

Technical Data PIKO 6.0 BA / 8.0 BA / 10 BA



- Charge controller and inverter in one casing
- Integrated energy management system
- Provision of grid services, in particular reactive power, active power reduction according to VDE-AR-N 4105
- 3-phase feed-in
- Future-oriented, as fully equipped for new storage technologies
- Integrated communication and monitoring package
- 2 independent MPP trackers
- Relais control self consumption; EEBus ready
- Visualisation via the PIKO Solar App

Input side (DC)

		6.0 BA	8.0 BA	10 BA
Inverter type				
Max. PV power	kWp	6.6	8.8	11
Rated input voltage ($U_{DC,r}$)	V		680	
Max. input voltage ($U_{DC,max}$)	V		950	
Min. input voltage ($U_{DC,min}$)	V		180	
Start-up input voltage ($U_{DC,start}$)	V		180	
Max. MPP voltage ($U_{MPP,max}$)	V		850	
Min. MPP voltage for DC rated output in single tracker mode ($U_{MPP,min}$)		530	700	–
Min. MPP voltage for DC rated output in two-tracker mode ($U_{MPP,min}$)	V	260	350	440
Max. input current ($I_{DC,max}$)	A		12	
Max. input current with parallel connection	A		24	
Number of DC inputs			2	
Number of independent MPP trackers			2	

Battery input (system)

Max. voltage battery input	V		420
Min. voltage battery input	V		153

Output side (AC)

Rated output, $\cos \varphi = 1$ ($P_{AC,r}$)	kW	6	8	10
Max. output apparent power, $\cos \varphi_r$ adj	kVA	6	8	10
Max. output voltage ($U_{AC,max}$)	V		264.5	
Min. output voltage ($U_{AC,min}$)	V		184	
Rated output current	A	8.7	11.6	14.5
Max. output current ($I_{AC,max}$)	A	9.7	12.9	17.5
Short-circuit current (peak)	A		19/12.2	
Grid connection		3/N/PE, AC, 400V		
Rated frequency (f_r)	Hz		50	
Max. grid frequency (f_{max})	Hz		51.5	
Min. grid frequency (f_{min})	Hz		47.5	
Setting range of the power factor $\cos \varphi_{AC,r}$		0.9...1...0.9		
Max. total harmonic distortion	%		1	

Device properties

Standby consumption	W		2.3
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Efficiency

Max. efficiency	%	96,1	96,3	96,5
European efficiency	%	94,8	95,0	95,3
MPP adjustment efficiency	%		95.3	

Various interfaces

Ethernet RJ45			2
RS485			1
SO			1
Analogue inputs			4
PIKO BA Sensor Interface			1
CAN or RS485 Interface (for battery-communication)			1

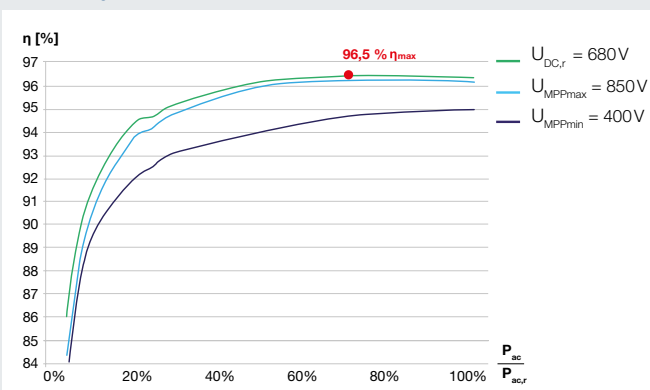
System data

Topology: Without galvanic separation - transformerless			✓
Internal protection according to IEC 60529			IP 55
Protection class according to IEC 62103			I
Surge category according to IEC 60664-1 Input side (PV generator)			II
Surge category according to IEC 60664-1 Output side (grid connection)			III
Degree of contamination			3
Environmental category (outdoor installation)			✓
Environmental category (interior installation)			✓
UV resistance			✓
Minimum cable cross-section of AC connecting line	mm ²	2.5	
Minimum cable cross-section of DC connecting line	mm ²	4	
Max. fusing on output side			B25, C25
Operator protection according to (EN 62109-2)			RCCM Typ B
Electronic disconnection device integrated			✓
Height	mm	450	
Width	mm	520	
Depth	mm	230	
Weight	kg	33	
Cooling principle - convection			–
Cooling principle - regulated fans			✓
Max. air throughput	m ³ /h	188	
Max. noise emission	dBA	46	
Ambient temperature	°C	-20...60	
Max. installation altitude above sea level	m	2000	
Relative humidity (non-condensing)	%	4...100	
Connection technology at input side - MC 4			✓
Connection technology at output side - spring-loaded terminal strip			✓

Warranty

Warranty (years)		5
Warranty extension optional (years)		10/20

Efficiency characteristics of PIKO 10 BA



Technical Data PIKO Battery Li



- Compact and expandable within the first 18 months (modular concept), various performance categories
- Powerful and efficiency
- Long life cycle up to 20 years¹
- Fulfils the conditions of the KfW funding programme "Renewable Energies – Storage"
- 3-level electronic protection against overcharging
- Integrated battery management system
- Fulfils the requirements of the Security guideline for lithium ion storage

