

# Enviro400 double-decker hybrid bus

## Welcome aboard the hybrid Enviro400 double-decker bus

BAE Systems is proud to partner with Alexander Dennis Limited to offer series hybrid technology on the Enviro400 double-decker bus. This partnership brings together two companies at the top of their respective fields in the United Kingdom, with decades of engineering excellence and a focus on reducing pollution and fossil-fuel consumption in cities around the world.

### Smart, proven technology

BAE Systems is the world's leading producer of hybrid propulsion systems for urban transit buses. With more than 10 years of experience in cities such as New York, Toronto, and San Francisco, and more than 1,300 units in service, the company's HybriDrive® propulsion systems have:

- Saved about 5 million gallons of fuel.
- Saved about 45,000 metric tonnes of CO<sub>2</sub> emissions.
- Carried more than half a billion passengers.

*“Our hybrid partnership with BAE Systems brings together two powerful sources, both with proven track records in terms of technology innovation, engineering resource and expertise, and the ability to package powertrain solutions that are applicable to their working environment.”*

— Alexander Dennis

With its series hybrid configuration, the HybriDrive system offers significant benefits in urban traffic environments. Because the engine is not directly linked to the traction motor, it runs at peak efficiency independent of driving conditions. This significantly reduces fuel consumption and pollution. Because the system takes advantage of regenerative braking and does not use a transmission, transit operators save money on ongoing maintenance costs. Series architecture also is best suited to adapt to future zero-emission technology such as fuel cells.

### A partnership of leaders

Alexander Dennis is Britain's leading manufacturer of single- and double-decker buses, which carry almost 10 million passengers per day in London and Hong Kong. The company has nearly 200 years of engineering and bus-building experience.

Double-decker buses already are fuel-efficient, highly manoeuvrable and capable of carrying more people in a 12m 'footprint' than any other vehicle. With the HybriDrive system, the new Enviro400 double-decker bus is well positioned to:

- Meet forthcoming EU legislation requirements.
- Save fuel and reduce life-cycle costs.
- Greatly reduce greenhouse gas emissions.

### BENEFITS:

---

Significantly decreases pollution and greenhouse gases

---

Reduces fuel consumption by about 30%

---

Lower operation and maintenance costs

---

Adaptable to future zero-emission power sources

---

Smoother, quieter ride—appreciated by passengers, drivers, and neighbours





**System configuration and specifications**

	Power	Specifications	Weight/size
<b>Energy storage system</b>	+/- 200kW peak	<ul style="list-style-type: none"> <li>• Breakthrough nano-phosphate-based lithium-ion technology</li> <li>• High power and charge capacity</li> <li>• Lower curb weight</li> <li>• Longer life with warranty options available</li> </ul>	340kg
<b>Propulsion control system</b>	320kW continuous	<ul style="list-style-type: none"> <li>• Integrated control of propulsion system</li> <li>• Customised performance for optimal fuel economy and emissions</li> <li>• Standard vehicle multiplex interface</li> <li>• On-board diagnostics</li> </ul>	75kg
<b>Motor</b>	120kW (160 hp) continuous 175kW (235 hp) peak	<ul style="list-style-type: none"> <li>• Compact, oil-cooled, high-power-density machine design</li> <li>• Superior low-end torque: 425 Nm continuous; 650 Nm (for 4 minutes); 900 Nm peak</li> </ul>	280kg
<b>Generator (including starter)</b>	145kW	<ul style="list-style-type: none"> <li>• Compact permanent magnet machine design</li> <li>• Optimised for low emissions</li> </ul>	135kg
<b>Engine</b>	ISBe Euro 4 185 hp	<ul style="list-style-type: none"> <li>• Compliant with Euro 4 emission standard</li> <li>• Selective catalytic reduction (UREA injection into exhaust)</li> </ul>	4.5ltr

**FOR MORE INFORMATION, CONTACT:**

BAE Systems  
 Electronics & Integrated Solutions  
 Airport Works, Rochester, Kent  
 ME1 2XX United Kingdom  
 Telephone: +44 (0)1634 844400  
 Fax: +44 (0)1634 204577  
 E-mail: bruce.boden@baesystems.com  
 www.baesystems.com/hybridrive

This document gives only a general description of the product(s) or service(s) offered by BAE Systems and, except where expressly provided otherwise, shall not form part of any contract. From time to time, changes may be made in the products or the conditions of supply.