GROUND POWER

ONE-STOP SOLUTION

SADTEK

ElectroAir
QUALITY AND INNOVATION

ELECTROAIR

We are a **specialized manufacturer of ground power units** for aviation.
We cooperate with both civil and military sector in all phases from planning to design and execution.

We offer a **complete one-stop solution** that includes stand-alone, mobile, diesel-engine driven and under ramp GPUs (frequency converters, rectifiers and combined units) as well as PIT systems, cable extenders, control and testing equipment, charger-dischargers and load banks.

Our customers are airports, ground handlers, airlines, maintenance and repair organizations that care about quality, environment and operational efficiency.

> Our customers are partners in the widest sense of this word

Aleksei Snitrsarenko
CEO

AIRBUS · air astana · ABS JETS · Ethiopian የኢትዮጵያ
Lufthansa Technik · AVIATOR · Sundt Air
INDUSTRIFLYG · CROATIA AIRLINES · SGS · Tallinn Airport GH
Muscat International Airport — Gateway To Beauty & Opportunity
Rialtas na hÉireann — Government of Ireland

300+ CLIENTS
IN 45 COUNTRIES

- We know what we are doing. As a company specializing on design, development and manufacturing of ground power units, we have **in-depth expertise on one field.**
- We are big enough to **cover all your needs** in one-stop solution and flexible enough to give you a **true personal approach**. You will be dealing with responsive people who are there for you.
- We care. We invest in innovation and quality, to give you an **equipment you can trust.**
- We keep developing. When partnering up with us, you can be sure that your needs are covered with **state-of-art technology and knowhow** also in the future.

GMF AeroAsia
GARUDA INDONESIA GROUP

INTERNATIONAL AIRPORT SHEREMETYEVO

Ceiba

WROCLAW AIRPORT

Turkmenistan Airlines

TAROM

النهدي alnahdi Aviation الطيران

Yemenia
Yemen Airways

aena
Aeropuerto de Bilbao
Bilboko aireportua

МАИ

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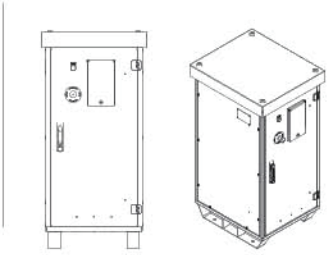
FREQUENCY CONVERTERS
EAC SERIES



The frequency converters of our EAC series are for the ground servicing of all aircraft types with a frequency of 400 Hz up to 360 kVA. EAC series converters assist with the fast, reliable and safe launch of aircraft engines and they provide an uninterrupted power supply when the aircraft is on the ground, reducing the amount of exhaust fumes and noise level within the airport area. They are fully compliant with the required parameters and can be used as solid state, mobile towable or under-ramp with cable coil. A new lightweight compact design of the unit is now available.

400Hz Frequency

- Very stable frequency 400Hz ± 0.001
- Possibility to regulate from 320Hz to 440Hz.

1-360 kVA

1-360 kVA Execution

- Any power rate according to client needs
- Up to 4 output channels
- Simultaneous work of output channels

115/200V Voltage

- Absolute voltage quaity according to ISO 6858 standard
- Max. phase unbalance is less than 2V
- Automatic voltage drop compensation on the cable (up to 200m)
- Phase angle 120º ± 2.5%

Protocol

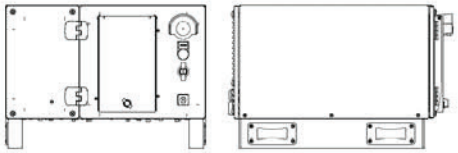
- SCADA
- MODBUS

15 min Modularity

- Modular system – easy to replace
- Mean time to repair is less than 15 min

Temperature and humidity

- Standard (-20°C to +40°C)
- Tropical (-10°C to +75°C)
- Nordic (-50°C to +40°C)
- Alpine- up to 1500 a.s.l.
- Relative humidity up to 100%



RECTIFIERS
EAR SERIES

New Generation EAR series rectifiers are designed to power on-board electrical equipment and launch aircraft and helicopters with a voltage of 28.5 V and a rated current of up to 1200 A continuously (on request they can be manufactured with great source output parameters), with an overload of up to 2500 A.

