

Energy production and storage of the latest generation



Special characteristics of the single and three phase TLS inverters



- up to 2 MPP trackers
- up to 9,500 Wp recommended DC power
- Plug & Play installation (single phase devices)
- Relay contact for self consumption optimisation



PV inverter

TLS series
4,000 W – 8,000 W

Your qualified installer:

Technical data:

BENNING TLS 4.3 – TLS 8.3-II inverter



DC Input:	TLS 5.1	TLS 4.3	TLS 5.3	TLS 6.3	TLS 7.3	TLS 8.3-II
Recommended DC power (+15% acc. ISE)	5700 W	4700 W	5800 W	7000 W	8700 W	9500 W
Maximum input voltage	850 V			1000 V		
Minimum input voltage/Start input voltage	180 V / 200 V			Input A: 175 V / 200 V		
Minimum input voltage*	180V			Input B: 120V		
MPP voltage range	250 – 720 V	190-800 V	240-800 V	280-800 V	260-800 V	290-800 V
Rated input voltage	680 V	600 V	600 V	600 V	600 V	600 V
Maximum current per input (A/B) **	12 A	10/10 A	10/10 A	10/10 A	18/10 A	18/10 A
Maximum short circuit current per input	16 A	12/12 A	12/12 A	12/12 A	20/12 A	20/12 A
Start feeding-in at	20 W	20 W	20 W	20 W	20 W	20 W
Number of independent MPP inputs	2	2	2	2	2	2
Strings per MPP input	1	1	1	1	2/1	2/1
DC terminal type	SUNCLIX	SUNCLIX	SUNCLIX	SUNCLIX	SUNCLIX	SUNCLIX
DC Overvoltage category	III					

AC Output:	TLS 5.1	TLS 4.3	TLS 5.3	TLS 6.3	TLS 7.3	TLS 8.3-II
Rated output power (230V / 50 Hz, cos(φ)=1)	4600 W	4000 W	5000 W	6000 W	7000 W	8000 W
Maximum apparent AC power	4600 VA	4000 VA	5000 VA	6000 VA	7000 VA	8000 VA
AC connection	L / N / PE			3 / N / PE		
AC nominal output voltage range	230 V +/-20 %			3 x 400V / 3 x 230 V +/- 20%		
Power factor range, adjustable cos(φ)			0,9 ind. ... 1 ... 0,9 cap.			
Operating range at nominal frequency 50 Hz			50 Hz / 47,5 Hz - 51,5 Hz			
Maximum output current	22 A	3 x 8 A	3 x 8 A	3 x 10 A	3 x 12 A	3 x 12 A
Maximum short circuit current	22 A	3 x 8 A	3 x 8 A	3 x 10 A	3 x 12 A	3 x 12 A
Maximum permitted fusing	Circuit breaker 16 A (TLS 5.1 - 32 A), characteristic B					
Distortion factor at cos(φ) = 1				< 3%		
Self-consumption at night				< 2W		
AC Overvoltage category	III					

Efficiency	TLS 5.1	TLS 4.3	TLS 5.3	TLS 6.3	TLS 7.3	TLS 8.3-II
Maximum efficiency	97,8 %	97,5%	97,5%	97,5%	97,5%	97,5%
European efficiency	97,2 %	97,0%	97,0%	97,0%	97,0%	97,0%

Protection and protective devices:	TLS 5.1	TLS 4.3	TLS 5.3	TLS 6.3	TLS 7.3	TLS 8.3-II
Topology	transformerless					
Protection class	I					
Earth fault detection	integrated					
Residual current monitoring	integrated, sensitive to universal current					
Overload behaviour	operating point adjustment					
Overtemperature behaviour	operating point adjustment					
Input isolator	integrated					
Overvoltage protection-input	integrated, type 3 as per EN61643-11					
Overvoltage protection-output	integrated, type 3 as per EN61643-11					
Automatic disconnection device	as per VDE 0126-1-1					
Environmental conditions	TLS 5.1	TLS 4.3	TLS 5.3	TLS 6.3	TLS 7.3	TLS 8.3-II
Ingress protection		IP 65			IP 65 / connection area IP 54	
Cooling concept		fan-less			variable speed, temperature-controlled fan	
Operating temperature range	-20°C – 60°C					
Maximum ambient temperature at rated power	45 °C	45 °C	45 °C	45 °C	40 °C	40 °C
Climatic category	4K4H according to IEC 721-3-4 ***					
Maximum operating altitude	2000 m above sea level					
Noise emission	≤ 50 dB(A)					
Standards and approvals	TLS 5.1	TLS 4.3	TLS 5.3	TLS 6.3	TLS 7.3	TLS 8.3-II
EMC emission	EN 61000-6-3: 2007					
EMC immunity	EN 61000-6-2: 2005					
Equipment safety	EN 62109-1, -2					
Grid compliance	VDE-AR-N 4105					

General Data:	TLS 5.1	TLS 4.3	TLS 5.3	TLS 6.3	TLS 7.3	TLS 8.3-II
Dimensions and weights	TLS 5.1	TLS 4.3	TLS 5.3	TLS 6.3	TLS 7.3	TLS 8.3-II
Dimensions in mm (W x H x D)	360 x 506 x 190 (without plugs)					
Weight (approx.)	26 kg	25 kg	25 kg	27 kg	27 kg	27 kg
Features	TLS 5.1	TLS 4.3	TLS 5.3	TLS 6.3	TLS 7.3	TLS 8.3-II
Display	liquid crystal display, 128 x 64 pixel					
Communication interfaces	(internal) RS 485, USB, Ethernet, solar radiation, SO as per DIN EN 62053-31 class B					
Data storage	24 hours: 5-min values					
	30 days: hourly values					
	20 years: daily values					
Relay contact	2 x potential-free contact					

*) This value is valid if one input has exceeded the start input voltage.

**) It is permitted to exceed this limit as long as the maximum short circuit current is not exceeded.

***) The device is designed for an outdoor use. Direct sunlight and precipitation (rain, snow hail) must be avoided on site.

technical changes reserved
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