

SCHACHNER

KLEINWINDKRAFT



EDITORIAL

Dear Ladies and Gentleman!

Wind power is known as a clean and environment friendly energy that leaves no hazardous waste or CO². Wind energy is an ideal addition to solar energy. Take advantage of solar energy during the day and mostly in summer, wind energy has its peak output mainly in autumn and spring but also at night when the sun doesn't shine. It is possible to get an energy self-sufficiency by the optimum use of sun and wind. By the way it contributes a large part to protect the environment. All wind turbines in Europe avoid more than 100 million tonnes of CO² - which is more than the total CO² emissions of Austria.

Wind energy has a great potential in generating power in many areas of Austria. It enables the efficient and cost-effective production of clean energy.

The larger the share of renewable energy, the more independent you are of uncertain and volatile fossil fuels such as oil and gas.

In addition, wind energy can directly be used for charging electric vehicles like the solar energy does.

We appreciate your interest in our products and we are looking forward to present you some facts about our various products on the following pages!

Best regards,
Your Schachner Team



TRENDSETTING & ECO-FRIENDLY

ENERGY SUPPLY WITH THE POWER OF THE WIND

Franz Schachner has been engaged in trendsetting technologies for over 30 years. Thanks to modern technology and ingenious know-how, it is now finally possible to use wind power for the in-house power supply.

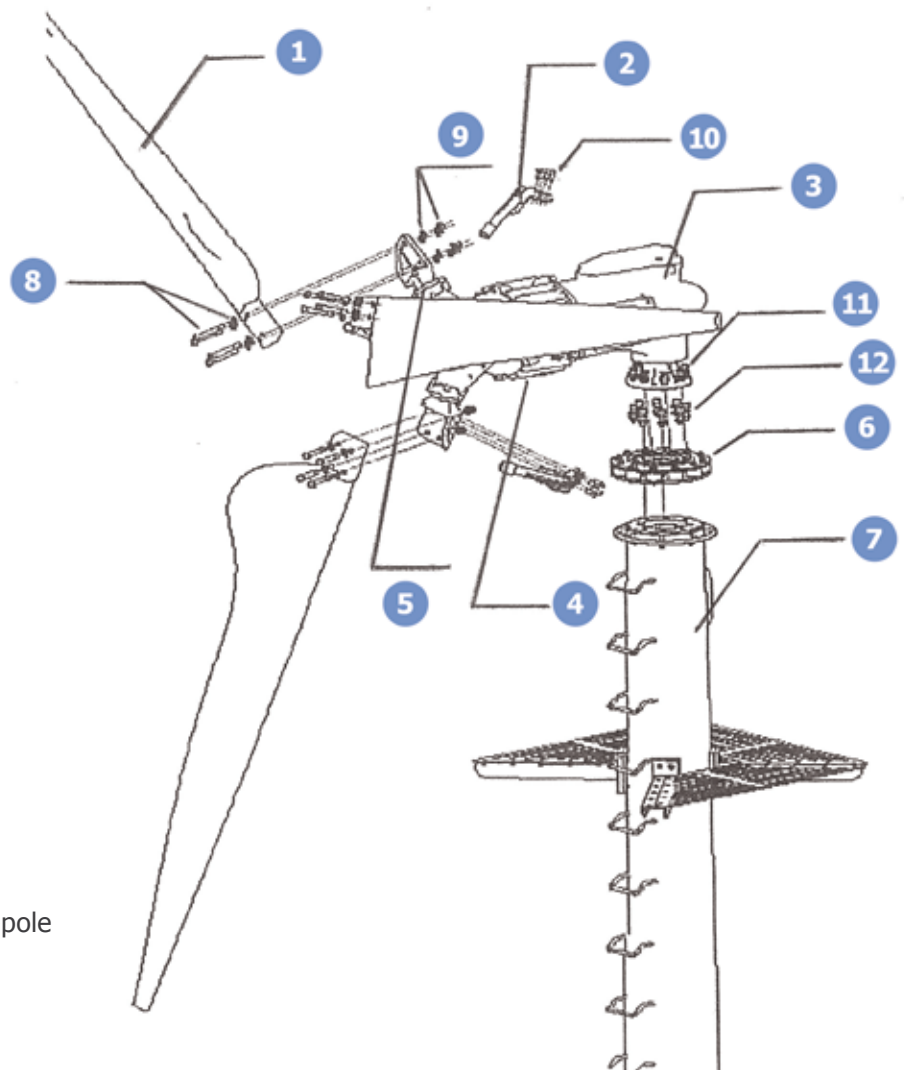
WIND IS GETTING MORE

A wind power station supplies electrical power according to the wind force without being affected by the time of day, time of year, or the position of the sun.

