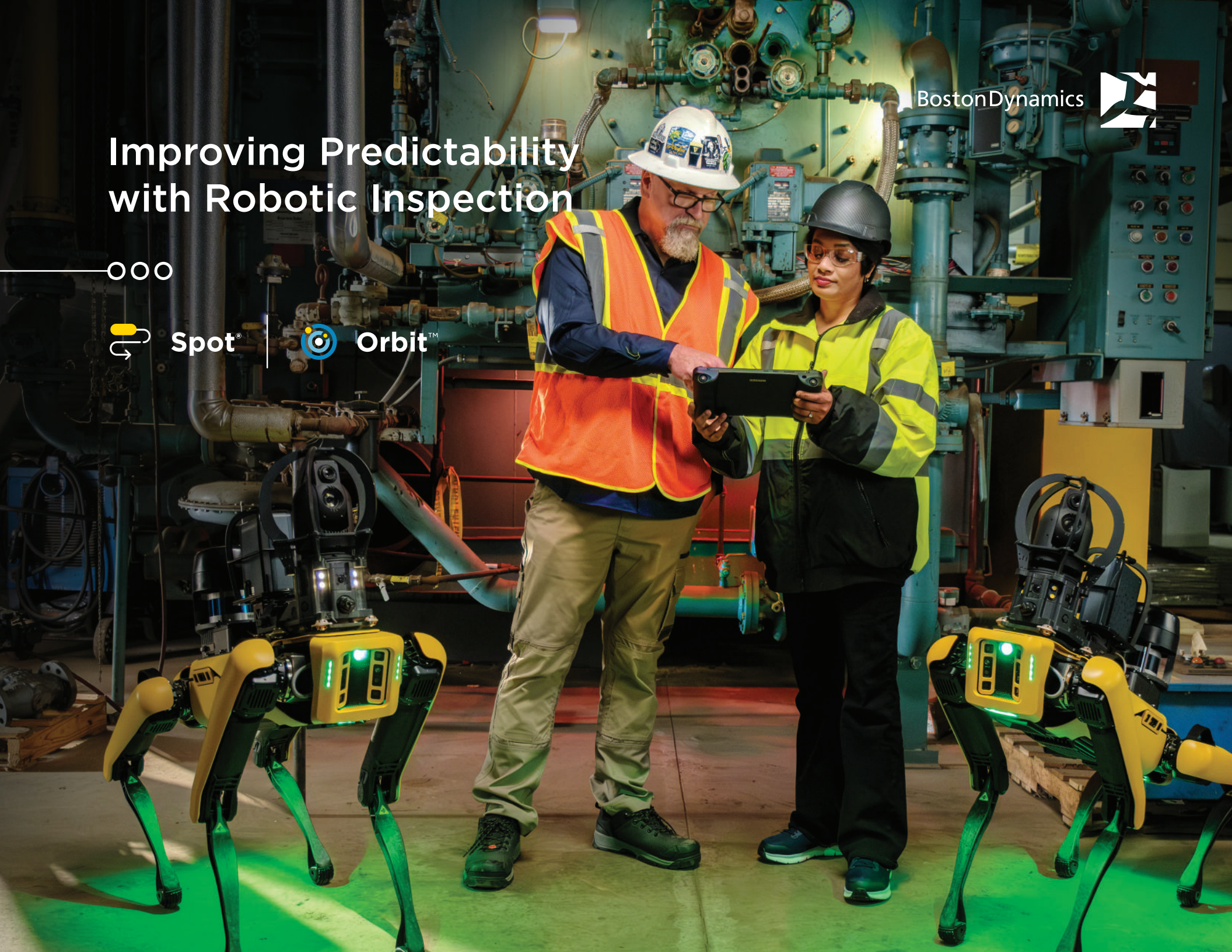

Boston Dynamics
Improving Predictability with Robotic Inspection
Spot®
Orbit™

NO MORE SURPRISES

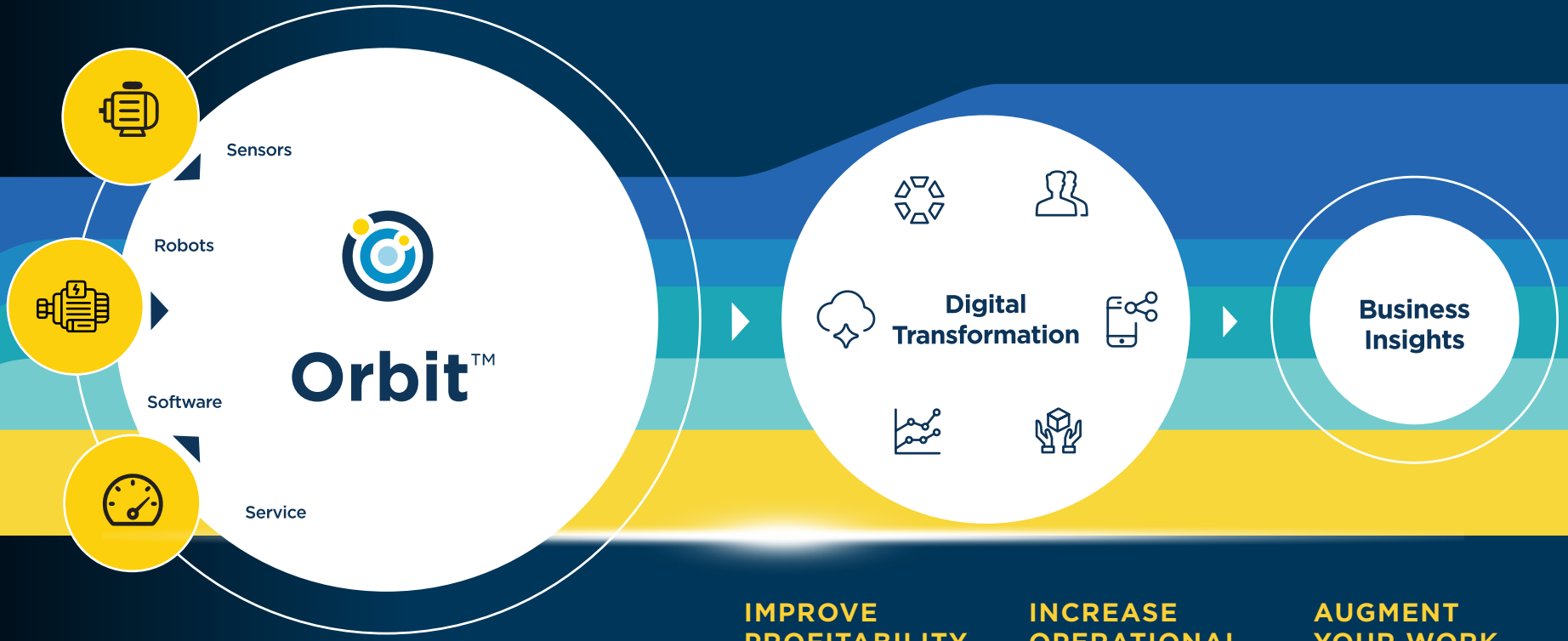
Predictably Spot-On Industrial Inspection

Artificial intelligence is enabling almost everyone to tackle their toughest challenges in new and exciting ways. For asset-intensive industries, the promise of AI is predictability.

AI-ENABLED FACILITIES USE DATA TO ELIMINATE THE GUESSWORK IN OPERATIONS.

- Business leaders make better, faster decisions.
- Manufacturing teams improve efficiency, increase safety, and reduce costs.
- Maintenance workers are fully focused on the tasks most critical to keeping everything up and running.

The key to unlocking this AI-enabled future is consistent, reliable data. That's why factories, foundries, and plants across the world are using Spot to gather higher quality and higher quantities of data than ever.



KEEPING YOU UP AND RUNNING— NOT UP AT NIGHT

Boston Dynamics provides everything you need to scale autonomous industrial inspection at your facility. Robust robots designed for the dull, dirty, and dangerous. Professional-grade sensors. Fleet management software. And comprehensive service and support.

