



Smart  
connections.

Data sheet

PIKO 1.5-4.6 MP plus

MP

# PIKO MP plus: the new standard for single-phase inverters, flexible, communicative and with accessories also usable as battery inverter

## Flexible in use

One or two MPP trackers

1 MPP tracker can be used as bidirectional input, optionally for PV generator or high-voltage battery<sup>1)</sup>

Battery option possible with KOSTAL Smart Energy Manager

Battery functionality for devices with an MPP tracker as AC-coupled battery connection - also ideal for retrofitting

Battery functionality for devices with two MPP trackers for DC-coupled battery connection - ideal for new plants<sup>1)</sup>

Extended MPP range - perfect for repowering

## Smart connected

Display, data logger, system monitoring, network and control interfaces integrated as standard

Free monitoring of the PV system via KOSTAL Solar Portal, KOSTAL Solar App and internal web server

## Smart performance

Integration of energy meters possible

High efficiency

Efficient DC coupling of high-voltage batteries<sup>1)</sup>

Dynamic active power control and 24h measurement

Integrates shadow management – adapts individually to the installation site

Zero feed-in possible

## Easy to install

1-phase supply

Connection without opening the device

Integrated DC disconnect

Simple menu-guided operation and installation

Optimum protection against dust and water for outdoor use (protection class IP65)



## PIKO MP plus: compact and rapidly deployable



<sup>1)</sup> PIKO MP plus with 2 MPP trackers - Equipped with a bidirectional DC input - Accessories: KOSTAL Smart Energy Manager required (available from Q1/2019)  
Product registration, warranty extension or purchase of accessories: [shop.kostal-solar-electric.com](http://shop.kostal-solar-electric.com)

## Technical data PIKO MP plus

|                  | Power class                                                                                        |     | 1.5-1            | 2.0-1   | 2.5-1   | 3.0-1   | 3.0-2   | 3.6-1   | 3.6-2   | 4.6-2   |
|------------------|----------------------------------------------------------------------------------------------------|-----|------------------|---------|---------|---------|---------|---------|---------|---------|
| Input side (DC)  | Max. PV power(cos φ = 1)                                                                           | kWp | 2.3              | 3.0     | 3.75    | 4.5     |         | 5.4     |         | 6.9     |
|                  | Nominal DC power                                                                                   | kW  | 1.54             | 2.05    | 2.56    | 3.07    |         | 3.77    |         | 4.74    |
|                  | Rated input voltage (U <sub>DC,r</sub> )                                                           | V   | 350              |         |         |         |         |         |         |         |
|                  | Start-up input voltage (U <sub>DCstart</sub> )                                                     | V   | 100              |         |         |         |         |         |         |         |
|                  | Input voltage range (U <sub>DCmin</sub> - U <sub>DCmax</sub> )                                     | V   | 75-450           | 75-450  | 75-450  | 75-750  |         | 75-750  |         | 75-750  |
|                  | MPP range at rated output in single-tracker operation (U <sub>MPPmin</sub> - U <sub>MPPmax</sub> ) | V   | 120-360          | 160-360 | 200-360 | 230-600 |         | 280-600 |         | 360-600 |
|                  | MPP range at rated output in two-tracker operation (U <sub>MPPmin</sub> - U <sub>MPPmax</sub> )    | V   | -                | -       | -       | -       | 115-600 | -       | 140-600 | 180-600 |
|                  | MPP working voltage range (U <sub>MPPworkmin</sub> - U <sub>MPPworkmax</sub> )                     | V   | 75-360           | 75-360  | 75-360  | 75-600  |         | 75-600  |         | 75-600  |
|                  | Max. working voltage (U <sub>DCworkmax</sub> )                                                     | V   | 450              | 450     | 450     | 750     |         | 750     |         | 750     |
|                  | Max. input current (I <sub>DCmax</sub> ) per DC input                                              | A   | 13               |         |         |         |         |         |         |         |
|                  | Max. PV short-circuit current (I <sub>SC_PV</sub> ) per DC input                                   | A   | 17               |         |         |         |         |         |         |         |
|                  | Number of DC inputs                                                                                |     | 1                | 1       | 1       | 1       | 2       | 1       | 2       | 2       |
|                  | Number of bidirectional DC inputs                                                                  |     | 1                | 1       | 1       | 1       | 2       | 1       | 2       | 2       |
|                  | Number of independent MPP trackers                                                                 |     | 1                | 1       | 1       | 1       | 2       | 1       | 2       | 2       |
| Output side (AC) | Rated power, cos φ = 1 (P <sub>AC,r</sub> )                                                        | kW  | 1.5              | 2.0     | 2.5     | 3.0     |         | 3.7     |         | 4.6     |
|                  | Max. apparent output power, cos φ <sub>adj</sub>                                                   | kVA | 1.5              | 2.0     | 2.5     | 3.0     |         | 3.7     |         | 4.6     |
|                  | Min. output voltage (U <sub>ACmin</sub> )                                                          | V   | 185              |         |         |         |         |         |         |         |
|                  | Max. output voltage (U <sub>ACmax</sub> )                                                          | V   | 276              |         |         |         |         |         |         |         |
|                  | Rated output current (I <sub>AC,r</sub> )                                                          | A   | 6,6              | 8,7     | 10,9    | 13,1    |         | 16      |         | 20      |
|                  | Max. output current (I <sub>ACmax</sub> )                                                          | A   | 12               | 12      | 12      | 16      |         | 16      |         | 20      |
|                  | Short-circuit current (peak/RMS)                                                                   | A   | 21/12            | 21/12   | 21/12   | 27/16   |         | 27/16   |         | 20      |
|                  | Grid connection                                                                                    |     | 1N~, 230V, 50 Hz |         |         |         |         |         |         |         |
|                  | Rated frequency (f <sub>r</sub> )                                                                  | Hz  | 50 - 60          |         |         |         |         |         |         |         |
|                  | Min/max grid frequency (f <sub>min</sub> /f <sub>max</sub> )                                       | Hz  | 45...65          |         |         |         |         |         |         |         |
|                  | Setting range of the power factor (cos φ <sub>AC,r</sub> )                                         |     | 0.2 ...1... 0.2  |         |         |         |         |         |         |         |
|                  | Power factor for rated power (cos φ <sub>AC,r</sub> )                                              |     | 1                |         |         |         |         |         |         |         |
|                  | Max. THD                                                                                           | %   | <3               |         |         |         |         |         |         |         |
|                  | Standby/standby incl. 24h home-consumption measurement                                             | W   | <3.0/<10.0       |         |         |         |         |         |         |         |
| η                | Max. efficiency                                                                                    | %   | 97.4             | 97.4    | 97.4    | 97.0    |         | 97.0    |         | 97.4    |
|                  | European efficiency                                                                                | %   | 96.1             | 96.5    | 96.6    | 96.3    |         | 96.3    |         | 96.9    |
|                  | MPP adjustment efficiency                                                                          | %   | >99.8            |         |         |         |         |         |         |         |



