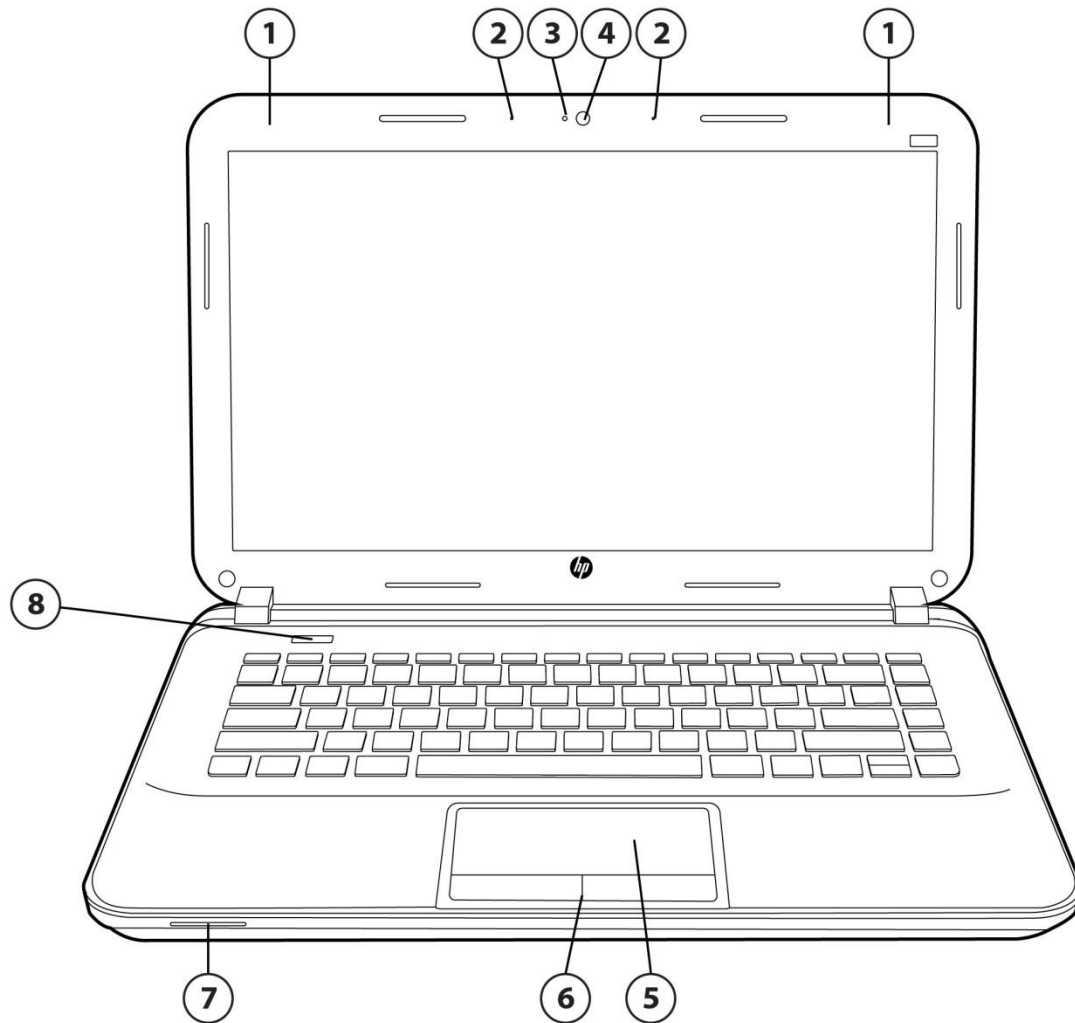


### Overview

#### HP 240 G3 Notebook PC



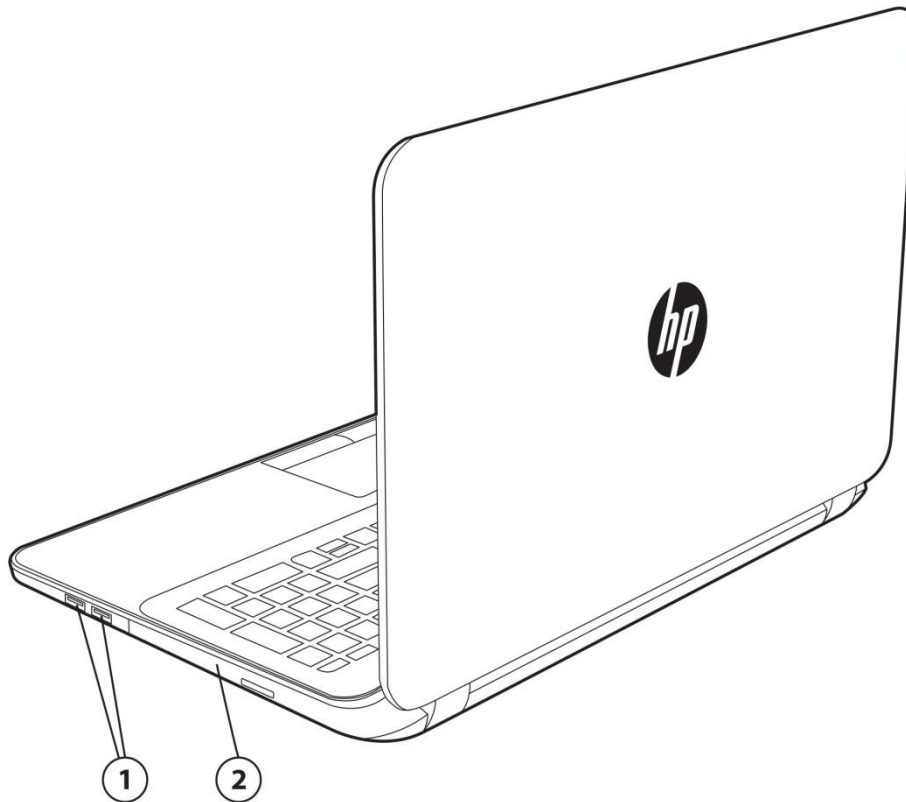
1. WLAN antennas (select models only)
2. Internal microphone
3. Webcam light
4. Webcam

