D-Link®

DAP-1610

AC1200 Wi-Fi Range Extender

BEFORE YOU BEGIN

Delivery Package

- Extender DAP-1610
- "*Quick Installation Guide*" (brochure).

If any of the items are missing, please contact your reseller.

The "*User Manual*" and "*Quick Installation Guide*" documents are available on D-Link website (see www.dlink.ru).

! **Using a power supply with different parameters than those indicated on the device will cause damage and void the warranty for this product.**

Default Settings

Domain name of device		`dlinkap.local.`
IP address of device		`192.168.0.50`
Username (login)		`admin`
Password		`admin`
Name of wireless network (SSID)	**2.4GHz**	`DAP-1610`
	5GHz	`DAP-1610-5G`
Network key (PSK password)		see WPS PIN on the barcode label on the back panel of the device

System Requirements and Equipment

- A router enabled to access the Internet.
- A computer with any operating system that supports a web browser.
- A web browser to access the web-based interface of the device:
  - Apple Safari 8 and later
  - Google Chrome 48 and later
  - Microsoft Internet Explorer 10 and later
  - Microsoft Edge 20.10240 and later
  - Mozilla Firefox 44 and later
  - Opera 35 and later.
- A NIC (Ethernet or Wi-Fi adapter) to connect to the extender.
- An 802.11a, b, g, n, or ac Wi-Fi adapter to create a wireless network.

CONNECTING TO PC

PC with Ethernet Adapter

1. Connect an Ethernet cable between the Ethernet port of the extender and the Ethernet port of your PC.

2. Plug the device into an electrical outlet or power strip.

Now you need to configure an IP address for the Ethernet adapter of your PC.
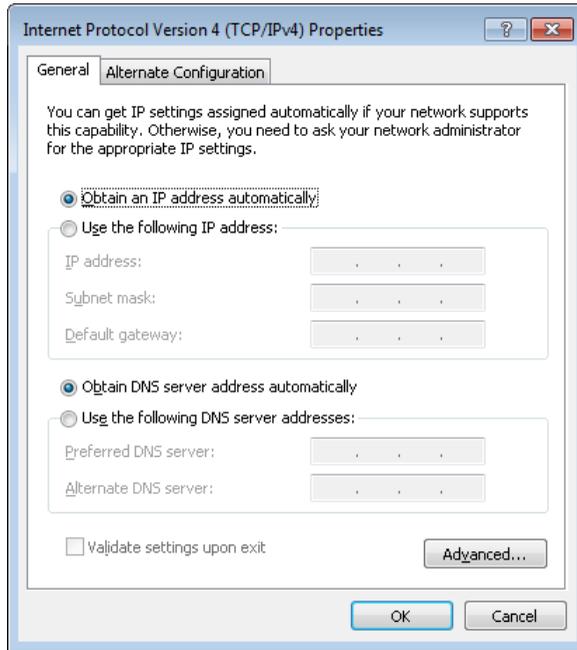
Obtaining IP Address Automatically in OS Windows 7

1. Click the **Start** button and proceed to the **Control Panel** window.

2. Select the **Network and Sharing Center** section. (If the Control Panel has the category view (the **Category** value is selected from the **View by** drop-down list in the top right corner of the window), choose the **View network status and tasks** line under the **Network and Internet** section.)

3. In the menu located on the left part of the window, select the **Change adapter settings** line.

4. In the opened window, right-click the relevant **Local Area Connection** icon and select the **Properties** line in the menu displayed.
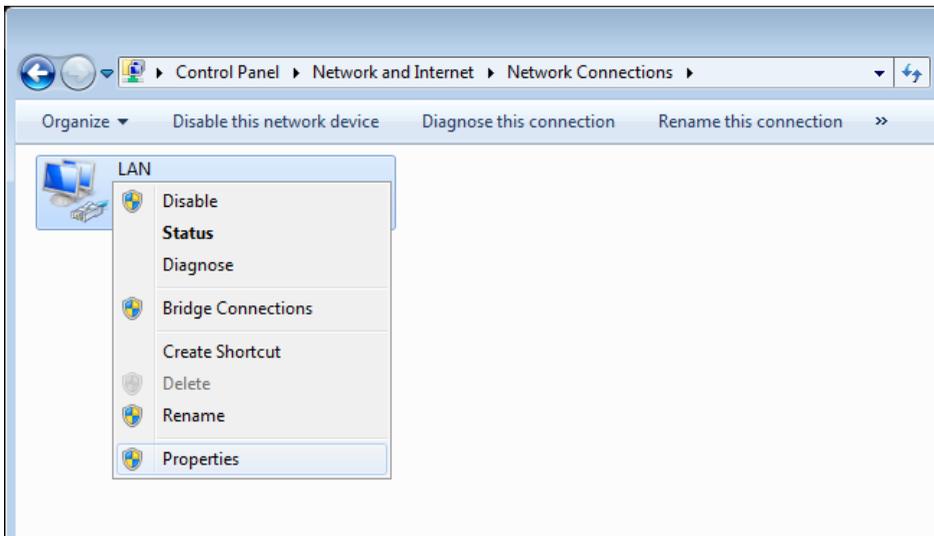
5. In the **Local Area Connection Properties** window, on the **Networking** tab, select the **Internet Protocol Version 4 (TCP/IPv4)** line. Click the **Properties** button.

