

ITW GSE

7400 eGPU



Zero Emission

Battery-powered Ground Power Unit
For narrow-and wide-body aircraft

Ideal for hangars and remote stands with
no fixed 400 Hz installations



Available on a
Power by the Hour
subscription plan



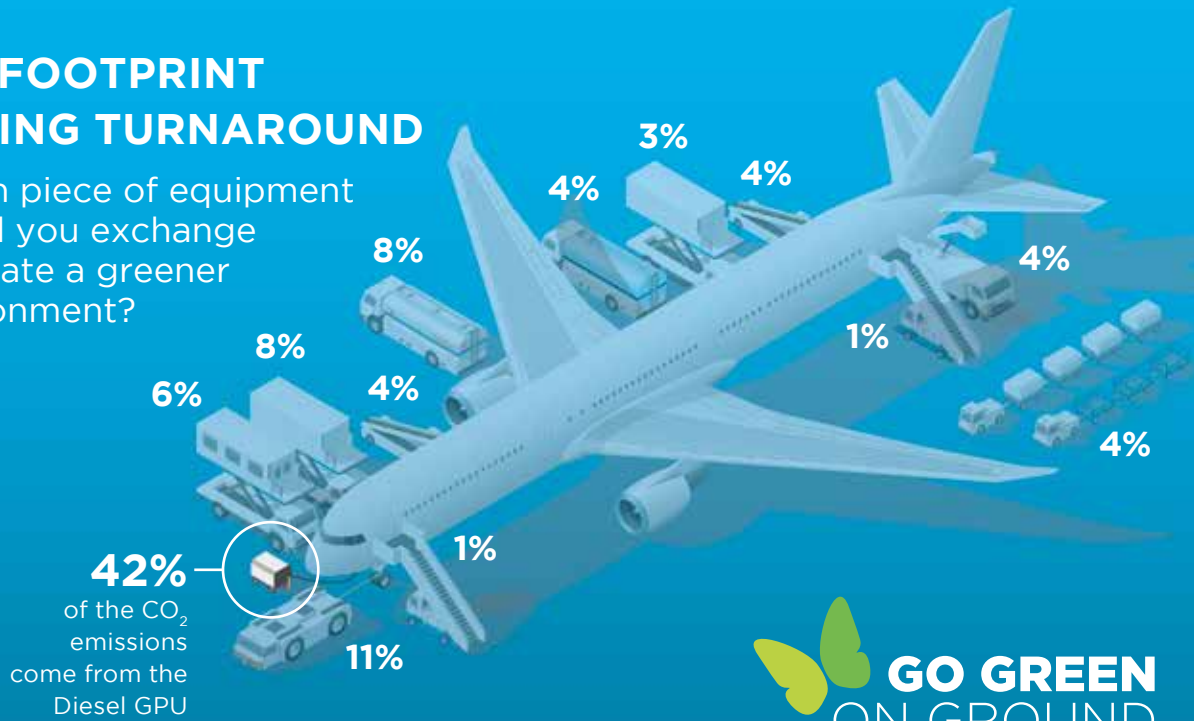
For greener airports and
a better working environment

It's all about connections



CO₂ FOOTPRINT DURING TURNAROUND

Which piece of equipment would you exchange to create a greener environment?



IT'S THE GREEN WAY OR NO WAY

Airports all over the world are beginning to think greener. At the time of writing, almost half of global passenger traffic passes through Airport Carbon Accredited airports. The number of these airports is rapidly increasing, and more and more airports are interested in reducing their environmental impact. Often the world's largest airports are located next to major cities that are growing in line with global trends, meaning cities and airports are coming into ever-closer contact. This leads to stricter requirements in terms of the emissions levels local governments can and will accept.



