



FLYWELL POWER
Aviation Ground Power



AVIATION GROUND POWER



FLYWELL POWER UK LTD is a manufacture and distributor of ground power units for aviation. Our unique range of 28V GPUs has been developed using the latest in aerospace technology to provide high quality continuous DC power for avionics work as well as for starting the aircraft. We also supply 400Hz frequency converters.

Our key personnel have many years experience both in Production of ground power units and in providing ground Power support to the International Air Shows, including Farnborough, Paris, Singapore, Dubai, Hong Kong and Moscow. Among our clients are the world leading business Aircraft manufacturers: Bombardier, Cessna, Dassault, Embraer and Gulfstream.

Flywell Power UK Ltd. is a company within the Flywell Group (www.flywell.com), which has been established in 1993 and been operating worldwide. Our manufacturing site is in Bristol, UK and offices are in London, UK and New Delhi and Pune, India.

PORTABLE BATTERY STARTER UNITS

The Flywell Power Starter series of portable battery starter units, several of which are hand portable, designed for starting of aircraft in the field or in remote locations. The Flywell Power technology allows to achieve a very high power to weight ratio, which makes Flywell Power portable packs some of the most powerful Portable Power Packs available worldwide.

With models outputting voltages ranging from 12 Volt to 28 Volt, Peak Amps of up to 6000 A, Flywell Power has a portable Starter unit for almost every prospect. For instance, typical aircraft for starting with our smallest FW START-1000 unit are Robinson R 44, Augusta Westland A109, Bell 47, Cessna 414, Eurocopter AS 355, Sikorsky 262C to name a few. We also have experience in starting a very specific aircraft. For example, some models of Russian helicopter Mil 8 need two independent 28 VDC outputs to start; we have successfully built a model that starts Mil 8 extremely well.

The power packs are "all weather" units and being modular, can be used in single or dual format. They can be stored in any orientation, even inverted. Batteries used are cleared non-hazardous cargo for carriage in the aircraft. They are able to operate in the extremes of temperature and are maintenance free

CONTINUOUS DC POWER SUPPLIES

The Flywell Power Continuous series supplies continuous DC power for avionics work, shop maintenance, diagnostics, training or demonstrations. These modern portable units are extremely light-weight (Model FW 50, for example, is only 7.5 Kg) very compact and can be easily and safely transported in the aircraft. Ultimately, they are very convenient in use and give the operator a lot of flexibility. They can be supplied as 50, 100, 200, or 300 Amp units, from 12 to 28 VDC.

COMBINATION UNITS: CONTINUOUS DC POWER SUPPLY + STARTER

This unique range of 28 Volt portable GPUs has been developed to provide continuous DC power for avionics work, shop maintenance, diagnostics, training or demonstrations and can be used for aircraft starting. They have one of the best power-to-weight ratios on the market.

FREQUENCY CONVERTERS

The Flywell Power 400 Hz Frequency Converters provide the most cost-effective and flexible way of generating 400 Hz all-weather ground power. These units are commonly supplied as 115/200 Volts, 400 Hz continuous AC power supplies with ratings from 5 kVA to 120 kVA. Most of these units can be configured to operate from almost any Single or Three Phase supply.

GUARANTEE

We make every effort to provide our customers with high quality technically advanced products. All Flywell Power customers can expect in-depth technical support, operational advice, together with worldwide after-sales support and service. All our products come with the one-year Warranty, and we guarantee that in an unlikely event of a product fault, the product will be replaced immediately from any Flywell Power service centre in the world.

PRODUCT DESIGN FOR CUSTOMER SPECIFICATIONS

Being a true manufacture, Flywell Power can design and Manufacture products to the customer's exact specifications.

FLYWELL POWER UK LTD

Please visit us online: www.flywellpower.com, give us a call on +44(0)7826507884, or write to us at info@flywellpower.com Our team is always happy to assist you with any enquiries, making an order, or if you are interested in becoming one of our distributors.

