

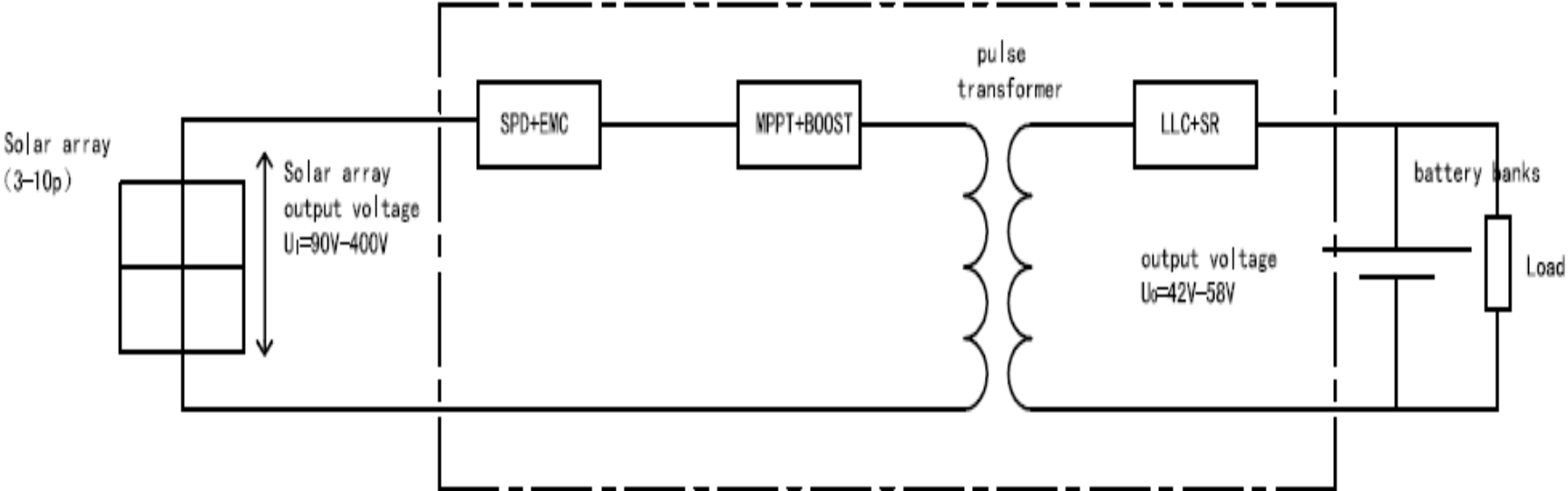


IPC ENGINEERING, ELECTRIC, ELECTRONICS AND TRADE LIMITED COMPANY

Solar Power Solution

Solar Power Solution

Solar Charge Controller



Solar Power Solution

Solar Charge Controller

Features:

- 90V-400VDC input, both structure and power are compatible with the current telecom power system rectifier module;
- MPPT available, multi-peak scanning technology, maximize the power generation, the max power of each rectifier is 3KW;
- Fully digital control and soft start tech, more reliable and efficiency power conversion, peak efficiency over 96.5%;
- Arc-extinguishing design to avoid accident;
- Hot Plug, easy maintenance;
- System input-output isolation design to avoid surge and lightning, ensure the loads work reliably;
- EMC Class B;
- Each module can work independently, support multi modules parallel output and current sharing

Solar Power Solution

Pure Solar Power System

Application conditions:

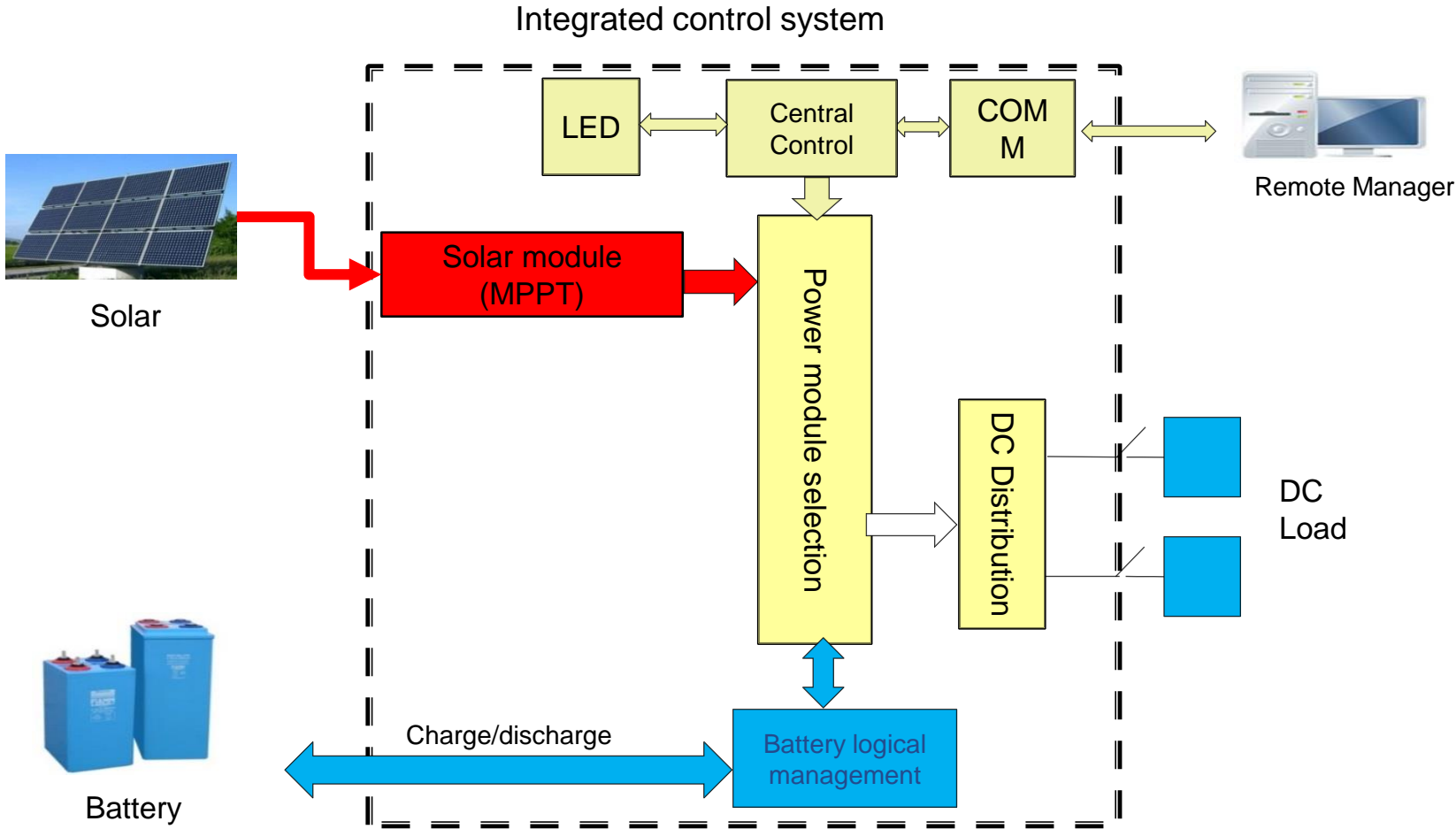
1. The average annual sunshine hours are more than 1800 hours (refer to China Mobile standards), then you can choose the pure solar power system.
2. If the grid supply of the new BTS is too far away, the connection of the grid costs (or more than) 70% of the total investment of the solar power system, then we recommend to use pure solar power system;
3. If the actual power of the BTS is less than 1000W, and the distance of the grid connection is more than 5km, we recommend to use the pure solar power systems.

Working principle:

1. If the solar output power is more than the load capacity, the solar panel will provide power to the load and charge the battery at the same time;
2. If the solar solar output power is less than the load power, the maximum output power reach MPPT, the battery will provide the rest of the power;
3. The battery will provide all the power without solar power;
4. The battery backup time should be configured by the longest continuous rainy day .

