Manuals+ — User Manuals Simplified.

MOXA AWK-1151C Series Industrial Grade Wi-Fi Access Point Installation Guide

Contents

MOXA AWK-1151C Series Industrial Grade Wi-Fi Access Point

Specifications

- **Model:** AWK-1151C
- **Technical** Support Contact Information: **www.moxa.com/support**
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Overview
The AWK-1151C is a device that requires proper hardware setup and wiring before use. It comes with various mounting options for flexibility in installation.

Hardware Setup

Package Checklist
Ensure that you have received the following items:

- AWK-1151C device
- Optional Mounting Accessories (Sold Separately)

Panel Layout of the AWK-1151C
The AWK-1151C has the following components:

1. Grounding screw (M5)
2. Reset button
3. Antenna connector 1
4. Antenna connector 2
5. System LEDs: PWR, WLAN, SYSTEM
6. USB host (type A for ABC-02)
7. Console port (RS-232, RJ45)
8. LAN port (10/100/1000BaseT(X), RJ45)
9. Terminal blocks for PWR (V+, V-, Functional Ground)
10. Model name
11. Screw holes for wall-mounting kit
12. DIN-rail mounting kit (screw size M3x4 mm)

Mounting Instructions

DIN-rail Mounting
To mount the AWK-1151C on a DIN rail:

1. **STEP** 1: Insert the upper lip of the DIN-rail kit into the mounting rail.
2. **STEP** 2: Press the AWK-1151C towards the mounting rail until it snaps into place.

To remove the AWK-1151C from the DIN rail:

1. **STEP 1:** Pull down the latch on the DIN-rail kit with a screwdriver.
2. **STEP 2 & 3:** Slightly pull the AWK-1151C forward and lift it up to remove it from the mounting rail.

Wall Mounting (Optional)

If you prefer wall mounting, follow these steps:

1. **STEP 1:** Remove the aluminum DIN-rail attachment plate from the AWK-1151C.
2. **STEP 2:** Attach the wall-mounting plates with M3 screws.
3. **STEP 3:** Fix the wall-mounting plates to the wall using appropriate screws.
4. **STEP 4:** Insert the screw heads through the large opening of the keyhole-shaped apertures.
5. **STEP 5:** Slide the AWK-1151C downwards and tighten the screws for added stability.

Wiring Requirements

WARNING: Safety First! Be sure to disconnect the power cord before installing and/or wiring your AWK-1151C. Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes that dictate the maximum current allowed for each wire size. If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

Read and Follow These Guidelines:

- **NOTE:** Do not run signal or communications wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.
- **NOTE:** If using a Class I adapter, the power cord must be connected to a socket-outlet with an earthing connection.
- **ATTENTION:** Make sure the external power adapter (includes power cords and plug assemblies) provided with the unit is certified and suitable for use in your country or region.

Grounding the AWK-1151C

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.

FAQ (Frequently Asked Questions)

1. **Q: What is included in the package?**

   A: The package includes the AWK-1151C device and optional mounting accessories (sold separately).
2. **Q: How do I mount the AWK-1151C on a DIN rail?**

   A: To mount the AWK-1151C on a DIN rail, insert the upper lip of the DIN-rail kit into the mounting rail and press the device towards the rail until it snaps into place. To remove it, pull down the latch on the DIN-rail kit and slightly pull the device forward and lift it up.
3. **Q: Can I wall mount the AWK-1151C?**

   A: Yes, you can wall mount the AWK-1151C. Remove the aluminum DIN-rail attachment plate, attach the wall-mounting plates with M3 screws, fix them to the wall, insert the screw heads through the keyhole-shaped apertures, and slide the device downwards.
4. **Q: What are the wiring requirements for the AWK-1151C?**

   A: Ensure safety by disconnecting the power cord before wiring. Do not run signal or communications wiring and power wiring in the same conduit. Use separate conduits for wires with different signal characteristics. If using a Class I adapter, connect the power cord to an earthed socket-outlet. Verify that the external power adapter is certified and suitable for your country or region.

AWK-1151C Series

Quick Installation Guide
Moxa AirWorks

Overview

- The AWK-1151C Series is an industrial-grade Wi-Fi access point with IEEE 802.11ac Wave 2 technology. This Series features dual-band Wi-Fi data transmissions up to 400 Mbps (2.4 GHz mode) or 867 Mbps (5 GHz mode), meeting the speed and flexibility requirements for industrial applications. In addition, the built-in dual band pass filter and the wide-temperature design ensure the reliability and continuous operation in harsh environments. Meanwhile, backwards compatibility with 802.11a/b/g/n makes the AWK-1151C the ideal solution for constructing a versatile wireless data transmission system.
- This product can be deployed on vehicles as the control unit's wireless interface that collects data from different I/O devices and transmits the data to vehicle dispatch centers.