New Generation rectifiers are equipped with a MPCU microprocessor control plate, which is intended for control functions, protection and diagnosis. Rectifiers can also be equipped with an access system and energy consumption monitoring system.

20 to 1200

- Rated current up to 1200A with overloads up to 2500A

28V

28V

- Very stable voltage
- Automatic voltage drop compensation on the cable (up to 50m)

2 DC ++

- Dual independent output channel option
- Ability to work on a "28V/56V" mode

Eco and Personnel Friendly

- No CO_2 – emissions
- Maximum usage of recycle materials
- Extraordinary personnel safety features
- Easy to operate
- Noise level <60dB(A) @1m

IN ORDER TO ATTAIN THE PARAMETERS REQUIRED BY THE NEW GENERATION OF AIRCRAFT, WE CAN ALSO PROPOSE A COMPLETE SOLUTION FOR REPLACING OLD VERSIONS OF TRUS FOR 400 HZ DIESEL ENGINE DRIVEN GPUS WITH OUR CONVERTER RECTIFIER UNITS EAR - 800 C.

A NEW LIGHTWEIGHT COMPACT DESIGN OF THE UNIT IS NOW AVAILABLE!

15 min Modularity

- Modular system – easy to replace
- Mean time to repair is less than 15 min

Monitoring system

- Energy consumption monitoring system
- Power log and "black box" mode

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COMBINED UNITS

EACR SERIES

The combined power supply units of the EACR series are intended to supply power to the on-board electrical equipment of aircrafts and helicopters during pre-flight preparation at airports, the shop floors of aircraft industry enterprises and complex training simulators in aviation study-training centers. These power supply units have two types of independent outputs: one with direct current of 28.5 V, and second one with alternating current of 400 Hz. All channels can be independently regulated and used simultaneously. The voltage compensation system is made separately for each output. DC outputs can be operated both as two-channel with 28/56 VDC function and single-channel with 28.5 VDC.

EAC+EAR

- Combination of frequency converter and rectifier

AC/DC

- Independent AC and DC outputs
- Possibility of simultaneous work of both channels
- Power supply for several aircrafts

Ventilation cooling system

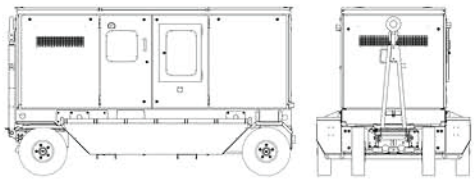
- Located on top
- Low noise fans

36V & 28V/56V

Special outputs

- Special 400Hz 36V output
- Ability to work on a 28V/56V mode

CUSTOMIZABLE ACCORDING TO YOUR NEEDS - TROLLEYS, CABLE LENGTH, COLOR, TECHNICAL PARAMETERS. FIND OUT MORE FROM OUR EXPERTS.



DIESEL GPU
APA SERIES

The Hybrid Diesel engine driven GPU series APA is designed to reduce CO_2 emissions with its unique technical characteristics. There is an additional output of standard voltage 50/60 Hz. You can also use it as mobile electrical GPU by connecting it to a 50 Hz, 400 V 3 phase main power supply. These two features allow it to perform the complete service of aircrafts at remote parking places and use APA series GPUs inside of aircraft hangars without emitting CO_2. It has the following outputs: direct voltage 28.5 V (up to two output channels) and three-phase alternating 3x115 V frequency 400 Hz (up to two output channels). These GPUs have diesel generator sets, which provide a three-phase AC input voltage 3x400 V for rectifiers EAR and frequency converters EAC. 400 Hz 36 VAC and 270 VDC outputs are also available. All power supply channels are independent and have very stable output parameters.

