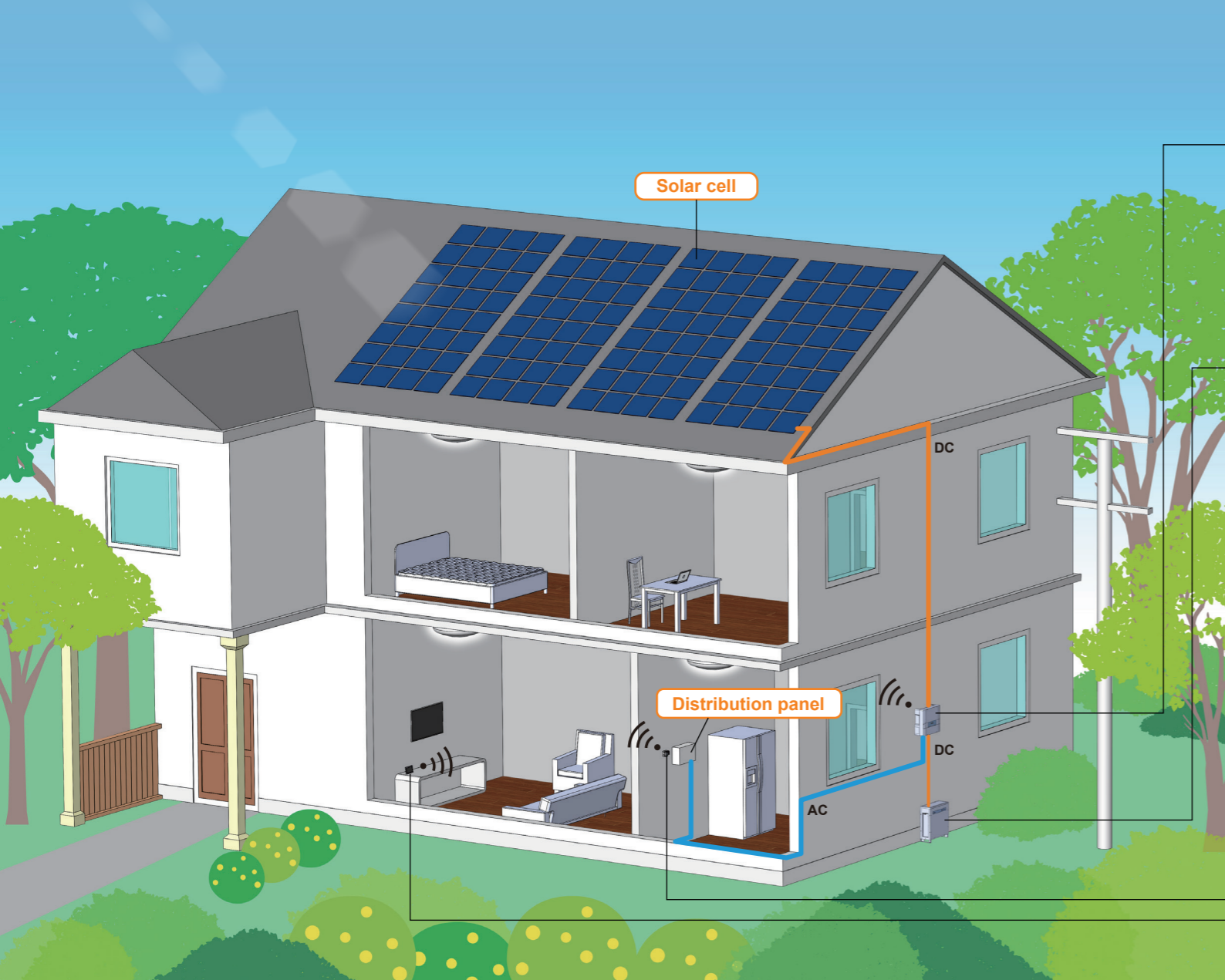




Hybrid Energy Storage System

- Hybrid inverter Model : E5
- 6.0 kWh Li-ion Battery Model : BX_6.0
- Smart monitor Model : R4
- Power meter Model : P1E / P3E

Benefit from solar power even after sunset



Hybrid inverter

The hybrid inverter can power household loads. The rest power can charge to battery or feed-in to grid. At nighttime, it can adjust electricity and make it possible to charge battery from grid.



