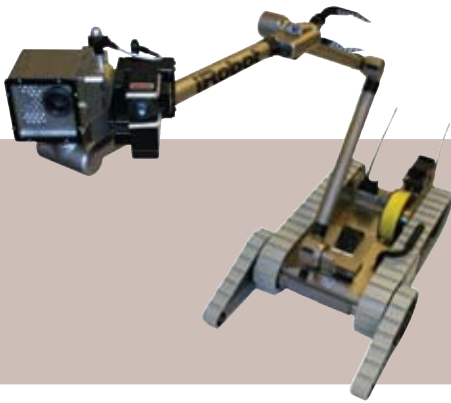


# iRobot® PackBot® with ICx Fido® Explosives Detection Kit

ADVANCED SECURITY SOLUTIONS — BATTLE PROVEN TECHNOLOGY

ROBOTIC EXPLOSIVE DETECTION SYSTEM



The ICx Fido® Explosives Detector integrated with iRobot® PackBot® detects explosive vapors and particulates emanating from munitions and Improvised Explosive Devices (IEDs) while keeping the operator and civilians out of harm's way. The versatile PackBot, featuring a highly dexterous, seven foot arm/manipulator, can drive to and reach through windows, under vehicles and around obstructing objects and place ultra-sensitive explosive detectors close to suspicious packages and other potentially dangerous items.

## IROBOT PACKBOT CHASSIS

With more than 5 years of deployment and thousands of successful missions,

the single man-portable iRobot PackBot is the ultimate investigative tool. A powerful, maneuverable and easy to operate robot, the PackBot can enter danger zones before soldiers and personnel are exposed to risk.

"The digital, modular architecture of iRobot PackBot enabled rapid and easy integration of the Fido payload, ensuring that iRobot can quickly meet the needs of the customer. The Fido payload is highly sensitive and, combined with PackBot, makes a formidable and mobile explosive detection robot that removes the human operator from harm's way."

Joel Roark, General Manager, ICx Technologies

## iRobot PackBot Chassis Specifications and Capabilities

### Height

7.5"

### Width

16" QuickFlip™ flippers off  
20.5" flippers on

### Length

27.5" flippers stowed  
34.6" flippers extended

### Weight

42 lbs (includes 2 batteries)

### Max Shock

400 G

### Environmental

All-weather

### Speed

Up to 5.8 mph (2.6m/s)

### Flipper Velocity

90 deg/sec rotation

### Microelectronics & Sensors

Onboard Mobile Pentium® PC,  
256 MB SDRAM, on-board overheat  
protection, magnetometers, compass  
accelerometers, inclinometer

### Total Capacity

Eight payload bays  
Can carry up to 46 lbs at one time

### Battery Endurance

2 NiCad packs 2-12 hours depending  
on mission profile (optional 4-24 hours  
with Battery Expansion Kit)  
Up to 6+ miles of travel

### Communications

RF: Fully digital 2.4 GHz (up to 3280'  
range\* line of sight)  
Optional long range antennae  
\* configuration dependent

## ICX FIDO EXPLOSIVES DETECTION KIT

Effective protection from the threat of improvised explosive devices requires a detection solution that is personal and portable. Based on breakthrough

detection technologies, and coupled with iRobot's battle-proven PackBot, with Fido Kit enables operators to investigate and disarm packages, shipping containers, and vehicles for traces of explosives while keeping people and personnel safe.

## ICx Fido® Explosives Detector Specifications and Capabilities

### Power Battery

Lithium Ion (4 hour life)  
AC: 100 - 120 V, 50 - 60 Hz

### Adapters Power Supply

100 - 250 V, 50 - 60 Hz,  
AC adapter 100 - 120 V  
12 V connector (supplied)

### Memory

256 MB (handheld with 10 days  
continuous logging capability)

### Weight

2.7 lbs (including battery)



### Explosive Vapor and Particulate Detection

Ultra-sensitive detection device  
(parts per quadrillion)

Field Replaceable Sensing Element

In-field flexibility from robot  
payload to handheld useability

Real-time audio/visual feedback

## About ICx Technologies™

ICx develops advanced technologies for effective security solutions. ICx sensors detect and identify chemical, biological, radiological, nuclear and explosive (CBRNE) materials. ICx surveillance products discern people and objects invisible to human senses and conventional cameras.

ICx software and systems connect, command and control these devices, while its intelligence and special-operations experts provide the unique insight that drives the company's innovation. ICx has manufacturing and research facilities in the United States, Canada and Europe.

## About iRobot

iRobot Corp. specializes in behavior-based robots that help people complete tasks with better results. More than 2,000 iRobot PackBot tactical mobile robots have been delivered worldwide.

These robots have also been credited with saving the lives of many men and women of the U.S. Armed Forces around the world.

