

User Manual

4G LTE M2M Modem

Preface

D-Link reserves the right to revise this publication and to make changes in the content hereof without obligation to notify any person or organization of such revisions or changes.

Manual Revisions

Revision	Date	Description
3.01	April 24, 2018	• Updated with US technical support information

Trademarks

D-Link and the D-Link logo are trademarks or registered trademarks of D-Link Corporation or its subsidiaries in the United States or other countries. All other company or product names mentioned herein are trademarks or registered trademarks of their respective companies.

Copyright © 2018 by D-Link Corporation.

All rights reserved. This publication may not be reproduced, in whole or in part, without prior expressed written permission from D-Link Corporation.

Table of Contents

Product Overview	1	Troubleshooting	25
Package Contents.....	1	Resetting the Modem	27
System Requirements	1	Networking Basics.....	28
Introduction	2	Check your IP address.....	28
Hardware Overview.....	3	Technical Specifications	29
Front View.....	3	GPL Code Statement.....	30
Side View.....	4	Regulatory Information	45
Top view.....	5		
Installation	6		
Before You Begin.....	6		
Configuration.....	9		
Getting Started.....	9		
Diagnostics	10		
Status	10		
Overview.....	10		
System Log.....	11		
Kernel Log.....	12		
Processes.....	12		
Network.....	13		
Overview.....	13		
Port Forwards	15		
Admin	19		
Config.....	19		
Upgrade	24		

Package Contents



DWM-311 4G LTE M2M Modem



Mini-USB AC adaptor



RJ-45 cable



[2] Interchangeable blade antennas



[2] Magnetic antenna mounts



Quick Installation Guide

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

System Requirements

- An active LTE service plan from a compatible carrier.*
- Computer with Windows or Linux-based operating system with an installed Ethernet adapter or compatible USB port.
- Java-enabled browser such as Internet Explorer 11, Chrome 20.0, or Firefox 7 or above (for configuration).

* Subject to services and service terms available from your carrier.

Introduction

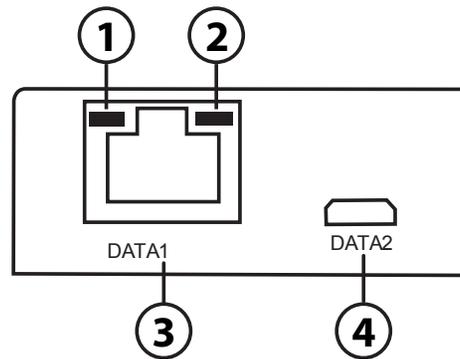
D-Link's DWM-311 4G LTE M2M Modem is a robust 4G LTE modem that provides blazing fast connection speeds for embedded Machine-to-Machine (M2M) applications. The single mode LTE modem provides an economical and reliable high-speed connection suitable for the most demanding Internet of Things (IoT) applications. This cost-effective device is pre-configured to provide a complete connectivity solution out of the box.

The industrial-grade casing means the DWM-311 provides reliable high-speed connectivity in extreme conditions. The corrosion-resistant zinc-plated steel case and wide operating temperature and humidity tolerance mean that the DWM-311 is ready for the most demanding M2M applications in virtually any environment. Wall mounts and flexible interfaces allow the DWM-311 to be mounted virtually anywhere for optimal connectivity.

The DWM-311's USB and Ethernet interfaces allow connectivity to be added to virtually any device. Ethernet means driverless, instant access for any Ethernet-enabled device, without the need for pre-configuration or special software. Standard USB protocols allow you to add high-speed Internet access to devices not traditionally equipped with network adapters. Ethernet makes the DWM-311 a true plug-and-play solution, suitable for mass deployment or small scale use. Should unique settings be required, the easy-to-use web interface can be configured through any web browser.

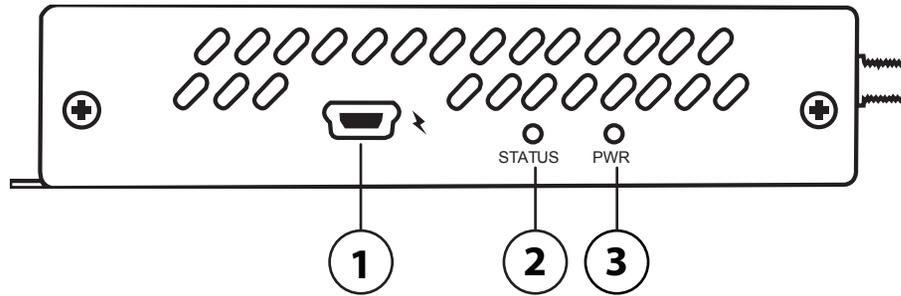
Hardware Overview

Front View



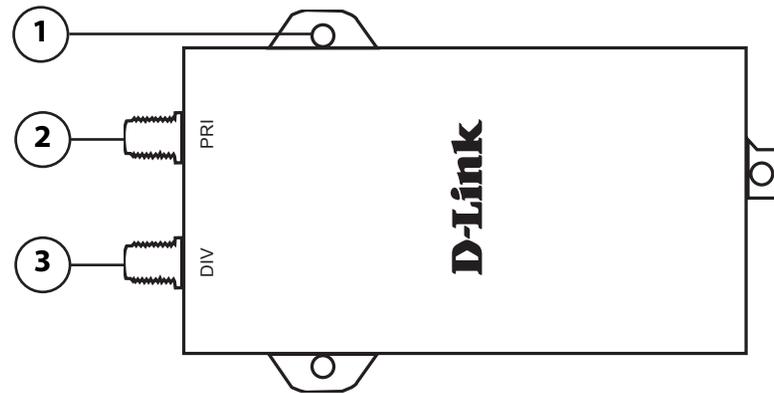
1	Ethernet Activity	Flashes yellow when there is Ethernet traffic.	
2	Link Status	Solid Green	Indicates active links
		Off	No active links
3	Ethernet Port	This is a standard 10/100 Mbps Ethernet port to connect any device via a Cat 5/5e/6 RJ-45 cables.	
4	Micro-USB 2.0 Port	This is a micro-USB 2.0 port for connecting any device via a standard micro-USB cable.	

Side View



1	Mini-USB Power	The DWM-311 accepts power through a mini-USB coonector.	
2	Status LED	Solid green	Indicates strong signal.
		Flashing	Indicates weak signal.
		Off	Indicates no signal.
3	Power LED	Solid green indicates the modem is receiving power.	

Top view



1	Wall Mounts	Wall mounts for standard 8 gauge (4 mm) screws.
2	SMA Connector PRI	SMA female connector - Primary antenna.
3	SMA Connector DIV	SMA female connector - Antenna Diversity.

Installation

This section will guide you through the installation process. Placement of the router is very important. Do not place the router in an enclosed area such as a closet, cabinet, or in an attic or garage.

