

# EDS200 Dynamometer

A turn-key test cell designed for the characterization and certification of high-powered electric drive trains.

- NASA X57 Proven
- Essential for Advanced Air Mobility (AAM) Development
- Acquire Data Required for FAA Certification
- Customizable for many Permanent Magnet Synchronous, Brushless DC Motor, and Traction Motor Applications

The **EDS200** dynamometer is a complete system designed for characterizing high-powered electric and hybrid drive trains. Optimized for testing and certification of aerial vehicle flight components, the capabilities were developed using lessons learned from the successful NASA/ESAero X-57 "Maxwell" all-electric X-plane program.

The **EDS200** is capable of speeds up to 5000RPM and 500Nm of torque. The system regenerates power from the test article, and places it back onto the 480V grid, significantly reducing the energy consumed during testing.

The system uses specialized software and a customized Python user interface to program subsystem testing and adjustable duty cycle test parameters. The system employs a specialized data acquisition system capable of recording 2 million samples per second over 8 current and 8 voltage channels. Each channel is 18 bit, allowing resolutions of FSO/262,144. Data acquisition recording can be selected at either a lower rate for full length documentation of the test or a higher rate for trigger segments of greater detail. The system also has 18 channels of universal sensor input and sampling up to 500kS/s.

Other important features include four-quadrant operation, a liquid cooled brake motor and an integrated calorimeter for high fidelity efficiency verification.

## Key Features

4-Quadrant Regenerative Operation  
Liquid Cooled Brake Motor  
Integrated Calorimeter  
Custom Test Software  
Emergency Stop

## Data Acquisition

Current Channels 8  
Voltage Channels 8  
Universal Sensor Inputs 18  
Sample Rate 2Ms/s  
Sample Resolution 18bit  
Sample Rate 500kS/s

## Capacity

Power Capacity 5-200kW  
(7-268 hp)\*  
Input Power 480V  
Maximum RPM 5,000  
Drive Maximum Torque Rating  
500Nm (369 lb.-ft)

\*Expandable with custom configurations

v2



# EDS200 Dynamometer

## Features

- Capable of speeds in excess of 5000RPM and 500NM of torque.
- Data acquisition system capable of recording 8 current and 8 voltage channels
- Two rates of recording; lower rate for full-length documentation and higher full rate for trigger segments for greater detail.
- 18 channels of universal sensor input up to 500kS/s.
- Calorimeter setup for high fidelity efficiency verification.

## Specifications

Dimensions :	32' L x 16' W x 7' H
Temperature :	20 channels of thermistor input, processed then reported over CAN-bus.
Pressure :	Optional
Air Flow :	Optional
Absorber Type :	PMSM with active power regeneration.
Maximum Speed :	5,000 RPM
Power Capacity :	5-200kW (7-268 hp)
Drive Maximum Torque Rating :	500Nm (369 lb.-ft)

