



**NO DOWNTIME.
THE NEW REALITY.**

**Clean, Reliable Power,
Anytime, Anywhere**

Advanced fuel cell solutions from the
clean backup power leader

RELIABLE

Relied on by telecom and mission-critical government applications for modern, resilient networks and security. Altery fuel cells provide uninterrupted power during severe storms where legacy systems failed.

PROVEN

With more than 8.3 million watts deployed and 32 million operational hours logged, Altery fuel cells have provided continuous power while the grid has failed during routine outages, severe weather, and prolonged public safety shutdowns.

LOWEST COST

Altery fuel cells can reduce the total cost of ownership for backup power solutions by up to 50 percent over a ten-year period compared to legacy technologies.

CLEAN

Altery fuel cells have been certified by the California Air Resources Board to produce zero-emissions at the source and can help reduce your carbon footprint and sustainability goals.



The grid can be unreliable, but your services cannot.

In our connected world, perpetual connectivity is expected. Your customers now turn to their smartphones and internet for everything. What movies are playing? Where am I? Is it going to rain tomorrow? Is the flight on time? Whatever the question, the expectation is that they can get what they want, anytime, anywhere, in their immediate context. It creates a sense of security. If you're there for them they won't notice. But when the grid fails and they lose connectivity and their wireless and internet devices don't work, who do they blame? You or the grid? This constant connectivity is a newly perceived right and requires continuous power. Backup power must be a priority, not an afterthought in this connected world. Protect your customer's peace of mind and retain your customer's business with the most modern, sustainable, and reliable backup power solution on the market today - Alteryg's fuel cells. These next generation solutions allow you to meet constant connectivity demands of customers as well as FCC mandates.

Did you know?

- The US endures more blackouts than any other industrialized nation on earth
- US Grid fails **285%** more often than it did in 1984
- Outages cost US economy **\$150B**, or **\$500/m/w/c**
- Outages now last 3 to 5 times longer
- **62%** of cellular/network/Cable failures are due to power loss
80% of those power losses are due to battery failure

“It's time for radical change ... like clean, modern, affordable power on demand ... how's that for a new reality?”

Batteries and generators have been the popular choices for backup power, not because of their superior technology, but because of inertia. They are previous generation technology. Today, old technology such as dirty diesel or lead acid batteries with limited runtime often backup mission critical operations. Why? They have been the only choices available, even though technological advances in batteries and generators have been limited since their inception. Can you meet today's sustainability and connectivity requirements?





Altery Freedom Power Technology

Revolutionary design keys durability, cost, size, and weight breakthroughs

Freedom Power technology is the revolutionary breakthrough behind Altery's clean, reliable, on-demand power solutions. Freedom Power technology replaces the fragile, expensive components and hand-made assembly traditionally used in fuel cells with rugged, low-cost materials and the first automated fuel cell assembly line in the world.

Altery's Freedom Power technology utilizes a completely reimagined fuel cell design to deliver:

Lower Initial Cost – Altery's patented design reduces critical component costs by more than 80%, which in turn can make the capital expenditure for Altery fuel cells less expensive than batteries and generators.

Lower Total Cost – Altery's Freedom Power technology features rugged components and no moving parts in the cell stack, leading to lower maintenance costs and lower total cost of ownership.

Greater Durability – Freedom Power replaces graphite and other fragile components used in conventional fuel cells.

Lightweight Construction – Altery's Freedom Power technology design reduces size and weight making Altery fuel cells ideal for rooftop installations.

Fast Start-Up – Altery fuel cells start up in seconds.

Quiet Operation – With no moving parts and no internal combustion, Altery's Freedom Power technology operates at a barely audible hum.

Easy Maintenance – The primary maintenance required for Altery fuel cells is replacing air filters once a year.

Modular, Scalable Flexibility – Altery Freedom Power technology is inherently scalable, and can be deployed from watts to kilowatts.

Simple Installation – Altery Freedom Power technology reduces backup power installation from days to a few hours.

Long Life – Altery fuel cells have a design life of more than 20 years.

**8.3 MILLION
WATTS DEPLOYED**





**32 MILLION
RUNTIME HOURS LOGGED**

While the U.S. EPA continues to regulate diesel engine emissions and replacement battery costs skyrocket, Altery has revolutionized fuel cell design to deliver clean, long-lived backup power solutions with greater deployment flexibility and economics.

