BELKIN®

Cable-Free USB Hub

BELKIN®

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User Manual

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Belkin unleashes USB.

Congratulations and thank you for purchasing the Belkin Cable-Free USB Hub. This revolutionary product lets you connect all your USB devices to your computer—wirelessly. Now you can print, play music, scan, download photos, and burn CDs from anywhere in the room, from up to 30 feet away, without the hassle of connecting cables. The Hub is easy to use and gives you the freedom to roam—and stay connected.

Please review this User Manual carefully so that you are sure to get the most from your Cable-Free USB Hub.

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Figure 1: USB Dongle



Figure 2: Wireless Hub

Features • Wireless connectivity through USB for printers, cameras, scanners, and other devices to your computer, from up to 2 30 ft. away Reduced cable clutter 3 Data-transfer speeds of up to 480Mbps for USB 2.0 devices • Ports for linking up to 4 high- or low-speed devices with 4 your computer Belkin Lifetime Warranty 5 System Requirements For PC Users

Pentium[®] processor-based computer with Hi-Speed USB

Package Includes

2.0 port available

- Cable-Free USB Hub
- Cable-Free USB Dongle

Windows® XP with Service Pack 2

- Power Adapter
- Installation CD
- User Manual

Green:

Technical Specifications Upstream Ports: 1 Downstream Ports: 4 Per-Port Voltage: 5V Per-Port Current: 500mA 3 Self Power Mode: Operating Temperature: 41° to 104° F (5° to 40° C) 4 -4° to 140° F (-20° to 60° C) Storage Temperature: 5 Power Supply: Output: 5V, 2.6mA 6 Plug Size: 3.5mm Plug Polarity: Center-pin positive Main-Power-LED Color Definitions Constant on when 5V DC Red: is applied Port-Status-LED Color Definitions

Blinks slowly when registering

Blinks rapidly to indicate Rx/Tx

wireless hub

traffic

Certifications FCC	1
Humidity	2
5% to 95% non-condensing	3
Chipset Wisair	4
Ports 4 USB A	5
Indicator-Light Status Individual-status LED for each downstream port Power LED	6
Power Supply 5V	
Operating Range Up to 30 ft.	

Installation

The following diagram illustrates the basic steps in connecting and getting started with the donale.

Note: Do not attach the USB dongle before the host

drivers are installed.



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Step 1

Install software and drivers from the included CD-ROM.



Step 2

Connect the USB Dongle to the PC and approve the multiple-driver installation.



Step 3

Connect the included power adapter to the Cable-Free USB Hub.

Step 4



Open the Wireless Hub utility from the system tray and register the product ID number found on the bottom of the Hub. Then, approve the final driver installation on the PC.



Step 5

Connect USB peripherals to the Cable-Free USB Hub.

Installation

After you install the software and drivers, connect the dongle to a free USB 2.0 port on your computer. This powers the Hub, and the Windows Hardware Installation Wizard automatically registers the corresponding driver.

Note: If a previous installation of USB drivers already exists in your PC, uninstall the previous version using the uninstall utility (select "Start > Programs > Belkin >").

Install the USB Drivers and GUI

Ensure that your PC system hardware and software are both operational.

- Ensure that the Hub is switched off and the dongle is unplugged from the PC.
- Run the "Setup_ver_07_10.exe" Belkin Setup Launcher program; follow the on-screen instructions—proceed by clicking "Next" to install the software to the default location.
- When the Device Driver Installation Wizard appears, click "Next" to install the device drivers and click "Continue Anyway" when prompted (four instances). This will install the required Windows Driver Packages.
- 4. Click "Finish".
- 5. Click "Finish" again to exit the Wizard.

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1 Connect the Hardware

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- 1. Place the Hub no more than three feet from the dongle.
- Power OFF the Hub and disconnect it from all USB devices (e.g., cameras, hard drives, scanners).
- Connect the external antenna and the power supply to the Hub.
- **4.** Ensure that the dongle and Hub are facing each other.
- Connect the dongle to the PC's high-speed USB port. The system will automatically detect and begin installation of the drivers for the connected dongle using the Found New Hardware Wizard.

