

Ground Power Equipment & Tugs





About Red Box Aviation

Red Box Aviation design and manufacture high quality and reliable Ground Support Equipment (GSE) and is now part of the LPA Connection Systems family.

We offer a wide range of aircraft ground power equipment, ranging from aircraft start and continuous power units, cable harnesses and electric aircraft tugs.

Designed for use in both civil and military markets, Red Box Aviation delivers bespoke power solutions to its customers. With a global network of distributors, we provide comprehensive local support and after-sales care to our international customers across all ground support equipment and solutions.

To find out more visit www.redboxaviation.com

Who are LPA Connection Systems?

LPA Connection Systems design and manufacture power connection solutions for the aviation industry and are based in the UK.

With over 70 years of experience in the aviation market, the acquisition of Red Box Aviation is key to our commitment to provide a comprehensive range of high quality and reliable ground power equipment to our customers.

LPA supports a range of customers including major UK and international airports, OEMs, specialist aviation suppliers, and the military. We understand the importance of reliable ground power equipment and are committed to the development and innovation of both the Red Box and LPA product range.

LPA has EN 9100, ISO 9001, ISO 14001 certification and many of our products are NATO codified.

To find out more visit www.lpa-group.com

Providing Ground Support Equipment





Tugs

Move up to 4,500 Kg

Electric Powered



Ground Power Equipment

Battery Start Units	4
Battery Continuous Power	6
Mains Continuous Power	7
Mains Start Power	8
Combination Start and Continuous Power	9
Transformer Rectifier Unit	10

LPA 28VDC Connectors

and Cable Harnesses

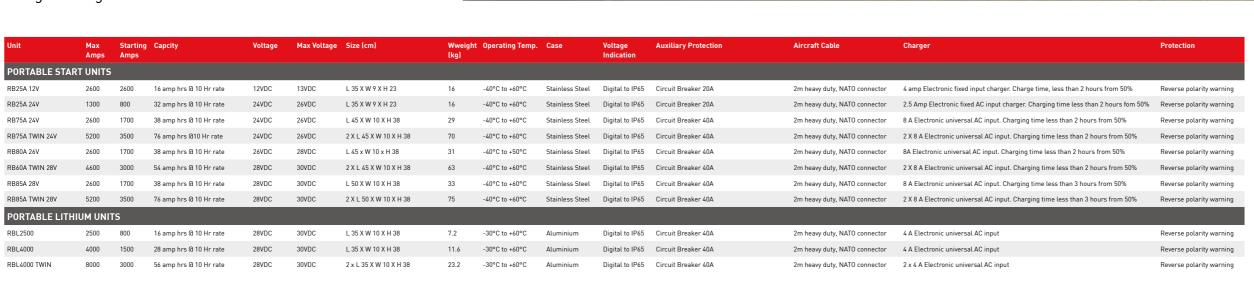
13

28VDC Connectors	14
Cable Harnesses and Assemblies	15
28VDC Flanged Receptacles	15
Cable Harness Storage Stand (PCR100)	15

Start Units

Our comprehensive range of start units are designed to cover every possible start requirement.

The Red Box start units offer 12V, 24V, 26V and 28V starts using either gel lead acid or lithium batteries.



From light weight to high power, there is a start unit to match your requirements.

RB75A 1700A

Unit		Starting Amps	Capcity	Voltage	Max Voltage	Size (cm)	Weight (kg)	Operating Temp.	Case	Voltage Indication	Auxiliary Protection	Aircraft Cable	Charger	Protection	Towbar	Handlebar and Castors
START CA	RT UNIT															
TC400/6	7800	5000	114 amp @10 Hr rate	24VDC	26VDC	L 78 X W 35 X H 30	135	-40°C to +60°C	Zinc Coated Steel	Digital to IP65	Circuit Breaker 40A	3m heavy duty, NATO connector	20A Electronic 110/230v. Charging time less than 2 hours from 50%	Reverse polarity warning	50mm ball (optional)	Optional
TC400/8	10400	7000	152 amp @10 Hr rate	24VDC	26VDC	L 78 X W 35 X H 30	165	-40°C to +60°C	Zinc Coated Steel	Digital to IP65	Circuit Breaker 40A	3m heavy duty, NATO connector	20A Electronic 110/230v. Charging time less than 2 hours from 50%	Reverse polarity warning	50mm ball (optional)	Optional
TC400/28	5200	3500	115 amp hrs @10 Hr rate	28VDC	30.3VDC	L 78 X W 54 X H 30	140	-40°C to +60°C	Zinc Coated Steel	Digital to IP65	Circuit Breaker 40A	3m heavy duty, NATO connector	20A Electronic 110/230v. Charging time less than 2 hours from 50%	Reverse polarity warning	50mm ball (optional)	Optional