#### Front View

5. Touchpad with scroll zone
6. TouchPad buttons
7. Speaker
8. Power button

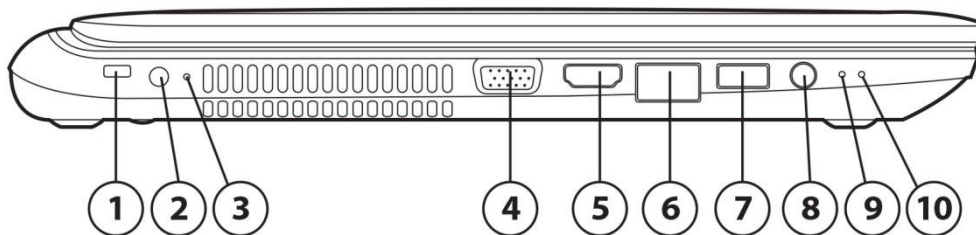


### Overview



#### Right/Rear View

- 1. USB 2.0 ports (2)
- 2. Optical drive door



#### Left View

- 1. Security cable slot
- 2. Power connector
- 3. AC plug LED
- 4. VGA port
- 5. RJ-45 (Ethernet)
- 6. HDMI port
- 7. USB 3.0 port
- 8. Headphone / Microphone-in combo jack
- 9. Hard drive LED
- 10. Power LED



### Overview

#### AT A GLANCE

- Windows 8.1 versions, Windows 7 Pro 64 bit (available through downgrade rights from Windows 8.1 Pro), Ubuntu, FreeDOS 2.0
- Intel® HD Graphics Family with shared memory
- Durable, sophisticated design with textured-surfaced black licorice color.
- Full-sized keyboard and action keys enabling functions directly
- VGA port and HDMI port (for connecting to high-resolution displays)
- Integrated webcam, integrated microphone
- Flexible wireless connectivity options
  - Optional 802.11 b/g/n wireless LAN module
  - Optional 802.11 b/g/n + Bluetooth® 4.0 Combo
- 14.0" diagonal LED-backlit HD anti-glare display, touchscreen models are available

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



### Features

#### PRODUCT NAME

HP 240 G3 Notebook PC

#### OPERATING SYSTEM

##### Preinstalled

Windows 8.1 64\*

Windows 8.1 Pro 64\*

Windows 7 Professional 64 (available through downgrade rights from Windows 8 Pro 64) \*\*

Ubuntu

FreeDOS 2.0

\* Not all features are available in all editions of Windows 8.1. Systems may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 8.1 functionality. See [microsoft.com](http://microsoft.com) for details.

\*\* This system is preinstalled with Windows® 7 Pro software and also comes with a license and media for Windows 8.1 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.

#### PROCESSORS

4<sup>th</sup> Generation Intel® Core™ i5-4210U (1.7 GHz, 3 MB L3 cache, 2 cores)\*

4<sup>th</sup> Generation Intel® Core™ i3-4005U (1.7 GHz, 3 MB L3 cache, 2 cores)\*

3<sup>rd</sup> Generation Intel® Core™ i3-3217U (1.8 GHz, 3 MB L3 cache, 2 cores)\*

Intel® Celeron® N2830 (2.42 GHz, 1 MB L2 cache, 2 cores)\*

Intel® Celeron® N2815 (2.13 GHz, 1 MB L2 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.

#### CHIPSET

Intel chipset integrated with processor

#### GRAPHICS

Integrated:

Intel® HD Graphics (Intel® Celeron® processors)

Intel® HD Graphics 4000 (3<sup>rd</sup> Generation Intel® Core™ i3 processors)

Intel® HD Graphics 4400 (4<sup>th</sup> Generation Intel® Core™ i3 and i5 processors)

#### DISPLAY

**Internal**

14.0" diagonal HD\* (1366 x 768) Anti-Glare LED-backlit SVA (Flat, 3.6 mm)

**External**

Up to 32-bit per pixel color depth



### Features

#### VGA

Port supports resolutions up to 2048 x 1536 external resolution @75 Hz

#### HDMI\*

1.4 port supports up to 1080p, 1920 x 1080 at 60Hz\*HDMI cable sold separately.

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

### STORAGE AND DRIVES

#### Primary Storage Bay

##### Hard Drives

320/500 GB/1 TB 5400 rpm SMART SATA II

**NOTE:** For hard drives, GB = 1 billion bytes. Actual formatted capacity is less. Up to 30 GB (for Windows 8.1) of system disk is reserved for the system recovery software.

### OPTICAL DRIVES

#### Fixed Optical Drive

DVD+/-RW SuperMulti DL Drive\*

Weight saver

\* Double-layer discs can store more data than single layer discs. However, double-layer discs burned with this drive may not be compatible with many existing single-layer DVD drives and players. Note that DVD-RAM cannot read or write to 2.6 GB single-sided/5.2 GB double-sided – version 1.0 media. Don't copy copy-right protected materials.

### MEMORY

#### Standard

DDR3L SDRAM (1600 MHz/1333 MHz)\*

One SODIMM slot supporting single channel\* SODIMMs

Standard memory up to 8192MB

#### Maximum

Upgradeable to 8192 MB with optional 8192 MB\* SODIMM in slot 1

\* Maximum memory speed supported is 1600 MHz, but it will be downgraded to 1066 MHz for systems running the Celeron N2815 processor.

