



## DEHNshield®: Application-optimised Combined Arrester

A photograph of a modern, multi-story building at night. The building features large glass windows and balconies, which are illuminated from within, showing interior spaces like a living room with a sofa and a staircase. The sky is dark with several bright, jagged lightning bolts striking down. The overall scene is dramatic and emphasizes the building's resilience.

DEHNshield® protects residential buildings and special applications

# DEHNshield®: Space-saving and application-optimised combined arrester

## Protection of terminal equipment and lightning equipotential bonding

The space-saving and application-optimised DEHNshield family offers various benefits that are characteristic of spark-gap-based type 1 arresters such as the so-called wave breaker function (WBF). This function and the associated reduction of the pulse time mitigate the energy of the lightning impulse current to an acceptable level for downstream protective stages or terminal equipment. Moreover, DEHNshield arresters are energy coordinated with other arresters of the Red/Line® product line and combine lightning equipotential bonding up to lightning impulse currents of 50 kA (10/350 µs) and surge protection in a single device. This clearly distinguishes DEHNshield from metal oxide varistor-based arresters of this application and performance class.

## Compact and application-oriented

Due to their technical parameters, which are rated for use in simple and compact electrical installations, DEHNshield arresters are ideally suited for this application class. Particularly for residential buildings, they are a space-saving and application-optimised protection solution. DEHNshield arresters can be optimally integrated in this field of application without additional backup fuse if plant backup fuses up to 160 A are used. DEHNshield also provides optimal protection for buildings without external lightning protection system where roof superstructures are installed or power is supplied through an overhead line.

## Installation upstream of the meter

DEHNshield combined arresters can be installed upstream of the meter, depending on local installation codes. This is a significant advantage over type 1 varistor-based arresters.



DEHNshield TNC  
DSH TNC 255  
Part No. 941 300








DEHNshield TNS  
DSH TNS 255  
Part No. 941 400

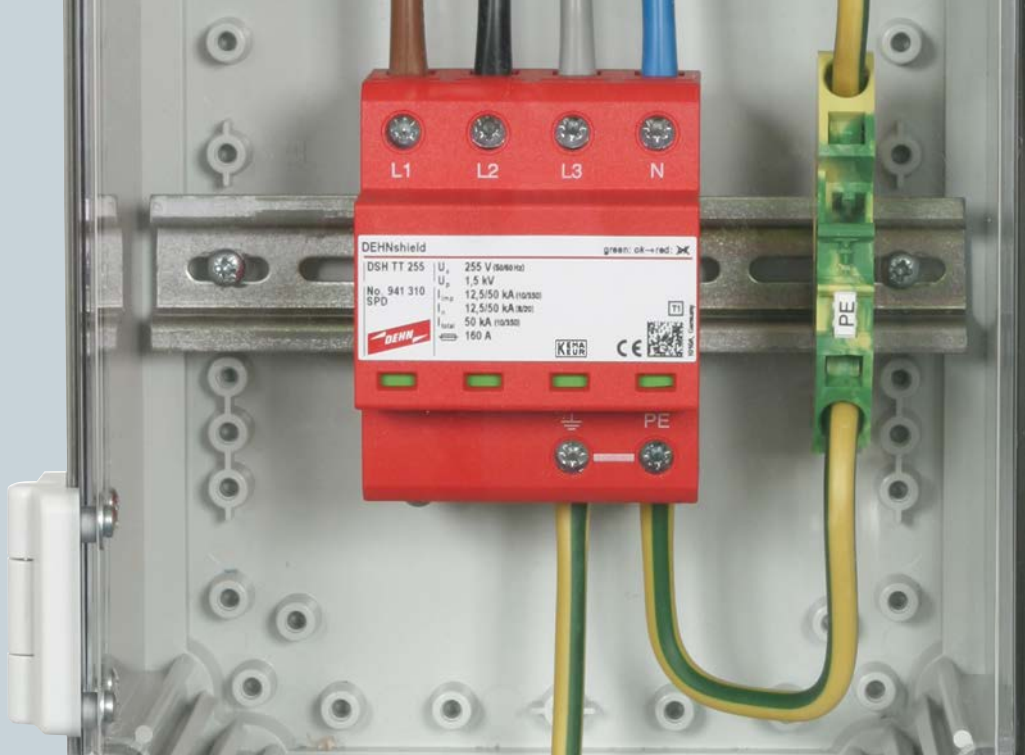
## DEHNshield®: Application-optimised combined arrester

- Prewired spark-gap-based combined arrester
- Space-saving arrester for use in compact and simply equipped electrical installations with low technical requirements
- For protecting residential buildings and special applications

