

# Evolve

Home Energy Storage



Evolve with 13 kWh capacity shown.

Evolve ~~or go~~ <sup>and stay</sup> home.

Engineered from the ground up, Eguana Technologies introduces the Evolve, a fully automated home energy storage solution that maximizes the value of a home owner's solar system investment. Solar self-consumption is complemented with programmable time-of-use priority where applicable. When the lights go out in your neighborhood, we've got your critical loads covered with an integrated back up power solution that keeps your batteries topped up from your rooftop solar system.

- Up to 5 kW of generation
- Fully supported grid tied and backup operation with automated transfer.
- Simple, flexible installation fully compatible with leading solar PV system suppliers.
- Industry leading lithium battery technology.
- Automated PV curtailment and load shedding for extended duration grid outages.
- 10 year industry standard warranty.



# Leading battery technology you can **Trust**.

Under the hood of Eguana's Evolve home energy storage product is the global leader in lithium battery technology. LG Chem's battery modules with integrated battery management system warrant a 19.2 MWh energy throughput\*, providing over a decade of use in a solar self-consumption application.  
\* per 6.5 kWh module.



# Universal PV compatibility.

Eguana's AC coupled topology is designed for compatibility with any solar PV string or micro inverter. The passive connection to the battery system is simply for managing the energy use when connected to the grid. In backup mode, the solar PV system synchronizes to the home storage AC output for backup mode battery charging. Independent solar system operation results in a superior, flexible system design for both new and retrofit solar installations.

## New or Retrofit solar PV installs.



## All eyes on your home energy consumption

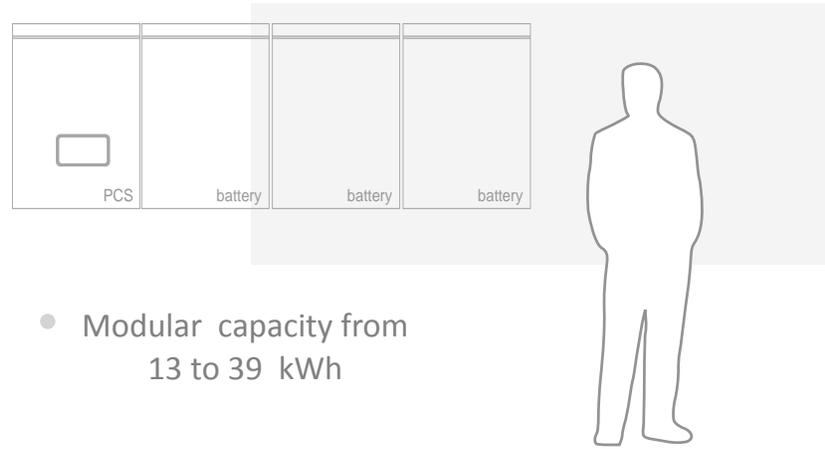
Managing your consumption of solar generation is backed by an array of monitoring features via web browser. Graphical minute-by-minute production data, high level usage summaries, battery SOC monitoring, and a short-cut link to your PV monitoring system under one dashboard. In addition, you are in control of the battery reserve priority, allowing you to increase your battery reserve for up and coming weather events that risk a potential power outage.



# Stackable storage.

With standard 13 kWh battery capacity, your system is tuned for optimal grid tied operation with up to 5 kW of rooftop solar.

If power resiliency is a high priority for you, battery capacity can be easily expanded up to 39 kWh, with two additional battery cabinets.



- Modular capacity from 13 to 39 kWh

## 24/7 Power for your essential loads.

Essential home loads are kept alive during grid outages with a fully automatic transition to backup power mode. Solar powered charging of the battery in backup mode allows you to ride through multi-day grid outages, sunlight permitting. Low battery warnings can be configured via email notification so that you can prioritize and manage your most critical loads before the system goes into hibernation. In the case of battery system hibernation, the system will maintain a minimum battery reserve to re-attempt solar charging in the next available solar window.



### Backup mode Optimization

The following is an estimate of daily energy use during a grid outage.

Refrigerator, daily	2 kWh
Kitchen appliances, 30 min/day (excluding oven/range)	2 kWh
Entertainment, 2 hrs/day (including big screen TV, computers, electronic devices.)	1 kWh
Lighting, 8 hrs/day (LED, CFL)	0.5 kWh



## Protecting your investment.

Getting a lifetime of value from your battery is our priority. We start by qualifying your installer with a manufacturer certified training program. We equip your installer with a host of online data analytic and battery system health tools which empowers them to provide remote diagnostics in the event of a service request, and deliver fast and efficient service when necessary. Last but not least, unlike many of today's consumer IoT devices, we have put in place industrial sized network security measures to protect your battery's operating system from outside intruders.

## Future friendly.



Your Evolve home energy storage system is certified to the latest smart grid standards, with tools in place that allow your system to participate in future energy program incentives offered by your electricity provider. Ask your installer to keep you posted on any local opportunities which may allow you to earn more value from your battery as part of a larger community of home batteries.