Before You Begin

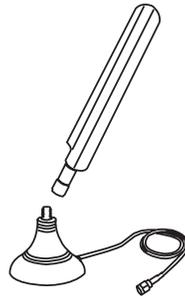
Observe the following precautions to help prevent shutdowns, equipment failures, and personal injury:

- Install the DWM-311 in a cool and dry place. Refer to the technical specifications in the user manual for the acceptable operating temperature and humidity ranges.
- Install the modem in a site free from strong electromagnetic sources, vibration, dust, excessive moisture, and direct sunlight.
- Place antennas in an unobstructed area with clear LTE signal. Avoid metal boxes, brick walls, and other dense materials. Use the web interface to confirm signal strength before permanent installation.
- Visually inspect the power connector and make sure that it is fully secure.
- Do not stack any devices on top of the modem.

Attach the External Antennas

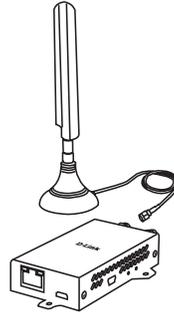
The DWM-311 requires two external antennas to function correctly. The included antennas are interchangeable, but third party antennas may require connection to specific ports.

1. Attach the antennas to the included magnetic mounts. Turn the hex nut clockwise to fasten the antenna.



2. Place antennas where they will receive optimal signal. Arrange them so they point upward.

3. Once the antennas are placed, attach both antenna cables to the DWM-311's external SMA connectors, labelled DIV and PRI. Turn the hexnut clockwise to secure the cables.



Note: The included antennas are interchangeable. Third party antennas may require connection to specific ports.

Powering the Modem

The modem can be powered either directly via mini-USB or via Power over Ethernet (PoE) using a PoE splitter.

Using included Mini-USB cable

Use the included mini-USB AC adaptor to power the modem. Attach the USB connector to the included AC adaptor. Attach the AC adaptor to a wall socket. Insert the mini-USB connector into the port on the modem labelled with the  symbol. The power LED will turn green to indicate the modem is receiving power.

Using Power over Ethernet (PoE)

The DWM-311 can be powered via Power over Ethernet (PoE) (sold separately) by connecting a 5.5 mm DC to mini-USB adaptor (sold separately) to a PoE splitter. This may be useful when long cable lengths required. Standard PoE has a range of up to 330 ft (100 m). The following steps outline setting up the modem with a PoE Splitter/Injector kit.

1. Verify your PoE splitter is set to output 5 volts.

Warning: Higher voltages may damage the DWM-311.

2. Attach the PoE splitter's DC-OUT to the DWM-311's mini-USB power input using the DC-to-Mini-USB adaptor (sold separately). The power input is labelled with the  symbol.

3. Attach the PoE splitter's LAN OUT to the DWM-311's DATA1 port on the DWM-311.
4. Finally, connect the PoE injector's LAN-IN port to an available Ethernet port on your end device and plug in the injector's power cord into a power outlet as shown in the diagram.

Note: the above case assumes you are using a D-Link DPE-301GI 1-Port Gigabit PoE Injector and D-Link DPS-301GS 1-Port Gigabit 30W PoE Splitter (sold separately). Other PoE configurations may vary.

Connecting Devices

After the DWM-311 has been successfully installed, the modem can be connected to the end device via either of the following connection methods:

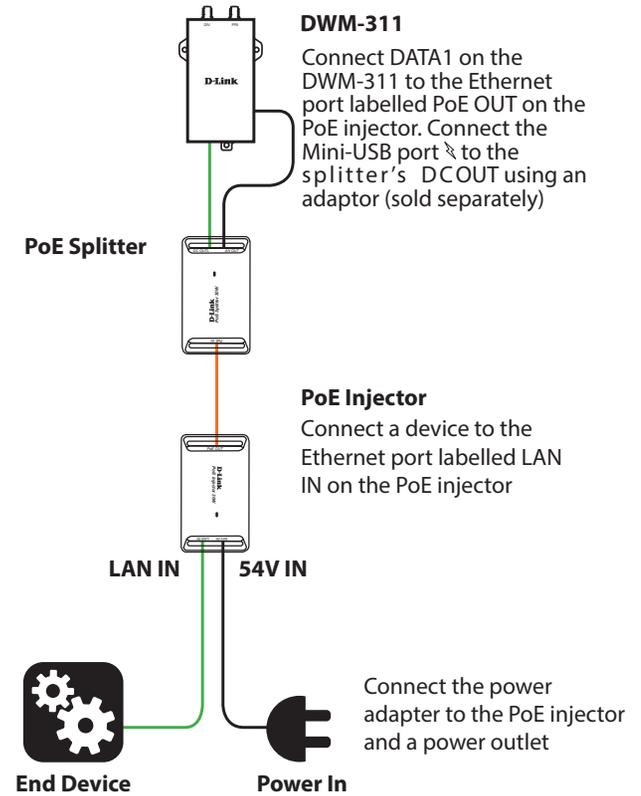
Over Ethernet

The Ethernet port can be connected to an end device. Use a standard Category 5/5e/6 RJ-45 Ethernet cable to connect the end device to the modem. The port will auto-negotiate to the highest possible port speed based on the connected device. Note that the DWM-311 supports a maximum transfer speed over Ethernet of 100 Mbps.

Over USB 2.0

To connect the modem over USB, connect a micro-USB cable (not included) to the port marked DATA2 on the back panel. Insert the other end of the cable into a free USB port of the device you wish to connect.

Note: The modem cannot accept power over micro-USB, only over mini-USB through the port labelled with the  symbol.



Powering the modem using a PoE Kit (sold separately)

Configuration

Getting Started

To access the configuration utility, open a web browser such as Internet Explorer and enter the address of the router (**192.168.17.1** by default for connections over Ethernet, and **192.168.15.1** for connections over micro-USB).

To login to the configuration utility, **admin** is the default username and the default password is printed on the label on the back of the modem. The **Reset** button causes the password field to be reset to blank.

Note: *If you get a **Page Cannot be Displayed** error, please refer to the **Troubleshooting** section for assistance.*

Once you have successfully logged in, you will see the **Home** page. On this page you can view information about your LTE connection and system information. The LTE **Signal Strength** indicator can be used to place your device. The IMEI and ICCID are unique identifiers for your device and may be required by your service provider.

At the bottom of the page, **Device Reset** allows you to reboot the device, while **Diagnostics** brings up diagnostic and advanced configuration options. The **Diagnostics** panel is intended for advanced users and debugging, and should not be necessary in the course of normal usage.

Authorization Required
Please enter your username and password.

