

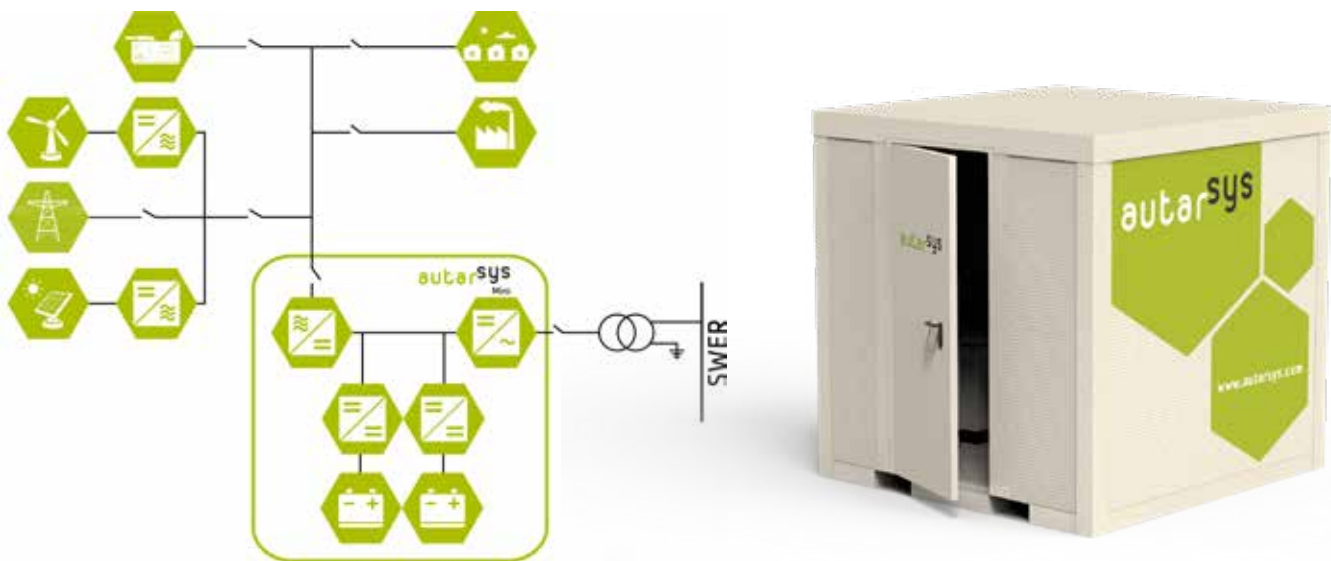
Mini Energy Storage Systems



Product Sheet



Making renewables the power supply of the future



The Autarsys Mini is a modular Energy Storage System (ESS) and serves a variety of on-grid and off-grid applications. The Autarsys Mini provides 30 to 90 kW of power with an energy storage capacity between 33 and 274 kWh, depending on the cell type and the application of the ESS.

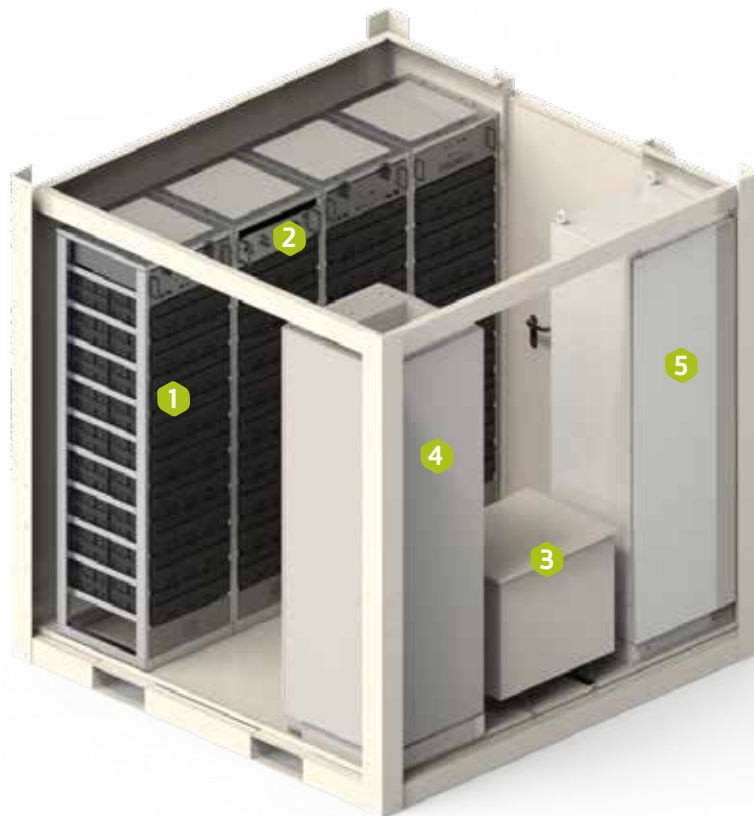
Like all Autarsys ESS, the Mini:

- Serves a variety of on-grid and off-grid applications, and
- Can operate in three-phase electrical power systems.
- The system's inverter design allows customers to have a stable supply of voltage with constant frequency.
- Battery and inverter suppliers offer an extended warranty of up to ten years, because Autarsys designs optimal operating conditions for its electronics.
- The air conditioning system operates under ambient temperatures of up to 55 °C to cool the battery system.
- The system integrates energy sources, like renewable (e.g. photovoltaic, wind, biogas) and conventional (e.g. diesel) sources and offers project-specific energy management functions.