IMPROVE PROFITABILITY

Our robots work tirelessly with minimal variation to deliver frequent and accurate inspection results. Results populate a dashboard to give you data-driven insights into production processes for fewer surprises and better decisions.

With data at your fingertips, you can identify trends and patterns that help you optimize production, as well as catch problems that could lead to costly downtime. Reliable data means your facility runs as smoothly as possible and drives your bottom line in the right direction.

INCREASE OPERATIONAL EFFICIENCY

With mobile robots and modern software, you can give your predictive maintenance efforts a boost to maximize machine uptime, reduce manual labor, and enhance the overall efficiency of crucial assets.

Our robots can perform inspections with greater frequency, freeing up employees for more value-added time and higher-value tasks. And our software integrates with your business systems so you can seamlessly translate inspection results into data-driven actions. In a single fluid workflow, you'll be able to identify areas for improvement and deploy a solution.

AUGMENT YOUR WORK

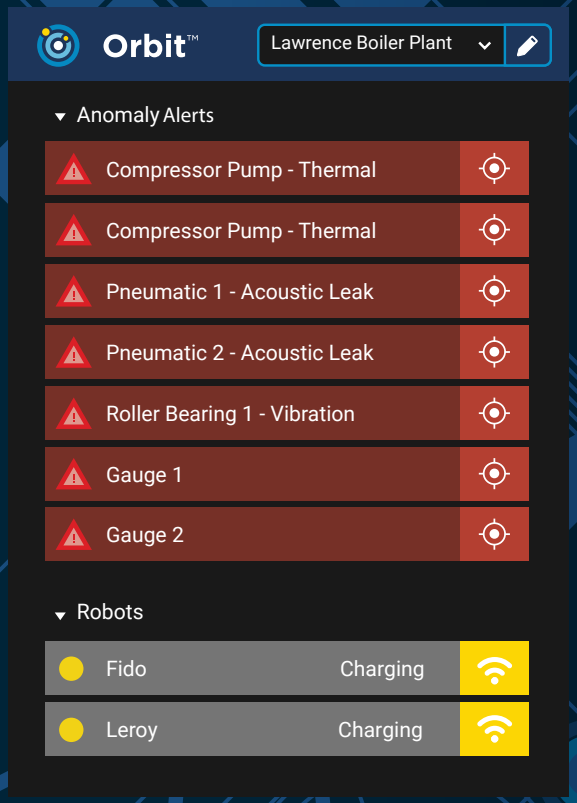
Your facility is likely full of hard to reach or inaccessible spaces filled with dangerous or hazardous machinery. Our robots can go anywhere a person can go, so you can stay out of harm's way and stay focused on your most impactful work.

In many facilities, inspections are typically inconsistent, infrequent, and manual. Our robots supercharge the way you manage routine maintenance, collecting hundreds of data points completely autonomously. This frees you up to make critical repairs and analyze equipment health, rather than tying you up in tedious, repetitive inspections.

Orbit™

INTELLIGENT AUTOMATION PLATFORM

Introducing Orbit, the intelligent automation platform for Boston Dynamics robots. Analyze historic data and manage your robotic fleet in one unified platform.



FLEET MANAGEMENT

Orbit is a window into your robotic world—a top-down view of your facility where you can see your robots at work in real-time. Manage missions, operate robots, and analyze inspection data within the visual context of your facility map.

Features:

- Map-based UI
- Cloud* and on-premise installation options
- Single sign-on
- Optional in-app updates*
- Remote operation and manipulation

MISSION PLANNING

Author, modify, and merge missions using pre-recorded parameters. Then, schedule missions to loop as often as possible within launch windows or to run on specific days and times.

Features:

- Mission authoring with pre-recorded actions
- Merge recordings with shared fiducials
- Editable edge, action, and mission parameters
- Flexible scheduling options including easy toggle on-off and built-in exclusions

ALERTS & ANALYSIS

Orbit puts a running record of inspection data at your fingertips so you can observe patterns and trends to make smarter, faster decisions across the full lifecycle of your facility. Get display, text, or email notifications when Spot finds anomalies or experiences problems so you don't miss a thing.

