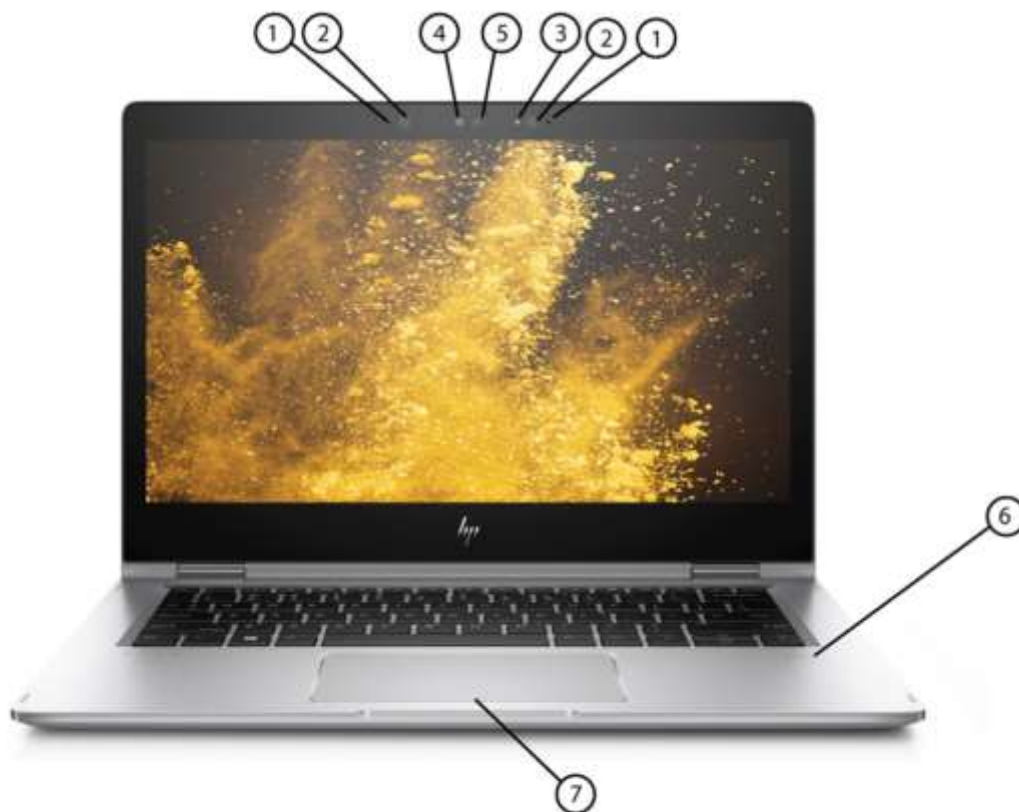


### Features

#### HP EliteBook x360 1030 G2 PC



#### Front

- |    |                          |    |                          |
|----|--------------------------|----|--------------------------|
| 1. | Internal microphones (2) | 5. | IR camera                |
| 2. | IR emitters(2)           | 6. | Touch Fingerprint sensor |
| 3. | Webcam LED               | 7. | Glass Clickpad           |
| 4. | Webcam                   |    |                          |

### Features



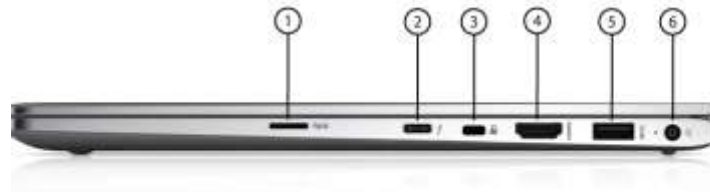
- 1. Internal microphones (2)
- 2. IR emitters(2)
- 3. Webcam
- 4. IR camera
- 5. Touch Fingerprint sensor
- 6. Glass Clickpad

#### Right

- 7. Smart card reader
- 8. WWAN SIM
- 9. Volume up/ down
- 10. Audio combo jack
- 11. USB 3.1 Gen 1 (charging)
- 12. Power button



### Features



1. Micro SD slot
2. USB Type-C™ with Thunderbolt™
3. Security lock slot

#### Left

4. HDMI port
5. USB 3.1 Gen 1
6. Power connector



#### Conferencing Keyboard



### Features

**Laptop to work**  
Get your work on,  
be productive



**Tent to play**  
Your favorite games  
and apps at your  
fingertips



**Conference to collaborate**  
Bring life to meetings



**Tablet to go**  
Ultra-slim and light, so it's easy to  
stay connected on-the-go



**Stand (media) to watch**  
Perfect for movies and Skype®  
video chats



### Features

#### At A Glance

- Pre-installed with Windows 10 editions
- All metal CNC Al chassis that is .59 inches (1.49 cm) thin
- Pending MIL STD 810G tests <sup>1</sup>
- Powered by 7th Generation Intel® Core™ processors
- Choice of SSD storage drives up to 512 GB, including PCIe NVMe
- Weight starting at 2.82 lbs (1.28 kg)
- Connect without dongles using full size ports including USB, USB-C™, and HDMI 1.4 for connecting to high-resolution displays
- Large ClickPad with gestures support
- Never forget your password with your choice of simple authentication methods, including the IR camera for face recognition and Touch Fingerprint Sensor for Windows Hello (requires Windows 10), as well as the integrated Smart Card Reader
- Optional full size HP Active Pen with App Launch, designed with Wacom technology
- HP 720p HD webcam, dual array microphones, and integrated premium stereo speakers for video audio and conferencing
- Engage teams, clients, and vendors with the crystal-clear audio by Bang & Olufsen and the high-performance HP Premium Collaboration Keyboard

1. MIL STD 810G testing is pending and is not intended to demonstrate fitness for U.S. Department of Defense contract requirements or for military use. Test results are not a guarantee of future performance under these test conditions. Damage under the MIL STD test conditions or any accidental damage requires an optional HP Accidental Damage Protection Care Pack.