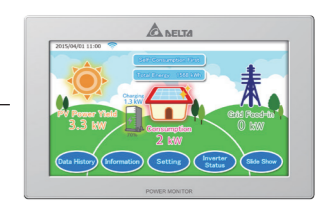
Battery

6 kWh high capacity Li-ion battery can provide power and by storing solar energy at daytime for nighttime use.



Power meter

Smart meter can calculate power consumption and feed-in to grid. It also can calculate how much power purchased from utility company at daytime and nighttime.



Smart monitor

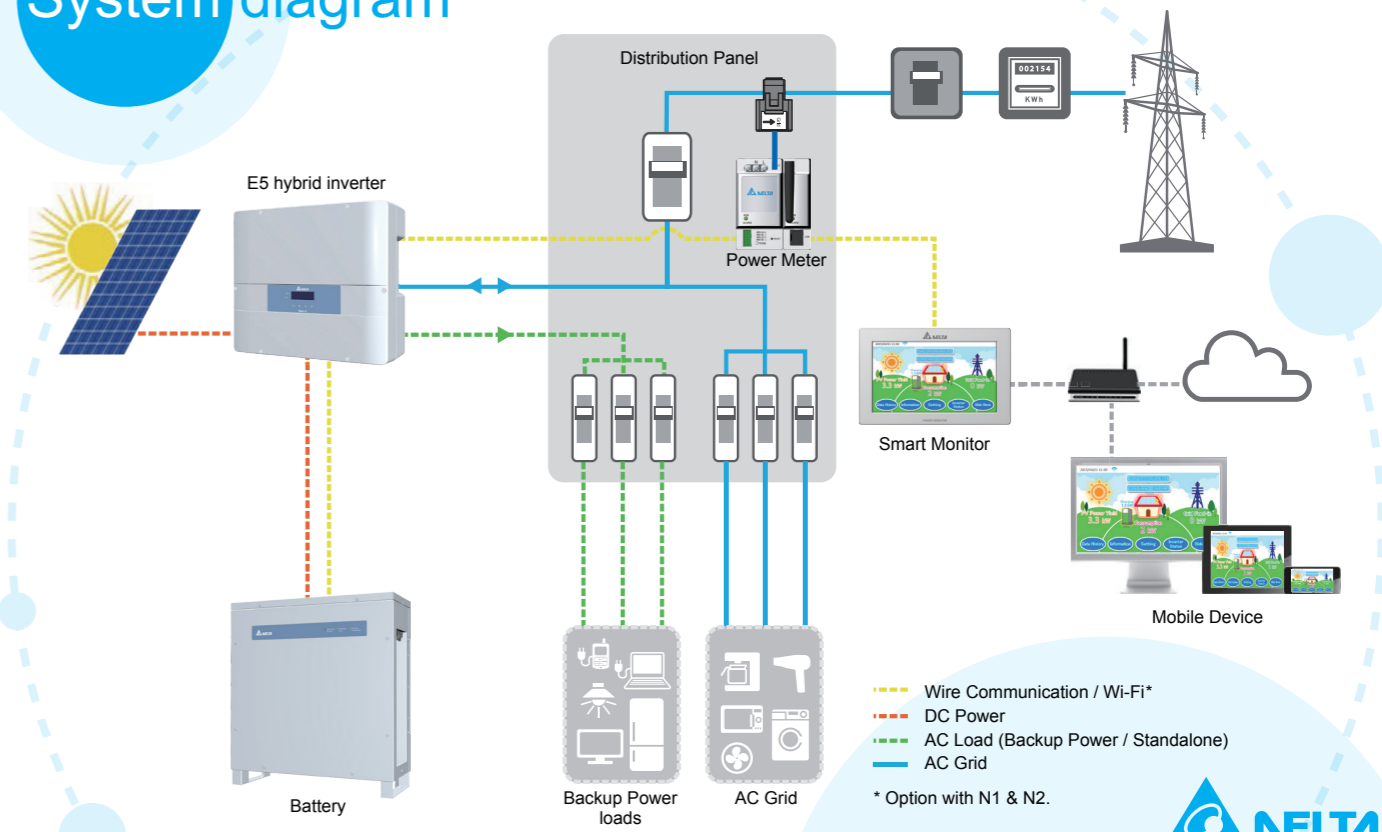
Owner can simply read power produced, power consumption and convert and control to different operation modes via smart monitor.

