AWK-6222 Series

Industrial IEEE 802.11a/b/g IP68 dual-RF wireless AP/bridge/client

- IEEE 802.11a/b/g compliant
- Dual-RF design: 2.4 GHz and/or 5 GHz RF bands
- Supports 100 ms redundant roaming
- Compliant with essential sections of EN 50155
- Rugged IP68-rated housing and -40 to 75°C operating temperature

Dual RF

Turbo Roaming

EN 50155 EN 50121 cULus LISTED CE FC

Introduction

The AWK-6222 outdoor wireless AP/bridge/client avoids interruptions in WLAN transmissions with its dual 2.4/5 GHz RF modules, which allow two independent wireless connections over different frequencies. To maximize wireless and wired network availability, the AWK-6222 can incorporate Ethernet redundancy using RSTP, and power redundancy using dual DC power inputs and PoE. In addition, the AWK-6222 is housed in an IP68 metal casing with M12 connectors for total protection against dust, water, vibration, and other environmental effects. This rugged unit supports seamless roaming to achieve ultra-reliable and redundant wireless networks under challenging outdoor, mobile conditions. These industrially hardened features let you set up a rock-solid WLAN to ensure that your entire network will always be in service.

The AWK-6222 is compliant with the essential sections of EN 50155, covering operating temperature, power input voltage, surge, ESD and vibration.

Redundancy to Increase System Reliability

- PoE and dual DC power inputs
- Dual RF design with 2.4 and/or 5 GHz dual-band operation for redundant WLAN connections
- Redundant roaming for fast and stable handoff
- Ethernet redundancy via RSTP

Industrial and Outdoor Rated Features for Critical Environments

- IP68-rated metal housing and -40 to 75°C wide operating temperature
- Long-distance wireless transmission over 10 km
- Anti-vibration M12 design and waterproof/dust-tight RJ45 connectors
- Wall, DIN-Rail, and pole mounting options for versatile outdoor installation

Specifications

WLAN Interface

Standards:
IEEE 802.11a/b/g for Wireless LAN
IEEE 802.11i for Wireless Security
IEEE 802.3 for 10BaseT(X)
IEEE 802.3u for 100BaseT(X)
IEEE 802.3af for Power-over-Ethernet
IEEE 802.1D for Spanning Tree Protocol
IEEE 802.1w for Rapid STP
IEEE 802.1Q for VLAN
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 @ 11 Mbps
• 802.11a/g: 64QAM @ 54/48 Mbps, 16QAM @ 36/24 Mbps, QPSK @ 18/12 Mbps, BPSK @ 9/6 Mbps
Operating Channels (central frequency):
US:
2.412 to 2.462 GHz (11 channels)
5.18 to 5.24 GHz (4 channels)
EU:
2.412 to 2.472 GHz (13 channels)
5.18 to 5.24 GHz (4 channels)
JP:
2.412 to 2.472 GHz (13 channels, OFDM)
2.412 to 2.484 GHz (14 channels, DSSS)
5.18 to 5.24 GHz (4 channels for W52)
Security:
• SSID broadcast enable/disable
• Firewall for MAC/IP/Protocol/Port-based filtering
• 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
TX Transmit Power:
802.11b:
Typ. 23±1.5 dBm @ 1 to 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
802.11a:
Typ. 18±1.5 dBm @ 6 to 24 Mbps, Typ. 16±1.5 dBm @ 36 to 48 Mbps, Typ. 15±1.5 dBm @ 54 Mbps
RX Sensitivity:
802.11b:
-97 dBm @ 1 Mbps, -94 dBm @ 2 Mbps, -92 dBm @ 5.5 Mbps, -90 dBm @ 11 Mbps
802.11g:
-93 dBm @ 6 Mbps, -91 dBm @ 9 Mbps, -90 dBm @ 12 Mbps, -88 dBm @ 18 Mbps, -84 dBm @ 24 Mbps, -80 dBm @ 36 Mbps, -76 dBm @ 48 Mbps, -74 dBm @ 54 Mbps
802.11a:
-90 dBm @ 6 Mbps, -89 dBm @ 9 Mbps, -89 dBm @ 12 Mbps, -85 dBm @ 18 Mbps, -83 dBm @ 24 Mbps, -79 dBm @ 36 Mbps, -75 dBm @ 48 Mbps, -74 dBm @ 54 Mbps

