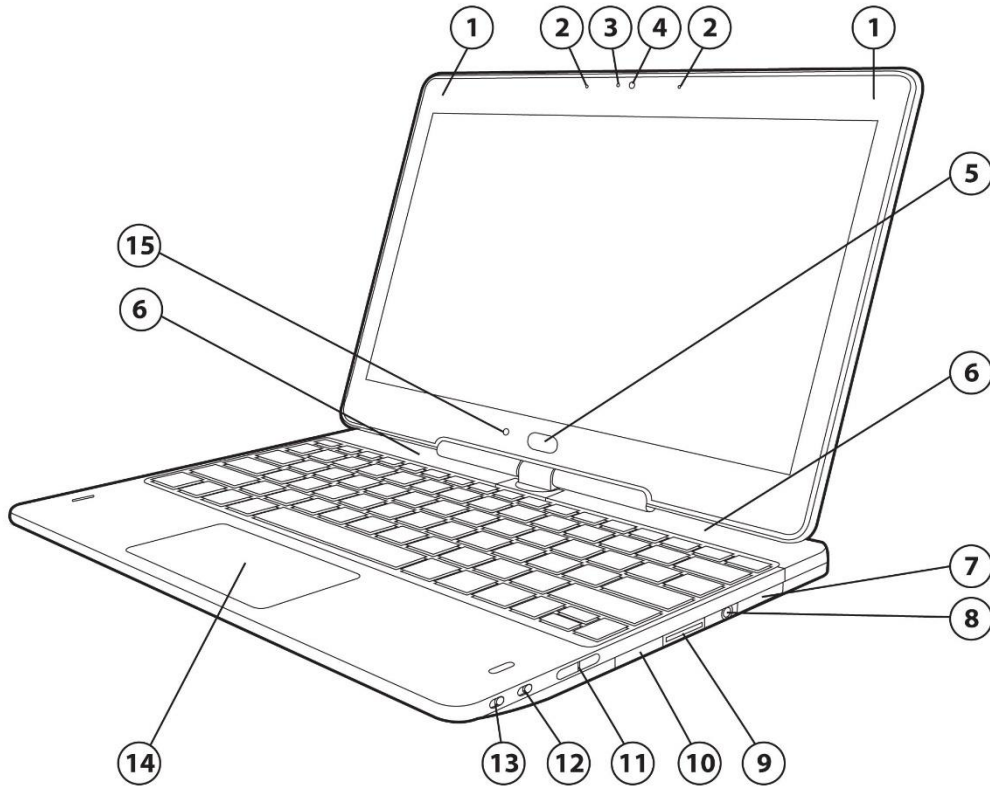


### Overview

### HP EliteBook Revolve 810 G3

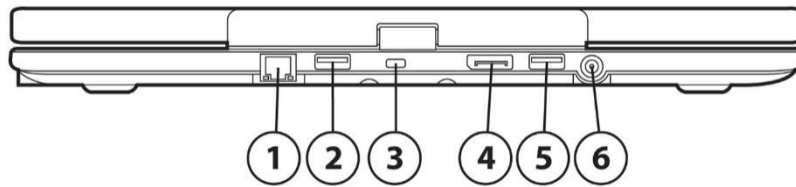


#### Front, Right

- |                           |                           |
|---------------------------|---------------------------|
| 1. WLAN antennas          | 9 MicroSD slot            |
| 2. Dual-microphone array  | 10. Speaker               |
| 3. Webcam LED             | 11. Volume up/down button |
| 4. 720p HD Webcam         | 12. Rotation lock button  |
| 5. Home button            | 13. Power button          |
| 6. WWAN antennas*         | 14. Clickpad image sensor |
| 7. Side docking connector | 15. Ambient light sensor  |
| 8. Audio jack             |                           |

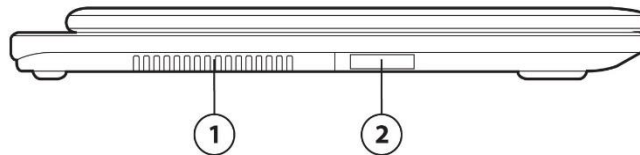
\*. WWAN is an optional feature and requires separately purchased service contract. Check with service provider for coverage and availability in your area. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE is not available in models, in all regions.

### Overview



#### Rear

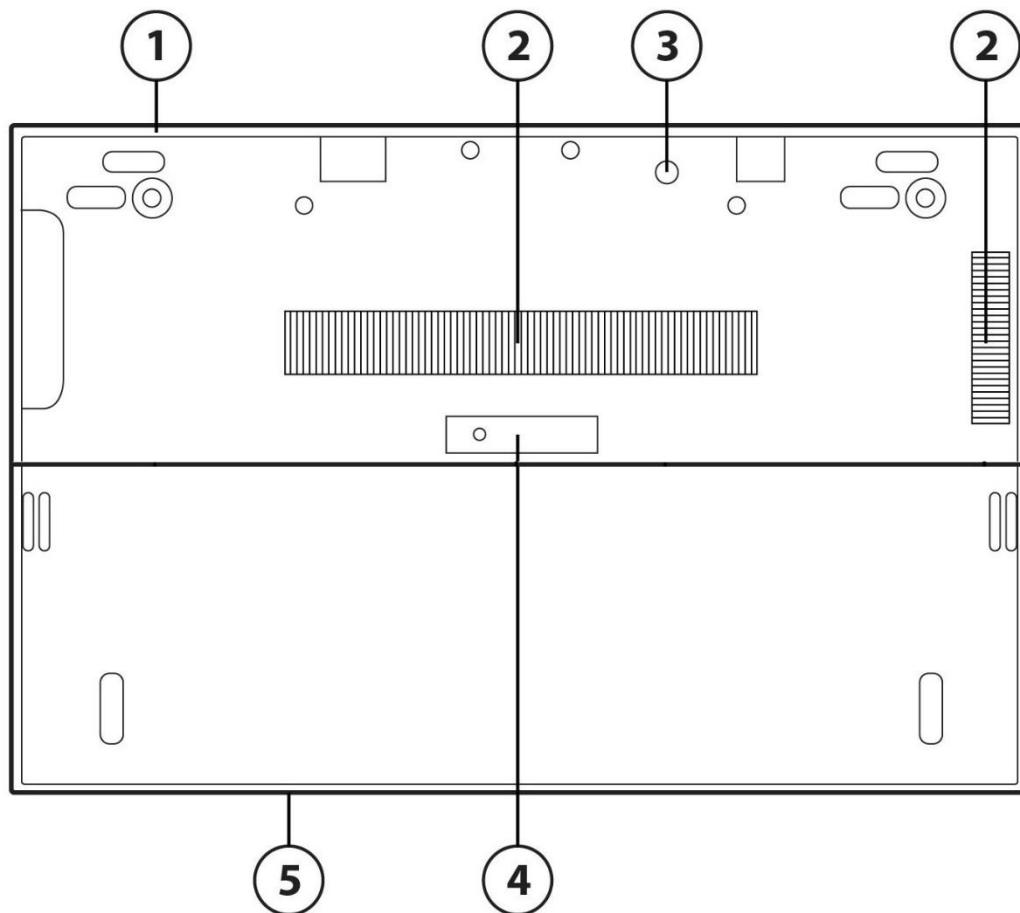
- |                          |                          |
|--------------------------|--------------------------|
| 1. RJ-45 (Ethernet) jack | 4. DisplayPort 1.2       |
| 2. USB 3.0 port          | 5. USB 3.0 charging port |
| 3. Security lock slot    | 6. Power connector       |



#### Left

1. Vent
2. Speaker

### Overview



- 1. Service cover
- 2. Vents
- 3. Near Field Communication (NFC) antenna

#### Bottom

- 4. Battery bay cover release latch
- 5. Battery bay

### Overview

### At A Glance

- Choose from versions of Windows 10, Windows 8.1, Windows 7 Professional, or FreeDOS 2.0
- 11.6-inch diagonal LED-backlit, ultra-slim, HD UWVA display (1366 x 768) with capacitive multi-touch screen
- Industrial, business rugged HP DuraCase construction features a full magnesium alloy chassis, wear-resistant HP DuraFinish, and stainless steel hinges
- Full-sized backlit, spill-resistant keyboard with bottom-case drain
- Clickpad image sensor
- Choice of Future 5<sup>th</sup> Gen Intel® Core™ processors with Turbo Boost Technology
- Intel® vPro™ technology enables you to remotely monitor, diagnose, and repair PCs over the network, even if a system's OS is inoperable or it is powered off (vPro not available with Core i3-5010, Core i5-5200 or i7-5600)
- Choice of up to 512 GB Solid State Drive or 256 GB SED Solid State Drive
- Supports a broad range of wireless LAN and wireless WAN options, including 4G LTE, for connectivity on the go.
- 6-cell polymer long life battery (44 WHr)
- Integrated Intel® HD 5500 Graphics
- Integrated 720p HD Webcam
- DTS Studio Sound™ with integrated stereo speakers and dual microphone array
- Security features including HP Client Security, Common Criteria Certified Discrete TPM 1.2 Embedded Security Chip, and security lock slot
- Separate launch buttons for easy access to the following features: Windows, power, rotation lock, volume up and down
- DisplayPort v1.2 for high resolution support
- Optional HP UltraSlim docking station
- Sensors include Gyroscope, Accelerometer, Compass, Ambient Light Sensor, Near Field Communication (NFC)
- microSD slot

