



# BEG1K0110G/BEG1K086U

## 62.5kW1000V Bidirectional ACDC Power Module

## **Product Introduction**

BEG1K0110G/1K086U is the bidirectional ACDC power module used to connect the battery or DC bus to the AC Grid. It is specially designed for bidirectional applications in battery energy storage systems with multiple battery groups in parallel to achieve safety isolation and flexible capacity expansion. It can also be used in retired battery utilization and AC Micro Grid applications. By employing the high frequency SiC MOSFET switch technology, it can achieve excellent performance, high power density, high efficiency and high reliability.





## Unique function:

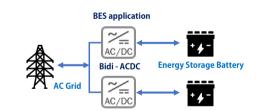
- Bidirectional ACDC inverter
- None isolation design for more than 98.7% efficiency
- Wide voltage range at the AC Bus and Battery or DC Bus side, suitable for different battery racks, DC Bus and Grid
- Smooth transition when the direction of power flow changes

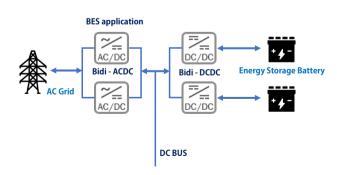
## Main feature:

- High power density
- TUV CE/US and Various grid conformity with certifications
- Inner spraying tech for high protection and high reliability
- Maximum 16 inverters in parallel work
- Max efficiency is higher than 98.7%
- Plug & play

