



28V DC Helicopter Engine Start System

Solid state, 400Amps and 600Amps

Power for aircraft and helicopter engine starting and battery charging

The DD28 Series of mobile DC ground power systems are designed for aircraft engine starting and battery charging applications for "point of use" at the aircraft parking stands, in maintenance hangars or in avionics workshops, aircraft manufacture and training simulators where a rugged heavy duty and reliable isolated DC power source is required.

This mobile power system is designed for connection to the normal 50Hz (or 60Hz) 3 phase 400V mains source and produces an output of 28V DC to provide all types of helicopters and small aircraft with a high stability power supply for charging on board batteries and can deliver a current limited short duration peak power output for engine starting.

There is little audible noise, no vibration, toxic exhaust fumes or environmental pollution as produced by diesel driven systems or when the aircraft is running its engines or APU. This series of mobile power units is designed to deliver the aircraft engine peak starting current of up to 2,400A and will keep the battery fully charged whilst the aircraft is on the ground thus reducing battery stress and preserving the life expectancy of the expensive on board aircraft batteries.

The standard DD28M mobile version 28V DC ground power unit is constructed in an all welded sturdy press formed steel enclosure, rust inhibited and painted in colours and finish to suit individual customer requirements. The converter enclosure upper section top is fitted with handling bars at each end for one person positioning, the base frame section is fitted with lockable swivelling wheels.

Ingress protection for outdoor use is IP54 and for fixed indoor use the enclosure ingress protection is IP41.

Features and options

- 50 Hz or 60Hz input frequency
- 12 pulse rectifier
- Output line drop compensation
- Non mobile solution for fixed installations
- Input and output cable 10 metres
- Cable stowage frames
- Standard DC aircraft power connector
- Special paint colours and finish
- Stainless steel construction for oil rig installation



28VDC Power Converter Specification

The 28VDC solid state power converter is designed for connection to the normal 3 phase 50Hz or 60Hz public mains power supply and converts this to 28V DC for charging the batteries on aircraft and helicopters and is used to deliver the high peak current required for engine starting duty. The power converter uses the latest power semiconductors and conversion switching technology with well proven control logic all assembled in a compact dimensioned enclosure as an ideal solution for providing aircraft with precise and reliable power when on the ground.

Standard sizes 400A and 600A features

- Compact dimensions
- Fully solid state design
- Input circuit breaker
- Output voltage regulation
- Current limiting by electronic control
- 6 pulse uncontrolled rectifier
- Isolating transformer
- Output filter
- Analogue metering of voltage and current
- Simple start, stop and EPO controls
- Remote control from aircraft power connector

Optional items:

- Interface data link for PC or modem connection
- Input mains flexible cable
- Output 28V DC flexible cable to customer specification
- 28VDC aircraft power connector
- Cable stowage frames for input and output cables
- Line drop compensation for output voltage

	400A	600A
Weight approx.	250kg	270kg
Dimensions (w x d x h) mm (depending on options)	Fixed installation enclosure 955 x 750 x 775 Mobile with cable frames and castors 1500 x 755 x 915	
Ingress protection	IP43 or optional IP54	
Ambient temperature °C	0 to + 40 (-20 to + 40) (storage)	
Humidity	Max. 95% without condensation	
Enclosure	All welded press formed steel enclosure, rust inhibited	
Cable entry	Bottom entry, left or right hand side entry.	
Paint colour	RAL 7032 / RAL 7035, other colours on request.	
Paint finish	Light textured.	
Paint treatment	Phosphate, anti-rust primed and resin powder coated	
Optional enclosure	Stainless steel INOX available with IP54 as an optional item	
Base frame	Galvanised steel, welded section.	
Wheels/ castors	Rubber tyred, 20cm diameter	

Input Data

Input power	13.3kVA	20kVA
Input current at nominal volts		
208V 50/60Hz	38A	56A
230V 50/60Hz	35A	51A
400V 50/60Hz	20A	29A
480V 60Hz	16A	24A
575V 60Hz	13.5A	20A
Standard 3 phase voltages	208V, 230V, 400V (50Hz) and 480V 575V (60Hz) +/- 10%	
Nominal frequency	50Hz , 60Hz +/- 5%	

Output Data

Nominal current	400A	600A
Peak current	1600A for 10 secs	2000A for 10 secs
Current limit	adjustable (400A or 600A), 1200, 1500, max	
Nominal voltage	28VDC	
Voltage adjustment range	20-31V	
Voltage compensation	26-29V	
Voltage regulation		
- steady state	+/- 1%	+/- 1%
- dynamic	MIL-Std. 704 F, fig 13	MIL-Std. 704 F, fig 13
Recovery time	≤200ms	
AC Ripple in DC output	<1V	
Service socket outlet	230V, 240V or 115V 50Hz or 60Hz (frequency depending on mains input)	

Standards

BS EN61000-6-2	Electromagnetic compatibility for immunity
BS EN61000-6-4	Electromagnetic compatibility for Emissions
BS EN2006/95/EC	Low voltage directive
BS EN 62040-1-1	General and safety requirements
ISO 1540	Characteristics of aircraft electrical systems
ISO 6858	Aircraft ground support electrical supplies
BS IEC 60721	Classification of environmental conditions
BS IEC 60529	Ingress protection classification

Manufactured in the United Kingdom and compliant with CE marking mandate



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