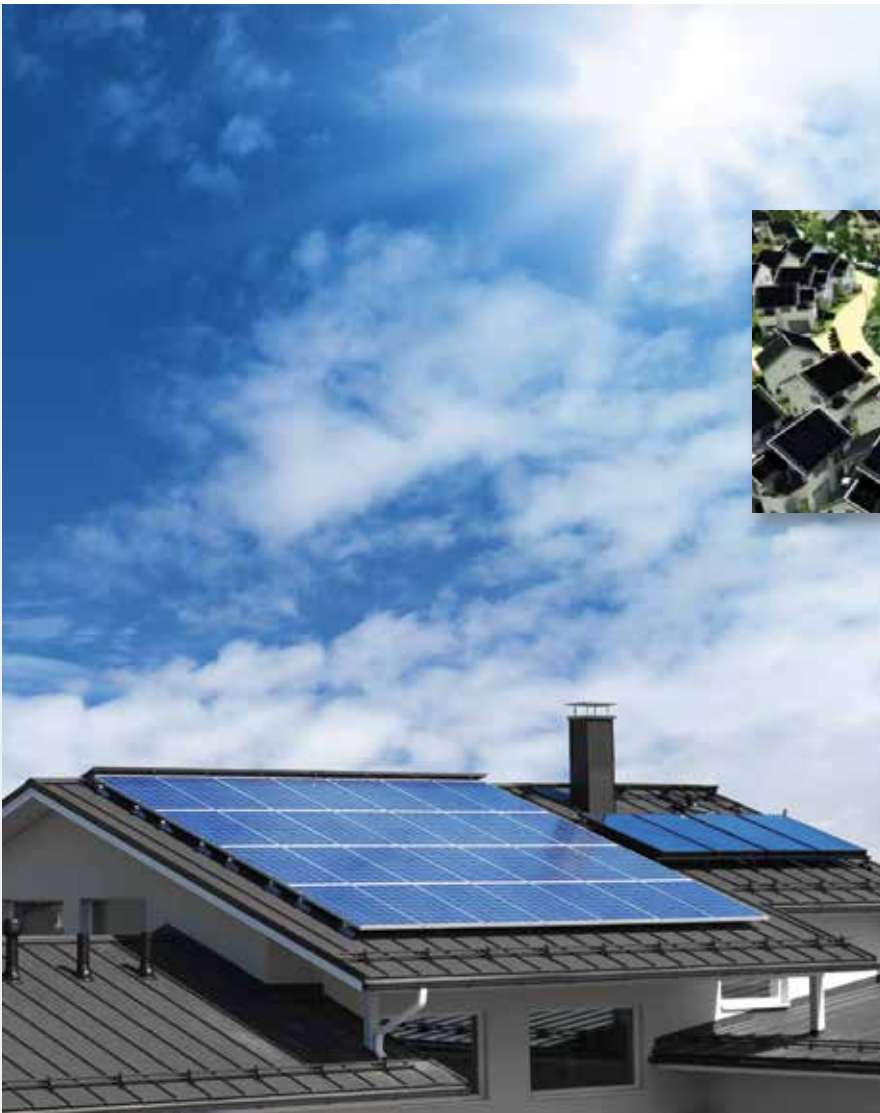


Panasonic

ENERGY SOLUTIONS RESIDENTIAL STORAGE BATTERY SYSTEM



MAKING SMART TOWNS, BUILDING SMART COMMUNITIES

WHY PANASONIC?

RESIDENTIAL STORAGE BATTERY SYSTEM

The next evolution in solar energy solutions.

Panasonic's residential storage battery system delivers a double revolution for Australia's energy sector, bringing new flexibility to distributed energy and lower energy costs to consumers. To this rapidly expanding energy industry, Panasonic brings a strong heritage in Lithium-ion battery technology. With experience spanning more than 80 years, we are able to deliver industry-leading reliability, quality and safety.



INTRODUCING FUJISAWA, SUSTAINABLE SMART TOWN. A JOINT VENTURE WITH PANASONIC.

