

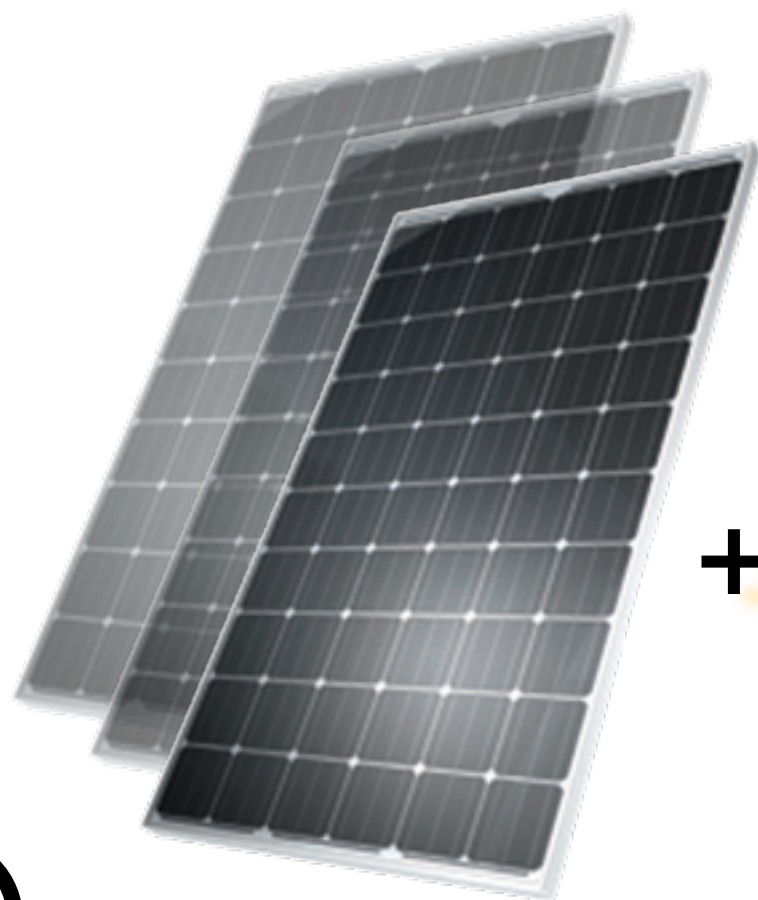
**iKUBE**

**K50**

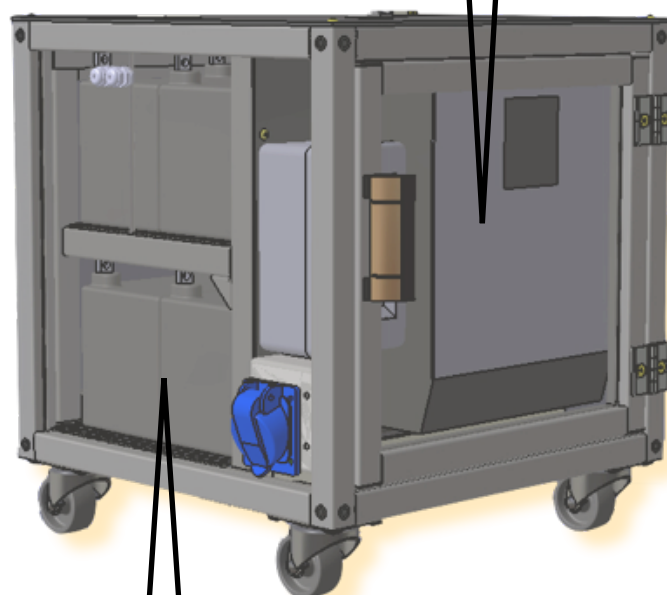
**Technical Sheet**

1

*Photovoltaic Modules*



+



2

*Inverter + Charge Controller*



3

*Battery Pack*

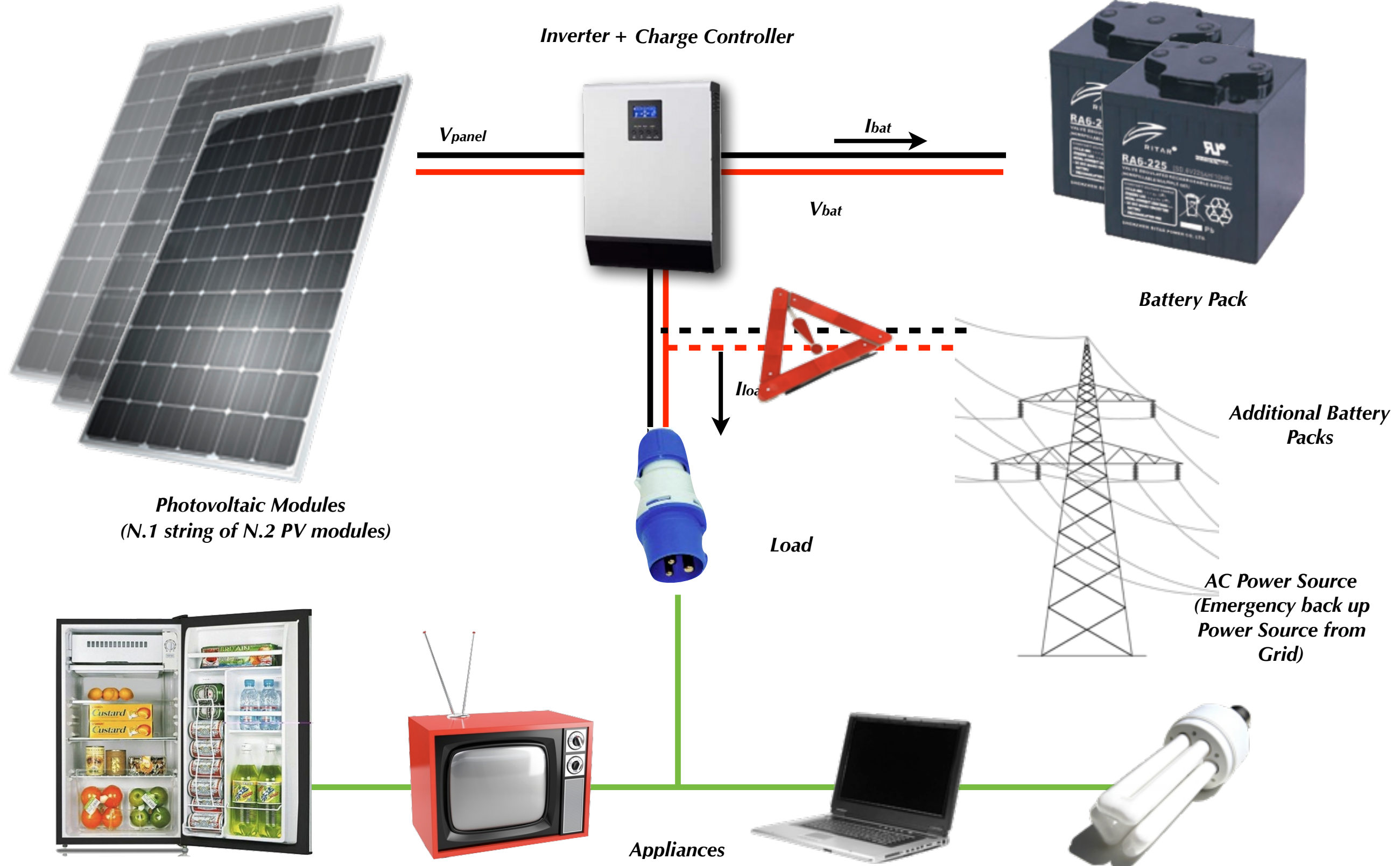


**iKUBE**  
**K50**

● **Stand Alone Technical Sheet**

- Electric Diagram
- Technical Characteristics
- Contacts

# K50: Electric Diagram





# K50: Technical Characteristics

## PV Modules



**x 2**

**500 Wp !**

### ELECTRICAL DATA @ STC

Peak Power Watts- $P_{MAX}$ (Wp)	250
Power Output Tolerance- $P_{MAX}$ (%)	0/+3
Maximum Power Voltage- $V_{MP}$ (V)	30.3
Maximum Power Current- $I_{MPP}$ (A)	8.27
Open Circuit Voltage- $V_{OC}$ (V)	37.6
Short Circuit Current- $I_{SC}$ (A)	8.85
Module Efficiency $\eta_m$ (%)	15.3

Values at Standard Test Conditions STC (Air Mass AM1.5, Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25°C).  
Power measurement tolerance:  $\pm 3\%$

