

Hybrid E5

5.4 kWh Li-ion Battery
Energy Storage System

Benefit from solar power even after sunset

Overview

DC-coupled 5.4 kWh energy storage

The Hybrid E5 energy storage system is composed of the single phase RPI E5 hybrid inverter as well as an external battery cabinet equipped with a 5.4 kWh Li-ion battery, a Power Meter and Smart Monitor. The Hybrid E5 storage system is designed for new PV systems and features a high charging efficiency up to 95%. This is made possible since the E5 inverter can send DC electricity generated by the PV system directly to the battery, without additional power conversion steps or equipment needed.

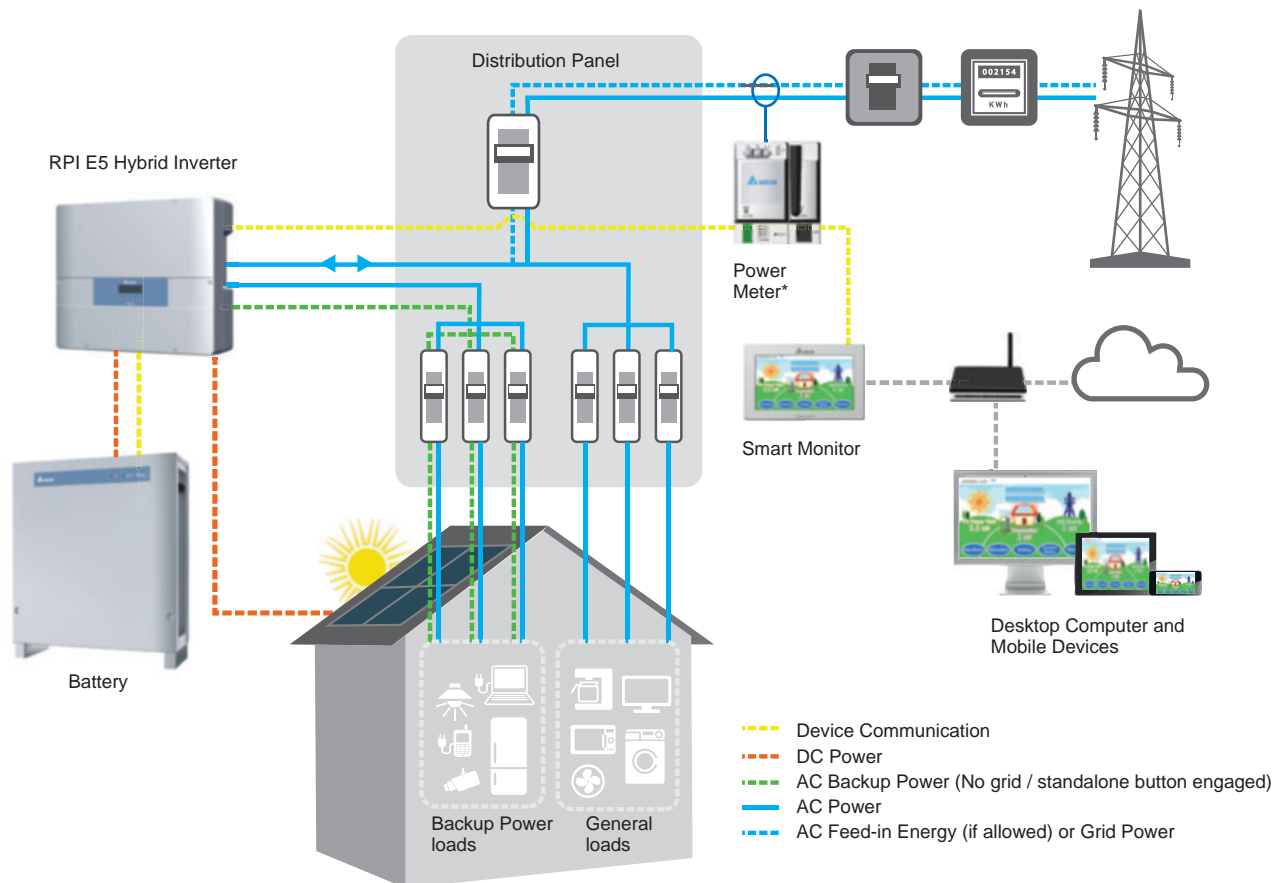
Because the E5 inverter and battery cabinet ship as two separate compact pieces in the system, greater flexibility and simplified installation of the equipment are an added benefit. The power meter monitors energy flow and sends the data back to the smart monitor, the intelligence in the system. The Smart Monitor not only controls the E5 inverter and battery functionality in an optimized way but it also serves as a gateway to the