DELIVERING VALUE TO RETAILERS

Panasonic's residential storage battery system allows retailers to reduce demand during peak times and provide savings to the consumer. In supplying the storage battery system retailers can better manage the time of use during peak periods and offer longer term contracts and savings to the consumer.

DELIVERING VALUE TO DISTRIBUTORS

For energy distributors, demand response power discharge supports grid stability through peak cutting. Panasonic's storage battery system offers distributors cost savings on capital investment for network upgrades, including transformers.

DELIVERING VALUE TO CONSUMERS AND SMALL BUSINESS

Australian consumers and small business want to invest in sustainable energy sources but they also depend on energy being available on demand. Panasonic's storage battery system can shift clean solar energy for use during the evening peak period, reducing overall energy costs.

DELIVERING UNINTERRUPTED CLEAN ENERGY

By storing solar energy in the residential storage battery system, clean energy can be used around the clock to reduce consumer's electricity bill and support residential customers by supplying critical electricity backup needs during blackouts.



PANASONIC NUMBER 1 ELECTRONIC GREEN BRAND

Interbrand, the US brand consulting company, announced on June 24, 2014 that Panasonic ranks No. 1 in the Electronics Sector for the "Best Global Green Brands 2014". An Excellent Green Brand is defined as achieving a good balance between Green Perception (consumers' image of an eco-brand) and Green Performance (a company's environmental management practices). Panasonic's Green Performance was evaluated as being especially high, with excellent marks going to "Products and Services," "Governance," and "Transportation and Logistics."

THE COMPLETE SYSTEM

PANASONIC'S RESIDENTIAL STORAGE BATTERY SYSTEM

At the heart of our innovative residential storage battery system is a compact Lithium-ion storage battery designed to be installed with existing residential photovoltaic (PV) systems. The standalone storage battery allows day-time excess PV power to maximise the self consumption of PV generated electricity. The unit also features a backup function to provide AC power during a blackout situation. When combined with the Network Adapter and DR-EMS Platform Software, this system also offers distributors and retailers the opportunity to reduce peak load.

LJ-SK84A Li-ion Storage Battery System



MAJOR FEATURES

- | |
|---|
| 1) Lithium-ion battery technology |
| 2) 8 kWh usable capacity and 2kW output |
| 3) Maximises self consumption |
| 4) Programmed charge/discharge |
| 5) Remote control charge/discharge |
| 6) Emergency backup feature |

LJ-NA02 Network Adapter

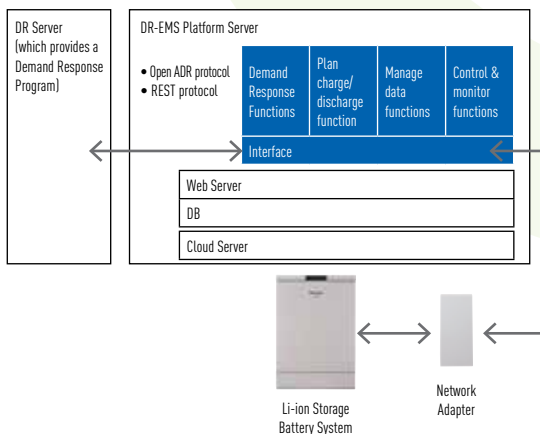


MAJOR FEATURES

- | |
|---|
| 1) Connects DR-EMS Platform Software server & Li-ion storage battery system |
| 2) Monitoring and controlling commands |
| 3) Secure network communications |

DR-EMS Platform Software

DR-EMS Platform Software Structure



MAJOR FEATURES

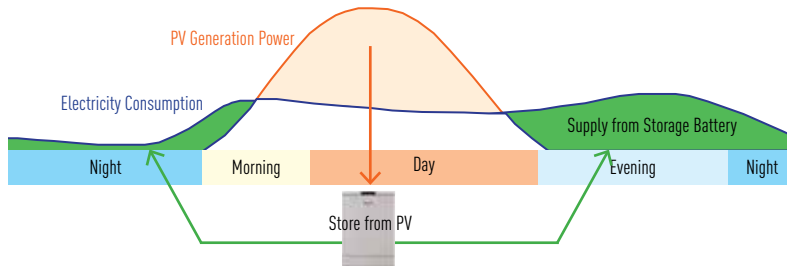
- | |
|---|
| 1) Demand Response functions |
| 2) Monitoring of battery status |
| 3) Time of use and direct load control* |
| 4) Reporting functions |
| 5) Data storage functions |
| 6) Application program interface |

