

MULTI FLOW TECHNOLOGY

/ Intelligent management of energy flows

INTEGRATED EMERGENCY POWER FUNCTION

/ Those investing these days in a PV system will usually try to cover their own energy consumption with self-generated electricity rather than feeding it to the grid. A few years ago, feed-in tariffs were the prime motivator for investment in PV systems. Nowadays self-sufficiency is the priority, with the aim of saving energy costs. In this context, the use of storage technologies is becoming increasingly important. Storing solar energy for round-the-clock use however is only the beginning. The efficient combination of PV system, storage technology and additional energy sources is the goal. It is precisely this that Multi Flow Technology makes possible: intelligent management of energy flows for ongoing optimisation of the local energy system. Multi Flow Technology is therefore the precondition for the best possible use of a storage system and permits previously undreamed-of application flexibility.



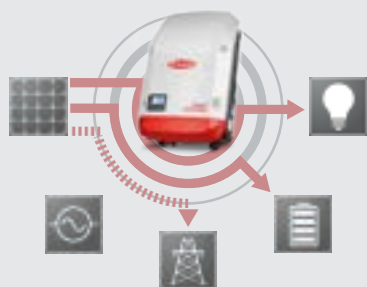
THE BENEFITS OF MULTI FLOW TECHNOLOGY AT A GLANCE

- / Maximised self-sufficiency with intelligent control of energy flows
- / Simple retrofitting of storage systems into existing PV systems
- / Simple integration of additional energy generators into existing local energy system
- / Emergency backup power supply from photovoltaics and battery



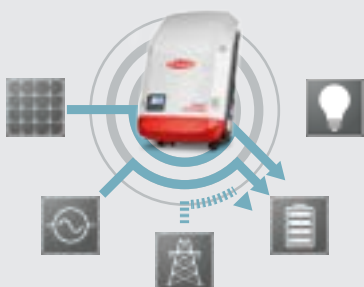
/ Fronius inverters with Multi Flow Technology can control a range of energy flows in parallel and in all directions. The Fronius Symo Hybrid is the heart of the Fronius Energy Package storage solution and has Multi Flow Technology integrated as standard.

ENERGY FLOWS IN A STORAGE SYSTEM



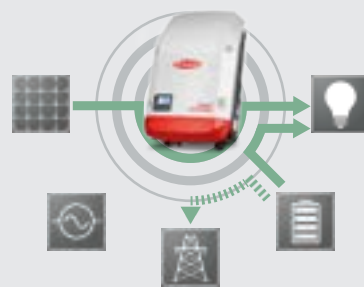
Energy from the PV generator:

- / Supplying consumers in the household
- / Charging the battery
- / If necessary, feed-in to the grid



Charging the battery:

- / Charging the battery from the PV generator (DC)
- / Charging the battery from an AC-connected energy source (inverter, wind turbine, etc.)
- / If necessary, charging from the grid



Supplying consumers in the household and grid:

- / Supplying from the PV generator
- / Supplying from the battery
- / If necessary, discharging the battery into the grid

UNLIMITED USAGE OPTIONS THANKS TO MULTI FLOW TECHNOLOGY

/ Thanks to Multi Flow Technology you can cover a wide range of applications with a single inverter, making it extremely simple to integrate the storage solution into an existing PV system. Retrospective integration is also straightforward in the case of small wind turbines or CHP units. As the Fronius Symo Hybrid also functions without a storage system like a conventional inverter, the device is also ideal as a re-powering solution. Incidentally, an existing system can be made storage-ready in this way. Depending on demand and circumstances at the time, the system proprietor can decide whether to install a storage system immediately or to retrofit one later.

**DC-COUPLED
STORAGE SYSTEM:
EFFICIENT AND
CUSTOMISABLE**

**RELIABLE ELEC-
TRICITY SUPPLY
EVEN DURING A
POWER OUTAGE**

**DC AND AC
COUPLING:
INTEGRATION
INTO AN EXISTING
PV SYSTEM**

**FUTURE
APPLICATIONS,
E.G. FLEXIBLE
ELECTRICITY
TARIFFS**



1) DC-COUPLED STORAGE SYSTEM: EFFICIENT AND CUSTOMISABLE

/ The Fronius Energy Package storage solution lets you temporarily store the excess energy from a photovoltaic system in a battery. The excess current is thus available to supply domestic needs during the evening or night time hours. Multi Flow Technology enables optimum control of the energy flows in order to achieve the greatest possible level of self-sufficiency. The storage solution is also so flexible that the battery can be retrofitted later, and even the battery size can be adapted individually to the current consumption rate. The battery is connected on the DC side. This means a higher level of efficiency than that provided by solutions connected on the AC side.

2) DC AND AC COUPLING: INTEGRATION INTO AN EXISTING PV SYSTEM

/ Multi Flow Technology allows both DC and AC coupling of the storage system. It is therefore possible to not only integrate the storage solution into existing PV systems, but it is also easy to integrate small wind generators or CHP units into the storage system. The battery can then also be charged from the AC side, e.g. with wind energy.

3) RELIABLE ELECTRICITY SUPPLY EVEN DURING A POWER OUTAGE

/ In emergency situations, for instance during a power outage, Multi Flow Technology provides a backup power supply from the photovoltaic system and the battery. The power supply is three-phase, which means that in the event of a power outage the entire household can be supplied with electricity rather than just the single-phase.

4) FUTURE APPLICATIONS, E.G. FLEXIBLE ELECTRICITY TARIFFS

/ The energy world is constantly developing. For instance, flexible and time-dependent electricity tariffs will be increasingly common in the future. With a storage system boasting Multi Flow Technology, you could not be better prepared. When the battery cannot be fully charged with solar energy in the winter months, it will in future be possible to charge up with cheap wind power from the main grid.

MULTI FLOW TECHNOLOGY IN A NUTSHELL

/ Fronius inverters with Multi Flow Technology can control an extremely wide range of energy flows at the same time - and in all directions. Consequently, the Fronius storage solution is setting new standards in the solar market and taking another huge step towards 24 hours of sun.



/ Watch our film: Fronius Energy Package - Flexible application opportunities with Multi Flow Technology at www.youtube.com/FroniusSolar

/ Perfect Welding / Solar Energy / Perfect Charging

WE HAVE THREE DIVISIONS AND ONE PASSION: SHIFTING THE LIMITS OF POSSIBILITY.

/ Whether welding technology, photovoltaics or battery charging technology – our goal is clearly defined: to be the innovation leader. With around 3,700 employees worldwide, we shift the limits of what's possible - our record of over 800 granted patents is testimony to this. While others progress step by step, we innovate in leaps and bounds. Just as we've always done. The responsible use of our resources forms the basis of our corporate policy.

Further information about all Fronius products and our global sales partners and representatives can be found at www.fronius.com

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