Features:

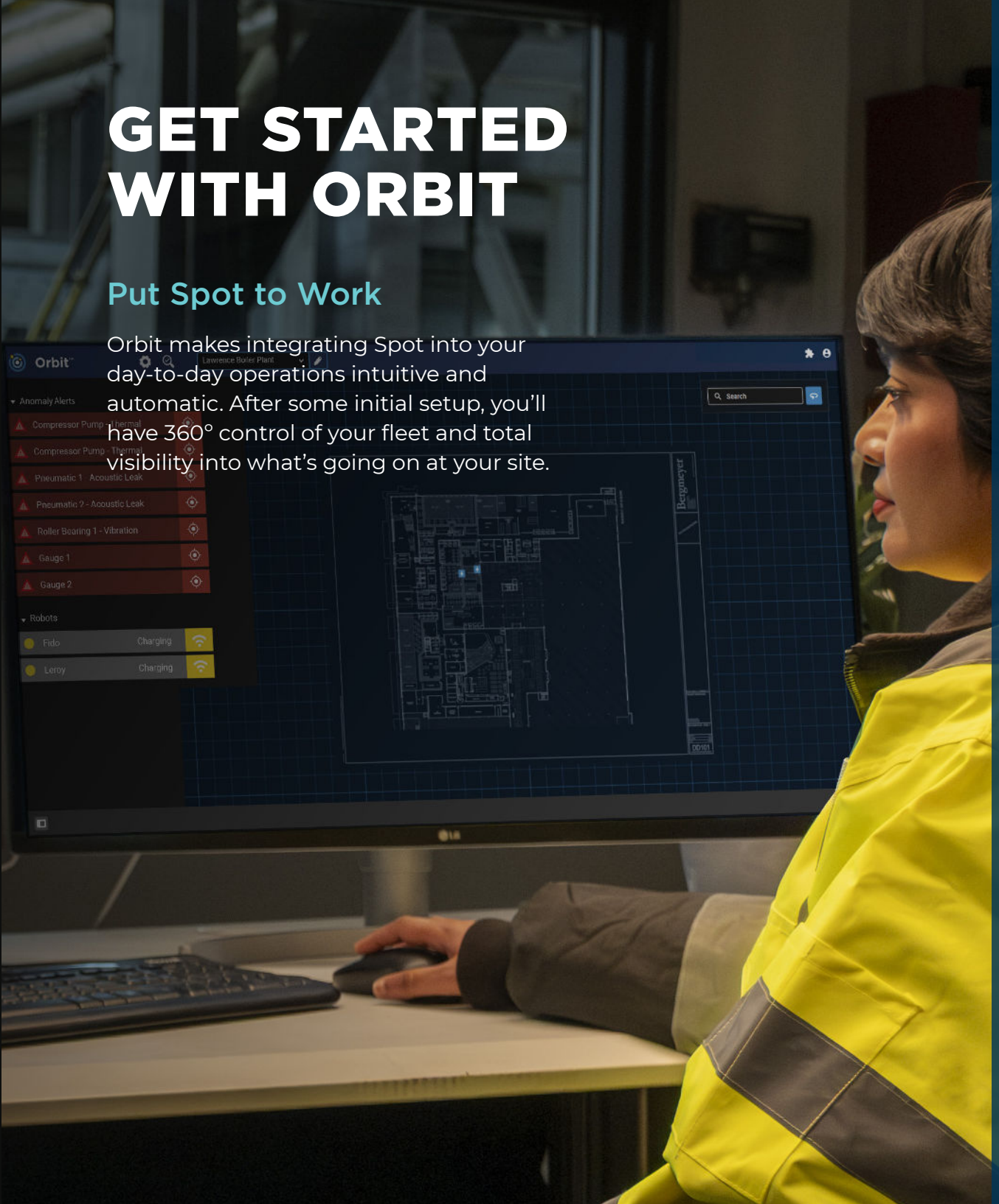
- Compact view to monitor inspection data
- API integration with business systems to generate work orders and feed data
- Alert preferences unique to each stakeholder
- Customizable alerts by relevancy or severity

** Features included in cloud deployment, available in select locations*

GET STARTED WITH ORBIT

Put Spot to Work

Orbit makes integrating Spot into your day-to-day operations intuitive and automatic. After some initial setup, you'll have 360° control of your fleet and total visibility into what's going on at your site.



