KACO new energy.

Data sheet

Powador
10.0 TL3 | 12.0 TL3
14.0 TL3 | 18.0 TL3
20.0 TL3

The power plants of the future.

The transformerless three-phase inverters Powador 10.0 TL3 to 20.0 TL3.

Photovoltaic systems of up to several hundred kilowatts can be designed extremely flexibly in small, highly efficient units with the transformerless three-phase inverters Powador 10.0 TL3 to 20.0 TL3.

They operate using two separate MPP trackers that can handle both symmetrical and asymmetrical loads to allow for optimum adjustment. This allows for all typical requirements of complex designs to be fulfilled; on the one hand, for example, full configuration of an east/west-facing roof (symmetrical load) or, on the other hand, the regular configuration of a south-facing roof without having to dispense with the solar yield of a dormer (asymmetrical load). The MPP trackers can also be connected in parallel: installation costs less (you do not need an additional external disconnector) when strings need to be combined before the inverter. Two strings can be connected per MPP controller, i.e. 4 strings for each unit.

The input voltage range is particularly broad: the inverters switch to the grid from 250 V, and, when in operation, they still feed in at 200 V. This means that solar yields are optimum for comparatively small areas such as dormers or carports but they also operate for more of the day. The compact design with the DC connection via solar connectors makes installation very easy and economical.

It is easy to achieve perfect communication with these units. They are fitted with an integrated data logger with web server, a graphical display for showing operating data and a USB port for installing firmware updates. The current software can be downloaded free of charge from the download area of our homepage. The yield data can be called from the web server or via USB for evaluation. The integrated data logger can also be connected directly to the Powador web internet portal for professional evaluation and visualisation of the inverter data.

A number of country-specific default settings are programmed into the inverters. These are easy to select during on-site installation. The interface language can be selected separately.

When the blueplanet 9.0 TL3 becomes available in Q4/2014 the Powador 10.0 TL3 will be discontinued.

Technical data

Powador 10.0 TL3 | 12.0 TL3 | 14.0 TL3 | 18.0 TL3 | 20.0 TL3

Electrical data	10.0 TL3	12.0 TL3	14.0 TL3	18.0 TL3	20.0 TL3
Input variables					
MPP range	200 V ... 800 V [1]	200 V ... 800 V [2]	200 V ... 800 V [2]	200 V ... 800 V [3]	200 V ... 800 V [4]
Starting voltage	250 V	250 V	250 V	250 V	250 V
No-load voltage	1 000 V	1 000 V	1 000 V	1 000 V	1 000 V
Max. input current	2 x 11.0 A	2 x 18.6 A	2 x 18.6 A	2 x 18.6 A	2 x 18.6 A
Number of MPP trackers	2	2	2	2	2
Max. power/tracker	8.8 kW	10.2 kW	12.8 kW	14.9 kW	14.9 kW
Number of strings	2 x 2	2 x 2	2 x 2	2 x 2	2 x 2
Output variables					
Rated output (@ 230 V)	9 000 VA	10 000 VA	12 500 VA	15 000 VA	17 000 VA
Line voltage	acc. to local requirements	acc. to local requirements	acc. to local requirements	acc. to local requirements	acc. to local requirements
Rated current	3 x 13.0 A	3 x 14.5 A	3 x 18.1 A	3 x 21.8 A	3 x 24.6 A
Rated frequency	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz
cos phi	0.80 inductive ... 0.80 capacitive	0.80 inductive ... 0.80 capacitive	0.80 inductive ... 0.80 capacitive	0.80 inductive ... 0.80 capacitive	0.80 inductive ... 0.80 capacitive
Number of grid phases	3	3	3	3	3
General electrical data					
Max. efficiency	97.9%	98.0 %	98.0 %	98.0 %	97.9 %
Europ. efficiency	97.1%	97.5 %	97.6 %	97.7 %	97.6 %
Night consumption	1.5 W	1.5 W	1.5 W	1.5 W	1.5 W
Switching plan	transformerless	transformerless	transformerless	transformerless	transformerless
Grid monitoring	acc. to local requirements	acc. to local requirements	acc. to local requirements	acc. to local requirements	acc. to local requirements
Mechanical data					
Display	graphical display + LEDs	graphical display + LEDs	graphical display + LEDs	graphical display + LEDs	graphical display + LEDs
Control units	4-way navigation + 2 buttons	4-way navigation + 2 buttons	4-way navigation + 2 buttons	4-way navigation + 2 buttons	4-way navigation + 2 buttons
Interfaces	Ethernet, USB, RS485, S0 output, digital input „inverter off“	Ethernet, USB, RS485, S0 output, digital input „inverter off“	Ethernet, USB, RS485, S0 output, digital input „inverter-off“	Ethernet, USB, RS485, S0 output, digital input „inverter off“	Ethernet, USB, RS485, S0 output, digital input „inverter off“
Fault signalling relay	potential-free NOC max. 230 V / 1 A	potential-free NOC max. 230 V / 1 A	potential-free NOC max. 230 V / 1 A	potential-free NOC max. 230 V / 1 A	potential-free NOC max. 230 V / 1 A
Connections	DC: solar connector, AC: cable connection M40 and terminal (max. cross-section: 16 mm² flexible, 10 mm² rigid)	DC: solar connector, AC: cable connection M40 and terminal (max. cross-section: 16 mm² flexible, 10 mm² rigid)	DC: solar connector, AC: cable connection M40 and terminal (max. cross-section: 16 mm² flexible, 10 mm² rigid)	DC: solar connector, AC: cable connection M40 and terminal (max. cross-section: 16 mm² flexible, 10 mm² rigid)	DC: solar connector, AC: cable connection M40 and terminal (max. cross-section: 16 mm² flexible, 10 mm² rigid)
Ambient temperature	-25 °C … +60 °C [5]	-25 °C … +60 °C [5]	-25 °C … +60 °C [5]	-25 °C … +60 °C [5]	-25 °C … +60 °C [5]
Cooling	temperature-dependent fan	temperature-dependent fan	temperature-dependent fan	temperature-dependent fan	temperature-dependent fan
Protection class	IP65	IP65	IP65	IP65	IP65
Noise emission	< 52 dB (A) (noiseless when operated without fan)	< 52 dB (A) (noiseless when operated without fan)	< 52 dB (A) (noiseless when operated without fan)	< 52 dB (A) (noiseless when operated without fan)	< 52 dB (A) (noiseless when operated without fan)
DC switch	integrated	integrated	integrated	integrated	integrated
Casing	aluminium casting	aluminium casting	aluminium casting	aluminium casting	aluminium casting
H x W x D	690 x 420 x 200 mm	690 x 420 x 200 mm	690 x 420 x 200 mm	690 x 420 x 200 mm	690 x 420 x 200 mm
Weight	40 kg	40 kg	40 kg	40 kg	44 kg