Hardware Setup

This section covers the hardware setup for the AWK-1151C.

Package Checklist

Moxa's AWK-1151C is shipped with the following items. If any of these items is missing or damaged, please contact your customer service representative for assistance.

- 1 x AWK-1151C wireless access point
- 2 x 2.4/5 GHz antennas: ANT-WDB-ARM-0202
- DIN-rail kit (pre-installed)
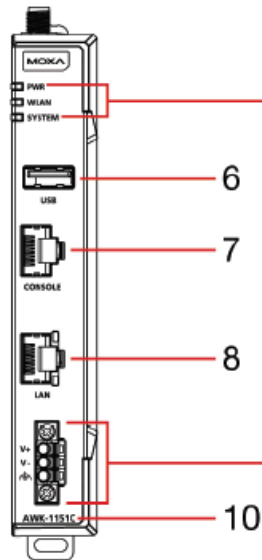- Quick installation guide (printed)
- Warranty card

Optional Mounting Accessories (Sold Separately)

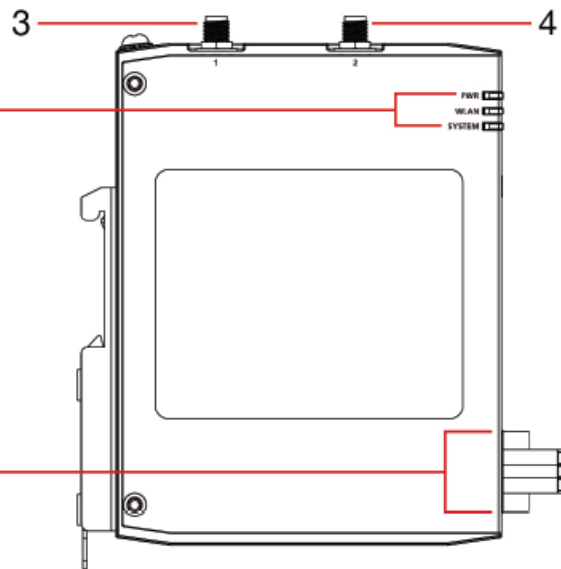Wall-mount kit including 6 screws (M3x6 mm)
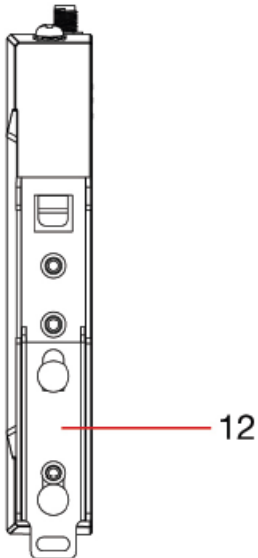
Panel Layout of the AWK-1151C
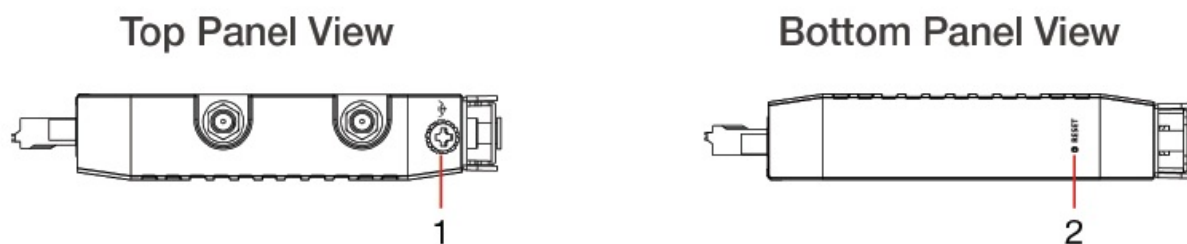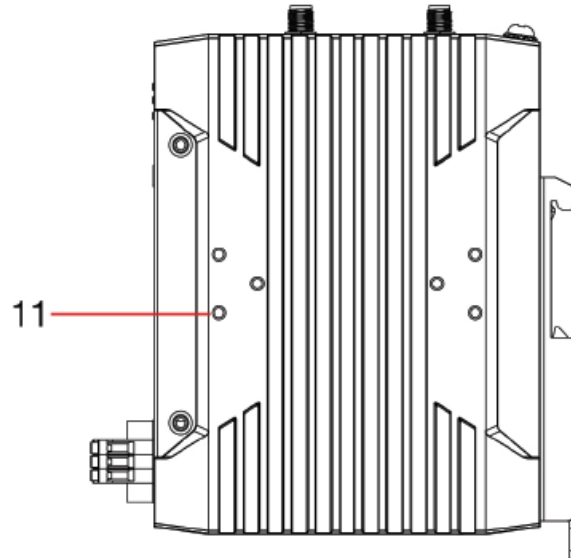
Front Panel View

