

Distributions & Channels



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MORN SUN®

One-stop Solutions of Power Supplies for Renewable Energy Industry

Solar PV | Wind Power | Energy storage system | EV charging station

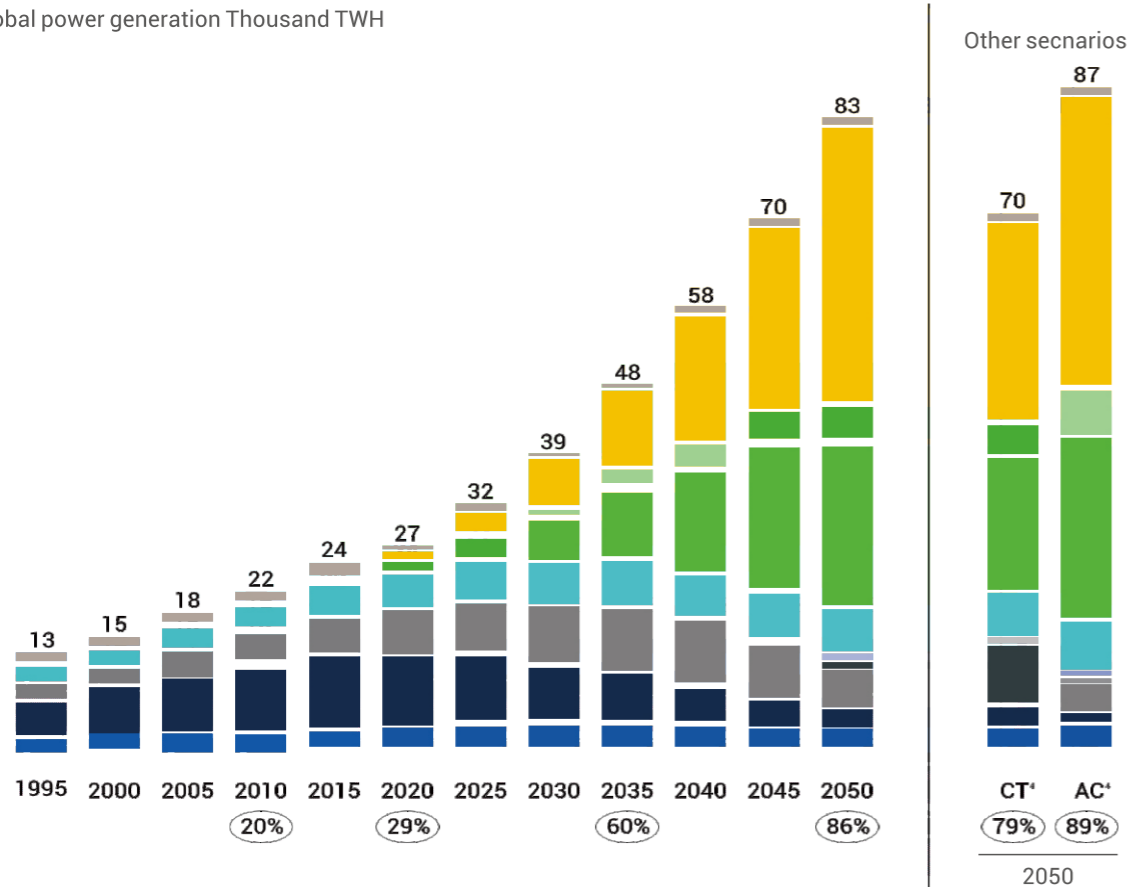


Renewable Energy System

Further Acceleration  Share of Renewables

■ Other² ■ Wind offshore ■ Hydro ■ Fossil with CCUS³ ■ Coal
■ Solar ■ Wind onshore ■ Hydrogen ■ Gas ■ Nuclear

