



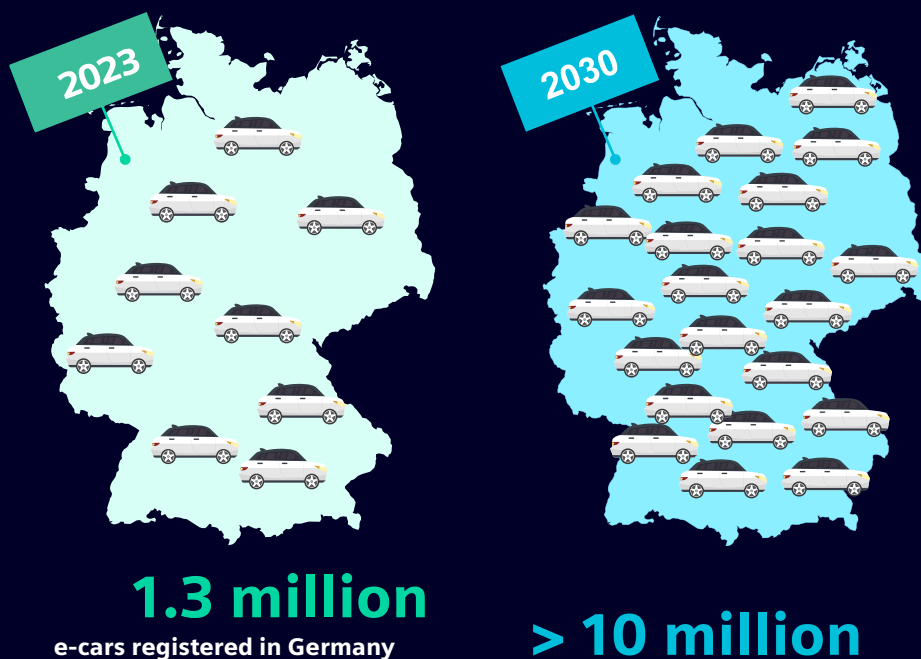
Safe charging of e-cars with standard-compliant electrical installation

[siemens.com/electrical-installation](https://www.siemens.com/electrical-installation)

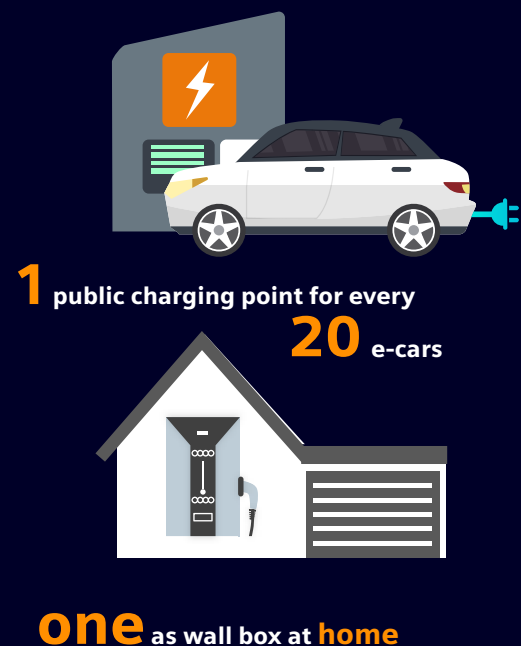
SIEMENS

Electrically into the future

By 2030, more than 10 million electric vehicles in Germany will need a powerful charging infrastructure. This means: attractive growth opportunities for the electrical installer!



Sources: electrive.net, tagesschau.de, statista.de



In Germany, charging at a normal household socket is only possible in exceptional cases using an emergency charging cable. This is not recommended, especially for fire safety reasons. In addition, not only is the number of electric cars continuing to increase, but so is their battery capacity.

The solution in Germany: With a compact AC wallbox, you can achieve approval-free charging powers of up to 11 kW in your own garage. With the approval of the local energy supplier even up to 22 kW.