50/60Hz

50/60Hz

- Optional 50/60 Hz outut up to 250A

Prime power

- Possibility to work with 50/60Hz 3ph 400V mains power

Eco Green

- Low CO_2 emissions
- Low noise
- Tier 3, 4, 5

Telematics

- Controls and monitors position and work of GPU

Execution

- Solid state
- Mobile
- On truck

Overload and continuous work

- Up to 10 hours of continuous work with overload up to 200%

Functions

- Turntable / 5-th wheel
- Brakes at towbar upright position

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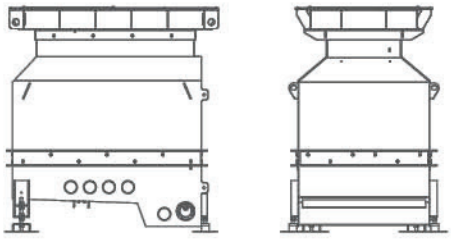
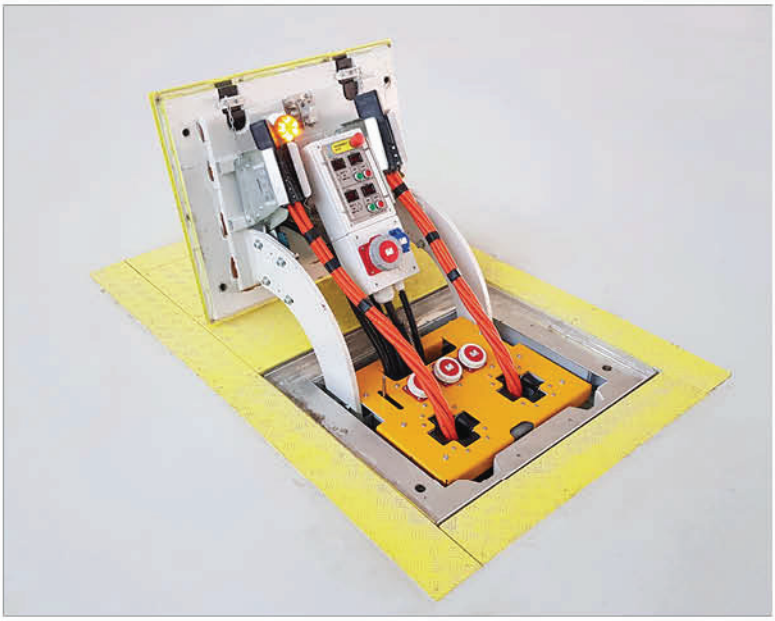
PIT SYSTEMS

EAPIT





Underground hatch PIT systems are counterweight systems that are designed to supply power to onboard electrical equipment of aircraft and helicopters during pre-flight preparation at airports, shop floors of aircraft industry enterprises, or hangars.

EAPIT can be equipped with a remote control and access system. In underground steel chamber or concrete bunker there are distribution boxes of 400Hz and 50Hz. EAPIT is assembled as much as possible to simplify its installation and connection. There are plugs on the upper part of the hatch to supply the aircraft with special current of either 400 Hz AC or 28.5 VDC.

It is strongly recommended using ElectroAir GPUs with ElectroAir hatch PIT systems. By using them as a complete solution, it is possible to install GPUs far from the location of the PIT system. If needed systems of compressed air and water (potable, blue, sewer) can be also built in to the PIT system. In addition, ElectroAir provides PCA and facility PIT systems. The PCA PIT system is equipped with a PCA rigid hose.