RECORD MISSIONS

Out of the box, teach Spot how to navigate your facility and what tasks to perform.

PLAN ROUTES

Author, modify, and merge your pre-recorded missions in Orbit as often as you want.

SCHEDULE MISSIONS

Tell Spot specific days, times, or frequencies to deploy and build in blackout dates like weekends or maintenance periods.

GET ALERTS

Set up display, email, or text notifications to trigger when Spot finds anomalies with your equipment.

TAKE A CLOSER LOOK

Send Spot to investigate further from wherever you are using teleoperation tools in Orbit.

RESPOND PROMPTLY

Use APIs to automatically generate work orders and connect inspection data to your business systems.

Spot®

THE AGILE, MOBILE ROBOT

Automated

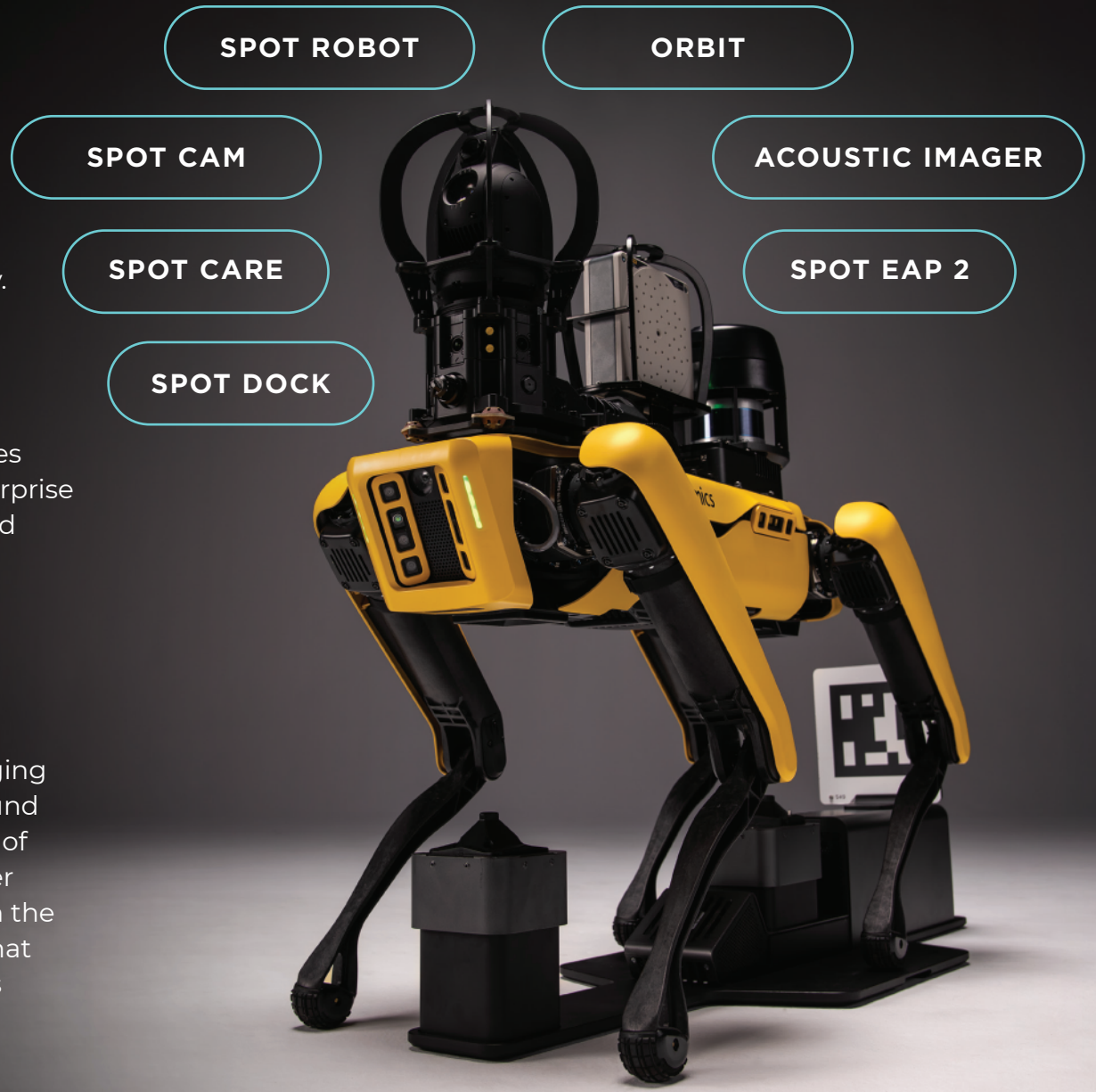
Spot equips you to automate dull, dirty, and dangerous inspections in your facility. By traversing the dynamic world of factories, foundries, and plants with sensors, Spot helps you keep an around-the-clock pulse on the health of your facility.