*Controls storage battery only

MAJOR FEATURES

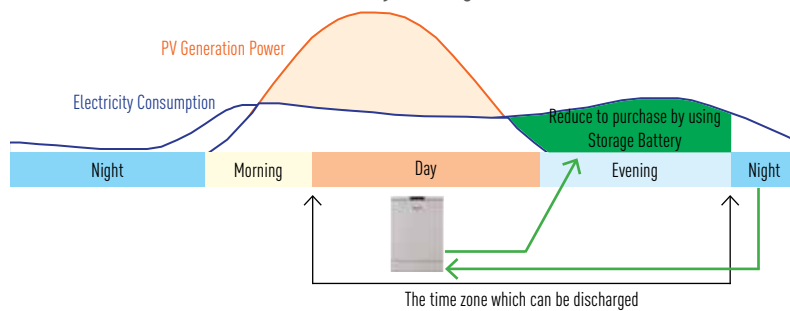
MAXIMISE SELF-CONSUMPTION MODE

The Lithium-ion storage battery system works in harmony with PV generation. By storing excess electricity in the storage battery during the day, clean energy can be used around the clock, even when the sun goes down. This allows not only for maximum utilisation of clean energy but also for a reduction of the consumers electricity bill.



PROGRAMMED CHARGE/DISCHARGE TIME MODE

The consumer can set the charge / discharge time on the lithium-ion storage battery system directly. The battery will be charged or discharged only during the designated time. At other times it will not be charged or discharged. From the storage battery system there is no excess electricity to the grid.



BACK UP MODE

When a black out happens, the Lithium-ion storage battery system can provide the charged electricity to some particular house loads through the specified plug. The minimum remaining battery capacity can be set.



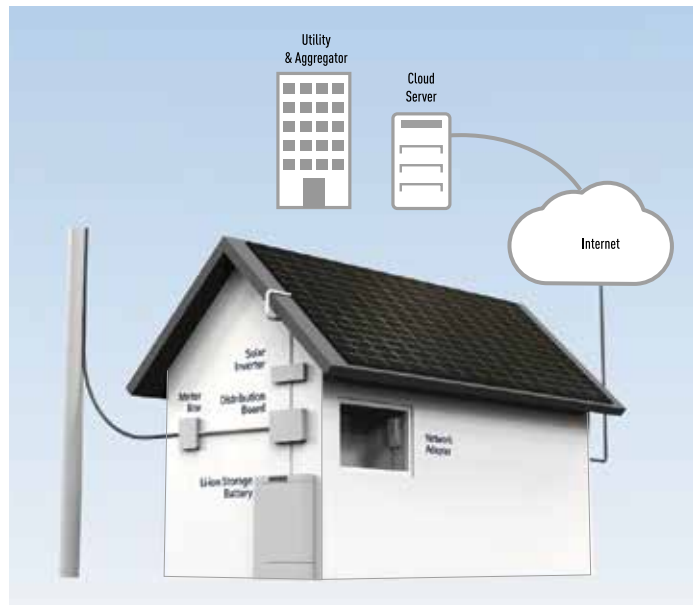
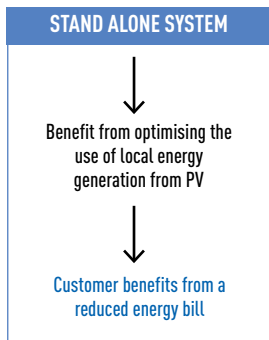
THE SOLUTION

CLEAN ENERGY ON DEMAND

Panasonic's residential energy storage technology represents a new frontier in energy usage. We're changing the equation to develop an efficient and environmentally responsible energy source that meets the demands of consumers, small business and utilities alike.