Protocol Support

General Protocols: Proxy ARP, DNS, HTTP, HTTPS, IP, ICMP, SNTP, TCP, UDP, RADIUS, SNMP, PPPoE, DHCP
AP-only Protocols: ARP, BOOTP, DHCP, STP/RSTP (IEEE 802.1D/w)

Interface

Default Antennas: 2 dual-band omni-directional antennas, 5 dBi at 2.4 GHz, 2 dBi at 5 GHz, N-type (male)
RJ45 Ports: 2, 10/100BaseT(X), auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection
Connector for External Antennas: N-type (female)
Console Port: RS-232 (waterproof RJ45-type)
LED Indicators: PWR, FAULT, STATE, WLAN1, WLAN2, LAN1, LAN2
Alarm Contact (digital output, M12 female connector): 1 relay output with current carrying capacity of 1 A @ 24 VDC
Digital Inputs (M12 female connector): 2 electrically isolated inputs
- +13 to +30 V for state “1”
- +3 to -30 V for state “0”
- Max. input current: 8 mA

Physical Characteristics

Housing: Metal, IP68 protection
Weight: 1.8 kg
Dimensions: 224 x 147.7 x 64.5 mm (8.82 x 5.82 x 2.54 in)
Installation: Wall mounting (standard), DIN-Rail mounting (optional), pole mounting (optional)

Environmental Limits

Operating Temperature: -40 to 75°C (-40 to 167°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5% to 100% (non-condensing)

Power Requirements

Input Voltage: 12 to 48 VDC, redundant dual DC power inputs or 48 VDC Power-over-Ethernet (IEEE 802.3af compliant)
*Compliant with EN 50155 on 24 VDC
Connector: M12 male connector with A-coding
Power Consumption:
- 12 to 48 VDC, 800 mA (max.)
- 12 to 48 VDC, 1.066 to 0.312 A

Reverse Polarity Protection: Present

Standards and Certifications

Safety: UL 60950-1, EN 60950-1
Hazardous Location: UL/cUL Class I Division 2, ATEX Zone 2 (Pending)
EMC: EN 301 489-1/17, FCC Part 15 Subpart B, EN 55022/55024
Radio: EN 300 328, EN 301 893, DSPR (Japan)
Rail Traffic: EN 50155, EN 50121-1/4
Note: Please check Moxa’s website for the most up-to-date certification status.

Reliability

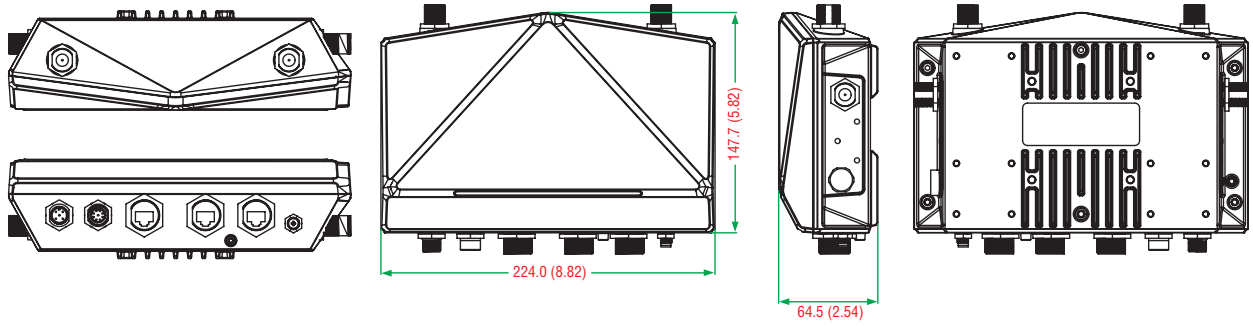
MTBF (mean time between failures): 284,072 hrs

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



Top & Bottom Views | Front View | Side View | Rear View

Ordering Information

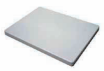
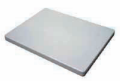
Available Models