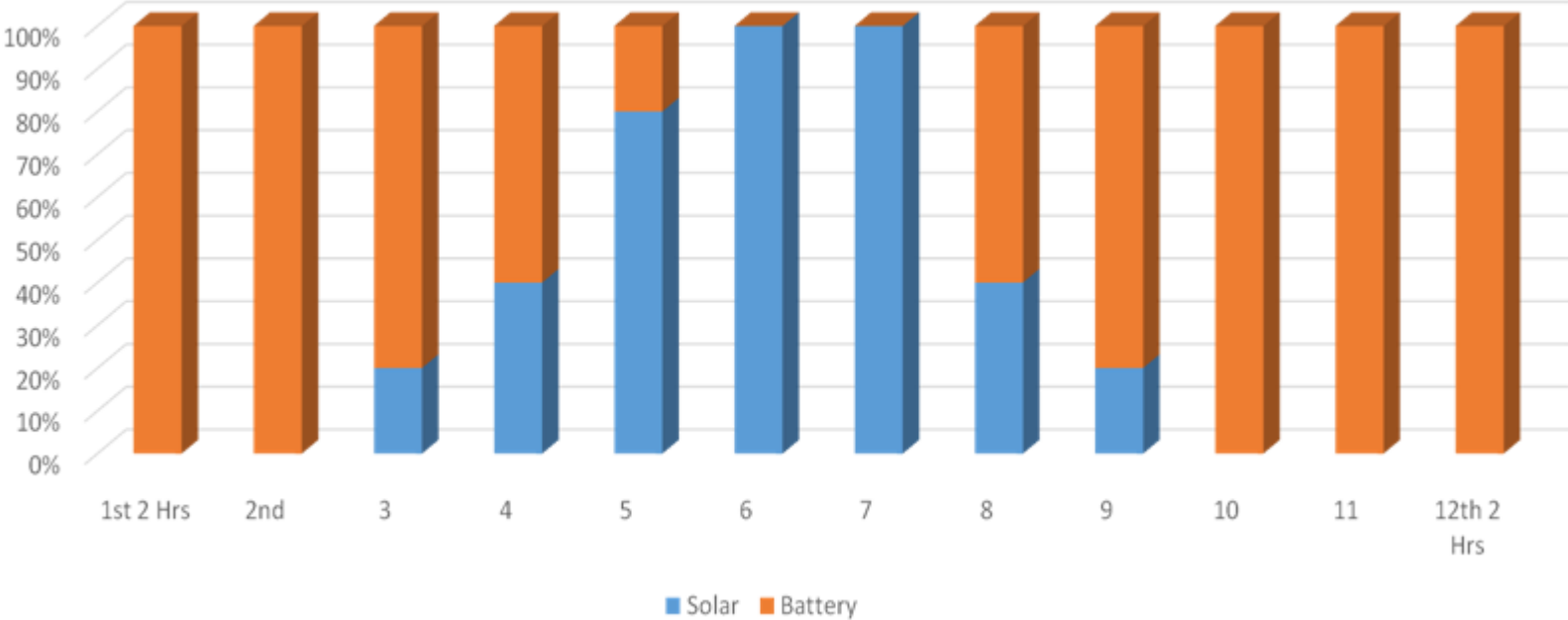
Solar Power Solution

Pure Solar Power System



Solar Power Solution

Pure Solar Power System



Without solar at night	NA	discharged
Solar output power < load power	Partly power	discharged
Solar output power > load power	Solely power	charged
Cloudy and rainy days last for a long period	NA	discharged



Solar Power Solution

Solar-Grid Hybrid Power system

Application conditions:

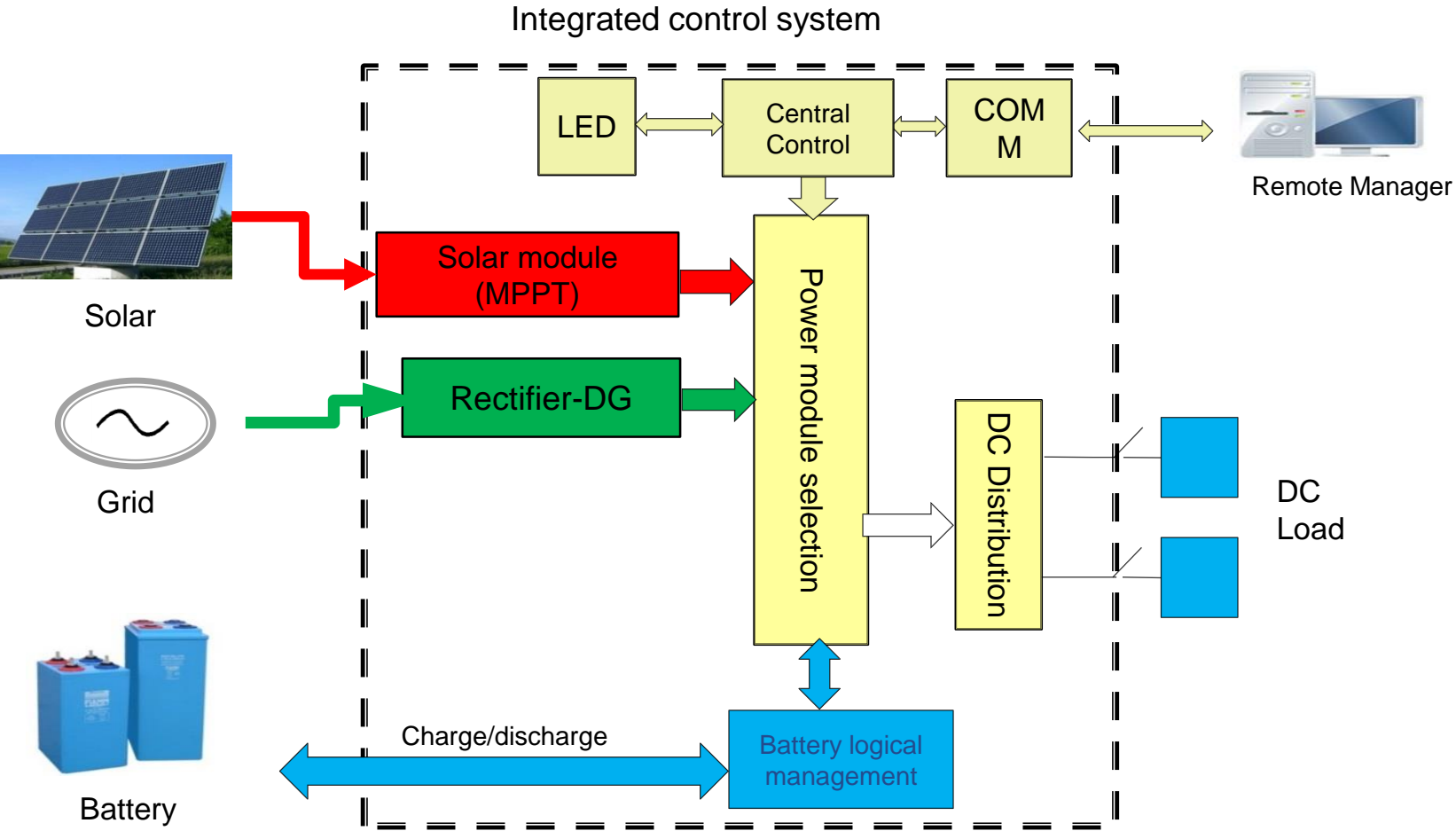
1. The main power is easy to access, but unstable.

Working principle:

1. if the solar output power is more than (the load capacity + the maximum battery charging power), the solar panels will provide power to the load and charge the battery at the same time;
2. if the solar output power is less than the load capacity, the maximum output power reach MPPT, the battery will provide the rest of the power(without main power);
3. if the solar power is not enough but with the main power, the main power will take the priority to power the load and charge the battery;
4. The battery will provide all the power without solar and main power.

