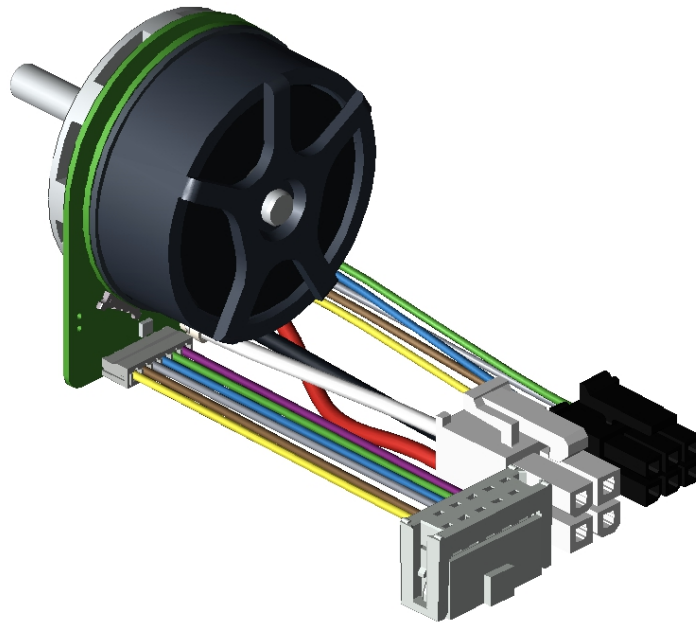


## Configured drive

Motor - ECXFL32L KL A HTQ 48V  
Sensor - ENX 32 MILE 2048IMP

**Part number: B800348FD177** Revision number 1

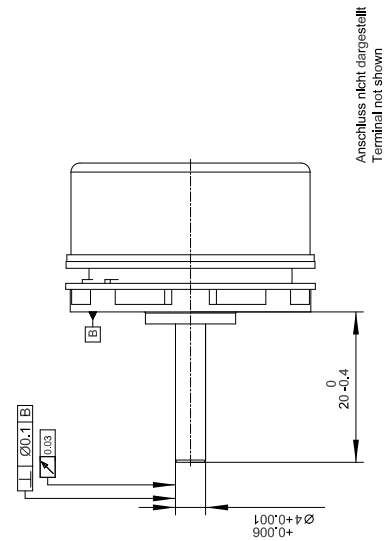
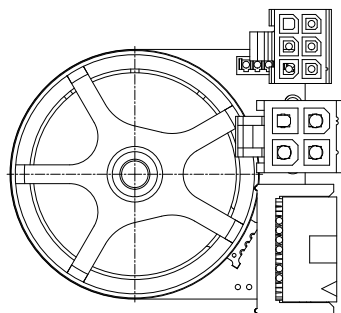
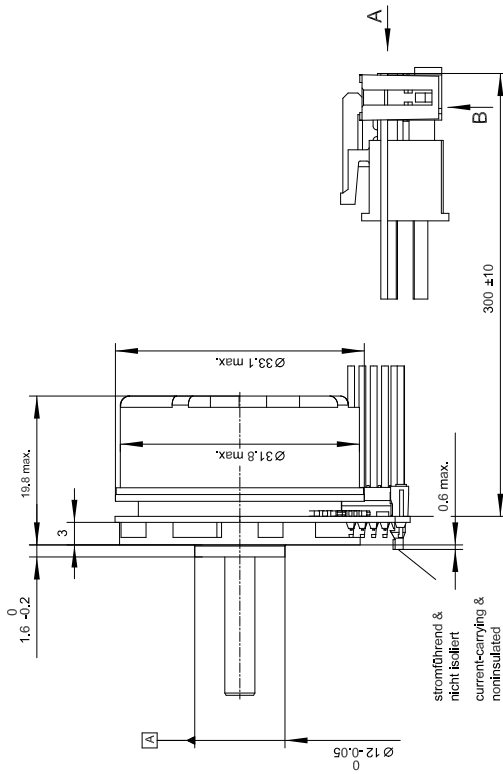
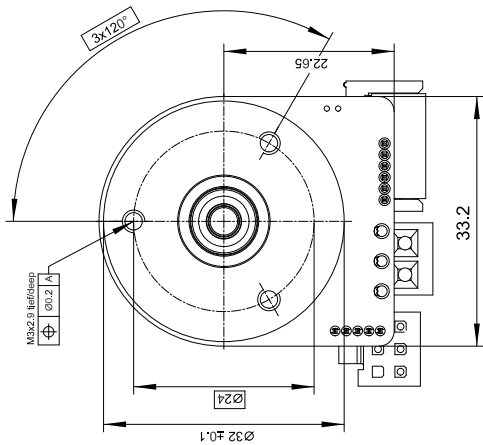
General Terms and Conditions [https://www.maxongroup.ch/maxon/view/content/terms\\_and\\_conditions\\_page](https://www.maxongroup.ch/maxon/view/content/terms_and_conditions_page)