Break Through the Status Quo

Increasingly, business leaders are adopting clean backup power solutions to protect operations during grid failures. Batteries have limited runtimes, short lifespans, and high replacement costs; diesel generators have noise, performance, and emissions issues. Neither technology has changed significantly in decades.

Hydrogen powered fuel cells are being advanced in telecom, aerospace, automotive, and other sectors, and Alteryg's breakthroughs are rapidly making fuel cells the clean power source of choice.

	 VS. 	 VS. 
	Alteryg Fuel Cells vs. VRLA Batteries	Alteryg Fuel Cells vs. Diesel Generators
	End the cycle of constantly buying replacement batteries	Eliminate noise and see how clean outperforms dirty
Cost	Alteryg fuel cells have lower operating costs, lower ongoing maintenance costs, and lower total cost of ownership than batteries.	Alteryg fuel cells have lower operating costs, lower ongoing maintenance costs, and lower total cost of ownership than diesel generators.
Rooftop Deployment	Alteryg fuel cells weigh a fraction of VRLA batteries, take up less space, and are ideal for rooftop installation.	Avoid the weight problems and fire risks that can prevent diesel generators from qualifying for rooftop installation permits.
Environmental Impact	Batteries tend to be replaced every few years, and must be disposed of through a heavily regulated process; fuel cells produce clean power and have a design life of more than 20 years.	Diesel generators face ongoing regulatory restrictions in an effort to decrease noise and greenhouse gas emissions, and address climate change; Alteryg fuel cells are CARB-certified to produce zero emissions.
Durability	Heat, other environmental conditions, and discharge cycles decrease battery performance and lifespan; Alteryg fuel cells maintain their performance in extreme hot or cold temperatures and have provided uninterrupted power where legacy battery systems have failed.	Strenuous start cycles, extreme temperatures, prolonged periods of inactivity, and extended continuous runtime can degrade diesel generator performance; Alteryg fuel cells maintain their performance in extreme hot or cold temperatures and have provided uninterrupted power where legacy systems have failed.
Runtime	Batteries typically deliver two to four hours of performance, insufficient runtimes to adequately back-up critical systems for the required 8 to 24 hrs.	Alteryg fuel cells can provide from hours to months of continuous runtime on a single fuel fill-up.
Maintenance	Batteries require constant charging and field maintenance conducted by skilled technicians; while the primary maintenance required for Alteryg fuel cells is replacing air filters once a year.	No complex maintenance schedules, fuel filtering or expensive replacement parts; mostly simply replacing air filters about once a year.



Alteryx Nacelle

Our latest solution has broken the price barrier! The Nacelle is a more compact and lower-cost advancement of Alteryx's proven fuel cell power system. The Nacelle can beat batteries and generators on CapEx, operating cost, TCO, footprint, weight, volume, and reliability.



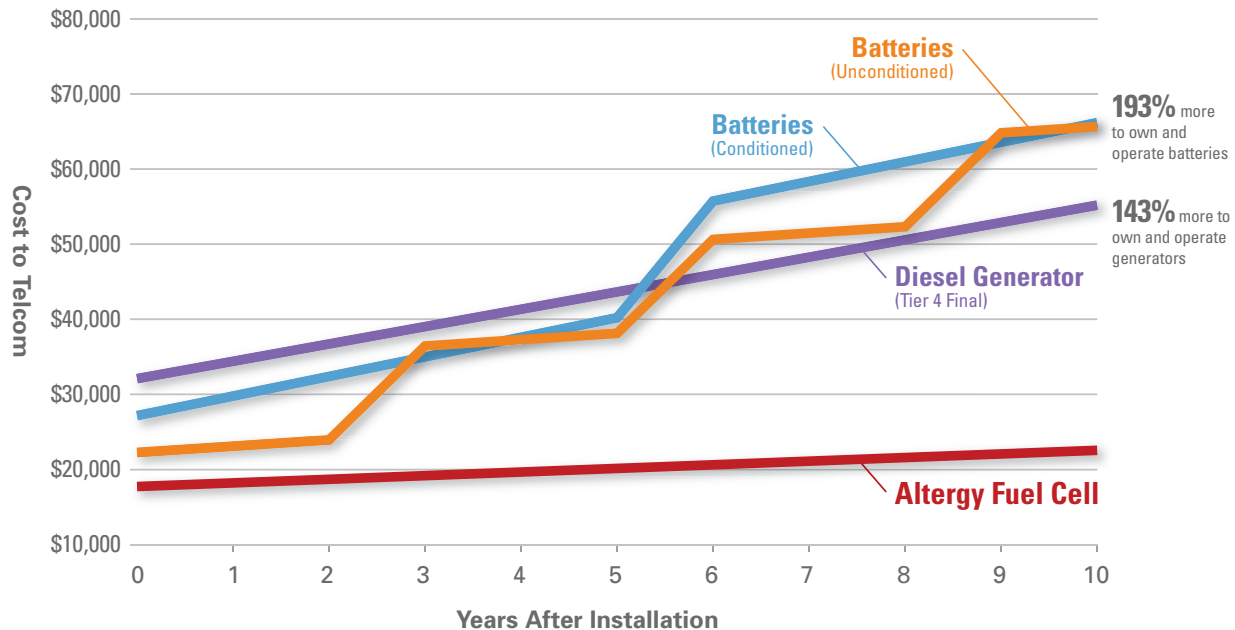
The World's Only Automated Fuel Cell Production Process

