirectional flow of electricity in the distribution grid to a multidirectional power flow. Knowledge of the local conditions in the low-voltage grid is therefore crucial. Only functioning installations can satisfy customers and establish trust in the energy supplier. Comprehensive checks of the power quality according to EN 50160 - not only in the event of a fault - should therefore be in the interest of network operators and all users who operate electrotechnical installations and systems. DEHN can be of help here with the new DEHNrecord SD multifunctional measuring and analysis device. It allows the user to analyse the power quality of three-phase low-voltage systems. Thanks to device functions optimised for use in the low-voltage network, it is pre-destined for widespread use enabling monitoring of the power quality with a measuring accuracy according to class A deep inside the low-voltage system.

DEHNrecord SD is designed for use in all low-voltage installations, not just in the low-voltage grid of energy suppliers. It is recommended for installation in low-voltage systems, starting in transformer substations, cable distribution cabinets, utilities substations of renewable generating systems or charging parks for electric mobility, right through to customer installations in the commercial and industrial sectors.

DEHNrecord SD can be installed as a standalone device. Alternatively, direct connection to lightning current and surge arresters, such as DEHNventilM2, DEHNshield or DEHNguard ACI, is possible using a busbar. With DEHNrecord SD, installation in combination with SPDs not only ensures quick and easy installation without additional wiring, but also eliminates the need for a separate back-up fuse.

DEHNrecord SD is an IoT-compatible, multifunctional measuring and analysis device that can be easily and quickly mounted on a DIN rail. Power quality is measured according to DIN EN 61000-4-30, class A and the analysis is performed according to EN 50160 and other individually specified limit values. Through up to 4 current sensors, load and neutral conductor currents can be measured, from which the corresponding performance and energy values can be determined. In addition, DEHNrecord SD continually measures power-frequency overvoltages as per EN 50550. Individual configuration also allows the measurement of undervoltages, if required.

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At the end of the 4th quarter of 2021, there will be a DEHNrecord SD with the option of recording impulse currents. Impulse currents such as those caused by lightning of up to 100 kA can then be detected and evaluated through an external sensor.

Digital inputs and outputs are also integrated which are logically linked and can be freely parameterised. They can be used, for example, to monitor the remote signalling contacts of surge protective devices and status changes such as power quality limit value violations.

The communications link is via a universal Ethernet interface with MODBUS TCP/IP- or MQTT 3:1 protocol.

Basic settings such as location, relevant parameters, assignment and type of external coils/transducers for current measurement can be entered via the internal Web server.



Figure: DEHNrecord SD - Measuring and monitoring power quality in the low-voltage system

DEHN is a leading, globally active, family-owned company for electrical engineering with around 2,000 employees worldwide and provides innovative products and solutions as well as comprehensive services in the fields of **surge protection, lightning protection and safety equipment**. DEHN focusses on protecting plant and building technology, transport, telecommunications and process industry systems, photovoltaic systems and wind turbines alongside many other applications. The company's continuous growth is based on more than 100 years of tradition and experience as well as the highest quality standards and consistent customer and market orientation.

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