

## Your configuration

**maxon motor**

**driven by precision**

Part number\*: B72CD8989D13

Consists of:

Motor - DCX10L EB KL 12V  
Planetary gearhead - GPX10 256:1  
Sensor - ENX10 EASY 32IMP

maxon motor worldwide  
[http://www.maxonmotor.com/maxon/view/content/contact\\_page](http://www.maxonmotor.com/maxon/view/content/contact_page)

E-Mail: [e-shop@maxonmotor.com](mailto:e-shop@maxonmotor.com)  
Internet: [www.maxonmotor.com](http://www.maxonmotor.com)

Total price	<b>CHF 336.90</b>	1-4 Pieces
	<b>CHF 281.60</b>	5-19 Pieces
	<b>CHF 238.50</b>	20-49 Pieces

After an order is placed at the e-shop, the product is manufactured in Switzerland and shipped from the factory within 11 days.

General Terms and Conditions: [http://www.maxonmotor.com/maxon/view/content/terms\\_and\\_conditions\\_page](http://www.maxonmotor.com/maxon/view/content/terms_and_conditions_page)

Configuration created on: 24.03.2014 04:06

Your configuration can be viewed here:

<http://www.maxonmotor.com/maxon/view/configurator/?ConfigID=B72CD8989D13>

\*If the link doesn't work, you can open your configuration with the part number from the catalog.

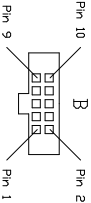
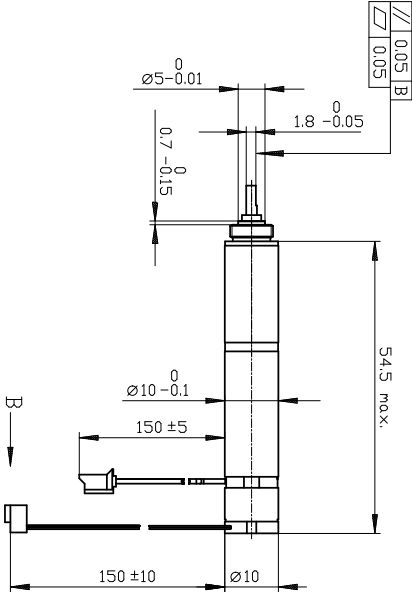
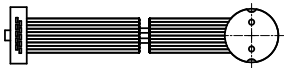
### Attachments / CAD files

Please double click with left mouse button on a pushpin symbol to open a file. You could also save a file when you click the symbol with the right mouse button.

B72CD8989D13.stp (STP AP 214)

Motor - DCX10L EB KL 12V  
Planetary gearhead - GPX10 256:1  
Sensor - ENX10 EASY 32IMP

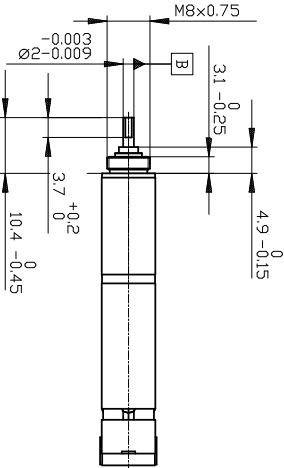
Drawings are not to scale!



Stecker Typ Sensor sensor connector type	
1.27mm Federleiste/pin header	
Pinbelegung pin allocation	
Pin 1	Nicht verbunden do not connect
Pin 2	VCC
Pin 3	GND
Pin 4	Nicht verbunden do not connect
Pin 5	Kanal A \\ channel A \
Pin 6	Kanal A channel A
Pin 7	Kanal B \\ channel B \
Pin 8	Kanal B channel B
Pin 9	Kanal 1 \\ channel 1 \
Pin 10	Kanal 1 channel 1



Stecker Typ Motor motor connector type	
JST_PHR-2	
Pinbelegung pin allocation	
Pin 1	rot / red (+)
Pin 2	schwarz / black (-)



Kabel nicht dargestellt  
no cable visualisation

## Summary of your selected configuration

**Motor - DCX10L EB KL 12V**

**Planetary gearhead - GPX10 256:1**

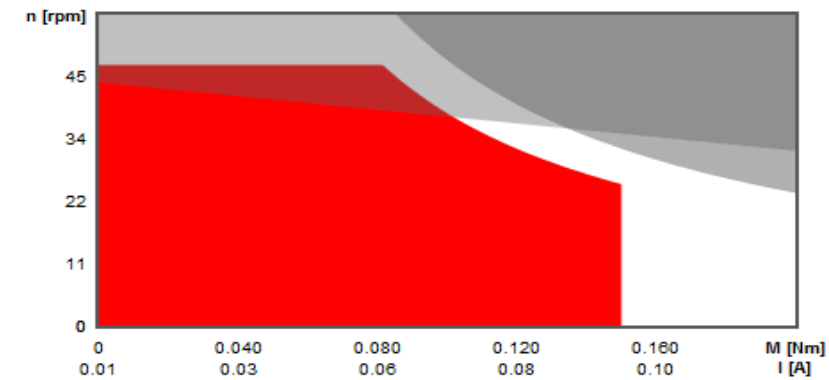
**Sensor - ENX10 EASY 32IMP**






Total weight of the drive: 25 g

Functions		
Gearhead type	Standard version	*
Reduction	256 : 1	*
Number of stages	4	*
Commutation	Precious metal brushes	
Spark suppression (CLL)	with CLL	
Supply voltage	Nominal voltage 12 V	*
Motor bearings	Preloaded ball bearing	
Counts per turn	32	*
Form and Fit		
Gear shaft	with flat	
Shaft length L1	10.4 mm	
Length of flat L2	3.7 mm	
Height of flat D2	1.8 mm	
Gear flange	Standard flange	
Amount of threads	1	
Thread diameter	M8x0.75	
Electrical connection, motor	Cable	
Connector type, motor	JST PHR-2	*
Cable length L1 for motor	150 mm	
Cable type	AWG26	
Electrical connection, encoder	Standard	
Cable length L1 for encoder	150 mm	
Cable type for encoder	TPE ribbon cable	
Connector type, encoder	10-pol 1.27mm pin header	
Connection orientation (motor)	0 degree	
Connection orientation (encoder)	0 degree	
Add-ons		
Labeling	Standard labeling	

(\*) These values have been changed through the configuration.

