

WLg-4LAN

Quick start

Wireless Access to the Network



ACKSYS
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- ✓ WiFi IEEE 802.11 a/h or b/g
- ✓ Bridge (NAT), Access point or Repeater (AP with WDS)
- ✓ Ethernet Switch 10/100 Base Tx, 4 RJ45 connectors
- ✓ Compact metal housing
- ✓ Wall mounting
- ✓ Power input 9 to 48 VDC
- ✓ 2 RP-SMA female connectors for antennas

DELIVERY PACKAGE

The device is delivered in a box composed:

- 1 WLg-4LAN device with its pluggable terminal block 3 positions for the power supply
- 1 ACKSYS products CD-ROM.
- This documentation, printed.
- 2 external omni-directional dual-band 2.4 GHz and 5GHz antennas.
- Options:
 - 1 AC/DC 12V power supply (Ref to order is PWS12-UNI-PH3).
 - 1 kit for DIN rail mounting (Ref to order is WL-KIT-RD1)

If any of these items is missing or damaged, please contact your distributor.

GETTING STARTED

1. Download the documentation

This documentation quickly explains how to connect, configure and troubleshoot your unit. The CD-ROM contains additional information (full user manual, utilities). Check for the latest releases on web site www.acksys.fr.

2. Select operating mode

The product provides IEEE 802.11a/h or 802.11b/g wireless access to the network. You can configure it in two different operating modes:

- **Access point:** In this mode, the product will interconnect WiFi equipments (set in infrastructure mode) and optional wired Ethernet equipments. The repeater mode is set through Access point mode with WDS option enabled.
- **Bridge:** In this mode, the product will convert the wired Ethernet output from your equipment to a WiFi access (in infrastructure mode if you must connect to an existing access point, in Ad-Hoc mode otherwise).

The default factory settings are: mode: AP, IP: 192.168.1.253, subnet mask: 255.255.255.0, SSID: acksys, mode 802.11: 802.11b/g, radio channel: automatic, security: no security

3. Collect network characteristics

You will need at hand some information about your LAN. The following is required:

WiFi network Identifier "SSID" (see below)
Radio channel (see below)
product IP address (see below)
LAN subnet mask (see below)
Gateway address (if required)
WEP or WPA keys, if any.

SSID: The SSID is a character string used to identify your WiFi network. To share the same WiFi network, your product and the other WiFi equipment must use the same SSID. The SSID is up to 32 characters length. Uppercase and lowercase letters are considered different.

Radio channel: You must choose a radio channel in addition to the SSID to define the transmission frequency that the product will use to communicate with the other WiFi equipment. For the 802.11b/g mode, it is recommended to use less than 3 channels in the same covered area in order to avoid disturbances. It is also recommended to leave at least two unused channels between each radio channel. In AD-HOC mode, all the equipments must have the same Radio channel. The law is different in each country, check which channels you can use in the country where you install the product.

802.11 Mode: The product uses the following operating modes:

- 802.11a, for the frequency 5.15 to 5.8 GHz
- 802.11h, for the frequency 5.50 to 5.70 GHz
- 802.11b
- 802.11g
- 802.11b & g

IP address: If you don't use DHCP you must define an IP address for the product. You **CANNOT** just pick one at random. If you don't know a valid IP address on your network, please contact your network administrator.

Subnet mask: You must configure a subnet mask for the product. Refer to the subnet mask of your local network. In doubt, please contact your network administrator.

4. Connect and adjust the antennas

Carefully unpack the antennas. Screw it onto the antenna connectors on the access point and hand-tighten them. For maximum range, make sure the antennas are vertical (points straight up or straight down), no matter where the product is mounted. The provided omnidirectional antennas are not advisable for wall mounting, because of radio perturbations induced by the wall.

5. Connect the Ethernet cable from your wired LAN to your product

Use an Ethernet cable (not provided) if you wish to connect the product directly to another equipment (a hub, a switch, a router, a PC...). You can use a straight or crossover cable, the product is auto MDI/MDIX.

