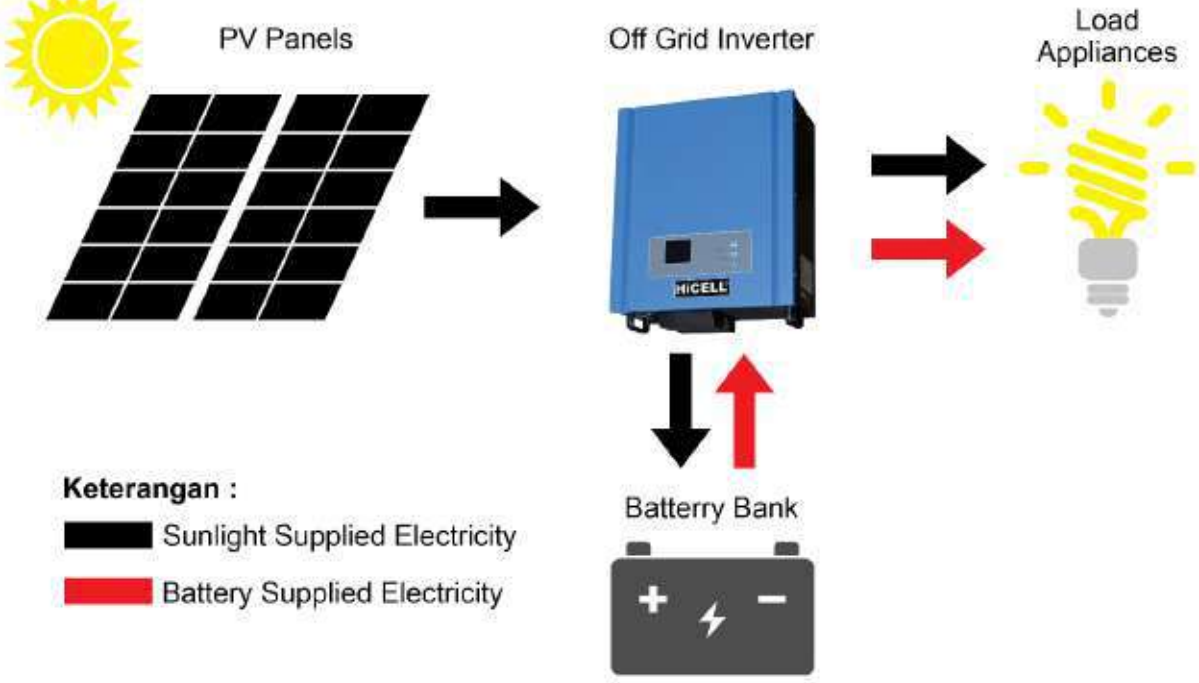
HiCELL OFFGRID (Standalone)



Cara Kerja Sistem Offgrid

1. Panel surya merubah cahaya matahari menjadi arus listrik DC.
2. Solar Charge Controller membatasi penambahan atau penarikan arus listrik dari baterai guna mencegah tegangan atau pengisian daya berlebih yang dapat mengurangi masa pakai baterai dan juga sebagai pengaman.
3. Sistem PV Offgrid menggunakan deep cycle batteries yang mampu memasok daya dalam jumlah besar baik untuk jangka waktu pendek maupun panjang.
4. Inverter mengubah arus listrik DC dari panel surya menjadi arus AC untuk dapat digunakan untuk kebutuhan sehari-hari.

OFFGRID Inverter

500W - 2000W

Features :

- ✓ High reliability: adopt high-speed DSP control system, combine advanced SPWM technology and high-speed power MOS.
- ✓ Operating mode selectable: energy storage priority or power supply priority.
- ✓ No PID attenuation damage for solar panels to ensure their service life.
- ✓ Flexible battery management system: auto switch three-stage charging mode shortens recharge time; wide charging current is selectable according to configured battery; flexible DOD (Depth of discharge) is settable to meet more applications.
- ✓ AC input with effective online synchronous stabilizing technology.
- ✓ Broad MPPT input voltage range.
- ✓ No-load auto shutdown function (optional).
- ✓ Settable frequency (50Hz / 60Hz).
- ✓ Auto Power-On/Off function; real-time monitoring, test and intelligent startup / shutdown by RS232 or USB interface communicating with PC; remote monitoring by optional SNMP networks.