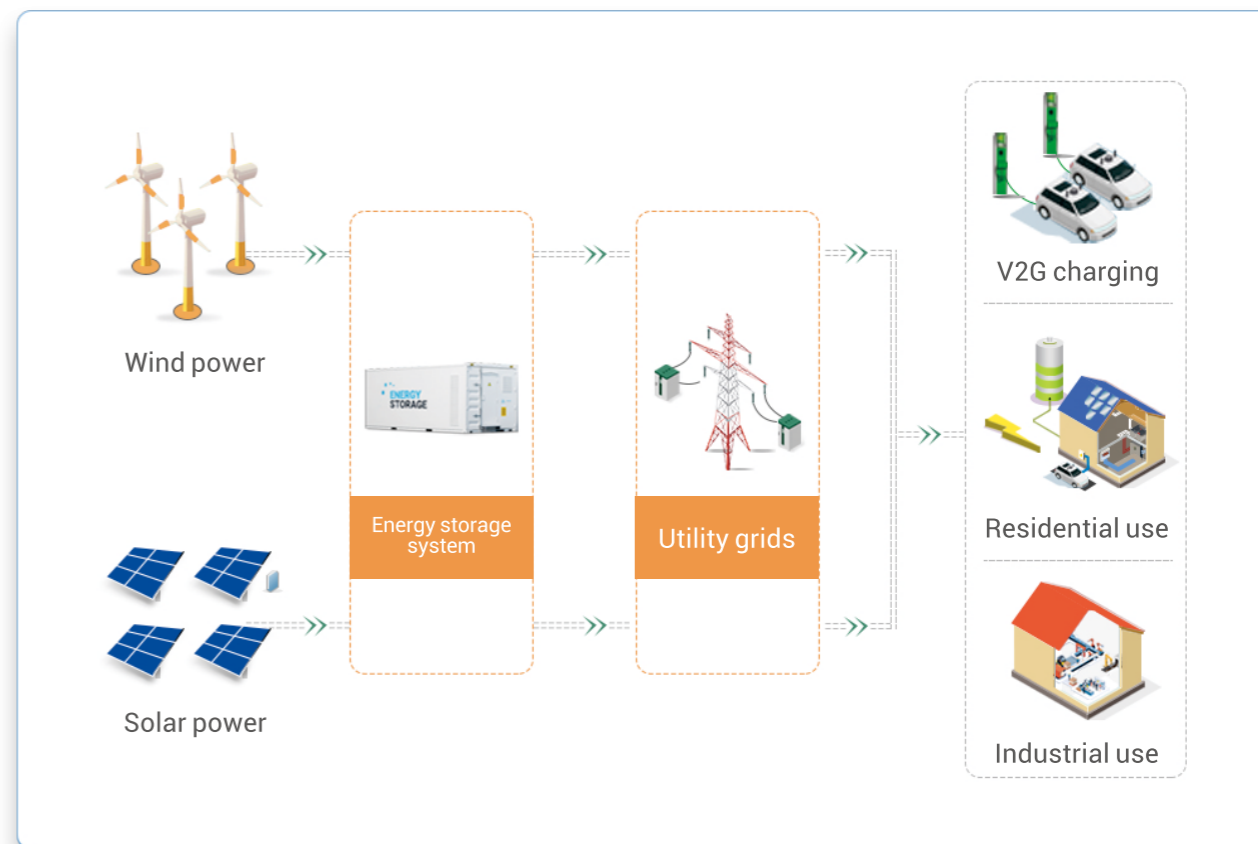
Global power generation Thousand TWH



1. Includes Solar, Wind, hydro, biomass, BECCS, geothermal, and marine and hydrogen-fired gas turbines
2. Other Includes bioenergy (with and without CCUS), geothermal, marine, and oil
3. Includes gas and plants with CCUS
4. CT refers to the Current Trajectory scenario; AC refers to the Achieved Commitments scenario

Source: McKinsey Energy Insights Energy Perspective 2022: McKins

Renewable are projected to account for 80-90% of power generation globally by 2050. But there are significant challenges to bringing more renewable energy online at scale. It is complicated that power generation and consumption should be considered in the use of renewable energy.



- Firstly, a cost-effective, reliable way to store power is very important, because the system need provide power even when it's not sunny or windy depending on demand.
- Secondly, getting electricity from where it is generated to where it is consumed requires a power transmission and distribution system: the grid. But the grid isn't always stable. It's out of date in some areas and the most common occurrence is the fluctuation of peak demand. So a stable renewable energy system is very important for maximize the use of renewable energy.