BATTERY-POWERED GSE MARCHES FORWARD

To reduce emissions in airports, battery powered Ground Support Equipment is rapidly replacing diesel-powered equipment such as cargo loaders and pushback tractors. However, 400 Hz Ground Power Units are an even greater energy guzzler. More energy needs to be delivered over a longer time period. This is why ITW GSE's ground-

breaking and environmentally friendly 7400 eGPU is a game changer. A great benefit stands to be gained from replacing popular diesel hungry GPUs and creating a better environment. Did you realize that savings would correspond to emissions in the range of approx. 88,000 kgs / 190,000 lbs of CO₂, 80 households, 50 cars or 100 acres of forest?

 190,000 LBS CO₂

 80 HOUSEHOLDS

 50 AVG. CARS

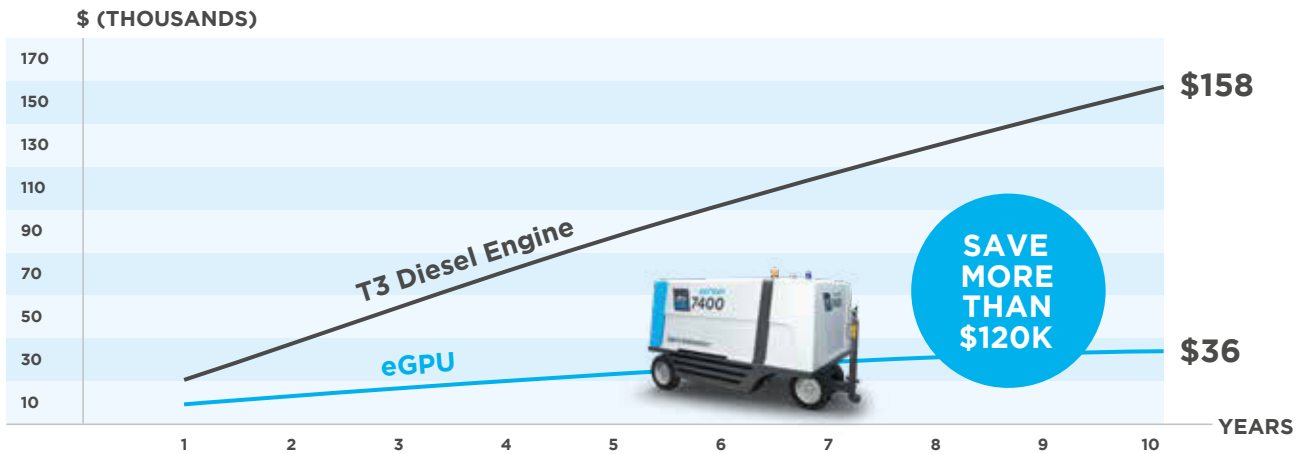
 100 ACRES FOREST

The figures are based on an average estimate for a narrow-body eGPU, and they may vary, depending on country.

SAVE MORE THAN \$120,000 ON OPERATING EXPENDITURES

The 7400 GPU is a unique product with a green approach. Thanks to its lack of moving parts, vulnerable to wear and tear, maintenance costs are almost non-existent, meaning overall operating

costs stay low. With current electricity prices and maintenance costs, the eGPU is a clear winner in comparison to a diesel GPU.



CUMULATIVE OPEX - DIESEL ENGINE GPU VS eGPU

The graph shows the cumulative operating costs of a diesel GPU and a narrow-body eGPU used 5 ½ hours/day/year.

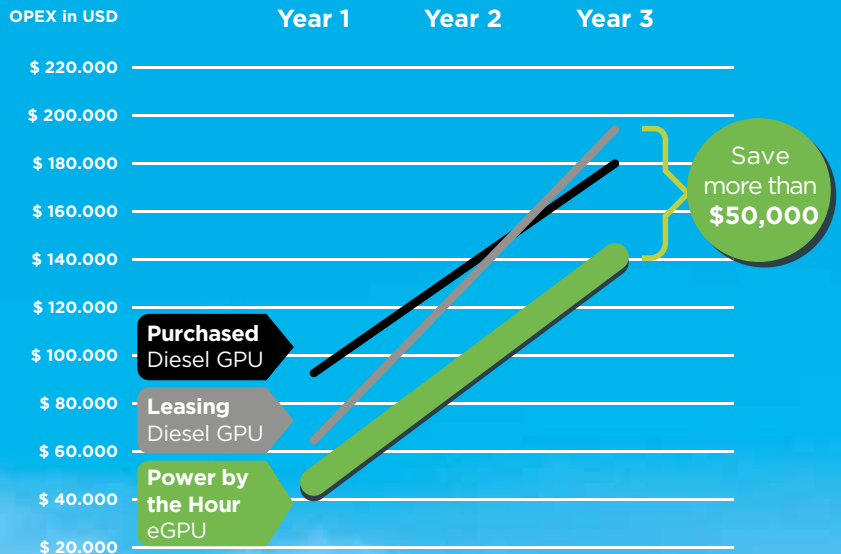
Lower electricity and maintenance costs make the eGPU a winner in this comparison. Provide your fuel and electricity prices for a customized calculation of *YOUR* savings.

