KACO new energy.

Data sheet

Powador
30.0 TL3 | 33.0 TL3
36.0 TL3 | 39.0 TL3
60.0 TL3 NEW

Efficient. Flexible. Future-oriented.

Transformerless three-phase inverters Powador 30.0 TL3 to 60.0 TL3.

The transformerless three-phase inverters Powador 30.0 TL3 to 60.0 TL3 are designed specifically for decentralised installation of photovoltaic systems for commercial and industrial applications, such as hangars and factory roofs.

These units give you extreme flexibility in designing your PV system. They operate using three separate MPP trackers that can handle both symmetrical and asymmetrical loads to allow for optimum adjustment. Each tracker is able to process 20 kW. This enables them to meet all the typical demands of more complex designs involved with inhomogenous installation of the photovoltaic generator. Three MPP trackers can also compensate for mismatches between modules, such as those resulting from temperature differences and uneven solar radiation. Depending on the design of the units, one string (variant M) or four strings (variant XL) can be connected per MPP tracker. Each of the three MPP trackers of the Powador 60.0 TL3 XL can even be connected to five strings.

The rated input voltage range of 350 to 800 V is particularly broad (480 to 850 V for the Powador 60.0 TL3). The inverters switch to the grid from 250 V, and, when in operation, they still feed in at 200 V to ensure the solar yield from comparatively small areas. The peak efficiency is 98%. The European efficiency of 97.8% is also worth noting and is due to the fact that the unit has a very high partial load efficiency in the lower power ranges. Even at just 5 % rated power they operate at 95 % efficiency.

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 www.kaco-newenergy.de/service. 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. The inverters conform to the German Medium and Low Voltage Directives and support the functions of the Powador-protect for grid and plant protection and also power management in accordance with the German EEG 2012.

The integrated string collector with string fuses and overvoltage protection for the XL variant of the units opens up significant cost advantages. The M variants use the external Powador Mini-Argus string collector instead.

The Powador 60.0 TL3 is available from October 2012.

Technical data

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Electrical data	30.0 TL3	33.0 TL3	36.0 TL3	39.0 TL3	60.0 TL3 NEW
Input variables					
Max. recommended PV generator power	30000 W	33000 W	36000 W	39000 W	60000 W
MPP range	200 V ... 800 V*	200 V ... 800 V*	200 V ... 800 V*	200 V ... 800 V*	200 V ... 850 V**
Starting voltage	250 V	250 V	250 V	250 V	250 V
No-load voltage	1000 V	1000 V	1000 V	1000 V	1000 V
Max. input current	3 x 34.0 A	3 x 34.0 A	3 x 34.0 A	3 x 34.0 A	3 x 36.0 A
Number of MPP trackers	3	3	3	3	3
Max. power/tracker	20 kW	20 kW	20 kW	20 kW	20 kW
Number of strings	3x1 based on design M 3x4 based on design XL	3x1 based on design M 3x4 based on design XL	3x1 based on design M 3x4 based on design XL	3x1 based on design M 3x4 based on design XL	3x1 based on design M 3x5 based on design XL
Output variables					
Rated output	25000 VA	27500 VA	30000 VA	33300 VA	49900 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	3x36.2 A	3x39.9 A	3x43.5 A	3x48.3 A	3x72.2 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	98.0 %	98.0 %	98.0 %	98.0 %	98.0 %
European efficiency	97.8 %	97.8 %	97.8 %	97.8 %	97.8 %
Night consumption	≈ 1,5 W	≈ 1,5 W	≈ 1,5 W	≈ 1,5 W	≈ 1,5 W
Switching plan	self-inverted, transformerless	self-inverted, transformerless	self-inverted, transformerless	self-inverted, transformerless	self-inverted, 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	Ethernet, USB, RS485, S0 output	Ethernet, USB, RS485, S0 output	Ethernet, USB, RS485, S0 output	Ethernet, USB, RS485, S0 output
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	AC connection via screw terminals, bushing 1 x M50, max cross section: 50 mm^2 (flexible); DC connection of M version: spring-type terminals 6-35 mm^2 ***; DC connection of XL version: screw and spring-type terminals 10 mm^2, bushing 6 x M32	AC connection via screw terminals, bushing 1 x M50, max cross section: 50 mm^2 (flexible); DC connection of M version: spring-type terminals 6-35 mm^2 ***; DC connection of XL version: screw and spring-type terminals 10 mm^2, bushing 6 x M32	AC connection via screw terminals, bushing 1 x M50, max cross section: 50 mm^2 (flexible); DC connection of M version: spring-type terminals 6-35 mm^2 ***; DC connection of XL version: screw and spring-type terminals 10 mm^2, bushing 6xM32	AC connection via screw terminals, bushing 1 x M50, max cross section: 50 mm^2 (flexible); DC connection of M version: spring-type terminals 6-35 mm^2 ***; DC connection of XL version: screw and spring-type terminals 10 mm^2, bushing 6xM32	AC connection via screw terminals, bushing 1 x M50, max cross section: 50 mm^2 (flexible); DC connection of M version: spring-type terminals 6-35 mm^2 ***; DC connection of XL version: screw and spring-type terminals 10 mm^2, bushing 6xM32
Ambient temperature	-20 °C … +60 °C****	-20 °C … +60 °C****	-20 °C … +60 °C****	-20 °C … +60 °C****	-20 °C … +60 °C****
Temperature monitoring	> 75 °C temperature-dependent impedance matching, > 85 °C cut-out	> 75 °C temperature-dependent impedance matching, > 85 °C cut-out	> 75 °C temperature-dependent impedance matching, > 85 °C cut-out	> 75 °C temperature-dependent impedance matching, > 85 °C cut-out	> 75 °C temperature-dependent impedance matching, > 85 °C cut-out
Cooling	forced cooling/RPM-regulated fan. max. 600 m^3 / h	forced cooling/RPM-regulated fan. max. 600 m^3 / h	forced cooling / RPM-regulated fan. max. 600 m^3 / h	forced cooling / RPM-regulated fan. max. 600 m^3 / h	forced cooling / RPM-regulated fan. max. 600 m^3 / h
Protection class	IP54	IP54	IP54	IP54	IP54
Noise emission	58 dB (A) (only fan noise)	58 dB (A) (only fan noise)	58 dB (A) (only fan noise)	58 dB (A) (only fan noise)	58 dB (A) (only fan noise)
DC switch	integrated	integrated	integrated	integrated	integrated
Casing	sheet steel	sheet steel	sheet steel	sheet steel	sheet steel
H x W x D	1360 x 840 x 355 mm	1360 x 840 x 355 mm	1360 x 840 x 355 mm	1360 x 840 x 355 mm	1360 x 840 x 355 mm
Weight	151 kg	151 kg	151 kg	151 kg	165 kg