Scalable

Whether you're operating one robot or an entire fleet, from six feet or six hundred miles away, we offer everything you need for enterprise deployment. Orbit gives you full visibility and control of your robot fleet. Plan missions, monitor progress, and operate your robots from anywhere, at anytime.

Reliable

Spot operates without interventions—charging autonomously, dynamically navigating around new obstacles, and self-righting in the case of a fall. And with over 1,000 robots in customer hands today—along with rigorous testing in the lab and in the field—you can rest assured that Spot is a dependable coworker that delivers consistent results.



ORBIT

Control your Spot fleet from a virtual control room with our web-based application Orbit. Manage pre-programmed autonomous missions and integrate Orbit data into your existing business systems.

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.

Features:

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

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

The Spot Cam payload turns Spot into a powerful inspection tool with purpose-built cameras. Use Spot Cam 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

ACOUSTIC IMAGER

The SV600 Acoustic Imager enables users to detect air and gas leaks as well as ultrasonic sound signatures that indicate failure of rotating equipment.

Features:

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

INTEGRATION SERVICES

Integration services are designed to seamlessly integrate Spot into your facility. At the end of installation, Spot will be autonomously running inspection missions catered to your facility.

Features:

- Pre-install planning support including site assessment
- Boston Dynamics installation experts at your site
- Hands-on commissioning support on-site as needed

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

INDUSTRIAL INSPECTION TYPES

Thermal Imaging

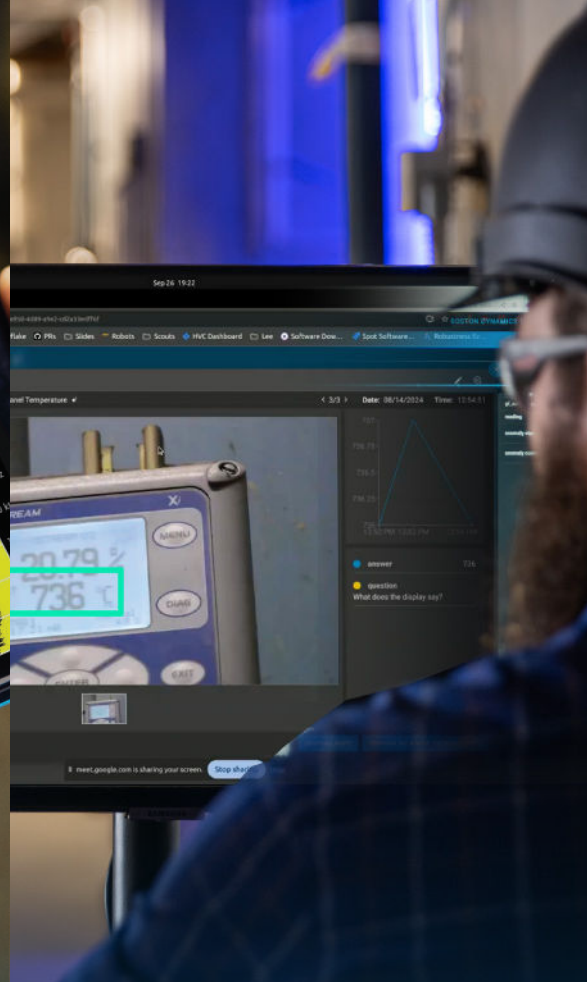
Collect thermal images of pumps, motors, and electrical equipment with pixel-level temperature data.

