

ESYNC L3

INTEGRATED eAXLE

TECHNICAL DATASHEET

Compact, high-efficiency integrated eAxle with in-house dual speed gearbox and PMSM motor. Engineered for reliable torque, low noise and high durability in real-world urban duty cycles.



DUAL SPEED GEARBOX
9:1 to 18:1



>95% EFFICIENCY



UP TO 1 TON GVW



<70 dBA LOW NOISE



480 HRS SST DURABILITY

MECHANICAL & PERFORMANCE

Configuration	Integrated Motor + Axle
Gear Type	Dual Speed
Gear Ratio	9:1 to 18:1
Max Torque	40 Nm
GVW Capacity	Up to 1 Ton
Drive Type	Rear Axle Drive
Gradeability	Up to 7° – 10° (application dependent)
Axle Length	~33" – 35"
Mounting	Standard 3W chassis compatible

MOTOR SPECIFICATIONS

Motor Type	PMSM (Permanent Magnet Synchronous Motor)
Rated Power	~1.2 kW
Peak Power	Up to ~2.8 kW
Rated Voltage	48V / 60V
Rated Speed	~2400 RPM
Max Speed (No Load)	~3500 RPM
Peak Torque	40 Nm
Efficiency	>95%
Cooling	Passive Air Cooling

ELECTRICAL PARAMETERS

Operating Voltage Range	42V – 60V
Controller Compatibility	CAN / UART
Current Rating	50A – 60A
Regenerative Braking	Supported
Protection Features	Over Voltage, Over Current, Thermal

NVH & DURABILITY

Noise Level	<70 dBA
Vibration Profile	Up to 10G
SST (Salt Spray Test)	480 hrs
Thermal Stability	Optimized for urban duty cycles

KEY FEATURES

- ✓ In-house dual speed gearbox
- ✓ Integrated motor + axle design
- ✓ High efficiency >95%
- ✓ Low noise operation (<70 dBA)
- ✓ High durability for urban duty
- ✓ Optimized for stop-start traffic
- ✓ Designed & manufactured in India

KEY BENEFITS

- ✓ Lower cost per Km
- ✓ Higher uptime for fleet operators
- ✓ Smooth torque delivery in stop-go traffic
- ✓ Reduced maintenance requirements
- ✓ Designed for high utilization and long life

INTEGRATION & COMPATIBILITY

- ✓ Compatible with standard 3W chassis platforms
- ✓ Supports CAN & UART communication protocols
- ✓ Easy integration with ESYNC controllers & battery systems
- ✓ Customizable gearing based on application

MATERIALS & CONSTRUCTION

- ✓ High-strength steel axle tubes
- ✓ Forged brackets for structural integrity
- ✓ Precision-machined gears (in-house)
- ✓ Sealed housing for contamination protection

TESTING & VALIDATION

PRODUCTION LINE TESTING (100%)

- ✓ Resistance & Inductance Test
- ✓ Hi-Pot Testing
- ✓ Torque-Speed Validation
- ✓ Efficiency Testing
- ✓ Noise Testing



VALIDATION TESTING

- ✓ Thermal Behavior
- ✓ Vibration & Durability
- ✓ Endurance Testing
- ✓ Field Lifecycle Testing
- ✓ Water & Dust Resistance

APPLICATIONS



PASSENGER E-RICKSHAWS



CARGO 3-WHEELERS



FLEET MOBILITY SOLUTIONS

QUALITY & MANUFACTURING

- ✓ 100% In-house Gear Manufacturing
- ✓ Automated Assembly Lines
- ✓ Robotic Welding & Sealant Application
- ✓ End-of-Line Testing (100%)
- ✓ Full Traceability Systems

480 hrs SALT SPRAY TESTED

