Spot®

Enterprise Asset Management Kit



Boston Dynamics

ENTERPRISE ASSET MANAGEMENT

Accelerate your digital transformation with agile mobile robots. Spot helps increase your uptime by enabling your team to collect high quality data more frequently and efficiently with automated robotic inspection.

Automated

Spot allows you to automate the dull, dirty, and dangerous inspection tasks in your facility. Easily programmed to move through human purposed environments, Spot brings IoT sensors to your assets frequently and consistently, creating a digital twin of the health of your operation.

Scalable

Whether you are operating one Spot or an entire fleet, from six feet or six hundred miles away, we offer the tools needed for an enterprise deployment. Our software helps you manage your fleet and makes your data accessible in one place, with flexible communication options to keep you connected and informed.

Reliable

Extensive testing in the lab and field has created a robot that you can trust to work day-in and day-out. Spot can operate without interventions, autonomously charging, dynamically replanning around new obstacles, and self-righting if it falls. With over 1,000 robots in customer hands today, you can rest assured that Spot is a dependable coworker that delivers consistent results.



DATA AT YOUR FINGERTIPS







Thermal Inspection

Equipped with a thermal imager, Spot allows for frequent inspection of critical equipment such as pumps and motors. Set up thermal inspection actions to trigger alerts when equipment exceeds a set range or when temperature differences between assets surpass thresholds.

Gauge Reading

With plug and play partner machine vision models, Spot can read and analyze analog gauges, measuring pressure, flow, and more. Trigger alerts for abnormal readings and track trends in your assets over time.

Acoustic Inspection

With an optional Fluke SV600 add-on, Spot can perform acoustic imaging inspections to identify costly leaks in compressed air or other gas lines. Record images and video of equipment data for post-analysis inspection, and trigger alerts so your team can respond quickly to data insights.

KIT INCLUDES:

- SPOT ROBOT
- SPOT CAM+IR
- SCOUT
- FLUKE SV600*
- SPOT CARE
- SPOT EAP 2
- SPOT DOCK





** optional add-on*

SPOT EAP 2

Spot EAP 2 enhances the autonomy, computation, and communications available on the Spot platform. Configure inputs such as sensors, cameras, and other devices and process data collected into actionable insights.

Features:

- Lidar maps up to 100m around Spot
- Compact CPU and GPU with customizable inputs and outputs
- 5G/LTE modem with CBRS support for private networks

SPOT CAM+IR

The Spot CAM+IR payload turns Spot into a powerful inspection tool with purpose-built cameras. Use Spot CAM+IR to get eyes on remote or hazardous environments.

Features:

- Integrated radiometric thermal camera
- Spherical camera (360 x 170” view)
- Pan-tilt-zoom (PTZ) camera with 30x optical zoom

FLUKE SV600

(optional add-on)

The SV600 Acoustic Imager enables users to detect, locate, and visualize air and gas leaks or changes in sound signatures in real-time.

Features:

- 64-Digital MEMs microphones
- Programmable alarms for sound level (dB) and frequency (kHz)
- Video and photo capture

SCOUT

Control your Spot fleet from a virtual control room with our web-based application Scout. Run pre-programmed autonomous missions and integrate Scout data into your existing enterprise asset management (EAM) system.

Features:

- Autonomous site coverage
- Real-time visibility
- Remote site access

SPOT DOCK

The Spot Dock is a self-charging station that transforms Spot into a truly autonomous remote inspection tool. Increase predictability and improve safety on your sites with enhanced remote and autonomous operations.

Features:

- Autonomous self-charging
- Gigabit Ethernet passthrough to robot
- 2-3 hour recharge time

SPOT CARE

One year of premium service and support to keep your robot up and running at peak performance.

*Improper use of Spot is not covered under Spot Care. See our Spot Care Terms and Conditions to see what constitutes improper use.

Features:

- Free damage protection*
- Part replacement
- Quick repair turnaround

SPOT SPECIFICATIONS

Enterprise Asset Management Kit

DIMENSIONS WITH PAYLOADS

Length
1100 mm (43.3 in)

Width
500 mm (19.7 in)

Height (Sitting)
548 mm (21.6 in)

Default Height
(Walking)
967 mm (38.1 in)

Max Height (Walking)
1057 mm (41.6 in)

Min Height (Walking)
877 mm (34.5 in)

Net Mass/Weight
(Including battery and Fluke SV600)
47.5 kg (104.7 lbs)

Net Mass/Weight
(Including battery, not including Fluke SV600)
43.8 kg (96.6 lbs)



LOCOMOTION

Max Speed
1.6 m/s

Max Slope
±30°

Max Step Height
300 mm (11.8 in)

AUDIO & VISUAL SIGNALS

Pre-configured behaviors for manual and autonomous operations

LED Brightness
Adjustable up to 1010 Lux

Max Projection Distance
1.8 m in front of robot

Buzzer Volume
Adjustable up to 110 dB at 1 m distance from robot

TERRAIN SENSING

Horizontal Field of View
360°

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°C to 45°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

Mass/Weight
7.5 kg (16.5 lbs)

Operating Temp.
0°C to 45°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

Average Battery Life
8 hours

Ingress Protection IP65

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.