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Hand Portable Starters



This unique range of 24 Volt portable GPUs has been developed to provide DC power for aircraft starting. The units are characterised by one of the best power-to-weight ratios on the market.

Features

- FW START-1000 : Fitted with two high discharge batteries giving current of 1000 A for 30 Second (2400 A peak)
- FW START-2000 : Four high discharge batteries giving current of 2000 A for 30 Second (4800 A peak)
- The batteries will automatically recharge within 8 hours of mains power being applied
- Two independent 3-stage 5 Amp/hr chargers
- Digital voltmeter indicates voltage of the batteries on a press of push button
- LED indicates the charging stage of the batteries, RED (fast charge), ORANGE (constant current charge), and GREEN (trickle charge) when mains input is applied
- Supplied with Three meter heavy-duty DC output cable and rubber Aircraft plug, AC input cord and workshop manual



Options

- Can be supplied with longer heavy-duty DC output cable and rubber Aircraft plug
- Can be connected in parallel with other FW GPUs to increase current output or to be used for starting aircraft

Technical Data	FW 24START-1000	FW 24START-2000
Input Voltage	90 VAC to 264 VAC	
Input Voltage Frequency	40Hz to 70Hz	
Output Voltage	25.8 VDC	
Battery Charging Current	3 stage charger 5 Amp/Hr	
Output Peak Current	1000A for 30 Seconds (2400A peak)	1000A for 30 Seconds (4800A peak)
Efficiency	90%	
Overall Dimensions in mm (L x H x W)	290 x 320 x 300	440 x 320 x 300
Operating Temperature	-40°C to +70°C	
Weight, not more than	30 Kg	58 Kg
Weather Resistance	IP 54	
Safety Standards (Charger)	UL60950-1, CSA22.2, TUV EN60950-1	
EMC Standards (Charger)	EN55014-1, EN61000-3-2,3, EN61000-4-2,3,4,5,6,11	
Battery Standards	BS6290, IEC60896-21, SR – 4228, UL Standard 1989, NEBS Certified	
Transportation Standards	Approved as non-hazardous cargo for ground, sea and air transportation US DOT Regulation 49 and ICAO & IATA Packing Instruction 806	



FLYWELL POWER
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Trolley Mounted Starters



This enhanced range of 26 and 28 Volt portable GPUs has been developed to provide DC power for aircraft starting. The units are characterised by one of the best power-to-weight ratios on the market.

Features

- FW 26START-3000 and FW 28START-3000 - Fitted with five high discharge batteries giving current of 3000 A for 30 Seconds (6000 A peak)
 - The batteries will automatically recharge within 8 hours of mains power being applied five independent 3-stage 10 Amp/hr chargers
 - Digital voltmeter indicates voltage of the batteries when a push button is pressed
 - LED indicates the charging stage of the batteries, RED (fast charge), ORANGE (constant current charge), and GREEN (trickle charge)
 - when mains input is applied.
- Supplied with 3-meter heavy-duty DC output cable and rubber Aircraft plug, AC input cord and workshop manual.



Options

- Can be supplied with longer heavy-duty DC output cable and rubber Aircraft plug.
- Can be connected in parallel with other FW GPUs to increase current output or to be used for starting aircraft.

Technical Data	FW 26START-3000	FW 28START-3000	FW 28START-6000
Input Voltage	90 VAC to 264 VAC		
Input Voltage Frequency	40Hz to 70Hz		
Output Voltage	27.9 VDC	30.1 VDC	
Battery Charging Current	3 stage charger 10 Amp/Hr		
Output Peak Current	3000A for 30 Seconds (6000A peak)	3000A for 30 Seconds (6000A peak)	3000A for 60 Seconds (6000A peak)
Efficiency	90%		
Overall Dimensions in mm (L x H x W)	800 x 350 x 500		800 x 550 x 500
Operating Temperature	-40°C to +70°C		
Weight, not more than	100 Kg	105 Kg	200 Kg
Weather Resistance	IP 54		
Safety Standards (Charger)	UL60950-1, CSA22.2, TUV EN60950-1		
EMC Standards (Charger)	EN55014-1, EN61000-3-2,3, EN61000-4-2,3,4,5,6,11		
Battery Standards	BS6290, IEC60896-21, SR – 4228, UL Standard 1989, NEBS Certified		
Transportation Standards	Approved as non-hazardous cargo for ground, sea and air transportation US DOT Regulation 49 and ICAO & IATA Packing Instruction 806		