In all countries covered by IEC there are special regulations that differ from country to country. A list of notes concerning certain countries can be found in Annex A of IEC 60364-7-722:2018



IEC 60364-7-722

- + A separate circuit must be provided for each connection of electric cars.
- + Each AC connection point must be protected with a separate residual current protective device (RCD, at least type A) with a rated residual current ≤ 30 mA.
- + If the EV charging station is equipped with a socket or vehicle coupling, protective measures against DC residual currents must be provided, unless these are integrated in the wallbox.



IEC 60364-4-44 Protection against voltage disturbances and electromagnetic disturbances

- + To protect the wall box and associated electric cars from over-voltages, a lightning and surge protection in accordance with IEC 60364-4-44 must be provided.
- + A type 2 surge arrester is recommended in the wall box or at the entrance to the building.



Standard-compliant installation of a **wall box**

In practice, two standard-compliant installation variants are possible: either the additional circuit is integrated into the existing system or – e.g. for a carport – in a remote distributor. In both cases, the corresponding circuit must be protected by a RCCB and a MCB (or RCBO, a combination of both).

For a wall box with integrated 6 mA DC residual current protection, a type A or F RCCB must be selected.

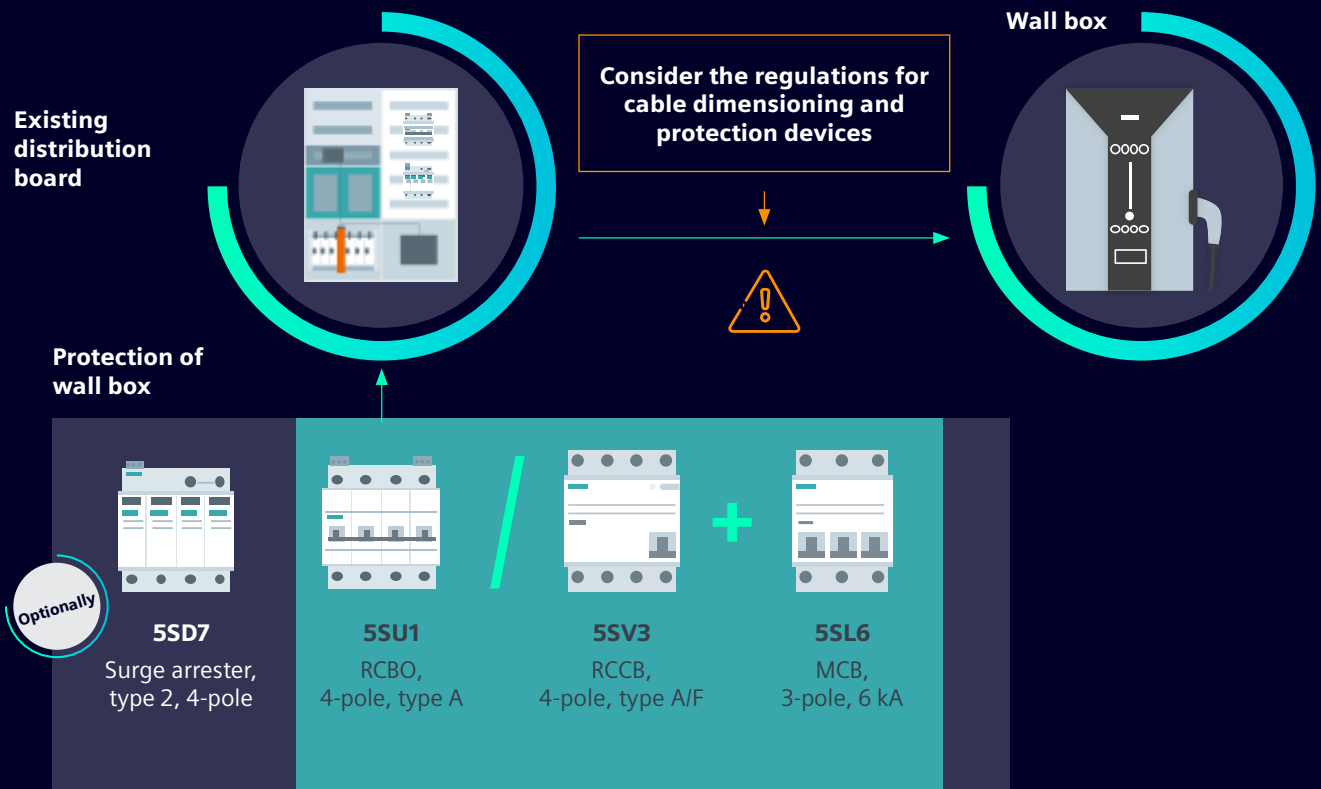
Otherwise, a RCCB type B is recommended, or the 5SV3 RCCB type A/F + 6 mA DC developed specifically for this application.