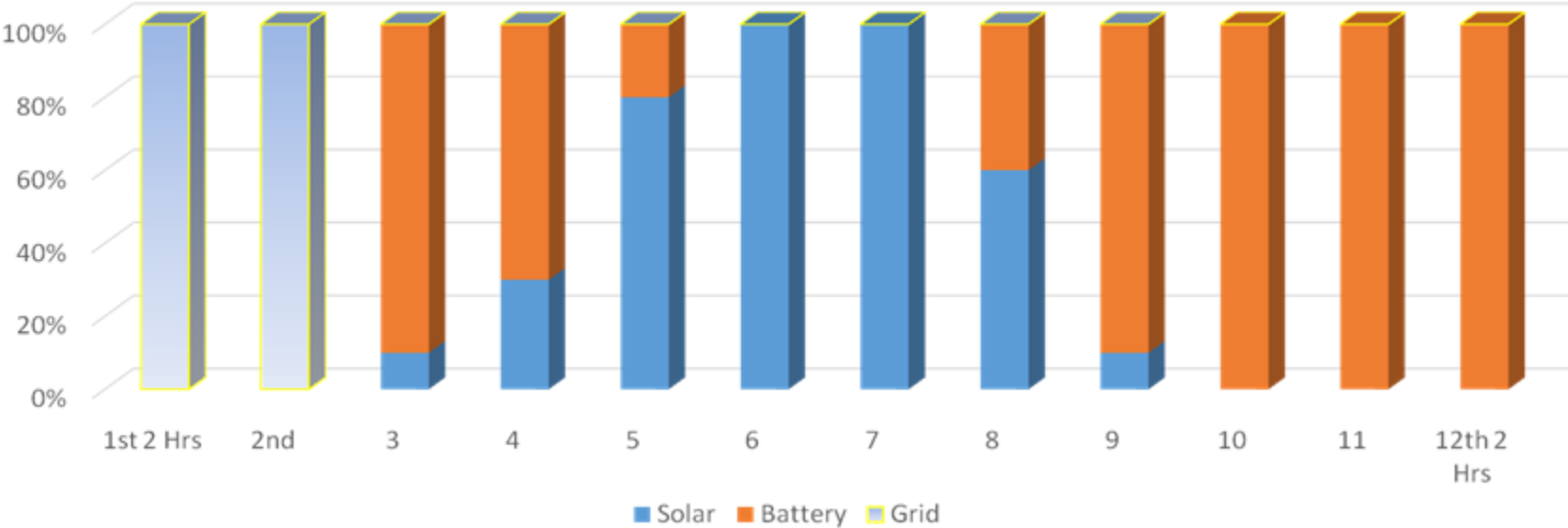
Solar Power Solution

Solar-Grid Hybrid Power system



Solar Power Solution

Solar-Grid Hybrid Power system



Solar Output Conditions	Grid	Solar	Battery
Without solar at night	NA	NA	discharged
Solar output power < load Capacity	NA	Partly power	discharged
Solar output power > load Capacity	NA	Solely power	charged
Cloudy and rainy days last for a long period	Solely power	NA	charge
Poor solar radiation months	Partly power	Partly power	Discharged/charge



Solar Power Solution

Solar-DG Hybrid Power system

Application conditions:

