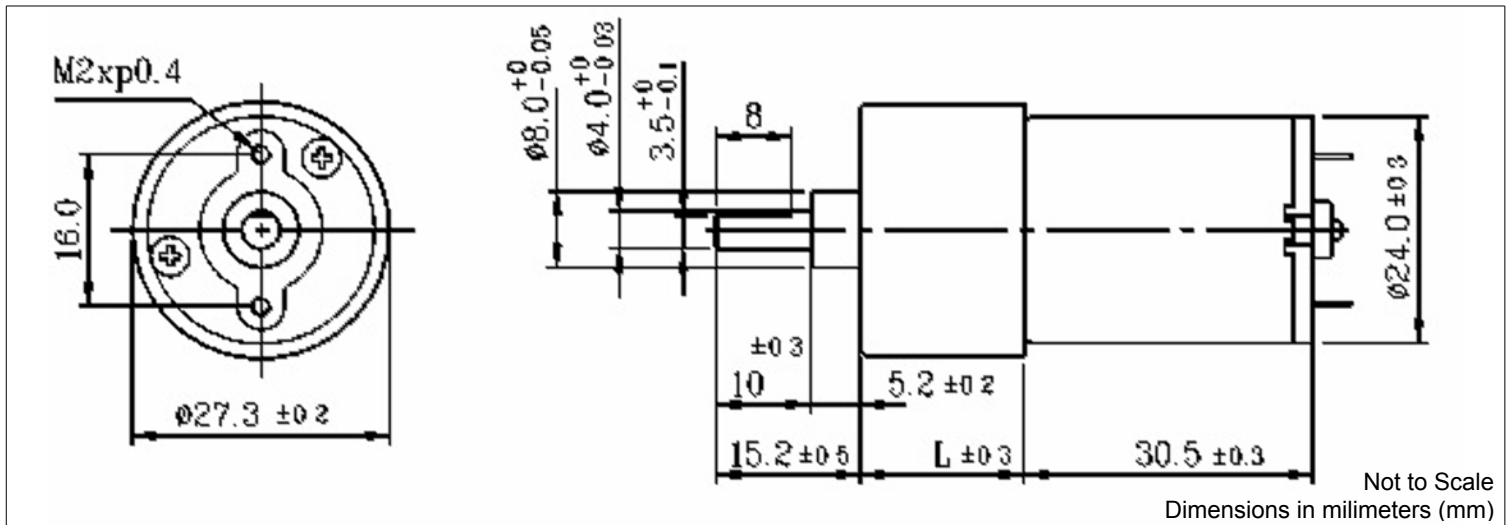


Spur Gearmotor - 27.3 mm Ø



12 Volt Low Cost Inline Spur Gearmotor

Global Motion Products



Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque mNm	Continuous Torque mNm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
6.2:1	12.0	81 %	686 rpm	0.052 Amp	42 mNm	10 mNm	17.3 mm	75.0 grams	Same	S280006GM00
10.0:1	12.0	81 %	429 rpm	0.052 Amp	67 mNm	16 mNm	17.3 mm	75.0 grams	Same	S280010GM00
15.0:1	12.0	73 %	286 rpm	0.052 Amp	91 mNm	22 mNm	17.3 mm	76.0 grams	Opposite	S280015GM00
21.3:1	12.0	73 %	201 rpm	0.052 Amp	130 mNm	31 mNm	17.3 mm	76.0 grams	Opposite	S280021GM00
30.0:1	12.0	65 %	143 rpm	0.052 Amp	162 mNm	39 mNm	17.3 mm	77.0 grams	Same	S280030GM00
44.0:1	12.0	65 %	97 rpm	0.052 Amp	238 mNm	54 mNm	17.3 mm	77.0 grams	Same	S280044GM00
60.0:1	12.0	65 %	71 rpm	0.052 Amp	325 mNm	76 mNm	17.3 mm	77.0 grams	Same	S280060GM00
76.8:1	12.0	65 %	56 rpm	0.052 Amp	416 mNm	78 mNm	17.3 mm	77.0 grams	Same	S280077GM00
100.1:1	12.0	65 %	43 rpm	0.052 Amp	542 mNm	98 mNm	17.3 mm	78.0 grams	Same	S280100GM00
112.6:1	12.0	65 %	38 rpm	0.052 Amp	610 mNm	98 mNm	17.3 mm	78.0 grams	Same	S280113GM00
150.0:1	12.0	50 %	29 rpm	0.052 Amp	624 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280150GM00
170.7:1	12.0	50 %	25 rpm	0.052 Amp	710 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280171GM00

