## **SPH 10000TL-HU**

- · UPS function, 10ms transition
- · 1.5 DC/AC Ratio with 3 MPPTs
- · Support Smart Load Function
- · Up to 200A charging/discharging current
- · Support DC-coupled, AC-coupled, AC-retrofit applications
- · Type II Surge protection for DC and AC sides
- · Support charge from generator
- · Support form a 400V three-phase system
- · Support up to 6 units in parallel



GROWATT

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	Datasheet	SPH 10000TL-HU
Max Display   1000000   150000   150000   150000   150000   150000   150000   150000   150000   150000   150000   150000   150000   1500000   1500000   1500000   1500000   1500000   15000000   15000000   15000000   15000000   15000000   15000000   150000000   150000000   1500000000   1500000000   150000000000	Input data (DC)	
Mes. Purp. Jones for single-MPT   10000W   150V	Max. recommended PV power (for module STC)	15000W
Surv voltage	Max. input power for single MPPT	
MPP - Mark programpy   1994-499/1970   3   3   3   3   3   3   3   3   3	Max. DC voltage	525V
No. of MP strings per MPP tracker	Start voltage	150V
No. of Pc drings per PoP moder         2 2A           Max. short-count outer by PoP broder         22A           Max. short-count outer by PoP broder         22A           Max. do Toput power         10000W           Normal AC prop. power         220V           Normal page current         4.35 A           Max. geld postbrough aurent         4.25 A           Max. geld postbrough aurent         10000W           Max. AC speems power         10000W           Normal a Swale (songer)         20000ZMVAW           AC geld feesage (narger)         50000GA           Max. collect current         55A           May of geld power feater         10000GA           Max. collect current         55A           May of geld power feater         10000GGA           Max. geld part delict current         20000GGA           Max. geld part delict	MPP voltage range	150V-450V/370V
Max fine current per MPP tracker   29A   20A	No. of MPP trackers	3
Max John Chank Can Sch         10000W           Nominal African power         10000W           Nominal African power         2207V           Nominal Injust Cornett         4.55.A           Max gard posterhough current         4.55.A           Max gard posterhough current         6.65.A           Max gard posterhough current         10000W           Max gard posterhough current         10000W           Accommand power         10000W           Nominal Equation power         10000W           Nominal Coverage (ranger)         22000200/200/200/W           Max Acquert (ranger)         22000200/200/200/W           Max acquert (ranger)         36446664           Max acquert (ranger)         36446664           Max acquert (ranger)         3684666           Max acquert (ranger)         3684666           Max acquert (ranger)         3684666           Battery data (DC)         368           Battery data (DC)         368           Battery data (DC)         368           Battery data (DC)         369           Battery data (DC)         369           Battery data (DC)         369           Battery data (DC)         369           Battery data (DC)         360 <td>No. of PV strings per MPP tracker</td> <td>2</td>	No. of PV strings per MPP tracker	2
AC injust data (Ac)	Max. input current per MPP tracker	22A
Normal Africange power   10000W   Normal Space Current   4.15.6   Make, girl passafforujan (arrent   4.15.6   Make, girl passafforujan power   10000W   Make, girl passafforujan power   10000W   Make, AC opporate power   10000W   Mak		28A
Namana Injust voltage   2,90V	AC input data (AC)	
Nominal plays Current         4.5 5.A           Max, generator play power         10000W           Output data (AC)           AC nominal power         10000W           Max Supposed power         10000W           Monand AC votage (range*)         2002/23/V2/V2           AC grid respertly (longe*)         30±/25/V2           AC grid connection (specific florage*)         30±/25/V2           AC grid connection (specific florage*)         30±/25/V2           AC grid connection (specific florage*)         40±/25/V2           AC grid connection (specific florage*)         30±/25/V2           AC grid connection (specific florage*)         40±/25/V2           Battery votage range         40±/25/V2           Max chaping and discharging corrent         200A           Contracts of the power (AC)         30±/25/V2           AC nominal AC coulds (specific florage*)         10000W           Backup power (AC)         40±/25/V2           AC nominal country tower         10000W           Backup power (AC)         40±/45/V2           AC nominal country tower         10000W           Backup power (AC)         40±/45/V2           Backup power (AC)         40±/45/V2           Backup power (AC)         40±/45/V2           AC now		
Max graft plansthrough corrent         £2.5 M           Output data (AC)         100000V           AC nominal power         100000V           Nominal AC voltage (urage*)         22001/2007/200V           Max AC apparent power         100000V           Max Couple (urage*)         589-808/16           Max quite current         500           AC grid froquency (urage*)         489-808/16           AC grid connection type         580-808/16           Battery voltage grant         400-60V           Max charging and discharging power         200A           Type of battery         1,00000V           AC-control durity power         1,00000V           Nominal AC couter frequency         5,006/ac           Switch time         4,00000V           Protection devices         7,975     <		