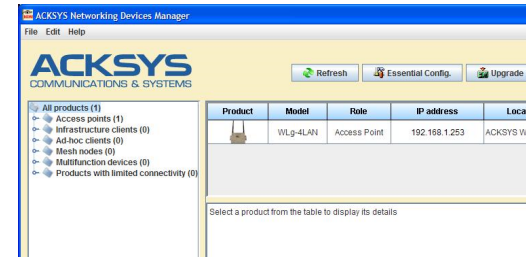
6. Connect the power supply

The product has provisions for many levels of constant voltage, from 9V to 48V. No power supply are provided with the product by default. Plug your power supply into the terminal, and the earth wire if necessary. Notice, the product has no ON/OFF switch. The product turns on automatically when power supply is connected.

LOCALIZATION ON YOUR NETWORK

In order to locate your product on the network use the multi-platform application **ACKSYS NDM** which you will find on the ACKSYS CD-ROM.

ACKSYS NDM is presented in the following way:



Refresh: When you click on this button, ACKSYS NDM rescans for products on your network.

Before using other buttons, first select a device.

Configure: When you click on this button, you can configure the IP addresses of all the selected devices on the list or activate DHCP.

For the following buttons, your device must have working IP configuration.

Upgrade: When you click on this button, you can upgrade all the selected devices on the list.

Web: When you click on this button, the administration web page is run for the selected device.

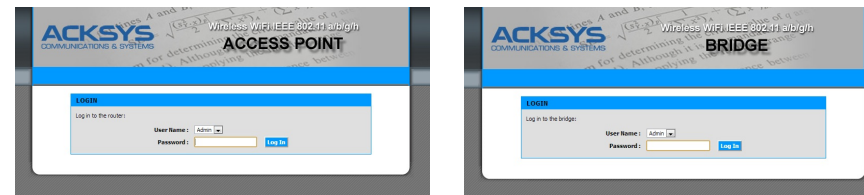
Be careful: If your product is behind a gateway, ACKSYS NDM cannot find it. In this case, use a computer on the same network during IP address setup (put it back on its LAN before proceeding to administration). If you use a firewall on your computer, check if the application is not blocked.

CONFIGURATION

7. Configure the product with the embedded web interface

- use your web browser, and type the IP address of the product (e.g. <http://192.168.1.253>).
- or run ACKSYS NDM (See « Localization on your network »), select your product and click on "Web".

A window appears (see below). Choose an user name (**Admin** or **user**, only the **Admin** can change the configuration parameters), and enter a password. There is no password in the factory settings.



Switch between Access Point and Bridge modes:

The product has two main modes (Access Point and Bridge), changing from one to the other requires a product reboot which will switch between firmwares.

To change the mode, enter the **BASIC** → **WIRELESS** menu form, and choose the firmware that you want to use:

Wifi Mode: Bridge Access Point

Then, Click on **Save Settings** and on **Reboot the Device** and the product will restart, executing the selected firmware.

Product Configuration:

The embedded web interface is composed of a horizontal menu bar (under the logo) and a vertical submenu bar on the left of the window. The five main menus are:

BASIC: Configure IP address, 802.11 mode, radio channel, SSID, security, enable SNMP agent...

ADVANCED: Configure MAC address filtering...

TOOLS: Set user password, admin password, firmware version info, firmware upgrade...

STATUS: Product Info, IP address, mode, SSID, radio channel, connected devices...

HELP: Information about parameters usage.

UPGRADE

To upgrade the product firmware, download the latest firmware on our web site www.acksys.fr and use the NDM software (or use the embedded web administration interface of the product).

TROUBLESHOOTING

1. Checking radio conditions

Begin with tests at very short distance. Check that the space between antennas is not obstructed, that there are no obstacles nearby which could degrade transmission (concrete, rock, metal). In Bridge mode it is helpful to use the "STATUS→Wireless" page which lists the visible access points in the neighbourhoods.

2. Checking WLAN configuration

If your WiFi device cannot be connected to the product, check your WiFi configuration. SSID must be the same between your device and the product.

If your device is connected to the product, but you can't send data to any devices, check the encryption keys. For other cases disable security options on all devices and product, and try again.