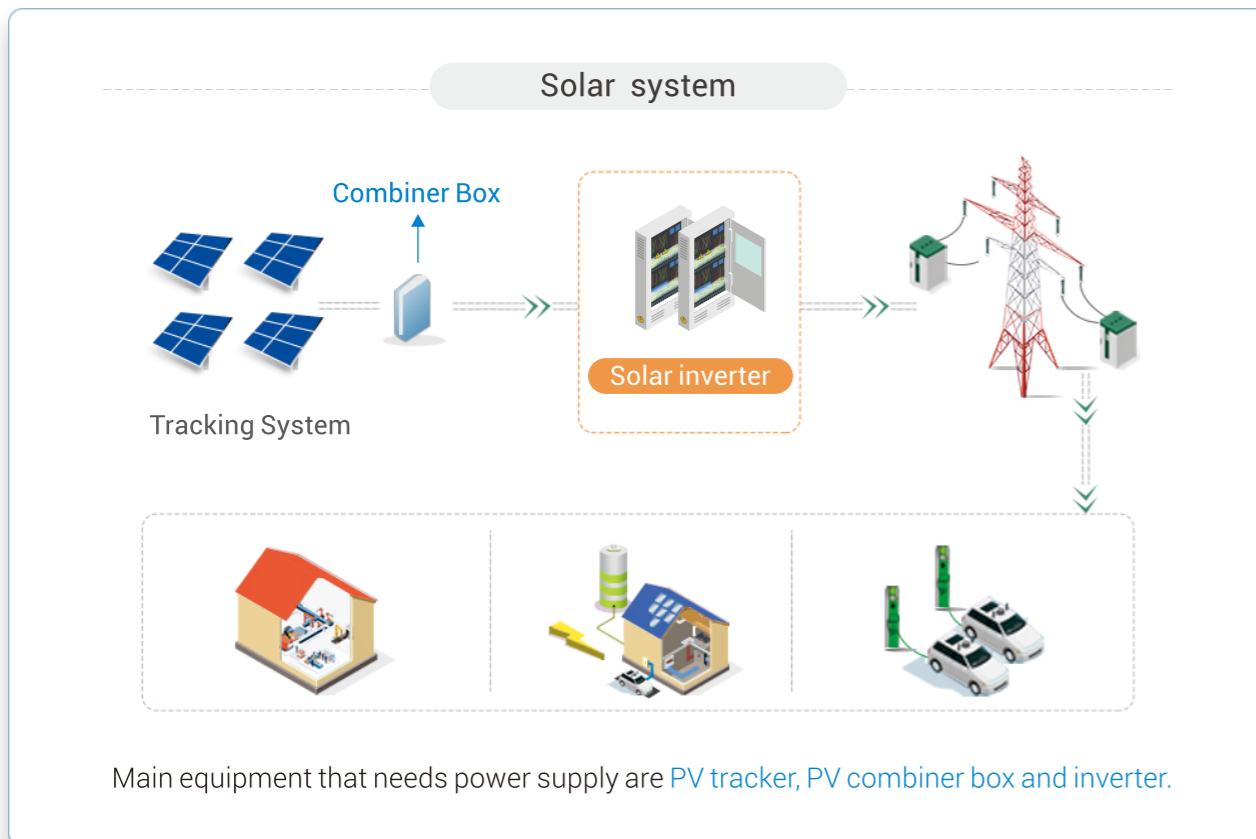
MORNSUN has contributed to creating a more environmental-friendly and efficient world by providing the reliable and efficient power supplies for PV, wind power, ESS, EV charging station, which can benefit homeowners, business owners, and entire communities.

