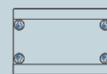# LANCOM 1781A-4G
Quick Reference Guide

LANCOM Systems

Please observe the following when setting up the device

> For devices to be operated on the desktop, please attach the adhesive rubber footpads
> Do not rest any objects on top of the device

> Keep the ventilation slots on the side of the device clear of obstruction
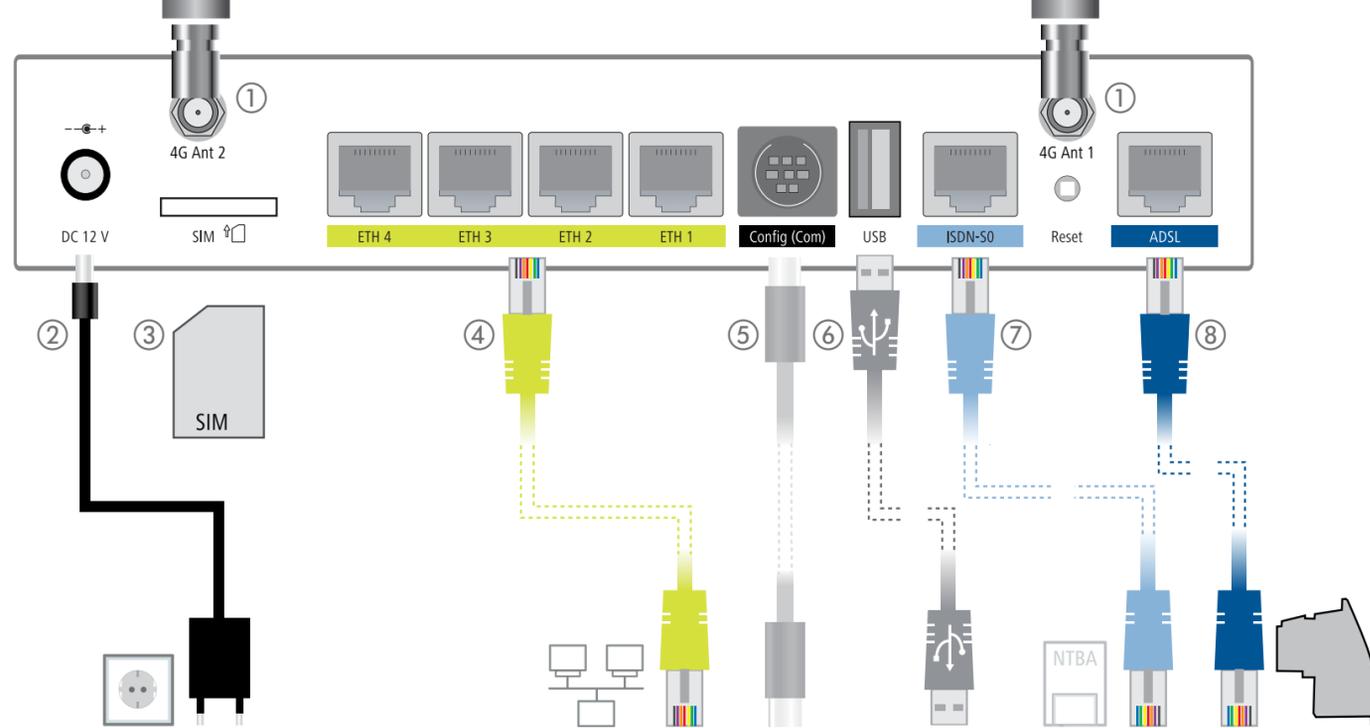> In case of wall mounting, use the drilling template as supplied

> Rack installation with the optional LANCOM Rack Mount (not supplied)

4G Ant 2 — DC 12 V — SIM — ETH 4 — ETH 3 — ETH 2 — ETH 1 — Config (Com) — USB — ISDN-S0 — Reset — ADSL — 4G Ant 1
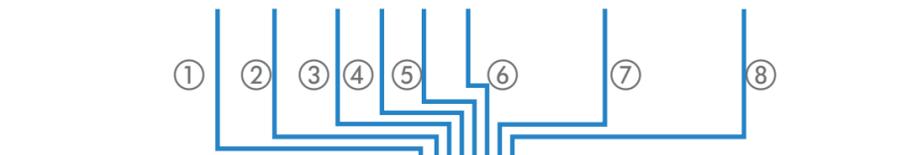
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

SIM

NTBA

① 4G Antennas
Screw the two supplied cellular antennas onto the connectors 4G Ant 2 and 4G Ant 1.