**NOTE:** 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.

\*Maximum memory capacities assume Windows 64-bit operating systems or Linux.

### NETWORKING/COMMUNICATIONS

#### Wireless

Optional Qualcomm 802.11b/g/n (1x1) wireless LAN module<sup>1,2</sup>

Optional Qualcomm 802.11 b/g/n (1x1) + Bluetooth® 4.0 Combo<sup>1,2</sup>

Optional Ralink 802.11 b/g/n (1x1) + Bluetooth™ 4.0 Combo<sup>1,2</sup>

Optional Realtek 802.11 b/g/n (1x1) wireless LAN module<sup>1,2</sup>



## Features

### Communications

Realtek Ethernet (10/100 NIC)

1. Sold separately or as an optional feature.
2. Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited.

## AUDIO/MULTIMEDIA

### Audio

High Definition Audio support  
Integrated Stereo Speakers  
Integrated microphone

### Webcam

Integrated Webcam\*

- Supports videoconferencing and still image capture
- Improved quality for video streaming and still image capture
- Up to 30 frames/sec
- Fixed focus lens

\* Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited.

## KEYBOARDS/POINTING DEVICES/BUTTONS & FUNCTION KEYS

### Keyboard

The 101/102-key compatible keyboard features a full-pitch key layout with desktop keyboard features, such as editing keys, both left and right control and alt keys, and function keys. US and International key layouts are available.

### Pointing Devices

Touchpad with 2-piece pick button with left and right click functions

### Buttons and Function Keys

Multi-touch gestures supported

## SOFTWARE AND SECURITY

### Preinstalled Software with Windows Operating System

#### UI Enhancements

HP Utility Center

#### Security and Protection

30-day McAfee LiveSafe Subscription\*

#### Productivity

Buy Office

#### E-readers and Document Viewers

Kindle (not in EMEA)

#### ODD Playback and TV Tuners

CyberLink PowerDVD



### Features

#### **Windows Essentials**

MovieMaker  
SkyDrive  
Photo Gallery

#### **Photos and Videos**

CyberLink  
CyberLink Media Suite  
CyberLink Power2Go  
CyberLink LabelPrint  
SnapFish URL  
Adobe® Shockwave Player  
HP Connected Photo

#### **Music – HP**

RaRa Music (not in EMEA)

#### **Movies**

Netflix (NA and LA only)

#### **Home AV Integration/Home Networking**

Intel WiDi

#### **Games – Microsoft**

Solitaire Collection (not in EMEA)  
Mahjong (not in EMEA)

#### **Games – HP**

HP Games (internet access required, games sold separately).  
WildTangent Games for HP

**Communication** (internet access required, games sold separately).

Skype

#### **Security**

Security Lock slot (lock must be purchased separately)

\* Internet access required. First 30 days included. Subscription required for live updates afterwards.

### POWER

#### **Power Supply**

External 45W Smart AC adapter (UMA)

#### **Primary Battery**

HP 3-cell (31 WHr) polymer battery  
HP 4-cell (41 WHr) polymer battery

#### **Battery Life**

#### **HP 240 G3 Notebook PC**



### Features

3-cell (31 WHr) battery	Up to TBD hours
4-cell (41 WHr) battery	Up to TBD hours

#### System Standby Time

Up to TBD weeks\*

\*Standby life will vary depending on various factors including battery, Memory, CPU, EC and LAN chip. The maximum capacity of the battery will naturally decrease with time and usage.

#### Power Conservation

Hibernation\*

Standby\*

ACPI compliance\*

\* Only Linux will feature power conservation.

### WEIGHTS & DIMENSIONS

#### Weight

Starting at < 4.21 lbs (1910 g) (Weight will vary by configuration)

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

Non-Touch

13.58 x 9.61 x 1.0 in

345 x 244 x 25.3 mm

Touch

13.58 x 9.61 x 1.01 in

345 x 244 x 25.6 mm

**NOTE:** Height varies depending upon where on the notebook the measurement is made. Weight varies by configuration and components. Weight includes 3-cell battery, hard drive, 2 GB memory, and optical drive.

### PORTS/SLOTS

#### Ports

VGA – One

HDMI\* – One

Headphone / Microphone-in combo jack – One

Power Connector – One

RJ-45 (Ethernet) - One

USB 3.0 – One

USB 2.0 – Two

#### Digital Media Slots

Supports SD/SDHC/SDXC

Supports mini versions with adapter

\* HDMI cable sold separately.

### SERVICE AND SUPPORT





### Features

HP Services offers limited 1-year warranty options depending on country; 3-year options available With HP Care Pack Services\*\*, depending on country, 1-year limited warranty on primary battery. On-site service and warranty upgrades are also available. Optional\* HP Care Pack Services\*\* are extended service contracts which go beyond your standard warranties. For more details visit: [hp.com/go/lookuptool](http://hp.com/go/lookuptool).

\*Sold separately or as an optional feature.