This unique range of 28 Volt portable GPUs has been developed to provide continuous DC power for avionics work, shop maintenance, diagnostics, training or demonstrations. It has one of the best power-to-weight ratios on the market.

Options

- Can be supplied with longer heavy-duty DC output cable and rubber Aircraft plug
- Can be connected in parallel with other FW GPUs to increase current output or to be used for starting aircraft

Features

- For ease of service and maximum redundancy, these units are fitted with independent 53 Amp advanced Switch Mode Power Supplies, the number of which depends on the model
- Digital Voltmeter indicates output voltage
- Digital Ammeter indicates output current
- Output "ON" green LED indicate individual Power Supply
- Protection against overload (constant current limiting, unit will shut down output after 5 second, re-power on to recover)
- Protected against over voltage (set at 31 V, unit will shut down output, re-power on to recover)
- Protected against over temperature (95 C detect on heat sink of power transistor, unit will shut down output, recovers automatically after temperature goes down)
- Cooling by a number of independent high-power cooling fans
- Supplied with 3 meter heavy-duty DC output cable and rubber Aircraft plug, AC input cord and workshop manual



Technical Data	FW 50	FW 100	FW 200	FW 300
Input Voltage	90 VAC to 264 VAC 1 phase (8A)	90 VAC to 264 VAC 1 phase (16A)	220VAC to 460 VAC 3 phase (16A per phase)	
Input Voltage Frequency	40Hz to 70Hz			
Output Voltage	28.2 VDC			
Output Current Continuous	53A	106A	212A	318A
Output Current Peak	71.5A for 5 seconds	143A for 5 seconds	286A for 5 seconds	430A for 5 seconds
Efficiency	90%			
Overall Dimensions in mm Not more than (L x H x W)	420 x 200 x 160	420 x 300 x 160	420 x 400 x 320	
Operating Temperature	-40°C to +70°C			
Weight, not more than	7.5 Kg	11.5 Kg	20.5 Kg	26 Kg
Weather Resistance	IP 54			
Ripple & Noise (Max)	150 mV p-p			
Load Regulation	+/- 0.5%			
Vibration	10 ~ 500Hz, 2G 10 min / 1 cycle, 60 min, each along X, Y, Z axes			
Safety Standards	UL60950-1, TUV EN60950-1 Approved			
EMC Standards	Compliance to EN55022 (CISP 22), EN61000-3-2,-3			



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Combination Units: Starters + Continuous Power



This unique range of 28 Volt portable GPUs has been developed to provide continuous DC power for avionics work, shop maintenance, diagnostics, training or demonstrations and can also be used for aircraft starting. It has one of the best power-to-weight ratios on the market.

Features

- For ease of service and maximum redundancy, these units are fitted with independent 53 Amp advanced Switch Mode Power Supplies, the number of which depends on the model
- Fitted with two or four (depending on model) high discharge batteries giving peak current of 2400 Amps or 4800 Amps within 30 minutes of mains power being applied.
- Digital Voltmeter indicates voltage of continuous output when mains input is applied, and a push switch indicates the output voltage of the batteries.
- Digital Ammeter indicates output current of continuous power.
- Output "ON" green LED indicate individual Power Supply output.
- Protection against overload (constant current limiting, unit will shut down output after 5 second, re-power on to recover)
- Protected against over voltage (set at 31 V, unit will shut down output, re-power on to recover)
- Protected against over temperature (95 C detect on heat sink of power transistor, unit will shut down output, recovers automatically after temperature goes down)
- Cooling by a number of independent high-power cooling fans
- Supplied with 3 meter heavy-duty DC output cable and rubber Aircraft plug, AC input cord and workshop manual