Unit	Max Amps Starting Amps	Capacity 24/28V	Capacity 12/14V	Voltage	Max Voltage	Size (cm)	Weight (kg) Operating Temp	. Case	Voltage Indication	Auxiliary Protection	n Auxiliary Input	Aircraft Cable	Charger	Protection
DUAL-VO	LTAGE START UNITS													
RB25A 12/24	1600/3200 800/1600	17 amp hrs @10 Hr rate	34 Amp Hrs @ 10 Hr rate	12/24VDC	13/26VDC	L 40 X W 23 X H 21	23 -40°C to +60°C	Stainless Steel	l Digial IP65	Circuit Breaker 20A	29VDC	2m heavy duty	4 amp universal AC input. Charging time less than 4 hours from 50%	Reverse polarity warning

4 UK: +44 (0) 1799 512800 www.redboxaviation.com UK: +44 (0) 1799 512800 | www.redboxaviation.com 5

Battery Units

Our continuous battery units are designed to provide uninterrupted power to aircraft when mains power isn't available, or when a silent power supply is required.



Our continuous power supplies offer clean 14V and 28VDC power, up to 600 Amps.

From hand portable to mobile units we offer a solution to all DC aircraft requirements.





Unit	Max Amps	Starting Amps	Capacity	Run Time	Voltage	Max Voltage	Size (cm)	Weight (KG)	Operating Temp	Case	Voltage Indication	Auxiliary Protection	Aircraft Cable	Charger	Optional Extras
TC400/28C	5200	3500	115 amp hrs @10 Hr rate	95A for 1 hour, 50A for 2 hours, 30A for 3 hours	28VDC	30.3VDC	L 78 X W 35 X H 30	140	-40°C to +60°C	Zinc Coated Steel	Digital to IP64	Circuit Breaker 40A	3m heavy duty with connector	20A Electronic 110/230V. Charging time less than 4 hours from 50% (larger chargers available)	Longer cables
TC400/28T	10400	7000	272 amp hrs @10 Hr rate	190A for 1 hour, 100A for 2 hours, 65A for 3 hours	28VDC	30.3VDC	L 200 X W 108 X H 150	400	-40°C to +60°C	Zinc Coated Steel	Digital to IP65	Circuit Breaker 40A	3m heavy duty with connector	20A Electronic 110/230V. Charging time less than 4 hours from 50% (larger chargers available)	Cable horns, longer cables
TC400/28TR	15600	10400	357 amp hrs @10 Hr rate	250A for 1 hour, 125 for 2 hours, 85A for 3 hours	28VDC	30.3VDC	L 200 X W 108 X H 150	500	-40°C to +60°C	Zinc Coated Steel	Digital to IP65	Circuit Breaker 40A	3m heavy duty with connector	40A Electronic 110/230V. Charging time less than 3 hours from 50% (larger chargers available)	Cable horns, longer cables
TC400/28QU	20800	14000	476 amp hrs @10 Hr rate	340A for 1 hour, 170A for 2 hours, 120A for 3 hours	28VDC	30.3VDC	L 200 X W 108 X H 150	600	-40°C to +60°C	Zinc Coated Steel	Digital to IP65	Circuit Breaker 40A	3m heavy duty with connector	50A Electronic 110/230V. Charging time less than 4 hours from 50% (larger chargers available)	Cable horns, longer cables