The Hybrid E5 energy storage system is composed of the single phase E5 hybrid inverter as well as an external battery cabinet equipped with a 6 kWh Li-ion battery, a power meter and smart monitor. The Hybrid E5 storage system is designed for new PV systems and features a high charging efficiency up to 97%. This is made possible since the E5 inverter can send DC electricity generated by the PV system directly to the battery, without additional power conversion steps or equipment needed. Because the E5 inverter and battery cabinet ship as two separate compact pieces in the system, greater flexibility and simplified installation of the equipment are an added benefit. The power meter monitors energy flow and sends the data back to the smart monitor, the intelligence in the system.

Key features include

- Wide input range (100-550Vdc)
- IP65 protective level (BX_6.0: IP55)
- Natural cooling design
- Power Rating : 5 kVA
- Maximum efficiency : > 97.2 %(PV to AC) / > 95%(BT to AC)
- Europe efficiency: 97.0%
- Reactive power capability (Cap 0.8 – Ind 0.8)
- Back up function
- PV standalone function
- 6000cycle used
- Manual bypass function

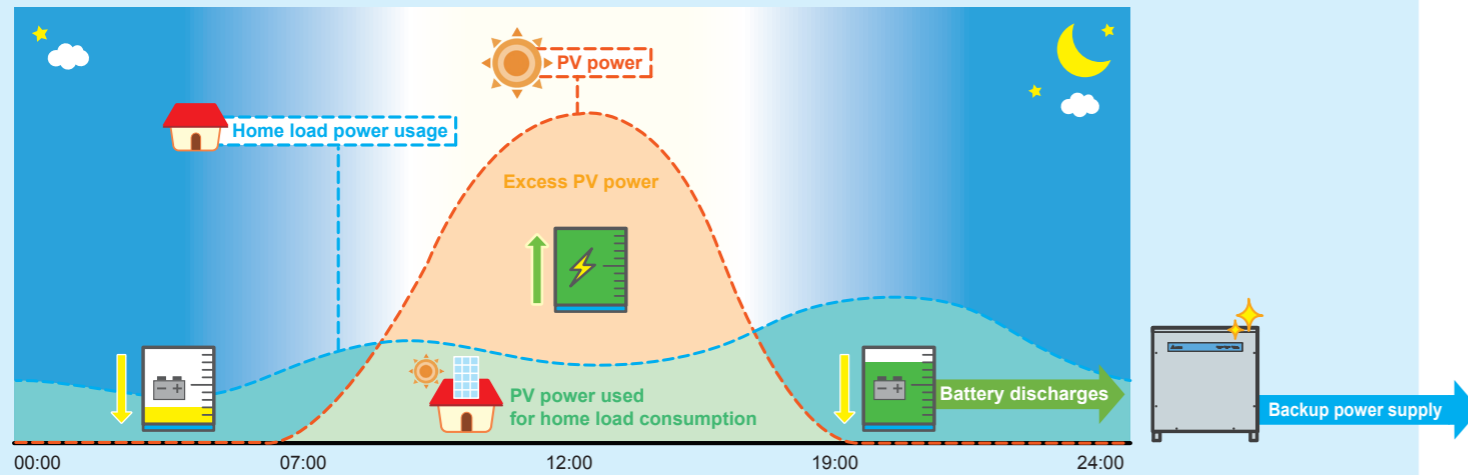
System diagram



Maximized energy application

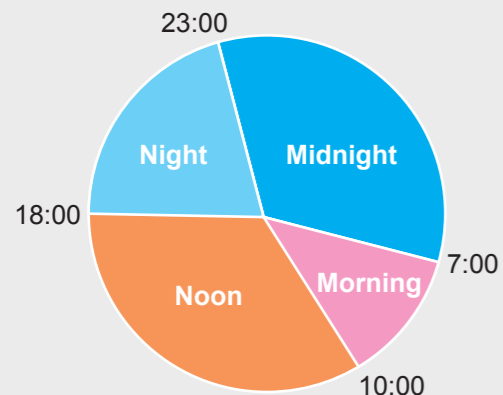
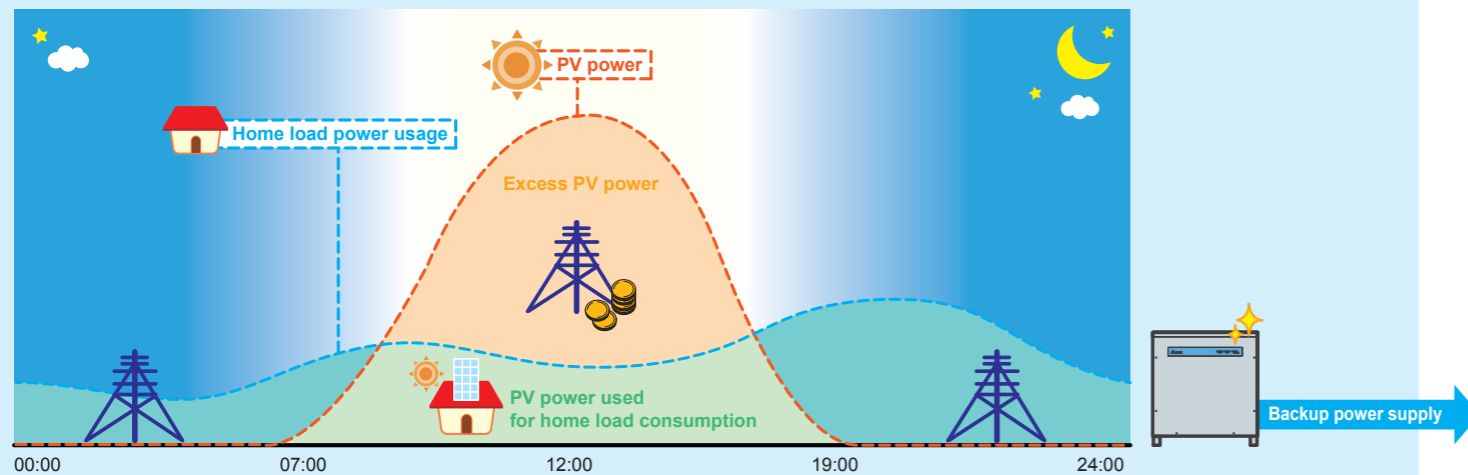
Self-consumption mode

The Hybrid E5 from Delta allows its owners to maximize the use of self-generated clean solar energy. By storing solar energy during the day for later use, the Hybrid E5 can power household loads into the evening and nighttime. The result is a much larger self-consumption rate and a significant decrease of the monthly spending on grid electricity.



Selling-first mode

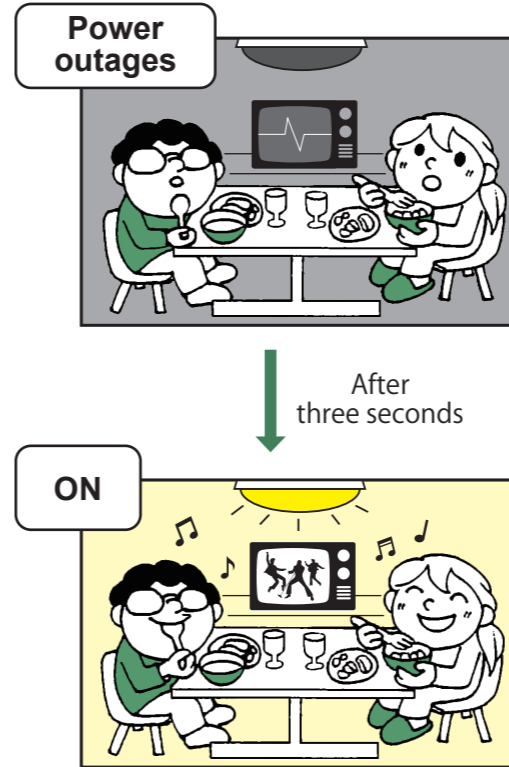
The E5 system is mainly used for feed-in surplus energy produced from PV panel, while battery power offers an independent backup electricity supply when power outage occurs. Owner can adjust charge or discharge time duration through Time Settings in order that battery can be charged from PV panel or the household load can be supplied from battery for indicated time duration.