Proceed as follows:



Figure 3: Found New Hardware Wizard

1. Select "No, not this time", and click "Next".

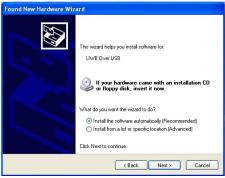


Figure 4: Insert Media Window

- Select "Install the software automatically (Recommended)" and click "Next" to install the driver.
- 3. The "Hardware Installation" screen is displayed.

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Figure 5: Hardware Installation screen

4. This product has been thoroughly tested to work with the operating systems indicated. Click "Continue Anyway". The "Completing the Found New Hardware Wizard" screen is displayed.



Figure 6: Completing the Found New Hardware Wizard

- **5.** Click "Finish" to complete the driver installation.
- 6. Windows will repeat this sequence two more times for the following drivers:
- 531 Control
- UWB Software MAC

Note: Restart your computer.

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Connecting the Hub

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- 1. Ensure that the Hub is switched OFF.
- Place the Hub within three feet from the dongle. Ensure that the two units are facing.
- 3. Power ON the Hub. Check that the LEDs light.
- 4. The system will automatically detect and begin installation of the connected device using the "Found New Hardware Wizard".



Figure 7: Found New Hardware Wizard

- 5. Select "No, not this time", and click "Next".
- Follow the instructions in the Wizard using the same procedure as in setting up the dongle.
- 7. The "Hardware Installation" window is displayed.



Figure 8: Hardware Installation Window

- **8.** This product has been thoroughly tested to work with the operating systems indicated. Click "Continue Anyway". The "Completing the Found New Hardware Wizard" screen is displayed.
- 9. Click "Finish" to complete the installation.

Note: Restart your computer.

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Installation

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10. To verify a successful installation, run the Windows Device Manager utility ("Start > Run > devmgmt.msc") and verify that it recognizes the new drivers that were installed. You should see the following names: 531 Control, USB Composite Device, UWB over USB, and Wireless Hub Device. See the following screen shot:



Figure 9: Device Manager displaying installed USB drivers

Installation

Uninstalling the Software		
If you need to uninstall the software, you can do so by using the automatic uninstaller or by using the "Windows Control Panel > Add or Remove Programs" utility.		
To uninstall the software:		
1.	Detach the dongle from the USB port of the PC.	3
1.1	Select "Uninstall Cable-Free USB Hub" from "Start > Programs > Cable-Free USB Hub".	4
OR		5
1.2	Use the "Windows Control Panel > Add or Remove Programs" utility under "Cable-Free USB Hub".	6

1 Status Indication

When the Belkin Connection Manager is up, the Belkin icon displays in the Windows System Tray. The color of the icon indicates the current activity state, as follows:

3		Icon Color	Status
			Enabled (yellow icon)
4			USB dongle is connected to the computer (dongle is enabled, no wireless connection is detected)
_	1	Connected (green icon)	
5		~~	A wireless connection is established with the Hub
6		1	Disabled (gray icon)
			USB dongle is disabled (and no connection available)

Configuration Properties

The dongle "Hardware Properties" screen provides direct access to the dongle hardware configuration.

To open the "Properties" screen, right-click on the Belkin icon and select "Properties" from the context menu.

The following table explains the properties that can be configured or viewed:

Property	Description	
Connection Status		
Operating State	Disabled/Disconnected/ Connected	
Signal Strength	0–100%	
Transmit Rate Select	Auto/480/400/320/200/160/106.7/ 80/53.3Mbps	
Channel Select	Auto-Detect /A/B/C/D/E (see Table 1: Wireless channel selection)	
Current Channel	A/B/C/D/E (see Table 1: Wireless channel selection	
Cable-Free USB Hub Details		
Product ID#	Enables the registration of the Cable-Free USB Hub product ID number in order to allow association/connection	
Register/Un-Register	Registers (associates) or un-registers (disassociates) the Cable-Free USB Hub of the given product ID number	

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Property	Description	
Dongle Status		
Reset	Resets the connection/ disassociates Cable-Free USB Hub and restarts scanning	
Disable/Enable	Turns off dongle to save PHY power	
Packets Sent/Packets Received	Packets sent (by dongle) Packets received (from Hub)	
Dongle Details		
Description	Belkin Cable-Free USB dongle (HWA531)	
Product ID	Unique hardware identification number	
Firmware Version	Host-firmware version	
Driver Version	Belkin PC-driver version	