### ELECTRICAL DATA @ NOCT

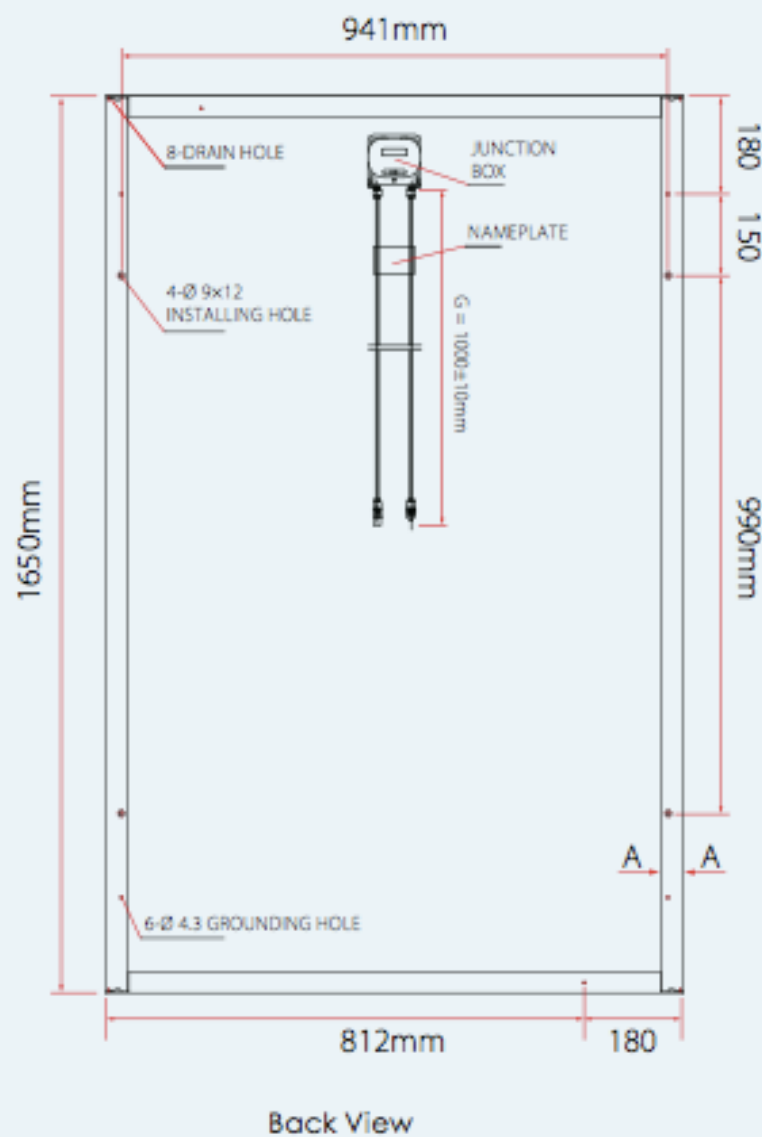
Maximum Power- $P_{MAX}$ (Wp)	181
Maximum Power Voltage- $V_{MP}$ (V)	27.0
Maximum Power Current- $I_{MPP}$ (A)	6.70
Open Circuit Voltage (V)- $V_{OC}$ (V)	34.3
Short Circuit Current (A)- $I_{SC}$ (A)	7.25

NOCT: Irradiance at 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s.  
Power measurement tolerance:  $\pm 3\%$

# K50: Technical Characteristics

## PV Modules

### DIMENSIONS OF PV MODULE TSM-PC/PA 05



### TEMPERATURE RATINGS

Nominal Operating Cell Temperature (NOCT)	46°C (±2°C)
Temperature Coefficient of $P_{MAX}$	- 0.43%/°C
Temperature Coefficient of $V_{OC}$	- 0.32%/°C
Temperature Coefficient of $I_{SC}$	0.047%/°C

### WARRANTY

10 year workmanship warranty  
 25 year linear performance warranty  
 (Please refer to product warranty for details)

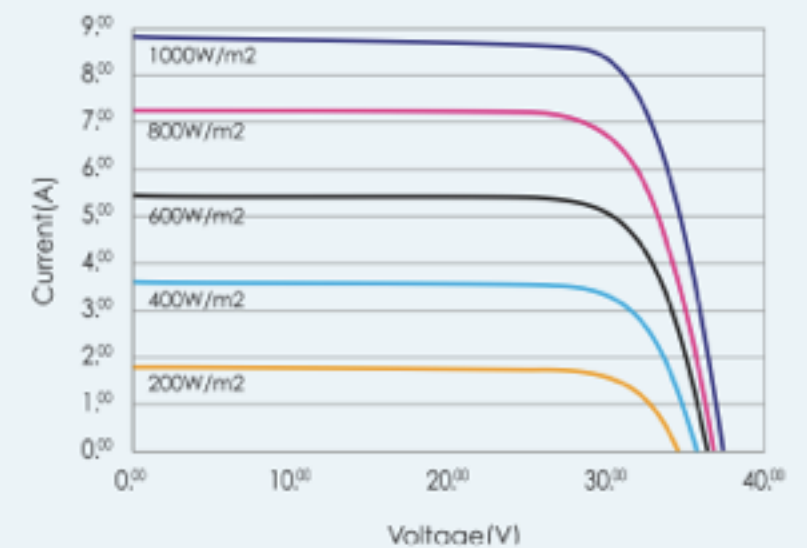
### PACKAGING CONFIGURATION

Modules per box: 25 pcs  
 Modules per 40' container: 650 pcs

### MAXIMUM RATINGS

Operational Temperature	-40~+85°C
Maximum System Voltage	1000V DC(IEC)/ 600V DC(UL)
Max Series Fuse Rating	15A

### I-V CURVES OF PV MODULE TSM-230 PC/PA 05



Average efficiency reduction of 4.5% at 200W/m² according to EN 60904-1.