Unit	Output Current	Output Voltage	Output Ripple	Input Frequency	AC Input Supply	Phase	Power Factor Correction	Input Rating	Dims Body (cm)	Weight (kg)	LED Voltmeter/ Ammeter Display
RBPS25	25 amps	14/28VDC	←150 mV	47-63 Hz	104V-264V	1Ø	Included	775 VA	L 13 x W 46 x H 22	5	YES
RBPS50	50 amps	14/28VDC	←150 mV	47-63 Hz	104V-264V	10	Included	1550 VA	L 13 x W 46 x H 22	6.5	YES
RBSC100	100 amps	14/28VDC	←150mV	47-63 Hz	95V-264V	1Ø	Included	3000 VA	L 45 x W 20 x H 23	9	YES
RBSC150	150 amps	14/18VDC	←250mV	45-65 Hz	95V-270V	1Ø or 3Ø	Included	5280 VA	L 94 X W 78 X H 45	46	YES
RBSC225	225 amps	14/18VDC	←250mV	45-65 Hz	95V-270V	1Ø or 3Ø	Included	7920 VA	L 94 X W 78 X H 45	56	YES
RBSC300	300 amps	28VDC	←250mV	45-65 Hz	200V-460V	3Ø	Included	10500 VA	L 91 X W 80 X H 61	70	YES
RBSC450	450 amps	28VDC	←250mV	45-65 Hz	200V-460V	3Ø	Included	16200 VA	L 91 X W 80 X H 77	80	YES
RBSC600	600 amps	28VDC	←250mV	45-65 Hz	200V-460V	3Ø	Included	21600 VA	L 91 X W 80 X H 77	90	YES



6 UK: +44 (0) 1799 512800 www.redboxaviation.com

UK: +44 (0) 1799 512800 www.redboxaviation.com

7

Combination Start and Continuous

Combining the quality and functionality of both our start and continuous units into a single, easy-to-manoeuvre unit.





 \rightarrow

Visit www.redboxaviation.com or call us on +44 (0) 1799 512800 for more information on our hybrid units

Unit	Max Amps	Starting Amps	Capacity	Starting Voltage	Max Start Voltage	Continuous Voltage	Continuous Power	AC Input	Size (cm)	Weight (kg)	Operating Temperature	Case	Voltag Indica			e Charger	Handle Bar & Castors Or Towbar
TC3000/50-4	5200	3500	76 amp hrs @10 Hr rate	24VDC	26VDC	28.5VDC	50 amps	95v-270V 1Ø	L 94 X W 78 X H 45	111	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	y 3m heavy duty	50A Electronic inbuilt. Charging time less than 60min from 50%	Optional
TC3000/50-6	7800	5200	114 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	50 amps	95v-270V 1Ø	L 94 X W 78 X H 45	135	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	3m heavy duty	$50 \mbox{A}$ Electronic inbuilt. Charging time less than $60 \mbox{min}$ from 50%	Optional
TC3000/100-4	5200	3500	76 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	100 amps	95v-270V 1Ø	L 94 X W 78 X H 45	115	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	y 3m heavy duty	100A Electronic inbuilt. Charging time less than 60min from 50%	Optional
TC3000/100-6	7800	5200	114 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	100 amps	95v-270V 1Ø	L 94 X W 78 X H 45	139	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	y 3m heavy duty	100A Electronic inbuilt. Charging time less than 30min from 50%	Optional
TC3000/150-4	5200	3500	76 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	150 amps	95v-270V 1Ø or 3Ø	L 94 X W 78 X H 45	120	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	ay 3m heavy duty	150A Electronic inbuilt. Charging time less than 30min from 50%	Optional
TC3000/150-6	7800	5200	114 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	150 amps	95v-270V 1Ø or 3Ø	L 94 X W 78 X H 45	150	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	ay 3m heavy duty	150A Electronic inbuilt. Charging time less than 30min from 50%	Optional
TC3000/225-4	5200	3500	76 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	225 amps	95v-270V 1Ø or 3Ø	L 94 X W 78 X H 45	125	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	y 3m heavy duty	225A Electronic inbuilt. Charging time less than 30min from 50%	Optional
TC3000/225-6	7800	5200	114 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	225 amps	95v-270V 1Ø or 3Ø	L 91 X W 80 X H 77	160	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	3m heavy duty	225A Electronic inbuilt. Charging time less than 30min from 50%	Optional
TC3000/300-4	5200	3500	76 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	300 amps	200V-460V	L 91 X W 80 X H 77	135	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	y 3m heavy duty	300A Electronic inbuilt. Charging time less than 30min from 50%	Handle Bar and Castors
TC3000/300-6	7800	5200	114 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	300 amps	200V-460V	L 91 X W 80 X H 77	160	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	ay 3m heavy duty	300A Electronic inbuilt. Charging time less than 1 hour from 50%	Handle Bar and Castors
TC3000/300-8	10400	7000	152 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	300 amps	200V-460V	L 91 X W 80 X H 77	185	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	ay 3m heavy duty	300A Electronic inbuilt. Charging time less than 1 hour from 50%	Handle Bar and Castors
TC3000/450-6	7800	5200	114 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	450 amps	200V-460V	L 91 X W 80 X H 107	210	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	y 3m heavy duty	450A Electronic inbuilt. Charging time less than 30min from 50%	Handle Bar and Castors
TC3000/450-8	10400	7000	152 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	450 amps	200V-460V	L 91 X W 80 X H 107	235	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	y 3m heavy duty	450A Electronic inbuilt. Charging time less than 30min from 50%	Handle Bar and Castors
TC3000/600-6	7800	5200	114 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	600 amps	200V-460V	L 91 X W 80 X H 107	235	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	y 3m heavy duty	600A Electronic inbuilt. Charging time less than 30min from 50%	Handle Bar and Castors
TC3000/600-8	10400	7000	152 amp hrs @10 Hr rate	24VDC	26VDC	28VDC	600 amps	200V-460V	L 91 X W 80 X H 107	235	-40°C to +60°C	Zinc Coated Steel	LED di	play LED disp	3m heavy duty	600A Electronic inbuilt. Charging time less than 30min from 50%	Handle Bar and Castors