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

### PRODUCT NAME

HP EliteBook x360 1030 G2 PC

### OPERATING SYSTEM

#### Preinstalled

Windows 10 Pro 64<sup>1</sup>  
Windows 10 Pro 64 (National Academic only)<sup>2</sup>  
Windows 10 Home 64<sup>1</sup>  
Windows 10 Home Single Language 64<sup>1</sup>

#### Web supported

Windows 10 Enterprise 64<sup>1</sup>



### Features

**NOTE:** In accordance with Microsoft's support policy, HP does not support the Windows® 8 or Windows 7 operating system on products configured with Intel and AMD 7th generation and forward processors or provide any Windows® 8 or Windows 7 drivers on <http://www.support.hp.com>

1. Not all features are available in all editions or versions of Windows 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.windows.com/>.
2. Some devices for academic use will automatically be updated to Windows 10 Pro Education with the Windows 10 Anniversary Update. Features vary; see <https://aka.ms/ProEducation> for Windows 10 Pro Education feature information.

### PROCESSORS

Intel® Core™ i5-7200U with Intel HD Graphics 620 (2.5 GHz, up to 3.1 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)

Intel® Core™ i5-7300U with Intel HD Graphics 620 (2.6 GHz, up to 3.5 GHz with Intel Turbo Boost Technology, 3 MB cache, 2 cores)

Intel® Core™ i7-7600U with Intel HD Graphics 620 (2.8 GHz, up to 3.9 GHz with Intel Turbo Boost Technology, 4 MB cache, 2 cores)

**NOTE:** In accordance with Microsoft's support policy, HP does not support the Windows® 8 or Windows 7 operating system on products configured with Intel and AMD 7th generation and forward processors or provide any Windows® 8 or Windows 7 drivers on <http://www.support.hp.com>

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

1. Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering is not a measurement of higher performance. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering is not a measurement of higher performance.

### CHIPSET

Chipset is integrated with processor

### GRAPHICS

#### Integrated

Intel® HD<sup>1</sup> Graphics 620 with shared video memory

1. HD content required to view HD images.



## Features

### DISPLAY

#### Internal

33.8 cm (13.3") diagonal FHD UWVA ultra slim touch screen (1920 x 1080) with Corning® Gorilla® Glass<sup>1</sup>  
33.8 cm (13.3") diagonal UHD UWVA ultra slim touch screen (3840 x 2160) with Corning® Gorilla® Glass<sup>1,3</sup>

#### HP Sure View Integrated Privacy Screen

33.8 cm (13.3") diagonal FHD UWVA ultra slim eDP touch screen (1920 x 1080) with Corning® Gorilla® Glass<sup>1,4</sup>

#### External

TBD

#### HDMI

Port support resolutions up to 4096 x 2304 external resolution @ 60Hz

#### Displays support

Supports dual display through the dock

Supports 3 independent displays if used with optional HP Elite Thunderbolt 3 dock<sup>2</sup>

Supports 2 4k independent displays if used with optional HP Elite Thunderbolt 3 dock<sup>2</sup>

1. HD content required to view HD images.
2. HDMI cable sold separately.
3. Planned to be available in March 2017.
4. Planned to be available in April 2017.

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

#### Optional Docking Solutions<sup>1</sup>

HP Elite Thunderbolt 3 Dock

HP Executive Travel Hub

1. Sold separately or as an optional feature.

### STORAGE AND DRIVES

#### Primary Storage<sup>1</sup>

Supports M.2 SS/DS 2280 Solid State Drive

128 GB SATA-3 Value Solid State Drive

256 GB SATA-3 Solid State Drive TLC (Opal2)

256 GB PCIe Gen3x4 NVMe Solid State Drive TLC

360 GB Solid State Drive PCIe NVMe (Planned to be available March 2017)

512 GB SATA-3 Solid State Drive TLC (FIPS) (Planned to be available March 2017)

512 GB PCIe Gen3x4 NVMe Solid State Drive TLC

1. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 30 MB (for Windows 10) is reserved for system recovery software.



## Features

### MEMORY

#### Standard

Memory soldered down  
DDR4 – 2133 (Transfer rates up to 2133 MT/s)  
Supports Dual Channel Memory  
On board (Customer non-accessible)

#### Configurations

4 GB (i5 only)  
8 GB  
16 GB

#### Maximum

16 GB DDR4-2133 SDRAM

### NETWORKING/COMMUNICATIONS

#### Broadband

HP lt4120 Qualcomm® Snapdragon™ X5 LTE Mobile Broadband Module

#### Wireless LAN (WLAN) <sup>1,2</sup>

Intel® Dual Band 802.11a/b/g/n/ac (2x2) and Bluetooth® 4.2 Combo (non-vPro)  
Intel® Dual Band 802.11a/b/g/n/ac (2x2) and Bluetooth® 4.2 Combo (vPro)

#### WPAN

Bluetooth® 4.2 supported via Combo card

#### Communications

Optional Near Field Communication (NFC)<sup>2</sup>  
Compatible with Miracast-certified devices<sup>4</sup>

