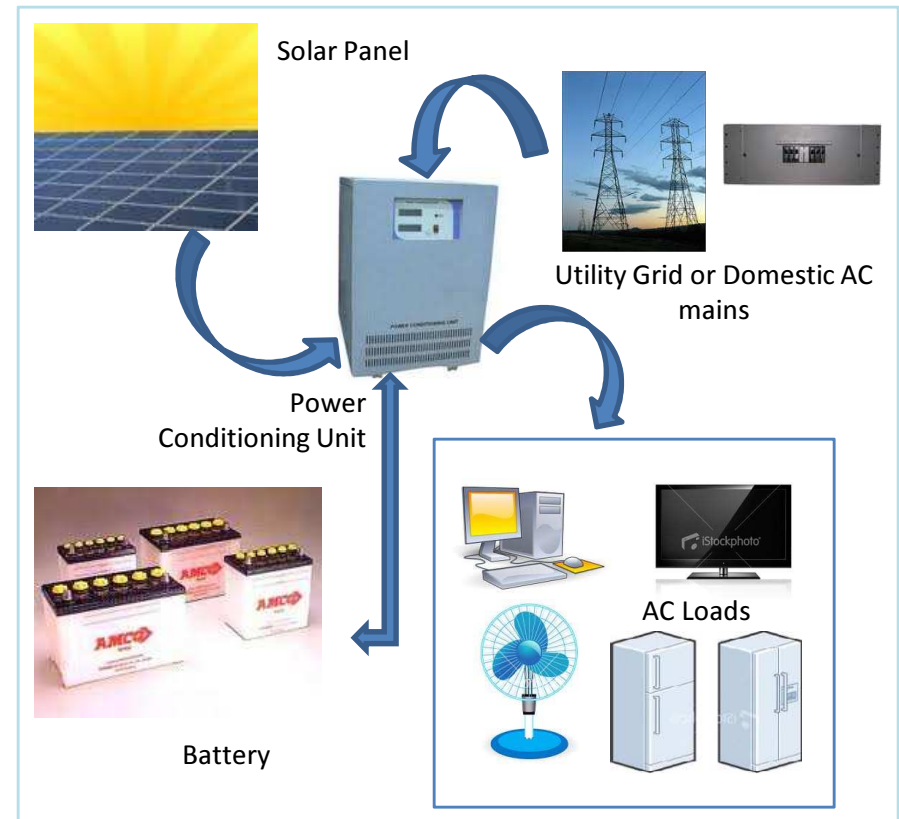


Rooftop Solar PV Systems

Sun is the primary source for all forms of energy and is abundantly available to us. Solar power is fast becoming a lucrative alternative to depleting and increasingly expensive fossil-fuel based power.

NEST's Rooftop Solar Systems (RSS) can benefit many utilities such as residential, commercial and governmental. From homes and hospitals to small and large businesses, everyone can enjoy the benefits of solar power. Bring home today any of NEST's RSS to enjoy hassle-free and un-interrupted power and also cut down on your electricity bills!

The primary power source for NEST's RSS is the Solar Photovoltaic (SPV) module, which produces DC electricity from sunlight. This DC electricity is stored in batteries through efficient charging system. The sine wave inverter of the Power Conditioning Unit (PC) converts DC into AC and supplies electric power to the AC loads.



Features:

- Max. utilisation of Solar Energy
- Energy Management (Power conditioning unit always prefers Solar power over AC mains power)
- Maximum Power Point Tracking – MPPT (optional)
- Built-in Automatic Voltage regulation

Components of a typical Rooftop Solar System

- Solar Photovoltaic Modules
- Solar Charge Controller
- Solar Inverter (Hybrid)
- Low maintenance Lead Acid batteries or Sealed Maintenance Free VRLA Batteries
- Cable, Connector & Hardware essential for installation
- Module Mounting Structure (Roof Mounting essentials)