Radial Load Rating ≤ 2.9 N
 Radial Load Distance 10 mm
 Axial Load ≤ 2.0 N
 Press Fit Force - Max ≤ 19.6 N

Radial Play ≤ 0.05 mm
 Axial Play ≤ 0.30 mm
 Backlash ≤ 2.0 °

Max Temperature Oper. -10°C
 Min Temperature Oper. 60°C
 Relative Humidity Oper. 20% to 85%

Options

Bearing Sleeve

CAUTION. Stall Torque is a theoretical calculation- NOT a rating/maximum value. Continuous Torque is the lesser of the Gearbox Continuous Torque Rating or the Motor's Continuous Torque Rating at gearbox output shaft.

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* Rotational Sense of Gearbox Output Shaft to Motor Shaft

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Commutation Type:
 Metal Graphite

RoHS Compliant

A - May 2011

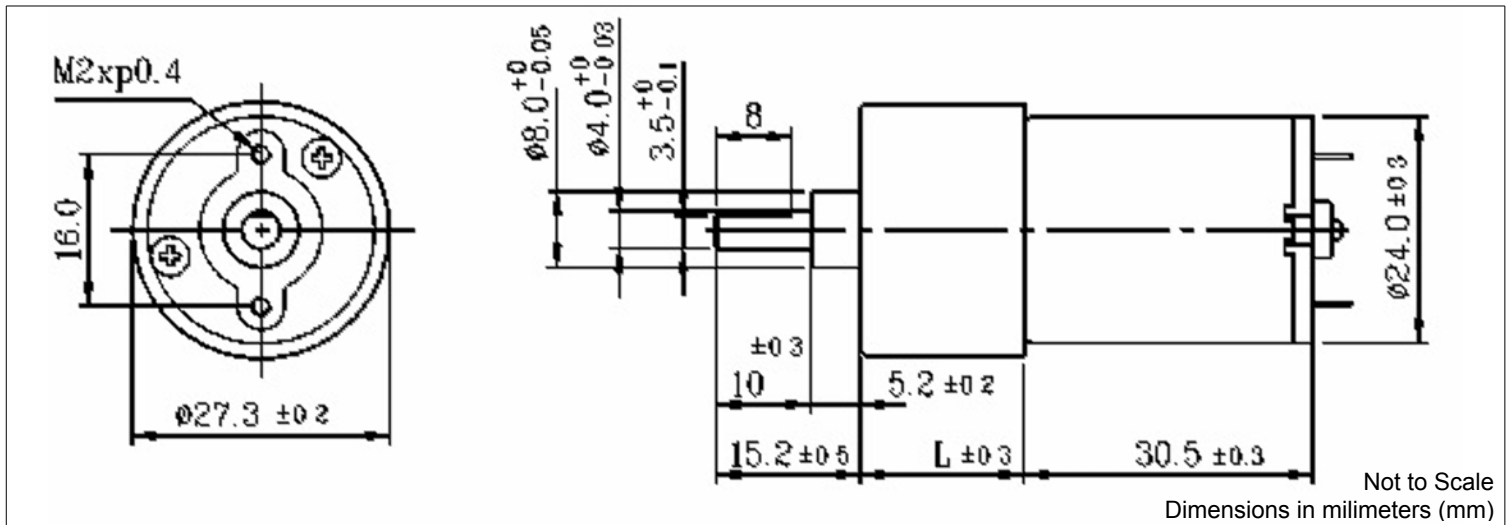
Specifications Subject to change without notice

