Tsinglin Micro Motors Limited

TSL-GIM3510-8

Integrated Joint Motor | 8:1 Planetary Gearbox

Rated Voltage	Rated Torque	Peak Torque	Gear Ratio
24 V	1.00 N.m	6.28 N.m	8:1

1. Electrical, Mechanical and Control Parameters

Parameter	Unit	Value
Rated Voltage	V	24
Model of Driver Board	-	GDZ34
Operating Voltage Range	V	12-40
Rated Power	W	79
Rated Torque	N.m	1.00
Peak Torque	N.m	6.28
Rated Speed after Reduction	RPM	534
Maximum Speed after Reduction	RPM	588
Rated Current	A	3.30
Peak Current	A	28.94
Phase Resistance	Ω	0.52
Phase Inductance	mH	0.29
Speed Constant	rpm/V	24.50
Torque Constant	N.m/A	0.26
Number of Pole Pairs	Pairs	7
Gear Ratio	-	8:1
Gearbox Type	-	Planetary

Parameter	Unit	Value
Gear Material	-	Steel
Gear Backlash	arcmin	15
Motor Weight (without driver)	g	247.6
Motor Weight (with integrated driver)	g	259.6
Motor Dimensions (without driver)	mm	Ø46 × 46.5
Motor Dimensions (with integrated driver)	mm	Ø46 × 51.5
Maximum Axial Load	N	75
Maximum Radial Load	N	300
Noise	dB	< 60
Communication Protocol	-	CAN & RS485
Secondary Encoder Support	-	Yes
Ingress Protection Rating	-	IP54
Operating Temperature Range	°C	-20 to +80
Onboard Encoder Resolution	bit	14
Stand-alone Encoder Support	-	No
Customizable Brake Support	-	Yes

The above parameters are for reference only and can be customized according to customer requirements.

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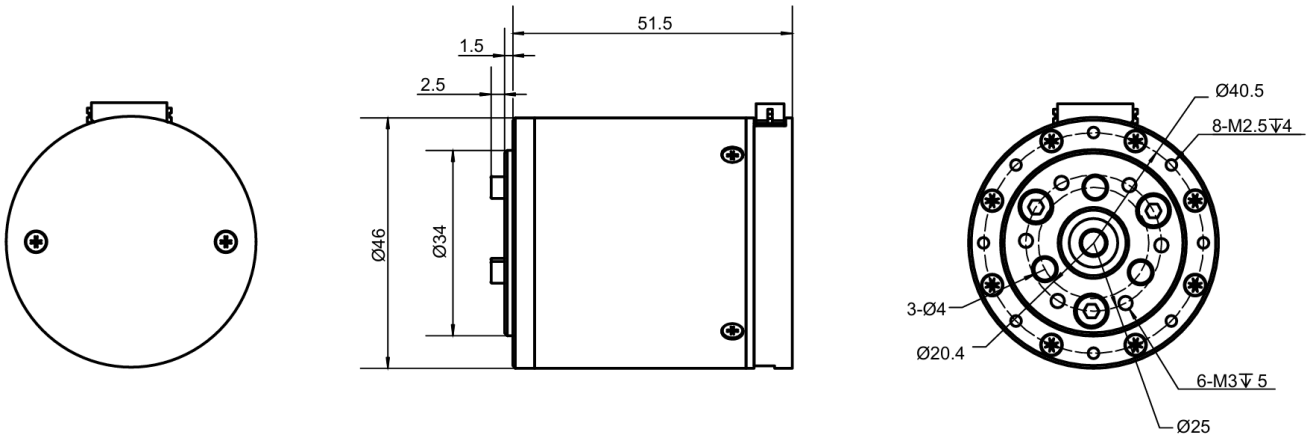
2. Dimension Drawing

All dimensions are in millimeters unless otherwise specified.



Overall Size	Ø46 × 51.5 mm
Main Body Diameter	Ø34 mm
Front Flange Diameter	Ø40.5 mm
Pilot / Pitch Diameters	Ø20.4 mm and Ø25 mm as shown
Mounting Features	8-M2.5 depth 4; 6-M3 depth 5; 3-Ø4 through holes

Drawing: TSL-GIM3510-8 Integrated Joint Motor Version V1.0 | Updated 2025-06-30

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3. Compatible Driver Options

GDS34 and GDZ34 driver boards are available for different communication and encoder requirements.