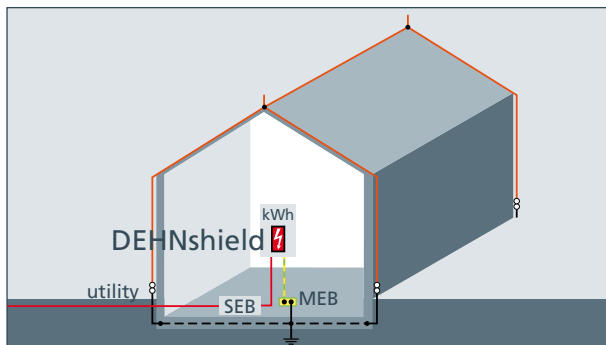
- Protects terminal equipment
- Operating current-free state/fault indication can be used
- Can be installed upstream of the meter, depending on local installation codes

Technical data	
Nominal voltage (a.c.) $U_N$	230/400 V
Max. continuous operating voltage (a.c.) $U_c$	255 V
Lightning impulse current (10/350) $I_{total}$	25/50 kA
Lightning impulse current (10/350)/pole $I_{imp}$	12.5 kA
Voltage protection level $U_p$	1.5 kV
Follow current extinguishing capability (a.c.) $I_{fi}$	25 kA <sub>rms</sub>
Max. mains-side overcurrent protection	160 A gL/gG
Approval	KEMA

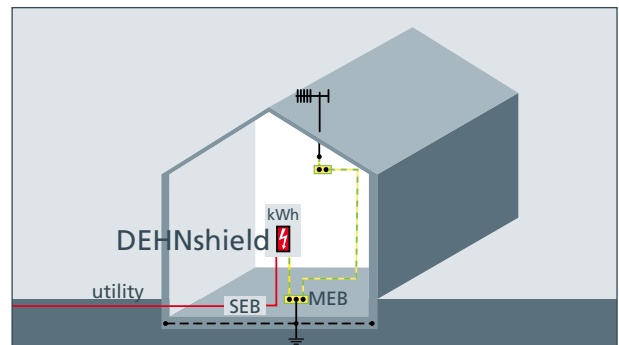
Types			
DEHNshield TNC	DSH TNC 255	941 300	
DEHNshield TNS	DSH TNS 255	941 400	
DEHNshield TT	DSH TT 255	941 310	
DEHNshield TN	DSH TN 255	941 200	
DEHNshield TT 2P	DSH TT 2P 255	941 110	



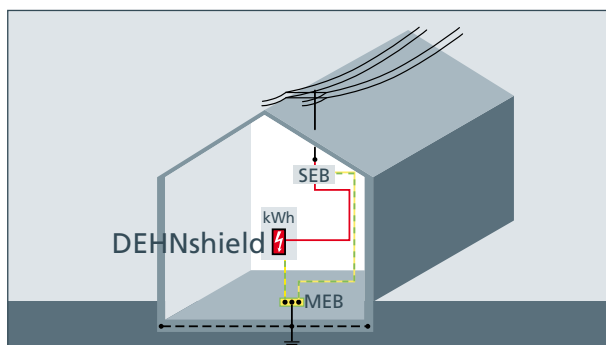
## Residential buildings: Installation in the main distribution panel



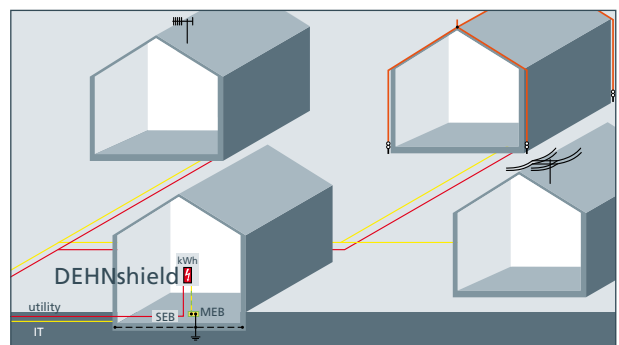
For buildings with external lightning protection system and a compact and simply equipped electrical installation with low technical requirements.



For buildings without external lightning protection system on which roof superstructures, for example antennas, are installed.