## Drive disposition



	Continuous operation range		Out of voltage range
	Short-term operating range		Selected operating point
	Continuous operation range at reduced thermal resistance Rth2 50%		

### Values of the drive at max. available voltage

Max. motor voltage	12 V
Max. load speed	44 min <sup>-1</sup>
Continuous torque	150 mNm
Nominal current (max. continuous current)	0.09 A

### Your operating point - The required data for the load

Required voltage	0 V
Max. load speed	0 min <sup>-1</sup>
Effective load torque (rms)	0 mNm
Effective load current (rms)	0.01 A

## Motor - DCX10L EB KL 12V



### Values at nominal voltage

Nominal voltage	12 V
No load speed	11200 rpm
No load current	8.49 mA
Nominal speed	5960 rpm
Nominal torque (max. continuous torque)	2.04 mNm
Nominal current (max. continuous current)	0.211 A
Stall torque	4.38 mNm
Starting current	0.438 A
Max. efficiency	74.6 %

### Characteristics

Max. output power	2.76 W
Terminal resistance	27.4 Ohm
Terminal inductance	0.399 mH
Torque constant	10 mNm/A
Speed constant	955 rpm/V
Speed/torque gradient	2620 rpm/mNm
Mechanical time constant	3.56 ms
Rotor inertia	0.13 gcm <sup>2</sup>

### Thermal data

Thermal resistance housing to ambient	36.5 K/W
Thermal resistance winding to housing	10.6 K/W
Thermal time constant of the winding	3.71 s
Thermal time constant of the motor	151 s
Ambient temperature	-30..85 °C
Max. permissible winding temperature	100 °C

### Mechanical data

Max. permissible speed	14300 rpm
Min. axial play	0 mm
Max. axial play	0.07 mm
Radial backlash	0.015 mm
Max. axial load (dynamic)	0.5 N
Max. force for press fits (static)	8.8 N
Max. radial load	1.5 N

### Further specifications

Number of pole pairs	1
Number of collector segments	7
Weight	12 g
Number of sterilization cycles	0
Typical noise level	37 dBA

Information about motor data: [http://www.maxonmotor.com/medias/CMS\\_Downloads/DIVERSES/12\\_049\\_EN.pdf](http://www.maxonmotor.com/medias/CMS_Downloads/DIVERSES/12_049_EN.pdf)

## Planetary gearhead - GPX10 256:1



### Gearhead data

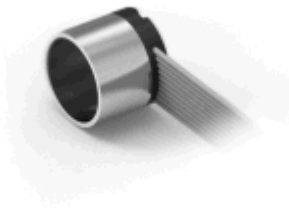
Reduction	256:1
Absolute reduction	256/1
Max. continuous transferable output	0.4 W
Max. short-time transferable output	0.5 W
Number of stages	4
Max. continuous torque	0.15 Nm
Permissible intermittent torque	0.2 Nm
Direction of rotation, drive to drive	=
Max. efficiency	65 %
Weight	8.19 g
Average no-load backlash	2.2 degree
Moment inertia	0.5 gcm <sup>2</sup>
Gearhead length	20.4 mm

### Technical data

Output shaft bearing	Ball bearings
Gearhead type	GPX
Max. radial backlash	0.08 mm
mm from flange	5 mm
Min. axial play	0 mm
Max. axial play	0.04 mm
Max. permissible radial load	20 N
mm from flange	5 mm
Max. permissible axial load	5 N
Max. permissible force for press fits	10 N
Recommended motor speed	12000 rpm
Max. short-term input speed	15000 rpm
Min. recommended temperature range	-15..80 °C
Number of sterilization cycles	0

Information about gearhead data: [http://www.maxonmotor.com/medias/CMS\\_Downloads/DIVERSES/12\\_203\\_EN.pdf](http://www.maxonmotor.com/medias/CMS_Downloads/DIVERSES/12_203_EN.pdf)

## Sensor - ENX10 EASY 32IMP



### Type

Counts per turn	32
Number of channels	3
Line Driver	RS422
Max. external diameter	10 mm
Max. housing length	8.5 mm
Max. electrical speed	120000 rpm
Max. speed	30000 rpm

### Technical data

Supply voltage	4.5..5.5 V
Output signal driver	Differential, EIA RS 422
Output current per cable	-20...20 mA
Min. state length	45 °el
Max. state length	135 °el
Signal rise time/Signal fall time	20/20 ns
Min. edge separation	500 ns
Direction of rotation	A for B, CW
Index position	A low & B low
Index synchronously to AB	yes
Index pulse width	90 °e
Typical current at standstill	17 mA
Moment of inertia, pulse wheel	0.05 gcm <sup>2</sup>
Weight (Standard cable length)	5 g
Operating temperature range	-40..100 °C
Number of sterilization cycles	0

Datasheet: [http://www.maxonmotor.com/medias/CMS\\_Downloads/DIVERSES/ENXEASY\\_en.pdf](http://www.maxonmotor.com/medias/CMS_Downloads/DIVERSES/ENXEASY_en.pdf)

**The following controllers are available for this drive:**

Note: Please use this part number to order in the online catalog .



**ESCON 36/2 DC**  
403112