Power Solutions for PV Tracking System

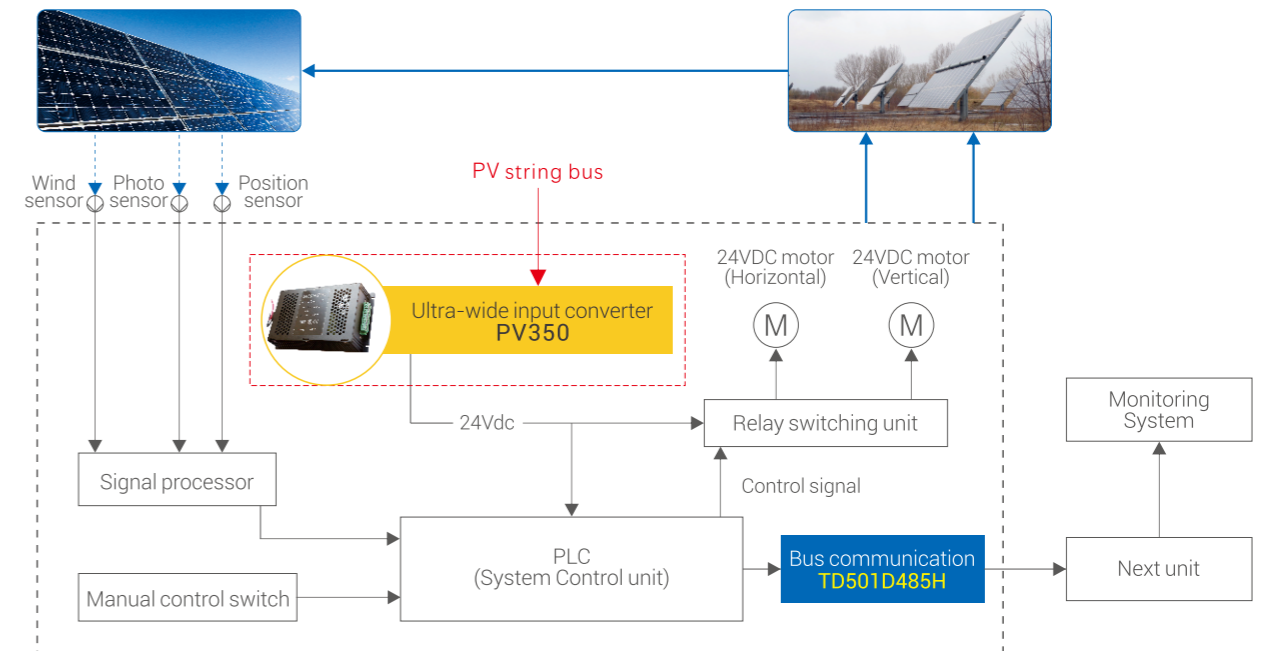
Latest Solar PV module market research report shows that the global PV module market is expected to expand at a CAGR of 5.17 percent during the forecast period, reaching USD 25506.84 million by 2028.



Power supply for solar tracker requires ultra-high input range, high isolation, complying with safety design, meeting operating temperature, altitude requirements and input anti-reverse protection. MORNSUN PV350 series are perfectly suited to the needs.



350W High power density DC/DC converters for PV tracking system



Product features

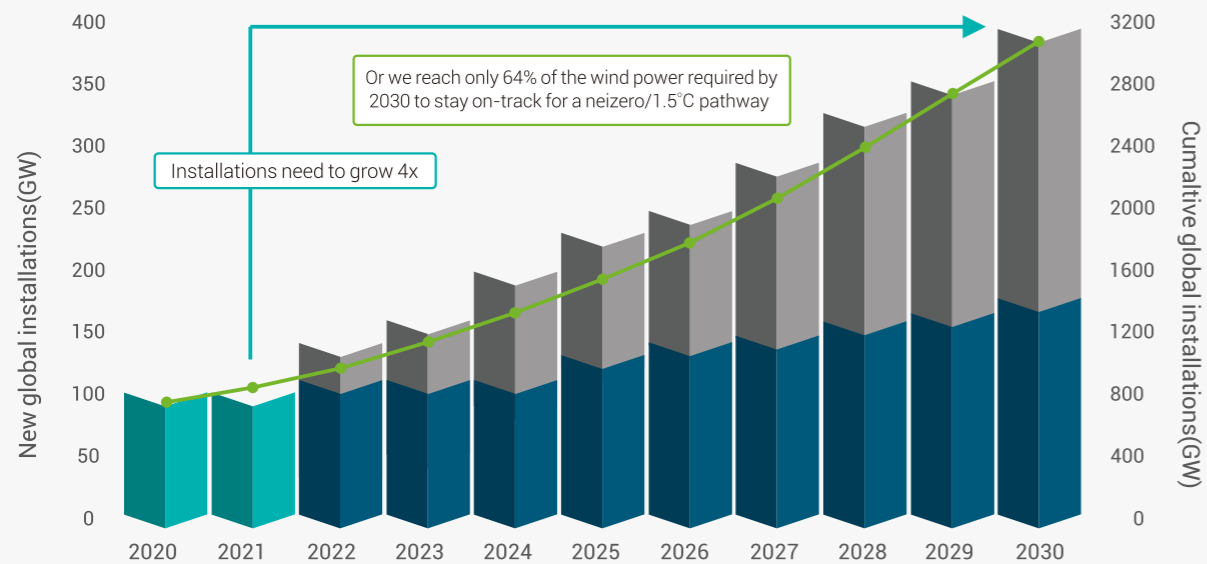
- The cost of solar tracking system is reduced by 30%
- Ultra-wide input voltage range of 300-1500VDC, input voltage up to 1700VDC (Transient, duration: 10s)
- High isolation test voltage of 4000VAC
- The safety design comply with CSA/CE/UL requirements
- Multiple protection, reverse input, over-temperature, output short circuit protection, etc.