Driver Parameter	GDS34	GDZ34
Communication Protocol	CAN	CAN / RS485
Encoder Model	MT6816	MA7XX
Voltage Range	12-48 V	12-40 V
Current Range	0-10 A	0-10 A
Dual Encoder Support	No	Yes

Driver Selection Notes

- GDS34 is intended for CAN communication and uses the MT6816 encoder platform.
- GDZ34 supports CAN / RS485 communication and provides dual encoder support.
- Confirm the selected driver voltage, communication protocol and encoder arrangement before ordering.

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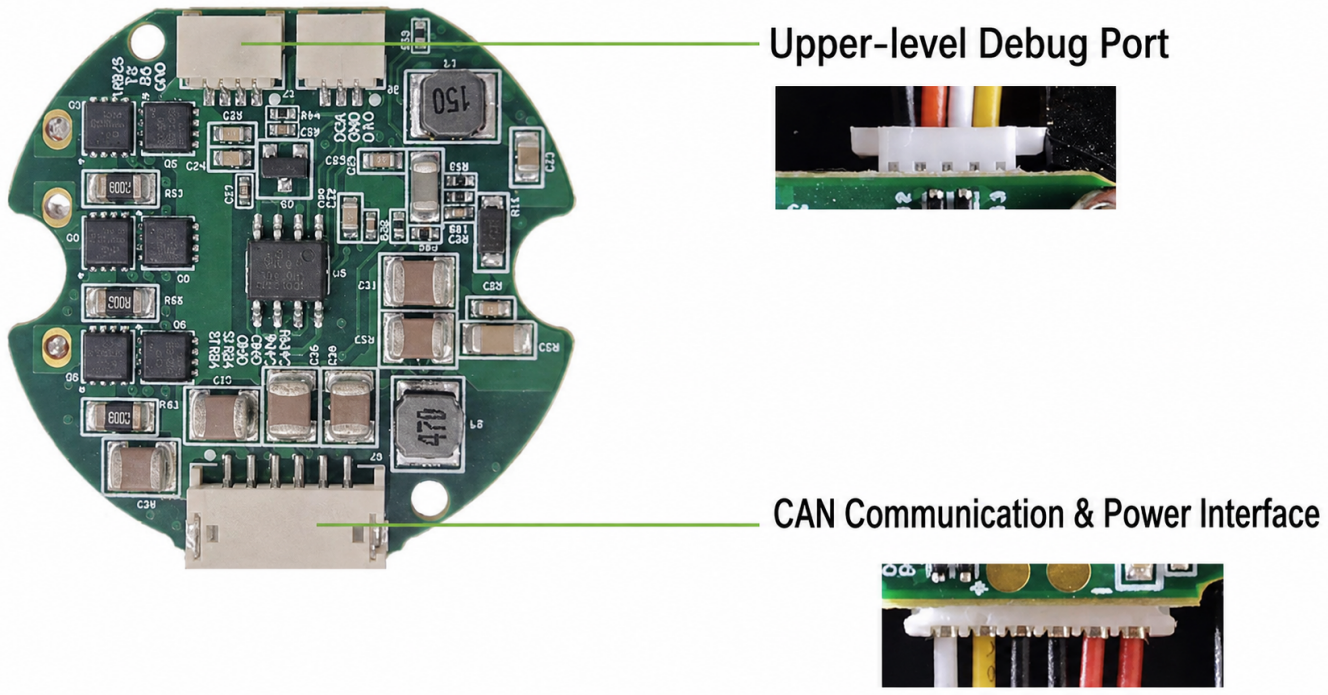
4. GDS34 Driver Interface Overview

The driver board provides a dedicated debug connector and a combined CAN communication / power connector.



Upper-level Debug Port

Used for controller debugging and serial communication through the VBUS, TX, RX and GND connections.

CAN Communication & Power Interface

Combines CAN-H, CAN-L, power positive and power negative connections in one harness interface.