**NOTE: See important legal disclosures for all listed specs in their respective features sections.**

### Features

#### PRODUCT NAME

HP EliteBook Revolve 810 G3 Tablet PC

#### OPERATING SYSTEM

<b>Preinstalled</b>	Windows 10 Pro <sup>64</sup> <sup>1</sup>
	Windows 10 Home 64 <sup>1</sup>
	Windows 8.1 Pro 64 <sup>1</sup>
	Windows 8.1 64 <sup>1</sup>
	Windows 7 Professional 64 (available through downgrade rights from Windows 10 Pro) <sup>3</sup>
	Windows 7 Professional 64 (available through downgrade rights from Windows 8.1 Pro) <sup>2</sup>
	Windows 7 Professional 64 <sup>1</sup>
	FreeDOS 2.0
<b>Web only support</b>	Windows 10 Pro 64 <sup>1</sup>
	Windows 10 Home 64 <sup>1</sup>
	Windows 8.1 Pro 64 <sup>1</sup>
	Windows 8.1 64 <sup>1</sup>
	Windows 7 Professional 64 (available through downgrade rights from Windows 10 Pro) <sup>3</sup>
	Windows 7 Professional 64 (available through downgrade rights from Windows 8.1 Pro) <sup>2</sup>
	Windows 7 Professional 64 <sup>1</sup>
	Windows 7 Professional 32 <sup>1</sup>
	Windows 10 Enterprise 64 <sup>1</sup>
	Windows 8.1 Enterprise 64 <sup>1</sup>
	Windows 8 Professional 64 <sup>1</sup>
	Windows 8 64 <sup>1</sup>
	Windows 7 Enterprise 64 <sup>1</sup>
Windows 7 Enterprise 32 <sup>1</sup>	

1. Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows 10 is automatically updated, which is always enabled. ISP fees may apply and additional requirements may apply over time for updates. See <http://www.microsoft.com>
2. This system is preinstalled with Windows 7 Professional software and also comes with a license and media for Windows 8 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data
3. This system is preinstalled with Windows 7 Professional software and also comes with a license and media for Windows 10 Pro software. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.

#### PROCESSOR\*

Intel® Core™ i7-5600U with Intel HD Graphics 5500 (2.4 GHz, up to 3 GHz with Intel Turbo Boost Technology, 4 MB cache, 2 cores);

Intel® Core™ i5-5300U with Intel HD Graphics 5500 (2.3 GHz, up to 2.9 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores);

### Features

Intel® Core™ i5-5200U with Intel HD Graphics 5500 (2.2 GHz, up to 2.7 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores);

Intel® Core™ i3-5010U with Intel HD Graphics 5500 (2.1 GHz, 3 MB cache, 2 cores)

\* Multi-Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. 64-bit computing on Intel® architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers, and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel® 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. Intel's numbering is not a measurement of higher performance.

\*\* Intel® Turbo Boost technology requires a PC with a processor with Intel Turbo Boost capability. Intel Turbo Boost performance varies depending on hardware, software and overall system configuration. See [www.intel.com/technology/turboboost](http://www.intel.com/technology/turboboost) for more information.

**NOTE:** Processor speed denotes maximum performance mode; processors will run at lower speeds in battery optimization mode.

### CHIPSET

Chipset is integrated with processor

### INTEL CORE I5 WITH VPRO/CORE I7 WITH VPRO TECHNOLOGY CAPABLE

Intel Core i5 with vPro and Core i7 with vPro technology is a selectable feature that is available on units configured with select processors, an Intel Centrino® Advanced-N or Ultimate-N WLAN module and a preinstalled Windows operating system. It provides advances in remote manageability, security, energy efficient performance, and wireless connectivity. Intel Active Management Technology 9.0 (iAMT) offers built-in manageability and proactive security for networked notebook PCs, even when they are powered off\* or when the operating system is inoperable. It can help identify threats before they reach the network, isolate infected systems, and update PCs regardless of their power state.

\*Requires a Windows operating system, network hardware and software, connection with a power source, and a direct (non-VPN) corporate network connection which is either cable or wireless LAN.

**NOTE:** Some functionality of this technology, such as Intel® Active management technology and Intel Virtualization technology, requires additional 3rd party software in order to run. Availability of future "virtual appliances" applications for Intel vPro technology is dependent on 3rd party software providers. Microsoft Windows required.

### GRAPHICS

Intel® HD Graphics 5500

### DISPLAY

#### Internal

11.6-inch diagonal LED-backlit HD\* UWVA Touch (1366 x 768)

- Ultra- Wide-viewing angle
- LVDS – low voltage differential signaling
- Capacitive multitouch screen with digitizer
- Tough, durable Corning® Gorilla® Glass 3

\* HD content required to view HD images.

### Features

#### External

Up to 32-bit per pixel color depth

#### DisplayPort v1.2

Supports resolutions up to 3840 x 2160, 30-bit color depth at 60 Hz, and full HD (1920 x 1080) monitors, 24-bit color depth at 120 Hz

#### Number of Supported Displays

Number of Displays with UltraSlim Docking Station	UMA	Discrete
EliteBook Revolve 810 G3	3	n/a

**NOTE:** Resolutions are dependent upon monitor capability, and resolution and color depth settings.

### STORAGE AND DRIVES

#### Solid State Drive

- 128 GB SATA-3 Solid State Drive
- 180 GB SATA-3 Solid State Drive
- 180 GB SATA-3 Self-Encrypting Drive
- 256 GB SATA-3 Solid State Drive
- 256 GB SATA-3 Self-Encrypting Drive
- 512 GB SATA-3 Solid State Drive

**NOTE:** For hard drives and solid state drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and up to 30 GB (for Windows 8 and 10) of system disk is reserved for the system recovery software.

### MEMORY

#### Standard

DDR3L PC3-12800 SDRAM (1600 MHz)  
One SODIMM slot supporting up to 8 GB dual-channel memory plus 4 GB soldered down

#### Supports

- 4 GB Total System Memory (4 GB on motherboard)
- 8 GB Total System Memory (4 GB on motherboard + 4 GB DIMM)
- 12 GB Total System Memory (4 GB on motherboard + 8 GB DIMM)

#### Maximum

Upgradeable to 12 GB

**NOTE:** Maximum memory capacities assume Windows 64-bit operating systems. With Windows 32-bit operating systems, memory above 3 GB may not all be available due to system resource requirements.

Due to the non-industry standard nature of some third-party memory modules, we recommend HP branded memory to ensure compatibility. If you mix memory speeds, the system will perform at the lower memory speed.

### Features

## NETWORKING/COMMUNICATIONS

### LOCAL AREA NETWORK (LAN)

Integrated Intel® 1218LMGigabit\* Network Connection (vPro configurations)

### WIRELESS

Support for a broad range of secure, integrated wireless LAN and wireless WAN options featuring support for the latest industry standards. Integrated Bluetooth® is also available as both a factory configurable and after-market option and can be combined with any of the supported wireless LAN and wireless WAN options.

### WWAN\*\* (Mobile Broadband) options

HP Lt4211 LTE/EV-DO/HSPA Qualcomm® Gobi™ 4G Mobile Broadband Module

### Wireless LAN (WLAN)\*\*\*

Intel® 7265 AC 802.11 ac (2x2) Bluetooth® 4.0 Combo\*\*\*\*

Intel® 7265N 802.11 a/b/g/n (2x2) Bluetooth® 4.0 Combo

### COMMUNICATIONS

Intel® Wireless Display (WiDi)\*\*\*\*\*

Intel® WiDi technology enables users to stream content wirelessly from a compatible computer to a projector, TV or monitor.

