

# WDR-3124A Series

## Industrial 802.11n/HSPA wireless router



- > Universal GSM/GPRS/HSPA 2G/3G cellular communication
- > 2.4/5 GHz 300 Mbps WiFi communication
- > Built-in high speed 4-port 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 3G 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:**

- Downlink: Up to 14.4 Mbps
- Uplink: Up to 5.76 Mbps (Category 6, 7)

**GPRS Data Rate:** Downlink/Uplink: 236 kbps (Class 12)

#### 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 (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

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:

- MCS0, 8 @ 20MHz: Typ. 19 dBm (± 1.5 dBm)
- MCS0, 8 @ 40 MHz: Typ. 18 dBm (± 1.5 dBm)
- MCS7, 15 @ 20 MHz: Typ. 14 dBm (± 1.5 dBm)
- MCS7, 15 @ 40 MHz: Typ. 14 dBm (± 1.5 dBm)

**RX Sensitivity:**

2.4 GHz

802.11b:

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

802.11g:

- 87 dBm @ 6 Mbps
- 86 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:

- 69 dBm @ MCS15 20MHz
- 71 dBm @ MCS7 20MHz

5 GHz

802.11a:

- 87 dBm @ 6 Mbps
- 86 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:

- 69 dBm @ MCS15 20MHz
- 68 dBm @ MCS15 40MHz
- 71 dBm @ MCS7 20MHz
- 70 dBm @ MCS7 40MHz

**LAN Interface**

**Standards:**

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

**Speed:** 10/100/1000 Mbps, Auto MDI/MDIX

**Interface**

**Cellular Antenna Connector:** 1 SMA (female) for WCDMA

**Wireless Antenna Connectors:** 2 RP-SMA (female)

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

**Ethernet:** 4, 10/100/1000Mbps auto negotiation speed, F/H duplex mode and auto MDI/MDI-X connection (RJ45-type)

**Serial Console Port:** 1, RS-232 (RJ45)

**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"

**Power Input:** Dual input, 12-48VDC

**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

**Software**

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

**GPS:** NMEA

**Others:** DDNS

**Management Software (Moxa Proprietary)**

**GuaranLink:** 4-tier heart-beat for reliable and persistent cellular connectivity

**OnCell Central Management:** Large scale centralized device management over private cellular IPs

**Search Utility:** Simple device configuration and management

**SIM Interface**

**Number of SIMs:** 2

**SIM Control:** 3 V

**Physical Characteristics**

**Housing:** Aluminum, providing IP30 protection

**Weight:** 1280 g

**Installation:** DIN-rail (default) or wall-mount (optional)

**Dimensions:** 67 x 90.5 x 124 mm (2.6 x 3.52 x 4.83 inch)

**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% (30°C, non-condensing)

**Power Requirements**

**Input Voltage:** 12 to 48 VDC, redundant dual inputs

**Connector:** 4-pin removable terminal block

**Power Consumption:** 9.6W (12V/0.7A to 48V/0.2A)

**Reverse Polarity Protection:** Present

**Standards and Certifications**

**Safety:** EN 60950-1, UL 60950-1

**EMC:**

FCC Part 15 Subpart B

EN 61000-6-2/-4

**Radio:**

EN 301 489-1, EN 301 489-7, EN 301 511, EN 301 908, EN 300 328,

EN 301 893

**Reliability**

**MTBF (mean time between failures):** 382,851 hours

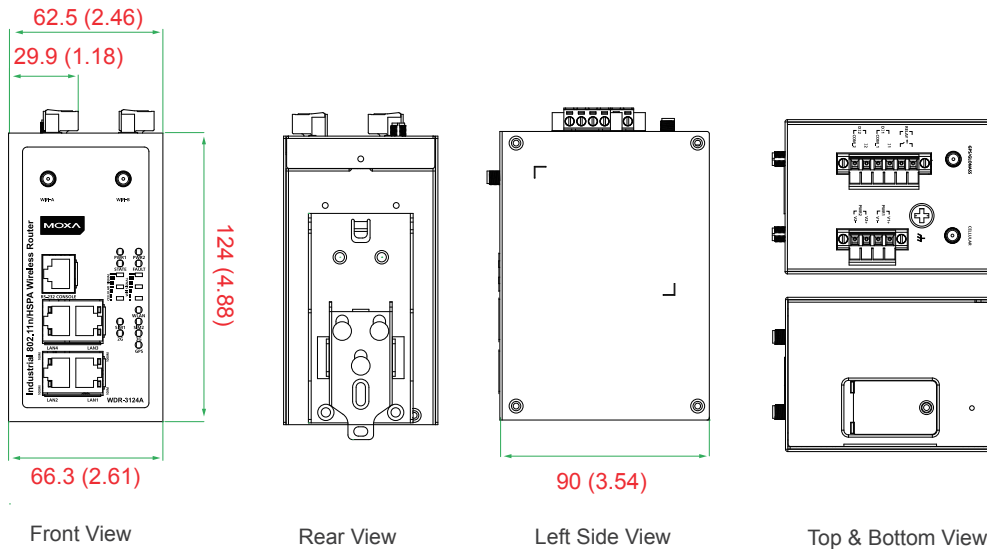
**Warranty**

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://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 dual-band omni-directional antennas, 2 dBi, RP-SMA (male)
- 1 2G/3G omni-directional antenna, 2 dBi, SMA (male)
- 5 plastic RJ45 protective caps for serial console and Ethernet ports
- Quick installation guide (printed)
- Warranty card