Power Solutions for Wind Turbines

According to the global wind report 2022, the 93.6GW of capacity was added in 2021 brings a global cumulative wind power capacity to 837GW, showing year-to-year(YoY) growth of 12%, despite a second year of pandemic. This is a clear sign of the incredible resilience and upward trajectory of the global wind industry, which is expected to grow by 6.6% per year on average.

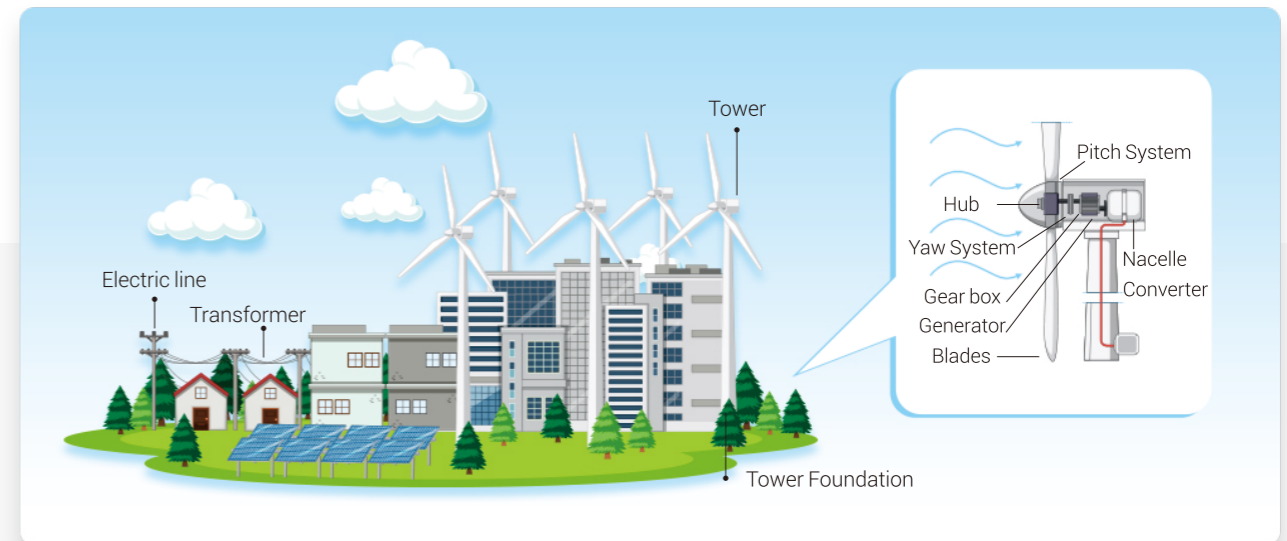
Logging growth in this decade leads to wind energy shortfalls by 2030



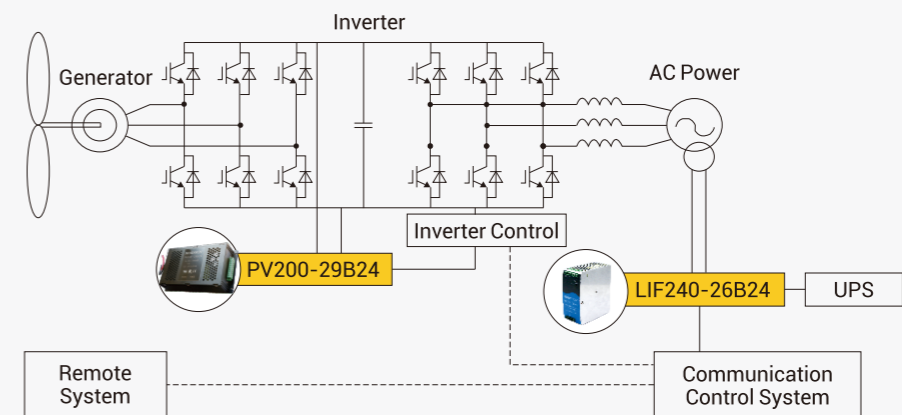
- New wind Capacity
- Projected New Wind Capacity Based on Current Growth Rates
- Annual Capacity Gap to Meet Net Zero by 2050 Scenarios
- Cumulated Wind Capacity to Meet Zero by 2050 Scenarios

