

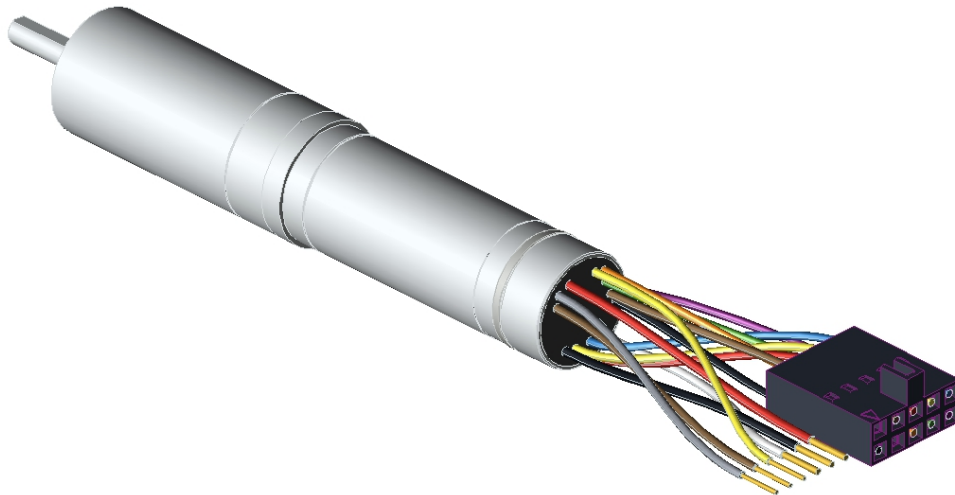
Configured drive

Motor - ECXSP13M BL KL A STD 24V
Planetary gearhead - GPX14HP 138:1
Sensor - ENX13 EASY INT COMM 512IMP

Part number: B78ADD976866 Revision number 1

Orders are processed and shipped from Switzerland within 11 working days.

General Terms and Conditions: https://www.maxonmotor.ch/maxon/view/content/terms_and_conditions_page



To open the integrated CAD file, please save this document and open it in Acrobat Reader. The STEP file is available after a double-click on the pin icon.

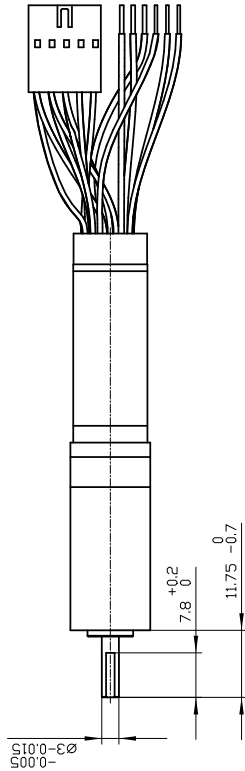
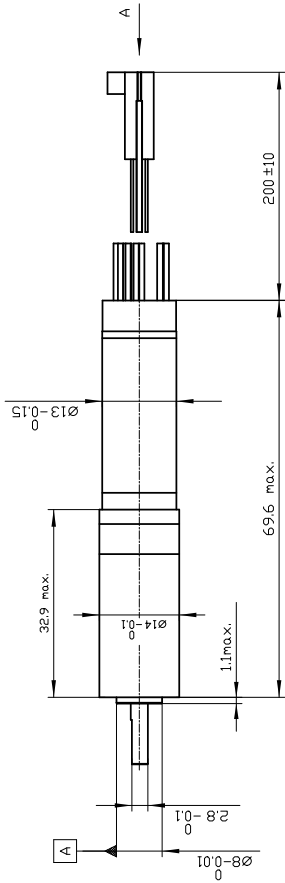
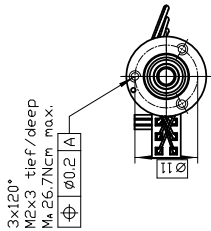
B78ADD976866.stp (STP AP 214)

Open configuration: <http://www.maxonmotor.co.uk/maxon/view/configurator/?ConfigID=B78ADD976866>

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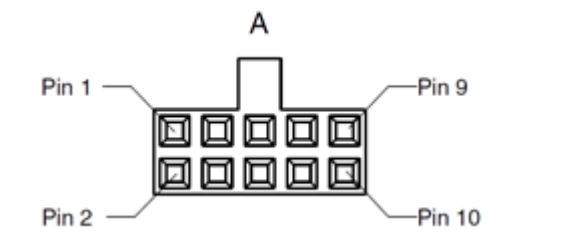
Drawing not to scale!