Alteryx is the first company to successfully design, mass-produce, and commercially deploy rugged, low-cost fuel cells. With its breakthrough technology, Alteryx manufactures a fuel cell about every 30 seconds on the world's first and only automated, robotic fuel cell assembly line.

Alteryx's Freedom Power technology is designed from the outset to be produced in high volumes using off-the-shelf materials, stamped and molded fabrication, and standard, robotic automated assembly equipment. Utilizing modular, pretested sub-assemblies that assure fast assembly time, Alteryx delivers the best fuel cell systems in mass production.

Altery Fuel Cells – The Best Value in Backup Power

Altery's Freedom Power technology's patented design can reduce total cost of ownership by 50% or more compared to legacy technologies. Altery's Freedom Power technology solutions have a design life of more than 20 years, and maintenance is simply cleaning or replacing air filters once per year.



TCO based on a 5kW load, 8 hours of runtime. Battery quantities and size determined at end of battery life. Generators are Tier 4 Final. Analysis includes acquisition costs, plus permitting and installation costs, as well as ongoing maintenance (and battery replacement) costs for all three technology alternatives. Data sources for the analysis include research reports (Batelle, Battery Council International, etc.), Manufacturer data sheets, prices, white papers and Altery Systems information.

Worry-free Refueling

Altery's Freedom Fuel Service ensures convenient hydrogen or methanol fuel delivery so when you need power, you have it. With Altery Freedom Fuel Service, you get timely delivery and expert on-site monitoring services – everything you need for extended runtimes on demand.

Trust Altery's Freedom Fuel Service to:

- Deliver ready-to-use industrial hydrogen gas or liquid methanol
- Service fuel cell equipment
- Safely refuel multi-site networks
- Bundle refueling and maintenance for optimum savings
- Monitor consumption and to maximize uptime
- Never run out of power

Flexible Lease and Finance Options

Altery's revolutionary fuel cell design lowers capital expenditure costs, and our flexible lease and finance options can virtually eliminate them. With Altery's lease agreements, equipment maintenance is built-in and acquisition costs can be replaced with low monthly payments.



Flexible, Modular, and Configurable Systems from Watts to Kilowatts!