Name

Password

Sign in

Reset

D-Link 4G LTE M2M Modem

4G LTE Modem Connection Manager

▼ Information

Device Name	/	DWM-311
FW Version	/	4.1.2.2-25168D
Modem Status	/	Disconnected
SIM Card Status	/	Ready
Signal Strength	/	(e) A Band: - RSRP: -
IMEI	/	
ICCID	/	
MTN	/	-

▼ Command

Auto Connected This device will try to rebuild the Internet connection automatically when connection is lost.

Device Reset This action will help to reboot the operating system of the device.

Diagnostics This button will allow you configure or view system detail information

Diagnostics

Status

The diagnostics screen has a read bar with different sections along the side. Subsections are listed as tabs across the top

Overview

System

Hostname: The Network Hostname as it will appear on a LAN. This setting is configurable in the admin panel and discussed on page 19.

Firmware

Version: Current firmware version. This is upgraded via Firmware Over the Air (FOTA) or manually using the **Upgrade** tab on the Admin Page. If the device malfunctions, you may need to provide this number to your support representative.

Kernel Version: Current Linux Kernel version of your DWM-311. This may be needed for debugging purposes.

Local Time: Lists current time according to the modem's internal clock. If this is incorrect, it can be configured in the **Admin** section. See page 19.

Uptime: The amount of time since the last reboot.

Note: This is not the amount of time connected to the Internet, only since last reboot.

The screenshot shows the D-Link Status page. At the top, there is a navigation bar with tabs for Status, Overview, System Log, Kernel Log, and Processes. The Overview tab is selected. Below the navigation bar, there is a sidebar with icons for Home, Status, Network, Admin, and a help icon. The main content area displays system and network information.

Status	
Overview	
System Log	
Kernel Log	
Processes	
System	
Hostname	/ DWM-311
Firmware Version	/ 4.1.2.2-25168D
Kernel Version	/ 3.7.6
Local Time	/ Tue Oct 7 00:03:51 2003
Uptime	/ 0h 3m 53s
Memory	
Total Available	/ 20704 kB / 38052 kB (54%)
Free	/ 5468 kB / 38052 kB (14%)
Cached	/ 12496 kB / 38052 kB (32%)
Buffered	/ 2740 kB / 38052 kB (7%)
Network	
IPv4 WAN Status	/ ✘ Not connected

Memory

This section provides details about firmware memory usage. Memory management will not be necessary for normal usage and is beyond the scope of this manual.

Network

IPv4 WAN Status: When connected, this will list the external IP address from your LTE network provider. This may be necessary for certain advanced applications such as private networking, diagnostics, or VPNs.

System Log

This section provides a full log of system events, including information about WAN connectivity and LTE Module status. The logging features are intended for diagnostics and advanced users only, and are beyond the scope of this manual. Log entries are time stamped based on the modem's internal clock. The level of detail in the system log and the size of the log buffer can be adjusted in the **Admin** panel, and is discussed in "System: Log Settings" on page 20.



Status

- Overview
- System Log
- Kernel Log
- Processes

▼ **System**

Hostname	/	DWM-311
Firmware Version	/	4.1.2.2-25168D
Kernel Version	/	3.7.6
Local Time	/	Tue Oct 7 00:03:51 2003
Uptime	/	0h 3m 53s

▼ **Memory**

Total Available	/	20704 kB / 38052 kB (54%)
Free	/	5468 kB / 38052 kB (14%)
Cached	/	12496 kB / 38052 kB (32%)
Buffered	/	2740 kB / 38052 kB (7%)

▼ **Network**

IPv4 WAN Status / **✗ Not connected**



Status

- Overview
- System Log
- Kernel Log
- Processes

```

Oct 6 17:28:50 DWM-311 daemon.notice netifd: wan2 (715): udhcpo: sendto: Network is down
Oct 6 17:28:50 DWM-311 daemon.notice netifd: wan2 (715): Read error: Network is down, reopening socket
Oct 6 17:28:51 DWM-311 daemon.notice netifd: wan4 (824): udhcpo: sendto: Network is down
Oct 6 17:28:51 DWM-311 daemon.notice netifd: wan4 (824): Read error: Network is down, reopening socket
Oct 6 17:28:52 DWM-311 daemon.notice netifd: wan1 (823): udhcpo: sendto: Network is down
Oct 6 17:28:52 DWM-311 daemon.notice netifd: wan1 (823): Read error: Network is down, reopening socket
Oct 6 17:28:53 DWM-311 daemon.info dnsmasq-dhcp[938]: DHCPACK(emmo0) 192.168.17.209 70:f3:95:0e:5c:41
Oct 6 17:28:53 DWM-311 daemon.info dnsmasq-dhcp[938]: DHCPACK(emmo0) 192.168.17.209 70:f3:95:0e:5c:41 08307PCWINTe
Oct 6 17:28:53 DWM-311 daemon.notice netifd: wan2 (715): udhcpo: sendto: Network is down
Oct 6 17:28:53 DWM-311 daemon.notice netifd: wan2 (715): Read error: Network is down, reopening socket
Oct 6 17:28:54 DWM-311 daemon.notice netifd: wan4 (824): udhcpo: sendto: Network is down
Oct 6 17:28:54 DWM-311 daemon.notice netifd: wan4 (824): Read error: Network is down, reopening socket
Oct 6 17:28:55 DWM-311 daemon.notice netifd: wan1 (823): udhcpo: sendto: Network is down
Oct 6 17:28:55 DWM-311 daemon.notice netifd: wan1 (823): Read error: Network is down, reopening socket
Oct 6 17:28:56 DWM-311 daemon.notice netifd: wan2 (715): udhcpo: sendto: Network is down
Oct 6 17:28:56 DWM-311 daemon.notice netifd: wan2 (715): Read error: Network is down, reopening socket
Oct 6 17:28:57 DWM-311 daemon.notice netifd: wan4 (824): udhcpo: sendto: Network is down
Oct 6 17:28:57 DWM-311 daemon.notice netifd: wan4 (824): Read error: Network is down, reopening socket
Oct 6 17:28:58 DWM-311 daemon.notice netifd: wan1 (823): udhcpo: sendto: Network is down
Oct 6 17:28:58 DWM-311 daemon.notice netifd: wan1 (823): Read error: Network is down, reopening socket
Oct 6 17:28:59 DWM-311 daemon.notice netifd: wan2 (715): udhcpo: sendto: Network is down
Oct 6 17:28:59 DWM-311 daemon.notice netifd: wan2 (715): Read error: Network is down, reopening socket
Oct 6 17:29:00 DWM-311 daemon.notice netifd: wan4 (824): udhcpo: sendto: Network is down
Oct 6 17:29:00 DWM-311 daemon.notice netifd: wan4 (824): Read error: Network is down, reopening socket
Oct 6 17:29:01 DWM-311 daemon.notice netifd: wan1 (823): udhcpo: sendto: Network is down
Oct 6 17:29:01 DWM-311 daemon.notice netifd: wan1 (823): Read error: Network is down, reopening socket
Oct 6 17:29:02 DWM-311 daemon.notice netifd: wan2 (715): udhcpo: sendto: Network is down
Oct 6 17:29:02 DWM-311 daemon.notice netifd: wan2 (715): Read error: Network is down, reopening socket
Oct 6 17:29:03 DWM-311 daemon.notice netifd: wan4 (824): udhcpo: sendto: Network is down
Oct 6 17:29:03 DWM-311 daemon.notice netifd: wan4 (824): Read error: Network is down, reopening socket
Oct 6 17:29:04 DWM-311 daemon.notice netifd: wan1 (823): udhcpo: sendto: Network is down
Oct 6 17:29:04 DWM-311 daemon.notice netifd: wan1 (823): Read error: Network is down, reopening socket
Oct 6 17:29:05 DWM-311 daemon.notice netifd: wan2 (715): udhcpo: sendto: Network is down
Oct 6 17:29:05 DWM-311 daemon.notice netifd: wan2 (715): Read error: Network is down, reopening socket
Oct 6 17:29:06 DWM-311 daemon.notice netifd: wan4 (824): udhcpo: sendto: Network is down
Oct 6 17:29:06 DWM-311 daemon.notice netifd: wan4 (824): Read error: Network is down, reopening socket
Oct 6 17:29:07 DWM-311 daemon.notice netifd: wan1 (823): udhcpo: sendto: Network is down
Oct 6 17:29:07 DWM-311 daemon.notice netifd: wan1 (823): Read error: Network is down, reopening socket
    
```