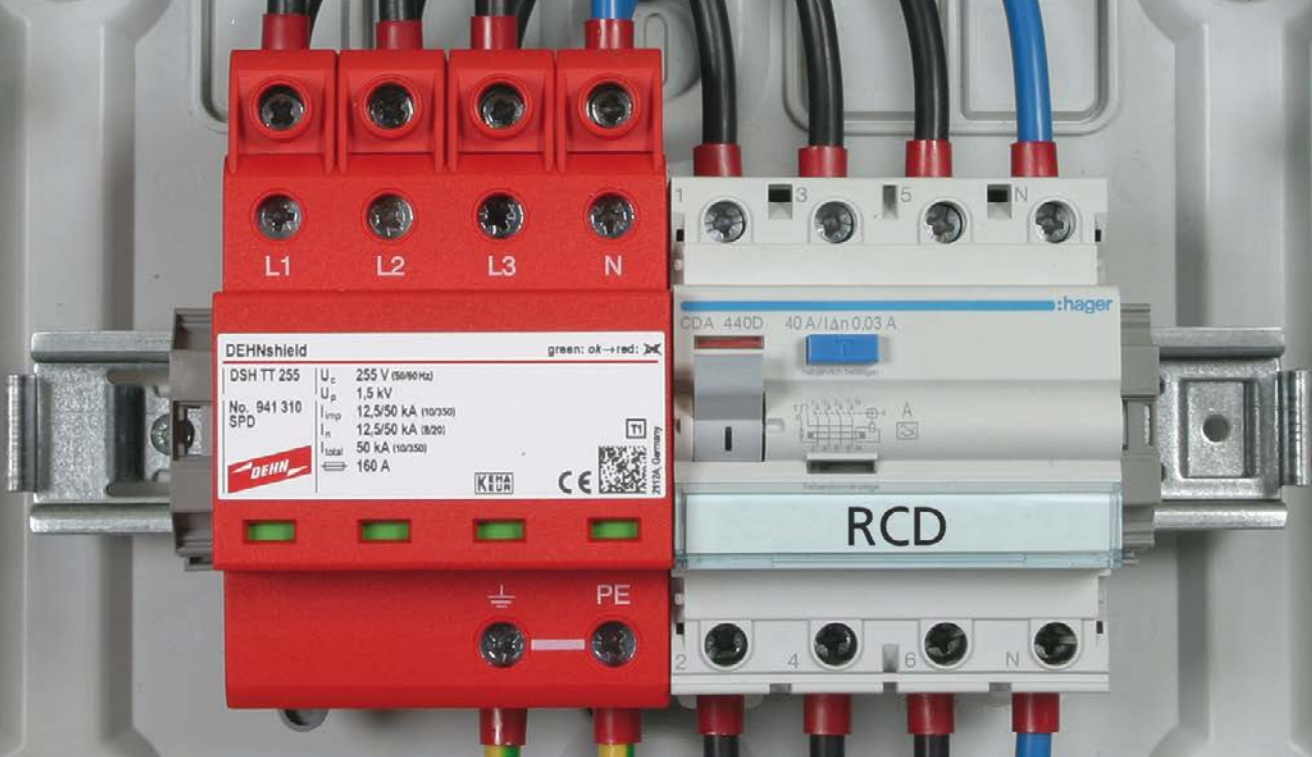


For buildings without external lightning protection system where power is supplied through an overhead line.

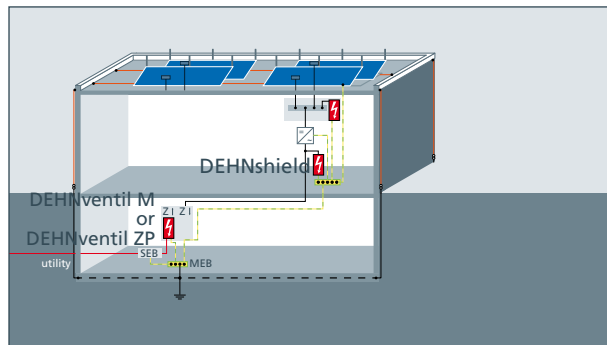


One of the above mentioned examples applies to a building in close proximity.

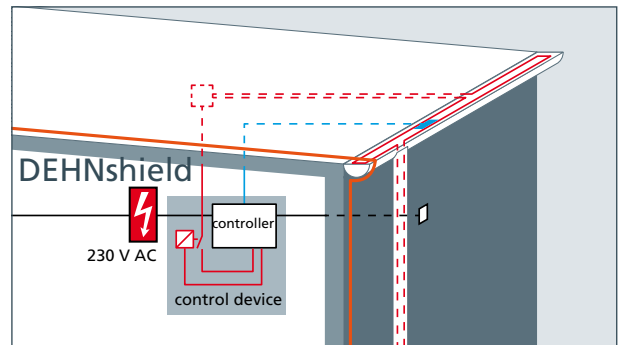
**SEB:** service entrance box  
**MEB:** main earthing busbar



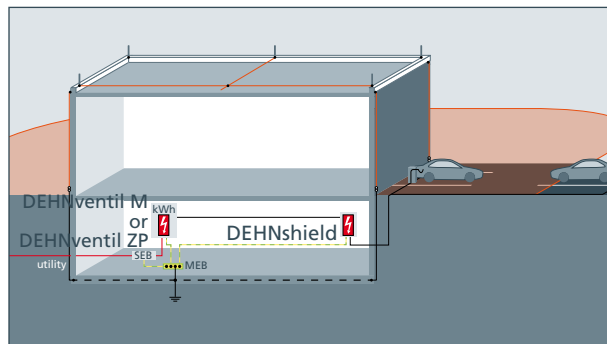
## Special applications: Installation at the transitions of lightning protection zones



Protection of inverters which are more than ten metres away from a main distribution panel, if the separation distance from the external lightning protection system is not kept.