GO GREEN. CUT COSTS.

An eGPU on a Power by the Hour subscription costs approx. \$48,000 a year. In comparison, leasing a diesel GPU on a 6 hours/day basis your OPEX will be \$65,000 a year.

Choosing an eGPU means reductions of your OPEX with more than \$50,000 over three years - per narrow body eGPU.

6 hours a day is a modest figure compared to the average use in the industry. The more hours your eGPUs run, the more you save. Furthermore, we do not consider any GPU that you have in reserve to ensure a resilient operation. Even if you usually buy your GPUs, you come out on top when you choose a Power by the Hour subscription instead.



Above calculations are based on average EU prices and for a narrow-body GPU



No NO_x emissions and drastically reduced noise. The key to a better working environment.

A GIANT LEAP FORWARD THAT LEAVES A TINY FOOTPRINT

WITH AN ITW GSE 7400 eGPU, YOU CAN REDUCE YOUR CO₂ EMISSIONS BY 90% AND NO_x EMISSIONS BY 95%

CO₂ EMISSIONS

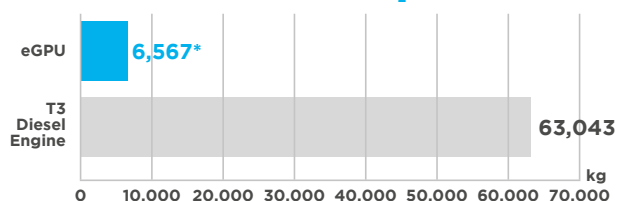
Diesel GPUs have high fuel consumption since they need to be constantly running at high engine speeds to generate the 400 Hz power an aircraft requires. This means high CO₂ emissions and high noise levels.

The ITW GSE 7400 eGPU is a zero-emission alternative that uses battery power instead of conventional diesel, meaning it is practically clean and silent.

NO_x EMISSIONS

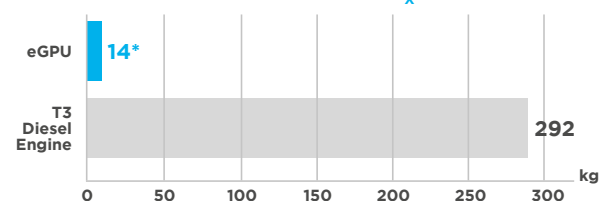
Diesel GPUs have a high level of NO_x emissions. The harmful health effects of this are becoming increasingly better understood. The eGPU emits no NO_x into its operating environment, so it can contribute significantly to a cleaner and safer working environment for your employees.

OVERALL IMPACT ON CO₂ EMISSIONS



CO₂ emissions for 1 unit for 1 year (Avg. 5 1/2 operating hours per day)

OVERALL IMPACT ON NO_x EMISSIONS



Annual NO_x emissions (Avg. 5 1/2 operating hours per day)

*Calculated using average power plant emissions based on data from electricitymap.org