Hybrid Units

Providing up to 170A @ 28VDC of continuous and up to 5200A for starting. These compact units are ideal for remote locations.







	Engine Fuel Tank	Engine Exhaust	Engine Battery	Engine Protection	Cooling		Operating Temperature		Weight (kg)	Accessories
ack-up	7.9 Litre	Super Low tone system spark arrestor in exhaust	Separate isolated 12 volt	Low oil auto shutdown	Fan cooled	All weather	-30°C to +40°C	L 95 X W 55 X H 64 – Main body	150	Handle and casters, towbar and longer cable available
ack-up	7.9 Litre	Super Low tone system spark arrestor in exhaust	Separate isolated 12 volt	Low oil auto shutdown	Fan cooled	All weather	-30°C to +40°C	L 95 X W 55 X H 64 - Main body	175	Handle and casters, towbar and longer cable available



When mains power is available for both start and continuous power, this unit becomes the ideal choice.

Our TRUs offer 28VDC solid-state Ground Power Supplies that range from 300 A continuous - 1200 A Peak load to 600 A continuous -2400 A Peak load.



SINEGPU 28VDC

Specifications

3 phase 400V/415V AC | ±10%*

50/60Hz ± 10%
Input current harmonics \leftarrow 2% @ Full Load
OUTPUT
Output 28.5VDC ±1%*
Continuous current capability (at 28.5VDC) 300A/600A*
Maximum Current Limit (at 28VDC) 1200/2400A for up to 5sec
Continuous current capability (at 28.5VDC) 300A/600A*
Current Limit adjusting steps (from 600A) $\pm~0.5\%$
Voltage regulation up to 600A 1%
Ripple <0.5%
Dynamic Recovery to 90% VDC <40ms
Voltage Compensation 0-4V up to 600A (remote feedback)
Galvanic Isolation 800Hz Transformer
IGBT + DIODE Rectifier
1001 + DIOUL RECUIICI

ENVIRONMENTAL CONDITIONS
Coolant temperature (max) Forced air up to 40°C
Ambient temperature (min/max) -40°C to +40°C
Relative humidity (min/max) 0% to 90% without condensation
Pollution degree 2
OVC (Overvoltage Category) 3
Altitude Up to 2000m

- * Other voltages and frequencies available on request
- * Other Electronic Overload limits available on request

Tugs

Priceless Tugs are designed for use on light aircraft and in maintenance and FBO facilities. Making it easy for one person to maneuver aircraft quickly and safely.

We guarantee our pulling weights.

Tug									Towing Mechanism	
701E	40	00 w	Electric Electric		2,050 / 4,500	Key	Alternate	Aeroplane	Various	Variable Speed
701EI	L 40	00 w	Electric	Electric	2,050 / 4,500	Key	Alternate	Aeroplane	Various	Variable Speed

Mover Types

Priceless Aircraft Tugs...

