



TRIOGEN 10 and 20



Cool ❄️ Heat 🔥 Power ⚡ Save



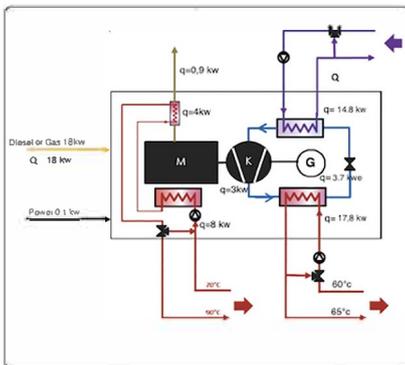


TRIOGEN

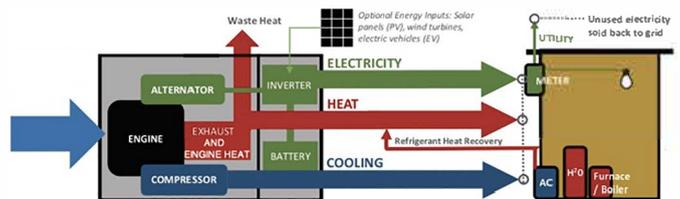
It's the high-efficiency, renewable adaptable, adjustable, all-in-one HVAC and power machine.

HOW IT WORKS

TRIOGEN makes the most efficient use of fuel by producing cooling, heat and power at the point of use allowing the home or business owner to benefit from distributed power and maximum efficiency in energy generation. This process is typically two to three times more efficient as a centralized electrical utility grid. The result is lower energy bills.



Heat Balance	
Q_{in}	13 KW Engine heat and Gas recovery
Q_{out}	14.8 KW Cooling
Q_{out}	17.8 kw Refrigerant heat
Q_{out}	4 kw Power output
$cop_{hp} = \frac{49}{18} = 2.77 = 277\%$	



- Functions as a continuous power source – producing electricity to use or sell back to the grid
- Provides uninterruptable power when the grid goes down

COOLING

- The Engine Gas or Diesel drives a compressor which cools just like an electric air conditioner but more efficiently using variable refrigerant flow (VRF)

HEATING

- The Gas or Diesel **TRIOGEN** engine creates heat, which is recovered for water and space heating
- With the Air Source heat pump, additional heat is captured from outside air. Combined with the engine heat, the operating range of the heat pump can be extended to low ambient temperatures

EFFICIENCY

- Offers the lowest operating cost of any heating / cooling systems
- Fully programmable inverter allows for time-of-day and peak shaving, interfaces with solar or wind power, sells back to the grid and integration with multiple units

CUSTOMERS

- Medium to large homes
- Small to medium businesses



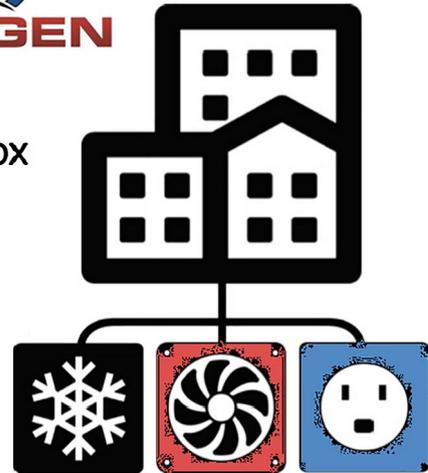


TRIOGEN

Cooling, heat and power - all from one box

Higher efficiency than furnaces, boilers, air-conditioners and the electric grid means lower utility bills for you.

Oh, and it backs up your building in case of a power outage.



Cooling, heat and power – the basics needs of any building – are brought together in one design: TRIOGEN

By combining the benefits of an air conditioner, boiler, water heater and backup generator, Triogen 2.0 brings more value at a comparable cost. Triogen 2.0 provides a unique return on investment that can pay for itself in a matter of years.

- Provides power, heat and cooling
- Designed for hot/humid and cold/dry climates
- Prime source of power
- Interconnects to electric grid for back up power and to sell excess power
- Controls all power sources including grid, solar or wind
- Runs on natural gas or Diesel(D)
- Uninterruptable power supply
- Surge, spike and electric noise protection for appliances and electronic equipment
- Ability to integrate multiple units
 - Single phase: up to 12 units / Three phase: up to 9 units
- Reduces carbon footprint

By producing cooling, heat and power simultaneously, increased the efficiency of the fuel that is used. And by running on natural gas or Diesel(D) , it's clean, dependable and inexpensive. This leads to two to three times greater efficiency than the electrical grid and 20-70% savings off utility bills.

And with theTriogen gridtie – a smart battery / inverter / surge suppression module – customers can sell excess power back to the grid, tie solar panels and have a whole house UPS (uninterruptable power supply) that never lets the lights go dark or sensitive electronics become damaged. Solar panels can be added as well as electric vehicles, making this a gateway to a home or commercial building's energy system.





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Cooling, heat and power - all from one box

It's like your own micro-grid.

PRODUCT SPECIFICATIONS

Model	Triogen 10	Triogen 20
Power Output AC (kW)	3/4	6/7
Cooling Output (tons)	5	8
Power Output DC (kW / BTU/h)	3.7 / 12625	6/7 / 23885
Cooling (kW / BTU/h)	14.8 / 50500	22.8 / 77787
Engine Heat Recovery (kW / BTU/h)	13.0 / 44357	20.3 / 69266
Refrigerant Heat Recovery (kW / BTU/h)	17.8 / 60736	24.5 / 83587
Total Energy Output (kW / BTU/h)	49.3 / 168210	74.5 / 254525
Fuel Consumption (kW / BTU/h)	19.6 / 66878	24.6 / 83938
Efficiency (Output / Consumption)	251.5%	299.4%
Communications	Remote system monitoring / Networking	
Inlet Water Temperature	120 - 160°F	
Outlet Water Temperature (optional)	140 - 180°F	
Hot water flow range	2 - 4 gal/min	
Output power (continuous) - Watts @ 25°C (77°F)	3,400	6,700
Overload 30 min - Watts @ 25°C (77°F)	4,400	7,700
Output Frequency (selectable)	50 / 60 Hz	
Output Voltage	L-N: 120V +/- 3% - L-L: 240V +/- 3%	
Voltage phase		
Total Harmonic Distortion (THD) at rated power	<5%	
Idle consumption search mode	<8W	
Power factor corrected	0.98	
Battery bank range	100 - 1,000 Ah	
Compatible battery types	Gel / AGM / LiON	
AC Input		
AC 1 (grid) input current (selectable)	3 - 60A (60A default)	
AC 1 (generator) input current (selectable)	3 - 60A (60A default)	
Auto transfer relay rating / transfer time	60A / 8 ms	
AC input voltage limits (bypass / charge mode)	L-N: 78 - 140V (120V nominal) / L-L: 160 - 270V (240V nominal)	
AC input frequency range (bypass / charge mode)	55 - 65 Hz (default) / 52 - 68 Hz (allowable)	
Engine	0.9 L	
Engine RPM	1600 - 3600 variable speed	
Fuel Type	Natural Gas / Liquid Propane / Diesel	
Sound level	42-48 dBA	
Dimensions (L x W x H)	60" x 30" x 70" (152 cm x 76 cm x 177 cm)	
Weight	1050 lbs (480kg) * without batteries	
Warranty	5 Years	