Near Field Communication (NFC)

\* The term "10/100/1000" or "Gigabit" Ethernet indicates compatibility with IEEE standard 802.3ab for Gigabit Ethernet, and does not connote actual operating speed of 1 Gb/s. For high-speed transmission, connection to a Gigabit Ethernet server and network infrastructure is required.

\*\* WWAN is an optional feature and requires wireless data service contract, network support, and is not available in all areas. Contact your service provider to determine the coverage area and availability. Connection speeds will vary based on location, environment, network conditions and other factors. 4G LTE is not available in all models, all regions.

\*\*\*Wireless access point and Internet service is required and is not included. Availability of public wireless access points limited.

\*\*\*\*The specifications for the 802.11ac WLAN are draft specifications and are not final. If the final specifications differ from the draft specifications, it may affect the ability of the notebook to communicate with other 802.11ac WLAN devices.

\*\*\*\*\* Integrated Intel® Wi-Di Display is available on select configurations only and requires a separate projector, TV or monitor with an integrated or external Wi-Di receiver. For more information on Intel® Wi-Di Display visit [www.intel.com/go/wirelessdisplay](http://www.intel.com/go/wirelessdisplay).

## AUDIO/MULTIMEDIA

### Audio

DTS Studio Sound™

Integrated stereo speakers

Integrated microphone (dual-microphone array)

Buttons for volume up and down

Headphone/microphone combo jack

### Webcam

Integrated 720p HD\* webcam

- HD format (widescreen)
- Supports videoconferencing and still image capture
- High quality fixed focus lens



### Features

- Video capture at various resolutions up to 1280x720 resolution (720p) and up to 30fps
- M-JPEG compression supports higher frame rates for video capture and videoconferencing
- Improved low light sensitivity
- Improved dynamic range

\* HD content required to view HD images.

## KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

### Keyboard

The HP backlit, spill-resistant keyboard is designed using a thin layer of Mylar film under the keyboard and a drain system that funnels fluid through a hole in the bottom of the notebook. This minimizes the risk of damage to sensitive components underneath. The 101/102-key compatible keyboard features an industry standard, full-pitch key layout with desktop keyboard features, such as the isolated inverted-T cursor control keys, editing keys, both left and right control and alt keys, and 12 function keys. U.S. and International key layouts are available. Other features include an integrated numeric keypad, hotkeys for instant access to power conservation, brightness, and other features, 19 mm x 19 mm key pitch (center-to-center spacing), 2.0 mm stroke, and comfort-dished keycaps.

### Pointing Devices

Clickpad image sensor  
Multitouch gestures enabled  
Taps enabled as default

### Buttons and Function Keys

F1 - Ambient Light Sensor  
F2 - Battery Gauge  
F3 - Sleep  
F4 - Display Switching  
F5 - Speaker Mute  
F6 - Volume Down  
F7 - Volume Up  
F8 - mic mute  
F9 - Brightness Down  
F10 - Brightness Up  
F11 - Backlit  
F12 - WiFi toggle

## SENSORS

Gyro  
Accelerometer  
ALS  
Proximity (SAR)  
Compass

## SOFTWARE AND SECURITY

### Preinstalled Software with Windows Operating System

#### BIOS

Absolute Data Protect (Windows 8.1 only)<sup>2</sup>  
HP BIOSphere<sup>1</sup>  
HP Sure Start<sup>2</sup>  
HP DriveLock | HP Automatic DriveLock  
HP BIOS Protection<sup>3</sup>  
HP Disk Sanitizer<sup>4</sup>

### Features

HP SpareKey<sup>5</sup>  
BIOS Update via Network  
Master Boot Record Security  
Power On Authentication  
Pre-Boot Security  
Secure Erase<sup>6</sup>  
Hybrid Boot (Windows 8.1 only)  
Measure Boot (Windows 8.1 only)  
Secure Boot (Windows 8.1 only)  
Absolute Persistence Module<sup>7</sup>

#### MultiMedia

Cyberlink Power DVD, BD  
Cyberlink Power2Go (Secure Burn)  
Cyberlink YouCam BE (Windows 7 only)

#### Communication

HP GPS and Location (Windows 7 only)<sup>8</sup>  
HP Connection Manager with support for HP Mobile Connect (Windows 7 only)<sup>9</sup>  
HP Mobile Connect (Windows 8.1 only)  
HP Wireless Hotspot (Windows 8.1 only)<sup>10</sup>  
Intel® Wireless Display (WiDi) Software for Windows<sup>11</sup>  
HP Roaming Alert (Windows 8.1 only)  
Native Miracast Support<sup>12</sup>

#### HP Value Add Software

HP 3D DriveGuard  
HP ePrint Driver<sup>13</sup>  
HP Hotkey  
HP PageLift  
HP Recovery Manager (Windows 7 only)  
HP Recovery Disc Creator (Windows 7 only)  
HP Registration App (Windows 8.1 only)  
HP Support Assistant

#### 3<sup>rd</sup> Party

Foxit PhantomPDF Express for HP  
Netflix Application (Window 8.1only)

#### Microsoft Products

Buy Office  
Bing Search  
Skype<sup>14</sup>

#### Manageability

HP Driver Packs<sup>15</sup>  
HP SoftPaq Download Manager (SDM)  
HP System Software Manager (SSM)<sup>15</sup>  
HP BIOS Config Utility (BCU)<sup>15</sup>  
HP Client Catalog<sup>15</sup>  
HP CIK for Microsoft SCCM<sup>15</sup>  
LANDESK Management<sup>16</sup>

For more information on HP Client Management Solutions refer to: <http://www.hp.com/go/clientmanagement>.

### Features

#### Client Security Software

Absolute Data Protect (Windows 8.1 only)

Absolute Persistence Module

HP Device Access Manager

HP Drive Encryption<sup>17</sup>

HP File Sanitizer<sup>18</sup>

HP Security Manager

HP SpareKey

Microsoft Security Essentials (Windows 7 only)<sup>19</sup>

Microsoft Defender (Windows 8.1 only)<sup>19</sup>

#### Standard

TPM 1.2

Security lock slot

Pre-boot Authentication

For more information on HP Client Security Software Suite, refer to <http://www.hp.com/go/clientsecurity>.

1. HP BIOSphere features may vary depending on the PC platform & configuration.
2. Absolute Data Protect software is preloaded, subscription required. See <http://www.absolute.com/landing/2012/computrace-hp> for complete details. Absolute Data Protect agent is shipped turned off, and must be activated by customers. Service may be limited, check with Absolute for availability outside the U.S. The optional subscription service of Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: <http://www.absolute.com/company/legal/agreements/computrace-agreement>. If Data Delete is utilized, the Recovery Guarantee payment is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either create a PIN or purchase one or more RSA SecurID tokens from Absolute Software.
3. HP BIOS Protection requires a HPTools partition for automatic recovery
4. For the use cases outlined in the DOD 5220.22-M Supplement. Does not support solid state drives and requires Windows.
5. Requires initial user set up.
6. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.
7. BIOS Absolute Persistence module is shipped turned off, and will be activated when customers purchase and activate a subscription. Service may be limited. Check with Absolute for availability outside the U.S. The optional subscription service of Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: <http://www.absolute.com/company/legal/agreements/computrace-agreement>. If Data Delete is utilized, the Recovery Guarantee payment is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either create a PIN or purchase one or more RSA SecurID tokens from Absolute Software.
8. GPS access requires an unobstructed path to multiple satellites. Performance may be affected if/when used inside of buildings, bridges or heavily congested metropolitan areas. Requires separately purchased GPS navigation software available from multiple GPS applications.
9. HP Mobile Connect service requires a compatible CDMA or HSPA mobile broadband module and prepaid service purchase. Find coverage and availability for your service area at [hp.com/go/mobileconnect](http://hp.com/go/mobileconnect). Available in EMEA only.. For geographic
10. The HP Wireless Hotspot application requires an active internet connection and separately purchased data plan. While HP wireless hotspot is active, on-device applications will continue to work and will use the same data plan as the wireless hotspot. Wireless hotspot data usage may incur additional charges. Check with your service provider for plan details. Requires Windows 8.1 or HP Connection Manager for Windows 7
11. Integrated Intel Wi-Di feature is available on select configurations only and requires separately purchased projector, TV or

### Features

computer monitor with an integrated or external Wi-Di receiver. External Wi-Di receivers connect to the projector, TV or computer monitor via a standard HDMI cable, also sold separately.

