

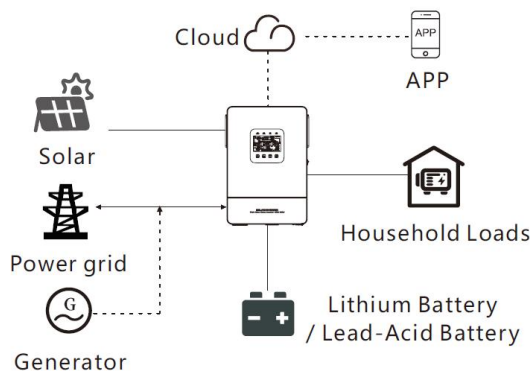
Magic-Kepler series

Hybrid solar inverter with charger



Overview

This is a multifunctional solar inverter that integrates an MPPT solar charge controller, a highfrequency pure sine wave inverter, and a UPS function module into one unit. It can also operate without a battery configured.



Hybrid Solar Storage System

This equipment, along with other power supply equipment such as photovoltaic modules, generators, utility mains, and storage batteries, constitutes an electrical system. Please consult your system integrator regarding other possible system architectures based on your requirements. The WiFi/GPRS module is a plug-and-play monitoring device that can be installed on the inverter. Using this device, users can monitor the status of the photovoltaic system anytime, anywhere via a mobile website.

- PV, utility mains, and the battery can power the load simultaneously.
- MK1200-12: MPPT range 17–115 VDC; MKH3600-22: MPPT range 40–450 VDC.
- When equipped with a WiFi module, the MKH3600-22 inverter allows remote monitoring of operating parameters.
- Features CAN/RS485 for BMS communication, facilitating management of the energy storage battery (applicable to MKH3600-22 only).
- High-frequency inverter: compact size and light weight.
- Pure sine wave AC output.
- The MKH3600-22 can operate without a battery, whereas the MK1200-12 requires a battery to function.

Technical Data

1. Utility power parameters

Item	Mode	MK1200-12	MKH3600-22	Note
Input Voltage	Main Input	L+N+PE		
	Input Voltage	230Vac		Adjustable 208/220/230/240Vac
	Input Voltage Range	90~280Vac		
	Input Low Loss	154Vac(Default)Adjustable:90~154Vac		APP/GEN mode
		185Vac(Default)Adjustable:170~200Vac		UPS mode
	Input Low Recovery	Low Loss Voltage+9V		
	Input High Loss	264Vac(Default)Adjustable:264~280Vac		APP/GEN mode
		264Vac		UPS mode
	Input High Recovery	High Loss Voltage-9V		
Input Frequency	Rated Frequency	50/60Hz		
	Frequency Low Loss /Recovery	40/43.5Hz@50Hz(UPS mode) 50/53.5Hz@60Hz(UPS mode) 40/40.5Hz@60Hz(APP/GEN mode) 50/50.5Hz@60Hz(APP/GEN mode)		
		60/56.5Hz@50Hz(UPS mode) 70/66.5Hz@60Hz(UPS mode) 70/69.5Hz@60Hz(APP/GEN mode) 70/69.5Hz@60Hz(APP/GEN mode)		
Input Current	Max. Current	10A	20A	MK1200-12: > 10A, 60s; > 12A, 10s; > 14A, 3s; > 16A, 200ms; MKH3600-22: > 20A, 60s; > 22A, 10s; > 24A, 3s; > 26A, 200ms;

Note: MK1200-12 Inverter: When the external circuit breaker rating is greater than 16A, the maximum input current is 16A. When the external circuit breaker rating is less than 16A, the maximum input current depends on the rating of the external circuit breaker.
MKH3600-22 Inverter: When the external circuit breaker rating is greater than 20A, the maximum input current is 20A. When the external circuit breaker rating is less than 20A, the maximum input current depends on the rating of the external circuit breaker.