Table 1: Wireless channel selection

Belkin Channel Name	TFC Channel	Band Search Pattern
А	TFC1	F ₁ F ₂ F ₃ F ₁ F ₂ F ₃
В	TFC2	F ₁ F ₃ F ₂ F ₁ F ₃ F ₂
С	TFC5	F ₁ F ₁ F ₁ F ₁ F ₁
D	TFC6	F ₂ F ₂ F ₂ F ₂ F ₂ F ₂
E	TFC7	F_3 F_3 F_3 F_3 F_3



Figure 10: Cable-Free USB Hub Connection Status screen

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Pairing and Association/Connection

Once the Hub is powered up and completes its initialization, it is ready for association. First-time association occurs after manually registering the product ID number of the Hub with the PC. This is also called "pairing" the two entities.

After the first-time connection/association, future association is handled automatically, so that no user intervention is necessary.

Registration (Pairing)

To register the product ID number:

- Open the "Cable-Free USB Hub Connection Status" screen (double-click the CM tray icon).
- In the "Cable-Free USB Hub Details (Pairing)" section, enter the product ID number. (There are six pairs of character/digit combinations in the product ID.)



 Press "Register" to finalize the registration/pairing. Once the product ID number is accepted, the product ID numbers are displayed as read-only, and the button is labeled "Un-Register".



4. Following registration/pairing, association/connection is established, and a tool tip is displayed in the System Tray area showing the product ID number and a message that the Hub is connected with the PC as shown in the image below.



5. Check the "Operating State" field in the "Cable-Free USB Hub Connection Status" screen to see if the status changes from "Disconnected" to "Connected".



Automatic Association

After the first manual association, the same Hub is automatically associated to the same computer whenever the Hub operates within range. To associate to another Hub, you must manually un-register the previous Hub by pressing "Un-Register", which causes the Hub to disassociate from the computer.

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Changing Association/Registration (Pairing)

To change the association/registration from one Hub to another:

1. In the "Hub Connection Status" screen, click "Un-Register".



2. Enter the product ID number of the Hub to which you want to associate and press "Register".



- A tool tip is displayed in the System Tray area, containing the product ID and a message that the Hub is now connected with the PC.
- **4.** Check the "Operating State" field to see if the status changes from "Disconnected" to "Connected".

Closing the Connection Manager Application

To shut down the Connection Manager:

1. Right-click the tray icon and select "Exit".



2. Click "Yes" to confirm that you want to shut down the application.

Maintenance

The following sections provide maintenance information and troubleshooting advice.

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Dongle LED Indicator

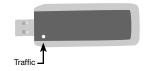


Figure 11: Dongle LED Indicator

Traffic: Flashes green when packets are received.

Hub LED Indicators

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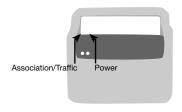


Figure 12: Cable-Free USB Hub LED Indicators

Power: Constant on when 5V DC is applied.

Association with Dongle/Traffic Indicator: Blinks slowly when a user on the host side (PC) registers the Hub's product ID number; blinks rapidly to indicate Rx/Tx traffic.

Channel Busy

If the user selects a specific channel (frequency range) and the dongle (after scanning) finds it cannot be the master on that channel, an information message window will display automatically. This is the result of more than one dongle present in the same range.



Figure 13: Channel-busy message

To resolve this conflict, select a different channel or "Auto Detect" in the "Connection Manager Properties" screen of one of the dongles.

Support for USB Classes

Audio devices ("USB Audio" class) and some webcams ("USB Video" class), which have isochronous end points, are not supported by the Hub.

Wireless Link Out of Range

If you are experiencing frequent wireless-link breaks, the Hub may be out of range—the solution is to shorten the range between the dongle and Hub.

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Extended or External Wired USB Hub Connections

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If you are connecting the dongle to a PC via an external wired USB hub, we recommend that you:

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- Apply external power to the wired USB hub.
- Do not use the external hub during initial connect and driver installation.

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Manual Software Installation

If automatic installation of the Belkin software does not succeed on your PC, you can perform a manual installation.