1. Wireless access point and Internet service required and sold separately. 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.
2. Sold separately or as an optional feature.
3. Mobile Broadband requires separately purchased service contract and factory configuration. 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 not available on all products, and in all regions. Not available in the US or Canada.
4. 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>

### AUDIO/MULTIMEDIA





### Features

#### Audio

Audio by Bang & Olufsen  
Four integrated premium stereo speakers  
Dual microphone array

#### Camera

IR/RGB camera (standard on all models)  
720p HD webcam<sup>1,2</sup>

1. Internet /network access required to collaborate.
2. HD content required to view HD images.

### KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

#### Keyboard

Full size  
HP Premium Collaboration Keyboard  
Backlit  
DuraKeys  
Spill-resistant

#### Function Keys

F1 - Blank  
F2 - Brightness Down  
F3 - Brightness Up  
F4 - Display Switch  
F5 - Speaker Mute  
F6 - Volume Down  
F7 - Volume Up  
F8 - Mic Mute  
F9 - Kybd Backlight  
F10 - NumLock  
F11 - Wireless  
F12 – Calendar  
>  
> Present/Share  
> Call Answer  
> Call End  
> Delete

#### ClickPad

ClickPad (Glass Cover)  
Taps enabled as default  
Gestures enabled by default

### SOFTWARE AND SECURITY



### Features

#### Preinstalled Software

HP BIOSphere<sup>1</sup>  
HP Sure Start Gen3<sup>10</sup>  
HP DriveLock | HP Automatic DriveLock  
BIOS Update via Network  
Master Boot Record Security  
Power On Authentication  
Secure Erase<sup>2</sup>  
Pre-boot Authentication

#### Communication

HP Mobile Connect Pro<sup>3</sup>  
Native Miracast Support<sup>4</sup>

#### HP Value Add Software

HP ePrint Driver + JetAdvantage<sup>5</sup>  
HP Hotkey Support  
HP Support Assistant  
HP Jumpstart  
HP Noise Cancellation Software

#### Manageability

HP Driver Packs<sup>6</sup>  
HP SoftPaq Download Manager (SDM)  
HP System Software Manager (SSM)<sup>6</sup>  
HP BIOS Config Utility (BCU)<sup>6</sup>  
HP Client Catalog<sup>6</sup>  
HP Manageability Integration Kit for Microsoft SCCM<sup>6</sup>  
HP Image Assistant<sup>6</sup>  
LANDESK Management<sup>7</sup>  
For more information on HP Client Management Solutions refer to: <http://www.hp.com/go/clientmanagement>.

#### Microsoft Products

Buy Office  
Bing Search  
Skype<sup>8</sup>

#### Security

HP Client Security  
- HP Security Manager (including Credential Manager and Password Manager)  
- HP Drive Lock  
- HP Touch Fingerprint Sensor  
- HP Password Manager  
- Absolute Persistence Module<sup>9</sup>  
- Power On Authentication  
Microsoft Defender  
TPM 1.2/2.0  
Security lock slot<sup>11</sup>  
Smart Card Reader  
Supports IR "Hello" facial recognition via Windows 10

1. Available only on business PCs with HP BIOS.

2. For the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.



### Features

3. HP Mobile Connect is only available on preconfigured devices with WWAN. For geographic availability refer to [www.hp.com/go/mobileconnect](http://www.hp.com/go/mobileconnect)
4. 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>
5. 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/eprintcenter](http://www.hp.com/go/eprintcenter)). Requires optional broadband module. Broadband use requires separately purchased service contract. Check with service provider for coverage and availability in your area. Separately purchased data plans or usage fees may apply. Print times and connection speeds may vary.
6. Not preinstalled, however available for download at <http://www.hp.com/go/clientmanagement>
7. Subscription required.
8. Skype is not offered in China.
9. Absolute agent is shipped turned off, and will be activated when customers activate a purchased subscription. Subscriptions can be purchased for terms ranging multiple years. Service is limited, check with Absolute for availability outside the U.S. The Absolute Recovery Guarantee is a limited warranty. Certain conditions apply. For full details visit: <https://www.absolute.com/en/about/legal/agreements/absolute>. Data Delete is an optional service provided by Absolute Software. If utilized, the Recovery Guarantee is null and void. In order to use the Data Delete service, customers must first sign a Pre-Authorization Agreement and either obtain a PIN or purchase one or more RSA SecurID tokens from Absolute Software.
10. Available on HP EliteBook products equipped with Intel® 7th generation processors
11. Cable not included.

### POWER

#### Power Supply<sup>1</sup>

HP 65W Smart AC adapter  
HP 65W EM Smart AC adapter  
HP 65W Smart USB Type-C™ AC adapter

1. Availability may vary by country.

#### Primary Battery

HP Long Life 3 cell, 57 Wh Li-on polymer  
Supports battery fast charge

**NOTE:** Battery is internal and not replaceable by customer.

#### Power Cord

TBD

#### Battery life<sup>1</sup>

Up to 16 hours 30 minutes (FHD)  
Up to 9 hours 30 minutes (UHD)

1. Windows 10 MM14 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

250 hours



## Features

### WEIGHTS & DIMENSIONS

#### Weight<sup>1</sup>

Weight starting at 2.82 lbs (1.28 kg)

1. Weight varies by configuration and components.

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

31.69 x 21.85 x 1.49 cm

12.48 x 8.6 x .59 in

### PORTS/SLOTS

#### Ports

- 1 USB Type-C™ with Thunderbolt™
- 2 USB 3.1 Gen 1 (1 charging)
- 1 HDMI 1.4
- 1 external micro SIM
- 1 AC power
- 1 Headphone/microphone combo jack

#### Slots

- Micro-SD Card Reader
- Smart Card Reader

**NOTE:** All cables are sold separately.

### SERVICE AND SUPPORT

HP Services offers 3-year and 1-year limited warranties and 90 day software limited warranty options depending on country. Batteries have a default one year limited warranty. 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>.