6. Select the **Obtain an IP address automatically** and **Obtain DNS server address automatically** radio buttons. Click the **OK** button.

7. Click the **OK** button in the connection properties window.

Now your computer is configured to obtain an IP address automatically.

PC with Wi-Fi Adapter

1. Plug the device into an electrical outlet or power strip.

2. Turn on your Wi-Fi adapter. As a rule, modern notebooks with built-in wireless NICs are equipped with a button or switch that turns on/off the wireless adapter (refer to your PC documents). If your PC is equipped with a pluggable wireless NIC, install the software provided with your Wi-Fi adapter.

Now you should configure your Wi-Fi adapter.

Configuring Wi-Fi Adapter in OS Windows 7

1. Click the **Start** button and proceed to the **Control Panel** window.

2. Select the **Network and Sharing Center** section. (If the Control Panel has the category view (the **Category** value is selected from the **View by** drop-down list in the top right corner of the window), choose the **View network status and tasks** line under the **Network and Internet** section.)

3. In the menu located on the left part of the window, select the **Change adapter settings** line.

4. In the opened window, select the icon of the wireless network connection and make sure that your Wi-Fi adapter is on.

5. To open the list of available wireless networks, select the icon of the wireless network connection and click the **Connect To** button or left-click the network icon in the notification area located on the right side of the taskbar.

6. In the opened window, in the list of available wireless networks, select the wireless network **DAP-1610** (for operating in the 2.4GHz band) or **DAP-1610-5G** (for operating in the 5GHz band) and click the **Connect** button.
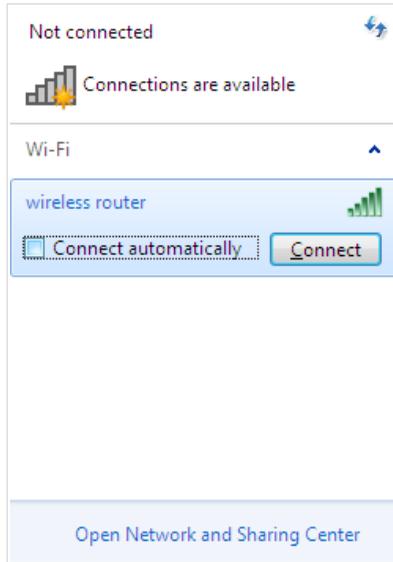
7. In the opened window, enter the network key (see WPS PIN on the barcode label on the back panel of the device) in the **Security key** field and click the **OK** button.

8. Wait for about 20-30 seconds. After the connection is established, the network icon will be displayed as the signal level scale.

!   If you perform initial configuration of the access point via Wi-Fi connection, note that immediately after changing the wireless default settings of the access point you will need to reconfigure the wireless connection using the newly specified settings.
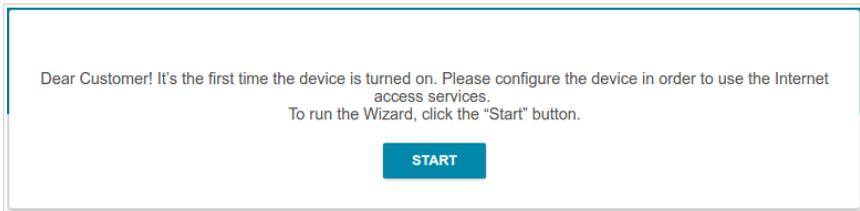
CONFIGURING EXTENDER