Max. perestart input power   10000W		
Output data (AC)         C nominal power         10000V           Max. AC approximation         10000VA           Nomenal AC votage (ranger)         220V/230V/240V           Max. AC grid frequency (ranger)         504 between the common of the com		
March   Marc		10000W
Max. Act approach power   100000/A   Nominal Act Vostgo (ranger)   2200/2200/ACO   Nominal Act Vostgo (ranger)   5040/ACC   Nominal Act Vostgo (ranger)   40-407   Nominal Act Vostgo (ranger)   40-40	Output data (AC)	
Nominal AC voltage (ronger)   2000/2000/2007   SOR-VORDER (ronger)   SOR-VORDER (rong		
AC pirt forquency (renger)   SDH2/ADH2   Adjustable power factor		
Mox. cupital current         50A           Alguistable power factor         OBledering0Bagging           CA grid connection type         Single phase           Battery voltage range           Max charging and discharging current         200A           Continuous charging and discharging power         100000V           Type of battery         100000V           Backup power (AC)           Af nominal AC output power         100000V           Nominal AC output frequency         50/60Hz           Switch time         2002/2320V2/40V           Nominal AC output frequency         50/60Hz           Switch time         10000V           Nominal AC output frequency         50/60Hz           Switch time         10000V           Nominal AC output frequency         50/60Hz           Switch time         10000V           Nominal AC output frequency         50/60Hz           Switch time         97.50%           Efficiency         9.75%           Power difficiency         9.75%           PV switch         Yes           AC over current protection         Yes           AC over current protection         Yes           AC over current protection         Yes </td <td></td> <td></td>		
Adjustable prover factor         6 Bleading 0 Bleaging _           THD         < 3%		
AC grid connection type		
Battery data (DC)           Battery data (DC)           Statery data pange         40-60V           Max charging and discharging current         200A           Continuous charging and discharging power         100000W           Type of battery         100000W           Backup power (AC)         Section 100000W           Ac nominal output power         100000W           Nominal AC output violage         2200/230/240/2           Nominal AC output frequency         56/60+2           Switch time         16/10s           Efficiency         9.75/0%           CEC weighted efficiency         9.78           PS witch         Yes           CC over current protection         Yes           AC over voltage protection         Yes           AC over voltage protection         Yes           AC over voltage protection         Yes           Corourd fault monitoring         Yes           Grid monitoring         Yes           Act over voltage protection         Yes           Grid monitoring         Yes           Maxistackella rumber         6           Ground fault monitoring         Yes           Rasidial-current monitoring unit         16           Insulation resista	-	
Battery data (DC)   Battery voltage range   40-60V     Max charging and discharging current   200A     Continuous charging and discharging power   100000W     Type of battery   100000W     Type of battery   100000W     Backup power (AC)     AC nominal actiput power   100000W     Nominal AC output frequency   2207/3309/240V     Nominal AC output voltage   2207/3309/240V     Nominal AC output frequency   50/06/12     Switch time   50/06/12     Swit		
Mark charging and discharging curent	AC grid connection type	Single phase
Max charging and discharging power         10000W           Continuous charging and discharging power         10000W           Type of battery         10000W           Backup power (AC)         10000W           AC noninal output power         10000W           Noninal AC cutput votage         22070/3307/240V           Noninal AC cutput frequency         50/60Hz           Switch time         10000W           Switch time         10000W           Efficiency         97.50%           ECE Covelighted efficiency         99.5%           Protection devices         Yes           AC over votage protection         Yes           AC over votage protection         Yes           Ground fault monitoring         Yes           Ground fault monitoring         Yes           Ground fault monitoring         Yes           Residual-current monitoring unit         Yes           Insulation resistance monitoring         Yes           Residual-current monitoring unit         Yes           General data         Yes </td <td>Battery data (DC)</td> <td></td>	Battery data (DC)	
Continuous changing and discharging power         10000W           Type of battery         Lithium/Lead-acid           Backup power (AC)         International cutput power           AC nominal AC cutput veltage         2000/020           Nominal AC cutput frequency         50/60Hz           Switch time         50/60Hz           Efficiency         97.50%           CEC weighted efficiency         96.7%           Peak efficiency         96.7%           WPPT efficiency         99.5%           Protection devices         Yes           PV nettch         Yes           AC over valuage protection         Yes           Evaluation resistance monitoring until Institution resis	Battery voltage range	40~60V
