# D-Link®

# DPN-1021G

## GPON ONT VoIP Gateway with 1 GPON Port, 1 10/100/1000Base-T Port, 1 10/100Base-TX Port, and 1 FXS Port

# BEFORE YOU BEGIN

## *Delivery Package*

- GPON ONT VoIP gateway DPN-1021G
- Power adapter DC 12V/1A
- "*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 a different voltage rating than the one included will cause damage and void the warranty for this product.**

## *Default Settings*

|  |  |
|---:|:---|
| **IP address of device** | `192.168.0.1` |
| **Username (login)** | `admin` |
| **Password** | `admin` |

> **!**   Gateway DPN-1021G with default settings cannot connect to the Internet. To get started, please set your own password for access to the web-based interface; then, if needed, configure other settings recommended by your ISP.

## *System Requirements and Equipment*

- A computer with any operating system that supports a web browser.
- A web browser to access the web-based interface of the gateway:
  - 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 adapter) to connect to the gateway.
- An analog phone.

# CONNECTING TO PC

**!**   Invisible laser radiation may be emitted from the end of the fiber and/or from DPN-1021G. Take all necessary precautions to avoid unnecessary exposure to this radiation.

1. Connect an Ethernet cable between the Ethernet port of your PC and the 10/100/1000Base-T port (**LAN1**) or 10/100Base-TX port (**LAN2**).

2. *To connect the device to a fiber optic line*: connect the fiber optic cable to the PON port in the bottom panel of the gateway. Make sure that center conductor of the cable is inserted directly into the center of the PON connector. Secure the cable by carefully pushing the fiber connector onto the PON connector until tight. Be careful not to over-tighten the connector or you may damage either the cable or the device.

3. *To connect the device to an Ethernet line*: in the web-based interface of the gateway, select the gateway's LAN port that will be used as the WAN port and create an Ethernet WAN connection. Then connect an Ethernet cable between an available Ethernet port of the gateway and the Ethernet line.

**!**   Please connect the gateway to the ISP's Ethernet line only after setting the WAN port and creating the Internet connection.

4. Connect a phone cable between the FXS port of the gateway and the phone.

5. Connect the power cord to the power connector port on the back panel of the gateway, then plug the power adapter into an electrical outlet or power strip.

6. Turn on the gateway by pressing the **ON/OFF** button on its back panel.

7. Wait for several minutes. When the device receives all needed settings, the **GPON** LED will stop blinking and will light solid green. When the Internet connection is established, the **Internet** LED will light solid green.

Now you should configure your PC to obtain an IP address automatically (as DHCP client).

# *Obtaining IP Address Automatically (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.
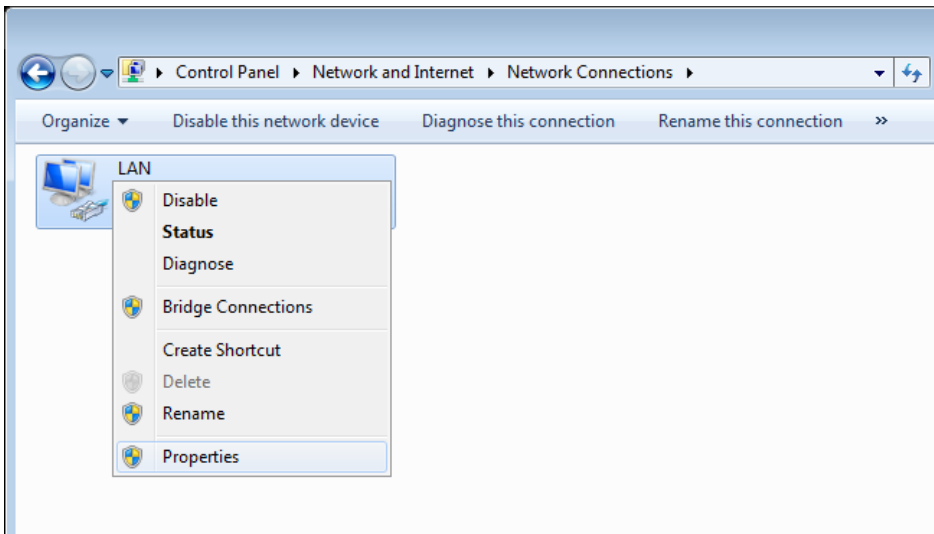


5. In the **Local Area Connection Properties** window, on the **Networking** tab, select the **Internet Protocol Version 4 (TCP/IPv4)** line. Click the **Properties** button.