Wind is not always a steady source of energy, however. Wind speed changes constantly, depending on the time of day, weather, and geographic location. Windmills are installed where there is plenty of wind, such as in the mountains and by the sea.

Thus, the power supplies used in wind turbine should meet these requirements: withstand large fluctuation of input voltage, and temperature variation. **A wide operating temperature range: -40°C to +70°C and meeting requirement of 5000m can ensure the whole system's high reliability.**

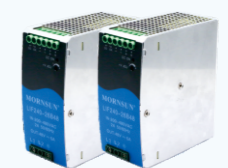


240W Ultra-wide input voltage AC/DC Din rail power supplies for wind turbines



Product features

- Universal 180-550VAC or 254-780VDC input voltage
- Operating temperature range: -40°C to +70°C
- Low ripple & noise, high efficiency
- Altitude up to 5000m
- Safety according to UL/EN/BS EN62368,UL61010



LIF240-26Bxx series

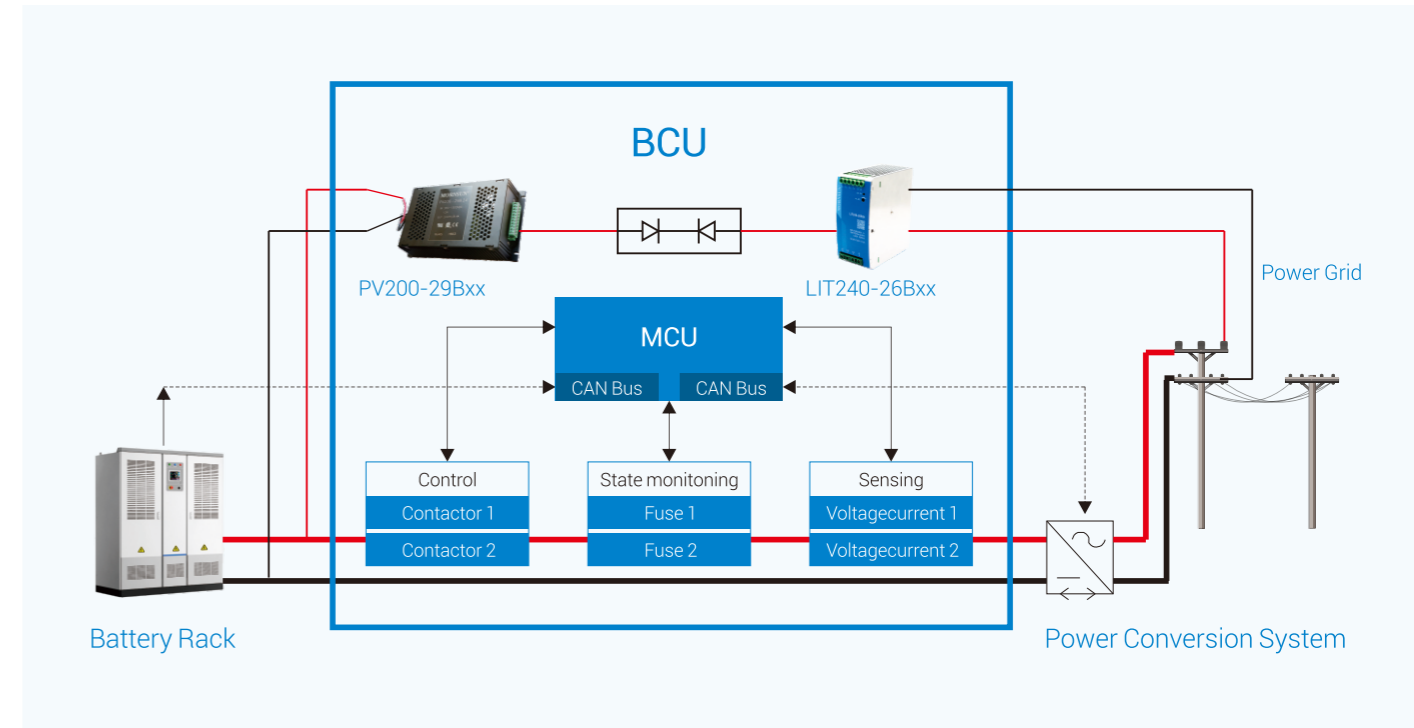
Energy storage system(ESS) stabilizes the output of renewable energy by charging & discharging irregular and intermittent power which is generated by wind and solar system. Thus, ESS is essential to maintain a stable grid and help consumers take control of energy usage.