For use with gutter heating systems to protect the electrical installation from incoming lightning currents.



For connecting outdoor electrical loads (LPZ 0<sub>A</sub>) to the power supply system in the main building, for example, exterior lighting or charging station for electric vehicles.



DEHNshield TT  
DSH TT 255  
Part No. 941 310

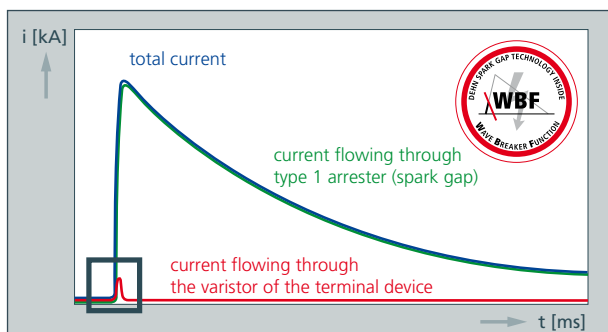


DEHNshield TN  
DSH TN 255  
Part No. 941 200



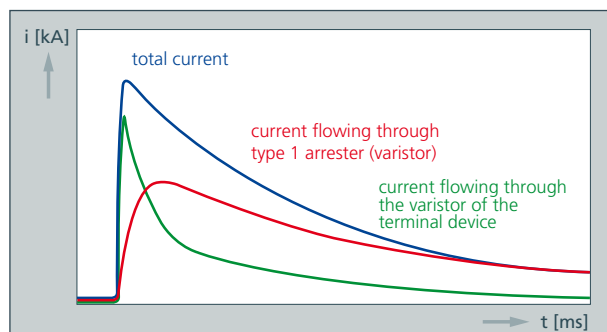
DEHNshield TT 2P  
DSH TT 2P 255  
Part No. 941 110

## DEHNshield® protects terminal equipment



### Spark gap ...

- Reduction of the pulse time due to wave breaker function (WBF)
- Almost no energy load on terminal equipment



### ... versus metal oxide varistors

- Terminal equipment gets stressed over the entire duration of 10/350  $\mu$ s impulse currents
- Energy overload or even destruction of terminal equipment

Benefits of a spark-gap-based arrester over a metal oxide varistor-based arrester	DEHNshield® arrester with spark gap	Type 1 arrester with metal oxide varistor
Energy coordination with type 1 + type 2 + type 3 arresters	✓	✗
Protection of terminal equipment	✓	✗
Reduction of the pulse time due to wave breaker function	✓	✗
No leakage currents and thus ideally suited for use upstream of the meter	✓	✗
Extinction of mains follow currents	✓*	✓

\* selectivity with regard to low fuse values

Only DEHNshield® and DEHNventil® spark-gap-based arresters combine lightning equipotential bonding and protection of terminal equipment in a single device. As an alternative to our proven DEHNventil® arresters, which fulfill the most stringent requirements on combined arresters, DEHNshield® arresters can be used to protect residential buildings and special applications.



Our promise



## DEHN protects.

Our key objective is to protect workers and material assets. It was our pioneering spirit and innovative ideas that have defined our company for more than 100 years and made us a market leader with over 1,500 employees. New products and safety concepts reflect our market feasibility, commitment and ideas.

In 1923 our founder Hans Dehn started production of external lightning protection and earthing components to optimise the protection of buildings and installations. In 1954, we launched the world's first series of surge protective devices. Continuous development of these devices ensures safe operation and permanent availability of electrical and electronic installations. Also in the 1950s, our third sector, safety equipment, was added to our portfolio.

Neumarkt in der Oberpfalz is the heart of our activities where product managers and developers advance our protection technologies. Here we manufacture our high-quality safety products.

## We offer the best solution

Our focus is to be a reliable and fair partner for our industrial, commercial and technical customers all over the world. To this end, we always concentrate on the best solution to protection problems. Our sales teams in Germany and our global network of 11 subsidiaries as well as more than 70 partners are committed to competent and customer-oriented distribution of our products. Proximity and close contact with our customers is of utmost importance to us, be it on-site support by our experienced field staff team, our telephone hotline or personal contact at trade fairs.

In hundreds of seminar, workshops and conferences held every year throughout the world we impart practical knowledge on our products and solutions. Our specialised book "Lightning Protection Guide" and our brochures will broaden your practical knowledge. Visit us at [www.dehn.de](http://www.dehn.de).



Surge Protection  
Lightning Protection  
Safety Equipment  
DEHN protects.

DEHN + SÖHNE  
GmbH + Co.KG.

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