## Application:

- Battery Energy Storage
- Retired Battery Utilization
- AC Micro Grid
- DC Bus











Ambient Temperature	Technical S	pecificat	tion	BEG1K0110G	BEG1K086U
Humidity	Environment		Ambient Temperature	-40°C ~ +75°C, derating from 55°C	
Humidity			Storage Temperature	- 40°C ~ + 75°C	
AC Side   Rated Voltage, Power and current   380V/400V/62.5kVA/95A, 3L+PE   480V/62.5kVA/75A, 3L+PE   Frequency   45Hz-65Hz   400V/62.5kVA/75A, 3L+PE   Frequency   45Hz-65Hz   400 + 528Vac   408 - 5			Humidity	≤95%RH, non-condensing	
Ac Side			Altitude	2000m	
AC Side     Notiage range	On Grid Mode	AC Side	Rated Voltage, Power and current	380V/400V/62.5kVA/95A, 3L+PE	480V/62.5kVA/75A, 3L+PE
AC Side   Power factor   Power factor   Power factor   Power factor correction   1-1-11 Adjustable   Red AC (## 550% - 100% power   Power factor correction   Power factor   Power			Frequency	45Hz~65Hz	
Power factor   \$0.99 Rated AC, @50% - 1.00% power   \$0.97 @20% ~ 50% power			Voltage range	260 ~ 437Vac	408 ~ 528Vac
On Grid Mode         THDi         ≪ 3% Rated AC @50% ~ 100% power           Notage and Power         650Vdc ~ 1000Vdc         800Vdc ~ 1000Vdc           Max current         110A         85.94A           DC Side         Voltage stabilization accuracy         <±1%			Power factor	≥0.99 Rated AC, @50% ~ 100% pc	ower, ≥0.97 @20% ~ 50% power
Voltage and Power   650Vdc ~ 1000Vdc   800Vdc ~ 1000Vdc     Max current   110A   85.94A     Voltage stabilization accuracy   ≤±1%     Current stabilization accuracy   398.7%   Rated AC&DC @50% ~ 100% power     Max efficiency   398.7%   Rated AC&DC @50% ~ 100% power     Max efficiency   398.7%   Rated AC&DC @50% ~ 100% power     Max efficiency   398.7%   Rated AC&DC @50% ~ 100% power     Max efficiency   500   100m     AC2DC and DC2AC Mode conversion time (Battery test)   10ms     For it connection function   5VG,VSG,Grid island,Zero voltage crossing function,Grid countercurrent protection     For it connection function   5VG,VSG,Grid island,Zero voltage crossing function,Grid countercurrent protection     SVG,VSG,Grid island,Zero voltage crossing function,Grid countercurrent protection     A89,95A   80.90c			Power factor correction	-1~+1 Adjustable	
DC Side   Max current   110A   85.94A			THDi		
DC Side   Voltage stabilization accuracy   <=11			Voltage and Power	650Vdc ~ 1000Vdc	800Vdc ~ 1000Vdc
Current stabilization accuracy   S±2% . @20% ~ 100% power   Max efficiency   ≥98.7% ,Rated AC&DC @50% ~ 100% power   10ms			Max current	110A	85.94A
Max efficiency   ≥98.7% ,Rated AC&DC @50% ~ 100% power			Voltage stabilization accuracy		
AC2DC and DC2AC Mode conversion time (Battery test)  Grid connection function  SVG,VSG,Grid island,Zero voltage crossing function,Grid countercurrent protection  650Vdc ~ 1000Vdc@380Vac/400Vac 800Vdc ~ 1000Vdc@480Vac 85.95A  DC Input  AC Poutput AC Voltage and Output power 380Vac/400Vac/62.5kW 480Vac/62.5kW  AC Output  AC Output AC Frequency  AC Voltage accuracy and distortion Power factor Dynamic voltage stability and recovery time  Alarm and protection  Alarm and protection  Reliability  MTBF  Control  Grid connection  Mechanical  DC input Voltage stability and respective for input power and current for input power for for input power for for input power for power for for power for power for for power for for power for power for for for for for for for for for fo			Current stabilization accuracy		
DC Input			Max efficiency	≥98.7% ,Rated AC&DC @50% ~ 100% power	
DC Input Voltage	AC2DC and DC2AC		C Mode conversion time (Battery test)	10ms	
DC Input	Grid connection function			SVG,VSG,Grid island,Zero voltage crossing function,Grid countercurrent protection	
Max Input current 110A 85.95A  AREA PAPER AC Output AC Voltage and Output power 380Vac/400Vac/62.5kW 480Vac/62.5kW  AC Output AC Frequency 62.5kVA / 95A 62.5kVA / 75A  Output AC Frequency 50 Hz/60 Hz  THDi <a href="THDi">THDi</a>	Off Grid Mode	DC Input	DC input voltage	650Vdc ~ 1000Vdc@380Vac/400Vac	800Vdc ~ 1000Vdc@480Vac
Off Grid Mode  AC Output  AC Voltage accuracy and distortion Power factor Dynamic voltage stability and recovery time  Control  Communication Indication Light Input/output over/under voltage protection Automatic shutdown, automatic restart when voltage returns to normal  Over current and short circuit protection Over temperature protection  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp retur			Max Input current	110A	85.95A
Off Grid Mode  AC Output  AC Voltage accuracy and distortion  Power factor  Dynamic voltage stability and recovery time  Control  Communication  Indication Light  Alarm and protection  Alarm and protection  Alarm and protection  Alarm and protection  Core current and short circuit protection  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage r		·	Output AC Voltage and Output power	380Vac/400Vac/62.5kW	480Vac/62.5kW
AC Output  AC Output  AC Output  AC Output  AC Output  AC Output  AC Voltage accuracy and distortion  Power factor  Dynamic voltage stability and recovery time  Control  Communication  Indication Light  Input/output over/under voltage protection  Over current and short circuit protection  Reliability  MTBF  Safety  TUV UL/CE certification, EN61000-6-2/-4  Safety  TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741  Grid connection  THDi  398.7%, @50% ~ 100% power  Max 1% and <3%  Power  Aux 105 and 20mS  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Auto			Rated power and current	62.5kVA / 95A	62.5kVA / 75A
AC Output    ThDi			Output AC Frequency	50 Hz/60 Hz	
Efficiency (max)  AC Voltage accuracy and distortion  Power factor  Dynamic voltage stability and recovery time  Control  Communication  Alarm and protection  Reliability  MTBF  Safety  TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741  Grid connection  Efficiency (max)  ≥98.7%, @50% ~ 100% power  Max 1% and <3%  >>0.8  Dynamic voltage stability and recovery time  5% and 20mS  CAN2.0  Indication Light  Green LED: ON for AC2DC Mode, Breathing for DC2AC Mode. Yellow LED: alarm. Red LED: failure  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown and lock, power off to start and unlock  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when voltage protection  Automatic shutdown, automatic restart when voltage protection  Automatic shutdown, automatic restart when voltage protection shutdown, automatic rest			THDi	< 3%	
Power factor			Efficiency (max)	≥98.7%, @50% ~ 100% power	