If wind conditions are good your wind power station can generate the required electrical power and feed any electric current you do not need into the power grid of the energy suppliers for an agreed chargeback rate.

The structure of the Schachner small wind power stations is very low-maintenance because gear units or hydraulic control sections or unnecessary electronic contacts, etc. have not been installed.

These small wind power stations are available with 800 W, 5 kW, 10 kW, 20 kW or 30 kW power so that a planned system can be adapted to the necessary power requirements in each case.



- ① blade, 3 pieces (fiberglass)
- ② centrifugal hammer, flyweights
- ③ body of wind turbine
- ④ neodymium iron boron generator 16-pole
- ⑤ rotor hub
- ⑥ absorbing plate
- ⑦ tower, two-part or three-part
- ⑧ screws with washers
- ⑨ screw nut with spring ring/spring disc, washer
- ⑩ screws with spring ring/spring disc
- ⑪ screws with spring ring/spring disc, washer
- ⑫ allen head screw with spring ring/spring disc, washer

TECHNICAL FEATURE

Here are a few features that make our small wind power stations SW5 and SW10 one of the best worldwide functioning systems:

- **Speed control** by means of centrifugal weights and return springs (No hydraulics or electrics).
- **No gear units**, thus less friction loss and less noise.
- **No gearwheel replacement** (wear), thus very low service and maintenance expenditure.
- **No oil change**, no oil filter change, no danger due to leaking oil.
- Optimally **adjusted inverter** with a simple design and a long service life
- **Downwind turbine**, the wind blows over the generator from behind. No vane or electric yaw system necessary as the wind turns the generator automatically in the direction of the wind.

THE SYNCHRONOUS GENERATOR

The stator has a 16-pole, 3-phase winding; the rotor is equipped with high-performance neodymium iron boron magnets.

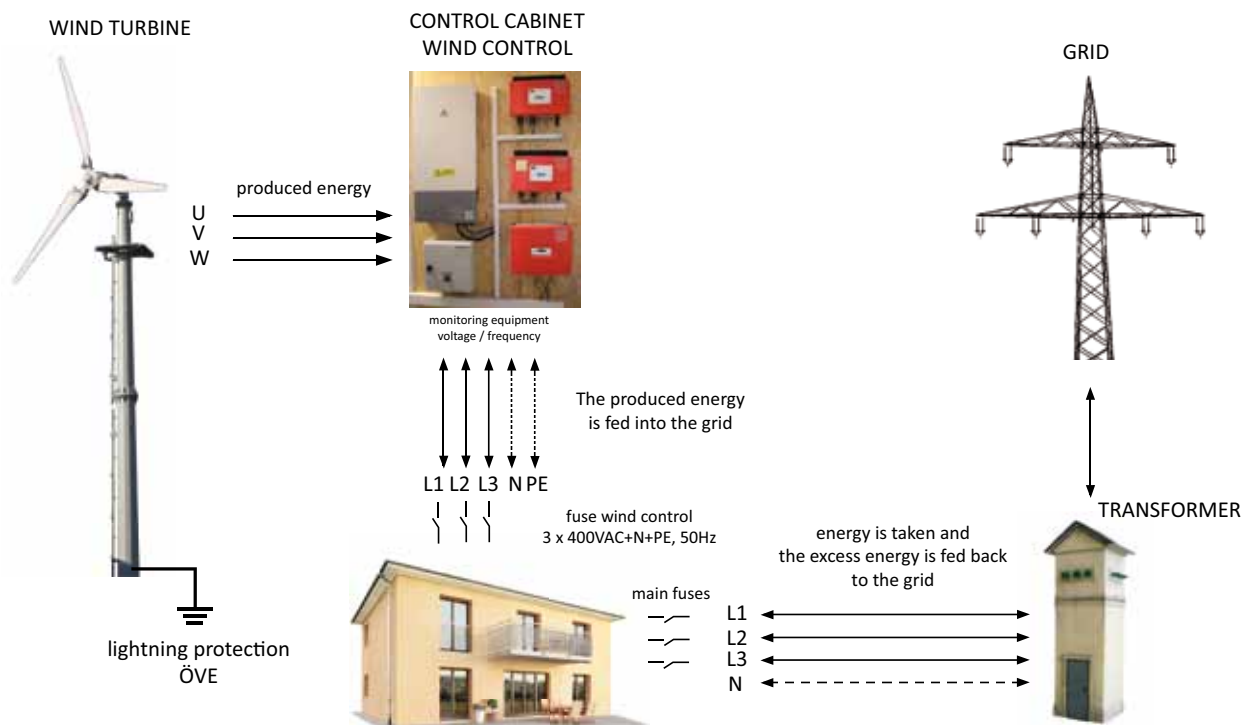
The generator is mounted on two optimally dimensioned ball bearings, has no carbon brushes, is produced pursuant to protection class IP54 and is maintenance-free.