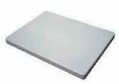
AWK-6222-US-T: IEEE 802.11a/b/g IP68 dual-RF wireless AP/bridge/client, US band, -40 to 75°C operating temperature
AWK-6222-EU-T: IEEE 802.11a/b/g IP68 dual-RF wireless AP/bridge/client, EU band, -40 to 75°C operating temperature
AWK-6222-JP-T: IEEE 802.11a/b/g IP68 dual-RF wireless AP/bridge/client, JP band, -40 to 75°C operating temperature
Note: Please visit Moxa’s website for a complete list of optional wireless accessories and antennas available for Moxa’s wireless products.

Package Checklist

- AWK-6222 wireless AP/bridge/client
- 2 dual-band omni-directional antennas (5/2 dBi, N-type male, 2.4/5 GHz)
- Wall mounting kit (includes 2 supports)
- Field-installable power plug
- Field-installable RJ45 plug
- Metal cap to cover M12-female DI/O connector
- 2 metal caps to cover RJ45 connectors
- 2 metal caps to cover N-type connectors
- Transparent plastic sticks for field-installable plugs
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card

Wireless Antenna Selection Guide

	IEEE 802.11b/g 2.4 GHz Wireless Antennas				IEEE 802.11a 5 GHz Wireless Antennas	
						
	ANT-WSB-AHRM-05-1.5m	**ANT-WSB-ANF-09**	**ANT-WSB-PNF-12**	**ANT-WSB-PNF-18**	**ANT-WSB5-ANF-12**	**ANT-WSB5-PNF-18**
Frequency Range	2.4 to 2.5 GHz				5.1 to 5.9 GHz	
Antenna Type	λ/4 Dipole	Omni-directional	Directional, Panel	Directional, Panel	Omni-directional	Directional, Panel
Typical Antenna Gain	5 dBi	9 dBi	12 dBi	18 dBi	12 dBi	18 dBi
Description	2.4 GHz, omni-directional/ dipole antenna, 5 dBi	2.4GHz, omni-directional antenna, 9 dBi, N-type (female)	2.4 GHz, panel antenna, 12 dBi, N-type (female)	2.4 GHz, panel antenna, 18 dBi, N-type (female)	5 GHz, omni-directional antenna, 12 dBi, N-type (female)	5 GHz, panel antenna, 18 dBi, N-type (female)
Impedance	50 ± 5 ohms	50 ± 5 ohms	50 ± 5 ohms	50 ± 5 ohms	50 ± 5 ohms	50 ± 5 ohms
Polarization	Vertical	Linear	Linear	Linear	Linear	Linear
HPBW/Horizontal	360°	360°	50°	30°	360°	10°
HPBW/Vertical	–	10°	30°	20°	6°	10°
V.S.W.R.	2.0	1 : 1.3 Max.	1 : 1.5 Max.	1 : 1.5 Max.	1 : 1.3 Max.	1 : 1.5 Max.
Power Handling	–	15 W Max.	10 W Max.	15 W Max.	10 W Max.	10 W Max.
Connector(s)	RP-SMA (male)	N-type (female)	N-type (female)	N-type (female)	N-type (female)	N-type (female)
Operating Temperature	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
IP rating	–	IP65	IP65	IP65	IP65	IP65
Antenna Profile	–	420 mm length	215 x 90 x 30 mm	270 x 205 x 15 mm	420 mm length	270 x 205 x 15 mm
Weight	300 g	430 g	560 g	310 g	430 g	990 g
Related Products	AWK-1121/1127, AWK-3121, AWK-3121-SSC, AWK-3131, AWK-5222, AWK-5232, NPort W2150/2250 Plus, NPort W2004	AWK-1121/1127, AWK-3121, AWK-3131, AWK-4121, AWK-4131, AWK-5222, AWK-5232, AWK-6222, AWK-6232, NPort W2150/2250 Plus, NPort W2004				