Specification :

MODEL	OFI-0.5-1PH	OFI-1-1PH	OFI-3-1PH
PV INPUT			
Max. input voltage (VoC)	60 Vdc	100 Vdc	150 Vdc
Optimum operating voltage (Vmp)	16~48Vdc	33~80 Vdc	65~120 Vdc
Max. charging current	50 A	50 A	65 A
Recommended PV configuration	700 W	1400 W	3500 W
AC INPUT			
AC input range (bypass mode)	0~132 Vac / 0~264 Vac (high-end limit)		
Rated input voltage	100 Vac / 110 Vac / 115 Vac / 120 Vac or 200 Vac / 220 Vac / 230 Vac / 240 Vac ± 25% (2500 W is only for 110 Vac; 3000 W is only for 220 Vac)		
Rated input frequency	50 Hz / 60 Hz ± 5% / 10% / 15% (settable)		
Max. charging current	20 A		30 A

MODEL		OFI-0.5-1PH	OFI-1-1PH	OFI-3-1PH
INVERTER OUTPUT				
Output voltage		100 Vac / 110 Vac / 115 Vac / 120 Vac ± 2% or 200 Vac / 220 Vac / 230 Vac / 240 Vac ± 2% (settable) (2500 W is only for 110 Vac; 3000 W is only for 220 Vac)		
Rated output power		500 W	1000 W	3000 W
Power factor		1	1	1
Rated output frequency		50 Hz / 60 Hz ± 1% (inverter mode)		
Waveform		Sinusoidal		
Max. efficiency (resistive load)		≥ 78 %	≥ 82 %	≥ 85 %
Sleep mode		Settable (< 3% load) access in ≤ 2min		
Output voltage harmonic		≤ 3% (linear load)		
BATTERIES				
Battery voltage		12 Vdc	24 Vdc	48 Vdc
Battery type		VRLA battery (default)		
Charging current		5~50 A (settable)		5~65 A (settable)
DOD	Settable	10.5~13.2 Vdc	21~26.4 Vdc	42~52.8 Vdc
	Default	12 Vdc	24 Vdc	48 Vdc
EOD	Settable	9.6~12 Vdc	19.2~24 Vdc	38.4~48 Vdc
	Default	10.5 Vdc (default)	21 Vdc	42 Vdc
Equalizing	Settable	13.8~15 Vdc	27.6~30 Vdc	55.2~60 Vdc
charge voltage	Default	14.1 Vdc	28.2 Vdc	56.4 Vdc
Floating	Settable	13.2~13.8 Vdc	26.4~27.6 Vdc	52.8~55.2 Vdc
charge voltage	Default	13.6 Vdc	27.2 Vdc	54.5 Vdc
Restoration point of overvoltage		15.5 Vdc	31 Vdc	62 Vdc
OTHERS				
Transfer time		3~6 ms (typical); ≤ 10 ms (max.)		
Overload (linear load)		110% for 2 min, 125% for 1 min, 150% for 10s, 180% for 1s		
ECO mode (optional)		Load < 3% (settable, Yes / No settable)		
No-load shutdown (optional)		Load < 3%~50%, Yes / No settable		
Load adaptation		Inductive load: ≤ 30%; capacitive load: ≤ 50%; resistive load: ≤ 100%		
Protections		Output overload - short- circuit - overdischarge - overcharge - battery reverse polarity		
		- PV reverse polarity		
Lightning protection		Class III		
Communications		RS232 / USB / RS485 ; SNMP / Wi-Fi / GPRS (optional)		
Standards		IEC62040, IEC / EN 61000		
IP rating		IP21		
Display		LCD & LED		
Operating temperature		0° ~40°C		
Relative humidity		≤ 93%		
Noise		< 50 dB		
Dimensions (WxDxH) (mm)		365.5 x 442 x 210		
Packaged dimensions (WxDxH) (mm)		455 x 520 x 283		
Net weight (kg)		16.6	19.5	38.5
Gross weight (kg)		18.1	21	40

Note : Model, varian dan spesifikasi dapat berubah sewaktu-waktu tanpa pemberitahuan.

Deep Cycle Gel Battery

100Ah - 200Ah

Deep Cycle Gel Battery uses the seated gel technology and is designed for high reliable, maintenance-free power for renewable energy applications. Depending on the advantage gel technology, optimum grid and plate design, the HiCELL gel battery offers highest power and reliability for your equipments.