Spur Gearmotor - 27.3 mm Ø



12 Volt Low Cost Inline Spur Gearmotor

Global Motion Products



Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque mNm	Continuous Torque mNm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
200.2:1	12.0	50 %	21 rpm	0.052 Amp	834 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280200GM00
250.3:1	12.0	50 %	17 rpm	0.052 Amp	1,042 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280250GM00
320.4:1	12.0	50 %	13 rpm	0.052 Amp	1,334 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280320GM00
360.4:1	12.0	50 %	12 rpm	0.052 Amp	1,501 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280360GM00
400.5:1	12.0	40 %	11 rpm	0.052 Amp	1,334 mNm	118 mNm	19.3 mm	79.0 grams	Same	S280400GM00
500.6:1	12.0	40 %	9 rpm	0.052 Amp	1,667 mNm	118 mNm	19.3 mm	79.0 grams	Same	S280501GM00
700.0:1	12.0	40 %	6 rpm	0.052 Amp	2,331 mNm	118 mNm	19.3 mm	79.0 grams	Same	S280700GM00
801.0:1	12.0	40 %	5 rpm	0.052 Amp	2,668 mNm	118 mNm	19.3 mm	79.0 grams	Same	S280801GM00
901.1:1	12.0	40 %	5 rpm	0.052 Amp	3,001 mNm	118 mNm	19.3 mm	79.0 grams	Same	S280901GM00
1,153.4	12.0	40 %	4 rpm	0.052 Amp	3,841 mNm	118 mNm	19.3 mm	79.0 grams	Same	S281153GM00

Radial Load Rating ≤ 2.9 N
 Radial Load Distance 10 mm
 Axial Load ≤ 2.0 N
 Press Fit Force - Max ≤ 19.6 N

Radial Play ≤ 0.05 mm
 Axial Play ≤ 0.30 mm
 Backlash ≤ 2.0 °

Max Temperature Oper. -10°C
 Min Temperature Oper. 60°C
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Options

Bearing Sleeve

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Commutation Type:
 Metal Graphite

RoHS Compliant

A - May 2011

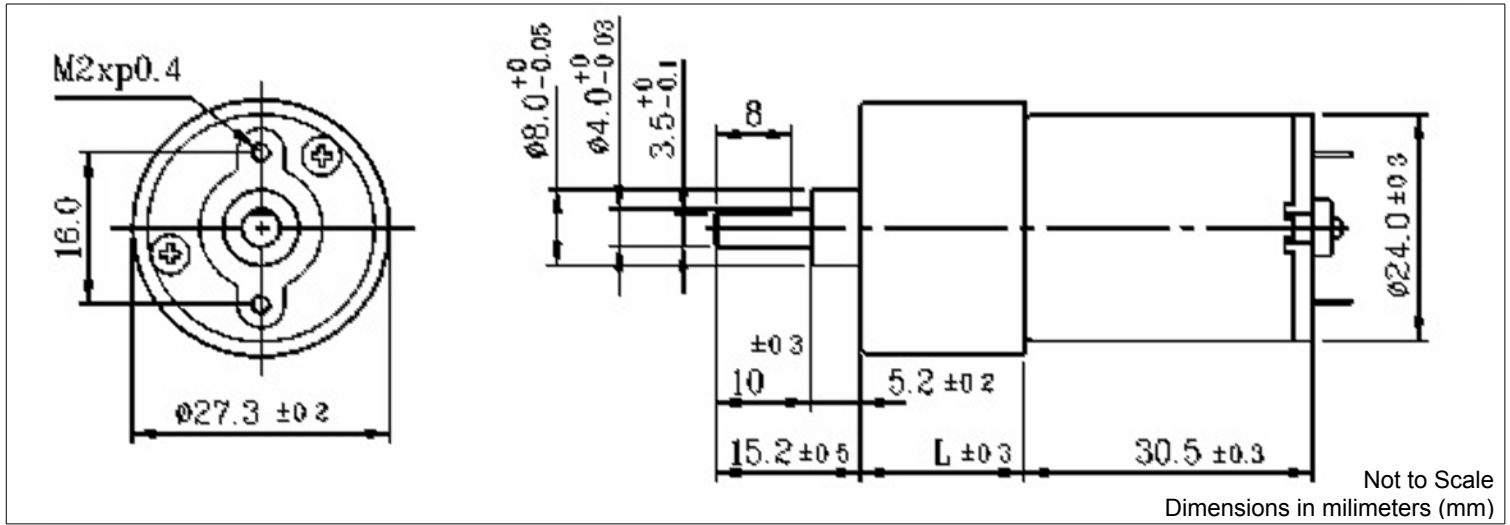
Specifications Subject to change without notice