Side Panel View (Label Side)

Rear Panel View

Side Panel View (Wall mount Side)

1. Grounding screw (M5)
2. Reset button
3. Antenna connector 1
4. Antenna connector 2
5. System LEDs: PWR, WLAN, SYSTEM
6. USB host (type A for ABC-02)
7. Console port (RS-232, RJ45)
8. LAN port (10/100/1000BaseT(X), RJ45)
9. Terminal blocks for PWR (V+, V-, Functional Ground)
10. Model name
11. Screw holes for wall-mounting kit
12. DIN-rail mounting kit (screw size M3x4 mm)

Mounting Dimensions

Unit: mm (inch)

22 (0.87) 100 (3.94) 12 (0.47)

43.4 (1.71) 6 (0.24) 35.2 (1.39) 3 (0.12) 7 (0.28) 130 (5.12) 89 (3.5) 9.8 (0.39)
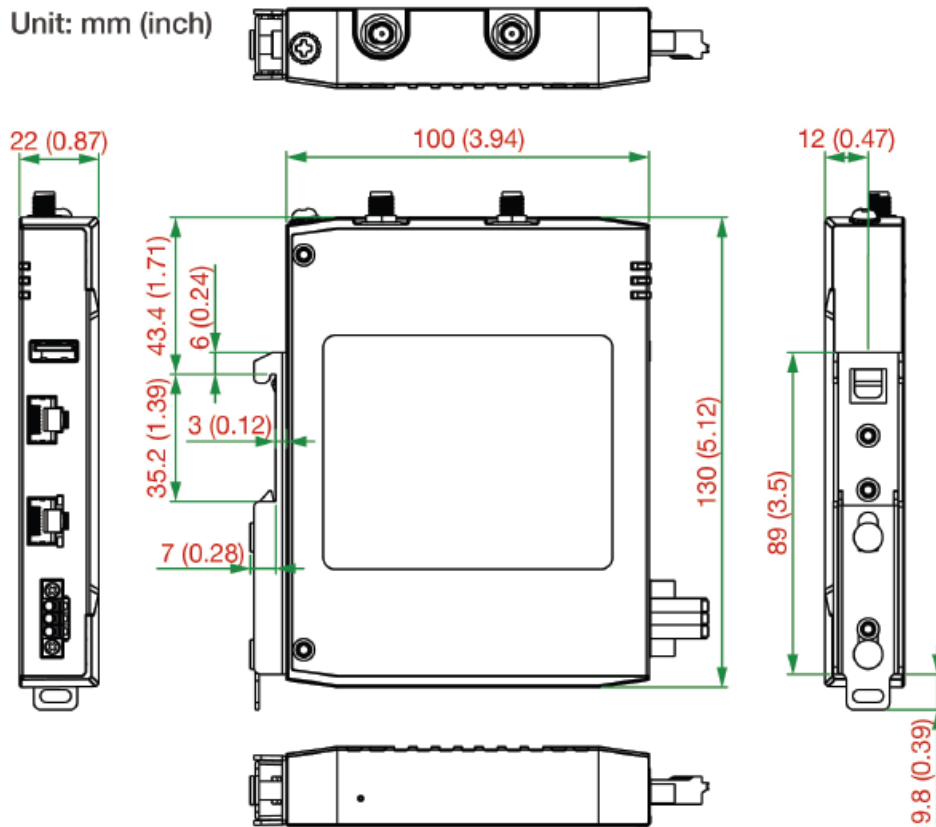
DIN-rail Mounting

When shipped, the metal DIN-rail mounting kit is fixed to the back panel of the AWK-1151C. Mount the AWK-1151C on to a corrosion-free mounting rail that adheres to the EN 60715 standard.

1. **STEP 1:**

   Insert the upper lip of the DIN-rail kit into the mounting rail.

2. **STEP 2:**

   Press the AWK-1151C towards the mounting rail until it snaps into place.