1. Sold separately or as an optional feature.
2. Service levels and response times for HP Care Packs may vary depending on your geographic location. Service starts on date of hardware purchase. Restrictions and limitations apply. HP services are governed by the applicable HP terms and conditions of service provided or indicated to Customer at the time of purchase. Customer may have additional statutory rights according to applicable local laws, and such rights are not in any way affected by the HP terms and conditions of service or the HP Limited Warranty provided with your HP Product. 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>.



### DISPLAYS

**Note:** All specifications represent the typical specifications provided by HP's component manufacturers; actual performance may vary either higher or lower.

<b>33.8 cm (13.3") diagonal FHD UWVA ultra slim touch screen (1920 x 1080) with Corning® Gorilla® Glass</b>	<b>Outline Dimensions</b> (W x H x D)	300.56 x 187.57 (max.) x 2.2 (max) mm
	<b>Active Area</b>	293.76 x 165.24 mm
	<b>Weight</b>	160g max.
	<b>Diagonal Size</b>	13.3"
	<b>Surface Treatment</b>	BV
	<b>Touch enabled</b>	Yes
	<b>Contrast Ratio</b>	800:1 (typ - BV)
	<b>Refresh Rate</b>	60Hz
	<b>Brightness</b>	300 nit typ (Panel Only)
	<b>Pixel Resolution</b>	<b>Format</b> 1920 x 1080 (FHD)
		<b>Configuration</b> RGB
	<b>Interface</b>	eDP 1.3 w/ PSR
	<b>LCD Mode</b>	IPS/FFS/AHVA
	<b>PPI</b>	166
<b>Viewing Angle</b>	UWVA 85/85/85/85	

<b>33.8 cm (13.3") diagonal UHD UWVA ultra slim touch screen (3840 x 2160) with Corning® Gorilla® Glass</b>	<b>Outline Dimensions</b> (W x H x D)	299.76 x 187.17 (max.) x 2.2(max.) mm
	<b>Active Area</b>	293.76 x 165.24 mm
	<b>Weight</b>	190g max. (TBD)
	<b>Diagonal Size</b>	13.3"
	<b>Surface Treatment</b>	BV
	<b>Touch enabled</b>	Yes
	<b>Contrast Ratio</b>	1400:1 (typ) - BV
	<b>Refresh Rate</b>	60Hz
	<b>Brightness</b>	340nits typ (Panel Only)
	<b>Pixel Resolution</b>	<b>Format</b> 3840 x 2160 (UHD)
		<b>Configuration</b> RGB
	<b>Interface</b>	eDP 1.3 PSR
	<b>LCD Mode</b>	IPS/FFS/AHVA
	<b>PPI</b>	331
<b>Viewing Angle</b>	UWVA 85/85/85/85	



### STORAGE AND DRIVES

<b>128 GB SATA-3 Value Solid State Drive</b>	<b>Drive Weight</b>	0.01 lb (6 g) ~ 0.02 lb (10 g)	
	<b>Capacity</b>	128 GB	
	<b>Height</b>	0.09 in (2.3 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	ATA-8, SATA 3.0	
	<b>Performance</b>	<b>Sequential Read (Up to MB/s)</b>	<b>Sequential Write (Up to MB/s)</b>
		515-535 MB/s	136-515 MB/s
	<b>Logical Blocks</b>	250,069,680	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
	<b>Features</b>	DIPM; TRIM; DEVSLP	
<b>256 GB SATA-3 TLC Self-Encrypting Solid State Drive (Opal 2)</b>	<b>Drive Weight</b>	M.2 2280	
	<b>Capacity</b>	256 GB	
	<b>Height</b>	0.09 in (2.3 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	ATA-8, SATA 3.0	
	<b>Performance</b>	<b>Sequential Read (Up to MB/s)</b>	<b>Sequential Write (Up to MB/s)</b>
		515-530 MB/s	490-515 MB/s
	<b>Logical Blocks</b>	500,118,192	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
	<b>Features</b>	ATA Security; TCG Opal 2.0; DIPM; TRIM; DEVSLP	
<b>256 GB PCIe Gen3x4 NVMe TLC Solid State Drive</b>	<b>Drive Weight</b>	M.2 2280	
	<b>Capacity</b>	256 GB	
	<b>Height</b>	0.09 in (2.3 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	PCIe NVMe Gen3X4	
	<b>Performance</b>	<b>Sequential Read (Up to MB/s)</b>	<b>Sequential Write (Up to MB/s)</b>
		1800-2600 MB/s	600-900 MB/s
	<b>Logical Blocks</b>	500,118,192	
	<b>Operating Temperature</b>	32° to 158°F (0° to 70°C) [ambient temp]	
	<b>Features</b>	ATA Security (Option); TRIM; L1.2	



<b>512 GB PCIe Gen3x4 NVMe TLC Solid State Drive</b>	<b>Drive Weight</b>	M.2 2280	
	<b>Capacity</b>	512 GB	
	<b>Height</b>	0.09 in (2.3 mm)	
	<b>Width</b>	0.87 in (22 mm)	
	<b>Interface</b>	PCIe NVMe Gen3X4	
	<b>Performance</b>	<b>Sequential Read (Up to MB/s)</b>	<b>Sequential Write (Up to MB/s)</b>
		1580-2600 MB/s	300-1400 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 (Option); TRIM; L1.2	