### CERTIFICATION



# K50: Technical Characteristics

## Inverter



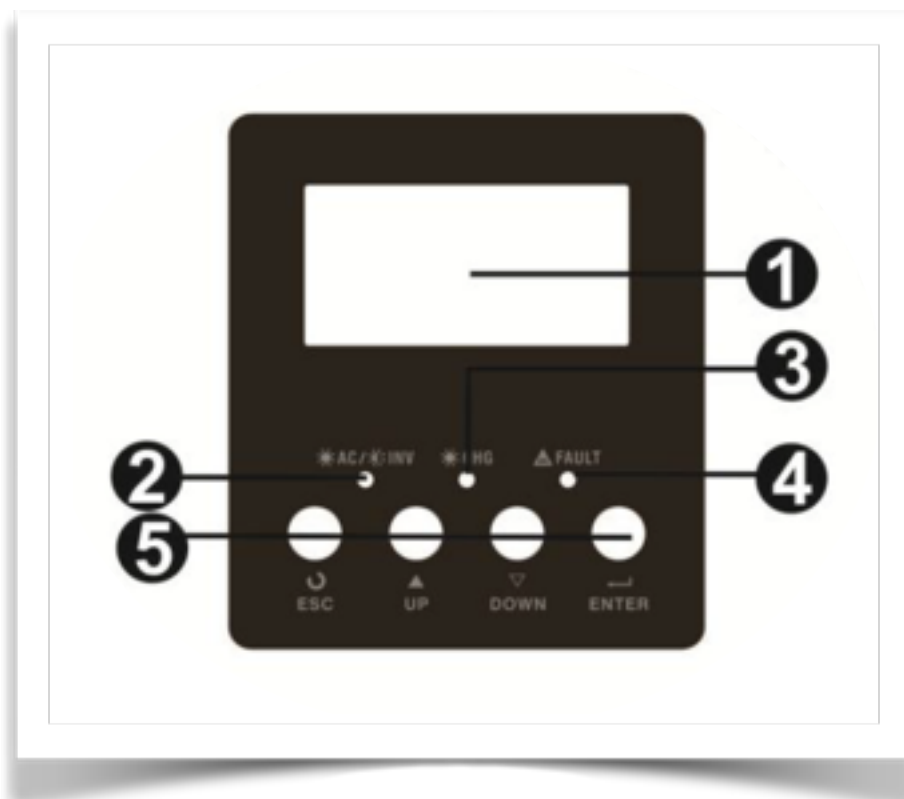
- Pure sine wave inverter
- Built-in MPPT solar charge controller
- Selectable input voltage range for home appliances and personal computers
- Selectable charging current based on applications
- Configurable AC/Solar input priority via LCD setting
- Compatible to mains voltage or generator power
- Auto restart while AC is recovering
- Overload and short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start function

<b>RATED POWER</b>	<b>1000VA/800W</b>
<b>INPUT</b>	
<b>Voltage</b>	230 VAC
<b>Selectable Voltage Range</b>	170-280 VAC (For Personal Computers) ; 90-280 VAC (For Home Appliances)
<b>Frequency Range</b>	50 Hz/60 Hz (Auto sensing)
<b>OUTPUT</b>	
<b>AC Voltage Regulation (Batt. Mode)</b>	230VAC $\pm$ 5 %
<b>Surge Power</b>	2000VA
<b>Efficiency (Peak)</b>	90%
<b>Transfer Time</b>	10 ms (For Personal Computers); 20 ms (For Home Appliances)
<b>Waveform</b>	Pure sine wave
<b>BATTERY &amp; AC CHARGER</b>	
<b>Battery Voltage</b>	24 VDC
<b>Floating Charge Voltage</b>	27 VDC
<b>Overcharge Protection</b>	31 VDC
<b>Maximum Charge Current</b>	25 A
<b>SOLAR CHARGER</b>	
<b>Maximum PV Array Power</b>	600 W
<b>MPPT Range @ Operating Voltage</b>	30VDC ~66VDC
<b>Maximum PV Array Open Circuit V</b>	755VDC
<b>Maximum Charging Current</b>	20A
<b>Maximum Efficiency</b>	98%
<b>Standby Power Consumption</b>	2 W
<b>PHYSICAL</b>	
<b>Dimension, D x W x H (mm)</b>	100 x 272 x 355
<b>Net Weight (kgs)</b>	6.8
<b>OPERATING ENVIRONMENT</b>	
<b>Humidity</b>	5% to 95% Relative Humidity(Non-condensing)
<b>Operating Temperature</b>	0°C - 55°C
<b>Storage Temperature</b>	-15°C - 60°C