Above figures are based on an average estimate for a narrow-body eGPU

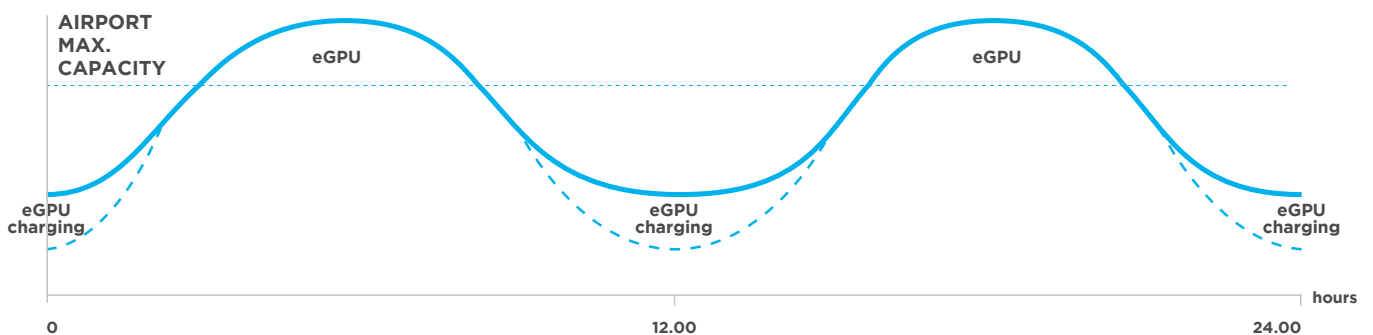
GROW THE CAPACITY OF YOUR EXISTING INFRASTRUCTURE



WITH THE 7400 BATTERY eGPUs

Airports frequently experience peak load periods with a consumption level very close to the power grid's maximum capacity. Increasing the grid capacity requires huge investments in infrastructure.

Making eGPUs a part of your airport's electrical infrastructure allows you to smooth out your capacity demands over a 24-hour period. The eGPUs can be charged during quiet periods and contribute to increasing total capacity in peak periods.



**eGPUs CAN MITIGATE OR ELIMINATE THE NEED FOR EXPENSIVE UPGRADES
OF AIRPORT INFRASTRUCTURE**

Use in hangars
- no input
power
cables

Can supply
power and
recharge at the
same time

Mobile
GPU and
linepowered
converter
in one unit

On-Board
Charging
System

BC

Recharge
from any
50/60Hz
standard
socket



EXTREME FLEXIBILITY

The ITW GSE 7400 eGPU changes how airports think about ground power without making compromises. It is independent due to the onboard battery packs and can easily be transported to wherever it is needed. The flexibility of the 7400 eGPU provides the same outstanding, well-proven

features as other ITW GSE solid-state GPUs, including accurate and clean output voltage at the aircraft plug, and individual phase regulation of each output phase. It can perform multiple turnarounds before it needs recharging, and can be recharged from any standard 50/60Hz socket.

eGPUs FOR ALL POWER NEEDS

The ITW GSE 7400 eGPU family covers all your power needs. From the ITW GSE 7400 JetEx eGPU to the larger models that are well-suited to supply narrow-body and wide-body aircraft.