For Private Aircraft, Corporate Aircraft, Maintenance Shops & FBO facilities

The latest technology for the movement of aircraft. Priceless Aviation Products make it easy for one person to maneuver aircraft quickly and safely in tightly stacked hangars or staging on the ramp. Our electric tugs can tow up to 4,500 lbs. MGTOW.



Ball Hitch

Designed for moving various trailers for utility purposes. Available on the model 701E, 701EL and 701D.



Axle Attachment

For aircraft with or without wheel pants

The Axle Attachment is used on the the model 701 tug. It's use is for lightweight aircraft and is steered moving handles left to right and pivoting on the drive wheel while connected to the aircraft and shifting positions. Optional adapters available for many aircraft.



Visit www.redboxaviation.com or call us on +44 (0) 1799 512800 for more information on Priceless tugs.



Easily move small aircraft quickly and safely in tight areas. Turn without lifting tug. Optional ball hitch attachment for movement of small trailers & campers. The model 701EL is equipped with an extra-heavy-duty battery for longer life.

Standard Features:

- 400W effective power
- 24VDC electric motor
- 701E battery life approx. 1 hr (fully charged) 2 - 12V sealed lead acid batteries
- 701EL battery life approx. 1 1/2 hour (fully charged) 2 - 12V sealed dry-cell batteries
- Easily control steering with articulating swivel attachment

- Rocker switch for forward/reverse
- Adjustable speed
- Virtually silent when moving
- Environmentally friendly no exhaust
- Universal adaptor for quick toolfree attachment to a wide range of aircraft
- Swivel attachment

Options

Ball hitch attachment for easy movement of campers, boats & trailers.

Snow chains

Headlight















Key features:

- Robust materials ensure long life reliability
- Modular design to ensure ease of maintenance
- Individual tubes/pins can be replaced
- Crimped or soldered contacts
- Suitable for a wide range of cable sizes
- Split control pins and tubes
- Square bung fitted with removable plug to accommodate control cable
- Composite, 3 or 5 single core harness entry

Technical information:

Power components

- 450 amps, maximum continuous current
- 1500 amps for maximum of 1 minute control components
- 35 amps continuous current
- Applicable standards: ISO 461-1, ISO 461-2, BS 45 173
- Compatibility: mates with ISO 461-2

Type 20 Plug Type M1 Socket Type M3 Socket Type 23 Plug

Cable Harnesses

Bespoke assemblies and cable harnesses to meet customer requirements.

Key features:

- Composite cable, 3 single core or 5 single core cable options
- 28VDC supply
- Quick assembly using standard stock items
- Cable lengths in meters, from 5 to 30M and in 5M increments
- Low maintenance and impact resistant
- Ideal for cable retrievers and reelers

Extension Harness (EH)

28VDC Single Core Extension Harness with M3 & Type 23





Power Harness (PH) 28VDC 5 Single Core Cable Harness & Type M3

28VDC Flanged Plug & Socket

Easy connection to cable & low maintenance.

Key features:

- Protected flange mounted 28VDC connectors
- Cast aluminium alloy housing and lid
- Epoxy powder coated black finish
- Exterior material: CSPE
- Interior manufactured to ISO 461
- Crimped or soldered contacts
- Mounting boxes available

Technical information:

Power components

- 450 A maximum continuous current
- 1500 A for maximum 1 min control components
- 35 A maximum continuous current
- All flanged plugs have a split control pin (part number - 29176) and all flanged sockets have a split control tube (part number - 13196)



Type 19 Plug

28VDC 3 pole Plug

Cable Harness Storage Stand (PCR100)

Designed for use in the hanger or on the airport apron, the PCR100 prevents damage to the cable and can hold up to 100kg per side.

Key features:

- Suits multicore and composite cables
- Holds 100kg per side (maximum)
- Bright yellow finish and fitted with high visibility reflective tape



14 UK: +44 (0) 1799 512800 | www.redboxaviation.com



LPA Connection Systems

Light & Power House Shire Hill Saffron Walden Essex, UK CB11 3AQ

+44 (0)1799 512800 enquiries@lpa-connect.com www.redboxaviation.com www.lpa-group.com



0324/300