6. Make sure that the **Obtain an IP address automatically** and **Obtain DNS server address automatically** choices of the radio buttons are selected. Click the **OK** button.
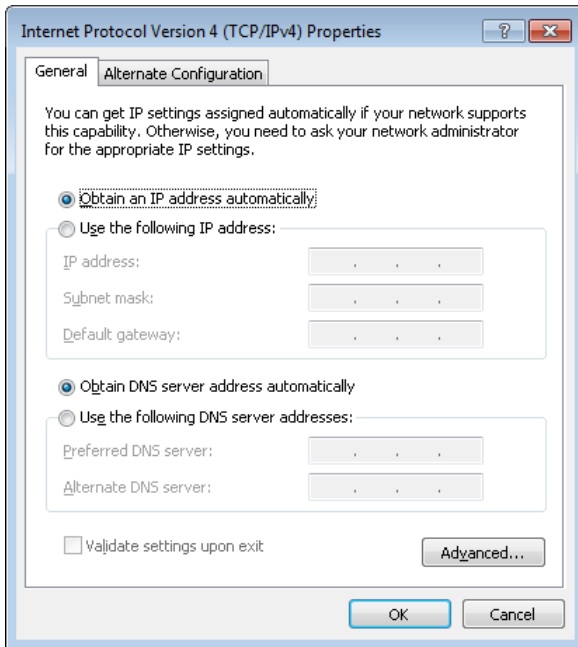


7. Click the **OK** button in the connection properties window.

# CONFIGURING GATEWAY

## *Connecting to Web-based Interface*

Start a web browser. In the address bar of the web browser, enter the IP address of the gateway (by default, `192.168.0.1`). Press the **Enter** key.
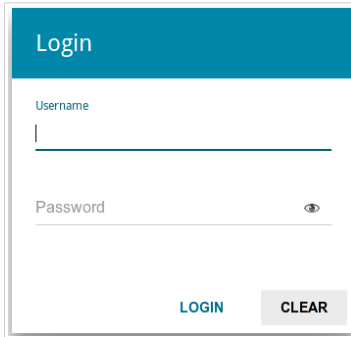


!  If the error "*The page cannot be displayed*" (or "*Unable to display the page*"/"*Could not connect to remote server*") occurs upon connecting to the web-based interface of the gateway, make sure that you have properly connected the gateway to your computer.

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 page opens (see the ***Initial Configuration*** section, page 10).



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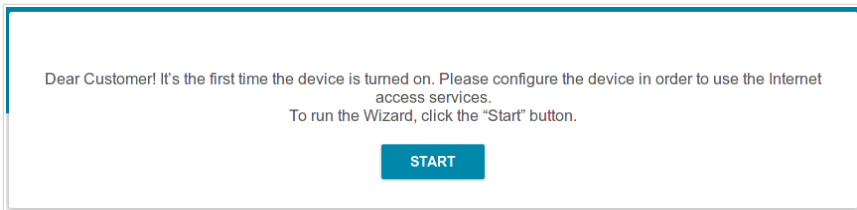
If you configured the device previously, after access to the web-based interface the login page opens. Enter the username (`admin`) in the **Username** field and the password you specified in the **Password** field, then click the **LOGIN** button.

