

WDR-3124A Series

Industrial 802.11n/HSPA wireless router



- > Universal GSM/GPRS/HSPA cellular communications
- > 2.4-GHz/5-GHz dual-band 300 Mbps Wi-Fi communication
- > Built-in 4-port Gigabit Ethernet switch
- > Industrial design with dual-power inputs and built-in DI/DO support
- > Cellular link redundancy with dual-SIM GuaranLink support
- > Antenna and power isolation design to protect against interference



Introduction

The WDR-3124A industrial wireless router combines 802.11n and cellular technologies to provide flexible wireless network connectivity. The WDR-3124A comes with a built-in antenna and power isolation suitable for any harsh industrial environment. With DIN-rail mounting, wide operating temperature range models, and IP30 housing, the WDR-3124A is a convenient yet reliable solution for any industrial wireless application.

WLAN and Cellular Connectivity

- High-speed wireless connectivity at up to 300 Mbps
- WLAN AP/Client-Router operation mode support
- Universal cellular band support for GSM/GPRS/HSPA connectivity

Effective Isolation and Redundancy Design

- Dual-power input for power redundancy
- Dual-SIM support for cellular connection redundancy
- Antenna isolation for protection against radio interference
- Power isolation for power source insulation protection

Specifications

Cellular Interface

Standards: GSM/GPRS/EDGE/UMTS/HSPA

Band Options:

- Five-band UMTS/HSPA 800/850/900/1900/2100 MHz
 - Quad-band GSM/GPRS/EDGE 850/900/1800/1900 MHz
- HSPA Data Rate:** 14.4 Mbps DL, 5.76 Mbps UL (Category 6, 7)
EDGE Data Rate: 237 kbps DL, 237 kbps UL (Class 12)
GPRS Data Rate: 85.6 kbps DL, 85.6 kbps UL

Wireless Interface

Standards:

IEEE 802.11a/b/g/n for Wireless LAN
 IEEE 802.11i for Wireless Security

Spread Spectrum and Modulation (typical):

- DSSS with DBPSK, DQPSK, CCK
- OFDM with BPSK, QPSK, 16QAM, 64QAM
- 802.11b: CCK @ 11/5.5 Mbps, DQPSK @ 2 Mbps, DBPSK @ 1 Mbps
- 802.11a/g: 64QAM @ 54/48 Mbps, 16QAM @ 36/24 Mbps, QPSK @ 18/12 Mbps, BPSK @ 9/6 Mbps
- 802.11n: 64QAM @ 300 Mbps to BPSK @ 6.5 Mbps (multiple rates supported)

Operating Channels (central frequency):

WDR-3124A-EU:
 2.412 to 2.472 GHz (13 channels)
 5.180 to 5.240 GHz (4 channels)

WDR-3124A-US:

2.412 to 2.462 GHz (11 channels)
 5.180 to 5.240 GHz (4 channels)
 5.745 to 5.825 GHz (5 channels)

Security:

- SSID broadcast enable/disable
- 64-bit and 128-bit WEP encryption, WPA /WPA2-Personal and Enterprise (IEEE 802.1X/RADIUS, TKIP and AES)

Transmission Rates:

802.11b: 1, 2, 5.5, 11 Mbps
 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
 802.11n: 6.5 to 300 Mbps (multiple rates supported)

TX Transmit Power:

2.4 GHz
 802.11b:
 Typ. 23±1.5 dBm @ 1 Mbps
 Typ. 20±1.5 dBm @ 5 Mbps
 Typ. 19±1.5 dBm @ 11 Mbps
 802.11g:
 Typ. 20±1.5 dBm @ 6 to 24 Mbps
 Typ. 19±1.5 dBm @ 36 Mbps
 Typ. 18±1.5 dBm @ 48 Mbps
 Typ. 17±1.5 dBm @ 54 Mbps

802.11n:

- Typ. 20±1.5 dBm @ MCS0/8 20 MHz
- Typ. 20±1.5 dBm @ MCS0/8 40 MHz
- Typ. 16±1.5 dBm @ MCS7/15 20 MHz
- Typ. 16±1.5 dBm @ MCS7/15 40 MHz

5 GHz

802.11a:

- Typ. 20±1.5 dBm @ 6 to 24 Mbps
- Typ. 19±1.5 dBm @ 36 Mbps
- Typ. 16±1.5 dBm @ 48 Mbps
- Typ. 15±1.5 dBm @ 54 Mbps

802.11n:

- Typ. 19±1.5 dBm @MCS0/8 20 MHz
- Typ. 18±1.5 dBm @MCS0/8 40 MHz
- Typ. 14±1.5 dBm @MCS7/15 20 MHz
- Typ. 14±1.5 dBm @MCS7/15 40 MHz

RX Sensitivity:

2.4 GHz

802.11b:

- 90 dBm @ 1 Mbps
- 88 dBm @ 2 Mbps
- 86 dBm @ 5.5 Mbps
- 84 dBm @ 11 Mbps

802.11g:

- 85 dBm @ 6 Mbps
- 84 dBm @ 9 Mbps
- 83 dBm @ 12 Mbps
- 82 dBm @ 18 Mbps
- 80 dBm @ 24 Mbps
- 76 dBm @ 36 Mbps
- 70 dBm @ 48 Mbps
- 70 dBm @ 54 Mbps

802.11n:

- 70 dBm @ MCS7 20 MHz
- 68 dBm @ MCS15 20 MHz
- 65 dBm @ MCS7 40 MHz
- 63 dBm @ MCS15 40 MHz

5 GHz

802.11a:

- 92 dBm @ 6 Mbps
- 89 dBm @ 9 Mbps
- 85 dBm @ 12 Mbps
- 82 dBm @ 18 Mbps
- 80 dBm @ 24 Mbps
- 76 dBm @ 36 Mbps
- 74 dBm @ 48 Mbps
- 72 dBm @ 54 Mbps

802.11n:

- 70 dBm @ MCS7 20 MHz
- 67 dBm @ MCS15 20 MHz
- 68 dBm @ MCS7 40 MHz
- 66 dBm @ MCS15 40 MHz

LAN Interface

Standards:

- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseTX
- IEEE 802.3ab for 1000BaseT

Number of Ports: 4

Speed: 10/100/1000 Mbps auto negotiation speed, F/H duplex mode and auto MDI/MDI-X connection (RJ45-type)

Interface

Cellular Antenna Connectors: 1 SMA (female) for WCDMA

Wireless Antenna Connectors: 2 RP-SMA (female)

GNSS: 1 SMA (female), GPS (1575.42 MHz), GLONASS (1602 MHz)

Console Port: 1, RS-232 (RJ45)

LED Indicators: PWR1, PWR2, STATUS, FAULT, CELLULAR SIGNAL, WIFI SIGNAL, WLAN, SIM1, SIM2, 2G, 3G, GPS

Ground Screw: M5

Reset Button: Power Reset/Factory Default Reset

I/O Interface

Alarm Contact: 1 relay output with current carrying capacity of 1 A @ 24 VDC

Digital Inputs: 2 electrically isolated inputs

- +13 to +30 V for state “1”
- +3 to -30 V for state “0”

Software

Network Protocols: ICMP, DDNS, TCP/IP, UDP, DHCP, Telnet, DNS, SNMP, HTTP, HTTPS, SMTP, SNTP, ARP

Routing/Firewall: NAT, port forwarding, IP/MAC/Port filtering

VPN:

- Max. Tunnel Number: 5 (Responder/Initiator)
- IPSec (DES, 3DES, AES, MD5, SHA-1, DH2, DH5), PSK/X.509/RSA

Cellular Connectivity: GuaranLink

GPS: NMEA

Management Software

Utilities: Wireless Search Utility

Configuration and Management Options: SNMP v1/v2c/v3, Web/Telnet/Serial Console, SSH, Remote SMS Control, Auto IP Report

Private IP Solution: OnCell Central Manager

SIM Interface

Number of SIMs: 2

SIM Control: 3 V

Physical Characteristics

Housing: Aluminum, providing IP30 protection

Weight: 1280 g (2.82 lb)

Dimensions: 66.3 X 124 X 90 mm (2.61 x 4.88 x 3.54 in)

Environmental Limits

Operating Temperature:

Standard Models: 0 to 55°C (0 to 131°F)

Wide Temp. Models: -30 to 70°C (-22 to 158°F)

Storage Temperature: -40 to 85°C (-40 to 185°F)

Ambient Relative Humidity: 5 to 95% (non-condensing)

Power Requirements

Number of Power Inputs: 2 (terminal block), redundant dual inputs

Input Voltage: 12 to 48 VDC

Input Current: 0.7 A @ 12 VDC; 0.2 A @ 48 VDC

Reverse Polarity Protection: Present

Standards and Certifications

Safety: EN 60950-1, UL 60950-1

EMC: EN 61000-6-2/6-4

EMI: CISPR 22, FCC Part 15B Class A

EMS:

IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m

IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV

IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV

IEC 61000-4-6 CS: 10 V

IEC 61000-4-8

Radio: EN 301 489-1, EN 301 489-7, EN 301 511, EN 301 908, EN 300 328, EN 301 893, FCC ID SLE-WAPN005

MTBF (mean time between failures)

Time: 382,851 hrs

Standard: Telcordia SR332

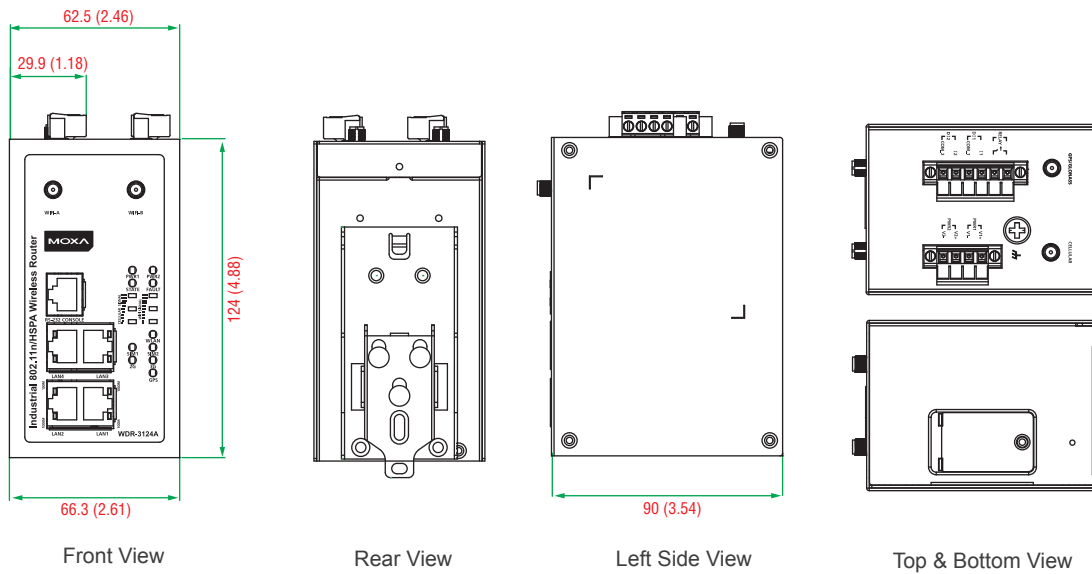
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



Ordering Information

Available Models

WDR-3124A-US: Industrial 802.11n/HSPA wireless router, WiFi US band, 0 to 55°C operating temperature

WDR-3124A-US-T: Industrial 802.11n/HSPA wireless router, WiFi US band, -30 to 70°C operating temperature

WDR-3124A-EU: Industrial 802.11n/HSPA wireless router, WiFi EU band, 0 to 55°C operating temperature

WDR-3124A-EU-T: Industrial 802.11n/HSPA wireless router, WiFi EU band, -30 to 70°C operating temperature

Note: Visit Moxa's website for a complete list of optional wireless accessories and antennas available for Moxa's wireless products.

Package Checklist

- WDR-3124A wireless router
- 2 2.4/5 GHz antennas: ANT-WDB-ARM-02
- 1 UMTS/HSPA antenna: ANT-WCDMA-ASM-1.5
- 5 plastic RJ45 protective caps for serial console and Ethernet ports
- DIN-rail kit
- Quick installation guide (printed)
- Warranty card