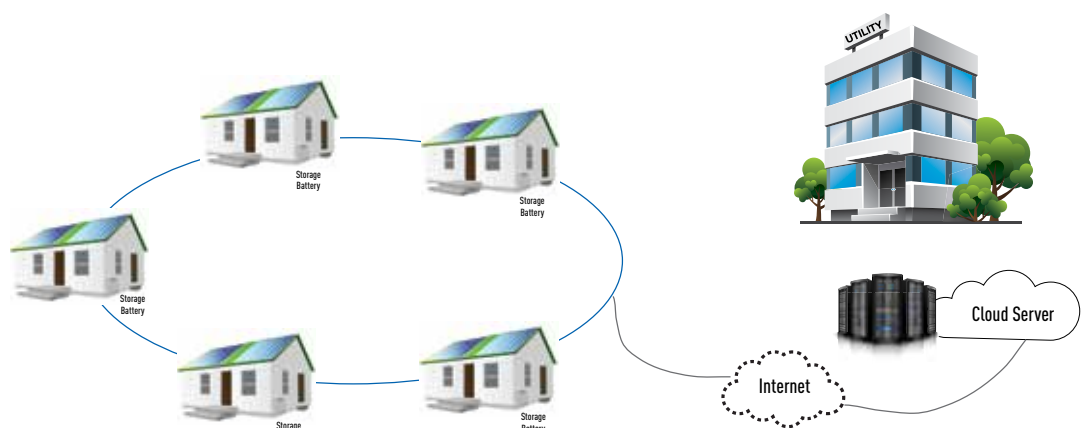
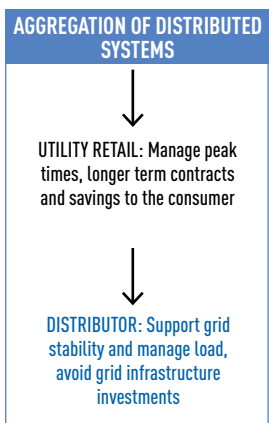
CONSUMER AND SMALL BUSINESS BENEFIT

Those who are unsatisfied with low FIT tariff rates can derive benefits from Panasonic's residential storage battery system.



UTILITY BENEFIT

Panasonic's residential storage battery system is good news for energy distributors and retailers, reducing the grid infrastructure expense, better managing the time of use during peak periods and offering longer term contracts and savings to the consumer.



TECHNICAL SPECIFICATIONS

LJ-SK84A Li-ion Storage Battery System

(STAND ALONE) MAJOR FEATURES

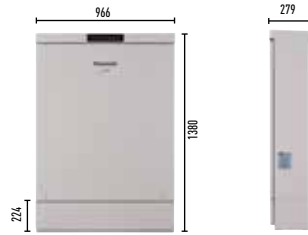
- 1) Maximise self-consumption
- 2) Programmed charge/discharge
- 3) Back-up

(REMOTE) MAJOR FEATURE

- 1) Charge/Discharge remote control

DIMENSIONS

W: 966mm x H: 1380mm x D: 279mm
 Weight: 159 kg
 Colour: Ivory



CONDITIONS OF INSTALLATION

Outdoor Installation: IP54
 Space required for Installation: Front: 800mm Left: 50mm Right: 200mm Back: 50mm Top: 200mm
 Do Not Install: Where Salt damage may occur or near corrosive gases etc

Battery	Technology	Lithium-ion
	Usable Capacity	8 [kWh]
Battery Input	Nominal Input Voltage	150.0 [V] (110[V]-165[V])
AC Output (Grid Tied)	Connection Type	Single phase 2 wire
	Rated AC Voltage	230[V]
	Rated frequency	50 [Hz]
	Rated Power (Input/Output)	-2.0[kW] / 2.0[kW]
Back-up	Rated Current (Input/Output)	-8.7[Arms] / 8.7[Arms]
	Connection Type	Single phase 2 wire (n-phase ground)
	Rated AC Voltage	230[V]
Environmental	Rated Frequency	50[Hz]
	Maximum Output	1.0[kVA]
	Ambient Temp. Sensor in battery module	0-40°C *Discharge -10-40°C
Standard	Ambient Humidity	0-90[%Rh] *Non condensing
	Maximum Altitude	1000[m]
	Safety	AS/NZS 3100 (2009)
User Interface	Grid	AS/NZS 4777-1/-2/-3- (2005)
	EMC	IEC61000-3, IEC61000-6
		7seg 5 Digit LED with 4 buttons