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# iRobot®

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## ICx Fido EXPLOSIVES DETECTION KIT AND SPECIFICATIONS\*:

### ICx Fido Explosives Detector Manipulator Arm

QuickClamp Mount  
SmartSpool™ Fiber Optic Spooler  
Portable Command Console (PCC) 1.0  
3 NiCad Batteries  
Dual Micro Charger Kit  
Rugged Equipment Cases  
User Documentation

### Height

16" Manipulator in stowed position

### Additional Payload Capacity

15 lbs

### Length

32" flippers stowed

40" flippers extended

### Weight with Fido Kit

68 lbs fully loaded (includes 2 installed NiCad batteries)

### Manipulator Specification

#### Reach

80" horizontal

87" vertical

#### Capacity

5 lbs at full extension

15 lbs max

### Degrees of Freedom (DoF)

8 independent DoF

Shoulder rotation: Continuous

Shoulder pivot: 220°

Elbow 1: 340°

Elbow 2: 340°

Gripper rotation: Continuous

Gripper open: 180°

Head rotation: Continuous

Head tilt: 220°

## VISION AND TARGETING HEAD

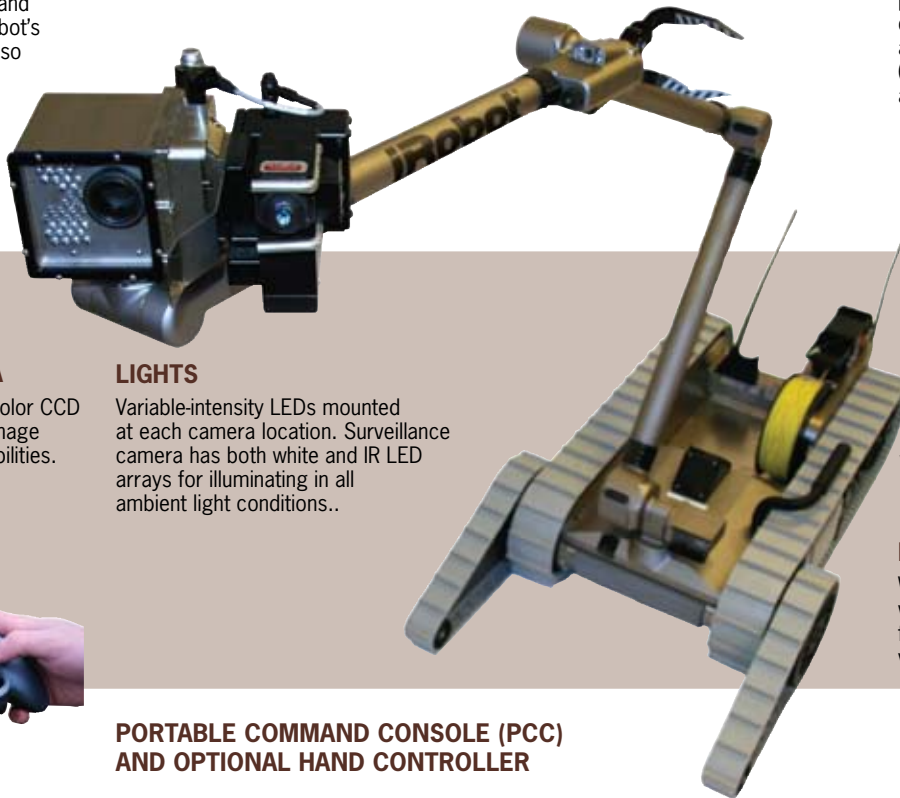
Equipped with powerful cameras, the vision and targeting head ensures that operators can see, sense and overcome whatever is in the robot's path. The QuickClamp Mount also allows for fast and reliable installation and removal of a variety of accessories.

## ARM CAMERAS

Two color arm cameras provide view of head from 2<sup>nd</sup> elbow, allowing for maneuvering in tight situations.

## MANIPULATOR

A powerful Manipulator with flexible elbow joints enables the robot to lift up to 15 pounds with arm in a compact position or 5 pounds while fully extended. 360-degree base rotation allows for precise sensor placing (reaching into windows, under cars, and into trunks).



## SURVEILLANCE CAMERA

Continuous pan and 220° tilt, color CCD with 300x zoom, auto focus, image stabilization and low light capabilities.

## LIGHTS

Variable-intensity LEDs mounted at each camera location. Surveillance camera has both white and IR LED arrays for illuminating in all ambient light conditions..

## SMARTSPOOL™ FIBER OPTIC SPOOLER

The intelligent fiber spooler, with up to 820 ft. of reusable optical fiber, with automatic low-tension payout and rewind, eliminating fiber tangle.

## DRIVE CAMERA

Wide-angle, mounted on base of unit with multiple positions, allowing for forward, rear, downward views and views of Manipulator positions.



iRobot's Hand Controller optimizes the ease-of-use and significantly reduces on-robot training time. The PCC provides operators with pre-set manipulator positions and 3D-active robot on-screen display enables the operator to easily position and visualize the robot allowing for precise operation.

## PORTABLE COMMAND CONSOLE (PCC) AND OPTIONAL HAND CONTROLLER

### PCC Specifications Size

18" W x 14.6" L x 18.5" H (open)

7" H (closed)

### Weight

41 lbs with 1 NiCad Battery

### Environmental

All Weather Operation

### Screen

10.5" Daylight Readable

### Processor

Pentium with 128 MB RAM

### Power

2 Battery Slots,  
(batteries interchangeable with Robot)

### Input Devices

iRobot Hand Controller

Membrane keyboard with integral mouse

Two multi-degree-of-freedom controllers

Membrane keypad with mission specific buttons

### Portability

Carry handle and strap

### Duration

3 hrs nominal mission

Can be run from external power supply

### Software

Multi-image display with full screen option

3D active model of vehicle

Gauge display of batteries

Gauge display of fiber

Image capture capability

Power-saving sleep mode

Multiple speed ranges

Multiple pre-set manipulator positions

Auxiliary USB, Ethernet, video output

Multi-lingual

Two way audio communications