	IEEE 802.11a/b/g 2.4/5 GHz Dual-band Antennas					
						
	ANT-WDB-ANM-0502	**ANT-WDB-ANM-0407**	**ANT-WDB-ANF-0407**	**ANT-WDB-ANM-0609**	**ANT-WDB-ANF-0609**	**ANT-WDB-PNF-1518**
Frequency Range	2.4 to 2.5 / 5.1 to 5.9 GHz					
Antenna Type	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Omni-directional	Directional, Panel
Typical Antenna Gain	2/5 dBi	4/7 dBi	4/7 dBi	6/9 dBi	6/9 dBi	15/18 dBi
Description	2.4/5 GHz, dual-band omni-directional antenna, 2/5 dBi, N-type (male)	2.4/5 GHz, dual-band omni-directional antenna, 4/7 dBi, N-type (male)	2.4/5 GHz, dual-band omni-directional antenna, 4/7 dBi, N-type (female)	2.4/5 GHz, dual-band omni-directional antenna, 6/9 dBi, N-type (male)	2.4/5 GHz, dual-band omni-directional antenna, 6/9 dBi, N-type (female)	2.4/5 GHz, dual-band panel antenna, 15/18 dBi, N-type (female)
Impedance	50 ± 5 ohms	50 ± 5 ohms	50 ± 5 ohms	50 ± 5 ohms	50 ± 5 ohms	50 ± 5 ohms
Polarization	Linear	Linear	Linear	Linear	Linear	Linear
HPBW/Horizontal	360°	360°	360°	360°	360°	50/10°
HPBW/Vertical	65°	10/8°	10/8°	10/8°	10/8°	30/10°
V.S.W.R.	1 : 2.0 Max.	1 : 1.5 Max.	1 : 1.5 Max.	1 : 1.5 Max.	1 : 1.5 Max.	1 : 1.5 Max.
Power Handling	2 W Max.	10 W Max.	10 W Max.	10 W Max.	10 W Max.	20 W Max.
Connector(s)	N-type (male)	N-type (male)	N-type (female)	N-type (male)	N-type (female)	N-type (female)
Operating Temperature	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C	-40 to 80°C
IP rating	IP67	IP65	IP65	IP65	IP65	IP65
Antenna Profile	220 mm length	220 mm length	260 mm length	632 mm length	660 mm length	270 x 205 x 15 mm
Weight	72 g	115g	155 g	238 g	286 g	1020±10 g
Related Products	AWK-4121, AWK-4131, AWK-6222, AWK-6232		AWK-1121/1127, AWK-3121, AWK-3131, AWK-4121, AWK-4131, AWK-5222, AWK-5232, AWK-6222, AWK-6232, NPort W2150/2250 Plus, NPort W2004	AWK-4121, AWK-4131, AWK-6222, AWK-6232	AWK-1121/1127, AWK-3121, AWK-3131, AWK-4121, AWK-4131, AWK-5222, AWK-5232, AWK-6222, AWK-6232, NPort W2150/2250 Plus, NPort W2004	