Metal spring

DIN rail

Metal spring
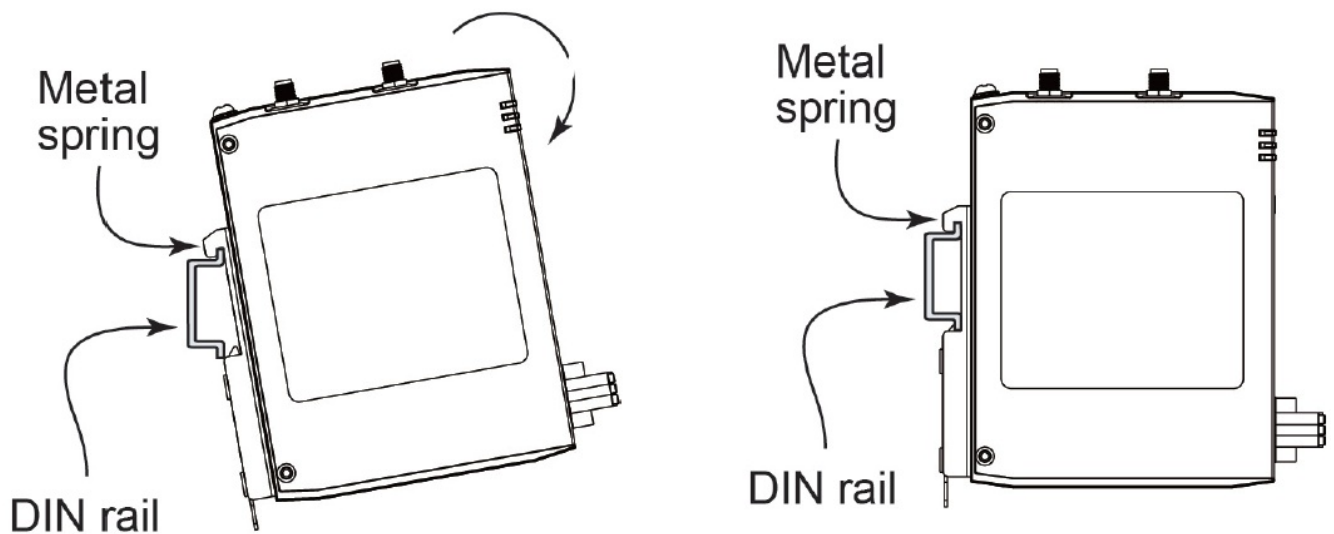
DIN rail

To remove the AWK-1151C from the DIN rail, do the following:

1. **STEP 1:**

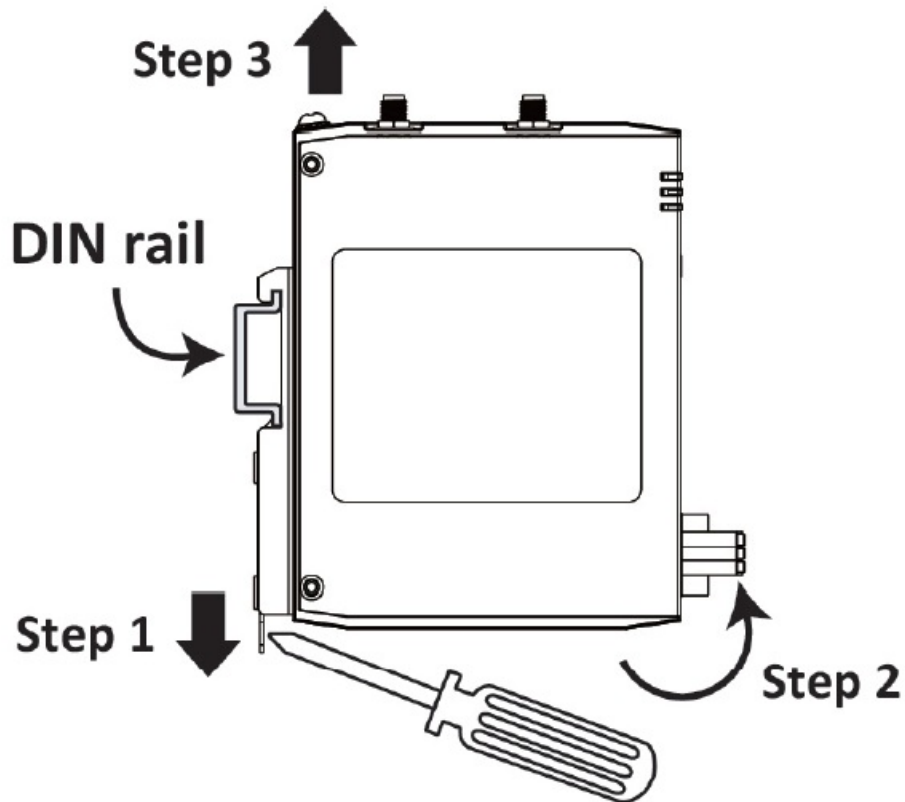   Pull down the latch on the DIN-rail kit with a screwdriver.