internet and provides complete energy and battery data coming from the system for online viewing. The data from the Smart Monitor is sent over the internet via a router and can then be viewed on an internet-connected laptop, tablet or smartphone.

Key features include:

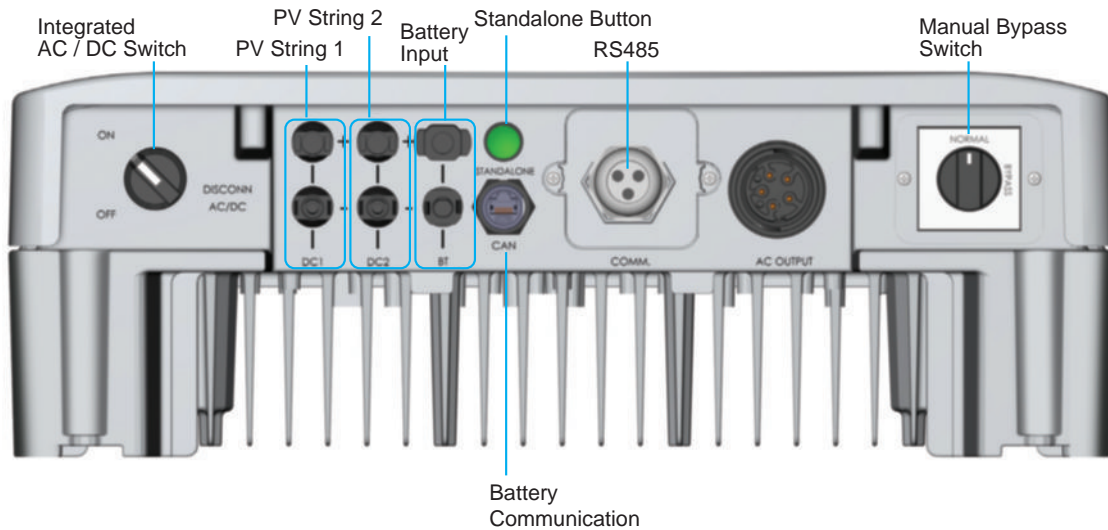
- High peak efficiency (PV to Grid) of 97.2% and nominal continuous power output of 5.0 kW for the E5 hybrid inverter
- Power electronics are combined in one enclosure featuring 2 MPPT to connect 5 kW of PV panels, 85...104 V_{DC} battery in/output and AC in/output. Thus, minimized mounting and interconnections are needed.
- Smart Monitor to control and optimize the system and the power usage of the owner. It provides all power consumption and battery status data to the user online.
- Built-in customized energy management modes for different customer requirements

System diagram



*1 phase or 3 phase Power Meter models available with optional Wi-Fi Module to allow wireless communication with the Smart Monitor

Input / Output Interface



Technical data

PV INPUT

Max. recommended PV power	5 kW - 6 kW
Max. input power	5.5 kW
Nominal power	5.28 kW
Max. input voltage	600 V
Operating voltage range	100 ... 550 V
MPP operating voltage range	100 ... 550 V
Voltage range for maximum power	220 .. 450 V
Start voltage	125 V
Rated voltage	370 V
Max. input current	24 A (12 A per MPP tracker)
Max. number of MPP trackers	2
Connector type	2 pairs MC4

BATTERY

Operating voltage range	85 ... 104 V _{DC}
Effective capacity	5.4 kWh
Battery protection	Protection for overcharging / deep discharging, over current protection, over/under temperature protection
Capacity calculation for one battery module	Current integration method

AC OUTPUT (ON GRID)