12. Miracast is a wireless technology your PC can use to project your screen to TVs, projectors, and streaming media players that also support Miracast. You can use Miracast to share what you're doing on your PC and present a slide show. For more information: <http://windows.microsoft.com/en-us/windows-8/project-wireless-screen-miracast>

13. Requires an Internet connection to HP web-enabled printer and HP ePrint account registration (for a list of eligible printers, supported documents and image types and other HP ePrint details, see [www.hp.com/go/businessmobileprinting](http://www.hp.com/go/businessmobileprinting)).

14. Skype is not offered in China.

15. Not preinstalled, however available on manageability website.

16. LANDesk is an optional feature sold separately. Managed devices must be connected to the management server. Location based functionality requires active LANDesk maintenance service. Wipe functionality performs a "Windows 8 Reset" and requires Windows 8. Lock performs a Windows "Lock Computer."

17. Data is protected prior to Drive Encryption login. Turning the PC off or into hibernate logs out of Drive Encryption and prevents data access. Requires Windows.

18. Managed devices must be connected to the management server. Location based functionality requires active LANDesk maintenance service. Wipe functionality performs a "Windows 8 Reset" and requires Windows 8. Lock performs a Windows "Lock Computer."

19. Opt in and internet connection required for updates.

## POWER

### Power Supply

HP 45W Smart AC Adapter

Power cord is configurable; either 3.2 feet or 6 feet (1.0 or 1.8 meter)

### Primary Battery

HP 6-cell polymer battery (44WHr)

### Battery Life

Up to 12 hours<sup>1</sup>

1. Windows 8 MM12 battery life will vary depending on various factors including product model, configuration, loaded applications, features, use, wireless functionality, and power management settings. The maximum capacity of the battery will naturally decrease with time and usage. See [www.bapco.com](http://www.bapco.com) for additional details.

### System Standby Time

TBD

### Power Conservation

Supports enhanced Intel SpeedStep technology (allows Battery Optimized Mode, Maximum Performance Mode, or Automatic mode)

Intel Display Power Saving technology

Hibernation

Standby

ACPI compliance

### Features

#### ENVIRONMENTAL

##### Eco-Label Certifications & declarations

This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:

IT ECO declaration  
 US ENERGY STAR®  
 EPEAT Gold registered in the United States. See <http://www.epeat.net> for registration status in your country.

##### System Configuration

The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a “Typically Configured Notebook”.

##### Energy Consumption (in accordance with US ENERGY STAR® test method)

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Sort idle)	3.91 W	4.11 W	4.00 W
Normal Operation (Long idle)	2.23 W	2.41 W	2.35 W
Sleep	0.62 W	0.75 W	0.61 W
Off	0.39 W	0.51 W	0.38 W

##### Note:

Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.

	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Heat Dissipation* Normal Operation (Short idle)	13 BTU/hr	14 BTU/hr	14 BTU/hr
Normal Operation (Long idle)	8 BTU/hr	8 BTU/hr	8 BTU/hr
Sleep	2 BTU/hr	3 BTU/hr	2 BTU/hr
Off	2 BTU/hr	2 BTU/hr	1 BTU/hr

\*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.

##### Declared Noise Emissions (in accordance with ISO 7779 and ISO 9296)

##### Sound Power (L<sub>WAd</sub>, bels)

##### Sound Pressure (L<sub>pAm</sub>, decibels)

### Features

Typically Configured – Idle	2.9	21
Fixed Disk – Random writes	2.9	29
Longevity and Upgrading	This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:	

- 3 USB ports
- 1 PC card slot (type I/II)
- 1 ExpressCard/54 slot
- 1 IEEE 1394 Port
- 2 SODIMM memory slots
- Optional expansion base docking station
- 1 multi-bay II storage port
- Interchangeable HDD??

<edit list of features as required>

Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.

**Batteries** This battery(s) in this product comply with EU Directive 2006/66/EC

Batteries used in the product do not contain:  
Mercury greater the 1ppm by weight  
Cadmium greater than 20ppm by weight

Battery size: CR2032 (coin cell)  
Battery type: Lithium  
Battery size: 6-cell high capacity Lithium-Ion battery (optional 8 cell available)  
Battery type:

**Additional Information** This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC. This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC.  
This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986).  
This product is in compliance with the IEEE 1680 (EPEAT) standard at the gold level, see www.epeat.net  
Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.  
This product contains 30.6 % post-consumer recycled plastic (by wt.)  
This product is 92.4 % recycle-able when properly disposed of at end of life.

<b>Packaging Materials</b>	External:	PAPER/Paper	349 g
	Internal:	PLASTIC/EPE (Expanded Polyethylene)	37 g
		PLASTIC/Polyethylene	3 g

The plastic packaging material contains at least 30 % recycled content.  
The corrugated paper packaging materials contains at least 30 % recycled content.

**Material Usage** This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at <http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf>):

Asbestos

### Features

Certain Azo Colorants  
Certain Brominated Flame Retardants – may not be used as flame retardants in plastics  
Cadmium  
Chlorinated Hydrocarbons  
Chlorinated Paraffins  
Formaldehyde  
Halogenated Diphenyl Methanes  
Lead carbonates and sulfates  
Lead and Lead compounds  
Mercuric Oxide Batteries  
Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.  
Ozone Depleting Substances  
Polybrominated Biphenyls (PBBs)  
Polybrominated Biphenyl Ethers (PBBEs)  
Polybrominated Biphenyl Oxides (PBBOs)  
Polychlorinated Biphenyl (PCB)  
Polychlorinated Terphenyls (PCT)  
Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.  
Radioactive Substances  
Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)

### Packaging Usage

HP follows these guidelines to decrease the environmental impact of product packaging:  
Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.  
Eliminate the use of ozone-depleting substances (ODS) in packaging materials.  
Design packaging materials for ease of disassembly.  
Maximize the use of post-consumer recycled content materials in packaging materials.  
Use readily recyclable packaging materials such as paper and corrugated materials.  
Reduce size and weight of packages to improve transportation fuel efficiency.  
Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.

### End-of-life Management and Recycling

Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: <http://www.hp.com/go/reuse-recycle> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <http://www.hp.com/go/recyclers>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

### Features

Hewlett-Packard Corporate Environmental Information For more information about HP's commitment to the environment: Global Citizenship Report <http://www.hp.com/hpinfo/globalcitizenship/qcreport/index.html> Eco-label certifications <http://www8.hp.com/us/en/hp-information/environment/ecolabels.html> ISO 14001 certificates: [http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC\\_GBU\\_Product\\_Design\\_ISO\\_14K\\_Certificate.pdf](http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf) and <http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf>

Eco-Label Certifications & declarations This product has received or is in the process of being certified to the following approvals and may be labeled with one or more of these marks:  
IT ECO declaration  
US ENERGY STAR®  
EPEAT Gold registered in the United States. See <http://www.epeat.net> for registration status in your country.

System Configuration The configuration used for the Energy Consumption and Declared Noise Emissions data for the Notebook model is based on a "Typically Configured Notebook".

Energy Consumption (in accordance with US ENERGY STAR® test method)	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Sort idle)	3.91 W	4.11 W	4.00 W
Normal Operation (Long idle)	2.23 W	2.41 W	2.35 W
Sleep	0.62 W	0.75 W	0.61 W
Off	0.39 W	0.51 W	0.38 W

Note:  
Energy efficiency data listed is for an ENERGY STAR® compliant product if offered within the model family. HP computers marked with the ENERGY STAR® Logo are compliant with the applicable U.S. Environmental Protection Agency (EPA) ENERGY STAR® specifications for computers. If a model family does not offer ENERGY STAR® compliant configurations, then energy efficiency data listed is for a typically configured PC featuring a hard disk drive, a high efficiency power supply, and a Microsoft Windows® operating system.

Heat Dissipation*	115VAC, 60Hz	230VAC, 50Hz	100VAC, 60Hz
Normal Operation (Short idle)	13 BTU/hr	14 BTU/hr	14 BTU/hr
Normal Operation (Long idle)	8 BTU/hr	8 BTU/hr	8 BTU/hr
Sleep	2 BTU/hr	3 BTU/hr	2 BTU/hr
Off	2 BTU/hr	2 BTU/hr	1 BTU/hr

\*NOTE: Heat dissipation is calculated based on the measured watts, assuming the service level is attained for one hour.