\*\* 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. Consult the HP Customer Support Center for details. <http://h20000.www2.hp.com/bizsupport/TechSupport/ProductRoot.jsp>

**NOTE:** 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. For details, visit [hp.com/go/cpc](http://hp.com/go/cpc)



### Technical Specifications

#### SYSTEM UNIT

<b>Stand-Alone Power Requirements</b> (AC Power)	<b>Nominal Operating Voltage</b>	18.5/19.5V
	<b>Average Operating Power</b>	Integrated graphics: TBD W**
	<b>Max Operating Power</b>	< 65 W
<b>Temperature</b>	<b>Operating</b>	32° to 95° F (0° to 35° C) (not writing optical) 41° to 95° F (5° to 35° C) (writing optical)
	<b>Non-operating</b>	-4° to 140° F (-20° to 60° C)
<b>Relative Humidity</b>	<b>Operating</b>	10% to 90%, non-condensing
	<b>Non-operating</b>	5% to 95%, 101.6° F (38.7° C) maximum wet bulb temperature
<b>Shock</b>	<b>Operating</b>	40 G, 2 ms, half-sine
	<b>Non-operating</b>	200 G, 2 ms, half-sine
<b>Random Vibration</b>	<b>Operating</b>	0.75 grms
	<b>Non-operating</b>	1.50 grms
<b>Altitude</b> (unpressurized)	<b>Operating</b>	-50 to 10,000 ft (-15.24 to 3,048 m)
	<b>Non-operating</b>	-50 to 40,000 ft (-15.24 to 12,192 m)
<b>Planned Industry Standard Certifications</b>	<b>UL</b>	Yes
	<b>CSA</b>	Yes
	<b>FCC Compliance</b>	Yes
	<b>ENERGY STAR®</b>	Select models*
	<b>EPEAT®</b>	Registered Silver in United States**
	<b>ICES</b>	Yes
	<b>Australia / NZ A-Tick Compliance</b>	Yes
	<b>CCC</b>	Yes
	<b>Japan VCCI Compliance</b>	Yes
	<b>KC</b>	Yes
	<b>BSMI</b>	Yes
	<b>CE Marking Compliance</b>	Yes
	<b>BNCI or BELUS</b>	Yes
	<b>CIT</b>	Yes
	<b>GOST</b>	Yes
<b>Saudi Arabian Compliance (ICCP)</b>	Yes	
<b>SABS</b>	Yes	
<b>UKRSERTCOMPUTER</b>	Yes	

\* Configurations of the HP 240 G3 Notebook PC that are ENERGY STAR qualified are identified as HP 240 G3 ENERGY STAR on HP websites and on [energystar.gov](http://energystar.gov).

\*\* EPEAT registration varies by country. See [epeat.net](http://epeat.net) for registration status by country. EPEAT status listed above applies to U.S.

For accessibility information on HP products, please visit: [hp.com/accessibility](http://hp.com/accessibility).



### Technical Specifications

#### DISPLAYS

<b>14.0-inch LED HD anti-glare (1366 x 768)</b>	<b>Active Area (w x h)</b>	12.16 x 6.85 in (30.9 x 17.4 cm)
	<b>Diagonal Size</b>	14.0 in (35.6cm)
	<b>Surface Treatment</b>	Anti-glare
	<b>Contrast Ratio</b>	300:1 (min)
	<b>Refresh Rate</b>	60 Hz
	<b>Brightness</b>	200 nit (typical)
	<b>Pixel Resolution</b>	<b>Pitch</b> 0.252 mm
		<b>Format</b> 1366 x 768
		<b>Configuration</b> RGB Stripe
	<b>Backlight</b>	LED
	<b>PPI</b>	101 ppi
<b>Viewing Angle</b>	±40° Horizontal, ±10°/-30° Vertical (minimum) 40/40/30/10 (Left/Right/Down/Up)	

#### STORAGE AND DRIVES

##### Internal Storage

**1 TB\* 5400 rpm  
SATA Hard Drive**

<b>Drive Weight</b>	0.254 lb (115 g)
<b>Capacity</b>	1 TB
<b>Height</b>	0.37 in (9.5 mm)
<b>Width</b>	2.75 in (70 mm)
<b>Interface</b>	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ
<b>Transfer Rate</b>	<b>Synchronous (maximum)</b> 300 MB/s (Drive Capability)
<b>Seek Time</b> (typical reads, including settling)	<b>Single Track</b> 3 ms
	<b>Average</b> 13 ms
	<b>Maximum</b> 24 ms
<b>Rotational Speed</b>	5400 rpm
<b>Logical Blocks</b>	1,953,525,168
<b>Operating Temperature</b>	32° to 140° F (0° to 60° C) [case temp]
<b>Features</b>	ATA Security

**500 GB\* 5400 rpm  
SATA Hard Drive**

<b>Drive Weight</b>	0.22 lb (101 g)
<b>Capacity</b>	500 GB
<b>Height</b>	0.37 in (9.5 mm)
<b>Width</b>	2.75 in (70 mm)
<b>Interface</b>	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ
<b>Transfer Rate</b>	<b>Synchronous (maximum)</b> 150 MB/s (Drive Capability)
<b>Seek Time</b> (typical reads, including settling)	<b>Single Track</b> 3 ms
	<b>Average</b> 13 ms
	<b>Maximum</b> 24 ms
<b>Rotational Speed</b>	5400 rpm



### Technical Specifications

	<b>Logical Blocks</b>	976,773,168	
	<b>Operating Temperature</b>	32° to 140° F (0° to 60° C) [case temp]	
	<b>Features</b>	ATA Security	
<b>320 GB* 5400 rpm SATA Hard Drive</b>	<b>Drive Weight</b>	0.22 lb (101 g)	
	<b>Capacity</b>	320 GB	
	<b>Height</b>	0.37 in (9.5 mm)	
	<b>Width</b>	2.75 in (70 mm)	
	<b>Interface</b>	ATA-8, SATA 2.6, 3.0 Gb/s, NCQ	
	<b>Transfer Rate</b>	<b>Synchronous</b> (maximum)	150 MB/s (Drive Capability)
	<b>Seek Time</b> (typical reads, including settling)	<b>Single Track</b>	3 ms
		<b>Average</b>	13 ms
		<b>Maximum</b>	24 ms
	<b>Rotational Speed</b>	5400 rpm	
	<b>Logical Blocks</b>	625,142,448	
	<b>Operating Temperature</b>	32° to 140° F (0° to 60° C) [case temp]	
	<b>Features</b>	ATA Security	

