HUAWEI

Residential Smart String ESS

LUTERRA-S2-XL/XM

PRELIMINARY VERSION

Smart Energy Controller
LUTERRA-5K-20K-XM0
(Three-Phase)

Battery Module
LUTERRA-5/7-E2
(Energy Optimizer Included)



Smart Energy Controller
LUTERRA-3K-6K-XL0
(Single-Phase)

Ultimate Experience
10 min Installation,5 min Commissioning
<29dB Ultra Quiet, Full Natural Cooling
Software-Configurable Power, Easier Business

Ultimate Intelligence
AI Scheduling 2.0, Average revenue increased 30%+
AI-Powered Assistant, Effortless Energy Management
1.5 Pn@5min, 2.0 Pn@10s

Ultimate Safety
Cell-level Safety Compartment
Full-Link Terminal Overheat Detection
TÜV Rheinland Safety Mark's Highest-Level

Version No.: 01-202608

Single-Phase Smart Energy Controller LUTERRA-3K-6K-XL0

Technical Specification

Technical Specification	3K	3.68K	4K	4.6K	5K	6K
Efficiency						
Max. efficiency	≤98.6 %					
European weighted efficiency	≤98.3 %					
Input (PV)						
Recommended max. PV power	6,000 Wp	7,360 Wp	8,000 Wp	9,200 Wp	10,000 Wp	12,000 Wp
Max. input voltage [1]	600 V					
Startup voltage	40 V					
MPPT operating voltage range	30-560 V					
Rated input voltage	360 V					
Max. input current per MPPT	18 A					
Max. short-circuit current	24 A					
Number of MPP trackers	2					
Input (DC Battery)						
Compatible battery	LUTERRA-5-E2 / LUTERRA-7-E2					
Number of battery modules	1-4					
Battery module voltage range	350 V - 560 V					
Max. charging power	6,000 VA					
Max. discharging power	3,300 VA	3,680 VA	4,400 VA	5,000 VA	5,500 VA	6,000 VA
Output / Input (on-grid)						
Grid connection	Single phase					
Rated output power	3,000 W	3,680 W	4,000 W	4,600 W	5,000 W	6,000 W
Max. apparent power	3,300 VA	3,680 VA	4,400 VA	5,060 VA	5,500 VA	6,600 VA
Rated output voltage [2]	220 Vac / 230 Vac / 240 Vac					
Rated AC grid frequency	50 Hz / 60 Hz					
Max. output current	15A	16 A	20 A	23 A	25 A	30 A
Max. AC input power /current	4500W/20.5A	5520W/24A	6000W/27.3A	6900W/31.4A	7500W/34.1A	9000W/40.9A
Adjustable power factor	0.8 leading ... 0.8 lagging					
Max. total harmonic distortion	≤ 2%					
Output (off-grid)						
Rated output power	3,000 W	3,680 W	4,000 W	4,600 W	5,000 W	6,000 W
MAX output apparent power	3,300 VA	4,048 VA	4,400 VA	5,060 VA	5,500 VA	6,600 VA
Peak output power (10s)	6,000 W	7,360 W	8,000 W	9,200 W	10,000 W	12,000 W
Rated output voltage [2]	220 Vac / 230 Vac / 240 Vac L/N + PE					
Automatic switchover time	≤ 10 ms					
Protection Feature						
Terminal over-temperature protection	Yes					
Anti-islanding protection	Yes					
DC reverse polarity protection	Yes					
Insulation monitoring	Yes					
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11					
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11					
Residual current monitoring	Yes					
AC overcurrent protection	Yes					
AC short-circuit protection	Yes					
AC overvoltage protection	Yes					
Arc fault protection	Yes					
Battery charging from grid	Yes					
General Specification						
Operating temperature range	- 25 to +60 °C					
Relative operating humidity	0%-100% RH					
Operating altitude	0-4,000 m (Derating above 2,000 m)					
Cooling	Natural convection					
Display	LED indicators; integrated WLAN + FusionSolar app					
Communication	WLAN / Fast Ethernet / RS485					
Weight (incl. mounting brackets)	21 kg					
Dimensions(W x D x H)	590 mm x 255 mm x 300 mm					
IP rating	IP66					
Optimizer Compatibility						
DC MBUS compatible optimizer	SUN2000-600W-PA0					
Standards Compliance (More Available Upon Request)						
Safety & Certificates	EN/IEC 62109-1, EN/IEC 62109-2, C5-M					
Grid connection standards	EN 50549-1, VDE-AR-N 4105,CEI 0-21,NTS, IEC61727					

*1 The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter.
*2 The 3.68 kW model only supports 230 V/240 V AC output.

Disclaimer: The preceding values are measured by Huawei's internal laboratory under specific test environments. Actual values may vary depending on product models, software versions, operating conditions and environmental factors. Official data shall be subject to the final formal version.

