ZYXEL
COMMUNICATIONS

NR5101

5G NR Indoor IAD

The Zyxel NR5101 5G NR Indoor IAD supports the latest 5G NR technology and at the same time remaining full compatibility with 4G/3G networks. The NR5101 is perfect for 5G NR indoor FWA deployment to deliver high-capacity, premium broadband services through a high-end WiFi 6 interface with high-speed connectivity, enhanced network security, and deployment flexibility.

Benefits

Lightning-fast internet connectivity

The Zyxel NR5101 has 5G NR DL speeds higher than 5 Gbps* and 4G LTE DL speeds of up to 2 Gbps*. The wide spectrum bandwidth accelerates internet speeds and reduces network latency for premium and time-sensitive connectivity services. With the high-speed 5G NR service you are able to fulfill the worldwide market requirements of mobile broadband access services.

WiFi 6 (11ax) technology for superior performance and coverage

Compliant with the latest WiFi 6 (802.11ax) standard, the Zyxel NR5101 offers speeds of up to 1.8 Gbps with 2x2 UL/DL MU-MIMO. The uplink MU-MIMO, Orthogonal Frequency Division Multiple Access (OFDMA) and beamforming technologies empower the NR5101 to deliver premium speed for multi-streaming data access and optimal WiFi experience without dead zones.

5G NR — 3GPP Rel. 15 5G NR, up to 5 Gbps/650 Mbps (DL/UL) with the support of NSA & SA mode

AX 802.11 — WiFi 6 (11ax) for superior performance and coverage

Built-in 4x4 MIMO, 6 high-performance 4G/5G antennas

Remote management via TR-069 (TR-181 and TR-143 speed test) HTTP/web GUI and FTP

Zyxel mobile apps (iOS and Android)

FOTA — Remote firmware upgrade (FOTA)

Supports VoIP/VoLTE

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Strengthen your competitive edge with Fixed Wireless Access (FWA)

Deploying NR5101 as part of FWA allows you to extend your 5G service coverage into subscribers' homes and workplaces without extra wire infrastructure. This secures the TCOs and increases business revenue by supporting a larger number of subscribers with a premium fixed-grade connection.

Remote management and upgrade

Through the LTE radio interface, NR5101 supports TR-069, remote GUI, and FTP to be fully configurable. Firmware Over-The-Air (FOTA) support enables remote firmware upgrades and troubleshooting through events triggered by the operators.

Specifications

System specifications

IP networking
- Supports IPv4/IPv6 dual stack (NDP IPv6)
- DHCP server
- Virtual Private Network (VPN) pass-through
- Supports NAT/NAPT
- Supports DMZ
- Multiple APNs
- Supports port forwarding
- Supports ALG

Routing
- Supports bridge and router modes
- Supports dynamic DNS for first APN
- Supports remote management under bridge mode
- Static/dynamic routing settings for RIP v1/v2

IP firewall
- DoS attack detection
- Supports SPI
- Application-level firewall (LAN to WAN such as FTP, HTTP, Telnet, Ping)
- Filters LAN MAC address
- Filters LAN IP address
- Filters URLs

Management
- Supports local/remote device management and firmware upgrade via TR-069 and web GUI
- SMS management
- PIN/PUK management
- APN management
- Operating frequency band selection
- CLI/SSH (local and remote SSH access)

- Supports UPnP IGD
- Supports bandwidth/quota management
- Supports web server API to support APPs

Voice service
- Voice over IP (VoIP)**
  - Section Initiating Protocol (SIP), RFC 3261
  - Codec: G.711 a/μ (64K), G.726 (24/32K), G.722
  - G.168 echo cancellation
- Voice over LTE (VoLTE)**
  - 3GPP/GSMA IR.92 compliant
  - Voice Activity Detection (VAD): caller ID/call hold/transfer forwarding/return/conference anonymous call

WLAN feature
- Auto channel selection
- WiFi Protected Setup (WPS)
- WiFi Multimedia (WMM)
- WiFi-enabled devices: up to 64
- Security: none, WPA2-Personal, WPA+WPA2
- MAC address filtering with 64 address supported
- Multiple SSIDs/hide SSIDs
- WLAN scheduling