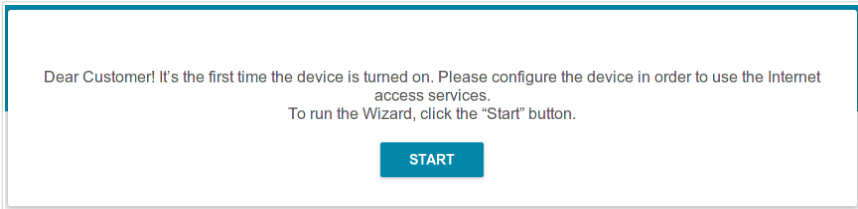The **Summary** page displays general information on the gateway and its software.



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

Other settings of the gateway are available in the menu in the left part of the page. Go to the relevant section and select the needed page.

## *Initial Configuration*

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

1. Click the **START** button.

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

2. 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
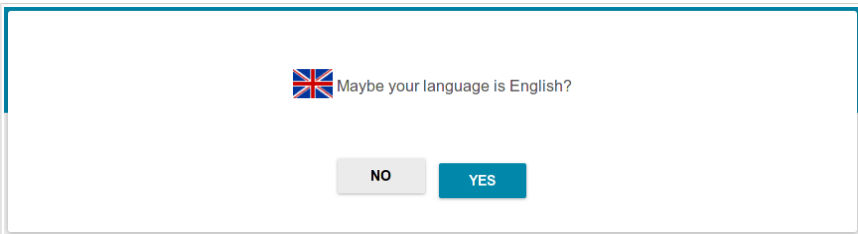
3. On the next page, change the default administrator password in the **Admin password** field.

Defaults

*In order to start up, please change several default settings.*

Admin password*

◉

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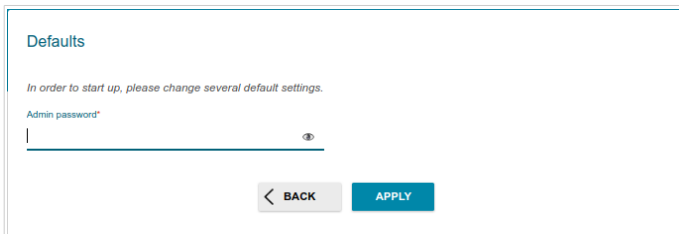
!　Remember or write down the new password for the administrator account. In case of losing the new password, you can access the settings of the gateway only after restoring the factory default settings via the hardware **RESET** button. This procedure wipes out all settings that you have configured for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

4.　Click the **APPLY** button.

## *Configuring Connection to the Internet*

**!**
When the gateway connects to a fiber optic line, a WAN connection is created and configured automatically.

When the gateway connects to an Ethernet line, you should configure your Ethernet WAN connection in accordance with data provided by your Internet service provider (ISP). Make sure that you have obtained all necessary information prior to configuring your connection. Otherwise contact your ISP.
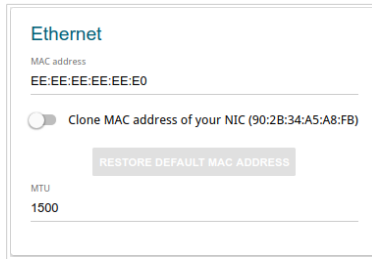
1. If you configure a connection to an Ethernet line, go to the **Advanced / EtherWAN** page. On the page, click the icon corresponding to the LAN port to which the IPS's Ethernet cable will be connected and click the **APPLY** button.
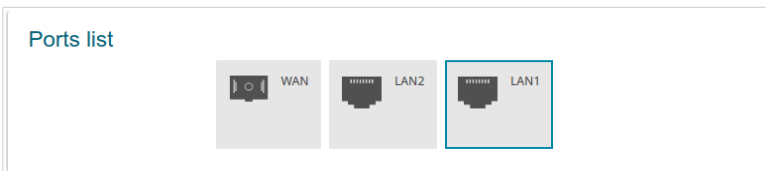