The current from the generator is conducted through the mast to the ground. The wind blowing from behind holds the wind turbine in the optimal direction and constantly realigns its.

There are only three generously dimensioned carbon brushes in the wind turbine nacelle. These serve to transport the generated energy downwards. The service life is approximately 15 years.

The complete system is hot-dip galvanized and protected against corrosion.

SCHEMATIC



THE INVERTER

- 3-phase feed-in with SMA inverter for SW5 and SW10
- automatic adjustment to the wind turbine performance
- special characteristic curve for speed monitoring
- high service life

THE BLADES

With a tip speed ratio of more than 0.4 and a noise level of less than 35 db at 5 kW and 47 db at 10 kW (at 40 m distance), the blades have been aerodynamically optimised for an improved performance.

Special fibre-glass reinforced blades guarantee greatest stability and a reliable function at high wind velocities.

The centrifugal force governor automatically controls the storm protection and the speed control. During standstill, the blade position is adjusted so that the wind turbine can start easily.

The specially sealed blade surface prevents the formation of ice.

HOW DO I ACQUIRE A WIND TURBINE?

Before setting up your system, you must submit a request for approval to your local authority, the district commission and to your power supply company.

We will provide you with the following documents:

- Request (original) in triplicate
- Technical documents in triplicate
- Statics for the foundation in triplicate
- Ground plan of your property indicating where the wind turbine will be set up

These documents will be provided to you by Schachner Wind GmbH. We would also be pleased to handle the submissions for you.

WHAT MUST BE PROVIDED BY THE CUSTOMER?

- Foundation according to supplied static calculation, performed by a licensed building contractor with confirmation of the execution according to plan!
- Licensed electrical company for the proper connection of the system pursuant to ÖVE (Austrian Federation for Electrical Engineering) according to the instructions of Schachner Wind GmbH
- Lightning protection earthing for the tower
- Excavation work
- Cable from the generator to the rectifier

POWER GRID FEED-IN?

If you wish to feed in the wind power or excess current to the national power grid you will need a contract with your electricity provider.

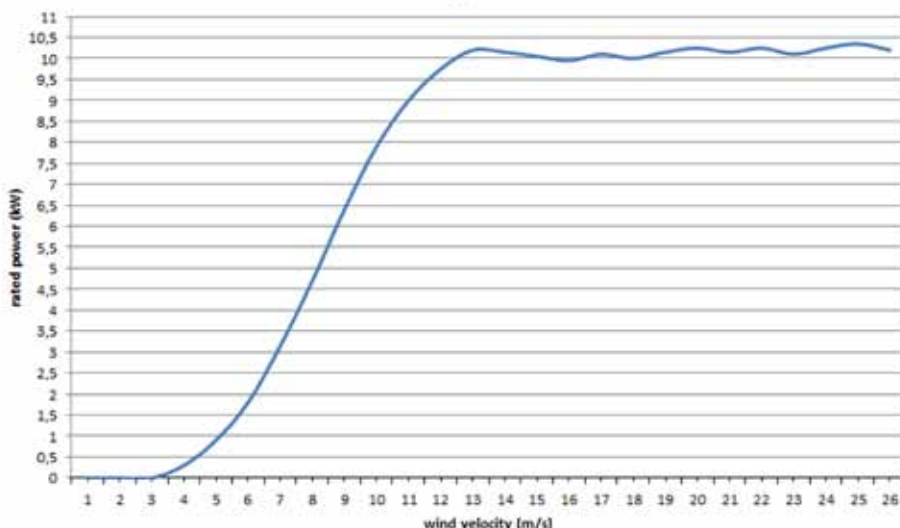
You will also need a feed-in contract with the energy partner of your choice. Schachner Wind GmbH can support you in this matter as well.