Options

- Can be supplied with longer heavy-duty DC output cable and rubber Aircraft plug
- Can be connected in parallel with other FW GPUs to increase current output or to be used for starting aircraft



Technical Data	FW50-1000	FW50-2000	FW100-1000	FW100-2000	FW200-1000	FW200-2000
Input Voltage	90 VAC to 264 VAC 1 phase (8A)		90 VAC to 264 VAC 1 phase (16A)		220VAC to 460 VAC 3 phase (16A per phase)	
Input Voltage Frequency	40Hz to 70Hz					
Output Voltage	28.2 VDC					
Output Current Continuous	53A		106A		212A	
Output Current Peak	2400A	4800A	2400A	4800A	2400A	4800A
Efficiency	90%					
Overall Dimensions in mm Not more than (L x H x W)	420 x 360 x 230		420 x 400 x 320		420 x 500 x 320	
Operating Temperature	-40°C to +70°C					
Weight, not more than	35.5 Kg	61 Kg	40.5 Kg	66 Kg	48 Kg	73.5 Kg
Weather Resistance	IP 54					
EMC Standards	Compliance to EN55022 (CISP 22), EN61000-3-2,-3					
Safety Standards	UL60950-1, TUV EN60950-1 Approved					



This unique range of 400 Hz Frequency Converters provides the most cost-effective and flexible way of generating 400 Hz all-weather ground power for all military and civilian aircraft. By using the most advanced electronic design, FW 400 Hz models offer a remarkably compact, quiet and robust converter, able to operate reliably even in the most arduous conditions, from the heat of the desert to the rain of the tropics and the snow of Siberia.

Features

- Very simple operation
- Ultra compact and light weight
- Integral cable rack
- Supplied in high quality cabinet made entirely of stainless steel.
- The immense strength and corrosion resistance of this material ensures a long product life
- Unit mounted on four-wheels that can be easily manoeuvred with personnel or towed by a vehicle
- Digital Voltmeter indicates voltage of output power, selector switch to select each phase in turn
- Digital Ammeter indicates current of output power, selector switch to select each phase in turn
- All models have Aircraft Interlock fitted, which can manually be selected to override
- Supplied with 10 meter heavy-duty AC output cable and rubber Aircraft plug, 10 meter AC input cord and workshop manual.
- Very simple operation supplied on three-wheel trailer with pneumatic tyre and tow-bar



Options

- Can be supplied with two outputs.

Technical Data	400 Hz Frequency Converter
Input Voltage	220VAC to 460VAC
Input Voltage Frequency	50Hz or 60Hz
Input Current Harmonics	IEC1000-3-4
Input Power Factor	> 0.98
Rectifier Inrush	10 second, max current < In x 1.2
Input Protection	Circuit Breaker
Output Voltage	115/200V or 120/208V, 3 phase + N
Output Frequency	400Hz +/- 0.1%
Output Power	20KVA to 120KVA
Permissible Overload	120% @ 60 sec, 150% @ 15 sec, 200% @ 2 sec
Output Over / Under Voltage Cut-out	130V L-N on any phase (Over Volts), 110V L-N on any phase (Under Volts)
Thermal Overload	Thermal sensors located in rectifier, inverter and output transformer
Overall Dimensions, not more than (L x H x W)	960mm x 940mm x 670mm
Operating Temperature	-40°C to +50°C
Weight	180Kg to 390Kg
Weather Resistance	IP54

Products for Military Applications

This is our range of military products. Designed with the demanding military requirements in mind, the units operate reliably in the most extreme conditions.

In addition to aviation, these highly portable units can be used with Armoured Fighting vehicles, such as tanks, and Military equipment. For the specifications and features, please refer to the corresponding FW models at the previous pages.



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