

DKE publishes world's first product standard for plug-in solar devices

The product standard, scheduled for publication in December 2025, defines technical requirements for plug-in solar devices as a complete system for the first time. The maximum power limit is increased and new connection options are permitted.

(Frankfurt am Main, November 14, 2025) The world's first product standard for plug-in solar devices will be published in December. DIN VDE V 0126-95 VDE V 0126-95:2025-12 *"Plug-in solar devices for grid-connected operation - Part 95: Safety requirements and tests"* will be published in December 2025 after eight years of intensive standardization work, two published draft standards, the associated objection consultations with more than 1,250 objections in total, and finally the arbitration procedure.

Development of the product standard for plug-in solar devices

The product standard defines technical requirements for plug-in solar devices – also known as balcony power plants and guerrilla PV – as a complete system for the first time. The pre-standard is primarily aimed at anyone who develops, manufactures, and sells plug-in solar devices. Manufacturers and suppliers of such products will now know exactly which technical requirements they must meet, and testing facilities will be able to use the standard to test safety. The standard also addresses end consumers, sellers, suppliers, landlords, and homeowners, as it contains comprehensive documentation requirements. "This gives end users a clear picture of what they need to bear in mind and what requirements the plug-in solar system should meet for safe operation," says Ansgar Hinz, CEO of the VDE Association for Electrical, Electronic & Information Technologies. "Standard-compliant devices that are safe for users in terms of product liability significantly increase confidence in plug-in solar system technology on the market."

Balancing safety and protection with consumer interests

For a long time, no final consensus could be reached on the key topics under discussion – increasing the maximum power limit and simplifying grid connection. The topics of permissible plug connections and power limits were discussed particularly intensively. The aim was to reconcile the safety of plug-in solar devices, in particular the risk of electric shock, mechanical safety, and overloading of domestic installations with consumer interests.

Maximum power limit

The maximum permissible feed-in power of the inverter was set at 800 VA, in line with the amendment to application rule E VDE-AR-N 4105:2024-10 "*Generation systems on the low-voltage grid.*" The maximum permissible total module power has been set at 800 Wp + 20% (i.e., 960 Wp) if the plug-in solar device is equipped with a household plug. The maximum permissible total module power is 2000 Wp if the plug-in solar device is equipped with a special energy plug, e.g., in accordance with DIN VDE V 0628-1 (VDE V 0628-1).

New connection rules for plug-in solar devices

The product standard includes new connection options that were not previously permitted. Several protective measures have been defined for this purpose so that plug-in solar devices can also be connected to a conventional household socket via a protective contact plug. To this end, basic protection and electrical safety must be ensured either mechanically or electromechanically. This can be achieved using a modified household plug with protective covers or an internal circuit breaker. Alternatively, basic protection can also be achieved via galvanic isolation in the inverter. To this end, the inverter must meet additional requirements. The special energy plug connector previously required (e.g., DIN VDE V 0628-1 (VDE V 0628-1)) remains permissible.

DKE/K 373 Standard interpretation and FAQ

One of the key aspects of the arbitration was that the responsible standards committee DKE/K 373 would provide an accompanying document with explanations and notes in parallel with the publication of the product standard. To this end, a standard interpretation and FAQ will be provided in mid-December 2025 to explain and assist with the application of the product standard.

Further standardization activities for plug-in solar devices with energy storage

Plug-in solar devices with energy storage are not covered by the current scope of the product standard. Additional requirements must be met for these devices. The responsible committee DKE/K 373 has already begun planning a further part of the standard for such plug-in solar devices with energy storage.

Great international interest

Numerous countries around the world are eagerly awaiting the national product standard; the international technical standardization committee IEC/TC 82 "Solar photovoltaic energy systems" has also already expressed interest in the national standard. "The grid requirements in the international arena are very diverse due to the different rules in different countries," says Alexander Nollau, Head of the Energy Department at German Commission for Electrical, Electronic & Information Technologies. "Standardization is very complex here because a great many special features have to be adapted to the respective national requirements." It therefore makes sense to transfer the part of the standard that does not deal with grid requirements to international standardization. "This part is certainly useful and relevant for all countries," adds Nollau. "The product standard will therefore most likely serve as the basis for the development of an international standard."

About DKE:

The DKE German Commission for Electrical, Electronic & Information Technologies (DKE) is the national platform for about 10,000 experts from industry, science and public administration to elaborate standards and safety specifications for electrical engineering, electronics and information technology. Standards support global trade and, among other things, the safety, interoperability and functionality of products and systems. As a competence centre for electrotechnical standardization, the DKE represents the interests of German industry in European (CENELEC, ETSI) and international standardization organizations (IEC). In addition, the DKE provides comprehensive services in the field of standardization and VDE specifications.

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About VDE:

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The VDE (VDE Association for Electrical, Electronic & Information Technologies) is headquartered in Frankfurt am Main. For more information, visit www.vde.com

Press contact: Matthias Schmidt-Stein, Phone +49 171 6962357, presse@vde.com