Kernel Log

The Kernel log provides a full log of kernel level events. Kernel events are time stamped based on number of seconds from boot. The logging features are intended for diagnostics and advanced users only, and are beyond the scope of this manual.



Status | Overview | System Log | **Kernel Log** | Processes

```

0.000000 Linux version 3.7.6 (sequans@x1100-ProLiant-814600-07) (gcc version 4.6.4 (OpenWrt/Linaro GCC 4.6-2012.12) ut
0.000000 FFF used
0.000000 Block : 0
0.000000 B index : 8
0.000000 A index : 8
0.000000 Attempt : 0
0.000000 bootconsole [early0] enabled
0.000000 CPU revision is: 0021855 (MIPS 24Kc)
0.000000 SQUASHIC rev 0, CPU:968.640 MHz, ARB:122.880 MHz
0.000000 Determined physical RAM map:
0.000000 Memory: 02a00000 @ 00000000 (usable)
0.000000 initrd not found or empty - disabling initrd
0.000000 Zone ranges:
0.000000 Normal [mem 0x00000000-0x028fffff]
0.000000 Movable zone start for each node
0.000000 Early memory node ranges
0.000000 node 0: [mem 0x00000000-0x028fffff]
0.000000 On node 0 totalpages: 10752
0.000000 free_area_init_node: node 0, paddr 0x417100, node_mem_map 01000000
0.000000 Normal zone: 74 pages used for memmap
0.000000 Normal zone: 0 pages reserved
0.000000 Normal zone: 10669 pages, L1RU barch:1
0.000000 Primary instruction cache 64Kb, VFP, 4-way, linesize 32 bytes.
0.000000 Primary data cache 32Kb, 4-way, PIFU, no aliases, linesize 32 bytes
0.000000 pcpu-alloc: #0:0 432768 us2768 alloc=1*32768
0.000000 pcpu-alloc: [0] 0
0.000000 Built 1 zonelists in Zone order, mobility grouping on. Total pages: 10668
0.000000 Kernel command line: rootfstype=squashfs root=sdio,max_freq=6000000 debug
0.000000 PID hash table entries: 256 (order: -2, 1024 bytes)
0.000000 Dentry cache hash table entries: 8192 (order: 3, 32768 bytes)
0.000000 Inode-cache hash table entries: 4096 (order: 2, 16384 bytes)
0.000000 sw table already sorted, skipping sort
0.000000 Writing ErrCtl register=0007b593
0.000000 Readback ErrCtl register=0007b593
0.000000 Memory: 37800k/43008k available (3237k kernel code, 5208k reserved, 660k data, 252k init, 0k highmem)
0.000000 SLUB: Genslab=9, Hwalign=3d, Order=0-3, MinObjects=0, CPU=1, Nodes=1
0.000000 NR_IRQS=142
0.000000 Calibrating delay loop... 244.53 BogomIPS (lpj=1222656)
    
```

Processes

The Processes screen lists all running processes on the modem's internal operating system. This may be useful when testing experimental software or troubleshooting. This feature is intended for diagnostics and advanced users only, and is beyond the scope of this manual.



Status | Overview | System Log | Kernel Log | **Processes**

PID	Owner	Command	CPU usage (%)	Memory usage (%)
1	root	init	0%	2%
2	root	[kthreadd]	0%	0%
3	root	[ksmirqd/0]	0%	0%
4	root	[kworker/0:0]	0%	0%
5	root	[kworker/0:0H]	0%	0%
6	root	[kworker/u:0]	0%	0%
7	root	[kworker/u:0H]	0%	0%
8	root	[khelper]	0%	0%
9	root	[kdevtmpfs]	0%	0%
10	root	[kworker/u:1]	0%	0%
85	root	[bdm-default]	0%	0%
87	root	[kblockd]	0%	0%
95	root	[khubd]	0%	0%
119	root	[kswapd0]	0%	0%
163	root	[fshotify_mark]	0%	0%
180	root	[serial8250.0]	0%	0%
192	root	[son-spi-0]	0%	0%
199	root	[mtdblock0]	0%	0%
302	root	[irq/20-spi_mtd_1]	0%	0%
334	root	[irq/111-usb]	0%	0%
339	root	[mtdblock1]	0%	0%
344	root	[mtdblock2]	0%	0%
349	root	[mtdblock3]	0%	0%
354	root	[mtdblock4]	0%	0%
359	root	[mtdblock5]	0%	0%
364	root	[mtdblock6]	0%	0%
369	root	[mtdblock7]	0%	0%
375	root	[deferwal]	0%	0%
376	root	[kworker/0:1]	0%	0%
405	root	[ffs2_gcd_mtd7]	0%	0%
407	root	[flush-mtd-ummap]	0%	0%
422	root	/sbin/getty 0 /dev/ttyS0	0%	2%
552	root	/sbin/syslogd -C16	0%	2%
554	root	/sbin/klogd	0%	2%

Network Overview

System Information

Manufacturer Lists the modem's manufacturer.

Board name: Lists the type of LTE module used in the DWM-311.

Serial number: Lists the device's serial number. This may be required for warranty claims.

IMEI International Mobile Equipment Identifiers, a unique number that identifies your modem to your operator. This is confidential information and should not be shared except with your operator.

Duplexing Scheme The type of LTE duplexing scheme supported by the LTE chipset. Currently, only Frequency Division Duplex (FDD) is supported.