## NETWORKING/COMMUNICATIONS

### HP lt4132 LTE/HSPA+ 4G Mobile Broadband Module

<b>Technology/Operating bands</b>	LTE: 2100 (Band 1), 1900 (Band 2), 1800 (Band 3) MHz, 850 (Band 5), 2600 (Band 7), 900 (Band 8) MHz, 800 (Band 20), 700 (Band 28) MHz. HSPA+: 2100 (Band 1), 1900 (Band 2), 850 (Band 5), 900 (Band 8) MHz E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 (Band 5), 900 (Band 8) MHz
<b>Wireless protocol standards</b>	3GPP Release 10 LTE Specification CAT.4, 20MHz BW WCDMA R99, 3GPP Release 5, 6, 7 and 8 UMTS Specification E-GPRS: Class B, Multi-slot class 12, coding schemes CS1 - CS4 and MSC1 - MSC9
<b>GPS</b>	Standalone, A-GPS (MS-B and LTO)
<b>GPS bands</b>	1575.42 MHz ± 1.023 MHz, GLONASS 1596-1607MHz
<b>Maximum data rates</b>	LTE: 150 Mbps (Download), 50 Mbps (Upload) DC-HSPA+: 42 Mbps (Download), 5.76 Mbps (Upload) HSPA+: 21Mbps (Download), 5.76 Mbps (Upload)



EDGE: 236.8 kbps (Download), 236.8 kbps (Upload)

GPRS: 85.6 kbps(Download), 85.6 kbps (Upload)

**Maximum output power**

LTE: 23 dBm

HSPA+: 23.5 dBm

E-GPRS 1900/1800: 26 dBm

E-GPRS 900/850: 27 dBm

GPRS 1900/1800: 29.5 dBm

GPRS 900/850: 32.5 dBm

**Maximum power consumption**

LTE: 1,200 mA (peak); 900 mA (average)

HSPA+: 1,100 mA (peak); 800 mA (average)

E-GPRS: 2,600 mA (peak); 500 mA (average)

**Form Factor**

M.2, 3042-S3 Key B

**Weight**

6 g

**Dimensions**

42 x 30 x 2.3 mm

(Length x Width x Thickness)

\* 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.

**HP hs3210 HSPA+ Mobile Broadband Module\***

**Technology/Operating bands**

HSPA+: 2100 (Band1), 1900 (Band 2), 850 (Band 5), 900 (Band 8) MHz  
 E-GPRS: 1900 (Band 2), 1800 (Band 3), 850 MHz (Band 5), 900 (Band 8) MHz

**Wireless protocol standards**

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

**Maximum data rates**

HSPA+: 21.6 Mbps (Download), 5.76 Mbps (Upload)





E-GPRS: 296 kbps (Download), 236.8 kbps (Upload)  
 GPRS: 107 kbps (Download), 85.6 kbps (Upload)

**Maximum output power**

HSPA+: 24 dBm  
 E-GPRS 1800/1900: 26 dBm  
 E-GPRS 850/900: 27 dBm  
 GPRS 1800/1900: 30 dBm  
 GPRS 850/900: 33 dBm

**Maximum power consumption**

HSPA+: 1,100 mA (peak); 800 mA (average)  
 E-GPRS: 2,800 mA (peak); 700 mA (average)

**Form Factor**

M.2, 2242-S3 Key B

**Weight**

6 g

**Dimensions**

(Length x Width x Thickness)

1.65 x 8.66 x 0.09 in (42 x 22 x 2.38 mm)

\* 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.

**Intel® Dual Band 802.11a/b/g/n/ac (2x2) and Bluetooth® 4.2 Combo**

**Wireless LAN Standards** IEEE 802.11a  
 IEEE 802.11b  
 IEEE 802.11g  
 IEEE 802.11n  
 IEEE 802.11ac  
 IEEE 802.11ac Wave 2 MU-MIMO

**Interoperability** Wi-Fi certified

**Frequency Band** 802.11b/g/n

- 2.402 – 2.482 GHz  
**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/n



	<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 no support this band)</p>
<b>Data Rates</b>	<ul style="list-style-type: none"><li>• 802.11b: 1, 2, 5.5, 11 Mbps</li><li>• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li><li>• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li><li>• 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)</li><li>• 802.11ac : MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, 80MHz, and 160 MHz)</li></ul>
<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><li>• 802.11g : +14dBm minimum</li><li>• 802.11a : +14dBm minimum</li><li>• 802.11n HT20(2.4GHz) : +14dBm minimum</li><li>• 802.11n HT40(2.4GHz) : +12dBm minimum</li><li>• 802.11n HT20(5GHz) : +14dBm 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: 50 mW (WLAN unassociated)  Connect Standby: 10 mW (WLAN+BT)



	Radio disabled: 5 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>	802.11b, 1Mbps : -94dBm maximum  802.11b, 11Mbps : -86dBm maximum  802.11g, 6Mbps : -88dBm maximum  802.11g, 54Mbps : -74dBm maximum  802.11a, 6Mbps : -88dBm maximum  802.11a, 54Mbps : -74dBm maximum  802.11n, MCS07 : -69dBm maximum  802.11n, MCS15 : -66dBm maximum  802.11ac, 1SS, MCS-0 : -86dBm maximum  802.11ac, 1SS, MCS-9 : -61dBm maximum  802.11ac, 2SS, MCS-0 : -83dBm maximum  802.11ac, 2SS, MCS-9 : -58dBm 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 communications 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	