Connecting to Web-based Interface

Start a web browser. In the address bar of the web browser, enter the domain name of the extender (by default, **dlinkap.local**) with a dot at the end and press the **Enter** key. Also you can enter the IP address of the device (by default, **192.168.0.50**).
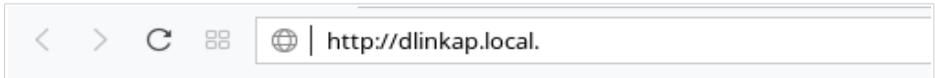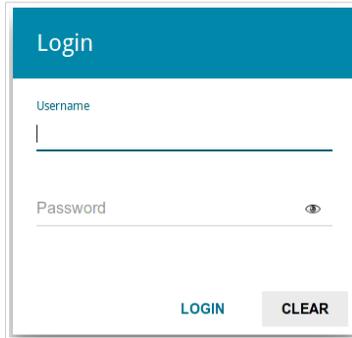

> **!** If the error "*The page cannot be displayed*" (or "*Unable to display the page*"/"*Could not connect to remote server*") occurs upon connecting to the web-based interface of the extender, make sure that you have properly connected the device to your computer.

If the device has not been configured previously or the default settings have been restored, after access to the web-based interface the Initial Configuration Wizard opens (see the *Initial Configuration Wizard* section, page 13).

Dear Customer! It's the first time the device is turned on. Please configure the device in order to use the Internet access services.
To run the Wizard, click the "Start" button.

START

If you configured the device previously, after access to the web-based interface the login page opens. Enter the username (`admin`) in the **Username** field and the password you specified in the **Password** field, then click the **LOGIN** button.

The **Summary** page displays general information on the extender and its software.

The web-based interface of the extender is bilingual (English/Russian). You can select the needed language upon the initial configuration of the web-based interface of the device or in the **System / Configuration** section of the menu.

Other settings of the extender are available in the menu in the left part of the page. Go to the relevant section and select the needed page or run the wizard in the **Initial Configuration** section.
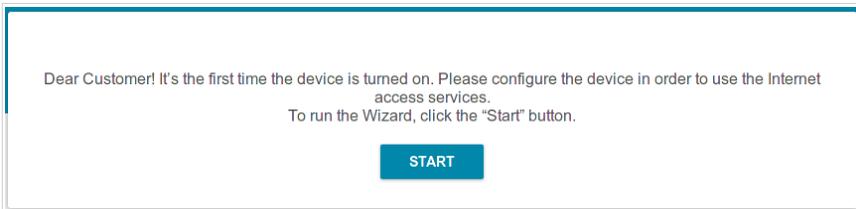
Initial Configuration Wizard

In order to start the Initial Configuration Wizard manually, go to the **Initial Configuration** section.

In order to run the initial setup wizard, the device should be reset to factory defaults.

CANCEL   OK
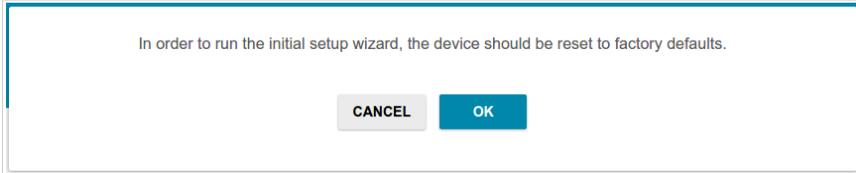
Click the **OK** button and wait until the factory default settings are restored. Then click the **START** button.

If the device has not been configured previously or the default settings have been restored, the Initial Configuration Wizard starts automatically upon access to the web-based interface or upon opening a web site on the Internet.

Dear Customer! It's the first time the device is turned on. Please configure the device in order to use the Internet access services.
To run the Wizard, click the "Start" button.

START

1. Click **YES** in order to leave the current language of the web-based interface or click **NO** to select the other language.

Maybe your language is English?