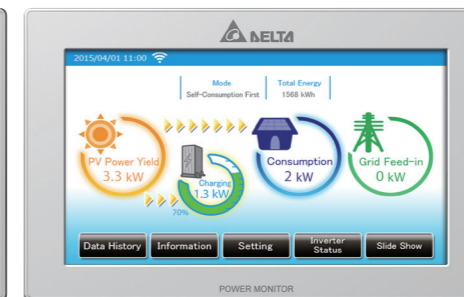
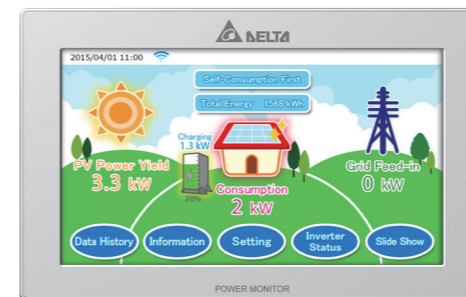
Both Monitor and Display provide time setting for purchasing and feeding in energy. Even Monitor is no installed, it's also convenient for user to operate.

Backup power supply

The stand-alone feature of the Hybrid E5 inverter allows the owner to use their battery to power critical loads when the grid is not available. A standalone button on the inverter when engaged after a downed grid incident will allow your critical loads to be powered off of the Hybrid E5 battery. This is a benefit in regions where grid power is not always reliable or for occasional power outages when you need your critical loads (refrigerator or lighting) to remain active until the grid power comes back on.



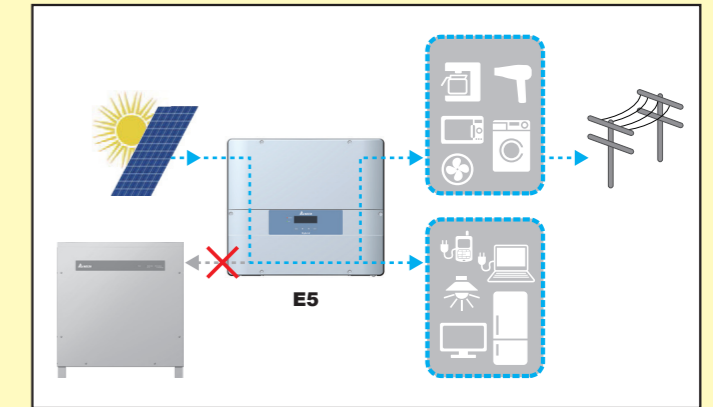
Smart monitor



Smart energy monitor to control and optimize the system and the power usage of the owner. It provides all power consumption and battery status data to the user online.