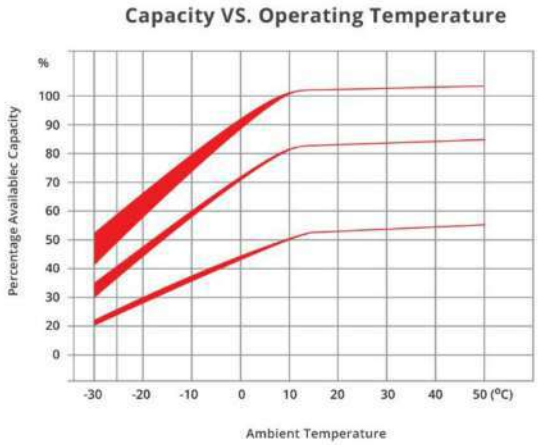
APPLICATION :

- ✓ Electric Powered Vehicles
- ✓ Golf cars
- ✓ Commercial deep cycle applications
- ✓ Power plant
- ✓ UPS system
- ✓ Water Pumpling
- ✓ Wind Generation
- ✓ Cathodic Protection
- ✓ Communications
- ✓ Solar System

DISCHARGE & CYCLING ABILITY

Battery discharge capacity and cyclic life are depended on the depth of discharge (DOD), and the ambient temperature.

The HiCELL gelled battery is designed to the "acid limited. "This means that the power in the acid is used before the power in the plates. This design prevents the plates from ultra-deep discharges. Ultra-deep discharging is what causes life-shorting plates shedding and accelerates positive grid corrosion which destroy a battery.



CAPACITY VS OPERATING TEMPERATURES:

shown are the changes in capacity for a wider ambient temperature range, giving the available capacity, as a percentage of the rated capacity, at different ambient temperatures, for 3 different load examples, with uninterrupted discharge to the appropriate discharge cut-off voltage.

The values for the upper edge of the curves were obtained from charging at an ambient temperature of +20°C with a voltage limit to 2.30V/Cell. For the lower edge, charging was carried out at the specified ambient temperature. The curves show the behavior of battery after a number of cycle.

SPECIFICATION :

Model	Voltage (V)	Capacity (Ah)	Internal Resistance (M)	Dimensions								Terminal		Weight (Kg)
				Length		Width		Height		Total Height				
				mm	in	mm	in	mm	in	mm	in	Type	Position	
Hi-12100-V	12	100	5	330	13	171	6.7	214	8.4	220	8.7	T9	C	32
Hi-12150-V	12	150	4.2	485	19	172	6.8	240	9.4	240	9.4	T11	C	44
Hi-12200-V	12	200	3.3	522	21	238	9.4	222	8.7	222	8.7	T11	E	66

Note : Model, varian dan spesifikasi dapat berubah sewaktu-waktu tanpa pemberitahuan.

Lithium Battery

Lithium Iron Phosphate (LiFePO4)

BMS Specification

- ✓ Overcharge detection function
- ✓ Discharge detection function
- ✓ Current detection function
- ✓ Temperature protection
- ✓ Short detection function
- ✓ Balance function

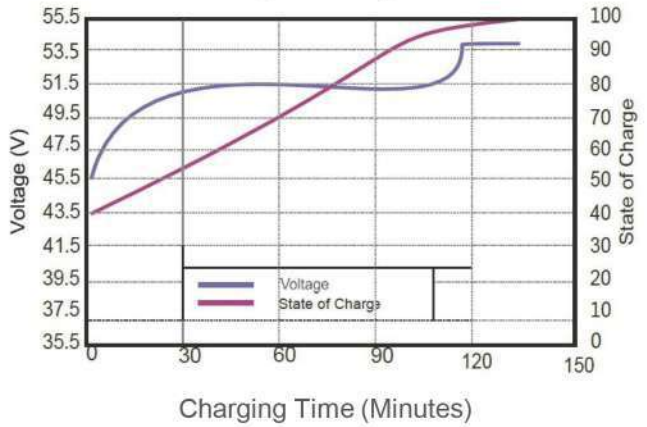
Features of LiFePO4 battery

- ✓ **Longer Cycle Life:** Offers up to 10times longer cycle life and five times longer float /calendar life than lead acid battery, helping to minimize replacement cost and reduce total cost of ownership.
- ✓ **Lighter Weight:** About 40% of the weight of a comparable lead acid battery. A 'drop in' replacement for lead acid batteries.
- ✓ **Higher Power:** Delivers twice power of lead acid battery, even high discharge rate, while maintaining high energy capacity.
- ✓ **Wider Temperature Range:** -20℃~60℃.
- ✓ **Superior Safety:** Lithium Iron Phosphate chemistry eliminates the risk of explosion or combustion due to high impact, overcharging or short circuit situation.
- ✓ **Increased Flexibility:** Modular Design enables deployment of up to 15 batteries in parallel.