3. Checking the network topology

You must be sure that the IP address used by the product is not already used on your network. In order to verify, you can « ping » the product.

Disconnect the product from the network and type in a command prompt window:

```
C:\> arp -d  
C:\> ping 192.168.1.253
```

(Remark: If you have already changed the IP address of the product, ping the newly assigned one)

According to the nature of the message, you can know if the address 192.168.1.253 is already used on your network:

- **Request timeout:** this IP address is not used.
- **Answer from 192.168.1.253:** this IP address is used by another equipment.

4. "ACKSYS NDM" does not find your equipment

- ACKSYS NDM only scans the local network. Devices located behind a gateway are not seen.
- If you use a firewall on your computer, check if the application is not blocked.

TECHNICAL CHARACTERISTICS

Operating modes	Bridge INFRASTRUCTURE or AD-HOC, with or without NAT Point d'accès INFRASTRUCTURE with or without WDS		
Radio modes	IEEE 802.11a/h, 802.11b, 802.11g		
Data rate	802.11a/h: 6 to 54 M ; 802.11b: 1 to 11 M ; 802.11g: 1 to 54 M Up to 108Mbps (Super AG mode)		
Chipset	ATHEROS AR5414		
	802.11b	802.11g	802.11a/h
Maximum transmitted output power (Tolerance +/- 1.5dBm)	20 dBm @ 1-11M	20 dBm @ 6-24M 18 dBm @ 36M 17 dBm @ 48M 15 dBm @ 54M	20 dBm @ 6-24M 17 dBm @ 36M 16 dBm @ 48M 13 dBm @ 54M
Receiver sensitivity (Typical value)	-92 dBm @ 1M -87dBm @ 11M	-90 dBm @ 6M -70 dBm @ 54M	-90 dBm @ 6M -70 dBm @ 54M
Antennas	2 Omni directional antennas with RP-SMA connector (2.4GHz & 5 to 5.85GHz)		
Ethernet Link	Switch with 4x 10/100 Base Tx (RJ45) Interface, with auto MDI/MDIX		
Security	64/128 bits WEP, WPA-PSK, WPA2-PSK, IEEE 802.1X (RADIUS) authentication, MAC address filtering, SSID broadcast control		
LEDs	11 LEDs: Power, Diag, WLAN Tx/Rx and 4x LAN 10/100 Base Tx, 4x LAN Link Tx/Rx (for each LAN port)		
Power	9 to 48VDC power input (4.5W typ., 6.5W max) on terminal, handles wires inversion		
Operating Temperature	-20°C to +70°C (-4°F to 158 °F)		
Storage Temperature	-40°C to +80°C (-40°F to 176 °F)		
Relative Humidity	5% to 95% non-condensing		
Dimensions	D: 98.0 mm (3.86 in.) W: 80.6 mm (3.18 in.) H: 24.0 mm (0.95 in.) (detailed below)		
Weight	264 g (0.582 lbs) (with terminal and antennas)		
Regulatory Approvals	Conforms to R&TTE 1999/5/EC directive - Safety: EN60950-1 - Radio: EN 300 328, EN 301 893 - EMC: EN301 489-1/-17, EN 61000-6-2/-4		

Dimensions and LEDs		WLAN Tx/Rx(*)	Blue	FLASHING: Frame transmission over the WLAN (radio).
		Diag(*)	Red	When resetting the device, this LED stays lit a few seconds until it is ready to use (less than 10 seconds). If the « Diag » LED stays permanently lit at power up, the product is out of order. Check the power supply and then try again.
		Power	Green	ON: The device is powered up and operating normally (except if the DIAG led stays permanently ON after power up)
		Reset	Button	Restart the product after a short push (less than 1 second). Restore factory settings after a long push (more than 2 seconds).
		LAN	RJ45	RJ45 connector for LAN 10/100 Ethernet.
		9 to 48 VDC	Terminal	DC 9 to 48V power input + earth
		Link Tx/Rx	4x Green	ON: The Ethernet link is detected, FLASHING : Frame transmission of the LAN.
		10/100 Base Tx	4x Yellow	ON: The device has a 100 Mbps Fast Ethernet connection.