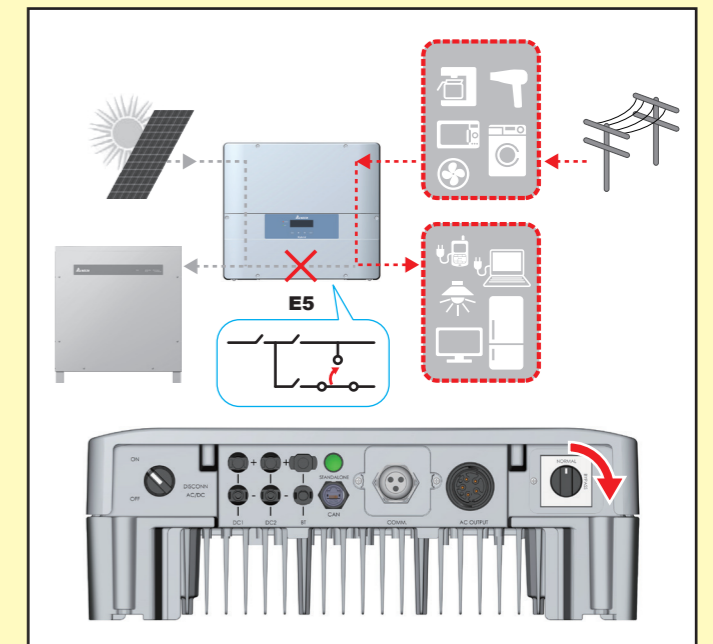
PV inverter only

If battery is not installed yet, the E5 inverter can work independent. The usage process is the same as regular PV inverter.



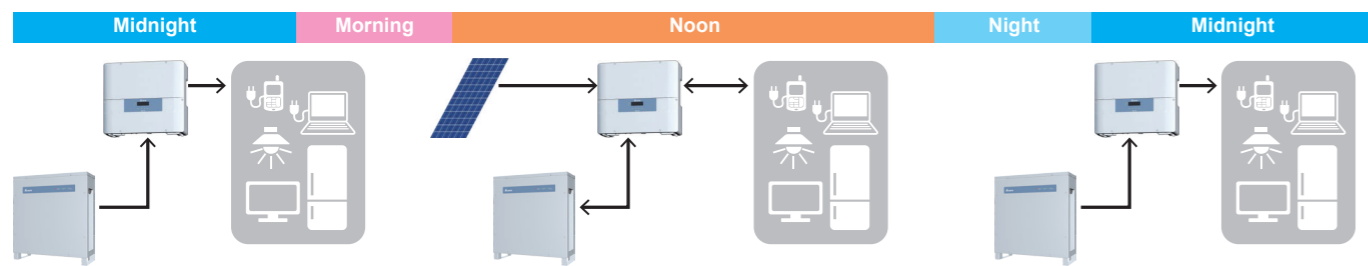
Manual bypass

If the E5 system work abnormally, manual bypass function can continuously provide energy.