|                            | Power class                                                                  |                                                                                                                                                                                                | 1.5-1                          | 2.0-1 | 2.5-1 | 3.0-1 | 3.0-2 | 3.6-1   | 3.6-2 | 4.6-2 |  |
|----------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------|-------|-------|-------|---------|-------|-------|--|
| System data                | Topology: Without galvanic isolation – transformerless                       |                                                                                                                                                                                                | ✓                              |       |       |       |       |         |       |       |  |
|                            | Protection class according to IEC 60529                                      |                                                                                                                                                                                                | IP 65                          |       |       |       |       |         |       |       |  |
|                            | Protective class according to IEC 62103                                      |                                                                                                                                                                                                | II (RCD type A)                |       |       |       |       |         |       |       |  |
|                            | Overvoltage category according to IEC 60664-1, input side (PV generator)     |                                                                                                                                                                                                | II                             |       |       |       |       |         |       |       |  |
|                            | Overvoltage category according to IEC 60664-1, output side (grid connection) |                                                                                                                                                                                                | III                            |       |       |       |       |         |       |       |  |
|                            | Degree of contamination                                                      |                                                                                                                                                                                                | 4                              |       |       |       |       |         |       |       |  |
|                            | Environmental category (outdoor installation)                                |                                                                                                                                                                                                | ✓                              |       |       |       |       |         |       |       |  |
|                            | Environmental category (indoor installation)                                 |                                                                                                                                                                                                | ✓                              |       |       |       |       |         |       |       |  |
|                            | UV resistance                                                                |                                                                                                                                                                                                | ✓                              |       |       |       |       |         |       |       |  |
|                            | AC cable diameter (min-max)                                                  | mm                                                                                                                                                                                             | 10...14                        |       |       |       |       |         |       |       |  |
|                            | AC cable cross-section (min-max)                                             | mm²                                                                                                                                                                                            | 1,5...4                        |       |       |       |       |         |       |       |  |
|                            | DC cable cross-section (min-max)                                             | mm²                                                                                                                                                                                            | 2,5...6                        |       |       |       |       |         |       |       |  |
|                            | Max. fuse protection on output side                                          |                                                                                                                                                                                                | B16/C16                        |       |       |       |       | B20/C20 |       |       |  |
|                            | Internal operator protection according to EN 62109-2                         |                                                                                                                                                                                                | RCMU                           |       |       |       |       |         |       |       |  |
|                            | Independent disconnection device according to VDE 0126-1-1                   |                                                                                                                                                                                                | ✓                              |       |       |       |       |         |       |       |  |
|                            | Height/width/depth                                                           | mm (in)                                                                                                                                                                                        | 657/399/227 (25,87/15,71/8,94) |       |       |       |       |         |       |       |  |
|                            | Weight                                                                       | kg (lb)                                                                                                                                                                                        | 12.7                           | 12.7  | 12.7  | 13.9  | 14.1  | 13.9    | 14.1  | 14.1  |  |
|                            | Cooling principle – regulated fans                                           |                                                                                                                                                                                                | ✓                              |       |       |       |       |         |       |       |  |
|                            | Max. air throughput                                                          | m³/h                                                                                                                                                                                           | -                              |       |       |       |       |         |       |       |  |
|                            | Max. noise emission                                                          | dBA                                                                                                                                                                                            | 31                             |       |       |       |       |         |       |       |  |
|                            | Ambient temperature                                                          | °C (°F)                                                                                                                                                                                        | -25...60 (-13...140)           |       |       |       |       |         |       |       |  |
|                            | Max. installation altitude above sea level                                   | m (ft)                                                                                                                                                                                         | 2000 (6562)                    |       |       |       |       |         |       |       |  |
|                            | Relative humidity (non-condensating)                                         | %                                                                                                                                                                                              | 0...100                        |       |       |       |       |         |       |       |  |
|                            | Connection technology, DC side                                               |                                                                                                                                                                                                | SUNCLIX plug                   |       |       |       |       |         |       |       |  |
|                            | Connection technology, AC side                                               |                                                                                                                                                                                                | Wieland RST25i3                |       |       |       |       |         |       |       |  |
| Interfaces                 | Ethernet LAN (RJ45)                                                          |                                                                                                                                                                                                | 1                              |       |       |       |       |         |       |       |  |
|                            | Connection of energy meter for collecting energy data (Modbus RTU) (RJ45)    |                                                                                                                                                                                                | 1                              |       |       |       |       |         |       |       |  |
|                            | RS485 (RJ45)                                                                 |                                                                                                                                                                                                | 1                              |       |       |       |       |         |       |       |  |
|                            | Potential-free contact for self-consumption control                          |                                                                                                                                                                                                | -                              |       |       |       |       |         |       |       |  |
|                            | Webserver (user interface)                                                   |                                                                                                                                                                                                | ✓                              |       |       |       |       |         |       |       |  |
|                            | Warranty¹)                                                                   | Years                                                                                                                                                                                          | 5 (2)                          |       |       |       |       |         |       |       |  |
|                            | Optional warranty extension for (years)                                      |                                                                                                                                                                                                | 5/10/15                        |       |       |       |       |         |       |       |  |
| Directives/Certification²) |                                                                              | IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN 60730, IEC 62116, VDE-AR-N 4105, DIN VDE 0126 1-1, G59/3-2, G83/2, UTE C 15-712-1, CEI 0-21, TOR D4, RD1699, RD 413, UNE 206007-1, IEC 61727, EN 50438* |                                |       |       |       |       |         |       |       |  |

