PACKBOT EOD

Hazardous Duty Mobile Robot

THE NEW GENERATION
IN MAN-PORTABLE
EXPLOSIVE ORDNANCE DISPOSAL
AND
TACTICAL LAW ENFORCEMENT
ROBOTS

iRobot™

PACKBOT EOD

Your mission is to save

PackBot™ EOD is a rugged, lightweight robot designed to conduct Explosive Ordnance Disposal, HAZMAT handling, search-and-surveillance, hostage rescue and other vital law enforcement tasks for bomb squads, SWAT teams, military units and other authorities seeking to meet the security challenges of the 21st century.

PackBot EOD can handle a full range of improvised explosive device (IED) and conventional ordnance disposal challenges. Its lightweight, ruggedized OmniReach™ Manipulator System can reach as far as 2 meters in any direction to safely disrupt difficult-to-access improvised explosive devices, military ordnance, land mines and other incendiary devices.

This versatile robot quickly adapts to different IED, conventional ordnance and SWAT missions. With its compact profile and patented mobility platform, PackBot EOD operates with confidence on the toughest terrain – from the stairs, curbs and rubble of urban terrain to the rocks, sand and mud of the battlefield.

Rapid Deployment. Weighing less than 24 kilograms fully loaded, PackBot EOD can be hand carried and deployed by a single operator. In its stowed position, the robot can be quickly loaded into the trunk of a squad car and transported to the site. No expensive equipment or specialized vans are necessary. Once on the scene, PackBot EOD can be deployed in under two minutes. And airlifts are no problem – PackBot EOD fits easily in airplanes and helicopters.

Rapid Response. Once deployed, PackBot EOD can traverse narrow, difficult, hard-to-access terrain at burst speeds up to 14 kilometers per hour. The robot can quickly penetrate inaccessible and dangerous areas such as collapsed buildings, sewers, tunnels, airplane aisles, railroad cars and other tight spots that stop other unmanned vehicles in their tracks.

Unparalleled Mobility. PackBot EOD is equipped with tracked QuickFlip™ dual rotating flippers that allow the robot to easily climb up stairs, maneuver over rocks and rubble and navigate narrow, twisting passages. The robot's flexible ToughTrac™ polymer tracks can eject debris and maneuver over any surface – from tiled floor to snow and mud – with "human-like" dexterity, quickly positioning its payloads for optimum mission success. This all-weather, all-terrain robot goes virtually anywhere.

From defusing bomb threats to providing night surveillance in a hostage situation, PackBot EOD supports a wide range of missions. This tough, lightweight robot is the newest recruit in homeland security and anti-terrorism.

Vision and Targ
Mounted on a co and-tilt head, the camera (300x) fea illumination and objects in all light laser range finder objects and positi

Unsurpassed Flexibility.
Once PackBot EOD has reached the target area, a wide range of payloads can handle missions ranging from ordnance disposal and weapons delivery to reconnaissance and search-and-rescue. Its OmniReach manipulator arm can access targets other robots cannot. And with its powerful, low-profile gripper, the robot can perform a wide array of manipulation tasks.

Long-Term Investment Protection.
PackBot EOD offers multi-mission flexibility in a single proven chassis delivering cost efficiency and long-term investment protection. The chassis offers eight separate payload bays, each with interchangeable payload modules such as video/audio, chemical-bio sensors, mine detectors, ground-penetrating radar (GPR) and extra power. Bomb squads and SWAT teams can quickly configure payloads, employ sensors and adjust the level of human control required to meet the needs of each specific mission.

Ease of Use. PackBot EOD is simple to learn and use. The ruggedized Operator Control Unit has an ergonomic design with intuitive controls for optimum mission success. And the robot's intelligent power management constantly monitors battery health to ensure long mission life.

lives. PackBot EOD will help you do it better.

Superior Mobility, Reliability and Performance.

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*ontinuous, rotating pan-
e high-powered zoom
atures super bright LED
allows you identify
ting conditions. The
erltargeter helps size
tion disruptors.*

SureDrive™ Motion Control.
With its combination of absolute and relative position encoders, the robot always knows where the arm is – eliminating collisions and enhancing motion control. Using the robot's controllers is similar to a video game. Simply move the control stick to where you want the manipulator arm to go – and it goes there.

