Quick Installation Guide

LANCOM R903

lancom-systems.com

LEDs overview of the LANCOM R903

A Power

Off	Device switched off
Blue, permanently*	Device ready for operation or device paired and LANCOM Management Cloud (LMC) accessible.
1x blue, inverse blinking*	Connection to LMC active, pairing OK, device not claimed
2x blue, inverse blinking*	Pairing error or LMC activation code/ PSK not present.
3x blue, inverse blinking*	LMC not reachable resp. communication error

B Online

Off	WAN connection not active
Blue, blinking	WAN connection in progress (e.g. PPP negotiation)
Blue, permanently	WAN connection active

C WAN

Off	No link available / interface switched off
Blue, permanently	Link available, no data transmission
Blue, flickering	Data transmission

D SFP

Off	No link available / interface switched off
Blue, permanently	Link available, no data transmission
Blue, flickering	Data transmission

E DSL

Off	Interface switched off
Blue, blinking / fast blinking	DSL Handshake DSL Training
Blue, permanently	DSL Sync
Blue, flickering	Data transmission
Blue, flashing	Hardware error

F Analog 1 / Analog 2

Off	Interface switched off
Blue, permanently	Interface activated
Blue, blinking	Active incoming or outgoing call

G ISDN 1 / ISDN 2

Off	Interface switched off
Blue, permanently	D channel active
Blue, blinking slowly	Active incoming or outgoing call
Blue, flashing	BUS faulty, no terminal device on

H ETH1 - ETH4

Off	No link available or interface switched off
Blue, permanently	Link available, no data transmission
Blue, flickering	Data transmission

I WLAN 1 / WLAN 2

Off	No Wi-Fi network defined or Wi-Fi module disabled. No beacons are sent from the Wi-Fi module.
Blue, blinking	DFS Scanning or other scan process
Blue, permanently	Wi-Fi network defined and Wi-Fi module activated. Beacons are sent from the Wi-Fi module.

J VoIP

Off	No SIP accounts defined or VCM disabled
Blue, blinking	Not all defined and active SIP accounts have been registered (possibly still being established)
Blue, permanently	All defined and active SIP accounts (outgoing) have been registered successfully

K VPN

Off	No VPN connection active
Blue, blinking	VPN connection in progress
Blue, permanently	VPN connection active

Documentation / Firmware

Basically, current versions of the LCOS firmware, drivers, tools and documentation for all LANCOM and AirLancer products are available for download free of charge from our website.

You will also find explanations of all the functions of your LANCOM device in the LCOS Reference Manual:
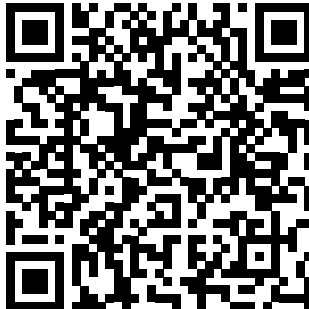www.lancom-systems.de/docs/LCOS/Refmanual/EN/

All information on the interfaces and connection options of your device can be found under the following QR code in the **Hardware Quick Reference**:

Service & Support

The LANCOM Knowledge Base — with over 2,500 articles — is available to you at any time via the LANCOM website:
www.lancom-systems.com/knowledgebase

If you need personal assistance, please contact your Telekom contact person or the Telekom hotline at:
www.telekom.de/gk/kontakt

Information on the lifecycle, in particular on End of Sale / End of Life and on the supply of LANCOM devices with security updates can be found at:
www.lancom-systems.com/lifecycle

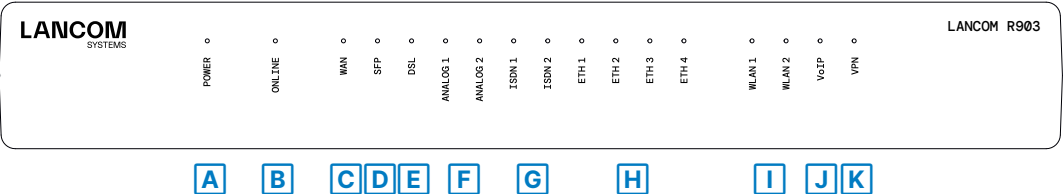## All information on your device

Package contents

Cables	1 DSL cable for an IP-based line, 4.25 m
Adapters	2 TAE adapters (RJ11 - TAE)
Antennas	2 external 3 dBi dipole dual band antennas
Power adapter	External power adapter

Initial start-up

Setting up the required connections for device configuration

→ Connect the power supply to a power socket using the enclosed or another suitable IEC cable or the enclosed external power supply unit. Observe the safety instructions on the right.