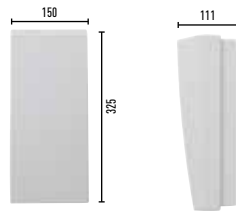
LJ-NA02 Network Adapter

MAJOR FEATURES

- 1) Communicate between DR Server and Li-ion Storage battery system: monitoring and controlling commands
- 2) Communicate safely

DIMENSIONS

W: 150mm x H: 325mm x D: 111mm
 Weight: 1.4 kg
 Colour: White



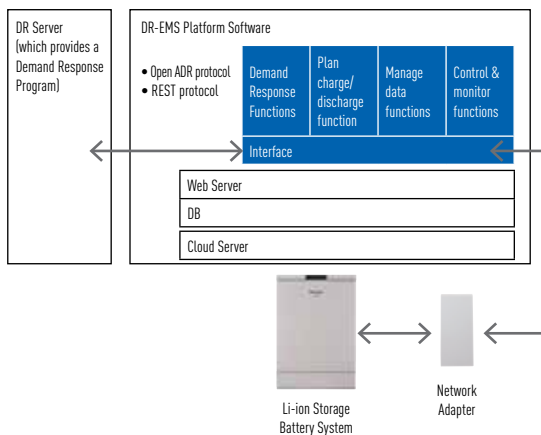
CONDITIONS OF INSTALLATION

Indoor installation: Wall mount

Power Entry Characteristic	Input	AC230V ±10% (50/60Hz)
	Withstand Voltage	AC1500V/ 1 min
	Insulation Resistance	100M Ohm or more. Measurement by 500V Insulation Resistance Tester
Network interface (LAN Port)	Ethernet	100BASE-TX/ 10BASE-T
	Number of Port	1
	Type of Connector	RJ-45
	Communication Protocol	HTTPS over IPv4
Serial interface (RS-485)	Connection Method	2-wire
	Transfer Rate	9600bps
	Communication Protocol	Modbus RTU
	Recommend Cable	PVC flexible cable 2C 0.75sq mm
	Length of Cable	Max. 50m
Environmental	Ambient Temperature	0-40°C
	Ambient Humidity	Max. 85[%Rh] *Non condensing
	Maximum Altitude	1000[m]
Standard	Safety	IEC60950.1
	EMC	CISPR22, CISPR24

DR-EMS Platform Software

DR-EMS Platform Software Structure



MAJOR FEATURES

- 1) Li-ion Storage Battery System managing functions
- 2) Demand Response functions
- 3) Reporting functions
- 4) Data storage functions

Design and Specifications are subject to change without notice. Publication date: June 2015