2. Battery parameters

Item	Mode	MK1200-12	MKH3600-22	Note
Battery Information	Number of Batteries	1Pcs	2Pcs	12V/Pcs
	Automatic Start Function	Yes		
	Battery Test Function	No		
	Battery Type	AGM/FLD/LIB/FEL/CUS	AGM/FLD/LIB/CUS	
	Rated Battery Voltage	N*12V		@25°C
	Battery Management	Yes		
Battery Protection	Battery Overvoltage	15V	30.5V	
	Battery Undervoltage	10.5V*N		Adjustable:10*N~11*N
	Battery Low Voltage Alarm	10.8V*N		Adjustable:10.3*N~11.3*N
	Overcurrent Protection	Fuse		Fast Acting

Note: N=Number of batteries.

3. Charging parameters

Item	Mode	MK1200-12	MKH3600-22	Note
Charging (Utility Mode)	Charging Voltage	FV mode:13.5V; Adjustable:12~14.9V CV mode:28.2V; Adjustable:12~15V	FV mode:27V; Adjustable:26.6~27.8V CV mode:28.2V; Adjustable:8~29V	
	Temperature Compensation	No		
	Charging Current	2~50A	2~100A	Adjustable
	Default Charging Current	30A	40A	
	Charging Method	Two/Auto Adjustable	Two/Three/Auto Adjustable	Three states:CC/CV/Float Two states:CC/Float
	Charging Voltage Accuracy	±5%		Calibrated via RS232
Charging (PV Mode)	PV Charging Method	MPPT		
	Max. PV Input Power	800W	5000W	
	Max. PV Input Current	/	18A	
	Efficiency	99.5%(Max.)		
	PV voltage accuracy	/	±2%	
	MPPT	17~115Vdc	40~450Vdc	
	Min. PV Voltage	17Vdc	40Vdc	
	Max. PV Voltage	115V	500V	
	Default charging current	40A	60A	
	PV start-up voltage	/	60Vdc	MKH3600-22 Inverter: If the PV voltage is below 60V, the inverter must be connected to a battery for operation; when the PV voltage is above 60V, the inverter can operate without a battery.
	Max. charging current	100A(Max. allowable value)		Adjustable

Technical Data

4.Output parameters

Item	Mode	MK1200-12	MKH3600-22	Note
Output Power Rating	Output	L+N+PE		When the output voltage is set to 208V, the output rated power will be reduced to 90%. Adjustable:208/220/230/240Vac, Manually set via RS232 or LCD.
	Max. Output Power	1200W	3600W	
Output Voltage	Rated Voltage	230Vac		Adjustable:208/220/230/240Vac, Manually set via RS232 or LCD.
	Waveform	Sine Wave		
	Voltage Regulation	±5%		
	DC Offset	±200mV(Battery mode)		No-load and Linear load mode
Output Frequency	Rated Frequency	50/60Hz		50/60Hz Auto-Select(Default On)
	Battery Mode	50/60Hz		
	Frequency Regulation	±0.1Hz		
	Utility Mode	50Hz: (43.5~26.5)Hz(UPS mode) (40~70)Hz(APP/GEN mode) 60Hz: (53.5~66.5)Hz(UPS mode) (40~70)Hz(APP/GEN mode)		
Overload Capacity	/	10 minutes @ 102%~120% load; 1 minute @ 120%~150% load; 10 seconds @ 150%~200% load; 5 seconds @ >200% load.	1 minute @ 102%~110% load; 10 seconds @ 110%~130% load; 3 seconds @ 130%~150% load; 200 milliseconds @ > 150% load.	
Output Short Circuit Protection	Battery Mode	Current limit	Current limit	
	Utility Mode	Circuit breaker(16A)	Circuit breaker(20A)	

5.Transfer time parameters

Item	Mode	Parameters	Note
Transfer Time	Utility Mode to Battery Mode	10ms(Typical Value)	UPS mode
		10ms(Typical Value)	Appliance(APP)Mode
		MK1200-12:10ms(Typical Value) MKH3600-22:60ms(Typical Value)	Generator(GEN)Mode

6.Efficiency parameters

Item	Mode	MK1200-12	MKH3600-22	Note
Efficiency	Utility Mode	> 99%@1.2KVA	> 99.5%@3KVA > 99.5%@5KVA	Full resistive load: No battery connected.
	Battery Mode	> 90%@1.2KVA	> 92%@1KVA > 92%@2KVA > 90%@3KVA	Full resistive load
	Standby Power	< 30W	< 65W	No-load mode, battery disconnected.