### Features

Declared Noise Emissions (in accordance with s ISO 7779 and ISO 9296) Typically Configured – Idle	Sound Power (L <sub>WAd</sub> , bels)	Sound Pressure (L <sub>pAm</sub> , decibels)	
	2.9	21	
Fixed Disk – Random writes	2.9	29	
Longevity and Upgrading	<p>This product can be upgraded, possibly extending its useful life by several years. Upgradeable features and/or components contained in the product may include:</p> <ul style="list-style-type: none"> <li>3 USB ports</li> <li>1 PC card slot (type I/II)</li> <li>1 ExpressCard/54 slot</li> <li>1 IEEE 1394 Port</li> <li>2 SODIMM memory slots</li> <li>Optional expansion base docking station</li> <li>1 multi-bay II storage port</li> <li>Interchangeable HDD??</li> </ul> <p>&lt;edit list of features as required&gt;</p> <p>Spare parts are available throughout the warranty period and or for up to “5” years after the end of production.</p>		
Batteries	<p>This battery(s) in this product comply with EU Directive 2006/66/EC</p> <p>Batteries used in the product do not contain: Mercury greater the 1ppm by weight Cadmium greater than 20ppm by weight</p> <p>Battery size: CR2032 (coin cell) Battery type: Lithium Battery size: 6-cell high capacity Lithium-Ion battery (optional 8 cell available) Battery type:</p>		
Additional Information	<p>This product is in compliance with the Restrictions of Hazardous Substances (RoHS) directive - 2011/65/EC. This HP product is designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive – 2002/96/EC. This product is in compliance with California Proposition 65 (State of California; Safe Drinking Water and Toxic Enforcement Act of 1986). This product is in compliance with the IEEE 1680 (EPEAT) standard at the gold level, see <a href="http://www.epeat.net">www.epeat.net</a> Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043. This product contains 30.6 % post-consumer recycled plastic (by wt.) This product is 92.4 % recycle-able when properly disposed of at end of life.</p>		
Packaging Materials	External:	PAPER/Paper	349 g
	Internal:	PLASTIC/EPE (Expanded Polyethylene)	37 g

### Features

	PLASTIC/Polyethylene	3 g
Material Usage	<p>The plastic packaging material contains at least 30 % recycled content.</p> <p>The corrugated paper packaging materials contains at least 30 % recycled content.</p>	
	<p>This product does not contain any of the following substances in excess of regulatory limits (refer to the HP General Specification for the Environment at <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf">http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/gse.pdf</a>):</p> <ul style="list-style-type: none"> <li>Asbestos</li> <li>Certain Azo Colorants</li> <li>Certain Brominated Flame Retardants – may not be used as flame retardants in plastics</li> <li>Cadmium</li> <li>Chlorinated Hydrocarbons</li> <li>Chlorinated Paraffins</li> <li>Formaldehyde</li> <li>Halogenated Diphenyl Methanes</li> <li>Lead carbonates and sulfates</li> <li>Lead and Lead compounds</li> <li>Mercuric Oxide Batteries</li> <li>Nickel – finishes must not be used on the external surface designed to be frequently handled or carried by the user.</li> <li>Ozone Depleting Substances</li> <li>Polybrominated Biphenyls (PBBs)</li> <li>Polybrominated Biphenyl Ethers (PBBEs)</li> <li>Polybrominated Biphenyl Oxides (PBBOs)</li> <li>Polychlorinated Biphenyl (PCB)</li> <li>Polychlorinated Terphenyls (PCT)</li> <li>Polyvinyl Chloride (PVC) – except for wires and cables, and certain retail packaging has been voluntarily removed from most applications.</li> <li>Radioactive Substances</li> <li>Tributyl Tin (TBT), Triphenyl Tin (TPT), Tributyl Tin Oxide (TBTO)</li> </ul>	
Packaging Usage	<p>HP follows these guidelines to decrease the environmental impact of product packaging:</p> <ul style="list-style-type: none"> <li>Eliminate the use of heavy metals such as lead, chromium, mercury and cadmium in packaging materials.</li> <li>Eliminate the use of ozone-depleting substances (ODS) in packaging materials.</li> <li>Design packaging materials for ease of disassembly.</li> <li>Maximize the use of post-consumer recycled content materials in packaging materials.</li> <li>Use readily recyclable packaging materials such as paper and corrugated materials.</li> <li>Reduce size and weight of packages to improve transportation fuel efficiency.</li> <li>Plastic packaging materials are marked according to ISO 11469 and DIN 6120 standards.</li> </ul>	
End-of-life Management and Recycling	<p>Hewlett-Packard offers end-of-life HP product return and recycling programs in many geographic areas. To recycle your product, please go to: <a href="http://www.hp.com/go/reuse-recycle">http://www.hp.com/go/reuse-recycle</a> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.</p> <p>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: <a href="http://www.hp.com/go/recyclers">http://www.hp.com/go/recyclers</a>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.</p>	

### Features

Hewlett-Packard Corporate Environmental Information	For more information about HP's commitment to the environment: Global Citizenship Report <a href="http://www.hp.com/hpinfo/globalcitizenship/qcreport/index.html">http://www.hp.com/hpinfo/globalcitizenship/qcreport/index.html</a> Eco-label certifications <a href="http://www8.hp.com/us/en/hp-information/environment/ecolabels.html">http://www8.hp.com/us/en/hp-information/environment/ecolabels.html</a> ISO 14001 certificates: <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf">http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/PC_GBU_Product_Design_ISO_14K_Certificate.pdf</a> and <a href="http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf">http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf</a>
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### WEIGHTS & DIMENSIONS

#### Weight

Starting at 3.08 lbs (1.40 kg)  
Weight varies by configuration and components.

#### Dimensions (w x d x h)

11.22 x 8.35 x 0.87 in (at front)  
285 x 212 x 22.2 mm (at front)

### PORTS/SLOTS

#### Ports

- (1) USB 3.0 Port
- (1) USB 3.0 Charging Port
- (1) Display Port 1.2
- (1) RJ-45 / Ethernet
- (1) Headphone/MIC jack
- (1) Side docking connector
- (1) Power connector

#### Digital Media Slots

microSD Media Reader Slot - supports SD, SDHC, SDXC

### SERVICE AND SUPPORT

HP Services offers 3-year, 1-year and 90 day limited warranty options depending on country. Batteries have a default one year limited warranty except for Long Life batteries which will have same 1-year or 3-year limited warranty as the platform. On-site service and extended coverage is also available. HP Care Pack Services are optional extended service contracts that go beyond the standard limited warranties. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at: <http://www.hp.com/go/cpc>. \*Sold separately or as an optional feature.

\*\* Service levels and response times for HP Care Services may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. For details, visit [www.hp.com/go/cpc](http://www.hp.com/go/cpc)

### Technical Specifications

#### SYSTEM UNIT - TBD

#### DISPLAYS

<b>11.6-inch diagonal LED HD (1366 x 768)</b>	<b>Active Area</b>	9.88 x 5.67 in (25.61 x 14.40 cm)		
	<b>Dimensions (W x H)</b>	11.53 x 6.49 in (29.3 x 16.5 cm)		
	<b>Diagonal Size</b>	11.6 in (29.46 cm)		
	<b>Contrast Ratio</b>	300:1 (typical)		
	<b>Refresh Rate</b>	60 Hz		
	<b>Brightness</b>	400 nit (typical)		
	<b>Pixel Resolution</b>	<b>Format</b>	1366 x 768	
		<b>Configuration</b>	RGB Stripe	
	<b>Backlight</b>	LED		
	<b>Viewing Angle</b>	40/40/15/30 (Left/Right/Down/Up) (typical)		

#### STORAGE AND DRIVES

##### Internal Storage

<b>128 GB* M.2 Solid State Drive</b>	<b>Drive Weight</b>	Up to 10 grams		
	<b>Capacity</b>	128 GB		
	<b>Height</b>	0.091 in (2.3 mm)		
	<b>Width</b>	0.87 in (22 mm)		
	<b>Interface</b>	SATA 3 (6 Gb/s)		
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
		Up to 500 MB/s	Up to 300 MB/s	
	<b>Logical Blocks</b>	250,069,680		
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [case temp]			
<b>Features</b>	ATA Security; ATA-8; SATA 3.0; DIPM; TRIM			

<b>180 GB* M.2 Solid State Drive</b>	<b>Drive Weight</b>	Up to 10 grams		
	<b>Capacity</b>	180 GB		
	<b>Height</b>	0.091 in (2.3 mm)		
	<b>Width</b>	0.87 in (22 mm)		
	<b>Interface</b>	SATA Gen 3 (6 Gb/s)		
	<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
		Up to 510 MB/s	Up to 470 MB/s	
	<b>Logical Blocks</b>	351,651,888		
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [case temp]			
<b>Features</b>	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM			
<b>Security Features</b>	TCG Opal 1 compliant			

<b>256 GB* M.2 Solid State Drive</b>	<b>Drive Weight</b>	Up to 10 grams	
	<b>Capacity</b>	256 GB	
	<b>Height</b>	0.091 in (2.3 mm)	