2. **STEP 2 & 3:**

   Slightly pull the AWK-1151C forward and lift it up to remove it from the mounting rail.

Wall Mounting (Optional)

For some applications, it may be more convenient to mount the AWK-1151C to a wall, as illustrated below.

1. **STEP 1:**

   Remove the aluminum DIN-rail attachment plate from the AWK-1151C, and then attach the wall-mounting plates with M3 screws, as shown in the adjacent diagrams.
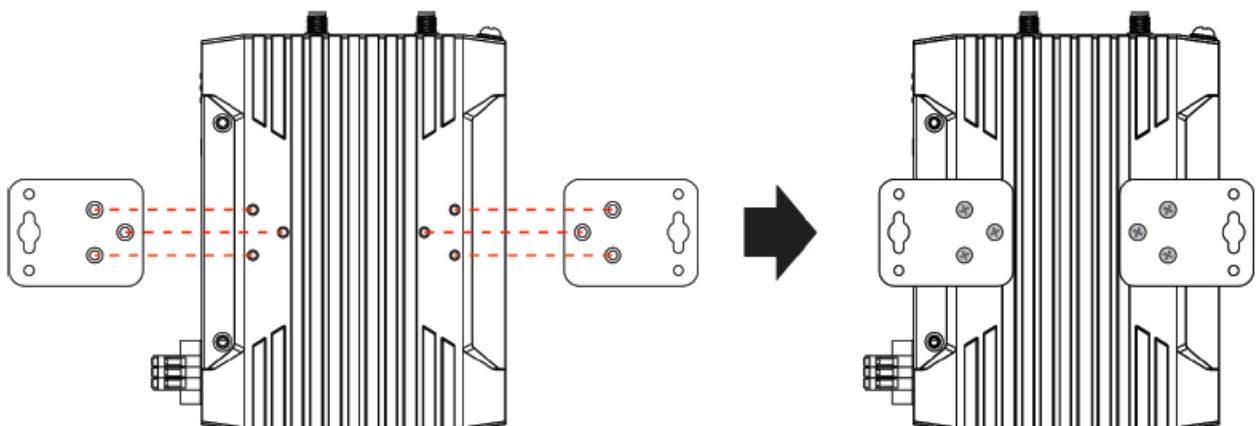
2. **STEP 2:**

   1. Mounting the AWK-1151C to a wall requires 2 screws. Use the AWK-1151C device, with wall-mounting plates attached, as a guide to mark the correct locations of the 2 screws on the wall. The heads of the screws should be less than 6.0 mm in diameter, the shafts should be less than 3.5 mm in diameter, and the screw length should be at least 15 mm, as shown in the figure on the right.
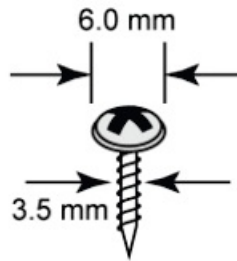
2. Do not drive the screws in all the way—leave a space of about 2 mm to allow room for sliding the wall-mounting panel between the wall and the screws.
3. **NOTE** Test the screw head and shank size by inserting the screws into one of the keyhole shaped apertures of the wall-mounting plates before they are fixed to the wall.