Emergency Stop meets ISO 13850

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

SPOT CAM+IR

360° CAMERA

Field of View (FoV)
360 x 170°

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°/sec

Tilt Range
-30 to 270°

IR CAMERA

Scene Temp. Range
(High Gain)
-40°C to +160°C
(Low Gain)
-40°C to +550°C

Video Speed
7.5 Hz

FoV
69 x 56°

Image Resolution
640 x 512

Accuracy
Radiometric ±5°C

FLUKE SV600

CAMERA

Integrated Visible Light
Included with fixed lens

Resolution Video
640 x 480

Camera Field of View
65° ±3°

Camera Resolution
720 p at 30 fps

MICROPHONES

Type
MEMS, Digital
Bottom Port

SNR (A-weighted, at 1 kHz)
64 dB for 94 dB SPL @ 1kHz

Sensitivity
-26 dB FS ± 1.5 dB at 1 kHz, 94 dB SPL

Acoustic Overload Point
120 dB SPL at 1 kHz, <10 % THD

DATA FORMATS

Audio
.wav (audio verification)

Pictures
.jpg, .png

Video (V/V+ models)
.mjpeg, .mp4

Data messages
.json

SPOT EAP 2

PROCESSING (JETSON XAVIER NX)

CPU
6-core NVIDIA Carmel ARM V8.2 64-bit CPU with 6MB Lw + 4MB L3 cache

GPU
384-core NVIDIA Volta GPU with 48 Tensor cores

Memory
16GB 128-bit LPDDR4x at 51.2 GB/s

LIDAR

Model
Velodyne VLP-16

Sensor
16 Channels

Measurement Range
100 m

Range Accuracy
Up to ±3 cm

Field of View (vertical)
+15.0° to -15.0° (30°)

Angular Resolution (vertical)
2.0°

Field of View (horizontal)
360°

Angular resolution (horizontal/azimuth)
0.1° – 0.4°

Rotation Rate
5 Hz – 20 Hz

Laser Product
Class 1 eye-safe per IEC 60825-1:2007 & 2014

Laser Wavelength
903 nm

Power
8 W

Voltage
9-18 V

Other
Integrated web server for monitoring and configuration

CONNECTIVITY AND STORAGE

5G/LTE
User-installable SIM card. AT&T is the supported 5G provider in the United States; however, customers also have the option of utilizing their own private 5G network. For international customers, users must obtain their own SIM from a local carrier for which there may be additional network restrictions.

Ethernet
GbE interface, unmanaged 2 port Ethernet switch for additional connectivity

Storage
512GB SSD*

USB 3.1
2x USB 3.1 ports with support for 4.5W

USB-C
1x USB-C port with support for 50W power delivery and video out

SD Card
1x SD card slot

Other Connections
E-Stop interface PPS output GPIO (Configurable to PWM output) I2C Ports

Power Outputs
48V or robot battery voltage for Spot Explorer models
24V, 50W
12V, 50W
5V, 30W

*Actual storage available will be less due to operating system.

SPOT DOCK

DIMENSIONS

Length
1140 mm (44.9 in)

Width
414 mm (16.3 in)

Height
403 mm (15.9 in)

Mass/Weight
22.9 kg (50.5 lbs)

POWER

Input 90-277 VAC

Output 58V at 12A

Charge time 2-3.5 hours†
†Charge time varies based on table below

Ambient Temp.	80% Charge	100% Charge
25°C	50 min	2 hrs
35°C	2.5 hrs	3.5 hrs

ENVIRONMENT

Operating Temp -20°C to 35°C, Shelter and ambient light required

Mounting
Bolt/tie down locations provided

CONNECTIVITY

Gigabit Ethernet passthrough to robot



GET STARTED WITH SPOT TODAY.

Contact our sales team to learn more about how you can implement the robot on your team: www.bostondynamics.com/spot-sales

Visit our website at:
www.bostondynamics.com

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