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

### Optical Drives

<b>DVD+/-RW SuperMulti DL Drive</b>	<b>Access Times</b>	Random	<140ms CD (typical) < 160 ms DVD (typical)
	<b>Max Data Transfer Rate</b>	24X CD-ROM 8X DVD 24X CD-R 24X CD-RW 8X DVD+R 8X DVD+RW 8X DVD-R 6X DVD-RW 5X DVD-RAM	
	<b>Transfer Mode</b>	UDMA Mode 5	
	<b>Interface</b>	Gen 1 SATA	
	<b>Supported Media</b> (read)	CD-DA, CD-TEXT, CD-ROM, CD-ROM XA, MIXED MODE CD, CD-I, CD-I Bridge (Photo-CD, Video CD), Multisession CD (Photo-CD, CD-EXTRA, Portfolio, CD-R, CD-RW), CD-R, CD-RW, DVD-ROM (DVD-5, DVD-9, DVD-10, DVD-18), DVD-R, DVD-RW, DVD+R, DVD+RW, DVD-RAM	
	<b>Supported Media</b> (write)	CD-R, CD-RW, DVD+R, DVD+RW, DVD-R, DVD-RW, DVD-RAM, DVD+R DL, DVD-R DL	
	<b>Max Media Capacity</b> (read)	8.5 GB	
	<b>Max Media Capacity</b> (write)	8.5 GB	
	<b>Transport</b>	Tray Loading	

### NETWORKING/COMMUNICATIONS



### Technical Specifications

#### Networking

##### Integrated Realtek 10/100 NIC

##### Ethernet Features

10 Mbit/s operation (10BASE-T; IEEE 802.3i; IEEE 802.3 clauses 13-14)  
 100 Mbit/s operation (100BASE-TX; IEEE 802.3u; IEEE 802.3 clauses 21-30)  
 Auto-Negotiation (Automatic Speed Selection)  
 Full Duplex Operation at all Speeds, Half Duplex operation at 10 and 100 Mbit/s  
 IEEE 802.1p QoS (Quality of Service) Support  
 IEEE 802.1q VLAN support  
 IEEE 802.3x Flow Control (IEEE 802.3 clauses 31-32; configurable)  
**Power Management**  
 ACPI compliant - multiple power modes  
 Situation-sensitive features reduce power consumption  
 Advanced link down power saving for reducing link down power consumption  
**Performance Features**  
 TCP/IP/UDP Checksum Offload (configurable)  
 Large send offload and Giant send offload  
 Receiving Side Scaling  
**Manageability**  
 Wake-on-LAN from standby and hibernation (Magic Packet and Microsoft Wake-Up Frame); Wake-on-LAN from off (Magic Packet only)  
 PXE 2.1 Remote Boot  
 Statistics Gathering (SNMP MIB II, Ethernet-like MIB, Ethernet MIB (802.3x, clause 30))  
 Comprehensive diagnostic and configuration software suite  
 Virtual Cable Doctor for Ethernet cable status  
**Interface**  
**NIC Device Driver Name**  
 PCI Express 1.1 x1 to fully support ASPM L0s/L1 and CLKREQ  
 Realtek PCIe FE Ethernet Family Controller

#### Communications

##### Qualcomm 802.11b/g/n WiFi Adapter\*, \*\*

##### Wireless LAN Standards

IEEE 802.11b  
 IEEE 802.11g  
 IEEE 802.11n

##### Interoperability

Wi-Fi certified  
 Cisco Compatible Extensions Program compliant with Microsoft Windows 7, (details at: [hp.com/go/notebooks/WLAN](http://hp.com/go/notebooks/WLAN))

##### Frequency Band

2.402 - 2.482 GHz

##### Data Rates

802.11b: 1, 2, 5.5, 11 Mbps  
 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps  
 802.11n: 150 Mbps for MCS7

##### Frequency Support Modulation

20 MHz: 2.4 GHz bands  
 Direct Sequence Spread Spectrum  
 DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM

##### Security<sup>1</sup>

Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST.  
 Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible



### Technical Specifications

<b>Sub-channels</b>	Extensions Program Version 5) with Microsoft Windows 7 only. Multinational support with frequency bands and channels compliant to local regulations.
<b>Media Access Protocol</b>	CSMA/CA (Collision Avoidance) with ACK
<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>	13.5 dBm, minimum
<b>Power Consumption</b>	Idle associated: 250 mW avg (CLKREQ enabled) Idle unassociated: 100 mW avg Transmit/Receive channel: 2.0 /1.6 W
<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>3</sup></b>	11b:-88dBm@11Mbps, 11g:-74 dBm@54Mbps, 11n:-70dBm@72.Mbps.
<b>Antenna type</b>	High efficiency dual antenna with spatial diversity, usually mounted in the display enclosure
<b>Form Factor</b>	PCI-Express Half-MiniCard
<b>Weight</b>	4 g
<b>Dimensions</b>	3.3 x 26.65 x 29.85 mm
<b>Operating Voltage</b>	3.3v +/- 9%
<b>Temperature</b>	Operating -10° to 70° C Non-operating -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>	Amber LED on-Radio OFF; White LED on-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 (CCK modulation) and a packet error rate of 10% for 802.11a/g (OFDM modulation).

**NOTE:** 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 supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista and Windows 7.

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

\*\* Sold separately or as an optional add-on feature.