Dynamic voltage stability and recovery time  Control  Communication Indication Light  Alarm and protection  Reliability  MTBF  Safety  TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741  Grid connection  Dynamic voltage stability and recovery time  S% and 20mS  CAN2.0  Green LED: ON for AC2DC Mode, Breathing for DC2AC Mode. Yellow LED: alarm. Red LED: failure  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown and lock, power off to start and unlock  Automatic shutdown, automatic restart when the temp returns to normal  Automatic shutdown, automatic restart when the temp returns to normal  Nover temperature protection  Automatic shutdown, automatic restart when the temp returns to normal  Nover temperature protection  Automatic shutdown, automatic restart when the temp returns to normal  Nover temperature protection  Automatic shutdown, automatic restart when the temp returns to normal  Nover temperature protection  Automatic shutdown, automatic restart when the temp returns to normal  Nover temperature protection  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic restart when voltage returns to normal  Automatic shutdown, automatic			AC Voltage accuracy and distortion	Max 1% and <3%	
Control  Communication Indication Light Input/output over/under voltage protection Automatic shutdown, automatic restart when voltage returns to normal Over current and short circuit protection Over temperature protection  Reliability  MTBF  Safety  TUV CE certification, EN61000-6-2/-4  Safety  TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741  Grid connection  CAN2.0  Automatic Shutdowe, Breathing for DC2AC Mode. Yellow LED: alarm. Red LED: failure Automatic shutdown, automatic restart when voltage returns to normal Automatic shutdown and lock, power off to start and unlock Automatic shutdown, automatic restart when the temp returns to normal  **TUV CE certification, EN61000-6-2/-4**  Safety  TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741  Grid connection  VDE-AR-N 4105, UL 1741SB: 2021, IEEE 1547: 2018, IEEE 1547.1: 2020  Mechanical  Dimension / Weight  110mm (H) ×385mm (W) ×395mm (D), ≤22 kg			Power factor		
Indication Light Input/output over/under voltage protection Automatic shutdown, automatic restart when voltage returns to normal Over current and short circuit protection Over temperature protection Automatic shutdown and lock, power off to start and unlock Over temperature protection Automatic shutdown, automatic restart when the temp returns to normal Automatic shutdown, automatic restart when the temp returns to normal  Reliability MTBF Sa00,000 h  EMC TUV CE certification, EN61000-6-2/-4  Safety TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741  Grid connection VDE-AR-N 4105, UL 1741SB: 2021, IEEE 1547: 2018, IEEE 1547.1: 2020  Mechanical Dimension / Weight  I10mm (H) ×385mm (W) ×395mm (D), ≤22 kg			Dynamic voltage stability and recovery time	5% and 20mS	
Indication Light    Indication Light   Green LED: ON for AC2DC Mode, Breathing for DC2AC Mode. Yellow LED: alarm. Red LED: failure	Control		Communication	CAN2.0	
Alarm and protection  Over current and short circuit protection  Automatic shutdown and lock, power off to start and unlock  Over temperature protection  Reliability  MTBF  >300,000 h  EMC  TUV CE certification, EN61000-6-2/-4  Safety  TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741  Grid connection  VDE-AR-N 4105, UL 1741SB: 2021, IEEE 1547: 2018, IEEE 1547.1: 2020  Mechanical  Dimension / Weight  Automatic shutdown and lock, power off to start and unlock  Automatic shutdown, automatic restart when the temp returns to normal  Page 12 (1) (2) (2) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4			Indication Light	Green LED: ON for AC2DC Mode, Breathing for DC2AC Mode. Yellow LED: alarm. Red LED: failure	
Over temperature protection  Reliability  MTBF  S300,000 h  EMC  TUV CE certification, EN61000-6-2/-4  Safety  TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741  Grid connection  VDE-AR-N 4105, UL 1741SB: 2021, IEEE 1547: 2018, IEEE 1547.1: 2020  Mechanical  Dimension / Weight  Automatic shutdown, automatic restart when the temp returns to normal >300,000 h  EMC  TUV UL/CE certification, EN61000-6-2/-4  1101741  11	Alarm and protection		Input/output over/under voltage protection	Automatic shutdown, automatic restart when voltage returns to normal	
Reliability         MTBF         >300,000 h           EMC         TUV CE certification, EN61000-6-2/-4           Safety         TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741           Grid connection         VDE-AR-N 4105, UL 1741SB: 2021, IEEE 1547: 2018, IEEE 1547.1: 2020           Mechanical         Dimension / Weight         110mm (H) ×385mm (W) ×395mm (D), ≤22 kg			Over current and short circuit protection	Automatic shutdown and lock, power off to start and unlock	
EMC         TUV CE certification, EN61000-6-2/-4           Safety         TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741           Grid connection         VDE-AR-N 4105, UL 1741SB: 2021, IEEE 1547: 2018, IEEE 1547.1: 2020           Mechanical         Dimension / Weight         110mm (H) ×385mm (W) ×395mm (D), ≤22 kg			Over temperature protection	Automatic shutdown, automatic restart when the temp returns to normal	
Safety         TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741           Grid connection         VDE-AR-N 4105, UL 1741SB: 2021, IEEE 1547: 2018, IEEE 1547.1: 2020           Mechanical         Dimension / Weight         110mm (H) ×385mm (W) ×395mm (D), ≤22 kg	Reliability		MTBF	>300,000 h	
Grid connection         VDE-AR-N 4105, UL 1741SB: 2021, IEEE 1547: 2018, IEEE 1547.1: 2020           Mechanical         Dimension / Weight         110mm (H) ×385mm (W) ×395mm (D), ≤22 kg	EMC		TUV CE certification, EN61000-6-2/-4		
Mechanical Dimension / Weight 110mm (H) ×385mm (W) ×395mm (D), ≤22 kg	Safety	/	TUV UL/CE certification, EN62477-1:2012/A12:2021; UL1741		
	Grid connection		VDE-AR-N 4105, UL 1741SB: 2021, IEEE 1547: 2018, IEEE 1547.1: 2020		
Ordering Information Type TUV CE Version: BEG1K0110G TUV US Version: BEG1K086U	Mechanical		Dimension / Weight		
	Ordering Info	rmation	Туре	TUV CE Version: BEG1K0110G TUV	US Version: BEG1K086U

\*DC side voltage needs to be higher than the AC peak line voltage+30V.

For example, the actual AC line voltage is 528V, the module is running in the on/off-grid mode, the DC side voltage must be higher than 528\*1.414 + 30V = 776.6V

\*The power module can not be connected to the Neutral line from the Grid side.

In the off grid mode, the BEG1K0110G will output the Neutral line to load, but the BEG1K086U doesn't support it

But in the system inner, the power module's neutral line need to be connected to together