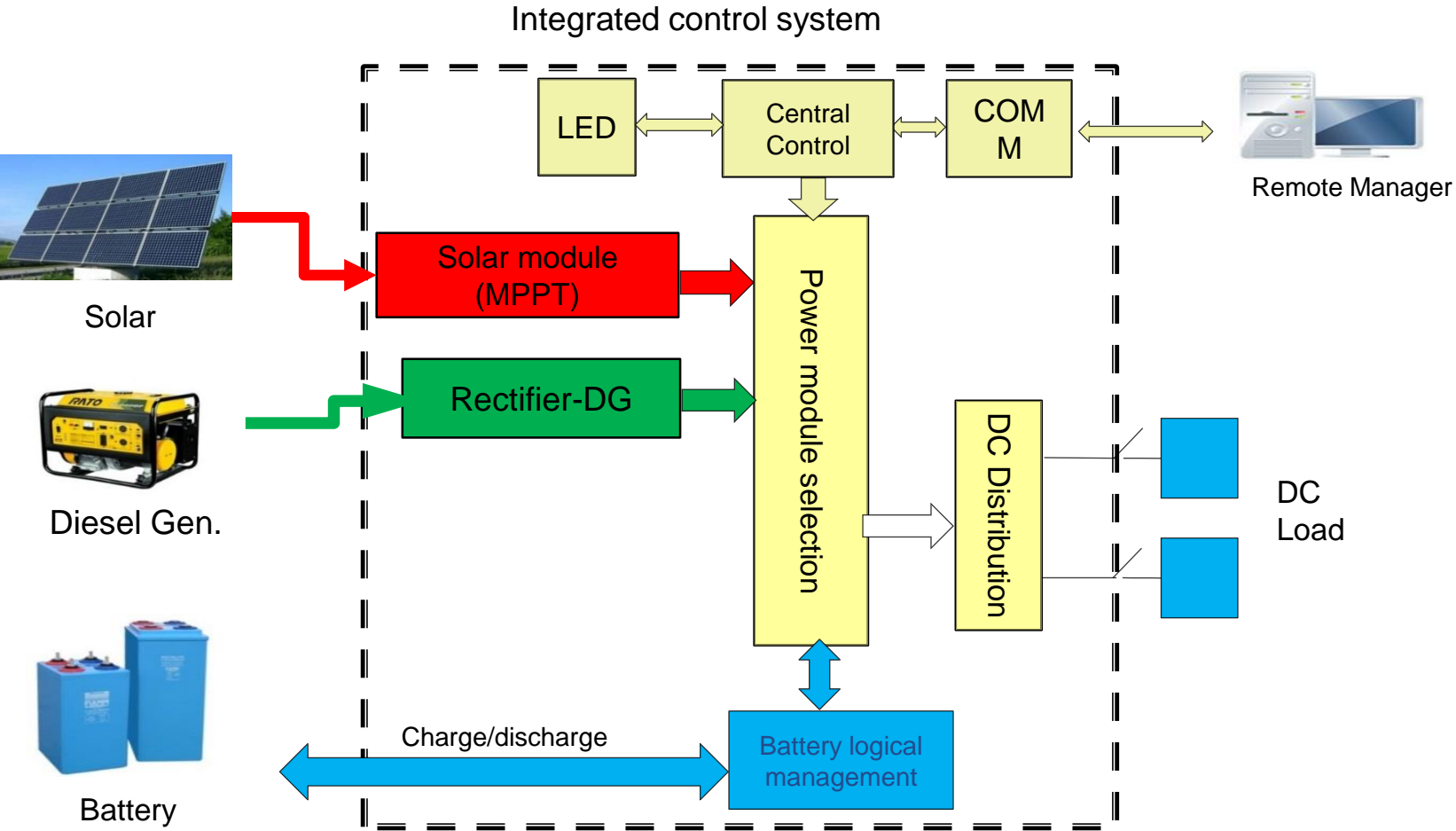
1. Solar radiation vary greatly for different months, if the solar battery was configured by the weakest month, it will lead to excessive investment;
2. If the rainy days last longer, it needs to configure a larger battery, which will lead to extra pre-investment costs.

Working principle:

1. When the sun condition is good, the solar power will take the priority, DG will be the second;
2. when the solar output power is more than the load capacity, the solar panel will provide power to the load and charge the battery at the same time; when the solar output power is less than the load capacity, the maximum of the solar output power reach MPPT, the rest of the power will be provided by the battery;
3. when it is continuous rainy days or the poor sun radiation of the month, the battery will supply the electricity for the insufficient part of the solar power; when the battery power is low, the DG will start to charge the battery.

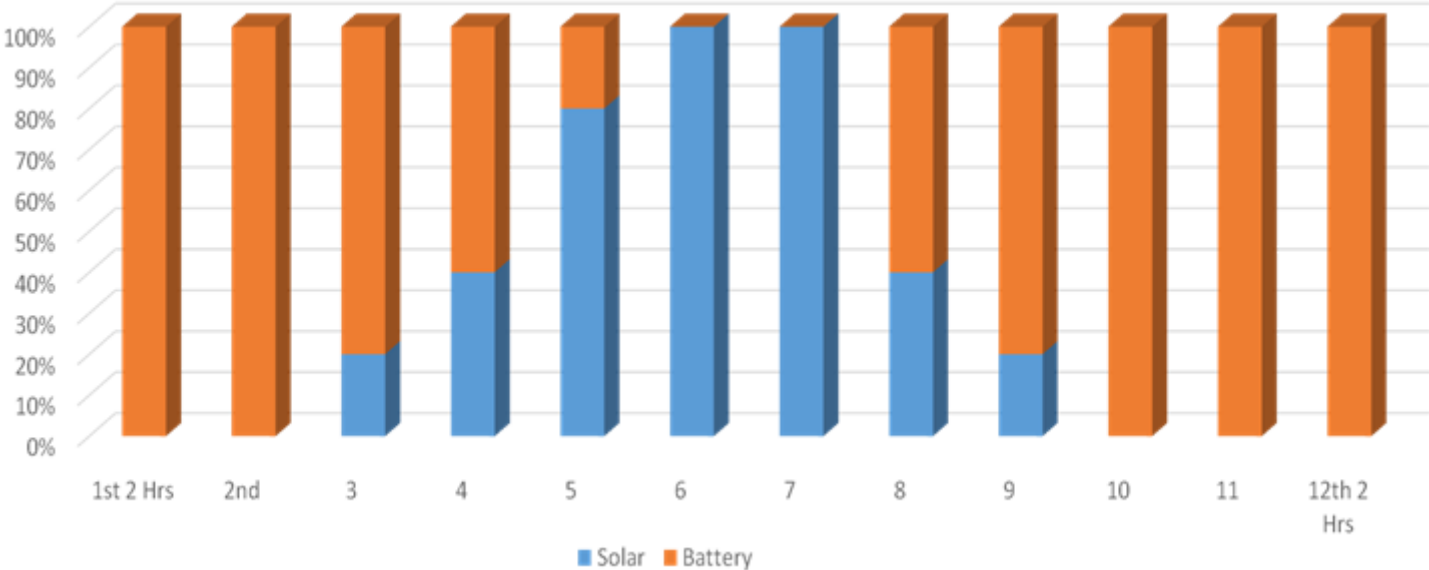
Solar Power Solution

Solar-DG Hybrid Power system



Solar Power Solution

Solar-DG Hybrid Power system



Solar Output Conditions	DG	Solar	Battery
Without solar at night	NA	NA	discharged
Solar output power < load Capacity	NA	Partly power	discharged
Solar output power > load Capacity	NA	Solely power	charged
Cloudy and rainy days last for a long period	Solely power	NA	charge
Poor solar radiation months	Partly power	Partly power	Discharged/charge