**Qualcomm 802.11b/g/n  
Bluetooth 4.0 Combo Card\***

<b>Wireless LAN Standards</b>	IEEE 802.11b IEEE 802.11g IEEE 802.11n
<b>Interoperability</b>	Wi-Fi certified



### Technical Specifications

Cisco Compatible Extensions Program compliant with Microsoft Windows7 (details at: [hp.com/go/notebooks/WLAN](http://hp.com/go/notebooks/WLAN))

<b>Frequency Band</b>	2.402 – 2.482 GHz
<b>Data Rates</b>	802.11b: 1, 2, 5.5, 11 Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps 802.11n: 150Mbps for MCS7
<b>Modulation</b>	Direct Sequence Spread Spectrum
<b>Security<sup>1</sup></b>	DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. WAPI
<b>Sub-channels</b>	Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 5) with Microsoft Windows Vista and XP only. Multinational support with frequency bands and channels compliant to local regulations.
<b>Media Access Protocol Network Architecture Models</b>	CSMA/CA (Collision Avoidance) with ACK Ad-hoc (Peer to Peer) Infrastructure (Access Point Required)
<b>Roaming</b>	IEEE 802.11 compliant roaming between access points
<b>Output Power (for CCK)<sup>2</sup></b>	13.5dBm , minimum
<b>Power Consumption</b>	Idle associated: 250 mW Idle unassociated: 150 mW Transmit: 2.0 W (max) Receive: 2.0 W (max)
<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode
<b>Receiver Sensitivity<sup>3</sup></b>	11b:-88dBm@11Mbps, 11g:-74 dBm@54Mbps, 11n:-70dBm@72.Mbps.
<b>Antenna type</b>	High efficiency dual antenna with spatial diversity, mounted in the display enclosure
<b>Form Factor</b>	PCI-Express Half-MiniCard v1.2
<b>Weight</b>	6 g
<b>Dimensions</b>	3.3 x 26.65 x 29.85 mm
<b>Operating Voltage</b>	3.3v +/- 10%
<b>Temperature</b>	Operating 14° to 149° F (-10° to 65° 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)

**LED Activity** LED Off – Radio OFF; Solid LED On – RadioON

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 (CCK modulation) and a packet error rate of 10%



### Technical Specifications

for 802.11a/g (OFDM modulation).

**NOTE:** 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 supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista and Windows 7.

#### Bluetooth Specification

V4.0 High Speed, V2.1+EDR, backwards compatible with V1.1, 1.2 and 2.0

**Number of Available Channels** 79 (1 MHz) available channels

#### Channels

#### Data Rates and Throughput

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

#### Transmit Power

-6 dBm to 4 dBm (Bluetooth Class II)

#### Receiver Sensitivity

Better than -80 dBm at 0.1 % raw bit error rate

#### Power Consumption

Peak (Tx) 330 mW

Peak (Rx) 230 mW

Sleep <17 mW

#### Antenna

Internally integrated within module

#### Range

Up to 33 ft (10 m)

#### Electrical Interface

USB 2.0 compliant

Microsoft Windows Plug and Play compliant

#### Bluetooth Software Supported

Broadcom Bluetooth for Windows

Microsoft Windows Bluetooth Software

#### Link Topology

Point to Point, Multipoint Pico Nets up to 7 slaves

#### Security

Full support of Bluetooth Security Provisions

#### Power Management

Microsoft Windows ACPI, and USB Bus Support

Self configurable to optimize power conservation in all operating modes, including Standby, Hold, Park, and Sniff

#### Certifications

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

#### Bluetooth Profiles Supported

Generic Access Profile (GAP)

Service Discovery Application Profile (SDAP)

Serial Port Profile (SPP)

Dial\_Up Networking Profile (DUN)

Generic Object Exchange Profile (GOEP)

Object Push Profile (OPP)

File Transfer Profile (FTP)

Synchronization Profile (SYNC)

Hard Copy Cable Replacement (HCRP)

Personal Area Networking Profile (PAN)

Human Interface Device Profile (HID)

Generic Audio/Video Distribution Profile (GAVDP)

Advanced Audio/Video Distribution Profile (A2DP)

FAX Profile (FAX)

Basic Imaging Profile (BIP)





### Technical Specifications

Headset Profile (HSP)  
 Hands Free Profile (HFP)  
 Basic Printing Profile (BPP)  
 VDP (Video Distribution Profile)  
 AVRCP (Audio Video Remote Control Profile)

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

\*\* Sold separately or as an optional add-on feature.

<b>Ralink 802.11b/g/n Bluetooth 4.0 Combo Card*, **</b>	<b>Wireless LAN Standards</b>	IEEE 802.11b IEEE 802.11g IEEE 802.11n
	<b>Interoperability</b>	Wi-Fi certified Cisco Compatible Extensions Program compliant with Microsoft Windows7 (details at: <a href="http://hp.com/go/notebooks/WLAN">hp.com/go/notebooks/WLAN</a> )
	<b>Frequency Band</b>	2.402 – 2.482 GHz
	<b>Data Rates</b>	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 for RX and TX for 20 MHz channels. Short and long guard intervals shall be supported
	<b>Modulation</b>	Direct Sequence Spread Spectrum DBPSK, DQPSK, CCK, OFDM, BPSK, QPSK, 16-QAM, 64-QAM
	<b>Security<sup>1</sup></b>	Supports 64- and 128-bit WEP, WPA, WPA2, hardware-accelerated AES, 802.1x authentication types EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, LEAP, EAP-FAST. WAPI Support for Cisco Security Features (proven compatibility with Cisco Aironet infrastructure products through the Cisco Compatible Extensions Program Version 5) with Microsoft Windows Vista and XP only.
	<b>Sub-channels</b>	Multinational support with frequency bands and channels compliant to local regulations.
	<b>Media Access Protocol</b>	CSMA/CA (Collision Avoidance) with ACK
	<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 (for CCK)<sup>2</sup></b>	13.5dBm , minimum
	<b>Power Consumption</b>	Idle associated: 250 mW Idle unassociated: 150 mW Transmit: 2.0 W (max) Receive: 2.0 W (max)
	<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode
	<b>Receiver Sensitivity<sup>3</sup></b>	72.2 Mbps: -70 dBm; 54 Mbps: -74 dBm; 11 Mbps: -88 dBm ; 1 Mbps: -95 dBm
	<b>Antenna type</b>	High efficiency dual antenna with spatial diversity, mounted in the display enclosure
	<b>Form Factor</b>	PCI-Express Half-MiniCard
	<b>Weight</b>	6 g