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 4.0/4.1/4.2 Wireless Technology

<b>Bluetooth Specification</b>	4.0/4.1/4.2 Compliant													
<b>Frequency Band</b>	2402 to 2480 MHz													
<b>Number of Available Channels</b>	Legacy : 0~79 (1 MHz/CH)													
	BLE : 0~39 (2 MHz/CH)													
<b>Data Rates and Throughput</b>	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps													
	BLE : 1 Mbps data rate; throughput up to 0.2 Mbps													
	Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels													
	Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)													
<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>Legacy</b>														
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW													
<b>Range</b>	Legacy Up to 33 ft (10 m)													



	BLE Up to 99 ft (30 m)
<b>Electrical Interface</b>	USB 2.0 compliant
<b>Bluetooth Software Supported</b>	Microsoft Windows Bluetooth Software
<b>Link Topology</b>	
<b>Electrical Interface</b>	Point to Point, Multipoint Pico Nets up to 7 slaves
<b>Bluetooth Software Supported</b>	Full support of Bluetooth Security Provisions
<b>Security</b>	
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support
<b>Certifications</b>	Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff
<b>Security</b>	All necessary regulatory approvals for supported countries, including:
<b>Certifications</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
<b>Bluetooth Profiles Supported</b>	
<b>Power Management</b>	ETS 300 328, ETS 300 826
<b>Certifications</b>	Low Voltage Directive IEC950
	UL, CSA, and CE Mark
	Serial Port Profile (SPP) <sup>1,2</sup>
	Service Discovery Application Profile (SDAP)
	Dial-Up Networking (DUN) <sup>1,1</sup>
	Generic Object Exchange Profile (GOEP) <sup>1,2</sup>
	Object Push Profile (OPP) <sup>1,2</sup>
<b>Certifications</b>	Hard Copy Cable Replacement (HCRP) <sup>1,2</sup>
	Personal Area Networking Profile (PAN) <sup>1,0</sup>
<b>Bluetooth Profiles Supported</b>	Human Interface Device Profile (HID) <sup>1,0</sup>
	Hands Free Profile (HFP) <sup>1.5/1.6</sup>
	Advanced Audio Distribution Profile (A2DP) <sup>1.3</sup>
	Audio Video Remote Control Profile (AVRCP) <sup>1.3/1.4</sup>
<b>Bluetooth V4.1/V4.2 support feature</b>	V4.1: ESR5/6/7 compliant



V4.2: ESR8 compliant, LE Secure Connection – Basic.

### Intel® Dual Band 802.11a/b/g/n/ac (2x2) and Bluetooth® 4.2 Combo

<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 style="margin-left: 20px;"><b>Note:</b> 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>
<b>Data Rates</b>	802.11a/n <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 style="margin-left: 20px;">Note: Indonesia no support this band)</p> <ul style="list-style-type: none"> <li>• 802.11b: 1, 2, 5.5, 11 Mbps</li> <li>• 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps</li> <li>• 802.11n: MCS 0 ~ MCS 15, (20MHz, and 40MHz)</li> <li>• 802.11ac: MCS0 ~ MCS9, (1SS, and 2SS) (20MHz, 40MHz, and 80MHz)</li> </ul>
<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> </ul>



	<ul style="list-style-type: none"> <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> <li>• 802.11g : +14dBm minimum</li> <li>• 802.11a : +14dBm minimum</li> <li>• 802.11n HT20(2.4GHz) : +14dBm minimum</li> <li>• 802.11n HT40(2.4GHz) : +12dBm minimum</li> <li>• 802.11n HT20(5GHz) : +14dBm 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: 50 mW (WLAN unassociated)  Connect Standby: 10 mW (WLAN+BT)  Radio disabled: 5 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>	802.11b, 1Mbps : -94dBm maximum  802.11b, 11Mbps : -86dBm maximum  802.11g, 6Mbps : -88dBm maximum  802.11g, 54Mbps : -74dBm maximum  802.11a, 6Mbps : -88dBm maximum  802.11a, 54Mbps : -74dBm maximum  802.11n, MCS07 : -69dBm maximum  802.11n, MCS15 : -66dBm maximum  802.11ac, 1SS, MCS-0 : -86dBm maximum



	802.11ac, 1SS, MCS-9 : -61dBm maximum
	802.11ac, 2SS, MCS-0 : -83dBm maximum
	802.11ac, 2SS, MCS-9 : -58dBm 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 communications 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
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	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

4. [Check latest software/driver release for updates on supported security features.](#)
5. [Maximum output power may vary by country according to local regulations.](#)
6. [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 4.0/4.1/4.2 Wireless Technology

<b>Bluetooth Specification</b>	4.0/4.1/4.2 Compliant
<b>Frequency Band</b>	2402 to 2480 MHz
<b>Number of Available Channels</b>	Legacy : 0~79 (1 MHz/CH)