Rated output power	5.0 kW / 5.0 kVA ¹⁾
Max. output power	5.25 kW / 5.25 kVA ¹⁾
Nominal output current	21.7 A
Rated voltage	230 V _{AC}
Operating frequency	50 / 60 Hz.
Power factor (adjustable)	0.8 leading to 0.8 lagging
THD	< 3% at rated power

EFFICIENCY

Peak efficiency	97.2% (PV to Grid)
Euro efficiency	96.5% (PV to Grid)

AC OUTPUT (STAND ALONE)

Rated output power	3 kW / 3 kVA (100%)
Max. output power	3.6 kW / 3.6 kVA (100%)
Nominal output current	15.7 A
Overload capability	≤ 100%, continuous > 100%, 10 minutes > 110%, 1 minute > 125%, 0.5 seconds
Output voltage	230 V +/- 3%
Transfer time (No Grid to backup after pressing Stand-alone button)	< 2 seconds

GENERAL CHARACTERISTICS

Communication port	RS485
Display	4 line LCD, 2 LEDs
Operating temp. range	- 10 °C ... + 60 °C
Protection level	Inverter: IP65 Battery: IP54
Operating elevation	0 to 2000 m (0 to 6666 ft.)
Cooling	Natural convection
Dimensions (W x H x D)	Inverter 5.4 kWh Battery
Weight	Inverter 5.4 kWh Battery

CERTIFICATION

Anti-islanding protection / Grid regulation	VDE-AR-N 4105
EMC	EN61000-6-2; EN61000-6-3;
Safety	IEC62040; IEC62109-1 / -2; CE conformity

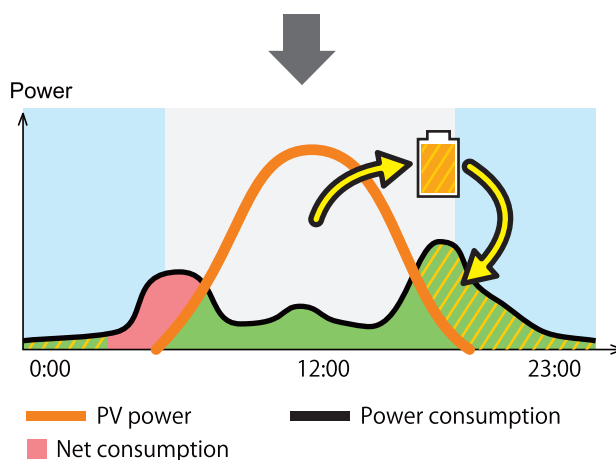
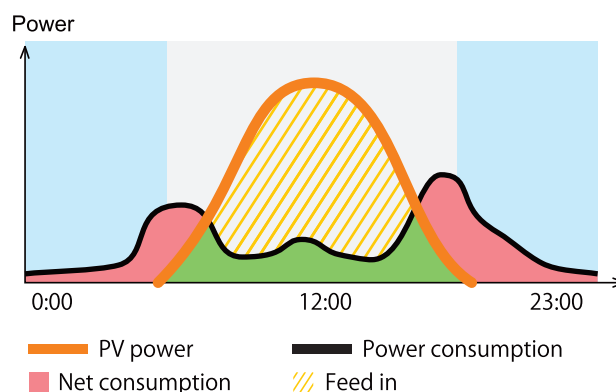
¹⁾ 4.6 kW / 4.6 kVA for Germany

Independence from the grid

Maximized self-consumption and backup power

The Hybrid E5 from Delta allows its owners to maximize the use of self-generated clean solar energy. By storing solar energy during the day for later use, the Hybrid E5 can power household loads into the evening and nighttime. The result is a much larger self-consumption rate and a significant decrease of the monthly spending on grid electricity.

The stand-alone feature of the Hybrid E5 inverter allows the owner to use their battery to power critical loads when the grid is not available. A standalone button on the inverter when engaged after a downed grid incident will allow your critical loads to be powered off of the Hybrid E5 battery. This is a benefit in regions where grid power is not always reliable or for occasional power outages when you need your critical loads (refrigerator or lighting) to remain active until the grid power comes back on.



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