Supported bands. Lists bands supported by the LTE module. Currently bands 2, 4, and 13 are supported.

Radio Information

RSRP: Reference Signal Received Power, a measure of signal strength.

CINR: Carrier to Interference Noise Ratio, a measure of signal clarity.

Band: Currently used LTE frequency band. This is managed by your ISP.

Bandwidth: Width of current channel (in Mhz). Wider channels have higher theoretical maximum speeds.



Network | Overview | Port Forwards

System Information

Hardware	
Manufacturer	D-Link
Board Name	DWM-311
Serial Number	
IMEI	
Duplexing Scheme	FDD
Supported Bands	Band 2, Band 4, Band 13

Radio Information

Signal Level	
RSRP	-
CINR	0 dB
Band	
Band	-
Bandwidth	-
Frequency (Earfcn)	
Downlink	-
Uplink	-

Connection

Media State	DISCONNECTED
SIM card state	Error
Signal Quality	0 %
Network Description	-
Physical Address	8C:57:9B:90:36:D1

Activity

	Bytes	Packets
Sent	876	3
Received	0	0

Overview (continued)

Radio Information Continued

Frequency (EARFCN): EUTRA Absolute radio-frequency channel number, a measure of the center of an LTE carrier signal. Used for network diagnostics.

Downlink: The downlink frequency used to calculate EARFCN.

Uplink: The uplink frequency used to calculate EARFCN.

Connection

The connection information in this section refers only to cellular status, not to Ethernet or USB networking.

Media State: Connected or Disconnected to cellular network.

SIM card state: Displays the status of the integrated SIM card.

Signal Quality: Displays the LTE signal quality as a simple percentage.

Network

Description: Description of the connected network.

Physical

Address: The MAC Address of the modem for IP routing purposes.

Activity

Sent: Displays the number of bytes and packets sent over LTE.

Received: Displays the number of bytes and packets received over LTE.



Network | Overview | Port Forwards

System Information

Hardware	
Manufacturer	D-Link
Board Name	DWM-311
Serial Number	
IMEI	
Duplexing Scheme	FDD
Supported Bands	Band 2, Band 4, Band 13

Radio Information

Signal Level	
RSRP	-
CINR	0 dB
Band	
Band	-
Bandwidth	-
Frequency (Earfcn)	
Downlink	-
Uplink	-

Connection

Media State	DISCONNECTED
SIM card state	Error
Signal Quality	0 %
Network Description	-
Physical Address	8C:57:9B:90:36:D1

Activity

	Bytes	Packets
Sent	876	3
Received	0	0

Port Forwards

This section is only available in **Router Mode**. To enable **Router Mode**, see “Router Mode” on page 23.

By default, Network Address Translation (NAT) blocks all remote requests. For cases where remote requests are needed, such as for remote access or servers, port forwarding allows specific ports and protocols to travel from the Internet to specifically designated hosts on the private network. The device accepts remote requests for these services at your global IP address. It uses the specified TCP or UDP protocol and port number, and redirects these requests to the server on your LAN with the LAN IP address you specify.

On each screen, click **Apply** to save changes or **Reset** to revert changes.

Port Forwards:

If port forwards have been set up, they will be listed here.

Name: Indicates the user-specified name of the port forward.

Match: Indicates the criteria that must be met for traffic to be forwarded to the specified IP address on the local network.

Forward to: Indicates the IP address, port, and interface to which the matched traffic will be forwarded.

Enable: Check this box to enable this port forward. Uncheck this box to disable it.

Sort: When multiple port forwards with overlapping criteria are enabled, the user can specify the order which the rules are applied.

Edit: Clicking this button will allow detailed modifications of the port forward. For details, see “Edit a Port Forward” on page 17.

Delete: Clicking this button will delete the associated port forward.

Network | Overview | **Port Forwards**

Firewall - Port Forwards

Port forwarding allows remote computers on the Internet to connect to a specific computer or service within the private LAN.

Name	Match	Forward to	Enable	Sort
Test Port Forward	IPv4-TCP, UDP From any host in wan Via any router IP at port 8998	IP 192.168.15.153, port 8998 in lan	<input checked="" type="checkbox"/>	< > Edit Delete

New port forward:

Name	Protocol	External port	Internal IP address	Internal port
New port forward	TCP+UDP			

Reset Apply

Port Forwards (Cont)

Edit a Port Forward

Rule is enabled: If the port forward rule is enabled, click **Disable** to disable it. If the rule is disabled, click **Enable** to enable it. Note that only one button appears at a time.

Name: Displays the current name assigned to the port forward and allows the name to be changed.

Protocol: Select the protocols affected by the port forward rule. Choose **TCP+UDP**, **TCP**, **UDP**, **ICMP**, or select **-- custom --** to enter a protocol manually. This setting is required.

Source MAC address: Allows the user to apply the rule based on the source MAC address. Users can enter MAC addresses manually by selecting **-- custom --**. Users can add multiple MAC address by clicking the  button. Leaving this blank applies the rule to incoming packets from all MAC addresses. This setting is optional.

Source IP address: Allows the user to apply the rule based on the source IP address or source IP address range to apply the rule to. This setting is optional. Leave blank to allow any IP.

Source port: Allows the user to apply the rule based on the port used by the source of the packet. Note that this is not the same as the external port. Leave this blank to forward packets from any source port.

External IP address: Allows the user to apply the rule based on the external IP address or "target IP address" of the packet. Leave this set to **any** to apply the rule regardless of external IP address. The default setting is **any**.

External Port: Select the external port used by the incoming service. The external port will be exposed directly to the internet. This setting is required.



Network | Overview | **Port Forwards**

Firewall - Port Forwards - Test Port Forward

This page allows you to change advanced properties of the port forwarding entry. In most cases there is no need to modify those settings.

Rule is enabled	<input checked="" type="radio"/> Disable
Name	Test Port Forward
Protocol	TCP+UDP
Source MAC address	<input type="text"/>
	<small>Only match incoming traffic from these MACs.</small>
Source IP address	any
	<small>Only match incoming traffic from this IP or range.</small>
Source port	any
	<small>Only match incoming traffic originating from the given source port or port range on the client host</small>
External IP address	any
	<small>Only match incoming traffic directed at the given IP address.</small>
External port	8080
	<small>Match incoming traffic directed at the given destination port or port range on this host</small>
Internal IP address	192.168.15.153 (08307PCWINTE)
	<small>Redirect matched incoming traffic to the specified internal host</small>
Internal port	8080
	<small>Redirect matched incoming traffic to the given port on the internal host</small>
Extra arguments	<input type="text"/>
	<small>Passes additional arguments to iptables. Use with care!</small>

[Back to Overview](#)

[Reset](#) [Apply](#)

Port Forwards (Cont)

Edit a Port Forward (cont)

Internal IP address: Specify the IP of the LAN-connected host to which traffic will be forwarded using this rule. This setting is required.