System Specifications*

NEST Rooftop Solar System (Model)	Hours of Backup (H)	Power Consumption (Wh)	No. of Solar Modules and their rating (Wp)	Qty of Batteries and their capacity (Ah)	Hybrid Solar Inverter rating (VA)	AC Loads
RSS-150	2	288	2 NOS. 12V, 75Wp	1 NO. 12V, 120Ah LMLA	200	<ul style="list-style-type: none"> • 1NO. 14W CFL • 1NO. 30 W Table Fan • 1NO. 100 W LCD TV
RSS-200	3	432	2 NOS. 12V, 100Wp	1 NO. 12V, 180Ah LMLA	250	<ul style="list-style-type: none"> • 1NO. 14W CFL • 1NO. 30 W Table Fan • 1NO. 100 W LCD TV
RSS-250	2	476	2 NOS. 12V, 125Wp	2 NOS. 12V, 100Ah LMLA	250	<ul style="list-style-type: none"> • 2 NOS. 14W CFL • 2 NOS. 30 W Table Fan • 1 NO. 100 W LCD TV • 1NO. 50W Refrigerator

*Calculations are made taking average solar irradiance of Tokyo, Japan to be 3.5kWh/m²/day

System Specifications*

NEST Rooftop Solar System (Model)	Hours of Backup (H)	Power Consumption (Wh)	No. of Solar Modules and their rating (Wp)	Qty of Batteries and their capacity (Ah)	Hybrid Solar Inverter rating (VA)	AC Loads
RSS-350	3	714	3NOS. 12V, 120Wp	2NOS. 12V, 150Ah LMLA	400	<ul style="list-style-type: none"> • 2NOS. 14W CFL • 2NOS. 30 W Table Fan • 1NO. 100 W LCD TV • 1NO. 50W Refrigerator
RSS-500	4	952	5 NOS. 12V, 100Wp	4 NOS. 12V, 100Ah LMLA	500	<ul style="list-style-type: none"> • 2 NOS. 14W CFL • 2 NOS. 30 W Table Fan • 1 NO. 100 W LCD TV • 1NO. 50W Refrigerator

*Calculations are made taking average solar irradiance of Tokyo, Japan to be 3.5kWh/m²/day

System Installation

Requirements:

- **Space requirement:**

Installing NEST-RSS requires sufficient space on the roof of your home. Given here below is the approximate space requirement for NEST-RSS series of solar products.

- RSS-150: **1.5 sqm.** RSS-200: **2.0 sqm.**
- RSS-250: **2.5 sqm.** RSS-300: **3.0 sqm.**
- RSS-350: **3.5 sqm.** RSS-500: **5 sqm.**

- **Location:**

- The PV installer must be critical in choosing the location for installing the system
- The PV installer must choose south facing roof of the house with an angle of 35 to 40 degrees (which is the altitude of that particular region) to the azimuth.
- It must be ensured that the location receives direct sunlight, without obstruction from nearby buildings, trees or any other structure present in the vicinity.
- The average solar irradiance of the location must be considered which varies from city to city. For simplicity sake it is considered to be 3.5kWh/m²/day for the whole of Japan, with the reference city being Tokyo.
- **Warning:** Obstruction to direct sunlight slows down the charging and affects module performance in the long run.

Procedures:

Make use of the block diagram (given in the last page of this brochure) to make correct electrical connections in order to get your system operational.

Here below is a step-by-step installation procedure

- The Solar Panel with 12V DC I/P is connected (via cable) to the Power Conditioning Unit (PCU). At the inverter end there is a label with “Solar In” indication. So connect accordingly.
- Cables need to be connected from the battery to the PCU. This enables controlled charging of the battery.
- Output from the Inverter is 100V AC for connection to the household electrical appliances.

Rooftop Solar PV Systems

Depending upon the building norms, the mounting structure has to be planned and fabricated before installing the PV modules on top of your roof. Alongside Here below is an illustration of a typical ground mounted module array structure



Ground Mount Solar PV Systems:

Depending upon the local soil conditions, the Structure has to be planned and fabricated Before Installing the PV modules on top of Them. Alongside (Right) is an illustration of a typical ground mounted module array structure



Ground Mount Solar PV Systems:



System Installation

Simple Block Diagram of a Rooftop Solar PV System