Hydrogen Fueled Product Line			
Model	Picture	Description	
FPS 148 FPS 136		Alteryg's Freedom Power 1kW Fuel Cell Engine (FCE) delivers clean, reliable power. It is designed to be housed in Alteryg's outdoor rated Nacelle enclosure or retrofitted into cable industry standard power node (Model 120, 210, or 211). Ideal replacement for batteries or generators in telecom, cable, traffic and other critical power applications.	
		Power Output (kW)	1kW
		Rated Voltage, DC	36v / 48v
		Dimensions (W x D x H in.)	30 x 13 x 25
		Est. Runtime Per Cylinder (49 Liter)	11 hrs @ 800W Per Cylinder
Weight lbs.	85		
FPS 2.548 FPS 2.548C		Alteryg's Freedom Power 2.5kW Fuel Cell Engine (FCE) delivers clean, reliable power. It is designed to be housed in Alteryg's outdoor rated Modular Power Enclosure (Model 251, or 257). The 2.5kW FCE can be paralleled with other FCEs to achieve outputs up to 100kW. Ideal replacement for batteries or generators in telecom, cable, traffic and other critical power applications.	
		Power Output (kW)	2.5kW
		Rated Voltage, DC	48v
		Dimensions (W x D x H in.)	26 x 21 x 26
		Est. Runtime Per Cylinder (49 Liter)	4.4 hrs. @ 2kW Per Cylinder
Weight lbs.	115		
FPS 548 FPS 548C FPS 548M		Alteryg's Freedom Power 5kW Fuel Cell Engine (FCE) delivers clean, reliable power. It is designed to be housed in Alteryg's outdoor rated Modular Power Enclosure (Model 251, or 257), or standalone. The 5kW FCE can be paralleled with other FCEs to achieve outputs up to 100kW. Ideal replacement for batteries or generators in telecom, cable, traffic, electric utility switching, EMP protection and other critical power applications.	
		Power Output (kW)	5kW
		Rated Voltage, DC	48v
		Dimensions (W x D x H in.)	26 x 21 x 26
		Est. Runtime Per Cylinder (49 Liter)	2.2 hrs. @ 4kW Per Cylinder
Weight lbs.	185		
FPS136N FPS148N		Clean, reliable power – 1kW Fuel Cell Engine (FCE) integrated into Alteryg's outdoor rated Nacelle enclosure (Model 210, or 257) which can be attached to a suitable fuel storage solution or a building wall. The Nacelle saves footprint (pad space) and capital cost vs. a standalone enclosure. Ideal replacement for batteries or generators in telecom, cable, traffic and other critical power applications.	
		Power Output (kW)	1kW
		Rated Voltage, DC	36 or 48v
		Dimensions (W x D x H in.)	26 x 21 x 26
		Est. Runtime Per Cylinder (49 Liter)	11 hrs. @ 800 Watts, Per Cylinder
Weight lbs.	121		
FPS2.548N		Clean, reliable power 2.5kW Freedom Power System Fuel Cell Engine (FCE) integrated into Alteryg's outdoor rated Nacelle enclosure. Nacelle can be mounted on a Modular Fuel Storage Enclosure (Model 338, 339 or 350). The Nacelle saves footprint (pad space) and capital cost vs. a standalone enclosure. System can be paralleled with other FCEs to achieve output up to 100kW. Ideal replacement for batteries or generators in telecom, cable, traffic and other critical power applications.	
		Power Output (kW)	2.5kW
		Rated Voltage, DC	48v
		Dimensions (W x D x H in.)	26 x 21 x 26
		Est. Runtime Per Cylinder (49 Liter)	4.4 hrs. @ 2kW Per Cylinder
Weight lbs.	115		








Freedom Power Fuel Cell Engines

Hydrogen Fueled Product Line Cont.

	Model	Picture	Description	
Freedom Power Fuel Cell Engines	FPS548N		Clean, reliable power – 5kW Fuel Cell Engine (FCE) integrated into Alteryg’s outdoor rated Nacelle enclosure. Nacelle can be mounted to a Modular Fuel Storage Enclosure (Model 338, 339 or 350). The Nacelle saves footprint (pad space) and capital cost vs. standalone enclosure. System can be paralleled with other FCEs to achieve output up to 100kW. Ideal replacement for batteries or generators in telecom, cable, traffic electric utility switching, EMP protection and other critical power applications.	
			Power Output (kW)	5kW
			Rated Voltage, DC	48v
			Dimensions (W x D x H in.)	26 x 21 x 26
			Est. Runtime Per Cylinder (49 Liter)	2.2 hrs @ 4kW Per Cylinder
Weight lbs.	185			
Modular Enclosures – Power	251		Modular Power Enclosure – for housing 1-3ea 2.5kW or 5kW Fuel Cell Engines (FCEs), (Model FPS2.548, FPS548). Shown in a 3 FCE, 15kW configuration.	
			Power Output (kW)	2.5 to 15kW
			No. of Engines	1 to 3
			Rated Voltage, DC	48v
			Dimensions (W x D x H in.)	30 x 41 x 72
	Weight lbs.	460		
	257		Modular Power Enclosure – for housing up to 6ea 2.5kW or 5kW Fuel Cell Engines (FCEs), (Model FPS2.548 or FPS548). Shown in a 6 FCE, 30kW configuration.	
			Power Output (kW)	2.5 to 30kW
			No. of Engines	1 to 6
			Rated Voltage, DC	48v
Dimensions (W x D x H in.)			60 x 41 x 72	
Weight lbs.	920			
Modular Enclosures – Fuel Storage	341		Modular Fuel Storage Enclosure – to provide extended runtime to fuel cell retrofitted into common cable industry existing power node. Houses 9 small fuel cylinders, and designed to be paired with (Model 120, shown) for extended runtime solution. Multiple, or larger fuel cabinets can be integrated side by side for additional runtime.	
			No. of Cylinders	9
			Rated Voltage, DC	–
			Dimensions (W x D x H in.)	26 x 24 x 44
	Weight (lbs. w/o tanks)	428		
	338		Modular Fuel Storage Enclosure – for up to 12 fuel cylinders. Designed to match design of Modular Power Enclosures and allow ganging enclosures to increase storage capacity and extended runtime for fuel cell system. Compatible with all fuel cell engine models.	
			No. of Cylinders	12
			Rated Voltage, DC	–
			Dimensions (W x D x H in.)	30 x 41 x 72
	Weight (lbs. w/o tanks)	375		
	339		Modular Fuel Storage Enclosure – for up to 24 fuel cylinders. Designed to match design of Modular Power Enclosures and allow ganging enclosures to increase storage capacity and extended runtime for fuel cell system. Compatible with all fuel cell engine models.	
			No. of Cylinders	24
			Rated Voltage, DC	–
			Dimensions (W x D x H in.)	60 x 41 x 72
	Weight (lbs. w/o tanks)	750		
350		Modular, Large Scale Fuel Storage – for up to 72 fuel cylinders to provide extended run-time. Compatible with all fuel cell engine models.		
		No. of Cylinders	72	
		Rated Voltage, DC	48v	
		Dimensions (W x D x H in.)	96 x 126 x 102	
Weight (lbs. w/o tanks)	4200			