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.

B800348FD177.stp (STP AP 214)

Open configuration: <https://www.maxongroup.com/maxon/view/configurator/?ConfigID=B800348FD177>



Unit of measure: mm



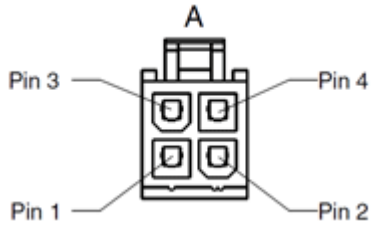
ISO 5456-1

ISO 1101

ISO 965-1

ISO 2768-m

ISO 8015

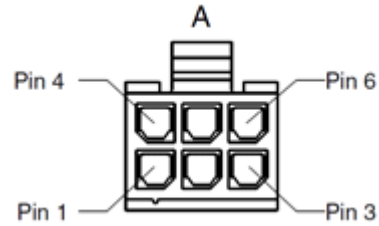


**Connector type, motor**

Molex 39-01-2040

Pin 1	Motor 1	Red
Pin 2	Motor 2	Black
Pin 3	Motor 3	White
Pin 4	NC	

Cable type: AWG20

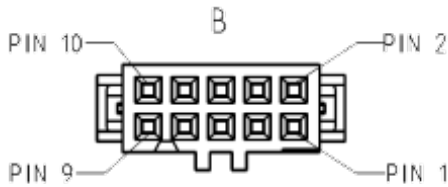


**Connector type, motor**

Molex 43025-0600

Pin 1	Hall-Sensor 1	Yellow
Pin 2	Hall-Sensor 2	Brown
Pin 3	Hall-Sensor 3	Gray
Pin 4	GND	Blue
Pin 5	+2.7...24 V DC	Green
Pin 6	NC	

Cable type: AWG28



**Connector type, encoder**

TE 1-215915-0

Pin 1	NC	
Pin 2	VCC	yellow
Pin 3	GND	brown
Pin 4	NC	
Pin 5	Channel A\	gray
Pin 6	Channel A	blue
Pin 7	Channel B\	green
Pin 8	Channel B	purple
Pin 9	NC	
Pin 10	NC	

## Summary of your selected configuration

Total weight of the drive: 87.2 g

### ECXFL32L KL A HTQ 48V

#### Product detail

Commutation	A
Nominal voltage	48
Motor bearings	Preloaded ball bearing
Version	HTQ

#### Shaft, front

Shaft, front	Configurable shaft
Shaft length	20

#### Elec. connection

Electrical connection, motor	Cable with connector
Connector type, motor	Molex 39-01-2040
Connector type, encoder	TE 1-215915-0

## Legend for part designation

### EC-Motor:

A	Hall sensor version
B	Sensorless version
BL	Brushless
C	Integrated electronics
ECX	EC-motor (brushless)
FL	FLAT (type series name)
HP	High Power
HTQ	High Torque
HTQF	High Torque, fan-ventilated
KL	Ball bearings
M/L/X	Medium / Long / Extra long
PR	PRIME (type series name)
SP	SPEED (type series name)
SQ	SQUARE (type series name)
STD	Standard
STE	Sterilizable
STEC	Sterilizable, ceramic bearing
TQ	TORQUE (type series name)

