AndrosRobotics LLC

CFCM Actuator V2 36V Model

Description

The CFCM Actuator V2 is linear, force-controlled actuator. It was designed to integrate into robotic systems, and with its high-fidelity force control loop (on-board), to enable powerful but safe collaborative actuation.

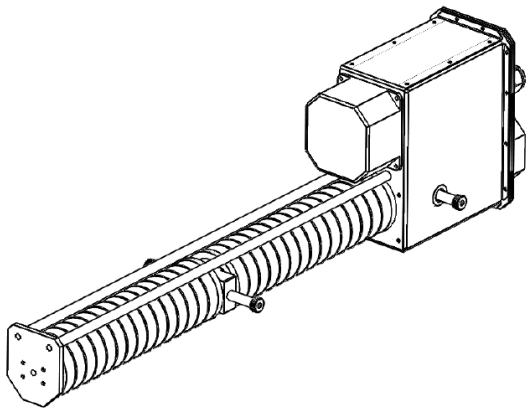
The Actuator uses an integrated compliant force sensor, current-controlled motor driver, BLDC motor, and an embedded microcontroller with the force-feedback control loop already closed and tuned for stable operation under most operating conditions.

The Actuator is protected from the elements (dust and water) with an enclosure and rubber bellows. Communication (commands and feedback) is carried out over serial-TTL protocol.

Implementing impedance control in a supervisory external controller is possible by closing a position loop around the Actuator's internal force loop, and is made easier thanks to the provided position feedback signal.

Power - Performance

Supply Voltage	36VDC
Peak Current	10A
Continuous Current	5A
Rated Force	1,200N
Max Force	2,400N
Rated Speed	0.1m/s
Max Speed	0.17m/s



Features

- High Fidelity Force Control
- Low Impedance – High Backdrivability
- Force Loop Closed On-Board
- Ideal for Collaborative Robotics
- Linear Position Feedback (Relative)
- Rugged Enclosure, Protection from Dust/Water
- Fail-Safe Brake

Commands (Serial-TTL)
- Enable Signal
- Force Command

Feedback (Serial)
- Force Feedback
- Linear Position Feedback (Relative)
- Current Draw

Modes of Operation (Onboard Controller)
- Force

Other Modes of Operation (w/External Controller)
- Position
- Impedance
- Velocity

Specifications

Power Specifications		
Description	Units	Value
Power Supply Voltage	VDC	36
Continuous Current	A	5
Continuous Electrical Power Draw	W	180
Communications		
Serial-TTL	VDC	3.3
Performance Specifications		
Rated Force	N	1,200
Rated Speed at Rated Force	m/s	0.1
Max Force	N	2,400
Max Speed (No Load)	m/s	0.17
High Force Bandwidth	Hz	> 6
Low Force Bandwidth	Hz	> 15
Mass	kg	4.1

Installation Notes

- The actuator's ball nut must be constrained from rotation around the longitudinal axis. Under normal operation the reaction torque may reach 1 N-m.
- Care should be taken when designing the mating machine components to minimize off-axis loads on the actuator.