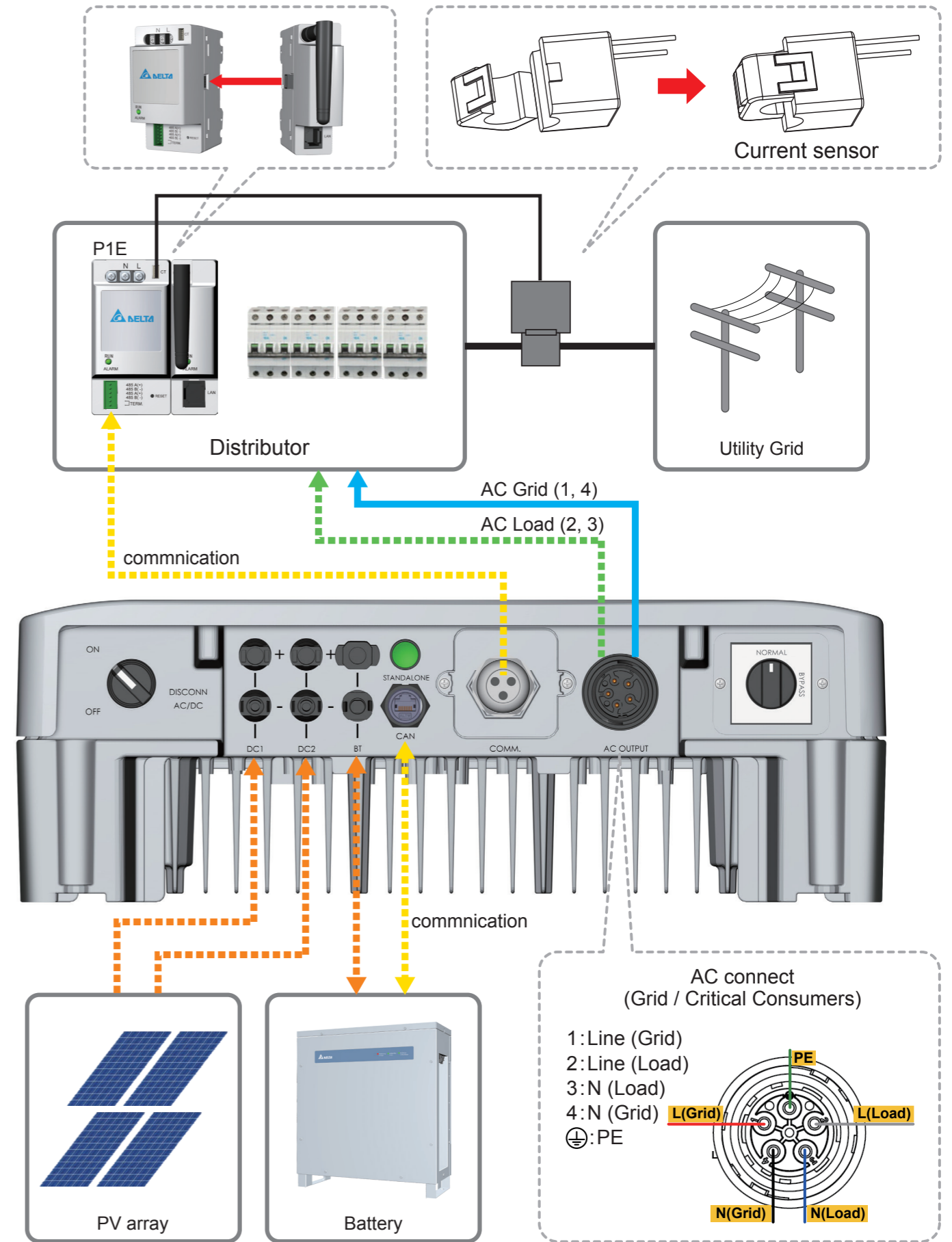


Solar standalone power supply

The E5 system allows the owner to use battery to generate power when the grid is not easily available like in an island or mountain or grid available cost is high. At daytime, it can convert to DC power from PV cell for household load and store the rest power to battery. At nighttime, battery can provide power for loads. From this cycle usage, E5 system can make globe greener.



Input / Output Interface

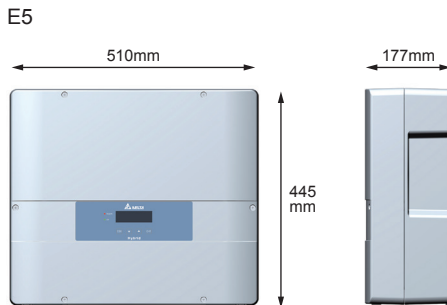


Hybrid inverter

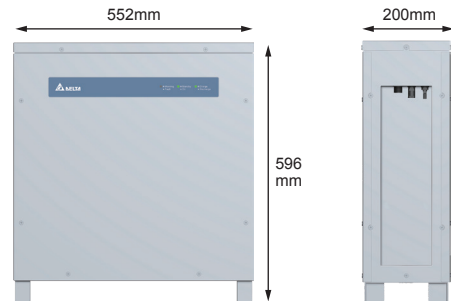
Model	E5	
DC Input	Rated voltage	370Vdc
	MPPT	2
	Max. input current	2×12Adc
	Operating voltage range	100Vdc ~ 550Vdc
AC Output	MPP voltage range	220Vdc ~ 450Vdc
	Rated output power	5000VA
	Rated voltage	230Vac
Efficiency	THD	< 3% at rated power
	Peak efficiency	97.2%
	European efficiency	96.5%
Information	Communication port	RS-485
	Display	20 x 4 LCD
Standalone power	3600VA	
Communication	Wi-Fi(option) / RS-485	
Environment	Outside	
Operating temperature	-25 ~ 60°C	
Relative humidity	0 ~ 100%, non-condensing	
Dimensions(unit)	510 x 445 x 177 mm	
Weight	27kg	
Cooling	Natural cooling	
Installation type	Indoor/outdoor	
Enclosure rating	IP65	
Certificates	IEC 62109-1/-2 IEC 62040 ARN-4105	