Typical equipment of Commercial ESS

MORNSUN is helping create an eco-friendly energy world with its economic, efficient, reliable power solutions for Energy Storage Systems(ESS) - applicable to everywhere including power plant, utility, commercial and residential buildings, etc. Check out below BCU power solution.

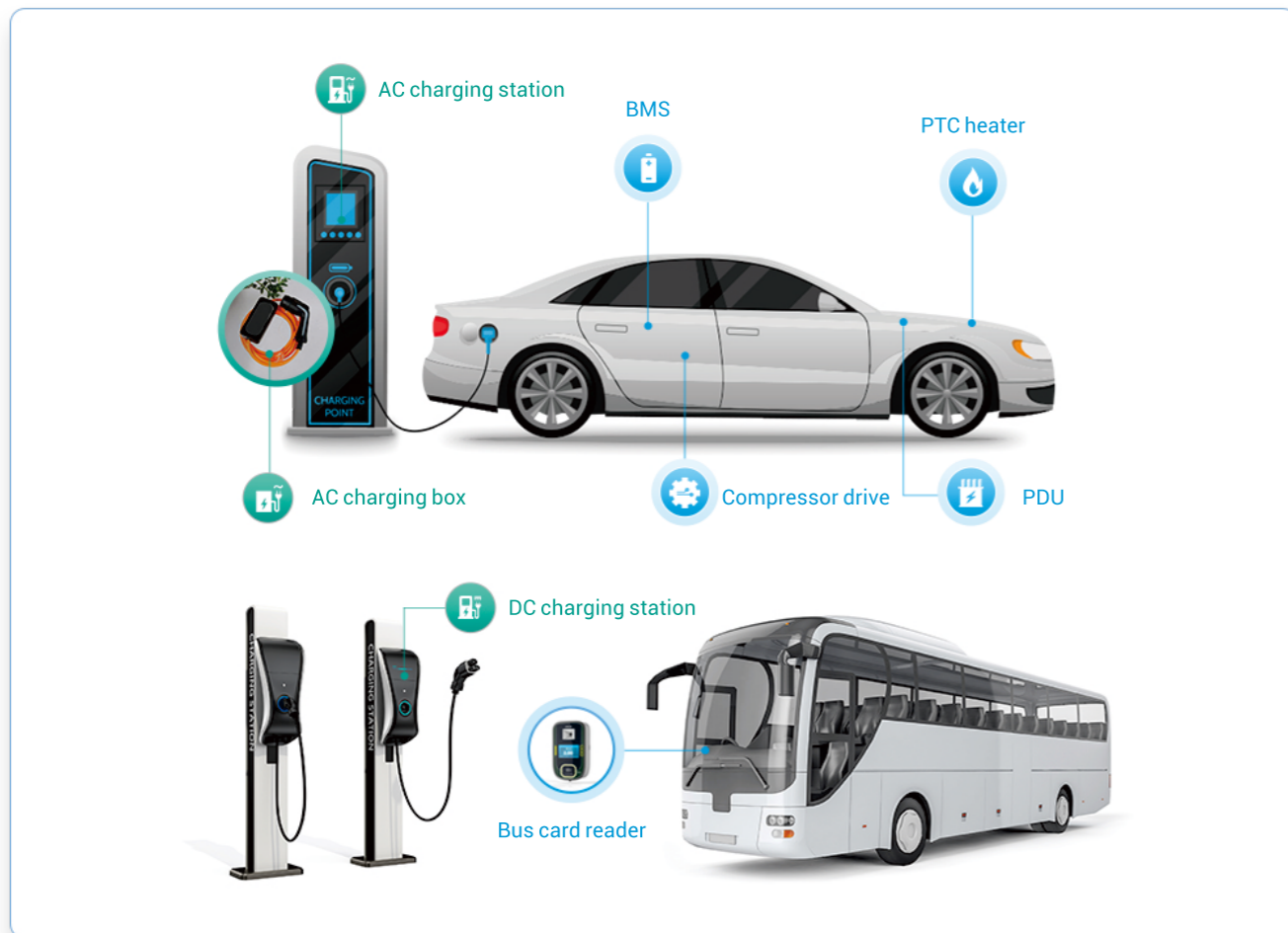
240W Cost-efficient AC/DC Din rail power supplies for BCU