Internal Port: Specify the internal port to forward to. This is the port to which the LAN-connected client should be listening. This setting is required.

Extra arguments: Specify “extra arguments” according to the OpenWRT *iptables* command. This setting is optional and is recommended for advanced users only.

Click **Apply** to save changes or **Reset** to revert changes. Click **Back to Overview** to return to the previous screen.



Network | Overview | **Port Forwards**

Firewall - Port Forwards - Test Port Forward

This page allows you to change advanced properties of the port forwarding entry. In most cases there is no need to modify those settings.

Rule is enabled	<input type="checkbox"/> Disable
Name	Test Port Forward
Protocol	TCP+UDP
Source MAC address	any <small>Only match incoming traffic from these MACs.</small>
Source IP address	any <small>Only match incoming traffic from this IP or range.</small>
Source port	any <small>Only match incoming traffic originating from the given source port or port range on the client host</small>
External IP address	any <small>Only match incoming traffic directed at the given IP address.</small>
External port	8998 <small>Match incoming traffic directed at the given destination port or port range on this host</small>
Internal IP address	192.168.15.153 (08307PCWIN7E) <small>Redirect matched incoming traffic to the specified internal host</small>
Internal port	8998 <small>Redirect matched incoming traffic to the given port on the internal host</small>
Extra arguments	 <small>Passes additional arguments to iptables. Use with care!</small>

[Back to Overview](#)

[Reset](#) [Apply](#)

Admin Config

The Admin panel allows the user to change time settings, the administrator password, log settings, auto-reboot settings, and manually upgrade the firmware. On each screen, click **Apply** to save changes or **Reset** to revert changes.

System: General Settings

Hostname The host name of the modem over LAN connections.

Local Time: Displays time according to the modem's internal clock. Click **Sync with Browser** to automatically set the modem's clock based on the client's current time. **Note:** this function only sets UTC time. For the time to be correct, the user must specify the correct time zone.

Timezone: Set the current time zone. This must be correctly set for **Sync with Browser** and automatic Daylight Savings Time settings to function.

Use LTE Network Time: Check this box to automatically synchronize time settings with the LTE network operator.

Enable NTP Client: Enabling NTP Client allows the modem to sync its clock with a time server.

NTP servers: If **Enable NTP Client** is selected, input NTP server addresses here. By default, OpenWRT's servers are used.

Date and Time: Configure date and time manually. DST is adjusted based on time zone.

Click **Apply** to save changes or **Reset** to revert changes.



Admin | **Config** | Upgrade

System

Here you can configure the basic aspects of your device like its hostname or the timezone.

General Settings	Log Settings	Schedule Reboot	Manual APN	Router Mode
Hostname	<input type="text" value="DWM-311"/>			
Local Time	Tue Oct 7 00:59:27 2003			<input type="checkbox"/> Sync with browser
Timezone	UTC			
Use LTE Network Time	<input type="checkbox"/>			
Enable NTP client	<input checked="" type="checkbox"/>			
NTP server 1	<input type="text" value="0.openwrt.pool.ntp.org"/>			
NTP server 2	<input type="text" value="1.openwrt.pool.ntp.org"/>			
Date And Time	Year <input type="text" value="2003"/>	Month <input type="text" value="10"/>	Date <input type="text" value="7"/>	Hour <input type="text" value="0"/> Minute <input type="text" value="32"/> Second <input type="text" value="43"/> <input type="checkbox"/> Set Time

Router Password

Changes the administrator password for accessing the device

Password	<input type="password"/>
Confirmation	<input type="password"/>

Admin Config (Continued)

System: Log Settings

Note: Logging features intended for diagnostics and advanced users, and should not be necessary for normal operation.

System Log Buffer Size (KB): Set the system log buffer size in kilobytes.

Log output level: Set level of detail in system logs.

Cron Log Level: Set level of detail in Cron logs.

Click **Apply** to save changes or **Reset** to revert changes.

System: Scheduled Reboot

Auto reboot time (Days): Select a time in days for the modem to automatically reboot. This may be useful for experimental software or unusual connectivity circumstances.

Click **Apply** to save changes or **Reset** to revert changes.



Admin | **Config** | Upgrade

System

Here you can configure the basic aspects of your device like its hostname or the timezone.

General Settings	Log Settings	Schedule Reboot	Manual APN	Router Mode
System log buffer size(KB)	<input type="text" value="16"/>			
Log output level	Debug			
Cron Log Level	Normal			

Router Password

Changes the administrator password for accessing the device

Password	<input type="password"/>
Confirmation	<input type="password"/>

Admin | **Config** | Upgrade

System

Here you can configure the basic aspects of your device like its hostname or the timezone.

General Settings	Log Settings	Schedule Reboot	Manual APN	Router Mode
Auto reboot time(Days)	disable			

Router Password

Changes the administrator password for accessing the device

Password	<input type="password"/>
Confirmation	<input type="password"/>

Admin Config (Cont)

Router Password

To change the modem password, enter a new password and re-enter to confirm. It is strongly recommended that the default password be changed to protect your router.

If the password has been lost or forgotten, the modem must be reset. See “Resetting the Modem” on page 27.



Admin | **Config** | Upgrade

System

Here you can configure the basic aspects of your device like its hostname or the timezone.

General Settings Log Settings Schedule Reboot Manual APN Router Mode	
Hostname	DWM-311
Local Time	Tue Oct 7 00:59:27 2003 <input type="checkbox"/> Sync with browser
Timezone	UTC
Use LTE Network Time	<input type="checkbox"/>
Enable NTP client	<input checked="" type="checkbox"/>
NTP server 1	0.openwrt.pool.ntp.org
NTP server 2	1.openwrt.pool.ntp.org
Date And Time	Year: 2003 Month: 10 Date: 7 Hour: 0 Minute: 32 Second: 43 <input type="checkbox"/> Set Time

Router Password

Changes the administrator password for accessing the device

Password	<input type="password"/>
Confirmation	<input type="password"/>

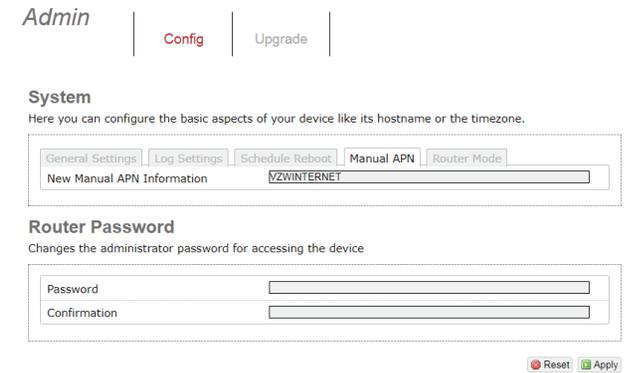
Admin Config (Cont)

Manual APN

Your DWM-311 comes pre-programmed with your ISP's default APN (Access Point Name). However, some features or alternative carriers may require manual configuration of this setting. This information should be provided by your ISP.