Subject to technical changes. Errors excepted. You can find current information at [www.kostal-solar-electric.com](http://www.kostal-solar-electric.com). Manufacturer: KOSTAL Industrie Elektrik GmbH, Hagen, Germany

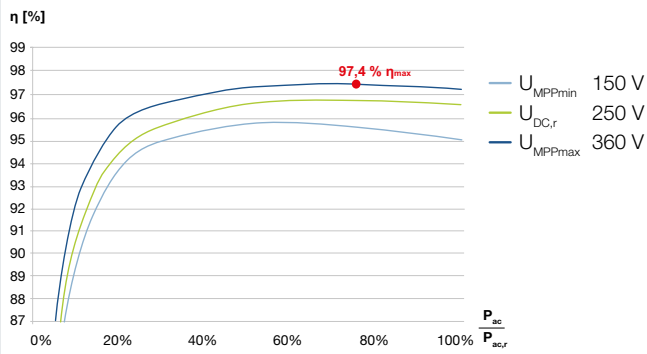
<sup>1)</sup> 5-year warranty only after registration in the KOSTAL Solar online shop

<sup>2)</sup> Does not apply to all national annexes to EN 50438

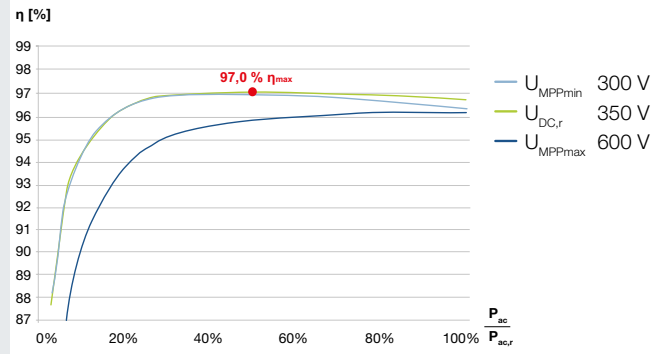
<sup>3)</sup> Accessories: KOSTAL Smart Energy Manager required (available from Q1/2019)