Continued

Hydrogen Fueled Product Line Cont.

	Model	Picture	Description	
Factory Integrated Systems	120		1kW Fuel Cell Engine (FCE) Retrofit Kit for standard cable industry power node. This kit is meant to replace the backup batteries in an existing customer cable node, providing more than 8 hours of back-up power runtime vs. the 2 hours of battery. No change to footprint (pad space) required but provide 4x runtime. Can be paired with (Model 341 or similar) , for up to 72 hours of extended runtime.	
			Power Output (kW)	1kW
			Rated Voltage, DC	36v / 48v
			Dimensions (W x D x H in.)	26 x 24 x 44
			Est. Runtime Per Cylinder (10.8 / 16.3 Liter)	2.1hrs / 3.1hrs @ 800W Per Cylinder
	210		1kW Fuel Cell Engine (FCE) fully integrated into outdoor rated Nacelle enclosure. Nacelle designed to mount to Altergy Modular Fuel Storage Enclosure (Model 338, 339) or other existing enclosure, wall, structure.	
			Power Output (kW)	1kW
			Rated Voltage, DC	36v / 48v
			Dimensions (W x D x H in.)	30 x 13 x 33
			Est. Runtime Per Cylinder (10.8 / 16.3 Liter)	185
211		Fully integrated power system with 1kW Fuel Cell Engine (FCE) in outdoor rated nacelle, mounted to Modular fuel storage enclosure housing up to 12 steel fuel cylinders and/or TPM. Factory integrated solution compatible with (FCE Model FPS136N, FPS148N) .		
		Power Output (kW)	1kW	
		Rated Voltage, DC	36v / 48v	
		Dimensions (W x D x H in.)	30 x 56 x 72 (footprint 30 x 41)	
		Est. Runtime Per Cylinder (10.8 / 16.3 Liter)	645	
215		Fully integrated power system with 2.5 kW Fuel Cell Engine (FCE) in outdoor rated Nacelle, mounted to Modular Fuel Storage Enclosure housing up to 9 steel cylinders and TPM. Factory integrated solution compatible with (FCE Model FPS2.548N) .		
		Power Output (kW)	2.5 kW	
		Rated Voltage, DC	48v	
		Dimensions (W x D x H in.)	30 x 56 x 72 (footprint 30 x 41)	
		Est. Runtime Per Cylinder (10.8 / 16.3 Liter)	610	
217		Fully integrated power system with 5kW Fuel Cell Engine in outdoor rated Nacelle, mounted to Modular Fuel Storage Enclosure housing up to 9 fuel cylinders and TPM. Factory integrated solution compatible with (FCE Model FPS548N) .		
		Power Output (kW)	5 kW	
		Rated Voltage, DC	48v	
		Dimensions (W x D x H in.)	30 x 56 x 72 (footprint 30 x 41)	
		Est. Runtime Per Cylinder (10.8 / 16.3 Liter)	645	
226		Fully integrated system with 1-3ea 2.5kW or 5kW Fuel Cell Engines (FCE), in Modular Power Enclosure, plus Modular Fuel Storage Enclosure housing up to 12 fuel cylinders. Factory integrated solution compatible with (FCE Model FPS2.548, FPS548) .		
		Power Output (kW)	1-15kW	
		Rated Voltage, DC	48v	
		Dimensions (W x D x H in.)	60 x 41 x 72	
		Est. Runtime Per Cylinder (10.8 / 16.3 Liter)	760	
227		Fully integrated power system for up to 20kW of Fuel Cell Engines (FCE) integrated into large capacity Modular Fuel Storage Enclosure, for extended runtimes. Can be scaled to meet desired capacity and runtimes.		
		Power Output (kW)	20kW >	
		Rated Voltage, DC	48v	
		Dimensions (W x D x H in.)	96 x 126 x 102	
		Est. Runtime Per Cylinder (10.8 / 16.3 Liter)	4200	