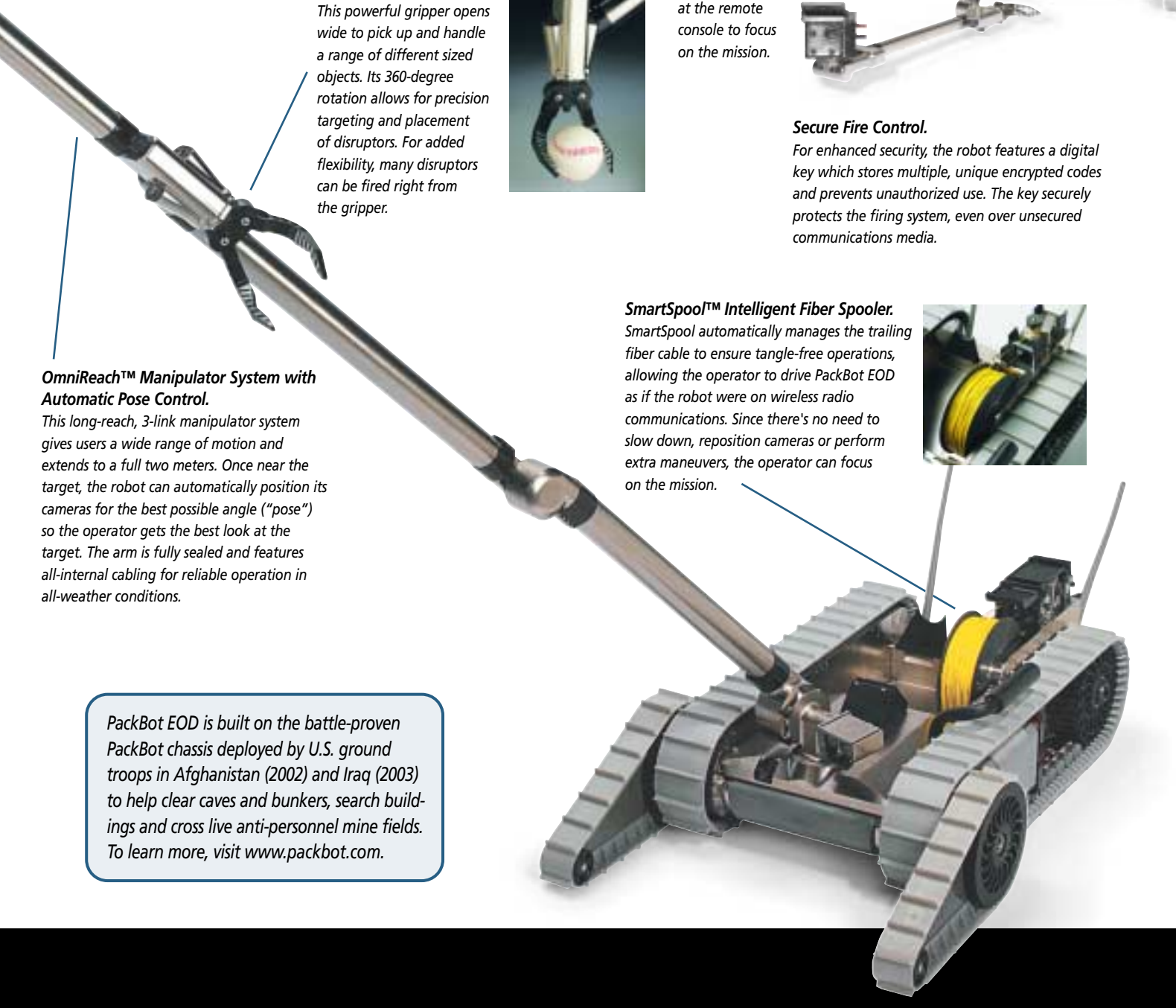
Onboard Intelligence.
PackBot EOD's robotic control system is equipped with an industry-standard mobile Pentium® PC and embedded sensors that enhance performance and allow for easy integration with payloads. The robot can perform many assisting behaviors, allowing operators at the remote console to focus on the mission.

Rotating Gripper.
This powerful gripper opens wide to pick up and handle a range of different sized objects. Its 360-degree rotation allows for precision targeting and placement of disruptors. For added flexibility, many disruptors can be fired right from the gripper.

Secure Fire Control.
For enhanced security, the robot features a digital key which stores multiple, unique encrypted codes and prevents unauthorized use. The key securely protects the firing system, even over unsecured communications media.

SmartSpool™ Intelligent Fiber Spooler.
SmartSpool automatically manages the trailing fiber cable to ensure tangle-free operations, allowing the operator to drive PackBot EOD as if the robot were on wireless radio communications. Since there's no need to slow down, reposition cameras or perform extra maneuvers, the operator can focus on the mission.