# PIKO MP plus available in 6 power classes

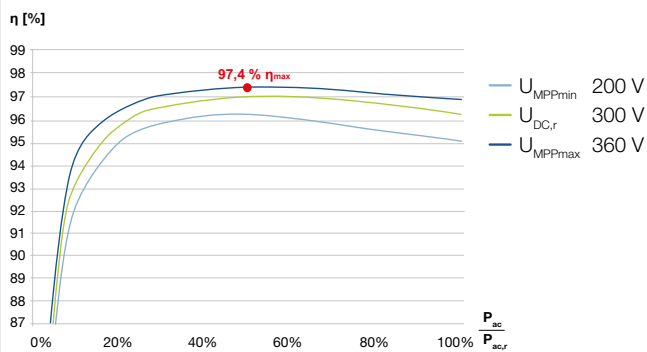
PIKO MP plus 1.5-1



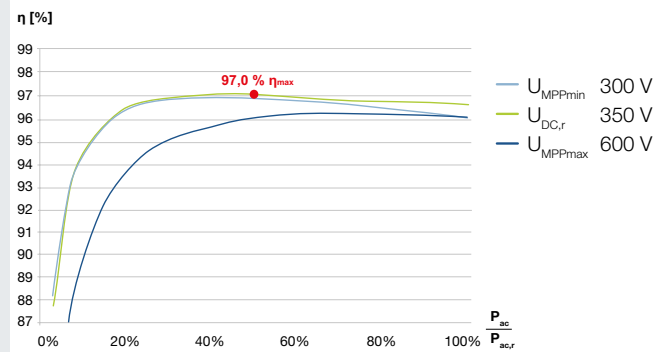
PIKO MP plus 3.0-1 / 3.0-2



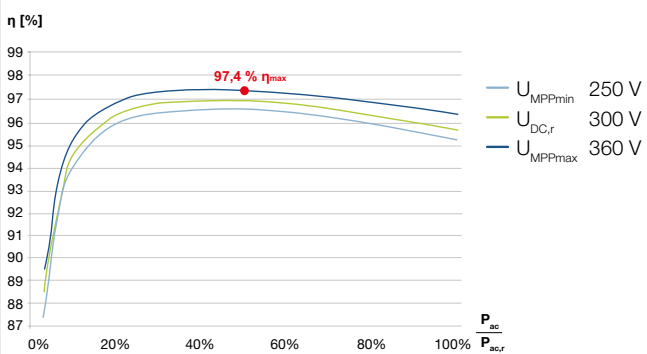
PIKO MP plus 2.0-1



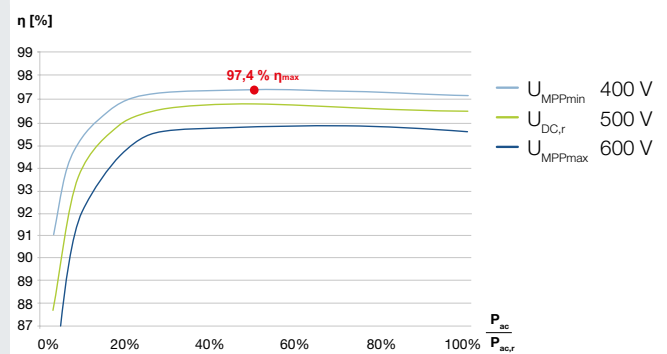
PIKO MP plus 3.6-1 / 3.6-2



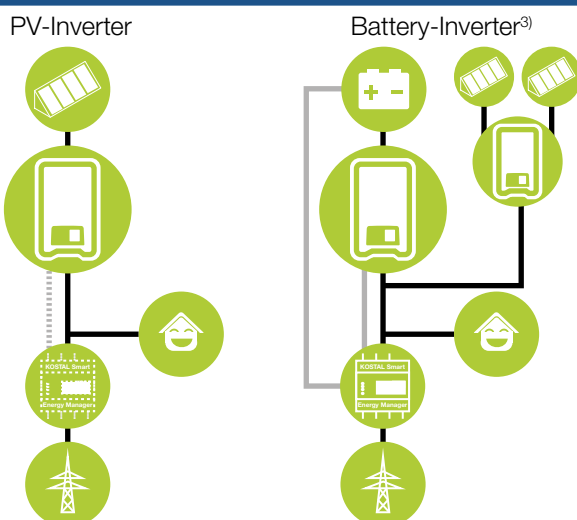
PIKO MP plus 2.5-1



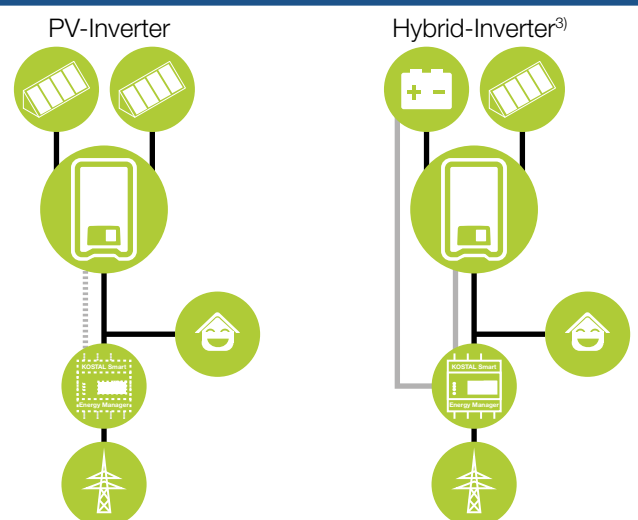
PIKO MP plus 4.6-2



PIKO MP plus 1.5 to 3.6 with 1 MPP Tracker



PIKO MP plus 3.0 to 4.6 with 2 MPP Tracker





KOSTAL Solar Electric GmbH  
Hanferstr. 6  
79108 Freiburg i. Br.  
Deutschland  
Telefon: +49 761 47744 - 100  
Fax: +49 761 47744 - 111

KOSTAL Solar Electric Ibérica S.L.  
Edificio abm  
Ronda Narciso Monturiol y Estarriol, 3 Torre  
B, despachos 2 y 3  
Parque Tecnológico de Valencia  
46980 Valencia  
España  
Teléfono: +34 961 824 - 934  
Fax: +34 961 824 - 931

KOSTAL Solar Electric France SARL  
11, rue Jacques Cartier  
78280 Guyancourt  
France  
Téléphone: +33 1 61 38 - 4117  
Fax: +33 1 61 38 - 3940

KOSTAL Solar Electric Hellas E.Π.Ε.  
47 Steliou Kazantzidi st., P.O. Box: 60080 1st  
building – 2nd entrance  
55535, Pilea, Thessaloniki  
Ελλάδα  
Τηλέφωνο: +30 2310 477 - 550  
Φαξ: +30 2310 477 - 551

KOSTAL Solar Electric Italia Srl  
Via Genova, 57  
10098 Rivoli (TO)  
Italia  
Telefono: +39 011 97 82 - 420  
Fax: +39 011 97 82 - 432

KOSTAL Solar Elektrik Turkey  
Mahmutbey Mah. Taşocağı Yolu Cad.  
No:3 (B Blok), Ağaoğlu My Office 212  
Kat:16, Ofis No:269  
Bağcılar - İstanbul / Türkiye  
Telefon: +90 212 803 06 24  
Faks: +90 212 803 06 25

[www.kostal-solar-electric.com](http://www.kostal-solar-electric.com)