Solar Power Solution

Solar-DG-Grid Hybrid Power system

Application conditions:

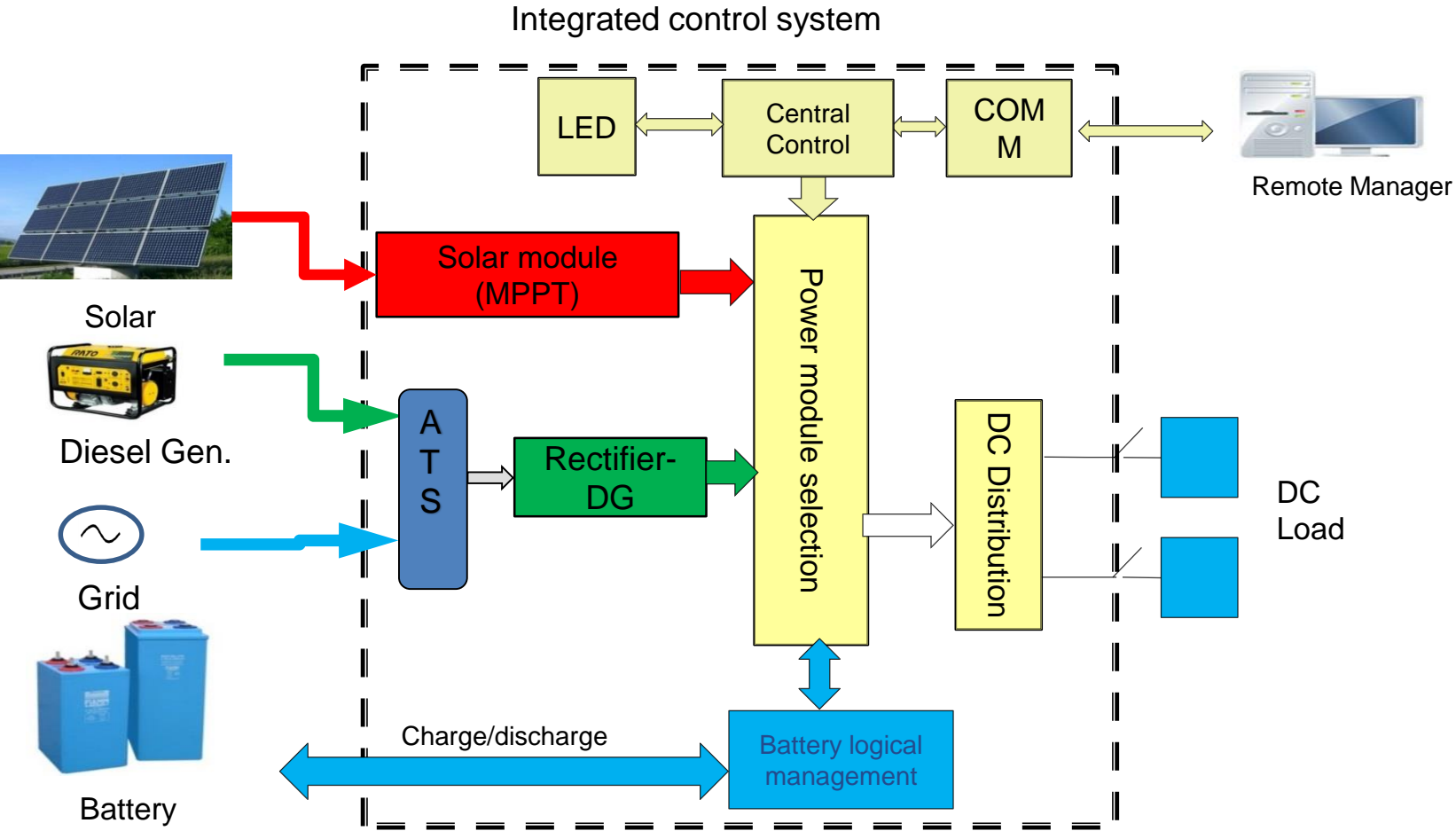
1. Grid electricity is easy to access, but the grid supply is instable;

Working principle:

1. When the solar output power is more than the load capacity, the solar panel will provide power to the load and charge the battery at the same time;
2. When the power of the solar panel is less than the load power, the solar output reach MPPT, then the battery will provide the rest of the power(without Grid supply) ;
3. When the grid supply power is on but the solar power is not enough, the grid supply will take the priority to power the load and fast charge the battery.
4. When the solar power is not enough and without main power, the battery will provide all the power;
5. When the solar power is not enough, and without main power, meanwhile the battery reach the lowest limit, then the DG starts to fast charge the battery and power the load, until battery being fully charged then go to next circle.