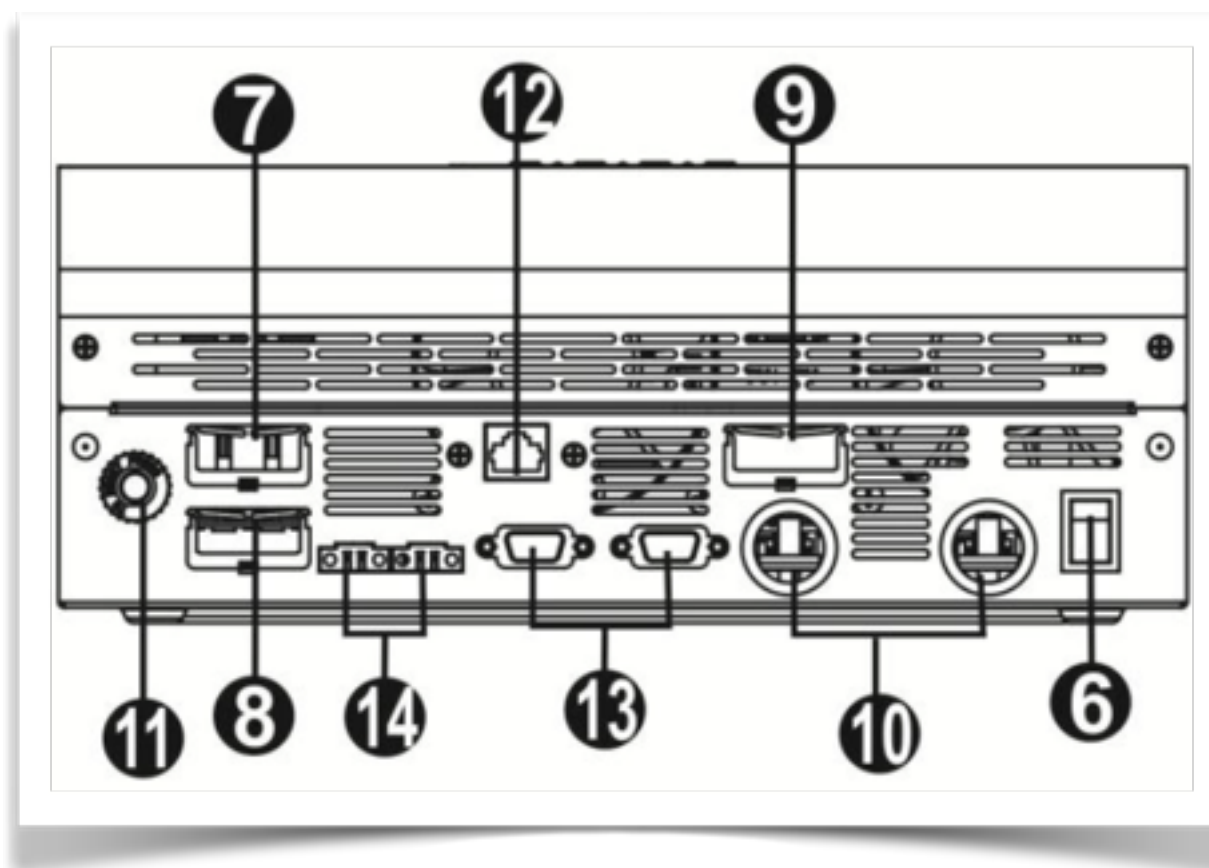
# K50: Technical Characteristics

## Inverter

### Overview



1. LCD display
2. Status indicator
3. Charging indicator
4. Fault indicator
5. Function buttons
6. Power on/off switch
7. AC input



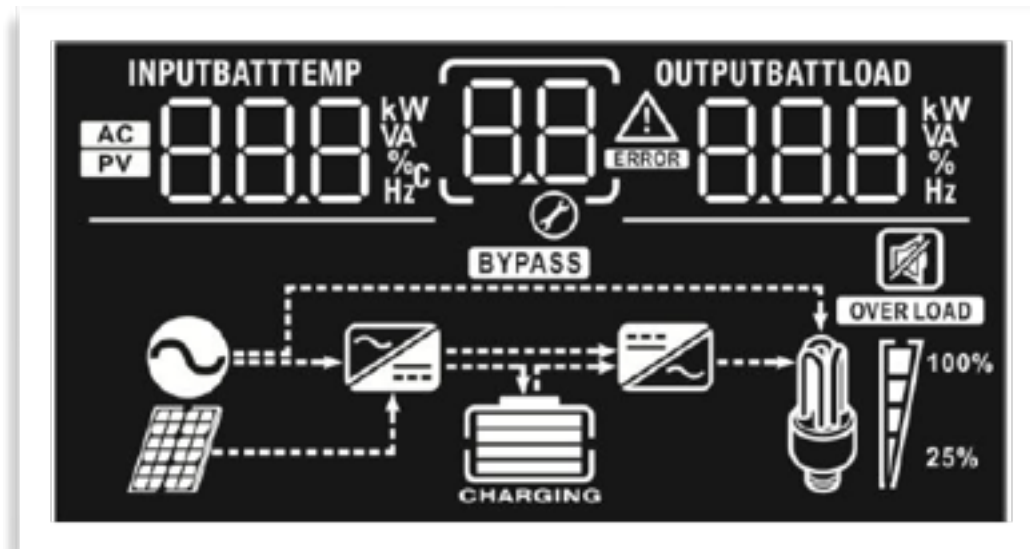
8. AC output
9. PV input
10. Battery input
11. Circuit breaker
12. RS232 communication port
13. Parallel communication cable (only for parallel model)
14. Current sharing cable (only for parallel model)
























# K50: Technical Characteristics

## Inverter

### LCD Information



Load Information				
		Indicates overload.		
	Indicates the load level by 0-24%, 25-50%, 50-74% and 75-100%.			
	0%~25%	25%~50%	50%~75%	75%~100%
				
Mode Operation Information				
		Indicates unit connects to the mains.		
		Indicates unit connects to the PV panel.		
		Indicates load is supplied by utility power.		
		Indicates the utility charger circuit is working.		
		Indicates the DC/AC inverter circuit is working.		
Mute Operation				
		Indicates unit alarm is disabled.		