NO   YES

2. On the next page, click the **CONTINUE** button.

Selecting Operation Mode

In order to connect your device to a wired router for adding a wireless network to the existing local network, on the **Device mode** page, from the **Connection method** list, select the **Wired connection** value. In this mode you can change the LAN IP address, set your own settings for the wireless network and set your own password for access to the web-based interface of the device.
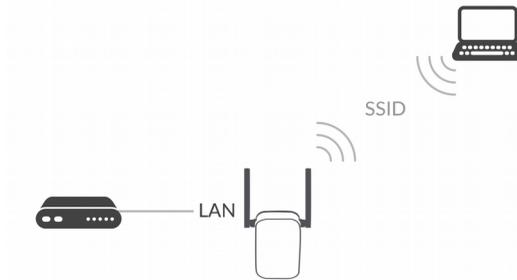
In order to connect your device to a wireless router for extending the range of the existing wireless network, on the **Device mode** page, from the **Connection method** list, select the **Wi-Fi** value. Then from the **Work mode** list select the **Repeater** value. In this mode you can change the LAN IP address, connect your device to another access point, set your own settings for the wireless network, and set your own password for access to the web-based interface of the device.
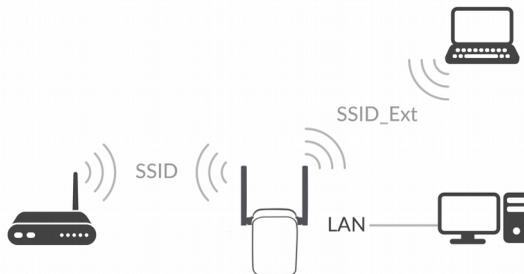
In order to let a wired PC connected to your device access the network of a wireless router, on the **Device mode** page, from the **Connection method** list, select the **Wi-Fi** value. Then from the **Work mode** list select the **Client** value. In this mode you can change the LAN IP address, connect your device to another access point and set your own password for access to the web-based interface of the device.

When the operation mode is selected, click the **NEXT** button.

Changing LAN IPv4 Address

This configuration step is available for the **Access point**, **Repeater**, and **Client** modes.

1. Select the **Automatic obtainment of IPv4 address** to let DAP-1610 automatically obtain the LAN IPv4 address.

> ! If the extender obtains the LAN IPv4 address automatically, then after finishing the Wizard you can access the web-based interface using the domain name (by default, `dlinkap.local`) with a dot at the end.

If you want to manually assign the LAN IPv4 address for DAP-1610, do not select the **Automatic obtainment of IPv4 address** checkbox and fill in the **IP address** and **Netmask** fields and, if needed, the **Gateway IP address** field. Make sure that the assigned address does not coincide with the LAN IPv4 address of the router to which your device connects.

LAN

☐ Automatic obtainment of IPv4 address

⚠ *Automatic obtainment of IPv4 address sufficiently protects against use of the same addresses in one LAN. In order to avoid IPv4 address conflicts, static IPv4 addresses of LAN devises should not coincide with addresses from the address range assigned by an upper-level router (or a local DHCP server).*

IP address*
192.168.0.50

Netmask*
255.255.255.0

Gateway IP address

‹ BACK   NEXT ›

2. Click the **NEXT** button.

Wi-Fi Client

This configuration step is available for the **Repeater** and **Client** modes.

1. On the **Wi-Fi client** page, in the **Wireless Networks** section, select the network to which you want to connect. When you select a network, the **Network name (SSID)** and **BSSID** fields are filled in automatically.

If you cannot find the needed network in the list, click the **UPDATE LIST** button.

2. If a password is needed to connect to the selected network, fill in the relevant field.

If you connect to a hidden network, from the **Connecting to network** list select the **Connect to hidden network** value. Then select the band where the hidden network operates from the **Frequency band** list and enter the network name in the **Network name (SSID)** field. Then select a needed value from the **Network authentication** list and then, if needed, enter the password in the relevant field.

3. Click the **NEXT** button.

Configuring Wireless Network

This configuration step is available for the **Access point** and **Repeater** modes.

1. On the **Wireless Network 2.4 GHz** page, in the **Network name** field, specify your own name for the wireless network in the 2.4GHz band or leave the value suggested by the extender.

2. In the **Password** field, specify your own password for access to the wireless network or leave the value suggested by the extender (WPS PIN of the device, see the barcode label).

3. You can restore the parameters of the wireless network specified before resetting to factory defaults. To do this, click the **RESTORE** button.

4. Click the **NEXT** button.

5. On the **Wireless Network 5 GHz** page, specify needed settings for the wireless network in the 5GHz band and click the **NEXT** button.