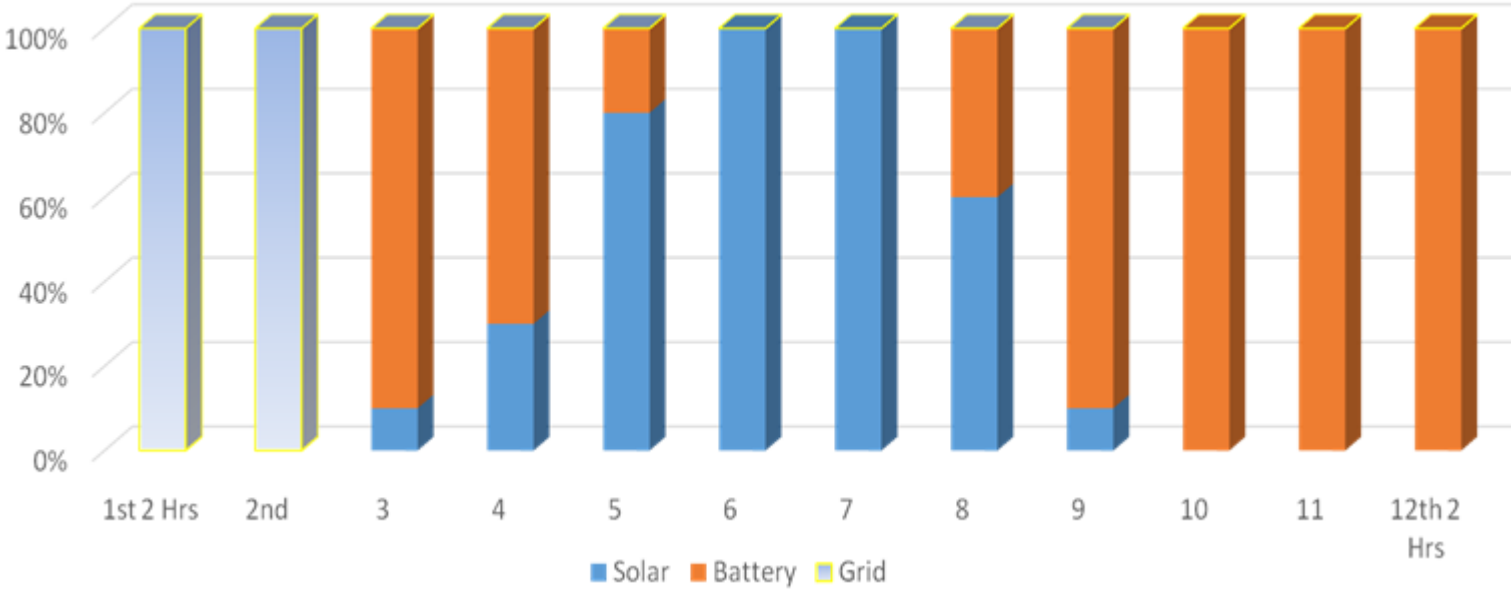
Solar Power Solution

Solar-DG-Grid Hybrid Power system



Solar Power Solution

Solar-DG-Grid Hybrid Power system

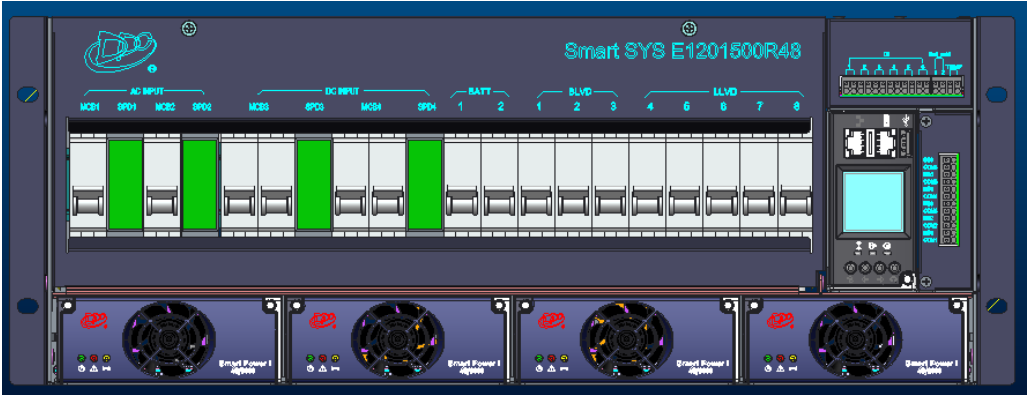


Solar Output Conditions	DG	Solar	Battery
Without solar at night	NA	NA	discharged
Solar output power < load Capacity	NA	Partly power	discharged
Solar output power > load Capacity	NA	Solely power	charged
Cloudy and rainy days last for a long period	Solely power	NA	charge
Poor solar radiation months	Partly power	Partly power	Discharged/charge