② Power
When connecting the cable to the device, turn the bayonet connector 90° clockwise until it clicks into place.

Use only the supplied power adapter.

③ Optional: SIM Card
Slide the SIM card into the slot using the marker to ensure that the card is the right way round. Ensure that the SIM card clicks into place on insertion. To remove the card from the device again, press the card lightly into the device. Let go to release the SIM card from the slot.

④ Ethernet Interface
Use the cable with the kiwi-colored connectors to connect one of the interfaces ETH 1 to ETH 4 to your PC or a LAN switch.

⑤ Serial Interface
You can connect the device to a PC with a configuration cable (available separately).

⑥ USB Interface
Connect a USB storage device or a USB printer to the USB interface.

⑦ ISDN Interface
Use the ISDN cable with the light-blue connectors to connect the ISDN interface to the NTBA if you wish to use ISDN additionally.

⑧ ADSL Interface*
Connect the cable with the dark-blue connectors to the DSL splitter from your provider. Please ensure that you carefully follow any instructions from your provider regarding the installation of the DSL splitter and NTBA (if applicable).

*For operation without splitter please use the DSL cable supplied by your Internet provider or the enclosed adapter.
For further information please contact your Internet provider.

⚠ When working with separately purchased antennas, please ensure you do not exceed the maximum permissible transmission power. The system operator is responsible for adhering to the threshold values. Antennas are only to be attached or changed when the device is switched off. Mounting or demounting antennas with the device switched on may cause the destruction of the WLAN module!
US version: Antennas not part of the delivery content are a strict violation of FCC rules and must not be used.

⚠ The SIM card is only to be inserted or removed when the device is switched off. Inserting or removing the SIM card with the device switched on may cause the destruction of the 4G module!

SETTING UP AND CONNECTING THE DEVICE

LANCOM 1781A-4G
LANCOM Systems

Power — Online — ADSL — 4G — Signal — ISDN — ETH 1 — ETH 2 — ETH 3 — ETH 4 — VPN

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Power

Off	Device switched off
Green on	Device operational
Blinking green/orange	Configuration password not set. Without a configuration password, the configuration data in the device is unprotected.
Blinking red	Time or charge limit on online connections has been reached

② Online

Off	WAN connection not active
Green on	WAN connection active
Red on	Error establishing the WAN connection

③ ADSL

Off	ADSL interface not active
Green on	ADSL connection operational
Flickering green	ADSL data transmission
Flickering red	ADSL transmission error
Blinking red/orange	ADSL hardware error

④ 4G

Off	Cellular interface disabled
Green on	Connection to cellular network active
Flickering green	Cellular data transmission
Orange on	Logon to cellular network successful
Blinking orange	Logging on to cellular network
Red on	Hardware error/module unavailable
Blinking red/green	SIM card error (PIN)
Blinking red/orange	Uploading module firmware

⑤ Signal

Off	No cellular reception
Green on	Good signal strength, greater than or equal to -70 dB
Orange on	Medium signal strength, field strength -86 – -71 dB
Blinking orange	Low signal strength, field strength less than -87 dB

⑥ ISDN

Off	interface deactivated
Green on	D-channel active
Orange on	B-channel active
Flickering green	ISDN data transmission
Flickering red	ISDN transmission error
Blinking red/orange	ISDN hardware error

⑦ ETH

Off	No networking device attached
Green on	Connection to network device operational, no data traffic
Flickering green	Data traffic

⑧ VPN

Off	VPN connection inactive
Green on	VPN connection active
Flashing green	Establishing VPN connections