New Manual APN Information: If your ISP or data plan requires a custom APN setting, enter the APN here.

Click **Apply** to save changes or **Reset** to revert changes.



Admin Config (Cont)

Router Mode

By default, the DWM-311 operates in bridge mode. Any attached devices are assigned an IP address directly by the ISP. However, for compatibility purposes, some devices may require an IP address assigned from a local DHCP server. Enabling router mode ensures that all IPs on the subnet will be assigned by the DWM-311's internal DHCP server, and all traffic relayed to the ISP via NAT (Network Address Translation).

Note: NAT is considered a type of firewall, and may interfere with incoming direct connections over the Internet.*

Turn on router mode Check this box to enable the DWM-311's internal DHCP server and NAT. This setting is disabled by default. Enable this setting only if your clients do not support bridge mode.

Click **Apply** to save changes or **Reset** to revert changes.



Admin | **Config** | Upgrade

System

Here you can configure the basic aspects of your device like its hostname or the timezone.

General Settings | Log Settings | Schedule Reboot | Manual APN | Router Mode

Turn on router mode

Router Password

Changes the administrator password for accessing the device

Password

Confirmation

*This device is not designed to replace a conventional router, and is not intended for use as a network security device. Filtering and advanced firewall features are not supported.

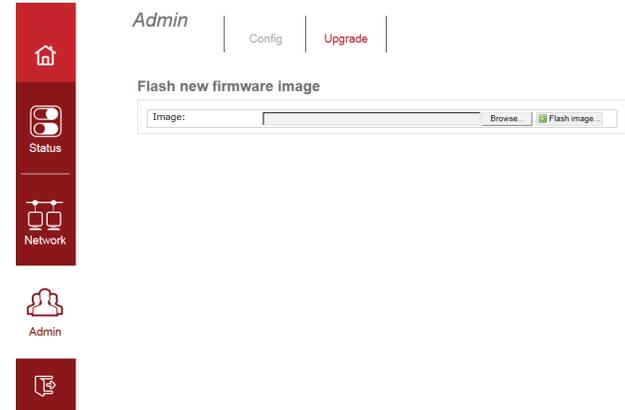
Admin Upgrade

Flash new firmware image

This menu allows the manual installation of new firmware. This device should automatically receive Firmware Over-The-Air (FOTA) upgrades from your LTE operator, and this feature is provided only for diagnostics and advanced users.

Browse: Click to select a firmware file on the local client.

Flash Image: Once a firmware file has been selected, click **Flash image** to begin the process. Ensure that you have a stable power source and wait until the firmware update is complete.



Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the DWM-311. Read the following descriptions if you are having problems.

1. Why can't I access the web-based configuration utility?

When entering the IP address of the D-Link modem (**192.168.17.1** for Ethernet, **192.168.15.1** for USB), you are not connecting to a website, nor do you have to be connected to the Internet. The device has the utility built-in to a ROM chip in the device itself. Your computer must be on the same IP subnet to connect to the web-based utility.

- Make sure you have an updated Java-enabled web browser. We recommend the following:
 - Microsoft Internet Explorer® 11 or higher
 - Mozilla Firefox 52 or higher
 - Google™ Chrome 8 or higher
- If connecting over Ethernet, verify physical connectivity by checking for solid link lights on the device. If you do not get a solid link light, try using a different cable, or connect to a different port on the device if possible. If the computer is turned off, the link light may not be on.
- Disable any Internet security software running on the computer. Software firewalls such as ZoneAlarm, BlackICE, Sygate, Norton Personal Firewall, and Windows® firewall may block access to the configuration pages. Check the help files included with your firewall software for more information on disabling or configuring it.

- Configure your Internet settings:
 - Go to **Start > Settings > Control Panel**. Double-click the **Internet Options** icon. From the **Security** tab, click the button to restore the settings to their defaults.
 - Click the **Connection** tab and set the dial-up option to Never Dial a Connection. Click the LAN Settings button. Make sure nothing is checked. Click **OK**.
 - Go to the **Advanced** tab and click the button to restore these settings to their defaults. Click **OK** three times.
 - Close your web browser (if open) and re-open it.
- Open your web browser and enter the IP address of your D-Link modem in the address bar. This should open the login page for your web interface.
- If you still cannot access the configuration, unplug the power to the router for 10 seconds and plug it back in. Wait about 30 seconds and try accessing the utility. If you have multiple computers, try connecting using a different computer.

2. What can I do if I forgot my password?

If you forgot your password, you must reset your modem. This process will revert all your settings back to the factory defaults.

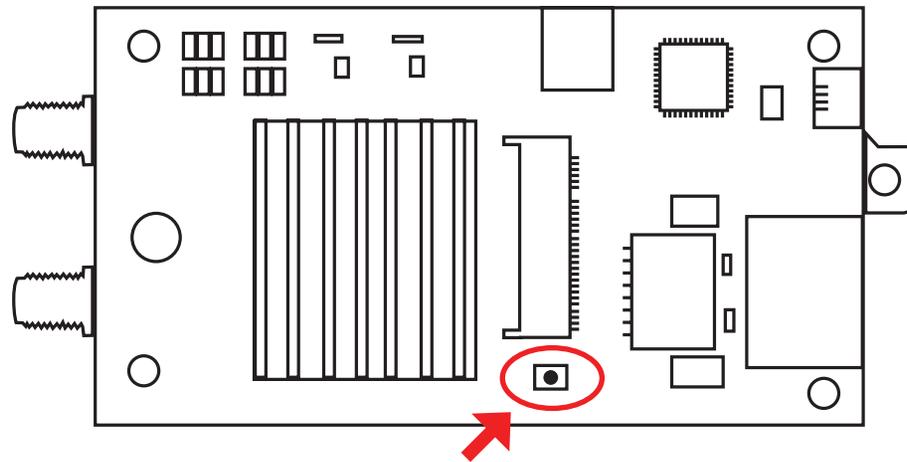
To reset the modem, follow the instructions on the next page.

Resetting the Modem

To protect devices that may be placed in public places, the reset button is not accessible from outside of the case.

1. To access the reset button, use a standard #0 phillips head screw driver (2.0 mm) to remove the four screws, one at each at each corner of the case. Remove the cover.
2. With the USB power connected, press and hold the reset button, labelled SW100, and hold for five seconds. The location of the button is indicated in the diagram.
3. Once the reset procedure is complete, replace the case and screws securely.

Note: Be careful not to touch exposed circuitry, as it may damage the modem.



