

# Spot<sup>®</sup> for Bomb Disposal

## INVESTIGATE, IDENTIFY, RENDER SAFE, DISPOSE

Keep people out of harm's way while assessing and rendering safe potentially explosive threats from a distance.

Spot as a tool for EOD helps reduce operator risk in render safe scenarios. Quick to deploy, Spot makes first contact with a suspicious package or IED, enabling operators to identify threats and determine next steps remotely.



### Locate

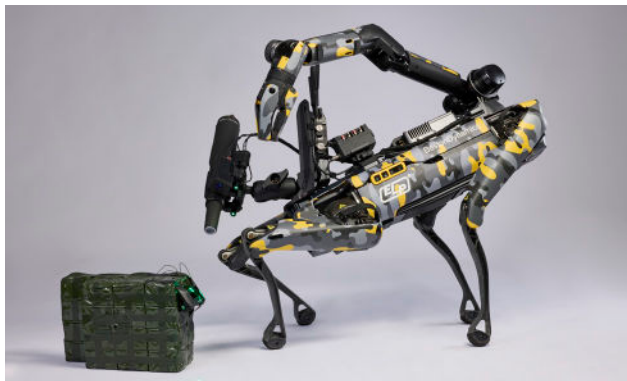
Mission ready in minutes, Spot can traverse uneven terrain quickly while operators maintain safe standoff distances. Operators have full control using a handheld controller tablet, and full eyes on the scene using Spot's on-board cameras and sensors.

### Identify

Once on target, Spot can relay back crucial information to operators and incident command. With the Spot Arm and intuitive manipulation presets, you can carefully pick up objects, open doors, and get closer eyes onto the suspected object with the gripper camera.

### Render Safe and Dispose

Once the team has the information they need to take action, Spot can be equipped with a disrupter to render the target safe. Working with our technology partner, ELP GmbH, the kit is designed for the integration of large and medium sized disrupters, and includes a fully integrated laser aiming and radio firing system.

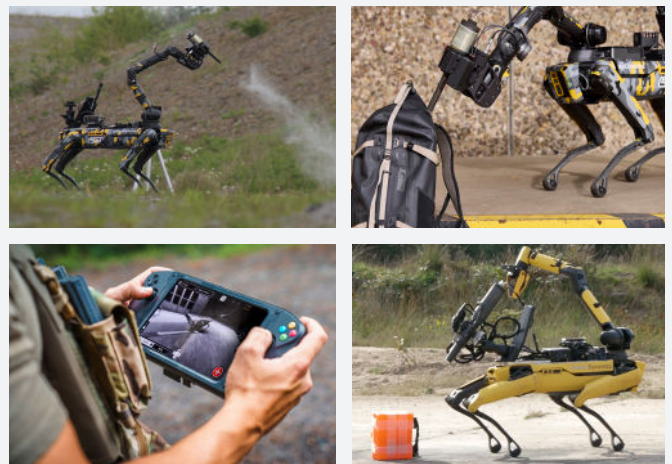


### ELP Disrupter Integration Kit

The disrupter integration kit from ELP GmbH can be mounted directly on Spot, or used with a gripper mount for better reach in challenging locations such as underside of vehicles, inside containers, and more.

Pinpoint accuracy is ensured by the innovative laser aiming system - enabling exact display of the targeted point from a distance from 0 to 50 ft (0-15 m), and activated automatically when the object is at least 50 ft away. The distance to the target is shown to operators on the tablet display, making it easier than ever to position the disrupter precisely.

The aiming system is fully integrated into the operator's peripherals and uses the encrypted radio link of the Persistent Systems MPU-5 (Sold Separately).



## Specifications

### Base Robot

#### DIMENSIONS

**Length** = 1100 mm (43.3 in)  
**Width** = 500 mm (19.7 in)  
**Height (Sitting)** = 191 mm (7.5 in)  
**Default Height (Walking)** = 610 mm (24.0 in)  
**Max Height (Walking)** = 700 mm (27.6 in)  
**Min Height (Walking)** = 520 mm (20.5 in)  
**Net Mass/Weight (Spot with battery)** = 31.7 kg (69.9 lbs)

#### LOCOMOTION

**Max Speed** = 1.6 m/s  
**Max Slope** =  $\pm 30^\circ$   
**Max Step Height** = 300 mm (11.8 in)

#### TERRAIN SENSING

**Horizontal Field of View** =  $360^\circ$   
**Range** = 4 m (13 ft)  
**Lighting** =  $> 2$  Lux  
**Collision avoidance** = maintains set distance from stationary obstacles

#### CONNECTIVITY

**WiFi** = 2.4GHz / 5GHz b/g/n Ethernet

#### ENVIRONMENT

**Ingress Protection** = IP54  
**Operating Temp.** =  $-20^\circ\text{C}$  to  $55^\circ\text{C}$

### Battery

**Battery Capacity** = 564 Wh  
**Average Runtime** = 90 mins  
**Standby Time** = 180 mins  
**Recharge Time** = 60 mins

