

Schüco photovoltaic modules in the SP-4 series

Technical information on the output classes 165 to 180 Wp



PV module of the highest quality

The SP-4 series of Schüco PV modules are distinguished by multicrystalline solar cells with a cell efficiency of up to 15 % for high outputs per square metre of module area. The output tolerance of an SP-4 module is +5/-0 %, only modules of the highest quality provide this level of reliability. The rated output is always achieved or exceeded.

Comprehensive guarantee

Schüco SP-4 modules have a 5-year extended product guarantee. In fact, the guarantee on output values is considerably longer – after 25 years, the Schüco module will still provide at least 80 % of its rated output. Every SP-4 module is manufactured according to current quality standards.

Optimised labelling

Prior to delivery, each SP-4 module is subject to a visual and electrical quality test. The output data measured is indicated on the back of the module and on the packaging. Homogeneous module fields can be grouped together quickly and effectively during installation.

High level of operational reliability

Two connecting boxes with a total of three bypass diode bridges on the reverse of the module prevent individual solar cells from overheating (hot-spot effect). This ensures the reliable operation of the whole system from module fields to inverters.

Environmental protection

The use of lead-free solder in the manufacture of SP-4 modules results in a saving of 50 grams of lead per module, which makes a considerable contribution to environmental protection.

Attractive and robust

The module frame made from torsion-proof, anodised aluminium meets the highest standards in terms of stability and corrosion resistance. A cross bar in the frame on the reverse increases the load-bearing capacity of the module. SP-4 modules can be installed with installation components from the Schüco PV Light installation system.

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| Key electrical data | Module output categories | | | |
|--|--------------------------|-------------------|-------------------|-------------------|
| | S 165-SP-4 | S 170-SP-4 | S 175-SP-4 | S 180-SP-4 |
| Output data (except NOCT) under Standard Test Conditions (STC)*: | | | | |
| Rated output (P _{mpp}) | 165 Wp | 170 Wp | 175 Wp | 180 Wp |
| Output tolerance (Δ P _{mpp}) | +5% / -0% | +5% / -0% | +5% / -0% | +5% / -0% |
| Guaranteed minimum output (P _{mpp min.}) | 165 W | 170 W | 175 W | 180 W |
| Rated voltage (U _{mpp}) | 23,4 V | 23,7 V | 23,9 V | 24,2 V |
| Rated current (I _{mpp}) | 7,06 A | 7,19 A | 7,32 A | 7,45 A |
| Open circuit voltage (U _{oc}) | 29,7 V | 29,9 V | 30,2 V | 30,4 V |
| Short circuit current (I _{sc}) | 7,73 A | 7,83 A | 7,93 A | 8,03 A |
| Cell efficiency | 13,60% | 14,00% | 14,40% | 14,80% |
| Module efficiency | 11,90% | 12,30% | 12,70% | 13,00% |
| Temperature coefficient α (P _{mpp}) | -0,478% / °C | -0,478% / °C | -0,478% / °C | -0,478% / °C |
| Temperature coefficient β (I _{sc}) | +0,057% / °C | +0,057% / °C | +0,057% / °C | +0,057% / °C |
| Temperature coefficient γ (U _{oc}) | -0,346% / °C | -0,346% / °C | -0,346% / °C | -0,346% / °C |
| Temperature coefficient δ (I _{mpp}) | +0,057% / °C | +0,057% / °C | +0,057% / °C | +0,057% / °C |
| Temperature coefficient ε (U _{mpp}) | -0,346% / °C | -0,346% / °C | -0,346% / °C | -0,346% / °C |
| Normal Operating Cell Temperature (NOCT)** | 46,2 °C | 46,25 °C | 46,25 °C | 46,25 °C |
| Max. permissible system voltage | 1.000 V | 1.000 V | 1.000 V | 1.000 V |
| Number of cells | 50 (5x10) | 50 (5x10) | 50 (5x10) | 50 (5x10) |
| Cell size | 156 x 156 mm (6") | 156 x 156 mm (6") | 156 x 156 mm (6") | 156 x 156 mm (6") |

* Intensity of solar radiation 1000 W/m², air mass 1.5, cell temperature 25°C

** Intensity of solar radiation 800 W/m², ambient temperature 20°C, wind speed 1 m/s

| Key mechanical data | |
|--|---|
| Outer dimensions (l x w x h) | 1658 x 834 x 46 mm |
| Design of aluminium frame | Anodised, silver (similar to RAL 7035) |
| Front glass | Toughened safety glass (TSG) |
| Weight | 17 kg |
| Connection system / cross section of solar cable | Schüco / 4 mm ² (MC-T4 compatible) |
| Lengths: Positive cable / negative cable | 80 cm ± 5 cm / 125 cm ± 5 cm |

| Miscellaneous | |
|-----------------------------------|-----------|
| Weight of packing unit | 35 kg |
| Schüco installation system | PV-Light |
| Schüco Art.-No. End clip | Typ 6-1 |
| Schüco Art.-No. Intermediate clip | Typ 6-2 |
| Schüco Art.-No. S 165-SP-4 | 256032 |
| Schüco Art.-No. S 170-SP-4 | 256033 |
| Schüco Art.-No. S 175-SP-4 | 256034 |
| Schüco Art.-No. S 180-SP-4 | 256035 |
| Packing unit | 2 modules |

| Qualification and guarantees | |
|--|---------------------|
| Electrical classification | Safety class II |
| Tested snow and wind load | Up to 3.6 KN/m |
| Product standard | IEC 61215, EN 61730 |
| Extended product guarantee | 5 years |
| Output guarantee to 90 % P _{mpp min.} | 12 years |
| Output guarantee to 80 % P _{mpp min.} | 25 years |

| Output | |
|---|---|
| 165 to 180 Wp | ▶ Maximum outputs with a compact module surface area |
| Design and production | |
| Optimised labelling | ▶ Individual rated output data on module and packaging |
| Use of lead-free solder | ▶ Active environmental protection thanks to saving of 50 g of lead per module |
| Anodised aluminium frame | ▶ Meets highest standards in terms of stability and corrosion resistance |
| Bypass diodes | ▶ Reliable prevention of the "hot-spot effect" |
| Highest Schüco quality | |
| Manufactured in accordance with current quality standards | ▶ Tests to determine performance data; data listed for each module |
| Extended product guarantee and output guarantee | ▶ Investment security and reliable system operation |
| Reinforced frame provides increased snow and wind load-bearing capacity | ▶ Can be used in snow load zone III up to approx. 650 m above sea level |