Icon	Function description	
Input Source Information		
	Indicates the AC input.	
	Indicates the PV input	
	Indicate input voltage, input frequency, PV voltage, battery voltage and charger current.	
Configuration Program and Fault Information		
	Indicates the setting programs.	
	Indicates the warning and fault codes.	
	Warning:	 flashing with warning code.
	Fault:	 lighting with fault code
Output Information		
	Indicate output voltage, output frequency, load percent, load in VA and load in Watt.	
Battery Information		
	Indicates battery level by 0-24%, 25-49%, 50-74% and 75-100% in battery mode and charging status in line mode.	
In AC mode, it will present battery charging status.		
Status	Battery voltage	LCD Display
Constant Current mode / Constant Voltage mode	<2V/cell	4 bars will flash in turns.
	2 ~ 2.083V/cell	Bottom bar will be on and the other three bars will flash in turns.
	2.083 ~ 2.167V/cell	Bottom two bars will be on and the other two bars will flash in turns.
	> 2.167 V/cell	Bottom three bars will be on and the top bar will flash.
Floating mode. Batteries are fully charged.		4 bars will be on.



# K50: Technical Characteristics

## Battery Pack

DC 145 Ah C10 12V



x 2

### AGM Technology

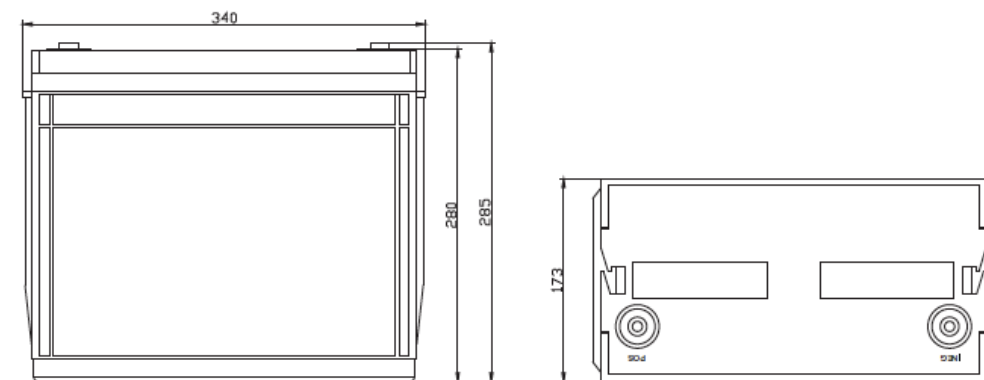
A key feature of AGM batteries is the phenomenon of internal gas recombination.

As a charging lead-acid battery nears full state of charge, hydrogen and oxygen gasses are produced by the reactions at the negative and positive plates, respectively.

In a flooded battery, these gasses escape from the battery through the vents, thus requiring periodic water additions.

In an AGM battery the excellent ion transport properties of the liquid electrolyte held suspended in the glass mats, the oxygen molecules can migrate from the positive plate and recombine with the slowly evolving hydrogen at the negative plate and form water again. Under conditions of controlled charging, the pressure relief vents in AGM batteries are designed to remain closed, preventing the release of any gasses and water loss.

Unit: mm Dimension: 340(L)×173(W)×280(H)