ISO 5456-1



Lage des Kabelabgangs
 zum Befestigungsbohrbild ±25°
 alignment of cables relative
 to mounting holes ±25°

Axiaplspiel Getriebe: 0...0.1
 Axial play gerahead: 0...0.1



Motor (Cable type: AWG26)

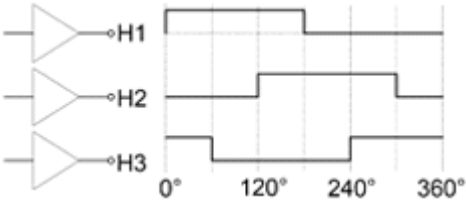
Red	Motor 1
Black	Motor 2
White	Motor 3

Hall-Sensor (Cable type: AWG28)

Yellow	Hall-Sensor 1
Brown	Hall-Sensor 2
Gray	Hall-Sensor 3

Connector type, encoder			
Molex 22-55-2102			
Pin 1	NC		
Pin 2	VCC	Black	
Pin 3	GND	Brown	
Pin 4	NC		
Pin 5	A \	Red	
Pin 6	A	Orange	
Pin 7	B \	Yellow	
Pin 8	B	Green	
Pin 9	Channel I \ (Index)	Blue	
Pin 10	Channel I (Index)	Purple	

Cable type: AWG28



Output signals: CMOS compatible
push-pull stage
No pull-up resistor required
Hall signals are generated
by EASY INT sensor

Summary of your selected configuration

Total weight of the drive: 56.3 g

ECXSP13M BL KL A STD 24V

Power

Commutation	With Hall sensors
Nominal voltage	24 V
Motor bearings	Preloaded ball bearing
Version	Standard

GPX14HP 138:1

Power

Gearhead type	High Power
Reduction	138
Number of stages	3

ENX13 EASY INT COMM 512IMP

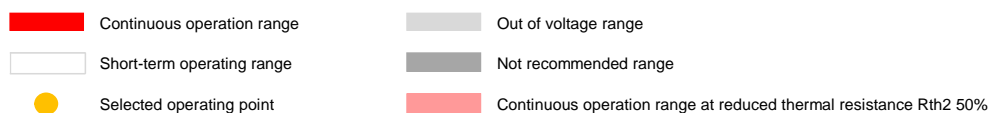
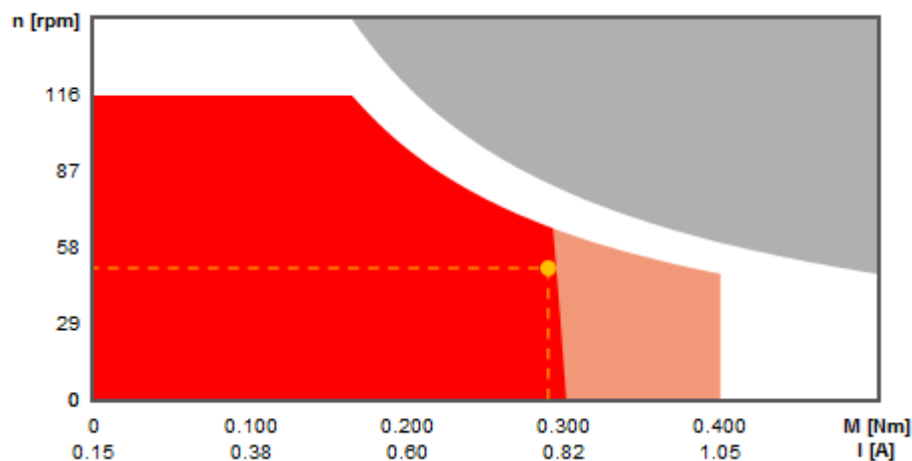
Power

Counts per turn	512
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Legend for part designation

EB	Precious metal brushes	GB	Graphite brushes	CLL	Spark suppression	BL	Brushless
A	Hall sensors	B	Sensorless	KL	Ball bearings	SL	Sintered bearings
GPX	Planetary gearhead	ENX	Encoder	ENC	Encoder	IMP	Pulses
ST	Number of stages	HP	High Power	S/M/L	Short/medium/long	HS	High Speed
STE	Sterilizable	INT	Integrated	STD	Standard	SP	Speed
ABS	Absolute	LN	Reduced noise level	A	Standard	LZ	Reduced backlash
C	Ceramic bearing			STEC	Sterilizable, Ceramic bearing		