### Technical Specifications

<b>Width</b>	0.87 in (22 mm)		
<b>Interface</b>	SATA Gen 3 (6 Gb/s)		
<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
	Up to 510 MB/s	Up to 465 MB/s	
<b>Logical Blocks</b>	500,118,192		
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [case temp]		
<b>Features</b>	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM		
<b>Security Features</b>	TCG Opal 2 compliant		

#### 180 GB\* M.2 SED Solid State Drive

<b>Drive Weight</b>	10 Grams		
<b>Capacity</b>	180 GB		
<b>Height</b>	0.091 in (2.3 mm)		
<b>Width</b>	0.87 in (22 mm)		
<b>Interface</b>	SATA 3 (6 Gb/s)		
<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
	Up to 540 MB/s	Up to 490 MB/s	
<b>Logical Blocks</b>	351,651,888		
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [case temp]		
<b>Features</b>	ATA Security; ATA-8, SATA 3.0; DIPM; TRIM; TCG Opal 1.0		

#### 512 GB SATA-3 Solid State Drive

<b>Drive Weight</b>	0.0154 lb (7g)		
<b>Capacity</b>	512 GB		
<b>Height</b>	0.09 in (2.38mm)		
<b>Width</b>	0.87 in (22mm)		
<b>Interface</b>	ATA-8, SATA 3.0		
<b>Performance</b>	<b>Maximum Sequential Read</b>	<b>Maximum Sequential Write</b>	
	Up to 450 MB/s	Up to 400 MB/s	
<b>Logical Blocks</b>	1,000,215,216		
<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]		
<b>Features</b>	ATA Security, DIPM; TRIM; DEVSLP		

\* For solid state drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 16 GB (for Windows 7) and 30 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

### Technical Specifications

#### NETWORKING/COMMUNICATIONS

##### HP It4211 LTE/EV-DO/HSPA+ Gobi™ 4G Mobile Broadband Module

<b>Technology/Operating bands</b>	LTE: 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 700 (Band 13 upper SMH), 700 (Band 17 lower SMH), 1900 MHz (Band 25, extended PCS) MHz HSPA+: 2100 (Band 1), 1900 (Band 2), 1700/2100 (Band 4), 850 (Band 5), 900 (Band 8) MHz E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 (Band 5), 900 (Band 8) MHz EV-DO: 800 (BC0), 1900 (BC1) MHz
<b>Wireless protocol standards</b>	3GPP Release 8 LTE Specification WCDMA R99, 3GPP Release 5, 6 and 7 UMTS Specification E-GPRS: Class B, Multi-slot class 33, coding schemes CS1 - CS4 and MSC1 - MSC9 EVDO Release 0 and Release A
<b>GPS</b>	Standalone, A-GPS
<b>GPS bands</b>	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
<b>Maximum data rates</b>	LTE: 100 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload) EDGE: 236.8 kbps (Download), 236.8 kbps (Upload) GPRS: 85.6 kbps(Download), 85.6 kbps (Upload) CDMA 1x: DL 153.6 kbps/UL 153.6 kbps EVDO Rev.A: DL 3.1 Mbps/UL 1.8 Mbps
<b>Maximum output power</b>	LTE: 23 dBm HSPA+: 23.5 dBm E-GPRS 1900/1800: 26.5 dBm E-GPRS 900/850: 27.5 dBm GPRS 1900/1800: 29.5 dBm GPRS 900/850: 32.5 dBm CDMA/EVDO: 24dBm
<b>Maximum power consumption</b>	LTE: 1,200 mA (peak); 900 mA (average) HSPA+: 1,100 mA (peak); 800 mA (average) E-GPRS: 2,800 mA (peak); 700 mA (average) EVDO: 1000mA (peak); 720mA (average)
<b>Form Factor</b>	M.2, 3042-S3 Key B
<b>Weight</b>	6 g
<b>Dimensions</b> (Length x Width x Thickness)	1.65 x 1

### Technical Specifications

\* Mobile Broadband is an optional feature. Connection requires wireless data service contract, network support, and is not available in all areas. Contact service provider to determine the coverage area and availability. Connection speeds will vary due to location, environment, network conditions, and other factors. 4G LTE not available on all products or in all countries.

<b>Intel Dual Band Wireless-AN 7265 802.11 a/b/g/n (2x2) WiFi + Bluetooth 4.0 Combo Adaptor*</b>	<b>Wireless LAN Standards</b>	IEEE 802.11a
		IEEE 802.11b
		IEEE 802.11g
		IEEE 802.11n
	<b>Interoperability</b>	Wi-Fi certified
	<b>Frequency Band</b>	802.11b/g/n
		<ul style="list-style-type: none"> <li>● 2.402 – 2.482 GHz</li> </ul>

Note: The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels

- 802.11a
- 4.9 – 4.95 GHz (Japan)
  - 5.15 – 5.25 GHz
  - 5.25 – 5.35 GHz
  - 5.47 – 5.725 GHz
  - 5.825 – 5.850 GHz

Note: Indonesia only supports 5.725 - 5.825 GHz (CH149 - CH161)

<b>Antenna Structure</b>	2 transmit; 2 receive (2x2)
<b>Data Rates</b>	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)
<b>Modulation</b>	Direct Sequence Spread Spectrum CCK, BPSK, QPSK, 16-QAM, 64-QAM
<b>Security<sup>1</sup></b>	<ul style="list-style-type: none"> <li>● IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> <li>● AES-CCMP: 128 bit in hardware</li> <li>● 802.1x authentication</li> <li>● WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>● WPA2 certification</li> <li>● IEEE 802.11i</li> <li>● Cisco Certified Extensions, all versions through CCX4 and CCX Lite</li> <li>● WAPI</li> </ul>
<b>Sub-channels</b>	Multinational support with frequency bands and channels compliant to local regulations.
<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between band Access Points
<b>Output Power<sup>2</sup></b>	<ul style="list-style-type: none"> <li>● 802.11b : +16dBm minimum</li> <li>● 802.11g : +14dBm minimum</li> <li>● 802.11a : +14dBm minimum</li> </ul>

### Technical Specifications

	<ul style="list-style-type: none"> <li>• 802.11n HT20(2.4GHz) : +13dBm minimum</li> <li>• 802.11n HT40(2.4GHz) : +13dBm minimum</li> <li>• 802.11n HT20(5GHz) : +12dBm minimum</li> <li>• 802.11n HT40(5GHz) : +12dBm minimum</li> </ul>
<b>Power Consumption</b>	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>4</sup></b>	802.11b, 1Mbps : -94dBm maximum 802.11b, 11Mbps : -86dBm maximum 802.11g, 6Mbps : -88dBm maximum 802.11g, 54Mbps : -74dBm maximum 802.11a, 6Mbps : -86dBm maximum 802.11a, 54Mbps : -72dBm maximum 802.11n, MCS07 : -69dBm maximum 802.11n, MCS15 : -66dBm maximum
<b>Antenna Type</b>	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO and Bluetooth communications
<b>Form Factor</b>	PCI-Express M.2 MiniCard
<b>Dimensions</b>	Type 2230 : 2.3 x 22.0 x 30.0 mm Or Type 1630 : 2.3 x 16.0 x 30.0 mm
<b>Weight</b>	Type 2230 : 2.8g Or Type 1630 : 2g
<b>Operating Voltage</b>	3.3v +/- 9%
<b>Temperature</b>	Operating 14° to 158° F (-10° to 70° C) Non-operating -40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating 10% to 90% (non-condensing) Non-operating 5% to 95% (non-condensing)
<b>Altitude</b>	Operating 0 to 10,000 ft (3,048 m) Non-operating 0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Amber - Radio OFF; LED White - Radio ON
	<ol style="list-style-type: none"> <li>1. Check latest software/driver release for updates on supported security features.</li> <li>2. Maximum output power may vary by country according to local regulations.</li> <li>3. In Power Save Polling mode and on battery power.</li> <li>4. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).</li> <li>5. WLAN supplier's client utility is required for Cisco Compatible Extensions support with Microsoft Windows XP. WLAN may also be compatible with certain third-party software suppliers. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista.</li> </ol>
<b>Bluetooth Specification</b>	4.0+EDR Compliant