### Technical Specifications

<b>Dimensions</b>	3.3 x 26.65 x 29.85 mm
<b>Operating Voltage</b>	3.3v +/- 10%
<b>Temperature</b>	Operating 14° to 149° F (-10° to 65° 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 Off – Radio OFF; Solid LED On – 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. 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> </ol>
	<b>NOTE:</b> 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 supplicants. WLAN supplier IHV extensions required for Cisco Compatible Extensions support for Microsoft Windows Vista and Win7.
<b>Bluetooth Specification</b>	
	V4.0 High Speed, V2.1+EDR, backwards compatible with V1.1, 1.2 and 2.0
<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>	-6 dBm to 4 dBm (Bluetooth Class II)
<b>Receiver Sensitivity</b>	Better than -80 dBm at 0.1 % raw bit error rate
<b>Power Consumption</b>	Peak (Tx) 330 mW Peak (Rx) 230 mW Sleep <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



### Technical Specifications

#### Certifications

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

#### Bluetooth Profiles Supported

Generic Access Profile (GAP)  
 Service Discovery Application Profile (SDAP)  
 Serial Port Profile (SPP)  
 Dial\_Up Networking Profile (DUN)  
 Generic Object Exchange Profile (GOEP)  
 Object Push Profile (OPP)  
 File Transfer Profile (FTP)  
 Synchronization Profile (SYNC)  
 Hard Copy Cable Replacement (HCRP)  
 Personal Area Networking Profile (PAN)  
 Human Interface Device Profile (HID)  
 Generic Audio/Video Distribution Profile (GAVDP)  
 Advanced Audio/Video Distribution Profile (A2DP)  
 FAX Profile (FAX)  
 Basic Imaging Profile (BIP)  
 Headset Profile (HSP)  
 Hands Free Profile (HFP)  
 Basic Printing Profile (BPP)  
 VDP (Video Distribution Profile)  
 AVRCP (Audio Video Remote Control Profile)

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

\*\* Sold separately or as an optional add-on feature.

#### Realtek 802.11 b/g/n (1x1) \* \*\*

#### Wireless LAN Standards

IEEE 802.11b  
 IEEE 802.11g  
 IEEE 802.11n

#### Interoperability

Wi-Fi certified

#### Frequency Band

2.402 - 2.482 GHz

#### Data Rates

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 for RX and TX for 20 MHz channels. Short and long guard interval will be supported.

#### Modulation

Direct Sequence Spread Spectrum  
 BPSK, QPSK, CCK, 16-QAM, 64-QAM

#### Security<sup>1</sup>

IEEE and WiFi compliant 64 / 128 bit WEP encryption for a/b/g mode only  
 AES-CCMP: 128 bit in hardware 802.1x authentication types WPA, WPA2:  
 802.1x. WPA-PSK, WPA2-PSK, TKIP, and AES.  
 WPA2 certification  
 IEEE 802.11i  
 Cisco Certified Extensions, all versions through V5  
 WAPI

#### Network Architecture Models

Ad-hoc (Peer to Peer)  
 Infrastructure (Access Point Required)



### Technical Specifications

<b>Roaming</b>	IEEE 802.11 compliant roaming between access points	
<b>Output<sup>2</sup></b>	13.5 dBm, nominal	
<b>Power Consumption</b>	Transmit: 2.0 W (max) Receive: 1.6 W (max) Associated to Access Point, Idle: 250 mW nominal Wireless Button Off: 100 mW nominal Radio disabled: 75 mW nominal	
<b>Power Management</b>	ACPI compliant power management 802.11 compliant power saving mode	
<b>Receiver Sensitivity<sup>3</sup></b>	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:-70dBm (72.2 Mbps)	
<b>Antenna Connections</b>	High efficiency antenna with spatial diversity, mounted in the display enclosure	
<b>Form Factor</b>	PCI-Express Half-MiniCard	
<b>Dimensions</b>	0.19 x 1.06 x 1.18 in (4.75 x 26.8 x 30 mm)	
<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 Off - Radio OFF; Solid LED On - 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).

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

\*\* Sold separately or as an optional add-on feature.

### AUDIO/MULTIMEDIA

#### Audio

#### Hardware

<b>Implementation</b>	Realtek ALC3201-GR High Definition audio
<b>Volume Controls</b>	Up, down, and mute function keys
<b>Full Duplex</b>	Yes
<b>Microphone In</b>	Stereo
<b>Headphone/Line Out</b>	Stereo
<b>Integrated Microphone</b>	Yes

#### Audio Output Quality

<b>Frequency Response</b>	10 Hz ~ 22 KHz
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### Technical Specifications

<b>Signal to Noise Ratio</b>	Typical 95 dB FSA (DAC)
<b>Total Harmonic Distortion</b>	Typical -88 dB FS (DAC)
<b>Noise Floor</b>	-110 dB
<b>Play/Record Sampling Rate(s)</b>	Up to 192 KHz
<b>DAC</b>	24 bits
<b>ADC</b>	24 bits