SCHACHNER WIND TURBINE SW10

Power rating	9.9 kW
Rated speed	11 m/s
Start-up wind speed	3 m/s
Operating speed	3.5 - 25 m/s
Maximum wind velocity	50 m/s
Nominal rotation speed	200 r/min
Wind turbine diameter	7.8 m
Operating voltage	AC400V
Rotor blade material	Fiberglas *3
Yearly power generation	10,000 kWh at 4 m/s 20,000 kWh at 5 m/s wind average per year
Maximum capacity	9.7 kW
Speed regulation method	Speed-dependent blade adjustment
Three-phase generator design	Synchronous
Stop method	manual / automatic
Weight of wind turbine with generator	500 kg
Feed-in with inverter	SWWR10
Noise level at 40 m distance	approx. 47 db (A)
Tower heights	10m / 12m / 15m
Feed-in	3x400VAC+P+N 35A



SW10 wind turbine performance curve

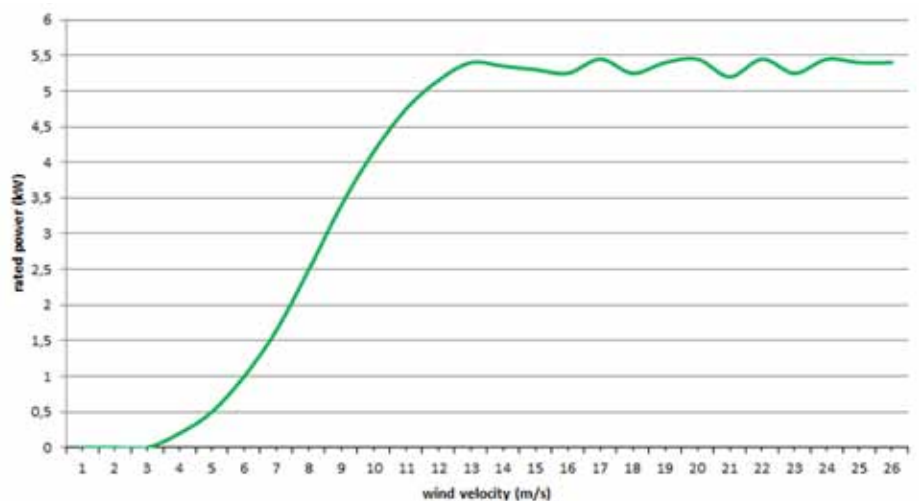




SCHACHNER WIND TURBINE SW5

Power rating	4.8 kW
Rated speed	11 m/s
Start-up wind speed	2.5 m/s
Operating speed	3.5 - 25 m/s
Maximum wind velocity	50 m/s
Nominal rotation speed	240 U/min
Wind turbine diameter	5.6 m
Operating voltage	AC400V
Rotor blade material	Fiberglas *3
Yearly power generation	5,000 kWh at 4 m/s 10,000 kWh at 5 m/s wind average per year
Maximum capacity	4.6 kW
Speed regulation method	Speed-dependent blade adjustment
Three-phase generator design	Synchronous
Stop method	manual / automatic
Weight of wind turbine with generator	340 kg
Noise level at 40 m distance	ca. 35 db (A)
Tower heights	8m / 12m / 15m / 20m
Feed-in	3x400VAC+P+N 16A