2. Reboot the gateway and access the web-based interface again.

3. Go to the **Connections Setup / WAN** page.

4. Click the **ADD** button.

5. On the opened page, on the **All Settings** tab, select the needed value from the **Connection type** drop-down list.

6. Specify a name for your connection (any name for easier identification) in the **Connection name** field.
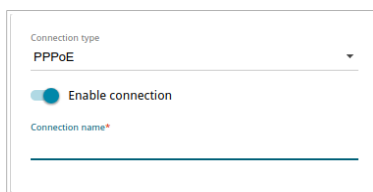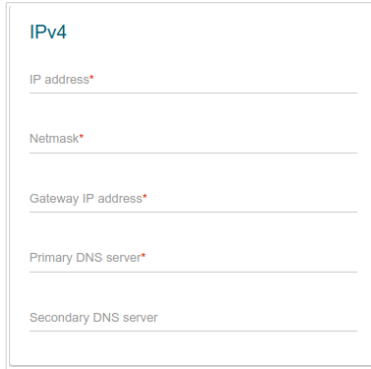
7.  If your ISP uses MAC address binding, in the **Ethernet** section, in the
    **MAC address** field, enter the MAC address registered by your ISP upon
    concluding the agreement. To set the MAC address of the network
    interface card (of the computer that is being used to configure the
    gateway at the moment) as the MAC address of the WAN interface, click
    the **Clone MAC address of your NIC** switch to the right. To set the
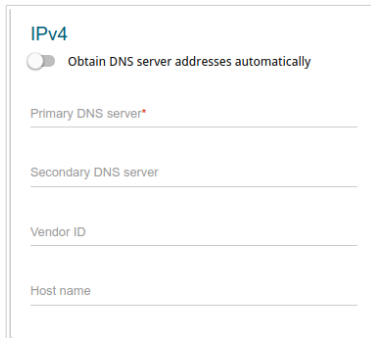    gateway's MAC address, **RESTORE DEFAULT MAC ADDRESS**
    button.

Ethernet

MAC address
EE:EE:EE:EE:EE:E0

⬤○  Clone MAC address of your NIC (90:2B:34:A5:A8:FB)

RESTORE DEFAULT MAC ADDRESS

MTU
1500

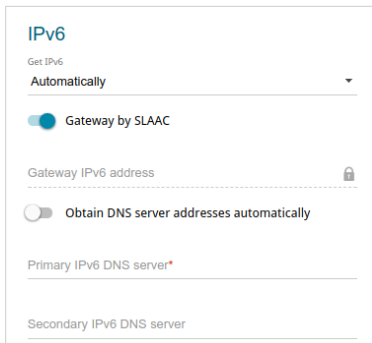8. *Static IPv4:* In the **IPv4** section, fill in the following fields: **IP address**, **Netmask**, **Gateway IP address**, and **Primary DNS server**.
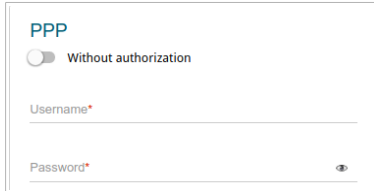


9. *Dynamic IPv4:* If your ISP has provided the address of the DNS server, in the **IPv4** section, move the **Obtain DNS server addresses automatically** switch to the left and fill in the **Primary DNS server** field.

10. *Static IPv6:* In the **IPv6** section, fill in the following fields: **IPv6 Address**, **Prefix**, **Gateway IPv6 address**, and **Primary IPv6 DNS server**.



11. *Dynamic IPv6:* If your ISP has provided the address of the DNS server, in the **IPv6** section, move the **Obtain DNS server addresses automatically** switch to the left and fill in the **Primary IPv6 DNS server** field. If you need to specify the gateway address manually, in the **IPv6** section, move the **Gateway by SLAAC** switch to the left and fill in the **Gateway IPv6 address** field.

