1st & 2nd Battery Systems For Our Overseas Strategy Planning

Energy Storage from The Battery Specialists
Partnership Proposal
ACEON DELIVERING RESIDENTIAL ENERGY STORAGE

Partnership:

- Manufacturer 24v & 48V ESS
- Battery Pack Facility
- Recycling Opportunity

Oversea Partner

- Manufacturer in Own Country
- Help Set Up Battery Assembly Plant
- Supply Components
AceOn Group Overseas Strategy to license & manufacture AceOn PES:

- AceOn Supply Modules & Cells
- AceOn Supply BMS
- AceOn Supply Battery Box
- AceOn Supply AC Charger
- AceOn Supply Inverter
- AceOn to Supply Sample PES for Oversea Manufacturing
- AceOn to Support Set Up Operation Overseas
Partner Proposal
SETTING UP PRODUCTION LINES ABROAD

AceOn Group Overseas Strategy to license & manufacture AceOn PES:

- Purchase Automatic Welding Machine
- Supply components for Assemble
- In-House Training
- Produce 8-40 units Per Day
### Product Range

**ACEON DELIVERING RESIDENTIAL ENERGY STORAGE**

<table>
<thead>
<tr>
<th>Product Code (48V)</th>
<th>Cells per Unit</th>
<th>Ah</th>
<th>kWh</th>
<th>Size / Weight KG</th>
<th>Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>M848LI82</td>
<td>420</td>
<td>82</td>
<td>4.2kWh</td>
<td>482 x 398 x 88 / 22.1</td>
<td>8-40</td>
</tr>
<tr>
<td>M848LI50</td>
<td>280</td>
<td>50</td>
<td>2.4kWh</td>
<td>482 x 398 x 88 / 16.8</td>
<td>8-40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product Code (24V)</th>
<th>Cells per Unit</th>
<th>Ah</th>
<th>kWh</th>
<th>Size / Weight KG</th>
<th>2 People Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>M848LI82</td>
<td>392</td>
<td>140</td>
<td>3.5kWh</td>
<td>482 x 398 x 88 / 22.1</td>
<td>8-40</td>
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<tr>
<td>M848LI50</td>
<td>280</td>
<td>70</td>
<td>1.8kWh</td>
<td>482 x 398 x 88 / 16.8</td>
<td>8-40</td>
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</tbody>
</table>
Trailer Using 48v Products
ACEON DELIVERING PORTABLE ENERGY STORAGE
Current Supply

Assembly process

- Battery pack training will be required.
- Staff will require a level of experience/education to complete training.
- Technical Support
- New Product & Process Development

Professional proposal PES

- Stackable Battery Capacity.
- Stackable Inverter to 4 units
AceOn Proposal
ACEON DELIVERING PORTABLE ENERGY STORAGE

AceOn Group Overseas Strategy to license & manufacture AceOn PES:

- AceOn Supply Modules & Cells for Swappable Power Pack
- AceOn Supply BMS
- AceOn Supply Battery Box
- AceOn Supply AC Charger
- AceOn Supply Inverter
- AceOn to Supply Sample PES for Oversea Manufacturing

www.aceongroup.com  info@aceongroup.com  +44 (0)1952 293 388
For 25 years Munchbox kiosk has used a petrol generator to power their lighting, fridge freezer, toaster and others electrical appliances.

Weekly petrol consumption has been ~12 litres/week (624 litres/annually) creating a CO2 output of ~27.72Kg/week (or 1441Kg/year).

Munchbox trialled AceOn’s PES which cost £2 to charge powering the kiosk for a week.

Using average fuel emissions annual benefits include:

- Reduced pollution and noise
- Removes requirements for handling petrol in catering environment
- Cost saving - £800
- CO2 reduction – 1441Kg
- Petrol reduction – 624 litres

https://www.youtube.com/watch?v=Oz41Blll97g
• Training at automotive OEM (April)
• Swappable Prototype Boxes have been manufactured
• Other automotive OEM’s
• AceOn IP – components for PES
Battery manufacture → EV production → Electronics remanufacture → Charge and balance

Raw material → Battery recycling → Battery repurposing → Disassemble pack → 2nd life Portable Energy Storage

Automated 42v 1st Life
- Li-ion

EV 2nd Life
- 18650 packs
- 21700 packs

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Product Review - Low Cost PES Battery

2nd Life Electric Vehicle (EV) Battery

Battery CAD

Modular design and assembly

On demand battery case manufacture capability

Ingress Protection

Nigeria – ‘PES Power’

Africa 2nd life products
Swappable Battery Using 2\textsuperscript{nd} Life Batteries & AceOn ESS Powerpack
In collaboration with MCS, AceOn support and can offer a programme of tailored installation training opportunities:

- Energy Storage system
- Solar PV
- In-Roof Solar PV
- Electric Vehicle Charging Equipment
- Wiring Regulations
- Air Source Heat Pumps
- New Battery Manufacturing Technician Apprenticeship

UK Microgeneration Certification Scheme (MCS) - Helped create and develop the Battery Storage Standard (MIS 3012)
ACEON – WORKING ON UK NEW BATTERY TECHNOLOGY - EC 8

YES – SODIUM ION MANUFACTURED IN THE UK

Sodium Ion Batteries shaping up to be big technology breakthrough

Ultra Safe

- Stage - A Sample
- UN38.3 - Q2 2023
- Samples to customers – Shipped

Initial orders received for Ultra Safe cells

Cell Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Nominal Capacity</td>
<td>30Ah</td>
</tr>
<tr>
<td>Average Voltage</td>
<td>3.1V</td>
</tr>
<tr>
<td>Gravimetric Energy Density</td>
<td>140Wh/kg</td>
</tr>
<tr>
<td>Volumetric Energy Density</td>
<td>230Wh/l</td>
</tr>
<tr>
<td>Continuous Power Density</td>
<td>0.23kW/l</td>
</tr>
<tr>
<td>Peak Power Density (30sec pulse)</td>
<td>0.34kW/l</td>
</tr>
<tr>
<td>Weight</td>
<td>670g</td>
</tr>
<tr>
<td>Voltage Range</td>
<td>1V – 4.2V</td>
</tr>
</tbody>
</table>

Physical Characteristics

UK Registered Design No. 6237951
KNOWLEDGE TRANSFER PARTNERSHIP

Materials and Manufacturing

Knowledge Transfer Partnerships (KTP) are part-funded by Innovate UK to support business-university interactions in the UK.

AceOn, working with University of Wolverhampton, have secured an exciting KTP opportunity to:

- Carry out thermal characterisation of batteries through simulation and experimental testing.
- Develop additive manufacturing process parameters to build a prototype.
- Manufacture and carry out thermal analysis.
- Carry out thermal performance characterisation of the manufactured geometries.
- Use simulation techniques to ascertain optimum thermal performance of generatively designed complex geometries.
- Manufacture of proof-of-concept battery module demonstrators.

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ACEON – HELPING TO LEAD THE WAY IN THE UK BATTERY MARKET

MANUFACTURED IN UK
GREEN SKILLS: GREEN JOBS

UK Research and Innovation
Department for International Trade

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