SW5 wind turbine performance curve

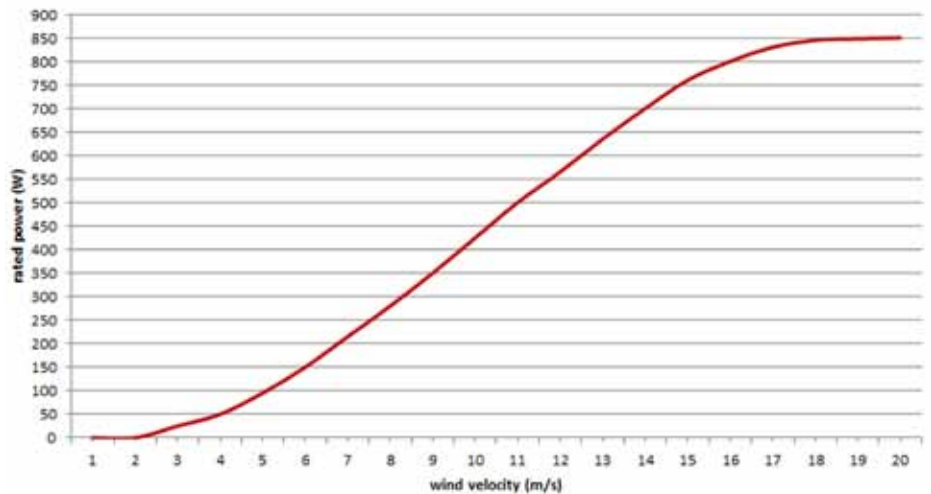


SCHACHNER WIND TURBINE SW0.8



Power rating	800 W
Rated speed	12.5 m/s
Start-up wind speed	2 m/s
Maximum wind velocity	45 m/s
Wind turbine diameter	1.83 m
Operating voltage	AC48V
Rotor blade material	Fiberglass *3
Maximum capacity	800 W
Speed regulation method	electronic
Three-phase regulation method	Synchronous
Stop method	electromagnetic brake
Weight of wind turbine with generator	18 kg
Tower heights	depending on situation
Feed-in	possible to the power grid or isolated operation