Product features

- Wide input voltage range: 320-600VAC, 3-phase
-4-wire input
- Operating temperature range: -30°C to +70°C
(full load@60°C)
- Slim-type layout: 54mm width, easy to install in a small cabinet





The global [EV charging station market size](#) is projected to have a high-paced CAGR of 26.6% during the forecast period. The current valuation of the EV charging station market is US\$ 10,768.2 Mn in 2023.

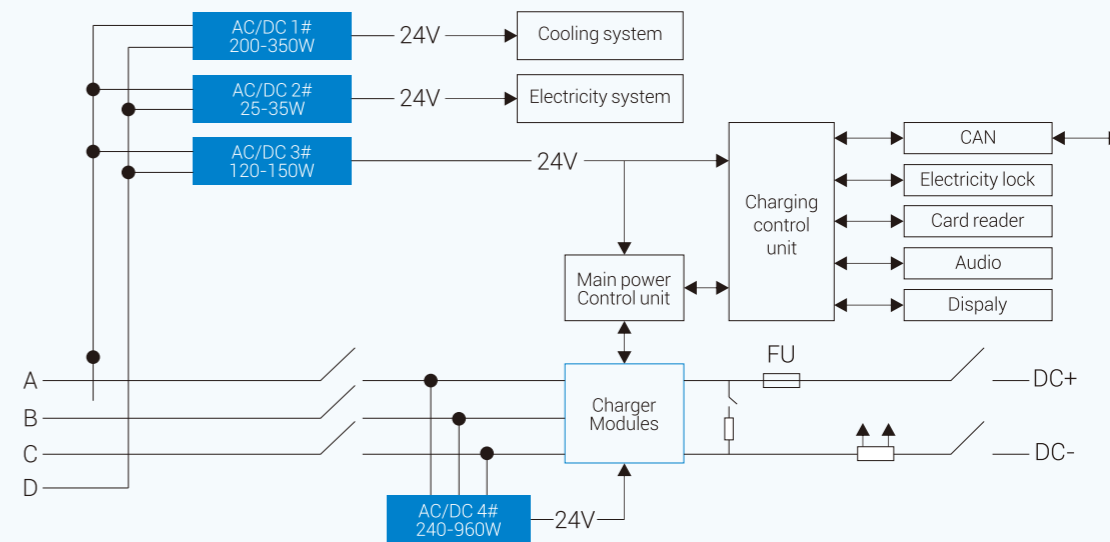
There are two different types of EV charging stations, AC charging and DC charging station.

[AC charging](#) stations are generally small current charging piles, flexibly installed, and it takes an average of 2-8 hours for a full charge depending on the vehicle.

[DC charging](#) pile is a high-powered Level 3 charger. It delivers DC power to the battery. DC charging station draws large current, with a large pile body armed with large charging capacity, and is usually able to charge the battery to 80% of the charging state within 30 minutes.

[Cost-efficient, compact and reliable power supplies](#) are critical for the Control system both of AC charging station and DC charging station.

480W High-reliability AC/DC Din rail power supplies for DC charging station



Product features

- DC OK function
- Working at full load at 60°C
- 150% peak load power lasts for 5s
- Supporting parallel(2+1 current sharing) and series application
- OVC III (safety according to EN61010)



LITF480-26Bxx Series

MORNSUN's line of power products includes [AC-DC converter](#), [DC-DC converter](#), [transceiver module](#), and [SiC/GaN driver power supply](#). All our power supply solutions are well-adapted to meet the demands of EV charging stations. For example, both of our 1-15W open frame AC-DC converter [LS series](#) and 3-30W encapsulated AC-DC converter [LD-R2 series](#) offers compact size, a wide input voltage range of 85~305VAC that help meet the key requirements of power design for the EV control system.