



KINOVA® Remote Manipulation System

The KINOVA® Remote Manipulation System is a tool/accessory to be used on the Northrop Grumman Remotec Andros™ line of mobile robotic systems. It will deliver enhanced capability by functioning as a second, independently controlled robotic arm for missions requiring the capability to perform highly dexterous and precise manipulation.

Configuration and operation

- 7 Degrees of Freedom (DOF)
- Arm camera located at the gripper
- Mounts to an Andros system using the standard arm accessory interface
- Additional camera view available through the standard robot OCU
- Independent command and control through a separate controller provides the capability to support team operation
- Available for all standard Andros systems including FX, HD and F6 Series

About Kinova Robotics

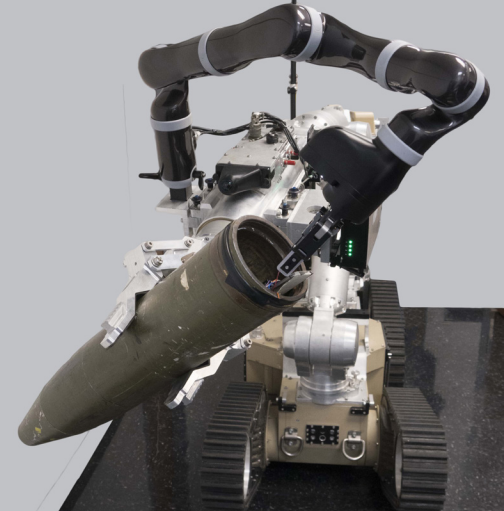
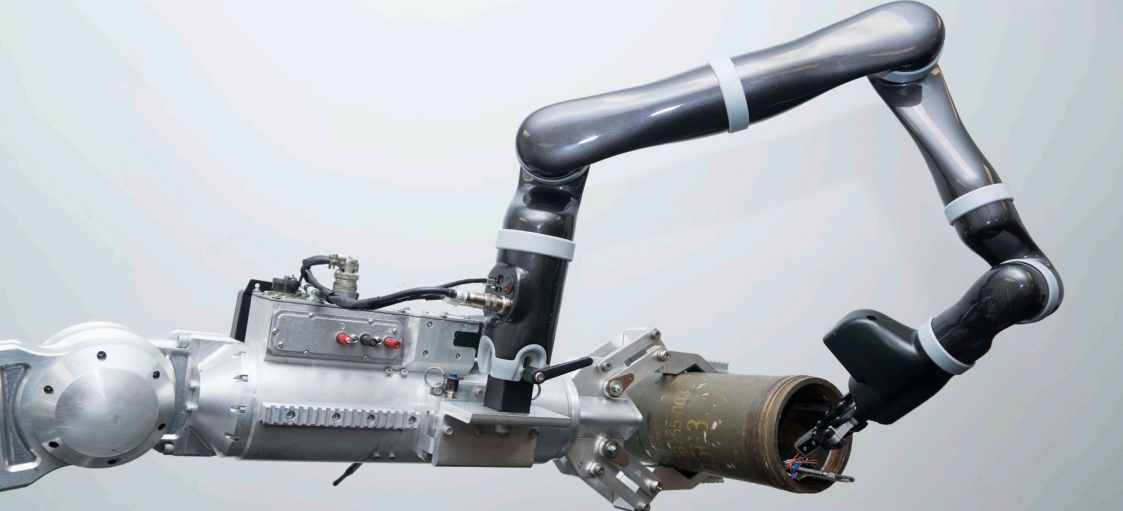
Kinova is a global leader in professional manipulation solutions. Since its founding in 2006, Kinova has provided leading edge technology for research, medical, and security applications. The Remote Manipulation system was developed by Kinova in collaboration with the DHS and Northrop Grumman, specifically for EOD applications.

The KINOVA Remote Manipulation System ships with the following items:

- KINOVA Gen2 Ultra lightweight manipulator
- Video adapter cable
- Robotiq two finger gripper
- Xbox game controller
- Radio communication link with antenna
- Power cable
- Arm mounting support hardware
- Ethernet cable
- Radio mounting support hardware

About Northrop Grumman Remotec

Northrop Grumman Remotec is an industry leader in hazardous duty robotics with over 30 years of experience designing, producing, and fielding Unmanned Ground Vehicles (UGVs), more than any other company. With over 2,500 systems in the field, users around the world depend on Remotec UGVs every day to help them meet a wide range of missions and scenarios.



KINOVA® Remote Manipulation System Technical Specifications

Arm Specifications

Reach	98.4 cm (38.35 in)
Robot maximum payload (without gripper adapter and gripper)	<ul style="list-style-type: none"> • 2.4 kg (mid-range continuous) (5.29 lbs) • 2.1 kg (full-reach peak / temporary) (4.63 lbs)
Robot maximum payload (with gripper adapter and gripper)	700 g (1.5 lbs)
Robot total mass (without gripper adapter and gripper)	5.5 kg (12 lbs)
Maximum robot linear speed	20 cm/s (7.8 in/s)
Joint range of motion	± 27.7 turns
Internal communication cables	20-pin flat flex cable
Materials	Carbon fiber (links), Aluminum (actuators)
Power supply voltage	18 to 29 VDC
Average robot power	25 W (15 W standby)
Peak robot power	100 W

Gripper Specifications

Laser frequency and power	Class IIIa, 650 nm, < 3 mW
LED light sources	<ul style="list-style-type: none"> • 2x visible spectrum (9000 K color temperature) • 2x infrared, 860 nm
Gripper opening	85 mm (3.35 in)
Gripper finger speed	20 - 150 mm/s (7.8 – 59 in/s)
Gripping force	20 - 235 N

Communication Specifications

Communication adapter radio frequencies	902 - 928 MHz
Communication adapter range - radio link	up to 300 m line of sight
Communication adapter range - wired Ethernet	100 m (without repeater) (330 ft)
Communication adapter power requirements	11-29 VDC

Video Adapter Specifications

Video adapter output format	<ul style="list-style-type: none"> • PAL or NTSC • composite out (RCA) • 4:3 aspect ratio
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Environmental Limits

Operating temperature	-10° C to 40° C
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For more information, please contact:

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