OmniReach™ Manipulator System with Automatic Pose Control.
This long-reach, 3-link manipulator system gives users a wide range of motion and extends to a full two meters. Once near the target, the robot can automatically position its cameras for the best possible angle ("pose") so the operator gets the best look at the target. The arm is fully sealed and features all-internal cabling for reliable operation in all-weather conditions.



PackBot EOD is built on the battle-proven PackBot chassis deployed by U.S. ground troops in Afghanistan (2002) and Iraq (2003) to help clear caves and bunkers, search buildings and cross live anti-personnel mine fields. To learn more, visit www.packbot.com.

"Every Bomb Squad Should Have One."

Smart robot. Smart investment.

PackBot EOD's intelligent, user-friendly operator interface simplifies training and makes the robot easy to use for operators at all levels of expertise. For today's cost-conscious bomb squads and other law enforcement units, this means lower operating costs and higher long-term investment protection.

FOR PRICING AND A SAMPLE CD SHOWING PACKBOT IN ACTION, PLEASE CALL 1-888-7ROBOTS.

PackBot at a glance: EOD Configuration

Chassis

Height	40.7 cm (16") arm in stowed position 220.9 cm (87") with arm fully extended
Width	40.6 cm (16") QuickFlip™ flippers off 50.8 cm (20") flippers on
Length	68.6 cm (27") flippers stowed 87.9 cm (34.6") flippers extended
Weight	24 kg (53 lbs), fully loaded
Max Shock	400 Gs
Environmental	All-weather
Speed	2.2 m/s (7.2 ft/s) slow speed mode 3.7 m/s (12.1 ft/s) high speed mode
Flipper Velocity	100 deg/sec rotation
Microelectronics and Sensors	Onboard Mobile Pentium® PC, 256 MB SDRAM, Compact Flash Storage, PCMCIA Slots, temperature sensor, magnetometers, accelerometers, inclinometer, compass
Total Capacity	Multiple payloads up to 16 kg (35 lbs)
Battery Endurance: 2 NiCad Packs	2-12 hours depending on mission profile, up to 10+ km (6+ mi) travel
Communication	RF: Fully digital 2.4 GHz (up to 1000 m (3280') range line of sight) or custom Optional SmartSpool™ Intelligent Fiber Spooler, with 250 m of cabling, automatic payout and rewind

iRobot Corp. is actively developing additional payloads and soliciting third party developers for next-generation PackBot EOD capabilities. Please visit www.packbot.com for more information.

OmniReach™ Manipulator System

Reach	203.2 cm (80") horizontal
Capacity	2.3 kg (5 lbs) at full extension, 6.8 kg (15 lbs) at 0.5 m (1.6')
Weapons/Tools	1 firing circuit/supports multiple disruptors
Degrees of Freedom *8 independent*	Shoulder rotation: Continuous Shoulder pivot: 160° Elbow 1: 270° Elbow 2: 270° Gripper rotation: Continuous Gripper open: 180° Head rotation: Continuous Head tilt: 290°

Video System – 4 low-light CCD color cameras

Surveillance Camera	Mounted on head with continuous pan and 290° tilt, color CCD with 300x zoom, auto focus, image stabilize and low light capabilities.
Drive Camera	Wide-angle, mounted on base of unit with multiple positions, allowing for forward, rear, downward views. Can also view arm positions.
Arm Cameras (2)	Color cameras provide view of head from 2nd elbow, allowing for maneuvering in tight situations.
Lights	Variable-intensity LEDS mounted at each camera location. Surveillance camera has both wide and narrow focused LED arrays for enhanced depth of field in low light.

Operator Control Unit

Size	45.7 cm (18") W x 35 cm (14.6") L x 21.5 cm (18.5") H
Weight	20 kg (45 lbs) with two batteries
Environmental	All-weather operation
Shock	.3 m (1') onto any surface (except antennas)
Screen	38 cm (15") Daylight Readable 1000 nits TFT
Processor	Pentium with 128 MB RAM
Storage	40 GB Hard Drive, removable
Power	2 Battery Slots, interchangeable with RCV
Input Devices	Membrane keyboard with integral mouse Two multi-degree-of-freedom controllers Membrane keypad with user specific buttons
Portability	Carry handle and strap
Duration	Up to 4 hours on batteries, can be run from separate power supply

Software

Multi-image display with full screen option
3D active model of vehicle
Gauge display of batteries, fiber
Image capture capability
Power-saving sleep mode
Multiple speed ranges
Multiple pre-set manipulator positions
Auxiliary USB, Ethernet, video output

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