Type of battery         Blackup power (AC)           AC nominal output power         100000W           Nominal AC output votage         2200/230V/240V           Nominal AC output frequency         50/60Hz           switch time         100000           Well Circlinery         ************************************	Max charging and discharging current	200A
Backup power (AC)         10000W           AC nominal output power         10000W           Nominal AC output frequency         50/60Hz           Switch time         +10ms           Efficiency           Peak. efficiency           Peak. efficiency           PPS with the deficiency           Weighted efficiency           PV witch         Yes           AC over current protection         Yes           AC over voltage protection         Yes           For example of the protection         Yes           Grad monitoring         Yes           Arti-Islanding protection         Yes           Grad monitoring         Yes           Residual-current monitoring unit         Yes           Insulation resistance monitoring         Yes           Surge protection         DC Type II / AC Type II           Central data           Max stackable number         6           Dimensions (W H / D)         440/883/254mm           Weight         4,844mg           Operating temperature range         -25°C -46°C (with derating above 45°C)           Noise emission (typical)         6		10000W
AC nominal actupt power         10000W           Nominal AC cutput votage         220V/230V/240V           Nominal AC cutput frequency         50/40Hz           Switch time         <10ms	Type of battery	Lithium /Lead-acid
Nominal AC output frequency         \$0/40Hz           Nominal AC output frequency         \$0/40Hz           Switch time         <10ms	Backup power (AC)	
Nominal AC output frequency         50/60Hz           Switch time         <10ms	AC nominal output power	10000W
Efficiency         97.50%           Peak efficiency         96.7%           MPPT efficiency         96.7%           MPPT efficiency         ≥99.5%           MPPT efficiency         ≥99.5%           PV switch         Yes           AC over votrage protection         Yes           AC over votrage protection         Yes           Ground fault monitoring         Yes           Grid monitoring         Yes           Anti-islanding protection         Yes           Residual-current monitoring unit         Yes           Insulation residance monitoring         Yes           Surge protection         DC Type III / AC Type II           General data         6           Max stackable number         6           Dimensions (W / H / D)         440/883/254mm           Weight         48.84kg           Operating temperature range         -25°C +60°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W	Nominal AC output voltage	220V/230V/240V
Efficiency         97.50%           Peak, efficiency         96.7%           MPPT efficiency         \$99.5%           Protection devices           PV switch         Yes           AC over current protection         Yes           AC over voltage protection         Yes           Ground fault monitoring         Yes           Grid monitoring         Yes           Anti-slanding protection         Yes           Grid monitoring in the state of the state	Nominal AC output frequency	50/60Hz
Peak efficiency         97.50%           CEC weighted efficiency         96.7%           MPPT efficiency         299.5%           Protection devices           PV switch         Yes           AC over current protection         Yes           AC over voltage protection         Yes           Ground fault monitoring         Yes           Grid monitoring         Yes           Anti-islanding protection         Yes           Anti-islanding protection         Yes           Anti-islanding protection         Yes           Anti-islanding protection         Yes           Residual-current monitoring unit         Yes           Insulation resistance monitoring         Yes           Surge protection         DC Type II / AC Type II           Ceneral data           Max stackable number           Dimensions (W / H / D)         440/883/254mm           Weight         4.8.84kg           Operating temperature range         -25°C-+60°C (with derating above 45°C)           Noise emission (typical)         \$ 60 dB(A)           Self-Consumption         \$ 60 dB(A)           Topology         Tanformerless           Cooling         Smart cooling           Protecti		<10ms
CEC welghted efficiency         \$99.5%           MPT efficiency         ≥99.5%           Protection devices           PV switch         Yes           AC over current protection         Yes           AC over votage protection         Yes           Ground fault monitoring         Yes           Grid monitoring         Yes           Anti-slanding protection         Yes           Residual-current monitoring unit         Yes           Insulation resistance monitoring         Yes           Surge protection         DC Type II / AC Type II           General data           Max stackable number         6           Dimensions (W I/H D)         440/883/254mm           Weight         48,84kg           Operating temperature range         -25°C+60°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W	Efficiency	