12. *PPPoE:* In the **PPP** section, enter authorization data provided by your ISP (the username (login) in the **Username** field and the password in the **Password** field). Click the **Show** icon ( 👁 ) to display the entered password. If authorization is not required, move the **Without authorization** switch to the right.
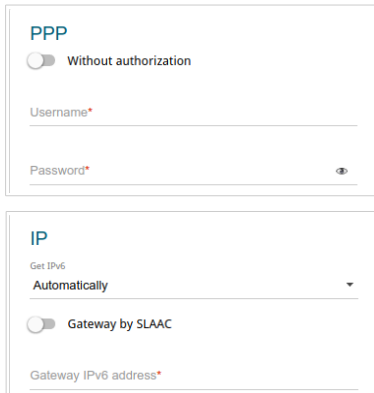


13. *PPPoE IPv6 or PPPoE Dual Stack:* In the **PPP** section, enter authorization data provided by your ISP (the username (login) in the **Username** field and the password in the **Password** field). Click the **Show** icon ( 👁 ) to display the entered password. If authorization is not required, move the **Without authorization** switch to the right. If you need to specify the gateway address manually, in the **IP** section, move the **Gateway by SLAAC** switch to the left and fill in the **Gateway IPv6 address** field.
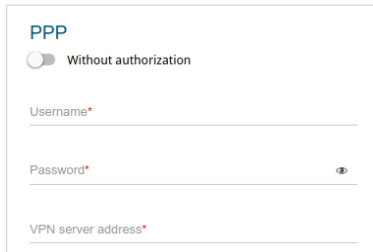
14. ***PPTP or L2TP:*** In the **PPP** section, enter authorization data provided by your ISP (the username (login) in the **Username** field and the password in the **Password** field). Click the **Show** icon ( 👁 ) to display the entered password. If authorization is not required, move the **Without authorization** switch to the right. In the **VPN server address** field, enter the IP or URL address of the PPTP or L2TP authentication server.
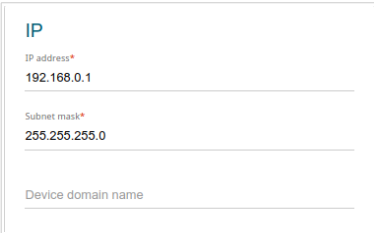


15. If needed, fill in other fields on the page in accordance with data provided by the ISP.
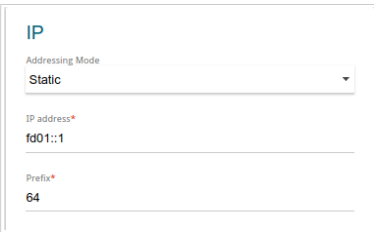
16. Click the **APPLY** button.

## *Configuring Local Area Network*

1. Go to the **Connections Setup / LAN** page.

2. If needed, change the IPv4 address of the gateway's LAN interface and the mask of the local subnet. To do this, click the **IPv4** tab and specify needed values in the **IP address** and **Subnet mask** fields in the **IP** section.
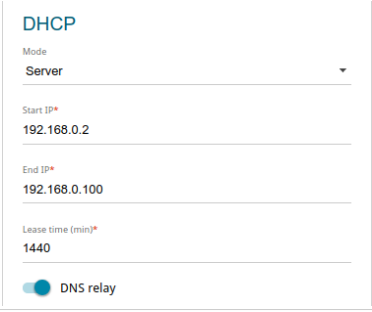
<div align="center">

**IP**

IP address*
192.168.0.1

Subnet mask*
255.255.255.0

Device domain name

</div>

3. If needed, specify your own IPv6 address of the gateway's LAN interface. To do this, click the **IPv6** tab and select the **Static** value from the **Addressing Mode** drop-down list in the **IP** section. Then specify the needed value in the **IP address** field.

<div align="center">

**IP**

Addressing Mode
Static

IP address*
fd01::1

Prefix*
64

</div>

4. **IPv4 address assignment**. By default, the built-in DHCP server of the gateway assigns IPv4 addresses to the devices of the LAN. If you want to manually assign IPv4 addresses, disable the DHCP server (click the **IPv4** tab and select the **Disable** value from the **Mode** drop-down list in the **DHCP** section).
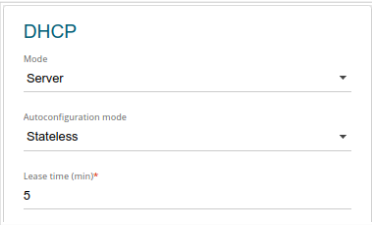
DHCP