Changing Web-based Interface Password

On this page you should change the default administrator password. You may set any password except `admin`. Use digits, Latin letters (uppercase and/or lowercase), and other characters available in the US keyboard layout.[1]
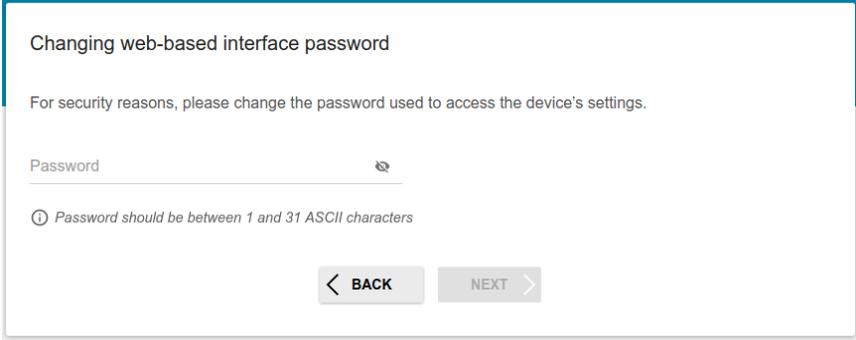
Changing web-based interface password

For security reasons, please change the password used to access the device's settings.

Password

ⓘ Password should be between 1 and 31 ASCII characters

‹ BACK   NEXT ›

! Remember or write down the new password for the administrator account. In case of losing the new password, you can access the settings of the extender only after restoring the factory default settings via the hardware **RESET** button. This procedure wipes out all settings that you have configured for your extender.

Click the **NEXT** button.

On the next page, check all the settings you have just specified.

Also you can save a text file with parameters set by the Wizard to your PC. To do this, click the **SAVE CONFIGURATION FILE** button and follow the dialog box appeared.

To finish the Wizard, click the **APPLY** button.

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1 0-9, A-Z, a-z, space, !"#$%&'()*+,-./:;<=>?@[\]^_`{|}~.

SPECIFICATIONS[*]

Hardware		
Processor	·	MT7628NN (575/580MHz)
RAM	·	64MB, DDR2
Flash	·	8MB, SPI
Interfaces	·	10/100BASE-TX LAN port
LEDs	· ·	POWER/WPS Wi-Fi Signal Strength
Buttons	· ·	WPS button to set up wireless connection RESET button to restore factory default settings
Antenna	·	Two external non-detachable antennas (3dBi gain for 2.4GHz and 2dBi gain for 5GHz)
MIMO	·	2 x 2
Power connector	·	CEE 7/16 plug for AC power supply

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*   The device features are subject to change without notice. For the latest versions of the firmware and relevant documentation, visit www.dlink.ru.

Software	
Network functions	· DHCP server · Automatic obtainment of LAN IP address · DNS relay · Autonegotiation of speed, duplex mode, and flow control/Manual speed and duplex mode setup for the Ethernet port
Firewall functions	· MAC filter
Management	· Local and remote access to settings through TELNET/WEB (HTTP/HTTPS) · Bilingual web-based interface for configuration and management (Russian/English) · Firmware update via web-based interface · Automatic notification on new firmware version · Saving/restoring configuration to/from file · Support of logging to remote host · Automatic synchronization of system time with NTP server and manual time/date setup · Ping utility · Traceroute utility

Wireless Module Parameters	
Standards	· IEEE 802.11a/n/ac · IEEE 802.11b/g/n
Frequency range	· 2400 ~ 2483.5MHz · 5150 ~ 5350MHz · 5650 ~ 5725MHz
Wireless connection security	· WEP · WPA/WPA2 (Personal/Enterprise) · MAC filter · WPS (PBC/PIN)
Advanced functions	· Support of client mode · WMM (Wi-Fi QoS) · Information on connected Wi-Fi clients · Advanced settings · Smart adjustment of Wi-Fi clients · Support of MBSSID · Periodic scan of channels, automatic switch to least loaded channel · Autonegotiation of channel bandwidth in accordance with environment conditions (20/40 Coexistence)

Wireless Module Parameters	
Wireless connection rate	· IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, and 54Mbps · IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, and 54Mbps · IEEE 802.11n (2.4GHz/5GHz): from 6.5 to 300Mbps (from MCS0 to MCS15) · IEEE 802.11ac (5GHz): from 6.5 to 867Mbps (from MCS0 to MSC9)
Transmitter output power *The maximum value of the transmitter output power depends upon the radio frequency regulations applied in your country*	· 802.11a (typical at room temperature 25 °C) 17dBm (±1dB) at 6Mbps 14dBm (±1dB) at 54Mbps · 802.11g (typical at room temperature 25 °C) 16dBm (±1dB) at 6, 9, 12, 18, 24, 36Mbps 14dBm (±1dB) at 48, 54Mbps · 802.11n (typical at room temperature 25 °C) 2.4GHz, HT20 16dBm (±1dB) at MCS0~5 14dBm (±1dB) at MCS6~7 2.4GHz, HT40 15dBm (±1dB) at MCS0~5 13dBm (±1dB) at MCS6~7 · 802.11ac (typical at room temperature 25 °C) 17dBm (±1dB) at MCS0 13dBm (±1dB) at MCS9
Receiver sensitivity	· 802.11a (typical at PER < 10% (1000-byte PDUs) at room temperature 25 °C) -82dBm at 6Mbps -81dBm at 9Mbps -79dBm at 12Mbps -77dBm at 18Mbps -74dBm at 24Mbps -70dBm at 36Mbps -66dBm at 48Mbps -65dBm at 54Mbps · 802.11g (typical at PER < 10% (1000-byte PDUs) at room temperature 25 °C) -82dBm at 6Mbps -81dBm at 9Mbps -79dBm at 12Mbps -77dBm at 18Mbps -74dBm at 24Mbps -70dBm at 36Mbps -66dBm at 48Mbps -65dBm at 54Mbps