Spur Gearmotor - 27.3 mm Ø



24 Volt Low Cost Inline Spur Gearmotor

Global Motion Products



Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque mNm	Continuous Torque mNm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
6.2:1	24.0	81 %	680 rpm	0.037 Amp	50 mNm	10 mNm	17.3 mm	75.0 grams	Same	S280006GM10
10.0:1	24.0	81 %	425 rpm	0.037 Amp	80 mNm	16 mNm	17.3 mm	75.0 grams	Same	S280010GM10
15.0:1	24.0	73 %	283 rpm	0.037 Amp	108 mNm	21 mNm	17.3 mm	76.0 grams	Opposite	S280015GM10
21.3:1	24.0	73 %	199 rpm	0.037 Amp	153 mNm	29 mNm	17.3 mm	76.0 grams	Opposite	S280021GM10
30.0:1	24.0	65 %	142 rpm	0.037 Amp	192 mNm	37 mNm	17.3 mm	77.0 grams	Same	S280030GM10
44.0:1	24.0	65 %	97 rpm	0.037 Amp	281 mNm	51 mNm	17.3 mm	77.0 grams	Same	S280044GM10
60.0:1	24.0	65 %	71 rpm	0.037 Amp	384 mNm	72 mNm	17.3 mm	77.0 grams	Same	S280060GM10
76.8:1	24.0	65 %	55 rpm	0.037 Amp	491 mNm	78 mNm	17.3 mm	77.0 grams	Same	S280077GM10
100.1:1	24.0	65 %	42 rpm	0.037 Amp	640 mNm	98 mNm	17.3 mm	78.0 grams	Same	S280100GM10
112.6:1	24.0	65 %	38 rpm	0.037 Amp	720 mNm	98 mNm	17.3 mm	78.0 grams	Same	S280113GM10
150.0:1	24.0	50 %	28 rpm	0.037 Amp	738 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280150GM10
170.7:1	24.0	50 %	25 rpm	0.037 Amp	840 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280171GM10

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Commutation Type:
 Metal Graphite