Standards

- Certified to EN 124 F900 standard
- Certified to MH/T 6107-1024 F900

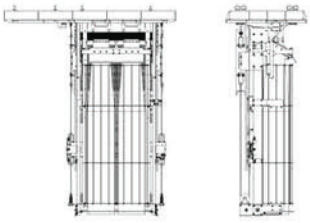
Remote control

- The hatch is equipped with remote control
- ON/OFF, regulations, emergency stop

Multifunctional

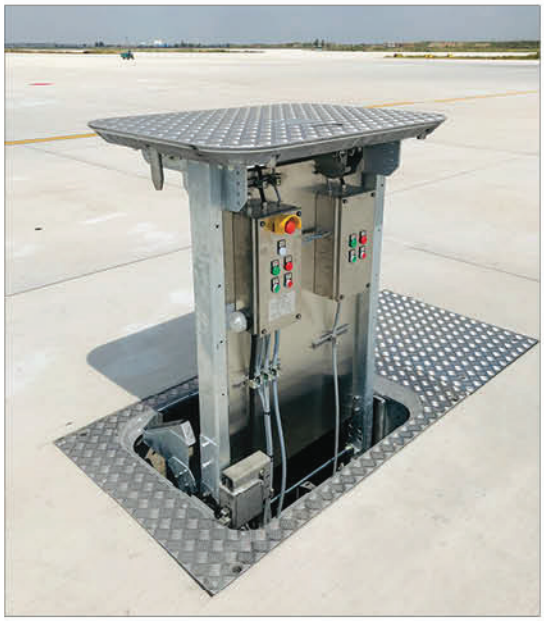
- 400Hz, 28.5VDC, PCA, compressed air, water, fuel, utility, sockets

MINI-PIT NOW AVAILABLE!
LOWER PRICE, CUSTOMIZATION OPTIONS AND BENEFITS THAT COME WITH A SMALLER SIZE.



PIT SYSTEMS

POP-UP EAPIT



The POP-UP EAPIT system consists of lifting mechanism with a counterweight opening system. Distribution boxes of 50Hz and 400Hz (if any) and sump pump are installed in underground concrete bunker. Pit cover is lifted above the surface and equipped with control box. The EAPIT POP-UP can be equipped with preconditioned air (1-2 output hoses), set of sockets and/or 400Hz power supply (1-4 outputs) for aircraft at apron or hangar parking places. It has an access system for maintenance.

POP-UP EAPIT system can be completed with ventilation or heating system and designed in compliance with all environmental concerns. Applied force for opening/closing does not exceed 10 kg.

We supply EAPIT POP-UP assembled as much as possible to simplify its installation and connection.

Counterweight system

- Opening - counterweight system

Construction supervision

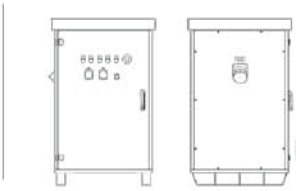
- Construction supervision during installation

Climatic execution

- Sump pump
- Anti-condensation heater
- Microclimate system option

PROJECT PLANNING SUPPORT AND READY-MADE SOLUTIONS ARE AVAILABLE FOR DESIGNERS. ASK OUR EXPERTS FOR MORE.

DISTRIBUTION PILLAR
EAD



The distribution pillar of EAD series represent stationary/outboard power supplies for ground electro consumers with electrical load of AC 220, 380 V 50/60 Hz and special currents 115/200V 400Hz and/or 28VDC on the aircraft parking. They are also used to provide electrical load to the workshops and aviation hangars. Each channel can be equipped with a high-speed electric switch along with an indication of voltage present and the status of work. Pillars can be equipped with a built-in remote control, built-in certified counters indicating consumed electricity via 50 Hz, 400 Hz and 28VDc channels and an anti-condensation heating system. There is a possibility to integrate other additional equipment on the customer's request.

Dimensions

- 850 x 820 x 1370 standard
- depending on client's needs

Protection

- IP54/IP67
- Door interlock

PORTABLE QUICK STARTER
EAQS

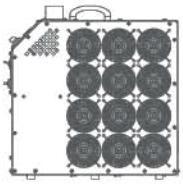
The portable quick starter EAQS series is designed to deliver high amperage for starting pistons and turbine engines. It is capable of producing an output either 2400 A or 2 x 2400A in portable and lightweight package, that stays maintenance free throughout its lifespan.