3. **STEP 3:**

Once the screws are fixed into the wall, insert the screw heads through the large opening of the keyhole-shaped apertures, and then slide the AWK-1151C downwards, as indicated to the right. Tighten the screws for added stability.
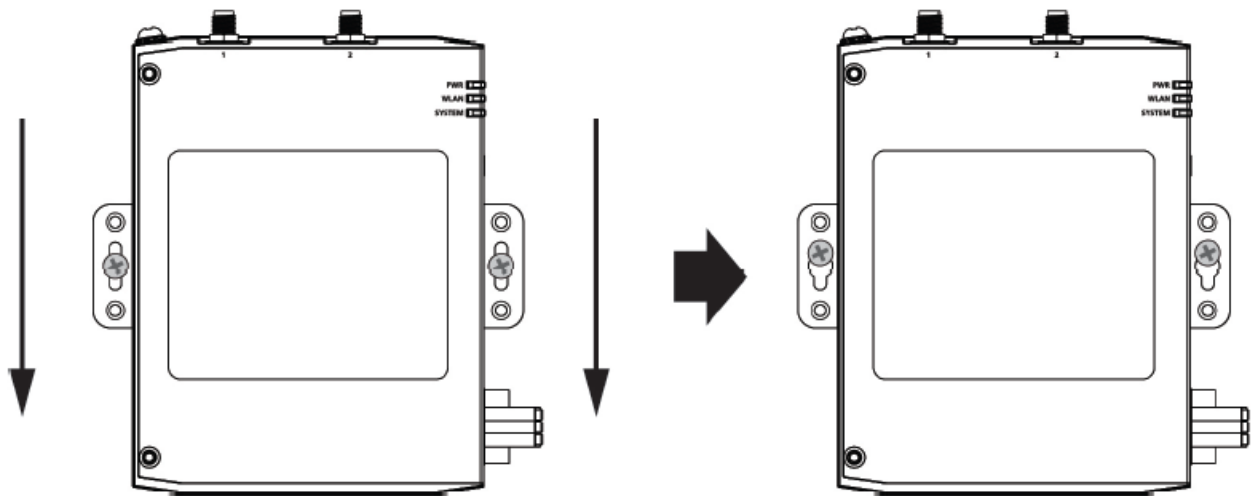
WARNING

- This equipment is intended to be used in a Restricted Access Location, such as an enclosed machine cabinet or chassis where only authorized service personnel or users can gain access. Such personnel must be instructed about the fact that the metal chassis of the equipment can be extremely hot and may cause burns.
- Service personnel or users have to pay special attention and take special precautions before handling this equipment.
- Only authorized, well-trained professionals should be allowed to access the restricted access location. Access should be controlled by the authority responsible for the location with lock and key or a security identity system.
- External metal parts are hot!! Pay special attention or use special protection before handling the equipment.

Wiring Requirements

WARNING
Safety First!

- Be sure to disconnect the power cord before installing and/or wiring your AWK-1151C.
- Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes that dictate the maximum current allowed for each wire size. If the
- current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

Read and Follow These Guidelines:
Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the crossing point.
NOTE Do not run signal or communications wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.

- You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separated.
- For future reference, you should label the wiring used for all of your devices.

NOTE The product is intended to be supplied by a UL Listed Power Unit marked "L.P.S." (or "Limited Power Source") and is rated 9-30 VDC, 1.57-0.47 A min, Tma min. 75°C. If you need further assistance with purchasing the power source, please contact Moxa for further information.
NOTE If using a Class I adapter, the power cord must be connected to a socket-outlet with an earthing connection.

ATTENTION
Make sure the external power adapter (includes power cords and plug assemblies) provided with the unit is certified and suitable for use in your country or region.

Grounding the AWK-1151C
Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.

ATTENTION
This product is intended to be mounted to a well-grounded mounting surface, such as a metal panel. The potential difference between any two grounding points must be zero. If the potential difference is NOT zero, the product could be permanently damaged.

Installations with Cable Extended Antennas for Outdoor Applications
If an AWK device or its antenna is installed in an outdoor location, proper lightning protection is required to prevent direct lightning strikes to the AWK device. In order to prevent the effects of coupling currents from nearby lightning strikes, a lightning arrester should be installed as part of your antenna system. Ground the device, antenna, as well as the arrester properly to provide maximum outdoor protection for the device.