WIDE-BODY
180 kVA

NARROW-BODY
90 kVA

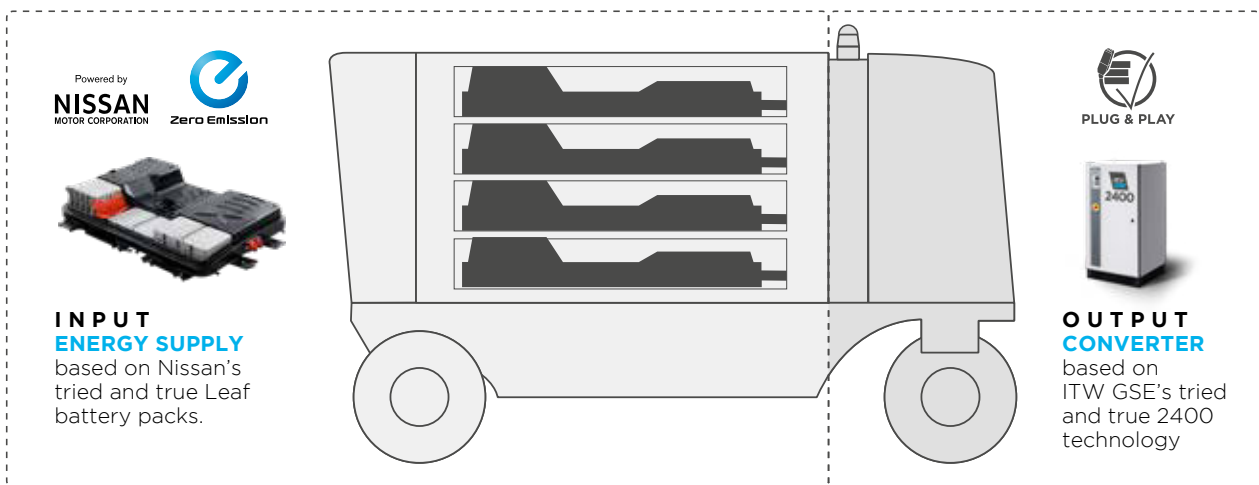
BUSINESS JET
28 VDC

A WELL-PROVEN SOLUTION

INNOVATIVE eGPU - BUILD ON KNOWN TECHNOLOGIES

The ITW GSE 7400 eGPU is powered by 2-5 battery packs with a capacity of 40 or 62 kWh (depending on model). At the output of the eGPU is ITW GSE's well-proven 2400 solid-state converter.

The combination of two tried and true technologies has created the rock-solid eGPU. The narrow-body eGPU is equipped with our patented Plug & Play system and can therefore deliver a unique voltage at the aircraft plug, right where it matters.



SAME EASY-TO-USE PLATFORM AS ALL OTHER ITW GSE PRODUCTS

Like all ITW GSE products, the 7400 eGPU has a common icon-based user interface that is as easy to use as a smartphone or a tablet. This means airport employees already familiar with one ITW GSE product can easily operate another, reducing human error during operation and making product training easier.

MODULAR DESIGN

Modular design is the hallmark of ITW GSE. The 7400 eGPU is built from modular components. This ensures fast replacement, servicing and spares commonality.



SPECIFICATIONS

ITW GSE 7400 eGPU - 90 - 140 -180 kVA



Zero Emission

Input

- Charger input range:
3 phased @ 260-520 V / 45-65 Hz

Charging Time (based on charging only):

Wall Outlet	4 x Battery Packs (160 kWh)		5 x Battery Packs (310 kWh)	
	16 A	< 15 h	N/A	
32 A	< 8 h	< 20 h		
63 A	< 4 h	< 10 h		
125 A	< 3 h	< 5 h		
200 A	N/A	< 4 h		

Values based on 3 x 400 V and 20°C ambient

Output

- Rated power: 90 kVA; 140 kVA; 180 kVA Unity Power Factor
- Voltage: 3 x 115/200 V
- Frequency: 400 Hz \pm 0.1%
- Power factor: 0.7 lagging to 0.95 leading
- Voltage regulation: <0.5% for balanced loads and up to 30% for unbalanced loads
- Voltage recovery: Δ <8% and recovery time<10 ms to 100% load change
- Total harmonic content: <2% at linear load (typically 1.5%) <2% at non-linear load according to ISO 1540
- Crest factor: 1.414 \pm 3%
- Voltage modulation: <1.0%
- Phase angle symmetry: 120° \pm 1° for balanced loads 120° \pm 2° for 30% unbalanced loads

Protection

- Protection class: IP55
- No break power transfer
- Over/under voltage at output
- Overload
- Internal high temperature
- Control voltage error
- Short circuit at output
- Plug insertion interlock
- Neutral voltage supervision
- Neutral voltage displacement
- Leakage current supervision

Overload Ratings

- As per ISO 6858:2017

Turnarounds as Function of Time and Aircraft

Based on average measured consumption. Subject to aircraft configuration.		Time at gate in minutes		
		40	60	80
Narrow Body 1x 90 kVA (160 kWh) Unit	CRJ-900LR	16	11	8
	A320-200	15	10	9
	A321-200	8	5	4
	B737-800	10	6	5
Wide Body 2 x 90 kVA Unit or 180 kVA (310 kWh)	A340		6	5

