

# E-mobility

Surge protection for charging infrastructure

According to the new IEC/EN standards  
**IEC 60364-4-44**  
**IEC 60364-5-53**  
surge protection has been  
mandatory since 2016.



## Protection against

- damage to charge controllers, charging stations and to charging electronics on the vehicle
- short circuits in lithium ion batteries due to surges
- subsequent costs due to breakdown of the charging station
- voltage peaks which destroy the electronics when the vehicle is connected to the charging equipment



V20 surge arrester



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Surge protection for charging infrastructure



V20 surge arrester  
3-pole + NPE 280 V



Type  
2

LPZ  
1→2



## Type 2 surge arrester

- For surge voltage protection equipotential bonding to IEC 60364-4-44 (VDE 0100-443)
- Discharge capacity to 40 kA (8/20) per pole through high-performance varistors
- Modular connectable arrester with dynamic cut-off unit and visual status display
- Locking mechanism with vibration protection and voltage keying
- The remote signalling variants (FS) have a potential-free changeover contact for remote signalling

**Application: Equipotential bonding in main and sub-distributions**

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The new DIN VDE 0100-443 demands strict surge protection. Upgrade fast and simply with the type 2 surge protection measures.

- Installation directly in the charging station or
- Installation in the connection distributor
- Garage / underground car park

### Our expert tip:

In buildings with an existing external lightning protection system, according to IEC 62305-3 combination arrestors T1 + T2 are required not only in the charging station but also in the connected low-voltage distribution.

## V20-2+NPE-280

SPD to EN 61643-11	Type 2
SPD to IEC 61643-11	Class II
SPD to UL 1449	Type 4
Nominal voltage AC (50 / 60 Hz)	$U_n$ 230 V
Maximum continuous voltage AC	$U_C$ 280 V
Nominal discharge current (8/20 $\mu$ s)	$I_n / L-N$ 20 kA
Maximum discharge current (8/20 $\mu$ s)	$I_{max}$ 40 kA
Arrester surge current (8/20 $\mu$ s) [total]	$I_{total}$ 60 kA
Protection level [L-N]	$U_o$ 1.3 kV
Protection level [L-N] @ 1 kA	$U_{res}$ 0.7 kV
Protection level [L-N] @ 5 kA	$U_{res}$ 0.9 kV
Max. mains-side overcurrent protection	160 A gL/gG
Short-circuit resistance for max. mains-side overcurrent protection	50 kA eff
Operating temperature range	$T_u$ -40+80 °C
Protection rating	IP20
Approvals	UL, ÖVE, VDE
Cable cross-section, flexible (fine-wire)	1.5-35 mm <sup>2</sup>
Rigid cable cross-section (single wire/multiwire)	1.5-35 mm <sup>2</sup>
Cable cross-section, flexible (fine-wire)	16-2 AWG
Rigid cable cross-section (single wire/multiwire)	16-2 AWG

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