Mode
Server

Start IP*
192.168.0.2

End IP*
192.168.0.100

Lease time (min)*
1440

DNS relay

5. **IPv6 address assignment**. By default, the devices of the LAN automatically assign IPv6 addresses to themselves (the **Stateless** value is selected from the **Autoconfiguration mode** drop-down list in the **DHCP** section on the **IPv6** tab). If the devices of the LAN do not support IPv6 address autoconfiguration, enable the built-in DHCPv6 server of the gateway (select the **Stateful** value from the **Autoconfiguration mode** drop-down list). If you want to manually assign IPv6 addresses to devices of the LAN, select the **Disable** value from the **Mode** drop-down list.

DHCP

Mode
Server

Autoconfiguration mode
Stateless

Lease time (min)*
5

6. After specifying the needed parameters on the **Connections Setup / LAN** page, click the **APPLY** button.

## *Configuring VoIP via SIP*

1. Go to the **VoIP / Basic Settings** page.

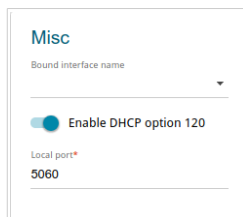2. In the **SIP Proxy** section, fill in the **Address** field.



3. If your provider uses a SIP domain, in the **SIP Domain** section, fill in the **SIP domain name** field and, if needed, move the **Use domain to register** switch to the right (contact your ISP to clarify if the setting is required).


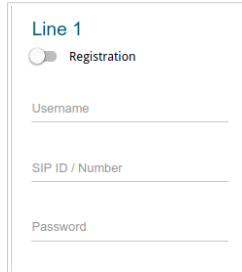
4. In the **Misc** section, from the **Bound interface name** drop-down list, select the interface which will be used by VoIP.



5. If your provider does not require automatic obtainment of the SIP proxy server address, move the **Enable DHCP option 120** switch to the left.

6.  In the **Line 1** section, move the **Registration** switch to the right, fill in the **SIP ID / Number** field, enter the username in the **Username** field (as a rule, the username and the phone number are the same), and fill in the **Password** field.



7.  If needed, fill in other fields on the page in accordance with data provided by the ISP.

8.  Click the **APPLY** button.

# SPECIFICATIONS*

| Hardware | | |
|---|---|---|
| **Processor** | · | RTL9602 |
| **RAM** | · | 128MB, DDR3 |
| **Flash** | · | 128MB, NAND |
| **Interfaces** | ·<br>·<br>·<br>· | GPON port (SC/APC connector)<br>10/100/1000BASE-T LAN port<br>10/100BASE-TX LAN port<br>RJ-11 FXS port |
| **LEDs** | ·<br>·<br>·<br>·<br>· | POWER<br>GPON<br>Internet<br>VoIP<br>2 LAN LEDs |
| **Buttons** | ·<br>· | ON/OFF button to power on/power off<br>RESET button to restore factory default settings |
| **Power connector** | · | Power input connector (DC) |

| PON | | |
|---|---|---|
| **GPON features** | ·<br>·<br><br>·<br><br>·<br>·<br>·<br><br>·<br>·<br><br>·<br>·<br>· | Class B+ GPON optical transceiver<br>Upstream (transmitter): 1310nm ± 50nm, 1.244Gbps upstream burst data rate<br>Downstream (digital receiver): 1490nm ± 10nm, 2.488Gbit/s downstream continuous data rate<br>Single mode fiber cable<br>AES encryption<br>Support of IGMP v1/v2 Snooping, 16 entries, enable/disable, Fast leaving<br>MAC learning<br>UNI port configuration (rate, duplex mode, flow control, disable/enable, auto mode)<br>Maximum frame length to 1522 bytes<br>Compliance to ONT dying gasp<br>ONT authentication |