Wireless Accessories Selection Guide

Cables

	CRF-N0117SA-3M	CRF-N0429N-3M	A-CRF-NMNM-LL4-300	A-CRF-NMNM-LL4-600	A-CRF-NMNM-LL4-900	A-CRF-RMNM-L1-300	A-CRF-RMNM-L1-600	A-CRF-RMNM-L1-900	A-CRF-RFRM-S1-060	A-CRF-QMAMNM-R2-50	A-CRF-RFQMAM-R2-50
	CFD200 cable, N-type (male) to RP SMA (male), 3 m	CFD400 cable, N-type (male) to N-type (male), 3 m	LMR-400 Lite cable, N-type (male) to N-type (male), 3 m	LMR-400 LITE cable, N-type (male) to N-type (male), 6 m	LMR-400 LITE cable, N-type (male) to N-type (male), 9 m	LMR-195 Lite cable, N-type (male) to RP SMA (male), 3 m	LMR-195 Lite cable, N-type (male) to RP SMA (male), 6 m	LMR-195 Lite cable, N-type (male) to RP SMA (male), 9 m	S141 cable, RP-SMA (male) to RP-SMA (female), 0.6 m	RG316 cable, QMA (male) to N-type (male)	RG316 cable, QMA (male) to RP-SMA (female)
Cable Type	CFD200	CFD400	LMR-400Lite	LMR-400 Lite	LMR-400 Lite	LMR-195 Lite	LMR-195 Lite	LMR-195 Lite	S141	RG316	RG316
Connector Type	N-type male to RP SMA male	N-type male to N-type male	N-type male to N-type male	N-type male to N-type male	N-type male to N-type male	N-type male to RP SMA male	N-type male to RP SMA male	N-type male to RP SMA male	RP-SMA male to RP-SMA female	QMA male to N-type male	QMA male to RP-SMA female
Cable Length	3 m	3 m	3 m	6 m	9 m	3 m	6 m	9 m	0.6 m	0.5 m	0.5 m
Outer Dimension	5 mm	10.3 mm	10.29 mm	10.29 mm	10.29 mm	4.95 mm	4.95 mm	4.95 mm	5 mm	2.54 mm	2.54 mm
Min. Bend Radius	12.7 mm	24.5 mm	25.4 mm	25.4 mm	25.4 mm	12.7 mm	12.7 mm	12.7 mm	12.7 mm	15 mm	15 mm
	55.4@2.5 GHz 86.5@5.8 GHz	22.2@2.5 GHz 35.5@5.8 GHz		22.2@2.5 GHz 35.5@5.8 GHz	22.2@2.5 GHz 35.5@5.8 GHz	62.4@2.5 GHz 98.1@5.8 GHz	62.4@2.5 GHz 98.1@5.8 GHz	62.4@2.5 GHz 98.1@5.8 GHz	75.4@3 GHz 98.4@5 GHz	206@2.4 GHz 345@6 GHz	206@2.4 GHz 345@6 GHz
Related Products	AWK-	AWK-4121, AWK-4131, AWK-6222, AWK-6232-M12				AWK-1121/1127, AWK-3121, AWK-3121-SSC, AWK-3131, AWK-5222, AWK-5232				AWK-3121-M12, AWK-3131-M12, AWK-5222-M12, AWK-5232-M12	

Termination Resistors

	A-TRM-50-NM	A-TRM-50-RM
Description	Termination resistor, 50 ohms, N-type (male)	Termination resistor, 50 ohms, RP-SMA (male)
Related Products	AWK-4121, AWK-4131, AWK-6222, AWK-6232	AWK-1121/1127, AWK-3121, AWK-3121-SSC, AWK-3131, AWK-5222, AWK-5232

Power Amplifiers

	A-WPA-2410gM-IDU	A-WPA-5410aM-IDU
Description	Wireless power amplifier	Wireless power amplifier
Signal Type	2.4 GHz band antenna (included)	5 GHz band antenna (included)
Connector Type	RP-SMA connector	RP-SMA connector
Power Output	1 W	1 W
Power Consumption	12 VDC	12 VDC
Power Cable	Power plug to power jack cable (included)	Power plug to power jack cable (included)
Dimensions	92 x 60 x 31 mm	92 x 60 x 31 mm
Related Accessories	• N-type male to RP-SMA male cable • RP-SMA male to RP-SMA female cable	• N-type male to RP-SMA male cable • RP-SMA male to RP-SMA female cable
Related Products	AWK-1121/1127, AWK-3121, AWK-3121-SSC, AWK-3131, AWK-5222, AWK-5232	AWK-1121/1127, AWK-3121, AWK-3121-SSC, AWK-3131, AWK-5222, AWK-5232

Arrestors

	A-SA-NMNF-01
Frequency	0-6 GHz
Connector Type	N-type female to N-type male
Related Products	AWK-1121/1127, AWK-3121, AWK-3131, AWK-4121, AWK-4131, AWK-5222, AWK-6222

Adaptors

	A-ADP-RJ458P-DB9F-ABC01	A-ADP-QMAM-RF
Description	RJ45-to-DB9 adaptor for the ABC-01	QMA(male) to RP-SMA (female) adaptor for antenna
Related Products	All AWK series	AWK-3121-M12, AWK-3131-M12, AWK-5222-M12, AWK-5232-M12

Note: The actual product may vary in physical appearance, but the functionality will be the same.