Panasonic Warranty

Lithium-ion Battery Storage System Warranty

1. Subject to the conditions of this warranty, Panasonic or its Authorised Service Centre will perform the necessary repairs on the Lithium-ion battery storage system comprising the Lithium-ion batteries, the Battery Storage Cabinet and a Network Adaptor (the "Product") without charge for parts or labour, if in the opinion of Panasonic, the product is found to be faulty within the specified warranty period.
2. The Product is supplied with the following warranty conditions from the date of the installation:
 - a) Product warranty : Seven (7) years (84 months) parts and labour in respect to the battery cabinet enclosure, its internal control devices and the Network Adaptor.
 - b) Performance warranty: Ten (10) years (120 months) or at least sixty percent (60%) 'State of Health' (SOH) of the initial battery's charge capacity, whichever comes first in respect to the Lithium-ion batteries when used in the factory default 'Maximum Self Consumption Mode' where every 24 hours, one full discharge cycle (100% to 1%) is followed by one full charge cycle (1% to 100%). When used in this mode, the battery will maintain at least 60% of its charge capacity during the 10 year warranty period if operated in accordance with the operating conditions specified. When other charge/discharge modes are employed which exceed one per day (i.e. multiple daily full charge/discharge), the battery charge capacity will fall below 60% sooner than 10 years.
3. The Product operation life, with scheduled maintenance, may be up to a maximum of 14 years after which time the product will permanently shut-down and cease to operate. The product warranty provided by Panasonic is limited to the warranty period specified above from the date of installation.
4. The Product must not be installed in a place or location where it will receive or be subject to the impact of continuous direct sunlight.
5. The Purchaser must provide evidence of the date of installation in order to claim the warranty. Where the Purchaser is unable to provide evidence to the satisfaction of Panasonic of the date of installation, Panasonic will calculate the Product warranty from the date of purchase or the date of manufacture.
6. This warranty only applies to the Panasonic product when:
 - Purchased in Australia and sold by Panasonic Australia, it's Authorised Distributors, or Dealers, and only where the products are used and serviced within Australia or its territories.
 - Warranty service is carried out by a Panasonic Authorised Service Centre, and only if valid proof of installation is presented when warranty service is requested.
 - Installed for normal domestic or small business use.
 - The product is installed and used in accordance with the manufacturer's recommendations.
 - Installed in regions where the min/max monthly average temperatures are always less than +40 degrees C and greater than 0 degrees C. On the occasions when the temperature exceeds +40 Celsius degrees or falls below 0 Celsius degrees - the product automatically functions to give high priority to preserving battery health by reducing the battery output and extending the battery charging time.
 - The product is installed with compliance to the relevant Australian Wiring Standards, including, but not limited to AS/NZS 3000, AS/NZS 3008.1.1, and AS4777.1.
7. The warranty on this product does not cover the following items:
 - Damage, misuse, neglect, or abuse.
 - Malfunction or failure resulting from the use of incorrect voltages, or mains supply problems.
 - Incorrect installation, tampering or repair by unauthorised persons (including unauthorised alterations and or modifications).
 - Build-up of dirt or dust.
 - Mal-adjustment/incorrect settings of customer accessible controls.
 - Failure due to thunderstorm/lightning activity or exposure to abnormally corrosive environmental conditions.
 - Infestation by insects or vermin.
 - Any foreign objects or matter having entered the product.
 - Product operational or vibration noises that are considered normal.
 - Damage to cabinet parts (unless notified at the time of purchase).
 - Installation corrections (e.g. fixing to the ground, correction to wiring, correction to network connections/set-up).
8. To claim warranty service, when required, you should contact Panasonic's Customer Care Centre on 132600, or your point of purchase.
9. The warranty hereby conferred does not extend to, and excludes, any costs associated with the installation, de-installation or re-installation of a product, including costs related to the mounting, de-mounting or remounting of any hardware, (and any other ancillary activities), delivery, handling, freighting, transportation or insurance of the product or any part thereof or replacement of and do not extend to, and exclude, any damage or loss occurring by reason of, during, associated with, or related to such installation, de-installation, re-installation or transit.

Panasonic Authorised Service Centres are located in major metropolitan areas and most regional centres of Australia, however, coverage will vary dependant on product within remote locations. For advice on exact Authorised Service Centre locations for your product, please telephone our Customer Care Centre on 132 600.

In addition to your rights under this warranty, Panasonic products come with consumer guarantees that cannot be excluded under the Australian Consumer Law. If there is a major failure with the product, you can reject the product and elect to have a refund or to have the product replaced or if you wish you may elect to keep the product and be compensated for the drop in value of the product. You are also entitled to have the product repaired or replaced if the product fails to be of acceptable quality and the failure does not amount to a major failure.

If there is a major failure in regard to the product which cannot be remedied then you must notify us within a reasonable period of time by contacting the Panasonic Customer Care Centre. If the failure in the product is not a major failure then Panasonic may choose to repair or replace the product and will do so in a reasonable period of time from receiving notice from you.

If you require assistance regarding warranty conditions or any other enquiries, please visit the **Panasonic Australia** website www.panasonic.com.au or contact by phone on **132 600**

Panasonic Australia Pty. Limited

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