

The Future of Telecom Site Power is Here

eSite™ x10 is the world's first telecom site power system purpose-built for outdoor telecom sites and to outdoor telecom standards. It is a patented, sealed tamper-proof unit with passive convection cooling, no filters, no moving parts and it requires no maintenance. eSite x10 is the future of telecom site power.

eSite x10 reduces diesel-related costs by combining software-defined hybrid battery control with solar power, intelligent grid power harvesting and optimal genset control.

The unit is preconfigured for up to three tenants with separate load measurement.

Deployment planning is simplified by having a unit that can handle all site types, including good grid, bad grid, off grid, single or dual gensets, solar power, new sites, shelter site upgrades, upgrades re-using existing battery cabinets and roof-tops.

With eSite x10's suitcase-sized form factor, installation logistics are simplified as it can be hand-carried to site, thus significantly reducing transport costs and installation time.

And eSite x10 has been designed to withstand the most challenging outdoor telecom site environments, including temperatures of up to 50°C.



eSite x10 unit mounted onto an outdoor cabinet

Technical innovations

eSite x10 brings several ground-breaking technical innovations compared to current telecom site power systems:

- Patented soft switching between grid and gensets replaces mechanical ATS and protects the unit from damaging input power.
- Specially designed power components, four times bigger than today's market leading power electronics provide additional electrical protection. This increased sophistication also allows greater amounts of power to be harvested from an unreliable grid.
- Convection cooled and IP65 sealed, with no risk of electronics exposure to external contaminants.
- The eSite x10 unit is completely independent of the battery cabinet and is therefore very flexible in deployments where there may already be cabinets deployed.
- Entire unit designed for purpose from the ground up. It is a tamper-proof sealed unit with no moving parts.

Certifications

eSite x10 takes international standards compliance to an entirely new level for telecom site power systems:

- The entire unit is CE-certified rather than simply its individual components and it is the first hybrid unit compliant with IEC 60950-1 and IEC 60950-22, ensuring the strictest standards on personal safety, EMC, voltage and environmental impact.
- Built to the highest ETSI standards to withstand shock and vibration (i.e. to the same level as active telecommunications equipment). eSite x10 also complies with EU environmental legislation.



Easy installation

eSite x10 comes as a preconfigured unit from the factory and is easy to install:

- Frame and connection compartment can be simply mounted to a battery cabinet, or any other vertical surface
- Suitcase-sized eSite x10 unit then simply slots in to its cable connection compartment
- All required systems are already in the unit – including support for dual AC power sources, SPD's, solar converters, grid-genset changeover and power measurement and distribution for multiple tenants
- External cabling well structured in dedicated connection compartment
- Cable input installation monitored and electrically protected
- Easy installation procedure with settings provided centrally by eSite Tools, thus avoiding the possibility of mistakes during installation at site
- Tenants and/or solar panels can be easily added later
- Settings and configurations can be updated remotely
- Product simplicity greatly reduces site installation complexity



Main eSite x10 compartment simply slots in to its connection compartment

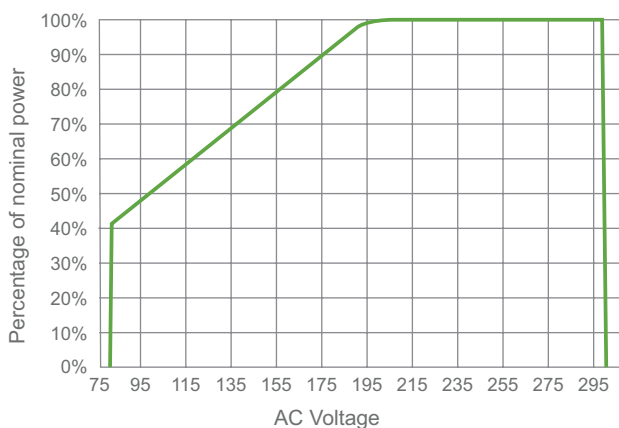
General	Main Compartment	Connection Compartment
Height x Width x Depth (mm)	1,073 x 541 x 234	635 x 541 x 147
Weight (kg)	71	~20
AC Input		
Nominal	230-250V AC	
Range	85-300V AC	
Frequency	45-65Hz	
Input Current	3x19A	
Power Factor	>0,99	
THD	<5% at 230V AC, 100% load	
Input Voltage Derating	Linear derating for each phase, 3500W @190V AC, 1500W@85V	
Protection	Varistor transient protection of all phases towards neutral. Varistor and GDT transient protection towards protective earth. Solid state transfer switch for long duration over voltages.	
DC Output		
Operational Range	-42 to -58V DC	
Rectifier Capacity	3 x 3500W	
Output Power	9000W	
Current	195A@54V	
Max Current	235A	
Output Power Derating by Voltage	4500W @ 85V AC	
Output Power Derating by Temperature	7000W@45°C, 230V AC	
Rectifier Peak Efficiency	95%*	
DC Power System Efficiency	94%	
DC Power Port for Low Priority Load	7,500W	
DC Power Port for High Priority Load	1,500W	
Solar Converter		
Nominal Input Voltage	125V DC	
Permitted Input Voltage Range	50V to 140V DC	
Power Conversion Capacity	6kW	
Maximum Input Current	3 x 20A	
Power Conversion Peak Efficiency	>96.5%	

*The value includes an integrated static transfer switch.

Environmental	
Nominal Temperature	-20 to +45°C
Operating (derated) Temperature	-20 to +50°C
Storage Temperature	-40 to +70°C
Relative Humidity	0 to 99%
Altitude	0 to 2,000m at full power
Cooling	Self-cooled without fans
IP Code	Main Compartment IP65
	Connection Compartment IPx4
EMC	ETSI EN 300 386 V1.6.1 with requirements for locations other than telecom centres
Safety	IEC/EN 60950-1:2005+A1+A11+A12+A2 and IEC/EN 60950-22:2006-A11
Environmental Standards	ETSI 300 019-1-2 Class 2.3 Public Transportation ETSI 300 019-1-4 Class 4.2H Stationary use at non-weather protected locations – extremely warm dry CE and RoHS compliant

Communication Ports	
I/O	4 dig out; 8 dig in; 4 analog in
External Bus	CAN; RS485; Ethernet
WLAN	Wi-Fi access point for service; SMA Connector
Radio Modem	UMTS/HSPA: 850/900/1900/2100MHz GSM/GPRS/EDGE: 850/900/1800/1900 MHz
Service Port	Ethernet
Isolation	3.0kV AC mains – Earth
	1.5kV AC mains – Sec
	707V DC mains – Earth
MTBF	>350 000h (@T ambient 25°C) according to Siemens SN29500

Power derating vs input voltage below 45°C



Efficiency

