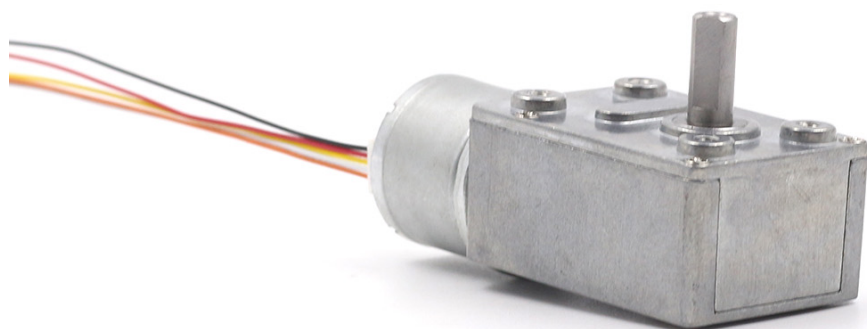


TSL-GW4632-BL2418

Ø24 mm Brushless DC Motor With Worm Gearbox



Configuration Summary

Motor Type	Brushless DC motor with integrated driver
Gearbox	Right-angle worm gearbox
Nominal Voltage	12 V / 24 V
Rated Power	2 W (12 V) / 6 W (24 V)
Motor Diameter	Ø24.4 mm
Output Shaft	Ø6 mm D-shaped shaft, 12 ±0.1 mm length, M3 thread
Gear Ratios	37.3:1 to 3000:1
Control Interface	VCC, GND, CW/CCW, FG, PWM

Product Overview

The TSL-GW4632-BL2418 combines a compact 24 mm brushless DC motor, an internal driver, a right-angle worm gearbox and a D-shaped output shaft. The five-wire interface supports direction control, FG speed feedback and PWM speed adjustment. Multiple gear ratios are available for low-speed, high-torque applications.

Performance Data - 12 V / 2 W

TSL-GW4632-BL2418

Ratio	No Load		Rated Load			Stall	
	Speed	Current	Speed	Current	Torque	Current	Torque
i:1	rpm ±10%	A	rpm ±10%	A	kgf.cm	A	kgf.cm
37.3:1	120	0.05	101	0.15	0.2	0.31	0.6
65:1	69	0.05	58	0.15	0.3	0.31	1.1
90:1	50	0.05	42	0.15	0.5	0.31	1.5
150:1	30	0.05	25	0.15	0.8	0.31	2.6
200:1	22.5	0.05	19	0.15	1	0.31	3.4
260:1	17	0.05	14	0.15	1.3	0.31	4.4
338:1	13	0.05	11	0.15	1.7	0.31	5.7
600:1	7.5	0.05	6	0.15	3	0.31	10
1000:1	4.5	0.05	3.8	0.15	5	0.31	17
1800:1	2.5	0.05	2	0.15	9	0.31	30
3000:1	1.5	0.05	1.2	0.15	15	0.31	50

Performance parameters are reference values. Actual performance may vary with load, temperature, power supply and manufacturing tolerance. Custom specifications are available on request.