Hardware specifications

5G NR interface
- 3GPP Release 15 standard-compliant
- Supports both NSA and SA modes
- Supports frequencies: n1/n3/n5/n7/ n8/n20/n28/n41/n77/n78/n38/n40
- DL 4×4 MIMO: n1/n3/n7/n38/n40/n41/ n77/n78

- Data rates:
  - 5G SA: DL 4.2 Gbps; UL 900 Mbps*
  - 5G NSA: DL 5 Gbps; UL 650 Mbps*
- Supports DL modulation QPSK, 16-QAM, 64-QAM and 256-QAM
- Supports UL modulation QPSK, 16-QAM, 64-QAM and 256-QAM
- Output power:
  - Class 2 (26 dBm) for 5G NR n41/n77/ n78
  - Class 3 (23 dBm) for 5G NR n1/n3/ n5/n7/n8/n20/n28/n38/n40

4G LTE interface
- 3GPP UE Category 20 standard-compliant
- Supports frequencies:
  - LTE-FDD: B1/B3/B5/B7/B8/B20/B28/ B32/B38/B39
  - LTE-TDD: B40/B41/B42
- DL 4×4 MIMO:
  - LTE-FDD: B1/B3/B7
  - LTE-TDD: B38/B40/B41/B42
- Peak data rates:
  - Max. DL 2 Gbps/UL 200 Mbps*
- 4 internal antennas
- Supports DL modulation QPSK, 16-QAM, 64-QAM and 256-QAM
- Supports UL modulation QPSK, 16-QAM, 64-QAM and 256-QAM
- Output power:
  - Class 2 (26 dBm) for LTE B38/B40/ B41/B42
  - Class 3 (23 dBm) for FDD/TDD LTE bands

UMTS/EDGE/GPRS/GSM Air interface

- Standard-compliant: DC-HSDPA/HSPA+ compliant
- DC-HSDPA/HSPA+ standards-compliant
- Supports frequencies: B1/3/5/8
- Peak data rates:
  - DC-HSPA+ downlink data rates up to 42 Mbps*
  - HSUPA uplink data rates up to 5.76 Mbps*
  - UMTS data rates up to 384 Kbps*

WiFi Air Interface

- Wireless standard: IEEE 802.11 b/g/n/a/ac/ax
- Wireless speeds:
  - Link rates up to 573 Mbps* for 2.4 GHz
  - Link rates up to 1.2 Gbps* for 5 GHz
- Internal WiFi antenna:
  - Dual-band & concurrent 2x2 + 2x2
- WiFi antenna gain:
  - ~3 dBi for 2.4 GHz
  - ~5 dBi for 5 GHz

5G/4G/3G antennas

- 2 SMA connectors for external antennas
- 6 embedded omni-directional antennas
- Ultra-high band:
  - Up to 4 dBi peak gain
- High band and middle band:
  - Up to 4 dBi peak gain
- Low band:
  - Up to 2 dBi peak gain

Hardware interface

- Two 10/100/1000 Mbps Ethernet RJ-45 LAN ports, LAN1 can be configured for Ethernet WAN port
- LEDs:
  - Power indication
  - LTE connection status
  - LTE signal status
  - WiFi connection status
  - FXS status
  - USB host status
  - LAN status
- Two external antenna connectors (SMA type)
- One 3FF/Micro SIM card slot
- One power on/off button
- One WPS/WiFi on/off button
- One LED on/off button
- One reset button
- One FXS POTS phone port for conventional phone (RJ-11 plug)
- One USB 2.0 host port for file sharing

Power consumption

- 24 W (peak)

Physical specifications

- Item dimensions (WxDxH): 100 x 100 x 205 mm (3.94" x 3.94" x 8.07")
- Item weight: 600 g (1.32 lb.)
- Packing dimensions (WxDxH): 247 x 170 x 120 mm (9.72" x 6.7" x 4.73")
- Packing weight: 1600 g (3.54 lb.)