	BLE : 0~39 (2 MHz/CH)												
<b>Data Rates and Throughput</b>	Legacy : 3 Mbps data rate; throughput up to 2.17 Mbps  BLE : 1 Mbps data rate; throughput up to 0.2 Mbps  Legacy : Synchronous Connection Oriented links up to 3, 64 kbps, voice channels  Legacy : Asynchronous Connection Less links 2178.1 kbps/177.1 kbps asymmetric (3-DH5) or 864 kbps symmetric (3-EV5)												
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8DPSK	-80 dBm	-70 dBm											
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Selective Suspend 17 mW												
<b>Range</b>	Legacy Up to 33 ft (10 m)  BLE Up to 99 ft (30 m)												
<b>Electrical Interface</b>	USB 2.0 compliant												
<b>Bluetooth Software Supported</b>	Microsoft Windows Bluetooth Software												
<b>Link Topology</b>													
<b>Electrical Interface</b>	Point to Point, Multipoint Pico Nets up to 7 slaves												
<b>Bluetooth Software Supported</b>	Full support of Bluetooth Security Provisions												
<b>Security</b>													
<b>Power Management</b>	Microsoft Windows ACPI, and USB Bus Support												
<b>Certifications</b>	Self-configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff												
<b>Security</b>	All necessary regulatory approvals for supported countries, including:												



<b>Certifications</b>	FCC (47 CFR) Part 15C, Section 15.247 & 15.249
<b>Bluetooth Profiles Supported</b>	
<b>Power Management</b>	ETS 300 328, ETS 300 826
<b>Certifications</b>	Low Voltage Directive IEC950
	UL, CSA, and CE Mark
	Serial Port Profile (SPP) <sup>1.2</sup>
	Service Discovery Application Profile (SDAP)
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	Generic Object Exchange Profile (GOEP) <sup>1.2</sup>
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	Advanced Audio Distribution Profile (A2DP) <sup>1.3</sup>
	Audio Video Remote Control Profile (AVRCP) <sup>1.3/1.4</sup>

**Bluetooth V4.1/V4.2 support** V4.1: ESR5/6/7 compliant feature

V4.2: ESR8 compliant, LE Secure Connection – Basic.

## POWER

### HP 65W Smart AC adapter

<b>Dimensions</b>	107.0x47.0x30.0mm
<b>Weight</b>	250g +/- 10g
<b>Input</b>	
	<b>Input Efficiency</b> 88.0 % at 115 Vac and 89.0 % at 230Vac
	<b>Input frequency range</b> 47 ~ 63 Hz
	<b>Input AC current</b> Max. 1.7 A at 90 Vac
<b>Output</b>	
	<b>Output power</b> 65W
	<b>DC output</b> 19.5V



<b>Connector</b>	<b>Hold-up time</b>	5ms at 115 Vac input
	<b>Output current limit</b>	<11.0A
<b>Environmental Design</b>	C6 (3pin/with grounded, with Smart ID DC connector)	
	<b>Operating temperature</b>	32°F to 95°F (0°to 35°C)
	<b>Non-operating (storage) temperature</b>	-4°F to 185°F (-20°to 85°C)
	<b>Altitude</b>	0 to 16,400 ft (0 to 5000m)
	<b>Humidity</b>	20% to 95%
<b>EMI and Safety Certifications</b>	<b>Storage Humidity</b>	10% to 95%
	Eg:	
	*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.	
	* MTBF - over 200,000 hours at 25°C ambient condition.	

### HP 65W EM Smart AC adapter

<b>Dimensions</b>	127.0x51.0x30.0mm	
<b>Weight Input</b>	350g +/- 10g	
	<b>Input Efficiency</b>	88.0 % at 115 Vac and 89.0 % at 230Vac
<b>Output</b>	<b>Input frequency range</b>	47 ~ 63 Hz
	<b>Input AC current</b>	Max. 1.7 A at 90 Vac
	<b>Output power</b>	65W
	<b>DC output</b>	19.5V
	<b>Hold-up time</b>	5ms at 115 Vac input
<b>Connector</b>	<b>Output current limit</b>	<11.0A
	C6 (3pin/with grounded, with Smart ID DC connector)	
<b>Environmental Design</b>	<b>Operating temperature</b>	32°F to 95°F (0°to 35°C)
	<b>Non-operating (storage) temperature</b>	-4°F to 185°F (-20°to 85°C)
	<b>Altitude</b>	0 to 16,400 ft (0 to 5000m)
	<b>Humidity</b>	20% to 95%
	<b>Storage Humidity</b>	10% to 95%
<b>EMI and Safety Certifications</b>	Eg:	
	*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.

\* MTBF - over 200,000 hours at 25°C ambient condition.

<b>HP 65W Smart USB Type-C™ AC adapter</b>	<b>Dimensions</b>	74x74x28.5mm	
	<b>Weight</b>	245g +/- 10g	
	<b>Input</b>		
		<b>Input Efficiency</b>	81.5% min at 115 Vac/ 230Vac @ 5V/3A 86.7% min at 115 Vac/ 230Vac @ 9V/3A 88% min at 115 Vac/ 230Vac @ 10V/5A 88% min at 115 Vac/ 230Vac @ 12V/5A 89% min at 115 Vac/ 230Vac @ 15V/4.33A 89% min at 115 Vac/ 230Vac @ 20V/3.25A
		<b>Input frequency range</b>	47 ~ 63 Hz
		<b>Input AC current</b>	1.7 A at 90 VAC and maximum load
	<b>Output</b>	<b>Output power</b>	65W
		<b>DC output</b>	5V/9V/10V/12V/15V/20V
		<b>Hold-up time</b>	5ms at 115 Vac input
		<b>Output current limit</b>	<8.0A
	<b>Connector</b>	USB Type C	
	<b>Environmental Design</b>		
		<b>Operating temperature</b>	32°F to 95°F (0° to 35°C)
	<b>Non-operating (storage) temperature</b>	-4°F to 185°F (-20° to 85°C)	
	<b>Altitude</b>	0 to 16,400 ft (0 to 5000m)	
	<b>Humidity</b>	5% to 95%	
	<b>Storage Humidity</b>	5% to 95%	
<b>EMI and Safety Certifications</b>	Eg:		
		*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.	
		* MTBF - over 100,000 hours at 25°C ambient condition.	