Performance Data - 24 V / 6 W

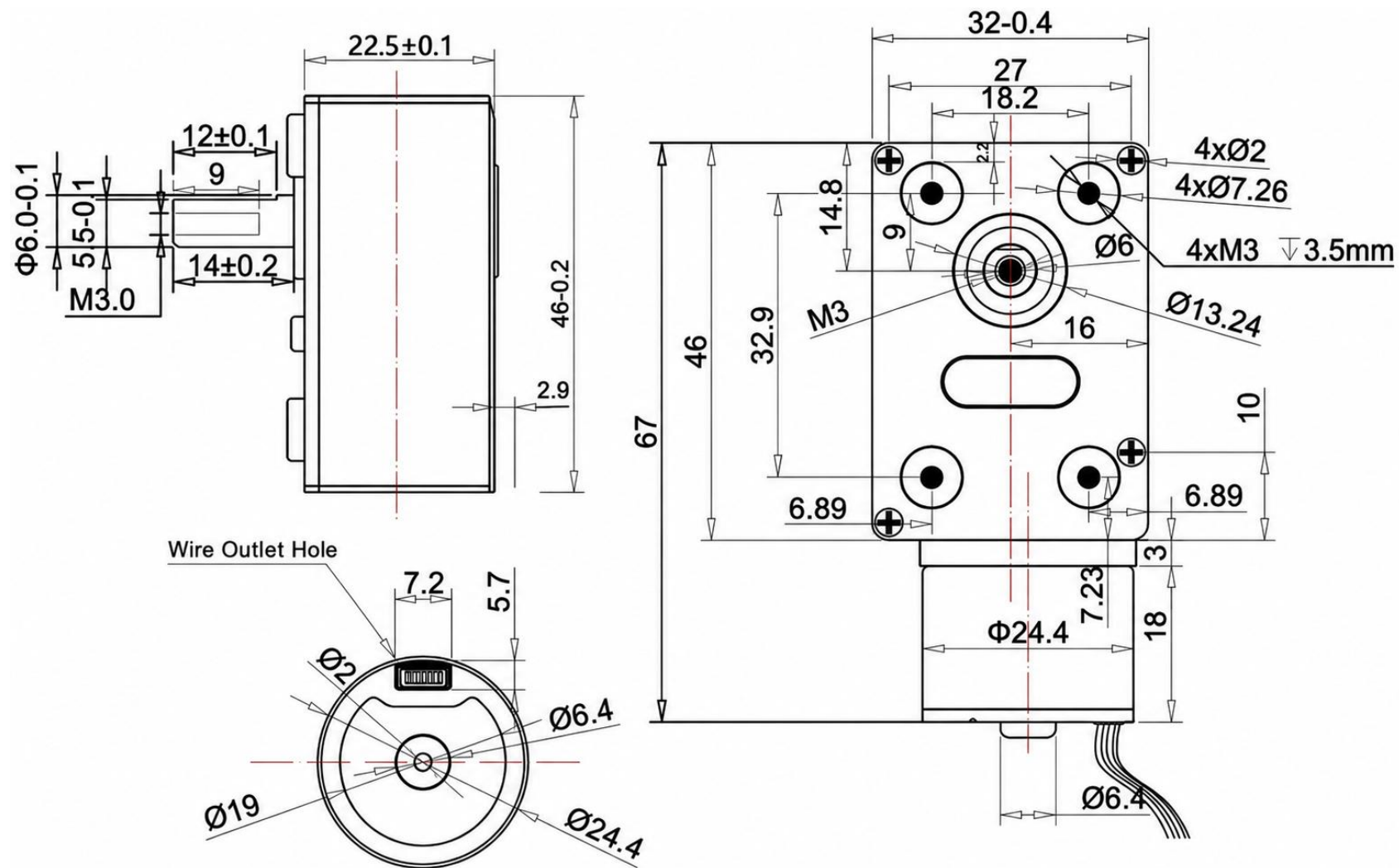
TSL-GW4632-BL2418

Ratio	No Load		Rated Load			Stall	
	Speed	Current	Speed	Current	Torque	Current	Torque
i:1	rpm \pm 10%	A	rpm \pm 10%	A	kgf.cm	A	kgf.cm
37.3:1	241	0.10	203	0.25	0.4	0.60	1.3
65:1	138	0.10	117	0.25	0.7	0.60	2.3
90:1	100	0.10	84	0.25	1	0.60	3.3
150:1	60	0.10	51	0.25	1.5	0.60	5.5
200:1	45	0.10	38	0.25	2	0.60	7
260:1	35	0.10	29	0.25	3	0.60	9.5
338:1	27	0.10	22	0.25	4	0.60	12
600:1	15	0.10	13	0.25	7	0.60	22
1000:1	9	0.10	7.5	0.25	11	0.60	36
1800:1	5	0.10	4	0.25	20	0.60	60
3000:1	3	0.10	2.5	0.25	30	0.60	100

Performance parameters are reference values. Actual performance may vary with load, temperature, power supply and manufacturing tolerance. Custom specifications are available on request.

Mechanical Dimensions

TSL-GW4632-BL2418 | Unit: mm



Unless otherwise specified, dimensions are in millimetres.

Wiring and Control Interface

Internal-driver brushless motor | Five-wire connection

1 **Red**
VCC

2 **Black**
GND

3 **Orange**
CW / CCW

4 **Yellow**
FG

5 **White**
PWM

No.	Signal	Parameter	I/O	Specification	Remark
1	Motor power (VCC)	Supply input	IN	12 V version: DC 12 V (operating range: 8-15 V) 24 V version: DC 24 V (operating range: 8-26 V)	Red lead. Motor power input.
2	Ground (GND)	Ground	IN	GND	Black lead. Ground connection.
3	Direction (CW / CCW)	Input voltage		0-5.0 V	Orange lead. Direction control input.
		High level VIH	IN	Min. 5 V	High level = CCW
		Low level VIL		Max. 0.3 V	Low level = CW
4	Frequency generator (FG)	High level VOH		$1.5\text{ V} \leq U \leq 5.0\text{ V}$ (at 5 V)	Yellow lead. Open-collector NPN output for motor-speed detection.
		Low level VOL	OUT	0.6 V max.	
		Signal current		3 mA max.	
		Pulse output		18 pulses / revolution	
5	Pulse-width modulation (PWM)	Input voltage		0-5.0 V	White lead. PWM speed-control input.
		High level VIH		Min. 5 V	High level = motor stop
		Low level VIL	IN	Max. 0.23 V	Low level = motor run
		Pulse frequency		Recommended: 15-35 kHz	As the control voltage rises from 0.23 V toward 5 V, motor speed decreases until the motor stops.

Important Notes

1. Do not reverse or interchange the positive and negative power leads.
2. Stop the motor before changing direction; switching direction while rotating may damage electronic or mechanical components.
3. Due to gearbox construction, the factory output direction is not identical for every ratio. Confirm the actual CW/CCW direction before installation.
4. Reducing speed reduces available output torque. Select the output speed and gear ratio according to the required torque.