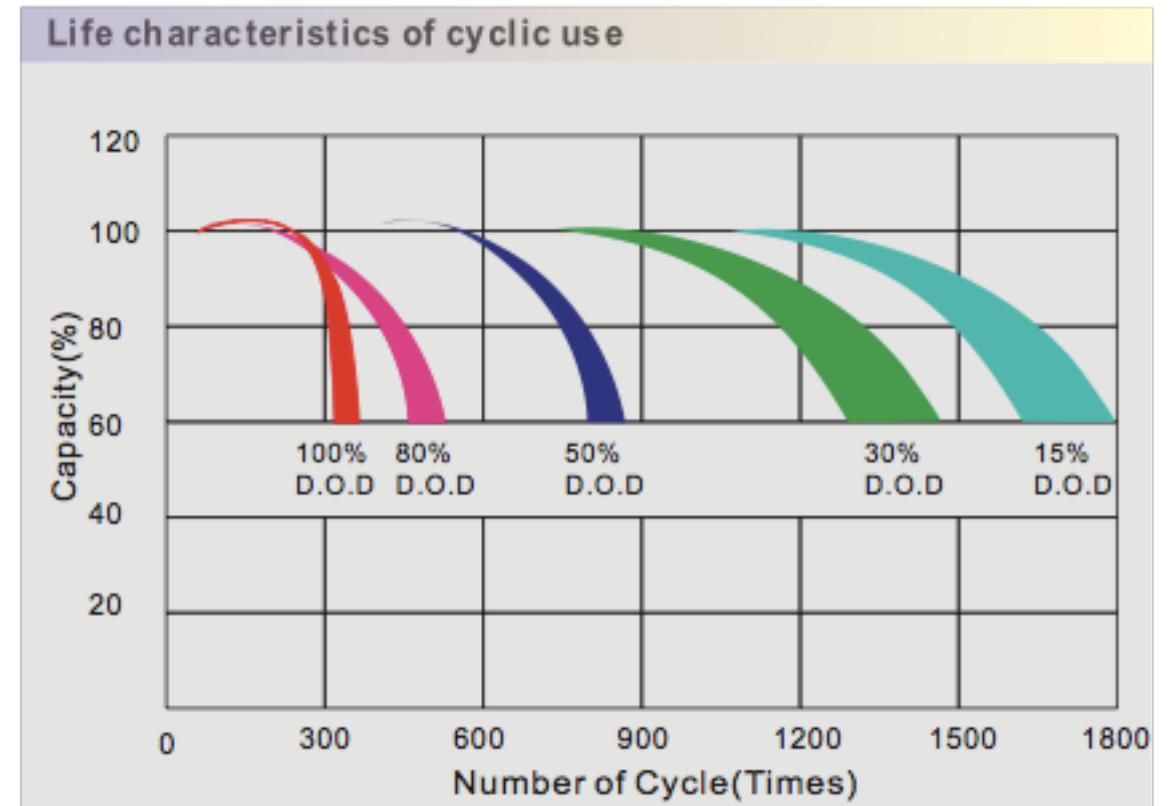
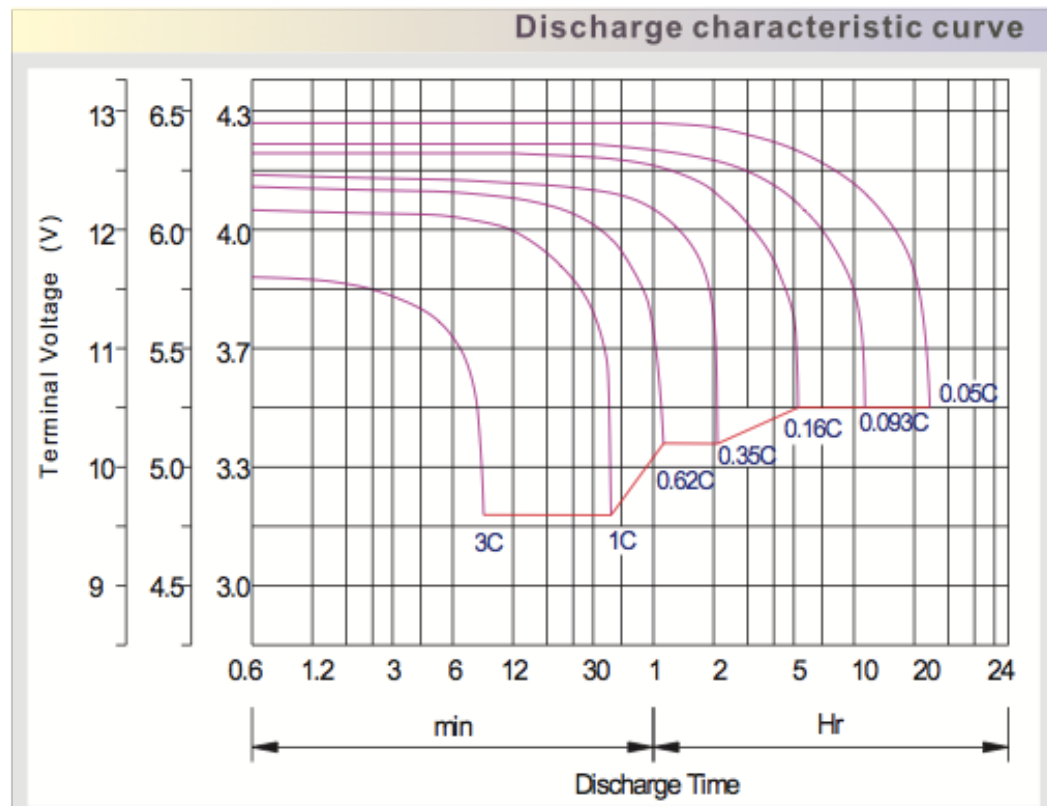


<b>Cells Per Unit</b>	6
<b>Voltage Per Unit</b>	12
<b>Capacity</b>	145Ah@10hr-rate to 1.80V per cell @25°C
<b>Weight</b>	Approx. 44.0 Kg (Tolerance ± 1.5%)
<b>Max. Discharge Current</b>	1450 A (5 sec)
<b>Internal Resistance</b>	Approx. 4 mΩ
<b>Operating Temperature Range</b>	Discharge: -20°C~60°C Charge: 0°C~50°C Storage: -20°C~60°C
<b>Normal Operating Temperature Range</b>	25°C ± 5°C
<b>Float charging Voltage</b>	13.6 to 13.8 VDC/unit Average at 25°C
<b>Recommended Maximum Charging Current Limit</b>	43.5 A
<b>Equalization and Cycle Service</b>	14.6 to 14.8 VDC/unit Average at 25°C
<b>Self Discharge</b>	RITAR Valve Regulated Lead Acid (VRLA) batteries can be stored for more than 6 months at 25°C. Self-discharge ratio less than 3% per month at 25°C. Please charge batteries before using.
<b>Terminal</b>	Terminal F5/F12
<b>Container Material</b>	A.B.S. UL94-HB, UL94-V0 Optional.

