Ground Truth Robotics
A DFKI SPINOFF COMPANY

Fact Sheet Elastic Actuator 50Nm

Motor type	ILM 50x14
Gear Type	CPL-17-2A
Mechanics	
Rated Speed (rpm)	15
Rated Torque[1] (Nm)	33
Repetitive Peak Torque (Nm)	50
Collision Torque (Nm)	54
Max. Speed (rpm)	29
Stiff ness (Nm/rad)	570
Gear reduction	120
Weight[2] (kg)	2.7
Electrical	
Power (W)	145
Nominal Voltage (V)	48
Nominal Current (A)	5
Control Logic	
Supply Voltage[3] (V)	12
Nominal Current (A)	2.5W/U
Communication Protocol[4]	NDLCom, LVDS
Number of PCBs	4

[1] The rated torque is determined by rated motor torque*gear ratio*efficiency. The efficiency is specified at 20°, for lubrication using fat and at rated velocity.

[2] It is the overall weight including all mechanical parts, brake, electronics and the wiring.

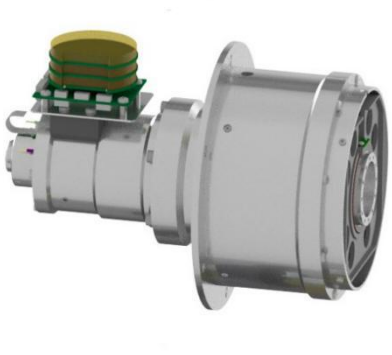
[3] The supply voltage of FPGA is converted and fed by the electronics.

[4] NDLCom refers to Node-Level Data Link Communication Protocol, which is developed by RIC DFKI. It composes frames and handles packet transmission between multiple nodes.

Position Sensors	
Quantity	3
Resolution (deg)	19 bit
Mechanical Brake	
Manufacturer	Kendrion
Supply /Activation voltage (V)	24
On / Off a disconnection	on
Motor current measurements	
Phase currents (yes / no)	yes
Line currents (yes / no)	yes

Elastic Actuator 50Nm

The 50Nm model of the FourByThree family of compliant actuators is characterized by using a series of torsion springs, which can be also exchanged to select the required stiffness for the application. This actuator has a hollow shaft, allowing easy cabling of the system to be built.



- Lightweight BLDC-motor TQ-Systems (0.5 Nm, 145 W, 48 V)
- HarmonicDrive Gear ratio 120:1
- Three absolute position encoders, 19 bit resolution
- Max. 5 degree deflection
- Mechanical safety brake
- Overall weight 2700 g
- Stiffness 520 Nm/rad
- 22 rpm, peak torque ~85 Nm

Just for experimental usage (research). No warranty.