Leak Detection

Find costly leaks in compressed air and gas lines with the Acoustic Imager acoustic imager.

Acoustic Vibration

Perform ultrasonic inspections of conveyor systems and other rotating machinery to detect signs of bearing failures.



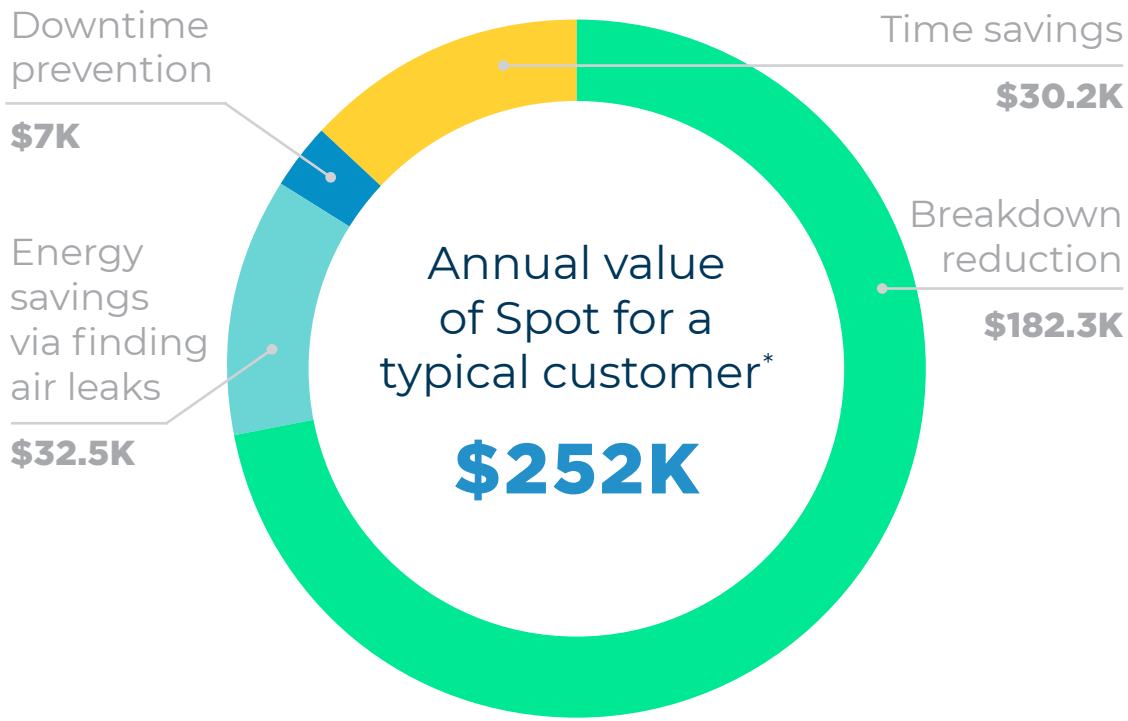
Visual Inspection

Look for safety hazards, debris buildup, corrosion, and other visual indicators of site health.