Battery

Battery type	FORTELION [*]						
Battery technology	Lithium iron phosphate (LiFePO ₄)						
Number of battery modules	3	4	5	6	7	8	
Total energy content (C5 ¹)	kWh	3.6	4.8	6	7.2	8.4	9.6
Depth of discharge (DoD ²)	%	90					
Number of cycles (at 80% remaining capacity)		6000 ³					
Max. output power	kW	1.84	2.45	3.1	3.7	4.3	4.9
Rated voltage	V	153	205	258	307	358	410
IP protection class		20					
Guideline		UN38.3, EN62311:2008, EN50178, EN62109-1, IEC 61508-1:2008, CE					

Battery Management

Calculation of the battery status		Charging status (SoC ³), ageing status (SoH)					
Interface of battery management – inverter		RS485					

System

Structure	Battery cabinet with 3 to 8 battery modules						
Height	mm	1145					
Width	mm	550					
Depth (*with tilt bracket)	mm	655*	655*	575	575	575	575
Weight	kg	120	136	153	169	186	202

Operating conditions

Recommended operating temperature	°C	10...30					
Min. operating temperature	°C	5					
Max. operating temperature	°C	35					
Relative humidity (non-condensing)	%	0...85					

Efficiency

Max. system efficiency	%	98					
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Warranty

Warranty (years)		5
Time value guarantee ⁴ (years)		7

¹C5 = Capacity with 5-hour discharge ²DoD = Depth of Discharge ³Battery manufacturer information ⁴SoC = State of Charge

⁵according to the conditions of the KfW funding programme "Renewable Energies – Storage"

* FORTELION is a trademark of Sony Corporation

Technical Data PIKO Battery Pb



- Energy storage for photovoltaic direct consumption and optimisation of operating costs
- High energy yields and long useful life
- Low floor space requirement
- Modular structure for easy installation
- Complete storage solution from one supplier
- Maintenance-free battery technology
- Integrated battery management system
- Communication interface with PIKO BA
- Calculation of the battery status

Battery

Battery type		HOPPECKE 12VOPzV blocsolar.power 70	
Battery technology		Maintenance-free, cycle-optimised lead-gel battery	
Number of cycles (50% DoD ¹)		2500	
Total energy content (C10 ²)	kWh	11.6	
Max. output power	kW	approx. 2.7	
Number of block batteries (at 12V rated voltage)		19	
Rated voltage	V	228	
Capacity (C100 ³)	Ah	70	
IP protection class		21	
Test		IEC 60896-21, IEC 61427	

Battery management

Calculation of the battery status		Charging status (SoC ³), ageing status (SoH)	
Interface of battery management – inverter		CAN Open Standard	

System

Structure		Modular frame system consisting of 5 basic units	
Height	mm	1584	
Width	mm	900	
Depth	mm	388	
Weight	kg	ca. 850	

Operating conditions

Recommended operating temperature	°C	10...30	
Relative humidity (non-condensing)	%	0...85	

Ventilation		Supply and exhaust opening with 154 cm ² cross-section area	
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Efficiency

Max. system efficiency	%	92	
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Warranty

Warranty (years)		2
Time value guarantee ⁴ (years)		7

¹DoD = Depth of Discharge

²C10 / C100 = Capacity with 10- / 100-hour discharge

³SoC = State of Charge

⁴according to the conditions of the KfW funding programme "Renewable Energies – Storage"

Technical Data PIKO BA Backup Unit



- Secure supply in case of power failure
- VDE-tested replacement power function
- Automatic switching to replacement power mode after approx. 20 sec.
- 3-phase power supply with real three-phase AC
- Suitable for consumers up to 2,500 W with PIKO Battery Pb
- Suitable for consumer between 2,900 - 4700 W with PIKO Battery Li (depending on the number of the battery modules)
- Up to 18 hours of operation (with consumption of 500 W and fully-charged battery)

Backup Unit

Backup connection		3/N/PE, AC, 400 V
AC connection		3/N/PE, AC, 400 V
Consumer connection		3/N/PE, AC, 400 V
Control line		2, AC, 230 V
Max. load	A	63
Potential equalisation		1
Internal protection according to IEC 60529		IP 45
Protection class according to IEC 62103		II
Degree of contamination		3
Environmental category (interior installation)		✓

UV resistance		✓
Height	mm	680
Width	mm	366
Depth	mm	173
Weight	kg	11.4
Ambient temperature	°C	-5...35
Relative humidity (condensing)	%	4...96
Connection technology - spring-loaded terminal strip		✓

The PIKO BA Backup Unit can be combined with the PIKO Battery Pb or the PIKO Battery Li from 5 battery modules.

Technical Data PIKO BA Sensor



- Registration of building consumption with analogue current measurement
- Easy installation due to assembly on top-hat rail according to DIN EN 60715

Sensor

Rated current, primary (Peak/RMS)	A	50/35
Rated current, secondary	A	1
Output load	VA	1
Ext. current sensor transmission ratio		50:1
Accuracy class		1
Connected power	kW	12
Height	mm	90
Width	mm	105
Depth	mm	54
Max. line diameter	mm	13.5

This manual is subject to technical changes and printing errors. You can find current information at www.kostal-solar-electric.com.
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Data sheet
PIKO BA System

BA