→ **Only for devices with integrated DSL modem:** If available and required, connect the G.FAST / VDSL / ADSL interfaces to a TAE socket of your provider using suitable cables.

→ Use suitable cables or modules to connect other required device interfaces to other components and, in the case of devices with mobile radio and/or Wi-Fi interfaces, connect any antennas supplied.

→ Depending on the device equipment, choose one of the following configuration methods **a)**, **b)**, or **c)**

  a) **Configuration via the local network (recommended)**
    Connect one of the **ETH** or **LAN** interfaces of the device via an Ethernet cable either to a network switch or directly to the network device intended for configuration (e.g. notebook).
    The **CONFIG** or **COM** interface is not suitable for configuration via the network!

  b) **Configuration via the serial interface** of a connected computer (if available)
    You need a serial configuration cable whose network connector is connected to the **CONFIG** or **COM** interface of the device. **This socket is exclusively intended for connection to a serial interface!**

  c) **Configuration via the USB interface** of a connected computer
    You need a commercially available **USB-C** connection cable, which is connected to the **CONFIG** interface of the device.

Options for initial start-up of the unconfigured device

→ **Option 1: via web browser (WEBconfig, not for serially connected devices)**
Configuration via web browser is an easy and fast variant, since no additional software is required on the computer used for configuration.
Note: If a certificate warning appears in your browser when trying to connect to your device, there is a button or link on the displayed browser page to connect to the device anyway (depending on the browser, usually under **Advanced**).

Configuration of the basic settings	Automatic configuration of Internet access
Open a web browser and enter **http://192.168.2.1** in the address bar. This will take you to the WEBconfig of your router and start the setup wizard for the basic settings directly.	Wait for the Internet connection to synchronize; this can take up to five minutes. It is complete when the DSL LED lights up continuously.
For manual installation, select the ‚Install device manually' option and follow the wizard through the configuration. Manual installation deactivates automatic setup and subsequent automatic updates for firmware and configuration by your provider.	Open a web browser and enter the URL **www.telekom.de** in the address bar, unless you are forwarded directly. If you are using a connection with automatic configuration, you will be taken directly to **www.telekom.de** and the automatic configuration of the Internet access has already been carried out in the background.

• When the computer is connected to an unconfigured LANCOM device, WEBconfig automatically starts the setup wizard **Basic settings**.

• After the setup wizard has been run through, the initial commissioning of the device is complete.

• If necessary, make further configurations using the setup wizards available for selection.

→ **Option 2: via the Windows software LANconfig (www.lancom-systems.com/downloads)**

• Please wait until the booting process of the device is completed before starting LANconfig.

• Unconfigured LANCOM devices are automatically found by LANconfig in the local network (LAN) and the setup wizard **Basic settings** is then started.

• After the setup wizard has finished, the initial start-up of the device is complete.

• If necessary, make further configurations using the setup wizards available for selection.

→ **Option 3: via the LANCOM Management Cloud (LMC)**

The LMC is not required for the operation of LANCOM devices, but it facilitates their commissioning and permanent management through centralized, automated management. Special requirements are necessary to configure the device via the LMC. Information on this topic can be found at www.lancom-systems.com/lmc-access.

General safety instructions

→ Under no circumstances should the device housing be opened and the device repaired without authorization. Any device with a case that has been opened is excluded from the warranty.

→ If antennas are available, they may only be installed or replaced when the device is switched off. Mounting or demounting antennas while the device is powered on may cause the destruction of the radio module.

→ Mounting, installation, and commissioning of the device may only be carried out by qualified personnel.

Safety instructions and intended use

In order to avoid harming yourself, third parties or your equipment when installing your LANCOM device, please observe the following safety instructions. Operate the device only as described in the corresponding documentation. Pay particular attention to all warnings and safety instructions. Use only those third-party devices and components that are recommended or approved by LANCOM Systems.

Before commissioning the device, be sure to study the corresponding Hardware Quick Reference which can be downloaded from the LANCOM website www.lancom-systems.com/downloads.

Any warranty and liability claims against LANCOM Systems are excluded in the event of any use other than the intended use described below!

Environment

LANCOM devices should only be operated when the following environmental requirements are met:

→ Ensure that you comply with the temperature and humidity ranges specified in the Quick Reference Guide for the LANCOM device.

→ Do not expose the device to direct sunlight.

→ Ensure that there is adequate air circulation and do not obstruct the ventilation slots.

→ Do not cover devices or stack them on top of one another

→ The device must be mounted so that it is freely accessible (for example, it should be accessible without the use of technical aids such as elevating platforms); a permanent installation (e.g. under plaster) is not permitted.

