

# ESYNC L5 INTEGRATED eAXLE

## TECHNICAL DATASHEET

High-performance integrated eAxle with in-house dual speed gearbox and PMSM motor, engineered to deliver reliable torque, thermal stability and smooth operation for heavy-duty 3-wheeler applications up to 1.8 ton GVW.



<b>100 Nm</b> TORQUE (4 HRS)	<b>1800 kg</b> GVW CAPACITY	<b>HIGH TORQUE</b> PERFORMANCE	<b>150,000 km</b> WARRANTY	<b>&lt;70 dBA</b> LOW NOISE	<b>RIGOROUSLY TESTED</b> BUILT TO LAST
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MECHANICAL & PERFORMANCE		MOTOR SPECIFICATIONS		ELECTRICAL PARAMETERS	
Configuration	Integrated Motor + Axle	Motor Type	PMSM (Permanent Magnet Synchronous Motor)	Operating Voltage Range	52V - 84V
Gear Type	Dual Speed	Rated Power	~3.0 kW	Controller Compatibility	CAN / UART
Gear Ratio	8.3:1 (Low) / 16.2:1 (High)	Peak Power	Up to ~6.0 kW	Current Rating	100A - 120A
Max Continuous Torque	100 Nm (4 Hrs)	Rated Voltage	60V / 72V	Regenerative Braking	Supported
Peak Torque	180 Nm	Rated Speed	~2200 RPM	Protection Features	Over Voltage, Over Current, Over Temperature, Short Circuit
GVW Capacity	Up to 1,800 kg	Max Speed (No Load)	~3600 RPM	Isolation	High Voltage Isolation
Drive Type	Rear Axle Drive	Max Continuous Torque	100 Nm	Communication	CAN 2.0B / UART
Gradeability	Up to 12° (application dependent)	Peak Torque	180 Nm	Operating Temperature	-20°C to 80°C
Axle Length	~45" - 47" (Customizable)	Efficiency	>95%	Storage Temperature	-40°C to 85°C
Mounting	Standard 3W chassis compatible	Cooling	Forced Air Cooling	<b>NVH &amp; DURABILITY</b>	
Brake Type	Drum Brake (Integrated brake mounting)	Insulation Class	H	Noise Level	<70 dBA
Lubrication	Long life synthetic oil	Protection Class	IP67	Vibration Profile	Up to 10G
Efficiency	>95% System Efficiency	Poles	12	SST (Salt Spray Test)	720 hrs
		Sensor Type	Hall / Resolver	Thermal Stability	Designed for high temperature continuous operation

<b>KEY FEATURES</b> <ul style="list-style-type: none"> <li>High torque 100 Nm for 4 hours continuous duty</li> <li>In-house dual speed gearbox for high efficiency</li> <li>Compact integrated design</li> <li>Low noise &amp; smooth operation (&lt;70 dBA)</li> <li>Advanced thermal management for high temperature stability</li> <li>Engineered for 1.8 ton GVW commercial applications</li> </ul>	<b>KEY BENEFITS</b> <ul style="list-style-type: none"> <li>Higher payload &amp; performance</li> <li>Reliable torque for heavy loads</li> <li>Lower total cost of ownership</li> <li>Enhanced uptime for fleet operators</li> <li>Minimal maintenance &amp; long service life</li> <li>150,000 km warranty for complete peace of mind</li> </ul>	<b>INTEGRATION &amp; COMPATIBILITY</b> <ul style="list-style-type: none"> <li>Compatible with standard 3W chassis platforms (1.2T - 1.8T GVW)</li> <li>Supports CAN &amp; UART communication protocols</li> <li>Easy integration with ESYNC controllers &amp; battery systems</li> <li>Customizable gear ratio based on application requirements</li> <li>Flexible mounting options for OEMs</li> </ul>	<b>MATERIALS &amp; CONSTRUCTION</b> <ul style="list-style-type: none"> <li>High-strength steel axle tubes</li> <li>Precision forged brackets &amp; mounts</li> <li>Hardened &amp; ground gears (in-house manufacturing)</li> <li>Sealed housing for superior dust &amp; water protection</li> <li>Advanced bearing system for long life</li> </ul>
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<b>PRODUCTION LINE TESTING (100%)</b> <ul style="list-style-type: none"> <li>Resistance &amp; Inductance Test</li> <li>Hi-Pot &amp; Insulation Test</li> <li>Torque-Speed Validation</li> <li>Efficiency Test</li> <li>Noise Test</li> <li>Function &amp; Communication Test</li> <li>End-of-Line Performance Test</li> </ul>	<p><b>LOAD CYCLE TESTING</b> Validated up to 1.8T GVW across sustained cycles</p>	<p><b>THERMAL ENDURANCE TESTING</b> Assessed thermal stability at high temperature</p>	<p><b>DURABILITY TESTING</b> Rigorous endurance testing for long life &amp; reliability</p>	<b>VALIDATION TESTING</b> <ul style="list-style-type: none"> <li>Thermal Behavior</li> <li>Vibration &amp; Durability</li> <li>Gear &amp; Bearing Life Test</li> <li>Load Cycle Endurance</li> <li>Field Lifecycle Testing</li> <li>Water &amp; Dust Resistance</li> </ul>
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<b>APPLICATIONS</b> Engineered for heavy-duty 3-wheeler platforms <div style="display: flex; justify-content: space-around;"> <div> <p><b>CARGO 3-WHEELERS</b> High payload capacity</p> </div> <div> <p><b>PASSENGER E-RICKSHAWS</b> Comfortable &amp; reliable rides</p> </div> <div> <p><b>LAST-MILE DELIVERY</b> Efficient &amp; sustainable</p> </div> </div>	<b>QUALITY &amp; MANUFACTURING</b> <ul style="list-style-type: none"> <li>100% In-house Gear Manufacturing</li> <li>Automated Assembly Lines</li> <li>Robotic Welding &amp; Sealant Application</li> <li>End-of-Line Testing (100%)</li> <li>Full Traceability Systems</li> <li>IATF 16949:2016 Certified</li> </ul>	<ul style="list-style-type: none"> <li> <b>150,000 km</b> WARRANTY</li> <li> <b>720 hrs</b> SALT SPRAY TESTED</li> <li> <b>IP67</b> PROTECTION</li> </ul>
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