* The possible input power is reduced at voltages lower than 350 V. The input current is limited to 34.0 A per input. ** The possible input power is reduced at voltages lower than 480 V. The input current is limited to 36.0 A per input. *** Only in conjunction with external Powador Mini-Argus **** Power derating at high ambient temperatures. Conforms to the country-specific standards and regulations according to the country version that has been set.

* The possible input power is reduced at voltages lower than 350 V. The input current is limited to 34.0 A per input. ** The possible input power is reduced at voltages lower than 480 V. The input current is limited to 36.0 A per input. *** Only in conjunction with external Powador Mini-Argus **** Power derating at high ambient temperatures. Conforms to the country-specific standards and regulations according to the country version that has been set.

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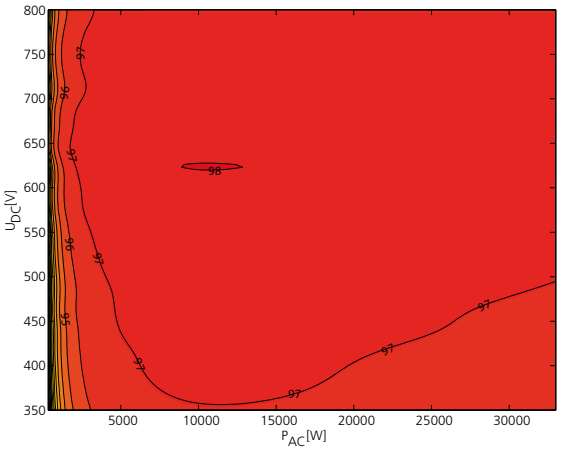
- 98.0 % efficiency
- 3 MPP trackers, symmetrical and asymmetrical loading possible
- Multilingual menu
- Cost-saving XL version with integrated combiner box
- Graphical display
- Integrated web server
- USB connection for updates
- Conforms to the German Medium and Low Voltage Directives

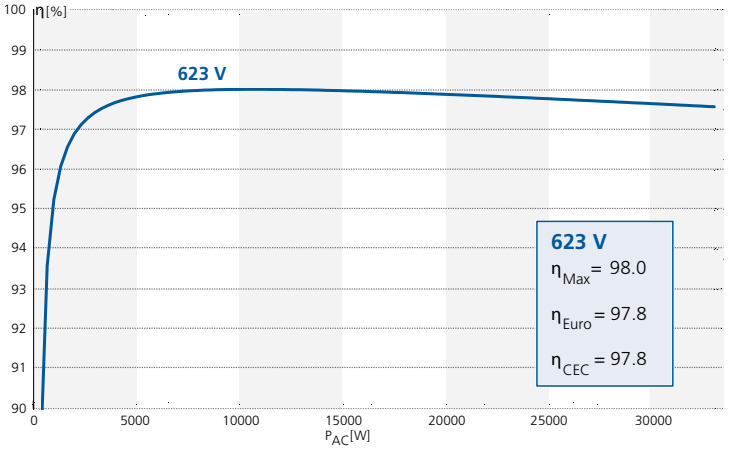
www.kaco-newenergy.de

Graphical Display of efficiency

3D efficiency diagram for Powador 39.0 TL3



Efficiency characteristic curve for Powador 39.0 TL3



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