### Technical Specifications

<b>HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology</b>	<b>Frequency Band</b>	2402 to 2480 MHz												
	<b>Number of Available Channels</b>	79 (1 MHz) available channels												
	<b>Data Rates and Throughput</b>	3 Mbps data rate; throughput up to 2.17 Mbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric												
	<b>Transmit Power</b>	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of +4 dBm for BR and EDR												
	<b>Receiver Sensitivity</b>	<table border="1"> <thead> <tr> <th>Modulation</th> <th>0.01% BER</th> <th>0.001% BER</th> </tr> </thead> <tbody> <tr> <td>GFSK</td> <td>-80 dBm</td> <td>-70 dBm</td> </tr> <tr> <td><math>\pi/4</math>-DQPSK</td> <td>-80 dBm</td> <td>-70 dBm</td> </tr> <tr> <td>8DPSK</td> <td>-80 dBm</td> <td>-70 dBm</td> </tr> </tbody> </table>	Modulation	0.01% BER	0.001% BER	GFSK	-80 dBm	-70 dBm	$\pi/4$ -DQPSK	-80 dBm	-70 dBm	8DPSK	-80 dBm	-70 dBm
	Modulation	0.01% BER	0.001% BER											
	GFSK	-80 dBm	-70 dBm											
	$\pi/4$ -DQPSK	-80 dBm	-70 dBm											
	8DPSK	-80 dBm	-70 dBm											
	<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW												
	<b>Antenna</b>	Internally integrated within module												
	<b>Range</b>	Up to 33 ft (10 m)												
	<b>Electrical Interface</b>	USB 2.0 compliant Microsoft Windows Plug and Play compliant												
	<b>Bluetooth Software Supported</b>	Broadcom Bluetooth for Windows Microsoft Windows Bluetooth Software												
<b>Link Topology</b>	Point to Point, Multipoint Pico Nets up to 7 slaves													
<b>Security</b>	Full support of Bluetooth Security Provisions													
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff													
<b>Certifications</b>	All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249 ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark													
<b>Bluetooth Profiles Supported</b>	Serial Port Profile (SPP) <sup>1</sup> Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN) <sup>1,2</sup> Generic Object Exchange Profile (GOEP) <sup>1,2</sup> Object Push Profile (OPP) <sup>1,2</sup> File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP) <sup>1,2</sup> Personal Area Networking Profile (PAN) <sup>1,2</sup> Human Interface Device Profile (HID) <sup>1,2</sup> FAX Profile (FAX) Basic Imaging Profile (BIP) <sup>2</sup> Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)													

### Technical Specifications

1. Indicates the profile is supported by Microsoft Windows XP SP2

2. Indicates the profile is part of Windows Vista

\* Wireless access point and internet service required. Availability of public wireless access points limited.

<b>Intel Dual Band Wireless-AC 7265 802.11a/b/g/n (2x2) WiFi + BT 4.0 combo Adapter*</b>	<b>Wireless LAN Standards</b>	<ul style="list-style-type: none"> <li>IEEE 802.11a</li> <li>IEEE 802.11b</li> <li>IEEE 802.11g</li> <li>IEEE 802.11n</li> <li>IEEE 802.11ac</li> </ul>
	<b>Interoperability</b>	Wi-Fi certified
	<b>Frequency Band</b>	802.11b/g/n <ul style="list-style-type: none"> <li>• 2.402 - 2.482 GHz</li> </ul>
		<p>Note: The FCC has declared as of January 1, 2015 products that utilize passive scanning on channel 12/13 and are capable of transmitting must fully comply with requirements of 15.247 or otherwise disable those channels</p>
		802.11a <ul style="list-style-type: none"> <li>• 4.9 - 4.95 GHz (Japan)</li> <li>• 5.15 - 5.25 GHz</li> <li>• 5.25 - 5.35 GHz</li> <li>• 5.47 - 5.725 GHz</li> <li>• 5.825 - 5.850 GHz</li> </ul> <p>Note: Indonesia only supports 5.725 - 5.825 GHz (CH149 - CH161)</p>
	<b>Antenna Structure</b>	2 transmit; 2 receive (2x2)
	<b>Data Rates</b>	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: card will support rates for NSS=1 and NSS=2 for RX and TX for 20 and 40 MHz channels. Short and long guard interval shall be supported. 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)
	<b>Modulation</b>	Direct Sequence Spread Spectrum BPSK, QPSK, CCK, 16-QAM, 64-QAM, 256-QAM
	<b>Security<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only</li> <li>• AES-CCMP: 128 bit in hardware</li> <li>• 802.1x authentication</li> <li>• WPA, WPA2: 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.</li> <li>• WPA2 certification</li> <li>• IEEE 802.11i</li> <li>• Cisco Certified Extensions, all versions through CCX4 and CCX Lite</li> <li>• WAPI</li> </ul>
	<b>Network Architecture Models</b>	Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
	<b>Roaming</b>	IEEE 802.11 compliant roaming between Access Points
	<b>Output Power<sup>2</sup></b>	<ul style="list-style-type: none"> <li>• 802.11b : +16dBm minimum</li> </ul>

### Technical Specifications

- 802.11g : +14dBm minimum
- 802.11a : +14dBm minimum
- 802.11n HT20(2.4GHz) : +13dBm minimum
- 802.11n HT40(2.4GHz) : +13dBm minimum
- 802.11n HT20(5GHz) : +12dBm minimum
- 802.11n HT40(5GHz) : +12dBm minimum
- 802.11ac 80MHz(5GHz) : +11dBm minimum

<b>Power Consumption</b>	Transmit: 2.0 W (max) Receive: 1.6 W (max) Idle mode (PSP): 180 mW (WLAN Associated) Idle mode: 60 mW (WLAN unassociated) Radio disabled: 30 mW	
<b>Power Management</b>	ACPI and PCI Express compliant power management 802.11 compliant power saving mode	
<b>Receiver Sensitivity<sup>3</sup></b>	802.11g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps)  802.11b:-95 dBm (1 Mbps), -93 dBm (2 Mbps), -91 dBm (5.5 Mbps), -88 dBm (11 Mbps)  802.11g:-90 dBm (6 Mbps), -89 dBm (9 Mbps), -87 dBm (12 Mbps), -85 dBm (18 Mbps), -82 dBm (24 Mbps), -79 dBm (36 Mbps), -76 dBm (48 Mbps), -74 dBm (54 Mbps)  802.11n:-69 dBm (150 Mbps), -66 dBm (300 Mbps)	
<b>Antenna type</b>	High efficiency antenna with spatial diversity, mounted in the display enclosure Two embedded dual band 2.4/5 GHz antennas are provided to the card to support WLAN MIMO communications and Bluetooth communications	
<b>Form Factor</b>	PCI-Express Half-MiniCard	
<b>Dimensions</b>	0.134 x 1.06 x 1.18 in (3.4 x 26.8 x 30 mm)	
<b>Weight</b>	3.1g	
<b>Operating Voltage</b>	3.3v +/- 9%	
<b>Temperature</b>	Operating	14° to 158° F (-10° to 70° C)
	Non-operating	-40° to 176° F (-40° to 80° C)
<b>Humidity</b>	Operating	10% to 90% (non-condensing)
	Non-operating	5% to 95% (non-condensing)
<b>Altitude</b>	Operating	0 to 10,000 ft (3,048 m)
	Non-operating	0 to 50,000 ft (15,240 m)
<b>LED Activity</b>	LED Amber - Radio OFF; LED White - Radio ON	
	1. Check latest software/driver release for updates on supported security features. 2. Maximum output power may vary by country according to local regulations. 3. Receiver sensitivity is measured at a packet error rate of 8% for 802.11b (CKK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).	