MPT efficiency         ≥99.5%           Protection devices           PV switch         Yes           AC over current protection         Yes           AC over voltage protection         Yes           Ground fault monitoring         Yes           Grid monitoring         Yes           Anti-slanding protection         Yes           Residual-current monitoring unit         Yes           Insulation resistance monitoring         Yes           Surge protection         DC Type II / AC Type II           General dats           Max stackable number         6           Dimensions (W / H / D)         40.884/g           Veight         48.84/g           Operating temperature range         -25°C+6°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W	Peak. efficiency	97.50%
Protection devices           PV switch         Yes           AC over current protection         Yes           AC over voltage protection         Yes           Ground fault monitoring         Yes           Grid monitoring         Yes           Anti-slanding protection         Yes           Residual-current monitoring unit         Yes           Insulation resistance monitoring unit         Yes           Insulation resistance monitoring         DC Type II / AC Type II           General data           Mas stackable number         6           Dimensions (W / H / D)         440/883/254mm           Weight         48.84kg           Operating temperature range         -25°C +60°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W	CEC welghted efficiency	96.7%
PV switch         Yes           AC over current protection         Yes           AC over voltage protection         Yes           Ground fault monitoring         Yes           Grid monitoring         Yes           Anti-islanding protection         Yes           Residual-current monitoring unit insulation resistance monitoring         Yes           Insulation resistance monitoring         Yes           Surge protection         DC Type II / AC Type II           General data           Max stackable number         6           Dimensions (W /H /D)         440/883/254mm           Weight         48.84kg           Operating temperature range         -25°C+60°C (with derating above 45°C)           Noise emission (typical)         6 0 dB(A)           Self-Consumption         6 0 dB(A)           Topology         Tranformerless           Cooling         5 0 dB(A)           Protection degree         IP65           Relative humidity         0-100%           Altitude         2000m           DC connection         Quick Connector           Display         LCD           Interfaces: RS485/CAN/USB         Yes           Communication         WIFI	MPPT efficiency	≥99.5%
AC over current protection         Yes           AC over voltage protection         Yes           Ground fault monitoring         Yes           Grid monitoring         Yes           Anti-islanding protection         Yes           Residual-current monitoring unit         Yes           Insulation resistance monitoring         Yes           Surge protection         DC Type II / AC Type II           General data           Max stackable number         6           Dimensions (W / I / D)         440/883/254mm           Weight         48.34kg           Operating temperature range         -25°C +60°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 dB(A)	Protection devices	
AC over voltage protection         Yes           Ground fault monitoring         Yes           Grid monitoring         Yes           Anti-islanding protection         Yes           Residual-current monitoring unit         Yes           Insulation resistance monitoring         DC Type II / AC Type II           General data           Max stackable number         6           Dimensions (W / H / D)         440/883/254mm           Weight         48.84kg           Operating temperature range         −25°C +60°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W	PV switch	Yes
Ground fault monitoring         Yes           Grid monitoring         Yes           Anti-Islanding protection         Yes           Residual-current monitoring unit         Yes           Insulation resistance monitoring         Yes           Surge protection         DC Type II / AC Type II           General data           Max stackable number         6           Dimensions (W / H / D)         440/883/254mm           Weight         48,84kg           Operating temperature range         -25°C+60°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W	·	Yes
Grid monitoring         Yes           Anti-islanding protection         Yes           Residual-current monitoring unit         Yes           Insulation resistance monitoring         Yes           Surge protection         DC Type II / AC Type II           Ceneral data           Max stackable number         6           Dimensions (W / H / D)         440/883/254mm           Weight         48.84kg           Operating temperature range         -25°C +60°C (with derating above 45°C)           Noise emission (typical)         \$ 60 dB(A)           Self-Consumption         \$ 60 W           Topology         Tranformerless           Cooling         Smart cooling           Protection degree         IP65           Relative humidity         0-100%           Altitude         2000m           DC connection         Quick Connector           Display         LCD           Interfaces: RS485/CAN/USB         Yes           Communication         WIFI           Warranty (5/10 years)         Yes/Opt	· .	