<b>HP Long Life 3 cell, 57 Wh Li-on polymer</b>	<b>Dimensions (H x W x L)</b>	6.3mm x 110.05mm x 259.8mm	
	<b>Weight</b>	250g	
	<b>Cells/Type</b>	3cell Lithium-Ion	
	<b>Energy</b>	<b>Voltage</b>	11.55V
		<b>Amp-hour capacity</b>	4935mAh
		<b>Watt-hour Capacity</b>	57Whr
<b>Temperature</b>	<b>Operating (Charging)</b>	32° to 113° F (0° to 45° C)	



	<b>Operating (Discharging)</b>	14° to 122° F (-10° to 60° C)
<b>Battery Re-Charge Time</b>	<b>Non-operating</b>	-4° to 122° F (-20° to 60° C)
	<b>System in OFF mode or Standby</b>	< 5 hours
	<b>System ON</b>	Need system side power/EE confirm
<b>Fuel Gauge LED</b>		No
<b>Optional Travel Battery Available</b>		N/A

## 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<sup>®</sup> 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, 50Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Short idle)	7.50 W	7.33 W	7.38 W
Normal Operation (Long idle)	3.17 W	3.24 W	3.22 W
Sleep	0.46 W	0.48 W	0.46 W
Off	0.25 W	0.28 W	0.25 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, 50Hz	230VAC, 50Hz	100VAC, 50Hz
Normal Operation (Short idle)	26 BTU/hr	25 BTU/hr	25 BTU/hr
Normal Operation (Long idle)	11 BTU/hr	11 BTU/hr	11 BTU/hr
Sleep	2 BTU/hr	2 BTU/hr	2 BTU/hr
Off	1 BTU/hr	1 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 ( $L_{WA,d}$ , bels)	Sound Pressure ( $L_{pAm}$ , decibels)
Typically Configured – Idle	2.5	15
Fixed Disk – Random writes	3.0	30

### 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



### 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](http://www.epeat.net)
- Plastics parts weighing over 25 grams used in the product are marked per ISO11469 and ISO1043.
- This product contains 0% post-consumer recycled plastic (by wt.)
- This product is 95.0% recycle-able when properly disposed of at end of life.

### Packaging Materials

<b>External:</b>	PAPER/Corrugated	363 g
<b>Internal:</b>	PLASTIC/Expanded Polyethylene - EPE	42 g
	PLASTIC/Polyethylene low density - LDPE	15 g
	PLASTIC/Polypropylene - PP	3 g

The plastic packaging material contains at least 0% recycled content.

The corrugated paper packaging materials contains at least 96% 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
- 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.

### HP, Inc. Corporate Environmental Information

For more information about HP's commitment to the environment:

Global Citizenship Report

<http://www.hp.com/hpinfo/globalcitizenship/gcreport/index.html>

Eco-label certifications

<http://www8.hp.com/us/en/hp-information/environment/ecolabels.html>

ISO 14001 certificates:

<http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=c04755842>

and

<http://www.hp.com/hpinfo/globalcitizenship/environment/pdf/cert.pdf>

## COUNTRY OF ORIGIN

China





### Options and Accessories (Sold separately and availability may vary by country.)

Category	Description	Part Number
<b>Cases</b>	HP Business Slim Top Load	H5M91AA
	HP Business Backpack	H5M90AA
<b>Docking</b>	HP USB-C Travel Dock	T0K29AA#xxx
	HP Elite 90W TB3 Dock	1DT93AA#xxx
	HP Hot Desk Stand	W3Z73AA
	HP Hot Desk Stand Monitor Arm	W3Z74AA
<b>Input/Output</b>	HP Active Pen with App Launch	T4Z24AA
	HP USB-C to RJ45	V7W66AA#xxx
	HP USB to Gigabit RJ45 Adapter	N7P47AA#xxx
	HP USB-C to VGA Adapter	N9K76AA
	HP USB-C to HDMI Adapter	N9K77AA
	HP USB-C to DisplayPort Adapter	N9K78AA
	HP Stereo 3.5mm Headset	T1A66AA
	HP Stereo USB Headset	T1A67AA
	HP Comfort Grip Wireless Mouse	H2L63AA
	HP Slim USB Keyboard and Mouse	T6T83AA
	HP Wireless (Link-5) Keyboard	T6U20AA
<b>Power</b>	HP USB Optical Travel mouse	G2K28AA
<b>Storage</b>	HP 65W Smart AC Power Adapter (4.5mm)	H6Y89AA#xxx
<b>Security</b>	HP External USB Optical Drive	F2B56AA
<b>Security</b>	HP Keyed Cable Lock 10mm	T1A62AA
	HP Dual Head Keyed Cable Lock	T1A64AA
<b>UCC</b>	HP Conferencing Keyboard	K8P74AA#xxx
	HP Speaker Phone	K7V16AA
	HP Wired Headset	K7V17AA
<b>Displays</b>	HP S270c 27" Curved Monitor	K1M38AA#ABA
	HP E230t 23" Touch Monitor	W2Z50AA#ABA

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