

Backup power

in the home power
stations



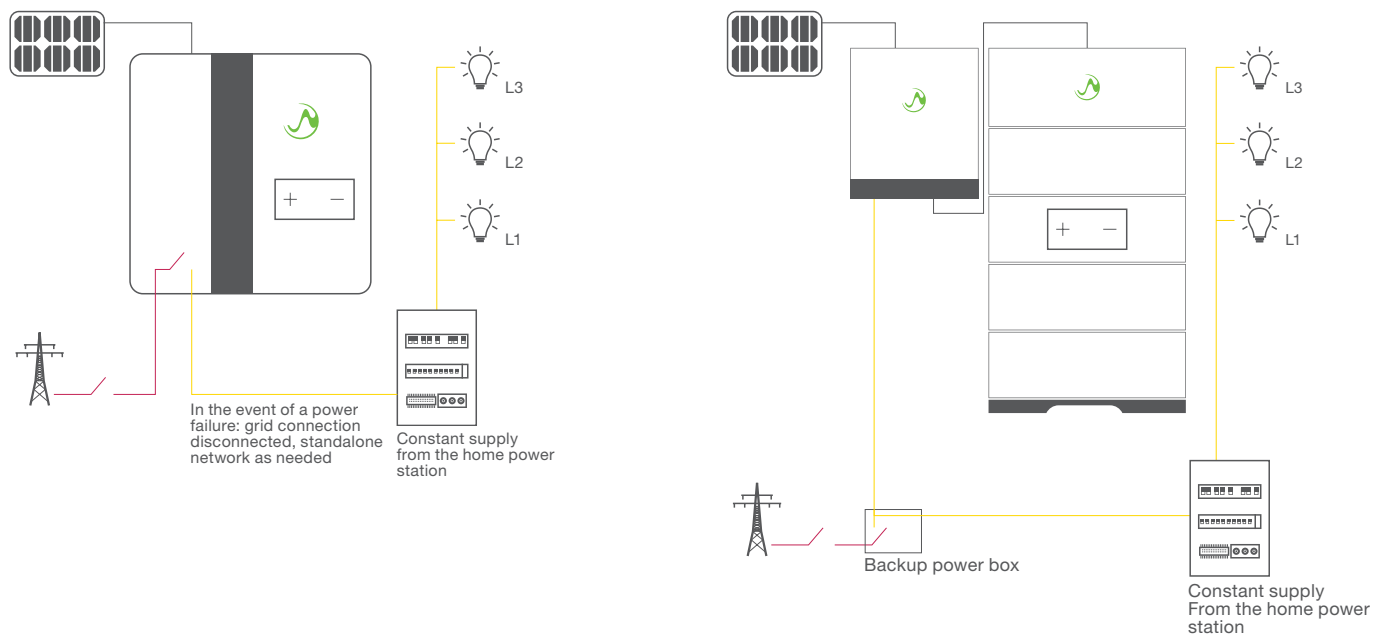
Backup power in the home power stations

Important information on backup power mode in the home power stations

As long as, there is no fault in the power grid, your home power station will run in normal mode. It is connected to the local distribution grid as well as your PV system and feeds in excess solar power. The energy management system optimises solar power usage and minimises use of grid power. You can monitor generation, consumption and supply in the E3/DC portal. In addition to a wide range of operating data, the E3/DC portal also shows you how high your maximum power requirement is over the course of the day. A comparison with the discharge capacity of the home power station shows whether you can run your usual load profile safely or need to reduce the load – if you have to rely solely on the batteries and the PV system.

What happens when there is a power failure?

When the power grid has a fault, your home power station will automatically switch to backup power mode within a few seconds and remain in that mode until the grid is available again. In the meantime, the house is supplied with power exclusively by your PV system (as long as there is sunshine) and from the batteries in your home power station. The backup power mode is limited by the discharge power of the home power station and by the capacity of the batteries.



Requirements for backup power operation / availability

In acute cases, backup power operation is only reliable and stable if sufficient battery capacity is available. To keep a guaranteed capacity available irrespective of the discharge cycles of normal operation, you can define a backup power reserve using the home power station operation menu.

As long as PV power is available during the grid failure, the battery will also be recharged during backup power mode and continued operation is possible over a longer period. However, in backup power mode, you need to make sure that the load requirements of all active consumers do not lead to an overload. The decisive value is the continuous output of the battery converter in your home power station (see table). It can be increased slightly with the PV output, but safe operation occurs when the maximum load is below the maximum battery output.

Overload and ways to reduce the load

Power failures generally come unexpectedly. If you happen to switch on excessive loads, manually switching off loads that are not necessary is the easiest way to safeguard the required applications. If an overload occurs, the home power station will switch itself back to backup power mode after the load is reduced.

With your installation technician, you can connect certain consumers so that they are disconnected from the home power station in backup power mode as a precautionary measure. For example, the high-demand kitchen circuit can be excluded when the battery output is too low in order to ensure lighting, communication and other important applications. Heat pumps can only be run in backup power mode if the start-up current and the required typical output do not lead to an overload.

Shut-off and black start

A longer grid failure and darkness can cause the battery capacity to decrease so much that your home power station shuts itself off for safety reasons. As soon as the PV system supplies sufficient energy again, the home power station can start up in backup power operation independently of the power grid once more, because the batteries are recharged. Depending on battery system, this process runs automatically or by actuating the tripped battery isolating switch.

Backup power mode in home power stations

All home power stations except for the S10 SE have a “true” three-phase backup power mode. The home power stations disconnect themselves from the public power grid and set up a separate, internal house three-phase system. The home power station is disconnected from the power grid at all poles, i.e. at all phases. Your home power station needs to be equipped with an optional motor switch for the backup power function. It can be fitted at the factory or retrofitted. The S10 SE+ home power station has a three-phase backup power option with an external backup power box.

Configurable battery reserve for backup power mode

You can set a battery reserve in the operating menu of your home power station. The specified capacity will then not be used in normal operation. The battery does require a regular calibration cycle, however. The battery is fully discharged every 7 days as a rule and the battery reserve is not available during that time. After full discharging, the battery is charged again to the set reserve, if necessary also using mains electricity. Only home power stations from the S10 E PRO series can provide a battery reserve without interruption as they have two battery sets. Both battery sets can be calibrated without fully discharging the batteries at the same time. On the S20 X PRO, a configuration with two battery sets can also be used to guarantee an interruption-free backup power reserve.

	S10 SE+	S10 X / COMPACT variant	S10 E PRO / S10 E PRO COMPACT	S20 X PRO
Rechargeable using solar energy	Yes	Yes	Yes	Yes
Battery converter continuous output (kW)	3–4.5	4.5–11 (observe data sheet, depending on storage configuration)	6–9	23–30
Usable battery capacity (kWh)	5.25–11.2	8.25–20.6	11.7–29.2	20.6–123.6
Reserve configurable	Yes	Yes	Yes	Yes
Suitability	Weak 3-phase consumers	Weak 3-phase consumers	Universal solution 3-phase standard	Universal solution 3-phase standard



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