[1] The possible input power is reduced at voltages lower than 420 V. The input current is limited to 11.0 A per input.
[2] The possible input power is reduced at voltages lower than 350 V. The input current is limited to 18.6 A per input.
[3] The possible input power is reduced at voltages lower than 420 V. The input current is limited to 18.6 A per input.
[4] The possible input power is reduced at voltages lower than 460 V. The input current is limited to 18.6 A per input.
[5] Power derating at high ambient temperatures.
Conforms to the country-specific standards and regulations according to the country version that has been set.

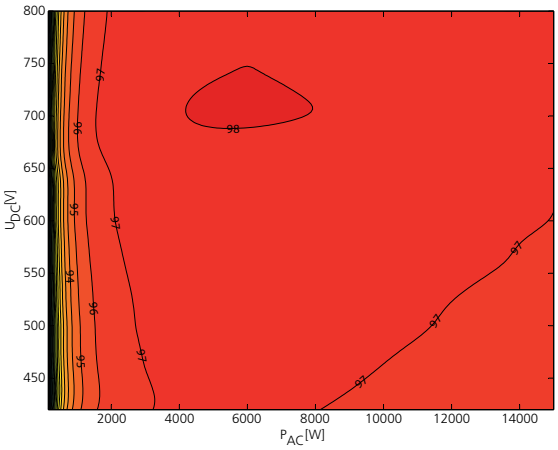
Powador
10.0 TL3 | 12.0 TL3 | 14.0 TL3
18.0 TL3 | 20.0 TL3

- Up to 98.0 % efficiency
- Two MPP trackers, symmetrical and asymmetrical loading possible
- Multilingual menu
- Graphical display
- Integrated web server
- USB connection for updates
- Powador-priwatt function integrated for the self-use of solar power

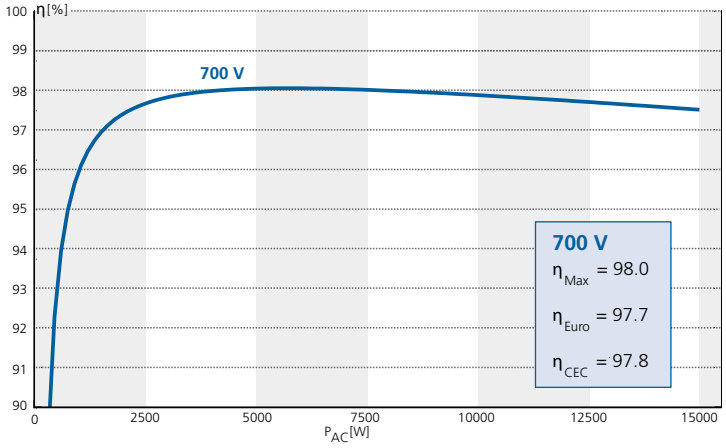
www.kaco-newenergy.com

Graphical Display of efficiency

3D efficiency diagram for Powador 18.0 TL3



Efficiency characteristic curve for Powador 18.0 TL3



Your retailer

EN 5000726-03-140709

The text and figures reflect the current technical state at the time of printing. Subject to technical changes. Errors and omissions excepted.
This current version replaces all older versions. Download the most current version at: www.kaco-newenergy.com