System Ground
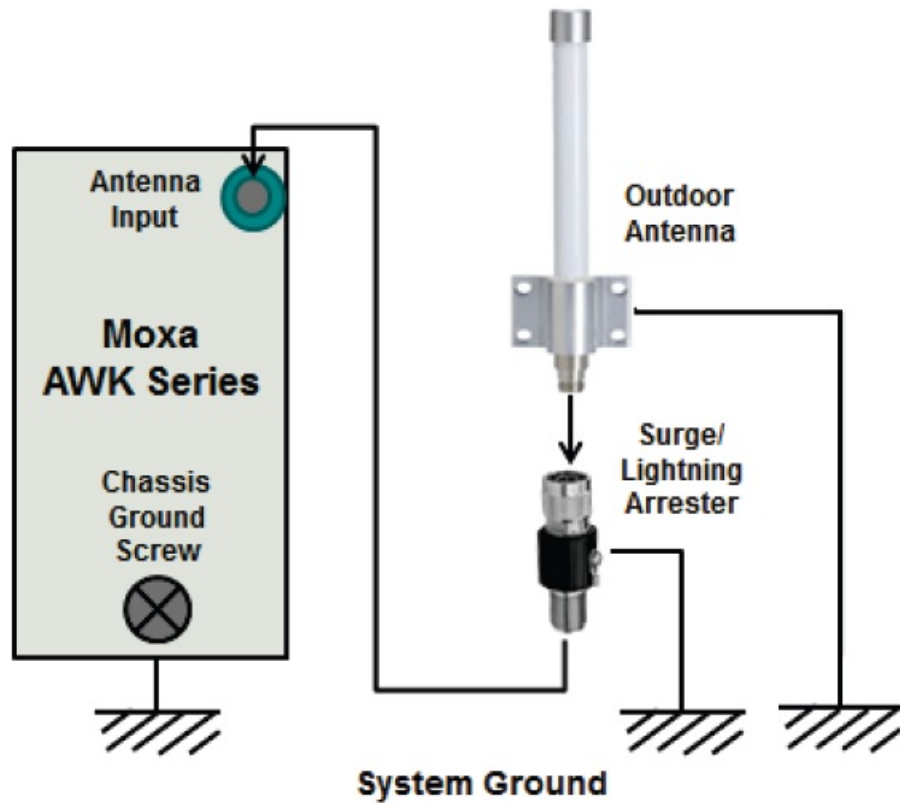
Arrester Accessories

- SA-NMNF-02: Surge arrester, N-type (male) to N-type (female)
- SA-NFNF-02: Surge arrester, N-type (female) to N-type (female)

Terminal Block Pin Assignment
The AWK-1151C comes with a 3-pin terminal block located on the front panel of the device. The terminal block contains the power input and functional ground. Refer to the following figure and table for the detailed pin assignment.
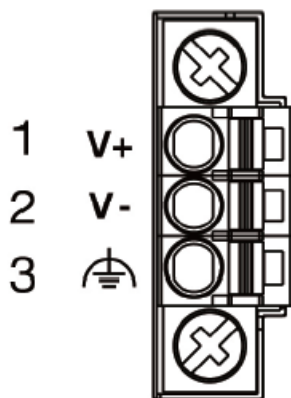
Pin	Definition
1	DC Power Input 1
2	
3	Functional GND

NOTE Before connecting the AWK-1151C DC power inputs, make sure the DC power source voltage is stable.

- The wiring for the input terminal block shall be installed by a skilled person.
- Wire type: Cu
- Only use 16-28 AWG wire size.
- Use only one conductor in a clamping point between the DC power source and the power input.

ATTENTION

If the AWK-1151C is connected to a motor or other similar type of equipment, be sure to use power isolation protection. Before connecting the AWK-1151C to the DC power inputs, make sure the DC power source voltage is stable.
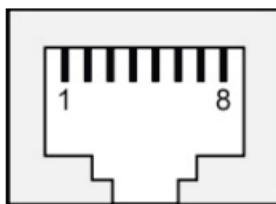
Communication Connections

10/100/1000BaseT(X) Ethernet Port Connection

The 10/100/1000BaseT(X) ports located on the AWK-1151C's front panel are used to connect to Ethernet-enabled devices.

MDI/MDI-X Port Pinouts

Pin	1000BaseT MDI/MDI-X	10/100BaseT(X) MDI	10/100BaseT(X) MDI-X
1	TRD(0)+	TX+	RX+
2	TRD(0)–	TX-	RX-
3	TRD(1)+	RX+	TX+
4	TRD(2)+	–	–
5	TRD(2)-	–	–
6	TRD(1)-	RX-	TX-
7	TRD(3)+	–	–
8	TRD(3)-	–	–

RS-232 Connection

The AWK-1151C has one RS-232 (8-pin RJ45) console port located on the front panel. Use either an RJ45-to-DB9 or RJ45-to-DB25 cable to connect the AWK-1151C's console port to your PC's COM port. You may then use a console terminal program to access the AWK-1151C for console configuration.

Pin	Description
1	DSR
2	NC
3	GND
4	TXD
5	RXD
6	NC
7	NC
8	DTR
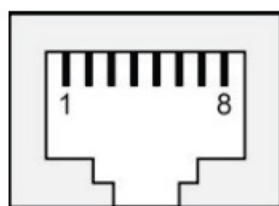
Specifications

Input Current	9 to 30 VDC, 1.57 to 0.47 A
Input Voltage	9 to 30 VDC
Power Consumption	14 W (max.)
Operating Temperature	Standard Models: -25 to 60°C (-13 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)

NOTE To meet the standard for IP30 protection, all unused ports should be covered with the protective caps.