→ Only outdoor equipment intended for this purpose is to be operated outdoors.

Power supply

Before start-up, the following points must be observed, as improper use can lead to personal injury and damage to property, as well as voiding the warranty:

→ The mains plug of the device must be freely accessible.

→ Operate the device only with a professionally installed power supply at a nearby and at all times freely accessible socket.

→ Only use the enclosed power supply / IEC cable or the one listed in the hardware quick reference.

→ A high touch current is possible for devices with metal housing and grounding screw! Before connecting the power supply, connect the grounding screw to a suitable ground potential.

→ Some devices support power supply via an Ethernet cable (Power over Ethernet - PoE). Please refer to the corresponding notes in the hardware quick reference of the device.

→ Never operate damaged components.

→ Only switch on the device when the housing is closed.

→ The device must not be installed during thunderstorms and should be disconnected from the power supply during thunderstorms.

→ In case of emergency (e. g. damage, ingress of liquids or objects, for example through the ventilation slots), disconnect the power supply immediately.

Applications

→ The devices may only be used in accordance with the relevant national regulations and under consideration of the legal situation applicable there.

→ The devices must not be used for the actuation, control, and data transmission of machinery that, in case of malfunction or failure, may present a danger to life and limb.

→ The devices with their respective software are not designed, intended or certified for use in: the operation of weapons, weapons systems, nuclear facilities, mass transportation, autonomous vehicles, aircraft, life support computers or equipment (including resuscitators and surgical implants), pollution control, hazardous materials management, or other hazardous applications where failure of the device or software could lead to a situation in which personal injury or death could result. The customer is aware that the use of the devices or software in such applications is entirely at the customer's risk.

Regulatory Notice

Regulatory compliance for devices with radio or Wi-Fi interfaces

This LANCOM device is subject to governmental regulation. The user is responsible for ensuring that this device operates in accordance with local regulatory guidelines, specifically for compliance with potential channel restrictions.

Channel restrictions in Wi-Fi operation for devices with Wi-Fi interfaces

When operating this radio equipment in EU countries the frequency range 5,150 – 5,350 MHz (Wi-Fi channels 36 – 64) as well as the frequency range 5,945 – 6,425 MHz (Wi-Fi channels 1 – 93) is limited to indoor use.

Maximum transmission power for devices with radio interfaces

This LANCOM device may contain one or more radio interfaces using various technologies. The maximum output power per technology and used frequency band for use in EU countries is described in the following tables:

Technology	Frequency range (MHz)	Max. output power (dBm EIRP)	Technology	Frequency range (MHz)	Max. output power (dBm EIRP)
Wi-Fi	2,400 – 2,483.5	20	LTE (Band 34)	2,010 – 2,025	24
	5,150 – 5,350	20	LTE (Band 38)	2,570 – 2,620	24.8
	5,470 – 5,725	30	LTE (Band 40)	2,300 – 2,400	24.8
	5,945 – 6,425	23	LTE (Band 42)	3,400 – 3,600	24.8
SRD / BLE / SRD / ESL (ePaper)	2,400 – 2,483.5	10	5G NR (Band 1)	1,920 – 1,980	24
			5G NR (Band 3)	1,710 – 1,785	24
SRD / SubGHz-ESL	869.2 – 869.25	14 / 25 mW	5G NR (Band 28)	703 – 748	24
			5G NR (Band 41)	2,496 – 2,690	24
LTE (Band 1)	1,920 – 1,980		5G NR (Band 77)	3,300 – 4,200	24.5
LTE (Band 3)	1,710 – 1,785		5G NR (Band 78)	3,300 – 3,800	24.5
LTE (Band 7)	2,500 – 2,570	23	UMTS (Band 2)	1,850 – 1,910	
LTE (Band 8)	880 – 915		UMTS (Band 4)	1,710 – 1,755	23
LTE (Band 20)	832 – 862		UMTS (Band 5)	824 – 849	

Declarations of Conformity

You will find all the Declarations of Conformity concerning our product portfolio under www.lancom-systems.com/doc. These documents contain all the tested standards and required guidelines in the area of EMC - SAFETY - RF, as well as the proof of the guidelines concerning RoHS & REACH.

Simplified Declaration of Conformity

Hereby, LANCOM Systems GmbH | Adenauerstrasse 20/B2 | D-52146 Wuerselen, declares that this device is in compliance with Directives 2014/30/EU, 2014/35/EU, 2014/53/EU, 2011/65/EU, and Regulation (EC) No. 1907/2006. The full text of the EU Declaration of Conformity is available at the following Internet address: www.lancom-systems.com/doc