**Length** = 324 mm (12.8 in)  
**Width** = 168 mm (6.6 in)  
**Height** = 93 mm (3.7 in)  
**Mass/Weight** = 5.2 kg (11.5 lbs)

### Charger

**Input Voltage** = 100-240VAC  
50/60Hz 8A Max  
**Output** = 35-58.2 VDC, 12A Max  
**Length** = 380 mm (15.0 in)

**Width** = 315 mm (12.4 in)  
**Height** = 178 mm (7.0 in)  
**Mass/Weight** = 7.5 kg (16.5 lbs)  
**Operating Temp.** =  $0^\circ\text{C}$  to  $45^\circ\text{C}$

### Tablet

**Height** = 127 mm (5.0 in)  
**Width** = 214 mm (8.4 in)  
**Depth** = 10 mm (0.4 in)  
**Weight** = 426 g (0.9 lbs)  
**Touch Screen Size** = 8" diagonal

**Resolution** = 1920x1200  
**Ingress Protection** = IP65

Joystick Add-on available for Spot Arm

### Travel Cases

#### ROBOT CASE

Includes robot and tablet  
**Length** = 927 mm (36.5 in)  
**Width** = 546 mm (21.5 in)  
**Height** = 464 mm (18.25 in)  
**Net Mass/Weight** = 47.6 kg (105 lbs)

#### POWER CASE

Includes two batteries and charger  
**Length** = 810 mm (32 in)  
**Width** = 530 mm (21 in)  
**Height** = 300 mm (12 in)  
**Net Mass/Weight** (two batteries) = 28kg (61 lbs)

### Payload Mounting

**Max Weight** = 14 kg (30.9 lbs)  
**Mounting Area** = 850 mm (L) x 240 mm (W) x 270 mm (H)  
**Mounting Interface** = M5 T-slot rails  
**Connector** = DB25 (2 ports)

**Power Supply** = Unregulated DC 35-58.8V, 150W per port  
**Integration** = Available software API and hardware interface control document

### CAM+IR

#### DIMENSIONS

**Length** = 334 mm (13.1 in)  
**Width** = 227 mm (8.9 in)  
**Height**  
**(Front Mount)** = 357 mm (14.1 in)  
**(Rear Mount)** = 427 mm (16.8 in)  
**Weight**  
**(Front Mount)** = 7.5 kg (16.4 lbs)  
**(Rear Mount)** = 8.0 kg (19.8 lbs)

#### IR CAMERA

**Scene Temp. Range**  
**(High Gain)** =  $-40^\circ\text{C}$  to  $+160^\circ\text{C}$   
**(Low Gain)** =  $-40^\circ\text{C}$  to  $+550^\circ\text{C}$   
**Video Speed** = 7.5 Hz  
**FoV** =  $69^\circ \times 56^\circ$   
**Image Resolution** = 640 x 512  
**Accuracy** = Radiometric  $\pm 5^\circ\text{C}$

#### AUDIO

**Input** = Sennheiser MKE600 shotgun microphone  
**Storage** = Removable 256 GB USB 3.1

#### ENVIRONMENT

**Ingress Protection** = IP65  
**Operating Temperature** =  $-20^\circ\text{C}$  to  $45^\circ\text{C}$

#### 360° CAMERA

**Field of View (FoV)** =  $360^\circ \times 170^\circ$   
**Video Frame Rate** = Variable\*  
**Video Storage** = No  
**Video Streaming** = Yes  
**Resolution** = 10 MP  
**File Size** = 31.1 MB  
**Still Image Format** = PPM (Portable Pixel Map)

#### PTZ CAMERA

**Resolution** = 2MP, 1080p video  
**Optical Zoom** = 30x  
**Pointing Accuracy** = 2 degrees  
**Range of Motion** =  $170^\circ/\text{sec}$   
**Tilt Range** =  $-30^\circ$  to  $270^\circ$

### Disrupter Integration Kit

- AIMING SYSTEM  
Aiming Laser (Class 3 Laser)
- Laser Range Finder (0-15m)

- FIRING CIRCUIT
- FOG (RCV - Integrated)
  - Other on request

#### COMPATIBLE DISRUPTERS

- Chemring RE12G
- Chemring RE70
- Chemring M5 Hornet
- CarbonFire
- Additional disrupters on request

#### COMMUNICATIONS

- Boston Dynamics CORE I/O
- Persistent Systems MPU-5 (Sold Separately)

### Safety and Compliance, United States

Designed according to ISO 12100 for risk assessment and reduction methodology and IEC 60204-1 for electrical safety. See [Information for Use](#) for further details on intended uses.

#### EMC: FCC Part 15B

Radio equipment: Incorporates a FCC Part 68 Certified radio system  
Laser product = Class 1 eye-safe per IEC 60825-1:2007 & 2014

## Contact

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[www.bostondynamics.com/products/spot](http://www.bostondynamics.com/products/spot)

BostonDynamics

