iRobot® 510 PackBot®

iRobot®

Neutralize roadside bombs, car bombs and other IEDs...

Screen vehicles, cargo, buildings and people for traces of explosives…

Search buildings, bunkers, caves, tunnels and sewers…

iRobot 510 with EOD manipulator arm

The iRobot 510 PackBot is one of the most successful battle-tested robots in the world.

Modular, adaptable and expandable, PackBot performs bomb disposal, surveillance/reconnaissance and a wide range of other dangerous missions while keeping armed forces out of harm's way.

More than 4,500 PackBot robots have been delivered worldwide.

Multi-mission flexibility

Mobile

PackBot easily climbs stairs, rolls over rubble and navigates narrow passages with sure-footed efficiency. The robot traverses rock, mud, snow and other tough terrain at speeds of up to 5.8 miles per hour.

Expandable

PackBot accommodates a wide variety of interchangeable payloads that enable a wide variety of missions. The robot is quickly configured based on the needs of the mission and the operator's preferences.

Portable

PackBot is deployable by one person in less than two minutes. No expensive, specialized equipment or vehicles are necessary; the robot is easily loaded into a MOLLE pack, the trunk of a car or a helicopter.

Easy to use

PackBot relays real-time video, audio and sensor data while the operator stays at a safe standoff distance. The robot uses a game-style hand controller for fast training and easy operation in the field.

One robot, unlimited possibilities

PackBot is a modular, multi-mission robot.

Powered by iRobot Aware® 2 robot intelligence software, the robot's digital architecture accommodates a wide range of interchangeable payloads, sensors and tools that enable a wide range of missions.

PackBot is quickly configured based on the needs of the mission and easily adapts to the ever-changing requirements of bomb identification, search and other life-threatening missions.

I. Start with the robot

Robot

PackBot provides multi-mission flexibility and unlimited customization options on a proven chassis.

- Easily climbs stairs
- Travels up to 5.8 miles per hour
- Climbs grades up to 60 degrees
- Submersible in 3 feet of water
- Operational in all weather environments

Hand Controller

Modeled after video game-style controllers, PackBot's hand controller makes the robot easy to use, resulting in less training time and faster operations in the field.

OCU

The rugged, lightweight 15" Amrel laptop OCU is easy to use and makes it easy to operate the robot.

- Intuitive graphical user interface
- Pre-set poses for fast positioning of the robot
- Real-time video from multiple high resolution cameras
- 3-D graphics show the robot's orientation
- Battery powered; can be used with a supplementary power supply
- Robot and OCU battery life displayed on screen

II. Add payloads, sensors and tools

Check out our complete list of accessories in PackBot Accessory Catalog









Payloads

PackBot accommodates many payloads and a variety of manipulator arms, including:

- Enhanced Awareness Payload (EAP)
- Manipulator 1.0 (3-Link Arm)
- Small Arm Manipulator (SAM)

Sensors

PackBot accommodates a broad range of sensors, including:

- Flir Fido® Explosives Detection Kit
- LWIR Thermal Camera
- HazMat Detection Kit

Tools

PackBot accommodates a wide selection of tools, including:

- Route Clearance Kit
- Mechanical Cable Cutters
- PAN Disruptor Mount

III. Perform multiple missions

- Explosive Ordnance Disposal
- HazMat Detection
- Surveillance / Reconnaissance
- Checkpoint, Vehicle and Personnel Inspections
- Building and Route Clearance
- Explosives Detection

And many more…

Mesh Radio Kit

Establish reliable communications in radio challenged environments

Inspect culverts, tunnels and other subterranean and restricted features. Increase the communications range in urban and built-up areas. Overcome lost line-of-sight communications due to low lying areas and other terrain features.

With the 4.9 GHz mesh radio kit, PackBot uses multiple nodes to establish and relay communications, increasing the robot's operational range in radio challenged environments. (In addition to standalone nodes, the robot and the radio on the Operator Control Unit (OCU) can also serve as nodes.)