When connected to a transmission line known as single-wire earth return (SWER), the Autarsys Mini provides low cost electrical power to remote electrical grids. It is housed in an 8-ft. cubed storage container which is protected from harsh environments.

CONTROL	ENERGY MANAGEMENT	MONITORING	SERVICE
Frequency control (P(f))	Renewable (e.g. sun, wind), conventional (e.g. diesel) energy sources	Actual/historical operating data	User admin services, including record-keeping of interactions
Voltage control (Q(U))	Optimal use of energy sources	Records power data necessary for all component warranties	Alarm chain, with various escalation levels, in cases of faults, fires, etc.
Harmonic compensation	Direct communication between renewable/conventional sources and the ESS	Control and monitoring via HMI, local and per remote access	Record-keeping of all actions and data

*The warranty is related to an optional service agreement between Autarsys and the end customer.



- ① Battery racks
- ② Precharge
- ③ Transformer
- ④ Battery inverter
- ⑤ Control cabinet

Standard Configurations*								
	Energy Cell ($\leq 0.5C$ $0.5-1C$)				Power Cell ($2.5C$)			
	Capacity [kWh]				Capacity [kWh]			
	45-68.5	91 - 137	137 - 205	182 - 274	33 - 49	66 - 98	98 - 147	131 - 197
30 kW	√	√	√	√	√	(√)	(√)	(√)
60 kW	√	√	√	√	√	√	(√)	(√)
90 kW	-	√	√	√	√	√	√	√

- not possible, (√) optional, √ possible. Project specific modifications are possible.
 *The standard solution and configuration may vary depending upon the application required.

	Mini-ESS 30	Mini-ESS 60	Mini-ESS 90
System Parameters			
Rated power [kVA]	30	60	90
AC voltage [V]		400 (max. 415) ± 10%	
Nominal current [A]	43.5	87	130.5
Frequency [Hz]	50/60	50/60	50/60
THDu [%]	<2	<2	<2
Operating temperature ¹ [°C]	-10/+55	-10/+55	-10/+55
Inverter efficiency [%]	>96	>96	>96
Overall efficiency (round trip) [%]	>85	>85	>85
Dimensions (LxWxH) [m]	2.44 x 2.20 x 2.26	2.44 x 2.20 x 2.26	2.44 x 2.20 x 2.26
Maximum weight [t]	1.8	2.5	3.2
Storage Battery			
Cell chemistry	Li-ion NCM	Li-ion NCM	Li-ion NCM
Cell manufacturer	Samsung SDI	Samsung SDI	Samsung SDI
Specified cycles (Energy / Power) ²	4000 / 6000	4000 / 6000	4000 / 6000
Calendar life [years] ^{2,3}	20	20	20
Operating temperature [°C]	23 ± 5	23 ± 5	23 ± 5
Efficiency @ 0.5C / 1.0 C / 2.5C [%]	>96 / >95 / >93	>96 / >95 / >93	>96 / >95 / >93
Applications*			
	Standard		Optional
Off-Grid	✓		
On-Grid	✓		
Black start capability			✓
Islanding			✓
Fuel save			✓
Energy management	✓		
Renewable control mode ⁴			✓
Arbitrage / Load shifting			✓
Frequency regulation P(f)			✓
Voltage stabilization Q(U)			✓
Harmonic compensation up to 51 st	✓		
Reactive power compensation			✓
UPS-functionality			✓
SWER-net integration			✓
Interface			
Touch display	✓	✓	✓
Data monitoring (SCADA)	✓	✓	✓
Ethernet (LWL optional)	✓	✓	✓
Modbus	✓	✓	✓
GMS (GPRS)/ Satellite communication	✓	✓	✓
Standard (additional available on request)			

EN 61000-6-2, EN 61000-6-4, CE-Conformity

Installation Requirements

Max. altitude above MSL [m]	1000	1000	1000
Noise emission (1m distance) [dB]	<60	<60	<60

Details:

- ¹ Project specific modifications are possible
- ² Depends on the application
- ³ Full cycle per day
- ⁴ Peak shaving, Smoothing, Ramp-rate control
- *The standard solution and configuration may vary depending upon the application required

autarsys

Contact

Headquarters
Autarsys GmbH

Johann-Hittorf-Str. 8
12489 Berlin, Germany

info@autarsys.com
www.autarsys.com

Phone
+49(0)30.609849800