TECHNICAL DATA

Hardware	
Power supply	12 V DC, external power adapter (230 V) with bayonet connector to secure against disconnection
Power consumption	Max. ca. 12.5 W
Environment	Temperature range 5–40 °C; humidity 0–95 %, non-condensing
Housing	Robust synthetic housing, rear connectors, ready for wall mounting, Kensington lock; measures 210 x 45 x 140 mm (W x H x D)
Number of fans	None; fanless design, no rotating parts, high MTBF

Interfaces	
ADSL	> Compliant to: ADSL2+ as per ITU G.992.5 Annex A/Annex B/Annex J/Annex M, ADSL2 as per ITU G.992.3 Annex A/Annex B/Annex J/Annex M, ADSL as per ITU.G.992.1 Annex A/Annex B > Supports one virtual ATM circuit (VPI, VCI pair) at a time
ETH	4 individual 10/100/1000 Mbps Gigabit Ethernet ports in switch-mode by default; up to three can be configured as additional WAN ports. Ethernet ports can be electrically disabled within LCOS configuration.
USB	USB 2.0 Hi-Speed host port for connecting USB printers (USB print server), serial devices (COMport servers), USB data media (FAT file system), or supported UMTS USB modems
ISDN	ISDN S0 bus
Serial interface	Serial configuration interface / COM port (8-pin Mini-DIN): 9,600–115,000 baud, suitable for optional connection of analog/GPRS modems. Supports internal COM-port server and transparent asynchronous serial-data transfer via TCP.
4G: Ant 1, Ant 2	Two SMA connectors for the supplied dipole rod antennas (LTE, UMTS, Edge), compatible LAN-COM AirLancer Extender antennas for 4G or 3G, or from other manufacturers. Please respect the restrictions which apply in your country when setting up an antenna system (in particular the antenna gain and transmission power).

WAN protocols	
ADSL, Ethernet	PPPoE, Multi-PPPoE, ML-PPP, PPTP (PAC or PNS) and IPoE (with or without DHCP), RIP-1, RIP-2, VLAN, GRE, L2TPv2 (LAC or LNS), IPv6 over PPP (IPv6 and IPv4/IPv6 dual stack session), IPv6IoE (autoconfiguration, DHCPv6 or static)
ISDN	1TR6, DSS1 (Euro ISDN), PPP, X75, HDLC, ML-PPP, V.110/GSM/HSCSD

Data transmission in cellular networks	
Supported standards	GPRS, EDGE, UMTS, HSxPA, HSPA+, LTE
LTE	Band 1 (2100 MHz), band 3 (1800 MHz), band 7 (2600 MHz), band 8 (900 MHz), band 20 (FDD800 MHz) with MIMO
UMTS/HSxPA/HSPA+	Band 1 (2100 MHz), band 8 (900 MHz) with diversity
EDGE/GPRS	GSM 900 (900 MHz), DCS 1800 (1800 MHz), PCS 1900 (1900 MHz)
Maximum transmission power	+24 dBm

Declaration of conformity	
For the declaration of conformity, see the product page on our website www.lancom-systems.eu	

Package content	
Manual	Hardware Quick Reference (DE/EN), Installation Guide (DE/EN)
DVD	Data storage device with magement software (LANconfig, LANmonitor) and LCOS documentation
Cable	1 Ethernet cable, 3m (kiwi-colored connectors); 1 ADSL cable, 3m (dark-blue connectors); ISDN cable, 3m (light-blue connectors)
Antenna	Two 2dBi dipole UMTS/GPRS/LTE antennas (850–960 Mhz and 1700–2220 Mhz)
Adapter	All-IP adapter (only in the EU version)
Power adapter	External power supply adapter (230 V), NEST 12 V/1.5 A DC/S, barrel connector 2.1/5.5 mm bayonet, LANCOM item no. 110723 or 111301 (EU, 230V); LANCOM item no. 110829 or 111302 (UK, 230V)

Specific device properties are not available to LANCOM CC devices operating in CC mode according to the "Operational User Guidance".

This product contains separate modem firmware with open-source software components. These are subject to their own licenses, in particular the General Public License (GPL). The license text for the modem firmware is available on the data medium supplied. If the respective license demands, the source files for the corresponding software components will be made available on a download server upon request. License information for the device firmware (LCOS) is available in the file LCOS-Licenses.txt on the data medium supplied.