PRELIMINARY VERSION

Three-Phase Smart Energy Controller LUTERRA-5K-20K-XL0

Technical Specification

Technical Specification	5K	6K	8K	10K	12K	15K	17K	20K
Efficiency								
Max. efficiency	≤99.0 %							
European weighted efficiency	≤98.6 %							
Input (PV)								
Recommended max. PV power	10,000 Wp	12,000 Wp	16,000 Wp	20,000 Wp	24,000 Wp	30,000 Wp	34,000 Wp	40,000 Wp
Max. input voltage [1]	1,100 V							
Operating voltage range [2]	120-1,000 V							
Startup voltage	160 V							
Rated input voltage	600 V							
Max. input current per MPPT	18 A							
Max. short-circuit current	24 A							
Number of MPP trackers	2			3				
Input (DC Battery)								
Compatible battery	LUTERRA-5-E2 / LUTERRA-7-E2							
Number of modules per controller	1-4							
Battery module voltage range	600 V - 980V							
Output / Input (on-grid)								
Grid connection	Three-phase							
Rated output power	5,000 W	6,000 W	8,000 W	10,000 W	12,000 W	15,000 W	17,000 W	20,000 W
Max. apparent power	5,500 VA	6,600 VA	8,800 VA	11,000 VA	13,200 VA	16,500 VA	18,700 VA	22,000VA
Rated output voltage	220 V AC/380 V AC, 230 V AC/400 V AC, 240 V AC/415 V AC 3W/N + PE							
Rated AC grid frequency	50 Hz / 60 Hz							
Max. output current	8.3 A	10 A	13.3 A	16.7 A	20 A	25 A	28.3 A	33.3 A
Max. AC input power /current	8000 W/12.1A	9600 W/14.5 A	12800 W/19.4 A	16000 W/24.2 A	19200 W/29.1 A	24000 W/36.4 A	27200 W/41.2 A	32000 W/48.5 A
Adjustable power factor	0.8 leading ... 0.8 lagging							
Max. total harmonic distortion	≤ 2%							
Backup power output	Yes							
Output (off-grid)								
Rated output power	5,000 W	6,000 W	8,000 W	10,000 W	12,000 W	15,000 W	17,000 W	20,000 W
MAX output apparent power	5,500 VA	6,600 VA	8,800 VA	11,000 VA	13,200 VA	16,500 VA	18,700 VA	22,000 VA
Peak output power (10s)	10,000 W	12,000 W	16,000 W	20,000 W	24,000 W	30,000 W	34,000 W	40,000 W
Rated output voltage	220 V AC/380 V AC, 230 V AC/400 V AC, 240 V AC/415 V AC 3W/N + PE							
Automatic switchover time	≤ 10 ms							
Protection Feature								
Terminal over-temperature protection	Yes							
Input-side disconnection device	Yes							
Anti-islanding protection	Yes							
DC reverse polarity protection	Yes							
Insulation monitoring	Yes							
DC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11							
AC surge protection	Yes, compatible with TYPE II protection class according to EN/IEC 61643-11							
Residual current monitoring	Yes							
AC overcurrent protection	Yes							
AC short-circuit protection	Yes							
AC overvoltage protection	Yes							
Arc fault protection	Yes							
Battery charging from grid	Yes							
General Specification								
Operating temperature range	- 25 to +60 °C							
Relative operating humidity	5%-95% RH							
Operating altitude	0-4,000 m (Derating above 2,000 m)							
Cooling	Natural convection							
Display	LED indicators; integrated WLAN + FusionSolar app							
Communication	WLAN / Fast Ethernet / RS485							
Weight (incl. mounting brackets)	35 kg							
Dimensions(W x D x H)	590 mm x 255 mm x 410 mm							
IP rating	IP66							
Optimizer Compatibility								
DC MBUS compatible optimizer	SUN2000-600W-PA0							
Standards Compliance (More Available Upon Request)								
Safety & Certificates	EN/IEC 62109-1, EN/IEC 62109-2, C5-M							
Grid connection standards	EN 50549-1, VDE-AR-N 4105,CEI 0-21,NTS, IEC61727, NB/T 32004, GB/T 29319							

*1 The max. input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage the inverter.
*2 Any DC input voltage beyond the operating voltage range may result in inverter malfunction.

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PRELIMINARY VERSION

Battery Module LUTERRA-5/7-E2
Technical Specification

Technical Specification		
Performance		
Battery module	LUTERRA-5-E2	LUTERRA-7-E2
Battery usable energy [1]	4.9 kWh	6.9 kWh
Battery rated Capacity	5.02 kWh	7.03kWh
Rated charge / discharge power	2.5 kW / 3 kW	3.5 kW / 4 kW
Max. discharging power	3.6 kW	5 kW
Peak. discharging power(10s)	5 kW	7 kW
General Specification		
Battery module dimensions (W x D x H)	590 mm x 255 mm x 290 mm	
Battery module weight [2]	46 kg	57kg
Installation	Floor stand (standard), Wall mount (optional)	
Operating temperature [3]	–25°C to +60°C	
Max. operating altitude [4]	4,000 m (Derated above 2,000 m)	
Environment [5]	Outdoor / Indoor	
Relative humidity	5% – 95%	
Cooling	Natural convection	
IP rating	IP66	
Noise emission	< 29 dB [6]	
Cell technology	Lithium-iron phosphate ($LiFePO_4$)	
Standards Compliance (More Available Upon Request)		
Safety & Certificates	VDE 2510-50 ,UL9540A, UL9540B [7], IEC 62619, C5-M, ISO 13849, IEC 63056, IEC 62040-1, UN 38.3	

*1 Test conditions: 100% depth of discharge (DoD), 0.2C rate charge & discharge at 25°C, at the beginning of service life.
*2 The weight of the battery modules varies with products, with a tolerance of ±3%.
*3 The output power may be affected by temperature. Please refer to the output derating curve for details.
*4 The output power may be affected by altitude. Please refer to the output derating curve for details.
*5 Outdoor installation is recommended. For indoor installation instructions, please refer to the user manual.
*6 The data is from Huawei lab, and the test condition is at a 1 m distance, typical operating voltage, and an ambient temperature of 25°C.
*7 For UL 9540B wall-mount installation clearances, please refer to the certification certificate for details.

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