Design

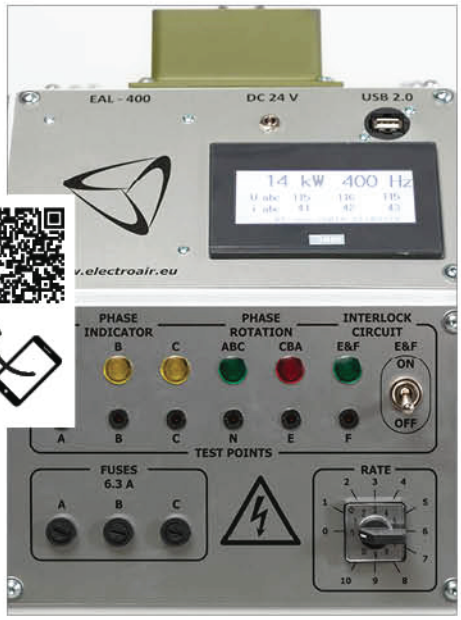
- Lightweight - 33 kg
- Compact - 470 x 245 x 220

Capacity

- Up to six starts



LOAD BANKS
EAL SERIES



Portable load banks of EAL series are developed for temporary load supply during the maintenance, testing and adjustment of GPUs. This will eliminate and minimize time of maintenance and adjustment of GPUs. In order not to have problems with the aircrafts after repairing and maintenance of 400 Hz or 28.5 V GPU - our solution is using ElectroAir control and testing equipment EAL. Due to using the latest technologies our load banks are lightweight, compact and fully independent units. Using ElectroAir load banks it is possible to perform engine start simulation as well as do regular check of performance of GPUs. ElectroAir produces AC load banks (up to 180 kVA) and DC load banks (up to 2500 A).

Air cooling system

- Air cooling system with low noise fans

Computer connection

- USB connection
- Reports
- Wifi option

Low Weight

- 29 kg AC
- 22 kg DC

Carrying case

- Comfortale carrying case

Load test

- Engine start simulation
- 6 steps (35 sec)
- Continuous test

Digital meters

- Voltmeter, ammeter, frequency meter
- Touch screen

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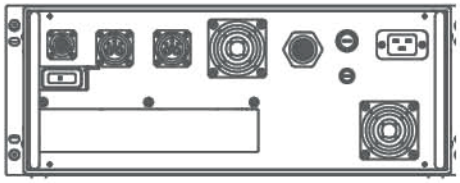
CHARGER - DISCHARGER
EAR-CH



Charger-discharger of EAR-CH series serves to test, charge, discharge and commissioning of all types of aircraft batteries (lead-acid, Ni-Cd, Li-ion, etc.). It provides storing the maintenance history of each battery during the whole cycle of charging-discharging. Availability of dual outputs allows to charge or discharge two batteries at the same time. Voltage and temperature measurement are performed by every element of the battery with special „Probe" testers.

Printer

- Ability to print the results of charging-discharging

Computer

- Connection to computer
- Monitoring function

Programs

- 62 programs installed
- Ability to create your own program

Charge-Discharge

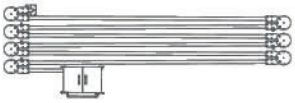
- Simultaneous charge and discharge of two batteries

DC power source

- Can be used as DC power supply

Memo function

- Memorizes last function
- Restore function



CABLE EXTENDER
EAZ

The EAZ zigzag type cable extender is intended for storing and moving cables from the GPU to the aircraft. It consists of up to 10 sections with a length of 5 metres. Its simple modular design with bolt connections means a low maintenance cost. All the metal details are hot dip galvanised and can be painted according to the client's wishes. EAZ has a very comfortable trolley with places for plugs and remote control to simplify operation of the GPU.

Remote control

- The extender is equipped with remote control

Storing and moving

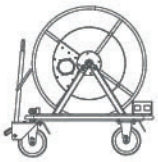
- Storing and moving of cables from GPU to aircraft

Up to 4 cables

- Consists of up to 4 cables for AC 400Hz or 28,5VDC.