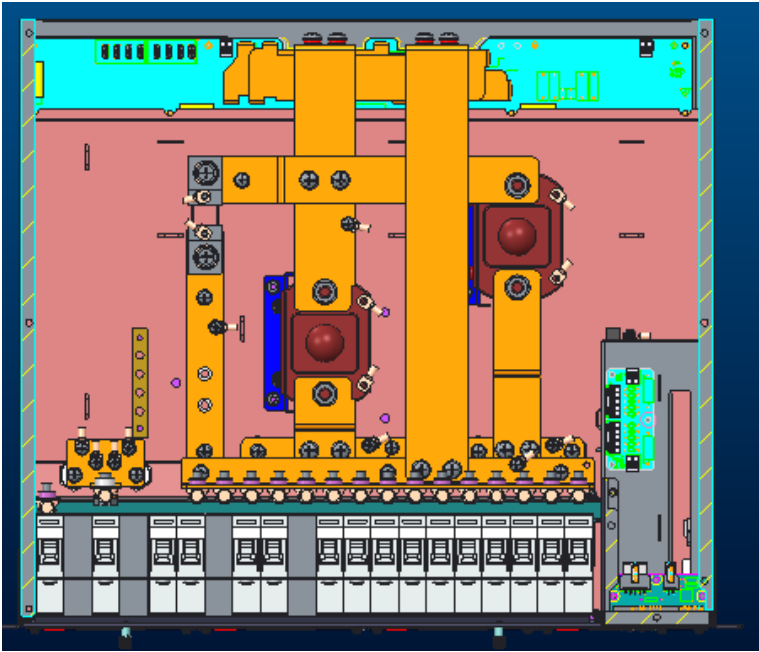
Solar has priority in the day time, meanwhile Grid has priority in the night time if Grid is available during that time.



Solar Power Solution

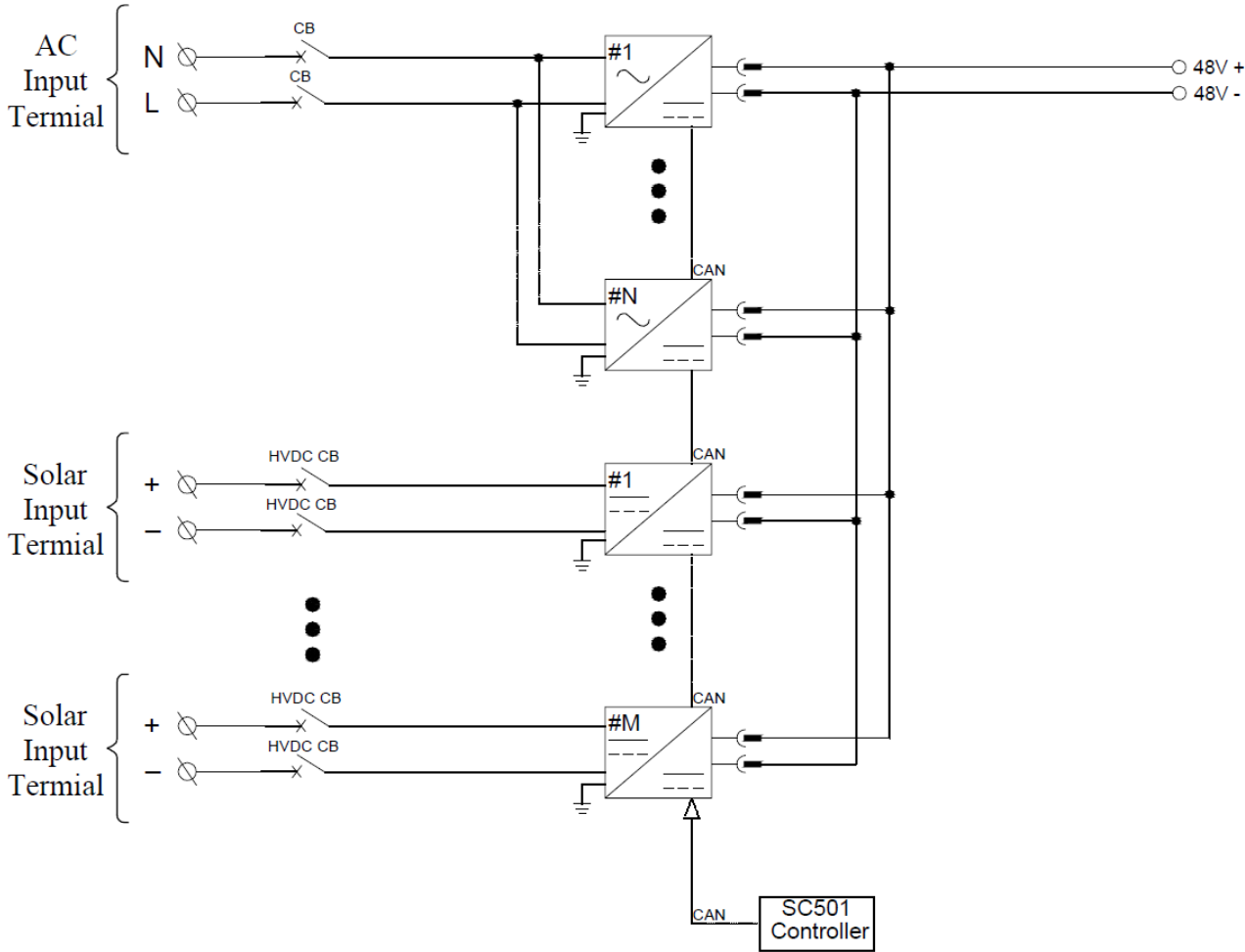


Front view



Top view

Solar Power Solution



*All can connect together



Thank you for attention!