Electrical Characteristics	Nominal Voltage	48V
	Nominal Capacity	50Ah
	Energy	2400Wh
	Internal Resistance	< 90m Ω
	Cycle Life	>2000 cycles @0.2C & 25°C 100% DOD
	Design life	3 years
	Months Self Discharge	<3%
	Efficiency of Charge	100%@0.2C
	Efficiency of Discharge	96~99%@0.5C
Standard Charge	Charge Voltage	54V
	Standard Charge Current	10A
	Max. Continuous Charge Current	50A
	Charge Cut-off Voltage	55.5V
Standard Discharge	Discharge Cut-off Voltage	40V
	Standard Discharge Current	1 0A
	Max. Continuous Discharge Current	50A
Environmental	Charge Temperature	0°C to 50°C @60±25% Relative Humidity
	Discharge Temperature	-20°C to 60°C @60±25% Relative Humidity
	Storage Temperature	0°C to 40°C @60±25% Relative Humidity
	Water Dust Resistance	IP30
Mechanical	Cell & Method	15S1 P
	Shell material	Iron (SPCC)
	Dimensions (mm)	442*400*135nnnn
	Weight (Kg) per blocks	Approx. 32kg
	Weight (Kg) per box (battery packing)	Approx. 33kg
	Gravimetric specific energy	75WH/KG
	Protocol	Double RS485/RS232
	SOC	LED
Certificates	CE, UN38.3, MSDS, etc	

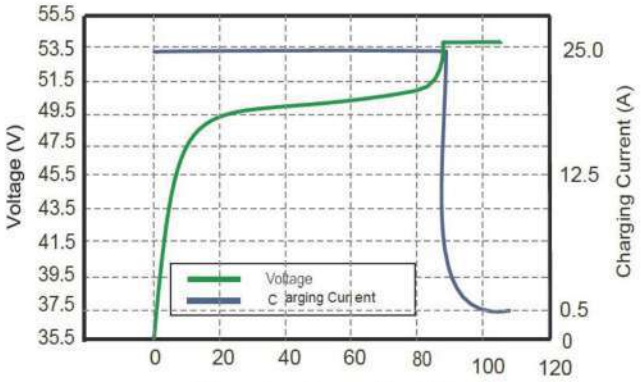
State of Charge Curve

State of Charge Curve @0.5℃~25℃



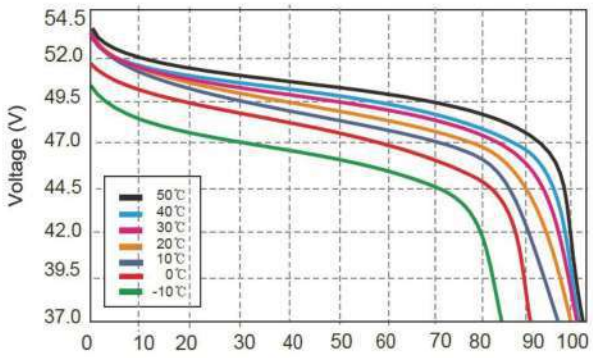
Charging Characteristics

Charging Characteristics @0.5℃~25℃



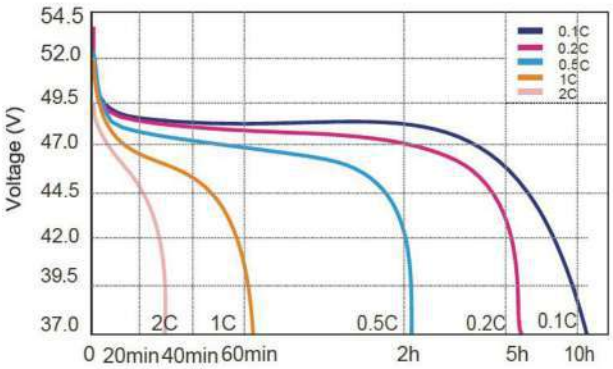
Different Temperature Discharge Curve

Different Temperature Discharge Curve @0.5℃



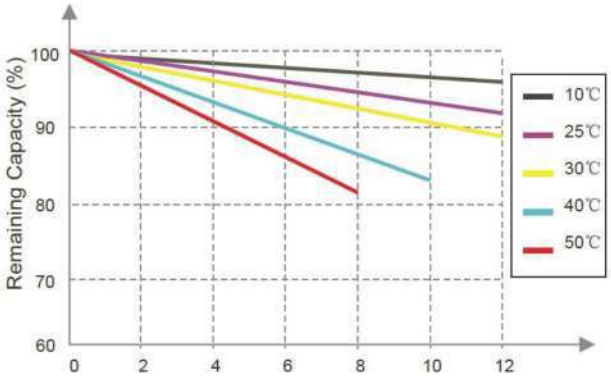
Different Rate Discharge Curve

Different Rate Discharge Curve @25℃



Self Discharge Characteristics Curve

Different Temperature Self Discharge Curve



Cycle Life Curve

Different DOD Discharge Cycle Life Curve @0.2℃