### DC-Motor:

CLL	Capacitor long life (spark suppression)
DC-max	DC motors (brushed)
DCX	DC motors (brushed)
EB	Precious metal brushes
GB	Graphite brushes
KL	Ball bearings
S/M/L	Short / Medium / Long
SL	Sintered sleeve bearings

### IDX Drive/Motor:

AB	Integrated brake
CO	CANopen interface
ENC	Encoder
ET	EtherCAT interface
IDX	Drive System
IO	I/O interface
P	Positioning-control
S	Speed-control
S/M/L	Short / Medium / Long

### Gearhead

A	Standard version
C	Ceramic version
GPX	Planetary gearhead
HP	High Power
LN	Reduced noise level
LZ	Reduced backlash
SP	SPEED (type series name)
ST	Number of stages
STE	Sterilizable
STES	Sterilizable, with sealing
UP	Ultra Performance

### Encoder/Sensor:

ABS	Absolute
BISSC	Bidirectional serial synchronous (protocol)
COMM	Commutation signals
EASY	(type series name)
EMT	(type series name)
ENX	Encoder
FFC	Flexible flat cable
GAMA	(type series name)
IMP	Pulses
INT	integrated
MAG	(type series name)
QUAD	(type series name)
RIO	(type series name)
SSI	Synchronous serial Interface (protocol)
XT	Extended version

## ECXFL32L KL A HTQ 48V

### Product specification

#### Values at nominal voltage

Nominal voltage	48 V
No load speed	13800 min <sup>-1</sup>
No load current	138 mA
Nominal speed	10700 min <sup>-1</sup>
Nominal torque (max. continuous torque)	106 mNm
Nominal current (max. continuous current)	2.81 A
Stall torque calculated without saturation effect	488 mNm
Stall current	44.9 A
Max. efficiency	89.182 %

#### Characteristics

Max. output power continuous	W
Terminal resistance phase-to-phase	1.07 Ω
Terminal inductance phase-to-phase	0.805 mH
Torque constant	32.8 mNm A <sup>-1</sup>
Speed constant	291 min <sup>-1</sup> V <sup>-1</sup>
Speed/torque gradient	9.47 min <sup>-1</sup> mNm <sup>-1</sup>
Mechanical time constant	3.04 ms
Rotor inertia	30.7 gcm <sup>2</sup>

#### Thermal data

Thermal resistance housing-ambient	3.75 KW <sup>-1</sup>
Thermal resistance winding-housing	2.96 KW <sup>-1</sup>
Thermal time constant of the winding	11.4 s
Thermal time constant of the motor	134 s
Ambient temperature	-40...100 °C
Max. winding temperature	155 °C

#### Mechanical data

Max. permissible speed	14000 min <sup>-1</sup>
Axial play	0...0.14 mm
Preload	4 N
Direction of force	Pull
Radial backlash	0 mm
Max. axial load (dynamic)	4 N
Max. force for press fits (static)	45 N
Static, supported shaft	1000 N
Max. radial load 5 mm from flange	12 N
Measurement from the flange	5 mm

#### Further specifications

Number of pole pairs	6
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Number of phases	3
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More information on the motor: <https://www.maxongroup.com/maxon/view/product/ECXA32LZF50E6LACO1Y376A?download=show>

## ENX 32 MILE 2048IMP

### Product specification

#### Sensor data

Counts per turn	2048
Number of channels	2
Line Driver	Yes
Max. electrical speed	28000 min <sup>-1</sup>
Max. mechanical speed	14000 min <sup>-1</sup>

#### Technical data

Supply voltage Vcc	5 V ± 10 %
Output signal	INC
Output signal driver	Differential / CMOS
Output current per channel	-4...4 mA
Signal rise time (typical, at CL=25pF, RL=1kOhm )	100 ns
Signal fall time (typical, at CL=25pF, RL=1kOhm )	100 ns
Min. state duration	125 ns
Direction of rotation	A before B CW
Typical current draw at standstill	15 mA
Max. moment of inertia of code wheel	3.5 gcm <sup>2</sup>
Operating temperature range	-40...100 C°

More information on the encoder: <https://www.maxongroup.com/maxon/view/product/ENX32MILE01?download=show>