RoHS Compliant

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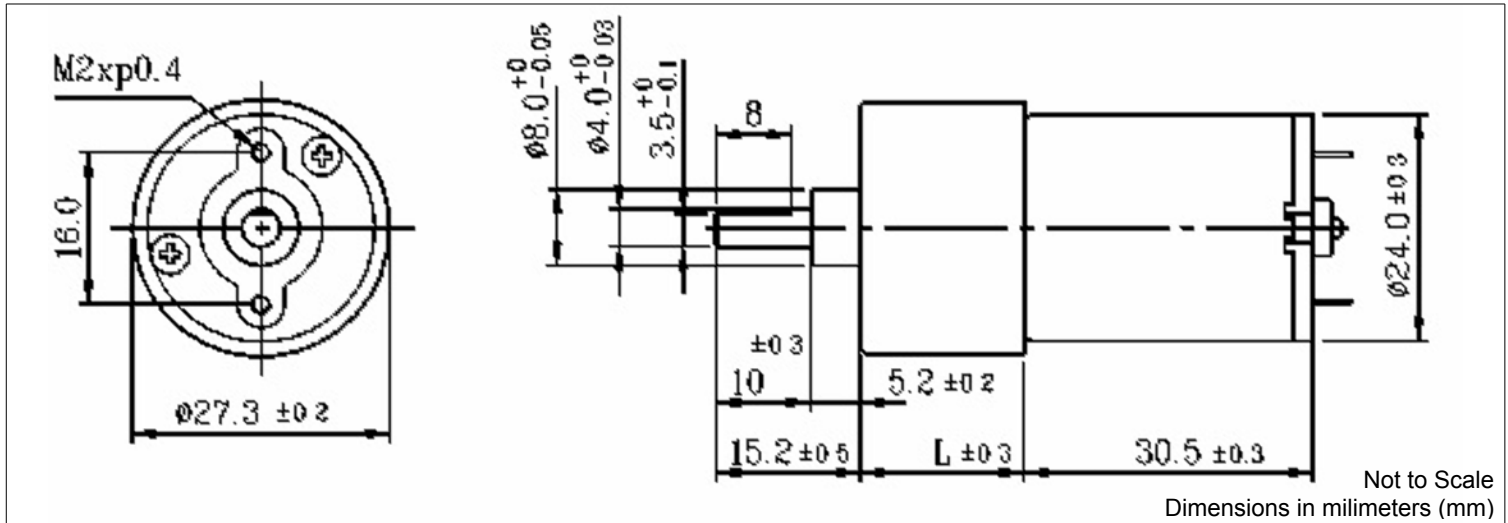
Specifications Subject to change without notice

Spur Gearmotor - 27.3 mm Ø



24 Volt Low Cost Inline Spur Gearmotor

Global Motion Products



Ratio	Voltage Volts	Gearbox Efficiency %	No Load Speed rpm	Gearmotor No Load Current A	Stall Torque mNm	Continuous Torque mNm	Length L mm	Gearmotor Mass grams	Direction of Rotation*	Order Part Number
200.2:1	24.0	50 %	21 rpm	0.037 Amp	985 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280200GM10
250.3:1	24.0	50 %	17 rpm	0.037 Amp	1,232 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280250GM10
320.4:1	24.0	50 %	13 rpm	0.037 Amp	1,576 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280320GM10
360.4:1	24.0	50 %	12 rpm	0.037 Amp	1,773 mNm	118 mNm	17.3 mm	78.0 grams	Opposite	S280360GM10
400.5:1	24.0	40 %	11 rpm	0.037 Amp	1,576 mNm	118 mNm	19.3 mm	79.0 grams	Same	S280400GM10
500.6:1	24.0	40 %	8 rpm	0.037 Amp	1,971 mNm	118 mNm	19.3 mm	79.0 grams	Same	S280501GM10
700.0:1	24.0	40 %	6 rpm	0.037 Amp	2,755 mNm	118 mNm	19.3 mm	79.0 grams	Same	S280700GM10
801.0:1	24.0	40 %	5 rpm	0.037 Amp	3,153 mNm	118 mNm	19.3 mm	79.0 grams	Same	S280801GM10
901.1:1	24.0	40 %	5 rpm	0.037 Amp	3,547 mNm	118 mNm	19.3 mm	79.0 grams	Same	S280901GM10
1,153.4	24.0	40 %	4 rpm	0.037 Amp	4,540 mNm	118 mNm	19.3 mm	79.0 grams	Same	S281153GM10

Radial Load Rating ≤ 2.9 N
 Radial Load Distance 10 mm
 Axial Load ≤ 2.0 N
 Press Fit Force - Max ≤ 19.6 N

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Options

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Commutation Type:
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RoHS Compliant