Location of Reset Button

Networking Basics

Check your IP address

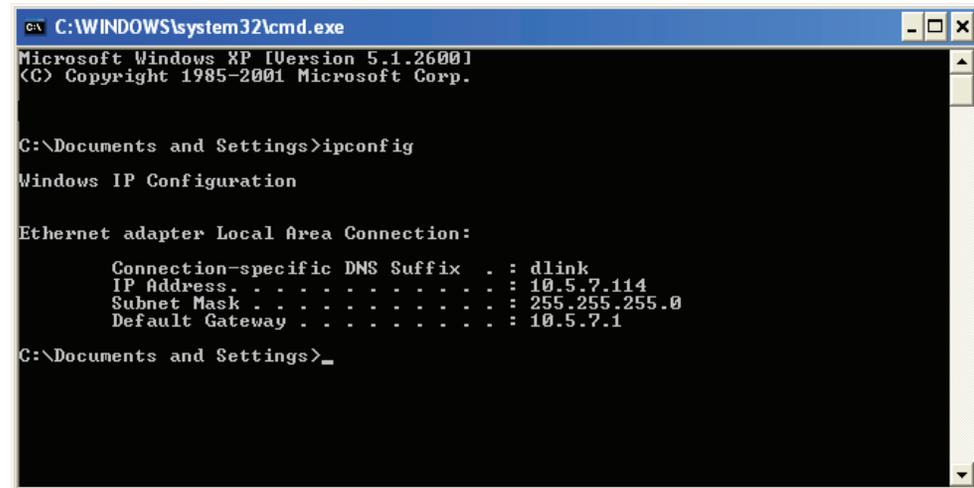
After you install your new D-Link adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

Click on **Start > Run**. In the run box type **cmd** and click **OK**. (Windows® 10/8/7/Vista® users type *cmd* in the **Start Search** box.)

At the prompt, type **ipconfig** and press **Enter**.

This will display the IP address, subnet mask, and the default gateway of your adapter.

If the address is 0.0.0.0, check your adapter installation, security settings, and the settings on your router. Some firewall software programs may block a DHCP request on newly installed adapters.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings>ipconfig

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : dlink
    IP Address . . . . . : 10.5.7.114
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.5.7.1

C:\Documents and Settings>_
```

Technical Specifications

LTE Band Support¹

- Release 9, Category 4: Bands 2/4/13

Data Rates²

- LTE Uplink: Up to 50 Mbps
- LTE Downlink: Up to 150 Mbps

Standards

- IEEE 802.3i
- IEEE 802.3u

Antenna

- Two detachable 4G LTE antennas

Ports

- 1 x 10/100 Fast Ethernet WAN port
- 1 x Micro-USB 2.0 port
- 1 x Mini-USB port (power)
- 2 x SMA (antenna connectors)

LED Status Indicators

- Status
- Power
- Ethernet connection
- Ethernet activity

Power

- Input: DC 5 V / 1 A via Mini-USB port

Dimensions

- 4.22 x 1.89 x 0.77 in (107 x 48 x 19 mm)

Weight

- 5.12 oz (145 g)

Temperature

- Operating: -4 to 140 °F (-20 to 60 °C)
- Storage : -40 to 185 °F (-40 to 85 °C)

Humidity

- Operating: 5% to 85% non-condensing
- Storage: 0% to 95% non-condensing

Certifications

- FCC
- Verizon Wireless Private Network
- Verizon Wireless Open development

¹ This model for use with Verizon Wireless in the US only.

² Data rates are theoretical. Data transfer rate depends on network capacity and signal strength.

GPL Code Statement

This D-Link product includes software code developed by third parties, including software code subject to the GNU General Public License ("GPL") or GNU Lesser General Public License ("LGPL"). As applicable, the terms of the GPL and LGPL, and information on obtaining access to the GPL code and LGPL code used in this product, are available to you at:

<http://tsd.dlink.com.tw/GPL.asp>

The GPL code and LGPL code used in this product is distributed WITHOUT ANY WARRANTY and is subject to the copyrights of one or more authors. For details, see the GPL code and the LGPL code for this product and the terms of the GPL and LGPL.

WRITTEN OFFER FOR GPL AND LGPL SOURCE CODE

Where such specific license terms entitle you to the source code of such software, D-Link will provide upon written request via email and/or traditional paper mail the applicable GPL and LGPL source code files via CD-ROM for a nominal cost to cover shipping and media charges as allowed under the GPL and LGPL.

Please direct all inquiries to:
Email: GPLCODE@DLink.com
Snail Mail:
Attn: GPLSOURCE REQUEST
D-Link Systems, Inc.
17595 Mt. Herrmann Street
Fountain Valley, CA 92708

GNU GENERAL PUBLIC LICENSE Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/> Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps:

(1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

“This License” refers to version 3 of the GNU General Public License.

“Copyright” also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

“The Program” refers to any copyrightable work licensed under this License. Each licensee is addressed as “you”. “Licensees” and “recipients” may be individuals or organizations.

To “modify” a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a “modified version” of the earlier work or a work “based on” the earlier work.

A “covered work” means either the unmodified Program or a work based on the Program.

To “propagate” a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To “convey” a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays “Appropriate Legal Notices” to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The “source code” for a work means the preferred form of the work for making modifications to it. “Object code” means any non-source form of a work.

A “Standard Interface” means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The “System Libraries” of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A “Major Component”, in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The “Corresponding Source” for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work’s System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a) The work must carry prominent notices stating that you modified it, and giving a relevant date.
- b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".
- c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
- d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

- a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.
- b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6 b.
- d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.
- e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A “User Product” is either (1) a “consumer product”, which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, “normally used” refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

“Installation Information” for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

“Additional permissions” are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work). You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

- a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or
- b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or
- c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or
- d) Limiting the use for publicity purposes of names of licensors or authors of the material; or
- e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or
- f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered “further restrictions” within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights

from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An “entity transaction” is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party’s predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A “contributor” is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor’s “contributor version”.

A contributor’s “essential patent claims” are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, “control” includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor’s essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a “patent license” is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To “grant” such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. “Knowingly relying” means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient’s use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is “discriminatory” if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others’ Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License “or any later version” applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation. If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy’s public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

Regulatory Information

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Non-modification Statement

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Caution

This device 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.

Contacting Technical Support

U.S. customers can contact D-Link technical support through our website or by phone. Before you contact technical support, please have the following ready:

- Model number of the product (e.g. DWM-311)
- Hardware Revision (located on the label on the device (e.g. rev A1))
- Serial Number (s/n number located on the label on the device).

You can find software updates and user documentation on the D-Link website as well as frequently asked questions and answers to technical issues.

For customers within the United States:

Phone Support:

(877) 354-6555

Monday-Friday 7am-4pm (Pacific)

Internet Support:

<http://support.dlink.com>