Design

- Bolt connections of few sections
- The maximum angle between the adjacent is 270 degrees



MOBILE CABLE
EABT

The EABT mobile cable extender is an easily manoeuvrable, lightweight mobile unit that makes it able to supply AC or DC cables from the GPU to an aircraft within a distance of 100 m. It is made of galvanised steel with solid tyres and a front wheel lock system. By using ElectroAir GPU with ElectroAir cable extenders, clients get very stable voltage in line with all the required standards due to the automatic voltage drop compensation system on the cable.

Storage and transportation

- Supply cable of voltages up to 1000V DC and AC currents

Advantages

- Two bearings drum rotation
- Free end cable storing

Capacity

- Up to 100m cable section 4x70mm².

ECOLOGY. QUALITY. SAFETY.

The activity of ElectroAir is based on European laws and international standards, environmental standards and requirements, regulatory acts in the field of work safety, own standards and regulatory documents, as well as international and local electrical standards, directives and requirements for the aviation power supply field.

Our main priorities of work in the field of quality, ecology and safety:

- Maintenance of an effective quality management system based on the requirements of international standards ISO 9001, ISO 14001, OHSAS 18001 as well as all the required electrical standards in the aviation sector.
- Ongoing maintenance of the company through continuous development, as well as raising the level of competence and sense of responsibility of each of its employees;
- Development and production of quality products that have a minimal negative impact on the environment, are safe and reliable in operation, and meet international requirements and standards;
- Prevention of environmental pollution and control through the use of natural resources;
- Unconditional fulfilment by all company employees of legal and other requirements related to the enterprise.

Norms, standards and directives that we follow:

ISO6858, ISO1540, BS 2G 219, MIL-STD-704F, EN 50091-1, EN 61000-6-4, EN 61000-6-2, EN 50082-2, EN 61558-2-6, EN 12312-20, EN 2282, EN 1915-1, SAEARP 50 15, IEC 60721, IEC 60529, DFS400, GOST 54073-2010, ISO 9001:2008, ISO 14001:2004, OHSAS 18001, 73/23 EEC, 2004/108/EC, EN 124 F900, MH/T 6107-1024 F900

MANAGEMENT SYSTEM CERTIFICATION
DNV·GL
ISO 9001 · ISO 14001
OHSAS 18001

ecogreen

CO_2

OUR SERVICE

01 // DESIGN

We provide tailor-made GPU solutions. For each project the optimal set of required equipment is selected. Most of our customers find suitable items from our standard range. If you need equipment with different parameters, our designers are ready to create you special units that fit your criteria. We can also help in planning a GPU infrastructure at airport, runaway or hangar.

02 // COMMISSIONING

Commissioning is conducted either at our production site or at the client's place of use. In case of latter, our engineers come to the commissioning with necessary instruments and adjust equipment according to your special requirements. At the same time, we conduct training for the maintenance and operation personnel, granting them certificates of successful passing of the training process.

03 // AFTER SALES AND WARRANTY SUPPORT

We provide support throughout the entire life cycle of a product. Also, our customers can benefit from the after-warranty service program. The program provides an extension of the warranty period on a contractual basis. The cost of the annual contract is less than 10% of the equipment cost. Discount applies for a longer period of time. Technical support during the entire period of operation is guaranteed by our electrical and mechanical engineers.

We have certified engineers all over the world to be closer to the client. The regular time for problem solving is 24 hours. Our customer care team is ready to help you on 24/7 basis.

04 // SPARE PARTS

We guarantee spare part storage within minimum period of 15 years. Moreover, we have stocks of spare parts in every part of the world to accelerate the process of solving any issues that may occur. We propose also to keep an initial spare part set at client's facility in order to speed up the process of fixing any failures.

Reliable service

Technical support during the entire period of operation

Reduced maintenance costs

Personnel training and certification

Low implementation cost

Upgrades and revision notices

Customer support 24/7

High quality of the transmitted power

Monitoring of energy consumption

Temperature and humidity

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