Continued

Hydrogen Fueled Product Line Cont.

	Model	Picture	Description	
Hydrogen Gas Generator	FPS-EX		5kW capacity Hydrogen Gas Generator (FPS-EX), for use in locations where gaseous hydrogen supply logistics are challenged. Alteryg's Freedom Power EX (Extended Runtime) contains an integrated fuel processor and gas purification capability to convert liquid methanol/water mixture to gaseous hydrogen for use in fuel cells.	
			Power Rating (kW)	5kW
			Rated Voltage, DC	48v
			Dimensions (W x D x H in.)	18 x 28 x 21 + 6.5 Exhaust
			Weight lbs.	203
Factory Integrated Hydrogen Gas Generator and Fuel Cell Engine System	FPS EX-H		5kW Fuel Cell Engine (FCE) integrated with Hydrogen Gas Generator in outdoor rated enclosure, horizontal format. Compatible with (FCE 548M, Hydrogen Gas Generator FPS-EX). Multiple FCEs and FPS-EX's can be parallel to achieve outputs up to 100kW. Integrated fuel tank provides approximately 1-week of runtime (varies by load). Compatible with external fuel tanks for additional runtime requirements.	
			Power Output (kW)	5kW
			Rated Voltage, DC	48v
			Dimensions (W x D x H in.)	60 x 36 x 60
	FPS EX-V		5kW Fuel Cell Engine (FCE) integrated with Hydrogen Gas Generator in outdoor rated Modular Enclosure, vertical format. Compatible with (FCE 548M, FPS-EX). Multiple FCEs and FPS-EX's can be parallel to achieve outputs up to 100kW. Integrated fuel tank provides approximately 32 hours of runtime (varies by load). Compatible with external fuel tanks for additional runtime requirements.	
			Power Output (kW)	5kW
			Rated Voltage, DC	48v
			Dimensions (W x D x H in.)	30 x 46 x 72
			Weight lbs.	1010

Transient Power Modules

Model	Description
404	Transient Power Module, 5kW hi -capacity, 48V Reformer
409	Transient Power Module, 10kW capacity, 48V
415	Transient Power Module, 5kW capacity, 48V
420	Transient Power Module, 2.5kW capacity, 48VDC, VRLA
425	Transient Power Module, 1kW capacity, 48VDC, VRLA

Accessories and Kits

Model	Description
510	Communications, Wireless Modem, SNMP.
600	Inverter DC to AC, (Contact your Alteryg Sales Professional)
821	Fuel Storage Cylinder, Steel, 2400PSI, 16.8 Liter (80cf)
822	Fuel Storage Cylinder, Steel, 2400PSI, 49 Liter (200cf)
825	Fuel Storage Cylinder, Steel, 3000PSI, 80 Liter (Min Purchase of 16 per order)
890	Dual Bank Wiring Kit – Required when 2 Fuel Cabinets are tied to 1 Power Cabinet
892	15/20kW Integration Kit – Required when 2 Power Cabinets are tied to 1 Fuel Cabinet
893	1kW Battery Charger Kit
894	Hot Weather Kit, Hydrogen Gas Generator
895	Cold Weather Kit, Hydrogen Gas Generator
896	Methanol storage expansion tank – Scalable to desired runtime, (Contact your Alteryg Sales Professional)