SW0.8 wind turbine performance curve



WIND TURBINE



CONTROLLER

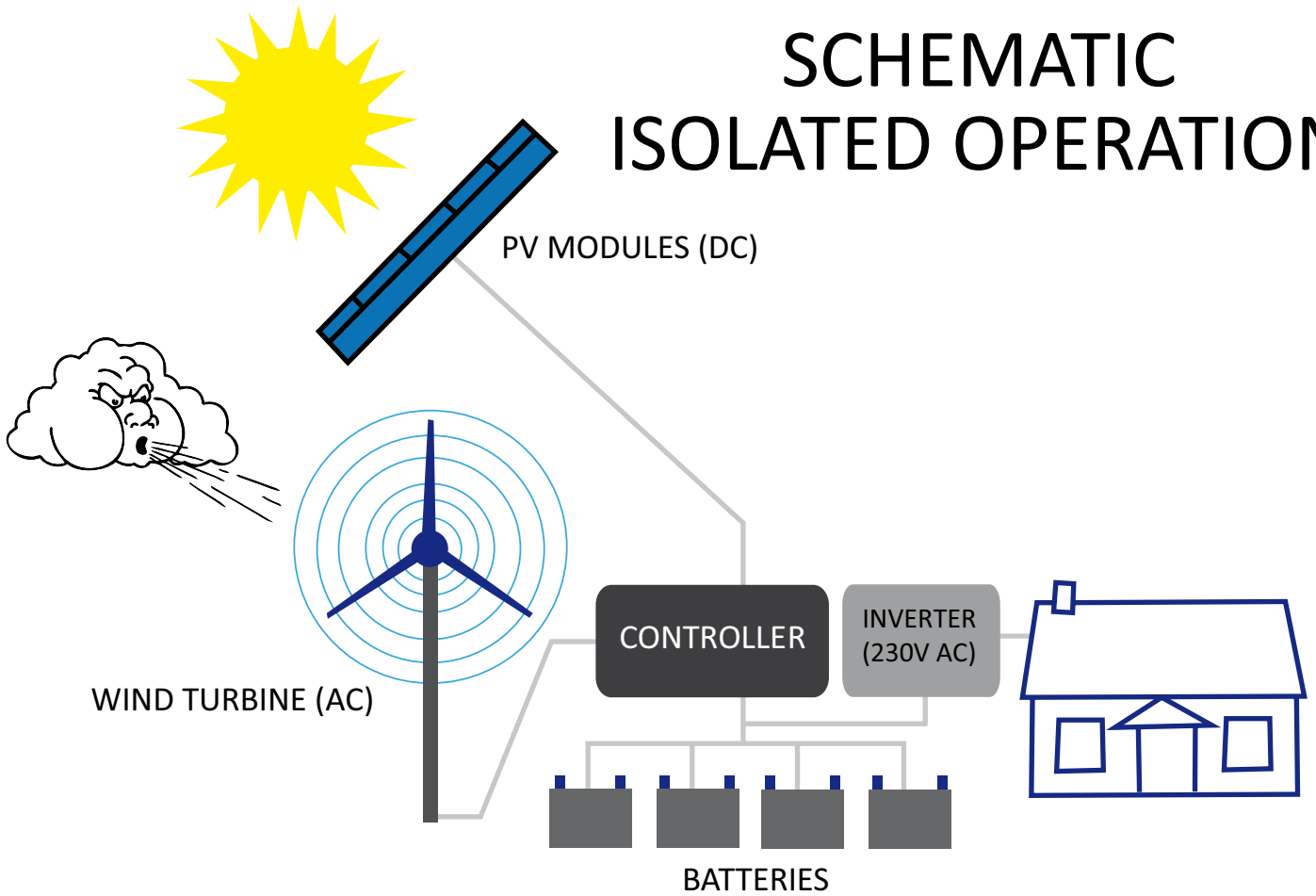


INVERTER

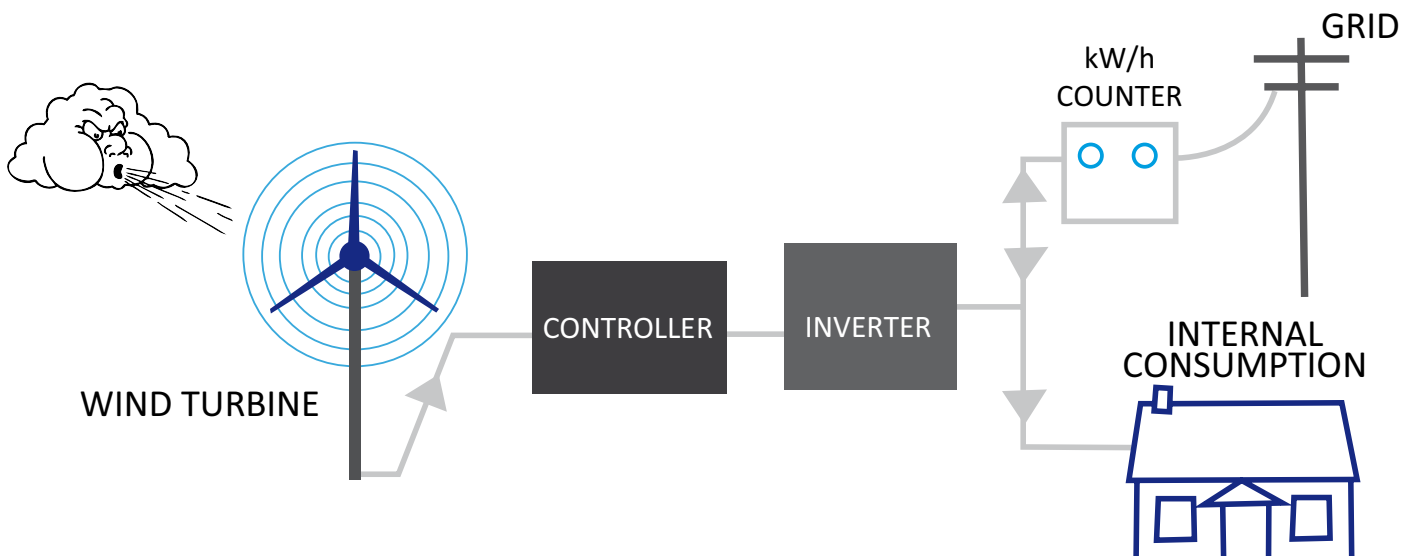


OPERATION MODES SW0.8

SCHEMATIC ISOLATED OPERATION



SCHEMATIC POWER GRID OPERATION



REFERENCES



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