# Specifications

Electrical - AC		Energy Storage System					Power Circuits - Internal		Energy Management Panel	
Nominal AC Voltage, Frequency	240/120 Vac (split-phase), 60 Hz					Automatic Transfer Relay	Electrical/Mechanical Interlock, 240/120 VAC, 30 Amp Grid / 30 Amp Off-grid (Battery system - AC)			
Range of Operation:	UL1741 SA compliant					PV (AC)	30 Amp, 2-pole brkr (String PV), or 2x-20 Amp, (micro PV)			
AC Voltage, Frequency	UL1741 SA compliant					Load Shed control input	24 Vdc			
Rated AC output	5000 VA / 20.8 Amps					EMC	15 Amp, 1-pole			
Power/Current	5000 VA / 20.8 Amps					Aux Power outlet	120 VAC receptacle			
Max. Rated AC Current	60 Amp					Battery Off-grid (AC)	240/120 VAC, 3-wire			
Protection -Grid/Load	Nominal 1.0, adjustable 0.8 lead to 0.8 lag					<b>Automation</b>				
Power Factor	96 (94.5)					PV Curtailment	SSR, 30 Amp, EMCcontrolled, programmable on high battery SOC, zero grid export (where applicable)			
Efficiency, peak (avg) %	Integrated Transformer					Load shed	Programmable on low battery SOC in off-grid mode.			
Galvanic Isolation	Integrated Transformer					EMC backup battery	Lead acid, 12V, 9Ah			
Electrical - Battery (DC)		-13L	-19L	-26L	-33L	-39L	Current Transformers	Split-core type, 333 mVAC f.s., Mains: 200 Amp (2 each) PV: 20 Amp (1 each) Battery (AC): 50 Amp (2 each)		
Manufacturer	LG Chem lithium type, model M48126P3Sx					<b>Mechanical</b>				
Rated AC energy (1C) kWh	12	18	24	30	36	Enclosure	EMC / ATS polycarbonate enclosures on aluminum powder coated back panel			
Charge/Discharge Current	0.5C max, 0.3C nominal					Panel Dimensions	33"H x 15" W x 8" D			
DC Voltage Operating Range	42.0 to 58.8 Vdc					Indicator	External, power ON, orange			
Cycle Life	19.2 MWh throughput per battery module					Environmental	Outdoor, NEMA 4, -40 to +50 deg C, humidity 95% non-condensing			
Battery BMS	Built-in (self-diagnostic, control, and protection)					<b>Monitoring &amp; Control</b>				
General -Features							Management Interface	Proprietary, secure "cloud-based" mgmt+ user interface		
HMI / Display modes	LEDs, battery SOC, operating state, wake/sleep					Monitoring Interface	Web browser			
DC Protection	Integrated 180 Amp DC breaker					Operating System	Embedded Firmware (w/ secure remote updates)			
Lightning Protection	IEEE 62.14.2, location cat. B, low exposure					Power meter	8 channel, 4 quadrant; V, A, kVA, kVAR, kWh			
Ground Fault Monitoring	Negative grounded DC, ground fault indicator					<b>Communications</b>				
Advanced Utility Functions	CPUC Rule 21, HECO Rule 14H					Monitoring - Network	Ethernet, Wi-Fi (802.11 a/b/g/n 2.4/5.0 GHz)			
Backup Power Load Pass-Thru	240 V, 60 A rated (120 V, 120 A)					Monitoring - Cellular	GSM / GPRS / EDGE/UMTS/HSPA			
PV Coupling Method	AC					Energy storage system	RS-485			
General -Performance							<b>Certifications</b>			
Power Ramp Rate	Zero to full scale (up/down) = 1 second max.					EMC	FCC, part 15-B			
Step Control Resolution	5 W (0.1% full scale)					Utility Interface & Safety	UL 1741SA, IEEE 1547, UL9540			
Backup Power Surge Rating	100% continuous, 120% (30 min), 170% (5 sec)					Warranty	10 year standard warranty			
Transfer Power Interrupt Time	Grid outage: 4 seconds									
Self Consumption Power	Sleep: 3 Watts Operating: 30 Watts									
Bypass Relay	240 V, 60 A rated (120 V, 120 A)									
Mechanical										
Operating Temperature	10 to 45 deg.C									
Relative Humidity	95% non-condensing									
Enclosure Type	NEMA 3R, Wallmount, Indoor/Outdoor									
Cooling	PCS: Active cooling, Battery: Convection									
PCS Dimension / Weight	20.8" x 30.8" x 15.6" / 145 lbs									
Battery Dimension / Weight	22.5" x 30.8" x 15.6" / 225 lbs									



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## About Eguana Technologies

Based in Calgary, Alberta, Canada, Eguana Technologies (EGT: TSX.V) designs and manufactures high performance residential and commercial energy storage systems. Eguana has nearly two decades of experience delivering grid edge power electronics for fuel cell, photovoltaic and battery applications, and delivers proven, durable, high quality solutions from its high capacity manufacturing facilities in Europe and North America. With thousands of its proprietary energy storage inverters deployed in the European and North American markets, Eguana is the leading supplier of power controls for solar self-consumption, grid services, and demand charge applications at the grid edge.

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