<b>Integrated Stereo Speakers</b>	<b>Power Rating</b>	1.5 W
	<b>Impedance</b>	4 ohms

### Multimedia

<b>Integrated Webcam</b>	Supports videoconferencing and still image capture Improved quality for video streaming and still image capture Up to 30 frames/sec Fixed focus lens
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### POWER

<b>HP 45W Smart AC Adapter</b>	<b>Dimensions</b>	3.78 x 1.95 x 0.88 in (9.6 x 4.95 x 2.24 cm)	
	<b>Input</b>		90 to 265 VAC
		<b>Input Efficiency</b>	87% min at 115 VAC
		<b>Input frequency range</b>	47 to 63 Hz
	<b>Output</b>	<b>Input AC current</b>	1.4 A at 90 VAC and maximum load
		<b>Output power</b>	45W
		<b>DC output</b>	19.5V
		<b>Hold-up time</b>	5 msec at 115 VAC input
		<b>Output current limit</b>	<8A, Over voltage protection- 29V max automatic shutdown
	<b>Connector</b>	3 pin/grounded, mates with interchangeable cords	
	<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.		



### Technical Specifications

<b>4-Cell (41 WHr) Lithium-Ion battery</b>	<b>Cells/Type</b>	4-cell Lithium-Ion	
	<b>Energy Temperature</b>	<b>Watt-hour capacity</b>	41 WHr
		<b>Operating (Charging)</b>	32° to 113° F (0° to 45° C)
		<b>Operating (Discharging)</b>	14° to 140° F (-10° to 60° C)
		<b>Non-operating</b>	-4° to 140° F (-20° to 60° C)
<b>Battery Re-Charge Time</b>		<b>System in OFF or Standby Mode</b>	2.5 hours
		<b>System ON</b>	3 to 5 hours (depending on system power consumption)

<b>HP 3-cell (31 WHr) Primary battery</b>	<b>Dimensions (H x W x L)</b>	0.8 x 1.2 x 8.1 in (2 x 3 x 20.5cm)	
	<b>Weight (max)</b>	0.37lb, (0.166kg)	
	<b>Cells/Type</b>	Lithium-Ion	
	<b>Energy</b>	<b>Voltage</b>	11.1V
		<b>Amp-hour capacity</b>	2.8Ah
		<b>Watt-hour capacity</b>	31Wh
	<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 50° C)
		<b>Non-operating</b>	-4° to 122° F (-20° to 50° C)
<b>Battery Re-Charge Time</b>		<b>System in OFF or Standby Mode</b>	2.5 hours
		<b>System ON</b>	3 to 5 hours
<b>Fuel Gauge LED</b>		No	
<b>Warranty</b>		1 year	

### COUNTRY OF ORIGIN

China



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

Type	Description	Part #
<b>Carrying Cases</b>	HP Business Nylon Backpack (up to 17.3")	BP849AA
	HP Business Nylon Case(up to 15.6")	BP848AA
	HP Essential Top Load Case (up to 15.6")	H2W17AA#xxx
	HP Essential Backpack (up to 15.6")	H1D24AA
	HP Essential Messenger Case (up to 17.3")	H1D25AA
<b>Docking</b>	HP USB 3.0 Port Replicator	H1L08AA#xxx
	HP Universal Port Replicator	E6D70AA#xxx
	HP 3001pr USB 3 Port Replicator	F3S42AA
	HP Dual Hinge Notebook Stand	AW661AA#xxx
	HP Dual Hinge II Notebook Stand	E8F99AA#xxx
<b>Input/Output</b>	HP Touch To Pair Mouse	H6E52AA
	HP Stylish Wireless KB/Mouse	H4B79AA
	HP USB Optical Travel mouse	RH304AA
	HDMI to VGA Adapter	H4F02AA
	HP HDMI to DVI Adapter	F5A28AA
<b>Memory</b>	HP 2GB DDR3 1600 PC3-12800 SODIMM	H2P63AA#xxx
	HP 4GB DDR3 1600 PC3-12800 SODIMM	H2P64AA#xxx
	HP 2GB DDR3L-1600 1.35V SODIMM	H6Y73AA#XXX
	HP 4GB DDR3L-1600 1.35V SODIMM	H6Y75AA#XXX
	HP 8GB DDR3L-1600 1.35V SODIMM	H6Y77AA#XXX
<b>Adapters</b>	HP 45W Smart AC Adapter (4.5mm) (PL MP only)	H6Y88AA#xxx
	HP 65W Smart AC Adapter (4.5mm)	H6Y89AA#xxx
	HP 65W Slim AC Adapter	H6Y82AA#xxx
	HP 90W Slim AC Adapter	H6Y83AA#xxx
	HP 90W Slim Combo Adapter w/ USB	H6Y84AA#xxx
<b>Battery Chargers</b>	HP Notebook Battery Charger (Single Battery Charger)	QL816AA#xxx
<b>Security</b>	HP Notebook Combo Lock	AY475AA#XXX
	HP Keyed Cable Lock	BV411AA
	HP UltraSlim Keyed Cable Lock	H4D73AA
	HP USB Smart Card Reader	F6V67AA
<b>Storage</b>	HP External USB Optical Drive	F2B56AA
<b>Monitors</b>	HP EliteDisplay E271i 27-inch IPS LED Monitor	D7Z72AA/A8/AS/AT
	HP EliteDisplay E231 23-inch LED Monitor	C9V75AA/A8/AS/AT
	HP EliteDisplay E201 20-inch LED Monitor	C9V73AA/A8/AS/AT
	HP ProDisplay P221 21.5" LED Monitor	C9E49AA/A8/AS/AT
	HP ProDisplay P201 20" LED Monitor	C9F26AA/A8/AS/AT



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

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