

Data sheet

Powador 10.0 TL3  
12.0 TL3 | 14.0 TL3



# The Power Plants of the Future.

Transformerless three-phase inverters Powador 10.0 TL3 to 14.0 TL3.

Imagine perfect grid current – the kind you get from large-scale power plants – but from decentralised renewable sources. The Powador 10.0 TL3 to 14.0 TL3 units combine KACO new energy's many years of experience in developing transformerless units with the requirement for perfect grid feed-in. Since they are true three-phase units, they provide high-quality, sinusoidal alternating current with a 120-degree phase shift – a dream come true for all grid operators. It goes without saying that they meet all of the requirements of Germany's new Medium Voltage Directive („Mittelspannungsrichtlinie“) and they are also perfectly equipped to comply with the pending Low Voltage Directive („Niederspannungsrichtlinie“).

These inverters give you extreme flexibility in designing your PV system. They operate using two separate MPP trackers that can handle completely asymmetric loads to allow for optimum adjustment. Each tracker is able to process all of the AC output. 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 can do not need an

additional external disconnecter) when strings need to be combined before the inverter. We recommend our new PV-pilot software for an optimum design. Furthermore, all 3D efficiency diagrams are available on our website to assist you.

Two strings can be connected per MPP controller, therefore 4 strings for each unit. The nominal input voltage range is extremely wide: 350 to 800 V. The TL3 switches to the grid from 250 V, and, when in operation, they still feed in at 200 V to also ensure low solar yields.

The peak efficiency is an impressive 98%, but the TL3 realises a very high partial load efficiency in the lower power ranges thanks to the innovative solution for the design and control of the inverter bridge: Even at just 5% rated power they operate at 95% efficiency. Cooling is provided by demand-driven fans that are aimed directly at the temperature-sensitive components.

It is easy to achieve perfect communication with these units. In addition to the the normal RS485 interface, which enables you to query yield data using the Powador-proLOG, they offer highly convenient innovations: an integrated web server for uninterrupted monitoring via Ethernet, a USB connection for installing software updates and a graphic display to view operating data. The latest software updates are available at

[www.kaco-newenergy.de/service](http://www.kaco-newenergy.de/service). With all of the equipment that is included, users no longer need a separate data logger.

A number of country-specific default settings are programmed into the inverters. These are easy to select during on-site installation. Your choice of operating language is independent of these settings.

The new die-cast aluminum housing makes the units compact and simplifies installation. With its elegant dimensions and low weight, this inverter has a high power density of 350 W/kg. You save money because the separation connection box makes installation extremely easy. You can find videos that quickly show you the installation procedures on our website.

Naturally, our three-phase units can be combined with each other, so they are suitable for significantly higher power ratings.

# Technical data

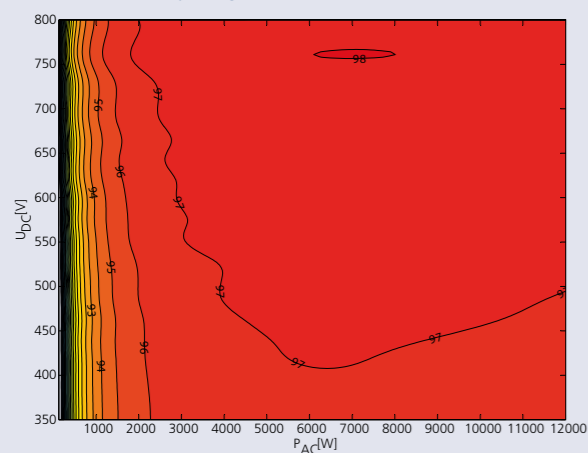
Powador 10.0 TL3 | 12.0 TL3 | 14.0 TL3

Electrical data	10.0 TL3	12.0 TL3	14.0 TL3
<b>Input variables</b>			
PV max. generator output	10 000 W	12 000 W	14 000 W
MPP range	350 V ... 800 V	350 V ... 800 V	350 V ... 800 V
Starting voltage	250 V	250 V	250 V
Min. DC voltage	200 V*	200 V*	200 V*
No-load voltage	1 000 V	1 000 V	1 000 V
Max. input current	2 x 18.6 A	2 x 18.6 A	2 x 18.6 A
Number of MPP trackers	2	2	2
Max. power/tracker	9,2 kW	10,2 kW	12,8 kW
Number of strings	2 x 2	2 x 2	2 x 2
<b>Output variables</b>			
Rated output	9 000 VA	10 000 VA	12 500 VA
Supply voltage	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
Rated frequency	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz
cos phi		0.80 inductive ... 0.80 capacitive	
Number of grid phases	3	3	3
<b>General electrical data</b>			
Max. efficiency	98.0 %	98.0 %	98.0 %
Europ. efficiency	97.4 %	97.5 %	97.6 %
Night consumption	≈ 1,5 W	≈ 1,5 W	≈ 1,5 W
Switching plan	transformerless	transformerless	transformerless
Grid monitoring	acc. to local requirements	acc. to local requirements	acc. to local requirements
<b>Mechanical data</b>			
Display	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
Interfaces	Ethernet, USB, RS485, S0 output		
Fault signalling relay	potential-free NOC max. 230 V / 1 A		
Connections	DC: solar connector, AC: cable connection M32 and terminal		
Ambient temperature	-25 °C ... +60 °C**	-25 °C ... +60 °C**	-25 °C ... +60 °C**
Cooling	temperature-dependent fan	temperature-dependent fan	temperature-dependent fan
Protection class	IP65	IP65	IP65
Noise emission	< 45 dB (A) (noiseless when operated without fan)		
DC switch	integrated	integrated	integrated
Casing	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
Weight	40 kg	40 kg	40 kg

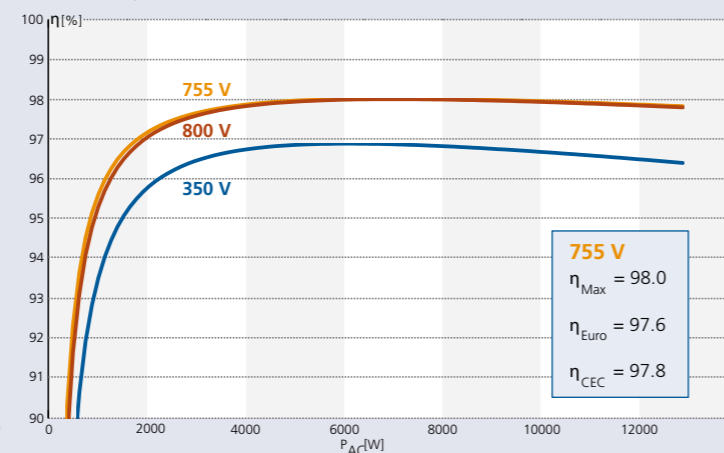
\* The possible output power is reduced at voltages lower than 350 V. The input current is limited to 18.6 A per input.  
\*\* Power derating at high ambient temperatures.  
Conforms to the country-specific standards and regulations according to the country version that has been set.

Graphical display of efficiency

3D efficiency diagram for Powador 14.0 TL3



Efficiency characteristic curves for Powador 14.0 TL3





## Powador 10.0 TL3 12.0 TL3 | 14.0 TL3

98.0 % efficiency

Two MPP trackers,  
asymmetrical loading possible

Multilingual menu

Graphical display

Integrated web server

USB connection for updates

Your retailer

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