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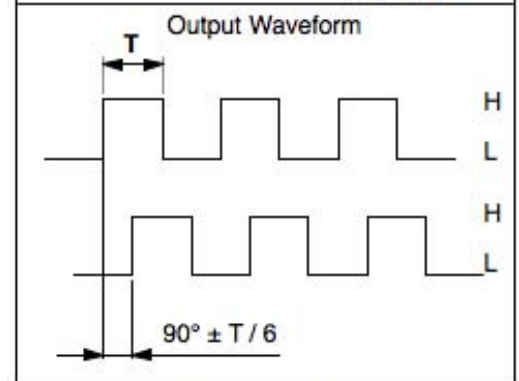
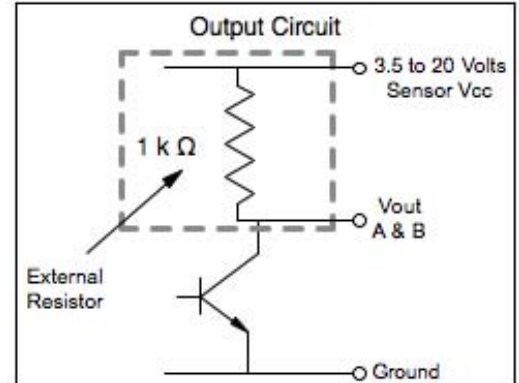
Magnetic Encoders - Integrated

Low Cost - Single & Quadrature Channels



Global Motion Products

Supply Voltage - Max	20.0 Volt
Supply Voltage - Min	3.5 Volt
Supply Voltage - Symbol	Vcc
Output Saturation Voltage - Max	700 mVolts
Output Saturation Voltage - Ref	300 mVolts
Output Saturation Voltage - Symbol	Vce(sat)
Output Saturation Voltage - Test Conditions	Vcc =14 Volts; Ic = 20mA
Output Leakage Current - Max	10.0 µAmp
Output Leakage Current - Ref	< 0.1 µAmp
Output Leakage Current - Symbol	Icex
Output Leakage Current - Test Conditions	Vce =14 Volts; Vcc = 14 V
Supply Current - Max	10 mAmp
Supply Current - Ref	5 mAmp
Supply Current - Symbol	Ice
Supply Current - Test Conditions	Vcc =20 Volts, Output Open
Output Rise Time - Max	1.5 µSec
Output Rise Time - Ref	0.3 µSec
Output Rise Time - Symbol	tr
Output Rise Time - Test Condition	Vce =14 Volts; RI = 820 Ω; CI = 20pF
Output Fall Time - Max	1.5 µSec
Output Fall Time - Ref	0.3 µSec
Output Fall Time - Symbol	tf
Output Fall Time - Test Conditions	Vce =14 Volts; RI = 820 Ω; CI = 20pF
Max Temperature - Operating	60°C
Min Temperature - Operating	-10°C
Relative Humidity - Operating	20% to 85% RH

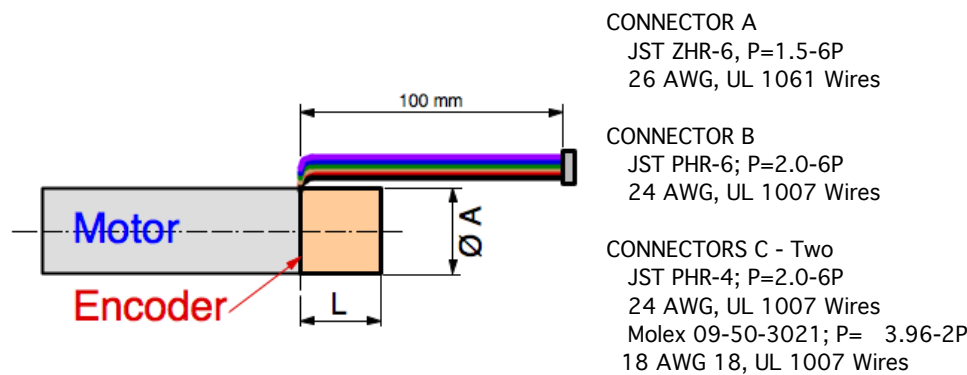


Two Channel Encoder

Connector Pin	Color	Function
1	Black	- Motor
2	Red	+ Motor
3	Brown	Hall Sensor Vcc
4	Green	Hall Sensor Ground
5	Blue	Hall Sensor A Vout
6	Purple	Hall Sensor B Vout

One Channel Encoder

Connector Pin	Color	Function
1	Black	- Motor
2	Red	+ Motor
3	Brown	Hall Sensor Vcc
4	Green	Hall Sensor Ground
5	Blue	Hall Sensor A Vout
6	Purple	No Function



Note:
For encoder resolution and channel options, how to order, diameter and encoder length details refer to the following pages. Resolution options vary by motor diameter, as do connector(s) and wire gauge(s).