Anti-islanding protection         Yes           Residual-current monitoring unit insulation resistance monitoring         Yes           Surge protection         DC Type II / AC Type II           General data           Max stackable number         6           Dimensions (W / H / D)         440/883/254mm           Weight         48.84kg           Operating temperature range         -25°C +60°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W		
Residual-current monitoring unit Insulation resistance monitoring         Yes           Surge protection         DC Type II / AC Type II           General data           Max stackable number         6           Dimensions (W / H / D)         440/883/254mm           Weight         48.84kg           Operating temperature range         -25°C +60°C (with derating above 45°C)           Noise emission (typical)         6 0 dB(A)           Self-Consumption         < 60 W           Topology         Tranformerless           Cooling         Smart cooling           Protection degree         IP65           Relative humidity         0-100%           Altitude         2000m           DC connection         Quick Connector           Display         LCD           Interfaces: RS485/CAN/USB         Yes           Communication         WIFI           Warranty (5/10 years)         Yes/Opt	=	
Insulation resistance monitoring         Yes           Surge protection         DC Type II / AC Type II           General data           Max stackable number         6           Dimensions (W / H / D)         440/883/254mm           Weight         48.84kg           Operating temperature range         -25°C+60°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W           Topology         Tranformerless           Cooling         Smart cooling           Protection degree         IPA5           Relative humidity         0~100%           Altitude         0.000000           DC connection         Quick Connector           Display         LCD           Interfaces: RS485/CAN/USB         Yes           Communication         WIFI           Warranty (5/10 years)         Yes/Opt		
Max stackable number 6 Dimensions (W / H / D) 440/883/254mm Weight 48.84kg Operating temperature range 7-25°C +60°C (with derating above 45°C) Noise emission (typical) Self-Consumption Topology Tranformerless Cooling Protection degree Relative humidity Rittude DC connection Display LCD Interfaces: RS485/CAN/USB Communication Warranty (5/10 years)  Max stackable number 6 6 6 6 6 6 6 7 6 6 6 6 7 6 6 6 6 6 7 6 6 6 6 7 6 6 6 6 7 6 6 6 6 6 6 6 6 6 6 7 6	~	
Max stackable number         6           Dimensions (W / H / D)         440/883/254mm           Weight         48.84kg           Operating temperature range         −25°C +60°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W	Surge protection	DC Type II / AC Type II
Dimensions (W / H / D)         440/883/254mm           Weight         48.84kg           Operating temperature range         −25°C +60°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W	General data	
Weight         48.84kg           Operating temperature range         −25°C +60°C (with derating above 45°C)           Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W	Max stackable number	6
Operating temperature range       −25°C +60°C (with derating above 45°C)         Noise emission (typical)       ≤ 60 dB(A)         Self-Consumption       < 60 W		
Noise emission (typical)         ≤ 60 dB(A)           Self-Consumption         < 60 W	-	· ·
Self-Consumption         < 60 W		-
Topology         Tranformerless           Cooling         Smart cooling           Protection degree         IP65           Relative humidity         0~100%           Altitude         2000m           DC connection         Quick Connector           Display         LCD           Interfaces: RS485/CAN/USB         Yes           Communication         WIFI           Warranty (5/10 years)         Yes/Opt	**	
Cooling         Smart cooling           Protection degree         IP65           Relative humidity         0~100%           Altitude         2000m           DC connection         Quick Connector           Display         LCD           Interfaces: RS485/CAN/USB         Yes           Communication         WIFI           Warranty (5/10 years)         Yes/Opt		
Protection degree         IP65           Relative humidity         0~100%           Altitude         2000m           DC connection         Quick Connector           Display         LCD           Interfaces: RS485/CAN/USB         Yes           Communication         WIFI           Warranty (5/10 years)         Yes/Opt		
Relative humidity         0~100%           Altitude         2000m           DC connection         Quick Connector           Display         LCD           Interfaces: RS485/CAN/USB         Yes           Communication         WIFI           Warranty (5/10 years)         Yes/Opt	-	
DC connection         Quick Connector           Display         LCD           Interfaces: RS485/CAN/USB         Yes           Communication         WIFI           Warranty (5/10 years)         Yes/Opt	= = = = = = = = = = = = = = = = = = = =	
Display         LCD           Interfaces: RS485/CAN/USB         Yes           Communication         WIFI           Warranty (5/10 years)         Yes/Opt		
Interfaces: RS485/CAN/USB  Communication  WIFI  Warranty (5/10 years)  Yes  Yes		
Communication WIFI Warranty (5/10 years) Yes/Opt		
Warranty (5/10 years) Yes/Opt		
	Training (or to yours)	CE-RED, CE-EMC, CE-LVD, IEC 61683, RoHS, NRS097, IEC 60068, IEC 62116, IEC 61727

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