Environment specifications

Operating environment

- Temperature: 0°C to 40°C (32°F to 104°F)
- Humidity: 10% to 90% RH (non-condensing)

Storage environment

- Temperature: -30°C to 70°C (-22°F to 158°F)
- Humidity: 5% to 95% (non-condensing)

Certification

- CE
- WEEE (Waste Electrical and Electronic Equipment) Directive certification
- RoHS (Restriction of Hazardous Substances) Directive certification
- HSF (Hazardous Substance Free)
- European Parliament and Council Directive 94/62/EC of December 20, 1994 on packaging and packaging waste
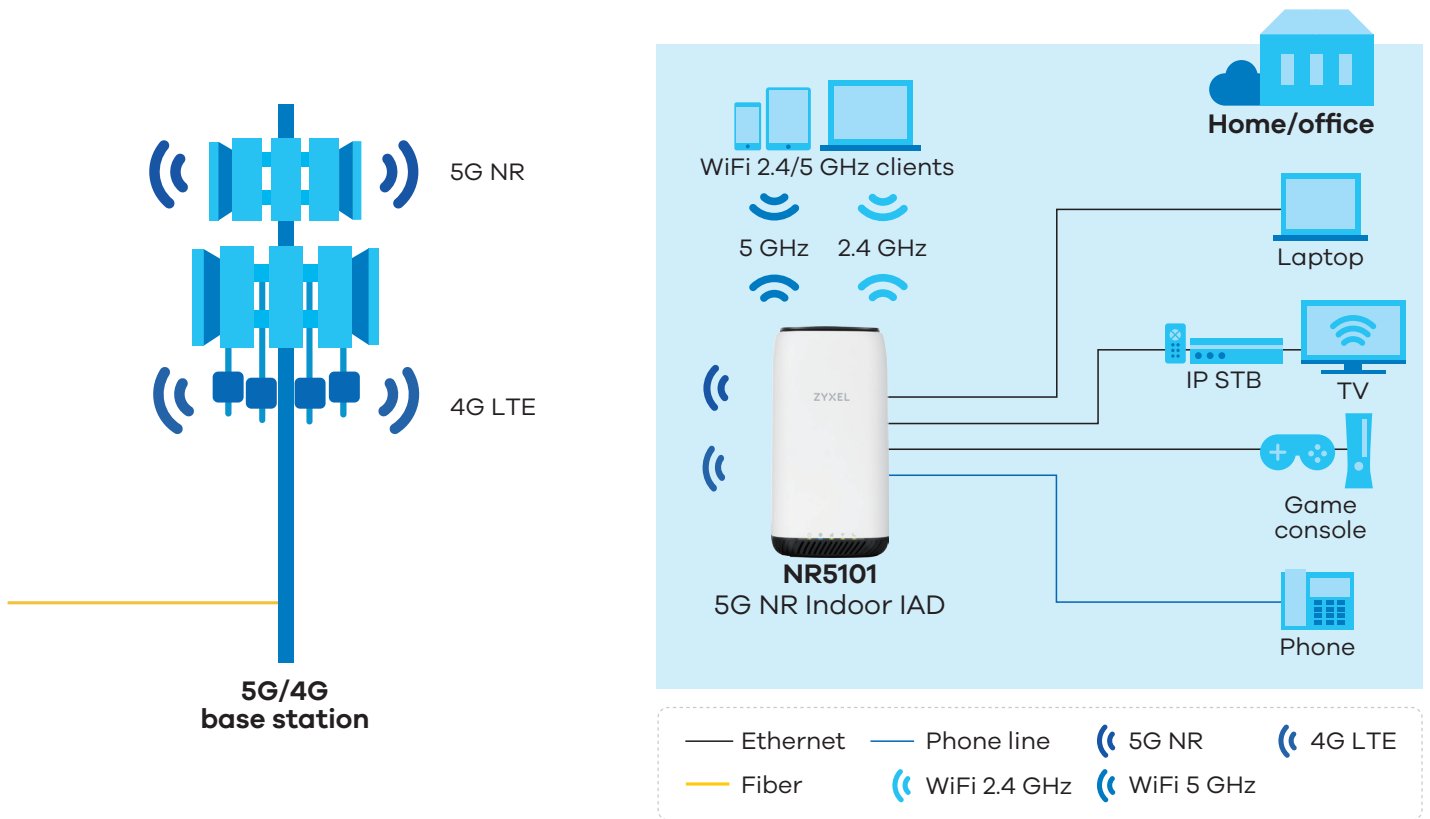
Package contents