Below 30 mm motor diameter the magnetic encoder does not have the option for a dust cap at this time. The encoder is exposed and the dimensions represent the largest dimension of the encoder. On 30 mm and larger diameter motors an OPTIONAL Dust Cap is available. Part Numbers here represent no Dust Cap.

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Magnetic Encoders - Integrated



Low Cost - Single & Quadrature Channels

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Pulses per Revolution per Track	Track Number	Dust Cap Option	Cover ØA mm	Cover or Encoder L - mm	Connector Type(s)	Compatible Gearmotor Series	Order Part Number
1	X	No	12.0	6.5	A	A12----GM--	EM120001X00
3	X	No	12.0	6.5	A	A12----GM--	EM120003X00
1	X	No	15.4	6.5	A	A16----AS--	EM160001X00
3	X	No	15.4	6.5	A	A16----AS--	EM160003X00
1	X	No	20.3	8.5	B	S20----AM--; A22----GM--; A22----HM--	EM210001X00
3	X	No	20.3	8.5	B	S20----AM--; A22----GM--; A22----HM--	EM210003X00
1	X	Yes	30.0	12.6	B	A30----GM--	EM300001X00
3	X	Yes	30.0	12.6	B	A30----GM--	EM300003X00
7	X	Yes	30.0	12.6	B	A30----GM--	EM300007X00
7	X	Yes	32.0	14.3	B	A32----GM--	EM320007X00
7	X	Yes	36.0	13.5	B	A36----GM--	EM360007X00
1	X	Yes	42.5	15.5	C	A45----A---	EM430001X00
5	X	Yes	42.5	15.5	C	A45----A---	EM430005X00
1	X	Yes	52.0	18.0	C	A52----GM--	EM520001X00
1	X	Yes	52.0	18.0	C	A52----GM--	EM520001X00
5	X	Yes	54.0	18.0	C	A54----GM--	EM540005X00
5	X	Yes	54.0	18.0	C	A54----GM--	EM540005X00
1	X & Y	No	12.0	6.5	A	A12----GM--	EM120001Y00
3	X & Y	No	12.0	6.5	A	A12----GM--	EM120003Y00
1	X & Y	No	15.4	6.5	A	A16----AS--	EM160001Y00
3	X & Y	No	15.4	6.5	A	A16----AS--	EM160003Y00
1	X & Y	No	20.3	8.5	B	S20----AM--; A22----GM--; A22----HM--	EM210001Y00
3	X & Y	No	20.3	8.5	B	S20----AM--; A22----GM--; A22----HM--	EM210003Y00
1	X & Y	Yes	30.0	12.6	B	A30----GM--	EM300001Y00
3	X & Y	Yes	30.0	12.6	B	A30----GM--	EM300003Y00
7	X & Y	Yes	30.0	12.6	B	A30----GM--	EM300007Y00
7	X & Y	Yes	32.0	14.3	B	A32----GM--	EM320007Y00
7	X & Y	Yes	36.0	13.5	B	A36----GM--	EM360007Y00
1	X & Y	Yes	42.5	15.5	C	A45----A---	EM430001Y00
5	X & Y	Yes	42.5	15.5	C	A45----A---	EM430005Y00
1	X & Y	Yes	52.0	18.0	C	A52----GM--	EM520001Y00
1	X & Y	Yes	52.0	18.0	C	A52----GM--	EM520005Y00
5	X & Y	Yes	54.0	18.0	C	A54----GM--	EM540001Y00
5	X & Y	Yes	54.0	18.0	C	A54----GM--	EM540005Y00

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