Wireless Module Parameters

	· 802.11n (typical at PER = 10% (1000-byte PDUs)) 2.4GHz, HT20 -82dBm at MCS0 -79dBm at MCS1 -77dBm at MCS2 -74dBm at MCS3 -70dBm at MCS4 -66dBm at MCS5 -65dBm at MCS6 -64dBm at MCS7 HT40 -79dBm at MCS0 -76dBm at MCS1 -74dBm at MCS2 -71dBm at MCS3 -67dBm at MCS4 -63dBm at MCS5 -62dBm at MCS6 -61dBm at MCS7 · 802.11ac (typical at PER = 10% (1000-byte PDUs)) HT20 -82dBm at MCS0 -79dBm at MCS1 -77dBm at MCS2 -74dBm at MCS3 -70dBm at MCS4 -66dBm at MCS5 -65dBm at MCS6 -64dBm at MCS7 -59dBm at MCS8 -57dBm at MCS9 HT40 -79dBm at MCS0 -76dBm at MCS1 -74dBm at MCS2 -71dBm at MCS3 -67dBm at MCS4 -63dBm at MCS5 -62dBm at MCS6 -61dBm at MCS7 -56dBm at MCS8 -54dBm at MCS9 HT80 -79dBm at MCS0 -73dBm at MCS1 -71dBm at MCS2 -68dBm at MCS3 -64dBm at MCS4 -60dBm at MCS5 -59dBm at MCS6

Wireless Module Parameters	
	-58dBm at MCS7 -53dBm at MCS8 -51dBm at MCS9
Modulation schemes	· 802.11a: BPSK, QPSK, 16QAM, 64QAM with OFDM · 802.11g: BPSK, QPSK, 16QAM, 64QAM with OFDM · 802.11n: BPSK, QPSK, 16QAM, 64QAM with OFDM · 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM with OFDM

Physical Parameters	
Dimensions (L x W x H)	· 51 x 49 x 98 mm (2 x 1.91 x 3.85 in)
Weight	· 120 g (0.26 lb)

Operating Environment	
Power	· Input: 110 to 240 V AC, 50/60 Hz
Temperature	· Operating: from 0 to 40 °C · Storage: from -20 to 70 °C
Humidity	· Operating: from 10% to 90% (non-condensing) · Storage: from 5% to 90% (non-condensing)

SAFETY RULES AND CONDITIONS

Please carefully read this section before installation and connection of the device. Make sure that the device is not damaged. The device should be used only as intended in accordance with the documents.

The device is intended for use in dry, clean, dust-free, and well ventilated areas with normal humidity away from strong heat sources. Do not use the device outdoors or in the areas with high humidity. Do not place foreign objects on the device. Do not obstruct the ventilation openings of the device. The environmental temperature near the device and the temperature inside the device's cover should be within the range from 0 °C to +40 °C.

Plug the device only into working electrical outlets with parameters indicated on the device.

Do not open the cover of the device! Unplug the device before dusting and cleaning. Use a damp cloth to clean the device. Do not use liquid/aerosol cleaners or magnetic/static cleaning devices. Prevent moisture getting into the device.

The service life of the device is 2 years.

TECHNICAL SUPPORT

You can find software updates and user documentation on our website.

D-Link provides its customers with free support within the product's warranty period.

Customers can contact the technical support group by phone or by e-mail/Internet.

FOR TELEPHONE NUMBERS AND ADDRESSES OF D-LINK OFFICES WORLDWIDE VISIT

http://www.dlink.com/corporate/worldwideoffices/