User Assist Package (UAP)

Add semi-autonomous capabilities to PackBot

The User Assist Package makes it faster and easier to use the robot and safer for the operator.

Better situational awareness
The UAP speeds up operations and reduces workload for the operator.

Less risk
The UAP minimizes the need to retrieve a robot that has been flipped over or lost communications downrange.

Robot capabilities

- Retro-traverse
  If communications are disrupted, the robot automatically retraces its approach path to restore them.
- Self-righting
  If the robot is flipped over, it automatically rights itself and continues the mission.
- Heading hold
  The robot maintains a constant heading set by the operator, automatically adjusting for bumps, debris and other obstacles.

OCU capabilities

- GPS mapping
- Custom poses
- Gripper force meter

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iRobot PackBot 510 Chassis Specifications

- On-board computer with overheat protection
- 8 payload bays
- Global Positioning System (GPS)
- Compass
- Accelerometers
- Inclinometer
- Dismounted firing circuit
- QuickClamp Fireset and auxiliary port
- Rugged, sealed hard case
- Users manual and documentation

Speed	Up to 5.8 mph (9.3 kph)
Height	7" (17.8 cm) with no payload or manipulator
Width	16" (40.6 cm) without flippers 20.5" (52.1 cm) with flippers
Length	27" (68.6 cm) with flippers stowed 35" (88.9 cm) with flippers extended
Weight	About 24 lbs (10.89 kg) without batteries

Operator Control Unit (OCU)

Size	11.6" L x 13.3" W x 2.5" H (29.5 cm L x 33.8 cm W x 6.35 cm H)
Weight	• 11.85 lbs (5.38 kg) laptop only, not including hand controller, radio module or antenna • 15.45 lbs (7.01 kg) includes hand controller, radio module antenna and wall charger
Environmental	All-weather operation
Screen	• 15.1" (38.1 cm) XGA (1024 x 768 resolution) anti-reflective TFT LCD • Multi-image display with full screen option • 3-D active model of robot • Auxiliary USB, Ethernet, video output • Image capture capability • Gauge display of battery power • Gauge display of fiber • Gauge display of communications signal strength
Power Sources	• Removable 11.1V/7200mAH lithium-ion battery • AC adaptor (90V-240V) with 50/60Hz input
Hand controllers	• 2 hand controllers
Communications	• Digital radio – 2.4 GHz or 4.9 GHz rechargeable batteries • Two-way audio • Headphone with microphone • Multiple high resolution cameras

Batteries, cradles and chargers

PackBot is powered by two BB-2590/U lithium-ion rechargeable batteries, providing more than 4 hours of continuous runtime on one charge – up to 10 miles of travel. (A set of spare batteries is also included.)

- 4 BB-2590/U lithium-ion
- 2 BB-2590 battery cradles
- Battery charger

Accessories

Manipulator 1.0 (510 3-Link Arm)	• Multiple pre-set positions • Targeting-head tracking gripper • 8 independent degrees of freedom - Shoulder Rotation: 360° Continuous - Shoulder Pivot: 220° - Elbow 1 Pivot: 340° - Elbow 2 Pivot: 340° - Gripper Rotation: 360° Continuous - Gripper Open and Close: 180° - Head Rotation/Pan: 360° Continuous - Head Tilt: 220°
Extension	73.5" (187 cm)
Lifting capacity	10 lbs (4.54 kg) at full extension 30 lbs (13.61 kg) at close-in position
Weight	20.55 lbs (9.32 kg)
Small Arm Manipulator (SAM)	• Multiple pre-set positions • Targeting-head tracking gripper • 3 independent degrees of freedom - Shoulder Pivot: 185° - Head Rotation/Pan: 360° Continuous - Head Tilt: 220°
Extension	23.5" (60 cm)
Weight	5.75 lbs (2.61 kg)

iRobot Corporation
8 Crosby Drive
Bedford, MA 01730
www.irobot.com

Sales Contact
888.776.2687
(Toll Free in USA)
+(1) 781.430.3090
(international customers)
sales@irobot.com

Media Contact
781.430.3182
publicrelations@irobot.com