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5. Driver Interface Definitions

Wire colors and signal functions are listed below for the supplied driver harnesses.

CAN Communication & Power Interface

Interface	Function
CANH (White)	CAN-H
CANL (Yellow)	CAN-L
GND (Black)	Negative Power Supply
GND (Black)	Negative Power Supply
VBUS (Red)	Positive Power Supply
VBUS (Red)	Positive Power Supply

Upper Computer Debug Port

Interface	Function
VBUS (Yellow)	Output Power Positive
TX (White)	TX
RX (Red)	RX
GND (Black)	Output Power Negative

Verify connector orientation, pin order and wire colors against the actual supplied harness before applying power.

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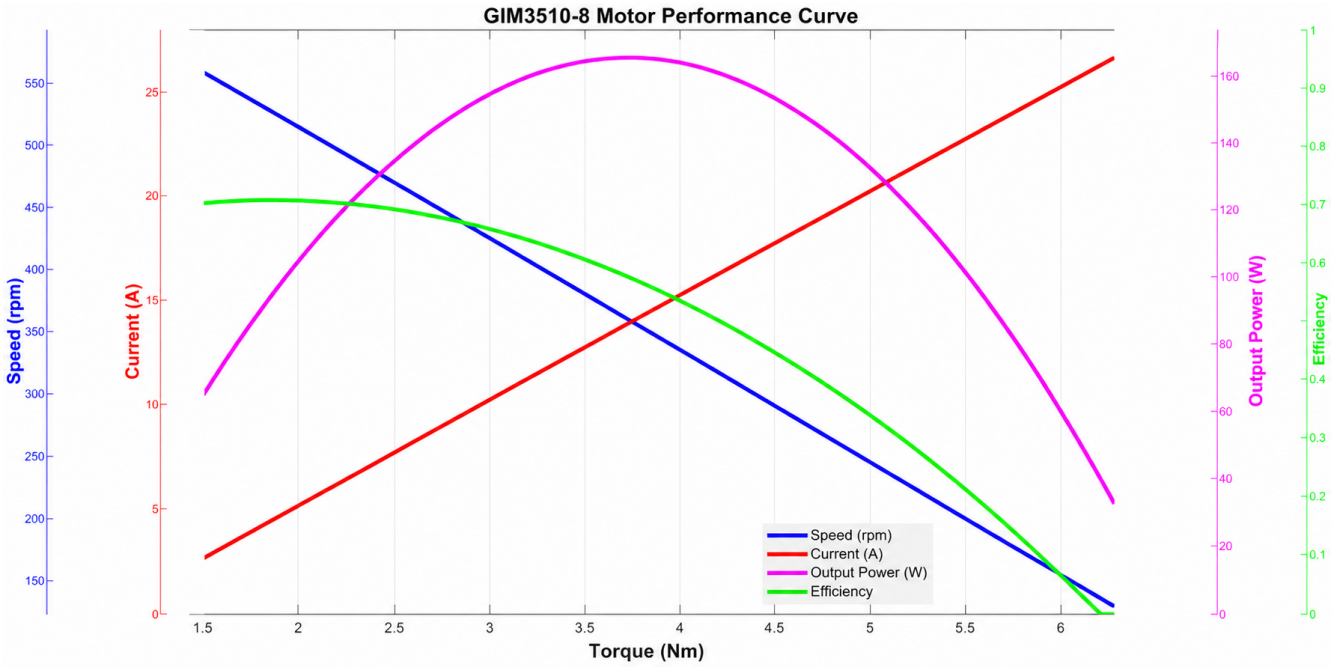
6. Motor Performance Curve

Speed, current, output power and efficiency versus output torque under the supplied test conditions.

TSL-GIM3510-8 Motor Performance Curve



Curve Interpretation

Speed	Decreases as output torque increases
Current	Increases as output torque increases
Output Power	Reaches a maximum in the mid-range torque region
Efficiency	Peaks in the low-to-mid torque region and decreases at higher torque

Performance curves are for reference only and may vary with supply voltage, driver settings, duty cycle, temperature, load condition and customer-specific configuration.