These offer effective protection for e-mobility charging points and trip at DC residual currents of 6 mA, which could cause malfunction of a standard RCD type A or F.

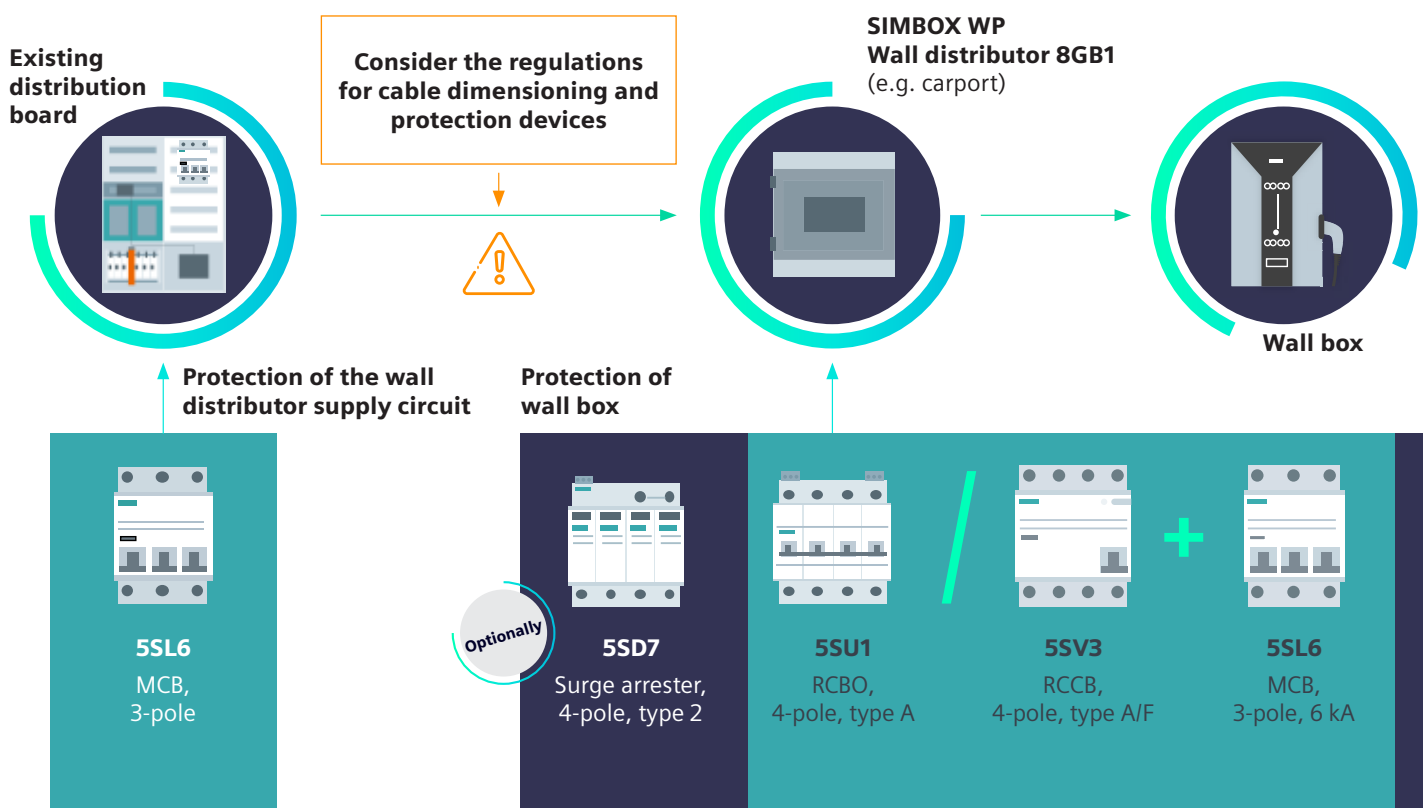
The use of a type 2 surge arrester is also recommended in the distribution.