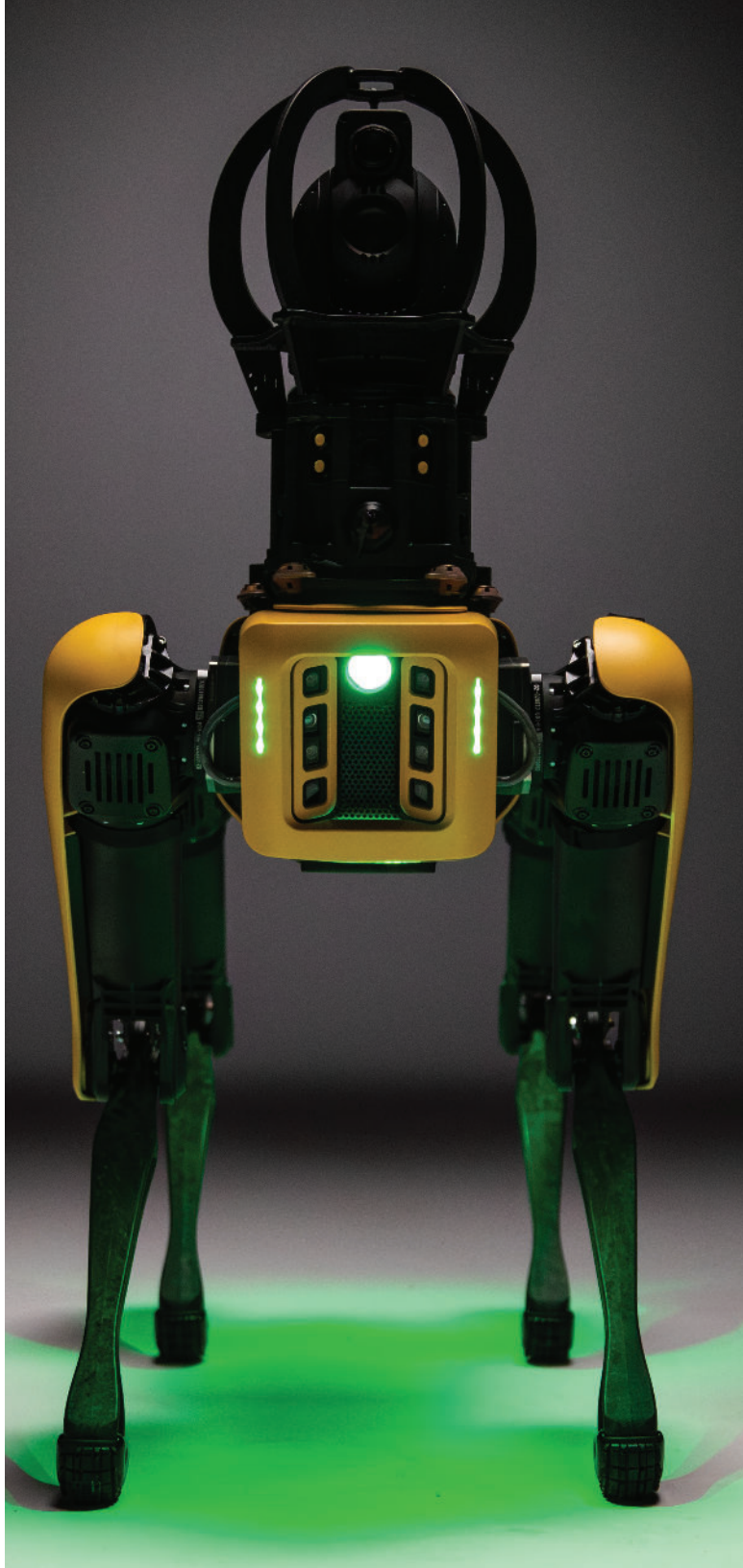
THE VALUE OF AUTONOMOUS ROBOTIC INSPECTION

ROI realized in just over a year

Thousands of Spots have been deployed around the world—more than any other walking robot—traversing thousands of miles and inspecting a million industrial assets. With Spot, our customers have empowered their workforce, reduced unplanned downtime, prevented critical failures, dramatically reduced the cost of air leaks, and more.



** ROI sample is a representative average from real manufacturing customers*



THE SPOT® ROBOT 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 Acoustic Imager)
47.5 kg (104.7 lbs)

Net Mass/Weight (Including battery, not including Acoustic Imager)
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 55°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

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

ACOUSTIC IMAGER

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 ORBIT AND 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

Modified:05/2025

Boston Dynamics