---

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

| Phone | |
|---|---|
| **General SIP features** | · Invite with Challenge<br>· Register by IP address or domain name of SIP server<br>· Backup proxy support<br>· Support of DHCP option 120<br>· RFC3986 SIP URI format support<br>· Outbound proxy support<br>· STUN client<br>· NAT keep-alive<br>· Call types: voice/modem/fax<br>· User programmable Dial Plan<br>· Manual peer table (P2P)<br>· E.164 Numbering, ENUM support |
| **Call features** | · Direct IP-to-IP call without SIP proxy<br>· Call hold/retrieve<br>· Call awaiting<br>· Forwarding (unconditional, busy, no answer)<br>· Do Not Disturb<br>· Blocking hidden number calls<br>· Speed dialing<br>· Phone book<br>· Hotline<br>· Vertical service codes<br>· Filtering by IP address (white/black list)<br>· Alarm clock |
| **Voice features** | · Codecs: G.711 a/μ-law, G.729A, G.726, G.722, G.723.1<br>· DTMF detection and generation<br>· In-band DTMF, out-of-band DTMF (RFC2833, SIP-INFO)<br>· Comfort Noise Generation (CNG)<br>· Voice Activity Detection (VAD)<br>· Dynamic Jitter Buffer<br>· Call progress tone generation (FXS)<br>· DTMF/PULSE dial support<br>· Caller ID detection and generation<br>· T.30 FAX bypass to G.711, T.38 Real Time FAX Relay<br>· Adjustable Flash Time<br>· Volume control (speaker/microphone) |

| Software | |
|---|---|
| **WAN connection types** | · Static IPv4 / Dynamic IPv4<br>· Static IPv6 / Dynamic IPv6<br>· PPPoE<br>· PPTP/L2TP<br>· PPPoE IPv6<br>· PPPoE Dual Stack |
| **Network functions** | · DHCP server/relay<br>· Stateful/Stateless mode for IPv6 address assignment, IPv6 prefix delegation<br>· DNS relay<br>· Dynamic DNS<br>· Static IP routing<br>· Static IPv6 routing<br>· IGMP Proxy<br>· RIP<br>· Support of UPnP IGD<br>· Support of VLAN<br>· Support of MVR<br>· WAN ping respond<br>· Support of SIP ALG<br>· Support of RTSP<br>· Autonegotiation of speed, duplex mode, and flow control/Manual speed and duplex mode setup for each Ethernet port |
| **Firewall functions** | · Network Address Translation (NAT)<br>· Stateful Packet Inspection (SPI)<br>· IP filter<br>· IPv6 filter<br>· MAC filter<br>· URL filter<br>· DMZ<br>· Prevention of ARP and DDoS attacks<br>· Virtual servers<br>· Built-in Yandex.DNS web content filtering service |
| **VPN** | · IPsec/PPTP/L2TP/PPPoE pass-through<br>· IPsec tunnels |

| Software | |
|---|---|
| **Management** | · Local and remote access to settings through TELNET/WEB (HTTP/HTTPS)<br>· Bilingual web-based interface for configuration and management (Russian/English)<br>· Notification on connection problems and auto redirect to settings<br>· Firmware update via web-based interface<br>· Automatic notification on new firmware version<br>· Saving/restoring configuration to/from file<br>· Support of remote logging<br>· Automatic synchronization of system time with NTP server and manual time/date setup<br>· Ping utility<br>· Traceroute utility<br>· TR-069 client |

| Physical Parameters | |
|---|---|
| **Dimensions (L x W x H)** | · 160 x 115 x 43 mm (6.3 x 4.5 x 1.7 in) |
| **Weight** | · 200 g (0.44 lb) |

| Operating Environment | |
|---|---|
| **Power** | · Output: 12V DC, 1A |
| **Temperature** | · Operating: from 0 to 40 °C<br>· Storage: from -40 to 70 °C |
| **Humidity** | · Operating: from 10% to 90% (non-condensing)<br>· Storage: from 5% to 95% (non-condensing) |

# SAFETY RULES AND CONDITIONS

Please carefully read this section before installation and connection of the device. Make sure that the power adapter and cables are 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.

Only use the power adapter supplied with the device. Do not plug in the adapter, if its case or cable are damaged. Plug the adapter only into working electrical outlets with parameters indicated on the adapter.

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 or the power adapter.

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/