Clean (first-time) installation:

- Create a new directory on your PC (for example, C:\Program Files\Belkin\Hub).
- 2. Copy the WA Windows drivers into the directory:
 - FX2Control.sys
 - SwMac.sys
 - USBFX2.sys
 - WirelessHub.sys
 - FX2Control.inf
 - SwMac.inf
 - USBFX2.inf
 - WirelessHub.inf

- 3. Copy the software application (ConnectionManager.exe) plus the "CM_API.DLL" file into the same directory. Create a shortcut to the "ConnectionManager.exe" application and place it in the "Start > Programs > Startup" menu of the PC so that the application starts up automatically when Windows starts.
- 4. Launch the Hub application (ConnectionManager.exe).
- 5. Connect the dongle to the USB port of the PC.
- 6. When prompted for the required driver, select the option "Install from a list or a specific location (advanced)", and point to the new directory where you placed the drivers (for example, C:\Program Files\Belkin\Cable-Free USB Hub).
- Follow the procedure outlined in the "Connecting the USB Dongle" section.
- 8. Check the Windows Device Manager to ensure that all three drivers are installed. If any of the drivers display a yellow exclamation mark (!), right-click that driver name and select "Uninstall", and repeat the driver-installation procedure.
- 9. When you complete driver installation, plug in the dongle and power ON the Hub. Windows will prompt you for the required driver. Browse and point to the new directory containing the drivers (for example, C:\Program Files\ Belkin\Cable-Free USB Hub). Complete the procedure as described in the "Connecting the Cable-Free USB Hub" section.
- 10. Manual installation is now complete.

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Manual Software Uninstallation

To uninstall the software manually:

- 1. Ensure that the Connection Manager is stopped and the dongle is disconnected.
- 2. Go to "C:\windows\system32\drivers" and locate the four driver files:
 - FX2Control.sys
 - SwMac.sys
 - USBFX2.sys
 - WirelessHub.sys
- 3. Delete the four files.
- 4. If applicable, remove the shortcut for the "ConnectionManager.exe" application from the "Start > Programs > Startup" menu.

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Reading Software and Firmware Versions			
In order to ensure that you are working with the latest version of software and hardware, you can check the versions of each component as follows:			
Belkin application	In "Control Panel > Add or Remove Programs > Cable- Free USB Hub > Click here for support information" for the automatically installed application.	3	
		4	
		5	
PC host drivers version	Right-click the tray icon, and select "Properties". Read the "Driver Version" field in the "Cable-Free USB Dongle Details" section.	6	
Cable-Free USB			
dongle firmware version	Right-click the tray icon, and select "Properties". Read the "Firmware version" field in the "Cable-Free USB Dongle Details" section.		
Cable-Free USB Hub			
firmware version	Use a serial connector to connect via HyperTerminal application and view the firmware version in the command prompt of the Cable-Free USB Hub.		

Technical Specifications

1	Model Number	HWA531 — Cable-Free USB dongle
2		DWA531 — 4-port Cable-Free USB Hub
3	UWB Chipset	Belkin 531 MAC/BB chip, Belkin 502 RF chip
	Operational Range	Up to 30 to 60 ft. (10 to 20m)
4	PHY Data Rate	Up to 480Mbps (automatically or manually selected)
5	Frequency Range	3.1GHz to 4.8GHz; supporting 3 sub-bands, 528MHz each
6	RF Modulation Type	Multiband OFDM
	Max. Output Power	80μW (-41.25 dBm/MHz max.)
	Max. Power Consumption	HWA531 — 1.75W (350mA max. @ 5VDC from USB port)
		DWA531 — 3W (600mA @ 5VDC from external power supply)
	USB End-Point Types	Bulk in/out, Interrupt, Control
	Number of End Points	32 end points
	USB Power Drive	Powers up to 4 USB external devices (500mA @ 5VDC each)
	USB Association Type	Host GUI-based association
	LED Indicators	Power, Association, Traffic
	PCB Size	HWA531 — 25 by 69mm

Technical Specifications

	DWA531 — 38 by 92mm	1
Antenna	HWA531 — UWB on-board omnidirectional antenna DWA531 — UWB 2 internal omnidirectional antennas	2
Operating		3
Temperature Range	5° C to 50° C	4
Operational Humidity	10–95%	4
PHY Compliance	Complies with WiMedia® PHY spec. rev. 1.0	5
FCC Compliance	Complies with FCC CFR 47 Part 15 subpart F; UWB intentional radiation	6
USB Hub Compliance	Complies with USB 2.0/1.1	
OS Compliance	Microsoft® Windows XP SP2; Windows Plug-and-Play- compliant	
Coexistence	Coexists with standard WiMedia devices	
	Coexistence with co-located additional dongles or UWB systems (FFI, TFI schemes)	