The SENTRON portfolio offers everything necessary to implement a standard-compliant installation of wall boxes.

Protection of a wall box (11 kW / 22 kW). Integrated 6 mA DC residual current protection in **existing system**



Protection of a wall box (11 kW / 22 kW). Integrated 6 mA DC residual current protection in **remote distributor**



Order information

Residual current protection devices	
5SV3344-6KK60	RCCB, 4-pole, type A, In: 40 A, 30 mA, 6mA DC, e-mobility
5SV3344-6	RCCB, 4-pole, type A, 40 A, 30 mA
5SV3344-3	RCCB, 4-pole, type F, short-time delayed, 40 A, 30 mA
5SV3344-3KK60	RCCB, 4-pole, type F, In: 40 A, 30 mA, 6mA DC, e-mobility
5SV3344-4	RCCB, 4-pole, type B, short-time delayed, 40 A, 30 mA
5SU1346-6FP16	RCBO, 6 kA, 4-pole, type A, 30 mA, B, 16A
5SU1346-7FP16	RCBO, 6 kA, 4-pole, type A, 30 mA, C, 16A
MCB	
5SL6316-6	MCB 400V 6kA, 3-pole, B, 16 A
5SL6316-7	MCB 400V 6kA, 3-pole, C, 16 A
5SL6320-6	MCB 400V 6kA, 3-pole, B, 20 A
5SL6320-7	MCB 400V 6kA, 3-pole, C, 20 A
5SL6332-6	MCB 400V 6kA, 3-pole, B, 32 A
5SL6332-7	MCB 400V 6kA, 3-pole, C, 32 A
Surge protection devices	
5SD7464-0	Surge arrester T2, 20 kA, 4-pole, 3+1 circuit (TN-S, TT)
5SD7444-8KK11	Combination arrester T1+T2, 7,5 kA, 4-pole, 3+1 circuit (TN-S, TT) with remote contact
5SD7444-8KK21	Combination arrester T1+T2, 12,5 kA, 4-pole, 3+1 circuit (TN-S, TT) with remote contact
Measuring devices	
7KT1666	Measuring device 7KT PAC1600, LCD, L-L: 400 V, L-N: 230 V, 80 A, DIN rail mounted device, 3-phase, Modbus RTU/ASCII + MID
7KT1665	Measuring device 7KT PAC1600, LCD, L-L: 400 V, L-N: 230 V, 80 A, DIN rail mounted device, 3-phase, Modbus RTU/ASCII
Accessories	
5ST3613	Busbar, 10 mm ² connection: 2x 3-phase touch protection
5ST3621	Busbar, 10 mm ² connection: 2x 4-phase touch protection
5ST3655	Touch protection for free connections
8GB1371-1	SIMBOX Universal WP Wall distributor AP, IP65, 1-row, 8 TE
8GB1371-2	SIMBOX Universal WP Wall distributor AP, IP65, 1-row, 12 TE
8GB1372-2	SIMBOX Universal WP Wall distributor AP, IP65, 2-row, 24 TE
8GB2052-0	SIMBOX N/PE-terminal strip 8 TE
8GB2052-1	SIMBOX N/PE-terminal strip 12 TE

More information here

[siemens.com/sentron](https://www.siemens.com/sentron)

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[siemens.com/lowvoltage/technical-support](https://www.siemens.com/lowvoltage/technical-support)

Further information from Siemens!

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Here you'll find additional information on all aspects surrounding this topic, from our portfolio of protection, switching and monitoring devices, through support during the engineering process, right down to standards, etc.