ATTENTION

- The AWK-1151C is NOT a portable mobile device and should be located at least 50 cm away from the human body.
- The AWK-1151C is NOT designed for the general public. To ensure that your AWK-1151C wireless network is safe and configured correctly, consult a well-trained technician to assist with the installation process.

ATTENTION
Use the appropriate antennas for your wireless setup: Use 2.4 GHz antennas when the AWK-1151C is configured for IEEE 802.11b/g/n. Use 5 GHz antennas when the AWK-1151C is configured for IEEE 802.11a/n/ac. Make sure that the antennas are located in an area with a lightning and surge protection system installed.

ATTENTION
Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such

circuits, because they may cause serious injury or death. For proper installation and grounding of the antenna, refer to national and local codes (for example, U.S.: NFPA 70; National Electrical Code (NEC) Article 810; Canada: Canadian Electrical Code, Section 54).

- **NOTE** For installation flexibility, you can use either antenna 1 or antenna 2. Make sure the antenna connection matches the antennas configured in the AWK-1151C web interface.
- To protect the connectors and RF module, all radio ports should be terminated by either an antenna or a terminator. We strongly recommend using resistive terminators for terminating the unused antenna ports.

Certifications FCC/IC Statements

Federal Communication Commission Interference Statement

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
- However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.

Radio Transmitters (Part 15)
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE
This device is restricted to mobile configuration. To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 50 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

CAUTION
Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Professional installation

- This is a specific product that requires professional Installation and configuration, must be performed by trained technical engineers to install the antenna, please contact Moxa for further information.
- The availability of some specific channels and / or operational frequency bands are country dependent and are

firmware programmed at factory to match the intended destination. The firmware setting is not accessible by the end user.

This radio transmitter FCC ID: SLE-WAPC003 has been approved by FCC to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Antenna List

Item	Manufacturer	Model name	Type	2.4GHz Gain	5GHz Gain
1	MOXA	ANT-WDB-ANM-0306	Dipole	3.8	6.3
2	MOXA	ANT-WDB-ANM-0502	Dipole	4.62	1.41
3	MOXA	ANT-WDB-ARM-02	Dipole	2.04	0.38
4	MOXA	ANT-WDB-ARM-0202	Dipole	1.8	1.8
5	MOXA	ANT-WSB-AHRM-05-1.5m	Dipole	5.00	–
6	MOXA	MAT-WDB-CA-RM-2-0205	Dipole	2.5	5.7
7	MOXA	MAT-WDB-DA-RM-2-0203-1m	Dipole	2.45	2.72
8	MOXA	MAT-WDB-PA-NF-2-0708	Panel	7.63	8.77
9	MOXA	ANT-WDB-PNF-1011	Panel	11.00	12.04
10	MOXA	ANT-WDB-ONM-0707	Dipole	7.10	7.6
11	MOXA	ANT-WDB-ONF-0709	Dipole	7.40	8.87
12	MOXA	ANT-WSB5-PNF-16	Panel	–	16.94
13	MOXA	ANT-WSB-PNF-12-02	Panel	12.34	–

Caution:

1. the device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

Caution:
the device for operation in the band 5250–5350 MHz is "for indoor use only".

The user manual for LE-LAN devices shall contain instructions related to the restrictions mentioned in the above sections, namely that:

1. the device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;
2. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;
3. for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-

5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate; and

4. where applicable, antenna type(s), antenna models(s), and worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in section 6.2.2.3 shall be clearly indicated

Canada, Innovation, Science and Economic Development Canada
(ISED) Notices
This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.

2. This device must accept any interference, including interference that may cause undesired operation of the device.

Radio Frequency (RF) Exposure Information

- The radiated output power of the Wireless Device is below the Innovation, Science and Economic Development Canada (ISED) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

- This device has also been evaluated and shown compliant with the ISED RF Exposure limits under mobile exposure conditions. (antennas are greater than 50 cm from a person's body).

Documents / Resources

AWK-1151C Series
Quick Installation Guide
Moxa AirWorks

Technical Support Contact Information
www.moxa.com/support

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[MOXA AWK-1151C Series Industrial Grade Wi-Fi Access Point](#) [pdf] Installation Guide
AWK-1151C Series, AWK-1151C Series Industrial Grade Wi-Fi Access Point, Industrial Grade Wi-Fi Access Point, Grade Wi-Fi Access Point, Wi-Fi Access Point, Access Point, Point

References

- ᵀᴹ **[Moxa - Support](#)**
- **[User Manual](#)**