Information

FCC Statement

DECLARATION OF CONFORMITY WITH FCC RULES FOR

We, Belkin Corporation, of 501 West Walnut Street, Compton, CA 90220, declare under our sole responsibility that the product:

to which this declaration relates:

Complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This equipment may only be operated indoors. Operation outdoors is in violation of 47 U.S.C. 301 and could subject the operator to serious legal penalties.

CE Declaration of Conformity

We, Belkin Corporation, declare under our sole responsibility that the F5U301, to which this declaration relates, is in conformity with Generic Emissions Standard EN55022:1998 Class B, EN50081-1, and with Generic Immunity Standard EN50082-1:1992.

Belkin Corporation Limited Lifetime Product Warranty

What this warranty covers.

Belkin Corporation warrants to the original purchaser of this Belkin product that the product shall be free of defects in design, assembly, material, or workmanship.

What the period of coverage is.

Belkin Corporation warrants the Belkin product for the lifetime of the product.

What will we do to correct problems?

Product Warranty.

Belkin will repair or replace, at its option, any defective product free of charge (except for shipping charges for the product).

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What is not covered by this warranty?

All above warranties are null and void if the Belkin product is not provided to Belkin Corporation for inspection upon Belkin's request at the sole expense of the purchaser, or if Belkin Corporation determines that the Belkin product has been improperly installed, altered in any way, or tampered with. The Belkin Product Warranty does not protect against acts of God (other than lightning) such as flood, earthquake, war, vandalism, theft, normal-use wear and tear, erosion, depletion, obsolescence, abuse, damage due to low voltage disturbances (i.e. brownouts or sags), non-authorized program, or system equipment modification or alteration.

How to get service.

To get service for your Belkin product you must take the following steps:

- Contact Belkin Corporation at 501 W. Walnut St., Compton CA 90220, Attn: Customer Service, or call (800)-223-5546, within 15 days of the Occurrence. Be prepared to provide the following information:
 - a. The part number of the Belkin product.
 - b. Where you purchased the product.
 - c. When you purchased the product.
 - d. Copy of original receipt.
- Your Belkin Customer Service Representative will then instruct you on how to forward your receipt and Belkin product and how to proceed with your claim.

Belkin Corporation reserves the right to review the damaged Belkin product. All costs of shipping the Belkin product to Belkin Corporation for inspection shall be borne solely by the purchaser. If Belkin determines, in its sole discretion, that it is impractical to ship the damaged equipment to Belkin Corporation, Belkin may designate, in its sole discretion, an equipment repair facility to inspect and estimate the cost to repair such equipment. The cost, if any, of shipping the equipment to and from such repair facility and of such estimate shall be borne solely by the purchaser. Damaged equipment must remain available for inspection until the claim is finalized. Whenever claims are settled, Belkin Corporation reserves the right to be subrogated under any existing insurance policies the purchaser may have.

How state law relates to the warranty.

THIS WARRANTY CONTAINS THE SOLE WARRANTY OF BELKIN CORPORATION, THERE ARE NO OTHER WARRANTIES, EXPRESSED OR, EXCEPT AS REQUIRED BY LAW, IMPLIED, INCLUDING THE IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SUCH IMPLIED WARRANTIES, IF ANY, ARE LIMITED IN DURATION TO THE TERM OF THIS WARRANTY.

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Information

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

IN NO EVENT SHALL BELKIN CORPORATION BE LIABLE FOR INCIDENTAL,

IN NO EVENT SHALL BELKIN CORPORATION BE LIABLE FOR INCIDENTAL, SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR MULTIPLE DAMAGES SUCH AS, BUT NOT LIMITED TO, LOST BUSINESS OR PROFITS ARISING OUT OF THE SALE OR USE OF ANY BELKIN PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This warranty gives you specific legal rights, and you may also have other rights, which may vary from state to state. Some states do not allow the exclusion or limitation of incidental, consequential, or other damages, so the above limitations may not apply to you.

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