#### HP Integrated Module with Bluetooth 4.0+EDR Wireless Technology

<b>Bluetooth Specification</b>	4.0+EDR Compliant
<b>Frequency Band</b>	2402 to 2480 MHz

### Technical Specifications

<b>Number of Available Channels</b>	79 (1 MHz) available channels
<b>Data Rates and Throughput</b>	3 Mbps data rate; throughput up to 2.17 Mbps Synchronous Connection Oriented links up to 3, 64 kbps, voice channels Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric or 1306.9 kbps symmetric
<b>Transmit Power</b>	The Bluetooth component shall operate as a Class II Bluetooth device with a maximum transmit power of +4 dBm for BR and EDR
<b>Receiver Sensitivity</b>	Better than -20 dBm at 0.1 % raw bit error rate
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW
<b>Antenna</b>	Internally integrated within module
<b>Range</b>	Up to 33 ft (10 m)
<b>Electrical Interface</b>	USB 2.0 compliant Microsoft Windows Plug and Play compliant
<b>Bluetooth Software Supported</b>	Broadcom Bluetooth for Windows Microsoft Windows Bluetooth Software
<b>Link Topology</b>	Point to Point, Multipoint Pico Nets up to 7 slaves
<b>Security</b>	Full support of Bluetooth Security Provisions
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
<b>Certifications</b>	All necessary regulatory approvals for supported countries, including: FCC (47 CFR) Part 15C, Section 15.247 & 15.249 ETS 300 328, ETS 300 826 Low Voltage Directive IEC950 UL, CSA, and CE Mark
<b>Bluetooth Profiles Supported</b>	Serial Port Profile (SPP) <sup>1</sup> Service Discovery Application Profile (SDAP) Dial-Up Networking (DUN) <sup>1,2</sup> Generic Object Exchange Profile (GOEP) <sup>1,2</sup> Object Push Profile (OPP) <sup>1,2</sup> File Transfer Profile (FTP) Synchronization Profile (SYNC) Hard Copy Cable Replacement (HCRP) <sup>1,2</sup> Personal Area Networking Profile (PAN) <sup>1,2</sup> Human Interface Device Profile (HID) <sup>1,2</sup> FAX Profile (FAX) Basic Imaging Profile (BIP) <sup>2</sup> Headset Profile (HSP) Hands Free Profile (HFP) Advanced Audio Distribution Profile (A2DP)

1. Indicates the profile is supported by Microsoft Windows XP SP2

2. Indicates the profile is part of Windows Vista

\* Wireless access point and internet service required. Availability of public wireless access points limited.

### AUDIO/MULTIMEDIA



### Technical Specifications

<b>Audio</b>	<b>DTS Studio Sound™</b> (Windows OS only)		
<b>Hardware</b>	<b>Implementation</b>	Realtek ALC3228 High Definition CODEC	
	<b>Function Key Volume Controls</b>	Volume up, volume down, and mute	
	<b>Mute Buttons</b>	Playback and Record mute buttons with LED indicator	
	<b>Full Duplex</b>	Yes	
	<b>Microphone In</b>	Mono	
	<b>Headphone/Line Out</b>	Stereo	
	<b>Integrated Microphone</b>	Yes, dual digital microphone array	
<b>Audio Output Quality</b>	<b>Frequency Response</b>	20 Hz – 20 kHz	
	<b>Signal to Noise Ratio</b>	>85 dB	
	<b>Total Harmonic Distortion</b>	0.01%	
	<b>Noise Floor</b>	-110 dB	
	<b>Play/Record Sampling Rate(s)</b>	8 kHz - 48kHz	
	<b>DAC</b>	16, 20 or 24-bit	
	<b>ADC</b>	16 or 20-bit	
<b>Integrated Stereo Speakers</b>	<b>Power Rating</b>	1 Watt	
	<b>Impedance</b>	8 Ohms	
 <b>POWER</b>			
<b>HP 45W Slim Smart AC Adapter</b>	<b>Dimensions (H x W x D)</b>	96.0 x 49.5 x 22.4 mm	
		<b>Input</b>	
		90 to 265 VAC	
		Input Efficiency	87% min at 115 VAC/230VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.4 A at 90 VAC and maximum load
	<b>Output</b>	Output power	45W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<8A, Over voltage protection- 29V max automatic shutdown
		<b>Connector</b>	3 pin/grounded, mates with 7.4mm barrel type Smart ID DC connector
	<b>Environmental Design</b>	<b>Operating temperature</b>	32° to 95° F (0° to 35° C)
		<b>Non-operating (storage) temperature</b>	-4° to 121° F (-20° to 85° C)
<b>Altitude</b>		0 to 10,000 ft (0 to 2,000 m)	
<b>Humidity</b>		0% to 95%	
<b>Storage Humidity</b>		0% to 95%	

### Technical Specifications

	<b>EMI and Safety Certifications</b>	CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; Reliability - failure rate of less than 0.1% annually within the first three years of operation.	
<b>HP 65W Slim Smart AC Adapter EM</b>	<b>Dimensions (H x W x D)</b>	126.0 x 50.0 x 30.0 mm	
	<b>Input</b>	90 to 265 VAC	
		Input Efficiency	87% min at 115 VAC/230VAC
		Input frequency range	47 to 63 Hz
		Input AC current	1.7 A at 90 VAC and maximum load
	<b>Output</b>	Output power	65W
		DC output	19.5V
		Hold-up time	5 msec at 115 VAC input
		Output current limit	<11A, Over voltage protection- 29V max automatic shutdown
		<b>Connector</b>	3 pin/grounded, mates with 7.4mm barrel type Smart ID DC connector
<b>Environmental Design</b>	<b>Operating temperature</b>	32° to 95° F (0° to 35° C)	
	<b>Non-operating (storage) temperature</b>	-4° to 121° F (-20° to 85° C)	
	<b>Altitude</b>	0 to 16,405 ft (0 to 5,000 m)	
	<b>Humidity</b>	0% to 95%	
	<b>Storage Humidity</b>	0% to 95%	
	<b>EMI and Safety Certifications</b>	CE Mark - full compliance with LVD and EMC directives; Worldwide safety standards - IEC60950, EN60950, UL60950, Class1, SELV; Agency approvals - C-UL-US, NORDICS, DENAN, EN55022 Class B, FCC Class B, CISPR22 Class B, CCC, NOM-1 NYCE; Reliability - failure rate of less than 0.1% annually within the first three years of operation.	
<b>HP 6-cell (44 WHr) Polymer Primary battery</b>	<b>Dimensions (H x W x L)</b>	11.09 x 4.05 x 0.54 in (28.156 x 10.282 x 1.365 cm)	
	<b>Weight (max)</b>	0.308 kg	
	<b>Cells/Type</b>	6-cell Polymer	
	<b>Energy</b>	Voltage	11.1V
		Amp-hour capacity	4.0Ah
		Watt-hour capacity	44Wh
	<b>Temperature</b>	Operating (Charging)	32° to 113° F (0° to 45° C)
		Operating (Discharging)	14° to 140° F (-10° to +0° C)
		Non-operating	-4° to 140° F (-20° to 60° C)
	<b>Battery Re-Charge Time</b>	System in OFF or Standby Mode	2.5 hours (This depends on system setting)
System ON		3-5 hours (This depends on system setting)	
	<b>Fuel Gauge LED</b>	No	
	<b>Optional Travel Battery Available</b>	No	

## Technical Specifications

### **COUNTRY OF ORIGIN**

China

Options and Accessories (sold separately and availability may vary by country)

Category	Description	Part number
<b>Cases</b>	HP Professional Series Carrying Case (up to 15.6")	H4J90AA
	HP Professional Slim Top Load Case (up to 17.3")	H4J91AA
	HP Business Case(up to 15.6")	H5M92AA
<b>Stands and Docking</b>	HP Display and Notebook Stand II	E8G00AA
<b>Input Devices</b>	HP Wireless Mobile Mouse	H2L63AA
	HP Touch To Pair Mouse	H6E52AA
	HP Slim Bluetooth Mouse (Vivaldi)	F3J92AA
	HP 2.4GHz Keyboard and Mouse (Dachshund)	G1K29AA
	HP Executive Tablet Pen G2	F3G73AA
<b>Adapters</b>	USB Graphics Adapter (DBU PL)	NL571AA/AT
	HP DisplayPort to HDMI 1.4 Adapter	F3W43AA
	HP DisplayPort to DVI Adapter	F7W96AA
	HP DisplayPort to VGA Adapter	F7W97AA
	Adapter, USB Graphics - dual output	C5U89AA/AT
<b>Charging</b>	HP 45W Smart AC Adapter (4.5mm) (PL MP only)	H6Y88AA
	HP 2-Bay Battery Charging Station	H2W29AA
	HP 10-Bay Battery Charging Station	H2W28AA
<b>Power</b>	HP OD06XL Battery Adapter (for 2 and 10 bay chargers)	F6V66AA
	HP OD06XL Long Life Notebook Battery (2013)	H6L25AA
<b>Security</b>	HP 11.6" Rotatable Privacy Filter for EliteBook Revolve 810	J6E63AA
	HP Docking Station Cable Lock	AU656AA
	HP UltraSlim Keyed Cable Lock	H4D73AA
<b>Charging Cart</b>	20 Notebook Managed Charging Cart	QL489AA
	20 Notebook Charging Cart	QL488AA
	30 Notebook Managed Charging Cart	QL490AA
	30 Notebook Charging Cart	H4F31AA
<b>Displays</b>	HP EliteDisplay E221c 21.5-in Webcam Monitor	D9E49AA
	HP EliteDisplay E221i 21.5-inch IPS Monitor	F9Z09AA
	HP EliteDisplay E231i 23-inch IPS Monitor	F9Z10AA



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