

# Schüco MPE modules in the MS 05 series

Technical information on the output categories 175 to 190 W<sub>p</sub>



## **PV module of the highest quality**

Schüco MPE modules in the MS 05 series are distinguished by monocrystalline solar cells with high cell efficiency which optimise the space available. Maximum outputs are achieved in this way. Due to the positive output tolerance of +5/-0 %, the rated output is always achieved or exceeded.

## **Comprehensive guarantee**

The modules have an extended 5-year product guarantee. In fact, the guarantee on performance values is considerably longer – after 25 years, a Schüco MPE module in the MS 05 series will still provide at least 80 % of its rated output\*. Every module is manufactured according to current quality standards.

## **Optimised labelling**

Prior to delivery, every 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**

Schüco MPE modules in the MS 05 series have a connecting box on the reverse of the module that is fitted with three bypass diode bridges. This prevents individual solar cells from overheating (hot-spot effect). This ensures the reliable operation of the whole system, from module fields to inverters.

## **New retaining clamp concept**

The innovative retaining clamp groove in the frame ensures an optimised interlock, thereby reducing the load on the retaining clamp.

## **Attractive and robust**

The module frame made from torsion-proof, anodised aluminium meets the highest standards in terms of stability and corrosion resistance.

Two cross struts in the frame on the reverse increase the load-bearing capacity of the module. Schüco MPE modules in the MS 05 series can be installed using components from the Schüco MSE 210 mounting system.

\* In accordance with the Schüco International KG conditions of warranty

# Schüco MPE modules in the MS 05 series\*

Key electrical data	Module output categories			
Performance data (except NOCT) under Standard Test Conditions (STC) <sup>1)</sup> :	MPE 175 MS 05	MPE 180 MS 05	MPE 185 MS 05	MPE 190 MS 05
Rated output ( $P_{mpp}$ )	175 $W_p$	180 $W_p$	185 $W_p$	190 $W_p$
Output tolerance ( $\Delta P_{mpp}$ )	+5 %/-0 %	+5 %/-0 %	+5 %/-0 %	+5 %/-0 %
Guaranteed minimum output ( $P_{mpp\ min}$ )	175 $W_p$	180 $W_p$	185 $W_p$	190 $W_p$
Rated voltage ( $U_{mpp}$ )	35.20 V	35.40 V	35.60 V	35.80 V
Rated current ( $I_{mpp}$ )	4.98 A	5.11 A	5.21 A	5.33 A
Open-circuit voltage ( $U_{oc}$ )	44.00 V	44.30 V	44.60 V	44.80 V
Short circuit current ( $I_{sc}$ )	5.48 A	5.59 A	5.68 A	5.78 V
Cell efficiency	15.8 %	16.3 %	16.7 %	17.25 %
Module efficiency	13.7 %	14.1 %	14.5 %	14.9 %
Temperature coefficient $\alpha$ ( $P_{mpp}$ )	-0.4 %/°C	-0.4 %/°C	-0.4 %/°C	-0.4 %/°C
Temperature coefficient $\beta$ ( $I_{sc}$ )	+0.04 %/°C	+0.04 %/°C	+0.04 %/°C	+0.04 %/°C
Temperature coefficient $\chi$ ( $U_{oc}$ )	-0.38 %/°C	-0.38 %/°C	-0.38 %/°C	-0.38 %/°C
Temperature coefficient $\delta$ ( $I_{mpp}$ )	+0.04 %/°C	+0.04 %/°C	+0.04 %/°C	+0.04 %/°C
Temperature coefficient $\epsilon$ ( $U_{mpp}$ )	-0.38 %/°C	-0.38 %/°C	-0.38 %/°C	-0.38 %/°C
Normal Operating Cell Temperature (NOCT) <sup>2)</sup>	45 °C ( $\pm$ 3 SDgrC)	45 °C ( $\pm$ 3 SDgrC)	45 °C ( $\pm$ 3 SDgrC)	45 °C ( $\pm$ 3 SDgrC)
Max. permissible system voltage	1000 V	1000 V	1000 V	1000 V
Number of cells	72 (6 x 12)	72 (6 x 12)	72 (6 x 12)	72 (6 x 12)
Cell size	125 x 125 mm	125 x 125 mm	125 x 125 mm	125 x 125 mm

<sup>1)</sup> Intensity of solar radiation 1000 W/m<sup>2</sup>, air mass 1.5, cell temperature 25 °C, photovoltaic modules show electrical performance degradation over time. This occurs after commissioning, initially on a decreasing scale, then later in a linear progression.

<sup>2)</sup> Intensity of solar radiation 800 W/m<sup>2</sup>, ambient temperature 20 °C, wind speed 1 m/s

Key mechanical data	
Outer dimensions (L x W x H)	1581 x 809 x 42 mm
Design of aluminium frame	Anodised, silver (similar to RAL 7035)
Front glass	Toughened safety glass (TSG)
Weight	15 kg
Connection system / cross section of solar	Schüco / 4 mm <sup>2</sup> (MC-T4 compatible)
Lengths: positive cable / negative cable	100 cm $\pm$ 5 cm / 100 cm $\pm$ 5 cm

Qualification and guarantees <sup>3)</sup>	
Electrical classification	Safety class II
Product standard	IEC 61215, EN 61730
Tested snow and wind loads	Up to 3.6 kN/m <sup>2</sup>
Extended product guarantee	5 years
Output guarantee to 90 % $P_{mpp\ min}$	12 years
Output guarantee to 80 % $P_{mpp\ min}$	25 years

Miscellaneous	MS 05-1 series
Weight of packing unit	32 kg
Schüco mounting system	MSE 210
Schüco retaining clamps	Type 43
Art. No. Schüco MPE 175 MS 05	271 312
Art. No. Schüco MPE 180 MS 05	271 313
Art. No. Schüco MPE 185 MS 05	271 314
Art. No. Schüco MPE 190 MS 05	271 362
Packing unit	2 modules

Subject to change

<sup>3)</sup> In accordance with the Schüco International KG conditions of warranty

Output	
175 to 190 $W_p$	▶ Maximum outputs with a compact module surface area
Positive output tolerance	▶ Rated output is achieved or exceeded
Design and production	
Optimised labelling	▶ Individual output data on module and packaging
Innovative retaining clamp groove	▶ Streamlined look and optimised interlock
Anodised aluminium frame	▶ Meets highest standards in terms of stability and corrosion resistance
Bypass diodes	▶ Reliable prevention of "hot-spot effect"
Highest Schüco quality	
Manufactured to current quality standards	▶ Output data tested and results listed for each module
Extended product warranty and output guarantee	▶ Investment security and reliable system operation

\* Availability of the performance class will be checked on request.