- Multiple-plug power adaptor
- Ethernet cable 1.8 m 8P8C
- Quick Start Guide
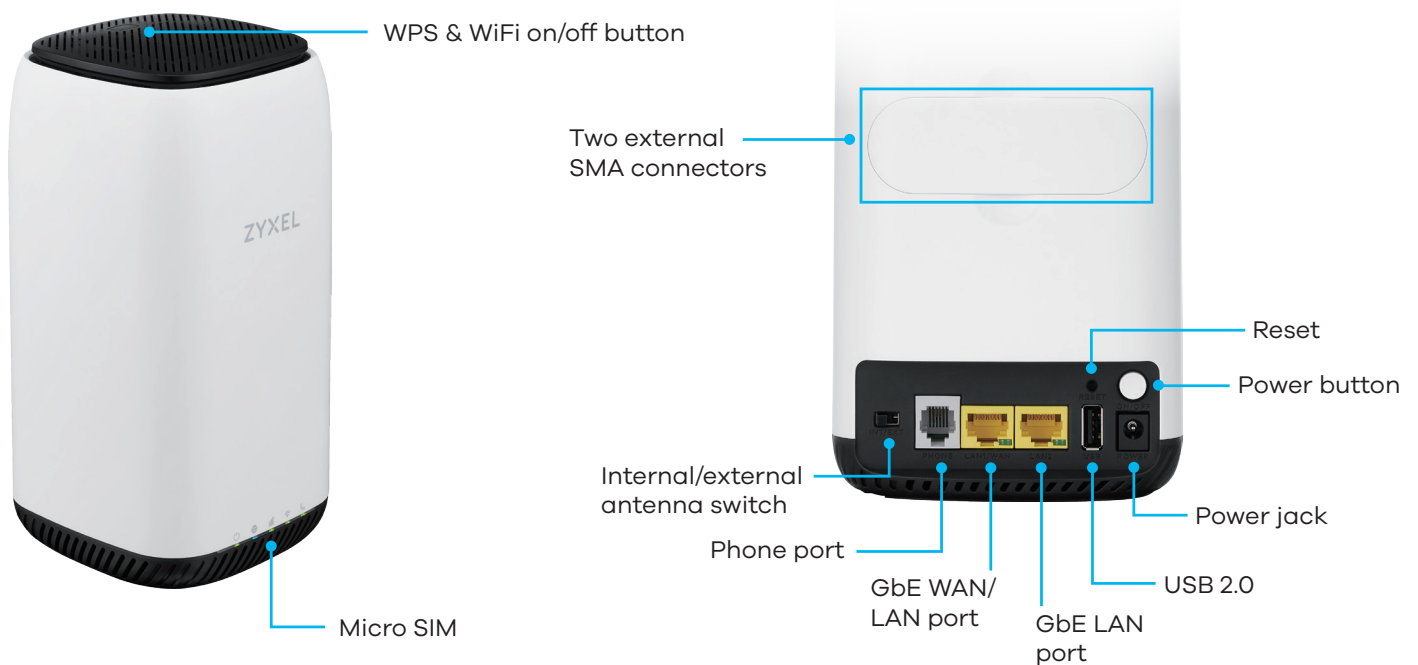- Warranty card
- DoC
- Safety warranty

* The maximum data rates is a theoretical value. The actual data rates depend on the network environment.
** VoLTE and VoIP are optional customized software features.

Application diagram

WiFi 2.4/5 GHz clients

5 GHz   2.4 GHz

Home/office

Laptop

IP STB

TV

Game console

Phone

NR5101
5G NR Indoor IAD

5G NR

4G LTE

5G/4G base station

── Ethernet	── Phone line	((5G NR	((4G LTE
── Fiber	((WiFi 2.4 GHz	((WiFi 5 GHz	

Hardware description

WPS & WiFi on/off button

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Micro SIM

Two external SMA connectors

Reset

Power button

Internal/external antenna switch

Phone port

GbE WAN/ LAN port

GbE LAN port

USB 2.0

Power jack

16/12/20

Datasheet NR5101