Depending on ambient conditions and usage, the capacity can be expected to derate up to 30% over 10 years

Norms and Standards

- DFS400 Specification for 400 Hz Aircraft Power
- MIL-STD-704F Aircraft Electric Power Characteristics
- SAE ARP 5015 Ground Equipment - 400 Hertz Ground Power Performance Requirements
- ISO 6858:2017 Aircraft Ground Support Electrical Supplies
- EN 62619:2017 Safety Requirements for Li-Ion Batteries
- UN38.3 Certified Battery System
- EN 62040-1-1 General & Safety Requirement
- EN 61558-2-6 General & Safety Requirement
- EN 61000-6-4 Electromagnetic Compatibility Generic Standards - Emission Standard
- EN 61000-6-2 Generic EMC Standards
- EN 1915-1 & 2 Machinery; general safety requirements
- EN 12312-20 Machinery; general safety requirements

Weight, Mobile Unit

- 90 kVA (160 kWh): 2,475 kg (5,456 lbs)
- 140 kVA (248 kWh): 3,680 kg (8,113 lbs)
- 180 kVA (310 kWh): 4,200 kg (9,259 lbs)

Environmental

- Operating temperature: -10°C to 45°C (14°F to 113°F) without additional heating/cooling. For other operational temperatures, please contact ITW GSE
- Relative humidity: 10-100%
- Noise level: <65 dB(A) @1 m - typically 60 dB(A)

Efficiency

- 400 Hz converter and charger part > 0.95

Miscellaneous

- MTTR: max. 20 minutes
- Color: RAL 7035, Light grey (standard)
Trailer: RAL 7043, Traffic Grey
Rear cover: Pantone 2393, Cleantech Blue

Standard Features/Equipment:

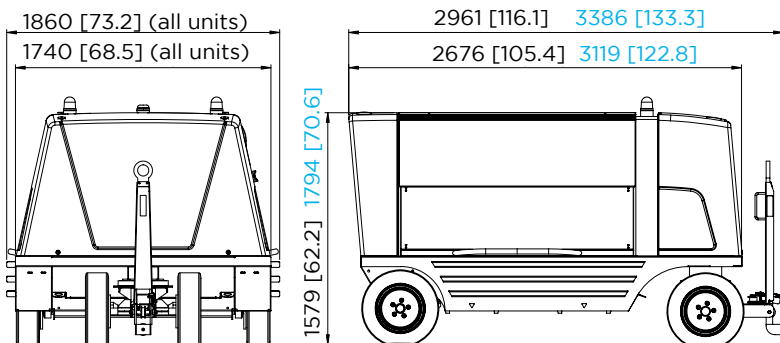
- Plug & Play automatic voltage compensation (with one output active only)
 - Adjustable max. input current settings
90 kVA: 16 to 100 A in steps of 1 A
140-180 kVA: 16 to 200 A in steps of 1 A
 - Beacon for operation/charging*
 - Beacon for warning/low battery* incl. siren
 - Towbar interlock (non-lock version)
 - Simultaneous charging while supplying 400 Hz power
- *Color acc. to customer specification

Standard Options Available

- Dual output: optional for narrow-body GPU Standard on wide-body GPU
- Input cable and plug according to clients specifications
- 4 x 50 mm² output cable (AWG 1/0) (recommended)
- Lockable towbar interlock
- Towbar with DIN40 towing eye
- White clearance light
- ITW GSE Connect (data/location via GSM/GPS)

Below Options are for narrow-body only

- 28 VDC / 600 A ARU (Automatic Rectifier Unit) Simultaneous usage 45 kW(AC)
- Ability to power the 7400 from another GPU in case of unexpectedly long turnaround time
- Range extender module (See separate brochure)
- Forklift pocket for transportation



Dimensions are shown in mm and [inches]. Numbers in blue are wide-body eGPUs.

Specifications are subject to change without prior notice

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