Drive disposition



Combination details

Your entries

Available voltage	24 V
Speed	50 min ⁻¹
Torque	0.29 Nm

Values of the drive at available voltage

Available voltage	24 V
Max. speed at given load	66 min ⁻¹
Max. continuous torque	0.25 Nm
Max. continuous current	0.69 A

Required electrical data for your operating point

Speed	50 min ⁻¹
Torque	0.290 Nm
Required voltage	7.07 V
Required current	0.79 A

ECXSP13M BL KL A STD 24V



Product specification

Values at nominal voltage

Nominal voltage	24 V
No load speed	44500 min ⁻¹
No load current	154 mA
Nominal speed	40000 min ⁻¹
Nominal torque (max. continuous torque)	2.74 mNm
Nominal current (max. continuous current)	0.687 A
Stall torque	28.4 mNm
Stall current	5.68 A
Max. efficiency	71 %

Characteristics

Max. output power continuous	13.5 W
Terminal resistance phase-to-phase	4.22 Ω
Terminal inductance phase-to-phase	0.117 mH
Torque constant	5 mNm A ⁻¹
Speed constant	1910 min ⁻¹ V ⁻¹
Speed/torque gradient	1610 min ⁻¹ mNm ⁻¹
Mechanical time constant	4.12 ms
Rotor inertia	0.244 gcm ²

Thermal data

Thermal resistance housing-ambient	29.5 KW ⁻¹
Thermal resistance winding-housing	2.21 KW ⁻¹
Thermal time constant of the winding	1.43 s
Thermal time constant of the motor	355 s
Ambient temperature	-20...100 °C
Max. winding temperature	155 °C

Mechanical data

Max. permissible speed	50000 min ⁻¹
Axial play	0...0.28 mm
Preload	1.5 N
Direction of force	Zug
Radial backlash	0 mm

	Max. axial load (dynamic)	1.5 N
	Max. force for press fits (static)	50 N
	Static, supported shaft	N
	Max. radial load 5 mm from flange	6 N
	Measurement from the flange	5 mm

Further specifications

	Number of pole pairs	1
	Number of phases	3
	Typical noise level	dBA (50000 min ⁻¹)
	Typical noise level at reference speed	50000 min ⁻¹
	Number of autoclave cycles	0

Information about motor data. https://www.maxonmotor.com/medias/CMS_Downloads/DIVERSES/12_137_DE.pdf

GPX14HP 138:1



Product specification

Gearhead data

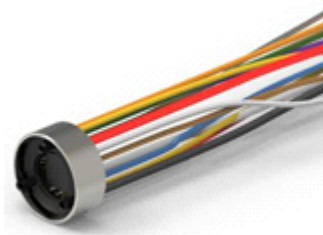
Reduction	138:1
Absolute reduction	341550/2470
Number of stages	3
Max. continuous torque	0.4 Nm
Max. intermittent torque	0.5 Nm
Direction of rotation, drive to output	=
Max. efficiency	65 %
Average backlash no-load	1.5 °
Mass inertia	0.08 gmc ²
Max. transmittable power (continuous)	2 W
Max. short-time transferable output	2.5 W

Technical data

Output shaft bearing	Wälzlager
Max. radial play, 5 mm from flange	max. 0.1 mm
Axial play	0...0.1 mm
Max. permissible radial load, 5 mm from flange	70 N
Max. permissible axial load	20N
Max. permissible force for press fits	100 N
Max. continuous input speed	16000 min ⁻¹
Max. intermittent input speed	20000 min ⁻¹
Recommended temperature range	-40..100 °C

Information about gearhead data: http://www.maxonmotor.com/medias/CMS_Downloads/DIVERSES/12_203_EN.pdf

ENX13 EASY INT COMM 512IMP



Product specification

Sensor data

Counts per turn	512
Number of channels	3
Line Driver	RS422
Max. electrical speed	200000 min ⁻¹
Max. mechanical speed	200000 min ⁻¹

Technical data

Supply voltage Vcc	5 V 10 %
Output signal	INC + COMM
Output signal driver	Differential / EIA RS 422
Output current per channel	-20...20 mA
State length	45...135 °el
Signal rise time/Signal fall time	60/60 ns
Min. state duration	62.5 ns
Direction of rotation	A vor B CW
Index position	A low & B low
Index synchronously to AB	Yes
Index pulse width	90 °el
Typical current draw at standstill	23 mA
Max. moment of inertia of code wheel	0.005 gcm ²
Operating temperature range	-40...125 C°
Number of autoclave cycles	1000

Datasheet: http://www.maxonmotor.com/medias/CMS_Downloads/DIVERSES/ENXEASYINT_en.pdf