# K50: Technical Characteristics

## Battery Pack

### *Discharge & Duration*



### **Capacity Factors With Different Temperature**

Battery Type		-20℃	-10℃	0℃	5℃	10℃	20℃	25℃	30℃	40℃	45℃
GEL Battery	6V&12V	50%	70%	83%	85%	90%	98%	100%	102%	104%	105%
	2V	60%	75%	85%	88%	92%	99%	100%	103%	105%	106%
AGM Battery	6V&12V	46%	66%	76%	83%	90%	98%	100%	103%	107%	109%
	2V	55%	70%	80%	85%	92%	99%	100%	104%	108%	110%

# ***K50: Technical Characteristics***

## **Battery Pack**

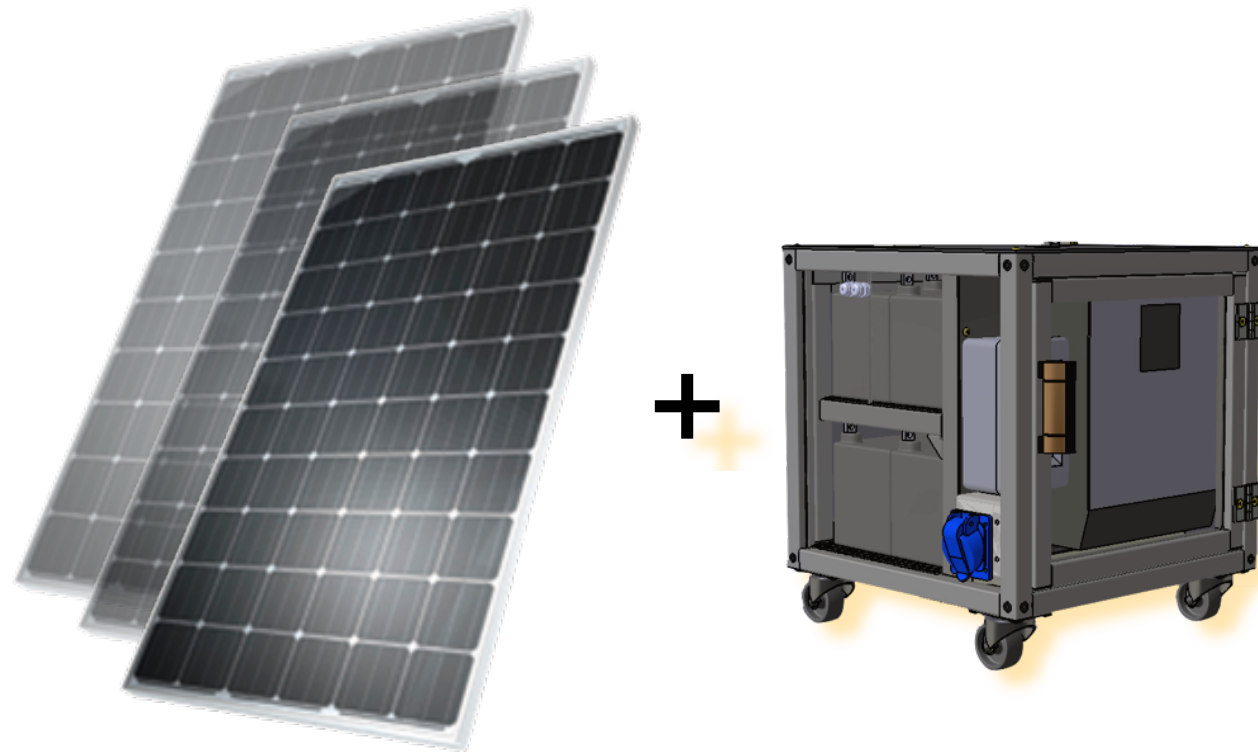
<b><i>Power (W)</i></b>	<b><i>Remaining Hours</i></b>
50	95,7
100	40,6
150	24,6
300	10,4
500	5,5
800	3,1
1500	-

**The above Datas are referred to the standard battery pack contained in the iKube.**



## ***K50: Technical Characteristics***

### **iKUBE K50**



Inverter Power	800 W
Box Dimensions	0,50x0,50x0,56 m
Box Weight	110 Kg
Battery Pack	24V 145 Ah
Generator Power	500 Wp
N. PV Modules	2

Product specifications are subject to change without further notice.

# CONTACTS

Company:

**PRO D3 Srl**

Address:

**Via Ho Chi Min 12 – 60022 Castelfidardo  
(Ancona) - Italy**

Email:

**info@ikube.it**

Web:

**www.ikube.it**

## Business Partner



**ANCONA**

**ITALIA**

**IT** 