Battery

Model	BX_6.0
Battery supplier	Panasonic
Nominal capacity	6kWh
Usable capacity (80% DoD)	4.8kWh
Cycle stability (80% DoD)	6000
Voltage range	85 ~ 104 VDC
Nominal charging power	2.5kW
Nominal discharging power	3kW
Max. charging current	30A
Max. discharging current	35A
Battery technology	Li-ion
Dimensions	552 x 596 x 200 mm
Weight	75kg
Enclosure rating	IP55
Installation type	Indoor/outdoor
Ambient temperature range	-10 ~ 45°C
Permitted humidity	0 ~ 90%
Certificates	UN38.3



Battery box



Power meter

Model	PPM P1E-000	PPM P3E-000
Phase	1	3
Communication	Wi-Fi(N1) / RS-485	Wi-Fi(N1) / RS-485
Information	LED indicator	LED indicator
Rated operating voltage(L - N)	100Vac ~ 240Vac	230Vac
Operating voltage range(L - N)	85Vac ~ 264Vac	130Vac ~ 260Vac
Operating current limit	120A	120A
Rated frequency	45 ~ 65 Hz	45 ~ 65 Hz
Power consumption	Max. 2 Watt	Max. 3 Watt
Power consumption with N1	Max. 4 Watt	Max. 6 Watt
Safety standard	IEC 60950-1	
Emission	EN 55022 class B	
Immunity	EN 61000-6-2	
Operation temperature	-20°C ~ 50°C	
Storage temperature	-20°C ~ 60°C	
Relative humidity	30% ~ 85%	
Dimension	93 x 47.3 x 66.5 mm	93 x 70 x 66.5 mm
Weight	145 g without CT	200 g without CT

* Option

N1 / N2

Module	PPM N1	PPM N2
Information	LED indicator	
Power consumption	< 2 Watt	< 2 Watt
Emission	EN 55022 class B	EN 55022 class B
Immunity	EN 61000-6-2	EN 61000-6-2
Operating temperature	-20°C ~ 50°C	-20°C ~ 85°C
Storage temperature	-20°C ~ 60°C	-20°C ~ 85°C
Relative humidity	30% ~ 85 %	0% ~ 90 %
Dimension	93 x 28 x 82.6 mm	63 x 80 x 167 mm
Weight	90g	130g
RF PRODUCT SPEC		
Communication standard	IEEE 802.11	IEEE 802.11
Channel	7	14
Frequency	2.442 GHz	5 MHz

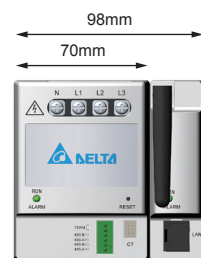
Smart monitor

Module	PPM R4
Rated operating voltage	12Vdc
Operating voltage range	10Vdc ~ 16Vdc
Power consumption	< 6 Watt (Without USB port)
Safety standard	EN 62109-2
Emission	EN 55022 class B
Immunity	EN 61000-6-2
Information	LCD Display
	Touch resistive screen
	7 inch TFT LCD, 800 x 480 pixel, 24 bit RGB
Communication	RS-485 / Wi-Fi
Operation temperature	-20°C ~ 50°C
Storage temperature	-20°C ~ 60°C
Relative humidity	30% ~ 85%
Dimension	120 x 190 x 32 mm
Weight	440 g

P1E+N1



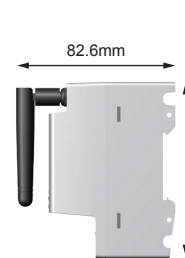
P3E+N1



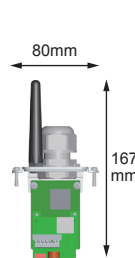
N1



N2



N2



R4

